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Case No: A3/2017/1784

Neutral Citation Number: [2018] EWCA Civ 2344

IN THE COURT OF APPEAL (CIVIL DIVISION)
ON APPEAL FROM CHANCERY DIVISION, PATENTS COURT

Mr Justice Birss

[2017] EWHC 711 (Pat)

Royal Courts of Justice

Strand, London, WC2A 2LL

Date: 23/10/2018

Before :

LORD KITCHIN

LORD JUSTICE FLOYD

and

LADY JUSTICE ASPLIN

- -

Between :

(1)UNWIRED PLANET INTERNATIONAL LIMITED	**Claiman**
(2) UNWIRED PLANET LLC	**Tenth Par Responde**
- and -	
(1) HUAWEI TECHNOLOGIES CO. LIMITED	**Defendar**
(2) HUAWEI TECHNOLOGIES (UK) CO LIMITED	**Appellan**

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Andrew Lykiardopoulos QC and James Segan (instructed by **Powell Gilbert**) for the **Appellants**

Adrian Speck QC, Sarah Ford QC, Isabel Jamal and Thomas Jones (instructed by **EIP and Osborne Clarke LLP)** for the **Respondents**

Hearing dates: 17th May- 23rd May 2018

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Judgment

Lord Kitchin:

1.
This is the judgment of the court to which we have all contributed.

2.
This appeal raises a number of important points of principle concerning the obligation upon the owner of a patent which protects a technology which its owner has declared to be essential to the

implementation of one or more of the telecommunications standards such as 2G-GSM, 3G-UMTS and 4G-LTE. A patent of this kind is called a standard essential patent (a “SEP”).

3.
It is generally accepted that the publication of such a standard supports innovation and growth by ensuring the interoperability of the digital technologies to which it relates. It leads to an increase in the range and volume of products which meet the standard and it allows consumers to switch more easily between the products of different manufacturers. Standards are set by standard setting organisations (“SSOs”). SSOs bring together industry participants to evaluate technologies for inclusion in a new standard, encourage those participants to contribute their most advanced technologies to that standard and promote the standard once it has been agreed. There are various SSOs around the world and each of them operates in much the same way. The SSO with which these proceedings are most concerned is the European Telecommunications Standards Institute (“ETSI”).

4.
As the European Commission has recognised, SEPs can be of great value to their holders. These holders can expect a substantial revenue stream from their SEPs as the standard for which they are essential is implemented in products sold to millions of consumers. This revenue stream is supported by the fact that alternative technologies which do not meet the standard may well disappear from the market. But the potential for anti-competitive behaviour is obvious. The owner of a SEP has the potential ability to “hold-up” users after the adoption and publication of the standard either by refusing to license the SEP or by extracting excessive royalty fees for its use, and in that way to prevent competitors from gaining effective access to the standard and the part of the telecommunications market to which it relates. ETSI and other SSOs therefore require the owners of SEPs to give an irrevocable undertaking in writing that they are prepared to grant licences of their SEPs on fair, reasonable and non-discriminatory (“FRAND”) terms. This undertaking is designed to ensure that any technology protected by a SEP which is incorporated into a standard is accessible to users of that standard on fair and reasonable terms and that its owner cannot impede the implementation of the standard by refusing to license it or by requesting unfair, unreasonable or discriminatory licence fees.

5.
As we shall explain, the negotiation of licences for SEPs on FRAND terms may be far from straightforward, however. The owner of a SEP may still use the threat of an injunction to try to secure the payment of excessive licence fees and so engage in hold-up activities. Conversely, the infringer may refuse to engage constructively or behave unreasonably in the negotiation process and so avoid paying the licence fees to which the SEP owner is properly entitled, a process known as “hold-out”.

6.
In these proceedings, the claimant (“UP International”) sued the Huawei defendants (together “Huawei"), Samsung and Google for infringement of five SEPs in the UK. For reasons to which we shall come in a moment, we are now concerned only with the proceedings against Huawei. The SEPs in issue formed part of a worldwide patent portfolio which UP International and its associated companies had acquired from Ericsson. UP International contended that the five SEPs had been infringed and were essential, and that Huawei, having refused to take a FRAND licence, should be restrained by injunction from further infringement. Huawei responded that the SEPs were neither essential nor valid. It also raised defences and counterclaims based on breaches of competition law, aspects of which were founded upon the contention that UP International and its associated companies had not made an offer to license these patents on FRAND terms.

7.

The dispute was case managed by Birss J into a series of trials. The first group of trials were technical trials concerning the validity of the SEPs and whether they were indeed essential (and so, it could be assumed, infringed). By April 2016 three technical trials had been completed and the parties agreed to postpone any further such trials indefinitely. The outcome of these three trials was that two of the SEPs were found to be both valid and essential. Two other SEPs were found to be invalid.

8.

The final trial came on for hearing before Birss J in late 2016. It was concerned with FRAND licensing and lasted for seven weeks. By this time UP International and its associated companies had settled the proceedings for infringement of the SEPs against Google and Samsung. In the case of Samsung, that settlement was reached in the summer of 2016, relatively shortly before trial. On 28 July 2016 it took a licence ("the Samsung licence") from UP International and the 10th party, Unwired Planet LLC ("UP LLC" and, together with UP International, "UP").

9.

The parties to this final trial were therefore UP and Huawei. Over the course of the preceding two years each had made licensing offers to the other. In April 2014, after proceedings had begun, UP made an open offer to Huawei to license its entire global portfolio of SEPs and non-SEPs. Huawei undertook from the outset of the proceedings to take a licence under any of the UK SEPs which were found to be valid and infringed.

10.

In July 2014 UP made a further offer which related only to its SEPs. In broad terms, it offered to license the use of its SEP technology in connection with the sale of mobile devices and infrastructure which met the 4G-LTE standard at a rate of 0.2%, or which met other standards (that is to say, 2G-GSM and 3G-UMTS) at a rate of 0.1%. This offer was not acceptable to Huawei. We should explain at this point that the terms 2G, 3G and 4G are not strictly interchangeable with, respectively, the terms LTE, UMTS and GSM, but the differences are not material to this appeal and so we draw no distinction between them.

11.

In June 2015 and as a result of directions from the court, each side made further licensing offers. UP offered a worldwide SEP portfolio licence, a UK SEP portfolio licence and per-patent licences for any SEP that Huawei chose. The royalties claimed for per-patent licences or a UK portfolio licence were higher than the global rate on offer which remained at a rate of 0.2% for products meeting the 4G-LTE standard and 0.1% for products meeting other standards. Huawei offered to take a per-patent licence of the UK SEPs only at a collective rate of 0.034% for products meeting the 4G-LTE standard and 0.015% for products meeting the 3G-UMTS standard. It offered nothing for products meeting the 2G-GSM standard.

12.

At the beginning of August 2016 each side made yet further licensing offers. UP again offered a worldwide SEP portfolio licence but at the reduced rates of 0.13% for products meeting the 4G-LTE standard and 0.065% for products meeting other standards. It also offered a UK SEP portfolio licence at the following rates:

i)

for 4G-LTE: infrastructure 0.42%; mobile devices 0.55%; and

ii)
for 2G-GSM and 3G-UMTS: infrastructure 0.21%; mobile devices 0.28%.

13.
Huawei's August offer was on the same UK only per-SEP basis as before but at these revised rates:

i)
for 4G-LTE: infrastructure 0.036%; mobile devices 0.040%;

ii)
for 3G-UMTS: infrastructure 0.015%; mobile devices 0.015%;

iii)
and nothing for 2G-GSM.

14.
On 11 October 2016, on the eve of the trial, Huawei made a new licensing proposal. This increased the per-patent royalties on offer and also proposed a licence under the whole of UP's UK SEP portfolio. The UK portfolio rates were:

i)
for 4G-LTE: infrastructure 0.061%; mobile devices 0.059%;

ii)
for 3G-UMTS: infrastructure 0.046%; mobile devices 0.046%;

iii)
for 2G-GSM single mode: infrastructure 0.045%; mobile devices 0.045%.

15.
In the result, Birss J was faced at the final trial with a large number of issues. He was required to decide whether the licensing terms offered by UP and Huawei, respectively, were FRAND; if they were not, to determine the terms that would be FRAND; and to resolve the competition law defences, and in particular to determine whether UP had abused its dominant position and was therefore barred from claiming injunctive relief as a result of its failure to comply with its FRAND obligations. This allegation of abuse of dominant position had three limbs: first, that UP issued these proceedings without properly specifying its case on infringement or presenting to Huawei a licensing offer of any kind, still less a FRAND offer; secondly, that the rates ultimately demanded by UP were excessive and unreasonable; and thirdly, that UP had improperly sought to bundle together with its UK SEPs all of its SEPs in other jurisdictions by requiring Huawei to enter into a worldwide licence.

16.
Birss J gave his judgment on 5 April 2017 ([2017] EWHC 705 (Pat)). It is long, detailed and careful. His essential findings of relevance to this appeal were these:

i)
Willing and reasonable parties would agree on a global licence, and such a licence was the FRAND licence for a portfolio such as that held by UP and for an implementer like Huawei. UP was therefore entitled to insist on it. It followed that the UK licence offered by Huawei was not FRAND.

ii)

The rates sought by UP were too high and it was appropriate for the court to set the appropriate global FRAND rates between the parties.

iii)
UP was in a dominant position in the relevant market but had not abused that dominant position by pursuing the proceedings in the way that it did.

17.
The judge therefore proceeded to determine the appropriate FRAND rates for a global licence and, in case a higher court might come to a different conclusion on the nature and extent of the FRAND obligation, the appropriate FRAND rates for a UK licence. We should say that the issue of licence rates was one to which a large part of the evidence and submissions of the parties at trial were directed. Subject to the grounds of appeal to which we will come in a moment, the judge's conclusions on this issue are not challenged on this appeal.

18.
A hearing as to the appropriate form of order took place on 19 May 2017. On 7 June 2017 the judge gave a further judgment in which he resolved all the outstanding issues ([2017] EWHC 1304 (Pat)) and his final order was made on that same day. He granted a UK injunction against Huawei until such time as it entered into a global agreement, the terms of which he settled and which he held were FRAND but stayed the injunction pending appeal. Huawei has since undertaken to enter into whatever licence is finally determined to be FRAND in these proceedings.

19.
Huawei now appeals against Birss J's final order with the permission of the judge on the following three grounds. It contends first, that, far from being FRAND, the imposition of a global licence on terms set by a national court based on a national finding of infringement is wrong in principle and leads to results which are manifestly unjust. That is particularly so in the present case, it continues. The judge held that, in order to be FRAND, the licence had to be global and had to include all SEPs owned by UP which it wished to license anywhere in the world. UP LLC was a party to the action only as a defendant to the competition law counterclaims and did not own any UK patents but only patents in other jurisdictions. Despite this, the judge set the global rate and terms of a licence in circumstances where 64% of the money to be paid relates to Chinese patents owned by UP LLC, rather than to any patent owned by UP International. What is more, the judge settled this licence notwithstanding the facts that (a) there was ongoing patent litigation in relation to corresponding patents in Germany and in China, and (b) there were some countries where UP had no relevant patents at all.

20.
Secondly and in the event that the appeal on ground one should fail, Samsung was, on the judge's own finding, a company which was similarly situated to Huawei. In those circumstances, Huawei ought to have been offered the same rates as those reflected in the Samsung licence because the non-discrimination limb of FRAND prohibits a SEP owner from charging similarly situated licensees substantially different royalty rates for the same SEPs. The judge fell into error in failing so to find.

21.
Thirdly and in light of the decision of the Court of Justice of the European Union (the "CJEU") in Case C-170/13Huawei v ZTE [2015] Bus LR 1261, the owner of a SEP cannot, without infringing Article 102 of the Treaty on the Functioning of the European Union (the "TFEU"), bring an action for a prohibitory injunction against an alleged infringer without (a) notice or prior consultation and, if the

alleged infringer has expressed a willingness to conclude a licensing agreement on FRAND terms, (b) offering to that infringer a licence on such terms. In this case, UP sued Huawei without giving any notice of which SEPs were said to be infringed or why, and without having made any licensing offer. That conduct contravened Article 102 TFEU and afforded a defence to the grant of an injunction. In these circumstances the judge ought to have found that this defence had been made out.

22.
We will deal with the three grounds of appeal in turn but must first set out some of the essential features of the FRAND framework.

The FRAND framework

23.
ETSI is recognised by the European Union (the "EU") as the SSO in the EU telecommunications sector. It has counterparts in other countries such as the US, China, Korea, Japan and India. Each of these SSOs has an intellectual property right policy ("IPR Policy"). The principal 2G, 3G and 4G telecommunications standards are overseen or were developed by the 3G Platform Partnership ("3GPP"). 3GPP is a partnership between ETSI and the other SSOs.

24.
The ETSI IPR Policy is set out in annex 6 to the ETSI rules of procedure. It explains, in clause 3, that it is ETSI's objective to create standards and technical specifications which best meet the technical objectives of the European telecommunications sector. It continues that, to further this objective, the ETSI IPR Policy seeks, on the one hand, to reduce the risk to undertakings applying its standards of investment being wasted as a result of the essential intellectual property for that standard not being available; and, on the other hand, to ensure that the owners of an essential intellectual property right are adequately and fairly rewarded for its use.

25.
Article 4.1 of the ETSI IPR Policy requires members of ETSI to inform ETSI of any "ESSENTIAL" intellectual property right ("IPR") in a timely fashion. An ESSENTIAL IPR is defined as an IPR which is necessary from a technical perspective for the implementation of a standard. A SEP is necessarily an ESSENTIAL IPR. Once an ESSENTIAL IPR has been declared by its owner to ETSI then, irrespective of whether that owner is a member of ETSI, it will be requested by ETSI, pursuant to clause 6.1 of the ETSI IPR Policy, to give an irrevocable undertaking in writing that it is prepared to grant irrevocable licences on FRAND terms. Clause 6.1 provides:

"6.1 When an ESSENTIAL IPR relating to a particular STANDARD or TECHNICAL SPECIFICATION is brought to the attention of ETSI, the Director-General of ETSI shall immediately request the owner to give within three months an irrevocable undertaking in writing that it is prepared to grant irrevocable licences on fair, reasonable and non-discriminatory ("FRAND") terms and conditions under such IPR to at least the following extent:

● MANUFACTURE, including the right to make or have made customized components and sub-systems to the licensee's own design for use in MANUFACTURE;

● sell, lease, or otherwise dispose of EQUIPMENT so MANUFACTURED;

● repair, use, or operate EQUIPMENT; and

● use METHODS.

The above undertaking may be made subject to the condition that those who seek licences agree to reciprocate.”

26.
It is important to mention four further points at this stage. First, an undertaking given to ETSI pursuant to clause 6.1 has international effect. This is because the standards supported by the ETSI undertaking are themselves of international effect so that businesses can make and supply, and members of the public can use, products which comply with the standard all over the world. To this end clause 6.2 provides that an undertaking given pursuant to clause 6.1 in respect of a member of a patent family shall apply to all existing and future ESSENTIAL IPRs of that patent family unless there is an explicit written exclusion of specified IPRs at the time the undertaking is given. Indeed, Mr Cheng, the Deputy Director of Huawei’s IP Department, said in evidence that it would make no sense for owners of SEPs to give undertakings restricted to particular national jurisdictions.

27.
Secondly, it was common ground at the trial that UP was bound in law to license its ESSENTIAL IPR on FRAND terms. The ETSI IPR Policy is governed by French law and the judge found (and there is no appeal against his finding) that the FRAND undertaking given by UP was binding upon UP and enforceable by Huawei and, indeed, any third party. The nature of that obligation did not mean that either UP or Huawei could be compelled to enter into a contract against its will, however. It meant that if UP refused to enter into a FRAND licence then the court could and normally should refuse to grant it relief for patent infringement. Conversely, if Huawei declined to enter into a FRAND licence then the relief available for infringement should normally follow.

28.
Thirdly, there was no real dispute at trial as to how FRAND terms should be assessed, at least in general terms. The task of the tribunal is to identify terms which would be fair, reasonable and non-discriminatory. The judge directed himself, correctly in our view, that relevant matters will include what a willing licensor and a willing licensee in the relevant circumstances acting without holding out or holding up would agree upon, general practice in the industry, and any relevant comparables. The evidence of the parties may be helpful, as may evidence from appropriately qualified expert witnesses. It was also agreed that it is appropriate to start by assessing a global rate, effectively as a benchmark, and then, if and so far as it may be necessary and appropriate to do so, to adjust it upwards to arrive at a UK rate.

29.
Fourthly, one of the questions which arose before the judge was whether, for any given set of circumstances, there is only one FRAND rate and, by parity of reasoning, only one set of FRAND licence terms. The judge concluded that there is indeed only one set of terms, including one rate or set of rates, which are truly FRAND. He felt supported in this view by the evidence of the expert economists before him. He also thought it would promote certainty and make the enforcement of the FRAND undertaking conceptually straightforward. It would mean that, for any given situation, a court would be able to hold the parties to their obligations arising from the FRAND undertaking. Both parties would be entitled to insist on the FRAND terms and neither would be entitled to insist on anything other than the FRAND terms. It was, to his mind, the only approach which produced a result which was fair to both the owner of the SEPs and the implementer. We must return to this finding for it is one with which Huawei does not agree.

Ground 1 – global licensing

30.
We must begin by outlining the positions adopted by the parties at trial and the reasons Birss J gave in support of his conclusion that, in the circumstances of this case, a FRAND licence would be of global scope.

The trial and decision of Birss J

31.
As we have seen, the rival positions of the parties before the judge at trial were as follows. Huawei indicated it was willing to take a licence under UP's UK patent portfolio. UP contended that it was entitled to insist upon the grant of a global licence.

32.
Huawei developed its case before the judge in the following way. It argued that it was not FRAND for an undertaking, such as UP, to seek to bundle UK SEPs with non-UK SEPs which could never have been made the subject of an action in this jurisdiction. What was more, it continued, this amounted to an abuse of a dominant position because it was a fundamental principle of EU competition law that a dominant undertaking could not tie or bundle together, with a product or service in respect of which it held a dominant position, some other product or service which did not fall within the same market. It also argued that there was no such thing as a portfolio right; that there was a fundamental difference of principle between bundling all rights enjoyed within a jurisdiction and bundling all rights enjoyed across different jurisdictions; and that the approach for which UP was contending amounted to a form of coercion and was contrary to well-established jurisdictional rules.

33.
Huawei also submitted that some of the particular circumstances of this dispute and aspects of the parties' respective positions made it wholly inappropriate to impose upon it a global licence. Here it advanced the following, among other, arguments: UP did not have SEPs in every country of the world - indeed its portfolio was relatively small and geographically limited; Huawei was making a very considerable volume of sales in South America and South East Asia in respect of which UP had no relevant SEPs; Huawei manufactured handsets in Venezuela and this was a territory in which UP had no relevant SEPs; UP's coverage of 3G-UMTS and 2G-GSM was much weaker than for 4G-LTE; and Huawei was engaged in litigation with UP not just in this country but also in Germany and China on SEPs within the portfolio and that these SEPs might be revoked.

34.
The judge was not persuaded that global portfolio licensing necessarily foreclosed or restricted competition. Indeed, he found that portfolio licensing was common industry practice and had efficiency benefits. It saved transaction costs for both licensors and licensees and obviated the need to determine a royalty on a patent by patent basis. What was more, the vast majority of patent licences before the court were worldwide licences or at least covered a number of different territories. The judge drew the inference from all of the evidence before him that multi-jurisdictional portfolio licences were in and of themselves unlikely to have anti-competitive effects and that a demand for a worldwide licence was not inherently likely to distort competition. He therefore rejected the general submission made to him that worldwide portfolio licences were necessarily and inherently objectionable. They might or might not be, and all would depend upon the circumstances pertaining to each particular agreement and licence.

35.

Turning to the arguments specific to the circumstances of UP and Huawei, the judge began by addressing the contention that UP's SEP portfolio was limited. Here he observed that the portfolio covered most of Europe, Russia, Turkey, China, Japan, much but not all of South East Asia, the USA, Canada, Australia, India and Mexico. He accepted that coverage was limited in Africa, South America and Eastern Europe but he thought that overall the coverage was very wide and, indeed, not very different from that of Huawei.

36.
The judge did not appear to be greatly impressed with Huawei's further points that it was making a very considerable volume of sales, especially of and 2G-GSM and 3G-UMTS equipment in South America and South East Asia where UP had no relevant SEP coverage. Here he observed that it was necessary to consider manufacturing as well as sales and that, subject to Venezuela, this took place in China where there was SEP coverage. As for Venezuela, Huawei's manufacturing facility there put together components which had been made in China.

37.
Nevertheless, the judge did accept that UP's portfolio was much smaller than that of the big manufacturers such as Huawei, Samsung and Ericsson. But, he continued, it was not so small as to justify treatment in a different way from that of a large portfolio. It was still large enough for it to be impractical to fight over every patent. What was more, the small size of the portfolio and the relatively low number of SEPs would be reflected in the FRAND royalty rate.

38.
There followed an assessment by the judge of the impact of these matters upon the geographical scope of a licence that a willing licensor and a willing licensee in the positions of, respectively, UP and Huawei would agree. Here, his findings were unequivocal and merit recitation in full:

"543. Before turning to the impact of the litigation, this is a convenient point to ask what sort of licence for Unwired Planet's portfolio would be FRAND in terms of its geographical scope when applied to a multinational licensee like Huawei? I will start by asking what a willing licensor and a willing licensee with more or less global sales would do. There is only one answer. Unwired Planet's portfolio today is (and in 2014 it was) sufficiently large and has sufficiently wide geographical scope that a licensor and licensee acting reasonably and on a willing basis would agree on a worldwide licence. They would regard country by country licensing as madness. A worldwide licence would be far more efficient. It might well have different rates for different regions and for different standards but that is another matter. The employment of different rates would not lead the parties to abandon a worldwide licence and go for country by country licensing. Assuming the licensee was a Chinese multinational like Huawei, they might well agree on different rates for China as for the Rest of the World but again they would not go for country by country licensing. If the multinational had a significant manufacturing base in another country in which the portfolio was weak, again that could be taken into account.

544. A point arose in the arguments on the terms of the UK only licence which Huawei called a manoeuvre. Unwired Planet insisted that the UK only licence should have a term in it precluding entry into the UK of unlicensed Huawei handsets. This seems to have caught Huawei by surprise but it really should not have done. It was a manifestation of the point that the UK only licence is only a licence under the UK patents. It illustrates one reason why country by country licensing is inefficient for goods like mobile telecommunications devices which will move across borders but I do not regard this as a major point in the present context. It would have to be addressed but that could be done (see

below the section on the UK only licence where it is addressed in context). The real inefficiency of country by country licensing is the effort required to negotiate and agree so many different licences and then to keep track of so many different royalty calculations and payments. No rational business would do this if it could be avoided. ”

39.
That did not necessarily mean that a global licence would be FRAND, however. It might still constitute unlawful bundling. Here the judge made a further important finding that, given the prevalence of worldwide licences and the prevalence of assessment based upon patent families and the obvious inefficiencies of country by country licensing, he was not prepared to assume that the tying by UP of a SEP licence in one country to a SEP licence in another country had, by its nature, a competitive foreclosure effect. He thought that close analysis of the actual effects of such tying activities would be required and that had not been done.

40.
The judge then turned to the other points relied upon by Huawei and reasoned as follows. First, he accepted that there was no such thing in law as a “portfolio right” and that if and in so far as UP wished to pursue claims for infringement of its SEPs it would have to do it in the territories in which they subsisted. But again that did not mean that a global licence was not FRAND.

41.
Secondly, he rejected the submission that there was a fundamental difference in principle between the bundling of all rights enjoyed within a given jurisdiction and the bundling of rights across jurisdictions. It was of course true that there was a risk that the threat of an injunction might function, unfairly and unreasonably, to coerce an undertaking into accepting a global licence; and further, it might also undermine the impact of revocation proceedings in respect of foreign patent rights. But the position changed once a FRAND offer was available. In proceedings for infringement of one or more SEPs, an injunction would only be granted once a SEP had been held by the court to be valid and essential and the FRAND offer rejected. Furthermore, there was nothing to prevent a FRAND licensee from challenging the validity of a licensed SEP in any jurisdiction and the licence could and should include an appropriate mechanism to deal with the outcome of such proceedings.

42.
Thirdly, he held there was no question of this approach contravening any jurisdictional rules. If a worldwide licence was FRAND then requiring Huawei to take it did not amount to an assessment of the validity of any foreign patent. Validity would still be an issue falling within the exclusive jurisdiction of the courts of the territory where that patent subsisted.

43.
Fourthly, it necessarily followed that this approach did not cut across the ongoing litigation in China and Germany. Thus far there had been wins, losses and appeals on both sides, with no final outcome.

44.
The judge then expressed his conclusion in these terms at [572]:

“I conclude that a worldwide licence would not be contrary to competition law. Willing and reasonable parties would agree on a worldwide licence. It is the FRAND licence for a portfolio like Unwired Planet’s and an implementer like Huawei. Therefore, Unwired Planet are entitled to insist on it. It follows that an insistence by Huawei on a licence with a UK only scope is not FRAND.”

The appeal

45.
Upon this appeal Huawei contends that there was only one correct approach to a court determination of what is or is not a FRAND licence in the context of existing proceedings, and it was one the judge failed to adopt. The task of the court was to determine the appropriate relief for infringement of two SEPs. Huawei's offer to enter into a FRAND licence settled by the court which covered all UP's UK rights was sufficient to meet the FRAND undertaking UP had given and, in the absence of agreement, it was inappropriate for a UK court to set rates and impose a licence which extended beyond the UK. The judge's approach is therefore wrong in principle and gives rise to real practical difficulties and inconsistencies; and further, the judge's reasons for adopting a global approach to the determination of the appropriate FRAND licence are flawed.

46.
UP supports the judgment and argues that the judge came to the correct conclusion and that he did so for reasons which are unimpeachable.

The rival approaches

47.
Counsel for Huawei submit that the obligation on the owner of a SEP is to be prepared to grant licences on FRAND terms. But they say there is nothing in the FRAND undertaking which either creates a global portfolio right or which alters the basic legal characteristics of a SEP which is a territorially limited intellectual property right.

48.
Counsel for Huawei accept that SEP owners and implementers may negotiate a licence which suits their requirements in accordance with FRAND principles, and that such a licence will often be of worldwide scope. But, they continue, we are concerned with a different case for it is one in which UP elected to pursue Huawei in the UK and Germany before any negotiations could begin. In these circumstances the issue became one of national patent enforcement. A UK court can only properly determine the infringement and validity of UP's UK SEPs. Further, by giving a FRAND undertaking in relation to those SEPs, UP has given up the right to exclude third parties from the UK market in return for FRAND royalties. It follows that, in light of the FRAND undertaking given by UP, an implementer, such as Huawei, ought to be able to enter the UK market by payment of FRAND royalties in respect of the UK SEPs which protect this market. The purpose of an injunction in relation to a UK patent is, ultimately, to protect a statutory monopoly and it must equate to the statutory right given. In principle, therefore, FRAND royalties should match the territorial scope of the SEP, and of the injunction forgone by the SEP owner. In short, they argue, the legitimate purpose of an injunction in relation to a SEP is to secure the FRAND remuneration for the territory in which that SEP subsists and no other territory.

49.
These submissions are, say counsel for Huawei, supported by the approach taken by courts and decision making bodies in other jurisdictions. Indeed, they continue, the UK court currently stands alone in considering a territorially limited licence to be incompatible with FRAND. In this connection they and counsel for UP have taken us to a series of decisions to which we will come in a moment.

50.

Counsel for UP respond that by giving a FRAND undertaking, a SEP owner comes under an obligation that restricts its ability to enforce its SEPs. It is a single obligation and it is one enforceable by implementers such as Huawei. Absent the restriction, the relief to which the SEP owner would normally be entitled would include an injunction. However, the restriction requires the SEP owner to be prepared to license its SEPs on FRAND terms. That means an implementer is in a position to avoid an injunction by taking the FRAND licence. But the licence is not imposed as a remedy for patent infringement. It is what the SEP owner must be prepared to offer to the implementer, and if the implementer accepts it, he will avoid an injunction. If the implementer does not accept it, then the patentee will obtain the normal relief for infringement.

51.

Counsel for UP continue that the licence which the SEP owner is required to offer need not be limited to the particular SEPs sought to be enforced in the proceedings. In the case of a SEP portfolio with worldwide coverage, a willing licensor and willing licensee would ordinarily agree a worldwide licence and, depending on all the circumstances, such a licence may be and likely will be FRAND. In these circumstances a SEP owner may meet its FRAND obligation by offering a worldwide licence under all of its SEPs. The licensee may seek to challenge the patents in the portfolio but that should not delay the parties entering into the licence, for the licence can incorporate ways of dealing with such a challenge as and when it occurs.

52.

We should say straight away that we accept without question that a UK SEP has limited territorial scope and that courts in this jurisdiction will generally only determine disputes concerning the infringement and validity of UK or EP UK patents. If a UK SEP is found valid and infringed, a UK court will only grant relief in respect of the infringement of that patent. As Aldous LJ explained in Coflexip SA v Stolt Comex[2001] RPC 9 at [18], the injunction must equate to the statutory right given; a right which has been held to have been validly granted and infringed. So the court will only grant an injunction to restrain infringement of the SEP in issue in the proceedings. The same applies to a claim for damages: they will only be awarded for infringement of that SEP.

53.

The position in relation to a FRAND undertaking is rather different, however. As we have seen, ETSI is the SSO for the EU but its standards are of international effect. So too, the FRAND undertaking given by a patent owner to ETSI in return for the incorporation into the standard of the technology protected by the patent is also of international effect. It applies to all patents which belong to the same family irrespective of the territory in which they subsist. This is necessary to protect implementers whose equipment may be sold in a number of different jurisdictions and then used by members of the public who may travel with that equipment from one jurisdiction to another. These implementers must be able to use the technology embodied in and required by the standard provided they are prepared to pay a FRAND rate for doing so, for otherwise the owner of the relevant patent rights would be able to charge excessive licensing fees. So any implementer must be able to secure a licence on FRAND terms under all the SEPs it needs to produce and market its products which meet the standard.

54.

But there is another side to the coin which needs some elaboration at this point. Just as implementers need protection, so too do the SEP owners. They are entitled to an appropriate reward for carrying out their research and development activities and for engaging with the standardisation process, and they must be able to prevent technology users from free-riding on their innovations. It is therefore important that implementers engage constructively in any FRAND negotiation and, where necessary, agree to submit to the outcome of an appropriate FRAND determination.

55.

It therefore comes as no surprise to us that Huawei accepts, through counsel, that, outside the litigation process, SEP owners and implementers will often negotiate a licence which best suits their respective needs in accordance with FRAND principles and further, that this licence will often be global or at least cover a number of different territories. It may be wholly impractical for a SEP owner to seek to negotiate a licence of its patent rights country by country, just as it may be prohibitively expensive for it to seek to enforce those rights by litigating in each country in which they subsist. This latter point was accepted by Mr Cheng in the course of his evidence: he agreed that the costs of such litigation for UP would be impossibly high.

56.

In our judgment these considerations point strongly to the conclusion that, depending on all the relevant circumstances, a global licence between a SEP owner and an implementer may be FRAND. Indeed, on the face of it, it is very hard to see how a contrary view could be justified. Assuming such a licence is not discriminatory, it would be the product of two undertakings acting fairly and reasonably. What is more, it seems to us, at least as a matter of principle, that there may be circumstances in which it would not be fair and reasonable to expect a SEP owner to negotiate a licence or bring proceedings territory by territory and that in those circumstances only a global licence or at least a multi-territorial licence would be FRAND.

57.

Now we must consider the position of a SEP owner who brings proceedings for infringement against an implementer in one jurisdiction in respect of the SEPs which it owns there and makes good its case. If we assume, as Huawei invites us to, that the defendant establishes that a willing licensor and a willing licensee in the position of the parties would agree a FRAND licence in respect of that jurisdiction but the SEP owner refuses to offer it such a licence then we agree that no injunction should be granted. If, on the other hand, the implementer refuses to enter into the FRAND licence for that jurisdiction then the SEP owner can properly seek an injunction to restrain further infringement.

58.

This is only part of the picture, however. We must also consider the position on the basis that a willing licensor and a willing licensee in the position of the parties to the proceedings would agree a global FRAND licence, that such a licence would conform to industry practice and that it would not be discriminatory. If the SEP owner were to refuse to grant such a licence to the implementer then once again it should be denied an injunction. If, on the other hand, the implementer were to refuse to enter into such a licence then, as a matter of principle, we think the SEP owner should be entitled to an injunction in that jurisdiction to restrain infringement of the particular SEPs in issue in those proceedings. Were the position otherwise then the SEP owner seeking to recover the FRAND licence monies for all of the SEPs in the same family from an uncooperative implementer who is acting unreasonably would be required to bring proceedings in every jurisdiction in which those rights subsist, which might be prohibitively expensive for it to do. This result would not involve any alteration of the territorially limited characteristics of any SEP; nor would it involve any jurisdictional expansionism. To the contrary, it would amount to a recognition by the court (i) that the SEP owner has complied with its undertaking to ETSI to offer a licence on FRAND terms; (ii) that the implementer has refused or declined to accept that offer without any reasonable ground for so doing; and (iii) that in these circumstances the SEP owner is entitled to the usual relief available for patent infringement including an injunction to restrain further infringement of the particular SEPs in issue in the proceedings.

59.

That brings us to the approach adopted by courts and other decision making bodies to which Huawei and UP have referred us. We begin with the decision of the European Commission in Motorola (Case AT.39985) which was issued on 29 April 2014. This is perhaps the high-water mark of Huawei’s case. Here the issue for the Commission was whether Motorola had infringed Article 102 TFEU (and Article 54 of the Agreement on the European Economic Area (the “EEA Agreement”)) by seeking and enforcing an injunction against Apple before the German Federal Court in respect of Apple’s infringement of one of its German SEPs relating to the GPRS standard. In the course of those German proceedings Apple offered to take a licence for the territory of Germany under all of Motorola’s SEPs for a number of standards on terms to be settled by the German courts, if necessary. Motorola argued that this offer was not FRAND for a number of reasons, one of which was that the licence was not worldwide and only covered Germany. The Commission rejected Motorola’s arguments. It found that Apple’s offer was FRAND, that Motorola’s pursuit of an injunction was not necessary to protect its commercial interests, and in particular its right to obtain appropriate remuneration for Apple’s use of its telecommunication SEPs in Germany, and that Motorola’s position was adequately protected by the opportunity to secure a judicial determination of FRAND royalties and the payment of damages through action before the German courts. The Commission concluded that in the exceptional circumstances of the case and in the absence of an objective justification, Motorola had abused its dominant position by seeking and enforcing an injunction against Apple on the basis of its German GPRS SEP.

60.

The judge thought this decision was firmly in Huawei’s favour but that it was based on the view that a licence limited to Germany was FRAND. We agree with him. That is the basis of the decision. But we are not persuaded that the Commission was expressing a concluded view that in other circumstances a worldwide licence would not be FRAND. Indeed the Commission said in terms (at, for example, [437]) that Motorola had not advanced any credible arguments as to why, in light of the offer Apple had made, the pursuit of an injunction was necessary to protect its legitimate commercial interests, implying that, in another case, the position might be different. Be that as it may, if it was the view of the Commission then it is one it has since modified. This is apparent from a communication from the Commission, the Council and the European Economic and Social Committee dated 29 November 2017 (COM (2017) 712 final) (“the November 2017 EU Communication”). Here it is emphasised, so far as relevant to this ground of appeal, that once a standard has been established and the owners of the relevant SEPs have given an undertaking to license them on FRAND terms, the technology should be available to any potential user and that smooth licensing practices are essential to guarantee fair, reasonable and non-discriminatory access to that technology and to reward SEP owners so they continue to invest in research and development and standardisation activities. In this connection the Commission set out some key principles to foster a balanced, smooth and predictable framework for SEPs licensing. It is explained (at page 6) that there is no one-size-fits-all solution to what FRAND is and that what can be considered fair varies from sector to sector and over time. Then, at section 2.2, it continues:

“2.2 EFFICIENCY AND NON-DISCRIMINATION

The non-discrimination element of FRAND indicates that rightholders cannot discriminate between implementers that are 'similarly situated'.

Given that FRAND is not one-size-fits-all, solutions can differ from sector to sector and depending on the business models in question.

As mentioned above, FRAND negotiations imply good faith negotiations from both parties. Efficiency considerations can come into play as well. Transaction costs relating to the negotiation of a licence should be kept to the minimum necessary. Furthermore, in sectors where cross-licensing practices are widespread, efficiency gains related to such practices should be taken into account. These points need to be taken into account when assessing on a case by case basis whether a licensing offer is compatible with FRAND.

In line with the approach presented above, the Commission considers that the same principles of efficiency support the practice of SEP portfolio licensing for products with global circulation. As noted in a recent ruling, a country-by-country licensing approach may not be efficient and may not be in line with a recognised commercial practice in the sector."

61.
Here the Commission has expressly recognised the need when assessing whether a licensing offer is FRAND to take into account the circumstances of the particular sector in issue and to have regard to, among other things, the practice in that sector, the importance of non-discriminatory licensing and efficiency considerations. The Commission has also referenced the decision of Birss J the subject of this appeal as an illustration how these principles of efficiency may support the practice of portfolio licensing for products with a global circulation, and that a country-by-country approach may not be efficient or conform to the recognised practice in the sector. Then, in section 2.4, it is said in terms in a summary table that:

"For products with a global circulation, SEP licences granted on a worldwide basis may contribute to a more efficient approach and therefore can be compatible with FRAND."

62.
Counsel for UP rely upon two decisions in the German Regional Courts which they say, and we agree, are consistent with the approach explained in the November 2017 EU Communication. Both decisions were appealed but it is our understanding that, in each case, no adverse comment was made about the reasoning to which we refer on this issue.

63.
In Pioneer v Acer 7 O 96/14, a decision of the Regional Court of Mannheim given on 8 January 2016, the proprietor of a German SEP sought an injunction to restrain the defendant from infringing its patent. The claimant offered to grant a worldwide portfolio licence to the defendant's parent company, but the defendant was only prepared to take a licence in respect of claimant's German patent rights. The decision is one to which we must return in addressing the third ground of appeal but for present purposes we can limit our observations to the court's consideration of the geographical scope of a FRAND licence. The court explained that the course of behaviour required by the jurisprudence of the CJEU had the aim of leading the parties to enter into licence agreements which conformed to customary practice in the business area in issue; and further, that it was the experience of the court that the usual practice of parties such as those before it, where the claimant had SEPs in different countries and the group of which the defendant was part was active in a number of those countries, to agree a worldwide portfolio licence with the group parent company rather than a series of licences for different territories. The court also explained that if the defendant's offer to take a licence only in respect of Germany were accepted, the claimant would be forced to go separately to each country in which its rights subsisted to enforce those rights; and that the defendant's behaviour was not that of a

reasonable licensee. The court held that in these circumstances the defendant's offer to take a licence in respect of the claimant's German patent rights was not FRAND.

64.
Just a little while later, on 31 March 2016, the District Court of Düsseldorf gave judgment in the case of St Lawrence v Vodafone 4a 073/14. Here the claimant sued the defendant for infringement of a SEP in the area of broadband language encoding and transmission, and it offered to license this patent and its family members around the world to the defendant in a portfolio licence. This is another decision to which we must return in considering the third ground of appeal but, in the same way as the decision in Pioneer v Acer, we think it also gives a useful insight into the current approach of the German courts to portfolio licensing. The court observed that, in assessing whether a worldwide portfolio licence is FRAND, it is relevant to consider the practice in the industry; that if such worldwide portfolio licences are the normal practice then an offer of such a licence will be FRAND unless the circumstances of the case justify a different conclusion; and that a patent proprietor has a legitimate interest in controlling all of the activities of a group of companies implementing its patented technology around the world, instead of having to negotiate licences or pursue proceedings country by country.

65.
Counsel for Huawei have placed reliance on three decisions of the US District Court. The first, In re Innovatio IP Ventures LLC Case No 11 C 9308, 2013 WL 5593609 (N.D. 1:11), was a decision of District Judge Holderman given on 3 October 2013 in the US District Court for the Northern District of Illinois, Eastern Division, in proceedings in which Innovatio sued various users of wireless internet technology for infringement of a number of its US SEPs. After discovery but before claim construction, the parties and the court agreed that the best course would be for the court to evaluate the potential damages available to Innovatio in the event the defendants were found to infringe. The court determined the RAND rate for the licensing of those US SEPs. However, there is no suggestion in the report that either side contended for any other approach.

66.
The second, Realtek Semiconductor Corporation v LSI Corporation Case No C-123451-RM, LSI, was a decision of District Judge Whyte given on 16 June 2014 in the US District Court, Northern District of California, San Jose Division. Here Realtek began proceedings asserting that LSI had breached their RAND licensing obligations by beginning proceedings for infringement before approaching Realtek with a RAND licensing offer. One of the issues addressed in this particular decision was whether a jury's earlier finding of the RAND royalty rates for two of LSI's SEPs was sustainable. There is no suggestion in this decision that the geographical scope of a RAND licence was ever in issue.

67.
The third, Apple Inc v Qualcomm Inc Case No 3:17-cv-00108-GPC-MDD, was a decision of District Judge Curiel given on 7 September 2017 in the US District Court, Southern District of California in proceedings brought by Apple against Qualcomm in respect of its use of various Qualcomm SEPs for the 3G-UMTS and 4G-LTE standards. This particular decision addressed a request by Qualcomm for an anti-suit injunction preventing Apple from pursuing the various foreign claims it had also instigated on the basis that they were duplicative of the claims before the US court in which that court would determine whether Qualcomm had satisfied its global FRAND commitment to ETSI and to Apple. In those foreign proceedings Apple was seeking, among other things, declarations that certain SEPs subsisting in at least some of the territories the subject of those proceedings were invalid and that

Qualcomm had engaged in actionable anti-competitive behaviour. But in none of those foreign proceedings did Apple seek a determination of a FRAND rate for Qualcomm's global patent portfolio.

68.
Judge Curiel refused the application essentially on the basis that the global FRAND issue would not dispose of the foreign proceedings because Apple was seeking in those proceedings, among other things, to challenge the validity of Qualcomm's patents and Qualcomm's licensing practices under foreign competition and anti-trust laws. It was in that context that the court observed (at page 22) that Apple was not obligated to accept a worldwide FRAND licence from Qualcomm and (at pages 25-26) that Apple were adopting a reasonable strategy in wanting to verify that Qualcomm's patents were valid and essential before agreeing to take a licence under the global portfolio. However, the court did not decide that it did not have authority to adjudicate on Qualcomm's claim for a global FRAND determination. Indeed the court made it clear (in footnote 5 on page 18) that it was not deciding that issue on the application before it.

69.
We should also mention for completeness Microsoft Corporation v Motorola Inc Case C10-1823JLR, 2013 US Dist LEXIS 60233, a decision of District Judge Robart given on 25 April 2013 in the US District Court, Western District of Washington at Seattle in proceedings brought by Microsoft against Motorola in which it claimed that Motorola had made unreasonable offers to license its patents to Microsoft at RAND rates and thereby acted in breach of its RAND commitments. Here the court determined a RAND licensing rate and range for a global licence of Motorola's SEP portfolio but the decision contains no analysis of the reasonableness or otherwise of the adoption of a global licensing approach.

70.
We have also been referred by counsel for Huawei to the decision of the US Court of Appeals for the Federal Circuit in Ericsson v D-Link 773 F.3d 1201 (Fed Cir 2014). Ericsson had sued D-Link and various other implementers for infringement of three US patents which it claimed were SEPs for inventions in the field of Wi-Fi technology. The case progressed to a jury trial where it was found that D-Link had infringed certain claims of each of the three patents and awarded damages on the basis of a unit sum per infringing device. On appeal D-Link argued that the District Court had erred in a series of respects and had, among other things, failed properly to direct the jury about how to arrive at a royalty award and the appropriate factors to take into account. The court found that the district court had indeed fallen into error by failing to instruct the jury: adequately about the RAND commitment; that the royalty must be apportioned from the value of the standard as a whole; and that the rate must be based upon the value of the invention and not the value added by the standardisation of the invention; and by instructing the jury to consider certain irrelevant factors.

71.
Counsel for Huawei argue that the approach adopted in Ericsson v D-Link is entirely inconsistent with the global portfolio approach for which UP contends. We disagree. So far as we have been able to ascertain, the issues which arise before us in this appeal were not considered by the District Court or the Court of Appeals.

72.
Counsel for Huawei also rely upon the decision of the IP High Court of Japan given on 16 May 2014 in Samsung v Apple No 2013 (Ne) 10043. Here the court found that certain models of Apple's iPhone and iPad infringed one of Samsung's Japanese SEPs in respect of which Samsung had given a FRAND

undertaking. The court held that a party which has given a FRAND undertaking should be restricted from exercising the right to seek an injunction against a party willing to enter into a FRAND licence agreement. We detect no inconsistency between this decision and the principles we have explained. There was no suggestion the court found or was asked to find that a global portfolio licence cannot be FRAND.

73.
The final court decision to which we have been taken by counsel for Huawei on this issue is that of the Guangdong High People's Court in Huawei v InterDigital (2013) Guangdong High Ct. Civ. Third Instance No 305. By way of background, IDC and Huawei had negotiated for a considerable period of time over the terms of a licence by IDC to Huawei of its patent rights. No licence was agreed, however. In 2011 IDC began patent infringement proceedings against Huawei in Delaware. Later in 2011, Huawei began proceedings in China against IDC seeking a determination by the court of the FRAND royalty rate for a licence by IDC to Huawei under IDC's Chinese SEPs. One of the issues before the Chinese court was whether various earlier offers IDC had made to Huawei to license its patent rights on a worldwide basis were FRAND. The trial court settled the royalty rate of a licence under IDC's Chinese SEPs. It also found that none of those earlier offers was FRAND, but not because each was an offer of a worldwide licence. Indeed, it appears the trial court thought that a worldwide licence of IDC's SEPs would be both reasonable and feasible. On appeal, the High People's Court upheld the decision of the trial court. Again, however, it did not make any finding or make any observation to the effect that a worldwide licence could not be FRAND.

74.
We therefore reject the submission made to us by counsel for Huawei that the approach adopted by Birss J in these proceedings loses sight of the territorial nature of patent proceedings and does not accord with the approach taken in other jurisdictions. It is true that Huawei's position derives support from the decision of the Commission in Motorola but the views of the Commission as expressed more recently in the November 2017 EU Communication are in our view both consonant with the approach of the judge and consistent with the other decisions to which we have been taken and which we have summarised. So we must now turn to the other criticisms of the judge's approach and the practical difficulties to which it is said to give rise.

Is the judge's approach wrong in principle?

75.
Huawei contends that the judge's approach is wrong in principle for three reasons:

i)
it pays insufficient heed to the principle of comity or to the appropriate limitations on the exercise of the court's powers in cases touching on foreign patents;

ii)
it necessarily and wrongly presumes infringement of at least some valid SEPs in territories outside the UK; and

iii)
it is contrary to public policy and disproportionate.

76.

We will address these points in turn and will begin with comity and the limits of the court's powers in relation to foreign patents. Counsel for Huawei have developed this in the following way. They argue that it is well established by authority at the highest level that the courts of this country must respect the sovereignty and autonomy of other states. Further, the courts of this country do not adjudicate on the validity of foreign patent rights and so they ought not to grant relief of what amounts to damages and royalties under those rights, save with the agreement of the parties. In particular, they continue, the courts of this country should not usurp the right of a foreign court to set the terms and rates which apply in the foreign court's market and in respect of the corresponding foreign monopoly rights.

77.
Counsel for Huawei continue that these fundamental points are not merely theoretical considerations for two reasons: first, the effect of Huawei entering into a global licence on the terms settled by the judge would bring to an end the purpose of ongoing litigation in China and Germany, and this would amount to indirect interference with foreign litigation relating to foreign property; and secondly, different jurisdictions have adopted materially different approaches to the assessment of FRAND (and RAND) royalty rates for their own jurisdictions. On this second issue counsel point to the decisions of the US courts in Microsoft v Motorola, In Re Innovatio and Ericsson v D-Link, in each of which it was held that it was inappropriate to award to the patentee any part of the value attributable to incorporation of a patent in the relevant standard, a view with which the judge disagreed; and to the decisions of the Chinese court in Huawei v InterDigital and the Higher Regional Court of Düsseldorf in Sisvel v Haier 66/15 OLG Dusseldorf, 15 March 2017, in which approaches were taken on the issue of non-discrimination which differ from those of the judge.

78.
In the result, counsel for Huawei continue, Birss J has determined and required back payment of damages and ongoing royalties for the whole world, including the US, China and Germany, on a different basis from that which the competent courts of those jurisdictions would have adopted had they been faced with an infringement case in respect of the SEPs subsisting in those territories. They say there is no justification for such an approach and that it overrides the jurisdiction of those courts.

79.
In our judgment, these submissions confuse and elide two separate but related matters: first, the scope of these proceedings for patent infringement, and secondly, the scope and effect of the undertaking UP has given to ETSI. The only patent rights in issue in these proceedings have been SEPs that UP owns in this jurisdiction. The judge has found in the technical trials that two of those SEPs are valid and essential and it follows that Huawei's activities in this jurisdiction have amounted to an infringement of them. The judge has made no finding as to the validity or essentiality of any SEP in any other jurisdiction.

80.
The next matter is the meaning and effect of the undertaking that UP has given to ETSI in relation to the SEPs in its patent portfolio, wherever those rights may be situated. This is a single undertaking, the construction, validity and enforcement of which are governed by French law. As we have explained, the judge decided, as he was entitled to decide, that this undertaking is enforceable by third party implementers and it requires a SEP owner to grant a licence to any such implementer under its SEPs on FRAND terms. One of the critical questions for the judge in this trial was what those FRAND terms were for a licence by UP to Huawei and, in particular, whether UP was required by its undertaking to grant to Huawei a licence under its SEPs territory by territory or whether it

could meet its obligations to ETSI by offering to Huawei a worldwide licence. The judge decided this issue in favour of UP. In doing so he was not adjudicating on issues of infringement or validity concerning any foreign SEPs. Nor was he deciding what the appropriate relief for infringement of any foreign SEPs might be. He was simply determining the terms of the licence that UP was required to offer to Huawei pursuant to its undertaking to ETSI. It was then a matter for Huawei whether it was prepared to take that licence, and to do so in its full scope. It could not be compelled to do so, and if it chose not to, the only relief to which UP would be entitled would be relief for infringement of the two UK SEPs the judge had found to be valid and essential.

81.

We therefore reject the submission that the judge has in some way usurped the right of foreign courts to decide issues of infringement and validity of patent rights subsisting in their respective territories, or of the appropriate relief to be granted if infringement is established. Similarly, we do not accept that the judge's approach pays insufficient heed to the principle of comity.

82.

We are also not persuaded that the judge's approach creates practical problems in the manner for which Huawei contends. The judge made clear that a FRAND licence should not prevent a licensee from challenging the validity or essentiality of any foreign SEPs and should make provision for sales in non-patent countries which do not require a licence, and so proceedings such as those between these undertakings in Germany and China are not rendered purposeless.

83.

It may be true that the approaches of courts around the world to the assessment of royalties under a worldwide licence are not at present wholly aligned but this is not surprising given the developing nature of this jurisdiction. We also consider it relevant that, subject to the discrimination issue the subject of ground two of the appeal, no challenge is made in this appeal to the royalty rates and the basis for their assessment which the judge found to be FRAND in all the circumstances of this case. As for the two particular instances of allegedly divergent approaches, it was common ground between the parties' expert economists, Professor Neven and Dr Niels, that the FRAND scheme did not mean that a patentee could not appropriate some of the value associated with the inclusion of its technology into a standard and the value of the products using the standards, and neither side disputed this. The judge recognised that he might be differing from certain parts of the decisions in In Re Innovatio and Ericsson v D-Link but since neither side was taking the point it was not necessary for him to look into it further. The second area of divergence is said to be in relation to discrimination and this is a topic we address under ground 2 of the grounds of appeal. Suffice it to say at this stage that neither of these areas of divergence leads us to think the judge has fallen into error as a matter of principle.

84.

Huawei's second point under this head is that the judge's approach necessarily and wrongly presumes infringement of at least some valid SEPs in territories other than the UK. It contends that a party that agrees to a global licence or the assessment of such a licence may have effectively consented to forgo its right to challenge the validity and essentiality of the patents owned by the prospective licensor. But a court ought not to compel a party to do so, particularly since it is well known that courts in different jurisdictions have different approaches to issues of infringement and validity and in any event do not always come to the same conclusion.

85.

Counsel for Huawei have developed this point by focusing on the position in China and Germany. As for China, they say, entirely fairly, that UP only has five relevant SEP families in China and yet it is of critical importance to Huawei. It is not only Huawei's largest market but, in addition, it is where Huawei manufactures the products it sells in China and around the world, including territories where UP has no patent rights at all. Indeed, they continue, the total proportion of Huawei's sales in respect of which UP's claim to a royalty depends on infringement by manufacture or sale in China is about 64%; and correspondingly, if Huawei does not infringe any valid Chinese SEPs, there is no basis for demanding a royalty on those sales.

86.
The same point can be made about Germany, argue Huawei's counsel. Thus far, the outcome of the proceedings in Germany is that UP has failed to establish infringement by Huawei of any German SEP for 4G. But the effect of the licence settled by the judge is that Huawei must pay licence fees for Germany at the rate the judge has determined.

87.
Counsel for Huawei also submit that the unfairness of the position is also highlighted by the terms of the judge's licence in respect of past sales. Huawei must take a licence globally from January 2013, the time it started the activities complained of. In effect, therefore, Huawei must pay what amount to back damages on global manufacture and sales on the strength of a finding of infringement of two UK SEPs only and in circumstances where there is ongoing litigation in Germany and China. This, they say, is neither fair nor reasonable.

88.
We do not accept that the judge's approach wrongly assumes validity and infringement of UP's foreign SEPs or that a licensee is required to forgo its right to challenge the validity and essentiality of those SEPs. To the contrary and as we have explained, the judge stated in terms that a FRAND licence should not prevent a licensee from challenging the validity and essentiality of licensed patents and should make provision for sales in non-patent countries. It is of course true that the licence provides for payment of royalties in respect of the use by Huawei of UP's whole portfolio of SEPs but the alternative would be to require UP to bring proceedings in each territory in which its SEPs subsist. That is not how a reasonable and willing licensor and licensee in the position of, respectively, UP and Huawei would behave; it would be a blue print for hold-out; and, as Mr Cheng accepted, the costs of such litigation for UP would be prohibitively high. So the outcome would be that, as a result of its FRAND undertaking, UP would not be able to secure an injunction in any jurisdiction and would not be able to secure payment of royalties for those jurisdictions in which it could not afford to bring proceedings.

89.
As for the position in China and Germany, we have no difficulty accepting that China is a territory of particular importance to Huawei and that Germany too is a significant market. But here it is important to have firmly in mind that the mechanism arrived at by the judge for dealing with the position in different countries is not challenged on this appeal. Counsel for UP helpfully summarised that mechanism in the following terms which we do not understand to be contentious:

i)
The royalty rate is tied to the country where Huawei sells its equipment.

ii)

The rate applicable will be at one of two levels (either at a higher or lower rate) which depends on the extent of patent protection in a given territory.

iii)
China receives special treatment and the royalty rate is the lower tier regardless of the extent of patent protection in China.

iv)
Adjustments are made annually to which territories are in the upper and lower tiers to take account of any change in the patent landscape.

v)
Royalties are payable in respect of sales in territories where there are no patents at the lower (Chinese) rate because the equipment is manufactured in China.

90.
We agree that the effect of the licence is that Huawei must pay royalties in respect of manufacture and sales in China and sales in Germany in accordance with this mechanism. But this provides no foundation for the submission that the judge has erred in principle in deciding that a willing licensor and licensee in the position of the parties would have agreed a global licence.

91.
The third argument advanced by Huawei is that the judge's approach is contrary to public policy, and that is so for four reasons. First, there is a clear public policy that parties ought to attempt to negotiate a licence before they begin proceedings, and UP's failure to do so is a matter of which the judge took no proper account. To the contrary, his approach in settling the terms of a global licence which Huawei is obliged to take despite UP not having approached it before beginning proceedings is one which encourages a race to sue.

92.
Secondly, the judge's approach encourages over-declaration of patents as SEPs. Over-declaration is a substantial problem as illustrated by the judge's assessment that up to 72% of declared SEPs are not truly essential.

93.
Thirdly, the judge's approach frustrates the obvious public policy enshrined in the competition rules which preclude an obligation to pay licence fees on patents which have been granted in error without there being any opportunity to terminate the licence that contains that obligation.

94.
Fourthly, the judge's approach flies in the face of the policy of Directive 2004/48/EC of the European Parliament and of the Council of 29 April 2004 ("the IP Enforcement Directive") which requires relief for patent infringement to be proportionate and that it be applied in such a way as to avoid the creation of barriers to legitimate trade. To be proportionate it must pursue a legitimate objective, be suitable or appropriate to achieve that objective, and go no further than necessary. Here counsel for Huawei argue that UP had a legitimate objective in pursuing these proceedings, namely to secure the payment of royalties for infringement of its patents in the UK. But Huawei undertook to take a FRAND licence in respect of the UK, and did so on the first occasion on which it was offered a licence on FRAND terms. In these circumstances it was neither necessary nor proportionate for the judge to impose an injunction.

95.
We can deal with these points quite shortly. The first is founded upon the decision of the CJEU in Huawei v ZTE which we consider in detail addressing the third ground of appeal. We agree that this decision imposes upon SEP proprietors an obligation to comply with specific requirements when bringing actions against alleged infringers for injunctive relief. But we do not accept that the imposition of these requirements or the fact that a SEP owner may fail to comply with one or more of them undermines the approach adopted by the judge as a matter of principle.

96.
As for the second point, we recognise the existence of the practice of over-declaration and we acknowledge that it is a problem. The judge described it in his judgment at [201] to [202]. In summary, very many more patents are declared to be essential than are truly essential and the fact that royalty rates are negotiated by counting patents creates an incentive to over-declare. In the end, there was no real dispute between the parties to these proceedings as to the number of truly relevant SEPs in UP's portfolio; but the parties were a long way apart on the number of truly relevant SEPs in the market as a whole, and this was the subject of a good deal of evidence which the judge evaluated in considerable detail. However, we do not accept that the practice of over-declaration undermines the judge's approach to FRAND licensing. His approach was based upon the facts that in the real world and despite over-declaration, patent licensing generally relies upon patent counting, adjustments are made to take into account essentiality and, as the judge found at [201], no-one tries to take account of validity. Further and as we have seen, depending on the size and extent of the SEP owner's portfolio and the nature and extent of the prospective licensee's business, the parties to such negotiations will usually agree global (or at least multi-territorial) portfolio licences because it is so inefficient to negotiate and operate licences territory by territory. In these circumstances, any public policy considerations around over-declaration could not begin to justify a departure from normal practice in a FRAND determination of the kind which the judge was required to carry out; nor could it justify condemning SEP owners such as UP with large portfolios to impossibly expensive litigation in every territory in respect of which they seek to recover a royalty.

97.
The third point is no more persuasive than the second. The judge has found that the licence he has settled conforms in its scope to normal practice in the industry. What is more, such licences do not guarantee revenues based on patents granted in error for licensees can challenge the validity and the essentiality of each of the licensed SEPs.

98.
The fourth point is equally unmeritorious. The legitimate objective of UP in pursuing the proceedings in this country was first, to establish infringement of its UK SEPs; and secondly, to determine the scope and terms of the FRAND licence it was required to offer to Huawei. It has always taken the position that in all the circumstances a FRAND licence would be a worldwide licence under its whole SEP portfolio and that if it were correct, it would insist on Huawei taking such a licence if it wished to avoid an injunction. The judge having found in UP's favour on this issue, it became a matter for Huawei whether to accept the licence. In these circumstances there was nothing unnecessary or disproportionate about the approach taken by the judge. Huawei stood before the court without a licence, but it had the option of taking one.

99.
For all of these reasons we reject the submission that the judge's approach was wrong in principle.

Does the judge’s approach create significant practical problems?

100.
Huawei contends that the judge’s approach will lead to significant practical problems and inconsistencies and that many of these are illustrated by the global licence he has settled.

101.
Counsel for Huawei have developed this contention as follows. In summary, they submit: if any court can set a global rate then there will be a race between the SEP owner and the implementer to choose what each perceives to be the most favourable jurisdiction, with the likelihood of anti-suit injunction applications; there may be a divided system with some courts settling global licences and others not; the position of the parties in relation to cross-licensing will become impossible; implementers may be faced with the threat of injunctions which effectively deprive them of their ability to defend their FRAND positions before the courts of the territories where the relevant SEPs subsist; courts will set rates for SEPs over which they have no jurisdiction; the judgment of a single court in a jurisdiction in which an implementer does not wish to litigate may create a res judicata as between it and the SEP owner in relation to the terms of a global licence, and this might be very unfair; SEP owners will be able to choose which SEPs to include in a global licence to be settled by the court as it suits them; and the judge’s approach will increase the costs of implementers doing business in the UK.

102.
Counsel for Huawei then point to the global licence settled by the judge. They submit this guarantees global revenues regardless of whether any underlying rights in major jurisdictions have been found to be valid or infringed. In particular, they continue, UP does not now need to assert any rights in China, where Huawei manufactures and makes most of its sales. Further, if Huawei revokes all of UP’s patents in China, it must still pay royalties in respect of that territory.

103.
There are other problems, they continue. UP LLC has never made a claim yet it now has a licence worth tens of millions of dollars as a consequence of the judge’s approach to global portfolio licensing. On the other hand, had it not wanted to participate it could not have been compelled to do so. What is more, it could never have brought a claim for infringement in the UK because it does not own any UK SEPs.

104.
We do not find these arguments persuasive. The judge was required to determine the meaning and effect of the FRAND undertaking which UP had given and Huawei was seeking to enforce. That is what he proceeded to do. He found that, having regard to the parties and in all the circumstances of this case, UP’s undertaking to ETSI would be met by offering Huawei a global licence in respect of all of its SEPs on the terms he settled. We do not accept that this approach is likely to cause any problems of a kind with which commercial courts around the world are not familiar or which might impact upon the meaning and effect of the undertaking UP has given to ETSI. It is true that a court in one country will decide, as between the parties, whether a global or multi-territorial licence is FRAND but that is inevitable and we see nothing unfair about it, and it most certainly does not deprive a licensee from challenging the validity and essentiality of the SEPs in any jurisdiction where it may choose to do so.

105.
As for the particular licence settled by the judge, we recognise that, if Huawei accepts that licence, it must pay royalties in accordance with its terms. But there is nothing extraordinary about that. So too

must the licensees under all the global licences that other undertakings in the global telecommunications sector have agreed, and it is what reasonable undertakings in the position of the parties would have agreed. Huawei is also wrong to suggest it is compelled to take the licence. It is not, and if chooses not to do so then the only relief to which UP will be entitled will be the normal relief available to a successful patentee in this jurisdiction.

106.
There is nothing in the argument about UP LLC either. This is not a point which was taken before the judge and rightly so. It would be absurd if affiliated companies could game the system by dividing a portfolio of SEPs between them, and the undertaking given to ETSI makes it clear they cannot. It is made on behalf of affiliated companies and it applies not just to the declared patents but also to the families of patents to which the declared patents belong.

Are the judge’s reasons in favour of a global approach well-founded?

107.
Huawei then attacks three aspects of the judge’s reasoning in arriving at the licence he held to be FRAND. We will take them in turn.

108.
First, it attacks the judge’s findings at [543] and [544] which we have set out at [38] above. In short, the judge held here that the size and scope of UP’s patent portfolio and the multinational nature of Huawei’s business were such that a willing licensor and licensee acting rationally and reasonably would agree a worldwide licence. Indeed, the judge continued, the alternative, country by country licensing, would be “madness” and something that “no rational business would do if it could be avoided”.

109.
In this connection counsel for Huawei repeat their submission that the judge’s approach is flawed in principle for it shifts the burden onto the implementer to pay royalties until it can show that patents in issue are invalid or inessential. They then submit that the judge’s approach in the circumstances of this case ignores commercial and legal realities for, had the judge adopted a national approach to licensing, no-one other than UP would have suggested that it would need to litigate everywhere. The jurisdiction of central importance is China for this is where the bulk of Huawei’s business is conducted, and the Chinese courts have shown themselves willing and able to determine FRAND rates for Chinese patents as demonstrated by the decision in Huawei v InterDigital. This was and remains the natural and proper forum for determining a FRAND rate in respect of Huawei’s activities in that country. Further, the judge’s decision would carry great weight with a foreign court, including a court in China, and if and in so far as the foreign court were to decline to follow the judge’s methodology, this would simply demonstrate how inappropriate it was for the judge to adopt a global licensing approach.

110.
We have rejected the submission that the judge has erred in principle and there is no need to repeat our reasons for doing so. We must now focus on the submission that the judge’s decision in the circumstances of this case ignores the commercial and legal realities. The following points are, we think, material. First, the focus of the judge’s reasoning at [543] and [544] of his judgment is not upon litigation but upon the behaviour of a licensor and licensee in the positions of, respectively, UP and Huawei who are acting reasonably and on a willing basis. The judge found that, having regard to the size and extent of UP’s SEP portfolio and the multinational nature of Huawei’s business, such a

licensor and licensee would regard country by country licensing as madness. The reason is given by judge at [544]: such an approach would be needlessly inefficient because of the effort required to negotiate and agree so many licences and then to keep track of so many different royalty calculations and payments. The judge arrived at this conclusion having heard a good deal of evidence and we can see no possible justification for interfering with it.

111.
Secondly, we do not accept counsel for Huawei's submission in any event. On the assumption that only a country by country approach to licensing is FRAND, a patentee in the position of UP would face not just the needless expense of negotiating and managing licences on a country by country basis but also the problem of dealing with a potential licensee which is holding-out and refusing to engage in a reasonable way with the negotiation process. The patentee must then bring proceedings country by country to secure the payment of the royalties to which it is entitled. But unlike a normal patent action, where an unsuccessful defendant faces the prospect of an injunction, the reluctant licensee would know that, on the assumption it could only be required to take licences country by country, there would be no prospect of any effective injunctive relief being granted against it provided it agreed to pay the royalties in respect of its activities in any particular country once those activities had been found to infringe. So it would have an incentive to hold out country by country until it was compelled to pay. We therefore reject the submission that UP's position would be adequately protected were it to bring proceedings in China or any other single country. Such proceedings would not secure the payment of all the royalties to which it is entitled in respect of Huawei's activities in the other countries in which it carries on business.

112.
Thirdly, there is a suggestion in Huawei's submissions that this was not the appropriate or natural forum in which to litigate this dispute. In our judgment it is far too late to take this kind of point. If Huawei wished to have this dispute decided in another forum then it should have applied for a stay of the FRAND issues at an early stage. It did not do so. Instead, shortly after Birss J had given judgment in the form of order hearing on 7 June 2017 ([2017] EWHC 1304 (Pat)), Huawei began proceedings in the Shenzhen court in China in which it alleged, among other things, that the UK court had hijacked the determination of the FRAND licence as between it and UP, and that the injunction sought by UP and granted by the UK court and UP's conduct in seeking that relief were wrongful and in breach of competition law. UP then sought an anti-suit injunction from the UK court to restrain Huawei from pursuing these Chinese proceedings on the basis they were vexatious and oppressive and an abuse of process. That application came before Henry Carr J on 12 October 2017. On the morning of the hearing it was compromised upon Huawei giving undertakings, but the issue of costs remained live. In his judgment given on that day ([2017] EWHC 2832 (Pat)), Henry Carr J expressed the view that, having looked at the Chinese proceedings, he was in no doubt that UP's contentions were entirely well founded. He continued that the Chinese proceedings should never have been commenced and constituted hold-out and that had the matter not been compromised, he would have granted the injunction sought. He then considered the undertakings that Huawei had given in relation to the Chinese proceedings and concluded that, in respect of the anti-suit injunction, UP had won and was in principle entitled to its costs.

113.
We therefore reject Huawei's contention that the judge's decision ignores the commercial and legal realities of this case. To the contrary, we think the judge was fully alive to those commercial and legal realities and took them into account in an entirely appropriate manner.

114.
Huawei’s second complaint is focused on the judge’s concern to simulate “real negotiations” and “common industry practice”. Here Huawei’s counsel submit that the judge had in mind the prevalence of negotiated global licences. But, they continue, he overlooked the fact that no willing licensor or willing licensee would rely entirely upon two UK SEPs as the basis for a global licence, especially when the real subject matter of the dispute lay in China. In the real world, Huawei and UP would consider the strengths and vulnerabilities of UP’s worldwide portfolio, not its UK portfolio; and further, in the judge’s attempt to simulate common industry practice, he treated findings of infringement of two patents in the UK as enough to trigger an enquiry into and obligation to pay global royalties. In the result UP is using the threat of an injunction in the UK to leverage Huawei into paying royalties in respect of its global activities and this is the very thing the FRAND undertaking was intended to avoid.

115.
In our view these submissions betray a considerable confusion of thought. First, there is no question of a willing licensor and licensee relying upon two UK SEPs as a basis for a global licence. It has formed no part of UP’s case or the judge’s reasoning that they would. The basis for the judge’s finding that a willing licensor and a willing licensee in the position of, respectively, UP and Huawei would agree a global licence was the size and extent of UP’s SEP portfolio, the global nature of Huawei’s business and the inefficiencies inherent in any other approach.

116.
Secondly, there was, as we have said, no real dispute of principle about how to work out what was or was not the appropriate FRAND rate for a global licence, at least in general terms and subject to the issue of non-discrimination. The global royalty rate reflects an assessment of the whole portfolio under licence and one approach for carrying this out involves determining the value of UP’s portfolio relative to that of the industry as a whole. The exercises carried out by both parties in support of their respective cases were, subject to one point, based on patent counting and the assessment of how many truly essential patents were involved. But no one tried to take account of validity. The judge heard a good deal of expert and factual evidence about these matters and he carried out a thorough and extensive assessment of it all. Moreover, Huawei has not challenged the outcome of that assessment on this appeal. It does not dispute the royalty rates and structure that he has settled.

117.
Thirdly, we think it is unfair to say that UP is using the threat of an injunction to leverage Huawei into taking a global licence. It is up to Huawei whether it takes a global licence or submits to the injunction in the UK and it is also important to have well in mind that the global licence settled by the judge is, subject to Huawei’s other points, FRAND. There is nothing unfair or unreasonable about its terms.

118.
Huawei’s third complaint is directed to the judge’s finding that, as between two undertakings, the potential licensor and licensee, there is only one set of FRAND terms. Counsel for Huawei argue that he relied upon this finding to support his view that where the potential licensor’s patent portfolio is too large to litigate every patent and where the potential licensee carries on business around the world then only a global licence will be FRAND. Put another way, the judge rejected a country by country licensing approach at least in part because he was of the view that, in any one case, a national and a worldwide licence cannot both be FRAND. Counsel continue that the judge’s adoption of this “only one set of terms” theory led him to discard all indicators of principle and practice that a national

licence is capable of being FRAND. What is more, the judge did not explain how the terms he set for the global licence were the only set of FRAND terms for such a licence, nor could he have done when it was perfectly clear that his approach to, for example, valuation differed from that used by courts in other jurisdictions.

119.
The judge's view that, in circumstances such as those of this case, only one set of terms can be FRAND was, counsel for Huawei continue, based on two matters: first, the judge's view of the economic evidence before him; and secondly, a problem he had raised in his earlier decisions in Vringo v ZTE [2013] EWHC 1591 (Pat) and [2015] EWHC 214 (Pat), namely what is to be done where each side in a dispute such as this has made a FRAND offer, but those offers are different. They also submit that, on a proper analysis, the economic evidence did not support the judge's "only one set of FRAND terms" theory and that:

i)
he ought to have found that it is entirely possible to have different sets of FRAND terms in any one case;

ii)
he ought to have found that the terms he settled for the UK only licence were FRAND; and,

iii)
if UP refused to offer that UK only licence to Huawei, he ought to have refused to grant an injunction.

120.
In summary, counsel for Huawei submit that the judge settled the terms of a UK licence which he would have found to be FRAND but for his conclusion on worldwide licensing. This UK licence provides for the payment of royalties for all relevant SEPs in the UK. The royalty rate is higher than the global rate to account for the fact that a national licence is less efficient than wider global licensing. Huawei ought to be able to enter into this licence and it would cover all of its acts in the UK.

121.
We have come to a different conclusion from that of the judge on the question whether there can be only one set of FRAND terms for any given set of circumstances. Patent licences are complex and, having regard to the commercial priorities of the participating undertakings and the experience and preferences of the individuals involved, may be structured in different ways in terms of, for example, the particular contracting parties, the rights to be included in the licence, the geographical scope of the licence, the products to be licensed, royalty rates and how they are to be assessed, and payment terms. Further, concepts such as fairness and reasonableness do not sit easily with such a rigid approach. In our judgment it is unreal to suggest that two parties, acting fairly and reasonably, will necessarily arrive at precisely the same set of licence terms as two other parties, also acting fairly and reasonably and faced with the same set of circumstances. To the contrary, the reality is that a number of sets of terms may all be fair and reasonable in a given set of circumstances.

122.
We agree with Huawei that the judge relied on two matters in coming to a contrary conclusion. The first was the economic evidence. The judge observed at [148] that, from the point of view of economists, the FRAND royalty rate was the rate which the parties in a given set of circumstances would converge upon and agree to. Then, at [164], he appeared to rely once again on the economist's

view in concluding that, for a given set of circumstances, there will be only one set of FRAND terms and one FRAND rate.

123.

The economic evidence did not support such an inflexible approach, however. Dr Niels, UP's expert economist, explained in his second report that FRAND was a range for all practical purposes. Dr Neven, Huawei's expert economist, said that there are different combinations of contractual clauses including royalties that can be deemed to be FRAND, but that for a given set of contractual clauses there is only one level of royalty payments that will be agreed upon.

124.

The second matter relied upon by the judge was the problem he had identified in his two Vringo decisions and to which we have referred. He thought one of the merits of the single set of FRAND terms approach was that it eliminated this problem. He also said that if more than one set of terms can be FRAND then the Vringo problem cannot be solved in a fair way.

125.

In our judgment this is more of a theoretical problem than a real one. If the SEP owner and prospective licensee cannot agree upon the terms and royalty rates of a FRAND licence and the question of what is FRAND falls to be decided by a tribunal, whether a court or an arbitrator, then the tribunal will normally declare one set of terms as FRAND and that will be the set of terms the SEP owner must offer to the prospective licensee. If, however, the outcome of the proceedings is that two different sets of terms are each found to be FRAND then in our judgment the SEP owner will satisfy its obligation to ETSI if it offers either one of them. It will in that way be offering an irrevocable licence of its SEPs on FRAND terms.

126.

Counsel for Huawei submit this outcome will create injustice in a case where, as here, the real difference between the parties is whether a global or a national licence is FRAND. If both are FRAND then, counsel continue, the tribunal should limit its consideration to the particular jurisdiction where it is situated. Further, it would be unjust for the SEP owner to be given the opportunity to use the threat of a national injunction to require the prospective licensee to take the global licence for this would amount to a form of international coercion.

127.

We disagree. For the reasons we have given earlier in this judgment, this submission involves an elision of two separate but related matters: first the relief to which a SEP owner is entitled if it establishes infringement of its monopoly right, and secondly, what the SEP owner must do to satisfy the undertaking it has given to ETSI. Moreover, the term coercion is used in this context to imply improper duress or compulsion. But, if both the global and the national licence were FRAND, the SEP owner would be guilty of no such behaviour by offering the global licence. That global licence would, on this hypothesis, be fair, reasonable and non-discriminatory. It would then be a matter for the prospective licensee whether to accept it.

128.

We must now consider the application of these principles in this case and consider whether, as Huawei contends, the judge fell into error in deciding that in the circumstances of this case only a global licence would be FRAND and whether he ought also to have found that a UK licence could have been FRAND. We have no doubt that he did not. As we have seen, the judge found that a licensor and a licensee acting willingly and reasonably would have regarded country by country licensing as madness; and further, that no rational business would have done this if it could be avoided. This language is not capable of accommodating a finding that a national licence could also be FRAND. Further, it is no answer to say that the judge proceeded to settle the terms of a UK FRAND licence. He did so only on the basis that these critical earlier findings were wrong and Huawei has not begun to show that they were.

Conclusion on ground 1

129.
The judge was entitled to find that in all the circumstances only a global licence would be FRAND. He fell into error in one aspect of his reasoning but this had no material effect on the conclusion to which he came. Ground one must therefore be dismissed.

Ground 2 - Non-discrimination

130.
This ground of appeal is concerned with the non-discrimination limb of UP's FRAND undertaking. There is a fundamental dispute between the parties as to the interpretation of this part of the obligation. It is therefore worth setting out (again) the terms of the undertaking:

"… [UP] hereby irrevocably declares that (1) it and its AFFILIATES are prepared to grant irrevocable licenses under its/their IPR(s) on terms and conditions which are in accordance with Clause 6.1 of the ETSI IPR Policy…".

131.
A licence which is in accordance with Clause 6.1 of the ETSI IPR policy is an "irrevocable licence[s] on fair, reasonable and non-discriminatory ("FRAND") terms and conditions".

132.
Huawei's case is that the licence offered to them is not on "non-discriminatory terms and conditions", because the global royalty rate offered to Huawei is higher, much higher, than that contained in the global Samsung licence (see [8] above). Accordingly, if the judge was right to decide the first ground of appeal against Huawei, such that a global licence fell to be settled by him, then he should have fixed a royalty rate no higher than the range of royalties represented by the Samsung licence. No issue arises as to where in that range the royalty should fall, as Huawei has said that it is prepared to pay the royalty represented by the upper end of that range.

133.
Broadly, the positions adopted by the parties are as follows. Huawei contends that the non-discrimination limb of the undertaking must be given its ordinary and unadorned meaning. The ordinary, unadorned meaning of "non-discriminatory" is that like situations must be treated alike and different situations differently. Thus an obligation to license upon "non-discriminatory … terms and conditions" means that the SEP owner must grant the same or similar terms to all similarly situated licensees. The judge coined the term "hard-edged discrimination" to describe the meaning contended for by Huawei.

134.
UP's position is, first, that the Samsung and Huawei licences are not sufficiently equivalent or comparable transactions to engage the non-discrimination obligation at all. Secondly, if the obligation is engaged, UP contends that the obligation not to discriminate does not include a hard-edged criterion of the kind contended for by Huawei. Instead, UP contends that the "ND" limb is an integral

part of the determination of the FRAND terms, which includes a benchmark royalty rate set by reference to the true value of the SEPs being licensed. A rate which is arrived at in this way, and which is available to all licensees without discriminating against them by reference to their individual characteristics, does not cease to be FRAND because the SEP owner has previously granted a licence on more favourable terms. Thirdly, and again if the obligation is engaged, UP contends that the mere existence of differential royalty rates is not sufficient to amount to a breach of the obligation. Huawei must demonstrate that the difference is such as to cause a distortion of competition.

135.
The judge concluded that Huawei and Samsung were "similarly situated". He also concluded that the Samsung licence and the licence on offer to Huawei were equivalent or comparable. The judge went on to hold, however, that the non-discrimination obligation was either (as explained further below) a general obligation integrated into the setting of the benchmark rate, or alternatively that the asserted discrimination needed to distort competition before it could be a breach of the ETSI undertaking. Huawei had not established on the evidence that the differences between the two sets of terms - those in the Samsung licence and those in the putative licence on offer to Huawei - were sufficient to distort competition. The judge did not decide a further contingent issue, namely whether those differences were objectively justified.

136.
Before addressing these arguments in more detail, it is necessary to explain a little more of the background to the Samsung licence, and the judge's findings about its relevance to the issue of valuation of the portfolio and the identification of the benchmark rate.

The Samsung licence

137.
The Samsung licence was entered into on 28 July 2016, after UP had been acquired by a company called PanOptis. Huawei relied on the licence for both the FR and the ND elements of FRAND. Thus Huawei contended that the licence was the best comparable for assessing a fair and reasonable royalty rate. An offer of a licence at a significantly higher rate was discriminatory, and thus a breach of the FRAND undertaking.

138.
Under the Samsung licence Samsung paid UP [redacted] in cash and assigned a portfolio of patent families in return for a worldwide licence under UP's SEP and non-SEP portfolio until [redacted] together with a release of any past damages.

139.
In order to arrive at a comparable royalty rate from the Samsung licence it was necessary to convert the lump sum cash payment into a running royalty, ascribe a value to the Samsung patents assigned to UP, take into account the value of the non-SEPs, and then assign the value between 4G, 3G and 2G. The judge found at [397] that, on certain assumptions, the 4G rate ranged from [redacted] to [redacted] and the 2G/3G rate ranged from [redacted] to [redacted]. Before turning to the context in which the licence was entered into, the judge reached a provisional conclusion that these rates raised a question mark over whether the licence was evidence of a fair and reasonable value for a licence under UP's portfolio, not least because they were significantly lower than the rates for which Huawei contended in the present proceedings.

140.

UP contended before the judge that any royalty rate to be derived from the Samsung licence needed to be seen in the context of the wider arrangement between Samsung and PanOptis and the distressed financial position which UP was in when acquired by PanOptis. This depended on the evidence of Mr Ware who was the moving spirit of PanOptis.

141.
At paragraphs [400] to [405] the judge related Mr Ware’s account, which he broadly accepted. In summary, PanOptis was a licensing company which had offered US$75 million for the UP portfolio in March 2015, but UP wanted US$100 million and no deal was done. From July 2014 PanOptis was in commercial negotiations with Samsung, which included the possibility of Samsung taking a licence under other PanOptis telecoms patent portfolios and the possibility of a wider strategic partnership.

142.
In July 2015 UP approached PanOptis again, this time with a view to PanOptis purchasing UP. In September 2015 PanOptis offered to buy UP for US$35 million. [two sentences redacted].

143.
The reason (the judge found it to be “the key reason”) why PanOptis was interested in this deal and why it bought UP when it did and for the price it did was in order to build trust with Samsung and because Samsung was prepared to take a licence under the portfolio in a deal in which the cash component [redacted]. The judge concluded that the long term benefits to PanOptis which would be derived from this deal were regarded by PanOptis as important and potentially very valuable, but the deal did not give PanOptis a contractually enforceable right to the benefits derived from building trust with Samsung.

144.
As to UP’s worsening financial position, the judge found that, by the time it was purchased by PanOptis, UP was in serious financial trouble. The price PanOptis paid for UP was lower than the market value of the patent portfolio because of the serious financial difficulties UP was in at the time. The only licence UP had been able to agree was with Lenovo and UP was engaged in very expensive multinational patent litigation in an effort to establish its rights. By late 2015 - early 2016 UP was close to insolvency. The judge accepted Mr Ware's evidence that in March 2016 PanOptis dropped its offer from US$50 million to US$40 million specifically because of UP’s worsening financial position, that it was able to purchase UP for a price which did not represent the value of UP’s portfolio and that this was because UP was on the verge of insolvency. UP had told shareholders that it would run out of cash reserves in July 2016 to a significant degree as a result of the difficulties it had encountered in in trying to license the portfolio and the cost of litigation.

145.
PanOptis also had a relationship with Ericsson. Ericsson was also keen that PanOptis should buy UP, which provided an additional reason why PanOptis would wish to buy UP so as to strengthen its existing strategic partnership with Ericsson.

146.
The judge concluded that these findings about the context of the licence together with the findings about low rates in the licence itself supported one another. He concluded that the licence did not represent useful evidence of the market value of the UP patent portfolio.

Article 102(c) TFEU

147.
We should set out Article 102(c) TFEU because it forms the backdrop to the argument between the parties about the meaning of the non-discriminatory limb of the FRAND undertaking:

"Any abuse by one or more undertakings of a dominant position within the internal market or in a substantial part of it shall be prohibited as incompatible with the internal market in so far as it may affect trade between Member States.

Such abuse may, in particular, consist in:

…

(c) applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage;

…".

Foreign cases on the non-discrimination limb of FRAND

148.
Both parties sought to rely on decisions from other jurisdictions which had considered this limb of the FRAND undertaking. It is convenient to summarise them here, before tackling the issues which arise on the appeal.

(i) Germany

149.
The Oberlandesgericht Dusseldorf considered the non-discrimination limb of FRAND in Sisvel v Haier 6615 (cited at [77] above). It first reviewed, at paragraphs [253] and following, the effect of Article 102(c) TFEU, observing that the rule only extended to comparable issues and circumstances. There was no obligation to treat all trading partners schematically equally. Instead, even a company having a dominant market position was not precluded from reacting differently to different market conditions. Unequal treatment was permissible as long as it was objectively justified.

150.
At paragraph [256] the court said:

"In this case, the question of whether or not unequal treatment is objectively justified can be answered by looking at, and weighing, all interests involved, which is geared to the purpose of the TFEU, namely to contribute to the development of effective, undistorted competition … What is decisive here are the type and extent of different treatment. Its admissibility depends, in particular, on whether the relative discrimination of the companies affected appears as a competitive reconciliation of interests that is determined by the respective offer in the individual case or whether it is based on arbitrariness or considerations and intentions that are alien to economically or entrepreneurially sound actions … In view of the considerable scope of discretion that a patent holder has in such situations, not every difference in conditions can be regarded as an abuse of a dominant market position. Instead, the difference must be more than just minor in order to find that a condemnable abuse has taken place … At the same time, one must make sure, however, that the exercise of power by the dominant company does not result in the companies affected by such unequal treatment being impaired in terms of their ability to compete with each other …".

The court went on to say at paragraph [257] that these principles apply equally to a SEP holder which makes a FRAND declaration, and continued:

“Regardless of whether such declaration is of a constitutive or declaratory nature and whether the patent holder’s obligations resulting from it apply even if it does not have a dominant market position …, it certainly does not result in a different standard for nondiscrimination. With its commitment contained therein to not discriminate against license seekers, the SEP holder rather makes reference to Art. 102 c) TFEU: regarding its license terms, the SEP holder apparently wants to be bound (only) precisely to the extent required by the statutory nondiscrimination rule. Accordingly, its license offer is “nondiscriminatory” only if it treats the license seeker equally to other licensees or if there are good objective reasons for unequal treatment.”

151.
At paragraph [258] the court stated that the burden and standard of proof of discrimination rests on the party seeking the licence, but re-iterated:

“The SEP holder’s FRAND declaration has basically no effect on said burden of demonstration and proof because, with its commitment to grant nondiscriminatory licenses, the SEP holder merely complies with the regulatory requirements of Art. 102c TFEU, but does not mean to grant the license seeker a comparably better legal position”.

152.
The court then concluded at paragraph [260] that there had been relevant discrimination. It rejected the contention that “outliers” could be disregarded. Although it was correct that there was no general “most-favoured treatment” obligation, differences in treatment needed to be objectively justified.

153.
On the facts of that case the court concluded that the licence fees were “exorbitantly higher” and therefore the difference in treatment was more than “just minor” (paragraph [263]). Objective justification had not been demonstrated (paragraph [268]). At paragraphs [270] to [273] the court considered and rejected an argument that the differences represented discounts common in the trade. It then went on to consider (paragraph [274]) whether the difference was justified by the special surrounding circumstances of the licence agreement.

154.
The SEP owner sought to rely on a variety of factors (the fact that a licensee might be a “reference customer”, and the specific allocation of risks between licensor and licensee as regards future sales development) to justify the difference in rates, but the court’s assessment was that these matters, whilst admissible in principle, were not sufficient to justify what were described as exorbitant differences in rates. It appears, however, from paragraphs [278] and [287] that the court considered that the differences in treatment were sufficient to distort competition.

(ii) United States

155.
In TCL v Ericsson Case 8:14-cv-00341(unreported) Judge Selna, in the United States District Court for the District of California, considered (at page 91 of the transcript) an argument that it was necessary to show competitive harm, in other words that the discrimination had the effect of impairing the development or adoption of the standard. The court considered that this was an illegitimate attempt to engraft onto the FRAND declaration principles derived from US anti-trust law. Although one

purpose of the FRAND declaration was to foster standardisation, this was not to the exclusion of individual harmed firms.

156.
The court made a comparison of the amounts paid by similarly situated licensees, and concluded (at page 94 of the transcript) that the terms on offer to the licensee were "radically divergent" from those amounts and therefore did not meet the FRAND obligation.

157.
In Ericsson, Inc., v D-Link Systems, Inc. (cited at [70] above) the United States Court of Appeals for the Federal Circuit, explained that in setting a royalty rate on reasonable and non-discriminatory terms it was not permissible to have regard to "the commercial relationship between licensor and licensee" see page 48 of the report. The commercial relationship between licensor and licensee is one of the list of fifteen "Georgia Pacific" factors normally used by the US courts in assessing damages on a reasonable royalty basis, and refers for example to whether the licensor and licensee are competitors or inventor and promoter: Georgia-Pacific, 318 F. Supp. at 1120.

(iii) China

158.
In Huawei v Interdigital, (2013) (cited at [73] above), the Chinese appellate court (at page 71 of the transcript) recorded and apparently approved the lower court's finding as follows:

"… if the trading conditions are basically the same, basically the same royalties or royalty rates should be collected. To determine if non-discriminatory terms are satisfied, it often requires comparative methods. Under the same terms of trade, if a standards-essential patents holder charges a lower royalty from a certain licensee while a higher royalty is collected from another licensee, the latter will have every reason to believe to be subject to discriminatory treatment by way of comparison. In this connection, the standards-essential patents holder would violate the commitment to grant non-discriminatory licenses."

159.
In that case, other InterDigital licences were unpacked to derive effective rates, with the unpacked effective rates for Apple being much lower than were on offer to Huawei. The court regarded the Apple licence as the primary reference, having been voluntarily negotiated and agreed by the parties (see page 72). The unpacked effective rate derived for Apple was 0.0187%, for Samsung 0.19%, but the court adopted the rate of 0.019% (marginally greater than the unpacked effective rate paid by Apple) as the appropriate rate.

Equivalent or comparable transaction

160.
Although it arises on UP's respondent's notice, it is logical to consider this issue first, because if UP is correct, then UP contends that the obligation not to discriminate is not engaged. UP argued before the judge that the factors which made the Samsung licence an unreliable comparator for the purposes of setting a fair and reasonable rate were also relevant to whether the transactions were equivalent or comparable. The judge rejected this. Although Mr Ware's evidence showed that the weight to be attached to pricing in the Samsung licence was low, the various benefits which PanOptis perceived would flow from it, and UP's financial and other circumstances, did not derive from any objective characteristics of the transaction itself. He said at [491]:

“It is in the end nothing more than a patent licence (with the associated assignment). UP's or PanOptis's motives for selling this licence cheaply on that occasion do not change the fact that they did sell the licence cheaply. The consequence of the licence is that PanOptis has been able to enhance its general relationship with Samsung and therefore to have a relationship with Samsung which it does not have with Huawei, but I reject the suggestion that this means that the transaction has features vis a vis Samsung which make it different in any objective sense relevant in this context from the licence Huawei is entitled to.”

161.
The judge went on to point out that the circumstances of the present case were striking. Samsung was one of a handful of major licensees. The licence was for the same portfolio and related to the same acts. It was contemporaneous. It was therefore, for the purposes of considering hard-edged non-discrimination, an equivalent or comparable transaction to the putative licence under consideration between UP and Huawei.

162.
It is common ground that the principles of non-discrimination on the one hand and equality of treatment on the other are essentially two sides of the same coin. The underlying principle is that comparable situations must be treated the same and different situations must be treated differently: see e.g. Case C-313/04Franz Egenberger EU:C:2006:454 at [33]. That principle finds application in a wide variety of different contexts. In competition law, Article 102(c) TFEU provides specifically that “applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage” is prohibited where the party applying the dissimilar conditions is in a dominant position in the EU internal market or a substantial part of it.

163.
The parties are not, however, agreed on how one goes about determining when situations, and in particular transactions, are equivalent or comparable. In the context of the Treaty establishing the European Coal and Steel Community, which prohibits by Article 60(1) the application by one and the same seller of dissimilar conditions to comparable transactions, Commission Decision 72/440/ECSC, OJ 1972 L 239/39 laid down a three part test for this purpose:

“Transactions shall be considered comparable within the meaning of Article 60 (1) if

(a) they are concluded with purchasers,

— who compete with one another, or

— who produce the same or similar goods, or

— who carry out similar functions in distribution,

(b) they involve the same or similar products,

(c) in addition, their other relevant commercial features do not essentially differ.”

164.
The essence of this aspect of the dispute is the breadth of the enquiry into the “relevant commercial features” of the transaction. Is it enough if the two counterparties (in this case Samsung and Huawei) are “similarly situated” as licensees? Or does the enquiry go further, making it legitimate to rely on differences in the commercial situation facing the licensor? Huawei did not contend that the position of the licensor was wholly irrelevant, but submitted that a line needed to be drawn between objective

factors, and factors which merely reflected the licensor's self-interest. Thus counsel for Huawei accepted that a licensor who agreed a low royalty rate because he was on the verge of insolvency and had no alternative but to agree might be able to contend that the licence agreed in consequence was not equivalent or comparable to a licence where the licensor was not in such a position. That, however, was not this case.

165.
Counsel for UP sought to gain support from some observations of Advocate General Wahl in Case C-525/16MEO Serviços de Comunicações e Multimédia SA v Autoridade da Concorrência. That case concerned the application of differential prices at different times by a collective copyright licensing body, GDA.

"56. Secondly, and following on from those considerations, I wonder if the present case really does involve 'equivalent transactions' on 'dissimilar conditions', within the meaning of point (c) of the second paragraph of Article 102 TFEU — and thus 'discrimination', rather than objective 'differentiation' — in the context of the licensing of related rights to MEO and NOS.

57. As is clear from the case-law, account must be taken of all of the prevailing conditions on the market in order to determine whether transactions are equivalent. Those conditions will include, among other things, a temporal aspect, inasmuch as the price set for the provision of a particular service may vary over time, depending on market conditions and the criteria applied in setting that price. In other words, the fact that a service may be provided at different times may render transactions non-equivalent.

58. In addition, it is apparent from the information submitted to the Court that the determination of the prices and of the other contractual terms associated with the related rights which GDA markets is subject to the law, which obliges the parties to have recourse to arbitration if they cannot reach agreement. In such a situation, GDA will, as it did with the prices it charged MEO, merely apply the price established by the arbitration decision. In my opinion, the prices which GDA applied to MEO and NOS respectively were therefore set under circumstances that were a priori different."

166.
Counsel for UP also relied on the German case of Sisvel v Haier (cited at [77] above), which showed that the court was prepared in principle to take account of other relevant circumstances on a broader basis than the judge had done here, even though, on the facts of that case, those special circumstances had not assisted the SEP owner.

167.
On the facts here, Counsel for UP stressed the judge's findings (a) concerning UP's serious financial difficulties and the impact that they had on the price that was paid by PanOptis for UP; (b) that the Samsung licence is part of a much wider and more complex financial commercial transaction entailing the purchase by PanOptis of UP; (c) the importance of the broader strategic relationship with Samsung, which the judge had found objectively to have value; and (d) the fact that the licence in the context of the broader transaction had the effect to de-risk the acquisition by PanOptis of the UP portfolio. Those matters had quite rightly led the judge to recognise that the licence did not represent useful evidence of the value of UP's portfolio, and should have led him to conclude also that the Samsung licence and the putative licence with Huawei were not equivalent or comparable.

168.

For their part counsel for Huawei relied on Ericsson, Inc., v D-Link Systems, Inc., (cited above) where the court explained that in setting a royalty rate on reasonable and non-discriminatory terms it was not permissible to have regard to "the commercial relationship between licensor and licensee".

169.
In our judgment, in deciding whether two transactions are equivalent it is important to focus first on the transactions themselves. The equivalence of the transactions themselves needs to be disentangled from differences in the circumstances in which the transactions were entered into. Commission Decision 72/440 speaks of the "relevant commercial features" of the transactions, not all the economic circumstances prevailing at the time the transaction was entered into. On this basis, a change in market conditions between two otherwise identical transactions would not make the transactions themselves non-equivalent. On the other hand such a change (for example a change in a cost of raw materials) could well amount to an objective justification for a difference in treatment.

170.
We accept that the Advocate General, in paragraphs 57 and 58 of his Opinion in MEO Serviços de Comunicações e Multimédia referred to changes in market conditions as having the potential to render transactions non-equivalent. That observation is not supported by any corresponding finding in the judgment of the Court, however, and the Opinion is expressed in the most tentative terms. Moreover, the passage does not go as far as UP contends, because, in drawing a distinction between "discrimination" on the one hand and "objective differentiation" on the other hand it does not go as far as to suggest that the non-discrimination obligation is not engaged at all. It cannot be the case that even minor differences in market conditions could be the foundation for an argument that the transactions are not equivalent, and that the non-discrimination obligation is not therefore engaged. Finally, the sort of factors which the Advocate General is considering, external market conditions or a different licensing regime, are plainly objective external factors which could justify a difference in treatment in an appropriate case.

171.
The German case of Sisvel v Haier is also of no assistance to UP on this issue. That approach admits that a factor such as market conditions may justify a difference in treatment. The conclusion from this is not that the non-discrimination obligation ceases to be engaged, but that differences in treatment have to be justified objectively.

172.
In our judgment the judge was right to regard the licences to Samsung and to Huawei as equivalent transactions on this basis.

173.
UP's financial circumstances were certainly a factor which enabled the effective royalty rate payable by Samsung to be depressed, but we do not think that it is legitimate to regard the licensor's financial position as a relevant feature of the transaction itself, any more than it would be legitimate so to regard the licensee's financial position.

174.
It is true that the licence to Samsung formed part of a wider deal, which made it necessary to disentangle the patent licence from the other features of the deal. That exercise was necessary as a preliminary step in identifying the relevant features of the transaction. Having done so, however, the transaction which emerges is an equivalent transaction to the putative transaction with Huawei.

175.
PanOptis' goal of achieving a strategic relationship with Samsung also does not form a relevant feature of the transaction. No term of the agreement provided for any such future relationship. PanOptis' subjective reasons for licensing Samsung at the lower rate do not result in the conclusion that the patent licence granted to Samsung is not equivalent. The same applies to the de-risking of the acquisition.

176.
It follows, therefore, that we agree with the judge that the non-discrimination limb of the FRAND undertaking is engaged in this case.

General or hard-edged?

177.
The judge's first formulation of the non-discrimination obligation was that which he termed "general". As he explained it, a benchmark rate for what was a fair and reasonable valuation of the patents, provided that it was on offer to all potential licensees seeking the same kind of licence without reference to their size or any other characteristic, was "itself non-discriminatory". On this basis, his view was that a grant of a licence at a lower rate did not count.

178.
The development of the notion of general non-discrimination can be traced to the judge's reasoning in deciding on the benchmark rate. Thus at [175] he says:

"Huawei also submit that the comparables selected should include some, or ideally all, of three criteria: (a) the licensor is UP or Ericsson, (b) the licensee is Huawei, or a similarly situated company such as Samsung and (c) the licence is recent. I agree with (a) and subject to what "recent" means I agree with (c). However I am not convinced that (b), the identity of the licensee, should be a strong factor in determining what comparables are useful for determining the FRAND rate aside from the hard edged non-discrimination point addressed below. FRAND is supposed to eliminate hold up as well as hold out. Different licensees will have differing levels of bargaining power. That is another way of saying their ability to resist hold up and their ability to hold out will vary. It would be unfair (and discriminatory) to assess what is and is not FRAND by reference to this and other characteristics of specific licensees. In my view, it would not be FRAND, for example, for a small new entrant to the market to have to pay a higher royalty rate than an established large entity. Limiting comparable licences to those where Huawei or a similar company like Samsung is the licensee is therefore unjustified. In my judgment the FRAND rate ought to be <u>generally non-discriminatory</u> in that it is determined primarily by reference to the value of the patents being licensed and has the result that all licensees who need the same kind of licence will be charged the same kind of rate." (emphasis supplied).

179.
Then the judge explained the contrast between general and hard-edged discrimination at [177]:

"Some arguments were addressed to the non-discrimination ("ND") aspect of FRAND as opposed to the "FR" aspect of FRAND as if they were distinct. However it is not that simple. Most of the time the concepts of non-discrimination, reasonableness and fairness relate to one another. In that sense it is useful to characterise a royalty rate as FRAND rather than try to distinguish between something which is merely fair and reasonable as opposed to fair, reasonable and non-discriminatory. The argument about non-discrimination treated it as a concept which would apply to reduce a royalty rate even if that rate was otherwise "FR". For want of a better expression, I will distinguish between a "hard-edged" and a "general" non-discrimination obligation. The general non-discrimination obligation is the aspect of non-discrimination which I have mentioned already. It is part of an overall assessment of the inter-related concepts making up FRAND by which one can derive a royalty rate applicable as a benchmark. This rate is non-discriminatory because it is a measure of the intrinsic value of the portfolio being licensed but it does not depend on the licensee. The hard-edged non-discrimination obligation, to the extent it exists, is a distinct factor capable of applying to reduce a royalty rate (or adjust any licence term in any way) which would otherwise have been regarded as FRAND. This will take into account the nature of the particular licensee seeking to rely on it."

180.
The judge noted that there was no authority in point as to the meaning of the "ND" limb of FRAND. He was referred to a paper in the economics literature "An Economic Interpretation of FRAND" by Carlton and Shampine, Journal of Competition Law and Economics (2013) 9(3): 531-552 from which he cited at [496]:

"The "non-discriminatory" principle of FRAND, however, is not widely agreed upon. The standard economic definition would mean that all users pay the same royalty – i.e., there is literally no discrimination on price or any other terms. Some economists have proposed that it means only that all firms which use the standard be able to obtain a license, with no constraint as to the terms of the license. That of course allows different firms to pay different royalties but still have access to use of the patent.

[…]

'Non-discriminatory' in the context of an SSO setting standards for competing firms can be interpreted to mean that all implementers of the standard should be offered licenses to the technology and all 'similarly situated' firms should pay the same royalty rate."

181.
The judge went on to explain what he derived from the cited literature:

"497. I infer from the paper that there is no wide agreement amongst economists about how the non-discrimination limb of FRAND applies. In the passage quoted the paper proposes three possible interpretations. First, the "standard economic definition". That is one in which all licensees pay identical rates on identical terms. It is not supported by either party before me. I am not surprised. If that is what the ETSI undertaking was supposed to mean it could readily have been written in that way. While such an approach has the virtue of simplicity it would be impractical in practice. It would be highly restrictive. Many licences contain most favoured licensee clauses but they are not generally as onerous as this would be. There is no reason to interpret the ETSI FRAND undertaking in such a strict way.

498. The second version of non-discrimination referred to is one which "some economists" have proposed. It is very weak. Since the ETSI FRAND undertaking already obliges licensors to offer licences to everyone, it does not add anything to that. It is also weaker than the benchmark FRAND rate approach, which at least applies to all licensees with licences of the same type. The benchmark approach does not mean that all licensees must pay exactly that rate but it provides a benchmark against which such a rate can be judged. In practice it will stop licensees having to pay much more than the benchmark set by reference to the value of the portfolio. Competition law can intervene to

penalise the imposition of excessive prices much higher than the benchmark FRAND rate. Neither side supported this weak second version of nondiscrimination.

499. The third interpretation proposed by Prof Carlton is based on similarly situated firms paying the same rate. It is based on the same concepts as competition law. In effect this is the one Huawei contend for although one cannot take that too far. The paper is not purporting to set out a fully worked out proposal on the correct approach in law to interpret the FRAND undertaking. It is not focussed on the distinction between the arguments of Huawei and UP."

182.
The judge arrived at the "general" non-discrimination approach at [502]:

"Having got this far it seems to me that it is not necessary to read this hard-edged non-discrimination obligation into the ETSI FRAND undertaking at all provided one takes a benchmark rate approach to assessing a royalty under the ETSI FRAND undertaking. That approach is itself non-discriminatory and gives effect to the "ND" limb of FRAND. It is a more stringent non-discrimination obligation than the weakest one proposed in Prof Carlton's paper but much simpler to apply in practice than the first proposed obligation or the one based on all the competition law concepts. Competition law will always be available in an appropriate case."

183.
Thus the judge's approach does not mean simply that licences are available to all-comers, with the rates to be hammered out in negotiations which would take account of the relative bargaining power and other circumstances of the particular licensee. Rather it involves a unitary process in which a benchmark royalty is decided on which is then available to all-comers who are similarly situated. In that way weight is given to both the fair and reasonable limb and the non-discriminatory limb of the FRAND undertaking.

184.
Huawei's case is that the "ND" limb of FRAND is a separately enforceable obligation. Thus, if a SEP proprietor has granted a licence at a rate below the benchmark rate, it is obliged to offer that rate to all potential licensees, even though this would mean that the licensee is then granted a licence at a royalty rate which under-values the SEPs included in the portfolio. Huawei therefore supports what the judge termed "hard-edged" non-discrimination.

185.
Counsel for Huawei submitted that the judge had fallen into error in approaching the non-discrimination limb of FRAND in the way he had. They submitted that the judge's approach appeared positively to permit the SEP owner to discriminate beneath the cap set by the benchmark rate. Further it had the effect in the present case that the Samsung licence, a licence granted for the same portfolio to one of Huawei's major competitors, is simply ignored. That is because the Samsung licence was left out of account as not being a fair reflection of the value of the portfolio when setting the benchmark rate, and then left out of account again when it came to deciding whether the SEP owner has been guilty of discriminatory pricing.

186.
Counsel for Huawei went on to submit that the judge's approach was not supported by any of the academic papers cited to the judge, or by the experts. It robbed the non-discrimination limb of FRAND of any content independent of the fair and reasonable limb. Further, the approach would render the non-discrimination obligation ineffectual, as in most real-world situations the parties do not have the

benefit of a court-determined benchmark obligation. In Huawei v ZTE (cited at [21] above) the CJEU had assumed that the licensor could determine whether he was complying with the obligation by consulting actual prior licence agreements.

187.
Counsel for UP supported the judge's "general" approach to non-discrimination. They underpinned their submissions by drawing attention to the wide variety of circumstances in which a non-discrimination obligation can arise: public law, EU law and competition law. In the context of non-discrimination as it applies to regulate the conduct of private economic actors in their interaction with other private economic actors, they submitted that it is well-recognised that charging different prices to different customers is not necessarily problematic. It is well-recognised that differential pricing can actually enhance consumer welfare and that different prices and terms are commonplace in the real world.

188.
Counsel for UP relied for support on a passage from The Law and Economics of Article 102 TFEU by O'Donoghue and Padilla (Hart, 2018) at 780-781. The authors explain that price discrimination is not universally regarded by economists as a priori good or bad for consumer welfare. Condemning discrimination normally requires clear evidence of actual or likely harm to consumer welfare. The authors also make the point that different prices and terms are ubiquitous in real-world markets, which means that the practical scope of a strict non-discrimination rule would be enormous. Finally they point to the impracticality of rules that would insist on uniform prices and terms. Experience with strict non-discrimination laws in other jurisdictions—most notably the United States Robinson-Patman Act 1936—had been uniformly negative from a consumer welfare perspective. The result had been the protection of less efficient producers and higher average uniform prices for consumers as well as a reduction in distribution efficiencies.

189.
Counsel for UP went on to point out that concerns such as these had been picked up by the Advocate General in his Opinion delivered 20 December 2017 in Case C-525/16MEO-Serviços de Comunicações e Multimédia SA v Autoridade da Concorrência at paragraphs [61] to [64]:

"61. On a general note, it is important to bear in mind that discrimination, including discrimination in the charging of prices, is not in itself problematic from the point of view of competition law. The reason for that is that price discrimination is not always harmful to competition. On the contrary, as is evidenced in particular by the (vain) official attempts made in the United States to repeal the provision in the Robinson-Patman Act of 1936 which prohibits such discrimination, purely and simply prohibiting price discrimination may prove injurious to economic efficiency and the well-being of consumers.

62. Indeed, it is well established that a practice of discrimination, and a differential pricing practice in particular, is ambivalent in terms of its effects on competition. Such a practice may have the consequence of increasing economic efficiency and thus the well-being of consumers. These are goals which, to my mind, should not be overlooked in the application of the rules of competition law, and they are, in any event, quite distinct from considerations of fairness. As the Court has repeatedly held, the rules of competition law are designed to safeguard competition, not to protect competitors.

63. It should only be possible to penalise price discrimination, either under the law applicable to cartels or under the law applicable to abuses of a dominant position, if it creates an actual or potential anticompetitive effect. The identification of such an effect must not be confused with the disadvantage

that may immediately be experienced, or suffered, by operators that have been charged the highest prices for goods or services. Accordingly, the fact that an undertaking has been charged a higher price when purchasing goods or services than that applied to one or more of its competitor undertakings may be characterised as a disadvantage, but it does not necessarily result in a 'competitive disadvantage'.

64. Therefore, even where an undertaking is charged higher prices than those applied to other undertakings and, as a result, suffers (or considers that it suffers) discrimination, the conduct in question will be caught by Article 102 TFEU only if it is established that it is likely to restrict competition and diminish the well-being of consumers."

190.
Counsel for UP also drew our attention to Nondiscriminatory Pricing: Is Standard Setting Different? by Anne Layne-Farrar (Journal of Competition Law and Economics 2010 1-28), in which the author argues that non-discrimination in the context of a RAND obligation should be "effects-based", i.e. that it should not condemn price-discrimination per se.

191.
Accordingly, counsel for UP submitted that a strict and absolute non-discrimination obligation, particularly in the context of pricing, would be undesirable and impractical. For this reason, non-discrimination obligations in all bodies of law incorporate mechanisms to ensure that they preclude differential treatment which is problematic, but allow differential treatment which is not problematic.

192.
Counsel for UP advanced five reasons in support of the judge's "general" non-discrimination obligation:

i)
The general non-discrimination obligation gives full effect to the non-discrimination limb of FRAND. It does not discriminate between licensees, because the FRAND rate is objectively determined based on the value of the portfolio, and it does not take into account the characteristics of individual licensees. It satisfies the obligation to treat like cases alike, because the same rate is made available to all licensees who are similarly situated in the sense that they seek the same licence.

ii)
The non-discrimination limb of FRAND should not be read so as to trump all other considerations. The judge had correctly read it as working together with the fair and reasonable limb of FRAND as part of a unitary concept. The role of the non-discrimination limb was to ensure that the fair and reasonable royalty was one which did not depend on any characteristics of the licensee. Huawei's approach meant that the existence of a prior licence which the judge had expressly held did not represent useful evidence of the value of the portfolio compelled UP to licence at the same rate, and therefore receive remuneration which was less than a fair and reasonable return for its portfolio. This was to give the non-discrimination limb an unnecessarily extreme effect.

iii)
ETSI had considered and rejected the imposition of a "most-favoured licensee" clause in the undertaking. It would be anomalous if the non-discrimination limb of FRAND had the effect of compelling the SEP owner to grant a licence on the most favourable terms thus far granted, thereby giving effect to an undertaking which had been expressly rejected.

iv)
There can (as explained above) be no presumption that differential pricing is problematic. Competition law can always step in to prevent differential pricing which is harmful to downstream markets, as the judge had recognised.

v)
The judge’s approach reflects commercial reality in that there may be circumstances in which a licensee licenses its portfolio at a rate which does not actually reflect its true value. One example of this is where a licensor offered a lower rate to the first licensee to take a licence, because it provides them with initial income on their portfolio and because the fact that somebody has been prepared to take a licence to their portfolio validates it and encourages others to do the same. A further example would be where a licensor who was in financial difficulties engaged in a “fire sale” and also granted a licence which did not represent the fair value of the portfolio.

193.
As to the possibility of discrimination by granting licences below the benchmark rate, Counsel for UP submitted that the judge had correctly addressed and dealt with this argument at [494] of his judgment. Having considered the differences between the Samsung licence rate and the benchmark rate, and also between the Samsung licence rate and the rates claimed at various points by UP, he said:

“These discrepancies favour Huawei's argument. However there is a major difference between this case and a case like [Attheraces Ltd v The British Horseracing Board Ltd [2007] ECC 7], because at this point in the argument the discrepancy is with respect to a benchmark rate which represents what has been determined to reflect the true value for the portfolio under licence. The discrimination is not that Huawei is being required to pay a rate higher than that, the issue is that Huawei's competitor has been given a much lower rate.”

194.
Both sides’ submissions on this issue were extremely cogent and presented with great skill. In the end we prefer UP’s submissions.

195.
On its face, the difficulty with the “general” non-discrimination approach is that it operates in an asymmetric fashion. On this approach, once a benchmark rate is identified, the SEP owner is precluded by the undertaking from attempting to secure higher rates from licensees, but there is nothing to prevent it from granting licences at lower rates. A proposed licensee who points to a prior comparable licence granted at a lower rate is not able to force down the rate on offer to match this lower rate.

196.
The “general” approach does, however, gain support from the object and purpose of the FRAND undertaking. These are to ensure that the SEP owner is not able to “hold-up” implementation by demanding more than its patent or patent portfolio is worth. The undertaking therefore requires it to offer to license the portfolio on terms which reflect the proper valuation of the portfolio, and to offer those terms generally (i.e. in a non-discriminatory manner) to all implementers seeking a licence. The objective of the undertaking is not to level down the royalty to a point where it no longer represents a fair return for the SEP owner’s portfolio, or to remove its discretion to agree lower royalty rates if it chooses to do so. It is inherently unlikely that a proposal presented in such terms would have gained support from innovators.

197.
We accept that differential pricing is not per se objectionable, and can in some circumstances be beneficial to consumer welfare. Counsel for UP made good the point that there is no point in mandating equal pricing for its own sake. In short, an effects-based approach to non-discrimination is appropriate. Once the hold-up effect is dealt with by ensuring that the licence is available at a rate which does not exceed that which is fair and reasonable, it is difficult to see any purpose in preventing the patentee from charging less than the licence is worth if it chooses to do so.

198.
In that connection we consider that a non-discrimination rule has the potential to harm the technological development of standards if it has the effect of compelling the SEP owner to accept a level of compensation for the use of its invention which does not reflect the value of the licensed technology. It is true that it is not compelled to grant any licence, and may hold out for a return which is commensurate with the value of the portfolio, but such an approach is not always commercially possible. The undertaking should be construed in a way which strikes a proper balance between a fair return to the SEP owner and universal access to the technology without threat of injunction. We consider that a hard-edged approach is excessively strict, and fails to achieve that balance, whereas the general approach achieves the objective of the undertaking by making the technology accessible to all licensees at a fair price.

199.
It is difficult to identify any underlying purpose which would support the hard-edged discrimination rule contended for by Huawei. Its effect is akin to the insertion of the rejected “most favoured licensee” clause in the FRAND undertaking. It is of course possible that those behind formulating the undertaking thought that the same effect as a most favoured licensee term could be achieved by the “ND” limb of FRAND, but we consider that it is far more likely that the industry would have regarded such a term as inconsistent with the overall objective of the undertaking.

200.
Huawei is correct that the potential exists for discrimination below the benchmark rate. Such discrimination is not, however, without the potential for redress through the application of competition law. We can see no reason why the authors of the undertaking should have been concerned to constrain the ability of the SEP owner to grant licences at lower rates if these cause no competitive harm.

201.
Whilst Huawei is right to point out that the effect of the general approach is to limit the impact of the non-discrimination limb of the undertaking, it may also fairly be said that the hard-edged approach gives unwarranted primacy to that limb, in that a licence granted at a lower rate, no matter how low, will always trump the benchmark fair and reasonable rate.

202.
We are not impressed by reliance on the assumptions made in the Huawei v ZTE case that prior licences will be relevant to determining whether the non-discrimination obligation has been complied with. We do not think that either the CJEU or the Advocate General will have had in mind the precise interpretation of the non-discrimination limb. Furthermore it is far from being the case that prior licences granted by the SEP-owner will have no bearing on that obligation, as they will likely form the best comparables for determining the benchmark rate.

203.

Equally, there is nothing in Huawei's complaint that the judge's interpretation did not exactly replicate any of those described in the expert evidence or the economic literature. The judge was engaged in an exercise of interpretation, seeking to apply normal principles of contractual interpretation against a specific commercial, factual matrix. He was not bound to adopt the formulation of either side. Furthermore, given the wide spectrum of possible interpretations canvassed in the literature, it is not surprising that he did not opt precisely for any one of them.

204.
It is true that the parties who seek to negotiate a licence on FRAND terms will not have the benefit of a court-determined benchmark rate. We do not see this as a real practical difficulty with the judge's approach, however. If the correct approach in law is as we have determined, then it will mean that the focus of the negotiations will be on determining a fair and reasonable rate for the portfolio, an exercise which is familiar in the patent licensing world. It is true that this will not be as simple as merely identifying the lowest rate which the SEP owner has offered in the past, but that is a consequence of adopting an approach which does not abandon the principle of fair reward to the SEP owner.

205.
We also, with respect, have not found much assistance in the foreign cases cited on this point, as they do not directly address the argument which is presented to us. Sisvel v Haier is of some assistance to UP where it stresses the discretion enjoyed by the SEP owner to set different conditions. However the court then goes on to take the stricter approach that discrimination which is more than minor can only be allowed to the extent that it is objectively justified, and specifically to disapprove the rejection of "outliers". The court did not directly address the issue of whether the non-discrimination obligation can force the SEP owner to accept a royalty which is shown to be less than a fair and reasonable valuation of the portfolio. Whilst the court in TCL v Ericsson rejected the notion that a requirement for competitive harm should be grafted on to the non-discrimination obligation, it was not asked to address the argument presented to us. The Guangdong court in Huawei v Interdigital seems to have accepted a hard-edged approach, but there is no detailed analysis of why that should be so.

206.
We recognise that, in the development of this important area, it is desirable that an internationally accepted approach should ultimately emerge. However there is as yet only a handful of decisions which attempt to grapple with these issues. It would be wrong, in our judgment, to harmonise on a first-to-decide basis.

207.
It follows that the judge was right to hold that the licence on offer to Huawei was on non-discriminatory terms.

Distortion of competition

208.
The judge concluded that, if the "ND" limb of FRAND included a hard-edged non-discrimination obligation, then, in the alternative, it should be tempered or softened by ignoring differences in terms which were not sufficient to give rise to a distortion of competition. The judge put it in this way at [501]:

"In my judgment the ETSI FRAND undertaking should not be interpreted so as to introduce the kind of hard-edged non-discrimination obligation supported by Huawei without also including consideration of the distortion of competition. Competition law does not seek to prohibit different prices being charged to different customers. An important aspect of the way that result is assured in competition law is by the requirement that only terms which are sufficiently dissimilar to distort competition are prohibited. In other words, the various elements of the competition law applicable [to] discriminatory pricing operate as a whole to achieve a fair balance. Splitting off some parts without the others is unbalanced and risks unfairness."

209.
As we have rejected the hard-edged non-discrimination rule, it follows that it is not necessary for us to deal with this alternative case.

210.
In the result, Huawei's appeal on ground 2 fails.

Ground 3 – Huawei v ZTE and proportionality

211.
Huawei contended before Birss J that UP was in a dominant position and that it had abused that dominant position contrary to Article 102 TFEU by bringing these proceedings prematurely, by seeking to charge excessive royalty payments and by bundling together its SEPs and non-SEPs in its offers of a licence. The judge found that UP was in a dominant position in the relevant market, the market for licences under its SEPs, but that it had not abused that dominant position in any of the ways contended for by Huawei.

212.
Upon this appeal, Huawei argues that the judge was wrong to reject its assertion that UP had breached its dominant position by bringing the proceedings prematurely. UP counters that the judge was right to right to reject all of the allegations of breach of dominant position but fell into error in finding that it had a dominant position in the first place.

Dominant position?

213.
It is convenient to take this point first and we begin by summarising some general principles. The CJEU explained in Case 27/76United Brands v Commission[1978] ECR 2017 at [65] that a dominant position is:

"… a position of market strength enjoyed by an undertaking which enables it to prevent effective competition being maintained in the relevant market by giving it the power to behave to an appreciable extent independently of its competitors, customers and ultimately of its consumers."

214.
The Commission gave guidance on the assessment of dominance in its communication 2009/C 45/02. In paragraph 10, it is explained that the notion of independence in this definition is related to the degree of competitive restraint exerted on the undertaking, and dominance means that any competitive restraints are not sufficiently effective and hence that the undertaking enjoys substantial market power over a period of time. This allows it to be largely insensitive to the actions and reactions of competitors and customers.

215.

At paragraph 12 the Commission set out three factors the assessment should take into account, the third of which is “constraints imposed by the bargaining strength of the undertaking’s customers”. In that regard, paragraph 13 explains that market shares are a useful first indication of the market structure and of the relative importance of the various undertakings active on the market, but they must be interpreted in light of the relevant market positions and the dynamics of the market. Paragraph 18 then addresses the possibility of countervailing buyer power. Here it is said that even an undertaking with a high market share may not be able to act independently of customers with sufficient bargaining strength.

216.
It was and remains common ground that in this case the relevant market for the purpose of assessing dominance is, in the case of each SEP, the market for the licensing of that SEP, so the SEP owner has 100% of each such market. Huawei submitted that in these circumstances there must be at least a strong presumption that UP was dominant.

217.
UP did not admit that it was dominant and in closing submissions contended that, although Huawei had alleged it had a dominant position, it had done no more than rely on the presumption. But, argued UP, its market power was constrained by two important matters. The first was the FRAND undertaking. The other was the potential for hold-out.

218.
The judge held that that the FRAND undertaking was justiciable and enforceable and that it could be relied upon by third parties, and there is no appeal against these findings. He then proceeded to consider its effect. Here he referred to, among other matters, the evidence of Dr Niels and Professor Neven. It was Dr Niels’ opinion that a SEP owner cannot refuse to grant a licence and that the FRAND undertaking was “almost literally” a restriction on the market power of the owner to set a price because the court could do so if the parties did not agree. Professor Neven agreed that the undertaking did in practice constrain the conduct of SEP owners but was of the opinion that it could not be assumed that it would preclude any owner from acting in a manner which was contrary to FRAND.

219.
The judge summarised the position at [656]. He held that, based on all the evidence (including that of the parties’ witnesses, the economists, the valuation experts and the French lawyers) SEP owners and potential licensees were well aware that the FRAND undertaking obliges the owner to grant licences; and further, that since 2013 the FRAND undertaking has operated as a practical constraint upon a SEP owner’s market power and that it has given potential licensees a form of market power they would not otherwise have had.

220.
The second matter is the potential for hold-out by potential licensees. In this regard the judge held that this was an unusual form of market. What the implementers really wanted was access to the standard, which they could get without paying the SEP owners in advance. If they had to pay licence fees then they would do so, but the idea of these implementers rushing to pay licence fees was fanciful. The structure of the market therefore gave rise to the possibility of hold-out and that there was clear potential, on theoretical grounds, for this to occur.

221.

As to whether hold-out had occurred, the judge referred to and accepted the evidence of Mr Robbins, who was until July 2015 the Executive Vice President and General Manager of the Intellectual Property Division of UP. He explained that prior to the commencement of proceedings potential licensees did not want to take a licence and were deploying “every tool available” to ensure that no licence was concluded; many seemed to be engaging in delaying tactics; and UP realised that it would be very difficult if not impossible to progress beyond technical discussions and to start negotiating the terms of a licence without litigation. The judge held that this was evidence of holding out before discussions on pricing took place. He drew the distinction between the periods before and after pricing discussions because once pricing was discussed, the issue of delay became tied up with the question of what a proper rate should be.

222.
The judge then reached this overall conclusion at [670]:

“670. Standing back, the question I have to decide is whether Unwired Planet is in a dominant position in the relevant market. The relevant market is a market for licences under the SEPs. It is a market in which the SEP owner has 100% market share. The market is covered by the FRAND undertaking which does weaken the SEP owner’s position. It is a market in which licensees can engage in holding out and there is some evidence that they do, particularly given the relative weakness of Unwired Planet. If a proper economic analysis had been done into this market then the issue might be more finely balanced but as it stands, and without that analysis, I am not satisfied either of these points alone or together is sufficient to justify not drawing the inference that the holder of a 100% market share is likely to be dominant. I hold that as the owner of SEPs, Unwired Planet is in a dominant position in the market for licences under those SEPs.”

223.
Upon this appeal, counsel for UP argue that the judge’s reasoning contains two errors of principle. First, he was wrong to treat the various matters to which he had referred as evidence of hold-out before discussions on pricing took place. It was in fact evidence of an ability to hold-out at all times and so his finding should have been unqualified. The important question was whether potential licensees had demonstrated the ability to constrain the market power of a SEP owner, and they plainly had.

224.
Secondly, the judge referred in his conclusion to the absence of a proper economic analysis. However, although Dr Niels and Professor Neven did not express a concluded view on dominance, both engaged with the issues in detail. What was more, the judge made crucial findings that the FRAND obligation was justiciable and enforceable; that the practical effect of the FRAND undertaking was to weaken the SEP owner’s position; and that UP was in a weak financial position and unable to conclude licences. These matters should have led him to conclude that UP was not in dominant position.

225.
We are not persuaded by these submissions. It is well established that, although the importance of market shares may vary from one market to another, the possession, over a long period, of a very large market share constitutes in itself and save in exceptional circumstances, proof of the existence of a dominant position, and that market shares of more than 50% constitute very large market shares: see, for example, Case C-457/10 P Astra Zeneca v Commission, 6 December 2012 at [176].

226.

In the case of a SEP owner, the market share is, of course, 100%. This is an important starting point but we recognise that ultimately it is no more than one factor in the analysis. As Advocate General Wathelet observed in his opinion in Huawei v ZTE at [57] to [58], the fact that an undertaking owns a SEP does not necessarily mean that it holds a dominant position, and it is for the national court to assess, on a case-by-case basis, whether that is indeed the case. Further, he continued, if the fact of using a standard and so making use of a SEP could give rise to a rebuttable presumption that the SEP owner holds a dominant position, it must be possible to rebut that presumption with specific detailed evidence.

227.
These general principles guided the judge in this case. He directed himself correctly in law and then gave careful consideration to the expert evidence, such as it was. Dr Niels left the issue of dominance open but Professor Neven noted that, given the market definition, there was a strong presumption that UP was dominant. The judge thought that UP should have advanced a positive case if it wanted to rebut that presumption, and it should not have met Huawei's allegation with a mere non-admission. What was more and although it was true that the experts did express opinions on aspects of the market, UP had carried out no market analysis and in our view this was a matter which the judge was entitled to take into account.

228.
That said, the judge did consider in detail the two particular points on which UP relied in argument, namely the FRAND undertaking and the potential for hold-out. No criticism is made of the way he dealt with the FRAND undertaking and we do not accept that the judge fell into error in the way he addressed hold-out. He recognised that the structure of the market gave rise to the potential for hold-out but he was not persuaded that this was a relevant factor once the negotiating parties had reached the stage of discussing prices. This was a finding that he was entitled to make on the evidence before him.

229.
Overall, we are satisfied the judge was entitled to find that UP had a dominant position in the market. He took careful account of the structure of the market, the expert and factual evidence before him, the FRAND undertaking and the possibility of hold-out, and he reached an evaluative conclusion. He made no error of principle and the conclusion he reached was properly open to him. UP has not established any basis upon which it would be appropriate to interfere with that conclusion and we reject UP's challenge to it.

Has UP abused its dominant position?

230.
This issue raises an important question concerning the circumstances in which it is appropriate for a UK court to grant injunctive relief in respect of the infringement of a SEP. The answer to this question depends upon the proper interpretation of the decision of the CJEU in Huawei v ZTE.

231.
Huawei contends that this decision sets out a behavioural framework with which a SEP owner must comply before issuing and pursuing proceedings for injunctive relief or the recall of infringing products; and if it fails to do so its conduct is to be regarded as constituting an abuse contrary to Article 102 TFEU.

232.

UP responds and the judge accepted that the CJEU has simply identified a series of procedural steps amounting to a ‘safe harbour’ for SEP owners. If a SEP owner follows these steps then it can exercise its right to enforce its patent rights by means of proceedings for injunctive relief without infringing Article 102.

233.
We will come to the decision in Huawei v ZTE in a moment but first we must summarise the key elements of the factual background relevant to this ground of appeal:

i)
The business of UP began in 1994. By November 2011 it had become a licensing business and it owned 140 patent families concerned with mobile internet technology.

ii)
Ericsson was, by 2011, a major technology developer in telecommunications and a participant in standard setting. It had handset and infrastructure businesses and also a patent licensing business. It had licensed its patents to a range of companies including Samsung and, since 2009, Huawei. The patents which it had licensed to Huawei included the SEPs the subject of these proceedings. The licence expired at the end of 2012.

iii)
In January 2013 Ericsson transferred to UP in excess of 2,000 patents and patent applications falling into 825 families of which 37 were declared as essential; the transferred patents included the SEPs the subject of these proceedings.

iv)
Between June and August 2013 Huawei and UP considered the possibility of Huawei buying some of UP’s patents. Huawei did not do so.

v)
UP wrote to two Board members of Huawei in September 2013 suggesting the two companies should “sit down and have an extended discussion” with a view to concluding a licence. No reply was received to those letters.

vi)
In November 2013 UP contacted Huawei’s IP department which replied very promptly. There followed a brief delay during December 2013. In early January 2014 Huawei asked UP for claim charts and by letter of 16 January 2014 UP agreed to produce claim charts under a non-disclosure agreement and included draft terms. On 29 January 2014 Huawei produced different draft terms.

vii)
By the end of 2013 Huawei knew or ought to have known that it required a licence from UP or its successor to continue to use the SEPs it had formerly licensed from Ericsson (if and in so far as any licence was required).

viii)
On 10 March 2014 UP began these proceedings against Huawei, and parallel proceedings in Germany.

ix)
In April 2014 UP made its first offer of licensing terms.

234.

The decision of the CJEU in Huawei v ZTE was given on a reference from the Landgericht Düsseldorf in proceedings brought by Huawei against ZTE for infringement of one of its SEPs by selling products which met the standard for which that SEP was essential. Between November 2010 and the end of March 2011, Huawei and ZTE engaged in discussions concerning the alleged infringement of the SEP by ZTE and the possibility of concluding a licence on FRAND terms in respect of the allegedly infringing products. Huawei indicated the amount it considered to be a reasonable royalty. For its part, ZTE sought a cross-licensing agreement. But no offer relating to a licensing agreement was finalised. Nevertheless, ZTE continued to market products which Huawei maintained met the standard without paying a royalty or rendering an account in respect of past sales.

235.

In April 2011, Huawei began proceedings for infringement against ZTE and sought an injunction prohibiting the infringement, the rendering of accounts and an award of damages. The German court thought the decision turned on whether the action brought by Huawei constituted an abuse of its dominant position contrary to Article 102 TFEU and it referred a series of questions to the CJEU in that regard.

236.

By way of introduction, the CJEU explained (at [41]) that, in the context of the dispute, the referring court raised the question whether the action for infringement seeking an injunction prohibiting that infringement, the rendering of accounts, the recall of products and the damages was to be characterised as an abuse of a dominant position and whether the action had to be dismissed. It continued (at [42]) that in answering that question it had to strike a balance between maintaining free competition (in respect of which the law prevented abuses of a dominant position) and the requirement to safeguard a proprietor’s intellectual property rights and its right to judicial protection.

237.

The CJEU then turned to the detail of the referred questions and observed that, so far as these concerned legal proceedings, they asked, in substance, in what circumstances the bringing of an action for infringement by an undertaking in a dominant position and holding a SEP, which had given an undertaking to the standardisation body to grant licences to third parties on FRAND terms, seeking an injunction prohibiting the infringement of that SEP or seeking the recall of products for the manufacture of which the SEP has been used, was to be regarded as constituting an abuse contrary to Article 102 TFEU.

238.

From [45] to [47] the CJEU took the opportunity to restate some basic principles. First, the concept of an abuse of a dominant position contrary to Article 102 is an objective matter relating to the conduct of a dominant undertaking which, in a market where the competition is already weakened, through its behaviour hinders the maintenance of the degree of competition which still exists. Secondly, the exercise of the exclusive right linked to an intellectual property right, by bringing proceedings, forms part of the rights of the owner, with the result that the exercise of the right, even by a dominant undertaking, cannot itself amount to an abuse of a dominant position contrary to Article 102. But thirdly, that the exercise of the right in that way may nevertheless, in exceptional circumstances, amount to abusive conduct.

239.

The CJEU explained that a case involving a SEP was distinguishable from the usual case for two reasons: first, a SEP is indispensable to the standard, making its use indispensable to all competitors;

and secondly, a patent only acquires its SEP status as a result of the FRAND undertaking. So, although the SEP owner has a right to bring proceedings for an injunction, the fact that the patent has acquired SEP status means that its proprietor can prevent products made by other manufacturers from coming onto the market and in that way reserve the market in standard compliant products to itself. This in turn means that a refusal to grant licences on FRAND terms may in principle amount to an abuse of a dominant position (see at [49] to [52]).

240.
The CJEU continued (at [53]) that, in these circumstances, a refusal to grant licences on FRAND terms might in principle be raised by way of defence to an injunction or for the recall of products but the difficulty came where the parties could not agree what FRAND terms were. This discussion is followed by these two paragraphs:

“55. In such a situation, in order to prevent an action for a prohibitory injunction or for the recall of products from being regarded as abusive, the proprietor of an SEP must comply with conditions which seek to ensure a fair balance between the interests concerned.

56. In this connection, due account must be taken of the specific legal and factual circumstances in the case (see, to that effect, judgment in Post Danmark, C-209/10, EU:C:2012:172, paragraph 26 and the case-law cited).”

241.
A SEP owner may therefore prevent an action for an injunction from amounting to an abuse before FRAND terms have been settled by complying with conditions which will secure a fair balance between the competing interests we have identified. After emphasising (at [57] and [58]) that intellectual property rights are entitled to a high level of protection, the court continued (at [59]) that the FRAND undertaking nevertheless imposes on a proprietor an obligation to comply with specific requirements when bringing actions against alleged infringers for a prohibitory injunction or for the recall of products.

242.
Then, at paragraph [60], the CJEU stated the proprietor of a SEP cannot, without infringing Article 102 TFEU, bring an action against an alleged infringer seeking an injunction or the recall of products without notice or prior consultation with the alleged infringer, and that is so even if the SEP has already been used by the alleged infringer:

“60. Accordingly, the proprietor of an SEP which considers that that SEP is the subject of an infringement cannot, without infringing Article 102 TFEU, bring an action for a prohibitory injunction or for the recall of products against the alleged infringer without notice or prior consultation with the alleged infringer, even if the SEP has already been used by the alleged infringer.”

243.
The CJEU continued that, prior to proceedings, it is thus for the proprietor of the SEP, first, to:

“61. … alert the alleged infringer of the infringement complained about by designating that SEP and specifying the way in which it has been infringed.”

244.
Secondly, after the alleged infringer has expressed a willingness to conclude a licensing agreement on FRAND terms, it is for the proprietor of the SEP to:

“63. … present to that alleged infringer a specific, written offer for a licence on FRAND terms, in accordance with the undertaking given to the standardisation body, specifying, in particular, the amount of the royalty and the way in which that royalty is to be calculated.”

245.
Then, it is for the alleged infringer to:

“65. … respond to that offer, in accordance with recognised commercial practices in the field and in good faith, a point which must be established on the basis of objective factors and which implies, in particular, that there are no delaying tactics.”

246.
The sanction upon the alleged infringer if it fails to respond appropriately is explained by the CJEU at [66]. If it does not accept the offer which has been made to it, it may rely upon the abusive behaviour of an action for an injunction or for the recall of products only if it has submitted to the proprietor of the SEP in question, promptly and in writing, a specific counter-offer that corresponds to FRAND terms.

247.
A further obligation is imposed on the alleged infringer at [67]. Where that undertaking is using the teaching of the SEP before the conclusion of a licence, it is for it, from the point that its counter-offer is rejected, to provide appropriate security in accordance with recognised commercial practices in the field.

248.
Two other points should be mentioned at this stage. First, if no agreement is reached after the counter-offer, the parties may request that the amount of the royalty be determined by an independent third party without delay (see at [68]). Secondly, an alleged infringer cannot be criticised for challenging, in parallel to the negotiations of the grant of a licence, the validity or the essentiality of the SEPs in issue, or for reserving the right to do so in the future (see at [69]).

249.
The conclusion of the CJEU on these points is then set out at [71] which we should set out in full:

“71. It follows from all the foregoing considerations that the answer to Questions 1 to 4, and to Question 5 in so far as that question concerns legal proceedings brought with a view to obtaining the recall of products, is that Article 102 TFEU must be interpreted as meaning that the proprietor of an SEP, which has given an irrevocable undertaking to a standardisation body to grant a licence to third parties on FRAND terms, does not abuse its dominant position, within the meaning of Article 102 TFEU, by bringing an action for infringement seeking an injunction prohibiting the infringement of its patent or seeking the recall of products for the manufacture of which that patent has been used, as long as:

– prior to bringing that action, the proprietor has, first, alerted the alleged infringer of the infringement complained about by designating that patent and specifying the way in which it has been infringed, and, secondly, after the alleged infringer has expressed its willingness to conclude a licensing agreement on FRAND terms, presented to that infringer a specific, written offer for a licence on such terms, specifying, in particular, the royalty and the way in which it is to be calculated, and

– where the alleged infringer continues to use the patent in question, the alleged infringer has not diligently responded to that offer, in accordance with recognised commercial practices in the field and in good faith, this being a matter which must be established on the basis of objective factors and which implies, in particular, that there are no delaying tactics."

250.
The position is different in relation to an action for infringement seeking an account or damages, as the CJEU went on to explain at [74] and [75]:

"74. In the present case, according to the description set out in the order for reference, the actions for infringement brought by the proprietor of an SEP, seeking the rendering of accounts in relation to past acts of use of that SEP or an award of damages in respect of those acts of use, do not have a direct impact on products complying with the standard in question manufactured by competitors appearing or remaining on the market.

75. Consequently, in circumstances such as those in the main proceedings, such actions cannot be regarded as an abuse under Article 102 TFEU."

251.
Huawei contended at trial that the CJEU has here laid down a set of mandatory conditions with which a SEP owner must comply before starting an action seeking injunctive relief, and that if it fails to do so its claim for an injunction necessarily amounts to abusive conduct. It argued that UP was in breach of these conditions in that it issued these proceedings without (i) designating the patents said to be infringed; or (ii) presenting to Huawei a licensing offer of any kind, still less a FRAND offer. In these circumstances Huawei was entitled to rely on these deficiencies as a defence to the claim for an injunction.

252.
The judge rejected these contentions. We think his reasoning can be distilled into the following propositions. First, the SEP owner must be committed to license its SEPs on FRAND terms, must make that clear to the implementer and must put forward concrete proposals; it is this commitment that matters and not whether the SEP owner has actually made an offer on terms which are ultimately found to be FRAND (see [738] and [744 (ii)]).

253.
Secondly, the only requirement that must be satisfied before proceedings are commenced is that set out by the CJEU at [60], namely that the SEP owner gives notice to or consults with the implementer; and what amounts to sufficient notice will depend on all the circumstances (see [740] and [744(iv)]).

254.
Thirdly, the CJEU has deliberately not decided that any deviation by the SEP owner from the scheme laid down in its judgment at [61], [63] and [71] will necessarily amount to an abuse of its dominant position; it has instead decided that if the SEP owner complies with those requirements, its conduct in bringing the proceedings for an injunction will not amount to an abuse of its dominant position (see [739], [741] and [744(iii) and (v)]).

255.
Fourthly, in deciding whether the conduct of the SEP owner is abusive or not, regard must be had to all the circumstances and that conduct may be measured against the standard of behaviour the CJEU has set out at [71] (see [740] and [744(v)]).

256.

Fifthly, if the SEP owner complies with the scheme its subsequent behaviour may nevertheless amount to an abuse of a dominant position (see [744(vi)]).

257.
Sixthly, if the SEP owner does abuse its dominant position by bringing the claim or by its conduct in pursuing the claim, this will afford a defence to the claim for an injunction (see [744(vii)]).

258.
The judge then proceeded to apply these principles to the facts of the case. Here he found that although UP had not provided its FRAND terms to Huawei before issuing proceedings, there was contact between the parties. Further, at the moment before proceedings were issued, Huawei had sufficient notice that UP held particular SEPs and it knew or ought to have known that if these SEPs were truly essential and valid then a licence was required. It also knew that UP wished to agree a licence with it. Overall, the information Huawei had by March 2014 was sufficient for it to understand that the issuing of proceedings for an injunction against it did not represent a refusal to license its SEP portfolio; quite the reverse: (see at [750]). Furthermore, the fact that an injunction was being claimed did not prevent the parties negotiating and that is what they proceeded to do (see at [752]).

259.
The judge also explained that although UP did not present to Huawei, prior to the issue of proceedings, a specific, written offer for a licence on FRAND terms, it did provide to Huawei the key terms of a licence offer a few weeks after the commencement of proceedings (see at [753]). This was followed by counter-offer and further negotiations. But Huawei never made an offer to accept whatever the court might decide were FRAND terms (see at [754]).

260.
In all these circumstances, the judge continued, UP had not abused its dominant position by issuing and pursuing these proceedings for an injunction in the way that it did. Even if it had done so, the judge was “far from being convinced” that the refusal of an injunction in 2017 would have been a proportionate remedy (see at [795]).

261.
Upon this appeal, Huawei maintains the position it took at trial and contends that Birss J wrongly rejected its defence and has misunderstood the judgment of the CJEU in Huawei v ZTE. The submissions developed by counsel on its behalf are, in outline, as follows. They argue first, that the judge perceived there to be a tension between paragraphs [60] and [71] of the CJEU’s judgment and he then sought to identify which paragraph formed the ratio decidendi of the decision. This was an error because there is no distinction between the ratio of a decision and obiter dicta in European jurisprudence. The judge ought to have interpreted the decision as a whole, and had he done so he would have found that the CJEU was laying down specific requirements which, if not complied with, would result in a finding of abuse of a dominant position. They also say this has been the understanding of national courts.

262.
Counsel for Huawei continue that the judge also misunderstood the requirement imposed by the CJEU at [60] in another way. He found that it only required contact to some degree before proceedings are issued. However, he ought to have read [60] together with [61] and in context, and had he done so he would have found that the prior notice called for [60] is to alert the alleged infringer of the infringement complained about by designating the relevant SEP and specifying the way in which it has been infringed. The judge’s view that only lack of prior notice of any kind would render

proceedings for an injunction abusive is not a faithful or fair interpretation of this requirement or the CJEU's judgment as a whole. As it was, UP's conduct was plainly deficient. Huawei was reasonably expecting to receive claim charts when the litigation began.

263.
It is also submitted by counsel for Huawei that the condition laid down by the CJEU at [71] requiring a FRAND offer to made by the SEP owner prior to the commencement of proceedings cannot be complied with by making such an offer after the commencement of proceedings, and the judge was wrong to find otherwise.

264.
Finally, submit counsel for Huawei, the judge fell into error at [795] in expressing the view that non-compliance with the Huawei v ZTE conditions might not disentitle UP to an injunction given the passage of time since March 2014. The decision of the CJEU on this issue is, they say, absolutely clear. The failure to comply with the Huawei v ZTE conditions gives rise to a defence to the claim for an injunction which is without limit of time, and the judge's observation to the contrary has no proper basis.

265.
Counsel for UP submit that the judge came to the right answer and that he did so for the right reasons. They also argue that if the decision of the CJEU has the meaning for which Huawei contends then the injunction which UP sought was couched in careful and contingent terms which the judge ought to have found prevented any possible finding of abuse. Specifically it sought an injunction:
"save in so far as [Huawei] are entitled to and take a licence to the Declared Essential Patents on FRAND terms (in accordance with [UP's] undertakings and the ETSI IPR Policy) and insofar as [UP] is and remains required to grant such a licence".

266.
In resolving these rival submissions we think it helpful at the outset to step back and consider the landscape in which the Huawei v ZTE decision came to be made, the problem it seeks to address and the purpose of the framework which it has laid down. Important features of the landscape are the need to ensure, on the one hand, that interoperable and safe technologies are widely disseminated through the use of standards and, on the other hand, that innovators are adequately rewarded for the investment that they have made and that they are encouraged to continue to invest in research and development and standardisation activities. As we have explained, conflicts can occur, however. SEP owners may hold-up implementers by using the threat of litigation and an injunction to charge excessive licensing fees. Conversely, implementers may hold-out against the payment of reasonable licensing fees by refusing to engage in good faith licensing negotiations. So, as the Commission indicated in the introduction to the November 2017 EU Communication, there is a need to set out key principles that foster a balanced, smooth and predictable framework for SEPs that will incentivise the development and inclusion of top technologies in standards by preserving fair and adequate return for their technical contribution, and also ensure the smooth and wide dissemination of standards based upon fair access conditions.

267.
These conflicts and the need for a balanced and predictable enforcement regime to resolve them have given rise to a debate in the SEP area as to the availability of injunctive relief. As the Commission went on to explain in chapter 3 of the November 2017 EU Communication, such relief can protect SEP owners against infringers unwilling to conclude a licence on FRAND terms. But at the same time,

safeguards are needed to guard against the risk that good-faith technology users threatened with an injunction accept licensing terms that are not FRAND, or are even driven out of the market. Here lies the importance of the decision of the CJEU in Huawei v ZTE. In the words of the Commission at 3.1 of the November 2017 EU Communication:

"In its Huawei judgment, the CJEU established obligations applying to both sides of a SEP-licensing agreement, when assessing whether the holder of a SEP can seek an injunction against a potential licensee without infringing Article 102 TFEU. SEP holders may not seek injunctions against users willing to enter into a licence agreement on FRAND terms, and the CJEU established behavioural criteria to assess when a potential licensee can be considered to be willing to enter into a licence. "

268.
We can now turn to what we perceive to be the most critical question on this aspect of the appeal, namely whether the CJEU was laying down in its judgment at [70] specific mandatory conditions which must be satisfied before proceedings seeking injunctive relief are issued, so that non-compliance will necessarily render the commencement of proceedings for an injunction an abuse of a dominant position, or whether, as the judge found, the only mandatory condition is that contained in the CJEU's judgment at [60], and that the conditions set out in the judgment at [70] will, if satisfied, provide a safe harbour for the SEP owner by ensuring that the commencement of proceedings does not, in and of itself, amount to an abuse.

269.
We have come to the firm conclusion that the CJEU was not laying down mandatory conditions at [70] of its judgment such that non-compliance will render the proceedings a breach of Article 102 TFEU and that the judge's interpretation of the CJEU's judgment is in this respect entirely correct. We say that for the following reasons. First, the CJEU has expressly recognised at [56] that, in determining whether a course of conduct is abusive, account must be taken of the actual circumstances in the case. The need to take into account all the circumstances is well established in the jurisprudence of the CJEU and illustrated by the court's decision in Case C-209/10Post Danmark A/S v Konkurrencerådet at [26]. This approach does not sit comfortably with the notion that the CJEU has laid down a set of prescriptive rules and that failure by a SEP owner to comply with any of them will necessarily and in all circumstances render the commencement of proceedings for an injunction abusive.

270.
Secondly, the language used by the CJEU supports UP's position. The court said at [53] that a refusal by the SEP owner to grant a licence on FRAND terms may, in principle, constitute an abuse of a dominant position. Then, at [54], it recognised that, as in the case before it, the parties may not be in agreement as to what the FRAND terms are; and, importantly, at [55], that in such a situation and in order to prevent an action for an injunction from being regarded as abusive, the SEP owner must comply with conditions which secure a fair balance between the competing interests. The substance of this language is then repeated by the court at [71] in answering the referred questions, for here it says that a SEP owner does not abuse a dominant position by bringing an action seeking an injunction as long as it has taken the various steps the court goes on to identify. This language is apt for a safe harbour: if the SEP owner complies with the prescribed steps, the commencement of the action will not, in and of itself, amount to an abuse.

271.

Thirdly, the language used by the CJEU at [53], [54] and [71] of its judgment may be contrasted with the language it used at [60]. Here the court made clear that a SEP owner cannot, without infringing Article 102, bring an action for an injunction without notice or prior consultation with the alleged infringer. The judge was of the view, and we agree, that the SEP owner must therefore give notice to or consult with the alleged infringer prior to the commencement of proceedings, and that if it fails to do so its conduct will necessarily be abusive. Precisely what notice must be given and the nature and extent of the consultations which must be carried out will depend upon all the circumstances of the particular case in issue.

272.
Fourthly, the interpretation for which UP contends is also consonant with the purpose and objective of the FRAND regime, addresses the particular problem with which the CJEU was concerned and allows for and accommodates the wide variety of circumstances which may be present in different cases. As we have explained, on the one hand, a SEP owner which is willing to licence its SEP on FRAND terms but is met with an alleged infringer which is holding-out should be able to bring proceedings for injunctive relief. On the other hand, a SEP owner which is holding-up should not be able to use the threat of an injunction to coerce an alleged infringer which is prepared to take a licence on FRAND terms into paying exorbitant licence fees. These objects are, in our judgment, more readily met by the interpretation for which UP contends.

273.
For example, if an alleged infringer is familiar with the technical details of the devices in which it is dealing and the SEP it may be infringing but has no intention of taking a licence on FRAND terms, it would in our view be harsh if the SEP owner were found to be in breach of Article 102 and denied an injunction simply because it had not, prior to the commencement of proceedings, taken the formal steps of designating the SEP or specifying the way it had been infringed. But conversely, if a SEP owner has issued proceedings for an injunction against an alleged infringer without taking those steps, it will have moved outside the safe harbour protection of the CJEU protocol and rendered itself open to a finding of abuse, depending on all the circumstances.

274.
Fifthly, counsel for UP say and we agree that it is important to have in mind that the procedural rules of member states differ one from another. In some member states there is a real risk of an injunction being granted to restrain infringement of a patent before any determination is made of its validity. So also, in some member states, a final injunction may be granted before a FRAND rate is determined. These factors favour SEP owners. In the UK, however, it is not the practice of the courts to grant an injunction in cases of this kind until the issue of what is FRAND has been resolved. The risk of any alleged infringer being coerced by the commencement of proceedings into agreeing an unduly high royalty rate is therefore very much lower. These are matters of which the CJEU would be well aware and render it unlikely it would set out an inflexible framework of the kind for which Huawei contends.

275.
Sixthly, counsel for UP also point to the fact that these proceedings began before the CJEU gave judgment in Huawei v ZTE on 16 July 2015 and, indeed, before Advocate-General Wathelet gave his opinion on 20 November 2014. The case is therefore what the German courts have described as a “transitional case”. It would, counsel say, be very unfair if UP were to be found to have conducted itself abusively in failing to comply with some pre-action protocol requirements identified by the CJEU only at a later date. They say this is a further indication of the correctness of the interpretation of the CJEU’s judgment for which they argue.

276.

In this regard it is, we think, helpful to refer to a number of decisions of the German courts to which we have been taken by the parties. The first is the decision of the Regional Court of Mannheim in Pioneer v Acer (cited above at [63]). Here the court took the view that in cases filed before the decision of the CJEU in Huawei v ZTE, it did not matter if the claimant had not fulfilled its obligations by the date it began proceedings and only did so thereafter. If the claimant had indeed fulfilled its obligations, albeit at a later date, it would be disproportionate to deprive it of a right to an injunction on a permanent basis. On appeal, the Karlsruhe Regional Court of Appeal, 6th Division, gave judgment on 31 May 2016 upholding the decision of the District Court: Pioneer v Acer 2016 6 U 55/16.

277.

The next is the decision of the District Court of Düsseldorf in St Lawrence v Vodafone (cited above at [64]). This too was a transitional case. The District Court recognised that the law explained by the CJEU in Huawei v ZTE was applicable ex tunc but continued that this did not preclude the taking into account of any special features of the case, that it was not appropriate to apply the law in a formulaic way and that it would, for example, be a useless bureaucratic approach to require claimant to give the alleged infringer notice of matters of which it was already well aware, just as it would be to require the claimant to get around the difficulty posed by the decision of the CJEU by taking the step of issuing new proceedings. It is our understanding from the translation provided to us that this decision was upheld in all essential respects by the Düsseldorf Regional Court of Appeal: St Lawrence v Vodafone 1-15 U 36/16, a decision of 9 May 2016.

278.

The third is that of the Düsseldorf Regional Court of Appeal in the case of Sisvel v Haier (cited above at [77]) dated 15 March 2017. Here the court emphasised that the principles explained by the CJEU in Huawei v ZTE applied to all cases, including transitional cases. It then referred to the decision of the trial judge that the claimant had given the defendant appropriate notice before the trial, but had failed to present to the defendants a FRAND offer either before filing its claim or by the end of the oral hearing, despite the defendants indicating they were willing to take a FRAND licence. In these circumstances the appeal court thought it irrelevant whether and, if so, under what conditions the claimant SEP holder could fulfil its duty of submitting a FRAND offer during ongoing proceedings. It nevertheless proceeded to point out that “in order to not violate Article 102 TFEU”, the holder of a SEP which believes it has been infringed must not assert its claim without complying with the CJEU’s conditions, and that “before asserting its claims in court” the SEP owner had to notify the alleged infringer of the alleged patent infringement, name the SEP and indicate how it had been infringed.

279.

In our view these decisions are generally consistent with and support the approach of the judge. The German courts have not applied the reasoning of the CJEU in Huawei v ZTE in a formulaic way, and they have instead considered any special features of the cases before them and have been prepared to take into account the behaviour of the parties up to the end of their oral hearings.

280.

We must now address the outstanding aspects of the submissions made to us on this issue by counsel for Huawei. They contend that the judge fell into error in searching for the ratio decidendi of the CJEU’s decision. We agree this was inappropriate but we have no doubt that it made no difference to the conclusion to which he came, as he himself made clear in his second judgment on the form of order.

281.
Secondly, we are satisfied that the judge was right to approach paragraph [60] of the CJEU decision in the way that he did. Although we initially had some doubts as to whether the judge's interpretation of this paragraph was unduly favourable to Huawei, we have in the end come to the conclusion the judge was right to say that, cast as it is in mandatory terms, it imposes a positive obligation to notify the alleged infringer before commencing proceedings, and that the nature and content of that notice must depend on all the circumstances. Its purpose is to notify the alleged infringer of the rights said to be infringed and that it is prepared to licence the infringer on FRAND terms, in so far as it is not already aware of these matters.

282.
Thirdly, compliance with the protocol laid down by the CJEU affords the SEP owner safe harbour protection against a finding of breach of a dominant position arising from the commencement of proceedings for an injunction. If the SEP owner steps outside the protocol, the question whether its behaviour has been abusive must be assessed in light of all of the circumstances.

283.
Fourthly, we have no doubt that the decision of the CJEU is focused on the commencement of proceedings and that it was entirely permissible to consider whether it would be appropriate to bar the claim for an injunction after the trial of the infringement, validity and FRAND proceedings. As the judge pointed out, three years had elapsed from the date of the commencement of proceedings and over a year since the finding that Huawei had infringed UP's valid patent rights. The assertion of abuse could have been taken very much earlier. Although it is not necessary to express a concluded view, we see considerable force in the judge's observation that he was "far from being convinced" that a refusal of an injunction in 2017 would have been proportionate.

284.
In all these circumstances we are satisfied that the propositions we have framed from [267]-[272] above are correct as a matter of law. We see no basis for interfering with the judge's findings of fact or his assessment of whether UP had behaved abusively.

285.
It follows that it is not necessary to address the other point arising on the respondent's notice, namely whether the judge ought to have accepted that the contingent terms of the injunction UP sought bypassed all of the issues which we have addressed. Nevertheless and since we heard argument upon it, we will state our views, albeit briefly. In our judgment this would not have saved UP had we decided the other points against it. This was far from an undertaking that it would license Huawei on whatever terms the court found to be FRAND.

Was there some other basis upon which relief should have been refused?

286.
It only remains to consider whether, as Huawei has also contended, the judge ought to have refused an injunction on the basis that it would be disproportionate or in some way other way inequitable. We think there is nothing in this point. The judge has found and in our view was entitled to find, that a global licence was FRAND and that UP had not engaged in any abusive behaviour. Huawei had infringed two SEPs and UP was entitled to an injunction to restrain further infringement unless Huawei took the licence he had settled.

287.

It was suggested that UP had never properly articulated a case that only a global licence would be FRAND. We reject that suggestion. The references with which we have been provided show that it was UP's primary case that it was only ever obliged to offer a global licence and that this is a matter of which Huawei was well aware.

288.
It was also contended that UP's offers of a licence diverged so far from a FRAND licence that this should in some way bar its claim for injunctive relief. There is nothing in this point. There was no basis for contending that UP's offers were in any way improper or unusual or impacted adversely upon the progress of the negotiations.

289.
Finally, it was suggested that it would be inequitable to grant an injunction which would effectively compel Huawei to take a global licence having regard to the nature and geographical spread of its business and the ongoing litigation in Germany and China. We have already addressed the substance of this point in considering the first ground of appeal. UP has established that two of its SEPs have been infringed. The judge has settled a FRAND licence. Huawei can accept that licence and pursue the litigation on foot in other jurisdictions if it wishes to do so.

290.
It follows that ground 3 must be rejected.

Overall conclusion

291.
For all of the reasons we have given, this appeal must be dismissed.

Case No: HP-2014-000005

Neutral Citation Number: [2017] EWHC 1304 (Pat)

IN THE HIGH COURT OF JUSTICE
CHANCERY DIVISION
PATENTS COURT

Royal Courts of Justice

Rolls Building

Fetter Lane

London EC4A 1NL

Date: 07/06/2017

Before:

THE HON. MR JUSTICE BIRSS

- -

Between:

Unwired Planet International Ltd **Cla**

- and -

(1) **Huawei Technologies Co. Ltd**

(2) **Huawei Technologies (UK) Co. Ltd** **Defe**

- and-

Unwired Planet LLC **Tenth**

Adrian Speck QC, **Sarah Ford**, **Isabel Jamal** and **Thomas Jones** (instructed by **EIP** and **Enyo Law**) for the **Claimant**

Andrew Lykiardopoulos QC and **James Segan** (instructed by **Powell Gilbert**) for the **First and Second Defendants**

Hearing dates: 19th May 2017

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Judgment

Mr Justice Birss :

1.

This judgment deals with the remedies to follow from my main judgment dated 5th April 2017 ([2017] EWHC 705 (Pat)). There is no need to rehearse the background. The first issue I have to decide is what sort of relief should be granted in this case. Unwired Planet press for a final injunction to restrain infringement of the two patents found to be valid and infringed, albeit they also accept that the injunction should be stayed on terms pending any appeal by Huawei to the Court of Appeal. Huawei contend that I should accept certain undertakings from Huawei and not grant a final injunction. This first issue is the major question I have to decide. The other issues are: second what to do about damages, third a point on certain declaratory relief, fourth costs, and fifth permission to appeal.

The first issue – injunction or undertakings

2.
The main judgment decided that a particular form of licence represents the FRAND terms between the two relevant parties, Unwired Planet and Huawei, in the relevant circumstances. That licence will be referred to as the Settled Licence. It is annexed to this judgment. The form of the Settled Licence was finalised a few weeks after the main judgment. There is no dispute that the Settled Licence in that form reflects the decisions made in the main judgment.

3.
The Settled Licence is a global licence. Throughout the proceedings Huawei had maintained that they were not prepared to enter into a global licence with Unwired Planet. Huawei had made it clear that they did not accept that a global licence was FRAND as a matter of competition law. This was reflected in the main judgment, for example paragraphs 524-572. I held that such a licence was FRAND and that since Unwired Planet had established infringement by Huawei of valid patents and since Huawei have not been prepared to take the FRAND licence, a final injunction should be granted (paragraphs 793-795 and the summary paragraph 806(18)).

4.
I had made it as clear as I could to the parties during trial that the trial itself was the hearing at which the question of whether or not to grant an injunction was to be decided. However because Huawei had refused to engage with the terms of a worldwide licence, the fully worked out Settled Licence did not exist at the date the judgment was handed down. Reluctantly I decided that the injunction could not be dealt with at the handing down but would be dealt with at a later hearing (see main judgment paragraph 794). Although Huawei were to that extent benefitting from their earlier non-engagement, nevertheless that seemed to me to be the proper course.

5.
A preliminary question is whether there is anything to decide at all. Huawei submit that I have not actually made the decision whether to grant a final injunction or not. However in case they are wrong Huawei have also issued an application to reconsider the grant or refusal of a final injunction under the jurisdiction confirmed by the Supreme Court in **Re L-B**[2013] 1 WLR 634. Unwired Planet pointed out that in the main judgment I said an injunction "should be granted" (see summary paragraph 807(18)) but Unwired Planet did not press a formal point that the issue could not be considered on its merits at this hearing.

6.
Since no injunction was granted when the main judgment was handed down and since I stated in terms that I would deal with an injunction at a later hearing, I have not yet exercised the court's power one way or another on this issue. It is open to me to decide the matter and there is no need to consider exercising the **Re L-B** jurisdiction.

7.
Unwired Planet contend that a final injunction should be granted. They agree that it should be stayed on terms pending appeal, but that is all.

8.
Huawei submit that the present circumstances are now materially different from the circumstances during trial and at the time the judgment was handed down. Now Huawei offer two undertakings to the court. They are set out in the witness statement of Huawei's UK solicitor Simon Ayrton of Powell

Gilbert. He explains that pending appeal Huawei are prepared to provide the following undertakings to the Court:

“First, that within seven days of the expiry of the time to appeal against the Final Order or, if there is an appeal against the Final Order, its withdrawal or final determination, Huawei will enter into the form of licence settled by Mr Justice Birss (i.e. the Licence) or such other licence as may be finally settled by the courts.

Second, that until the expiry of the time to appeal against the Final Order or, if there is an appeal against the Final Order, pending its withdrawal or final determination, Huawei will abide by the terms of the Licence as if the same were in full force and effect.”

9.
The “Final Order” is the order whose terms I am deciding now. The “Licence” is what I have called the Settled Licence.

10.
Huawei submit that I should accept this undertaking and refuse to grant a final injunction. They submit that Unwired Planet are protected pending appeal because Huawei will pay royalties in the meantime (subject to a point about a letter of credit to deal with what happens if Huawei win their appeal). They also submit that the effect of this undertaking is that one way or another there will be a licence in place with Huawei as a party. Mr Ayrton says that these undertakings mean that Huawei are willing to enter into whatever licence the UK courts settle and in the meantime will abide by the Settled Licence as if it is in force. If no other licence is finally settled by the courts then Huawei will enter into the Settled Licence. So the final injunction will serve no useful purpose for the duration of the Settled Licence or such other licence as is finally settled by the courts. Mr Ayrton then points out that the Settled Licence will expire in 2020 (and a 2020 expiry was an agreed term of the UK licence at trial). Since patent EP (UK) 2 229 744 which was considered in trial A and found valid and infringed does not expire until 2028, the injunction will still be in being in 2020 when the Settled Licence expires. Having the injunction in place at that time would unfairly distort the positions of the parties in any renegotiation which would need to take place.

11.
Unwired Planet take a number of points in response to these submissions. Their first major argument is that Huawei’s submissions mix together the question of what the final relief should be absent any appeal, with the question of what the terms should be pending appeal. They contend that, subject to an issue about letters of credit, there is no dispute about the appropriate terms pending any appeal. Huawei in effect should behave as if the Settled Licence is in force and pay royalties in the meantime, subject to repayment by Unwired Planet. But the fact that the final injunction should be stayed pending appeal does not mean it should not be granted. They argue that today the position remains that Huawei refuse to enter into the licence found to be FRAND by the court and so an injunction ought to be granted. They argue that what Huawei are trying to do is decline to enter into the licence settled by the court at least while the appeal is pending but still avoid an injunction. They say this builds an interim measure into what should be final relief.

12.
Unwired Planet’s second point is to dispute Huawei’s assertion that the effect of the undertakings is that it is inevitable that Huawei will enter into a licence with Unwired Planet at the conclusion of the appeal process. Unwired Planet do not agree that the undertakings offered make it watertight, in every conceivable scenario on appeal, that a licence will be in force between Unwired Planet and

Huawei at the end. That depends on examining the points on which Huawei wish to appeal, which I will return to below.

13.
Like many aspects of this case, this dispute about relief raises some new problems. One suggestion was that the real problem was that the Settled Licence had no terms dealing with appeals. Huawei submitted that if it did then they might be able to enter into it now but still argue on appeal that a UK licence was the right outcome. I agree that it might be possible to craft terms in a licence which could allow for something like that and perhaps the next time a court is called upon to settle FRAND terms, that could be considered. But neither side suggested such terms at trial and I made it clear the time to do that was then, not now (e.g. paragraph 581). Moreover I am not convinced it is as simple as Huawei suggest.

14.
Another point is the issue of what happens in 2020. This arises from the fact that the eight year term of the Settled Licence runs from 2013 until 2020. That term arose because the parties at trial were agreed that the UK licence should work that way. When I came to consider the worldwide licence I started from the UK terms, finding (paragraph 593) that the points the parties were able to agree upon as FRAND in the UK licence were just as applicable to a worldwide licence. That included recognising that it would be an eight year licence running from expiry of the 2009 Ericsson-Huawei licence until the end of 2020.

15.
When, during the trial, I saw the agreed expiry date of 31st December 2020 in the UK licence my first reaction was one of surprise. It was only three years away and at least some of the patents will last much longer than that. But on reflection I could see that such a thing made sense and I was not surprised the parties had agreed on it. One of the real problems with FRAND and SEPs is that all sorts of relevant circumstances change. Old patents expire and new ones are granted. Standards themselves change. One might think new patents cannot be essential to old standards but even that is not as simple as it might appear. Fixing a rate for a period of years involves a risk (paragraph 563) and so the idea that today one can agree what the rate should be for many years into the future is difficult. If patents courts are to support orderly FRAND licensing of standards essential patents, as I believe they should, then a workable approach needs to be developed which allows for these changing circumstances.

16.
Huawei are right to raise this problem. It is inherent in settling licences in this field. It would have arisen just the same if Huawei had won on the UK/worldwide issue. It has to be sorted out whoever is correct about the final form of relief.

17.
In order to decide what to do I believe it is useful to look at what the final remedy should be absent any appeal and then consider the position pending appeal separately. I note that in **Kirin-Amgen v Transkaryotic Therapies Inc (No 3)**[2005] FSR 41 (decided in 2001 but reported in 2005) Neuberger J (as he then was) took a similar approach when he was considering the terms of a final patent injunction and the terms of a stay pending appeal. In paragraphs 20 and 21 the judge considered what the correct order would be “absent TKT’s appeal”.

18.

I will start by looking at what the right final relief should be in a patent case with a FRAND licence absent any appeal. Thinking about the problem of what happens in 2020 highlights an aspect of Unwired Planet's case which goes too far. Unwired Planet contend that, absent any appeal, the patentee is entitled to a final injunction which should run from now until the expiry of the relevant patents and should continue even if the defendant enters into a licence. They argue that such an injunction will not prejudice Huawei, even if Huawei become licensed, because the prohibition is only to not infringe. Therefore, they say, if Huawei have a licence, then their relevant acts are not infringements and not prohibited by the injunction.

19.
In my judgment this approach is unreal. By that logic if I granted the injunction today and Huawei signed the Settled Licence tomorrow the injunction would remain in existence. What happens if a year later a dispute arises about an alleged repudiatory breach of the licence? Huawei could then be in an impossible position because they would risk being in contempt of court if they continued to sell equipment during a period when there was an argument that the licence had come to an end.

20.
With this problem in mind and assuming an injunction should be granted at all I will consider, absent appeal, what the correct form of a final injunction in respect of patents the subject of a FRAND undertaking should be when the court has settled a FRAND licence but the defendant has not entered into it. I will call this a FRAND injunction. The answer is simple. A FRAND injunction should be in normal form to restrain infringement of the relevant patent(s) but ought to include a proviso that it will cease to have effect if the defendant enters into that FRAND licence. If as in this case, the FRAND licence is for a limited time, shorter than the lifetime of the relevant patents then the injunction should also be subject to an express liberty to either party to return to court in future to address the position at the end of the term of the FRAND licence. In any case the FRAND injunction should also be subject to an express liberty to apply in the event the FRAND licence ceases to have effect for any other reason.

21.
Normally in English law when the court grants final relief a party is not entitled to come back to court in future even if circumstances change but these unusual terms arise from dealing with patents the subject of a FRAND undertaking. A FRAND injunction in this form reflects the finding that what the patentee is entitled to today, bearing in mind its FRAND undertaking, is a licence on FRAND terms but if the defendant has the ability to take the licence and does not do so, then an injunction is appropriate for as long as the defendant does not enter into that licence. If the defendant enters into the FRAND licence there should be no injunction at all. The fact the FRAND licence is limited in time does not justify an injunction continuing into the future. The court should not pre-judge at this stage what should happen if or when the FRAND licence ceases to have effect.

22.
In this case the FRAND licence is the Settled Licence. It will expire on 31st December 2020. Thinking about the position on 1st January 2021 at this stage now in 2017, it cannot be said that Unwired Planet must have an injunction on that future date but neither can it be said today that Huawei must be free to sell products or commit any other act on that future date which would infringe if unlicensed. The answer to those questions depends on the circumstances at that time. At times in argument before me it seemed to be contemplated that the process of resolving what is to happen after the end of the Settled Licence only has to start on 1st January 2021. That is wrong. If the patentee has failed to start a process of FRAND negotiation well in advance of the expiry of the

current FRAND licence then no doubt the court will be unsympathetic to the patentee even if no licence has been finalised to start the day after expiry. So too if the patentee has dragged its feet in the negotiation. Conversely if the patentee engages reasonably but the putative licensee does not, then the court's sympathies may well lie the other way round.

23.
To deal with an appeal the FRAND injunction in the form described can simply be stayed pending appeal on terms to secure appropriate payments in the meantime.

24.
I turn to consider whether a FRAND injunction should be granted or whether I should accept the undertakings offered by Huawei instead.

25.
The grant or refusal of an injunction is an exercise of the court's discretion. That discretion is circumscribed in various ways. Nevertheless when the holder of an intellectual property right has established infringement and a threat and intention to infringe in future, an injunction will normally be granted. In the words of Art 3 of the Directive on the Enforcement of Intellectual Property Rights (2004/48/EC) an injunction in those circumstances is normally effective, proportionate and dissuasive.

26.
It is not unusual in intellectual property cases for the defendant, having defended the claim vigorously throughout, to turn round after the judgment has been given against it and seek to offer undertakings not to infringe in order to avoid being subject to an injunction. Rights holders generally resist this course and insist on an injunction. In part that is because it involves a public vindication of their rights. Indeed that is exactly what the defendant is usually seeking to avoid by its belated offer of undertakings not to infringe. The practical effect of the two things (injunction and undertaking) is the same, and actually undertakings can be rather easier to enforce under English civil procedure, but nevertheless rights holders usually insist on an injunction for the reason I have explained. The claimant has been forced to come to court and vindicate its claim. An offer of undertakings after judgment is usually regarded as made too late. In general the courts will order the injunction and refuse to accept such belated undertakings.

27.
Turning to this case, in my judgment it is not irrelevant that the undertaking offered by Huawei is only offered now, after many years of litigation and after judgment has been handed down. If, from the outset, Huawei had given an unqualified undertaking to enter into whatever licence the court (including an appellate court) had decided was FRAND, then an injunction at this stage would not have been appropriate. Indeed Huawei argued that the terms of the qualification on the claim for an injunction sought by Unwired Planet from the beginning (main judgment paragraph 679-683) run counter to such an injunction. That would have been a better point if Huawei had offered this undertaking at an earlier stage. It is also notable that Huawei argued, and I accepted, that the qualification was ineffective.

28.
On the other hand the patentee's FRAND undertaking does make this situation very different from a normal IP case. The question is whether, given the FRAND undertaking, even a very belated undertaking to take whatever FRAND licence the court settles should mean that the court should refuse a FRAND injunction in the appropriate form. The possibility of an appeal has nothing to do with it because Huawei's ability to appeal is and can be protected whichever approach I take.

29.

Huawei contend that absent an appeal they would sign the Settled Licence now. I do not doubt that but it is no different from the position of any defendant who changes their tune after they have lost a case. Throughout these proceedings Huawei have maintained a determined stance that they would not accept a worldwide licence in this way. It has been a fundamental issue. In my judgment the undertaking offered by Huawei now is too late. By refusing to offer an unqualified undertaking before trial and before judgment Huawei forced Unwired Planet to come to court and vindicate its rights. The right thing to do now is grant a FRAND injunction albeit one which will be stayed on terms pending appeal.

30.

I have reached this conclusion without considering Unwired Planet’s submission that the undertakings in the form offered by Huawei are not watertight. My initial view – from looking at the words of the undertakings themselves and in particular the first undertaking - was that they were watertight. In other words that it was legally inevitable that whatever happened on appeal Huawei would end up being a party to a licence covering at least the United Kingdom. However what emerged during the course of argument is that one cannot assess the effect of these undertakings without also taking into account the points Huawei wish to argue on appeal. They are addressed below. At this stage all I will say is that it seems to me that a conceivable result of the points Huawei wish to argue and which I am satisfied have a real prospect of success is that an appellate court could decide that the court cannot settle the terms of a licence. If that happened then on the face of the wording the undertakings do not oblige Huawei to enter into any licence. Huawei say that that outcome on appeal is not their case. Rather their case is that the licence should be a UK only licence. I accept that the outcome I have described is not the outcome of the primary case Huawei contends for, but it is a possible consequence of the arguments Huawei advance. It could arise if Huawei are correct that there is more than one set of terms which are FRAND and possibly in other circumstances too. For this reason also I prefer to grant a FRAND injunction stayed pending appeal rather than accept the undertakings offered.

31.

A point arose on the letter of credit which Unwired Planet have offered to deal with repayment of any sums paid in the interim pending appeal. Unwired Planet proposed a letter of credit drawn on a bank called Pegasus Bank in Dallas. Huawei contend that the bank should be one in the UK. Unwired Planet say that to achieve that will cause very substantial and unjustified extra cost. Huawei’s representatives explained that they are not aware of Pegasus Bank and should not be compelled to accept a letter of credit from it. The fair approach is to require Unwired Planet to give a bank guarantee to Huawei’s satisfaction. If that comes at a cost then those costs should be recoverable from Huawei if no repayment is made to Huawei, but borne by Unwired Planet if any sum is repaid.

32.

Counsel for Huawei raised a concern that the draft order provided by Unwired Planet includes a penal notice. In the circumstances that is inflammatory and unnecessary. It is only necessary to serve an order with a penal notice if it is to be enforced under CPR r81.4. Since on any view the injunction will only bite after an appeal, Unwired Planet can always serve a further copy of the order, endorsed with a penal notice under CPR r81.9, in future if they feel it is necessary. There is no reason why the order should contain one now.

The second issue – damages

33.
This is closely related to the first issue. The point is that if Huawei enter into the Settled Licence then no problem about damages for past acts arises because they are covered in that agreement. But as of now Huawei have not entered into the Settled Licence. Absent appeal if Huawei never did enter into the Settled Licence then damages will be due and an order for damages should be made. The order should be in the same form as the FRAND injunction, i.e. that it will cease to have effect if the defendant enters into the Settled Licence. The way to deal with appeals is to stay the matter pending appeal.

The third issue – declaratory relief

34.
It is common ground that some declarations should be made. Two are agreed, one that Unwired Planet’s various offers are not FRAND and the other that Huawei’s offers were not FRAND. It is also common ground that some sort of declaration should be made about the Settled Licence but there is a dispute about the terms. The drafts assume the licence is annexed to the order but I will annex it to this judgment instead. Making allowance for that trivial change (in italics), the parties rival declarations are

i)
Unwired Planet:

“the terms of the licence annexed to the judgment are FRAND”

ii)
Huawei:

“(1) Neither a licence only to the Patents nor a licence only to Unwired Planet’s entire UK SEP Portfolio is FRAND

(2) The only FRAND terms of a licence of Unwired Planet’s Standard Essential Patents to Huawei are those set out in the licence annexed to the judgment”

35.
Huawei’s point is that Unwired Planet’s formulation does not capture the finding that only one set of terms are FRAND in a given set of circumstances. Huawei’s version aims to do that. Unwired Planet resist Huawei’s drafts as tautologous and unduly complicated. They argue that the first negative declaration is redundant in the light of the second positive declaration and submit that the real purpose of this wording is to give Huawei something to appeal against when the effect of the appeal would otherwise be academic.

36.
I agree that a declaration about the status of the Settled Licence ought to be made. However the declarations proposed by Huawei are too complicated and I am not convinced there is any good reason to take that approach. The declaration will be:

“the licence annexed to the judgment represents the FRAND terms applicable between the parties in the relevant circumstances” .

37.
That seems to me to adequately capture the conclusion reached in the main judgment.

38.
Finally Huawei also seek a declaration that Unwired Planet had not abused its dominant position. The purpose of this was, I think, to create a reason for appealing the **Huawei v ZTE** point and arguing that no injunction was appropriate even if Huawei's undertakings had been accepted and no injunction granted. Whether that was a kind of bootstrap argument is not something I have to decide since I have granted an injunction. Since the judgment makes a clear finding that Unwired Planet has not abused its dominant position and states as much in summary paragraph 807(17), there is no need for that declaration and I will refuse it.

The fourth issue – costs

39.
Unwired Planet argue that they should be regarded as the successful party (following **Roach v Newsgroup Newspapers**[1998] EMLR 161 and other cases) and therefore the order relating to costs should be that Huawei pays Unwired Planet's costs of these proceedings subject to some issues which Unwired Planet accept they cannot recover. The issues to be excluded are the claims against Google and Samsung and the allegation that the MSA was void under Art 101 TFEU. Although Huawei adopted part of Samsung's Art 101 case, it is convenient to refer to all these excluded issues as the Samsung issues.

40.
Unwired Planet's actual costs of the non-technical trial are about £12.4 million. Huawei's costs were about £7 million. Unwired Planet seek a payment on account from Huawei of about £6.4 million which is arrived at in the following way. The starting point is a costs' estimate confirmed in July 2016. At that stage Unwired Planet estimated their total costs to the end of the proceedings would be about £8.5 million. Huawei queried how a total of £12.4 million could have been incurred by the end of the non-technical trial (the hearing ended in December 2016) given that estimate. It emerged that at least part of the explanation was that the estimate was seriously in error. Nevertheless realistically Unwired Planet accepted that as a starting point to calculate a payment on account the July estimate should be taken. Starting from £8.5 million Unwired Planet deduct 24% for the Samsung issues. That comes to £6.4 million. If, contrary to their case a deduction should be made for the costs of the FRAND rate, those costs represent 43% of Unwired Planet's costs. So the payment on account should be 57% of £6.4 million which is £3.6 million.

41.
Huawei contend that the correct order for costs is no order. In other words each side bears its own costs. They argue that this was an unusual trial and it is not realistic to identify a single overall winner. There were three major issues: (i) worldwide vs UK licence; (ii) the FRAND rate and (iii) Article 102 TFEU. Although Unwired Planet won on the first and third issue, Huawei submit that Huawei won the rate issue or at the very least it cannot be said that Unwired Planet won that issue. If Huawei can be regarded as the winner of the FRAND rate issue then the fair order is no order as to costs. Analytically that result could be arrived at either on the basis that there is no overall winner or on the basis that even if Unwired Planet were the overall winner, the correct way to reflect Huawei's success on the FRAND rate, given that it represented broadly 40-50% of the costs, would be to make no order. The latter approach would notionally set off Huawei's costs of the FRAND rate against Unwired Planet's costs on issues (i) and (iii) and taking into account the irrecoverable Samsung issues. If "no order" is not accepted, the best for Unwired Planet ought to be that they recover the costs for issues (i) and (iii) but not issue (ii).

42.
As regards any payment on account, if a payment were to be ordered Huawei contend that the right starting point is the July 2016 estimate (£8.5 million) however the deduction of irrecoverable Samsung issues should be larger than 24%, after all when Samsung came out of the proceedings the trial estimate shrank from 13 weeks to 7 (i.e. 53%). From there the result depends on the earlier findings.

43.
With that explanation of the parties' arguments I can decide what to do. The principles applicable to costs are not in dispute and I will not rehearse them.

44.
I agree with Huawei that it is fair to consider this case as consisting of the three major issues identified. Unwired Planet clearly won issues (i) and (iii). The debate is about issue (ii) – the FRAND rate. The simple point is that in terms of royalty rates the results on issue (ii) were % values lower than Unwired Planet's case and higher than Huawei's. In terms of amounts of money to be paid there is no question that on the judgment Unwired Planet will receive much more than was being offered by Huawei. Nevertheless it is fair to observe that the vast majority of the difference is due to the worldwide nature of the licence and issue (i) rather than the differences in the rates (issue (ii)).

45.
I do not believe it is accurate to say that overall there was no winner. The appropriate way to characterise the result is that Unwired Planet are the overall winner and entitled to their costs, but that the FRAND rate issue (ii) should be considered to see if deductions are appropriate. Issue (ii) included dealing with the MNPA and HPA techniques, the analysis of comparables and the aggregate royalty calculations. It is a suitably circumscribed issue which lends itself to being considered in this way and it is pitched at an appropriate and fair level of generality.

46.
I turn to consider who won the FRAND rate issue.

47.
Considering just the benchmark rates for 4G multimode handsets, Huawei contended for 0.040% whereas Unwired Planet contended for 0.13%. The judgment set this benchmark at 0.062%. Unwired Planet point out that they had to come to court to get a rate higher than 0.040%, which is true but the same can be said the other way round, Huawei had to come to court to get a rate lower than 0.13%. In terms of numbers the outcome is closer to Huawei than to Unwired Planet. A rate of 0.062% is about half the rate Unwired Planet contended for (0.13%) but only about one and a half times Huawei's contention (0.040%).

48.
Unwired Planet pointed to an offer made by Huawei on a "without prejudice save as to costs" basis in October 2016. Offers made on that basis are not shown to the court at trial but can be relied on when dealing with costs. They can play a very important part in the assessment of who won on an issue involving a sum of money. The offer was put on a patent by patent basis but it includes a lump sum offered as damages for the UK for the period 2013-2016. Mr Moss of EIP for Unwired Planet calculated the lump sum offered for that period as being about $459,000. It can be contrasted with an estimate of the amount due under a UK portfolio licence on Huawei's case as to rates of about $453,000. Unwired Planet submitted that this represented Huawei's "line in the sand" so that to receive any amount above that represented success for Unwired Planet. The "line in the sand"

metaphor is not helpful in this case. It is just another way of repeating the point I have already noted that Unwired Planet say they had to come to court to get a benchmark rate higher than 0.040%. To repeat the answer, that is true but it is just as true that Huawei had to come to court to get a rate lower than 0.13%. Unwired Planet cannot avoid that problem just because Huawei made a without prejudice save as to costs offer. I do not find the without prejudice save as to costs offer makes any material difference.

49.
Unwired Planet emphasised the amounts of money which Huawei will have to pay as a result of the judgment. The figures are all based on estimates for the sum due for 2013-2016 and therefore do not represent the total sum due, but since they are all on the same basis they can be used for comparison purposes. In terms of a lump sum, the most Huawei were offering was the sum above – i.e. about $453,000. By comparison the amount Huawei would have to pay for the period 2013-2016 under the Settled Licence is about $23 million. On the other hand, as Huawei point out, an estimate on the same basis of how much Huawei would have had to pay for 2013-2016 on Unwired Planet's original royalty case which remained their case from 2014 to 2016 is about $150 million. That original case involved a 0.2% rate for 4G. The estimate on the same basis using Unwired Planet's case as at August 2016, when the 4G rate dropped to 0.13%, is about $100 million. Finally, I should mention the same sum based on the UK portfolio licence rates in the judgment. That would be about $0.9 million.

50.
Unwired Planet emphasise these numbers as showing how they will receive much more than Huawei offered and Huawei make the familiar reply that the amounts are much less than Unwired Planet claimed.

51.
An important factor Huawei emphasise is the effect of the decision about the OM and China rates. Taking 4G multimode handsets the judgment was that for Major Markets (MM) the rate should be 0.052% whereas for China and Other Markets (OM) the rate should be 0.026%. Of course, 0.026% is lower than the 0.040% benchmark contended for by Huawei and that has an important effect which Huawei were entitled to emphasise. In simplistic terms if the licensee's total sales were $1 million in Major Markets and $1 million in Other Markets including China, then the royalty due using the two rates set by the court would be $520 (MM) plus $260 (OM) which is $780 in total. You could express the $780 total as a single percentage of global sales of $2 million. It would be 0.039%. In other words, just below the 0.040% benchmark rate. If the sales mix was shifted to favour the OM and China markets, this notional global blended equivalent rate would fall even further towards 0.026%. Mr Lasinski performed a more sophisticated version of this calculation based on estimates of Huawei's actual sales mix in the relevant periods. The notional global blended rate he comes to for 4G handsets is 0.030%. Huawei pointed out that 0.030% is lower than certain figures used in their FRAND Statement of Case as benchmark numbers.

52.
At one stage it did seem to be suggested by Huawei that this approach showed that Huawei had won the FRAND rate issue because these calculations showed that it had achieved a lower effective global benchmark rate than rates it was actually offering Unwired Planet in these proceedings. That submission goes much too far, for three reasons. First, Huawei were not offering such global rates at all. They never offered a global licence. These rates were only being used to arrive at a UK rate. Second, Huawei made it very clear that their case was that a rate for China and elsewhere should be much lower than the benchmark numbers it was advancing. It was never suggested that these

benchmarks put forward by Huawei should be applied to China. Third, Unwired Planet question whether the way Mr Lasinski approached the sales mix for 2013-2016 and the future was fair. If the detail of these calculations was important then I would need to examine this third issue in more detail but it is not necessary to do that. The basic point, that a notional global blended rate will lie between the MM and OM rate, is obvious. Where exactly it comes out does not matter.

53.
The answer to the question of who, if anyone, won on the FRAND rate depends on the proper way to look at it. Unwired Planet argue it is like the assessment of the amount of damages to be paid. They had to come to court to get more than the defendant was offering. They have achieved that and so they have won. A defendant in that case can protect itself in costs with a without prejudice save as to costs or an offer under CPR Part 36 which works in a similar way. Huawei had tried to take that approach but not succeeded. Looked at this way, Unwired Planet won.

54.
Huawei argue that this issue is more like a tariff setting exercise in the Copyright Tribunal and draw my attention to **AEI Rediffusion v PPL**[1992] 1 WLR 1507 and in particular to Mummery LJ at 1518 in which he held that when the tribunal finds that both side's proposed terms were unreasonable and the tribunal has arrived at a result somewhere in the middle, it is not correct to proceed on the basis that the outcome must produce a winner and a loser.

55.
I remind myself that the approach to costs in the Copyright Tribunal, at least at that time of **AEI**, was not the same as in court, and that under the CPR unreasonableness is not required in order to deprive a party of his costs (as noted by Lord Woolf MR in the same case at p1523).

56.
I also bear in mind that the reason I am asking this question is about the incidence of costs relating to an issue when I have decided that Unwired Planet are the overall winner. Taking all these factors into account, in my judgment it is appropriate to see this issue as more like a tariff setting exercise than a simple claim for damages. Given the FRAND undertaking a rate had to be settled somehow. Huawei offered rates which were too low to be FRAND and they will have to pay at a higher rate than they were offering. They did not win the rate issue. But it would not be just for Unwired Planet to recoup the very substantial costs of the FRAND rate issue, along with the rest of the costs they will recover. Their offered rates were not FRAND either and were quite some way further from the end result than Huawei's. The correct thing to do with the costs associated with the FRAND rate is to deprive Unwired Planet of them but go no further than that.

57.
So the costs order will be that Huawei should pay Unwired Planet's costs of the non-technical trial save for the Samsung issues and save for the costs of the FRAND rate issue.

58.
Turning to the payment on account, the first point is Unwired Planet's figure of about 24% to represent the costs of the Samsung issues. That figure is supported by Mr Moss' evidence and comes from a detailed analysis of the costs which was done by a costs drafting firm DeNovo. It is challenged by Mr Ayrton in his evidence. He believes that a much larger deduction should be made and makes a number of detailed points about the way Unwired Planet's costs have been handled. It is not going to be productive to delve into the detail on this issue since it is only concerned with a payment on account. Unlike other patent cases I am not being asked to make an overall percentage costs order.

Mr Ayrton suggests using the reduction in the length of the trial when Samsung settled as a reasonable benchmark. I recognise that costs incurred pre-trial are not always reflected in the time at trial but I accept Mr Ayrton's approach at least as indicative. The fact that trial length was reduced to nearly half its original estimate when Samsung settled is firm evidence that a deduction of only 24% does not fairly reflect the amount of costs which Huawei should not be liable for. But a deduction of 50% is too much. I find that a fair discount to use would be 40%.

59.
Huawei also raised a good number of concerns about Unwired Planet's costs but for the purpose of assessing a payment on account, by starting from the estimate as at July 2016, these matters do not need to be considered. Therefore the amount of a payment on account will be calculated as follows.

60.
The starting point is the July 2016 figure of £8.5 million. I deduct 40% for Samsung issues, which comes to £5.1 million. I will then deduct 43% to reflect the non-recovery of the FRAND rate costs (recognising that 43% of £5.1 million is different from 43% of £6.4 million) which comes to £2.9 million. That is an appropriate sum to be paid as a payment on account of costs.

61.
If a payment is to be made by Huawei they ask that the order should provide for the due date to be calculated by reference to the date the order is sealed rather than the date the order is made, because the sealed version is needed for the internal processes necessary to set up a payment. I accept that.

The fifth issue – permission to appeal

62.
Huawei seek permission to appeal on essentially three grounds. Ground 1 is what they call the global licensing point. This includes submitting to the appellate court that more than one set of terms can be FRAND in any given circumstances, that the court ought to have held that the UK licence was FRAND and that the court ought not to determine FRAND terms including rates for territories other than the UK. It also involves submitting that it was not appropriate to grant an injunction excluding Huawei from the UK market unless it took a global licence. These points are properly arguable issues of principle and I will give permission to appeal but with one brief observation.

63.
The arguments include a reference at paragraph 1(iv) to the fact that the licence includes SEPs held by the tenth party but excludes certain SEPs acquired from Samsung and Huawei's dealing in telematics. Albeit I recognise that Huawei were reluctant to do so and that the agreement was in the context of the UK licence only since they refused to engage with worldwide terms at all, nevertheless Huawei did agree all those terms in the UK licence with Unwired Planet. If they had wanted to challenge them or contend for other terms, Huawei always had the means to do so. I have considered whether to refuse permission to appeal on that narrow point but decided that it would be better to allow Huawei to make the points they wish to make.

64.
Ground 2 is the hard-edged non-discrimination point. The key argument is whether the judgment was right to require a distortion of competition. That is a properly arguable issue of principle and I will give permission to appeal. Paragraph 4(iii) under this heading submits that the court was wrong to hold that the discrimination between Samsung and Huawei would not tend, having regard to the whole circumstances of the case, to lead to a distortion of competition. This is just rearguing the

court's assessment of the facts and evidence (see the reference to Dr Niels' cross-examination at paragraph 517). I refuse permission to appeal on that point.

65.
Ground 3 is the **Huawei v ZTE** issue, injunctive relief and abuse of dominance. These are properly arguable matters of principle and I will give permission.

66.
A small point is in paragraph 5(iv) in which Huawei submit that the judgment errs in identifying a "ratio" of **Huawei v ZTE** because no distinction between ratio decidendi and obiter dictum exists in European jurisprudence, citing **National Navigation v Endesa**[2009] 1 CLC 393 (Gloster J) and 2 CLC 1004 (Moore-Bick LJ). Huawei did not raise this when the draft judgment was provided to them. Looking again at the paragraphs of the judgment which are referred to (paragraphs 738-739 and 744(iii)), had I been aware of **National Navigation** when the judgment was written, I would have used different words, but the substance would not have changed. The point in **National Navigation** is that there is no distinction between a binding ratio and merely persuasive obiter dictum in decisions of the CJEU. One cannot disregard clear propositions of law in a European judgment just because they were not part of the ratiodecidendi. I do not believe the paragraphs in the main judgment disregard any aspect of **Huawei v ZTE** as obiter or merely persuasive. The point being made was that the CJEU decided what was not an abuse rather than deciding what was. Nevertheless since the main judgment uses the word "ratio" (probably inaccurately) I will give permission to appeal on that point too.

67.
Unwired Planet's position on permission to appeal was that they did not wish to appeal if Huawei did not, but if Huawei have permission then they seek to appeal on two points. The first is that the judgment failed to take into account the blended global nature of the benchmark rate. The second is that to exclude infrastructure servicing revenues from the royalty base was perverse.

68.
The significance of the first point is that, as Unwired Planet submit, once I had derived a benchmark rate it was in fact used as a maximum and then two downward adjustments were made. They argue that the judgment overlooked the fact that the benchmark was a global blended rate and included contributions from territories with lower rates as well as higher rates. I do not believe that is an accurate characterisation of the judgment for these reasons. A key component in the benchmark rate was the value E for Ericsson's portfolio. That was derived taking into account rates which were global blended rates but also rates which were not. In order to allow this judgment to be given in public I will not say any more. Nevertheless in case Unwired Planet's characterisation of the judgment is correct, I will give permission to appeal on this point.

69.
The second point is about one of the other terms. Unwired Planet argue that the judgment ought to have preferred Unwired Planet's wording, even though I found that Unwired Planet's wording was too extreme, on the basis that the decision that wording was too extreme was reached without a proper evidential basis. Since it was up to Unwired Planet to file such evidence if they wanted to and given the history of this litigation that submission is unmeritorious. Furthermore the submission that as an alternative I ought to have invited Huawei to propose alternative wording or invited further argument is unmeritorious too. Unwired Planet well understood and were content with the approach being

taken that I was seeking to reach a conclusion on a full set of licence terms and avoid a further hearing (cf paragraph 581 of the main judgment). I will refuse permission to appeal on this point.

Conclusion

70.
In summary:

i)
A FRAND injunction will be granted. That is one which is discharged if the defendant enters into the FRAND licence. It will be stayed pending appeal.

ii)
The declaration will provide that the Settled Licence represented the FRAND terms in these circumstances between these parties.

iii)
Huawei must pay some of Unwired Planet's costs of the non-technical trial. They are the costs of the proceedings save for the Samsung issues and the costs of the FRAND rate issue. Huawei must make a payment on account of costs of £2.9 million.

iv)
Permission to appeal is granted to Huawei on the global licensing issue, hard edged non-discrimination and on **Huawei v ZTE**. Permission to appeal is granted to Unwired Planet on the blended global benchmark issue.

The Settled Licence:

Patent License Agreement

by and between

Unwired Planet Limited Liability Company
Unwired Planet International Limited

and

Huawei Technologies Co., Ltd.

Huawei Technologies (UK) Co., Ltd.

This agreement (hereinafter referred to as the "**Agreement**") is made on this day of ______________________("**Date**") by and between: Unwired Planet Limited Liability Company, a corporation organized and existing under the laws of the State of Nevada, having its principal place of business at 7160 Dallas Parkway, Suite 250, Plano, Texas, 75024, USA ("UPLLC") and Unwired Planet International Limited, a corporation organized and existing under the laws of Ireland, having its principal place of business at The Hyde Building, Unit 32, The Park Carrickmines, Dublin 18, 662898 Ireland ("UPIL") (together hereinafter referred to as "**Unwired Planet**" or "**Licensor**"); and Huawei Technologies Co., Ltd. , a corporation organized and existing under the laws of China, having its headquarters at Huawei Industrial Base, Bantian, Longgang District, Shenzhen 518129, China, ("**Huawei China**") and Huawei Technologies (UK) Co., Ltd., a corporation organized and existing under the laws of the United Kingdom, having its principle place of business at 300 South Oak Way, Green Park, Reading, Berkshire RG2 6UF ("**Huawei UK**") (together hereinafter referred to as "**Huawei**" or "**Licensee**").

WHEREAS Unwired Planet owns, controls or is otherwise entitled to grant rights under certain patents and patent applications relating to Licensed Products (as hereinafter defined) and Huawei manufactures, sells and distributes certain Licensed Products; and

WHEREAS Unwired Planet is willing to grant a license and Huawei is willing to obtain such a license under the Licensed Patents on the terms and conditions set forth in this Agreement.

Where appropriate, Unwired Planet and Huawei shall hereinafter be referred to collectively as "**Parties**" and individually as "**Party**" or as Licensor, Licensee, Unwired Planet and Huawei as the context may require.

NOW THEREFORE in consideration of the premises and mutual covenants herein contained, the Parties hereby agree as follows:

1.
Definitions

1.1
The following capitalized terms used in this Agreement shall have the respective meanings ascribed to them below in this Section unless otherwise expressly defined in this Agreement (such definitions shall be equally applicable to both the singular and plural forms of the defined terms). The words "hereof," "herein" and "hereunder" and words of like import when used in this Agreement shall refer to this Agreement as a whole and not to any particular provision of this Agreement, and Section references are to this Agreement unless otherwise specified. For the purpose of the construction and interpretation of this Agreement, the word "including" (and variations thereof such as "include" and "includes") and the phrase "such as" will not be deemed to be terms of limitation, but rather will be deemed to be followed by the words "without limitation".

1.2
"**Affiliate**" of a Party or Third Party means an Entity that at any time controls, is controlled by, or is under common control with such Party or Third Party. Such Entities shall only be deemed to be Affiliates hereunder for as long as such control exists. Control, in this context, (hereinafter referred as "**Control**") exists where one entity owns more than 50% whether directly or indirectly of the Voting Power or, if the Entity in question does not have outstanding voting shares or securities, more than 50% of the equity interest in such Entity.

1.3
"**Combination**"means two (2) or more items comprising part of a combination of products, software and/or services being sold by Licensee or its Affiliates, as part of the same transaction or a series of linked transactions which is comprised of, at a minimum, an End User Device or a piece of Infrastructure Equipment.

1.4
"**Effective Date**" means 1 January 2013.

1.5
"**End User Device**" means a complete wireless communication device (including but not limited to mobile phones, PCs, laptops, tablets, hotspots, access points, routers, home gateways, data cards,

which is ready for use (even if a battery, SIM card, or the like needs to be added for use) as Sold by Licensee or its Affiliates, and which can be directly used by an end user for 2G, 3G, and/or 4G cellular communications. End User Devices may be capable of operating according to more than one cellular standard mode (for example, 2G, 3G, 4G), but at least one of the modes must be 2G, 3G, or 4G. End-User Device does not mean, without limitation, subassemblies or parts of products such as but not limited to Intermediate Products, other than as sold already incorporated into an End User Device.

1.6
"**Entity**" means any individual, firm, company, corporation or other corporate body or legal entity (wherever and however incorporated or established), government, state, agency or agency of a state, local or municipal authority or government body or any joint venture, association or partnership (whether or not having a separate legal personality).

1.7
"**Have Made**" means the right to have a Third Party make Licensed Products for the use and benefit of the Licensee and its Affiliates provided all of the following conditions are fulfilled:

(a)
the Licensed Products are made under contract by a Third Party manufacturer for Licensee or its Affiliates and are supplied by such Third Party manufacturer solely to Licensee or its Affiliates (or directly to their customers on behalf of Licensee or its Affiliates) and to no other Third Party; and

(b)
such Licensed Products are not re-Sold back to, or on behalf of, such Third Party manufacturers or its Affiliates.

1.8
"**Licensed Products**" means End User Devices and Infrastructure Equipment that are:

(a)
branded with a brand owned by or licensed to Licensee and/or its Affiliates, or co-branded with a brand owned by or licensed to Licensee and/or its Affiliates with that of a brand owned by or licensed to one or more Third Parties, or

(b)
manufactured by, or for (under Have Made rights), Licensee and/or its Affiliates and sold to Third Parties (e.g., Vodafone, Carphone Warehouse, distributors and retailers) as Licensee's, or Licensee's Affiliates' own products, or to Carriers for use and/or sale by Carrier under its own brand ("**Carrier**" being Vodafone, EE, O2, MVNOs (mobile virtual network operators), and the like that offer cellular service to customers).

Licensed Products shall not include Intermediate Products.

1.9
"Infrastructure Equipment" means radio access network elements (such as base stations (including pico base stations, and femto base stations, NodeB, and eNodeB), base station controllers and radio network controllers) including software necessary to operate and integral to any of the foregoing, regardless of whether the software is provided with the hardware or sold separately. This definition of Infrastructure Equipment does not include any End User Devices, intermediate products or subassemblies, such as but not limited to Intermediate Products, other than those that are

incorporated in the complete and ready to use Infrastructure Equipment as Sold by the respective Party (and/or their Affiliates as applicable).

1.10
“**Infrastructure Revenue**” means all revenues derived from the Sales of licensed Infrastructure Equipment. For the avoidance of doubt, Infrastructure Revenue shall not include any revenues derived from maintenance or operation of the Infrastructure Equipment.

1.11
“**Intermediate Products**” means any item of equipment, including, for example, a sub-system, sub-assembly or component, in software, hardware and/or firmware form, which is sold, licensed, or supplied, or intended to be sold, licensed or supplied by Licensee or its Affiliates to a Third Party for use as an intermediate product in an end-use item, because it requires additional industrial, manufacturing or assembly processes before being used or sold as an end-use item, and is intended for incorporation into a larger item of end-use equipment or product. Examples of Intermediate Products include ASICs, chipsets, printed circuit boards, integrated circuits (ICs), processors, multi-core processors, multi-chip modules, multi-chip packages, embedded modules, core engines and M2M modules.

1.12
“**Patent**” shall mean patent claims (including claims of licensable patent applications, whether or not divisionals, continuations, continuations-in-part, reissues, renewals, and extensions therefore and any counterparts claiming priority therefrom), and like statutory rights other than design patents.

1.13
“**Licensed Patents**” shall mean all Patents that were at any time owned, controlled or licensable by Licensor, Unwired Planet LLC, UP Optis Holding LLC, UP IP Management, Inc. and / or their Subsidiaries during the Term as to which it is, or claimed, declared or otherwise asserted by the owner to be, not possible, on technical grounds taking into account normal technical practice and the state of the art generally available at the time of adoption or publication of the relevant Standards, to make, sell, offer for sale, lease or otherwise dispose of and import, repair, use or operate equipment or methods which comply with the relevant Standards, without infringing such Patents, as determined by the applicable law of the country to which the Patents pertain and shall further include patents in litigation as listed in Annex B; provided, however, that (a) any Patents assigned by the Licensor to Lenovo Group pursuant to the Patent Purchase Agreement dated 20 March 2014 and (b) Patents owned or controlled by Licensor that were owned or controlled by Samsung or its Affiliates prior to being owned or controlled by Licensor, as listed in Annex C, shall not be considered Licensed Patents under this Agreement. For the purpose of this definition, “Subsidiary” means an Entity that at any time is Controlled by a Party.

1.14
“**Selling Price**” shall mean with respect to each Licensed Product Sold by Licensee or any of its Affiliates, one of the following, whichever is applicable:

(i)
When Sold to an Unrelated Buyer, the Selling Price will be a) the selling price charged by Licensee or its Affiliate for such Licensed Product, or b) if the Licensed Product has been Sold as part of a Sale including other type of products (i.e. not only Licensed Products) and the selling price in question is an amount lower than the Average Selling Price (as defined below), then such Average Selling Price shall be used for the Selling Price. For the purpose of this Agreement, “**Average Selling Price**” shall

mean the average selling price, charged by Licensee and its Affiliates for equivalent or substantially equivalent Licensed Products that have not been Sold as part of a Sale including other type of Licensee's products, during the same or most recent calendar quarter in which Licensee and its Affiliates Sold substantial quantities of such equivalent Licensed Products (or if substantial quantities of such equivalent Licensed Products have not been Sold during any such calendar quarter, substantial quantities of substantially equivalent Licensee Products that have not been Sold as part of a Sale including other type of Licensee's products,) to Unrelated Buyers, or if substantial quantities of such equivalent or substantially equivalent Licensed Products have not been Sold to an Unrelated Buyer by Licensee and its Affiliates in accordance with above during any such calendar quarter, the costs to Licensee or its Affiliate, as the case may be, to produce (or otherwise acquire) such Licensed Products plus twenty percent (20%) of such costs; or

(ii)
With respect to Sales to a Related Buyer, the Selling Price for each such Licensed Product shall be a) the selling price charged by the final vendee Related Buyer of such Licensed Product to an Unrelated Buyer for such Licensed Product, or b) if the Licensed Product has been Sold as part of a Sale including other type of Licensee's products (i.e. not only Licensed Products) and selling price in question is lower than the Average Selling Price, then such Average Selling Price shall be used instead, or, if no further Sale of such Licensee Product is made by the Related Buyer to an Unrelated Buyer, then the Selling Price for each such Licensed Product shall be the Average Selling Price for the Licensee Product.

1.15
"**Net Selling Price**" shall mean the Selling Price of each Licensed Product that is not Infrastructure Equipment, in the form in which it is Sold; whether or not assembled and without excluding therefrom any components or subassemblies thereof. In determining the Selling Price import tax, export tax and other sales taxes and/or customs duties levied or imposed directly upon the Sale of such Licensed Products shall be excluded, and a four percent (4%) of the actual invoiced amount shall be deducted representing usual trade discount, packing costs, insurance and transportation costs. For the avoidance of doubt, any price for after sales support, which is either specified on the invoice or the contract for such Huawei Products Sold, shall not be included in the Net Selling Price definition.

1.16
"**Related Buyer**" means an Entity that is not an Unrelated Buyer or an Affiliate.

1.17
"**Unrelated Buyer**" means a person or Entity that does not control Licensee or its Affiliates, is not controlled by Licensee or its Affiliates, and is not in common control with Licensee or its Affiliates; and the term "control" for the purposes of this definition means the direct or indirect ownership or control of more than a thirty percent (30%) equity interest or more than thirty percent (30%) of the Voting Power.

1.18
"**Sale**", "**Sell**" or "**Sold**" or any similar variation of such term, means the delivery of Licensed Products in the Territory to a Third Party for compensation, if any, including lease, rent or similar transaction, or the putting into use of the Licensed Products by the Licensee and/or its Affiliates for any purpose other than routine testing, quality control or certification– with a Sale being deemed to have occurred upon invoicing or such putting into use in the Territory, whichever shall first occur. For

the avoidance of doubt, any delivery of samples, repairs or replacements of End User Devices in the Territory, regardless of the basis for compensation, shall not be considered to be a “Sale”.

1.19

“**Standards**” means the agreed protocols by 3GPP, ETSI, ARIB and/or other relevant telecommunications standards setting bodies that are applicable to the 2G, 3G and/or 4G telecommunication standards (as defined herein) including any updates, modifications and extensions of such protocols. For clarity, Standard shall not include 5G telecommunications standards.

1.20

“**Term**” means the term of this Agreement which shall be from and including the Effective Date through and ending on 31 December 2020, unless earlier terminated in accordance with the provisions herein.

1.21

“**Territory**” means world-wide.

1.22

“**Third Party**” means any Entity that is not a Party or an Affiliate of a Party.

1.23

“**Voting Power**” means the right to exercise voting power with respect to the election of directors or similar managing authority of an Entity (whether through direct or indirect beneficial ownership of shares or securities of such Entity or otherwise).

1.24

“**2G**” means Global System for Mobile Communications (GSM) and General Packet Radio System (GPRS) including Enhanced GPRS (E-GPRS or “EDGE”) standard specifications released or published by 3GPP and/or relevant local standardization bodies such as ETSI, TIA, T1P1, ARIB, TTC and CCSA, irrespective of the transmission medium, frequency band or duplexing scheme, at the time of the Effective Date as well as updates in respect of such standard specifications during the Term.

1.25

“**3G**” means UTRA (FDD mode (including but not limited to WCDMA) and TDD mode), including HSPA and UMTS core network standard specifications, however excluding TD-SCDMA standard specifications, released or published by 3GPP and/or relevant local standardization bodies such as ETSI, TIA, T1P1, ARIB, TTC and CCSA, irrespective of the transmission medium, frequency band or duplexing scheme, at the time of the Effective Date, as well as any updates in respect of such standard specifications during the Term.

1.26

“**4G**” means E-UTRA (FDD mode and TDD mode (including but not limited to LTE, TD-LTE and LTE-SAE)), standard specifications released or published by 3GPP and/or relevant local standardization bodies such as but not limited to ETSI, TIA, T1P1, ARIB, TTC and CCSA, irrespective of the transmission medium, frequency band or duplexing scheme, at the time of the Effective Date, including Release 8 and LTE-Advanced, as well as any updates in respect of such standard specifications during the Term.

1.27

“**Major Market**” shall mean, in respect of 2G or 3G Standards, a country in which there are two (2) or more Licensed Patents (but excluding China), and in respect of 4G, a country in which there are three (3) or more Licensed Patents (but excluding China). At the Date, the countries in the following table are Major Markets (referred to in the table as “MM”) for the Standards indicated:

MM all standards	MM 4G and 3G	MM 4G only	MM 3G only
France	Canada	Ireland	Argentina
Germany	Italy	Netherlands	Australia
India	Spain	New Zealand	South Korea
Japan	Taiwan	Switzerland	
UK			
US			

1.28
“**Other Markets**” shall mean any country which is not a Major Market, but excluding China.

2.
Grant of License

2.1
Subject to payment of royalties in accordance with Section 4 of this Agreement, Licensor, on behalf of itself, its Affiliates, and their respective predecessors, successors and assigns, hereby grants (and shall procure that its Affiliates grant) Licensee a non-exclusive, non-transferable, royalty bearing license under the Licensed Patents in the Territory during the Term to:

2.1.1
possess, use, import, Sell and offer for Sale, lease, furnish, transfer or otherwise dispose or supply of any and all Licensed Products;

2.1.2
make, import, use and maintain machines, tools, materials and all other instrumentalities and to practice methods, processes and services for the development, manufacture, testing and repair of Licensed Products; and

2.1.3
make, manufacture and Have Made Licensed Products.

2.2
For the express avoidance of doubt, the rights provided at Section 2.1 above do not include any rights or licenses:

2.2.1
to sell or offer to sell Intermediate Products except for the purpose of repair and maintenance of any Licensed Product;

2.2.2
under any Patent other than the Licensed Patents;

2.2.3
to manufacture or sell products that are based on a Third Party design and are sold by Licensee or its Affiliates to or on behalf of such Third Party as the Third Party’s own product and not a Licensed Product. Save always that this Section 2.2.3 shall not apply to Carriers, whether those Licensed

Products are made to the Carrier’s specifications or not, or whether those Licensed Products carry a Licensee brand or not.

2.3
Subject to the payment according to Section 4 of this Agreement, the licenses granted herein by Licensor shall include the right of Licensee to grant sublicenses under Section 2.1 herein, without further payment to Licensor for such right of sublicense, to its Affiliates in the Territory during the Term. No such sublicense shall be broader in any respect than the license held at that time by Licensee. The right to grant sublicenses to an Affiliate shall apply only during the time period when such Affiliate meets the requirements of an Affiliate. Licensee acknowledges that any sublicensed Affiliate will be bound in all respects to all of the obligations contained in this Agreement and Licensee shall be responsible for compliance by its sublicensed Affiliates with such obligations. Licensee shall be primarily responsible for the compensations set forth in Section 4 below for the activities of any sublicensed Affiliate. Any sublicense granted in accordance with this Section 2.3 shall immediately terminate if an Affiliate ceases to be an Affiliate of Licensee and otherwise upon termination of this Agreement

2.4
For the avoidance of doubt, the license granted by Licensor and its Affiliates to Licensee herein shall convey to any direct or indirect customer of Licensee without additional compensation to Licensor with respect to any Licensed Product Sold by Licensee to such customer (whether or not as part of a Combination) the benefit under the license herein.

2.5
There may be countries in which Licensee and/or its Affiliates may have, as a consequence of this Agreement, rights against infringers of the Licensed Patents. Licensee hereby waives, and shall procure the waiver from its Affiliates, of any such right Licensee or any Affiliate may have by reason of any Third Party’s infringement of any such Licensed Patents.

2.6
All rights not expressly granted herein by Licensor are hereby expressly reserved. Nothing in this Agreement shall be construed as conveying whether explicitly, by principles of implied license, or otherwise, any license rights not explicitly granted herein. Furthermore, nothing in this Agreement shall be construed as conveying whether explicitly, by principles of implied license, or otherwise, any rights to any Third Party user or purchaser of the Licensed Products, under any Licensed Patent covering any combination of the Licensed Products with any other product (not licensed hereunder) where the patent claim applies specifically to the combination and not to the Licensed Product alone, except to the extent that (i) such claim would have been infringed (either directly, by inducement, or by contributory infringement) by Licensed Products or its process in the absence of such combination, that (ii) such claim would have been infringed by such combination where a Licensed Product is an essential element of such infringement, or that (iii) such claim would be subject to patent exhaustion based on sales of Licensed Products.

3.
Release

3.1
Subject to Licensee’s payment of it and its Affiliates unlicensed past activities (activities between the Effective Date and the Date) in the form of royalties as set out at Section 4, Licensor, on behalf of itself, its Affiliates, and its and their respective predecessors, successors and assigns, (the “Licensor

Releasing Parties”), forever releases and discharges Licensee and its Affiliates, their predecessors, successors and assigns, their respective directors, officers, managers, their contract manufacturers, distributors, resellers, and their direct and indirect customers (the “Licensee Released Parties”), from any and all claims, counterclaims, causes of action (regardless of whether they are now known or unknown, suspected or unsuspected) that the Licensor Releasing Parties may have on account of the Licensee Released Parties’ acts of infringement or alleged infringement by reason of having done any of the acts specified in Sections 2.1.1-2.1.3 inclusive until (but not including) the Date, provided always that such act would be licensed under this Agreement had it occurred subsequent to the Date.

4.
Payment

4.1 In consideration of the license and release granted herein, Licensee shall pay to Licensor the following amounts (referred to in this Section 4 as either “royalty sum”, “royalties” or royalty”) in respect of Licensee’s and its Affiliates’ activities in the Territory during the Term:

4.2 For End User Devices:

4.2.1
0.064% of the Net Selling Price for eachEnd User Device compliant with 2G only that is Sold in Major Markets and 0.016% of the Net Selling Price for each End User Device compliant with 2G only that is Sold in Other Markets or China;

4.2.2
0.032% of the Net Selling Price for each End User Device compliant with at least 3G but not 4G that is Sold in Major Markets and 0.016% of the Net Selling Price for each End User Device compliant with at least 3G but not 4G that is Sold in Other Markets or China;

4.2.3
0.052% of the Net Selling Price for each End User Device compliant with at least 4G that is Sold in Major Markets and 0.026% of the Net Selling Price for each End User Device compliant with at least 4G that is Sold in Other Markets or China.

4.2
For Infrastructure Equipment:

4.2.1
0.064% of Infrastructure Revenue for Infrastructure Equipment compliant with 2G that is Sold in Major Markets and 0.032% of the Infrastructure Revenue for Infrastructure Equipment compliant with 2G that is Sold in Other Markets or China;

4.2.2
0.016% of Infrastructure Revenue for Infrastructure Equipment compliant with 3G that is Sold in Major Markets and 0.004% of the Infrastructure Revenue for Infrastructure Equipment compliant with 3G that is Sold in Other Markets or China;

4.2.3
0.051% of Infrastructure Revenue for Infrastructure Equipment compliant with 4G that is Sold in Major Markets and 0.026% of the Infrastructure Revenue for Infrastructure Equipment compliant with 4G that is Sold in Other Markets or China.

The Parties acknowledge and agree that to the extent the Infrastructure Equipment is only compliant with one Standard individually (for example 4G), this clause shall not be interpreted as an admission that Licensee shall pay for the other Standards (for example 2G and/or 3G) and no separate payment shall be due for the other standard(s); nor shall this clause be interpreted as Licensee's admission that it has Infrastructure Equipment operating in more than one Standard (i.e. a combination of 2G and 3G).

4.3
Adjustments to the list of Major Markets in Section 1.27 will be done on an annual basis. Any Licensed Patent in a country which is determined by a relevant court to be invalid or not essential would cease to count as a Licensed Patent in that country. Further, if additional Licensed Patents are added in a country appropriate adjustments shall be made.

4.4
In the event that Licensee purchases components that carry a license ("**Pass Through License**") under any of the Licensed Patents ("**Prior Licensed Patents**"); and such components are used by Licensee in Licensed Products in a manner licensed under such Pass Through License, then, for the term of such Pass Through License, Licensee shall have no license under this Agreement to such Prior Licensed Patents and will have no royalty obligation, under this Agreement, with regard to such Prior Licensed Patents to the extent licensed under such Pass Through License. For the avoidance of doubt, if a patent applies to both 3G and 4G Standards and is licensed under the Pass Through License for 3G but not 4G, then the patent would be a Prior License Patent for 3G and remain a Licensed Patent for 4G. In the event of a dispute, Section 10 of this Agreement shall apply.

4.5
Licensee shall, on behalf of itself and its Affiliates, pay to Licensor the royalties as specified in Sections 4.2 and 4.3 above no later than forty-five (45) days from and including the day the report is due according to Section 4.8 below. Licensor shall issue written invoices, corresponding to the reported amounts and applicable report period, no later than thirty (30) days from and including the payment due date provided in this Section 4.4. Any termination of this Agreement shall not preclude the right of Licensor to be paid all royalties due and accruing during the Term.

4.6
Royalty payments shall be made to the applicable designated bank account of Licensor in the currency as specified below, or as may be otherwise notified by Licensor to Licensee:

Bank Name: Allied Irish Bank
Address: 3rd Floor, 1 Adelaide Road
City: Dublin 2
Country: Ireland
Account Name: Unwired Planet International Limited
Account Number (IBAN): IE41AIBK93006726505816
Swift Code: AIBKIE2D
Currency: US Dollars

4.7
Licensee on behalf of itself and its Affiliates, shall submit a written report signed by a person duly authorized by Licensee to Licensor within forty-five (45) days of the Date (with day 1 being the Date) using the template report as in **Annex A** for each type of Licensed Product Sold from 1 January 2013 (the Effective Date) and through the most recent complete calendar quarter ending prior to the Date. Thereafter Licensee, on behalf of itself and its Affiliates, shall for the Term continue to submit such written reports (in the format as previously specified in Annex A) for each subsequent calendar quarter within forty-five (45) days of the end of any such calendar quarter, or on termination of this Agreement, within forty-five (45) days of such termination date. Licensee warrants that each such report shall be complete and accurate and shall be signed by a duly authorized person and provided to Licensor in accordance with the aforementioned timeframes.

4.8
All sums due under this Agreement shall be exclusive of any value added tax, or any other additional sales tax or duty which shall be payable on the rendering by Licensor of an appropriate invoice to Licensee. Any and all other taxes, levies, charges, duties or fees shall be paid by the Party required to do so by applicable law. Specifically, Licensor will be responsible for any taxes to which it is subject as a result of the receipt of royalties made by Licensee to Licensor under this Agreement.

4.9
For any currency conversion from the currency of one country in which the Licensed Products are sold into U.S. Dollars required in determining the royalties due hereunder, such conversion shall be calculated at the conversion rate as reported in the Wall Street Journal (New York Edition) on the last business day of the applicable quarterly period in which the royalties are determined, or such other method agreed to by the Parties in writing.

4.10
Licensor acknowledges and agrees to provide its business registration certificate to Licensee as required by mandatory Chinese law or regulations prior to Licensee’s first payment, and Licensee will work with Licensor to identify the correct business registration certificate.

4.11
For any payment made pursuant to this Agreement, including interest on any overdue payment(s), the Parties acknowledge that the Chinese authorities and Chinese banking laws require certain formalities to be met before a payment can be made. If required, Licensee shall have a translation prepared of this Agreement for Chinese authorities. If there are any other formalities required by the Chinese authorities or the bank in China, the Parties will work together to resolve the issue as quickly as possible so that payments can be made in a timely manner.

4.12
Any withholding taxes levied in China upon payment by Licensee to Licensor of any sums hereunder and required to be withheld from such payment shall be withheld and paid by Licensee to the appropriate Chinese tax authorities. Within sixty (60) days after such payment, Licensee shall inform Licensor of the date and amount of the deduction made and shall forward to Licensor all receipts issued by the Chinese tax authorities, including the official receipts, save always that if any such receipts are issued by the Chinese tax authorities more than sixty (60) days after payment thereof, then Licensee shall forward them to Licensor within fourteen (14) days of receipt. In connection therewith, the gross amounts to be paid under this Agreement shall be adjusted for such Chinese withholding taxes to be borne by Licensor and its Affiliates. Should Licensor elect to pursue a claim

for tax credit with the Chinese authorities, Licensee shall reasonably cooperate with and support Licensor, including doing all such further actions and acts as may be reasonably necessary in connection therewith. Any and all other taxes, levies, charges, duties or fees shall be paid by the Party required to do so by applicable law.

5.

Record and Audit

5.1 Licensee shall, and shall procure that its Affiliates shall, keep accurate and complete books and records which relate to the Licensed Products in sufficient detail (consistent with generally accepted accounting practices for the industry) to enable the royalties payable hereunder to be determined. Such books and records, shall include, at a minimum, all records and accounts as may, under internationally recognised accounting practices, contain information bearing upon the amount of royalties payable in accordance with this Agreement, and be kept by Licensee for a period of three (3) years after the calendar quarter to which the books and records apply (but not more than 2 years after any termination of this Agreement).

5.2 Licensor shall have the right at any time during the Term and for 2 years thereafter, upon the provision of at least thirty (30) days' notice from Licensor, to nominate, at its own expense, a Third Party independent auditor, acceptable to Licensee (such acceptance not to be unreasonably withheld and where the said auditor is either PWC, DLT, KMPG and EY shall be deemed automatically given with the exception that Huawei may remove one auditor from this list based upon conflict of interest concerns) to examine and audit any and all books and records to the extent relevant to determination of the royalties paid in any specified period at the premises of Licensee. The audit shall be conducted during Licensee's normal business hours and without undue interference with Licensee's normal business. Any such audit shall take place no more than once per calendar year, and any particular calendar quarter shall be audited only once.

5.3 The auditor shall conduct the audit on consecutive days and shall complete the audit within a reasonable period, and Licensee shall assemble in a single location all books and records necessary for such audit to be carried out and make such personnel available as may be reasonably necessary to answer the questions of the auditor.

5.4 The Third Party auditor shall sign a non-disclosure agreement on reasonable terms to be discussed and agreed between said Third Party auditor and Licensee in advance of the commencement of any audit. Licensee shall have the right to refuse further access to confidential information in case it is demonstrable that the auditor is in breach of its confidentiality obligation.

5.5 Any independent auditor is authorised to report to Licensor, only whether Licensee is or is not (and if not, in what manner and the amount of underpayment) in compliance with its obligations in this Agreement and shall not disclose to Licensor or any Third Party any other information obtained during the audit. When providing the final audit report to Licensor, the auditor shall also furnish Licensee with a copy of such report.

5.6 Licensor shall use the information resulting from such audits exclusively for the implementation of, and ensuring compliance with, this Agreement and shall treat such information confidentially with the same degree of care as is used with respect to Licensor's own equally important confidential information to avoid disclosure to any Third Party.

5.7 If an overpayment is identified during such audit, Licensor will credit the amount overpaid to Licensee against the next payment due under this Agreement. To the extent that no further payment is due under this Agreement, Licensor shall within sixty (60) days after the later of (i) such determination or (ii) receipt of an invoice from Licensee, pay Licensee the amount by which royalties were determined to be overpaid. In the event that the audit identifies any underpayment, then the Parties shall meet and confer within thirty (30) days of such audit determination to discuss such underpayment, during which Licensee will provide such data and evidence it considers reasonably necessary to support its position, subject to Licensor agreeing to keep any such material confidential. Without prejudice to any other remedies available to the Parties (including dispute resolution in accordance with Section 10 of this Agreement), after such thirty (30) days, Licensee shall within thirty (30) days after the later of (i) such determination or (ii) receipt of an invoice from Licensor, pay Licensor the shortfall plus the interest specified at Section 5.8 on the amounts which such royalties were underpaid. In the event that any underpayment for the audit period exceeds five percent (5%) of the royalty amount actually due, Licensee shall bear the actual cost of the audit and Licensor shall share with Licensee copies of invoices of the auditor as evidence thereof.

5.8 Licensee shall be liable for interest on any overdue payment required to be made pursuant to this Section 5. Such interest shall commence on the date such payment becomes due until such payment is made, at an annual rate of five percent (5%). If at any time such interest rate exceeds the maximum legal rate in the jurisdiction where a claim therefore is being asserted, the interest rate shall be reduced to such maximum legal rate.

5.9 Licensor’s rights of audit as set out in this Section 5 shall survive for two (2) years after the termination of the Agreement provided, however, that there shall be no right to audit for a time period for which an audit has been completed.

6.
Term and Termination

6.1 This Agreement shall come into force upon the Date and shall remain in effect during the Term.

6.2 A Party may terminate this Agreement by written notice if the other Party (or an Affiliate) at any time commits a material breach of any of its significant obligations under this Agreement (which shall expressly include any non-payment) and, in the event of a breach capable of remedy, fails to cure, or procure the cure of, such breach within thirty (30) days after receipt of a notice specifying the nature of such breach and requiring remedy of the same.

6.3
A Party shall provide written notice to the other Party immediately upon the occurrence of any of the following events: (i) its insolvency, bankruptcy or liquidation or filing of any application therefor, or other commitment of an affirmative act of insolvency; (ii) attachment, execution or seizure of substantially all of the assets of the notifying Party or filing of any application therefor; (iii) assignment or transfer of that portion of the business to which this Agreement pertains to a trustee for the benefit of creditors; (iv) termination of its business or dissolution; or (v) in the case of Licensee, within ninety (90) days after the closing of a merger, acquisition, consolidation, transfer or otherwise wherein more than fifty percent (50%) of the ownership or Control of Licensee is acquired by an Entity then engaged in the manufacture or sale of End User Devices. The other Party shall have the right to terminate this Agreement with immediate effect by giving written notice of termination at any time upon such occurrence.

6.4
All licenses and rights granted hereunder shall be terminated, provided always that any rights and releases which occur before termination shall remain unaffected SAVE ALWAYS that the foregoing shall not be deemed to limit either Party's right to specifically enforce this Agreement, or to recover damages resulting from any breach of this Agreement by the other Party. The Parties agree that the failure to identify in this Agreement the breach of any particular obligation as a "material breach" does not preclude any Party from contending in the future that such breach is "material."

7.
Assignment

7.1
From the Date:-

7.1.1 nothing contained herein shall prohibit Licensor from selling or assigning any Licensed Patent, provided that Licensor shall procure from its buyer or assignee that any such sale or assignment of any such Licensed Patent shall still be subject to the license, covenant and release granted to Licensee herein;

7.1.2 if Licensor or any of its Affiliates transfers its business in whole or in part through divestiture, merger or otherwise to a Third Party, Licensor shall procure, prior to the divestiture, that the license, covenant and release granted to Licensee under this Agreement shall continue (as if no such divestiture occurs) for the Term; and

7.1.3 if any of Licensor's Affiliates ceases to be its Affiliate and owns or controls any Licensed Patents, Licensor shall procure, prior to the Affiliate ceasing to be an Affiliate that such licenses, covenant and release (if any) continue for the Term.

7.2
Notwithstanding Sections 7.1.1-7.1.3 above, in the event that any successor-in-interests or assigns of Licensor ("Assignees") make any claim or assertion in a legal proceeding or otherwise against Licensee or its Affiliates or any of their past or present customers, distributors, retailers or end users, Licensor shall immediately investigate the facts and provide information to Licensee upon the request of Licensee, shall use its commercially reasonable best efforts to ensure compliance with Sections 7.1.1-7.1.3 by Assignees and shall indemnify Licensee from any such claims and assertions, including directly intervening in any such claim or legal proceedings. In addition, Licensee shall allow this Agreement to be introduced in evidence in any litigation (with confidentiality safeguards) brought by an Assignee of Licensed Patents, in any case where this Agreement would be a defence to infringement of such assigned Licensed Patents.

7.3
Save as otherwise set out herein neither Party may grant or assign any rights or delegate any obligations under this Agreement to any Third Party (save to an Affiliate) without the prior written consent of the other, which shall not be unreasonably withheld, and any attempted assignment without such consent shall be null and void. In the event Licensor consents to Licensee assigning any rights or delegating any obligations under this Agreement to a Third Party acquiring the Licensee business in whole or in part through divestiture, merger or otherwise, its shall be expressly understood that the rights assigned and/or obligations delegated shall not extend beyond those possessed by Licensee at the time of the acquisition and shall expressly exclude the acquiring Third Party's business at the time of acquisition.

8.
Representations

8.1 Licensor hereby represents and warrants that (i) it has received all necessary corporate approvals and that the signatory below is duly authorized to execute this Agreement on behalf of Licensor; (ii) Licensor and/or its Affiliates own and have the right to license the Licensed Patents licensed to Licensee hereunder; and (iii) it has not made and shall not make any agreements, assignments or encumbrances inconsistent with the provisions of this Agreement.

8.2
Licensee hereby represents and warrants that (i) it has received all necessary corporate approvals and that the signatory below is duly authorized to execute this Agreement on behalf of Licensee; and (ii) it has not made and shall not make any outstanding agreements, assignments or encumbrances inconsistent with the provisions of this Agreement.

8.3
Nothing contained in this Agreement shall be construed as:

8.3.1
a warranty or representation either expressed or implied by either Party as to the validity, enforceability or scope of any Licensed Patent herein;

8.3.2
an agreement to bring or prosecute actions or suits against third parties for infringement; or

8.3.3
conferring any right to use, in advertising, publicity or otherwise, any name, trade name, trademark, or any contraction, abbreviation or simulation thereof.

and except as expressly set forth herein, neither Party makes any representations nor extends any warranties of any kind, either express or implied.

8
Applicable Law and Dispute Resolution

9.1 This Agreement shall be governed by and construed in accordance with the substantive law of England & Wales without regard to conflicts of law rules.

9.2 In the event of any and all disputes arising under, out of or in connection with this Agreement (including any Annex and any amendment made thereto), including any question regarding its existence, validity or termination, representatives of both Parties shall enter into good faith negotiations with the aim of resolving the dispute. An attempt to arrive at a settlement shall be deemed to have failed as soon as one Party so notifies the other Party in writing. Such notification shall not be sent earlier than thirty (30) days after the dispute arises. Provided always that nothing in the foregoing will prevent a Party from commencing proceedings for the purpose of seeking interim or pre-emptive relief on an emergency basis.

9.3 The High Court of England and Wales shall have non-exclusive jurisdiction to finally settle all disputes, differences or questions arising out of or relating to the interpretation or performance of this Agreement between the Parties.

9

Notices

Any and all notices, requests, demands, consents, agreements and other communications required or permitted to be given or made under this Agreement shall be given in writing and in the English language and shall be (i) delivered personally; or (ii) sent by facsimile; or (iii) mailed by registered mail; or (v) delivered by courier to the following addresses of the Parties or to such other address as the Party concerned may subsequently notify in writing to the other Party in accordance with this Section 11.

Licensor	Licensee
Name: Thomas Miller	Name: Xiaowu (Emil) Zhang
Title/Department: Head of Licensing	Title/Department: Deputy Director of IP Litigation Dept.
Address: 7160 Dallas Parkway, Suite 250, Plano, Texas, 75024, USA	Address: Huawei Base, Bantian, Longgang, Shenzhen, Guangdong, China, 518129
Fax: +1-972-312-9217	Fax: +86-755-28785911
E-mail: tmiller@panoptis.com	E-mail: zhangxiaowu@huawei.com

Unless otherwise specifically provided for in this Agreement, such communications shall take effect upon receipt by the addressee, provided such communications shall be deemed to have been duly given or made and shall be deemed to have been received by a Party: (i) if delivered personally, at delivery; (ii) if mailed by registered mail, unless actually received earlier, on the expiration of seven (7) days after the date of mailing; (iii) on the day of the receipt of sender's facsimile confirmation of the transmission in case of facsimile; or (iv) if delivered by courier, on the date of delivery.

10
Non-waiver

Neither this Agreement nor any provision hereof may be waived without the prior written consent of the Party against whom such waiver is asserted. No delay or omission by either Party to exercise or assert any right or power shall impair any such right or power to be construed to be a waiver thereof. Consent by either Party to, or waiver of, a breach by the other Party shall not constitute consent to, waiver of, or excuse for any other different or subsequent breach.

11
Force Majeure

Neither Party shall be in default or liable for any loss or damage resulting from delays in performance or from failure to perform or comply with terms of this Agreement due to any unforeseeable, unavoidable and unpreventable causes, which causes include but are not limited to Acts of God; riots and insurrections; natural catastrophe; social unrest; war; fire; strikes and other labour difficulties (whether or not the Party is in a position to concede to such demands); embargoes; judicial action; lack of or inability to obtain export permits or approvals; and acts of civil or military authorities.

12
Miscellaneous

13.1 This Agreement, and its Annexes, constitutes the entire and only agreement between the Parties with respect to the subject matter hereof and merges and supersedes all prior and contemporaneous oral or written discussions, negotiations, understandings, representations, warranties and agreements of the Parties.

13.2 Any amendment or modification of any of the provisions of this Agreement or any right, power or remedy hereunder shall not be effective unless made in writing and signed by authorized representatives of both Parties.

13.3 This Agreement is considered to be jointly drafted and neither Party shall benefit from who actually drafted the Agreement.

13.4 Notwithstanding any termination or expiration of this Agreement, any Section set forth in this Agreement remaining to be performed in whole or in part, capable of taking effect following termination, or which by its nature is contemplated to survive the termination or expiration of this Agreement shall survive and continue in full force and effect despite termination or expiration.

13.5 If any of the provisions of this Agreement is or becomes invalid, illegal or unenforceable, the validity, legality, and enforceability of any other provision of this Agreement shall in no way be affected or impaired thereby, and such invalid or unenforceable term, Section or provision shall be deemed deleted from this Agreement, and this Agreement shall continue in full force and effect. Should such case arise, the Parties shall negotiate in good faith a replacement but legally valid, term, Section or provision that best meets the intent of the Parties.

13.6 Save as otherwise set out herein, nothing in this Agreement precludes Licensee from challenging or denying the validity of any Licensed Patent by filing or participating in an opposition, an invalidity action or any declaratory judgment action challenging or denying the validity of such claim.

13.7 The relationship between Licensor and Licensee is that of independent contractors. Licensor and Licensee are not joint ventures, partners, principal and agent, master and servant, employer or employee, and have no other relationship other than independent contracting parties. Each Party is executing this Agreement solely on behalf of itself and its Affiliates and is not acting on behalf of, and does not represent, any other company or entity or any government agency. Nothing in this Agreement shall be construed as creating a partnership, joint venture, or other formal business organization of any kind.

13.8 Each Party agrees, upon reasonable request by the other Party, to consent to the registration of this Agreement to the extent required by the laws of the applicable jurisdiction requiring registration and subject always to the terms herein.

13.9 This Agreement may be executed in counterparts in the English language and each such counterpart shall be deemed an original thereof. Facsimile signatures or signatures delivered by e-mail in .pdf or similar format will be deemed original signatures for purposes of this Agreement.

13.10 The headings and sub-headings of the Sections are inserted for convenience or reference only and are not intended to be a part of or to affect the meaning or interpretation of this Agreement.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be signed by their duly authorized representatives and executed on the Date.

Huawei Technologies Co., Ltd.	**Unwired Planet Limited Liability Company**

Name	Name
Title	Title
Signature	Signature

Huawei Technologies (UK) Co., Ltd. Unwired Planet International Limited

Name	Name
Title	Title
Signature	Signature

ANNEX A – Reporting template

Huawei Technologies Co., Ltd. and Huawei Technologies (UK) Co., Ltd ("Licensee") is providing the below information pursuant to the terms of the patent license agreement between Unwired Planet Limited Liability Company , Unwired Planet International Limited, Huawei Technologies Co., Ltd. and Huawei Technologies (UK) Co., Ltd. ("Agreement"). This report relates to the period [[INSERT] – [INSERT]][calendar year ending [INSERT]]

For [Insert applicable Huawei reporting entity] in Major Markets:

Specify End User Terminal	**Standards Complied to (2G, 3G, 4G etc.)**	**Total units Sold**	**Total selling price (with no deductions) in currency sold at**	**Selling Price (with permitted deductions specified in this Agreement) in currency sold at**		**Royalties (including all exchange rate conversion calculations)**
Total in applicable currency						

For [Insert applicable Huawei reporting entity] in Other Markets and China:

Specify End User Terminal	**Standards Complied to (2G, 3G, 4G etc.)**	**Total units Sold**	**Total selling price (with no deductions) in currency sold at**	**Selling Price (with permitted deductions specified in this Agreement) in currency sold at**		**Royalties (including all exchange rate conversion calculations)**
Total						

in applicable currency						

For [Insert applicable Huawei reporting entity] in Major Markets:

Specify Infrastructure Equipment	**Standards Complied to (2G, 3G, 4G etc.)**	**Total units Sold**	**Total selling price (with no deductions) in currency sold at**	**Selling Price (with permitted deductions specified in this Agreement) in currency sold at**	**Infrastructure Equipment Revenue in currency invoiced**	**Royalties** **(including all exchange rate conversion calculations)**
Total in applicable currency						

For [Insert applicable Huawei reporting entity] in Other Markets and China:

Specify Infrastructure Equipment	**Standards Complied to (2G, 3G, 4G etc.)**	**Total units Sold**	**Total selling price (with no deductions) in currency sold at**	**Selling Price (with permitted deductions specified in this Agreement) in currency sold at**	**Infrastructure Equipment Revenue in currency invoiced**	**Royalties** **(including all exchange rate conversion calculations)**
Total in applicable currency						

ANNEX B – Patents in Litigation

- EP(UK) 2,229,744
- EP(UK) 2,119,287
- EP(UK) 2,485,514
- EP(UK) 1,105,991

- EP(UK) 1,230,818
- EP(DE) 2,229,744
- EP(DE) 2,119,287
- EP(DE) 2,485,514
- EP(DE) 1,105,991
- EP(DE) 1,230,818

ANNEX C – List of Samsung Patents

Application Number	**Country**	**Patent No.**
200980132063	China	ZL200980132063.X
201310424823.2	China	
09808387.6	European Patent	
2011-523737	Japan	5592372
10-2008-0080356	Korea, Republic of (KR)	
10-2009-0046676	Korea, Republic of (KR)	10-1682034
12/542175	United States of America	8149777
13/420,010	United States of America	
PCT/KR2009/004598	Patent Cooperation Treaty	
10-2007-0014280	Korea, Republic of (KR)	10-0998189
12/029809	United States of America	8254933
13/591805	United States of America	8805378
14/456288	United States of America	9204352
2008204077	Australia	2008204077
2008204078	Australia	2008204078
2675053	Canada	2675053
2674964	Canada	
200880007805	China	ZL200880007805.1
201210339521	China	ZL201210339521.0
200880001925	China	101578781
201310052672	China	103152831
08000316.3	European Patent	
08000317.1	European Patent	1944876
3931/CHEN/2009	India	
2009-545490	Japan	5138704

2012-205559	Japan	
2014-138441	Japan	5795106
2009540180	Japan	4944206
2012031410	Japan	5362056
10-2007-0002657	Korea, Republic of (KR)	
10-2007-0058331	Korea, Republic of (KR)	
10-2007-0080204	Korea, Republic of (KR)	
10-2007-0126476	Korea, Republic of (KR)	10-0942289
2009126169	Russian Federation	2411653
11/971540	United States of America	9072095
14/753900	United States of America	9332542
11/971692	United States of America	9,072,096
14/330809	United States of America	9,510,348
14/861,703	United States of America	
14/861,720	United States of America	
14/861,733	United States of America	9282559
14/570,411	United States of America	9521672
PCT/KR2008/000131	Patent Cooperation Treaty	
PCT/KR2008/000132	Patent Cooperation Treaty	
11830924.4	European Patent	
10-2010-0097291	Korea, Republic of (KR)	
13/267402	United States of America	8976746
14/559,441	United States of America	
PCT/KR2011/007410	Patent Cooperation Treaty	
07117145.8	European Patent	
10-2006-0092833	Korea, Republic of (KR)	
10-2007-0095573	Korea, Republic of (KR)	10-0957399
11/860928	United States of America	7924756
10-2006-0005408	Korea, Republic of (KR)	10-082764
12/161436	United States of America	8175029
13/431574	United States of America	8873488
14/525845	United States of America	9232486
PCT/KR2007/000262	Patent Cooperation Treaty	
10-2009-0051596	Korea, Republic of (KR)	10-1649493
61/098074	United States of America	
12/560876	United States of America	8352821
13/705803	United States of America	8832516
14/262142	United States of America	9288821
14/262152	United States of America	9232533
14/872,789	United States of America	9,585,162
15/431,206	United States of America	

10-2006-0051596	Korea, Republic of (KR)	100856779
10-2006-0133210	Korea, Republic of (KR)	
10-2007-0136692	Korea, Republic of (KR)	
11/964325	United States of America	8005154
08013689.8	Germany (Federal Republic of)	602008041215.6
08013689.8	European Patent	2026521
15151887.5	European Patent	
08013689.8	France	2026521
08013689.8	United Kingdom	2026521
08013689.8	Italy	2026521
10-2010-7002513	Korea, Republic of (KR)	10-1481201
10-2014-7015735	Korea, Republic of (KR)	10-1491964
08013689.8	Netherlands	2026521
60/962584	United States of America	
60/974305	United States of America	
12/182,556	United States of America	8155100
13/413274	United States of America	8619748
14/106082	United States of America	9,485,070
PCT/KR2008/004442	Patent Cooperation Treaty	
200680014720	China	ZL200680014720
202006021069.5	Germany (Federal Republic of)	
06732907.8	European Patent	
4209/KOLNP/2007	India	254594
60/673674	United States of America	
11/390125	United States of America	7953039
13/093568	United States of America	8582519
14/078204	United States of America	9001774
PCT/KR2006/001718	Patent Cooperation Treaty	
10-1997-0048205	Korea, Republic of (KR)	
09/159495	United States of America	6138233
09-034164	Japan	3906938
09/025422	United States of America	6437797
60/312556	United States of America	
10/033341	United States of America	7013391
98106281	China	
10-1997-0013067	Korea, Republic of (KR)	
09/057832	United States of America	6172477
99127072.X	China	ZL99127072.X
19962922.6	Germany (Federal Republic of)	19962922.6
9930478.4	United Kingdom	2347588
10-1998-0059064	Korea, Republic of (KR)	10-0539871

09/473064	United States of America	6459906
200610066582	China	
201210022795	China	ZL201210022795.7
06006533.1	European Patent	
10-2005-0027724	Korea, Republic of (KR)	10-0651367
95111430	Taiwan	I334997
11/390101	United States of America	8594560
13/738726	United States of America	8472867
14/089202	United States of America	9,419,925
15/205,769	United States of America	
02124426	China	ZL02124426.X
02257546.8	European Patent	
10-2001-0068918	Korea, Republic of (KR)	10-0439723
10/184945	United States of America	7047040
10-2003-0011904	Korea, Republic of (KR)	10-0987289
10/782194	United States of America	7372452
98121340	China	ZL98121340.5
98119620.7	European Patent	
H10/272208	Japan	3063902
10-1997-0071307	Korea, Republic of (KR)	10-0252108
09/174573	United States of America	6862402
10-1999-0043050	Korea, Republic of (KR)	10-0708067
09/342270	United States of America	6389417

Neutral Citation Number: [2017] EWHC 711 (Pat)

Case No: HP-2014-000005

IN THE HIGH COURT OF JUSTICE
CHANCERY DIVISION
PATENTS COURT

Royal Courts of Justice Rolls Building Fetter Lane London EC4A 1NL

Date: 05/04/2017

Before :

THE HON. MR JUSTICE BIRSS

\- -

Between :

Unwired Planet International Ltd Claimant

\- **and -**

(1) **Huawei Technologies Co. Ltd**

(2) **Huawei Technologies (UK) Co. Ltd** Defendants

\- **and-**

Unwired Planet LLC Tenth Party

Adrian Speck QC, **Sarah Ford**, **Isabel Jamal** and **Thomas Jones** (instructed by **EIP** and **Enyo Law**) for the **Claimant**

Andrew Lykiardopolous QC and **James Segan** (instructed by **Powell Gilbert**) for the **First and Second Defendants**

Hearing dates: 24th, 25th, 31st October, 1st -4th, 9th - 11th, 14th, 15th, 21st - 24th November,

5th - 8th December 2016

\- -

Approved Judgment

I direct that pursuant to CPR PD 39A para 6.1 no official shorthand note shall be taken of this Judgment and that copies of this version as handed down may be treated as authentic.

....

THE HONOURABLE MR JUSTICE BIRSS

Mr Justice Birss :

Introduction

1.

Unwired Planet have a worldwide patent portfolio which includes numerous patents which are declared essential to various telecommunications standards (2G GSM, 3G UMTS, and 4G LTE). Most of the relevant portfolio was acquired from Ericsson. Unwired Planet's business is licensing those patents to companies who make and sell telecommunications equipment such as mobile phones and infrastructure. This action began in March 2014 when Unwired Planet sued Huawei, Samsung and Google for infringement of six UK patents from their portfolio. Five were claimed to be SEPs (see below). Unwired Planet contended their patents were infringed and (so far as relevant) essential.

2.

The dispute was managed to consist of a series of trials, docketed to me. First would be five "technical" trials relating to the validity and infringement/essentiality of the six patents (two patents are divisionals). These were called trials A to E and were to run from October 2015 to July 2016. The patent in trial A was patent EP (UK) 2 229 744 which is for an invention concerning poll triggers, the patents in trial B were divisionals EP (UK) 2 119 287 and EP (UK) 2 485 514 which are for an invention related to selfconfiguring networks, the patent in trial C was EP (UK) 1 230 818 which relates to inter-RAT handover, the patent in trial D was EP (UK) 1 105 991 which related to Hadamard codes, and the patent in trial E was EP (UK) 0 989 712 which relates to network messaging. The 712 patent was not said to be a SEP.

3.

After the five technical trials would be a non-technical trial in autumn 2016. The nontechnical trial was to address all the competition law issues as well as the FRAND issues (see below), injunctive relief (if any) and, by a later direction, damages for past infringements. Finally, and only if necessary, there might be a further trial to deal with some outstanding questions including pass through licences.

4.

This judgment arises from the non-technical trial and relates to the patents which are or are said to be Standards Essential Patents or SEPs. Part of the process of standardisation involves holders of patents which are essential to an international telecommunications standard declaring them as essential to the relevant standards body. In this case that body is the European Telecommunications Standards Institute (ETSI). The ETSI IPR Policy requires that a patentee declaring patents as essential to a standard commits to licensing those patents on FRAND terms. FRAND stands for Fair Reasonable And Non-Discriminatory. The judgment mostly concerns FRAND.

5.
After proceedings began, in April 2014, Unwired Planet made an open offer to the defendants to license its entire global portfolio (SEPs and non-SEPs). The defendants denied infringement/ essentiality and contended the patents were invalid, counterclaiming for revocation. So, they said, no licence was needed. They also contended that Unwired Planet's offer was not FRAND. In addition, Huawei and Samsung raised defences and counterclaims based on breaches of competition law. This involved both arguments about Art 101 of the Treaty on the Functioning of the European Union (TFEU) relating to the Master Sale Agreement (MSA) whereby Unwired Planet acquired patents from Ericsson and arguments about Art 102 TFEU concerning abuse of dominant position. The allegation that the offer was not FRAND was pleaded as a breach of competition law. These allegations were the subject of counterclaims against other companies in what was then the Unwired Planet group (the ninth and tenth defendants) as well as against Ericsson, who were joined as the eleventh

party to the proceedings. Various other defences were also raised. After the April 2014 offer Unwired Planet made a further offer in July 2014. That offer related only to

Unwired Planet's SEPs. That is also said not to be FRAND by the defendants. The terms of these and other licensing offers are difficult to summarise but at this stage it can be said that the SEP royalty rates in the July 2014 proposals were global rates of 0.2% for 4G/-LTE and 0.1% for other standards (i.e. GSM/UMTS). The percentages related to average selling price (ASP) for mobile devices and revenue for infrastructure. These offers and other of Unwired Planet's offers also contained US dollar or sterling alternative figures which operated as a cap if the royalty expressed as a share of ASP would be a higher sum. This is the last time I will mention them. The caps did not play a significant part in this case.

6.
Sometimes in this case the terms 2G, 3G and 4G are used to refer to different standards and sometimes GSM, UMTS (or WCDMA) and LTE respectively. They are not the same but the distinction rarely matters. In this judgment I have tried to use the terms which reflect the way the argument and evidence went in any given context but it is impossible to be consistent. A complication is multimode handsets. A 4G/LTE handset will usually be able to work on earlier standards (2G/GSM and 3G/ UMTS). It is therefore "multimode". There can be exceptions and so calling a handset 4G or LTE can be ambiguous since it probably refers to a multimode device but might not. Again it is impossible to be consistent.

7.
In June 2015 as a result of directions from the court which are considered further below, each side made certain open offers of licensing terms. Unwired Planet's June 2015 proposals included offers of a worldwide SEP portfolio licence, a UK SEP portfolio licence (the UK portfolio consists of more patents than just the five SEPs in suit) and per-patent licences for any SEPs the licensee chose. The details do not matter at this stage but one point to note is that the royalties claimed for per-patent licences or a UK portfolio were higher than the global rate on offer. The rates all scaled by reference to the same global rate proposals as in 2014, i.e. a global rate of 0.2% for LTE and 0.1% for GSM/UMTS.

8.
Huawei's June 2015 proposal was for a per-patent licence limited to the UK SEPs in suit. The rates for all five SEPs together were 0.034% for LTE, 0.015% for UMTS and zero for GSM.

9.

In the summer of 2015 and before trial A, Google settled as regards the SEPs. From then on they would only have played a role in the fifth technical trial (E) since that related to the implementation patent. By about April 2016 three technical trials had been completed and the parties agreed to postpone any further technical trials indefinitely. By that stage Unwired Planet had won two and lost one of the technical trials. Two of Unwired Planet's patents had been found to contain claims which were valid and were essential to the relevant standards while the other two patents were held invalid. The results of all three technical trials are under appeal to the Court of Appeal. Also in about April 2016, the claimant company and the tenth party (Unwired Planet

LLC) were acquired by PanOptis, a group ultimately held by PanOptis Equity Holdings LLC. The ninth party, Unwired Planet Inc., was not acquired and changed its name to Great Elm Capital Group Inc..

10.
In the summer of 2016 Samsung settled with Unwired Planet and Ericsson. As a result of the settlement, proceedings against Samsung ended and, with the court's leave, Samsung's competition law counterclaim was discontinued. This included discontinuance against the ninth party. Huawei, also with leave, then discontinued significant parts of their counterclaim, including all their counterclaims against

Ericsson and the ninth and tenth parties. Pursuant to the settlement, certain terms in the MSA, which Samsung and Huawei had contended were anti-competitive, were removed. An important term which was removed from the MSA was a provision which at least arguably put a floor on the royalty rate which Unwired Planet could offer. This rate is called the Applicable Royalty Rate or ARR. As a result, the scope of the nontechnical trial narrowed considerably and the case was rescheduled to be dealt with in seven weeks of elapsed time.

11.
On 1st August 2016 each side made new offers. Unwired Planet's offers were on the same terms as before but with lower rates. Unwired Planet obviously felt able to offer lower rates at that stage at least in part because the royalty floor provisions in the MSA had been removed. The global SEP portfolio rate for 4G/LTE in this offer was 0.13%. The corresponding rates for GSM /UMTS were 0.065%.

12.
For a UK SEP portfolio licence Unwired Planet's August 2016 proposals are:

i)
for LTE: infrastructure 0.42%; mobile devices 0.55%;

ii)
for GSM/UMTS: infrastructure 0.21%; mobile devices 0.28%.

13.
Huawei's 1st August offer was on the same UK only per-patent basis as before. The rates proposed were:

i)
for LTE: infrastructure 0.036%; mobile devices 0.040%; ii) for UMTS: infrastructure 0.015%; mobile devices 0.015%;

iii) for GSM: infrastructure zero; mobile devices zero.

14.
On 11th October 2016, about two weeks before the trial, Huawei made a new licensing proposal. This amended the per-patent royalties on offer and also proposed a licence under the whole of Unwired Planet's UK SEP portfolio. The UK portfolio rates were: i) for LTE: infrastructure 0.061%; mobile devices 0.059%; ii) for UMTS: infrastructure 0.046%; mobile devices 0.046%;

iii) for GSM single mode: infrastructure 0.045%; mobile devices 0.045%.

15.
The August 2016 Unwired Planet proposals and October 2016 Huawei proposals represent the parties' positions going into the trial, subject to a point referred to in this judgment as "hard-edged non-discrimination" arising from the settlement with Samsung.

16.
By the opening neither side had actually set out complete terms of a licence they were prepared to enter into. Up to trial each side's licensing proposals had been made in outline terms rather than based on a fully worked out licence. That was sensible up to a point since the parties took the view that they were so far apart on the main terms that spending time on the details was not worthwhile. Nevertheless in order to try to ensure

that all matters are resolved in one go, I directed the parties to engage and exchange full terms so as to identify areas of dispute before closing. The parties did engage on the terms of a UK portfolio licence but Huawei did not engage on Unwired Planet's proposed terms of a global licence.

The issues

17.
Simply stated the main dispute to be resolved is about whether and to what extent various terms on offer are or would be FRAND. One key battleground is the value of Unwired Planet's patents which is reflected in the royalty rate. However that is not the only issue. There is a major dispute about the proper scope of any licence. The case also involves important questions of whether the April or July 2014 offers were FRAND and/or whether they amounted to an abuse of a dominant position by Unwired Planet contrary to Art 102 TFEU.

18.
Depending on the outcome of the main dispute the question of an injunction to restrain patent infringement may arise together with the issue of whether Huawei have a defence to a claim for an injunction under competition law.

19.
Also depending on the outcome of the main dispute, there may need to be a decision on appropriate reasonable royalty rates to be used in a calculation of back damages for the infringements committed by Huawei in relation to the two SEPs which have been found to be valid and infringed as well as the other three SEPs in issue in the technical trials (including the one found invalid in Trial B since they are subject to appeal).

20.
In opening it emerged that there was a fundamental disagreement about the scope of the main dispute.

21.

Huawei contended that the procedural position which had been reached meant that as a matter of principle a UK SEP portfolio licence was the inevitable and mandatory outcome. This necessarily also meant that an injunction would never be granted even if, contrary to Huawei's case, Unwired Planet were entitled to seek an injunction and Huawei had no defence to an injunction under competition law. That was because the court was going to settle a UK portfolio licence.

22.
This had not been apparent to me either from the written openings or the evidence and it came as a surprise to Unwired Planet, whose clear preference was for a global licence rather than a UK portfolio licence. Huawei argued that the result it contended for followed from a combination of three steps: first, Huawei had stated that it no longer intended to maintain that Unwired Planet was obliged to offer per-patent licences, second, therefore the only thing on offer from Huawei was a UK SEP portfolio offer and Huawei had undertaken to accept whatever royalty rate the court set for that licence, and third, a licence of that scope was one of Unwired Planet's offers. Consequently, Huawei submitted, a licence of that scope must be the outcome. This was so even though it was obvious that what Unwired Planet really wanted was a global licence and even though global rates and the FRAND status of global offers were at the heart of the dispute. I will need to examine this issue in more detail below.

23.
Aside from the clear dispute about the value of Unwired Planet's patents and the concomitant FRAND royalty, the parties' submissions as to the outcome of this nontechnical trial are as follows:

i)
Unwired Planet contend that they have established that they hold valid and essential SEPs (winning technical trials A and C) and that they have made offers of a licence on FRAND terms. Its preferred offer is for a global licence and since global licences are FRAND a patentee is entitled to insist on a global licence. In terms of rate Unwired Planet will accept whatever rate and terms are set by the court. They submit that Huawei are not willing to take this FRAND licence and are an unwilling licensee. Accordingly the court should grant an injunction restraining Huawei from infringing. If the court decides that Unwired Planet are not entitled to insist on a global licence then Unwired Planet have offered a UK portfolio licence and will accept such a licence at a rate and on terms set by the court.

ii)
Huawei contend that Unwired Planet's 2014 offers were not FRAND. They also contend that Unwired Planet's commencement of this action was an abuse of their dominant position and contrary to the CJEU's judgment in **Huawei v ZTE** (Case C-170/13) 16th July 2015 [2015] Bus LR 1261. Accordingly Huawei have a complete defence to any claim for an injunction. In any event Unwired Planet are not entitled to insist on a global licence because such a licence would not be FRAND. Only a UK portfolio licence would be FRAND and Huawei will accept any royalty rate set by the court. Huawei cannot state that they will accept whatever terms of a UK licence are set by the court, but that is only because of a manoeuvre by Unwired Planet addressed below. Huawei accept they must have a licence to be permitted to sell products in the UK and therefore hope that the terms set by the court are ones they can abide by. They recognise that if there is no licence in place and no defence under competition law then an injunction would follow.

24.

It is convenient to divide the issues I have to decide into three broad topics. The first is FRAND. This involves working out what FRAND is and the principles which apply to it. Then I need to resolve what royalty rates are FRAND in order to determine whether any of Unwired Planet's offers were FRAND and if not, what would be FRAND? After that I need to resolve arguments about any other disputed terms in a FRAND licence. This first broad task represents the bulk of the work. The second broad topic is competition law, resolving Huawei's case that Unwired Planet have abused their dominant position. Finally there are remedies – injunction, damages and declarations.

Confidentiality

25.
One of the challenges in trying this case was confidentiality. The arguments, evidence and disclosure documents included a large amount of material in which confidentiality was claimed. Some of the claims were from parties or companies who had been parties (Ericsson and Samsung) but some of the confidential material was confidential to third parties such as licensees. The legal representatives of all parties were privy to all the material but some aspects, e.g. material relating to Samsung or Ericsson, was maintained as confidential from Huawei or Unwired Planet staff. Attempting to determine the confidential status of material during the hearing would have been impossible, so the trial was conducted accepting many of the claims to confidence for the time being. While wide claims to confidentiality had been made before trial, they were reduced considerably at and during the hearing. Thus much of the trial took place

in public. Once judgment has been handed down there will be a final determination concerning confidential status.

26.
I made it clear that I wished to hold as much of case in public as possible. During the hearing there were occasional slips and parties who claimed their confidentiality had been breached wrote to the representatives. From my perspective the solicitors and counsel for all parties before me did an excellent job in tricky circumstances to conduct an open trial and pay due respect to claims to confidentiality. This judgment includes material about which some claims to confidence are maintained. I indicated that when the confidential draft judgment was distributed to the parties (Unwired Planet and Huawei) I was prepared to include the lawyers for Samsung and Ericsson. The lawyers for Samsung and Ericsson would not be entitled to discuss the draft with their clients but they would be able to make submissions about confidentiality. A public judgment, or public version of the judgment, could then be produced.

[26A Once the draft was handed down a hearing in private was convened to work out a way forward. At the hearing were representatives of Unwired Planet, Huawei, Samsung and Ericsson. The parties would submit a form of the draft showing which party claimed confidentiality in which part and would submit a redacted form which could be made public without compromising any claimed confidentiality. Arguments about what was and was not confidential would be heard at later hearing to deal with consequential matters. The drafts were prepared quickly and submitted. I am grateful for the work which went into this. However in its form as submitted the redacted version left parts of the judgment unnecessarily unintelligible. So I have prepared this version, designated as Public I. All the changes as compared to the unredacted judgment are in square bracketed italics like this paragraph. Some of the redactions have been left as square bracketed ellipsis. In others, some explanatory text and anonymised designations have been included. The draft was given to the parties in advance for checking.]

The evidence

27.
Unwired Planet called the following fact witnesses:

i)
Sami Saru;

ii)
Timothy Michael Robbins;

iii)
Leslie Dale Ware.

28.
Mr Saru has been Unwired Planet's Vice President of Standards of Licensing since early 2013, and has been the Managing Director since February 2014. He joined Unwired Planet shortly before the MSA with Ericsson closed, and he was responsible for making the necessary declarations to ETSI. His evidence related to the licence negotiations between Unwired Planet and Huawei, including Unwired Planet's approach to determining what was FRAND, and specifically the MNPA (see below).

29.
Mr Robbins was, until 1 July 2015, Executive Vice President and General Manager of the Intellectual Property Division of Unwired Planet. His evidence related to the relationship between Unwired Planet and Ericsson, including the MSA, and Unwired Planet's approach to FRAND and the offers it made in 2014, and the Lenovo licence.

30.
Mr Ware is the Chief Executive Office of PanOptis Equity Holdings LLC. He founded the PanOptis Group in September 2003. On 30 June 2016, PanOptis acquired Unwired Planet LLC and Unwired Planet International Limited (and so the Unwired Planet portfolio of patents) from Unwired Planet Inc. His evidence related to PanOptis's business model and focus on long-term relationships with licensees. In particular, his evidence related to the negotiation and circumstances of the Unwired Planet/Samsung licence.

31.
Unwired Planet also served Civil Evidence Act Notices in respect of: (i) a recording of the “Unwired Planet Management Webcast and Conference Call” on 6 April 2016 and a copy of an accompanying presentation entitled “Unwired Planet Corporate Transformation”; (ii) a Schedule 14A Form filed by Unwired Planet with the United States Securities and Exchange Commission on 20 April 2016; (iii) witness statements from Boris Teksler, Unwired Planet’s former Chief Executive Officer; (iv) witness statements from Gustav Brismark, Head of Region IPR and Licensing at Ericsson; and (v) three ETSI FAQs dated 22 December 2008, 10 July 2014 and 26 March 2015.

32.
Huawei’s fact witnesses were Xuxin Cheng, Emil Zhang (also known as Xiaowu Zhang), and Chaobin Yang.

33.
Mr Cheng has been the Deputy Director of Huawei's IP Department since February 2008, and Vice President for IP Licensing & Transactions. He gave his evidence through an interpreter. His evidence

related to Huawei's position on FRAND, whether any steps have been taken to avoid infringing Unwired Planet's patents, and Huawei's conduct in licence negotiations.

34.
Mr Zhang is the deputy director of Huawei's IP litigation department and has day-today conduct of this action. He gave his evidence in English with the interpreter standing by to help if need be. His evidence related to Huawei's conduct in the dispute, including the pre-action correspondence between Huawei and Unwired Planet and Huawei's level of sophistication in conducting litigation, and the geographical extent of Huawei's activities.

35.
Mr Yang is the Vice President and Senior Marketing Officer for Huawei's Wireless Network product line. He has worked at Huawei's Shanghai R&D centre since 1998. He gave his evidence through an interpreter. His evidence related to the significance of certain releases of technical specifications in the context of LTE deployment since 2013. This was relevant to the relative value of patents that are essential to the earlier releases relative to those that are essential to later releases.

36.
All six of Mr Saru, Mr Robbins and Mr Ware for Unwired Planet and Mr Cheng, Mr Zhang and Mr Yang for Huawei were good witnesses. Unwired Planet suggested that Mr Zhang did his best to defend Huawei’s conduct but at times was somewhat argumentative when answering the questions. That is not a useful observation because in my judgment the equivalent point could be said of all fact witnesses, including Mr Saru, Mr Robbins and Mr Ware. None of the fact witnesses called by either party was neutral but in my judgment all of them tried to explain their position as fairly as they could. If it is necessary I will deal with any detailed point or criticism about something a witness said in context.

37.
At this stage I must pay tribute to the interpreter, Ms Langtree. Her work was of great assistance both to the witnesses and the court. I am very grateful to Ms Langtree.

38.
There were further witness statements in the trial bundles from a number of witnesses. The statements were from Jay Shim and Tae Hyung Kim for Samsung; Christina Petersson, Andreas Iwerback, Jon Lawrence and John Han for Ericsson. Unwired Planet also had statements from Annabel Thomas, Timothy Ellis, Andrew Wynn, and Andrew Sharples.

39.
The expert witnesses called by Unwired Planet were Dr David Cooper, Mr Mark Bezant and Dr Gunnar Niels.

40.
Dr Cooper is a Consulting Engineer at Hillebrand Consulting Engineers GmbH. In 1978, he obtained a degree in Mathematics from Imperial College, London. He was subsequently employed by several companies in software development roles, and in 1987, he joined Coherent Research (a communication and engineering consultancy) as a software manager.

41.
From 1994 to 1998, Dr Cooper was employed by NEC, during which time he represented the company within ETSI in the development of the GSM and UMTS Standards. In 1998 he was appointed the Vice-

Chairman of the 3GPP standards committee SA1, which was responsible for the definition of UMTS services. From 1999 to 2008, Dr Cooper worked for Panasonic, representing them in the context of standardisation at 3GPP. In 2001 he earned his PhD in electronics and engineering at Surrey University. Since 2008, Dr Cooper has been a consultant at Hillebrand Consulting Engineers GmbH and has been retained as an expert witness on multiple occasions. He appeared for Unwired Planet before me in Trial A.

42.
Dr Cooper’s evidence related to certain Unwired Planet patents and whether they were truly essential. He also addressed the parties’ rival approaches for identifying and counting truly essential patents.

43.
Mr Bezant is the head of Economic and Financial Consulting Practice for Europe and a Senior Managing Director of FTI Consulting Inc. He is a fellow of the Institute of Chartered Accountants in England and Wales and the founding and current chair of the Valuation Special Interest Group of the Institute of Chartered Accountants in England and Wales. He has acted as an expert witness on numerous occasions, including over 60 IP cases and licensing disputes. His evidence related to FRAND rates and the relevance of various comparable licences.

44.
Dr Niels is a partner at Oxera Consulting LLP. He holds a PhD in Economics from Erasmus University, Rotterdam and is a professional economist of 20 years' experience in the field of competition policy, covering mergers, restrictive agreements, abuse of dominance and damages. From 1995 to 1999, when he joined Oxera, he worked at Mexico's Federal Competition Commission. He is currently a non-governmental adviser to the International Competition Network Working Group on Unilateral Conduct. He has acted as an expert witness in competition and commercial disputes in a number of jurisdictions. Dr Niels’ evidence related to the impact of the FRAND obligation and the potential for hold-out on the behaviour of licensors and licensees.

45.
All three experts called by Unwired Planet were good witnesses, trying to help the court. Huawei did not criticise these witnesses but they did point out a very odd aspect of Mr Bezant’s evidence. In cross-examination Mr Bezant repeatedly stated that he was not attempting to value the Unwired Planet portfolio but only seeking to express a view on whether Unwired Planet’s various offers were or were not FRAND. One aspect of this made sense in that Mr Bezant was presenting a range of licence rates with a view to explaining simply that a given rate fell within the range. Huawei sought to suggest that this had something to do with the procedural argument about global rate setting and suggested that in that sense Mr Bezant was the same as Mr Lasinski (Huawei’s expert) in that he too was only concerned with what Huawei called “the binary question of whether Unwired Planet’s offers were or were not FRAND?”. However, I do not accept these suggestions. The point is just as odd in the context of setting a UK only rate as setting a global rate and Huawei positively asked the court to set a UK only rate. In the end whatever Mr Bezant’s purpose, or for that matter Mr Lasinski’s, they both gave evidence which is relevant to the question of the value of the Unwired Planet portfolio. I suspect that what was really going on was that Mr Bezant was purporting to avoid answering the question of what in his opinion would be the correct FRAND rate for Unwired Planet.

46.

The expert witnesses called by Huawei were Dr Apostolos "Paul" Kakaes, Mr Michael Lasinski and Professor Damien Neven.

47.
Dr Kakaes is consultant at Cosmos Communications Consulting Corporation. He holds a B.S. and M.S. in Applied Mathematics and Electrical Engineering from the University of Colorado. In 1988, he was awarded a PhD in Electrical Engineering from the Polytechnic Institute of New York. From 1987 to 1994, he worked in the Department of Electrical Engineering at George Washington University, Washington DC, teaching graduate courses in the area of communication engineering.

48.
In 1995, Dr Kakaes left George Washington University and went to work full time for Cosmos Communications Consulting Corporation, a private communications engineering consulting firm specialising in mobile communications, which he formed some years earlier. He has acted as an expert witness in a number of trials and arbitrations since 2006. His evidence related to Huawei's patent analysis (HPA) and Unwired Planet's MNPA.

49.
Mr Lasinski is a Managing Director and the Chief Executive Officer of 284 Partners LLC, a professional services firm focussed on IP valuation, litigation consulting, IP strategy and IP transactional services. He holds a BSc in Electrical Engineering and an MBA from the University of Michigan, is a Certified Public accountant licensed in the state of Illinois, is certified in Financial Forensics by the American Institute of Certified Public Accountants and is a Certified Licensing Professional originated by the Licensing Executives Society (United States and Canada) (LES), one of North America's largest IP licensing trade organisations. His consulting practice has focussed on the financial aspects of IP since 1995. He is a past president of LES. He has acted as an expert witness in tax proceedings in the US and in international arbitrations, and provided IP valuations for taxpayers and the IRS. His evidence related to whether certain of Unwired Planet's licence offers were fair and reasonable, in particular by reference to various comparable licences.

50.
Professor Neven is Professor of Economics at The Graduate Institute, Geneva and a senior Consultant at Compass Lexecon, having previously been a senior Academic Consultant to Charles River Associates. He holds a doctorate in economics from Nuffield College, Oxford, and has taught at INSEAD, the College of Europe and the University of Lausanne. From 2006 to 2011, he was Chief Competition Economist at the European Commission and has previously acted as an expert witness in the General Court and the Court of Justice. His evidence related to the relevance of the FRAND obligation in assessing market dominance, and the potential for hold-out on the behaviour of licensors and licensees.

51.
Unwired Planet rightly made no criticism of Prof Neven, who was a good witness. They suggested his evidence was rather theoretical. There is something in that but it applies to Dr Niels too, albeit with less force. Unwired Planet did criticise Dr Kakaes and Mr Lasinski. The criticisms of Dr Kakaes and some of the criticism of Mr Lasinski relate to the Ericsson-Huawei arbitration and are best addressed in that context.

52.

Unwired Planet also submitted that Mr Lasinski seriously lacked objectivity, stepped outside the ambit of his expertise and was prepared to speculate and did not approach the joint experts' statement appropriately.

53.
The challenge to objectivity relied on four alleged inconsistencies, which were that: Mr Lasinski was inconsistent in placing reliance on the words of a licence when it suited him but then relying on context in other cases; he was inconsistent in rejecting all pre2013 licences because they all involved hold-up but then relying on the 2009 EricssonHuawei licence when it suited him; his approach to the two Unwired Planet licences with Lenovo and Samsung was inconsistent, relying on Samsung when it suited him but not on Lenovo when it did not; and he was inconsistent in his approach to using a figure for Unwired Planet's share of Ericsson's patent portfolio, having been happy to use a share of 10% at the beginning but then changing to a lower figure once Unwired Planet's claimed rate dropped from 0.2% to 0.13% because the 10% share would have supported Unwired Planet.

54.
Five points were relied on to illustrate the submission that Mr Lasinski exceeded the ambit of his expertise and speculated. They are: that he passed judgment on whether terms in the Lenovo agreement were purely cosmetic; that he ignored Mr Ware's evidence about the Unwired Planet-Samsung licence; that he decided for himself to accept or reject certain evidence about […] in the Ericsson-Samsung 2014 licence; that he was not an expert on the technical issues underpinning the two rival portfolio comparison methodologies but decided for himself to use the HPA but not the MNPA; and that he was prepared to express the view that there had been hold-up leading to a licence but never addressed hold-out.

55.
The point on the joint experts' statement was that he approached the exercise as one of identifying where his evidence was on a topic rather than by engaging with the issues raised by the other experts.

56.
In terms of the specific points taken by Unwired Planet, the first three points on objectivity and the first three points on ambit are best addressed in context. Having heard Mr Lasinski, the suggestion, if made, that I should reject his evidence wholesale would be unwarranted. Mr Lasinski gave his oral evidence fairly, however many of these criticisms arise from Mr Lasinski's approach to his written evidence in this case.

In that respect I was concerned about Mr Lasinski's approach. Overall his reports and his oral evidence left me with the impression that Mr Lasinski has tried to avoid making written statements which might be construed as adverse to Huawei. I infer that is why he never presented figures based on the MNPA, unlike Mr Bezant who presented figures calculated using both sides' preferred methodologies (the HPA and the MNPA). That also explains why he used a different, lower figure for Unwired Planet's share of

Ericsson's patent portfolio in his third report from his first report after Unwired Planet had reduced the rate claimed, and it explains why he never mentioned hold-out but only hold up. His approach to the joint statement had the same effect, unlike the approach of Mr Bezant (and Dr Leonard for Samsung), both of whom properly explained and qualified their opinions in the course of agreeing the joint statement.

57.
The parties exchanged evidence of French law from Prof Fauvarque-Cosson for Unwired Planet and Prof Libchaber for Huawei. Prof Fauvarque-Cosson has been a Professor of Law at the Université Panthéon-Assas (Paris II) since 2002, while Prof Libchaber has been a Professor of Law at the Paris I University (Panthéon-Sorbonne) since 2001. Neither witness was cross-examined and neither side challenged the qualifications of these witnesses to cover the matters they addressed in their reports.

Concurrent evidence – a “hot tub”

58. During the trial I decided that it would be useful if the evidence of Prof Neven and Dr Niels started with a short period of concurrent evidence (CPR 35PD section 11). This was in order to address certain general questions which I would otherwise have asked the experts during their oral evidence. They were not points addressed to either witness in particular and it seemed to me that the fairest way of dealing with it was to ask them both, hence a concurrent evidence session. Prof Neven was scheduled to be crossexamined first, followed by Dr Niels so the concurrent session took place just before

Prof Neven’s cross-examination. It helped me clarify my understanding of some of the economic issues and I am grateful to both experts.

The factual background

59.
What follows is a summary of the factual background. Although some detailed points are addressed later, it is convenient to set out the overall history from start to finish here.

60.
The business which became Unwired Planet was founded in 1994 as Libris Inc. Its purpose was to develop technology concerned with how mobile devices (phones) could access the internet. In 1996 Libris changed its name to Unwired Planet Inc. and launched its first commercial product, called up.link, which was a mobile network system. In 1998 Unwired Planet was a member of the WAP Forum. At the time WAP was an early approach to mobile internet access. The WAP forum included Ericsson, Motorola and Nokia. Between 1999 and 2001 what had been Unwired Planet was now called Openwave Systems Inc. In 2002 Openwave was one of 200 companies to found the Open Mobile Alliance. This group included the WAP Forum companies. The general aim of both groups was similar, to try and come up with global standardised protocols for mobile internet and to lobby standard setting organisations. Openwave continued to develop mobile internet technology but by the time Mr Robbins joined in 2011 the company’s success was uncertain. That was because of a shift in the balance of power away from Openwave’s customers (carriers) and towards device makers like

Apple and Google. In November 2011 Openwave decided to sell its product business and concentrate on earning revenue from its intellectual property. After the sale the business was renamed Unwired Planet and so Unwired Planet became a licensing business. Unwired Planet was staffed by a small group of IP specialists and accountants. The business had a portfolio of patents and applications, now called the Openwave Legacy Portfolio. The portfolio consists of 140 implementation patent families. Unwired Planet believed it contained significant value.

61.
The history of Ericsson’s business up to 2011 does not matter. By 2011 Ericsson was a major technology developer in telecommunications and a participant in standard setting. It had a handset

business via a joint venture with Sony and an infrastructure business. Ericsson also had a major licensing business earning revenue from its patents. Ericsson had licensed a wide range of companies including Samsung. In 2009 Ericsson and Huawei had signed a telecommunications patent licence which was still in force in 2011.

62.
In October 2011, Ericsson announced that they were going to leave the handset business, selling their shares in the joint venture Sony-Ericsson to Sony. The transaction completed in February 2012. Since then Ericsson has remained active in infrastructure. Its largest competitor is Huawei. At the same time, Ericsson started thinking about selling some patents. Ericsson's motives for this come up later. Part of this exercise involved identifying organisations which might take some patents from Ericsson with a view to licensing them to the industry. The patents would include SEPs. At some point before June 2012, Ericsson identified Unwired Planet as a possible candidate.

63.
By early June 2012 the discussions between Ericsson and Unwired Planet were underway with the name […]. In July and August 2012, Unwired Planet and Ericsson engaged in extensive discussion concerning the composition of the "[…] portfolio" of patents to be transferred. Ericsson were in control of the process. The process included swaps, in that Unwired Planet could ask for a patent which was earmarked to be transferred to be swapped out and replaced by another. During the negotiations possible royalty rates were discussed. The evidence is clear that Unwired Planet did not see Ericsson's actual royalty rates, because the licences were confidential. Unwired Planet made its own assessment based on whatever material was available, including public statements by Ericsson and others.

The Master Sale Agreement (MSA)

64.
On 10th January 2013 the MSA was executed. One of the parties is an entity called Cluster LLC but the detailed corporate arrangements do not matter. Pursuant to the agreement 2,185 patents and applications were transferred to Unwired Planet from Ericsson via Cluster LLC. In numerical terms this represented about [Z%] of Ericsson's relevant portfolio. […]

65.
The MSA included, in clause 3.2(a), three "tiers" for the revenue split between Unwired Planet and Ericsson, being 20:80 in Unwired Planet's favour between $0m and $100m, 50:50 from $100m to $500m and 70:30 in Ericsson's favour above $500m. The MSA also contained royalty floor provisions in clauses […]. The clauses are quite complicated. They include a floor rate referred to as the ARR. The ARR is […] for 3G and […] for 4G. […] That is why the ARR operates as a royalty floor.

66.
After the MSA had been executed, Unwired Planet began to formulate a strategy for approaching potential licensees under its new portfolio of Ericsson-derived patents and in particular SEPs. Unwired Planet's initial aim was to contact and commence negotiations with various manufacturers they had identified with a view to closing three deals by the end of the year. The initial list of manufacturers did not include Huawei but by April 2013 Unwired Planet had identified Huawei as a company to be contacted by the end of June. Unwired Planet decided to offer a flat rate of $1 per LTE multimode handset. Taking a handset sale price as $200, that would be 0.5%. At that time Ericsson's publicly stated expectation for a rate for their 4G/LTE patents was 1.5%.

The patents transferred under the MSA

67. Before entering into the MSA and thereby transferring patents to Unwired Planet, […]. The transfer process was a bit more complicated than this but for this purpose that does not matter. Ericsson ranked its patents in tiers and selections of patents were chosen in each tier. […] So purely on a numerical basis based on total numbers and declared numbers there is a ratio of about [Z%] between Unwired Planet's and Ericsson's patent portfolios.

Contacts with Samsung and others

68.
Unwired Planet's contacts with Samsung started in October 2012. Under the cover of a Non-Disclosure Agreement (NDA) claim charts were provided on 17th December 2012 along with some other information about litigation brought by Unwired Planet against Apple and Google in Nevada USA. The first meeting took place in May 2013 and a second meeting took place between Unwired Planet and Samsung in August 2013. Unwired Planet's position is that since the start in October 2012, Samsung were holding out.

69.
By August 2013, according to Mr Robbins, Unwired Planet had contacted 27 manufacturers and was in "active conversations" with 14, whilst the remaining 13 had

"refused to engage with us at all". In oral evidence, Mr Robbins stated that there was not "much market interest in even discussing rates" and that he had hardly managed to "speak about economics with anybody", it being "largely technology discussions". Before me Unwired Planet contend that this shows that the licensees in general were holding out. Huawei contend that in fact the rates Unwired Planet were demanding were just too high. There is evidence that […] were prepared to at least contemplate deals at […] per LTE unit rather than the $1 being proposed by Unwired Planet. There was a debate about how much the ARR played a part here. Mr Robbins downplayed its significance but in my judgment from the beginning the ARR was an important factor driving Unwired Planet's strategy.

Contacts with Huawei

70.
In June 2013, Unwired Planet decided to approach Huawei. The approach was about a possible purchase by Huawei of Ericsson-derived infrastructure patents. Unwired Planet discussed this with its advisors Evercore and the approach occurred on 2 July 2013. Correspondence ensued and by 22nd August 2013 Huawei had informed Evercore that it was not interested in acquiring Ericsson patents.

71.
A point which Unwired Planet emphasise in these proceedings is that the EricssonHuawei 2009 licence had expired at the end of 2012 and that, as a result of the MSA, by 2013 certain Ericsson SEPs were now held by Unwired Planet. The significance of this point is that while I accept Huawei's case that this first approach from Unwired Planet to Huawei via Evercore concerned a purchase and not licensing (contrary to suggestions from Unwired Planet), nevertheless, as Unwired Planet submit, by 2013 Huawei ought to have known that they would need a licence from Unwired Planet to continue to use SEPs they had formerly licensed from Ericsson. There is no evidence Huawei considered this point at the time at all and I doubt they did. In crossexamination Mr Zhang made the point that since Unwired Planet were trying to sell the patents it had acquired from Ericsson, then from Huawei's

point of view it was not clear the patents would remain with Unwired Planet. They might be sold on elsewhere. That is true but it does not take away the force in Unwired Planet's point that after early 2013 Huawei knew all they needed to know to appreciate that certain SEPs which they had formerly licensed were now held by a different company and, if and to the extent a licence was required, it would have to come from Unwired Planet or its successors.

72.
On 13th September 2013, Mr Saru wrote letters to Mr Guo Ping and Mr Ren Zhenfei, who are two Board members of Huawei, the latter being the founder and CEO, suggesting that the two companies should "sit down and have an extended discussion" at some point in October 2013 with a view ultimately to concluding a licence. No reply was received to these letters. Huawei justified this on the basis that the letters were not copied to Huawei's IP or Licensing departments. Mr Zhang explained that they were not brought to the attention of those departments. No chasing letters were sent by Unwired Planet until 25th November 2013 (see below).

October 2013

73. By October 2013 further meetings with Samsung had taken place. Mr Robbins said he feared that Samsung had no intention of ever engaging in sensible commercial negotiations. By now Unwired Planet were concluding that the underlying thesis, that the strength and depth of the portfolio would be so compelling that licensing deals could be reach without litigation in many cases, was wrong. On 23rd October 2013, Unwired

Planet's CEO told Ericsson that "…we are having to initiate new litigation due to lack of any licensing happening".

November 2013 - further contact with Huawei

74. On 25th November 2013 Unwired Planet contacted Huawei's IP department. Huawei responded very promptly. There was a brief delay during December 2013. On 13th January 2014 Huawei asked Unwired Planet for claim charts. On 16th January 2014, Unwired Planet agreed to produce charts under an NDA and included draft terms. On 29 January 2014 Huawei proposed different NDA terms. On the same day, Unwired Planet replied stating "thank you for your message. We will consider this". Mr Saru passed Huawei's draft NDA to "our contract lawyer" for consideration. There was no further contact until 10th March when the litigation started.

The Lenovo deal

75. Unwired Planet's contacts with Lenovo had started in May 2013 with a licensing proposal. In August 2013 Evercore had discussions with Lenovo about Lenovo acquiring part of Unwired Planet's patent portfolio. Negotiations continued from then on. The contract was finally agreed in March 2014. The details of the contract are discussed below as a comparable. Lenovo paid $100m to Unwired Planet and so under the MSA from that time only the second tier arrangements apply. Under the contract Lenovo acquired 21 families from Unwired Planet, […]. Unwired Planet also acquired some further patents from Ericsson to add to its portfolio. After the Lenovo transaction was complete Unwired Planet claimed to own 30 SEP families.

The litigation

76.

In order to facilitate litigation arrangements had to be made which required Ericsson's consent. This was embodied in an agreement dated 27th February 2014. On 5th March 2014, the Board of Unwired Planet approved the European litigation.

77.
On 10th March 2014 Huawei received an email from Mr Saru stating that Unwired Planet had decided "to proceed with enforcement in Europe" by suing Huawei for patent infringement in the UK and Germany. Mr Saru says in his witness evidence that his email was to "confirm" that they were suing Huawei in Germany and the UK, but this was the first Huawei had heard of being sued. The previous contact between Unwired Planet and Huawei had been about the terms the NDA, whereby Huawei was waiting to receive comments from Unwired Planet.

78.
On the same day, Unwired Planet issued patent infringement proceedings in the UK and Germany against Huawei, Samsung and Google, and against HTC in Germany. There is an issue about the nature of the relief claimed by Unwired Planet which I will address in the competition law section below.

79.
The April 2014 offer followed. In June 2014, Unwired Planet completed an NDA with Huawei. Discussions continued thereafter. A debate between Unwired Planet and Huawei arose about without prejudice privilege. On 30 July 2014, Unwired Planet made a without prejudice licensing proposal which was later repeated in open correspondence and is referred to as the July 2014 offer. Without prejudice negotiations continued after that.

80.
In September 2014, Unwired Planet commenced working on a method of counting and classifying SEPs to use in licensing negotiations. It is called the "modified numeric proportionality approach" (MNPA). It is addressed at length below.

81.
The litigation continued with various case management and strike out hearings in 2014/2015. In June 2015, following directions from the court, the parties made open offers. In February 2016 Unwired Planet and Huawei exchanged open correspondence concerning their lack of progress in concluding a FRAND licence. Each accused the other of the blame for the lack of progress.

82.
Unknown to Huawei, Unwired Planet and PanOptis had been negotiating and on 6 April 2016 the acquisition by PanOptis was announced. On 10 August 2016, Unwired Planet's solicitors disclosed the 2016 Unwired Planet-Samsung Licence. This licence is addressed in detail below. […]

FRAND

(i) What is FRAND and what principles apply to it?

83.
The point of FRAND in standard setting is fairly easy to understand. Standards exist so that different manufacturers can produce equipment which is interoperable with the result that the manufacturers compete with one another. So the phone makers compete in the market for phones and the public can select a phone from any supplier and be sure (for example) that if it is a 4G phone, it will work with any 4G network. As a society we want the best, most up to date technology to be incorporated into the

latest standards and that will involve incorporating patented inventions. While the inventor must be entitled to a fair return for the use of their invention, in order for the standard to permit interoperability the inventor must not be able to prevent others from using the patented invention incorporated in the standard as long as implementers take an appropriate licence and pay a fair royalty. In this way a balance is struck, in the public interest, between the inventor and the implementers. The appropriate licence is one which is fair, reasonable and non-discriminatory. That way a standard can safely incorporate the invention claimed in a patent without giving the inventor or his successors in title unwarranted power over those who implement the standard. Thus the public interest is served because telecommunication standards can be set using the best and most up-to-date technical expedients available and the inventor's private interest is served because the FRAND undertaking ensures they or their successors will obtain a fair reward for their invention.

84.
Telecommunications standards worldwide are formulated and set by SSOs (Standards Setting Organisations). In Europe the relevant SSO is ETSI. SSOs require the holders of patents which are essential to the standards to give an undertaking to license on FRAND terms if they wish to participate in standard setting.

85.
In ETSI this process is based on its Directives which include Rules of Procedure and a Guide to IPRs. Within the Directives, as an annex to the Guide to IPRs, is an IPR Policy. The policy and the rules have been adjusted over time but none of the issues before me turn on any differences. Article 4.1 of the ETSI IPR Policy requires members of ETSI to inform ETSI of "ESSENTIAL IPRs" in a timely fashion. ESSENTIAL and IPR are defined terms (article 15). A patent which would inevitably be infringed by operating in accordance with a standard is an example of an ESSENTIAL IPR. By definition a SEP is an ESSENTIAL IPR. Once an ESSENTIAL IPR has been declared by its owner to ETSI, the owner will be requested by ETSI (Article 6.1 of the ETSI IPR Policy) to give an irrevocable undertaking in writing that it is prepared to grant irrevocable licences on FRAND terms. In its form applicable to the 2014 offers the relevant policy is dated 20th March 2013. Article 6.1 in that form is:

"6.1 When an ESSENTIAL IPR relating to a particular STANDARD or TECHNICAL SPECIFICATION is brought to the attention of ETSI, the Director-General of ETSI shall immediately request the owner to give within three months an irrevocable undertaking in writing that it is prepared to grant irrevocable licences on fair, reasonable and non-discriminatory ("FRAND") terms and conditions under such IPR to at least the following extent:

●
MANUFACTURE, including the right to make or have made customized components and sub-systems to the licensee's own design for use in MANUFACTURE;

●
sell, lease, or otherwise dispose of EQUIPMENT so

MANUFACTURED;

●
repair, use, or operate EQUIPMENT; and

●
use METHODS.

The above undertaking may be made subject to the condition that those who seek licences agree to reciprocate."

86.
Whether a declarant is an ETSI member or not does not matter in that undertaking. Under the rules anyone declaring a patent to ETSI as essential IPR is asked to give a FRAND undertaking. A question is whether the commitment to ETSI is enforceable by a third party putative licensee such as Huawei in these proceedings. This is addressed in the next section.

87.
Other relevant terms in the ETSI IPR Policy are:

i)
Article 6.1bis which provides that the undertaking should be binding on successors in title.

ii)
Article 6.2 which provides that an undertaking for one patent applies to all members of the same patent family unless a specific written exclusion is made at the time. Unwired Planet also pointed out that Mr Cheng of Huawei agreed that an undertaking restricted to a particular national jurisdiction would not make much sense [Day3 p125-126]. I accept Mr Cheng's evidence.

iii)
Article 6.3 which provides that so long as the undertaking is not given the relevant committee should be wary of adopting the relevant part of the standard and may suspend work on it.

iv)
Article 8.1 which provides for consequences if the patentee refuses to give the undertaking.

88.
A notable feature which is not in the ETSI IPR Policy is any obligation on ETSI to check whether declared patents are in fact essential. The only mechanisms which exist to decide these questions are court proceedings or arbitration.

(ii) The history and purpose of FRAND

89.
ETSI was established in 1988 and the FRAND undertaking was developed by it with the close involvement of the European Commission, which reflects the importance of FRAND from the point of view of competition policy. The first public formulation by the Commission of a specific requirement for FRAND terms in the context of IP and standardisation was in a paper "Communication on Intellectual Property Rights and Standardisation" on 27th October 1992 (COM (92) 445 final at 4.3.3). Nevertheless the concept has its origin in US anti-trust law (see "A Brief History of FRAND: Analyzing Current Debates in Standard Setting and Antitrust Through a Historical Lens" Jorge Contreras 80 Antitrust Law Journal 39 (2015)). In the US it is sometimes called "RAND" rather than FRAND but there is no material difference between the two. The idea of FRAND licences for patents essential to standards is not unique to ETSI. It is something other international SSOs require as well (e.g. the IEEE and ITU referred to by US District Judge James Robart in **Microsoft v Motorola** Case C10-1823JLR, 2013 US Dist LEXIS 60233 (W.D. Wash. April 25 2013 at page 3)).

90.

Moreover although ETSI is a European organisation, it is truly international in scope. The ETSI FRAND undertaking has been considered in courts all over the world including the German courts (see further below), US International Trade Commission (see decisions between **InterDigital v Nokia and ZTE** dated 13th June 2014 Inv No. 337-TA-868 and 27th April 2015 Inv. No. 337-TA-613), the IP High Court of Japan (see the **Apple v Samsung** Case No 2013 [Ne] 10043 dated 16th May 2014) and the

Guangdong Province High People's Court in China (see **Huawei v InterDigital** (2013) Guangdong High Ct. Civ. Third Instance No 305).

91.
This international scope arises because the standards supported by the ETSI FRAND undertaking are and are intended to be interoperable globally both from the point of view of implementers and also users (see e.g. Art 6.2 and Mr Cheng's evidence above). A benefit of standardisation is that implementers will be able to make and sell products compliant with the standards all over the world. Another benefit is that users will be able to use the same equipment globally.

92.
The underlying purpose of the FRAND undertaking is to secure a proper reward for innovation whilst avoiding "hold up", i.e. the ability of the owner of a SEP to hold implementers to ransom by reason of the incorporation of the invention into the standard by declining to grant them a licence at all or only granting one on unfair, unreasonable or discriminatory terms. The idea is to strike a fair balance. This way of describing the purpose of FRAND is not in dispute and can be seen in numerous sources. It was put in the following way in the **Huawei v InterDigital** case in China:

"For good faith users who are willing to pay reasonable royalties, holders of standards-essential patents should not directly refuse to grant licenses. On the one hand, it is necessary to ensure that patentees can obtain sufficient returns from their technical innovations. On the other hand, holders of standards-essential patents should be prevented from charging exorbitant royalty rates or attaching unreasonable terms by leveraging their powerful position forged by the standards. The core of the FRAND obligations lies in the determination of reasonable and non-discriminatory royalties or royalty rates."

[section IV 2nd paragraph (p56 of the translation)]

93.
I agree with the Guangdong High People's Court's succinct summary of the purpose of FRAND.

94.
The same principles have been recognised in other courts internationally, see:

i)
the EU Commission Decision AT.39985 **Motorola – Enforcement of GPRS**

Standard Essential Patents of 29th April 2014 at para 76-77;

ii)
the CJEU in **Huawei v ZTE** at paras 48-55;

iii)

the US courts in **Microsoft v Motorola** (Judge Robart) at para 71-72 (p25); **Ericsson v D-Link** 773 F. 3d 1201 (Fed Cir 2014) at page 7-8; **In re Innovatio** **IP Ventures LLC Patent Litigation** Case No 11 C 9308, 2013 WL 5593609 (N.D. I11 Oct. 3, 2013) pages 14-15.

95.
However eliminating hold up value is not the only consideration to take into account. The authorities and the economics literature have identified a countervailing factor called “reverse hold up” or “hold out”. The idea is that an unscrupulous licensee may use their economic strength to avoid paying anything to a patentee, unduly dragging out the process of licence negotiation, thereby putting the patentee to additional cost and forcing it to accept a lower royalty rate than is fair. The possibility of delaying tactics from a licensee is recognised in **Huawei v ZTE** (CJEU) at paragraph 71 and also paragraphs 37-38 (referring to the referring court).

96.
In a paper of which Prof Neven was an author (“**Injunctions for Standard-Essential**

Patents: Justice is not Blind” Neven et al Jnl of Competition Law & Economics 9(2), 285-311.), he showed by economic modelling that in certain idealised circumstances involving the way patent litigation works, a licensee has an incentive to defend patent cases in Europe and end up with a lower royalty than the idealised FRAND rate. The extent to which that modelling applies to the real world does not matter, neither does the fact that in economic literature hold up has been discussed more than hold out. In my judgment what counts is that both hold up and hold out are possible and both concepts are relevant in analysing a given set of facts. Unscrupulous behaviour by either the patentee or the licensee can lead to unfairness. In order to arrive at fair, reasonable and non-discriminatory licence terms the patentee must not engage in hold up nor must the licensee engage in hold out.

97.
When talking about FRAND economists refer to the idea that the FRAND rate represents the rate which would be agreed “ex ante”, in other words before the patented invention is adopted into the standard. This is another way of saying that the rate seeks to eliminate hold up and to that extent is uncontroversial. In the concurrent evidence session Prof Neven explained that he did not regard FRAND as a scheme which meant the patentee could not appropriate some of the value that is associated with the inclusion of his technology into the standard and the value of the products that are using those standards. Dr Niels agreed with that. Neither side disputed this and to the extent it is a matter for the economists, I accept their evidence. The economists’ opinions show that it is not necessary to deprive the patentee of its fair share of those two sources of value in order to eliminate hold up and fulfil the purpose of FRAND. To that extent I may be differing from certain parts of the decisions in **Innovatio IP Ventures** and **Ericsson v D-Link** in the US but it is not necessary to look into that any further since neither side before me took the point.

(iii) Enforceability of the ETSI FRAND undertaking and French law

98.
Although it is common ground in this case that Unwired Planet is bound in law to license on FRAND terms, the questions of its enforceability and the legal basis for it are not purely academic for two reasons, first because a correct identification of the legal basis may inform decisions about the undertaking’s scope and effect, and second because the degree of uncertainty around its enforceability plays a part in the argument about abuse of dominance.

99.

My judgment on the strike-out in April 2015 ([2015] EWHC 1029 (Pat) para 29) noted that FRAND could be considered in three relevant legal contexts: (1) compliance with the FRAND commitment as a matter of contract, (2) compliance with competition law and (3) the grant or refusal of injunctions ("equitable refusability"). At this stage I am concerned with the first context.

100.

Article 12 of the ETSI IPR Policy provides that it is governed by French law and the IPR declaration forms also refer to French law. They provide that the construction, validity and performance of the undertaking is governed by French law (see the extract from the forms set out later in this judgment). The parties exchanged reports of French law experts.

101.

Unwired Planet referred to the judgment of the Court of Appeal from the strike-out judgment ([2016] EWCA Civ 489) in which it was held that:

"38 […] UP LLC and UP were required to give FRAND undertakings and they each did so shortly after the SEPs in issue were transferred to them. It is true that UP is not a member of ETSI but it is just as constrained by the FRAND undertaking it has given as it would be if it were such a member and the judge was right to hold that, as a practical matter, any third party may require UP to grant it a licence under the SEPs on FRAND terms."

102.

No doubt this clear decision is the reason why neither side actually disputes that as a practical matter the FRAND undertaking is binding on Unwired Planet and enforceable by Huawei. However the opinion of Huawei's French law expert, Prof Libchaber, is that in French law those conclusions are not correct and, as is said in his second report (paragraph 10 footnote 7) the Court of Appeal did not explore the legal basis for its conclusion and French law matters were not in issue on the appeal. Given that the French law matters were argued before me (in writing) and for the reasons already explained, it is necessary to address the issue.

103.

It is not in dispute that ETSI as an association was formed under the Loi du 1er juillet 1901 relative au contrat d'association (the French law of 1 July 1901 and the decree of 16 August 1901), Article 1 of which states: (in translation): "An association is a contract by which two or more persons bring together, in a permanent manner, their knowledge or their activities for a non-profit purpose. It is ruled, as to its validity, by the general principles of law applicable to contracts and obligations".

104.

Prof Libchaber explained that as an association which results from a contract, the legal principles governing contracts are applicable and he pointed out that Article 1165 of the old French Civil Code provides that agreements only produce effects between the contracting parties. It is only as an exception that they can benefit a third party and that is in the case provided for in Article 1121. I will address Article 1121 and third party rights below.

105.

Prof Libchaber noted that paragraph 1.4 of the ETSI Guide states that the IPR Policy defines the rights and obligations of ETSI as an Institute for its members and states that while non-members have certain rights under the policy they (non-members) do not have obligations. Accordingly his opinion is that non-members of ETSI such as Unwired Planet are not subject to any legal obligations arising from French contract law under the policy. At this stage the analysis is not concerned with the effect of making a declaration to ETSI of SEPs and the French law expert relied on by Unwired Planet, Prof Fauvarque-Cosson, did not disagree with Prof Libchaber so far.

106.
Prof Fauvarque-Cosson's view is that making a declaration under Art 6.1 of the ETSI IPR Policy gives rise to a binding contract between ETSI and the declarant and this is so regardless of whether the declarant is a member of ETSI or not. Prof Libchaber does not agree. The dispute has a number of dimensions which are best taken separately although they interact. The first is whether making an ETSI declaration forms a contract at all. The second dimension relates to Art 1121 of the old French Civil Code and the French law doctrine of stipulation pour autrui, in other words the law whereby third parties may acquire enforceable legal rights against one party to a contract. The third dimension relates to the nature of any obligation which does arise, Prof Libchaber expressing the view that it is not the usual practice for French courts to compel a party to enter into a contract. Finally the fourth dimension concerns the efficacy of a unilateral commitment under Article 1000-1 of the old French Civil Code.

107.
The French Civil Code referred to in the previous paragraphs is called the "old" French Civil Code because on 1st October 2016 a new Civil Code relating to contract law came into force in France. The new Civil Code is not retrospective and so it is not applicable to Unwired Planet. Prof Fauvarque-Cosson referred to both and expressed the view that the changes did not make any difference to the result for any of the matters in debate although in some cases the law was clearer under the new Civil Code. Prof Libchaber explained that the new Civil Code did not apply to Unwired Planet but he did not identify any specific aspect in which the difference mattered. In this section I will refer to the two codes as the old Civil Code and the new Civil Code.

(1) Does making ETSI declaration form a contract at all

108.
In the relevant declaration a patentee declares to ETSI which patents it contends are essential to the standards. In Prof Fauvarque-Cosson's opinion it is the making of this declaration to ETSI by a non-member which leads to that non-member having a legally enforceable obligation to license on FRAND terms. Since Unwired Planet is not a member of ETSI, this is crucial.

109.
Prof Fauvarque-Cosson explained that Article 1108 of the old Civil Code provided that the conditions necessary for the formation of a contract were:

"1. the consent of the party assuming the obligation

2.
capacity to contract

3.
a definite object which is the subject matter of the obligation

4. a cause licit"

110.
The Professor explained that under the new Civil Code the concept of a "cause" is no longer stated as a condition governing the formation of contracts and is not relevant to the issues arising in this case.

Under Article 1128 of the new Civil Code the corresponding conditions are: 1. the consent of the parties; 2. their capacity to contract; 3. content which is lawful and certain.

111.
The Professor explained that under French law a contract is formed once the parties agree on its essential elements. This can be by means of a sufficiently precise offer and acceptance. Although the old Civil Code did not contain detailed provisions expressly dealing with formation, the new Civil Code does and the rules generally enshrine existing case law. Once an offer has been made it must be accepted and the acceptance does not require any particular formality. It can be express or implied unless the offer specifies that acceptance must be express. Prof Libchaber did not disagree with any of this.

112.
Prof Fauvarque-Cosson analysed the position in the following way:

i)
The ETSI IPR declaration form sets out the terms of an offer made by ETSI to IPR holders who wish to declare their IPR as essential to a standard.

ii)
The declaration form identifies the conditions on which ETSI will either include or maintain the IPR holder's IPR in ETSI's database of essential IPR, namely that the IPR holder must agree to grant irrevocable licences under its IPR on terms and conditions which are in accordance with Clause 6.1 of the ETSI IPR Policy.

iii)
The IPR holder accepts the offer made by ETSI when it completes and signs the IPR Licensing Declaration Form and sends it to the Director General of ETSI.

iv)
This gives rise to a contract on the terms set out in the IPR Licensing Declaration Form between ETSI and the IPR holder.

v)
In addition to its contractual obligation to ETSI, the IPR holder is also contractually bound with respect to any third party who wishes to practice the standard to grant irrevocable licences under its IPR on terms and conditions which are in accordance with Clause 6.1 of the ETSI IPR Policy. This is because the contract between ETSI and the IPR holder is a contract for the benefit of third parties.

113.
Point (v) will be addressed below. At this stage I am concerned with steps (i) to (iv) which in Prof Fauvarque-Cosson's opinion create a binding contract between the IPR holder and ETSI.

114.
The question has three aspects: (a) whether making the declaration imposes any sufficient obligations on ETSI to form a contract, (b) whether the declaration forms lack sufficient clarity to impose legal obligations on the declarant, and (c) whether in truth the declaration is really just a way of giving information to ETSI and the market.

(a) whether making the declaration imposes any sufficient obligations on ETSI to form a contract

115.

Prof Libchaber explained that a contract must create legal consequences for both parties. He referred to the new Civil Code in Article 1101 which provides that a contract is (in translation) "a meeting of wills between two or more parties designed to create, modify, transmit or extinguish obligations" (i.e "Le contrat est un accord de volontés entre deux ou plusieurs personnes destiné à créer, modifier, transmettre ou éteindre des obligations"). Prof Fauvarque-Cosson did not disagree with this nor was there any suggestion that the principle was any less applicable to cases governed by the old Civil Code. The idea underlying this is not difficult to grasp and is akin to the English law concept that for a promisor's promise to be enforceable as a contract, consideration must move from the promisee.

116.

Prof Libchaber's view was that no contract was formed by the steps (i) to (iv) because even if a declaration form which is completed and sent by a patentee to ETSI creates obligations for the patentee (perhaps because they are an existing member of ETSI), it does not have any corresponding obligatory consequences for ETSI.

117.

It is true that the ETSI IPR Policy itself does not purport to impose anything by way of an obligation on ETSI in return for receiving an essentiality declaration form from a patentee but Prof Fauvarque-Cosson explained that there is a step which ETSI will take after receiving a declaration, that is to include or maintain the declared essential patent on the ETSI database of essential IPR. Prof Libchaber's view is that that is not sufficient to support the theory that making a declaration triggers the formation of a contract under French law because the entry of the patent in the database is not the counterpart to a declaration but rather a tool designed to assist interested parties in finding out which patents have been declared essential and are said to be available to license. His view is that it is artificial to analyse this as if it were a contractual advantage, and he doubted that a declarant would be able to compel ETSI to enter the declaration into the IPR database if this procedural step were not taken. He also pointed out that while the registration procedure may be implicit from the Policy, it appears nowhere in the Licensing Forms and so while the registration of the patent in the ETSI database could be seen as an obligation on ETSI where the declaration is made by an ETSI member, there will be no such obligation where the declaration is made by a nonmember.

118.

Prof Libchaber is correct that neither the IPR Policy itself nor the declaration form refers to the ETSI IPR database however the database is described in Article 3.1.2 of the ETSI Guide to IPRs. To that extent steps (i) to (iv) are too narrowly stated but the difference does not matter. These are the provisions in the ETSI Directives to which the IPR Policy is an annex. Article 3.1.2 explains that the database allows online access to declarations such as those in issue in this case. The third sentence of the Article states as follows:

"Unless otherwise specified, all IPRs contained [in the ETSI IPR Database] have been notified to ETSI, with an undertaking from the owner to grant licenses according to the terms and conditions of Clause 6.1 of Annex 6 of the ETSI Rules of Procedure (the

ETSI IPR Policy)."

[ETSI Guide on IPRs 19 September 2013; ETSI Directives Version 36, June 2016]

119.

This is a clear statement of ETSI's registration policy. It shows that Prof FauvarqueCosson is correct to say that after receiving a declaration ETSI will include or maintain the declared essential patent(s) on the ETSI IPR database. Moreover, as the statement explains, unless otherwise stated the owners of the IPRs on the database will have given a FRAND undertaking. Article 3.1.2 is an express and public statement of what ETSI will do when it receives declarations. In my judgment the fact it is not mentioned in the declaration form is irrelevant. On its face this article applies whether the declarant is a member of ETSI or not and it would make little sense otherwise. I am not persuaded by Prof Libchaber's view that at best this might be applicable to members rather than non-members.

120.
If a contract is formed from the four steps described by Prof Fauvarque-Cosson (adjusted to include reference to Article 3.1.2) then one can see that an obligation with far reaching legal consequences for the declarant (to grant patent licences to all comers on FRAND terms) is an obligation of much more weight and significance than the apparently minor counterpart obligation on ETSI (if it exists) to enter the declaration on the IPR Database. However English contract law would not weigh up the relative values of the promise and the consideration for it and neither Professor suggested French law would do that either. Prof Libchaber's view is that a requirement to put the declaration on the database is not "sufficient" to support the contract but that was not because of its inconsequential nature, it is because of the Professor's view that it is not the counterpart of the declaration but rather a tool to assist interested parties. I accept that placing the declarations on the public database is a tool to assist interested parties but I do not accept that this is not a "counterpart" to the declaration. If Prof Libchaber is just referring to the fact that the database is not mentioned in the declaration form then I have dealt with that point.

121.
Considering the issue as a matter of substance, the placing of the declaration on the database is indeed the counterpart to the declaration because the purpose of the declaration from ETSI's point of view is to provide information which will be useful to give notice to standard setters and implementers. That information involves two important facts: first the existence of a patent which is, or at least which the owner contends is, essential to the standards, and second the fact that the owner is prepared to grant licences on FRAND terms. A declaration to ETSI which is not made public on the database is much less useful. Furthermore publication on ETSI's own database of the assertion of essentiality and of the undertaking to enter into FRAND licences has a value to a patentee seeking to license its rights and obtain fair return for the use of its invention.

122.
The terms of Article 3.1.2 are quite clear and do not leave room for ETSI to choose not to place a regular declaration on the database. In the Article ETSI is offering to declarants to behave in a particular way if a proper declaration is provided. It seems to me therefore that a person who provided a properly completed declaration form to ETSI would be entitled to expect ETSI to do what it says it will do in Article 3.1.2. In that case ETSI is obliged by Article 3.1.2 to place the declared IPR on the database in a manner which shows that an undertaking has been given, i.e. not to "otherwise specify". Given the statements about French law both in the form and in the ETSI Directives, declarants are entitled to expect these statements to represent legally binding statements by ETSI about what it will do. In other words a declarant who had supplied a completed declaration to ETSI is entitled to expect they can compel ETSI to enter the declaration into the IPR database in the unlikely event it failed to do so and therefore a binding contract under French law will arise when a proper declaration is provided. That will be so whether the declarant is a member of ETSI or not.

(b) whether the declaration forms lack sufficient clarity to impose legal obligations on the declarant

123.
Prof Libchaber's view is that the licensing forms cannot be regarded as an offer because they lack the necessary clarity and so do not have the necessary quality of certainty to amount to an offer capable of acceptance under French law. This is because they allow the declarant various options to choose from. The options are described by Prof Libchaber as follows:

"In this regard I note that the declarant may choose to make the declaration: (i) in respect of either IPR relating to contributions made to the standard setting process by the declarant or any of its IPR; (ii) in relation to specific ETSI standards / specifications or all of them; and (iii) subject to a condition of reciprocity. It is also open to the declarant to inform ETSI that it does not wish to make its IPR available for licensing on FRAND terms at all."

124.
Prof Libchaber is correct that these options exist but in my judgment their existence does not amount to a lack of clarity which could lead to a contract based on them being unenforceable. Each option is presented and it will be clear which one the declarant has chosen. The fact that options exist does not introduce a lack of clarity.

125.
Dealing with the individual options, the first is concerned with which rights the declaration relates to if a general declaration is made. Either choice has a clear effect – either the declaration will relate to IPRs contained in technical contributions made by the declarant or its affiliates or else it will relate to all its IPRs. There is nothing uncertain in either option but in any case a general declaration is not the only option available. A declarant can list the IPRs to which the declaration relates and in such a case there is no lack of clarity at all.

126.
The second point is about the standards to which the IPR is declared to be essential. Declaring IPRs as essential to all ETSI standards is not unclear, it is simply wide. And while a wide declaration like that may not help an implementer decide if they need a licence in particular circumstances, the database does not warrant that the IPRs are in fact essential in any case. The implementer will always have to form their own view about that (or have the matter resolved in court). I suppose a declarant could define the standards in an ambiguous way but regardless of how realistic the possibility is, it does not undermine the clarity or enforceability of the process itself. Assuming the declarant identifies the relevant standards sufficiently then the declaration will be clear and the undertaking could be enforced.

127.
Similarly the third point, on reciprocity, does not introduce a lack of clarity. A declarant may state that they will only offer FRAND licences on condition that those who seek licences reciprocate. Whether they do or do not, either option is clear.

128.
Finally the declarant can refuse to give the FRAND undertaking altogether. Again this is not unclear. If they do refuse it means that ETSI will know that there are patents alleged to be essential for which no FRAND undertaking is available. This is vital information and the ETSI Directives have a number of provisions dealing with the possibility (Article 8 of the ETSI IPR Policy). Broadly in that case ETSI will try and ensure that whatever the relevant technology is, it is removed from the standards.

129.

I am not persuaded by this aspect of Prof Libchaber's evidence. I can quite see that French law, like English law, imposes a requirement of certainty before a contract can be enforceable. That makes sense. However none of the grounds identified give rise to any material lack of certainty about the obligations which would be imposed on the declarant.

(c) whether in truth the declaration is really just a way of giving information to ETSI and the market

130. Although it was not strongly advanced as a separate legal ground for rejecting the enforceability of the FRAND undertaking in the declaration, Prof Libchaber made the point in paragraph 17 and 18 of his third report that really a declarant is simply "informing" ETSI, and indirectly interested parties, that it is prepared to grant licences in accordance with Clause 6.1 of the Policy and that this is not consistent with the view that a binding contractual relationship is formed. The Professor put the word "informing" in quotation marks because that language comes from the declaration form.

The word "informs" is used in the form. It appears in conjunction with the IPR Information Statement in which a declarant can list particular IPRs and standards, the language is as follows:

"In accordance with Clause 4.1 of the ETSI IPR Policy the Declarant and/or its AFFILIATES hereby informs ETSI that it is the Declarant and/or its AFFILIATES' present belief that the IPRs disclosed in the attached IPR Information Statement Annex may be or may become ESSENTIAL in relation to at least the ETSI work Item(s), STANDARD(S) and/or TECHNICAL SPECIFICATIONS identified in the attached IPR Information

Statement Annex."

(underlining mine)

131. There is also a general declaration but the use of "informs" is the same. The language has to be seen in the context of the declaration form as a whole. The next part, in which the declarant makes or refuses to make an irrevocable FRAND licensing declaration, is important:

"IPR LICENSING DECLARATION

In accordance with Clause 6.1 of the ETSI IPR Policy the Declarant and/or its AFFILIATES hereby irrevocably declares the following (check one box only, and subordinate box, where applicable):

To the extent that the IPR(s) disclosed in the attached IPR Information Statement Annex are or become, and remain ESSENTIAL in respect of the ETSI Work Item, STANDARD and/or TECHNICAL SPECIFICATION identified in the attached IPR Information Statement Annex, the Declarant and/or its AFFILIATES are prepared to grant irrevocable licences under this/these IPR(s) on terms and conditions which are in accordance with Clause 6.1 of the ETSI IPR Policy.

This irrevocable undertaking is made subject to the condition that those who seek licences agree to reciprocate (check box if applicable).

The Declarant and/or its AFFILIATES are not prepared to make the above IPR Licensing Declaration (reasons may be explained in writing in the attached IPR Licensing Declaration Annex).

The construction, validity and performance of this IPR information statement and licensing declaration shall be governed by the laws of France.

SIGNATURE

By signing this IPR Information Statement and Licensing Declaration form, you represent that you have the authority to bind the Declarant and/or its AFFILIATES to representations and commitments provided in this form.

[signature etc] ___________”

132. These passages are from the form to be used when specific patents are identified. The general form is not materially different. The language is clear and at face value reads as something which would be understood as being intended to have binding legal force (for example note the reference to the laws of France and the reference to having authority to bind the Declarant). The fact that in the earlier part of the form the declarant is “informing” ETSI about particular IPRs makes sense since ETSI needs to be informed about what IPRs are the subject of the declaration, not least so that they can be identified on the database. I reject Prof Libchaber’s idea that all this amounts to is a means of providing information to the market rather than a formal commitment capable of binding the declarant. On the contrary the text as a whole is plainly written in such a way that the person signing it understands they are making a formal legal commitment on behalf of the declarant.

(2) Art 1121 of the old French Civil Code and stipulation pour autrui

133. Prof Fauvarque-Cosson explained that French law includes a doctrine of “stipulation pour autrui” (an agreement for the benefit of third parties). While the concept is derived from Art 1121 of the old Civil Code, she explained that the provisions of the new Civil Code, which codify existing law, state the principles more clearly, as follows (in translation):

Art. 1205. – A person may make a stipulation for another person.

One of the parties to a contract (the ‘stipulator’) may require a promise from the other party (the ‘promisor’) to accomplish an act of performance for the benefit of a third party (the ‘beneficiary’). The third party may be a future person but must be exactly identified or must be able to be determined at the time of the performance of the promise.

Art. 1206. – The beneficiary is invested with a direct right to the act of performance against the promisor from the time of the stipulation.

Nevertheless, the stipulator may freely revoke the stipulation as long as the beneficiary has not accepted it.

The stipulation becomes irrevocable at the moment when the acceptance reaches the stipulator or the promisor.

Art. 1207. – Revocation may be effected only by the stipulator, or, after his death, by his heirs. The latter may do so only after a period of three months has elapsed from the date when they put the third party on notice to accept the benefit of the promise.

If it is not accompanied with the designation of a new beneficiary, the revocation benefits the stipulator or his heirs, as the case may be.

Revocation is effective as soon as the third party beneficiary or the promisor becomes aware of it.

Where it is made by testament, it takes effect from the moment of the testator’s death.

The third party who was initially designated is deemed never to have benefited from the stipulation made for his benefit.

Art. 1208. – Acceptance may come from the beneficiary or, after his death, his heirs. It may be express or implied. It may take place even after the death of the promisee or the promisor. ”

Art. 1209. – The stipulator may himself require the promisor to perform his undertaking towards the beneficiary.”

134.
The term translated as “stipulator” in this extract may also be translated as “promisee”. Prof Fauvarque-Cosson explained the provisions on revocation but nothing turns on them. Prof Libchaber did not disagree with Prof Fauvarque-Cosson that these provisions restate the previous law without substantive change.

135.
Prof Fauvarque-Cosson’s view is that the FRAND undertaking given by a declarant has the effect of engaging this doctrine under French law. Her view is as follows:

i)
Where an IPR holder gives an undertaking under Clause 6.1 of the ETSI IPR Policy, the IPR holder is the “promisor”; and ETSI is the “stipulator”. A person wishing to implement the standard is the “beneficiary”.

ii)
The primary effect of the declaration is to create a contract between the promisor (the IPR holder) and the stipulator (ETSI), the terms of which require the promisor to grant a right (a licence on FRAND terms) to the beneficiaries (the implementers of the standard).

iii)
Once it has exchanged consent with the stipulator (ETSI), the promisor has entered into a contract by virtue of which it is bound under French law to be prepared to grant the licence on FRAND terms.

iv)
The fact that the precise FRAND terms and conditions are yet to be agreed between the promisor (the IPR holder) and the beneficiary (the implementer) and that there is no licence does not detract from this. The promisor’s undertaking suffices, as a matter of French law, to create a contract between ETSI and the promisor.

v)
The fact that an IPR holder may be a non-member of ETSI is not relevant to this analysis.

136.
Prof Libchaber does not agree with this. He explained that the doctrine was not commonplace in French law because the conditions were rarely satisfied and there were two classic situations in which it applies – insurance (e.g. where a person takes out an insurance policy on their life, in which someone else is the beneficiary) and shipping (e.g. where a sender contracts with a carrier for the benefit of a recipient of goods). Prof Libchaber’s particular objections were these. First he did not agree that a contract between the declarant and ETSI was formed at all. I agree that such a contract is a necessary element for the doctrine to apply but I have already found that such a contract is formed. Second he did not consider the doctrine applied because ETSI imposes no requirement as to what the terms of any contract between the declarant and ETSI were. In other words, declarants can choose to declare IPRs to ETSI but not give a FRAND undertaking or do so conditionally. Again I have addressed this already. Prof Libchaber is right that a declarant can choose not to give the FRAND

undertaking or to attach conditions to it. However the fact that the declarant has options does not seem to me to undermine the existence of a legally enforceable contract at least in the relevant case, in which the declarant gives an unconditional FRAND undertaking. Prof Libchaber's view was that the doctrine could only apply if ETSI was imposing a particular obligation on the declarant instead of permitting them to choose between several options, but I do not see why that follows. An insurer could provide an insured with different options such as levels of cover but that would not undermine the contract between the two once it was formed on the basis of whatever option the insured had chosen nor would it undermine the fact that the contract was for the benefit of a third party.

137.
Prof Libchaber's next objection was as follows:

"If Professor Fauvarque-Cosson's analysis is correct, the same Licensing Form would be considered as: (i) the offer made by

ETSI; (ii) the acceptance by the IPR holder; and (iii) setting out

the key terms of future contracts to be formed with interested third parties. As a matter of French contract law this plurality is unconvincing and does not allow for the identification of the various different components of those separate legal operations: a first contract between ETSI and an IPR holder, and a second between the IPR holder and a third party implementer."

138.
I am not persuaded by this. I cannot see any reason why a blank form is incapable of being an offer made by ETSI nor any reason why a properly completed form cannot be an acceptance of that offer, indicating which of the pre-defined options the form shows ETSI is prepared to offer, the declarant has chosen to accept. As for the terms of future contracts, the form makes an unambiguous reference to Clause 6.1 of the ETSI IPR Policy. That policy expressly provides that a future licence will be available on FRAND terms. The issue of what FRAND terms are is addressed below. At this stage the key point is that (as I have found below) it is possible for a court to adjudicate whether a licence is or is not FRAND. Whether terms are FRAND is an objective matter for a given set of circumstances and therefore whether a FRAND undertaking has been complied with can be determined as a matter of law. In that sense the undertaking is legally enforceable. Knowing that the licence will be on FRAND terms is all the parties need to know.

139.
I sympathise with Prof Libchaber's observation that the doctrine is not commonplace in French law. However that is no reason not to apply it to the relatively new problem of how to facilitate the setting of standards in rapidly developing areas of technology and balance the public benefit of access to the latest and best technology for these standards with the appropriate incentives for inventors and investors in technological innovation. The FRAND undertaking sought by ETSI when a patentee declares its patents as essential to an ETSI standard is an undertaking given in terms to confer a benefit on third parties. I accept Prof Fauvarque-Cosson's analysis and find that the doctrine of "stipulation pour autrui" applies to the FRAND undertaking and renders it enforceable by third parties.

(3) The nature of any obligation which does arise

140.

This point is related to the previous one but is not the same. Prof Libchaber expressed the view that it is not the usual practice for French courts to compel a party to enter into a contract and that therefore the limit of the terms of Clause 6.1 as interpreted by a French court would be to impose an obligation owed by the declarant to third party implementers to make a good faith attempt to negotiate a FRAND licence. So he explained this is another reason why “stipulation pour autrui” does not apply, because for it to apply the right must be capable of specific performance, and on this analysis it is not. He explained that to form a licence contract French law would require the parties to agree on both the IPR covered by the agreement and thle royalties to be payable. If the royalty was not agreed, there can be no contract and a French court would not set the applicable price. French law (Art L613-8 §5 of the Intellectual Property Code) requires an intellectual property licence to be in writing otherwise it is a nullity and so without a specific form, there can be no contract. These points were in Prof Libchaber’s final report to which Prof Fauvarque-Cosson did not respond.

141.
These are significant issues for which I have considerable sympathy. An idea which has been canvassed and was in the pleadings at one stage in these proceedings although

it was subsequently dropped, is that a FRAND undertaking could mean that an implementer is in effect already licensed. Just as in English law a specifically enforceable contract to sell property can be treated as an assignment in equity such that the buyer is, for some purposes, treated as the owner of the property in all but name, so the FRAND undertaking may have the same effect. On that basis an implementer could plead that it has a complete defence to past infringements since it was, in substance, licensed.

142.
Neither side before me suggests that the FRAND undertaking is specifically enforceable in the sense I have described. For my part I doubt that the FRAND undertaking can be specifically enforced in such a way that either party could legally be compelled to enter into a contract against their will. Certainly the implementer could not be so compelled and I doubt the patentee could be either. However a proper analysis of the full legal situation needs to have regard to the intellectual property rights which the FRAND undertaking relates to as well as the contractual position. It also needs to take into account competition law.

143.
I do not believe it is necessary in order for the FRAND undertaking to be legally effective, for it to be true that the undertaking is specifically enforceable in such a way that the IPR holder could be compelled to enter into a contract against their will. In other words, even if a patentee cannot be compelled to enter into a contract by specific performance of the FRAND undertaking, that undertaking can still have substantive legal effect. As mentioned already FRAND is an objective standard. Courts concerned with patent cases in a number of countries around the world have set FRAND rates and this court will do so too. If a patentee refuses to enter into a licence which a court has determined is FRAND then, subject to the **Vringo** problem which I will consider below, a court can and in my judgment should normally refuse to grant relief for patent infringement. The converse applies to an implementer who refuses to accept a FRAND licence. In that case the normal relief for patent infringement should normally follow. Thus there is no need for contract law to go as far as creating a power to compel parties to enter into FRAND licences against their will because patent law already has the tools available to give legal effect to the FRAND undertaking.

144.

Therefore, while I recognise the force in Prof Libchaber's concern, I do not accept that the nature of the FRAND obligation itself, which is examined at length below, means that the doctrine of "stipulation pour autrui" cannot apply to it.

(4) The efficacy of a unilateral commitment under Article 1100-1 of the French Civil Code.

145.
As a fall back Prof Fauvarque-Cosson stated that even if no contract was formed between the IPR holder and ETSI, the FRAND undertaking could be regarded as constituting an "acte juridique unilatéral", meaning a manifestation of a will intended to produce legal effects and thereby enforceable in French law under Article 1100-1 of the Civil Code which codifies previous law. Prof Libchaber did not agree but since I have already decided the issue on the basis above there is no need to resolve that.

Enforceability of the FRAND undertaking – looking overall.

146.
Standing back I recognise that the enforceability of the FRAND undertaking in French law is not a clear cut question. Prof Libchaber stated that there remains widespread uncertainty about the issue of whether the doctrine of "stipulation pour autrui" can be applied to ETSI. In my judgment it can be applied in that way and should be. The reason it should be applied is because the FRAND undertaking is an important aspect of technology standardisation. Holders of essential IPR are not compelled to give a FRAND undertaking but it serves the public interest that they make it clear whether or not they are doing so, and it serves the public interest that if they do, the undertaking is public, irrevocable and enforceable. To avoid hold up, implementers need to know that they can hold SEP owners to a FRAND obligation.

(iv) Can there be more than one set of FRAND terms?

147.
A question which needs to be grappled with in order to resolve this dispute is whether there can be two sets of rival licence terms which are both FRAND. To put the matter another way, the question is whether there can be a FRAND range rather than just a FRAND rate. This is not a theoretical problem, it has real practical significance in this case.

148.
From the point of view of economists, the FRAND royalty rate is the rate which the parties in a given set of circumstances would converge upon and agree to. The circumstances are idealised in various ways – for example there is no hold up and no hold out. The FRAND royalty rate arrived at in that way may not be the same as the rate actually decided upon by a court or an arbitrator and Prof Neven strikingly contemplated that the court's judgment on a FRAND rate would inevitably be incorrect at least to some degree since it would always be an imperfect approximation to the "true" FRAND rate for a given circumstance since it would inevitably be based on limited evidence. This illustrates an important aspect of the economists' approach to FRAND. For a given set of circumstances there is only one FRAND rate and, by parity of reasoning therefore, only one FRAND set of licence terms.

149.
In **Vringo v ZTE** (both [2013] EWHC 1591 (Pat) and [2015] EWHC 214 (Pat)) and in earlier judgments in these proceedings I considered what happens if each side in a patent dispute makes a FRAND offer. As those judgments indicated, it may be that competition law, the contractual basis of the ETSI

FRAND undertaking and the English court's equitable discretion which relates to injunctions deal with these problems in different ways. This problem (the **Vringo** problem), in which offers presented by each party differ but are both FRAND, necessarily presupposes that different terms can both be FRAND. If that is possible then competition law and the contractual FRAND undertaking may be satisfied but the problem then may have to be resolved by the grant or refusal of an injunction. In **Vringo** I described as "international coercion" the effect which might arise if a court granted an injunction in its territory on the basis that a putative licensee had no licence when the reason the licensee had no licence was because the only terms on offer were a global licence which the licensee did not want.

150.
The question is what to do once a court has decided that a given patent is valid, essential and infringed by an implementer and in which both the patentee and the implementer have offered licence terms but those terms differ. That is this case. Even if the dispute is only about a royalty rate then the problem still arises because if there can be a range of FRAND rates then asking if a rate is FRAND does not provide the court with a basis for resolving the dispute. If there can be a FRAND range then in order to adjudicate that a particular rate is the "right" rate in the circumstances either there needs to be some further principle to apply aside from FRAND or the parties would have to agree to accept whatever rate the court chooses in the exercise of its discretion. The equitable discretion relating to the injunction does not solve this problem. All that can be achieved in effect is enforcement of a determination made by the court as to what licence terms are acceptable but that does not indicate which set of terms should be accepted.

151.
Before me the parties' cases were diametrically opposed:

i)
Unwired Planet submitted that if each side made a FRAND offer then the patentee's offer wins in the sense that, all other things being equal and assuming there is no defence to an injunction, the court should grant an injunction against the defendant. That is because by making a FRAND offer the patentee has discharged its obligations under the FRAND undertaking – which obligations are said to be limited to making FRAND offers as distinct from being obliged to accept FRAND terms offered by the putative licensee.

ii)
Huawei submitted that if each side made a FRAND offer then the implementer should win and the injunction should be refused. That is because the patentee in this circumstance would not be accepting the licensee's FRAND terms. The implementer's terms are the ones which should be accepted because the FRAND system is for the benefit of implementers in order to allow them access to the technology.

152.
If, on the other hand, there is only one set of terms (including the rate and all other terms) which are truly FRAND in a given set of circumstances then a different problem arises. At first sight it seems uncontroversial to state that the criterion which defines whether SEP licensing conduct does or does not amount to an abuse of dominant position in EU competition law (Art 102 TFEU) is whether the licence terms are FRAND as defined by the ETSI undertaking. However if only one set of terms in given circumstances can truly be FRAND and if FRAND also represents the line between abusive and non-abusive conduct then every agreed licence in the entire industry is at a serious risk of being

contrary to competition law and open to being unwound. Simply as an illustration of the potential significance of this point, consider the impact of Huawei's submission that the global nature of a licence means it cannot be FRAND because it amounts to illegal bundling. All the numerous comparable licences in evidence are global.

153.
Although I deal with competition law below, I can address this issue now. Focussing on rates, Art 102 TFEU only condemns excessive pricing. Both economists agreed that for a royalty rate to amount to excessive pricing it would have to be substantially more than FRAND. How much more that is will depend on all the circumstances but whatever it is, the point demonstrates that a royalty rate can be at least somewhat higher than the true FRAND rate and still not be contrary to competition law. Therefore, as a matter of principle, the boundary between what is and is not a true FRAND rate as defined by the ETSI undertaking is not and cannot be necessarily co-extensive with competition law. In other words the premise which I described above as at first sight uncontroversial, is not correct. Competition law considerations may well indicate why a rate is not FRAND but in general and as a matter of principle, for competition law to be engaged, it will be necessary but not sufficient for a rate not to be the true FRAND rate. Again, the logic applicable to royalty rates is applicable to any licence term.

154.
In saying this I have well in mind that the CJEU in **Huawei v ZTE** appears to equate an obligation to make a FRAND offer with compliance with Art 102 TFEU. That is addressed below.

155.
One possible objection to the idea that there is only one set of true FRAND terms in a given set of circumstances is that it might create legal uncertainty by allowing a party who had to agree licence terms to later contend that the agreed terms were not FRAND because they differed from the sole "true" FRAND terms. In my judgment the answer to this objection is that such an agreement has different effects from the point of view of competition law and the ETSI undertaking. In terms of competition law, the fact that terms have been agreed does not and cannot mean that they avoid the scrutiny or effect of that law. So, if the agreed terms are so far from FRAND as to contravene competition law, then that would no doubt make the terms unenforceable and have the other consequences of a breach of competition law. However in terms of the ETSI FRAND undertaking, there is no reason why the undertaking should entitle either party subsequently to challenge agreed terms as being non-FRAND absent competition law considerations. If parties agree licence terms then their rights and obligations under the ETSI FRAND undertaking will be discharged and replaced by their contractual rights under the licence. Thus having only one set of true FRAND terms for a given situation would not create a practical problem for operators based on competition law nor would it undermine the purpose and efficacy of the ETSI FRAND undertaking.

156.
Accordingly the concept that there exists only a single set of FRAND terms for a given situation is workable. It will promote certainty and will enhance the normative aspect of FRAND. It would make the enforcement of the ETSI FRAND undertaking conceptually straightforward. If there is only one set of true FRAND terms for a given situation then a court will be able to hold parties to their obligations arising from the FRAND undertaking. Both parties would be entitled to insist on FRAND terms and neither would be entitled to insist on anything other than FRAND terms. By definition the FRAND terms are the terms which are fair, reasonable and non-discriminatory. They are the terms which a

truly willing licensor and truly willing licensee would agree upon in the relevant negotiation in the relevant circumstances absent irrelevant factors such as hold up and hold out.

157.
The fact that the evidence of putative comparable licences might show a range of rates and other terms as having been agreed between other parties does not falsify the idea that for a given situation there is only one set of true FRAND terms. Each real licence was arrived at between particular parties in particular circumstances which may or may not be good evidence about what would be FRAND in the case in issue. Furthermore the fact that the terms of a given comparable licence, objectively speaking, may not represent the true FRAND terms for the circumstances in which they were agreed does not mean those contracts would all be vulnerable to being unwound, for the reasons already addressed.

A single set of FRAND terms and the **Vringo** problem

158.
The concept of a single set of FRAND terms also eliminates the **Vringo** problem. That is a significant virtue. If more than one set of terms can be FRAND then the **Vringo** problem of rival FRAND offers cannot be solved in a fair way. I do not accept either party's submission about what a court should do if presented with rival terms both of which are FRAND. I reject Unwired Planet's submission that the patentee should win

in that case because the patentee's obligation is simply to make a FRAND offer. This argument derives from too narrow a view of the wording of the FRAND undertaking and the reference to being "prepared to grant irrevocable licences" on FRAND terms. These words are not apt to distinguish between Unwired Planet's interpretation, which sets the limit of a patentee's obligations as being merely to make offers, and a wider interpretation which would oblige a patentee to enter into licences on FRAND terms.

159.
The wider interpretation is preferable for another reason too. It is more consonant with the purpose of the FRAND undertaking itself. An obligation focussed only on making FRAND offers (my emphasis) is unrealistic since a process of fair negotiation will usually involve some compromise between the parties' rival offers. If the ETSI undertaking demands that offers made by a patentee must themselves consist of FRAND terms, then that would condemn patentees to always end up with negotiated rates below a FRAND rate. Therefore it makes much more sense to interpret the ETSI FRAND obligation as applicable primarily to the finally agreed terms rather than to the offers. In other words, it is an obligation to enter into FRAND licences. The same logic also applies to implementers: an obligation on implementers to make FRAND offers as opposed to enter into FRAND licences would have them paying rates higher than the FRAND rate.

160.
I have referred to an obligation on implementers because I believe the ETSI FRAND undertaking does impose duties on them too. Although the ETSI FRAND undertaking is an obligation imposed on the patentee, I agree with Unwired Planet that it also has the effect of creating an obligation applicable to the implementer, as follows. Although some implementers are themselves ETSI members, the ETSI FRAND undertaking must work in the same way whether the implementer is a member of ETSI or not. The implementer, as an implementer, owes no contractual duties to ETSI at all and the implementer has no duty to ETSI to offer FRAND terms to a patentee. However the logic of the FRAND undertaking means that an implementer must negotiate fairly if it wishes to take advantage of the constraint which

the patentee's FRAND undertaking places on the patentee's rights. Just as an implementer is entitled to demand FRAND terms in a licence from a patentee subject to the ETSI FRAND undertaking, so a patentee is entitled to demand FRAND terms in the same licence. In other words, an implementer who does not negotiate fairly is not a willing licensee and may ultimately be subject to an injunction.

161.
I also reject Huawei's proposed solution to the **Vringo** problem that the implementer's offer is necessarily the one which must be accepted. All the reasons which apply to the patentee's terms apply just as much to the implementer's terms and it is not correct to say that the FRAND undertaking is simply for the benefit of implementers. Its purpose is to strike a balance between the respective rights of patentees and implementers.

FRAND as a process

162.
The considerations above illustrate that FRAND needs not only be a description of a set of licence terms but is also apt to describe the process by which a set of terms are agreed. In argument Huawei's counsel used the expression "a FRAND approach" to describe how negotiations ought to proceed. That is accurate and it bears on the parties' obligations arising as a result of the FRAND undertaking. Prof Neven said in his second report that:

"…a FRAND commitment is not simply a commitment to abide by the terms of a court-determined FRAND licence and / or FRAND rate, but requires the SEP holder to behave in particular ways (and for instance to make (or at least attempt to make) offers capable of being FRAND)."

(para 41)

163.
I agree with the sentiment expressed by Prof Neven. Both patentees and implementers should take a FRAND approach to the negotiation of a licence under a SEP or SEP portfolio governed by a FRAND undertaking. The patentee is obliged by contract to take a FRAND approach to the negotiation and to grant a licence on FRAND terms. The implementer must take a FRAND approach to the negotiation and accept a licence on FRAND terms if it wishes to take advantage of the constraint on the patentee's rights imposed by the FRAND undertaking. A FRAND approach to negotiation does not mean that parties cannot negotiate in good faith and a FRAND approach will allow for starting offers which leave room for negotiation. The fact an opening offered rate is higher than the true FRAND rate does not mean of itself that a patentee has failed to take a FRAND approach any more than the converse could be said about an implementer. On the other hand, making extreme offers and taking an intransigent approach which prejudice fair, reasonable and non-discriminatory negotiation is not a FRAND approach.

A single set of FRAND terms - conclusions

164.
In my judgment the economist's view of FRAND terms as a single thing for a given set of circumstances is also applicable to the question of whether terms are FRAND within the meaning of the ETSI FRAND undertaking. I find that for a given set of circumstances there will only be one set of FRAND terms and only one FRAND rate.

165.

Therefore the solution to the problem of parties presenting rival FRAND terms to the court is simple enough. The court has to decide what terms would be FRAND in the given circumstances and can grant a declaration to that effect. Only one set of terms will be compliant with the FRAND undertaking.

166.
A patentee who refuses to accept those terms would be in breach of its FRAND undertaking. Even if a court cannot go as far as directly enforcing the FRAND undertaking by compelling a patentee to make an offer in those terms (see the section on French law), I think an English court would at least refuse to grant a patentee an injunction if it refused to accept FRAND terms. That would be a proper exercise of the court’s equitable jurisdiction to grant or refuse an injunction.

167.
A defendant who had already been found to infringe a valid patent cannot be compelled to accept an offer of a licence but a defendant with no licence, who had refused to accept terms on offer which had been found to be FRAND, would not be entitled to the protection from injunctions provided for by the patentee’s FRAND undertaking. An injunction would follow and to grant it would be a proper exercise of the court’s equitable jurisdiction. The only coercion in that case would be to enter into a licence on FRAND terms. It would apply to both sides with equal force.

168.
Before finally concluding on this issue I will return to the factor which concerned me most. That is the diversity of terms in the real agreements in the industry. Does a conclusion that only one set of terms is FRAND mean that most or all of these agreements are not FRAND? I have answered this already but given the importance of the point I will repeat the answer I have arrived at in a different way. For concluded agreements between patentees subject to an ETSI FRAND undertaking and implementers, the importance of the FRAND undertaking will be historic. The process aspect of FRAND was important in requiring both sides to approach the negotiations appropriately and the requirement that a royalty rate had to be FRAND would be something to be prayed in aid during the negotiations. However once the agreement has been reached the contract must be the thing which governs the rights and obligations of the two parties with respect to each other while it is in force. Competition law must leave latitude to the parties to agree and cannot draw the line between acceptable and unacceptable contract terms in the same place as the line between whether a term is ETSI FRAND or not.

(v) Can the court set a FRAND rate or other FRAND terms?

169. Having now heard this trial I remain of the view that the court cannot craft a set of FRAND terms out of thin air. That is what I described in **Vringo** as a Copyright Tribunal type exercise although it may be noted that even in the Copyright Tribunal there must be a licensing scheme in order for the Tribunal’s jurisdiction to be engaged. However courts all over the world have now set FRAND rates. I am sure the English court can do that as well. I decided at the CMC in March 2015 that the court could declare that a given set of terms were FRAND and also, within that framework, can decide that certain terms need to be adjusted in order to make a set of terms FRAND. I am sure this applies to a royalty rate. After all, arriving at a FRAND royalty rate is not different conceptually from assessing what a reasonable royalty would be in a patent damages enquiry albeit the particular factors applicable in setting a FRAND royalty for a licence to be FRAND and their application may differ from assessing damages. So the court’s jurisdiction is not restricted to the binary question of assessing a

given set of terms but extends to deciding between rival proposals and coming to a conclusion different from either side's case on such a proposal.

(vi) How to assess what is FRAND

170.
There was no real dispute of principle about how to work out what is and is not FRAND. The question is what would be fair, reasonable and non-discriminatory. Asking what a willing licensor and a willing licensee in the relevant circumstances acting without holding out or holding up would agree upon is likely to help decide that question. The evidence of the parties themselves will be relevant, including evidence of how negotiations work in practice in the industry. To the extent they are available other licences may be deployed as comparables. Just as comparables may be useful in a damages enquiry when considering a reasonable royalty and may be useful in determining the terms of a licence of right or in a Copyright Tribunal, so comparables may be useful in deciding what is FRAND. As always judgments will have to be made about how closely comparable any given licence is to the relevant circumstances in issue. The relevance of comparables is that they are evidence of what real parties in real negotiations have agreed upon. But like any real situation many factors may have been in play which make the licence less relevant. The negotiations may have involved

a greater or lesser degree of hold up or hold out and it may be impossible to know that from the evidence available.

171.
The decisions of other courts, assuming they are not binding authorities, may be useful as persuasive precedents. A point arises in this case about a licence which was the product of an arbitration. A licence agreement settled in an arbitration is more like terms set by a court than it is like a licence produced by negotiation and agreement. Huawei submitted that such a licence would be evidence of what a party was actually paying and as such was relevant. Aside from certain aspects of non-discrimination which I will address separately, I do not accept that evidence of what a party is paying as a result of a binding arbitration will carry much weight. If the licence is the product of an arbitration then the paying party has no choice. A further difficulty with the particular licence in question is that the arbitral award has not been produced. So although we know what the licence terms are, we do not know what the reasoning was which led to them. As a persuasive authority an arbitrated licence without the arbitral award is not much use. There were a few references in the evidence to the way the arbitrators decided the case but without seeing the award itself I will not place weight on that.

172.
In relation to comparables generally Huawei submit that the approach to be followed is that set out by Lloyd LJ in **Smith Kline & French Laboratories Ltds (Cimetidine)** **Patents** [1990] RPC 203 as follows:

"The object of the comparability exercise, in this as in any other branch of the law, is to find the closest possible parallel. If there is an exact parallel, there is no point in looking any further. If there are slight differences, an allowance may be made. But once you have found your comparables, whether one or more, which enable you to arrive at the appropriate figure, it would surely be erroneous to modify that figure by reference to other cases which are not truly comparable at all, so as to bring the case into line with a predetermined range. This was, with great respect, the mistake which the hearing officer made."

173.
Huawei argue that Mr Lasinski's approach (which was to select the two or three "best" comparables and rely on those) accords with these principles. On the other hand, Huawei criticise Mr Bezant's approach of including many more licences. I do not accept that criticism. In my judgment, if a group of comparables are at least potentially as relevant as each other and are not the same, it is not right to elevate a small subset above the others. That is also not what Lloyd LJ in **Cimetidine** said one must do; instead, he said that, assuming there is no exact parallel, once true comparables have been determined one should be careful not to dilute them by reference to other cases which are not truly comparable at all. Mr Bezant's general approach does not do this.

174.
If a group of good comparables corroborate one another then no doubt that is a factor to take into account but equally if apparently good comparables, when properly understood, contain different rates that is also relevant too.

175.
Huawei also submit that the comparables selected should include some, or ideally all, of three criteria: (a) the licensor is Unwired Planet or Ericsson, (b) the licensee is Huawei, or a similarly situated company such as Samsung and (c) the licence is recent. I agree with (a) and subject to what "recent" means I agree with (c). However I am not convinced that (b), the identity of the licensee, should be a strong factor in determining

what comparables are useful for determining the FRAND rate aside from the hard edged non-discrimination point addressed below. FRAND is supposed to eliminate hold up as well as hold out. Different licensees will have differing levels of bargaining power. That is another way of saying their ability to resist hold up and their ability to hold out will vary. It would be unfair (and discriminatory) to assess what is and is not FRAND by reference to this and other characteristics of specific licensees. In my view, it would not be FRAND, for example, for a small new entrant to the market to have to pay a higher royalty rate than an established large entity. Limiting comparable licences to those where Huawei or a similar company like Samsung is the licensee is therefore unjustified. In my judgment the FRAND rate ought to be generally non-discriminatory in that it is determined primarily by reference to the value of the patents being licensed and has the result that all licensees who need the same kind of licence will be charged the same kind of rate.

176.
In argument the rates on which both sides' submissions were based were derived from global rates for the whole SEP portfolio albeit that Huawei's case is that the licence should be a UK licence. This worked because both sides agreed that the correct way to arrive at a UK portfolio rate was by starting from a global rate in effect as a benchmark and then adjusting upwards. Conceptually the approach was common ground although the level of the correct adjustment was in dispute. This approach, in which a rate is determined as a benchmark and then adjustments made as appropriate, is a useful way of determining what a FRAND rate or rates should be. Arriving at a benchmark FRAND rate is a neutral way of making appropriate findings. In this case it caters for the parties' rival cases about what the territorial scope of the licence should be.

(vii) A hard-edged non-discrimination aspect of FRAND

177. Some arguments were addressed to the non-discrimination ("ND") aspect of FRAND as opposed to the "FR" aspect of FRAND as if they were distinct. However it is not that simple. Most of the time the concepts of non-discrimination, reasonableness and fairness relate to one another. In that sense it

is useful to characterise a royalty rate as FRAND rather than try to distinguish between something which is merely fair and reasonable as opposed to fair, reasonable and non-discriminatory. The argument about non-discrimination treated it as a concept which would apply to reduce a royalty rate even if that rate was otherwise “FR”. For want of a better expression, I will distinguish between a “hard-edged” and a “general” non-discrimination obligation. The general non-discrimination obligation is the aspect of non-discrimination which I have mentioned already. It is part of an overall assessment of the inter-related concepts making up FRAND by which one can derive a royalty rate applicable as a benchmark. This rate is non-discriminatory because it is a measure of the intrinsic value of the portfolio being licensed but it does not depend on the licensee. The hard-edged nondiscrimination obligation, to the extent it exists, is a distinct factor capable of applying to reduce a royalty rate (or adjust any licence term in any way) which would otherwise have been regarded as FRAND. This will take into account the nature of the particular licensee seeking to rely on it.

(viii) Concepts used to derive a FRAND rate with telecoms standards

178.
The FRAND royalty rate reflects an assessment of the value of the licensor’s patent portfolio under licence. Two approaches to this have been taken both in this case and in other cases. One approach (referred to as “top down”) starts with a number representing what the appropriate total aggregate royalty burden should be for a given standard (call it T). One can take a view about what the total royalty burden for all the intellectual property relating to the standardised telecommunications technology in a handset should be and indeed various companies have made public statements about this. Starting from this figure T one can then share out the royalty across all licensors in proportion to the value of each licensor’s patent portfolio based on assessing that value as a share (call it S) of the total relevant patent portfolio essential to that standard. The FRAND rate is the product of the two (TxS).

179.
The other approach is to use comparable licences. These are licences which have already been entered into. The most directly comparable licences will be licences the patentee has already entered into for the portfolio in question. There are two in this case, the Unwired Planet-Lenovo 2014 licence and the Unwired Planet-Samsung 2016 licence. One might assume directly comparable licences would represent the best evidence of the value of the portfolio in issue. However the rates in these two licences are very different from each other and each side contends that one of them is not a useful comparable at all. I will return to those licences below.

180.
Given that at one time Ericsson, Samsung and Huawei were all parties to these proceedings and they are all major telecommunications companies, a large number of further patent licences were in disclosure. (The disclosure had been managed to keep the numbers under control but it was still substantial.) The comparison with third party licences is indirect and the relationship between those licences and the value of the portfolio in issue will depend on the evidence. In order to use them a view has to be formed about the relative value of the portfolios licensed in them as against Unwired Planet’s portfolio. Since the relevant Unwired Planet patents all came from Ericsson, the Ericsson licences at one time included all the SEPs in issue. That alone makes Ericsson licences relevant. So if the rate for Ericsson’s portfolio is E and the relative value of Unwired Planet’s portfolio to Ericsson’s portfolio is R, the Unwired Planet rate is ExR.

181.

The factors S and R are measures of the value of a licensor's patent portfolio relative to the industry as a whole and to another licensor. It is clear that in negotiating licences in this field the parties seek to make an assessment of this value. Tools for doing this were sometimes called portfolio strength metrics. One might think that in order to do this it would be necessary to examine the value of the contribution made to the standard by the invention claimed in each patent. Obviously as a portfolio increases in size the burden of that increases too but one of the reasons this trial was docketed to the same judge who heard the technical trials was because I would be familiar with some of the patents chosen by Unwired Planet to litigate, which one might expect would be the good ones. However the exercises conducted by both Unwired Planet and Huawei for this trial, subject to a point on Ericsson, have been based on categorising and counting patents. The techniques treat all patents in a given category as of equal value.

182.
There was ample evidence before me that apart from Ericsson (see below), parties negotiating SEP licences in fact use methods which are based on patent counting. That is evidence which supports a finding that a FRAND approach to assessing a royalty rate is to engage in some kind of patent counting. Indeed when one thinks about it some sort of patent counting is the only practical approach at least for a portfolio of any size. Trying to evaluate the importance of individual inventions becomes disproportionate very quickly.

183.
It may be that other technology standards are different but I am not surprised that patent counting is the approach taken for GSM, UMTS and LTE telecommunications standards. Each standard defines a system with a large number of different parts all of which have to interact with each other. The interactions and interdependencies are complicated. To make a coherent system which works at all, let alone one which delivers the performance demanded of these systems, is difficult and demands insight and creativity on the part of the engineers involved. It is unsurprising that many inventions (and therefore many patents and SEPs) will be involved. Short of the disproportionate task of evaluating every single patent thoroughly in order to compare each one with all the others, one can only ever hope to analyse SEPs in broad categories and it is not meaningful to attempt to weigh the value of individual patents within these categories against one another.

184.
I suppose in some cases it may be possible to identify a patent as an exceptional sort of keystone invention underpinning the entire technical approach on which a standard is based but that is not this case. There was unchallenged evidence that Unwired Planet's patents made an "average" contribution to the standards. I am satisfied that none of the Unwired Planet patents are in the exceptional keystone category.

185.
The evidence is that Ericsson sought to deploy a different technique in licensing negotiations based on evaluating a party's technical contributions to the standard setting process as a way of valuing their portfolio and Mr Lasinski used this method for

"unpacking" Ericsson's licences (see below). Using it as a technique to address Ericsson's licences is logical since it is an Ericsson technique, and Mr Bezant and Mr Lasinski were in agreement that it made more sense to use a metric of strength for unpacking which was available to the parties negotiating a licence at the time rather than one which was not available. However the Ericsson technique has problems if applied more generally and neither side suggested that it should be. For one thing it is already at one remove from the legal rights, which derive from patents not technical contributions. Also the technique cannot handle a portfolio of patents acquired after the standards were set – e.g. the Unwired Planet portfolio. Ericsson have been closely involved in the standard setting process and that may be why they like this method, I do not know. In any case the fact that Ericsson advanced arguments on this basis during negotiations does not mean it is accepted as a method by the counterparty.

186.
The patent counting approach works in the following way. Starting from a portfolio of declared SEPs the first task is to derive a number representing the Relevant SEPs.

“Relevant SEPs” is my term, coined after the trial had finished and intended to avoid language used in the case which can be confusing such as “truly essential patents” or “deemed”. Both sides’ approaches require making an assessment of the Relevant SEPs somehow. The parties do not agree how it should be done but one way or another a number is produced. Armed with that information it is possible to scale one company’s rates relative to another to derive the factor R or to find the share of the total and derive S.

“Unpacking” licences

187.
A significant dimension to the task to evaluating comparable licences is the fact that many patent licences in this industry have terms which make the comparison difficult. The two major problems are that they may be based on a lump sum rather than a running royalty and they may be cross-licences with a balancing figure which may be a rate or

a lump sum. They may well also have other complications such as multiple rates which are different for a variety of reasons such as different standards or different regions, and royalty floors etc. The overall agreement may also include aspects which are not patent licences at all, such as patent sales or technology transfer.

188.
It was common ground as between Mr Bezant and Mr Lasinski that to address the lump sum and the cross-licence problem a process of “unpacking” has to be carried out. The unpacking can derive a notional royalty rate from a lump sum by treating the lump sum as the net present value of an income stream from running royalties analysed using a discounted cash flow based on some appropriate estimate of sales figures. This introduces uncertainties since it needs to have some estimate of sales figures which may be historic and/or future estimates and which in any case may not represent what the negotiators thought when they negotiated the licence.

189.
The unpacking of a cross-licence can resolve two one-way royalty rates from a single balancing figure based on the notion that the single figure represents the effect of balancing the value in royalty terms of each party’s patent portfolio. If the balancing figure is a lump sum then unpacking will involve net present value assessments for each party with the attendant uncertainties. In any event there also needs to be some means for assessing the relative value of each party’s portfolio unless one has a figure for one or other party directly. To achieve this takes one back to the Ericsson contributions technique and/or counting patents. For a cross-licence between A and B, if A has 100 Relevant SEPs and B has 200 then the ratio is 1:2 and that allows one mathematically to derive figures for the underlying one way rates. Inevitably this introduces yet more uncertainty.

190.
Cross-licences will generally be entered into by companies who are both implementers and licensors at the same time. There is a risk that the rates agreed in a cross-licence understate the inherent value of the rights being licensed because the revenue the parties earn from licensing itself will be much less than it would be if the licence was not a cross-licence but it is impossible to evaluate how significant a difference this might make.

191.
For a given comparable licence to which at least one party to the litigation was a party, an issue arose at the case management stage as to whether additional disclosure should be given of the documents and circumstances surrounding the negotiation of that licence in order to enhance its utility as a comparable. I refused that disclosure across the board because I did not think conducting a post mortem examination of the negotiations would be proportionate. Although in theory it might have obviated the need for unpacking, having now heard the trial I am sure that this disclosure would not have helped with unpacking and would just have generated further argument without advancing the issues. Although unpacking involves significant uncertainties, in fact the arguments about unpacking itself were quite minor. As Huawei pointed out in closing about [a] licence:

“the details of the unpacking process make little significant difference to the implied […] rates: the rates ascertained by Mr Bezant, Mr Lasinski or Dr Leonard were all in a relatively close range ([…]), whichever unpacking method was used {U1/6/1}. As Mr Lasinski explained, the portfolio strength metrics employed by the three valuation experts have a minimal effect on the effective rates they derive from the […] Licence because […] that this factor swamps almost everything else.” [closing paragraph 77]

192.
A number of points emerge from this. The parties’ experts (Dr Leonard was to have been Samsung’s expert) had analysed this licence in order to derive an implied […] royalty rate charged by […] as licensor and accepted by […] as licensee for [the] portfolio of SEPs. The parties have come to figures for the effective implied royalty rate for […]portfolio using very different techniques but the answers all came to a number which Huawei characterise as a relatively close range. The only aspect of the submission I do not accept is the qualification “relatively”. In my judgment bearing in mind all the uncertainties and assumptions which go into these unpacking exercises, the spread of these figures is remarkably close. The spread is about ±20% around the midpoint ([…]).

193.
In the particular example of the [X-Y] licence another factor relevant to the unpacking exercise was a key assumption which had to be made about a different aspect of the agreement. This is about […].

194.
Absent the figures from Dr Leonard (which make no difference) this range at {U1/6/1} was put to Mr Bezant in cross-examination who explained (T11 p81-82) that:

“The differences are not that great on the unpacking, in the context of the exercise. […] And, indeed, given the uncertainty of unpacking cross licences. It's not as if one number is strong and another it is weak. They are -- they are all somewhat fragile when you're unpacking a cross licence.” and

“But I'm just signalling that when I say not sensitive that's partly the numbers don't move very much, but it's also partly a recognition that the numbers themselves are inherently uncertain.”

195.
Part of the point Mr Bezant was making was that the rival patent counting methods do not have a major impact on unpacking. That is because in the unpacking process the experts use the methodologies consistently. One also needs to bear in mind that the numbers themselves are inherently uncertain. I accept Mr Bezant's evidence about that (which was not in dispute). There is an exception on unpacking methodology which relates to the two [...] licences but for reasons addressed below, in the end that does not matter.

196.
There are further complications in the analyses which I have not mentioned so far such as handling the effect of discounts, royalty floors, royalty cap, release periods and passthrough licences. Mr Bezant and Mr Lasinski did not agree how best to deal with these but I am not satisfied it is necessary to delve into the minutiae to the degree necessary to resolve those arguments. The relevant point is that they are all sources of uncertainty rather than automatic reasons for completely ignoring a licence. That was Mr Bezant's approach and if it is necessary to resolve a debate on that score at a methodological level then I prefer Mr Bezant's approach to Mr Lasinski's.

FRAND on the facts of this case

197.
In order to determine what the values E, R and S are in this case two tasks need to be performed. To determine S (Unwired Planet's share of the total) and R (the relative value of Unwired Planet's portfolio to Ericsson's) it is necessary to count Relevant SEPs. To determine E (the rate for Ericsson's portfolio) it is necessary to consider the comparable licences. At the same time the Unwired Planet comparables and other evidence on rates can be addressed.

(i) Relevant SEPs – shares and ratios

198.
An area of dispute which makes a major difference to the final royalty rate is how to count Relevant SEPs. As I have explained, R and S are ratios which come from dividing Unwired Planet's number of Relevant SEPs by a number for another licensor such as Ericsson or the industry as a whole.

199.
For Huawei's case both the numerators and the denominators in these ratios are derived using the same patent counting technique called the Huawei Patent Analysis (HPA).

Unwired Planet's patent counting method is called the Modified Numeric Proportionality Approach (MNPA). The MNPA was revised during the proceedings and so there are references to the Original and Revised MNPA. Another aspect of Unwired Planet's case employs what was referred to in argument as the 80:20 rule. It is an adjustment which Unwired Planet contend gives some value to patents in a category which would otherwise be disregarded.

200.
It is common ground that some kind of appropriate methodology is needed beyond simply adding up patents on the register or the ETSI database. One needs to cater for the different jurisdictions, divisionals and other things. Some of this can be dealt with by focussing on families rather than patents (but that is not perfect either) however a very significant reason why one cannot just count up declared patent families is recognition of the problem of over declaration. There was no dispute this exists. The debate is as to its extent.

201.
The over declaration problem is the following. Very many more patents are declared to be essential than in fact are essential. This can be for many reasons. For ETSI members Art 4.1 of the IPR Policy requires members to declare essential patents in a timely fashion and creates an incentive to err on the safe side and so, if in doubt, declare. Also determining essentiality for certain is not easy. The technology can be difficult and the patents and the standards can be hard to interpret. Patent claims are also amended over time and in a single family the different national patents will vary in scope around the world; standards themselves can also vary over time. Keeping track of all this would be time consuming and costly, and if reasonable royalty rates can be agreed without determining essentiality for certain, it is a disproportionate task. Notably also no-one tries to take account of validity. Various studies have been done on overdeclaration and rates of over-declaration quoted in the literature. Each side criticises the other's counting techniques and specifics over over-declaration are addressed in the sections below dealing with the alleged flaws in the techniques. It is just too difficult.

202.
Nevertheless it must also be recognised that the fact that rates are negotiated by counting patents creates a perverse incentive to declare as many patents as possible, making over-declaration worse.

203.
A further point is that Unwired Planet's approach only uses patent counting for the denominators. The numerators, in other words the numbers representing Unwired Planet's own Relevant SEPs for a given type of technology, are the result of a detailed assessment of the individual patent families. Unwired Planet say that is the appropriate thing to do and it is inappropriate to take the approach advanced by Huawei by using the same counting technique for both numerator and denominator. Huawei say the opposite and Unwired Planet's approach is inconsistent whereas their approach is the correct thing to do. I will deal with that at the same time as other criticisms, below.

204.
The parties are very close on the numerators and far apart on the denominators. In other words, at least superficially, they are close on the number of Relevant SEPs in Unwired Planet's portfolio. In any event they are far apart on the number of Relevant SEPs in other companies' patent portfolios or as a whole.

The numerator

205.
For example each side contends Unwired Planet have 6 relevant LTE SEP families for handsets. They arrive at this number in different ways but they both arrive at 6. The complete set of relevant numbers for Unwired Planet's patents are shown in these tables:

Huawei's case:

	Handsets	RAN infrastructure	Total
2G/GSM	1	1	2
3G/UMTS	2	4	4
4G/LTE	6	5	7

Unwired Planet's case:

	Handsets	RAN infrastructure

2G/GSM	2	1
3G/UMTS	1	2
4G/LTE	6	7

206.
RAN stands for Radio Access Network. It is a major part of the infrastructure of these systems. There is another kind of infrastructure which relates to the core network but it is common ground that this is a totally different market. Note that in the Huawei table the total column is not a simple sum of the numbers for handsets plus RAN infrastructure because one patent can cover both.

207.
Two detailed assessments have been made of Unwired Planet’s patents. First, as part of their licensing efforts Mr Saru explained that they (Unwired Planet) carried out their own detailed assessment of the patents in their LTE portfolio (Mr Saru I para 51). There were 19 LTE families to start with and Unwired Planet decided they held 9 of what they called the True LTE families. Second, in these proceedings Dr Cooper carried out a detailed assessment of some Unwired Planet patents. For LTE the patents assessed were 7 of the 9 (because the other 2 had been litigated in trials A and B and found to be essential). The detailed assessment Dr Cooper carried out was the same as he carried out on certain Samsung and Huawei patents which come up below in the context of the MNPA. I accept Dr Cooper’s assessment. As for the two litigated patents, Huawei submitted the Trial B patent should have been classed as optional

rather than mandatory because it relates to ANR (Automatic Neighbour Relations). The ANR point is not simple. I accept ANR is optional at the network level but it was not established that it is optional for handsets, because handsets ought to be able to function with all kinds of network. Accordingly, ignoring validity, I find that for the purposes of assessing a FRAND licence Unwired Planet have 6 LTE handset patent families and 7 LTE infrastructure patent families which are essential to mandatory aspects of the LTE standards used in the MNPA.

208.
For 2G/ GSM and 3G/UMTS the position is more complicated. I find that for the purposes of assessing a FRAND rate for 3G UMTS in these proceedings, Unwired Planet have 1 handset and 2 infrastructure patent families which are essential. The corresponding numbers for 2G/GSM are 2 handset patent families and 1 infrastructure patent family. There is an issue about the way Unwired Planet deal with 2G/GSM and 3G/UMTS in relation to the Original MNPA because Unwired Planet included as essential patents which did not meet the MNPA cut offs. That may make a difference with regard to the FRAND status of the 2014 offers and I will address that in context if necessary.

The denominators and the resulting fractions

209.
The following tables are the same as the previous ones but incorporating the parties’ rival denominators for the industry as a whole and the resulting fractions which are produced. These tables show the values for S, Unwired Planet’s share of Relevant SEPs:

Huawei’s case:

	Handsets	RAN infrastructure	Total
2G/GSM	1/350 = 0.29%	1/305 = 0.33%	2/389 = 0.51%
3G/UMTS	2/1089 = 0.18%	44/886 = 0.45%	4/1215 = 0.33%

4G/LTE	6/1812 = 0.33%	5/1554 = 0.32%	7/2054 = 0.34%

Unwired Planet’s case:

	Handsets (revised MNPA)	RAN infrastructure (original MNPA)
2G/GSM	2/102 = 1.96%	1/85 = 1.18%
3G/UMTS	1/324 = 0.31%	2/274 = 0.73%
4G/LTE	6/355 = 1.69%	7/306 = 2.29%

210.
Now the major differences between the parties can be seen. Unwired Planet contend their patents represent 1.69% of the Relevant SEPs for handsets in LTE, in other words S = 1.69% whereas Huawei say the portfolio only contains 0.33% of those SEPs and so S= 0.33%. In other words, on Unwired Planet’s case, the value of their patents for handsets in LTE is five times the value contended for by Huawei. A dimension which I have not mentioned yet is how to deal with multimode devices, that comes in the next section.

211.
Similar differences between the parties’ contentions arise when looking at the ratio R between Unwired Planet’s SEPs and Ericsson. They arise for the same reasons because each side uses the same methods to count for the industry as a whole and for individual companies.

212.
What accounts for the difference here is the degree to which the rival techniques reduce the number of relevant patents. The starting points are similar but the end points are different. Huawei suggest that the total number of patent families declared essential to 4G/LTE, making certain assumptions, is 6027. Unwired Planet used a corresponding figure of 5917, produced in a different way. However the outcome of the HPA, for the number of Relevant SEP families for 4G/LTE handsets is 1812 while Unwired Planet’s equivalent is 355.

213.
It will be recalled that by numbers Unwired Planet’s patents represented about [Z%] of Ericsson’s portfolio when they were assigned. Huawei contend this [Z%] size ratio acts as an anchor point for testing the credibility of each side’s case on relative E:UP portfolio strength R. Conceptually Huawei is correct although one needs to take care with inherent uncertainties in many of these numbers and with the fact that a small sample size from a large population may not be representative.

214.
Huawei derived values for R at different points in time – pre-MSA; post-MSA preLenovo; and post-MSA post Lenovo. The pre-MSA data is in the following table.

Huawei’s case:

	2G/GSM	3G/UMTS	4G/LTE
UWP [A]	[…]	[…]	[…]
Ericsson [B]	[…]	[…]	[…]
Strength Ratio R (=[A]/[B])	[…]	[…]	[…]

215.

The [A] figures for Unwired Planet are the numbers in the totals column for Huawei's case on the numerators, as before. The [B] figures for Ericsson are the numbers of relevant SEP families in Ericsson's portfolio before the MSA. All the figures in the table are produced by the HPA. […]

216.
The figures for the two later points in time (based on corrections made in chief and in a Powell Gilbert letter) are:

i)
post-MSA, pre-Lenovo: GSM […], UMTS […], LTE […]

ii)
post-MSA, post-Lenovo: GSM […], UMTS […], LTE […]

217.
Huawei also produce a similar set of values for R using numbers of declared patents (making certain assumptions). Huawei submit these numbers are not irrelevant but are not the ones to place much weight on. I include them in the judgment to illustrate the differences which can arise when declared numbers are used. The table for pre-MSA is:

Huawei's case:

Declared basis	2G/GSM	3G/UMTS	4G/LTE
UWP [A]	[…]	[…]	[…]
Ericsson [B]	[…]	[…]	[…]
Strength Ratio R (=[A]/[B])	[…]	[…]	[…]

218.
Unwired Planet's rival strength ratios R are presented in a slightly different way whereby the numbers [A] and [B] are presented as the % ratios of either company's Relevant SEPs to the total number of Relevant SEPs, but the result comes to the same

thing as Huawei's strength ratio. This time the numbers are (I think) for handsets and are pre-MSA:

Unwired Planet's case:

	2G/GSM	3G/UMTS	4G/LTE
UWP % of standard [A]	[…]	[…]	[…]
Ericsson % of standard [B]	[…]	[…]	[…]
Strength Ratio R (=[A]/[B])	[…]	[…]	[…]

219.
[…] This is the sort of variability which Unwired Planet submit indicates the caution which must be exercised when comparison is made to the [Z%] figure. Unwired Planet also contend that they do not rely on these individual strength ratios but submit that the right strength ratio to use, if one takes this approach, is a blended ratio taking into account multimode, which is dealt with in the next section. Huawei contend that the idea that Unwired Planet acquired […] of Ericsson's relevant SEPs for LTE is fanciful and this is evidence which shows the flaws in Unwired Planet's approach to patent counting.

Multimode weighting

220.
It is common ground that one needs some weighting method in order to deal with multimode devices and both sides used the same basic approach, which for multimode LTE devices is to weight the numbers LTE/UMTS/GSM in proportions 70:20:10. For a UMTS multimode (i.e. UMTS/GSM) device both sides used 67:33 UMTS/GSM.

221.
Multimode is a concept which really applies to handsets rather than infrastructure although Huawei did provide figures for weighting the infrastructure numbers. I am satisfied that the FRAND approach would be to weight handset rates but not infrastructure rates because while multimode handsets are very common (subject to a point on China) multimode infrastructure is not.

222.
Applying the multimode weighting factors produces the following results for S, that is Unwired Planet’s share of Relevant SEPs overall:

Huawei’s case:

	Handsets	RAN infrastructure	Total
UMTS/GSM 3G/2G	0.22%	0.41%	0.36%
LTE/UMTS/GSM 4G/3G/2G	0.30%	0.35%	0.36%

Unwired Planet’s case:

	Handsets	Handsets (80:20)	RAN infrastructure (no 80:20)
UMTS/GSM 3G/2G	0.86%	0.83%	[0.88%]
LTE/UMTS/GSM 4G/3G/2G	1.44%	1.25%	[1.88%]

223.
The multimode tables above also include references to Unwired Planet’s 80:20 approach. That is addressed in the next paragraph. In the course of writing this judgment a small point arose on the RAN infrastructure figures shown in italics in the table above on Unwired Planet’s case. Huawei’s Databook produced in closing showed the 0.88% figure in the LTE/UMTS/GSM row and “not given” in the row for UMTS/GSM. Although infrastructure weighting is not important, even bearing that in mind this did not make sense and after considering the written materials it seemed that there had been a muddle about numbers and about LTE/UMTS/GSM and UMTS/GSM. I worked out that 1.88% would be the number for LTE/UMTS/GSM while 0.88% was what the number for UMTS/GSM would be. I wrote to the parties. 0.88% is the right number for UMTS/GSM. 1.88% is what the LTE/UMTS/GSM number would be although Huawei rightly pointed out that Unwired Planet had not derived it before. I will include 1.88% because it is simple maths, there was a muddle in Unwired Planet’s FRAND Statement of Case and because it cannot prejudice Huawei.

224.
The 80:20 approach derives a ratio which consists of 80% of Unwired Planet’s share of

Relevant SEPs and 20% of Unwired Planet’s share of the residue of patents in the starting pool which had not been identified as relevant. Unwired Planet say this is an application of the “Pareto principle” from general economics. The table below shows how the values for S for handsets are derived on Unwired Planet's case in this way [C2/13/9]. It repeats some of the figures set out already:

Unwired Planet's 80:20 approach				
	2G/GSM	**3G/UMTS**	**4G/LTE**	**Multimode**
Relevant SEPs – whole	102	324	355	
Relevant SEPs – UP	2	1	6	
UP share S	1.96%	0.31%	1.69%	
4G Multimode S				1.44%
3G Multimode S				0.86%
Residue SEPs – whole	260	833	2983	
Residue SEPs – UP	1	7	12	
UP share S	0.38%	0.84%	0.40%	
4G Multimode S				0.49%
3G Multimode S				0.69%
80/20 approach				
Single mode UP S	1.65%	0.41%	1.43%	
4G Multimode S				1.25%
3G Mulitmode S				0.83%

(for example 1.25% = 80% x 1.44% + 20% x 0.49%)

225.
Applying the multimode weighting produces the following results for R, that is Unwired Planet's strength ratio to Ericsson (pre-MSA) on the same bases as before:

Huawei's case (C13/3/2, in part in databook p8)

	Pre-MSA	Post-MSA Pre-Lenovo	Post-MSA Post-Lenovo
UMTS/GSM 3G/2G	[…]	[…]	[…]
LTE/UMTS/GSM 4G/3G/2G	[…]	[…]	[…]

Unwired Planet's case:

	Multimode (no 80:20)	Multimode (80:20)
UMTS/GSM 3G/2G	Not given	Not given
LTE/UMTS/GSM 4G/3G/2G	[…]	[…]

226.
Unwired Planet say that the […] figure for the strength ratio R between their portfolio and Ericsson's is the right one to use if one is going to draw a comparison with the [Z%] numerical size ratio and the two are not so far apart as to be out of line. Huawei contend the opposite, […] is too far from […] to be realistic.

The numerical evidence generally and rounding

227.
Having started to set out each side's case I will mention a problem inherent in that and in grappling with the cases. Both via the valuation experts and in their submissions both sides presented the court with a blizzard of figures. The summaries in this judgment represent a small fraction of the numbers presented. There was a somewhat larger blizzard from Unwired Planet than from Huawei but the difference was not significant enough to make a difference. A frequent problem is in keeping track of the bases on which numbers are presented so as to try and make sure one is comparing like with like. In practice, for example, it is impossible to ensure that on every occasion two rival figures are both based on the state of the Ericsson portfolio (pre- or post-MSA etc.), and multimode weighted or not, as well as many other more subtle factors.

228.
From now on I intend to put most weight on figures derived from the post-MSA postLenovo portfolio. The effect of the differences between the three versions of the Ericsson portfolio is smaller than the effect of other uncertainties inherent in the various exercises. While I have aimed to be consistent, striving for perfect consistency with the numbers in this case is not productive.

229.
In the discussion below the terms HWLTER and UPLTER refer to the parties' rival values for the relative strength ratio R between Unwired Planet and Ericsson for 4G/LTE multimode. HWLTER is […] and UPLTER is […].

230.
I will mention rounding briefly. Obviously 0.36 and 0.37 both differ from 0.40 and can all be rounded appropriately to 0.4. It is not mathematically correct to say that 0.36 can be rounded to 0.40. Nor is it mathematically accurate to say that 0.36 is less than 0.4. However the assessment is not a purely mathematical one and the inherent uncertainties in the evidence are much greater than the difference between 0.36 and 0.40. So I will try (a) to state numbers in the evidence in the form they appear, but also (b) to use two significant figures in giving my reasons but (c) not to get too hung up on it all. This will involve heresies like "0.36% can be rounded to 0.40%".

231.
Related to this is the point that many of the numbers written in the comparable licences are obviously round numbers (such as a royalty in dollars of 1$ for 2G, 2$ for 3G and 4$ for 4G). It is not wrong to unpack these into rates expressed as percentages like

0.36%, 0.72% and 1.44% but one needs to take care not to assume from numbers like 0.72% that the parties negotiating that licence were really choosing 0.72% as opposed to (say) 0.70% or even 0.50%. They were probably thinking in terms of whole numbers of dollars and that was all.

(ii) The parties' rival submissions on royalty rates

232.
To arrive at an equivalent benchmark rate on Huawei's case one needs to know that the UK uplift applied by Huawei is 48.51% based on […]. Stripping out this uplift from Huawei's October 2016 proposals and rounding to two significant figures comes to: i) for 4G/LTE: infrastructure 0.041%; mobile devices 0.040%; ii) for 3G/UMTS: infrastructure 0.031%; mobile devices 0.031%;

iii) for 2G/GSM single mode: infrastructure 0.030%; mobile devices 0.030%.

233.
Mobile devices and handsets are the same thing. Infrastructure refers to RAN infrastructure. In argument the parties focussed on the rates for 4G/LTE multimode handsets and I will do the same. To recap, Unwired Planet's case is that the FRAND rate for its global SEP portfolio for 4G/LTE is 0.13% whereas for 2G/GSM and 3G/UMTS the rate is 0.065%.

234.
Of course a rate of 0.13% is just over triple 0.040% but all the same these numbers demonstrate that the parties are not now so far apart as some of the rhetoric at trial might have led one to believe. At the start the rival benchmark rates differed by an order of magnitude (0.2% for 4G/LTE from Unwired Planet and 0.022% for Huawei (based on the 0.034% UK offer and stripping out a 48.51% uplift). Nevertheless the difference is still substantial when one bears in mind that as a royalty it is to be applied to very large revenues.

Huawei's case on rates

235.
Huawei's opening case was encapsulated by the following chart (best seen in colour) which was figure 4 of Mr Lasinski's 3rd report and was presented in Huawei's written opening submissions:

[chart redacted]

236.
The dashed grey and red solid lines are Unwired Planet's proposals (the October 2016 rates are the same as in July). The directly comparable Unwired Planet-Samsung 2016 rate is shown as a green block, three comparable Ericsson licences are shown as blue blocks and the top-down aggregate royalty burden rate is yellow. It is marked "Patent Analysis" or "Huawei Patent Analysis".

237.
The three Ericsson licences Huawei contend are most probative are [J] licence, the [K] licence, and the [L] licence. The last one is treated as a 2G/3G licence.

238.
The rates for 4G/LTE in the chart are derived in the following way. From the [J licence] one starts with Mr Lasinski's preferred rate of […] as representative of [a] royalty rate for 4G, […]. Then a relative strength ratio R of […] is applied to produce an effective Unwired Planet rate of […]. Note that the […] was taken as R based on the portfolio post-MSA, before Lenovo and using multimode weightings but that figure had been corrected in chief to […], see a letter from Powell Gilbert dated 18th November 2016 which also explained the change made no difference, as indeed it does not. Mathematically the number ends up as […] as the effective rate for Unwired Planet, which is still rounded to […]. Using the HWLTER of […] makes no difference either. Of course using the UPLTER of […] produces a rate of […].

239.
Unwired Planet do not deny that the [J] licence is one relevant comparable but contend it should be seen as one of many. In addition, Unwired Planet point out that the Ericsson rate E used by Mr Lasinski is based on […]

240.
The 2016 Unwired Planet-Samsung licence involves […] and, like the [J] licence, it has other complications too. One complication it does not have is scaling by strength ratio since it is an Unwired

Planet licence not an Ericsson licence. Mr Lasinski’s evidence is that making many allowances in Unwired Planet’s favour to increase the effective rate […]. This, say Huawei, indicates that […] for Unwired Planet is generous.

241.
Unwired Planet do not agree with this. First they say that the Unwired Planet-Samsung licence is not a useful comparable at all because it must be seen in a wider context of a developing relationship between PanOptis and Samsung. Second, they say that in truth the rates in this licence are pitifully small, much smaller than those derived by Mr Lasinski, which is said to be a reflection of the first point.

242.
The [K] licence has […]. [the rate is…] for 4G multimode handsets. Therefore using a HWLTER of […] (as for […]) produces an effective Unwired Planet rate of […].

243.
The key terms of the [K] licence, at least the royalty rates, were decided in an arbitration rather than being negotiated between the parties. Unwired Planet say this completely undermines the utility of this licence as a comparable. Huawei do not agree.

244.
Huawei’s top down case on aggregate royalty burden derives a 4G benchmark handset rate of 0.028%. This was based on starting from a total burden T of 8% (based on a figure stated publicly by Ericsson as the maximum aggregate royalty range) and taking the appropriate share of the whole industry S as 0.36% for multimode. (I wondered if 0.30% should have been used for handsets but nothing turns on the difference.)

245.
So for 4G/LTE Huawei contend the two Ericsson comparable licences have […] and based on Huawei’s case for the strength ratio (R = […]) that gives a rate for Unwired Planet of […]. Huawei contend that the 2016 Unwired Planet-Samsung rate is lower at […] and so is the top down case at 0.028% but all this goes to show is that […] is generous to Unwired Planet.

246.
There is an issue on “hard-edged” non-discrimination arising from the 2016 Unwired Planet-Samsung licence. If it is accepted then Huawei contend the rates applied to them should be same ([…]for 4G) as the rates in that licence. I will treat this as a distinct issue.

Unwired Planet’s case on rates

247.
Unwired Planet’s opening case cannot be encapsulated with a single chart in quite the same way as Huawei’s largely because Mr Bezant produced so many charts. The charts are best seen in colour. This is one from Bezant 6, Appendix 2 (U/10/p1):

2G/3G/4G multi-mode royalty rates based on the comparables that Mr Bezant considers to be most relevant, based on UP’s Updated MNP and adjusted for the 80/20 Rule

[chart redacted]

248.

The blue “offer line” is 0.13%. The various bars are rates derived from different sources. Although the key contemplates one source was one way lump sum rates, in fact there are none in this chart. The ARR comes from the MSA and […] refers to a rate from the Lenovo licence with an adjustment. All the other bars come from Ericsson licences. For each Ericsson licence the bar is an example of ExR in which the value E is different. There are more bars than licences because Mr Bezant has derived multiple rates from the same licence in various cases.

249.
Unwired Planet argue that no individual comparable, particularly the ones singled out by Huawei, can bear the weight Huawei place on it. Unwired Planet also argue that this chart indicates the existence of a wide spread of rates in practice.

250.
The key thing about some of the Ericsson licences that Unwired Planet rely on in addition to the licences relied on by Huawei is that in them Ericsson is […]

251.
[…]

252.
[…]

253.
[…]

254.
[…]

255.
The 2011 Ericsson-RIM licence […]

256.
That is sufficient to understand how Unwired Planet put their case. There is no need at this stage to address the other Ericsson licences in the chart. The further evidence Unwired Planet rely on can be put into four groups: the ARR from the MSA, publicly stated rates, the 2014 Unwired Planet-Lenovo licence, and licences from other licensors.

257.
The term of the MSA which Unwired Planet rely on as a comparable is the ARR, which is […]. Huawei make the point that this is self-serving given that Ericsson benefit from royalties paid to Unwired Planet. As a tool for assessing a benchmark FRAND rate today the ARR has no value.

258.
The public statements about rates are addressed below. In terms of top down aggregate royalties generally, Unwired Planet contend that while it may be useful as a cross-check in certain circumstances, it is based on a false premise that manufacturers in fact pay everyone who owns any portion of the relevant pool whereas in practice they do not. Nevertheless they also point out that using their case for their share S of the Relevant SEPs (say 1.25%) and applying it to a total aggregate royalty burden T of 8% or 10% produces rates close to their preferred rate.

259.

Turning to the 2014 Unwired Planet-Lenovo licence, on its face it contains a lump sum licence payment of […] and running royalties creditable against that lump sum of […] per product in defined "Major Markets" (the MM rate) and […] per product in other territory (the OT rate). In percentage terms […] compares favourably with the 0.2% demanded by Unwired Planet in 2014 and maintained until July 2016. Huawei contend that to rely on the stated rates is to ignore the true economics of this agreement. Huawei also point out that […].

260.
The licences from other licensors which Unwired Planet addressed, at least at the start of the trial (see opening p103), are licences from Qualcomm (to Huawei (two) and Samsung), licences from InterDigital (again to Huawei and Samsung) and two licences in which Samsung were licensee (from […] and Nokia). To the extent they are significant they can be addressed in context.

A striking correlation – aggregate royalty

261.
In closing I pointed out to the parties that there seemed to be a broad equivalence about their rival cases at least in one respect. It can be seen in the implied aggregate royalty rate. Huawei contend the benchmark multimode 4G/LTE handset Unwired Planet rate should be 0.040% and Huawei contend that Unwired Planet's share S of multimode LTE handset patents overall is 0.30%. Conversely Unwired Planet contend the final royalty rate should be 0.13% and contend their share S overall is 1.25%. The ratios of these two pairs of figures are close and the similarity can be expressed in terms of the implied total aggregate royalty burden T. On Huawei's figures the implied total aggregate royalty burden T would be 13.3% while for Unwired Planet it would be 10.4%.

262.
Huawei resisted this characterisation of the arguments. Their top down approach starts from a value of T of 8% and works the other way to a royalty rate of 0.028% to support, as generous, a conclusion that the royalty should be 0.040%.

263.
This has caused me to address the question of whether the total aggregate royalty approach is better used as a top down method or as a cross-check. To apply a top down approach one needs to decide on the total royalty burden T as a starting point. The evidence from which Huawei submit an inference should be drawn is evidence of statements by patent owners about what they say the aggregate royalty burden for a given standard should be.

264.
A variety of statements about the total aggregate royalty and statements about individual companies are in evidence. The most significant for 4G/LTE are the following. Some are undated but they are most probably all from the same era 20082010:

i)
An Ericsson press release in April 2008 referred to a public statement by "wireless industry leaders" (Ericsson, Alcatel-Lucent, NEC Corporation, NextWave Wireless, Nokia, Nokia Siemens Networks and Sony Ericsson) that

they had "agreed a mutual commitment to a framework for licensing IPR" relating to LTE and supported the idea that a reasonable maximum aggregate royalty level for essential IPR in handsets is a "single-digit percentage of the sales price".

ii)
Another Ericsson press release in 2008 states that they expect to hold a relative patent strength of 20-25% of all standard essential IPR for LTE and that Ericsson believes the market will drive all players to act in accordance with these principles and to a reasonable maximum aggregate royalty level of 6-8% for handsets. Ericsson's fair royalty rate for LTE is therefore expected to be around 1.5% for handsets.

iii)
A Huawei press release in 2009 states that Huawei "anticipates and supports a low single-digit percentage of sales prices as a reasonable maximum aggregate royalty rate applicable to end-user devices". Huawei believe they will hold 1520% of all essential patents relating to LTE standards therefore a royalty rate with some flexibility, but not to exceed 1.5%, is expected.

iv)
In 2009 Alcatel-Lucent said it expects to license its LTE SEPs for handsets at a discounted royalty of no greater than 2%.

v)
In an undated press release Nokia stated that it believes it will have 20-30% of all LTE standards-essential IPR and that it expects its single-mode and multimode LTE rates to be in a range of 1.5% and 2.0% of the sales price of an enduser device, respectively.

vi)
In an undated press release Nokia Siemens Networks believes it will hold approximately 10 to 15% of all LTE standards-essential patents and that it anticipates its LTE royalty rate for end-use terminal devices will be in the region of 0.8% of the selling price.

vii)
In a December 2008 press release Qualcomm states that it does not agree with cumulative royalty caps or proportional allocations of such royalty caps.

viii)
In an undated press release Motorola states that it expects that its essential royalty rate for LTE systems and equipment (e.g. infrastructure and subscriber handsets) will be approximately 2.25%.

265.
For 4G/LTE Huawei contend that the total royalty burden T should be 8% based on the first three statements (the two from Ericsson in 2008 and the one from Huawei). For 3G Huawei rely on a further statement by Ericsson, Nokia, Siemens and NTT DoCoMo that they had, as the owners of "the clear majority" of SEPs for W-CDMA reached a "mutual understanding" to license "…at rates that are proportional to the number of essential patents owned by each company", which would "…enable the cumulative royalty rate for W-CDMA to be at a modest single digit level", meaning 5% or less.

266.
Huawei point out that the April and July 2008 statements by Ericsson were regarded as so important that they were formally scheduled as encumbrances on the […] patent portfolio when it was transferred to Unwired Planet and also point out that Mr Robbins accepted that Ericsson's statements about aggregate royalty were obligations Unwired Planet was obliged not to violate.

267.

Huawei submit that the court should attach particular weight to early declarations by major patent owners who were predicting what their ownership would be and what the total stack should be. Huawei refer to the evidence of Prof Neven on this (paragraph

14 of his 2nd report) however the Professor's evidence does not align completely with the submission. Prof Neven recognised a top down royalty stack approach as one way of implementing an ex ante benchmark. He contemplates various ways of arriving at a total stack (which I call T) including using comparable agreements. Prof Neven then expresses the view that early declarations by patent owners about what the total royalty stack should look like are highly relevant because they determine potential users' expectations and hence their decision to choose among the alternative technologies. He goes on to recognise that for a stack determined ex ante (i.e. before adoption of the standard by implementers) one needs a method for sharing out the stack ex post. A virtue of a total stack method is that in such a system there is no incentive for patent holders to divest their patents ex post to achieve a higher return since the total stack remains fixed.

268.
Prof Neven's explanation is compelling as long as one is confident what the total stack should be in the first place and provided some means for enforcing it against all parties exists. However the main conceptual difficulty I have with the using a total stack in a top down approach as opposed to using it as a cross-check is in the selection of the total royalty burden T to start with.

269.
In my judgment the statements set out above have little value in arriving at a benchmark rate today for a number of reasons. The claims are obviously self-serving. The statements about aggregate royalties in particular are statements about other people's money on the footing that the person making the statement says at the same time that the cake is quite small but they are entitled to a large piece of it. As an illustration, if one assumes Alcatel's 2% royalty claim means they claim at least 20% of the Relevant

SEPs (because in April 2008 Alcatel put their name to a "single digit percentage aggregate" and 2% is 20% of 10% (10% being just higher than the highest single digit percentage)) then the total shares of Relevant SEPs just mentioned in these statements add up to about 100% without including other major industry players such as Motorola, Qualcomm, and Samsung. The figures in Huawei's own claim are not closely internally consistent either. A low single digit percentage aggregate sounds like a figure of no more than 5% but to produce that with a 15-20% share of Relevant SEPs represents a royalty of 0.75%-1%. To produce a royalty close to the 1.5% limit referred to requires an aggregate of 7.5%-10%.

270.
Furthermore, putting weight in these statements do not take into account what implementers and SEP holders have actually been content to agree in the intervening years. Compared to public statements, comparable licences are concrete data points, albeit their interpretation can be uncertain and the factors derived from them even more so. One could use comparable licences to try and derive a figure for the total royalty burden T but to achieve that requires one to have done all the same work which is needed to apply comparables directly anyway, so back calculating T will not add anything.

271.
Moreover the combination of Huawei's submissions on rates and Huawei's submissions on what Unwired Planet's share of the Relevant SEPs is, shows that in truth Huawei's case does not support an aggregate royalty burden of 8%. It supports a higher total burden than that.

272.
Where Huawei undoubtedly have a point is that the cross-check shows that if Huawei's case on Unwired Planet's share S of SEPs overall (0.30%) is right, the benchmark rate claimed by Unwired Planet of 0.13% cannot be supported. It would imply a total burden T of 43%. That is far too much. Conversely if Unwired Planet are right about their share S of SEPs overall (1.25%), a benchmark of 0.040% implies a total burden of 3.2%. That is much less than Huawei themselves are prepared to countenance in these proceedings.

(iii) The MNPA and HPA techniques

273. I will now address each party's patent counting techniques (the MNPA and HPA), explain the criticisms which are made and then address them. Rather than focus on one technique completely and then the other, the two methods need to be explained and evaluated side by side so that the assessments of each can be understood in context.

The MNPA technique

274.
The MNPA was devised by Unwired Planet as a technique to use in licensing negotiations. It is applied to 4G/LTE and in the original method consisted of the following steps:

(1)
Identifying all declarations using a list of declared SEPs from the ETSI IPR database as of 12 March 2014.

(2)
Defining LTE and then limiting the declarations to LTE-specific declarations.

(3)
Grouping patents into families and removing duplication.

(4)
Filtering down to "Live" families. This removes patents and applications that have been abandoned or expired and filters out families which do not have a pending or issued US or EP patent.

(5)
Separating out what Unwired Planet called "Core" LTE. Here the word core connoted importance. It is not drawing the distinction drawn elsewhere between different kinds of infrastructure (RAN and Core network). Core in this sense is identified using a simple pre-2009 cut off. Any patent with a priority date after 31st December 2008 was non-Core.

(6)
Separating out handset families from infrastructure only families. If a patent has a handset claim it is in the handset family even if it also has infrastructure claims.

The resulting sets were called "Handset Candidate Families" and "Infrastructure Only Candidate Families".

(7)
Applying essentiality filters, which in the original MNPA involved three percentages:

a.

28% to represent over-declaration (i.e. on the basis of published studies by Fairfield/ Goodman and Myers (mentioned below) which indicate that only 28% of declared SEPs are truly essential);

b.
90% to take account of patents which are essential to options in the standard;

c.
80% to take account of patents essential to features in the standard which are not deployed.

275.
The Revised MNPA was produced in 2016 in response to points made in the litigation. It differed from the original MNPA in two major respects. At step (2) the way the standards are identified was changed in such a way as to incorporate more standards. At step (7) a different approach entirely is taken to what Unwired Planet call applying essentiality filters. In the Revised MNPA, instead of the three percentages at step (7), a figure derived by Dr Cooper was used based on a detailed analysis he carried out on a sample of Samsung SEPs. The figure used is 16.6%.

276.
The numbers produced by the original MNPA are the following:

Step	**Original MNPA**	
1 – 3	5915	
4 Live LTE families	4941	
5 Core LTE	Core 3280	Non-Core 1661
6 Handset	2071	1049
7 Apply 28%	Essential 580	Non-essential 1491
7(b) Apply 90%	Mandatory 522	Options 58
7 (c) Apply 80%	Deployed 418	Non- deployed 104
Final TOTALS:	"True LTE handset families" 418	Residue 2702

277.
On this basis a starting list of 5915 patents is reduced to 418 Relevant SEPs for the LTE standard and for handsets and a residue of 2702 other patents relevant to handsets which were declared as essential.

278.
The numbers produced by the Revised MNPA (in Mr Bezant's appendices to his third report) are as follows

Step		**Revised MNPA**		
1 – 3		6619		
4 Live LTE families		5296		
5 Core LTE		Core 3377	Non-Core 1919	
6 Handset		2128	1209	
7 Apply 16.6%	355		Core non-true LTE handset 1773	
Final TOTALS:	Core True LTE handset 355	Residue 2983		

279.
On this basis a starting list of 6619 patents is reduced to 355 Relevant SEPs for handsets and a residue of 2983 other patents relevant to handsets which were declared as essential. Note that the number of Relevant SEPs (355) is not exactly 16.6% of 2128. That number would be 353. The difference is explained in a footnote to Mr Bezant’s third report. I am satisfied 355 is the appropriate number to use.

280.
Both the Original and Revised MNPA produce numbers for the industry as a whole. The way Unwired Planet derive figures for individual companies (apart from Unwired Planet itself) is by identifying the patents at step 6 by company and then applying the relevant fractions to those totals. This gives figures for individual companies.

281.
The 80/20 approach seeks to attribute some value to the other handset patents in the residue. It does so in a mathematically simple way by attributing 80% of the royalty to a company’s Relevant SEPs in these tables and 20% of the royalty to a company’s figure for the residue.

The MNPA and infrastructure

282. Unwired Planet use the same MNPA approach to derive a total number of Relevant SEPs for infrastructure (by which they mean the air interface and eNode Bs rather than core network). The original produces a total of 3280 which Unwired Planet confusingly call the “Core LTE” (see step 5 of the Original MNPA table above). From this 2071 were identified as having handset claims (see step 6) which leaves 1209 families as infrastructure only (3280 = 1209 + 2071). From the 1209 Unwired Planet estimate most will be core network (i.e. not air interface or eNode Bs) and only 15% will be relevant infrastructure. 15% of 1209 is 181. To this 181 has to be added the share of the handset families which also includes relevant infrastructure. That is 1337 giving a total of 1518. That figure is treated in the same way as the handset figure at step 7 to produce 306 as the number of Relevant SEPs for infrastructure. As I understand it when Unwired Planet revised their approach to counting patents they did not revisit the numbers for infrastructure but simply reduced the infrastructure offer in the same proportion as the handset offer.

Unwired Planet’s approach to 2G and 3G

283.

The way Unwired Planet deal with 2G and 3G is simpler than the MNPA technique. They start with a figure for the total pool of Relevant SEP families for 2G or 3G based on a published report. For 2G Unwired Planet use the report “Analysis of Patents Declared as Essential to GSM as of June 6, 2007” by Goodman and Myers of Fairfield Resources International published on 31st December 2008. For 3G Unwired Planet use a similar paper published by the same group on 6th January 2009 entitled “Review of Patents Declared Essential to WCDMA Through December, 2008”. In these papers the authors report the outcome of detailed reviews by a team of experienced engineers of the patents declared essential to wireless standards with a view to determining how many are actually essential.

284.
The figure from the Fairfield report for the total number of truly essential 2G patent families is 158 while the Fairfield report for 3G reports the equivalent number as 529. Unwired Planet then subtract from these totals a number for the patent families which solely relate to infrastructure. That produces a total for handsets which is 102 for 2G and 324 for 3G.

285.
For infrastructure Unwired Planet used the figures from the reports, identified patents relating to infrastructure both alone and with handsets in the same way as for the approach to infrastructure with the MNPA and came up with figures for the total Relevant SEPs for 2G and 3G. Those numbers are 85 for 2G and 274 for 3G.

The HPA technique

286.
The HPA was carried out by a team including Dr Kakaes and consultants at Thomson

Reuters in India. The consultants at Thomson Reuters (the “Evaluators”) have technical expertise. The HPA consisted of the following steps:

(1)
“Identification and De-duplication”: a list of declared essential patents and patent applications was created using the ETSI database and also making reference to the Korean Telecommunications Technology Association database. The list was deduplicated.

(2)
“Family members not expressly declared to ETSI”: Since the ETSI IPR Policy a declaration applies to a patent family as a whole, additional family members not expressly declared to ETSI were identified. This was done using the public INPADOC database.

(3)
“Grouping families in five categories”: the patents and applications were collected into families. The families were collected into five groups. Only group 1 was selected for further analysis. The five groups were:

Group 1 – at least one issued and non-expired patent and an English or Chinese language member;

Group 2 – at least one issued and non-expired patent but no English or Chinese language member;

Group 3 – only expired members

Group 4 – no issued patents (“issued” means granted)

Group 5 – family information not available on INPADOC

(4)
“Grouping families into standards”: the families were classified into three classes: LTE/4G, UMTS/3G, GSM/2G by reference to the standards to which they were declared on the ETSI website. The families were also classified as relevant either to RAN (which in this study includes handsets) or core network (“CN”). This was also based on the standards to which they were declared.

(5)
“Essentiality analysis of Group 1 families”: The Evaluators reviewed the essentiality of a patent in each Group 1 family. The review took about 30 minutes per family. The patent and relevant standard were selected in accordance with given rules. The claims of the patent were compared to the relevant standard specification to determine if the standard required all the elements of the claims. If the Evaluator determines that the specification does not provide a clear reason to rule out the patent as being essential, then the family is deemed essential. If the family provides a clear reason to rule out the patent being essential, the family is deemed not essential. The given rules are:

a.
Patents in the family are reviewed in the following order until a patent is deemed essential or the categories are exhausted. If multiple patents are in the categories then the earliest is looked at first. The categories are:

i. US issued patent ii. EP issued patent iii. Any other English language issued patent iv. Chinese issued patent

v. English-language expired patent or subsequently English language application (where there is no English language or Chinese language issued non-expired member but there are members from other jurisdictions that are issued and not expired).

b.
For each family both representative handset and infrastructure claims are identified.

c.
If the family is declared to more than one of LTE/4G, UMTS/3G, and GSM/2G then the family analysis is continued until a patent or application is found essential to each of these three standards or the categories are exhausted.

287.
Once these five steps were completed one could derive numbers representing Unwired Planet’s “deemed” essential patents identified this way. They are the basis for Huawei’s case on how many Relevant SEPs are held by Unwired Planet. One could also derive numbers for the industry as a whole and for other companies such as Ericsson and Huawei. They are the basis for the figures set out above. There are various different ways of deriving these figures but there is no need to get into that detail.

288.
The totals produced by the HPA are the following:

Step	HPA	
1 Extraction and de- duplication	109,662	

2 non-ETSI family members	141,666 patents processed into 18,938 families						
3 Grouping	1 11,384	2 545	3 3,035	4 2,899	5 1,075		
4 Standards	LTE 7,077	UMTS 5,158	GSM 1525				
5 Essentiality:	2535	1639	629				
RAN	1585	937	312				
Total UE	1862	1154	362				

Total UE (UE means user equipment, i.e. handsets).

289.
These are the numbers presented in Huawei’s FRAND Statement of Case. They differ slightly from the numbers used in the figures set out in this judgment above for the denominators because adjustments were made during the proceedings but the changes are small and do not alter the substance.

Summary of the criticisms of the rival methods

290.
Huawei level a sustained attack on Unwired Planet’s MNPA both internally (i.e.

relating to the method itself) and externally (i.e. the way the method was created and by comparing the results of the MNPA to other evidence). Huawei’s major internal criticisms are: step (2) (the limitation to certain standards), step (4) (the US/EP filter), step (5) (the pre-2009 cut off), step (6) (handset filter), step (7) (the essentiality % filters).

291.
Huawei’s external attacks on the MNPA characterise it as “patently unreliable and selfserving”. They submit that in cross-examination Mr Saru accepted that it was never designed for the purposes for which it has been pressed into service in this trial. They submit the results it produces are counterintuitive and contrary to both Unwired Planet’s own fact evidence and the available third party studies. They contend that the relevant experts for Unwired Planet, Dr Cooper and Mr Bezant, were both keen to emphasise that they had no hand in its creation and that “neither sought with any conviction to defend its results”.

292.
In summary Huawei contended that the evidence points clearly to Unwired Planet having around 6% of Ericsson’s portfolio (the strength ratio). They also submitted that the MNPA was the only method which came close to giving Unwired Planet a 1.5% plus share of the industry’s Relevant SEPs and that all the other methods gave figures of less than 0.5%; and that the figures differ by “a long way”.

293.
Unwired Planet mounted a significant attack on the HPA and its status in these proceedings. In its FRAND Statement of Case (para 132) Huawei had presented the HPA as something which was undertaken given the flaws in Unwired Planet’s methodology. However during the trial it emerged that this was not true, as Huawei now accept. The HPA was in fact carried out for the arbitration between Ericsson and Huawei which led to the 2016 Ericsson-Huawei licence and in which Dr Kakaes

and Mr Lasinski were both witnesses. Unwired Planet also submitted that the HPA depends on an extremely cursory 30 minute analysis and contains an inbuilt presumption of essentiality. Unwired Planet ties this in to the arbitration point because, they submit, what also emerged was that in the arbitration the HPA was no more than a filter to identify patents that Dr Kakaes should look at properly. They argued that for Huawei to put the HPA forward as the actual assessment of analysis was regrettably misleading.

294.
As an outcome, Unwired Planet maintain that a strength ratio of 10.50% for LTE multimode between Unwired Planet and Ericsson is not inconsistent with the evidence

nor is a percentage of about 1.5% for Unwired Planet's share of all the Relevant SEPs. They maintain Huawei's figures are too low.

295.
Some of the criticisms made relate to the utility of these methods for unpacking. I will not address them because I am not satisfied that the differences between the counting techniques make enough of a difference to unpacking to be worth it.

The external criticisms of the MNPA

296.
I have no doubt that the exercise of devising the original MNPA involved a degree of self-interest on the part of Unwired Planet. The idea that it was devised in an entirely objective fashion is fanciful and if Mr Saru's evidence was intended to persuade me that is was, then it did not succeed. That said I also reject the idea that the whole thing was a cynical exercise designed purely to attempt to justify Unwired Planet's preordained licensing policy. Unwired Planet knew they needed to come up with some method of assessing the value of their patent portfolio by reference to the industry as a whole. The original MNPA was devised with that in mind but as an exercise, its utility depends on its objective characteristics which are addressed below. If it is objectively reasonable then the fact it was devised with a degree of self-service does not justify rejecting it as relevant evidence.

297.
Huawei are correct that the MNPA was not devised to compare Unwired Planet's portfolio with other companies' individual portfolios but the fact that Unwired Planet now seeks to use it in this way too does not matter. What matters in that respect are detailed issues.

298.
Huawei are right to criticise Unwired Planet for suggesting (or aiming to leave one with the impression) that Dr Cooper was responsible for the MNPA or parts of it as a method. Aside from his work on the sample from the HPA, he was not. Neither was Mr Bezant. On the other hand, apart from specifics dealt with later such as the 10%/20% optional/mandatory point I do not recognise the suggestion that somehow Dr Cooper or Mr Bezant thought the MNPA was so flawed that they were "keen" to emphasise they had no hand in its creation or that, overall, they did not seek to defend its results "with any conviction".

299.
The more significant external criticism made by Huawei is that it produces results which are counterintuitive and contrary to other, reliable, evidence. The highpoint of this is the comparison of what Huawei call "implied essentiality rates". These rates represent the application of the MNPA to a

particular company's patents. For reasons explained below I will not use the label "implied essentiality rate". I will call these rates the "MNPA Relevant SEP ratio" for a given company. Huawei produce a table for all the patent families in the original 6619 pool used by the Revised MNPA. […]. The figures are derived for the whole industry but it is only necessary to mention the MNPA Relevant SEP ratios for Samsung (6.72%), Qualcomm (7.41%), Huawei (3.24%) and Nokia (8.07%). Using the same approach, the MNPA Relevant SEP ratio for Unwired Planet is 12.00%. That is different from the ratios for Unwired Planet's portfolio deployed by Unwired Planet in argument because the 12% comes from applying the MNPA to both the numerator and the denominator (the numbers are 3/25).

300.
Huawei submit that this shows that the MNPA assesses Unwired Planet's portfolio as being far stronger than the portfolios such as Ericsson (of which Huawei contend the Unwired Planet portfolio was intended to be a representative cross-section), Nokia (which Huawei point out Mr Saru explained was "careful in declaring") and Qualcomm (which Mr Bezant said in his report had a "strong portfolio"). Huawei argue that these differences are systematic, very substantial and irreconcilable with the fact evidence or indeed any reasonable experience of the industry.

301.
In argument for comparison with the MNPA Relevant SEP ratios for third parties

Huawei used a ratio for Unwired Planet which would be produced using Unwired Planet's preferred numerator (the ratio is 24%) but I do not accept that is a fair test. It is the same point which I will address in another context below about whether it is fair to use a different method for deriving the numerator and the denominator. However Huawei's submission still has force since 12% is much higher than the ratios for Ericsson, Nokia, Qualcomm and Samsung (and indeed is higher than any company with at least 100 patents in the MNPA starting pool (see U1/6/4)).

302.
Mr Bezant's view was that this could be explained as an artefact of Unwired Planet's small portfolio size. There is something in this. One would expect that as portfolios get smaller the relative effect on the ratios of small changes in absolute numbers will increase. That is borne out by Huawei's analysis as a whole. All the MNPA Relevant SEP ratios over 10.00% are in the smaller portfolios (below 100 in size). The same point can be made another way – if the numerator for Unwired Planet had ended up at 2 instead of 3 the MNPA Relevant SEP ratio would have been 8.00% […] rather than 12.00%. So I accept that one cannot place much weight on the fact that a company with a small portfolio like Unwired Planet has an MNPA Relevant SEP ratio which is larger than the company from whom their patents were selected.

303.
Nevertheless this still does not mean Huawei do not have a real point. They do. These numbers expose a fallacy in the way Unwired Planet present the results of the MNPA both in argument and in evidence. Huawei's name for this ratio ("essentiality rate") was reasonable because Unwired Planet use similar language to describe the same thing. Unwired Planet have presented the number produced by the MNPA which is used as a denominator as if it represents the number of "truly essential LTE patents" or words to that effect. Unwired Planet's FRAND Statement of Case calls this number the "True LTE handset pool". These descriptions are wrong and misleading. The MNPA includes rates for the essentiality rate (28% in the original method and 16.6% in the revised) but it also has other features. The justification for the cut offs in the method apart from the essentiality rate, such as the pre-2009 cut-off, is not essentiality. It is an attempt to differentiate between the value to a

licensee of two different categories of patents even though both may be truly ESSENTIAL within the meaning of the ETSI IPR policy. That is a key conceptual difference between the MNPA and the HPA. The reason different companies have different MNPA Relevant SEP ratios is not because their implied essentiality rates differ, it is because of the kinds of patents they have relative to things like the particular LTE standards to which they are declared, the priority date, and the presence of handset claims, differ. So the low rate for Huawei relative to Samsung and Ericsson is explicable by the combined effect of steps (4) and (5) whereby families with no EP/US member and the pre-2009 cut off has more impact on Huawei than Samsung or Ericsson, which in turn is consistent with the phenomenon that Chinese companies have increased their patent filings outside China only in recent years.

304.
In my judgment the external criticisms do not undermine the utility of the revised

MNPA as such but they have exposed the need to be clear about what the results mean. In that sense Huawei are right that the difference between companies is systematic. Whether it is reconcilable depends on the legitimacy of the other filters and turns the focus onto the internal criticisms.

The internal criticisms of the MNPA

Step (2)

305.
The first point is about step (2). The MNPA does not look at all patents declared to LTE in general, rather the MNPA takes a defined list of particular standards and deals with patents declared to those. Unwired Planet started with a list of 49 standards from a licensing pool called VIA known as the VIA 49. The VIA pool includes industry giants AT&T and NTTDoCoMo. Mr Saru was cross-examined about the decision to use it. While I agree the choice had an element of being self-serving, I was not persuaded it was an unreasonable choice to make. The list had been made by a third party. Later in the proceedings following criticism Unwired Planet used a much longer list of standards but this did not make a major difference to the end result in the light of the other filters which were used. By the closing there was less to this issue than at earlier stages in the litigation. It is not in dispute that there is no generally accepted view of what constituted a correct list of LTE standards. Part of Unwired Planet's rationale for doing something along these lines was to focus on the parts of LTE which they thought licensees would be interested in. That was not unreasonable. I reject the point on step (2). The other criticisms are lesser points in any event nor do they make enough of a difference to matter.

Step (4)

306.
The point on step (4) is that the patents chosen were restricted only to families containing a US or EP member. This was justified by Mr Saru on the basis that serious industry players would seek patents in Europe and the USA as major markets if they thought the patents were essential. Huawei disputed this, submitting that Dr Kakaes was obviously right not to agree in cross-examination that other markets such as China are not valuable and important. Huawei pointed out that the MNPA excluded around 709 patents for having no US or EP member.

307.
Dr Kakaes was correct in cross-examination, all the same the evidence was clear that the licensing rates in the US and Europe are higher than elsewhere. Both the MNPA and HPA have a step like step

(4) because it is a sensible thing to do. The difference is that the HPA includes a family if it has a Chinese member even if there is no US or EP. One can understand why that might be done given that Huawei is Chinese and also given the evidence that many Chinese companies will only file in China for many applications. Based on Mr Cheng's evidence I would expect Huawei today to file SEPs internationally once the first application was made in China, given their importance. In the end I am not satisfied that this difference between the MNPA and the HPA makes any material difference to the issues I have to decide. A serious player in the telecommunications market, including a major Chinese company, would likely file SEPs in the US and/or Europe. A method which included Chinese patents when the family had no US or EP member at this stage would present a more complete picture of the landscape but the differences overall are modest. In my judgment no significant systematic error is introduced by not doing so. The nature of Huawei's portfolio means that it will have an effect on that portfolio but I am not satisfied this matters. If the differences between unpacking methods mattered, this would be important, but they do not.

Step (5)

308.
The debate about step (5) of the MNPA is important. At this step Unwired Planet select only patents with a pre-2009 priority date to take forward. Unwired Planet's rationale is that there is an inevitable time-lag between the priority date of a patent, the invention making its way into a frozen release of a standard and then that standard being implemented. Unwired Planet say the fundamentals of LTE as a system were determined in LTE Release 8 and that was fixed at the end of 2008. So only patents with pre-2009 priority can be part of it. A later dated patent could not be valid and essential to this "core" system. Huawei point out that this step excludes well over 1,500 LTE families from the pool and argue it is completely unjustified.

309.
Unwired Planet do have a point in that LTE Release 8 was the first and fundamental release of LTE however Huawei contend that this approach gives no value for later releases and is flawed.

310.
The relevant releases after LTE Release 8 are Releases 9, 10 and 11. The term "LTEA" for LTE-Advanced sometimes appears. It can be taken as the same as releases after and including Release 10 of LTE. Release 10 was released in 2011 and enables downloads and uploads ten times faster than Release 8. In the UK the network operator EE began implementing LTE-A in 2013. The implementation was across the whole network. On the evidence I find that the really important aspect of the releases after release 8 is a feature called carrier aggregation. It is clearly significant, particularly relating to infrastructure and to network operators.

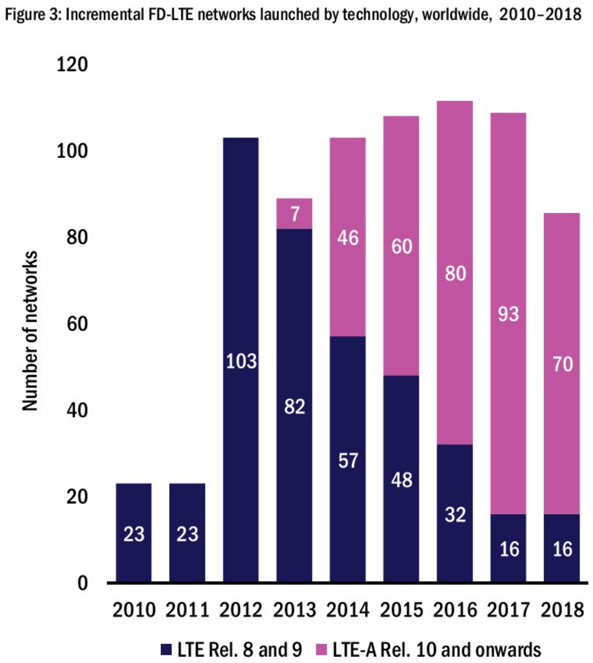
311.
Mr Saru explained that the cut-off was justified in a licensing context because technology in later releases was not as critical to LTE as implemented in the products on the market at the time (by which he meant 2013/14 but the point is general, that there is a lag). In his oral evidence Mr Saru distinguished between what technology has been released in a standard and what drives the market. Huawei pointed out that Mr Saru accepted that this filter had been chosen by Unwired Planet knowing that it would have a relatively minimal effect on the Unwired Planet portfolio. Unwired Planet sought to mitigate this on the basis that Mr Saru's view was that it was simply a reflection of the fact that Unwired Planet had deliberately selected good patents which would be strong from a

licensing perspective. However I do not accept that that would justify the step even if it is really what Unwired Planet thought.

312.
Mr Yang gave evidence on this for Huawei. He said that in technical terms Releases 9 to 11 involve significant developments many of which have been deployed, while in commercial terms Releases 9 to 11 are highly valuable to Huawei. Unwired Planet submitted Mr Yang was a fact witness but gave opinion evidence. So he did but Mr Yang was a good witness, generally qualified to discuss the topics he covered, and was simply seeking to explain his companies' point of view.

313.
Mr Yang supported his evidence with material extracted from three papers said to show the widespread deployment of LTE-A networks over time. (There is a point that figures

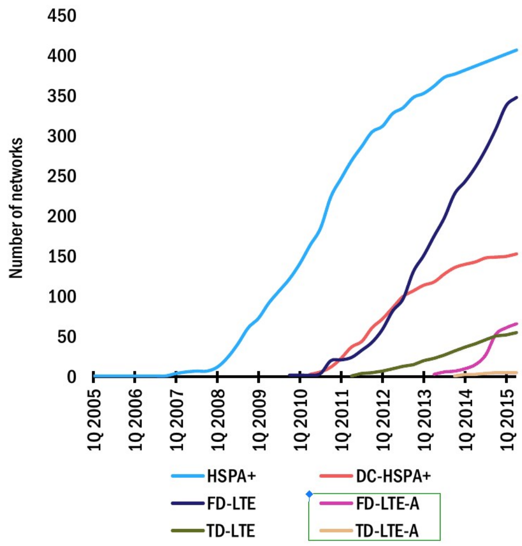
for networks, i.e. infrastructure, will not directly relate to handsets and that Mr Yang was more a network man than a handset man. I will take that into account). The papers had been produced by the lawyers and Mr Yang did not know much about the origin of the papers themselves or the groups which produced them. A graph from one of the three papers which Mr Yang relied on is this:



From an August 2015 paper by consultants Analysys Mason.

314.
As it states, this is a graph of incremental deployments of LTE-A Release 10 networks as compared to incremental deployments of Release 8 and 9 networks. In the same paper is another graph as follows:

Figure 1: 3G and 4G network deployments by technology, worldwide, 1Q 2005–2Q 2015



315.
These two graphs are best understood in colour. To be precise the second graph distinguishes between the two LTE duplex modes: FDD – which is used e.g. in the UK

and TDD – which is mostly just in China. In any event Unwired Planet say this second graph shows the very slow projected adoption of LTE-A.

316.
Taking Mr Yang's evidence as a whole I find the position is as follows. In general different features are adopted by the industry at different rates. Carrier aggregation has been adopted much faster in Asia than in Europe. At a technical level features commercially deployable in later releases may well have their technical roots in Release 8 (e.g. Voice over LTE).

317.
Dr Kakaes' view about the pre-2009 filter was that it unreasonably excluded things which by 2013/14 were being frozen into the standards and implemented. Nevertheless he also accepted that there are features in standards which are not commercially implemented, for a range of reasons, and implementers commonly will decline to license patents relating to features they do not implement. Unwired Planet submitted that Dr Kakaes accepted that if it was possible to take account of these commercial realities then it was better to do so, and he accepted that the HPA did not try to do this at all. The latter submission is correct. The former submission does not precisely reflect what Dr Kakaes said in the cross-examination relied on but taking his evidence as a whole, a fair reflection of Dr Kakaes' position was that it was reasonable to take account of the reality that there are features in standards which are not implemented.

318.
Dr Cooper supported the existence of a time lag in terms of implementation of features and explained that features in Release 8, in contrast to later releases, were required to be used if one is implementing LTE, whereas it would be up to implementers to what extent they would implement features in a later release. However he also made clear that he "did not necessarily accept that simply post Release 8 developments should be dismissed since they can and often do add 'value'". That supports Huawei. There was a point about early R&D investments being higher risk and deserving higher reward but it was nebulous and I do not accept it.

319.

There is more to these arguments than this summary but I have dealt with the major points. In my judgment LTE Release 8 does represent the fundamental technology on which LTE is based and FRAND licence negotiators would take that into account in assessing the value of patents. Later Releases of LTE are still based on the fundamentals of what is in that first working Release. Taking a cut-off of patents with a pre-2009 priority date is a FRAND approach to licensing Release 8.

320.

On the other hand once later releases exist and are licensed, a method which gives no value at all for the technology in later releases is flawed and does not reflect FRAND. The impact of this problem changes as time goes on. It is an inherent difficulty arising from the fact that standards develop over time.

321.

For LTE, assessed as at 2014, I find that the absence of value for post-2009 patents is not significant (either in Europe or anywhere else). However assessed today (2016/2017) the absence is significant given the way LTE-A has been implemented over time. For LTE some value has to be given in assessing the FRAND value of a portfolio for patents essential to later releases (and which therefore may have been excluded by a pre-2009 cut off). On the other hand, a method which gives equal value to any patent essential to anything in Releases 9 to 11 will inevitably overstate that value. Release 8 is still the fundamental technology in LTE and while carrier aggregation is important in the later releases, other aspects are not.

322.

There are a limited number of ways in which one can deal with this. Unless one is going to make a list of Releases 9 to 11 features and identify each patent relevant to that feature, which would be impractical, the only alternatives are broad brush. One can include all patents knowing that this overstates the value of post-2009 patents, which is the HPA method, or exclude them all knowing this understates the same value, which is the MNPA. The 80:20 approach by Unwired Planet is an attempt to mitigate this problem, among others, because it gives some value for patents put to one side by the pre-2009 cut-off. In that sense the intention behind the 80:20 approach is sensible but I am concerned that it is so crude as to be arbitrary.

Step (6)

323.

The points on step (6), the handset and infrastructure filter, were mostly concerned with unpacking and Huawei’s portfolio. There is no need to engage with that. Unwired Planet’s detailed approach to handsets and infrastructure involves an assumption that 15% of the families with no handset claim are RAN rather than core network. Having listened to Dr Kakaes’ oral evidence on this I find that Unwired Planet’s approach was reasonable. The MNPA figure for handsets will be a lower bound but I doubt it is all that far from the true figure.

Step (7)

324.

The next step is step (7), the essentiality filter. Here the Revised and the Original MNPAs differ. In the Original MNPA three fractions are used. The first is the 28% essentiality ratio. This was used to deal with over-declaration. There is no question that over-declaration is a major problem. The question is - how big? 28% was derived from studies reported in papers by Fairfield/Goodman & Myers on 2G and

3G. Dr Kakaes criticised this because there were also similar studies from the same group (Fairfield) and other groups for 4G which gave higher essentiality ratios. Mr Saru thought 28% was likely to be a ceiling and a lower percentage might be more accurate. Two 4G papers were put to Mr Saru (from Cyber Creative and FRI) in which essentiality rates of 50% or more are given.

325.
In an annex to Huawei's opening skeleton is a summary of third party essentiality studies on 4G. There are four: iRunway at 8.2%, Fairfield at 50% and two Cyber Creative studies at 53.8% and 56.0%. Huawei submitted the iRunway study was not representative.

326.
However as Unwired Planet point out, Huawei's own HPA produces a lower overall essentiality ratio than the 50%+ rates from Cyber Creative and Fairfield. Dr Kakaes reported overall essentiality ratios for 4G of 35.8% and 34.1% from the HPA on slightly different bases (the differences do not matter). In his third report Dr Kakaes set out a table for sixteen individual companies' 4G essentiality ratios derived from the HPA. They range from 18.6% for Google's patents (338 declared, 63 deemed essential by the HPA) to 82.3% for Sharp's patents (79 declared, 65 deemed essential by the HPA). Most of the companies in the table (13) have ratios within 22%-50%. The portfolios range from 64 to 771 declared and 14 to 228 deemed. The ratio for Huawei is 43.5% and the ratio for Samsung is 23.5%.

327.
In cross-examination Dr Kakaes did not accept it was reasonable to use a 2G/3G study for the purposes of considering a 4G rate although he accepted that there was no technical reason why essentiality ratios for 2G, 3G and 4G should differ and indeed had made that point in his third report. Unusually for Dr Kakaes, who was a good witness, on this particular point he had lost some objectivity.

328.
Dr Cooper addressed the papers which reported essentiality ratios. He thought they all had problems and weaknesses and he thought the 4G Fairfield paper produced a ratio which was too high. In his opinion there was no reason to think the essentiality ratio for 4G was likely to be different from 2G and 3G. He thought 28% for 4G was generous and this was a view formed before he had conducted a review of Huawei's and Samsung's portfolios. He thought the true essentiality ratio was likely to be between 10% and 20%.

329.
In my judgment adopting 28% as an overall essentiality ratio for 4G cannot be criticised. It was reasonable both when Unwired Planet adopted it in 2013/14 and later on.

330.
A further point which relates to this but is convenient to address now is Dr Kakaes' opinion that using a different method to assess the numerator and the denominator in the strength ratios is not appropriate. It will be recalled that Unwired Planet do this whereas Huawei do not. Although superficially it might appear to be a sound criticism, in my judgment it is not a valid point in these proceedings. Of course in general one usually seeks to compare like with like. Therefore it is meaningful to present a ratio for Unwired Planet against another company or the pool as a whole based entirely on figures provided by the same technique – as in the HPA. This is particularly so when the technique does involve some consideration of each patent rather than figures applied across the board as in the MNPA. However it is also meaningful when one wants to make a comparison between

an identified collection of patents and the pool overall to do what Unwired Planet did and analyse the identified collection individually while applying a broader brush technique like the MNPA to the wider pool, since after all it is entirely impractical to analyse the whole pool with that same rigour. Moreover this is all the more legitimate when the identified portfolio is small, since an average is less likely to be accurate when applied to a small pool than a large one.

331.
The other two percentages used by Unwired Planet (10% optional and 20% mandatory non-deployed) were criticised as arbitrary. The problem is not with the concept that there are optional features to which SEPs are essential and mandatory features in a standard which are not deployed. I have no doubt both exist (as Dr Cooper explained), albeit it is also true that some strictly optional parts of LTE are really important (e.g. MIMO as Dr Kakaes explained). The problem is justifying deductions of this magnitude. Combined together these two fractions reduce the denominator by over a quarter and therefore correspondingly could increase Unwired Planet's royalty rate by a third (1/100 = 1%, 1/75 = 1.33%). And in my judgment the problem is made much worse given the pre-2009 cut off and a limit on the number of standards considered at step (2). Dr Kakaes was right that there was no reliable empirical basis for either fraction. Mr Saru's attempt to justify them in his oral evidence referred to his experience in a vague way and to informal calls to old friends. That was hopeless.

332.
In my judgment the 10% and 20% fractions cannot be supported alongside the pre-2009 cut-off at step (5) and the limit on standards at step (2). Combining the fractions with steps (2) and (5) is not FRAND.

333.
The Revised MNPA was devised with the criticisms of the original MNPA in mind. At step (7) the Revised MNPA uses a single fraction of 16.6% derived by Dr Cooper. It arose as follows. Dr Cooper was asked to review the findings of a sample of the patents which the HPA deemed to be essential to an LTE handset that had a pre-2009 priority date. Dr Cooper randomly selected a sample of patents of a size that would allow him to draw conclusions with at least 90% confidence about the pool from which the sample was drawn. This resulted in Dr Cooper reviewing 38 Samsung and 30 Huawei patents and he spent 5-6 hours per patent family. He concluded that the essentiality rate of the Samsung patents (excluding optional features) was at most 16.6% and then revised that further to 15.9%. For the Huawei patents he concluded that the essentiality rate (excluding optional features) was at most 9.4%. Unwired Planet used that 16.6% figure at step (7) of the revised MNPA.

334.
Unwired Planet point out that in his second statement Dr Kakaes was not surprised that having spent 5-6 hours per patent family, Dr Cooper had found a number of patents not essential which the HPA had deemed to be essential. They point out that Dr Kakaes went on to agree with Dr Cooper about a substantial number of the patents in his study. The major criticism made by Dr Kakaes was about the sampling process. I will deal with that after the other points.

335.
The detailed points were these. First, there were patents excluded based on Dr Cooper's definition of LTE. However I am satisfied that at best this would make little difference to the end result. At best the point changes the result for two patents. The impact of that can be seen from the fact that changing the result for one patent moves the answer from

15.9% to 16.6%. The point does not undermine Dr Cooper's position as a witness. Second, there are patents which Dr Cooper found were not essential because they were not implemented (optional). As

Dr Kakaes explained that was not part of his approach. If Unwired Planet had then tried to use the crude fractions for options applied in the Original MNPA as well there would be more to this point. I find Dr Cooper was justified in doing this although one needs to keep in mind that excluded this way are LTE TDD, which is used in China, MIMO and carrier aggregation. Third, there were cases in which Dr Cooper and Dr Kakaes maintained their disagreement about particular patents. I am not asked to resolve technical disagreements at the level of individual patents. Based on my assessment of both experts, I am sure the disagreement represents cases in which reasonable people can differ.

336.
A question was whether it was right to use a rate for Samsung as in effect an industry average. Huawei submitted there was no empirical evidence that a rate for Samsung was representative of the industry as a whole. The choice was Unwired Planet's rather than Dr Cooper's. He explained that he would not expect the rates for different companies to be identical but he could not see an a priori reason why there should be big variations between companies. In my judgment the evidence, as best it is, is that the rates for different companies can differ considerably (see the table above from the HPA) but there is no systematic reason why one company's rate should be different from another. In my judgment using a rate for Samsung as representative of the industry is not illegitimate given that Samsung is a major player. I doubt Samsung has an essentiality rate which is significantly below average. There are significant uncertainties in all these exercises and this is another but it does not render the technique meaningless. Choosing to use the number derived by Dr Cooper for Samsung rather than Huawei was the conservative choice.

337.
Huawei also submitted that it was inappropriate to use a figure derived from the HPA in the MNPA. This was for three reasons. First because the filters in the MNPA produce a different starting pool of patents from that in the HPA. Second because the different approach to LTE means many Samsung families found essential in the HPA would not have made it through the filters in the MNPA but were then chalked up as inessential. Third because the way of identifying a family as a handset family differs. In substance these are either another way of putting the detailed points I have already considered or they relate to the major sampling issue which comes next.

338.
For Dr Kakaes the key problem with Dr Cooper's approach was that while a random sample had been taken from the pool which was sampled, the pool which was sampled was skewed. This was in two respects: first the pool from which the sample was taken consisted of the patents deemed essential (and held by Huawei or Samsung); and second the pool was actually only a subset of that because it was also limited to patents which met certain MNPA filters such as the pre-2009 cut-off. I have already dealt with the second point above but that does not address the first point. As to this, Dr Kakaes acknowledged that there will inevitably be errors in the evaluation process in the HPA but he said those errors would point in both directions, i.e. essential patents could be deemed not essential as well as not essential patents deemed essential. Therefore sampling only from the pool deemed to be essential was skewed. To do something like this sort of sampling appropriately, a random sample should have been selected from the pool as a whole, before evaluation. For Dr Kakaes this undermined the exercise entirely. Dr Cooper had sampled from what Dr Kakaes called a very, very, very biased universe.

339.
The strength of Dr Kakaes' view about this point came across in his oral evidence.

However to resolve this issue I need to address the most important aspect of Unwired Planet's attack on the HPA. That is because Unwired Planet's answer depends on its case that the essentiality evaluation in the HPA was a coarse filter designed to screen out non-essential patents and had a tendency built into it in favour of increasing the number of patents in the pool deemed to be essential. Huawei disagrees.

340.
Without resolving this argument about the HPA I cannot complete my consideration of the Revised MNPA. In order to decide issues as much as possible in their proper context I will therefore suspend consideration of the Revised MNPA, this being the last major issue, and turn to the HPA. Once I have dealt with the HPA I will consider the implications of those decisions on this aspect of the Revised MNPA and reach my conclusions on both the Original and Revised MNPA.

The criticisms of the HPA

341.
The HPA was run as an exercise as part of the Ericsson – Huawei arbitration. That is not in dispute. The way the HPA was presented by Huawei in these proceedings in the FRAND Statement of Case was wrong and should not have happened. Huawei cannot simply blame Ericsson for demanding secrecy about the arbitration. Huawei have an excellent UK legal team and the matter could have been raised with the court (or even conceivably with another judge although I cannot see that that would have been necessary). What has happened is that the truth about how the HPA was devised and the reasons for it were not presented properly from the outset. Although more came out at trial I am not satisfied the full picture has been presented to the court.

342.
Huawei maintained in closing that:

"The exercise was overseen by Dr Kakaes and a team of engineers from Thomson Reuters. The evaluators were not informed of the identity of the ultimate client (i.e. Huawei) or of the opposing party in the dispute for which the analysis was originally prepared (i.e. Ericsson), so as to preserve neutrality."

343.
I accept that the engineers who undertook the evaluation exercise at step (5) of the HPA did not know that the client was Huawei when they carried out their work. That is a virtue and in that sense the exercise was neutral. However it was clear from Dr Kakaes' answers in his oral evidence that Huawei's US lawyers, Sidley Austin LLP, were involved at various stages in the decision making and possibly drafting of documents and I am not satisfied that the HPA can be regarded as something set up independently of Huawei's interests. It is not possible to say. However just like the MNPA, what matters most is the objective reasonableness of the steps, not the motives of the devisers.

344.
Unwired Planet take a number of points about the HPA but in my judgment none of them matter except one, which is the submission that the evaluation step (5) was in fact no more than a coarse filter to identify patents that Dr Kakaes should look at properly later and has a tendency built into it in favour of increasing the number of patents in the pool deemed to be essential. The other points taken by Unwired Planet (about the initial dataset and technology categories) are similar to the points I have rejected which Huawei took against the MNPA. If the coarse filter point succeeds Unwired Planet do not need to place further emphasis on the other issues and if it fails, they are not significant

enough to undermine the HPA outright. Just as they do for the MNPA, the extra points serve to emphasise the inherent uncertainties in the exercise.

345.

The evaluation exercise which was carried out was a huge undertaking. Even then the average time per family was ½ hr. In a much smaller exercise on a small subset of patents which Dr Cooper conducted he spent 5-6 hours per family. He was not wasting time. Unwired Planet detected that in cross-examination Dr Kakaes tried to resile from the onerous nature of the task. I do not believe that is what he was doing. He was simply emphasising that in parts some of the elements of the task may not be that difficult. In his reports Dr Kakaes had emphasised that the analysis was not a rigorous and thorough assessment of essentiality of all declared SEP families in the relevant group, since carrying that out was not plausible without employing vast resources. The exercise was based on what he called a "relatively quick assessment". In my judgment, given the number of families to deal with, and the inherent complexities of the patents, standards and the task itself, it would not be possible to make a definitive assessment of essentiality for the number of patents in issue in the time available. I do not believe Dr Kakaes suggested otherwise.

346.

In his written fact evidence Dr Kakaes addressed the Essentiality Review Protocol. In paragraph 31 of his first witness statement Dr Kakaes described the evaluation as follows:

"31. Accordingly, the second stage of the study was to analyse the 11,384 Group 1 patent families to seek to determine whether or not a patent that was declared essential to ETSI is, in fact, "essential". Conclusively confirming actual essentiality is a complicated and involved legal and technical task. In this document, I use the term "is essential" (and similar terms) to mean that, after evaluation, we have determined that there is a reasonable basis for treating a patent as essential. In each such instance, we reviewed the patent specification and claims and did not identify an apparent reason to exclude the patent from being essential. Thus, a more precise interpretation of this phrase is that such a patent has passed a screen to exclude non-essential patents."

347.

Unwired Planet say this shows that patents were deemed essential as long as there was a reasonable basis to treat it as such and only excluded if an apparent reason to exclude it had not been identified. The method was in Dr Kakaes' words a screen to exclude non-essential patents. On its face this description accords with Unwired Planet's submissions.

348.

In paragraph 41 of the same statement Dr Kakaes explained that if the standard being considered required all the elements of one of the claims being considered, then the patent family was deemed essential. Expressed that way there is no tendency either way but in a footnote to this paragraph Dr Kakaes then said: "To be more precise, the reviewers determined that the declared standard specification(s) did not provide a clear reason to rule out the patent as being essential." Unwired Planet say this reflects the same tendency they contend can be seen in paragraph 31.

349.

Unwired Planet also pointed to the protocol document exhibited by Dr Kakaes which provided that the evaluators in which the word "substantially" appeared in a context which expanded the scope of what would pass as essential. The text is:

“Compare the selected claims with the declared standard specifications and determine whether the standard specifications substantially require all the elements of the claim.”

(my emphasis)

350.
These points were all put to Dr Kakaes in cross-examination. He did not accept Unwired Planet’s characterisation of the effect of these passages. One suggestion he made in cross-examination and repeated in re-examination was that the explanation related to a detail of ETSI IPR Policy which is involved in considering whether it is not possible on technical grounds to do otherwise. I accept Dr Kakaes’ evidence that this detail of the IPR Policy, which would involve proving a negative, did not form part of the assessment of essentiality but I do not accept that it is what passages in the written evidence were talking about.

351.
I accept Dr Kakaes’ testimony that he checked numerous entries and found errors going both ways, including patents the evaluators should have placed in the deemed essential collection but had not done so, perhaps because they read the claims too narrowly or missed additional standards. I also accept that he spent hundreds of hours checking results and answering queries from the evaluators. This supports Huawei’s submission that the aim of the HPA was to apply a consistent approach to all the patents considered. I am sure a consistent approach was applied. The debate is to properly characterise what the approach was.

352.
Unwired Planet also put to Dr Kakaes something he said about Dr Cooper’s detailed analysis of the sample deemed essential by the HPA. Dr Kakaes had said he was not surprised that Dr Cooper’s more detailed studies had found that a number of patents deemed essential in the HPA were not in fact essential. That lack of surprise supports Unwired Planet’s point but when asked about it Dr Kakaes said he just meant that he was not surprised Dr Cooper had reached different views. I do not accept that explanation. The point was not simply that Dr Cooper had reached different views, the point was that for patents deemed essential, Dr Cooper had found quite a number of them not to be.

353.
Some of Dr Kakaes’ answers on this topic were rather difficult to follow. I think a partial explanation for this was that in all his evidence about the HPA as a methodology, particularly before the point at which the arbitration point emerged fully but also afterwards, in the back of his mind Dr Kakaes was worried about the arbitration and about what he thought he was and was not allowed to say. This did not help but even taking that into account I am left with one characterisation of the HPA in Dr Kakaes’ written evidence and a different one in his cross-examination and re-examination.

354.
Weighing up the evidence I prefer to place weight on Dr Kakaes’ written evidence. It was clearly written taking care to present a balanced explanation of the exercise and its limitations. It is also inherently credible that an exercise of this scale, which could only ever be a “relatively quick assessment”, would err on the side of placing a patent family in the deemed essential collection unless there was a sufficient basis not to. There is nothing wrong with that provided it is understood that that is what is happening. It is a sensible way of proceeding. Dr Kakaes felt a personal ownership of the HPA and I think in the cross-examination he regarded the questions on this topic as implying that the HPA was flawed. Therefore he sought to defend it.

355.
I find that it is accurate to describe the evaluation step in the HPA as a step which errs on the side of including a patent in the deemed essential pool.

356.
I turn to consider the significance of Unwired Planet’s case about the HPA’s role in the arbitration. The submission is that in truth the HPA was designed to be just a coarse filter to identify patents that Dr Kakaes should then look at properly, or in other words a screen to exclude clearly non-essential patents. If that is right then it enhances Unwired Planet’s case on the nature of the evaluation step.

357.
In cross-examination it was put to Dr Kakaes that Huawei needed to make the process of assessing essentiality manageable by curtailing how long a single family was to be considered. Dr Kakaes did not agree and wanted to explain why but to give a complete answer required him to explain how the results of the HPA were used. At this point it emerged that he felt unable to give a full answer because of non-disclosure obligations he felt he owed Ericsson as a result of the arbitration. Once in private and reassured that he could speak freely Dr Kakaes explained that the HPA, which he called the “study” was “just to figure out what the landscape is”. The study had two steps, the census (i.e. steps (1) to (4) as described in this judgment) and the essentiality study (step (5)). The information was passed on to Mr Lasinski but Dr Kakaes said his (Mr Lasinski’s) usage of it was minimal. What Dr Kakaes also did was analyse a subset of patents that were deemed essential in the HPA. They were patents held by the parties to the arbitration - Ericsson and Huawei. He said “I looked in detail, and in the subset of Ericsson essential patents, and identified their importance and so on.” and added “a big part of what happened next is this question of importance of Huawei and Ericsson patents”. Finally, there was the following exchange:

60:13 MR SPECK: So that's why you couldn't take an industry average?

A. No, no. The -- the usage of the -- of the study that we've been talking about, the study referring to the census and essentiality, was very limited because -- and the reason for doing that, at least one of the reasons, was to flesh out what's Ericsson and what's Huawei, without ever telling the team in India who the players are.

MR JUSTICE BIRSS: I see.

A. So the players were ignorant. They said: here is the census. Here is the essentiality results for all the companies. And then we looked at the Ericsson universe and 25 the Huawei universe, to do further study and analysis, which 61: 1 is -- as my Lord observed -- irrelevant.

358.
Unwired Planet say this proves their point. Huawei do not agree. In closing counsel for Huawei placed emphasis on the word "importance" in these passages and submitted that the further detailed study which Dr Kakaes was talking about was not a study of essentiality, it was a study of "importance". That is a term he had used elsewhere in his report as relating to the value of an invention, i.e. the importance to the standard of the technology covered by the patent. In other words it is accepted (plainly rightly) that Dr Kakaes here was explaining that there was further detailed study and analysis of patents placed into the deemed essential pool by the HPA, but Huawei argues that the nature of that further study was about importance and so does not support the idea that the HPA was a coarse filter on essentiality on the footing that patents could always be weeded out later on more careful consideration of that aspect.

359.
I readily accept that although it was not apparent at the time he was speaking, Dr Kakaes was using the word "importance" there in the same sense as elsewhere in his report. But I am not persuaded that this takes one as far as Huawei seek to go. First of all, if it matters, Dr Kakaes did not say in these passages that "importance" was the only thing considered in the further study. Secondly, "importance" is concerned with evaluating the importance of the patent's technology to the standard and therefore cannot help but traverse the same ground as essentiality. The idea of undertaking a further study of importance without noticing whether a patent is essential is unreal.

360.
The HPA was devised for and used in the arbitration and regrettably the court has not been presented with a full picture of the HPA. I find that what we call the HPA was devised not simply as a scheme to produce an end result in itself, but as a form of filter or screen to produce a pool for further study. That is consistent with all of what I know now. On that basis there is nothing surprising about the idea that the evaluation would err on the side of essentiality since there was going to be a further detailed study which involved considering the patented technology and the standard. Given that, there was no harm in including more patents in the deemed pool than would turn out to be essential on detailed study. What one would seek to minimise was missing patents from the deemed pool which might be essential. Unwired Planet's characterisation of the nature of the evaluation step in the HPA is correct.

The HPA – conclusions

361.
The task the HPA performs is an inherently difficult one. The answers can only ever be approximate. In the HPA the essentiality evaluation step is and was intended to be a coarse filter to screen out non-essential patents and to err on the side of including a patent in the deemed essential pool. This does not mean the method is flawed or unreliable. I am satisfied that the HPA has applied a consistent yardstick and produces meaningful results. It is a reasonable attempt to deal with over-declaration and derive information about how many essential patents there really are. When comparing large numbers on a like with like basis, the tendency built into the evaluation step matters much less. However as an absolute value, the numbers from the HPA over-estimate the true number of essential patents. In other words, if a number derived from the HPA is used as the denominator in a fraction in which the numerator is a number derived by considering the patents in more detail, the result will

understate the significance of Unwired Planet's patents. Furthermore for smaller pools the coarse nature of the filter is likely to matter more and produce a greater uncertainty in the numbers.

362.
Huawei derive the HWLTER of […] using the HPA on its own and so they can fairly submit it is the result of applying the HPA consistently. However that number is based on a numerator which gives the same number of Relevant SEPs in Unwired Planet's portfolio as Dr Cooper's more careful analysis. I find that Dr Cooper's analysis is likely to be closer to the true figure. Compared with this, raw figures from the HPA tend to be overestimates. The impact of that will apply to the denominator. I find the true strength ratio R should be somewhat higher than [the HWLTER].

The implications of the decisions on the HPA for the MNPA

363.
I can now return to the Revised MNPA. To recap the point is that Dr Cooper performed a more detailed study of a sample of patents belonging to Huawei and Samsung which were in the deemed essential pool of the HPA. Huawei submitted I should place no weight on Dr Cooper's assessment because by sampling only from the deemed essential pool, the exercise was badly skewed. Unwired Planet's answer was that the nature of the evaluation step in the HPA meant it was reasonable to focus on patents which passed the filter and assume that those patents which were discarded as not passing the filter would not have been found essential by Dr Cooper. I have accepted that this step of the HPA does increase the pool of essential patents and errs on the side of putting a patent in the deemed pool. Accordingly, one would not expect there to be as many patents in the discard pool which would in fact turn out to be essential after a detailed 5-6 hour analysis, as there would be patents in the deemed essential pool which turn out not to be essential. There will be errors going both ways, as the evidence established, but the inherent tendency built into the evaluation exercise means that it is reasonable to expect many fewer patents in the discard pool as having been wrongly rejected, than there are patents in the deemed essential pool which turn out not to be essential. So while selecting only from the deemed essential pool will inevitably skew the result a bit, I am not satisfied that the skewing will be anything other than small. It is a point to keep in mind when placing weight on the result but it is not strong enough to justify rejecting the approach.

364.
Obviously more effort would lead to more statistical rigour, but the effort of evaluating the number of patents Dr Cooper's exercise did with 5-6 hours per patent family is already considerable. Even within the limits of the enormous sums spent in costs by

the parties in these proceedings, there is force in Unwired Planet's point that the approach taken kept the exercise proportionate.

365.
In my judgment Dr Cooper's study was a reasonable effort to assess the essentiality rates of Samsung and Huawei.

The MNPA –overall conclusions

366.
Having now been through all the points in detail I will stand back and consider the MNPA as a whole. Broadly the HPA and MNPA are aimed at the same difficult task. The MNPA has flaws but, apart from one aspect of the Original MNPA, overall in my judgment the Original MNPA was and the Revised

MNPA is a reasonable attempt to derive information which allows one to assess the strength of a portfolio of patents declared essential to LTE as against the industry as a whole, from the point of view of what licensees would be interested in. There are two critical caveats.

367.
First, as with the HPA, one needs to take care with the results because the error bars are wide. However the results of the MNPA are not meaningless and do not systematically favour Unwired Planet, as long as one does not think the results are the true essentiality rates. The MNPA has a tendency to understate the value of patents in China because of step (2) but for a global benchmark the MNPA has utility.

368.
Second, with the MNPA, something like the 80:20 approach is necessary. Unwired Planet's description of the final number as the "True LTE handset pool" is wrong. To use the Revised MNPA fairly demands the incorporation of some step which gives some value for the patents which fall outside the so called "True LTE handset pool". That is a serious weakness.

369.
Huawei pointed out correctly that when the 80:20 approach was applied in the Original MNPA it was applied differently, not to calculate a number representing Unwired Planet's patent share but rather to apply to the imputed royalty stack. That is true but this way of putting Unwired Planet's case was advanced at the trial and it is right to consider it.

370.
Whether another ratio apart from 80:20 is a better reflection of the different value of patents in the two pools is not something addressed in the evidence. A majority of the residue patents will not be essential at all but a good number will be essential to options and later developments of significance to LTE (e.g. carrier aggregation, TDD and later MIMO patents). In terms of individual patents, given the different sizes of the two LTE pools using Unwired Planet's figures, 80:20 makes an individual patent in the Relevant SEPs pool about 34 times more valuable than residue. I think that is much too high. That may be because the pool of Relevant SEPs is too small relative to the residue pool or because the 80:20 ratio is too generous to Unwired Planet or some combination of the two.

371.
The focus of the debate on the MNPA has been on 4G handsets but the weaknesses exposed in it also apply to the numbers Unwired Planet contend for in relation to infrastructure on 4G. The points made do not apply to the same extent to Unwired Planet's case on 2G and 3G.

(iv) Findings about the strength of Unwired Planet's portfolio

372.
The strength of Unwired Planet's portfolio for multimode 4G handset licensing is represented by two numbers: S (the share of the total Relevant SEPs) and R (the ratio of Unwired Planet to Ericsson). For 4G multimode handsets Unwired Planet's number for S is 1.25% and for R is […] (the UPLTER). These are based on the MNPA and

80:20 approach. Given my findings the true values are lower than this. Correspondingly Huawei's number for S is 0.30% and for R is […] (the HWLTER). These are based on the HPA. Given my findings the true values are higher than this.

373.

A further aspect to keep in mind is that these numbers are supposed to reflect various ratios of numbers of patents in different categories to one another and they are linked in complicated ways. A simple illustration that the differences between the parties are not simply in the magnitudes of S and R is that Unwired Planet's R is about 8 times bigger than its S whereas Huawei's R is about 20 times bigger than its S. I do not mean to say that that relationship means anything in particular, the point is a reflection of underlying differences.

374.
I am satisfied that both methods produce the wrong answer. The problem is whether there is a better way to arrive at the right answer than doing my best to choose values for S and R somewhere between the parties' extremes.

375.
I thought initially that a virtue of what one might call the Revised MNPA + 80:20 approach, based as it is on percentages such as the 16.6% at step (7), would be that the method itself was more readily adjustable than the HPA. For instance one could for example decide as a matter of judgment that 16.6% ought to be 28% (the figure used in the Original MNPA). However the complexity of the 80:20 adjustment, layered on top of the multimode adjustment and, if one is considering R, also taking into account figures for Ericsson too, makes the Revised MNPA + 80:20 approach impossible to adjust in a credible manner. The only way it can be adjusted would be so broad brush that it would be mere pretence to suggest it was more meaningful than doing my best to just choose values for S and R somewhere between the parties' extremes.

376.
The problem posed by the HPA is different. At its heart is the evaluation of the team of evaluators which is not adjustable at all. Nevertheless the way in which the key numbers are produced using the HPA as a method is simpler and more transparent than the Revised MNPA + 80:20 approach. I have concluded that the right way to reach a conclusion is to apply adjustments to the figures derived from the HPA. The basis for the adjustments is my qualitative evaluation of the evidence as a whole, primarily Dr Kakaes and Dr Cooper, and including the indications given by the Revised MNPA + 80:20 approach. Since this is the approach I will take to 4G, I will take the same approach to 2G and 3G.

377.
The significant overstatement in the HPA is the number produced for the total pool of Relevant SEPs. The number for 4G handsets is 1812 and is much too high. The corresponding number in the Revised MNPA is 355 but that number is much too low if it is to represent all Relevant SEPs. I think both values are out by about a factor of two. Half of 1812 is 906 while twice 355 is 710. Splitting the difference takes one to 800. Standing back, about 800 is fair and in my judgment an appropriate figure for the pool of 4G/LTE patents. Applying that as the denominator in a fraction to determine the share S which Unwired Planet's patents represent from the pool gives 6/800 = 0.75%.

I appreciate that Unwired Planet's 2G and 3G denominators derive from the

Fairfield/Goodman and Myers reports but it is reasonable to apply the approach I am

taking consistently and make an adjustment in the same proportion to the numbers for the total pool of 4G infrastructure and for 2G and 3G patents. The proportion will be 44% (=800/1812). I will include a multimode figure for handsets but not infrastructure.

378.

This all produces the following tables:

	Unwired Planet Share S for hands	**ets**		
	UP patents	HPA denominator	Adjusted denominator	S
2G	2	350	154	1.30%
3G	1	1089	479	0.21%
4G	6	1812	800	0.75%
Multimode				
2G/3G				0.57%
2G/3G/4G				0.70%

	Unwired Planet Share S for infrastr	**ucture**		
	UP patents	HPA denominator	Adjusted denominator	S
2G	1	305	134	0.75%
3G	2	886	390	0.51%
4G	7	1554	684	1.02%

379.
Turning to the ratio R between Unwired Planet and Ericsson and taking the numerators as a given, the critical numbers are the numbers of relevant Ericsson patents. For this exercise I will not try to distinguish between handsets and infrastructure but just use

Unwired Planet's handset numerators. It is simpler and fair. For 4G the Ericsson number given by the HPA is [...]. Here another adjustment has to be made but in my judgment a smaller proportionate adjustment is needed here than the previous one. Unwired Planet's equivalent for the number of Relevant SEPs held by Ericsson is 34. Unwired Planet's denominator here ([...]) produces a figure for R for 4G alone of [...] which I find is an odd result even bearing in mind the small sample sizes. Doing my best I think the right proportion is two thirds. Applying the same proportionate adjustment to 2G and 3G produces the following table:

	Unwired Planet:Ericsson ratio R			
	UP patents	HPA: Ericsson patents	Adjusted Ericsson patents	R
2G	2	[...]	[...]	[...]
3G	1	[...]	[...]	[...]
4G	6	[...]	[...]	[...]
Multimode				
2G/3G				[...]
2G/3G/4G				[...]

380.
All of these numbers are close enough to [Z%] so as not to be out of line with the number of patents transferred to Unwired Planet from Ericsson's portfolio. The small sample sizes involved mean that reasonable deviations from [Z%] are unsurprising.

381.
So for 4G multimode handsets I have concluded that Unwired Planet's share S of the total pool is 0.70% while Unwired Planet's ratio to Ericsson R is 7.69%. In principle these numbers ought to be linked by Ericsson's share of Relevant SEPs but the uncertainties mean that perfect consistency is not realistic and I will not strive to find it.

(v) The comparables in this case

382. Having considered how the Unwired Planet patents stand as compared to the industry and to Ericsson, the next step is to evaluate the various comparable licences in evidence. The Unwired Planet licences may also allow me to arrive at a rate directly. The bulk of the licences are Ericsson licences and the ultimate objective with those is to arrive at a figure for the value E in order to do the sum E x R.

(a) 2014 Unwired Planet - Lenovo

383.
The 2014 Unwired Planet-Lenovo was introduced in the section on Unwired Planet's case on rates above. The major debate about this licence is whether any weight should be placed on the running royalty rates on the face of the licence. Mr Lasinski said they were cosmetic. The rates are expressed in cents per product but making sensible assumptions they compare favourably to a royalty rate of 0.2%. The point is that the licence contains two lump sums adding up to $100 million. On the face of the agreement […] is defined as a prepayment of royalty while the […] balance is attributed to the sale to Lenovo by Unwired Planet of certain patents. On its own terms therefore no further running royalties will be due until the […] is exhausted. Huawei contend that Lenovo wanted to attribute the whole $100 million to royalty pre-payment but accepted the […] split because they thought they were safe that […] would not be exhausted during the term (5 years plus an additional possible 2 years). Other factors which bear on this are these: […] Also there is a dispute about the attribution of the […] licence element.

384.
A factor which does not have much significance is the difference between the higher MM rate […] and the lower […] OT rate applied elsewhere […]. Within the limits of the uncertainties in this exercise these two come to a similar percentage rate when the difference in product prices in these two markets is taken into account.

385.
The oral evidence about the Lenovo licence was given by Mr Robbins, who had been personally involved in the negotiations on the Unwired Planet side. There are also some Unwired Planet documents. The import of the evidence is fairly clear. I find that both Lenovo and Unwired Planet thought it was highly unlikely that the prepayment would be exhausted. (Mr Robbins in cross-examination said "certainly unlikely".) […]. Nevertheless it does not follow from this that Lenovo did not care what the running rate was. That is for three main reasons. First, it was not inconceivable that Lenovo's sales would be large enough over the term to exhaust the royalty. It was possible that they would be that large if Lenovo enjoyed a very high rate of growth, comparable to that of Samsung. The

running royalty will determine the rate at which the lump sum is used up. […] For these reasons I find that the running rate was the product of genuine negotiation. The […] and, of course, the lump sum pre-payment itself, meant that Lenovo's interests were protected to a high degree in any case but I find that Lenovo still had an interest in negotiating a lower rate. Their interest was modest compared to the negotiation of the lump sums and other terms, but it was tangible.

386.
The allocation of the lump sums between the patent purchase and the licence as it appears on the face of the documents is not reliable. Mr Bezant and Mr Lasinski were agreed about that. As I understand the case presented by each side, neither party seeks to unpack a lump sum notionally attributable to the licence in order to generate a comparable royalty rate nor does either party seek to use a sum attributed to the value of the patents sold to generate useful evidence for the value of Unwired Planet's patents. Therefore it is not necessary to reach a view about what the proper attribution would be. If I had to do so I would find the large majority of the value should be attributed to the patent purchase.

387.
Focussing on the licence itself, it is a licence for SEPs and implementation patents but as drafted there is no information to allow one to make an attribution between these two.

388.
In his Sixth report Mr Bezant plotted what the comparable Lenovo rate might look like if one assumes […]. To do this also involved taking Huawei's sales profile as a royalty base. This is not a reliable comparable at all. I will not place weight on it.

389.
I conclude that the Lenovo licence is not a useful comparable from the point of view of setting a FRAND rate today given the other evidence now available. However its utility depends on the other evidence available and so, from the point of view of Unwired Planet in 2014, who were not privy to the terms of any licences to which they were not a party, it may bear more weight. I will address that in context if necessary.

(b) Unwired Planet-Samsung 2016

390.
As part of a settlement of these proceedings and after PanOptis acquired Unwired Planet, the Unwired Planet-Samsung licence was entered into on 28th July 2016. Huawei contend it is in principle the best comparable in the case while Unwired Planet contend it is a poor comparable.

391.
As Huawei put it, they rely on the licence for both the FR and ND elements of FRAND. At this stage I will focus on the weight and significance to be attached to this licence as evidence of the fair and reasonable value of the Unwired Planet portfolio in 2016. Hard edged non-discrimination will be dealt with later.

392.
Under the licence Samsung paid Unwired Planet US […] and assigned a portfolio of 20 patent families in return for a worldwide licence under Unwired Planet's SEP and nonSEP portfolio until […] together with a release of any past damages. Before one decides how much weight to place on any royalty rate information derived from the licence, Unwired Planet contend that this licence cannot be seen in

isolation and needs to be considered in the context of a wider arrangement between PanOptis and Samsung and the distressed financial position Unwired Planet was in when acquired by PanOptis. This depends on Mr Ware's evidence. Huawei's case is that the facts of what went on are now sufficiently clear to show that the wider factors make no material difference. Unwired Planet disagree and contend that the two issues of rate and context interact directly because any royalty rate derived from this licence is truly much lower than the rates which Huawei put at the forefront of their argument on this licence and that this is a reflection of context.

393.
So in order to derive a royalty rate from this one needs […], ascribe a value to the Samsung patents assigned to Unwired Planet, take into account the value of the nonSEPs and work out a way of assigning value as between 2G, 3G and 4G. The way Mr Lasinski assigned value between 2G/3G and 4G is not in dispute.

394.
Mr Lasinski derived a range of possible rates and presented them in two tables, one for […] and the other assuming […]. The provisions […] in the licence are complicated but do not need to be explained. Each table then shows the implied royalty rate depending on the value attributed to the assigned patents – from […], and the percentage of royalty attributable to SEPs rather than non-SEPs from 25% to 100%. As the value of the assigned patents rises the royalty goes up because in effect Samsung have given more value for the licence. Also as the percentage rises the rate rises too, because it is a rate for the SEPs rather than the non-SEPs. The 4G rates range from […]. The 2G/3G rates vary accordingly from […] on the same basis.

395.
Mr Lasinski made a point relating to the similarity of rates implied by the [K] licence and the [J] licence. Similarly in figure 4 of his third report which is set out above Mr Lasinski plotted rates derived from the Unwired Planet-Samsung 2016 licence on the chart together with rates from those two Ericsson licences and two other data points. Unwired Planet criticised this and submitted its effect was to make the rates derived from the […] licence look closer to the other three Ericsson licences than they really are. That is because the rates used were the highest rates Mr Lasinski derived from the Unwired Planet-Samsung 2016 licence and while the difference is still a factor of […], if more realistic rates were used for the Unwired Planet-Samsung 2016 licence it would be shown to be an outlier. Mr Lasinski did not accept that was why he had chosen to plot those rates in Figure 4 and since the idea that Mr Lasinski was setting out to mislead was not put squarely to him in this context, it would not be fair to him to make a finding on that.

396.
However, objectively speaking, by including only the highest rates from Mr Lasinski's tables for the Unwired Planet-Samsung 2016, Figure 4 is capable of misleading. The assumptions on which the highest rates are based are […]. However, Mr Lasinski accepted […] and accepted he had used a much lower SEP percentage (about 30%) when performing a similar calculation on the Lenovo licence. His explanation that this was because he did not regard Lenovo as a good comparable does not justify this difference. On the assigned value Mr Lasinski took Mr Ware's acceptance of […] despite having earlier expressed the view […] and despite generally not accepting Mr

Ware's evidence. On that Unwired Planet submitted Mr Lasinski was being inconsistent and selective. There is some force in that but given Mr Ware's evidence I will use the […] figure. Mr Ware said they included some SEPs which PanOptis considered to be essential to LTE, and some implementation patents which PanOptis considered related to popular features of the best-selling handsets.

397.
There are major uncertainties deriving implied rates from this licence but the figures used in Mr Lasinski's figure 4 are too high. […]. On these assumptions the 4G rate ranges from […] and the 2G/3G rate ranges from […]. These are all far lower than the other rates in Figure 4 and relied on by Huawei as best comparables. It supports Unwired Planet's case that the Unwired Planet-Samsung 2016 licence is an outlier and that Unwired Planet are right that Mr Lasinski's purported generosity to Unwired Planet in his calculations is a wolf in sheep's clothing.

398.
Mr Bezant's view of this licence was that there were a number of factors which significantly reduced its reliability for the purposes of assessing FRAND offers in 2016. He addressed the implied aggregate royalty burden produced by using Mr Lasinski's figures for this licence combined with the HPA and also with the MNPA. While I can see Mr Bezant's point, it does not add anything to the analysis because it is just another way of explaining that the rates are low.

399.
In principle, it is obvious that one would expect a licence granted under the same portfolio, to one of the parties in the proceedings, would be an excellent comparable. Huawei pointed out that in **British Phonographic Society v MCPS** [2008] EMLR 5, the Copyright Tribunal held that a settlement by a co-defendant can be an "outstanding" comparator. There is no doubt it can be, the question is whether it is. Before turning to the context in which the licence was entered into, having now analysed the licence itself, it can be said that the terms on their face raise a question mark over this licence as evidence of the fair and reasonable value of the Unwired Planet portfolio in 2016. Even taking into account the uncertainties, the rates are significantly lower than the rates Huawei contend for in these proceedings and are significantly lower than the rate implied by the […] licence, which is an important comparable on any view.

400.
Unwired Planet's version of the context relevant to understanding this licence is the following. PanOptis is a licensing company. It has an existing relationship with Ericsson. It had considered buying the Unwired Planet portfolio in 2014 but did not. In March 2015 PanOptis offered $75 million for the portfolio but Unwired Planet wanted $100 million and no deal was done. From about July 2014 PanOptis started having commercial discussions with Samsung. They included the possibility of Samsung taking a licence under other PanOptis telecoms patent portfolios and by the summer of 2015 they included the possibility of a wider strategic partnership. In July 2015 Unwired Planet approached PanOptis again, this time about purchasing the licensing companies themselves. In September 2015 PanOptis offered to buy Unwired Planet for $35 million. […]

401.
Mr Ware's evidence was that the reason that PanOptis were interested in this deal was because it would be "solving a problem for Samsung that would significantly assist the development of the wider strategic relationship we were in the process of negotiating and that could ultimately be of enormous commercial value to us". He also said that without this the acquisition of the Unwired Planet portfolio in late 2015 did not fit with his strategic vision.

402.

[…], Ericsson also approached PanOptis encouraging it to purchase Unwired Planet. Ericsson was keen for PanOptis to purchase the portfolio as it considered PanOptis to be a safe pair of hands. The fact that Ericsson wanted PanOptis to purchase the portfolio was an additional reason why PanOptis were interested in doing the deal because it would strengthen PanOptis' existing strategic partnership with Ericsson. Ericsson also indicated that it would be prepared to waive the revenue sharing arrangements, which would allow PanOptis to license the Unwired Planet portfolio as it saw fit and which would avoid Ericsson needing to be part of any litigation with prospective licensees.

403.
There were various negotiations and by March 2016 PanOptis dropped its offer price from $50 million to $40 million due to Unwired Planet's worsening financial position.

404.
Mr Ware said that PanOptis was able to purchase Unwired Planet for a price which did not represent the value of Unwired Planet's patents. In his view that was because Unwired Planet was on the verge of insolvency. It had told shareholders that it would run out of cash reserves in July 2016 and was desperate to get out of the licensing business, to a significant degree as a result of the difficulties Unwired Planet had encountered in trying to license the portfolio and the cost of litigation. Unwired Planet characterise this as a fire sale. […].

405.
Once PanOptis had purchased Unwired Planet it approached Samsung and the licence was concluded in very short order. Under that licence Samsung agreed to pay […] in cash and transfer the patents mentioned already for which I have used a value of […]. Mr Ware emphasised what he called other considerable benefits that PanOptis gained from concluding the licence with Samsung in addition to the cash and transferred patents. These were: the fact that it […], the fact that it […] and strengthening the foundations for a far wider commercial relationship with Samsung in the future.

406.
Huawei do not agree with the way the transaction is characterised by Unwired Planet. They say in response:

i)
PanOptis had been attempting to buy Unwired Planet well before Samsung even came into the picture and clearly had enough money to do so at all material times.

ii)
In March 2015, having done extensive due diligence, and knowing Unwired Planet was embroiled in major litigation in numerous jurisdictions, PanOptis offered $75 million to purchase the portfolio because they had concluded it was a good fit.

iii)
When the September 2015 offer was made all Mr Ware had was a strong feeling that Samsung would take a licence […] but he accepted in cross-examination that PanOptis was "flying a bit blind" and "taking a risk".

iv)
In terms of its wherewithal, PanOptis has 60-70 shareholders including pension funds, hedge funds, and Yale University. In terms of cash available to buy Unwired Planet, on 19 December 2015, Ericsson extended a convertible loan of $100 million to PanOptis and in December 2015, PanOptis received a

further $160 million of licensing revenue. PanOptis was certainly not in any state of distress when it committed to buy Unwired Planet in April 2016.

v)
There was no commitment of any kind by Samsung, at any stage, to take a licence […]. It was simply a feeling acquired by Mr Ware in meetings conducted "over a very long dinner and drinks" with no written records at which it was conveyed to him that he would be doing a "great favour to Samsung".

vi)
When Samsung ultimately did take a licence it paid […], since in addition to the […] Samsung transferred patents which Mr Ware accepted were worth […].

407.
Huawei submit that the suggestion that PanOptis accepted a […] price from Samsung because of the […] element to the acquisition does not sit with the facts of the case. Whether or not Unwired Planet was in financial distress is irrelevant. The licence was

granted months after the purchase by PanOptis, who were certainly not in any financial distress. The benefits to PanOptis which are relied on were simply ordinary commercial aspirations and no more. Mr Ware accepted that discussions with Samsung on other PanOptis portfolios had pre-dated anything to do with Unwired Planet and accepted that the first time any written link between the licence and other PanOptis licences was recorded was in his witness statement. He likewise accepted that there was no link between […] and the acquisition nor was there any suggestion of a link with […]. Huawei contend that Mr Ware accepted that these areas were simply aspects in which he hoped his relationship with Samsung would develop and more business would be done. Huawei submit that no link between the licence and any of these other issues was ever made or suggested to Samsung and none of the other alleged "benefits" was an actual additional cost to Samsung in any event.

408.
I have set out the parties' rival cases on this licence at length because it plays an important role in this case. If it is sound evidence of the value of the Unwired Planet portfolio then that would reduce the fair, reasonable and generally non-discriminatory royalty rate. My findings on the context in which the 2016 Unwired Planet-Samsung licence arose are as follows. By the time it was purchased Unwired Planet was in serious financial trouble. The only licence Unwired Planet had been able to agree was with Lenovo and Unwired Planet was engaged in very expensive multinational patent litigation in an effort to establish its rights. By late 2015 – early 2016 Unwired Planet was close to insolvency. I accept Mr Ware's evidence about what happened. The price PanOptis paid for Unwired Planet was lower than the market value of the patent portfolio because of the serious financial difficulties Unwired Planet were in at the time. As regards his discussions with Samsung, the picture Mr Ware painted of the reality of high level negotiations with that major multinational organisation was convincing and credible. PanOptis had the ability and the means to buy Unwired Planet in any event but I find that the key reason why PanOptis did buy Unwired Planet when they did and for the price they paid was in order to build trust with Samsung and because Samsung were prepared to take a licence under the portfolio in a deal in which the cash component […]. The purchase was being "de-risked", as Mr Ware put it. The long term benefits to PanOptis which would derive from this were regarded by PanOptis as important and are in fact potentially very valuable. The arrangements did not give PanOptis a contractually enforceable right to the benefits derived from building trust with Samsung but that does not mean it was not well worth doing.

409.

These findings about the context of the licence together with the findings about low rates in the licence itself support one another. I conclude that the licence does not represent useful evidence of the market value of the Unwired Planet patent portfolio. **(c) Ericsson-Huawei 2016**

410.
[…]

411.
The issue to resolve concerning the Ericsson-Huawei 2016 licence is the significance of the fact that [certain] terms were the product of an arbitration. I can deal with this shortly because I believe the answer is clear. Terms which were settled by an arbitrator are not evidence of what willing, reasonable business people would agree in a negotiation. In that sense a royalty in the licence is not probative of the market value of the portfolio under licence at all. Decisions of other courts may have persuasive value but that will largely depend on the reasoning that court has given to reach its conclusion. An arbitral award is at least capable of having a similar persuasive value, but reasoning supporting the terms in this licence is not available. I know that the arbitrators [made findings about the effective royalty rate to be paid …] and I also know that this is not far above the […] rate from the […] licence […]. It is […]. Dr Kakaes and Mr Lasinski were witnesses in the arbitration and they have given some very brief evidence about what the arbitrators did or did not rely on. Mr Lasinski said that the arbitrators […]. I am not prepared to place weight on this evidence in relation to the value of Ericsson's portfolio. There is no good evidence of what the terms of the […] or […] licences are. Moreover without seeing the reasoning of the arbitrators one cannot see how they arrive at the conclusion they did.

412.
Huawei submitted the licence was relevant because it was a rate someone (Huawei) was paying. So they are, but since […], the fact they are doing so is not evidence of the value of the portfolio.

413.
[…] Without sight of the arbitrators' reasons I cannot accept that submission.

(d) Ericsson-Samsung 2014

414.
[…]

415.
[…]

416.
[…]

417.
Mr Lasinski referred to a witness statement of Mr Kim of Samsung. Mr Kim was going to attend trial but following the settlement he did not. In the relevant paragraph Mr Kim said that Samsung had agreed […]. Relying on this Mr Lasinski did not take account of the […]. Unwired Planet criticised Mr Lasinski for this but I do not see the force in that criticism since Mr Lasinski's report makes his approach transparent so that the court can understand the basis on which he approached it.

418.

Unwired Planet contended that little weight should be placed on Mr Kim's evidence because (i) he did not in the end attend trial, (ii) […], (iii) as with Lenovo, there are good reasons why Samsung would not want a licence to contain rates they thought were unreasonably high since those rates could be used in later negotiations or in court, and (iv) although Ericsson was also a party to this proceeding Ericsson's fact witnesses had not been permitted to see this part of Mr Kim's evidence and so were unable to comment on it. The fourth point came as a surprise to me during the trial (I had assumed Ericsson had had a full opportunity to answer this evidence) and it seemed that Mr Lasinski had made the same assumption.

419.
[…] At least without hearing the witness give evidence, I would be reluctant to accept the idea that […]

420.
Standing back, this licence represents a solid piece of evidence of what reasonable people in the industry would do. The two parties have broadly equivalent economic strength. It has been freely negotiated rather than set by an arbitrator. There was litigation between Ericsson and Samsung before it was agreed but I doubt parties of the size and sophistication of these two were troubled by that. This licence is solid evidence

from which one can infer what a fair and reasonable value of the portfolio under licence might be. […].

(e) Ericsson-Huawei 2009

421.
[…]

422.
[…]

423.
[…]

424.
[…] Consistent with his approach for […]. Mr Bezant used the MNPA along with the 80:20 approach. […]

425.
Unwired Planet submitted that Mr Lasinski's approach to this licence was another wolf in sheep's clothing in that the assumptions he had made were not really in Unwired Planet's favour at all. That was because the resulting rates derived from this process were presented as corroborative of the rates derived from the other major comparables relied on, whereas in fact the rates in this licence […] and do not corroborate Huawei's case. Another symptom of this, submitted Unwired Planet, was that while Mr Lasinski had applied a 50% adjustment to raw rates from other pre-2013 licences such as […], because he said the legal landscape changed around 2013 […], he had not applied that adjustment to the rate derived from this 2009 licence when it was presented in Mr Lasinski's figure 4 (3rd Report) which Huawei put at the forefront of their opening submissions.

426.

It is not right to say that Mr Lasinski did not apply the 50% adjustment to the rates from this licence at all. They are in his reports. However it is fair to point out that the derived rate which was given prominence was derived using the unadjusted figure. Mr Lasinski's second report suggested his approach was justified because the 2009 licence was not entered into under the direct threat of an injunction but that would apply to other licences for which he did apply the adjustment.

427.
[…]

428.
[…]

429.
[…]

430.
In order to apply that […] rate to 2014 or 2016 I need to address two further points.

First Mr Lasinski's opinion about a reduction in rates after 2013 due to the change in legal landscape and second the use of a […].

431.
Mr Lasinski said he had observed a general decline in rates since 2013 and he referred to evidence […]. Mr Lasinski attributed this to the evolution of FRAND case law and the fact that there was limited guidance about FRAND before 2013. Mr Lasinski referred to four US decisions cited above (**Microsoft v Motorola**, **In re Innovatio IP Ventures**, **Realtek v LSI** and **Ericsson v D-Link**) which he described as "seminal". He did not mean this as a legal opinion, rather it was based on his experience of the impact of the decisions in the licensing industry of which he was familiar. They span a short time frame from April 2013 to December 2014. He also referred to decisions outside the US, referring to **Huawei v Interdigital** in China in 2013, **Samsung v Apple** in Japan in May 2014, **Huawei v ZTE** in the CJEU in July 2015 and **St Lawrence v Vodafone** on 31st March 2016 in the Düsseldorf District Court.

432.
I accept Mr Lasinski's view that there is some evidence of a decline in some rates over time and I am sure that at least part of the explanation is the emergence by 2013 of decisions in which courts were prepared to set FRAND rates, which in turn strengthened the bargaining position of licensees by reducing the power of the threat of an injunction. However the trend is not simple since […]. In any event I am not convinced that one simply adjusts for all this by taking any rate derived before 2013 and halving it. The evidence does not justify such a simplistic approach.

(f) Ericsson – [M] **2013**

433.
[…]

434.
[…]

435.
[…]

436.
[…]

437.
[…]

438.
[…]

439.
[…]

440.
[…]

441.
[…]

442.
Mr Lasinski applied his 50% adjustment to the rates in this licence for the developments in FRAND case law given that it was signed in 2013. I have rejected such an approach as too simplistic.

(g) Ericsson: [N,O,P]

443. These are three […] licences […]:

[…]

444.
There was a suggestion that Unwired Planet or Mr Bezant singled out these licences as opposed to licences with larger licensees such as […], Huawei or Samsung but Unwired Planet explained that that is not what happened. The case management directions included provision for parties to choose certain licences to inspect. The choices were sequential and Unwired Planet’s choice was made after licences from bigger players had already been chosen.

445.
[…]

(h) Ericsson – ZTE 2011

446.
ZTE is a very large Chinese company with worldwide reach. Huawei accepted that ZTE was more similar to them than [M] or RIM.

447.
[…]

448.
[…]

449.
Other factors to take into account are these: first, as a 2011 licence Mr Lasinski’s point on FRAND case law is relevant; second, Mr Lasinski explained this licence followed lawsuits in Europe; third, […].

450.
Mr Bezant plots three figures derived from this licence in the chart above. That is unwarranted.

451.
[…]

(i) Ericsson-RIM

452.
[…]

453.
Mr Bezant accepted this licence was more difficult to interpret than [M] or ZTE. […]. RIM make or made the Blackberry handsets which in their time were popular, successful and expensive devices in the USA and Europe. Huawei made an additional point in closing that this licence was concluded before a general decline in selling prices of handsets experienced from 2013 onwards but in his oral evidence when the point was put Mr Bezant accepted there was pressure on prices because of new products but did not think it was as absolute as was suggested.

454.
[…]

455.
[…]

(j) Ericsson – Apple 2008

456.
[…]

457.
[…] The exercise adds a further level of significant uncertainty onto an already uncertain exercise. Apple’s interest was to negotiate how much they had to pay, not to negotiate what the benchmark rate would be.

(k) Ericsson-Sony 2012

458.
[…]

459.
[…]

460.
Mr Lasinski’s view was that this licence should not be included in the assessment, mainly because it is a related party transaction and also owing to the other uncertainties. Unwired Planet pointed out that this stance was inconsistent with the stance taken on the Unwired Planet-Samsung 2016. I agree. They are not identical situations but the impact of the wider context in which each transaction exists reduces the weight one can put on it. […]

(l) The Ericsson licences as a whole

461.

The only licence on Mr Bezant’s chart which has not been dealt with so far is […] but it is so old that I will not rely on it.

462.
Having now reviewed all the relevant Ericsson licences, looking at them as a whole is a useful exercise. The ones on which I am prepared to place any weight are:

i) Ericsson-Samsung 2014: […] ii) Ericsson-Huawei 2009: […] iii) Ericsson-[M] 2013: […]; iv) Ericsson-[N. O. P]: […]

v)
Ericsson-ZTE 2011: […]

vi)
Ericsson-RIM 2010: […].

463.
[…]

464.
I find that an appropriate rate to use as representative of the value of E of Ericsson’s 4G SEP portfolio in licensing a multimode handset is 0.80%. That is arrived at by looking at the range of [rates from] the [Q] licence, starting from the top of that range, and adjusting upwards by a factor which is […]. I have arrived at this number and approach after considering all the material. The main reasons for this are as follows. The [Q] licence is the best place to start. The [range] represents the payments [the licensee] will have been most concerned about and it makes sense to start there. Taking the upper end of that range […] is appropriate because Mr Lasinski’s preferred figure is […] anyway and because of the existence of […]. So I derive […] as the rate on which to place weight from the [Q] licence. A further increase it is appropriate to take into account is in the other Ericsson licences and in particular the fact that all the […] rates are much higher than […] including the […] rate which one would expect to be relatively low. But it would not be appropriate to raise the [rate] up to the level of these other rates because of Mr Lasinski’s point about FRAND case law. The figure for E for multimode 4G of 0.80% is more than […] but less than […]. The final number was also derived as a number expressed to one decimal place (0.8%) to recognise the uncertainties but in keeping with the convention used in this case I have written it as 0.80%.

465.
For 2G and 3G I derive a single rate for E of 0.67%. That is arrived at by scaling 0.80% with the ratio of Mr Lasinski’s 2G/3G rate to his 4G rate in the […] licence. It is appropriate to do this because […].

466.
Turning to infrastructure, […] Taking all this into account I conclude that there is no sufficient evidence of a consistent difference between rates for single mode infrastructure and for multimode handsets which is of sufficient magnitude to justify arriving at a different rate for infrastructure. I find that the value for E for infrastructure should be the same as the multimode 4G and 2G/3G handset rates, i.e. 0.80% for 4G infrastructure and 0.67% for 2G or 3G infrastructure.

467.
The other inference to draw from standing back and considering […] is that based on […] the rate for China should be half the rate for the rest of the world. […]

(m) Other licences

468. The only other licences worth mentioning at all are by Qualcomm. The rates are much higher […]. I will not place weight on the absolute levels of Qualcomm's rates in assessing the level of a benchmark rate.

(vi) Other indications relating to rates

469.
Mr Bezant's charts often include the ARR, that is the royalty floor rate in the MSA. I have already rejected its use in this way.

470.
Rates have been set in some of the decisions of foreign courts cited by the parties.

471.
The **Microsoft v Motorola**, **Innovatio**, and **Ericsson v D-Link** judgments are not concerned with 2G, 3G or 4G technology, they were mostly about the IEEE 802.11 standard (**Microsoft v Motorola** was also about the ITU H.264 video standard). Therefore the rates set in these are not readily comparable. The German FRAND decisions do not set or approve rates.

472.
The IP High Court in Japan in the **Samsung v Apple** case [R6/1] used the top down approach by deciding that the aggregate royalty burden for 3G should be 5% and deciding that from families declared essential there were 529 patents that are or are likely to be essential, I think based on the Fairfield/Goodman & Myers study.

473.
In China in the **Huawei v InterDigital** case the Guangdong High People's Court upheld the FRAND rate of 0.019% for InterDigital's portfolio. This was arrived at by comparison with two rates derived by unpacking other InterDigital licences. They were an InterDigital-Apple licence with an unpacked effective rate of 0.0187% and an InterDigital-Samsung licence with an unpacked effective rate of […]. These rates cannot be converted into rates relevant to this case without carrying out another portfolio comparison which it not necessary. What this decision does do is support Huawei's case that rates in China are low.

474.
None of these other sources provide any reason to adjust the benchmark rate I am seeking to derive. It is notable that the Japanese court and the Chinese court have approached the determination of FRAND rates using the same techniques as have been addressed in this case.

(vii) What is the benchmark FRAND rate for Unwired Planet?

475.
The outcome of considering the comparables is that I have benchmark rates for Ericsson of 0.80% for 4G and 0.67% for 2G and 3G and no other reliable comparables. Given the previous conclusion for the strength ratio R of Unwired Planet to Ericsson for 4G multimode handsets as 7.69%, that indicates a benchmark royalty rate for Unwired Planet for a 4G multimode handset in 2016 is 0.062%.

476.

Applying the total royalty burden as a cross-check produces the following. A benchmark royalty rate for Unwired Planet for a 4G multimode handset of 0.062% coupled with a figure of 0.70% for Unwired Planet's share S of the Relevant SEPs for

4G multimode handsets produces a total royalty burden T of 8.8%. That is lower than the aggregate implied by either party's case (Huawei's 13% and Unwired Planet's 10.4%). It is higher than the specific numbers mentioned by patent holders in 2008 but not so far as to be out of line. I conclude that the cross-check supports a benchmark royalty of 0.062% for 4G multimode handsets. It is the appropriate rate.

477.
The figure for 4G infrastructure will be 0.072% using R = 8.95% for 4G infrastructure (0.072%=0.80% x 8.95%). The cross-check T comes to 7.0% (using S for 4G infrastructure of 1.02%) which is appropriate.

478.
The 4G figures as well as the corresponding figures for 2G and 3G are in this table:

Unwired Planet benchmark FRAND rates					
Handsets (3G and 4G are multimode)					
	Ericsson rate	Strength ratio	**Benchmark rate**	Share	Implied total burden
	E	R	ExR	S	T
2G	0.67%	9.52%	**0.064%**	1.30%	4.9%
2G/3G	0.67%	4.76%	**0.032%**	0.57%	5.6%
2G/3G/4G	0.80%	7.69%	**0.062%**	0.70%	8.8%
Infrastructure (not multimode)					
	Ericsson rate	Strength ratio	**Benchmark rate**	Share	Implied total burden
	E	R	ExR	S	T
2G	0.67%	9.52%	**0.064%**	0.75%	8.5%
3G	0.67%	2.38%	**0.016%**	0.51%	3.1%
4G	0.80%	8.95%	**0.072%**	1.02%	7.0%

479.
The total royalty burden T implied by each of these rates falls within an appropriate range. The value of T for 3G multimode handsets at 5.6% is not far out of line with the judgment of the internationally respected IP High Court of Japan. The 3.1% value for 3G infrastructure is somewhat lower than 5% but not far away.

480.

Subject to the hard-edged non-discrimination issue I conclude that these benchmark rates are FRAND. They are fair, reasonable and generally non-discriminatory.

(viii) The impact of hard edged non-discrimination on the FRAND rate

481.
Huawei submit that pursuant to the non-discrimination limb of FRAND Unwired Planet are obliged to offer the same or similar rates to Huawei as they have extended to Samsung in the 2016 Unwired Planet-Samsung licence. In closing Huawei called this a “hard-edged point” (Closing para 210) and I have adopted that expression for the sake of clarity. This is the place in the analysis to consider Huawei’s hard-edged point. To recap, whereas general non-discrimination was taken into account in setting a benchmark rate for the portfolio, general non-discrimination did not discriminate between licensees. The benchmark would be equally applicable to a major player like

Huawei as to a new market entrant. The hard-edged non-discrimination argument includes consideration of the position of particular licensees, in this case licensees who are major players like Huawei and Samsung.

482.
At times it was not completely clear whether Huawei were running this hard-edged point as an aspect of their case that 0.041% was the right rate for 4G, albeit a generous one, or whether this was a distinct issue in the sense that even if 0.041% would otherwise be the right rate, the Samsung licence means that a lower rate corresponding to that should apply. In closing Huawei clarified that this is a distinct issue (Day 19 p194-195) such that if I accept Huawei’s non-discrimination case I should set the rate as the same as the Samsung rate.

483.
On Huawei’s case in closing the difference between Samsung’s rate and the benchmark was a substantial, […] for Samsung vs a benchmark of 0.041%). Given the findings I have made the difference is even greater. A fair assessment of the 4G rate in the Samsung licence is between […]; whereas the 4G benchmark FRAND rates arrived at above are 0.062% for handsets or 0.072% for infrastructure. Therefore this hard-edged point is important and is capable of making a significant difference to the outcome.

484.
A significant aspect is an issue of principle which, so far as the parties have been able to discern, no other court has had to face. The issue is about how closely aligned the requirements of the non-discrimination limb of FRAND pursuant to the ETSI FRAND undertaking are relative to the corresponding requirements of competition law. It is common ground that competition law (Art 102(c)) only prohibits discriminatory behaviour to the extent that behaviour is capable of distorting competition. The question is whether that condition or something akin to it, which is not mentioned expressly in the ETSI FRAND undertaking, is nevertheless a relevant aspect of ETSI FRAND. But in order to get to this there is some ground to be cleared.

485.
Obviously FRAND has a non-discrimination limb, as I have already explained. Huawei pointed out that both Mr Bezant and Mr Lasinski agreed that that non-discrimination obligation “means that licensors should treat similarly situated licensees similarly”. Huawei submit that in the jargon of non-discrimination, Samsung are “similarly situated” to Huawei and so Unwired Planet are obliged to offer the same or similar rates to Huawei as they have extended to Samsung in the 2016 Unwired Planet-

Samsung licence. Unwired Planet do not accept the hard-edged point put by Huawei. Their case is that Unwired Planet are not obliged to offer Huawei the same rate as the Samsung rate. That is because Huawei are not "similarly situated" to Samsung; the Samsung licence is not an equivalent or comparable licence to the Huawei licence being considered; and, even if those two points are wrong, the non-discrimination limb of FRAND contains the same or an analogous aspect as the requirement in competition law only prohibits conduct which is capable of distorting competition. Unwired Planet point out that Huawei have disavowed any attempt to conduct the economic analysis necessary to establish that in this case. In reply Huawei submit that no such analysis is necessary, citing **British Airways v Commission** Case C-95/04 [2007] ECR I-2331.

486.
Competition law non-discrimination forms part of abuse of dominance. As it relates to prices it can be summarised as follows. First the underlying principle is that comparable situations must not be treated differently and different situations must not be treated alike unless such treatment is objectively justified (relying on **Franz Egenberger** C313/04, EU:C:2006:454 at [33]). Second, Article 102(c) TFEU prohibits "applying dissimilar conditions to equivalent transactions with other trading parties, thereby

placing them at a competitive disadvantage." Dissimilar conditions will only be unlawful where it is shown that there are (a) equivalent/comparable transactions; (b) resulting in an actual or potential distortion of competition; and (c) absence of objective justification. Third, transactions are comparable if "(a) they are concluded with purchasers who compete with one another, or who produce the same or similar goods, or who carry out similar functions in distribution, (b) they involve the same or similar products, (c) in addition their other relevant commercial features do not essentially differ" (relying on Article 2 of **Decision 30-53 of the High Authority of the ECSC**, OJ 1953 L6/11, as amended by **Decision 72/440/ECSC**, OJ 1972 L 293/39). Unwired Planet referred to Article 3 of **Decision 72/440** which sets out the three-part test for transactions to be considered comparable which is summarised above.

487.
Stated at this level these principles are not controversial. Both sides approached this issue on the basis that concepts such as similarly situated parties, equivalent/comparable transactions, and objective justification, were the same under the non-discrimination limb of FRAND as they are in competition law. Mind you, none of those concepts are mentioned expressly in the ETSI FRAND undertaking either.

488.
I will say now that I find Samsung and Huawei are "similarly situated" on any view. Huawei do have a far larger focus on infrastructure than Samsung but this does not justify a finding that Huawei and Samsung are not similarly situated. Since this case is concerned with a worldwide benchmark rate it is appropriate to consider the worldwide position of the two undertakings. They are both very large multinational telecoms manufacturers active in the same handset and RAN infrastructure markets. They are both in the top three handset vendors worldwide (the other is Apple) and while Huawei is the top 4G RAN infrastructure maker, Samsung is another major supplier in that market.

489.
Unwired Planet's approach was to argue that the factors in Mr Ware's evidence which made the Samsung licence not a reliable comparable in the context of setting a FRAND rate were also relevant to non-discrimination. Huawei's argument was the same albeit from the other direction, in other

words its case was that the Samsung licence was a reliable comparable for both purposes for the same reasons. Both sides effectively equated the concept of an equivalent/comparable transaction in the context of nondiscrimination with a comparable licence used in the analysis of royalty rates. Clearly the concepts overlap but in my judgment the two are not identical and the distinction is acute in the context of the Samsung licence. Used in an assessment of an appropriate rate in accordance with the ETSI FRAND obligation, comparable licences act as evidence of the value of the property being licensed. A FRAND rate could still be set even if no licences existed at all and even if there was no licence from Unwired Planet to Samsung. Using that kind of evidence inevitably takes into account the general nondiscrimination aspect of the ETSI FRAND obligation mentioned already. But a hardedged non-discrimination obligation, if it means anything, arises as a consequence of entering into particular transactions with particular licensees. The issue is what effect in law arises from the fact that Unwired Planet have granted a licence to Samsung under the same portfolio. The effect of this grant is that a major competitor of Huawei, one who is otherwise “similarly situated” to Huawei, has licensed the same portfolio.

490.
Mr Ware’s evidence explains the motives leading to the 2016 Unwired Planet-Samsung licence and explains why it was entered into on the terms it contains. I have accepted that this shows why the terms are not reliable evidence of the value of the portfolio but

none of this alters the fact that Unwired Planet have entered into the transaction and must take the consequences in terms of anti-discrimination rules, whatever they may be. Unwired Planet say that Mr Ware’s evidence shows that the transaction has “other relevant commercial features” applying limb (c) of the three part test for a comparable transaction derived from the ECSC decision above.

491.
Mr Ware’s evidence is sufficient to show that the weight to be attached to the pricing in this licence is low, as a result of the other benefits PanOptis perceived would flow from it and the circumstances Unwired Planet were in at the time, however those benefits and circumstances do not derive from any objective characteristics of the transaction itself. It is in the end nothing more than a patent licence (with the associated assignment). Unwired Planet’s or PanOptis’s motives for selling this licence cheaply on that occasion do not change the fact that they did sell the licence cheaply. The consequence of the licence is that PanOptis has been able to enhance its general relationship with Samsung and therefore to have a relationship with Samsung which it does not have with Huawei, but I reject the suggestion that this means that the transaction has features vis a vis Samsung which make it different in any objective sense relevant in this context from the licence Huawei is entitled to.

492.
Unwired Planet repeatedly emphasised that one has to take a realistic common sense view and that non-discrimination cannot mean that businesses have to charge all customers the same price for their goods or services, citing **Purple Parking v Heathrow Airport** [2011] EWHC 987 (Ch) (Mann J), and **Attheraces Ltd v The British Horseracing Board Ltd** [2007] ECC 7 (Court of Appeal), as well as two textbooks:

O’Donoghue & Padilla, The Law and Economics of Article 102 TFEU, 2nd Edition (2013) at 5.3.1 and Bellamy & Child, European Union Law of Competition, 7th Edition (2013) at 10.087. Unwired Planet drew particular attention to a passage in O’Donoghue & Padilla at 15.1 which referred to Art 102(c) explaining that outside the three principal scenarios (discrimination on the basis of nationality, unlawful exclusion of rivals resulting in ancillary discrimination between customers and discrimination in favour of downstream operations), the application of Article 102(c) to condemn different prices or terms has been “relatively rare”. Unwired Planet also note O’Donoghue & Padilla’s explanation that this makes sense, because inter alia “different prices and terms are ubiquitous in real-world markets, which means that the practical scope of a strict nondiscrimination rule would be enormous” and “the impracticality of rules that would insist on uniform prices and terms is obvious.”

493.
I accept these broad statements, however the circumstances in this case are striking. The licensee (Samsung) is, at best, one of a handful of major licensees. The licence is for the same portfolio and relates to the same acts. It is contemporaneous. I find that for the purposes of considering hard edged non-discrimination, the Unwired PlanetSamsung 2016 licence is an equivalent or comparable transaction to the putative licence under consideration in this case, the one between Unwired Planet and Huawei.

494.
So given these findings, in terms of competition law and assuming abuse of dominance, that would leave the issues of distortion of competition and objective justification to be considered. Before going further however it is worth reflecting on the position which has been reached. Unwired Planet’s counsel described the discrepancy in pricing in the **Attheraces** case as a very striking discrepancy. That was a three-fold difference (£361 vs £900). The difference between the benchmark rate and the Samsung rate is much larger than that. On one view it is a […] difference. Moreover the discrepancy between

the Samsung rate and the rates claimed by Unwired Planet (0.13% now and 0.2% in 2014) are even larger. 0.2% is more than […] times larger than […] and the difference between the rate of 0.13% which (unlike 0.2%) was offered after the Samsung licence had been concluded is still […]. These discrepancies favour Huawei’s argument. However there is a major difference between this case and a case like **Attheraces,** because at this point in the argument the discrepancy is with respect to a benchmark rate which represents what has been determined to reflect the true value for the portfolio under licence. The discrimination is not that Huawei is being required to pay a rate higher than that, the issue is that Huawei’s competitor has been given a much lower rate.

495.
I turn to consider whether distortion of competition is part of the non-discrimination limb of FRAND. Huawei’s simple case was that it was not mentioned in the words of the undertaking. However as I have already noted, none of the concepts which both sides agree need to be considered to address non-discrimination are mentioned in the undertaking either so that simple point is not as strong as it might seem at first sight. Conversely beyond submitting that it should be included, Unwired Planet’s argument did not give reasons why.

496.
In terms of authority, there is no case on the point. In terms of the economics literature

Prof Carlton’s paper “An Economic Interpretation of FRAND” contains the following passage:

“The “non-discriminatory” principle of FRAND, however, is not widely agreed upon. The standard economic definition would mean that all users pay the same royalty – i.e., there is literally no discrimination on price or any other terms. Some economists have proposed that it means only that all firms which use the standard be able to obtain a license, with no constraint as to the terms of the license. That of course allows different firms to pay different royalties but still have access to use of the patent.

[…]

'Non-discriminatory' in the context of an SSO setting standards for competing firms can be interpreted to mean that all implementers of the standard should be offered licenses to the technology and all 'similarly situated' firms should pay the same royalty rate."

Carlton and Shampine, Journal of Competition Law and Economics (2013) 9(3): 531-552

497.
Prof Neven had exhibited the paper and referred to it as influential (albeit in another context). I infer from the paper that there is no wide agreement amongst economists about how the non-discrimination limb of FRAND applies. In the passage quoted the paper proposes three possible interpretations. First, the "standard economic definition". That is one in which all licensees pay identical rates on identical terms. It is not supported by either party before me. I am not surprised. If that is what the ETSI undertaking was supposed to mean it could readily have been written in that way. While such an approach has the virtue of simplicity it would be impractical in practice. It would be highly restrictive. Many licences contain most favoured licensee clauses but they are not generally as onerous as this would be. There is no reason to interpret the ETSI FRAND undertaking in such a strict way.

498.
The second version of non-discrimination referred to is one which "some economists" have proposed. It is very weak. Since the ETSI FRAND undertaking already obliges licensors to offer licences to everyone, it does not add anything to that. It is also weaker than the benchmark FRAND rate approach, which at least applies to all licensees with licences of the same type. The benchmark approach does not mean that all licensees must pay exactly that rate but it provides a benchmark against which such a rate can be judged. In practice it will stop licensees having to pay much more than the benchmark set by reference to the value of the portfolio. Competition law can intervene to penalise the imposition of excessive prices much higher than the benchmark FRAND rate. Neither side supported this weak second version of non-discrimination.

499.
The third interpretation proposed by Prof Carlton is based on similarly situated firms paying the same rate. It is based on the same concepts as competition law. In effect this is the one Huawei contend for although one cannot take that too far. The paper is not purporting to set out a fully worked out proposal on the correct approach in law to interpret the FRAND undertaking. It is not focussed on the distinction between the arguments of Huawei and Unwired Planet.

500.
The final text from the economics literature to refer to is Dr Niels' textbook Economics for Competition Lawyers (2^{nd} Ed, Oxford 2016). At paragraph 8.51 he states that the non-discriminatory condition in FRAND "is usually interpreted in the same manner as the general criteria for anti-competitive price discrimination under the abuse of dominance rules". Although Dr Niels does not cite a reference for that, it may be that he had in mind the kind of thing proposed by Prof Carlton. As with Prof Carlton's paper, Dr Niels' paragraph is not focussed on the distinction between the arguments of Huawei and Unwired Planet.

501.
In my judgment the ETSI FRAND undertaking should not be interpreted so as to introduce the kind of hard-edged non-discrimination obligation supported by Huawei without also including consideration of the distortion of competition. Competition law does not seek to prohibit different prices being charged to different customers. An important aspect of the way that result is assured in competition law is by the requirement that only terms which are sufficiently dissimilar to distort competition are prohibited. In other words, the various elements of the competition law applicable discriminatory pricing operate as a whole to achieve a fair balance. Splitting off some parts without the others is unbalanced and risks unfairness.

502.
Having got this far it seems to me that it is not necessary to read this hard-edged nondiscrimination obligation into the ETSI FRAND undertaking at all provided one takes a benchmark rate approach to assessing a royalty under the ETSI FRAND undertaking.

That approach is itself non-discriminatory and gives effect to the “ND” limb of FRAND. It is a more stringent non-discrimination obligation than the weakest one proposed in Prof Carlton’s paper but much simpler to apply in practice than the first proposed obligation or the one based on all the competition law concepts. Competition law will always be available in an appropriate case.

503.
Therefore I conclude that the true interpretation of the ETSI FRAND undertaking from the point of view of non-discrimination is that a benchmark FRAND rate should be derived which is applicable to all licensees seeking the same kind of licence. That is what I have called general non-discrimination. If, contrary to this view, the FRAND undertaking also includes a specific non-discrimination obligation whereby a licensee has the right to demand the very same rate as has been granted to another licensee which is lower than the benchmark rate, then that obligation only applies if the difference would distort competition between the two licensees.

504.
I turn to the point in **British Airways**. Huawei made clear that they had not attempted to conduct the kind of economic analysis which would be required to establish that the dissimilarity between the rates in the Samsung licence and the rates demanded by Unwired Planet distort competition. They contend it is not necessary in this case and rely on **British Airways** as authority for the proposition that such an analysis is not always necessary. The case was about travel agents’ commissions and a reward scheme practised by BA. The CFI had held that the competition between them had “naturally” been affected by the discriminatory payment conditions in BA’s reward scheme. On appeal BA submitted this was not sufficient to justify a finding of breach of what is now Art 102(c) and what was needed was concrete evidence of competitive disadvantage. This is recorded at paragraph 142. The CJEU rejected that submission in paragraphs 143 to 149.

505.
The CJEU’s analysis starts by reaffirming the prohibition on discrimination in what is now Art 102(c) and emphasising the requirement that a distortion of competition is required:

“144 Therefore, in order for the conditions for applying subparagraph (c) of the second paragraph of Article 82 EC [now Art 102] to be met, there must be a finding not only that the behaviour of an undertaking in a dominant market position is discriminatory, but also that it tends to distort that competitive relationship, in other words to hinder the competitive position of some of the business partners of that undertaking in relation to the others (see, to that effect, Suiker Unie, paragraphs 523 and 524).

145 In that respect, there is nothing to prevent discrimination between business partners who are in a relationship of competition from being regarded as being abusive as soon as the behaviour of the undertaking in a dominant position tends, having regard to the whole of the circumstances of the case, to lead to a distortion of competition between those business partners. In such a situation, it cannot be required in addition that proof be adduced of an actual quantifiable deterioration in the competitive position of the business partners taken individually.” 506. Then the CJEU turned to the CFI’s decision on the facts, as follows:

“146 In paragraphs 237 and 238 of the judgment under appeal, the Court of First Instance found that travel agents in the United Kingdom compete intensely with each other, and that that ability to compete depended on two factors, namely 'their ability to provide seats on flights suited to travellers' wishes, at a reasonable cost' and, secondly, their individual financial resources.

147 Moreover, in the part of the judgment under appeal relating to the examination of the fidelity-building effect of the bonus schemes at issue, the Court of First Instance found that the latter could lead to exponential changes in the revenue of travel agents.”

507.
In this context the CJEU then rejected BA’s submission that concrete evidence of competitive disadvantage was needed:

“148 Given that factual situation, the Court of First Instance could, in the context of its examination of the bonus schemes at issue having regard to subparagraph (c) of the second paragraph of Article 82 EC, move directly, without any detailed intermediate stage, to the conclusion that the possibilities for those agents to compete with each other had been affected by the discriminatory conditions for remuneration implemented by BA.

149 The Court of First Instance cannot therefore be accused of an error of law in not verifying, or in verifying only briefly, whether and to what extent those conditions had affected the competitive position of BA's commercial partners. The Court of First Instance was therefore entitled to take the view that the bonus schemes at issue gave rise to a discriminatory effect for the purposes of subparagraph (c) of the second paragraph of Article 82 EC. The second part of the fifth plea is therefore unfounded.”

508.
The CJEU’s judgment therefore is that on the facts of that case the CFI were entitled to infer that the ability of the travel agents to compete with one another had been affected by BA’s discriminatory payment terms without “any detailed intermediate stage”. The court explained (at paragraph 145) that additional proof of actual quantifiable deterioration in the competitive position of the victims taken individually was not needed in a case in which the behaviour complained of tends, having regard to the whole of the circumstances of the case, to lead to a distortion of competition between those victims.

509.
As Unwired Planet pointed out, in that case the court had had evidence of the competitive position in the downstream market (i.e. between travel agents). It was able to find in paragraph 146 that they compete intensely with each other and that their ability to do so depended on two factors, one of

which was their individual financial resources. It was also able to find in paragraph 147 that the BA payment scheme could lead to exponential changes in the revenues of travel agents. As Unwired Planet also pointed out, there has been no analysis in this case of the extent of competition in the phone or infrastructure market, nor has there been any analysis of the factors necessary to compete in that market to justify a finding like the one referred to in paragraph 146,

nor has there been any effects-based analysis here like the one referred to in paragraph 147.

510.
The principle to be derived from the **British Airways** judgment is that there must be some evidential basis from which an inference can be drawn that the behaviour complained of tends to distort the relevant competitive relationship, but if such an inference can properly be drawn then it is not necessary to prove the existence of a quantifiable impact on the competitive position of the victims.

511.
What evidence is there in this case? Huawei rely on two strands of evidence: first, Ericsson's intentions and the genesis of Unwired Planet, and second, direct financial evidence.

512.
On the first issue Huawei rely on internal Ericsson emails and other documents. […]

513.
Although in the original configuration of the trial both Ericsson and Samsung would have been there and called witnesses, following the Samsung settlement and the consequential rearrangements neither of those parties appeared or called witnesses. So these documents have not been put to a witness nor, as far as I am aware, were they subject to a Civil Evidence Act Notice. In their closing Huawei referred to a number of disclosure documents. Unwired Planet did not submit that the various disclosure documents were inadmissible (given CPR PD32 paragraph 27.2) but cautioned as to the weight to be attached to disclosure documents put in this way. I accept the submission in relation to other documents Huawei referred to, but the two documents referred to above really just illustrate a point which has never been seriously disputed, that Ericsson's purpose in transferring the patent portfolio was to make more money. In paragraph 16 of the judgment on the competition law strike out application [2015] EWHC 2097 (Pat) Ericsson's case about its motives was summarised this way:

"16. Ericsson describes its motive in transferring part of its portfolio to Unwired Planet as being to enable it fairly to earn more revenue. Its concern is that while the patents remain within Ericsson's very large portfolio, its ability to earn a fair revenue in respect of those inventions is hindered. Once the patents are transferred, Unwired Planet will be able to obtain fairer and therefore greater remuneration for them than Ericsson was able to obtain while still ensuring that any royalties collected in respect of essential patents are FRAND."

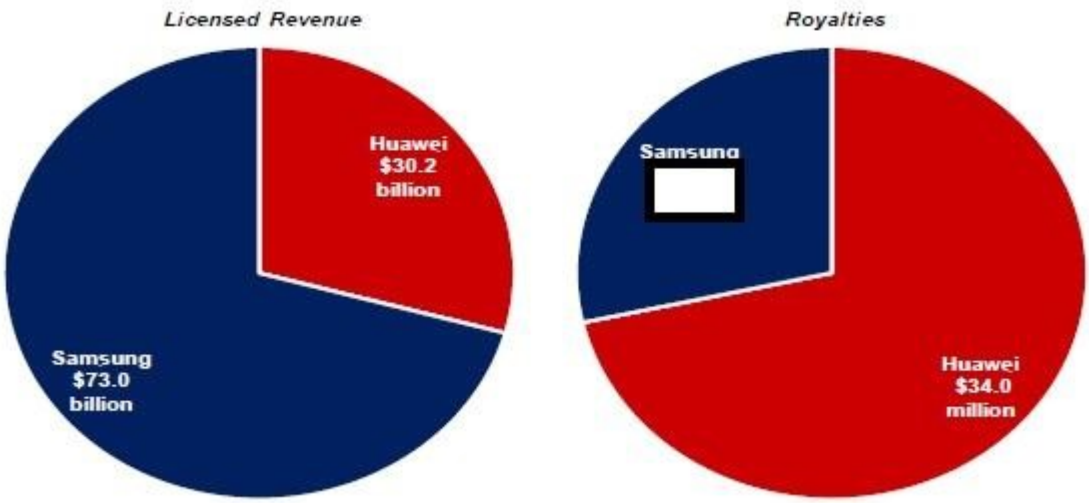
514.
Since greater remuneration from the patents has to come from the rest of the industry,

I accept Huawei's submission that part of the purpose of all this was to cause higher costs to Ericsson's competitors. However while this supports the inference that the total licence fees to be paid by Huawei or Samsung will be higher post-MSA than pre-MSA, it does not tell one anything about the effect of those increases on competition between Huawei and Samsung. That depends on Huawei's second point.

515.

In financial terms Huawei’s complaint is presented by reference to two pie charts which are intended to illustrate the disparity between Samsung and Huawei comparing the July 2016 Unwired Planet proposal against the Samsung licence (using Mr Lasinski’s figures) and taking into account the difference in revenue which would be licensed between the two undertakings. The figures are annual and in dollars. They are for 2G,

3G and 4G together and reflect estimates of the sales mix relating to these standards. The resulting calculations are that under the Samsung licence Samsung will pay Unwired Planet […] pa on its annual worldwide sales of relevant goods, which one can take as being worth $73 billion; whereas at the rates claimed by Unwired Planet, Huawei would be required to pay $34 million pa on its annual global sales, which are worth $30.2 billion. The [redacted] pie charts are these:



516.
I include the pie charts because Huawei put them forward with some prominence but just like Unwired Planet’s chart of rates included in this judgment and like any visual presentation, care needs to be taken with them. Unwired Planet’s chart presents far too many rates from the same licence as if they were independent data points. In Huawei’s pie chart here the area of the left circle is about $103 billion whereas the area of the right circle is $48 million and so, scaled with the left circle, the right circle should be tiny. There is no question that the rates applied to Samsung under the Samsung licence are far lower than the benchmark rates derived above and lower still than the rates claimed by Unwired Planet in July 2016. I will take it that the value of Huawei’s annual licensed revenues is likely to be about half Samsung’s.

517.
In cross-examination counsel put figures to Dr Niels. The rate for Samsung was put as in effect […] per device for Samsung (assuming […]). The equivalent rate for Huawei was put at about 50 to 75 cents per device. These are reasonable assumptions, which if anything favour Unwired Planet. A figure for Huawei’s profit margin was taken from public information as being between about $6 and $19 per device. Counsel put to Dr Niels that in that context the difference in rates ([…] vs 75 cents) would appreciably distort competition. Dr Niels did not agree. He was prepared to assume the figures were correct but explained that one could not draw the conclusion that competition would be distorted because given the average selling price of the products (for Huawei assuming $164 to 185) the rate is very, very low. He acknowledged the rate was a higher percentage of the profit margin but that did not change his view. He said that no-one had done a detailed analysis of distortion of

competition and to do that you would have to look at how the market works downstream and how operators set prices. In his opinion one still has to ask what ultimately happens to the small price differential, is it passed to end consumers, mobile operators or is it absorbed by Huawei? Even

assume some or all of it was passed on you would have to look at whether customers switch significantly given this is such a small share of the market price. Counsel then put the pie charts to Dr Niels but he questioned whether grossing up the difference in this way was meaningful and maintained that what mattered was the differential between Huawei and Samsung as a percentage of total margin and those struck him as low "or at least so low that they are again unlikely to really distort competition significantly" [Day 16/43/15-17].

518.
I accept Dr Niels' evidence on this. Although the relative difference in royalty rates is large, to be considered in the context of possible distortion of competition they must be expressed relative to the margins on the relevant products. Expressed that way they are very small percentages. The available evidence does not support an inference that the behaviour complained of tends to distort the competitive relationship between Huawei and Samsung.

519.
In giving his answers Dr Niels at one stage said that he was referring to conducting a full analysis "under the competition law rules" and was "not commenting here on the ND in FRAND". What the witness meant was that he was alive to the point that there was a debate whether distortion of competition was relevant to the ND in FRAND. Since I have held that it is, Dr Niels' evidence is germane.

520.
Finally I should mention that Huawei were entitled at one stage to think that Unwired Planet were conceding that distortion of competition was not a necessary part of hardedged non-discrimination. Huawei did not suggest that they did not call further evidence on this topic because they thought Unwired Planet had conceded the issue. If Unwired Planet did change their stance, the change did not prejudice Huawei.

521.
So I reject Huawei's hard-edged non-discrimination point. There is no need to consider objective justification.

(ix) Rates - conclusions

522. Since the hard-edged non-discrimination point has been rejected, I find that the benchmark FRAND rates for the Unwired Planet portfolio are as set out in the table above. It follows that none of the offers made by Unwired Planet in 2014, 2015 or 2016 involved rates which were FRAND. They were too high. It also follows that the benchmark rates on which Huawei's offers have been based were not FRAND either. They were too low.

(x) The Other Disputed Terms

523. Aside from a rate, the parties do not agree about other terms. The major disagreement is about scope (UK or worldwide) then there are disagreements about a few of the terms of a UK licence. Since Huawei did not engage with Unwired Planet on the terms of a worldwide licence, I only have Unwired Planet's position on that.

(a) What licence scope is FRAND – UK or worldwide?

524.
Aside from the rate, the question of scope is the most significant point in the case. The parties are diametrically opposed. Huawei are willing to take a licence under Unwired

Planet's UK patent portfolio, but only the UK portfolio. Unwired Planet wish to grant

a worldwide licence and contend that they are entitled to insist on it. A summary of the parties' positions was set out in the introduction section above.

525.
The same topic arises under the ETSI FRAND undertaking and in competition law. It makes more sense to consider it once. The answer to the scope question has a bearing on the question of an injunction and equitable refusability but those issues are best addressed separately. For the purposes of the competition law aspect I will assume Unwired Planet is in a dominant position.

526.
Huawei submitted that it is a fundamental principle of EU competition law that a dominant undertaking cannot tie or bundle together, with a product or service in respect of which it holds a dominant position, some other product or service which does not fall within the same market. They relied on Case T-201/04 **Microsoft Corp** [2007] ECR II-3619, in which the Court of First Instance approved a fourfold test which had been used by the Commission in that case (see paras 842, 859, 862) as follows:

"- first, the tying and tied products are two separate products;

-
second, the undertaking concerned is dominant in the market for the tying product;

-
third, the undertaking concerned does not give customers a choice to obtain the tying product without the tied product; and

-
fourth, the practice in question forecloses competition."

527.
The first three points are fairly self-explanatory. The parties did not agree about the fourth point. Huawei submitted that the fourth test is simply whether the conduct is "capable of restricting competition" (**Microsoft** at paragraphs 866-867) and that this is consistent with the overall position under Art 102, which requires proof only of potential effects on competition. Huawei referred to paragraphs 868, 977 and 1035 and submitted that in these paragraphs the CFI observed that it is ordinarily presumed in tying cases, in the absence of specific circumstances suggesting otherwise. Huawei submitted that Unwired Planet had not suggested any such specific circumstances in the present case and that both the bundling practices in issue, the multi-jurisdictional bundling and also the bundling of SEPs with non-SEPs which took place in Unwired Planet's April 2014 offer, pose an obvious and real threat of distortions in competition.

528.
Unwired Planet submitted that Prof Neven had not been asked to analyse bundling in terms of a standalone abuse (which was correct). They submitted that an appreciable effect on competition

always had to be shown (citing **Post Danmark** C-209-10 ECLI:EUL2012:172 at paras 24, 39 and 44, as well as the EU Commission's Guidance on enforcement priorities in applying Art 102 (24th Feb 2009 OJ EU C45/7) at paragraphs 20-22).

529.
On the issue of principle, Huawei's submission about the **Microsoft** case does not completely capture what happened in it. The point was that the Commission had not done what it normally does and just made an assumption, rather the Commission had examined the actual effects on the market. In paragraph 868, the CFI explains the Commission had decided that in the circumstances of the case "it could not merely assume as it normally does in cases of abusive tying, that the tying of a specific product

and a dominant product has by its nature a foreclosure effect". Therefore the Commission had examined "more closely the actual effects which the bundling had already had on the [relevant] market and also the way in which that market was likely to evolve." Paragraphs 977 and 1035 make the same point.

530.
For abuse to be established there must be a finding that the practice in question forecloses competition. The legal principle I take from the authorities is simply that such a finding may be based on inference but the inference must be justified in all the circumstances. Just because it is normally assumed, it does not follow that it will always be assumed. The circumstances may be such that such an assumption cannot be made and a close analysis of the actual effects is required.

531.
Prof Neven addressed a topic he called "Demanding royalties for acts which are not within the scope of the patents in suit". The example he gave, which he described as odd and without clear economic justification, was of a patentee with a patent in two jurisdictions which had been upheld in one but revoked in the other but insisted on being paid in both. Stated that way the Professor makes an important point but one has to be careful with the example. As soon as patent portfolios are being licensed it is not straightforward to say that a demand for payment for a portfolio licence is for payment for a given patent in the portfolio. In the present case it is common ground that the licence will be for all declared SEPs even though the royalty is set by reference to a subset – the Relevant SEPs - and this applies to the UK only portfolio as much as to the worldwide portfolio. In such a case the licensor is not really demanding payment for each declared SEP. If one of the declared but non-Relevant SEPs in a portfolio was revoked, leaving Relevant SEPs behind, it would not change the benchmark royalty rate.

532.
In any event there are mechanisms which can be agreed in a licence to cater for the situation described by Prof Neven. For instance one could have a term which carves out a country completely or reduces the royalty rate if there is a material change to the number of Relevant SEPs (or declared SEPs). In other words the problem is not inherent in multijurisdictional portfolio licensing.

533.
As Prof Neven accepted, portfolio licensing is common industry practice and has efficiency benefits. It saves transaction costs for both licensors and licensees and obviates the need to determine a royalty on a patent by patent basis.

534.

As far as I am aware every patent licence in the trial bundles in this case is a worldwide portfolio contract. The vast majority are worldwide licences. There are a few in which a given territory is carved out in such a way that no licence is granted for sales in that territory whereas the rest of the world is licensed. The best example is China in the […] licence. Even with a carve out of some kind the contracts are still worldwide agreements although it would be inaccurate to call them worldwide licences.

535.
Of course just because everyone is doing something does not mean that the conduct is necessarily unproblematic. Nevertheless, the inference I draw from the totality of the evidence is that multijurisdictional portfolio licences themselves are unlikely to have inherently anti-competitive effects and that a demand for a worldwide licence is not inherently likely to distort competition. It may be that a worldwide rate is demanded which is excessive but that is a matter related to the rate. It may also be that a given portfolio does not justify a worldwide licence but that is a point on the facts. Assuming

the licensor has a worldwide portfolio of SEPs, in my judgment asking a licensee to accept a worldwide licence is unlikely to be abusive. Of course no licensor has a truly "worldwide" portfolio but I will come back to that. Huawei's witnesses did refer to a few licences they had encountered which were national in scope but they were not produced. I accept those exist but such licences are rare.

536.
There was a suggestion that a worldwide licence might create a disincentive to challenge the validity of patents in other jurisdictions. A similar disincentive applies to any portfolio licence. It is a factor to take into account but not enough on its own to make a portfolio licence (worldwide or national) inherently anti-competitive.

537.
So far the points have not been specific to the circumstances of Unwired Planet and Huawei. Turning to the specific circumstances, there are three aspects. The first is that Unwired Planet's portfolio does not have patents in every state of the world. The second is that Unwired Planet is engaged in litigation in this country. Its stance is that if it is entitled to insist on a worldwide licence then it will do so and if Huawei refuses, an injunction should follow. The third is that Unwired Planet is also engaged in litigation with Huawei in Germany and China on patents within the portfolio but in the licence Unwired Planet is demanding that Huawei should pay royalties for Germany and China.

538.
The first aspect of the circumstances sounds more significant than it is. Just like Unwired Planet, neither Ericsson nor Huawei have patents in every state. In terms of geographical coverage Unwired Planet's declared SEP portfolio covers most of Europe,

Russia, Turkey, China, Japan, much but not all of South East Asia, the USA, Canada, Australia, India, and Mexico. It does not have much coverage in Africa and limited coverage in South America and Eastern Europe (but there are some patents in some states). Nevertheless in my judgment Unwired Planet's geographical coverage is very wide. Although not directly relevant, the difference in coverage between Unwired Planet and Huawei is not so different. Unwired Planet's coverage today is 42 countries whereas Huawei's is 51 on the same basis.

539.

In addition to the well-rehearsed issue on China, there are two further aspects which Huawei draw attention to. First, Unwired Planet's coverage of 3G/UMTS and 2G/GSM is much weaker than for 4G/LTE, as Mr Saru accepted. However, South America and South East Asia include jurisdictions in which Huawei makes a very considerable volume of sales, especially of 3G/UMTS and 2G/GSM equipment, in which Unwired Planet have no relevant coverage. Also for countries where Huawei sells only single mode handsets rather than multimode, there are no grounds on Unwired Planet's case for it to be receiving any royalties going forward at all. Second, Huawei contend they manufacture handsets in Venezuela, in which Unwired Planet have no patents.

540.
Unwired Planet's response was to point out that one needs to consider manufacturing as well as sales. A handset sold in a country in which there is no patent may still have been made in a patented country in which a licence was required. The fee for the licence, which includes licence to manufacture, may well be a royalty calculated by reference to the sale price, with a royalty bearing event being sale. That this would apply whether the sale happens to be made in a patented or non-patented country is not necessarily a problem given that manufacture needed to be licensed.

541.
In practice, subject to Venezuela, the country of manufacture referred to is China. Huawei did not challenge the principle but submitted a focus on China brings back the debate about the ongoing Chinese invalidity proceedings. As to Venezuela, Unwired Planet pointed out that Mr Zhang's evidence was that the manufacturing facility there puts together components made in China.

542.
Where Unwired Planet's coverage differs from that of Ericsson or Huawei is in numbers of patents. Unwired Planet have many fewer patents in general and Mr Zhang and Mr Cheng both referred to the small size of Unwired Planet's portfolio. The portfolio is much smaller than that of the biggest players like Huawei, Samsung and Ericsson, but in my judgment it is not so small as to be a portfolio which can or would be treated in a different way from some of the larger portfolios. The portfolio is large enough that it would be impractical to fight over every patent and neither party is doing this. The explanation of coverage above has been given by reference to declared SEPs since they represent the property which would be licensed, even though it is the much smaller number of Relevant SEPs which determines the royalty rate. The small size of Unwired Planet's portfolio and the low number of Relevant SEPs is reflected in the FRAND royalty rates.

543.
Before turning to the impact of the litigation, this is a convenient point to ask what sort of licence for Unwired Planet's portfolio would be FRAND in terms of its geographical scope when applied to a multinational licensee like Huawei? I will start by asking what a willing licensor and a willing licensee with more or less global sales would do. There is only one answer. Unwired Planet's portfolio today is (and in 2014 it was) sufficiently large and has sufficiently wide geographical scope that a licensor and licensee acting reasonably and on a willing basis would agree on a worldwide licence. They would regard country by country licensing as madness. A worldwide licence would be far more efficient. It might well have different rates for different regions and for different standards but that is another matter. The employment of different rates would not lead the parties to abandon a worldwide licence and go for country by country licensing. Assuming the licensee was a Chinese multinational like Huawei, they might well agree on different rates for China as for the Rest of the World but again they would not go for country by country licensing. If the multinational had a significant manufacturing base in another country in which the portfolio was weak, again that could be taken into account.

544.
A point arose in the arguments on the terms of the UK only licence which Huawei called a manoeuvre. Unwired Planet insisted that the UK only licence should have a term in it precluding entry into the UK of unlicensed Huawei handsets. This seems to have caught Huawei by surprise but it really should not have done. It was a manifestation of the point that the UK only licence is only a licence under the UK patents. It illustrates one reason why country by country licensing is inefficient for goods like mobile telecommunications devices which will move across borders but I do not regard this as a major point in the present context. It would have to be addressed but that could be done (see below the section on the UK only licence where it is addressed in context). The real inefficiency of country by country licensing is the effort required to negotiate and agree so many different licences and then to keep track of so many different royalty calculations and payments. No rational business would do this if it could be avoided.

545.
What a willing licensor and willing licensee would do is not the only question because necessarily if the result would amount to unlawful bundling then it is not FRAND. I turn to consider the four-part test in **Microsoft**.

546.
The first part of the four-part test in **Microsoft** is that the products are separate. A patent in one state is clearly separate from a member of the same patent family in another state. They may have an entirely different scope. However the way in which FRAND royalty rates are determined in practice treats these two distinct patents as a single thing. It is common ground that the industry assesses patent families rather than individual patents within the family. The FRAND obligation actually applies to patent families, for good reason. It would be wrong to ignore this fact about how the licences are negotiated and agreed in practice. Assessing portfolios on a family basis inevitably involves tying in a patent in one state with a patent in another.

547.
The second part (dominance) is assumed at this stage.

548.
The third part is the choice. Here Unwired Planet wish to give the licensee no choice but accept the worldwide licence. This insistence is clearly a form of tying in. However again there is more to be said about this. Take a SEP with family members in two countries. If a multinational implementer sells in those two countries and needs a licence in one of them, the implementer probably needs a licence in both, hence the efficiency of this sort of licensing. Of course portfolio licensing is more complicated still because patents in some states may not have counterparts in others, but for this purpose they are all SEPs.

549.
The fourth part is competitive foreclosure. Take the same example of a SEP with family members in two countries A and B and a multinational implementer selling in both. If the implementer does need a licence in both then the licensor is the only source of that licence. Tying in a licence under a SEP in state A with a licence under the SEP in the same family in state B does not preclude a third party from competing with the licensor in state B because the licensor is the only source of licences for this SEP in state B. This is an aspect of the dominant position of the licensor. It also helps explain the efficiency of worldwide portfolio licensing.

550.

Given the prevalence of worldwide licences and the prevalence of assessment based on patent families, I am not prepared to assume that the tying of a SEP licence in one country to a SEP licence in another country has by its nature a competitive foreclosure effect. A close analysis of the actual effects would be required and that has not been done.

551.
Huawei submit that the **Motorola** decision of the European Commission is in their favour. In that case Motorola sued Apple in Germany for infringement of a SEP for GPRS called "Cudak". Apple made various "**Orange Book**" offers (the case was decided before **Huawei v ZTE** – see the analysis of that case below). The Commission decided that Apple's second **Orange Book** offer indicated a willingness to take a licence on FRAND terms and so after that Motorola's actions in pursuing its claims for a patent injunction were abuses of dominance (see paragraphs 125, 127, 301-303, 419, 423, 433, 434-436 and 440). Huawei point out that one of the issues was that the second **Orange Book** offer was to take a portfolio licence for Germany (para 125(a)) and that one of Motorola's complaints was that they (Motorola) wanted a worldwide licence (127(f)).

At paragraph 434 the Commission held as follows:

"434. First, Motorola has not advanced credible arguments as to why, in view of Apple's Second Orange Book Offer, Motorola's seeking and enforcement of an injunction against Apple in Germany on the basis of the Cudak GPRS SEP was objectively necessary to protect its commercial interests, in particular its right to obtain appropriate remuneration for Apple's use of its telecommunication SEPs in Germany. With its Second Orange Book Offer, Apple proposed to enter into a licensing agreement with full judicial review and determination of the proposed FRAND royalties with retroactive effect by a court. As regards the scope of the Second Orange Book Offer, as outlined in recitals (125)-(126), it covered all Apple products infringing the licensed SEPs in Germany. Hence, this offer was a clear indication of Apple's willingness to enter into a licensing agreement on FRAND terms and conditions."

(my emphasis)

552.
I agree with Huawei that here the Commission are rejecting Motorola's complaint that the offer was limited to Germany. The Commission's decision is firmly in Huawei's favour. However the decision is premised on the view that a licence limited to Germany is FRAND. Making the sensible assumption that the GPRS "Cudak" SEP had counterparts outside Germany, that decision can only be on one of two bases. Either national portfolio licences are FRAND and worldwide licences are not FRAND, in which case the majority of real licences are not FRAND because they are worldwide; or both national and worldwide licences are FRAND at the same time, in which case FRAND cannot be enforced save by imposing one kind of FRAND licence even if another more realistic kind is also FRAND. I have already addressed these issues above and the answer I have arrived at is that there is only one set of FRAND terms in a given situation. The Commission's decision does not look at the matter in that way and, although they find in clear terms at the end of the quoted paragraph that Apple is offering to enter into a licensing agreement on FRAND terms, the Commission do not analyse the national/ worldwide scope issue in the manner I believe is required. I will not follow this aspect of the Commission's reasoning.

553.
Huawei took a series of eight further points in support of the submission that Unwired Planet's insistence on a multijurisdictional bundled licence in the present case was not FRAND. I will address

the first four points and the sixth point. I have already addressed the fifth and eighth points, about the true geographical scope of Unwired

Planet's portfolio and the number of patents. The seventh point is about SEP and nonSEP bundling. That is addressed below. I do not accept it plays a significant part of the multijurisdictional argument.

554.
First Huawei submitted that any consideration must start with the proposition that at least in English law, there is no such thing as a portfolio right. Citing **Lucasfilm Ltd v Ainsworth** [2012] 1 AC 208 Huawei submitted that the English Courts have no jurisdiction to entertain an action in respect of the validity of a foreign patent, and are reluctant to entertain an action for infringement of a foreign patent even where validity is not in issue. Therefore, insofar as Unwired Planet wishes to complain that Huawei is infringing SEPs in other jurisdictions, Huawei contend that such complaints are in principle for the Courts of those other jurisdictions.

555.
I accept that there is no such thing in law as a portfolio right. At least from the perspective of English law, Unwired Planet should sue on SEPs in the countries in which they exist. However this does not preclude a finding that worldwide licences are FRAND. The first submission is relevant but not determinative.

556.
Huawei's second and third points are best addressed together. In the second point Huawei submitted that it follows that there is a fundamental difference of principle between the bundling of all rights enjoyed within a given jurisdiction and the bundling of rights across different jurisdictions. In the latter case, there is an obvious risk that the threat of a territorial injunction may function, unfairly and unreasonably, in effect to reverse or at least negate the impact of foreign proceedings in respect of foreign patent rights. In the third point, Huawei submit that the facts of the present case are a practical manifestation of the concerns expressed by me in **Vringo**, referring to both [2013] EWHC 1591 (Pat) and [2015] EWHC 214 (Pat). Huawei reminded me that I said that proper scope of the issues to be adjudicated by the Court is "…not simply a matter of case management and consideration of the court's resources" (para 58), but rather arises from the very "character of …underlying rights" on which a patent infringement action is based. Huawei referred to the following passages from the earlier judgment about the position of ZTE in that case:

"44 … ZTE has said it is willing to take a FRAND licence on any patent found valid and infringed. **In my judgment, a defendant accused of patent infringement by a patentee who claims to have a standards essential patent is and must be entitled to say, "I wish to know if this patent is valid or infringed or not before I take a licence".** Such a stance cannot fairly be described as unwillingness.

45
So here the defendant is entitled, in my judgment, to adopt a contingent position. **In a contingent case like this, there is no basis on which the court could compel the defendants to accept a licence arrived at by approaching the matter as if the licensee was willing to take a licence without having a judicial determination of validity and/or infringement** .

46
Looking at it the other way, if, once the patent trials are heard, for example, say Vringo's alleged SEPs were found invalid, it would be absurd for Vringo to say it still wanted to have a trial to determine a

FRAND royalty rate applicable in the United Kingdom. The rate would be zero. **Equally, say Vringo won all the patent trials hands down and then conducted a FRAND trial, it would equally be absurd for ZTE at that trial to say, "Oh but these are weak patents likely to be invalid or not infringed and the royalty should correspondingly be less"** ."

[Huawei's emphasis]

557. Huawei then referred to the further decision in which I observed as follows (at 107109):

"…I can see that the aggregate of individual FRAND rates for patents taken alone and on a territorial basis may well be far more than global portfolio rates and so a rational defendant may well prefer to take a global portfolio licence rather than a series of individual ones. Moreover I accept, as Vringo urges on me, that global portfolio licences are the kinds of licences industry normally enters into.

However **this is very different from saying that somehow the fact that a global licence on a portfolio of patents is FRAND necessarily means that a defendant in one jurisdiction faced with one patent is forced to take a global portfolio licence in order to stave off a national injunction on that one patent** .

I could see a very different circumstance if Vringo had made a FRAND offer for the patent EP 1,212,919 (UK) itself and that offer had not been accepted. Then an injunction might well follow. **In that sort of case, unlike the one based on the global portfolio licence, the threat of the injunction, which is after all a territorial remedy, would not be being used to create some sort of international coercion or coercion about other patent rights** ."

[Huawei's emphasis]

558.
As Huawei also pointed out, I repeated the same views about "international coercion or coercion about other patent rights" in my judgment from the March 2015 CMC in these proceedings (para 23-27). Huawei submit this is exactly this type of "coercion" which Unwired Planet is seeking to practise in the present case. It is the same concern which is expressed by the European Commission in **Motorola** at paragraph 434.

559.
What I called the **Vringo** problem has already been addressed above but I have set out Huawei's submissions here at length because the point is important. There are a number of things I wish to say about this.

560.
The earlier **Vringo** judgment is not dealing with the same problem which confronts the court now. Today the CJEU's judgment in **Huawei v ZTE**, makes clear that an implementer can challenge a patent even after a licence has been concluded. What is more I can only say that having heard this trial, what seemed clear to me then does not seem to me now to be as clear cut. I remain of the view however that UK court's power to grant an injunction against an implementer will only arise once at least two conditions are satisfied - there must be a FRAND licence available for the licensee to accept (or subject to case management some proper means of settling one) and there must be a SEP held by the court to be valid and essential. Only an implementer who refuses to take a FRAND licence will be at risk of an injunction.

561.

The second **Vringo** judgment raises the **Vringo** problem which has been addressed already. The essential difficulty is that if it is possible that both kinds of licence – UK only and worldwide – are FRAND in the circumstances of this case then FRAND cannot be enforced at all. Unwired Planet submitted that a counterpart to the international coercion identified in **Vringo** was a similar kind of international coercion which was taking place in this case because the act of granting an injunction is no more an act of 'coercion' than the act of not granting an injunction. The FRAND commitment is a restriction on a patentee's exercise of its patent rights and if, properly construed, it is a restriction that only requires a worldwide offer, and Huawei refuses or frustrates that, then not granting an injunction has the effect of compelling the patentee to either give up payment in other jurisdictions or accept a much lower rate because it cannot practically sue separately around the world.

562.
I do not entirely accept Unwired Planet's submission, since in the end the only rights a patentee has are national patent rights and the only places in which they can be enforced are the relevant countries. However Unwired Planet's argument is useful in that it draws attention to the fact that it is necessary to identify the premise correctly. If a worldwide licence is not FRAND then a putative licensee should not be coerced into accepting it by the threat of an injunction in one state. However, if a worldwide licence is FRAND then the situation changes. The logic of the FRAND undertaking applied in the context of patent rights is that the remedy of an injunction to restrain infringement, granted in respect of a patent found valid and infringed/essential, should present the licensee with a simple choice either to take a FRAND licence or stop dealing in the products. Whatever the FRAND terms are, the remedy operates in the same way. That is why the remedy is coercive.

563.
Any licence involves elements of risk. A licence for a period of years with an unchanging rate involves a risk to one side or the other as the market changes over time. Similar kinds of potential risk exist in a licence for a whole national portfolio as opposed to a single patent and the same applies again for a worldwide portfolio. There is necessarily a difference in scope and therefore risk between a national injunction on a single patent, possibly directed to a single release of a standard, on the one hand and a licence under a portfolio whether it is national or international on the other hand. There may be differences in risk and scope for other reasons too. However all these distinctions are differences in degree, not differences in kind.

564.
Huawei referred to evidence of Mr Zhang on this but his evidence was directed at a global blended royalty rate, which is a different point. Also since his evidence was given I am told Huawei's challenge to one Unwired Planet patent in China has been rejected although Huawei have appealed.

565.
The fourth point taken by Huawei is this approach is contrary to the Brussels I Regulation (Art 22(4)) as would amount to the grant of a UK injunction because a defendant had not taken a licence under a different national instance of an EP patent in a different Member State of the EU, contrary to the CJEU in Case C-4/03 **GAT v LUK** [2006] ECR I-6509, Case C-539/03 **Roche v Primus** [2006] ECR I-6535 and Case C616/10 **Solvay v Honeywell** (12 July 2012, Grand Chamber). There are existing infringement and validity actions in, for example, Germany and Huawei submit that the English court should not make a final determination that they are required to take and pay for a licence in Germany and issue injunctive relief if Huawei do not do so, when that issue is currently before the German

courts. To do so, Huawei say, would amount to circumventing the jurisdictional rules laid down by Art 22(4).

566.
Art 22(4) provides that in proceedings concerning the registration or validity of patents, the courts of the Member State in which the registration has been applied for shall have exclusive jurisdiction. In **GAT v LUK**, the CJEU held that Art 22(4)'s predecessor, Art 16(4) Brussels Convention, applied whatever the form of proceedings in which the issue of a patent's validity is raised, including, for example, if it were challenged as a defence or counterclaim to a claim for infringement. The CJEU's reasoning had three parts: (a) first, it held that to decide otherwise would undermine the binding nature of Art 16(4) by allowing a party to circumvent the rules and have questions of validity determined in the wrong jurisdiction (b) second, this would undermine the predictability and certainty of the rules of jurisdiction laid down by the Convention and (c) third, it considered that to allow courts other than those of a State in which a particular patent is issued to rule indirectly on the validity of a patent would multiply the risk of conflicting decisions across jurisdictions. This reasoning was followed in the two other cases that Huawei rely on: **Roche v Primus** and **Solvay v Honeywell**.

567.
In my judgment, the Brussels I Regulation and the CJEU case law cited has nothing to do with what the terms of a FRAND licence should be. If a worldwide licence is FRAND then requiring Huawei to take and pay for one would not amount to determining questions of validity in relation to which courts of other Member States have exclusive jurisdiction under Art 22(4). Taking Huawei's example of the on-going German proceedings, the German courts would remain free to determine the relevant patents' validity. A FRAND licence should not prevent a licensee from challenging validity or essentiality of licensed patents and should have provisions dealing with sales in non-patent countries. So if the German courts decide all the relevant patents are invalid (or not essential), that would simply result in whatever consequences the worldwide licence provided for. Since the licence is a FRAND licence those consequences are FRAND too. The binding nature and clarity of Art 22(4) are not thereby undermined and, most importantly, there is no risk of the decisions in England and Germany conflicting. I reject Huawei's fourth point.

568.
The sixth point is about the conduct of the litigation. The key issue is a complaint that UK only licensing was not offered (on an open basis) by Unwired Planet for a year after the litigation began. However this rings hollow since Huawei have never (on an open basis) offered to take a worldwide licence at all.

569.
Does the litigation in this jurisdiction make any difference to that conclusion? In my judgment it does not. A different question is whether, following **Huawei v ZTE**, Unwired Planet's approach to the litigation and injunctive relief is premature and an abuse of dominance. At this stage I am only concerned with the mere fact that Unwired Planet and Huawei are engaged in patent litigation and insisting on a worldwide licence. Given that a worldwide licence is FRAND, the fact that litigation is in existence does not seem to me to make an insistence on it abusive or not FRAND.

570.
The final point is to assess the impact of the outcomes of the litigation in Germany and China. In Germany the proceedings are bifurcated. Unwired Planet have sued Huawei for infringement in the local courts while Huawei have brought invalidity proceedings in the Federal Patent Court. In China

Huawei have brought invalidity proceedings. So far there have been wins, losses and appeals on both sides and no final outcome, in the sense of final without appeals.

571.
In my judgment this other litigation does not make any difference to the analysis. As I have already said in the context of Huawei's Brussels I and **GAT v LUK** argument a worldwide FRAND licence should include an appropriate mechanism to deal with countries which become effectively non-patent countries.

572.
I conclude that a worldwide licence would not be contrary to competition law. Willing and reasonable parties would agree on a worldwide licence. It is the FRAND licence for a portfolio like Unwired Planet's and an implementer like Huawei. Therefore, Unwired Planet are entitled to insist on it. It follows that an insistence by Huawei on a licence with a UK only scope is not FRAND.

(b) Should the court settle the FRAND terms of a worldwide licence?

573.
All of Unwired Planet's worldwide offers since 2014 have been put as licences with single global blended royalty rates. That needs to be addressed along with any other relevant terms.

574.
Huawei did not engage with Unwired Planet's proposed terms of a worldwide licence because they contended it was not open to Unwired Planet to insist on it both in principle (i.e. the FRAND and competition law bundling points I have rejected) and from a procedural point of view. Huawei's case on the procedure is that a UK only licence is the inevitable and mandatory outcome of this case as a consequence of an earlier case management ruling and certain subsequent procedural steps.

575.
In summary Huawei's procedural point is this. During these proceedings Unwired Planet have offered licences with three different scopes – individual patents, UK portfolio and worldwide. In the summer of 2016 Huawei informed Unwired Planet that they would accept a UK portfolio licence and would accept whatever rate the court decides is FRAND for such a licence. Subject to the manoeuvre, Huawei would also accept whatever terms the court thinks fit for a UK only licence. Since a UK portfolio licence is one of Unwired Planet's offers and since Huawei have accepted any rate the court thinks fit for that licence, the only licence which the court can settle is a UK portfolio licence.

576.
I am not impressed with the procedural submission, for the following reasons.

577.
From the beginning Huawei have contended that Unwired Planet's offers such as the 2014 offer were not FRAND and contrary to competition law and sought certain remedies accordingly, such as refusal of an injunction. In one sense such an issue is narrow in that one could simply decide whether an offer is or is not FRAND etc., and if it is not, go no further. A difficulty could be that the offers concerned were never put together with fully worked out contract terms but that might not matter in practice since no doubt the big issue of the rate could be addressed and, on Huawei's case, certain terms such as bundling SEPs and non-SEPs together were such that they could never be FRAND.

578.

Unwired Planet applied to amend to seek certain declaratory relief. This came before me at the case management conference on 19th-20th March 2015 (judgment on 24th April 2015 [2015] EWHC 1029 (Pat)). Unwired Planet sought leave to amend its Statement of Case to include as relief declarations about the FRAND status of their offers to date. I allowed one declaration but refused the other. The declaration which was refused was a device to simply ask the question – what would be FRAND? It was not anchored to anything. In refusing this wide declaration I referred to the court not having the sort of open ended jurisdiction available in the Copyright Tribunal. I allowed Unwired Planet to claim a declaration in narrower form which referred expressly to specific offers already made. In allowing this amended claim I held that the court could declare that a given set of terms were or were not FRAND and also that the court could, within the framework of a concrete proposal, find that a set of terms which differed in some respect from the concrete proposal was also FRAND even if the terms as proposed were not. I also rejected the objection to allowing this amendment that it would require the court to value Unwired Planet's global patent portfolio. That was because that issue was going to be in the case anyway.

579.
Huawei rely on this judgment, but it is against them. A key step in Huawei's reasoning is the idea that it is only because Huawei have agreed to accept whatever rate the court thinks fit that the court has jurisdiction to set a rate rather than just adjudicate in a black and white fashion on rates suggested by the parties. I doubt such a thing was ever appropriate but in any event the case management judgment made clear that in dealing with the declaratory relief permitted by the amendment, the court would not be constrained in that way. It is not Huawei's acceptance that it will take whatever rate the court thinks fit which gives the court jurisdiction to decide what the FRAND rate should be. The amendment permitted in April 2015 does that.

580.
Huawei have always known that Unwired Planet ranked their offers in the sense that their first preference was for a worldwide licence. Huawei do not suggest that Unwired Planet ever indicated that if Huawei said they would take a UK portfolio licence then the issue of scope was resolved. The case is not put on that basis. Huawei referred to the odd aspect of Mr Bezant's evidence but it does not bear out the argument. The oddity of Mr Bezant's approach is that it applies just as much as setting a UK only rate as anything else.

581.
It is true that fully worked out terms were only put forward openly after the start of the trial, as a result of me asking the parties to produce and engage with them. That cannot make a material difference. If Huawei thought they were prejudiced by the absence of such terms earlier in the action they could have asked. But I am left with a set of worldwide terms proposed by Unwired Planet and no engagement with Huawei. In other circumstances it might have been appropriate to hand down a judgment dealing with the big issues, such as rates, and then leave it to the parties to agree the smaller points or isolate the differences down to a few points. That is often done in the Copyright Tribunal. However this issue was discussed extensively during the trial. This trial is meant to be the point at which the court decides whether to grant or refuse a final injunction against Huawei following findings of infringement of valid claims over a year ago. The only way that can be done fairly is if at the point the injunction would bite a fully worked out licence is available in relation to which the court has decided FRAND, competition law, and equitably refusability. These proceedings have gone on long enough. There is no justification in allowing yet another round of evidence and argument and so I will do the best I can with the material.

(c) FRAND rates in a worldwide licence

582.
The evidence before me is clear that willing parties would agree that a worldwide licence in this case would have a different rate for sales in China. They would not have a carve out which left China unlicensed ([…]) because Unwired Planet’s portfolio of declared SEPs clearly includes China. The rate is determined by the number of Relevant SEPs but a licence is a licence on declared SEPs.

583.
The appropriate rate for China is not complicated to arrive at. The comparable licences show that rates are often lower in China than for the rest of the world. The relative factor varies. I find that a FRAND licence would use a factor of 50%.

584.
However that is not the end of the story. Unwired Planet’s portfolio is smaller in China than in elsewhere and Unwired Planet have fewer Relevant SEPs there than the numbers used to set the benchmark rates above. However this can readily be catered for. A fair and reasonable approach consistent with everything which has gone before would be to

scale the rate with an additional factor determined by the number of Relevant SEPs in China identified by Dr Cooper. For multimode the fair approach is to scale the multimode rates by reference to the Relevant SEP numbers in the highest relevant standard rather than recalculate the weighting.

585.
There is an issue about whether the Relevant SEP for 2G for China covers handsets rather than just infrastructure. However given that the licence itself is a licence on declared SEPs and given the lack of development of the argument about this, a FRAND approach in this situation would be to include 2G handsets in the licence and treat the number of Relevant 2G SEPs as one. There is also a question based on whether to count pending applications (which makes a difference for 4G in China). A FRAND approach would be to include pending applications for Relevant SEPs in the scaling exercise. Another point specific to China was the possibility of single mode handsets. Given the way the multimode figures come out (see the table below) the FRAND approach would be to treat single mode handsets as the same as the relevant multimode (so a single mode 3G handset would be the same as a 2G/3G multimode handset).

586.
All these points together produce the following table:

Unwired Planet FRAND rates for China					
Handsets (3G and 4G are multimode)					
	Benchmark rate	China benchmark (50%)	SEP families used to derive benchmark	Relevant SEP families in China	Rate for China
2G	0.064%	0.032%	2	1	0.016%

2G/3G	0.032%	0.016%	1	1	0.016%
2G/3G/4G	0.062%	0.031%	6	5	0.026%
Infrastructure (not multimode)					
2G	0.064%	0.032%	1	1	0.032%
3G	0.016%	0.008%	2	1	0.004%
4G	0.072%	0.036%	7	5	0.026%

587.

The question turns to whether any other regions of the world should have lower rates than the benchmark rate. Parties negotiating in a FRAND way would not try to divide up the world into too many categories since it risks being unworkable but there is at least one comparable licence in which the contract treats three regions of the world differently and that is a fair and reasonable approach. Outside China, a FRAND approach would be to divide the rest of the world into major markets (MM) and other markets (OM) by reference to the number of declared SEPs in force held by Unwired Planet in that country. The three standards 2G, 3G or 4G would be treated individually. A table setting out the numbers of declared SEPs held by Unwired Planet around the world is at Annex 1. Bearing in mind that table, a FRAND approach would be to set MM countries for a given standard as those with more than a certain number of declared SEPs for that standard. In my judgment a fair threshold for 2G or 3G would be 2 or more declared SEPs and for 4G would be 3 or more declared SEPs. Any country below the threshold would be OM for that standard. Based on the figures in Annex 1 this produces the following table of MM countries. The remaining countries in Annex 1 are OM states for all standards as is the rest of the world.

MM all standards	**MM 4G and 3G**	**MM 4G only**	**MM 3G only**
France	Canada	Ireland	Argentina
Germany	Italy	Netherlands	Australia
India	Spain	New Zealand	South Korea
Japan	Taiwan	Switzerland	
UK			
US			

588.

Any declared SEP in a country which is determined by a relevant court to be invalid or not essential would cease to count as a declared SEP. This is a simple way of ensuring that the licensee can, if they wish, challenge validity (etc.) while the agreement is in force. If further declared SEPs are added then again appropriate adjustments can be made. The necessary adjustments to the designations of countries as MM or OM should be done on an annual basis.

589.

The rate of OM countries would be the China rate on the basis that the products are made in China under licence. That will also apply to products in which the components are made in China but the products are assembled in an OM country. Venezuela is an OM country for all standards.

590.

For multimode handsets the royalty will be the higher of the possible applicable rates. So a 2G/3G multimode handset in a country which is an MM for 3G, the MM 3G rate is due. For a 2G/3G/4G handset in a country which is MM for 4G, the 4G rate is due; while such a handset sold in a country which is MM for 3G only, attracts the 3G MM rate rather than the 4G OM rate. That is fair.

591.
The starting point to arrive at the FRAND rate for the MM countries would be the benchmark rate. However the benchmark rate was set by reference to a number for Relevant SEPs focussed on the United Kingdom. Applying that to all MM countries is too generous to Unwired Planet because the UK has more Relevant SEPs for 4G handsets than any other country. The most any other 4G MM countries have (including applications) is 5 and they are the USA, France, Germany, India and Spain. Of the other 4G MM states: Italy, Japan and the Netherlands have 4 Relevant 4G SEPs, Canada and Ireland have 3, New Zealand and Switzerland have 2, and Taiwan has 1. The FRAND approach in the circumstances would be to set the MM rate as a single rate, for all countries including the UK. In my judgment the FRAND approach would be to use a factor based on taking 5 as the number of Relevant SEPs for LTE. The markets in which the number is 5 or more are some of the most valuable markets in the world. The scaling for multimode will use the same approach as taken for China. There is no need to make a similar adjustment to the benchmark for 2G nor for 3G. This produces the following table:

Unwired Planet FRAND rates for Major Markets (MM)					
Handsets (3G and 4G are multimode)					
	Benchmark rate	SEP families used to derive benchmark	Relevant MM SEP families	Rate for MM	
2G	0.064%		2	2	0.064%
2G/3G	0.032%		1	1	0.032%
2G/3G/4G	0.062%		6	5	0.052%
Infrastructure (not multimode)					
2G	0.064%		1	1	0.064%
3G	0.016%		2	2	0.016%
4G	0.072%		7	5	0.051%

592.
That deals with rates.

(d) Other terms in a worldwide licence

593.
The parties narrowed the issues very considerably in relation to a draft UK licence. The points they were able to agree upon as FRAND are just as applicable to a worldwide licence. So a FRAND worldwide licence would license all acts which would otherwise infringe any of the relevant patents. It would be for a seven year term from the effective date of 1st January 2013 (when the 2009 Huawei-Ericsson licence ended) and therefore would expire on 31st December 2020. It would contain a release for back damages on the basis that royalties were paid at the contract rate for the past period. The royalty would be calculated as a share of a defined net selling price of defined end user

equipment or infrastructure equipment. The royalty would be payable on sale. In the worldwide licence the rate will be determined by the territory in which the goods are sold, i.e. China, an OM country or an MM country for the relevant standard. The licence would contain conventional reporting provisions, record keeping and audit. The reporting would be quarterly with payment due a specified period after the report (there is a typo in clause 4.5 which should refer to report clause 4.7 not 4.6). As a contract settled by the court its terms would not be confidential.

594.
The parties were prepared to agree to the UK licence having an England and Wales choice of law clause and an exclusive jurisdiction clause in favour of the High Court of England and Wales. Since the worldwide licence is being found to be FRAND by an English court it seems to me that a FRAND approach is to have a choice of law clause in favour of England and Wales law. However as a worldwide licence I think a jurisdiction clause purporting to oust the jurisdiction of foreign courts would not be appropriate.

595.
In addition to incorporating the terms I have addressed already, the worldwide licence draft provided by Unwired Planet must be amended where appropriate to conform (a) to the agreed terms of the UK draft and (b) to the rulings I will make below on the disputed terms of the UK draft. With those amendments the worldwide licence document would be the FRAND licence between these parties.

(e) The terms of a UK only portfolio licence

596. Since I have decided a worldwide licence is FRAND and Unwired Planet are entitled to insist on it, the question of terms of the UK only licence does not arise but in order to settle the worldwide terms, I will decide the issues.

UK only - rate

597.
Both sides agree that if the licence is a UK only SEP licence then the rate should be higher. The degree of uplift is in dispute. It is clear that if the licence was to be only for one territory, such as the UK, then the rate should be higher than the benchmark rate. That is because there are plainly significant efficiencies in global licensing. Huawei refer to Mr Lasinski’s evidence in favour of an uplift of 50% (48.51%) which he derived [...]. Unwired Planet contend the uplift should be much bigger but one needs to be careful to compare like with like. Unwired Planet referred to two uplifts based on two different assumptions. The first is the UK only uplift. Unwired Planet contend this uplift should be 150% for handsets and 100% for infrastructure. The second is on the assumption that all the SEPs in suit are valid and infringed. It arises in this context because the SEPs in suit are UK patents.

598.
The second assumption about validity and infringement/essentiality can be somewhat confusing but, to be fair, it harks back to the way some open offers had been expressed for most of the proceedings, which in turn arose from one aspect of Huawei’s stance, that they were only prepared to take a licence under a patent found by the court to be valid and infringed and were not prepared to take a licence under any other patent. They were entitled to do that but it is a different basis from the basis under consideration.

599.

Unwired Planet contended that on that second assumption the rates should be higher than they would otherwise have been. I agree with the principle. That is because I infer that all the comparable licences in issue would have been negotiated on a less stringent basis and therefore the rates would inevitably be reduced somewhat to price in some uncertainty about the issues of validity and infringement/essentiality. However since the UK only licence is not put on that basis now, it is not necessary to arrive at a figure for that uplift.

600.
Turning to the first uplift, the problem with Huawei's submission is that Mr Lasinski's evidence is based on a different kind of licence from the one under consideration. […]. But the question at issue is what would the rate be for a licence which is territorially limited to the UK only. […]. The UK only uplift in issue is different. It is a way of pricing the efficiencies of global licensing as opposed to the inefficiency and inconvenience of state by state licensing.

601.
Mr Bezant's evidence was that Unwired Planet's approach to this uplift made sense but he did not advance any specific points on the size of this particular uplift.

602.
I believe the inefficiency and inconvenience of state by state licensing is very substantial. Scores or even hundreds of licences would be required. A FRAND rate for state by state licensing would include a larger uplift than the one proposed by Mr Lasinski. Unwired Planet proposed a higher uplift for handsets than for infrastructure but did not draw my attention to any reason why there should be a difference. I find that a FRAND uplift for state by state licensing is 100% for all rates. In other words the rates would be double.

UK only – other terms

603. The parties engaged with each other on this and substantially narrowed the issues. There were other issues outstanding at the end of the trial (such as intermediate/car telematics products but they were resolved). The outstanding points are:

i) Royalty base issues:

a)
Infrastructure revenues;

b)
End user device revenues;

c)
Packing, insurance and transport discount; ii) Unlicensed products in the UK; iii) Records and audit;

iv) Licensor indemnities.

Royalty base

604.
The first debate is about the definition of the royalty base in the context of infrastructure revenues. The royalty base is the sum to which the percentage is applied to give the royalty due. It will largely correspond to the price paid for goods and the definition is largely agreed in the draft contract as something called "Selling Price" for "End User Devices" (i.e. handsets) and "Infrastructure Revenue"

for infrastructure. The question is whether Infrastructure Revenue should include income from managed services, operation and/or maintenance. Huawei contend it should not. They point out that these services are not included in the corresponding definition in the […] licence and the […] licence.

605.
Unwired Planet submit that the problem arises from the opacity of Huawei's business. There is no readily available public information and Huawei have not provided any in this case. Unwired Planet suspect that Huawei derive a substantial portion of their infrastructure revenue not from sale of equipment but from convoyed services and contend that a fair royalty should take that into account. Their proposed clause provides that the royalty base will include all revenues "directly or indirectly derived from the sales of infrastructure equipment" including "any revenues derived from maintenance or operation". As a comparable Unwired Planet refer to a licence between Huawei and […] which includes services within the royalty base.

606.
I prefer Huawei's case to Unwired Planet's. The risk that a licensee will sell at an undervalue and earn income through convoyed services is real enough but Unwired Planet's solution is too extreme. The fact that no information has been provided is not such a weighty point since, unless yet more anti-avoidance clauses were put in the licence, a licensee could always change its practices in future. […].

607.
[…] is not a good comparable as they are […]. The wording (clause 1.10) will be Huawei's proposal.

608.
The argument on end user revenues is related to the previous point. The issue is what to do if products are sold at an undervalue because they are part of a combination. Notwithstanding possible difficulties of interpretation, the parties agree that the proper royalty base should be the price at which substantial quantities of equivalent or substantially equivalent products have been sold.

609.
The dispute lies in the alternative royalty base for the situation in which there are no substantial sales of equivalent or substantially equivalent products. In these circumstances, Huawei contend for the royalty base to be calculated on cost +20%. Unwired Planet do not agree because they say there is every reason to believe: (a) costs on Huawei products are very low and (b) Huawei's mark-up is considerably greater than 20%. Unwired Planet contend that an appropriate fall back royalty base is the ASP assigned to Huawei by category of device by a nominated industry tracking agency (e.g. Strategy Analytics).

610.
I prefer Huawei's wording for clause 1.14. It is simpler and links the royalty base to the actual numbers.

611.
The dispute on packaging, insurance and transport discount is how to take them into account in defining the Net Selling Price to which the percentage is applied. Huawei proposes a fixed 5% deduction, Unwired Planet contend to deduct actual packing, insurance and transport up to a ceiling of 5% with no trade discounts to be included. […]. Unwired Planet submit that a flat rate 5% is unreasonably large for high end handsets. The price difference between a single mode 2G device and a high end multimode device will be very large and there is no reason to think the costs will scale with those prices. They argue that the deduction should either be the actuals or if set on a flat rate, a lower

flat rate of 2%. I think a flat rate is better as it is more certain. It should be 4% and will be defined to represent trade discounts as well. In other words I prefer Huawei's wording but with a 4% figure.

Unlicensed products in the UK

612.
The argument about how to deal with unlicensed products in the UK was what Huawei called Unwired Planet's manoeuvre. Agreed clause 2.5 provided that Huawei acknowledged that the rights and licences granted in the UK only pertain to the territory. Unwired Planet contend that the clause should continue with two further provisions: (a) that all "licensed products" not intended for importation into or sale in the UK should be marked "not for sale or use in the United Kingdom" and (b) technical measures should be implemented to ensure that all "licensed products" not intended for importation into or sale in the UK could not be used for roaming in the UK. Note that "licensed products" does not mean products which have a licence but is a definition of the kind of products which would need a licence. Huawei had made a rival proposal to deal with parallel trade which provided that imports by third parties of Huawei goods sold outside the UK would attract a UK royalty to be paid by Huawei. But Huawei had not addressed roaming.

613.
Huawei argued that Unwired Planet's clause was just an attempt to make a UK only licence unworkable. The idea that all Huawei (relevant) products sold worldwide should be marked "not for use in the UK" was absurd. They doubted the technical measures referred to were even possible and also doubted if they were lawful under European trade law.

614.
Unwired Planet did not have a difficulty with the concept of a clause dealing with parallel trade but they did not believe the Huawei proposal was workable since there was no effective mechanism for detecting it. Huawei proposed a revised clause which allowed for adjustment to be made if a regular volume of parallel goods is identified

after reasonable enquiries. […] I think Huawei's proposal is sufficient and deals with parallel trade.

615.
The real problem was roaming. Unwired Planet argued that Huawei was not facing up to the problems inherent in Huawei's insistence on a UK only patent licence in a world in which their handsets are designed to and do cross borders on a large scale. A Huawei handset made and sold outside the UK would have no licence under this entirely territorial licence. Using such an unlicensed product in the UK would be an act of patent infringement.

616.
Mr Cheng for Huawei had suggested this roaming problem was not Huawei's responsibility but I am not satisfied it was as simple as that. Huawei had ample time to show that the effect of the various exclusions from infringement (such as s60(5)(a) of the 1977 Act excluding acts done privately and for purposes which are not commercial) would completely eliminate the problem but they did not do so. They mentioned consumers but that does not cover every case. The example mentioned briefly was what would be the position when a foreign business person brought into the UK a Huawei phone purchased elsewhere and uses it here for their business.

617.
Unwired Planet are right that Huawei's stance illuminates an unattractive aspect of

Huawei’s stance in this dispute. As Unwired Planet submitted, when it comes to the products Huawei wants to make and sell, they want to take full advantage of the international nature of the market that is developed by the international standard setting so as to sell products without restriction on wherever they can be sold and used. But when it comes to taking a FRAND licence offered by the patentee they say they are entitled to take a licence just for the UK despite knowing that some products not sold in the UK will find their way here, by parallel trade and by the international movement of the consumers using their products. As Unwired Planet submit not only is international movement foreseeable, it is intended because as it is the point of an LTE phone. Of course a worldwide licence solves this problem at a stroke.

618.
On the other hand Huawei are right that Unwired Planet’s approach is absurd and unattractive. It is calculated to make the licence impossible for a licensee to accept. That is not FRAND. The assumed premise on which I am settling terms of this UK only licence is that contrary to my earlier finding such a licence is FRAND (or at least that the two parties have agreed to have a licence of that scope).

619.
A FRAND licence in these circumstances has to license every act of patent infringement which the licensee would otherwise be liable for, absent the licence. So the licence must render lawful the roaming use of a Huawei product bought overseas and brought into the UK. Parties taking a FRAND approach to this problem would not embark on trying to decide the legal issue posed by roaming if they could avoid it. Both parties would see that the other had a point. Something has to be done about it in order to ensure the licensee is fully licensed but a clause like Unwired Planet’s is not sensible. Absent any other way of dealing with it the parties would agree a modest uplift on the royalty base to take roaming into account. There is no evidence of how many international handsets enter the UK every day, whether for business purposes or carried by consumers, nor how long they stay here. Absent any other figures, the parties would agree a simple percentage uplift on the total handset royalty to take it into account. I think a fair, reasonable uplift is 4%.

Records and audit

620.
Two arguments remain about the clauses on record keeping and audit. A provision for audit is a standard and important aspect of intellectual property licensing. Standard problems with these clauses are confidentiality of the information and how to structure the costs shifting aspect (if the audit shows the licensee has been underpaying by more than a margin, the licensee pays the costs of the audit). These are the two problems here.

621.
Huawei suggest the correct error margin should be 8% and refer to the […] licence. Unwired Planet contend for 5% and refer to the [… licences]. I find the tighter 5% margin is FRAND.

622.
The other issue is about the licensor’s access to the licensee’s information in the event an audit identifies an underpayment. The independent auditor will have full access. If an underpayment is identified the parties can meet to discuss it. The licensor needs to be allowed access to relevant information as long as the licensor keeps it confidential. Huawei’s final proposal was to accept access by the licensor on that basis but to allow the licensee to limit what is provided to what the licensee considers reasonably necessary. I think that is fair given that the independent auditor will have access

to all information and could raise a problem if they thought the licensee had not given enough information to the licensor to address the underpayment. So I accept Huawei's wording.

Licensor indemnities

623.
This is a debate about what indemnity Unwired Planet should provide Huawei upon the divesture of any licensed patent. Huawei have requested that in the event the Licensed Patents are transferred to a third party (either by assignment or transfer of the business) then Unwired Planet should indemnify Huawei against claims made by that third party in respect of acts covered by the licence.

624.
Huawei contend this has been a real problem in the past. The fact the 2009 EricssonHuawei licence covered patents which were then assigned to Unwired Planet did not stop Unwired Planet making claims in this litigation which included licensed acts. The pleadings were amended but only after considerable correspondence and costs were awarded against Unwired Planet on this at the first CMC in July 2014. An example clause can be found in the […] Licence at clause 7.3.

625.
Unwired Planet's position is that they should be responsible for notifying any purchaser of the patents that Huawei are licensed, imposing upon an assignee an obligation to respect that licence, and taking appropriate measures to ensure that the transferred encumbrance is observed. Unwired Planet submit this is a typical and proportionate approach to running encumbrances upon the assignment of patents and argue that Huawei's approach is much more onerous. They say it imposes on Unwired Planet "a burden that engenders uncontrollable, unpredictable and potentially ruinous costs hanging over them" and that Huawei "have provided no compelling reason to do it". They ask whether this is something Huawei would be willing to accept as a licensor.

In the […] licence Huawei is a licensee.

626.
I agree with Huawei. But for the experience of this litigation Unwired Planet would be in a better position to dispute this. The experience in this litigation bears out the problem. The indemnity will encourage Unwired Planet to make assurance double sure that a transferee respects the licence.

COMPETITION LAW

627.
Huawei contend that Unwired Planet have abused their dominant position by reason of its conduct relating to this dispute and argue that if Unwired Planet's actions do amount to an abuse then Unwired Planet is not entitled to an injunction. Unwired Planet deny these allegations. The relevant law is Art 102 TFEU for which the UK equivalent is s18 of the Competition Act 1998.

628.
Art 102 TFEU is in these terms:

"Any abuse by one or more undertakings of a dominant position within the internal market or in a substantial part of it shall be prohibited as incompatible with the internal market in so far as it may affect trade between Member States.

Such abuse may, in particular, consist in:

(a)
directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions;

(b)
limiting production, markets or technical development to the prejudice of consumers;

(c)
applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage;

(d)
making the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts."

629.
It is not in dispute that Unwired Planet is an undertaking nor that a failure to comply with FRAND would affect relevant trade. The issues are whether Unwired Planet enjoy a dominant position and if so then whether they have abused that dominant position.

(i) Dominant position

630.
The concept of a dominant position was defined by the European Court of Justice in Case 27/76 **United Brands v Commission** [1978] ECR 207 as being:

"…a position of economic strength enjoyed by an undertaking which enables it to prevent effective competition being maintained on the relevant market by giving it the power to behave to an appreciable extent independently of its competitors, customers and ultimately of its consumers."

631.
The starting point therefore is to define the relevant market. It was common ground that the relevant market for the purpose of assessing dominance in the present case is a distinct market for licensing each SEP individually. Defining the relevant market in this way is in line with the European Commission's decision in **Motorola**. With the market defined in that way a patentee obviously has a 100% market share and Huawei submitted that therefore there was a presumption that such a party was dominant, since even a 50% market share will be regarded as proof of dominance save in exceptional circumstances – citing **AstraZeneca AB v Commission** (6 December 2012) Case C457/10 at para 176 and **AKZO Chemie BV v Commission** Case C-62/86 [1991] ECR I3359 at para 60.

632.
On the pleadings Unwired Planet did not admit that they were in a dominant position and in closing submitted that although Huawei had alleged a dominant position, all Huawei had done was rely on presumptions. Huawei's expert Prof Neven had simply expressed the view that there was a strong presumption of dominance. Unwired Planet submitted that this was similar to the situation addressed by Advocate General Wathelet in **Huawei v ZTE.** There the AG specifically emphasised the point that the fact an undertaking owns a SEP does not necessarily mean that it holds a dominant position (see paragraphs 53-58). In particular the AG said:

“57. However, it should be noted that the referring court did not state in the order for reference that it had arrived at its finding that the SEP-holder in the present case unquestionably holds a dominant position after it had examined all the circumstances and the specific context of the case. I share the view expressed by the Netherlands Government that the fact that an undertaking owns an SEP does not necessarily mean that it holds a dominant position within the meaning of Article 102 TFEU, and that it is for the national court to determine, on a case-by-case basis, whether that is indeed the situation.

58. Given that a finding that an undertaking has a dominant position imposes on the undertaking concerned a special responsibility not to allow its conduct to impair genuine competition, that finding cannot be based on hypotheses. If the fact that anyone who uses a standard set by a standardisation body must necessarily make use of the teaching of an SEP, thus requiring a licence from the owner of that patent, could give rise to a rebuttable presumption that the owner of that patent holds a dominant position, it must, in my view, be possible to rebut that presumption with specific, detailed evidence.”

633.
Unwired Planet submitted that the presence of the FRAND undertaking and the countervailing buyer power held by potential licensees amount to sufficient grounds to rebut the presumption in this case.

634.
In fairness to Huawei, since Unwired Planet’s pleaded position was merely a nonadmission of dominance rather than a denial coupled with a positive case to the contrary, I do not believe Unwired Planet can level much criticism at Huawei for relying on a presumption. The European case law, including the opinion of the AG referred to above, indicates that there can be a presumption but it can be rebutted. Unwired Planet

should have advanced a positive case if they wanted to rebut such a presumption and if that is what they wanted to do they should not have met Huawei’s allegation with a mere non-admission. Nevertheless, Huawei engaged directly with two particular points which Unwired Planet advanced at trial and I will consider them.

635.
The first point is the expert evidence. Dr Niels left the issue of dominance open rather than reaching a concluded view while Prof Neven noted that given the agreed market definition, there was a strong presumption that Unwired Planet were dominant and that he had seen nothing to rebut that presumption. This is not a promising start for Unwired Planet.

636.
For the second point (countervailing buyer power) Unwired Planet rely on two arguments to suggest they cannot be in a dominant position. They are the effect of the FRAND undertaking and the potential for hold-out by putative licensees. They are advanced as species of the general genus of countervailing buyer power. Huawei submitted that in his oral evidence Dr Niels stressed that he had not reached a conclusion one way or another on dominance while Prof Neven disagreed with the suggestion that these constraints would alleviate dominance. These stated conclusions are not a complete summary of the expert evidence. As with all expert evidence, what counts are the reasons an expert has for their conclusive opinion and not just the opinion itself. These need to be examined.

637.

Before getting into the two arguments in particular, Huawei took six points on countervailing market power in general. (In fact, the closing lists seven but the seventh is to address the detail of the FRAND undertaking and hold out). First is that Unwired

Planet's arguments, if accepted, are generic and do not apply to Unwired Planet and Huawei specifically. They would mean that no SEP owner is in a dominant position. I do not accept that because the points on hold out derive in part from the specific experience of Unwired Planet themselves. As has been addressed above, their portfolio is much smaller than the portfolios of the major players.

638.
The second point is that the arguments are not species of countervailing buyer power because they are general in nature and the Commission in **Motorola** explained that general bargaining power is a different thing. True "countervailing buyer power" is concerned with the ability to switch to competing suppliers. This submission does not help. If either of the factors operates in fact to constrain Unwired Planet's market power so that they are not in a dominant position then it does not matter what you call it. In this judgment I refer to the points as countervailing buyer power simply as a convenient label.

639.
The third point is that both constraints were present in **Motorola** and were considered and rejected. Motorola had given a FRAND commitment and alleged Apple had held out for seven years. Nevertheless the Commission found Motorola to be in a dominant position in relation to the Cudak patent which was essential to the GPRS standard. That is true but it also does not help. The facts are not the same, notably the case was concerned mostly with conduct in 2011 and 2012, before the time when Mr Lasinski's evidence indicates a change in market behaviour vis a vis FRAND.

640.
The fourth point was that there was no reason to think the SEPs in this case were different in terms of indispensability from the SEP in **Motorola**. I agree. The SEPs

which have been litigated and found to be essential are essential to 2G/GSM, 3G/UMTS and 4G/LTE. Today the industry is locked into those standards.

641.
The fifth point is the allegation that there is insufficient evidence to accept the plea of countervailing buyer power because it must be assessed against the whole market of potential licensees (citing **Motorola** paragraph 240; and Commission Guidelines on Enforcement Priorities at para 18). Such an analysis would ordinarily entail an analysis of the shape, size and concentration of the market of potential licensees for Unwired

Planet's SEPs (citing O'Donoghue and Padilla, The Law and Economics of Article 102 TFEU (2nd Ed'n, Oxford 2013) at pp167-8) and no such analysis has been conducted.

642.
Paragraphs 239 and 240 of **Motorola** decision are as follows:

"239 As noted, the dominant position referred to in Article 102 TFEU relates to a position of economic strength enjoyed by an undertaking which enables it to prevent effective competition being maintained on the relevant market by affording it the power to behave to an appreciable extent independently of its competitors, its customers and ultimately of consumers.

240 Moreover, the General Court has previously held that in a situation where a supplier controls over 90% of a market, the presence of one or more large customers is not capable of affecting the dominant position of the supplier where the demand side is composed of a number of customers that are not equally strong and which cannot be aggregated."

643.
Paragraph 239 is an unexceptional explanation of what a dominant position is. The point of paragraph 240 is in effect that even if one customer (such as Apple there or Huawei here) is very strong and can resist the market power of the SEP owner, that may not mean the SEP owner avoids being in a dominant position because its power may well be sufficient to act with impunity vis a vis other customers in the relevant market.

644.
The point in the Commission Guidelines is similar. The end of paragraph 18 provides:

"Buyer power may not, however, be considered a sufficiently effective constraint if it only ensures that a particular or limited segment of customers is shielded from the market power of the dominant undertaking."

645.
Huawei said that Dr Niels did not agree with the European Commission's views but that ultimately the court should give precedence to the European Commission, at least insofar as the case was considered under the Competition Act because of section 60 of that Act. (Unwired Planet did not agree that Huawei was right about the implications of the Competition Act but I do not have to get into that.) I do not believe Dr Niels was directly disagreeing with the Commission. His point was that if one was considering market wide abuse then **Motorola** para 240 and Guidelines paragraph 18 make sense. But in a case where the abuse alleged is specific as between the alleged dominant undertaking and a particular customer it made sense to focus on that customer and in the end the distinction did not make any practical difference in this case.

646.
I accept Dr Niels' view that this argument makes no practical difference in this case. The point of the cited passages from **Motorola** and the Guidelines is methodological: even if the alleged dominant entity cannot act independently vis a vis one particular large customer, if that entity can act independently of the customers in the market in general to the relevant degree, then it should be characterised as being in a dominant position and amenable to the obligations which flow from that. It may turn out that at the stage of analysing the alleged abusive conduct with respect to the particular large customer, the power of that customer means there was no abuse, but that takes place at a different step in the analysis.

647.
In fact the evidence in this case is not as narrow as Huawei's argument suggests. The alleged hold out by Huawei is specific, but the FRAND undertaking is applicable across the whole market as are some of the points in evidence on hold out. The way I will take this fifth point into account is by keeping the distinction described by Dr Niels in mind when I have completed the analysis of the arguments on dominant position so as to see which way to go.

648.
Huawei's sixth point was that Unwired Planet's argument if accepted would leave a highly undesirable doubt as to whether the FRAND commitment is enforceable by any legal means at all. This lack of

clarity could not be authoritatively resolved by the English court but only by a French court. I do not follow this. The SEP owner does not have to be in a dominant position for the FRAND undertaking to bite. The FRAND undertaking is not imposed by competition law it is imposed by giving the undertaking to ETSI and arises from the standard setting. The French courts are in a much better position than this court to rule on French law but having to rule on foreign law is not unusual. This court has held that FRAND is enforceable in an English court. The other FRAND decisions from other courts around the world show that other courts have enforced FRAND too.

649.
So these six points do not obviate consideration of the effect of the FRAND undertaking and hold out.

The FRAND undertaking

650.
There is no question now that Unwired Planet is subject to a FRAND undertaking. Dr Niels' view was that one needed to ask to what extent the FRAND undertaking was, in practice, a constraint on behaviour of a SEP owner. Part of his point was that uncertainties about the enforceability of the FRAND undertaking, which I have addressed above and which undoubtedly existed, do not mean the undertaking has no effect in practice. Dr Niels pointed out that the undertaking means that the SEP owner cannot refuse to grant a licence. He also thought that the FRAND undertaking was "almost literally" a restriction on the market power of a SEP owner to set the price because the price could be set by a court if the parties did not agree.

651.
Prof Neven agreed that the FRAND commitment does in practice constrain the conduct of SEP holders but his view was that it could not be assumed that the existence of a FRAND obligation would in fact preclude a SEP holder from acting contrary to FRAND. That was due to weaknesses in enforcement and a lack of clarity as to the meaning of FRAND. Unwired Planet submitted this view was wrong in law because it was based on a point about circularity which arises from the Commission's Decision DE/2005/0144 **RegTP** at para 22, cited by the Court of Appeal in **Hutchison 3G UK Ltd v Ofcom** [2009] EWCA Civ 683.

652.
In opening Huawei had submitted that taking the FRAND undertaking into account when assessing market power was circular and contrary to something called the "modified Greenfield" approach based on **RegTP**, **Hutchison** and **BT v Ofcom** [2016] CAT 3. Prof Neven summarised the point neatly as being that when assessing market power constraints which have been imposed precisely because the firm would otherwise enjoy such power, such as a FRAND undertaking, have to be ignored in order to avoid circularity. However, putting the matter that way is too broad. The problem some of these cases were concerned with was whether to lift the constraint in question based on an argument that, with the constraint in place, an undertaking was not dominant. So if it is not dominant, why have the constraint? But that is not a reason to lift the constraint if the undertaking would be dominant without it, and that kind of reasoning is indeed circular.

653.
The Commission's approach, explained in paragraph 22 of **RegTP**, is that it is not appropriate to exclude a regulatory obligation which can have an impact on a finding of a SMP ("significant market power") for the market in issue if that regulatory obligation "exists independently of a SMP finding on the market under consideration". The Commission then state:

“From a methodological viewpoint obligations flowing from existing regulation, other than the specific regulation imposed on the basis of SMP status in the analysed market, must be taken into consideration when assessing the ability of an undertaking to behave independently of its competitors and customers on that market. In the Commission’s view, this could only be otherwise where it is uncertain whether the regulation concerned will continue to exist throughout the period of the forward-looking assessment.”

654.
I prefer not to get into the debate about how to distinguish between an obligation which exists independently as opposed to one “imposed on the basis of SMP status in the analysed market”. In this case the origin of the FRAND obligation is precisely the potential market power of SEP holders in general given by standardisation but it is also an obligation which will continue to exist for all material times. Irrespective of its “independence”, it seems to me that when considering the specific position of an individual SEP owner’s conduct the only appropriate way to assess whether that SEP owner is in a dominant position as a matter of fact is to take the practical effect of the FRAND obligation into account.

655.
Unwired Planet suggested that the fact the Commission did not qualify its ruling by reference to the ease of enforcement of the obligation was relevant. That may be so but is not a significant point. In my judgment, the assessment must always be a practical one based on the reality of the specific circumstances of the market. It is no use pretending the obligation is perfectly enforceable and rigidly adhered to if that is not correct. What matters here is how the SEP owners actually behave. I accept Prof Neven’s point that one cannot assume the FRAND obligation works perfectly. How easy FRAND is to enforce in practice and its clarity are relevant factors.

656.
Based on all the evidence, including the witnesses from Unwired Planet and Huawei, the economists, the valuation experts and the French law experts, I find the position is this. SEP owners and putative licensees are both well aware that the FRAND undertaking obliges the owner to grant licences. Mr Lasinski’s evidence about the reduction in royalty rates before and after 2013 is evidence that the perception that FRAND is enforceable has increased significantly. Behaviour has changed at least to some degree as a result of perceptions of the power of the FRAND undertaking. For the period from 2013 to today, in my judgment the FRAND undertaking does operate as a practical constraint on a SEP owner’s market power, which is what it was intended to do. In the relevant market FRAND does give buyers a form of market power they would not otherwise have which they can and do wield.

Hold-out

657.
The other issue is the potential for hold-out by putative licensees. Hold-out is also called reverse hold-up. There is no difference. Hold out can be considered from two perspectives: the potential for hold out in theory, and the evidence for it in practice.

658.
Considering the potential for hold out, during the concurrent evidence session I raised with the economists the question whether thinking about this market as a market for licences did not present a complete picture. Perhaps an appropriate way to look at it is as a market for inventions. The implementers can and do implement the inventions the subject of SEPs simply by making standards compliant equipment. Unlike a market for goods or services, what the implementer actually wants is

something it has ready access to, namely information, all of which is freely available in the standards. Normally a seller of a product can restrict practical access to his or her goods without payment just by refusing to sell them. The holder of an intellectual property right like a SEP cannot do that. That is of course why the right to exclude given by the injunction plays such a significant part of intellectual property disputes, because it is the means by which the law seeks to put the intellectual property owner into the analogous position to an owner of tangible property such as a product or land. It is sometimes said that a SEP owner is selling technology but this analysis shows that that is not accurate.

659.
Both experts recognised that this was a relevant consideration nevertheless they maintained that the market to consider is the market for licences since it is licences that the SEP owner is offering and a licence is the thing which protects the implementer from the risk of exclusion. As Prof Neven said, if, despite the FRAND commitment, the ability to exclude was available as a matter of course “you would expect to have hold up very, very systematically” and that would deprive FRAND of any meaning. I agree.

660.
Ultimately the determining factor is that what is being made available for sale is a licence. The market should be defined in that way. Nevertheless, this is an unusual sort of market. What the customers (implementers) really want is access to the standard, which they can obtain without paying SEP owners in advance. If they have to pay licence fees then they will of course do so, but the idea that implementers are all rushing to pay licence fees is fanciful. The structure of the market inevitably gives rise to the possibility of licensees holding out.

661.
Huawei recognised that the technology covered by SEPs is frequently implemented before a licence is obtained and suggested that this was specifically ratified by the CJEU in two cases. The first was **Huawei v ZTE** at paragraph 61-62 where the court said:

“…in view of the large number of SEPs composing a standard such as that at issue in the main proceedings, it is not certain that the infringer of one of those SEPs will necessarily be aware that it is using the teaching of an SEP that is both valid and essential to a standard”

662.
That is a slightly different point based on the large number of SEPs but in any event it is also not a statement that implementers have some kind of legal right to infringe SEPs. A notable factor on the facts of this case is that the patents in Unwired Planet’s portfolio were patents Huawei had previously licensed (from Ericsson). I will address that in the section on premature litigation.

663.
The second case said to support the proposition that implementing patented technology before a licence is obtained is lawful is Case T-472/13 **Lundbeck v Commission** (8 September 2016). Huawei contend that at paragraph 121-122 the CJEU had held that an “at risk” entry to a market is “not unlawful in itself”, and it is therefore for a patentee to “prove before the national courts” that there is actually an infringement. Those paragraphs were concerned with a very different context from the present case. **Lundbeck** was about generic entry at risk into a patented market and agreements between the innovator and the generic supplier. Paragraph 121 is about the effect of a presumption of validity. Leaving aside the question of whether the Patents Court recognises any such presumption at all, the point in the paragraph is that just because there may be a presumption of validity that cannot

be turned into a presumption of illegality of the generic products launched at risk. That is unsurprising and not relevant. The relevant part of paragraph 122 is concerned with the point that launching at risk as a type of conduct is not unlawful. It is not suggesting that an implementer would not have been committing the tort of patent infringement from the outset if they did so, albeit that might only be established after the event. It is a very long way from the question of holding out by the implementer of patents declared as essential to telecommunications standards.

664.
Unwired Planet pointed out that in the experts' joint memorandum Prof Neven accepted that there are circumstances in principle in which implementers can exercise bargaining power by holding out, but suggested that bargaining power must be assessed in the context of the court procedure that would be triggered in the case of disagreement. Unwired Planet referred to Prof Neven's "**Justice is not blind**" paper cited above which indicated that in the context of the court procedures adopted in key jurisdictions in Europe, including the United Kingdom, licensee hold-out is a very real possibility. The paper includes a conclusion that "serious consideration should be given in the policy debate to the risk of reverse hold up by the licensees" and that while concerns of holdup by SEP holders may not be well-founded, "In fact, it would appear that the licensee may often engage in a reverse hold-up." The paper was put to Prof Neven in crossexamination. He emphasised that the modelling in the paper was theoretical and that the case law had moved on since then due to **Huawei v ZTE**. These points are both true as far as they go but in my judgment the Professor's paper can properly be taken to recognise that hold-out by licensees is something which can occur and can be an economically rational approach for a licensee to take.

665.
Overall I find that there is clear potential on theoretical grounds for hold-out to occur.

666.
Turning to the evidence, Unwired Planet relied on Mr Robbins' testimony that prior to commencement of the present proceedings, Unwired Planet had not been able to convince a single manufacturer (aside from Lenovo) to discuss the commercial terms of a licence with them at any reasonable level of specificity or fair negotiation. He explained:

"It was obvious to me that we were being kept in limbo, by design or by inefficient process, by all of the potential licensees we were attempting to negotiate with. They did not want us to litigate, and so they did not refuse to negotiate altogether, but they also did not want to take a license and were deploying every tool available to ensure that no license would be concluded. …

Many potential licensees (some more than others) were seemingly engaging in delay tactics and we realized that it would be very difficult if not impossible to progress beyond technical discussions and to start negotiating the terms of a license without litigation. Where conversations did move beyond technology and into pricing, we were expected to bid against ourselves, receiving very few counter-offers. Those we did receive were derisory and the parties remained poles apart with respect to the rates each thought were FRAND. …"

667.
I have no reason not to accept that testimony. In it, the evidence of holding out which I can rely on is the evidence of delays before discussions of pricing took place. The reason for drawing that distinction is because once pricing is discussed, the issue of delay becomes tied up with the question of what a proper rate should be. Once prices are discussed a delay may just be due to a licensor asking for too much money.

668.
Unwired Planet also referred to the fact that Huawei have not paid anything for the SEPs they formerly licensed from Ericsson since that licence expired at the end of 2012, although Huawei rightly pointed out that Unwired Planet had never sought to have Huawei put royalties in an escrow account in advance. This point does not help. Finally, Unwired Planet referred to its distressed financial state at the time of the purchase by PanOptis. That has the same qualified relevance as Mr Robbins' evidence.

669.
Overall there is evidence of holding out in practice but it is less strong than Unwired Planet submit.

Conclusion – dominant position

670. Standing back, the question I have to decide is whether Unwired Planet is in a dominant position in the relevant market. The relevant market is a market for licences under the SEPs. It is a market in which the SEP owner has 100% market share. The market is covered by the FRAND undertaking which does weaken the SEP owner's position. It

is a market in which licensees can engage in holding out and there is some evidence that they do, particularly given the relative weakness of Unwired Planet. If a proper economic analysis had been done into this market then the issue might be more finely balanced but as it stands, and without that analysis, I am not satisfied either of these points alone or together is sufficient to justify not drawing the inference that the holder of a 100% market share is likely to be dominant. I hold that as the owner of SEPs, Unwired Planet is in a dominant position in the market for licences under those SEPs.

(ii) Abuse of dominance

671.
Huawei submitted that there is no single touchstone to what may constitute an abuse and pointed out that Art 102 itself gives specific examples of abuses, which include "…directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions" (Art 102(a)) and "…applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage" (Art 102(c)).

672.
The particular abuses alleged by Huawei are:

i) Premature litigation: Huawei v ZTE; ii) Unfair excessive pricing (Art 102(a)); iii) Bundling / tying in SEPs and non-SEPS;

iv) Multi-jurisdictional bundling.

673.
Taking the four topics in turn:

(a) Premature litigation: Huawei v ZTE

674.
Huawei submit that in **Huawei v ZTE** the CJEU laid down a set of entirely mandatory conditions with which a SEP owner must comply before starting an action seeking injunctive relief in order to avoid affording the defendant a defence under Art 102 TFEU. The conditions are that before bringing

proceedings against Huawei seeking a prohibitory injunction Unwired Planet was required in the present case to:

i)
alert Huawei to “the infringement complained about by designating that patent and specifying the way in which it has been infringed”;

ii)
present to Huawei a “specific, written offer” for “a licensing agreement on FRAND terms”; and

iii)
afford Huawei sufficient time diligently to respond to that offer, “in accordance with recognised commercial practices in the field and in good faith”.

675.
In support of its submission that failure to comply with these conditions meant that Unwired Planet had necessarily abused their dominant position Huawei refer to paragraph 60 of the judgment which includes the following:

“…the proprietor of an SEP which considers that that SEP is the subject of an infringement **cannot, without infringing article 102 TFEU**, bring an action for a prohibitory injunction or for the recall of products against the alleged infringer without notice or prior consultation with the alleged infringer, even if the SEP has already been used by the alleged infringer.”

(Huawei’s emphasis)

676.
Since the 2014 offer was made to Huawei after the proceedings commenced, there is no doubt that Unwired Planet did not comply with these conditions. Unwired Planet contend that the true principle to derive from **Huawei v ZTE** is not as rigid as Huawei submit. The arguments shade into points which distinguish **Huawei v ZTE** on the facts, and in that context each side also criticises the other’s conduct. In substance the parties are arguing about the degree to which what happened departs from the framework described in **Huawei v ZTE** and the significance of that departure.

677.
In the end the points of principle resolve down to two questions, one about the content of the individual conditions and the other about how the conditions work.

678.
Before going further, a recap of the relevant factual background is worthwhile. In summary:

i)
Huawei had a licence from Ericsson from 2009 which expired at the end of 2012. That licence included the SEPs which were assigned to Unwired Planet in 2013.

ii)
In June-August 2013 there was a brief two-way dialogue between Huawei and Unwired Planet (or its proxy Evercore) about Huawei buying some of the SEPs. Huawei said no thank you.

iii)

After 2013 Huawei knew all they needed to know to appreciate that certain SEPs which they had formerly licensed were now held by a different company and, if and to the extent a licence was required, it would have to come from Unwired Planet or its successors.

iv)
Unwired Planet wrote to Huawei in September 2013. The letter was to the Board rather than the IP or Licensing Dept. and nothing came of it. Huawei do not deny the letter was received but conversely Unwired Planet made no effort to follow it up.

v)
In November 2013 contact was established and some correspondence began. By the end of January 2014 Huawei could reasonably expect the next step in the correspondence to be a letter from Unwired Planet dealing with NDA terms to be followed, after an NDA was agreed, by claim charts.

vi)
On 10^{th} March 2014 Unwired Planet sued Huawei for patent infringement on five SEPs in the UK and Germany.

vii)
In April 2014 Unwired Planet made it first offer of terms.

679.
Unwired Planet contend that an important point is that the UK proceedings are not an “action for a prohibitory injunction or for the recall of products” as described by the

CJEU because the relevant relief claimed for infringement was more subtle. As is conventional in English pleadings, the remedies claimed are set out in the part of the Particulars of Claim known as the “Prayer for relief”. The relevant part is:

“AND THE CLAIMANT CLAIMS:

(1) [a declaration that infringement has taken place]

…

(5) Save insofar as the Defendants and each of them are entitled to and take a licence to the Declared Essential Patents on FRAND terms (in accordance with the Claimant’s undertakings and the ETSI IPR Policy) and insofar as the Claimant is and remains required to grant such a licence:

a.
an injunction to restrain the Defendants and each of them (whether acting by their directors, officers, servants, agents or any of them otherwise howsoever) from infringing the

Declared Essential Patents;

b.
an order that the Defendants take all steps as are in their power to retrieve from the channels of distribution all products the sale, disposal or keeping of which would infringe the Declared Essential Patents or any of them; and

c.

an order for delivery up or destruction upon oath of all articles and materials in the possession, custody or control of the Defendants (or each of them) which infringe the Declared Essential Patents or any of them.

(6) [dissemination of the judgment] (7) [a damages enquiry]

(10) [costs]

680.
Unwired Planet rely on the opening words in paragraph (5) as showing that the claim for an injunction is qualified so as only to apply in limited circumstances which amount to the defendant (Huawei) only being at risk of an injunction if it is an unwilling licensee and that, say Unwired Planet, is what the court in **Huawei v ZTE** specifically permitted. Huawei would only be at risk of an injunction if it refuses to take a FRAND licence and Unwired Planet must be entitled to ask for an injunction to be granted if that is what has happened.

681.
Huawei disagree on three grounds. The third ground is the most significant. The point is that if one could avoid **Huawei v ZTE** with a form of words amounting to “I don’t want an injunction if I can’t have one” then that would deprive the decision of any effect. I agree. It would be a recipe for avoidance and would fail to grapple with the economic concerns underpinning the decision.

682.
Nevertheless there is an aspect of the decision of the CJEU which counts against that logic. It is the distinction the court draws between starting proceedings which only claim damages (or an account) but no injunction and starting proceedings which include an injunction claim. The latter can be an abuse in the relevant circumstances but the former is not (see the judgment on the 5th question, paragraphs 72-76). The judgment is quite clear on this but the distinction is not an easy one since, at least in English civil practice, a claimant can, with the court’s permission, amend a claim after issue and before trial (or even sometimes after trial and before judgment). It may be that in other European countries with different approaches to civil procedure such an amendment is more difficult but the judgment does not address this. Prof Neven did not really agree with the CJEU on this. His view was that even if the commencement of litigation did not involve the threat of an injunction, “by commencing proceedings before attempting to engage in the good faith negotiation that Huawei could have legitimately expected, Unwired Planet’s behaviour can, from that perspective, be seen as amounting to an abuse”. Leaving aside whether that is what Unwired Planet did, the point is that Prof Neven’s approach would cover starting a claim for damages only. The line drawn by the Professor here is much clearer but it is not in the same place as the line drawn by the CJEU. I must follow the CJEU. Although the distinction they have drawn is rather narrow and could lend support to a technical argument of the kind run by Unwired Planet here, in my judgment the point does not go far enough to do that.

683.
Huawei’s other points on the qualified injunction claim are these. First, on its own terms the Particulars of Claim does seek an injunction and the words of the qualification are against Unwired Planet because they do not squarely accept that Unwired Planet is under a licensing obligation at all. I accept that submission too. Unwired Planet’s characterisation of the qualification as simply one which only applied if Huawei is an unwilling licensee is not accurate. The words “insofar as the Claimant is and remains required to grant such a licence” introduce a widely stated contingency about Unwired

Planet's position, irrespective of the status of the defendant, unwilling or otherwise. If a form of words could have done the trick at all, this form of words did not achieve it.

684.
Huawei's third point is about what happened during the litigation. They say Unwired Planet continued to seek injunctive relief even after Huawei made it clear they were willing to enter into a FRAND licence. That is a quite different point from the previous two and I do not accept it is that simple. To deal with it, the whole course of the litigation needs to be examined in a little detail.

685.
In the weeks after the proceedings had started there was correspondence between Mr Saru of Unwired Planet and Mr Kreuz of Huawei. Unwired Planet contend there were delaying tactics from Mr Kruez and, amongst other things rely on a reply from Mr Kruez which they characterise as either a thinly veiled threat or extremely unprofessional. It included the following:

"Regarding the litigation suits I welcome you in my playgrounds, certainly hoping it will not be necessary to waste too much effort but also looking forward to have clearly defined valued of some of your assets, when required".

686.
In closing Unwired Planet pointed out that Mr Kreuz was not called as a witness and submitted that this email was a plain suggestion by one of Huawei's senior lawyers that they intend "to swat Unwired Planet aside without having to 'waste too much effort' with the result that Unwired Planet's assets are deemed worthless." Mr Zhang dealt with this for Huawei. He put the tone of the email down to Mr Kreuz's sense of humour.

687.
The tone of this email quoted above was ill judged (as was another email from Mr Kreuz shortly afterwards) but no more than that. By June 2014 Mr Zhang had taken over responsibility for dealing with Unwired Planet and an NDA was entered into on 18th June. I reject the suggestion that there was any material delay on Huawei's part between April and June 2014.

688.
Huawei (and Samsung) made comments on the April 2014 licensing proposals and then Unwired Planet addressed them in their July 2014 proposals. One point was to remove non-SEPs (although Unwired Planet say that was always available in the April offer anyway). In the same period Huawei's Defence and Counterclaim was served. In this document and amongst other things Huawei denied infringement and counterclaimed for revocation of all the SEPs, contended that Unwired Planet had acted in breach of Art 102 by commencing the litigation prematurely, stated (paragraph 54) that if contrary to its case any of the SEPs are valid and infringed then the patentee was not entitled to an injunction and its only remedy is damages equivalent to a FRAND licence fee, and stated (paragraph 56) that in relation to any SEP which is found to be valid and infringed Huawei will undertake to enter into a licence on terms found by the court or agreed between the parties to be FRAND.

689.
So Huawei's willingness to take a FRAND licence at that stage was qualified by the requirement that for any given SEP Unwired Planet had to establish infringement and the SEP had to be found valid. The licence Huawei was therefore prepared to accept was a UK patent by patent licence. Although in **Vringo** I expressed the view that a defendant was entitled to do this, the approach presupposed that a territorial patent by patent licence would be FRAND.

690.
I now need to turn to the without prejudice negotiations. This has created a tangle. Starting with the principles, the concept of without prejudice negotiation is a wellestablished and useful aspect of civil litigation in the common law (one leading case is **Rush & Tomplins v GLC** [1989] AC 1280; the basis for it is examined in **Muller v** **Linsley & Mortimer** [1996] PNLR 74 CA and **Cutts v Head** [1984] Ch 290 (CA); exceptions are considered in **Oceanbulk v TMT** [2011] 1 AC 662 and **Unilever v P&G** [200] 1 WLR 2436).

691.
Without prejudice provides a channel for frank negotiations. An ability to be frank is likely to aid settlement. In order to facilitate such frankness, what is said without prejudice is generally inadmissible before the court. At the same time parties can also make open offers to each other which are admissible, assuming they are relevant. If an open offer would be a good idea, the fact one is negotiating without prejudice is not a reason not to make it. I am not aware if Chinese law recognises a similar rule but Huawei have always had the benefit of legal advisers in this jurisdiction of the highest calibre.

692.
I know, because I have been told, that the parties have both made without prejudice offers to each other since the action began. For example, Unwired Planet's July 2014 offer was first made without prejudice and then made open and Huawei made a without prejudice offer to Unwired Planet in August 2014. This is not surprising. However by March 2015 the only open offers which had been made and which therefore could be admitted in court were Unwired Planet's two offers of April and July 2014. Huawei had made no open offers. There was a brewing dispute about without prejudice but I will return to that.

693.
An alleged infringer who wishes to show they are a willing licensee would do well to make an open offer of the FRAND terms it would be prepared to accept. I do not say that is a mandatory requirement and neither does **Huawei v ZTE** but referring to the fact that without prejudice negotiations are taking place or that offers have been made without prejudice does not materially advance the issue. In my judgment without prejudice offers are not admissible to establish that the alleged infringer is a willing licensee. An alleged infringer making an offer without prejudice makes it knowing it is not admissible in court and intending that to be the result. The party making such an offer always has the option of making it open either at the same time or sometime afterwards if they wish the offer to be admissible.

694.
In this case Huawei complain that Unwired Planet insisted on negotiating without prejudice. However to the extent Huawei seek to use that as a justification for not making an open offer at any given stage, it does not work. Huawei were always free to make an open offer if they saw fit and they knew or ought to have known that. It is also true that at the March 2015 CMC Unwired Planet changed their tune and submitted that the without prejudice rule did not apply to any licensing negotiations, but the point was not pursued. It is part of what led the court to direct that the parties should all put open offers forward, since they all said they were willing to enter into a licence.

695.
The parties exchanged open offers in June/July 2015. Huawei's open offer at that stage (made on 2nd July 2015) advanced a royalty rate that it would accept but was limited to being an offer to accept a

licence only on a patent by patent basis for any SEP found valid and infringed. There is no basis to criticise Huawei that it made an offer in those terms since that is what I directed all the parties to do, because they said they were willing to do so. There is however a point to be made that that was the only open offer Huawei was willing to make at that stage. In cross-examination Mr Zhang sought to justify the position on the basis that that is what the court order provided for. That will not do. Huawei were always free to make open offers on a wider basis and always knew or ought to have known that. The court order did not impose a restriction at all.

696.
In February 2016 some open correspondence did occur. In passing: this demonstrates that both parties were perfectly capable of making open offers and stating open positions if they thought it would advance their interests. On 25th February 2016 Unwired Planet's General Counsel, Noah Mesel, wrote directly to Mr Zhang at Huawei (Mr Zhang is Deputy Director of IP Litigation). At that stage Unwired Planet had won the first UK Technical trial and I think had had some success in Germany. The letter is not good natured and makes a number of tendentious points, but it does reiterate Unwired Planet's willingness to negotiate a FRAND licence. Mr Mesel proposes that the worldwide dispute be resolved by an arbitration to settle the terms of a FRAND licence.

697.
Huawei's reply is dated 29th February 2016. As a reply it is just as tendentious as Unwired Planet's letter but no more so. It reiterates Huawei's willingness to negotiate a FRAND licence. As for arbitration, the letter explains that Huawei regards the suggestion as "utterly disingenuous" owing to the relatively late stage in the proceedings that the offer was made and makes the point that it could not work without Samsung being involved given the state of the UK litigation. The letter ends stating that "we suspect that Unwired Planet's true motivation for making this suggestion is to try and set up an argument that Huawei is not a willing licensee because it has not agreed to arbitrate the dispute. Huawei will vehemently oppose any such suggestion."

698.
I am quite sure Huawei's instinct was correct and one of Unwired Planet's motives was exactly that. Huawei was also right that arbitration at that stage would have to have taken Samsung into account somehow and Unwired Planet's submissions at trial seeking to downplay that problem were not convincing. Nevertheless, the fact remains that as at February 2016 the only offer Huawei had been prepared to articulate in terms which Huawei was prepared to put before this court (i.e. on an open basis) was the one made pursuant to the court's direction the previous year. The proposed arbitration would have resolved the worldwide dispute whereas part of Huawei's stance was that it was only prepared to finish the UK proceedings with a UK patent by patent licence.

699.
Following the Samsung settlement in August 2016 the parties exchanged further offers. The rates moved somewhat closer together but Huawei's open stance remained that it insisted on a UK only patent by patent licence.

700.
On 11th October 2016, days before the trial, Huawei made an open offer that it would take a UK only portfolio licence. In opening Unwired Planet submitted that Huawei was an "unwilling licensee" and that the October offer was the first time Unwired Planet had been prepared to countenance a UK only portfolio licence. Huawei submitted in closing (Annex N paragraph 14 et seq) that there was an obvious unfairness in Unwired Planet seeking to advance this criticism whilst insisting on

maintenance of without prejudice. The hint of course is that a UK only portfolio offer had been made sometime before that but on a without prejudice basis. For what it is worth there is also a reference to such an offer in Huawei's open 29th February 2016 letter. Although the question of scope is very important, the rates in that offer or offers and any other terms are still covered by without prejudice privilege.

701.
In cross-examination Mr Zhang had difficulty with this issue because he wanted to answer criticisms that Huawei had not made offers and was an unwilling licensee by referring to offers made without prejudice by Huawei. I sympathise with Mr Zhang's personal position on this but not with the position of Huawei. As I have said above Huawei were always free to make an open offer if they saw fit and they knew or ought to have known that.

702.
I will take what has been made open into account but no more. 11th October 2016 was the first time Huawei made an open offer that it would take a UK only portfolio licence which included a stated rate. There obviously were previous offers, including an offer or offers with the same territorial scope, but the details are not admissible.

703.
The relevant developments during the trial have been referred to already. All the open offers made so far had been just focussed on major terms – rate and scope. I directed the parties to liaise about detailed terms. They did so for a UK portfolio licence but Huawei did not engage with the worldwide draft.

704.
That concludes the detailed run through of the course of the proceedings. This run through started in order to address Huawei's third answer to Unwired Planet's submission the UK proceedings are not an action for a prohibitory injunction. The answer was said to be that Unwired Planet continued to seek injunctive relief even after Huawei made it clear they were willing to enter into a FRAND licence.

705.
It is plainly correct that Unwired Planet have maintained their claim for injunctive relief throughout the proceedings, subject to what I have found to be an irrelevant qualification. But it is not accurate to say that the claim has been maintained even after Huawei made it clear they were willing to enter into a FRAND licence.

706.
In the only forum which is admissible before this court Huawei have never made an unqualified commitment to enter into a FRAND licence. Having reviewed the conduct of the proceedings in detail, Huawei's stance has always been that they are willing to enter into what Huawei contend is a FRAND licence. Until a few days before trial that was and was only a patent by patent licence for any patent found valid and infringed. After the 11th October it was a UK portfolio licence. Huawei have always reserved to themselves the right to determine what was FRAND at least in respect of the scope of the licence.

707.
That kind of stance always has been a risk. Leaving to one side the Art 102 defence itself, in other words Huawei's case that Unwired Planet have abused their dominant position such that the appropriate remedy would be refusal of an injunction in any event even if no licence is in place, the

insistence on a particular scope of licence depends on the court finding or the claimant agreeing that such a licence was indeed FRAND. Insistence on a patent by patent licence derived some support from my **Vringo** judgments which refer to that sort of licence but on any view once **Huawei v ZTE** had been decided, it was clear that **Vringo** was not the whole story. In any event Huawei's stance shifted beyond that before trial.

708.
I will address **Huawei v ZTE** in detail below but at this stage I can say that when the CJEU in **Huawei v ZTE** refers to a licensee expressing a willingness to conclude a licence agreement on FRAND terms, in my judgment they are referring to a willingness which is unqualified. In other words, a willing licensee must be one willing to take a FRAND licence on whatever terms are in fact FRAND. Those terms might be settled by negotiation, by a court or by an arbitrator but to insist on any particular term runs the risk that that term is not FRAND. At best it could only amount to a form of contingent willingness.

709.
The position of Unwired Planet in these proceedings involves trying to insist on certain terms (a worldwide licence) but that insistence is not of the same kind as Huawei's insistence on a UK portfolio licence because Unwired Planet's approach takes account of the possibility that they may not be entitled to demand what they ask for, whereas Huawei's stance does not. Unlike Unwired Planet, Huawei's approach had no fall-back position.

710.
The issues about royalty rates or other terms does not add anything to this analysis. The parties' offers on rates were far apart but by the trial both sides were prepared for the court to decide what the FRAND rate was (subject the scope issue). Other terms were not discussed at all until the court initiated the discussion.

711.
In reality of course it is and has always been obvious that both sides would be prepared to enter into a licence if only agreement could be reached. Unwired Planet never wanted an injunction, they wanted a licence if the terms could be agreed. Huawei did not want to be injuncted, they too wanted a licence if the terms could be agreed. And both parties have known that perfectly well from the very beginning. To the extent they have each accused the other of intransigence, the only basis on which the court can operate is the open stances adopted by each side.

712.
So this is an action for a prohibitory injunction, but it is not one in which the patentee has persisted in seeking such an injunction when the defendant has given an unqualified commitment to take whatever licence is FRAND.

Huawei v ZTE

713.
In order to decide if bringing or maintaining these proceedings is an abuse I need to apply **Huawei v ZTE** to the facts. The first step is to derive principles from the CJEU's judgment. In the judgment the CJEU addressed both injunctions and orders for delivery up (recall of products) together. That made sense and reflected the arguments before the court. In this judgment I will just refer to the injunction.

714.

The CJEU’s judgment arises from a reference from the Landgericht Düsseldorf. This is relevant because, as Floyd J explained in **HTC v Apple** [2012] EWHC 2037 under German civil procedure:

“…Validity and infringement are tried separately in Germany but an injunction can be granted at the end of the infringement trial. The injunction will not normally be stayed unless the Court considers that there is a high probability that the patent will be held invalid, although it is possible for other measures such as appeal to be taken to avoid an immediate injunction.”

715.
This procedural bifurcation was also identified in Prof Neven’s article which I have referred to above. It matters because it works in favour of SEP owners and makes the risk of an injunction higher. Unwired Planet submitted that in the case from which the referral was made there would have been a very real prospect that Huawei might obtain a final injunction against ZTE on the basis of infringement absent any determination of the question of validity. I agree.

716.
The CJEU’s judgment reviews the legal context (paragraphs 3-20) including patent law derived from the EPC (noting it is national law (i.e. not EU law)), EU law including the Enforcement Directive 2004/48/EC, German procedural law and the ETSI rules including the ETSI IPR policy. Next the court summarised the dispute (paragraphs 2138). In this section it refers to tension between the German “**Orange Book Standard**” (KZR 39/06) decision and a Press Release from the European Commission.

717.
Orange Book Standard was a well known 2009 decision in which the

Bundesgerichtshof (BGH) had laid down guidelines for dealing with injunction claims under standards essential patents in Germany. From an English point of view the guidelines in the **Orange Book Standard** case were in part driven by the effect of the bifurcated litigation system in Germany and used Art 102 as a tool to achieve that end. In any case, as the CJEU and AG Wathelet explain in paragraphs 30-33 and 31 respectively, under the principles laid down, a patentee would be able to obtain an injunction for a standards essential patent in the infringement court in effect as long as the defendant had not made the right sort of unqualified offer to conclude a licence and had not given security for payment of the royalty.

718.
On the other hand the Commission’s Press Release suggested that bringing such an action was always contrary to Art 102 if the SEP owner had given a FRAND undertaking and the defendant had said it was willing to negotiate. Under that scheme,

the CJEU explains in paragraph 34, it may be irrelevant that the parties cannot agree on the content of certain clauses or on the amount of royalty to be paid.

719.
So following **Orange Book Standard** in the instant case Huawei should have been able to get an injunction because ZTE’s offer was not unconditional and ZTE had not paid to Huawei the amount ZTE’s figures said was due (paragraph 33) whereas following the Press Release, Huawei’s claim should have been dismissed because it was common ground the parties are willing to negotiate (paragraph 35). The referred questions were designed to resolve that inconsistency.

720.

The CJEU explained that the question was whether an action for infringement of a SEP subject to a FRAND undertaking, which included a claim for an injunction and damages, against a defendant who requested the conclusion of a licence agreement, was an abuse within Art 102 (paragraph 41). The court emphasised that a balance had to be struck between maintaining free competition and safeguarding intellectual property and noted that dominant position had not been contested (42-43).

721.
In answering the main questions, about an action including a claim for an injunction, the court deals with general competition law issues and the relationship with IP (para 45-48), noting that the facts of the present case are different from what had gone before. The distinctions are the essential nature of the SEP (para 50) and the irrevocable nature of the FRAND undertaking (para 51). The court holds at paragraphs 52-53 that these two features mean that despite the exclusionary nature of the patentee's right, implementers have a legitimate expectation that the SEP owner will grant licences on FRAND terms so that refusal to grant such a licence may in principle constitute abuse.

722.
Two things flow from this. First, the abuse identified at this stage is refusal to grant a FRAND licence. Second, the existence of the legitimate expectation justifies the CJEU's conclusion without having to enter into an argument about the enforceability of the FRAND undertaking. The CJEU has identified that implementers have such a legitimate expectation without having to decide that the undertaking can be enforced at the suit of an implementer.

723.
It is common ground before me, but I have also satisfied myself, that the FRAND undertaking is justiciable and enforceable in court irrespective of competition law. That gives implementers legal rights and obligations which the CJEU's decision was not able to recognise. The FRAND undertaking gives an implementer who is prepared to accept whatever terms are FRAND a right which amounts to a defence to the claim for an injunction. That is because the implementer is entitled as a matter of law to be granted a FRAND licence and the wording can be settled by the court (or by an arbitrator). Since the injunction relates to future activity, no injunction is ever likely to be warranted. Therefore the legal landscape which the CJEU were presented with in **Huawei v ZTE** was incomplete in a material way.

724.
Returning to the CJEU's judgment, at paragraph 54 the court holds that it follows from the legitimate expectations that the abusive nature of the refusal to grant a licence is a defence to the claim for an injunction which may be raised by the implementer. The conclusion follows if an abuse has occurred, but if the FRAND undertaking is enforceable anyway and is a defence to future infringements then one does not need Art

102 to achieve this result. Paragraph 54 also includes the statement that under Art 102

the patentee is obliged to grant a licence on FRAND terms. As I have explained, in my judgment such a patentee is obliged to do that anyway irrespective of Art 102.

725.
In paragraph 55 the court holds that in "such a situation" (i.e. the parties cannot agree on what is required by FRAND) in order to prevent an action for an injunction from being abusive the patentee must comply with conditions to ensure a fair balance and turns to consider the conditions. At this stage the reference to conditions is general.

726.

Paragraphs 54 and 55 are a revealing aspect of the reasoning of the CJEU. The court is drawing an analogy between a recognised kind of abuse, that is a refusal to licence, and the bringing of a claim for an injunction. I can see that this analogy makes sense in the context of **Huawei v ZTE** but it does not follow that starting legal proceedings which include an injunction claim will always and necessarily be the same as refusing to licence.

727.

Then in paragraphs 56-58 the court notes that IP rights are accorded a high level of protection in EU law and so the patentee may not be deprived of a right to bring legal proceedings and the user of the IP must obtain a licence “prior to any use”. All the same (para 59) the irrevocable FRAND undertaking does justify imposing conditions on bringing injunction claims without negating the substance of the right.

728.

The first condition is a prior alert to the implementer “even when the SEP has already been used by the alleged infringer” (paragraphs 60-62). This notice is the first of Huawei’s three conditions set out at the start of this section of my judgment. The logic of the condition is that, as AG Wathelet explained, given the large number of SEPs, the implementer may not necessarily be aware that it is using the teaching of a SEP which is valid and essential. In this judgment I will continue to refer to the implementer although the CJEU refer to the “alleged infringer”. There is no difference.

729.

Huawei put an extract from paragraph 60 at the forefront on their case on the mandatory nature of the conditions. They are entitled to emphasise it because the paragraph is drafted in a wide sense: stating positively that a SEP owner will infringe Art 102 if they bring an action for an injunction without notice or prior consultation. I will return to this below.

730.

The second condition (paragraphs 63-64) is that after the implementer has said they will take a FRAND licence, the patentee must provide a specific written offer. It must at least include a royalty rate and show how it is calculated. This second condition is also expressed accurately in Huawei’s distillation of three conditions. The CJEU notes the general secrecy about licences in this industry and points out that the patentee will be best placed to make an offer which is non-discriminatory, since the patentee will know what other licences it has concluded. The CJEU’s point is just as apposite to the general non-discrimination obligation as the hard-edged version I have rejected.

731.

At paragraph 65 the CJEU explains that it is for the implementer to respond diligently to these terms and not indulge in delaying tactics. This is a recognition of the potential for hold-out. The third condition expressed in Huawei’s distillation relates to this point. Huawei’s version adds to the CJEU’s analysis the idea that the implementer should have a sufficient time to respond. That makes obvious general sense. Nevertheless Huawei’s argument seeks to mechanically insert that time into a period before the SEP owner is entitled to bring proceedings at all without being abusive. The CJEU did not say that in terms although a SEP owner who brought the claim before the implementer had any chance to respond sensibly would not be complying with the letter of the CJEU’s scheme.

732.

At paragraph 66 the CJEU addresses the next step: an implementer who does not accept the SEP owner's offer must make a specific counter proposal on FRAND terms and it must be made promptly. Only if the implementer does that can they rely on the Art 102 abuse defence. This condition is not mentioned in Huawei's distillation. It should be. I presume it was not included because Huawei's position is that Unwired Planet never gave them a chance to do this before the proceedings were commenced. That is understandable as far as it goes but putting it that way presupposes a narrow view of the CJEU's decision that the whole scheme is a form of mandatory protocol which must precede issuance of a claim form, which has nothing to do with what happens once proceedings have been issued, and if proceedings are started without complying with the scheme to the letter, the scheme is no longer relevant at all. That is not the only way to read the CJEU's judgment.

733.
At paragraph 67 the CJEU deals with the case in which the implementer is using the SEP before a licence agreement has been concluded. From the point when the counter proposal is rejected the implementer must give appropriate security such as a bank guarantee or deposit. This further step is not in Huawei's distillation, I presume for the same reason as before, i.e. Huawei's case that it was sued too soon.

734.
At paragraph 68, the CJEU makes the point that if no agreement has been reached the parties may by agreement request the rate be settled by an independent third party without delay. This could obviously be an arbitrator and at least as a matter of English law the court could declare a FRAND rate as long as it was starting from concrete proposals. The concept covers all terms. The CJEU will have referred to the rate because that is usually the major dispute.

735.
At paragraph 69 the CJEU explains that the implementer cannot be criticised for challenging validity and essentiality of the SEP and the implementer is entitled to reserve the right to do so in future. Therefore a licence on FRAND terms may not contain a no-challenge clause (the contrary has not been suggested anyway given normal competition law principles). It also means that reserving that right to challenge cannot be taken against an implementer. Importantly the CJEU also states that instead of just reserving the right to challenge, the challenge can be brought "in parallel to the negotiations relating to the grant of licences". In other words starting a legal action is not the same as a refusal to take a licence on the part of the implementer.

736.
The point is also relevant to the temporal nature of the CJEU scheme. Challenges to validity and essentiality (infringement) are brought by bringing legal proceedings for revocation or a declaration of non-infringement. So if the whole scheme from paragraph 60 onwards was intended to be mandatory before the commencement of legal proceedings by the SEP owner, the clear statement by the court that an implementer may bring the challenges in parallel to the negotiations would not be consistent with it. Otherwise the scheme would have the effect that the SEP owner may not even issue a claim until the negotiation process leading to a counter offer had got that far, but the implementer could issue a claim for revocation and a declaration of non-infringement at any time.

737.
Finally at paragraph 70 the CJEU explains that it is for the referring court to decide if the criteria are satisfied in the proceedings before them.

738.

The relevant referred questions are answered in paragraph 71, which in effect summarises the conditions discussed above. In this paragraph and elsewhere the judgment does state that the implementer must express a willingness to conclude a licence "on FRAND terms" and the patentee must make an offer on such (i.e. FRAND) terms. However the judgment does not suggest anywhere that the national court needs to examine whether the terms offered actually were FRAND or not. What I believe the CJEU is getting at is that each side must make clear they are willing to conclude a licence on FRAND terms, since that is what matters. The commitment to FRAND licensing is what counts. And then the relevant party should put forward concrete proposals. Whether a particular concrete proposal is actually FRAND is not what the CJEU is focussing on. No doubt a prejudicial demand or a sham proposal may itself be abusive (that issue arises below) but that is another matter.

739.
Notably in the first bullet point of paragraph 71 the CJEU expressly locates the SEP owner's alert and FRAND offer to the implementer as being "prior to bringing that action". This supports Huawei's strict submission about timing. However it is also notable that paragraph 71 is expressed in clear terms as a statement that the SEP owner does not abuse its dominant position if it complies with what is stated. The referred questions did not have to be answered that way round. Having been through the court's reasoning above it seems to me that, as one might expect, the CJEU has sought to express itself with care. By answering the referred questions in a manner which states what is not an abuse, the court has deliberately not decided that any deviation from the scheme described of any kind will necessarily make it abusive to issue an infringement claim which includes an injunction claim.

740.
However, as mentioned above, paragraph 60 of the judgment is written the other way round, holding that a SEP owner will breach Art 102 unless they give notice before bringing a claim. I have given careful thought to what this means for my interpretation of the judgment as a whole. I cannot read the judgment including paragraph 60 as drawing a bright line whereby any deviation from the conditions set out in any circumstances is necessarily an abuse of dominant position. That is just not what the judgment as a whole says. Moreover paragraph 60 is not expressed by reference to the detailed conditions. The paragraph simply provides that bringing an injunction claim "without notice or prior consultation with the alleged infringer, even if the SEP has already been used by the alleged infringer" is an abuse. The paragraph does not mention offers for FRAND terms, they come in paragraph 63. So the most the CJEU is saying in paragraph 60 is that an action brought without some kind of prior notice will be abusive. What amounts to a sufficient notice in a given case ought to depend on the circumstances.

741.
More broadly, I am not persuaded that the CJEU in **Huawei v ZTE** sought to set out a series of rigid predefined rules, compliance with which is never abusive whereas deviation from which is always abusive, all regardless of the circumstances. Abuse of dominance is a serious matter and the court will have had well in mind that circumstances can vary.

742.
Before concluding I should mention paragraphs 72-76. These decide that bringing a claim for damages only is not abusive. That has been addressed above already.

743.
Having considered the judgment as a whole, it is notable that the court is focussed on the question of whether bringing the injunction claim is itself abusive and does not focus on the considerations which

may apply at the end of an infringement action once validity and infringement are established. In the case before me it is now nearly three years since the claim was issued and over a year since one of Unwired Planet's patents has been found to be valid and infringed/essential, yet the parties are still arguing and no licence has been agreed.

744.
The principles I derive from **Huawei v ZTE** are these:

i)
In the judgment the CJEU has set out a scheme which both the patentee and implementer can be expected to follow in the context of a dispute about a patent declared essential to a standard and subject to a FRAND undertaking.

ii)
In stating that the implementer and patentee must express a willingness to conclude a licence on FRAND terms, the CJEU is referring to a willingness in general terms. The fact that concrete proposals are also required does not mean it is relevant to ask if those proposals are actually FRAND or not.

iii)
If the patentee complies with the scheme prior to starting a claim for infringement of that patent which includes a claim for an injunction, then bringing such a claim will not be abusive under Art 102. That is the ratio of the CJEU's decision.

iv)
In the circumstances contemplated by the CJEU, bringing a claim for infringement of a SEP which includes a claim for an injunction without prior notice of any kind will necessarily be an abuse of dominant position. Insofar as the decision identifies what is abusive rather than what is not, the decision does not go further than that.

v)
Bringing a claim for infringement which includes a claim for an injunction even with sufficient notice is capable of being an abuse of dominant position. However the judgment does not hold that if the circumstances diverge from the scheme set out in any way then a patentee will necessarily abuse their dominant position by starting such a claim. In those circumstances the patentee's conduct may or may not be abusive. The scheme sets out standard of behaviour against which both parties behaviour can be measured to decide in all the circumstances if an abuse has taken place.

vi)
Nor does it follow that if the patentee complies with the scheme such that bringing the action is not per se abusive, the patentee can behave with impunity after issue. Again, the scheme sets out standards of behaviour against which both parties' behaviour can be measured to decide if an abuse has taken place.

vii)
If the patentee does abuse its dominant position in bringing the claim or in its conduct after issue, that affords a defence to the claim for an injunction. In other words the proper remedy is likely to be refusal of an injunction even though a patent has been found to be valid and infringed and the implementer has no licence.

viii)

The legal circumstances of this case differ from the circumstances assumed by the CJEU in a crucial respect. FRAND is justiciable and the undertaking can be effectively enforced at the suit of the defendant irrespective of Art 102. The defendant does not need Art 102 to have a defence to the injunction claim.

745.
Before leaving the analysis of **Huawei v ZTE**, I should refer to the German decisions in infringement cases which follow on from it. There are 12 in the authorities bundles dating from March 2015 (after the AG's opinion but before the CJEU) until May 2016. They include decisions of the first instance courts and on appeal to the Oberlandesgericht in Mannheim (and Karlsruhe on appeal) and in Düsseldorf. These are well known and well respected courts dealing with patent infringement but it is impossible to summarise the effect of all these decisions and I will not attempt to do so. What can be acknowledged is that the German courts are grappling with similar issues to the ones arising in this case, including:

i)
How to satisfy the CJEU's first condition of notice to the alleged infringer and at what time. (**Judgment 7 O 66/15** (NTT DoCoMo v HTC) Mannheim Landesgericht, and **Judgment 4a O 73/14** (St Lawrence v Deutsche Telecom, HTC and Huawei) in the Düsseldorf Landesgericht).

ii)
Whether the court has to rule on whether the patentee's offer has to actually be FRAND. (**Judgment 7 O 66/15** (NTT DoCoMo v HTC) Mannheim Landesgericht).

iii)
What happens when the defendant makes a national portfolio offer but the patentee wants a worldwide licence. (**Judgment 7 O 96/14** (Pioneer v Acer) Mannheim Landesgericht; injunction suspended pending appeal by the Karlsruhe Oberlandesgericht **6 U 55/16** and see also **Judgment 4a O 73/14**).

iv)
The use of comparable licence terms (**Judgment 4a O 73/14**).

v)
Whether taking 5 months to respond is reasonable (**Judgment 4a O 73/14**.

746.
The German decision which received closest attention was **Judgment 4a O 73/14** and that is reflected in the list above. It was also relied on by Unwired Planet because in that case the court decided that an injunction could be granted even though the notice was late relative to **Huawei v ZTE** on the basis that the case was a "transition case", in other words the claim had been issued before the CJEU's decision. Unwired Planet relied on that and submitted that the same followed in this case. Huawei submitted the approach was wrong as a matter of EU law because the CJEU judgment declares what the law has always been and while the CJEU can and in some circumstances does lay down what are in effect transitional provisions, it had not done so in this case. I do not need to decide whether **Judgment 4a O 73/14** is correct in law. I suspect my approach to **Huawei v ZTE** would allow the court to reach the same conclusion as was reached in that case if it thought it right.

Has Unwired Planet abused its dominant position by bringing this claim?

747.

Unwired Planet had not provided its FRAND terms to Huawei before issuing the claim form which included a claim for an injunction. However since there was prior contact to some degree before the proceedings were issued Unwired Planet's action cannot automatically amount to abuse regardless of the circumstances. On the other hand, since Unwired Planet's approach did not comply with every aspect of the scheme of **Huawei v ZTE**, their conduct cannot automatically be immune from an allegation of abuse. The question has to be decided looking at all the circumstances.

748.
Considering the first condition: prior notice to the implementer. The relevant circumstances start in 2009 with the fact that Huawei was then a licensee under what are now Unwired Planet's SEPs. The expiry of that 2009 Ericsson-Huawei licence is relevant too. Also relevant was the offer by Unwired Planet of some of those SEPs for sale to Huawei in 2013. I reject Huawei's attempt to dismiss these contacts as immaterial. Also relevant are the discussions with the Huawei IP department which started in November 2013. Although the discussions had not reached the stage of claim charts being provided, because the NDA had not been agreed, Huawei knew that claim charts would be coming. The evidence was that negotiating parties wished to discuss the merits of the licensor's claims before getting down to discussing money. That is relevant because it shows that not discussing financial terms at that early stage was normal. Also relevant is that throughout the period from the end of 2012 Huawei were making and selling 2G, 3G and 4G phones and infrastructure and they were not paying any royalty for patents they had previously licensed.

749.
Unwired Planet's motive in starting these proceedings was to support their FRAND licensing programme. The proceedings were intended to apply pressure to the defendant companies who were using the technology covered by their SEPs. Unwired Planet's primary focus at the time was Samsung and the evidence shows that Unwired Planet had already been engaged in lengthy and fruitless negotiations with that company. Dealings with Samsung were what drove Unwired Planet's timing. Nevertheless it made sense to include Huawei and Google in the UK in one set of proceedings. If an action against Samsung had started in the Patents Court and some months later Unwired Planet had issued another action in the Patents Court on the same patents against another company such as Huawei, the proceedings would in all probability have been dealt with together at a single trial anyway.

750.
Huawei were and are a sophisticated organisation well versed in technology and patenting. They knew that FRAND ought to limit the patentee's rights and they knew that post 2013, as Mr Lasinski explained, the legal landscape relating to FRAND had shifted in favour of licensees. They did not need to be treated by Unwired Planet as naïve. From Huawei's point of view, at the moment just before Unwired Planet issued proceedings against them in April 2014, Huawei had sufficient notice that Unwired Planet held particular SEPs and they knew or ought to have known that if the declared SEPs held by Unwired Planet were indeed valid and essential, then a licence was required. They did not yet have claim charts. All the same, for Huawei, the only realistic and foreseeable ways in which the existing contact with Unwired Planet was going to conclude would be by Huawei persuading Unwired Planet that they had no good SEPs or proving it in court or by Huawei taking a licence. Huawei also knew that Unwired Planet wanted to license Huawei. In these circumstances the information Huawei had by March 2014 was quite sufficient for Huawei to understand that issuing proceedings including an injunction claim did not represent a refusal to license. Quite the reverse.

751.

I have little doubt Huawei took great exception to being sued. I doubt it helped Unwired Planet's cause with them at all, but that is another matter.

752.
As one might expect, for a sophisticated organisation like Huawei, the fact that an injunction was being claimed in the legal proceedings did not prevent the parties from negotiating and Mr Zhang accepted as much.

753.
Considering the second condition, Unwired Planet did provide the key terms of a licence offer to Huawei a few weeks after commencing proceedings. Those terms included the royalty rate. That is outside the letter of the CJEU's scheme but only by a relatively short time. It reinforces what was obvious in any case that the issuing of proceedings did not indicate that the SEP owner did not wish to license its SEPs to Huawei.

754.
At this early stage Huawei's response was appropriate in asking for further details, and Unwired Planet's response in July 2014 was also appropriate in providing further details. I have been through the course of this litigation already. A relevant point for this analysis is that in terms which are admissible in court, Huawei never subsequently made an unqualified offer to accept whatever were FRAND terms. Huawei always reserved for themselves the right to say that a licence of worldwide scope was not FRAND. Indeed, part of Huawei's case was that a worldwide offer was contrary to Art 102.

755.
Huawei's stance before the court throughout this claim has been that because they were sued before FRAND terms were offered they have a defence to the injunction claim. That stance is founded on a narrow interpretation of **Huawei v ZTE** which I have rejected. I am satisfied that the commencement of this action, including the claim for an injunction, was not an abuse of Unwired Planet's dominant position. The same goes for Unwired Planet's conduct during the proceedings. I reject the "premature litigation" head of abuse.

(b) Unfair excessive pricing (Art 102(a))

756.
There is no mathematical benchmark which defines unfair or excessive pricing. It is a value judgment based on all the facts. I will take the words used by Mummery LJ in **Attheraces Ltd v BHB Ltd** in the Court of Appeal as a summary of the difference between a fair price and an unfair or excessive price. He said:

"…a fair price is one which represents or reflects the economic value of the product supplied. A price which significantly exceeds that will be prima facie excessive and unfair.."

(paragraph 204)

757.
It was common ground between the economists but I hold as a matter of law that the boundary of what is and is not a FRAND rate is different from the boundary of what is and is not an unfair price contrary to Art 102(a). If the rate imposed is FRAND then it cannot be abusive. But a rate can be higher than the FRAND rate without being abusive too.

758.
Huawei's case is that every one of Unwired Planet's proposals from April 2014 to August 2016 exceeded FRAND by a long way and thus involved an attempt to impose an unfair selling price. They say that at a UK portfolio level the offers were ten times the level they contend would be even a generous estimate of FRAND. Huawei submit:

"These are plainly abusive levels, which would pose a genuine threat to Huawei's profitability and competitiveness [referring to evidence from Mr Zhang and Mr Lasinski], advantaging Ericsson not merely (a) from its share of the inflated royalties but also (b) from the adverse impact on Huawei as a competitor in the downstream infrastructure markets; and advantaging Samsung for the reasons explained above. A significantly supraFRAND rate, if charged by UWP, would stand to distort competition to the benefit of Ericsson. Given the low rate which Samsung is now known to be paying, competition would also be distorted in favour of Samsung"

759.
Unwired Planet's case is that all its offers were FRAND. Even if they are not FRAND Unwired Planet's case is that they are not abusive for three reasons: (1) they were made in the context of good faith negotiations, (2) they are not significantly above FRAND, and (3) there has been no analysis of distortion of competition. Unwired Planet also rely on the state of the information available to them at the time the offers were made and say that from their point of view at the time in 2014 based on what they reasonably were aware of, the offers were not abusive.

760.
The evidence of Mr Zhang and Mr Lasinski does not persuade me that the rates under consideration would distort competition. No detailed economic analysis has been carried out. I rejected Huawei's case that the competitive relationship between Huawei and Samsung would be distorted by charging Huawei the rates arrived at above. Although the rates demanded are higher, the point is the same here. So if an economic analysis is needed, this argument will fail.

761.
Before turning to the detail, it is useful to address the good faith negotiations point in principle. Huawei submitted Unwired Planet's argument was wrong in principle but that submission was based on an extreme characterisation of Unwired Planet's submission (that unfair pricing only applied to prices which a vendor could impose) which they disavowed.

762.
It is possible to distinguish between three kinds of price: there is a price which has been agreed upon or paid, a price demanded by a vendor backed by a refusal to supply and a price advanced in a negotiation. In the real world, the distinctions may not always be clear cut but they exist all the same. I agree with Huawei that in principle all three are capable of being abusive but that does not mean they are the same kind of thing or must be judged in the same way. Both the maker and the receiver of an offer made at the start of a negotiation are well aware that the final deal is likely to converge on a lower price.

763.
Both Prof Neven and Dr Niels distinguished between a good faith negotiation and offers made in that context on the one hand and a price that was imposed on the other. In cross-examination Prof Neven referred to the idea of making an offer in the context of a negotiation which is so outrageous that you cannot expect there to be a process of convergence in the negotiation. Such an outrageous offer would disrupt the negotiation rather than help it.

764.
The negotiation of a SEP licence also has special characteristics of its own. If the SEPs are good then to act lawfully the buyer must buy a licence if they want to work the standard. The buyer cannot walk away. But the FRAND framework means the seller cannot walk away either. And all this applies before one starts to consider the uncertainties concerning the quality of the SEPs, the enforceability of FRAND, and the cost and simplicity of patent enforcement in multiple jurisdictions.

765.
In the context of SEPs and FRAND, as long as the recipient of the offer can see it is made in that context, then it seems to me that only an offer which is so far above FRAND as to act to disrupt or prejudice the negotiations themselves in the manner described by Prof Neven above will fall foul of Art 102(a). That is a high standard to reach but otherwise it would be too easy for the recipient of an offer to throw up their hands and refuse to negotiate at all. This does not contradict **Huawei v ZTE** because the abuse in that case is not the demand of a non-FRAND rate, the abuse is to bring injunctive patent infringement proceedings prematurely.

766.
If injunctive patent infringement proceedings are issued at or around the same time as a rate is demanded, then that will be relevant since it will increase the pressure on a licensee but the licensee can retaliate by denying essentiality and challenging validity. However the offeror should be willing to negotiate even though proceedings have been issued (and the offeree likewise). Moreover as I have addressed at length above, in a FRAND case the patentee will only get an injunction in this jurisdiction if the defendant refuses to take a FRAND licence.

767.
I turn to consider the facts. The starting point must be to compare the offers with the FRAND rates.

768.
Unwired Planet offered one rate for LTE/4G and another for GSM/2G-UMTS/3G. In the April 2014, July 2014 and June 2015 offers the worldwide rates were 0.2% for 4G and 0.1% for 2G/3G. The August 2016 offer was 0.13% for 4G and 0.065% for 2G/3G.

769.
In order to compare these proposals with the FRAND rates determined above it is convenient to summarise the FRAND rates into appropriate spans comprising all the relevant rates for the relevant standards and equipment. It is also convenient to include some of the other offers made during the proceedings. The tables below include Huawei’s UK SEP patent by patent offer from 2015 and its October 2016 UK portfolio offer. The table includes Unwired Planet’s 2014/5 and 2016 UK patent by patent offers.

770.
The table for 2G-3G is:

2G – 3G rates	
Basis	
FRAND Benchmark	0.016% - 0.064%
FRAND Major Markets in a ww licence	0.016% - 0.064%
FRAND China and OM rate in a ww licence	0.004% - 0.032%
FRAND UK portfolio only (100% uplift)	0.032% - 0.13%

Unwired Planet 2014-2015 ww	0.1%
Unwired Planet 2016 ww	0.065%
Unwired Planet 2014-2015 UK portfolio	0.325% - 0.425%
Unwired Planet 2016 UK portfolio	0.21% - 0.28%
Huawei 2015 UK SEP	Zero – 0.015%
Huawei Oct 2016 UK SEP portfolio	0.045% - 0.046%

771.

The table for 4G is:

4G rates	
Basis	
FRAND Benchmark	0.062% - 0.072%
FRAND Major Markets in a ww licence	0.051% - 0.052%
FRAND China and OM rate in a ww licence	0.026%
FRAND UK portfolio only (100% uplift)	0.12% - 0.14%
Unwired Planet 2014-2015 ww	0.2%
Unwired Planet 2016 ww	0.13%
Unwired Planet 2014-2015 UK portfolio	0.65% - 0.85%
Unwired Planet 2016 UK portfolio	0.42% - 0.55%
Huawei 2015 UK SEP	0.034%
Huawei Oct 2016 UK SEP portfolio	0.059% - 0.061%

772.

The starting point is to look at the differences between the offered rates and the FRAND benchmark rates. None of the worldwide rates offered by Unwired Planet in 2014-15 are FRAND. They are all higher than the benchmark FRAND rate and higher than all the rates in a worldwide licence. The offers in 2016 were not FRAND either although the 2G/3G offer (0.065%) was to all intents and purposes the same as the 2G rate (0.064%) but not the 3G rate.

773.

The question is whether these rates are so much higher than FRAND as to contravene Art 102(a). For 4G the rate offered in 2014 (0.2%) was about three times the FRAND benchmark rate. The spans of rates used to compare with the worldwide rates offered for 2G and 3G are wider than for 4G. The 2014 2G/3G offer (0.1%) is between about one and half (1½) times and six times the FRAND benchmark.

774.

These 2014 offers were made as the starting offers in what both sides knew would be a process of negotiation and that position is not altered by the fact that legal proceedings had commenced. This is not a case in which the offers were being made to a small company unable to look after itself. Huawei are a large and sophisticated organisation, used to negotiating telecommunications licences and not unfamiliar with patent litigation. To make an opening offer to Huawei which is between about 1½ and 3 times the upper level of the FRAND benchmark rate is not an abuse contrary to Art 102(a). In no sense could an offer like that prejudice the inevitable negotiations.

775.
I reject the case on infringement of Art 102(a) relating to the worldwide offers in 2014.

If the 2014 offers were not contrary to Art 102(a), neither were the lower offers in 2016.

776.
There was a detailed point on the numerators as at 2014 for 2G and 3G but I am not satisfied it would have made enough of a difference to alter these conclusions.

777.
I reach the same conclusions comparing the 2014 offers with the rates for Major Markets in a worldwide licence. The rate for 4G is about four times the MM FRAND rate. The comparison for 2G/3G rate range again ranges from 1½ times at the top end of the major markets rate. These differences do not indicate that the offers would prejudice negotiations.

778.
The largest differences are between the offered rates in 2014 and the FRAND rate for

China and OM countries in a worldwide licence. The most extreme difference is for 3G - the 0.004% China rate vs 0.1% offer is 25 times lower. The 4G rates differ by a factor of eight. I can see that an offer at 25 times the FRAND rate might well be prejudicial but taking these figures in isolation would not be appropriate. These China rates are regional rates in a worldwide licence which includes higher rates in other regions, but Huawei have never accepted a worldwide licence in these proceedings. On Huawei's case this court should not be considering any rates in the worldwide licence at all.

779.
There is no need to resolve the argument about the legal relevance of the state of knowledge of Unwired Planet at the time the offers were made. I will briefly state my findings on the facts:

i)
As at April and July 2014 the information available to Unwired Planet consisted of: the public statements by various companies in the industry such as the ones summarised elsewhere in this judgment, the terms of the MSA, Lenovo, and their own assessments of the value of their patents. The rates a reasonable person would derive based on that information are much higher than the rates to be derived from the close analysis of the comparable licences which has been done in these proceedings. It was reasonable for Unwired Planet to set its offered rates by reference to that information. From their subjective point of view, as opening offers in a negotiation in a FRAND framework 0.1% for 2G/3G and 0.2% for 4G were close to what they might reasonably take the view a FRAND rate might be for their SEPs.

ii)
By June 2015 more information was available to Unwired Planet. That information allowed one to estimate what the rates in [a licence] were and I am sure a company in Unwired Planet's position would perform that analysis. That information does indicate that rates in the industry were lower than one would have thought in April 2014 based on the public statements etc.. So by June 2015 the information available to Unwired Planet showed the 0.1% for 2G/3G and 0.2% for 4G were likely to be well above the FRAND rate by factors similar to the differences I have determined above.

780.
If my conclusion that Unwired Planet's offers are not contrary to Art 102(a) is wrong, and if it is the case that the information available to Unwired Planet at the time an offer is made is relevant, then I

would have held that Unwired Planet had the benefit of that state of the information available in 2014 but that benefit had gone by June 2015.

781.
So far I have not addressed the UK offers. Since a UK only licence is not FRAND they are not relevant. Considering the 4G rates offered by Unwired Planet, the 2014/15 rates for the UK portfolio were about 5 to 6 times the FRAND benchmark applied to a UK only portfolio licence and the 2016 offers were about 4 times the benchmark. As before with 2G/3G the ranges and the factors are wider than for 4G. The factors range from

about double to ten times. Considering these rates and factors takes me to the same conclusions as I have reached for the worldwide offers.

782.
Considering the UK offers, it is possible to compare Huawei's UK offers to the benchmarks in a similar manner. This includes comparing the offer in 2015 which was for the five SEPs in suit with a benchmark for the larger UK portfolio but that is a minor issue. For 4G the UK FRAND benchmark rate was about four times Huawei's 2015 UK patent by patent offer and double Huawei's 2016 UK portfolio offer. For 2G and 3G the FRAND benchmark span is 0.032% - 0.13% and Huawei's offers in 2015 ranged from zero to a rate 9 times less than the benchmark. Huawei's 2016 portfolio offer overlaps the benchmark at the lower end and is about three times less at the upper rate.

783.
These factors are evidence of how parties negotiate in this industry. I do not believe Huawei have the slightest intention to prejudice the negotiations with Unwired Planet by making these offers. That is an indication that an offer a number of times lower than the relevant FRAND benchmark does not prejudice the negotiations and corroborates the finding that an offer a number of times higher than the benchmark does not do so either.

784.
I reject the competition law case on unfair pricing. The finding is not that the imposition of a rate three, five or ten times the FRAND rate would be acceptable. Far from it. The flaw in Huawei's case is these offers were obviously made as a step in negotiation and did not prejudice or disrupt it.

(c) Bundling / tying in SEPs and non-SEPS

785.
I have dealt with the law on bundling in the section above on the scope of the licence. The outstanding issue relates to Unwired Planet's 2014 offer which was for a licence under its whole portfolio, SEPs and non-SEPs. Huawei say that to bundle the SEPs with non-SEPs was unlawful bundling or tying. Huawei say the bundling of SEPs and non-SEPs poses two threats. One is that one cannot tell in such a licence whether the SEP owner is complying with a FRAND commitment. The other is that the practice can eliminate competition on the merits between non-SEP technologies. I accept the second point, which is much stronger than the first. I do not need to decide if the first point on its own is enough. Licences can be drafted that way (cf Lenovo) but they do not have to be.

786.
In this context Unwired Planet also made the same points about a lack of detailed economic evidence as were made for multi-jurisdictional bundling but as before, that submission does not go far enough to mean that the issue does not need to be addressed. In the context of SEPs and non-SEPs it does not

need detailed economic analysis to infer that Huawei's second point is a likely consequence of that bundling.

787.
Having heard the evidence in this case I am in no doubt that a patentee subject to a FRAND undertaking cannot insist on a licence which bundles SEPs and non-SEPs together. But it does not follow from this that it is contrary to competition law to make a first offer which puts SEPs and non-SEPs together. There is clear evidence that in some cases the parties agree to a licence which includes both SEPs and non-SEPs together. The mere fact a licence includes both does not take it out of FRAND nor does it indicate that a patentee has used the market power given by the SEPs to secure a licence under the non-SEPs. Everything will depend on the circumstances.

788.
Unwired Planet's main submission is that in making the 2014 offer they made it clear that they were willing to discuss alternatives such as separating SEPs from non-SEPs. The 2014 document is a series of what look like Powerpoint slides. Page 2 has the rates on it and as footnote 1 states:

"This is an indivisible worldwide arrangement. The royalty rates sought reflect a blend of the strength, technical diversity and size of the portfolio across the world. It is not an offer for individual country or technology licenses. However, Unwired Planet is willing to discuss any such arrangement upon request."

789.
A discussion focussed on SEPs as opposed to non-SEPs is exactly the kind of thing a reasonable recipient of this offer would understand the offeror was willing to contemplate as a result of this text. I reject Huawei's case that Unwired Planet behaved in a manner contrary to Art 102 by making the April 2014 offer on the basis of SEPs and non-SEPs together.

790.
Huawei immediately asked Unwired Planet to separate out the SEPs from the non-SEPs and Unwired Planet did so by July 2015. Those are not the actions of a party trying to use its market power given by patents essential to a standard to tie in a further licence under its non-SEP portfolio. If Unwired Planet had insisted on putting the two together after that then the conclusion might well have been different.

791.
I reject the SEP/non-SEP bundling argument.

REMEDIES

792.
The three remedies sought are an injunction, damages and declarations.

(i) Should an injunction be granted?

793.
The relevant patents have been found valid and infringed. Unwired Planet wish to enter into a worldwide licence. Huawei is willing to enter into a UK portfolio licence but refuses to enter into a worldwide licence. However a worldwide licence is FRAND and Unwired Planet are entitled to insist on it. In this case a UK only licence would not be FRAND. An injunction ought to be granted because Huawei stand before the court without a licence but have the means to become licensed open to them.

794.
Were it not for the fact that Huawei did not engage with the terms of the worldwide draft, I would have been able to hand down this judgment with the worldwide terms fully settled. That has not proved possible. So in the exercise of my discretion I will not grant the injunction on the day this judgment is handed down in public. Normally when a judgment in a case of this complexity is handed down a date some few weeks afterwards is found for the consequential orders. I will deal with the injunction at that later hearing. It should be sometime after the Easter holidays. Unwired Planet's legal team will be able to produce a clean copy of the worldwide licence in the form I have approved. They should file it at court and serve it on Huawei well in advance of the later hearing. I do not expect to hear any further argument about the terms since the time for that has passed. I will discuss the directions for this on the day the judgment is handed down.

795.
In case this matter goes further I will address the question of what if I had found that Unwired Planet's commencement of these proceedings had amounted to an abuse of dominant position. I am far from being convinced that a refusal of an injunction in 2017 would have been a proportionate remedy for Unwired Planet's abuse on that assumption. A single patent normally takes about one year to come to trial on validity and infringement in the Patents Court. The abusive commencement of this action in April 2014 would have justified refusal of an injunction in April 2015 and no doubt for a good time after that but we are now two years on from that time, a year on from the finding of infringement and three years overall from the start of the proceedings. Any prejudice to Huawei from the commencement of the proceedings has been outweighed by time and by Huawei's stance in relation to a FRAND licence. An appropriate alternative remedy might have been to refuse to award any damages to Unwired Planet for the proven infringements in the intervening period (and remove a corresponding term from the licence). However I do not have to resolve those issues.

(ii) Damages

796.
I have found that the FRAND licence would include a term providing for back royalties and an effective date of 1st January 2013. This applies whether the licence is a UK licence or worldwide. However since Huawei refuse to enter into the worldwide FRAND licence which Unwired Planet are entitled to insist upon, the question of damages arises.

797.
The principles are clear. Damages for patent infringement are compensatory. I do not propose to get into the interesting questions which may arise under the Enforcement Directive 2004/48/EC about whether patent damages might have other aspects. Unwired Planet floated this point in opening by reference to the infringer's state of mind but this is not the case to decide those questions.

798.
Huawei relied on **General Tire & Rubber Co v Firestone Tyre & Rubber Co Ltd** [1975]

1 WLR 819 and submitted that since the patentee was a licensor, "the measure of damages [the defendant] must pay will be the sums which he would have paid by way of royalty if, instead of acting illegally, he had acted legally" (at 824–825 per Lord Wilberforce). So for a SEP owner, this means a FRAND royalty for the patents in suit.

799.

Unwired Planet submitted that the correct royalty rate to use to assess damages was a per patent rate because the damages for infringement of a particular patent should not be affected by the discounts available in FRAND licences from taking a licence on several patents at once. In my judgment that submission is wrong in principle as a matter of ordinary patent law regardless of whether, as Huawei contended, it leads to non-FRAND damages.

800.
The relevant legal question is to ask what, in fact, has the patentee lost? For a patentee who licences their rights the answer is the amount of money the patentee would have earned in licensing, and the way to work that out is to decide what a willing licensor and willing licensee would have agreed upon as a matter of fact in all the circumstances. A willing licensor and willing licensee would have agreed on the very same licence I have found to be FRAND. So the patentee’s loss is the sum they would have earned under that licence from the infringing acts. In this case that is the MM royalty rate on UK sales.

801.
I recognise that this licence would have been a portfolio licence but that just means that if, for the sake of argument, Unwired Planet sued Huawei in future under a different SEP but for the same phones sold in the same year, the loss would be nil because damages had already been paid which covered it. In principle this result is no different from the now well established point that losses for convoyed goods or services are recoverable in principle provided they can be proved.

802.
At one stage I think Unwired Planet sought to suggest that a result which set the damages at the same level as the overall FRAND rate gave defendants no incentive to settle. That is not a relevant consideration.

(iv) Declarations

803.
Unwired Planet seeks declarations that its offers were FRAND. They included worldwide, UK portfolio, and patent by patent offers, with various rates. I have held that none of them were FRAND in the terms advanced, but the worldwide offer with the rates and licence terms I have settled in this judgment is FRAND. I will make a formal declaration to that effect and if Huawei wish me to I will make a declaration that each of the original offers were not FRAND.

804.
Huawei sought a declaration that Unwired Planet had abused their dominant position. That will be refused.

Summary of conclusions

805.
This is a very long judgment. Mind you it has only somewhat over half the total number of words in the written closing submissions. Since the conclusions I have reached are distributed throughout the judgment, I will summarise them below.

806.
In summary, my conclusions on the law are:

(1)

As a matter of French law the FRAND undertaking to ETSI is a legally enforceable obligation which any implementer can rely on against the patentee. FRAND is justiciable in an English court and enforceable in that court.

(2)
It is not necessary to rely on competition law to enforce the FRAND undertaking.

(3)
The boundaries of FRAND and competition law are not the same. A rate may be above the FRAND rate but not contrary to competition law.

(4)
There is only one set of licence terms which are FRAND in a given set of circumstances. The problem identified in **Vringo v ZTE** does not exist because there cannot be two sets of terms which are both FRAND in a given set of circumstances. That way the FRAND undertaking can be enforced.

(5)
The legal effect of the FRAND undertaking relating to a SEP is not that the implementer is already licensed. Its effect is that an implementer who makes an unqualified commitment to take a licence on FRAND terms (settled in an appropriate way) cannot be the subject of a final injunction to restrain patent infringement. Whereas an implementer who refuses to take a licence on terms found by the court to be FRAND has chosen to have no licence, and so if they

have been found to infringe a valid patent an injunction can be granted against them.

(6)
FRAND characterises the terms of a licence but also refers to the process by which a licence is negotiated. Although an implementer does not owe a FRAND obligation to ETSI, an implementer who wishes to take advantage of the patentee's FRAND obligation, must themselves negotiate in a FRAND manner.

(7)
Offers in negotiation which involves rates higher or lower than the FRAND rate but do not disrupt or prejudice the negotiation are legitimate.

(8)
An appropriate way to determine a FRAND royalty is to determine a benchmark rate which is governed by the value of the patentee's portfolio. That will be fair, reasonable and generally non-discriminatory. The rate does not vary depending on the size of the licensee. It will eliminate hold-up and hold-out. Small new entrants are entitled to pay a royalty based on the same benchmark as established large entities.

(9)
The non-discrimination limb of FRAND does not consist of a further "hard edged" component which would justify a licensee demanding a lower rate than the benchmark rate because that lower rate had in fact been given to a different but similarly situated licensee. If FRAND does include such a component, then that obligation would only apply if the difference would distort competition between the two licensees.

(10)

A FRAND rate can be determined by using comparable licences if they are available. Freely negotiated licences are relevant evidence of what may be FRAND. A top down approach can also be used in which the rate is set by determining the patentee's share of Relevant SEPs and applying that to the total aggregate royalty for a standard but this may be more useful as a cross-check.

(11)
In assessing a FRAND rate counting patents is inevitable.

(12)
In assessing the dominant position of a SEP holder, the practical effect of the FRAND undertaking and the potential for hold out by an implementer are relevant factors and may lead to the conclusion that a SEP holder is not in a dominant position.

(13)
The principles to be derived from the decision of the CJEU in **Huawei v ZTE** are summarised at paragraph 744 above.

807.
In summary, my conclusions on the facts are:

(1)
None of Unwired Planet's offers (April 2014, June 2014, June 2015 or August 2016) were FRAND.

(2)
None of Huawei's offers (June 2015, August or October 2016) were FRAND.

(3)
The Revised MNPA overstates the value of Unwired Planet's SEP portfolio.

The HPA understates the value of that portfolio.

(4)
The value R for the relative strength of Unwired Planet's portfolio as compared to Ericsson's for 4G is 7.69%. The values of R for 2G, 3G, and 4G range from 2.38% to 9.52%.

(5)
The value S for Unwired Planet's share of all SEPs relevant to 4G handsets is 0.70%. The values of S for 2G, 3G, and 4G for infrastructure and handsets range from 0.21% to 1.30%. Here and below handsets refers to multimode.

(6)
None of: the 2014 Unwired Planet-Lenovo licence, the 2016 Unwired PlanetSamsung licence, or the 2016 Ericsson-Huawei licence, are good comparables. The Ericsson-Samsung 2014 licence is the best place to start but other Ericsson licences are relevant.

(7)
The right number E to use as a royalty rate which measures the value of

Ericsson's 4G SEPs in order to scale against Unwired Planet is 0.80% for 4G. The value E for Ericsson's 2G and 3G SEPs is 0.67%.

(8)
The benchmark FRAND rates for Unwired Planet's portfolio are:

a)
4G/LTE: 0.062% for handsets, and 0.072% for infrastructure;

b)
3G/UMTS: 0.032% for handsets, and 0.016% for infrastructure;

c)
2G/GSM: 0.064% for handsets, and 0.064% for infrastructure;

(9)
As a cross-check, the value T for the total aggregate royalty burden implied by these rates for 4G handsets is 8.8%. The values of T for 2G, 3G, and 4G for infrastructure and handsets range from 3.1% to 8.8%.

(10)
The fact the 2016 Unwired Planet-Samsung licence is not a good comparable does not mean it is irrelevant for hard-edged non-discrimination if that concept is applicable to FRAND. However applying the non-discrimination aspect of FRAND to that licence does not justify setting a lower rate for Huawei than the benchmark rates because a distortion of competition between Huawei and Samsung was not established.

(11)
A UK portfolio licence is not FRAND. The FRAND licence between Unwired Planet and Huawei is a worldwide licence.

(12)
In a FRAND worldwide licence the rates for China would be substantially lower than the benchmark rates. The rest of the world outside China would be divided into Major Markets (MM) and Other Markets (OM). The OM rates would be the same as the China rates because that is where the goods are made.

(13)
The rates in a worldwide licence would be:

	Major Markets	China and Other Markets		
	Handsets	Infrastructure	Handsets	Infrastructure
2G/GSM	0.064%	0.064%	0.016%	0.032%
3G/UMTS	0.032%	0.016%	0.016%	0.004%
4G/LTE	0.052%	0.051%	0.026%	0.026%

(14)
The detailed terms of a worldwide licence have been settled. They are FRAND.

(15)
In a UK portfolio licence the uplift on the rates relative to the benchmark would be 100%.

(16)
If a proper economic analysis had been done the answer might be different but in this case, as the holder of SEPs, Unwired Planet is in a dominant position.

(17)

Unwired Planet did not abuse their dominant position by issuing these proceedings for an injunction prematurely, by maintaining a claim for an injunction in these proceedings, by seeking to insist on a worldwide licence, by attempting to impose unfair prices or by bundling SEPs and non-SEPs.

(18)
Since Unwired Planet have established that Huawei have infringed valid patents EP (UK) 2 229 744 and EP (UK) 1 230 818, and since Huawei have not been prepared to take a licence on the terms I have found to be FRAND, and since Unwired Planet are not in breach of competition law, a final injunction to restrain infringement of these two patents by Huawei should be granted.

(19)
If Unwired Planet had issued these proceedings prematurely, in the circumstances as they now are, refusal of an injunction would have been disproportionate.

(20)
The final injunction will be considered at a hearing in a few weeks' time once Unwired Planet have drawn up a full set of the terms of the worldwide licence incorporating the decisions made in this judgment.

(21)
To the extent damages should be awarded, they would be at the same rate as the appropriate FRAND rate.

Annex 1 - Unwired Planet's declared SEPs today

Country	**2G**		**3G**		**4G**		**TOTAL**
Argentina		1		3		1	3
Australia		1		2		0	3
Austria		0		0		1	1
Belgium		0		0		2	2
Brazil		0		1		1	2
Canada		1		4		6	10
Chile		0		0		1	1
China		2		6		9	15
Colombia		0		0		2	2
Czech Republic		0		1		2	3
Egypt		0		0		1	1
Finland		0		0		2	2
France		2		3		9	12
Germany		2		5		12	17
Hong Kong		0		0		2	2
Hungary		0		1		0	1
India		2		2		8	9
Indonesia		0		0		1	1
Ireland		0		0		5	5
Israel		0		0		1	1

Italy		1		2		4	7
Japan		2		6		10	16
Malaysia		0		1		0	1
Mexico		0		1		1	2
Netherlands		1		1		6	8
New Zealand		0		0		3	3
Philippines		0		0		1	1
Poland		0		1		2	3
Portugal		1		1		1	3
Russia		0		1		2	3
Singapore		0		1		1	2
South Africa		0		1		1	2
South Korea		1		3		2	5
Spain		1		2		7	10
Sweden		0		0		2	2
Switzerland		0		0		3	3
Taiwan		1		4		3	7
Thailand		0		0		1	1
Turkey		0		0		2	2
UAE		0		0		1	1
UK		2		6		13	19
US		2		10		22	31