United States Court of Appeals for the Federal Circuit

FUJITSU LIMITED,
Plaintiff-Appellant,

and

LG ELECTRONICS, INC. AND U.S. PHILIPS CORPORATION,
Plaintiffs-Appellants,

v.

NETGEAR INC.,
Defendant-Appellee.

2010-1045

Appeal from the U.S. District Court for the Western District of Wisconsin in case No. 07-CV-0710, Chief Judge Barbara B. Crabb.

Decided: September 20, 2010

DEANNE E. MAYNARD, Morrison & Foerster LLP, of Washington, DC, argued for plaintiff-appellant Fujitsu Limited. With her on the brief were BRIAN R. MATSUI, MARC A. HEARRON; and L. SCOTT OLIVER of Palo Alto, California.

MARK E. MILLER, O'Melveny & Myers LLP, of San Francisco, California, argued for plaintiffs-appellants LG Electronics, Inc., et al. With him on the brief were NORA M. PUCKETT, MICHAEL SAPOZNIKOW, DAVID S. ALMELING, SARA JERUSS; and MARK S. DAVIES and JUSTIN FLORENCE, of Washington, DC.

KENNETH A. LIEBMAN, Faegre & Benson, LLP, of Minneapolis, Minnesota, argued for defendant-appellee. With him on the brief were CHAD DROWN and KEVIN P. WAGNER; and NINA Y. WANG, PETER J. KINSELLA, and JACQUELINE T. HARLOW, of Washington, DC.

EDWARD R. REINES, Weil Gotshal & Manges, LLP, of Redwood Shores, California, for amicus curiae Association of Corporate Counsel Intellectual Property Committee. With him on the brief was JILL HO.

Before LOURIE, FRIEDMAN, and MOORE, *Circuit Judges*.

MOORE, *Circuit Judge*.

U.S. Philips Corporation (Philips), Fujitsu Limited (Fujitsu), and LG Electronics, Inc. (LG) appeal from a final judgment of the U.S. District Court for the Western District of Wisconsin. The district court, on summary judgment, held that the Defendant, Netgear Inc. (Netgear) did not infringe any of the asserted claims. For the reasons set forth below, we affirm-in-part, reverse-in-part, and remand.

BACKGROUND

Each appellant in this case asserted claims against Netgear. Philips asserted claims of U.S. patent no. 4,974,952 ('952 patent). Fujitsu asserted claims from U.S. patent no. 6,018,642 ('642 patent). LG asserted claims of U.S. patent no. 6,469,993 ('993 patent). Each patent describes and claims a different aspect of wireless communications technologies. The appellants accused Netgear of infringing by implementing wireless networking protocols for sending and receiving messages between a base station, such as a wireless router, and a mobile station, such as a laptop. Products in this industry adhere to standards to ensure interoperability. The infringement allegations in this case involve two standards: the Institute of Electrical and Electronics Engineers 802.11 2007 Standard (802.11 Standard) and the Wi-Fi Alliance Wireless Multi-Media Specification, Version 1.1 (WMM Specification).

The three plaintiffs are part of a licensing pool (Via Licensing) that purports to include patents that any manufacturer of 802.11 and WMM compliant products must license. On June 15, 2005, Via Licensing sent a letter to Netgear offering to license a set of patents "essential" to the practice of the standard. Of the patents-in-suit, this letter mentioned only the '952 patent and expressly stated that it was not claiming infringement. The appellants never identified particular claims or accused products prior to filing the instant action.

After the district court construed the claims, the plaintiffs filed a first summary judgment motion. In this motion, the plaintiffs argued that by simply complying with the standard, Netgear necessarily infringed the asserted claims. The court denied this motion holding that the plaintiffs must show evidence of infringement for

each accused product. *Fujitsu Ltd. v. Netgear, Inc.*, No. 07-CV-0710, 2009 WL 36616, at *1 (W.D. Wis. Jan. 6, 2009) (First Noninfringement Order). The district court denied the plaintiffs' subsequent motions for summary judgment of infringement and granted Netgear's cross motion for summary judgment of noninfringement for a number of reasons related to the specific patents and products at issue. *Fujitsu Ltd. v. Netgear, Inc.*, No. 07-CV-0710, 2009 WL 3047616, at *1 (W.D. Wis. Sept. 18, 2009) (Second Noninfringement Order).

Fujitsu, LG, and Philips appeal the district court's construction of certain claim terms, its denial of summary judgment of infringement, and its grant of summary judgment of noninfringement. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

We review a district court's grant of summary judgment *de novo*. *ICU Med., Inc. v. Alaris Med. Sys. Inc.*, 558 F.3d 1368, 1374 (Fed. Cir. 2009). Summary judgment is appropriate when, drawing all justifiable inferences in the nonmovant's favor, there exists no genuine issue of material fact and the movant is entitled to judgment as a matter of law. Fed. R. Civ. P. 56(c); *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255 (1986). We also review claim construction *de novo*. *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1455-56 (Fed. Cir. 1998) (en banc). The words of a claim are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art when read in the context of the specification and prosecution history. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc).

I. '952 Patent

The '952 patent claims a method for transmitting data messages in a communications network. '952 patent, abstract. A message is made up of code words. *Id.* col.2 ll.37-40. To more reliably transfer data, the code words are broken into segments. *Id.* The only independent claim describes a method for segmenting and transmitting a message. Each code word is broken as appropriate into segments of a predetermined length. The first segment includes an identifier of the message. The last segment includes a notification that it is the final segment. All of the segments in between the first and the last include incremental segment identifiers that the receiver can use to determine if a segment fails to arrive.

Philips alleges contributory and induced infringement for two classes of products: those that only fragment messages, and those that only defragment messages. In its First Noninfringement Order, the district court held that any product that complied with certain sections (for example, § 9.4) of the IEEE 802.11 Standard infringed the asserted claims. But in its Second Noninfringement Opinion, the district court noted that the fragmentation option is disabled by default in the accused products and required Philips to show evidence of direct infringement by users turning on the fragmentation function. The district court held that the notice letters sent by Philips prior to the instant suit were not sufficient to establish the knowledge and intent elements of contributory and induced infringement, respectively. Philips appeals.

A. Contributory Infringement

35 U.S.C. § 271(c) states:

> Whoever offers to sell or sells within the United States or imports into the United States a compo-

> nent of a patented machine, manufacture, combination or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use, shall be liable as a contributory infringer.

To establish contributory infringement, the patent owner must show the following elements relevant to this appeal: 1) that there is direct infringement, 2) that the accused infringer had knowledge of the patent, 3) that the component has no substantial noninfringing uses, and 4) that the component is a material part of the invention. *Id.*

1. Evidence of Direct Infringement

As an initial matter, Netgear asks us to find no evidence of direct infringement because the district court relied on the WMM Specification (i.e., § 9.4), rather than the accused products, in assessing infringement. Netgear argues that we should establish a rule precluding the use of industry standards in assessing infringement.[1] Netgear argues that we should require a plaintiff to separately accuse and prove infringement for all accused products, even if those products all comply with a standard that is relevant to the patent-in-suit. It argues that it is legally incorrect to compare claims to a standard rather than directly to accused products. Netgear further argues policy reasons to disallow the use of standards in infringement determination. Specifically, it argues that a holding that practicing a standard infringes a patent would amount to an automatic conclusion of infringement

[1] Netgear argues this for all of the patents-in-suit.

against all future accused infringers. It argues that these later litigants would be deprived of a fair opportunity to prove that their products do not infringe.

Amicus Association of Corporate Counsel, supporting Netgear's position, argues that it is dangerous to assess infringement based on a standard because the text of a standard may not be specific enough to ensure that all possible implementations infringe a patent claim. Further, it argues that many standard sections are optional and that users may never activate a potentially infringing feature. Finally, Amicus argues that to allow this type of analysis would have a "chilling effect" on industries that rely on standards. It argues that companies would be less likely to comply with industry standards if a patent owner can argue that all compliant products infringe.

Philips argues that we have approved the use of standards in assessing patent infringement in *Dynacore Holdings Corp. v. U.S. Philips Corp.*, 363 F.3d 1263 (Fed. Cir. 2004) and *Broadcom Corp. v. ITC*, 542 F.3d 894 (Fed. Cir. 2008). It argues that, in these cases, we compared a standard to the patent claims and determined that the scope of the claims did not encompass every implementation of the standard. Although these cases resulted in findings of noninfringement, Philips argues that they show our willingness to rely on standards in assessing infringement.

Philips further argues that it is more efficient for courts to assess infringement based on industry standards when applicable. It argues that this can alleviate the need for highly technical fact-finding such as the review of complicated source code. It also argues that when a standard provides the necessary level of specificity, this saves judicial resources by not requiring the courts to

separately consider products that all function in accordance with that standard.

We hold that a district court may rely on an industry standard in analyzing infringement. If a district court construes the claims and finds that the reach of the claims includes any device that practices a standard, then this can be sufficient for a finding of infringement. We agree that claims should be compared to the accused product to determine infringement. However, if an accused product operates in accordance with a standard, then comparing the claims to that standard is the same as comparing the claims to the accused product. We accepted this approach in *Dynacore* where the court held a claim not infringed by comparing it to an industry standard rather than an accused product. An accused infringer is free to either prove that the claims do not cover all implementations of the standard or to prove that it does not practice the standard.

Public policy weighs in favor of this approach. If a court determines that all implementations of a standard infringe the claims of a patent, then it would be a waste of judicial resources to separately analyze every accused product that undisputedly practices the standard. This is not prejudicial to present or future litigants. If two products undisputedly operate in the same manner, a finding of infringement against one will create a persuasive case against the other. In such a case, there will be no prejudice.

We acknowledge, however, that in many instances, an industry standard does not provide the level of specificity required to establish that practicing that standard would always result in infringement. Or, as with the '952 patent, the relevant section of the standard is optional, and standards compliance alone would not establish that the

accused infringer chooses to implement the optional section. In these instances, it is not sufficient for the patent owner to establish infringement by arguing that the product admittedly practices the standard, therefore it infringes. In these cases, the patent owner must compare the claims to the accused products or, if appropriate, prove that the accused products implement any relevant optional sections of the standard. This should alleviate any concern about the use of standard compliance in assessing patent infringement. Only in the situation where a patent covers every possible implementation of a standard will it be enough to prove infringement by showing standard compliance.

In the instant case, the district court held that compliance with the fragmentation sections of the 802.11 Standard would result in infringement of the asserted claims. However, the district court held that these sections are optional, that fragmentation is not a requirement of the standard. Specifically, the court noted that the relevant sections of the standard do not require fragmentation, they simply describe how to fragment. Second Noninfringement Opinion, 2009 WL 3047616, at *26. Therefore, someone could comply with the standard without fragmenting, and thereby not infringe the patent. The court noted the undisputed fact that the accused products are capable of fragmentation, but default to no fragmentation. In other words, the court relied on the fact that when a customer purchases the accused product, it does not fragment until and unless the customer purposely activates this option. *Id.* at *26-27. The district court held that unless a customer activated the fragmenting option, then there was no direct infringement. Therefore, the district court held that Philips must show evidence of direct infringement by showing that customers actually use the infringing fragmentation features.

Philips presented user manuals that describe fragmentation, advertisements, the 802.11 Standard, and customer service records that showed when Netgear's support staff advised customers to activate fragmentation. The district court determined that only the customer service records were evidence of direct infringement and noted that Philips presented this evidence for just four models of the accused products: WPN111, WG511, WPN824, and WG311T. It held that all other evidence (customer service manuals, advertisements, etc.) were only evidence of capability to infringe, and did not amount to evidence of actual direct infringement.

On appeal, the parties do not dispute that when a product fragments messages in accordance with § 9.4, it infringes the asserted claims. They dispute the extent to which customers activate the fragmentation function and thus directly infringe. Philips argues that the district court erred by requiring evidence of direct infringement. Citing *Ricoh Co. v. Quanta Computer Inc.*, 550 F.3d 1325, 1338 (Fed. Cir. 2009), Philips argues that because the fragmentation component of the accused products necessarily infringes when it is used, we should presume instances of direct infringement. It further argues that under *Vita-Mix Corp. v. Basic Holding, Inc.*, 581 F.3d 1317, 1326 (Fed. Cir. 2009), evidence that an accused device will infringe in some circumstances combined with the occurrence of those circumstances is sufficient to support a finding of direct infringement. Philips further argues that it presented circumstantial evidence of direct infringement sufficient to withstand summary judgment. It argues that user manuals describing fragmentation and the availability of a fragmentation tool are evidence of direct infringement.

Netgear argues that simply because the accused products may be capable of infringement does not mean

that they necessarily infringe. It argues that *Ricoh* is not relevant because that case did not present a question of direct infringement and only addressed whether a product has substantial noninfringing uses. Netgear also argues that Philips' circumstantial evidence does not amount to a genuine issue of material fact.

We agree with the district court that Philips failed to establish a genuine issue of material fact regarding direct infringement for all but the four models with corresponding customer service records. Unless the claim language only requires the capacity to perform a particular claim element, we have held that it is not enough to simply show that a product is capable of infringement; the patent owner must show evidence of specific instances of direct infringement. *Intel Corp. v. U.S. Int'l Trade Comm'n*, 946 F.2d 821, 832 (Fed. Cir. 1991) (holding that the claim term "programmable selection means" only required that the infringing product be capable of infringing); *Acco Brands, Inc. v. ABA Locks Mfg. Co.*, 501 F.3d 1307, 1313 (Fed. Cir. 2007) (holding that the patent owner must show actual infringement, rather than just the capability to infringe). The present case is similar to *Acco*, where the accused product worked in two modes, only one of which infringed and the claim was not drawn to the mere capability to perform an element. *Id.* The patent owner presented expert testimony and instructions for the product that showed it could operate in an infringing manner. *Id.* With the exception of the customer service records, Philips' evidence shows only that the accused products are capable of infringement.

The cases cited by Philips are distinguishable from the present case. In *Vita-Mix*, there was expert testimony that certain testing and demonstrations conducted by the defendant constituted direct infringement. *Id.* at 1325. There is no equivalent testimony or evidence here, the

manuals and expert testing only show that the products are capable of infringing, they do not provide evidence of direct infringement. Further, *Ricoh* is distinguishable because it dealt with the presence of noninfringing uses rather than direct infringement. These are two separate requirements for contributory infringement and Philips must establish both. We hold that Philips failed to establish a genuine issue of material fact regarding direct infringement for all but the four accused models identified by the district court as being the subject of the relevant customer service records.

2. Knowledge

For the four models for which Philips presented evidence of direct infringement, the district court held that Philips failed to establish the knowledge element of contributory infringement. Second Noninfringement Order, 2009 WL 3047616, at *29. The district court relied on its analysis of notice under the patent marking statute, 35 U.S.C. § 287(a). The district court held that letters from Via Licensing that identified the '952 patent and alleged infringement by any 802.11 compliant product were insufficient as a matter of law to meet this knowledge requirement. *Id.* at *8-10, 29.

Philips argues that the district court erred by deciding the knowledge element for contributory infringement by referring to its § 287(a) analysis. It argues that under *SRI International Inc. v. Advanced Technology Laboratories, Inc.*, 127 F.3d 1462, 1470 (Fed. Cir. 1997), the letters from Via Licensing adequately disclosed the identity of the patent, the activity that may infringe, and a proposal to abate that infringement. It argues that our case law requires only that Netgear know of the relevant acts (practicing the 802.11 Standard) and of the patent itself.

Philips argues that there are genuine issues of material fact that preclude summary judgment.

Netgear argues that although the district court relied on its § 287(a) analysis, it did not err in holding that there was not adequate knowledge for contributory infringement. It argues that the contents of the letters from Via Licensing were insufficient to provide knowledge of the allegedly infringing products as a matter of law. It argues that it was not enough to simply identify the patent, but that Philips must prove that Netgear "knew that the combination for which [its] component was especially designed was both patented and infringing," citing *Aro Manufacturing Co. v. Convertible Top Replacement Co.*, 377 U.S. 476, 488 (1964).

We agree with Philips that there are genuine issues of material fact relating to knowledge that preclude summary judgment of noninfringement. However, we disagree with Philips' claim that it need only show that Netgear knew of the patent and of the relevant acts, not whether these acts constituted infringement. Our case law is clear that Philips must show that Netgear "knew that the combination for which its components were especially made was both patented and infringing." *Golden Blount, Inc. v. Robert H. Peterson Co.*, 365 F.3d 1054, 1061 (Fed. Cir. 2004) (quoting *Preemption Devices, Inc. v. Minn. Mining & Mfg. Co.*, 803 F.2d 1170, 1174 (Fed. Cir. 1986)). In this case, Philips provided a letter that identified the '952 patent and stated that all 802.11 compliant products infringe. Construing all facts in a light most favorable to Philips, we cannot hold that Netgear did not have the requisite knowledge as a matter of law.

3. Substantial Noninfringing Uses

Although the district court did not consider the issue, Netgear argues, as an alternative basis for affirming, that it cannot be liable for contributory infringement because the components at issue have substantial noninfringing uses. It argues that we should look to the fragmentation threshold tool that allows a user to set the message size threshold and thus control when fragmentation takes place. It notes that "more than 40 percent of the available fragmentation threshold value settings on the accused products are noninfringing" because they result in no fragmentation. Appellee's Br. 51. It argues that these noninfringing uses are frequent and thus substantial.

Philips argues that Netgear focuses on the wrong part of the accused products. It argues, citing *i4i Ltd. Partnership v. Microsoft Corp.*, 598 F.3d 831, 849 (Fed. Cir. 2010), that in determining whether there are substantial noninfringing uses, we must only consider the "particular tool" in question when that tool is "a separate and distinct feature" of a larger product. Philips argues that the fragmentation software and hardware is a "separate and distinct" tool and it has no uses other than the infringing method.

We agree with Philips that the component at issue here is the specific hardware and software that performs fragmentation. This case is similar to *i4i* where Microsoft Word was the larger product, but the infringement allegations focused on the XML Editor within Word. *Id.* at 849. We held that the many uses of Word that did not involve the XML Editor did not constitute substantial noninfringing uses. *Id.* We held that the XML Editor was "separate and distinct" from all other functions of Word and that we should analyze contributory infringement based on this separable feature, rather than the entire product. *Id.*

Likewise, the fragmentation functions of the accused products in this case are "separate and distinct" features and we must treat them separately in analyzing contributory infringement. *See id.* In the present case, Netgear argues that because a user can turn off the infringing features, then there are substantial noninfringing uses. However, it is undisputed that, when activated, the product is infringing. Whether a user activates fragmentation is relevant to the extent of direct infringement, but does not establish substantial noninfringing uses. Therefore, the undisputed facts establish that the fragmentation software does not have substantial noninfringing uses and we cannot affirm summary judgment of noninfringement on this basis.

4. Material Part of the Invention

The district court held that because the claims included only fragmenting steps, products that only defragment could not infringe either directly or indirectly. Second Noninfringement Order, 2009 WL 3047616, at *24-25. It held that simply because a receiver defragmented a message, this did not mean that the fragmenting method of the claims had been employed. *Id.*

Philips argues that the accused products defragment messages in accordance with IEEE 802.11 § 9.5, and that § 9.5 requires fragmentation using § 9.4 of the standard. It argues that because the fragmentation of § 9.4 necessarily infringes the asserted claims, then the defragmenting products are useful only for infringement and Netgear should be liable. It argues that the district court agreed that the mention of "data receivers" in claim 1 makes defragmentation material to the asserted claims.

Netgear argues that the plain language of § 271(c) requires that the accused component be a "material part of

the invention." It argues that the claims do not include any defragmentation steps and thus a product that only defragments messages cannot constitute a material part of the invention.

We agree with Netgear that a product that only defragments messages cannot constitute a "material part" of a claimed invention drawn solely to fragmentation. Philips argues that the district court held that the mention of "data receivers" in the claim makes defragmentation (which would take place at the receiver) a material part of the invention. But the full quote from the district court makes it clear that this was not its holding:

> I agree that without data receivers capable of defragmenting messages . . . the usefulness of the claimed method would be lost. Nonetheless, the claimed method relates only to the fragmentation portion of the transmission; the patent does not disclose defragmentation.

Second Noninfringement Order, 2009 WL 3047616, at *24. We agree with the district court that the asserted claims include no defragmentation steps and therefore hold that products that only defragment messages cannot constitute a "material part" of the invention.

We reverse the district court's summary judgment of no contributory infringement for the four accused models for which Philips showed evidence of direct infringement. We affirm summary judgment of no contributory infringement for all other models.

B. Induced Infringement

"Whoever actively induces infringement of a patent shall be liable as an infringer." 35 U.S.C. § 271(b). To establish inducement, a patent owner must show that the accused infringer induced the infringing acts and knew or

should have known that its actions would induce actual infringement. *DSU Med. Corp. v. JMS Co.*, 471 F.3d 1293, 1304 (Fed. Cir. 2006). It is not enough to simply intend to induce the infringing acts. *Id.* at 1306.

The district court relied on its notice analysis under § 287(a) holding that because Netgear did not have notice of the '952 patent, Netgear could not have the requisite intent for inducement. It held that "if defendant did not know its products might infringe, it would not have been able to form the intent necessary for a finding of liability." Second Noninfringement Order, 2009 WL 3047616, at *29.

Philips argues that it provided sufficient circumstantial evidence of intent to preclude summary judgment. Philips relies heavily on *Ricoh* to argue that when an accused infringer sells a product with no function other than to infringe, that party induces infringement. It further argues that the product manuals and customer service records are evidence that Netgear encouraged its customers to use the products in an infringing manner.

Netgear argues that the district court was correct and that the Via Licensing letters were insufficient to provide notice of the '952 patent and allegedly infringing acts. It argues that without notice of which products allegedly infringe certain claims, it could not have the requisite intent to induce infringement.

We hold that there are genuine issues of material fact that preclude summary judgment of no induced infringement. There are factual issues regarding the Via Licensing letters, specifically, whether they put Netgear on notice of the allegedly infringing acts by identifying the '952 patent and 802.11 compliant products and whether Netgear had the requisite intent to induce infringement. We reverse the district court's summary judgment of no

induced infringement for the four accused models for which Philips showed evidence of direct infringement. We affirm summary judgment of no induced infringement for all other models.

C. Limitation on Damages

If a plaintiff practices the claimed invention and fails to mark its product with the relevant patent number, damages may be limited. 35 U.S.C. § 287(a) states, in pertinent part:

> In the event of failure to so mark, no damages shall be recovered by the patentee in any action for infringement, except on proof that the infringer was notified of the infringement and continued to infringe thereafter, in which event damages may be recovered only for infringement occurring after such notice. Filing of an action for infringement shall constitute such notice.

The district court held that Philips practiced the claims of the '952 patent and failed to mark its products. The district court further held that Philips did not provide notice to Netgear prior to filing the instant case. Second Noninfringement Order, 2009 WL 3047616, at *9. It held that the letters from Via Licensing did not constitute adequate notice under the statute and that because the '952 patent expired before filing of the present action, there could be no damages. *Id.*

We hold that the district court erred because "[t]he law is clear that the notice provisions of § 287 do not apply where the patent is directed to a process or method." *Crown Packaging Tech., Inc. v. Rexam Beverage Can Co.*, 559 F.3d 1308, 1316 (Fed. Cir. 2009). All claims of the '952 patent are drawn to a method and we therefore

find that the district court erred by limiting damages under § 287.

II. '642 Patent

The '642 patent claims a system for reducing power consumption in mobile devices that access wireless networks. '642 patent col.1 ll.29-31. A wireless network includes a wireless router, or base station, that is connected to the wired network, such as the Internet. It also includes a number of mobile stations that communicate with the base station to send and receive data. The mobile stations include a wireless communications subsystem that must be powered on in order to communicate with the base station. The inventors recognized that, to conserve power, the wireless subsystem of the mobile station should be powered down for as much time as possible. To achieve this end, the patent describes a base station that sends out beacon signals periodically. *Id.* col.11 ll.12-15. A beacon signal serves to notify mobile stations about network status and any data that is ready for transmission to the mobile station. *Id.* There are two different types of beacon signals. The first type is for all stations and indicates whether there is data to transfer to each station. The second type provides information about the network and is not essential for every station to receive. Generally, the beacon signals are sent in a predetermined order at predetermined times. For example, the base station sends a first type beacon signal followed by two second type beacon signals at constant intervals.

The mobile station's wireless communication subsystem is configured to only power up in time to receive the first type beacon signals. *See id.* fig.15, element u1. After this signal, the mobile station is capable of receiving data for a fixed period of time called the data receive-ready

(DRR) period. *Id.* col.11 ll.17-21. If a beacon signal indicates that there is no data to send to the mobile station, then the mobile station immediately powers off. *Id.*

The patent discloses four embodiments of the invention. Fujitsu asserts claims 2, 6, and 8, which describe a time extension embodiment where the base station notifies the mobile station that it must stay powered up beyond the DRR period because of the amount of data to transfer. Claim 2 states:

> A radio communications system comprising:
>
> an intermittent power-on type mobile station for shifting to a power-on state *synchronously* with a received timing of a beacon signal, with a fixed period of time after the beacon signal has been received being defined as a *data receive-ready period*; and
>
> a base station for emanating successive beacon signals to said intermittent power-on type mobile station and transmitting data to said intermittent power-on type mobile station by radio while said intermittent power-on type mobile station is ready to receive data from said base station as a result of control by the individual beacon signal from said base station;
>
> said base station taking the initiative, if said data is to be transmitted continuously beyond said *data receive-ready period* of said intermittent power-on type mobile station, to originally report to said intermittent power-on mobile station, as time extension information, that data must be received beyond said *data receive-ready period*;

> said intermittent power-on type mobile station being responsive to said time extension information from said base station to sustain its power-on state beyond said *receive-ready period* until all pieces of data transmitted continuously from said base station are received.

(emphasis added to disputed terms). Fujitsu argues that the district court incorrectly construed the terms "synchronously" and "data receive-ready period" and erred in granting summary judgment of noninfringement.

A. "synchronously"

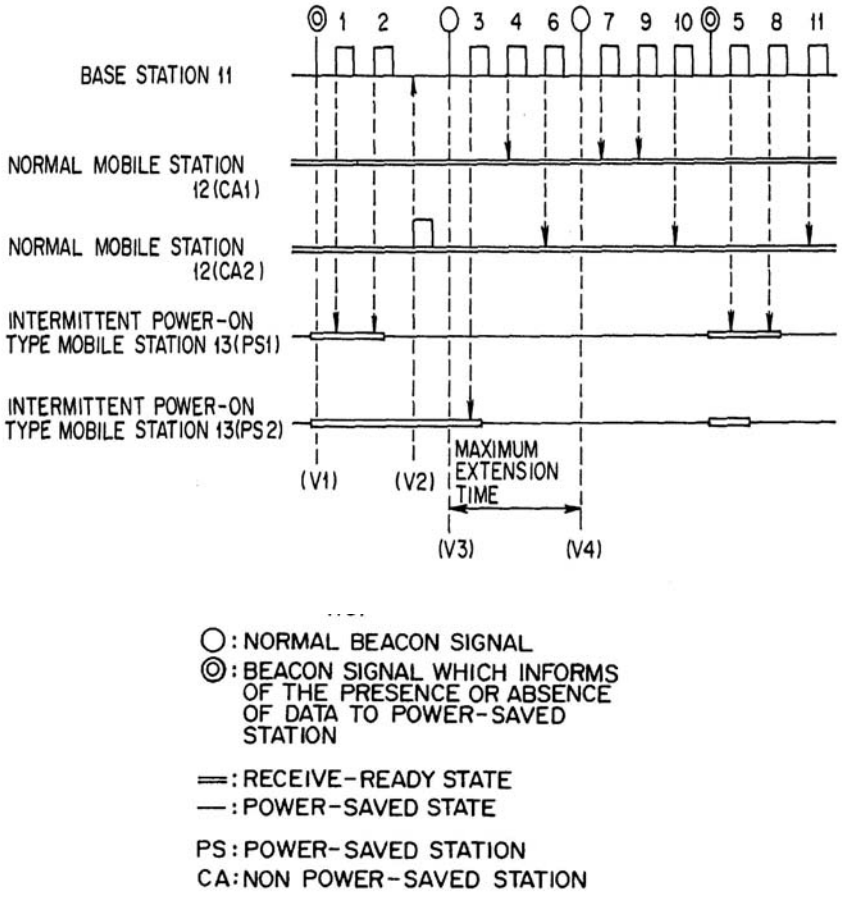
The district court construed the phrase "shifting to a power on state *synchronously* with a received timing of a beacon signal" to mean "shifting to a power-on state *at the same time* a beacon signal is to be received." *Fujitsu Ltd. v. Netgear, Inc.*, 576 F. Supp. 2d 964, 976 (W.D. Wis. 2008) (Markman Order). Below, Netgear argued that the claim required that the beacon signal activate the mobile station. The district court rejected this argument based on the plain language of the claim. *Id.* It held that "synchronously" does not require that the beacon signal control the mobile station, only that the beacon signal and the power on happen "at the same time." *Id.*

Fujitsu argues that the district court's construction is too narrow. It argues that the term "synchronously" does not mean "at the same time." It argues that the term means that "the shifting to a power-on state has a temporal relationship with the beacon signal so that the beacon signal can be received." It argues that the specification does not support the district court's construction. Fujitsu points first to figure 18, which shows a first step of "Power-on (Beacon Receiving Timing)" followed by "Receive Power-Saved Station Control Beacon." Further, it

points to figure 19 and argues that it shows a power-on timing before the beacon signal, rather than at the same time. Finally, Fujitsu argues that the district court erred because its construction raises possible issues with patentability. It argues that by construing "synchronous" to mean "at the same time," the district court improperly required a physical impossibility because a system cannot cause two things to happen at precisely the same time. It argues that this brings the patentability of the claims into question and that the courts should construe claim terms to avoid this issue.

Netgear responds that the district court was correct, the term "synchronous" must mean "at the same time." According to Netgear, Fujitsu's arguments regarding the figures are not persuasive because, for example, figure 19 shows a short "ramp-up" period that simply allows the mobile station to be at full power at the same time it receives the beacon signal. Netgear also argues that this construction of synchronously does not require a physical impossibility. It argues that we addressed a similar situation in *Paragon Solutions, LLC v. Timex Corp.*, 566 F.3d 1075, 1088 (Fed. Cir. 2009), and held that the term "real-time" necessarily means a "non-zero amount of time." In other words, Fujitsu argues that "synchronously" may mean "at the same time," but that this will not require the physical impossibility of two things happening at the same instant.

We hold that the proper construction of the term is "just before or at the same time." This is the only construction consistent with the specification. For example, the specification shows in figure 19 that the mobile station powers on just before the received timing V1 of the beacon signal:



Further, figure 18 includes a flow chart with a first step of "power-on (beacon receive timing)" and a second step of "receive . . . beacon," which further supports that these two events need not happen "at the same time." The district court's construction, urged by Netgear, is too narrow because it requires the term "synchronous" to mean "simultaneous." This would be in direct contradiction to the disclosure of the '642 patent as evidenced by figures 18 and 19. We cannot do as Netgear asks and ignore the clear disclosure of the specification and con-

strue the term "synchronously" to mean "at the same time." Fujitsu's proposal—some temporal relationship between the beacon and the power-on timing—is too broad and amounts to nothing more than a required ordering. It would only require that the mobile station power-on sometime before the beacon is sent. This ignores the power saving purpose of the invention and is not supported by the specification. The object of the invention involves timing the beacon signals and power-on timing "so that an improved . . . power-saving can be realized." '642 patent col. 3 ll.45-46. Fujitsu's proposed construction would allow for any temporal relationship, even if the mobile station powered-on long before the beacon signal thus wasting valuable power resources. Reading the claim language in light of the specification, we construe the term to mean "just before or at the same time." [2]

B. "data receive-ready period"

The district court held that the data receive-ready (DRR) period is "a fixed period of time during which an intermittent power-on type mobile station is in its power-on state and prepared to receive data, with the period beginning immediately after the intermittent power-on type mobile station receives the first beacon signal telling it there is data to be transmitted to it." Markman Order, 576 F. Supp. 2d at 975. The court further held that "(1) the period must be 'fixed' and (2) it begins after the intermittent power-on type mobile station receives a beacon

[2] We agree with Netgear that the "at the same time" portion of the construction does not require a physical impossibility. As in *Paragon*, the phrase "at the same time" takes into account technological constraints and necessarily means a "non-zero amount of time." 566 F.3d at 1088.

signal telling it there is data waiting to be transmitted." *Id.* In its order granting summary judgment of noninfringement, the court discussed its construction, stating that "the access points limit transmission of data during a fixed period unless they transmit time extension information." Second Noninfringement Order, 2009 WL 3047616, at *21.

Fujitsu does not contest the district court's construction in its Markman Order. However, Fujitsu argues that the district court amended its construction improperly by requiring, in its Second Noninfringement Order, that data only be transmitted during the DRR period unless time extension information is sent. It argues that the specification only requires that the DRR period be "the constant period after receiving the beacon signal" and it was erroneous to add the limitation requiring time extension information. '642 patent col.13 ll.61-62. It argues that the construction is erroneous because the specification includes embodiments where the access point can continue to transmit data after the end of the DRR even in the absence of time extension information. For example, it argues that in one embodiment, when the mobile station does not receive expected data during the fixed period, it remains powered-on for a predetermined time beyond the DRR period without the base station sending any time extension information. Also, Fujitsu argues that the district court erred by requiring time extension information because the same claim term, DRR period, appears in other (unasserted) claims and does not require time extension information. For example, Fujitsu points to claims 3 and 7 which include a nearly identical DRR period, but do not require time extension information in order to transmit data outside the DRR period. Fujitsu finally argues that even if we agree with the district court's amended construction, we must remand because

Fujitsu was deprived of its opportunity to argue infringement under this construction.

Netgear argues that the district court correctly construed the term in its Markman Order. It argues that the district court never amended its construction in the Second Noninfringement Order, but simply looked to the claim limitations requiring time extension information.

We hold that the district court correctly construed this claim term in its Markman Order. Further, the district court did not modify this construction by requiring time extension information in order to transmit data beyond the DRR period. The plain language of the claim is clear, the DRR period is "fixed." The claim further states

> said base station taking the initiative, if said data is to be transmitted continuously beyond said data receive-ready period of said intermittent power-on type mobile station, to originally report to said intermittent power-on mobile station, as time extension information, that data must be received beyond said data receive-ready period.

The claim expressly requires that, if the base station wishes to send data after the end of the fixed DRR period, it must send time extension information. The district court did not amend its construction, it simply looked to additional elements of the claim that Fujitsu must show to establish infringement.

Fujitsu is correct that the specification includes other embodiments that do not require time extension information and other claims describe these embodiments. However, these embodiments are not the subject of the claims at issue. Fujitsu's argument on appeal would have us read the time extension information limitation entirely out of the claims. We hold that the district court did not

err in its construction of the term "data receive-ready period." Further, because the district court's reference to time extension information did not amount to an amendment to the claim construction, we hold that it did not deprive Fujitsu of its opportunity to argue infringement under the correct construction.

C. Infringement

The district court held that there was no genuine issue of material fact regarding infringement and that Fujitsu failed to establish that the accused products and standards satisfied the DRR period limitation. Second Noninfringement Order, 2009 WL 3047616, at *21-22. The district court relied on tests performed by Fujitsu's expert, who configured a base station to transmit beacon signals every 102 milliseconds. *Id.* The district court noted that the initial beacon signal included a "more data" flag that was set and that the mobile station remained powered-on to receive data. *Id.* at *22. The court also noted that each piece of data also had its "more data" flag set and the mobile station remained awake after each one. *Id.* After 102 milliseconds passed, the second beacon signal arrived with its "more data" flag set and the mobile station remained powered-on. *Id.* Finally, the court noted that after receiving a piece of data with its "more data" flag not set, the mobile station powered-down. *Id.* The district court held that this evidence showed that there was no "fixed period" during which the mobile station could receive data. *Id.* It relied on the fact that the mobile station remained available to receive data as long as the "more data" flag in a data transmission or a beacon was set. It held there were no genuine issues of material fact and granted summary judgment of noninfringement. *Id.*

Fujitsu argues that because the district court improperly amended its construction, we should remand to give Fujitsu an opportunity to adduce evidence. Specifically, it argues that the only issue before the district court in the summary judgment phase was whether the accused products remain ready to receive data for a fixed period of time. But Fujitsu argues that the district court required it to show that the base station "limit[s] transmission of data during a fixed period unless they transmit time extension information." *See Id.* at *22. It argues that this goes beyond the question of whether the mobile station is ready to receive data for a fixed period of time and we should remand for further consideration.

Netgear argues that the district court correctly held that the accused products do not satisfy the DRR period limitation because they do not remain ready to receive data for a "fixed" period of time. It points out that, at the summary judgment stage, Fujitsu argued that the "fixed" period was the 102 milliseconds between beacon signals and the district court simply found that the mobile station was ready to receive data beyond this "fixed" period. Therefore, Fujitsu cannot establish infringement because the products do not satisfy this claim element.

We agree with the district court that there is no genuine issue of material fact and that the accused products do not satisfy the DRR period limitation. The period must be "fixed." Markman Order, 576 F. Supp. 2d at 975. Fujitsu's expert's tests establish that there is no fixed period of time that the mobile station is available to receive data. As long as a piece of data has its "more data" flag set, the mobile station will remain powered-on to receive data. While Fujitsu is correct that beacon signals appear to arrive at fixed intervals, they do not create a fixed period of time during which the mobile station may receive data because the same tests show the mobile station remaining

powered-on after the period has ended.[3] There is no genuine issue of material fact that the accused products do not satisfy the DRR period limitation and therefore we affirm the district court's grant of summary judgment of noninfringement of the asserted claims of the '642 patent.

III. '993 Patent

The '993 patent discloses a method for ensuring quality of service in a communications network. '993 patent, abstract. The patent describes a plurality of mobile terminals each having a priority value. *Id.* col.1 l.67-col.2 l.2. There is no limit to the number of priority values available. *Id.* The base station, considering the overall traffic load, groups the priority values into batches that correspond to ranges of priority values. *Id.* col.3 ll.33-37. The base station provides these groupings to the mobile terminals. *Id.* col.3 ll.61-63. For example, the base station could define group 1 (priority levels 1 through 50) and group 2 (priority levels 51 through 100). The base station then sends a message to all mobile stations informing them which group may transmit, blocking all other mobile terminals. *Id.* col.4 ll.24-32. LG asserts independent claim 25:

> A method of controlling traffic a [sic] mobile communication system, comprising the steps of:
>
> > setting a priority level of each of a plurality of mobile terminals; and

[3] The 802.11 Standard even allows a mobile station to remain powered-on indefinitely when an expected piece of data does not arrive. 802.11 Standard § 11.2.1.8 This indefinite availability further shows that there is no "fixed" period of time during which the mobile station can receive data.

> dynamically controlling data transmissions of each of the plurality of mobile terminals in accordance with the priority level of each mobile terminal and a congestion level of the communication system, wherein each of the mobile terminals is assigned to a priority group according to the priority level of the corresponding mobile terminal, and wherein a base station dynamically controls data transmission of each of the mobile terminals by transmitting a priority group number to each of the mobile terminals indicating which groups are authorized to transmit data, and wherein mobile terminals assigned to a priority group that is not authorized to transmit are temporarily blocked from transmitting while maintaining a physical channel.

The accused products implement the WMM Specification. The WMM Specification is a complement to the 802.11 standard that outlines a set of structures and methods to ensure better quality of service within an 802.11 compliant network. WMM Specification § 1.1.

The 802.11 standard and the WMM Specification operate on a time-slotted system. This means that the base station and mobile stations synchronize and the base station allots individual segments of time (slots) for the stations to transmit. In order to limit contention for time slots, the WMM specification describes a protocol for ensuring quality of service. *Id.* Each terminal analyzes its queue of messages to send and assigns a message type – e.g., voice, video, text, etc. An individual terminal assigns priority values to each message in its queue. *Id.* § 3.3.1. The terminal then groups these prioritized mes-

sages into Access Categories defined by the base station, which correspond to Contention Windows. *Id.* Contention Windows are sets of time slots that each Access Category may transmit in.[4] For high priority Access Categories, such as voice, the Contention Window is very short. For example, a voice packet may have a Contention Window of 5 slots, meaning that the terminal must randomly select one of the next 5 slots to transmit. A video packet may have a Contention Window of 10 slots, meaning that the mobile station must randomly select one of the next 10 slots to transmit.

The district court held that the accused products do not infringe claim 25 as a matter of law because they do not "set[ ] a priority level of each of a plurality of mobile terminals." First Noninfringement Order, 2009 WL 36616, at *8; Second Noninfringement Order, 2009 WL 3047616, at *15. The court held that the WMM Specification requires message priority based only on the type of data, not terminal priority. Second Noninfringement Order, 2009 WL 3047616, at *14-15. It rejected LG's argument that the terminals essentially adopt the priority of the highest priority message they have to transmit. The court stated that if it accepted the "adoption" argument, "the purpose of the patented invention would be defeated" because it would render the claim term "terminal" meaningless. *Id.* at *14. Further, "[a]lthough the patented method is broad enough to cover a method that makes message type one consideration in determining a terminal's priority level, the idea of message type as *one* consideration is different from the idea of message type as the *only* consideration." *Id.* at *15 (emphasis in original).

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[4] The Contention Windows are expanded by adding a "back-off time" in accordance with the Access Category. A higher priority category corresponds to a shorter back-off time.

LG argues that the district court erred and that the WMM Specification requires "setting a priority level of each of a plurality of terminals." LG argues that the district court, in its Second Noninfringement Order, improperly construed the claim term "setting a priority level . . ." by holding that message priority could not be the sole basis for determining terminal priority. It argues that we should reject this claim construction and remand with instructions that message priority can equate to terminal priority. LG argues that the patent discloses using message priority to determine terminal priority. Specifically, LG points to claim 27 that states "the priority level of each mobile terminal is set in accordance with a waited quantity, a served quantity, and a constant value based on a predefined priority." LG argues that this shows that information about messages, such as a waited quantity, may be used to determine the terminal priority of the claims.

LG further argues that the district court erred by not equating the message priority of the WMM Specification to the terminal priority of the claims. It argues that "[e]ach terminal adopts the [access category] of the highest priority message queued in the terminal as the priority level of that terminal." Appellant's Br. at 57-58.

Netgear argues that the district court was correct in determining that the WMM Specification requires message, rather than terminal, priority. It argues that the waited quantity and served quantity of claim 27 relate to the amount of traffic at a terminal rather than the type of message. It argues that the patent specification is clear that only terminal priority affects message transmission, not message priority. It argues that the WMM Specification assigns priorities to message types. For example, Netgear points out that voice has a higher priority and

shorter contention window than video, but this priority does not attach to the terminal.

We agree with the district court that the accused products do not infringe claim 25 as a matter of law. The WMM Specification is clear that it assigns priority to message type rather than terminal. WMM Specification § 3.3.1. LG's argument that a terminal adopts the priority of the highest priority message in its queue is unavailing because of the way that the WMM Specification structures its contention windows. LG concedes that the contention windows of the WMM Specification overlap. Appellants' Br. 58. In other words, voice data may have a contention window of time slots 1 to 5 while video data has a contention window of time slots 1 to 10. While the voice data is more likely to transmit before the lower priority video data, the overlap in the contention windows means that the lower priority data could transmit first. For example, a station with video data could randomly transmit in slot 2 while a station with voice data randomly transmits in slot 5. In this instance, the higher priority data transmits after the lower priority data. This shows that the stations do not adopt any transmission priority of queued messages.

The WMM Specification explicitly assigns priority levels to messages, not to terminals. The undisputed fact that a lower priority message may transmit before a higher priority message shows that the terminals do not adopt the priority level of the highest priority message. Although LG is correct that claim 27 contemplates using message traffic as a part of determining "terminal" priority, this does not change the fact that the WMM Specification does not require setting a terminal priority. Because there is no genuine issue of material fact that the accused products do not "set[ ] a priority level of each of a plurality

of terminals," we affirm the district court's grant of summary judgment of noninfringement.

IV. Conclusion

Because the district court correctly granted summary judgment of noninfringement of the asserted claims of the '642 and '993 patents, we affirm. Regarding the '952 patent, we affirm summary judgment of noninfringement for all products but the four models for which Philips produced appropriate evidence of direct infringement. For these four models, we reverse the district court's summary judgment of no contributory and no induced infringement because genuine issues of material fact remain.

AFFIRMED-IN-PART, REVERSED-IN-PART, and REMANDED

Costs

No costs.