

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ZTE CORPORATION and ZTE (USA) INC.,
and
MICROSOFT CORPORATION,
Petitioner,

v.

IPR LICENSING, INC.,
Patent Owner.

Case IPR2014-00525¹
Patent 8,380,244 B2

Before SALLY C. MEDLEY, MIRIAM L. QUINN, and
BEVERLY M. BUNTING, *Administrative Patent Judges*.

BUNTING, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

¹ Case IPR2015-00074 has been joined with this proceeding.

I. INTRODUCTION

ZTE Corporation and ZTE (USA) Inc. (collectively, “Petitioner”) filed a corrected Petition requesting *inter partes* review of claims 1–8, 14–16, 19–29, 36–38, and 41–44 of U.S. Patent No. 8,380,244 B2 (Ex. 1001, “the ’244 patent”). Paper 9 (“Pet.”). IPR Licensing, Inc. (“Patent Owner”) filed a Patent Owner Preliminary Response (Paper 12 (“Prelim. Resp.”)). Pursuant to 35 U.S.C. § 324, the Board instituted trial as to claims 1–8, 14–16, 19–29, 36–38, and 41–44 on one ground of unpatentability, 35 U.S.C. § 103(a). Paper 19 (“Dec.”).

Subsequent to institution, we granted the Motion for Joinder filed by Microsoft Corporation, joining Case IPR2015-00074 with the instant trial.² Paper 31. Patent Owner filed a Patent Owner Response (Paper 25 (“PO Resp.”)) and Petitioner filed a Reply (Paper 38 (“Pet.Reply”)). Oral hearing was held on May 21, 2015, and a transcript of the hearing is in the record. Paper 47 (“Tr.”).

The Board has jurisdiction under 35 U.S.C. § 6(c). This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine that Petitioner has proven, by a preponderance of the evidence, that claims 1–8, 14–16, 19–29, 36–38, and 41–44 of the ’244 patent are unpatentable.

A. *Related Proceedings*

The parties represent that the ’244 patent is the subject of the following judicial proceedings: (1) *InterDigital Commc’ns Inc. v. ZTE*

² In this Decision, we refer to ZTE Corporation and ZTE (USA) (the original Petitioner) and Microsoft Corporation (the joined Petitioner) collectively as “Petitioner.”

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Patent 8,380,244 B2

Corp., Case No. 13-cv-00009-RGA (D. Del.), filed January 2, 2013; (2) *InterDigital Commc'ns Inc. v. Nokia Corp.*, Case No. 13-cv-00010-RGA (D. Del.), filed January 2, 2013; and (3) *InterDigital Commc'ns Inc. v. Samsung Elec. Co. Ltd.*, Case No. 13-cv-00011-RGA (D. Del.), filed January 2, 2013. Pet. 2; Paper 6, 2.

B. The '244 Patent (Ex. 1001)

The '244 patent is directed to a system and method of short-range, high-speed, and long-range, lower-speed, data communications using a dual-mode unit. Ex. 1001, Abstract. The wireless communication path is selected based on a request to establish a communication session between first and second sites, by first determining whether the first wireless digital communication path is available. *Id.* at 3:19–22. The first wireless communication path is a wireless LAN connection, and the second wireless communication path is a cellular connection. *Id.* at 3:23–28. The '244 patent describes several embodiments for indicating availability of the first wireless communication mode. *Id.* at 3:44–54. For example, if the first wireless communication path is unavailable, the communication session is established using the second wireless communication path, and “the local wireless transceiver is controlled to make it appear to the second wireless digital communication path as though the bandwidth were continuously available during the communication session, irrespective of any actual need to transport data communication signals between said first and second sites.” *Id.* at 3:60–4:1.

In another example, the second wireless digital communication path “is provided by establishing a logical connection using a higher layer

protocol, such as a network layer protocol” from a subscriber unit to an intended peer node. *Id.* at 4:5–11. The network layer logical connection “is made through a wireless channel that provides a physical layer connection between the portable computer node, through a base station, and the intended peer node.” *Id.* at 4:11–14. The physical layer channel is released, “while maintaining the appearance of a network layer connection to the higher level protocols.” *Id.* at 4:16–18. The ’244 patent contemplates that the physical links “are preferably known wireless communication air interfaces using digital modulation techniques such as [the] Code Division Multiple Access (CDMA) standard [O]ther wireless communication protocols and other types of links 30 may also be used to advantage with the invention.” *Id.* at 5:31–37.

This embodiment is illustrated in Figure 6, reproduced below:

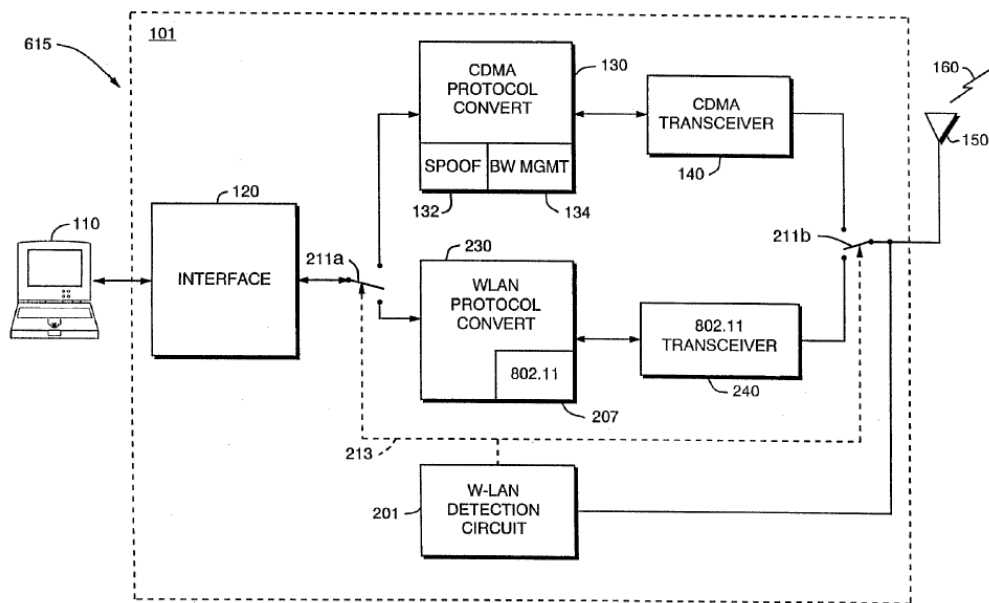


FIG. 6

Figure 6 is a block diagram illustrating the subscriber unit. Specifically, the subscriber unit 101 connects to a computer 110 via a computer interface 120, to transmit data over the Internet via a first

communication route or second communication route. *Id.* at 9:27–57. The interface establishes a connection over the first, faster wireless communication path 213, e.g., wireless local area network (WLAN), if available, using a protocol such as IEEE 802.11. *Id.* at 3:23–27, 8:46–59, 9:40–42. If the WLAN connection is not available, the interface automatically switches to a second, slower, wireless digital long-range communication path, e.g., CDMA. *Id.* at 3:29–50, 9:15–57. When data are being transmitted over the second communication path, the CDMA protocol converter initiates a spoofing function, so that it appears to the terminal equipment that the subscriber unit is connected to the public network at all times. *Id.* at 9:58–63. The bandwidth management function allocates and deallocates CDMA radio channels, and is also responsible for dynamic management of bandwidth allocated to a session by “dynamically allocating sub-portions of the CDMA radio channels **160**” using a wireless communication protocol. *Id.* at 9:66–10:3. The ’244 patent explains how in the long range, lower data rate mode:

wireless bandwidth is allocated only when there is actual data present from the terminal equipment to the CDMA transceiver [W]hen data is not being presented upon the terminal equipment to the network equipment, the bandwidth management function **134** deallocates initially assigned radio channel bandwidth **160** and makes it available for another transceiver and another subscriber unit **101**.

Id. at 10:34–43.

C. Illustrative Claim

Of the challenged claims, claims 1 and 23 are independent. Claims 2–8, 14–16, 19–22 depend directly or indirectly from claim 1; and claims 24–

29, 36–38, and 41–44 depend directly or indirectly from claim 23. Claim 1 follows:

1. A subscriber unit comprising:
 - a cellular transceiver configured to communicate with a cellular wireless network via a plurality of assigned physical channels;
 - an IEEE 802.11 transceiver configured to communicate with an IEEE 802.11 wireless local area network; and
 - a processor configured to maintain a communication session with the cellular wireless network in an absence of the plurality of assigned physical channels while the IEEE 802.11 transceiver communicates packet data with the IEEE 802.11 wireless local area network.

Ex. 1001, 11:5–16.

D. Prior Art

Petitioner relies on the following prior art references (Pet. 4–6):

References	Patents/Printed Publications	Date	Exhibit
Jawanda	U.S. Patent No. 6,243,581 B1	June 5, 2001 (filed Dec. 11, 1998)	1003
GPRS Standards	General Packet Radio Service Standards ³		1005
	GSM 02.60 v. 6.1.1 R97	Nov. 1998	1005.01
	GSM 03.02 v. 6.1.0 R97	July 1998	1005.02
	GSM 03.60 v. 6.1.1 R97	Aug. 1998	1005.03
	GSM 04.07 v. 6.1.0 R97	July 1998	1005.04
	GSM 04.08 v. 6.1.1 R97	Aug. 1998	1005.05
	GSM 04.60 v. 6.1.0 R97	Aug. 1998	1005.06
	GSM 04.64 v. 6.1.0 R97	July 1998	1005.07

³ GPRS Standards refer to ten technical specifications for the General Packet Radio Service (“GPRS”) on Global System for Mobile Communications (“GSM”) networks allegedly published by the European Telecommunications Standards Institute on the dates indicated. Pet. 6.

	GSM 04.65 v. 6.1.0 R97	July 1998	1005.08
	GSM 05.01 v. 6.1.1 R97	July 1998	1005.09
	GSM 03.64 v. 6.1.0 R97	Oct. 1998	1005.10
IEEE 802.11 Standard	Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications, IEEE 802.11 Standard, Institute of Electrical and Electronics Engineers.	Aug. 20, 1999	1019

E. Instituted Grounds

We instituted the instant trial based on the following ground of unpatentability. Dec. 22.

References	Basis	Claims Challenged
Jawanda, the GPRS Standard and IEEE 802.11 Standard	§ 103(a)	1–8, 14–16, 19–29, 36–38, and 41–44

III. ANALYSIS

A. Level of Ordinary Skill in the Art

Citing the testimony of its declarant, Dr. Bims, Petitioner asserts that the person of ordinary skill in the art “would have a master’s degree or the equivalent in electrical engineering and three or more years of work experience relating to data communications over wireless networks.”

Pet. 18–19 (citing Ex. 1002 ¶ 90). Notwithstanding Petitioner’s assertions regarding the level of ordinary skill in the art, we find that the level of ordinary skill in the art is reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57

F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

Based on the stated qualifications of Dr. Harry Bims (Ex. 1002 ¶¶ 10–16) and his Curriculum Vitae (*Id.* at Appendix A), we find Petitioner’s Declarant is qualified to testify in this case. Likewise, based on the stated qualifications of Dr. Wayne E. Stark (Ex. 2005 ¶¶ 7–13) and his Curriculum Vitae (*Id.* at Appendix 1), we find Patent Owner’s Declarant is qualified to testify in this case.

B. Claim Interpretation

In an *inter partes* review, the Board interprets a claim term in an unexpired patent according to the broadest reasonable construction in light of the specification of the patent in which it appears. 37 C.F.R. § 42.100(b); *see also In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1278–79 (Fed. Cir. 2015). (“Congress implicitly approved the broadest reasonable interpretation standard in enacting the AIA,” and “the standard was properly adopted by PTO regulation.”).

Under the broadest reasonable interpretation standard, claim terms generally are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). An inventor may rebut that presumption by providing a definition of the term in the specification with “reasonable clarity, deliberateness, and precision.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). In the absence of such a definition, limitations are not to be

read from the specification into the claims. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993).

Petitioner proposes the same constructions for the following claim terms as in the related district court proceeding:

Claim Term	Proposed Construction
plurality of assigned physical channels	plurality of physical channels available for the subscriber unit to select for use
release	make no longer assigned
allocate	select for use
deallocate	select to stop using
maintain a communication session with the cellular wireless network in an absence of the plurality of assigned physical channels	maintain a logical connection with the cellular wireless network when none of the plurality of physical channels are in use by the subscriber unit

Pet. 9–10.

Citing claims 1 and 15 by way of example, Petitioner contends that the terms “‘allocate’ and ‘assign’ must have different meanings because the claims require physical channels be both ‘assigned’ *and* ‘allocated.’” *Id.* at 10.

Relying on the testimony of Dr. Bims, Petitioner asserts that “allocate” and “deallocate” are opposite states that describe “whether or not the subscriber unit has selected to use or to stop using an assigned channel” (*id.* (citing Ex. 1002 ¶¶ 97–99)), because the “subscriber unit cannot use (allocate) a resource (physical channel) until it has been made available (assigned) to the subscriber unit” (*id.* at 11 (citing Ex. 1002 ¶ 97)). Petitioner also points to relevant passages from the Specification of the ’244 patent to support its claim construction. *Id.* at 11–12 (citing Ex. 1001, 7:24–29; 10:34–43; Ex. 1002 ¶ 99).)

In its Preliminary Response, Patent Owner disagreed generally with Petitioner's proposed claim constructions for each of these limitations, arguing that "there is no need to address claim construction at this stage." Prelim. Resp. 11. Based on the evidence of record at that time, we saw "no need to construe expressly any of the terms in the challenged claims at this time." Dec. 10. With the record fully developed, we again consider the parties' arguments. Presently, Patent Owner agrees with Petitioner that the terms "assigned physical channels" and "maintain a communication session with the cellular network in an absence of the plurality of assigned physical channels" require construction. PO Resp. 13.

We concur with the parties that the terms "assigned physical channels" and "maintain a communication session with the cellular network in an absence of the plurality of assigned physical channels" require construction. As to all other claim terms, we give these claim terms their broadest reasonable construction in light of the specification. *See* 37 C.F.R. § 42.100(b).

1. "plurality of assigned physical channels"

Claim 1 recites the term "plurality of assigned physical channels." The parties seemingly agree that we should adopt the relevant claim construction from the pending district court proceeding of "physical channels available for the subscriber unit to select for use." Pet. 9–16; PO Resp. 13–15. Where the parties diverge is in the meaning of this construction.

Patent Owner argues that the district court correctly limited the construction of "assigned physical channels" to the embodiment shown in Figure 6, because as the '244 patent explains, "it is the subscriber unit, not

the network or base station, that selects the physical channels that the subscriber unit uses to transfer data.” PO Resp. 14 (citing Ex. 2005 ¶ 56). In particular, Patent Owner contends that the subscriber unit, and not the network or base station, selects the physical channels the subscriber unit uses to transfer data, and after the physical channels are made available, “a subset of those available channels are selected for use.” *Id.* at 15 (citing (Ex. 2009, 15). To support its proposed construction, Patent Owner directs our attention to passages in the Specification describing Figure 6 as representative of the “present invention.” *Id.* at 14 (citing Ex. 1001, 4:59–60, 9:28–28). In addition, Patent Owner highlights passages from the Specification explaining how the wireless bandwidth function is responsible for allocating and deallocating CDMA radio channels (*id.* (citing Ex. 1001, 9:64–66), and “wireless bandwidth is allocated only when there is actual data present” (*id.* (citing Ex. 1001, 10:33–36)).

Petitioner notes that the parties agree that the claims recite a two-step process “in which channels are first made available (assigned) and then they are selected for use (allocated).” Reply 3 (citing Pet. 9–13; Ex. 1002 ¶¶ 97–98; Ex. 2005 ¶ 70; Ex. 1025, 31:14–16). Petitioner argues that the language of claim 1 does not indicate “*which entity* must choose, or ‘assign’ the channels (*e.g.*, base station or subscriber unit) or *how many* of those channels must be used (*e.g.*, all, some, or none),” and instead recites “what must happen *in their absence*.” *Id.* (citing Pet 11–12; Ex. 1001, 11:12–16).

We note that Claim 1 recites “a cellular transceiver configured to communicate with a cellular wireless network via a plurality of assigned physical channels.” Ex. 1001, 11:7–9. Dependent claim 15 further recites that “the processor is further configured to allocate and deallocate at least

one of the plurality of assigned physical channels.” *Id.* at 12:1–3. This additional limitation in claim 15 does not change the meaning of the claim term “assigned physical channels,” rather it recites an additional function regarding the capability of the processor to allocate or deallocate at least one of the plurality of assigned physical channels. Unlike Petitioner, Patent Owner does not propose specifically a construction for the term “allocate.” Patent Owner’s argument is instructive, however, in our construction of the term “assigned.” According to Patent Owner, “[t]he term ‘allocate’ therefore does not refer to merely making the physical channels available – they are already available and the cell selects them ‘in order to support the GPRS traffic’ – that is, as needed to transfer data.” PO Resp. 21 (citing Ex. 1005.10 §6.1.1). Thus, to the extent Petitioner argues that the terms “assign” and “allocate” have different meanings, we agree.

Petitioner argues persuasively that the language of claim 1 does not dictate which entity actually chooses or assigns the physical channels, and instead recites what happens in the absence of physical channels. Reply 3. As noted by Petitioner, “[b]y reciting the past participle ‘assigned,’ claim 1 clearly indicates that the channels have already been assigned, and it does not matter whether the base station or the subscriber unit assigned them.” *Id.* Based on the context of claim 1, Patent Owner’s proposed interpretation, particularly the language suggesting that the subscriber unit selects the assigned channels as well as the language suggesting that the assigned channels are selected from a subset of available channels, is not the broadest reasonable interpretation. We must be careful not to read limitations from a particular embodiment appearing in the specification into

the claim, if the claim language is broader than that embodiment. *Van Geuns*, 988 F.2d at 1184.

Patent Owner’s reliance on the particular embodiment described in Figure 6 does not persuade us to read into the claim term “assigned physical channels” the requirement that the subscriber unit selects the assigned channels. *See Dow Chem. Co. v. United States*, 226 F.3d 1334, 1342 (Fed. Cir. 2000) (as a general rule, patent claims are not limited to the preferred embodiment).⁴ Nor are we persuaded by the passage in the Specification cited by Patent Owner, to read a requirement into the claim that the assigned channels are selected from a subset of available channels. “[D]isavowal requires that ‘the specification [or prosecution history] make[] clear that the invention does not include a particular feature.’” *GE Lighting Solutions, LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014) (quoting *SciMed Life Sys. Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1341 (Fed. Cir. 2001)). Applying that standard in this case, we are not persuaded that the Specification makes clear that claim 1 is limited to only the subscriber unit assigning the physical channels from a subset of channels. Therefore, for purposes of this Final Written Decision, we construe, in light of the Specification, the claim term “assigned physical channels” as “physical channels made available for use by the subscriber unit.”

⁴ In contrast, we note that the district court issued a supplemental claim construction opinion that altered its original construction of “assigned physical channels,” finding that “the subscriber unit must select a subset of channels for use. . . .” Ex. 2022, 9–12. Unlike the district court, we apply the broadest reasonable interpretation standard in construing the claims. *See Cuozzo*, 793 F.3d at 1278–79.

2. *maintain a communication session with the cellular wireless network in an absence of the plurality of assigned physical channels*

Claim 1 includes the limitation “maintain a communication session with the cellular wireless network in an absence of the plurality of assigned physical channels.” Ex. 1001, 11:12–14. Claim 23 includes a similar limitation. *Id.* at 12:41–43. In its Petition, Petitioner argues that Patent Owner’s proposed construction from the related district court proceeding, i.e., maintain a logical connection with the cellular wireless network when none of the plurality of physical channels are in use by the subscriber unit, should be adopted. Pet. 13–15. Patent Owner agrees. PO Resp. 14–16. Upon considering the district court’s claim construction order, we determine that it is consistent with the broadest reasonable interpretation of those terms in light of the ’244 patent specification. Accordingly, we adopt the district court’s construction set forth above. *See* Ex. 2009 at 12–14.

C. Principles of Law

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of

nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). In that regard, an obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 418; *Translogic*, 504 F.3d at 1259.

We analyze the asserted ground of unpatentability in accordance with the above-stated principles.

D. Analysis

Petitioner asserts that claims 1–8, 14–16, 19–29, 36–38, and 41–44 are unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Jawanda, the GPRS Standards, and IEEE 802.11 Standard. Pet. 19–28. In its Petition, Petitioner explains how the combination of prior art technical disclosures meets each claim limitation and articulates a rationale to combine the teachings. *Id.* Petitioner further relies on the declaration of Dr. Bims to support the analysis advocated in the Petition. Ex. 1002.

Patent Owner responds that the combination of Jawanda, the GPRS Standards, and IEEE 802.11 Standard does not disclose every claim element. PO Resp. 17–40. Patent Owner also argues that there is insufficient reason to combine the teachings of Jawanda, the GPRS Standards, and IEEE 802.11 Standard. *Id.* at 40–46. To support its contentions, Patent Owner proffers the Declaration of Dr. Stark. Ex. 2005.

For the reasons given below, after consideration of the Petition, the arguments in the Patent Owner Response, Petitioner’s Reply, and the evidence of record, we conclude that Petitioner has demonstrated, by a

preponderance of the evidence, that each of claims 1–8, 14–16, 19–29, 36–38, and 41–44 of the '244 patent is unpatentable over Jawanda, the GPRS Standards, and IEEE 802.11 Standard. We begin our discussion with a brief summary of the cited references, and then we address the parties' contentions in turn.

1. *Overview of Jawanda (Ex. 1003)*

Jawanda discloses a method and system for seamless roaming between wireless data communication networks with a mobile terminal. Ex. 1003, 1:10–13. Specifically, the system includes a plurality of wireless interfaces that:

supports simultaneous wireless connections with first and second wireless communication networks, and a network access arbitrator that routes data communicated between the software executed by the data processing resources and the first and second wireless communication networks.

Id. at 1:64–2:1.

The system of wireless data communication between wireless data networks is illustrated in Figure 3, which is reproduced below.

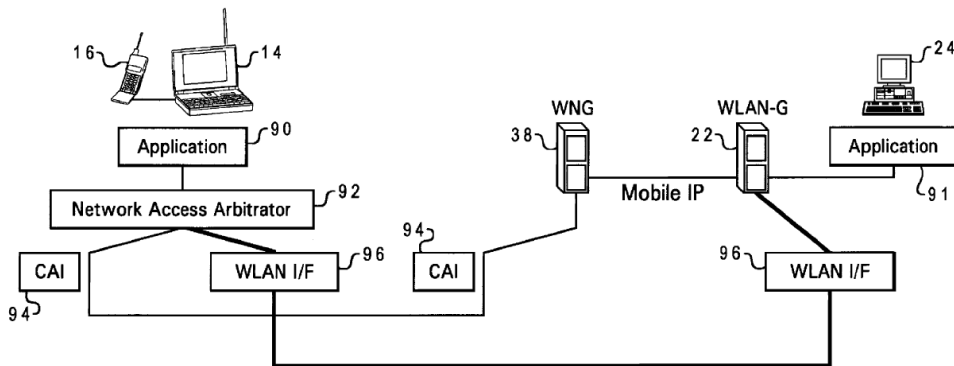


Fig. 3

Fig. 3 is a schematic diagram of a wireless data communication system for seamless roaming between wireless networks.

Jawanda discloses that the wireless signal can be transmitted according to any currently available or future wireless data protocol such as code division multiple access (CDMA), cellular digital packet data (CDPD), or general packet radio service (GPRS). *Id.* at 3:6–8. One of the functions of the network access arbitrator is to cause “the transfer of datagrams to be seamlessly handed off from the wireless connection with wireless wide area network (WWAN) 10 to the wireless connection with WLAN 12 while maintaining the session between applications 90 and 91.” *Id.* at 5:35–39, Fig. 4.

Figure 4, reproduced below, describes “a high level logical flowchart of a method of wireless data communication in which a data communication session is seamlessly handed off between wireless data communication networks.” Ex. 1003, 4:20–23.

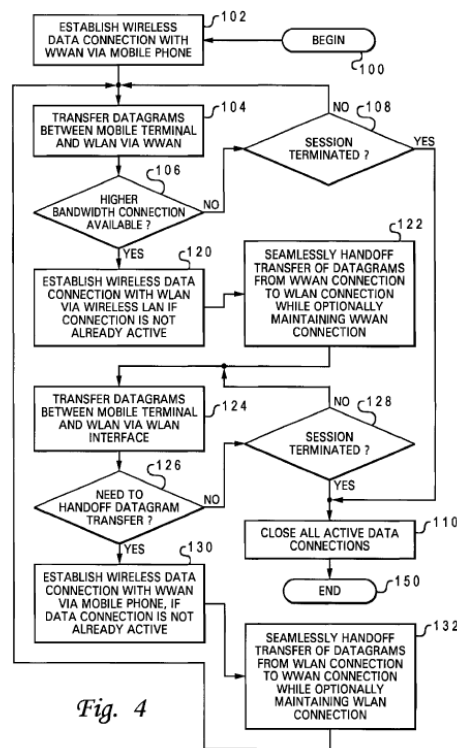


Figure 4 illustrates communications handoff between wireless networks.

The methodology begins with the assumption that a wireless data connection between a mobile device and a WWAN 10 has been established outside the service area of the WLAN 12, and the mobile device travels into the service area of the WWAN 12, and then returns to the remote location. *Id.* at 4:24–30. In block 120, after detecting the availability of a higher bandwidth data connection, the mobile device establishes a second wireless data connection with a WLAN. *Id.* at 5:20–32. The Specification notes that “following block 120, the user has concurrent wireless data connections with both WWAN 10 and WLAN 12.” *Id.* at 5:32–34. Next, in block 122, the network arbitrator “causes the transfer of datagrams to be seamlessly handed off from the wireless connection with WWAN 10 to the wireless connection with WLAN 12 while maintaining the session between applications 90 and 91.” *Id.* at 5:34–39. Continuing to block 126, if for example, the mobile device has moved out of the range of the WLAN 122, it is determined whether the transfer of datagrams should be handed off to the connection with WWAN 10, and the wireless connection is reestablished. *Id.* at 5:43–67.

2. Overview of GPRS Standards (Ex. 1005)

The reference to “GPRS Standards” pertains to ten sections from the Global System for Mobile Communication (GSM) standard, and defines features relating to a General Packet Radio Service (“GPRS”). Pet. 6. In particular, the GPRS Standards disclose the use of multiple physical data channels by a mobile station to transmit data. Pet. 21–22 (citing Ex. 1005.09, 6; Ex. 1002 ¶ 184). To transmit packet data, the physical channels may be grouped to form logical uplink channels (e.g., Packet Data Traffic Channel (“PDTCH”) and Packet Associated Control Channel (“PACCH”)).

Id. at 22 (citing Ex. 1005.09, 6, 10; Ex. 1002 ¶ 184). A mobile station may allocate one or more of the assigned uplink PDTCHs as needed for transmission of data. *Id.* at 22 (citing Ex. 1005.09 § 2; Ex. 1002 ¶ 184). Further, a Packet Data Protocol Context (PDP Context) feature preserves information about the cellular communication session between the mobile device and base station. Ex. 1005.03, 79.

3. Overview of IEEE 802.11 Standard (Ex. 1019)

The IEEE 802.11 Standard is part of a family of networking standards dealing with wireless local and metropolitan area networks. Ex. 1019, 00005. In particular, the IEEE 802.11 Standard describes a wireless data protocol for Wireless LAN Medium Access Control (MAC) and a Physical Layer (PHY) Specification for wireless connectivity of fixed, portable, and moving stations within a local area. *Id.* at 00017.

4. Discussion

The parties' dispute revolves around the challenged claims' recitation of "assigned physical channels" and "maintain a communication session with the cellular wireless network in an absence of the plurality of assigned physical channels." As the record reflects, Patent Owner addresses claims 1 and 23 together because "claim 23 is essentially the same as claim 1, but in method form."⁵ PO Resp. 17. Patent Owner provides an additional argument for claim 8.⁶ *Id.* at 39–40. As an initial matter, we address Patent

⁵ In this final decision we refer to claim 1 for convenience; however, our analysis applies equally to the other challenged claims unless otherwise noted.

⁶ Although Patent Owner presents arguments regarding the patentability of claim 30 (P.O. Resp. 39–40), Petitioner did not challenge claim 30 in the Petition (Pet. 1), nor did we institute trial as to claim 30 (Dec. 22). As such, we do not consider arguments directed to claim 30 in this Final Decision.

Owner's general argument that Petitioner's positions and Dr. Bim's opinions "are inconsistent and not credible" depending on the issue and proceeding. PO Resp. 46. The Board, however, considers all the evidence of record in preparing the final written decision and is capable of evaluating the credibility of any proffered evidence in weighing the party's respective arguments.

- a. "a cellular transceiver configured to communicate with a cellular wireless network via a plurality of assigned physical channels"

As discussed above, we interpret the claim term "assigned physical channels" as a "plurality of physical channels made available for use by the subscriber unit." Relying on the testimony of Dr. Stark and its interpretation of "assigned physical channels," which we find unavailing, Patent Owner argues that Jawanda does not disclose physical channels, let alone which entity selects the cellular physical channels. PO Resp. 17 (citing Ex. 2005, ¶¶ 66–67). On this record, we are persuaded by Petitioner's argument that Jawanda inherently teaches a plurality of physical channels because "Jawanda expressly cites GPRS as one such available cellular network." Pet. 21. Specifically, we are persuaded by Petitioner's contention that the GPRS Standards describe eight basic physical data channels per mobile station grouped to form logical uplink channels (e.g., Packet Data Traffic Channel ("PDTCH") and a Packet Associated Control Channel ("PACCH")) to transmit data, and that "a mobile station may allocate one or more of the assigned uplink PDTCHs as needed for transmission of data." *Id.* at 22 (citing Ex. 1005.09 §§ 2, 5; Ex. 1002 ¶ 184). In fact, Patent Owner acknowledges that "both parties' experts agree, Jawanda teaches using a

cellular wireless ‘data connection’ defined by a cellular standard, such as GPRS.” PO Resp. at 18 (citing Ex. 1003, 3:6–9; Ex. 2005 ¶ 67; Ex. 1002 ¶ 166).

Next, we consider Patent Owner’s argument that Jawanda does not disclose that the subscriber unit selects the assigned channels that will be available for use. *Id.* We credit the testimony of Patent Owner’s Declarant, Dr. Stark, as consistent with the understanding that the GPRS standards in existence at the time of the invention required that the network, not the subscriber unit, select the channels for use. *Id.* (citing Ex. 2005 ¶¶ 68). Nonetheless, having construed the claim term “plurality of assigned physical channels” to mean “plurality of physical channels made available for use by the subscriber unit,” Patent Owner’s arguments are unavailing. We are persuaded by Petitioner’s argument that “the broadest reasonable interpretation of the claims does not limit them to a narrow type of ‘assigned physical channel’ that must be assigned by a particular entity or require selection of a subset.” Reply 9. Moreover, we agree that Claim 1 does not specify which entity, e.g. the subscriber unit or the network, assigns (selects) the physical channels for use, and nothing in the claim language precludes the network from assigning the physical channels. Indeed, the limitation in question only requires that the physical channel has been *assigned*, i.e., made available for use by the subscriber unit. As such, Patent Owner’s arguments directed specifically to the subscriber unit itself making the selection of the physical channels, are not persuasive because this contention is not commensurate in scope with the language of claim 1.

Likewise, Patent Owner’s further argument, “when the subscriber unit ‘selects’ channels for use, the selected channels are a subset of a larger

group of channels,” is not persuasive because this contention is not commensurate in scope with the language of claim 1. PO Resp. 26. Nothing in the language of claim 1 requires that the channels be selected from a subset of larger group of channels.

For the above reasons, Petitioner has established persuasively that Jawanda discloses the claim element of “assigned physical channels.”

b. *maintain a communication session with the cellular wireless network in an absence of the plurality of assigned physical channels*

As discussed above, we construe “maintain a communication session with the cellular wireless network” as “maintain a logical connection with the cellular wireless network when none of the plurality of physical channels are in use by the subscriber unit.” The parties agree that a physical connection includes a logical connection, and that the converse is not true. Tr. 16:22–24, 17:12–21, 38:23–39:2. The parties’ disagreement, however, centers on the type of cellular connection Jawanda refers to in block 122 of Figure 4 as “optionally maintained.”

Petitioner contends this optionally maintained connection is a logical connection because Jawanda discloses that “after moving the session to transfer datagrams using the WLAN instead of the WWAN, the cellular connection can be maintained even when it is not used to transfer datagrams.” Pet. 24 (citing Ex. 1003, 5:32–34, Ex. 1002 ¶ 195). Further, Petitioner notes that Jawanda cites GPRS as one available cellular network (*Id.* at 21), and relies on the GPRS documents to “disclose the ‘maintain communication session’ limitations even more thoroughly” (*Id.* at 24). In particular, Petitioner relies on the Packet Data Protocol Context (“PDP Context”) feature that “can be used to preserve information about the

cellular communication session between a mobile device and a base station.”
Id. Also relying on the testimony of Dr. Bims, Petitioner explains that
“when the radio link connection between a user device and the cellular
network has been released, one or more active PDP Contexts are preserved”
to make it easier and faster “for the mobile device to resume cellular
communications the next time it needs to transmit data.” *Id.* at 25 (citing
Ex. 1002 ¶ 203).

Patent Owner counters that the optionally maintained connection in
Jawanda is a physical connection, i.e., “a standard, end-to-end connection
using physical channels.” PO Resp. 29 (citing Ex. 2005 ¶ 114).
Specifically, Patent Owner argues that the optionally maintained connection
is the same “wireless data connection with WWAN’ that is established in
Block 102, and used to transfer data in Block 104.” *Id.* at 30 (citing
Ex. 2005 ¶ 114). Relying on the testimony of Dr. Stark, Patent Owner
asserts that “optionally maintained” means that the end-to-end connection
“continues to exist, unchanged.” *Id.* (citing Ex. 2005 ¶ 114). To further
support its position, Patent Owner directs our attention to the dictionary
definition of maintain, i.e., “[t]o keep in an existing state; preserve or
retain,” as support for its position. *Id.* at 30 (citing Ex. 2014; Ex. 2006,
12:19–21, 138:9–12). Directing our attention to block 130 in Figure 4 of the
’244 patent, Patent Owner argues that “the cellular connection **is** used –
because it remains ‘active.’” *Id.* (citing Ex. 1003, Figure 4; Ex. 2005 ¶ 114).
The WWAN connection is only active and will not be reestablished, if it was
maintained in Block 122, according to Patent Owner. *Id.* at 31 (citing Ex.
2005 ¶ 38). Citing the testimony of Dr. Stark, Patent Owner concludes that

maintaining the cellular connection, in the context of Jawanda, means that it is “active.” *Id.* (citing Ex. 2005 ¶ 114; Ex. 2006 99:5–100:8).

We are not persuaded by Petitioner’s argument that the reference to an optionally maintained cellular connection in block 122 of Figure 4 is a logical connection. As Patent Owner argues correctly, other than in block 122 of Figure 4, there is no discussion in Jawanda characterizing the optionally maintained cellular connection as a logical connection if not used to transfer datagrams. PO Resp. 29. At the same time, however, we are not persuaded by Patent Owner’s arguments that the optionally maintained connection referred to in block 122 of Figure 4 of Jawanda is strictly a physical connection. Patent Owner, likewise, does not direct us to any disclosure in Jawanda that would suggest such a narrow characterization of the maintained WWAN connection. Our review of the Specification merely reveals a description of how the mobile device establishes a second wireless data connection with a WLAN (*Id.* at 5:20–32): there is a concurrent physical connection with both the WWAN and WLAN (*Id.* at 5:32–34) until the network arbitrator seamlessly hands off the connection with the WWAN to the WLAN while maintaining the session. (*Id.* at 5:34–39). Further, Jawanda notes that the wireless connection can be reestablished if the mobile device moves out of range of the WLAN. *Id.* at 5:43–67.

Nonetheless, we are persuaded by Petitioner’s argument that the GPRS Standards “disclose a logical connection that can be maintained when physical channels are absent or not in use.” Reply 9. Patent Owner’s arguments directed to the “GPRS Standards, Release 97” and related argument that Jawanda teaches use of “the actual then-existing GPRS Standards,” are unpersuasive because they do not address the specific

teachings of the GPRS Standards relied upon in the Petition. PO Resp. 34. In fact, Jawanda expressly recognizes the dynamic nature of wireless data protocols in describing “[f]or data connections, such wireless signals can be transmitted according to *any currently available or future* wireless data protocol such as code division multiple access (CDMA), CDPD, or GPRS.” Ex. 1003, 3:6–9 (emphasis added).

Along this vein, we are not persuaded by Patent Owner’s similar argument that “GSM 3.60 – the only reference ZTE and Dr. Bims have cited as disclosing information about the physical radio link/resource being present or absent – is not part of the then-existing GPRS Standard.” PO Resp. 37. We determined in the Decision on Institution that the cited GPRS specifications, including the draft GSM 3.60 specification, are a prior art reference. Dec. 16. Yet, Patent Owner’s arguments do not address specifically Petitioner’s contentions regarding the teachings of the GSM 3.60 specification. *See* Ex. 1005.03. Further, we note that Patent Owner’s contentions concerning the position taken by Petitioner’s Declarant in other proceedings involving other patents (*id.* at 38–39), are not persuasive in this proceeding challenging the patentability of the ’244 patent.

c. Combination of Jawanda, GPRS, and IEEE 802.11 Standard

Patent Owner argues that Petitioner has failed to prove inherency. PO Resp. 40. Specifically, Patent Owner argues that Petitioner’s contention that “Jawanda, through its reference to GPRS, inherently disclose[s] ‘a plurality of assigned physical channels,’” is incorrect “as a matter of law.” *Id.* (citing Pet. 21; Ex. 1002 ¶¶ 184, 199). According to Patent Owner, there is no evidence that earlier releases of GPRS, or other cellular networks, “disclose the elements that ZTE asserts are disclosed by Release 97 of GPRS.” *Id.*

Having determined above that Jawanda and the GPRS Standards disclose a plurality of physical channels, we find Patent Owner's arguments in this regard unpersuasive.

Next, citing *Kyocera Wireless Corp. v. International Trade Commission*, 545 F.3d 1340 (Fed. Cir. 2008), Patent Owner argues that as a matter of law, the GPRS Standards Petitioner relies on cannot be considered a single prior art reference because the individual specifications were written at different times, have separate titles and page numbering, and some are marked as drafts. *Id.* at 41. Analogizing the GSM standard, which was determined not to be a single reference in *Kyocera*, to the GPRS Standards cited in this proceeding, Patent Owner asserts that the GPRS Standards “constitute ‘several prior art references with separate dates of creation, rather than a single prior art reference.’” *Id.* at 42 (quoting *Kyocera*, 545 F.3d at 1351). Patent Owner's attempt to analogize the present matter with *Kyocera* is unpersuasive because *Kyocera*'s finding that disparate parts of a reference did not constitute a single prior art reference was made in the context of anticipation, which generally requires a single reference. Here, the issue is obviousness, and thus whether a standard itself constitutes a single reference is not dispositive. Instead, the inquiry turns on whether one of skill in the art would have combined the standard (whether a single reference or several) together with the other cited references, as discussed below.

Whether a document constitutes a printed publication is a question of law based upon the underlying facts of each particular case. *Cordis Corp. v. Boston Sci. Corp.*, 561 F.3d 1319, 1332–33 (Fed. Cir. 2009); *see also Kyocera*, 545 F.3d at 1350. Patent Owner has not provided credible evidence demonstrating adequately that the draft standards were not

“sufficiently accessible to the public interested in the art” before the critical date. *In re Cronyn*, 890 F.2d 1158, 1160 (Fed. Cir. 1989); *In re Wyer*, 655 F.2d 221, 226 (CCPA 1981). “A given reference is ‘publicly accessible’ upon a satisfactory showing that such document has been disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art exercising reasonable diligence, can locate it” *Bruckelmyer v. Ground Heaters, Inc.*, 445 F.3d 1374, 1378 (Fed. Cir. 2006) (quoting *Wyer*, 655 F.2d at 226). Here, we credit Dr. Bims’ testimony that the GPRS Standards were available to an interested member of the public as of the date listed on the top of the specification. Ex. 1002 ¶ 121. Based on the complete record, we see no reason to revisit our determination that the GPRS Standards are a prior art printed publication, and are available as prior art. Dec. 14–17.

Patent Owner challenges Petitioner’s reasoning to combine Jawanda and the GPRS standards, i.e., to develop a standards-compliant cell phone, arguing that “features described in a draft document are not, and may never be, required in a standards-compliant phone.” PO Resp. 42 (citing Ex. 2005 ¶¶ 131–32). Arguing further that there is “no motivation to combine” Jawanda with the GPRS Standards, Patent Owner relies on the testimony of Dr. Stark that “a person of ordinary skill in the art would have understood that in order to build devices that are interoperable with cellular networks you have to rely on the specifications that are in the actual approved final standard” otherwise the device may not work. *Id.* at 43 (citing Ex. 2005 ¶ 131).

Petitioner argues persuasively that Jawanda provides explicit motivation “to use ‘any currently available *or future* wireless data protocol,’

such as GPRS.” Reply 11 (citing Ex. 1003 3:6–9). As Petitioner points out, Dr. Stark confirmed that the GPRS standards are a draft wireless data protocol. *Id.* (citing Ex. 1025, 91:1–16, 95:3–10. We credit the testimony of Dr. Bims that “persons working in the field would not ignore the drafts of cellular standards documents” because cell phone manufactures “need to be aware of and keep up with the developing standards.” Ex. 2006, 24:9–27:2, 168:18–171:5. We also credit the testimony of Dr. Bims that “[a] person of ordinary skill would understand that all portions of the standard associated with the same release must be read together as a whole to understand, for example, how to make a cell phone compliant with the standard.” *Id.* Patent Owner’s arguments do not persuade us that using the GPRS Standards in the method of Jawanda would have been outside the skill in the art, or yielded an unpredictable result. *See KSR*, 550 U.S. at 417 (“[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.”).

We have considered Patent Owner’s arguments and are persuaded that Petitioner has provided articulated reasoning with rational underpinning to support the legal conclusion of obviousness. *See KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

Secondary Considerations of Nonobviousness

As part of our obviousness analysis, we also consider the evidence and arguments submitted by Patent Owner regarding secondary considerations of nonobviousness. PO Resp. 44–46. Factual inquiries for an obviousness determination include secondary considerations based on evaluation and

crediting of objective evidence of nonobviousness. *Graham*, 383 U.S. at 17. Notwithstanding what the teachings of the prior art would have suggested to one with ordinary skill in the art at the time of the '244 patent's invention, the totality of the evidence submitted, including objective evidence of nonobviousness, may lead to a conclusion that the challenged claims would not have been obvious to one with ordinary skill in the art. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984). Secondary considerations may include any of the following: long-felt but unsolved needs, failure of others, unexpected results, commercial success, copying, licensing, and praise. *See Graham*, 383 U.S. at 17; *Leapfrog Enters., Inc. v. Fisher–Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007).

To be relevant, evidence of nonobviousness must be commensurate in scope with the claimed invention. *In re Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011) (citing *In re Tiffin*, 448 F.2d 791, 792 (CCPA 1971)); *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998). In that regard, in order to be accorded substantial weight, there must be a nexus between the merits of the claimed invention and the evidence of secondary considerations. *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995). “Nexus” is a legally and factually sufficient connection between the objective evidence and the claimed invention, such that the objective evidence should be considered in determining nonobviousness. *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392 (Fed. Cir. 1988). The burden of showing that there is a nexus lies with the patent owner. *Id.*; *see In re Paulsen*, 30 F.3d 1475, 1482 (Fed. Cir. 1994).

Patent Owner urges that licensing, industry skepticism, unresolved technical issues, commercial success, and unexpected results demonstrate

that the challenged claims would not have been obvious to a person of ordinary skill in the art. PO Resp. 44–46. As discussed below, Patent Owner proffers insufficient credible evidence to support its contentions.

With regards to licensing, Patent Owner relies on Dr. Stark’s testimony that “many companies have licensed the ’244 patent family” (*id.* at 45 (citing Ex. 2005 ¶ 135)) and that “the ’244 patent family often features prominently during negotiations of these licenses demonstrating a nexus between these licenses and the invention of the ’244 patent’s invention” (*id.* (citing Ex. 2005 ¶¶ 134–135)). Petitioner counters that Patent Owner has not established a sufficient nexus between the claimed device and the alleged commercial success of the subscriber unit. Reply 14. Specifically, Dr. Stark has not evaluated or segregated the contribution of any features of the ’244 patent, nor provided examples of license agreements based on the ’244 patent. Reply 14–15 (citing Ex. 1025 9:2–10:20, 11:3–12, 11:13–14:8). We agree with Petitioner. First, other than the opinion of Dr. Stark, Patent Owner does not proffer evidence to substantiate Dr. Stark’s testimony. As such, Dr. Stark’s testimony is entitled to little weight. 37 C.F.R. § 42.65(a). Second, the fact that the companies have entered into license agreements based on the ’244 patent family is insufficient evidence of a connection between such success and any claimed features of the ’244 patent itself. Instead, the Patent Owner must show proof that the success is “the direct result of the unique characteristics of the claimed invention.” *In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996).

Patent Owner cites Dr. Stark’s testimony to demonstrate industry skepticism regarding the ’244 patent’s claimed invention of centrally-

allocated channels, specifically, whether dual-mode devices could generate revenue, and difficulties associated with providing coverage. PO Resp. 45 (citing Ex. 2005 ¶¶ 136–139). Nonetheless, Patent Owner does not proffer sufficient evidence to support Dr. Stark’s testimony.

Patent Owner also cites Dr. Stark’s testimony in arguing that the ’244 patent solved unresolved technical problems, “allow[ing] the subscriber unit to achieve higher data rates and increased network capacity, leading to a better user experience.” *Id.* (citing Ex. 2005 ¶ 138). We are not persuaded by Patent Owner’s arguments in this regard. Dr. Stark’s testimony is unsupported by sufficient evidence, including persuasive facts, data or analysis, to support the opinion stated.

To demonstrate the commercial success of the ’244 patent, Patent Owner relies on Dr. Stark’s testimony regarding the commercial success of Petitioner’s own allegedly infringing devices. *Id.* at 46 (citing Ex. 2005 ¶¶ 140–143); Ex. 2015, 8806–11, 155:22–157.5). Patent Owner presents insufficient evidence, including persuasive facts, data or analysis, demonstrating that the commercial success of Petitioner’s devices was due to the ’244 patent.

As to unexpected results, Patent Owner asserts that “a person of ordinary skill at the time of invention would not have expected selection of a plurality of physical channels by the subscriber unit to provide reliable data communications.” *Id.* (citing Ex. 2005 ¶ 145). Patent Owner argues that this key feature of the ’244 patent provides “a nexus between this ‘unexpected result’ and the ’244 Patent’s claims.” *Id.* Patent Owner presents insufficient evidence, including persuasive facts, data or analysis,

demonstrating that the cited unexpected result was due to a specific feature of the claimed invention.

Based on further review of the record, and for the reasons discussed above, Petitioner has demonstrated by a preponderance of evidence that the combination of Jawanda, the GPRS Standards, and IEEE 802.11 Standard renders claims 1–7, 14–16, 19–29, 36–38, and 41–44 obvious.

d. Dependent Claim 8

Dependent claim 8 additionally recites that “the cellular wireless network is a code division multiple access (CDMA) network.” Ex. 1001 11:39–41. Patent Owner asserts that it is undisputed that GPRS uses time division multiple access (“TDMA”) and not CDMA as required by claim 8. PO Resp. 39 (citing Ex. 2005 ¶ 127; Ex. 2006 32:22–33:12). Specifically, Patent Owner argues that because Petitioner relies on the use of the GPRS cellular network to disclose certain features of claim 1, it “cannot rely on a completely different type of cellular network using different types of physical channels” to disclose the CDMA element. *Id.* at 40 (citing Ex. 2005 ¶ 127). In reply, Petitioner asserts that Jawanda explicitly states that “the wireless data connections could be provided by a ‘code division multiple access (CDMA)’ network.” Reply 13 (citing Ex. 1003, 3:6–9). In addition, Petitioner points to the testimony of Dr. Stark, admitting “that the GPRS network layer protocols (such as the PDP context) were eventually incorporated into CDMA air interface systems, such as WCDMA.” *Id.* at 14 (citing Ex. 1025, 92:4–20). Petitioner argues persuasively that “Patent Owner has advanced no evidence to suggest that employing the cited GPRS functionality in a CDMA-based system such as Jawanda discloses would have been beyond the level of ordinary skill at the relevant time.” *Id.*; *see*

also KSR, 550 U.S. at 417 (“[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.”).

Based on further review of the record, and for the reasons discussed above, Petitioner has demonstrated by a preponderance of evidence that the combination of Jawanda, the GPRS Standards, and IEEE 802.11 Standard renders claim 8 obvious.

IV. CONCLUSION

For the foregoing reasons, we determine that Petitioner has demonstrated by a preponderance of the evidence the unpatentability of claims 1–8, 14–16, 19–29, 36–38, and 41–44 of the ’244 patent as obvious over Jawanda, the GPRS Standards, and the IEEE 802.11 Standard.

V. ORDER

For the foregoing reasons, it is
ORDERED that claims 1–8, 14–16, 19–29, 36–38, and 41–44 of the ’244 patent have been shown to be unpatentable.

This is a final decision. Parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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