

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HYTERA COMMUNICATIONS CORP. LTD.,
Petitioner,

v.

MOTOROLA SOLUTIONS, INC.,
Patent Owner.

Case IPR2018-00128
Patent 8,116,284 B2

Before TREVOR M. JEFFERSON, DANIEL N. FISHMAN, and
PATRICK M. BOUCHER, *Administrative Patent Judges*.

BOUCHER, *Administrative Patent Judge*.

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

In response to a Petition (Paper 1, “Pet.”) filed by Hytera Communications Corp. Ltd. (“Petitioner”), we instituted an *inter partes* review of claims 1, 4–9, 12–15, 18, and 19 of U.S. Patent No. 8,116,284 B2 (“the ’284 patent”). Paper 8 (“Dec.”). During the trial, Motorola Solutions, Inc. (“Patent Owner”) filed a Response (Paper 17, “PO Resp.”) to which Petitioner filed a Reply (Paper 35, “Reply”) and Patent Owner filed an authorized Sur-Reply (Paper 42, “Sur-Reply”). Petitioner filed a Motion to Exclude evidence filed by Patent Owner, which Patent Owner opposed, and to which Petitioner replied. Papers 40, 43, 45. An oral hearing was held with the parties, and a copy of the transcript was entered into the record. Paper 46 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of the claims on which we instituted trial. Based on the record before us, Petitioner has not shown, by a preponderance of the evidence, that claims 1, 4–9, 12–15, 18, and 19 of the ’284 patent are unpatentable.

I. BACKGROUND

A. *The ’284 Patent*

1. *Overview*

The ’284 patent “relates generally to talkgroup timeslot selection methods, communication devices and wireless communication systems that employ[] a time division multiple access (TDMA) signaling protocol.” Ex. 1001, 1:6–9. The patent explains that, in a known timeslot assignment approach, a common controller is used to monitor timeslots and to determine

“when to assign, maintain assignment, deassign and reassign timeslots (channels) to a talkgroup or a radio communication device.” *Id.* at 1:49–57. Instead of this approach, the patent discloses and claims a method, as well as corresponding devices and systems, that “alleviates the need for timeslot (channel) assignment by common or system level controllers since each radio communication device in a talkgroup determines individually, but concurrently, which timeslot to select.” *Id.* at 5:40–44.

Figure 2 of the '284 patent is reproduced below.

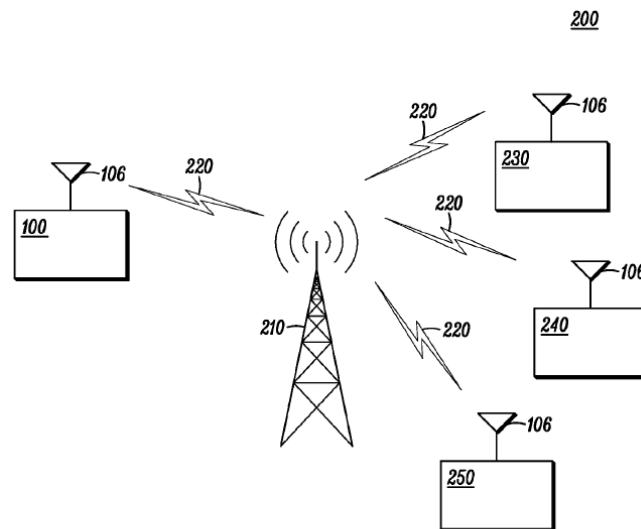


FIG. 2

Figure 2 illustrates a TDMA wireless communication system 200, in which two-way radios 100, 230, 240, 250 are in a talkgroup and communicate with each other through repeater station 210 via a traffic channel provided by radio links 220. *Id.* at 3:50–56. “[T]he traffic channel . . . consists of two or more TDMA traffic channel slots as well as a Common Announcement Channel (CACH) for channel numbering, and channel access.” *Id.* at 3:59–62.

Figure 3 of the '284 patent is reproduced below.

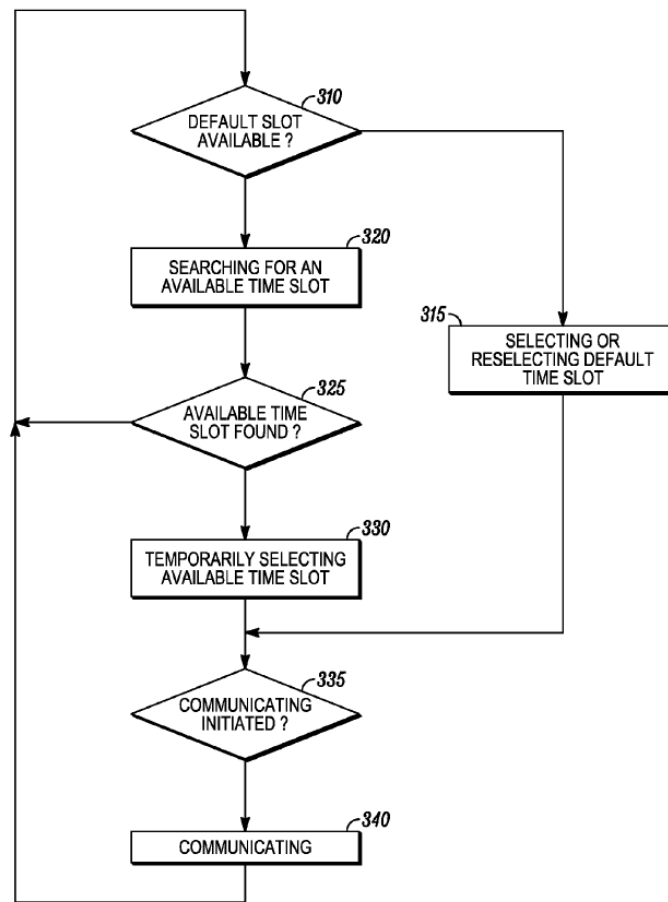


FIG. 3

Figure 3 is a flow diagram that illustrates a method “for temporarily selecting a TDMA timeslot by a radio communication device, such as the two-way radio 100, to communicate, through at least one repeater station 210 with a talkgroup of other radio communication devices 230, 240, 250.” *Id.* at 4:5–9. The method is performed by radio 100, which has an assigned default timeslot for communicating with the talkgroup. *Id.* at 4:9–12.

First, if the default timeslot is unavailable, as determined at step 310, radio 100 “searches for an available timeslot by processing information sent

from the repeater station 210 provided in the traffic channel, and more specifically, the CACH, at step 320.” *Id.* at 4:23–26. If an available timeslot cannot be found at step 325, the method returns to step 310. *Id.* at 4:31–35. Conversely, if an available timeslot is found at step 325, radio 100 temporarily selects the available timeslot at step 330 “as a temporary selected group timeslot for the talkgroup.” *Id.* at 4:35–40.

If communication is then initiated by any member of the talkgroup at step 335, radio 100 transmits or receives the communication using the temporary selected group timeslot, which is “identified by the CACH as unavailable to any other talkgroup in the TDMA wireless communication system 200.” *Id.* at 4:41–47. As indicated at step 335, the method returns to step 310 upon either completion of communication at step 340 or if no communication is initiated. *Id.* at 4:47–50.

Second, if radio 100 determines at step 310 that the default timeslot is available, radio 100 “selects or re-selects the default timeslot at step 315,” with communications, if initiated, taking place at step 335 over the default timeslot. *Id.* at 4:51–60.

2. Illustrative Claim

Independent claim 1 is illustrative of the claims at issue, and is reproduced below.

1. A method for temporarily selecting a time division multiple access (TDMA) timeslot by a radio communication device to thereby allow the radio communication device to communicate, through at least one repeater station, with a talkgroup of other radio communication devices, the method comprising:

the radio communication device having an assigned default timeslot for communicating with the talkgroup;

the radio communication device determining if the default timeslot is available for the radio communication device to communicate with the talkgroup;

the radio communication device searching for an available timeslot when the default timeslot is unavailable;

the radio communication device temporarily selecting the available timeslot as a temporary selected group timeslot for the talkgroup; and

the radio communication device re-selecting the default timeslot for communicating with the talkgroup when the default timeslot becomes available.

Id. at 6:20–39. Challenged independent claims 9 and 15 recite generally corresponding devices and systems. *Id.* at 6:61–7:14, 7:31–8:16.

B. Evidence

Petitioner relies on the following references.

Barnes	US 6,374,115 B1	Apr. 16, 2002	Ex. 1003
Janky	US 5,790,527	Aug. 4, 1998	Ex. 1004
Ganuchau	US 6,529,740 B1	Mar. 4, 2003	Ex. 1005
Wiatrowski	US 8,279,991 B2	Oct. 2, 2012	Ex. 1006

Petitioner also provides Declarations by Robert Akl, D.Sc. Exs. 1002, 1024.

Dr. Akl was cross-examined by Patent Owner, and transcripts of his depositions were entered into the record. Exs. 2008, 2034. Patent Owner provides Declarations by Kevin C. Almeroth, Ph.D., and Kin Wei Wong, an inventor named on the '284 patent. Exs. 2003, 2004. Dr. Almeroth and Mr. Wong were cross-examined by Petitioner, and transcripts of their depositions were also entered into the record. Exs. 1025–1028.

C. Asserted Grounds of Unpatentability

Petitioner challenges claims 1, 4–9, 12–15, 18, and 19 on each of the following grounds. Pet. 2.

Reference(s)	Basis(es)
Barnes and Janky	§ 103(a)
Ganucheau	§§ 102(a), 102(b)
Wiatrowski	§ 102(e)

D. Real Parties in Interest

In addition to itself, Petitioner identifies Hytera America, Inc., and Hytera Communications America (West), Inc., as real parties in interest. Pet. 65. Patent Owner identifies only itself as a real party in interest. Paper 5, 2.

E. Related Proceedings

Both parties identify *In the Matter of Certain Two-Way Radio Equipment and Systems, Related Software and Components Thereof*, 337-TA-1053 (ITC), and *Motorola Solutions, Inc. v. Hytera Communications Corp. Ltd.*, No. 1:17-cv-01972 (N.D. Ill.), as related proceedings in which the '284 patent has been asserted. Pet. 65; Paper 5, 2.

II. ANALYSIS

A. Legal Principles

To establish anticipation, each and every element in a claim, arranged as recited in the claim, must be found in a single prior art reference. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008);

Karsten Mfg. Corp. v. Cleveland Golf Co., 242 F.3d 1376, 1383 (Fed. Cir. 2001). While the elements must be arranged in the same way as is recited in the claim, “the reference need not satisfy an *ipsisimilis verbis* test.” *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009); *In re Bond*, 910 F.2d 831, 832–33 (Fed. Cir. 1990). Identity of terminology between the anticipatory prior art reference and the claim is not required. Prior art references must be “considered together with the knowledge of one of ordinary skill in the pertinent art.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

A claim is unpatentable for obviousness 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 skill in the art; and (4) when in evidence, objective indicia of non-obviousness, i.e., secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Additionally, the obviousness inquiry typically requires an analysis of “whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”)); see *In re Warsaw Orthopedic, Inc.*, 832 F.3d 1327, 1333

(Fed. Cir. 2016) (citing *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1360 (Fed. Cir. 2006)).

To prevail on its challenges, Petitioner must demonstrate by a preponderance of the evidence that the claims are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). “In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden never shifts to Patent Owner. See *Dynamic Drinkware, LLC v. National Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)) (discussing the burden of proof in *inter partes* review). Furthermore, Petitioner does not satisfy its burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

B. Level of Skill in the Art

Petitioner contends that a person of ordinary skill in the art “would have had a Bachelor’s degree in electrical engineering, computer engineering, or computer science, or a related field, along with at least two to three years of experience in telecommunications and networking, or an equivalent degree and/or experience.” Pet. 15. According to Petitioner,

“[a]dditional education might compensate for a deficiency in experience, and vice-versa.” *Id.* at 16.

Patent Owner does not advocate for a particular level of skill in the art in its Response, but Patent Owner’s expert, Dr. Almeroth, sets forth a proposed level of skill that is similar to that advocated by Petitioner. Ex. 2003 ¶ 35. In light of that similarity, we see no compelling basis to deviate from Petitioner’s proposal and we adopt it for this Decision.

C. Claim Construction

In an *inter partes* review proceeding based on a petition filed prior to November 13, 2018, the Board interprets claims of an unexpired patent using the broadest reasonable construction in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b) (2017); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard); *see also* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340 (Oct. 11, 2018) (amending 37 C.F.R. § 42.100(b) effective November 13, 2018). 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 at the time of the invention. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). An inventor may provide a meaning for a term that is different from its ordinary meaning by defining the term in the specification with reasonable clarity,

deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

In the Institution Decision, we provided preliminary constructions of two terms. In particular, we construed “default timeslot,” which is recited in each of independent claims 1, 9, and 15, in accordance with Petitioner’s proposal as “including a timeslot that changes based on time, location, or other criteria.” Pet. 16; Dec. 8. Patent Owner “does not challenge this construction for purposes of [its] Response,” and we therefore adopt that construction for this Decision. PO Resp. 4.

We also construed “common announcement channel,” which is recited in dependent claims 6, 8, and 14. Dec. 9–10. Because we conclude that Petitioner makes an insufficient showing with respect to the independent claims, we need not reach the issue of how to construe “common announcement channel,” and therefore make no express construction for this Decision.

D. Anticipation by Ganucheau

Ganucheau describes point-to-multipoint communication through bidirectional channels between base stations on satellites and ground radios using a group control computer. Ex. 1005, Abstract, 4:10–32. Figure 1 of Ganucheau is reproduced below.

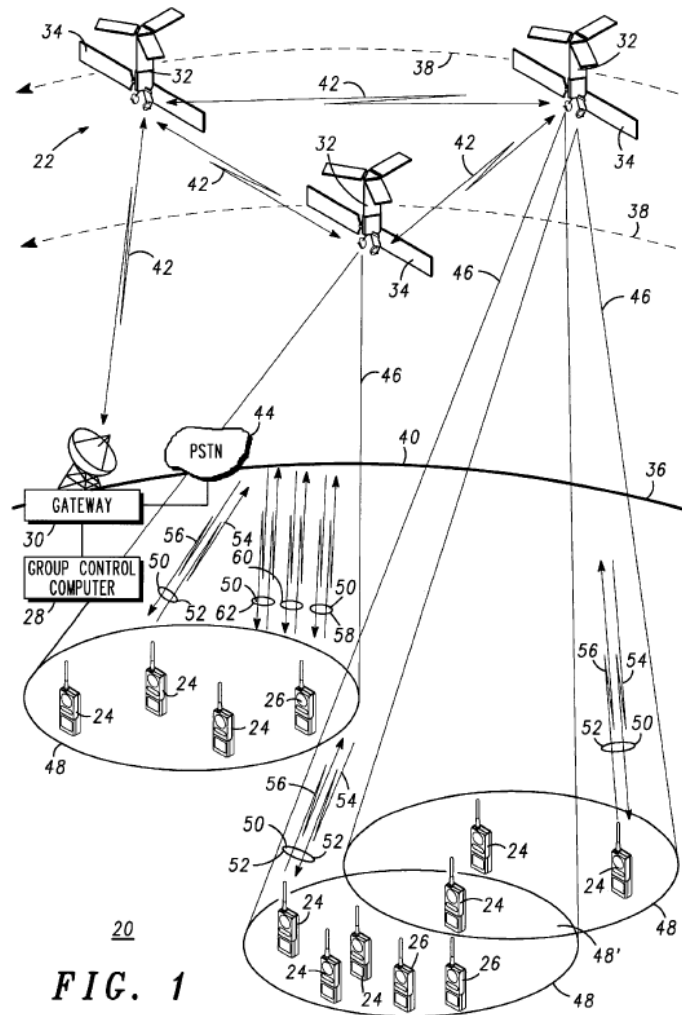


Figure 1 provides a layout diagram of a group communication system that includes subscriber radios 24 and 26, and group control computer 28. *Id.* at 4:12–16. Base stations 32 are implemented in a constellation of satellites 34 in low Earth orbits, and project antenna beams 46 toward the surface of the Earth. *Id.* at 4:19–22, 4:39–40.

Group control computer 28 performs a group-controller process in which a “channel list” is calculated for a group of ground radios, indicating bidirectional multipoint channels for a communication session. *Id.* at 9:1–

30. Subscriber radios 24 tune the channels using FDMA, TDMA, and/or CDMA channel-division techniques. *Id.* at 6:22–24. Each ground radio updates the channel it uses to communicate with the base station for its current time and location from the group control computer. *Id.* at 12:28–32. When a ground radio “determines that [its] currently suggested channel is no longer acceptable,” it “identifies a best candidate multipoint channel 52 from the local channel list, based upon the current time and location,” and “verifies whether the candidate channel identified . . . exhibits adequate signal quality.” *Id.* at 12:61–65, 13:19–21. If there is adequate signal quality, the ground radio switches to that channel. *Id.* at 13:43–57.

The dispositive issue in considering anticipation by Ganucheau is whether that reference discloses “the radio communication device re-selecting the default timeslot for communicating with the talkgroup when the default timeslot becomes available,” as recited in challenged independent claim 1 and similarly recited in challenged independent claims 9 and 15. *See* Ex. 1001, 6:37–39, 7:11–14, 8:14–16. The Petition provides context for its discussion of that limitation by describing Ganucheau’s subscriber radios 24 as forming the talkgroup recited in the claim, and observing that, within common beam 46, all members of the group use the same multipoint channel 52. Pet. 38–39 (citing Ex. 1005, 4:11–37, 4:66–5:11, 5:38–47). According to Petitioner, satellites 34 act as the recited repeaters because they receive communications from a radio communication device and repeat those communications to increase the effective range of the transmitting device. *Id.* at 39–40 (citations omitted).

Petitioner contends that the radio communication device has an “assigned default timeslot,” which corresponds to the initially tuned channel in the channel list for the particular time and location of the subscriber radio. *Id.* at 41–42 (citing Ex. 1005, 12:28–32). Petitioner reasons that such channels are “timeslots” in light of Ganucheau’s teaching of implementing bidirectional channels with TDMA channel-division techniques. *Id.* (citing Ex. 1005, 4:49–55). According to Petitioner, by teaching that subscriber radio 24 determines whether the channel has an acceptable quality, Ganucheau teaches the claim’s requirement that the radio communication device determine if the default timeslot is available for the radio communication device to communicate with the talkgroup. *Id.* at 45–46 (citing Ex. 1005, 12:33–36).

When the default timeslot is unavailable, challenged claim 1 requires that the radio communication device search for an available timeslot, temporarily select the timeslot, and “re-select[]” the default timeslot “when the default timeslot becomes available.” Ex. 1001, 6:32–39. The Petition relies on two scenarios that are discussed by its expert, Dr. Akl: one in which the “re-select[ed]” default timeslot “is *different* than the one previously used by the subscriber radios,” and one in which it “is the *same* channel previously assigned to the radio.” Ex. 1002 ¶¶ 96, 97 (emphases added). At the oral hearing, Petitioner maintained that the first scenario is relevant in that “re-selecting the default channel doesn’t necessarily mean selecting the same channel again,” but instead that “[r]e-selecting the default is re-selecting the default at that moment in time.” Tr. 10:16–19.

In the context of Ganucheau, Dr. Akl explains the first scenario as follows:

In Ganucheau, the subscriber radios will automatically select the best available channel (timeslot) on the channel list for the time and location of the radio as soon as it becomes available. (Ex. 1005, 14:1–23.) Thus, the subscriber radios will select (or re-select) a default channel (timeslot) as soon as it becomes available. . . . [T]he ‘284 patent does not restrict the term “default timeslot” from including a timeslot that will change based on the time or location of the radio communication device. Thus, it is my opinion that the subscriber radios of Ganucheau can re-select a “default channel (timeslot)” that is different than the one previously used by the subscriber radios.

Id. ¶ 96. Patent Owner’s expert, Dr. Almeroth, disagrees with this characterization because, according to Dr. Almeroth, “the timeslot that is re-selected must be the originally selected timeslot.” Ex. 2003 ¶ 268.

Dr. Almeroth grounds his opinion in the interplay of limitations explicitly recited in the claim (“[t]hat is because the ‘re-selecting’ step refers to ‘re-selecting **the default timeslot**,’ and that ‘default timeslot’ is first defined in an earlier limitation (‘the radio communication device having an assigned default timeslot’)”), and appears also to rely on the plain meaning of “re-selecting” (“[m]oreover, ‘reselection’ indicates that that timeslot must have first been selected”). *Id.*

We find that Dr. Almeroth articulates the more compelling position, namely that ‘the re-selecting step cannot be met by selecting a new, different timeslot, even if it otherwise would qualify as a ‘default.’” *Id.* ¶ 267 (citation omitted). Not only is such a position commensurate with the plain meaning of “re-selecting,” which implies previous selection, it is consistent

with the '284 patent's distinction between "select[ion]" and "re-select[ion]." For example, in explaining the method for temporary selection of a TDMA timeslot, the '284 patent's specification explains that, "if the radio communication device determines that the default timeslot (slot 1) is available for the radio communication device to communicate with the talkgroup, the radio communication device *selects or re-selects* the default timeslot." Ex. 1001, 4:51–55 (emphasis added).

In addition, Dr. Akl's cross-examination testimony is relevant and supports Patent Owner's declarant. Dr. Akl specifically agreed when asked to confirm that he was "not talking about the original default channel" when "opin[ing] that the subscriber radios of Ganucheau can reselect a default channel that is different than the one previously used by the subscriber radios." Ex. 2008, 59:5–18. Rather, "the previously used channels [he's] talking about are the ones [he's] referred to as the temporary channels." *Id.* Dr. Akl was given further opportunity on cross-examination to clarify, and his additional testimony confirms this understanding. *Id.* at 59:21–61:2 ("I believe 'the default timeslot' . . . is referring back to, for example, limitation 1 where you have an assigned timeslot, and then limitation 2, which is the radio communication device determines if 'the default timeslot.'").

In light of these considerations, we conclude that the "re-selecting" limitation of independent claim 1, and its counterparts in independent claims 9 and 15, require that the *same* timeslot be selected again. The first scenario

discussed by Dr. Akl is accordingly irrelevant to whether the claims are anticipated by Ganucheau.¹

Dr. Akl describes the second scenario as follows:

I also believe the subscriber radios of Ganucheau *can* re-select a “default channel (timeslot)” that is the same channel previously assigned to the radio *depending on the time and location of the subscriber radio*. For example, *if* the “assigned default channel” for a subscriber radio in Ganucheau is the best available channel for location A and the radio moves to location B, the radio will switch to the best available channel for location B. *If there is no substantial change in time* when the subscriber radio returns to location A, the radio will re-select the “assigned default channel” because it is the best available channel for location A at that time. Considering the disclosures in Ganucheau regarding the group radio communication system and my knowledge and experience regarding such systems, I believe that a [person of ordinary skill in the art] would understand that the best available channel for location A *may be the same if* the subscriber radio returns to location A within a couple of hours. This is because traffic and demand patterns usually change on the order of hours (for example, morning rush hour, mid-day slump, evening rush hour, etc.).

¹ Petitioner argues in its Reply that our construction of “default timeslot” compels a reading of the claim language that “does not require re-selecting the **same** channel.” Reply 14. We disagree for the detailed reasons above. That is, although the “default timeslot” itself can change based on time, location, or other criteria, the record developed at trial supports the conclusion that “re-selecting the default timeslot” requires re-selecting the *same* channel. In this respect, we agree with Patent Owner that Petitioner’s “position that the re-selecting step covers selecting a **new or different default timeslot** directly conflicts with that claim language, as well as the basic requirement that there be a ‘**re**’-selecting of a timeslot.” Sur-Reply 13.

Ex. 1002 ¶ 97 (emphases added). In reproducing Dr. Akl’s testimony, we have emphasized certain language that highlights the hypothetical nature of the scenario he considers. In this respect, we agree with Patent Owner that “Petitioner identifies no actual disclosure of the ‘re-selecting’ requirement in Ganucheau, instead relying exclusively on extrinsic expert testimony to construct a hypothetical describing how a POSITA **could** use Ganucheau to perform ‘re-select[ing].” PO Resp. 6 (citing Pet. 50 (citing Ex. 1002 ¶ 97; Ex. 2003 ¶ 263)). But “in order to demonstrate anticipation, the proponent must show ‘that the four corners of a single, prior art document describe every element of the claimed invention.’” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008).

Petitioner replies that “[b]ecause the system of Ganucheau prioritizes channels based on time and location, . . . an immediately apparent conclusion is that a subscriber leaving and returning to a given location at a given time would return to the same channel for that location and time.” Reply 15 (citation omitted). According to Petitioner, “[t]his is not ‘hypothetical’ as [Patent Owner] suggests. . . . It is the **result** of the system described in Ganucheau.” *Id.* (citations omitted). To support its argument that this provides a sufficient showing, Petitioner directs our attention to *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015), which states that “a reference can anticipate a claim even if it ‘d[oes] not expressly spell out’ all the limitations arranged or combined as in the claim, if a person of skill in the art, reading the reference, would ‘at once envisage’ the claimed arrangement or combination.” Reply 15–16. But the Federal Circuit has expressly clarified that “*Kennametal* does not stand for

the proposition that a reference missing a limitation can anticipate a claim if a skilled artisan viewing the reference would ‘at once envisage’ the missing limitation.” *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Ltd.*, 851 F.3d 1270, 1274 (Fed. Cir. 2017).

At the oral hearing, we questioned whether the sheer number of devices involved in any practical implementation of Ganucheu’s system would necessarily result in the scenario described by Dr. Akl. See Tr. 58:1–59:14 (“[J]ust considering the sheer numbers of private radios that exist, doesn’t it seem almost impossible not to have that situation arise where you would get the selection of the same channel?”), 66:4–67:3 (“[W]ould it have been one slot for so many devices that are coming online or going offline, channels that are probably getting used and released or reused and released or selected, unselected, re-selected[?]”). In response to that questioning, Patent Owner directed our attention to Dr. Akl’s cross-examination testimony, in which Dr. Akl indicated that he did not render an opinion on certain details relevant to such a practical implementation. See Ex. 2008, 54:3–9 (no opinion on whether geographic locations are described cells in Ganucheu), 54:18–24 (no opinion on geographic size of a cell in Ganucheu), 56:5–13 (no opinion on time period for returning to location A from location B), 57:3–17 (no opinion on whether Ganucheu describes preparation of a channel list available for sufficient time periods to accommodate movement to different locations).

Dr. Almeroth’s testimony is relevant on these points. Dr. Almeroth testified that Dr. Akl “provides no description of how that scenario would occur,” and referring to the testimony cited above, asserts that “Dr. Akl had

not considered even the most basic facts necessary to support his conclusion.” Ex. 2003 ¶ 264. According to Dr. Almeroth, “the scenario contemplated by Dr. Akl—in which a radio moves from one coverage area (‘location A’) to another (‘location B’), necessitating a switch in channels, and then returns to location A with ‘no substantial change in time’—is not the typical or contemplated use case.” *Id.* ¶ 265. Dr. Almeroth explains that “[t]his is because the coverage area of satellites, such as those disclosed in Ganuchau, is so large that radios rarely change locations, and then return to the original location, without substantial changes in time.” *Id.*

In light of the deficiencies in Dr. Akl’s testimony and the explicit reasoning and explanation provided by Dr. Almeroth, we give greater weight to Dr. Almeroth’s testimony. Accordingly, we find that Petitioner has inadequately shown that Ganuchau discloses the “re-selecting” limitation of independent claim 1, or its counterparts in independent claims 9 and 15.

We conclude that Petitioner does not show, by a preponderance of the evidence, that independent claims 1, 9, or 15 are anticipated by Ganuchau. Because the dependent claims necessarily incorporate the “re-selecting” limitations of the independent claims, we similarly conclude that Petitioner does not show, by a preponderance of the evidence, that claims 4–8, 12–14, 18, or 19 are anticipated by Ganuchau.

E. Anticipation by Wiatrowski

Wiatrowski “relates generally to two-way wireless communication systems, and more particularly to timeslot synchronization on a time division

multiple access (TDMA) communication system.” Ex. 1006, 1:29–32.

Figure 1 of Wiatrowski is reproduced below.

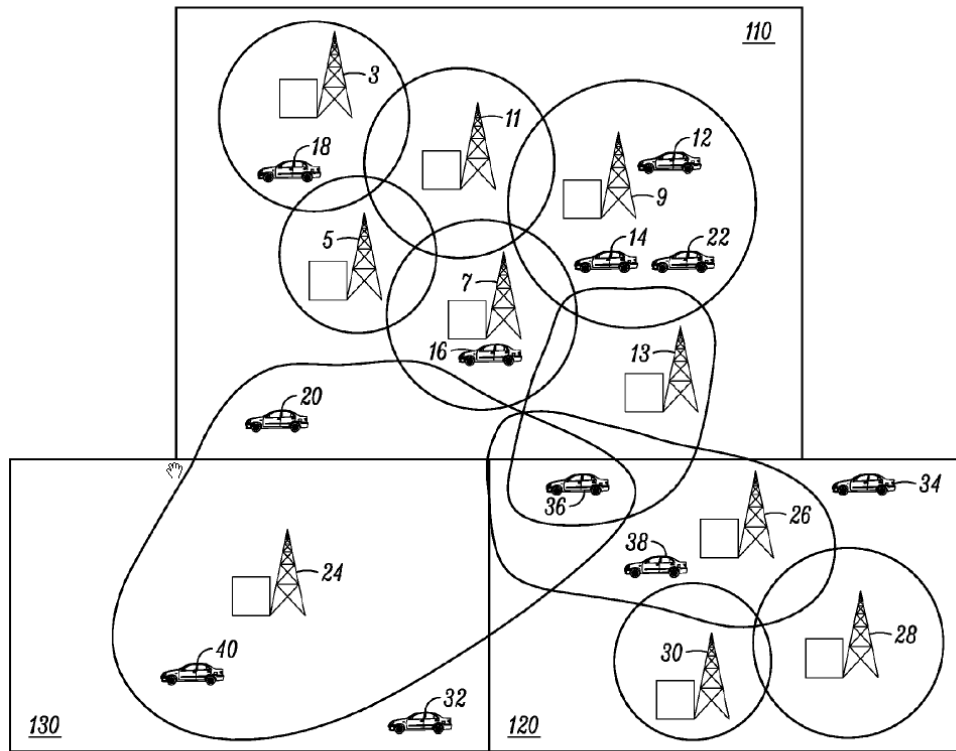


FIG. 1

Figure 1 illustrates “a wireless communications landscape 100 having system 110, system 120, and system 130, whereby a system comprises a multiplicity of communication resources of radio frequencies, repeaters (also known as base stations) and subscriber units (also known as mobile stations, or the like) optionally managed by system controllers (not shown).” *Id.* at 4:20–26. Within this landscape, Wiatrowski focuses on methods for synchronizing to a “desired timeslot” in a TDMA communication system. *Id.* at 3:15–17. Essentially, a transmitting device selects a synchronization pattern associated with the desired timeslot that is mutually exclusive from

synchronization patterns associated with other timeslots on the same frequency. *Id.* at 3:21–29. Once selected, the transmitting device transmits a burst embedding the synchronization pattern so that it may be detected by a receiving device, so that when the receiving device synchronizes with the timeslot, there is confidence that synchronization occurs with the desired timeslot. *Id.* at 3:29–37.

Figure 8 of Wiatrowski illustrates this process in more detail and is reproduced below.

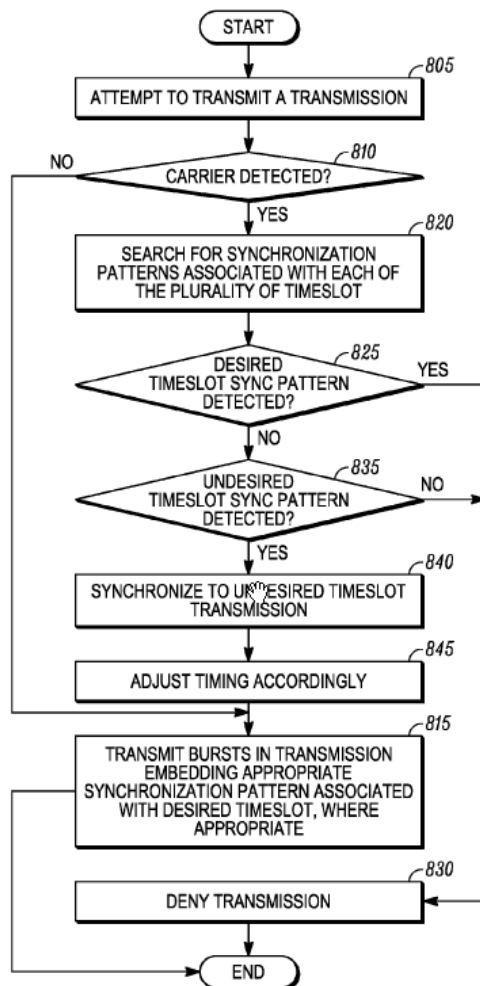


FIG. 8

Figure 8 is a flow diagram that illustrates a method by which a subscriber unit determines whether it is allowed to transmit a direct-mode transmission. *Id.* at 2:61–64. In operation, the transmitting subscriber unit attempts to initiate a transmission in the desired timeslot at step 805, and searches for carrier presence on a particular frequency at step 810. *Id.* at 11:49–53. The relevant portion of the drawing corresponds to the situation in which carrier presence is detected, in which case a set of synchronization patterns associated with the timeslots on the particular frequency is searched at step 820. *Id.* at 11:58–65.

Steps 825 and 835 illustrate the distinction between the desired timeslot and undesired timeslots. Transmission is denied at steps 825 and 830 if a synchronization pattern associated with the desired timeslot is detected, on the assumption that the desired timeslot is busy. *Id.* at 11:66–12:2. Transmission is also denied at steps 825, 835, and 830 if no synchronization pattern associated with any timeslot, i.e., the desired timeslot and any undesired timeslots, is detected. *Id.* at 12:8–11. This may be done, for example, on the assumption that there is an undetectable transmission on the particular frequency. *Id.* at 12:11–23. In the case where none of the synchronization patterns associated with the desired timeslot is detected, but at least one synchronization pattern associated with an undesired timeslot is detected, the transmitting unit synchronizes to the undesired timeslot at step 840. *Id.* at 12:24–30.

The dispositive issue is whether Wiatrowski discloses “temporarily selecting the available timeslot as a temporary selected group timeslot for the talkgroup,” as recited in independent claim 1 and similarly recited in

independent claims 9 and 15. See Ex. 1001, 6:34–36, 7:7–9, 8:11–13. The Petition relies on Figure 8 of Wiatrowski, reproduced above, for this limitation: “Wiatrowski discloses that if the rest timeslot is unavailable, and the subscriber (radio) detects a synchronization pattern for an undesired timeslot, the ‘subscriber unit synchronizes to [select] the timeslot associated with one of the synchronization patterns that was detected (at step 840).’” Pet. 61 (quoting Ex. 1006, 12:28–30; Ex 1002 ¶ 115) (alteration by Petitioner). Relying on testimony by Dr. Akl, Petitioner further asserts that the “the new timeslot is ‘for the talkgroup.’” *Id.* (citing Ex. 1002 ¶ 115). According to Petitioner, an example in Wiatrowski illustrates that “when a subscriber selects a new timeslot due to the rest timeslot being busy, other subscriber units ‘identify’ their group synchronization patterns on the alternate timeslot and ‘synchronize to’ (i.e., tune to or select) the alternate channel.” *Id.* (citing Ex. 1006, 12:62–13:53).

Dr. Almeroth disputes this characterization of Wiatrowski. Ex. 2003 ¶ 235 (“That is not what Wiatrowski discloses.”). According to Dr. Almeroth, the subscriber in Wiatrowski uses the synchronization on the undesired timeslot “to adjust its timing and move to transmit on the *desired* timeslot.” *Id.* (emphasis added). Based on our independent review of Wiatrowski, we find Dr. Almeroth’s characterization more compelling. Wiatrowski explains:

Once synchronized, the transmitting subscriber unit adjusts timing (at step 845) in order to transmit bursts from its transmission *in the desired timeslot* using one of the synchronization patterns associated *with the desired timeslot*, where appropriate (at step 815). The adjustment in timing allows

the transmitting subscriber unit to transmit *in the desired timeslot* without interfering with the transmission being transmitted in any of the other timeslots on frequency F_1 in accordance with one embodiment of the invention.

Ex. 1006, 12:30–39 (emphases added). Dr. Almeroth also addresses the example highlighted by Petitioner, explaining that “[t]his disclosure does not mean that the undesired timeslot is used for talkgroup communications.”

Ex. 2003 ¶ 238. Indeed, the example identified by Petitioner repeatedly emphasizes that synchronization by other subscriber units is to their “desired timeslot.” *See, e.g.*, Ex. 1006, 13:8–12, 13:22–26, 13:42–45.

We accordingly agree with Dr. Almeroth, and find, that “[t]here is no disclosure in this embodiment where the undesired timeslot is used for any transmissions, let alone communications with the talkgroup as required.”

Ex. 2003 ¶ 237.

In its Reply, Petitioner introduces an alternative theory that relies on U.S. Patent Application No. 12/331,180 (Ex. 1007, “the ’180 application”), which Wiatrowski incorporates by reference. Reply 19–20; Ex. 1006, 1:12–14. According to Petitioner, an “idle rest channel” described in the ’180 application is selected when a “current rest channel” is busy. Reply 20 (citing Ex. 1007 ¶¶ 47, 55–57). We agree with Patent Owner that presentation of this theory in the Reply is improper because it was not adequately raised in the Petition. Sur-Reply 19 (citing *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016); 35 U.S.C. § 312(a)(3)). Moreover, we have also reviewed the cited disclosure of the ’180 application and agree with Patent Owner that

“nowhere do the passages relied on by [Petitioner] state that the idle rest channel is only selected ‘temporarily.’” *Id.*

We conclude that Petitioner does not sufficiently show that the “temporarily selecting” limitation of independent claim 1 is disclosed by Wiatrowski, nor that the similar recitations of independent claims 9 and 15 are disclosed. Accordingly, we conclude that Petitioner does not demonstrate, by a preponderance of the evidence, that independent claims 1, 9, or 15 are anticipated by Wiatrowski. Because the dependent claims necessarily incorporate the “temporarily selecting” limitations of the independent claims, we similarly conclude that Petitioner does not show, by a preponderance of the evidence, that claims 4–8, 12–14, 18, or 19 are anticipated by Wiatrowski.²

F. Obviousness over Barnes and Janky

1. Barnes

Barnes “relates generally to trunked radio communications systems, and in particular to a method and apparatus for trunked radio repeater communications with new and existing protocols.” Ex. 1003, 1:12–15. Figure 1 of Barnes is reproduced below.

² Because we conclude that Petitioner’s showing is insufficient with respect to the disclosures of Wiatrowski, we do not reach Patent Owner’s argument that Wiatrowski is not prior art to the ’284 patent. See PO Resp. 17–24.

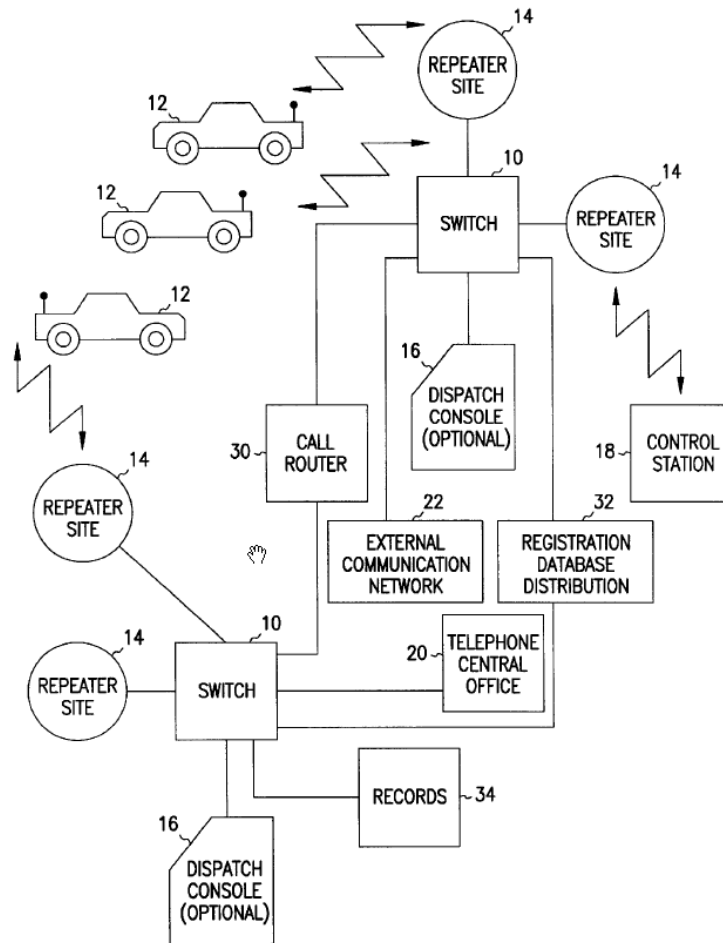


FIG. 1

Figure 1 is a block diagram of a land mobile trunked system in which call router 30 interconnects subsystems that each include switch 10, a plurality of subscribers 12, and a plurality of repeaters 14. *Id.* at 9:6–15.

Three embodiments of Barnes are relevant. First, in a “free channel embodiment,” subscribers 12 have an assigned “home channel.” If a subscriber determines that the home channel is not available, it switches to a “free channel” stored in memory based on information sent by a repeater. *Id.* at 10:6–48. Second, in an “alias channel embodiment,” a roaming subscriber has an assigned “home channel.” If the home channel is not

available in the roaming subscriber's location, it searches for and selects an "alias home channel" from a list of available channels at its location. *Id.* at 20:61–21:46.³ Third, in a "backup channel embodiment," a subscriber has a "home channel" and a "backup channel." If the home channel is unavailable at the subscriber's present location, the backup channel is used. *Id.* at 30:37–31:6.

Barnes discloses TDMA communication between repeaters. *Id.* at 7:36–64. But for subscriber communications, Barnes discloses an FDMA-based communication scheme in which each communication channel between a subscriber and a repeater consists of a single frequency. *Id.* at 1:61–62, 8:22–23.

2. *Janky*

Janky "relates to radio frequency (RF) trunked communication systems, and more particularly, to an RF trunked communication system which accommodates both frequency and time division based RF communications." Ex. 1004, 1:9–12. Janky identifies certain advantages of TDMA over FDMA, but explains that "huge investments in existing FDMA systems make it economically impractical to immediately replace the existing FDMA systems with TDMA systems." *Id.* at 2:1–16. Accordingly, Janky discloses "methods and apparatus which transparently integrate TDMA capabilities to existing trunked, FDMA-based, communications

³ Page 18 of the Petition appears erroneously to cite to Ex. 1003, 19:59–20:46.

systems to achieve the benefits of TDMA technology while minimizing the impact on existing FDMA land mobile radio communication infrastructures.” *Id.* at 2:28–33.

3. *Combination of Barnes and Janky*

Petitioner contends that “[o]ne of skill in the art would readily understand to combine the teachings of Barnes and Janky to yield the claims of the ‘284 Patent.” Pet. 19 (citing Ex. 1002 ¶¶ 67–69). According to Petitioner, “there is nothing in the claims of the ‘284 Patent that is unique to TDMA timeslots—except that the claims use the word ‘timeslot.’” *Id.* at 20 (citing Ex. 1002 ¶ 69). Petitioner accordingly reasons that, “[t]o the extent Barnes’s several embodiments disclose only frequency channels, it was well known to combine TDMA and FDMA since the 1980s and, in fact, most early digital cellular networks were hybrid FDMA/TDMA systems.” *Id.* at 19 (citing Ex. 1010, 4).

In considering Petitioner’s argument regarding the rationale for combining the teachings of Barnes and Janky, it is important to highlight the distinction between *adding* TDMA to an FDMA system, which Janky clearly teaches, and *converting* an existing FDMA system to TDMA. Petitioner’s argument blurs this distinction. For example, a portion of Petitioner’s argument observes that “Janky also explains that TDMA was *added to* existing FDMA systems for increased spectral efficiency and capacity.” *Id.* at 19–20 (citing Ex. 1004, 1:61–2:12) (emphasis added). Petitioner then shifts, without explanation, to asserting that “Janky definitively proves that an FDMA trunked-radio system with frequency-only

channels is easily *converted into* a TDMA trunked-radio system with channels defined by a frequency and a timeslot.” *Id.* (emphasis added).

Petitioner cites no support for its unequivocal assertion that Janky “definitively proves” that such conversion is easy. Pet. 20. Indeed, the testimony of Petitioner’s own expert, Dr. Akl, does not appear to support the strength of this statement. Rather than testify that one of skill in the art would be motivated to effect the conversion from FDMA to TDMA that Petitioner relies on, Dr. Akl makes only the more limited statement that “[i]t is my opinion that a POSITA would be motivated to *add* TDMA (as described in Janky) *on top of* an FDMA system, such as Barnes, in order to further divide the FDMA system into timeslots and increase the number of available channels over the allocated frequency to maximize spectral efficiency.” Ex. 1002 ¶ 68 (emphases added).

Patent Owner’s expert, Dr. Almeroth, is more direct in his criticism of Petitioner’s rationale for effecting the combination of Barnes and Janky. In considering Petitioner’s proffered reason of increasing spectral efficiency and capacity, Dr. Almeroth observes that “there were many ways to add efficiency and capacity, and there is no specific articulation by Petitioner [or] its expert as to why J[a]nky was chosen.” Ex. 2003 ¶ 189. According to Dr. Almeroth, a person of skill in the art “could just have easily added more FDMA channels, subdivided the carrier, or [used] any of the nearly innumerable other techniques to improve efficiency and capacity.” *Id.* ¶ 190.

In light of these statements by the expert witnesses, we agree with Patent Owner’s characterization that “[i]t is undisputed that Janky merely

teaches how to add a standalone TDMA channel to an FDMA system, and that it is silent on whether, or how, to convert FDMA to TDMA, let alone convert the particular FDMA operations in Barnes to TDMA.” Sur-Reply 10 (citing Ex. 1004, Abstract, 2:38–33; Ex. 2003 ¶ 190). We accordingly find that Petitioner’s articulated reasoning for effecting the combination of Barnes and Janky is improperly guided by hindsight. “To draw on hindsight knowledge of the patented invention, when the prior art does not contain or suggest that knowledge, is to use the invention as a template for its own reconstruction—an illogical and inappropriate process by which to determine patentability.” *Sensonics, Inc. v. Aerosonic Corp.*, 81 F.3d 1566, 1570 (Fed. Cir. 1996) (citing *W.L. Gore & Assoc. v. Garlock, Inc.*, 721 F.2d 1540, 1533 (Fed. Cir. 1983)).

4. *Objective Indicia of Nonobviousness*

We have also considered Patent Owner’s arguments regarding objective indicia of nonobviousness. See PO Resp. 48–61. Those arguments are directed to products produced by Petitioner, rather than by Patent Owner, and which were found in an Initial Determination (“ID”) of the International Trade Commission (“ITC”) to infringe challenged claims 9 and 13–15 of the ’284 patent. Ex. 2017, 70–82. In addition, the Administrative Law Judge in that ID found that Petitioner intentionally copied Patent Owner’s patented technology. *Id.* at 219–220. That finding was based, in part, upon an adverse inference drawn from the repeated invocation of the Fifth Amendment when former employees of Patent Owner were questioned about allegations that they downloaded confidential

documents of Patent Owner shortly before becoming employed by Petitioner. *Id.* (citing *LiButti v. United States*, 107 F.3d 110, 123–24 (2d Cir. 1997)). In addition to Patent Owner’s detailed discussion of how Petitioner’s products embody all limitations of the challenged claims, these specific administrative findings support Patent Owner’s position that there is sufficient nexus between its evidence and the challenged claims. PO Resp. 50–57; *Institut Pasteur & Universite Pierre et Marie Curie v. Focarino*, 738 F.3d 1337, 1347 (Fed. Cir. 2013).

Patent Owner’s evidence includes not only the copying noted above, but also various marketing efforts by Petitioner, sufficient for the ITC judge to find that Petitioner “actively encourages, advertises, directs, intends, and teaches third parties to infringe the claims of the ’284 Patent.” PO Resp. 57–60; Ex. 2017, 227. Of particular note among Petitioner’s materials is a document that identifies the availability of a second channel as a “major reason” for a particular customer purchase:

After testing DMR radios from a couple of manufacturers, the firefighters decided upon a Hytera system – and *a major reason* for this choice was the doubling of capacity made possible by Hytera’s support for ‘pseudo-trunking’ or ‘dual-slot trunking.’ “If one slot is occupied, then the radio will use the next one,” he explains. “It’s not a very great solution because it only gives you one more timeslot – but in reality that makes a world of difference to the client.”

Ex. 2018, 8 (emphasis added); *see* PO Resp. 57–60. Petitioner impugns the value of such evidence because Patent Owner appears “not even [to] practice its own claimed method” and fails to supply “any sales numbers or third-party praise.” Reply 12–13. Although we agree with Petitioner that such

factors mitigate the weight to be accorded Patent Owner's evidence, we find that that evidence nonetheless modestly supports a conclusion that the claims would not have been obvious.

Because Petitioner's reasoning for effecting the combination of Barnes and Janky is deficient, and further in light of Patent Owner's persuasive evidence of objective indicia of nonobviousness, we conclude that Petitioner does not demonstrate, by a preponderance of the evidence, that claims 1, 4–9, 12–15, 18, and 19 are unpatentable under 35 U.S.C. § 103(a) over Barnes and Janky.

III. MOTION TO EXCLUDE

Petitioner filed a Motion that moves to exclude two categories of Patent Owner's evidence. Paper 40. First, Petitioner moves to exclude evidence related to Patent Owner's argument that Wiatrowski is not prior art to the '284 patent, namely Exhibits 2004–2007 and paragraphs 55–149 of Exhibit 2003. *Id.* at 4–12. Because we do not reach the argument to which that evidence relates, as noted above, n.2, this aspect of the Motion is moot. We accordingly dismiss this portion of the Motion.

Second, Petitioner moves to exclude evidence related to Patent Owner's arguments regarding objective indicia of nonobviousness, namely Exhibits 2009 and 2011–2021, and paragraphs 224–231 of Exhibit 2003. *Id.* at 13–15. With respect to this evidence, the ITC's ID, filed as Exhibit 2017, relates, *inter alia*, to certain claims of the '284 patent challenged in this proceeding. *See* Ex. 2017, 2. Petitioner contends that the exhibit should be excluded under Fed. R. Evid. 401, 402, and 403 “because it is irrelevant,

prejudicial, confusing, and misleading.” Paper 40, 13. Because the ID is “initial,” Petitioner contends that it “is not binding on the PTAB and the Commission was free to disagree with or modify the ID.” *Id.* Petitioner further notes that the Commission subsequently issued a Notice affirming-in-part, modifying-in-part, reversing-in-part, and striking certain portions of the ID. *Id.* (citing Ex. 1029, 1). In addition, Petitioner notes that “[t]he Commission’s decision is further subject to approval by the President of the United States and is appealable.” *Id.* On these bases, Petitioner contends that “any probative value of the ID is outweighed by potential prejudice, confusion, and potential to mislead,” and that the ID is “misleading and confusing and should be excluded as unduly prejudicial.” *Id.* at 13–14.

We are not persuaded by this argument. Petitioner’s arguments go to the weight that should be accorded to the ID, not to its admissibility. *See Liquid Dynamics Corp. v. Vaughan Co.*, 449 F.3d 1209, 1221 (Fed. Cir. 2006) (“Vaughan’s challenge goes to the weight of the evidence rather than the admissibility of Lueptow’s testimony and analysis.”). As Patent Owner responds, the ITC “determined **not** to review the portions of the ID’s findings regarding the ’284 patent that Hytera and its expert have relied upon in the present matter.” Paper 43, 12; *see* Ex. 1029, 3–4. And we agree with Patent Owner that Petitioner’s argument that the Final Determination is subject to approval by the President lacks merit because the President did not act on the Final Determination within the period specified by 19 U.S.C. § 1337(j)(2). *Id.*

The ID recounts evidence that has been considered and evaluated by an objective and disinterested judge, and articulates findings that are relevant

to whether there is a sufficient nexus between the challenged claims and Patent Owner's evidence regarding Petitioner's products. The ID is also relevant to the issue of copying by Petitioner. Although Petitioner asserts that the ID is prejudicial or confusing, it provides insufficient argument to support those assertions.

With respect to Exhibits 2009, 2011–2016, and 2018–2021, Petitioner contends that “[t]hese exhibits are Hytera documents, which include marketing materials and product manuals [but] do not supply sales numbers or third-party praise to prove commercial success.” Paper 40, 14. Again, this argument relates to the weight to be accorded to that evidence, not to its admissibility. As we note above, we agree with Petitioner that these factors impact the appropriate weight to be accorded to the evidence, and we have accounted for that impact.

Finally, we do not rely on the portions of Dr. Almeroth's Declaration identified in the Motion as related to objective indicia of nonobviousness, namely paragraphs 224–231, and this aspect of the Motion as accordingly moot. We therefore dismiss this aspect of the motion.

IV. MOTION TO SEAL AND STIPULATED PROTECTIVE ORDER

Patent Owner filed a Motion to Seal that included a request for entry of a stipulated Protective Order filed as Exhibit 2024.⁴ Paper 16. The stipulated Protective Order deviates from the Board's default protective

⁴ The Motion incorrectly refers to Exhibit 2023 as the stipulated Protective Order and to Exhibit 2024 as the redlined version of the stipulated Protective Order.

order by specifically addressing “Source Code,” in addition to other deviations. Ex. 2025 (redlined version showing deviations). The Motion to Seal represents that “[t]he parties have conferred and agreed to the provisions of the Stipulated Protective Order . . . and have stipulated to be bound to the terms set forth therein.” Paper 16, 1. Petitioner has not filed an opposition to the Motion to Seal. A related joint Motion for Entry of Stipulated Protective Order was filed as Paper 38.

The Motions relate to source code that Patent Owner “is relying on . . . to establish conception and reduction to practice dates that antedate the cited references.” Paper 16, 2. Because this Final Written Decision does not reach this issue, and therefore does not rely on the source-code evidence, we dismiss the Motions as moot and expunge the corresponding documents.

V. ORDER

It is

ORDERED that, based on a preponderance of the evidence, claims 1, 4–9, 12–15, 18, and 19 of U.S. Patent No. 8,116,284 B2 have not been shown to be unpatentable;

FURTHER ORDERED that Petitioner’s Motion to Exclude (Paper 40) is *dismissed-in-part* and *denied-in-part*;

FURTHER ORDERED that Patent Owner’s Motion to Seal (Paper 16) and the joint Motion for Entry of Stipulated Protective Order (Paper 38) are *dismissed*;

FURTHER ORDERED that Exhibits 2006 and 2007, and the confidential version of Exhibit 2003, are *expunged*; and

FURTHER ORDERED that, because this is a final written decision, parties to this proceeding seeking judicial review of our decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2018-00128
Patent 8,116,284 B2

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