United States Court of Appeals for the Federal Circuit

ERICSSON INC., TELEFONAKTIEBOLAGET LM ERICSSON,
Appellants

v.

INTELLECTUAL VENTURES I LLC,
Appellee

2016-1671

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2014-00963.

Decided: May 29, 2018

STEVEN GARRETT SPEARS, Baker & Hostetler LLP, Houston, TX, argued for appellants. Also represented by GREGORY MATTHEW MCCLOSKEY, McDermott, Will & Emery LLP, Boston, MA.

BYRON LEROY PICKARD, Sterne Kessler Goldstein & Fox, PLLC, Washington, DC, argued for appellee. Also represented by LORI A. GORDON, ROSS G. HICKS, MICHAEL D. SPECHT.

Before PROST, *Chief Judge,* NEWMAN and WALLACH, *Circuit Judges.*

Opinion for the court filed by *Circuit Judge* NEWMAN.

Dissenting opinion filed by *Circuit Judge* WALLACH.

NEWMAN, *Circuit Judge.*

Ericsson Incorporated and Telefonaktiebolaget LM Ericsson (collectively, "Ericsson") appeal the decision of the Patent Trial and Appeal Board ("PTAB") on *inter partes* review, in which Ericsson is the Petitioner and Intellectual Ventures I LLC ("IV") is the Patent Owner. The PTAB sustained the patentability of claims 1–16 of U.S. Patent No. 6,952,408 ("the '408 patent").[1]

We conclude that the PTAB erred in its decision with respect to claim 1, the only claim whose patentability was analyzed by the PTAB. We reverse as to claim 1, vacate as to claims 2–16, and remand for determination of patentability of claims 2–16.

Standards of Review

PTAB decisions are reviewed in accordance with the Administrative Procedure Act, 5 U.S.C. § 706(2). Agency findings of fact are reviewed for support by substantial evidence in the agency record, and agency rulings of law are reviewed for correctness in accordance with law. *See In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000).

"Anticipation" in patent terms means that the claimed invention is not new; that is, the invention as claimed was already known. Anticipation is a question of fact, and a

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[1] *Ericsson Inc. v. Intellectual Ventures I, LLC*, No. IPR2014-00963, Paper No. 29 (P.T.A.B. Oct. 22, 2015) ("PTAB Dec."); Paper No. 31 (P.T.A.B. Dec. 22, 2015) ("Rehearing Dec.").

finding of anticipation requires that every limitation of the claim is present in a single prior art reference. *See, e.g.*, *Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1341 (Fed. Cir. 2016); *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009).

"Obviousness" is a matter of law based on underlying factual findings, and is grounds for unpatentability when the claimed subject matter is not identically described, if the subject matter as a whole would have been obvious to a person having ordinary skill in the field of the invention. 35 U.S.C. § 103(a); *see KSR Int'l, Inc. v. Teleflex, Inc.*, 550 U.S. 398, 406–07 (2007). When obviousness is based on information from a combination of sources, the question is whether a person of ordinary skill in the field would have been motivated to select and combine this information, and with a reasonable expectation of achieving the desired result. *See, e.g.*, *Merck & Cie v. Gnosis S.p.A.*, 808 F.3d 829, 833 (Fed. Cir. 2015), *cert. denied*, 137 S. Ct. 297 (2016).

The '408 Patent – Institution and Final Decision

The '408 patent is entitled "Method of Baseband Frequency Hopping Utilizing Time Division Multiplexed Mapping between a Radio Transceiver and Digital Signal Processing Resources." Frequency hopping is used in wireless systems in which a basestation communicates with entities (such as mobile subscribers) on varying radio frequencies, so as to reduce interference among communications. The '408 patent's "Abstract" describes the method as follows:

> A method of frequency hopping is supported by a basestation having a broadband transceiver. The method permits changing physical channels upon which mobile subscribers communicate with the basestation, wherein the broadband transceiver is operated using static transceiver frequencies, the method exclusive of switching communication sig-

> nals between transceivers. In one embodiment, the method maps baseband output signals from a digital channelizer which represent physical channels to ones of digital signal processors representing logical channels and baseband input signals of a digital combiner to ones of logical outputs of digital signal processors according to a mapping signal.

'408 patent, at [57]. The PTAB effectively defined "frequency hopping" as "changing from a first of said physical RF [radio frequency] channels upon which said mobile subscribers communicate with said basestation to a second of said physical RF channels, while maintaining a same logical channel." PTAB Dec. at 3–4, 19. The parties agree with this definition. *See* J.A. 1049 (declaration of Dr. Stark, Ericsson's expert); J.A. 3327 (declaration of Dr. Wells, IV's expert).

Figure 1 is "a preferred embodiment," of the '408 patent method, "a block diagram of a wideband digital basestation making use of a time division multiplex (TDM) bus according to the invention":

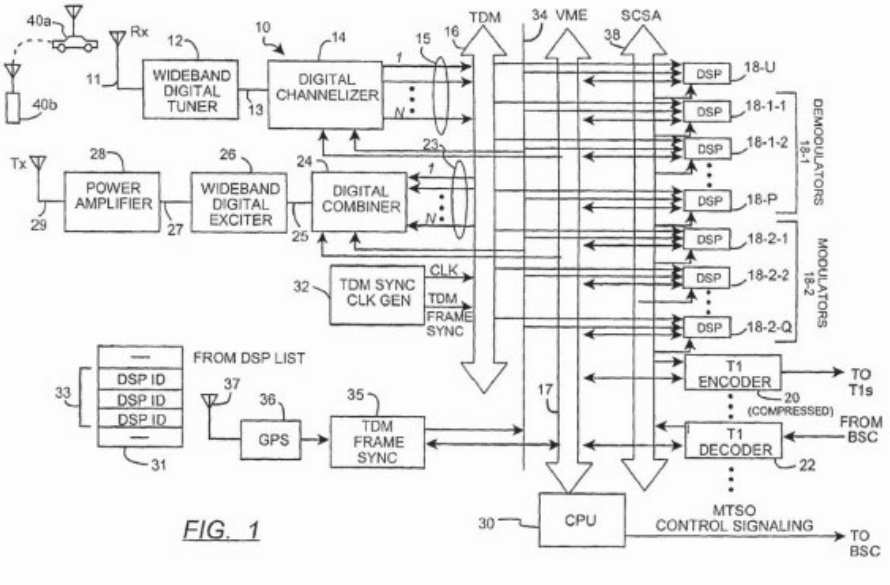

FIG. 1

'408 patent, Fig. 1; col. 3, ll. 46–48; col. 4, ll. 12–13. The "Detailed Description of a Preferred Embodiment" further describes the basestation and mobile subscribers, and refers to the European GSM [Global System for Mobile Communications] frequency hopping standard:

> More particularly, the basestation 10 exchanges radio frequency (RF) signals with a number of mobile subscriber terminals (mobiles) 40a, 40b. The RF carrier signals are modulated with voice and/or data (channel) signals which are to be coupled to the public switched telephone network (PSTN) by the basestation 10. The particular modulation in use may be any one of a number of different wireless (air interface) standards such as . . . frequency hopping standards such as the European GSM, personal communication network (PCN) standards, and the like.

'408 patent, col. 4, ll. 36–48.

Claim 1 of the '408 patent is as follows:

> 1. A method for frequency hopping in a cellular communications system having multiple mobile subscribers communicating on a plurality of different physical RF channels on any time division multiplexed scheme with a basestation having a broadband transceiver, said method comprising the steps of:
>
> operating said broadband transceiver using a plurality of transceiver RF frequencies, each of which represents one of said physical RF channels; and
>
> changing from a first of said physical RF channels upon which said mobile subscribers communicate with said basestation to a second of said physical RF channels, while maintaining a same logical channel.

'408 patent, col. 13, ll. 15–28. Claims 2–16 depend successively from claim 1, each with additional limitations.

Ericsson petitioned for *inter partes* review of all claims. The PTAB instituted review of all claims, on two grounds:

> 1) anticipation of claims 1–10 and 12–16 under § 102(b) by U.S. Patent No. 5,592,480 ("the '480 patent");
>
> (2) obviousness of claims 1–16 based on the '480 patent together with the GSM Standard "Radio Sub-system Link Control, European Telecommunications Standards Institute, v. 3.8.0" ("the GSM standard") and U.S. Patent No. 5,537,435 ("the '435 patent").[2]

PTAB Dec. 3.

Both sides presented argument and expert testimony. The PTAB ruled that claim 1 is neither anticipated nor obvious. The PTAB did not separately analyze dependent claims 2–16, and ruled that Ericsson had "not demonstrated, by a preponderance of the evidence, that any of claims 1–16 is anticipated by the '480 patent or obvious over the '480 patent, GSM 05.02, and the '435 patent." *Id.* at 33. The PTAB held all 16 claims patentable, and adhered to this decision on reconsideration.

In view of the PTAB's limitation of its analysis to claim 1, our review is focused on claim 1. *See Michigan v. EPA,* 135 S. Ct. 2699, 2710 (2015) (reciting the "foundational principle of administrative law that a court may uphold agency action only on the grounds that the agency

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[2] The PTAB reported that Ericsson stated at oral argument that the three-reference combination was only asserted against claims 3–16. PTAB Dec. 20.

invoked when it took the action" (citing *S.E.C. v. Chenery Corp.*, 318 U.S. 80, 87 (1943)).

In brief, Ericsson argues that claim 1 is a "generic" statement of the known method of frequency hopping implemented at broadband basestations. Ericsson states that all the limitations of claim 1 are shown in the '480 patent, and that claim 1 is no more than a broad recitation of the general method of frequency hopping in mobile communications, as disclosed in the '480 patent in general terms. Ericsson states that if any additional content in the '408 specification may serve to distinguish the '480 patent, such content is not present as a limitation to claim 1. Thus Ericsson argues that claim 1 is anticipated by the '480 patent or is obvious from the '480 patent in combination with the GSM reference.

I

THE PRIOR ART

The '480 Patent

The PTAB described the '408 and '480 patents as "not related," but "shar[ing] significant disclosure." PTAB Dec. 10. The '480 patent presents the following "Abstract":

> A wireless communication system basestation making use of a wideband, multichannel digital transceiver having incorporated therein a time division multiple-access (TDM) bus for providing digital samples of a plurality of wireless communication channels, wherein the time slot duration and frame rate of the TDM bus may be reconfigured. The invention allows various air interface standards, even those having different channel bandwidths, to be serviced by the same basestation, without having to install additional or different equipment, and by automatically redistributing signal processing resources, elimi-

> nating the need to reconfigure the basestation when different types of wireless signaling must be accommodated.

'480 patent, at [57].

In Figure 1, the '480 patent shows "a preferred embodiment" as a "block diagram of a wideband digital basestation making use of a time division multiplex (TDM) bus according to the invention." '480 patent, col. 4, ll. 26–28.

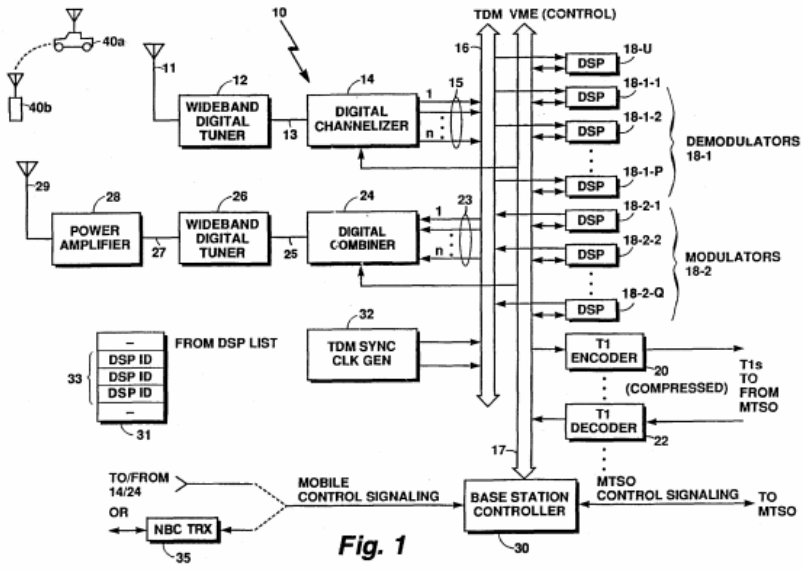

Fig. 1

In its "Detailed Description of a Preferred Embodiment," the '480 patent describes Figure 1:

> FIG. 1 is a block diagram of a wideband wireless digital basestation 10 according to the invention. Briefly, the basestation 10 consists of a receive antenna 11, one or more wideband digital tuners 12, one or more digital channelizers 14, a time division multiplex (TDM) bus 16, a control bus 17, a plurality of digital signal processors (DSPs), a first subset of which are programmed to operate

> as demodulators 18-1-1, 18-1-2, . . . , 18-1-P (collectively, demodulators 18-1); a second subset of which are programmed to operate as modulators 18-2-1, 18-2-2, . . . , 18-2-Q; and a third subset 18-u of which are presently idle, transport signal (T-1) encoder 20, a T-1 decoder 22, one or more digital combiners 24, one or more wideband digital exciters 26, a power amplifier 28, a transmit antenna 29, a basestation control processor (controller) 30, and a TDM synchronization clock generator 32.

'480 patent, col. 4, l. 55 – col. 5, l. 3. The patent further describes the preferred embodiment:

> More particularly, the basestation 10 exchanges radio frequency (RF) signals with a number of mobile subscriber terminals (mobiles) 40a, 40b. The RF carrier signals are modulated with voice and/or data (channel) signals which are to be coupled to the public switched telephone network (PSTN) by the basestation 10. The particular modification in used [sic] may be any one of a number of different wireless (air interface) standards such as . . . frequency hopping standards such as the European Groupe Speciale Mobile (GSM), personal communication network (PCN) standards, and the like.

'480 patent, col. 5, ll. 4–17. The "Detailed Description of a Preferred Embodiment" for the '480 patent does not differ in any meaningful manner from the "Detailed Description" for the '408 patent quoted *ante*. In addition, many of the components of the '408 patent's processing of RF modulated signals are described in a similar manner in the '480 patent. *Compare* '408 patent, col. 4, l. 53 – col. 5, l. 56 *and* col. 6, l. 35 – col. 7, l. 12 *with* '480 patent, col. 5, l. 21 – col. 6, l. 26 *and* col. 6, l. 60 – col. 7, l. 35; *see also* PTAB Dec. 10.

Ericsson does not disagree that the '408 patent specification describes additional components used in frequency hopping. The PTAB stated, "comparing Figure 3 of the '480 patent with Figure 8 of the '408 patent, the two patents describe bus drivers with similar components. Nevertheless, Figure 3 of the '480 patent lacks the DP RAM FHOP 312, Comparator 206, control processor 300, and RX Ping/PONG 304 components shown in Figure 8 of the '408 patent." PTAB Dec. 11–12. The PTAB found that these components "implement[] a frequency hopping functionality" in the '408 patent. *Id.* at 12. Ericsson's position is that claim 1 of the '408 patent claims the general method for frequency hopping in a cellular communication system on a broadband basestation, and that this general method is disclosed in the '480 patent reference.

The GSM Reference

The GSM mobile communication standard is referenced in both the '480 patent and the '408 patent, *see supra*. GSM is a mobile communication standard of the European Telecommunications Standards Institute. The '480 patent states the GSM "frequency hopping standard" may be used in cellular communications systems. '480 patent, col. 5, ll. 9–17. GSM is the "de facto global standard for mobile communications with over 90% market share and is available in over 219 countries and territories." PTAB Dec. 12 (quoting declaration of Dr. Stark)).

The GSM reference includes a definition of frequency hopping and algorithms for mapping logical channels onto physical channels. *See id.* at 13 ("GSM 05.02 describes an algorithm for mapping logical channels onto physical channels. In particular, GSM 05.02 describes an algorithm for hopping sequence generation." (internal citations omitted)). GSM 05.02 in Section 6.2.3 sets forth the GSM frequency hopping algorithm, reproduced below:

6.2.3 Hopping sequence generation

For a given set of parameters, the index to a radio frequency channel within the mobile allocation (MAI from 0 to N-1, where MAI=0 represents the lowest RF channel in the mobile allocation), is obtained with the following algorithm:

if HSN = 0 (cyclic hopping) then:

MAI, integer (0 ... N-1) : MAI= (FN + MAIO) modulo N

else:

M, integer (0 ... 152) : M = T2 + RNTABLE((HSN xor T1R) + T3)

S, integer (0 ... N-1) : M' = M modulo (2 ^ NBIN)
T' = T3 modulo (2 ^ NBIN)
S = M' if (M' < N)

else

S = (M'+T') modulo N

MAI, integer (0 . N-1) : MAI = (S + MAIO) modulo N

Note: Due to the procedure used by the mobile for measurement reporting when DTX is used, the use of cyclic hopping where (N)mod 13 = 0 should be avoided.

where:

T1R : time parameter T1, reduced modulo 64 (6 bits)

T3 : time parameter, from 0 to 50 (6 bits)

T2 : time parameter, from 0 to 25 (5 bits)

NBIN : number of bits required to represent N = INTEGER(log2 (N) + 1)

^ : raised to the power of

xor : bit-wise exclusive or of 8 bit binary operands

RNTABLE : Table of 114 integer numbers, defined below:

Address	Contents									
000...009:	48,	98,	63,	1,	36,	95,	78,	102,	94,	73,
010...019:	0,	64,	25,	81,	76,	59,	124,	23,	104,	100,
020...029:	101,	47,	118,	85,	18,	56,	96,	86,	54,	2,
030...039:	80,	34,	127,	13,	6,	89,	57,	103,	12,	74,
040...049:	55,	111,	75,	38,	109,	71,	112,	29,	11,	88,
050...059:	87,	19,	3,	68,	110,	26,	33,	31,	8,	45,
060...069:	82,	58,	40,	107,	32,	5,	106,	92,	62,	67,
070...079:	77,	108,	122,	37,	60,	66,	121,	42,	51,	126,
080...089:	117,	114,	4,	90,	43,	52,	53,	113,	120,	72,
090...099:	16,	49,	7,	79,	119,	61,	22,	84,	9,	97,
100...109:	91,	15,	21,	24,	46,	39,	93,	105,	65,	70,
110...113:	125,	99,	17,	123,						

The hopping sequence generation algorithm is represented diagrammatically in figure 6.

J.A. 1447–49 (discussing and setting forth the algorithm); s*ee also* J.A. 1464 (Figure 6) (algorithm diagram). The '480 patent states support for "a number of different wireless (air interface) standards" including "frequency hopping standards such as the European Groupe Speciale Mobile (GSM), personal communication network (PCN) standards, and the like." '480 patent, col. 5, ll. 4–17.

The '435 Patent[3]

The '435 patent describes a multichannel wireless communication "transceiver apparatus employing wideband FFT [Fast Fourier Transform] channelizer with output sample timing adjustment and inverse FFT combiner." '435 patent, at [54]. Ericsson cited this patent for "further details regarding digital channelizers and combiners in basestations, including dynamic mapping of digital channelizer outputs to DSP inputs." PTAB Dec. at 20. The PTAB in its final decision did not discuss the combination of the '435 patent with the '480 patent and the GSM standard because it did not reach the dependent claims.

II

PATENTABILITY OF CLAIM 1

Anticipation—The '480 Patent

The PTAB recognized the reference to frequency hopping in the '480 patent. Ericsson's argument is that claim 1 generally recites frequency hopping, and that every limitation of claim 1 is in the '480 patent.

IV's expert, Dr. Wells, testified "basestations that support frequency hopping were known before 1998," prior to the 2001 priority date of the '408 patent. J.A. 2538–39 (13:6–14:9) (deposition testimony of Dr. Wells); J.A. 3323–24 (¶40) (declaration of Dr. Wells); *see also* J.A. 3252–54, 3260–65 (excerpts from "Ex. 2003 - GSM System for Mobile Communications" detailing

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[3] The '480 patent, the '408 patent, and the '435 patent all originated with Airnet Communications Corporation, and are now owned by IV. J.A. 3327(¶49); J.A. 266–67; '408 patent, at [73]; *see also* PTAB Dec. 9, 20.

basestations according to the "canonical GSM architecture" in 1992).

Each term of claim 1, including the terms in the preamble, is recited in the '480 patent:

- The preamble of claim 1 recites a "method for frequency hopping in a cellular communications system"; this tracks the '480 patent's "frequency hopping standards such as the [GSM]" as may be used in a cellular communications system. '480 patent, col. 5, ll. 6–17, [57]; *see* J.A. 2539 (14:10–21) (deposition testimony of Dr. Wells).
- The preamble recites "multiple mobile subscribers communicating" with the basestation. The '480 patent recites "the basestation exchanges radio frequency (RF) signals with a number of mobile subscriber terminals." '480 patent, col. 5, ll. 4–6; *see* J.A. 2540 (15:1–19) (deposition testimony of Dr. Wells); J.A. 3317 (¶26) (expert declaration of Dr. Wells).
- The preamble requires that the mobile subscribers are "communicating on a plurality of different physical RF channels." The '480 patent's basestation "exchanges radio frequency (RF) signals with a number of mobile subscriber terminals" and "[a]s the basestations' demands increases, [ ] additional RF channels can be serviced." '480 patent, col. 5, ll. 4–6; col. 12, ll. 41–44; *see* J.A. 2540 (15:1–19) (deposition testimony of Dr. Wells); *see also* J.A. 3317 (¶26) (expert declaration of Dr. Wells).
- The preamble recites the use of "any time division multiplexed scheme with a basestation having a broadband transceiver." The '480 patent is for a "wideband, multichannel digital

transceiver having incorporated therein a time-division multiple-access (TDM) bus." '480 patent, at [57]; col. 2 l. 63 – col. 3, l. 2. The GSM standard's "access scheme is Time Division Multiple Access (TDMA)." J.A. 1424 (GSM Standard 05.01 (Section 5)); *see* J.A. 2541 (16:6–9) (deposition testimony of Dr. Wells); J.A. 3318 (¶27) (expert declaration of Dr. Wells).

- Claim 1, first clause, recites "operating said broadband transceiver using a plurality of transceiver RF frequencies, each of which represents one of said physical RF channels." The '480 patent's broadband basestation "exchanges radio frequency (RF) signals with a number of mobile subscriber terminals" and "[a]s the basestations' demands increases, [ ] additional RF channels can be serviced." '480 patent, col. 5, ll. 3–6; col. 12, ll. 41–44; *see* J.A. 2540 (15:1–19) (deposition testimony of Dr. Wells); *see also* J.A. 3317 (¶26) (expert declaration of Dr. Wells).

- Claim 1, second clause, recites "changing from a first of said physical RF channels upon which said mobile subscribers communicate with said basestation to a second of said physical RF channels while maintaining the same logical channel." The PTAB defined this as frequency hopping. PTAB Dec. 3–4, 19. The '480 patent states that its basestation supports use of a number of wireless communication standards, including "frequency hopping standards such as the European Groupe Speciale Mobile (GSM), personal communication network (PCN) standards, and the like." '480 patent, col. 5, ll. 4–17; *see also* J.A. 2552–53 (27:12–28:1) (deposition testimony of Dr.

> Wells) ("One has to keep the same logical channel to preserve a call."); J.A. 3319 (¶30) (expert declaration of Dr. Wells) ("The principle of GSM frequency hopping, when implemented, is to change the frequency used for transmission (and reception) every TDMA frame.").

The PTAB acknowledged that there were relevant disclosures in the '480 patent, but reasoned that the '480 patent did not anticipate because frequency hopping was an "optional . . . functionality." PTAB Dec. 17. The PTAB also stated that "[Ericsson] has not shown persuasively that the '480 patent discloses 'changing from a first of said physical RF channels upon which said mobile subscribers communicate with said basestation to a second of said physical RF channels, while maintaining a same logical channel,' as recited in claim 1 and each of its dependents (claims 2–10 and 12–16)." *Id.* at 19. This statement of the '480 disclosure is contrary to the evidence.

Both the '480 patent and the '408 patent provide substantially identical diagrams of the broadband base station. Figure 1, shown *supra* for the '408 patent, is substantially identical in the '480 patent:

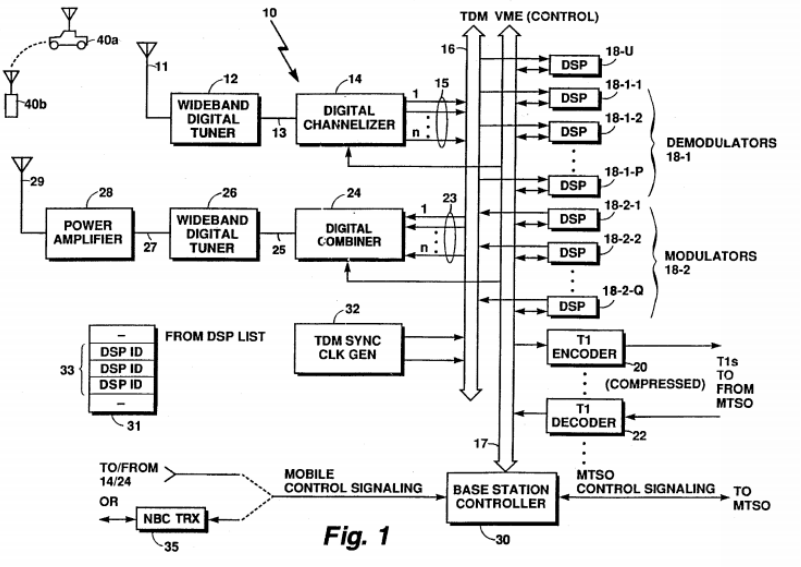

Fig. 1

'480 patent, Fig. 1. Both Figures 1 depict the wideband digital basestation 10 communicating with mobile terminals 40 via radio frequency (RF) signals. Also, Figure 2 of the '408 patent and Figure 2 of the '480 patent show the same routing of data on and off the TDM bus to the digital signal processors.

The PTAB acknowledged that the two patents "share significant disclosure." PTAB Dec. 10. Claim 1 of the '408 patent is directed to the shared disclosure; any differences in the disclosures are not in claim 1. The PTAB points to subordinate figures as showing differences between the '480 and '408 patents. *Id.* at 5–6, 12, 27–28. However, such differences are not reflected in claim 1, whose scope is indistinguishable from the disclosure of the '480 patent.

IV argued before the PTAB that there are differences in details and in performance; for example, IV's expert stated that the method described in the '480 patent cannot remap the incoming data fast enough to support frequency hopping. J.A. 403–08; J.A. 3365 (¶101). This contradicts the statement in the '480 patent that the GSM frequency hopping standard may be used. '480 patent, col. 5, ll. 4–17.

To contradict a reference, an unsupported opinion is not substantial evidence. *See Homeland Housewares, LLC v. Whirlpool Corp.*, 865 F.3d 1372, 1378 (Fed. Cir. 2017) ("[W]e must disregard the testimony of an expert that is plainly inconsistent with the record, or based on an incorrect understanding of the claim[s]." (citations and internal quotation marks omitted) (second alteration in original)). Although the PTAB adopted the opinion of IV's expert and stated on rehearing that it found Ericsson's expert lacking in credibility, this is not a matter of credibility but of technological evidence.

Ericsson agrees that there are differences in the disclosures, in that the '408 specification describes "an added memory and supporting components shown in the '408

patent's Figure 8 (corresponding to '480 Patent Figure 3)." Ericsson Br. 2–3, 19. Ericsson points out that this added memory, DP RAM FHOP 312, is not required by any of the claims. Ericsson states that the PTAB appears to have misunderstood the technology.

IV argues that even if the PTAB misunderstood the technology, the PTAB result is correct. But the specification of the '480 patent teaches that frequency hopping may be used, and "each and every element" of claim 1 of the '408 patent is disclosed in the '480 patent, "arranged or combined in the same way as in the claim." *Blue Calypso*, 815 F.3d at 1341 (quoting *In re Gleave*, 560 F.3d at 1334). We conclude that substantial evidence does not support the PTAB's decision, and that claim 1 is anticipated by the disclosure in the '480 patent.

The Question of Obviousness

The PTAB held that claim 1 would not have been obvious because Ericsson did not prove a reasonable expectation of success on the part of the skilled artisan.[4] The PTAB stated that Ericsson did not show that the "obviousness combination it proposes would have worked for its intended purpose. For the same reasons, Petitioner has not shown that a skilled artisan would have a reasonable expectation of success in combining the teachings of the '480 patent and GSM 05.02 in the way Petitioner proposes." PTAB Dec. 22.

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[4] The PTAB accepted the parties' agreed statement that the person of ordinary skill in this field "would have had at least a B.S. degree in Electrical Engineering, Computer Engineering, or the like, and at least three years of additional academic or industry experience." PTAB Dec. 21.

Ericsson argues that even if we conclude that claim 1 is not anticipated, it is unpatentable as obvious in view of the '480 patent and the GSM reference. IV suggests that the '480 patent is deficient as a reference in that it does not include computer code or algorithm for frequency hopping. However, the experts were in agreement that a person having ordinary skill in the field would have known how to implement frequency hopping. J.A. 2517–19 (¶¶37–39) (reply declaration of Dr. Stark); J.A. 2538 (13:12–17) (deposition testimony of Dr. Wells).

The PTAB found that Ericsson failed to demonstrate the "system of the '480 patent could be modified to implement frequency hopping through re-programming of the DP RAM Enable 202 alone." PTAB Dec. 26. The PTAB found that because the DP RAM Enable 202 "merely indicates that a 'frequency should be put on the bus for some DSP,' the basestation controller must re-program some other component to place appropriate data on TDM bus 16 or re-program the DSPs to change how they take data off of TDM bus 16." *Id.* at 30 (quoting testimony of Dr. Stark); *see also id.* at 27.

On Petition for Rehearing, Ericsson argued that the PTAB erred in its understanding of the '480 subject matter and ignored Figure 6 of the '480 patent, wherein the DP RAM Enable 202 would also be reprogrammed each time frame by the basestation controller, and that it would route data off the TDM bus and on to the correct DSP. The PTAB stated that "[a]s with the DP RAM Enable 202 of Figure 3, the DP RAM Enable 202 of Figure 6 does not determine which slot is associated with which DSP. It simply allows data to pass through during an enabled time slot to FIFO [First In First Out] Data 214, which clocks data into the DSP associated with the enabled time slot." Rehearing Dec. 7 (citing '480 patent, col. 10, ll. 36–43).

Ericsson correctly points out that the '480 patent's Figure 6 diagrams components connected to a *single* DSP, and the corresponding description shows that it depicts the operation of a single TDM FIFO receiver. '480 patent, col. 8, ll. 11–18; col. 10, ll. 34–43. The specification makes clear that each DSP includes its own TDM FIFO receiver. The patent recites:

> An exemplary DSP demodulator 18-1-1 and modulator 18-2-1 are also shown in FIG. 2. The demodulator DSP 18-1-1 includes a TDM first-in first-out (FIFO) driver 180-1, a TDM FIFO receiver 182-1, a DSP central processing unit 184-1 and program memory 186-1. Similarly, the modulator DSP 18-2-1 includes a TDM FIFO driver 180-2, a TDM FIFO receiver 182-2, a DSP central processing unit 184-2 and program memory 186-2.

'480 patent, col. 8, ll. 11–18. The '480 patent states that Figure 6 is "[a] detailed diagram of the TDM FIFO receiver 182-1." *Id.,* col. 10, ll. 34–35. The '480 patent states that each TDM FIFO Receiver contains, in addition to other components, an instance of DP-RAM 202. *Id.,* col. 10, ll. 35–36.

The expert testimony submitted by IV is not to the contrary. Dr. Wells testified:

> Figs. 3, 5, 6, and 7 show[ ] the instances of DP RAM enable 202 (Fig. 3 reproduced below as an example). Although all four instances of DP RAM enable 202 are shown with the same reference designator ("202"), there are multiple instances to facilitate data transfer. On the left hand side of TDM bus 17, at least two instances are required to service each and every DSP (i.e., caller). On the right hand side of the TDM bus 17, multiple instances are required to service each and every DSP (i.e., caller). In a typical GSM case, the

> number DP RAM enable 202 could easily exceed 100 separate devices.

J.A. 3356–57 (declaration of Dr. Wells).

The PTAB's conclusion that mapping data to a specific DSP is not accomplished by the DP RAM Enable 202 depicted in Figure 6 is unsupported by substantial evidence. As diagrammed in Figure 6, data can only be routed off the TDM bus to a single DSP, a single destination. The DP RAM Enable 202 in Figure 6 of the '480 patent informs receiver 212 and FIFO DATA 214 that available data should be retrieved off the TDM bus, and transmitted onto the corresponding DSP Processor. Each TDM FIFO Receiver is connected to a single DSP Processor, and the instance of DP RAM Enable 202 contained in the TDM FIFO Receiver communicates with its corresponding receiver 212, also contained therein, as to the appropriate timeslot to pull data off the bus. The '480 patent states, referencing Figure 8, a "flowchart of [ ] operations":

> An available modulator DSP and demodulator DSP resource are then identified (step 303) by examining a list 33 of free DSP resources maintained in a memory portion 31 of the basestation controller 30 (FIG. 1). The list 33 is updated by removing the two DSPs once allocated.
>
> . . .
>
> In the next step (306), the appropriate destination and source information is written into the various TDM bus drivers and receivers.
>
> In particular, given a receive channel identification, a receive channel signal time slot on the TDM bus is thus identified. The corresponding location of the enable DP-RAM 202 in the TDM DP driver 144 associated with this time slot is then

> set to a logical "1" in the manner already described.
>
> Next, a logical "1" is also written into the enable DP-RAM in the TDM receiver 182-1 associated with the DSP demodulator 18-1 which was identified as being an available resource. If the per-channel bandwidth is greater than that which can be supported by a single timeslot, then a sufficient number of logical "1"s are written into the appropriate locations.
>
> Also, now given a transmit channel identification, the free DSP modulator 18-2 is enabled (step 306) to use the TDM bus 16, by writing a logical "1" into the enable DP-RAM of the TDM driver 180-2 connected to the available one of the DSP modulators 18-2. To complete the connection, a logical "1" is also written into the location of the TDM DP receiver 244 associated with the identified transmit channel.

'480 patent, col. 10, l. 52 – col. 11, l. 27; *see also* Figs. 2 and 6.

The DP RAM Enable 202 permits or blocks data to pass through "an enabled time slot to FIFO Data 214," as the PTAB found. But it is this activity across the plurality of TDM FIFO Receivers, one contained in each DSP in the '480 patent's basestation, as shown in Figure 1, that actually "determine[s] which slot is associated with which DSP." Rehearing Dec. 7 (concluding the opposite); *see also* '480 patent, col. 8, ll. 11–18; col. 10, ll. 34–43. The expert testimony is in accord. J.A. 2879–92 (deposition testimony of Dr. Stark); J.A. 2513 (¶31) (reply declaration of Dr. Stark); J.A. 3349–52 (expert declaration of Dr. Wells).

Substantial evidence does not support the PTAB's ruling of nonobviousness in view of the '480 patent in combination with the GSM reference.[5]

III

PATENTABILITY OF CLAIMS 2–16

The PTAB did not discuss patentability of dependent claims 2–16, having found that claim 1, as the broadest claim, is patentable. Since we now reverse the decision as to claim 1, the dependent claims require analysis. We remand for this purpose.

CONCLUSION

We have considered all of the arguments presented by both sides, and conclude that claim 1 is not patentable. We reverse the decision as to claim 1. We vacate the decision as to claims 2–16, and remand for determination of patentability of claims 2–16.

REVERSED IN PART, VACATED IN PART, AND REMANDED

COSTS

No costs.

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[5] Our colleague in dissent states that we make no "findings regarding motivation to combine" these references. Dissent 9. However, the '480 patent itself teaches the combination, reciting "frequency hopping standards such as the [GSM]." '480 patent, col. 5, ll. 4–17.

United States Court of Appeals for the Federal Circuit

ERICSSON INC., TELEFONAKTIEBOLAGET LM ERICSSON,
Appellants

v.

INTELLECTUAL VENTURES I LLC,
Appellee

2016-1671

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2014-00963.

WALLACH, *Circuit Judge*, dissenting.

The Supreme Court has made clear that "[a] court reviewing an agency's adjudicative action should accept the *agency's* factual findings if those findings are supported by substantial evidence . . . . The court should not supplant the agency's findings merely by identifying alternative findings that could be supported by substantial evidence." *Arkansas v. Oklahoma*, 503 U.S. 91, 113 (1992) (citation omitted); *see, e.g.*, *Consolo v. Fed. Mar. Comm'n*, 383 U.S. 607, 620 (1966) (explaining that, under substantial evidence review, "the possibility of drawing two inconsistent conclusions from the evidence does not prevent an administrative agency's finding from being supported by substantial evidence" (citations omitted)).

We have applied this principle when reviewing final written decisions of the U.S. Patent and Trademark Office's Patent Trial and Appeal Board ("PTAB"). *See, e.g.*, *Elbit Sys. of Am., LLC v. Thales Visionix, Inc.*, 881 F.3d 1354, 1356 (Fed. Cir. 2018) (similar). By reversing the PTAB's findings as to claim 1,[1] the majority contravenes this precedent and improperly substitutes its own factual findings for those of the PTAB.[2] Therefore, I respectfully dissent.

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[1] The PTAB found that claims 1–10 and 12–16 of U.S. Patent No. 6,952,408 ("the '408 patent") were not anticipated by U.S. Patent No. 5,592,480 ("Carney") and that claims 1–16 of the '408 patent would not have been obvious over a combination of, inter alia, Carney and European Telecommunications Standards Institute, Global System for Mobile Communications, Recommendation 05.02: Multiplexing and Multiple Access on the Radio Path, December 1995, Version 3.8.0 ("GSM 05.02"). *See Ericsson Inc. v. Intellectual Ventures I LLC*, IPR2014-00963 (P.T.A.B. Oct. 22, 2015) (J.A. 1–34); *see also Ericsson Inc. v. Intellectual Ventures I LLC*, IPR2014-00963 (P.T.A.B. Dec. 22, 2015) (J.A. 35–46) (denying request for rehearing). I use "the Challenged Claims" to refer to claims 1–10 and 12–16 when discussing anticipation and to refer to claims 1–16 when discussing obviousness.

[2] The majority finds claim 1 unpatentable for both anticipation and obviousness, such that much of its analysis is advisory. *See FCC v. Pacifica Found.*, 438 U.S. 726, 734–35 (1978) ("However appropriate it may be for an administrative agency to write broadly in an adjudicatory proceeding, federal courts have never been empowered to issue advisory opinions."); *cf. In re Gleave*, 560 F.3d 1331, 1338 (Fed. Cir. 2009) (declining to address alternative grounds of unpatentability when the court upholds one such ground). Because the majority holds

DISCUSSION

I. Substantial Evidence Supports the PTAB's Determination that Carney Does Not Anticipate the Challenged Claims

"[A] prior art reference will anticipate if it discloses each and every element of the claimed invention." *Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1341 (Fed. Cir. 2016) (internal quotation marks, brackets, ellipsis, and citation omitted). "Anticipation is a question of fact that we review for substantial evidence." *Id.* (citation omitted). Substantial evidence is "such relevant evidence as a reasonable mind might accept as adequate to support a conclusion." *Consol. Edison Co. v. NLRB*, 305 U.S. 197, 229 (1938) (citations omitted).

Illustrative claim 1 recites, inter alia, "changing from a first of said physical [radiofrequency ('RF')] channels upon which said mobile subscribers communicate with said base[ ]station to a second of said physical RF channels, while maintaining a same logical channel." '408 patent col. 13 ll. 24–27 (the "frequency hopping" limitation). The PTAB found that Appellants Ericsson Inc. and Telefonaktiebolaget LM Ericsson (together, "Ericsson")

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claim 1 unpatentable for obviousness, it need not address anticipation. On the other hand, because the majority holds claim 1 unpatentable as anticipated, it need only address obviousness with respect to claim 11, as the PTAB found claim 11 nonobvious but did not determine whether it was anticipated. *See* J.A. 3. Nevertheless, I would find the Challenged Claims neither anticipated nor obvious and, thus, must address both grounds of unpatentability. *See In re Hodges*, 882 F.3d 1107, 1111–17 (Fed. Cir. 2018) (determining that claims were not anticipated and then considering whether claims would have been obvious).

failed to show by a preponderance of the evidence that Carney disclosed the "frequency hopping" limitation, such that Carney did not anticipate the Challenged Claims. J.A. 19. The majority holds that the PTAB's finding is "contrary to the evidence." Maj. Op. 15. I respectfully disagree because substantial evidence supports the PTAB's finding.

The majority errs by conducting a more exacting review than substantial evidence requires. In support of its conclusion, the majority cites Carney's specification's reference to "frequency hopping standards such as the [Groupe Spéciale Mobile ('GSM')], personal communication network (PCN) standards, and the like." Carney col. 5 ll. 14–17; *see* Maj. Op. 14–15. However, the PTAB thoroughly considered this passage from Carney, as well as Ericsson's expert's testimony regarding how a person having ordinary skill in the art ("PHOSITA") would have understood it, and found that it did not disclose frequency hopping. *See* J.A. 13–18. Specifically, the PTAB found that "this passage states, at most, that the system described in [Carney] supports the *modulation* specified by the GSM standard," J.A. 17, but that Carney "does not state, explicitly or implicitly, that the described system implements the optional frequency hopping functionality of GSM," J.A. 18. As the PTAB explained, *see* J.A. 17, when read in context, Carney refers to the GSM standard's modulation functionality, *see* Carney col. 5 ll. 6–17 (stating that "[t]he RF carrier signals are *modulated* with voice and/or data (channel) signals" and that "[t]he *particular modulation* in use[] may be any one of a number of different wireless . . . standards . . . , frequency hopping standards such as the [GSM] . . . , and the like" (emphases added)). Appellee Intellectual Ventures I LLC's ("IV") expert testified that the disputed passage "actually means . . . that [a base station] can support GSM, and then it characterizes GSM as a frequency hopping standard. It doesn't say that it supports frequency hopping."

J.A. 2559; *see* J.A. 3342 (stating, in IV's expert's declaration, that "the hopping feature is an optional portion of the GSM specification and does not need to be implemented in a base station or deployed by a network operator" and, thus, Carney "does not indicate that its base[ ]station is in compliance with the GSM frequency hopping standard"); *see also* J.A. 39 (first quoting J.A. 2559; then citing J.A. 3342).[3] Moreover, when the PTAB questioned Ericsson's expert about this disclosure, he acknowledged that the GSM standard's frequency hopping functionality is optional and that its modulation functionality does not vary, even if the optional frequency hopping functionality is not employed. *See* J.A. 672 (Q: "And you can use the same modulation regardless of whether you are using frequency hopping or not, is that right?" A: "Exactly. . . . It is all the same."); *see also* J.A. 37–38 (rejecting Ericsson's contention that the PTAB misapprehended Ericsson's expert's testimony). Taken together, this constitutes substantial evidence supporting

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[3] Although the majority states that IV's expert's testimony "contradict[ed]" Carney, Maj. Op. 16, the majority fails to explain how IV's expert's testimony is inconsistent with Carney, particularly in light of Carney's disclosure of the GSM standard for its modulation rather than frequency hopping functionality, *see id.* at 12–17. IV's expert's testimony was consistent with Carney's disclosures, and "[t]he PTAB [wa]s entitled to weigh the credibility of the witnesses." *Elbit*, 881 F.3d at 1358 (internal quotation marks and citation omitted); *see Inwood Labs., Inc. v. Ives Labs., Inc.*, 456 U.S. 844, 856 (1982) ("Determining the weight and credibility of the evidence is the special province of the trier of fact."); *see also* J.A. 18 ("[W]e do not credit [Ericsson's expert]'s testimony on this point."), 39 ("We continue to credit [IV's expert]'s testimony."). Therefore, I think it improper to second guess the PTAB's credibility determinations here.

the PTAB's finding that Carney does not disclose the "frequency hopping" limitation. *See Yangzhou Bestpak Gifts & Crafts Co. v. United States*, 716 F.3d 1370, 1378 (Fed. Cir. 2013) ("[Substantial evidence review] requires [the agency] to examine the record and articulate a satisfactory explanation for its action." (citation omitted)).

The majority does not explain why this evidence is insufficient to support the PTAB's finding. *See* Maj. Op. 12–17. Instead, it "reweigh[s] th[e] evidence," *In re Warsaw Orthopedic, Inc.*, 832 F.3d 1327, 1333 (Fed. Cir. 2016), and "identif[ies] alternative findings that could be supported by substantial evidence," *Arkansas*, 503 U.S. at 113; *see* Maj. Op. 13–15 (stating that "[e]ach term of claim 1 . . . is recited in [Carney]," summarizing the evidence that purportedly supports its conclusion, and stating that the PTAB's opposite conclusion is "contrary to the evidence"). Because "[t]his court does not reweigh evidence on appeal, but rather determines whether substantial evidence supports the [PTAB]'s fact findings," *In re NTP, Inc.*, 654 F.3d 1279, 1292 (Fed. Cir. 2011), I would affirm the PTAB's finding that Carney does not anticipate the Challenged Claims as supported by substantial evidence.

II. Substantial Evidence Supports the PTAB's Determination that the Challenged Claims Would Not Have Been Obvious over a Combination of Carney and GSM 05.02

Obviousness is a question of law based on underlying findings of fact, which we review for substantial evidence. *See In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000). In assessing whether claims would have been obvious over a combination of prior art references, we consider, inter alia, whether a PHOSITA "would have been motivated to combine the teachings of the prior art references to achieve the claimed invention[] and . . . would have had a reasonable expectation of success in doing so." *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367–68 (Fed. Cir. 2016) (internal quotation marks

and citations omitted). We also consider whether the combination would have worked for its intended purpose. *See In re NuVasive*, 841 F.3d 966, 974 (Fed. Cir. 2016).

The PTAB determined that Ericsson failed to show that a PHOSITA "would have had a reasonable expectation of success in combining the teachings of [Carney] and GSM 05.02" or that "its proposed combination would have worked for its intended purpose, as it would not have performed frequency hopping." J.A. 32. The majority concludes that "[s]ubstantial evidence does not support the PTAB's ruling of nonobviousness in view of [Carney] in combination with . . . GSM [05.02]." Maj. Op. 22 (footnote omitted). I respectfully disagree and would hold that substantial evidence supports the PTAB's finding.

Once again, the majority conducts a more exacting review than substantial evidence requires. In reaching its conclusion, the majority fails to explain why the PTAB's factual findings are not supported by substantial evidence. *See id.* at 17–22. Instead, similar to its anticipation findings, the majority "reweigh[s] th[e] evidence," *In re Warsaw*, 832 F.3d at 1333, and "identif[ies] alternative findings that could be supported by substantial evidence" to justify its conclusion of obviousness, *Arkansas*, 503 U.S. at 113; *see* Maj. Op. 21 (finding that Carney's DP RAM Enable 202 "determines which slot is associated with which DSP," which is directly contrary to the PTAB's conclusion (internal quotation marks, brackets, and citation omitted)); *see also* J.A. 41 (finding that Carney's DP RAM Enable 202 "*does not* determine which slot is associated with which DSP" (emphasis added)). However, the PTAB considered the very evidence cited by the majority, weighing the testimony of the parties' experts against the teachings of the prior art, *see* J.A. 19–33, and determined that reprogramming Carney's DP RAM Enable 202 would not be sufficient to implement frequency hopping on the base station, J.A. 26.

For example, Ericsson argued that Carney's DP RAM Enable 202 could be reprogrammed to map between RF channels and DSPs through TDM time slots. *See* J.A. 25. Relying on Carney's disclosures, the PTAB rejected this argument and determined that the association between RF channels and DSPs is maintained by Carney's DP RAM Data 204, *see* J.A. 26 (citing Carney col. 10 ll. 4–17), and that the DP RAM Enable 202 only stores indications of whether time slots are active or inactive rather than mapping RF signals to DSPs, *see* J.A. 27 (citing Carney col. 9 ll. 59–63, col. 10 ll. 9–17). Moreover, IV's expert explained that Carney "cannot generate the frequency hopping sequence according to . . . GSM 05.02 . . . through programming the DP RAM [E]nable 202 alone" because the DP RAM Enable 202 only "is capable of storing 1[]s and 0[]s representing enabled time slots and associated logical channels of the DSPs," J.A. 3353, as the PTAB explained, *see* J.A. 25–27. In contrast, the PTAB found Ericsson's expert's testimony to be "inconsistent with the description in [Carney]," J.A. 29, and "incomplete," J.A. 32, and, thus, "g[a]ve his testimony little weight," J.A. 29. The PTAB's thorough findings, which are supported by detailed citations to the '408 patent's specification, the prior art references, and the experts' testimonies, *see* J.A. 19–33, 39–42, are more than sufficient to withstand substantial evidence review, *see Yangzhou Bestpak*, 716 F.3d at 1378.

Even if the majority is correct that the PTAB's findings regarding reasonable expectation of success are not supported by substantial evidence, the majority commits legal error by finding obviousness without identifying a motivation to combine, a required element of obviousness. Reasonable expectation of success and motivation to combine are "two different legal concepts" that should not be "conflated." *Intelligent Bio-Sys.*, 821 F.3d at 1367. Finding the absence of either element is sufficient to establish *non*obviousness. *See id.* (explaining that, even

though the PTAB erroneously "conflated" reasonable expectation of success and motivation to combine, "it nevertheless made sufficient factual findings to support its judgment that the claims at issue are *not invalid*" by finding absence of a motivation to combine (emphasis added)). However, finding only that a PHOSITA had a reasonable expectation of success is *not* sufficient to establish motivation to combine and, thus, obviousness. *See id.* (explaining that "one must have a motivation to combine *accompanied by* a reasonable expectation" of success (emphasis added)). Therefore, the PTAB's finding that a PHOSITA would not have had a reasonable expectation of success in combining Carney and GSM 05.02 was sufficient to establish nonobviousness. J.A. 32; *see Intelligent Bio-Sys.*, 821 F.3d at 1367. In contrast, to adequately support reversal, the majority's finding of a reasonable expectation of success must be "accompanied by" a finding of a motivation to combine. *Intelligent Bio-Sys.*, 821 F.3d at 1367. Nevertheless, the majority neither makes any findings regarding motivation to combine, *see* Maj. Op. 17–22, nor could it, *see Intelligent Bio-Sys.*, 821 F.3d at 1366 ("The presence or absence of a motivation to combine references in an obviousness determination is a pure question of fact." (internal quotation marks and citation omitted)); *see also Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1365 (Fed. Cir. 2015) ("[W]e must not ourselves make factual and discretionary determinations that are for the agency to make." (citations omitted)).

The PTAB's finding that a PHOSITA would not have had a reasonable expectation of success in combining Carney with GSM 05.02 is supported by substantial evidence, including Carney's disclosures and IV's expert's testimony. Therefore, I would affirm the PTAB's finding of nonobviousness.

III. Dependent Claims 2–16 Are Patentable for the Same Reasons as Independent Claim 1

The majority states that "[t]he PTAB did not discuss patentability of dependent claims 2–16" and "remand[s these claims] for th[at] purpose" without explanation. Maj. Op. 22. However, claims 2–16 rise or fall with independent claim 1.

Before the PTAB, the parties did not present developed arguments regarding dependent claims 2–16, with the exception of claim 5. *See* J.A. 19, 33 (finding the dependent claims patentable for the same reasons as claim 1); *see also* Appellants' Br. 42 ("The [PTAB]'s anticipation ruling addressed only claim 1 because IV disputed only whether [Carney] taught its elements."), 65 ("Other than contesting Ericsson's proof regarding the limitations of independent claim 1, the only dependent claim that IV separately defended before the [PTAB] was claim 5."). In its final written decision, the PTAB thus designated claim 1 as illustrative, J.A. 7, and the parties did not challenge that designation on appeal, *see generally* Appellants' Br.; Appellee's Br. Indeed, the parties' arguments once again rest upon claim 1. *See* Appellants' Br. 42, 64–66 (stating that claims 2–16 are unpatentable for the same reasons as claim 1); Appellee's Br. 16–50 (failing to separately argue any of the Challenged Claims). *But see* Appellee's Br. 51–52 (arguing that, should we hold the PTAB erred in its finding of non-obviousness, claim 5 must be remanded because the PTAB failed to address separate arguments made with respect to its dependent limitation).[4] In light of its determination that claim 1 is unpatentable, claims 2–4 and 6–16, at minimum, are therefore unpatentable. *See In re Affinity Labs of Tex.,*

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[4] The majority's failure to justify its remand of all of the dependent claims is even more concerning given that IV seeks remand of only claim 5.

LLC, 856 F.3d 883, 894 n.6 (Fed. Cir. 2017) (finding the independent claims "dispositive of all" claims because the appellant-patent-owner "did not argue to the [PTAB] that the dependent claims were separately patentable and . . . does not argue the claims separately on appeal"); *In re Kaslow*, 707 F.2d 1366, 1376 (Fed. Cir. 1983) ("Since the claims are not separately argued, they all stand or fall together."). Nevertheless, because I would affirm the PTAB's determination that claim 1 is not unpatentable, I also would affirm the PTAB's conclusion that claims 2–16 are not unpatentable. *See In re Kaslow*, 707 F.2d at 1376.

CONCLUSION

The majority improperly steps out of the appellate role and substitutes its own interpretation of the evidence for the PTAB's. The proper inquiry, however, is not how we would have interpreted the evidence in the first instance; it is whether substantial evidence supports the PTAB's findings. Even if the majority's anticipation and obviousness determinations are supported by substantial evidence, so are the PTAB's, such that "two inconsistent conclusions" may be reasonably drawn from the evidence. *Consolo*, 383 U.S. at 620 (citations omitted). Because we must affirm under such circumstances, I respectfully dissent.