

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AT&T MOBILITY LLC, AT&T SERVICES INC., ERICSSON INC.,
NOKIA OF AMERICA CORPORATION, and T-MOBILE USA, INC.,
Petitioner,

v.

DAINGEAN TECHNOLOGIES LTD.,
Patent Owner.

IPR2024-00402
Patent 10,841,958 B2

Before CHRISTOPHER L. OGDEN, RUSSELL E. CASS, and
MARY C. HOFFMAN, *Administrative Patent Judges*.

HOFFMAN, *Administrative Patent Judge*.

JUDGMENT

Final Written Decision

Granting Patent Owner's Request to Cancel All Challenged Claims
Granting Patent Owner's Revised Non-Contingent Motion to Amend
35 U.S.C. § 318(a)

I. INTRODUCTION

A. BACKGROUND

AT&T Mobility LLC, AT&T Services Inc., Ericsson Inc., Nokia of America Corporation, and T-Mobile USA, Inc. (collectively, “Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claims 1–4 of U.S. Patent No. 10,841,958 (Ex. 1001, “the ’958 patent”). Daingean Technologies Ltd. (“Patent Owner”) filed a Preliminary Response (Paper 10, “Prelim. Resp.”). Applying the standard set forth in 35 U.S.C. § 314(a), we instituted an *inter partes* review as to all claims and grounds set forth in the Petition. Paper 12 (“Inst. Dec.”).

After institution, Patent Owner filed a non-contingent Motion to Amend (Paper 20) proposing substitute claims 7–10 and requesting the Board’s Preliminary Guidance regarding its motion. Petitioner filed a Response in Opposition to Patent Owner’s Motion to Amend (Paper 22). The Board provided Preliminary Guidance on Patent Owner’s Motion to Amend (Paper 23, “PG”). Patent Owner subsequently filed a non-contingent Revised Motion to Amend (Paper 24, “RMTA”) proposing substitute claims 7 and 8 to replace original claims 1 and 3 as well as canceling original claims 2 and 4. Petitioner then filed a Response in Opposition to Patent Owner’s Revised Motion to Amend (Paper 26, “Opposition” or “Opp.”), Patent Owner filed a Reply (Paper 30, “PO Reply”), and Petitioner filed a Sur-reply (Paper 32, “Pet. Sur-reply”). We held an oral hearing on May 19, 2025, and the transcript (Paper 35, “Tr.”) is of record.

We have jurisdiction under 35 U.S.C. § 6. This Decision is a Final Written Decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 as to the patentability of the challenged claims. For the reasons explained below, we

grant Patent Owner’s Revised Motion to Amend. Because the motion is non-contingent, we provide a final decision on the patentability of substitute claims 7 and 8 instead of original claims 1–4, and we determine Petitioner has not shown, by a preponderance of the evidence, that proposed substitute claims 7 and 8 in the ’958 patent are unpatentable.

B. REAL PARTIES IN INTEREST

Petitioner identifies AT&T Corp., AT&T Mobility LLC, AT&T Mobility II LLC, AT&T Services Inc., Ericsson Inc., Nokia of America Corporation, and T-Mobile USA, Inc. as the real parties in interest. Pet. 1. Patent Owner identifies itself, Daingean Technologies Ltd., as the real party in interest. Paper 6, 2.

C. RELATED PROCEEDINGS

The parties identify *Daingean Tech. Ltd. v. AT&T Inc. et al.*, 2:23-cv-00123-JRG (E.D. Tex.) as challenging the ’958 patent in federal district court. Pet. 1; Paper 6, 2. Patent Owner also identifies *Daingean Tech. Ltd. v. T-Mobile USA, Inc. et al.*, No. 2:23-cv-00347 (E.D. Tex.) and *Daingean Tech. Ltd. v. Apple Inc.*, No. 2:23-cv-00347 (S.D. Cal.) (dismissed).¹ Paper 6, 2.

II. BACKGROUND

A. THE ’958 PATENT (EX. 1001)

The ’958 patent relates to “requesting, transmitting, and using system information (SI) in wireless communications.” Ex. 1001, 1:13–16.

¹ We understand Patent Owner to be referring to *Daingean Tech. Ltd. v. Apple Inc.*, No. 3:23-cv-01560 (S.D. Cal.).

The patent describes an access node that broadcasts system information to its coverage area via System Information Blocks (SIBs). Ex. 1001, 1:39–41. Upon entering the coverage area, a wireless terminal (UE) obtains certain SIBs necessary to access the system. *Id.* at 1:43–45. The access node transmits SIBs required for system access (“first type system information” or “essential system information”) separately from SIBs not required for access (“second type system information” or “non-essential”). *Id.* at 8:34–47.

The access node periodically broadcasts first type system information in Essential System Information messages. Ex. 1001, 9:52–56. These messages include information about the second type system information, including 1) a value tag that identifies a version of the second type system information, and 2) scheduling information indicating whether the second type system information is on-demand or broadcast. *Id.* at 10:47–53, 15:38–43.

A wireless terminal requests second type system information when it determines that the second type system information has been modified. Ex. 1001, 11:64–12:7. The wireless terminal makes this determination by comparing the value tag in the Essential System Information (i.e., first type SIB) with its stored valued tag. *Id.*; *id.* at Fig. 9. In response to a request from the wireless terminal, the access node may unicast or broadcast non-essential second type system information. *Id.* at 15:16–18; Figs. 23 (step 23-3), 24 (step 24-3). The broadcast can be in compressed format. *Id.* at 12:33–13:17, Fig. 35 (step 35-m).

To request second type system information, the wireless terminal uses a value tag. Ex. 1001, 9:38–45, 14:12–19. A value tag may be uniquely

associated with a single non-essential SIB. *Id.* at 10:46–50. Alternatively, a value tag may be associated with a group of non-essential SIBs, as seen below in Figure 15. *Id.* at 14:3–12.

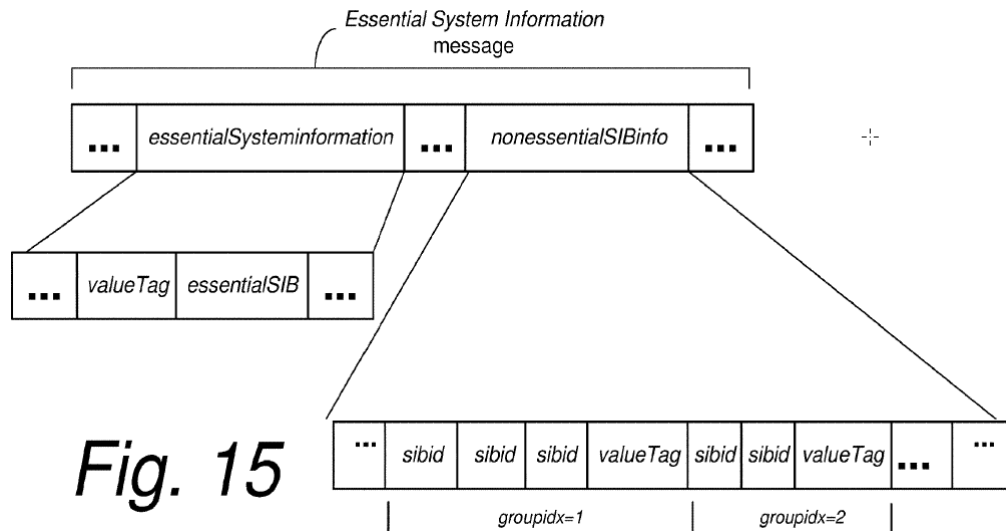


Fig. 15

Figure 15, above, illustrates an Essential System Information message, which includes “essentialSysteminformation” (i.e., the first type of system information) needed for the wireless terminal to initiate the system access procedure. Ex. 1001, 10:4–8. The Essential System Information message also includes a “nonEssentialSIBInfo” information element, which includes identification (“sibid” or “sibID”) of the non-essential (e.g., second type) SIBs. *Id.* at 9:64–66; 10:48–62. As seen in the figure, a single “valueTag” may be associated with a group of sibIDs. *Id.* at 13:52–14:7. When the content of at least one non-essential or second type SIB belonging to a group changes, the associated valueTag is updated. *Id.* Furthermore, each group may be associated with a group identifier (“groupidx”). *Id.* at 14:7–10. In this way, the Essential System Information message advertises non-essential SIB groups having a particular group identifier and a particular value tag. *Id.* at 14:12–19. Using that information, a wireless terminal can

request, from the access node, the contents of the non-essential SIBs belonging to the group. *Id.*, Fig. 16 (at step 16-4). The access node then transmits the requested content to the wireless terminal. *Id.*; Fig. 16 (at step 16-5). The contents may be transmitted in compressed format, in which only changed parameters of the non-essential SIBs are provided to the wireless terminal. *See, e.g., id.* at 12:33–13:17, Fig. 11 (step 11-5), Fig. 19 (step 19-5), Fig. 35 (step 35-m).

B. ASSERTED GROUNDS OF UNPATENTABILITY IN THE PETITION

The Petition challenges original claims 1–4 of the ’958 patent. Pet. 3. In support of its arguments in the Petition (and subsequent Opposition to Patent Owner’s Motion to Amend), Petitioner relies on declarations of Dr. Wayne Stark. Exs. 1002, 1010. Patent Owner relies on declarations of Dr. Karthikeyan Sundaresan. Exs. 2002, 2006. Additionally, the record includes the deposition transcript of Dr. Sundaresan. Ex. 1011.

III. PATENT OWNER’S REVISED MOTION TO AMEND

In its non-contingent Revised Motion to Amend, Patent Owner proposes substitute claims 7 and 8. *See* RMTA. Because Patent Owner’s revised motion is non-contingent, we address only the patentability of substitute claims 7 and 8 in this Decision; we do not address the patentability of original claims 1–4, which are cancelled.

A. PROPOSED SUBSTITUTE CLAIMS

Proposed substitute claim 7 reads as follows, with underlined material added and bracketed material deleted relative to original claim 1 (and with bracketed numbers and letters added for reference purposes).²

7. [7pre] An access node of a radio access network that communicates over a radio interface with a wireless terminal, the access node comprising:

[7a] processor circuitry configured:

[7b] to generate a first type system information block (SIB) comprising information and a value tag associated with a group of plural second type system information blocks fewer than the total number of second type information blocks, wherein each of the second type information blocks in the group has different sibIDs and the group has a group identifier, the information indicating whether one or more associated second type system information blocks are provided by broadcast or on-demand, the value tag being updated upon a change of a corresponding second type SIB belonging to the group, the first type SIB being required for the wireless terminal to perform an initial access to the radio access network;

[7c] upon a change of a second type SIB belonging to the group whose associated information indicated before the change that the group containing the second type SIB was provided on-demand, to include in the first type SIB the information associated with the group containing the second type SIB indicating that the group containing the second type SIB is provided by broadcast;

[7d] transmitter circuitry configured to:

[7e] transmit the first type SIB;

[7f] transmit a message that triggers the wireless terminal to receive the first type SIB, wherein;

² The bracketed numbers and letters in proposed substitute claim 7 parallel the bracketed numbers and letters in original claim 1 as indicated in the Petition. Pet. iv.

[7g] whether or not the second type SIB belonging to the group has changed is determined based on a value tag, associated with the group containing the second type SIB, stored in the wireless terminal, and the value tag included in the first type SIB corresponding to the group containing the second type SIB; and [.]

[7h] transmit by broadcast after the change the group identifier and the group containing the second type SIB in compressed format including only changed ones of plural parameters of the group containing the second type SIB based on a comparison of the value tag, associated with the group containing the second type SIB, stored in the wireless terminal, and the value tag included in the first type SIB corresponding to the group containing the second type SIB.

RMTA 22–23 (App. A).

Proposed substitute claim 8 recites a method including similar subject matter. RMTA 23–24 (App. A).

B. APPLICABLE STATUTORY AND REGULATORY REQUIREMENTS

When considering a motion to amend, the Board “must determine whether the motion to amend meets the statutory and regulatory requirements set forth in 35 U.S.C. § 316(d) and 37 C.F.R. § 42.121.” *See Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 15 at 4 (PTAB Feb. 25, 2019) (precedential). A “patent owner bears the burden of persuasion to show, by a preponderance of the evidence, that the motion to amend complies” with the applicable statutory and regulatory requirements. 37 C.F.R. § 42.121(d)(1). Specifically, a patent owner must demonstrate the following: (1) the amendment proposes a reasonable number of substitute claims; (2) the amendment responds to a ground of unpatentability involved in the trial; (3) the amendment does not seek to enlarge the scope of the claims of the patent; and (4) the amendment does not introduce new matter.

See 35 U.S.C. § 316(d); 37 C.F.R. § 42.121(a)–(b). For the reasons explained below, Patent Owner satisfies its burden of persuasion to show that the amendments comply with the applicable statutory and regulatory requirements.

1. Reasonable Number of Substitute Claims

A motion to amend must propose a reasonable number of substitute claims. 35 U.S.C. § 316(d)(1)(B); 37 C.F.R. § 42.121(a)(3). Patent Owner has shown it proposes a reasonable number of substitute claims. Patent Owner reasonably proposes two substitute claims (claims 7 and 8) to replace four challenged claims (claims 1–4).³ RMTA 2. Petitioner does not argue otherwise. *See generally* Opp.

2. Respond to Ground of Unpatentability

A motion to amend must respond to a ground of unpatentability involved in the proceeding. 37 C.F.R. § 42.121(a)(2)(i). Patent Owner’s claim amendments add limitations and attempt to distinguish the proposed substitute claims from the prior art relied on in the Petition. RMTA 10–11. Accordingly, Patent Owner has responded to a ground of unpatentability involved in this proceeding. Petitioner does not argue otherwise. *See generally* Opp.

3. Scope of Amended Claims

A motion to amend may not enlarge the scope of the claims of the patent. 35 U.S.C. § 316(d)(3); 37 C.F.R. § 42.121(a)(2)(ii).

In its Revised Motion to Amend, Patent Owner asserts that proposed substitute claims 7 and 8 do not enlarge the scope of the claims because

³ Patent Owner indicates that it is cancelling original claims 2 and 4. RMTA 2.

“Patent Owner made no substantive deletions to the original limitations.”

RMTA 2. Conversely, Petitioner argues that the substitute claims enlarge the scope of the claims because certain added limitations change the meaning of the claims such that the substitute claims cover subject matter excluded from the original claims. Opp. 2. For the reasons explained below, we are persuaded by Patent Owner that the substitute claims do not enlarge the scope of the claims.

Limitations 7g and 8e

Petitioner argues that “limitations 1g and 3e of the original claims required that ‘whether or not the second type SIB has changed [be] determined based on a value tag, associated with the second type SIB.’” Opp. 2 (alteration in original). Thus, according to Petitioner, the original claims

required a 1:1 relationship between the value tag and the second type SIB, so that if the second type SIB changed, the value tag would indicate that the change had occurred, and if the second type SIB had not changed, then the value tag would likewise indicate that no change had occurred. As a result, whether the second type SIB had changed could be determined by checking a single value tag, and a system that did not indicate whether a particular second type SIB had changed through its corresponding value tag would fall outside the scope of the claim.

Id. at 2–3 (citing Ex. 1010 ¶ 27; PG 5). Petitioner further argues that substitute claims 7 and 8 no longer recite this 1:1 requirement. *Id.* at 3–4 (citing Ex. 1010 ¶¶ 15, 28–30); *see also* Pet. Sur-reply 2–3 (arguing that the original claims require a 1:1 association between a single second type SIB and a single value tag).

Petitioner's above argument is similar to its earlier argument opposing Patent Owner's initial Motion to Amend. Paper 22, 2–3. In our Preliminary Guidance, we encouraged the parties to further address Petitioner's argument that the original claims require a 1:1 relationship in their additional briefing. PG 6–7 & n.1.

In its Revised Motion to Amend, Patent Owner addresses the concerns raised in the Preliminary Guidance, persuasively explaining that the original claims are not limited to a 1:1 relationship in which the determining is *solely* based on a value tag. RMTA 5–6. Patent Owner explains that, because the claims are “comprising” claims, there is no requirement that the determination is “exclusively” based on the value tag. *Id.* at 6 (citing *Regeneron Pharms., Inc. v. Merus NV*, 864 F. 3d 1343, 1352 (Fed. Cir. 2017)). Rather, the determining may be “in part” based on the value tag, for example, based on the value tag *and something else*, such as stored parameters identifiers. *Id.* at 6; Tr. 29:23–30:12 (discussing Ex. 1001, 13:1–17). We agree with Patent Owner that comprising claims do not exclude additional, unrecited elements, and we are persuaded that the original claims do not require a 1:1 relationship nor exclude determining based on a value tag and stored parameters identifiers.

Relatedly, Petitioner argues that the substitute claims introduce a shift in claim scope because the substitute claims require a determination based on “a value tag associated with the group containing the second type SIB,” whereas the original claims require “a value tag associated with the second type SIB.” Opp. 3. However, we agree with Patent Owner that a value tag associated with the group is also associated with the second type SIB,

“because the second type SIB is, by definition, in the group containing the second type SIB.” PO Reply 1 (internal quotation marks omitted).

Based on the forgoing, we do not agree with Petitioner that limitations 7g/8e enlarge the claim scope by including subject matter excluded from the original claims.

Limitations 7h and 8f

Petitioner also argues that limitations 7h/8f broaden the original claims to permit “a broadcast of only a part of the second type SIB.” Opp. 4–5 (explaining that a “compressed format” broadcast is a partial broadcast of the second type SIB). According to Petitioner, “[t]his partial broadcast would not have practiced the original claims” because original claim limitations 1c/3b require “an on-demand second-type SIB to be provided by broadcast.” *Id.* In other words, Petitioner argues that the original claims require broadcasting a *complete* second type SIB. *Id.*; *see also* Pet. Sur-reply 4–5 (explaining that the original claims required broadcasting the complete SIB—i.e., all SIB parameters—rather than only the SIB’s changed parameters).

However, as Patent Owner correctly points out, limitations 1c/3b do not require broadcasting the second type SIB. PO Reply 2–3. Limitations 1c/3b only require *information* indicating that the second type SIB is provided by broadcast. *Id.* As Patent Owner correctly argues, “there was no requirement to transmit any portion of a second type SIB in the original independent claims, so . . . there is still no requirement to transmit a complete second type SIB.” *Id.* at 3. Moreover, because original dependent claims 2 and 4 (now cancelled) include broadcasting of the second type SIB, this further demonstrates that original claims 1 and 3 do not require any

broadcasting of the second type SIB. *See* Ex. 1001, clms. 2, 4. Furthermore, we see nothing in the original claims or Specification indicating that any broadcast of the second type SIB need be “complete.” On the contrary, the ’958 patent explicitly discloses a partial broadcast. *See id.* at Fig. 35 (disclosing a broadcast in compressed format at step 35-m). As such, we also agree with Patent Owner that the original claims, which are “comprising” claims, do not exclude any unrecited elements such as a partial (i.e., in compressed format) broadcast. PO Reply 3–4. Thus, Patent Owner’s amendments, which limit the claim scope to broadcasts in compressed format, are not broadening.

4. *New Matter*

A motion to amend may not introduce new subject matter. 35 U.S.C. § 316(d)(3); 37 C.F.R. § 42.121(a)(2)(ii). New subject matter is any addition to the claims that lacks sufficient support in the subject patent’s original disclosure. *See TurboCare Div. of Demag Delaval Turbomach. Corp. v. Gen. Elec. Co.*, 264 F.3d 1111, 1118 (Fed. Cir. 2001) (“When [an] applicant adds a claim . . . , the new claim[] . . . must find support in the original specification.”). Patent Owner also is required to show written-description support in “the original disclosure of the patent for each proposed substitute claim,” and in “an earlier-filed disclosure for each claim for which benefit of the filing date of the earlier filed disclosure is sought.” 37 C.F.R. §§ 42.121(b)(1), 42.121(b)(2).

Patent Owner provides a table ostensibly showing written-description support for each limitation of proposed substitute claims 7 and 8 in each of the 16/597,325, 15/659,060, and 62/368,126 applications. RMTA 10.

Based on our best understanding of the arguments, Petitioner argues that limitations 7h/8f add new matter.⁴ Opp. 11; Pet. Sur-reply 8–11.

Limitations 7h/8f recites broadcasting based on a value tag comparison (i.e., “transmit by broadcast . . . the group containing the second type SIB in compressed format . . . based on a comparison of the value tag.” RMTA 23 (App. A). Patent Owner indicated in its motion that Figures 16 and 35 and paragraphs 86–88, 95, 98, 118, 119, and 153 of the ’325 application provide written description support for these limitations. *Id.* at 10. In its Reply, Patent Owner also highlights the ’958 patent’s disclosure of transmitting in compressed format based on the value tag comparison. PO Reply 9–10 (citing Ex. 1001, 13:1–17, 14:24–36⁵).

Petitioner argues, “[w]hile the patent mentions the ‘compressed format’ concept in several places, nowhere does the patent state or explain how such a compressed format transmission is determined or generated based on a comparison of value tags, much less a comparison of the value tag stored in a wireless terminal.” Opp. 11. Petitioner argues that the ’958 patent fails to “explain[] how a comparison of value tags could allow unchanged parameters from a group of SIBs to be either identified or excluded.” *Id.* This is because a group of SIBs would include multiple parameters, which could not be identified based on a single value tag. *Id.*

⁴ Petitioner argues that the substitute claims are indefinite, lack written description, and lack enablement under a single heading in its Opposition. Opp. 6–11.

⁵ These portions of the ’958 patent correspond to paragraphs 88 and 96 of the ’325 application as originally filed. Ex. 1007, 1638, 1640.

However, Petitioner's arguments are not commensurate with the scope of the claims. Limitations 7h/8f do not require that the compressed format transmission (i.e., the content of the broadcast) is determined or generated based on the value tag comparison, as argued by Petitioner. Limitations 7h/8f recite that the act of broadcast transmission—not the content of the broadcast—is what is “based on” the value tag comparison. Furthermore, as Petitioner admits, determining broadcast content based on a value tag would be “nonsense” because a single value tag cannot determine which parameter(s) among a plurality of parameters changed in order to generate the broadcast content. Opp. 11.

Petitioner also argues that the '958 patent does not disclose using the compressed format in a broadcast system nor broadcasting based on a comparison of a value tag stored in the wireless terminal. Pet. Sur-reply 9–10. Petitioner argues that both the compressed format and value tag comparison are described only in the context of on-demand systems. *Id.* We disagree. The '958 patent illustrates the compressed format in a broadcast system at least in Figure 35 (at step 35-m). Ex. 1001. The '958 patent also discloses that broadcasting, like on-demand, may be based on a comparison of a value tag stored in the wireless terminal. *Id.* at 11:64–12:7 (disclosing that a wireless terminal requests an updated second type SIB based on a value tag comparison), 15:3–18, 16:23–33 (disclosing that a requested updated second type SIB may be broadcast or unicast)⁶, Figs. 9, 20, 24, 25; *see also* Ex. 1007, 1660–61 (originally filed claims 2 and 4 disclose broadcasting after a change, where the change is determined based

⁶ These portions of the '958 patent correspond to paragraphs 81, 99, and 105 of the '325 application as originally filed. Ex. 1007, 1636, 1641, 1643.

on value tags). Furthermore, as Patent Owner points out, the patent teaches broadcast-after-update technology, which can be used with any of the disclosed embodiments. Tr. 31:1–9 (discussing Ex. 1001, Fig. 26); RMTA 4–5 (citing Ex. 1001, 16:57–60⁷), 10 (citing ¶ 118 of the '325 application).

For the above reasons, Patent Owner has shown that the proposed substitute claims do not introduce new subject matter.

5. *Conclusion as to Motion to Amend Statutory and Regulatory Requirements*

For the above reasons, Patent Owner has shown, by a preponderance of the evidence, that it has satisfied the statutory and regulatory requirements of 35 U.S.C. § 316(d)(3) and 37 C.F.R. § 42.121(a)(2)(ii).

C. ASSERTED GROUNDS OF UNPATENTABILITY IN THE OPPOSITION

We summarize the grounds advanced in the Petitioner's Opposition to Patent Owner's Revised Motion to Amend below:

⁷ This portion of the '958 patent corresponds to paragraph 108 of the '325 application as originally filed. Ex. 1007, 1644.

Ground	Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1A	7, 8	102(a)(2)	Lee ⁸
1B	7, 8	103	Lee
2	7, 8	103	Agiwal ⁹

Opp 12, 17.

IV. ANALYSIS

A. LEVEL OF ORDINARY SKILL IN THE ART

The level of ordinary skill in the art at the time of the invention is a factual determination that provides a primary guarantee of objectivity in an obviousness analysis. *Al-Site Corp. v. VSI Int’l Inc.*, 174 F.3d 1308, 1324 (Fed. Cir. 1999) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991)).

Petitioner asserts that a person of ordinary skill in the art (“POSITA”), on or around the filing date of the ’958 patent, “would have had a B.S. in Electrical Engineering or a related field with at least three years of experience designing, developing, and/or testing telecommunication

⁸ Lee et al., US 2019/0158988 A1, published May 23, 2019. Ex. 1004 (“Lee”). Petitioner avers, and Patent Owner does not contest, that this reference claims priority to U.S. Provisional Applications Nos. 62/334,418 (Ex. 1006), 62/334,427, 62/334,443, and 62/366,643, and “is prior art under at least post-AIA § 102(a)(2) as a published patent application naming another inventor and effectively filed prior to July 28, 2016.” Pet. 3.

⁹ Agiwal et al., US 2017/0251500 A1, published August 31, 2017. Ex. 1008 (“Agiwal”).

systems” and that “[m]ore education may supplement practical experience or *vice versa*.” Pet. 8 (citing Ex. 1002 ¶ 33).

In its Preliminary Response, “Patent Owner generally concurs . . . though would propose that a POSITA only needs two years of experience, and believes that the appropriate field is . . . ‘wireless communications, and particularly . . . methods and apparatus for requesting, transmitting, and using system information (SI) in wireless communications.’” Prelim. Resp. 18–19 (quoting Ex. 1001, 1:11–16) (third alteration in original); Ex. 2002 ¶ 15.

Both parties rely on expert testimony for their respective positions relating to the number of years of experience needed to attain ordinary skill, but neither expert cites supporting evidence for their testimony. *See* Ex. 1002 ¶ 33; Ex. 2002 ¶ 15. Our decision is the same regardless of whether the length of experience is two years or three.

We find Patent Owner’s proposed “wireless communications” is more consistent with the ’958 patent than Petitioner’s proposed “telecommunication,” which encompasses a variety of technologies including, e.g., landline and wireless telephones, cable, and satellite. *See* Ex. 1001, 1:11–62 (describing the invention in terms of wireless communications).

Accordingly, we adopt a modified version of Petitioner’s proffered level of ordinary skill in the art, substituting “wireless communications” for “telecommunication.” Neither party, moreover, indicates the overall result would change based on a different definition.

B. CLAIM CONSTRUCTION

In an *inter partes* review, the Board construes the terms of a patent claim “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b); *see Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc).

Limitations 7b/8a: Second Type SIB

Petitioner argues that substitute claims 7 and 8 “lack . . . any requirements for the second type SIBs.” Opp. 6–7. Petitioner argue that, because the second type SIB is undefined, “the first type SIB could also be a second type SIB.” *Id.*

Patent Owner argues that second type SIBs exclude first type SIBs. RMTA 13 (“The two types cannot overlap and are mutually exclusive”).

We agree with Patent Owner that the recited second type SIBs exclude first type SIBs. The plain meaning of “first type” and “second type” indicates that the first type and second type are different in kind. RMTA 22 (App. A). Our interpretation is consistent with the Specification, which explains that second type SIBs exclude first type SIBs. As Patent Owner points out, the ’958 patent discloses “first type of system information (1TYP SIB) is . . . essential . . . for initial system access” and “second type of system information (2TYP SIB) is nonessential system information . . . defined as all other types of information, and thus excludes the [] information required for initial access.” *Id.* at 11–12 (citing Ex. 1001, 8:34–46); *see also* Ex. 1001, Abstract (interchangeably using the terms second type and non-essential). Despite Petitioner’s argument that this disclosure is non-limiting and directed to a disclaimed example embodiment (Opp. 8–9),

Petitioner could not identify any embodiment, among the approximately forty disclosed embodiments, describing something other than the first type SIB being essential information and the second type SIB being non-essential information. Tr. 22:18–26. Even the Petition acknowledges that “the ’958 Patent further classifies a second type of system information, the ‘non-essential’ SI, which is defined as all other types of information excluding that first type of information required for initial access.” Pet. 5.

Furthermore, the prior art of record suggests that a person of ordinary skill would have understood second type SIBs exclude first type SIBs. *See* Ex. 1008 ¶ 48 (describing two categories of system information, “essential SI” and “Other SI”). Patent Owner’s expert also understood the recited first and second type SIBs as being mutually exclusive. *See* Ex. 1011, 49:10–13.

For the above reasons, we do not agree with Petitioner that the recited second type SIB lacks any requirements, nor do we interpret claims 7 and 8 such that the first type SIB could be a second type SIB.

Limitations 7h/8f

Petitioner also appears to argue that limitations 7h/8f require determining the compressed format transmission based on a comparison of the value tag. Opp 11. Patent Owner does not directly respond to this claim construction in its Reply. However, as explained above (*supra* Section III.B.4), we disagree with Petitioner’s proposed construction because limitation 7h recites “transmit by broadcast . . . the group containing the second type SIB in compressed format . . . based on a comparison of the value tag,” which is different than determining the compressed format based on a comparison of the value tag. RMTA 23 (App. A). Limitation 8f

similarly recites “transmitting by broadcast . . . based on a comparison of the value tag,” not determining the compressed format transmission based on a comparison of the value tag. *Id.*

We determine that no further claim construction is necessary for our decision to institute an *inter partes* review apart from that discussed in our analysis. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (holding that only terms in controversy must be construed “and only to the extent necessary to resolve the controversy”) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

C. OVERVIEW OF ASSERTED PRIOR ART

1. *Lee (Ex. 1004)*

Lee “relates to a wireless communication system and, more particularly, to a method for a user equipment (UE) to request a missing system information block (SIB) in a wireless communication system, and an apparatus for supporting the same.” Ex. 1004 ¶ 2.

According to Lee, there are different types of SIBs. Ex. 1004 ¶¶ 7, 70–72. SIB1 is broadcast and includes information associated with cell access, and particularly includes scheduling information on other SIBs (SIB2 to SIBn). *Id.* Other SIBs may be broadcast or requested on-demand. *Id.* ¶ 101.

UEs must maintain up-to-date system information to perform an appropriate operation. Ex. 1004 ¶ 76. When a network changes a particular type of on-demand system information, the network may broadcast the changed system information without a request from the UE. *Id.* ¶¶ 167–168.

Alternatively, the UE can request the changed system information, as seen below in Figure 13 of Lee. *Id.* ¶ 166.

FIG. 13

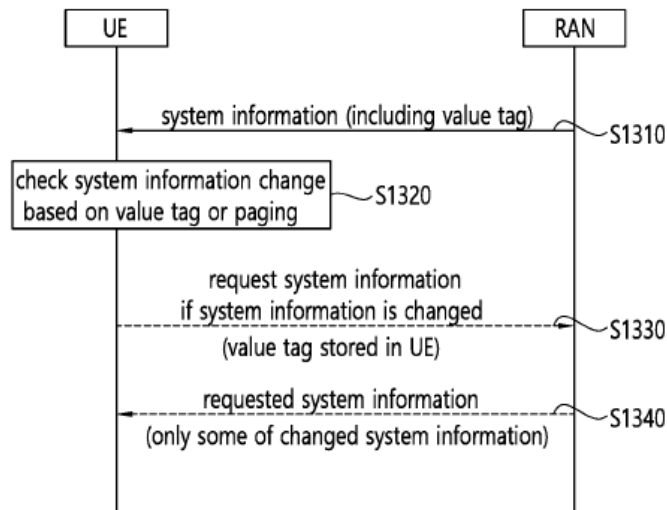


Figure 13 above illustrates a procedure where a UE receives changed system information. Ex. 1004 ¶¶ 166–171. In step S1310 of Figure 13, the network (RAN) may indicate to the UE that on-demand system information is to be changed by broadcast signaling during a specified period. *Id.* ¶ 168. The broadcast signaling may be essential system information or a paging message. *Id.* Step S1310 may include a value tag for a particular type of system information. *Id.* Step S1310 also may indicate whether on-demand system information is to be broadcast in the next period. *Id.*

In step S1320, the UE may check whether the on-demand system information is changed based on the value tag (i.e., the UE compares its stored value tag with the value tag in step S1310). Ex. 1004 ¶ 169. In step S1330, when the UE recognizes that the on-demand system information is changed but not scheduled to be broadcast, the UE may trigger a request for the on-demand system information. *Id.* ¶ 170. On the other hand, when the

UE recognizes that the on-demand system information is changed and is scheduled to be broadcast, the UE may not trigger a request. *Id.* In step S1340, the UE receives the changed system information. *Id.* ¶ 171.

2. *Agiwal (Ex. 1008)*

Agiwal “relates to a wireless communication system” and more particularly, “an apparatus and method for transmitting and receiving system information.” Ex. 1008, code (54), ¶ 2. Agiwal provides “a method for receiving system information (SI) by a UE in a wireless communication system.” *Id.* ¶ 16. Agiwal’s method includes “receiving, from a base station (BS), first type SI associated with SI which is essential for communication with the BS,” and “transmitting, to the BS, a physical random access channel (PRACH) preamble based on the first type SI.” *Id.* The method further includes “receiving, from the BS, a random access response (RAR) message, and receiving, from the BS, second type SI associated with at least one SI which the UE needs.” *Id.*

D. LEGAL PRINCIPLES

A claim is unpatentable under § 102 as anticipated if a single prior art reference either expressly or inherently discloses every limitation of the claim. *Orion IP, LLC v. Hyundai Motor Am.*, 605 F.3d 967, 975 (Fed. Cir. 2010).

A claim is unpatentable under § 103 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). When a ground in a petition is based on a combination of references, we consider “whether there

was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *Id.* at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). We base our obviousness inquiry on factual considerations 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) any objective indicia of obviousness or non-obviousness that may be in evidence. *See Graham*, 383 U.S. at 17–18.

Petitioner bears the burden of persuasion to prove “unpatentability by a preponderance of the evidence.” *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (quoting 35 U.S.C. § 316(e)); *see* 37 C.F.R. § 42.1(d) (2024).

E. ANTICIPATION BY OR OBVIOUSNESS OVER LEE

Petitioner contends that claims 7 and 8 are unpatentable under § 102 as anticipated by or under § 103 as obvious over Lee. *See* Pet. 17–37; Opp. 12–17.

1. *Substitute Claim 7*

We focus our analysis on independent claim 7. For the reasons explained below, we determine that Petitioner has not shown by a preponderance of the evidence that claim 7 is anticipated by and/or rendered obvious over Lee.

(a) Limitation 7h

We begin our analysis on disputed limitation 7h. Limitation 7h recites transmit by broadcast after the change the group identifier and the group containing the second type SIB in compressed format including only changed ones of plural parameters of the group containing the second type SIB based on a comparison of the value tag, associated with the group containing the second type SIB, stored in the wireless

terminal, and the value tag included in the first type SIB corresponding to the group containing the second type SIB.

RM TA 23 (App. A).

(b) Petitioner's Position

In its Opposition to Patent Owner's Revised Motion to Amend, Petitioner argues that limitation 7h requires "upon an update of non-broadcast system information, that the changed system information be broadcast without the broadcast of unchanged non-broadcast system information." Opp. 16. Relying on its prior arguments for previous substitute claims 8 and 10 and original claims 2 and 4, Petitioner argues that limitation 7h is disclosed or suggested by Lee "for the same reasons." *Id.* at 16–17 (citing Ex. 1010 ¶¶ 53, 58; Ex. 1004 ¶¶ 167, 175–178; Ex. 1002 ¶¶ 132–134, 143; Pet. 33–34, 37). Petitioner further argues that Lee contemplates "the broadcast of only the changed system information." *Id.* at 17 (citing Ex. 1004 ¶ 167) (explaining "Lee teaches that 'when a network changes a particular type of on-demand system information, the network may broadcast the changed system information *or* all system information during a specified period.'").

(c) Limitation 7h: Patent Owner's Position

Patent Owner argues that Petitioner oversimplifies and does not address limitation 7h as written. PO Reply 10. Patent Owner further argues that Petitioner addresses rewritten limitation 7h by improper incorporation by reference. *Id.* at 11 (arguing that "Petitioners have not explained what the 'same reasons' are in the Opposition," and that Petitioner has not addressed the differences between limitation 7h and previous substitute claims 8 and 10 and original claims 2 and 4). Patent Owner argues that the Opposition

fails to identify in Lee the recited 1) transmission of the “group identifier,” 2) transmission in “compressed format,” and 3) “plural parameters.” *Id.* at 12.

(d) Limitation 7h: Analysis

We agree with Patent Owner that Petitioner’s arguments with respect to limitation 7h are insufficient because they fail to address the limitation as written and improperly incorporate previous arguments by reference.

For example, Petitioner did not map the recited “group identifier” when opposing Patent Owner’s Revised Motion to Amend. *See* Opp. 16–17. In its Sur-reply, Petitioner contends that limitation 7h’s requirement of transmitting the group identifier was previously “set out in Patent Owner’s prior papers,” but does not refer to any specific papers or exhibits. Pet. Sur-reply 11–12. We decline to search for and piece together Petitioner’s arguments and evidence to develop a persuasive theory of unpatentability. *See* 37 C.F.R. section 42.6(a)(3). Petitioner similarly failed to address adequately where Lee discloses or suggests the recited “compressed format” and “plural parameters.” *See* Opp. 16–17.

Aside from the above concerns, we also do not see sufficient explanation with respect to limitation 7h’s requirement that the transmitting by broadcast be based on a comparison of the value tag. Petitioner argues that, because Patent Owner does not dispute limitation 7g, “it would have been obvious to a POSITA to use the same value tag[] to determine the system information broadcast in Lee’s compressed format embodiment.” Pet. Sur-reply 12. This conclusory statement is not supported by any citations to evidence and was improperly introduced in the Sur-reply. Moreover, whether it was obvious to determine what system information is

broadcast is not commensurate with the claim scope because limitation 7h requires that the broadcasting (not the broadcast content) be based on a comparison of the value tag. *See supra* III.B.4 and IV.B.

Further, we are not persuaded that Lee's transmitting by broadcast is based on a comparison of the value tag stored in the wireless terminal, as required by limitation 7h. Although Petitioner correctly argues that Lee discloses broadcasting *after* the system information changes, this is not the same as broadcasting *based on* the value tag comparison. Opp. 16–17. According to our review, Lee is, at best, silent as to whether the broadcast is based on a comparison of the value tag. Ex. 1004 ¶¶ 167–170. Lee simply discloses that the broadcast occurs after a change. *Id.* ¶ 170 (disclosing that “when the UE recognizes that the on-demand system information is changed and the on-demand system information is scheduled to be broadcast, the UE may not trigger a system information request for the on-demand system information.”). Lee's broadcasting could be based on something other than a comparison of the UE's value tag, for example, the broadcasting could be automatic after the change or periodically scheduled.

For the reasons discussed above, we are not persuaded that Lee discloses or suggests limitation 7h.

(e) Conclusion as to Substitute Claim 7

For the above reasons, we determine that Petitioner has not shown by a preponderance of the evidence that Lee anticipates claim 7 and/or renders claim 7 obvious.

2. *Substitute Claim 8*

For claim 8, Petitioner relies on the same arguments advanced for claim 7. Opp 16–17. For similar reasons as discussed above with respect to

limitation 7h, we are not sufficiently persuaded that Lee discloses or suggests limitation 8f. We determine that Petitioner has not shown by a preponderance of the evidence that Lee anticipates claim 8 and/or renders claim 8 obvious.

F. OBVIOUSNESS OVER LEE AND AGIWAL

Petitioner contends that claims 7 and 8 are unpatentable under § 103 as obvious over Lee and Agiwal. *See* Pet. 17–37; Opp. 17–22. For limitations 7h and 8f, Petitioner relies on the same arguments advanced under the Lee grounds. Opp. 22 (“Lee alone anticipates or render obvious limitation’s 7[[h] and 8f.”). Thus, Petitioner does not rely on Agiwal for limitations 7h or 8f.

As discussed above, we are not sufficiently persuaded that Lee discloses or suggests limitations 7h or 8f. We determine that Petitioner has not shown by a preponderance of the evidence that Lee and Agiwal renders obvious claims 7 or 8.

G. ENABLEMENT

Focusing on limitations 7h/8f, Petitioner argues that the substitute claims are not enabled. Opp. 11. As discussed above, limitations 7h/8f introduce the concept of broadcasting a compressed format transmission based on a value tag comparison. RMTA 23 (App. A).

Petitioner argues that the compressed format transmission cannot be based on the value tag comparison, because it is not possible to identify which specific parameters, among multiple parameters, are unchanged using a single value tag. Opp. 11; Pet. Sur-reply 10–11.

However, as discussed above, the claims do not require determining the compressed format transmission nor identifying the unchanged

parameters based on a value tag comparison. *See supra* Sections III.B.4 and IV.B. The claims recite that the “transmit by broadcast” is based on the value tag comparison. *Id.* Petitioner does not argue, and it does not appear to us, that broadcasting based on a value tag comparison is not enabled. *See generally* Opp.; Pet. Sur-reply. In addition, as Patent Owner explains, determining the compressed format transmission and identifying the unchanged parameters is achieved using stored parameter identifiers. PO Reply 10 (citing Ex. 1001, 13:1–17).

Accordingly, we are not persuaded by Petitioner that the claims 7 and 8 are not enabled.

H. INDEFINITENESS

Under *Nautilus*, “[a] patent is invalid for indefiniteness if its claims, read in light of the patent’s specification and prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). “[A] patent must be precise enough to afford clear notice of what is claimed, thereby apprising the public of what is still open to them,” but the present standard recognizes that “absolute precision is unattainable.” *Id.* at 909–910 (internal quotation marks and brackets omitted).

According to Petitioner, limitation 7b/8a’s “requirement that the ‘group of plural second type [SIBs]’ be ‘fewer than the total number of second type [SIBS],’ combined with the claims’ lack of any requirements for the second type SIBs and the open nature of the claims, renders the claims indefinite.” Opp. 6–10 (alterations in original); Pet. Sur-reply 5–7. Petitioner argues that “the first type of SIB could also be a second type SIB”

and the “claim would permit other kinds of SIBs,” such as a third, fourth, or compressed type SIBs. Opp. 6–7.

Patent Owner's position is that “[v]iewing the entire patent as an integrated document would inform those skill in the art with reasonable certainty that second type SIB are all SIBs that are not first type SIBs, i.e., that do not have ‘essential system information.’” PO Reply 4. Patent Owner also argues the presence of other kinds of SIBs is irrelevant for a determination of claim scope because “[t]he categories of type one SIBs (those with essential information) and type two SIBs (those without) cover all SIBs.” RMTA 13.

We are not persuaded that the claims are indefinite. As discussed above (supra Section IV.B), we do not interpret the claims such that the first type of SIB could also be a second type SIB. Moreover, the ’958 patent disclosure provides a guideline as to the meaning of first type SIB and second type SIB. Ex. 1001, 8:34–46. Thus, the evidence of record shows that the ordinary artisan would have the capacity to determine the scope of the claims including the first and second type SIBs, and consequently, the total number of second type SIBs. *See Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325, 1335 (Fed. Cir. 2010) (“Because the intrinsic evidence here provides a general guideline and examples sufficient to enable a person of ordinary skill in the art to determine [the scope of the claims], the claims are not indefinite even though the construction of the term ‘not interfering substantially’ defines the term without reference to a precise numerical measurement.” (alteration in original, citation omitted)); *SmithKline Beecham Corp. v. Apotex Corp.*, 403 F.3d 1331, 1340–41 (Fed. Cir. 2005) (“The test for indefiniteness does not depend on a potential infringer’s

ability to ascertain the nature of its own accused product to determine infringement, but instead on whether the claim delineates to a skilled artisan the bounds of the invention.”).

Alternatively, assuming that Petitioner is correct that the claims lack any requirements for the second type SIB (such that the first type SIB could be included as a second type SIB or that there could be other kinds/types of SIBs), it is well settled that the breadth of a claim is not to be equated with indefiniteness. *See In re Miller*, 441 F.2d 689, 693 (CCPA 1971). By not specifying the requirements of a second type SIB or the total number of second type SIBs, the claim would be merely broad, not ambiguous.

Petitioner also argues that the partial or “compressed format” broadcast in limitation 7h/8f is indefinite because limitations 7b/8a and/or 7c/8b require a complete or entire broadcast. Opp. 10; Pet. Sur-reply 7–8. We are not persuaded. Neither limitations 7b/8a nor 7c/8b require a complete broadcast. *See supra* Section III.B.3 (discussing that broadcast does not require complete broadcast). Moreover, we agree with Patent Owner that “compressed format” relates to the mode of transmission, not a type. Tr. 35:14–23.

We disagree with Petitioner’s argument that there could be instances where “none” of the second type SIB is provided by broadcast, thereby contradicting the broadcast requirement in limitations 7b/8a and/or 7c/8b. Pet. Sur-reply 7–8. Limitation 7c/8b recites “upon a change of a second type SIB” and provides antecedent basis for the second type SIB recited in limitation 7h/8f. Because the second type SIB changes per limitations 7c/8b, and changed SIBs parameters are provided by broadcast per limitations

7h/8f, there are no instances where none of the second type SIB is provided by broadcast. Tr. 46:3–12.

Based on the forgoing reasons, we are not persuaded by a preponderance of the evidence that claims 7 and 8 are indefinite.

V. CONCLUSION

We are persuaded that Patent Owner’s Revised Motion to Amend meets the statutory and regulatory requirements set forth in 35 U.S.C. § 316(d) and 37 C.F.R. § 42.121. We are not persuaded that Petitioner has carried its burden in showing that Patent Owner’s proposed substitute claims 7 and 8 are unpatentable by a preponderance of the evidence.

Accordingly, we *grant* Patent Owner’s non-contingent Revised Motion to Amend and cancel original claims 1–4 of the ’958 patent and replace them with proposed substitute claims 7 and 8. In summary:

Motion to Amend Outcome	Claim(s)
Original Claims Cancelled by Amendment	1–4
Substitute Claims Proposed in the Amendment	7, 8
Substitute Claims: Motion to Amend Granted	7, 8
Substitute Claims: Motion to Amend Denied	
Substitute Claims: Not Reached	

VI. ORDER

In consideration of the foregoing, it is hereby

ORDERED that Patent Owner’s Motion to Amend is *granted*;

FURTHER ORDERED that original claims 1–4 of the ’958 patent are *cancelled* and replaced by substitute claims 7 and 8; and

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

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