

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AT&T SERVICES INC., T-MOBILE USA, INC.,
CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS,
ERICSSON INC., and NOKIA OF AMERICA CORPORATION,
Petitioner,

v.

INNOVATIVE SONIC LIMITED,
Patent Owner.

IPR2024-01145
Patent 9,560,559 B2

Before ST. JOHN COURTENAY, III, MICHAEL R. ZECHER, and
CHRISTOPHER L. OGDEN, *Administrative Patent Judges*.

COURTENAY, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

A. *Background and Summary*

AT&T Services Inc., T-Mobile USA, Inc., Cellco Partnership d/b/a Verizon Wireless, Ericsson Inc., and Nokia of America Corporation (collectively, “Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 1–3 and 7–11 (“challenged claims”) of U.S. Patent No. 9,560,559 B2 (Ex. 1001, “the ’559 patent”). Innovative Sonic Limited (“Patent Owner”¹) timely filed a Preliminary Response (Paper 11, “Prelim. Resp.”).

An *inter partes* review may not be instituted unless “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a) (2024).

Having reviewed the Petition, the Patent Owner’s Preliminary Response, and the evidence of record, we determine that Petitioner has not shown a reasonable likelihood it would prevail in establishing the unpatentability of any of the challenged claims 1–3 and 7–11 on any of the four proposed grounds. Accordingly, we do not institute an *inter partes* review for the reasons discussed below.

B. *Real Parties in Interest*

Petitioner names AT&T Enterprises, LLC, AT&T Mobility LLC, AT&T Mobility II LLC, AT&T Services Inc., Cellco Partnership d/b/a

¹ In its statement regarding real parties in interest, Patent Owner represents that it is the owner of the ’559 patent and that Celebrity IP, LLC “assists . . . in the licensing of the [’559] patent.” Paper 7, 2 (Patent Owner Mandatory Notices); Paper 10, 2 (Patent Owner Updated Mandatory Notices).

Verizon Wireless, Verizon Corporate Resources Group LLC, T-Mobile USA, Inc., Ericsson Inc., Telefonaktiebolaget LM Ericsson, and Nokia of America Corporation as real parties in interest. Pet. 2. Patent Owner names itself and Celerity IP, LLC as real parties in interest. Paper 10 (Patent Owner’s Updated Mandatory Notices), 2.

C. *Related Matters*

Petitioner states the following matters are related: *ASUS Technology Licensing Inc. et al. v. AT&T Inc.*, No. 2-23-cv-00486-JRG-RSP (E.D. Tex. 2023) (Lead Case); *ASUS Technology Licensing Inc. v. T-Mobile USA, Inc.*, No. 2-23-cv-00487-JRG-RSP (E.D. Tex. 2023); *ASUS Technology Licensing Inc. v. Verizon Communications Inc.*, No. 2-23-cv-00488-JRG-RSP (E.D. Tex. 2023); *Innovative Sonic Limited v. AT&T Inc.*, No. 2-23-cv-00489-JRG-RSP (E.D. Tex. 2023); *Innovative Sonic Limited v. T-Mobile USA, Inc.*, No. 2-23-cv-00490-JRG-RSP (E.D. Tex. 2023); *Innovative Sonic Limited v. Verizon Communications, Inc.*, No. 2-23-cv-00491-JRG-RSP (E.D. Tex. 2023). Pet. 3.²

D. *The ’559 Patent*

The ’559 patent is titled “Method and Apparatus for Implementing Small Cell Enhancements in a Wireless Communication System,” and concerns a wireless communication system where first and second cells serve a UE (user equipment). Ex. 1001, codes (54), (57).

The ’559 patent describes studies of small cell enhancements, including studies of evaluating benefits of UE having dual connectivity to

² Patent Owner also identifies *Samsung Electronics Co. v. ASUS Technology Licensing Inc.*, IPR2024-00614 (filed March 13, 2024) (Paper 10, 2–3); however, we do not discern (and Patent Owner does not identify) any relation between that proceeding and this one.

macro and small cell layers served by different or the same carrier(s). *Id.* at 4:62–5:29. “When separate eNBs [evolved Node Bs] are used to support dual connectivity, a new interface between [a] macro eNB and [a] small cell eNB [needs] to be specified. Also, the information to be exchanged over this new interface [needs] to be defined.” *Id.* at 6:25–6:29. The ’559 patent explains:

it would be beneficial for the macro eNB to send a measurement gap³ configuration (as discussed in 3GPP TS 36.331 V11.2.0) allocated for the UE to the small cell eNB so that the small cell eNB could take measurement gaps into consideration when scheduling resources to the UE. For example, the small cell eNB could avoid scheduling the UE during measurement gaps because the UE cannot transmit or receive any signal to/from the small cell during the measurement gaps.

Id. at 6:41–49.

Figure 5, reproduced below, is a flow chart according to one exemplary embodiment. *Id.* at 2:1–2.

³ Measurement gaps are periods that the UE may use to perform measurements where no uplink or downlink transmissions are scheduled. Ex. 1008, 18–19, 79–80.

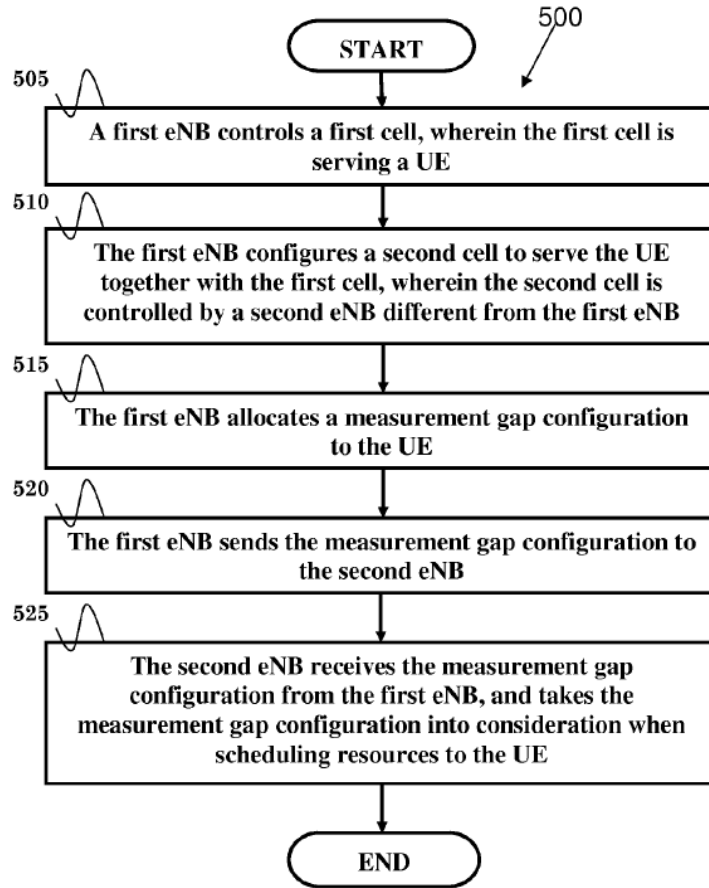


Figure 5 depicts flow chart 500. Ex. 1001, 6:50–7:3. In step 505, a first eNB controls a first cell that serves a UE. *Id.* “In step 510, the first eNB configures a second cell to serve the UE together with the first cell.” *Id.* “The second cell is controlled by a second eNB that is different from the first eNB.” *Id.* “In step 515 [], the first eNB allocates a measurement gap configuration to the UE.” *Id.* [T]he measurement gap configuration [can] indicate a measurement gap pattern to be applied in the UE for performing measurements.” *Id.* “In step 520, the first eNB sends the measurement gap configuration to the second eNB.” *Id.* In step 525, “*the second eNB receives the measurement gap from the first eNB, and takes the measurement gap configuration into consideration when scheduling resources to the UE.*” *Id.* (emphasis added).

E. Illustrative Claims

Method claims 1 and 7 of the challenged claims are independent. Claims 1 and 7, reproduced below with the limitation identifiers in brackets corresponding to those used in the Petition, are illustrative:

1. [1pre] A method for supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity, comprising:

[1b] a first eNB controls a first cell, wherein the first cell is serving a UE (User Equipment); and

[1c] the first eNB configures a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB;

[1d] the first eNB allocates a measurement gap configuration to the UE; and

[1e] the first eNB sends the measurement gap configuration to the second eNB *so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE.*

7. [7pre] A method for supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity and a UE (User Equipment) is served by a first cell controlled by a first eNB, comprising:

[7b] a second eNB controls a second cell, wherein the second cell is configured by the first eNB to serve the UE together with the first cell; and

[7c] the second eNB receives a measurement gap configuration from the first eNB *so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE*, wherein the measurement gap configuration was allocated by the first eNB to the UE.

Ex. 1001, 9:2–15, 10:13–26 (emphasis added regarding the portion of steps [1e] and [7c] disputed by Patent Owner).

F. Evidence

Petitioner relies on the following patent and patent-application-publication evidence: Pet. 5.

Name	Patent Document	Exhibit
Centonza	US 9,479,973 B2	Ex. 1005, 1006 ⁴
Siomina	WO 2012/064265 A1	Ex. 1007

Petitioner relies on the following non-patent-literature evidence:
Pet. 5.

Name	Non-Patent Literature Title	Author	Exhibit
TS 36.331	“3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification (Release 11)” (3GPP TS 36.331 V11.2.0 (2012–12))	3 rd Generation Partnership Project	Ex. 1008
TS 36.331	“3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification (Release 11)” (3GPP TS 36.331 V11.0.0 (2012–06))	3 rd Generation Partnership Project	Ex. 1009

⁴ Exhibit 1006 is a copy of U.S. provisional application No. 61/678,772, to which Centonza claims priority. Ex. 1005, code (60).

G. Prior Art and Asserted Grounds

Petitioner asserts that claims 1–3 and 7–11 would have been unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §⁵	Reference(s)/Basis
1–3, 7–11	102	Centonza ⁶
1–3, 7–11	103(a)	Centonza, TS 36.331
1–3, 7–11	103(a)	Centonza, Siomina
1–3, 7–11	103(a)	Centonza, Siomina, TS 36.331

Pet. 5–6.

II. ANALYSIS

A. Legal Standards

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the

⁵ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, 125 Stat. 284 (2011), amended 35 U.S.C. §§ 102, 103, effective March 16, 2013. The earliest claimed priority date of the ’559 patent is before March 16, 2013 (Ex. 1001, code (60 (Feb. 8, 2013))), and the patent applicant indicated that the application that resulted in the ’559 patent did not contain a claim to a claimed invention that has an effective filing date on or after March 16, 2013 (Ex. 1002, 265). Accordingly, we apply the pre-AIA version of §§ 102, 103. Our analysis in this Decision would be the same if we applied the AIA version of §§ 102, 103.

⁶ US 9,479,973 B2 to Centonza issued on Oct. 25, 2016 (Ex. 1005). Petitioner contends that Centonza is entitled to the benefit of a provisional application to which it claims priority: US Prov. Appl. No. 61/678,772, filed on Aug. 2, 2012. Pet. 17–20; *see* Ex. 1006 (“Centonza Provisional”). We do not evaluate this priority contention (or whether it is necessary to show that Centonza qualifies as prior art to the ’559 patent).

grounds for the challenge to each claim”)). This burden of persuasion does not shift to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)) (discussing the burden of proof in *inter partes* review).

Anticipation of a claim under 35 U.S.C. § 102 occurs when each claimed element and the claimed arrangement or combination of those elements is disclosed, inherently or expressly, by a single prior art reference. *Therasense, Inc. v. Becton, Dickinson & Co.*, 593 F.3d 1325, 1332 (Fed. Cir. 2010). A reference inherently discloses an element of a claim “if that missing characteristic is *necessarily* present, or inherent, in the single anticipating reference.” *Schering Corp. v. Geneva Pharms.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003) (citation omitted) (emphasis added). “The identical invention must be shown in as complete detail as is contained in the . . . claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989). Anticipation of a patent claim requires a finding that the claim at issue “reads on” a prior art reference. *See Atlas Powder Co. v. IRECO, Inc.*, 190 F.3d 1342, 1346 (Fed. Cir. 1999).

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

nonobviousness, i.e., secondary considerations.⁷ *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

An invention “composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *KSR*, 550 U.S. at 418. The obviousness evaluation “should be made explicit,” and “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” *Id.*

“To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

We analyze the four grounds, as asserted by Petitioner, with the above principles in mind.

B. Level of Ordinary Skill in the Art

At this stage in the proceeding, there is sufficient evidence in the current record that enables us to determine the knowledge level of a person of ordinary skill in the art. Relying upon the testimony of its declarant Dr. Christopher Hansen, Petitioner argues the following:

As of the earliest claimed priority date, a person of ordinary skill in the art at the time of the alleged invention of the ’559 Patent (“POSITA”) 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 systems. A

⁷ Petitioner states it is unaware of any evidence of secondary considerations that would support a determination of non-obviousness. Pet. 65. Patent Owner does not provide any evidence of secondary considerations. *See generally* Prelim. Resp.

POSITA would also have familiarity with the wireless standards and well-known protocols for accessing wireless networks. More education may supplement practical experience or *vice versa*.

Pet. 13 (citations omitted) (citing Ex. 1003 ¶ 47). Patent Owner does not address the level of skill in the art in its Preliminary Response. *See generally* Prelim. Resp. The definition proposed by the Petitioner appears to be consistent with the problems and solutions in the '559 patent and prior art of record and is supported by expert testimony. We adopt this definition for the purpose of this Decision.

C. Claim Construction

Petitioner asserts the Board does not need to expressly construe any claim terms because the prior art in the Petition discloses all limitations under any plausible construction. Pet. 13 (citing Ex. 1003 ¶ 48). Patent Owner states that “all terms are entitled to their plain and ordinary meaning as understood by a POSITA under the proper construction.” Prelim. Resp. 10.

We apply the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b), following the standard articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b) (2022). In applying such standard, claim terms are generally given their ordinary and customary meaning, as would have been understood by a person of ordinary skill in the art, at the time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13. “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014

(Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). “There are only two exceptions to this general rule: (1) when a patentee sets out a definition and acts as his own lexicographer, or (2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution.” *Thorner v. Sony Comput. Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012).

The U.S. Court of Appeals for the Federal Circuit has stated that the standard for disavowal of full claim scope through prosecution history disclaimer is “exacting, requiring clear and unequivocal evidence that the claimed invention includes or does not include a particular feature.” *Poly-America, L.P. v. API Industries, Inc.*, 839 F.3d 1131, 1136 (Fed. Cir. 2016) (citations omitted); *see also Grober v. Mako Prods., Inc.*, 686 F.3d 1335, 1341 (Fed. Cir. 2012) (“[W]hile the prosecution history can inform whether the inventor limited the claim scope in the course of prosecution, it often produces ambiguities created by ongoing negotiations between the inventor and the [U.S. Patent and Trademark Office]. . . . Therefore, the doctrine of prosecution disclaimer only applies to unambiguous disavowals.”)

Only those claim terms that are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

Here, a review of the Petition and the Patent Owner’s Preliminary Response reveals a substantive dispute between the parties regarding the proper claim construction of the portion of step [1e] emphasized below:

[1e] the first eNB sends the measurement gap configuration to the second eNB *so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE.*

Ex. 1001, 9:12–15. Step [7c] recites the identical disputed language. *Id.* at 10:21–26.

Petitioner contends that step [1e] is an intended result, and thus may not be limiting: “To the extent the purpose of this step — ‘so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE’ — is limiting (as opposed to the intended result),^[8] Centonza discloses the purpose of sending the measurement-gap configuration to the second eNB.” Pet. 35–36 (citing Ex-1003, ¶¶ 109–113).

Patent Owner disagrees:

In [the ground based on Centonza alone], Petitioners argue that Centonza discloses this element. First, Petitioners appear to suggest that this element is an expression of an intended result rather than a method step and thus non-limiting. Pet., 35-36 (*citing Minton v. Nat’l Ass’n of Sec. Dealers, Inc.*, 336 F.3d 1373, 1381 (Fed. Cir. 2003)). Petitioners are incorrect. This clause affirmatively recites the capability of the second eNB to use the measurement gap to schedule resources to the UE. As the ’559 Patent explains, the benefit of the second eNB receiving the measurement gap configuration is so that the second eNB uses the measurement gap to schedule resources to the UE—i.e., avoid scheduling the UE during measurements. EX1001, 6:41-49 (“the small cell eNB could avoid scheduling the UE during measurement gaps because the UE cannot transmit or receive any

⁸ In support, Petitioner cites: *Minton v. Nat’l Ass’n of Sec. Dealers, Inc.*, 336 F.3d 1373, 1381 (Fed. Cir. 2003) (explaining that a method-claim clause that “simply expresses the intended result of a process step positively recited” is not a limitation and holding that the term “whereby the security is traded efficiently” was non-limiting where it did not “in form the mechanics of how the trade is executed and “characterize[ed] the result of the executing step”). *See* Pet. 36, n.12.

signal to/from the small cell during the measurement gaps.”). This capability is more than the intended result of a process step; it is part of the process itself and must be given patentable weight. *Hoffer v. Microsoft Corp.*, 405 F.3d 1326, 1330 (Fed. Cir. 2005).

Prelim. Resp. 11.

To inform our claim construction, we turn to the intrinsic evidence, and note the ’559 Patent written description support cited by Patent Owner (*id.*), explains:

In addition to the above information, it would be beneficial for the macro eNB to send a measurement gap configuration (as discussed in 3GPP TS 36.331 V1.1.2.0) allocated for the UE to the Small cell eNB so that the Small cell eNB ***could take measurement gaps into consideration when scheduling resources to the UE***. For example, the small cell eNB could avoid scheduling the UE during measurement gaps because the UE cannot transmit or receive any signal to/from the Small cell during the measurement gaps.

Ex. 1001, 6:41–49 (emphasis added).

We particularly note the literal written description support (in italics) in the ’559 Patent that mirrors the claim [1e] language: “so that the Small cell eNB ***could take measurement gaps into consideration when scheduling resources to the UE***.” *Id.* at 6:45–46 (emphasis added). Moreover, as noted above, Figure 5 of the ’559 Patent depicts flow chart 500. Prelim. Resp. 3–4 (citing Ex. 1001, 6:65–7:3). And step 525 of Figure 5 affirmatively describes: “The second eNB receives the measurement gap configuration from the first eNB, ***and takes the measurement gap configuration into consideration when scheduling resources to the UE***.” *Id.* at Fig. 5, step 525 (emphasis added).

To the extent that Petitioner contends the disputed portion of step [1e] is merely an intended result, and thus may not be limiting (Pet. 35–36 (citing

Ex. 1003, ¶¶ 109–113)), Petitioner has not produced any evidence showing that Patent Owner has unambiguously disavowed the disputed portion of step [1e] in the prosecution history: “*so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE.*” Pet. 35.

Therefore, on this record, Petitioner has not shown that any portion of the prosecution history reflects an *unambiguous disavowal* by Patent Owner of the disputed portion of step [1e].

Accordingly, from the intrinsic evidence (i.e., (1) the claim [1e] language itself, (2) the corresponding written description support found in the ’559 Patent, and (3) the prosecution history), we conclude the disputed claim [1e] language (“so that the Small cell *eNB could take measurement gaps into consideration when scheduling resources to the UE*”) requires that the second eNB (second base station) must have the capability of *taking* “*measurement gaps into consideration when scheduling resources to the UE,*” consistent with the plain language of claim 1 and the ’559 Patent written description (intrinsic evidence), as explained above.

Because Petitioner’s argument (Pet. 35–36 (citing Ex. 1003, ¶¶ 109–113)) is contrary to the intrinsic evidence, we agree with Patent Owner that “[t]his capability is more than the intended result of a process step; it is part of the process itself and must be given patentable weight.” Prelim. Resp. 11 (citing *Hoffer*, 405 F.3d at 1330) (giving weight to a claim limitation because not doing so would be “contrary to the fundamental invention, which the specification describes.”). Moreover, our reviewing court guides that “claims are interpreted with an eye toward giving effect to all terms in the claim.” *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006).

Therefore, we do not agree with Petitioner that the claim language of step [1e] “the first eNB sends the measurement gap configuration to the second eNB *so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE*” is merely a statement of intended use. Ex. 1001, 9:12–15 (emphasis added). The same applies to the claim language of step [7c]. *Id.* at 10:21–26.

Accordingly, we agree with and adopt the claim construction proposed by the Patent Owner: “This clause affirmatively recites the capability of the second eNB to use the measurement gap to schedule resources to the UE.” Prelim. Resp. 11.

D. Ground 1 — Anticipation of Claims 1–3 and 7–11 by Centonza

Petitioner argues that claims 1–3 and 7–11 are anticipated by Centonza. Pet. 13–14, 17–44. Patent Owner disagrees, and advances arguments disputing whether Petitioner has shown that Centonza describes the portion of step [1e] that recites “*so that the second eNB [could] take ‘measurement gaps into consideration when scheduling resources to the UE.’*” Prelim. Resp. 1, 10–14 (emphasis added). We note that step [7c] includes identical language. We begin with a description of the prior art and then discuss the parties’ contentions and provide our analysis.

1. Centonza

Centonza is a U.S. patent titled “Node and Method for Handing Over a Sub-set of Bearers to Enable Multiple Connectivity of a Terminal Towards Several Base Stations.” Ex. 1005, code (54).

Centonza describes various approaches to meet increasing user demands. Ex. 1005, 1:20–1:52. One approach is use of heterogeneous networks where traditional pre-planned macro base stations are

complemented with several low-powered base stations that may be deployed in a relatively unplanned manner. *Id.* Centonza describes that one proposed item for study is the possibility of serving a user equipment (UE) from more than one eNB simultaneously. *Id.*; *see also* Ex. 1006, 8. Figure 1, reproduced immediately below, illustrates an example of a heterogeneous deployment with simultaneous anchor and assisting flows to a wireless terminal. Ex. 1005, 5:31–33.

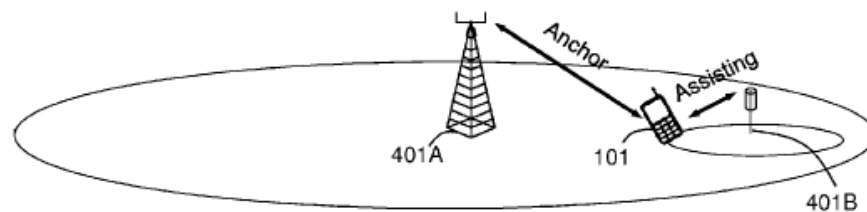


FIGURE 1

Figure 1 illustrates a heterogeneous network where mobile terminal 101 uses multiple flows, e.g., an anchor flow from a macro base station (or anchor eNB) 401A and an assisting flow from a pico base station (or an assisting eNB) 401B. Ex. 1005, 1:53–1:62.

Embodiments of the Centonza invention are directed towards source (401A) and target (401B) base stations and provide for a handover of a subset of bearers associated with a wireless terminal (101) being served by the source base station (401A) where at least one bearer of the wireless terminal remains connected to the source base station. Ex. 1005, code (57); *see also* Ex. 1005, 3:4–45 (sending a handover request to a target base station and receipt of the request), 10:28–43 (describing “dual connectivity”), 16:57–62 (the target eNB can be an independent eNB), 17:6–35 (handover request message); Ex. 1006, 17 (identical copies transmitted from macro and pico nodes), 26 (describing “dual connectivity”), 49 (target eNB an independent eNB), 52–54 (describing handovers), 61–62 (handover request and

acknowledgement), 145 (handover to enable transmission to same UE from two different cells), 150–51 (handover request message).

Centonza describes user equipment may be configured to report measurements and various measurement configurations may be signaled to user equipment. Ex. 1005, 10:63–11:44; Ex. 1006, 18–19, 89–90, 138–139, 205–206. Centonza describes:

Yet another example configuration is measurement gaps. Measurement gaps define time periods when no uplink or downlink transmissions will be scheduled, so that the user equipment may perform the measurements, for example, inter-frequency measurements where the user equipment has only one Tx/Rx unit and supports only one frequency at a time.

Ex. 1005, 11:37–44; Ex. 1006, 19, 90, 139, 206; *see also* Ex. 1005, 9:60–63 (disclosing downlink and uplink scheduling information); Ex. 1006, 15–16 (disclosing downlink and uplink scheduling information and various heterogeneous deployments), 18–19, 87, 89–90, 94, 136, 138–139, 205–206, 209.

2. *Independent Claims 1 and 7*

As noted above, Petitioner contends that Centonza anticipates independent claims 1 and 7 and dependent claims 2, 3 and 8–11. Pet. 17–43. Patent Owner disagrees, and responds that Centonza fails to disclose step [1e]—“the first eNB sends the measurement gap configuration to the second eNB *so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE,*” which is recited using identical language in step [7c]. Prelim. Resp. 11 (emphasis added).

For the reasons explained below regarding the doctrine of incorporation, we agree with Patent Owner that Petitioner fails to sufficiently show that Centonza expressly or inherently discloses steps [1d]

and [1e], particularly the [1e] language of “*so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE.*” (emphasis added). We begin with our analysis of claim 1, and note that step [7c] includes the identical language to step [1e]: “*so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE.*” (emphasis added). We then address the challenged dependent claims under Ground 1.

a) *Step [1d]*

Petitioner argues that Centonza anticipates preamble [1pre], and steps [1a], [1b], and [1d]. At this time, Patent Owner does not advance any arguments regarding Petitioner’s assertions for preamble [1pre] and steps [1a] through [1d] of claim 1. *See generally* Prelim. Resp. Nor does Patent Owner separately and substantively argue claims 2–3 and 8–11 under anticipation Ground 1 over Centonza. *Id.*

Regarding step [1d] (“the first eNB allocates a measurement gap configuration to the UE;”), Petitioner explains that the “references” (plural references, including the Centonza provisional Ex. 1006) teach, in connection with Centonza’s selective handover procedure, that “the Source eNB allocates a measurement-gap configuration to the UE and then communicates that configuration to the Target eNB as part of the Handover Request message.” Pet. 30.

Petitioner refers to step 2 of Figure 14 of the Centonza provisional and contends: “Centonza discloses that first eNB (*e.g.*, the Source eNB) receives the measurement reports from the UE.” Pet. 31. Petitioner notes that “[t]o provide those reports, the Source eNB first configures the UE to take measurements and provide measurement reports (such as in step 1, ‘Measurement Control’ above), including via a

RRCConnectionReconfiguration message.” Petitioner thus contends that Centonza discloses an “allocation of a measurement-gap configuration for the UE.” Pet. 32 (citing Ex. 1005, 17:6–35; Ex. 1006, 150).

We note that Centonza (Ex. 1005, 17:6–35) describes a “X2 HANDOVER REQUEST Message” in Table 1. The Centonza provisional (Ex. 1006, page 50) describes a different Table 1 containing an “Example of [an] enhanced HANDOVER REQUEST message.” Under the pertinent “RRC Context” row, we note the “Semantics description” column discloses: “Comprises the RRC Handover Preparation Information message *as defined in subclause 10.2.2 of TS 36.331.*” *Id.* (emphasis added).

Therefore, we understand that Petitioner additionally relies upon the incorporation of the 3GPP TS 36.331 Technical Specification into Centonza, in two versions:⁹ (1) Exhibit 1008, “3GPP TS 36.331 v11.2.0 Technical Specification” (December 2012), and/or (2) Exhibit 1009, “3GPP TS 36.331 v11.0.0 Technical Specification” (June 2012).

However, on this record, we do not find Petitioner’s arguments persuasive regarding step [1d], for the same reasons discussed *infra* regarding the doctrine of incorporation as it also pertains to step [1e].

Accordingly, we find Petitioner has not shown that Centonza discloses step [1d].

b) Step [1e]

Step [1e] recites “the first eNB sends the measurement gap configuration to the second eNB *so that the second eNB could take measurement gaps into consideration when scheduling resources to the*

⁹ See Petition 32, note 11: “Centonza further points to TS 36.311 as providing “[t]he details of the RRC protocol functionalities and procedures.” (citing Ex. 1005, 7:24–26; Ex. 1006, 11; *see also* Ex. 1005, 10:65-11:3).

UE.” Ex. 1001, 9:2–15 (emphasis added). Petitioner argues this step is disclosed by Centonza. Pet. 35–37. Patent Owner focuses on the step [1e] language, “so that the second eNB could take [] measurement gaps into consideration when scheduling resources to the UE,” and argues such language is not disclosed or suggested by Centonza. Prelim. Resp. 1, 10–13.

As noted above, Petitioner argues: “To the extent the purpose of this step—‘so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE’—is limiting . . . , Centonza discloses the purpose of sending the measurement-gap configuration to the second eNB.” Pet. 35–36 (footnote omitted) (citing Ex. 1003, ¶¶ 109–113).

In our claim construction analysis *supra*, we concluded the disputed portion of step [1e] is limiting.

In particular, Petitioner notes “Centonza explains that ‘[m]easurement gaps define time periods when no uplink or downlink transmissions will be scheduled, so that the user equipment may perform the measurements.’” Pet. 36 (alteration in original) (citing Ex. 1005, 11:37–44; Ex. 1006, 19, 90, 139, 206; Ex. 1009, 74 (defining measurement gap as “[p]eriods that the UE may use to perform measurements, i.e. no (UL, DL) transmissions are scheduled”); Ex. 1008, 80 (same)).

Thus, to demonstrate anticipation, Petitioner (Pet. 36) relies not only upon Centonza (Ex. 1005) but also relies upon the 3GPP TS 36.331 Technical Specification, in two versions: (1) Exhibit 1008, “3GPP TS 36.331 v11.2.0 Technical Specification” (December 2012), and/or (2) Exhibit 1009, “3GPP TS 36.331 v11.0.0 Technical Specification” (June 2012).

As stated by Petitioner:

Centonza thus incorporates by reference TS 36.311, including subclause 10.2.2. Centonza specifically identifies with detailed particularity the RRC messaging protocol in that specification and clearly identifies where that material is found. That is sufficient under the law. *Husky Injection Molding Sys. Ltd. v. Athena Automation Ltd.*, 838 F.3d 1236, 1248 (Fed. Cir. 2016) (reciting legal standard).

TS 36.311 (both the version available at the time of the Centonza Provisional and the version incorporated into the '559 Patent) were publicly available by their respective publication dates (which are prior to February 8, 2013). Ex-1014, ¶¶ 58, 64; Ex-1003, ¶ 104. Both versions disclose that the Handover Preparation Information includes the MeasGapConfig element, which “specifies the measurement gap configuration and controls setup /release of measurement gaps.” *Id.*, ¶ 105; Ex. 1009, 217; Ex. 1008, 246–247.

Pet. 33.¹⁰

We note *Husky*, (838 F.3d at 1248) (cited by Petitioner, *id.*) further cites to *Advanced Display Systems Inc. v. Kent State University* (212 F.3d 1272, 1281–1282 (Fed. Cir. 2000)), which sets forth the doctrine of incorporation by reference that provides a mechanism to include as a matter of law in one document the disclosure of another document. As explained by the court in *Advanced Display Systems*, the requirements for an effective incorporation by reference are as follows:

To incorporate material by reference, the host document must identify with detailed particularity what specific material it incorporates and clearly indicate where that material is found in the

¹⁰ We note Exhibit 1014 is the Declaration of Craig Bishop, a second declaration relied upon by Petitioner, that is generally directed to the nature, purpose, dates, and public accessibility of the 3GPP TS.331 Exhibits 1008, 1009, and 1015. *See e.g.*, Ex. 1014 ¶¶ 65–67. This is in addition to Exhibit 1003, which is the Declaration of Dr. Hansen, for Petitioner. We have considered both declarations, to the extent relied upon by Petitioner.

various documents. *See In re Seversky*, 474 F.2d 671, 674, 177 USPQ 144, 146 (CCPA 1973) (providing that incorporation by reference requires a statement “clearly identifying the subject matter which is incorporated and where it is to be found”); *In re Saunders*, . . . 444 F.2d 599, 602-03, 170 USPQ 213, 216-17 (CCPA 1971) (reasoning that a rejection for anticipation is appropriate only if one reference “*expressly* incorporates a particular part” of another reference); *National Latex Prods. Co. v. Sun Rubber Co.*, 274 F.2d 224, 230, 123 USPQ 279, 283 (6th Cir. 1959) (requiring a specific reference to material in an earlier application in order [to] have that material considered part of a later application).

Advanced Display Systems, 212 F.3d at 1281–1282 (emphasis added).

Here, we find Petitioner has not persuasively shown how Centonza *expressly* incorporates a particular part of the TS 36.331 reference by: (1) identifying with detailed particularity what specific material it incorporates, and (2) clearly indicating where that material is found in the TS 36.331 document. Pet. 33; Exhibits 1008, 1009.

Instead, Centonza merely indicates: “[t]he details of the RRC protocol functionalities and procedures may be found in 3GPP TS 36.331.” Ex. 1005, 7:24–26. *See also* Ex. 1005, 10:64–11:3 (“User equipments may be configured to report measurements, mainly for the sake of supporting mobility. As specified in 3GPP TS 36.331, the E-UTRAN provides the measurement configuration applicable for a user equipment in RRC_CONNECTED by means of dedicated signaling, for example, using the RRCConnectionReconfiguration message.”).

On this record, we find Petitioner has not shown where Centonza *expressly*¹¹ incorporates and identifies with detailed particularity *what specific material it incorporates* and *where that material is found* with respect to Exhibits 1008 and/or 1009, as relied upon by Petitioner to support anticipation Ground 1 over Centonza. Further, consistent with *Harari v. Lee*, 656 F.3d 1331, 1334 (Fed. Cir. 2011) (as also cited by *Husky*, 838 F.3d at 1248), on this record we find Petitioner has not sufficiently shown “whether *a skilled artisan* would understand the host document to describe *with sufficient particularity* the material to be incorporated.” *Husky*, 838 F.3d at 1248 (emphasis added). Moreover, “[a]nticipation requires the presence in *a single prior art reference* disclosure of each and every element of the claimed invention, arranged as in the claim.” *Lindemann Maschinenfabrik GmbH v. Am. Hoist & Derrick Co.*, 730 F.2d 1452, 1458 (Fed. Cir. 1984) (emphasis added) (citation omitted).

To the extent Petitioner may be relying upon a theory of inherency to show the disputed language of step [1e], we find the “natural result flowing” from the operation language used by Petitioner (Pet. 37) is more applicable to inherency considered under section 103, and not under 35 U.S.C. § 102.¹²

In particular, with respect to step [1e], Petitioner argues: “Centonza teaches that the *natural result flowing* from the Source eNB sending the measurement-gap configuration to the Target eNB is that the Target eNB will take the measurement gap into consider[ation] when scheduling

¹¹ See *Saunders*, 444 F.2d at 602–03 (CCPA 1971) (reasoning that a rejection for anticipation is appropriate only if one reference “*expressly incorporates a particular part*” of another reference) (emphasis added).

¹² “The inherent teaching of a prior art reference, a question of fact, arises both in the context of anticipation and obviousness.” *In re Napier*, 55 F.3d 610, 613 (Fed. Cir. 1995).

resources to the UE.” Pet. 37 (emphasis added). *Cf. PAR Pharmaceutical, Inc. v TWI Pharmaceuticals, Inc.* 773 F.3d 1186, 1195 (Fed Cir. 2014) (considering inherency under 35 U.S.C. § 103):

[t]he mere fact that a certain thing may result from a given set of circumstances is not sufficient. If, however, the disclosure is sufficient to show that the *natural result* flowing from the operation as taught would result in the performance of the questioned function, it seems to be well settled that the disclosure should be regarded as sufficient. *In re Oelrich*, 666 F.2d at 581 (emphasis added) (citations and quotation marks omitted). Thus, our early precedent, and that of our predecessor court, established that the concept of inherency must be limited when applied to obviousness, and is present only when the limitation at issue is the “*natural result*” of the combination of prior art elements. *Id.*

PAR Pharm., 773 F.3d at 1195 (Fed Cir. 2014) (emphasis added) (quoting *In re Oelrich*, 666 F.2d 578, 581 (CCPA 1981)).

However, under 35 U.S.C. § 102, a reference inherently discloses an element of a claim “if that missing characteristic is *necessarily* present, or inherent, in the single anticipating reference.” *Schering Corp.*, 339 F.3d at 1377 (emphasis added) (citation omitted). Moreover, under 35 U.S.C. § 102, “[i]nherency . . . may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient.” *Therasense*, 593 F.3d at 1332 (emphasis added) (citing *Cont’l Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 1264, 1269 (Fed. Cir. 1991)).

Here, under the law of anticipation, Petitioner has not established that Centonza *expressly* incorporates and identifies with *detailed particularity* what specific material it incorporates and where that material is found with respect to 3GPP TS 36.331 Exhibits 1008 and/or 1009, as relied upon by

Petitioner to support anticipation Ground 1 over Centonza. Nor has Petitioner shown that the disputed step [1e] is inherently disclosed or described by either Centonza or TS 36.331 under the rigorous requirements of anticipation.

Moreover, we find unpersuasive Petitioner's reliance upon paragraphs 109–115 of Dr. Hansen's declaration (Ex. 1003). Pet. 37. Paragraph 109 of the declaration merely relies upon Dr. Hansen's opinion, and cites no objective evidence in support. *See* 37 C.F.R. § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”).

Nor do we find persuasive Dr. Hansen's reliance upon Centonza (Ex. 1005, 11:37–44) and the Centonza provisional (Ex. 1006, 19, 90, 139, 206), for the reasons which follow. Ex. 1003 ¶¶ 110–111.

Centonza describes, in pertinent part: “Measurement gaps define time periods when no uplink or downlink transmissions will be scheduled, so that the user equipment may perform the measurements.” Ex. 1005, 11:37–44. We find this general description of measurement gaps does not expressly nor inherently disclose or describe the disputed portion of step [1e]: “the first eNB sends the measurement gap configuration to the second eNB *so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE.*” Ex. 1001, 9:2–15 (emphasis added).

And the Centonza provisional (Ex. 1006) cited by Dr. Hansen merely replicates on pages 19, 90, 139, and 206 (at numbered paragraph 5) the exact language of the Centonza patent at column 11, lines 37–44. *Compare* Ex. 1005, 11:37–44, *with* Ex. 1006, 19, 90, 139, 206. The remaining paragraphs 112–115 of Dr. Hansen's declaration (Ex. 1003) each rely essentially upon combining Centonza with TS 36.331, but we find the addition of TS 36.331

fails to show anticipation over Centonza, under the doctrine of incorporation, for the reasons discussed above.

For at least the aforementioned reasons, we find Patent Owner's arguments persuasive:

The Petition, however, provides no evidence that Centonza's Target eNB uses the received MeasGapConfig to schedule UE resources. Pet., 35-37. Instead, the Petition argues that the second eNB necessarily uses MeasGapConfig because its purpose is to "define time periods when no uplink or downlink transmissions will be scheduled, so that the user equipment may perform the measurements." Pet., 36. In other words, Petitioners argue that evidence of sending MeasGapConfig to the Target eNB is sufficient to show using MeasGapConfig by the Target eNB.

Prelim. Resp. 12

Patent Owner persuasively argues that Petitioners are incorrect:

because TS 36.331 teaches that the purpose of MeasGapConfig is to **configure the UE** (not an eNB) to perform measurements during periods when there are no UL/DL transmissions scheduled. EX1009, 79 (describing how the UE sets up a received measurement gap configuration), 74 (defining "measurement gap" as "[p]eriods that the UE may use to perform measurements, i.e. no (UL, DL) transmissions are scheduled."). Indeed, Petitioners' description of the measurement gap in Centonza as "defin[ing] time periods when no uplink or downlink transmissions will be scheduled, *so that the user equipment may perform the measurements*" explicitly concedes this. Because the purpose of MeasGapConfig is to **configure the UE**, it does not follow that sending MeasGapConfig to the Target eNB necessarily requires the Target eNB to use MeasGapConfig to schedule resources as required by the claims. Rather, page 79 of TS 36.331 teaches that the Target eNB passes MeasGapConfig to the UE so that the UE can be configured to perform measurements. There is no teaching anywhere in Centonza or TS 36.331 that the Target eNB (rather than the UE) uses

MeasGapConfig to schedule resources. Thus, sending MeasGapConfig to a Target eNB alone cannot anticipate "taking

measurement gaps into consideration when scheduling resources to the UE.” The alleged prior art simply lacks the required express teaching of the Target eNB taking measurement gaps into consideration when scheduling resources to the UE (rather than passing it to the UE to schedule measurements).

Prelim. Resp. 12–13.

Accordingly, Petitioner has not persuasively shown that Centonza anticipates either steps [1d] or [1e] under the doctrine of incorporation, as discussed *supra* regarding TS 36.331. As noted above, step [7c] recites the disputed portion of step [1e] using identical language: “the first eNB sends the measurement gap configuration to the second eNB *so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE.*” Ex. 1001, 9:2–15; 10:21–23. Therefore, for the same reasons we identify above, Petitioner has not persuasively shown that Centonza anticipates step [7c].

c) Summary for Claims 1 and 7 under Ground 1

For the reasons discussed above regarding the doctrine of incorporation, as pertaining to TS 36.331, we find Petitioner has not shown a reasonable likelihood that it would prevail on its assertions that the subject matter of independent claims 1 and 7 is anticipated by Centonza.

d) Dependent Claims 2, 3 and 8–11 under Ground 1

By virtue of their dependency, claims 2, 3, and 8–11 include the same steps as either independent claim 1 or 7.¹³ Petitioner does not present arguments and supporting evidence with respect to these dependent claims that remedy the deficiencies in its analysis of Centonza (Ex. 1005) and/or

¹³ We note that each dependent claim 2, 3, and 8–11, includes all the limitations of the claim(s) from which it depends. *See* 35 U.S.C. § 112(d).

Centonza's provisional application (Ex. 1006) for independent claims 1 and 7.

Accordingly, for the same reasons discussed above regarding the doctrine of incorporation as pertaining to TS 36.331, and with respect to independent claims 1 and 7, Petitioner has not shown a reasonable likelihood that it would prevail on its assertions that the subject matter of dependent claims 2, 3, and 8–11 is anticipated by Centonza.

e) Conclusion – Claims 1–3 and 7–11 under Ground 1

Taking into account the Petition and Patent Owner's Preliminary Response, we conclude that the information presented in the Petition does not demonstrate that there is a reasonable likelihood that Petitioner would prevail in challenging any one of claims 1–3 and 7–11 of the '559 patent as being anticipated by Centonza.

E. Ground 2 — Obviousness of Claims 1–3 and 7–11 over Centonza and TS 36.331

Petitioner argues that, to the extent Centonza does not anticipate the claims, Centonza *combined* with TS 36.311 renders claims 1–3 and 7–11 obvious under 35 U.S.C. § 103. Pet. 44–49.

Patent Owner disagrees, and again advances arguments disputing whether Petitioner has shown that Centonza describes the portion of step [1e] that recites “*so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE.*” Prelim. Resp. 1, 13 (emphasis added). As we note above, step claim [7c] includes identical language.

We begin with a description of the TS 36.331 prior art and provide our analysis.

1. TS 36.331

TS 36.331 is a technical specification entitled “3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification (Release 11),” designated 3GPP TS 36.331 V11.2.0 (2012-12), and developed by the 3rd Generation Partnership Project. Ex. 1008, 1. The ’559 patent states that this document is *expressly* incorporated by reference. Ex. 1001, 2:18–30. Centonza states 3GPP TS 36.331 describes the details of the RRC protocol. Ex. 1005, 7:24–26; Ex. 1006, 11.

TS 36.331 describes various handover messages, including a “HandoverPreparationInformation” message. Ex. 1008, 294–97 (section 10.2.2 and “MeasConfig”). TS 36.331 further describes measurement information elements (IEs) designated “MeasConfig” and “MeasGapConfig.” Ex. 1008, 18, 244–47.

2. Independent Claims 1 and 7

Petitioner alternatively argues that the combination of Centonza and TS 36.331 renders *obvious* preamble [1pre], and steps [1b], [1c], [1d] and [1e] under Ground 2. Pet. 44–49. At this time, Patent Owner does not advance any arguments regarding Petitioner’s assertions for preamble [1pre], and steps [1b], [1c], and [1d] of claim 1 under Ground 2. *See generally* Prelim. Resp. Nor does Patent Owner separately argue dependent claims 2–3 and 8–11 under Ground 2. *Id.* Patent Owner instead focuses the argument on step [1e] and similar step [7c]. Prelim. Resp. 13.

a) Step [1d]

Regarding step [1d], because: (1) Petitioner is not relying upon the doctrine of incorporation by reference for Ground 2, and (2) Patent Owner does not advance any arguments regarding Petitioner’s assertions for step [1d] under obviousness Ground 2, we find Petitioner has preliminarily shown (under Ground 1) that the *combination* of Centonza and TS 36.331 at least *suggests* (but does not anticipate) step [1d] for essentially the same reasons articulated on pages 30–35 of the Petition, which address step [1d] under anticipation Ground 1. We thus focus our analysis on the disputed portion of step [1e] and similar step [7c].

b) Steps [1e] and [7c]

As noted above, regarding steps [1e] and [7c], Petitioner contends:

to the extent the combination of Centonza and TS 36.311 does not disclose the purpose (elements [1e] and [7c]) of sending the measurement-gap configuration to the Target eNB, a POSITA would have found it obvious to modify the system such that the Target eNB takes the measurement-gap configuration into consideration when scheduling resources to the UE.

Pet. 47 (citing Ex. 1003 ¶¶ 145–146); *see also* Pet. 46–47 (addressing independent claims 1 and 7).

Patent Owner disagrees, and contends: “Petitioners’ Ground 2 argument repeats its Ground 1 argument that transmitting MeasGapConfig to the Target eNB necessarily requires the Target eNB to use MeasGapConfig to schedule resources to the UE and fails for the same reason.” Prelim. Resp. 13.

In support, Patent Owner argues: “TS 36.331—like Centonza—discloses that the purpose of MeasGapConfig is to configure the UE.

TS 36.331 does not teach that the Target eNB (rather than the UE) uses MeasGapConfig to schedule resources. Prelim. Resp. 13. Patent Owner concludes: “Thus, TS 36.331 cannot suggest that the Target eNB takes measurement gaps into consideration when scheduling resources to the UE as claimed.” *Id.*

We particularly note that Petitioner relies solely upon paragraphs 145 and 146 of Dr. Hansen’s declaration to support Petitioner’s above argument that “a POSITA would have found it obvious to modify the system such that the Target eNB takes the measurement-gap configuration into consideration when scheduling resources to the UE.” Pet. 47 (citing Ex. 1003 ¶¶ 145–146).

But when we review paragraphs 145–146 of Dr. Hansen’s declaration, we find no citation to any objective evidence in support. Instead, Dr. Hansen merely avers “it is my opinion” twice in paragraph 145. However, under 37 C.F.R. § 42.65(a), “[e]xpert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”

We, therefore, accord Dr. Hansen’s testimony little or no weight because Petitioner is using unsupported expert testimony instead of a citation to a patent or printed publication to teach a limitation (i.e., step [1e] and similar step [7c]) that we find is not disclosed or described (under anticipation Ground 1), nor taught or suggested (under obviousness Ground 2) by Centonza and TS 36.331. *Compare Arendi S.A.R.L. v. Apply, Inc.*, 832 F.3d 1355, 1361 (Fed. Cir. 2016) (holding that reliance upon common sense in an obviousness analysis is “typically invoked to provide a known motivation to combine, not to supply a missing claim limitation”).

Moreover, we find Petitioner’s statement (“to the extent the combination of Centonza and TS 36.311 does not disclose the *purpose* of

elements [1e] and [7c]) of sending the measurement-gap configuration to the Target eNB,” Pet. 47 (emphasis added)) is tantamount to an admission that the disputed language in step [1e] and step [7c] *may* not be taught by Centonza nor TS 36.331.

On this record, we agree with Patent Owner (Prelim. Resp. 13) regarding the obviousness Ground 2, because a review of the Petition (page 47) reveals that Petitioner relies only upon unsupported expert witness testimony to support the purported description in Centonza and/or TS 36.331 for steps [1e] and [7c]. On this record, we do not credit Dr. Hansen’s testimony that the combined system of Centonza and TS 36.311 is capable of being modified to supply the missing disputed portion of step [1e], because this testimony lacks evidentiary support and relies upon conclusory generalizations.¹⁴ Ex. 1003 ¶¶ 145, 146.

Accordingly, we find Petitioner has not persuasively shown that the combination of Centonza and TS 36.331 teaches or suggests the disputed language of step [1e]. As noted above, step [7c] recites the disputed portion

¹⁴ See *Yeda Research v. Mylan Pharm. Inc.*, 906 F.3d 1031, 1041 (Fed. Cir. 2018) (noting that the Board correctly “recognized that non-prior art evidence of what was known ‘cannot be applied, independently, as teachings separately combinable’ with other prior art, but “can be relied on for their proper supporting roles, e.g., indicating the level of ordinary skill in the art, what certain terms would mean to one with ordinary skill in the art, and how one with ordinary skill in the art would have understood a prior art disclosure”) (citation omitted); compare with *DSS Tech. Management, Inc. v. Apple Inc.*, 885 F.3d 1367 (Fed. Cir. 2018) (Petitioner relied on the expert’s testimony invoking “ordinary creativity” instead of “common sense” to supply a missing limitation. *Id.* at 1375, 1377. The Federal Circuit explained this was insufficient “without ‘a reasoned explanation that avoids conclusory generalizations.’” *Id.* at 1377).

of step [1e] using identical language: “the first eNB sends the measurement gap configuration to the second eNB *so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE.*” Ex. 1001, 9:2–15; 10:21–23. Therefore, for the same reasons we identify above, Petitioner has not persuasively shown that the combination of Centonza and TS 36.331 teaches or suggests step [7c].

c) Summary for Claims 1 and 7 under Ground 2

For the reasons discussed above, we find Petitioner has not shown a reasonable likelihood that it would prevail on its assertions that the subject matter of independent claims 1 and 7 is rendered obvious over Centonza and 3GPP TS 36.331.

d) Dependent Claims 2, 3, and 8–11 under Ground 2

By virtue of their dependency, claims 2, 3, and 8–11 include the same steps as either independent claim 1 or 7. Petitioner does not present arguments and supporting evidence with respect to these dependent claims that remedy the deficiencies in its analysis of the combination of Centonza (and/or Centonza’s provisional application) and TS 36.331 (Ex. 1008; Ex. 1009) for independent claims 1 and 7. Accordingly, for the same reasons we discuss above with respect to independent claims 1 and 7, Petitioner has not shown a reasonable likelihood that it would prevail on its assertions that the subject matter of dependent claims 2, 3, and 8–11 is rendered obvious by Centonza and TS 36.331.

e) Conclusion – Claims 1–3 and 7–11 under Ground 2

Taking into account the Petition and Patent Owner’s Preliminary Response, we conclude that the information presented in the Petition does not demonstrate that there is a reasonable likelihood that Petitioner would

prevail in challenging any one of claims 1–3 and 7–11 of the '559 patent as unpatentable as being obvious over Centonza and TS 36.331.

F. Ground 3 — Obviousness of Claims 1–3 and 7–11 over Centonza and Siomina

Petitioner argues that Centonza combined with Siomina renders obvious challenged claims 1–3 and 7–11. Pet. 49–64.

Patent Owner disagrees, and again advances arguments disputing whether Petitioner has shown that Centonza describes the portion of step [1e] that recites “*so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE.*” Prelim. Resp. 1, 14 (emphasis added). As we have noted above, step [7c] includes identical language.

We begin with a description of the Siomina prior art and provide our analysis.

1. Siomina

Siomina is a published international application titled “Methods and Network Nodes for Configuring Almost Blank Subframe Transmission Patterns and Corresponding Measurement Patterns for Reducing Intercell Interference in [a] Heterogeneous Cellular Radio Communication System.” Ex. 1007, codes (12), (54) (some capitalization omitted).

Siomina relates to a method and a network node for enabling configuration of at least two patterns for a cell where the at least two patterns are transmission patterns or measurement patterns. Ex. 1007, code (57), 10:5–6. “The first pattern may be intended for measurements with measurement gaps and the second pattern may be intended for measurements without measurement gaps.” *Id.* at 10:17–19.

Figure 5, reproduced below, is an overview of a radio communication system. *Id.* at 8:33–35.

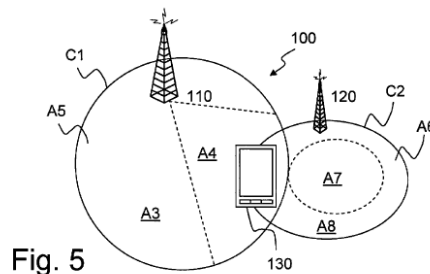


Figure 5 shows heterogeneous radio communication system 100 having macro radio base station 110, pico radio base station 120, first cell C1, second cell C2, and user equipment 130. *Id.* at 17:13–18:14. Macro radio base station 110 operates first cell C1 and pico radio base station 120 operates second cell C2. *Id.* Macro radio base station 110 can send at least one of first and second ABS (Almost Blank Subframe¹⁵) patterns to pico radio base station 120. *Id.* at 19:13–14. In some embodiments, network node 140 transmits at least two patterns to a further network node or a user equipment 130. *Id.* at 24:6–7.

Siomina describes:

[T]he network node 140 determines which of the at least two patterns shall be applied when the user equipment 130 is located in the respective restricted area. Typically, the at least two patterns are transmission patterns in these embodiments.

The network node 140 may further decide applicability of the at least two patterns based on available measurements relating to the user equipment.

Id. at 13:23–28.

¹⁵ Siomina states “[a] transmission activity pattern is typically referred to herein as an Almost Blank Subframe (ABS) pattern.” *Id.* at 31:22–23.

Siomina additionally describes: “pico cells[] are aware about the time-frequency resources with low-interference conditions and thus can prioritize scheduling of transmissions in those subframes for users which potentially may strongly suffer from the interference caused by the strong interferers.” *Id.* at 3:31–35. Siomina further describes: “resources that can be used for measurements are indicated by patterns, such as an ABS pattern.” *Id.* at 5:20–22. Siomina also describes: “[w]hen determining the measurement pattern, the different ABS patterns will need to be taken into account.” *Id.* at 6:6–7.

2. *Independent Claims 1 and 7*

Petitioner argues that the combination of Centonza and Siomina renders obvious preamble [1pre], and steps [1b], [1c], [1d], and [1e] under Ground 3. Pet. 49–58. At this time, Patent Owner does not advance any arguments regarding Petitioner’s assertions for preamble [1pre], and steps [1b], [1c], and [1d] of claim 1 under Ground 3. *See generally* Prelim. Resp. Nor does Patent Owner separately argue claims 2–3 and 8–11 under Ground 3. *Id.* Patent Owner instead focuses the argument on the disputed portions of steps [1e] and [7c]. Prelim. Resp. 14.

a) *Steps [1e] and [7c]*

Regarding step [1e], Petitioner argues: “[t]o the extent Centonza does not disclose this limitation, Siomina also discloses that a first eNB (*e.g.*, macro base station) sends the measurement gap configuration (the pattern) to the second eNB (*e.g.*, pico base station) so that the second eNB could take measurement gaps into consideration when scheduling resources

to the UE.” (citing *e.g.*, UE 130; Ex. 1003 ¶ 167; Ex. 1007, Figs. 4, 6a, 7, 11:14–17:10, 18:17–20:5, 22:21–24:21).

Regarding steps [1e] and [7c], Patent Owner again focuses the argument on the disputed claim language “*so that the second eNB could take [] measurement gaps into consideration when scheduling resources to the UE.*” Prelim. Resp. 14 (emphasis added). Patent Owner argues this language as recited within steps [1e] and [7c] is not disclosed by Centonza nor Siomina under Ground 3. Prelim. Resp. 1, 14 (emphasis added).

In support, Patent Owner argues the “Petition does not allege that Siomina discloses that a pico eNB uses patterns to schedule resources to a UE. Pet., 56-58. Instead, the Petition argues that this element may be *inferred* because ‘Siomina discloses that the macro eNB sends the patterns to the pico eNB.’” Prelim. Resp. 14 (emphasis added) (quoting Pet. 56, first sentence of last paragraph).

Patent Owner persuasively argues: “But like for Centonza and for TS 36.331, *evidence that a pattern is sent to a pico eNB is not evidence that the pattern is used by the pico eNB to schedule resources.*” Prelim. Resp. 14 (emphasis added). In support of this principal argument, Patent Owner contends:

Rather, Siomina similarly discloses that the pattern is ***applied to a UE***: “a network node, which may be a pico eNB, ‘determines ***which of the at least two patterns shall be applied when the user equipment 130*** is located in the respective restricted area.’” Pet., 57 (*citing* EX1007, 13:20–30). Because the pattern is applied to a UE, Siomina at most suggests configuring a UE with a pattern and cannot suggest the pico eNB using the pattern to schedule resources.

Prelim. Resp. 14.

Based upon our review of the evidence, we agree with Patent Owner that “Siomina at most suggests configuring a UE with a pattern and cannot suggest the pico eNB using the pattern to schedule resources.” *Id.*

Therefore, we agree with Patent Owner that Petitioner has not shown that the claim [1e] language “*so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE*” is taught or suggested by Centonza and Siomina under Ground 3.

Because step [7c] recites the identical disputed language of step [1e], we similarly find Petitioner has not shown that the claim [7c] language “*so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE*” is taught or suggested by Centonza and Siomina under Ground 3.

b) Summary for Claims 1 and 7 under Ground 3

For the reasons discussed above, we find Petitioner has not shown a reasonable likelihood that it would prevail on its assertions that the subject matter of independent claims 1 and 7 is rendered obvious over Centonza and Siomina.

c) Dependent Claims 2, 3, and 8–11 under Ground 3

By virtue of their dependency, claims 2, 3, and 8–11 include the same steps as either independent claim 1 or 7. Petitioner does not present arguments and supporting evidence with respect to these dependent claims that remedy the deficiencies in its analysis of Centonza (and/or Centonza’s provisional application), and Siomina for independent claims 1 and 7.

Accordingly, for the same reasons we discuss above with respect to independent claims 1 and 7 under Ground 3, we find Petitioner has not

shown a reasonable likelihood that it would prevail on its assertions that the subject matter of dependent claims 2, 3, and 8–11 is rendered obvious by the combination of Centonza and Siomina.

d) Conclusion – Claims 1–3 and 7–11 under Ground 3

Taking into account the Petition and Patent Owner’s Preliminary Response, we conclude that the information presented in the Petition does not demonstrate there is a reasonable likelihood that Petitioner would prevail in challenging any one of claims 1–3 and 7–11 of the ’559 patent as unpatentable as being obvious over Centonza and Siomina.

G. Ground 4— Obviousness of Claims 1–3 and 7–11 over Centonza, Siomina, and TS 36.331

Lastly, Petitioner argues that claims 1–3 and 7–11 would have been obvious over the combination of Centonza, Siomina, and TS 36.331. Pet. 64–65.

Specifically, Petitioner contends the combination of Centonza, Siomina, and TS 36.331 teaches each element of the challenged claims for the same reasons *previously argued* for Grounds 1, 2, and 3. Pet. 64–65. Petitioner also contends: “[s]imilar to Ground [2], to the extent Centonza *does not incorporate* TS 36.331, Centonza combined with Siomina and TS 36.331 version 11.2.0 renders the claims obvious.” Pet. 64 (citing Ex. 1003 ¶¶ 187–188) (emphasis added).

Our understanding of the Patent Owner’s Preliminary Response is that Patent Owner, in rebutting Ground 4, is relying upon its previous arguments advanced for Grounds 1, 2, and 3. Prelim. Resp. 14. Thus, we understand Patent Owner’s position regarding Ground 4 as being the same as for

Grounds 1, 2, and 3, as discussed *supra* regarding the dispositive disputed language recited in steps [1e] and [7c]. *Id.* On the present record, we understand Patent Owner's position is that the disputed language recited within steps [1e] and [7c] is not anticipated nor rendered obvious under any of Grounds 1, 2, 3, and 4. *Id.*

1. Independent Claims 1 and 7

As noted above, Petitioner argues that the combination of Centonza, Siomina, and TS 36.331 renders obvious all limitations under Ground 4, for the *same reasons* previously argued by Petitioner regarding Grounds 1, 2, and 3. Pet. 64–65.

And our understanding of the Patent Owner's Preliminary Response is that Patent Owner, in rebutting Ground 4, is also relying upon its previous arguments advanced under Grounds 1, 2, and 3. Prelim. Resp. 14.

a) Steps [1e] and [7c]

As noted above, Petitioner argues that the combination of Centonza, Siomina, and TS 36.331 renders obvious all claim limitations under Ground 4, for the same reasons previously argued by Petitioner regarding Grounds 1, 2, and 3. Pet. 64–65. And our understanding of the Patent Owner's Preliminary Response is that Patent Owner, in rebutting Ground 4, is also relying upon its previous arguments advanced under Grounds 1, 2, and 3. Prelim. Resp. 14.

Because we have found that step [1e] is not anticipated nor rendered obvious under any of Grounds 1, 2, and 3, *for the same reasons discussed above* regarding Grounds 1, 2, and 3, we find Petitioner has not shown that Centonza, Siomina, and TS 36.331 render obvious step [1e] under Ground 4.

Because step [7c] recites the identical disputed language of claim [1e], we similarly find Petitioner has not shown that the step [7c] language “*so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE*” is taught or suggested by the combination of Centonza, Siomina, and TS 36.331 under Ground 4.

b) Summary for Claims 1 and 7 under Ground 4

For the reasons discussed above, we find Petitioner has not shown a reasonable likelihood that it would prevail on its assertions that the subject matter of independent claims 1 and 7 is rendered obvious over Centonza, Siomina, and TS 36.331.

c) Dependent Claims 2, 3, and 8–11 under Ground 4

By virtue of their dependency, claims 2, 3, and 8–11 include the same steps as either independent claim 1 or 7. Petitioner does not present arguments and supporting evidence with respect to these dependent claims that remedy the deficiencies in its analysis of Centonza and/or Centonza’s provisional application, Siomina, and TS 36.331, as discussed above under Grounds 1, 2, and 3 for independent claims 1 and 7. Accordingly, for the same reasons discussed above with respect to independent claims 1 and 7, Petitioner has not shown a reasonable likelihood that it would prevail on its assertions that the subject matter of dependent claims 2, 3, and 8–11 is rendered obvious by Centonza, Siomina, and TS 36.331.

d) Conclusion – Claims 1–3 and 7–11 under Ground 4

Taking into account the Petition and Patent Owner’s Preliminary Response, we conclude that the information presented in the Petition does

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not demonstrate that there is a reasonable likelihood that Petitioner would prevail in challenging any one of claims 1–3 and 7–11 of the '559 patent as unpatentable as being obvious over Centonza, Siomina, and TS 36.331.

III. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that *inter partes* review of all challenged claims of U.S. Patent No. 9,560,559 B2 is *denied* with respect to all grounds of unpatentability set forth in the Petition; and

FURTHER ORDERED that the Petition is *denied*.

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