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Paper 74
Entered: December 6, 2022

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HONEYWELL INTERNATIONAL, INC., SIERRA WIRELESS, INC., TCL COMMUNICATION TECHNOLOGY HOLDINGS LIMITED, TCT MOBILE INTERNATIONAL LIMITED, TCT MOBILE, INC., TCT MOBILE (US) INC., TCT MOBILE (US) HOLDINGS INC., and THALES DIS AIS DEUTSCHLAND GMBH,
Petitioner,

v.

3G LICENSING S.A.,
Patent Owner.

IPR2021-00906
Patent 7,580,388 B2

Before JAMESON LEE, AARON W. MOORE, and RUSSELL E. CASS, *Administrative Patent Judges.*

LEE, *Administrative Patent Judge*.

JUDGMENT

Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)
Granting Patent Owner's Contingent Motion to Amend
35 U.S.C. § 316(d)
Denying Patent Owner's Motion to Strike
Denying Patent Owner's Motion to Exclude Evidence
Denying Petitioner's Motion to Exclude Evidence

I. INTRODUCTION

We instituted an *inter partes* review of claims 1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, and 63 of U.S. Patent No. 7,580,388 B2 (Ex. 1001, "the '388 patent") owned by 3G Licensing S.A. ("Patent Owner"). Paper 18 ("Decision to Institute" or "Inst. Dec."). Patent Owner filed a Motion to Amend Claims and Request for Preliminary Guidance. Paper 29. The Board issued a Preliminary Guidance. Paper 42. Thereafter, Patent Owner filed a Revised Motion to Amend Claims. Paper 46.

We have authority to conduct this *inter partes* review under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. We determine that Honeywell International, Inc., Sierra Wireless Inc., TCL Communication Technology Holdings Limited, TCT Mobile International Limited, TCT Mobile Inc., TCT Mobile (US) Inc., TCT Mobile (US) Holdings Inc., and Thales DIS AIS Deutschland GmbH (collectively "Petitioner")[1] have proved by a preponderance of the evidence that claims 1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, and 63 of the '388 patent are unpatentable.

Petitioner, however, has not proved by a preponderance of the evidence that any of Patent Owner's proposed substitute claims 66–85 in the Revised Motion to Amend Claims are unpatentable over prior art. Patent Owner, on the other hand, has proved that its proposed substitute claims 66–

[1] Petitioner entity Dell, Inc. was terminated from this proceeding on January 11, 2022. Paper 23. Petitioner entities ZTE Corporation and ZTE (USA) Inc. were terminated from this proceeding on October 20, 2021. Paper 17. Petitioner entity Cradlepoint Inc. was terminated from this proceeding on November 7, 2022. Paper 72.

85 meet the statutory and regulatory requirements for those claims. Accordingly, Patent Owner's Revised Motion to Amend Claims is *granted*.

A. Background

Petitioner filed a Petition (Paper 8 ("Pet.")) requesting *inter partes* review of claims 1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, and 63 of the '388 patent. Patent Owner filed a Preliminary Response.[2] Paper 16. The Decision to Institute was entered on December 9, 2021. Paper 18. Thereafter, Patent Owner filed a Patent Owner Response.[3] Paper 32 ("PO Resp."). Petitioner filed a Reply. Paper 41. Patent Owner filed a Sur-Reply. Paper 45. Oral hearing was held on October 6, 2022. A copy of the hearing transcript has been entered into the record as Paper 73 ("Tr.").

Patent Owner filed a Motion to Amend Claims and Request for Preliminary Guidance.[4] Paper 29. Petitioner filed an Opposition to the Motion to Amend Claims and Request for Preliminary Guidance. Paper 38. The Board issued a Preliminary Guidance. Paper 42. Thereafter, Patent Owner filed a Revised Motion to Amend Claims. Paper 46.

Petitioner filed an Opposition to the Revised Motion to Amend Claims. Paper 48. Patent Owner filed a Reply to Petitioner's Opposition to Patent Owner's Revised Motion to Amend Claims. Paper 56. Petitioner filed a Sur-Reply to Patent Owner's Reply to Petitioner's Opposition to Patent Owner's Revised Motion to Amend Claims. Paper 64.

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[2] The Preliminary Response relied on a first Declaration of Michael J. Smith. Ex. 2004.
[3] The Patent Owner Response relied on a third Declaration of Michael J. Smith. Ex. 2018.
[4] The Motion to Amend Claims relied on a second declaration of Michael J. Smith. Ex. 2007.

Additionally, with our authorization (Paper 54), Patent Owner filed a Motion to Strike. Paper 55. Petitioner filed a Response to Patent Owner's Motion to Strike. Paper 57. Further, each party filed a Motion to Exclude Evidence. Papers 58, 59. Petitioner filed an Opposition to Patent Owner's Motion to Exclude Evidence. Paper 61. Patent Owner filed an Opposition to Petitioner's Motion to Exclude Evidence.[5] Paper 60. Petitioner filed a Reply to Patent Owner's Opposition to Petitioner's Motion to Exclude Evidence. Paper 63. Patent Owner filed a Reply to Petitioner's Opposition to Patent Owner's Motion to Exclude Evidence. Paper 62.

B. Real Parties in Interest

Petitioner identifies itself, as well as Sierra Wireless America, Inc., Thales DIS AIA USA, LLC, Telefonaktiebolaget LM Ericsson, and Ericsson Inc. as real parties in interest. Paper 25, 2. Patent Owner identifies only itself as real party in interest. Paper 10.

C. Related Matters

Petitioner states that Patent Owner asserted the '388 patent against "certain Petitioners" and others, in lawsuits filed, *inter alia*, "in Delaware District Court, Case Nos. 1:20-cv-00649, 1:20-cv-00651, 1:20-cv-00652, 1:20-cv-00653, 1:20-cv-00654, 1:20-cv-00655, 1:20-cv-00656, 1:20-cv-00658, and 1:20-cv-00659; in the Northern District of Texas, Case No. 3:20-cv-01289; and in the Southern District of Florida, Case Nos. 1:20-cv-022051 and 1:20-cv-22054." Pet. 4. Patent Owner identifies the same twelve cases. *See* Paper 10, 2.

[5] Patent Owner's Opposition to Petitioner's Motion to Exclude relied on a Fourth Declaration of Michael J. Smith. Ex. 2034.

D. The '388 Patent

1. The Disclosure

The '388 patent describes "a method and apparatus for providing new configurations for transmitting control information between a mobile terminal, for example user equipment (UE), and a radio network controller (RNC) using a common control channel (CCCH) logical channel/transport channel." Ex. 1001, 1:19–24. "The new configurations enable messages to be sent that are larger than currently allowed and the availability of the new configurations is indicated such that mobile terminals that do not support the new configurations are not impacted." *Id.* at code (57).

The '388 patent describes: "Presently, the UMTS [universal mobile telecommunication system] standard also indicates that a UE2 is only allowed to use the first transport format that is listed for the selected RACH [radio access channel] for transmission of messages via CCCH." *Id.* at 6:64–67. The '388 patent explains that conventional methods adapt the size of the messages transmitted on the CCCH logical channel so that information would fit inside the transport block that is used in the RACH. *Id.* at 7:29–34. More specifically, the '388 patent describes the conventional adaptation for solving the transport block size issue, as follows:

> As illustrated in FIG. 10, information regarding the existing PRACH [physical radio access channel] configurations is transmitted to a UE 2 (S10). Based on the existing transport PRACH configurations, the UE 2 selects the PRACH according to an algorithm (S12). The UE 2 generates a message including all information elements for transmission over the PRACH (S14). The UE 2 compares the message size with the transport block size of the first transport format of the corresponding RACH and adapts the message size by deleting measurement information until the message fits within the transport block size (S16). The UE 2 then transmits the adapted message via the PRACH (S18).

Id. at 7:35–45. The '388 patent further explains:

> If the size of a CCCH message is too large using the conventional methods 1, 50, a UE 2 might completely delete the information on the measured results of neighboring cells, for example measured results on RACH, even though the quality and timing information might be needed in the RNC 10. Without the quality and timing information, a connection may not be established with the RNC 10 when a UE 2 moves to anther cell. The UE 2 may not be able to transmit data and a current call may be interrupted or a new call may not be initiated.

Id. at 8:29–38. Thus, the '388 patent states that there was a need for a method and apparatus that conforms to a new UMTS standard that allows messages to be transmitted via the CCCH channel that are larger than the currently available transport block size, while not impacting the operation of mobile terminals that do not conform to the new UMTS standard. *Id.* at 8:52–57.

Regarding its invention, the '388 patent states that it is directed to a method and apparatus "for providing new configurations for transmitting control information between a mobile and a network using a common control channel logical channel/transport channel such that the operation of mobile terminals that do not support the new configurations is not impacted." Ex. 1001, 8:65–9:2. In particular, in the Summary of Invention section of the Specification, the '388 patent describes:

> Specifically, the invention is directed to a method and apparatus for providing new configurations for transmitting control information between a mobile and a network using a common control channel logical channel/transport channel such that the operation of mobile terminals that do not support the new configurations is not impacted.

Id. at 8:64–9:2.

> Specifically, new configurations for transmitting control information between a mobile and a network using a common

> control channel (CCCH) logical channel/transport channel are provided and an indication is provided from a network regarding which of the new configurations are available for use such that previously available configurations are still available for mobile terminals that do not support the new configurations.

Id. at 9:14–21.

> It is contemplated that the available configurations may include a legacy configuration mode and legacy configuration identity. The legacy configuration mode is a configuration mode for transmitting a message that may be utilized by mobile terminals that do not support the new configurations provided by the present invention.

Id. at 9:28–33.

Additional description about providing "new configurations" for transmitting a message and not affecting operation of terminals that do not support the new configurations appears in the Specification. *Id.* at 8:62–11:35, 9:36–42, 9:45–51, 9:63–10:4, 10:8–16, 10:17–20, 10:23–26, 10:38–41, 10:44–46, 10:47–51, 10:53–59.

2. The Independent Claims

Claims 1 and 33 are independent and reproduced below, with bracketed subheadings added to reflect those used in the Petition:

> 1. [pre] A method of transmitting control information from a mobile terminal in a network, the method comprising:
>
> [a] receiving a first message in the mobile terminal, the first message including information indicating at least one available configuration for transmitting a second message,
>
> [b] the second message including at least a portion of the control information;
>
> [c] selecting one of the at least one available configuration in the mobile terminal; and
>
> [d] transmitting the second message from the mobile terminal utilizing the selected configuration,

[e] wherein the at least one available configuration is physical random access channel (PRACH) information related to a common control channel (CCCH) logical channel,

[f] the information including additional transport format information for the CCCH comprising at least one of a RLC (Radio Link Control) size, a transport block size, or number of transport blocks.

Ex. 1001, 17:29–46.

33. [pre] A mobile communication device for transmitting control information to a network, the mobile communication device comprising:

[a] an RF module configured to receive a first message from the network and to transmit a second message to the network,

[b] the first message including information indicting at least one available configuration for transmitting the second message

[c] and the second message including at least a portion of the control information;

[d] an antenna configured to receive the first message from the network and to transmit the second message to the network;

[e] a keypad configured to input information from a user;

[f] a storage unit configured to store information associated with the at least one available configuration for transmitting the second message;

[g] a display configured to convey information to the user; and

[h] a processing unit configured to process the first message, select one of the at least one available configuration and transmit the second message utilizing the selected configuration,

[i] wherein the at least one available configuration is physical random access channel (PRACH) information related to a common control channel (CCCH) logical channel,

[j] the information including additional transport format information for the CCCH comprising at least one of a RLC (Radio Link Control) size, a transport block size, or number of transport blocks.

Id. at 19:42–20:2.

E. Asserted Grounds of Unpatentability[6]

Relying on the testimony of James L. Olivier, Ph.D. (Ex. 1006), Craig Bishop (Ex. 1007), and James L. Mullins, Ph.D. (Ex. 1008), Petitioner asserts that the challenged claims are unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §[7]	Reference(s)/Basis
1–3, 8, 9, 12, 56, 57	102	TS-25.331[8]
1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, 63	103	TS-25.331
1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, 63	103	TS-25.331, Bannister[9]

[6] The '388 patent issued from Application 11/065,872, filed Feb. 25, 2005. Ex. 1001, codes (21, 22). The '388 patent also claims priority to Provisional Application 60/576,214, filed June 1, 2004, and Provisional Application 60/589,630, filed July 20, 2004. *Id.* at code (60).

[7] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112–29, 125 Stat. 284, 287–88 (2011), revised 35 U.S.C. §§ 102 and 103 effective March 16, 2013. Because the effective filing date of the '388 patent claims is prior to March 16, 2013 (Ex. 1001, codes (22, 63)), we refer to the pre-AIA versions of §§ 102 and 103.

[8] 3GPP TS 25.331 V6.1.0, *3rd Generation Partnership Project; Technical Specification for the Radio Resource Control (RRC) protocol (Release 6)* (March 2004). Ex. 1003 ("TS-25.331").

[9] Bannister, Mather, & Coope, CONVERGENCE TECHNOLOGIES FOR 3G NETWORKS, IP, UMTS, EGPRS AND ATM, Wiley, March 2004. Ex. 1004 ("Bannister").

Claim(s) Challenged	35 U.S.C. §[7]	Reference(s)/Basis
1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, 63	103	Beckmann,[10] TS-25.331
1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, 63	103	Beckmann, TS-25.331, Bannister

II. ANALYSIS

Because Patent Owner's Revised Motion to Amend Claims is contingent on a conclusion of unpatentability of the challenged patent claims, we first address Petitioner's challenge of claims 1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, and 63 of the '388 patent, and then address Patent Owner's proposed substitute claims 66–85 in the Revised Motion to Amend Claims.

A. The Burden of Proof on Challenged Patent Claims

Petitioner must demonstrate, by a preponderance of the evidence, that the challenged patent claims are unpatentable. *See* 35 U.S.C. § 316(e); *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). That burden never shifts to the patentee. *Dynamic Drinkware*, 800 F.3d at 1378.

B. Level of Ordinary Skill in the Art

Petitioner asserts that one of ordinary skill in the art at the time of the invention of the '388 patent "would have had a degree in electrical

[10] U.S. Patent 7,333,443 B2, issued Feb. 19, 2008, based on Application 10/398,672, PCT filed Oct. 5, 2001, § 371(c)(1), (2), (4) date Aug. 25, 2003. Ex. 1005 ("Beckmann").

engineering or similar discipline, with at least three years of relevant industry or research experience in cellular communications technologies, including familiarity with the WCDMA air interface." Pet. 16 (citing Ex. 1006 ¶¶ 30–33).

Petitioner's statement is vague regarding the level of education, because Petitioner does not specify whether the referenced degree is a Bachelor's degree, a Master's Degree, or a Ph.D. However, Petitioner's expert testifies that "one of skill in the art for the claimed technology would have had a bachelor's degree in electrical engineering or a similar discipline." Ex. 1006 ¶ 33 (cited at Pet. 16).

The '388 patent expressly states: "The present invention is also applicable to other wireless communication systems using different air interfaces and/or physical layers, for example, TDMA, CDMA, FDMA, WCDMA, etc." Ex. 1001, 16:57–60. Accordingly, the level of ordinary skill would have included some familiarity with WCDMA air interface.

In the Decision to Institute, we preliminarily determined that the level of ordinary skill in the art corresponds to *one with a bachelor's degree in electrical engineering, computer sciences, or telecommunications and wireless communications, along with three or more years of practical experience in the field, including some familiarity with WCDMA air interface*. That level is consistent with what is reflected by the content of the applied prior art references. *Cf. Okajima v. Bourdeau*, 261 F.3d 1350, 1354–55 (Fed. Cir. 2001) (the applied prior art may reflect an appropriate level of skill).

Post institution, neither party disputed our preliminary determination on the level of ordinary skill in the art. Thus, we maintain our determination, in the Decision to Institute, of the level of ordinary skill.

C. Claim Construction

1. General Principles

We use the same claim construction standard that would be used to construe a claim in a civil action under 35 U.S.C. § 282(b), including construing the 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) (2020). The claim construction standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc) is applicable.

Claim terms are generally given their ordinary and customary meaning as would be understood by one with ordinary skill in the art in the context of the specification, the prosecution history, other claims, and extrinsic evidence including expert and inventor testimony, dictionaries, and learned treatises, although extrinsic evidence is less significant than the intrinsic record. *Phillips*, 415 F.3d at 1312–17. Usually, the specification is dispositive, and it is the single best guide to the meaning of a disputed term. *Id.* at 1315. The following guidance from *Phillips* is instructive:

> It is a "bedrock principle" of patent law that "the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Innova*, 381 F.3d at 1115; *see also Vitrionics*, 90 F.3d at 1582 ("we look to the words of the claims themselves . . . to define the scope of the patented invention"); *Markman*, 52 F.3d at 980 ("The written description part of the specification itself does not delimit the right to exclude. That is the function and purpose of claims."). That principle has been recognized since at least 1936, when Congress first required that the specification include a potion in which the inventor "shall particularly specify and point out the part, improvement, or combination, which he claims as his own invention or discovery." Act of July 4, 1836, ch. 357, § 6, 5 Stat. 117, 119. In the following years, the Supreme Court made clear that the claims are "of primary importance, in the effort to ascertain

> precisely what it is that is patented." *Merrill v. Yeomans*, 94 U.S. 568, 570, 24 L.Ed. 235 (1876). Because the patentee is required to "define precisely what his invention is," the Court explained, it is "unjust to the public, as well as an evasion of the law, to construe it in a manner different from the plain import of its terms." *White v. Dunbar*, 119 U.S. 47, 52, 7 S.Ct. 72, 30 L.Ed. 303 (1886); *see also Cont'l Paper Bag Co. v. E. Paper Bag Co.*, 210 U.S. 405, 419, 28 S.Ct. 748, 52 L.Ed. 1122 (1908) ("the claims measure the invention"); *McCarty v. Lehigh Valley R.R. Co.*, 160 U.S. 110, 116, 16 S.Ct. 240, 40 L.Ed. 358 (1895) ("if we once begin to include elements not mentioned in the claim, in order to limit such claim . . ., we should never know where to stop"); *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 339, 81 S.Ct. 599, 5 L.Ed.2d 592 (1961) ("the claims made in the patent are the sole measure of the grant").

Phillips, 415 F.3d at 1312.

In patent law, "the name of the game is the claim." *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998). As the Federal Circuit further explained:

> Though understanding the claim language may be aided by the explanations contained in the written description, it is important not to import into a claim limitations that are not a part of the claim. For example, a particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment.

Superguide Corp. v. DirecTV Enterprises, Inc., 358 F.3d 870, 875 (Fed. Cir. 2004). *See also Hill–Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014) ("While we read claims in view of the specification, of which they are a part, we do not read limitations from the embodiments in the specification into the claims.").

It is improper to add to a claim an "extraneous" limitation appearing in the specification, and "extraneous" means a limitation read into a claim from the specification wholly apart from any need to do so. *In re Paulsen*,

30 F.3d 1475, 1480 (Fed. Cir. 1994) (citing *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co*., 849 F.2d 1430, 1433 (Fed. Cir. 1988)); *see also Hoganas AB v. Dresser Indus., Inc*., 9 F.3d 948, 950 (Fed. Cir. 1993).

The specification may reveal a special definition given to a claim term by the patentee, or the specification or prosecution history may reveal an intentional disclaimer or disavowal of claim scope by the inventor. *Phillips*, 415 F.3d at 1316. If an inventor acts as his or her own lexicographer, the definition must be set forth in the specification with reasonable clarity, deliberateness, and precision. *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998). The disavowal, if any, can be effectuated by language in the specification or the prosecution history. *Poly-America, L.P. v. API Indus., Inc.*, 839 F.3d 1131, 1136 (Fed. Cir. 2016).

It is inappropriate to construe claim terms as limited to preferred embodiments without a clear intent to redefine the term or a clear disavowal of claim scope. *See, e.g., Thorner v. Sony Comput. Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012). In order for prosecution disclaimer to attach, the disavowal must be both "clear and unmistakable." *3M Innovative Properties Co. v. Tredegar Corp.*, 725 F.3d 1315, 1325 (Fed. Cir. 2013); *Lazare Kaplan Intern., Inc. v. Photoscribe Technologies, Inc.*, 628 F.3d 1359, 1370 (Fed. Cir. 2010); *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1325–26 (Fed. Cir. 2003).

Only those claim terms that are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017); *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed.

Cir. 2011); *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

2. Petitioner's Approach

Petitioner does not in its Petition propose a specific construction for any claim term. However, in applying the prior art to the claims, Petitioner asserts two sets of grounds of unpatentability, a first set not relying on Beckmann, and a second set relying in part on Beckmann. Pet. 2–3. According to Petitioner, the first set assumes the lack of certain limitations in the claims, and the second set relying in part on Beckmann accounts for them. *Id.* That is, Petitioner proposes two alternative claim constructions, although it does not tie the claim constructions to any particular claim term or phrase.

Regarding the first set of grounds not relying on Beckmann, Petitioner states:

> Neither of the challenged independent claims (1 and 33) requires implementation of the purportedly new PRACH configuration schemes, distinguishes the existing PRACH configurations, or require backward or forward compatibility. Instead, the challenged independent claims broadly require that mobile devices receive a message indicating "at least one available configuration," including "additional transport format information for the CCCH." [Ex. 1001], Claims 1, 33. This feature, and the remaining features of the independent claims, are disclosed in the prior art 3GPP UMTS standard specification ("TS-25.331," Exh. 1003). The prior art UMTS standard teaches selecting a transport format for the CCCH from among a plurality of transport formats allowed for existing PRACH configurations.
>
> Consequently, the scope of the challenged independent claims extends beyond the '388 patent embodiments and reads directly on well-known subject matter. TS-25.331 discloses all features in claim 1 and renders independent claim 33 obvious alone and in view of a textbook discussing 3GPP UMTS standards ("Bannister," Exh. 1004).

Pet. 2–3.

Regarding the second set of grounds relying in part on Beckmann, Petitioner states:

> Even if Patent Owner argues that the claims require extending pre-existing configuration messages, the claims are obvious in view of U.S. Patent No. 7,333,443 ("Beckmann [sic] ," Exh. 1005), which teaches extending RRC configuration and reconfiguration messages with an additional information element (IE). Beckmann in combination with TS-25.331 teaches that mobile devices may process "non-critical" RRC message extensions as if they weren't present, thereby teaching the forward-compatibility described in the '388 patent.

Id. at 3.

Thus, for the grounds not based on Beckmann, Petitioner asserts that there is nothing in either independent claim 1 or 33 to require, in the first message, a new configuration that is physical random access channel (PRACH) information related to a common control channel (CCCH), including certain transport format information for the CCCH, that makes available a new configuration not previously available to terminals in the system. *Id.* at 2–3. Further, Petitioner asserts that there is nothing in either independent claim 1 or 33 that requires accommodation for legacy terminals which do not support such a new configuration. *Id*.

3. Patent Owner's Preliminary Contention

In its Preliminary Response, Patent Owner asserted: "TS 25.331 v6.1.0 describes the existing 3GPP framework, connection management procedures and parameters, etc., but nowhere does it disclose how to use that framework, procedures and parameters in a novel way as claimed in the '388 patent. (Smith Decl. ¶ 70.)" Prelim Resp. 25. Specifically, regarding what the claims require, Patent Owner asserted:

> Further, Petitioners have even failed to show that TS 25.331 v6.1.0 describes all the features necessary to arrive at the innovations claimed in the '388 patent. For example, one of the goals of the '388 patent is to provide "a method and apparatus that conforms to a new UMTS standard that allows messages to be transmitted via the CCCH channel that are ***larger than the currently available transport size*** . . . ." Ex. 1001 at 8:52–55. *See also id.* at 10:47–49 ("It is contemplated that the new configurations provided by the present invention may include . . . ***an increased message block size*** for an existing channel . . . ."); *id.* at 10:9–11 ("It is further contemplated that an ***increased message size*** may be provided for an existing channel . . . ."); *id.* at 9:63–67 ("The method includes providing new configurations for transmitting a message in one or more mobile communication devices, the new configurations including . . . ***an increased message block size*** for an existing channel . . . .").)

Id. at 27.

4. The Board's Preliminary Construction

In the Decision to Institute, we stated:

> On this record, we agree with Petitioner that nothing in independent claim 1 or 33 requires in the first message a new configuration that is not available or permitted under a previous standard. We also agree with Petitioner that nothing in either claim 1 or claim 33 requires backward compatibility, where terminals which do not support the new configuration are not affected. Further, we disagree with Patent Owner's position that the claims require a new configuration, not previously available, which increases the message block size for an existing channel.

Paper 18, 14. Specifically, we determined as follows:

> [W]e do not read either independent claim 1 or independent claim 33 as requiring: (1) a new configuration that was not previously available, (2) backward compatibility with older or legacy terminals which do not support the new configuration, or (3) making available in a new configuration a message block size larger than that previously allowed.

Id. at 18.

5. Patent Owner's Post-Institution Contentions and Our Analysis

Central to Patent Owner's arguments is its assertion that the independent claims require a new configuration that is recognized and supported by some, but not all, terminal units in the system. PO Resp. 14–15, 27–31; Tr. 21:24–22:13. Patent Owner presents several reasons for its contention. None, however, is supported by the law and the facts on this record.

First, Patent Owner states: "[T]he '388 patent claims priority to June 2004, and it was not until May 2005 that the 3GPP changed the TS-25.331 specification to incorporate the inventions of the '388 patent as recited, among others, in claims 1, 2, 3, 9, 12, as well as claims 33, 34, 35, 41, and 44." PO Resp. 16. Patent Owner explains:

> Both provisional application[] Nos. 60/576,214 [filed June 1, 2004] and 60/589,630 [filed July 20, 2004] to which the '388 patent claims priority state that the original assignee of the patent, LG Electronics ("LG"), planned to present the inventions disclosed in those applications at 3GPP's 43rd RAN August 2004 meeting, with the express goal of incorporating them into TS 25.331, Release 6 and other standards. (Ex. 1002 at 10–12, 17, 82. *See also id.* at 24–46 (drafts of proposal and change request submitted as part of provisional application No. 60/589,630).)
>
> Provisional application No. 60/589,630 expressly referred to document R2-040922 presented at the 42nd 3GPP TSG-RAN2 meeting by Nortel Networks ("Nortel") in May 2004. (Ex. 1002 at 24–25 & n.1.) In R2-040922, Nortel introduced inter-frequency measurement reporting. (Ex. 2020 at 1–2.) The proposals for inter-frequency measurement reporting would cause messages to be longer than supported by then-existing 3GPP specifications. (Ex. 2018, ¶ 52; Ex. 1002 at 24.)
>
> Finding a way to solve this problem was an objective of the '388 patent and applications to which it claims priority.

Id. at 16–17.

On pages 17–25 of its Response, Patent Owner summarizes the efforts of LG Electronics Inc. (initial patentee of the '388 patent ("LG")), through May 2005, to have its proposals regarding later versions of TS-25.331 adopted by the 3GPP. PO Resp. 17–25. The effort includes numerous documents, multiple proposals, and revisions of proposals, and leads to adoption of LG's proposal in May 2005, in connection with version 6.5.0 of TS 25.331. *Id.*

Patent Owner assumes, without justification, that whatever was approved and adopted by 3GPP in May 2005 for version 6.5.0 of TS 25.331, at the suggestion of LG, was required by the claims of the '388 patent. However, it is the claims that define the protective scope of a patented invention, not what LG proposed in working group meetings of a standards organization such as 3GPP. Even Patent Owner acknowledges that LG made multiple proposals to 3GPP and revised some proposals after their submission and prior to 3GPP's adoption of an LG proposal in May 2005. *Id.* at 19–21.

As we noted above, in patent law, "the name of the game is the claim." *In re Hiniker*, 150 F.3d at 1369. LG's proposals to 3GPP are not the claims. Further, Patent Owner stated:

> Both provisional application[] Nos. 60/576,214 [filed June 1, 2004] and 60/589,630 [filed July 20, 2004] to which the '388 patent claims priority state that the original assignee of the patent, LG Electronics ("LG"), *planned to present the inventions disclosed in those applications at 3GPP's 43rd RAN August 2004 meeting*, with the express goal of incorporating them into TS 25.331, Release 6 and other standards. (Ex. 1002 at 10–12, 17, 82. *See also id.* at 24–46 (drafts of proposal and change request submitted as part of provisional application No. 60/589,630).)

PO Resp. 16 (emphasis added). The above-quoted text expressly refers to "the inventions disclosed in those [provisional] applications." *Id.* Patent Owner makes no distinction between disclosed invention and claimed invention.

Second, Patent Owner refers to parts of the specification of the '388 patent which describe making available a new PRACH configuration that is read and supported by some terminal units but not by other terminal units which would simply ignore the new configuration and not be affected by it. PO 27–29 (citing Ex. 1001, 15:5–12, 15:20–34, Fig. 14).

But again, in patent law, "the name of the game is the claim." *In re Hiniker*, 150 F.3d at 1369. As the Federal Circuit further explained:

> Though understanding the claim language may be aided by the explanations contained in the written description, it is important not to import into a claim limitations that are not a part of the claim. For example, a particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment.

Superguide Corp., 358 F.3d at 875; *see also Hill–Rom Servs.,* 755 F.3d at 1371 ("While we read claims in view of the specification, of which they are a part, we do not read limitations from the embodiments in the specification into the claims."). It is improper to add to a claim an "extraneous" limitation appearing in the specification, and "extraneous" means a limitation read into a claim from the specification wholly apart from any need to do so. *In re Paulsen*, 30 F.3d at 1480 (citing *E.I. du Pont de Nemours*, 849 F.2d at 1433); *see also Hoganas AB*, 9 F.3d at 950.

We see nothing in the challenged claims which requires making available a new configuration that is read and supported by some terminal units but not by other terminal units which would simply ignore the new

configuration and not be affected by it. Although the feature asserted by Patent Owner is described in the specification of the '388 patent, it is an "extraneous" limitation that should not be read into the claims.

Third, Patent Owner asserts:

> Element 1[f] recites "the information including *additional transport format information* for the CCCH comprising at least one of a RLC (Radio Link Control) size, a transport block size, or number of transport blocks." The term "additional" shows that transport format information is indicated in the extension. (Ex. 2018, ¶ 73.) Because extensions are read only by UE that support new, predefined configurations, claim 1 necessarily encompasses new, predefined configurations [recognized and supported by some UEs but not other UEs]. (*Id.* ¶ 73.)

PO Resp. 29. The assertion is without support in the record. Claim 1 does not recite an extension of any kind. There is no basis for the assertion that the term "additional" shows that transport format information is indicated in an extension or "in the extension." Further, even if the specification describes that extensions are read only by UEs that support a new configuration, claim 1 includes no such limitation. Patent Owner attempts to read an "extraneous" limitation into the claim from the specification. We decline to do so.

Fourth, Patent Owner relies on the doctrine of claim differentiation, which disfavors reading a limitation expressly stated in a dependent claim into a claim from which it depends. PO Resp. 31. Specifically, the presence of a dependent claim that adds a particular limitation raises a presumption that the limitation in question is not found in the independent claim. *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004). Patent Owner explains:

> Here, claim 2 recites "[t]he method of claim 1, wherein the at least one available configuration comprises a legacy

> configuration mode and legacy configuration identity." (Ex. 1001 at 17:48–50.) If the term "available configuration" in claims 1 and 33 encompassed only legacy configurations and excluded new, predefined configurations, claims 2 and 34 would have been redundant. (Ex. 2018, ¶ 77.) Therefore, element 1[a] requires receiving a message including a new, predefined configuration, which was not supported by conventional methods disclosed in TS 25.331 v6.1.0. (Ex. 2018, ¶ 77.)

Id. at 31–32. The reliance is misplaced.

Patent Owner uses the word "encompassed" to mean "required." Tr. 23:10–25, 54:10–18. Patent Owner's explanation assumes claim 1 as applied by Petitioner excludes a new configuration that is not recognized or supported by some terminal units. But Petitioner has made no such assertion. Nor do we find claim 1 has such an exclusion. Claim 1 is neutral in that regard. It does not exclude such a new configuration. Patent Owner has shown no inconsistency with the doctrine of claim differentiation. In any event, the doctrine of claim differentiation is not an absolute rule, and merely sets forth how claims are "normally" read. *See Karlin Tech., Inc. v. Surgical Dynamics, Inc.*, 177 F.3d 968, 971–72 (Fed. Cir. 1999).

Fifth, and finally, Patent Owner relies on alleged disavowal of claim scope during prosecution. PO Resp. 30–31. Patent Owner explains:

> Prosecution history of the '388 patent also shows that claims 1 and 33 must encompass new, predefined configurations [recognized and supported by some terminal units but not other terminal units]. The patentee explained regarding independent claims that
>
> > the present invention is directed to a method and apparatus for providing new configurations for transmitting control information between a terminal and a network using a common control channel (CCCH) by utilizing a first message including information indicating at least one available configuration and a second message including at

> least a portion of the control information, the second message transmitted using one of the at least one available configuration. It is further respectfully noted that independent claims 1, 13, 22, and 45 have been amended with this paper to recite that the at least one available configuration is physical random access channel (PRACH) information related to a common control channel (CCCH) and includes additional transport format information for the CCCH.
>
> . . . . It is further respectfully submitted that the cited portions of Dietrich are not directly or indirectly related to at least one available configuration, PRACH information, a CCCH or additional transport format information for a CCCH, which are specifically recited in independent claims 1, 13, 22 and 45.

(Ex. 1002 at 203–04. *See also id.* at 205 (discussing claim 33).)

Id.

Nothing in the above-quoted remarks conveys the idea that the new configuration provided must be recognized and supported only by some terminal units but not all terminal units, or that operation of the terminal units which do not recognize and support the new configuration is not affected by providing the new configuration. Similarly, nothing in the above-quoted remarks conveys the idea that the new configuration is provided through an extension mechanism which is useable by some terminals but not others.

In order for prosecution disclaimer to attach, the disavowal must be both "clear and unmistakable." *3M Innovative Properties*, 725 F.3d at 1325; *Lazare Kaplan Intern.*, 628 F.3d at 1370; *Omega Eng'g*, 334 F.3d at 1325–26. The prosecution history cited by Patent Owner falls far short of the clear and unmistakable standard necessary to establish the alleged disavowal.

6. Conclusion

Nothing in independent claim 1 or 33 requires in the first message a new configuration that is not available or permitted under a previous standard. Also, nothing in either claim 1 or claim 33 requires backward compatibility, where terminals which do not support the new configuration are not affected. We still do not read either independent claim 1 or independent claim 33 as requiring: (1) a new configuration that was not previously available, (2) backward compatibility with older or legacy terminals which do not support the new configuration, or (3) making available in a new configuration a message block size larger than that previously allowed. Further, we disagree with Patent Owner that claim 1 and claim 33 each require the first message to contain a new configuration that is supported by some terminal units but not other terminal units, and that providing such new configuration does not affect the operation of those terminal units which do not support the new configuration.

7. Other Terms

Patent Owner proposes a construction for the term "legacy configuration." The term appears in dependent claims 2 and 34. We address "legacy configuration" in our discussion of claim 2 in Section II.D.4. below.

Patent Owner proposes a construction for "available configuration," a term appearing in independent claims 1 and 33. PO Resp. 10. Specifically, Patent Owner asserts that "available configuration" should be construed as "a configuration available to be used for transmitting a message." *Id.* This term need not be expressly construed because (1) each of claims 1 and 33 separately recites that the available configuration is "for transmitting a second message," Ex. 1001, 17:33–34, 19:48–4, and (2) there is no dispute

on whether the available configuration relied on by the Petitioner from the applied prior art is for transmitting a message. *See* Tr. 7:3–24.

D. Alleged Anticipation of Claims 1–3, 8, 9, 12, 56, and 57 by TS-25.331

1. Principles of Anticipation

To establish anticipation, each and every element in a claim, arranged as recited in the claim, must be found in a single prior art reference. *Therasense, Inc. v. Becton, Dickinson & Co.*, 593 F.3d 1325, 1332 (Fed. Cir. 2010); *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008). The applied reference "need not satisfy an *ipsissimis verbis* test." *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009); *In re Bond*, 910 F.2d 831, 832–33 (Fed. Cir. 1990). Even in a non-obviousness setting, it is proper to take into account not only the literal and specific teachings of the reference, but also the inferences which one skilled in the art would reasonably be expected to draw therefrom. *In re Preda*, 401 F.2d 825, 826 (CCPA 1968). For anticipation, the dispositive question is whether one skilled in the art would reasonably understand or infer from a prior art reference that every claim element is disclosed in that reference. *Eli Lilly v. Los Angeles Biomedical Res. Inst.*, 849 F.3d 1073, 1074–75 (Fed. Cir. 2017); *AstraZeneca LP v. Apotex, Inc.*, 633 F.3d 1042, 1055 (Fed. Cir. 2010); *In re Baxter Travenol Labs.*, 952 F.2d 388, 390 (Fed. Cir. 1991).

2. Overview of TS-25.331

TS-25.331 "specifies the Radio Resource Control protocol for the UE-UTRAN radio interface." Ex. 1003, 28. TS-25.331 describes the model of the RRC protocol layer of the 3GPP system. *Id.* at 33–35. TS-25.331 describes a UE (terminal) receiving information from the network, including available PRACH configurations used for transmitting control information on the common control channel CCCH. Ex. 1003, 131. The PRACH

configurations include a RACH TFS information element (IE), which sets forth a "Transport Format Set" including RLC size and number of transport blocks used when the UE transmits on the CCCH. Ex. 1003, 123–125, 131.

TS-25.331 also pertains to "the information to be transported in a transparent container between source RNC and target RNC in connection with SRNC relocation," and "the information to be transported in a transparent container between a target RNC and another system." *Id.* at 28.

3. Independent Claim 1[11]

a) Preamble 1[Pre]

Claim 1 in its preamble recites "[a] method of transmitting information from a mobile terminal in a network, the method comprising." Ex. 1001, 17:29–30. Petitioner identifies the "RRC CONNECTION REQUEST" message shown in TS-25.331's Figure 8.1.3-1 as such information. Pet. 19. Figure 8.1.3-1 of TS-25.331 is reproduced below:

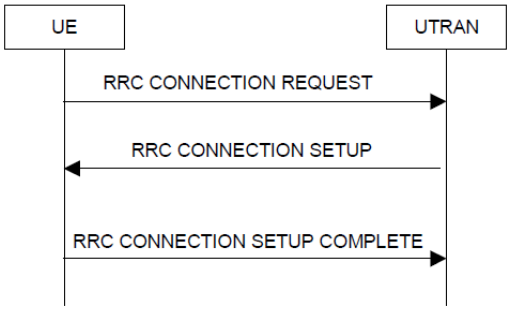


Figure 8.1.3-1: RRC Connection Establishment, network accepts RRC connection

Figure 8.1.3-1 shows a scenario where the network accepts a terminal (UE)'s RRC connection request. Ex. 1003, 68. Petitioner asserts that the terminal uses the RRC CONNECTION MESSAGE to transmit control information,

[11] We use bracketed sub headings for claim elements, as added by Petitioner, to refer to and identify individual elements within claim 1, for convenience and for having consistency with Petitioner's labeling. *See* Pet. 19–30.

such as "Establishment cause," "Initial UE identity," "Protocol error indicator," and a "measurement report." Pet. 20 (citing Ex. 1003, 69).

Alternatively, Petitioner identifies the "CELL UPDATE" and "URA UPDATE" messages shown in TS-25.331's Figures 8.3.1-1 and 8.3.1-8 as the transmission of such control information. *Id.* at 20–21. These Figures are reproduced below:

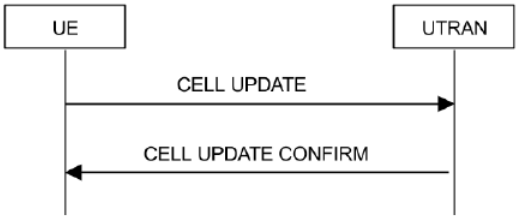


Figure 8.3.1-1: Cell update procedure, basic flow

* * *

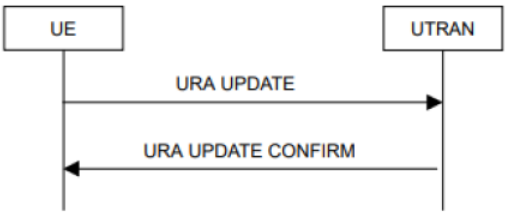


Figure 8.3.1-8: URA update procedure, basic flow

Figures 8.3.1-1 and 8.3.1-8 illustrate basic procedure for the terminal UE to notify and update the network UTRAN. Ex. 1003, 76. Petitioner asserts that in both CELL UPDATE and URA UPDATE procedures, the UE transmits control information such as a "[Cell/URA] update cause," "U-RNTI," "RRC transaction identifier," and "Protocol error information." Pet. 21 (citing Ex. 1003, 152–153; Ex. 1006 ¶ 76).

Petitioner's assertions are supported by the cited evidence. Patent Owner does not present contrary arguments regarding these contentions. We are persuaded that TS-25.331 discloses "[a] method of transmitting control

information from a mobile terminal in a network, the method comprising." We need not determine whether the preamble recitation is limiting.

b) Limitation 1[a]

Claim 1 further recites: "receiving a first message in the mobile terminal, the first message including information indicating at least one available configuration for transmitting a second message." Ex. 1001, 17:31–34. Petitioner identifies the *system information* shown in Figure 8.1.1-1 as such a first message received by a terminal on a downlink BCCH channel. Pet. 22. Figure 8.1.1-1 is reproduced below:

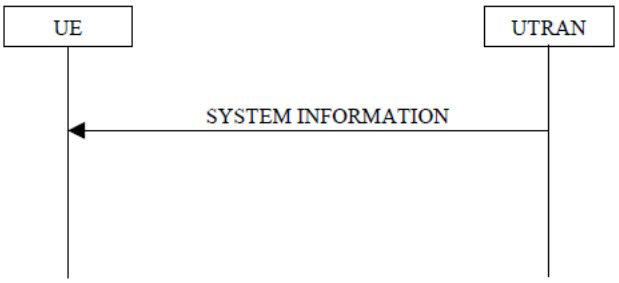


Figure 8.1.1-1: Broadcast of system information

Figure 8.1.1-1 illustrates the broadcasting of system information from the network UTRAN to terminals in the system. Ex. 1003, 41–42. Petitioner asserts:

> TS-25.331 discloses that this "SYSTEM INFORMATION" (*i.e.*, "a first message") includes "at least one available configuration for transmitting a second message." Exh. 1003, 42. TS-25.331 explains system information elements are broadcast in system information blocks (SIBs). *Id.* 42, 47. System information block 5 (SIB5) contains configuration parameters for common physical channels in a cell, including the "PRACH system information list." *Id.* 110–11 (10.2.48.8.8); Exh. 1006, ¶ 80. The PRACH system information list contains configuration information for transmitting messages on a physical layer, such as available signatures, spreading factors, preamble scrambling code, available subchannels, and RACH Transport Format Sets (RACH TFS). Exh. 1003, 131–32;

> Exh. 1006, ¶ 81. The RACH TFS information element provides a plurality of transport format sets for transmitting messages on various channels. Exh. 1003, 123–25 (10.3.5.23).

Pet. 22–23. Petitioner further explains that the previously identified messages, i.e., the RRC CONNECTION REQUEST, the CELL UPDATE message, and the URA UPDATE message, are examples of such second messages. *Id.* at 23–24.

The assertions are supported by the cited evidence. Patent Owner argues the limitation is not met (PO Resp. 27–31), but the argument is based on its incorrect claim construction we discussed above in Section II.C.5. We are persuaded that TS-25.331 discloses "receiving a first message in the mobile terminal, the first message including information indicating at least one available configuration for transmitting a second message."

c) Limitation 1[b]

Claim 1 further recites: "the second message including at least a portion of the control information." Ex. 1001, 17:34–35. Petitioner explains:

> TS-25.331 discloses this limitation by teaching the RRC CONNECTION REQUEST message sent over the CCCH by the UE includes at least a portion of the control information. Exh. 1006, ¶ 84. With respect to claim limitation 1[pre], examples of this control information include the "Establishment cause," "Initial UE identity," "Protocol error indicator," and "measurement report" in the RRC CONNECTION REQUEST message. Exh. 1003, 69 (8.1.3.3); Exh. 1006, ¶ 85.
>
> Further, and as also discussed with respect to § VII.A.1.[pre], the "CELL UPDATE" and "URA UPDATE" messages include at least a portion of the control information. This control information includes the "[Cell/URA] update cause," "U-RNTI," and "RRC transaction identifier," and "Protocol error information" included in the CELL UPDATE or URA UPDATE messages. Exh. 1003, 80–81. Such information

> constitutes control information to establish communication on the network. Exh. 1006, ¶¶ 86–87.

Pet. 24. The assertions are supported by the cited evidence. Patent Owner does not present contrary arguments with regard to limitation 1[b].

PO Resp. 36.

We are persuaded that TS-25.331 further discloses "the second message including at least a portion of the control information."

d) Limitation 1[c]

Claim 1 further recites: "selecting one of the at least one available configuration in the mobile terminal." Ex. 1001, 17:36–37. Petitioner asserts that TS-25.331 discloses this limitation by describing that the terminal first selects a PRACH from the "PRACH system information list" using an algorithm described in Section 8.5.18.1 of TS-25.331. Pet. 25. That section of TS-25.331 appears in page 89 of TS-25.331. Petitioner mis-cites to pages 398–399 of TS-25.331. Pet. 25. Nonetheless, the assertion is supported by Section 8.5.18.1 of TS-25.331, which Petitioner cited in the Petition. *See* Ex. 1003, 89; Pet. 25. Petitioner further explains that "[i]n the case of RACH, the UE selects a first TF configuration that it refers to as a 'first instance,' Exh. [1003], 55–56; Exh. 1006, ¶ 89." Pet. 26. The assertion is supported by the cited evidence. Patent Owner argues the limitation is not met (PO Resp. 27–31), but the argument is based on its incorrect claim construction we discussed above in Section II.C.5.

We are persuaded that TS-25.331 further discloses "selecting one of the at least one available configuration in the mobile terminal." Ex. 1001, 17:36–37.

e) Limitation [1d]

Claim 1 further recites: "transmitting the second message from the mobile terminal utilizing the selected configuration." Ex. 1001, 17:38–39. Petitioner asserts that TS-25.331 discloses that the RRC CONNECTION REQUEST, the CELL UPDATE message, and the URA message, as examples of second messages, are all transmitted from the terminal on the CCCH. Pet. 26–27 (citing Ex. 1006 ¶¶ 90–91). Dr. Olivier testifies: "Messages transmitted on the CCCH make use of the RACH channel which makes use of the selected configuration. This understanding of TS-25.331 is supported by the Patentee's description of the prior art stating that the UE transmits the RRC message on the PRACH. See Exhibit 1002 page 58." Ex. 1006 ¶ 91. Petitioner's assertion is supported by the cited evidence. Patent Owner argues the limitation is not met (PO Resp. 32–33), but the argument is based on its incorrect claim construction we identified and discussed above in Section II.C.5.

We are persuaded that TS-25.331 discloses "transmitting the second message from the mobile terminal utilizing the selected configuration."

f) Limitation [1e]

Claim 1 further recites: "wherein the at least one available configuration is physical random access channel (PRACH) information related to a common control channel (CCCH) logical channel." Ex. 1001, 17:40–42. Petitioner asserts that RACH TFS is an available configuration that is PRACH information related to a CCCH logical channel. Pet. 27 (citing Ex. 1003, 55–56; Ex. 1006 ¶ 92). Dr. Oliver testifies: "TS-25.331 specifically teaches the RACH TFS is physical random access channel (PRACH) information related to a common control channel (CCCH) logical channel. TS-25.331 teaches the 'RACH TFS' information element is part of

the 'PRACH system information list.' The RACH TFS is specifically used to transmit on the CCCH." Ex. 1006 ¶ 93 (citing Ex. 1003, 131 (Table 10.3.6.55 for PRACH system information list)). Table 10.3.6.55 is shown in part below:

10.3.6.55 PRACH system information list

Information element	Need	Multi	Type and reference	Semantics description
PRACH system information	MP	1 .. <maxPRACH>		
>PRACH info	MP		PRACH info (for RACH) 10.3.6.52	
>Transport channel identity	MP		Transport channel identity 10.3.5.18	
>RACH TFS	MD		Transport format set 10.3.5.23	Default value is the value of "RACH TFS" for the previous PRACH in the list NOTE: The first occurrence is then MP). NOTE: For TDD in this release there is a single TF within the RACH TFS.
>RACH TFCS	MD		Transport Format Combination Set 10.3.5.20	Default value is the value of "RACH TFCS" for the previous PRACH in the list. NOTE: The first occurrence is then MP). NOTE: For TDD in this release there is no TFCS required.
>PRACH partitioning	MD		PRACH partitioning 10.3.6.53	Default value is the value of "PRACH partitioning" for the previous PRACH in the list (note : the first occurrence is then MP)
>Persistence scaling factors	OP		Persistence scaling factors 10.3.6.48	This IE shall not be present if only ASC 0 and ASC 1 are defined. If this IE is absent, value is the value of "Persistence scaling factors" for the previous PRACH in the list if value exists

The partial Table as shown above identifies RACH TFS as an information element for the PRACH system information list.

Further, TS-25.331 describes that "[t]he UE should store all relevant IEs included in [System Information Block type 5]," and shall "use the first instance of the list of transport formats as in the IE 'RACH TFS' for the

used RACH received in the IE 'PRACH system information list' when using the CCCH." Ex. 1003, 55–56.

Petitioner's assertions are supported by the cited evidence. Patent Owner does not present contrary arguments in this regard. We are sufficiently persuaded that TS-25.331 discloses: "wherein the at least one available configuration is physical random access channel (PRACH) information related to a common control channel (CCCH) logical channel."

g) Limitation [1f]

Claim 1 further recites: "the information including additional transport format information for the CCCH comprising at least one of a RLC (Radio Link Control) size, a transport block size, or number of transport blocks." Ex. 1001, 17:42–46. Petitioner asserts: "TS-25.331 discloses this limitation by teaching the RACH TFS is of type 'Transport format set,' defined in Section 10.3.5.23, [which] includes 'Dynamic Transport Format Information' such as a RLC size and a number of transport blocks. Exh. 1003, 124–25; Exh. 1006, ¶¶ 95–96." Pet. 29. Referring to Table 10.3.5.23 of TS-25.331, Petitioner states that "[t]he TFS Dynamic Transport Format Information includes both a RLC size and number of transport blocks." *Id.* Table 10.3.5.23, in pertinent part, is reproduced below:

10.3.5.23 Transport Format Set

Information Element/Group name	Need	Multi	Type and reference	Semantics description
CHOICE *Transport channel type*	MP			
>Dedicated transport channels				The transport channel that is configured with this TFS is of type DCH
>>Dynamic Transport Format Information	MP	1 to <maxTF>		
>>>RLC Size	MP		Integer(0..4992)	Unit is bits
>>>Number of TBs and TTI List	MP	1 to <maxTF>		Present for every valid number of TB's (and TTI) for this RLC Size.
>>>>Transmission Time Interval	CV-*dynamicTTI*		Integer(10,20,40,80)	Unit is ms.
>>>>Number of Transport blocks	MP		Integer(0..512)	
>>>CHOICE *Logical Channel List*	MP			The logical channels that are allowed to use this RLC Size
>>>>ALL			Null	All logical channels mapped to this transport channel.
>>>>Configured			Null	The logical channels configured to use this RLC size in the *RB mapping info*. 10.3.4.21 if present in this

The partial table shown above shows RLC size and number of transport blocks as information elements within the Transport Format Set.

Notwithstanding Patent Owner's contrary argument, discussed below, we are persuaded that TS-25.331 discloses "the information including additional transport format information for the CCCH comprising at least one of a RLC (Radio Link Control) size, a transport block size, or number of transport blocks."

Patent Owner argues:

> Petitioner argues that pages 124–25 of TS 25.331 v6.1.0 allegedly disclose element 1[f]. (Petition at 29.) As Patent Owner explained in the Preliminary Response, the cited pages cover a portion of a three-page long table listing numerous parameters that could be sent in a message but are not necessarily sent in the recited messages. (Paper 16 at 26.) Petitioner failed to explain how a table listing numerous potential parameters would teach a POSITA to select any of the expressly recited parameters to include within the expressly recited messaging, as set forth in claim 1. (*Id.* at 26.)

PO Resp. 33.

Patent Owner's argument is unavailing and does not undermine Petitioner's showing. System Information Block Type 5 of TS-25.331 includes information element "PRACH system information list," and TS-25.331 describes that "[t]he system information block type 5 contains parameters for the configuration of the common physical channels in the cell." Ex. 1003, 110–111. The PRACH system information list includes information element "RACH TFS" which is of the type "Transport format set 10.3.5.23." *Id.* at 131. As shown above, Table 10.3.5.23 shows all the information elements within the Transport Format Set, including RLC size and number of transport blocks. Thus, RLC size and number of transport blocks are configuration parameters for sending to a UE or terminal. It is not necessary that TS-25.331 expressly describe that each one of the configuration parameters in Table 10.3.5.23 are selectable, and indeed sometimes selected, for sending to the UE or terminal. The mere inclusion of the parameters in the Table conveys that meaning, because the listed parameters all are used to configure common channels in the terminals. On this record, one with ordinary skill in the art would have understood or inferred that each of the listed configuration parameters are usable by the network to send to the terminals, at the discretion of the network. It is not necessary that an express statement to that effect be found within TS-25.331.

The dispositive question regarding anticipation is whether one skilled in the art would reasonably understand or infer from a prior art reference that every claim element is disclosed in that reference. *Eli Lilly*, 849 F.3d at 1074–1075; *AstraZeneca LP*, 633 F.3d at 1055; *Baxter*, 952 F.2d at 390. For anticipation, "it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would

reasonably be expected to draw therefrom." *Preda*, 401 F.2d at 826. Based on the foregoing, there would have been an understanding, or a reasonable inference, from the perspective of one with ordinary skill in the art, that all of the configuration parameters identified in the Transport Format Set Table 10.3.5.23, are selectable and sometimes actually selected for sending to terminals. Claim 1 does not require that one of RLC size, transport block size, or number of transport blocks, be included each and every time available configuration information is received by the mobile terminal.

Patent Owner further asserts:

> Here, LG's proposals culminating in the approved change request to modify TS 25.331 *v6.5.0* contain pages of redlines offsetting the changes required to fold the inventions of claim 1 into a much later version of TS 25.331. (*See supra* Part III.A.2.) The world-level experts and 3GPP's RAN WG4 working group presumably knew of the table on pages 124–25 of TS 25.331 v6.1.0 because they were responsible for creating and changing that standard. (*See, e.g.*, Ex. 2017 at 25:17–26:3 (Dr. Olivier explaining how 3GPP standards are produced and modified).) Yet, RAN WG2's reaction to LG's proposal, ensuing debate, the need to consult with T1 and the RAN WG4 working group, and ultimate agreement to change the standard prove that TS 25.331 v6.1.0 did not teach or suggest element 1[f] and more broadly claim 1. (*E.g.*, Ex. 2011 at 42 ("There was an [sic] outstanding question to RAN WG4.").) Thus, a POSITA would not have been able to understand or infer element 1[f] and claim 1 from TS 25.331 v6.1.0, either. (Ex. 2018, ¶ 82.)

PO Resp. 34.

The argument is unavailing and does not undermine Petitioner's showing for limitation 1[f], because it is vague and generic. For example, it does not identify any specific proposal that discusses Table 10.3.5.23 of TS-25.331 v6.1.0, and it does not identify any statement by anyone at 3GPP's RAN WG4 meetings about Table 10.3.5.23 of TS-25.331 v6.1.0.

The above-quoted argument gives no indication as to how one with ordinary skill in the art would have understood Table 10.3.5.23 of TS-25.331 v6.1.0. More specifically, it does not indicate how the table fails to disclose sending any and all of the parameters, depending on the situation.

h) Summary

Petitioner has proved by a preponderance of the evidence that claim 1 is anticipated by TS-25.331.

4. Dependent Claims 2, 3, 8, 9, 12, 56, and 57

Patent Owner asserts that Petitioner did not argue in the Petition anticipation of claims 2, 3, 8, 9, 12, 56, and 57. Paper 45, 14. The assertion is incorrect. The Petition asserts and discusses anticipation of claims 2, 3, 8, 9, 12, 56, and 57 by TS-25.331. Pet. 30–37. At hearing, counsel for both parties confirm that the table of grounds listed on page 8 of the Decision to Institute is correct. Tr. 26:1–13. That table is the same as the table we provide above in Section II.E.

Each of claims 2, 3, 8, 12, and 56 depends directly from claim 1. Claim 9 depends from claim 8. Claim 57 depends from claim 56. Petitioner accounts for these dependent claims on pages 30–37 of the Petition. Pet. 30–37. Petitioner's assertions are supported by the cited evidence. For claims 8, 9, 12, 56, and 57, Patent Owner does not present arguments additional to those it asserts with respect to claim 1, which we already have discussed above in the context of claim 1.

Notwithstanding Patent Owner's arguments to the contrary, which we discuss below, we are persuaded by Petitioner that TS-25.331 discloses the added limitations of claims 2 and 3.

Claim 2 depends from claim 1 and further recites: "wherein the at least one available configuration comprises a legacy configuration mode and

legacy configuration identity." Ex. 1001, 17:47–49. With regard to claim 2, Petitioner explains:

> TS-25.331 discloses the limitations of claim 2. Exh. 1006, ¶98. In Section 10.3.6.5, titled "PRACH system information list," the first value of the RACH TFS is a legacy configuration mode with a legacy configuration identity. Exh. 1006, ¶ 99. The Transport Format Set includes the Dynamic Transport Format Information which includes a "mode." Exh. 1003, 124. The Dynamic Transport Format Information also includes a "mode." Exh. 1003, 124. The Dynamic Transport Format Information also includes a "RB identity" indicating "identification number for the radio bearer affected by a certain message." *Id.* Because the IE "mode" and "RB identity" may be included in each of the existing transport formats of the transport format set defined by RACH TFS, TS-25.331 discloses the first transport format ("the at least one available configuration") comprising a mode ("legacy configuration mode") and a RB identity ("legacy configuration identity").

Pet. 30.

> The first value of the RACH TFS comprises a legacy configuration mode and a legacy configuration identity that is mandatory-default (MD) with the first occurrence being mandatory-present (MP):

Information element	Need	Multi	Type and reference	Semantics description
* * *				
>RACH TFS	MD		Transport format set 10.3.5.23	Default value is the value of "RACH TFS" for the previous PRACH in the list NOTE: The first occurrence is then MP). NOTE: For TDD in this release there is a single TF within the RACH TFS.

[The figure shows the RACH TFS information element entry in a Table listing PRACH system information]

Exh. 1003, 131 (emphasis added); Exh. 1006, ¶99. Mandatory-default (MD) elements are required to be included in a message, and they must be understood by all terminals (*i.e.,* "default"). *Id.*

Id. at 31.

Patent Owner makes the same arguments it made with respect to claim 1, which we discussed above. Additionally, Patent Owner asserts that TS-25.331 does not describe that "at least one available configuration comprises a legacy configuration mode and legacy configuration identity" as recited in claim 2. PO Resp. 35. Patent Owner explains:

> At the relevant times, the problem of interoperability with legacy implementations remained unresolved:
>
> > Whether a R99 network would be able to handle CCCH messages that are transmitted with other transport block sizes then the first transport block size listed in the PRACH configuration obviously depends on the network implementation. So in the case that RNC vendors don't see any problem with handling these transport block sizes the easiest way would just be to allow the UE to use any transport block size of the PRACH.
> >
> > In the case RNCs [sic] cannot already handle this a special flag broadcast on the SIB could indicate whether the UE is allowed to use the enhanced message sizes.
>
> (Ex. 2008 at 2.) The previous R99 specification release corresponded to hundreds of millions of deployed cell phones and billions of dollars' worth of base station and RNC equipment. (Ex. 2018, ¶ 84.) Checking whether legacy devices would operate involved consulting each RNC vendor. (*Id.* ¶ 84.) Vendors of the complex RNC equipment include companies like Fujitsu that made RNC software and equipment. (*See, e.g.*, Ex. 2009.) Thus, considerable discussion over legacy compatibility was required in the 3GPP RAN working groups and even outside the RAN working groups in T1. (*E.g.*, Ex. 2024 at 1.) Prior to the '388 patent's inventions, that discussion did not yield an agreed upon solution. (*Supra* Part III.A.2; Ex. 2018, ¶ 84.)

Id. at 35–36.

Patent Owner's above-quoted argument is unavailing and does not undermine Petitioner's showing for claim 2. As we can understand it, it again relies on Patent Owner's incorrect claim construction, which we discussed above in Section II.C.5., that claim 1 requires a new configuration that is recognized and supported by some, but not all, terminal units in the system and that the availability of this new configuration does not affect the operation of units that do not recognize or support it. We already determined that that is not a correct reading or construction of claim 1.

Patent Owner proposes that "legacy configuration" should be construed to mean "a configuration defined by the 3GPP specification releases predating adoption of the '388 patent's inventions into the 3GPP specifications." PO Resp. 9. For support, Patent Owner relies on specific examples described in the specification of the '388 patent. *Id.* at 9–10. But again, in patent law, "the name of the game is the claim." *In re Hiniker*, 150 F.3d at 1369. Where claim 1 does not have the meaning Patent Owner proposes, the recitation of "legacy configuration" in claim 2 does not bring in the meaning Patent Owner desires for the term. The proposed construction is too narrow. It is not necessary for a proper and reasonable understanding of "legacy configuration." "[A] particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment." *Superguide Corp.*, 358 F.3d at 875; *see also Hill–Rom Servs.*, 755 F.3d at 1371 ("While we read claims in view of the specification, of which they are a part, we do not read limitations from the embodiments in the specification into the claims.").

Also, Patent Owner's proposed construction is vague. It is not clear what 3GPP specification releases are referred to in Patent Owner's proposed construction, and it is not clear (1) what are "the '388 patent's inventions,"

plural, as referred to in Patent Owner's proposed construction, and (2) what are the precise adoption dates by 3GPP for each of "the '388 patent's inventions."

In contrast, we are persuaded by Petitioner's accounting of "legacy configuration mode" and "legacy configuration identity" as noted above. A mandatory and default configuration recognized and supported by all units satisfies "legacy configuration." In its Sur-reply, Patent Owner proposes a new construction for "legacy configuration." Paper 45, 4. It is too late to be proposing at the time of a sur-reply a new construction for a claim term. *See* 37 C.F.R. § 42.23(b). We decline to consider the belated proposal.

Claim 3 depends from claim 1 and further recites: "wherein the at least one available configuration comprises a predefined configuration mode and predefined configuration identity." Ex. 1001, 17:50–52. With regard to claim 3, Petitioner explains:

> TS-25.331 discloses the limitations of claim 3 by teaching up to maxPRACH number of configurations, each with an associated TFS and the information it carries, including predefined values, e.g., the number of transport blocks and the Dynamic Transport Format Information that provides information relating to the transport blocks. *See Supra* §VII.A.1.[f]; Exh. 1006, ¶100–101. Therefore, the claim requires only "**at least one** available configuration." Exh. 1001, 9:34–38 (emphases added). For each element in PRACH system information list, there is a RACH TFS and a predefined identity, e.g., the place it is on the list. Exh. 1006, ¶101.
>
> The RACH TFS IE includes "Dynamic Transport Format Information," which then include a "Number of TBs and TTI List." *Id.* 123–24, 131. These transport formats are established or defined in advance and thus, predefined. . . .
>
> The Dynamic Transport Format Information includes a "mode." Exh. 1003, 124. The Dynamic Transport Format Information includes a "RB identity" indicating "identification

> number for the radio bearer affected by a certain message." *Id.* Because the IE "mode" and "RB identity" may be included in each of the existing transport formats of the transport format set defined by RACH TFS, since these values are set by the Radio Access Network when entering a cell via the SIB, these settings are predefined configuration modes and configuration identities. Exh. 1006, ¶103.

Pet. 32–33. Petitioner's assertions are supported by the cited evidence. Notwithstanding Patent Owner's argument to the contrary, discussed below, we are persuaded that TS-25.331 discloses the added limitation of claim 3.

Patent Owner relies on the same argument it presents for claim 1, which we have already discussed and rejected above. PO Resp. 36. Additionally, Patent Owner asserts: "a new, or predefined PRACH configuration was not available prior to the inventions of the '388 patent." *Id.* The argument again relies on Patent Owner's incorrect claim construction that a new configuration is provided which is recognized and supported by some terminal units but not all terminal units, and that providing such new configuration does not affect the operation of those terminal units which do not support the new configuration. We note also that claim 3 does not recite a new configuration, but merely a predefined configuration mode and a predefined configuration identity.

For the foregoing reasons, Petitioner has proved by a preponderance of the evidence that each of claims 2, 3, 8, 9, 12, 56, and 57 is anticipated by TS-25.331.

E. Alleged Obviousness of Claims 1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, and 63 over TS-25.331

1. Principles of Obviousness

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed invention and the prior art are such that the

claimed invention, as a whole, would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which said claimed invention pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). There must be some articulated reasoning with rational underpinning to support the legal conclusion of obviousness. *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006).

2. Claims 1–3, 8, 9, 12, 56, and 57

For claims 1–3, 8, 9, 12, 56, and 57, Petitioner asserts that TS-25.331 discloses the limitations of each of these claims. Pet. 39. Petitioner also asserts that "[t]o the extent that claims 2–3, 8–9, 12, 56, and 57 are not anticipated, they would be obvious over TS-25.331 alone based on a POSITA's knowledge." *Id.* at 39–40. No specific obviousness theory is presented, based on any acknowledged differences between the claimed invention and the disclosure of TS-25.331. Likewise, Patent Owner presents no additional specific arguments for these claims. P.O. Resp. 36–37. Accordingly, we need not address further the alleged obviousness of those claims over TS-25.331, except to say that anticipation is the epitome of obviousness. *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983).

Because for these claims Patent Owner has presented nothing more than that all elements are disclosed by TS-25.331, objective evidence of nonobviousness as presented by Patent Owner and discussed below is

inapplicable. However, we have nonetheless still considered the objective evidence presented by Patent Owner and discussed below, and weighed that evidence with the above discussed teachings of TS-25.331. The objective evidence of nonobviousness is very weak, as explained below. The evidence of obviousness, based on the demonstrated anticipation of these claims by TS-25.331, is very strong. Petitioner has proved by a preponderance of the evidence that claims 1–3, 8, 9, 12, 56, and 57 would have been obvious over TS-25.331.

3. Objective Evidence of Nonobviousness

Patent Owner asserts that its claimed invention satisfied a long-felt but unresolved need in the industry. PO Resp. 37–38. For reasons discussed below, the evidence submitted by Patent Owner in that regard is very weak.

First, there is little nexus, if any, between the alleged solution and the claimed invention. Second, Patent Owner has not shown a sufficiently long period of time in which the identified problem was in existence and widely recognized by the industry as a problem in need of a solution to constitute a long-felt need. Third, Patent Owner has not presented sufficient evidence to show that prior to filing of Patent Owner's Provisional Applications to which the '388 patent claims priority, others in the industry tried to solve the problem but failed to provide successfully a solution.

a) Lack of Nexus

"[T]o be accorded substantial weight in the obviousness analysis, the evidence of secondary considerations must have a 'nexus' to the claims, *i.e.*, there must be 'a legally and factually sufficient connection' between the evidence and the patented invention." *Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1332 (Fed. Cir. 2019); *see also Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1539 (Fed. Cir. 1983). Objective evidence

of nonobviousness must be commensurate in scope with the claims. *In re Kulling*, 897 F.2d 1147, 1149 (Fed. Cir. 1990).

Patent Owner cites the specification of the '388 patent to describe the problem of what pre-existed, and the purported solution of the '388 patent. PO Resp. 37–38. (citing Ex. 1001, 8:30–44, 12:44–54). The specification of the '388 patent contains substantial description in that regard. Regarding the problem to be solved, pertinent portions of the specification are reproduced below:

> Presently, the UMTS standard also indicates that a UE2 is only allowed to use the first transport format that is listed for the selected RACH for transmission of messages via CCCH.
>
> Generally, the first transport format of a RACH may carry only one transport block of 168 bits. However, the messages that are transmitted via the CCCH may be large and, in some situations, it may be beneficial to use also other transport block sizes.

Ex. 1001, 6:64–7:5.

> Conventional methods adapt the size of the messages transmitted on the CCCH logical channel so that the RLC PDU with the MAC header fits inside the transport block that is used in the RACH.

Id. at 7:29–32.

> The UE 2 compares the message size with the transport block size of the first transport format of the corresponding RACH and adapts the message size by deleting measurement information until the message fits within the transport block size (S16). The UE 2 then transmits the adapted message via the PRACH (S18).

Id. at 7:41–46.

> If the size of a CCCH message is too large using the conventional methods 1, 50, a UE2 might completely delete the information on the measured results of neighboring cells, for example measured results on RACH. even though the quality and timing information might be needed in the RNC 10. Without the

> quality and timing information, a connection may not be established with the RNC 10 when a UE 2 moves to another cell. The UE 2 may not be able to transmit data and a current cell may be interrupted or a new cell may not be initiated.
>
> Because the UMTS standard restricts a UE 2 to always use the first transport block size of the selected PRACH, there is only one transport block size available for SRB0. Therefore, the size of the messages is limited to the size of the transport block.

Id. at 8:29–44.

> Therefore, there is a need for a method and apparatus that conforms to *a new UMTS standard that allows messages to be transmitted via the CCCH channel that are larger than the currently available transport block size*, *while not impacting the operation of mobile terminals that do not conform to the new UMTS standard*.

Id. at 8:52–58 (emphasis added).

Regarding the solution provided by the '388 patent, pertinent portions of the specification are reproduced below:

> Specifically, the invention is directed to a method and apparatus for *providing new configurations* for transmitting control information between a mobile and a network using a common control channel logical channel / transport channel *such that the operation of mobile terminals that do not support the new configurations is not impacted*.

Id. at 8:62–9:2 (emphasis added).

> Specifically, *new configurations* for transmitting control information between a mobile and a network using a common control channel (CCCH) logical channel / transport channel *are provided* and an indication is provided from a network regarding which of the new configurations are available for use *such that previously available configurations are still available for mobile terminals that do not support the new configurations*.

Id. at 9:14–21 (emphasis added).

We determined above, in Section II.C.6, however, that nothing in independent claim 1 or 33 requires in the first message a new configuration that is not available or permitted under a previous standard, and nothing in either claim 1 or claim 33 requires backward compatibility, where terminals which do not support the new configuration are not affected. We also determined in Section II.C.6 above that Patent Owner is incorrect in its assertion that claim 1 and claim 33 each require the first message to contain a new configuration that is supported by some terminal units but not other terminal units, and that providing such new configuration does not affect the operation of those terminal units which do not support the new configuration. Patent Owner further has not shown, nor do we find, that any other challenged dependent claim includes such limitations.

Additionally, Patent Owner in its Response asserts that the '388 patent solves the problem "by adding an additional transport block size as an extension to SIBs to transmit CCCH messages on SRB0." PO Resp. 38. Patent Owner has not identified any challenged claim, however, that requires providing an additional transport block size. For instance, claims 1 and 33 each require the provided transport format information to include just one of the following three types of information: (1) RLC (Radio Link Control) size, (2) transport block size, and (3) number of transport blocks. Ex. 1001, 17:42–46, 19:66–20:2.

The Federal Circuit has explained that "a patentee is entitled to a rebuttable presumption of nexus between the asserted evidence of secondary considerations and a patent claim if the patentee shows that the asserted evidence is tied to a specific product and that the product '*is* the invention disclosed and claimed.'" *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019). The Federal Circuit further explained: "A finding

that a presumption of nexus is inappropriate does not end the inquiry into secondary considerations. To the contrary, the patent owner is still afforded an opportunity to prove nexus by showing that the evidence of secondary considerations is the 'direct result of the unique characteristics of the claimed invention.'" *Id.* at 1374 (internal citations omitted).

As discussed above, the solution provided by the '388 patent to the problem it attempts to solve is not *claimed* by the '388 patent. Patent Owner is not entitled to a presumption of nexus. Even assuming that there is such a presumption, it is strongly rebutted by absence from the claims of the specific features described by the '388 patent as the solution it provides. Further, aside from the lack of presumption of nexus and any presumption which has been rebutted, Patent Owner has not shown nexus by establishing that the described solution is the "direct result of the unique characteristics of the claimed invention." *Id.*

b) Lack of Showing of Long-felt Need and Lack of Showing that Others Tried but Failed

Establishing a long-felt need requires objective evidence that the invention has provided a long-awaited, widely accepted, and promptly adopted solution to a problem extant in the art, or that others had tried but failed to solve that problem. *In re Mixon*, 470 F.2d 1374, 1377 (CCPA 1973); *In re Allen*, 324 F.2d 993, 997 (CCPA 1963). Also, "[assertion of solving an unsolved problem in the art] is not evidence of unobviousness unless it is shown, as was not done here, that the *widespread efforts of skilled workers having knowledge of the prior art had failed to find a solution to the problem*." *In re Allen*, 324 F.2d at 997 (citing *Toledo Pressed Steel Co. v. Standard Parts, Inc.*, 307 U.S. 350, 356, 59 S.Ct. 897, 83 L.Ed. 1334, 1939) (emphasis added).

Patent Owner has not identified, even by rough estimate, the time when the problem first arose in the industry. On the record before us, including Patent Owner's statement below, and in light of Patent Owner's attempt, discussed above, to make changes to subsequent versions of TS 25.331 to solve the problem, the earliest time the problem arose in the industry is the effective date of TS-25.331:

> Here, TS 25.331 v6.1.0 restricted the UE to only use the first transport block size listed in the PRACH configuration. (Ex. 2018, ¶ 88; Ex. 1001 at 8:40–44 ("Because the UMTS standard restricts a UE 2 to always use the first transport block size of the selected PRACH, there is only one transport block size available for SRB0. Therefore, the size of the messages is limited to the size of the transport block.").)

PO Resp. 37. Thus, in light most favorable to Patent Owner, on this record the problem came into existence no earlier than the publication date of TS-25.331 V6.1.0, i.e., March 2004. Ex. 1003. Further, because TS-25.331 is the applied prior art, the time when those working in the art could have become aware of the pertinent prior art also is March 2004.

Petitioner's Provisional Applications to which the '388 patent claims priority were filed on June 1, 2004 (Application 60/576,214) and July 20, 2004 (Application 60/589,630). Ex. 1001, code (60). Less than three months span the period from the earliest possible occurrence of the problem and the time Petitioner proposed a solution to the problem in Provisional Application 60/576,214. We do not find three months to be sufficiently long to constitute a period of long-felt need. Further, Patent Owner has not identified anyone in the industry who, during those three months from

March 2004 to June 2004,[12] recognized the problem alleged by Patent Owner as a problem in need of a solution, or who, during that time, attempted to solve but failed to solve the problem.

Even if we treat May 2005, the time LG as prior owner of the patent purportedly successfully obtained 3GPP approval to adopt LG's proposal in version 6.5.0 of TS-25.331, as the time the alleged problem was solved, the period of pertinence spans at most only fifteen months from March 2004 to May 2005, still insufficient to constitute a period of long-felt need. And Patent Owner still has not shown that during those fifteen months there was wide spread recognition in the industry that there was a problem in need of a solution or that others had tried to solve the problem but failed. The fifteen months including the efforts of LG to make changes to future versions of TS-25.331 appear to reflect just incremental subsequent change and development associated with the introduction of a standard.

c) Summary of Objective Evidence

Based on the foregoing, we find the purported objective evidence of nonobvious submitted by Patent Owner to be very weak. Nonetheless, we place this evidence in the mix of all of the evidence before us for consideration, and weigh it together with the evidence on obviousness stemming from the teachings of the applied prior art.

4. Claims 4 and 6

Claim 4 depends from claim 3, and further recites: "wherein the predefined configuration mode comprises at least one of utilizing an additional channel, utilizing an increased message block size for an existing channel, utilizing a new channel mapping configuration, or utilizing a new

[12] Or four to five months if we count from March 2004 to the filing date of Provisional Application 60/589,630, July 20, 2004.

message format." Ex. 1001, 17:53–57. Petitioner accounts for the additional limitation of claim 4 on pages 40–41 of the Petition. Pet. 40–41. Petitioner explains that "RLC size is an information element, of a transport format, having an integer value for varying a message block size for any channel using that transport format. *Id.* at 40 (citing Ex. 1003, 123–125; Ex. 1006 ¶ 116). Specifically, Petitioner asserts:

> A POSITA would understand that the RLC size that is included in the "Dynamic Transport Format Information" could have been "an increased message block size for an existing channel." Because TS-25.331 teaches using a first transport format, which comprises a predefined mode (see above regarding claim 3) and an increased RLC size for the CCCH, it teaches the claimed "wherein the predefined configuration mode comprises at least one of . . . utilizing an increased message block size for an existing channel." Exh. 1006, ¶ 117.

Pet. 41. Petitioner further asserts:

> A POSITA would be motivated to increase the block size for an existing channel in order to improve efficiency. Further, a POSITA would understand that having [a] predefined configuration mode with at least one of utilizing an additional channel, utilizing an increased message block size for an existing channel, utilizing a new channel mapping configuration, or utilizing a new message format is simply applying known techniques to known devices ready for improvement to yield predictable results. Exh. 1006, ¶ 118.

Id. Petitioner's assertions are supported by the cited evidence. Patent Owner presents the same arguments it makes for claim 1, which we have addressed above. PO Resp. 36.

We have weighed the evidence of obviousness and nonobviousness as a whole. The evidence of obviousness is very strong and the evidence of nonobviousness is very weak. Petitioner has proved by a preponderance of the evidence that claim 4 would have been obvious over TS-25.331.

Claim 6 depends from claim 4 and further recites: "wherein the existing channel comprises a logical channel or a physical channel." Ex. 1001, 17:61–62. Petitioner accounts for the additional limitation of claim 6 on page 42 of the Petition. Pet. 42.

Petitioner's assertions are supported by the cited evidence. Patent Owner presents the same arguments it makes for claims 2 and 3, which we have addressed and rejected above. PO Resp. 36–37. We have weighed the evidence of obviousness and nonobviousness as a whole. The evidence of obviousness is very strong and the evidence of nonobviousness is very weak. Petitioner has proved by a preponderance of the evidence that claim 6 would have been obvious over TS-25.331.

5. Independent Claim 33

Claim 33 essentially is the apparatus counterpart to method claim 1. The various steps of claim 1 are recited as functions performed by specific components, and additional components performing additional functions are recited. Ex. 1001, 19:42–20:2. Further, elements 1[e] and 1[f] of claim 1 are recited verbatim as elements 33[i] and 33[j] in claim 33.

a) Preamble 33[pre]

Claim 33 recites: "A mobile communication device for transmitting control information to a network, the mobile communication device." Ex. 1001, 19:42–44. According to Petitioner, for the same reasons TS-25.331 teaches the preamble of claim 1, TS-25.331 teaches the preamble of claim 33. Pet. 42. Patent Owner does not present any counter-argument. We are persuaded that TS-25.331 discloses the preamble of claim 33. We need not address whether the preamble recitation of claim 33 is limiting.

b) Limitation 33[a]

Claim 33 further recites: "an RF module configured to receive a first message from the network and to transmit a second message to the network." Ex. 1001, 19:46–47. According to Petitioner, for the same reasons TS-25.331 teaches elements [a] and [b] of claim 1, TS-25.331 teaches limitation 33[a], except for the requirement of "an RF module." Pet. 38, 43. With regard to the requirement of an RF module, Petitioner asserts:

> A POSITA would have understood hardware configured to connect to a TS-25.331 system would have a RF module configured to receive a first message and transmit a second message, as a RF module would be a necessary component to transmit/receive messages over the RF interface between the UE and UTRAN. Exh. 1003, 32 (Overview of the specification). Exh. 1006, ¶ 128.

Pet. 43. Petitioner's assertions are supported by the cited evidence. Patent Owner does not present counter-arguments in this regard. PO Resp. 36. We are persuaded that TS-25.331 reasonably would have suggested limitation 33[a] to one of ordinary skill in the art in light of the entirety of the evidence including Patent Owner's assertion of objective evidence of nonobviousness.

c) Limitation 33[b]

Claim 33 further recites: "the first message including information indicting at least one available configuration for transmitting the second message." Ex. 1001, 19:47–49. According to Petitioner, for the same reasons TS-25.331 teaches element [a] of claim 1, TS-25.331 teaches limitation 33[b]. Pet. 46. Petitioner's assertions are supported by the cited evidence. Patent Owner makes the same argument it makes with respect to limitation 1[a] in claim 1, which we have already discussed and rejected above. PO Resp. 36. We are persuaded that TS-25.331 discloses limitation 33[b].

d) Limitation 33[c]

Claim 33 further recites: "and the second message including at least a portion of the control information." Ex. 1001, 19:49–50. According to Petitioner, for the same reasons TS-25.331 teaches element [b] of claim 1, TS-25.331 teaches limitation 33[c]. Pet. 46. Petitioner's assertions are supported by the cited evidence. Patent Owner does not present counter-arguments in this regard. PO Resp. 36. We are persuaded that TS-25.331 discloses limitation 33[c].

e) Limitation 33[d]

Claim 33 further recites: "an antenna configured to receive the first message from the network and to transmit the second message to the network." Ex. 1001, 19:51–53. There is no corresponding element in claim 1 for this element of claim 33. However, Petitioner asserts: "TS-25.331 discloses this limitation because a POSITA would know a UE designed to transmit and receive RF messages, *e.g.*, RRC messages specified by TS-25.331, would have an antenna as disclosed in the open loop power control. Exhs. 1003, 86; 1006, ¶ 146." Pet. 46. Petitioner's assertions are supported by the cited evidence. Patent Owner does not present counter-arguments in this regard. PO Resp. 36. We are persuaded that TS-25.331 reasonably would have suggested limitation 33[d] to one of ordinary skill in the art in light of the entirety of the evidence including Patent Owner's assertion of objective evidence of nonobviousness.

f) Limitation 33[e]

Claim 33 further recites: "a keypad configured to input information from a user." Ex. 1001, 19:54. There is no corresponding element in claim 1 for this element of claim 33. However, Petitioner asserts:

> TS-25.331 discloses this limitation. Exh. 1006, ¶ 148. A POSITA would have known devices operating on a 3GPP UMTS system included a keypad with 0-9 keys capable of dialing a number (*i.e.*, a phone number). Exh. 1003, 118. A POSITA would know a telephone and corresponding UE necessarily have keyboards for inputting information. Exh. 1006, ¶ 148.

Pet. 48. Petitioner's assertions are supported by the cited evidence. Patent Owner does not present counter-arguments in this regard. PO Resp. 36. We are persuaded that TS-25.331 reasonably would have suggested limitation 33[e] to one of ordinary skill in the art in light of the entirety of the evidence including Patent Owner's assertion of objective evidence of nonobviousness.

g) Limitation 33[f]

Claim 1 further recites: "a storage unit configured to store information associated with the at least one available configuration for transmitting the second message." Ex. 1001, 19:55–57. There is no corresponding element in claim 1 for this element of claim 33. However, Petitioner asserts:

> A POSITA would have known that a TS-25.331, UMTS-compatible UE includes a storage unit configured to store information associated with the configuration information for transmitting the second message. Exh. 1006, ¶ 150. TS-25.331 teaches configuration information stored by UE. Exh. 1003, 99. A POSITA would have known that some part of the UE was configured as a "storage unit" to store message information. Exh. 1006, ¶ 150.

Pet. 50. Petitioner's assertions are supported by the cited evidence. Patent Owner does not present counter-arguments in this regard. PO Resp. 36. We are persuaded that TS-25.331 reasonably would have suggested limitation 33[f] to one of ordinary skill in the art in light of the entirety of the evidence including Patent Owner's assertion of objective evidence of nonobviousness.

h) Limitation 33[g]

Claim 33 further recites: "a display configured to convey information to the user." Ex. 1001, 19:58. There is no corresponding element in claim 1 for this element of claim 33. However, Petitioner asserts:

> A POSITA would have known devices operating on a 3GPP UMTS system would have a display conveying information to the user. Exh. 1006, ¶ 153. TS-25.331 teaches wireless radio communication between a network and UE, where wireless UEs have included displays. A POSITA would have known wireless UEs at this time would, at a minimum, have a light-emitting power "on" display (*i.e.*, "ON" light) and a network connection display conveying information to the user. Exh. 1006, ¶ 153.

Pet. 52. Petitioner's assertions are supported by the cited evidence. Patent Owner does not present counter-arguments in this regard. PO Resp. 36. We are persuaded that TS-25.331 reasonably would have suggested limitation 33[g] to one of ordinary skill in the art in light of the entirety of the evidence including Patent Owner's assertion of objective evidence of nonobviousness.

i) Limitation 33[h]

Claim 33 further recites: "a processing unit configured to process the first message, select one of the at least one available configuration and transmit the second message utilizing the selected configuration." Ex. 1001, 19:59–62. According to Petitioner, for the same reasons TS-25.331 teaches elements [c] and [d] of claim 1, TS-25.331 teaches limitation 33[h], except for the requirement of "a processing unit." Pet. 38, 54. With regard to the requirement of a processing unit, Petitioner asserts:

> TS-25.331 satisfies this limitation because hardware that executes the TS-25[.]331 RRC protocol to (i) process the SYSTEM INFORMATION message ("first message"), (ii) select the first transport format ("one of the at least one available configuration"), and (iii) transmit messages (*e.g.*, RRC

> CONNECTION REQUEST message) on the CCCH using the first transport format ("transmit the second message utilizing the selected configuration"), in §VII.A.1.[c] and §VII.A.1.[d], necessarily includes a "processing unit" (*e.g.*, a microprocessor or digital signal processor (Exh. 1001, 15:43–45)) configured to perform these functions. Exh. 1006, ¶ 155.

Pet. 54. Petitioner's assertions are supported by the cited evidence. Patent Owner makes the same argument it makes with respect to limitation 1[c] in claim 1, which we have already discussed above. PO Resp. 36. We are persuaded that TS-25.331 discloses limitation 33[h] and also reasonably would have suggested limitation 33[h] to one of ordinary skill in the art in light of the entirety of the evidence including Patent Owner's assertion of objective evidence of nonobviousness.

j) Limitation 33[i]

Claim 33 further recites: "wherein the at least one available configuration is physical random access channel (PRACH) information related to a common control channel (CCCH) logical channel." Ex. 1001, 19:63–65. This is the same recitation as in element 1[e] of claim 1. *Id.* at 17:40–42. Petitioner relies on the same assertions it makes with respect to element 1[e] of claim 1. Pet. 58. Petitioner's assertions are supported by the cited evidence. Patent Owner makes the same argument it makes with respect to limitation 1[d] in claim 1, which we have already discussed and rejected above. PO Resp. 36. We are persuaded that TS-25.331 discloses limitation 33[i].

k) Limitation 33(j)

Claim 33 further recites: "the information including additional transport format information for the CCCH comprising at least one of a RLC (Radio Link Control) size, a transport block size, or number of transport

blocks." Ex. 1001, 19:65–20:2. This is the same recitation as in element 1[f] of claim 1. *Id.* at 17:42–46. Petitioner relies on the same assertions it makes with respect to element 1[f] of claim 1. Pet. 58. For reasons discussed above in the context of element 1[f] of claim 1, Petitioner's assertions are supported by the cited evidence. Patent Owner asserts the same arguments it makes with respect to element 1[f] of claim 1, which we have already discussed and rejected above. PO Resp. 36. We are persuaded that TS-25.331 discloses limitation 33[j].

We have weighed the evidence of obviousness and nonobviousness as a whole. The evidence of obviousness is very strong and the evidence of nonobviousness is very weak. Petitioner has proved by a preponderance of the evidence that claim 33 would have been obvious over TS-25.331.

6. Claims 34–36, 38, 40, 41, 44, 62, and 63

Claims 34–36, 38, 40, 41, 44, 62, and 63 each depend, directly or indirectly from claim 33. Petitioner address them on pages 58–63 of the Petition. Pet. 58–63. Petitioner's reasoning for claim 34 parallels its assertions for claim 2. *Id.* at 58. Petitioner's reasoning for claim 35 parallels its assertions for claim 3. *Id.* at 59. Petitioner's reasoning for claim 36 parallels its assertion for claim 4. *Id.* Petitioner's reasoning for claim 38 parallels its assertions for claim 6. *Id.* Petitioner's reasoning for claim 40 parallels its assertions for claim 8. *Id.* Petitioner's reasoning for claim 41 parallels its assertions for claim 9. *Id.* at 60. Petitioner's reasoning for claim 44 parallels its assertions for claim 12. *Id.* at 61. Petitioner's reasoning for claim 62 parallels its assertion for claim 56. *Id.* Petitioner's reasoning for claim 63 parallels its assertions for claim 57. *Id.* at 62.

For claims 34 and 35, Patent Owner does not present arguments additional to those it presents for claims 2 and 3 in the context of

anticipation by TS-25.331, which we have already discussed and rejected above. PO Resp. 36–37. For claims 36, 38, 40, 41, 44, 62, and 63, Patent Owner does not present arguments additional to those it presents for claims 1 and 33, which we have discussed and rejected above. *Id.* at 36.

Petitioner's contentions are supported by the evidence it cites. We have weighed the evidence of obviousness and nonobviousness as a whole. The evidence of obviousness is very strong and the evidence of nonobviousness is very weak. Petitioner has proved by a preponderance of the evidence that claims 34–36, 38, 40, 41, 44, 62, and 63 would have been obvious over TS-25.331.

F. Alleged Obviousness of Claims 1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, and 63 over TS-25.331 and Bannister

We do not reach this alleged ground of unpatentability of claims 1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, and 63, because (1) we determine that Petitioner has proved by a preponderance of the evidence that claims 1–3, 8, 9, 12, 56, and 57 are anticipated by TS-25.331, and (2) we determine that Petitioner has proved by a preponderance of the evidence that claims 1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, and 63 would have been obvious over TS-25.331.

G. Alleged Grounds of Unpatentability based at least in part on Beckmann

We do not reach the alleged grounds of unpatentability of claims 1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, and 63 over Beckmann and TS-25.331, and also over Beckmann, TS-25.331, and Bannister, because (1) we determine that Petitioner has proved by a preponderance of the evidence that claims 1–3, 8, 9, 12, 56, and 57 are anticipated by TS-25.331, and (2) we determine that Petitioner has proved by a preponderance of the

evidence that claims 1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, and 63 would have been obvious over TS-25.331.

III. REVISED MOTION TO AMEND CLAIMS

Patent Owner's Revised Motion to Amend ("Revised MTA") is contingent on a determination of unpatentability of one or more challenged patent claims. Paper 46, 1. Having determined that Petitioner has shown by a preponderance of the evidence that original claims 1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, and 63 of the '388 patent are unpatentable, we proceed to address Patent Owner's Revised MTA. Patent Owner proposes substitute claims 66–85 to replace challenged patent claims 1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, and 63, respectively. *Id.* A listing of proposed substitute claims 66–85 is provided by Patent Owner in Appendix A of the Revised MTA. Paper 46.

For reasons discussed below, Patent Owner has shown that proposed substitute claims 66–85 meet the statutory and regulatory requirements set forth in 35 U.S.C. § 316(d) and 37 C.F.R. § 42.121. Also, for reasons discussed below, Petitioner has not proved by a preponderance of the evidence that any of proposed substitute claims 66–85 is either indefinite or unpatentable over prior art.

Therefore, we *grant* Patent Owner's Revised Motion to Amend.

A. Principles of Law on Motion to Amend Claims

In an *inter partes* review, amended claims are not added to a patent as of right, but rather must be proposed as a part of a motion to amend claims ("MTA"). 35 U.S.C. § 316(d). Ordinarily, the petitioner "bears the burden of persuasion to show, by a preponderance of the evidence, that any proposed substitute claims are unpatentable." 37 C.F.R. § 42.121(d)(2);

Lectrosonics, Inc. v. Zaxcom, Inc., IPR2018-01129, Paper 15, 3–4 (PTAB Feb. 25, 2019) (precedential); *Bosch Auto. Serv. Sols. LLC v. Iancu*, 878 F.3d 1027, 1040 (Fed. Cir. 2017).

But before considering the patentability of the substitute claims, we first must determine whether the MTA meets the statutory and regulatory requirements set forth in 35 U.S.C. § 316(d) and 37 C.F.R. § 42.121. *Lectrosonics*, Paper 15, 4. In that regard, Patent Owner bears the burden of persuasion to show that: (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 or introduce new subject matter; and (4) the original disclosure sets forth written description support for each proposed claim. *Id.*; 35 U.S.C. § 316(d); 37 C.F.R. § 42.121(d)(1).

B. The Proposed Substitute Claims

The following table lists proposed substitute claims 65–85:

Substitute Claim	Claim Replaced	Type of Change	Independent (I) / Dependent from (#)
66	1	feature change	I
74	33	feature change	I
69	4	feature change	68
77	36	feature change	76
73	12	feature change	66
81	44	feature change	74
67	2	claim dependency only	66

Substitute Claim	Claim Replaced	Type of Change	Independent (I) / Dependent from (#)
68	3	claim dependency only	66
70	6	claim dependency only	69
71	8	claim dependency only	66
72	9	claim dependency only	71
73	12	claim dependency only	66
75	34	claim dependency only	74
76	35	claim dependency only	74
78	38	claim dependency only	77
79	40	claim dependency only	74
80	41	claim dependency only	79
82	56	claim dependency only	66
83	57	claim dependency only	82
84	62	claim dependency only	74
85	63	claim dependency only	84

Proposed substitute claims 66 and 74, replacing independent claims 1 and 33, are reproduced below, with strike-through indicating deletion and underlining indicating insertion and all changes except feature deletions bolded as Patent Owner presents in the Revised Motion to Amend Claims:

> ~~**1.**~~**66** A method of transmitting control information from a mobile terminal in a network, the method comprising:

receiving a first message in the mobile terminal, the first message including information indicating at least ne available configuration for transmitting a second message, the second message including at least a portion of the control information;

selecting one of the at least one available configuration in the mobile terminal; and

transmitting the second message from the mobile terminal utilizing the selected information,

wherein the at least one available configuration is physical random access channel (PRACH) information related to a common control channel (CCCH) logical channel, the information including additional transport format information for the CCCH comprising ~~at least one of a RLC (Radio Link Control) size,~~ a**n** **additional** transport block size~~, or number of transport blocks~~.

Revised MTA 6–7.

~~33.~~**74**. A mobile communication device for transmitting control information to a network, the mobile communication device comprising:

an RF module configured to receive a first message from the network and to transmit a second message to the network, the first message including information indicating at least one available configuration for transmitting the second message and the second message including at least a portion of the control information;

an antenna configured to receive the first message from the network and to transmit the second message to the network;

a keypad configured to input information from a user;

a storage unit configured to store information associated with the at least one available configuration for transmitting the second message;

a display configured to convey information to the user; and

a processing unit configured to process the first message, select one of the at least one available configuration and transmit the second message utilizing the selected configuration,

wherein the at least one available configuration is physical random access channel (PRACH) information related

> to a common control channel (CCCH) logical channel, the information including additional transport format information for the CCCH comprising ~~at least one of a RLC (Radio Control Link) size~~, a**n additional** transport block size~~, or number of transport blocks~~.

Id. at 9–11.

As shown above, the feature change made by proposed substitute claims 66 and 74, relative to challenged patent claims 1 and 33, is the same.

Proposed substitute claims 69 and 77, replacing dependent claims 4 and 36, are reproduced below:

> **~~4.~~69.** The method of claim **~~3~~68**, wherein the predefined configuration mode comprises ~~at least one of utilizing an additional channel, utilizing an increased message block size for an existing channel, utilizing a new channel mapping information, or~~ utilizing a new message format~~.~~**;**
>
> **wherein the new message format adapts a message format by omitting data;**
>
> **wherein another message is transmitted using the adapted message format; and**
>
> **wherein omitting data includes omitting START values transmitted in a message preceding the another message.**

Id. at 8.

> **~~36.~~77.** The mobile communication device of claim **~~35~~76**, wherein the predefined configuration mode comprises ~~at least one of utilizing an additional channel, utilizing an increased message block size for an existing channel, utilizing a new channel mapping configuration, or~~ utilizing a new message format~~.~~**;**
>
> **wherein the new message format adapts a message format by omitting data;**
>
> **wherein another message is transmitted using the adapted message format; and**
>
> **wherein omitting data includes omitting START values transmitted in a message preceding the another message.**

Id. at 12–13.

As shown above, the feature change made by proposed substitute claims 69 and 77, relative to challenged patent claims 4 and 36, is the same.

Proposed substitute claims 73 and 81, replacing dependent claims 12 and 44, are reproduced below:

> ~~12.~~**73.** The method of claim ~~1~~**66**, wherein selecting one of the at least one available configuration comprises **selecting a configuration wherein the included additional transport format information and the included additional transport block size are determined by** ~~determining~~ the size of the second message.

Id. at 9.

> ~~44.~~**81.** The mobile communication device of claim ~~33~~**74**, wherein the processor is configured to select one of the at least one available configuration; and
>
> **wherein the included additional transport format information and the included additional transport block size are determined by** ~~determining~~ the size of the second message.

Id. at 13–14.

As shown above, the feature change made by proposed substitute claims 73 and 81, relative to challenged patent claims 12 and 44, is the same.

C. Statutory and Regulatory Requirements

A motion to amend must "propose a reasonable number of substitute claims." 35 U.S.C. § 316(d)(1)(B); *see* 37 C.F.R. § 42.121(a)(3) ("A motion to amend may cancel a challenged claim or propose a reasonable number of substitute claims."). "There is a rebuttable presumption that a reasonable number of substitute claims per challenged claim is one (1) substitute

claim." *Lectrosonics*, Paper 15 at 4; *see* 37 C.F.R. § 42.221(a)(3). Patent Owner proposes no more than one substitute claim for each challenged claim. Paper 46, 6–15. Petitioner does not contend that Patent Owner proposed more than a reasonable number of substitute claims. We determine that Patent Owner has proposed a reasonable number of substitute claims.

"A motion to amend may be denied where . . . [t]he amendment does not respond to a ground of unpatentability involved in the trial." 37 C.F.R. § 42.121(a)(2)(i). The Petition asserts that claims 1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, and 63 are unpatentable over prior art. As shown above, through the Revised Motion to Amend, Patent Owner has sought to change the substantive features of both challenged independent claims, i.e., claims 66 and 74, and dependent claims 69, 73, 77, and 81. The proposed amendments to the other challenged dependent claims make them depend, directly or indirectly, on the proposed substitute independent claims. Petitioner does not contend that the proposed amendments fail to respond to a ground of unpatentability in this trial. We determine that the proposed amendments are responsive to a ground of unpatentability involved in this trial.

An amendment may not enlarge the scope of the claims of the patent. 35 U.S.C. § 316(d)(3); 37 C.F.R. §§ 42.121(b)(1), 42.121(b)(2). Patent Owner explains that independent claims 66 and 74, and dependent claims 69, 73, 77, and 81, each recite additional limitations relative to the claims they substitute and therefore do not enlarge the scope of the challenged claims. Revised MTA 4. We agree with Patent Owner. For instance, patent claims 1 and 33, which proposed claims 66 and 74 would substitute, may be met by satisfying any one of the following three elements: (1) a RLC (Radio

Link Control) size, (2) a transport block size, and (3) number of transport blocks. However, proposed substitute claims 66 and 74 each recite and require "an additional transport block size." *Id.* at 6–7, 10–11.

Petitioner does not contend that any proposed substitute claim enlarges the scope of any challenged patent claim. We determine that each proposed substitute claim includes narrowing limitations and does not violate the statutory and regulatory prohibition of enlarging the scope of patent claims.

An amendment may not introduce new matter. 35 U.S.C. § 316(d)(3); 37 C.F.R. §§ 42.121(b)(1), 42.121(b)(2). 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. 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 claim that is . . . amended," and in "an earlier-filed disclosure for each claim for which the benefit of the filing date of the earlier filed disclosure is sought." 37 C.F.R. § 42.121(b).

With respect to proposed substitute claims 66 and 74, Patent Owner accounts for written description support on pages 6–7 and 9–11 of the Revised Motion to Amend Claims. Revised MTA 6–7, 9–11. Notwithstanding Petitioner's arguments to the contrary, discussed below, we are persuaded by Patent Owner that proposed substitute claims 66 and 74 have written support in the specification of Application 11/065,872 (the '872 application") which issued as the '388 patent, and also in each of Provisional Applications 60/576,214, and 60/589,630. For instance, paragraph 83 of

Application 11/065,872 states: "It is contemplated that the *new configurations* provided by the present invention *may include* an additional channel, *an increased message block size* for an existing channel, a new channel mapping configuration, and/or a new message format." Ex. 1002, 286 (cited at Paper 46, 7) (emphasis added). We note further that paragraph 76 of Application 11/065,872 states:

> Therefore, there is a need for a method and apparatus that conforms to a new UMTS standard that allows messages to be transmitted via the CCCH channel that are larger than the currently available transport block size, while not impacting the operation of mobile terminals that do not conform to the new UMTS standard. The present invention addresses these and other needs.

Ex. 1002, 285.

Petitioner asserts: "[Patent Owner's] proposed amendment adds new matter to Claims 66 and 74. Nowhere can the element 'additional transport block size' be found in the prosecution history or patent." Paper 48, 18. Petitioner's contention is unavailing because Petitioner does not address any of the portions in the original disclosure referenced by Patent Owner as providing written description support for "additional transport block size." To satisfy the written description requirement, the disclosure does not need to use the same words *in haec verba*. *See Lockwood v. American Airlines Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997).

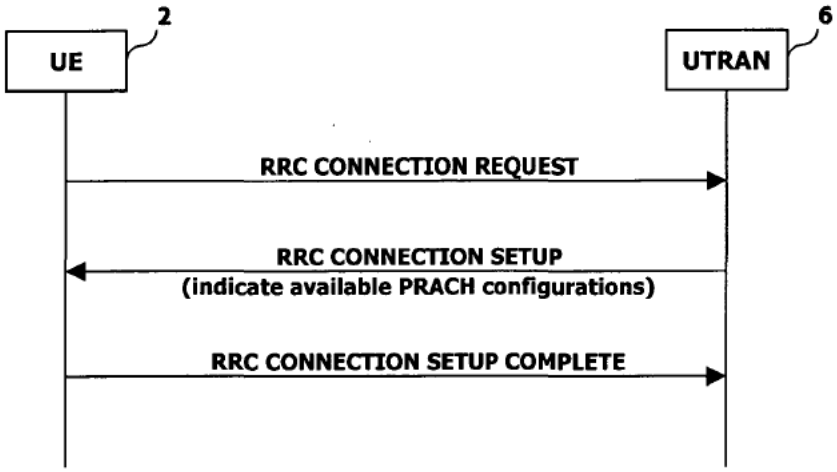
With respect to proposed substitute claims 69, 70, 77, and 78,[13] Patent Owner accounts for written description support on pages 8 and 12–13 of the Revised Motion to Amend Claims. Revised MTA 8, 12–13. Notwithstanding Petitioner's arguments to the contrary, discussed below,

[13] Claim 70 depends from claim 69, and claim 78 depends from claim 77.

we are persuaded by Patent Owner that proposed substitute claims 69, 70, 77, and 78 have written support in the specification of Application 11/065,872 which issued as the '388 patent, and also in each of Provisional Applications 60/576,214, and 60/589,630. For instance, Patent Owner shows how the fourth embodiment and Figure 15 of the '388 patent provide support for the added feature of claims 69, 70, 77, and 78. Specifically, Patent Owner explains:

> The '872 application teaches that:
>
> > A fourth embodiment allows a new message format to be utilized. The new message format may be adapted to include only the most necessary data. For example, the START values may be omitted in an RRC Connection Request message since the Start values are also transmitted in the Initial Direct Transfer Message.
>
> (Ex. 1002 at 293 (24, ¶ 128).) Combining this teaching with Figure 15 from that application and claim 1's language shows that a UE receives an Initial Direct transfer message with START values and the UE sends a RRC Connection Request Message before RRC Connection Setup Message. The new limitations "another message" and "a message preceding the another message" reflect these teachings without adding new subject matter.

FIG. 15



Revised MTA 19. Figure 15 illustrates a method for transmitting an indication of available PRACH configurations to a mobile terminal. Ex. 1001, 12:15–18. As explained by Patent Owner, the RRC Connection Setup message is the "first message"; the RRC Connection Setup Complete message is the second message; the RRC Connection Request message is the "another message"; and the Initial Direct transfer message (not shown) preceding the RRC Connection Request message is the "message preceding the another message."

Petitioner presents several counterarguments. First, according to Petitioner, Patent Owner's proposed substitute claims 69 and 77 each recite "[w]herein the new message format *adapts the second message* to omit one or more START values." Paper 48, 19 (emphasis added). However, that assertion is incorrect. The referenced amendment is from Patent Owner's first Motion to Amend Claims (Paper 29), not from Patent Owner's Revised Motion to Amend Claims (Paper 46). The Revised Motion to Amend Claims does not contain the language identified and discussed by Petitioner,

particularly the reference to "adapts the second message." Instead, proposed substitute claims 69 and 77 recite the "another message," not the "second message," as using an adapted message format that omits data including START values transmitted in a message preceding the another message.

Second, Petitioner asserts:

> Proposed dependent claims 69 and 77 (and claims 70 and 78 that depend from them) contain new subject matter. PO has added "wherein the new message forma[t] adapts a message format by omitting data" and where the "omitting data includes omitting START values." The omitted data as used in the prosecution history is not all types of data. The specification only states that ["][t]he new message format may be adapted to include only the most necessary data." Therefore, the definition of "omitted data" is limited to only data that is not the most necessary data." This does not support omitting START values from a second message.

Paper 48, 19. The argument is unavailing, because the proposed substitute claims do not require omitting general START values of any and all kinds from the second message. Rather, they require "omitting START values transmitted in a message preceding the another message." Petitioner does not explain why START values which have already been transmitted previously are not within the class of "data that is not the most necessary data."

Third, Petitioner asserts that the RRC Connection Request message is the only message that is described in the specification of the '388 patent as omitting START values but in the context of claims 69 and 77 the RRC Connection Request message cannot be the second message. Paper 48, 20–21. The argument is misplaced because it is based on Petitioner's mistaken understanding that proposed substitute claims 69 and 77 require the "second message" to omit START values. As we explained above, Petitioner

mistakenly refers to claims 69 and 77 of Patent Owner's initial Motion to Amend Claims, instead of claims 69 and 77 of Patent Owner's Revised Motion to Amend Claims, which require the "another message," not "the second message," to omit START values.

Fourth, Petitioner asserts that, other than the portion of the specification cited by Patent Owner, there is "no further explanation in the file history or '388 patent." Paper 48, 23. The argument is unavailing for two reasons. One, the purported portion of the specification identified by Petitioner as cited by Patent Owner (Ex. 1002, 8–9), appears not to be in the specification of the '388 patent or the two Provisional applications to which the '388 patent claims priority, and Petitioner has not shown where Patent Owner has relied on that material as providing written description support for claims 69 and 77. Paper 48, 23 (citing Ex. 1002, 8–9). The material appears to be from an internal patent document of LG. Ex. 1002, 1–9. Two, as noted above, Patent Owner actually cites to paragraph 128 and Figure 15 of the specification of Application No. 11/065,872, which issued as the '388 patent. Revised MTA 8, 12–13, 19 (citing Ex. 1002, 293 (citing ¶ 128 and Figure 15)). Paragraph 128 of Application No. 11/065,872 states:

> A fourth embodiment allows a new message format to be utilized. The new message format may be adapted to include only the most necessary data. For example, the START values may be omitted in an RRC Connection Request message since the START values are also transmitted in the Initial Direct transfer message.

Ex. 1002, 293. Petitioner has not adequately explained why anything more than paragraph 128 and Figure 15 of the specification of Application No. 11/065,872 is necessary to provide support for "omitting START values transmitted in a message preceding the another message."

Fifth, Petitioner asserts:

> [T]here is not support in the prosecution history or the '388 patent for "a message" and "another message." The example provided in the specification, see Ex. 1001, 13:18–23 are related to FIG. 15 and the first and second messages as claimed in the independent claims. The two additional messages ("a message" and "another message") are not described and no disclosure is provided.
>
> At most, only a third message of "the Initial Direct Transfer Message" is disclosed. As mentioned in the example provided in FIG. 15, the RRC Connection Request message is the first message and not the "a message" or "another message: as used by PO in proposed amended claims 69 and 77.
>
> There is no support for four messages in the proposed amended claims in the prosecution history or the '388 patent. The "a message" and "another message" are third and fourth messages to appear in the specification or prosecution history, and are thus new matter.

Paper 48, 21–22. The argument is unavailing, because "first message" does not have to be "first" in time. "First" is just a designation in the claim for identification purposes. As explained by Patent Owner, the RRC Connection Setup message is the "first message"; the RRC Connection Setup Complete message is the second message; the RRC Connection Request message is the "another message"; and the Initial Direct transfer message (not shown) preceding the RRC Connection Request message is the "message preceding the another message." Revised MTA 19.

Sixth, similarly, Petitioner argues that the RRC Connection Request message "cannot be the 'first message' in part of the claim and then used as 'a message' in claim 69, where the specification teaches the RRC Connection Request message has START values omitted." Paper 48, 24. Petitioner asserts "[t]he [different] claim terms cannot refer to the same message." *Id.* The argument is unavailing, because Petitioner has not

shown where Patent Owner, in identifying written description support for the claims, identified the RRC Connection Request message both as a "first message" and also as "another message" or "a message." As we noted above, Patent Owner identified the RRC Connection Request message not as a "first message" but as "another message." The "first message" corresponds to the disclosed RRC Connection Setup message.

Seventh, in its Sur-reply, Petitioner makes a similar argument that because the RRC Connection Request message occurs before the RRC Connection Setup message, that conflicts with claim 1's and claim 33's recitation of a "first message" which corresponds to the RRC Connection Setup message. Paper 64, 6. The argument is unavailing because, again, "first message" does not have to be the message that is first in time among the four messages recited in claims 66 and 74.

Eighth, also in its Sur-reply, Petitioner asserts that Patent Owner improperly combined the first embodiment (corresponding to Figure 15), with the fourth embodiment to find the four messages recited in claims 1 and 33, i.e., "first message," "second message," "another message," and "a message preceding the another message." *Id.* at 3–6. The argument is misplaced and unavailing. The fourth embodiment is not described in stand-alone completeness. Rather, it merely adds a feature.

The '872 application (issued as the '388 patent) states:

> A fourth embodiment allows a new message format to be utilized. The new message format may be adapted to include only the most necessary data. For example, the START values may be omitted in an RRC Connection Request message since the START values are also transmitted in the Initial Direct transfer message.

Ex. 1002 at 293 (24, ¶ 128). The disclosure does not describe the RRC Connection Setup message and the RRC Connection Setup Complete message all over again as though they have not been previously described. It is implicit that the feature provided by the fourth embodiment may be added to other disclosed embodiments. It would be unreasonable to read the fourth embodiment as providing a feature but not to recognize addition of the feature to the first embodiment shown in Figure 15.

Further, Petitioner's argument alleging improper combination of multiple embodiments is belated and not entitled to consideration. Patent Owner's reliance on the fourth embodiment together with Figure 15 is clear from the Revised Motion to Amend. Revised MTA 19. Petitioner did not put forward this argument in its Opposition to the Revised Motion to Amend. Paper 48. Petitioner cannot raise this argument for the first time in its Sur-reply (Paper 64), as it deprives Patent Owner a fair opportunity to respond. "Sur-replies should only respond to arguments made in reply briefs, comment on reply declaration testimony, or point to cross examination testimony." Consolidated Trial Practice Guide 73–74.[14]

With regard to the remaining proposed substitute claims, Patent Owner also adequately accounts for their written description support. Revised MTA 6–15. Petitioner does not assert that any of the remaining substitute claims lacks written description support or contains new matter. We are persuaded that proposed substitute claims 67, 68, 70–73, 75, 76, and 78–85 all have written description support in the specification of Application 11/065,872 which issued as the '388 patent, and also in each of Provisional Applications 60/576,214, and 60/589,630.

[14] Available at https://www.uspto.gov/TrialPracticeGuideConsolidated.

D. Petitioner's Assertions of Unpatentability

1. Alleged Indefiniteness under 35 U.S.C. § 112, Second Paragraph

Petitioner asserts that all of proposed substitute claims 66–85 are indefinite under 35 U.S.C. § 112, second paragraph. Paper 48, 22–24. However, almost all of the reasons put forth by Petitioner on indefiniteness are its arguments alleging lack of written description support for the claimed invention. *Id.* Petitioner has conflated lack of written description support with indefiniteness. The two are not the same.

"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, 898–99 (2014). The test for written description is whether the application reasonably would have conveyed to one with ordinary skill in the art "the inventor possessed the invention at the time of that original disclosure." *Pandrol USA, LP v. Airboss Ry. Products, Inc.*, 424 F.3d 1161, 1165 (Fed. Cir. 2005); *see also Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991).

In any event, Petitioner's arguments directed to lack of written description support have been discussed above and need not be addressed again. Here, we address the following contention of Petitioner:

> The "additional transport block size" term [of proposed substitute claims 66 and 74] is undefined and not described in the prosecution history or specification of the resulting issued '388 patent. Since [Patent Owner] deleted transport block size from the independent claims and added this new term for the purpose of attempting to avoid the cited references, the new amended claim term must have a different meaning, but that meaning is not described in the specification and is ambiguous and indefinite.

Paper 48, 23.

Petitioner's argument that the claimed "additional transport block size" term "is undefined and not described in the prosecution history or specification of the resulting issued '388 patent" is unpersuasive because not every claim term needs an express definition in the specification or prosecution history, and also because Petitioner does not address the portions in the original disclosure that are referenced by Patent Owner as examples of "an additional transport block size" (*see* Paper 46, 7, 11). Further, there is nothing wrong with different terms having different meanings, and Petitioner's assertion of ambiguous and indefinite meaning is not supported by a reasoned explanation.

Petitioner has not shown that any of proposed substitute claims 66–85 is indefinite under 35 U.S.C. § 112, second paragraph.

2. Alleged Unpatentability under Manual of Patent Examining Procedure § 608.02(d) and 37 C.F.R. § 1.83

Petitioner asserts:

> MPEP [Manual of Patent Examining Procedure] 608.02(d) recites 37 C.F.R. § 1.83(a) that requires that "[t]he drawing in a nonprovisional application must show every feature of the invention specified in the claims." *Ex parte Good*, 1911 C.D. 43, 164 O.G. 739 (Comm'r Pat. 1911). If the detail is of sufficient importance for PO to include in the claims when attempting to avoid prior art, the claim element must be in the figures. *See* MPEP 608.02(d). Nowhere in the figures is there a message format that shows how an RLC Message would look or be defined without "START values." Nowhere in the figures of the '388 patent are four messages illustrating a message flow to support the use of "a first message," "a second message," "a message," and "another message."

Paper 48, 25.

The argument is misplaced, for several reasons. First, the Manual of Patent Examining Procedure addresses patent examination procedure, not an *inter partes* review proceeding. Second, 37 C.F.R. § 1.83 is inapplicable to an *inter partes* review proceeding. *See* 37 C.F.R. § 42.1(a). Third, non-compliance with 37 C.F.R. § 1.83 does not lead to or result in unpatentability of any claim.

Petitioner has not shown unpatentability of any proposed substitute claim under either the Manual of Patent Examining Procedure or 37 C.F.R. § 1.83.

3. Alleged Unpatentability over Prior Art

a) Anticipated by TS-25.331, Obvious over TS-25.331, and Obvious over TS-25.331 and Bannister

Petitioner asserts that (1) proposed substitute claims 66–73, 82, and 83 are anticipated by TS-25.331, (2) proposed substitute claims 66–85 would have been obvious over TS-25.331 alone, and (3) proposed substitute claims 66-85 would have been obvious over TS-25.331 and Bannister. Paper 48, 1–2. As discussed below, these assertions of unpatentability share common deficiencies. Petitioner has not shown by a preponderance of the evidence that any of proposed substitute claims 66–73, 82, and 83 are anticipated by TS-25.331. Petitioner also has not shown by a preponderance of the evidence that any of proposed substitute claims 66–85 would have been obvious over TS-25.331 alone, or over TS-25.331 and Bannister.

Of proposed substitute claims 66–85, only claims 66 and 74 are independent.

Proposed substitute claim 66 recites "receiving a first message in the mobile terminal, the first message including information indicating at least one available configuration for transmitting a second message." Revised

MTA 6. Claim 66 further recites "wherein the at least one available configuration is physical random access-channel (PRACH) information related to a common control channel (CCCH) logical channel, the information including additional transport format information for the CCCH comprising ~~at least one of a RLLC (Radio Link Control) size,~~ a**n additional** transport block size~~, or a number of transport block~~." *Id.* at 7. Proposed substitute claim 74 has similar recitations. *Id.* at 10–11. Petitioner relies on TS-25.331 to account for these limitations. Paper 48, 5–6.

Petitioner explains:

> TS-25.331 teaches that the transport block size is the same as the RLC size, at least in some situations:
>
> 8.6.5 Transport channel information elements
>
> 8.6.5.1 Transport Format Set
>
> If the IE "Transport format set" is included, the UE shall:
>
> * * *
>
> 2> if the IE "Transport format Set" has the choice "Transport channel type" set to "Common transport channel":3> in FDD:
>
> 4> for transport channels other than DSCH calculate the transport block size for all transport formats in the TFS using the following:
>
> TB size = RLC size.
>
> Ex. 1003, 94–98 (highlighting added); See Ex. 1016, ¶ 61.

> "8.6.5.1 Transport Format Set…
>
> 2> if the IE "Transport format Set" has the choice "Transport channel type" set to "Common transport channel":…
>
> "3> for TDD calculate the transport block size for all transport formats in the TFS using the following:
>
> TB size = RLC size."

Exhibit 1003 pages 94–96 (emphasis added);
Ex. 1016, ¶ 62.

> In such situations sending the RLC size conveys the transport block size information too because the TB size ***equals*** the RLC size. Ex. 1016, ¶¶ 63–64. And, as the ID found, sending RLC size is unequivocally taught by TS-25.331, *see* ID at 29. TS-25.331 thus teaches the proposed claim amendments because when TB size value is the same value as the RLC size value used in a dynamic transport format information of a message, and therefore, the transport block size value is also transmitted, or a POSITA would understand that this information is inherent in transmitting the RLC size when RLC size = TB size. Ex. 1016, ¶ 65.

Paper 48, 5–7 (emphasis in original).

Petitioner's argument is misplaced. The proposed substitute claims require actual sending of the "additional transport block" in the first message, not just being able to determine or set the "additional transport block size" based on information transmitted in the first message. TS-25.331 includes multiple formulas to calculate or determine the transport block size from information contained in the received message. For instance, the following is one, different from setting transport block size to equal RLC size: "TB size = RLC size + MAC header size if 'RLC size' <>0." Ex. 1003, 95. Even when transport block size (TB size) is set to equal the received RLC size, that still reflects a calculation based on the

information received and is different from actually transmitting the transport block size which is what the claims require. Section 8.6.5 of TS-25.331 discloses that the UE itself performs calculations to determine and obtain a transport block size. *Id.* at 95–98. We agree with Patent Owner's statement:

> [E]ven where the transport block size equals the RLC size, TS 25.331 v6.1.0 discloses that the transport block size is not transmitted to the mobile unit from the network but is calculated at the terminal: "3> for TDD calculate the transport block size for all transport formats in the TFS using the following: TB size = RLC size." (*See id.* at 6 (citing Ex. 1003 at 94–96).)

Paper 56, 6.

There are different ways to determine the transport block size, and proposed substitute claims 66 and 74 require a particular way, that it be transmitted in the first message. Petitioner's accounting leads to identification of the same transport block size but the accounting does not satisfy the specific way required by these claims. We have considered the testimony of Dr. Olivier (Ex. 1016 ¶¶ 62, 63), but the testimony shows what we already recognize, that transport block size can be set by the receiving unit to equal the transmitted and received RLC size, not that the transport block size is itself transmitted.

Furthermore, proposed substitute claims 66 and 74 require transmission of "additional transport block size," not just "a transport block size." The term "additional transport block size" plainly requires that there be one other transport block size, with respect to which the transmitted "additional transport block size" is deemed "additional." In this regard, Petitioner has provided no explanation or accounting for that one other transport block size.

Claims 67–73, 82, and 83 each depend, directly or indirectly, from claim 66. For the above-discussed reasons, Petitioner has not shown that claims 66–73, 82, and 83 are anticipated by TS-25.331.

Petitioner asserts that proposed substitute claims 66–85 would have been obvious over TS-25.331 alone. Paper 48, 1–2. Claims 67–73, 82, and 83 depend, directly or indirectly, from claim 66, and claims 75–81, 84, and 85 depend, directly or indirectly, from claim 74. With regard to "additional transport block size" recitations discussed above in the context of alleged anticipation of claim 66, claim 74 includes similar limitations.

Petitioner asserts:

> In any event, even if the teaching of TS25.331 did not expressly or inherently disclose sending the additional transport block size in situations where the RLC size = TB size, it at least would have been obvious to a POSITA that the RLC size value that is transmitted *could be used* for the additional transport block size, given that the two are the same value. Ex. 1016, ¶¶ 92, 106.

Paper 48, 7 (emphasis added). The reasoning is insufficient. Essentially, Petitioner contends that it would have been obvious to transmit the transport block size simply because that "could be" done. But obviousness concerns whether a skilled artisan "would have" had reason to make the modification required to arrive at the claimed invention, and not just "could have" made the modification. *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015). Petitioner has not adequately explained why one with ordinary skill in the art would have wanted to separately transmit the transport block size itself when the transport block size already can be determined by the terminal unit based on other transmitted information. Petitioner's reasoning appears to be based on improper hindsight. Further, Petitioner has not

accounted for the presence of another transport block size with respect to which the transmitted transport block size would be deemed "additional."

For the foregoing reasons, Petitioner has not shown that any of claims 66–85 would have been obvious over TS-25.331 alone.

Petitioner also asserts that proposed amended claims 66–85 would have been obvious over TS-25.331 and Bannister. Paper 48, 1–2. However, Bannister, as applied by Petitioner in the ground based on TS-25.331 and Bannister, is pertinent to only the unamended or original elements of these claims. *Id.* at 7. Accordingly, Bannister does not cure the deficiencies discussed above with respect to "additional transport block size" as recited in claims 66 and 74. Proposed substitute claims 67–73 and 75–85 each depend, directly or indirectly, from claim 66 or claim 74.

For the foregoing reasons, Petitioner has not shown that any of proposed substitute claims 66–85 would have been obvious over TS-25.331 and Bannister.

Petitioner further asserts that proposed substitute claims 66–85 would have been obvious over Beckmann and TS-25.331, and also would have been obvious over Beckmann, TS-25.331, and Bannister. Paper 48, 1–2, 17–18. The arguments are unpersuasive, because Petitioner's application and discussion of Beckmann and Bannister in these grounds do not make up for the deficiencies discussed above with respect to "additional transport block size" as recited in claims 66 and 74.

Petitioner explains:

> In Grounds 4 and 5 [(TS-25.331 and Beckmann) and (TS-25.331, Beckmann, and Bannister)]. Beckmann and TS-25.331 disclose "dynamic parameters" of a transport format that include "RLC size." Pet. 71 citing Ex. 1005, 3:14–44. Beckmann also teaches that transport block size is part of the dynamic portion of

> the transport format, implying an additional transport block size that can be adapted. Ex. 1005, 3:27–45. TS-25.331 also teaches the RLC size can be equal to the TB size.
>
> Regarding Ground 5 [(TS-25.331, Beckmann, and Bannister),] the revised proposed amendments to claims 66 and 74, Bannister also describes the transport format having a dynamic part consisting of the transport block size and transport block set size, where the transport block set size is equal to the transport block set multiplied by the transport block size. Ex. 1004, 90–91. Since the transport block size is in the dynamic part of the transport format, it is able to change and is not fixed.

Paper 48, 17. These arguments at most indicate that the transport block size need not be fixed, but may be altered or changed at some time. Even if so, that does not cure the above-discussed deficiencies of TS-25.331 with regard to the requirement that the additional transport block size be transmitted in a first message received by a mobile terminal.

For these grounds based on references including Beckmann, Petitioner still relies on its explanation of why TS-25.331 discloses or would have suggested transmitting the additional transport block size in the first message received by the mobile terminal. *Id.* For reasons discussed above, we are not persuaded by that explanation. Additionally, Petitioner also has not sufficiently addressed or accounted for the presence of one other transport block size that is implied by "an additional transport block size."

Regarding Beckmann, we have reviewed the cited portion of the disclosure, i.e., column 3, lines 14–44, and find that the disclosure pertains to RLC size and at most indicates, consistent with the disclosure of TS-25.331 discussed above, that transport block size is determinable from RLC size. The disclosure nowhere describes that transport block size is itself directly received by a mobile terminal in a transmitted first message as is required by proposed substitute claims 66 and 74. Nor has Petitioner cited

to anything in Bannister disclosing that the transport block size is included in a transmitted message received by a mobile terminal.

For the foregoing reasons, Petitioner has not shown that any of proposed substitute claims 66–85 would have been obvious over Beckmann and TS-25.331, or over Beckmann, TS-25.331, and Bannister.

IV. PATENT OWNER'S MOTION TO STRIKE

Patent Owner filed a Motion to Strike seeking to strike portions of Petitioner's Opposition to Patent Owner's Revised Motion to Amend Claims and the entirety of Exhibits 1015 and 1016. Paper 55.

According to Patent Owner, portions of Petitioner's Opposition to Patent Owner's Revised Motion to Amend are non-responsive. *Id.* at 1–2. Patent Owner states: "Under the Board's Revised Scheduling Order 'Petitioner's opposition to the revised MTA and Patent Owner's reply to that opposition may be accompanied by *new evidence that responds to issues raised in the preliminary guidance (if provided) or in the corresponding revised MTA* or opposition.' [Footnote omitted] (Paper 47 at 2–3.)" *Id.* at 1. The statement suggests that Petitioner's Opposition to Patent Owner's Revised Motion to Amend Claims may rely on new evidence *only* if the evidence responds to issues newly raised in the preliminary guidance or in the Revised Motion to Amend Claims. But that is not what the cited text states. More importantly, Patent Owner omits the sentence immediately preceding the cited text, which states: "Generally speaking, new evidence (including declarations) *may be submitted with every paper related to the revised MTA*, except sur-replies." Paper 47, 2 (emphasis added). There simply is no mention of responsive or non-responsiveness in the provision allowing submission of new evidence.

In any event, we disagree with Patent Owner's assertion (Paper 55, 1–2) that Petitioner's argument that TS-25.331 discloses setting the transport block size to equal the RLC size is non-responsive and beyond the proper scope of the Opposition to Patent Owner's Revised Motion to Amend Claims. Patent Owner explains that when opposing Patent Owner's initial Motion to Amend Claims, Petitioner argued that TS-25.331 discloses calculating the transport block size from other parameters received by the terminal, and that the Board in its Preliminary Guidance (Paper 42, 17) stated that calculating the transport block size is not the same as receiving the transport block size. According to Patent Owner, Petitioner now goes beyond the proper scope of its Opposition, and is nonresponsive, by presenting a new argument, i.e., that TS-25.331 discloses the terminal setting the transport block size to equal the received RLC. Paper 55, 1–2.

The argument is unpersuasive. Because Patent Owner filed a Revised Motion to Amend Claims, Petitioner has a new opportunity to oppose, even on portions of the amendment that remain the same as in Patent Owner's initial Motion to Amend Claims. Petitioner is not required to stay with a previous argument with respect to which the Board's Preliminary Guidance already expressed doubt or some level of lack of persuasion. There is nothing inequitable about Petitioner having this opportunity, because Patent Owner similarly has an opportunity to revise its initially proposed substitute claims based on the Board's Preliminary Guidance.

We note also the following in the Board's Consolidated Trial Practice Guide: "A petitioner will be afforded an opportunity to fully respond to a patent owner's motion to amend. . . . Petitioners may respond to new issues arising from proposed substitute claims and may include evidence

responsive to the amendment." Consolidated Trial Practice Guide 72.[15] The same applies to an opposition to a revised motion to amend claims. The "new" in the quoted text is understood as relative to the initially challenged and unamended patent claims. We see nothing wrong with Petitioner arguing in its Opposition to Patent Owner's Revised Motion to Amend Claims that TS-25.331 discloses setting the transport block size to the RLC in a message received by the terminal.

We also disagree with Patent Owner's assertion (Paper 55, 3–4) that Petitioner's argument that TS-25.331 discloses that the START Value should be optional in some future versions of TS-25.331 is non-responsive and beyond the proper scope of the Opposition to Patent Owner's Revised Motion to Amend. Patent Owner explains that that argument was not made by Petitioner when Petitioner opposed Patent Owner's initial Motion to Amend Claims. Paper 55, 3–4.

As we explained above, Petitioner in opposing Patent Owner's Revised Motion to Amend is not limited to the arguments it included in its Opposition to Patent Owner's initial Motion to Amend, but is entitled to a full opportunity to respond to Patent Owner's Revised Motion to Amend. We see nothing wrong with Petitioner's dropping some arguments and making new ones in its Opposition to Patent Owner's Revised Motion to Amend, as compared to Petitioner's Opposition to Patent Owner's initial Motion to Amend. The relationship between Petitioner's Opposition to Patent Owner's Revised Motion to Amend and Petitioner's Opposition to Patent Owner's initial Motion to Amend is not comparable to the relationship between Petitioner's Petition and Petitioner's Reply.

[15] Available at https://www.uspto.gov/TrialPracticeGuideConsolidated.

Petitioner seeks to strike the Second Declaration of Dr. Olivier (Ex. 1016), for much of the same reasons it seeks to strike the above-discussed portions of Petitioner's Opposition to Patent Owner's Revised Motion to Amend Claims. Paper 55, 5. For essentially the same reasons discussed above, the new opinions of Dr. Olivier, supporting Petitioner's new arguments in the Opposition to Patent Owner's Revised Motion to Amend Claims regarding TS-25.331 disclosing setting transport block size to equal RLC size and regarding what TS-25.331 teaches and suggests about START values, are not nonresponsive to Patent Owner's proposed amendments. They are directly responsive to Patent Owner's proposed amendments. Nor are they untimely or beyond the proper scope of a declaration supporting Petitioner's Opposition to Patent Owner's Revised Motion to Amend Claims.

Petitioner asserts: "Dr. Olivier made his Second Declaration *in Support of Petition for Inter Partes* Review and not in opposition to the Revised MTA. (*See* Ex. 1016 (title page).)" Paper 55, 4. When authorizing Patent Owner to file the Motion to Strike, we asked Patent Owner to "specifically identify each instance in the material sought to be stricken where either the pleading or the expert testimony asserts unpatentability of Patent Owner's original patent claims prior to the proposed amendment and where the pleading makes reference to such testimony." Paper 54, 2. Patent Owner includes a Table in its Motion to Strike, Table A. Paper 55, 9–10. Only one entry, the first entry in the Table, arguably shows the declarant is testifying about original patent claims. *Id.* at 9. That entry identifies the title of Dr. Olivier's Second Declaration which includes the wording "in Support of Petition for *Inter Partes* Review." *Id.* at 4. But the title is not substantive, and the declarant reasonably could have thought that everything

he submits in this *inter partes* proceeding is in support of the Petition (which initiated this *inter partes* review proceeding). In the absence of specific identification of substantive arguments made on the merits regarding initially challenged patent claims, we do not find that Dr. Olivier's Second Declaration advocated unpatentability of initially challenged patent claims.

Patent Owner specifically identified paragraph 31 of Dr. Olivier's Second Declaration, which states:

> As explained below, it is my opinion that the following prior art references, and in the combinations outlined below, disclose all technical features of the Challenged Claims of the '388 Patent, thus rendering them unpatentable:
>
> - Ex. 1003, 1014, 1015 TS-25.331
> - Ex. 1004 Bannister
> - Ex. 1005 Beckmann

Paper 55, 5 (citing Ex. 1016 ¶ 31). But the statement must be read in context. Paragraph 32 and 33 follow paragraph 31 and state as follows:

> My summary of the TS-25.331, Bannister, and Beckmann references are contained in my first declaration, *see* Ex. 1006, ¶¶ 61–68.
>
> Based on my review of the materials cited in the petition and in my declaration, and based on my review of the prior art references cited below, *the proposed amended claims of the '388 Patent are anticipated and/or rendered obvious, and thus, unpatentable over the references discussed in this declaration*.

Ex. 1016, ¶¶ 32–33 (emphasis added). We find that although paragraph 31 of the declaration refers to Challenged Claims of the '388 patent, the substantive analysis is directed at the proposed substitute claims.

Patent Owner asserts that Dr. Olivier impermissibly discussed claim construction, the level of ordinary skill in the art, the priority date of the '388 patent, the motivation to combine references, and even the prosecution

history of the '388 patent. Paper 55, 5. Patent Owner asserts that by filing a Revised Motion to Amend, "PO ***did not*** keep the door open for untimely opinions and arguments, such as claim construction, motivation to combine various references, and new theories of invalidity of the '388 patent." *Id.* at 5–6. These contentions assume that the allegedly improper material is directed to initially challenged claims of the '388 patent. But Patent Owner has not shown any substantive argument or analysis, in Petitioner's Opposition to Patent Owner's Revised Motion to Amend Claims, that seek to establish unpatentability of the initially challenged patent claims. All of the items complained of by Patent Owner are relevant to and proper for Petitioner's analysis of Patent Owner's proposed substitute claims.

Additionally, Patent Owner asserts: "In addition, even where Dr. Olivier's untimely Second Declaration echoes his First Declaration, as is the case with some of his motivation to combine opinions, he clearly added new statements and rearranged and reworded his opinions compared to the First Declaration." Paper 55, 7. The argument is misplaced. Dr. Olivier's testimony in his Second Declaration on subjects common with his First Declaration, such as the level of ordinary skill, the prosecution history, and the motivation to combine, need not be identical to corresponding testimony in his First Declaration. If there are substantial or significant inconsistencies, Patent Owner could have identified them for our consideration.

With regard to Exhibit 1015, Patent Owner asserts: "Exhibit 1015 contains new excerpts from TS 25.331 v6.1.0 that were not previously part of the record and that serve Petitioner's arguments and Dr. Olivier's opinions beyond the proper scope." Paper 55, 7. Because, as discussed above, we do not find any portion of Petitioner's Opposition to Patent

Owner's Revised Motion to Amend or the Second Declaration of Dr. Olivier to be beyond the proper scope of such submissions, we are not persuaded that any portion of Exhibit 1015 should be stricken.

For the foregoing reasons, Patent Owner's Motion to Strike is *denied*.

V. PATENT OWNER'S MOTION TO EXCLUDE

Patent Owner filed a Motion to Exclude. Paper 58. Patent Owner seeks to exclude the entirety of Exhibits 1015 and 1016. *Id.* at 1. For Exhibit 1015, Patent Owner relies on Rules 401–403 of the Federal Rules of Evidence ("F.R.E"). *Id.* at 3. For Exhibit 1016, Patent Owner relies on F.R.E. 401–403 and 702. *Id.* at 9. F.R.E. 401–402 pertain to relevance. F.R.E. 403 provides that even relevant evidence may be excluded if its probative value is substantially outweighed by a danger of one or more of the following: unfair prejudice, confusing the issues, misleading the jury, undue delay, wasting time, or needlessly presenting cumulative evidence. F.R.E. 702 concerns, *inter alia*, whether an expert's testimony is based on sufficient facts or data.

Patent Owner essentially includes all of the arguments from its Motion to Strike, discussed and rejected above, in the Motion to Exclude, and relies on all of those arguments to assert that Exhibits 1015 and 1016 are irrelevant, untimely, and too confusing, misleading, and prejudicial to Patent Owner not to exclude. Paper 58, 3–6, 9–12. We need not reiterate here the reasons why Patent Owner's arguments are without merit. For reasons already discussed above in the context of Patent Owner's Motion to Strike, Petitioner's arguments and evidence are not irrelevant, untimely, confusing, or prejudicial to Patent Owner.

Patent Owner additionally argues:

> Petitioner has already introduced excerpts from TS 25.331 v6.1.0 as Exhibit 1003 in support of the Petition, and Exhibit 1014 in support of its opposition to PO's original Contingent Motion to Amend. By introducing another portion of excerpts from that specification as Exhibit 1015, Petitioner has yet again changed and expanded its invalidity arguments, which should not be allowed. For these reasons alone, Exhibit 1015 is untimely, highly prejudicial to PO, and has a tendency to confuse issues before the Board.

Id. at 6.

The argument is misplaced, because Patent Owner's Revised Motion to Amend inserted new limitations to proposed substitute claims 69 and 77, and Petitioner relies on the disclosures of TS-25.331 in Exhibit 1015 to address those limitations. Paper 48, 9–15; Ex. 1016 ¶¶ 75–83. The filing of Exhibit 1015 and Petitioner's reliance on Exhibit 1015 are responsive to and a direct consequence of Patent Owner's submission of proposed substitute claims 69 and 77 in the Revised Motion to Amend Claims. The filing of Exhibit 1015 is not prejudicial to Patent Owner and does not have a tendency to confuse issues. Nor is it a violation of any rule or statute identified by Patent Owner. Petitioner could not have identified the relevance of the evidence in Exhibit 1015 earlier, prior to Petitioner's reliance on the evidence contained therein to address new limitations Patent Owner added through its Revised Motion to Amend Claims.

Further, although Patent Owner could have objected to the initial filing of just a portion of TS-25.331 on the basis that a complete version of TS-25.331 was not provided, it appears that no such objection was made. Had such an objection been made, Petitioner would have had an opportunity to file a complete version of TS-25.331 at an earlier time. At this late stage

in the proceeding, Petitioner's piecemeal submission of TS-25.331 is not a basis to exclude Exhibit 1015.

Patent Owner also asserts that Dr. Olivier's opinions violate F.R.E. 401 because they do not have a tendency to make a fact more or less probable. Paper 58, 12. But Patent Owner provides just one example. Patent Owner asserts:

> For example, Dr. Olivier opines that
>
> > In addition, TS-25.331 also teaches there are situations where the RLC size is the same as the transport block size. Therefore, a POSITA would understand that in these situations, TS-25.331 also teaches the information includes additional transport format information for the CCCH comprising an additional transport block size.
>
> (Ex. 1016, ¶ 60.) It is irrelevant whether RLC size is the same as the transport block size. Nothing in paragraph 60 of Dr. Olivier's Second Declaration or paragraphs that follow shows how TS 25.331 v6.1.0 teaches or suggests the limitation that "the information including additional transport format information for the CCCH comprising an additional transport block size."

Id. Although we are, as discussed above in Section II, not persuaded by the above-quoted opinion of Dr. Olivier, we disagree with Patent Owner's assertion that the testimony is irrelevant and should be excluded. The testimony has plausible logic and is not irrational. We do not find that it has no tendency to make a fact more or less probable.

Patent Owner also asserts:

> Lastly, Exhibit 1016 violates F.R.E. 702, which requires, *inter alia*, that the expert's testimony be based on sufficient facts or data, be the product of reliable principles and methods, and reflect reliable application of the principles and methods to the facts. Dr. Olivier's Second Declaration fails this requirement of F.R.E. 702 on all accounts.

Id. Still, Patent Owner provides just one example:

> Specifically, Dr. Olivier attacks Patent Owner's timely proposal to construe [available configuration] as "a configuration available to be used for transmitting a message." (*See* Paper 32 at 10.) Among other things, Dr. Olivier asserts, without any support, that "[j]ust because a configuration is available, does not mean it is available to be used for transmitting a message." (Ex. 1016 ¶ 46.)

Id. at 12–13.

The testimony plainly is based on logical reasoning. Nothing more is needed to satisfy F.R.E. 702. Furthermore, Dr. Olivier testified: "I can find no support for the 'available to be used for transmitting a message' part of the definition in the file history." Ex. 1016 ¶ 44. That also supports the above-quoted testimony, based on the file history. Dr. Olivier also testified that the materials he relied on for the opinions expressed in his Second Declaration (Ex. 1016) include the '388 patent and the prosecution history of the '388 patent. *Id.* ¶ 44. Patent Owner asserts that Dr. Olivier "largely ignored both the specification—an essential part of the intrinsic record—and the prosecution history," but no reason is provided by Patent Owner other than that Patent Owner reads the specification differently. Paper 58, 13.

Patent Owner has not shown that any part of Dr. Olivier's Second Declaration (Exhibit 1016) violates F.R.E. 702.

For the foregoing reasons, Patent Owner's Motion to Exclude Evidence is *denied*.

VI. PETITIONER'S MOTION TO EXCLUDE EVIDENCE

Petitioner seeks to exclude Michael J. Smith's Third Declaration (Ex. 2018), and Exhibits 2019–2031 referred to in Michael J. Smith's Third Declaration. Paper 59, 1. Michael J. Smith's Third Declaration and

Exhibits 2019–2031 were filed on the same day Patent Owner's Response was filed, in support of Patent Owner's Response.

Petitioner asserts that Exhibits 2019 and 2021–2031 "post-date the critical date of the '388 patent, and hence would not be considered by a POSITA at the time of the invention." *Id.* For that reason, Petitioner contends that Exhibits 2019 and 2021–2031 are irrelevant under Federal Rules of Evidence 401, 402, and 403. *Id.* Regarding Exhibit 2020, Petitioner states: "Dr. Smith also fails to provide an adequate foundation for Exhibit 2020 because he provides no evidence as to when it was publicly available." *Id.*

These contentions are unpersuasive. First, Petitioner has not shown that it timely objected to Exhibit 2020. Therefore, Petitioner may not seek to exclude Exhibit 2020. *See* 37 C.F.R. §§ 42.64(b)(1), 42.64(c). Second, these exhibits were not relied on by Patent Owner as prior art. Rather, they were relied on by Patent Owner to show what happened at 3GPP *after* Provisional Applications 60/576,214 and 60/589,630, to which the '388 patent claims priority, were filed. PO Resp. 16–27, 38–39. Patent Owner used them to show how the claims of the '388 patent should be understood, and how its invention allegedly satisfied a long-felt but unresolved need. *Id.* Thus, these exhibits need not pre-date the critical date of the '388 patent, i.e., the filing date of Provisional Application 60/576,214, June 1, 2004.

Petitioner also asserts that Exhibits 2019-2031 lack foundation. Paper 59, 1. But Petitioner does not mention the Fourth Declaration of Michael J. Smith (Ex. 2034) and the Declaration of Nadiia Loizides (Ex. 2035), submitted as supplemental evidence after Petitioner made objections to these exhibits. Dr. Smith testified: "I personally downloaded 3GPP documents and also provided instructions to the staff of the Devlin Law Firm regarding

how to download them from the 3GPP repository." Ex. 2034 ¶ 26. Ms. Nadiia Loizides, an attorney at Devlin Law Firm LLC, testified: "Following Dr. Michael Smith's instructions as set forth in Dr. Smith's Third Declaration, I personally downloaded documents from the 3GPP repository that Patent Owner filed and served as Exhibits 2019–2031." Ex. 2035 ¶ 3. Ms. Nadiia Loizides further testified: "The 3GPP documents served as Exhibits 2019–2031 were not altered with the exception of affixing the IPR number and exhibit numbers in the margins." *Id.* ¶ 4.

The testimony of Dr. Smith in his Fourth Declaration and the testimony of Ms. Nadiia Loizides are sufficient to authenticate Exhibits 2019–2031. Although it is not known when the documents were first made available on the 3GPP repository, these documents need not, as discussed above, pre-date the filing dates of Provisional Applications 60/576,214 and 60/589,630. Furthermore, as noted by Patent Owner, Petitioner's witness Craig Bishop, has testified as follows:

> 3GPP's public file repository provides a reliable mechanism for identifying the date a document was uploaded to the website for public viewing. When a document is uploaded, the file server automatically assigns the document a time stamp, an accurate and automatically computer-generated electronic record of when the document was uploaded, as part of the regular business practices of 3GPP. The time stamp of the Zip file can be relied upon to indicate when the upload occurred. This has always been the practice regarding uploading documents to the 3GPP file repository, and my personal experience further confirms that the time stamps have always been a reliable way to indicate when a file was uploaded to the 3GPP website.

Ex. 1007 ¶ 46 (cited at Paper 60, 7).

Petitioner also asserts that no exhibit was attached to Dr. Smith's Third Declaration, and Dr. Smith made this statement in his Third

Declaration: "additional new material attached to this declaration are publicly accessible." Paper 59, 1–2 (citing Ex. 2018 ¶ 16). This discrepancy and circumstance is sufficiently explained in the Fourth Declaration of Dr. Smith (Ex. 2034) and the Declaration of Ms. Nadiia Loizides (Ex. 2035).

Petitioner further asserts that Exhibits 2019 and 2021–2031 are prejudicial to Petitioner because they all post-date the priority date of the '388 patent. Paper 59, 3–4. However, as we explained above, these documents need not have pre-dated the critical date of the '388 patent. It is not necessary that one with ordinary skill in the art would have had access to them prior to June 1, 2004, or July 20, 2004. Petitioner has not shown the alleged prejudice. Additionally, our consideration of these documents did not result in a favorable conclusion for Patent Owner, either on the matter of Patent Owner's proposed claim construction or on the matter of Patent Owner's alleged satisfaction of a long-felt need.

Finally, Petitioner seeks to exclude all portions of the Third Declaration of Dr. Smith regarding Exhibits 2019–2031 (Ex. 2018 ¶¶ 16–18, 52, 57–68, 82, 84–85), on the basis that Exhibits 2019–2031 are irrelevant, lacking in foundation, and prejudicial to Petitioner. Pet. 3, 5. We have explained above, however, that Petitioner waived objection to Exhibit 2020 and that Exhibits 2019 and 2021–2031 are not irrelevant, lacking in foundation, or prejudicial to Petitioner. Even if objection to Exhibit 2020 is not waived, for the same reasons discussed above regarding Exhibits 2019 and 2021–2031, Exhibit 2020 is not irrelevant, lacking in foundation, or prejudicial to Petitioner.

For the foregoing reasons, Petitioner's Motion to Exclude Evidence is *denied*.

VII. CONCLUSION

Petitioner has proved by a preponderance of the evidence that claims 1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, and 63 of the '388 patent are unpatentable. The outcome for the challenged claims of the '388 patent is set forth in the table below.[16] In summary:[17]

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatent-able	Claims Not shown Unpatent-able
1–3, 8, 9, 12, 56, 57	102	TS-25.331	1–3, 8, 9, 12, 56, 57	
1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, 63	103	TS-25.331	1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, 63	
1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, 63	103	TS-25.331, Bannister		

[16] Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

[17] As explained above, given our disposition of the grounds based on TS-25.331 alone, we do not reach Petitioner's alternative grounds based on combinations with Bannister or with Banister and/or Beckmann.

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatent-able	Claims Not shown Unpatent-able
1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, 63	103	Beckmann, TS-25.331		
1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, 63	103	Beckmann, TS-25.331, Bannister		
Overall Outcome			1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, 63	

Motion to Amend Outcome	Claims
Original Claims Cancelled by Amendment	
Substitute Claims Proposed in the Amendment	66–85
Substitute Claims: Motion to Amend Granted	66–85
Substitute Claims: Motion to Amend Denied	
Substitute Claims: Not Reached	

VIII. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner has shown by a preponderance of the evidence that claims 1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, and 63 of the ’388 patent are unpatentable;

FURTHER ORDERED that Patent Owner's Revised Motion to Amend Claims, proposing substitute claims 66–85 to replace claims 1–4, 6, 8, 9, 12, 33–36, 38, 40, 41, 44, 56, 57, 62, and 63 of the '388 patent, is *granted*;

FURTHER ORDERED that Patent Owner's Motion to Strike is *denied*;

FURTHER ORDERED that Patent Owner's Motion to Exclude Evidence is *denied*;

FURTHER ORDERED that Petitioner's Motion to Exclude Evidence is *denied*; and

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

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