

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ERICSSON INC.,
Petitioner,

v.

KONINKLIJKE KPN N.V.,
Patent Owner.

IPR2023-00526
Patent 9,210,590 B2

Before ROBERT J. WEINSCHENK, NORMAN H. BEAMER,
and RUSSELL E. CASS, *Administrative Patent Judges*.

Opinion for the Board filed by BEAMER, *Administrative Patent Judge*.

Opinion concurring filed by WEINSCHENK, *Administrative Patent Judge*.

BEAMER, *Administrative Patent Judge*.

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

I. INTRODUCTION

On March 3, 2023, Ericsson, Inc. (“Petitioner”) filed a Petition pursuant to 35 U.S.C. §§ 311–319 to institute an *inter partes* review of claims 1 and 6–8 of U.S. Patent No. 9,210,590 B2 (“the ’590 patent”). Paper 1 (“Pet”), 1. On July 6, 2023, Koninklijke KPN N.V. (“Patent Owner”) filed a Preliminary Response (“Prelim. Resp.”). Paper 9.

The standard for instituting an *inter partes* review is set forth in 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted unless the information presented in the Petition and any preliminary response shows that “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” *See* 37 C.F.R. § 42.108 (2022).

For the reasons explained below, we determine that Petitioner has established a reasonable likelihood that it would prevail with respect to at least one challenged claim. Accordingly, we institute an *inter partes* review as to the challenged claims and grounds raised in the Petition.

II. BACKGROUND

A. The ’590 Patent

The ’590 patent, titled “Method And Telecommunications Infrastructure For Activating An Inactive Cell,” was filed on May 4, 2011 and issued on December 8, 2015. Ex. 1001, codes (54), (22), (45). The ’590 patent is directed to activating an inactive cell in a wireless telecommunications infrastructure based on processing information gathered by terminals in an active cell by detecting a presence signal transmitted in the inactive cell. *Id.* at code (57). Cells are transitioned from active to inactive and back again to reduce energy consumption or electromagnetic radiation. *Id.* at 1:20–25.

An inactive cell transmits the presence signal during a probing period, which may last for a predetermined period of time, or continue until an activation condition is fulfilled. *Id.* at 2:42–44, 2:63–67. The presence signal can be a beacon signal, synchronization signal, reference symbol, or broadcast signal, and the inactive cell can also transmit information such as cell identity. *Id.* at 4:38–55, 6:29–35. The inactive cells transmit the presence signal to allow terminals in active cells to perform measurements on the inactive cells and to allow a determination of occurrence of an activation condition. *Id.* at 2:7–20, 3:46–53, 4:65–5:1. Examples of measurements performed by terminals include handover requests, signal strength or signal quality, location area updates, and session requests. *Id.* at 2:33–41. Activation conditions include, for example, determining that a predetermined number or fraction of terminals are in the best server area of an inactive cell, or a predetermined estimated load measure (*e.g.*, number of calls, aggregated bit rate) that can be absorbed by an inactive cell. *Id.* at 3:1–10. A decision to activate an inactive cell can be based, for example, on “[c]ounting requests for handover from active terminals with the inactive cell as target/destination.” *Id.* at 5:23–27. Both active and inactive terminals can be involved in the measurement process. *Id.* at 5:16–22.

B. Illustrative Claim

Independent claim 1 is reproduced below.

1. A method for activating at least one inactive cell in a wireless access telecommunications infrastructure, the wireless access telecommunications infrastructure comprising an active cell containing a plurality of terminals, the method comprising:
transmitting a presence signal by the at least one inactive cell;

receiving measurement reports from the plurality of terminals detecting the presence signal, the measurement reports indicating measurements of the presence signal by the plurality of terminals;

processing information contained in the received measurement reports in a processing system of the wireless access telecommunications infrastructure to provide a processing result; and

activating the at least one inactive cell when the processing result fulfills at least one activation condition such that at least one of the plurality of terminals is within a coverage area of the at least one activated cell.

Ex. 1001, 22:57–23:8.

C. References

Petitioner relies on the following references (Pet. 4–5):

- Frenger et al., US 2012/0094661 A1 (“Frenger”). Ex. 1004.
- 3GPP TS 36.300 v.8.11.0 (“36.300”). Ex. 1005.
- 3GPP TS 36.331 v.8.9.0 (“36.331”). Ex. 1006.
- Furht et al., “Long Term Evolution: 3GPP LTE Radio and Cellular Technology” (April 2009). Ex. 1007.
- 3GPP TS 24.301 v. 8.5.0 (2010-03) (“24.301”). Ex. 1008.

In addition, Petitioner filed the Declaration of Dr. Zygmunt J. Haas in support of the Petition. Ex. 1003 (“Haas Decl.”).

D. Asserted Challenges to Patentability

Petitioner challenges the patentability of claims 1–20 of the ’590 patent on the following basis (Pet. 5):

Claims Challenged	35 U.S.C. § ¹	References
1–20	103	Frenger, 36.300, 36.331, Furht, 24.301 ²

E. Real Parties in Interest

Petitioner identifies Ericsson Inc. and Telefonaktiebolaget [Telephone Corporation] LM Ericsson as real parties in interest. Pet. 2. Patent Owner identifies Koninklijke [Royal] KPN N.V. and Nederlandse Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek [Netherlands Organization for Applied Scientific Research] TNO as real parties in interest. Paper 8, 2.

F. Related Proceedings

Petitioner states that it is not aware of any related matters. Pet. 2. Patent Owner identifies various related applications and patents. Paper 8, 2.

¹ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), included amendments to 35 U.S.C. §§ 102 and 103 that became effective after the filing of the application for the ’590 patent. Therefore, we apply the pre-AIA versions of these sections.

² Petitioner characterizes its ground for challenging the ’590 patent as “Claims 1–20 are unpatentable under 35 U.S.C. § 103 over Frenger (EX1004) in light of the LTE standard (as described by 36.300 (EX1005), 36.331 (EX1006), Furht (EX1007), and 24.301 (EX1008)).” Pet. 5. *Inter partes* review is limited to prior art consisting of patents or printed publications. 35 U.S.C. § 311(b). Therefore, we consider Petitioner’s challenge as based on the identified Exhibits 1004–1008, not on an additional “LTE standard” other than what is disclosed in the exhibits.

III. 35 U.S.C. § 325(D)

Patent Owner argues that the Petition should be denied under 35 U.S.C. § 325(d). Prelim. Resp. 34–36. In determining whether to deny institution under § 325(d), we use

the following two-part framework: (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of the first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.

Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential).

A. *Whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office*

Under the first part of the *Advanced Bionics* framework, we consider “whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office.” *Id.* “Previously presented art includes art made of record by the Examiner, and art provided to the Office by an applicant, such as on an Information Disclosure Statement (IDS), in the prosecution history of the challenged patent.” *Id.* at 7–8.

Petitioner relies on Frenger as the principle reference in the asserted grounds of unpatentability. Pet. 5. Petitioner extensively relied on Frenger for each limitation of the independent claims in the only ground set forth. Pet. 31–56. There is no dispute that Frenger was previously presented to the Office during prosecution of the ’590 patent. Pet. 6–7 (“Frenger was cited by the Examiner as a reference in the Examiner’s notice of allowance”);

Prelim. Resp. 35; Ex. 1001, code (56); Ex. 1002, 15. Although Petitioner also relies on the 36.300, 36.331, Furht, and 24.301 references, which were not presented to the Office, it appears that none of those references include disclosures significantly different from the art that the Examiner substantively relied on. Ex. 1002, 7–14, 54–59. Thus, on this record, we determine that the art in Petitioner’s asserted grounds of unpatentability is substantially the same as the art previously presented to the Office.

B. Whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims

Because the first part of the *Advanced Bionics* framework is satisfied, under the second part of the framework, we consider “whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.” *Advanced Bionics*, Paper 6 at 8. “An example of a material error may include misapprehending or overlooking specific teachings of the relevant prior art where those teachings impact patentability of the challenged claims.” *Id.* at 8 n.9.

Petitioner argues that the Examiner overlooked or failed to appreciate the significance of Frenger’s teachings because the Examiner allowed the application at least partly due to the prior art’s supposed failure to teach “measurement reports indicating measurements of the presence signal by the plurality of terminals.” Pet. 7–8, 39–42 (citing Ex. 1002, 24, 31-33; Ex. 1004 ¶¶ 30, 34–36, 38, 40). Petitioner argues that Frenger, in combination with the other LTE standards documents on which Petitioner relies (but which were not before the Examiner), teaches this aspect of the claims. *Id.* at 8 (citing Ex. 1004 ¶¶ 30, 34–36, 40; Ex. 1005, 45; Ex. 1007, 114-115).

Patent Owner argues:

Frenger was considered substantively in an Office Action in a continuation application . . . giving rise to an inference that, where the Office was aware of Frenger – as here, where Frenger was of record, and as in the continuation application – the Office would not and did not hesitate to raise it in a rejection if the Office had considered that Frenger was more pertinent than other references.

Prelim. Resp. 35 (citing Ex. 2001). Patent Owner argues that the Examiner found that the cited references did not render obvious the “measurement reports” requirement of the claims, and that “the same shortcomings are present in the Petition’s combination of references here.” *Id.*

During examination of the ’590 patent, the Examiner rejected pending claims over U.S. Patent Publication 2010/0002614 to Subrahmanya. Ex. 1002, 54–59. In response, applicant amended the claims to specify that the recited “reports” are “measurement reports indicating measurements of the presence signal by the plurality of terminals.” *Id.* at 24. Applicant argued that Subrahmanya fails to teach “transmitting a presence signal by the at least one inactive cell” and “receiving measurement reports from the plurality of terminals detecting the presence signal, the measurement reports indicating measurements of the presence signal by the plurality of terminals.” *Id.* at 31–33. The Examiner found these remarks persuasive and issued a notice of allowance (which listed references including Frenger). *Id.* at 7–15.

Petitioner demonstrates that the Examiner overlooked specific teachings of Frenger with respect to the claim limitations that the applicant added to obtain allowance of the challenged claims. In particular, as discussed in detail below, Petitioner presents evidence that Frenger teaches the added limitations regarding the use of a “presence signal and

measurement reports from the plurality of terminals as construed here.” *See* Section IV.D.3.c). As a result, on this record, we determine that Petitioner demonstrates that the Office erred in a manner material to the patentability of challenged claims.

C. *Summary*

For the reasons discussed above, we decline to exercise our discretion under § 325(d) to deny the Petition.

IV. ANALYSIS OF PETITIONER’S CHALLENGE

A. *Legal Standards*

To prevail in its challenge, Petitioner must show a reasonable likelihood that at least one claim is unpatentable. 35 U.S.C. § 314(a). Under § 314, the Board is required to make a binary choice to institute review or not. *SAS Institute Inc. v. Iancu*, 138 S.Ct. 1348, 1355 (2018). “In an IPR, the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (2012) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden of persuasion never shifts to the patent owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said

subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). 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 indicia of non-obviousness (also called secondary considerations), such as commercial success, long-felt but unsolved needs, and failure of others.³ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). We analyze grounds based on obviousness in accordance with the above-stated principles.

B. Level of Skill in the Art

In determining whether an invention would have been obvious at the time it was made, 35 U.S.C. § 103(a) requires us to resolve the level of ordinary skill in the pertinent art at the time of the invention. *Graham*, 383 U.S. at 17. The person of ordinary skill in the art is a hypothetical person who is presumed to have known the relevant art at the time of the invention. *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). Factors that may be considered in determining the level of ordinary skill in the art include, but are not limited to, the types of problems encountered in the art, the sophistication of the technology, and educational level of active workers in the field. *Id.* In a given case, one or more factors may predominate. *Id.*

Petitioner asserts that a person of ordinary skill in the art at the time of the alleged invention of the '590 patent:

would be a person with a B.S. degree in electrical engineering or similar discipline, with at least two to three years of relevant

³ The record does not include evidence or argument regarding objective indicia of nonobviousness.

industry or research experience, including designing or implementing cellular systems, especially LTE systems. . . . The POSITA would also have had knowledge of the LTE standard, its specifications, and the principles underlying its technical teachings. . . . This definition is approximate, and more education may substitute for industry experience or vice versa. . . .

Pet. 13 (citing Haas Decl. ¶ 31). Patent Owner does not address this issue.

See generally Prelim. Resp.

Petitioner’s proposal is consistent with the level of ordinary skill in the art reflected by the asserted prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *GPAC*, 57 F.3d at 1579. On this record, the level of ordinary skill is neither in dispute nor dispositive of any challenge. For purposes of this Decision, we apply Petitioner’s articulation.

C. Claim Construction

The Petition was accorded a filing date of March 3, 2023. Paper 3. In an *inter partes* review for a petition filed on or after November 13, 2018, a claim “shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b). We apply the claim construction standard from *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc).

Claim terms need only be construed 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).

Petitioner submits that “[a]n ‘inactive cell’ should be construed to mean ‘a cell that has at least one function switched off to conserve energy.’” Pet. 24–26 (citing Ex. 1001, 1:21–24, 1:44–49, 5:64–6:50). Petitioner also submits that “[a] ‘presence signal’ should be construed to mean ‘a signal

transmitted by an inactive cell that indicates the presence of the cell.”
Pet. 26 (citing Ex. 1001, 2:6–7, 2:42–49, 2:63–67, 4:39–42, 4:46–50, 4:65–5:1). These proposed constructions are consistent with the intrinsic evidence, and we adopt them for purposes of this Decision.

Patent Owner alleges that, for claim 1:

- the “measurement reports” must be received from the “plurality of terminals” and must indicate measurements of the presence signal “by the plurality of terminals” — a measurement report of measurements from a single terminal will not suffice. Prelim. Resp. 13–14 (citing Ex. 1001, 9:55–58, 10:44–55).
- the “processing result” must be provided from processing information contained in “the received measurement reports,” which must indicate measurements of the presence signal by the plurality of terminals — a processing result that is provided from processing a measurement report from a single terminal will not suffice. Prelim. Resp. 14–16 (citing Ex. 1001, 9:58–60, 10:44–55)).
- the “activation condition” must cover different subject matter from the “processing result.” Prelim. Resp. 16–17.

As discussed below in Section IV.D.3.c), at this stage we determine that these proposed constructions are unduly narrow, and we do not adopt them.

D. Alleged Obviousness of Claims 1–20 Over Frenger, 36.300, 36.331, Furht, and 24.301

Petitioner challenges claims 1–20 as obvious over the combination of Frenger, 36.300, 36.331, Furht, and 24.301. Pet. 26–77.

1. Frenger

Frenger, titled “Controlling Energy Consumption Of A Wireless Network Node,” was filed on February 13, 2009 and published on April 19, 2012. Ex. 1004, codes (54), (22), (43). Frenger is directed to controlling energy consumption of a network node associated with a cell, where during time periods when there are no active terminals served by the cell, the node intermittently transmits information assisting active terminals not served by the cell in finding the cell. *Id.* at code (57), ¶ 5. An exemplary node is an LTE base station. *Id.* at ¶¶ 22–24. Examples of intermittent transmissions include “reference signals (pilots), synchronization signals and the broadcast channel.” *Id.* at ¶¶ 28, 61–62. As explained in Frenger:

Terminals regularly scan for neighboring cells. The synchronization signals transmitted in a neighboring cell are used to find and synchronize to a potential neighbor. Active terminals typically also report the received signal strength of reference signals (RSRP (Reference Signal Received Power) measurements) transmitted by the neighboring cells to the network, which takes a decision if the terminal should be handed over to the candidate cell.

Ex. 1004 ¶ 30. The intermittent transmission of signals used for cell search is accomplished by defining a DTX (Discontinuous Transmission) cycle for the base station such that the base station is active for defined periods selected to be large enough to allow the terminal to find synchronization with sufficiently high probability as well as being able to do signal measurements on the cell, but short enough to allow for efficient reduction in energy consumption. *Id.* at Fig. 3, ¶¶ 35–37. During the DTX cycle, the network can wake up idle base stations upon receiving a handover command from a neighboring base station. *Id.* at Fig. 5, ¶¶ 40, 55.

2. 36.300, 36.331, *Furht*, and 24.301

The 36.300, 36.331, and 24.301 references are 3GPP standards documents that describe details regarding the LTE standard, including overall LTE architecture, the LTE handover procedure, measurement reports triggering events and measurement objects, and tracking area updates. Pet. 17–22, 24 (citing Ex. 1005, Fig. 4-1, 43–45; Ex. 1006, 70, 154–156; Ex. 1008, 16, 48–49; Haas Decl. ¶¶ 46, 48–50). *Furht* is a textbook that also describes the LTE standard, including the LTE handover procedure. *Id.* at 23–24 (citing Ex. 1007, 115; Haas Decl. ¶ 52).

Petitioner argues that “[a] POSITA would have been motivated to combine Frenger with the LTE standard as reflected in EX1005, EX1006, EX1008, and *Furht* at least because Frenger is intended as an improvement to well-known LTE technology described by the cited LTE standard specifications and as explained by *Furht*.” Pet. 27 (citing Ex. 1004 ¶¶ 22–23; Haas Decl. ¶ 54). As Petitioner points out, Frenger specifically uses the LTE standard as the environment for its exemplary embodiment. Ex. 1004 ¶¶ 22–23. Petitioner argues that one of ordinary skill would have looked to these additional references for details in implementing the embodiments of Frenger to ensure LTE compatibility, including details regarding handover procedure and measurement reports. Pet. 27–31 (citing Haas Decl. ¶¶ 55–62). Petitioner argues that one of ordinary skill would have had a reasonable expectation of success in implementing the combination given that LTE technology was well-known and well-understood at the time of the ’590 patent. *Id.* at 29, 31 (citing Haas Decl. ¶¶ 58–59, 63).

Patent Owner does not specifically challenge the motivation for combining Frenger with 36.300, 36.331, *Furht*, and 24.301. *See generally*

Prelim. Resp. For purposes of this Decision, we determine that Petitioner has provided sufficiently articulated reasoning with rational underpinning for the proffered combination.

3. Independent Claims 1, 11, and 12

a) Petitioner's Challenge

For the preamble of claim 1,

[a] method for activating at least one inactive cell in a wireless access telecommunications infrastructure, the wireless access telecommunications infrastructure comprising an active cell containing a plurality of terminals,

Petitioner relies on the disclosure in Frenger of activating idle base stations (which are in inactive cells) in a wireless access telecommunications infrastructure (such as an LTE system) that includes neighboring active base stations in active cells containing active and non-active terminals.

Pet. 31–36 (citing Ex. 1004, Figs. 1–2, 5, ¶¶ 5, 22–23, 33–36, 41, 44; Haas Decl. ¶ 66).⁴

For the claim 1 requirement, “transmitting a presence signal by the at least one inactive cell,” Petitioner relies on the disclosure in Frenger of utilizing LTE synchronization signals during the idle cell’s DTX cycle.

Pet. 36–38 (citing Ex. 1004, Fig. 3, ¶¶ 30, 34–36, 61–62; Haas Decl. ¶¶ 70, 73).

For the claim 1 requirement,

receiving measurement reports from the plurality of terminals detecting the presence signal, the measurement reports indicating measurements of the presence signal by the plurality of terminals,

⁴ For this Decision, we make no determination whether or not the preambles of independent claims 1, 11, and 12 are limiting.

Petitioner relies on the disclosure in Frenger of making handover decisions based on reports from terminals of signal strength measurements made on the intermittently transmitted LTE synchronization signals during an idle cell's DTX cycle. Pet. 38–42 (citing Ex. 1004, Figs. 2, 3, ¶¶ 29–30, 34–36, 38, 40, 45–46, 53, 55; Haas Decl. ¶¶ 74–81). Petitioner also relies on excerpts from the 36.300, 36.331, and Furht references as confirming its analysis of this claim requirement. *Id.* at 42–50 (citing Haas Decl. ¶¶ 82–91).

For the claim 1 requirement,
processing information contained in the received measurement reports in a processing system of the wireless access telecommunications infrastructure to provide a processing result,

Petitioner relies on the disclosure in Frenger and in the 36.300, 36.331, and Furht references of processing information in received measurements of signal strength of reference signals transmitted by neighboring cells to provide a handover decision. Pet. 50–52 (citing Ex. 1004 ¶¶ 30, 44, 46; Ex. 1005, 46; Ex. 1006, 63–69; Ex. 1007, 115; Haas Decl. ¶¶ 93–95).

For the claim 1 requirement,
activating the at least one inactive cell when the processing result fulfills at least one activation condition such that at least one of the plurality of terminals is within a coverage area of the at least one activated cell,

Petitioner relies on the disclosure in Frenger and in the 36.300, 36.331, and Furht references of activating an inactive cell when receiving a handover request. Pet. 52–56 (citing Ex. 1004, Figs. 2, 5, ¶¶ 44, 46; Ex. 1005, 45–46, Ex. 1006, 63–69; Ex. 1007, 114–115; Haas Decl. ¶¶ 96–101).

Independent claim 11 is a “non-transitory computer-readable medium” counterpart of method claim 1, and independent claim 12 is a structural counterpart of claim 1, both with requirements commensurate with claim 1, and Petitioner’s challenges to these claims track that of claim 1. Pet. 71–74.

b) Patent Owner’s Preliminary Response Regarding Independent Claims 1, 11, and 12

Patent Owner argues that the claim 1 requirement of “receiving measurement reports from the plurality of terminals” is not taught or suggested by the combination of Frenger, 36.300, 36.331, Furht, and 24.301 because “a measurement report of measurements from a single terminal will not suffice.” Prelim. Resp. 13–14, 18–19. Patent Owner argues that Frenger only discloses a single terminal attempting handover of a single given terminal from cell to cell based on measurement reports for that given terminal — not based on measurement reports from a plurality of terminals. *Id.* at 18–19. Patent Owner asserts that “it is clear that Frenger . . . is referring to measurement reports that are *in general* received from *each of the given* terminals separately . . . based on which the network makes a terminal by terminal decision *for each such given terminal* whether to perform a handover” *Id.* at 19–20 (citing Ex. 1004 ¶ 30). As Patent Owner explains, “the nature of the handover decision . . . as being a terminal-by-terminal decision on whether to handover a *given terminal* based on the terminals’ own measurement reports — and not based on measurement reports from a *plurality of terminals* — is very clear” *Id.* at 20. Thus, argues Patent Owner, “the waking up of a base station is performed in connection with . . . the handover of a *single given terminal*

from cell to cell.” *Id.* (citing Ex. 1004 ¶¶ 40, 44). Patent Owner also argues that none of the other references that Petitioner relies on teach the use of measurement reports other than reports that relate to a single terminal. *Id.* at 22–24.

Patent Owner contrasts the cell activation condition of Frenger, which requires only a single handover request to activate a cell, with preferred embodiments of the ’590 patent, in which “handover requests and random access attempts from a single terminal need not result in activating during the ‘probing period’ of an inactive cell.” Prelim. Resp. 21–22 (citing Ex. 1001, 6:21–28). Patent Owner argues that, unlike Frenger, reactivation under the ’590 patent:

[C]an be based on a broader assessment that considers how many users would benefit from a cell reactivation. The associated threshold is left open and can be optimized by a network operator, for example, to manage the trade-off between *how many* users would benefit from a reactivation and how much energy a full reactivation would cost; in other words, to assess whether the energy needed for a cell’s full reactivation is worthwhile in relation to the improvement in factors such as the provisioned service quality and local network capacity.

Prelim. Resp. 25 (citing Ex. 1001, 10:49–11:20).

Patent Owner further argues that the claim 1 requirement of “processing information contained in the received measurement reports” is not taught or suggested by the combination of Frenger, 36.300, 36.331, Furht, and 24.301 because “Frenger is processing only a *single measurement report for a given terminal* when performing a handover, and is not processing measurement reports for a ‘plurality of terminals’ indicating measurements of a presence signal.” Prelim. Resp. 26. Patent Owner notes that “*handover decisions* are taken on a terminal-by-terminal

basis by assessing a measurement report *for the given terminal.*” *Id.* Patent Owner argues that there is no “showing of processing measurement reports from a *plurality of terminals* indicating measurements of the presence signal to provide a ‘processing result.’” *Id.* at 28. Patent Owner notes that Petitioner makes reference to cell congestion as a factor for making handover decisions, but argues that there is no showing that the congestion in the neighbor cell relies in any way on measurement of a presence signal or that there are any plural measurements of such a presence signal by terminals. *Id.* at 28–29.

Finally, Patent Owner argues that the claim 1 requirement of “activating the at least one inactive cell when the processing result fulfills at least one activation condition” is not taught or suggested by the combination of Frenger, 36.300, 36.331, Furht, and 24.301 because, instead of showing use of the “processing result” to fulfill the “activation condition,” Petitioner relies on the handover command of Frenger to satisfy both the “processing result” and the “activation condition,” which, according to Patent Owner, is not allowed by the claim. Prelim. Resp. 30–33. Patent Owner argues that “the ‘activation condition’ clearly cannot be one and the same thing as the ‘processing result,’ because [the claim] clearly requires that the ‘processing result’ may or may not ‘fulfill[]’ the ‘activation condition.’” *Id.* at 30–31. In addition, Patent Owner argues that the claimed processing result must be based on measurement reports, which, as set forth above, Patent Owner argues are not taught or suggested by the combination. *Id.* at 31–32. Patent Owner points out the advantages of basing a processing result on measurement reports received from a plurality of terminals,

allowing the telecommunications infrastructure to more accurately determine which base stations or cells should be activated. *Id.* at 32–33.

Patent Owner references the same arguments for claims 11 and 12 as set forth above for claim 1. Prelim. Resp. 17, 33–34.

c) Analysis re Independent Claims 1, 11, and 12

At this stage of the proceeding, we do not agree with Patent Owner’s claim interpretation that measurement reports, where each report is based on measurements from a single terminal, will not satisfy the claim requirement of “receiving measurement reports from the plurality of terminals.” We determine that receiving a first measurement report from one terminal, followed by receiving a second report from a second terminal, and so on, satisfies the plain meaning of this requirement. There is nothing in the ’590 patent that more narrowly defines this requirement, or disavows this plain meaning interpretation.

Frenger discloses that:

Terminals regularly scan for neighboring cells. The synchronization signals transmitted in a neighboring cell are used to find and synchronize to a potential neighbor. Active terminals typically also report the received signal strength of reference signals (RSRP (Reference Signal Received Power) measurements) transmitted by the neighboring cells to the network, which takes a decision if the terminal should be handed over to the candidate cell.

Ex.1004 ¶ 30. When a handover decision is made for a destination cell that is inactive, the network wakes up the idle cell. *Id.* at ¶ 40. As Patent Owner admits, “Frenger . . . is referring to measurement reports that are *in general* received from *each of the given* terminals separately” Prelim. Resp. 19 (citing Ex. 1004 ¶ 30). Thus, Frenger discloses “measurement reports from

the plurality of terminals,” within the plain meaning of that phrase, given that Frenger provides for multiple terminals scanning for neighboring cells, and reporting the results of signal strength measurements.

Patent Owner is correct that, for some embodiments of the ’590 patent, “handover requests . . . from a single terminal need not result in activating during the ‘probing period’ of an inactive cell.” Prelim. Resp. 21 (citing Ex. 1001, 6:21–28). However, the ’590 patent also states that a decision to activate an inactive cell may be based on “[c]ounting requests for handover from active terminals with the inactive cell as target/destination.” Ex. 1001, 5:23–27. There is nothing in the ’590 patent that rules out activation upon detecting a single count of such a handover request, such as is the case for Frenger.

For the same reasons as discussed above, we do not agree with Patent Owner’s claim interpretation that measurement reports, where each report is based on measurements from a single terminal, will not satisfy the claim requirement of “processing information contained in the received measurement reports” Thus, we are not persuaded by Patent Owner’s argument that, “Frenger is processing only a *single measurement report for a given terminal* when performing a handover, and is not processing measurement reports for a ‘plurality of terminals’ indicating measurements of a presence signal.” Prelim. Resp. 26. Frenger provides for multiple terminals scanning for neighboring cells, reporting the results of signal strength measurements, and waking up an idle cell when a handover decision is made. Ex. 1004 ¶¶ 30, 40. The required “processing” is ongoing, processing multiple reports for multiple terminals, and triggering activation when the processing indicates a pertinent handover. *Id.*

Finally, we do not agree with Patent Owner’s argument that the claim 1 requirement of “activating the at least one inactive cell when the processing result fulfills at least one activation condition” is not taught or suggested by Frenger because Petitioner relies on the handover command of Frenger to satisfy both the “processing result” and the “activation condition.” Prelim. Resp. 30–33. As stated above, Frenger continuously processes multiple reports for multiple terminals, with some processing results indicating handover, and thus activation, but others not resulting in a handover decision. Ex. 1004 ¶¶ 30, 40. Thus the processing result can either be a request for handover or not, with the activation condition being a handover request.

Accordingly, having reviewed Petitioner’s arguments and supporting evidence in this present record, we determine the Petition demonstrates a reasonable likelihood that Petitioner will prevail in establishing that independent claims 1, 11, and 12 are unpatentable under 35 U.S.C. § 103(a) over the combination of Frenger, 36.300, 36.331, Furht, and 24.301.

4. Dependent Claims 2–10 and 13–20

Claim 2 depends from claim 1, and additionally requires:

terminating transmission of the presence signal by the at least one inactive cell when the processed information does not fulfill the at least one activation condition; and

transmitting the presence signal in the at least one inactive cell again at a later time;

Ex. 1001, 23:11–14. Claim 13 depends from claim 12, with commensurate requirements. *Id.* at 24:23–29. For claims 2 and 13, Petitioner relies on the disclosure of Figure 3 of Frenger, which shows that the base station

transmits presence signals regularly for time periods T_a , within an inactive period T_p , and terminates transmission of the presence signals for the remainder of that time period T_p . Pet. 57–60, 74–75 (citing Ex. 1004, Figs. 3, 5, ¶¶ 35, 44; Haas Decl. ¶ 105).

Claim 3 depends from claim 1 and additionally requires, “providing the plurality of terminals in the active cell with at least one of measurement parameters or reporting parameters to obtain the information regarding the presence signal from the inactive cell.” Ex. 1001, 23:16–19. Claim 16 depends from claim 12, with commensurate requirements. *Id.* at 24:38–43. For claims 3 and 16, Petitioner relies on the disclosure in Frenger of configuring user equipment to take measurements on idle cell’s transmissions, and providing the user equipment with the instructions allowing it to “synchronize the mobility measurements with the intermittent transmission.” Pet. 60, 76 (citing Ex. 1004 ¶¶ 36, 55–56; Haas Decl. ¶ 109). Petitioner also relies on additional disclosures in the 36.331 reference that Petitioner alleges teach or suggest this claim requirement in combination with Frenger. *Id.* at 60–62 (citing Ex. 1004 ¶¶ 30, 36; Ex. 1006, 56–69; Haas Decl. ¶¶ 110–111).

Claim 4 depends from claim 1 and additionally requires:

the wireless access telecommunications infrastructure comprises a plurality of inactive cells; and
the method further comprises concurrently or sequentially transmitting the presence signal in the plurality of inactive cells.

Ex. 1001, 23:20–25. Claim 17 depends from claim 12, with commensurate requirements. *Id.* at 24:44–50. For claims 4 and 17, Petitioner relies on the disclosure in Frenger of multiple inactive base stations that synchronize

DTX (“Discontinuous Transmission”) mode transmissions. Pet. 62–63, 76–77 (citing Ex. 1004, Fig. 3, ¶¶ 23, 35, 57; Haas Decl. ¶¶ 113, 115).

Claim 5 depends from claim 1, and claim 19 depends from claim 12, and additionally require:

wherein the at least one activation condition includes at least one of energy reduction for the wireless access telecommunications infrastructure, load reduction for the active cell, or reduction of electromagnetic radiation from the wireless access telecommunications infrastructure or from a particular set of cells in the infrastructure.

Ex. 1001, 23:27–34, 24:55–61. For claims 5 and 19, Petitioner relies on the disclosure in Frenger of invoking a handover/wakeup procedure if a cell is congested, resulting in a load reduction for the serving cell. Pet. 63–64, 77 (citing Ex. 1004 ¶ 47; Haas Decl. ¶ 117).

Claim 6 depends from claim 1 and additionally requires, “transmitting a reporting identifier in at least one of the active cell or the at least one inactive cell.” Ex. 1001, 23:33–35. Claim 18 depends from claim 12, with commensurate requirements. *Id.* at 24:51–54. For claims 6 and 18, Petitioner relies on the disclosure in the 36.331 reference in combination with Frenger of configuring measurement reports including “reporting identifiers” that identify what the terminal should measure. Pet. 64–66, 77 (citing Ex. 1006, 56–57, 60, 85, 152, 154–155; Haas Decl. ¶¶ 119, 121).

Claim 7 depends from claim 1, and claim 20 depends from claim 12, and additionally require, “wherein at least one of the plurality of terminals in the active cell is an idle terminal when receiving the measurement report.” Ex. 1001, 23:36–39, 24:62–65. For claims 7 and 20, Petitioner relies on the disclosure in Frenger of inactive terminals present in an active cell that is

receiving measurement reports. Pet. 66–68, 77 (citing Ex. 1004, Fig. 2, ¶¶ 30, 53; Haas Decl. ¶¶ 124–125).

Claim 8 depends from claim 7 and additionally requires, “temporarily decreasing a location area update period in at least one of the active cell or the at least one inactive cell.” Ex. 1001, 23:41–43. For claim 8, Petitioner relies on the disclosure in the 24.301 reference of the LTE tracking area update procedure in which a tracking area update is initiated at the expiration of a “periodic tracking update timer,” which can periodically be decreased. Pet. 68–70 (citing Ex. 1008, 48–49; Haas Decl. ¶¶ 127–128).

Claim 9 depends from claim 7 and additionally requires, “wherein the measurement reports are received via the active cell.” Ex. 1001, 23:44–45. For claim 9, Petitioner relies on the disclosures in Frenger and the 36.300 reference of the serving active cell receiving user equipment measurement reports for the purposes of assisting with the serving cell’s handover decision. Pet. 70 (citing Ex. 1004 ¶ 30; Ex. 1005, 45–46; Haas Decl. ¶ 130).

Claim 10 depends from claim 7 and additionally requires, “transmitting a paging message in the active cell instructing the at least one idle terminal to obtain or report the information.” Ex. 1001, 23:46–49. For claim 10, Petitioner relies on the disclosure in Frenger of paging messages that instruct user equipment to take measurements on the idle cell. Pet. 70–71 (citing Ex. 1004, Fig. 7, ¶¶ 53–54; Haas Decl. ¶ 132).

Claim 14 depends from claim 12, and additionally requires, “a signal transmitted in a cell of the wireless access telecommunication system, wherein the signal contains a reporting identifier indicating that the cell is an inactive cell.” Ex. 1001, 24:31–34. Claim 15 depends from claim 14, and additionally requires, “a terminal configured for processing the signal.” Ex.

1001, 24:35–37. For claims 14 and 15, Petitioner relies on the disclosure in Frenger and the 36.311 reference of transmitting signals in a cell of the wireless access telecommunication system, which indicate a “time schedule for intermittent transmission of information from a cell.” Pet. 75–76 (citing Ex. 1004, Fig. 8, ¶¶ 55–56; Ex. 1006, 154–155; Haas Decl. ¶ 147).

Other than its arguments regarding the independent claims, Patent Owner does not specifically respond to Petitioner’s arguments regarding claims 2–10 and 13–20. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378. Having reviewed Petitioner’s arguments and supporting evidence in this present record, we determine the Petition demonstrates a reasonable likelihood that Petitioner will prevail in establishing that claims 2–10 and 13–20 are unpatentable under 35 U.S.C. § 103(a) over the combination of Frenger, 36.300, 36.331, Furht, and 24.301.

V. CONCLUSION

After considering the evidence and arguments presented in the Petition and the Preliminary Response, Petitioner has established a reasonable likelihood of prevailing on its assertion that at least one claim of the ’590 patent is unpatentable. Accordingly, we institute an *inter partes* review on all the challenged claims and all of the grounds presented in the Petition. At this stage of the proceeding, we have not made a final determination as to the patentability of these challenged claims.

VI. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that pursuant to 35 U.S.C. § 314, *inter partes* review is instituted as to the challenged claims of the '590 patent with respect to all grounds of unpatentability presented in the Petition; and

FURTHER ORDERED that *inter partes* review is commenced on the entry date of this Order, and pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ERICSSON INC.,
Petitioner,

v.

KONINKLIJKE KPN N.V.,
Patent Owner.

IPR2023-00526
Patent 9,210,590 B2

Before ROBERT J. WEINSCHENK, NORMAN H. BEAMER,
and RUSSELL E. CASS, *Administrative Patent Judges*.

WEINSCHENK, *Administrative Patent Judge*, concurring.

I respectfully concur with the majority’s decision granting institution of an *inter partes* review, but I do not join the majority’s entire analysis. The majority determines that the first part of the *Advanced Bionics* framework is satisfied. I disagree. Petitioner relies on Frenger, along with 36.300, 36.331, Furht, and 24.301 (collectively, “LTE standard documents”) in the asserted ground of unpatentability. Pet. 5. Petitioner argues that during prosecution of the ’590 patent, “the Examiner did not have benefit of reviewing Frenger in light of the LTE standard” documents, which “provide important context to the disclosure of Frenger.” *Id.* at 7. In particular, Petitioner relies on the LTE standard documents for the “measurement

reports” limitation in claim 1 that was at least part of the basis for allowing claim 1 during prosecution. *Id.* at 7–8, 38–50; Prelim. Resp. 34–35; Ex. 1002, 12, 24, 31–33. Patent Owner does not argue that the LTE standard documents are the same as, or cumulative of, art that previously was presented to the Office. *See* Prelim. Resp. 34–36. Thus, on this record, I am not persuaded that the same or substantially the same art previously was presented to the Office.

Nonetheless, I agree with the majority that under the second part of the *Advanced Bionics* framework, Petitioner demonstrates that the Office erred in a manner material to the patentability of the challenged claims, and thus we should decline to exercise our discretion under § 325(d).

IPR2023-00526
Patent 9,210,590 B2

For PETITIONER:

Chad C. Walters
Douglas M. Kubehl
Jeffery S. Becker
BAKER BOTTS L.L.P.
chad.walters@bakerbotts.com
doug.kubehl@bakerbotts.com
jeff.becker@bakerbotts.com

For PATENT OWNER:

Lawrence P. Cogswell III, Ph.D.
Timothy J. Meagher
Keith J. Wood
Hamilton, Brook, Smith & Reynolds, P.C.
lawrence.cogswell@hbsr.com
timothy.meagher@hbsr.com
keith.wood@hbsr.com