

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

G+ COMMUNICATIONS, LLC,
Patent Owner.

IPR2022-01598
Patent 10,594,443 B2

Before GREGG I. ANDERSON, JASON M. REPKO, and
JULIET MITCHELL DIRBA, *Administrative Patent Judges*.

ANDERSON, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314, 37 C.F.R. § 42.4

I. INTRODUCTION

Samsung Electronics Co. Ltd., (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–2, 6, 8–11, 15, 17, and 18 of U.S. Patent No. 10,594,443 B2 (Ex. 1001, “the ’443 patent”). Paper 1 (“Pet.”). G+ Communications, LLC (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). We have jurisdiction under 35 U.S.C. § 314. Upon considering the record developed thus far, for reasons discussed below, we institute *inter partes* review.

Per our authorization, Petitioner filed a Preliminary Reply to Patent Owner’s Preliminary Response (Paper 7, “Pet. Prelim. Reply”) directed to discretionary denial, which is discussed in Sections III.A and B below. As we also authorized, Patent Owner responded with its Patent Owner’s Preliminary Sur-Reply (Paper 9, “PO Prelim. Sur-Reply”).

II. BACKGROUND

A. *Real Parties in Interest*

Petitioner states it and Samsung Electronics America, Inc. are the real parties in interest. Pet. 1. Patent Owner asserts it is the real party in interest. Paper 4, 1.

B. *Related Matters*

Both parties list a lawsuit a filed by case filed by Patent Owner asserting the ’443 patent against Petitioner in the Eastern District of Texas captioned *G+ Communications, LLC v. Samsung Electronics Co., Ltd., et al.*, Case No. 2:22-cv- 0078-JRG (E.D. Tex.) (“Texas Litigation”). Pet. 1; Paper 4, 1. The parties identify no other related matters. *Id.*

C. The '443 Patent

The application for the '443 patent was filed as national stage application No. 15/749,354 on January 31, 2018, from PCT/CN2016/089196 filed on July 7, 2016. Ex. 1001, code 21, 22, 86. The PCT application claims priority to Chinese application 2015 1 0466184.5, filed July 31, 2015. *Id.* at 1:7–12. Petitioner “assumes the earliest effective filing date of the '443 patent is July 31, 2015.” Pet. 2. In this Decision, we need not determine the effective filing date of the '443 patent because Petitioner has shown a reasonable likelihood of success even if the '443 patent is entitled to the earliest filing date to which it claims priority (i.e., July 31, 2015).

1. Background Technology

The '443 patent relates to “wireless communication technology, particularly to a method for transmitting hybrid automatic repeat request (HARQ) information . . . and a node.” Ex. 1001, 1:16–20. A first node receives data transmitted by a second node over one or more carrier waves or progresses. *Id.* at 1:24–27. Each node may be a base station or terminal. *Id.* If a transmission block is detected and correctly received, an “acknowledgement (ACK) is fed back; otherwise, a negative acknowledgement (NACK) is fed back.” *Id.* at 1:32–34.

Related technologies include long term evolution (LTE), spatial multiplexing, and time division multiplexing (TDD) modes. Ex. 1001, 1:35–2:11. For purpose of saving control signaling overhead, coverage, power consumption, and the like, the receiving node usually needs to reduce the number of bits of the HARQ information which is fed back to the transmitting node. *Id.* at 2:12–16. In the related technologies, if one of the transmission blocks is incorrectly received, then it has to retransmit all of the blocks “because the [transmitting] node 2 cannot determine which one of the

transmission blocks is erroneous according to the HARQ information fed back by the [receiving] node 1.” *Id.* at 2:31–33.

2. The '443 Patent's Error Detection Method

The '443 patent describes and claims “a method for transmitting HARQ information” where a “first node detects N transmission blocks received from a second node and generating M bits of HARQ information according to a detection result.” Ex. 1001, 2:61–64.

[A]mong the M bits, there are M2 bits used to indicate positions of k erroneous transmission blocks in the N transmission blocks, $M2 \leq M$; a length type of M2 includes a first length type or a second length type; the first length type indicates that a value of M2 is predefined, and the second length type indicates that a value of M2 is determined based on k.

Ex. 1001, 2:66–3:5.

The '443 patent teaches that the first predefined length type of M2 may be: “configured by a radio resource control (RRC) signaling transmitted by the second node; or configured by a downlink control information (DCI) signaling transmitted by the second node; or determined by the first node” and is predefined. Ex. 1001, 6:45–50. The second length type based on k may be determined when the number of erroneous transmission blocks in the N transmission blocks (k) is less than or equal to a first threshold (kT1) and greater than or equal to a second threshold (kT2), where the value of M2 is determined based on k. *Id.* at 6:51–55.

D. Illustrative Claim

Claims 1–2, 6, 8–11, 15, 17, and 18 of the '443 patent are challenged. Pet. 4. Claims 1, 8, 10, and 17 are independent. Claims 1 and 8 claim a method, and claims 10 and 17 claim a node. Claims 2 and 6 depend from claim 1. Claim 9 depends from claim 8. Claims 11 and 15 depend from

claim 10. Claim 18 depends from claim 17. Claim 1 is reproduced below as illustrative.

- [1.pre]¹ A method for transmitting hybrid automatic repeat request (HARQ) information, comprising:
- [1.a] detecting, by a first node, N transmission blocks received from a second node and generating M bits of HARQ information according to a detection result;
- [1.b] the M bits of HARQ information being used to indicate a receiving status of the N transmission blocks; among the M bits, M2 bits being used to indicate positions of k erroneous transmission blocks in the N transmission blocks, $M2 \leq M$;
- [1.c] a length type of M2 including a first length type or a second length type; the first length type indicating a value of M2 being predefined, and the second length type indicating a value of M2 being determined based on k; and
- [1.d] transmitting, by the first node, the HARQ information to the second node.

Ex. 1001, 16:23–37.

E. Evidence of Record

This proceeding relies on the following prior art references and Expert testimony:

Kannan, US 2016/0233999, filed February 1, 2016, published August 11, 2016 (Ex. 1006, “Kannan”), *see also* Ex. 1006 at code 60 (claiming priority to Ex. 1007 identified immediately below);

¹For purposes of this Decision, we follow Petitioner’s format as shown in the Petition, where each claim is identified by claim number followed by a letter for each claim limitation. *See, e.g.,* Pet. 15–23 (claim 1). Patent Owner also uses the format. *See, e.g.,* Prelim. Resp. 17 (limitation 1[a]).

Kannan, Provisional Application No. 62/112,310, filed February 5, 2015 (Ex. 1007, “Kannan Provisional”);

Kannan, WO 2016/126653 A1, filed February 2, 2016, published August 11, 2016 (“Kannan Publication,” Ex. 1011);

Petitioner relies on the Declaration of Dr. Zhi Ding in Support of Petition for Inter Partes Review of U.S. Patent No. 10,594,443 (Ex. 1003, “Ding Declaration”); and

Patent Owner relies on the Declaration of Robert Akl in Support of Patent Owner’s Preliminary Response (Ex. 2001, “Akl Declaration”).

F. Asserted Grounds

Claim(s) Challenged	35 U.S.C.² §	Reference(s)/Basis
1, 2, 6, 8–11, 15, 17, 18	102	Kannan

III. DISCRETIONARY ISSUES

The Board has discretion not to institute trial. *See* 35 U.S.C. §§ 314(a) (authorizing institution of a trial under particular circumstances, but not requiring institution under any circumstances); 37 C.F.R. § 42.208(a) (stating “the Board will authorize the review to proceed”) (emphasis added); *cf. Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2140 (2016) (“[T]he agency’s decision to deny a petition is a matter committed to the Patent Office’s discretion.”); *Harmonic Inc. v. Avid Tech, Inc.*, 815 F.3d 1356,

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 285–88 (2011), revised 35 U.S.C. § 102 effective March 16, 2013. Because the challenged patent was filed after March 16, 2013, we refer to the current version of Section 102, but the findings and analysis in this Decision would be the same under the pre-AIA version of the statute.

1367 (Fed. Cir. 2016) (explaining that under § 314(a), “the PTO is permitted, but never compelled, to institute an [inter partes review] proceeding”).

Both parties address discretionary denial under 35 U.S.C. §§ 325(d) and 314(a). *See* Pet. 3–4, Prelim. Resp. 1–2 (§ 325(d)); Pet. 54–56, Prelim. Resp. 35–51 (§ 314(a)). These issues are addressed below in Sections III.A and B respectively.

A. 35 U.S.C. § 325(d)

Regarding prior examination of the ’443 patent, 35 U.S.C. § 325(d) provides that “the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.” Our analysis for discretionary denial under 35 U.S.C. § 325(d) is set forth in *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (PTAB Dec. 15, 2017) (precedential) and *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 (PTAB Feb. 13, 2020) (precedential). *Advanced Bionics* sets out 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 manner material to the patentability of the challenged claims.

Advanced Bionics at 8.

In evaluating whether to exercise our discretion when the same or substantially the same prior art or arguments previously were presented to

the Office under section 325(d), we have weighed some common non-exclusive factors, such as:

- (a) the similarities and material differences between the asserted art and the prior art involved during examination;
- (b) the cumulative nature of the asserted art and the prior art evaluated during examination;
- (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection;
- (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art;
- (e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and
- (f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

Becton, Dickinson, at 16–28.

Factors (a), (b), and (d) of the *Becton, Dickinson* factors relate to whether the art or arguments presented in the Petition are the same or substantially the same as those previously presented to the Office. *Advanced Bionics* at 10. Factors (c), (e), and (f) “relate to whether the petitioner has demonstrated a material error by the Office” in its prior consideration of that art or arguments. *Id.* If the same or substantially the same art or arguments were previously presented to the Office we then consider whether petitioner has demonstrated a material error by the Office. “At bottom, this framework reflects a commitment to defer to previous Office evaluations of the evidence of record unless material error is shown.” *Id.* at 9.

1. Prosecution History

The Kannan Publication was cited in an Information Disclosure Statement (“IDS”). Ex. 1005,³ “File History of ’443 patent,” 72. The Kannan Publication was not cited in connection with the patentability of any application claim. *See generally, id.* at 52 (Office Action mailed August 1, 2019). Application claims 1–9 and 17–20 were allowed over references to Zhang, Felix, and Lehti.⁴ *Id.* at 55–56. As noted, the Office Action made no mention of the Kannan Publication.

The Examiner stated claims 1 and 10 recited allowable subject matter because the prior art failed to teach or disclose:

a length type of M2 including a first length type or a second length type; the first length type indicating a value of M2 being predefined, and the second length type indicating *a value of M2 being determined based on k.*^[5]

Ex. 1005, 56–57 (emphasis added).

In addition, the following subject matter of claim 8 was found allowable:

a length type of M2 including a first length type or a second length type of M2, the[n] obtaining, the first length type

³ Patent Owner also provided a copy of the File History as Exhibit 2002. Our review of Exhibit 1005 determined it is missing some of what is found in Exhibit 2002. *See, e.g.,* Ex. 2002, 283 (IDS citing “European Extended Supplementary Search Report dated June 25, 2018, received in European Patent Application No. 16 83 2167.7.” (“European Report”); Prelim. Resp. 40–41 (citing Ex. 2002, 283–297 (IDS citing European Report))).

⁴ None of the references are included in the File History (Ex. 1005) or separately. Neither party argues Zhang, Felix, or Lehti were more or less cumulative of the disclosures of the Kannan Publication.

⁵ Patent Owner argues that the italicized language of claim 8 is not taught or suggested by Kannan or the Kannan Publication. *See* Section III.A.2 below. Similar issues may be raised as to the italicized language from the Final Office Action regarding claims 1, 10, and 17.

indicating a value of M2 being predefined, and the second length type indicating a value of M2 being determined based on k; if $M2=M$, then, obtaining, by the second node, the M bits of HARQ information through a blind detection and obtaining the positions of the k erroneous transmission blocks indicated by the M2 bits; and if $M2 < M$, then, obtaining, by the second node M1 bits of the M bits through decoding, $M1=M-M2$, an indication domain of the M1 bits of the M bits being used to indicate a value of k or indicate the length type of M2; determining M2 bits according to the M1 bits and obtaining the positions of the k erroneous transmission blocks indicated by the M2 bits.

Id. at 57 (emphasis added).

Last, claim 17's claimed subject matter was found allowable based on the failure of the prior art to teach or disclose:

a length type of M2 including a first length type or a second length type; the first length type indicating a value of M2 being predefined, and the second length type indicating a value of M2 being determined based on k; a processor configured to obtain the M bits of HARQ information being used to indicate a receiving status of information through a blind detection and obtain the positions of the k erroneous transmission blocks indicated by the M2 bits if $M2 = M$; and wherein the processor is further configured to obtain M1 bits of the M bits by decoding if $M2 < M$, wherein $M1=M-M2$, an indication domain of M1 bits of the M bits being used to indicate a value of k or indicate the length type of M2; and determine the *M2 bits according to the M1 bits and obtain the positions of the k erroneous transmission blocks indicated by the M2 bits.*

Id. (emphasis added).

2. Patent Owner's 325(d) Argument

Patent Owner argues the record here falls within the two-part framework of *Becton, Dickinson* and *Advanced Bionics*. Prelim. Resp. 35.

Regarding the first part of the *Advanced Bionics* framework, Patent Owner alleges

the Examiner already considered International Pub. No. WO 2016/126653 (the “Kannan [Publication]”⁶), which is cited on the face of the ’443 Patent and included in its entirety in the ’443 Patent’s file history. [Ex. 2002, 298]. Kannan cannot be meaningfully distinguished from the Kannan [Publication] in the context of the Challenged Claims. Indeed, both the Kannan [Publication] and Kannan include the same disclosures that Petitioner relies upon in its Petition.

Id. at 2; *see also* Ex. 1005, File History of ’443 patent, 72 (Information Disclosure Statement (IDS) listing the Kannan Publication). Further, Patent Owner contends “[t]he Kannan [Publication] appears on the face of the ’443 Patent (Ex. 1001 at [code 56]).” *Id.* at 37 (citing Ex. 2002, 282). Patent Owner provides a table showing how “both the Kannan [Publication] and Kannan purport to claim priority to” the Kannan Provisional. *Id.* at 37–38 (citing Ex. 2001 ¶ 84). Patent Owner details Petitioner’s reliance on the Kannan Publication and Kannan. PO Resp. 37–38 (citing table comparing Kannan, Kannan Publication, and the Petition citation same).

Patent Owner notes that each of Kannan, the Kannan Publication, and the Kannan Provisional have identical drawing figures and claims 1, 8, and 10 are also identical. Prelim. Resp. 40 (citing Ex. 2001 ¶ 85). Patent Owner adds the Kannan Publication was provided to the Office through the European Report. *Id.* at 41–42 (citing Ex. 2002, 289–97; Ex. 2001 ¶ 87).

Patent Owner also responds to the position that citation in an IDS alone is insufficient to show consideration by the Examiner. Prelim. Resp.

⁶ *See* Section II.E above listing the “Kannan Publication,” Ex. 1011, as evidence.

41 (citing *Nespresso USA, Inc. v. K-Fee Sys. Gmbh*, IPR2021-01223, 2022 WL 214445, at *6 (PTAB Jan. 18, 2022)). Patent Owner summarizes its position as follows:

Moreover, just like in *Nespresso*, Petitioner improperly focuses its argument on whether the “same or substantially the same” argument were presented to the Office and ignores the conjunctive “or” that appears in the statute. *Nespresso*, 2022 WL 214445, at *6 (“***Where either the prior art references advanced or*** the arguments raised in a petition previously were presented to the Office, the inquiry shifts to whether the petitioner establishes a material error.”).

Id. at 43.

Concerning the second part of the *Advanced Bionics* framework, Patent Owner contends the Petition makes no argument concerning Examiner error. Prelim. Resp. 35. Patent Owner alleges “Petitioner provides no evidence, or even argument, warranting reconsideration of the substantially same Kannan reference that was included in full in the ’443 Patent file history along with the nine-page European Report.” *Id.* at 43 (citing Pet. 2–4).

Patent Owner’s Preliminary Sur-Reply reiterates that the European Report does not show material error by the Examiner because the European Report did not “indicate positions of k erroneous transmission blocks.” PO Prelim. Sur-Reply1 (citing Pet. Prelim. Reply 3). Patent Owner argues that Kannan and the Kannan Publication do not show the “k erroneous transmission blocks” claimed. *Id.* (citing Prelim. Resp. 22–24; Ex. 2001 ¶¶ 57–58).

3. *Petitioner's 325(d) Argument*

Petitioner acknowledges that the Kannan Publication “was cited in an Information Disclosure Statement (IDS) during prosecution of the ’443 patent, but was never analyzed in detail by the Examiner during prosecution.” Pet. 3 (citing Ex. 1005, 9–15 (Notice of Allowance), 51–60 (Non-Final Rejection), 72 (IDS)). Petitioner contends that the Kannan Publication is “nearly identical to” Kannan and concedes the first prong of the *Advanced Bionics* framework as to the same prior art being before the Office. Pet. Prelim. Reply 1. Patent Owner agrees, and we so find. See PO Prelim. Sur-Reply, 1 n.1.

Petitioner then cites as authority several of our non-precedential decisions that we have consistently “held that a reference that ‘was neither applied against the claims nor discussed by the Examiner’ does not weigh in favor of exercising [] discretion under §325(d).” Pet. 3 (citing *Fasteners for Retail, Inc. v. RTC Indus., Inc.*, IPR2019-00994, Paper 9 at 7–11 (PTAB Nov. 5, 2019)). Petitioner further contends that we have not exercised our discretion where references were cited in an IDS but not used in a rejection. *Id.* (citing *Advanced Energy Indus. Inc. et al. v. Reno Tech. Inc. et al.*, IPR2021-01397, Paper 7 at 7 (PTAB, Feb. 16, 2022)).

In its Preliminary Reply, Petitioner focuses on *Becton, Dickinson* factors (c), (e), and (f), relating to “material error by the Office” in its prior consideration of the European Report. Pet. Prelim. Reply 1; *see also Advanced Bionics* at 10 (factors (c), (e), (f) relate to material error). The argument of Petitioner is that claim 7 of the Kannan Publication is identical to claim 8 of the ’443 patent. Reply 3 (*Comparing* Ex. 1001, claim 8 with Ex. 2002, 293–94). In the European Report, claim 7 of the Kannan Publication was determined to *not* be “novel (Article 54(2) EPC).” Ex.

2002, 294. According to Petitioner, the European Report determination means the Examiner of the application for the '443 patent erred “[b]ecause the Examiner did not address the [European Report] or apply the related Kannan publication against the claims” and thus “factor (e) weighs against exercising discretion.”

Petitioner also relies on *Becton, Dickinson* factor (f), “additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.” Pet. Prelim. Reply 4. This argument is based on the Ding Declaration, which is alleged to contain “new, material, non-cumulative evidence that was not before the Examiner.” Pet. Prelim. Reply 3 (citing *Becton, Dickinson*, 12–13; Pet. 4).

4. Analysis

As already noted, *Becton, Dickinson* factors (a), (b), (d) all support a finding that the Kannan Publication was presented to the Office by listing the Kannan Publication in an IDS and the European Report. The first prong of the *Advanced Bionics* framework is satisfied.

As *Advanced Bionics* holds, we must next consider whether Petitioner has shown material error by the Office. The Petition did not specifically argue material error by the Office in its prior consideration of that art or arguments, but did contend that the Kannan Publication was only cited in an IDS and not the basis for a rejection, as covered by *Becton, Dickinson* factor (c). See Pet. 3–4; see also *Advanced Bionics* at 10 (*Becton, Dickinson* factors (c), (e), and (f) “relate to whether the petitioner has demonstrated a material error by the Office”). Moreover, Petitioner argued § 325(d) did not preclude institution. Pet. 3–4. We authorized additional briefing. See Pet. Prelim. Reply 1 (citing our February 22, 2023, email). Based on the

preceding, Petitioner did not forfeit an argument that the Office materially erred under the second prong of *Advanced Bionics*.

Importantly, although the Kannan Publication was before the Examiner, it was not argued in connection with patentability during examination. In the Examiner's discussion of why claims 1, 8, 10, and 17 were allowed, the Kannan Publication was not mentioned. *See* Section III.A.1 above. The reasoning included that "obtaining the positions of the k erroneous transmission blocks indicated by the M2 bits" was not shown. *Id.* The Kannan Publication, which all parties agree is all but identical to Kannan, teaches that "k" is used to refer to the CB (code block) bundles in error. Pet. Prelim. Reply 1; PO Prelim. Sur-Reply 1 ("substantially same Kannan reference"); Ex. 1011 ¶ 89 ("CB bundles in error (referred to as 'k']"). As Petitioner argues, the European Report is similar in finding the Kannan Publication "discloses a first node receiving code blocks (*i.e.*, the claimed 'transmission blocks') and sending HARQ bits in figure 4, where the bits 440 'indicate positions of k erroneous transmission blocks.'" Pet. Prelim. Reply 3 (citing Ex. 2002, 293–294).

On this record, we disagree with Patent Owner's argument that Kannan's bits 440 merely form an index to a lookup table but do not "indicate positions of k erroneous transmission blocks in the N transmission blocks." PO Prelim. Sur-Reply 1–2 (citing PO Prelim. Resp. 22–24; Ex. 2001 ¶¶ 57–58). The Akl Declaration does support the contention that an "index" requires a lookup table. *See* Ex. 2001 ¶ 58. We disagree with Patent Owner's argument and the Akl Declaration because the record at this stage favors Petitioner's assertion that Kannan's "k" value teaches the positions of erroneous transmission blocks. *See, e.g.*, Pet. 18–20 (citing Ex. 1003 ¶¶ 48–49). In addition, the Akl Declaration lacks any discussion of

how an index to a table is not a teaching of the position of the erroneous transmission blocks. These issues are left for trial.

We find that the Examiner overlooked that the Kannan Publication shows the very limitation found patentable over the other cited art. *See* III.A.1 above; Section IV.D.2 below (analyzing reasonable likelihood that claim 1 is unpatentable as anticipated by Kannan). As such, we find that Petitioner has met its burden in showing that the Office made a material error. *See* Pet. 4 (Kannan Publication not relied on for any rejection); Pet. Prelim. Reply 3 (citing Ex. 2002, 293–294).

B. 35 U.S.C. § 314(a)

Our precedential and informative decisions make clear that the Board may exercise discretion not to institute a trial before the Board in light of the advanced state of ongoing, parallel litigation. *See NHK Spring Co. v. Intriplex Techs., Inc.*, IPR2018-00752, Paper 8 (PTAB Sept. 12, 2018) (precedential) (“*NHK Spring*”); *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB March 20, 2020) (precedential) (“*Fintiv*”); *Sand Revolution II, LLC v. Cont’l Intermodal Grp. – Trucking LLC*, IPR2019-01393, Paper 24 (PTAB June 16, 2020) (informative) (“*Sand Revolution II*”) (applying *Fintiv* factors in light of ongoing parallel district court litigation and instituting trial).

In *NHK Spring*, the Board considered the advanced state of a parallel district court proceeding as a factor favoring denial of institution of an *inter partes* review proceeding. *NHK Spring* at 19–20. The Board later identified a non-exclusive list of factors to consider when determining if we should exercise discretion to not institute a trial in light of a parallel proceeding in an advanced state. *Fintiv I* at 5–6.

1. Introduction to the Parties' Positions

In determining whether to exercise discretion to deny institution under 35 U.S.C. § 314(a), we consider the factors set forth in *Fintiv* at 6. Patent Owner argues specifically *Fintiv* factors 2–5. PO Prelim. Sur-Reply 2–5. Patent Owner argues factor 1 (stay) is neutral. *Id.* at 3. Patent Owner contends factor 6 (merits) balances in its favor. *Id.* at 2.

Petitioner⁷ agrees that factor 1 is neutral. Pet. 54; Pet. Prelim. Reply 4. Petitioner argues all other factors, relying on the Petition for the merits. Pet. 54–56; Pet. Prelim. Reply 4–5.

2. Fintiv Factors

Factor 1. Whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted.

We weigh this factor as neutral as do the parties.

Factor 2. Proximity of the court's trial date to the Board's projected statutory deadline for a final written decision.

Patent Owner asserts the trial date for the Texas Litigation is November 13, 2023. Prelim. Resp. 47 (citing Ex. 1010,⁸ “Docket Control Order,” 1). Petitioner notes the time for trial in the Texas Litigation would

⁷ Petitioner argues our *Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation* (Ex. 1008, Guidance) focused on the compelling merits, factor 6, as potentially dispositive of our analysis. Pet. Prelim. Reply 4; *see also* Ex. 1008, 4–5 (“compelling unpatentability challenge . . . demonstrates that the PTAB should not discretionarily deny institution under *Fintiv*.”). The Guidance was recently clarified to require the Board to first address *Fintiv* factors 1–5, and engage the compelling merits question only if the analysis of the other factors favors discretionary denial. *CommScope Techs. LLC v. Dali Wireless, Inc.*, IPR2022-1242, Paper 23 at 4–5 (PTAB Feb. 27, 2023) (precedential). Petitioner addresses all *Fintiv* factors, so this change does not affect Petitioner's arguments. *See* Pet. Prelim. Reply 4–5.

⁸ Patent Owner mistakenly cites to “Ex. 1014.”

result in a trial in April 2024, which is about the same time or after our final written decision will be mailed. Pet. 55 (citing Ex. 1009, “Federal Court Management Statistics,” 35); Pet. Prelim. Reply 4. Patent Owner notes that the correctly calculated time-to-trial date based on Federal Court Management Statistics is March 29, 2024. PO Prelim. Sur-Reply 3.

Our statutory deadline for this proceeding will be April, 4, 2024. “The PTAB will weigh this factor against exercising discretion to deny institution under *Fintiv* if the median time-to-trial is around the same time or after the projected statutory deadline for the PTAB’s final written decision.” *Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation* (June 21, 2022)⁹ (“*Interim Procedure for Discretionary Denials*”). Because our projected statutory deadline is around the same time as the median time-to-trial here, we weigh this factor as weighing against exercising discretion to deny institution.

Factor 3. Investment in the parallel proceeding by the court and the parties.

Patent Owner argues the parties have already exchanged infringement and invalidity contentions, and by the expected date of our Decision here will “have already completed claim construction discovery, served opening claim construction briefs, and substantially completed document production.” PO Prelim. Sur-Reply 4 (citing Ex. 1010, 3–4). Furthermore, Patent Owner, citing to the existing Docket Control Order, notes that a claim construction hearing is set for May 24, 2023 and expert discovery and dispositive motions are currently set after the hearing. *Id.* at 4–5 (citing Ex. 1010, 3).

⁹ https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621.pdf.

Petitioner argues “the parties have not taken any depositions, or engaged in expert discovery.” Pet. 55 (citing Ex. 1010, 1–5). Petitioner argues no substantive orders relating to patent issues have been entered. *Id.* Petitioner argues the “most burdensome” parts of the litigation have not occurred yet. Pet. Prelim. Reply 4.

We weigh this factor slightly against exercising discretion as the Texas Litigation is still in its early stages. Although the parties have exchanged infringement and invalidity contentions and fact discovery is underway, the most significant time and expense in the litigation will not occur until after this Decision is mailed. *See* Ex. 2010. For example, the parties have not yet begun expert discovery, and the Court has not yet held a *Markman* hearing or issued a *Markman* order. *Id.* at 3.

Therefore, we weigh this factor as weighing slightly against exercising discretion to deny institution.

Factor 4. Overlap between issues raised in the petition and in the parallel proceeding.

Patent Owner asserts that Petitioner has not made a strong enough stipulation. Prelim. Resp. 50. Petitioner “stipulates that, if the IPR is instituted, Petitioner will not pursue the IPR grounds in the district court litigation.” Pet. 55–56. The stipulation is not as strong as the one in *Sotera*,¹⁰ which was approved in the Guidance, because it does not include grounds that “could have reasonably been raised.” *See* Guidance 7.

Petitioner’s stipulation, however, is all but identical to the one made in *Sand Revolution II* at 11–12 (“if the IPR is instituted, Petitioner will not pursue the same grounds in the district court litigation.”). Petitioner’s

¹⁰ *Sotera Wireless, Inc. v. Masimo Corporation*, IPR2020-01019, Paper 12 (PTAB Dec. 1, 2020) (precedential).

stipulation “mitigates to some degree concerns of duplicative efforts between the district court and the Board, as well as concerns of potentially conflicting decisions.” *Sand Revolution II* at 12; *see also* Pet. 55–56 (citing *Sand Revolution II* at 12). Patent Owner asserts “Petitioner’s invalidity contentions in the Texas Litigation contain similar proposed grounds for invalidity as are presented in the Petition for the Challenged Claims.”

Prelim. Resp. 50 (*compare* Pet. at 2 (asserting claims 1–2, 6, 8–11, 15, 17, and 18 are unpatentable under 35 U.S.C. § 102(a) as anticipated by Kannan) *and* Ex. 2004, “Invalidity Contentions of ’443 patent” (asserting claims 1–2, 6, 8–11, 15, 17, and 18 are unpatentable “under at least 35 U.S.C. §§ 102 and/or 103” based on Kannan)).

There is evidence as to the overlap between this proceeding and the Texas Litigation. *See* Prelim. Resp. 50. However, Petitioner’s stipulation mitigates any overlap to some degree, we weigh this factor marginally against exercising discretion to deny institution.

Factor 5. Whether the petitioner and the defendant in the parallel proceeding are the same party.

It is not in dispute that Petitioner and Patent Owner are parties in the Texas Litigation. *See* Section II.B above. Because our Final Written Decision in this proceeding will issue around as the anticipated trial date for the Texas Litigation, we weigh this factor as neutral.

Factor 6. Other circumstances that impact the Board’s exercise of discretion, including the merits.

Each party contends that the merits support its respective positions. Pet. 56; Pet. Prelim. Reply 4; Prelim. Resp. 51; PO Prelim. Sur-Reply 2–3.

Our analysis of *Fintiv* factors 1–5 does not weigh in favor of exercising discretion to deny institution. Thus, we need not address whether

a compelling merits challenge has been shown. *See CommScope*, Paper 23 at 4–5.

3. *Determination on Discretion to Institute*

In weighing the *Fintiv* factors, we do not merely treat them as a scorecard, totaling up the individual outcomes. Instead, we take a holistic view of the factors. We are not persuaded by the analysis of factors 1–5 to exercise our discretion to deny institution. After weighing all of the factors and taking a holistic view of the relevant circumstances of this proceeding, we determine that exercising our discretion to deny institution under 35 U.S.C. § 314(a) based on status of the Texas Litigation is not warranted.

IV. PATENTABILITY ANALYSIS

A. *Level of Ordinary Skill in the Art*

Petitioner proposes that a person of ordinary skill in the art for the invention of the '443 patent “would have had an undergraduate degree in electrical engineering, computer engineering, computer science or a related field along with at least two years of work experience in the field of wireless communication technology.” Pet. 3–4 (citing Ex. 1003 ¶¶ 23–24).

Patent Owner does not propose a level of ordinary skill and “takes no position with respect to Petitioner’s proposed level of ordinary skill in the art” because “it does not affect the ultimate analysis.” Prelim. Resp. 14–15.

For purposes of this Decision, we adopt Petitioner’s proposed level of ordinary skill because we are satisfied that it comports with the level of skill necessary to understand and implement the teachings of the '443 patent.

B. *Claim Construction*

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).” *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340, 51,340, 51,358 (Oct. 11, 2018). For petitions 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), 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 (2019). The Petition was accorded a filing date of October 4, 2022. Paper 3. Thus, we apply the claim construction standard as set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc).

Petitioner asserts “claim terms are typically given their ordinary and customary meanings, as would have been understood by a [person of ordinary skill in the art] at the time of the invention, having taken into consideration the language of the claims, the specification, and the prosecution history of record.” Pet. 14–15 (citing *Phillips* 415 F.3d at 1313; *see also id.* at 1312–16. Thus, Petitioner deems that express construction is unnecessary and does not propose any term for construction. *Id.* Patent Owner agrees and “requests that the Board adopt the ordinary and customary meaning of the claim terms as understood by one of ordinary skill in the art.” Prelim. Resp. 14–15.

1. “transmission block[s]”

The term “transmission blocks” is present in all independent claims, and thus all claims. We determine on this record that “transmission block” is a disputed term. *See* Section IV.D below. Specifically, Patent Owner

raises the question of whether a single “code block” constitutes a “transmission block.” *See, e.g.*, Prelim. Resp. 20 (citing Ex. 2001 ¶ 50).

The claims do not specify the size of the “transmission blocks.” The ’443 patent does not expressly define the term.

The ’443 patent Background relating to long time evolution (“LTE”) explains that

When the transmission mode of the carrier wave is a spatial multiplexing mode, e.g., every carrier wave has 2 transmission blocks waves, each of the carrier wave(s) needs to feed back 2 bits of HARQ information; otherwise, *each of the wave(s) needs to feed back 1 bit of HARQ information (every carrier wave has 1 transmission block).*

Ex. 1001, 1:39–45 (emphasis added). The parties, however, do not identify evidence that provides additional context for these statements.

Turning to the extrinsic evidence for the construction of transmission blocks, the Ding Declaration states that “[a] person of ordinary skill in the art would have understood that a code block is a ‘transmission block.’”

Ex. 1003 ¶ 42. The Akl Declaration does not substantively respond to this statement. *See* Ex. 2001 ¶ 45.

In addition, the Ding Declaration contemplates that one may contend that a “transport block” is a “transmission block.” Ex. 1003 ¶ 42. The Akl Declaration states that an ordinary artisan “might understand the terms ‘transport block’ and ‘transmission block’ to be synonymous in some applications,” but states that an ordinary artisan “would not understand Kannan’s disclosure of a ‘transport block’ to be the ‘transmission block’ recited in the claims.” Ex. 2001 ¶ 46. In support, the Akl Declaration goes on to state “Kannan’s ‘transport block,’ which contains a single code block, would not meet [its] stated objective because the entire transport block

would need to be retransmitted if its transmission results in negative-acknowledgement (NACK) feedback.” *Id.* ¶ 48. The Akl Declaration states “[t]ransmitting the entire transport block is incompatible with Kannan’s technique that works on CB-level related to a single transport block and thus is silent as to processing multiple transport blocks (*i.e.*, ‘N transmission blocks’).” Ex. 2001 ¶¶ 48–49. Similarly, Patent Owner raises a question as to how HARQ processing of a single code block transmission would occur in Kannan. Prelim. Resp. 21 (citing Ex. 2001 ¶ 52).

Patent Owner’s arguments and evidence as to the short comings of a single code block do not preclude a code block from being the recited “transmission block.” As a result, even if a single code block transmission block is problematic as to transmission or receiving transmission blocks, there is no explanation of why that fact makes a difference in our legal analysis of the scope of this claim term. We leave this issue for the parties to explore during trial.

Based on the record before us, we preliminarily determine that the “transport block” of Kannan falls within the scope of the recited “transmission block,” because a transport block can be a transmission block in some scenarios. *See* Ex. 2001 ¶¶ 46, 48–49. Furthermore, the “transport block” may include a single code block. Moreover, we preliminarily determine that the “code block” of Kannan falls within the scope of the recited “transmission block.”

This issue is subject to further development during trial.

2. “*a first length type or a second length type*”

All the independent claims challenged, and thus all dependent claims, include this limitation. Petitioner’s showing is based on the “second length type.” *See* Pet. 20 n.4. Petitioner alleges either the first or second length

type may be shown because of the intermediate “or.” *Id.* Petitioner’s only showing is for the second length type. *Id.*

Patent Owner argues “nothing in the ’443 Patent supports Petitioner’s assertion that the length types are ‘optional.’” Prelim. Resp. 27 (citing Ex. 2001 ¶ 66). Patent Owner argues the ’443 patent “contemplates the ability to either generate or interpret ‘M bits of HARQ’ with either a first length type or a second length type.” *Id.* at 27–28 (citing Ex. 1001, 10:33–15:8, Figs. 1–2, cls. 1–20).

Common usage of “or” is as designating alternatives. *Kustom Signals, Inc. v. Applied Concepts, Inc.*, 264 F.3d 1326, 1331 (Fed. Cir. 2001) (agreeing with district court construction). We agree that “or” indicates either alternative satisfies the limitation. The only counter to this construction offered by Patent Owner is based on a non-precedential Board decision. Prelim. Resp. 28 (citing *Microsoft Corp. v. Proxyconn, Inc.*, IPR2012-00026, Paper 12 at 11 (PTAB Dec. 21, 2012)). The citation is to an institution decision which was neither final nor precedential. As such, we consider the decision as limited to the facts and procedural status of that case and it is not controlling here.

We apply the common usage meaning of “or” and thus conclude that either of the two listed alternatives meets the recited limitation.

3. *remaining terms*

During trial, the parties should consider whether the claim term “M2 bits being used to indicate positions of k erroneous transmission blocks in the N transmission blocks, $M2 \leq M$ ” requires construction beyond “transmission blocks.” *See* Section III.A.4 above; Section IV.D.2 below. Furthermore, construction may be appropriate as to a “value of M2 being

determined based on k.” Patent Owner disputes that the index of Kannan is such a determination. *See* Section IV.D.2 below.

The preceding comments in this section IV.B.3 should not be considered as a requirement to construe either term. It may be that argument based on plain and ordinary meaning is sufficient. However, the parties are cautioned that arguments not timely raised are forfeit. In other words, parties may not raise a claim construction issue at a final hearing, when it is too late to engage in argument based on construction of these or any other claim terms. In general, the parties should review this Decision, as well as the record developed during trial, for possible claim construction issues. Pending further development of the record, we proceed on the plain and ordinary meaning to a person of ordinary skill in the art as to all remaining claim terms.

C. Legal Standard for Anticipation

In order for a prior art reference to serve as an anticipatory reference, it must disclose every limitation of the claimed invention, either explicitly or inherently. *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997). We must analyze prior art references as a skilled artisan would. *See Scripps Clinic & Res. Found. v. Genentech, Inc.*, 927 F.2d 1565, 1576 (Fed. Cir. 1991), *overruled on other grounds by Abbott Labs. v. Sandoz, Inc.*, 566 F.3d 1282 (Fed. Cir. 2009) (to anticipate, “[t]here must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention”). As the Federal Circuit has held:

This modest flexibility in the rule that “anticipation” requires that every element of the claims appear in a single reference accommodates situations where the common knowledge of technologists is not recorded in the reference; that is, where technological facts are known to those in the field of the

invention, albeit not known to judges. It is not, however, a substitute for determination of patentability in terms of § 103.

Cont'l Can Co. USA v. Monsanto Co., 948 F.2d 1264, 1268–69 (Fed. Cir. 1991). A claim limitation is inherent if it is necessarily present in the prior art, not merely probably or possibly present. *Akamai Techs., Inc. v. Cable & Wireless*, 344 F.3d 1186, 1192 (Fed. Cir. 2003).

D. Anticipation of Claims 1, 2, 6, 8–11, 15, 17, and 18 by Kannan

Petitioner alleges claims 1, 2, 6, 8–11, 15, 17, and 18 would have been anticipated by Kannan. Pet. 2–4, 15–54. The Ding Declaration is cited as support. Ex. 1003 ¶¶ 39–100.

1. Kannan (Ex. 1006)

Kannan was published on August 11, 2016. Ex. 1006 at code 22. *See* Section II.E above. Kannan claims priority to the February 5, 2015, filing date of the Kannan Provisional. *Id.* at code 60.

a. Effective Filing Date

Petitioner contends that Kannan is prior art under 35 U.S.C. § 102. Pet. 2–3 (citing Pet. 11–14 (analysis under *Dynamic Drinkware, LLC v. National Graphics, Inc.*, 800 F.3d 1375 (Fed. Cir. 2015))); *see also* Pet. 12–13 (addressing support in Kannan Provisional for portions of Kannan relied upon by Petition), 13–14 (table showing Kannan claim 1 finds support in Kannan Provisional). At this time, Patent Owner does not contest that Kannan is entitled to the filing date of the Kannan Provisional. Prelim. Resp. 7 n.1. Having reviewed Petitioner’s contentions, we are persuaded that Petitioner has shown a reasonable likelihood of success in showing that Kannan is prior art to the ’443 patent.

b. Disclosure

Kannan, titled “Efficient ACK/NACK Transmission,” relates to wireless communication, and more specifically, to code block (CB) level HARQ. Ex. 1006 ¶ 3. The transport blocks are configured with subunits known as code blocks (CBs) and an ACK/NACK response may be sent for each CB. Ex. 1006 ¶ 52. In wireless communication systems, a transmitting device, such as a base station, may communicate control and data to a receiving device, such as a user equipment (UE), using Medium Access Control (MAC) layer units known as transport blocks. *Id.*

The receiving device may respond with an acknowledgement (ACK) or a negative acknowledgement (NACK) indicating whether the receiving device has successfully received and decoded each transport block. Ex. 1006 ¶ 52. Providing ACK/NACK feedback at the CB level “may be useful for implementations in which channel interference may occur in relatively short bursts that may last only a fraction of the length of a transport block.” *Id.* Such an implementation may “enhance channel efficiency” because it permits “[r]etransmissions of only the affected CBs, rather than retransmission of the entire transport block.” *Id.*

Base stations and UEs exchange data using transport blocks that include multiple CBs where the UE may attempt to decode a transport block and send ACK/NACK information to a base station based on whether each CB was successfully decoded. Ex. 1006 ¶ 75. The base station may receive the CB level ACK/NACKs, determine CBs that are indicated as being in error, and retransmit CBs that are indicated as being in error. *Id.* ¶ 82. Kannan discloses that ACK/NACKs may be sent in different formats. *Id.* ¶¶ 87–89.

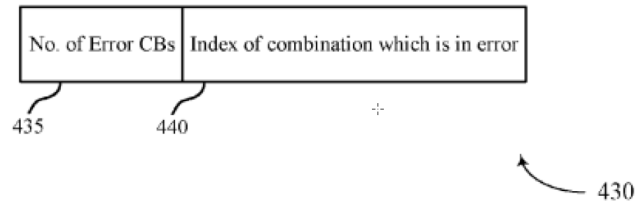


FIG. 4B

Figure 4B illustrates an example of a format for transmitting HARQ feedback.

Id. ¶ 38. As shown in Figure 4B, the ACK/NACK format 430 may be based on the number of transmitted CBs (referred to as ‘N’), a number of erroneous code blocks (referred to as ‘k’), and a predefined threshold of errors (referred to as ‘K*’). *Id.* ¶ 89. As shown in Figure 4B,

one or more dedicated bits 435 indicate a number of CBs that are in error, and a set of bits 440 [] provide an index identifying a combination of CBs that are in error The index may be, for example, an index into a lookup table that provides a bitmap of ACK/NACKs for the number of CBs indicated in the set of bits.

Id. ¶ 88.

2. Claim 1

We first address the limitations of claim 1 disputed by Patent Owner below. Patent Owner generally alleges for the independent claims 1, 8, 10, and 17, that “Petitioner has not shown by a preponderance of the evidence that Kannan anticipates this limitation.”¹¹ *See, e.g.,* Prelim. Resp. 21 (limitation 1.a). The evidentiary standard required for institution is a reasonable likelihood of prevailing on the unpatentability of at least one

¹¹ We note this with the understanding that Patent Owner may be making these assertions for purposes of its *Fintiv* arguments. *See* Section III.B above.

claim. 35 U.S.C. § 314(a). Because Petitioner has the burden of showing the limitations at issue, we look first at its showing.

Limitation 1.a recites “detecting, by a first node, N transmission blocks received from a second node and generating M bits of HARQ information according to a detection result.” Petitioner points to Kannan Figure 2 as disclosing a UE 115 (a first node) which “receives a plurality of code blocks (N transmissions blocks) sent from a base station 105 (second node) and generates ACK/NACK feedback (M bits of HARQ information) based on a detection result.” Pet. 15–16 (citing Ex. 1003 ¶¶42; Ex. 1006 ¶¶ 79–81; Ex. 1007 ¶¶ 73–75). Petitioner also argues “a person of ordinary skill in the art would have understood that a code block is a ‘transmission block.’” Pet. 17–18 (citing Ex. 1003 ¶¶ 42–44 (citing Ex. 1006 ¶ 64). In the alternative, Petitioner also contends that Kannan’s transport block teaches the claimed “transmission block” because “the transport block may be represented by one CB.” *Id.* at 18 (quoting Ex. 1006 ¶ 64).

Substantively, based on the Akl Declaration, Patent Owner argues¹² the Ding Declaration is conclusory on the issue. Pet. 17–18 (citing Ex. 1006 generally; Ex. 2001 ¶ 44). Patent Owner argues the “code blocks” of Kannan are not the recited “transmission blocks.” Prelim. Resp. 17–18 (citing Ex. 1003 ¶ 42). Patent Owner argues the Ding Declaration “‘merely

¹² In support of its Section 325(d) argument, Patent Owner argues that the Kannan Provisional includes the same disclosure as the Kannan Publication and is thus “substantially the same.” Prelim. Resp. 17 n.2 (citing Pet. 17; Ex. 1011 ¶¶ 77–79). Patent Owner’s position regarding Section 325(d) was addressed above in Section III.A. Having already determined that we will not deny institution on this basis, we need not discuss evidence of the Kannan Provisional any further. Additionally, there is no need to repeat Petitioner’s cites to the Kannan Provisional.

parrots’ the petition’s attorney argument ‘without citing a single piece of objective evidence’ is ‘unpersuasive as unsupported.’” *Id.* at 18 (citations omitted but *see Xerox Corp. et al. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 (PTAB Aug. 24, 2022) (precedential)).

As for Petitioner’s alternative contention, Patent Owner relies on the Akl Declaration opining that Kannan’s stated purpose is to “preclude retransmission of the *entire* transport block.” Prelim. Resp. 19–20 (citing Ex. 2001 ¶¶ 45–51) (emphasis added). Patent Owner agrees with the assertion that “Kannan indicates that a transport block could consist of a single CB,” it disputes whether “Kannan discloses how (or whether) its CB level HARQ processing would occur” if a “transport block” included a single “code block.” *Id.* at 21 (citing Ex. 2001 ¶¶ 52).

The Ding Declaration is not unsupported, citing paragraph 64 of Kannan as teaching “code blocks” are the recited “transmission blocks.” *See* Ex. 1003 ¶¶ 42–44. Although we have held that “conclusory and unsupported” expert is entitled to little weight, that is not the situation here where additional supporting evidence is cited. *See Xerox Corp.* at 15.

Further, as we preliminarily determined, we are persuaded that a single code block meets the properly construed “transmission block” limitation. *See* Section IV.B.1 above. Our preliminary determination is that the ’443 patent’s transmission block includes a single code block. *Id.*

Patent Owner argues a single code block would be contrary to the goal of the ’443 patent because it would increase, not decrease control signaling overhead. Prelim. Resp. 20 (citing Ex. 2001 ¶¶ 50–51). On this record we are not persuaded that Kannan does not teach the limitation by transmission of a single code block.

On this record, we therefore conclude preliminarily that Petitioner has sufficiently shown that Kannan discloses limitation 1.a.

Limitation 1.b recites “the M bits of HARQ information being used to indicate a receiving status of the N transmission blocks; among the M bits, M2 bits being used to indicate positions of k erroneous transmission blocks in the N transmission blocks, $M2 \leq M$.” Relying on Figure 4B of Kannan and its associated description, Petitioner cites Kannan’s HARQ feedback including ACK/NACK feedback regarding transmission blocks. Pet. 18–19 (citing Ex. 1006 ¶¶ 38 (transmission of HARQ feedback)); *see also* Section IV.D.1 above (Fig. 4B). Petitioner cites to Kannan as teaching transmitting code blocks and their ACK/NACK from user equipment to a base station. *Id.* (citing Ex. 1006 ¶¶ 88–89). The index portion of Figure 4B is cited to teach the number of errors, designated k, in the transmitted blocks. *Id.* at 19 (citing Ex. 1006 ¶¶ 88–89). Petitioner argues the recited M bits are received in Kannan and M2 is shown by the index in Kannan indicating the positions of k erroneous transmission blocks. *Id.* at 19–20. Petitioner argues that “[a]s apparent from Figure 4B, number of bits 440 (M2 bits) is less than the total bits (435+440).” *Id.* at 20 (citing ex. 1006, Fig. 4B; Ex. 1003 ¶¶ 45–47).

Patent Owner disputes the showing based on the index of errors shown in Kannan’s Figure 4B. Prelim. Resp. 22. Specifically, Patent Owner argues a person of ordinary skill in the art would understand that an “‘index into a lookup table’ does not ‘indicate positions of k erroneous transmission blocks in the N transmission blocks’ as required by the Challenged Claims.” *Id.* at 23 (citing Ex. 2001 ¶ 57). Patent Owner further argues a bitmap identifying positions of erroneous code blocks “would need

to be included in the set of bits identified as 440 in Figure 4B above,” which has not been shown expressly or inherently. *Id.* at 23 (citing Ex. 2001 ¶ 58).

As was discussed above, we are not persuaded at present that the index to a lookup table is not a showing of “the positions of k erroneous transmission blocks.” *See* Section IV.B.1 above. Patent Owner acknowledges that the bitmap stored in Kannan’s lookup table identifies the positions of erroneous CBs. *See* Prelim. Resp. 23 (citing Ex. 2001 ¶ 58). Patent Owner also acknowledges that the bitmap is stored in a lookup table, and the index is used to lookup the information in the table. *Id.* So, even under this reasoning, the index to the lookup table at least indirectly indicates the positions of the erroneous blocks. We preliminarily disagree that the bitmap itself would need to be included in bits 440. *See id.* On this record, we therefore conclude preliminarily that Petitioner has sufficiently shown that Kannan discloses limitation 1.b.

Limitation 1.c recites “a length type of M2 including a first length type or a second length type; the first length type indicating a value of M2 being predefined, and the second length type indicating a value of M2 being determined based on k.” Petitioner’s showing is based on the “second length type.” *See* Pet. 20 n. 4. We analyzed the question in the claim construction section above, agreeing with Petitioner that it need show only one of the length types. *See* Section IV.B.2 above. Similar to the argument it made for limitation 1.b, based on the Akl Declaration, Patent Owner argues “the bitmap disclosed in Kannan is saved in a lookup table and thus not ‘transmit[ed] . . . to the second node’ as required in limitation [1.d].” Prelim. Resp. 26–27 (citing Ex. 2001 ¶ 65). The Akl Declaration points out that the “‘bitmap of ACK/NACKs for the number of CBs indicated in the set of bits’ that is ‘sometimes’ determined based in part on k—and not the

‘index’ (440) shown in Figure 4B.” Ex. 2001 ¶ 65 (citing Ex. 1006 ¶ 89, Fig. 4).

As noted previously, on this record we are sufficiently persuaded that Kannan’s index shown in Figure 4B is determined based on k —i.e., the number of errors. Furthermore, Petitioner’s showing is not based only on the “index” of Figure 4B. Petitioner also relies on paragraph 89 of Kannan, which teaches that “ACK/NACK format 430 may be identified for transmitting ACK/NACK feedback based on the number of transmitted CBS (referred to as N), a number of errors (referred to as k) in the transmitted CBs.” Ex. 1006 ¶ 89.

On this record, we therefore conclude preliminarily that Petitioner has sufficiently shown that Kannan discloses limitation 1.c.

Patent Owner does not dispute limitation 1.d, which recites “transmitting, by the first node, the HARQ information to the second node.” See generally Prelim. Resp. We find Petitioner has sufficiently shown the limitation. See Pet. 21–23 (citing Ex. 1003 ¶¶ 50–51; Ex. 1006 ¶¶ 94, 96–98, Fig. 5).

3. Claim 8

Having already decided to institute trial on claim 1, we proceed to trial on all claims challenged under this ground. *SAS Inst. v. Iancu*, 138 S. Ct. 1348, 1356 (U.S. 2018).

Claim 8 has similar limitations to claim 1. Petitioner relies on its showing for claim 1 for the similar limitations. See, e.g., Pet. 19 (relying on limitation 1.b showing for limitation 8.a).

Patent Owner disputes limitations 8.b and 8.c. Prelim. Resp. 30–31. For limitations 8.b and 8.c, Patent Owner incorporates its arguments made

regarding limitations 1.a, 1.b, and 1.c. *Id.* (citing Prelim. Resp, 17–30). We have already addressed those arguments.

On this record, we find that Petitioner has sufficiently shown the limitations of claim 8 for purposes of this Decision.

4. Claim 10

Petitioner’s showing for claim 10 is made at pages 35 through 44 of the Petition. *See* Pet. 35–44.

Patent Owner disputes the showing made for limitations 10.d, 10.e, and 10.f. Patent Owner relies on the same arguments made relating to claim 1’s limitation 1.a, 1.b, and 1.c. Prelim. Resp. 31–33 (citing Prelim. Resp. 17–30). We have already addressed those arguments.

On this record, we find that Petitioner has sufficiently shown the limitations of claim 10 for purposes of this Decision.

5. Claim 17

Petitioner’s showing for claim 17 includes some of the showings made for claim 8. Pet. 44–53. For example limitation 17.c’s showing relies on the showing for limitation 8.c. Pet. 48.

Patent Owner disputes the showing made for limitations 17.b and 17.c. Patent Owner relies on the same arguments made relating to claim 1’s limitation 1.a, 1.b, and 1.c. Prelim. Resp. 33–35 (citing Prelim. Resp. 17–30). We have already addressed those arguments.

On this record, we find that Petitioner has sufficiently shown the limitations of claim 17 for purposes of this Decision.

6. Claims 2, 6, 9, 11, 15, and 18

Claims 2, 6, 9, 11, 15, and 18 all depend from one of independent claims 1, 8, 10 or 17. *See* Section II.D above. Petitioner’s showing is at

Petition pages 24–25 (claims 2 and 6), 34 (claim 9), 44 (claims 11 and 15), and 54 (claim 18).

Patent Owner does not separately argue any dependent claim, relying on its arguments for the claim from which they depend. *See* Prelim. Resp. 17 (claims 2 and 6), 30 (claim 9), 31 (claims 11 and 15), 33 (claim 18). We have already addressed those arguments.

On this record, we find that Petitioner has sufficiently shown the limitations of claims 2, 6, 9, 11, 15, and 18 for purposes of this Decision.

V. CONCLUSION

Petitioner has shown a reasonable likelihood that claims 1, 2, 6, 8–11, 15, 17, and 18 are anticipated by Kannan.

VI. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that *inter partes* review is *instituted* with respect to all claims and all grounds of unpatentability raised in the Petition;

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(a), *inter partes* review of the '443 patent is hereby instituted commencing 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; and

FURTHER ORDERED that within ten (10) days of any developments in the parallel Texas Litigation (Section II.B above) relating to claim construction, the parties shall file a joint report detailing any such development.

IPR2022-01598
Patent 10,594,443 B2

PETITIONER:

Naveen Modi
Joseph Palys
PAUL HASTINGS LLP
naveenmodi@paulhastings.com
josephpalys@paulhastings.com
Samsung-G+-IPR@paulhastings.com

PATENT OWNER:

Bradley D. Liddle
Michael Pomeroy
Scott Breedlove
Seth A. Lindner
Howard L. Lim
CARTER ARNETT PLLC
bliddle@carterarnett.com
mpomeroy@carterarnett.com
sbreedlove@carterarnett.com
slindner@carterarnett.com
hlim@carterarnett.com