

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

CALIFORNIA INSTITUTE OF TECHNOLOGY,
Patent Owner.

IPR2023-00131
Patent 7,916,781 B2

Before KEN B. BARRETT, JOHN A. HUDALLA, and AMBER L. HAGY,
Administrative Patent Judges.

HUDALLA, *Administrative Patent Judge.*

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

Samsung Electronics Co., Ltd. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 3–18 and 22 (“the challenged claims”) of U.S. Patent No. 7,916,781 B2 (Ex. 1001, “the ‘781 patent”). Petitioner filed a Declaration of Matthew C. Valenti, Ph.D.

(Ex. 1002) with its Petition. California Institute of Technology (“Patent Owner”) filed a Preliminary Response (Paper 7, “Prelim. Resp.”). With our authorization, Petitioner filed a Preliminary Reply (Paper 8, “Pet. Reply”) and Patent Owner filed a Preliminary Sur-reply (Paper 9, “PO Sur-reply”) directed to the issue of discretionary denial under 35 U.S.C. § 314.

We have authority to determine whether to institute an *inter partes* review. *See* 35 U.S.C. § 314 (2018); 37 C.F.R. § 42.4(a) (2022). Under 35 U.S.C. § 314(a), we may not authorize an *inter partes* review unless the information in the petition and the 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.” For the reasons that follow, we do not institute an *inter partes* review.

I. BACKGROUND

A. *Real Parties-in-Interest*

Petitioner identifies Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., as the real parties-in-interest. Pet. 1. Patent Owner identifies California Institute of Technology as the real party-in-interest. Paper 5, 1.

B. *Related Matters*

As required by 37 C.F.R. § 42.8(b)(2), the parties identify the following related matters (Pet. 1–2; Paper 5, 1–2):

Cal. Inst. of Tech. v. Samsung Elecs. Co., No. 2-21-cv-00446 (E.D. Tex. filed Dec. 3, 2021) (“the underlying litigation”);

Cal. Inst. of Tech. v. Microsoft Corp., No. 6-21-cv-00276 (W.D. Tex. filed Mar. 19, 2021);

Cal. Inst. of Tech. v. HP Inc. f/k/a/ Hewlett-Packard Co., No. 6-20-cv-01041 (W.D. Tex. filed Nov. 11, 2020);

Cal. Inst. of Tech. v. Dell Techs. Inc., No. 6-20-cv-01042 (W.D. Tex. filed Nov. 11, 2020);

Cal. Inst. of Tech. v. Broadcom Ltd., No. 2:16-cv-03714 (C.D. Cal. filed May 26, 2016);

Cal. Inst. of Tech. v. Hughes Commc 'ns, Inc., No. 2:15-cv-01108 (C.D. Cal. filed Feb. 17, 2015); and

Cal. Inst. of Tech. v. Hughes Commc 'ns, Inc., 2:13-cv-07245 (C.D. Cal. filed Oct. 1, 2013).

The '781 patent was previously the subject of three *inter partes* reviews identified by the parties (Pet. 2; Paper 5, 2–3): IPR2015-00059 (“059 IPR”), IPR2017-00297 (“297 IPR”), and IPR2017-00423 (“423 IPR”). In the Final Written Decision from the 059 IPR, the Board determined that claims 1 and 2 of the '781 patent are unpatentable as anticipated by a reference known as “Divsalar.” In the consolidated Final Written Decision for the 297 IPR and the 423 IPR, the Board determined that claims 19–21 of the '781 patent are unpatentable as anticipated by a reference known as “Ping.” The Board also determined that claims 13–15, 18, and 22 of the '781 patent were not shown to be unpatentable over “Ping” and a reference known as “MacKay.” The Board additionally determined that claim 16 of the '781 patent was not shown to be unpatentable over “Ping,” “MacKay,” and another reference known as “Coombes.” None of those references are at issue in this proceeding.

Patent Owner also identifies the following prior *inter partes* review proceedings for patents related to the '781 patent (Paper 5, 2–3): IPR2015-00060, IPR2015-00061, IPR2015-00067, IPR2015-00068, IPR2015-00081, IPR2017-00210, IPR2017-00211, IPR2017-00219, IPR2017-00700, IPR2017-00701, IPR2017-00702, IPR2017-00703, and IPR2017-00728.

We additionally identify the following co-pending *inter partes* review proceedings between the parties: IPR2023-00130, IPR2023-00133, and IPR2023-00137.

C. The '781 Patent

The '781 patent describes the serial concatenation of interleaved convolutional codes forming turbo-like codes. Ex. 1001, code (54). It explains some of the prior art with reference to its Figure 1, reproduced below.

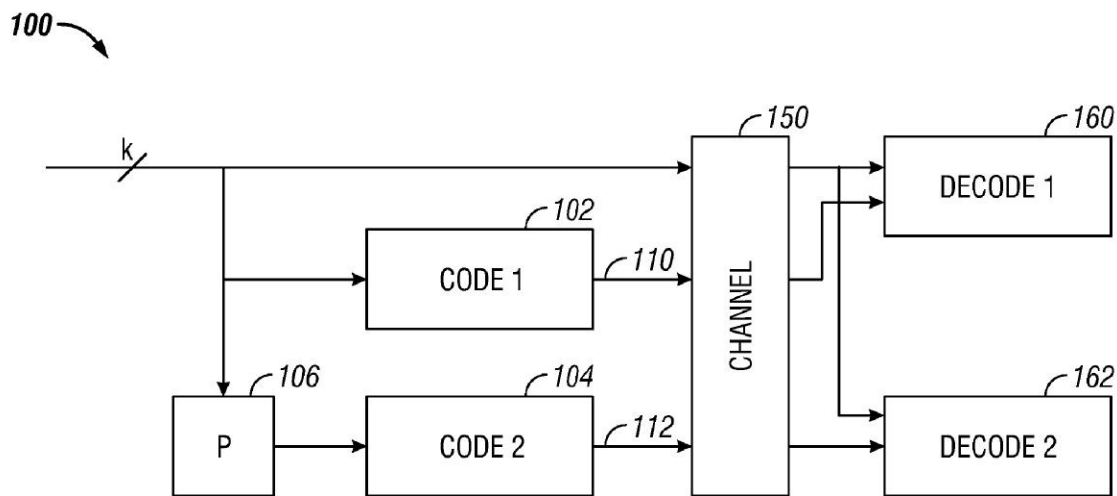


FIG. 1
(Prior Art)

Figure 1 is a schematic diagram of a prior “turbo code” system. *Id.* at 2:20–21. The '781 patent specification describes Figure 1 as follows:

A block of k information bits is input directly to a first coder 102. A k bit interleaver 106 also receives the k bits and interleaves them prior to applying them to a second coder 104. The second coder produces an output that has more bits than its input, that is, it is a coder with rate that is less than 1. The coders 102, 104 are typically recursive convolutional coders.

Three different items are sent over the channel 150: the original k bits, first encoded bits 110, and second encoded bits 112. At the decoding end, two decoders are used: a first constituent decoder 160 and a second constituent decoder 162. Each receives both the original k bits, and one of the encoded portions 110, 112. Each decoder sends likelihood estimates of the decoded bits to the other decoders. The estimates are used to decode the uncoded information bits as corrupted by the noisy channel.

Id. at 1:44–60.

A coder 200, according to a first embodiment of the invention, is described with respect to Figure 2, reproduced below.

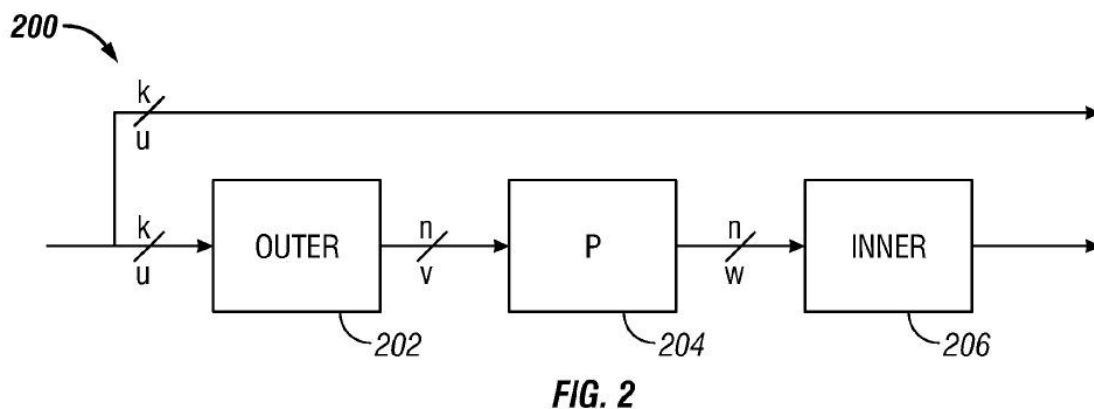


Figure 2 of the '781 patent is a schematic diagram of coder 200. Ex. 1001, 2:39.

The coder 200 may include an outer coder 202, an interleaver 204, and inner coder 206. . . . The outer coder 202 receives the uncoded data [that] may be partitioned into blocks of fixed size, [e.g.] k bits. The outer coder may be an (n,k) binary linear block coder, where $n > k$. The coder accepts as

input a block u of k data bits and produces an output block v of n data bits. The mathematical relationship between u and v is $v=T_0u$, where T_0 is an $n \times k$ matrix, and the rate^[1] of the coder is k/n .

The rate of the coder may be irregular, that is, the value of T_0 is not constant, and may differ for sub-blocks of bits in the data block. In an embodiment, the outer coder 202 is a repeater that repeats the k bits in a block a number of times q to produce a block with n bits, where $n=qk$. Since the repeater has an irregular output, different bits in the block may be repeated a different number of times. For example, a fraction of the bits in the block may be repeated two times, a fraction of bits may be repeated three times, and the remainder of bits may be repeated four times. These fractions define a degree sequence or degree profile, of the code.

The inner coder 206 may be a linear rate-1 coder, which means that the n -bit output block x can be written as $x=T_I w$, where T_I is a nonsingular $n \times n$ matrix. The inner coder 210 can have a rate that is close to 1, e.g., within 50%, more preferably 10% and perhaps even more preferably within 1% of 1.

Id. at 2:40–3:2 (footnote added). Codes characterized by a regular repeat of message bits into a resulting codeword are referred to as “regular repeat,” whereas codes characterized by irregular repeat of message bits into a resulting codeword are referred to as “irregular repeat.” *See id.* at 2:54–60. The second (“inner”) encoder 206 performs an “accumulate” function. *Id.* at 3:3–5. Thus, the two-step encoding process illustrated in Figure 2, including a first encoding (“outer encoding”) followed by a second encoding (“inner encoding”), results in either a “regular repeat accumulate” (“RRA”) code or an “irregular repeat accumulate” (“IRA”) code, depending upon

¹ We understand that the “rate” of an encoder refers to the ratio of the number of input bits to the number of resulting encoded output bits related to those input bits.

whether the repetition in the first encoding is regular or irregular. *See id.* at 3:34–36, 4:46–49.

Figure 4 of the '781 patent is reproduced below.

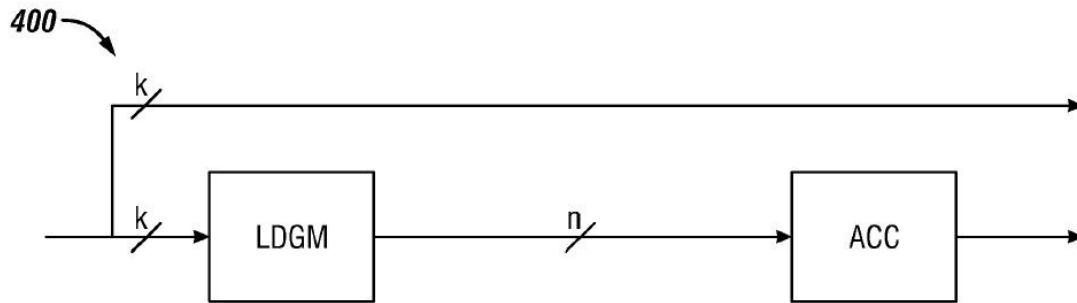


FIG. 4

Figure 4 shows an alternative embodiment in which the first encoding is carried out by a low-density generator matrix. Ex. 1001, 3:62–64.

Low-density generator matrix (LDGM)² codes are a special class of low-density parity check codes that allow for less encoding and decoding complexity. LDGM codes are systematic linear codes generated by a “sparse” generator matrix. *Id.* at 3:65–66. No interleaver (as in the Figure 2 embodiment) is required in the Figure 4 arrangement because the LDGM provides scrambling otherwise provided by the interleaver in the Figure 2 embodiment. *Id.* at 4:1–3.

D. Illustrative Claims

Of the challenged claims, claim 13 is independent. Claims 3–12 depend indirectly from non-challenged independent claim 1 via non-

² We understand that a “generator” matrix (typically referred to by “G”) is used to create (generate) codewords. A parity check matrix (typically referred to by “H”) is used to decode a received message.

challenged dependent claim 2; claims 14–18 depend directly or indirectly from independent claim 13; and claim 22 depends from non-challenged independent claim 21. Claim 3 is illustrative of the challenged claims. Given that claim 3 ultimately depends from claim 1 via claim 2, we reproduce claims 1–3 below:

1. A method of encoding a signal, comprising:
 - receiving a block of data in the signal to be encoded, the block of data including information bits;
 - performing a first encoding operation on at least some of the information bits, the first encoding operation being a linear transform operation that generates L transformed bits; and
 - performing a second encoding operation using the L transformed bits as an input, the second encoding operation including an accumulation operation in which the L transformed bits generated by the first encoding operation are accumulated, said second encoding operation producing at least a portion of a codeword, wherein L is two or more.
2. The method of claim 1, further comprising:
 - outputting the codeword, wherein the codeword comprises parity bits.
3. The method of claim 2, wherein outputting the codeword comprises:
 - outputting the parity bits; and
 - outputting at least some of the information bits.

Ex. 1001, 7:25–45.

E. Prior Art

Petitioner relies on the following prior art:

U.S. Patent No. 6,029,264, filed Apr. 28, 1997, issued Feb. 22, 2000 (Ex. 1005, “Kobayashi”); and

McEliece et al., “Turbo Decoding as an Instance of Pearl’s ‘Belief Propagation’ Algorithm,” *IEEE Journal on Selected Areas in Communication*, Vol. 16, No. 2 (Feb. 1998) (Ex. 1006, “McEliece”).

F. The Asserted Grounds

Petitioner challenges claims 3–18 and 22 of the ’781 patent based on the following grounds (Pet. 3):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
10–14, 17, 18, 22	102(e) ³	Kobayashi
3–9, 15, 16, 21, 22	103(a)	Kobayashi
5–9	103(a)	Kobayashi, McEliece

II. ANALYSIS

A. Legal Standards

A claim is anticipated if a single prior art reference either expressly or inherently discloses every limitation of the claim. *Orion IP, LLC v. Hyundai Motor Am.*, 605 F.3d 967, 975 (Fed. Cir. 2010). Although the elements must be arranged or combined in the same way as in the claim, “the reference need not satisfy an *ipsissimis verbis* test,” i.e., identity of terminology is not required. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009) (citing *In re Bond*, 910 F.2d 831, 832–33 (Fed. Cir. 1990)).

³ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. §§ 102 and 103. Because the ’781 patent claims priority to an application filed before March 16, 2013 (the effective date of the relevant amendments), the pre-AIA versions of §§ 102 and 103 apply.

A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *See 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 skill in the art; and (4) where in evidence, so-called secondary considerations.⁴ *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). We also recognize that prior art references must be “considered together with the knowledge of one of ordinary skill in the pertinent art.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994) (citing *In re Samour*, 571 F.2d 559, 562 (CCPA 1978)).

B. Level of Ordinary Skill in the Art

Citing testimony from Dr. Valenti, Petitioner contends a person of ordinary skill in the art “would have had a Ph.D. in mathematics, electrical or computer engineering, or computer science with an emphasis in signal processing, communications, or coding, or a master’s degree in the above areas with at least three years of work experience in the field at the time of the alleged invention.” Pet. 5 (citing Ex. 1002 ¶¶ 21–22). Patent Owner does not dispute Petitioner’s proposed level of ordinary skill in the art at this time.

⁴ The present record does not include any evidence of secondary considerations of nonobviousness.

For purposes of this Decision, we adopt Petitioner’s definition of the level of ordinary skill in the art. On the present record, we are satisfied that this definition comports with the level of skill necessary to understand and implement the teachings of the ’781 patent and the asserted prior art.

C. Claim Interpretation

In an *inter partes* review, we construe each claim 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(b). Accordingly, our claim construction standard is the same as that of a district court. *See id.* Under the standard applied by district courts, claim terms are generally given their plain and ordinary meaning, as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). “There are only two exceptions to this general rule: 1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution.” *Thorner v. Sony Comput. Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012).

Petitioner states that “no special constructions are necessary to assess whether the challenged claims are unpatentable over the asserted prior art.” Pet. 6 (citing Ex. 1002 ¶ 40). Patent Owner does not address claim construction in the preliminary record. For purposes of this Decision, we

determine that no aspects of the challenged claims require explicit construction. *See, e.g., Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

D. Patent Owner’s Arguments Regarding Discretionary Denial

Our disposition of this case turns on the issue of discretionary denial. Patent Owner contends we should exercise our discretion to deny institution under 35 U.S.C. § 314(a). Prelim. Resp. 31–46; PO Sur-reply 1–3. Petitioner contends that we should not deny institution based on discretionary factors. Pet. 57–62; Pet. Reply 1–3.

Institution of *inter partes* review is discretionary. *SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1356 (2018) (“[Section] 314(a) invests the Director with discretion on the question whether to institute review” (emphasis omitted)); *Cuozzo Speed Techs., LLC v. Lee*, 579 U.S. 261, 273 (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, 1367 (Fed. Cir. 2016) (“[T]he [Office] is permitted, but never compelled, to institute an [*inter partes* review] proceeding.”).

In *Apple Inc. v. Fintiv Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”), the Board discussed potential applications of *NHK Spring Co., Ltd. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 (PTAB Sept. 12, 2018) (precedential) (“*NHK*”), as well as a number of other cases dealing with discretionary denial under § 314(a). *Fintiv* identifies a

non-exclusive list of factors parties may consider addressing, particularly where there is a related, parallel district court action and whether such action provides any basis for discretionary denial. *Fintiv*, Paper 11 at 5–16. Those factors include:

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board’s exercise of discretion, including the merits.

Id. at 5–6.

Our analysis of the *Fintiv* factors is guided by the USPTO Director’s Memorandum issued on June 21, 2022, titled “Interim Procedure for Discretionary Denials in AIA Post Grant Proceedings with Parallel District Court Litigation” (“Interim Procedure”)⁵, which provides several clarifications to the application of the *Fintiv* factors when there is parallel litigation. Interim Procedure 2; *see also CommScope Techs. LLC v. Dali Wireless, Inc.*, IPR2022-01242, Paper 23 (PTAB Feb. 27, 2023) (precedential) (“*CommScope*”) (holding that the Board should engage in the

⁵ Available at https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621.pdf

compelling merits question only if *Fintiv* factors 1–5 favor discretionary denial).

We now consider these factors to determine whether we should use our discretion to deny institution under 35 U.S.C. § 314(a). In evaluating the factors, we take a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review. *Fintiv*, Paper 11 at 6.

1. Stay in the Underlying Litigation

Under the first *Fintiv* factor, we consider “whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted.” *Id.* at 6. Patent Owner notes that Petitioner has already filed a motion for a stay in the underlying litigation, and the district court denied the motion. Prelim. Resp. 35 (citing Ex. 2002, 4–5). Petitioner argues that it is not precluded from filing another motion for a stay if we were to institute *inter partes* review. Pet. Reply 2.

The district court has already denied a motion for a stay, and the reasoning in its decision on the motion indicates that the court is unlikely to grant a renewed motion. *See* Ex. 2002, 5–6 (finding that the advanced stage of the underlying litigation disfavors a stay and that a stay is unlikely to simplify the issues in the underlying litigation). Thus, we find that this factor weighs in favor of exercising authority to deny institution. *See Fintiv*, Paper 11 at 6–7.

2. *The Trial Date in the Underlying Litigation*

Under the second *Fintiv* factor, we consider the “proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision.” *Fintiv*, Paper 11 at 6. Trial in the underlying litigation is set to start on September 11, 2023. Pet. 59 (citing Ex. 1015, 1); Prelim. Resp. 36. Petitioner also notes that, under the time-to-trial statistics for the district in which the underlying litigation is pending, the trial would be expected to start on December 17, 2023. Pet. 59 (citing Ex. 1016, 35). Our anticipated one-year statutory deadline for issuing a final written decision in this case would be in May 2024.

Regardless of whether we consider the scheduled trial date or the trial date expected based on time-to-trial statistics, the trial in the underlying litigation would commence several months before the expected date of our final written decision. Thus, we find that the second *Fintiv* factor favors exercising authority to deny institution.

3. *Investment by the Court and the Parties in the Underlying Litigation*

Under the third *Fintiv* factor, we consider the “investment in the parallel proceeding by the court and the parties” as of the time of the institution decision. *Fintiv*, Paper 11 at 6, 9–10. Both parties acknowledge that the court in the underlying litigation has already issued a claim construction order. Pet. Reply 1; PO Sur-reply 2; *see also* Ex. 1019 (order). In addition, Patent Owner contends that “[b]y the expected May institution decision date, substantial pretrial work related to validity will be complete: fact discovery will be closed, expert reports will be served, and all

dispositive motions will be due within a month.” PO Sur-reply 1 (citing Ex. 1015, 3).

Although Petitioner disputes the significance of claim construction to our consideration of this factor (*see* Pet. Reply 1), we find that the advanced stage of expert discovery is the most significant fact for our analysis. In particular, the scheduling order in the underlying litigation indicates that Petitioner should have already served its opening expert report on validity. Ex. 1015, 3. Given that the deadline for rebuttal expert reports is only days away (*see id.*), we also can safely assume that work pertaining to a rebuttal expert report on validity is well underway. We consider this work significant because it relates directly to the merits of the parties’ invalidity positions. *See Sand Revolution II, LLC v. Continental Intermodal Group – Trucking LLC*, IPR2019-01393, Paper 24 at 10–11 (PTAB June 16, 2020) (informative) (“*Sand Revolution*”).

As part of this factor, we additionally consider whether Petitioner unreasonably delayed in filing the Petition in this case. *See Fintiv*, Paper 11 at 11–12. Patent Owner argues that Petitioner waited approximately 10 months after Patent Owner filed the underlying litigation before Petitioner filed the instant Petition.⁶ Prelim. Resp. 39–40. Petitioner argues that it filed the Petition “just seven months after being served with preliminary infringement contentions . . . , which identified the asserted

⁶ We acknowledge that the timeliness of a petition is measured from the date on which a complaint alleging patent infringement is served. *See* 35 U.S.C. § 315(b). In the underlying litigation, Petitioner waived the service requirement 17 days after the complaint was filed. *See Underlying Litigation*, ECF No. 9. The 17-day difference between filing and waiver of service does not impact our analysis.

claims.” Pet. 60–61. Petitioner asserts this timing was reasonable given that Patent Owner “asserted four patents containing over 90 issued claims.” *Id.* at 61. Although Petitioner did file its Petition somewhat late in the statutory period and some months after receiving infringement contentions, we do not view this timing to be as significant as the advanced stage of case development in the underlying litigation regarding invalidity.

Accordingly, on the whole, this factor weighs in favor of exercising our authority to deny institution.

4. *Overlap of the Issues*

Under the fourth *Fintiv* factor, we consider the “overlap between issues raised in the petition and in the parallel proceeding.” *Fintiv*, Paper 11 at 6. Petitioner stipulates that, if we were to institute *inter partes* review, it would not “pursue invalidity challenges to the ’781 Patent in the parallel district court lawsuit that rely on any reference used in the grounds of the Petition (Kobayashi and McEliece).” Pet. Reply 1. Patent Owner argues that Petitioner can still put forth district court invalidity arguments based on references that are “integral to” the asserted grounds, including “Lin/Costello, Cheng, and MacKay.” PO Sur-reply 1; *see also* Prelim. Resp. 41–42 (similar argument).

Petitioner’s stipulation is not as expansive as the stipulation discussed in *Sotera Wireless Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 13 (PTAB Dec. 1, 2020) (precedential) (“*Sotera*”), because Petitioner does not relinquish all grounds that it reasonably could have raised in this *inter partes*

review.⁷ Nevertheless, it is broader to some degree than the stipulation discussed in *Sand Revolution* because it precludes Petitioner from relying in the district court on any of the same references listed in the statement of the grounds in the Petition, and is not limited to only the same grounds. *See Sand Revolution*, Paper 24 at 11–12. We find that Petitioner’s stipulation mitigates some concerns of duplicative efforts between the district court and the Board. Notwithstanding, the fact that Petitioner’s grounds also rely on “Lin/Costello, Cheng, and MacKay,” which are not subject to Petitioner’s stipulation, diminishes the impact of Petitioner’s stipulation to some extent.

Accordingly, we find that this factor weighs somewhat against exercising our discretion to deny institution.

5. *Whether Petitioner is Unrelated to the Defendant in the Underlying Litigation*

Under the fifth *Fintiv* factor, we consider “whether the petitioner and the defendant in the parallel proceeding are the same party.” *Fintiv*, Paper 11 at 6. We determine that the fifth *Fintiv* factor favors exercising our discretion to deny institution because Petitioner, Samsung Electronics Co., Ltd., is a defendant in the underlying litigation. *See* Prelim. Resp. 42; *Sotera*, Paper 12 at 19.

6. *Summary Regarding Fintiv Factors 1–5*

In summary, factors 1–3 and 5 weigh in favor of exercising our discretion to deny institution and factor 4 weighs somewhat against

⁷ As such, Petitioner does not qualify for the treatment described in the Interim Procedure for *Sotera* stipulations. *See* Interim Procedure at 7–8.

exercising our discretion to deny institution. Considering these factors as a whole, we determine that these factors weigh in favor of exercising our discretion to deny institution.

7. *Other Circumstances Including the Merits*

Under the sixth *Fintiv* factor, we consider “other circumstances that impact the Board’s exercise of discretion, including the merits.” *Fintiv*, Paper 11 at 6.

First, we turn to the merits of the Petition. Because we conclude that *Fintiv* factors 1–5 in this proceeding favor discretionary denial, we consider whether the Petition presents a challenge with compelling merits. Interim Procedure 4–5. That is, we consider whether the challenges’ “evidence, if unrebutted in trial, would plainly lead to a conclusion that one or more claims are unpatentable by a preponderance of the evidence.” *Id.* at 4. “A challenge can only ‘plainly lead to a conclusion that one or more claims are unpatentable’ if it is highly likely that the petitioner would prevail with respect to at least one challenged claim.” *OpenSky Indus., LLC v. VLSI Tech. LLC*, IPR2021-01064, Paper 102 at 49 (PTAB Oct. 4, 2022) (precedential) (quoting Interim Procedure at 4). The “compelling merits” standard is a standard higher than that required for institution. *CommScope*, Paper 23 at 3.

Petitioner relies upon its analysis for non-challenged independent claim 1 in the Kobayashi anticipation ground with respect to all challenged claims and grounds in this case (*see, e.g.*, Pet. 13–17, 21–22, 27 (relying on the same analysis from claim 1 regarding the recited “codeword”)), so we now consider the merits of Petitioner’s analysis for claim 1. All of

Petitioner's contentions for this claim are based on the embodiment in Figure 8 of Kobayashi, which is reproduced below.

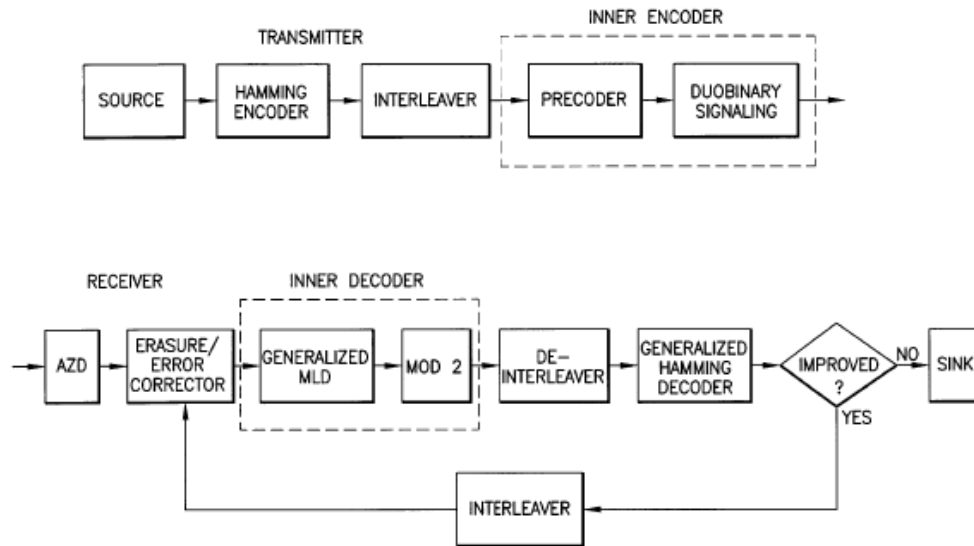


FIG.8

Figure 8 depicts transmitter and receiver sides of a system for error correction in a data stream. Ex. 1005, 5:17–27. On the transmitter side (i.e., the top portion of Figure 8), a Hamming code is used for the outer code, and “the inner code is duobinary signaling with a precoder.” *Id.* at 7:9–11. Kobayashi refers to the sequence outputted from the precoder by the designator I_4 . *Id.* at 8:21–27.

Petitioner relies on the operations of Kobayashi's Hamming encoder and interleaver in the embodiment of Kobayashi's Figure 8 for teaching the recited “first encoding operation.” Pet. 10–12 (citing Ex. 1005, 7:50–8:20, Fig. 8). For the recited “second encoding operation,” Petitioner relies on the operation of Kobayashi's precoder in the same embodiment of Figure 8. *Id.* at 14–15 (citing Ex. 1005, 8:18–27, Fig. 8). For the “second encoding operation producing at least a portion of a codeword,” Petitioner cites Kobayashi's precoder output I_4 and contends that an ordinarily skilled artisan “would have understood that this encoded sequence I_4 is a codeword

because the output of an encoder such as Kobayashi's precoder is a codeword." *Id.* (citing Ex. 1002 ¶ 68; Ex. 1005, 8:25–27); *see also* Ex. 1002 ¶ 45 (similar testimony from Dr. Valenti). Notably, Petitioner's mapping for the "second encoding operation" expressly excludes a "duobinary signaling" operation that is depicted within the "inner encoder" of Figure 8. Petitioner asserts that "duobinary signaling is simply a transmission technique, and thus the precoder is the inner encoder component that 'perform[s] a second encoding operation' as claimed." Pet. 14 n.6 (alteration by Petitioner) (citing Ex. 1002 ¶ 67 n.3; Ex. 1005, 2:21–25, 7:30–31, 7:43–45).

Patent Owner disputes that Kobayashi teaches a "second encoding operation producing at least a portion of a codeword." Prelim. Resp. 6–14. Patent Owner's arguments are based on Petitioner's contention that the output of an encoder is a codeword. *Id.* at 7 (citing Pet. 15). Patent Owner argues that the premise of Petitioner's contention is based on circular reasoning. *Id.* at 7. According to Patent Owner, "Petitioner is asserting that the output of Kobayashi's precoder is a codeword *because the output of Kobayashi's precoder is a codeword.*" *Id.* Patent Owner argues that Kobayashi never describes its precoder as an encoder and never describes the output of the precoder as a codeword. *Id.* Patent Owner also argues that Petitioner's mapping is at odds with Figure 8 of Kobayashi, which depicts the "inner encoder" as "including both the precoder and duobinary signaling blocks, not just the precoder." *Id.* at 8–9 (citing Ex. 1005, Fig. 8). Patent Owner explains that "the output of [Kobayashi's] inner encoder [is described] as an 'inner code,' which 'is duobinary signaling with a precoder.'" *Id.* at 8 (alteration added) (quoting Ex. 1005, 7:9–10). Patent Owner also notes that the word "*precoder*" itself suggests that "it is a *first*

component that is used prior to forming a code using a second component.” *Id.* at 10. As such, Patent Owner criticizes Petitioner’s analysis as being “at odds with the scope and content of the prior art” because it “effectively redrafts Kobayashi to draw the ‘inner encoder’ box around just the precoder.” *Id.* at 9.

Although we need not fully resolve these issues for our “compelling merits” determination, we note that Patent Owner makes several arguments that call into question whether Petitioner would ultimately succeed with its unpatentability challenges relative to its analysis for the recited “codeword.” Petitioner’s contentions hinge on its assertion that an ordinarily skilled artisan “would have understood that this encoded sequence I_4 is a codeword because the output of an encoder such as Kobayashi’s precoder is a codeword.” Pet. 15 (citing Ex. 1002 ¶ 68).⁸ We agree with Patent Owner that Petitioner’s analysis appears to (1) rely on circular reasoning; and (2) run counter to Kobayashi’s disclosure of the inner encoder in Figure 8 as comprising both the precoder and duobinary signaling blocks. *See* Ex. 1005, 7:9–11, Fig. 8. We also have considered Dr. Valenti’s testimony that an ordinarily skilled artisan would have understood the output of Kobayashi’s precoder to be a codeword. *See* Ex. 1002 ¶ 45. In support of this testimony, Dr. Valenti cites only general background testimony on error control coding and Kobayashi’s use of “codeword” with respect to the Hamming encoder. *See id.* Yet Dr. Valenti’s background testimony does not address whether an ordinarily skilled artisan would have regarded a precoder alone to be an

⁸ Petitioner cites to paragraph 68 of Dr. Valenti’s declaration, but his more relevant testimony supporting this proposition is found at paragraph 45, which we discuss below.

encoder. *See id.* ¶¶ 24–27. And Kobayashi’s characterizations regarding the output of the Hamming encoder, which is a different element, do not necessarily apply to the precoder, which is only a portion of Kobayashi’s inner encoder. *See* Ex. 1005, 7:50–8:2. Thus, even if we were to find that Petitioner’s contentions support a reasonable likelihood of unpatentability, we would have significant open questions for resolution at trial. Under these circumstances, and based on the present record, we do not find “compelling merits” because Petitioner’s challenges do not plainly lead to a conclusion that one or more claims are unpatentable. For purposes of our analysis under *Fintiv*, we weigh the merits as being neutral.

As another consideration for the sixth *Fintiv* factor, Patent Owner asks us to consider the history of *inter partes* reviews against the ’781 patent and its related patents. *See supra* I.B. (related matters). In particular, Patent Owner argues that “this is the fourth IPR against the ’781 patent, and despite every claim at issue being challenged in those prior IPRs, none was found unpatentable.” Prelim. Resp. 43. Patent Owner further argues that “the Board has already invested substantial resources reviewing repeated IPR challenges and repeatedly upholding the claims of the ’781 patent and its family members.” *Id.* at 44. Petitioner downplays the relevance of the prior *inter partes* reviews because they were mostly based on “obviousness combinations, some up to *three* or *four* references,” whereas two grounds in this case rely on a single reference. Pet. Reply 3. Petitioner also characterizes the multiple prior *inter partes* reviews as a consequence of Patent Owner’s “own choice to litigate its claims serially.” *Id.* In consideration of the Board’s prior expenditure of resources reviewing the claims of the ’781 patent, and in light of the outcomes of those prior

reviews, we view the prior challenges against the same claims as slightly favoring discretionary denial.

Thus, on the whole, we find the sixth *Fintiv* factor to weigh slightly in favor of exercising our discretion to deny institution.

8. *Conclusion*

Petitioner's stipulation is the only circumstance that weighs against discretionary denial. We find that the advanced posture of the underlying litigation outweighs the impact of Petitioner's stipulation. In particular, trial is set to start approximately eight months before the expected date of our final written decision. The parties also have engaged in relevant case development in the underlying litigation insofar as expert discovery on validity is well underway. Moreover, the court in the underlying litigation has already denied Petitioner's bid for a stay in that case. Thus, based on our holistic view of the *Fintiv* factors, we exercise our discretion under 35 U.S.C. § 314(a) to deny the Petition.

III. CONCLUSION

For the reasons above, we exercise our discretion under 35 U.S.C. § 314(a) to deny institution of *inter partes* review.

IV. ORDER

Accordingly, it is

ORDERED that the Petition is denied as to all challenged claims, and no *inter partes* review is instituted.

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