

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HTC CORPORATION and HTC AMERICA, INC.,
Petitioner,

v.

INVT SPE LLC,
Patent Owner.

Case IPR2018-01557
Patent 6,760,590 B2

Before THU A. DANG, BARBARA A. BENOIT, and J. JOHN LEE,
Administrative Patent Judges.

BENOIT, *Administrative Patent Judge.*

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

I. INTRODUCTION

This is a preliminary proceeding to decide whether to institute *inter partes* review of U.S. Patent No. 6,760,590 B2 (Ex. 1001, “the ’590 patent” or “the challenged patent”). *See* 35 U.S.C. § 314(a); 37 C.F.R. § 42.4(a) (delegating authority to institute trial to the Board). Institution of an *inter partes* review is authorized by statute when “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a).

HTC Corporation and HTC America, Inc. (collectively, “Petitioner”) filed a petition seeking *inter partes* review of claims 1–8 of U.S. Patent No. 6,760,590 B2. Paper 1 (“Pet.”). Patent Owner, INVT SPE LLC, filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). After receiving authorization (Paper 8), Petitioner filed a Reply (Paper 10) to which Patent Owner filed a Sur-Reply (Paper 12).

Although Petitioner initially sought to include claims 1, 2, 5, and 6 in its challenge, Patent Owner statutorily disclaimed those claims after the Petition was filed. *See* Ex. 2001. For the reasons discussed below, disclaimed claims 1, 2, 5, and 6 are no longer regarded as claims challenged in the Petition, leaving claims 3, 4, 7, and 8 as the only challenged claims.

Upon consideration of the Petition and the Preliminary Response, we conclude the information presented does not show a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of claims 3, 4, 7, and 8 of the challenged patent. Accordingly, we deny institution of an *inter partes* review.

A. Related Matters

As required by 37 C.F.R. § 42.8(b)(2), each party identified various judicial or administrative matters that would affect or be affected by a decision in this proceeding. Pet. 1–2; Paper 4 (Patent Owner’s Mandatory Notices), 2–3.

B. Statutory Disclaimer of Claims 1, 2, 5, and 6

As noted above, Petitioner filed a petition challenging claims 1–8 of the ’590 patent. Pet. 3. Subsequently, Patent Owner filed a statutory disclaimer of claims 1, 2, 5, and 6. Ex. 2001; *see* Prelim. Resp. 2 n.1; *see also* 35 U.S.C. § 253 (indicating a patentee may disclaim claims). Patent Owner contends that *inter partes* review should not be instituted on the disclaimed claims in accordance with 37 C.F.R. § 42.107(e). Prelim. Resp. 2 n.1.

We agree with Patent Owner. “A statutory disclaimer under 35 U.S.C. § 253 has the effect of canceling the claims from the patent and the patent is viewed as though the disclaimed claims had never existed in the patent.” *Guinn v. Kopf*, 96 F.3d 1419, 1442 (Fed. Cir. 1996) (citing *Altoona Publix Theatres, Inc. v. Am. Tri-Ergon Corp.*, 294 U.S. 477 (1935)). An *inter partes* review cannot be instituted on claims that have been disclaimed and no longer exist. *See* 37 C.F.R. § 42.107(e) (“No *inter partes* review will be instituted based on disclaimed claims.”). This conclusion is consistent with other panel decisions addressing this issue. *See, e.g., Intuitive Surgical, Inc. v. Ethicon LLC*, Case IPR2018-00935, Paper 9, 9–10 (PTAB Dec. 7, 2018); *Vestas-Am. Wind Tech. Inc. v. Gen. Elec. Co.*, Case IPR2018-01015, Paper 9, 12–14 (PTAB Nov. 14, 2018).

Accordingly, we do not institute *inter partes* review on claims 1, 2, 5, and 6.

C. The Challenged Patent

The '590 patent generally relates to transmission efficiency in mobile communications. Ex. 1001, 1:9–11, 1:15–18. The patent describes High Data Rate (“HDR”) as a known strategy to improve the transmission efficiency of a downlink from a base station to a communication terminal. *Id.* at 1:19–21 (Background Art). In HDR, a base station first transmits a pilot signal to a communication terminal. *Id.* at 1:28–31. The “communication terminal estimates the downlink channel quality using a CIR (desired carrier to interference ratio) based on the pilot signal, etc., and finds a transmission rate at which communication is possible.” *Id.* at 1:31–34. Based on the possible transmission rate, the “communication terminal selects a communication mode, which is a combination of packet length, coding method, and modulation method.” *Id.* at 1:34–39. The communication terminal then “transmits a data control rate (‘DCR’) signal indicating the communication mode to the base station.” *Id.* at 1:34–41. The base station sets a transmission rate for the communication terminal based on the DCR signal. *Id.* at 1:57–59. “Generally, DCR signals are represented by numbers from 1 to N, with a higher number indicating a proportionally better downlink channel quality.” *Id.* at 1:53–56.

Of the claims remaining in the '590 patent, claims 3 and 7 are independent. Claim 3, reproduced below, is illustrative of the claimed subject matter:

3. A communication terminal apparatus comprising:
- a measurer that measures a downlink channel quality and outputs information that is generated in association with said downlink channel quality and composed of a plurality of digits including an upper digit and an lower digit;
 - a coder that encodes the information such that the upper digit is assigned a larger number of bits than the lower digit; and
 - a transmitter that transmits the encoded information to a base station apparatus.

D. The Asserted Grounds of Unpatentability

Petitioner challenges under 35 U.S.C. § 103¹ the patentability of claims 3, 4, 7, and 8 in the '590 patent.

References	Claims
Padovani ² and Gils ³	3, 4
Padovani, Gils, and Olofsson ⁴	7, 8

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, 125 Stat. 284, 287–88 (2011), revised 35 U.S.C. § 103 effective March 16, 2013. Because the challenged patent was filed before March 16, 2013, we refer to the pre-AIA version of § 103.

² PCT Publication No. WO 99/23844, published May 14, 1999 (Ex. 1009, “Padovani”).

³ W. van Gils, “Design of error-control coding schemes for three problems of noisy information transmission, storage and processing,” dissertation, Eindhoven Univ. of Technology, Eindhoven, the Netherlands, 1988 (Ex. 1010, “Gils”); *see* Pet. vii (Exhibit List).

⁴ U.S. Patent No. 6,167,031, issued Dec. 26, 2000 (Ex. 1053, “Olofsson”).

II. DISCUSSION

A. *Legal Standards*

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)); *see also* 37 C.F.R. § 42.104(b) (requiring a petition for *inter partes* review to identify how the challenged claim is to be construed and where each element of the claim is found in the prior art patents or printed publications relied on). Petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

A claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness.⁵

⁵ At this preliminary stage Patent Owner does not offer objective evidence of non-obviousness.

Graham v. John Deere Co., 383 U.S. 1, 17–18 (1966). In determining the level of ordinary skill, various factors may be considered, including the “types of problems encountered in the art; prior art solutions to those problems; rapidity with which innovation are made; the sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (internal quotation and citation omitted).

B. Level of Ordinary Skill in the Art

Relying on declaration testimony of Paul Min, Ph.D., Petitioner contends that one of ordinary skill in the art “would have had a bachelor’s degree in electrical engineering, computer engineering, mathematics, or a related field, and one to two years of experience in wireless/mobile communications or equivalent education and experience.” Pet. 8 (citing Ex. 1017 ¶ 53). Patent Owner does not dispute Petitioner’s proposed level of ordinary skill. For purposes of this Decision, we adopt the level of ordinary skill proposed by Petitioner.

C. Claim Construction

For a petition for *inter partes* review filed before November 13, 2018, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b) (2018); see *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of broadest reasonable

construction standard in *inter partes* review).⁶ Accordingly, we use the broadest reasonable construction standard for this proceeding.

Under the broadest reasonable construction standard, claim terms are presumed to have their ordinary and customary meaning as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). An inventor may provide a meaning for a term that is different from its ordinary meaning by defining the term in the specification with “reasonable clarity, deliberateness, and precision.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

Petitioner and Patent Owner contend that no terms in claims 3, 4, 7, and 8 require express construction for this Decision. Pet. 15–16; Prelim. Resp. 16; *see Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (holding that “only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy”); *see also Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs.* in the context of an *inter partes* review). To the extent it is necessary to determine whether to institute an *inter partes* review, we discuss claim terms in the context of analyzing the asserted grounds.

⁶ Rule 42.100(b) has been amended to provide that petitions filed on or after November 13, 2018, are analyzed under the same claim construction standard applicable in district courts. *See* 37 C.F.R. § 42.100(b); Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51340 (Oct. 11, 2018).

D. Obviousness of Claims 3, 4, 7, and 8

Petitioner asserts that the subject matter of claims 3 and 4 would have been obvious to one of ordinary skill in the art in view of Padovani and Gils and that the subject matter of claims 7 and 8 would have been obvious to one of ordinary skill in the art in view of Padovani, Gils, and Olofsson.

Petitioner supports its challenges with citations to the references and to declaration testimony from Dr. Min (Exhibit 1017). Patent Owner opposes, with citations to the references and to declaration testimony from Raymond Nettleton, Ph.D. (Exhibit 2003).

1. Disclosure of Padovani

Padovani describes high rate packet data transmission in a data communication system capable of variable rate transmission. Ex. 1009, Abstract, 1:8–10. A mobile station can communicate with multiple base stations. *Id.* at 5:24–25. Padovani explains that, when a base station has data to transmit to a mobile station, the base station transmits a “paging message” on a control channel to the mobile station, which measures the signal-to-noise-and-interference ratio (C/I^7) of the signal from the base station. *Id.* at 9:27–37. One example of a C/I measurement is 3.5 dB. *Id.* at 23:34–24:2. A mobile station can select the best base station from which data is to be received “based on the largest C/I measurement.” *Id.* at 10:2–3. The mobile station transmits to the selected base station a data request message (“DRC message”) on a data request channel (“DRC channel”). *Id.*

⁷ Ex. 1009, 5:35 (indicating C/I is an abbreviation for “signal-to-noise-and-interference ratio” of a signal).

at 10:3–6. “The DRC message can contain the requested data rate or, alternatively, an indication of the quality of the forward link channel (e.g., the C/I measurement itself, the bit-error-rate, or the packet-error-rate).” *Id.* at 10:6–9. The base station transmits to the mobile station at a maximum data rate supported, which depends on the C/I measurement by the mobile station. *Id.* at 24:26–31.

To send a requested data rate to the base station, for example, the mobile station may identify one of multiple predetermined data rates by selecting a pre-assigned identifier to be included in a DRC message. *Id.* at 27:28–30; *see id.* at 27:30–31 (indicating the mobile station selects one of the predetermined rates based on the C/I measurement). Padovani explains that, because the requested data rate needs to be sent to a base station to request the data rate, “a tradeoff is made between the number of supported data rates and the number of bits needed to identify the requested data rate.” *Id.* at 27:31–34. In Padovani’s example, “the number of supported data rates is seven and a 3-bit rate index is used to identify” which of the seven data rates is to be used. *Id.* at 27:35–36.

Regardless of whether the DRC message includes a request for a predetermined data rate or includes the C/I measurement, the mobile station encodes the DRC message with an error correcting code in “a predetermined coding format” and then transmits the encoded message to the base station. *Id.* at 27:35–36, 45:15–33, Fig. 6.

2. Disclosure of Gils

Gils purports to be a doctoral dissertation titled “Design of error-control coding schemes for three problems of noisy information

transmission, storage and processing,” which Petitioner contends was submitted to Eindhoven University of Technology in the Netherlands in 1988. Ex. 1010, 1–2⁸; *see* Prelim. Resp. 17. In data transmission and storage, “a desired level of error control can be guaranteed by using error-correcting codes.” Ex. 1010, 13. In contrast to error-correcting codes that “can be successfully applied . . . where all positions in a message word require equal protection against errors,” Gils describes the design of error-control coding for “the transmission and storage of messages in which different parts are of mutually different importance.” *Id.* at 18. “For example in transmitting numerical data, errors in the sign or in high-order digits are more serious than are errors in the low-order digits.” *Id.*

According to Gils, “[l]inear codes that protect some positions in a message word against a larger number of errors than other ones are called *Linear Unequal Error Protection (LUEP) codes*.” *Id.* Gils identifies a problem with LUEP codes—“to find a LUEP code with a given dimension and separation vector such that its length is minimal and hence its information rate is maximal.” *Id.* at 18–19.

Gils’ Table 1, which appears below, covers three pages in Gils’ dissertation and provides example LUEP codes.

⁸ For clarity, we refer to the exhibit page numbers in the bottom left corner of each page, not the dissertation page numbers in the upper corners of each page.

n	k	$d(n, k)$	separation vector
4	2	2	A 32
5	2	3	A 42
5	3	2	A 322
6	2	4	A 52
6	3	3	A 422
6	4	2	A 3222
7	2	4	A 62, I 54
7	3	4	A 522
7	4	3	A 4222
7	5	2	A 32222
8	2	5	A 72, I 64
8	3	4	A 622, C 544
8	4	4	A 5222
8	5	2	A 42222, J 33332
8	6	2	A 322222
9	2	6	A 82, I 74
9	3	4	A 722, C 644, G 554
9	4	4	A 6222, C 5444
9	5	3	A 52222, J 44442, B 43333
9	6	2	A 422222, J 333322
9	7	2	A 3222222
10	2	6	A 92, I 84, I 76
10	3	5	A 822, C 744, L 664
10	4	4	A 7222, C 6444, G 5544
10	5	4	A 62222, C 54444
10	6	3	A 522222, J 444422, J 433332
10	7	2	A 4222222, J 3333222
10	8	2	A 32222222
11	2	7	A 10.2, I 94, I 86
11	3	6	A 922, C 844, K ₁ 764
11	4	5	A 8222, C 7444, E 6644
11	5	4	A 72222, C 64444, G 55444

Table I: The separation vectors of all binary optimal LUEP codes of length less than or equal to 15.

Ex. 1010, 37.

n	k	$d(n, k)$	separation vector	n	k	$d(n, k)$	separation vector
11	6	4	A 622222, J 544442, B 533333	14	6	5	A 922222, C 844444, E 764444,
11	7	3	A 5222222, J 4444222, J 4333322				L 666644, J 665552
11	8	2	A 42222222, J 33332222	14	7	4	A 8222222, C 7444444, J 6644442, Q 6544444,
11	9	2	A 322222222				M 5555444
12	2	8	A 11.2, I 10.4, I 96	14	8	4	A 72222222, J 64444422, J 63333332, J 55444422
12	3	6	A 10.22, C 944, E 864, K ₂ 774, K ₁ 766				K ₁ 54444444
12	4	6	A 9222, C 8444, K ₁ 7644	14	9	4	A 622222222, J 544442222, J 533333222
12	5	4	A 82222, C 74444, E 66444, M 55554	14	10	3	A 522222222, J 444422222, J 433332222
12	6	4	A 72222, C 644444, G 554444	14	11	2	A 4222222222, J 3333222222
12	7	4	A 6222222, J 5444422, J 5333332	14	12	2	A 32222222222
12	8	3	A 5222222, J 44442222, J 43333222	15	2	10	A 14.2, I 13.4, I 12.6, I 11.8
12	9	2	A 422222222, J 333322222	15	3	8	A 13.22, C 12.44, K ₁ 11.64, K ₁ 10.84, L 10.66,
12	10	2	A 3222222222				K ₂ 994, K ₁ 988
13	2	8	A 12.2, I 11.4, I 10.6, I 98	15	4	8	A 12.222, C 11.444, L 10.644, K ₁ 9844, K ₁ 9666
13	3	7	A 11.22, C 10.44, K ₁ 964, E 884, L 866	15	5	7	A 11.2222, C 10.4444, K ₁ 96444, L 88444,
13	4	6	A 10.222, C 9444, L 8644, F 7744, K ₁ 7666				L 86666
13	5	5	A 92222, C 84444, K ₁ 76444, L 66664, H 66555	15	6	6	A 10.22222, C 944444, L 864444, K ₂ 774444,
13	6	4	A 822222, C 744444, D 664444, M 555544				J 766662, K ₁ 766644, O 765554
13	7	4	A 7222222, J 6444442, B 6333333, J 5544442, K ₁ 5444444	15	7	5	A 9222222, C 8444444, P 7644444, L 6666444,
13	8	4	A 62222222, J 54444222, J 53333322				J 6655522
13	9	3	A 522222222, J 444422222, J 433332222	15	8	4	A 82222222, J 74444442, B 73333333,
13	10	2	A 4222222222, J 3333222222				J 66444422, J 65444442 L 64444444,
13	11	2	A 32222222222	15	9	4	A 722222222, J 644444222, J 633333322,
14	2	9	A 13.2, I 12.4, I 11.6, I 10.8				J 554444222 K ₁ 544444444
14	3	8	A 12.22, C 11.44, L 10.64, K ₁ 984, K ₁ 966	15	10	4	A 6222222222, J 5444422222, J 5333332222
14	4	7	A 11.222, C 10.444, K ₁ 9644, L 8844, L 8666	15	11	3	A 5222222222, J 4444222222, J 4333322222
14	5	6	A 10.2222, C 94444, L 86444, F 77444, N 76666	15	12	2	A 42222222222, J 33332222222
				15	13	2	A 3222222222222

Table I(continued): The separation vectors of all binary optimal LUEP codes of length less than or equal to 15.

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Ex. 1010, 38–39. For each LUEP code, Table 1 identifies the length of the resulting encoded code word (“ n ”), the length of the input data to be encoded (“ k ”), and the error-correcting capability of the LUEP code. *Id.* at 26, 36; *see* Pet. 23, Prelim. Resp. 19. A LUEP code presented in Table 1 is shown below.

n	k	$d(n, k)$	separation vector
6	4	2	A 3222

Ex. 1010, 37 (sixth code listed in Table 1); Prelim. Resp. 19. In this example, the length of the code word resulting from encoding (n) is 6 and the length of the data word to be encoded (k) is 4.

3. *Petitioner’s Contentions Regarding Independent Claim 3*

Consistent with the disclosure of Padovani described above, Petitioner relies on Padovani’s C/I measurement for the “information that is generated in association with said downlink channel quality and composed of a plurality of digits including an upper digit and an lower digit,” recited in independent claim 3. Pet. 32 (citing Ex. 1009, 9:34–37). Petitioner also indicates that Padovani teaches a C/I measurement in the form of a decimal integer portion and a decimal fraction portion (e.g., 3.5 dB) and uses that example measurement to explain its contentions. Ex. 1009, 23:34–24:2; Pet. 34 (citing Ex. 1009, 23:34–24:2). According to Petitioner, the decimal integer portion (e.g., 3 in 3.5 dB) teaches the recited upper digit and the decimal fraction portion (e.g., 5 in 3.5 dB) teaches the recited lower digit. Pet. 34. Regarding the recited transmitter limitation, Petitioner relies on Padovani’s data request message (DRC message) that includes the C/I measurement, is encoded, and is subsequently transmitted to the base station.

Pet. 39 (citing Ex. 1009, 10:3–9); Pet. 40 (citing Ex. 1009, 45:15–17, Fig. 6a).

Petitioner contends a combination of Padovani and Gils teaches “a coder that encodes the information such that the upper digit is assigned a larger number of bits than the lower digit,” as recited in independent claim 3. Pet. 34–39. Based on antecedent basis of “the information,” the recited information that is encoded is “information that is generated in association with said downlink channel quality and composed of a plurality of digits including an upper digit and a lower digit,” which Petitioner contends is Padovani’s C/I measurement encoded in the DRC message sent from the mobile station to the base station. Pet. 34.

Petitioner recognizes that Padovani does not teach encoding the C/I measurement in the DRC message in the manner required by the claims—“such that the upper digit is assigned a larger number of bits than the lower digit.” Pet. 34–35. Petitioner also acknowledges that Gils does not expressly teach the requisite coding of upper and lower digits. Pet. 35 (contending one of ordinary skill in the art would have encoded Padovani’s C/I measurement in the DRC message with two particular coding schemes set forth among the many alternatives in Gils’ three-page Table 1).

Petitioner, however, contends that one of ordinary skill in the art would have encoded Padovani’s C/I measurement in the DRC message with

two particular coding schemes⁹ set forth in Gils' Table 1 to provide unequal error protection. Pet. 35 (citing Ex. 1017 ¶ 146). Out of the many LUEP codes provided in Table 1, Petitioner contends that one of ordinary skill in the art would have selected the (8,4) coding scheme and the (6,4) coding scheme to apply to Padovani's C/I measurement. Pet. 37–38. Petitioner annotates the two particular coding schemes in the first page of Gils' three-page Table 1, which is reproduced below.

n	k	$d(n, k)$	separation vector
4	2	2	A 32
5	2	3	A 42
5	3	2	A 322
6	2	4	A 52
6	3	3	A 422
6	4	2	A 3222
7	2	4	A 62, I 54
7	3	4	A 522
7	4	3	A 4222
7	5	2	A 32222
8	2	5	A 72, I 64
8	3	4	A 622, C 544
8	4	4	A 5222
8	5	2	A 42222, J 33332
8	6	2	A 322222
9	2	6	A 82, I 74
9	3	4	A 722, C 644, G 554
9	4	4	A 6222, C 5444
9	5	3	A 52222, J 44442, B 43333
9	6	2	A 422222, J 333322
9	7	2	A 3222222
10	2	6	A 92, I 84, I 76
10	3	5	A 822, C 744, L 664
10	4	4	A 7222, C 6444, G 5544
10	5	4	A 62222, C 54444
10	6	3	A 522222, J 444422, J 433332
10	7	2	A 4222222, J 3333222
10	8	2	A 32222222
11	2	7	A 10.2, I 94, I 86
11	3	6	A 922, C 844, K ₁ 764
11	4	5	A 8222, C 7444, E 6644
11	5	4	A 72222, C 64444, G 55444

Table I: The separation vectors of all binary optimal LUEP codes of length less than or equal to 15.

⁹ We use Petitioner's language "coding schemes" for clarity. See, e.g., Pet. 34 ("Gils derives a plurality of LUEP (n,k) coding schemes that when applied to a k-bit (binary) data word, result in n-bit code words."); Pet. 35 ("[I]t would have been obvious to a POSITA to have combined Padovani and Gils such that the DRC encoder of Padovani could be configured to encode the C/I measurement in accordance with one or more of the coding schemes set forth [by] Gils.")).

Pet. 37 (Petitioner's highlighting the (n,k) of two coding schemes with a red rectangle on the first page of Gils' three-page Table 1).

Petitioner further contends that one of ordinary skill in the art would have applied each of the two coding schemes in a particular manner. Pet. 37–38. In particular, Petitioner contends that one of ordinary skill in the art would have selected the (8,4) coding scheme to apply to decimal integer portion (3) of Padovani's C/I measurement (3.5 dB), which would have resulted in an encoded code word having 8-bits. Pet. 37–38. And, according to Petitioner, one of ordinary skill in the art would have selected the (6, 4) coding scheme to apply to the decimal fraction portion (5) of Padovani's C/I measurement (3.5 dB), which would have resulted in an encoded code word having 6-bits. Pet. 38. According to Petitioner, the selection of those two particular coding schemes from the many presented in Gils' Table 1 and applied to the two portions in the manner proposed by Petitioner would result in Padovani's C/I measurement being encoded “such that the upper digit is assigned a larger number of bits than the lower digit,” as recited in independent claim 3, because the resulting 8-bit code word has more bits than the resulting 6-bit code word. Pet. 38. Petitioner contends that one of ordinary skill in the art would have done so because one of ordinary skill in the art “would have known to select the two coding schemes that could be used to derive code words for a 4-bit data word.” Pet. 38 (citing Ex. 1017 ¶ 152).

4. Analysis

As explained above, Petitioner relies on a combination of Padovani and Gils for teaching the recited “a coder that encodes the [quality]

information such that the upper digit is assigned a larger number of bits than the lower digit.” Pet. 34–39. Petitioner acknowledges, expressly or by its arguments, that neither Padovani nor Gils teaches encoding information composed of an upper digit and a lower digit “such that the upper digit is assigned a larger number of bits than the lower digit.” Pet. 34–39. Rather, Petitioner contends that one of ordinary skill in the art would have applied two particular coding schemes listed in Gils’ Table 1 in a particular manner to Padovani’s C/I example measurement of 3.5 dB, which would have resulted in Padovani’s C/I measurement of being encoded such that “the upper digit is assigned a larger number of bits than the lower digit,” as required by independent claim 3. Petitioner, however, has not adequately explained a reason one of ordinary skill in the art would have done so for the following reasons.

*a. Gils Does Not Teach or Suggest Using Together the
Two Coding Schemes Selected from Table 1*

Petitioner does not identify any passage or combination of passages in Gils that teaches or suggests using two coding schemes together from Gils’ Table 1 to encode information, much less using the two particular coding schemes identified by Petitioner and applied in the particular manner required by the claims—using a LUEP coding scheme that results in a higher number of bits for the decimal integer portion of Padovani’s C/I measurement and a different LUEP coding scheme that results in a lower number of bits for the decimal fraction portion of Padovani’s C/I measurement. Rather, Petitioner relies on a general statement from Gils about one problem in the design of error-control coding schemes.

[One problem is] the transmission and storage of messages in which different parts are of mutually different importance. So it is natural to give parts of mutually different importance different protections against errors. This can be done by using different coding schemes for the different parts, *but more elegantly by using a single so-called Unequal Error Protection coding scheme.*

Ex. 1010, 6 (emphasis added); Pet. 39 (citing Ex. 1010, 6; Ex. 1012, 600 (repeating statements in Ex. 1010)). From this passage, Petitioner contends that one of ordinary skill in the art would have used together two LUEP coding schemes from Table 1. Pet. 38–39. This passage, however, does not teach or suggest selecting two of the unequal error protection (LUEP) coding schemes, such as those in Table 1, to be applied to information to be encoded. Rather, a plain reading of this passage indicates that generally different error protection coding schemes *could* be used for different parts of a message but that one LUEP code accomplishes the same purpose. This passage of Gils does not teach using two *LUEP* codes for different parts of a message. Rather, this passage teaches that using a single unequal error protection code scheme (like the LUEP coding schemes shown in Gils’ Table 1) is preferred to using different coding schemes for different parts of information. Ex. 1010, 6. This understanding of Gils’ passage is supported further by testimony of Dr. Nettleton, Patent Owner’s declarant:

By describing a single LUEP coding scheme as “more elegant[,],” Gils directs [one of ordinary skill in the art] to use a *single* LUEP code and *not* to employ different coding schemes from Table 1 for different portions of a single data word.

Ex 2003, ¶ 30.

We recognize that, based on this passage in Gils’ (Ex. 1010, 6), Petitioner’s declarant, Dr. Min, testifies that one of ordinary skill in the art

“would have known to encode different portions of data to be encoded in accordance with coding schemes that result in different code word minimum distances.” Ex. 1017 ¶ 153; *see* Pet. 38–39 (citing Ex. 1017 ¶ 153).

Dr. Min’s general statement, however, does not address adequately why one of ordinary skill in the art would have used together two unequal error protection schemes from Gils’ Table 1. Moreover, Dr. Min also testified that “a single UEP coding scheme could also be used depending upon how [one of ordinary skill in the art] would have wanted to implement unequal error protection.” Ex. 1017 ¶ 153; *see* Pet. 39 (citing Ex. 1017 ¶ 153). As such, Dr. Min acknowledges that a single unequal error protection coding scheme could be used as well as applying different coding schemes to different parts of a message. Here, Dr. Min’s testimony that a single unequal error protection coding scheme could be used further undermines Petitioner’s position that one of ordinary skill in the art would have used two unequal error protection coding schemes identified in Gils’ Table 1.¹⁰

We also note that Dr. Min cites a two-column page of an IEEE paper (Exhibit 1012) without particularity or explaining the relevance of that citation to his declaration testimony. Ex. 1017 ¶ 153 (citing Ex. 1012, 600). Because Dr. Min has not provided an explanation regarding the relevance of

¹⁰ We also note in passing that Dr. Min cites a two-column page of an IEEE paper (Exhibit 1012) without particularity or explaining the relevance of that citation to his declaration testimony. Ex. 1017 ¶ 153 (citing Ex. 1012, 600). Because Dr. Min has not provided an explanation regarding the relevance of the cited portion, we accord little weight to Dr. Min’s citation to Exhibit 1012.

the cited portion, we accord little weight to Dr. Min’s citation to Exhibit 1012.

Similarly, Gils’ description of a particular application in which some parts of a message are more important than others—“in transmitting numerical data, errors in the sign or high-order digits are more serious than are serious in the low-order digits”—does not teach or suggest applying two LUEP coding schemes (as shown in Gils’ Table 1) to numerical data. Ex. 1010, 18; Pet. 27 (citing Ex. 1010, 18¹¹). Rather, Gils’ passage unambiguously describes an application that could benefit from the use of an LUEP code, as made clear by the context of Gils’ statement:

However, many applications exist in which some message positions are more important than others. For example, in transmitting numerical data, errors in the sign or high-order digits are more serious than are serious in the low-order digits. . . . Linear codes that protect some positions in a message word against a larger number of errors than other ones are called *Linear Unequal Error Protection (LUEP) codes*.

Ex. 1010, 18. This passage, although identifying a more specific problem addressed by an LUEP, does not teach or suggest applying two LUEP coding schemes to numerical data. Moreover, although this passage teaches protecting an upper digit more than a lower digit, Gils does not teach or suggest doing so in the manner required by the claims—by encoding numerical data “such that the upper digit is assigned a larger number of bits than the lower digit.” To do so, as Petitioner explains, requires two of Gils’ LUEP coding schemes to be used together and applied in the particular manner asserted by the Petitioner. *See* Pet. 37–39.

¹¹ Petitioner cites to the original page numbers in Gils.

Petitioner also relies on other statements from Dr. Min regarding what one of ordinary skill in the art would have understood from Gils' disclosure. *See* Pet. 35 (citing Ex. 1017 ¶ 146); Pet. 38 (citing Ex. 1017 ¶ 152). Dr. Mins' testimony does not adequately explain why one of ordinary skill in the art would have applied two LUEP coding schemes from Table 1, much less in the manner proposed by Petitioner for Padovani's C/I measurements. For example, Dr. Min testifies:

As described above, it would have been obvious to a POSITA to have combined Padovani and Gils such that the DRC encoder of Padovani could be configured to encode the C/I measurement in accordance with *one or more of the coding schemes* set forth in Gils, which are directed to providing unequal error protection for portions of a data word. Moreover, although *Gils seeks to provide unequal error protection for one or more portions of a data message*, different coding schemes provided by Gils also result in code words that have different lengths (i.e., n-bit code words where n can vary). A POSITA would have readily understood that greater error protection (vis-a-via longer code word length) should or could have been provided to a digit the greater the significance a digit has.

Ex. 1017 ¶ 146 (emphasis added); Pet. 35 (citing Ex. 1017 ¶ 146). Dr. Min's testimony here concerns "*one or more of the coding schemes*" but Petitioner's position requires *two* coding schemes to encode the C/I measurement. Ex. 1017 ¶ 146. Dr. Min acknowledges, too, that "Gils seeks to provide unequal error protection to *one or more* portions of a data message." 1017 ¶ 146. For these reasons, Dr. Min's testimony does not support Petitioner's contentions that require using two particular LUEP coding schemes to Padovani's C/I measurement. Furthermore, Dr. Min's testimony here is conclusory, and for that reason, we give little weight to it. 37 C.F.R. § 42.65(a) ("Expert testimony that does not disclose the

underlying facts or data on which the opinion is based is entitled to little or no weight.”); *In re Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1368 (Fed. Cir. 2004) (“[T]he Board is entitled to weigh the declarations and conclude that the lack of factual corroboration warrants discounting the opinions expressed in the declarations.”).

Dr. Min also testified that one of ordinary skill in the art “would have known to select the two coding schemes that could be used to derive code words for a 4-bit data word.” Ex. 1017 ¶ 152; *see* Pet. 38 (citing Ex. 1017 ¶ 152). Dr. Min, however, does not explain a reason for selecting two coding schemes. Moreover, Dr. Min’s testimony does not address adequately why these two coding schemes would have been selected from the large number of coding schemes listed in three-page Table 1, or why these particular two LUEP coding schemes for 4-bit words were selected from Gils’ other coding schemes listed in Table 1 for 4-bit data words (k): (7,4), (9,4), (10,4), (11,4), (12, 4), (13,4), (14,4), and (15,4). Ex. 1010, 37–39. That one of ordinary skill in the art “could” use two coding schemes from the large number of coding schemes found in Gils’ Table 1 does not persuade us that one of ordinary skill in the art would have combined Padovani and Gils in the manner claimed—by applying two specific LUEP coding schemes from the many listed in Gils’ Table 1 such that Padovani’s encoder would encode the C/I measurement information as required by independent claim 3—“such that the upper digit is assigned a larger number of bits than the lower digit.”

Our conclusion that Gils does not teach or suggest using two LUEP coding schemes together as Petitioner contends is supported further by Dr. Nettleton’s declaration testimony that “Gils never describes using any of

the LUEP codes it derives as being used in combination with one another.” Ex. 2003 ¶ 30; Prelim. Resp. 29–35 (citing Ex. 2003). Dr. Nettleton’s testimony relies on, and is consistent with, Gils’ express statement that “a single so-called Unequal Error Protection coding scheme” is more elegant than using multiple different coding schemes for different parts of a message (Ex. 1010, 6).

b. Conclusion

In sum, for the reasons set forth above, we determine that Gils teaches using LUEP coding schemes individually and does not teach or suggest using two LUEP coding schemes from Table 1 to encode different digits in numerical data, as Petitioner contends. Petitioner does not contend that applying one LUEP coding scheme from Gils’ Table 1 would encode Padovani’s C/I measure in the manner required by the claims—“such that the upper digit is assigned a larger number of bits than the lower digit.” Furthermore, we also determine that Petitioner fails to adequately explain why one of ordinary skill in the art would have selected the two particular coding schemes and encoded Padovani’s C/I measurement as required by the claims—“such that the upper digit is assigned a larger number of bits than the lower digit.” Although Petitioner is able to pick two LUEP coding schemes from Gils’ three-page Table 1 and apply each LUEP coding scheme to Padovani’s C/I measurement in the manner required by independent claim 3, Petitioner’s contentions reflect impermissible hindsight reconstruction.

Accordingly, we conclude that the information presented in the Petition does not show a reasonable likelihood that Petitioner would prevail with respect to independent claim 3.

5. *Other Challenged Claims*

Independent claim 7 recites a coding and transmission method in which each communication terminal apparatus “encodes information that is used for the assignment of the downlink channel and composed of a plurality of digits including an upper digit and a lower digit such that the upper digit is assigned a larger number of bits than the lower digit.” For this limitation, Petitioner contends for the reasons discussed above “it would have been obvious to [one of ordinary skill in the art] to have combined Padovani and Gils such that the encoder of Padovani could be configured to encode the C/I measurement in accordance *with one or more coding schemes* set forth [in] Gils [and] directed to providing unequal error protection for portions of a data word.” Pet. 55 (citing Ex. 1017 ¶ 197); *compare* Pet. 34–39, *with* Pet. 55–59). Thus, Petitioner relies on Gils and Padovani in the same manner in asserting the subject matter of independent claim 7 would have been obvious over Padovani, Gils, and Olofsson. *See, e.g.*, Pet. 63–65. For the reasons discussed above with respect to independent claim 3, we determine that the information presented in the Petition does not show a reasonable likelihood that Petitioner would prevail with respect to independent claim 7.

Claim 4 depends from independent claim 3, and claim 8 depends from independent claim 7. Accordingly, each challenged dependent claim requires encoding quality information “such that the upper digit is assigned a larger number of bits than the lower digit.” We determine that the information presented in the Petition does not show a reasonable likelihood that Petitioner would prevail with respect to claims 4 and 8 for the reasons discussed previously with respect to independent claims 3 and 7.

6. Conclusion

As discussed above, we conclude that the information presented in the Petition does not show a reasonable likelihood that Petitioner would prevail with respect to claims 3, 4, 7, and 8. Accordingly, we deny institution of an *inter partes* review. 35 U.S.C. § 314(a).

Because we have determined that the information in the Petition does not meet the threshold for instituting an *inter partes* review, we need not determine whether Petitioner demonstrated sufficiently for institution that Gils is prior art to the challenged claims. *See* Prelim. Resp. 24–26; Petitioner’s Reply 2–4; Patent Owner’s Sur-Reply 1–3.

E. Petitioner’s Motion to Correct

After receiving authorization (Paper 8), Petitioner filed a Motion (Paper 9) to correct clerical or typographical errors in the Petition under 37 C.F.R. § 42.104(c), to which Patent Owner filed an Opposition (Paper 11). Because we deny institution of an *inter partes* review, Petitioner’s Motion is moot. Accordingly, we deny the Motion.

III. ORDER

For the reasons given, it is

ORDERED that the Petition is denied as to all challenged claims, and no trial is instituted; and

FURTHER ORDERED that Petitioner’s Motion (Paper 9) is denied as moot.

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