

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMMSCOPE TECHNOLOGIES LLC,
Petitioner,

v.

BELDEN INC.,
Patent Owner.

IPR2023-01062
Patent 6,570,095 B2

Before KRISTINA M. KALAN, KIMBERLY McGRAW, and
SHARON FENICK, *Administrative Patent Judges*.

McGRAW, *Administrative Patent Judge*.

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

I. INTRODUCTION

CommScope Technologies LLC (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 27–33 of U.S. Patent No. 6,570,095 B2 (Ex. 1001, “the ’095 patent”). Belden, Inc. (“Patent Owner”) filed a Preliminary Response to the Petition (Paper 6, “Prelim. Resp.”). Petitioner then filed an authorized “Paper Identifying Inconsistencies” (Paper 7), in response to which Patent Owner filed an authorized Sur-reply (Paper 9).

To institute an *inter partes* review, we must determine that the information presented in the Petition shows “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). For the reasons discussed below, after considering the parties’ submissions and the evidence of record, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing with respect to at least one claim of the ’095 patent. Thus, we institute an *inter partes* review of all challenged claims of the ’095 patent on all grounds asserted in the Petition. *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) (stating that a decision to institute is “a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition”).

A. Related Proceedings

The parties identify *Belden, Inc. v. CommScope, Inc.*, Case No. 1:22-cv-00783-RGA (D. Del.), and Patent Owner additionally identifies *Belden Techs., Inc. v. Superior Essex Inc.*, Case No. 1:08-cv-00063-SLR (D. Del.), as related matters. Pet. 82; Paper 4 § II. The parties also identify three terminated Reexaminations of three patents. Pet. 82; Paper 4 § II. Patent Owner identifies IPR2023-01061 as a related matter. Paper 4 § II.

B. Real Parties-In-Interest

The parties identify themselves as the real parties-in-interest. Pet. 82; Paper 4 § I. Petitioner additionally identifies CommScope, Inc. of North Carolina, CommScope, Inc., and CommScope Holding Company as real parties-in-interest. Pet. 82.

The '095 Patent

The '095 patent, titled “Multi-Pair Data Cable with Configurable Core Filling and Pair Separation,” relates to “high speed data communications cables having a light-weight, configurable core-refilling isolation pair separator that provides geometrical separation between the twisted pairs of insulated conductors.” Ex. 1001, code (54), 1:17–20. The '095 patent describes a cable that “includes a plurality of twisted pairs of insulated conductors, and a dielectric pair separator formed with a plurality of folds, to provide a plurality of grooves extending along a longitudinal length of the dielectric filler.” *Id.*, Abstract. Figure 4 of the '095 patent is reproduced below.

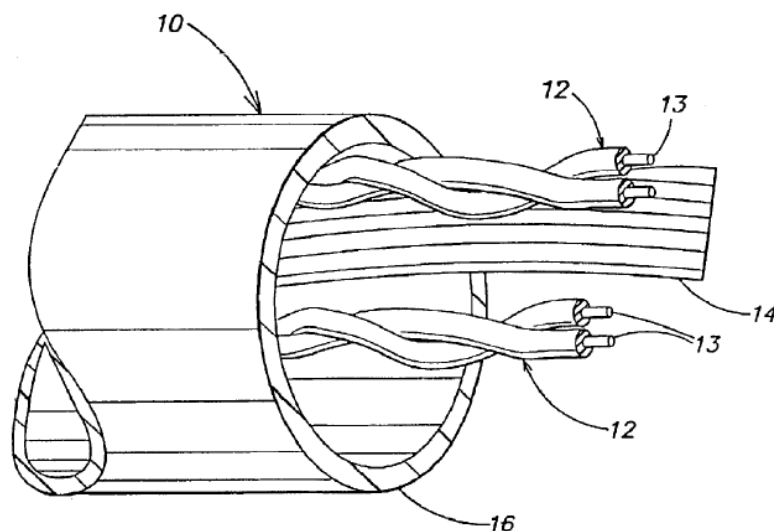


Figure 4 is a perspective view of data communications cable 10, showing twisted pairs 12 of insulated conductors 13, twisted pairs 12 separated by low dielectric constant, low dissipation factor, polymer pair separator 14, all encased within jacket assembly 16. *Id.* at 4:59–65. “The configurable pair separator 14 runs along a longitudinal length of the cable, and is configured such that the twisted pairs are disposed within channels or grooves 15 of the pair separator along the length of the cable.” *Id.* at 5:2–5. According to the ’095 patent, “the pair separator improves the crosstalk isolation between the twisted pairs by providing desired spacing between the twisted pairs.” *Id.* at 5:11–14. “[T]he configurable pair separator is preferably a flame-retardant, low-dielectric constant, low-dissipation factor, foamed polymer tape, such as, for example, a foamed flame retardant, cellular polyolefin or fluoropolymer like NEPTC PP500 ‘SuperBulk’, a foamed fluorinated ethylene propylene (FEP) or a foamed polyvinyl chloride (PVC).” *Id.* at 5:24–30.

Figure 5, reproduced below, is a cross-sectional view of the cable of Figure 4.

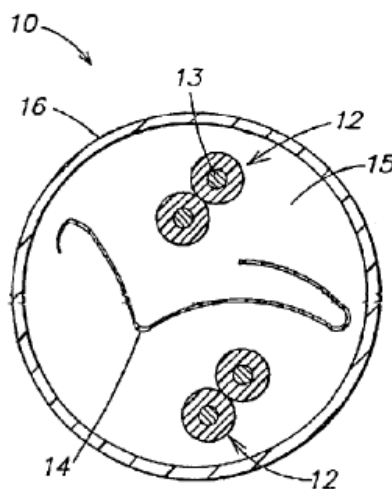


Figure 5 shows the same elements of cable 10 as in Figure 4, but from a cross-sectional perspective, including twisted pairs 12, conductors 13, separator 14, and jacket 16, as well as “grooves 15.” *Id.* at 4:59–5:5.

C. Illustrative Claim

Of the challenged claims, only claims 27 and 31 are independent. Claims 27 and 31 are similar to each other, except that claim 27 requires the pair separator to be arranged within the cable jacket to form at least two grooves, while claim 31 requires the pair separator to include a substantially flat dielectric tape formed of a foamed polymer. Claim 27 is reproduced below.

27. [27.pre] A data communications cable comprising:

[27.a] a first twisted pair of insulated conductors,

a second twisted pair of insulated conductors,

[27.b] a configurable dielectric pair separator that separates the first and second twisted pairs of conductors, the configurable dielectric pair separator being substantially flat;

[27.c] a jacket enclosing the first and second twisted pairs of insulated conductors and the dielectric pair separator; and

[27.d] wherein the configurable dielectric pair separator, the first twisted pair of insulated conductors and the second twisted pair of insulated conductors are twisted about a common central axis to form a twisted pair cable, and

[27.e] wherein the configurable dielectric pair separator is arranged within the jacket to form at least two grooves.

Ex. 1004, 12:8–24 (bracketed designations added by Petitioner).

D. The Asserted Grounds of Unpatentability

Petitioner contends claims 27–33 of the '095 patent are unpatentable on the following grounds. Pet. 2–3.

Ground	Reference(s)	35 U.S.C. § ¹	Claims Challenged
1	Roberts ²	102(a), (b)	27–29
2	Roberts, Jachimowicz, ³ Gingue ⁴	103(a)	30–33
3	GmbH-866 ⁵	102(a), (b)	27–29
4	GmbH-866, Jachimowicz, Gingue	103(a)	30–33
5	Roberts, GmbH-866, Jachimowicz, Gingue	103(a)	27–33
6	GmbH-866, Roberts, Jachimowicz, Gingue	103(a)	27–33
7	Yanagita ⁶	102(a), (b)	27–29

¹ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. §§ 102 and 103. Because the ’095 patent has an effective filing date before the effective date of the applicable AIA amendments, we refer to the pre-AIA versions of §§ 102 and 103.

² Roberts, et al., US Patent No. 3,622,683 (issued Nov. 23, 1971) (Ex. 1009, “Roberts”).

³ Jachimowicz, et al., US Patent No. 3,894,172 (issued July 8, 1975) (Ex. 1014, “Jachimowicz”).

⁴ Gingue et al., US Patent No. 5,670,748 (issued Sept. 23, 1997) (Ex. 1013, “Gingue”).

⁵ NK Networks GmbH, German Patent No. DE 29719866 U1 (original in Ex. 1011) (published Feb. 5, 1998) (Ex. 1010, “GmbH-866”).

⁶ Yanagita, certified translation of Japanese Patent Application Pub. No. S43-15470 (original in Ex. 1056) (published June 28, 1968) (Ex. 1012, “Yanagita”). Petitioner also provides an uncertified English translation (Ex. 1055) that was before the Office during the reexamination of the ’057 patent. Unless indicated otherwise, all citations to “Yanagita” are to the certified English translation (Ex. 1012).

Ground	Reference(s)	35 U.S.C. § ¹	Claims Challenged
8	Yanagita, Jachimowicz, Gingue	103(a)	30–33

In support of its unpatentability arguments, Petitioner relies on the declaration of Kenneth Cornelison (Ex. 1007). Patent Owner relies on the declaration of Dr. Charles A. Eldering (Ex. 2001).

II. ANALYSIS

A. Principles of Law

“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”)). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

Anticipation “requires that every element and limitation of the claim was previously described in a single prior art reference, either expressly or inherently, so as to place a person of ordinary skill in possession of the invention.” *Sanofi-Synthelabo v. Apotex, Inc.*, 550 F.3d 1075, 1082 (Fed. Cir. 2008). Anticipation also requires that a reference discloses “all of the limitations arranged or combined in the same way as recited in the claim.” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008).

A claim is unpatentable as obvious under § 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. *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) when in evidence, objective indicia of non-obviousness (i.e., secondary considerations).⁷ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). “To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

We analyze the asserted grounds of unpatentability in accordance with these principles to determine whether Petitioner has met their burden to establish a reasonable likelihood of success at trial.

B. Level of Ordinary Skill in the Art

We consider the grounds of unpatentability in view of the understanding of a person of ordinary skill in the art (sometimes abbreviated herein as “POSITA”). *Graham*, 383 U.S. at 17–18. Petitioner argues that a “person of ordinary skill in the art of the ’095 patent would have had a bachelor’s degree in electrical engineering and a minimum of 3–4 years of

⁷ At this stage of the proceeding, Patent Owner has not offered any evidence of secondary considerations. *See generally* Prelim. Resp.

industry experience in connection with designing, manufacturing, and testing of twisted-pair data cables.” Pet. 11 (citing Ex. 1007 ¶ 13). Petitioner also argues an “individual with a master’s degree in electrical engineering would require less industry experience (e.g., 1–2 years).” *Id.* (citing Ex. 1007 ¶ 13). Patent Owner does not dispute this proposed definition. *See generally* Prelim. Resp.

For the purposes of this Decision, we adopt Petitioner’s proposal, because we find Petitioner’s statement of the level of ordinary skill in the art adequate and supported on this record. The level of ordinary skill in the art also appears to be reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

C. Claim Construction

We interpret a 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).” 37 C.F.R. § 42.100(b). Under this standard, we construe 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.” *Id.*

“[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention” and “after reading the entire patent” and its prosecution history. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313, 1321 (Fed. Cir. 2005) (en banc). A claim term, however, may not receive its plain and ordinary meaning if the patentee acted as his own lexicographer and clearly set forth a definition of disputed term in either the specification or the prosecution history. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002). Only terms that are in controversy need to be

construed, and then only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

Petitioner proposes express constructions for “data communications cable,” “dielectric pair separator,” “substantially flat,” “configurable,” and “grooves.” Pet. 12–18. Patent Owner proposes an express construction of “twisted pairs” of insulated conductors. Prelim. Resp. 10–17. As explained below, on the present record, we provide a preliminary construction of the “dielectric pair separator,” “substantially flat,” “configurable,” “grooves,” and “twisted pairs” and determine that we need not expressly construe any other claim term at this stage of the proceeding. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)) (holding that only claim terms in controversy need to be construed, and only to the extent necessary to resolve the controversy).

1. *Preamble*

The preambles of claims 27 and 31 recite a “data communications cable comprising.” Petitioner asserts that the preambles merely states an intended purpose and are not limiting. Pet. 12. We determine that no construction of this term is required at this stage of the proceedings to resolve any issues in dispute.

2. *“dielectric pair separator”*

Petitioner asserts that the ordinary and customary meaning of a “dielectric pair separator” in view of the intrinsic record is a separator that serves as a dielectric medium and that the term does not require that the separator consist *entirely* of dielectric material. Pet. 12 (citing Ex. 1007 ¶ 74; Ex. 1001, claim 24 (requiring that the dielectric pair separator have

both a dielectric layer and a conductive layer)). For the purposes of this Decision, we adopt Petitioner’s uncontested proposed construction of this term, namely that a dielectric pair separator is “a separator that serves as a dielectric medium” and there is no requirement that the separator consist entirely of dielectric material.

3. “*substantially flat*”

Claim 27 recites “the configurable dielectric pair separator being substantially flat.” Claim 31 requires that the “configurable dielectric pair separator include[e] a substantially flat dielectric tape.” Petitioner asserts that the ordinary and customary meaning of a substantially flat separator is a separator that is a substantially flat member prior to being formed into the cable assembly and that the term does not require that the separator be substantially flat in the finished cable. Pet. 13 (citing Ex. 1007 ¶ 76; Ex. 1001, 6:12–25). Petitioner asserts that this construction is consistent with the specification and the construction adopted by the Patent Office during reexamination of the related Patent No. 6,998,537 (“the ’537 patent”) and by the district court. Pet. 13–15 (citing Ex. 1001, 6:12–2, Figs. 5–11, 13; Ex. 1006, 10–11; Ex. 1007 ¶¶ 77–80; Ex. 1052, 3–4). Patent Owner does not dispute this construction. *See generally* Prelim. Resp. For the purposes of this Decision, we adopt Petitioner’s uncontested proposed construction of this term, namely, a separator that is a substantially flat member prior to being formed into the cable assembly, and that the term does not require that the separator be substantially flat in the finished cable.

4. “*configurable*”

Independent claims 27 and 31 both recite a “configurable dielectric pair separator.” Petitioner asserts that the ordinary and customary meaning of a “configurable” separator in view of the intrinsic record is “flexible

enough to be formed or shaped in the course of making the cable.” Pet. 16 (citing Ex. 1007 ¶ 81). Petitioner further asserts that this construction is consistent with the construction adopted by the district court. *Id.* (citing Ex. 1052, 1–2 Ex. 1007 ¶¶ 81– 84). Patent Owner does not dispute this construction. *See generally* Prelim. Resp. For the purposes of this Decision, we adopt Petitioner’s proposed construction of this term, namely, that “configurable” means “flexible enough to be formed or shaped in the course of making the cable.”

5. “grooves”

Petitioner states that, for the purposes of this proceeding, Petitioner adopts the definition provided by the district court in prior litigation: “Regions within a cable that are substantially physically separated from other regions with[in] the cable by a pair separator; i.e., they are formed by, but need not be part of, the separator.” Pet. 18 (citing Ex. 1052, 3). Patent Owner does not dispute this construction. *See generally* Prelim. Resp. For the purposes of this Decision, we adopt Petitioner’s proposed construction of this term, namely, that grooves are regions within a cable that are substantially physically separated from other regions within the cable by a pair separator.

6. “twisted pair”

Independent claims 27 and 32 both recite a “plurality of twisted pairs of insulated conductors.” Petitioner does not provide an express definition of “twisted pair.” Patent Owner asserts that the plain and ordinary meaning of the claimed “twisted pair[s]” that are separated by a dielectric pair separator is “two insulated conductors twisted together” as shown in Figure 4 of the ’095 patent. Prelim. Resp. 16 (citing Ex. 2001 ¶ 45). Patent Owner also further asserts that “Petitioner’s failure to recognize and address the

express construction, coupled with Petitioner’s failure to otherwise sufficiently address the meaning of the term, is insufficient to satisfy the requirements of 37 C.F.R. § 42.104(b)(3),” requiring that the Board deny institution. Prelim. Resp. 16–17.

Patent Owner also asserts that it reserves the right to argue that “twisted pairs” should be construed more narrowly as defined in the specification of the ’095 patent as further requiring a balanced transmission line. Prelim. Resp. 15 n.4 (citing Ex. 1001, 1:23–26); *see also* Ex. 1001, 1:23–26 (stating that “[h]igh-speed data communications media in current usage include pairs of insulated conductors twisted together to form a balanced transmission line. Such pairs of insulated conductors are referred to herein as ‘twisted pairs.’”).

For the purposes of this decision, based on the present record, we construe the term “twisted pair of insulated conductors” as a pair of insulated conductors that are twisted together. The parties may propose and support constructions of this term during trial, including whether the twisted pairs must form a “balanced transmission line” and the meaning of a balanced transmission line.

D. Asserted Anticipation of Claims 27–29 by Roberts (Ground 1)

Petitioner argues that claim 27–29 would have been anticipated by Roberts. Pet. 18–31.

1. Roberts (Ex. 1009)

Roberts is a U.S. patent titled “Telephone Cable with Improved Crosstalk Properties.” Ex. 1009, code (54). The telephone cable includes a plurality of insulated electrical conductors (pairs), divided into at least two portions by plastic-coated metal foil or tape to prevent unwanted energy

transfer. *Id.* at Abstract. Figure 13, reproduced below, shows a cross-sectional view of one cable embodiment.

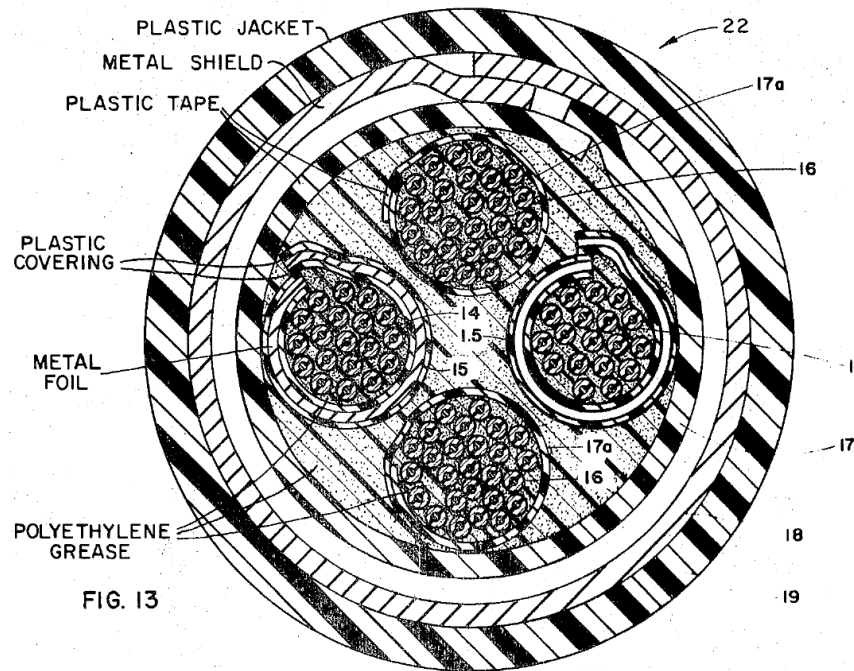


Figure 13 is a cross-sectional view of a cable structuring showing four groups of insulated conductors 14, 16, shield 15, and tape 17a. *Id.* at 2:54-59, 7:26-46. Shield 15 is a metal foil tape coated on both sides with a plastic. *Id.* at 7:32-41. Plastic tape 17a “can be made up of the conventional polyethylene terephthalate (Mylar).” *Id.* at 7:42-46.

2. Claim 27

a) Petitioner’s Arguments

Petitioner asserts Roberts’s multiconductor cable used in communications systems is a “data communication cable” as recited in the preamble. Pet. 20 (citing Ex. 1007 ¶¶ 108-112; Ex. 1009, Abstract, 1:1-21, 13:10-29, 1:20-29). Petitioner also asserts Roberts teaches the first and second twisted pair of insulated conductors recited in claim element 27[a]. In particular, Petitioner asserts that Roberts recites a “plurality of insulated electrical conductors (*pairs*) . . . By dividing electrical conductor telephone

pairs . . . with plastic-coated metal foil, the crosstalk properties are so vastly improved.” Pet. 21 (quoting Ex. 1009, Abstract (emphasis added by Petitioner); citing Ex. 1009, 3:21–31 (discussing dividing a disturbing circuit from a disturbed circuit), 12:6–8, 12:12–14; Ex. 1007 ¶¶ 113–114).

Petitioner also asserts that Roberts explains that the cable manufacturing process uses die 30a shown at Figure 23 that has “holes (33) through which *twisted* electrical conductors (14) and (16) pass.” Pet. 21–22 (citing Ex. 1009, 12:5–14, Figs. 17, 23; Ex. 1007 ¶¶ 93, 116; Ex. 1016, 9).

Petitioner states that a POSITA would have understood that these teachings of Roberts indicate twisted pairs of insulated conductors. Pet. 22 (citing Ex. 1007 ¶¶ 33–35, 89–90, 116–119). Petitioner asserts that in the communications cable field, unless specified otherwise, a reference to “pairs” in this context was understood as a reference to twisted pairs. Pet. 22 (citing Ex. 1007 ¶¶ 33–35, 89–90, 118). Petitioner further asserts that using twisted pairs was the conventional practice for data communication cables using pairs of copper conductors. Pet. 22 (citing Ex. 1007 ¶¶ 89–90, 118; Ex. 1019, 1:10–15; Ex. 1016, 7; Ex. 1029, 23, 25, 33, Fig. 55; Ex. 1017, 11).

Petitioner also contends that Roberts’s shield is a substantially flat configurable dielectric pair separator as recited in claim element 27[b] (Pet. 23–26) and that Roberts’s plastic jacket/plastic sheath 19 is the jacket that encloses the first and second twisted pairs and the dielectric pair separator as recited in claim element 27[c] (Pet. 26 (citing Ex. 1009, 12:33–36, Fig. 17; Ex. 1007 ¶¶ 127–128). Petitioner further asserts that Roberts’s shield 15 is twisted about a common central axis as required by claim element 27[d]. Pet. 27–28 (citing Ex. 1009, Fig. 17, 11:75–12:29; Ex. 1007 ¶¶ 93–94, 129–30). Petitioner also asserts that Roberts’s shield 15 is

arranged within the plastic jacket to form at least two grooves as required by claim element 27[e]. Pet. 28 (citing Ex. 1007 ¶¶ 131–132; Ex. 1009, Fig. 17, 10:55–57, 12:22–26). Roberts Figure 17 is shown below with Petitioner’s annotations added.

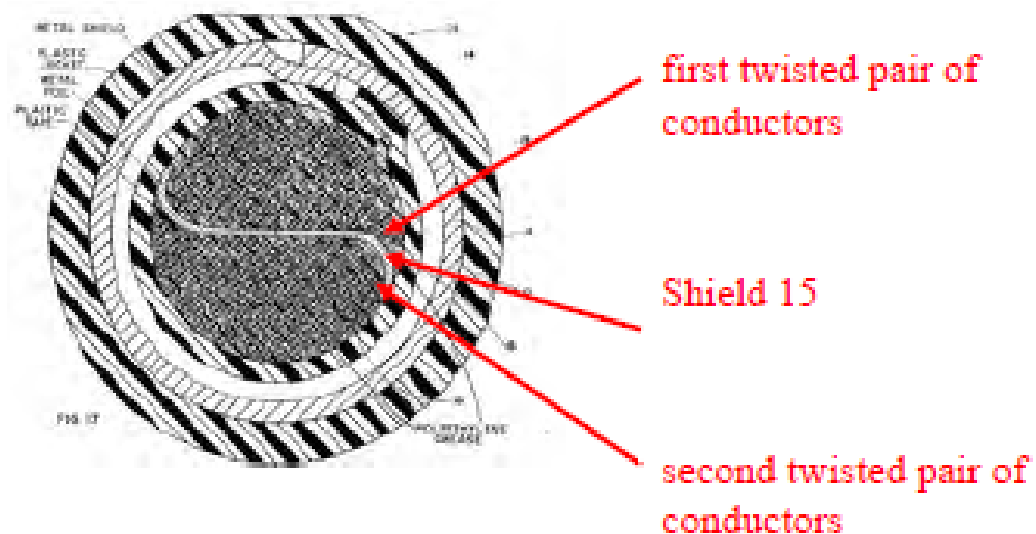


Figure 17 is a cross-sectional view of a cable structure with Petitioner’s annotations of shield 15 and the first and second twisted pairs of conductors added. Pet. 23.

b) Patent Owner’s Arguments

Patent Owner does not dispute most of Petitioner’s assertions, but does argue that Roberts does not teach the first or second twisted pair of insulated conductors required by claim 27. Prelim. Resp. 20–32. Patent Owner asserts that Roberts Figures 1–3 clearly depict individual straight-line wires in bundles 14, 16, not twisted pairs, and that Roberts’s metallic shield separates a **bundle** (i.e., more than a pair) of straight-line, non-twisted transmitting wires (14) from a **bundle** of straight-line, non-twisted receiving wires (16). *Id.* at 21. Patent Owner further asserts that Roberts’s purpose was to separate a non-twisted bundle of *transmit* wires from a non-twisted

bundle of *receive* wires, not to separate a first twisted transmit and receive wire pair from a second twisted transmit and receive wire pair. Prelim. Resp. 26–27 (citing Ex. 2001 ¶ 52). Patent Owner further asserts that Roberts’s manufacturing process twists *all* of the cable’s components together and does not twist two insulated conductors together to provide twisted pairs, as asserted by Petitioner. Prelim. Resp. 29–31.

c) Analysis

We have reviewed Petitioner’s arguments and evidence and determine that Petitioner shows a reasonable likelihood that claim 27 is anticipated by Roberts, notwithstanding Patent Owner’s arguments to the contrary. Petitioner provides sufficient argument and evidence that Roberts discloses a first and second twisted pair of insulated conductors. First, Roberts states that a “plurality of insulated electrical conductors (pairs) of an otherwise conventional cable design are divided into at least two portions by a plastic-coated meal foil strip or tape.” Ex. 1009, Abstract. Roberts also states that Figure 23 has “holes 33 through which tested electrical conductors (14) and (16) pass.” Ex. 1009, 12:5–14. Furthermore, Petitioner asserts that a POSITA would have understood these teachings to indicate twisted pairs of insulated conductors because the reference to “pairs” was understood as a reference to twisted pairs and that using twisted pairs was the conventional practice for data communication cables using pairs of copper conductors. Pet. 22 (citing Ex. 1007 ¶¶ 33–35, 89–90, 116–119; Ex. 1016, 7; Ex. 1019, 1:10–15; Ex. 1029, 23, 25, 33, Fig. 55.1; Ex. 1017, 11).

Patent Owner’s arguments are not sufficient at this stage of the proceeding to demonstrate that the Petition is deficient. Whether a POSITA would have understood Roberts’s teachings to refer to pairs untwisted conductors with each half of the pair on opposite sides of the

shield/separator (as argued by Patent Owner) or to refer to first and second twisted pairs of insulated conductors separated by the shield/separator (as argued by Petitioner) is an issue best resolved on a full record. We also note that Patent Owner's argument Roberts does not teach "twisted pairs" because all of Roberts's transmitting lines are on separate sides of the shield/separator from the receiving lines appears to be based on a claim construction requiring each twisted pairs to form a "balanced transmission line." This implicit construction is one that Patent Owner has not yet proposed and which has not been briefed by the parties. *See* Prelim. Resp. 15 n.4 (reserving the right to argue twisted pairs further requires a balanced transmission line).

Accordingly, at this stage of the proceeding, Petitioner has established a reasonable likelihood of prevailing on its assertions that claim 27 is anticipated by Roberts.

Furthermore, because we determine that Petitioner has shown a reasonable likelihood of prevailing at trial in demonstrating that at least one claim is unpatentable on at least one of the stated Grounds, we institute *inter partes* review of all challenged claims of the '095 patent based on the remaining grounds identified in the Petition. *See SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018); *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) (interpreting the statute to require "a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition"). Nevertheless, we provide our preliminary views with respect to remaining challenges below, based upon the parties' arguments and the evidence of record as presently developed.

3. *Claims 28 and 29*

Petitioner argues that claims 28 and 29 are anticipated by Roberts. Pet. 29–30. In particular, Petitioner asserts that Roberts’s dielectric-plastic-coated shield 15 teaches the limitations of claim 28 requiring the separator to be arranged so as to provide sufficient spacing between the first and second twisted pair of insulated conductors to provide a desired crosstalk isolation between the first and second twisted pairs. *Id.* (citing Ex. 1007 ¶¶ 87, 133–138; Ex. 1009, 4:57–60, 10:50–52, 12:52–13:45). Petitioner also asserts Roberts’s shield 15 forms at least two grooves that do not form completely enclosed channels as required by claim 29. Pet. 30–31 (citing Ex. 1009, 10:54–55, Fig. 17; Ex. 1001, Fig. 5; Ex. 1007 ¶ 139). Patent Owner does not dispute these particular assertions. We have reviewed Petitioner’s arguments and evidence and determine that Petitioner has established a reasonable likelihood of prevailing on its assertions of anticipation of claims 28 and 29.

E. Asserted Obviousness of Claims 30–33 over Roberts, Jachimowicz, and Gingue (Ground 2)

Petitioner argues that claims 30–33 would have been obvious over Roberts, Jachimowicz, and Gingue. Pet. 31–40.

1. *Jachimowicz (Ex. 1014)*

Jachimowicz is a U.S. Patent titled “Multicable Telephone Cable in a Common Sheath.” Ex. 1014, code (54). Jachimowicz relates to a “communication cable for telephone use [which] has comparatively small numbers of pairs with the conductors of each pair twisted together with different lays and the pairs are assembled into shielded units.” *Id.* at Abstract.

Jachimowicz addresses problems in telephone cable bundles of frequency-related interference between circuits. *Id.* at 1:6–16. To address this, Jachimowicz discloses:

The cable of this invention consists of a multitude of identical small cables twisted together to form one cable core. Over the cable core there is one common cable sheath of a conventional design. Each of the electrically separate small cables consist of a bundle of 12 transmission pairs with possibly one pair added for control and supervisory circuit. The pairs of the bundle (unit) have each a pair lay (length of pair twist) difference from lays of remaining pairs in the unit.

Id. at 1:54–63. Figure 1, reproduced below, shows a cross-section of one of its small cables.

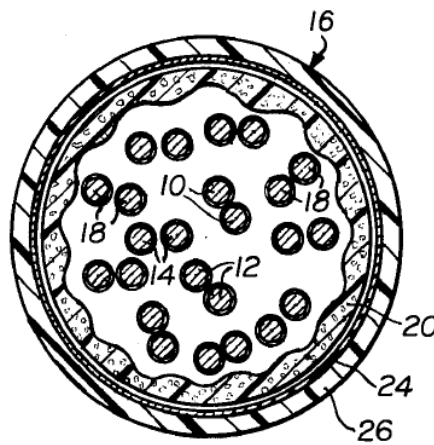


Figure 1 shows cable unit 16, comprising pairs of insulated conductors 10, 12, 14, and 18, foamed polyethylene 20, metal shield 24, and plastic insulating tape 26. *Id.* at 2:28–66. Jachimowicz describes:

To lock the pairs 10, 11, 14 and 18 together and prevent lay distortion when the bundle is handled in manufacturing processes or at installation, a thin jacke[t] of foamed polyethylene 20 is extruded over the bundle. The pairs can be held together in the bundle in other ways, if desired, as by applying a tape made of foamed thermoplastic supported by a film such as Mylar or polypropylene, or other material.

Id. at 2:46–54.

2. *Gingue (Ex. 1013)*

Gingue is a U.S. Patent titled “Flame Retardant and Smoke Suppressant Composite Electrical Insulation, Insulated Electrical Conductors and Jacketed Plenum Cable Formed Therefrom.” Ex. 1013, code (54).

Gingue “relates to insulated electrical conductors and jacketed electrical cables,” a “composite electrical insulation exhibiting reduced flame spread, reduced smoke evolution, and favorable electrical properties,” and “insulated electrical conductors and jacketed plenum cable formed from the flame retardant and smoke suppressant composite insulation.” *Id.* at 1:7–15.

Gingue describes “concerns that flame and smoke could travel along the extent of a plenum area in the event the electrical conductors and cable were involved in a fire,” and “a standard to reduce the amount of flammable material incorporated into insulated electrical conductors and jacketed cables.” *Id.* at 1:34–41. Gingue also describes the additional need for “enhanced electrical properties for the transmission of voice and data over twisted pair cables.” *Id.* at 3:26–30. Gingue further describes that “the electrical performance of an insulating material is enhanced by foaming or expanding the corresponding solid material,” which “decreases the amount of flammable material employed for a given volume of material.” *Id.* at 3:20–24.

Figure 2, reproduced below, shows a sectional view of a 4-pair jacketed electrical cable.

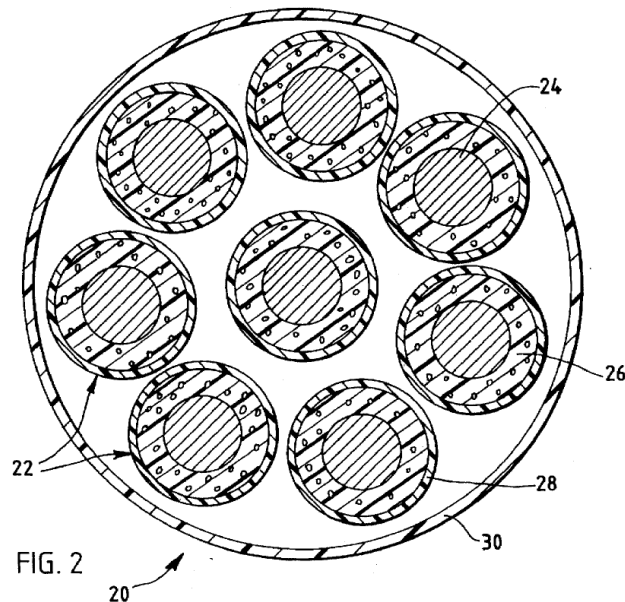


Figure 2 illustrates a jacketed electrical cable 20, where “each of insulated electrical conductors 22 comprises a centrally disposed electrical conductor 24, a foamed polymeric inner layer 26 surrounding the central conductor 24, and an outer layer 28 comprising a halogenated polymeric material and at least one flame retardant and smoke suppressant additive.” *Id.* at 6:45–50.

3. Claim 30

Claim 30 depends from claim 27 and further requires that the configurable dielectric pair separator comprises a foamed polymer tape. Petitioner admits that Roberts’s separator does not have foamed polymer tape, but asserts that Jachimowicz teaches a foamed thermoplastic polymer tape supported by a film such as Mylar or polypropylene over twisted pairs to hold them together and prevent lay distortion. Pet. 33 (citing Ex. 1014, 2:46–54, 2:56–59; Ex. 1007 ¶¶ 107, 142). Petitioner asserts that Gingue also teaches the benefits of using a foamed polymer to insulate electrical conductors in data transmission cables. Pet. 31, 33–34 (citing Ex. 1013, Abstract, 1:8–10, 4:1–2, 4:22–36, 5:18–22; Ex. 1007 ¶¶ 103–107, 142).

Petitioner asserts that it would be apparent to a POSITA that foamed polymer tapes are dielectric and that a POSITA would have been motivated to modify Roberts's "'plastic-coated metal foil strip or tape' 15" to include a substantially flat dielectric foamed polymer tape in view of Jachimowicz and Gingue either instead of or in addition to the non-foamed plastic coating on shield 15. Pet. 34 (citing Ex. 1007 ¶¶ 144–158).

Petitioner asserts a POSITA would have made this modification to increase cable performance and reliability. Pet. 35 (citing Ex. 1007 ¶¶ 143, 145–152). Petitioner explains that the foamed tape would reduce transmission losses by reducing the capacitance between Roberts's twisted pairs and conductive shield 15 by lowering the dielectric constant and increasing the distance between conductors as well by providing an enhanced dielectric barrier between Roberts's metal foil and twisted pairs. Pet. 35–38.

Patent Owner does not dispute Petitioner's assertions at this stage of the proceeding. *See generally* Prelim. Resp. We have reviewed Petitioner's arguments and evidence and determine that Petitioner shows a reasonable likelihood that claim 30 would have been obvious over Roberts, Jachimowicz, and Gingue.

4. *Claim 31*

Independent claim 31 is similar to independent claim 27 but further requires that the configurable dielectric pair separator include a substantially flat dielectric tape formed of a foamed polymer. Petitioner asserts that a POSITA would have found this element obvious for the same reasons explained with respect to claim 30. Pet. 39 (citing Ex. 1007 ¶¶ 16, 141–158, 162–163).

Patent Owner does not dispute that it would have been obvious to include a substantially flat dielectric tape formed of a foamed polymer to the dielectric pair separator at this stage of the proceeding. *See generally* Prelim. Resp.

We have reviewed Petitioner’s arguments and evidence and determine that Petitioner shows a reasonable likelihood that claim 31 would have been obvious over Roberts, Jachimowicz, and Gingue.

5. *Claim 32*

Claim 32 depends from claim 31 and further requires that the “configurable dielectric pair separator is arranged to provide a sufficient spacing between the at least two twisted pairs of insulated conductors so as to provide a desired crosstalk isolation between the at least two twisted pairs of insulated conductors.” Petitioner argues that Roberts teaches the limitations recited in claim 32 for the same reasons asserted with respect to claim 28. Pet. 39 (citing Ex. 1007 ¶¶ 133–138, 167–169).

Patent Owner does not dispute these particular assertions. We have reviewed Petitioner’s arguments and evidence and determine that Petitioner shows a reasonable likelihood that claim 32 would have been obvious over Roberts, Jachimowicz, and Gingue.

6. *Claim 33*

Claim 33 depends from claim 31 and further requires that the “configurable dielectric pair separator is arranged within the jacket to provide at least two grooves, at least one twisted pair of conductors being disposed within each of the at least two grooves.” Petitioner argues that Roberts teaches the limitations recited in claim 33 for the same reasons asserted with respect to claim 27[e]. Pet. 40 (citing Ex. 1007 ¶¶ 131–132, 170).

Patent Owner does not dispute these particular assertions. We have reviewed Petitioner’s arguments and evidence and determine that Petitioner shows a reasonable likelihood that claim 33 would have been obvious over Roberts, Jachimowicz, and Gingue.

F. Asserted Anticipation of Claims 27–29 by GmbH-866 (Ground 3)

Petitioner argues that claims 27–29 would have been anticipated by GmbH-866. Pet. 41–52.

1. GmbH-866 (Ex. 1010)

GmbH-866 is a German patent application publication titled “Data transfer cable.” Ex. 1010, code (54). GmbH-866 “relates to a data transfer cable consisting of at least n-pairs, n being an even-numbered multiple of 1, of two isolated conductors in each case, a shielding of the conductor pairs that consists of an electrically conductive material, and an outer cable sheath.” *Id.* at 2. GmbH-866 describes that “[d]ata transfer cables of this kind typically consist of four pairs of two stranded isolated copper conductors or wires,” where “the individual conductor pairs are in each case surrounded by a shielding consisting of a metal foil.” *Id.*

Figure 1, reproduced below, shows a cross-section of GmbH-866’s cable.

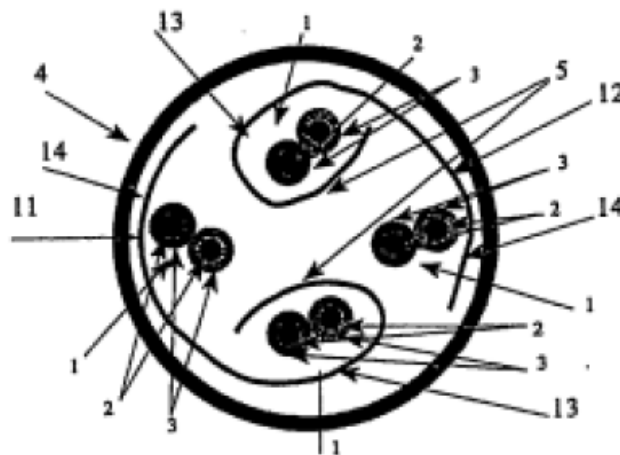


Figure 1 shows pairs 1, wires 2, insulation 3, electrical shielding 5, shieldings 11 and 12, each defining round portion 13 and curved end portion 14. *Id.* at 3–4. “[S]hieldings 11, 12 preferably consist of metal foils, in particular, aluminum foils or aluminum foils laminated with plastics material.” *Id.* at 5. The individual “copper conductors or wires preferably have an insulation 3 consisting of a thermoplastic polymer, in particular polyethylene, cell polyethylene, foam-skin polyethylene, skin-foam-skin polyethylene, polypropylene, or cell polypropylene.” *Id.* at 3.

In the GmbH-866 cable, the “stranding of the pairs 1 can consist in what is known as a helix stranding or in an SZ stranding (alternating, right-left stranding).” *Id.* at 3. According to GmbH-866:

The production of a data transfer cable according to the invention, as described above, can take place such that the partial shieldings 11, 12 or 17, 18 are applied together with the stranding or the conductor pairs 1 and/or the longitudinally extending deformation of the conductor pairs 1. In particular, in the case of the stranding of the conductor pairs in the SZ stranding method, the laying tools provided for the partial shieldings 11, 12 can assist the change in the stranding direction in each case.

Id. at 5–6.

2. *Claim 27*

a) *Petitioner’s Arguments*

Petitioner asserts GmbH-866 teaches or suggests the preamble and the twisted pairs recited in claim element 27[a], because GmbH-866 teaches data transfer cable having “four pairs 1,” each consisting of two isolated, stranded (i.e., twisted) copper conductors 2 or wires. Pet. 42–43 (citing Ex. 1010, Title, 3–4; Ex. 1007 ¶¶ 95, 172–173; *see also* Ex. 1010, 4 (“the invention can also comprise just two pairs of stranded conductors”)); Ex. 1007 ¶¶ 96, 174); *see also* Ex. 1010, 3 (stating the “wires preferably

have insulation”); Ex. 1007 ¶ 175. Petitioner asserts that a POSITA would have understood that “stranded” means “twisted.” Pet. 43 (citing Ex. 1007 ¶ 174).

Petitioner asserts that GmbH-866’s partial shieldings 11 and 12 are each a dielectric pair separator as required by claim element 27[b]. Pet. 44–46 (citing Ex. 1007 ¶¶ 44–45, 97–98, 181; Ex. 1010, 4, Fig. 1; Ex. 1031, 4; Ex. 1009, 13:40–45). Petitioner asserts that a POSITA would have understood that the plastic material used to laminate the aluminum foil of shielding 11 or 12 is a dielectric and that the plastic-laminated aluminum foil of shieldings 11 or 12 creates an insulating layer between the metal foil and adjacent components. Pet. 44–45 (citing Ex. 1007 ¶¶ 44–45, 181; Ex. 1031, 4; Ex. 1009, 13:40–45). Petitioner also contends that GmbH-866’s cable sheath 4 is a jacket that encloses the first and second twisted pairs and the separator as required by claim element 27[c]. Pet. 46–47 (citing Ex. 1010, 4, Fig. 4; Ex. 1007 ¶¶ 186–187). Petitioner also asserts that GmbH-866 describes twisting all of the components of a cable about a central axis in the final cable assembly as required by claim element 27[d]. Pet. 47–48 (citing Ex. 1010, 2–3, 5–6; Ex. 1007 ¶¶ 188–194). Finally, Petitioner asserts that GmbH-866’s partial shielding 11 and 12 are each arranged with in cable sheath 4 so that the sheath (jacket) forms at least two grooves as required by claim element 27[e]. Pet. 49–50 (citing Ex. 1007 ¶¶ 195–196; Ex. 1010, Figs. 1–5).

b) Patent Owner’s Arguments

Patent Owner responds that GmbH-866 does not teach or suggest twisted pairs as required by the independent claims. Prelim. Resp. 40–48. Patent Owner contends that a POSITA would not understand the term “stranded” to refer to “twisted” pairs as asserted by Petitioner. Prelim.

Resp. 41. Rather, Patent Owner asserts, a POSITA would have understood “stranded” to mean a particular type of wire composition that does not have twisted pairs. *Id.* (citing Ex. 2001 ¶ 80). Patent Owner asserts that it was known that a standard conductive wire could be comprised of either (1) a single solid core containing a single solid strand of conductive material, such as copper, or (2) stranded conductors, each conductor having a number of smaller diameter strands of conductive material that are twisted together to form the overall larger single conductor. *Id.* at 41–42 (citing Ex. 2001 ¶ 81). Patent Owner further asserts that a POSITA would have understood that GmbH-866 does not teach twisted pairs, but, rather, teaches away, because the disclosed conductors are both physically and electromagnetically intertwined, not isolated. *Id.* at 42 (citing Ex. 2001 ¶ 83); *see also id.* at 45 (stating GmbH-866 does not teach that the conductors *and* their surrounding insulation are stranded together; citing Ex. 2001 ¶ 87). Patent Owner also asserts that twisted pairs are not typically referred to as having a “diameter,” yet GmbH-866 describes the “effective diameter” of the individual conductors, thus indicating that the conductors are not twisted pairs. *Id.* at 45 (citing Ex. 2001 ¶ 86).

c) Analysis

We have reviewed Petitioner’s arguments and evidence and determine that Petitioner sufficiently shows a reasonable likelihood that claim 27 is anticipated by GmbH-866, notwithstanding Patent Owner’s arguments to the contrary. Pet. 41–50. Petitioner provides sufficient argument and evidence that GmbH-866 discloses a first and second twisted pair of insulated conductors. First, Petitioner points to GmbH-866’s teaching that its cable “comprises four pairs 1, each consisting of two isolated, stranded copper conductors 2 or wires.” Ex. 1010, 3. Additionally, GmbH-866 states that its

invention “can also comprise just two pairs of stranded conductors.” *Id.* at 4. Petitioner provides evidence and argument that a POSITA would have understood “stranded” to mean “twisted” because “stranding” was a term in the cabling industry to connote twisting components together. Ex. 1007 ¶ 174; *see, e.g.*, Ex. 1010, 3 (stating the “stranding of the pairs 1 can consist in what is known as a helix stranding or in an SZ stranding (alternating, right-left stranding)”).

Patent Owner’s arguments are not sufficient at this stage of the proceeding to demonstrate that the Petition is deficient. Whether a POSITA would have understood GmbH-866’s “stranded” copper conductors to refer to a particular type of wire composition wherein each conductor contains a number of smaller diameter strands that are twisted together and electromagnetically intertwined (not isolated), and not to a pair of conductors that are stranded/twisted together, is best resolved on a full record.

Accordingly, at this stage of the proceeding, Petitioner has established a reasonable likelihood of prevailing on its assertions that claim 27 is anticipated by GmbH-866.

3. *Claims 28 and 29*

Petitioner argues that claims 28 and 29 are anticipated by GmbH-866. Pet. 50–52. In particular, Petitioner asserts that GmbH-866’s partial shield 11 or 12 teaches the limitations of claim 28 requiring the separator to be arranged so as to provide sufficient spacing between the first and second twisted pair of insulated conductors to provide a desired crosstalk isolation between the first and second twisted pairs. Pet. 50 (citing Ex. 1007 ¶¶ 197–202; Ex. 1010, 4, claim 1, Fig. 1; Ex. 1023, 3:17–24; Ex. 1015, 7:58–61; Ex. 1003, 15). Petitioner also asserts that the grooves formed by GmbH-866’s

partial shielding 11 do not form completely enclosed channels as required by claim 29 (“wherein the at least two grooves do not form completely enclosed channels”). Pet. 52 (citing Ex. 1010, Fig. 1; Ex. 1001, 5:6–7, Fig. 5; Ex. 1007 ¶¶ 203–204). Patent Owner does not dispute these particular assertions. We have reviewed Petitioner’s arguments and evidence and determine that Petitioner has established a reasonable likelihood of prevailing on its assertions of anticipation of claims 28 and 29.

G. Asserted Obviousness of Claims 30–33 over GmbH-866, Jachimowicz, and Gingue (Ground 4)

Petitioner argues that claims 30–33 would have been obvious over GmbH-866 and one or more of Jachimowicz and Gingue. Pet. 52–59.

1. Claim 30

Petitioner admits that GmbH-866 does not teach the foamed polymer tape recited in claims 30–33. Pet. 52. Petitioner, however, asserts that Jachimowicz teaches a foamed polymer tape, that Gingue teaches a foamed polymer, and that Jachimowicz and Gingue each teach the benefits of using foamed polymer as an insulating/isolation member. *Id.* Petitioner asserts that it would have been obvious to modify GmbH-866’s partial shieldings 11, 12 to include a substantially flat dielectric foamed polymer tape, either instead of or in addition to the non-foamed plastic coatings on shieldings 11, 12 to increase cable performance, reliability, and safety. Pet. 53–57 (citing Ex. 1010, 5, Fig. 1; Ex. 1013, 2:1–4, 3:20–26, 4:37–39; Ex. 1007 ¶¶ 103–104, 205–220; Ex. 1015, 1:36–38, 2:54–66, Fig. 6, claim 19). Patent Owner does not dispute Petitioner’s assertions at this stage of the proceeding. *See generally* Prelim. Resp.

We have reviewed Petitioner’s arguments and evidence and determine that Petitioner shows a reasonable likelihood that claim 30 would have been obvious over GmbH-866, Jachimowicz, and Gingue.

2. *Claim 31*

As noted above, independent claim 31 is similar to independent claim 27 but further requires that the configurable dielectric pair separator include a substantially flat dielectric tape formed of a foamed polymer. Petitioner asserts that a POSITA would have found this element obvious for the same reasons explained with respect to claim 30. Pet. 57–58 (citing Ex. 1007 ¶¶ 205–220, 224–225). Patent Owner does not dispute these particular assertions. *See generally* Prelim. Resp.

We have reviewed Petitioner’s arguments and evidence and determine that Petitioner shows a reasonable likelihood that claim 31 would have been obvious over GmbH-866, Jachimowicz, and Gingue.

3. *Claim 32*

As noted above, claim 32 depends from claim 31 and further requires that the “configurable dielectric pair separator is arranged to provide a sufficient spacing between the at least two twisted pairs of insulated conductors so as to provide a desired crosstalk isolation between the at least two twisted pairs of insulated conductors.” Petitioner argues that GmbH-866 teaches the limitations recited in claim 32 for the same reasons asserted with respect to claim 28. Pet. 58 (citing Ex. 1007 ¶¶ 197–202, 229–230). Patent Owner does not dispute these particular assertions.

We have reviewed Petitioner’s arguments and evidence and determine that Petitioner shows a reasonable likelihood that claim 32 would have been obvious over GmbH-866, Jachimowicz, and Gingue.

4. *Claim 33*

As noted above, claim 33 depends from claim 31 and further requires that the “configurable dielectric pair separator is arranged within the jacket to provide at least two grooves, at least one twisted pair of conductors being disposed within each of the at least two grooves.” Petitioner argues that GMBH teaches the limitations recited in claim 32 for the same reasons asserted with respect to claim 27. Pet. 58 (citing Ex. 1007 ¶¶ 195–196, 231–232).

Patent Owner does not dispute these particular assertions. We have reviewed Petitioner’s arguments and evidence and determine that Petitioner shows a reasonable likelihood that claim 33 would have been obvious over GmbH-866, Jachimowicz, and Gingue.

H. Asserted Obviousness of Claims 27–33 over Roberts, GmbH-866, Jachimowicz, and Gingue (Ground 5)

Petitioner argues that claims 27–33 would have been obvious over Roberts and one or more of GmbH-866, Jachimowicz, and Gingue. Pet. 59–61. In particular, Petitioner asserts that if Roberts is found to not disclose a first and second twisted pair of insulated conductors as required by claim elements 27[a] and 31[a], that it would have been obvious to use twisted pairs of insulated conductors in Roberts for all the reasons identified in Grounds 1 and 2, further in view of one or more of GmbH-866, Jachimowicz. Pet. 59 (citing Ex. 1007 ¶¶ 233–240). Petitioner asserts that to the extent Roberts does not expressly teach that its pairs are “twisted” pairs, that it would have been an obvious and a routine modification to use twisted pairs because of the known, predictable benefits of twisted pairs, (e.g., lower crosstalk, ensuring the paired wires stay together) and because using twisted pairs in a telephone communications cable like Roberts was

the most common, conventional way to construct such a cable. Pet. 60–61 (citing Ex. 1007 ¶¶ 33–35, 236, 238–239). Petitioner also asserts that GmbH-866, which uses a cable similar to Roberts’s cable, teaches that insulated copper conductors are twisted pairs. Pet. 59–60 (citing Ex. 1010, 3; Ex. 1007 ¶¶ 96, 234. Petitioner further asserts that Jachimowicz also teaches a cable that uses multiple twisted pairs of insulated conductors. Pet. 60 (citing Ex. 1014, 2:32–33, Fig. 2; Ex. 1007 ¶¶ 105, 235).

Patent Owner responds that neither Roberts nor GmbH-866 teach twisted pairs and, thus, the combination of these two references cannot teach twisted pairs. Prelim. Resp. 58 (citing Ex. 2001 ¶¶ 97–98). Patent Owner asserts Jachimowicz does not cure this deficiency because Jachimowicz teaches twisted pairs bunched together without any separator between them, and Petitioner fails to provide any objective motivation as to why Roberts would have used twisted pairs, let alone any motivation to combine Roberts and Jachimowicz. Prelim. Resp. 58–61. Patent Owner asserts that Roberts’s solution of placing a conductive (i.e., metallic shield) to separate individual straight-line conductors provides an effective solution to the crosstalk problem and, thus, there would be no motivation to modify Roberts to add the additional/redundant twisted pairs of Jachimowicz. *Id.* at 61–63.

Patent Owner’s arguments are not sufficient at this stage of the proceeding to demonstrate that the Petition is deficient. Petitioner has provided adequate evidence and argument at this stage of the proceeding, that if Roberts does not disclose twisted pairs, a POSITA would have been motivated to use twisted pairs in Roberts’s cable. Pet. 59–61. Patent Owner’s arguments that at POSITA would not have been motivated to modify Roberts raises issues that are best resolved on a full record. We have

reviewed Petitioner’s arguments and evidence and determine that Petitioner shows a reasonable likelihood that claims 27–33 would have been obvious over Roberts, GmbH-866, Jachimowicz, and Gingue.

I. Asserted Obviousness of Claims 27–33 over GmbH-866 and one or more of Roberts, Jachimowicz, and Gingue (Ground 6)

Petitioner argues that claims 27–33 would have been obvious over GmbH-866 and one or more of Roberts, Jachimowicz, and Gingue. Pet. 61–64. In particular, Petitioner asserts that if GmbH-866 does not disclose “wherein the configurable dielectric pair separator, the first twisted pair of insulated conductors and the second twisted pair of insulated conductors are twisted about a common central axis to form a twisted pair cable” as required by claim elements 27[e] and 31[d], that it would have been obvious to provide such a separator and twisted pair configuration in view of Roberts, Jachimowicz, and/or Gingue. Pet. 61 (citing Ex 1007 ¶¶ 241–253). Petitioner contends that Roberts teaches twisting (cabling) conductor pairs 14, 16 and the plastic-coated material shield together about a common axis to form the cable assembly. Pet. 61 (citing Ex. 1009, 12:14–29; Ex. 1007 ¶¶ 93–94, 129–130, 243). Petitioner further asserts that Jachimowicz similarly teaches sets of twisted pairs bundled together into units 16, with multiple units 16 then cabled together into overall cable 30. Pet. 62 (citing Ex. 1014, 3:2–11, 3:18–24, 3:41–42, Figs. 3–4; Ex. 1007 ¶ 244).

Petitioner asserts that twisting components of a cable around a common axis, known as cabling, was the most common way to construct cables that included copper twisted pair wires, and that this method increased strength and flexibility of the cable and improved impedance uniformity. Pet. 62 (citing Ex. 1007 ¶¶ 51–53, 245–251). Petitioner asserts that a POSITA would have been motivated to twist the components of the

GmbH-866 cable, including the twisted pairs and partial shieldings, about a common axis to obtain these benefits and because it was the most common way to assemble twisted pair cables. Pet. 63–64.

Other than arguing that the asserted art does not teach the “twisted pairs” required by the claims, Patent Owner does not dispute Petitioner’s contentions at this stage of the proceeding. *See* Prelim. Resp. We have reviewed Petitioner’s arguments and evidence and determine that Petitioner shows a reasonable likelihood that claims 27–33 would have been obvious over Roberts, Jachimowicz, and Gingue.

J. Asserted Anticipation of Claims 27–29 by Yanagita (Ground 7)

Petitioner argues that claims 27–29 would have been anticipated by Yanagita. Pet. 64–72.

1. Yanagita (Ex. 1012)

Yanagita is a Japanese patent application publication titled “Alternatingly Twisted Cable,” which “relates to an alternatingly twisted cable that prevents twisting of a wire core from becoming undone.” Ex. 1012, 1.

Yanagita describes “alternatingly twisted cables,” where “a large number of strands of insulated wires or pairs thereof or quad strands, or units thereof, are twisted together so as to reverse the direction of twisting thereof with given periodicity.” *Id.* Yanagita states that “there is a shortcoming with this type of cable in that, when a tensile force is applied in the lengthwise direction of the cable core prior to application of the cable sheathing, in particular, the twisting of the cable core becomes undone.” *Id.*

To address this, Yanagita proposes:

an alternatingly twisted cable wherein a large number of insulated wire strands, or that wherein the insulated wire strands

are twisted together, are laid, while twisting along the surfaces, along both surfaces of a core material that is made by forming a plate-shaped body so that the direction of the surface thereof gradually changes in a reciprocatingly twisted shape.

Id. A portion of this system is depicted in Figure 2, reproduced below.

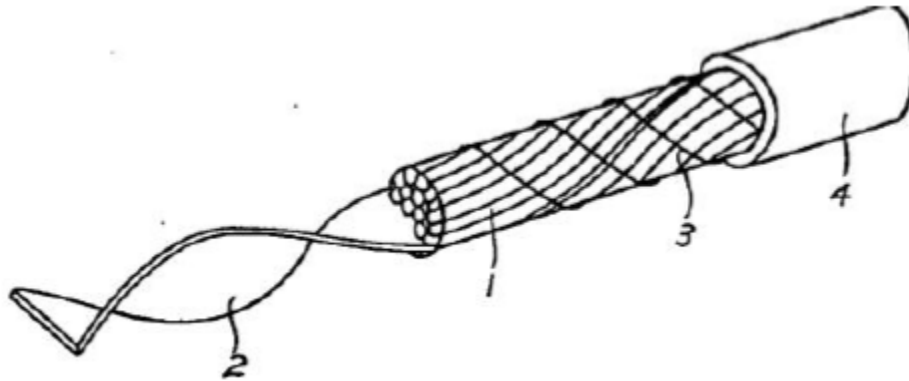


Figure 2 shows insulated wires 1, core material 2, press wrapping 3, and cable sheath 4. *Id.* Core material 2 is formed in a reciprocatingly twisted shape so that the directions of both sides gradually change along the lengthwise direction. *Id.* Yanagita states that “[t]his can be obtained through twisting a flat plate-shaped hard plastic, or the like, while maintaining a given temperature, so as to reverse, with a constant periodicity, the direction in which the surface of the plate faces.” *Id.* at col. 1–2.

1. Patent Owner’s Request to “Disregard” Uncertified Translation of Yanagita (Ex. 1055)

37 C.F.R. § 42.63 states that “when a party relies on a document or is required to produce a document in a language other than English, a translation of the document into English and an affidavit attesting to the accuracy of the translation must be filed with the document.” Petitioner provides a certified translation (Ex. 1012) of Japanese Patent Application Publication No. S43-15470 that Petitioner asserts constitutes prior art to the ’095 patent. Petitioner also provides an uncertified English translation

(Ex. 1055) of the Japanese publication that Petitioner asserts was “used in prior reexamination of US 6,998,537.” Pet. 89. Petitioner asserts that Patent Owner’s argument that the certified translation version of Yanagita (Ex. 1012) does not teach or suggest a plurality of twisted pairs is inconsistent with Patent Owner’s position during the prior reexamination of the related ’537 patent, where Patent Owner did not dispute that Yanagita, in the uncertified English translation (Ex. 1055), disclosed a plurality of twisted pairs. Paper 7.

Patent Owner does not dispute that the certified translation (Ex. 1012) of Yanagita complies with 37 C.F.R. § 42.63. *See generally* Prelim. Resp. Rather, Patent Owner asserts that the uncertified version (Ex. 1055) should be “disregarded” because (1) both Petitioner and its declarant cite to the uncertified translation (Ex. 1055) and (2) there are “fundamental differences” between the certified and uncertified versions, with, as the example provided by Patent Owner, Petitioner refers to Ex. 1012 as “Yanagida” while the certified translation actually reads “Yanagita.”⁸ Prelim. Resp. 33 n.7.

We decline to “disregard” the uncertified translation of Yanagita. Grounds 7 and 8 rely on the certified translation of Yanagita, not the uncertified translation, as the asserted art. Patent Owner does not provide a persuasive reason why the panel may not consider evidence outside of the art that forms the basis of Petitioner’s challenge when assessing obviousness. *See* June 9, 2022 USPTO Memorandum, Updated Guidance on the Treatment of Statements of the Applicant in the Challenged Patent in

⁸ For convenience, we refer to certified translation’s spelling (i.e., “Yanagita”) when referring to either the certified or uncertified translation of the Japanese patent application.

Inter Partes Reviews under § 311⁹ (stating that in addition to the use of applicant admissions, “other AIA provisions support using evidence outside of prior art patents or printed publications when assessing §§ 102 or 103 issues in an IPR”). How much weight the uncertified translation should be given in assessing challenges based upon a certified translation is a matter best resolved at trial.

2. *Claim 27*

Petitioner asserts Yanagita discloses the preamble and first and second twisted pairs recited in claim element 27[a] because Yanagita discloses a communications cable having a plurality of “strands of insulated wires or pairs thereof” that run along the surface of the core material. Pet. 65–66 (citing Ex. 1007 ¶¶ 254–257; Ex. 1012, 1). Petitioner further states that Yanagita’s core material 2 is a configurable dielectric pair separator as required by claim element 27[b] (Pet. 66–67 (citing Ex. 1012, 1, Figs. 1, 2; Ex. 1007 ¶¶ 259–264)) and that Yanagita’s cable sheath 4 discloses the jacket limitations recited in claim element 27[c] (Pet. 67–68 (citing Ex. 1007 ¶¶ 265–266; Ex. 1012, 1, col. 1)). Petitioner further asserts that Yanagita’s core material 2 and twisted pairs are twisted about a common central axis, forming a twisted pair cable. Pet. 68 (citing Ex. 1007 ¶¶ 101–102, 267–268; Ex. 1012, 1, Fig. 2). Petitioner also asserts that even though Yanagita’s separator is straight in cross section, Yanagita’s core material 2, formed with twisted pairs running along its opposite surfaces, is a “configurable dielectric pair separator [] arranged within the jacket to form at least two grooves” as recited in claim element 27[e]. Pet. 69 (citing Ex. 1007 ¶¶ 269–270).

⁹ available at <https://www.uspto.gov/sites/default/files/documents/2022060912updatedAAPAmemo.pdf>.

Petitioner's declarant explains that the first and second twisted pairs each run along a surface of the core material, resulting in a "D-shaped space" created between one surface of the core material and the interior surface of cable sheath 4. Ex. 1007 ¶ 269.

Patent Owner responds that Yanagita does not teach "twisted pairs" as required by the challenged claims because Yanagita merely discloses separated bundles of straight-line conductors that are laid on opposite sides of a core material and twisted together along the surfaces of the core. Prelim. Resp. 32–39 (citing Ex. 2001 ¶ 62–77). Patent Owner asserts that Yanagita's discussion of insulated pairs relates to the prior art, not to Yanagita's embodiments. *Id.* at 36 (citing Ex. 1012, 1). Patent Owner further asserts that Yanagita fails to mention, let alone teach, reduction of crosstalk in a cable, or the separation of twisted pairs. Prelim. Resp. 33 (citing Ex. 2001 ¶ 63).

We have reviewed Petitioner's evidence and argument and determine that Petitioner sufficiently shows a reasonable likelihood that claim 27 is anticipated by Yanagita, notwithstanding Patent Owner's arguments to the contrary. Pet. 64–69. Yanagita states that its invention relates to improvement of an alternating twisted cable through the use of a twisted core material that gradually "changes in a reciprocatingly twisted shape." Ex. 1012, col. 1. Yanagita states "the alternatingly twisted cable" can comprise twisted pairs. *See* Ex. 1012, col. 1 (describing the alternating twisted cables as having a "large number strands of insulated wires or pairs thereof or quad strands or units thereof" that are "twisted together"). Yanagita further states that in an embodiment of its improvement, "an insulated wire or that wherein insulated wires are twisted together, laid divided onto both sides of a core material 2" and that the core material 2 is

formed in a reciprocatingly twisted shape. Whether a POSITA would have understood the insulated wires on both sides of the core material could include twisted pairs (as asserted by Petitioner) or can only be a bundle of wires that are all twisted together (as asserted by Patent Owner), is an issue best resolved upon a full record.

3. *Claims 28–29*

Petitioner argues that claims 28 and 29 are anticipated by Yanagita. Pet. 70–72. In particular, Petitioner asserts that Yanagita’s plastic separator (core material 2) provides a physical barrier between twisted pairs located on opposite sides of the separator and a POSITA would have understood that this provides sufficient spacing between the twisted pairs to provide a “desired crosstalk isolation” as required by claim 28. Pet. 70–72 (citing Ex. 1007 ¶¶ 284–275). Petitioner also asserts Yanagita’s core material, in conjunction with the first and second twisted pairs that run along the surface of the core material, result in two “D-shaped” spaces or grooves “that do not form completely enclosed channels” as recited in claim 29. Pet. 72 (citing Ex. 1007 ¶ 276). Patent Owner does not dispute these particular assertions.

We have reviewed Petitioner’s arguments and evidence and determine that Petitioner has established a reasonable likelihood of prevailing on its assertions of anticipation of claims 28 and 29.

K. Asserted Obviousness of Claims 30–33 over Yanagita, Jachimowicz, and Gingue (Ground 8)

Petitioner argues that claims 30–33 would have been obvious over Yanagita and one or more of Jachimowicz and Gingue. Pet. 72–77.

1. *Claim 30*

Petitioner admits that Yanagita does not teach a dielectric pair separator that includes a foam polymer tape as required by claims 30–33.

Pet. 72. Petitioner, however, asserts that it would have been obvious to add a foamed polymer tape alongside Yanagita's plastic core material 2 with the laying of the twisted pairs, to predictably improve cable performance, reliability, and safety. Pet. 72–75 (citing Ex. 1007 ¶¶ 278–290). Patent Owner does not dispute Petitioner's assertions at this stage of the proceeding. *See generally* Prelim. Resp.

We have reviewed Petitioner's arguments and evidence and determine that Petitioner demonstrates a reasonable likelihood that claim 30 would have been obvious over Yanagita, Jachimowicz, and Gingue.

2. Claim 31

As noted above, independent claim 31 is similar to independent claim 27 but further requires that the configurable dielectric pair separator include a substantially flat dielectric tape formed of a foamed polymer. Petitioner asserts that a POSITA would have found this element obvious for the same reasons explained with respect to claim 30. Pet. 76 (citing Ex. 1007 ¶¶ 278–290, 294–295). Patent Owner does not dispute these particular assertions. *See generally* Prelim. Resp.

We have reviewed Petitioner's arguments and evidence and determine that Petitioner shows a reasonable likelihood that claim 31 would have been obvious over Yanagita, Jachimowicz, and Gingue.

3. Claim 32

As noted above, claim 32 depends from claim 31 and further requires that the “configurable dielectric pair separator is arranged to provide a sufficient spacing between the at least two twisted pairs of insulated conductors so as to provide a desired crosstalk isolation between the at least two twisted pairs of insulated conductors.” Petitioner argues that Yanagita teaches the limitations recited in claim 32 for the same reasons asserted with

respect to claim 28. Pet. 76–77 (citing Ex. 1007 ¶¶ 40, 271–275, 299–300). Patent Owner does not dispute these particular assertions.

We have reviewed Petitioner’s arguments and evidence and determine that Petitioner shows a reasonable likelihood that claim 32 would have been obvious over Yanagita, Jachimowicz, and Gingue.

4. *Claim 33*

As noted above, claim 33 depends from claim 31 and further requires that the “configurable dielectric pair separator is arranged within the jacket to provide at least two grooves, at least one twisted pair of conductors being disposed within each of the at least two grooves.” Petitioner argues that Yanagita shows twisted pairs that run along the surface of the core material, and thus, to the extent it discloses the claimed grooves, at least one twisted pair is in each groove. Pet. 77 (citing Ex. 1007 ¶¶ 269–270, 301–302; Ex. 1012, 1).

Patent Owner does not dispute these particular assertions. We have reviewed Petitioner’s arguments and evidence and determine that Petitioner shows a reasonable likelihood that claim 33 would have been obvious over Yanagita, Jachimowicz, and Gingue.

III. CONCLUSION

For the reasons set forth above, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing with respect to at least one challenged claim of the ’095 patent. Thus, we institute an *inter partes* review on all challenged claims and on all grounds presented.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that an *inter partes* review is instituted on each of the grounds asserted in the Petition; and

FURTHER ORDERED that, 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, which shall commence on the entry date of this decision.

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