

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMMSCOPE TECHNOLOGIES LLC,
Petitioner

v.

BELDEN, INC.,
Patent Owner.

Case IPR2023-01056
Patent 9,991,030

PETITIONER'S NOTICE OF APPEAL

Pursuant to 35 U.S.C. § 142 and 37 C.F.R. § 90.2(a), CommScope Technologies LLC (“Petitioner”) hereby respectfully appeals to the United States Court of Appeals for the Federal Circuit from the Final Written Decision of the Patent Trial and Appeal Board (“the Board”) entered on December 11, 2024 (Paper 34) in Case No. IPR2023-01056, as well as from all other underlying orders, decisions, rulings, and opinions that are adverse to Petitioner. A copy of the Final Written Decision is attached. This appeal is timely under 35 U.S.C. § 142, 37 C.F.R. § 90.3, Federal Rule of Appellate Procedure 15(a)(1), and Federal Circuit Rule 15(a)(1).

In accordance with 37 C.F.R. § 90.2(a)(3)(ii), and for the limited purpose of providing the Director with the information requested by the same, the issues in Petitioner’s appeal may include but are not limited to:

- (1) The Board’s determination of the patentability of claims 1-3, 9-14, 16-18 over Cook (U.S. Patent No. 9,363,935);
- (2) The Board’s determination of the patentability of claim 11 over Cook and Glew (U.S. Patent Pub. No. 2013/0248240) and/or the knowledge of a POSITA;
- (3) The Board’s determination of the patentability of claims 1-3, 9-14, 16-18 over Glew;

- (4) The Board's determination of the patentability of claims 1-3, 9-14, 16-18 over Glew alone or the combination of Glew and Cook and/or the knowledge of a POSITA;
- (5) The Board's determination of the patentability of claims 1-3, 9-11, 13, 16-18 over Roberts (U.S. Patent No. 3,622,683);
- (6) The Board's determination of the patentability of claims 1-3, 9-11, 13, 16-18 over Roberts alone or the combination of Roberts and Jachimowicz-172 (U.S. Patent No. 3,894,172) and/or the knowledge of a POSITA;
- (7) The Board's determination of the patentability of claims 1-3, 9-11, 13, 16-18 over Roberts alone or the combination of Roberts and Jachimowicz-036 (U.S. Patent No. 3,233,036) and/or the knowledge of a POSITA;
- (8) The Board's determination of the patentability of claim 11 over Roberts and Glew and/or the knowledge of a POSITA;
- (9) The Board's determination of the patentability of claim 11 over Roberts, Glew, and Jachimowicz-172 and/or the knowledge of a POSITA;
- (10) The Board's determination of the patentability of claim 11 over Roberts, Glew, and Jachimowicz-036 and/or the knowledge of a POSITA;
- (11) The Board's determination of the patentability of claims 12 and 16 over Roberts and Simons (U.S. Patent No. 3,911,200) and/or the knowledge of a POSITA;

- (12) The Board's determination of the patentability of claims 12 and 16 over Roberts, Simons, and Jachimowicz-172 and/or the knowledge of a POSITA;
- (13) The Board's determination of the patentability of claims 12 and 16 over Roberts, Simons, and Jachimowicz-036 and/or the knowledge of a POSITA;
- (14) The Board's determination of the patentability of claims 12 and 16 over Roberts, Glew, and Simons and/or the knowledge of a POSITA;
- (15) The Board's determination of the patentability of claims 12 and 16 over Roberts, Jachimowicz-036, Glew, and Simons and/or the knowledge of a POSITA;
- (16) The Board's determination of the patentability of claims 12 and 16 over Roberts, Jachimowicz-172, Glew, and Simons and/or the knowledge of a POSITA;
- (17) The Board's determination of patentability of claims 3 and 9 over Glew, Roberts, Cook, and/or Jachimowicz-172 or Jachimowicz-036 and/or the knowledge of a POSITA;
- (18) The Board's determination of the patentability of claims 1-3, 9-14, and 16-18 over the combination of Clark (U.S. Patent Pub. No. US 2006/0169478), Roberts, and/or Glew and/or the knowledge of a POSITA;

(19) The Board’s construction of the claim term “lateral edge”;

(20) any and all findings or rulings supporting or related to issues identified above, including the Board’s determination that some arguments were presented for the first time in the Reply, as well as other issues decided adversely to Petitioner in any orders, decisions, rulings, or opinions.

Pursuant to 37 C.F.R. § 90.2(a) and 37 C.F.R. § 90.2(a)(1), Petitioner is filing a copy of this Notice of Appeal with the Director by electronic mail to the email address indicated on the Patent and Trademark Office’s web page for the Office of General Counsel, which is: GeneralCounsel@doc.gov. A copy of the Notice of Appeal is also being filed electronically with the Patent Trial and Appeal Board through the Patent Trial and Appeal Case Tracking System (P-TACTS). In addition, pursuant to Federal Circuit Rule 15(a)(1) and 37 C.F.R. § 90.2(a)(2), a copy of this Notice of Appeal, along with the required docketing fees, is being electronically filed with the Clerk’s Office for the United States Court of Appeals for the Federal Circuit.

Respectfully submitted,

Date: February 4, 2025

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Certificate of Filing and Service

Pursuant to 37 C.F.R. §§ 90.2(a)(1) and 104.2(a), I hereby certify that on February 4, 2025, in addition to being filed electronically with the Patent Trial and Appeal Board, a true and correct copy of the foregoing PETITIONER’S NOTICE OF APPEAL was filed electronically with the Director at the following email address: GeneralCounsel@doc.gov.

Pursuant to 37 C.F.R. §§ 90.2(a)(2), I hereby certify that on February 4, 2025, a true and correct copy of the foregoing PETITIONER’S NOTICE OF APPEAL was filed electronically through CM/ECF with the United States Court of Appeals for the Federal Circuit.

Also, I certify that a copy of the foregoing PETITIONER’S NOTICE OF APPEAL was served electronically via e-mail on February 4, 2025 in its entirety on the following:

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMMSCOPE TECHNOLOGIES LLC,
Petitioner,

v.

BELDEN, INC.,
Patent Owner.

IPR2023-01056
Patent 9,991,030 B2

Before CHRISTOPHER M. KAISER, KIMBERLY McGRAW, and
SHARON FENICK, *Administrative Patent Judges*.

McGRAW, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining No Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

We instituted this *inter partes* review pursuant to 35 U.S.C. § 314 to review claims 1–3, 9–14, and 16–18 of U.S. Patent No. 9,991,030 B2 (Ex. 1001, “the ’030 patent”), owned by Belden, Inc. (“Patent Owner” or “Belden”). We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed below, CommScope Technologies LLC (“Petitioner” or “CommScope”) has not shown by a preponderance of the evidence that claims 1–3, 9–14, and 16–18 are unpatentable.

A. *Procedural History*

CommScope filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–3, 9–14, and 16–18 of U.S. Patent No. 9,991,030 B2 (Ex. 1001, “the ’030 patent”). Belden filed a Patent Owner Preliminary Response (Paper 6, “Prelim. Resp.”). We instituted this *inter partes* review of all challenged claims based on all grounds asserted in the Petition. Paper 7 (“Inst. Dec.”).

Belden then filed a Patent Owner Response (Paper 16, “PO Resp.”) and CommScope filed a Reply (Paper 26, “Pet. Reply”) and Belden filed a Sur-reply. Paper 28 (“PO Sur-reply”). An oral hearing was held on September 16, 2024.

B. *Real Parties-in-Interest*

Petitioner identifies CommScope Technologies LLC, CommScope, Inc. of North Carolina, CommScope, Inc., and CommScope Holding Company, Inc. as real parties-in-interest. Pet. vi. Patent Owner identifies Belden, Inc. as the real party-in-interest. Paper 4, 1.

C. Related Proceedings

The parties identify the following district court litigation as a related matter: *Belden, Inc. v. CommScope, Inc.*, Case No. 22-783-RGA (D. Del.). Pet. vi; Paper 4, 1 (Patent Owner's Mandatory Notices).

D. The '030 Patent (Ex. 1001)

The '030 patent is titled "High Performance Data Communications Cable," and relates to a data cable including "a filler for controlled placement of pairs of conductors within a data cable and controlled application angle of an electromagnetic interference (EMI) reducing tape." Ex. 1001, code (54), 1:17–21. The '030 patent explains that high performance data cables must meet "strict specifications for maximum return loss and crosstalk." *Id.* at 1:25–38. Crosstalk is caused by EMI between adjacent pairs of conductors in a cable, whereby signal flow in a first pair of conductors generates an electromagnetic field received by a second pair of conductors. *Id.* at 1:39–44. Alien crosstalk (ANEXT) may result between adjacent cables in a typical installation with a large number of cables. *Id.* at 1:44–50, 5:28. The '030 patent discusses methods of manufacturing twisted pair cables with a barrier tape having ANEXT through control of the application angle of the barrier tape around helically arranged twisted pairs of conductors. *Id.* at 2:22–28. A filler is included in the cable to separate the twisted pairs and provide a support base for the barrier tape. *Id.* at 2:28–30. Figure 1, depicting one embodiment of the '030 patent, is reproduced below.

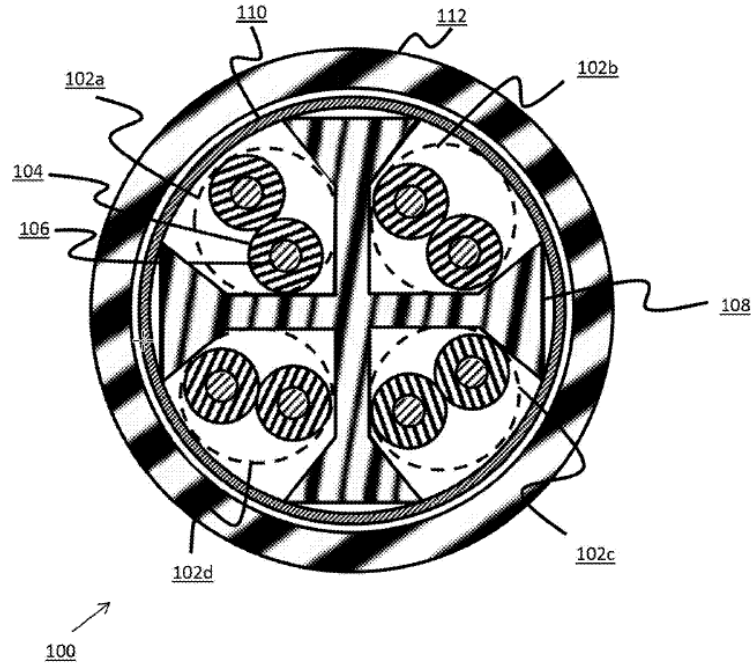


FIG. 1

Figure 1 illustrates a cross-section of an embodiment of an unshielded twisted pair cable 100 having barrier tape 110, filler 108, and twisted pairs 102a-102d of individual conductors 106 having insulation 105. *Id.* at 6:20–24. Although tape 110 is shown as a continuous ring for simplicity, the tape may comprise a flat tape material applied around filler 108 and pairs 102. *Id.* at 7:64–66. Jacket 112 surrounds conductive barrier tape 110. *Id.* at 7:55–63.

Figure 3A, depicting an embodiment of barrier tape 110, is reproduced below.

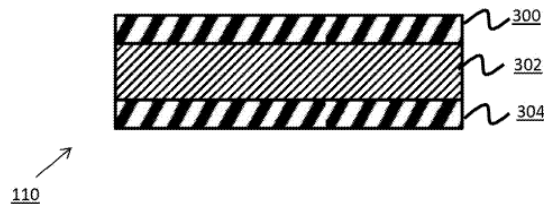


FIG. 3A

Figure 3A illustrates a cross-section of barrier tape 110. *Id.* at 7:38–42. Barrier tape 110 includes conductive material 302 located between two layers of dielectric material 300, 304. *Id.* at 7:42–45. Exemplary conductive materials may include aluminum foil. *Id.* Exemplary dielectric materials may include polyester (PET). *Id.* Figure 3A shows conductive layer 302 extending to the edges of dielectric layers 300, 304. *See id.* at 7:49–51.

Annotated Figure 3C depicts an embodiment having proper placement of barrier tape. *Id.* at 8:7–8.

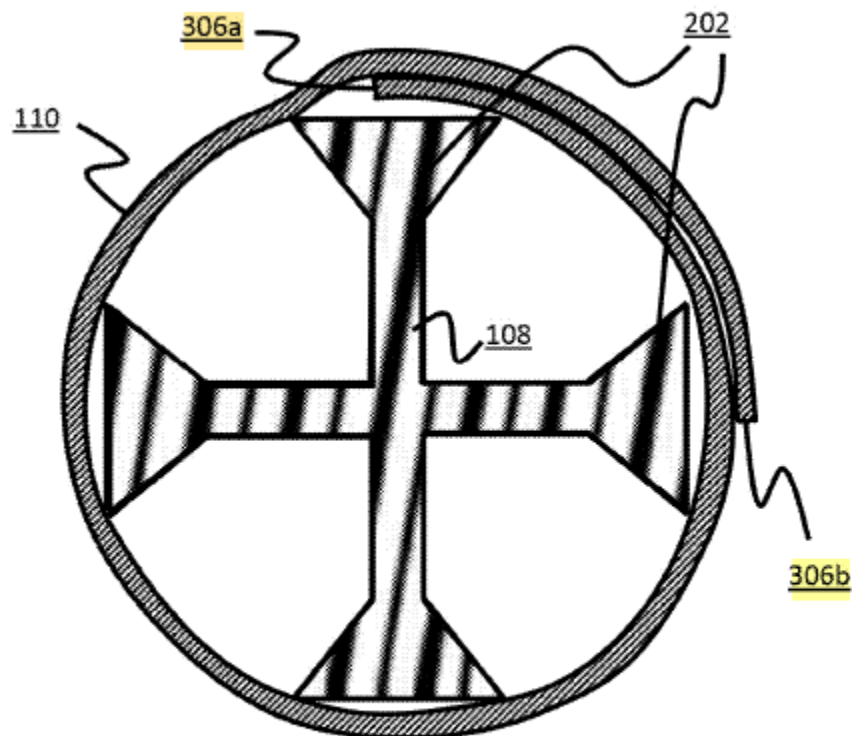


FIG. 3C

Figure 3C is a cross section of an embodiment of barrier tape 110, having edges 306a and 306b (yellow highlighting added) around filler 108 showing proper placement of the tape above filler terminal portions 202. *Id.* at 8:7–

10. In this configuration, edges 306 of tape 110 are as far as possible from any channel 208 and corresponding pair 102. *Id.* at 8:10–12.

E. Illustrative Claim

Of the challenged claims, claims 1 and 18 are independent. Claim 1 recites a cable and claim 18 recites a method of manufacturing a cable. *See* Ex. 1001, 11:26–39, 12:28–41. Claim 1 is reproduced below.

1. A cable, comprising:

[1A] a first twisted pair of insulated conductors;

[1B] a second twisted pair of insulated conductors;

[1C] a filler separating the first twisted pair of insulated conductors from the second twisted pair of insulated conductors;
and

[1D] a multi-layer conductive barrier tape comprising a continuous conductive material contained between two layers of a dielectric material, the conductive material of the barrier tape extending to each lateral edge of the two layers of the dielectric material, the barrier tape surrounding the first twisted pair of insulated conductors, the second twisted pair of insulated conductors, and the filler.

Id. at 11:26–39 (with bracketed designations added).

F. Evidence

In support of its unpatentability arguments, Petitioner relies on, *inter alia*, the declarations of Kenneth Cornelison. Exs. 1006, 1059. Patent Owner relies on the declarations of Dr. Charles A. Eldering. Exs. 2001, 2012.

G. Prior Art and Instituted Grounds

We instituted *inter partes* review of claims 1–3, 9–14, and 16–18 of the '030 patent on the following grounds:

Ground ¹	Claim(s) Challenged	35 U.S.C. § ²	Reference(s)/Basis
1	1–3, 9–14, 16–18	102	Cook ³
2	11	103	Cook, Glew ⁴
3	1–3, 9–14, 16–18	102	Glew
4A	1–3, 9–14, 16–18	103	Glew
4B	1–3, 9–14, 16–18	103	Glew, Cook
5	1–3, 9–11, 13, 16–18	102	Roberts ⁵
6A	1–3, 9–11, 13, 16–18	103	Roberts
6B	1–3, 9–11, 13, 16–18	103	Roberts, Jachimowicz-172 ⁶
7	1–3, 9–11, 13, 16–18	103	Roberts, Jachimowicz-036 ⁷
8A	11	103	Roberts, Glew,
8B	11	103	Roberts, Glew, Jachimowicz-172
8C	11	103	Roberts, Glew, Jachimowicz-036
9A	12, 16	103	Roberts, Simons ⁸
9B	12, 16	103	Roberts, Jachimowicz-172,

¹ To the extent that Petitioner’s Grounds differ between the “Identification of Challenge” (Pet. 1) and the discussion presented in the Petition, we rely on Petitioner’s discussion (*see id.* at 71–81 (Grounds 7–9), 97 (Ground 11)).

² 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 ’030 patent has an effective filing date after the effective date of the applicable AIA amendments, we refer to the AIA versions of §§ 102 and 103.

³ US 9,363,935 B1, issued June 7, 2016 (Ex. 1010).

⁴ US 2013/0248240 A1, published September 26, 2013 (Ex. 1008).

⁵ US 3,622,683, issued November 23, 1971 (Ex. 1009).

⁶ US 3,894,172, issued July 8, 1975 (Ex. 1014).

⁷ US 3,233,036, issued February 1, 1966 (Ex. 1013).

⁸ US 3,911,200, issued October 7, 1975 (Ex. 1012).

Ground ¹	Claim(s) Challenged	35 U.S.C. § ²	Reference(s)/Basis
			Simons
9C	12, 16	103	Roberts, Jachimowicz-036, Simons
9D	12, 16	103	Roberts, Glew, Simons
9E	12, 16	103	Roberts, Jachimowicz-036, Glew, Simon
9F	12, 16	103	Roberts, Jachimowicz-172, Glew, Simon
10	1–3, 9–14, 16–18	103	Clark-478, ⁹ Roberts, Glew
11	3, 9	103	Glew, Roberts, Cook, and/or Jachimowicz-172 or Jachimowicz-036

II. ANALYSIS

A. Legal Standards

To prevail in this proceeding, Petitioner must demonstrate by a preponderance of the evidence that the challenged claims are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). It is Petitioner’s burden to set forth the basis for its challenge in the Petition. *See 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.”).

⁹ US 2006/0169478 A1, published August 3, 2006 (Ex. 1025).

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros., Inc. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987). A “prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements ‘arranged as in the claim.’” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008) (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)). Although the elements must be arranged or combined in the same way as in the claim, “the reference need not satisfy an *ipsissimis verbis* test,” i.e., identity of terminology is not required. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009).

A claim is unpatentable for obviousness 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 before the effective filing date to a person having ordinary skill in the art to which said subject matter pertains. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective indicia of non-obviousness (i.e., secondary considerations).¹⁰ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). “An obviousness determination requires finding both ‘that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and

¹⁰ The parties do not submit secondary consideration evidence.

that the skilled artisan would have had a reasonable expectation of success in doing so.” *CRFD Research, Inc. v. Matal*, 876 F.3d 1330, 1340 (Fed. Cir. 2017) (quoting *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1366 Fed. Cir. 2016). A petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil*, 829 F.3d 1364, 1380 (Fed. Cir. 2016)

We analyze Petitioner’s challenges according to the above-stated principles.

B. Level of Ordinary Skill in the Art

Petitioner asserts that “a person of ordinary skill in the art (POSITA) would have had a bachelor’s degree in electrical engineering and a minimum of 3-4 years of industry experience in connection with designing, manufacturing, and testing of twisted-pair data cables,” and an “individual with a master’s degree in electrical engineering would require less industry experience (e.g., 1-2 years).” Pet. 15 (citing Ex. 1006 ¶ 12). Prior to institution, Patent Owner’s declarant asserted that a POSITA would have had at least a bachelor’s degree in electrical engineering and a minimum of 3-4 years of industry experience in the telecommunications industry and disagreed that industry experience specifically with respect to twisted-pair data cables was necessary to qualify as having ordinary skill in the art. Ex. 2001 ¶ 26 (cited at Prelim. Resp. 22 n.6). Patent Owner stated, however, that any differences between the parties’ proposed definitions “are insubstantial and do not impact the analysis of the issues presented.” Prelim. Resp. 22 n.6.

In our Decision on Institution, we adopted Petitioner’s proposal of a person of ordinary skill in the art (POSITA) as someone that “would have

had a bachelor's degree in electrical engineering and a minimum of 3-4 years of industry experience in connection with designing, manufacturing, and testing of twisted-pair data cables,” and an “individual with a master's degree in electrical engineering would require less industry experience (e.g., 1-2 years).” Inst. Dec. 7–8. During the trial, neither party disputed our definition of a POSITA nor argued that the outcome of this case would differ based upon our adoption of any particular definition of a POSITA. *See generally* Reply; PO Resp. 12 n.4 (agreeing the POSITA definition does not impact analysis of issues presented).

Upon review of the full record, we see no reason to modify, and we thus maintain, the definition of a POSITA applied in our Decision on Institution.

In its Reply, Petitioner asserts that Dr. Eldering's testimony should be discounted with respect to Ground 4 because he had “no relevant experience designing cables or tapes.” Reply 1. More particularly, Petitioner asserts that Dr. Eldering has no experience with manufacturing *tape* for cables, sizing *tape* to the correct width, or with “*slitting*”. *Id.* at 16–17 (emphasis added).

We note that our definition of a POSITA does not require experience directed specifically to manufacturing tape for cable, sizing tape, or “slitting” and, thus, Dr. Eldering's asserted lack of experience does not impact whether or not Dr. Eldering meets the minimum requirements of a POSITA. *See Kyocera Senco Industrial Tools Inc. v. ITC*, 22 F.4th 1369, 1376–77 (Fed. Cir. 2022) (stating that an expert witness in a patent case must have at least an ordinary skill in the art to offer expert testimony from the perspective of a skilled artisan); *see also* Ex. 2001 ¶¶ 13–15

(demonstrating that Dr. Eldering meets the minimum requirements of a POSITA as he has a Ph.D. in Electrical Engineering and has the requisite experience with twisted-pair data cables); *see also* Sur-reply 2–3 (setting forth Dr. Eldering’s “significant industry experience with twisted pair data cables”).

Because we do not rely on Dr. Eldering’s testimony in our analysis of Ground 4, we need not address how much weight to assign his testimony.

C. *Claim Construction*

In an *inter partes* review, we construe a claim term “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 that standard, the words of a claim “are generally given their ordinary and customary meaning,” which 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, i.e., as of the effective filing date of the patent application.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc).

In our Decision on Institution, we noted that although neither party argued for any express claim constructions, the parties disagreed as to what constituted the “lateral edge” of the dielectric material of the barrier tape of the asserted references. *See* Inst. Dec. 7 (citing Pet. 36–37; Prelim. Resp. 19–26). In particular, Patent Owner asserted that the lateral edge of the barrier tape was the side of the tape that runs parallel to the longitudinal direction of the tape (i.e., the “long side” of the tape), while Petitioner presented unpatentability arguments based on the lateral edge being the short side of the tape, as well as an alternative argument relating to the long side of the tape. *See id.* at 21–23. We preliminary construed the term “lateral

edge” as referring to the edges of dielectric material of the barrier tape running along the sides of the tape parallel to (or in) the longitudinal direction, as argued by Patent Owner and invited the parties to address the meaning of “lateral edge.” *Id.* at 23–24.

After institution, Patent Owner maintains its proposed construction and asserts that, in the '030 patent, the 306a and 306b of the barrier tape (i.e., the “long edges” of the tape) shown in Figures 3C (top) and 3E (bottom) below constitute the lateral edges of the tape. PO Resp. 11–12 (citing, *inter alia*, Ex. 1001, Figs. 3A, 3C).

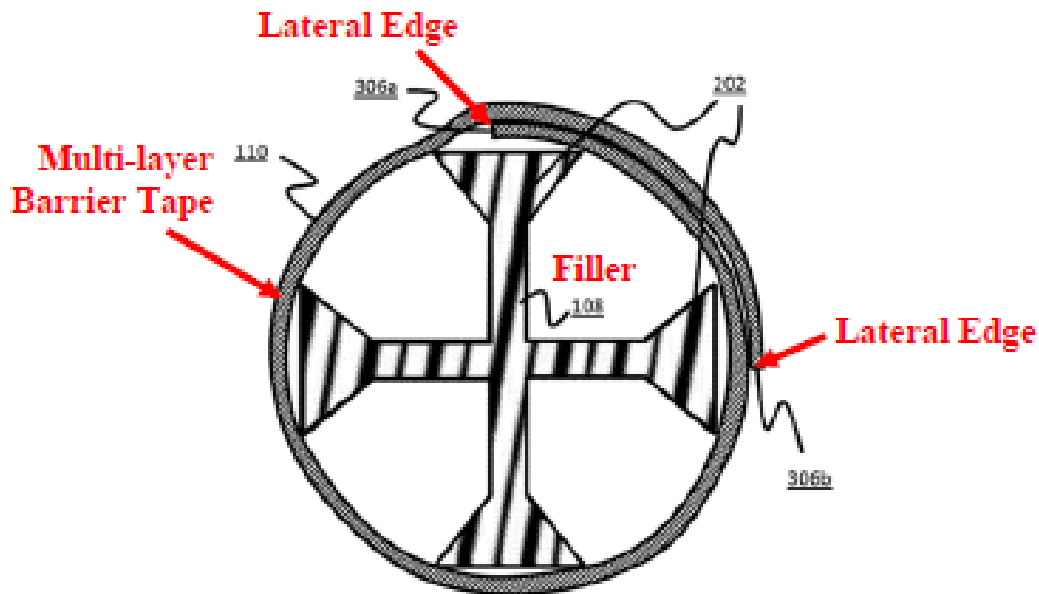


FIG. 3C

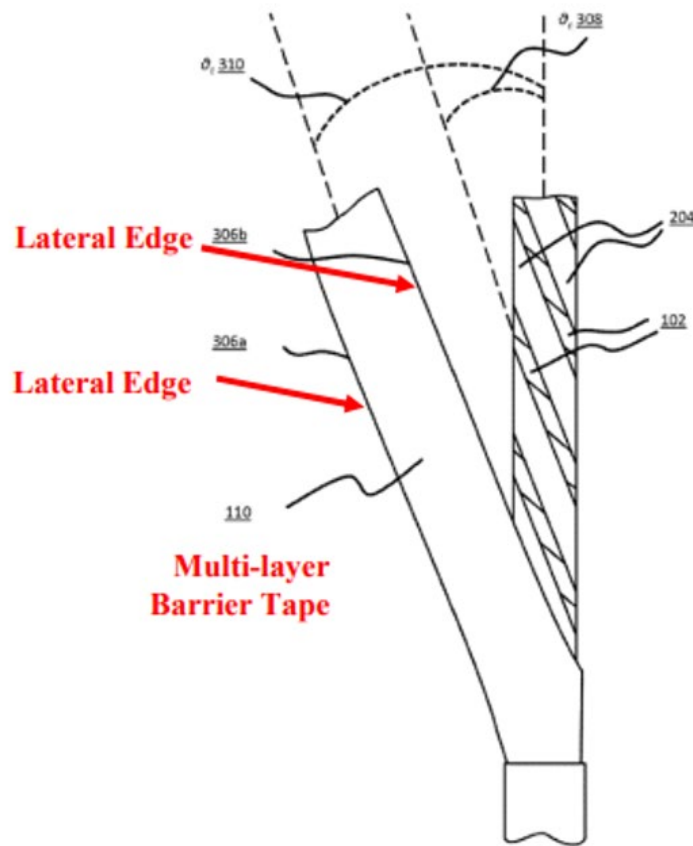


Figure 3C (top) and Figure 3E (bottom) of the '030 patent, reproduced above, depict embodiments of barrier tape with Patent Owner's annotations in red identifying the lateral edges of the barrier tape added. PO Resp. 10–12; Ex. 1001, Figures 3C, 3E, 4:42–44, 8:62–65.

Patent Owner also asserts that the dictionary definition of “lateral” (i.e., of, relating to, or situated at or on the side) supports that the claimed lateral edges must run along the sides of the tape parallel to the longitudinal direction. PO Resp. 16 (quoting Ex. 2015). Thus, Patent Owner asserts that the lateral edges of the barrier tape 102 shown in the '030 patent are the longer lengthwise-extending edges 306a and 306b of the '030 patent and not the shorter edges of the tape.

Petitioner disagrees with Patent Owner's construction (Reply 12–15) and asserts that the claimed “lateral edges” are the edges running along the

sides of the tape in the ‘lateral direction’” (Reply 12). *See also id.* at 15 (stating lateral edges “must run along the ‘side’ of the dielectric layers” and that “Glew’s sideways edges do run along the sides, i.e., the two shorter sides”); *see also* Pet. 37 (asserting in Ground 3 that lateral edges of Glew’s dielectric layers are the front edges of dielectric layers 135 and 127, highlighted in red in annotated Figure 13C below, because the edges “extend laterally (as compared to extending along the longitudinal axis).”

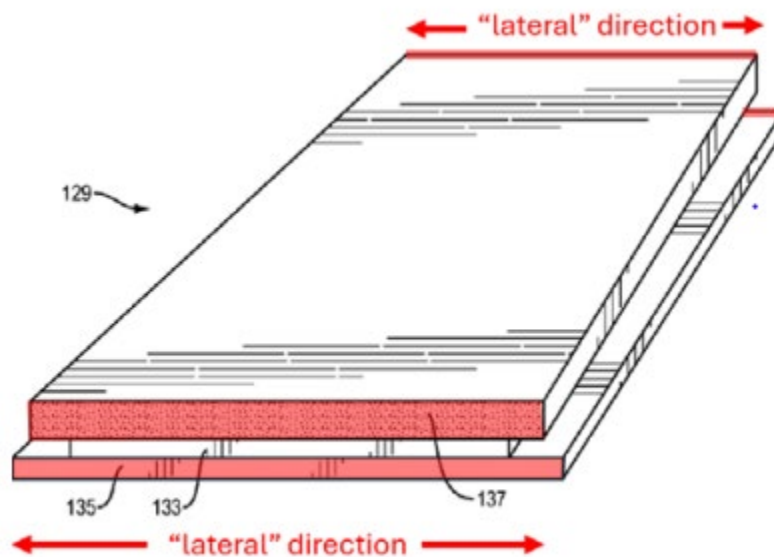


FIG. 13C

Figure 13C of Glew, shown above, depicts a multi-layer tape having metallic layer 133 disposed between layers 135 and 137, with red highlighting and annotations added by Petitioner to depict that lateral edges run in the shorter, lateral direction. Ex. 1008 ¶ 195, Fig. 13C; Reply 12; *see also* Pet. 37 (annotating Glew Figure 13 to label the “lateral edges” of layers 135 and 137).

Petitioner does not point to any disclosure in the ’030 patent to support its proposed construction other than to state the patent does not use the term “lateral” to refer edges 306a and 306b. *See* Reply 14. Rather, Petitioner asserts that Patent Owner’s expert “agreed that ‘lateral’ refers to

sideways” and “agreed that Glew’s sideways edges (red) run in the lateral direction.” Reply 11–12 (citing Ex. 1048, 74:7, 81:17–82:10; Ex. 1051).

1. *Analysis – “Lateral Edge”*

For the reasons below, we maintain our construction and construe “lateral edge” of the dielectric material of the barrier tape to be the edge of the dielectric material that runs along the sides of the barrier tape in the longitudinal direction (i.e., the “long” edge of the tape) as asserted by Patent Owner. *See* PO Resp. 16.

Independent claims 1 and 18 both recite a cable comprising a multi-layer barrier tape, the tape having a conductive material contained between two layers of a dielectric material, and that the “conductive material of the barrier tape extend[s] *to each lateral edge* of the two layers of the dielectric material.” Ex. 1001, 11:32–36, 12:35–41 (emphasis added).

The Specification of the ’030 patent does not use the term lateral edge but does state that “tape 110 has a first edge 306a and a second edge 306b, referred to generally as edge(s) 306 of the barrier tape 110.” *Id.* at 8:1–3. Figure 3C of the ’030 patent, shown below, shows first edge 306a and second edge 306b of barrier tape 110 that is wrapped around filler 108. *See* Ex. 1001, 8:7–10, 12–15.

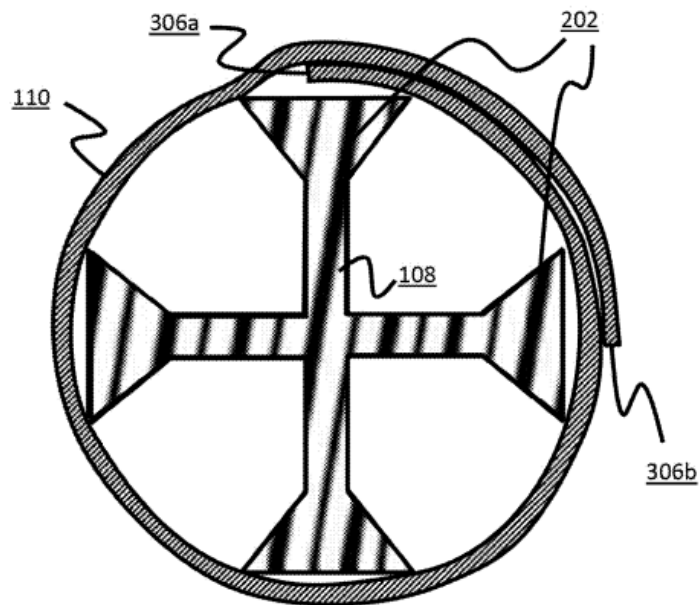


FIG. 3C

Figure 3C above is a cross section of an embodiment of a barrier tape having first edge 306a and second edge 306b wrapped around filler 108. Ex. 1001, 4:53–55, 8:12–15.

Figure 3E of the '030 patent, reproduced below, illustrates application of barrier tape 110 having edges 306a and 306b. *Id.* at 8:38–41, Fig. 3E.

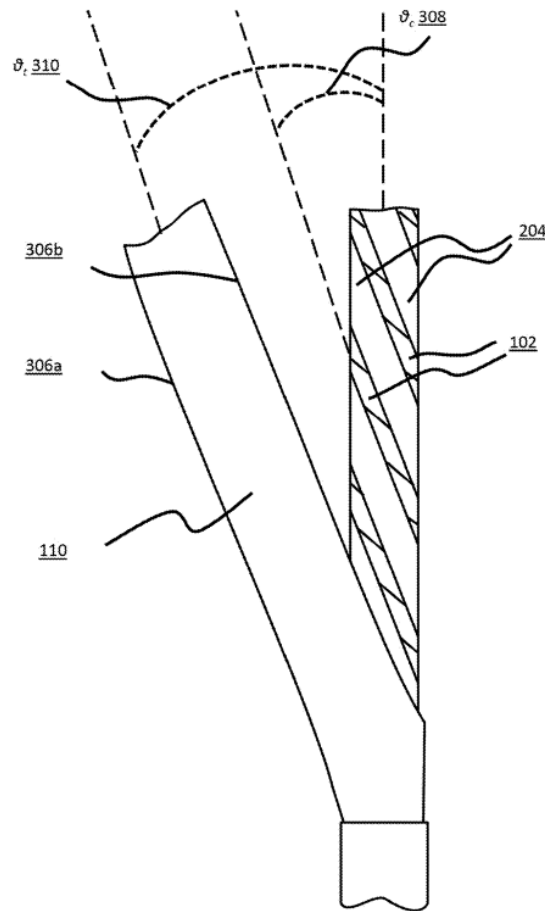


FIG. 3E

Figure 3E above is a plan view of an embodiment of fixed tape control application of barrier tape 110 on an Unshielded Twisted Pair (UTP) cable incorporating a filler. Ex. 1001, 8:26–28. Also depicted in Figure 3E are twisted pairs of conductors 102, end portion 204 of terminal portion 202 and “conductive edges 306 of tape 110.” *Id.* at 6:22–24, 8:45–46.

The '030 patent illustrates in Figure 3A, shown below, an embodiment of the barrier tape having a conductive material layer that is contained between two layers of a dielectric material, wherein the conductive material extends to the edge of the tape. *Id.* at 7:49–51.

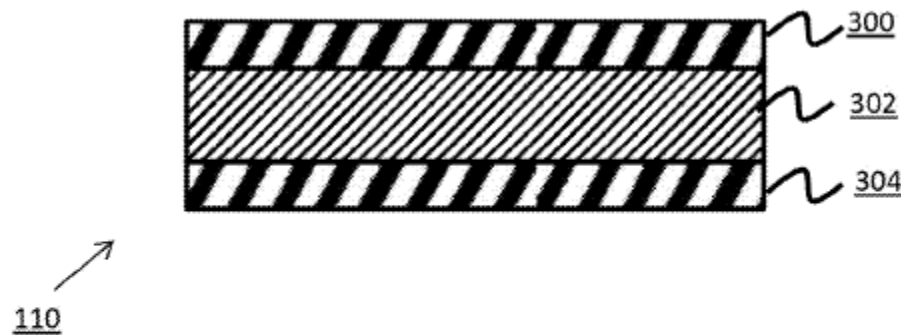


FIG. 3A

Figure 3A is a cross section of an embodiment of barrier tape 110 having conductive material 302 located between two layers of dielectric material 304. *Id.* at 7:38–45. In this embodiment, the conductive layer is shown “edge to edge.” *Id.* at 7:49–51.

Thus, although the Specification does not use the term “lateral edge,” the Specification and figures of the ’030 patent make clear, that in the embodiments having a conductive layer that extends to the edges of the dielectric layers of the tape, the referred to “edge” is the edge of the “long side” of the tape that extends in the longitudinal direction. *See, e.g.*, Ex. 1001, 7:49–51 (stating in some embodiments conductive layer 302 may not extend to the edge of tape 110), 8:1–25 (stating, *inter alia*, pairs 102 could electrically couple to the corresponding edge 306 resulting in increased ANEXT), 8:41–46, 10:30–36 (stating that the tape edge lies over a pair of conducts and the pair generates more ANEXT).

Our construction of term “lateral edge” is supported by Roberts, which also refers to the edges of the long side of the tape extending in the longitudinal direction as the “lateral edges.” *See, e.g.*, Ex. 1009, 2:20–24 (“a

shield made from a plurality of tapes helically disposed, *the lateral edges of which overlap adjacently lying tapes*”), 2:42–46 (“a shield composed of a plurality of ..., *the lateral edges of which overlap* adjacently disposed tapes”), 4:27–33 (“the plastic-coated metal foil shield (15) [FIG. 2] has *lateral edges that overlap*,” “*the lateral edges of the shield overlapping one another*”), 4:34–40 (“The *lateral edges of the helically disposed tapes* [of FIG. 3] *overlap adjacently lying tapes*.”), 5:65-75 (“the shield (15) [of FIG. 10] is made up of a plurality of tapes, *the lateral edges of which overlap adjacently disposed like tapes*”), Figs. 2, 3, 10.

We credit Dr. Eldering’s testimony that these disclosures of Roberts shows that a POSITA would understand that a tape’s “lateral edges” are the edges running along the sides of the tape parallel to the longitudinal direction. *See* Ex. 2001 ¶¶ 64–65; *see also* *Thales Visionix, Inc. v. United States*, 415 F.3d 1335, 1348 (Fed. Cir. 2020) (considering whether the proposed claim construction is “consistent with the prior art’s usage of that term”).

Patent Owner asserts that the dictionary definition of lateral (i.e., ‘of, relating to, or []situated at or on the side’)” supports that the claimed lateral edges must run along the side of the tape parallel to the longitudinal direction. PO Resp. 16 (quoting Ex. 2015). Petitioner responds that the dictionary definition does not support Patent Owner’s construction because a tape has four sides and, therefore, the “short side” of a tape can also constitute the lateral edge. Reply 15. Petitioner’s argument is not persuasive. Although an object, such as a barrier tape, may have four sides, this fact does not outweigh the evidence discussed above that the “lateral edge” of a barrier tape refers to the edge of the longitudinal side (i.e., the

“long side”) of the tape. Moreover, we also note that even though an object may have four sides, such as a house, it is common to refer to the “lateral” side of the object (i.e., situated at or on the side) as the “sides” of the object and to refer to the sides parallel to the lateral sides as another name, such as “front” and “back.” *See* Ex. 2015, 4 (“lateral” as an adjective meaning “situated at the side”). For example, a reference to the “sides” of a house, would generally refer to the left and right sides of the house (i.e., the lateral sides of the house) and one would not generally refer to the front or back of the house as the lateral sides. *Id.* Thus, we agree with Patent Owner that the dictionary definition of “lateral” supports its claim construction.

Petitioner also argues that we should reject Patent Owner’s construction because Patent Owner’s expert, when discussing the Glew reference, “clarified that he agreed that the sideways edges (red) are edges in the lateral direction.” Reply 11–13 (citing Ex. 1048, 74:7, 81:17–82:10; Ex. 1051). We disagree with Petitioner. Dr. Eldering clearly testified that he did not consider edges that run “in the lateral direction” to be lateral edges. *See* Ex. 1048, 81:17–82:10; *see also id.* at 84:3–5 (stating the edges highlighted yellow, not red, are considered the lateral edges). Rather, Dr. Eldering explained that the yellow “edges running along the side of the tape parallel to the longitudinal direction . . . are considered the lateral edges” and that the red colored edges that run “perpendicular to the longitudinal direction, which can be considered[] to be the lateral direction” are not the lateral edges. *Id.* at 84:1–11. To continue the house analogy, the lateral sides of the house do not run in the “lateral direction” but rather run in the direction of “front to back.”

No other express construction of any claim terms is required to resolve the issues in dispute. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (noting that “we need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy’”) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

D. Asserted Anticipation of Claims 1–3, 9–14, and 16–18 by Cook (Ground 1)

Petitioner argues that Cook anticipates independent claims 1 and 18 and dependent claims 2, 3, 9–14, 16 and 17. Pet. 17–31 (Ground 1). Patent Owner opposes. For the reasons stated below, Petitioner has not shown by a preponderance of the evidence that Cook anticipates claims 1–3, 9–14, and 16–18.

1. Cook (Ex. 1010)

Cook is a U.S. patent titled “Subdivided Separation Fillers for Use in Cables.” Ex. 1010, code (54). Cook discloses cables including separators with discrete sections disposed between twisted pairs. *Id.* at code (57). Figure 1 of Cook is reproduced below.

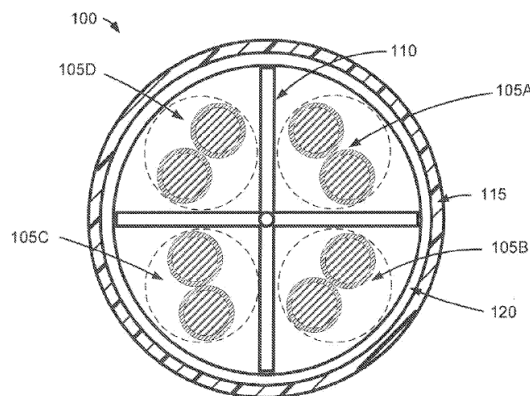


FIG. 1

Figure 1 illustrates a cross-section of cable 100. *Id.* at 4:32–34. Cable 100 includes separator 110 having a cross shape with four arms extending from a central point. *Id.* at 4:55–59, 11:40–51. Cable 100 further includes four twisted pairs 105A–105D, each twisted pair located between two arms of separator 110. *Id.* at 4:41–44, 4:55–59. Separator 110 and twisted pairs 105A–105D are surrounded by shield layer 120. *Id.* at 5:46–48. Shield layer 120 is surrounded by jacket 115. *Id.* at 4:55–59, 5:43–46.

Cook describes an embodiment of shield layer 120 as “a relatively continuous shield [] formed from electrically conductive material such as a metallic foil (e.g., a copper foil, an aluminum foil . . .).” *Id.* at 6:50–54. The electrically conductive material “whether continuous or comprising electrically conductive patches or sections, can be disposed on a substrate or dielectric material.” *Id.* at 7:10–15. Cook further describes the electrically conductive material as disposed on a dielectric tape or “sandwiched between multiple dielectric layers in order to form a shield.” *Id.* at 7:15–20.

Figure 8D of Cook is reproduced below.

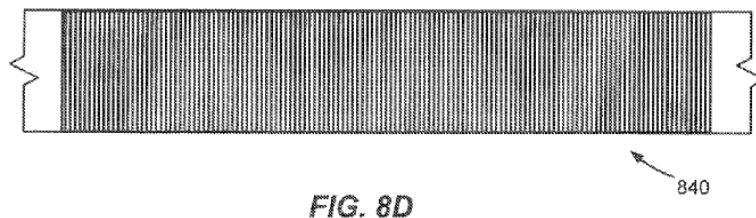


Figure 8D illustrates a top level view of a shield layer that includes “a relatively continuous patch of electrically conductive material running along a longitudinal length” of separator 840. *Id.* at 23:58–62. “With a shield layer, a relatively continuous shield may be performed and, as desired, the electrically conductive material may be grounded at either end when a cable incorporating the shield layer is installed.” *Id.* at 23:64–67.

2. *Petitioner's Arguments*

Petitioner asserts that Cook discloses each limitation of independent claims 1 and 18 (Pet. 17–22, 30) and dependent claims 2, 3, 9–14, 16 and 17 (Pet. 22–30).

For example, with respect to claim 1, Petitioner asserts that Cook discloses a cable (cable 100) having first and second twisted pair of insulated conductors (105A and 105B), and a filler (separator 110) separating the first and second twisted pairs as recited in the preamble and claim elements [1A], [1B], and [1C]. Pet. 17 (citing Ex. 1010, 4:32–47, 4:55–59, 5:63–6:22, 15:57–63, Figs. 1, 2; Ex. 1006 ¶¶ 79–80). As shown in Petitioner's version of Cook Figure 1, reproduced below, Petitioner asserts that Cook discloses a barrier tape (shield 120-green) that surrounds the first and second twisted pair of insulated conductors (105A and 105B-red) and filler (separator 110-blue) as recited in claim element [1D]. Pet. 18 (citing Ex. 1010, 5:46–48, 6:35–41, Figs. 1–2; Ex. 1006 ¶ 81).

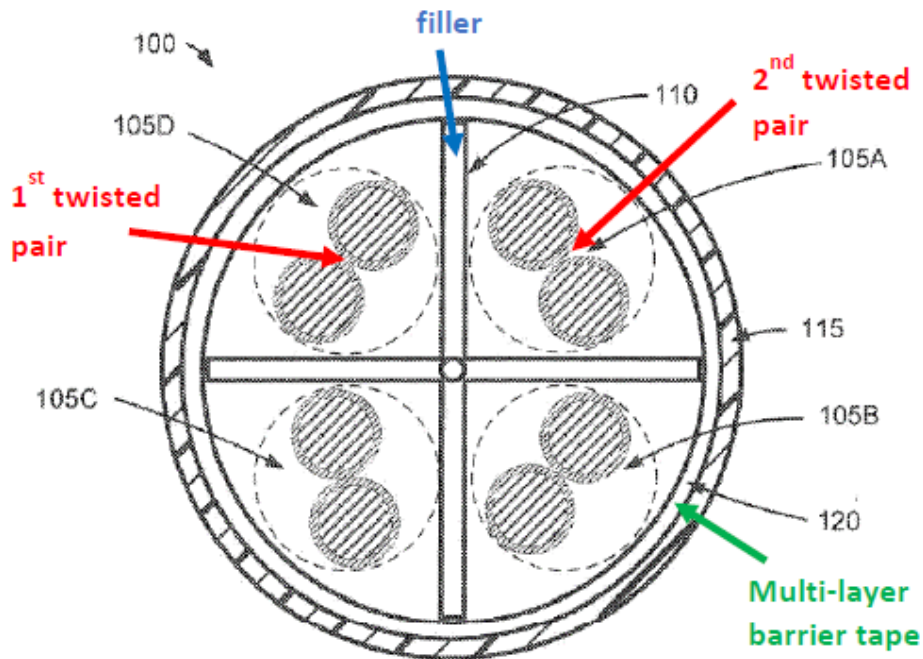


FIG. 1

Cook Figure 1 above is a cross sectional view of an example cable including shield 120 __ according to an illustrative embodiment of the disclosure, with color annotations added by Petitioner. Ex. 1010, 2:37–39; Pet. 18.

Claim element [1D] also requires that the barrier tape comprise:

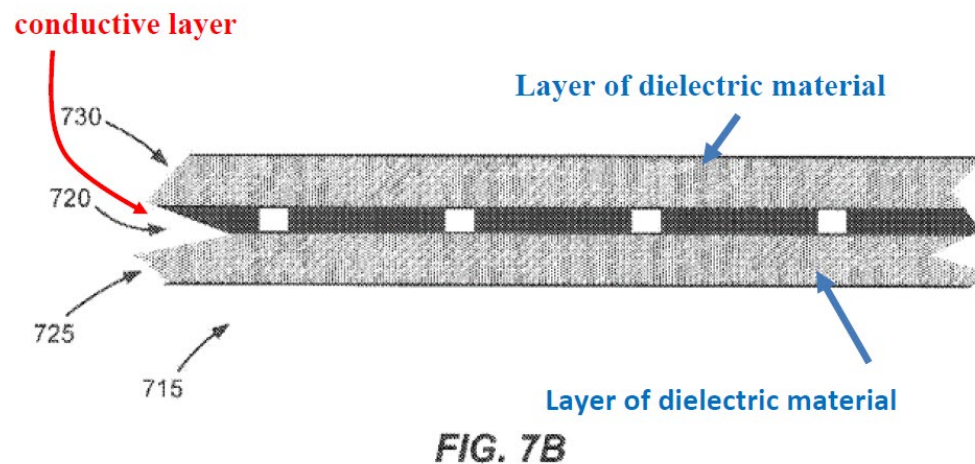
- (1) a *continuous conductive material*,
- (2) the conductive material be *sandwiched between two layers of dielectric material*, and
- (3) the conductive material *extends to “each lateral edge of the two layers of the dielectric material.”*

Ex. 1001, 11:32–36 (emphasis added).

Petitioner asserts that Cook discloses a multi-layer conductive barrier tape that meets all three of these limitations recited in claim element [1D]. Pet. 19–21. With respect to the claim elements requiring that the barrier tape

comprise either a *continuous* or a discontinuous conductive material that is contained between two layers of dielectric material,¹¹ Petitioner states that:

Cook’s “shield 120” may be a “tape” that comprises a “*continuous*” electrically conductive material (or “an electrically conductive layer”) that is “*sandwiched between multiple* [(e.g., two)] dielectric layers,” or, as an alternative, comprises “discontinuous” separated patches or sections of electrically conductive material “sandwiched between” dielectric layers.[□] See, Ex. 1010, 6:50–7:20, 11:8–39, 11:64–12:5, 22:30–41, Figs. 7B, 8A–8D; Ex. 1006, ¶83. The side view of an exemplary shield where a discontinuous “electrically conductive layer 720 is sandwiched between two dielectric layers 725, 730” is illustrated in FIG. 7B:



EX-1010, 22:39–41, FIG. 7B (annotated); Ex. 1006, ¶82.

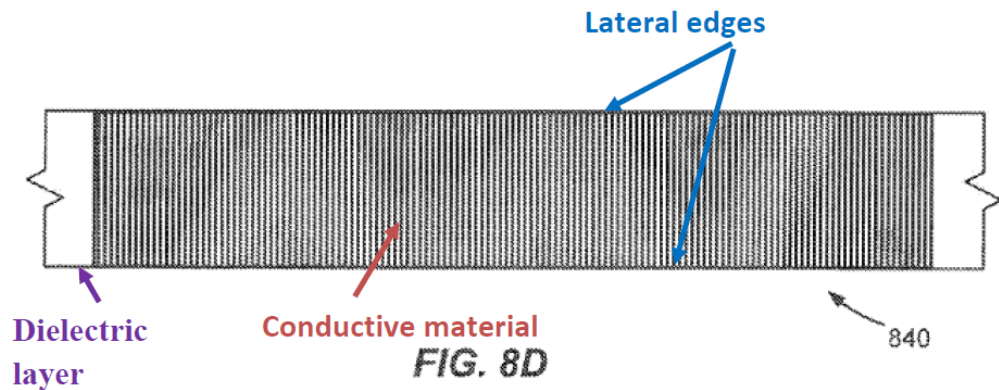
Pet. 19.

Cook Figure 7B, with Petitioner’s annotations added, depicts an example construction having electrically conductive layer 720 sandwiched between dielectric layers 725 and 730. Ex. 1010, 22:39–41.

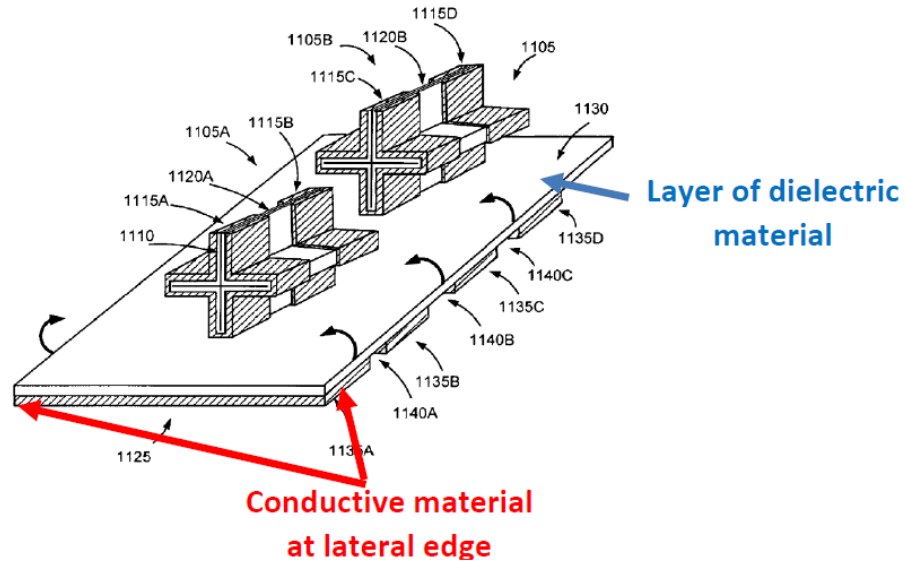
¹¹ Claim 1, unlike claim 18, requires that the conductive layer be “continuous.”

With respect to the claim elements requiring that the conductive material extend to each lateral edge of the dielectric material, Petitioner asserts:

Cook discloses the conductive material *extending to each lateral edge of the two layers of dielectric material.*” EX-1006, ¶¶84–87. This “is illustrated in annotated Figure 8D (below) which shows the conductive layer vis-a-vis one of the dielectric layers:



See Ex-1010, 23:58–67, Fig. 8D (annotated). Cook explains that the conductive material is “running along the longitudinal length” of tape and “span[s] fully across a width” of the shield. See, *id.*, 12:22-23, 23:58-67; EX-1006, ¶84. Further, Figure 11 (annotated below), which illustrates an exemplary shield layer 1125 (a two-layer barrier tape) that is “folded or wrapped around” the separator (filler) and the twisted pairs of conductors (not shown), has conductive material (i.e., patches) extending to each lateral edge of the dielectric layer.



EX-1010, 25:39-57, FIG. 11. Although this embodiment shows discontinuous patches (as opposed to the alternative “continuous” design), continuous conductive material would similarly extend to the lateral edges such as shown above in FIG 8D. EX-1006, ¶¶84-86. Pet. 20–21.

With respect to claim 18, Petitioner states that independent claim 18 “recites essentially the same structural limitations as claim 1, except it does not require the conductive layer to be ‘continuous’ and it is written in the form of a ‘method,’” and using “Cook’s cable and teaching described above for claim 1 . . . results in performing the method recited in claim 18 and renders claim 18 anticipated for the same reasons discussed above.” *Id.* at 30–31 (citing Ex. 1006 ¶¶ 111–120).

3. *Patent Owner's Argument*

Patent Owner responds that Cook cannot anticipate claims 1 and 18 because Petitioner fails to show Cook discloses a barrier tape with conductive material *contained between two layers of dielectric material* and *extending to each lateral edge of the two layers of dielectric material*, as required by claim elements [1D] of claim 1 and [18C-1] and [18C-2] of claim 18 and also does not disclose a barrier tape with *continuous*

conductive material contained between two layers of a dielectric material, as further required by claim element [1D]. PO Resp. 24–25 (citing Ex. 2012 ¶¶ 53–54).

4. *Analysis*

Upon review of the full record, we determine that Petitioner’s contentions set forth in its Petition are insufficient to show that Cook discloses a barrier tape having a conductive material *contained between two layers* of dielectric material where the conductive material *extends to each lateral edge* of the two layers of the dielectric material, as required by claims 1 and 18, and further that the conductive material be *continuous* as required by claim 1. We agree with Patent Owner that Petitioner relies on multiple disparate embodiments of Cook for each of these limitations without sufficiently articulating how a single embodiment satisfies the requirements of claim 1 or 18 or articulating how the disparate embodiments may be combined to arrive at claim 1 or 18. *See, e.g.*, PO Resp. 18–25; Pet. 18–21; *see also NetMoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008) (stating in order to establish anticipation, “it is not enough that the prior art reference . . . include multiple, distinct teachings that the artisan might somehow combine to achieve the claimed invention” and that the “reference must clearly and unequivocally disclose the claimed [invention] or direct those skilled in the art to the [invention] without any need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference”).

In its Petition, CommScope provides a single sentence stating that Cook’s shield comprises a (1) *continuous* electrically *conductive* layer that is (2) sandwiched between *two dielectric layers* and cites to numerous portions

of Cook in support. *See* Pet. 19 (citing Ex. 1010, 6:50-7:20, 11:8-39, 11:64-12:5, 22:30-41, Figs. 7B, 8A-8D; Ex.-1006, ¶83). This general sentence, however, does not specify which disclosures in Cook Petitioner is describing as disclosing which particular claim element. *See id.*

The Petition then states that “an exemplary shield” having a discontinuous conductive layer *sandwiched between two dielectric layers* is illustrated in Figure 7B. Pet. 20 (citing Ex. 1010, 22:39–41 (discussing Figure 7B), Fig. 7B; Ex. 1006 ¶ 82). The Petition next asserts that Cook discloses *conductive material extending to each lateral edge of the two layer dielectric material* and this is illustrated in Figures 8A–D and Figure 11. *See* Pet. 20 (citing Ex. 1010, 12:22–23, 23:58–6, 25:39–57; Ex. 1006 ¶ 84). The embodiments of Figures 8A–D and 11, however, only have a *single* dielectric layer and, therefore, do not disclose a conductive layer that is contained between *two layers* of a dielectric material. *See, e.g.,* Ex. 1010, Figs. 8A–D, 11.

In its Reply, CommScope presents three arguments as to why its Petition sufficiently shows Cook anticipates independent claims 1 and 18. *See* Reply 2–10. We have considered each of these arguments, but do not find these arguments persuasive.

First, Petitioner asserts that Cook’s description of its shield 120 is sufficient to anticipate without combining it with any figures. Reply 2–3 (citing Ex. 1010, 2:33–36, 6:50–7:11, 7:10–18, 12:22–23; Ex. 1059 (Cornelison Dec. Supp.) ¶ 349). Petitioner asserts that Cook’s text teaches selecting “multiple aspects of shield 120,” that shield 120 includes continuous or discontinuous electrically conductive material (Ex. 1010, 6:50–7:11), and that Cook’s text explains that suitable techniques for

forming shield 1120 include sandwiching the conductive material between two dielectric layers or placed on one dielectric layer (Ex. 1010, 7:10–18), and that conductive material in shield 120 “may span different dimensions” including fully across a width (Ex. 1010, 12:22–23). Reply 3. Petitioner concludes that “[t]hus, Cook’s text teaches to select all three requirements of shield 120: the material (e.g., continuous), the technique (e.g., sandwiched), and the span (e.g., fully across).” Reply 3 (citing Ex. 1059 ¶ 349).

We disagree. Column 6 of Cook states that a “wide variety of suitable materials” may be used to form shield 120 and that “*in certain embodiments* a relatively continuous shield” may be formed from conductive material and that in “*other embodiments*, a discontinuous shield” may be used that “include[s] a plurality of patches” of electrically isolated patches of shielding material. Ex. 1001, 6:50–67 (emphasis added). Column 7 of Cook merely states that a “wide variety” of techniques can be used to form shield 120 (*id.* at 7:10–11), that “[i]n *certain embodiments*” conductive material may be formed on a dielectric layer to form a shield (*id.* at 7:15–18), and that “[i]n *other embodiments*” conductive material may be sandwiched between multiple dielectric layers to form a shield (*id.* at 7:18–20). Column 12 merely states “*in certain embodiments*,” the patches may span fully across a width of a shield layer. *Id.* at 12:22–23. Cook’s disclosure contains descriptions of numerous other “embodiments.” *See generally* Ex. 1010. Thus, the cited material discusses various embodiments and Petitioner does not sufficiently show that these statements mean that features from the various embodiments may be combined into a single embodiment. Petitioner does assert that “Cook emphasizes the figures are ‘not intended to limit’ the text and that “embodiments in the text ‘may utilize elements

and/or components other than those illustrated in the figures.” Reply 3 (citing Ex. 1010, 2:33–36). These statements, however, do not teach combining multiple, distinct teachings to achieve the claimed invention.

Petitioner also asserts that Patent Owner’s expert, Dr. Eldering, “conceded Cook has these teachings.” Reply 3 (citing Ex. 1048, 180:15–181:13, 183:10–14, 184:15–185:6). Contrary to Petitioner’s assertion, however, a review of Dr. Eldering’s testimony shows that while he does agree as to the descriptions of “teachings” regarding various embodiments in Cook, he did not agree that Cook teaches combining these teachings in such a way as to meet all of the claim limitations of claim 1 or 18. *See* Ex. 1048, 180:15–181:13, 183:10–14, 184:15–185:6 (discussing individual disclosures in Cook but not conceding that Cook discloses a single embodiment that meets all of the limitations of claims 1 and 18).

Petitioner’s second argument is that Cook’s shield 120 (as described) and Figure 8D are sufficient to anticipate the recited barrier tape without combining the disclosures of these portions of Cook with Figures 7B or 11 of Cook. Reply 4–5 (citing Ex. 1010, 7:10–18, 22:62–67; Ex. 1059 ¶ 350). Petitioner asserts that Cook discloses an embodiment of shield 120 where the conductive material is “sandwiched” (Ex. 1010, 7:10–18) and that Cook also “broadly teaches that: ‘*As desired*, patches of electrically conductive material incorporated into . . . a shield may have *a wide variety of different shapes and/or orientations*.’ EX-1010, 22:62-67.” Reply 4. Petitioner asserts that Figure 8D shows the conductive material that extends to the lateral edges according to Patent Owner’s claim construction and that there “is no need to consider further figures.” Reply 5 (citing Ex. 1059 ¶ 350). Petitioner asserts that when the embodiment shown in Figure 8D, having

conductive material (i.e., conductive material that extends to the lateral edges) “that may be ‘incorporated’ into Cook’s shield,” is, in fact, incorporated into the shield, “the result is one shield, not two shields.” Reply 5 (citing Ex. 1059 ¶ 351; Ex. 1010, 22:63). Mr. Cornelison testifies that Cook “expressly states that Figures 8D may be ‘utilized in various embodiments’ (EX-1010 at 22:62–67) and that this includes the disclosed embodiment where the conductive material is sandwiched between dielectric layers.” Ex. 1059 ¶ 351.

Petitioner’s third argument set forth in its Reply is that even if combining multiple embodiments is required, then it did not improperly combine embodiments. Reply 5 (citing Ex. 1010, 2:55–61, 3:1–3, 3:60–61; Ex. 1059 ¶ 365). Petitioner asserts that “Cook teaches Figures 7B, 8B, and 11 may be used with Cook’s various embodiments of the disclosures,” which includes using each figure with the embodiment of shield 120 and the embodiments in the other figures. Reply 5–6 (citing Ex. 1010, 2:55–61, 3:1–3; Ex. 1059 ¶ 365). Petitioner also asserts that Cook teaches that “any combination of shielding arrangements may be utilized.” Reply 6 (quoting Ex. 1010, 3:60–61 and citing Ex. 1059 ¶ 365).

None of these arguments are persuasive. As an initial matter, these arguments were presented for the first time in the Reply. *See* US Patent Trial and Appeal Board, Consolidated Trial Practice Guide 73 (Nov. 2019) (stating that while a Petitioner can respond to Patent Owner’s arguments, it “may not submit new evidence or argument in reply that it could have presented earlier [in the petition], e.g., to make out a prima facie case of unpatentability”). The Petition relies on Figure 7B and associated text at column 22, lines 39 to 41, for teaching a conductive layer sandwiched

between two dielectric layers. Pet. 19. The Petition relies on Cook’s discussion of Figure 8D as well as a statement that “in *certain embodiments*” discontinuous patches “may span fully across a width” of a shield layer for teaching extending the conductive material to the lateral edge of the dielectric layer. *Id.* at 20 (citing Ex. 1010, 12:22–23, 23:58–67; Ex. 1006 ¶ 84). Although the Petition does provide a single sentence stating that Cook discloses multiple claim elements of claims 1 and 18, followed by a string cite to multiple disclosures in Cook, this general sentence does not specify which disclosures in Cook relate to which particular claim element. *See id.* Nor does the Petition provide any argument that the various embodiments in Cook are directly related to each other such that they may be combined in an anticipation analysis. *See NetMoneyIN, Inc.*, 545 F.3d at 1371 (stating anticipation requires that the “reference must clearly and unequivocally disclose the claimed compound or direct those skilled in the art to the compound without any need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference”). Additionally, the Petition does not make any argument, let alone persuasive argument, that Cook’s reference to “certain embodiments” in column 12, lines 22 to 23 refers to embodiments that also have a conductive layer sandwiched between two dielectric layer or that Cook’s disclosure of a multilayer tape as shown in Figure 7B is not required to show anticipation. Thus, the Petition did not provide persuasive argument either that Cook’s shield 120 (as described) and Figure 8D are sufficient to anticipate without combining it with Figures 7B or 11, or that Cook’s multiple embodiments may combined to show anticipation. We decline to consider these arguments presented for the first time in Reply.

Second, even if we were to consider the arguments, they are not persuasive. Petitioner has not sufficiently shown that Cook teaches a barrier tape having an electrically conductive layer that is sandwiched between two dielectric layers wherein the conductive layer extends to the lateral edges of the dielectric layers.

Petitioner states that Cook teaches that “any combination of shielding arrangements may be utilized.” Reply 6 (citing Ex. 1010, 3:60–61). The section cited by Petitioner addresses the *combination of the shield or shielding layers* that may be used in the cable and not the combination of individual components that make up a shield. The full quote in Cook, however, states:

As desired in various embodiments, a cable may additionally incorporate one or more shield or shielding layers. For example, an external shield may circumscribe a plurality of twisted pairs In other embodiments, any combination of shielding arrangements may be utilized. For example a cable may include individually shield twisted pairs and an overall shield. As desired, one or more shield layers incorporated into the cable may include electrically conductive material, such as one or more patches of electrically conductive material (e.g., metallic material, etc.). In certain embodiments, both a separator and a shield layer may include discontinuous patches of electrically conductive material. In other words, both the separator and shield layer may include a plurality of patches . . . and these gaps or spaces may correspond with each other.

Ex. 1010, 3:60–4:5. We disagree that this portion of Cook discloses combining individual components of a shield/barrier tape to arrive at “any combination” of the individual components. Similarly, the other portions of Cook cited by Petitioner in its Reply do not support its position. *See* Ex. 1010, 2:55–61 (stating Figures 7A-7C illustrate example constructions that may be used for a shield layer “in accordance with various embodiments of

the disclosure”), 3:1–3 (stating Figure 11 illustrates an example shield that “may be utilized in conjunction with twisted pairs in various embodiments of the disclosure”). Petitioner has not sufficiently shown that these descriptions of Figures as example configurations that may be used with “various embodiments of the disclosure” would direct those skilled in the art to combine the multiple embodiments Petitioner cites in such a way as to arrive at the subject matter of claims 1 or 18. *See 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.”).

Thus, for the reasons stated above, Petitioner has not sufficiently shown that Cook discloses all of the claim elements recited in independent claims 1 and 18. Petitioner’s arguments regarding dependent claims 2, 3, 9–15, 17, and 18 do not remedy this deficiency. *See* Pet. 22–30. Accordingly, Petitioner does not show by a preponderance of the evidence that claims 1–3, 9–14, and 16–18 are anticipated by Cook.

E. Asserted Obvious of Dependent Claim 11 over Cook and Glew (Ground 2)

Petitioner originally asserted that dependent claim 11, which depends from claim 1, would have been obvious over Cook and Glew (Ground 2). Pet. 31–33.

Petitioner’s arguments regarding claim 11 do not cure the deficiencies regarding claim 1 that are set forth above. Accordingly, Petitioner does not show by a preponderance of the evidence that claim 11 would have been obvious over Cook and Glew.

F. Asserted Anticipation by Glew (Ground 3)

Petitioner argues that Glew anticipates claims 1–3, 9–14, and 16–18. Pet. 33–48.

1. Glew (Ex. 1008)

Glew is a U.S. published patent application titled, “Compositions, Methods, and Devices Providing Shielding in Communications Cables.” Ex. 1008, code (54). Glew discloses a separator for a communications cable. *Id.* at code (57).

Glew Figure 10A is reproduced below.

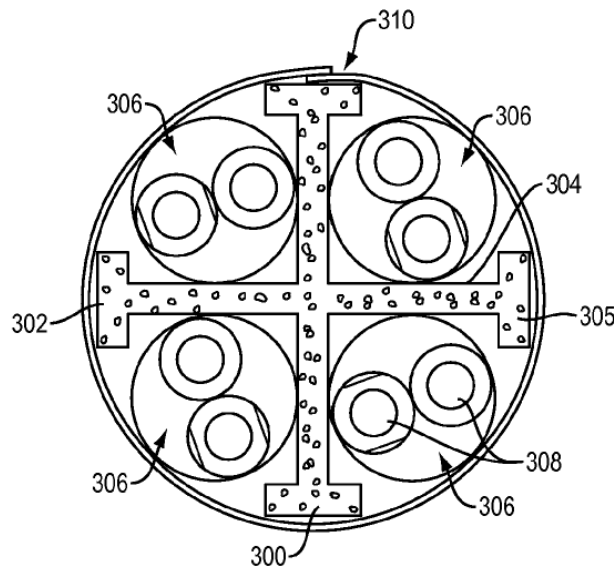


FIG. 10A

Figure 10A depicts a cross-sectional end view of a cable having separator 300. *Id.* ¶ 67. The interior of the cable includes separator 300 made up of body portion 302 having arms 304 that extend outward to t-shaped flap portions 305. *Id.* ¶ 154. The spaces between flap portions 305 form channels 306 that contain twisted pair conductors 308. *Id.* ¶¶ 143, 154. Shielding material 310 surrounds separator 300. *Id.* Shielding material 310

can be an aluminum mylar film or a multi-layer tape material, as shown in Figures 13A–13D. *Id.* Glew Figure 13C is reproduced below.

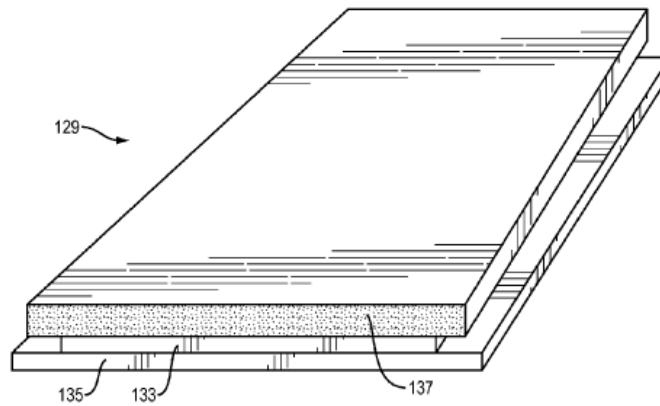


FIG. 13C

Figure 13C depicts a multi-layer tape including a polymeric substrate, a metallic layer, and a non-woven fabric layer. *Id.* ¶ 78. Figure 13C illustrates a perspective view of multi-layered tape 129 including thin metallic layer 133 (e.g., an aluminum foil layer) disposed between polymeric substrate 135 and polymeric non-woven fabric layer 137. *Id.* ¶ 195.

2. *Petitioner's Arguments*

Petitioner asserts that Glew discloses each limitation of independent claims 1 and 18. For example, with respect to claim 1, Petitioner asserts that Glew discloses a cable having first and second twisted pair of insulated conductors (306), and a filler (separator 300) separating the first and second twisted pairs as recited in the preamble and claim elements [1A], [1B], and [1C]. Pet. 33–34 (citing Ex. 1008 ¶¶ 30, 143, 146, 154–155, Figs. 10A, 10B; Ex. 1006 ¶¶ 129–131). As shown in Petitioner's annotated version of Glew Figure 10, reproduced below, Petitioner asserts that Glew discloses a barrier tape (shielding material 310-green) that surrounds the first and second twisted pair of insulated conductors (306-red) and filler (separator 300-blue) as recited in claim element [1D]. *Id.* at 33–34 (citing Ex. 1008

¶¶ 154, 197; Fig. 10A; Ex. 1006 ¶¶ 132–134). Petitioner labels these elements in annotated Glew Figure 10A, reproduced below.

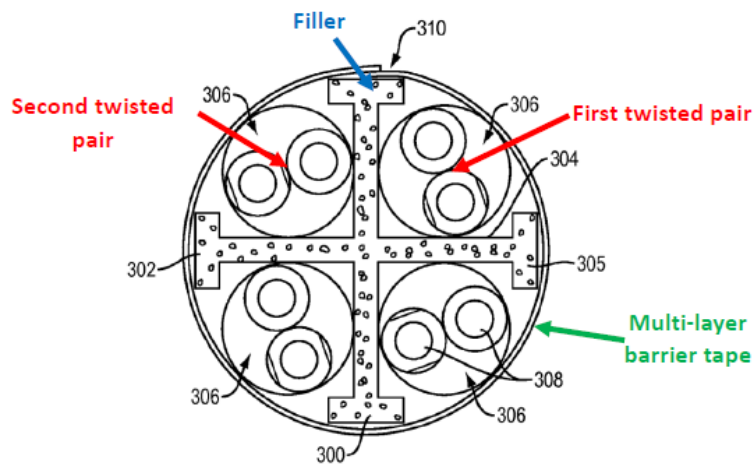
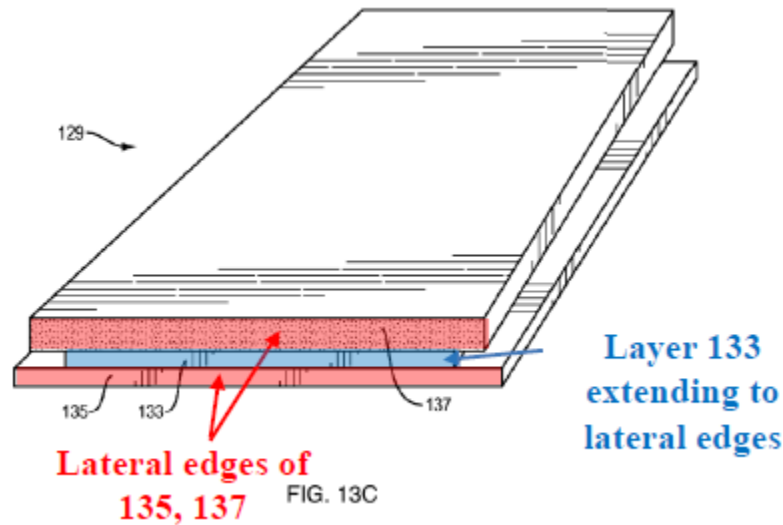


FIG. 10A

Petitioner’s annotated Figure 10A labels first and second twisted pairs 306 in red, filler 300 in blue, and multi-layer barrier tape 310 in green. *Id.*

Petitioner also asserts that Glew discloses the limitations of claim elements [1D] including that the barrier tape comprise a continuous conductive material that is sandwiched between two layers of dielectric material and that the conductive material *extends to each lateral edge of the two layers of the dielectric material*. Pet. 34–38 (citing Ex. 1006 ¶¶ 132–140; Ex. 1008 ¶¶ 31, 154, 158, 166–174, 187–188, 190, 193, 195–197, 206, Figs. 10A, 11, 13C).

Petitioner asserts that, as shown in annotated Figure 13C of Glew below, metallic layer 133 (blue) is continuous and extends to the front and back edges of dielectric layers 135 and 137 (annotated in red below), “which can be considered ‘lateral edges’ of the two dielectric layers in that they extend laterally (as compared to extending along the longitudinal axis).” Pet. 36–37 (citing Ex. 1008 ¶ 195; Ex. 1006 ¶¶ 135–136).



Petitioner’s annotated Figure 13C of Glew shows metallic layer 133 with its proximal edge colored blue and dielectric layers 135, 137 with their proximal edges colored red. Pet. 37.

With respect to independent claim 18, Petitioner asserts that Glew’s teachings described for claim 1 result in performing the method recited in claim 18¹² and render claim 18 anticipated for the same reasons discussed above. Pet. 48 (citing Ex. 1006 ¶¶ 165–173).

We disagree with Petitioner’s contention that Glew discloses conductive material that *extends to “each lateral edge of the two layers of the dielectric material”* as required by claims 1 and 18 because Petitioner’s argument rests upon a claim construction that we did not adopt. As explained above in Section II.C, we determine that lateral edges are the “long edges” that extend parallel to the longitudinal axis. Thus, we disagree with Petitioner’s argument that the front and back edges of dielectric layers

¹² Petitioner states that claim 18, written in method form, recites essentially the same limitations as claim 1, except it does not require the conductive layer to be continuous. Pet. 48.

135 and 147 (highlighted red in Petitioner’s annotation of Glew Figure 13C above) are the lateral edges recited in the independent claims.

Petitioner makes an alternative argument and asserts that Glew Figure 13C discloses a conductive material layer that extends to “each lateral edge of the two layers of the dielectric material” under Patent Owner’s claim construction. Pet. 37–38. In particular, Petitioner asserts that Figure 13C is “merely a ‘schematic description’” and that, notwithstanding what is depicted in the Figure, a POSITA would understand that dielectric material 133 (blue) in Figure 13C extends to the edges of the “long side” of the barrier tape. *Id.* Petitioner asserts that the Figure is merely intended to identify the three different layers of the multi-layer tape, not to show that the layers are intended to be offset relative to each other when the tape is employed in a cable. *Id.* Relying on testimony from Mr. Cornelison, Petitioner states that a POSITA would understand that “when a three-layer tape, such as shown in FIG. 13C, is manufactured for use in a cable, the three layers would be aligned along the side edges.” *Id.* at 38 (citing Ex. 1006 ¶¶ 137–138).

Petitioner argues that a typical tape manufacturing process would result in the three layers aligned along the side edges, as opposed to the three offset layers illustrated in Figure 13C, which “would involve custom-making individual tapes for individual cable sizes instead of making tapes via the customary slitting manufacturing process.” *Id.* (citing Ex. 1006 ¶ 138). Mr. Cornelison testifies that a POSITA would have understood that when a three-layer tape is manufactured for use in a cable, that the three layers would be aligned along the side edges. Ex. 1006 ¶ 138. Mr. Cornelison testifies that this is because making a tape having layers of different widths

layers, such as that shown in Figure 13C, would involve making each tape individually, which would be more complex and take longer, than making the tape via the customary “slitting manufacturing process.” Mr. Cornelison further testifies that there is no description in Glew that such an alternative process would be used or that having different layer widths is important or advantageous, and thus a POSITA would understand Glew to disclose a tape having the metal layer extending to each longitudinally extending edge of the dielectric material. *Id.*

Petitioner’s arguments are not persuasive. Mr. Cornelison’s testimony that a POSITA would understand that the tape shown in Figure 13C “has three layers aligned along the side edges” is not credible. *See, e.g.,* Ex. 1006 ¶ 138. Mr. Cornelison’s testimony that Figure 13C is only “intended to identify and illustrate the three different layers of the multi-layer tape,” not to show the relative positions of the layers relative to each other (*id.* ¶ 137), is belied by his own testimony, in which he states that Figure 13C shows “metallic layer 133 extends to the front edges of dielectric layers 135 and 137 (*id.* ¶ 136).

Additionally, neither Petitioner nor Mr. Cornelison provide persuasive evidence to support the contention that it would take “much more time and be more complex to make all three layers” in Figure 13C offset from each other or that it would be more costly to make than using the customary slitting processes. *See* Ex. 1006 ¶ 138. Although Mr. Cornelison provides evidence as to how the slitting process can be used to manufacture barrier tape, he does not provide any evidence to support his contention that the proposed slitting processes is in fact less expensive or complex than other methods. *See* Ex. 1006 ¶ 138. Indeed, Mr. Cornelison does not address the

particular methods disclosed in Glew to manufacture the disclosed multi-layer tapes nor persuasively explain why these disclosed methods would be more costly or complex as compared to the “slitting” process. Ex. 1008 ¶¶ 199–201 (stating the multi-layer tapes can be manufactured in a “variety of ways” including bonding the various layers using adhesive or other bonding agents,” mechanically affixing or bonding the layers, needlepunching, thermal bonding, ultrasonic welding, or calendar bonding). We determine that this portion of Mr. Cornelison’s testimony is conclusory and unsupported and is entitled to little weight. Accordingly, Petitioner has not sufficiently shown that Glew discloses conductive material that extends to the lateral edges of the dielectric material as required by claims 1 and 18. As such, Petitioner has not shown a by a preponderance of the evidence that Glew anticipates independent claims 1 or 18 or the challenged claims that depend therefrom.

G. Asserted Obviousness over Glew Alone or in Combination with Cook (Ground 4)

Petitioner argues that claims 1–3, 9–14, and 16–18 would have been obvious over Glew or the combination of Glew and Cook. Pet. 49–54.

1. Petitioner’s Arguments

Petitioner argues that even if Glew does not disclose a barrier tape with a continuous conductive material extending to each lateral edge of the two layers of dielectric material, “it would have been obvious to a POSITA at the time of the ’030 invention to modify Glew’s barrier tape to have the conductive material so extend in a finished cable.” Pet. 49 (citing Ex. 1006 ¶¶ 174–178). Petitioner argues that the modification “would have been obvious in view of Glew alone” (Pet. 49–51) or “obvious in view of Cook” (*id.* at 51–54). Accordingly, although Petitioner treats this Ground 4 as one

ground, we analyze this ground below as “obviousness in view of Glew alone” and, separately, “obviousness in view of Glew and Cook.”

As to “obviousness in view of Glew alone,” Petitioner asserts that at the time of the ’030 patent filing date the common method of making multi-layer tapes, such as disclosed in Glew, was to feed large sheets or films of the multi-layer material into a slitter, which then slits the sheet into smaller-sized tapes. This process results in all three layers having side edges flush with each other. *Id.* at 50 (citing Ex. 1037, Figs. 3A, 3B, 4B; Ex. 1038, Fig. 3; Ex. 1006 ¶¶ 175–176). Petitioner argues that “Glew does not suggest that having non-aligned edges is advantageous or important” and instead discloses manufacturing steps “applicable to the tape layers whether the edges are aligned or not.” *Id.* at 50–51 (citing Ex. 1008 ¶¶ 7, 101, 197, 199–200, 217). Accordingly, argues Petitioner, a “POSITA would find it obvious to make the three layers of the multi-layer tape flush with each other (i.e., have the metal layer extend to the side edges of the dielectric layers in FIG. 13C)” because doing so “would provide the benefits of Glew’s disclosed tape and doing so also would be simpler and cheaper to manufacture.” *Id.* at 51 (citing Ex. 1006 ¶¶ 177–181).

As to “obviousness in view of Glew and Cook,” Petitioner argues that Cook “demonstrates that it is well-known for multi-layer tapes to have the metal layer side edges flush/aligned with the dielectric layer edges.” *Id.* at 52–53 (citing Ex. 1008, 7:1–15, 12:22–23, Figs. 7C, 8A–8D; Ex. 1006 ¶¶ 182–184). Petitioner asserts that “modifying Glew’s three-layer tape to extend to the longer, longitudinally extending edges of the dielectric material (assuming it is not already disclosed) is the combination of familiar elements according to known methods to yield predictable results.” *Id.* at 53 (citing Ex. 1006 ¶¶ 184–187). Additionally, Petitioner asserts that one of ordinary

skill in the art would have had “a reasonable expectation that using the Glew tape modified to have the metal layer extending to the lateral edges of the dielectric layers (as shown in Cook) would be successful.” *Id.* Moreover, Petitioner argues that a “POSITA would understand that it would be more cost-effective and simpler to manufacture such tapes with aligned edges than with the offset edges schematically illustrated in Glew.” *Id.* at 53–54 (citing Ex. 1006 ¶ 186).

Petitioner also asserts that we should discount Dr. Eldering’s testimony with respect to Ground 4 because he had no experience with manufacturing tape for cables, sizing tape to the correct width, or with slitting. Reply at 16–17.

2. Patent Owner’s Argument

Patent Owner argues that Petitioner fails to show that Glew, or Glew with Cook, teach a barrier tape with conductive material that extends to the lateral edge of the two layers of the dielectric material. PO Resp. 53–60.

3. Analysis

Having considered the complete trial record, we determine that Petitioner fails to establish by a preponderance of the evidence that Glew, either alone or with Cook, teaches extending the conductive layer to the lateral edges of the dielectric layers as required by claims 1 and 18 or the challenged claims that depend therefrom. As explained below, Petitioner fails to show a persuasive reason a POSITA would have modified to Glew to provide a barrier tape having an exposed conductive layer on its lateral edges.

Petitioner asserts that at the time the ’030 patent was filed, it was common to make multi-layer tapes, such as disclosed in Glew, using a

“slitter” to slit the multi-layer tape material into smaller-sized tapes in which the layers of the tape have side edges flush with each other. Pet. 50 (citing Pet. Ground 3 § A2; Ex. 1037 (“Smith”), Figs 3A, 3B, 4B; Ex. 1038 (“Cook-794”), Fig. 3; Ex. 1006 ¶¶ 175–176). Petitioner asserts that to make the tape disclosed in Glew Figure 13C, which has layers of different widths, would “require making each tape individually,” which would “take much more time and be more complex and costly to make than using the customary slitting process.” *Id.* Petitioner also states that making the three layers of the multi-layer tape flush with each other “would provide the benefits of Glew’s disclosed tape and doing so also would be simpler and cheaper to manufacture.” *Id.* at 51 (citing Ex. 1006 ¶¶ 177–181).

We are not persuaded by Petitioner’s arguments. As admitted by Petitioner, Glew already discloses techniques for preparing the tapes having layers offset from each other, including bonding using an adhesive, or thermal techniques including ultrasonic welding or calendar bonding. Pet. 51 (citing Ex. 1008 ¶¶ 199–200). Dr. Eldering provides persuasive testimony, supported by the record, that Smith and Cook-794 also disclose techniques for manufacturing the tape shown in Glew Figure 13C, namely applying the conductive patches to the desired narrow width of a dielectric layer. *See* Ex. 2012 ¶ 166 (citing Ex. 1037 ¶ 60; Ex. 1038, 8:18–26). Neither Petitioner nor Mr. Cornelison provides any persuasive support for the contention that making a tape with flush ends using the slitting process would have been simpler or cheaper to manufacture than using other processes known to make tape having layers of different widths. Pet. at 50–51 (citing Ex. 1006 ¶¶ 175–177). Petitioner and Mr. Cornelison do assert that making tapes having layers of different widths would require making

each tape individually, which “would take more time and be more complex and costly to make than using the customary slitting process.” *Id.* at 50 (citing Ex. 1006 ¶ 177). Petitioner and Mr. Cornelison also state that a manufacturer that wanted 1” wide tapes would not make 1” wide tapes one at a time, but instead would slit several 1” wide tapes from a much wider sheet. *Id.* (citing Ex. 1006 ¶¶ 176–177). No evidentiary support, however, was provided for these assertions. In particular, we find Mr. Cornelison’s testimony that a POSITA would have modified Glew’s barrier tape to have flush edges by using a “slitter” because doing so would be simpler and cheaper to manufacture to be conclusory and unsupported and entitled to little weight. Thus, Petitioner does not provide a persuasive reason that a POSITA would have modified Glew to arrive at the claimed subject matter of independent claims 1 and 18, or the challenged claims that depend therefrom.¹³

We are also not persuaded by Petitioner’s arguments that it would have been obvious to modify Glew in view of Cook to have Glew’s metal layer extend to the lateral edges of the dielectric layers. Pet. 51–54. Petitioner asserts that Cook discloses a three-layer barrier tape having a conductive layer sandwiched between layers of dielectric material and “Cook thus demonstrates that it [was] well-known for multi-layer tapes to have the metal layer flush/aligned with the dielectric layer edges” and that

¹³ Because, as discussed, we find Mr. Cornelison’s testimony that a POSITA would use the slitting process because doing so would be more-cost effective and simpler to manufacture tapes with aligned edges than with offset edges to be unsupported and entitled to little weight, we need not address how much weight to give Dr. Eldering’s testimony to the contrary regarding the relative cost-effectiveness or ease of the various manufacturing processes.

this is also shown in Smith and Cook-794 *Id.* at 52–53 (citing Ex. 1007 ¶¶ 182–184; Ex. 1037 (Smith) Figs. 1A, 4A–4B; Ex. 1038 (Cook-794), Fig. 2A). Petitioner further asserts that modifying Glew’s tape to have the metal layer extending to the lateral edges of dielectric layers, as shown in Cook, is simply a combination of familiar elements to known methods to yield predictable results, with a reasonable expectation of success. Pet. 52–53 (citing Ex. 1006 ¶¶ 182–187).

As stated above, however, we disagree that Cook discloses a barrier tape having conductive metal layer, sandwiched by dielectric layers, that is flush with the dielectric layers. Thus, Cook does not show that it was well-known to have a multi-layer tape with a metal layer extending the lateral edges of two dielectric layers. As such, we disagree that it would have been obvious to modify Glew’s barrier tape, in view of Cook, to have Glew’s metal layer extend to the lateral edges of the dielectric layers.

Petitioner also asserts that a POSITA would have understood that it would be more cost effective and simpler to manufacture tapes with aligned edges than with the offset edges illustrated in Glew Figure 13C (*id.* at 53–54 (citing Ex. 1006 ¶ 186)). We disagree for the reasons set forth above.

Based on the full record, Petitioner does not sufficiently show that POSITA would have been motivated to have the metal layer side edges flush or aligned with the dielectric layer edges either on the Glew alone or in combination with Cook. Pet. 49–54. As such, Petitioner has not shown by a preponderance of the evidence that the claims 1–3, 9–14, and 16–18 would have been obvious over Glew or over Glew and Cook.

H. Asserted Anticipation based on Roberts (Ground 5)

Petitioner argues that Roberts anticipates claims 1–3, 9–11, 13, and 16–18. Pet. 54–68.

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 code (57). Figure 17 of Roberts, depicting a cable having *metal shield 18* (also described as metal armor shield 18) and *metal foil shield 15* (also described as metal foil 15) is reproduced below.

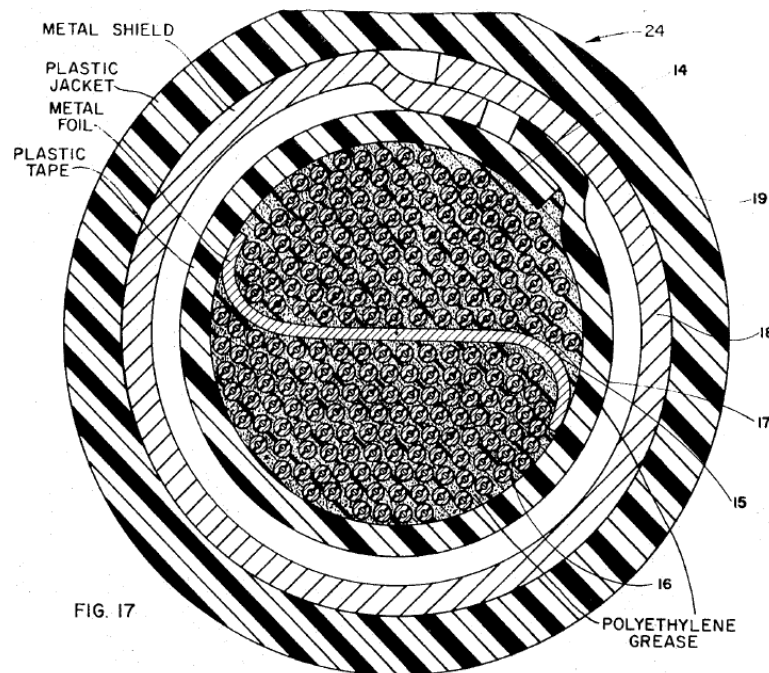


Figure 17 is a cross-sectional view of cable structure 24. *Id.* at 2:72–75. Cable structure 24 has an outer cable sheath 19 longitudinally circumscribing *metal armor shield 18* having overlapping edges, which in turn longitudinally circumscribes and has nested therein plastic tape 17. *Id.*

at 10:42–48. Nested inside plastic tape are two groups of insulated electrical conductors 14, 16. *Id.* at 10:48–51. In the embodiment of Figure 17, conductors 14, 16 are separated into two groups by serpentine shaped *shield 15*, which can be a metal foil that is coated on one side, both, or all sides with plastic. *Id.* at 10:55–62. Roberts states that “where a major surface of a shield is an exposed foil, the insulated electrical conductors facing such metal foil should be encased in the polyethylene greaselike material.” *Id.* at 10:71–74.

Figure 5 (shown below) as well as Figures 6 through 8 depict cross sectional views of different embodiments of metal foil shields having plastic coating that surrounds none, one, both, or all sides of the metal foil shield. *Id.* at 2:29–38.

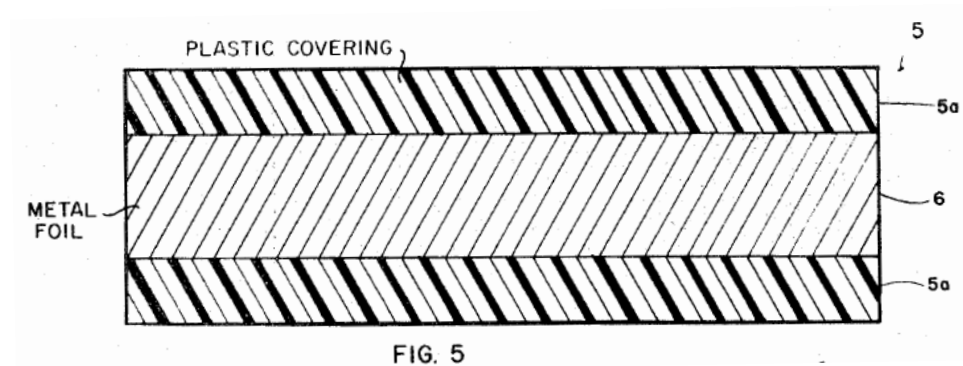
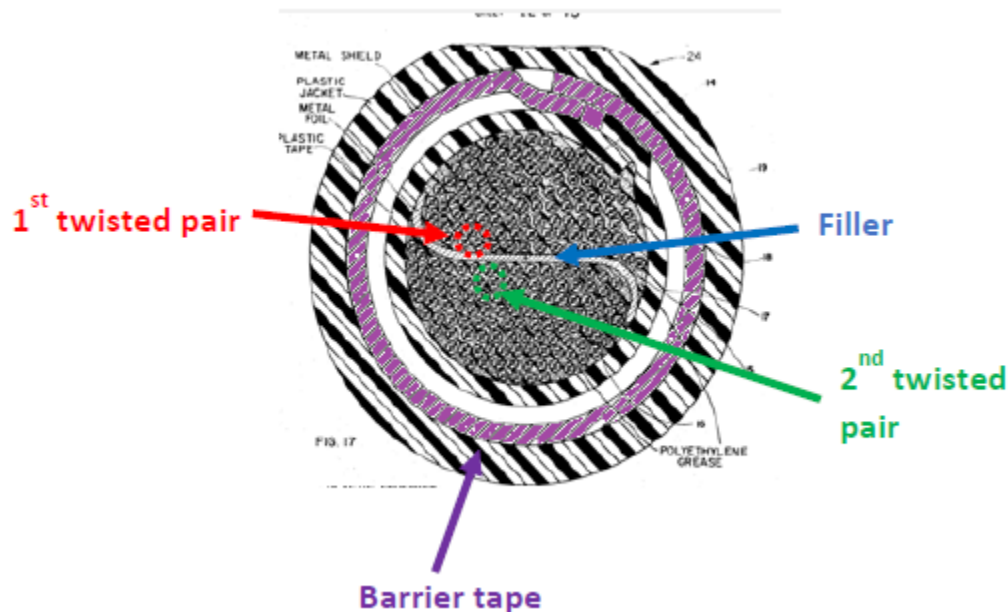


Figure 5 is a cross-sectional view of a metal foil coated on both sides with a plastic layers 5a. *Id.* at 2:29–31, 4:52–54. The metal foil shield 15 of Figure 17 can have the cross sections of the foil shields that are shown in Figures 5–8. *Id.* at 11:2–16.

2. *Petitioner's Arguments*

Petitioner asserts that Roberts discloses each limitation of independent claims 1 and 18. For example, with respect to claim 1, Petitioner asserts that Roberts discloses a cable having first and second twisted pair of insulated

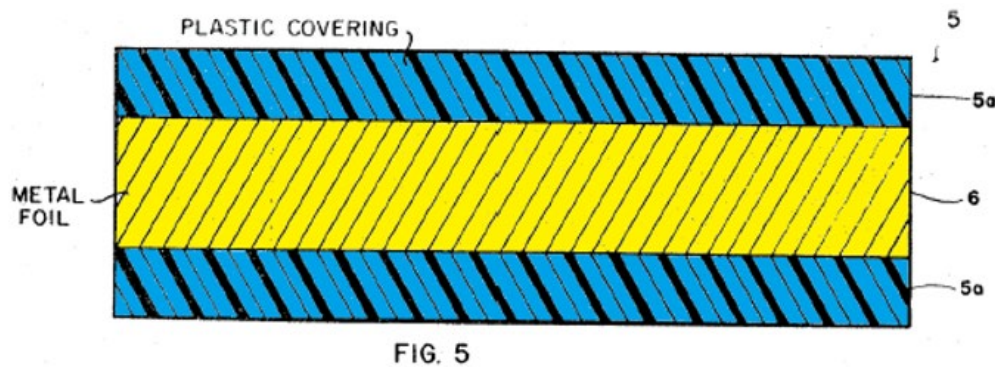
conductors (14, 16), and a filler (metal foil 15) separating the first and second twisted pairs as recited in the preamble and claim elements [1A], [1B], and [1C]. Pet. 54–57 (citing Ex. 1009, Abstr., 3:21–31, 12:5–8, 12:12–14, 10:48–62, Figs. 23, 17; Ex. 1006 ¶¶ 181–191, 200). As shown in Petitioner’s annotated version of Roberts Figure 17, reproduced below, Petitioner asserts that Roberts discloses a barrier tape (metal armor 18-purple) that surrounds the first (red) and second (green) twisted pair of insulated conductors and filler (metal foil 15-blue) as recited in claim element [1D]. Pet. 58.



Petitioner annotates Roberts Figure 17 to label a first twisted pair in red, a second twisted pair in green, a filler in blue, and a barrier tape in purple. *See id.* at 58.

Petitioner asserts that Roberts discloses a multi-layer conductive barrier tape as required by claim element [1D]. Pet. 57–60 (citing, *inter alia*, Ex. 1006 ¶¶ 203–208). In particular, Petitioner states that Roberts’ shield 18 is a metal tape that can have a plastic (i.e., a dielectric) adhered to one or more surfaces. *Id.* at 58 (citing Ex. 1009, 4:15–23, 12:30–36). Petitioner

asserts that Roberts' description of shield 18 "is the same description as the metal foil shield 15 (*filler*)," which Roberts says may be coated on one or both sides of a plastic such as is shown in Roberts Figure 5, reproduced below, with Petitioner's color coding added. *Id.* at 58–59 (citing Ex. 1009, 4:48–60, 10:52–62, Fig. 5; Ex. 1001, 7:32–45, Fig. 3A; Ex. 1006 ¶¶ 203–207).



Roberts' Figure 5, with Petitioner's color annotations added, depicts a cross-sectional view of metal foil 6 coated on both sides with a plastic. Ex. 1009, 2:29–30.

Petitioner asserts that in "this disclosed three-layer tape, the metal layer is continuous and has lateral edges flush with the edges of the dielectric layers and that a POSITA would conclude that Roberts metal shield 18, having dielectric on both surfaces, would look the same. Pet. 59 (citing Ex. 1006 ¶¶ 203–207).

Petitioner also asserts that much of Roberts' cable is of "conventional telephone design" except that the conductors (14, 16) are divided into separate portions by filler 15 and that a POSITA would understand that "with conventional designs, metal armor tape 18 has a continuous metal layer sandwiched between two layers of a dielectric material and extending to the lateral edges of the dielectric material." *Id.* at 59–60 (citing Ex. 1006 ¶¶ 44–45, 206); Reply 27–28. Petitioner further asserts that Jachimowicz-

036 shows a cable of “conventional design” having tape shield 14 with metal layer 16 between plastic layers 18, 20 with flush edges. Pet. 60 (citing Ex. 1013, 2:52–66, Fig. (annotated); Ex. 1006 ¶¶ 44–45, 206; Ex. 1031–Ex. 1037; Ex. 1014, 3:23–27).

Regarding independent claim 18, Petitioner argues that claim 18 “recites essentially the same limitations as claim 1, except it does not require the conductive layer to be ‘continuous’ and it is written in the form of a ‘method,’” and using “Roberts’ cable and teaching described above for claim 1 . . . results in performing the method recited in claim 18 and renders claim 18 anticipated for the same reasons discussed above.” *Id.* at 68.

3. *Patent Owner’s Argument*

Patent Owner responds that Roberts does not disclose that metal armor shield 18 includes a “conductive material contained between two layers of a dielectric material, *wherein the conductive material extends to each lateral edge of the two layers of the dielectric material*” and thus, Petitioner has not shown that Roberts anticipates the challenged claims. PO Resp. 48–51.

4. *Analysis*

Having considered the complete trial record, and as explained below, we determine that Petitioner fails to show that Roberts metal armor shield 18 (i.e. the claimed barrier tape) has conductive material that extends to the lateral edges of the dielectric material as required by claims 1 and 18. Thus, Petitioner has not shown by a preponderance of the evidence that Roberts anticipates independent claims 1 and 18 or the challenged claims that depend therefrom.

We are not persuaded by Petitioner’s argument that, although Roberts does not explicitly state that the conductive layer in shield 18 is flush with the dielectric layer, a POSITA would recognize that metal shield 18 “would look the same” as Roberts’ metal foil shield 15 (filler), which does show flush edges. Pet. 58–60; Reply 23–29.

Petitioner points to Roberts’ statements that both shields 15 and 18 are described as metal tape that operates “as an electrical, as well as a mechanical, shield” and that “can have a plastic, such as a polyethylene, firmly adhered to either one or more surfaces thereof.” Pet. 58 (quoting Ex. 1009, 4:15–23 (metal armor 18 is “in a sense an electrical, as well as mechanical, shield and it can have a plastic, such as polyethylene, firmly adhered to either one or more surfaces thereof”) citing Ex. 1009, 12:30–36 (which states metal armor tape 18 is applied as shown in Figure 17)). Petitioner asserts that because Roberts uses the same description to refer to both shields 15 and 18, and Roberts shows shield 15 as having a metal layer that is continuous and has lateral edges flush with edges of the dielectric layers, a POSITA would conclude that shield 18, with dielectric on both surfaces, would look the same. *Id.* at 59.

We disagree. Although both metal foil shield 15 and metal armor shield 18 may each provide some electrical and mechanical protection, the two different shields are located in different locations within the cable and they primarily serve different purposes. Indeed, Roberts states that:

when reference is made to a shield, other than element (18), an electrical shield is meant. Even though the word ‘shield’ has an accepted double meaning, i.e., electrical as well as mechanical (armor) protection, the metal foil shield of the instant invention connote primarily an electrical shield.

Ex. 1009, 4:62–67; Ex. 2001 ¶ 79.

Thus, the fact that both metal foil 15 and metal armor 18, which are used in different locations and have primarily different purpose, can both have plastic “firmly adhered” thereto is insufficient to demonstrate that Roberts discloses that metal armor 18 would have the same conductive edges as metal foil 15.

In particular, Petitioner does not sufficiently show that “firmly adhered” plastic means adhering plastic so that the plastic extends to and is flush with the lateral edge of the metal layer. Stated another way, Roberts’ statements that metal foil 15 and metal armor 18 can both have “firmly adhered” plastic does not mean that Roberts discloses or suggests adhering the plastic to metal armor 18 in such a way as to have the same lateral edge profile as that of metal shield 15 as shown in Figure 5.

Nor are we persuaded by Petitioner’s contention that, because Roberts “follows the ‘conventional telephone cable design,’” it follows that, Roberts metal armor tape 18 would have a continuous metal layer sandwiched between two layers of a dielectric material and extending to the lateral edges of the dielectric material. Pet. 60. Petitioner does not show that a “conventional telephone cable design” would include a barrier tape meeting each of the limitations recited in the independent claims, including a conductive material that extends to the lateral edges of the dielectric material. Petitioner asserts that an example of such “conventional design” is shown in Jachimowicz-036 (Ex. 1013) which has a telephone cable shielding tape that has a metal sandwiched between two layers of plastic and flush with the edges or “other well-known plastic-clad metal tape products” sold under the name “Zetabon.” *Id.* (citing Ex. 1013, 2:52–66; Ex. 1006 ¶¶ 44–45; Ex. 1031–1037; Ex. 1014, 3:23–27); Reply 27–28 (citing Ex. 1009, code

(57)). Petitioner, however, does not sufficiently show that Jachimowicz-036 or “Zetabon” tape products depicts a conventional telephone cable design. Mr. Cornelison merely states that using barrier tapes to surround conductors in a cable to reduce crosstalk “was known prior to 2013,” citing Jachimowicz-036, a 1963 patent titled “Corrosion Proof Shielding Tape for Shielding Telephone Cables.” Ex. 1006 ¶¶ 43–44. Although Jachimowicz-036 may provide evidence that the shielding tape disclosed therein *could* be used in telephone cables, the 1963 reference is insufficient to show that such cables are used in “conventional telephone cable design.” Regarding the “Zetabon” tape products, Mr. Cornelison does not provide persuasive evidence that these products are, in fact, used in conventional telephone cable designs. *See* Ex. 1006 ¶ 45. Mr. Cornelison testifies that Zetabon is the brand name for one common three-layer tape and that this tape is used for sheathing “electrical wire and cable” or “suitable for use in tubing and electrical cable shields.” Mr. Cornelison does not expressly state that Zetabon tape is commonly used in conventional telephone cable designs. Thus, Petitioner’s evidence is not sufficient to demonstrate that a POSITA would have understood that the barrier tape used in Roberts’ “conventional telephone cable design” would have a conductive material flush with the lateral edges of dielectric material.

For the foregoing reasons, Petitioner does not sufficiently show that Roberts discloses a barrier tape having conductive material that extends to the lateral edges of the dielectric material as required by the independent claims. As such, Petitioner has not shown by a preponderance of the evidence that claims 1–3, 9–11, and 16–18 are anticipated by Roberts.

I. Asserted Obviousness over Roberts Alone or in Combination with Jachimowicz-172 (Ground 6)

In Ground 6, Petitioner argues that claims 1–3, 9–11, 13, and 16–18 would have been obvious over Roberts and Jachimowicz-172. Pet. 68–70. More particularly, Petitioner argues that if “Roberts is found to not disclose first and second twisted pairs of insulated conductors,” then “the use of twisted pairs of insulated conductors in Roberts’ cable would have been obvious for all the reasons explained in Ground 5, and further in view of Jachimowicz-172.” *Id.* at 68. In this ground, Petitioner relies on the same elements of Roberts discussed in Petitioner’s Ground 5 anticipation case based on Roberts and discussed above. Pet. 54–68. Patent Owner responds that Petitioner’s “alternative theory does not even attempt to address Roberts’ failure to disclose a barrier tape with conductive material extending to each lateral edge of the two layers of the dielectric material, and surrounding the first and second twisted pairs of insulated conductors and the filler.” PO Resp. 60–61. Because Petitioner’s Ground 6 arguments do not account for the shortcomings in Petitioner’s Ground 5 arguments, Petitioner has not shown by a preponderance of the evidence that claims 1–3, 9–11, 13, and 16–18 would have been obvious over Roberts and Jachimowicz-172.

J. Asserted Obviousness over Roberts Alone or in Combination with Jachimowicz-036 (Ground 7)

In Ground 7, Petitioner argues that claims 1–3, 9–11, 13, and 16–18 would have been obvious over Roberts either alone or in combination with Jachimowicz-036. Pet. 71–74. More particularly, Petitioner argues that if “Roberts’ metal tape shield 18 does not disclose these claimed features [of a

barrier tape], it would have been obvious to a POSITA to modify Roberts to include such a barrier tape.” *Id.* at 71 (citing Ex. 1006 ¶¶ 249–250).

Petitioner’s arguments largely track those set forth in its anticipation arguments. *Compare* Pet. 71–74, *with id.* at 57–61. Petitioner reasons that Roberts’ inventive cable is largely “conventional” and includes metal armor tape shield 18. *Id.* Petitioner reasons that a POSITA would have been motivated by Roberts own disclosure to use for metal armor tape shield 18, the conductive barrier tape of metal shield 15, shown in Roberts Figure 5, which is a three-layer tape having a continuous metal layer that has lateral edges flush with the edges of dielectric layer. *Id.* at 71–72 (citing, *inter alia*, Ex. 1006 ¶¶ 249–253). Petitioner asserts that tape 15 “is an exemplary embodiment of what tape shield 18, having plastic adhered to one or more surfaces, could be and “one alternative of what a POSITA would consider tape shield 18” to be. *Id.* at 72–73 (citing Ex. 1009, 4:20–22).

Petitioner also asserts that it would have been obvious to use Jachimowicz-036’s three-layer barrier tape on Roberts’ cable because both Roberts and Jachimowicz-036 disclose largely “conventional” cables. Pet. 73 (citing Ex. 1009, Abstr.; Ex. 1013, 1:42–50, 2:52–66, Fig. 3). Petitioner further reasons that a POSITA would have been motivated to use the “conventional” and “well-known” three-layer tape designs of Jachimowicz-036 and others, such as those sold under the “Zetabon” trademark, “particularly in view of Roberts’ disclosing use of a metal tape with plastic layers on one or more surfaces thereof,” because there “are only so many ways to shield with a metal tape having plastic on one or more of its surfaces.” *Id.* at 73–74 (citing Ex. 1006 ¶¶ 249–258). Petitioner further asserts that a POSITA would have had a reasonable expectation of success,

given Roberts' disclosure of such a three-layer design (for another disclosed tape 15) and given that such tapes, like Roberts' shield 18, can be corrugated and provided an electrical, as well as mechanical, shield. Pet. 74 (citing Ex. 1013, 2:52–75; Ex. 1009, 4:60–63; Ex. 1006 ¶¶ 249–258).

Patent Owner responds that Roberts and Jachimowicz-036 do not teach or suggest a barrier tape with conductive material that extends to each lateral edge of the two layers of the dielectric material and surrounds the first and second twisted pairs of insulated conductors and the filler as required by independent claims 1 and 18. *See, e.g.*, PO Resp. 61

1. Analysis

Upon review of the full record, for the reasons stated below, Petitioner does not sufficiently show that Roberts, either alone or with Jachimowicz-036, teaches or suggests a barrier tape having a conductive layer that is extends to the lateral edges of the dielectric layers as required by independent claims 1 and 18.

As stated above, Roberts does not expressly disclose a barrier tape meeting the disputed limitations and Petitioner does not sufficiently show that a barrier tape having the lateral edges required by the independent claims was “conventional.” Thus, we disagree with Petitioner's contention that it would have been obvious for Roberts to include a barrier tape having the lateral edges required by the independent claims because Roberts states that its “inventive cable is largely ‘conventional’ and includes metal armor tape shield 18.” *See* Pet. 71 (citing Ex. 1009, 4:15–23, 12:30–36, Figs. 1, 17).

We are also not persuaded that Petitioner sufficiently shows that a POSITA would have been motivated to modify Roberts' metal armor shield

18 to have the same lateral edges as those of metal foil shield 15. Petitioner states that tape 15 is an “exemplary embodiment” of what metal armor shield 18 “having plastic adhered to either one or more surfaces thereof” could be and one alternative of what a POSITA would consider metal armor shield 18 to be. Pet. 72–73 (citing Ex. 1009, 4:20–22). We disagree. Petitioner’s argument is based on Roberts’ statement that both metal armor shield 18 and metal foil 15 have plastic “adhered to either one or more surfaces thereof” and share other similarities, including that both “can be corrugated to increase” mechanical strength. Pet. 71–73 (citing Ex. 1009, 4:15–23 (stating metal armor tape 18 “is in a sense an electrical, as well as a mechanical, shield and it can have a plastic, such as polyethylene, firmly adhered to either one or more surfaces thereof”), 4:48–62 (stating embodiment 5 is “viable as a shield from both a structural and electrical standpoint” and that metal foil 15, as “having metal foil (6), coated on both sides with a plastic” and can be corrugated to increase mechanical strength), 10:52–62 (stating metal foil 15 can be a metal foil coated on one side, on both sides, or completely surrounded by plastic), 12:30–36 (stating metal tape 18 is applied “as shown in FIG. 17”), Figs. 1, 6, 17; Ex. 1006 ¶¶ 249–253).

We have reviewed the cited portions of Roberts and the testimony of Petitioner’s declarant and find that Petitioner does not sufficiently show that a POSITA would have understood Roberts to suggest that metal armor shield 18 would have the same lateral edge profile (i.e., a conductive layer flush with two dielectric layers) as the lateral edge profile of metal foil shield 15. None of the cited portions of Roberts show that a POSITA would have understood that metal armor shield 18 would have the same lateral

edge profile, and exposed conductive edges, as the edges of metal foil 15. Petitioner does not sufficiently show that Roberts' statement that both shields could be "coated on both sides" with a plastic means that metal foil shield 15 is an "exemplary embodiment" of metal armor shield 18 or that the two shields would have the same lateral edges. The two shields are used in different locations within the cable and serve primarily different purposes.

Roberts, as noted above, states that:

when reference is made to a shield, other than element (18), an electrical shield is meant. Even though the word 'shield' has an accepted double meaning, i.e., electrical as well as mechanical (armor) protection, the metal foil shield of the instant invention connote primarily an electrical shield.

Ex. 1009, 4:62–67; Ex. 2001 ¶ 79.

Thus, Roberts itself draws a distinction between metal foil shield 15 and metal armor shield 18. As such, while both shields may provide some electrical and mechanical protection, the two different shields are located in different locations within the cable and they primarily serve different purposes. Petitioner's contention that both have plastic "firmly adhered" thereto is insufficient to demonstrate that Roberts suggests metal armor 18 would have the same conductive edges as metal foil 15.

Indeed, the Examiner considered whether Roberts' metal foil shield 15 could meet the limitations of the claimed barrier shield. *See* Ex. 1002, 9–10. The Examiner mapped the tape shown in Figure 5 (i.e., metal foil shield 15) to the claimed barrier tape. *Id.* In particular, the Examiner stated that:

with respect to claims 1 & 18, Roberts discloses a cable (1, Fig 1) comprising a plurality of conductors (14), wherein the conductors (14, Fig 4) may be longitudinally wrapped (Fig 1) or helically wrapped (Fig 4) with a barrier tape (5, Fig 5), wherein the barrier tape (5) comprises a continuous conductive material

(i.e. aluminum, 6) contained on both sides with a layer of dielectric material (i.e. mylar, 5a & 5a, respectively, Paragraph 47), wherein the conductive material (6) extends to lateral edges of the dielectric materials (5a, Fig 5).

Ex. 1002, 9–10. The Examiner stated that it would have been obvious to modify the cable of another reference to include the barrier tape taught in Roberts. *Id.* The applicant successfully distinguished Roberts by explaining that Roberts metal foil 5 used for tape metal foil shield 15 was not the claimed barrier tape because shield 15 did not surround the insulated conductors as required by the claims. *See* Ex. 1003, 8; PO Resp. 70.

We are also not persuaded by Petitioner’s arguments further relying on Jachimowicz-036. Pet. 73–74. Petitioner’s arguments that a POSITA would have modified Roberts’ metal armor shield 18 are based on its contention that Jachimowicz-036 is a “conventional” cable. *Id.* at 73. As described above, however, Petitioner does not sufficiently show that the cable disclosed in Jachimowicz-036 is a conventional cable.

Additionally, Petitioner’s contention that a POSITA would have had a reasonable expectation of success in combining Jachimowicz-036 and Roberts is not persuasive. Petitioner argues that a:

POSITA would have had a reasonable expectation of success, given Roberts’ disclosure of such a three-layer design (for another disclosed tape 15) and given that such tapes, like Roberts’ shield 18 can be corrugated and provide an electrical, as well as mechanical, shield.

Id. at 74 (citing Ex. 1013, 2:52–75; Ex. 1009, 4:60–63; Ex. 1006 ¶¶ 249–258). The Petition, however, fails to address that Roberts’ metal armor shield 18 is located in a different location within the cable than that of metal foil 15 or the impact of having exposed conductive edges, as provided by

metal foil shield 15 or the barrier tape of Jachimowicz-036, located at the edges of metal armor shield 18. *Id.*

Roberts itself discusses the “undesirable electrical properties” of having a metal foil shield 15 with exposed edges. *See, e.g.*, Ex. 1009, 3:67–69. For example, Roberts states that an “aluminum foil, which is coated only on its two major surfaces with a plastic, still has exposed naked aluminum surfaces at the edges thereof. When considering a cable of many miles in length, this amount of exposed conductive metal becomes significant.” Ex. 1009, 3:57–61. Petitioner states that to mitigate “undesirable electrical properties created by having an exposed surface (edge) of metal” to the electrical conductors is to use a greaselike material that can provide “dielectric protection.” *Id.* at 3:67–74; *see also id.* at 4:68–5:15 (discussing “unwanted electrical energy” that may reach “exposed portions (edges) of the aluminum foil shield” and methods to ameliorate), 5:48–54 (discussing use of “greaselike material” to provide a dielectric between the electrical conductors and the exposed metal portion). Roberts further states that its Figures 9 and 10 show “exposed metal edges” of shield 15 “present a problem.” *Id.* at 6:15–17. Roberts states that “electrical energy escaping through pinholes in the insulation of the electrical conductors into that “uninsulated portion” of the plastic covered shield “where there is exposed metal foil is electrically undesirable.” *Id.* at 6:17–21. Roberts states that use of a greaselike material can be used as a dielectric. *Id.* at 6:21–25.

The fact that Roberts discusses the undesirable properties of the exposed metal edges of metal foil shield 15, and never discusses exposed metal edges of metal armor shield 18, supports our finding that Roberts does

not suggest that metal armor shield 18 would have exposed conductor material on its lateral edges.

Based on the full record, Petitioner does not sufficiently show that POSITA would have been motivated to modify Roberts' metal armor shield 18 to have metal layer side edges flush or aligned with the dielectric layer edges as required by independent claims 1 and 18, based on Roberts or on Roberts in combination with Jachimowicz-036. As such, Petitioner has not shown by a preponderance of the evidence that the challenged claims (i.e., 1–3, 9–11, 13, 16–18) would have been obvious over Roberts or over Roberts and Jachimowicz-036.

K. Asserted Obviousness of Dependent Claims (Grounds 8, 9, and 11)

In Ground 8, Petitioner asserts that dependent claim 11 would have been obvious over the art asserted in Grounds 5–7 in combination with Glew. Pet. 75–77. In Ground 9, Petitioner asserts that dependent claims 12 and 16 would have been obvious over the art assert in Grounds 5–8 in combination with Simons (Ex. 1012). *Id.* at 77–81. In Ground 11, Petitioner argues that claims 3 and 9 would have been obvious in view of “any of grounds 3–7” and Cook. Pet. 97.

In each of these three challenges, Petitioner only addresses the claim elements recited in the dependent claims and does not make any arguments to remedy the deficiencies in Petitioner's challenges to independent claims 1 and 18 discussed above. As such, Petitioner has not shown by a preponderance of the evidence that any of the dependent claims challenged in Grounds would have been obvious over the asserted art.

L. Asserted Obviousness over Clark-478, Roberts, and/or Glew (Ground 10)

Petitioner argues that claims 1–3, 9–14, and 16–18 would have been obvious over the combination of Clark-478, Roberts, and/or Glew. Pet. 81–97.

1. *Clark-478 (Ex. 1025)*

Clark-478 is a U.S. patent application publication titled “Data Cable for Mechanically Dynamic Environments.” Ex. 1025, code (54). Clark discloses a multi-pair cable including a plurality of twisted pairs of insulated conductors and a separator disposed between the first and second twisted pairs. *Id.* at code (57). Figure 2 of Clark-478 is reproduced below.

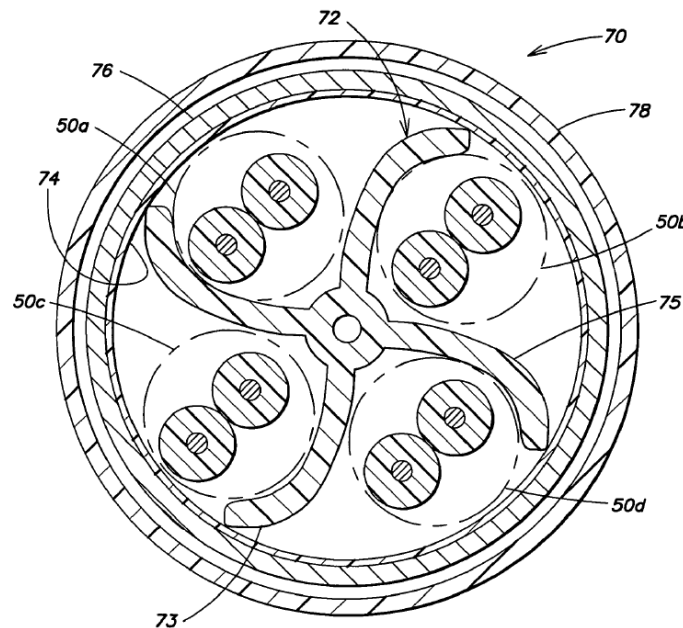


FIG. 2

Figure 2 depicts a multi-pair cable employing a separator, and illustrates a cross-section of cable 70 having a cross-shaped separator 72. *Id.* ¶¶ 22, 41. Separator 72 forms spaces for twisted pairs 50a–50d. *Id.* Binder 74 wraps around separator 72 and twisted pairs 50a–50d. *Id.* ¶ 47. Binder 74 may be

an aluminum/mylar tape with the aluminum layer facing the twisted pairs, so that binder 74 and separator 72 provide four electrically shielded, enclosed channels. *Id.*

2. Analysis

Petitioner admits that Clark-478 does not disclose a three layer barrier tape having a conductive material contained between two layers of a dielectric material as required by independent claims 1 and 18. Pet. 82. Petitioner asserts that it would have been obvious to replace Clark-478's two-layer barrier tape with the "three-layer" barrier tape disclosed in Roberts and Glew, each of which, Petitioner asserts, discloses these limitations. *Id.* at 82–85.

Petitioner's arguments are not persuasive because, as stated above, neither Roberts nor Glew discloses or suggests a three layer barrier tape having a conductive material contained between two layers of a dielectric material as required by the challenged independent claims. Thus, Petitioner does not show by a preponderance of the evidence that the challenged claims (i.e., 1–3, 9–14, or 16–18) would have been obvious over the combination of Clark-478, Roberts, and/or Glew.

III. CONCLUSION

For the foregoing reasons, we determine that Petitioner has not shown by a preponderance of the evidence that claims 1–3, 9–14, or 16–18 of U.S. Patent No 9,991,030 are unpatentable.

In summary:

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1–3, 9–14, 16–18	102	Cook		1–3, 9–14, 16–18

11	103	Cook, Glew		11
1-3, 9-14, 16-18	102	Glew		1-3, 9-14, 16-18
1-3, 9-14, 16-18	103	Glew		1-3, 9-14, 16-18
1-3, 9-14, 16-18	103	Glew, Cook		1-3, 9-14, 16-18
1-3, 9-11, 13, 16-18	102	Roberts		1-3, 9-11, 13, 16-18
1-3, 9-11, 13, 16-18	103	Roberts, Jachimowicz-172		1-3, 9-11, 13, 16-18
1-3, 9-11, 13, 16-18	103	Roberts		1-3, 9-11, 13, 16-18
1-3, 9-11, 13, 16-18	103	Roberts, Jachimowicz-036		1-3, 9-11, 13, 16-18
11	103	Roberts, Glew		11
11	103	Roberts, Jachimowicz-036, Glew		11
11	103	Roberts, Jachimowicz-172, Glew		11
12, 16	103	Roberts, Simon		12, 16
12, 16	103	Roberts, Jachimowicz-172, Simon		12, 16
12, 16	103	Roberts, Jachimowicz-036, Simon		12, 16
12, 16	103	Roberts, Glew, Simon		12, 16
12, 16	103	Roberts, Jachimowicz-036, Glew, Simon		12, 16
12, 16	103	Roberts, Jachimowicz-172, Glew, Simon		12, 16
1-3, 9-14, 16-18	103	Clark-478, Roberts		1-3, 9-14, 16-18

1–3, 9–14, 16–18	103	Clark-478, Glew		1–3, 9–14, 16–18
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IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–3, 9–14, and 16–18 of U.S. Patent No. 9,991,030 B2 have not been shown to be unpatentable; and

FURTHER ORDERED that, because this is a final written decision, parties to this proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2023-01056
Patent 9,991,030 B2

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