

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMMSCOPE TECHNOLOGIES LLC,
Petitioner,

v.

BELDEN INC.,
Patent Owner.

Case No. IPR2023-01061
Patent 6,998,537 B2

PATENT OWNER'S NOTICE OF APPEAL

Pursuant to 28 U.S.C. § 1295(a)(4)(A), 35 U.S.C. §§ 141, 142, and 319, 37 C.F.R. §§ 90.2 and 90.3, and 5 U.S.C. §§ 701-706, Patent Owner Belden Inc. (“Belden”) hereby provides notice that it appeals to the United States Court of Appeals for the Federal Circuit from the Final Written Decision of the Patent Trial and Appeal Board (“Board”) entered on December 18, 2024 (Paper No. 47) (“Final Written Decision”) attached as Exhibit A, and from all underlying orders, decisions, rulings, and opinions regarding the *inter partes* review of U.S. Patent No. 6,998,537 B2 (“’537 Patent”) in Case No. IPR2023-01061. This Notice is filed no later than sixty-three (63) days after issuance of the Final Written Decision and is therefore timely under 35 U.S.C. § 142, 37 C.F.R. § 90.3(b)(1), and Federal Circuit Rule 15(a)(1).

In accordance with 37 C.F.R. § 90.2(a)(3)(ii), the expected issues on appeal include, but are not limited to:

- The Board’s determination that the combination of Japanese Patent Application Publication No. S43-15470 (“Yanagita”) and U.S. Patent No. 3,894,172 (“Jachimowicz”) renders obvious claim 19 of the ’537 Patent and that such claim is unpatentable;
- The Board’s determination that the combination of Yanagita, Jachimowicz, and U.S. Patent No. 5,670,748 (“Gingue”) renders

obvious claims 20 and 22 of the '537 Patent and that such claims are unpatentable;

- The Board's failure to comply with the Administrative Procedure Act, including whether the Board's Final Written Decision is arbitrary, capricious, an abuse of discretion, not in accordance with law, or in excess of the Board's jurisdiction, and any procedural irregularities associated with the proceeding;
- The Board's findings that conflict with the evidence of record and/or are otherwise not supported by substantial evidence;
- The Board's factual findings, conclusions of law, claim constructions, including the claim construction of "twisted pairs," or other determinations supporting or related to the foregoing issues; and
- All issues decided adversely to Belden in any order, decision, ruling, or opinion underlying or supporting the Final Written Decision.

Pursuant to 35 U.S.C. § 142 and 37 C.F.R. § 90.2(a), Belden is electronically filing this Notice with the Director of the United States Patent and Trademark Office via email at efileSO@uspto.gov, and electronically filing and serving a copy of this Notice with the Patent Trial and Appeal Board via the Board's P-TACTS System. In addition, Belden is electronically filing a copy of this Notice and the required

docketing fees with the Clerk's Office for the United States Court of Appeals for the Federal Circuit via CM/ECF.

Date: February 12, 2025

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CERTIFICATE OF SERVICE AND FILING

I hereby certify that on February 12, 2025, in addition to being filed and served electronically through the Board's P-TACTS System, a true and correct copy of the foregoing "**PATENT OWNER'S NOTICE OF APPEAL**" was electronically filed and served on the Director of the United States Patent and Trademark Office via e-mail at the following:

Office of the General Counsel
U.S. Patent and Trademark Office
efileSO@uspto.gov

I also hereby certify that on February 12, 2025, a true and correct copy of the foregoing "**PATENT OWNER'S NOTICE OF APPEAL**" and the filing fee were electronically filed with the Clerk's Office of the United States Court of Appeals for the Federal Circuit via CM/ECF.

I also hereby certify that on February 12, 2025, a true and correct copy of the foregoing “**PATENT OWNER’S NOTICE OF APPEAL**” was served via email upon the following attorneys at CARLSON, CASPERS, VANDENBURGH & LINDQUIST P.A.:

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EXHIBIT A

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMMSCOPE TECHNOLOGIES LLC.,
Petitioner,

v.

BELDEN INC.,
Patent Owner.

IPR2023-01061
Patent 6,998,537 B2

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

McGRAW, *Administrative Patent Judge*.

JUDGMENT

Final Written Decision

Determining All Challenged Claims Unpatentable

35 U.S.C. § 318(a)

Dismissing Petitioner's Motion to Exclude Evidence

Dismissing Patent Owner's Motion to Exclude Evidence

37 C.F.R. § 42.64

I. INTRODUCTION

We instituted this *inter partes* review pursuant to 35 U.S.C. § 314 to review claims 19, 20, and 22 of U.S. Patent No. 6,988,537 B2 (Ex. 1004, “the ’537 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 shown by a preponderance of the evidence that claims 19, 20, and 22 are unpatentable.

A. Procedural History

CommScope Technologies LLC (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting an *inter partes* review of claims 19, 20, and 22 of U.S. Patent No. 6,988,537 B2 (Ex. 1004, “the ’537 patent”). Belden, Inc. (“Patent Owner”) filed a Preliminary Response to the Petition (Paper 6, “Prelim. Resp.”). We instituted this *inter partes* review of all challenged claims based on all grounds asserted in the Petition. Paper 10 (“Inst. Dec.”).

Patent Owner then filed a Patent Owner Response (Paper 20, “PO Resp.”), to which Petitioner filed a Reply (Paper 30, “Pet. Reply”), and Patent Owner filed a Sur-reply. Paper 34 (“PO Sur-reply”).

Petitioner filed a Motion to Exclude Exhibit 2012 (Paper 36, “Pet. Mot. Excl.”), to which Patent Owner filed an Opposition (Paper 38, “PO Opp.”), and Petitioner filed a Reply (Paper 41 (“Pet. Reply Mot. Excl.”).

Patent Owner also filed a Motion to Exclude Exhibit 1055, which is the uncertified translation of Yanagita (Paper 37, “PO Mot. Excl.”), to which Petitioner filed an Opposition (Paper 39, “Pet. Opp.”), and Patent Owner filed a Reply (Paper 40, PO Reply Mot. Excl.”). A consolidated oral hearing with IPR2023-01062 was held on September 16, 2024. After the

hearing, Petitioner filed a motion requesting authorization to file supplemental evidence (Paper 44), which was opposed by Patent Owner (Paper 45) and denied by the Board (Paper 46).

B. Related Proceedings

The parties identify *Belden, Inc. v. CommScope, Inc.*, Case No. 1:22-cv-00783-RGA (D. Del.) (“the District Court Proceeding”), which is currently pending and involves the challenged ’537 patent as well as three other patents, including U.S. Patent No. 6,570,095 B2 (“the ’095 patent”),¹ as related matters. Pet. 11, 70; Paper 4 § II.

Petitioner also identifies *Belden Techs., Inc. et al. v. Superior Essex Inc. et al.*, Case No. 1:08-cv-00063-SLR (D. Del.), which has since settled, as involving the ’537 patent and the related ’095 patent and U.S. Patent No. 7,179,999 (“the ’999 patent”). Pet. 11; Paper 4 § II. The parties also state that the ’537 patent, the ’095 patent, and the ’999 patent were subject to patent reexamination proceedings, now terminated following settlement. Pet. 11, 70; Paper 4 § II

Petitioner also states that it is filing two other petitions for *inter partes* review of two patents asserted in District Court Proceeding. Pet. 70. Patent Owner identifies IPR2023-01062 involving the ’095 patent as a related matter. Paper 4 § II.

C. Real Parties-In-Interest

The parties identify themselves as the real parties-in-interest. Pet. 70; Paper 4 § 1. Petitioner additionally identifies CommScope, Inc. of North Carolina, CommScope, Inc., and CommScope Holding Company as real parties-in-interest. Pet. 70.

¹¹ The ’537 patent is a continuation of the ’095 patent. Ex. 1004, code (63).

D. The '537 Patent

The '537 patent, titled “Multi-Pair Data Cable with Configurable Core Filling and Pair Separation,” relates to “high speed data communications cables having a light-weight, configurable core-refilling isolation pair separator that provides geometrical separation between the twisted pairs of insulated conductors.” Ex. 1004, code (54), 1:21–25. The '537 patent describes “a substantially flat configurable, highly flexible, core-filling, dielectric separator to provide twisted pair separation for the cable.” *Id.* at 3:12–14. Figure 4 of the '537 patent is reproduced below.

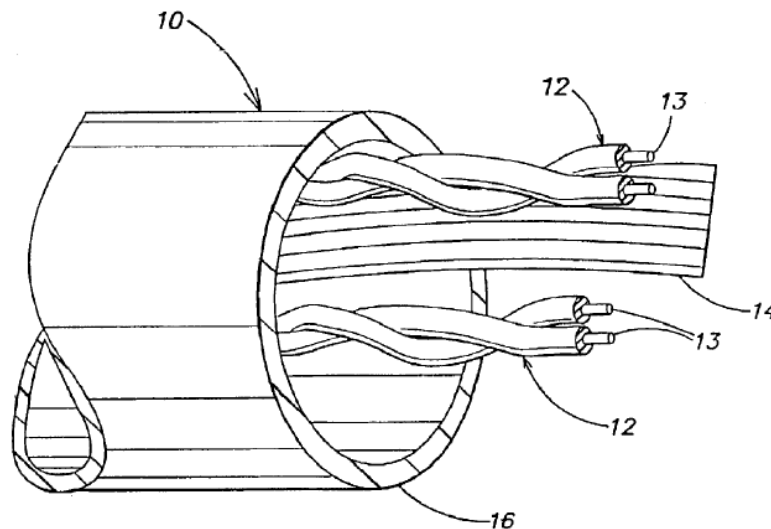


Figure 4 is a perspective view of data communications cable 10, showing twisted pairs 12 of insulated conductors 13, twisted pairs 12 separated by low dielectric constant, low dissipation factor, polymer pair separator 14, all encased within jacket assembly 16. *Id.* at 4:28–34. “The configurable pair separator 14 runs along a longitudinal length of the cable, and is configured such that the twisted pairs are disposed within channels or grooves 15 of the pair separator along the length of the cable.” *Id.* at 4:38–41. According to the '537 patent, “the pair separator improves the crosstalk isolation between

the twisted pairs by providing desired spacing between the twisted pairs.” *Id.* at 4:48–51. “[T]he configurable pair separator is preferably a flame-retardant, low-dielectric constant, low-dissipation factor, foamed polymer tape, such as, for example, a foamed flame retardant, cellular polyolefin or fluoropolymer like NEPTC PP500 ‘SuperBulk’, a foamed fluorinated ethylene propylene (FEP) or a foamed polyvinyl chloride (PVC).” *Id.* at 4:60–66.

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

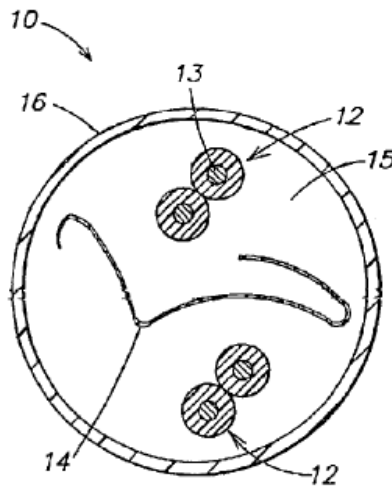


Figure 5 shows the same elements as Figure 4 from a cross-sectional perspective. *Id.* at 3:51–52.

E. Illustrative Claim

Claim 19, the only challenged independent claim, is reproduced below with bracketed annotations corresponding to the annotations in the Petition. Pet. 72.

19. [19.pre] An unshielded communications cable comprising:
[19.a] a plurality of twisted pairs of insulated conductors
comprising a first twisted pair of insulated conductors
and a second twisted pair of insulated conductors,

[19.b] a substantially flat configurable dielectric separator that consists of non-conductive, dielectric materials disposed between the plurality of twisted pairs of conductors that separates the first twisted pair of insulated conductors from the second twisted pair of insulated conductors, and

[19.c] a jacket enclosing the plurality of twisted pairs of insulated conductors and the configurable dielectric separator,

[19.d] wherein the substantially flat configurable dielectric separator includes a foamed polymer.

Ex. 1004, 10:39–54 (bracketed material added).

F. The Asserted Grounds of Unpatentability

Petitioner contends claims 19, 20, and 22 of the '537 patent are unpatentable on the following grounds. Pet. 3.

Ground	References	35 U.S.C. §	Claim(s) Challenged
1	Beggs, ² Jachimowicz ³	103(a) ⁴	19
2	Beggs, Jachimowicz, Gingue ⁵	103(a)	20, 22

² Beggs, et al., US Patent No. 4,755,629 (issued July 5, 1988) (Ex. 1015, “Beggs”).

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

⁴ The '537 patent issued from an application filed January 3, 2003. Ex. 1004, code (22). Thus, the pre-AIA version of 35 U.S.C. §§ 102, 103 apply in this case. *See* Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 285–88 (2011) (explaining that the pre-AIA version of the Patent Act generally applies to patents having an effective filing date before March 16, 2013).

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

Ground	References	35 U.S.C. §	Claim(s) Challenged
3	Yanagita, ⁶ Jachimowicz	103(a)	19 ⁷
4	Yanagita, Jachimowicz, Gingue	103(a)	20, 22
5	GmbH-866, ⁸ Roberts, ⁹ Gingue, Jachimowicz	103(a)	19, 20, 22

In support of its unpatentability arguments, Petitioner relies on the declarations of Kenneth Cornelison (Ex. 1007, “Cornelison Dec.”; Ex. 1080, “Cornelison Reply Dec.”). Patent Owner relies on the declarations of Dr. Charles A. Eldering (Ex. 2001, “Eldering Dec.”; Ex. 2007, “Eldering Supp. Dec.”).

II. DISCUSSION

A. Principles of Law

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review

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

⁷ To the extent that the grounds identified in the Petition’s Headings differ from the Petition’s discussions, we rely on the Petition’s discussions.

⁸ NK Networks GmbH, German Patent No. DE 29719866 U1 (original in Ex. 1011) (published Feb. 5, 1998) (Ex. 1010, “GmbH-866”).

⁹ Roberts, et al., US Patent No. 3,622,683 (issued Nov. 23, 1971) (Ex. 1009, “Roberts”).

petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

A claim is unpatentable as obvious under § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence,¹⁰ objective indicia of non-obviousness (i.e., secondary considerations). *Graham*, 383 U.S. at 17–18. “To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

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

¹⁰ Patent Owner does not rely on any object indicia of non-obviousness in its arguments.

B. Claim Construction

In an *inter partes* review, we interpret a claim “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b).” 37 C.F.R. § 42.100(b). Under this standard, we construe the claim “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” *Id.*

“[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention” and “after reading the entire patent” and its prosecution history. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313, 1321 (Fed. Cir. 2005) (en banc).

Prior to institution, Petitioner proposed constructions for “unshielded communications cable”, “substantially flat,” and “configurable dielectric separator.” Pet. 15–20. Patent Owner proposed construction of “twisted pairs” of insulated conductors. Prelim. Resp. 12–16. In our Decision on Institution, we provided a preliminary construction for the terms “substantially flat configurable dielectric separator” and “twisted pairs.” In particular, we construed the term “substantially flat configurable dielectric separator” as meaning that the separator is substantially flat prior to being formed into the cable assembly and that the term does not require that the separator be substantially flat (i.e., free of any bends or folds) in the finished cable. *Id.* at 9–10. We also construed “twisted pairs of insulated conductors” as a “pair of insulated conductors that are twisted together.” *Id.* at 12.

Neither party disputes our construction of “substantially flat configurable dielectric separator.” Accordingly, we maintain our previous construction.

After institution, Patent Owner argued that the plain and ordinary meaning of twisted pairs requires “two insulated conductors twisted together around one another to form a balanced transmission line” as shown in Figure 4 of the ’537 patent. PO Resp. 13. Petitioner replied that Patent Owner’s addition of “balanced transmission line” to the Board’s preliminary construction is unnecessary as the dispute is whether the conductors of the asserted art are “twisted together” (i.e., twisted around each other) and that neither Petitioner nor Patent Owner dispute that if a pair of conductors are twisted around one another, they form a balanced transmission line. *See* Pet. Reply 1.

Based upon a full record, we maintain our construction of the term “twisted pairs,” which both parties agree require a “pair of insulated conductors that are twisted together,” (i.e., “two insulated conductors twisted around each other”). We agree with Petitioner that no further construction of the term is required as there is no dispute between the parties that if a pair of insulated conductors are twisted together (i.e., two insulated conductors are twisted around each other), that they form a balanced transmission line. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)) (holding that only claim terms in controversy need to be construed, and only to the extent necessary to resolve the controversy).

C. Level of Ordinary Skill in the Art

We consider the grounds of unpatentability in view of the understanding of a person of ordinary skill in the art (sometimes abbreviated herein as “POSITA”). *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Petitioner argues that a “person of ordinary skill in the art of the ’537 patent 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.” Pet. 14 (citing Ex. 1007 ¶ 12). Petitioner also argues an “individual with a master’s degree in electrical engineering would require less industry experience (e.g., 1–2 years).” *Id.* (citing Ex. 1007 ¶ 12). Patent Owner did not dispute this proposed definition prior to institution. *See generally* Prelim. Resp.

In our Decision on Institution, we adopted Petitioner’s proposal. During the trial, neither party expressly disputed our definition of a POSITA or explicitly argued that the outcome of this case would differ based upon our adoption of any particular definition of a POSITA. *See generally* Pet. Reply; PO Resp.

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 states that Patent Owner’s expert, Dr. Eldering, “appears to have minimal industry experience with twisted pair data cables, and certainly not the 3–4 years’ experience of a POSITA.” Pet. Reply 2 n.1. Petitioner further states that Dr. Eldering has never designed a twisted pair cable and none of his patents are directly specifically to the design of a cable. *Id.*

To the extent Petitioner argues that Dr. Eldering does not meet the minimum qualifications of a POSITA, we disagree. First, our definition of a POSITA requires 3–4 years of industry experience for those holding only a bachelor’s degree and that less years of industry experience is required for those with additional schooling. Inst. Dec. 7. Dr. Eldering holds a Ph.D. in electrical industry and, thus, less than 3–4 years of industry experience is required. Moreover, Dr. Eldering’s declaration, testimony, and CV demonstrate that Dr. Eldering, with his advanced education and his many years of industry experience with twisted pair data cables, meets or exceeds the qualifications of a POSITA. *See, e.g.*, Ex. 2001 ¶ 13 (discussing his 1990–1993 industry experience with twisted wire pairs, including research regarding delivery of high-speed digital data services over twisted wire pair cable), ¶ 14 (discussing industry experience at General Instrument, including the development of products using twisted wire pair cable for distribution of voice signals), ¶ 15 (discussing additional industry experience including evaluation of crosstalk in systems using twisted pair wire cabling and optimizing modulation format), App’x A; Ex. 1070, 201:1–202:7.

We also note that, although Petitioner criticizes the industry experience of Dr. Eldering, Petitioner does not allege that Dr. Eldering is not qualified to opine from the perspective of a POSITA, did not file an objection to Dr. Eldering’s testimony under 37 C.F.R. § 42.64(b) or a motion to exclude Dr. Eldering’s testimony under 37 C.F.R. § 42.64(c). *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).

We address how much weight should be given to Dr. Eldering's testimony, as well as to Mr. Cornelison's testimony, throughout our Decision below.

D. Overview of the Prior Art

1. Yanagita (Ex. 1012)

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

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

To address this, Yanagita proposes:

an alternatingly twisted cable wherein a large number of insulated wire strands, or that wherein the insulated wire strands are twisted together, are laid, while twisting along the surfaces, along both surfaces of a core material that is made by forming a plate-shaped body so that the direction of the surface thereof gradually changes in a reciprocatingly twisted shape.

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

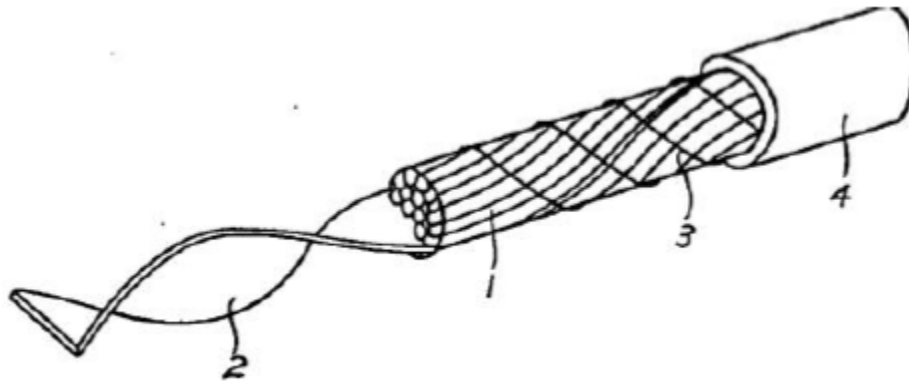


Figure 2 shows insulated wires 1, core material 2, press wrapping 3, and cable sheath 4. *Id.* Core material 2 is formed in a reciprocatingly twisted shape so that the directions of both sides gradually change along the lengthwise direction. *Id.* Yanagita states that “[t]his can be obtained through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

2. *Jachimowicz (Ex. 1014)*

Jachimowicz is a U.S. Patent titled “Multicable Telephone Cable in a Common Sheath.” Ex. 1014, code (54). Jachimowicz relates to a “communication cable for telephone use [which] has comparatively small numbers of pairs with the conductors of each pair twisted together with different lays and the pairs are assembled into shielded units.” *Id.* at code (57).

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

The cable of this invention consists of a multitude of identical small cables twisted together to form one cable core. Over the cable core there is one common cable sheath of a

conventional design. Each of the electrically separate small cables consist of a bundle of 12 transmission pairs with possibly one pair added for control and supervisory circuit. The pairs of the bundle (unit) have each a pair lay (length of pair twist) difference from lays of remaining pairs in the unit.

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

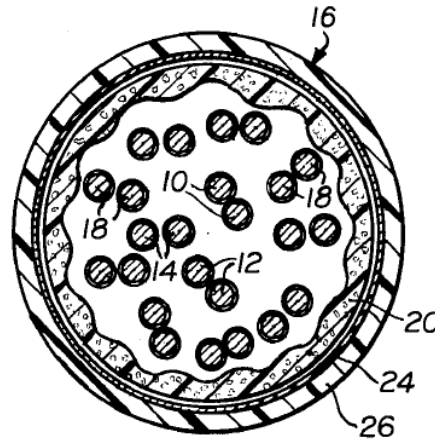


Figure 1 shows cable unit 16, comprising pairs of insulated conductors 10, 12, 14, and 18, foamed polyethylene 20, metal shield 24, and plastic insulating tape 26. *Id.* at 2:28–66. Jachimowicz describes:

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

Id. at 2:46–54.

3. *Gingue* (Ex. 1013)

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

Gingue “relates to insulated electrical conductors and jacketed electrical

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

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

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

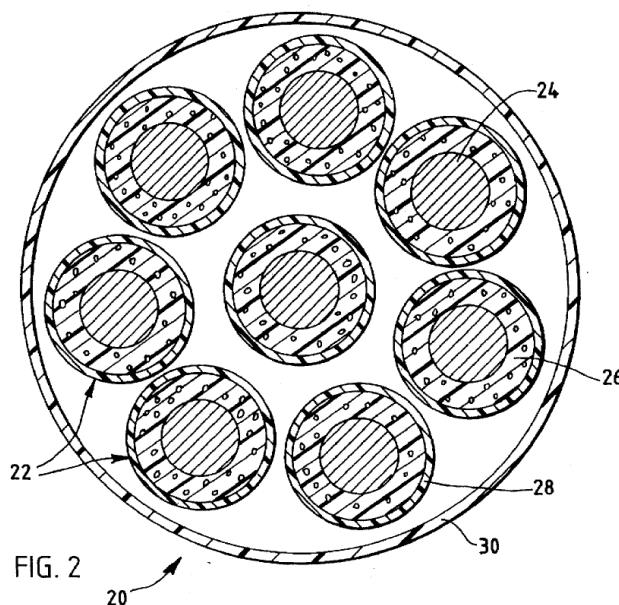


Figure 2 illustrates a jacketed electrical cable 20, where “each of insulated electrical conductors 22 comprises a centrally disposed electrical conductor 24, a foamed polymeric inner layer 26 surrounding the central conductor 24, and an outer layer 28 comprising a halogenated polymeric material and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

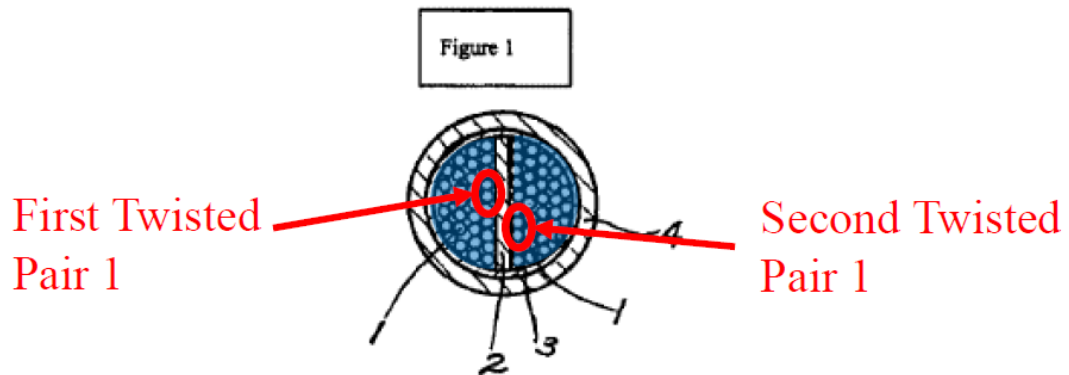
E. Asserted Obviousness of Claim 19 over Yanagita and Jachimowicz and of Claims 20 and 22 over Yanagita, Jachimowicz, and Gingue

Petitioner argues that claim 19 would have been obvious over Yanagita and Jachimowicz (Pet. 38–45) and that claims 20 and 22 would have been obvious over Yanagita, Jachimowicz, and Gingue (Pet. 45–47). Patent Owner opposes. Having considered the parties’ contentions and supporting evidence, we determine that Petitioner has shown by a preponderance of the evidence that claims 19, 20, and 22 would have been obvious over the asserted art.

1. Claim 19

The preamble and claim element [19.a] recite an unshielded communications cable comprising a plurality of twisted pairs of insulated conductors comprising a first twisted pair of insulated conductors and a second twisted pair of insulated conductors.

Petitioner asserts that Yanagita’s disclosure of a plurality of “strands of insulated wires or pairs thereof” that run along the surface of the core material disclose the first and second twisted pair of insulated conductors recited in claim element 19[a]. Pet. 40 (quoting Ex. 1012, col. 1). Petitioner annotates Yanagita’s Figure 1, shown below, to label the purported first and second twisted pairs.



Yanagita's Figure 1 is a cross sectional diagram of a cable with insulated wire strands 1, core material 2, cable sheath 4, Petitioner's annotations of a first and second twisted pair added. Pet. 40.

Claim element [19.b] requires a “substantially flat configurable dielectric separator that consists of non-conductive, dielectric materials disposed between the plurality of twisted pairs of conductors that separates the first twisted pair of insulated conductors from the second twisted pair of insulated conductors.”

Petitioner asserts that Jachimowicz' “plastic film-backed foamed polymer tape” is a substantially flat configurable dielectric separator. Pet. 40–41 (citing, *inter alia*, Pet. 22–23; Ex. 1007 ¶¶ 81, 93–95, 134). Petitioner states that it would have been obvious to to place Jachimowicz's plastic-backed foam polymer tape in between Yanagita's core material 2 and at least one set of the twisted pairs to provide the separator recited in claim elements [19.b] and [19.d]. Pet. 40–41 (citing Ex. 1007 ¶¶ 137–142). Petitioner asserts that a POSITA would have added Jachimowicz's tape, *inter alia*, to improve the electrical performace of the cable by reducing the capacitance between the twisted pairs on one side of Yantia core 2 and the twisted pairs on the other side, thus reducing current leakage between them and reducing the transmission loss due to such leakage. Pet. 42 (citing

Ex. 1007 ¶¶ 45, 139). Petitioner also asserts that a POSITA would have added Jachimowicz's tape to further lower cross talk between the twisted pairs on either side of the separator by increasing the distance between the twisted pairs in the cable. Pet. 43 (citing Ex. 1007 ¶¶ 38, 41, 140).

Patent Owner responds that Yanagita fails to disclose twisted pairs (PO Resp. 36–47), that Jachimowicz does not disclose or suggest a substantially flat, foamed polymer tape that can be used as a twisted pair separator (PO Resp. 35–36), and that Petitioner does not provide sufficient motivation to add Jachimowicz's tape to Yanagita's core material because Petitioner admitted that Mylar and foamed polymers are flammable (PO Resp. 36).

We first address the parties' disputed issues.

a) "Twisted Pair" Limitations

Based upon our review of the full record, we agree with Petitioner that Yanagita teaches or suggests a first and second "twisted pair of insulated conductors" as required by claim 19. Yanagita, when discussing the prior art, states that:

There is a trend to often using, as communication cables, so-called "alternatingly twisted cables," wherein that wherein [sic] a large number of *strands of insulated wires or pairs thereof* or quad strands, or units thereof, are twisted together so as to reverse the direction of twisting thereof with given periodicity. However, there is a shortcoming with this type of cable in that, when a tensile force is applied in the lengthwise direction of the cable core prior to application of the cable sheathing, in particular, the twisting of the cable core becomes undone[.]

Ex. 1012, 1 (col. 1) (emphasis added).

Yanagita goes on to state that its "invention focuses on this point" and that a first invention is an "alternatingly twisted cable wherein a large

number of insulated wire strands, or that where in the insulated wire strands are twisted together, are laid while twisting along the surfaces, along both surfaces of a core material.” Ex. 1012, 1 (col. 1). Mr. Cornelison testifies that based on these disclosures in Yanagita, a POSITA would understand that Yanagita describes the type of cables the invention can be used with and that this includes cables having twisted pairs. Ex. 1080 ¶ 47. Mr. Cornelison further explains that a POSITA would understand that Yanagita is not limited to “only individual straight-line conductors” but rather includes cables having component wires that can be either straight-line wires or *twisted pairs* or quads. *Id.* ¶ 48.

Mr. Cornelison also testifies that twisted pairs have been a staple of the cable industry for over a century and that twisted pairs were, and are, commonly referred to as “pairs” in the industry. Ex. 1007 ¶¶ 31–32 (citing, *inter alia*, Ex. 1020, 2:55–57; Ex. 1021, 1:43–47). Mr. Cornelison further states that a POSITA would have understood that when a reference discusses “a large number of ‘pairs’ of conductors bundled together without individual shielding between each pair,” such as that stated in Yanagita, that “pairs” refers to twisted pairs. Ex. 1080 ¶ 53.

Mr. Cornelison also states that by the date of the Yanagita patent, most communication cables uses twisted pairs. Ex. 1080 ¶ 53 (citing *inter alia*, Ex. 1020, 1:7-14, 1:34-39, 2:31-34, 2:55-59); *see also* Ex. 1020, 1:7–14 (describing cables for telephonic communication and stating in “a typical connection the subscriber’s telephone set is connected by means of a twisted pair of rubber insulated drop wires”); Ex. 1021, 1:43–47 (a 1929 patent discussing “twisted pairs”).

Based on the record before us and crediting this testimony by Mr. Cornelison, we agree that a POSITA would have understood that Yanagita

discloses twisted pairs. We have considered, but disagree with Patent Owner's arguments to the contrary, which we address below.

Patent Owner asserts that Yanagita fails to use the term “twisted pairs” or depict any arrangement of two wires twisted together around one another to form a balanced transmission line, as shown in Figure 4 of the '537 patent. PO Resp. 36–37; PO Sur-reply 10. Patent Owner asserts that the fact that individual wires are twisted together, as in Figure 2 of Yanagita, does not teach a POSITA that the individual conductors are twisted around one another to form a balanced transmission line. PO Sur-reply 10–11. Patent Owner states that simply twisting a group of wires along the longitudinal axis of the cable does not form twisted pairs, and Petitioner fails to explain how Yanagita discloses this limitation. *Id.* at 10 (citing Ex. 2001 ¶¶ 65–67).

Patent Owner also states that Petitioner's first citation to Yanagita refers to the prior art and that the term “stranded conductors” does not *necessarily* disclose twisted pairs. PO Resp. 43–44. Patent Owner further states a POSITA would understand this reference in Yanagita “merely describes prior art cables in which a large number of insulated, straight-line wires (individual wires, pairs of wires, or quad sets of wires) are collectively twisted longitudinally along the axis of a cable, just as the conductors are shown in Yanagita FIG. 2.” PO Resp. 44 (citing Ex. 2001 ¶ 68; Ex. 2007 ¶ 182).

We disagree with Patent Owner. Petitioner is not arguing that twisting a *group* of conductors around the longitudinal axis of the cable results in a “twisted pair” as claimed. *See generally* Pet.; Pet. Reply. Rather, Petitioner argues that Yanagita is not limited to cables including straight wires, but that it also teaches using twisted pairs of wires and that

those twisted pairs then further twisted along the longitudinal axis of the core. *See, e.g.*, Pet. Reply 15–17. Petitioner asserts that it is “implausible to read Yanagita as limiting its invention to *only* cables with straight wires.” Pet. Reply 17 (citing Ex. 1080 ¶ 53 (citing additional evidence)). Petitioner further explains that “most communication cables at the time used twisted pairs.” *Id.* at 17 (citing Ex. 1007 ¶¶ 31–33 (citing additional evidence); Ex. 1080 ¶ 53.

We are persuaded by Petitioner’s argument, supported by the testimony of Mr. Cornelison, that a POSITA would have understood that the “large number of insulated wires” in Yanagita’s cable can be twisted pairs. *See e.g.*, Pet. 38–39; Ex. 1007 ¶ 126 (stating alternating stranded cables can include a plurality of “pairs” of stranded wires), ¶¶ 31–33; Pet. Reply 14–17; Ex. 1080 ¶ 53. As Patent Owner admits, Yanagita describes prior art cables as including a large number of insulated, straight-line wires and that those large number of wires include “pairs of wires.” PO Resp. 44. We agree with Petitioner that a POSITA would understand that “pairs” of wires refers to “twisted pairs.” We also agree with Petitioner that a POSITA would understand that Yanagita teaches that its invention applies to the identified “prior art” wires, which includes “pairs of wires,” and thus applies to “twisted pairs.”

In its Sur-reply, Patent Owner states that Yanagita was filed in 1965 and that “nearly all” of the references that Petitioner relies on to show the use of twisted pairs in communications cables post-date Yanagita by decades. *See* PO Sur-reply 12 (providing dates that range from 1979 through 1995). Patent Owner further asserts that on cross-examination Petitioner was unable to “identify a single telecommunications standard from the time of Yanagita’s filing” that *required* the use of twisted pairs.

PO Sur-reply 12 (emphasis added) (citing Ex. 2013, 33:16–35:4). These arguments, however, fail to address Petitioner’s evidence that use of twisted pairs in communications cables was common at the time of filing and that a POSITA would have understood that Yanagita’s cable can (although not necessarily) encompass twisted pairs. For example, Petitioner cites to Exhibit 1020, which states that in “a typical connection the subscriber’s telephone set is connected by means of a twisted pair of rubber insulated drop wires.” Ex. 1020, 1:7–14; *see also* Ex. 1021, 1:43–47 (a 1929 patent discussing “twisted pairs of individually insulated electrical conductors”). Moreover, Patent Owner does not explain why it would be improper to consider evidence dated after a reference’s filing date to determine what a POSITA would have understood that reference to teach, and we do not conclude that it is improper to consider this evidence here. Patent Owner’s arguments do not overcome Petitioner’s showing that the wires of Yanagita’s cable include twisted pairs.

Thus, for the forgoing reasons, Petitioner has sufficiently shown that Yanagita teaches the first and second twisted pairs of insulated conductors as recited in claim 19.

b) “Substantially flat, foamed polymer tape”

We agree with Petitioner that Jachimowicz discloses a substantially flat tape made of foamed thermoplastic and that a POSITA would have been motivated to add Jachimowicz’s plastic-backed foamed polymer tape between Yanagita’s core material 2 and one set of twisted pairs in Yanagita’s cable assembly. *See, e.g.,* Pet. 41.

We find that Petitioner has sufficiently shown that Jachimowicz’s Mylar backed, foamed tape is substantially flat. *See, e.g.,* Pet. 22–23, 40–41; Ex. 1007 ¶ 81; Ex. 1080 ¶¶ 18–28. Mr. Cornelison persuasively testifies

that based on his many years in the industry and experience and familiarity with Mylar-backed foamed tapes, that a POSITA would have understood the tape used in Jachimowicz, a Mylar backed foam tape, would be substantially flat. Ex. 1080 ¶¶ 22–28; *see also id.* ¶ 24 (stating that foamed tape would be flat before being wrapped around twisted pairs); Ex. 1007 ¶ 81 (stating that a tape of insulating material used in communications cabling construction was understood in the field to connote a component that was substantially flat and configurable).

We have considered Patent Owner’s argument that Jachimowicz does not disclose a substantially flat dielectric polymer tape because (1) the foamed jacket shown in Figure 1 has an undulating, not flat, structure and (2) Jachimowicz does not state that its tape is flat before it is installed within the Jachimowicz cable. PO Resp. 22–28 (citing Ex. 2001 ¶¶ 110–114, 117; Ex. 2007 ¶¶ 166–167, 171); *see also* PO Sur-reply 5–7 (asserting that it is “wrong . . . to distinguish between the jacket and [the] tape” because “they are both the same element ‘20’”). Patent Owner and Dr. Eldering’s positions are based solely on the fact that Jachimowicz does not expressly state that the tape is flat and that a POSITA would understand the tape to have the same undulating surface as the jacket shown in Figure 1. *See, e.g.*, PO Resp. 22–28; PO Sur-reply 5–7. In doing so, Patent Owner and Dr. Eldering fail to credit to what a POSITA would have understood about the differences between the Jachimowicz’s jacket and the tape.

Even though both the jacket and the tape are identified as element 20, the jacket and the tape are not exactly the same. For example, the jacket is made up of foamed polyethylene that, during manufacturing of the cable, is “extruded” over the bundle to “lock” the pairs together. Ex. 1014, 2:47–50. In contrast, Jachimowicz states that the pairs can be “held” together in other

ways by “applying” a tape made of foamed thermoplastic supported by a film such as Mylar or polypropylene. *Id.* at 2:50–53. Thus, the method of applying the tape and jacket are different. We credit Mr. Cornelison’s persuasive testimony that the undulations seen in the extruded jacket in Figure 1 were the result of the extrusion process in which the extruded foam would conform to the twisted pairs that it was being extruded over.

Ex. 1080 ¶ 24. We also credit Mr. Cornelison’s testimony that while foamed tape may compress and conform to the twisted pairs *after* being wrapped around them, a POSITA would have expected the tape to be *flat before* it was applied.¹¹ *Id.*

Patent Owner argues that although Petitioner argues that a “POSITA would understand a ‘tape’ to be substantially flat . . . , [Mr.] Cornelison admitted on cross-examination that he ***did not know*** whether all tapes are substantially flat, tacitly admitting that tapes may not in fact be substantially flat.” PO Resp. 25–26 (citing Ex. 2004, 102:13–103:8). We have reviewed the testimony and understand Mr. Cornelison to have testified that while he did not know if *all tapes* were substantially flat, he believed that foamed polymers were substantially flat. *See* Ex. 1080 ¶ 25; Ex. 2004, 102:22–103:8. We also disagree with Patent Owner’s contention that Mr. Cornelison had an incorrect understanding of the tape’s function. PO Resp. 27. Patent Owner asserts that Mr. Cornelison improperly believes that the purpose of the tape is merely to keep the tape “held together,” which could allow conductors, pairs to move above, while the purpose of the jacket is to

¹¹ Because we agree with Mr. Cornelison that a POSITA would expect Jachimowicz’s foamed tape to be flat before it was applied, we do not reach Patent Owner’s arguments that a tape with an undulating surface would be considered “substantially flat.” *See, e.g.,* Ex. 1080 ¶ 24.

“lock the pairs” to deliberately limit the movement of the pairs. *Id.* (citing Ex. 2004, 106:16–112:1). Mr. Cornelison’s testimony, however, mirrors the language used in Jachimowicz when describing the jacket and when using the tape. *Compare* Ex. 1014, 2:47–49 (stating jacket 20 “lock[s]” pairs together), *with id.* at 2:51–54 (stating the pairs can be “held together in the bundle in other ways” by “applying a tape made of foamed thermoplastic”).

As such, we determine Petitioner has sufficiently shown that Jachimowicz teaches a substantially flat foamed polymer tape.

c) Motivation to Combine

Based upon review of the full record, we determine Petitioner has articulated a sufficient reason a POSITA would have added the foamed polymer tape of Jachimowicz to Yanagita’s cable between core material 2 (separator) and at least one set of twisted pairs. *See* Pet. 40–42. In particular, Petitioner states that adding a foamed polymer tape to Yanagita’s separator core material 2 would have been expected to improve the electrical performance of the cable by reducing the capacitance between twisted pairs on one side of Yanagita’s separator and twisted pairs on the other side, thus reducing current leakage between them and reducing the transmission loss due to such leakage. Pet. 42 (citing Ex. 1007 ¶¶ 45, 139). Petitioner asserts that a POSITA would have been motivated to add a foamed polymer tape, such as Jachimowicz’s foamed polyethylene tape to Yanagita’s core, because it would have been expected to beneficially lower the dielectric constant of the material between twisted pairs on either side of the separator due to the addition of low-dielectric constant foamed material. Pet. 42–43.

Patent Owner asserts that a POSITA would not have been motivated to add Jachimowicz’s tape to Yanagita’s core material. PO Resp. 36. In

particular, Patent Owner asserts that Mr. Cornelison admitted that Mylar and foamed polymers are flammable and that adding any flammable material to Yanagita would increase its overall flammability, countering the alleged combination and contradicting Mr. Cornelison's opinion that cables somehow should be flame retardant instead. PO Resp. 36 (citing Pet. 6; Ex. 1007 ¶¶ 44–46; Ex. 2004, 129:15–130:13).

We disagree with Patent Owner's argument. First, it fails to address Petitioner's persuasive argument as set forth above, supported by evidence, that a POSITA would have been motivated to add Jachimowicz's tape to Yanagita in order to reduce capacitance between the twisted pairs on either side of the core, thus reducing current leakage and transmission loss. *See* Pet. 42. Second, Mr. Cornelison provided testimony, supported by the record, and undisputed by Patent Owner, that Mylar and foamed polymers were commonly used in communications cabling and that Gingue teaches that foamed polymers can have a flame retardant additive. Pet. Reply 14 (citing Ex. 1007 ¶ 46); *see also* Ex. 1007 ¶ 46 (stating foamed polymers can be provided with a flame-retardant additive and citing Ex. 1013, 4:37–48); Ex. 1080 ¶ 46 (stating Mylar and foamed polymers are used in communications cabling). Thus, we disagree with Patent Owner that a POSITA would not have added Jachimowicz's tape to Yanagita due to concerns about flammability.

d) Remaining Limitations of Claim 19

We have also reviewed Petitioner's contentions and supporting evidence that Yanagita teaches the remaining limitations of claim 19, which Patent Owner does not dispute. *See generally* PO Resp.; Pet. 38–44. We agree with and adopt Petitioner's analysis as to these claim elements, which are set forth above.

Thus, based on the record developed during trial, we conclude Petitioner has demonstrated by a preponderance of the evidence that claim 19 would have been obvious over the combined teachings of Yanagita, Jachimowicz, and Gingue.

e) Petitioner's Additional Arguments Regarding Patent Owner's Previous Statements about Yanagita

Petitioner, in its Reply, argues that Patent Owner agreed in prior proceedings that Yanagita does disclose twisted pairs. Pet. Reply 14–17 In particular, Petitioner asserts that Patent Owner admitted that Yanagita disclosed twisted pairs in an interrogatory response submitted during a district court litigation, affirmatively stating that “JP 15470 discloses an alternately stranded cable comprising stranded pairs.” *Id.* at 14–15.

Patent Owner responds that it made no such admission and that the prior proceedings involved a different, uncertified translation of Yanagita. *See* PO Sur-reply 18–19.

Because we already determined that Petitioner sufficiently shows that Yanagita teaches twisted pairs, we need not consider Petitioner's additional argument that Patent Owner's previous statement that an uncertified translation of Yanagita discloses “stranded pairs” is an admission that Yanagita discloses “twisted pairs.”

2. Claims 20 and 22

Claim 20 depends from claim 19 and further requires that dielectric separator includes a flame-retardant, low-dielectric constant, foamed polymer tape. Ex. 1004, 10:55–58. Claim 22 depends from claim 19 and further requires that the separator is a flame-retardant, foamed polymer tape. *Id.* at 10:63–65.

Petitioner asserts that dependent claims 20 and 22 would have been obvious over Yanagita, Jachimowicz, and Gingue and relies on Gingue to teach the limitations of these dependent claims. Pet. 45–47 (citing Ex. 1007 ¶¶ 81, 111–113, 115–116, 146).

In particular, Petitioner asserts that Gingue teaches that the particular foamed polymer used by Jachimowicz is flame-retardant and has a low-dielectric constant. Pet. 32–33. Petitioner contends that Gingue teaches that electric cables for voice and data transmission should be flame resistant while exhibiting favorable electrical properties. Petitioner further states that Gingue teaches that foaming an insulating material is generally understood to improve both its electrical performance and flame retardance as well as adding a “flame retardant and smoke suppressant.” *Id.* at 33–34 (citing Ex. 1013, 3:20–26, 4:32–44; Ex. 1007 ¶¶ 111–113, 115).

Patent Owner responds that Jachimowicz fails to disclose a substantially flat, foamed polymer tape that can be used as a twisted pair separator. PO Resp. 49. Patent Owner asserts that while Gingue discusses the use of foamed polymers as insulation to bare metal conductors, it does not state anything about the use of a foamed polymer tape. *Id.* at 49–50 (citing Ex. 2007 ¶¶ 173–178; Ex. 1013, 1:8–15, 5:24–29).

We disagree with Patent Owner’s arguments because they attack the references individually and do not address Petitioner’s asserted combination. As noted above, Petitioner sufficiently shows that Jachimowicz discloses a substantially flat, foamed polymer tape and a POSITA would have reason to add Jachimowicz’s tape to Yanagita’s separator. Patent Owner does not dispute that Gingue discloses the claimed properties of foamed polymer, including the foamed polymer disclosed in Jachimowicz.

We have reviewed and agree with Petitioner that the combination of Yanagita, Jachimowicz, and Gingue teach or suggest each of the limitations of claims 20 and 22 and has provided a reason to combine the teachings.

Accordingly, Petitioner has shown by a preponderance of the evidence that claims 20 and 22 would have been obvious over Yanagita, Jachimowicz, and Gingue.

F. Additional Grounds

The Petition includes additional arguments relating to the unpatentability of claims 19, 20, and 22 over combinations including Beggs and Jachimowicz and over a combination of GmbH-866, Roberts, Gingue, and Jachimowicz. Pet. 21–38, 47–64.

Because we determine that Petitioner has shown claims 19, 20, and 22 are unpatentable on other grounds, we do not reach Petitioner's challenges to these same claims based on other combinations or arguments. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”); *Boston Sci. Scimed, Inc. v. Cook Grp. Inc.*, 809 F. App’x 984, 990 (Fed. Cir. 2020) (nonprecedential) (“We agree that the Board need not address [alternative grounds] that are not necessary to the resolution of the proceeding.”).

III. PETITIONER’S MOTION TO EXCLUDE EXHIBIT 2012

Petitioner filed a Motion to Exclude Exhibit 2012. Paper 36. We do not rely on Patent Owner’s Exhibit 2012 to resolve the disputes before us in this proceeding. Therefore, Petitioner’s Motion to Exclude Exhibit 2012 is *dismissed* as moot.

IV. PATENT OWNER’S MOTION TO EXCLUDE THE UNCERTIFIED TRANSLATION OF YANAGITA

Patent Owner filed a motion to exclude Exhibit 1055, which is an “uncertified” English language transition of Yanagita Japanese patent application (Ex. 1056). Paper 37. We do not rely on Exhibit 1055 to resolve the disputes before us in this proceeding. Therefore, Patent Owner’s Motion to exclude Exhibit 1055 is *dismissed* as moot.

V. CONCLUSION

In summary:

Claims	35 U.S.C. §	Reference(s)	Claims Shown Unpatentable	Claims Not Shown Unpatentable
19	103(a)	Beggs, Jachimowicz ¹²		
20, 22	103(a)	Beggs, Jachimowicz, Gingue ¹³		
19	103(a)	Yanagita, Jachimowicz,	19	
20, 22	103(a)	Yanagita, Jachimowicz, Gingue	20, 22	
19, 20, 22	103(a)	GmbH-866, Roberts, Gingue, Jachimowicz ¹⁴		
Overall Outcome			19, 20, 22	

¹² We do not reach this challenge because we determine that Petitioner has shown claim 19 to be unpatentable on other grounds.

¹³ We do not reach this challenge because we determine that Petitioner has shown claims 20 and 22 to be unpatentable on other grounds.

¹⁴ We do not reach this challenge because we determine that Petitioner has shown claims 19, 20, and 22 to be unpatentable on other grounds.

VI. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner has shown by a preponderance of the evidence that claims 19, 20, and 22 of the '537 Patent are unpatentable;

FURTHER ORDERED that Petitioner's Motion to Exclude is dismissed as moot; and

FURTHER ORDERED that Patent Owner's Motion to Exclude is dismissed as moot; and

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

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