

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 RESPONSE

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EXHIBIT LIST

EXHIBIT	DESCRIPTION
EX-1001	U.S. Patent No. 6,570,095 (the “’095 patent”)
EX-1002	Excerpt of Prosecution History of U.S. Patent No. 6,570,095: Nov. 8, 2002 Notice of Allowance
EX-1003	Excerpt of Inter Partes Reexamination No. 95/000,474 of U.S. Patent No. 6,570,095: Sept. 20, 2011 Action Closing Prosecution
EX-1004	U.S. Patent No. 6,998,537 (the “’537 patent”)
EX-1005	Excerpt of Prosecution History of U.S. Patent No. 6,998,537: Nov. 2, 2004 Notice of Allowance
EX-1006	Excerpt of Inter Partes Reexamination No. 95/000,476 of U.S. Patent No. 6,998,537: Sept. 20, 2011 Action Closing Prosecution
EX-1007	Declaration of Kenneth Cornelison
EX-1008	Curriculum Vitae of Kenneth Cornelison
EX-1009	U.S. Patent No. 3,622,683 (“Roberts”)
EX-1010	English language translation of German Patent No. 297,19,866 U1 (“GmbH-866”), and attached Declaration of translator Anthea Heyes
EX-1011	German Patent No. 297,19,866 U1 (untranslated original)
EX-1012	English language translation of Japanese Patent Publication S43015470 (“Yanagida”), and attached Declaration of translator Anthea Heyes
EX-1013	U.S. Patent No. 5,670,748 (“Gingue”)
EX-1014	U.S. Patent No. 3,894,172 (“Jachimowicz”)
EX-1015	U.S. Patent No. 4,755,629 (“Beggs”)
EX-1016	Electronic Wire & Cable - A Users’ Guide: Performance and Selection, Section 5: Multiconductor Cables, AT&T (1987)
EX-1017	Whitham D. Reeve, Subscriber Loop Signaling and Transmission Handbook – Digital, IEEE Telecommunications Handbook Series (1995)
EX-1018	Whitham D. Reeve, Subscriber Loop Signaling and Transmission Handbook – Analog, IEEE Telecommunications Handbook Series (1992)
EX-1019	U.S. Patent No. 5,380,591
EX-1020	U.S. Patent No. 1,727,972
EX-1021	U.S. Patent No. 1,956,730
EX-1022	U.S. Patent No. 3,803,340 (Jachimowicz-340)

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EX-1023	Canadian Patent Application No. 2,058,046
EX-1024	U.S. Patent No. 4,262,164
EX-1025	U.S. Patent Pub. No. 2006/0169478
EX-1026	U.S. Patent No. 4,253,890
EX-1027	U.S. Patent No. 5,283,390
EX-1028	U.S. Patent No. 5,969,295
EX-1029	G.F. Moore, Electric Cable Handbook, BICC Cables (3d. ed. 1997)
EX-1030	The New IEEE Standard Dictionary of Electrical and Electronics Terms (5th ed. 1993)
EX-1031	Neil Sclater and John Markus, Electronics Dictionary, McGraw-Hill (6th ed. 1997)
EX-1032	S. Yonechi et al., Application of Spacer Forming Technique to Communication Cables, International Wire & Cable Symposium Proceedings (1980)
EX-1033	U.S. Patent No. 7,179,999 (the “’999 patent”)
EX-1034	Excerpt of Inter Partes Reexamination No. 95/000,475 of U.S. Patent No. 7,179,999: Oct. 14, 2011 Action Closing Prosecution
EX-1035	Alcatel Cable Systems Product Catalog
EX-1036	U.S. Patent No. 5,789,711
EX-1037	Excerpt of Prosecution History of U.S. Patent No. 6,570,095: Oct. 22, 2001 Non-Final Office Action
EX-1038	Excerpt of Prosecution History of U.S. Patent No. 6,570,095: April 3, 2002 Final Office Action
EX-1039	Excerpt of Prosecution History of U.S. Patent No. 6,998,537: March 3, 2004 Non-Final Office Action
EX-1040	Excerpt of Prosecution History of U.S. Patent No. 6,998,537: Terminal Disclaimer
EX-1041	Excerpt of Prosecution History of U.S. Patent No. 6,998,537: May 18, 2004 Amendments
EX-1042	Excerpt of Prosecution History of U.S. Patent No. 6,998,537: June 17, 2004 Final Office Action
EX-1043	Excerpt of Prosecution History of U.S. Patent No. 6,998,537: September 20, 2004 Request for Continued Examination
EX-1044	Excerpt of Prosecution History of U.S. Patent No. 6,998,537: Sept. 9, 2005 Amendment
EX-1045	Excerpt of Inter Partes Reexamination No. 95/000,474 of U.S.

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	Patent No. 6,570,095: Feb. 24, 2012 Decision Granting Petition to Terminate Inter Partes Reexamination Proceeding
EX-1046	Excerpt of Inter Partes Reexamination No. 95/000,476 of U.S. Patent No. 6,998,537: Feb. 24, 2012 Decision Granting Petition to Terminate Inter Partes Reexamination Proceedings
EX-1047	Excerpt of Inter Partes Reexamination No. 95/000,475 of U.S. Patent No. 7,179,999: Feb. 24, 2012 Decision Granting Petition to Terminate Inter Partes Reexamination Proceedings
EX-1048	U.S. Patent No. 5,814,768
EX-1049	U.S. Patent No. 6,037,546
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EX-1051	Excerpt of Inter Partes Reexamination No. 95/000,476 of U.S. Patent No. 6,998,537: Jan. 22, 2010 Third Party Requester's Comments to Patent Owner's Response
EX-1052	Belden Techs. et al. v. Superior Essex Comm'cns LP et al., No. 08-63-SLR, Dkt. 215 (D. Del. Aug. 8, 2010) – Claim Construction Order
EX-1053	Belden Inc. v. CommScope, Inc. et al., No. 22-783-RGA, Dkt. 292 (D. Del. May 26, 2023) – Scheduling Order
EX-1054	Declaration of Sylvia D. Hall-Ellis, PhD
EX-1055	English Translation of Japanese Patent Publication No. S43-15470 used in prior reexamination of US 6,998,537
EX-1056	Japanese Patent Publication No. S43-15470 (untranslated original)
EX-1057	English language translation of German Patent No. 297,19,866 U1 used in prior reexamination of US 6,998,537
EX-2001	Declaration of Dr. Charles A. Eldering in Support of Patent Owner Preliminary Response (“Eldering”)
EX-2002	Definition of “twisted pair” from Webster's New World Telecom Dictionary, 2008
EX-2003	U.S. Patent No. 10,170,220
EX-2004	Deposition Transcript of Kenneth Cornelison, March 6, 2024
EX-2005	U.S. Patent No. 4,800,236
EX-2006	U.S. Patent No. 4,340,771
EX-2007	Supplemental Declaration of Dr. Charles A. Eldering in Support of

EXHIBIT	DESCRIPTION
	Patent Owner Response (“Eldering”)

I. INTRODUCTION

Patent Owner respectfully submits this Response to the Petition for *Inter Partes* Review (“IPR”) of claims 19, 20, and 22 (“Challenged Claims”) of U.S. Patent No. 6,998,537 (“’537 Patent”) (EX-1004). The Petition is facially deficient and each of the asserted Grounds should be denied for several reasons.

First, all of Petitioner’s alleged obviousness arguments (Grounds 1-5) invite factual and legal error because they are based on mere hindsight riddled speculation and fail to establish that the alleged combinations disclose or suggest each and every limitation of the Challenged Claims of the ’537 Patent (including a “substantially flat” dielectric separator that includes a “foamed polymer” (Grounds 1-5) and separating “twisted pairs” (Grounds 3-5)). Instead of relying on any actual disclosure or suggestion in each of these references, Petitioner relied upon unsupported conjecture and demonstrably false characterizations of what these references actually teach, as confirmed through cross-examination of Petitioner’s expert following institution. Petitioner thus cannot satisfy the requirements for obviousness based on longstanding and fundamental principles of patent law.

Second, regarding Grounds 2-5, Petitioner did not even attempt to propose any further substitution or modification to try to overcome the missing elements of the relied upon primary references, taken alone or in combination. Instead, Petitioner’s made-up and hindsight driven obviousness theories invite legal and

factual error.

Third, regarding Grounds 1, 3, and 5, Petitioner further invited factual and legal error by failing to provide any legitimate basis for why a person of ordinary skill in the art at the time of the claimed invention (POSITA)¹ would have been motivated to modify the primary reference to make the alleged substitution. Here again, Petitioner thus cannot satisfy the requirements for obviousness based on longstanding and fundamental principles of patent law.

Because the Petition's alleged combinations of prior art references all fail to teach or suggest the limitations of the Challenged Claims, the Board should deny Grounds 1 through 5 of the Petition.

II. THE '537 PATENT

The '537 Patent inventions are generally directed to:

high-speed data communications cables using at least two **twisted pairs** of insulated conductors. More particularly, the invention relates to

¹ All references to a POSITA herein refer to a "person of ordinary skill in the art" at the time of the claimed invention. Eldering ¶¶21-28. "Eldering" refers to the Declarations of Dr. Charles A. Eldering in Support of (i) the Patent Owner Preliminary Response (EX-2001 ¶¶1-129) and (ii) the Patent Owner Response (EX-2007 ¶¶130-195). Any differences between the parties' proposed definitions of a POSITA are insubstantial and do not impact the analysis of the issues presented.

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.**²

'537 Patent 1:19-25; Eldering ¶29.

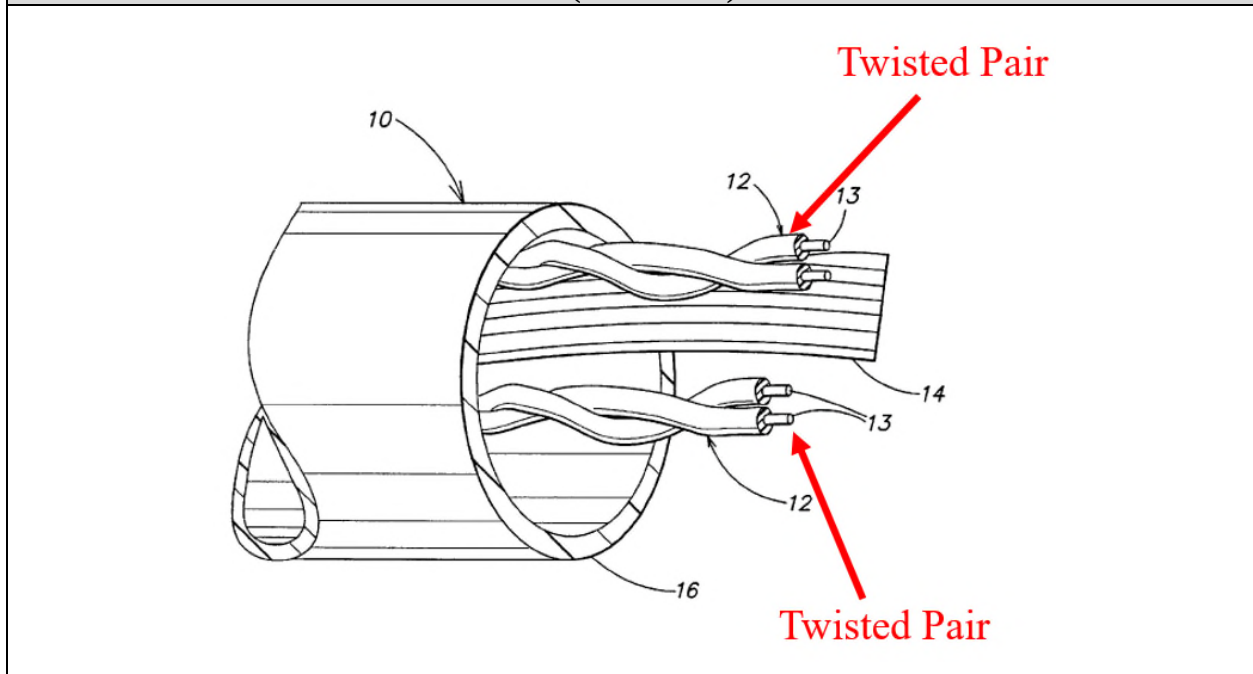
The specification of the '537 Patent defines “twisted pairs” as:

pairs of insulated conductors twisted together to form a balanced transmission line. Such pairs of insulated conductors are referred to herein as ***‘twisted pairs.’***

'537 Patent 1:29-31. The '537 Patent shows such “twisted pairs” in FIG. 4. '537 Patent 4:27-30 (“FIG. 4 depicts an embodiment of a data communications cable 10 according to the present invention. The cable 10 includes two twisted pairs 12 of insulated conductors 13.”); Eldering ¶30.

² All emphasis herein has been added unless otherwise noted.

'537 Patent FIG. 4 (annotated) – Twisted Pairs



Additionally, the '537 Patent relates to an improved data communications cable having “a plurality of twisted pairs of insulated conductors and a core made from a configurable, dielectric pair separator.” '537 Patent 4:11-13; Eldering ¶31.

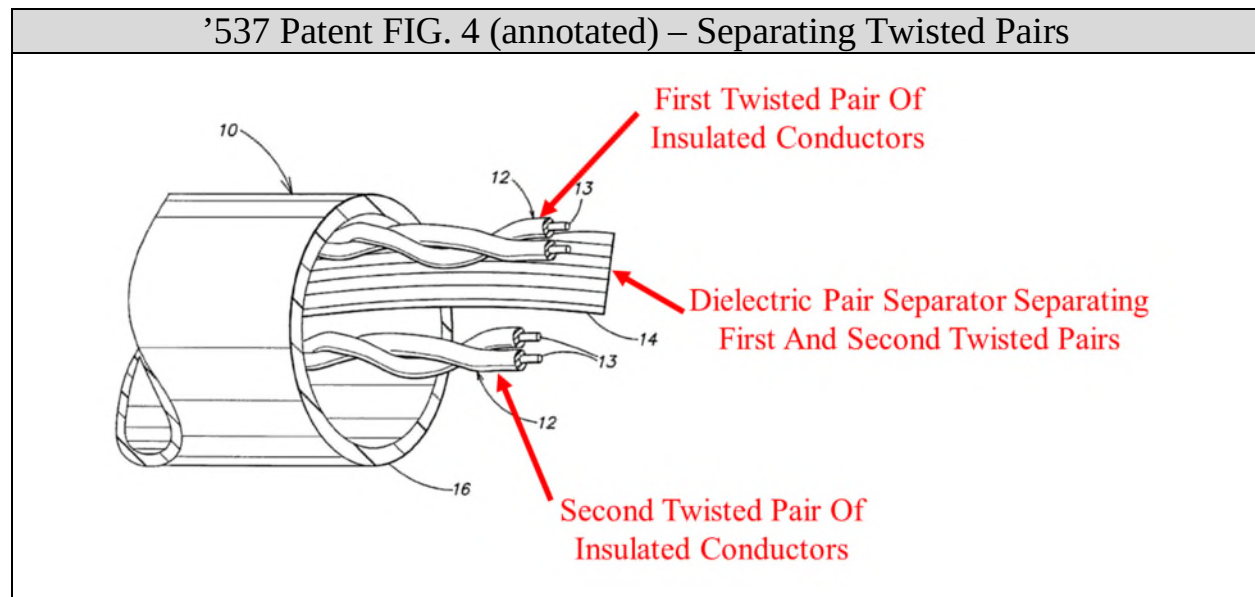
As the '537 Patent explains,

[w]hen ***twisted pairs are closely placed***, such as in a cable, electrical energy may be transferred from one twisted pair of a cable to another twisted pair. Such energy transferred ***between twisted pairs*** is referred to as crosstalk. As operating frequencies increase, improved crosstalk isolation between the twisted pairs becomes more critical.

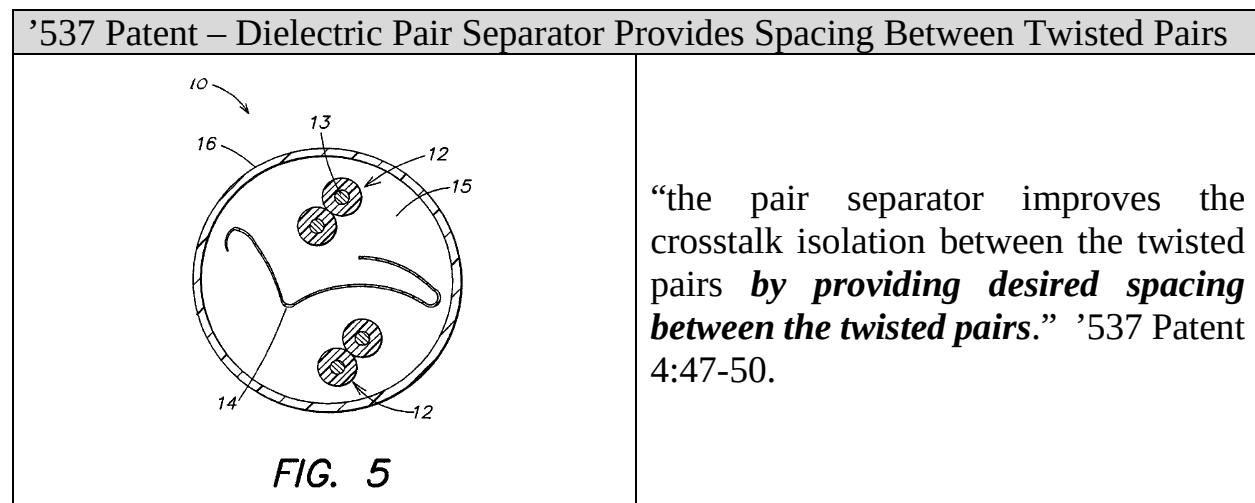
Id. at 1:31-37; Eldering ¶32.

As shown in FIG. 4, “cable 10 includes two twisted pairs 12 of insulated conductors 13. ***The twisted pairs 12 are separated by a low dielectric constant, low dissipation factor, polymer ‘pair separator’ 14.*** The twisted pairs 12 and the pair

separator 14 are encased within a jacket assembly 16.” *Id.* at 4:28-33; *see also, id.* at 1:23-25; Eldering ¶33.



Here, “the pair separator improves the crosstalk isolation between the twisted pairs by ***providing desired spacing between the twisted pairs***,” as it does in each of the disclosed embodiments. ’537 Patent 4:47-50; Eldering ¶34.



'537 Patent – Dielectric Pair Separator Provides Spacing Between Twisted Pairs

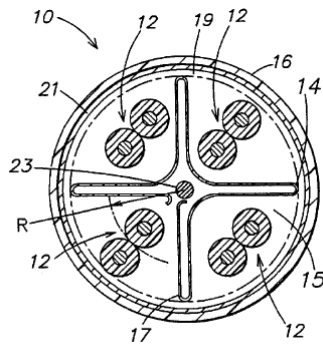


FIG. 6

“The cable includes the low-dielectric constant, low-dissipation factor polymer pair separator 14 formed into a cable core in such a way as **to physically separate the four twisted pairs 12**, thereby decreasing field coupling between the twisted pairs, providing a desired opposite twisted pair-to-pair physical distance, as well as providing a desired adjacent pair separation.” *Id.* at 5:35-42.

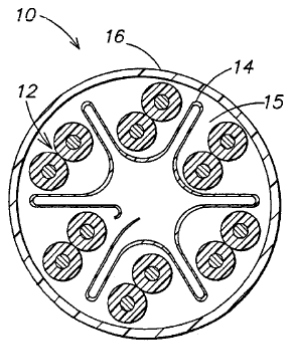


FIG. 7

“FIG. 7 depicts a cable 10 wherein six twisted pairs 12 are encased within the jacket assembly 16, and **are separated from each other by the configurable pair separator 14.**” *Id.* at 6:65-7:1.

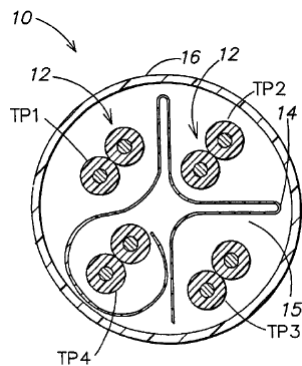


FIG. 8

“Accordingly, with this embodiment of the cable of the invention, there can be selective enhancement of isolation between twisted pairs TP1-TP4, TP2-TP4, and TP3-TP4. It is to be appreciated that although the twisted pair TP4 has been illustrated as being isolated from the remainder of the twisted pairs, that **any of the twisted pairs can be so wrapped with the filler and isolated.**” *Id.* at 7:23-29.

'537 Patent – Dielectric Pair Separator Provides Spacing Between Twisted Pairs

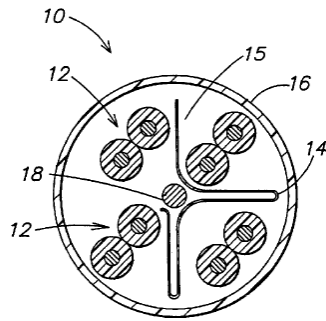


FIG. 9

“FIG. 9 depicts still another embodiment of the data communications cable 10 having multiple twisted pairs 12 encased within the jacket assembly 16 and **physically separated from each other by the configurable pair separator 14** . . .” *Id.* at 7:39-42.

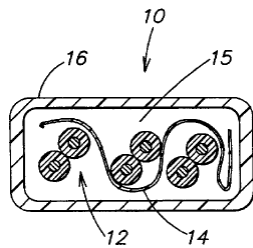


FIG. 10

“Twisted pairs 12 are encased within a substantially flat jacket assembly 16 and **physically separated from each other by the configurable pair separator 14**.” *Id.* at 7:62-64

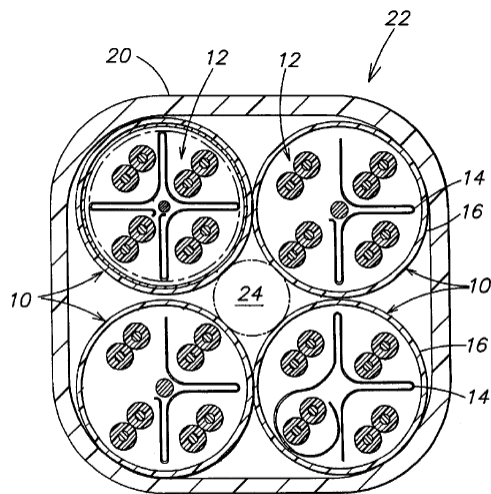


FIG. 11

“In particular, each data cable 10 contains multiple twisted pairs 12 **separated by the configurable pair separator 14** according to any of the above-described configurations, and encased in the jacket assembly 16.” *Id.* at 8:14-18.

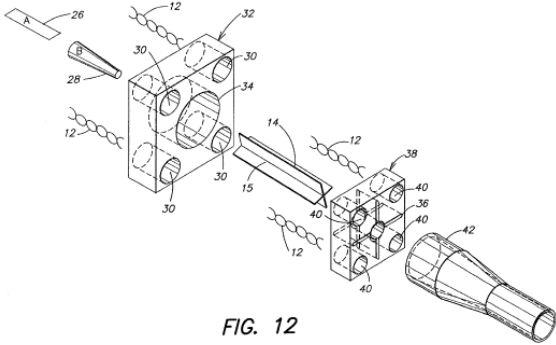
In a twisted pair cable, “each twisted pair has a specified distance between

twists along a longitudinal direction of the twisted pair, that distance being referred to as the ‘twist lay.’” ’537 Patent 1:55-58. The ’537 Patent teaches that the invention is drawn to employing a reduced number of twist lays, namely a longer distance between twists, while achieving at least the same level of crosstalk isolation:

This embodiment of the invention [shown in Fig. 8] may also be used in conjunction with ***a lessening of the twist lays requirements for the twisted pairs, to provide cable having a same amount of isolation between twisted pairs as a cable with tighter twist lays.*** Accordingly, this embodiment of the cable according to the invention allows for selective design of isolation between particular twisted pairs of the cable and lessening of the twist lay requirements for the cable.

’537 Patent 7:31-37. Accordingly, employing a dielectric pair separator between the various twisted pairs comprising the cable in order to physically distance them from each other provides “a high-speed data cable having multiple twisted pair wires with desired crosstalk performance, improved handling and termination capabilities, that is inexpensive, flexible and has a desired size.” ’537 Patent 2:65-3:2; *see also*, 8:53-9:7; Eldering ¶¶35-37.

In addition, the ’537 Patent teaches the use of a “***bunching***” process, where the twisted pairs and pair separator combination may be **additionally** configured by twisting all of those components together when forming the data communications cable, to improve the mechanical properties of the cable, namely keeping the components of the cable in their respective positions. Regarding FIG. 12, the ’537 Patent teaches that:

'537 Patent FIG. 12	'537 Patent 8:38-48.
 FIG. 12	The formed pair separator 15 is then passed through opening 36 in second die 38 and brought together with the four twisted pairs 12 which are passed through corresponding openings 40 in the second die. <i>The plurality of twisted pairs are then cabled with the formed pair separator by a third die 42, in an operation referred to as “<u>bunching</u>”.</i> The third die places the twisted pairs in the channels 15 (see FIGS. 5-10) of the formed pair separator prior to <i>twisting of the cable</i>. It is to be appreciated that the cable can be twisted with any known twisting arrangement such as a helix, or an S-Z configuration.

The “bunching” process taught by the ’537 Patent is different than, and entirely separate from, the helical twisting of a given pair of conductors around one another to form a balanced transmission line. Instead, the twisting associated with “bunching” involves all of the components in the cable, including the plurality of twisted pairs and the pair separator. ’537 Patent 8:38-48; Eldering ¶¶38-39.

III. CLAIM CONSTRUCTION

“It is well-established that . . . validity analysis is a ***two-step procedure***.”
Deere & Co. v. Gramm, 842 Fed. Appx. 628, 632 (Fed. Cir. Feb. 4, 2021) (quoting *TI Grp. Auto. Sys. (N. Am.), Inc. v. VDO N. Am., L.L.C.*, 375 F.3d 1126, 1139 (Fed. Cir. 2004)); *see also Medichem, S.A. v. Rolabo, S.L.*, 353 F.3d 928, 933 (Fed. Cir. 2003) (“Both anticipation under § 102 and obviousness under § 103 are two-step

inquiries.”). “The first step involves the *proper interpretation of the claims*. The second step involves determining whether *the limitations of the claims as properly interpreted* are met by the prior art.” *TI Grp. Auto. Sys.*, 375 F.3d at 1139 (quoting *Beachcombers, Int’l, Inc. v. WildeWood Creative Prods., Inc.*, 31 F.3d 1154, 1160 (Fed. Cir. 1994)).

Consistent with this mandate by the Federal Circuit, under 37 C.F.R. § 42.104(b)(3)-(4), “the petition must set forth ... [h]ow the challenged claim is to be construed” and “[h]ow the construed claim is unpatentable.” *Blackberry Corp. v. Facebook, Inc.*, IPR2019-01593, Paper 9 at 3-4 (Apr. 17, 2020) (“It is Petitioner’s burden to show *in the Petition* its contentions regarding how the challenged claim is *to be construed* and how, *so construed*, the claim is rendered obvious by the asserted references.”) (emphasis in original).

In the Petition, Petitioner proposed constructions for three claim terms/phrases. Pet. 15-20 (proposing claim constructions for the preamble, “substantially flat configurable dielectric separator,” and “configurable’ separator”).³ But despite the fact that the term “twisted pair[s]” appears **seven (7)**

³ For purposes of this Preliminary Response, the construction of those three terms/phrases are not relevant to Patent Owner’s arguments herein, and Patent

times in the Challenged Claims, Petitioner selectively chose not propose a construction for this key claim term, as it was required to do under 37 C.F.R. § 42.104(b)(3).

Turning to the claim construction of “twisted pair[s]” and looking first to the specification of the ’537 Patent to construe “twisted pair[s],” the specification provides the following definition of the term that Petitioner chose to disregard in its Petition:

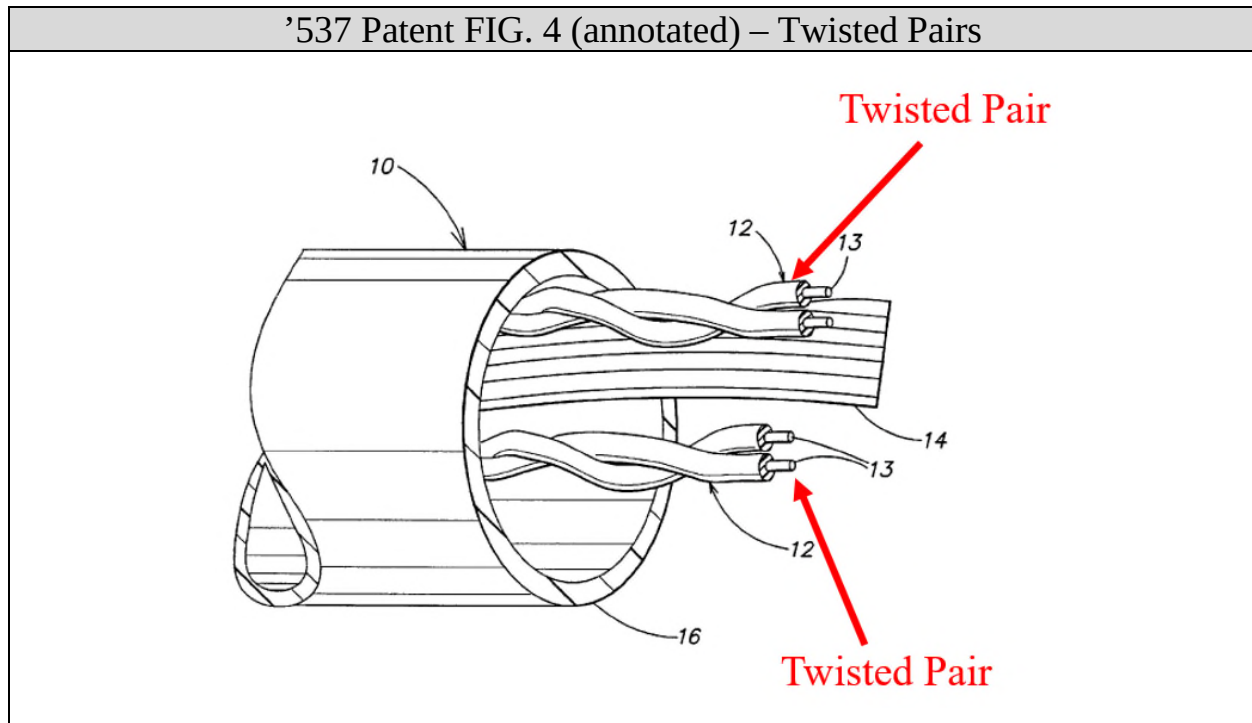
High-speed data communications media in current usage include **pairs of insulated conductors twisted together to form a balanced transmission line**. Such pairs of insulated conductors are referred to herein as “twisted pairs.”

’537 Patent 1:28-31; *see Martek Biosciences Corp. v. Nutrinova, Inc.*, 579 F.3d 1363, 1380 (Fed. Cir. 2009) (“When a patentee explicitly defines a claim term in the patent specification, the patentee’s definition controls.”); *Eldering* ¶40.

Consistent with that definition in the intrinsic record, FIG. 4 of the ’537 Patent

Owner does not address them at this time. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”); *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

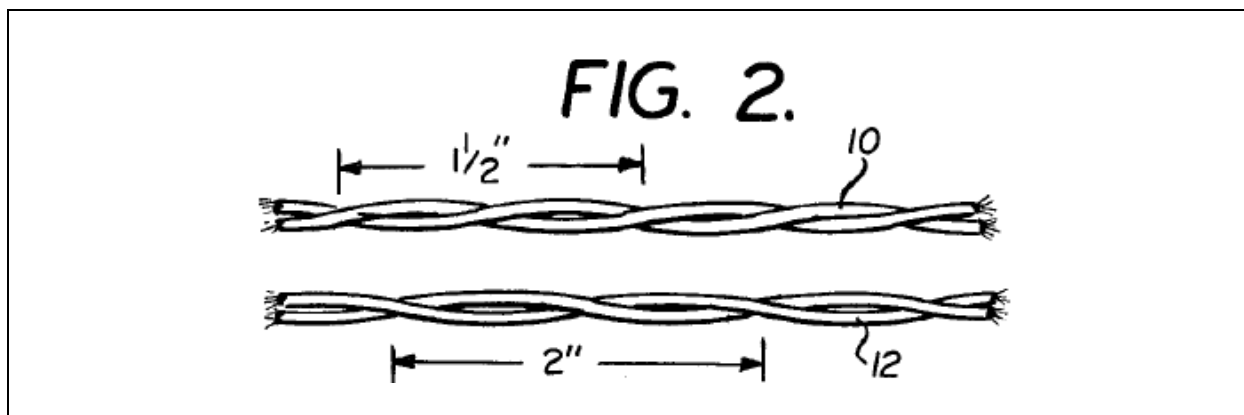
shows a “cable 10 includ[ing] two twisted pairs 12 of insulated conductors 13” that twist around one another to form a balanced transmission line. ’537 Patent 4:27-29; Eldering ¶¶41, 147-159.



As shown in FIG. 4, which is part of the intrinsic record and instructive regarding the meaning of the “twisted pair[s]” claim term, and its associated limitations, the two individual conductors in each pair (*i.e.*, each set of two separately insulated wires) are twisted together in a helix around one another as shown in FIG. 4 to form a balanced transmission line. Eldering ¶¶42, 147-159; *see, e.g., Autogiro Co. of Am. v. United States*, 384 F.2d 391, 398 (Ct. Cl. 1967) (“In those instances where a visual representation can flesh out words, drawings may be used in the same manner and with the same limitations as the specification.”).

The '537 Patent's definition and depiction of twisted pairs is also consistent with the definition of "twisted pairs" provided in a technical dictionary. See EX-2002 503 ("A twisted pair comprises **two copper conductors**, separately insulated by a dielectric material and smoothly **twisted in a helix** with a constant pitch or distance to make a 360° twist."). Eldering ¶43; see *Phillips v. AWH Corp.*, 415 F.3d 1303, 1318 (Fed. Cir. 2005) (*en banc*) (approving the use of technical dictionaries); *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1237-38 (Fed. Cir. 2016) (approving the Board's use of a computer technical dictionary).

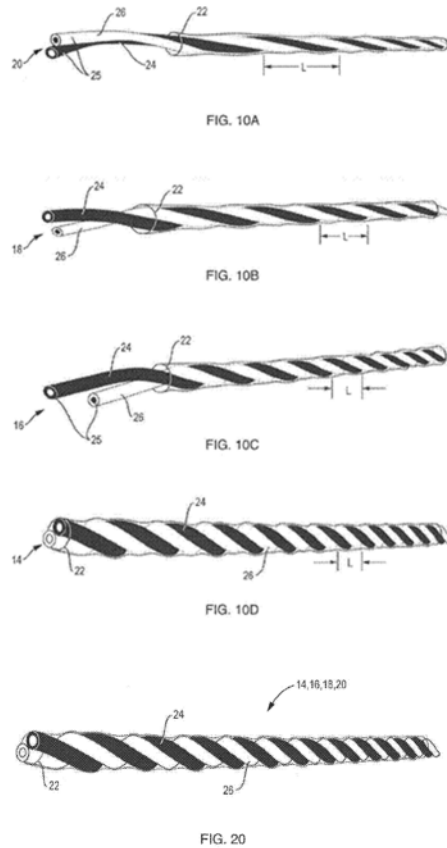
That plain and ordinary meaning of "twisted pair[s]" to a POSITA (*i.e.*, requiring "**two** insulated conductors **twisted together** around one another to form a balanced transmission line," as shown in FIG. 4 like the '537 Patent's definition) is also confirmed in the figures and description of "twisted pair[s]" in one of Petitioner's alleged prior art references (*i.e.*, Jachimowicz (EX-1014)), which illustrates how twisted pairs constitute two insulated conductors twisted together around one another in a helix to form a balanced transmission line. Eldering ¶¶44, 147-159.



Jachimowicz 2:66-3:4, FIG. 2 (twisted pairs 10 and 12). FIG. 2 of Jachimowicz is “a diagrammatic view showing two pairs of conductors illustrating the difference in the twist (lay) of the pairs.” Jachimowicz 2:16-18.

Likewise, U.S. Patent No. 10,170,220 (“Cornelison ’220”) (EX-2003) to Petitioner’s expert, Kenneth E. Cornelison, teaches that “[t]he first and the second insulated conductors, of each pair, **are twisted with one another to form a twisted pair** and each of the twisted pairs has a different lay length from one another.” Cornelison ’220 Abstract, *see also* 5:54-58, 8:15-19 (FIG. 20 is “**a pair of insulated conductors twisted together** to form a twisted pair”). Cornelison ’220 elaborates that “a lay length is traditionally defined as the axial distance necessary for one pair of insulated conductors to complete a full 360 degree of rotation **when twisting about one another.**” *Id.* 2:27-29. Cornelison illustrates ’220 several examples of twisted pairs, including the following:

Cornelison '220 (FIGS. 10A-10D, 20) - Depicting “Twisted Pairs”



Accordingly, the intrinsic and extrinsic evidence confirms that the plain and ordinary meaning of the claimed “twisted pair[s]” that are separated by a dielectric pair separator to a POSITA is “**two** insulated conductors **twisted together around one another** to form a balanced transmission line,” as shown in FIG. 4 of the ’537 Patent (or any of the other references shown above). Eldering ¶45, 158-159.

IV. THE CHALLENGED CLAIMS ARE NOT OBVIOUS.

A. Regarding Ground 1, The Combination Of Beggs And Jachimowicz Cannot Render Claim 19 Obvious.

Regarding Ground 1, Petitioner relied upon Beggs (EX-1015) in combination

with Jachimowicz (EX-1014) in alleged support of its obviousness theory challenging independent claim 19 of the '537 Patent. Pet. 21-32. Claim 19 of the '537 Patent requires:

[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”

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

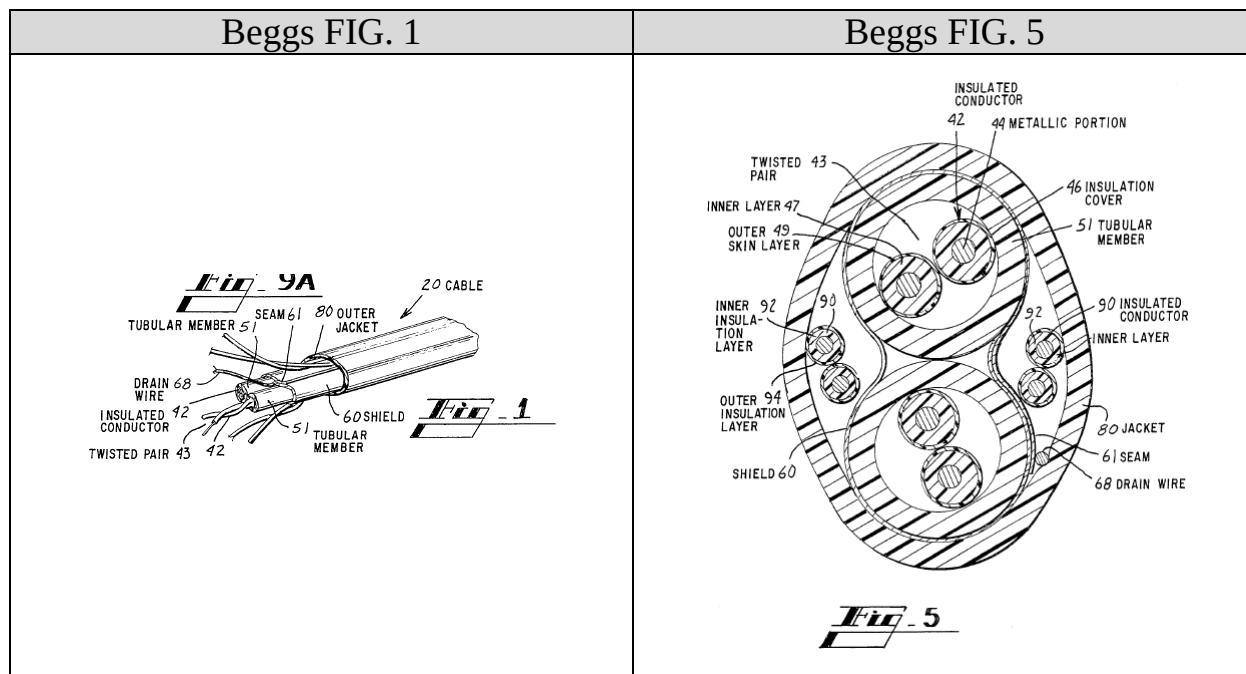
Petitioner admitted that “Beggs does not expressly teach that the dielectric separator that includes a foamed polymer is comprised of multiple dielectric ‘materials,’ as recited by [19.b]”⁴ (Pet. 27 (emphasis in original)), and looks to Jachimowicz for the missing claim element. But in doing so, not only did Petitioner misrepresent what both Beggs and Jachimowicz allegedly teach, it also failed to

⁴ Petitioner did not offer a claim construction for the claimed “separator that consists of non-conductive, dielectric materials.” Pet. 15-20. In Ground 1, Petitioner took the position that this claim term/phrase requires that the separator have more than one non-conductive, dielectric material. For the purposes of this Response, Patent Owner does not contest Petitioner’s interpretation, but reserves its right to do so in any other proceeding, including the parallel litigation.

provide a plausible motivation to combine the alleged teachings. Eldering ¶¶97-99, 168-170.

1. *Beggs Does Not Teach A Person Of Ordinary Skill In The Art That A Pair Separator Can Be A “Foamed Polymer Tape.”*

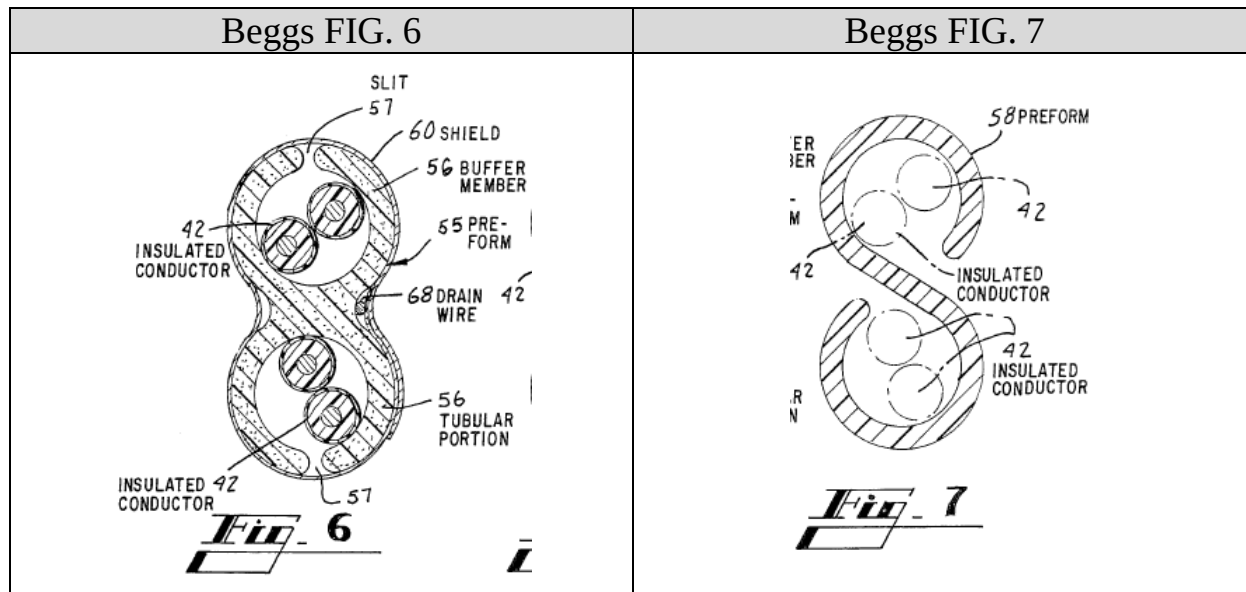
Petitioner alleged that Beggs discloses a “foamed polymer **tape**.” Pet. 26. It does not. Eldering ¶100. In reality, Beggs discloses several different embodiments of “buffer systems” within a cable. Beggs 3:33-51. As shown in FIGS. 1 and 5, “[e]ach of the pairs of insulated conductors 42—42 is enclosed individually by a portion of a buffer system such as by a tubular member 51 (see FIGS. 1 and 5) which in a preferred embodiment comprises a polyvinyl chloride composition” (*i.e.*, **unfoamed** PVC).



Beggs 5:51-55, FIGS. 1 and 5. Eldering ¶101. Beggs further discloses that “[i]n an

alternative embodiment, the tubular member [51] comprises an expanded polyvinyl chloride plastic material.” Beggs 5:60-63; Eldering ¶102.

In FIGS. 6 and 7, Beggs discloses still further embodiments in which the “tubular members” (51) are replaced with different “preforms” (55) and (58):



Other embodiments of the individual conductor pair buffering are shown in FIGS. 6 and 7. It is within the scope of this invention to replace the tubular members 51--51 with a preform 55 comprising dual tubular buffer portions or members 56--56 which are joined together (see FIG. 6). ***The preform may be comprised of a solid or expanded polyvinyl chloride plastic material.*** Further, the preform 55 is provided with a longitudinally extending slit 56 in each outer wall thereof. In this way, the preform 55 may be provided in a supply roll to a manufacturing line ***and a pair of the insulated conductors 42--42, twisted or untwisted, is caused to be inserted into each tubular portion 56 as the tubular portion is opened along its slit 57.*** In FIG. 7, on [sic] ***S-shaped preform 58*** provides an individual buffer for each conductor pair. As in the preferred embodiment, the thickness of each portion of the ***preform*** is equal at least to the radius of the metallic portion of each insulated conductor enclosed by the buffer.

Beggs 5:64-7:14, FIGS. 6 and 7. Accordingly, Beggs discloses that tubular member (51), shown in FIGS. 1 and 5, or preforms (55) and (58), shown in FIGS. 6 and 7, can be formed of “expanded polyvinyl plastic material” (*i.e.*, a foamed polymer). Eldering ¶¶103-104.

Beggs also discloses that “the *S-shaped preform 58 in FIG. 7* may be replaced with a tape which is made of a dielectric material and which is wrapped about the conductor pairs to cause each pair to be enclosed substantially in a dielectric portion of the buffer system.” Beggs 6:52-56, 10:61-64 (claim 18). But fundamentally, while Beggs informs a POSITA that the S-shaped preform (58) can be replaced with a dielectric tape, it is entirely silent on and does not teach to a POSITA that such a dielectric tape itself can be a foamed polymer. In fact, while Beggs discloses that specified components of the cable can be made of “cellular” or “expanded” (*e.g.*, foamed) material—namely tubular member (51), preforms (55) and (58), and inner layer (47) of insulation cover (46) (Beggs 5:42-47, 5:60-63, 6:1-3)—Beggs never discloses or suggests that the replacement tape for S-shaped preform (58) can be a foamed polymer. In fact, Beggs discloses that the replacement tape is “wrapped about the conductor pairs” in an S-shape (Beggs 6:54, 10:61-64 (claim 18)), thus teaching a POSITA that the replacement tape must be flexible and stretchable enough to be manipulated such that “each pair [is] enclosed substantially in a dielectric portion of the buffer system” (Beggs 6:54-56, 10:61-64 (claim 18)).

Eldering ¶¶105-107, 160.

In the Institution Decision, the Board acknowledged Petitioner’s speculative theory that Beggs discloses a foamed polymer tape based on the language of claim 19, which states “[t]he communications cable of claim 3, wherein said buffer system is comprised of a cellular polyvinyl chloride material.” Paper 10 at 22; Beggs 10:65-67. But simply because the scope of a claim could cover an undisclosed embodiment (*i.e.*, a foamed polymer tape) does not mean that claim, or the reference as a whole, teaches that embodiment to a POSITA. *In re Ornitz*, 376 F.2d 330, 335-36 (C.C.P.A. 1967) (“Ascertaining the ‘scope’ of the claims in the prior art and comparing the ‘scope’ of the appealed claims finds no basis under section 103 and leads to unnecessary confusion..... Thus whether the invention defined by the appealed claims is within the ‘scope’ of the claims of [the prior art] is of little moment.”); *see also*, *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1367 (Fed. Cir. 2004) (“A prior art reference that discloses a genus still does not inherently disclose all species within that broad category.”).

In fact, speculating that claim 19 discloses to a POSITA a tape made of cellular polyvinyl chloride material improperly substitutes and confuses what is in essence an ***infringement analysis*** (*i.e.*, what claim 19 may cover) with what is actually taught in the specification. The subject matter of claim 19 for a foamed polymer buffer system is supported by and directed to the foamed polymer

“preforms” disclosed in FIG. 6 (55) and FIG. 7 (58), and **not** the alternative replacement tape embodiment which is never disclosed as being a foamed polymer.

Simply because the tape “could” replace the S-shaped preform (58) of FIG. 7 fails to actually teach a POSITA that the tape would be constructed of the same material as preform (58). This is especially true in light of the different functions preforms (55) and (58) perform in comparison to the substitute tape. *Compare* Beggs 5:64-6:14 and FIGS. 6 and 7 (instructing that conductors 42—42 are **“inserted”** into the preform) with Beggs 6:52-56 (tape is **“wrapped”** about the conductor pairs to cause each pair to be enclosed substantially”). A POSITA would understand that a tape is “wrapped” around conductors, not that conductors could be “inserted” into the tape in any way. By way of analogy, claim 19 would in fact cover buffer systems having various different shapes, including the circular enclosures of tubular members 51, the figure eight shape of preform (55), and the S-shaped configuration of preform (58), as disclosed in the specification and shown above in Beggs FIGS. 1, 5, 6 and 7. Although the scope of claim 19, which does not limit the shape of the buffer system, ***covers*** a buffer system that was ***octagonal*** in shape, a POSITA would not understand that Beggs **taught** a buffer system that is ***octagonal*** in shape. Tellingly, claim 18 in Beggs does specify and require a **tape**—“[t]he communications cable of claim 16, wherein the buffer portions are portions of a **tape** which has been wrapped in an S-shape to enclose substantially the pairs of

conductors”—but it does **not** identify the tape as being a foamed polymer. Beggs 10:61-64; Eldering ¶¶108, 161-163.

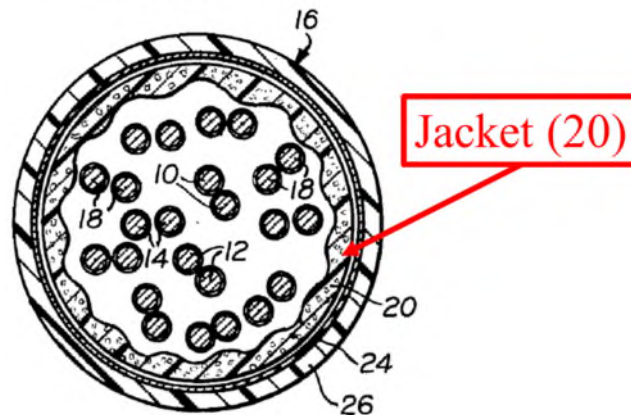
In fact, there is no teaching or suggestion to a POSITA that the buffer system can be a foamed polymer tape. Eldering ¶109.

2. *Jachimowicz Does Not Disclose A Substantially Flat, Foamed Polymer Tape That Can Be Used As A Twisted Pair Separator.*

Admitting that Beggs falls to disclose or suggest all the required limitations of claim 19, Petitioner and its expert, Kenneth Cornelison, resorted to attempting to rely upon Jachimowicz and its disclosure of a foamed polymer “***jacket***” to try to support their speculative and hindsight riddled theory. But the ***jacket*** disclosed in Jachimowicz is neither a twisted pair separator, nor substantially flat. Eldering ¶110; EX-2004 (Cornelison Tr.) 117:17-118:5 (“No, Jachimowicz does not disclose separating pairs within a group from each other . . .”).

First, instead of separating twisted pairs, Jachimowicz discloses a jacket that does the exact ***opposite or antithesis*** of separating—instead, it surrounds multiple sets of twisted pairs to firmly ***lock them together***, as described in relation to FIG. 1:

FIG. 1.



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 jacketed [sic] 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.

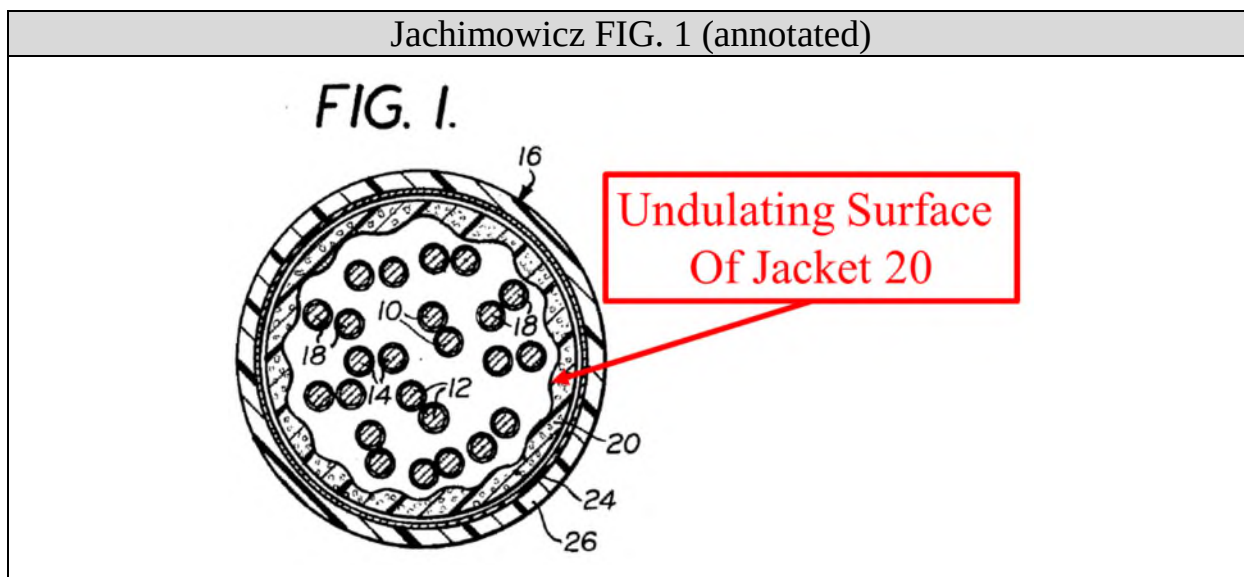
Jachimowicz 2:46-53.

The pairs 10, 12, 14 and 18 are locked in reference to each other by means of the foamed jacket 20 or foamed tape, previously described. The interstices between the pairs in the unit 16 are preferably left with only air within them.

Jachimowicz 3:50-56. Eldering ¶111. A POSITA would thus understand that the jacket, whether it be extruded foam polymer or a tape, needs to be of sufficiently rigid composition that the pairs of conductors are bundled firmly together and unable to move (*i.e.*, “locked”). Eldering ¶112. And nothing in Jachimowicz teaches or suggests that the jacket, which was designed to “lock” the twisted pairs together (Jachimowicz 2:46-53, 3:50-56) (*i.e.*, the exact opposite or antithesis of a separator)

could or would be used for separating conductor pairs. Eldering ¶113.

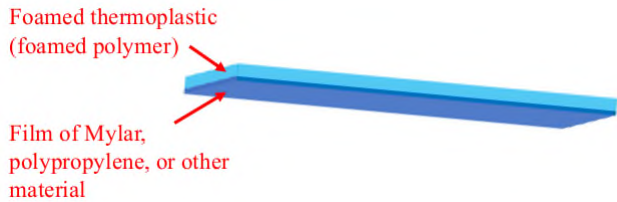
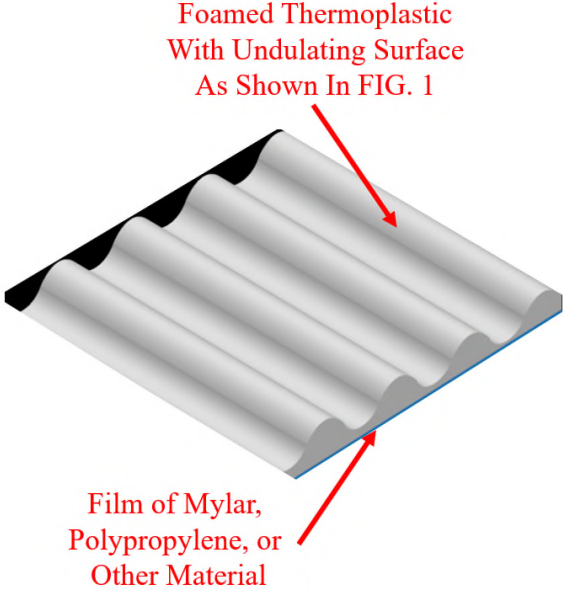
Second, Petitioner’s own proposed construction for “substantially flat” is “a substantially flat member prior to being formed into the cable assembly; the term does not require that the separator be substantially flat (i.e., free of any bends or folds) in the finished cable.” Pet. 17. But the jacket in Jachimowicz that Petitioner relied on is not shown in FIG. 1 as being substantially flat, nor has Petitioner provided any evidence that the jacket is substantially flat before being formed in the cable assembly. To the contrary, a POSITA would understand the foamed jacket or tape to have an **undulating surface**—exactly as it is depicted in FIG. 1.



Eldering ¶114.

Undeterred, Petitioner and its expert merely speculated that the foamed tape disclosed in Jachimowicz could somehow be substantially flat after all, by making up out of whole cloth a false depiction without ever citing any description of it as

such or even showing a single figure in Jachimowicz. Pet. 28; EX-1007 ¶¶81, 93; Cornelison Tr. 116:8-117:15 (“And I included the diagram such as I did, because *Jachimowicz does not describe any other particular characteristics of the tape . . .*”). But Petitioner’s made-up and false depiction is not what a POSITA would understand Jachimowicz’s tape to be:

Petitioner’s False Depiction of Jachimowicz’s Foamed Tape	POSITA’s Understanding of Jachimowicz’s Foamed Tape
	

Eldering ¶115.

In fact, *nothing* in Jachimowicz teaches that the “tape made of foamed thermoplastic supported by a film such as Mylar or polypropylene, or other material” is flat before it is installed within the Jachimowicz cable. Cornelison Tr. 116:8-117:15 (admitting “. . . *Jachimowicz does not describe any other particular characteristics of the tape . . .*”). While Petitioner and its expert argue that a

POSITA would understand a “tape” to be substantially flat under Petitioner’s construction, 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. Cornelison Tr. 102:13-103:8; Pet. 28; EX-1007 ¶¶81, 93. Cornelison further admitted on cross-examination that preform (55) in Beggs is **not** substantially flat under Petitioner’s proposed construction, admitted that Beggs teaches “preform 55 may be provided in a supply roll to a manufacturing line,” and admitted that preform (55) is not substantially flat when supplied to the manufacturing line. Cornelison Tr. 97:18-101:5; Beggs 5:64-6:9. Accordingly, simply because a tape may be similarly supplied on a “roll” does not mean to a POSITA that it is substantially flat under Petitioner’s proposed construction and in the context of the Challenge Claims at issue. To the contrary, a POSITA would understand that the tape in Jachimowicz is **not** substantially flat prior to being formed in the final cable assembly, given the described function and use of that tape in Jachimowicz and the fact that the only depiction of the jacket 20 in FIG. 1 is not substantially flat. Eldering ¶¶164-165.

Moreover, Petitioner’s expert based his opinion on an erroneous understanding of the function performed by the tape in Jachimowicz. When cross-examined whether the purpose of the Jachimowicz tape was to “lock” the conductor pairs together, Petitioner’s expert repeatedly testified that his opinions were based

on the opposite, stating that “to perform the function of lock, he’s [Jachimowicz is] describing the ***extruded thin jacket of foamed polyethylene***,” and that “to lock the pairs means to deliberately limit the movement of the pairs within the core” and “to perform a more solid mechanical capture in the cable than with tape.” Cornelison Tr. 106:16-112:1. Cornelison further testified that the **different** function performed by the disclosed tape in Jachimowicz was to merely keep the pairs “held together,” which “could allow conductors, pairs within the cable to move about.” *Id.* But Cornelison is unquestionably wrong, as Jachimowicz makes it perfectly clear that “[t]he pairs 10, 12, 14 and 18 are **locked** in reference to each other ***by means of the foamed jacket 20 or foamed tape***, previously described.” Jachimowicz 3:50-56. Cornelison’s entire understanding of the function of the foamed tape in Jachimowicz is incorrect, thereby rendering his perceived and incorrect description of its shape without any basis in fact and entirely unreliable. To the contrary, the evidence shows that a POSITA would understand that the foamed tape in Jachimowicz is **not** substantially flat in order to serve its intended purpose of locking the conductor pairs together. Therefore, under Petitioner’s own proposed construction, Petitioner failed to provide any evidence that the alleged foam tape in Jachimowicz is “substantially flat.” Eldering ¶¶111-113, 166-167.

To establish a *prima facie* case of obviousness, Petitioner has the “burden to prove that ***all claimed limitations*** are disclosed in the prior art.” *Par Pharm., Inc.*,

773 F.3d at 1194. This is because courts “consider motivation to combine and reasonable expectation of success only if all the elements of an invention are found in a combination of prior art references.” *Id.* Because Petitioner failed, under its own proposed construction, to provide any evidence that the alleged foam tape in Jachimowicz that it seeks to substitute with the replacement tape in Beggs is “substantially flat,” the combination of Beggs and Jachimowicz cannot disclose each and every element of claim 19. For this reason alone, the alleged combination of Beggs and Jachimowicz fails to render claim 19 obvious. Eldering ¶¶117, 167, 171.

3. *Petitioner Failed To Provide A Motivation To Combine Jachimowicz’s Jacket With Beggs.*

Even if Jachimowicz did disclose a substantially flat foamed polymer tape—which it does not, as shown *supra*—Petition failed to provide any motivation to combine that tape with Beggs. As demonstrated, Jachimowicz’s jacket, whether it be extruded foamed polymer or tape, **locks** the plurality of conductor pairs tightly together so that they cannot move. Jachimowicz 2:46-53, 3:50-56; Eldering ¶¶111-112. And as discussed, cross-examination revealed that Cornelison’s entire analysis of the Jachimowicz tape is flawed and unreliable based on his incorrect reading of Jachimowicz.

In reality, a POSITA would not be motivated to use the undulated locking tape disclosed in Jachimowicz to perform the complete opposite function of weaving

through and separating conductor pairs in Beggs, nor is there any teaching or suggestion that would instruct a POSITA to do so. As Beggs teaches, the dielectric tape replacing preform (58) in FIG. 7 must be capable of being “**wrapped about** the conductor pairs to cause each pair to be enclosed substantially in a dielectric portion of the buffer system.” Beggs 6:52-56, 10:61-64 (claim 18). But as Cornelison **admitted**, “the Mylar film backing [of Jachimowicz’s jacket] would provide enhanced tensile strength properties to the foamed tape, **decreasing the tendency for the foamed tape to stretch** or break.” Pet. 51; EX-1007 ¶¶98. This added strength and rigidity would not be suitable for the S-shaped wrapping required by Beggs, nor would a POSITA be motivated to use Jachimowicz’s jacket in this manner. In fact, Beggs already has such a jacket (80) that “provides mechanical protection for the cable.” Beggs 8:7-9, 8:17-19; Eldering ¶¶118-119, 168.

Petitioner’s reasons for combining the Jachimowicz jacket with Beggs all fail to explain why a POSITA would have been motivated to make such a combination. Petitioner’s first alleged reason—that “Beggs itself teaches that the buffer can be a foamed polymer and can be a dielectric tape” (Pet. 29)—misconstrued what Beggs teaches. As discussed above, Beggs teaches that the buffer can be either a foamed polymer—like the tubular members (51) or preforms (55) and (58)—**OR** a dielectric tape, like the replacement tape for preform (58). But nothing in Beggs, or Jachimowicz for that matter, teaches or suggests that any of the conductor pair

separators (buffer portions) disclosed can be a foamed polymer tape. Eldering ¶¶120-121, 160-163.

Petitioner's second alleged theory for combining Jachimowicz's jacket with Beggs is merely based on the generic notion that improved "mechanical characteristics" of the plastic-backed foamed tape of the Jachimowicz jacket could somehow motivate a POSITA to make the combination. Pet. 29. But as discussed *supra*, the jacket of Jachimowicz already retains and locks the plurality of conductor pairs together. Nothing about locking pairs of conductors together would in fact motivate a POSITA to use that jacket as a buffer to separate conductor pairs, especially in the S-shape configuration of FIG. 7, which requires flexibility and the ability to be stretched and wrapped around the conductor pairs. Nor would a POSITA even consider the undulating and uneven surface of the Jachimowicz tape to be suitable for use in separating conductor pairs. Eldering ¶¶122, 169.

Petitioner's third, fourth and fifth alleged motivations to combine theories all center on generic alleged benefits of using a **foamed polymer** with a tape as opposed to a non-foamed tape. Pet. 29-31. But Beggs already discloses a solution that utilizes a foam polymer, namely the S-shaped preform (58) of FIG. 7. Eldering ¶123. When a primary prior art reference already provides a solution to the problem solved by the challenged patent, there would be no motivation to modify that primary reference to include an additional or redundant solution. *See, e.g., In re Anova*

Hearing Labs, Inc., 809 Fed. Appx. 840, 843 (Fed. Cir. 2020) (“The Board also does not explain why a person of ordinary skill in the art would be motivated to modify Brown, which already includes vents, to address occlusion effect.”); *South-Tek Sys. v. Engineered Corrosion Sols., LLC*, 748 Fed. Appx. 1003, 1007 (Fed. Cir. 2018).

Rather than show why a POSITA would have been motivated to combine Jachimowicz’s jacket with Beggs, Petitioner’s theories regarding the use of foamed polymer would encourage a POSITA to retain the Beggs preform (58)—which is already foamed polymer—as is, rather than switch to any kind of tape. Cornelison admitted that preform (55) is not substantially flat under Petitioner’s proposed construction. Cornelison Tr. 97:18-101:5. Likewise, it is clear that preform (58) is also not “substantially flat” (*i.e.*, “preform” (58) is just that—formed into its S-shape configuration when made, prior to being formed into the cable assembly). For this reason, Petitioner was forced to resort to relying upon the replacement tape embodiment of FIG. 7, rather than preform (58). Yet, Petitioner’s third, fourth, and fifth reasons to combine all tout the advantages of using a foamed polymer as a buffer over using just tape (*i.e.*, reducing capacitance between pairs, physically maintaining the distance between pairs, and lower flammability) (Pet. 30-31). But Petitioner failed to show or explain why a POSITA would be motivated to replace what is already a foamed polymer—preform (58) in FIG. 7 of Beggs—with Jachimowicz’s jacket since preform (58) already had the very same advantages

Petitioner touts regarding the use of a foamed polymer. Eldering ¶¶124-125.

In reality, there is no evidence that replacing the tape in Beggs with the proposed foamed tape in Jachimowicz would accomplish the Petitioner's made-up and generic advantages. Cornelison also admittedly fails to provide any quantitative analysis of the alleged advantages of using a foamed tape over a tape, including reduced flammability. Cornelison Tr. 201:21-202:22. Cornelison also admitted on cross-examination that a non-foamed tape can be thicker than a foamed tape (Cornelison Tr. 104:6-16), which would negate the advantages of lower capacitance and increasing physical distance. Eldering ¶170. Likewise, Cornelison admitted that consideration of the specific materials being employed is a factor in determining whether one solution is more flammable than another. Cornelison Tr. 203:1-206:3 ("You brought up to compare apples and oranges or one material or another material, et cetera. That's also an additional consideration, as far as flammability. I do agree with that."). Yet, Cornelison's analysis again only provided generalized statements and lacked any quantitative analysis to support its hindsight riddled replacement theory.

Simply finding the claimed elements scattered throughout the prior art and using the claimed invention as a roadmap to assemble them is not enough to show obviousness. The Supreme Court has explained that an invention "composed of several elements is not proved obvious merely by demonstrating that each of its

elements was, independently, known in the prior art.” *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007); *see also Virtek Vision Int’l ULC v. Assembly Guidance Sys., Inc.*, No. 2022-1998, 2024 U.S. App. LEXIS 7185, at *9 (Fed. Cir. March 27, 2024) (“In short, this case involves nothing other than an assertion that because two coordinate systems were disclosed in a prior art reference and were therefore ‘known,’ that satisfies the motivation to combine analysis. That is an error as a matter of law. It does not suffice to simply be known. A reason for combining must exist.”); *In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998) (“If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue.”); *Metalcraft of Mayville, Inc. v. Toro Co.*, 848 F.3d 1358, 1367 (Fed. Cir. 2017) (“[I]t is not enough for Toro to merely demonstrate that elements of the claimed invention were independently known in the prior art. Often, every element of a claimed invention can be found in the prior art.”) (citing *In re Kotzab*, 217 F.3d 1365, 1370 (Fed. Cir. 2000)). Instead, it is “necessary . . . to determine whether there was an apparent ***reason to combine the known elements in the fashion claimed*** by the patent at issue.” *KSR Int’l Co.*, 550 U.S. at 418.

The Petitioner also failed to establish any objective motivation regarding why a POSITA **would** have modified Beggs to replace the foamed polymer preform (58) with the jacket in Jachimowicz. Eldering ¶126. The Federal Circuit has consistently “rejected obviousness determinations based on conclusory and unsupported expert

testimony ... [that] use[d] the challenged patent as a roadmap to reconstruct the claimed invention using disparate elements from the prior art—*i.e.*, the impermissible *ex post* reasoning and hindsight bias that *KSR* warned against.” *TQ Delta, LLC v. Cisco Sys.*, 942 F.3d 1352, 1361 (Fed. Cir. 2019).

Accordingly, Petitioner not only fails to show that the alleged combination of Beggs and Jachimowicz discloses each and every element of the Challenged Claims, but it also fails to show that a POSITA would have been motivated to make the alleged combination. The alleged combination of Beggs and Jachimowicz thus fails to render the Challenged Claims obvious. *Eldering* ¶¶127, 171.

B. Regarding Ground 2, The Combination Of Beggs And Jachimowicz, Further In View Of Gingue, Cannot Render Claims 20 Or 22 Obvious.

Ground 2 alleged that dependent claims 20 and 22, which depend from claim 19, are rendered obvious by the combination of Beggs and Jachimowicz, further in view of Gingue. Pet. 32-37. Since Ground 2 only focused on the additional claim elements added in claims 20 and 22, and did not even attempt to remedy the alleged combination in the failure of Ground 1 to disclose each and every element of independent claim 19, as discussed above, Ground 2 should also be rejected. *Eldering* ¶127.

Additionally, claim 20 adds the limitation “wherein the *substantially flat* configurable dielectric separator includes a flame-retardant, low-dielectric constant,

foamed polymer tape,” while claim 22 adds the limitation “wherein the *substantially flat* configurable dielectric separator is a flame-retardant, *foamed polymer tape*.” ’537 Patent 10:55-65. But as discussed *supra* §IV.A, Beggs and Jachimowicz, either alone or in combination, fail to disclose a substantially flat, foamed polymer tape that can be used as a twisted pair separator. And while Gingue discusses the use of foamed polymers as *insulation* to surround bare metal conductors, it fails to make any mention of or disclose anything about the use or existence of a foamed polymer *tape*. Eldering ¶¶173-175; Gingue 1:8-15; 5:24-29. The combination of Beggs and Jachimowicz, further in view of Gingue, thus cannot render claims 20 and 22 obvious, and for this additional reason Ground 2 should be rejected. Eldering ¶176.

C. Regarding Ground 3, The Combination Of Yanagita And Jachimowicz Cannot Render Claim 19 Obvious.⁵

1. Jachimowicz Does Not Disclose A Substantially Flat, Foamed Polymer Tape That Can Be Used As A Twisted Pair Separator.

Petitioner proposes adding the “plastic film-backed foamed polymer tape taught by Jachimowicz” to the Yanagita core material (2). Pet. 40-41. But for the

⁵ Although Ground 3 in the Petition is entitled “Ground 3: Yanagida And Jachimowicz Render Claims 19-20, 22 Obvious” (Pet. 38), there appears to be a typographical error here in that the ensuing section only contains argument with respect to claim 19 and does not even mention claims 20 or 22.

same reasons discussed *supra* §IV.A.2, Jachimowicz fails to disclose a substantially flat, foamed polymer tape that can be used as a twisted pair separator. Because, under its own proposed construction, Petitioner failed to provide any evidence that the alleged foam tape in Jachimowicz that it seeks to add to the Yanagita core material is “substantially flat,” the combination of Yanagita and Jachimowicz cannot disclose each and every element of claim 19. Eldering ¶177.

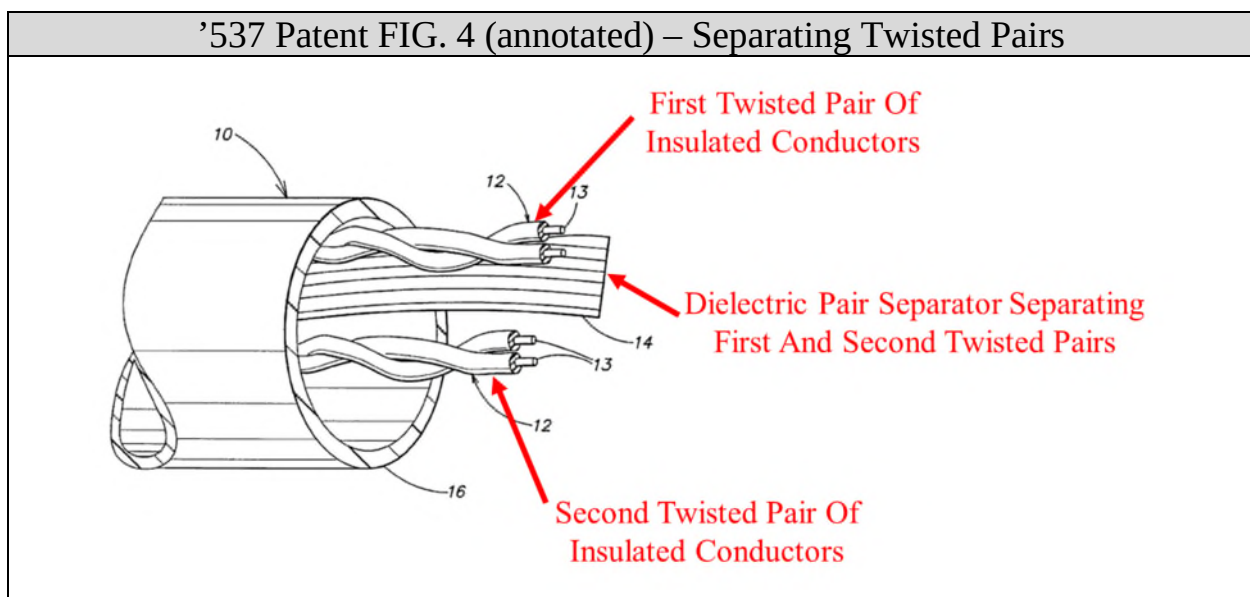
Nor would a POSITA have been motivated to add the Jachimowicz tape to the Yanagita core material. Cornelison admitted that Mylar and foamed polymers are ***flammable***. Cornelison Tr. 129:15-130:1. Adding any such admittedly flammable material to the Yanagita cable would ***increase*** its overall flammability, countering the alleged combination and contradicting Cornelison’s opinions that cables somehow should be flame retardant instead. Pet. 6; EX-1007 ¶¶44-46; Cornelison 129:15-130:13.

For these reasons alone, the alleged combination of Yanagita and Jachimowicz fails to render the Challenged Claims obvious. Eldering ¶177.

2. *Yanagita Fails To Teach Or Suggest The Separation Of “A First Twisted Pair Of Insulated Conductors” And “A Second Twisted Pair Of Insulated Conductors” Required By Claim Limitations 19.a And 19.b.*

Remarkably, Yanagita (EX-1012) fails to use the term “twisted pair[s]” or depict any arrangement of two wires twisted together around one another to form a

balanced transmission line, as shown in FIG. 4 of the '537 Patent. Eldering ¶¶158-159. Lacking express disclosure of the required “twisted pairs” forming a balanced transmission line, Petitioner instead resorted to relying upon erroneous and speculative theories regarding the meaning of certain cherry-picked snippets from the prior art at issue, such as Yanagita’s discussion of “wire strands” being “twisted together.” But when cross-examined, Petitioner’s expert admitted, and the state-of-the-art confirms, that “stranded” conductors refer to a conductor containing a number of smaller diameter wires. Yanagita fails to disclose two insulated conductors twisted together around one another to form a balanced transmission line, as shown in FIG. 4 of the '537 Patent. Nor does it teach the critical separation of twisted pairs of insulated conductors in the claimed configurations required by the Challenged Claims.



Regarding Ground 3, Petitioner relied upon Yanagita (EX-1012) in combination with Jachimowicz (EX-1014) in alleged support of its obviousness theory challenging independent claim 19 of the '537 Patent. Pet. 38-45. Claim 19 of the '537 Patent requires:

[19.a]⁶ “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.***”

In doing so, Petitioner speculated that Yanagita, an English translation of the underlying Japanese language patent application publication, discloses the separation of “twisted pairs” of conductors.⁷ It does not. In fact, the words “twisted

⁶ For simplicity, Patent Owner adopts the same nomenclature for claim limitation identification as utilized in the Petition.

⁷ In the Petition, both Petitioner and its expert cited to Exhibit EX-1055, which contains an uncertified translation of Japanese Patent Application Publication S43-15470. Pet. 64, 66; EX-1007 ¶¶100, 257. Patent Owner respectfully maintains its objection to Petitioner’s reliance on the uncertified translation under 37 C.F.R. § 42.63.

pair[s]” never appear in Yanagita. Nor does Yanagita disclose or suggest separating a first “twisted pair” from a second “twisted pair” under the proper claim construction of “twisted pair” discussed above (*i.e.*, “**two** insulated conductors **twisted together around one another** to form a balanced transmission line,” as shown in FIG. 4 of the ’537 Patent). Eldering ¶¶158-159. Lacking any such express disclosure in Yanagita, Petitioner resorted to erroneous and hindsight riddled speculation, arguing that because Yanagita discloses “‘strands of insulated wires or pairs thereof’ that run along the surface of the core material,” and “insulated wires are twisted together,” Yanagita discloses first and second twisted pairs of insulated conductors. Pet. 39-40.

In other words, despite ambiguities in Yanagita and its failure to disclose or suggest any “twisted pair,” Petitioner argued that because Yanagita merely discusses twisting insulated wires, the insulated wires in Yanagita are necessarily twisted **pairs**. But as Petitioner’s expert admitted on cross-examination, Yanagita’s actual teachings fail to support Petitioner’s erroneous and hindsight riddled speculation, especially regarding how a POSITA would understand the meaning of certain translated terms like “stranding” and “twisting”:

There are terms used, particularly ‘stranding’ and ‘twisting,’ that are, I would say in my view, difficult to translate consistently across languages with different meanings and different contexts. There may be other examples in here [in EX-1012] . . . But there are terms here used in the cable industry that would need close attention as you read

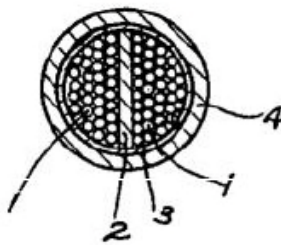
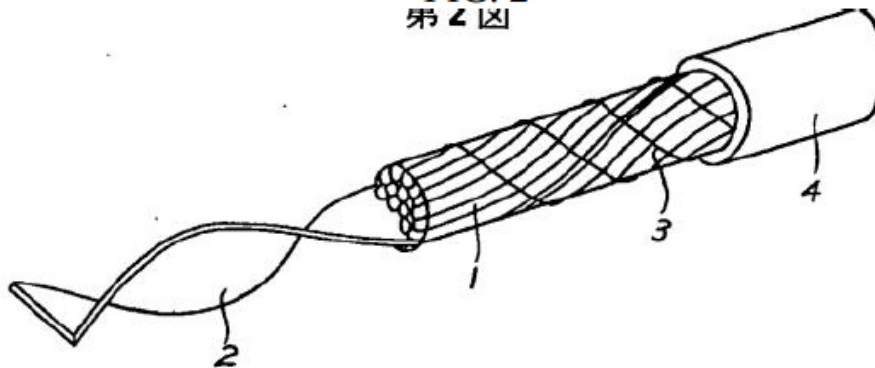
the English translation.

Cornelison Tr. 121:9-122:2. Speculating as to what Yanagita even discloses, Petitioner mischaracterized its teachings and failed to show that the alleged combination renders the Challenged Claims obvious.

a. Yanagita Teaches A “Twisted Cable,” Not “Twisted Pairs.”

Admittedly, Yanagita also fails to teach anything about—and never even mentions—the reduction of crosstalk in a cable. Cornelison Tr. 127:14-21; Eldering ¶63. According to the certified Yanagita translation relied upon in the Petition, Yanagita’s teachings relate “to an alternately ***twisted cable*** that prevents twisting of a wire core from becoming undone.” Yanagita 1 (col. 1). As illustrated in FIGS. 1 and 2, Yanagita discloses laying a “large number of insulated wire strands” consisting of parallel, straight-line wires (*i.e.*, ***untwisted*** wires) on either side of a core material that has a “***reciprocatingly twisted shape***,” such that “the twisting will not become undone even when a tensile force is applied, in the lengthwise direction, to the wire core.” Yanagita 1 (col. 2); Eldering ¶¶64-66. Accordingly, the purpose of the “twisting” disclosed in Yanagita is to ensure the mechanical integrity of the cable. Eldering ¶178.

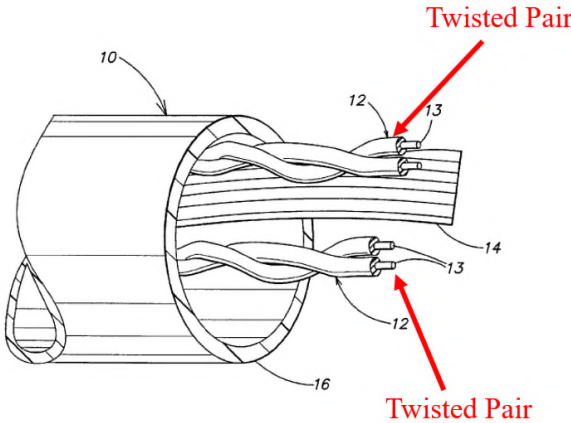
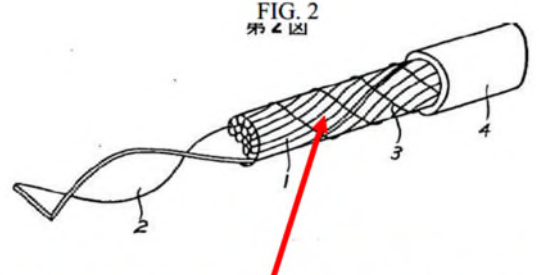
FIG. 1

FIG. 2
第 2 図

The present invention focuses on this point, and a first invention thereof is an alternately ***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*** . . . and a second invention is an alternately ***twisted cable*** wherein a portion of the aforementioned core body is replaced with a connecting portion.

Yanagita 1 (col. 1); Eldering ¶65. “Twisting” the conductors (1) along the surface of the core material (2) is the principle purpose of the invention in Yanagita, which is to provide “an alternately ***twisted cable*** that prevents twisting of a wire core from becoming undone.” Yanagita 1 (col. 1). The “insulated wire strands” (1) in Yanagita refer to individual insulated conductor wires, as FIG. 2 clearly illustrates.

Eldering ¶179. As Petitioner’s expert also admitted, a stranded individual wire can consist of individual filaments of wire, with each of those filaments being referred to as a “strand.” Cornelison Tr. 161:6-162:9. And while FIG. 2 depicts the “alternatingly **twisted cable**” having individual conductor wires (i.e., strands) running along the surfaces of that twisted core, the individual conductors are not “twisted together around one another to form a balanced transmission line,” as shown in FIG. 4 of the ’537 Patent:

'537 Patent FIG. 4 (annotated) – Twisted Pairs	Yanagita FIG. 2 (annotated) – Twisted Cable
	 “insulated wires are twisted together, laid divided onto both sides of a core material 2” Yanagita 1 (col. 1).

Eldering ¶¶ 65, 158-159, 180.

Yanagita further discloses that insulated wires (1) are laid along the contour of the twisted core material (2):

Explaining this for an illustrated embodiment, **1 is an insulated wire or that wherein insulated wires are twisted together, laid divided onto both sides of a core material 2**, with the outer periphery thereof wrapped with a rough wrapping yarn for applying pressure, with the outer periphery then covered with a cable sheath 4. The core material 2

is formed in a *reciprocatingly twisted shape* so that the directions of both sides gradually change along the lengthwise direction thereof, as depicted best in FIG. 2.

Yanagita 1 (col. 1). But here again, as shown in FIGS. 1 and 2, Yanagita teaches that insulated wire(s) (1) are laid on opposite sides of the core material (2) and collectively twisted longitudinally along the surfaces of the “reciprocatingly twisted shape” core. As shown in FIG. 2, the resulting profile of the insulated wire(s) follows the twisting contour of the core material (2). Tellingly, this is the only “twisting” shown in Yanagita. Nowhere does Yanagita teach two conductors that are “twisted together around one another to form a balanced transmission line,” as shown in FIG. 4 of the ’537 Patent. Accordingly, the groups of wires disclosed in Yanagita cannot constitute the claimed “twisted pairs” required by the ’537 Patent. Eldering ¶¶65, 67, 158-159, 181.

b. The Disclosure In Yanagita Relied On In The Petition Does Not Necessarily Disclose “Twisted Pairs.”

Despite its expert’s admission on cross-examination that Yanagita is not clear on what it means by “stranding” and “twisting,” Petitioner relied upon just **two** citations to the certified Yanagita translation regarding the twisted pair claim limitations at issue. Pet. 40; Cornelison Tr. 121:9-122:2. The first of these citations fails to necessarily disclose the “twisted pair” claim elements at issue, and paraphrases Yanagita by stating that “Yanagida discloses a plurality of ‘strands of

insulated wires or pairs thereof’ that run along the surface of the core material. Yanagida, 1[col.1].” Pet. 40. But when read in context, the cited language here is drawn to the prior art, not any embodiment disclosed in Yanagita or shown in FIGS 1 and 2:

There is a trend to often using, as communication cables, so-called “alternatingly twisted cables,” wherein that wherein 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 . . . the twisting of the cable core becomes undone, and while there has been a variety of innovations to prevent this, each has problems in practice.

Yanagita 1 (col. 1); Eldering ¶¶69. As Cornelison admitted, a “strand” of wire is simply an “individual filament.” Cornelison Tr. 162:1-9 (“Each individual filament could be called a strand. . . . a strand within a conductor, which is in turn an assembly of the strands.”). Indeed, a POSITA would understand that this statement 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 above (absent the core). Eldering ¶¶68, 182.

Additionally, Yanagita introduces the problem in the art of “alternatingly twisted cables” in which “the twisting of the cable core becomes undone” “when a tensile force is applied in the lengthwise direction of the cable core prior to

application of the cable sheathing.” Yanagita 1 (col. 1). Yanagita subsequently presents a solution to that problem that involves the use of core material (2) to improve the mechanical characteristics of the cable and avoid unraveling. But this teaching in Yanagita is merely drawn to an improvement to the cable assembly process disclosed in Roberts and the cable “bunching” process taught in the ’537 Patent, as discussed above. A POSITA thus would not understand any of this to teach twisted pairs in any way. Eldering ¶¶71-72.

Based on erroneous hindsight reasoning, Petitioner also misleadingly comingled Yanagita’s discussion of the prior art with disparate elements of the disclosed invention regarding claim 19 of the ’537 Patent. But as the Federal Circuit has explained, “it is **not** enough that the prior art reference discloses part of the claimed invention, which an ordinary artisan might supplement to make the whole, or that it includes multiple, distinct teachings that the artisan might somehow combine to achieve the claimed invention.” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008) (reversing anticipation finding based on combining parts of two separate embodiments to meet all of the claim elements, when neither embodiment alone contained all of the elements). Instead, 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

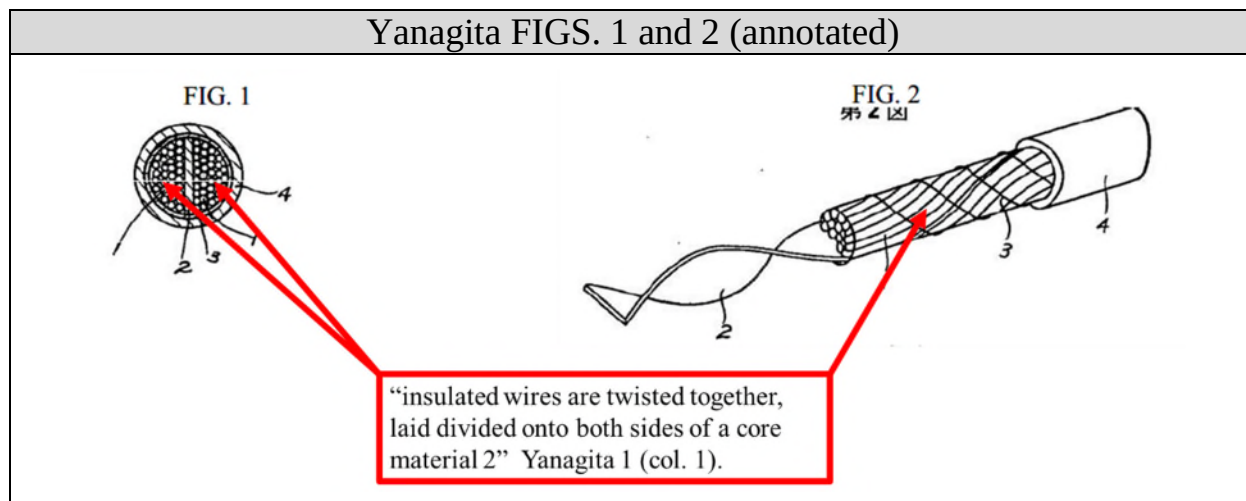
reference.” *Id.* at 1371 (quoting *In re Arkley*, 455 F.2d 586, 587 (CCPA 1972)). Petitioner’s attempt to cobble together disparate disclosure to try and show the required twisted pair limitations misrepresents Yanagita’s teaching, and nonetheless fails to disclose twisted pairs as claimed. Eldering ¶¶73.

Likewise, Petitioner’s second citation to Yanagita, read in context, fails to necessarily disclose the “twisted pair” claim elements at issue. Pet. 40 (“element 1 can be where ‘insulated wires are twisted together’”). In context, the cited language reads as follows:

Explaining this for an illustrated embodiment, 1 is an insulated wire or that wherein insulated wires are twisted together, laid divided onto both sides of a core material 2, with the outer periphery thereof wrapped with a rough wrapping yarn for applying pressure, with the outer periphery then covered with a cable sheath 4.

Yanagita 1 (col. 1). But as shown above, Yanagita discloses that element 1 is an insulated wire or a group of insulated wires that are laid on opposite sides of the core material (2) and collectively twisted along the surfaces of the core material in a longitudinal direction, as plainly shown in FIGS. 1 and 2. Eldering ¶¶74-75.

Yanagita FIGS. 1 and 2 (annotated)



Here again, there is no teaching of “twisted pairs” (*i.e.*, “**two** insulated conductors **twisted together around one another** to form a balanced transmission line,” as shown in FIG. 4 of the ’537 Patent), as required by the Challenged Claims. Petitioner arbitrarily selected individual straight-line conductors (1) on either side of the core material (2) and falsely labeled them twisted pairs. But as shown above, there is nothing in Yanagita to suggest that these individual straight-line conductors are part of a “pair” of conductors, let alone that they are “twisted together around one another to form a balanced transmission line,” as shown in FIG. 4 of the ’537 Patent, and as required by the Challenged Claims. Eldering ¶¶76, 158-159.

Yanagita thus fails to teach or suggest the critical separating “a first twisted pair of insulated conductors” and “a second twisted pair of insulated conductors” limitations required by the Challenged Claims. Eldering ¶¶77, 183.

3. *Petitioner's Alleged Combination Relied Exclusively On Yanagita For The "Twisted Pair" Limitations, Without Further Substitution Or Modification From Jachimowicz, And Thus Failed To Demonstrate How Claim 19 Is Obvious*

The Petitioner relied ***exclusively*** on Yanagita as disclosing the “twisted pair” limitations of claim 19, as shown above. Pet. 39-40. Tellingly, Petitioner did ***not*** rely on Jachimowicz for any of these missing twisted pair claim limitations required by claim 19, nor did it provide any additional argument regarding why Jachimowicz could render those elements obvious. Instead, Petitioner relied on Jachimowicz ***only*** for its alleged disclosure of a “plastic film-backed foamed polymer tape.” Pet. 40-45. But Patent Owner demonstrated above how Yanagita fails to teach or suggest the separation of “twisted pairs” (i.e., “***two*** insulated conductors ***twisted together around one another*** to form a balanced transmission line,” as shown in FIG. 4 of the '537 Patent) as claimed. And Petitioner did not even attempt to supplement its deficient Yanagita twisted pair theories with how the alleged combination could teach each and every one of the claim elements of independent claim 19. To establish a *prima facie* case of obviousness, Petitioner has the “burden to prove that ***all claimed limitations*** are disclosed in the prior art.” *Par Pharm., Inc. v. TWi Pharms., Inc.*, 773 F.3d 1186, 1194 (Fed. Cir. 2014). This is because courts “consider motivation to combine and reasonable expectation of success only if all the elements of an invention are found in a combination of prior art references.” *Id.*

Accordingly, Petitioner has failed to demonstrate how its alleged combination of Yanagita and Jachimowicz discloses each and every element of the Challenged Claims. Therefore, Petitioner's alleged combination cannot render the Challenged Claims obvious. Eldering ¶¶77, 183.

D. Regarding Ground 4, The Combination Of Yanagita And Jachimowicz, Further In View Of Gingue, Cannot Render Claims 20 Or 22 Obvious.

Regarding Ground 4, Petitioner alleged that dependent claims 20 and 22, which depend from claim 19, are rendered obvious by the combination of Yanagita and Jachimowicz, further in view of Gingue. Pet. 45-47. Since Ground 4 only focused on the additional claim elements added in claims 20 and 22, and did not even attempt to remedy the failure of the alleged combination in Ground 3 to disclose each and every element of independent claim 19, as discussed above, Ground 4 should also be rejected. Eldering ¶¶77.

Additionally, claim 20 adds the limitation “wherein the ***substantially flat*** configurable dielectric separator includes a flame-retardant, low-dielectric constant, ***foamed polymer tape***,” while claim 22 adds the limitation “wherein the ***substantially flat*** configurable dielectric separator is a flame-retardant, ***foamed polymer tape***.” ’537 Patent 10:55-65. But as discussed *supra* §IV.A, Jachimowicz fails to disclose a substantially flat, foamed polymer tape that can be used as a twisted pair separator. And while Gingue discusses the use of foamed polymers as ***insulation*** to surround

bare metal conductors, it fails to make any mention of or disclose anything about the use or existence of a foamed polymer *tape*. Eldering ¶¶173-174; Gingue 1:8-15; 5:24-29. Therefore, the combination of Yanagita and Jachimowicz, further in view of Gingue, cannot render claims 20 and 22 obvious, and for this additional reason Ground 2 should be rejected. Eldering ¶186.

E. Regarding Ground 5, The Combination Of GmbH-866 In View Of Roberts, Gingue And/Or Jachimowicz Cannot Render Claims 19, 20 Or 22 Obvious.

1. Jachimowicz Does Not Disclose A Substantially Flat, Foamed Polymer Tape That Can Be Used As A Twisted Pair Separator.

Petitioner also theorized that the “partial shieldings 11, 12” in GmbH-866 could somehow be replaced with the “plastic film-backed foamed polymer tape taught by Jachimowicz.” Pet. 59-60. But for the same reasons discussed *supra* §IV.A.2, Jachimowicz fails to disclose a substantially flat, foamed polymer tape that can be used as a twisted pair separator. Because Petitioner failed to provide any evidence that the alleged foam tape in Jachimowicz that it seeks to substitute in the GmbH-866 cable is “substantially flat” under its own proposed construction, the combination of GmbH-866 and Jachimowicz cannot disclose each and every element of claim 19. Eldering ¶187.

Nor did Petitioner present any rational basis or motivation for why a POSITA could, let alone would, have had an apparent reason or motivation to replace the

metallic shielding in GmbH-866 with the Jachimowicz *dielectric tape*. As Cornelison admitted, all of the embodiments disclosed in GmbH-866 utilize some form of *metallic shield*. Cornelison Tr. 157:11-158:9. When cross-examined, Cornelison was unable to answer whether replacing a metallic shield with a dielectric separator in a cable would have an impact on crosstalk, admitting that such a determination requires analysis of many factors:

. . . to me someone skilled in the art would know that such a question would need and understand the dimensions and shape and size of the shield and dimensions and shape -- dimensions, shape, and size of the dielectric. So, again, the question without sufficient background or detail, again, is an unanswerable question.

Cornelison Tr. 58:1-64:12. Even when questioned about whether the size and shape of the shield and dielectric were the same, and the cables were the same in every material way, Cornelison was unable to answer the question. Cornelison Tr. 62:7-19 (“I still don’t have the elements I need to form an opinion about whether it would affect crosstalk without understanding the context . . .”). Yet, neither the Petition nor Cornelison provide any such an analysis with regard to the proposed GmbH-866 and Jachimowicz combination. In reality, switching from a metallic shield between conductors to a dielectric separator would fundamentally impact the electrical properties of the cable, including crosstalk between conductors. And without quantitative analysis of the impacts of such a change on a specific cable design, a POSITA would not be motivated to make such a change. Eldering ¶188.

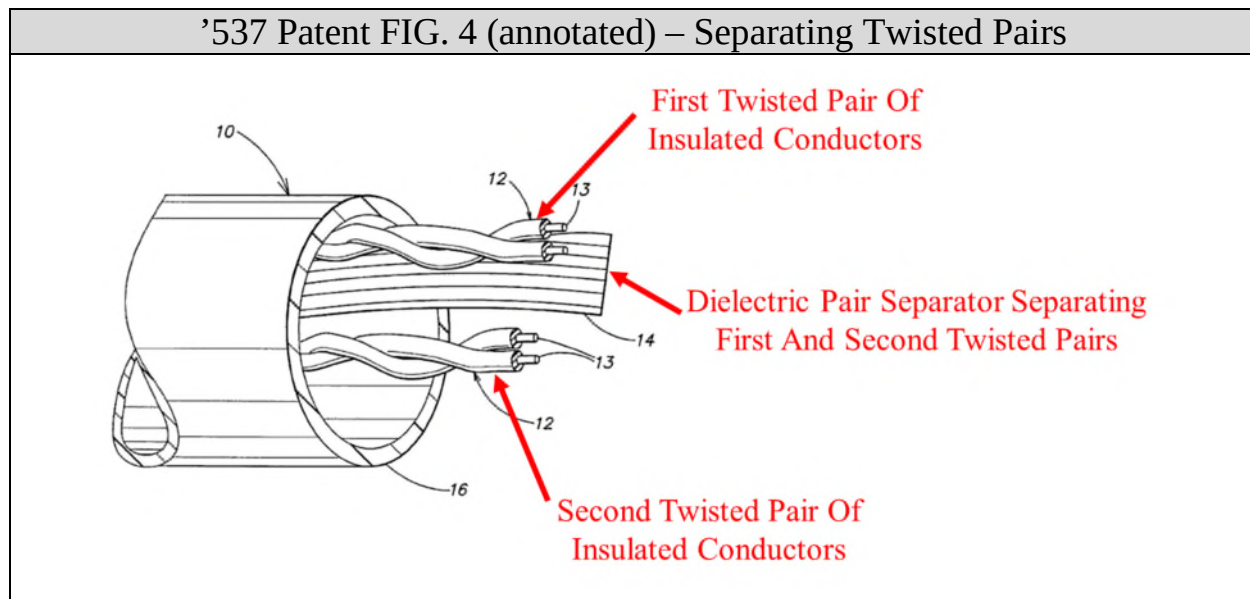
Accordingly, Petitioner has failed to provide a plausible motivation to replace the metallic shielding in GmbH-866 with the dielectric tape in Jachimowicz.

For these reasons alone, the alleged combination of GmbH-866 and Jachimowicz fails to the Challenged Claims obvious. Eldering ¶187.

2. *GmbH-866 Fails To Teach Or Suggest The Separation Of “A First Twisted Pair Of Insulated Conductors” And “A Second Twisted Pair Of Insulated Conductors” Required By Claim Elements 19.a And 19.b.*

Like Yanagita, GmbH-866 (EX-1010) fails to use the term “twisted pair[s]” or depict any arrangement of two wires twisted together around one another to form a balanced transmission line, as shown in FIG. 4 of the ’537 Patent. Eldering ¶¶158-159. Once again lacking express disclosure of the required “twisted pairs” forming a balanced transmission line, Petitioner instead resorted to relying upon erroneous, speculative, and hindsight riddled theories regarding the meaning of certain cherry-picked snippets from the prior art at issue, such as GmbH-866’s disclosure of “stranded copper conductors.” But when cross-examined, Petitioner’s expert admitted, and the state-of-the-art confirms, that “stranded” conductors can mean a conductor containing a number of smaller diameter wires. GmbH-866 fails to disclose two insulated conductors twisted together around one another to form a balanced transmission line, as shown in FIG. 4 of the ’537 Patent. Eldering ¶¶158-159. Nor does it teach the critical separation of twisted pairs of insulated conductors

in the claimed configurations required by the Challenged Claims.



Regarding Ground 5, Petitioner relied upon GmbH-866 (EX-1010) in combination with Roberts (EX-1009), Gingue (EX-1013), and/or Jachimowicz (EX-1014) in alleged support of its obviousness theory challenging independent claim 19 of the '537 Patent. Pet. 47-63. Claim 19 of the '537 Patent requires:

[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.***”

Petitioner alleged that GmbH-866 ***alone*** discloses “a plurality of ***twisted pairs*** of insulated conductors comprising a first ***twisted pair*** of insulated conductors and a

second ***twisted pair*** of insulated conductors,” as required by claim 19.a of the ’537 Patent. Pet. 58-59. But here again, Petitioner failed to demonstrate how GmbH-866 teaches or suggests each and every limitation of the Challenged Claims. Nowhere does GmbH-866 teach or suggest separating a first “twisted pair” from a second “twisted pair” under the proper claim construction of “twisted pair” discussed above (i.e., “***two*** insulated conductors ***twisted together around one another*** to form a balanced transmission line,” as shown in FIG. 4 of the ’537 Patent), and—just like Yanagita—the words “twisted pair” never even appear in the reference. Eldering ¶¶158-159. Lacking any such express disclosure in GmbH-866, Petitioner theorized that just **one** out-of-context snippet in GmbH-866 ***necessarily*** discloses the “twisted pair” limitations in claim 19 of the ’537 Patent. Pet. 58-59 (“ . . . four pairs 1, each consisting of two isolated, stranded copper conductors 2 or wires”). Petitioner’s entire theory is based on GmbH-866’s mere use of the word “stranded.”

In other words, Petitioner speculated that because GmbH-866 used the term “stranded copper conductors,” GmbH-866 somehow necessarily discloses that those conductors are twisted pairs. But admittedly, Petitioner’s speculative generalization is wrong. Read in context, GmbH-866 fails to teach or suggest either “twisted pairs” or separating twisted pairs, as required by the Challenged Claims. Eldering ¶¶78-79, 158-159.

a. “Stranded Copper Conductors” In GmbH-866 Do Not Necessarily Teach “Twisted Pairs.”

Petitioner alleged that “stranded” was understood to mean twisted. Pet. 58. But on redirect by Petitioner’s own attorney, Petitioner’s expert admitted that “stranded” can mean different things in different contexts:

I know stranding . . . as a verb, or ‘stranded,’ to mean stranded copper conductors where you have fine filaments making up an overall larger conductor. . . . So I do find ‘stranding’ and ‘twisting’ sometimes used in different ways, and you have to understand the context to understand the intended meaning of that word.

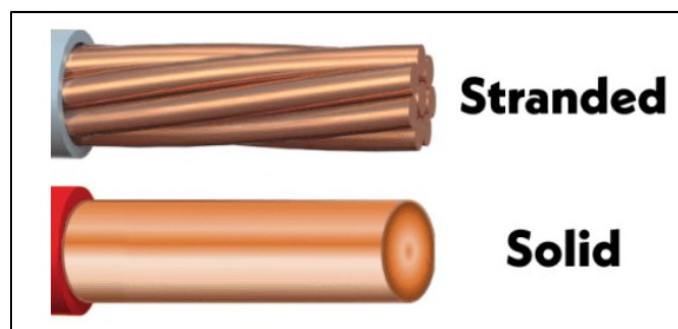
Cornelison Tr. 213:3-214:2. In fact, GmbH-866 teaches that all of the components of the cable can be combined together during assembly of the cable and “stranded”:

The **stranding of the pairs 1** can consist in what is known as a helix stranding or in an SZ stranding (alternating, right-left stranding). In the case of an SZ stranding of the pairs, preferably, the spacing of the reversal points of the stranding direction can be dimensioned such that the transfer frequency corresponding to the spacing of the reversal points is above the defined upper frequency limit.

GmbH-866 3-4. Here, GmbH-866 teaches that the **pairs (1)** are stranded together into a helical or SZ form, **not** that the individual conductors of each pair are twisted together to form a twisted pair. Eldering ¶¶189-191. In fact, when cross-examined, Petitioner’s expert admitted that GmbH-866 refers to such cable assembly as “stranding” four (4) times throughout the specification, including in claim 11. Cornelison Tr. 149:2-22, 150:17-152:13, 153:8-155:2, 156:1-157:1.

In context, the citation on which Petitioner’s theory is based is **not** referring

to twisted pairs, as required by the Challenged Claims. Instead, it refers to how the conductor pairs in GmbH-866 merely consist of either **stranded** copper conductors, or **solid** wires. Eldering ¶¶79-88. Contrary to Petitioner’s and its expert’s unsupported allegations, a POSITA would understand that, in the context of GmbH-866, a “stranded copper conductor” merely refers to a particular **type** of wire composition. Eldering ¶80. As Petitioner’s expert admitted, it was well known that a standard individual conductive wire in a data communications cable could be comprised of either (1) a single solid core wire containing a single, solid strand of conductive material (typically copper), or (2) stranded conductors, each conductor containing a number of smaller diameter strands of conductive material (*i.e.*, smaller diameter wires, again typically copper) that are twisted together to form the overall larger single conductor. Cornelison Tr.160:15-163:2 (“Q: What is stranded wire? A: It is a wire that is first formed of much smaller elements or rods of copper and then assembled together to form a larger composite conductor.”); *see also* Eldering ¶81.



Depending on the application, stranded conductors could have several advantages

over solid core wire, including improved mechanical robustness and superior electrical characteristics. Eldering ¶82. In particular, a stranded conductor is more flexible and less subject to cracking when bent, and the use of multiple strands can have better high-frequency performance due to reduced skin effect, where high-frequency currents flow close to the surface of the conductor. *Id*; see also, Cornelison Tr. 162:18-164:9 (a stranded conductor “tends to be more flexible and easier to bend when it consists of filaments rather than a solid conductor”).

3. *“Stranded Copper Conductors” In GmbH-866 Does Not Teach “Twisted Pairs.”*

The asserted English translation of the German patent GmbH-866 is directed to “a data transfer cable consisting of at least n-pairs, n being an even-numbered multiple of 1, of **two isolated conductors** in each case, a shielding of the conductor pairs that consists of an electrically conductive material, and an outer cable sheath.” GmbH-866 2. A POSITA would understand that the “two isolated conductors” referred to here not only fails to teach or suggest the use of “twisted pairs,” it teaches away from twisted pairs as the two conductors in a twisted pair both physically and electromagnetically intertwined, not isolated. Eldering ¶83.

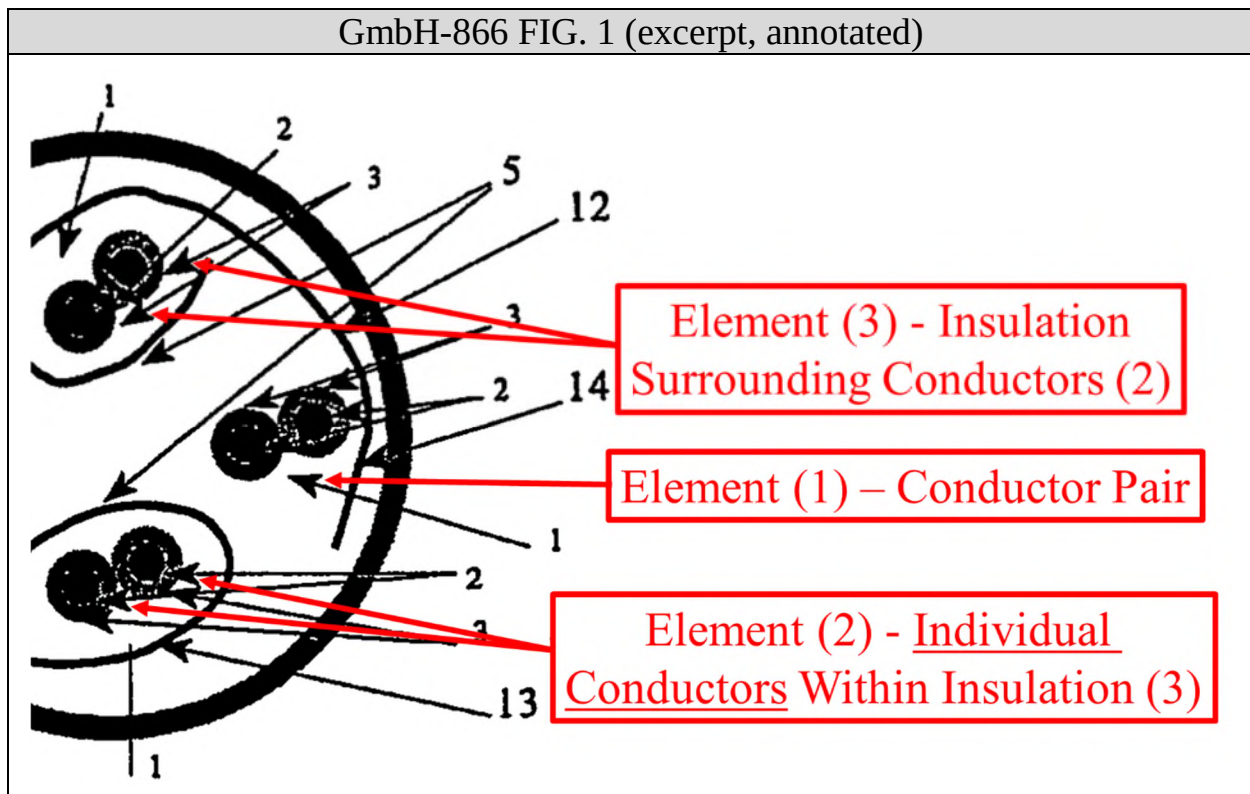
Additionally, as the plain language of the GmbH-866 translation explains, the pairs can consist of either stranded copper conductors or solid wires:

A data transfer cable according to the invention, shown in Fig. 1, comprises four pairs 1, **each consisting of two isolated, stranded**

copper conductors 2 or wires. Optionally, these **copper conductors or wires** may comprise a conductor coating, for example, of tin. The effective diameter of said **copper conductors or wires** is in particular 0.4 to 0.66 mm. The **copper conductors or wires** preferably have an insulation 3 consisting of a thermoplastic polymer, in particular polyethylene, cell polyethylene, foam-skin polyethylene, skin-foam-skin polyethylene, polypropylene, or cell polypropylene.

GmbH-866 3; Eldering ¶83.

As the figures of GmbH-866 make clear, element (1) refers to a conductor **pair**, element (2) refers to each of the **two individual conductors** within a pair, and element (3) refers to the insulation surrounding each of the individual conductors. Eldering ¶84.



Tellingly, the description of the GmbH-866 cable fails to provide any teaching that

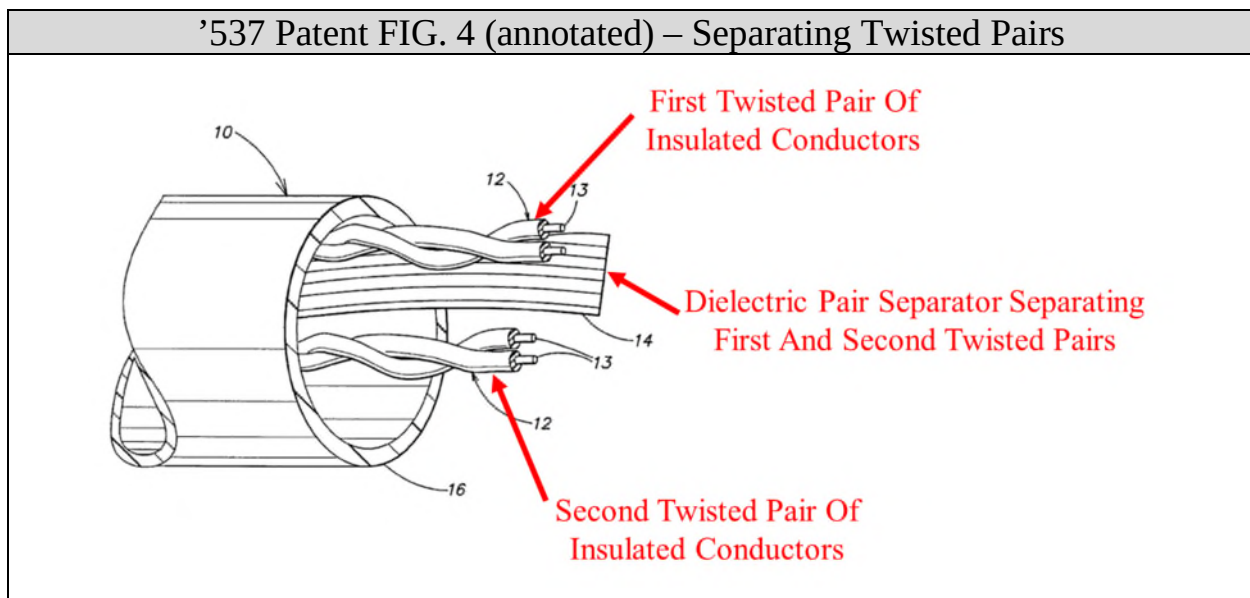
the **pairs**—element (1)—in and of themselves are stranded. Eldering ¶85. If GmbH-866 were in fact teaching that the conductor **pairs** were themselves stranded, a POSITA would expect some teaching that the two conductors—element (2)—are twisted together within a given pair (1). Instead, GmbH-866 merely teaches that the **individual copper conductors** (2), in and of themselves, are stranded. *Id.*

Additionally, the description of the GmbH-866 cable goes on to describe the effective diameter of the individual copper conductors or wires as “0.4 to 0.66mm,” which a POSITA would understand to be typical for both stranded copper conductors or solid wires in a data transfer cable, as shown in element (2). Eldering ¶86. To the contrary, a twisted pair is **not** typically referred to as having a “diameter” at all. *Id.*

Likewise, the stranded copper conductor or wire is described as preferably having an insulation, element (3), which, as shown above in annotated FIG. 1, surrounds each of the individual stranded copper conductors or wires. Here again, the description fails to teach or suggest that the insulation (3) along with the conductors (2) are twisted together or stranded in any way. Eldering ¶87. If GmbH-866 were teaching twisted pairs—which it is not—a POSITA would expect GmbH-866 to teach that the conductors **and** their surrounding insulation are stranded together. *Id.* But GmbH-866 contains no such teaching. *Id.*

Accordingly, a POSITA would understand GmbH-866 as teaching that each

of the disclosed pairs consists of two conductors, and that those conductors can be either stranded copper conductors, or solid wires. Eldering ¶88. GmbH-866 does not teach or suggest twisted pairs (*i.e.*, “**two** insulated conductors **twisted together around one another** to form a balanced transmission line,” as shown in FIG. 4 of the ’537 Patent). Eldering ¶95, 158-159.



Eldering ¶33.

GmbH-866 thus fails to teach or suggest the critical separating “a first twisted pair of insulated conductors” and “a second twisted pair of insulated conductors” limitations required by the Challenged Claims. Eldering ¶96.

4. *Petitioner’s Alleged Combination Relied Exclusively On GmbH-866 For The “Twisted Pair” Limitations, Without Further Substitution Or Modification From Roberts, Gingue, Or Jachimowicz, And Thus Failed To Demonstrate How Claim 19 Is Obvious.*

The Petitioner relied ***exclusively*** on GmbH-866 as disclosing the “twisted pair” limitations of claim 19, as shown above. Pet. 58-59. Tellingly, Petitioner did ***not*** rely on Roberts, Gingue, or Jachimowicz for any of these missing twisted pair claim elements required by claim 19 of the ’537 Patent, nor did it provide any additional argument regarding why Roberts, Gingue, or Jachimowicz could render those elements obvious. Instead, Petitioner collectively relied on Roberts, Gingue, and Jachimowicz ***only*** for their alleged—but incorrect—disclosure that a POSITA would be motivated “to replace the plastic-coated partial shieldings 11, 12 in GmbH-866 with a plastic-backed foamed polymer tape such as taught by Jachimowicz” (Pet. 51-57, 59-63), as well as additional limitations required by dependent claims 20 and 22. Pet. 48-64. But Patent Owner demonstrated *supra* how GmbH-866 fails to teach or suggest the separation of “twisted pairs” (*i.e.*, “***two*** insulated conductors ***twisted together around one another*** to form a balanced transmission line,” as shown in FIG. 4 of the ’537 Patent) as claimed. And Petitioner did not even attempt to supplement its deficient GmbH-866 twisted pair arguments with how the alleged combination could teach each and every one of the claim elements of independent claim 19. To establish a *prima facie* case of obviousness, Petitioner has the “burden

to prove that ***all claimed limitations*** are disclosed in the prior art.” *Par Pharm., Inc.*, 773 F.3d at 1194. This is because courts “consider motivation to combine and reasonable expectation of success only if all the elements of an invention are found in a combination of prior art references.” *Id.*

Accordingly, Petitioner has failed to demonstrate how its alleged combination of GmbH-866 in view of Roberts, Gingue and/or Jachimowicz discloses each and every element of the Challenged Claims. Petitioner’s thus alleged combination cannot render the Challenged Claims obvious. Eldering ¶96.

5. *The Combination Of GmbH-866 In View Of Roberts, Gingue And/Or Jachimowicz Cannot Render Claims 20 Or 22 Obvious.*

Petitioner does not even attempt to correct the issues with independent claim 19 when addressing claims 20 and 22. Pet. 63-64. For this reason alone, the alleged combination also does not render dependent claims 20 and 22 obvious.

Additionally, claim 20 adds the limitation “wherein the ***substantially flat*** configurable dielectric separator includes a flame-retardant, low-dielectric constant, ***foamed polymer tape***,” while claim 22 adds the limitation “wherein the ***substantially flat*** configurable dielectric separator is a flame-retardant, ***foamed polymer tape***.” ’537 Patent 10:55-65. But as discussed *supra* §IV.A, Jachimowicz fails to disclose a substantially flat, foamed polymer tape that can be used as a twisted pair separator. And while Gingue discusses the use of foamed polymers as ***insulation*** to surround

bare metal conductors, it fails to make any mention of or disclose anything about the use or existence of a foamed polymer *tape*. Eldering ¶¶173-174; Gingue 1:8-15; 5:24-29. The combination of GmbH-866 in view of Roberts, Gingue and/or Jachimowicz thus cannot render claims 20 and 22 obvious, and for this additional reason Ground 5 should be rejected. Eldering ¶193.

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Respectfully submitted,

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CERTIFICATION OF COMPLIANCE WITH WORD COUNT

The undersigned hereby certifies that the foregoing Patent Owner Response complies with the requirements of 37 C.F.R. § 42.24 and contains less than 14,000 words (12,780 words), excluding those contained in the following: Table of Contents, Table of Authorities, Certification of Compliance with Word Count, Certificate of Service, and the Exhibit List.

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CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing **PATENT OWNER RESPONSE** was served pursuant to 37 C.F.R. § 42.6(e) via electronic mail on April 1, 2024, on the following:

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