IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

BELDEN TECHNOLOGIES, INC. and BELDEN CDT (CANADA) INC. Plaintiffs/Counterclaim Defendants, v. SUPERIOR ESSEX INC. and SUPERIOR ESSEX COMMUNICATIONS LP Defendants/Counterclaim Plaintiffs.	)	C.A. No. 08-063-SLR **REDACTED PUBLIC VERSION**

SUPERIOR ESSEX INC.'S AND SUPERIOR ESSEX COMMUNICATIONS LP'S OPENING BRIEF IN SUPPORT OF THEIR MOTION FOR SUMMARY JUDGMENT OF INVALIDITY OF THE PATENTS-IN-SUIT

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NATURE OF THE PROCEEDINGS

Superior Essex, Inc. and Superior Essex Communications LP (together, "Superior Essex") and Belden Technologies, Inc. and Belden CDT (Canada) Inc. (together, "Belden") are competitors in the telecommunications cable business. Through this lawsuit Belden seeks to prevent Superior Essex from using cable design and manufacturing techniques that have been known in the industry for years. However, the patent claims that form the basis of Belden's lawsuit are invalid. Superior Essex has moved for Summary Judgment of Invalidity (the "Motion"). This is Superior Essex's Opening Brief in support of its Motion.

SUMMARY OF THE ARGUMENT

Superior Essex is moving for summary judgment that each of the 10 patent claims asserted by Belden is invalid. The patents-in-suit are generally directed to (a) a telecommunications cable with varying insulation thicknesses between groups of twisted pair conductors, (b) a telecommunications cable with a "cross separator" core, *i.e.*, a core with fins in the shape of a cross, or "+", and a method of making such a cable, and (c) a telecommunications cable with a flat pair separator (or, "tape separator"). As described in greater detail below, the prior art anticipates and/or renders obvious Belden's asserted patent claims, making them invalid under 35 U.S.C. §§ 102 and/or 103. The Court should reject Belden's attempt to monopolize the basic principles of telecommunications cable design and grant Superior Essex's Motion.

FACTUAL BACKGROUND

I. The Telecommunications Cable Industry and Basics Of Cable Design.

This case relates to telecommunications cable design and manufacture. Over the past few decades the data requirements for telecommunications cables have increased. (*See*, *e.g.*, Ex. 28[1] to

[1] All references to "Ex. _" are Exhibits attached to the Declaration of Anne Shea Gaza, filed concurrently herewith.

the Declaration of Anne Shea Gaza, Baxter Exp. Rpt. Para. 239). [redacted] For example, it is well known that the designer can alter the type and diameter of the insulation material applied to the individual wires. (*See, e.g.*, Ex. 50, SPSX1662367, Ex. 23, [redacted] It is also known that the designer can alter the distance between the wires. (*See* Ex. 28, Baxter Expert Report Paragraphs 21-24). [redacted] Figure A below illustrates the various concepts discussed above (legend added).

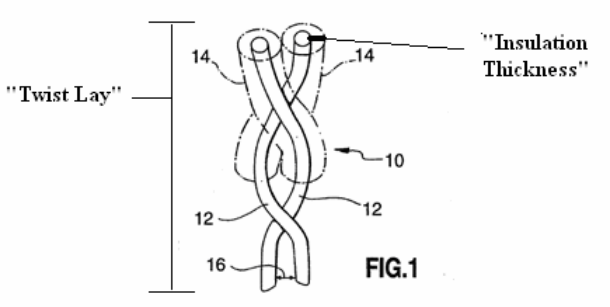


Figure A. Balanced Twisted Pair (Figure 1 from '491 Patent).

Depending on the application, a cable designer also might use a variety of types of transmission media in the cable other than twisted pairs, such as quads (i.e., four separately insulated wires twisted about each other in a helical fashion) and/or optical fibers (i.e., an optical

conductor that transmits signals using light). (*See* Ex. 28, Baxter Exp. Rpt. Para. 31; Ex. 28, Baxter Expert Report Exhibit 43 at 2-1 to 2-2; Ex. 46, BEL00020297). In short, it is well known in the telecommunications cable industry that basic design elements may be combined to make cables in compliance with evolving performance standards. (*See, e.g.*, Ex. 12, U.S. Pat. No. 2,792,442 at 1:23-2:4; Ex. 2, '503 Pat. at 1:27-46; Ex. 28, Baxter Expert Report Paragraphs 16-32; Ex. 24, [redacted] .

II. The Patents-in-Suit.

On January 29, 2008, Belden filed this action against Superior Essex alleging infringement of United States Patent Nos. 6,074,503 ("the '503 Patent"); 6,596,944 ("the '944 Patent"); 5,424,491 ("the '491 Patent"); 6,570,095 ("the '095 Patent"); 6,998,537 ("the '537 Patent"); and 7,179,999 ("the '999 Patent"). (*See* D.I. 1). On February 25, 2009, Plaintiffs filed a First Amended Complaint alleging infringement of United States Patent No. 7,339,116 ("the '116 Patent"). (*See* D.I. 37). On April 6, 2009, Plaintiffs filed a Second Amended Complaint alleging infringement of United States Patent No. 7,135,641 ("the '641 Patent"). (*See* D.I. 52). Collectively these eight patents make up the "Patents-in-Suit" or "Belden Patents."

On August 31, 2009, as directed by the Court, Belden identified 12 claims from the Belden Patents as asserted claims in the case going forward. (*See* Ex. 62, Aug. 31, 2009 Letter from M. Flores to R. Blythe). On December 2, 2009, Belden filed a covenant not to sue regarding the '944 Patent,[2] leaving ten asserted claims. (*See* D.I. 105). The following chart summarizes the remaining seven asserted patents:

[2] On December 2, 2009, Belden filed a covenant not to sue regarding the '944 Patent. (*See* D.I. 105). The covenant that Belden filed is ambiguous as to future Superior Essex products with the same design as current and/or former Superior Essex products. (*See id.*). Only a covenant not to sue that eliminates a continuing case or controversy between the parties will remove the Court's jurisdiction under the Declaratory Judgment Act. *See, e.g., MedImmune, Inc. v. Genentech, Inc*., 549 U.S. 118, 127 (2007); *Revolution Eyewear, Inc. v. Aspex Eyewear, Inc.*,

Patent	General Subject Matter
'491	***cable with varying insulation thicknesses between groups of conductors***
'503	***method of making a cable with a cross-filler***
'116	***cable with a finned separator***
'641	***cable with a cross filler and jacket protrusions***
'095	***cable with a tape separator***
'537	***cable with a tape separator***
'999	***cable with a tape separator***

Each of the Belden Patents is presently undergoing reexamination by the Patent Office. (*See* D.I. 99). As of the filing date of this motion, the Patent Office has issued an initial "Office Action" in six of the eight reexamination proceedings. (*See id.*). Each Office Action issued thus far has rejected every claim in the patent on multiple grounds, including, but not limited to, the grounds set forth in this motion. (*See id.*).

ARGUMENT AND CITATION OF AUTHORITY

Summary judgment should be granted when no reasonable jury could return a verdict for the nonmoving party. *See Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004). To defeat summary judgment, the non-movant must "go beyond the pleadings and by [its] own affidavits, or by the depositions, answers to interrogatories, and admissions on file, designate specific facts showing that there is a genuine issue for trial." *See Celotex Corp. v. Catrett*, 477 U.S. 317, 324 (1986). Summary judgment is particularly appropriate in complex patent infringement actions because it is a useful tool to secure a just and

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556 F.3d 1294, 1300 (Fed. Cir. 2009). Belden has refused to amend its covenant not to sue to clarify that it includes (1) all current and former products manufactured, marketed, or sold by Superior Essex and (2) all future Superior Essex products with the same design as current or former products manufactured, marketed, or sold by Superior Essex. (*See* Ex. 64, Dec. 3, 2009 Email from M. Flores to R. Blythe). Therefore, Superior Essex reserves the right to pursue its declaratory judgment counterclaims as to the '944 Patent at trial.

speedy determination of the action and to simplify and pare down the issues. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 427 (2007).

A patent may be found invalid in a number of ways, including anticipation and obviousness. *See* 35 U.S.C. § 282; *KSR*, 550 U.S. at 399; *Golden Bridge Tech., Inc. v. Nokia, Inc.*, 527 F.3d 1318, 1321 (Fed. Cir. 2008). A prior art reference anticipates a patent claim if it discloses every limitation of the claimed invention either expressly or inherently. *See Mehl/Biophile Int'l Corp. v. Milgraum*, 192 F.3d 1362, 1365-66 (Fed. Cir. 1999) ("Where…the result is a necessary consequence of what was deliberately intended, it is of no import that the article's authors did not appreciate the results."). Determining whether a patent claim is anticipated requires a two-step analysis: first, the claim must be construed in order to determine its proper scope; and second, the properly-construed claim must be compared to the prior art to determine whether the reference discloses all of the claim limitations. *See Allen Eng'g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1344-45 (Fed. Cir. 2002). Anticipation may be decided on summary judgment if there is no genuine dispute of material fact on the record. *See Golden Bridge Tech.*, 527 F.3d at 1321.

If a combination of prior art elements does no more than yield predictable results, then the Court should find the claimed invention to be obvious. *See KSR*, 550 U.S. at 421. In *KSR Int'l Co. v. Teleflex Inc.*, the Supreme Court found that "common sense" governs when assessing the patentability of inventions that combine prior art elements rather than a rigid test. *See id.* (rejecting a rigid application of the teaching-suggestion-motivation test and stating that "[r]igid preventative rules that deny factfinders recourse to common sense…are neither necessary under our case law nor consistent with it."). Conflicting opinions over obviousness do not create issues

of fact and are thus not sufficient to defeat a motion for summary judgment. *See Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1384 -85 (Fed. Cir. 2001).

I. Claim 4 of the '116 Patent Is Anticipated By U.S. Patent No. 3,209,064.

A. Claim 4 of the '116 Patent.

Element	Claim 4 of the '116 Patent
4a	A data cable having (1) a plurality of twisted pair conductors, (2) a cable covering, and (3) an interior support comprising:
4b	said interior support being unshielded and having: a longitudinally extending central portion forming a portion of said support;
4c	a plurality of projections extending from said central portion; each projection of said plurality of projections being adjacent to two other projections of said plurality of projections, said plurality of projections forming a plurality of adjacent projections;
4d	an open space defined by each of said plurality of adjacent projections;
4e	said cable covering contacting each projection;
4f	only one twisted pair conductor from said plurality of twisted pair conductors disposed in each open space.

B. The Prior Art.

U.S. Patent No. 3,209,064 (the "'064 Patent") issued on September 28, 1965. (*See* Ex. 13, '064 Pat.). The application that led to the '116 Patent was filed on January 18, 2001. The '064 Patent is prior art to the '116 Patent under 35 U.S.C. § 102(b).[3] The '064 Patent discloses a telecommunications cable having a non-conductive central core with a number of projections forming channels. (*See* Ex. 13, '064 Pat., col. 1, ll. 10-16). The '064 Patent was not considered by the Patent Office during prosecution of the application that became the '116 Patent.

C. Every Element of Claim 4 of the '116 Patent Is Disclosed In the '064 Patent.

[redacted]

[3] Even if the claims of the '116 patent are entitled to claim priority back to a parent application, the ultimate parent application was filed Apr. 9, 1996, making the '064 prior art under 35 U.S.C. § 102(b) under that scenario as well.

Element of '116	Disclosure in '064 Patent
4b	"This multi-channelled structure is formed from a material having a poor power factor, for example polyvinyl chloride, and comprises a central portion 21 and six equally spaced fins or ribs 22." (*See, e.g.*, Ex. 13, '064 Patent, col. 3, ll. 10-14; Ex. 28, Baxter Exp. Rpt. Para. 177). The interior support is unshielded. *Id.*
4c	Each of the fins of the disclosed interior support are adjacent to two other fins (*See, e.g.*, Ex. 13, '064 Patent, col. 3, ll. 10-14; Fig. 2 above; Ex. 28, Baxter Exp. Rpt. Para. 177).
4d	Each cavity formed by adjacent fins of the disclosed interior support of the '064 Patent defines an open space. (*See, e.g.*, Ex. 13, '064 Patent, col. 3, ll. 10-14; Fig. 2 above, Ex. 28, Baxter Export Report Paragraph 177).
4f	Only one twisted pair is disposed in each open space formed by adjacent projections of the '064 Patent interior support. (*See, e.g.*, Ex. 13, '064 Patent, col. 3, ll. 14-17; Fig. 2 above; Ex. 28, Baxter Exp. Rpt. Para. 177).

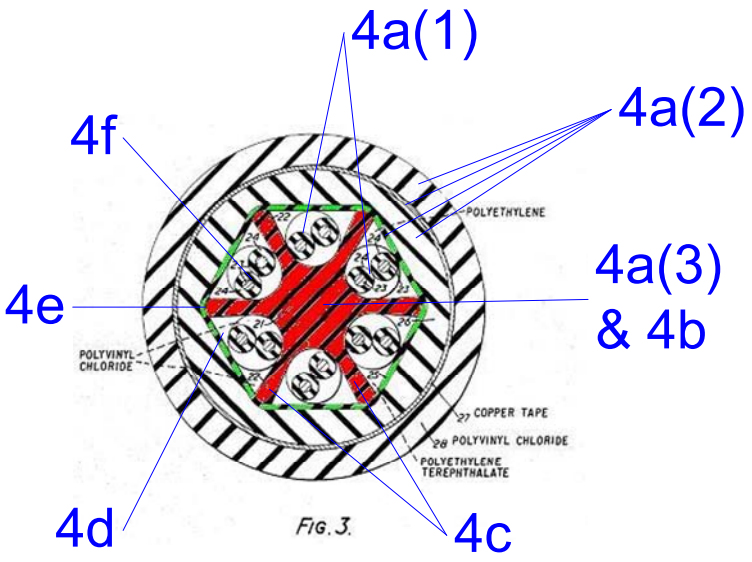


Figure B. Every Element of Claim 4 of the '116 Patent is Disclosed in the '064 Patent

Claim Element 4a. The '064 Patent discloses a "signal transmission cable" with conductors that may carry high frequency signaling currents. (*See* Ex. 13, '064 Pat., col. 1, ll. 10-11; col. 2, ll. 40-45; Ex. 28, Baxter Exp. Rpt. Para. 177). One of ordinary skill in the art would recognize a "data cable" to be one type of signal transmission cable. (*See id.*). [redacted]

[redacted]

[redacted]

[redacted]

Belden's argument fails for several reasons. First, as set forth in Superior Essex's Opening Claim Construction Brief, Belden's argument that the claim term "data cable" should be construed to be limited to "high speed data cables" is not supported by the intrinsic record and is erroneous as a matter of law. Second, the '064 Patent is directed to cables for electrical signal transmission purposes, of which data transmission is one example. (*See* '064 Patent, col. 1, ll. 10-16; Baxter Expert Report fn.1; Baxter Supplemental Expert Report Paragraphs 18-20); *see also*, Ex. 108, Glossary of Telecommunications (Federal Standard 1037(C) (1996) (defining the term "data" broadly to mean "[r]epresentation of facts, concepts, or instructions in a formalized manner suitable for communication, interpretation, or processing by humans or by automatic means. Any representations such as characters or analog quantities to which meaning is or might be assigned."). And regardless of the type of signal that the '064 Patent was intended to transmit, the structure of the cable disclosed in the '064 Patent is the same as the structure claimed in the '116 Patent. *See State Contracting & Eng'g Corp. v. Condotte America, Inc.*, 346 F.3d 1057, 1068 (Fed. Cir. 2003) ("[T]he question whether a reference is analogous art is irrelevant to whether that reference anticipates."); *In re Schreiber*, 128 F.3d 1473, 1478 (Fed. Cir.1997). To the contrary, "a reference may be from an entirely different field of endeavor than that of the claimed invention or may be directed to an entirely different problem from the one addressed by the inventor, yet the reference will still anticipate if it explicitly or inherently discloses every limitation recited in the claims." *See id.*; *see also LaBounty Mfg., Inc. v. U.S.*

Int'l Trade Comm'n, 958 F.2d 1066, 1075 (Fed. Cir. 1992) (*quoting Dwight & Lloyd Sintering Co. v. Greenawalt*, 27 F.2d 823, 828 (2d Cir. 1928) (L. Hand, J.) ("The use for which the [anticipatory] apparatus was intended is irrelevant, if it could be employed without change for the purposes of the patent")). Thus, the '064 Patent discloses element 4a of the '116 Patent.

Claim Element 4e. Figure 3 of the '064 Patent, reproduced above, discloses that the cable covering contacts each projection extending from the central portion of the interior support, as recited in claim 4 of the '116 Patent. The '116 Patent describes that the "cable covering" is a "means to insulate and protect the cable that is exterior to the interior support and insulated conductors disposed in the open spaces of the interior support." (*See* Ex. 8, 116 Pat., col. 5, ll. 38-45) ("The outer jacket, shield, drain spiral, and binder described in the shown embodiment of Fig. 1A provide an example of an acceptable cable covering."). This exact structure, absent the drain wire, is illustrated in Figure 3 of the '064 Patent. In the '064 Patent, the lapping layer or binder, shaded green in Figure B above and numbered 25 in the embodiment in Figure 3 of the '064 Patent, is part of the cable covering and plainly contacts each projection. (*See* Ex. 13, '064 Pat., Figure 3).

Belden has proposed a construction for "contacting each projection" that would require the outer jacket specifically (and not any other part of the cable covering) to contact each projection. (*See* D.I. 102). As set forth in Defendants' Opening Claim Construction Brief, Belden's claim construction is inconsistent with the claim language, which states that the "cable covering" -- not specifically the outer jacket -- contacts each projection. (*See* Ex. 8, '116 Pat., Claim 4). [redacted]

[redacted] Figure B above clearly shows that at least the binder (shaded in green), which is part of the cable covering, contacts each projection. Thus, the '064 Patent discloses element 4e of the '116 Patent.

In summary, each element of claim 4 of the '116 Patent is disclosed in the '064 Patent. Indeed, in connection with the pending Reexamination of the '116 Patent, the Patent Office has issued an Office Action in which one of the several grounds used to reject claims 4 and 7 was the '064 Patent. (*See* D.I. 99 at Exhibit M). There are no genuine issues of material fact to be resolved as to the anticipation of claim 4 of the '116 Patent, and Superior Essex is entitled to judgment as a matter of law that claim 4 of the '116 patent is invalid under 35 U.S.C. § 102(b).

II. Claim 7 Of The '116 Patent Is Anticipated By The '064 Patent.

Claim 7 of the '116 Patent differs from claim 4 by not reciting that the covering contacts each projection. As such, a prior art reference that contains each and every claim limitation of claim 4 will also have each and every claim limitation of claim 7.[4] For the reasons shown above for claim 4, the '064 Patent discloses each element of claim 7 of the '116 Patent. Therefore, the Court should find that claim 7 of the '116 Patent is invalid as anticipated by the '064 Patent under 35 U.S.C. §102(b).

III. Claim 13 Of The '641 Patent Is Obvious Over U.S. Patent 5,796,046 Patent In View Of U.S. Patent 6,150,612.

A. Claim 13 of the '641 Patent.

[4] Claim 7 of the '116 Patent states: "A data cable having a plurality of twisted pair conductors, a cable covering, and an interior support comprising: said interior support being unshielded and having: a longitudinally extending central portion forming a portion of said support; a plurality of projections extending from said central portion; each projection of said plurality of projections being adjacent to two other projections of said plurality of projections, said plurality of projections forming a plurality of adjacent projections; an open space defined by each of said plurality of adjacent projections; only one twisted pair conductor from said plurality of twisted pair conductors disposed in each open space." (Ex. 8, '116 Pat., col. 8, ll. 4-17).

Element	Claim 13 of the '641 Patent
13a	A cable comprising: a plurality of twisted pairs of insulated conductors including a first twisted pair and a second twisted pair, each twisted pair comprising two insulated conductors twisted together in a helical manner
13b	a separator disposed among the plurality of twisted pairs of insulated conductors so as to physically separate the first twisted pair from the second twisted pair; and
13c	a jacket surrounding the plurality of twisted pairs of insulated conductors;
13d	wherein the jacket comprises a plurality of protrusions extending away from an inner circumferential surface of the jacket, and wherein the plurality of protrusions provide an air gap between the plurality of twisted pairs of insulated conductors and the inner circumferential surface of the jacket.

B. The Prior Art.

U.S. Patent No. 5,796,046 (Ex. 19) (the "'046 Patent") issued on August 18, 1998. (*See* Ex. 19, '046 Pat.). The application that led to the '641 Patent was filed on August 4, 2005. The '046 Patent is prior art to the '641 Patent under 35 U.S.C. § 102(b). The '046 Patent discloses a communications cable having a striated jacket, where the inner surface of the jacket has protrusions. (*See* Ex. 19, '046 Pat., Abstract). As shown in Figure C below, the '046 Patent discloses an embodiment with "a plurality of sharply angled striations 21 disposed about the inner surface of the cable jacket such that adjacent striations define sharply angled inwardly directed projections." (*See* Ex. 19, '046 Patent col. 3, ll. 32-36). The '046 Patent was not considered by the Patent Office during prosecution of the application that became the '641 Patent.

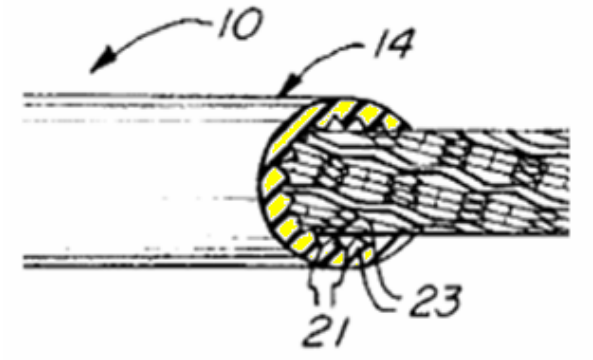


Figure C. Figure 1 of the '046 Patent. (Inner surface of jacket in yellow).

U.S. Patent No. 6,150,612 (Ex. 20) (the "'612 Patent") issued on November 21, 2000. (*See* Ex. 20, '612 Patent). The '612 Patent is prior art to the '641 Patent under 35 U.S.C. § 102(b). The '612 Patent discloses a high performance data cable that includes a "+"-shaped pair separator, as indicated in Figure D below. (*See* Ex. 20, '612 Patent, col. 5 l. 53 - col. 6 l.6). The '612 Patent was not considered by the Patent Office during prosecution of the application that matured into the '641 Patent.

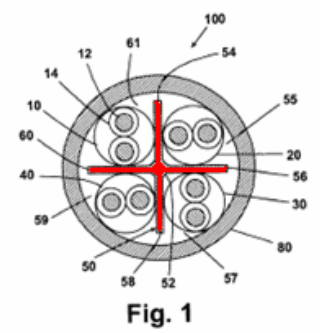


Figure D. Figure 1 from the '612 Patent. (Separator in red).

C. Every Element of Claim 13 of the '641 Patent Is Disclosed in the Combination of the '046 Patent and the '612 Patent.

[redacted]

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[redacted]

Element of '641	Disclosure in '046 Patent and/or '612 Patent
13a	"In the preferred embodiment, each member of the twisted pairs 12 of electrical conductors preferably includes a single electrically conductive strand of metal surrounded by a separate layer of insulating material. Further, in one particular embodiment, the twisted pairs 12 are wound together." (*See* Ex. 19, '046 Pat. at col. 3, ll. 17-24; Ex. 28, Baxter Exp. Rpt. Para. 153).
13b	"Each twisted pair is separated from the other pairs by star separator 50." (*See* Ex. 20, '612 Pat. at col. 5, ll. 52-65; Ex. 28, Baxter Exp. Rpt. Para. 153).
13c	"Typically, the cable jacket can be formed from any known extrudable electrically insulating material, such as, for example, PVC, polymer alloys and fluropolymers such as Ethylenechlorotrifluorothylene (ECTF) and Fluroethylenepropylene (FEP)." (*See* Ex. 19, '046 Pat. at col. 3, ll. 24-45; Ex. 28, Baxter Exp. Rpt. Para. 153).

Claim Element 13d. The '046 Patent discloses claim element 13d -- i.e., "wherein the jacket comprises a plurality of protrusions extending away from an inner circumferential surface of the jacket, and wherein the plurality of protrusions provide an air gap between the plurality of twisted pairs of insulated conductors and the inner circumferential surface of the jacket" -- at Ex. 19, col. 3, ll. 33-37 and col. 5, ll. 9-23. There the '046 Patent states:

> In one embodiment, the means 20 for spacing the inner surface away from the twisted pairs includes a ***plurality of sharply angled striations 21 disposed about the inner surface of the cable jacket such that adjacent striations define sharply angled inwardly directed projections 23***. … ***other configurations may be used on the inner surface of the jacket in accordance with the invention. All that is required is that projections be formed on the inner surface of the jacket to generally maintain separation between the cable jacket and the pairs of electrical conductors in the core of the cable.***

(*See* Ex. 19, '046 Pat. at col. 3, ll. 33-37 and col. 5, ll. 9-23 (emphasis added); *see also* Ex. 30, Baxter Supplemental Invalidity Report Paragraph 16).

Belden's expert on the '641 Patent has contended that because the protrusions of the '046 Patent form peaks and valleys, there is no "inner circumferential surface" disclosed in the '046 Patent. Belden's contention is contradicted by the plain language of the '046 Patent, which discloses that the projections are "disposed about the ***inner surface*** of the cable jacket." (*See* Ex. 19, '046 Pat. col. 3, ll. 33-37 (emphasis added)). In addition, the '046 Patent discloses that the projections may be of any shape. (*See id*. at col. 5, ll. 9-23). Figure E below shows the presence of an inner circumferential surface in the embodiments of the '046 Patent, as in the '641 Patent. Thus, the '046 Patent discloses element 13d of the '641 Patent.

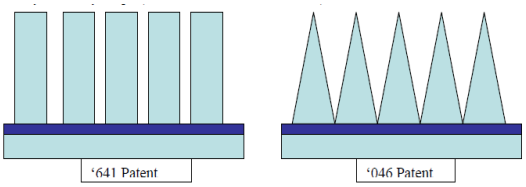


Figure E. Figure 2, Baxter Supplemental Expert Report, showing dark blue inner circumferential surface in both '641 and '046 Patents and extending protrusions

Combination of the ‘046 Patent and the ‘612 Patent. One of ordinary skill in the art would have reasons to combine the teachings of the ‘046 and ‘612 Patents. (*See* Ex. 28, Baxter Exp. Rpt. Para. 154). First, both patents disclose telecommunications cables. (*See* Ex. 19, ‘046 Pat., col. 1, ll. 7-8; Ex. 20, ‘612 Pat., col. 1, ll. 4-11). In addition, the object of both prior art cables is to improve the electrical performance of the cable to meet or exceed current or future performance standards. (*See* Ex. 19, ‘046 Pat., col. 1, ll. 38-44; Ex. 20, ‘612 Pat., col. l, ll. 4-11). The striations or protrusions of the jacket of the ‘046 Patent provide enhanced electrical performance regarding the effects that the jacket has on the twisted pairs and the effects that adjacent cables have on the jacketed cable. (*See* Ex. 19, ‘046 Patent, col. 1, ll. 16-19). Similarly, the pair separator in the ‘612 Patent improves the electrical performance with respect to the effects that the pairs within the cable have on each other. (*See* Ex. 20, ‘612 Pat., col. 2, ll. 58-65). One of ordinary skill in the art would readily appreciate that the combination of these two features would serve to further improve the overall performance of the cable, enabling it to meet or exceed current or future performance standards. (*See* Ex. 28, Baxter Exp. Rpt. Para. 154). Further, one of ordinary skill in the art would have a reasonable expectation of success of using the separator of the ‘612 Patent with the jacket of the ‘046 Patent because of the substantial overlap of technology and the predictable result of combining them. (*See id.* at 154-160).

[redacted] However, substantial evidence exists to show that the Examiner failed to appreciate all of the benefits of the combination. Specifically, the Examiner stated that:

> One may argue that the teaching of Newmoyer [the ‘046 Patent] can be combined with any of the prior art references which teach utilizing a spacer, however such a

> combination would not be obvious to one of ordinary skill in the art, because the plurality of protrusions extending away from an inner circumferential surface of the jacket and the separator ***perform the same function***.

Ex. 58, '641 Patent Prosecution History, Notice of Allowability at 3 (Jul. 14, 2006) (emphasis added).

However, this reason for allowance ignores many other reasons that one of ordinary skill in the art would have been motivated to combine the teachings of the '046 Patent and '612 Patent. For example, the plurality of protrusions extending away from an inner circumferential surface reduces alien crosstalk between adjacent cables, reduces capacitance coupling between the jacket and twisted pairs (affecting impedance and attenuation), and minimizes impedance variations. (*See* Ex. 28, Baxter Expert Report Paragraphs 154-160). These positive impacts on cable performance are realized while minimizing the overall amount of jacket material (by "removing" the material that would otherwise be in the "valleys" formed by the protrusions). This reduction in material saves cable material costs and reduces the amount of material available to burn. (*See id.*).

Indeed, subsequent to the original allowance of the '641 Patent claims, the Patent Office has embraced this very position on two separate occasions. First, in a reexamination of Belden's U.S. Patent No. 7,154,043 (which is a related patent to the '641 Patent), the Patent Office rejected a claim nearly identical in scope to claim 13 of the '641 patent. (*See* Ex. 59, U. S. Pat. Reexam No. 90/008,459, Apr. 9, 2008 Office Action). In doing so, the Patent Office recognized that, contrary to the '641 Examiners' statement above, protrusions extending from the inner surface of the jacket provide the additional benefit of reducing the capacitive coupling between the jacket and the twisted pairs in the cable. (*See id.*). Belden implicitly acknowledged this point because it ultimately cancelled the claim. (*See* Ex. 60, U.S. Patent Reexam No. 90/008,459, June 9, 2008 Response to Office Action).

In addition, in the pending reexamination of the '641 Patent, the Patent Office determined that a substantial new question of patentability is posed for the claims of the '641 Patent, including Claim 13, by, among other things, the combination of the '046 Patent and '612 Patent. (*See* D.I. 99 at Exhibit H). Also, on October 23, 2009, the Patent Office issued an Office Action rejecting Claim 13 based on, among other things, the combination of the '046 and '612 Patents. (*See* D.I. 99 at Exhibit N.)

In summary, each element of claim 13 of the '641 Patent is disclosed in the combination of the '046 Patent with the '612 Patent. The Court should reject Belden's arguments to the contrary and find that claim 13 of the '641 Patent is invalid as obvious under 35 U.S.C. § 103. *See Karsten Mfg. Corp.*, 242 F.3d at 1384-85 (conflicting opinions over obviousness do not create issues of fact and are thus not sufficient to defeat a motion for summary judgment).

IV. Claim 1 Of The '503 Patent Is Anticipated By U.S. Patent No. 4,385,485 And By Japanese Patent No. Hei8(1996)-96635

A. Claim 1 of the '503 Patent.

Element	Claim 1 of the '503 Patent
1a	A method of producing a cable, comprising steps of: passing a plurality of transmission media and a core through a first die which aligns the plurality of transmission media with surface features of the core and prevents twisting motion of the core;
1b	bunching the aligned plurality of transmission media and core using a second die which forces each of the plurality of transmission media into contact with the surface features of the core which maintain a spatial relationship between each of the plurality of transmission media;
1c	twisting the bunched plurality of transmission media and core to close the cable; and
1d	jacketing the closed cable.

B. The Prior Art.

U.S. Patent No. 4,385,485 (the "'485 Patent") issued on May 31, 1983. (*See* the '485 Patent). The application that led to the '503 Patent was filed on April 22, 1997. The '485 Patent is prior art to the '503 Patent under 35 U.S.C. § 102(b). The '485 Patent discloses methods and

apparatus for making telecommunications cables. (*See id.* Abstract). The '485 Patent was not considered by the Patent Office during prosecution of the application that became the '503 Patent.

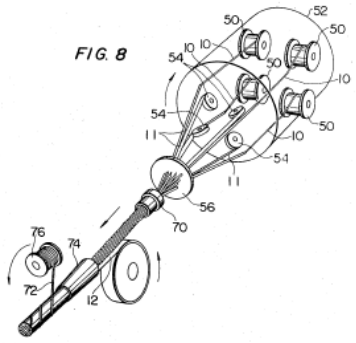


Figure F. Figure 8 from the '485 Patent

Japanese Patent No. Hei8(1996)-96635 (Ex. 10) (the "'635 Patent") published on April 12, 1996. (*See* Ex 10, '635 Pat.). The '635 Patent is prior art to the '503 Patent under 35 U.S.C. § 102(b). The '635 Patent discloses a method for manufacturing telecommunication cables. (*See id.*). The '635 Patent was not considered by the Patent Office during prosecution of the application that became the '503 Patent.

Japanese Patent No. Sho56(1981)-7307 (Ex. 11) (the "'307 Patent") published on Jan. 21, 1986, making it prior art under 35 U.S.C. § 102(b). The Japanese patent publication was not in front of the Patent Office during prosecution of the application that matured into the '503 Patent.

C. Every Element of Claim 1 of the '503 Patent is Disclosed in the '485 Patent.

[redacted]

Element of '503	Disclosure in the '485 Patent
1d	"The assembled cable core is preferably covered with an outer tape 12." (*See* Ex. 15, '485 Pat. col. 6, ll. 32-33).

Claim Element 1a. The '485 Patent discloses the first claim limitation of claim 1, "passing a plurality of transmission media and a core through a first die which aligns the plurality of transmission media with surface features of the core and prevents twisting motion of the core," at Figure F above. (*See* Ex. 15, '485 Pat., col. 5, l. 60 - col. 6, l. 13) (enlargement of pertinent section in Figure G below). Guide plate 56 is the first die (red), and as can be seen from the example dies shown in Figures 2 and 3 (also reproduced in Figure G below) a plurality of transmission media pass through holes 10 which align with the surface features of the core (V-shaped tapes, green) after the core is passed through holes 11. (*See id.*). Holes 10 and 11 prevent the core from twisting. (*See id.*). The core disclosed in the '485 Patent consisting of multiple V-shaped tapes satisfies both Belden's proposed construction of "core" (i.e., "A longitudinally-extending element that separates transmission media") and Superior Essex's proposed construction (i.e., "A longitudinally-extending element that separates the transmission media"). (*See id.* Figures 8, 2 and 3; Ex. 28, Baxter Exp. Rpt. Para. 65; [redacted]

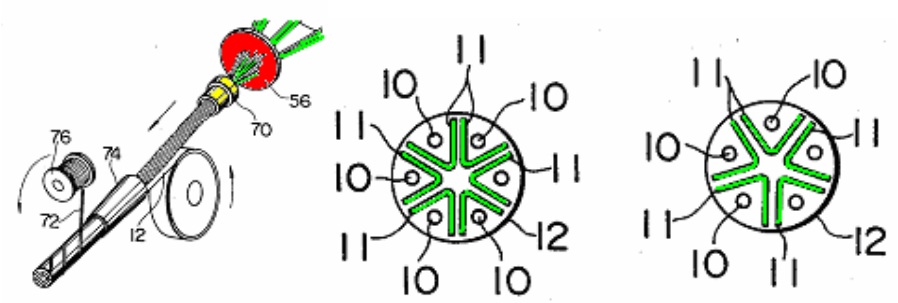


Figure G. '485 Patent, Figs. 8, 2, and 3 (from left to right) (Guide Plate 56 (red), Assemblage Die 70 (yellow), "core" (green))

Claim Element 1b. The next claim limitation recites "bunching the aligned plurality of transmission media and core using a second die which forces each of the plurality of

transmission media into contact with the surface features of the core which maintain a spatial relationship between each of the plurality of transmission media." (*See* Ex.2, '503 Patent, claim 1). The '485 Patent discloses a second die (assemblage die 70) that bunches the optical fibers and the core. (*See* Ex. 15, '485 Patent, col. 6, ll. 24-27). As seen in Figure G, above, the transmission media and core are brought together by the cone-shaped assembly die 70. (*See id.*). Figure H below shows a blow-up of the first and second dies disclosed by the '485 Patent. (*See id*. col. 6, ll. 6-27). The transmission media and tape core pass through the guide plate 56 (first die, red) and are bunched together by the assemblage die 70 (second die, yellow), where the optical fibers (transmission media) are positioned into the grooves formed by the tape core (surface features of the core). (*See id.* Figure 8; Ex. 28, Baxter Exp. Rpt. Para. 65).

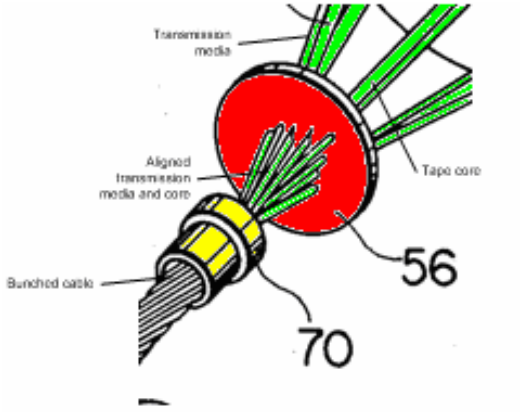


Figure H. Guide Plate 56 (red), Assemblage Die 70 (yellow), and "Core" (green) of '485 Patent.

Claim Element 1c. Claim element 1c recites "twisting the bunched plurality of transmission media and core to close the cable." The '485 Patent discloses two embodiments for manufacturing the cable disclosed in the patent. The second embodiment, which is the one relevant here, discloses that the die 70, the guide plate 56, and the rotary cage 52 are rotated in unison to finish the cable. (*See* Ex. 15, '485 Patent, col. 6, l. 65-col. 7, l. 8 ("In the second embodiment of the method and apparatus of the present invention the system surrounded by the

dotted chain line 90 of Figure 10 is integrally rotated. The rotation of the assemblage die 70 can be easily realized by a mechanical and integral connection between the die 70 to the guide plate 56 and the rotary cage 52. Alternatively, instead of the mechanical linkage therebetween, the die 70 can be integrally rotated with the rotary cage 52 by supporting the die 70 by means of a bearing to permit free rotation thereof. Incidentally, the system surrounded by the broken line shows a conventional rotation system.")). ***In other words, by rotating these three components together, the cable is twisted after bunching.*** Figure I below shows the rotating cage, which twists the cable after the bunching step.

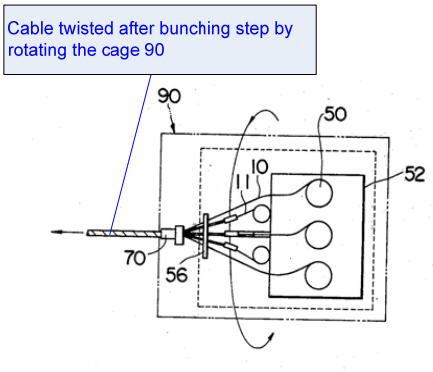


Figure I. Figure 10 of the '485 Patent Discloses Element 1c.

[redacted] The disclosed rotating cage in the '485 Patent is not planetary cabling. Planetary cabling includes a rotating cage that includes the payoff spools only -- that is, the spools that have the twisted pairs and any pair separator. (*See* Ex. 107, U.S. Pat. No. 4205899, col. 1, ll. 38-52). Also, under a planetary cabling system, the spools rotate, both along the axis necessary to pay off the wires and separator and also along an axis perpendicular

[redacted]

to that payoff axis. *Id.* As such, the rotating cage of payoff spools resembles a solar system, where the entire system rotates about an axis and the individual spools (the "planets") rotate about an axis. (*See* Ex. 57, Prosecution History of the '503 Patent, Response After Final Under 37 C.F.R. § 1.116 at 3). In contrast, the system described in the prior art '485 patent is not a planetary cabling system. Instead, in the '485 Patent ***the spools and dies rotate together*** along the longitudinal axis of the cable, imparting the cable twist. ***The spools do not individually rotate***. Accordingly, Belden's attempt to distinguish the '485 Patent by arguing that it is the same as prior art that was considered by the Patent Office during the prosecution of the '503 patent should be rejected.

Even if, for the sake of argument, one were to assume that the '485 Patent fails to disclose claim element 1c (which is not correct), it would have been readily obvious to modify the configuration of the cable assembly line of the '485 Patent to arrive at the claimed method. Given the die structure disclosed in the '485 Patent, all that would be necessary is to rotate the take up reel for the cable and hold the dies and payoffs stationary. *See KSR*, 550 U.S. at 421 ("When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp."). Which part of the line to rotate to impart the cable twist is a design choice and one of ordinary skill in the art could choose either to rotate the front half of the line (the payoffs and dies) or the second half of the line (the covering component and take-ups). *See id.*

In summary, each element of Claim 1 of the '503 Patent is disclosed in U.S. Patent No. 4,385,485. Therefore, the Court should find that Claim 1 is invalid as anticipated under 35

U.S.C. § 102(b). Alternatively, claim 1 of the '503 Patent is rendered obvious under 35 U.S.C. § 103(a) by the '485 Patent.

D. Every Element of Claim 1 of the '503 Patent Is Disclosed In the '635 Patent.

[redacted]

Element of '503	Disclosure in the '635 Patent
1c	The wire and tape feeds are housed in a rotation cage. The rotating cage twists the bunched transmission media and core to close the cable. (*See, e.g.*, '635 Patent Translation at Para. 0002).
1d	"The stranded assembly obtained in this manner is formed into a circular shape in the following process (not shown in the figures), wrapped with metal shielding tape and the like on its external surface, and then clad with a plastic sheath." (*See, e.g.*, '635 Patent Translation at Para. 0003).

Claim Element 1a. The '635 Patent discloses the first limitation of claim 1 of the '503 patent, "passing a plurality of transmission media and a core through a first die which aligns the plurality of transmission media with surface features of the core and prevents twisting motion of the core." (*See* Ex. 28, Baxter Exp. Rpt. Para. 82). The '635 Patent discloses a cable that is constituted with "multiple sub-unit wires." (*See* Ex. 10, '635 Patent Translation at Para. 0002). These subunits are grouped twisted pairs. (*See id.* at Para. 0002). The '635 Patent discloses a prior art manufacturing method where the pairs are fed into the "first die" (red), element 5 in Figure J below. (*See id.* at Para. 0003).

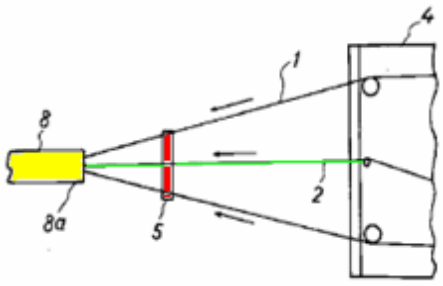


Figure J. '635 Patent, Figure 7 (first die - red, second die - yellow, "core" - green).

The transmission media (1) and core (green) (2) are passed through the "first die" (red, element 5). (*See id.*). The core is a tape. (*See id.*). The core disclosed in the '635 Patent consisting of a tape satisfies either party's proposed construction of "core." (*See* Ex. 28, Baxter Exp. Rpt. Para. 84). The tape is shaped in the assembling component (8) (yellow) prior to bunching.[6] (*See* Ex. 10, '635 Patent Translation at Para. 0003). The tape is shaped into an "S." (*See id*. at Para. 0002). This "S" shape forms the surface features of the core on an otherwise featureless flat tape. As seen from Figure 8 of the '635 Patent, reproduced below as Figure K, the transmission media are aligned by the "first die" (element 5) to position the media to be placed into the two grooves of the "S" shape. (*See id.*).

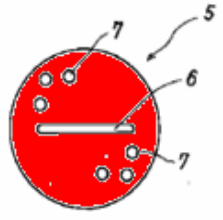


Figure K. '635 Patent, Figure 8 (first die - red).

As can be seen from Figure K, the first die (element 5) aligns the transmission media using apertures (7) so that the transmission media will align with the surface features of the core -- the two grooves of an "S" shape. The tape core is fed through slot (6), which prevents the tape from twisting. That is, the horizontal slot (6) maintains the tape in a horizontal position during the cable manufacturing process, preventing any twisting motion of the core. (*See* Ex. 28, Baxter Exp. Rpt. Para. 82; [redacted]

Claim Element 1b. The '635 Patent also discloses the next limitation of the '503 Patent, "bunching the aligned plurality of transmission media and core using a second die which forces

[6] The tape core disclosed in the '635 Patent is distinguishable from the tape pair separator used in Superior Essex products accused by Belden of infringing the '503 Patent. The tape core disclosed in the '635 Patent ultimately has "surface features" once formed into an "S" shape. The tape of Superior Essex's products is never shaped and never has surface features.

each of the plurality of transmission media into contact with the surface features of the core which maintain a spatial relationship between each of the plurality of transmission media." (*See* Ex. 28, Baxter Exp. Rpt. Para. 82). The '635 Patent discloses a second die (assembling component (8)) that bunches the transmission media into the two grooves of the tape formed when the tape is shaped into an "S." (*See* Ex. 10, '635 Patent Translation at Para. 0003). The "S" shape keeps the transmission media that pass through the upper apertures (7) of the "first die" (5) separated from the transmission media that pass through the lower apertures (7) of the "first die" (5). (*See id.*). Assembly component 8 is shown in Figure J, above. (See Ex. 28, Baxter Exp. Rpt. Para. 82, [redacted]

In summary, each element of claim 1 of the '503 Patent is disclosed in JP Patent No. Hei8(1996)-96635. Therefore, the Court should find that claim 1 is invalid as anticipated under 35 U.S.C. § 102(b).

V. Claim 1 Of The '491 Patent Is Obvious Over U.S. Patent No. 2,792,442 In View Of U.S. Patent No. 5,010,210 or U.S. Patent No. 4,697,051.

A. Claim 1 of the '491 Patent.

Element	Claim 1 of the '491 Patent
1a	A telecommunications cable comprising: a core having a plurality of pairs of twisted together individually insulated conductors with all of the conductors being of the same gauge and
1b	the maximum twist lay of the plurality of pairs being 2.00 inches with
1c	a first group of the plurality of conductor pairs having twist lays within a first range, the conductors of the first group having the same insulation thickness which is consistent with providing a nominal characteristic impedance for each conductor pair of the first group within desirable limits and an acceptable signal attenuation, and
1d	at least a second group of the plurality of conductor pairs having twist lays within a second range, the conductors of the second group having the same insulation thickness which is different from that for the first group and which is consistent with providing a nominal characteristic impedance for each conductor pair of the second group which is also within the desirable limits and an acceptable signal attenuation.

B. The Prior Art.

U.S. Patent No. 2,792,442 (Ex. 12) (the "'442 Patent") issued on May 14, 1957. (*See* Ex. 12, '442 Pat.). The application that led to the '491 Patent was filed on October 8, 1993. The '442 Patent is prior art to the '491 Patent under 35 U.S.C. § 102(b). The '442 Patent was not considered by the Patent Office during prosecution of the application that became the '491 Patent.

U.S. Patent No. 5,010,210 (the "'210 Patent") issued on April 23, 1991. (*See* Ex. 17, '210 Pat.). The '210 Patent is prior art to the '491 Patent under 35 U.S.C. § 102(b). The '210 Patent discloses a telecommunications cable with a maximum twist lay of 2.3 inches and an embodiment with the twist lay in the range of 1.00 to 2.00 inches. (*See* Ex. 17, '210 Patent, col. 2, ll. 7-8). Although the '210 Patent was considered by the Patent Office during prosecution of the application that became the '491 Patent, the combination of the '442 Patent and the '210 Patent was not considered by the Patent Office.

U.S. Patent No. 4,697,051 (Ex. 16) (the "'051 Patent") issued on September 29, 1987. The '051 Patent is prior art to the '491 Patent under 35 U.S.C. § 102(b). The '051 Patent discloses an embodiment of a telecommunications cable with the twist lays in the range of about 0.25 to 1.60 inches. (*See* Ex. 16, '051 Pat. at col. 6, ll. 16-17). Although the '051 Patent was considered by the Patent Office during prosecution of the application that became the '491 Patent, the combination of the '442 Patent and the '051 Patent was not considered by the Patent Office.

C. Every Element of Claim 1 of the '491 Patent Is Disclosed in the Combination of the '442 Patent and the '210 Patent or the '051 Patent.

Claim Element 1a. The preamble of claim 1 of the '491 Patent recites "[a] telecommunications cable." Although this preamble is not limiting to the claim, the '442 Patent

does disclose a telecommunications cable. (*See* Ex. 12, '442 Patent, col. 1, ll. 16-17, Ex. 28, Baxter Exp. Rpt. Para. 210). The '442 Patent discloses the first limitation of claim 1, that of insulated twisted pairs in a core. (*See* Ex. 12, '442 Pat., col. 2, ll. 8-27). Figure 3 of the '442 Patent, reproduced below as Figure N, shows the core of a quad telephone cable with insulated conductors, where all the conductors are the same gauge. The '442 Patent states: "The examples described are relative to a 12 star-quad with two layers. Within the scope of the present invention, similar arrangements may be applied for equalizing the constants of the circuits of cables with multiple layers consisting of star quads, multiple twin quads **or pairs**." (*See* Ex. 12, '442 Patent, col. 4, l. 52 - col. 5, l. 2 (emphasis added), Ex 28, Baxter Exp. Rpt. Para. 210). The '442 Patent also states "According to the present invention, there is provided a telephone cable including multiple circuits such as balanced pairs or quads…." (*See* Ex. 12, '442 Patent, col. 2, ll. 8-10).

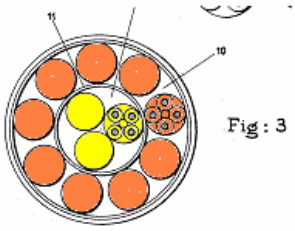


Figure N: Figure 3 of the '442 Patent (first group - orange, second group - yellow).

Claim Elements 1c and 1d. The '442 Patent discloses a first group of conductors and a second group of conductors, the first group in an outside layer (orange) of a cable and the second group in an inside layer (yellow). (*See* Figure N above). In addition, the patent teaches that disclosed approaches "can also be applied for equalizing the constants of the individual circuits placed in one same layer, if their characteristics are insufficiently equalized, for instance because of different twist pitches or any other reason." (*See*'442 Patent at col. 3, ll. 10-14). The '442

Patent also teaches that all of the conductors of the first group have the same insulation thickness and all of the conductors of the second group have the same insulation thickness. (*See* '442 Patent at col. 4, ll. 20-30). As seen in the table of column 4 of the '442 Patent (reproduced below as Figure O), the insulation thickness for the conductors in the first ("inner") group (i.e., d + e) may be the same and less than the insulation thickness for the second ("outer") group (i.e., 1.2*(d+e)). The result is then that d + e is less than 1.2*(d + e) where k = 1.2 and k_1 = 1.2. (*See id.* at col. 4, ll. 20-33; Horenstein deposition at 312:19-319:17 (agreeing that "the outer diameter, as measured from the outer surface of the paper, would be different for the inner and outer conductors"); Baxter Expert Report Paragraph 210). Thus, the '442 Patent discloses two groups of conductors each with the same insulation thickness, which thickness is different from that of the other group.

Insulating yarn:	
(inner)	2 yarns, diameter $0.5d$
(outer)	1 yarn, diameter kd
Insulating paper:	
(inner)	1 tape, thickness e.
(outer)	1 tape, thickness k_1e.
Conductor diameter including insulation:	
(inner)	ϕ.
(outer)	$k_2\phi$.
Quad core:	
(inner)	D.
(outer)	k_3D.

This specification corresponds to values comprised, for the coefficients k, k_1, k_2, between 1 and 1.5, and for k_3 between 1 and 2.

Figure O: Table from the '442 Patent

In the embodiment associated with the table in Figure O, above, each group of conductors has different twist lays. (*See* Ex. 12, '442 Pat., col. 4, ll. 7-11; Ex. 28, Baxter Exp. Rpt. Para. 210). The embodiment contains a total of twelve quads. (*See* Ex. 12, '442 Pat., col. 4, ll. 7-11). All of the quads in the embodiment "were twisted with different pitches, the three quads in the inner layer being twisted with shorter pitches than the nine ones in the outer layer." (*See id.* col.

4, ll. 8-11; Ex. 28, Baxter Exp. Rpt. Para. 210). In other words, the twist lays of the first group (the three quads in the inner layer) of conductors were in a first range and the conductors in the second group (the nine quads in the outer layer) were in a second range, where the twist lays of the first range are less than the twist lays of the second range.[7]

Claim Element 1b. The final claim limitation of the maximum twist lay being 2.00 inches is disclosed in the '210 Patent. (*See* Ex. 17, '210 Patent at col. 2, ll. 17-21 ("This surprising result is that below 2.30 inches twist lay, the electrical characteristics are such that electromagnetic interference is reduced to a commercially acceptable level, even though the cable is unshielded.")). Furthermore, the patentee admits in the '491 Patent that the '210 Patent discloses the use of small twist lays for telecommunications cables, demonstrating that this teaching was known in the art. (*See* Ex. 1, '491 Patent, col. 1, ll. 23-32). Indeed, at least one other reference, the '051 Patent, discloses an embodiment of a telecommunications cable with even shorter twist lays in the range of about 0.25 to 1.60 inches. (*See* Ex. 16, '051 Patent, col. 6, ll. 16-17).

One of ordinary skill in the art would know to combine the technology of the '442 Patent with the technology of the '210 Patent or the '051 Patent because they were all trying to solve the same problem. The object of the '442 Patent is to maximize the information carrying capacity of a telecommunications cable while equalizing the capacitance and inductance of two groups of conductors. (*See* Ex. 12, '442 Pat., col. 1, ll. 17-22). The goal of the '210 Patent is to maximize the information carrying capacity of a telecommunications cable. (*See* Ex. 17, '210 Pat., col. 1, ll. 65-69; *see also* Ex. 28, Baxter Exp. Rpt. Para. 211). The object of the '051 Patent

[7] Belden attempts to muddy the waters by arguing that the "twist pitch" and "twist lay" have different meanings. This contention is incorrect. (*See* Ex. 28, Baxter Expert Report Paragraph 210).

is to maximize the information carrying capacity of a telecommunications cable. (*See* Ex. 16, '051 Pat., col. 1, ll. 27-34).

In summary, each element of claim 1 of the '491 Patent is disclosed in the combination of the '442 Patent with the '210 Patent or '051 Patent. Therefore, the Court should find that claim 1 is invalid as obvious under 35 U.S.C. §103.

VI. Claim 2 Of The '491 Patent Is Obvious Over The '442 Patent In View Of The '210 Patent Or '051 Patent.

Claim 2, which depends directly from claim 1, recites "wherein the twist lay of each conductor pair is different from each other pair." (*See* Ex. 1, '491 Patent, Claim 2). The '442 Patent discloses an embodiment were "all quads were twisted with different pitches, the three quads in the inner layer being twisted with shorter pitches than the nine ones in the outer layer." (*See* Ex. 12, 442 Pat., at col. 4, ll. 8-11; Baxter Exp. Rpt. Para. 214). As discussed above in connection with claim 1, the teaching of the '442 Patent about quads with different twist lays is applicable to twisted pairs of conductors and the additional claim limitation of claim 2 compared to claim 1 is disclosed in the '442 Patent. (*See* Ex. 12, 442 Pat., at col. 4, l. 52 - col. 5, l. 2, Ex. 28, Baxter Exp. Rpt. Para. 214).

In summary, each element of Claim 2 of the '491 Patent is disclosed in the combination of the '442 Patent with the '210 Patent or '051 Patent. Therefore the Court should find that claim 2 is invalid as obvious under 35 U.S.C. §103.

VII. Claim 27 Of The '095 Patent Is Anticipated By DE 297 19 866 A1.

A. Claim 27 of the '095 Patent.

Element	Claim 27 of the '095 Patent
27a	A data communications cable comprising: a first twisted pair of insulated conductors;
27b	a second twisted pair of insulated conductors;
27c	a configurable dielectric pair separator that separates the first and second twisted pairs of conductors, the configurable dielectric pair separator being substantially flat;

27d	a jacket enclosing the first and second twisted pairs of insulated conductors and the dielectric pair separator; and
27e	wherein the configurable dielectric pair separator, the first twisted pair of insulated conductors and the second twisted pair of insulated conductors are twisted about a common central axis to form a twisted pair cable; and
27f	wherein the configurable dielectric pair separator is arranged within the jacket to form at least two grooves.

B. The Prior Art.

DE 297 19 866 A1 (the "'866 Patent") was published February 5, 1998. (*See* Ex. 9, '866 Pat.). The application that led to the '095 Patent was filed on May 11, 2001. The '866 Patent is prior art to the '095 Patent under 35 U.S.C. § 102(b). The '866 Patent discloses a data transmission cable with a pair separator. The '866 Patent was not considered by the Patent Office during prosecution of the application that matured into the '095 Patent.

C. Every Element of Claim 27 of the '095 Patent Is Disclosed in the '866 Patent.

[redacted]

Element of '095	Disclosure in '866 Patent
27a	"An invention specific data transmission cable depicted in figure 1 has four pairs 1 of insulated, stranded copper conductors 2 or cants" (*See* Ex. 9, '866 Pat. translation at p. 3)
27b	"An invention specific data transmission cable depicted in figure 1 has four pairs 1 of insulated, stranded copper conductors 2 or cants" (*See id.* at p. 3)
27d	"As an outer mechanical protection, an invention-specific transmission cable has a cable cover 4, which consists of customary thermoplastic cover materials." (*See id.* at p. 3)
27f	Figure 3 of the '866 Patent shows four grooves.

Claim Element 27c. The '866 Patent discloses claim element 27c of the '095 Patent, "a configurable dielectric pair separator that separates the first and second twisted pairs of conductors, the configurable dielectric pair separator being substantially flat." (*See* Ex. 9, '866 Pat. at p. 5, Eng. Trans.; *see also* Ex. 28, Baxter Exp. Rpt. Para. 243; [redacted] The '866 Patent discloses a

tape or "shielding" that "preferably consists of metal foils, especially aluminum foils or *aluminum foils laminated by plastic*." (*See* Ex. 9, '866 Pat. at p. 5) (emphasis added).

As set forth in Superior Essex's Opening Claim Construction Brief, the term "dielectric pair separator" should be construed to mean "a pair separator containing a non-conductive layer." (*See* Defs.' Opening Claim Construction Br. at 29). Under that construction, the separator disclosed in the '866 Patent is indisputably a dielectric pair separator because the laminated plastic of the '866 Patent is a non-conductive layer. (*See* Ex. 28, Baxter Exp. Rpt. Para. 243; [redacted]

However, even under Belden's proposed construction of dielectric pair separator, "non-conductive separator," the '866 patent at least renders claim 27 obvious because all that would be required would be to remove the metal foil from the tape. (*See* Ex. 28, Baxter Exp. Rpt. Para. 243). It would have been obvious to remove the metal foil from the plastic component of the separator, rendering the separator non-conductive. It would have been obvious to try a separator configuration consisting of a dielectric layer only. First, one of ordinary skill in the art would be under market pressure to reduce costs for the cable and eliminating the metal foil would likely reduce the cost of the cable. *See KSR Int'l Co.*, 550 U.S. at 421 ("When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp."); *see also* Ex. 9, '866 Pat., Engl. trans. at 1 (discussing the expense of prior art cables); '095 Patent, col. 2, ll. 53-54 ("Accordingly, some of the problems with the above known configurations are that they are expensive, ….")). Second, there are a finite number of configurations with a foil/plastic laminate separator (e.g., foil only, foil with plastic on one side, foil with plastic on both sides, foil with plastic totally encasing the foil, and plastic only). (*See*

Figure P, below). One such configuration would be a separator with no foil. As such, it would have been obvious to one of ordinary skill in the art to modify the separator of the '866 Patent to have a plastic-only ("non-conductive") configuration.

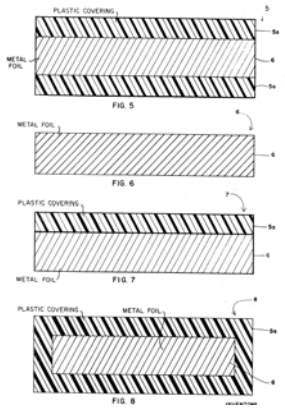


Figure P. Metal/Plastic Laminate Configurations from U.S. Patent No. 3,622,683.

Claim Element 27e. The '866 Patent discloses claim element 27e of the '095 Patent, "wherein the configurable dielectric pair separator, the first twisted pair of insulated conductors and the second twisted pair of insulated conductors are twisted about a common central axis to form a twisted pair cable." (*See* Ex. 9, '866 Pat. at p. 6, Eng. Trans.; *see also* Ex. 28, Baxter Exp. Rpt. Para. 243). The '866 Patent discloses that the data cable "can be manufactured so that the partial shieldings 11, 12, or 17, 18 can be applied together with the stranding of conductor pairs 1 and/or longitudinal reshaping of the conductor pairs 1. Especially with the stranding of the conductor pairs in the SZ stranding procedure, the existing laying tools for the partial shieldings 11, 12 can support changing the stranding direction." (*See id*.). Similarly, the '866 patent discloses that "[t]he invention-specific arrangement of the shielding further makes it possible to use stranding and/or longitudinal reshaping of the conductor pair to apply onto or insert the shielding into the cable. By this means, cost-effective manufacture is made possible in

a continuous manufacturing process." (*See* Ex. 9, '866 Pat., Eng. transl. at 2). This "longitudinal reshaping" is the twisting about a common axis. (*See* Ex. 28, Baxter Exp. Rpt. Para. 243).

Alternatively, to the extent that this claim element is not taught by the '866 patent, it would have been obvious to one of ordinary skill in the art to finish a cable by twisting. The inventors admit that helical or S-Z twisting of a cable were well known processes. (*See* Ex. 3, '095 Pat., col. 9, ll. 10-12 ("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.")). It would have been obvious to one of ordinary skill in the art to apply this known process to the '866 patent, as twisting the cable disclosed in the '866 patent by this known process would yield predictable results.

In summary, the '866 Patent discloses each element of claim 27 of the '866 Patent. Indeed, in connection with the pending Reexamination of the '095 Patent, the Patent Office has issued an Office Action in which one of the several grounds used to reject claim 27 was the '866 Patent. (*See* D.I. 99 at Exhibit I). The Court should find that claim 27 is invalid as anticipated under 35 U.S.C. § 102(b). Alternatively, claim 27 is rendered obvious by the '866 patent under 35 U.S.C. § 103(a).

VIII. Claim 31 Of The '095 Patent Is Obvious Over DE 297 19 866 A1 In View Of U.S. Patent No. 5,670,748.

A. Claim 31 of the '095 Patent.

Element	Claim 31 of the '095 Patent
31a	A data communications cable comprising: a plurality of twisted pairs of insulated conductors;
31b	a configurable dielectric pair separator disposed between at least two of the plurality of twisted pairs of insulated conductors, the configurable dielectric pair separator including a substantially flat dielectric tape formed of a foamed polymer;
31c	a jacket enclosing the plurality of twisted pairs of insulated conductors and the configurable dielectric pair separator; and
31d	wherein the plurality of twisted pairs of insulated conductors and the configurable dielectric pair separator are twisted about a common axis to form a twisted pair cable.

B. The Prior Art.

As shown above, the '866 Patent is prior art to the '095 Patent.

U.S. Patent No. 5,670,748 issued September 23, 1997. (*See* Ex. 18, '748 Pat.). The '748 Patent is prior art to the '095 Patent under 35 U.S.C. § 102(b). The '748 Patent discloses fluorinated ethylene propylene (FEP) polymer (among other materials) for use in telecommunications cables to achieve flame retardancy and minimize smoke. (*See id.*, col. 2, ll. 28-31; col. 3, ll. 1-19). The '748 Patent was not considered by the Patent Office during prosecution of the application that matured into the '095 Patent.

C. Every Element of Claim 31 of the '095 Patent Is Disclosed in the Combination of the '866 Patent and the '748 Patent.

There is no dispute that elements 31a and 31c are disclosed in the '866 Patent. (*See* Ex. 41, *Pl.'s Supp. Resp. to Interrog. No. 23, App. II* at 299-302).

Element of '095	Disclosure in '866 Patent
31a	"An invention specific data transmission cable depicted in figure 1 has four pairs 1 of insulated, stranded copper conductors 2 or cants" (Ex. 9, '866 Pat. translation at p. 3)
31c	"As an outer mechanical protection, an invention-specific transmission cable has a cable cover 4, which consists of customary thermoplastic cover materials." (Ex. 9, '866 Pat. translation at p. 3)

Claim Element 31b. The '866 Patent together with the '748 Patent discloses claim element 31b. (*See* Ex. 9, '866 Pat. at p. 5, Eng. Trans.; *see also* Ex. 28, Baxter Exp. Rpt. Para. 244; [redacted] One of ordinary skill in the art would have been motivated to look to the teachings of the '748 patent regarding foamed polymers to modify the materials used for the '866 separator to arrive at this limitation. (*See* Ex. 28, Baxter Expert Report Paragraphs 244, 245, and 248; [redacted] The Background section of the '748 Patent discloses material properties of materials that can be used in a telecommunications cable,

including foamed polymers. This teaching discusses the effects of such materials on electrical performance of a cable and the fire safety aspects of the materials. (*See* Ex. 18, '748 Pat., col. 2, l. 1 - col. 3, l. 67). This teaching would be applicable to the material used to construct the pair separator.

Belden has attempted to discredit the '748 Patent by contending that the '748 Patent is directed to a conductor insulation innovation, not pair separators. This contention, of course, is irrelevant. Instead, the entire teaching of a reference must be considered. *See In re Heck*, 699 F.2d 1331, 1333 (Fed. Cir. 1983) ("The use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain.").

Claim Element 31d. The '866 Patent discloses claim element 31d, "wherein the plurality of twisted pairs of insulated conductors and the configurable dielectric pair separator are twisted about a common axis to formn [sic] a twisted pair cable." (*See* Ex. 9, '866 Patent at p. 6, Eng. Trans.; *see also* Ex. 28, Baxter Exp. Rpt. Para. 243). This element is further met as described above for claim element 27e.

IX. Claim 19 Of The '537 Patent Is Obvious Over The '866 Patent In View Of The '748 Patent.

A. Claim 19 of the '537 Patent.

Element	Claim 19 of the '537 Patent
19a	An unshielded communications cable comprising: a plurality of twisted pairs of insulated conductors comprising a first twisted pair of insulated conductors and a second twisted pair of insulated conductors;
19b	a substantially flat configurable dielectric separator that consists of nonconductive, 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;
19c	a jacket enclosing the plurality of twisted pairs of insulated conductors and the configurable dielectric separator;

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

B. The Prior Art.

The '866 is prior art to the '537 Patent under 35 U.S.C. § 102(b). The '866 Patent was not considered by the Patent Office during prosecution of the application that matured into the '537 Patent. The '748 is prior art to the '537 Patent under 35 U.S.C. § 102(b). The '748 Patent was not considered by the Patent Office during prosecution of the application that matured into the '537 Patent.

C. Every Element of Claim 19 of the '537 Patent Is Disclosed in the Combination of the '866 Patent and the '748 Patent.

[redacted]

Element of '537	Disclosure in '866 Patent
19a	"An invention specific data transmission cable depicted in figure 1 has four pairs 1 of insulated, stranded copper conductors 2 or cants" (Ex. 9, '866 Pat. translation at p. 3)
19c	"As an outer mechanical protection, an invention-specific transmission cable has a cable cover 4, which consists of customary thermoplastic cover materials." ('*Id.* at p. 3)
19d	To the extent this limitation is not expressly or inherently disclosed, it would have been obvious to one of ordinary skill in the art in view of, for example, the '748 Patent, which discloses fluorinated ethylene/propylene polymer. The '748 Patent also discloses that "the electrical performance of an insulating material is enhanced by foaming or expanding the corresponding solid material. Foaming also decreases the amount of flammable material employed for a given volume of material. Accordingly, a foamed polymer is preferably employed to achieve a favorable balance of electrical properties and flame retardancy." (Ex. 18, '748 Pat., col. 3, ll. 11-25). It would have been obvious to one of ordinary skill in the art to combine the foaming and materials of the '748 Patent into the separator of the '866 Patent.

Claim Element 19b. The '866 Patent discloses claim element 19b. (*See* Ex. 9, '866 Patent at p. 5, Eng. Trans.; *see also* Ex. 28, Baxter Exp. Rpt. Para. 243; [redacted]

[redacted] This Claim Element is satisfied largely as described in relation to claim element 27c of the '095 Patent.

X. Claim 2 of the '999 Patent Is Anticipated By the '866 Patent.

A. Claim 2 of the '999 Patent.

Element	Claim 2 of the '999 Patent
1a	An unshielded twisted pair communications cable comprising: a plurality of twisted pairs of insulated conductors including a first twisted pair of insulated conductors and a second twisted pair of insulated conductors;
1b	a configurable tape separator disposed between the plurality of twisted pairs of conductors in the unshielded twisted pair communications cable and arranged so as to separate the first twisted pair of insulated conductors from the second twisted pair of insulated conductors; and
1c	a jacket enclosing the plurality of twisted pairs of insulated conductors and the configurable tape separator;
1d	wherein the plurality of twisted pairs of insulated conductors and the configurable tape separator are cabled about a common axis to form the unshielded twisted pair communications cable; and wherein the configurable tape separator is substantially non-conductive.
2	wherein the configurable pair separator is arranged so as to define at least two channels and wherein the first twisted pair of insulated conductors is disposed at least partially within a first channel and the second twisted pair of insulated conductors is disposed at least partially within a second channel.

B. The Prior Art.

The '866 is prior art to the '999 Patent under 35 U.S.C. § 102(b). Figure 3 from the '866 Patent discloses a transmission cable with a pair separator that separates a plurality of twisted pairs. The '866 Patent was not considered by the Patent Office during prosecution of the application that matured into the '999 Patent.

C. Every Element of Claim 2 of the '999 Patent Is Disclosed in the '866 Patent.

[redacted]

Element of '999	Disclosure in '866 Patent

1a	"An invention specific data transmission cable depicted in figure 1 has four pairs 1 of insulated, stranded copper conductors 2 or cants" (Ex. 9, '866 Pat. translation at p. 3)
1c	"As an outer mechanical protection, an invention-specific transmission cable has a cable cover 4, which consists of customary thermoplastic cover materials." (*Id.* at p. 3)
2	Figures 3 and 4 of the '866 Patent show pairs in their own channels. The separator of the '866 Patent defines at least two channels within the communications cable and a twisted pair is at least partially disposed in each channel.

Claim Element 1b. The '866 Patent discloses claim element 1b. (*See* Ex. 9, '866 Pat. at p. 5, Eng. Trans.; *see also* Ex. 28, Baxter Exp. Rpt. Para. 243; [redacted] The '866 Patent discloses a tape or "shielding" that "preferably consists of metal foils, especially aluminum foils or *aluminum foils laminated by plastic*." (*See* Ex. 9, '866 Pat. at p. 5) (emphasis added). [redacted]

Claim Element 1d. The '866 Patent discloses claim element 1d. (*See* Ex. 9, '866 Patent at p. 6, Eng. Trans.; *see also* Ex. 28, Baxter Exp. Rpt. Para. 243). The '866 Patent discloses that the data cable "can be manufactured so that the partial shieldings 11, 12, or 17, 18 can be applied together with the stranding of conductor pairs 1 and/or longitudinal reshaping of the conductor pairs 1. Especially with the stranding of the conductor pairs in the SZ stranding procedure, the existing laying tools for the partial shieldings 11, 12 can support changing the stranding direction." (*See id.*). Similarly, the '866 patent discloses that "[t]he invention-specific arrangement of the shielding further makes it possible to use stranding and/or longitudinal reshaping of the conductor pair to apply onto or insert the shielding into the cable. By this

means, cost-effective manufacture is made possible in a continuous manufacturing process." (*Id.* at 2). This "longitudinal reshaping" is the twisting about a common axis.

Alternatively, to the extent that this claim element is not taught by the '866 patent, it would have been obvious to one of ordinary skill in the art to finish a cable by twisting. The inventors admit that helical or S-Z twisting of a cable were well known processes. (*See* Ex. 3, '095 Pat., col. 9, ll. 10-12). It would have been obvious to one of ordinary skill in the art to apply this known process to the '866 patent, as twisting the cable disclosed in the '866 patent by this known process would yield predictable results.

The '866 Patent also discloses the final limitation of claim 1, "and wherein the configurable tape separator is substantially non-conductive." (*See* Ex. 9, '866 Pat. at p. 5; Ex. 28, Baxter Exp. Rpt. Para. 279; [redacted] The '866 Patent discloses a tape or "shielding" that "preferably consists of metal foils, especially aluminum foils or *aluminum foils laminated by plastic*." (*See* Ex. 9, '866 Patent at p. 5) (emphasis added). One possible configuration of the disclosed tape separator is the foil completely enclosed by the laminate. (*See, e.g.*, Ex. 14, '683 Patent at Figure 8 (showing that the state of the art for foil/plastic laminate separators includes a foil separator completely enclosed by plastic.).

Of course, as an alternative, the teachings of the '683 Patent can be combined with the '866 patent to render this claim element obvious. One of ordinary skill in the art would have reason to combine these references. Both the '866 Patent and '683 Patent relate to data communications cables. The '683 Patent discloses multiple configurations of separators that can be used in a communications cable including separators comprising a dielectric material, such as plastic. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of

the invention to include an appropriately configured separator with non-conductive material in the cable of the ‘866 Patent, based on the teachings of the ‘683 Patent. One of ordinary skill in the art would have a reasonable expectation of success of using a dielectric separator configuration for the cable structure of the ‘866 Patent based on the teachings of the ‘683 Patent, because of the substantial overlap of technology and the predictable result achieved by combining the relevant teachings. The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. *KSR Int’l Co.*, 550 U.S. at 416.

Alternatively, it would have been obvious to remove the metal foil from the plastic component of the separator, rendering the separator non-conductive, largely as described above in relation to claim element 27c of the ‘095 Patent.

In summary, each element of claim 2 of the ‘999 Patent is disclosed in the ‘866 Patent. Indeed, in connection with the pending Reexamination of the '999 Patent, the Patent Office has issued an Office Action in which one of the several grounds used to reject claim 2 was the '866 Patent. (*See* D.I. 99 at Exhibit L). Therefore the Court should find that Claim 2 is invalid as anticipated under 35 U.S.C. §102 or at least rendered obvious under 35 U.S.C. § 103(a) by the ‘866 Patent, alone or in combination with the ‘683 Patent.

CONCLUSION

For the reasons stated above, the Court should grant Superior Essex summary judgment that the asserted claims of the Patents-In-Suit are invalid.

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Dated: December 4, 2009

CERTIFICATE OF SERVICE

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CERTIFICATE OF SERVICE

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