IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

BELDEN TECHNOLOGIES INC. and BELDEN CDT (CANADA) INC.,	)	
Plaintiffs,	)	
v.	)	Civ. No. 08-63-SLR
SUPERIOR ESSEX COMMUNICATIONS LP and SUPERIOR ESSEX INC.,	)	
Defendants.	)	

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MEMORANDUM OPINION

Dated: August 24, 2009
Wilmington, Delaware

CommScope v. Belden
IPR2023-01061, -01062
CommScope Ex. 1064

ROBINSON, District Judge

I. INTRODUCTION

Plaintiffs Belden Technologies, Inc. and Belden CDT (Canada) Inc. (collectively, "Belden") own several patents directed to high performance data cables and methods of making such cables, including U.S. Patent Nos. 5,424,491 ("the '491 patent"), 6,074,503 ("the '503 patent"), 7,135,641 ("the '641 patent"), 7,339,116 ("the '116 patent"), 6,570,095 ("the '095 patent"), 6,998,537 ("the '537 patent") and 7,179,999 ("the '999 patent") (collectively, "the patents in suit"). On January 29, 2008, Belden commenced this patent infringement action against defendants Superior Essex, Inc. and Superior Essex Communications LLP (collectively, "Superior Essex"), alleging that multiple cable products manufactured and sold by Superior Essex infringe the patents in suit.[1] (D.I. 52) Superior Essex has asserted various affirmative defenses and counterclaims in response to Belden's complaint, including the noninfringement and invalidity of the patents in suit. (D.I. 57)

The parties have proffered meanings for the disputed claim limitations and move for summary judgment. Belden requests summary judgment of: 1) no invalidity for anticipation; and (2) infringement with respect to certain of the patents in suit. (D.I. 112; D.I. 115) Superior Essex seeks summary judgment of: 1) invalidity for anticipation and obviousness; 2) noninfringement with respect to certain of the patents in suit; and 3)

[1]Belden also asserted U.S. Patent No. 6,596,944 ("the '944 patent") in its initial complaint. (D.I. 1) On December 2, 2009, Belden filed a covenant not to sue regarding the '944 patent. (D.I. 105) Superior Essex alleges that the covenant not to sue is ambiguous as to future products and maintains that the court has jurisdiction to consider the invalidity of the '944 patent at trial. Insofar as the parties make no allegations vis a vis the '944 patent in any of the pending summary judgment motions, the court does not characterize it as a patent in suit for the purposes of this memorandum opinion.

Belden's failure to mark its products in accordance with 35 U.S.C. § 287(a).[2] (D.I. 119; D.I. 121; D.I. 123) The court has jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338. For the reasons that follow, the court grants in part and denies in part the motions.

II. BACKGROUND

A. The Parties and the Technology at Issue

Belden Technologies, Inc. is a corporation existing under the laws of the State Delaware and having its principal place of business in St. Louis, Missouri. (D.I. 52 at 1) Belden CDT (Canada) Inc. is a corporation existing under the laws of the Nation of Canada with its principal place of business in Toronto, Ontario. (*Id.*) Belden engages in the design and manufacture of signal transmission products, focusing on products that have applications in the specialty electronics and data networking markets.

Superior Essex Inc. is a Delaware corporation with its principal place of business in Atlanta, Georgia. (*Id.*) Superior Essex Communications LP is a limited partnership organized under the laws of the State of Delaware and having its principal place of business in Atlanta, Georgia. (*Id.*) Superior Essex designs and manufactures magnetic wire, as well as a variety of communications-oriented wire and cable products.

The high performance data cables at issue utilize twisted pair technology. Data cables designed for communication applications are generally comprised of at least two

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[2]Defendants also move for summary judgment of no willful infringement. (D.I. 121) As reflected in paragraph 2(a) of the "Scheduling Order for Patent Cases," it is the court's standard practice to bifurcate issues of willfulness and damages "for the purposes of discovery and trial, unless good cause is shown otherwise." Because defendants have not demonstrated that good cause exists to justify deviating from this practice, the court will not address defendants' motion for summary judgment. The parties may pursue issues of willfulness after the jury has rendered its liability determinations and said determinations have been reviewed by the Federal Circuit.

twisted pairs with one of the pairs transmitting data and the other receiving data. ('116 patent at col. 1:16-17) An individual twisted pair typically includes two insulated conductors,[3] helically twisted together. The helical twist imparts a measure of control over certain electrical parameters upon which the viability of a high performance data cable depends. ('116 patent at col.1:22-25) The critical parameters include, at a basic level, the concepts of attenuation and noise, both of which have deleterious effects upon the signal carried by the data cable. (*See id.* at col. 1:25-29) The impedance of a circuit can contribute to the loss of signal, otherwise known as attenuation. (*See id.*) Likewise, crosstalk[4] is one of several electronic phenomena that produces signal interference, or noise. (*See id.*)

Multiple tools exist to obviate or minimize these undesirable characteristics and meet performance specifications, including cable lay techniques and various cable configurations. (*Id.* at col. 1:30-49) The longitudinal distance between twists in a twisted pair is known as the "twist lay." ('503 patent at col. 1:28-30) In an unshielded twisted pair cable ("UTP") employing a uniform twist lay, the adjacent twisted pairs are closely aligned. (*Id.* at col. 1:31-34) This proximity magnifies crosstalk. (*Id.*) Varying

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[3]Each twisted pair includes a forward and return conductor, the conductors together forming a single circuit. Typically, copper or copper alloys serve as the conductive material.

[4]Crosstalk refers to the transfer of signal from one conductor in the twisted pair to the other. The proximity of twisted pairs facilitates this signal transfer. Crosstalk measured at the end of the cable closest to the source is known as Near-End Crosstalk ("NEXT"), while crosstalk measured at the end furthest from the source is known as Far-End Crosstalk ("FEXT"). (D.I. 125, ex. 20 at col. 3:37-44) Alien crosstalk, which concerns interference between twisted pairs in neighboring cables, can occur when multiple cables exist in close proximity. (*Id.*, ex. 28 at 9-10)

the twist lays among the twisted pairs of a cable increases the distance between adjacent twisted pairs and, accordingly, reduces crosstalk. (*Id.* at col. 1:35-39)

Cables designed for voice frequency or low-speed data typically employ a twist lay of between 3.7 and 5.7 inches. ('491 patent at col. 1:7-13) By contrast, high-speed data cables require a much smaller twist lay. (*Id.* at col. 1:18-23) The conventional low-speed data cables minimized crosstalk through use of the aforementioned variation in twist lay. (*Id.* at col. 1:40-43) Introducing these variations among twisted pairs characterized by smaller twist lays results in an uncontrollable nominal characteristic impedance[5] which may cause an impermissible deviation from telecommunication industry standards. (*Id.* at col. 1:53-67)

Alternatively, each individual twisted pair in the cable may be surrounded by a conductive "shield," creating a shielded twisted pair cable ("STP"). The individual shields in a STP act to prevent or reduce the occurrence of NEXT and FEXT. Surrounding the plurality of twisted pairs with an overall shield, otherwise known as a screened twisted pair cable ("ScTP"), also serves to minimize crosstalk. Both configurations suffer from the potential for geometric instability,[6] and cost appreciably

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[5]Nominal characteristic impedance is a function of, *inter alia*, capacitance and inductance. The capacitance of a conductor depends upon the length of the conductor. Inductance, on the other hand, depends upon the physical space between conductors. Variations among twisted pairs having large twist lays (e.g., 3.7 to 6 inches) result in a largely proportional change in both capacitance and inductance, resulting in a minimal variation in characteristic impedance. Because the helical length of the conductor tends to vary more widely in twisted pairs with small twist lays, the disproportional change in capacitance and inductance has a dramatic affect upon the characteristic impedance. (*See id.* at col. 1:33-67)

[6]The deformation of a data cable during manufacture or use may disrupt electrical stability. ('116 patent at col. 1:46-48)

more to manufacture than an UTP. ('116 patent at col. 1:39-41)

Cable manufacturing typically involves helically twisting ("stranding") the various elements (twisted pairs, interior core, etc.) about a common longitudinal axis in order to provide the tension needed to precisely distribute the twisted pairs within the cable prior to jacketing. (D.I. 125, ex. 31 at 5) In one stranding process, stationary pay-off reels feed the media through a "bunching" die, and the bunched arrangement is then twisted prior to being received by a take-up reel. (*Id.* at 6) Bunching, however, can create excessive rearward-extending tension, known as "back-twist," which serves to disrupt the precise spatial relationship of the twisted pairs and can also result in an inflexible cable. (*See id.*) One method of offsetting back-twist involves situating the pay-off reels on a large wheel (or drum) and rotating the wheel such that the overall feed of unreeling strands rotates in the same direction as the imparted twist.[7]

B. The Patents in Suit

The patents in suit disclose cost efficient solutions to meet the "exacting specifications" required of high performance data cables. (*See* '116 patent at col. 1:23-25) With the exception of the '491 patent, the patents in suit claim configurations of, as well as methods of making, data cables incorporating an interior core separator. The use of an interior core separator results in enhanced control over the spatial distribution of the twisted pairs. This measured separation reduces crosstalk without the need for individual shielding. (*Id.* at col. 1:59-61)

The '116 patent, entitled "High Performance Data Cable," issued on March 4,

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[7]This neutralizing configuration is known as planetary cabling. (*See id.*; *see also* U.S. Patent No. 4,320,619 at col. 2:61-65)

2008, and has a priority date of January 18, 2001. The data cable disclosed by the '116 patent has an interior central star-shaped separator that extends along the longitudinal axis. The star-shaped separator features a plurality of projections that extend outward from the center of the separator. Each adjacent pair of projections defines a longitudinal groove in which a twisted pair may be placed. A cable jacket consisting of an outer jacket, an overall shield, and a binder sheet encloses the star-shaped separator and twisted pairs. (*Id.* at figure 1) The '116 patent contains seven claims, two of which are asserted by Belden. Independent claim 4, representative of the invention of the '116 patent, claims:

> A data cable having a plurality of twisted pair conductors, a cable covering, and an interior support comprising:
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> 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;
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> an open space defined by each of said plurality of adjacent projections; said cable covering contacting each projection; only one twisted pair conductor from said plurality of twisted pair conductors disposed in each open space.

Independent claim 7 contains identical limitations, except it does not require a cable covering in contact with each projection.

The '095 patent issued on May 27, 2003 from an application filed on May 11, 2001. Entitled "Multi-Pair Data Cable with Configurable Core Filling and Pair Separation," the '095 patent likewise incorporates the use of a pair separator to limit crosstalk. ('095 patent at col. 3:23-26) The '095 patent teaches that a dielectric pair separator inserted between two or more twisted pairs results in a data cable that has

"desired flexibility and workability" while maintaining "compatib[ility] with industry standard hardware . . . ." (*Id.* at col. 3:1-3) The "configurable, highly flexible" dielectric pair separator may be "folded and arranged" to adequately separate two (*id.* at col. 3:12-20) or more (*id.* at col. 3:34-39) twisted pairs. Belden has asserted claims 27 and 31. Independent claim 27 claims a data cable having two twisted pairs:

> A data communications cable comprising:
> a first twisted pair of insulated conductors;
> a second twisted pair of insulated conductors;
> a configurable dielectric pair separator that separates the first and second twisted pairs of conductors, the configurable dielectric pair separator being substantially flat;
> a jacket enclosing the first and second twisted pairs of insulated conductors and the dielectric pair separator; and
> 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 wherein the configurable dielectric pair separator is arranged within the jacket to form at least two grooves.

Independent claim 31 is directed to a data cable having two or more twisted pairs, and specifically:

> A data communications cable comprising:
> a plurality of twisted pairs of insulated conductors;
> 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;
> a jacket enclosing the plurality of twisted pairs of insulated conductors and the configurable dielectric pair separator; and
> 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.

The '537 patent issued as a continuation of the application that led to the '095 patent and, as such, both patents share virtually identical specifications. Only independent claim 19 is asserted, which claims:

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;

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

a jacket enclosing the plurality of twisted pairs of insulated conductors and the configurable dielectric separator;

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

Similarly, the '999 patent issued from a chain of continuation applications extending back to the application that matured into the '095 patent. The specification of the '999 patent mirrors that of the '095 patent. Belden has asserted claim 2, which depends from claim 1. The full text of both claims reads:

1. 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;

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

a jacket enclosing the plurality of twisted pairs of insulated conductors and the configurable tape separator;

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. The unshielded twisted pair communications cable as claimed in claim 1, 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.

A data cable comprising a core separator as well as a plurality of protrusions

disposed about the inner circumferential surface of the cable jacket is disclosed by the '641 patent. According to the '641 patent, the grooved jacket provides additional air space between the jacket and the twisted pairs, reducing any attendant effect the jacket material may have upon the twisted pairs. ('641 patent at col. 11:5-20) Asserted claim 13 claims:

> A cable comprising:
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> 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;
>
> 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
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> a jacket surrounding the plurality of twisted pairs of insulated conductors; 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.

The '503 patent, entitled "Making Enhanced Data Cable with Cross-Twist Cabled Core Profile," describes the manufacture of data communication cables comprising a pair separator and multiple twisted pairs. The method of the '503 patent does not employ planetary cabling; rather, a series of consecutive dies, designed to correspond to the surface features of the desired core profile,[8] acts both to precisely locate the cable elements with respect to each other and neutralize back-twist. (*See* '503 patent at Fig. 4) The first die aligns the cable elements, while the second die forces the twisted pairs into contact with the surface features of the core. (*Id.* at col. 3:3-13) Independent claim 1, exemplary of the invention of the '503 patent, claims:

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[8]Figure 4 depicts the series of dies corresponding to a core containing four twisted pairs positioned about a cross-shaped separator.

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;

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;

twisting the bunched plurality of transmission media and core to close the cable; and

jacketing the closed cable.

On July 19, 2010, the United States Patent and Trademark Office ("PTO") issued a Notice of Intent to Issue Ex Parte Reexamination Certificate, confirming the original claims and allowing two new claims. (D.I. 204, ex. A)

The '491 patent, entitled "Telecommunications Cable," issued on June 13, 1995 from an application filed on October 8, 1993. The specification describes the undesirable change in characteristic impedance that results from variations among twisted pairs having small twist lays. ('491 patent at col. 1:53-67) The '491 patent does not disclose the use of an interior core separator. Rather, it teaches that, for twisted pairs having small twist lays, by varying the twist lay and the insulation thickness of at least some of the conductors, the characteristic impedance will remain within acceptable limits.[9] Beldin has asserted claims 1 and 2 of the '491 patent, which claim respectively:

1. A telecommunications cable comprising a core having a plurality of pairs of twisted together individually insulated conductors with all of the conductors being

[9]The change in insulation thickness affects the physical spacing between conductors and can counteract the imbalance between capacitance and inductance that would lead to the undesirable nominal characteristic impedance associated with variations among twisted pairs with small twist lays. (*Id.* at col. 5:40-58)

of the same gauge and the maximum twist lay of the plurality of pairs being 2.00 inches with 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 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.

2. A telecommunications cable according to claim 1 wherein the twist lay of each conductor pair is different from the other pair.

C. The Accused Products

The numerous accused products manufactured and sold by Superior Essex fall into two general groups: 1) premises cables, which are "used for voice and data communications in indoor environments[;]" and 2) outside plant cables, which are designed to be installed outside or underground. (D.I. 114, ex. 2 at 1622362; D.I. 125, ex. 56 at 4476224) The court details the following relevant undisputed characteristics of each accused product below.

1. Category 6 premises cables

Many of Superior Essex's premises cables employ similar design characteristics, including multiple twisted pairs comprised of copper conductors covered by plastic insulation and enclosed by a plastic jacket. (D.I. 114, ex. 2 at 1622362) Category 6 premises cables include an internal core comprising either a "+" shaped cross-web separator ("Category 6 Cross-Web Separator Cables") or a tape separator ("Category 6 Tape Separator Cables").

a. 10Gain XP Category 6A CMP/CMR[10]

10Gain XP Category 6A CMP/CMR ("10Gain XP") cables support transmission speeds of up to 650 MHz. (D.I. 114, ex. 3 at 4476186-87) These cables have four twisted pairs (with each twisted pair characterized by a unique color) of insulated copper conductors, a jacket and a cross-shaped "cross-web" core separator. (*Id.*) The copper conductors in the twisted pairs of the 10Gain XP have a uniform gauge. (*Id.*, ex. 4) The cross-web separator isolates the individual twisted pairs, and the jacket encloses the cable. (*Id.*, ex. 3 at 4476186) The 10Gain XP employs twisted pairs having the following nominal twist lays: 0.325 inches for the blue pair; 0.4365 inches for the orange pair; 0.345 inches for the green pair; and 0.4859 inches for the brown pair. (*Id.*) The blue and green twisted pairs have an insulation thickness of 0.0115 inches, while the orange and brown pairs have an insulation thickness of 0.0095 inches. (*Id.*, ex. 3 at 4476186-87)

b. 10Gain Category 6A CMP/CMR

Superior Essex's 10Gain Category 6A CMP/CMR ("10Gain") cables guarantee a performance of up to 500 MHz. (*Id.* at 4476188) Similar to the 10GainXP, the 10Gain has a jacket surrounding four twisted pairs isolated by a cross-web separator. (*Id.*) The copper conductors have a uniform gauge. (*Id.*; ex. 5; ex. 7) The twisted pairs have the following nominal twist lays: 0.345 inches for the blue pair; 0.396 inches for the orange

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[10]CMR and CMP describe the fire resistance rating of a cable. CMR, or "Communications Riser," must not transmit flame from one floor to another when placed vertically in a building shaft (or "riser"). (*See* D.I. 125, ex. 109 at 197460) CMP, or "Communications Plenum," requires both flame resistance and reduced smoke generating properties to allow placement in air handling ducts (or "plenums") without the use of a fireproof conduit. (*See id.*)

pair; 0.329 inches for the green pair; and 0.381 inches for the brown pair. (*Id.*, ex. 7 at 1035177; ex. 8 at 155325) Three of the twisted pairs have different respective insulation thicknesses.[11] (*Id.*, ex. 10 at 601725)

c. NextGain Category 6eX CMP/CMR

NextGain Category 6eX CMP/CMR ("NextGain") cables are rated for transmission speeds of up to 650 MHz. These cables have four twisted pairs, a jacket and a cross-web core separator. (*Id.*, ex. 3 at 4476194-99) The copper conductors have a uniform gauge. (*Id.* at 4476194-95) The twisted pairs have the following nominal twist lays: 0.480 inches for the blue pair; 0.656 inches for the orange pair; 0.410 inches for the green pair; and 0.580 inches for the brown pair. (*Id.*, ex. 4; ex. 12 at 1043301-02) Three of the twisted pairs have different respective insulation thicknesses. (*Id.*, ex. 13)

d. Category 6A ScTP (F/UTP) CMP/CMR

Category 6A ScTP (F/UTP) CMP/CMR ("6A ScTP") cables guarantee a performance of up to 650 MHz. (*Id.*, ex. 3 at 4476192) These cables have four twisted pairs isolated by a cross-web separator and surrounded by an overall aluminum foil shield and flame retardant PVC jacket. (*Id.*) Each copper conductor has the same gauge. (*Id.* at 4476192-93) The twisted pairs have the following nominal twist lays: 0.325 inches for the blue pair; 0.4365 inches for the orange pair; 0.345 inches for the green pair; and 0.4859 inches for the brown pair. (*Id.*) The 6A ScTP cables have two

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[11]The orange pair and the brown pair have an insulation thickness of 0.0425 inches; the green pair has an insulation thickness of 0.455 inches; and the blue pair has an insulation thickness of 0.0445 inches. (*Id.*)

different insulation thicknesses: 0.0115 inches for the blue and green pairs and 0.0095 inches for the orange and brown pairs. (*Id.*; ex. 4)

e. Category 6+ ScTP (F/UTP) CMP/CMR

Category 6+ ScTP (F/UTP) CMP/CMR ("6+ ScTP") cables provide transmission speeds of up to 500 MHZ. (*Id.*, ex. 3 at 4476193) These cables have four twisted pairs isolated by a cross-web separator and surrounded by an overall aluminum foil shield and flame retardant PVC jacket. (*Id.*)

f. DataGain 6+ CMP/CMR

DataGain 6+ CMP/CMR cables guarantee performance up to 400 MHZ. (*Id.* at 4476196) These cables include four twisted pairs having uniform conductor gauges, a flat tape separator and a cable jacket. (*Id.*) Superior Essex's expert, Les A. Baxter ("Baxter"), described the tape separator as "fairly flexible" and "sufficiently flexible" to be cabled. (*Id.*, ex. 34 at 69-71) The flat tape separator, consisting of foamed polypropylene,[12] divides the four twisted pairs into groups of two. (*Id.*, ex. 6 at 14) The twisted pairs and the flat tape separator are wound helically about a common central axis prior to enclosure by the cable jacket. (*Id.* at 15) The DataGain 6+ CMP/CMR employs twisted pairs with the following nominal twist lays: 0.480 inches for the blue pair; 0.656 inches for the orange pair; 0.410 inches for the green pair; and 0.580 inches for the brown pair. (*Id.*, ex. 4) The parties dispute whether these cables employ two or three insulation thicknesses.[13]

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[12]Foamed polypropylene is a dielectric material. (*Id.*, ex. 18 at 1601673)

[13]Belden cites to a confidential product specification, created by Superior Essex and dated June 15, 2005, which discloses that the DataGain Limited cables have two

g. DataGain 6+ Limited Combustible

DataGain 6+ Limited Combustible ("DataGain Limited") cables provide transmission speeds up to 550 MHz. (*Id.*, ex. 3 at 4476198) These cables include four twisted pairs having uniform conductor gauges, a flat tape separator and a cable jacket. (*Id.*) The flat tape separator is a dielectric material made of either a foamed fluoropolymer or foamed polypropylene. (*Id.*, ex. 24 at 1601760) The twisted pairs, separated into groups of two by the flat tape separator, are wound about a common central axis prior to jacketing. (*Id.*, ex. 6 at 14-15) The twisted pairs have the following nominal twist lays: 0.480 inches for the blue pair; 0.660 inches for the orange pair; 0.410 inches for the green pair; and 0.580 inches for the brown pair. (*Id.*) The DataGain Limited cables have three different insulation thicknesses: 0.0380 inches for the blue pair; 0.0371 inches for the orange and brown pairs; and 0.0395 inches for the green pair. (*Id.*, ex. 25 at 1601755-56)

h. Category 6 CMP/CMR

The Category 6 CMP/CMR cable includes four twisted pairs, a flat tape

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insulation thicknesses: 0.0380 +/- 0.0005 inches for the blue and green pairs and 0.0371 +/- 0.0005 inches for the orange and brown pairs. (*Id.*, ex. 20 at 36284) Conversely, Baxter contends that, prior to June 2005, the insulation thicknesses for these cables "were the same." (D.I. 125, ex. 29 at ¶ 63) After August 2006, Baxter alleges that these cables employed three different insulation thicknesses: 0.00765 inches for the blue pair; 0.0072 inches for the orange pair; 0.0072 inches for the brown pair; and 0.0084 inches for the green pair. (*Id.*)

separator[14] and a jacket. (*Id.*, ex. 3 at 4476200) The dielectric tape separator[15] divides the four twisted pairs into groups of two. (*Id.*) The twisted pairs and the tape separator are twisted about a central axis prior to jacketing. (*Id.*) Category 6 CMP/CMR cables have an average twist lay of less than 1.5 inches. (*Id.*, ex. 31) Each twisted pair has one of three different insulation thicknesses. (D.I. 125, ex. 29 at ¶ 66)

i. Bundled Category 6

Superior Essex's Bundled Category 6 cables consist of several individual unshielded twisted pair plenum cables made in accordance with the design specifications for the NextGain or the DataGain cables. (*Id.* at 4476214)

2. Category 5 premises cables

a. Cobra Category 5e+ CMP/CMR

Cobra Category 5e+ CMP/CMR ("Cobra CMP/CMR") cables have four twisted pairs enclosed by a jacket. (*Id.*, ex. 3 at 4476202) The twisted pairs have the following nominal twist lays: 0.503 inches for the blue pair; 0.685 inches for the orange pair; 0.461 inches for the green pair; and 0.603 inches for the brown pair. (*Id.*, ex. 4) The Cobra CMP/CMR cables have two different insulation thicknesses: 0.0068 inches for the blue and green pairs; and 0.0065 inches for the orange and brown pairs. (*Id.*)

b. Cobra Category 5e+ Limited Combustible

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[14]Superior Essex subsequently removed the flat tape separator from the Category 6 CMP/CMR due to "allegations from Belden." (*Id.*, ex. 22 at 226-27) Any reference in this memorandum opinion to Category 6 CMP/CMR cables refers exclusively to the cables with flat tape separators.

[15]In CMR cables, the tape separator is made of foamed polypropylene, while CMP cables have a tape separator made of either foamed polypropylene or a foamed fluoropolymer. (*See id.*, ex. 17)

Cobra Category 5e+ Limited Combustible ("Cobra Limited") cables have four twisted pairs enclosed by a jacket. (*Id.*, ex. 3 at 4476204) The twisted pairs have the following nominal twist lays: 0.503 inches for the blue pair; 0.685 inches for the orange pair; 0.461 inches for the green pair; and 0.603 inches for the brown pair. (*Id.*, ex. 33) The DataGain Limited cables have two different insulation thicknesses: 0.0335 inches for the blue and green pairs; and 0.0330 inches for the orange and brown pairs. (*Id.*)

c. Marathon LAN Category 5e CMP/CMP

Marathon LAN Category 5e CMP/CMR ("Marathon") cables have four twisted pairs surrounded by a jacket. (*Id.*, ex. 3 at 4476208) The Marathon cable includes twisted pairs having the following nominal twist lays: 0.527 inches for the blue pair; 0.812 inches for the orange pair; 0.480 inches for the green pair; and 0.685 inches for the brown pair. (*Id.*, ex. 4) An insulation thickness difference of 0.00025 inches exists among all of the twisted pairs. (*Id.*, ex. 32)

3. Outside plant cables

Superior Essex manufactures and sells a variety of cable products for outdoor applications, including its Outside Plant BBD6/BBDN6/BBDG6 and Outside Plant Category 5e BBDE/BBDNE/BBDGE products ("the OSP products"). Exemplary of the OSP products, the OSP Broadband Category 6 cable is designed for outside or underground applications, and has a guaranteed performance of up to 150 MHZ. (*Id.*, ex. 56) This cable includes four twisted pairs, a cross-web separator and a jacket. (*See id.*) In order to make OSP products suitable for underground applications, each includes a filling compound to prevent water ingress. (*See id.*) Belden has granted

Superior Essex a license to practice the '491 patent with respect to "Outside Plant Products" as the term is defined by an Asset Purchase Agreement[16] between the two parties ("the Belden Asset Purchase Agreement"). (*See* D.I. 152, ex. 2)

D. Belden's Products Embodying the Patents in Suit

According to Belden, approximately 50 of its products embody one or more claims of the patents in suit. (D.I. 199, ex. 41 at 22-23) Belden began to make certain of these products commercially available in June 1995. (D.I. 199, ex. 41 at 53) On the jacket of each of these cable products, extensive printing relays commercial and regulatory information. Douglas D. Brenneke ("Brenneke"), an officer of Belden Americas Group, explained at his deposition that the commercial information printed on a cable jacket may include the name of the company and "any branding information [Belden] would want to put on the product." (*Id.*, ex. 22 at 45)

The cable jacket also typically contains regulatory information in the form of safety standards published by Underwriters Laboratories, Inc. ("UL") and may further include measurement markings to assist with installation. (*Id.*) According to the UL standards, the print legend should include the cable trade name and, if manufactured in more than one location, the cable's manufacturing location.[17] (D.I. 154, ex. 3 at 31) A

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[16]Belden acquired rights to the '491 patent pursuant to a license from NORDX ("the NORDX license"). (See D.I. 125, ex. 52) The NORDX license further gave Belden the right to "sublicense, assign or transfer their rights hereunder or under any sublicense in conjunction with the sale of all of part of any business of [Belden]." (*Id.*) Belden subsequently transferred its rights in the '491 patent (listed under "Conveyed Intellectual Property") to Superior Essex in the Belden Asset Purchase Agreement. (D.I. 152, ex. 2)

[17]It is unclear from the record whether Belden's products are manufactured in more than one location.

temperature indication is also mandated for cables rated over 60°C. (*Id.*) Further, UL standards specify that required information should appear in intervals "not greater than 1 m (40 in)." (*Id.* at 32) Several of Belden's products include 10 inch to 14 inch spacing between printed legends that are repeated every 24 inches.

The substance of the printed materials (including the presence of UL standards) depends largely upon market requirements, namely, what consumers in a particular market designate as relevant information. (D.I. 199, ex. 24 at 175 (describing printed information on cable jacket as "market driven.")) Multiple witnesses for Belden explained that the substance of information to be printed on the cable jacket can be adjusted to include, e.g., patent markings, without difficulty. (*Id.*; ex. 23 at 206; ex. 26 at 150) Belden does not dispute that, of the 41 products it produced during discovery, only five contain any patent markings.[18] In this regard, Belden notes that it "may not have printed onto the cable jackets of every Belden product sold that embodies the subject matter of the . . . patent[s] in suit the patent number for the . . . patent." (*Id.*, ex. 39 at 14-20) Instead, Belden includes patent marking information on the packaging containing the cable.

III. STANDARD OF REVIEW

A court shall grant summary judgment only if "the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is

[18]Superior Essex admits that the following Belden products include a patent marking: DataTwist 2412; DataTwist 7881A; DataTwist 7882A; DataTwist 1212; and DataTwist 4812. (*See* D.I. 122 at 9)

entitled to judgment as a matter of law." Fed. R. Civ. P. 56(c). The moving party bears the burden of proving that no genuine issue of material fact exists. *See Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 586 n.10 (1986). "Facts that could alter the outcome are 'material,' and disputes are 'genuine' if evidence exists from which a rational person could conclude that the position of the person with the burden of proof on the disputed issue is correct." *Horowitz v. Fed. Kemper Life Assurance Co.*, 57 F.3d 300, 302 n.1 (3d Cir. 1995) (internal citations omitted). If the moving party has demonstrated an absence of material fact, the nonmoving party then "must come forward with 'specific facts showing that there is a genuine issue for trial.'" *Matsushita*, 475 U.S. at 587 (quoting Fed. R. Civ. P. 56(e)). The court will "view the underlying facts and all reasonable inferences therefrom in the light most favorable to the party opposing the motion." *Pa. Coal Ass'n v. Babbitt*, 63 F.3d 231, 236 (3d Cir. 1995). The mere existence of some evidence in support of the nonmoving party, however, will not be sufficient for denial of a motion for summary judgment; there must be enough evidence to enable a jury reasonably to find for the nonmoving party on that issue. *See Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 249 (1986). If the nonmoving party fails to make a sufficient showing on an essential element of its case with respect to which it has the burden of proof, the moving party is entitled to judgment as a matter of law. *See Celotex Corp. v. Catrett*, 477 U.S. 317, 322 (1986).

IV. DISCUSSION

A. Notice of Infringement

1. Marking

Generally, a patentee is "entitled to damages from the time when it either began marking its products in compliance with 35 U.S.C. § 287(a) or when it actually notified [the infringer] of its infringement, whichever was earlier." *American Medical Systems, Inc. v. Medical Engineering Corp.*, 6 F.3d 1523, 1537 (Fed. Cir. 1993). Section 287(a) of Title 35 of the United States Code ("the marking statute") provides, in relevant part, that

> [p]atentees, and persons making, offering for sale, or selling within the United States any patented article for or under them, or importing any patented article into the United States, may give notice to the public that the same is patented, either by fixing thereon the word "patent" or the abbreviation "pat.", together with the number of the patent, **or when, from the character of the article, this can not be done, by fixing to it, or to the package wherein one or more of them is contained, a label containing a like notice**. In the event of failure so to mark, no damages shall be recovered by the patentee in any action for infringement, except on proof that the infringer was notified of the infringement and continued to infringe thereafter, in which event damages may be recovered only for infringement occurring after such notice. Filing of an action for infringement shall constitute such notice.

(emphasis added). The Federal Circuit has interpreted this provision to require the patentee to "consistently mark[] substantially all" tangible patented products capable of being so marked with the patent number prior to allowing the patentee to claim constructive notice of infringement. *Nike Inc. v. Wal-Mart Stores*, 138 F.3d 1437, 1446 (Fed. Cir. 1998) (citing *Am. Med. Sys.*, 6 F.3d at 1538). The marking statute "do[es] not apply where the patent is directed to a process or method." *Am. Med. Sys.*, 6 F.3d at 1538.

In certain instances, the patentee may elect to mark the packaging of a patented product instead of the product itself. While the court must, "in a doubtful case," accord some value to the judgment of the patentee in assessing whether it is possible to mark

the patented product, *Sessions v. Romadka*, 145 U.S. 29, 50 (U.S. 1892), the marking statute makes clear that the choice between marking the patented product or its packaging is not entirely discretional. Bearing in mind that the purpose behind the marking statute is to provide notice to the consuming public, courts "do not severely scrutinize the character of the patented articles to determine whether the article was capable of being marked." *Rutherford v. Trim-Tex, Inc.*, 803 F. Supp. 158, 162 (N.D. Ill. 1992); *see also Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 162 (1989).

Marking the packaging may result in compliance when the patentee has shown that marking the patented product raises concerns of feasibility or practicality. *Id.* at 164 (marking packaging appropriate where marking the patented product would require an additional "burdensome" manufacturing step); *see also Sessons,* 145 U.S. at 50 (explaining that the small size of a patented product could preclude physically marking the product); *Wayne-Gossard Corp. v. Sondra Mfg. Co.*, 434 F. Supp. 1364 (E.D. Pa. 1977) (noting that "there may be a point where [marking the patented product] could be so expensive as to be impractical.").

If, however, "the patented article has markings or printing on it, other than the appropriate patent marking, then the alternate form of patent making on the package is not sufficient compliance with the [marking] statute." *Rutherford*, 803 F. Supp. at 163 (citing *John L. Rie, Inc. v. Shelly Bros., Inc.*, 366 F. Supp. 84, 90-91 (E.D. Pa. 1973) (marking on packaging did not provide constructive notice where patented bag closure device displayed plaintiff's name and address) and *Creative Pioneer Products Corp. v.*

K Mart Corp., 5 U.S.P.Q.2d 1841, 1847-48 (S.D. Tex. 1987) (marking on packaging of patented tool did not provide constructive notice where information including calibration was embossed on the handle of the tool)).

Assessing compliance with the marking statute is an inquiry amenable to disposition by summary judgment. *See, e.g., Inline Connection Corp. v. AOL Time Warner, Inc.*, 465 F. Supp. 2d 312,321 (D. Del. 2006); *IMX, Inc., v. LendingTree, LLC*, 2005 WL 3465555 (D. Del. Dec. 14, 2005); *Philips Elecs. N. Am. Corp. v. Contec Corp.*, 312 F. Supp. 2d 649, 652 (D. Del. 2004).

Superior Essex maintains that Belden's decision to mark the cable packaging instead of the cable itself does not comport with the requirements of the marking statute and, accordingly, does not provide constructive notice of infringement. That Belden cannot avail itself of constructive notice by instead marking the product packaging is allegedly implicit in Belden's failure to demonstrate that marking the physical cable "cannot be done" within the meaning of this provision. 35 U.S.C. § 287(a). In support of this theory, Superior Essex primarily relies upon Belden's ability to control the information printed on the cable jacket as well as its seemingly arbitrary marking of only a small fraction of the cable products embodying the patents in suit.

Belden responds that Superior Essex mischaracterizes the ease with which it may control the information appearing on the cable jacket. Because UL standards often dictate the scope and substance of the jacket content, as well as the intervals at which such content must repeat, Belden argues that the additional inclusion of patent markings could contend with UL mandated content for space. This proposition is belied by several of Belden's cables which contain 10-14 inches of blank space within a 24

inch repeating interval. This blank space would more than double at the UL maximum interval of 40 inches,. Accordingly, Belden has failed to identify a genuine issue of material fact as to whether the UL mandated regulatory information necessarily precludes the inclusion of patent markings.

In a related argument, Belden contends that marking the product packaging may avoid additional manufacturing costs. Package marking may be appropriate if it "would be burdensome to add additional manufacturing steps . . . " to place markings on the patented product itself. *See Rutherford*, 803 F. Supp. at 164. Belden's allegation, unsupported by the record, is contradicted by the testimony of multiple its employees, who describe the relative ease with which the content may be added or removed.

Next, Belden argues that the trade custom of marking product packaging creates an issue of material fact. Courts have noted that an industry-wide custom of marking product packaging "could be a relevant factor" in assessing compliance with the marking statute. *See Rutherford*, 803 F. Supp. at 163. In this regard, Belden notes that Superior Essex typically marks the cable packaging rather than the cable itself. It further argues that "given the consistency and longevity of Belden's conspicuous marking practice, it is reasonable to conclude that the relevant public knows where the patent marking is located on Belden's cables." (D.I. 153 at 19) But Belden has not consistently and exclusively adhered to the practice of marking its product packaging alone, as demonstrated by the five cable products containing patent markings. Consequently, irrespective of an existing trade custom of package marking, Belden's sporadic practice of including patent markings on some, but not all, products does not effectively work to put the relevant public on notice. *See Am. Med. Sys., Inc.*, 6 F.3d at

1538 ("The world cannot be 'put on notice' if the patentee marks certain products, but continues to ship unmarked products.").

Finally, Belden submits that the court should consider the product's usage and method of storage in considering the appropriateness of marking product packaging. *See Heraeus Electro-Nite Co. v. Midwest Instrument Co., Inc.*, 2007 WL 3407128, at *5 (E.D.Pa. Nov. 14, 2007); *see also Rutherford*, 803 F.Supp. at 164. In *Heraeus*, the patentee marked the product packaging instead of its patented oxygen probes. *Heraeus*, 2007 WL 3407128, at *1-2. In finding compliance with the marking statute, the *Heraeus* court considered the following characteristics of the patented invention: 1) the single usage of the probes which resulted in their destruction through immersion in molten steel; and 2) the inability of users to read the patented information even if it were included on the probes. *Id.* at *5.

By contrast, Belden's cables are not destroyed as a result of use, nor are they, as Belden alleges, uniformly "hidden from view" once installed. (D.I. 153 at 20) With respect to the destruction of the cable jacket during installation, Belden's own guide on cable installation describes the removal of the jacket in *de minimis* portions. (D.I. 180, ex. 131) Similarly, while portions of Belden's cable products are hidden from view, the record demonstrates that, in some certain applications, large sections of Belden's cable products are plainly accessible. (D.I. 180, ex. 130) Even accepting Belden's characterization of its installed products as hidden from view, "the non-visibility of a product in its final state is not adequate justification alone for allowing alternative marking on the package." *Rutherford*, 803 F. Supp. at 164.

In sum, no reasonable jury could find that Belden's choice to mark the product packaging rather than its patented products comports with the marking statute. While Belden need not have alleged that marking the patented products is physically impossible, it has failed to identify a fact issue with respect to any limitation, physical or otherwise, that presents a reasonable consideration warranting the marking of the product packaging instead. *See Rutherford*, 803 F. Supp. 162. Moreover, Belden's inclusion of substantial printed content on its cables demonstrates the absence of any such limitation and, *a fortiori*, the appropriateness of using the patented product itself to provide notice the relevant public. *See, e.g., John L. Rie, Inc.*, 366 F. Supp. at 90-91; *and Creative Pioneer*, 5 U.S.P.Q.2d at 1847-48. Belden has not "consistently marked substantially all" of its patented products capable of being so marked with the patent numbers. *Nike,* 138 F.3d at 1446. Failing to do so, Belden did not place Superior Essex on constructive notice of infringement.[19]

2. Knowledge of the patents in suit

Alternatively, Belden states, without argument, that Superior Essex knew of the patents in suit several years prior to the commencement of this action. Mere knowledge of the patents in suit is insufficient to place Superior Essex on notice of infringement, as Belden must show "the affirmative communication of a specific charge of infringement by a specific accused product or device." *Amsted Indus. v. Buckeye Steel Castings Co.*, 24 F.3d 178, 187 (Fed. Cir. 1994). Accordingly, in the absence of

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[19]Insofar as the marking statute does not apply to the products of method patents, the court's conclusion here does not limit damages for the '503 patent in any respect. *Am. Med. Sys.*, 6 F.3d at 1538.

constructive or previous actual notice of infringement, damages began to accrue for each individual patent on the date upon which Belden charged Superior Essex with infringement of that patent.[20]

B. Infringement

A patent is infringed when a person "without authority makes, uses or sells any patented invention, within the United States . . . during the term of the patent." 35 U.S.C. § 271(a). A two-step analysis is employed in making an infringement determination. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995). First, the court must construe the asserted claims to ascertain their meaning and scope. *Id.* Construction of the claims is a question of law subject to de novo review. *See Cybor Corp. v. FAS Techs.*, 138 F.3d 1448, 1454 (Fed. Cir. 1998). The trier of fact must then compare the properly construed claims with the accused infringing product. *Markman*, 52 F.3d at 976. This second step is a question of fact. *See Bai v. L & L Wings, Inc.*, 160 F.3d 1350, 1353 (Fed. Cir. 1998).

"Direct infringement requires a party to perform each and every step or element of a claimed method or product." *BMC Res., Inc. v. Paymentech, L.P.*, 498 F.3d 1373, 1378 (Fed. Cir. 2007). "If any claim limitation is absent from the accused device, there is no literal infringement as a matter of law." *Bayer AG v. Elan Pharm. Research Corp.*, 212 F.3d 1241, 1247 (Fed. Cir. 2000). If an accused product does not infringe an independent claim, it also does not infringe any claim depending thereon. *See*

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[20]Belden asserted the '491, '095, '537 and '999 patents in its first complaint, dated January 29, 2008. (D.I. 1) Two subsequent amended complaints added the '116 (October 31, 2008) and the '641 (March 20, 2009) patents. (D.I. 37; D.I. 52)

Wahpeton Canvas Co. v. Frontier, Inc., 870 F.2d 1546, 1553 (Fed. Cir. 1989). The patent owner has the burden of proving infringement and must meet its burden by a preponderance of the evidence. *SmithKline Diagnostics, Inc. v. Helena Lab. Corp.*, 859 F.2d 878, 889 (Fed. Cir. 1988) (citations omitted).

Belden moves for summary judgment that each asserted claim of the patents in suit is infringed by one or more of the accused products. Superior Essex cross-moves for summary judgment that certain of the accused products do not infringe the '503, '491, '095, '537 and '999 patents. With respect to several of the patents in suit, Superior Essex has stipulated to infringement by certain accused products, and Belden moves for a consistent judgment by the court.[21] Accordingly, the court considers the parties' arguments on a claim by claim basis. For sake of clarity, where Belden has failed to carry its burden in its motion for summary judgment, the court will move on to consider Superior Essex's cross-motion, if applicable.

1. Claim 4 of the '116 patent

Because the court determines, *infra*, that a reasonable jury would conclude that the '116 patent is invalid for anticipation, the court does not reach Belden's allegations that Superior Essex's Category 6 Cross-Web Separator Cables infringe claim 4 of the '116 patent. Accordingly, the parties' respective motions regarding the infringement of claim 4 of the '116 patent are denied as moot.

2. The '537 and '095 patents

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[21]The parties' joint stipulation is contingent upon the validity and enforceability of the patents in suit. (D.I. 106) Insofar as the court does not, in the course of its memorandum opinion, adjudicate any of the patents in suit to be valid and enforceable, Belden's motion is premature.

According to Belden, the Category 6 Tape Separator Cables meet every limitation of claim 19 of the '537 patent, as well as claims 27 and 31 of the '095 patent. The parties' first dispute goes to whether these cables contain a "configurable" dielectric pair separator, as required by each of the aforementioned claims. The court has construed "configurable" to mean "flexible enough to be formed or arranged." Superior Essex's own brochures describe each of these products as having a "flexible flat tape" pair separator, a characterization attested to by its expert, Baxter. (*See* D.I. 114, ex 3) Superior Essex does not dispute that the Category 6 Tape Separator Cables contain a tape separator that is "sufficiently flexible" to be cabled after stranding it along with the transmission media, arguing instead under its own (unadopted) construction. Accordingly, a reasonable jury could only conclude that the Category 6 Tape Separator Cables contain a "configurable" dielectric pair separator.

Next, Belden argues that the configurable dielectric separator of the Category 6 Tape Separator Cables is "arranged within the jacket to form at least two **grooves**" as required by claim 27 of the '095 patent. The court has construed "grooves" to mean "regions within the cable that are substantially physically separated from other regions within the cable by a pair separator; i.e., they are formed by, but need not be a part of, the separator." Superior Essex does not dispute that the tape separator forms two "grooves" as construed by the court. Instead, it argues that the tape separator is simply "placed" within the cable and is not "arranged" so as to form grooves. The record demonstrates that the Category 6 Tape Separator Cables contain a tape separator that largely divides the cable in half, creating two discrete spaces within the cable that contain the twisted pairs. This configuration belies any notion of random placement of

the tape separator. On the basis of this record, a reasonable jury would conclude that the tape separator is arranged within the jacket of the Category 6 Tape Separator Cables so as to form two grooves.

Because Superior Essex has failed to identify an issue of material fact with respect to the disputed limitations of claim 19 of the '537 patent, as well as claim 27 and 31 of the '095 patent, Belden is entitled to judgment that the Category 6 Tape Separator Cables infringe these claims.

3. The '999 patent

Belden also seeks judgment that the Category 6 Tape Separator Cables infringe claim 2 of the '999 patent. The disputed limitations of the '999 patent, "configurable" and "channels," have the same respective constructions as "configurable," appearing in the '095 and '537 patents, and "grooves," appearing in the '095 patent. Claim 2 of the '999 patent is similar to the asserted claims of the '095 and '537 patents in all relevant aspects, and Superior Essex asserts identical noninfringement arguments for all three of these patents. For the reasons discussed *supra*, no reasonable jury could conclude that the Category 6 Tape Separator Cables fail to meet these limitations. Accordingly, the court grants summary judgment that these accused products infringe claim 2 of the '999 patent.

4. The '503 patent

Belden next asserts that the Category 6 Tape Separator Cables infringe the method described by claim 1 of the '503 patent. The parties dispute whether these cables contain a "core" with "surface features" as required by claim 1. The court has

construed "core" to mean "a longitudinally-extending element that separates the transmission media." Under this construction, the core must isolate each twisted pair from the remainder of the transmission media. Belden does not dispute that the tape separator of the Category 6 Tape Separator Cables divides the transmission media into two groups of two twisted pairs. Pursuant to this undisputed understanding of these accused products, the tape separator does not individually isolate the transmission media. Accordingly, the Category 6 Tape Separator Cables do not have a "core," and no reasonable jury could conclude otherwise.

Considering Superior Essex's motion for noninfringement, and construing the facts in favor of Belden as the non-movant, there is no genuine dispute of material fact that the Category 6 Tape Separator Cables lack a "core" and, accordingly, do not infringe claim 1 of the '503 patent.

5. The '491 patent

a. Premises cables

Belden maintains that all of the accused products infringe claims 1 and 2 of the '491 patent. The parties do not dispute the structure of the accused products, but whether each contains "a first group" of conductor pairs with twist lays in a first range and the same insulation thickness and a "second group" of conductor pairs with twist lays in a second range and the same insulation thickness that is different from that of the first group. The court has construed "group" to mean "two or more." Thus, in order to infringe claim 1, each accused product must have two groups of two or more twisted pairs, each group characterized by a twist lay of a certain range and a unique insulation

thickness. The infringement of claim 2, which depends from claim 1, further requires that each twisted pair have a unique twist lay.

Superior Essex does not dispute that certain of its accused products meet these limitations of claims 1 and 2. The 6A ScTP,[22] 10Gain XP, Cobra CMP/CMR and the Cobra Limited have two sets of two twisted pairs, each set having a unique insulation thickness. Moreover, in these cables, each twisted pair has a twist lay that is different from each other pair. Instead, Superior Essex argues that Belden has not demonstrated that the insulation thickness for each group "is consistent with providing a nominal characteristic impedance for each conductor pair of the . . . group within desirable limits and an acceptable signal attenuation" as required by the claim language. This conclusory statement, lacking any citation to the record that would indicate the presence of a dispute in this regard, does not create a genuine issue of material fact. *See Barmag Barmer Maschinenfabrik AG v. Murata Machinery, Ltd.*, 731 F.2d 831, 835-36 (Fed. Cir. 1984) (holding that mere allegations do not create a material issue of fact if the nonmovant cannot "point to an evidentiary conflict created on the record at least by a counter statement of a fact or facts set forth in detail in an affidavit by a knowledgeable affiant."). Accordingly, judgment that the aforementioned products infringe both claims 1 and 2 of the '491 patent is appropriate.

Under the court's construction of "group," Belden cannot demonstrate that multiple accused products infringe the asserted claims of the '491 patent. These

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[22]While Baxter opines that the 6A ScTP does not infringe the '491 patent, his expert report contains no infringement analysis with respect to this particular cable. (*See* D.I. 125, ex. 29 at 14-18) This conclusory statement does not rebut Belden's evidence of record which demonstrates infringement. *See Anderson,* 477 U.S. at 249.

accused products generally have 3 separate insulation thicknesses arranged in the following illustrative manner: T_1 for the green pair; T_2 for the blue pair; T_3 for the orange pair; and T_1 for the brown pair. In this configuration, the green and brown pairs form one "group" because each pair has the same insulation thickness. Because the insulation thicknesses differ for the blue pair and the orange pair, these cables necessarily lack a "second group." The following accused products contain this (or an equivalent) configuration of twisted pairs: the 10Gain; the NextGain; the Bundled Category 6; the DataGain 6+ CMP; the DataGain Limited; the Category 6 CMP; and the Marathon cables.[23] No reasonable jury could find that these products contain two distinct groups as required by claims 1 and 2 of the '491 patent.

The court next considers Superior Essex's cross motion for summary judgment that the NextGain, DataGain 6+ CMP, DataGain 6+ Limited, Category 6 CMP and Marathon cables do not infringe of the '491 patent. Construing the facts in favor of Belden as the nonmoving party, a reasonable jury could only find in favor of Superior Essex because these products do not have two "groups."

b. OSP products

In its cross motion, Superior Essex also argues that summary judgment that the accused OSP products do not infringe the '491 patent is appropriate because Superior Essex has a license to practice the '491 patent for these outdoor products. (*See* D.I. 125, ex. 52) A patent license, express or implied, is a defense to patent infringement. *See Carborundum Co. v. Molten Metal Equip. Innovations, Inc.*, 72 F.3d 872, 878 (Fed.

[23]The record demonstrates that each twisted pair of the Marathon cables has a different insulation thickness.

Cir. 1995). Belden argues that several fact issues preclude a grant of summary judgment.

First, Belden maintains that, pursuant to the Belden Asset Purchase Agreement, Superior Essex was required to seek a further specific assignment of the '491 patent from Belden. (D.I. 152, ex. 2) Section 5.18 of the Belden Asset Purchase Agreement directed the parties "to determine which rights contained in the Patent Licenses are necessary and/or useful for [Superior Essex] to make, use or sell the Products in connection with the Conveyed Assets." (*Id.* at 28) The '491 patent, licensed to Belden by NORDX, is excluded by omission from the definition of "Patent Licenses"[24] and, thus, does not fall within the "notice" provision of the Belden Asset Purchase Agreement. Alternatively, Belden supports its argument by reference to a draft of the Belden Asset Purchase Agreement in which Superior Essex was required to notify Belden if it desired an assignment of the '491 patent. (*Id.*, ex. 3) The record demonstrates that such notice must have been provided, as the '491 patent appears on the final list of Conveyed Intellectual Property. (D.I. 180, ex. 125 at 2)

Second, Belden argues that a genuine issue of material fact presents itself as to whether the OSP products fall within the scope of Superior Essex's license. The scope of Belden's license to Superior Essex in the Belden Asset Purchase Agreement is governed by the NORDX license, which granted Belden a license to the '491 patent with respect to "Outside Plant Products," defined by the license to include "outdoor outside plant cables and outdoor feeder & distribution cables" and "any products that

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[24]"Patent Licenses" is defined to include the AT&T Licenses and the Windings License. (*Id.* at 1)

have a substantially similar primary outdoor use." (D.I. 125, ex. 52) As previously stated, Superior Essex has designated these products as "outside plant" cables. (*Id.*, exs. 56, 126) Each of the accused OSP products includes a filling compound to inhibit water ingress and a sunlight resistant jacket. (*Id.*) These cables further include a corrugated copper clad armor which protects the integrity of the cable against rodents and accidental contact during digging. (*Id.*) Finally, these cables have no UL rating, which renders the OSP products an undesirable candidate for indoor use. (*Id.*) Each of these factors alone emphasize the outdoor nature of the accused OSP products. Viewing the aforementioned factors together, no reasonable jury could find other than that the OSP products have a "primary outdoor use" and, as such, fall within the scope of Superior Essex's license under the '491 patent.

C. Invalidity

The standard of proof to establish the invalidity of a patent is "clear and convincing evidence." *Golden Blount, Inc. v. Robert H. Peterson Co.*, 365 F.3d 1054, 1058 (Fed. Cir. 2004). In conjunction with this burden, the Federal Circuit has explained that,

> [w]hen no prior art other than that which was considered by the PTO examiner is relied on by the attacker, he has the added burden of overcoming the deference that is due to a qualified government agency presumed to have properly done its job, which includes one or more examiners who are assumed to have some expertise in interpreting the references and to be familiar from their work with the level of skill in the art and whose duty it is to issue only valid patents.

PowerOasis, Inc. v. T-Mobile USA, Inc., 522 F.3d 1299, 1304 (Fed. Cir. 2008) (quoting *Am. Hoist & Derrick Co. v. Sowa & Sons*, 725 F.2d 1350, 1359 (Fed. Cir. 1984)).

1. Anticipation

An anticipation inquiry involves two steps. First, the court must construe the claims of the patent in suit as a matter of law. *See Key Pharms. v. Hercon Labs. Corp.*, 161 F.3d 709, 714 (Fed. Cir. 1998). Second, the finder of fact must compare the construed claims against the prior art. *See id.*

Proving a patent invalid by anticipation "requires that the four corners of a single, prior art document describe every element of the claimed invention, either expressly or inherently, such that a person of ordinary skill in the art could practice the invention without undue experimentation." *Advanced Display Sys. Inc. v. Kent State Univ.*, 212 F.3d 1272, 1282 (Fed. Cir. 2000) (citations omitted). The Federal Circuit has stated that "[t]here must be no difference between the claimed invention and the referenced disclosure, as viewed by a person of ordinary skill in the field of the invention." *Scripps Clinic & Research Found. v. Genentech, Inc.*, 927 F.2d 1565, 1576 (Fed. Cir. 1991). The elements of the prior art must be arranged or combined in the same manner as in the claim at issue, but the reference need not satisfy an ipsissimis verbis test. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. Mar. 26, 2009) (citations omitted). "In determining whether a patented invention is [explicitly] anticipated, the claims are read in the context of the patent specification in which they arise and in which the invention is described." *Glaverbel Societe Anonyme v. Northlake Mktg. & Supply, Inc.*, 45 F.3d 1550, 1554 (Fed. Cir. 1995). The prosecution history and the prior art may be consulted "[i]f needed to impart clarity or avoid ambiguity" in ascertaining whether the invention is novel or was previously known in the art. *Id.* (internal citations omitted).

The parties have filed cross motions with respect to the anticipation of the

patents in suit.[25] For each patent, the court first considers whether Superior Essex has carried its burden and, failing to do so, whether Belden has demonstrated that no reasonable jury could find the patent invalid for anticipation.

a. The '116 patent

Superior Essex argues that U.S. Patent No. 3,209,064 ("the '064 patent") anticipates claims 4 and 7 of the '116 patent. The '064 patent issued on September 28, 1965; accordingly it is prior art to the '116 patent under 35 U.S.C. § 102(b). Generally, the '064 patent discloses a signal transmission cable having a plurality of twisted pairs, each twisted pair located within a channel formed by the projections of a non-conductive central core. ('064 patent at col. 1:10-16) The examiner did not consider the '064 patent during examination of the '116 patent.

The parties have focused the anticipation inquiry upon whether the '064 patent discloses a "data cable" that includes a "cable covering contacting each projection." As recited in the respective preambles, claims 4 and 7 are directed to "[a] data cable having a plurality of twisted pair conductors . . . ." As a preliminary matter, the court has declined to construe the preambles as limiting and, as such, finds unavailing Belden's arguments that the '064 patent does not teach a "high speed data communications cable."

The only remaining substantive dispute, then, is whether the '064 patent teaches a "cable covering contacting each projection" as required by claim 4. Specifically, the parties' arguments go to the nature of the structure the projections must contact to meet

[25]Belden seeks further judgment that certain prior art references, unasserted by Superior Essex in its motion, do not anticipate the patents in suit.

this limitation. The court has construed "cable covering" to mean "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." Figure 3 of the '064 patent depicts an interior support (21) with projections (22) in plain contact with the surrounding binder layer (25). Belden's arguments with respect to this limitation go only to its unadopted proposed construction; it does not dispute that the binder layer 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. The only reasonable conclusion is that the '064 patent teaches a "cable covering contacting each projection." In view of the foregoing, and specifically because Belden does not dispute the presence of these limitations as the court has construed them, the court grants Superior Essex's motion for summary judgment that the '064 patent anticipates claims 4 and 7 of the '116 patent.

b. The '503 patent

Superior Essex moves for summary judgment that U.S. Patent No. 4,385,485 ("the '485 patent") anticipates claim 1 of the '503 patent. The '485 patent issued on May 31, 1983 and, as such, is prior art to the '503 patent under 35 U.S.C. § 102(b). The '485 patent discloses methods and an apparatus for making optical fiber cables. (*See* '485 patent at abstract) The examiner did not consider the '485 patent during examination of the '503 patent. With the exception of "jacketing the closed cable," the parties dispute whether the '485 patent teaches the remaining limitations of claim 1 of the '503 patent.

i. "[P]assing 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."

Figure 8 of the '485 patent depicts the transmission media and multiple V-shaped tapes passing through holes (10) and (11) respectively in guide plate (56). According to Baxter, holes (10) and slots (11) align the transmission media with the V-shaped tapes. (D.I. 199, ex. 28 at ¶ 65) The V-shaped tapes are arranged adjacent to each other in a circular configuration, the V-shaped groove of each tape containing one twisted pair such that it is isolated from the remainder of the transmission media. (*Id.*) Consistent with the court's construction of a "core," the circular configuration of V-shaped tapes forms "a longitudinally-extending element that separates the transmission media." A reasonable jury would further conclude that the V-shaped grooves are "surface features" of the core disclosed by the '485 patent because each V-shaped groove describes a recess on the surface of the core.

The '485 patent also discloses a cabling method that "prevents [the] twisting motion of the core." The V-shaped tapes passing through guide plate (56) are held stationary relative to the transmission media by slots (11) during the alignment process. ('485 patent at col. 5:51-52) This configuration prevents the core from twisting relative to the transmission media being aligned with the core. (*Id.* at col 5:51-52; col. 6:14-15,19-23)

Belden disputes this characterization, arguing that the core described by the '485 patent must twist, because assemblage die (70), guide plate (56), and rotary cage (52) rotate in unison during the stranding process. The examiner conducting the

reexamination of the '503 patent agreed with Belden. As part of the reasons for patentability stated in the Notice of Intent to Issue Ex Parte Reexamination Certification for the '503 patent, dated July 6, 2010, the examiner confirmed the patentability of the '503 patent over the '485 patent because "[guideplate] (56) in the apparatus disclosed in [the '485 patent] did not prevent twisting as recited in the claims, but rather accommodated the twisting . . . ." (D.I. 201, ex. A at 5) The examiner provided no explanation beyond this conclusory statement.

As Superior Essex correctly notes, claim 1 of the '503 patent describes both permissible and impermissible "twisting:" the first die must "prevent[] [the] twisting motion of the core," but finishing the cable requires "twisting the bunched plurality of transmission media and core close to the cable." ('503 patent at claim 1) In view of the foregoing, the disclosure of the '485 patent is seemingly consistent with this understanding of "twisting," namely, the method of the '485 patent prevents the core from twisting between assemblage die (70) and rotary cage (52) and subsequently twists the bunched plurality of transmission media after assemblage die (70) to finish the cable.

Because of these two reasonable and competing understandings, and due to the deference owed to the examiner's determination of patentability over the '485 patent, Superior Essex's motion for summary judgment of anticipation must be denied. The court next considers the remaining limitations within the context of Belden's motion for summary judgment of no invalidity for anticipation.[26]

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[26]The court finds that the '485 patent presents the strongest case for the anticipation of claim 1. Moreover, Belden argues that each of the asserted prior art

ii. "[B]unching 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"

The method described by the '485 patent includes passing the transmission media previously aligned with the core by guide plate (56) through assemblage die (70). Figure 8 depicts assemblage die (70) guiding the transmission media into the V-shaped grooves. With respect to the bunching process, the '485 patent notes that the optic fibers, sensitive to crushing, are intended to "loosely fit" within the V-shaped grooves. ('485 patent at col. 3:10-17) Despite its counsel against "any appreciable lateral or compression forces,"[27] the '485 patent states that these forces do occur to some extent as the transmission media and core are "gathered and stranded" by assemblage die (70). (*Id.* at col. 3:16-17; col. 4:39-42) Accordingly, a rational finder of fact could only conclude that the transmission media comes into contact with the surface features of the core.

iii. "[T]wisting the bunched plurality of transmission media and core to close the cable"

As described *supra*, rotary cage (52), guide plate (56) and assemblage die (70)

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references fails to disclose a method which "prevents the twisting motion of core." Because of the issue of material fact presented by this limitation, it is the province of the jury to determine whether the '485 patent or any of the remaining asserted prior art references Japanese Patent No. Hei8(1996)-96635, Japanese Patent No. Sho56(1981)-7307 and Japanese Patent No. Sho57(1982)-19910 anticipate claim 1 of the '503 patent.

[27]The '485 patent teaches that the optic fibers experience "very small lateral or compressive forces." (*Id.* at col. 4:51-54)

rotate in unison to finish the cable. (*Id.* at col. 6:65-7:8) Rotation of these three components in unison twists the previously bunched cable.

Belden's primary argument against the use of the '485 patent to anticipate the '503 patent is that this reference is merely cumulative of the planetary cabling systems considered by the examiner during the prosecution of the '503 patent. Thomas Lee Blackburn ("Blackburn"), Belden's expert on invalidity, opines that the '485 patent discloses exactly what the patentee distinguished from the invention of the '503 patent during prosecution, namely, a method "where [cable] elements are rotated about the cable's longitudinal axis, and where the take-up is not rotating perpendicular to the cable axis." (D.I. 125, ex. 57 at 3) The patentee further noted that conventional planetary cabling "would use a **pre-twisted core**, having a helical twist of the same period as the finished cable." (*Id.* at 4) (emphasis added) Traversing an obviousness rejection in view of the aforementioned prior art system, the patentee distinguished the invention of the '503 patent in that it required the transmission media to "enter **parallel**, **non-helixed** channels at an essentially equal distance along the core axis, providing a desired balancing of stress forces." (*Id.* at 5) (emphasis added) The method disclosed by the '485 patent does not teach the use of a pre-twisted core; instead, it discloses, consistent with the patentee's characterization of the '503 patent, a method in which the transmission media enter parallel, non-helixed channels. No reasonable jury would find that the '485 patent is cumulative of the planetary prior art systems considered during the prosecution of the '503 patent.

Aside from the aforementioned limitation which necessitates a trial by jury, the

'485 patent discloses each disputed limitation of claim 1 of the '503 patent. Consequently, the court denies Superior Essex's motion.

c. The '095 patent

Superior Essex seeks a judgment that German Patent DE 297 19 866 A1 ("the '866 patent") anticipates claim 27 of the '095 patent. The parties do not dispute that the '866 patent was published on February 5, 1998 and, as such, is prior art to the '095 patent under 35 U.S.C. § 102(b). In addition to its cross motion with respect to the '866 patent, Belden additionally moves for a judgment of no anticipation regarding Japanese Patent JP 05-290645A ("the '645 patent"). The '645 patent, published on November 5, 1993, likewise qualifies as prior art to the '095 patent under 35 U.S.C. § 102(b).

i. Prior art reference - the '866 patent

Belden concedes that the '866 patent discloses several limitations of claim 27 (D.I. 125, ex. 41 at 286-89); the court turns now to the question of whether it also discloses the remaining limitations. The parties first dispute the presence of a "dielectric pair separator," which the court has construed to mean "pair separator that serves as a dielectric medium." The '866 patent teaches the use of an aluminum foil separator laminated by plastic. ('866 patent at 5) Baxter opines, and the court agrees, that this limitation is met because the plastic lamination serves as a nonconductive layer. (D.I. 199, ex. 28 at ¶ 243)

Next, Superior Essex argues that the dielectric pair separator is "substantially flat." The court has construed "substantially flat" to mean "thin and substantially uniform in thickness." According to figures 1 and 2 of the '866 patent, the pair separators are

thin relative to the other components of the cable and are substantially uniform in thickness. Belden's arguments to the contrary are directed to its unadopted claim construction.

Finally, Superior Essex argues that the '866 patent discloses a cable where the dielectric pair separator and the twisted pairs are further "twisted about a common central axis." The parties did not seek construction of this limitation, accordingly, it must be given its "ordinary and customary meaning . . . to a person of ordinary skill in the art in question at the time of the invention." *See Phillips*, 415 F.3d at 1313. Superior Essex relies upon the specification of the '866 patent, which notes 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 the conductor pairs 1 and/or longitudinal reshaping of the conductor pairs 1. . . ." ('866 patent at 6) Baxter opines that the disclosed "longitudinal reshaping" means twisting about a common axis. (D.I. 199, ex. 28 at ¶ 243) By contrast, Mark Horenstein ("Horenstein"), Belden's rebuttal expert regarding validity, opines that the '866 patent does not disclose twisting all of the components about a common axis. (*Id.*, ex. 34 at ¶¶ 333-34) Rather, Horenstein submits that the longitudinal reshaping of the '866 patent refers to "twisting of the [individual] conductor pairs to form helixes, not twisting/cabling of the cable as a whole." (*Id.*)

Alternatively, Superior Essex argues that it would have been obvious to finish the cable taught by the '866 patent by twisting. In support of this theory, Superior Essex identifies a single passage in the specification of the '095 patent in which the inventors describe helical or S-Z twisting configurations as known processes. ('095 patent at col. 9:10-12) The court does not believe that this scintilla of evidence comports with

Superior Essex's burden in alleging obviousness based on one prior art reference to demonstrate "a suggestion or motivation to modify the teaching of that reference to the claimed invention in order to support the obviousness conclusion." *SIBIA Neurosciences, Inc. v. Cadus Pharm. Corp.*, 225 F.3d 1349, 1356 (Fed. Cir. 2000).

Because reasonable minds could differ both as to the meaning and presence of this final limitation, the court declines to grant either parties' motion for summary judgment with respect to the '866 patent.

ii. Prior art reference - the '645 patent

While Belden does not dispute that the '645 patent discloses a dielectric separator, the parties dispute the presence of the remaining two limitations at issue in claim 27. With respect to "substantially flat," figure 6 of the '645 patent depicts a pair separator in the form of a uniformly thin sheet, which is rolled about a plurality of twisted pairs in a coil formation. (D.I. 157, ex. 112) Belden's arguments in response go to its own proposed and unadopted claim construction.

The cable disclosed by the '645 patent is formed by fusing twisted pairs evenly spaced and parallel to each other onto a tape sheet, which is then "wound into a coil-like shape." (*Id.* at 2; figures 1 and 5) Superior Essex contends that coiling the twisted pair-laden separator is the same as twisting these components about a common central axis. Consistent with this argument, Superior Essex produces dictionary definitions of "twisting" including "to entwine . . . to produce a single strand" and "to wind or coil about something." (D.I. 157, ex. 115) In response, Belden maintains that the limitation "twisted about a common central axis to form a twisted pair cable" envisions a helic or

SZ stranding of the transmission media and the pair separator, and does not include the circular wrapping of the pair separator disclosed by the '645 patent.

In conclusion, the parties proffer two separate understandings of "twisted about a common central axis." On the basis of this record, the court cannot conclude that Belden advocates the only reasonable understanding of this limitation. Because reasonable minds could differ with respect to the meaning of "twisted about a common central axis" and whether the '645 patent discloses such a configuration, the court denies Belden's motion for summary judgment in this respect.

d. The '999 patent

Superior Essex maintains that the '866 patent also anticipates claim 2 of the '999 patent. The parties similarly dispute whether the '866 patent teaches a cable in which the twisted pairs and pair separator are "twisted about a common central axis." Consistent with the court's explaination *supra*, this issue of fact necessitates the denial of Superior Essex's motion. The next disputed limitation is considered in the context of Belden's motion for summary judgment of no anticipation.

The parties dispute whether the '866 patent discloses "[a]n unshielded twisted pair communications cable." In his expert report, Horenstein opines that the cable disclosed by the '866 patent is shielded because the pair separator, comprised of plastic laminated aluminum foils, is a "conductive shielding tape." (D.I. 125, ex. 34 at ¶¶ 336-37) Baxter counters that one of ordinary skill would not understand "shielded" to refer to the properties of the pair separator, but would instead associate this term with the jacket of the cable. (*Id.*, ex. 28 at ¶ 279) According to Baxter, a "shielded" cable only exists where the entirety of the twisted pairs and pair separator are surrounded by

an overall shield. (*Id.*)

As a preliminary matter, the parties acknowledge the distinction between a "screened cable" in which the entire cable is surrounded by an overall shield and a "shielded cable" in which the individual twisted pairs are encapsulated by individual shields. Baxter's narrow definition of "shielded" is inconsistent with this understanding. Moreover, the '866 patent itself extensively discusses the shielding function of the pair separator. The pair separator "subdivid[es] the cable cross section into at least two shielding sectors, [with] a conductor pair running in each shielded sector, so that the two conductor pairs are **shielded against each other and externally**." (D.I. 125, ex. 9 at 2) (emphasis added) Because it would be unreasonable to conclude that the '866 patent discloses an unshielded cable, the court denies Superior Essex's motion and grants Belden's motion that the '866 patent does not anticipate the '999 patent as a matter of law.

e. The '537 patent

Belden moves for summary judgment that U.S. Patent No. 4,755,629 ("the '629 patent") does not anticipate claim 19 of the '537 patent. The '629 patent discloses a local area network cable that includes at least two twisted pairs. (D.I. 157, ex. 13) In one embodiment, the twisted pairs, surrounded by an overall metallic shield, are separated by an S-shaped preform. (*Id.* at figure 7) The S-shaped preform "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 . . . ." (*Id.* at col. 6:52-56) The preform may be "comprised of solid or expanded

polyvinyl chloride plastic material." (*Id.* at col. 6:1-3, 45-56) The '692 patent also discloses an unshielded embodiment lacking the S-shaped preform, instead separating the twisted pairs through the use of two tubular members. (*Id.* at figure 9B)

i. "[A]n unshielded communications cable"

Belden argues that, insofar as the only embodiment containing the S-shaped preform also contains a shield, the '692 patent does not disclose an unshielded cable and, therefore, cannot anticipate the '537 patent as a matter of law. Belden reads the disclosure of this prior art reference too narrowly. The specification of the '692 patent explains that "[i]t is also within the scope of this invention to enclose the buffer system[28] with a jacket only (see FIG. 9B) should a shield not be needed . . . ." (*Id.* at col. 8:19-23) Moreover, the claims of the '692 patent are consistent with the notion that it teaches both shielded and unshielded applications. Claim 2, which depends from claim 1, adds the further limitation of a shield. Superior Essex has proffered a single prior art reference which it purports to disclose the invention of the '537 patent; it need not necessarily "establish that all elements are found in a single embodiment of the [] reference." *See Therasense, Inc. v. Becton, Dickinson*, 2007 WL 2028197, at *6 n.1 (N.D. Cal. July 10, 2007).

ii. "[S]ubstantially flat"

Belden's allegations regarding the presence of this limitation depend entirely upon the court adopting its proposed claim construction. Because "substantially flat" has been construed in a different manner, Belden has not demonstrated that the '692

[28]According to the '692 patent, the buffer system includes the twisted pairs as well as the tubular members which separate them. (*Id.* at col. 5:51-55)

patent does not disclose this limitation. On the contrary, the specification of the '692 patent states that the thickness of the preform is equal to the radius of the copper conductor. (*Id.* at col. 6:10-14) Thus, a reasonable jury could conclude that the '692 patent discloses a uniformly thin separator that meets the "substantially flat" limitation.

iii. "[F]oamed polymer"

According to Belden, the '692 patent does not disclose a separator that is comprised of a foamed polymer and only generally explains that the separator may be "made of a dielectric material." (*Id.* at col. 6:52-56) However, the '692 patent specifically teaches that the preform may be constructed from "expanded polyvinyl chloride plastic material." Baxter's expert report, unrebutted in this regard, states that expanded polyvinyl chloride is a foamed polymer. (D.I. 125, ex. 28 at ¶ 268) In view of the foregoing, the court denies Belden's motion with respect to the '537 patent.

2. Obviousness

"A patent may not be obtained . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. § 103(a). Obviousness is a question of law, which depends on several underlying factual inquiries.

> Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.

KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 406 (2007) (quoting *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966)). "Because patents are presumed to be valid, see 35 U.S.C. § 282, an alleged infringer seeking to invalidate a patent on obviousness grounds must establish its obviousness by facts supported by clear and convincing evidence." *Kao Corp. v. Unilever U.S., Inc.*, 441 F.3d 963, 968 (Fed. Cir. 2006) (citation omitted).

"[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *KSR*, 550 U.S. at 418. Likewise, a defendant asserting obviousness in view of a combination of references has the burden to show, by clear and convincing evidence, that a person of ordinary skill in the relevant field had a reason to combine the elements in the manner claimed. *Id.* at 418-19. The Supreme Court has emphasized the need for courts to value "common sense" over "rigid preventative rules" in determining whether a motivation to combine existed. *Id.* at 419-20. "[A]ny need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed." *Id.* at 420.

In addition to showing that a person of ordinary skill in the art would have had reason to attempt to make the composition or device, or carry out the claimed process, a defendant must also demonstrate, by clear and convincing evidence, that "such a person would have had a reasonable expectation of success in doing so." *PharmaStem Therapeutics, Inc. v. ViaCell, Inc.*, 491 F.3d 1342, 1360 (Fed. Cir. 2007).

a. The '641 patent

Superior Essex argues that claim 13 of the '641 patent is rendered obvious by U.S. Patent No. 5,746,046 ("the '046 patent") in view of U.S. Patent No. 6,150,612 ("the '612 patent"). The '046 patent issued on August 18, 1998 and, therefore, serves as prior art to the '641 patent under 35 U.S.C. § 102(b). The communications cable disclosed by the '046 patent has a striated jacket where a series of sharply defined peaks and valleys extend from the inner surface of the cable jacket. ('046 patent at figure 1) The PTO considered the '046 patent during the prosecution of the application leading to the '641 patent.

The '612 patent issued on November 21, 2000. It 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 four twisted pairs isolated by "+"-shaped pair separator. ('612 patent at figure 1) The '612 patent was not before the PTO during prosecution of the application leading to the '641 patent.

Conceding that these two prior art references teach multiple limitations of claim 13, the parties direct arguments as to whether: 1) either reference teaches a cable having "protrusions extending away from an inner circumferential surface of the jacket;" 2) an apparent motivation to combine exists; and 3) secondary considerations rebut any prima facie case of obviousness presented by Superior Essex.

The '046 describes the inner surface of the jacket of one embodiment as including

> a plurality of sharply angled striations [] disposed about the inner surface of the cable jacket such that adjacent striations define sharply angled inwardly directed projections . . . 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 [twisted pairs] in the core of the cable." ('046 patent at col. 3:33-37) Superior Essex points to this teaching as disclosing the only disputed limitation of claim 13, namely, a cable having "protrusions extending away from an inner circumferential surface of the jacket." In his expert report, Horenstein explains that two distinguishing characteristics of the inner surface taught by the '046 patent preclude a rational mind from concluding in favor of the disclosure of this limitation. First, he opines that the series of sharply angled flat surfaces do not define an "inner circumferential surface." (D.I. 125, ex. 34 at ¶ 122) In response to this characterization, Baxter propounds two drawings created for the purposes of his expert report and which purport to demonstrate an inner circumferential surface in both the '641 and '046 patents. On the basis of this record, a rational jury could find in favor of either party with respect to this limitation.

Having determined that issues of material fact exist with respect to the disclosure of this disputed limitation, the court does not reach the motivation to combine or Belden's proffered secondary considerations of nonobviousness. In view of the foregoing, the court denies Superior Essex's motion for summary judgment that the combination of the '612 and the '046 patents renders the '641 patent obvious.

b. The '491 patent

Relying upon U.S. Patent No. 2,792,442 ("the '442 patent") as a base reference combined with either U.S. Patent No. ("the '210 patent") or U.S. Patent No. 4,697,051 ("the '051 patent"), Superior Essex argues that claims 1 and 2 of the '491 patent are obvious. The '442 patent issued on May 14, 1957, making this reference prior art to the '491 patent under 35 U.S.C. § 102(b). Entitled "Multiple Channel Carrier Current

Telephone Cable," the '442 patent discloses a cable that comprises multiple conductor quads or pairs in at least two cable layers. The cable of the '442 patent is directed to the transmission of analog (low) voice frequencies. (D.I. 125, ex. 34 at ¶ 202) The PTO did not consider the '442 patent during the prosecution of the application leading to the '491 patent.

The '210 patent issued on April 23, 1991 and qualifies as prior art to the '491 patent under 35 U.S.C. § 102(b). This prior art reference discloses a telecommunications cable with a maximum twist lay of 2.3 inches and an embodiment with a twist lay in the range of 1.00 to 2.00 inches. ('210 patent at col. 2:7-8) The '051 patent issued on September 1987. It is prior art to the '491 patent under 35 U.S.C. § 102(b). The '051 patent discloses a telecommunications cable embodiment having twist lays in the range of about 0.25 to 1.60 inches. ('051 patent at col. 6:16-17) The PTO considered both the '210 and '051 patents during the prosecution of the application leading to the '491 patent.

The parties focus their attention on the preamble of claim 1[29] of the '491 patent, which recites "[a] telecommunications cable." The court has determined that this preamble further limits the claim, and has construed it to mean a "cable capable of transmitting high frequency digital data." Superior Essex does not argue that the cable disclosed by the '442 patent is capable of transmitting high frequency data and, instead, briefly notes that it is a telecommunications cable. Belden vigorously disputes the propriety of relying upon the '442 patent as a primary reference insofar as the disclosed

[29]Claim 2 depends from claim 1 and, therefore, also contains this limitation.

cable is only capable of low frequency analog transmissions. Consistent with this characterization, Belden argues that the '442 patent is non-analogous art because it is not from the '491 inventors' field of endeavor, nor is it reasonably pertinent to the problems identified by the '491 patent. *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992).

A reasonable jury could find that the problems facing the transmission of digital data substantially differ from those encountered by the analog industry more than three decades earlier when the '442 patent was conceived. For example, Horenstein explains that analog technology suffered from an echo effect due to the time delay resulting from impedance variations, a problem that did not translate into the newer digital technology. (D.I. 125, ex. 34 at ¶ 203) Conversely, controlling for capacitance is critical at high frequency transmission and much less so at lower frequencies. (*Id.*) Because a rational jury could conclude that the '442 patent is non-analogous art, the court denies Superior Essex's motion in this regard.

c. The '095 patent

Superior Essex alleges that the '866 patent combined with U.S. Patent No. 5,670,748 ("the '748 patent") renders obvious the invention of claim 31 of the '095 patent. Belden concedes that the '748 patent is prior art to the '095 patent. The '748 patent discloses the use of fluorinated ethylene propylene polymer in creating a flame and smoke retardant cable. (*See* '748 patent at col. 2:28-31) The '748 patent was not considered by the PTO during the prosecution of the application leading to the '095 patent.

According to Superior Essex, the '866 patent discloses each limitation of claim

31 except for the requirement that the dielectric pair separator be formed of a foam polymer, which is found in the '748 patent. Notably, the parties again dispute whether the '866 patent discloses a cable having twisted pair conductors and a configurable core "twisted about a common axis." Consistent with the court's reasoning above, the presence of this limitation presents an issue of material fact resolvable by trial. Accordingly, the court denies Superior Essex's motion for summary judgment that the '866 patent and the '748 patent render obvious claim 31 of the '095 patent.

d. The '537 patent

Relying upon the same combination that allegedly renders claim 31 of the '095 patent obvious, Superior Essex asserts that it would be obvious to replace the plastic laminated metal pair separator of the '866 patent with the foamed polymer of the '748 patent and arrive at the invention of claim 19 of the '537 patent. Belden concedes that both the '866 and the '748 patents are prior art to the '537 patent. The parties dispute the presence of one limitation and whether one skilled in the art would be motivated to combine these two references. Belden also asserts several secondary considerations that allegedly preclude a finding of obviousness.

The only limitation at issue is the purported disclosure by the '866 patent of a "substantially flat" pair separator. As noted above, figures 1 and 2 of the '866 patent depict a variety of non-linear pair separators that are thin relative to the other components of the cable and are substantially uniform in thickness. Belden's arguments to the contrary are directed to its unadopted claim construction.

Horenstein opines that the two asserted references do not contain a motivation to combine. Specifically, Horenstein submits that replacing the partially conductive

plastic laminated metal foil with a fully non-conductive foamed polymer would run counter to the goal of the '866 patent in providing a pair separator that acts in a shielding capacity. (D.I. 125, ex. 34 at ¶¶ 289-93) Baxter contends that the '866 patent defines a more general problem associated with reducing crosstalk through any avenue and placed a special emphasis on low cost solutions. (*See* '866 patent at 1) According to Baxter, one skilled in the art would be motivated to increase the distance between twisted pairs within a cable while concurrently lowering the cost of production by eliminating the metal portion of the pair separator disclosed by the '866 patent. (D.I. 125, ex. 28 at ¶¶ 28, 243) Instead of the metal foil, Baxter argues that one skilled in the art would consider materials already in use as pair separators, including the foamed polymer disclosed by the '748 patent. (*Id.* at ¶ 251) The court cannot say which view, if any, is the only reasonable conclusion; Superior Essex's motion for summary judgment is denied.

V. CONCLUSION

For the foregoing reasons, the court: (1) grants in part and denies in part Superior Essex's motion to limit Belden's damages for failure to mark in accordance with 35 U.S.C. § 287(a) (D.I. 121); (2) denies Superior Essex's motion for no willful infringement (*id.*); (3) grants in part and denies in part Belden's motion for partial summary judgment of infringement of the patents in suit (D.I. 112); (4) grants in part and denies in part Superior Essex's motion for partial summary judgment of no infringement of the patents in suit (D.I. 123); (5) grants in part and denies in part Superior Essex's motion for partial summary judgment of the invalidity of the patents in

suit as anticipated or rendered obvious (D.I. 119); and (6) grants in part and denies in part Belden's motion for summary judgment of no anticipation of the patents in suit (D.I. 115). An appropriate order shall issue.