

filed July 3, 2014 (Clerk's Doc. No. 57); Defendant's Response to Plaintiffs' Supplemental Claim Construction Brief Regarding Indefiniteness Issues filed July 17, 2014 (Clerk's Doc. No. 58); Defendant's Notice of Supplemental Authority Regarding the Federal Circuit's Opinion in *Hill-Rom Servs. v. Stryker Corp* filed July 17, 2014 (Clerk's Doc. No. 59); Plaintiffs' Response to Defendant's Notice of Supplemental Authority filed August 8, 2014 (Clerk's Doc. No. 60), and the claim construction presentations of the parties.

The court held a claim-construction hearing on May 28, 2014. *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (*en banc*), *aff'd*, 517 U.S. 370 (1996). After considering the patents and their prosecution history, the parties' claim-construction briefs and additional filings, the applicable law regarding claim construction, and argument of counsel, the court now renders its order with regard to claim construction.

1. Introduction

The court renders this memorandum opinion and order to construe the claims in U.S. Patents No. 5,912,895 (the "'895 Patent"), 6,327,264 (the "'264 Patent"), and 6,587,473 (the "'473 Patent") (collectively, the "patents-in-suit" or the "Terry patents"). The '473 Patent is a continuation of the '264 Patent, which is a continuation of the '895 Patent. All patents share a common specification and drawings. The patents-in-suit generally relate to a method for communicating information packets over long distances.

Plaintiffs Cisco Systems, Inc. (“Cisco”) and Rukus Wireless, Inc. (“Rukus”)² seek declaratory judgment against Defendant Innovative Wireless Solutions, LLC (“Innovative Wireless”). Cisco asserts that the patents-in-suit are not infringed and are invalid. *See* 28 U.S.C. §§ 2201, 2202.

2. Legal Principles of Claim Construction

Determining infringement is a two-step process. *See Markman*, 52 F.3d at 976 (“[There are] two elements of a simple patent case, construing the patent and determining whether infringement occurred . . .”). First, the meaning and scope of the relevant claims must be ascertained. *Id.* Second, the properly construed claims must be compared to the accused device. *Id.* Step one, claim construction, is the current issue before the court.

The court construes patent claims without the aid of a jury. *See Markman* 52 F.3d at 979. The “words of a claim ‘are generally given their ordinary and customary meaning.’” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (*en banc*) (quoting *Vitronics Corp. v. Conceptoronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). The ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention. *Id.* at 1313. The person of ordinary skill in the art is deemed to have read the claim term in the context of the entire patent. *Id.* Therefore, to ascertain the meaning of claims, courts must look to the claims, the specification, and the patent’s prosecution history. *Id.* at 1314–17; *Markman*, 52 F.3d at 979.

² As the arguments and interests of Plaintiffs Cisco Systems, Inc. and Ruckus Wireless, Inc. do not diverge with regard to claim construction, the court will refer to Plaintiffs collectively as “Cisco.”

Claim language guides the court's construction of claim terms. *Phillips*, 415 F.3d at 1314. “[T]he context in which a term is used in the asserted claim can be highly instructive.” *Id.* Other claims, asserted and unasserted, can provide additional instruction because “terms are normally used consistently throughout the patent.” *Id.* Differences among claims, such as additional limitations in dependent claims, can provide further guidance. *Id.*

Claims must also be read “in view of the specification, of which they are a part.” *Markman*, 52 F.3d at 979. The specification “is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed.Cir.2002) (internal citations omitted). In the specification, a patentee may define a term to have a meaning that differs from the meaning that the term would otherwise possess. *Phillips*, 415 F.3d at 1316. In such cases, the patentee's lexicography governs. *Id.* The specification may also reveal a patentee's intent to disclaim or disavow claim scope. *Id.* Such intentions are dispositive for claim construction. *Id.* Although the specification may indicate that certain embodiments are preferred, particular embodiments appearing in the specification will not be read into the claims when the claim language is broader than the embodiment. *Electro Med. Sys., S.A. v. Cooper Life Scis., Inc.*, 34 F.3d 1048, 1054 (Fed. Cir. 1994).

The prosecution history is another tool to supply the proper context for claim construction because it demonstrates how the inventor understood the invention. *Phillips*, 415 F.3d at 1317. A patentee may serve as his own lexicographer and define a disputed term in prosecuting a patent. *Home Diagnostics, Inc. v. LifeScan, Inc.*, 381 F.3d 1352, 1356 (Fed.Cir.2004). Similarly, distinguishing the claimed invention over the prior art during prosecution indicates what the claims do not cover. *Spectrum Int'l v. Sterilite Corp.*, 164 F.3d 1372, 1378–79 (Fed.Cir.1988). The

doctrine of prosecution disclaimer precludes patentees from recapturing specific meanings that were previously disclaimed during prosecution. *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1323 (Fed.Cir.2003). Disclaimers of claim scope must be clear and unambiguous. *Middleton, Inc. v. 3M Co.*, 311 F.3d 1384, 1388 (Fed.Cir.2002).

Although “less significant than the intrinsic record in determining the legally operative meaning of claim language,” the court may rely on extrinsic evidence to “shed useful light on the relevant art.” *Phillips*, 415 F.3d at 1317 (quotation omitted). Technical dictionaries and treatises may help the court understand the underlying technology and the manner in which one skilled in the art might use claim terms, but such sources may also provide overly broad definitions or may not be indicative of how terms are used in the patent. *Id.* at 1318. Similarly, expert testimony may aid the court in determining the particular meaning of a term in the pertinent field, but “conclusory, unsupported assertions by experts as to the definition of a claim term are not useful.” *Id.* Generally, extrinsic evidence is “less reliable than the patent and its prosecution history in determining how to read claim terms.” *Id.* Extrinsic evidence may be useful when considered in the context of the intrinsic evidence, *id.* at 1319, but it cannot “alter a claim construction dictated by a proper analysis of the intrinsic evidence.” *On-Line Techs., Inc. v. Bodenseewerk Perkin-Elmer GmbH*, 386 F.3d 1133, 1139 (Fed. Cir. 2004).

3. Discussion

A. Disputed Terms

The parties dispute the construction of 20 terms. The following table summarizes the parties' proposed constructions of the disputed terms.

Term/Phrase	Cisco's Proposed Construction	Innovative Wireless's Proposed Construction
<p>1. "CSMA/CD"</p> <p>'895: (Claims 1, 6, 7, 15, 16, 27-37, 40, 48, 51-53)</p> <p>'264: (Claims 5, 8)</p> <p>'473: (Claims 1, 10, 11, 17, 18, 25, 26, 30, 32, 33, 35, 39-42)</p>	<p>[no construction necessary]</p>	<p>"Techniques compatible with connecting to networks such as Ethernet networks, where a device that wishes to transmit on the network listens and checks to see if the channel is free for sending data. If the channel is not free, or if a collision is detected during transmission, the device waits for a small amount of time and tries again."</p>
<p>2. "CSMA/CD interface"</p> <p>'895: (Claims 1, 6, 7, 15, 16, 27-37, 40, 48, 51-53)</p> <p>'264: (Claims 5, 8)</p> <p>'473: (Claims 1, 10, 25, 26, 30, 35, 39-42)</p>	<p>"an interface to a CSMA/CD path or terminal device "</p>	<p>[Plain and ordinary meaning]</p> <p>For the purposes of jury comprehension, Innovative Wireless proposes the following construction: "CSMA/CD": See above</p>

<p>3. “bidirectional communications path”; “communications path”</p> <p>‘895: (Claims 1, 3-12, 15, 17-20, 27-37, 40, 48, 49, 51-53)</p> <p>‘264: (Claims 5-9)</p> <p>‘473: (Claims 1, 3, 4, 7-9, 11, 15, 17-19, 22-24, 26, 30-35, 37, 38, 40-42)</p>	<p>“a wired communications path for exchanging information between two endpoints”</p>	<p>[Plain and ordinary meaning]</p> <p>If the court believes a construction of “bidirectional” is necessary for the purposes of jury comprehension, then Innovative Wireless proposes:</p> <p>“bidirectional” / “bidirectionally”: Capable of transmission in either or both directions.</p>
<p>4. “information frame”</p> <p>‘895: (Claims 3, 4)</p> <p>‘473: (Claims 2, 12, 13, 36)</p>	<p>[no construction necessary]</p>	<p>A group of bits transmitted over a network as a unit which includes a data field.</p>
<p>5. “enveloping information packets in information frames”; “enveloping information corresponding to at least one of the [...] information packets in at least one [...] information frame”</p> <p>‘895: (Claim 3)</p> <p>‘473: (Claims 2, 12, 36)</p>	<p>“encapsulating intact Ethernet frames containing information packets in information frames”</p> <p>“encapsulating an intact Ethernet frame containing at least one information packet in one information frame”</p>	<p>[Plain and ordinary meaning]</p> <p>For the purposes of jury comprehension, Innovative Wireless proposes the following constructions:</p> <p>“information packets”: A unit of data for transmission over networks of some finite size and which may be transmitted over a network by being enveloped in one or more frames.</p> <p>“information frames”: See above.</p>
<p>6. “control information”</p> <p>‘895: (Claims 1, 4, 5, 48)</p> <p>‘264: (Claims 5, 8)</p> <p>‘473: (Claims 1, 11, 14, 16, 26, 30, 31, 35)</p>	<p>“information provided in a data or control frame by the [master modem/first end/first modem/control unit/control unit of the first unit/another apparatus] that dictates when information can be communicated over the communications path”</p>	<p>[Plain and ordinary meaning]</p>

<p>7. “supplying information packets [...] to the communications path in dependence upon the control information”</p> <p>‘895: (Claim 1)</p>	<p>“providing information packets to the communications path under control of and in response to received control information”</p>	<p>[Plain and ordinary meaning]</p> <p>For the purposes of jury comprehension, Innovative Wireless proposes the following construction:</p> <p>“information packets”: See above.</p>
<p>8. “wherein the control information and the dependence on the control information [...] are arranged to avoid collisions [...] between information packets communicated from the first buffer to the second buffer and information packets communicated from the third buffer to the fourth buffer”</p> <p>‘895: (Claim 1)</p>	<p>“wherein information packets from the third buffer are supplied to the communications path only in response to control information so that a communication from the third buffer to the fourth buffer cannot occur when a communication from the first buffer to the second buffer is present on the communications path”</p>	<p>[Plain and ordinary meaning]</p> <p>For the purposes of jury comprehension, Innovative Wireless proposes the following constructions:</p> <p>“collision”: The condition where transmissions on a channel overlap, preventing successful transmission.</p> <p>“buffer”: A device or storage area used to temporarily store data sent or received over a network.</p> <p>“information packets”: See above</p>
<p>9. “control unit”</p> <p>‘895: (Claim 48)</p> <p>‘264: (Claims 5, 8)</p> <p>‘473: (Claim 30)</p>	<p>“a unit that performs the necessary conversion between the Ethernet frames and the ECAP data frames, and generates and responds to the ECAP control and response frames”</p>	<p>[Plain and ordinary meaning]</p>
<p>10. “control unit is responsive to control information, from another apparatus coupled to the communications path”</p> <p>‘264: (Claim 8)</p>	<p>“the control unit permits the supply of information to the communications path only in response to control information received by the control unit”</p>	<p>[Plain and ordinary meaning]</p>

<p>11. "half duplex communications"; "half duplex manner"</p> <p>'895: (Claim 48)</p> <p>'264: (Claims 5, 8)</p> <p>'473: (Claims 1, 2, 11, 26, 30, 35, 36)</p>	<p>"form of communication in which communication signals are provided to the communications path so that information is traveling on the communications path in only one direction at any given moment in time"</p>	<p>[Plain and ordinary meaning]</p> <p>For the purposes of jury comprehension, Innovative Wireless proposes the following constructions:</p> <p>"half duplex": Transmission in either direction on a channel, but only in one direction at a time.</p>
<p>12. "using half duplex communications controlled by the first modem"</p> <p>'473: (Claims 1, 35)</p>	<p>"where the information is travelling on the path in only one direction at a time and under control of the first modem"</p>	<p>[Plain and ordinary meaning]</p> <p>For the purposes of jury comprehension, Innovative Wireless proposes the following constructions:</p> <p>"half duplex": See above.</p>
<p>13. "master modem"; "slave modem"</p> <p>'473: (Claim 26)</p>	<p>"a modem at a first end of the bidirectional communications path that controls how all communications are supplied to the path"</p> <p>"a modem at a second end of the bidirectional communications path that supplies information to the path only in response to control information received from the master modem"</p>	<p>[Plain and ordinary meaning]</p> <p>For the purposes of jury comprehension, Innovative Wireless proposes the following constructions:</p> <p>"master modem": A modem having control over other modem(s).</p> <p>"slave modem": A modem which is controlled by a master modem.</p>

<p>14. "multiplexing the modem" '895: (Claims 12, 20)</p>	<p>[Indefinite]</p>	<p>[Plain and ordinary meaning]</p> <p>For the purposes of jury comprehension, Innovative Wireless proposes the following constructions:</p> <p>"multiplexing" / "multiplexed": Techniques for transmitting two or more signals over a channel, such as interleaving transmissions or subdividing a common channel.</p>
<p>15. "multiplexing signals of the first modem" '473: (Claims 5, 20)</p>	<p>[Indefinite]</p> <p>To the extent that this phrase is capable of construction, it should be construed as "combining [signals of the first modem] for transmission as a single signal"</p>	<p>[Plain and ordinary meaning]</p> <p>For the purposes of jury comprehension, Innovative Wireless proposes the following constructions:</p> <p>"multiplexing" / "multiplexed": See above.</p>
<p>16. "multiplexer . . . for multiplexed connections via respective buffers to respective communication paths" '895: (Claim 51)</p>	<p>"device for combining the information packets received by the first unit from multiple communication paths, each path associated with a connection and buffer in the first unit"</p>	<p>[Plain and ordinary meaning]</p> <p>For the purposes of jury comprehension, Innovative Wireless proposes the following constructions:</p> <p>"multiplexing" / "multiplexed": See above.</p> <p>"buffers": See above.</p>

<p>17. "MAC-layer packet grouping of data that is grouped to fit into one MAC-layer packet of CSMA/CD networks"</p> <p>'473: (Claims 1, 11, 26, 30, 35)</p>	<p>[Indefinite]</p>	<p>[Plain and ordinary meaning]</p> <p>For the purposes of jury comprehension, Innovative Wireless proposes the following constructions:</p> <p>"MAC-layer"/ "MAC layer": The layer of a network which provides functions between the physical layer and the logical link control layer, including controlling access to the communication channel(s).</p> <p>"packet": A unit of data for transmission over networks of some finite size and which may be transmitted over a network by being enveloped in one or more frames.</p> <p>"CSMA/CD": See above.</p>
<p>18. "MAC layer grouping of information on the CSMA/CD path"</p> <p>'473: (Claim 41)</p>	<p>"an Ethernet frame at the MAC layer"</p>	<p>[Plain and ordinary meaning]</p> <p>For the purposes of jury comprehension, Innovative Wireless proposes the following constructions:</p> <p>"CSMA/CD": See above.</p> <p>"MAC-layer"/ "MAC layer": See above.</p>

<p>19. “the half duplex communications are MAC-layer half-duplex such that once information corresponding to a first MAC-layer packet grouping of data has begun to be transmitted into the bidirectional communications path the information corresponding to the first MAC-layer packet grouping of data is completely transmitted into the bidirectional communications path before information corresponding to a second MAC-layer packet grouping of data is allowed to begin to be transmitted into the bidirectional communications path”</p> <p>‘473: (Claim 35)</p>	<p>“once a frame has begun to be transmitted on the communications path, the transmission must be received at the other end of the path before a second frame can be transmitted in the opposite direction on the communications path”</p>	<p>[Plain and ordinary meaning]</p> <p>For the purposes of jury comprehension, Innovative Wireless proposes the following constructions:</p> <p>“half duplex”: See above.</p> <p>“MAC-layer” / “MAC layer”: See above.</p> <p>“packet”: See above.</p> <p>“bidirectional” / “bidirectionally”: See above.</p>
<p>20. “changing direction of communication of MAC layer groupings of information ... after the completion of transmission of the information corresponding to the first information packet”</p> <p>‘473: (Claim 40)</p>	<p>“changing direction of flow of frames on the communications path only after a transmitted frame has been received at the other end of the communications path”</p>	<p>[Plain and ordinary meaning]</p> <p>For the purposes of jury comprehension, Innovative Wireless proposes the following constructions:</p> <p>“MAC-layer” / “MAC layer”: See above.</p> <p>“information packet”: See above.</p>

1. “CSMA/CD”

The initialism “CSMA/CD” stands for “Carrier Sense Multiple Access with Collision Detection.” The parties disagree that the term CSMA/CD needs to be construed. Cisco contends that CSMA/CD is a well-known protocol defined by the IEEE 802.3 Working Group³ and that the patents-in-suit defer to the published IEEE standard. Thus, Cisco argues, a skilled artisan at the time of the patent would understand the use of the term CSMA/CD. Further, Cisco argues that Innovative Wireless’s proposed construction is neither helpful nor accurate.

Innovative Wireless contends that CSMA/CD is a term the jury cannot readily understand and that Innovative Wireless’s proposed construction is supported by the specification and the IEEE 802.3 standard. Innovative Wireless directs the court to the sentence in the specification that states: “The term CSMA/CD is used herein to refer generically to this technology.” ‘895 Patent, 1:38-40. Innovative Wireless argues that this sentence indicates that CSMA/CD is used throughout the patents-in-suit to describe any network technology that employs a contention scheme similar to the 802.3 scheme. Innovative Wireless further argues that the contention scheme contained in its proposed construction is consistent with the contention scheme overview in the 802.3 standard.

Moreover, Innovative Wireless contends that the “MA” in CSMA/CD shows that CSMA/CD is a technology that relates to connecting to a network. Innovative Wireless argues that “multiple access” shows that the technology relates to connecting to networks in addition to facilitating communications.

³ The Institute of Electrical and Electronics Engineers (“IEEE”) is a professional association dedicated to advancing technological innovation. The IEEE 802.3 Working Group is the subgroup of IEEE that develops and publishes standards for Ethernet networks. IEEE, *IEEE at a Glance* (August 11, 2014), http://www.ieee.org/about/today/at_a_glance.html.

In light of the clear language contained in the patents' specification, the court concludes that the patentee acted as his own lexicographer and specifically defined the term's use in the context of the patents. The specification defines CSMA/CD:

Different technologies can be used to facilitate communications on any LAN⁴ and throughout the Network, the most common being . . . (CSMA/CD) technology. This is documented in IEEE Standard 802.3 The 802.3 Standard is based on the 1985 Version 2 Standard for Ethernet and, although there are some differences . . . the two Standards are largely interchangeable and can be considered equivalent as far as this invention is concerned. The term "CSMA/CD" is used herein to refer generically to this technology. Using CSMA/CD, packets of data are communicated in frames that are generally referred to as Ethernet frames. This term is also used herein, regardless of whether the frames comply with the 802.3 Standard or the Ethernet Standard

'895 Patent, 1:25-45 (footnote added). CSMA/CD is a technology, documented in the IEEE 802.3 standard, used to facilitate network communications. The 802.3 standard is based on the 1985 Version 2 Standard for Ethernet ("Ethernet 2 Standard"). As far as this invention is concerned, the two standards are equivalent. In the patents-in-suit, CSMA/CD is used to generically refer to the technology as defined in either standard. Moreover, the specification references the documented IEEE standard when describing a network technology that uses CSMA/CD. The specification further references the IEEE standard when describing the contention scheme employed in CSMA/CD.

Cisco's argument that the term should be given its ordinary and customary meaning fails. There is a heavy presumption that the term carries its ordinary and customary meaning; however, this presumption is overcome when the patentee acted as his own lexicographer and clearly set forth a

⁴ The initialism "LAN" stands for Local Area Network.

definition of the disputed claim term. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002).

Innovative Wireless's position also misses the mark. Innovative Wireless relies on the use of "generically" in the specification to argue for a particularly broad interpretation. However, within the context of the paragraph, the word generically refers to CSMA/CD as defined in either the 802.3 Standard or the Ethernet 2 Standard. As the patents-in-suit explain, the two standards are interchangeable and equivalent as far as *this invention* is concerned.

The court construes the term CSMA/CD to mean **"CSMA/CD (Carrier Sense Multiple Access with Collision Detection) as defined in either the IEEE 802.3 Standard or the 1985 Version 2 Standard for Ethernet."**⁵

2. "CSMA/CD interface"

The parties disagree whether this term needs construction. Innovative Wireless argues that the court's construction of CSMA/CD combined with the plain and ordinary meaning of "interface" is the proper construction. Cisco argues that the specification provides specific lexicographical guidance to the meaning of this term as it is used throughout the patents-in-suit. Innovative Wireless argues that Cisco's proffered construction is not directly supported by the specification, and what support there is describes preferred or alternative embodiments.

⁵ These standards may be incomprehensible to a jury. This construction captures the court's sense of the appropriate meaning of CSMA/CD, but the court may very well refine this construction before trial.

Cisco's construction is based on the following passage from the specification:

The invention further provides a modem for communicating information packets of Ethernet frames . . . comprising: a control unit; an *interface* for supplying and receiving information packets of Ethernet frames The interface can comprise a *CSMA/CD interface* to a CSMA/CD path, or it can comprise a *direct interface* to a terminal device.

'895 Patent, 6:6-25 (emphasis added).

The court concludes that Cisco's construction improperly limits the term due to Cisco's reliance on a specification passage describing an alternate embodiment of the invention. The specification uses the term "CSMA/CD interface" over 20 times. However, the term is used generally, with no specific indication that the patentee intended a definition different than the plain and ordinary meaning of interface combined with the patentee's clear definition of CSMA/CD.⁶ "Interface," on its own, is a regularly understood term, and is used in a wide variety of contexts within the patent. There is no evidence within the claims or the specification that the "interface" in CSMA/CD interface differs from the usage of "interface" elsewhere in the patents-in-suit.

The court concludes, consistent with the term's usage throughout the patents-in-suit, and consistent with the presumption that claim terms are to be given their plain and ordinary meaning, "CSMA/CD interface" is to be given its **plain and ordinary meaning**.

3. "bidirectional communications path" / "communications path"

The dispute over this term may be summed up succinctly: do the Terry patents, read in their entirety, limit the disclosed (bidirectional) communications path to solely wired embodiments?

⁶ See discussion *supra*, pp. 13-15.

Cisco argues that the specification clearly demonstrates that this invention's sole purpose is providing network access over long-distance two-wire lines. Cisco notes that the patents-in-suit are titled "Information Network Access Apparatus and Methods for Communicating Information Packets Via Telephone Lines," and that the patents-in-suit state at the very beginning that "[t]his invention . . . is particularly concerned with . . . communicating information packets, . . . via two-wire lines such as telephone subscriber lines." '895 Patent, 1:6-10. Moreover, Cisco argues that the patents-in-suit disclaim any network access paths, including a wire path, that are short enough to support conventional, previously known network protocols. Cisco also contends that a wired communication path is the defining characteristic of all variations of the disclosed embodiments. Cisco further argues that the specification's failure to refer to other then-known types of mediums in conjunction with the invention is evidence of purposeful intent to limit the invention's scope to a wired communication path. Cisco argues that wireless communication paths were well-known at the time, but the patents-in-suit never mention a wireless path.

Innovative Wireless contends that the term should be given its broadest ordinary meaning consistent with the written description. Innovative Wireless notes that independent Claims 42, 56, and 71 of the '895 patent recite specific wired communications paths and that independent Claims 1 and 3 of the '264 patent recite a communications path that comprises a two-wire telephone subscriber line. Innovative Wireless further notes dependent Claims 13, 21, 23, and 25 of the '895 patent and dependent Claims 6, 21, 27, and 28 of the '473 recite a two-wire limitation. Innovative Wireless argues that the claim language itself explicitly contemplates a communications path that is broader than a two-wire line. Innovative Wireless objects that Cisco's construction improperly imports a limitation from the preferred embodiment into the claims. Innovative Wireless contends

that the invention's general purpose is to connect devices to CSMA/CD networks over a medium for which CSMA/CD technology is not suitable. According to Innovative Wireless, addressing the distance problem is merely *an* object of the invention along with low cost and high data rates, rather than the *primary* object of the invention

A court may depart from the plain and ordinary meaning of a claim term in only two instances: lexicography and disavowal. *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014). Neither side argues that the patentee here acted as his own lexicographer to define the communications-path terms in a way specific to the patents-in-suit. Therefore, to conclude that the term requires construction beyond its plain and ordinary meaning, the court would need to find "that the specification [or prosecution history] make[] clear that the invention does not include a particular feature, or is clearly limited to a particular form of the invention." *Id.* (internal citations and quotations omitted). "[A]bsent some language in the specification or prosecution history suggesting that the [limiting feature] is important, essential, necessary, or the 'present invention,' there is no basis to narrow the plain and ordinary meaning of the term There are no magic words that must be used, but to deviate from the plain and ordinary meaning of a claim term to one of skill in the art, the patentee must, with some language, indicate a clear intent to do so in the patent." *Id.* at 1373.

After thorough consideration of the entire specification, the court finds that the Terry Patents are solely focused on communicating information packets long distances over wired communication paths. The repeated reference to two-wire lines and telephone lines emphasizes that the inventor was focused on this transmission medium as the core of the new technology. The specification identifies the protocol that lies at the heart of the invention and forms the basis of the patented technology:

Communications between the master modem 34 and the slave modem 32 are carried out in accordance with a new point-to-point protocol which uses collision avoidance to communicate Ethernet frames between the modems. This protocol is described below and for convenience is referred to herein as ECAP The protocol and modems simply serve to replace a direct (short-distance) connection between the interface 30 and the twisted pair wiring 36 by a remote connection via the (much greater distance) two-wire line. *Thus although as described here the line 12 is a telephone subscriber line, it can be appreciated that the same arrangement of master and slave modems operating in accordance with the new protocol can be used to communicate Ethernet frames via any twisted pair wiring which is too long to permit conventional 10BASE-T or similar LAN interconnections* It can be seen from the above description that embodiments of the invention are centered on the arrangement and functioning of the modems 32 and 34.

'895 Patent 9:32-10:8 (emphasis added). Where the specification clearly limits the invention to a particular form, and it is clear no broader scope was contemplated, it is proper to construe the claims consistently with that limitation. *In re Rembrandt Technologies, LP*, 496 F. App'x 36, 45 (Fed. Cir. 2012); *Kinik Co. v. Int'l Trade Comm'n.*, 362 F.3d 1359, 1365-66 (Fed. Cir. 2004). By detailing several specific alternate embodiments, the Terry patents clearly contemplate several types of communication paths. However, the preceding passage, read in light of the patent as a whole, makes it clear that the patents' scope is limited to a communication path between modems consisting of twisted-pair wiring that is too long to permit conventional LAN interconnections. This limitation is consistent with the entire written description of the patent and all disclosed embodiments. To conclude otherwise would allow the patent to expand impermissibly beyond what the inventor invented and sought to claim before the Patent Office.

Contrary to Innovative Wireless's argument, this case is distinguishable from *Hill-Rom*. In *Hill-Rom*, the term "datalink" was only described as wired in depictions of preferred embodiments

and never when describing the datalink generally. *Hill-Rom*, 755 F.3d at 1374. In the Terry patents, the communications path is described as a two-wire line and a two-wire telephone subscriber line in descriptions of preferred embodiments. The patentee specifically noted that those examples were alternate embodiments. However, the specification makes plain that embodiments—which this court understands to mean all embodiments—could be enabled which utilized any twisted-pair wiring too long for conventional LAN interconnections. The court finds that no additional construction is required for the word bidirectional, and that a person having ordinary skill in the art would comprehend its meaning.

Therefore, the court construes the terms “bidirectional communications path” to mean **“bidirectional communications path utilizing twisted-pair wiring that is too long to permit conventional 10BASE-T or similar LAN (Local Area Network) interconnections”** and “communications path” to mean **“communications path utilizing twisted-pair wiring that is too long to permit conventional 10BASE-T or similar LAN interconnections.”**

4. “information frame”

Although Cisco believes that no construction of this term is necessary, both parties agree, at least in the alternative, that an information frame is a group of bits which are transmitted over a network as a unit. Thus, the crux of the dispute over this term is whether an information frame must include a data field. Cisco contends that Innovative Wireless’s construction including a “data field” is ambiguous as to the scope of data. According to Cisco, it is unclear whether data includes control and error-checking information. Cisco argues that when an information frame is required by the claims to have a particular structure, the claims themselves describe that structure. Cisco further

argues that the specification does not support the data field limitation. Finally, Cisco notes that the specification repeatedly refers generically to both data payloads and control bits as “information.”

Innovative Wireless argues that the specification teaches that an information frame is a particular type of frame, one that carries information; Innovative Wireless contends that these are distinct from control frames, which Innovative Wireless argues contain no data. Innovative Wireless argues that the patentee uses information frame and data frame interchangeably. Innovative Wireless contends that if the patentee intended information frame to mean any kind of frame, the patentee just would have called it a frame.

The patents’ specification only references information frames in one paragraph, providing little additional guidance as to the term’s definition. An information frame is introduced as something that envelopes an information packet and has an error check field. ‘895 Patent, 3:58-59. The information frame may or may not contain control information from the master modem or response information from the slave modem. ‘895 Patent, 3:62-65. If the control and response information is not included in the information frame, it may be sent in further frames. ‘895 Patent, 3:62-65. The distinction between the information frames and other frames is the encapsulation of information packets. Consistently throughout the patents-in-suit, and in every claim that describes information frames, information frames envelop information packets. Additionally, within the context of the Terry patents, every information packet is received from or destined to the CSMA/CD path.

The court construes the term “information frame” to mean **“a group of bits transmitted as a unit over a network that contains an information packet and is received from or destined to the CSMA/CD path.”**

5. “enveloping information packets in information frames” / “enveloping information corresponding to at least one of the [...] information packets in at least one [...] information frame”

The parties’ dispute over this term centers on whether enveloped information packets must be intact Ethernet frames. Cisco argues that communicating Ethernet frames is the stated goal of the invention. Cisco further argues that the specification consistently uses “enveloping” to describe encapsulating an intact Ethernet frame into an ECAP (Ethernet Collision Avoidance Protocol) frame. By using the term envelop, Cisco argues, the patentee intended to capture the specific embodiment illustrated in Figure 9.

Innovative Wireless contends that Cisco’s construction rewrites the claims to import additional limitations without a textual basis from the intrinsic record. Moreover, Innovative Wireless argues that Cisco’s use of “intact” in its construction violates the doctrine of intra-claim differentiation. Innovative Wireless contends that since an intact Ethernet frame contains an error check field, Cisco’s construction would render the language describing the error check field in the information frame superfluous.

Cisco’s proposed construction is unwieldy and is not directly supported by the claim language or specification. More importantly, with the exception of “information packets” and the previously defined “information frame,” there are no words in the disputed claim phrases which require construction beyond their plain and ordinary meaning. The phrases contain straightforward, easily understood language that is not technical in nature. The court must not rewrite claim language without a textual hook in the claim language. *NTP, Inc. v. Research in Motion, Ltd.*, 392 F.3d 1336, 1363 (Fed. Cir. 2004). The court concludes that the only part of the disputed claim term that truly requires construction is “information packets.”

The patents' specification describes an information packet as distinct from an Ethernet frame. It is unequivocal from the specification, the patents' described embodiments, and the claim language that information packets may contain all or certain parts of Ethernet frames. Also, it is clear that although information packets are "generally referred to as Ethernet frames," they are not identical; otherwise the patentee would have only referred to Ethernet frames instead of the generic information packets.

The court therefore concludes that the phrases "enveloping information packets in information frames" and "enveloping information corresponding to at least one of the [...] information packets in at least one [...] information frame" are to be given their **plain and ordinary meaning**. The court further construes "information packets" to mean "**units of data for transmission over networks that contain all or part of an Ethernet frame.**"

6. "control information"

The parties disagree that this term needs to be construed. Cisco contends that control information is central to the claimed invention and that Cisco's construction ensures that the asserted claims' scope remain aligned with the invention. Cisco argues that the patents-in-suit repeatedly teach that the inventions' half-duplex communications use a collision avoidance protocol. As explained in the specification, the protocol defines that the master modem has priority and control over the slave modem. The master modem determines when the slave modem may send information via the bidirectional communications path. The control by the master modem avoids collisions on the communications path. Cisco contends that collision avoidance is not simply a desired goal, but is the absolute result because the master modem-control scheme ensures that collisions cannot occur.

Cisco further argues that the patents-in-suit's prosecution history confirms the importance of the master modem-control scheme. Cisco argues that the patentee took the position that control information was a novel aspect of the rejected claim in order to overcome prior-art rejection. Finally, Cisco contends that Innovative Wireless's argument about the specification's reference to an unexpected frame mischaracterizes the specification. According to Cisco, the specification describes the unexpected-frame scenario as indicative of an error condition where some but not all of the expected response was lost during transmission, not, as Innovative Wireless contends, when the slave modem sends data that the master modem did not permit.

Innovative Wireless contends that Cisco's proposed construction improperly imports limitations from preferred embodiments and that Cisco's construction is unsupported by the intrinsic record. Innovative Wireless further argues that each claim containing the term has its own specific language detailing how control information is defined in that claim. Innovative Wireless contends that it would be improper to override each specific choice of claim language with Cisco's proposed construction. Innovative Wireless also argues that the specification addresses that the master modem may receive unexpected frames, meaning that the patent contemplates that the master modem cannot truly dictate when the slave modem sends data.

The language used in the claim defines the scope of the invention. *Phillips*, 415 F.3d at 1312. Independent Claim 1 and dependent Claims 4 and 5 of the '895 Patent describe a control regime where the master interface to the communications path supplies control information and the slave interface depends on that control information to transmit data. In the '264 Patent, Claim 5 describes a master apparatus that contains a control unit that produces control information to control a slave apparatus to provide half-duplex communications. Claim 8 of the '264 Patent describes the

corresponding slave unit that responds to the control information. Independent Claims 1 and 11 and dependent Claims 14 and 16 of the '473 patent describe a similar control regime where the first modem sends control information to a second modem to enable half-duplex communications. Further, Claims 26 and 35 of the '473 Patent describe a master modem that sends control information to control a slave modem to enable half-duplex communications. In contrast, Claim 48 of the '895 Patent and claims 30 and 31 of the '473 Patent describe another arrangement; in these claims both the first/master and the second/slave ends are comprised, in part, of a control unit.

In sum, the claims as a whole describe a control scheme where the control units on both ends of the communications path exchange control information in order to facilitate half-duplex communications. Moreover, the patents-in-suit's prosecution history acknowledges that the master modem control scheme was a distinguishing feature for the claims dealing with that control scheme. The prosecution history further reflects that the exchange of control information to enable half-duplex communications is the crux of the distinguishing features which allowed patentability over the prior art.

The court construes "control information," read in light of how it is used in the Terry Patents' claims and specification and interpreted in light of the patents' prosecution history, to mean **"information exchanged on the communications path to enable half-duplex communications."**

7. “supplying information packets ... to the communications path in dependence upon the control information”

8. “wherein the control information and the dependence on the control information [...] are arranged to avoid collisions [...] between information packets communicated from the first buffer to the second buffer and information packets communicated from the third buffer to the fourth buffer”

Cisco seeks to rewrite these two claim phrases with language it argues will facilitate an understanding of the “scope of the claims in the context of the” Terry Patents. Cisco argues that its construction is consistent with the patents’ “requiring that information is provided to the path ‘under control of and in response to received control information.’” Innovative Wireless counters that the claim phrase has an easily understood plain and ordinary meaning and any necessary clarification to the phrase can be accomplished by defining individual words or phrases that might be confusing to a jury.

The court concludes that these two disputed phrases are composed of words that have plain and ordinary meanings and, when read in the light of the specification and the court’s other constructions, a person of ordinary skill in the art would easily comprehend each phrase’s meaning without further elaboration. The court will not engage in rewriting lengthy claim phrases without specific textual guidance in the specification or intrinsic record.

Accordingly, the court concludes that “supplying information packets ... to the communications path in dependence upon the control information” and “wherein the control information and the dependence on the control information [...] are arranged to avoid collisions [...] between information packets communicated from the first buffer to the second buffer and information packets

communicated from the third buffer to the fourth buffer” are to be given their **plain and ordinary meaning** with no additional construction required.

9. “control unit”

10. “control unit is responsive to control information, from another apparatus coupled to the communications path”

Cisco concedes in its opening brief that “at first blush, one might interpret the phrase [control information] to mean simply a unit that controls.” Due to the presumption that a claim term carries its plain and ordinary meaning, in order for the court to adopt an alternative construction, Cisco must show that the patentee acted as his own lexicographer or included in the specification expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope. *Thorner v. Sony Computer Entertainment America, LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012) (citations omitted). Innovative Wireless argues that Cisco has made no such showing and that Cisco’s reliance on language describing preferred embodiments improperly limits the claim language.

The court finds that nowhere in that body of the patent does the patentee define control unit in a way different from the plain and ordinary meaning of the term as would have been understood by a person having ordinary skill in the art of the invention. Neither does the patentee disavow claim scope or indicate exclusions or restrictions on the term. The usage of “control unit” in the claims is clear, and there is no indication that further definition is required by the context of the claims or specification. Furthermore, with regard to the phrase “control unit is responsive . . .,” the court finds that the remaining words in the phrase are clear and readily understood. There is no indication in the

intrinsic record that the court need adopt Cisco's rewriting of the disputed claim phrase, as each of the remaining words—alone and in conjunction—have an easily understood meaning.

Accordingly, the court concludes that “control unit” and “control unit is responsive to control information, from another apparatus coupled to the communications path” are to be given their **plain and ordinary meaning**.

11. “half duplex communications”; “half duplex manner”

12. “using half duplex communications controlled by the first modem”

The parties present opposed arguments regarding the inventions' half-duplex communications terms. The court finds each side's arguments misplaced in light of the clear definition introduced early in the patents' specification:

The half duplex communications, which can alternatively be considered as time division duplex or time compression multiplex communications, avoid collisions or interference between information packets communicated in the two directions of communication on the communications path by ensuring that the communications in the two directions take place at different times.

'895 Patent, 3:47-53 (emphasis added). The court concludes that this unequivocal statement defining the inventions' half-duplex communications indicates how the patentee intended for the term to be understood in the context of the patents' claims.

Therefore, the court construes “half duplex communications” and “half duplex manner” to mean **“communications which avoid collisions or interference between information packets communicated in the two directions of communication on the communications path by ensuring that the communications in the two directions take place at different times.”** The court further

concludes that the term phrase “using half duplex communications controlled by the first modem” should be given its **plain and ordinary meaning** in light of the court’s construction of “half duplex communications.”

13. “master modem”; “slave modem”

The nature of the relationship between the master and slave modems is the focus of the parties’ dispute over this term, which appears in the ‘473 Patent’s independent Claim 26. Cisco argues that the master modem must have “complete control,” and that the slave modem supplies information to the communications path “only in response to” information received from the master modem. The court finds, however, that Cisco attempts to import limitations that are not present in the claim language and not supported by the patent’s specification. Innovative Wireless correctly argues that the relationship between the master and slave modems is described in the claim itself: “the master modem controls the slave modem by control information . . . so that communications of at least the information corresponding to the Ethernet frames on the bidirectional communications path take place in a half-duplex manner. . . .” ‘473 Patent, Claim 26. Further, the specification is consistent with the term’s usage in the claim language and does not support Cisco’s insertion of additional limitations on the terms. The court agrees with Innovative Wireless that the use of these terms in the patent is also “consistent with the well understood meaning in the computer and networking fields that ‘master’ and ‘slave’ refers to a general concept of control. . . .” The court finds that a person of ordinary skill in the art would readily understand the terms as used in the claim and further informed by the specification.

Accordingly, the court concludes that “master modem” and “slave modem” are to be given their **plain and ordinary meaning** with no further construction required.

14. “multiplexing the modem”

15. “multiplexing signals of the first modem”

Cisco argues that these two terms are indefinite. *See* 35 U.S.C. § 112. Although the parties initially briefed and argued at the claim-construction hearing using the Federal Circuit’s earlier standard for indefiniteness, both parties submitted additional briefing to update their argument to incorporate the new standard reflected in the Supreme Court’s recent *Nautilus* decision. A patent is invalid for indefiniteness “if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014).

Cisco contends that the Terry Patents’ specification essentially describes multiplexing “as a term of art that is defined consistently with its usage,” but that the claims use the term multiplexing “in an ambiguous and possibly opposite way.” Cisco argues that it is unclear if the claim language is referring to an act as multiplexing that could be more correctly understood as demultiplexing; therefore, according to Cisco, the claims are indefinite. Innovative Wireless argues that the specification makes it clear that the term multiplexing, as used in the claims, includes both directions of the multiplexing process performed by the master modem, and contends that multiplexing as generally used in the claims combines the “multiplexing” and “demultiplexing” directions.

The patents’ specification supports Innovative Wireless’s argument: “the master modem 34 can provide multiplexed operations for a plurality of slave modems, so that in practice the

transmitting and receiving processes can take place simultaneously and independently in a multiplexed manner.” ‘895 Patent 14:26-36. The specifications and claims consistently describe the overall multiplexing arrangement of one preferred embodiment with multiple slave modems per master modem. Additionally, the claims containing these terms expressly describe the communications path as bidirectional. Therefore, the modem must multiplex and demultiplex information sent over the communications path; this is consistent with a usage of the term “multiplexing” to describe the overall multiplexing process.

The court concludes that the claim terms, when read in light of the specification, provide substantial guidance for a person skilled in the art to understand the bounds of the term, and therefore the scope of the invention. A person of ordinary skill in the art of the Terry Patents would be able to discern, with reasonable certainty, from the context of the claim and the terms’ usage in the specification, what multiplexing means in the context of these disputed claim terms. Therefore, the court finds that these claim terms are not indefinite.

Moreover, as used in the patent, multiplexing is a well-defined and previously known technique that would have a clearly understood meaning to a person of ordinary skill in the art. Nothing in the claim language or specification demonstrates that the patentee intended anything other than the plain and ordinary meaning of the term.

Therefore, the court concludes that “multiplexing the modem” and “multiplexing signals of the first modem” should be given their **plain and ordinary meaning** with no further construction required.

16. “multiplexer . . . for multiplexed connections via respective buffers to respective communication paths”

Cisco argues that its proposed construction provides clarity and is based on the intrinsic record. Innovative Wireless again argues that the disputed phrase contains words that are easily understood combined with words which have either already been defined or individual words that can be defined; Innovative Wireless opposes Cisco’s attempt at wholesale rewriting of the claim phrase.

In light of the court’s previous constructions and the court’s conclusion that the disputed phrase contains easily understood words that have a clear meaning—a meaning that a person having skill in the art would understand without further elaboration—the court concludes that this disputed phrase shall be given its **plain and ordinary meaning** with no further construction required.

17. “MAC-layer packet grouping of data that is grouped to fit into one MAC-layer packet of CSMA/CD networks”

Cisco argues that this term is indefinite under the *Nautilus* standard. Cisco asserts that because the phrase does not appear in its entirety in the specification there is uncertainty about its meaning. Additionally, Cisco argues that the specification does not describe how the “grouping of data” can be “grouped to fit” into a MAC-layer⁷ packet. Innovative Wireless argues that the specification “plainly discloses one such way of grouping to fit.” Additionally, Innovative Wireless argues that the “longstanding rule that phrases in the claims need not be recited word-for-word in the specification” has not been upset by the *Nautilus* decision. *See Bancorp Servs., LLC v. Harford Life Ins. Co.*, 359 F.3d 1367, 1372 (Fed. Cir. 2004).

⁷ The initialism “MAC” stands for Medium Access Control.

The court finds Innovative Wireless's citation to the specification instructive. In describing one embodiment, the patentee disclosed that "refinements can include provisions for sending multiple data frames successively in either direction as described above, concatenating or merging control and/or data frames sent in the same direction." '895 Patent, 17:31-35. Additionally, the specification introduces the term MAC-layer. The court has construed CSMA/CD in this order. In light of the disclosures in the specification, the court concludes that the specification provides adequate guidance for a person skilled in the art to understand the bounds of the claim term. Therefore, the court concludes that the claim is not indefinite under the *Nautilus* standard. *Nautilus*, 134 S. Ct. at 2124.

Further, as each word (or group of words) in the disputed claim phrase has a meaning that would be readily understood on its own or when read in light of the specification, the court concludes that this term shall be given its **plain and ordinary meaning** with no further construction required.

18. "MAC layer grouping of information on the CSMA/CD path"

Cisco argues that this disputed claim phrase, which only appears as a complete phrase in the '473 Patent's Claim 41, contains highly technical language and requires a construction for jury comprehension. Cisco contends that its construction, which rewrites the entire phrase, is supported by the intrinsic record. Cisco urges that the only disclosed "grouping of data" at the MAC-layer is an "Ethernet frame." Further, Cisco directs the court to the '473 Patent's prosecution history to support its arguments that the patentee represented that the specification "describes the format of an Ethernet frame at the MAC layer." (emphasis omitted).

Innovative Wireless responds that the disputed phrase merely constitutes a handful of technical terms connected with everyday English words, which are entitled to their ordinary meaning.

The court agrees. As previously discussed, the use of MAC layer is consistent with its usage in the specification and would be easily understood by a person having ordinary skill in the art. CSMA/CD has already been defined by the court. There is nothing in the intrinsic record that rises to the level of disavowal or lexicography that indicates to the court that the remainder of the phrase carries anything other than its plain and ordinary meaning.

The court concludes that “MAC layer grouping of information on the CSMA/CD path” shall be given its **plain and ordinary meaning** with no further construction required.

19. “the half duplex communications are MAC-layer half-duplex such that once information corresponding to a first MAC-layer packet grouping of data has begun to be transmitted into the bidirectional communications path the information corresponding to the first MAC-layer packet grouping of data is completely transmitted into the bidirectional communications path before information corresponding to a second MAC-layer packet grouping of data is allowed to begin to be transmitted into the bidirectional communications path”

Cisco characterizes the dispute over this lengthy claim phrase as being focused on the meaning of “completely transmitted.” Cisco also urges that the dispute is similar to the parties dispute over the “half-duplex” terms.⁸ Cisco contends that completely transmitted “means exactly that;” still, Cisco proposes to rewrite the claim phrase in its entirety to clarify that “once a device begins transmission of a frame, a device at the other end of the path cannot begin a transmission until that device received the previously transmitted frame.” Innovative Wireless argues that the claim phrase

⁸ See discussion *supra*, pp. 27-28.

should be afforded its plain and ordinary meaning and that the specification does not support the narrow construction Cisco seeks.

The court finds that the claim phrase, read in its entirety, is composed of a combination of technical terms, some of which have been construed by this court, and readily understand English words; a person having ordinary skill in the art would be able to understand the claim phrase readily and comprehend the meaning based on the teaching of the specification and the claim language itself. Despite Cisco's argument that the patent teaches that collisions are "prevented," the court does not find such a clear statement that would warrant adoption of Cisco's narrow construction. The specification anticipates, in at least some embodiments, the possibility of unexpected frames or other devices on the communications path erroneously transmitting frames despite the control scheme implemented by the invention. The court agrees with Cisco that "completely transmitted" means exactly what it says; that meaning requires no further elaboration, nor does the remainder of the claim phrase.

The court concludes that the disputed claim phrase "the half duplex communications are MAC-layer half-duplex . . . into the bidirectional communications path" shall be given its **plain and ordinary meaning** with no further construction required.

20. "changing direction of communication of MAC layer groupings of information . . . after the completion of transmission of the information corresponding to the first information packet"

The parties' dispute over this term is focused on the meaning of "after the completion of transmission." Cisco argues only that the control scheme taught by the Terry Patents requires "waiting" by the slave device and operating only in response to a received frame. Cisco seeks a

construction that the flow on the communications path changes only after a transmitted frame is received. Innovative Wireless argues that Cisco’s construction should be rejected based upon the language in the claim itself, and that the term should be given its plain and ordinary meaning.

The court looks first to the language of the claim to determine the proper construction of a disputed term; here the language is perfectly clear. Innovative Wireless is correct that the claim language itself says the direction of transmission is changed after the completion of transmission; it does not say the direction is changed after the reception of the groupings of information. The specification sections cited by Cisco do not rise to the level of expression of manifest exclusion or restriction sufficient to justify an adoption of Cisco’s rewriting of the claim language. Furthermore, the language used in this disputed claim phrase is normal, everyday English and has a plain meaning that would be evident to a person having ordinary skill in the art.

The court concludes that the disputed term “changing direction of communication . . . corresponding to the first information packet” shall be given its **plain and ordinary meaning** with no further construction required.

B. Summary Table of Adopted Constructions

Claim Term/Phrase	Court’s Construction
1. “CSMA/CD” ‘895: (Claims 1, 6, 7, 15, 16, 27-37, 40, 48, 51-53) ‘264: (Claims 5, 8) ‘473: (Claims 1, 10, 11, 17, 18, 25, 26, 30, 32, 33, 35, 39-42)	CSMA/CD (Carrier Sense Multiple Access with Collision Detection) as defined in either the IEEE 802.3 Standard or the 1985 Version 2 Standard for Ethernet

<p>2. "CSMA/CD interface"</p> <p>'895: (Claims 1, 6, 7, 15, 16, 27-37, 40, 48, 51-53)</p> <p>'264: (Claims 5, 8)</p> <p>'473: (Claims 1, 10, 25, 26, 30, 35, 39-42)</p>	<p>[plain and ordinary meaning]</p>
<p>3. "bidirectional communications path"; "communications path"</p> <p>'895: (Claims 1, 3-12, 15, 17-20, 27-37, 40, 48, 49, 51-53)</p> <p>'264: (Claims 5-9)</p> <p>'473: (Claims 1, 3, 4, 7-9, 11, 15, 17-19, 22-24, 26, 30-35, 37, 38, 40-42)</p>	<p>bidirectional communications path utilizing twisted-pair wiring that is too long to permit conventional 10BASE-T or similar LAN (Local Area Network) interconnections</p> <p>communications path utilizing twisted-pair wiring that is too long to permit conventional 10BASE-T or similar LAN interconnections</p>
<p>4. "information frame"</p> <p>'895: (Claims 3, 4)</p> <p>'473: (Claims 2, 12, 13, 36)</p>	<p>a group of bits transmitted as a unit over a network that contains an information packet and is received from or destined to the CSMA/CD path</p>
<p>5. "enveloping information packets in information frames";</p> <p>"enveloping information corresponding to at least one of the [...] information packets in at least one [...] information frame"</p> <p>'895: (Claim 3)</p> <p>'473: (Claims 2, 12, 36)</p>	<p>[plain and ordinary meaning]</p> <p>"information packets": units of data for transmission over networks that contain all or part of an Ethernet frame</p>

<p>6. "Control information"</p> <p>'895: (Claims 1, 4, 5, 48)</p> <p>'264: (Claims 5, 8)</p> <p>'473: (Claims 1, 11, 14, 16, 26, 30, 31, 35)</p>	<p>information exchanged on the communications path to enable half-duplex communications</p>
<p>7. "supplying information packets [...] to the communications path in dependence upon the control information"</p> <p>'895: (Claim 1)</p>	<p>[plain and ordinary meaning]</p>
<p>8. "wherein the control information and the dependence on the control information [...] are arranged to avoid collisions [...] between information packets communicated from the first buffer to the second buffer and information packets communicated from the third buffer to the fourth buffer"</p> <p>'895: (Claim 1)</p>	<p>[plain and ordinary meaning]</p>
<p>9. "control unit"</p> <p>'895: (Claim 48)</p> <p>'264: (Claims 5, 8)</p> <p>'473: (Claim 30)</p>	<p>[plain and ordinary meaning]</p>
<p>10. "control unit is responsive to control information, from another apparatus coupled to the communications path"</p> <p>'264: (Claim 8)</p>	<p>[plain and ordinary meaning]</p>

<p>11. "half duplex communications"; "half duplex manner"</p> <p>'895: (Claim 48)</p> <p>'264: (Claims 5, 8)</p> <p>'473: (Claims 1, 2, 11, 26, 30, 35, 36)</p>	<p>"communications which avoid collisions or interference between information packets communicated in the two directions of communication on the communications path by ensuring that the communications in the two directions take place at different times"</p>
<p>12. "using half duplex communications controlled by the first modem"</p> <p>'473: (Claims 1, 35)</p>	<p>[plain and ordinary meaning]</p>
<p>13. "master modem"; "slave modem"</p> <p>'473: (Claim 26)</p>	<p>[plain and ordinary meaning]</p>
<p>14. "multiplexing the modem"</p> <p>'895: (Claims 12, 20)</p>	<p>[not indefinite] [plain and ordinary meaning]</p>
<p>15. "multiplexing signals of the first modem"</p> <p>'473: (Claims 5, 20)</p>	<p>[not indefinite] [plain and ordinary meaning]</p>
<p>16. "multiplexer . . . for multiplexed connections via respective buffers to respective communication paths"</p> <p>'895: (Claim 51)</p>	<p>[plain and ordinary meaning]</p>
<p>17. "MAC-layer packet grouping of data that is grouped to fit into one MAC-layer packet of CSMA/CD networks"</p> <p>'473: (Claims 1, 11, 26, 30, 35)</p>	<p>[not indefinite] [plain and ordinary meaning]</p>
<p>18. "MAC layer grouping of information on the CSMA/CD path"</p> <p>'473: (Claim 41)</p>	<p>[plain and ordinary meaning]</p>

<p>19. “the half duplex communications are MAC-layer half-duplex such that once information corresponding to a first MAC-layer packet grouping of data has begun to be transmitted into the bidirectional communications path the information corresponding to the first MAC-layer packet grouping of data is completely transmitted into the bidirectional communications path before information corresponding to a second MAC-layer packet grouping of data is allowed to begin to be transmitted into the bidirectional communications path”</p> <p>‘473: (Claim 35)</p>	<p>[plain and ordinary meaning]</p>
<p>20. “changing direction of communication of MAC layer groupings of information ... after the completion of transmission of the information corresponding to the first information packet”</p> <p>‘473: (Claim 40)</p>	<p>[plain and ordinary meaning]</p>

4. **Conclusion**

For the above reasons, the court construes the disputed claims as noted and so **ORDERS**. No further claim terms require construction.

IT IS FURTHER ORDERED that this case is **SET** for a **Scheduling Conference** on **March 9, 2015, at 2:00 p.m.**, in Courtroom 7, Seventh Floor, United States Courthouse, 501 W. 5th Street, Austin, Texas 78701. The parties shall meet and confer in advance of that date in an attempt to settle this case. If the case is not settled, the parties shall confer in an attempt to reach agreement on a schedule to follow for the remainder of this case. The court will render a Scheduling Order as a result of the **March 9, 2015** conference.

SIGNED this 8th day of January, 2015



LEE YEAKEL
UNITED STATES DISTRICT JUDGE