IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

TELCORDIA TECHNOLOGIES INC.,	)	
	)	
Plaintiff,	)	
	)	
v.	)	Civil Action No. 04-875-GMS
	)	
LUCENT TECHNOLOGIES INC.,	)	
	)	
Defendant.	)	

LUCENT TECHNOLOGIES INC.'S OPENING CLAIM CONSTRUCTION BRIEF REGARDING U.S. PATENT NO. 4,863,306

YOUNG CONAWAY STARGATT & TAYLOR, LLP
John W. Shaw (No. 3362)
Monté Squire (No. 4764)
The Brandywine Building
1000 West Street, 17th Floor
Wilmington, Delaware 19899-0391
(302) 571-6600
jshaw@ycst.com
Attorneys for Lucent Technologies Inc.

Of Counsel:

Steven C. Cherny
Latham & Watkins LLP
885 Third Avenue, Suite 1000
New York, NY 10022
(212) 906-1200

David Nelson
Israel Sasha Mayergoyz
David C. McKone
Latham & Watkins LLP
Sears Tower, Suite 5800
Chicago, IL 60606
(312) 876-7700

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TABLE OF CONTENTS

NATURE AND STAGE OF THE PROCEEDINGS 1

SUMMARY OF THE ARGUMENT 1

I. STATEMENT OF FACTS 2

A. Background of the Technology 2

B. The Convergence of Circuit-Switched and Packet-Switched Networks 4

C. The Patented System 4

II. CLAIM CONSTRUCTIONS 9

A. "plurality of sources having access to the bit stream" & "inserting means" 9

B. "inserting each of said packets comprised of data from one of said plurality of sources into any empty payload field of any of said frames" 13

C. "such that data in packetized format from any of said sources is written into any available empty payload field of any of said frames for transmitting data from each of said sources at its own desired bit rate" 17

D. "empty payload field" 20

E. "available empty payload field" (claims 1 and 3) and "empty payload field of any of said frames available to said inserting means" (claim 4) 22

F. "frame timing information" 25

G. "generating means" 26

H. "processing means" 27

CONCLUSION 28

TABLE OF AUTHORITIES

FEDERAL CASES

A.B. Dick Co. v. Burroughs Corp.,
713 F.2d 700 (Fed. Cir. 1983).....19

Alloc International, Inc. v. USITC,
342 F.3d 1361 (Fed. Cir. 2003).....26

Autogiro Co. of America v. United States,
384 F.2d 391 (Ct. Cl. 1967).....10

Bellcore, Inc. v. Fore Sys., Inc.,
113 F. Supp. 2d 635 (D. Del. 2000).....18

Bellcore, Inc. v. Fore Systems, Inc.,
2003 WL. 22295442 (D. Del. Oct. 3, 2003).....20

Bellcore v. Fore Sys., Inc.,
62 Fed. Appx. 951 (Fed. Cir. 2003)..... passim

Biagro Western Sales, Inc. v. Grow More, Inc.,
423 F.3d 1296 (Fed. Cir. 2005).....14

Bilstad v. Wakalopolus,
386 F.3d 1116 (Fed. Cir. 2004).....9

C.R. Bard, Inc. v. U.S. Surgical Corp.,
388 F.3d 858 (Fed. Cir. 2004).....25

Curtiss-Wright Flow Control Corp. v. Velan, Inc.,
2006 WL. 335609 (Fed. Cir. Feb. 15, 2006).....12

Dynacore Holdings Corp. v. U.S. Phillips Corp.,
363 F.3d 1263 (Fed. Cir. 2004).....20

Gemstar-TV Guide International, Inc. v. International Trade Commission,
383 F.3d 1352 (Fed. Cir. 2004).....27

Merck & Co. v. Teva Pharms.,
395 F.3d 1364 (Fed. Cir. 2005).....18, 22

Microsoft Corp. v. Multi-Tech System, Inc.,
357 F.3d 1340 (Fed. Cir. 2004).....11

Mycogen Plant Science, Inc. v. Monsanto Co.,
252 F.3d 1306 (Fed. Cir. 2001).....20

Pause Tech. LLC v. Tivo Inc.,
419 F.3d 1326 (Fed. Cir. 2005).....24

Phillips v. AWH Corp.,
415 F.3d 1303 (Fed. Cir. 2005)..... passim

Specialty Composites v. Cabot Corp.,
845 F.2d 981 (Fed. Cir. 1988).....26

NATURE AND STAGE OF THE PROCEEDINGS

On July 16, 2004, Telcordia Technologies, Inc. ("Telcordia") sued Lucent Technologies Inc. ("Lucent") for patent infringement in this Court. Telcordia's complaint alleged that Lucent infringes U.S. Patent No. 4,893,306 and sought injunctive relief and damages. On June 14, 2005, Telcordia amended its complaint to add allegations of infringement of U.S. Patent Nos. 4,835,763 and Re 36,633. Pursuant to the Court's Revised Scheduling Order of January 24, 2006, Lucent submits this Memorandum in support of its proposed constructions of the disputed claim terms of claims 1, 3 and 4 of U.S. Patent No. 4,863,306 ("the '306 patent"). The disputed terms and proposed constructions are also set forth in the Final Joint Claim Construction Chart filed by the parties on February 17, 2006. Lucent joins Cisco Systems Inc.'s Opening Claim Construction Brief Regarding U.S. Patent No. 4,835,763. Lucent also joins Alcatel USA, Inc.'s Opening Claim Construction Brief Regarding U.S. Reissue Patent No. Re 36,633.

SUMMARY OF THE ARGUMENT

The parties dispute a number of claim terms in the '306 patent. The terms and each party's constructions are set forth in the table attached to the end of this brief. For the reasons set forth below, Lucent's constructions should be adopted.

I. STATEMENT OF FACTS

A. Background of the Technology

The '306 patent generally "relates to the transmission of data in telecommunications networks." 1:25-26.[1] At the time the '306 patent was filed in 1987, there were two principal types of telecommunications networks: ***circuit-switched*** networks and ***packet-switched*** networks. 1:65-66.

A circuit-switched network transmits data by creating a dedicated connection between two terminal devices. The early telephone system is a classic example of a circuit-switched network. When one subscriber wanted to call another subscriber, a telephone operator created a direct electrical connection between the subscribers' telephones by plugging a jumper cable into the input and output sockets. The connection then lasted for the duration of the call. The copper wire used to connect the subscribers could not be used to transmit any other phone calls at the same time—even if the subscribers were silent during the call.

As circuit-switched networks evolved, it became possible to "multiplex" several connections over the same physical wire. 1:67-68. Multiplexing is the process of combining multiple channels that carry data into one common connection. 1:68-2:6. There are a number of different ways in which data can be multiplexed, but the most common approach at the time the '306 patent was filed was called time division multiplexing.[2]

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[1] The '306 patent is attached as Exhibit A. Citation to the patent throughout this brief is done by xx:yy, where "xx" corresponds to the column number and "yy" corresponds to the line number.

[2] In the time division multiplexed system described in the '306 patent, a selected time period defines a transmission cycle for the connection. This cycle is then divided into individual time slots that are used to transmit a chunk of data from the individual channels. For example, if each transmission cycle is 1 second in length and each transmission cycle is divided into 100 cycles, then each time slot will be 1/100th of a second in duration. 1:67-2:6.

Under this approach, each channel multiplexed onto the connection was assigned a particular time slot to transmit its data within each transmission cycle. 2:1-6. That channel (which would generally be a phone call) would then be assigned that same time slot (*e.g.*, slot 1) to transmit its data for the duration of the call. These circuit-switched connections are particularly suitable for voice transmissions where even a small amount lost or delayed data means poor sound quality. These networks, however, use capacity inefficiently because much of the capacity is wasted on connections that are set up but barely used when the line is silent.

An alternative to circuit-switched networks are packet-switched networks. A packet-switched network operates by dividing data into smaller groups of data called "packets." The Internet is a classic example of a packet-switched network. Each packet includes two distinct parts—a payload and a header. 2:53-54. The payload carries a piece of the data being transmitted and the header includes a destination address. 2:49-54; 9:22-27. A packet is analogous to a letter where information inside the envelope is the payload and the address on the front of the envelope is the header.

A packet-switched network uses capacity more efficiently than a circuit-switched network. Because network links are not exclusively dedicated to a specific communication as in a circuit-switched network, packets can be delayed or lost. Transmission therefore is not as reliable or predictable, thereby making the use of packet-switched networks for the transmission of real-time data like voice a more challenging task than in circuit-switched networks. Packet-switched networks are particularly suited, however, to transmitting computer data, such as email and facsimiles, that are not as time sensitive as transmission of telephone calls.

B. The Convergence of Circuit-Switched and Packet-Switched Networks

In the mid-1980s, as computers became more prevalent, it became desirable to transmit both circuit-switched data (e.g., phone calls) and packet-switched data (e.g., email) on the same transmission network, such as networks already built by telephone and cable companies. 2:68-3:2. Because circuit-switched and packet-switched transmissions were optimized for very different types of data, a number of approaches were proposed for integrating transmission of circuit and packet data.

One such technique mentioned in the '306 patent used a "Batcher-banyan network" that allowed circuit-switched data to be carried over a packet-switched network. 3:49-4:2. Another approach noted by the '306 patent is Asynchronous Time Division Multiplexing ("ATDM"), in which time slots not assigned to voice calls were used to transmit packet data. 4:3-24. Numerous other approaches were developed before and after the '306 patent. The '306 patent described and claimed a very specific technique called "Dynamic Time Division Multiplexing" ("DTDM").

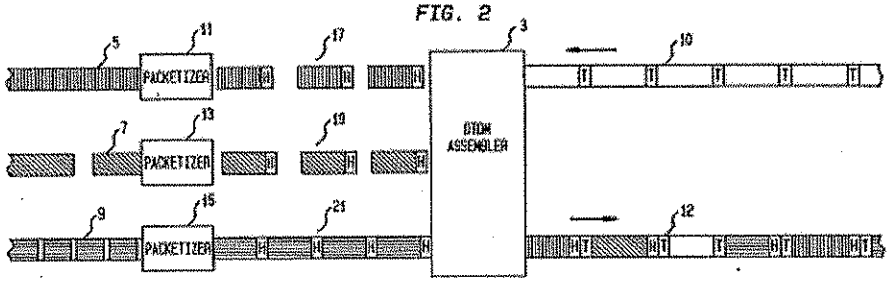
C. The Patented System

The patented system integrates data from a plurality of different "tributaries" that each transmit data at different bit rates.[3] The claimed invention uses a "DTDM assembler" with multiple interface units that are each dedicated to handle a specific data tributary. 8:48-50. Each interface unit includes a "packetizer" that converts the incoming tributary data into packet-switched data. 8:43-50. Figure 2 of the '306 patent shows the DTDM system:

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[3] Digital data is transmitted through a combination of 0s and 1s. The "bit rate" indicates the number of 0s and 1s transmitted per second.

FIG. 2



The DTDM assembler (3) receives data from three separate tributaries (5, 7, and 9) for insertion into the train of empty frames. The '306 patent explains that "each of the three tributaries has a characteristic shading in Fig. 2 so that it is possible to follow how data from the three tributaries is combined to form the DTDM bit stream [12]." 7:23-26. As depicted, all the tributaries remain separate until the DTDM assembler places the packets from each tributary into empty frames of the DTDM bit stream (12).

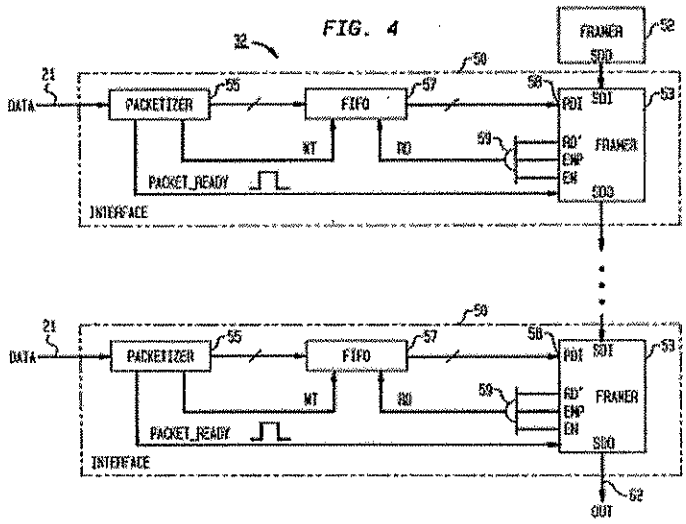
In addition to the source data tributaries, the DTDM assembler (3) receives "a train of DTDM frames with empty payload fields [10]. . . . This train has a bit rate which defines the basic backbone transmission rate from the DTDM transmission." 5:1-4. The '306 patent explains that the train of empty DTDM frames "may be analogized to a train of empty freight cars. The empty freight cars are then filled with data from various tributaries which may have been in circuit or packet format." 5:8-12. The patent also explains that "the total traffic of all inputs at any given time is less than the bit rate of the basic backbone DTDM stream." 9:50-53.

"The DTDM frame is the fundamental unit of information transport in DTDM." 6:51-53. Each DTDM frame consists of two fields (i.e., parts)—(1) an overhead transmission field, and (2) a payload field. 4:49-52. The payload field is used for transporting packetized data from either a packet-switched or circuit-switched tributary. 4:54-56. A frame has an empty payload field when it does not contain a valid data packet (*i.e.*, it is empty of data from a source). 9:38-41.

In the system depicted in Figure 2, the DTDM assembler "merge[s] traffic from three different communications sources or tributaries into a single DTDM bit stream." 5:14-16. Each source data tributary accesses the bit stream through a "[s]pecialized 'framer' circuit[] that inserts packets individually into available payload fields of the DTDM bit stream." *Bellcore v. Fore Sys., Inc.*, 62 Fed. Appx. 951, 952 (Fed. Cir. 2003) (Ex. B). Figure 2 shows that, after the DTDM bit stream (12) exits the assembler, each frame is filled with data from only one source tributary because each frame has a single characteristic shading. Central to the claimed invention, the DTDM bit stream "is shared among several data sources by allocating discrete segments, or 'frames,' of the bit stream to each data source." *Id.*

Because the DTDM technique is designed to transmit various types of data having different bit rates, the '306 patent provides a priority system to differentiate among the multiple data tributaries. The DTDM system "giv[es] higher priority to the circuit tributary, and allow[s] the voice and graphics tributaries to contend on a first-come, first-served basis" for available empty frames. 7:48-52. According to the priority system, "[t]he circuit tributary seizes one out of every three frames passing," "the voice tributary will on average seize one out of every 2,160 frames," and the "graphics tributary will seize one out of every 150 frames." 7:53-58; *accord* 5:22-38; 5:51-60. Thus, "[t]he system described by the patent allocates frames to each data source dynamically, depending on the priority of each data source." *Bellcore*, 62 Fed. Appx. at 952.

Figures 3 and 4 of the '306 patent illustrate the operation of the DTDM system in "an end-to-end network." 7:65-66. In Figure 3, multiple data inputs (21) (*i.e.*, tributaries) provide different types of data—video, voice, and data—to the DTDM assembler (32). 7:66-68; 9:6-11; Fig. 3. Figure 4 depicts the internal structure of the DTDM assembler and shows how the data received from the source tributaries is prepared for insertion into the DTDM bit stream.



The data transmission process begins when the empty frame generator 52 "generates the chain of empty frames which are sent to the following framers 53," each of which is associated with an interface of a specific data tributary. 9:59-65. Priority (*i.e.*, contention for empty frames) "is automatically resolved in favor of input services [21] having positions closer to the empty frame generator." 9:50-54. The patented system requires that "priority among the data sources [is] determined automatically by the proximity of each data source's framer [53] to the origin of the empty bit stream." *Bellcore*, 62 Fed. Appx. at 952.

When an empty frame reaches the interface of the data tributary (21) having the highest priority, the framer 53 associated with that data tributary inserts a data packet "into the empty payload field of a DTDM frame." 9:31-33. In other words, if the interface unit associated with the tributary having the highest priority has a data packet ready to transmit, the framer 53 will insert that packet into the empty payload field of the incoming frame by replacing the "empty bytes" with the data packet. 9:34-41. At that point, the incoming DTDM frame no longer has an empty payload field and cannot be filled with data from any other tributary because the "emp" signal will not be transmitted. 9:41-49. As a result, the filled frame is passed to the next interface's framer, which

recognizes that the payload field already contains a packet (there will be no "emp" signal) and therefore cannot insert any data regardless of whether it has a packet to transmit or whether there is space in the frame. *Id.* As Telcordia explained to the Federal Circuit:

> Each source occupies only the number of empty frames needed to maintain its own bit rate. . . . Thus, if multiple inserting framers (the framers 53 in Figure 4) have packets of data ready to be transmitted at the same time, the specification teaches the first of these framers will insert its data packet into the frame's empty payload and change the frame's occupancy indicator to "full." ***The other inserting framers will then have to wait for another empty frame to insert their data.*** The specification calls this process . . . "the contention for empty DTDM frames."

Brief for Plaintiff-Appellant Bellcore at 22 (Ex. C).[4]

If the interface associated with the data tributary having the highest priority does not have a complete data packet in its FIFO, the DTDM frame remains empty and goes to the next interface unit. 9:59-65. The next interface's framer unit 53 recognizes the empty payload field and its framer inserts a packet into the empty payload field in place of the empty bytes if the framer has a complete packet ready to insert. *Id.* If neither the first nor the second interface unit has a data packet ready to insert, the frame will arrive empty at the third framer, and so on until either an interface unit inserts a packet into the empty payload field, or the frame leaves all the framers without being filled. *Id.*

A helpful way of viewing the DTDM technique is by analogy to a ski lift. The ski lift passes through three separate locations and the order of locations is based on priority: the first location is closest to the front of the ski lift and used by VIP skiers; the second location is for regular skiers; and the third location is for novice skiers. The ski lift will always have empty chairs for the VIP skiers. If a VIP skier fills a lift chair, no other skier can use that chair. When there are no VIP skiers at the first location, the empty chair will go to the second location and will only be occupied, if (1) the chair is empty (i.e. no skier

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[4] Emphasis added throughout, unless indicated otherwise.

is sitting in the chair) and (2) there is a regular skier ready to get into the chair. When there are no more VIP skiers or regular skiers waiting for a chair, an empty chair will reach the third location and the novice skiers can access the ski lift. If no skier is at the third location the chair will proceed empty.

II. CLAIM CONSTRUCTIONS

A. "plurality of sources having access to the bit stream" & "inserting means"

Disputed Term	Lucent's Construction	Telcordia's Construction
plurality of sources which have access to the bit stream	two or more sources that each insert data into the generated bit stream via its own tributary	sources connected to a circuit path for supplying data to a framer generating a transmission bit stream

Claims 1 and 3 recite a "plurality of sources which have access to the bit stream." The core dispute between the parties is whether the "plurality of sources" must "access" the DTDM bit stream and individually insert data into the bit stream through their tributaries, or whether the sources may be merged somewhere upstream before insertion into the bit stream.

The disputed claim language itself "provides substantial guidance as to the meaning of particular claim terms." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005). The claim language requires "filling the empty payload fields in said frames with data in packetized format from a ***plurality of sources which have access to the bit stream*** including circuit or packet sources." *Claim 1*. This language imposes an explicit requirement that more than one source (*i.e.*, a plurality) must access the bit stream, not simply that data from more than one source ultimately reaches the bit stream. *See Bilstad v. Wakalopolus*, 386 F.3d 1116, 1122 (Fed. Cir. 2004) (holding that ordinary meaning of plurality is "more than one"). Telcordia's construction essentially reads out the word "plurality" by allowing a single stream of merged data to access the DTDM bit stream. If the patentees intended to cover such a system, there would have been no need to draft the claims expressly to require that the "***plurality*** of sources … ***access*** … the bit stream."

As explained in Section I.C, fundamental aspects of the "invention"--such as contention for empty frames, specialized framer circuits, and priority between different sources of data—all result from the requirement that each source access the bit stream through its own tributary. This is not an embodiment of the invention--it is the invention itself. *Autogiro Co. of America v. United States*, 384 F.2d 391, 398 (Ct. Cl. 1967) ("[W]here the patentee describes an embodiment as being the invention itself not only one way of utilizing it" this description guides the understanding of the scope of the claims).

The "Summary of the Invention" explains that the invention requires filling DTDM frames with data through separate tributaries and analogizes the DTDM frames to "a train of empty freight cars." 5:8-10. Taking the patent's boxcar analogy one step further, the patent teaches that each boxcar in the train is filled with cargo from only one merchant (*i.e.*, data from one tributary). The Summary of the Invention provides examples of the claimed DTDM system, and the constant in every example is that each tributary "contends" for empty frames and inserts its own data into such frames. For instance, describing a system that transmits data from three different sources, the '306 patent explains that allocation of the DTDM frames among the tributaries is determined "by giving ***higher priority to the circuit tributary***, and allowing the voice and graphics tributaries ***to contend*** on a first-come, first-served basis." 5:22-26.

The Summary of the Invention also stresses that different tributaries "seize" individual frames: "The circuit tributary ***seizes*** one out of every three empty frames passing by. . . . [T]he voice tributary ***will on average seize*** one out of every 2,160 frames. . . . The graphics tributary ***will fill*** one frame out of 150." 5:26-35; 5:51-60. The patent then states that ***"[i]n this way, three diverse data streams are multiplexed into a single bit stream."*** 5:37-38; *accord* 5:13-19 (explaining that the DTDM multiplexer "merge[s] traffic from three different communications sources or tributaries into a single DTDM bit stream").

If the source tributaries were merged prior to insertion of the packets from different tributaries into the DTDM bit stream, there would be no need for such priority rules because the system would have only one access point. Likewise, if all the source tributaries were merged together, contention among different tributaries for frames would be impossible because there would be only a single merged source (not a plurality of sources) at the point where data actually is inserted into the transmission bit stream. These statements in the Summary of the Invention therefore "are not limited to describing a preferred embodiment, but more broadly describe the overall invention[] of [the] patent[]." *Microsoft Corp. v. Multi-Tech Sys., Inc.*, 357 F.3d 1340, 1348 (Fed. Cir. 2004).

In describing the circuitry necessary to implement the DTDM system, the '306 patent reinforces the understanding that each source inserts data through its own distinct tributary into the DTDM bit stream. The patent explains that the DTDM assembler has multiple interface units with framer circuits, each of which is exclusively dedicated to handling a specific data tributary: "[t]he assembler 32 comprises a plurality of interface units 50. ***Each interface unit 50 serves to interface an associated data input 21 with the DTDM bit stream.***" 8:48-50. Each interface includes a packetizer (55) that "packetize[s] each incoming data stream ***associated with one particular customer service*** or transmission channel and then embed these packets into the basic DTDM transmission frames." 8:42-46. The Federal Circuit confirmed this understanding, specifically noting that each interface also includes "***[s]pecialized 'framer'*** circuits in a DTDM assembler [that] ***insert the packets individually*** into available payload fields of the DTDM bit stream with priority among the data sources determined automatically by the proximity of ***each data source's framer*** to the origin of the empty bit stream." *Bellcore,* 62 Fed. Appx. at 952. If each source did not separately insert data onto the bit stream, separate interfaces would be unnecessary and there would be no difference in the "proximity of each data source's framer."

The described priority scheme also confirms that each source must access the bit stream separately via its own tributary. Resolving the competition among several data sources with vastly different requirements and different bit rates is vital to the invention. Without a way of resolving the competing needs of diverse sources, each source would not be able to transmit data "at its own desired bit rate," as the claims require. To that end, the patent expressly states that "the contention for empty DTDM frames is automatically resolved in favor of input services having positions closer to the empty frame generator." 9:50-53. Likewise, the Federal Circuit noted that "priority among the data sources [is] determined automatically ***by the proximity of each data source's framer*** to the origin of the empty bit stream." *Bellcore,* 62 Fed. Appx. at 952. The prioritization of sources based on the position of their framer circuits stems entirely from the invention's requirement that each source separately insert data via its tributary.

The entirety of the '306 patent uniformly, and without exception, describes the claimed invention as requiring that each tributary separately access the DTDM bit stream by "contending" for and "seizing" empty frames, and doing so with equipment specifically dedicated to each tributary. The claims should be construed consistently with that uniform description of the invention. *See Curtiss-Wright Flow Control Corp. v. Velan, Inc.,* 2006 WL 335609 at *5 (Fed. Cir. Feb. 15, 2006) (construing "adjustable" to require de-heading during operation because the "patent consistently, and without exception, describes adjustment that occurs during operation of the de-header system"). This is particularly true in this case, given that the patent nowhere contemplates, much less describes, a system in which the tributaries are merged before the data packets are inserted into the bit stream. Accordingly, construing this limitation to mean that each

source inserts data via its own tributary "most naturally aligns with the patent's description of the invention." *Phillips,* 415 F.3d at 1316.[5]

B. "inserting each of said packets comprised of data from one of said plurality of sources into any empty payload field of any of said frames"

Disputed Term	Lucent's Construction	Telcordia's Construction
inserting each of said packets comprised of data from one of said plurality of sources into any empty payload field	replacing the empty payload field with data from a single source	writing packets from the sources into payload fields that would otherwise be occupied by non-source bit signals, where the packets are written on a first-come, first-served basis because no payload fields are pre-assigned for use by particular sources[6]

Claim 4 of the '306 patent requires "inserting each of said packets comprised of data from one of said plurality of sources into any empty payload field."[7] The crux of the

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5 Although claim 4 does not include the limitation "plurality of sources which have access to the bit stream," the claim does require an "inserting means" for "receiving said train of frames and for inserting each of said packets comprised of data from one of said plurality of sources into any empty payload field of any of said frames." The parties agree that this is a means plus function limitation and that the recited function is "receiving said train of frames and for inserting each of said packets comprised of data from one of said plurality of sources into any empty payload field of any of said frames." The only dispute is whether the corresponding structure is a plurality of framers that each insert data from their respective tributaries as described in the patent and recognized by the Federal Circuit. As discussed above, multiple framers are required to transmit data from a plurality of sources. Telcordia has argued that Fig. 10 is an alternative embodiment that uses only a single framer. However, Fig. 10 is not an alternative embodiment; it is a downstream multiplexer that combines already assembled DTDM bit streams. It is not an apparatus for "assembling" a DTDM bit stream, as claim 4 requires. Accordingly, the "inserting means" should be construed to require multiple framers, each corresponding to its respective tributary.

6 The portion of Telcordia's construction stating that "where the packets are written on a first-come, first-served basis because no payload fields are pre-assigned for use by particular sources" is addressed below in the context of the "available empty payload field" limitation.

7 Lucent proffers the same construction for the corresponding elements in method claims 1 and 3: "filling the empty payload fields in said frames with data in (continued...)

parties' dispute relates to whether the data that replaces the empty payload field must be from a single source or whether that data may be from multiple sources. Lucent's proposed construction--that data inserted into the frame must be from a single source--is explicitly based in the claim language and specification of the '306 patent. In contrast, Telcordia's construction is a results-oriented attempt to expand the scope of its claims.

At the outset, the claim language itself establishes that an empty payload field of a frame may carry data from only a single source. Claim 4 expressly requires "inserting each of said packets comprised of ***data from one of*** said plurality of sources into any empty payload field of any of said frames." Claim 4. "It is elementary that claim construction begins with, and remains focused on, the language of the claims." *Biagro Western Sales, Inc. v. Grow More, Inc.*, 423 F.3d 1296, 1302 (Fed. Cir. 2005). The claim language here is unambiguous: data from ***one*** of the plurality of sources is inserted into the frame's payload field.

The specification of the '306 patent confirms that Lucent's proposed construction is correct. The Summary of the Invention describes a frame as "the fundamental unit of transport in DTDM" and analogizes the frame to a boxcar. 4:49-50; 5:8-12; 6:51-53. The Summary of the Invention then repeatedly explains that each frame is filled with data from only a single source--either a packet source (i.e., computer or video traffic) or a

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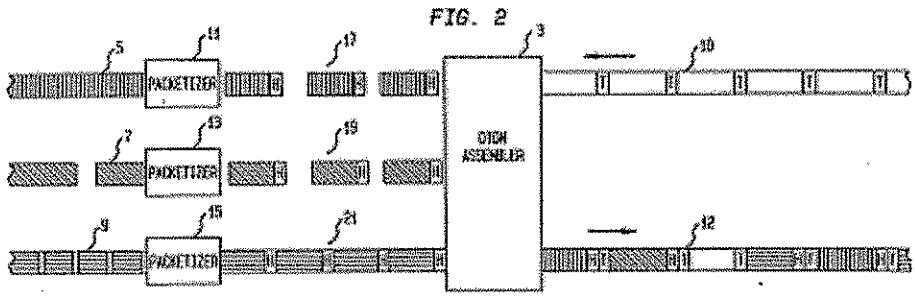
packetized format from a plurality of sources which have access to the bit stream including circuit or packet sources" (claim 1) and "inserting said packets from said sources into the empty payload fields of said frames" (claim 3). Throughout this litigation, Telcordia consistently has stated that claim 4 is simply the corresponding apparatus claim to method claims 1 and 3. Indeed, Telcordia represented that the means-plus-function claims "are counterpart claims to the method claims already asserted," 1/05/06 Hearing Tr. at 36:21-24 (Ex. D), and that "the only claim constructions that would be different would be those claim construction positions that equate the recited means in the means-plus-function claims with the disclosed circuitry in the patents." *Id.* at 39:7-11. Now, in contrast to its recent representation to the Court, Telcordia proffers different constructions for each of the three limitations.

circuit source (i.e., voice traffic). *See* 5:4-7 ("Data in the form of packets ***or*** circuit slots with headers attached are inserted into the empty frames to form the DTDM bit stream."); 4:54-56 ("***[T]he*** payload field of each frame can be filled with ***a*** data packet including [a] header ***or*** a slot from a circuit transmission stream."); 6:66-68 ("***[E]ach frame*** may be filled with ***a*** data packet including a header (H) ***or*** a slot from a circuit transmission stream.").

The Summary of the Invention further explains that each tributary "contends" for and "seizes" individual frames to insert its data. 5:22-37 (different sources "seize one out of every" number of frames); 5:53-60 (different tributaries each "require one out of every" number of frames).[8] In fact, the Federal Circuit determined that the DTDM bit stream "is shared among several data sources ***by allocating discrete segments, or 'frames,'*** of the bit stream ***to each data source.***" *Bellcore*, 62 Fed. Appx. at 952. If different sources could insert data into and share a frame there would be no need for those sources to compete for frames or for frames to be allocated between data sources.

This understanding is reinforced by Figure 2 of the patent, which demonstrates "how data from the three tributaries is combined to form the DTDM bit stream." 7:15-17.

FIG. 2



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8 Consistent with this understanding, the patentees repeatedly emphasized in the specification and the prosecution history that because each source transmits data at its own bit rate, each source "contends for" and "seizes" DTDM frames to transmit its data. 7:46-58; 8/21/89 Amendment and Response at 9 (Ex. E); 2/17/89 Amendment and Response at 9 (Ex. F).

The patent explains that "[e]ach of the three tributaries has a characteristic shading in Fig. 2," with the digital phone tributary (5) having vertical lines, the graphics tributary (7) having diagonal lines, and the circuit transmission tributary (9) having horizontal lines. 7:23-26. Significantly, as shown in Figure 2, ***each*** frame in the DTDM bit stream (12) contains ***only one*** characteristic shading. And no frame contains more than one characteristic shading, which would be necessary if a frame could carry data from multiple sources.

The specification's discussion of the circuitry necessary to implement the invention, which, as discussed in section II.A, provides the sources with access to the transmission bit stream, further confirms that each frame may be filled with data from only a single source. The patent is unequivocal that once a frame is filled with data from a framer corresponding to a particular source (e.g., video), other sources (e.g., voice) cannot insert data into that same frame because the frame is no longer "empty":

> However, ***a framer unit 53 will not read the data from the FIFO 57 unless two conditions are met.*** One is that the "packet-ready" pulse signal from the packetizer 55 is asserted. . . . ***The other condition is that the incoming DTDM frame*** on the serial data input (sdi) of the framer 53 ***is not already occupied by a valid packet, i.e. the incoming DTDM frame is empty.***

9:34-41. Accordingly, once data from one source is inserted into a frame, other sources cannot subsequently insert data into the same frame because the frame is occupied by a valid packet and the "emp" signal will not be sent. 9:41-49. As a result, each frame can be filled only with data from a single source.

C. "such that data in packetized format from any of said sources is written into any available empty payload field of any of said frames for transmitting data from each of said sources at its own desired bit rate"

Disputed Term	Lucent's Construction	Telcordia's Construction
filling the empty payload fields . . . such that data in packetized format from any of said sources is written into any available empty payload field of any of said frames.	packets are only put in frames which are empty	data in packetized format from the sources can utilize the empty payload fields of the frames on a first-come, first-served basis because no payload fields are pre-assigned for use by particular sources

Claim 1 of the '306 patent requires "filling the empty payload fields . . . ***such that data in packetized format from any of said sources is written into any available empty payload field of any of said frames.***" Lucent adopts the construction that Judge Farnan issued in the *Fore Systems* litigation. Telcordia attempts to escape that construction.[9]

In the *Fore Systems* litigation, one of the primary disputes was the proper construction of the term "data in packetized format from any of said sources is written into any available empty payload field of any of said frames." Telcordia's brief framed the issue as follows:

> Fore wants the court, for non-infringement purposes, to construe the claims to require insertion of only a single packet in each frame so that systems that insert multiple packets per frame are not within the literal language of the claim. . . . Claims 1 and 3 require each frame to have "an empty payload field." Frames that have several empty payload fields literally have "an empty payload field," as claimed. Fore's attempt to have the Court rewrite the claims to require each frame to have "one and only one empty payload field" must be rejected.

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[9] Lucent proffers the same construction for the corresponding elements in claim 3 and claim 4. Telcordia offers a slightly different construction for that element in claims 3 and 4, drawing a distinction between "data packets" and "data in packetized format." That distinction is not meaningful for purposes of this claim limitation.

Bellcore's Markman Reply Brief at 10 (Ex. G).

Judge Farnan rejected Telcordia'a argument and characterized Telcordia's proposed construction as "contend[ing] that this phrase means that packetized data can be placed into the payload field of any frame interval whenever a complete data packet becomes available." *Bellcore, Inc. v. Fore Sys., Inc.*, 113 F. Supp. 2d 635, 645 (D. Del. 2000). The Court stated:

> ***The Court agrees with FORE's proposed construction***. Indeed, this construction is consistent with the Court's conclusion that an empty payload field has zero data in it. In addition, the Court believes this interpretation is consistent with the description of the invention contained in the "Summary of the Invention" section of the specification of the '306 patent. In the Court's view accepting [Telcordia's] proposed construction would read the word "empty" out of the claim language. In [Telcordia's] own words its construction would allow "any packet to be written into any frame." This construction is at odds with the claim's express language which requires the data to be written into "any available empty payload field of any of said frames." Accordingly, the Court concludes that the phrase . . . means that packets are ***only put in frames which are empty, i.e. which have zero data in their payloads***.

Id. at 646.[10] This analysis is consistent with the Federal Circuit's instruction that "[a] claim construction that gives meaning to all the terms of the claim is preferred to one that does not do so." *Merck & Co. v. Teva Pharms.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005).

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10 On remand from the Federal Circuit, Judge Farnan modified the construction of "empty payload field" to "mean empty of source data, but including bit signals of some kind." This modification in no way changes the construction of this term. Rather, consistent with Judge Farnan's original construction, this term means that packets are only put in frames which are empty, i.e., have no source data. Nothing in either the Federal Circuit's opinion or Judge Farnan's modified order provides a basis for transforming the original construction into Telcordia's proffered construction which would allow a frame to be filled even after it contains a valid packet. Such construction also is inconsistent with the specification itself, which makes clear that a frame is filled only if "it is not already occupied by a valid packet, i.e., the incoming DTDM frame is empty." 9:40-43.

Throughout this litigation, Telcordia repeatedly has stated that it was "happy" with Judge Farnan's claim construction order and would not seek to alter those constructions.[11] *See* April 14, 2005, Hearing Tr. at 25:22-26:5 (Ex. H) ("In any event, the issue of collateral estoppel, . . . we would be bound by it. We obviously are happy with the decision with Judge Farnan and subsequent ruling by the Federal Circuit in its appeal, so we're not going to be advocating that those rulings should be different."); *see also* Parties' April 6, 2006, Joint Status Report at 3 (Ex. I) ("Telcordia believes that those constructions should govern in these cases.").

Telcordia's attempt to escape collateral estoppel on this term should be rejected. The requirements for collateral estoppel are straightforward: (1) the issue sought to be litigated is identical to the one decided in a prior action; (2) that issue was actually litigated in the first action; (3) the determination of the issue was essential to the final judgment in the first action; and (4) the party against whom estoppel is invoked had a full and fair opportunity to litigate the issue in the first action. *See A.B. Dick Co. v. Burroughs Corp.*, 713 F.2d 700, 702 (Fed. Cir. 1983).

It is uncontroverted that all of these conditions are met here. The district court fully heard Telcordia's arguments on this term and rejected them. Telcordia then had an opportunity to appeal this claim construction, but did not do so. In fact, Telcordia appealed the district court's construction of three other terms but affirmatively *chose* not to appeal the remainder of Judge Farnan's construction. As the Federal Circuit described the proceedings in the *Fore Systems* litigation: "FORE protested the form of the judgment, because Bellcore had not identified the relevant claim constructions that would be disputed on appeal. In response, Bellcore stipulated that the construction given to three limitations of the '306 claims . . . precluded a finding of infringement." *Bellcore*, 62

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[11] Indeed, Telcordia has gone so far as to suggest that the Defendants, who were not involved in any way in the *Fore Systems* litigation were also bound by Judge Farnan's ruling. April 14, 2005, Hearing Tr. at 22:18-23:5 (Ex. H).

Fed.Appx. at 953. Having decided not to appeal this term in the *Fore Systems* case, Telcordia cannot now challenge the construction given by Judge Farnan. *See, e.g., Mycogen Plant Science, Inc. v. Monsanto Co.*, 252 F.3d 1306, 1310-11 (Fed. Cir. 2001) (vacated on other grounds); *Dynacore Holdings Corp. v. U.S. Phillips Corp.*, 363 F.3d 1263, 1267-68 (Fed. Cir. 2004).[12]

D. "empty payload field"

The parties agree that the term "empty payload field" should be construed pursuant to Judge Farnan's order to mean "a payload field that ***is empty of source data, but including bit signals of some kind.***" *Bellcore, Inc. v. Fore Sys., Inc.*, 2003 WL 22295442 (D. Del. Oct. 3, 2003). The parties dispute, however, the meaning of Judge Farnan's construction.

During the meet and confer process, Lucent explained its understanding that the "bit signals of some kind" is properly understood to mean "garbage bits." Telcordia disagreed, contending that "bit signals of some kind" could include "non-source bit signals" beyond "garbage bits." Telcordia's interpretation is an improper attempt to expand Judge Farnan's actual construction--presumably to capture the accused products--and is inconsistent with the record in that case. A proper reading of Judge Farnan's construction, in the context of the disputed issue that was presented, demonstrates that "non-source bit signals" are "garbage bits." Lucent requests this Court to clarify that "non-source bit signals" are "garbage bits."

Judge Farnan initially construed the term "empty payload field" to mean "a frame's payload has zero data in it." In doing so, the Court "reject[ed] Bellcore's

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12 Even Telcordia no longer contends that the claims allow "any packet to be written into any frame." Nor does Telcordia meaningfully dispute that "packets are only put in frames which are empty." Rather, Telcordia's proposed construction focuses on a different issue: whether packets "can utilize the empty payload fields of the frames on a first-come, first-served basis because no payload fields are pre-assigned for use by particular sources."

argument that 'empty payload field' means any condition representing the absence of source data." *Bellcore*, 62 Fed. Appx. at 952. On appeal, Telcordia argued that it did not understand what "zero data" meant but agreed that it could not prevail if the district court meant "no bit signals of any kind." *Id.* At oral argument, Fore stated its understanding that 'zero data' "encompasses various bit signals that might maintain the stated transmission rate of a bit stream, including 'placeholders' or 'garbage bits.'" *Id.* at 957. The Federal Circuit, however, declined to speculate on the meaning of the district court's construction, and remanded the case for further proceedings.

Following remand, Telcordia argued that "empty payload field" means "a frame's payload has zero *source* data in it but can include bit signals of some kind." Bellcore's Supp. Markman Brief at 12 (Ex. J). Bellcore contended that the "garbage bits" discussed at oral argument before the Federal Circuit ***were*** the non-source data that could be included in an empty payload field: "Indeed, *it bears repeating here that the term 'garbage' was introduced by Judge Bryson, who characterized it as non-source data*—'1's and 0's that have no relationship to the stream of any information that's coming in from the source.'" Bellcore's Supp. Reply Brief at 7 (Ex. K). It was in this context that Judge Farnan modified his construction to state that an "empty payload field" means "empty of source data, but including bit signals of some kind."

On this record, Judge Farnan's construction was meant to allow non-source data, which both the parties and the Federal Circuit consistently had characterized as "garbage bits," in the "empty payload field" of the claims. Neither Bellcore nor FORE told Judge Farnan that "bit signals of some kind" or "non-source data" was anything other than these "garbage bits," and Judge Farnan's construction was not meant to encompass anything more. The Court should clarify that an "empty payload field" means "a payload field that is empty of source data, but including bit signals of some kind," and "bit signals of some kind" are "garbage bits."

E. "available empty payload field" (claims 1 and 3) and "empty payload field of any of said frames available to said inserting means" (claim 4)

Disputed Term[13]	Lucent's Construction	Telcordia's Construction
available empty payload field (claims 1 and 3) empty payload field of any of said frames available to said inserting means (claim 4)	empty payload field that can be filled with a data packet from the source, among the plurality of sources, of the highest priority with a data packet ready to transmit	a payload field that is available to receive packet data from a source

As discussed above, there is no dispute that the payload field of a frame must be empty in order for data to be inserted. The issue here is whether "filling the empty payload fields . . . such that data in packetized format from any of said sources is written into any ***available empty*** payload field of any of said frames" requires something more than just empty payload fields. In other words, what does "***available*** empty" mean?

Lucent construes an "***available*** empty payload field" to mean an "empty payload field that *can be filled with a data packet from the source, among the plurality of sources, of the highest priority with a data packet ready to transmit.*" In this way, Lucent's construction gives meaning to both the "available" and "empty" words used by the patentees. *See Merck*, 395 F.3d at 1372 ("A claim construction that gives meaning to all the terms of the claim is preferred to one that does not do so.").

Telcordia, by contrast, construes this limitation to mean "a payload field that is *available* to receive packet data from a source," and suggests that the filling of empty payload fields occurs such that packets "can utilize the empty payload fields of the frames on a *first-come, first-served* basis because no payload fields are pre-assigned for use by particular sources." Such a construction fails to provide any meaning to the "***available*** empty" limitation.

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[13] The parties agree that these terms should share the same construction.

As discussed in Section I.C, the DTDM technique is designed to transmit various types of data having different bit rates. "The system described by the patent allocates frames to each data source dynamically, depending on the priority of each data source." *Bellcore*, 62 Fed. Appx. at 952. This priority scheme is integral to the system the patentees claimed to have invented and is described at length in the Summary of the Invention and throughout the patent's Detailed Description. 5:13-38; 7:14-26; 7:48-58; 8:42-47; 8:55-9:5; 9:29-49; 9:59-65; 16:49-61. And it is this priority scheme that defines what makes an already empty payload field "*available*" as required by the claims: an empty payload field is empty, while an ***available*** empty payload field is a payload field that is empty *and* is located at the framer circuit corresponding to a tributary of the correct priority.

As described in detail in Section I.C, when an empty frame reaches the interface of the data tributary having the highest priority, the framer associated with that data tributary inserts a data packet into the empty payload field of a DTDM frame (indicated by an "emp" signal). 9:29-49. On the other hand, if the interface associated with the data tributary having the highest priority does not have a complete data packet ready to insert, the "en" signal is not triggered and the DTDM frame goes to the next interface unit, which recognizes that payload field of the frame as empty because it sees the "emp" signal. 9:41-49. If the next interface has a data packet to transmit, the framer inserts the packet into the empty payload field in place of the empty bytes when the empty frame arrives at that interface. *Id.* If not, the empty frame is presented to the next tributary interface. 9:59-65. This continues until an interface unit inserts a packet into the empty payload field or the frame leaves all the framers without being filled. 9:59-65. In this way, a data packet is inserted into *available empty payload fields*, i.e., "empty payload field[s] that can be filled with a data packet from the source, among the plurality of sources, of the *highest priority with a data packet ready to transmit*."

To use the ski lift analogy of Section I.C, an empty chair passes through the first location, the location reserved for VIPs with the highest priority. If there is a VIP in line, the empty chair will be filled. If a VIP is not in line, the empty chair will go to the second location.[14] There, the ski chair will be occupied if: (1) the chair is empty, *and* (2) there is a regular skier ready to get into the chair. Only when there are no more VIP skiers or regular skiers waiting for a chair will an empty chair reach the third location where novice skiers can access the ski lift. Skiers get to sit in *available empty* chairs on the lift: an empty chair is filled from the line, of the three lines, of the *highest priority with a skier waiting*.

In contrast, Telcordia contends that an "available empty" payload field is "a payload field that is *available* to receive packet data from a source." On its face, Telcordia's proposed construction impermissibly reads out the requirement that the payload field be ***both*** available ***and*** empty. Telcordia's construction is circular: a payload field is "available empty" if it is "available to receive a packet from a source" which, at bottom, means that it is "empty." This is not what the claims state, and Telcordia's attempt to read out the word "available"--presumably to capture Lucent's products--should be rejected. As the Federal Circuit has instructed, courts "must give each claim term the respect that it is due." *Pause Tech. LLC v. Tivo Inc.*, 419 F.3d 1326, 1334 (Fed. Cir. 2005).

In addition, Telcordia's suggestion that empty payload fields are filled "on a *first-come, first-served* basis because no payload fields are pre-assigned for use by particular

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[14] In the ski lift analogy there might be circumstances where there are so many VIPs waiting for the lift that available empty chairs never make it to the second and third lines. That is not true of the '306 patent. The '306 patent teaches an over-capacity system, i.e., a system in which the bit stream is not 100% occupied and some frames always remain empty. 9:54-58.

sources"[15] is absolutely inconsistent with the patent's detailed and repeated disclosure of the priority scheme required by the invention. 5:22-26 (Summary of Invention stating that the DTDM system "giv[es] higher priority to the circuit-tributary, and allow[s] the voice and graphics tributaries to contend on a first-come, first-served basis" for available empty frames). The patent explicitly states that higher priority data fills the empty payload fields of available frames first and then lower priority sources of data contend for the remaining frames on a first come, first served basis. Adopting Telcordia's construction would exclude from the scope of the claims the very system described in the Summary of the Invention. This cannot be right. *See, e.g., C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 864 (Fed. Cir. 2004).

F. "frame timing information"

Disputed Term	Lucent's Construction	Telcordia's Construction
frame timing information	frame alignment information	frame alignment information comprised of more than one bit

Claims 1 and 3 use the term "frame timing information."[16] The term "frame timing" appears only twice in the '306 patent. The patent first provides that the "[t]he overhead field includes, ***for example***, a frame alignment word for frame timing and the

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15 Telcordia's argument that payload fields are not "pre-assigned for use by particular sources" is a red herring. Lucent's proposed construction does not suggest a scheme in which a payload field is pre-assigned to a particular source (i.e., a scheme in which chairs on the lift are pre-assigned to VIP, regular or novice skiers). Indeed, Lucent agrees with Telcordia that such a scheme (a "reservation" scheme) is not described in the patent and was disclaimed by Telcordia during prosecution. *See* July 3, 1989 Office Action at 2-4 (Ex. L); August 21, 1989 Response to Office Action at 6-14 (Ex. E) (distinguishing the '306 patents priority scheme from the Shikama reference's "reservation" scheme, in response to a Patent Office rejection of the '306 patent as invalid over the Shikama prior art reference). However, the priority scheme taught by the patent is entirely distinct from a reservation scheme.

16 Claim 4 similarly requires "timing information."

empty/full status of the frame." 4:52-54. A straightforward reading of this statement demonstrates that frame timing information can include, but does not require, frame alignment information that is more than one bit. The law is well-settled that a patentee's qualification of a feature as "an example" cannot serve to limit the claims. *See, e.g., Specialty Composites v. Cabot Corp.*, 845 F.2d 981, 987 (Fed. Cir. 1988) ("The three examples of foams in the specification are externally plasticized polyvinylchloride. However, particular embodiments appearing in the specification will not generally be read into the claims.").

The patent's second reference to frame timing states that the "following information ***may*** be available in the overhead transmission field of every DTDM frame; frame alignment word for frame time, empty/full status of the frame, and span identification." 6:61-65. The Federal Circuit has made clear that use of the word "may" is permissive and cannot serve to limit the claims. *See Alloc Int'l, Inc. v. USITC*, 342 F.3d 1361, 1378 (Fed. Cir. 2003) (explaining that word "may" is "commonly used by patentees to show that a limitation is permissive").

Put simply, the '306 patent is clear that frame timing information means frame alignment information without regard to how many bits such information may comprise.

G. "generating means"

The parties agree that this term is a means-plus-function limitation subject to 35 U.S.C. § 112, ¶ 6. The parties also agree that the recited function is "generating a train of frames wherein each frame includes a transmission overhead field containing timing information and an empty payload field." In addition, the parties agree that the structure corresponding to the "generating means" includes at least the control 210, tristate device 222, ROM 224 and timing generator 209. The dispute is whether, as Lucent contends, the generating means also includes a bus 219, a serial-to-parallel converter 216, and an output 206.

Corresponding structure must encompass those structures "integral to performing the stated function." *Gemstar-TV Guide Int'l, Inc. v. Int'l Trade Comm'n*, 383 F.3d 1352, 1362 (Fed. Cir. 2004). The specification states that a "framer unit 200 may also be utilized to ***generate a chain of empty DTDM packets*** (see e.g., framer 52 in FIG. 4)." 16:62-64. Describing the structure in the framer unit that performs this function, the specification explains "the control 210 applies a periodic signal to tristate 222 so that a frame alignment word is periodically read from frame byte ROM 224 ***and transmitted via bus 219 to parallel-to-serial converter 216 and serial output 206 so as to define a train of empty DTDM frames***." 16:66-17:2. Thus, the specification clearly states that the bus 219, parallel-to-serial converter 216, and serial output 206 are components necessary to "***define***" the train of frames. Accordingly, the bus 219, parallel to serial converter 216, and serial output 206 are integral components for performing the claimed function, and therefore also correspond to the generating means.

H. "processing means"

The parties agree that this term is a means-plus-function limitation and that the recited function is processing data from a plurality of sources into packet format. With respect to the corresponding structure, the parties agree that packetizers 55 are part of the processing means, but the parties disagree as to whether the processing means adds a packet header to a segment of source data and communicates a "packet ready" pulse to a framer once a complete packet is stored in a FIFO.

In each tributary, the "processing means" performs the first step of preparing the data from each source for insertion into the generated bit stream. Referring to Figure 4, packetizers 55 convert data from each of the sources into packet format by placing a header at the front of a discrete block of source data and then communicate to the inserting means that the packetized data has been completely stored in the FIFO.

The description of Figure 4 clearly sets forth the structure and acts of the processing means:

> ***Each input 21 is connected to a packetizer 55*** which forms part of the associated interface unit 50. The packetizer 55 puts the incoming data into a packet structure by adding a packet header at the beginning of appropriate segments of the input bit stream.

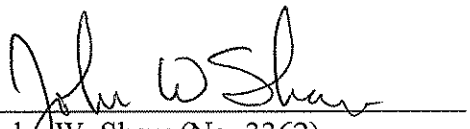
9:18-22. The framer unit will not read data from buffer unless "the 'packet-ready' pulse signal from the packetizer 55 is asserted, indicating one packet is completely stored in the FIFO." 9:35-38. Accordingly, the step of processing source data performed by the plurality of packetizers that a packet header to a segment of source data and communicate a "packet ready" pulse to that framer will know that it can attempt to insert the packet into the next available empty payload field.

CONCLUSION

For the reasons stated above, Lucent respectfully requests this Court to adopt its proposed constructions.

Respectfully submitted,

YOUNG CONAWAY STARGATT & TAYLOR, LLP



John W. Shaw (No. 3362)
Monté Squire (No. 4764)
The Brandywine Building
1000 West Street, 17th Floor
Wilmington, Delaware 19899-0391
(302) 571-6600
jshaw@ycst.com
Attorneys for Lucent Technologies Inc.

Of Counsel:
Steven C. Cherny
Latham & Watkins LLP
885 Third Avenue, Suite 1000
New York, NY 10022
(212) 906-1200

David Nelson
Israel Sasha Mayergoyz
David C. McKone
Latham & Watkins LLP
Sears Tower, Suite 5800
Chicago, IL 60606
(312) 876-7700

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CLAIM CHART

CLAIM CONSTRUCTION SUMMARY CHART

Claim Term	Telcordia's Proposed Construction	Lucent's Proposed Construction
frame timing information [claims 1, 3] timing information [claim 4]	Frame alignment information comprised of more than one bit.	frame alignment information
empty payload field [claims 1, 3, 4] * Although the parties agree that this construction from Bell Communications Research, Inc. v. FORE Systems is correct, the parties have uncovered through the meet and confer process, a disagreement as to the scope of that construction. The parties will address that disagreement in their claim construction briefing.	A payload field empty of source data, but including bit signals of some kind.	a payload field that is empty of source data, but including bit signals of some kind
filling the empty payload fields in said frames with data in packetized format from a plurality of sources which have access to the bit stream including circuit or packet sources [claim 1] inserting said packets from said sources into the empty payload fields of said frames [claim 3]	Writing data in packetized format from sources into all available bit positions of payload fields that would otherwise be occupied by non-source bit signals. Writing packets from the sources into payload fields that would otherwise be occupied by non-source bit signals.	replacing the empty payload field with data from a single source

Case 1:04-cv-00875-GMS Document 102 Filed 03/03/2006 Page 35 of 39

inserting each of said packets comprised of data from one of said plurality of sources into any empty payload field [claim 4]	Writing packets from the sources into payload fields that would otherwise be occupied by non-source bit signals, where the packets are written on a first-come, first-served basis because no payload fields are pre-assigned for use by particular sources.	
data in packetized format [claim 1] data packet[s] [claim 3] data . . . into packet format [claim 4]	Data which is part of a discrete block of data having an address header at the front thereof. Discrete blocks of data, each having an address header at the front thereof. Processing data from a plurality of sources into a plurality of discrete blocks of data each having an address header at the front thereof.	a discrete block of data having an address header at the front thereof
plurality of sources which have access to the bit stream [claim 1] plurality of sources having different bit rates and which have access to said bit stream [claim 3]	Sources connected to a circuit path for supplying data to a framer generating a transmission bit stream. Sources connected to a circuit path for supplying data to a framer generating a transmission bit stream.	two or more sources that each insert data into the generated bit stream via its own tributary
such that data in packetized format from any of said sources is written into any available empty payload field of any of said frames [claim 1] such that a packet from any of	Data in packetized format from the sources can utilize the empty payload fields of the frames on a first-come, first served basis because no payload fields are pre-assigned for use by particular sources. Data packets from the sources can utilize the	packets are only put in frames which are empty

Case 1:04-cv-00875-GMS Document 102 Filed 03/03/2006 Page 36 of 39

said sources is inserted into any available empty payload field of any of said frames [claim 3] inserting each of said packets comprised of data from one of said plurality of sources into any empty payload field of any of said frames available to said inserting means [claim 4]	empty payload fields of the frames on a first-come, first-served basis because no payload fields are pre-assigned for use by particular sources. See Telcordia's construction for "inserting each of said packets comprised of data from one of said plurality of sources into any empty payload field [claim 4]" which is provided above.	
available empty payload field [claims 1, 3] empty payload field of any of said frames available to said inserting means [claim 4]	A payload field that is available to receive packet data from a source.	an empty payload field that can be filled with a data packet from the source, among the plurality of sources, of the highest priority with a data packet ready to transmit
generating means [claim 4]	The function is "generating a train of frames wherein each frame includes a transmission overhead field containing timing information and an empty payload field." The structures corresponding to the 'generating means' are control 210, tristate device 222, ROM 224 and timing generator 209.	The claimed function is "generating a train of frames wherein each frame includes a transmission overhead field containing timing information and an empty payload field." The structures corresponding to the 'generating means' are control 210, tristate device 222, ROM 224 and timing generator 209, bus 219, a serial-to-parallel converter 216, and an output 206
processing means [claim 4]	The function is "processing data from a plurality of sources into packet format."	The claimed function is "processing data from a plurality of sources into packet format."

Case 1:04-cv-00875-GMS Document 102 Filed 03/03/2006 Page 37 of 39

	Packetizers 55 are the structures which perform the function recited in this element.	The corresponding structure is a plurality of packetizers 55 each of which adds a packet header to its own source data and communicates a packet ready pulse to its own framer when a complete packet is stored in its own FIFO.
inserting means [claim 4]	The function is "receiving said train of frames and inserting each of said packets comprised of data from one of said plurality of sources into any empty payload field of any of said frames available to said inserting means to form said bit stream so that data from each of said sources can be transmitted at its own desired bit rate via said bit stream and so that data from said plurality of sources can be transmitted simultaneously via said bit stream." The structures corresponding to the 'inserting means' are control 210, tristate device 218, tristate device 220, frame detect 214 and timing generator 209.	The function is "receiving said train of frames and inserting each of said packets comprised of data from one of said plurality of sources into any empty payload field of any of said frames available to said inserting means to form said bit stream so that data from each of said sources can be transmitted at its own desired bit rate via said bit stream and so that data from said plurality of sources can be transmitted simultaneously via said bit stream." The "inserting means" should be construed to require multiple framers, each corresponding to its respective tributary

Case 1:04-cv-00875-GMS Document 102 Filed 03/03/2006 Page 38 of 39

CERTIFICATE OF SERVICE

I, John W. Shaw, hereby certify that on March 3, 2006, a true and correct copy of the foregoing document was electronically filed with the Clerk of the Court using CM/ECF, which will send notification that such filing is available for viewing and downloading to the following counsel of record:

Steven J. Balick, Esquire
John G. Day, Esquire
Ashby & Geddes
222 Delaware Avenue
P.O. Box 1150
Wilmington, DE 19899

I further certify that I caused a copy of the foregoing document to be served by hand delivery on the above-listed counsel of record and on the following non-registered participants in the manner indicated:

BY ELECTRONIC MAIL

Donald R. Dunner, Esquire
Finnegan, Henderson, Farabow, Garrett, & Dunner, LLP
901 New York Ave., N.W.
Washington, DC 20001

York M. Faulkner, Esquire
Finnegan, Henderson, Farabow, Garrett, & Dunner, LLP
Two Freedom Square
11955 Freedom Drive
Reston, VA 20190

YOUNG CONAWAY STARGATT & TAYLOR, LLP

John W. Shaw (No. 3362)
jshaw@ycst.com
Karen E. Keller (No. 4489)
kkeller@ycst.com
The Brandywine Building
1000 West Street, 17th Floor
Wilmington, Delaware 19899-0391
(302) 571-6600
Attorneys for Lucent Technologies Inc.