United States District Court,
N.D. California.

APPLE COMPUTER,
Plaintiff.
v.
BURST.COM, INC,
Defendant.

No. C 06-00019 MHP

May 8, 2007.

Matthew D. Powers, Nicholas Brown, Weil Gotshal & Manges LLP, Redwood Shores, CA, for Plaintiff.

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Court-Filed Expert Resumes

Claim Construction Memorandum and Order for United States Patent Nos. 4,963,995**;** 5,164,839**;** 5,057,932 **and** 5,995,705

MARILYN HALL PATEL**, United States District Court Judge.**

Plaintiff Apple Computer, Inc. ("Apple") brought this action for declaratory relief against defendant Burst.com ("Burst"), seeking a declaration of invalidity and noninfringement on four United States patents related generally to the sharing, editing and playing of audio and video works through computers, compression, and high-speed transmission. Now before the court are the parties' claim construction briefs, filed pursuant to Patent Local Rule 4-5. Having considered the parties' arguments and submissions, and for the reasons set forth below, the court construes the disputed terms as follows.

BACKGROUND FN1

FN1. For convenience, the court will use column and line numbers from the specifications of the various patents for citations in this order.

Burst is the assignee of the four patents at issue in this lawsuit: U.S. Patent Nos. 4,963,995 (the "'995 Patent"), 5,164,839 (the "'839 Patent"), 5,057,932 (the ""2 Patent") and 5,995,705 (the "'705 Patent"). Each of the four patents was developed by Richard Lang. The patents all relate to the sharing, editing and playing

of audio and video information through computers, compression and high-speed transmission. Burst contends that its patents teach a fundamental innovation in compression and transmission of audio/video information by compressing audio/video information for transmitting in less than the time required to play the information. The four patents at issue in this lawsuit relate to various aspects of compression and transmission.

The '995 Patent, issued on December 27, 1988, discloses an audio/video transceiver apparatus including compression means. It teaches an improved video recorder/transmitter with editing and copying functionality. The invention uses analog to digital conversion, compression, and intermediate storage. Abstract, '995 Patent, Payne Dec. Exh. 1 ("'995 Patent" or "'995"). The invention of the '995 Patent can transmit and receive information in either compressed or decompressed format over fiber optic lines. Id.

The "2 Patent, issued on May 5, 1989, was a continuation in part of the ' 995 Patent. It discloses an audio/video transceiver apparatus including compression means, random access storage means and microwave transceiver means. The "2 Patent discloses a device with additional capabilities of storing video programs in a digital format, editing the information, transferring the programs to hard copy magnetic media and transmitting the programs to a remote location. Abstract, "2 Patent, Payne Dec. Exh. 2 (""2 Patent" or ""2"). The invention can transmit and receive compressed or decompressed program information over fiber optic lines, phone lines or microwaves. Id.

The '839 Patent, issued on October 11, 1991, is a division of the "2 Patent. The '839 Patent teaches a method for handling audio/video source information. *See generally,* Abstract, '839 Patent, Payne Dec. Exh. 3 ("'839 Patent" or "'839").

The '705 Patent was issued on July 18, 1997 and teaches a burst transmission apparatus and method for audio/video information. Abstract, ' 705 Patent, Payne Dec. Exh. 4 ("'705 Patent" or "'705").

The '995 Patent, along with its continuations, distinguishes the claimed invention from the prior art video cassette recorder (VCR) in several ways. The patent claims that the invention has the following capabilities: (1) "copying recorded programs from one tape or alternative storage medium to a similar or dissimilar storage medium"; (2) "editing recorded programs"; (3) "high speed recording"; (4) "high speed, high quality transmission and reception by optical fiber." '995 Patent at 1:30-37. The '995 Patent claims that unlike traditional audio/video recorders, copying from one storage medium to another and editing through this invention will not require the costly option of using two magnetic tape decks. Id. at 2:7-12. The preferred embodiment of the invention supports these two features using an audio/video recording unit-which may consist of a conventional VCR-and a video control unit, comprised of an analog-to-digital converter, a digital-to-analog converter, a compressor/decompressor, a controller, a central processing unit and random access memory. Id. at 3:37-40, 4:19-23, 9:4-54. The patent also claims that the invention performs high-speed recording using the preferred embodiment of the previously described audio/video recording unit. Id. at 3:38-4:16. The claimed invention enables the fourth feature using a fiber optic port, incorporating a fiber optic transceiver/receiver, to communicate between a high-speed databus and a fiber optic signal line. Id. at 7:45-51.

The parties have jointly agreed to the construction of fourteen claim terms. Although the parties disagree as to the number of terms to be construed, this dispute boils down to sixteen specific terms which are used in various contexts throughout the patents.

LEGAL STANDARD

I. ***Claim Construction***

Under Markman v. Westview Instruments, Inc., 517 U.S. 370, 389-90, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996), the court construes the scope and meaning of disputed patent claims as a matter of law. The first step of this analysis requires the court to consider the words of the claims. Teleflex, Inc. v. Ficosca N. Am., 299 F.3d 1313, 1324 (Fed.Cir.2002). According to the Federal Circuit, the court must "indulge a 'heavy presumption' that a claim term carries its ordinary and customary meaning." CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed.Cir.2002). To determine the ordinary meaning of a disputed term, the court may review a variety of sources including the claims themselves, other intrinsic evidence such as the written description and prosecution history, and dictionaries and treatises. Teleflex, 299 F.3d at 1325. The court must conduct this inquiry not from the perspective of a lay observer, but rather "from the standpoint of a person of ordinary skill in the relevant art." *Id*. (citing Zelinski v. Brunswick Corp., 185 F.3d 1311, 1316 (Fed.Cir.1999)).

Among the sources of intrinsic evidence, the specification is "the single best guide to the meaning of a disputed term." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996). By expressly defining terms in the specification, an inventor may "choose[ ] to be his or her own lexicographer," thereby limiting the meaning of the disputed term to the definition provided in the specification. Johnson Worldwide Assocs., Inc. v. Zebco Corp., 175 F.3d 985, 990 (Fed.Cir.1999). In addition,"[e]ven when guidance is not provided in explicit definitional format, 'the specification may define claim terms 'by implication' such that the meaning may be 'found in or ascertained by a reading of the patent documents.' " *Irdeto Access, Inc. v. Echostar Satellite Corp.,* 38 3 F.3d 1295, 1300 (Fed.Cir.2004) (quoting Bell Atl. Network Servs., Inc. v. Covad Commc'ns Group, Inc., 262 F.3d 1258, 1268 (Fed.Cir.2001)). "The specification may also assist in resolving ambiguity where the ordinary and accustomed meaning of the words used in the claims lack sufficient clarity to permit the scope of the claim to be ascertained from the words alone." Teleflex, 299 F.3d at 1325. At the same time, the Federal Circuit has cautioned that the written description "should never trump the clear meaning of the claim terms." Comark Comms., Inc. v. Harris Corp., 156 F.3d 1182, 1187 (Fed.Cir.1998) (citations omitted); *see also* Tate Access Floors, Inc. v. Maxess Techs., Inc., 222 F.3d 958, 966 (Fed.Cir.2000) ("Although claims must be read in light of the specification of which they are part, ... it is improper to read limitations from the written description into a claim ....").

Likewise, the prosecution history may demonstrate that the patentee intended to deviate from a term's ordinary and accustomed meaning. Teleflex, 299 F.3d at 1326. "Arguments and amendments made during the prosecution of a patent application and other aspects of the prosecution history, as well as the specification and other claims, must be examined to determine the meaning of terms in the claims." Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576 (Fed.Cir.1995), *cert. denied,* 516 U.S. 987, 116 S.Ct. 515, 133 L.Ed.2d 424 (1995). "In particular, 'the prosecution history (or file wrapper) limits the interpretation of claims so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance.' " Teleflex, 299 F.3d at 1326 (quoting Standard Oil Co. v. American Cyanamid Co. ., 774 F.2d 448, 452 (Fed.Cir.1985)).

Dictionary definitions and other objective reference materials available at the time that the patent was issued may also provide evidence of the ordinary meaning of a claim. Phillips v. AWH Corp. ., 415 F.3d 1303, 1322 (Fed.Cir.2005) (en banc); Texas Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1202 (Fed.Cir.2002). A dictionary "has the value of being an unbiased source, accessible to the public in advance of litigation." Phillips, 415 F.3d at 1322 (internal quotation omitted). Thus, district courts "are free to

consult such resources at any time in order to better understand the underlying technology and may also rely on dictionary definitions when construing claim terms, so long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent documents." Vitronics, 90 F.3d at 1584 n. 6. A court should be cautious, however, not to place too much reliance on dictionaries, as the resulting construction may be too broad. Phillips, 415 F.3d at 1321.

Federal Circuit decisions take a less favorable view of other forms of extrinsic evidence, such as expert testimony and prior art not cited in the specification or the prosecution history, noting that "claims should preferably be interpreted without recourse to extrinsic evidence, other than perhaps dictionaries or reference books, and that expert testimony should be received only for the purpose of educating the judge." EMI Group N. Am., Inc. v. Intel Corp., 157 F.3d 887, 892 (Fed.Cir.1998), *cert. denied,* 526 U.S. 1112, 119 S.Ct. 1756, 143 L.Ed.2d 788 (1999). Although "extrinsic evidence in general, and expert testimony in particular, may be used ... to help the court come to a proper understanding of the claims[,] it may not be used to vary or contradict the claim language .... Indeed, where the patent documents are unambiguous, expert testimony regarding the meaning of a claim is entitled to no weight." Vitronics, 90 F.3d at 1584.

The Federal Circuit recently revisited the basic approach to claim construction in *Phillips*. Although *Phillips* consists largely of an affirmation of ten years of claim construction jurisprudence, it provides at least two pieces of additional guidance. First, the Federal Circuit rejected a line of cases suggesting that claim interpretation must begin with a dictionary definition of the disputed terms. Phillips, 415 F.3d at 1320-21. Second, the Federal Circuit emphasized that claim terms must be interpreted in light of their context, especially the language used in other claims and the specification. Id. at 1321. Taken as a whole, *Phillips* appears to signal a small retreat from formalism and bright-line rules in claim construction. As a result, the court will focus primarily on the intrinsic record before it. Cases cited by the parties in support of fixed "rules" of claim construction will accordingly be given somewhat less weight.

II. ***Means-Plus-Function Claims***

Section 112(6) of the Patent Act, 35 U.S.C. section 112 para. 6 ("Paragraph 6" or "Section 112(6)"), provides that an element in a claim "may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof." Claims expressed in this way "shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." *Id*. By allowing for a patentee to recite "means-plus-function" claim elements, section 112(6) permits the inventor to describe an element of his or her invention by the result accomplished or the function served rather than describing the item or element to be used. Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 28, 117 S.Ct. 1040, 137 L.Ed.2d 146 (1996). Although the claim limitation need not recite the structure, material, or acts that comprise the means for carrying out the claimed function, the applicant must describe in the patent specification some structure which performs that function. 35 U.S.C. s. 112 para. 6; Odetics, Inc. v. Storage Tech. Corp., 185 F.3d 1259, 1266-67 (Fed.Cir.1999).

Where an element is expressed as a "means" to perform a particular function, a presumption arises that the claim element should be construed as a means-plus-function claim under section 112(6). *Al-* Site Corp. v. VSI Int'l, Inc., 174 F.3d 1308, 1318 (Fed.Cir.1999). Conversely, a claim term that does not use the words "means" or "step for" is presumptively not governed by section 112(6). CCS Fitness, 288 F.3d at 1369. This presumption "is a strong one that is not readily overcome." Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1358 (Fed.Cir.2004). However, even in the absence of express means-plus-function language, a claim may be construed to include a means-plus-function element if the proponent of the

means-plus-function construction demonstrates that "the claim term fails to 'recite sufficiently definite structure for performing that function.' " CCS Fitness, 288 F.3d at 1369 (quoting Watts v. XL Sys., Inc., 232 F.3d 877, 880 (Fed.Cir.2000)). In making this determination, the court must assess whether the "term, as a name for a structure, has a reasonably well understood meaning in the art." Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 1583 (Fed.Cir.1996).

DISCUSSION

The following chart summarizes the court's construction of the disputed terms. The full analysis supporting each construction is below. The discussion proceeds in three parts, as agreed by the parties. First, the court considers the terms involving compression. Second, the court analyzes the parties dispute about the terms relating to transmission. Finally, the court construes the means-plus-function terms.

Term	Construction
I. Compression Terms	
"time compressed representation"	"a version of audio/video source information having a reduced number of bits"
"burst time period"	"transmission time period shorter than the time period associated with a real time representation"
II. Transmission Terms	
"transmission"	"sending"
"transmitting away" or "transmission ... to a select destination"	"sending information to an external device"
"audio/video source information"	"an audio and/or video work that can be received from one or more sources and that has a temporal dimension." Additionally, "work" may be a portion of a complete program, permitting subsequent steps to commence before completion of previous steps.
"editing"	"modifying"
"multiplicity"	"two or more; usually a fairly large number"
III. Means-plus-Function Terms	
"input means"	"an input port or terminal capable of receiving audio/video source information"
"output means"	"an output port or terminal capable of transmitting audio/video source information"
"storage means"	"DRAM, SRAM, CMOS, optical disc memory, bubble memory, magnetic disk and digital paper, plus equivalents.
"random access storage means"	"storage that provides for random access to any given segment of stored audio/video source information"
"transmission means"	"fiber optic port, a point-to-point microwave transceiver or a satellite transceiver plus equivalents"
"recording means"	"an audio/video recording unit such as a magnetic tape drive, WORM drive, or erasable optical disk drive, plus equivalents"
"editing means"	"a processor executing stored editing software in ROM, a controller, and a high speed data bus, plus equivalents"
"compression means"	"for video, a compressor/decompressor executing one or both of the following data compression algorithms: (i) reducing the number of bits by coding each frame

	independently, i.e., treating each frame as an individual image, and/or (ii) reducing the number of bits by comparing two or more frames and coding certain differences between those frames, plus equivalents; and/or for audio, a compressor/decompressor executing the following data compression algorithm: reducing the number of bits by comparing two or more samples and coding certain differences between those samples, plus equivalents"
"decompression means"	"compressor/decompressor executing a decompression algorithm consistent with the compression algorithm used, plus equivalents"

I. ***Compression Terms***

The parties have a fundamental dispute about the compression terms rooted in whether the compression terms include data compression or time compression multiplexing (TCM). Burst advances the former view and Apple the latter. This issue permeates the court's construction of the disputed terms.

Understanding the parties' dispute requires a brief exploration of the two types of compression as the technologies existed in 1988. The parties presented extensive briefing on the technologies involved in data compression and TCM, and the following background facts are not in dispute. Data compression is the process of reducing the number of bits required to represent audio and/or video information. Hemami Report, Payne Dec., Exh. 5, at 14 ("Hemami Report"). Data compression accomplishes this reduction on digital information in certain ways such as encoding patterns and redundancies in fewer bits. For audio information, data compression results from reducing the number of bits used to represent each sample and by coding the differences between samples rather than the entirety of each sample. *Id*. at 16-18. Video information can be compressed in similar ways. Intraframe compression compresses each frame of a video independently and discards indiscernible information, such as the number of colors. *Id*. 18-19. Interframe compression results from coding only the differences between frames. *Id*. 19-21. The resulting compressed information requires less memory for storage and can be transmitted in less time than the uncompressed representation by virtue of its smaller size. The transmission time for any particular data compressed information depends on the size of the compressed information and the bandwidth, or transmission speed, of the communications channel. The bandwidth of any particular channel is necessarily approximate, and, therefore, the transmission time of compressed data is also approximate.

By contrast, time compression through TCM compresses a signal in time by increasing its frequency or signaling, thereby reducing its duration. TCM does not involve reducing the number of bits of information; rather, faster transmission results from the increased frequency of the signal. TCM can be used to compress either analog or digital information. Because TCM involves increasing the signal frequency, the transmission time for the compressed information is known in advance of transmission. A further use of TCM is time division multiplexing, which allows multiple signals to be sent through a single channel in the same amount of time normally required to send one signal. *See* Gitlen, Data Communication Principles 607-669 (1992). This form of multiplexing is associated with "burst transmissions" of signals at a higher frequency. *See id*. at Fig. 9.3; Graf, Modern Dictionary of Electronics 122 (6th ed.1984). This technology was well-established at the time the Burst patents were filed. The prior art cited in the Burst patent applications disclosed multiplexing. For instance, the *Haskell* patent cited in the prosecution history discloses a system of multiplexing video signals for transmission over a single channel. *See* U.S. Patent No. 4,300,161, Brown Dec., Exh. K, at 1:55-59 ("*Haskell* patent"); '705 File History, Brown Dec., Exh. L at APBU 620.

As Apple's expert Dr. Halpern noted in his report, data compression and TCM are orthogonal concepts.

Halpern Report, Halpern, Dec. at 12 ("Halpern Report"). Thus, the court must determine which of the two forms of compression is contemplated by the Burst patents.

A. "*time compressed representation*"

The term "time compressed representation" appears in every independent claim of the Burst patents. The parties have relied on the reference in claim 1 of the '839 Patent for the purposes of discussion:

1. A method for handling audio/video source information, the method comprising:

receiving audio/video source information;

compressing the received audio/video source information into a **time compressed representation** thereof having an associated burst time period that is shorter than a time period associated with a real time representation of the received audio/video source information;

storing said **time compressed representation** of the received audio/video source information; and

transmitting, in said burst time period, the stored **time compressed representation** of the received audio/video source information to a selected destination

'839 Patent at 13:1-15.

The parties dispute whether the term "time compressed representation" had an accepted scientific or engineering meaning when it was used. *Compare* Hemami Report at 42-43 *with* Halpern Report at 8-12. The term was not explicitly defined in the specification. The main dispute is whether the term teaches data compression. Burst argues that it does. Apple's preferred construction, however, excludes data compression in favor of a reading of "time compressed representation" to refer to time compressed multiplexing. In the alternative, Apple presents an invalidity argument in the guise of contesting Burst's construction as indefinite. First, the court will examine whether "time compressed representation" excludes data compression. Having resolved that dispute, it will construe the term and address Apple's indefiniteness argument.

The literal language of "time compressed representation" tends to favor Apple's preferred construction. While "time compression" was not a widely used term at the time the patents were drafted, the ordinary meaning would suggest time compression and exclude data compression. *See* Halpern Report at 8. Indeed, Burst's expert concedes that, at the time the patents were filed, there were several meanings of the phrase "time compression," none of which would include data compression. Additionally, TCM would fall within the likely accepted meanings of "time compression" at the time. Hemami Report at 42-43. Further, the expression "burst" was linked to TCM in describing the high-rate bursts at which information is transmitted. *See* Data Communication Principles at 607-669; Modern Dictionary of Electronics at 122. The use of the term "burst" was unknown in the field of data compression.

The presumption that the term "time compression" is meant to convey its ordinary meaning can be overcome. An inventor may "choose[ ] to be his or her own lexicographer" by expressly defining terms in the specification. Johnson Worldwide, 175 F.3d at 990. While the term "time compressed representation" is not defined in the specification, the intrinsic evidence establishes that "time compressed representation"

refers to data compression. Indeed, the Federal Circuit has concluded that such lexicography by implication may be appropriate, particularly where the prosecution history indicates that the patentee intended to deviate from a term's ordinary and accustomed meaning. Teleflex, 299 F.3d at 1326.

The intrinsic evidence demonstrates that "time compression representation" refers to data compression. Significantly, the parties do not dispute the fact that the specification does not disclose TCM. The specification refers in several places to data compression and data compression techniques. *See, e.g.,* '995 Patent at 2:42-51 (including as one of the objects of the patent to "provide an audio/video recorder utilizing a data compression technique for efficient storage, transmission, and reception"). The preferred embodiment describes the algorithms used for compression, "which enable the representation of a series of numbers by a reduced number of digits." *Id.* at 4:63-68; *see also id.* at 5:20-24 (using "data compression technique" to refer to "the above compression techniques"). The algorithms discussed in the preferred embodiment for performing the compression are types of data compression algorithms-intraframe video compression, interframe video compression, and inter-sample audio compression-which would have no relevance for TCM. *See id.* at 4:68-5:8 (intraframe video compression); *id.* at 5:9-18 (interframe video compression); *id.* at 5:28-33 (inter-sample audio compression). The parties do not dispute that these algorithms are exclusively used for data compression and that they have no use for TCM. FN2 Instead, Apple notes that the patents link data compression to more efficient storage and not to faster-than-real-time transmission. *See, e.g., id.* at 2:42-45 ("A still further object of the invention is to provide an improved audio/video recorder which maximizes storage capacity, through the use of a data compression technique."); *but see id.* at 2:46-51 ("A still further objection of the invention is to provide an audio/video recorder utilizing a data compression technique for efficient storage, transmission, and reception of digitized audio/video program...."). The court will address this argument in more detail below; however, it is not convinced that the patents limit data compression to storage.

FN2. In response to the argument that Apple's reading excludes the preferred embodiment, Apple contends that Burst's construction is also not disclosed in the specification. Apple contends that the specification does not support Burst's proposal to link data compression to faster-than-real-time transmission. The court will address the merits of this argument independently. The court is convinced, however, that this contention does not rebut the fact that Apple's construction would exclude the preferred embodiment.

The sequence of three processes within the disputed claims-compression, storage and transmission-supports Burst's construction. *See, e.g.,* '839 Patent at 13:1-16. Burst contends that Apple's proposed construction would not conform to the sequence mandated by the claims because storing information after it had been TCM-compressed would lose the effects of compression. At the *Markman* hearing, Apple presented several examples of storing TCM-compressed information after compression to prove that it is not impossible to store a TCM-compressed file; however, none of these examples are logical uses of TCM. While storing a TCM-compressed file may be possible, doing so is not consonant with the claims of the patent. Apple's proffered reading is not the most reasonable one. Therefore, the court is persuaded that TCM does not conform to the sequence of processes in the disputed claims.

The prosecution history appears, at worst, ambivalent and more likely to support Burst's construction. Apple offers two types of evidence from the prosecution history to support its view that Burst abandoned its claim to data compression. First, Apple argues that Burst's statements during prosecution to distinguish the *Izeki* patent excludes data compression from the meaning of disputed terms. In its statement, the applicant distinguished the *Izeki* patent, which "mentions data compression," as "not the equivalent by any means of

[the applicant's] specifically claimed time compression." '705 File History, Brown Dec., Exh. L at APBU 551. The applicant continued to explain that the *Izeki* patent "contains absolutely no recognition of the need for time compression of audio/video source information or of the need for transmission of time compressed audio/video source information in a burst time period." *Id*. As Burst points out, this statement, read in context, suggests that the *Izeki* patent did nothing more than data compression, while the claimed invention combined data compression with faster than real time transmission. *Id*. Subsequent correspondence with the PTO confirms that the applicant did not disavow data compression because the PTO and the applicant both discuss data compression in the prior art. In particular, they referred to data compression's utility in increasing storage capacity. Fourth Office Action Brown, Dec., Exh. L at APBU 554-58 (noting that using compression for increasing storage capacity was known in the prior art). Burst further emphasizes that the applicant never distinguished the *Izeki* patent based on the type of compression utilized. If the applicant had intended to claim TCM, then it could have easily distinguished *Izeki* on the basis that *Izeki* employed data compression. *See, e.g.,* North American Container, Inc. v. Plastipak Packaging, Inc., 415 F.3d 1335, 1346 (Fed.Cir.2005) (concluding from certain description of prior art, which would have been unnecessary under proposed construction, that applicant did not intend proposed construction). Indeed, the applicant distinguished *Haskell,* a patent that teaches TCM, on the basis that it teaches TCM. In the amendments to the application which resulted in the ' 705 Patent, the applicant noted that "*Izeki* teaches a compression technique without transmission.... *Haskell* [ ] teach[ ]es a system for time compression multiplexing so that multiple clients can receive audio/video information in real time." '727 Application, August 7, 1997 Preliminary Amendment, Def.'s Exh. L at APBU 620-21.

Apple also points to statements in Burst's patent application before the European Patent Office to establish that Burst disclaimed data compression. The patent examiner rejected certain claims on the basis that the phrase "time compression" was not supported in the specification. The examiner noted that "compression of information refers to a reduction of a number of digits." File History for European Patent '561, Brown Dec., Exh. T at APBU 415342-43. In response, the applicant deleted the word "time" from the claims. File History for European Patent '561, Brown Dec. Exh. W at APBU 415441. However, this deletion does not indicate that Burst disclaimed data compression but rather that it discarded the "time compression" formulation in order to clarify that it meant data compression. The evidence from the prosecution history does not convince the court that the applicant disclaimed data compression.

Second, Apple draws the court's attention to the inventor's amendment of the original claims to demonstrate that Burst abandoned data compression. However, this history is consistent with Burst's construction. Apple argues that, in its original claims, the patentee claimed data compression. "2 File History, Brown Dec., Exh. O, at APBU 167. FN3 However, the PTO rejected each of the claims in the application, citing patents which showed the transmission of data compressed video. Id. at APBU 199-207. In response, the inventor, along with a new patent lawyer, amended the claims. These amendments cancelled all existing claims and introduced new ones with the term "time compressed representation" in them for the first time. Id. at APBU 212. However, the introduction of a new term does not conclusively demonstrate that Burst disavowed data compression in the original language. In short, the prosecution history is inconclusive on this issue. It certainly does not rise to the level of highly persuasive evidence necessary for a construction that excludes the preferred embodiment, as does Apple's construction which reads data compression out of "time compressed representation." *See* Elekta Instrument S.A. v. O.U.R. Scientific Intern., Inc., 214 F.3d 1302, 1308 (Fed.Cir.2000) (concluding on the basis of clear prosecution history and "the unambiguous language of the amended claim" that construction which excluded the preferred embodiment is appropriate); Plastipak, 415 F.3d at 1345-46 (describing the high level clarity of the disclaimer in the prosecution history). In sum, the court finds that the Burst patents do not exclude data compression.

FN3. For the purposes of this argument, Apple argues that the use of the word "compressing" without the word "time" must indicate that Burst claimed data compression. The court is unconvinced by this argument but will assume that it is accurate for the purposes of evaluating the contention that Burst disclaimed data compression.

The term "time compressed representation" appears in eight phrases throughout the patents, frequently in a format with "burst time period." Burst's proposed construction of "time compressed representation" includes that term along with other language connecting it to terms such as "the burst time period." Apple argues that these are distinct terms, and the court agrees. Therefore, the court will consider the two terms separately. The parties agree that there was no accepted meaning in the relevant community for "time compressed representation" at the time of the patent application. The relevant part of Burst's proposed construction is as follows:

a [digital] version of audio/video source information having a reduced number of bits [that allows data transfer / that is received / being received] over an external communications link.

Burst argues that "time compressed representation" contains three elements: 1) a temporal element; 2) a compression element; and 3) a transmission and/or reception element.

The temporal element proposed by Burst is the crux of the dispute. Burst argues that the word "time" in the disputed term refers to the "associated burst time period" that appears in most of the phrases containing the disputed term. Burst construes "burst time period" to mean a transmission time period which is shorter than the time required for normal playback. By contrast, Apple argues that the temporal element of this term refers to TCM and that the "burst time period" is a transmission time period known at the time of compression to be shorter than the time required to play the source information in real time.

The court must address whether the temporal element refers to TCM or the concept of faster-than-real-time transmission. The court adopts the latter construction for the following reasons. The more reasonable interpretation of the temporal element refers to faster-than real-time transmission. Burst argues that the sequence presented in the claims excludes TCM. Several of the claims require compression and then storage of the "time compressed representation" before transmission. *See, e.g.,* '995 Patent, claim 1; '839 Patent, claim 1. TCM requires immediate transmission after multiplexing; storage of the data after multiplexing but before transmission is, therefore, inconsistent with TCM. Apple's proposed construction would also give the word "compression" two meanings: data compression and TCM. Apple acknowledges that the compressor/decompressor 26 in Figure 2 runs data compression algorithms. Therefore, for the specification to accommodate both data compression and TCM, the word "compression" must accommodate both meanings. Such a reading would render claims such as claim 1 of the '839 Patent nonsensical.

The prior art disclosed in the patent does not support Apple's proposed construction. The court has reviewed the treatment of the *Izeki* patent, which explicitly disclosed data compression, in the Burst patent application. As Apple notes, the applicant distinguished *Izeki* in amendments to its '727 Patent application (which resulted in the '705 Patent) in response to the PTO's rejections of its application. The first relevant PTO rejection occurred in February 1997 and noted that *Izeki* disclosed an apparatus for receiving, compressing and storing audio/video information and later transmitting the information to another apparatus. '705 File History, Brown Dec., Exh. L at APBU 582. In its first response, Burst distinguished *Izeki* by noting

that "*Izeki* teaches a compression technique without transmission." Id. at APBU 620. The PTO's second rejection was identical to the first. Id. at APBU 625. In response, Burst's amendments noted that *Izeki* "does not provide for burst transmission of video programs over a communications channel" but rather is "intended to facilitate production of a master tape." Id. at APBU 649-50. Based on this history, Apple argues that the Burst patents contemplate "burst" transmission through TCM, while *Izeki* discloses data compression. As noted earlier, the court is not persuaded that such statements amount to a disclaimer of data compression. Apple also argues that the treatment of the *Haskell* patent in the file history indicates that the Burst patents necessarily include TCM. *Haskell* is a patent for TCM of video signals for transmission to multiple users in real time. In distinguishing *Haskell* in the patent application, the Burst patents note that *Haskell* employs TCM for real-time delivery and that the subject invention relates to "a delivery technique that uses compression to transmit a time compressed representation in a burst time period" shorter than real time. '705 File History at APBU 620. Notably, the application used the phrase "a delivery technique that uses compression" not the phrase "time compression multiplexing." Therefore, the treatment of *Haskell* does not mean that the Burst patents employ TCM for faster-than-real-time transmission. The court concludes that the temporal aspect of the term does not refer to TCM.

The compression aspect of the term, Burst argues, is that the representation is the result of the compression process. This reading finds support in the specification. For example, claim 1 of the '839 Patent teaches "[a] method for ... compressing the received audio/video source information into a time compressed representation thereof." '839 Patent at 13:1-6. The compressing, as noted above, is data compression. As the parties agree, the result of data compression is a reduction in the number of bits. Accordingly, the representation is the product of the data compression process. At the *Markman* hearing, Apple explained that TCM could result in a representation. The use of the word "representation" seems better suited to data compression. A "representation" is the result of reducing bits from the original audio/video information.

According to Burst, "time compressed representation" contains a third element related to transmission/reception. The claims refer to the "time compressed representation" as "transmitting" in a burst time period and that the time compressed representation is "received" in a burst time period. *See* '839 Patent, claim 1. Burst argues that this context imbues "time compressed representation" with a transmission/reception element that requires transmission over an external link. The court is not convinced that the phrase "time compressed representation" necessarily contains a transmission element. The plain language of the term does not suggest transmission. The inventor demonstrated his ability to adequately describe transmission where he intended. Where the inventor chose to describe transmission, he used separate nomenclature for doing so. Indeed, it would be redundant to include a transmission element in the term "time compressed representation" when Burst offers a similar construction for the term "transmission." Therefore, the court declines to adopt Burst's transmission limitation on the term "time compressed representation."

Finally, Apple challenges Burst's construction on the grounds that the claims link compression and faster-than-real-time transmission but Burst's preferred construction does not. As a result, Apple contends that the court should not adopt Burst's construction of "time compressed representation" because it is indefinite. Apple states that the disclosed technology, data compression, would not by itself enable the stated option of faster-than-real time transmission. Thus, Apple reasons that the patents-in-suit must teach TCM in addition to data compression because data compression alone is insufficient to perform the claimed function. However, this much is acknowledged in the patents themselves. *Compare* '995 Patent at 7:55-64 (noting that transmission of a video over a fiber optic line would take "less time than it would take to view the program") *with* '995 Patent at 8:49-57 ("[T]he time required to communicate a video program over a

convention phone line may exceed the time it takes to view the program."). While the patent discloses various transmission technologies, only one of them, a fiber optic line, would have been able to transmit compressed data faster-than-real-time. But, Apple notes, the fiber optic line would have achieved faster-than-real-time transmission of uncompressed data; therefore, the data compression does not enable the claimed function. At the *Markman* hearing, Apple argued that Burst's specification citations would reflect only the law of nature that compressed signals would be transmitted faster than uncompressed.

Apple's indefiniteness argument boils down to one based on invalidity. This type of invalidity argument, the Federal Circuit warns, is not a proper consideration at claim construction:

While we have acknowledged the maxim that claims should be construed to preserve their validity, we have not applied that principle broadly, and we have certainly not endorsed a regime in which validity analysis is a regular component of claim construction. Instead, we have limited the maxim to cases in which the court concludes, after applying all the available tools of claim construction, that the claim is still ambiguous. In such cases, we have looked to whether it is reasonable to infer that the PTO would not have issued an invalid patent, and that the ambiguity in the claim language should therefore be resolved in a manner that would preserve the patent's validity.

Pfizer, Inc. v. Teva Pharmaceuticals, USA, Inc., 429 F.3d 1364, 1376 (Fed.Cir.2005). Because the court has concluded that there is no ambiguity in the relevant claims, Apple's argument is best reserved for a later stage of litigation. Apple also uses this argument to attack the limitation in Burst's construction that the representation "allows" transfer in shorter than the time required for normal playback. This, too, is an invalidity argument best reserved for later.

The court construes "time compressed representation" to mean "a version of audio/video source information having a reduced number of bits."

B. "*burst time period*"

The term "burst time period" and the related phrase, "having an associated time period," appear in various forms in the '995 Patent, the "2 Patent, and the '839 Patent claims. Claim 1 of the '839 Patent contains representative usages:

1. A method for handling audio/video source information, the method comprising:

receiving audio/video source information;

compressing the received audio/video source information into a time compressed representation thereof having an associated **burst time period** that is shorter than a time period associated with a real time representation of the received audio/video source information;

storing said time compressed representation of the received audio/video source information; and

transmitting, in said **burst time period,** the stored time compressed representation of the received audio/video source information to a selected destination

'839 Patent at 13:1-15.

The parties have agreed to construe all of the variant phrases together. The construction of "burst time period" involves the parties' dispute of whether the "burst time period" is limited to a transmission time period that is of definite duration and known at the time of compression.

Burst points to the language of approximation used in the patent specification to describe transmission rates, on which the duration of the transmission period is based. *See* '839 Patent at 8:15-18 (referring to fiber optic bandwidth as "about 200 Megabytes/second"). However, this language does not preclude a construction that would require a fixed time period. TCM would permit a known transmission time period even with fiber optic cable. Apple reads "burst time period" in the context of the phrases "having an associated burst time period" and "said burst [transmission] time period" to require a known transmission time. *See, e.g.*, '995 Patent, claim 1 (having formulation); '705 Patent, claim 1 (said formulation). According to Apple, the claim language further shows that the "associated burst time period" is created and associated with the time compressed representation during compression and before transmission. If the time period is approximate or not known, then the representation cannot "have" an associated time period during compression nor can one be "associated" with the representation during compression.

The words "associated" and "said" time period do not necessarily suggest a fixed period of known duration. Rather, these words are used in a way to permit comparison between the transmission time and the playback time. *See, e.g.,* '995 Patent, claim 1 (referring to the time compressed representation "having an associated time period that is shorter than a time period associated with a real time representation of said audio/video source information."). Indeed, the specification indicates that transmission times will be approximate. '839 Patent at 12:4-11 ("Thus, the invention can be used to receive and transmit programs via microwaves at an accelerated rate similar to and at least as fast as, the transmission and reception of programs over optical fibers.")

TCM permits a transmission period to be known and associated with the representation during compression; data compression does not. This is consistent with the court's construction of "time compressed representation" as not requiring TCM. Therefore, the "burst time period" does not require a definite time period known at the time of compression.

Burst's construction of burst time period as a "transmission time period shorter than the time period associated with a real time representation" is consistent with the court's construction of "time compressed representation." The court accordingly adopts Burst's construction.

II. *Transmission Terms*

The second group of terms includes several terms related to transmission. The court will consider each of these in turn.

A. "*transmission*"/ "*transmitting away*" /"*transmission ... to a select destination*"

The term "transmission" appears in various forms including "transmission away"; "transmitting away" and "transmitting ... to a select destination." These terms appear in a total of eleven claims in all of the Burst patents. Claim 1 of the '995 Patent is indicative.

1. An audio/video transceiver apparatus comprising:

input means for receiving audio/visual source information;

compression means, coupled to said input means, for compressing the said audio/video source information into a time compressed representation thereof having an associated time period that is shorter than a time period associated with a real time representation of said audio/video source information;

random access storage means, coupled to said compression means, for storing the time compressed representation of said audio/video source information; and

output means, coupled to said random access storage means, for receiving the time compressed audio/video source information stored in said random access storage means for **transmission** away from said audio/video transceiver apparatus.

'995 Patent at 10:58-11:7. The parties agree that "transmission" should be understood as "sending."

The first issue in dispute is where the information is sent when the patent uses the term "transmitting away" or "transmitting ... to a select destination." Burst contends that the information is sent to an external device. Apple disputes this construction, asserting that the inventor disclaimed sending information to an external device when he distinguished his patent from the *Izeki* prior art. Apple's argument turns on its particular understanding of the depiction of the reproduction device in Figure 1 of the *Izeki* patent. *See* U.S. Patent No. 4, 974,178 at Fig. 1 ("*Izeki* patent"). Apple contends that the dotted line surrounding the reproduction device in the *Izeki* patent indicates that it is external to the *Izeki* apparatus. The court is unwilling to conclude that *Izeki* teaches transfer of information to external devices based on this dotted line. In fact, Figure 1 of the *Izeki* patent includes a printer which is commonly considered an external device and it is not outlined with dotted lines. *Id*. In addition, the prosecution history of the Burst patents shows that the inventor distinguished the invention from *Izeki* by arguing that the *Izeki* prior art "is simply not concerned with transmitting audio/video information away from the apparatus to one or more receivers." *Id.,* '705 File History, Brown Decl, Exh. L at APBU 652. The inventor contended that the *Izeki* prior art is an apparatus for editing and storing audio/video source information within the apparatus and without external transmission. *Izeki* Patent at 1:10-15. Therefore, Burst did not disclaim sending information to external devices.

Apple argues that the proper construction of "transmitting away" should be "sending information to a remote location," attempting to distinguish between sending information to devices that are local and devices that are remote. However, the term "remote" injects further ambiguity into the claim construction, and Apple offers no test to distinguish between devices that are local and devices that are remote, stating only that the difference is a matter of degree. Though the term "remote" is used in the patents, it is not used universally in association with transmission and should not be a limit on the term "transmission." *Compare* '995 Patent at 10:14-20 (using term "remote"), *with id*. at 11:3-8 (not using term "remote").

The second issue is whether the construction of "transmission" should be limited to sending information to devices capable of playback. Burst argues that the patent teaches transfer of information between transceiver devices that are capable of playback, relying on language in the '995 patent specification. The key language discussed by Burst appears in the "2 Patent specification: "The VCR-ET can receive/transmit a video program ... from/to a *variety of sources ... For example,* a video program may be communicated at an accelerated rate from the first VCR-ET to a second VCR-ET ..." "2 Patent at 8:18-23 (emphasis added). This language does not support Burst's contention; it indicates that transferred information may be to a

device capable of playback, but not that it must. The court is unwilling to adopt such a limitation. Burst further contends that when the patent refers to transmission time it is relative to the duration of real-time playback of the audio/video source information. *See, e.g.,* '995 Patent at 7:60-66. Burst suggests that this reference implies that the device receiving the information must be capable of playback. This conjecture is insufficient to limit transfer of information solely to devices capable of playback.

Accordingly, the court finds that "transmission" means "sending", and "transmitting away" or "transmission ... to a select destination" means "sending information to an external device".

B. "audio/video source information"

This term as well as "audio/visual source information" appear in each of the four patents-in-suit in a total of over sixty claims. A representative usage is reproduced above in claim 1 of the '995 Patent. The parties agree that "video" and "visual" are equivalent, and that "audio/video source information" denotes a "work" having a "temporal dimension" as opposed to a photograph or text. However, both parties wish to further clarify this construction.

The intrinsic evidence supports Burst's construction of the term as "an audio and/or video work that can be received from one or more sources and that has a temporal dimension." The '995 specification states that the invention is capable of "receiv[ing] an input signal from a source such as a television camera, a conventional VCR, a television tuner, or another VCR, etc." '995 Patent at 7:2-4, *see also* '995 Patent at 7:23-8:2 (describing other sources of input). Likewise, the prosecution history discusses "an audio/video transceiver having the ability to receive audio/video source information from a variety of signal sources." Amendment "A", '995 File History, Payne Dec., Exh. 9 at ABPU 89. Apple's failure to support its objection to "from a variety of sources" inclines the court to accept Burst's construction of "audio/video source information" as meaning "an audio and/or video work that can be received from one or more sources and that has a temporal dimension."

Though both parties agree to use "work" to define "audio/video source information," they interpret the term differently. Apple insists that "work" means a complete work, i.e. an entire song or video as opposed to a portion thereof. Under Apple's proposed construction, the patents disclose a sequential process such as that in Mantech Envtl. Corp. v. Hudson Envtl. Serv. Inc., 152 F.3d 1368, 1375-76 (Fed.Cir.1998). There, the claim covered a process for rehabilitating a hydrocarbon-contaminated stretch of ground water. The Federal Circuit found that the claim inherently disclosed sequential steps, where each step necessarily relied upon the completion of the prior. Id. at 1376.

This case differs from *Mantech*. Though the steps of Burst's patents are necessarily sequential, each step need not be performed on an entire work before commencement of the subsequent step. Rather, the patent covers a sequential and potentially continuous system. The '995 Patent specification states that "[o]nce received in the second VCR-ET's memory ... the digitized program ca[n] then either be viewed directly from memory or transferred to storage ... *either in its entirety or in random segments,* based on user preference." '995 Patent at 10:1-5 (emphasis added); *see also id*. at 9:17-22 (describing interim storage before storage of entire program is complete). Here, a latter step may be initiated on a portion of some "work" that has been processed in a prior step, though the remainder of the same "work" is still being processed in the earlier step. Apple's argument on this issue relies upon its reading of *Mantech* to insert the term "complete" into the definition of work. However, the intrinsic evidence suggests no limitation that "work" should include only complete works.

The court concludes that "audio/video source information" is equivalent to "an audio and/or video work that can be received from one or more sources and that has a temporal dimension." Additionally, "work" may be a portion of a complete program, permitting subsequent steps to commence before completion of previous steps.

C. "*editing*"

The disputed term, "editing," appears in two claims of the '705 Patent and in multiple claims in both the '995 Patent and the '839 Patent. Claim 2 of the '995 Patent is illustrative:

2. An audio/video transceiver apparatus as in claim 1 further comprising editing means, coupled to said random access storage means for **editing** the time compressed representation of said audio/video source information stored in said random access storage means and for restoring the **edited** time compressed representation of said audio/video source information in said random access storage means; and wherein said output means is operative for receiving the **edited** time compressed representation of said audio/video source information stored in said random access storage means for transmission away for said audio/video transceiver apparatus.

'995 Patent at 11:8-19.

Both parties agree that "editing" means "modifying." The court first looks at the ordinary meaning of "editing" to determine its definition, which can be found by examining the claim. Teleflex, 299 F.3d at 1325. Editing is described in the specifications as rearranging, altering, changing, deleting, inserting, enhancing, superimposing, removing, increasing or decreasing volume or frequency components, and filtering. '995 Patent at 6:27-33 (rearranging), 6:44-48 (deleting, inserting, enhancing, selecting), 9:14-54 (superimposing, altering, removing, adding components); '839 Patent at 12:46-52 (rearranging, increasing or decreasing volume, enhancing through filtering techniques). The court finds that "modifying" encompasses all of these functions and is the proper definition of the term "editing."

Apple argues that "editing" should be narrowed to mean "modifying the representation of the audio/video source information, not including the creation of playlists or modification of metadata." The court finds no reason to carve out these two functions, and the ordinary meaning of "editing" will not bear such limitations. Both of the disputed functions could conceivably be a form of "editing" if they involve modification of some object. This determination is properly a part of infringement analysis not claim construction. "A claim is construed in the light of the claim language, the other claims, the prior art, the prosecution history, and the specification, not in light of the accused device." SRI Int'l v. Matsushita Elec. Corp. of America, 775 F.2d 1107, 1118 (Fed.Cir.1985). Thus, it would be improper for the court to construe "editing" with respect to modifying metadata or creating a playlist because these features are a part of the accused device.

D. "*multiplicity*"

This term appears in each of the patents, in a total of nine claims. A representative usage of "multiplicity" is:

19. An audio/video transceiver apparatus as in claim 17 in combination with a video library, coupled via a communication link with said audio/video transceiver apparatus, said video library storing a **multiplicity** of items of audio/video source information in said time compressed representation for selective retrieval, in

said associated burst time period over said communications link.

'995 Patent at 13:4-11.

The court construes "multiplicity" as "two or more; usually a fairly large number." Although Burst argues that claim construction is unnecessary for "multiplicity," the parties cite to extrinsic evidence indicating that the understandings of the average person and one of ordinary skill in the art may differ. Burst's definition from a standard dictionary reads: "a large number." American Heritage Dictionary 822 (2d College ed.1982). Apple's definition, however, reads: "two or more; usually a fairly large number." Robert C. Faber, Landis on Mechanics of Patent Claim Drafting App. D-14 (5th ed.2006). While the difference appears minimal, it embodies the parties' dispute regarding "multiplicity" and indicates that jurors would benefit from direction regarding the use by one skilled in the art.

The patents employ "multiplicity" in two different ways; both contexts support Apple's construction. In one instance, the term describes a "multiplicity of video frames collectively representing at least one full motion video program." '705 Patent at 12:38-40. In another instance, the term is used in connection with a "video library storing a multiplicity of items of audio/video source information...." '995 Patent at 13:7-8. Apple's definition of multiplicity is supported by the claim language, since a video library constructed by a user may only include a limited number of items. Defining "multiplicity" as "two or more; usually a fairly large number" is also consistent with the usage in the '705 Patent, where the "frames collectively representing at least one full motion video program" indicates that they are numerous. '705 Patent at 12:38-40. Thus, the court accepts Apple's construction of "multiplicity."

III. *Means-Plus-Function Terms*

The final group of terms requires analysis pursuant to 35 U.S.C. section 112, paragraph 6. For a subset of these terms, the court will first address the parties' dispute over whether section 112(6) applies. Then, the court will construe each of the terms in turn.

A. *Disputed Means Terms*

The parties dispute whether four of the terms in the Burst patents are means-plus-function terms subject to 35 U.S.C. section 112, para. 6. Paragraph 6 applies to a limitation expressed as a "means or step for performing a specified function without the recital of structure, material, or acts in support therefor." 35 U .S.C. s. 112, para. 6. A means-plus-function claim "shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." *Id*. However, a means-plus-function claim is limited to the structure, and equivalents, disclosed in the specification for performing that function. Default Proof Credit Card Sys., Inc. v. Home Depot U.S.A ., Inc., 412 F.3d 1291, 1298 (Fed.Cir.2005). For each of these terms, the court must determine whether Paragraph 6 applies. Where it applies, the court must then identify the claimed function and the corresponding structure. Medical Instr. & Diag. Corp. v. Elekta AB, 344 F.3d 1205, 1210 (Fed.Cir.2003).

The use of the word "means" in a term creates a presumption that Paragraph 6 applies. However, that presumption is rebuttable by evidence that the limitation "recites sufficient structure or material for performing [the] function." Rodime PLC v. Seagate Tech., Inc., 174 F.3d 1294, 1302 (Fed.Cir.1999). Each of the four disputed terms uses the word "means" combined with a noun: "input means"; "output means"; "storage means" and "random access storage means." Thus, as a threshold matter, the court must determine whether Burst has overcome the presumption that section 112(6) applies to these terms. Burst contends that

each of these nouns connotes a structure to a person of ordinarily skill in the art. Apple, in turn, argues that these are functional nouns and that they are too general to connote sufficient structure.

Apple provides two cases, Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580 (Fed.Cir.1996) and Unidynamics Corp. v. Auto. Prods. Int'l Ltd., 157 F.3d 1311 (Fed.Cir.1998) to support its contention that "input", "output", and "storage" are functional nouns that are insufficient to connote structure. *Greenberg* does not support Apple's point. The *Greenberg* court concluded that neither "detent mechanism" nor "detent means" as used in the disputed patent invoked section 112(6). The language cited by Apple suggesting that "detent means" was subject to section 112(6) refers to another case, *Interspiro,* which the *Greenburg* court distinguished. The *Interspiro* court concluded that the "detent means" element in that case was presented in a means-plus-function format. Interspiro USA, Inc. v. Figgie Int'l, Inc., 815 F.Supp. 1488, 1504 (D.Del.1993) *aff'd,* 18 F.3d 927 (Fed.Cir.1994) ("The claim describes, for example, a 'detent' (means) 'for moving and maintaining said movable member....' (function)). By contrast, the *Greenberg* court determined that, in the context before it, the element did not use means-plus-function language, no other element was in the means-plus-function form, and there was no evidence of the patentee's intent to do so. Greenberg, 91 F.3d at 1584. Indeed, the frequency with which the *Greenberg* drafter used the word "means" rebutted the presumption that he intended to invoke section 112(6); his indiscriminate use showed that he was "enamored of the word." *Id*. at 1583-84; *see also* Allen Engineering Corp. v. Bartell Ind. Inc., 299 F.3d 1336, 1348 (Fed.Cir.2002). FN4 Additionally, "detent means" where it appeared in the *Greenberg* patent was used as a "shorthand way of referring to each of the key structural elements of the invention." *Id*. The functional nature of the nouns, "input", "output" and "storage" is not dispositive of this issue. "What is important is not simply that [the element at issue] is defined in terms of what it does, but that term, as a name for a structure, has a reasonably well understood meaning in the art." Greenberg, 91 F.3d at 1583; *see also* Allen Engineering, 299 F.3d at 1347-48 (noting that the use of functional nouns creates a rebuttable presumption that section 112(6) applies).

FN4. The court is unwilling to make a finding here that the patent drafter was enamored with the word means as a general matter. Clearly, the patent considered in *Allen Engineering* exhibited extreme incidents of the word "means," 288 F.3d at 1348 (noting that the word "means" appeared thirty-two times in a single claim). The word is used more selectively in the instant patents-in-suit. The parties also agree that the drafter used "means" with the intent to invoke section 112(6) in, for example, using the terms "compression means" and "transmission means." Consequently, an independent inquiry into the use of the word "means" for each of the disputed means terms is appropriate.

Moreover, Apple argues that the nouns "input," "output," and "storage" are too generic to provide structure for the purposes of Paragraph 6. *See* Unidynamics, 157 F.3d at 1319. In that case, the Federal Circuit held that section 112(6) applied to "spring means," despite the use of the word "spring." Id. at 1319; *see also* Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533 (Fed.Cir.1991) (holding that the "recitation of some structure" in the element did not preclude the application of section 112(6) "when it merely serves to further specify the function of the means."). This argument is best considered in reviewing the terms in their individual contexts.

Finally, for Paragraph 6 to apply, Apple argues that the corresponding structure must be explicitly linked to the claimed function in the specification. However, this argument seems to address the court's analysis after concluding that 112(6) does apply and is not relevant to this threshold determination. Having addressed Apple's general arguments, the court will now consider whether section 112(6) applies in the context of

reviewing each of the disputed terms and will then construe them accordingly.

1. "***input means***"

The term "input means" appears in six claims, in each of the '995, "2 and ' 705 Patents. Claim 1 from the '995 Patent is representative:

1. An audio/video transceiver apparatus comprising:

input means for receiving audio/visual source information;

compression means, coupled to said **input means,** for compressing the said audio/video source information into a time compressed representation thereof having an associated time period that is shorter than a time period associated with a real time representation of said audio/video source information;

random access storage means, coupled to said compression means, for storing the time compressed representation of said audio/video source information; and

output means, coupled to said random access storage means, for receiving the time compressed audio/video source information stored in said random access storage means for transmission away from said audio/video transceiver apparatus.

'995 Patent at 10:58-11:7.

In support of its view that "input means" is not a means-plus-function term, Burst asserts that the word "input" connotes a certain set of structures to one ordinarily skilled in the art, specifically an "input port or terminal capable of receiving information." It offers several dictionary definitions to support this reading. *See* Cole v. Kimberly-Clark Corp., 102 F.3d 524, 531 (Fed.Cir.1996) (relying on dictionary definitions for similar purpose). These include "the device or collection of devices used for bringing data into another device." IEEE Standard Dictionary of Electrical and Electronic Terms 474 (4th ed.1988). A second, more specific dictionary definition states that "input" is "the terminals, jack, or receptacle provided for the introduction of an electrical signal or electric power into a device or system." Modern Dictionary of Electronics at 495. Significantly, Figure 2 in the patent specifications uses "input" and "input/output ports" interchangeably; this supports Burst's contention that "input" connotes a specific type of port or device. *See, e.g.,* '995 Patent at Fig. 2. Burst's expert, Dr. Hemami, further explains that the term "connotes a physical port or terminal on a device through which information is received" to a person of ordinary skill in the art. Hemami Report at 29-30. At the *Markman* hearing, the experts agreed that a certain subset of the input devices listed in the Modern Dictionary of Electronics could all perform the functions described in the claim. Apple's expert observed that one ordinarily skilled in the art would need to know the speed of the information to be received in order to select an electrical jack capable of performing the function of the input means. Burst's expert responded that information in the specification regarding the compression and the type of audio/video information would permit one ordinarily skilled in the art to select the correct jack.

Apple argues that the word "input" is not a structural term and would have the court apply section 112(6) to identify four different sets of structures for the various uses of "input means." Apple contends that "input" is insufficiently definite because it includes "every conceivable way or means" of receiving audio/video source information. Mas-Hamilton Group v. LaGard, Inc., 156 F.3d 1206, 1214 (Fed.Cir.1998); *see also* Laitram,

939 F.2d at 1536. FN5 The word "input" is not as indefinite as the phrase "lever moving element" which would apply to "any device that can cause the lever to move." Mas-Hamilton, 156 F.3d at 1214 (holding that section 112(6) applies to the term "lever moving element" because "moving element" does not connote sufficient structure). The dictionary definitions provided for "input" are more limited here. Moreover, even when a structure is described in terms of its function, it is still a sufficient structure if the "term, *as a name for structure,* has a reasonably well understood meaning in the art." Greenberg, 91 F.3d at 1583 ("detent" defined by its function but not subject to means-plus-function analysis because it has a generally understood structural meaning in the mechanical arts) (emphasis added). Here, Burst has satisfied the court that the term "input" connotes a structure in the relevant field.

FN5. In *Laitram,* the Federal Circuit held that the district court erred by construing what was essentially functional language as structure. 939 F.2d at 1536. The district court concluded that the following language was the structure:
of said holes of said first plurality are arranged coaxially, the axes of the holes of said second plurality are arranged coaxially and the axes or respective holes of both pluralities of link ends are substantially.

for the term "means for joining said pluralities to one another ." Laitram Corp. v. Rexnord, Inc., No. 87-C-110, 1990 WL 71418, (E.D.Wis. Apr.26, 1990). It was this alleged structure that the Federal Circuit concluded was insufficient because it encompassed "any and every means" for performing the function. Laitram, 939 F.2d at 1536.
Several other considerations weigh in favor of concluding that "input," as used in the patents, is a structural term. First, the structure of the "input" supports the described function. Here, the "input" supports the described function of "receiving of audio/video source information." Also, description of a purported structure's location supports the conclusion that section 112(6) does not apply. *Cole,* 102 F.3d at 53 (relying on location of the structure to conclude that "[a]n element with such a detailed recitation of its structure, as opposed to its function" cannot be a means-plus-function term). The specification describes the location of the "input means." *Compare* Cole, 102 F.3d at 531 (describing the location of the "perforation"as "extending from the leg band to the waist band") *with* '995 Patent at 10:62 ("compression means, coupled to said input means"). Thus, the court finds that Burst has overcome the presumption that section 112(6) applies; "input means" is not a means-plus-function term.

Apple offers no construction for "input means" other than its proposed construction of the term pursuant to section 112(6). Burst construes the phrase to mean "an input port or terminal capable of receiving audio/video source information." Burst's proposed construction is consistent with the dictionary definitions and expert testimony. Accordingly, the court adopts this construction: "input means" is "an input port or terminal capable of receiving audio/video source information."

2. "*output means*"

The phrase "output means" appears in three claims of the '995 Patent and one claim of the "2 Patent. Claim 1 of the '995 Patent, reproduced above, contains an illustrative usage of the term. The court is convinced that section 112(6) does not apply to "output means." The parties present virtually identical arguments to those presented for construing "input means." Burst presents two dictionary definitions and the report of its expert, Dr. Hemami, to support the contention that "output" connotes a structure to one ordinarily skilled in the art. *See, e.g.,* IEEE Standard Dictionary of Electrical and Electronic Terms at 655 ("the device or collective set of devices used for taking data out of a device"); Hemami Report at 46 ("a physical port or terminal on the

claimed transceiver that receives information to be transmitted away from the device."). Apple's expert, in turn, states that "output" would have been understood in the relevant field as "generic and functional language." Halpern Report at 28. Similar to those describing "input means," the claims for "output means" specify where it is located: claim 1 of the '995 Patent notes that it is connected to the "random access storage means." *Compare* '995 Patent at 11:3-4, *with* Cole, 102 F.3d at 531. For the same reasons discussed in the court's construction of "input means", the court concludes that "output means" is not governed by section 112(6).

The disputed term, therefore, means "an output port or terminal capable of transmitting audio/video source information."

3. "*storage means*"

The term "storage means" appears twice in the '705 Patent. *See* '705 Patent, claims 1 & 2. Claim 1 from the '705 Patent reads as follows:

1. An audio/video transceiver apparatus comprising:

input means for receiving audio/video source information, said audio/video source information comprising a multiplicity of video frames collectively representing at least one full motion video program;

compression means, coupled to said input means, for compressing the said audio/video source information into a digital time compressed representation thereof, wherein said digital time compressed representation of said audio/video source information is capable of being transmitted in a burst transmission period that is substantially shorter than a time period associated with a real time viewing by a receiver of said audio/video source information;

storage means, coupled to said compression means, for storing said digital time compressed representation of said audio/video source information; and

transmission means, coupled to said **storage means,** for transmitting said digital time compressed of said audio/video source information away from said audio/video transceiver apparatus in said burst time period.

'705 Patent at 12:37-58.

Burst argues that the court does not need to construe this term. It argues that this term conveys, with requisite specificity, a set of structures to one ordinarily skilled in the art. Burst provides dictionary definitions-from lay as well as technical dictionaries-and an expert declaration to support this point. However, unlike the definitions discussed previously, the technical definitions provided do not contain the requisite specificity. The most specific definition provided, that from the IEEE Standard Dictionary of Electrical and Electronic Terms, defines storage as "any device in which information can be stored, sometimes called a memory device." IEEE Standard Dictionary of Electrical and Electronic Terms at 956. In contrast to the definitions and declarations provided for "input", the description of storage as a "memory device" underscores the conclusion that "storage" is a functional term. *Id*. A memory device does not connote a particular structure-such as an input port, according to definitions provided. Burst's proposed construction of the term does not solve this issue: "a medium in which data is retained for subsequent retrieval." In this regard, "storage" is sufficiently similar to "lever moving element," a term which the

Federal Circuit concluded invoked section 112(6). *See* Mas-Hamilton, 156 F.3d at 1214. The court concludes that section 112(6) applies to "storage means."

In their proposed constructions pursuant to section 112(6), the parties offer substantially similar descriptions for the corresponding structure for "storage means." Apple contends that the '705 Patent discloses DRAM, SRAM, CMOS memory, optical disc memory, bubble memory, magnetic disk and digital paper. *See* '705 Patent at 6:16-29. Burst identifies DRAM, SRAM, CMOS, magnetic disk, or optical disk memories, plus equivalents. FN6

FN6. At the claim construction hearing, Burst expanded its proposed construction under section 112(6) to include bubble memory and digital paper.

Therefore, the court construes "storage means" to include "DRAM, SRAM, CMOS, optical disc memory, bubble memory, magnetic disk and digital paper, plus equivalents." FN7

FN7. Section 112(6) requires the inclusion of equivalents in the construction of a means-plus-function term. 35 U.S.C. 112, para. 6 ("[S]uch [a] claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof."); *see also* Caterpillar, Inc. v. Deere & Co., 224 F.3d 1374, 1379 (Fed.Cir.2000). Therefore, for each term governed by section 112(6), the construction will include the identified structure and equivalents.

4. "***random access storage means***"

This term appears in several claims of the '995 Patent.FN8 The ' 995 Patent, claim 1 provides a representative usage:

FN8. The term also appears in claim 4 of the "2 Patent. However, the parties agree that the proper construction for that term is "one or more magnetic disks." Def.'s Opening Br. at 18 n. 8.

1. An audio/video transceiver apparatus comprising:
input means for receiving audio/visual source information;

compression means, coupled to said input means, for compressing the said audio/video source information into a time compressed representation thereof having an associated time period that is shorter than a time period associated with a real time representation of said audio/video source information;

random access storage means, coupled to said compression means, for storing the time compressed representation of said audio/video source information; and

output means, coupled to said **random access storage means,** for receiving the time compressed audio/video source information stored in said **random access storage means** for transmission away from said audio/video transceiver apparatus.

@995 Patent at 10:58-11:7.

Burst argues that the applicable functional language is "storing the time compressed representation." Burst notes that both experts concede that this term is specific enough to connote a particular class of structures. In particular, Burst argues that Apple's expert, Dr. Halpern, agreed that "random access storage" describes a "general class of structure." Halpern Dep. at 253. Burst further relies upon the prosecution history of the '995 Patent to demonstrate that the applicant used "random access storage" as a noun without the word "means" to connote structure. *See, e.g.,* '995 Patent File History, Payne Dec., Exh. 9 at APBU 89 (describing new claims as directed at the ability to "store the time compressed representation of the audio/video source information in a random access storage.") Burst also points to devices in the ' 995 Patent that provide random access memory, such as DRAM and optical disc memories, as examples of the types of random access memory. *See* '995 Patent at 5:38-45; 3:58-4:16.

The report of Burst's expert supports this view. While Dr. Hemami contends that the term would be "self-descriptive" to one ordinarily skilled in the art in 1988, she further notes that "[i]t would be clear that random access storage could be provided by many types of media and that any such media would be acceptable as long as it provided [this] subject to design constraint." Hemami Report at 44. The specification discloses certain examples of the types of random access storage that would meet these constraints. *See* '995 Patent at 6:8-19 (listing DRAM, SRAM and CMOS memory as types of random access storage). Apple's expert, Dr. Halpern, observed that "there are a wide variety of different classes of structures that provide random access storage, including magnetic and optical disks, RAM and ROM." Halpern Dec. 34-35; *see also* Halpern Dep. at 258 (noting that "random access storage ... [is] a general class of structure). While Halpern concludes that the term "random access storage" does not connote sufficient structure, his identification of various structures associated with the term belies this conclusion. "That the disputed term is not limited to a single structure does not disqualify it as a corresponding structure, as long as the class of structures is identifiable by a person of ordinary skill in the art." *See* Linear Tech. Corp. v. Impala Linear Corp., 379 F.3d 1311, 1322 (Fed.Cir.2004). Halpern's admission that the term connotes a set of structures, however general, indicates that "random access storage" is structural in nature. *See id*. (construing "circuit" as structural because it connoted a general class of structures). Thus, the court is satisfied that "random access storage", unlike "storage", connotes sufficient structure to one ordinarily skilled in the art. Section 112(6) does not apply to this term.

Burst's proposed construction comports with this understanding of the term. Therefore, the court construes "random access storage means" to mean "storage that provides for random access to any given segment of stored audio/video source information."

B. ***Remaining means-plus-function terms***

Where the parties agree that a term is a means-plus-function term, the court's task is to identify the function of the term and its corresponding structure. Medical Instr. & Diagnostics Corp., 344 F.3d at 1210. The court construes the remaining means-plus-function terms below.

1. "***transmission means***"

This element appears in the first and third claim of the '705 Patent. An indicative usage is reproduced below:

3. The audio/video transceiver apparatus of claim 2, wherein said **transmission means** is configured to receive the edited digital time compressed representation of said audio/video source information and to transmit the edited digital time compressed representation of said audio/video source information away from said audio/video transceiver apparatus in said burst transmission time period.

@705 Patent at 12:66-13:5.

The parties agree that the term "transmission means" is subject to section 112(6) and that it includes a fiber optic port, a point-to-point microwave transceiver or a satellite transceiver as the corresponding structure. The parties dispute whether the auxiliary digital port should be included as corresponding structure. The '705 Patent suggests that "transmission means" does not include the auxiliary digital port.

"A structure disclosed in the specification qualifies as corresponding structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim." Default Proof, 412 F.3d at 1298 (citing B. Braun Med. v. Abbott Labs., 124 F.3d 1419, 1424 (Fed.Cir.1997)) (internal quotations omitted). Here, the auxiliary digital port is not clearly linked to the function of transmitting. Rather, the auxiliary digital port is termed an "input" port, intended for receiving information. '995 Patent at 7:32-35. Conflating the unique steps of reception and transmission is not supported by the intrinsic evidence. Thus, the auxiliary digital port is not part of the corresponding structure to the "transmission means."

"Transmission means" therefore is "a fiber optic port, a point-to-point microwave transceiver or a satellite transceiver, plus equivalents."

2. "*recording means*"

The term, "recording means" appears in claims 44 and 47 of the '995 Patent. Claim 44 describes:

An audio/video transceiver apparatus as in claim 1 further comprising **recording means,** including a removable recording medium coupled to said random access storage means, for storing the time compressed representation of said audio/video source information stored in said random access storage means onto said removable recording medium.

@995 Patent at 16:21-27.

Burst argues that the proper definition of "recording means" is "an audio/video recording unit such as a magnetic tape drive, WORM drive, or erasable optical disk drive, plus equivalents." Apple argues that "recording means" is a "recording unit that uses removable magnetic tape, removable WORM optical disk, or removable erasable optical disk, *and shunt switch*." The court agrees with Burst. The parties agree that the function of "recording means" is "for storing the time compressed representation of said audio/video source information stored in said random access storage means onto said removable recording medium." '995 Patent at 16:21-27; 16:40-46. The parties dispute only whether the corresponding structure includes a shunt switch.

The lack of a comma is the central issue in this dispute. Claim 44 of the ' 995 Patent states that "recording means, including a removable recording medium coupled to said random access storage means" performs the function recited in that claim. Claim 37 of the '995 Patent also states that "recording means, including a removable recording medium coupled to said decompression means" performs the function recited in that claim. All other claims have a comma placed between the word "medium" and "coupled" to indicate that the "recording means" includes the removable recording medium but not the coupling of some other means. *See* '995 Patent at 16:28-34; 16:40-17:10. Apple argues that the corresponding structure must include not only the structure that performs the function but also any components described as included in the structure. The

court disagrees.

Regardless of the missing commas, which were likely mistakes by the drafter of the patent, the court's analysis focuses on what structure actually performs the recited function, not simply any structures linked to the function. Apple argues that the shunt switch is used to couple the recording unit with the storage means. Apple does not assert that the shunt switch actually does any storing of information. Only components that actually perform the recited function will be part of the corresponding structure. Asyst Tech., Inc. v. Empak, Inc., 268 F.3d 1364, 1370 (Fed.Cir.2001). Accordingly, the court finds that the corresponding structure does not include a shunt switch.

"Recording means" is "an audio/video recording unit such as a magnetic tape drive, WORM drive, or erasable optical disk drive, plus equivalents."

3. "*editing means*"

This term appears in claims 2, 20, 21, 23, 26, and 80 of the '995 Patent and claim 2 of the '705 Patent. The second claim of the '995 Patent is illustrative:

2. An audio/video transceiver apparatus as in claim 1 further comprising **editing means,** coupled to said random access storage means for editing the time compressed representation of said audio/video source information stored in said random access storage means and for restoring the edited time compressed representation of said audio/video source information in said random access storage means; and wherein said output means is operative for receiving the edited time compressed representation of said audio/video source information stored in said random access storage means for transmission away for said audio/video transceiver apparatus.

@995 Patent at 11:8-19.

The parties agree that the function of "editing means" is to edit time compressed representations of audio/video source information contained in random access storage. *See* '995 Patent at 11:8-19, 13:12-45, '705 , Patent at 12:59-65. Additionally, in some claims, "editing means" must also restore the edited representation to random access storage. *See* '995 Patent at 11:8-19, 13:12-26, 13:56-14:3, 20:34-40, '705 , Patent at 12:59-65. "Editing means" must also perform the same functions for selectively decompressed time compressed representations and digital time compressed representations. FN9 Id.

FN9. Claim 2 of the '995 Patent explains that "editing means" is "for editing the time compressed representation ... and for restoring the time compressed representation ... in said random access storage means." Claims 20 and 21 of the '995 Patent add that "editing means" is "for editing said selectively decompressed time compressed representation ... and for storing said edited selectively decompressed time compressed representation ... in said random access storage means." Claim 2 of the ' 705 Patent adds that "editing means" is "for editing the digital time compressed representation ... and for storing the edited digital time compressed representation ... in said storage means."

Burst argues that the corresponding structure for "editing means" is a processor executing stored editing software and a controller, plus equivalents. Apple argues that the structure is (1) a Digital Control Unit 14(DCU) which includes (a) a Central Processing Unit (CPU) (Intel 80286 or 80386 or Motorola 68020 or

68030); (b) Read Only Memory (ROM) (TI TMS47256) and (c) an integrated circuit controller; and (2) a user interface control panel, light pen or mouse. The court finds that neither definition is sufficient.

A "corresponding structure" must include all structure that performs the recited function. Default Proof, 412 F.3d at 1298. The '995 Patent notes that "DCU 14 is responsible for all of the digital editing processes." Id. It further states that a "Digital Control Unit (DCU) 14 comprises a CPU (Central Processor Unit) 31, a ROM (Read Only Memory) 32 and a controller [33]." '995 Patent at 6:23-26. The specifications clearly link DCU 14 to the function of editing. However, the parties dispute whether all of the components in the DCU are part of the corresponding structure and whether additional components are necessary for the structure to perform the editing and restoring function.

First, the court will determine which parts of the DCU are part of the corresponding structure. Both parties agree that the CPU and the controller are part of the corresponding structure. However, Apple suggests that CPU 31 only includes the microprocessors that Burst discloses in the specification despite the specification's explicit statement that the microprocessors listed are only examples. '995 Patent at 5:50-56. Burst's '995 Patent states: "There are numerous commercially available microprocessors that are appropriate for this application. The Intel 80286, Intel 80386, Motorola 68020, and Motorola 68030 are examples." Id. In Budde v. Harley-Davidson, Inc., 250 F.3d 1369, 1382 (Fed.Cir.2001), the court noted that the issue of sufficient structure turned on "whether the characterization, in the patent specification, of [a] vacuum sensor as a 'commercially available unit' would be understood by one skilled in the art as structure capable of performing the function recited in the claim limitation." Similarly, "commercially available processor" would be a sufficient characterization as understood by one skilled in the art as capable of editing and restoring time compressed representations. Therefore, the CPU in the structure may be any commercially available microprocessor.

The parties dispute whether ROM should be a part of the corresponding structure. Burst agrees that the corresponding structure includes the editing algorithms but argues that the patents do not require the instructions be stored in ROM.FN10 However, the ' 995 Patent expressly discloses that "CPU 31 and controller 33 together control the editing process as they execute the programs stored in ROM 32." '995 Patent at 6:60-62. DCU 14, responsible for the editing process, is shown in Figure 2 of the ' 995 Patent to include a CPU, controller and ROM. In addition, the specifications state that the DCU 14 is comprised of a CPU, controller and ROM. '995 Patent at 6:23-26. The court finds no reason to broaden the structure to include any editing software in any structure when the specifications designate the use of ROM to store the instructions. *See* Cross-Medical Products, Inc. v. Medtronic Sofamor Danek, Inc., 424 F.3d 1293, 1304 (Fed.Cir.2005) ("[T]here is no basis on which to extend the limitation to cover alternative, non-disclosed structure not shown to be structurally equivalent."); *compare* Alpex Computer Corp. v. Nintendo Company Ltd., 102 F.3d 1214, 1218 (Fed.Cir.1996) (ROM is included in the corresponding structure where "the operation of the microprocessor is under the control of a program stored in ROM."). Accordingly, ROM is a part of the corresponding structure.

FN10. "In a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer to perform the disclosed algorithm." WMS Gaming Inc. v. Int'l Game Technology, 184 F.3d 1339, 1349 (Fed.Cir.1999).

Second, the court must determine whether additional components are required in the corresponding structure

besides the DCU's CPU, controller and ROM. Apple argues that the user interface control panel, light pen and/or mouse (collectively "interfaces") are part of the corresponding structure because they are the means to perform the editing function. In addition, the specification links these interfaces to the function of editing. '995 Patent at 6:40-48.FN11 However, the fact that a component is required to accomplish a certain task does not mean that the component itself performs the task. These interfaces are merely tools to connect the user to the structure that edits and restores representations in storage; they do not actually perform the editing. Thus, the court finds that these interfaces are not part of the corresponding structure

FN11. A user interface control panel of DCU 14 allows a user to select a desired frame number from a menu on the display ... A light pen or mouse can be used to select individual frames in a strip." '995 Patent at 6:40-48.

Apple claims that a corresponding structure comprising solely a CPU, controller and ROM does not account for the restoring function recited in the claims. Apple asserts that a high speed data bus is necessary for the DCU to restore information to memory. *See* '995 Patent at 6:63-64 ("[M]emory and DCU communicate with each other via a high speed data bus.... The high speed data bus is required in order to meet bandwidth requirements."). Burst maintains that the high speed data bus is not part of the corresponding structure because it does not actually perform the function of restoring information. Burst argues that the high speed data bus is only a conduit on which edited information travels to memory. However, a corresponding structure must include all elements that perform the recited function. Default Proof, 412 F.3d at 1298. The CPU, ROM and controller alone cannot actually restore information to memory without a means to send the information to memory. Accordingly, the high speed data bus must be a part of the corresponding structure.

Apple further contends that a few specific types of data bus, namely Motorola's VME bus, Intel's Multibus and the Optobuss, described in the specifications are the only data buses disclosed in Burst's patents. '995 Patent at 6:66-67. As the court explained previously, if one having ordinary skill in the art understands "high speed data bus" as a structure capable of restoring information to memory, then it is sufficiently characterized in the specifications. Budde, 250 F.3d at 1382.

In sum, the court finds that the corresponding structure is "a processor executing stored editing software in ROM, a controller, and a high speed data bus, plus equivalents."

4. "*compression means*"

The term "compression means" appears in claims 1, 8, 9, 21 of the '995 Patent; claim 4 of the "2 Patent; and claim 1 of the '705 Patent. Claim 1 from the '705 Patent reads as follows:

1. An audio/video transceiver apparatus comprising:

input means for receiving audio/video source information, said audio/video source information comprising a multiplicity of video frames collectively representing at least one full motion video program;

compression means, coupled to said input means, for compressing the said audio/video source information into a digital time compressed representation thereof, wherein said digital time compressed representation of said audio/video source information is capable of being transmitted in a burst transmission period that is substantially shorter than a time period associated with a real time viewing by a receiver of said audio/video

source information;

storage means, coupled to said **compression means,** for storing said digital time compressed representation of said audio/video source information; and

transmission means, coupled to said storage means, for transmitting said digital time compressed of said audio/video source information away from said audio/video transceiver apparatus in said burst time period.

'705 Patent at 12:37-58. The parties dispute the corresponding structure for "compression means." Apple contends that there is no corresponding structure in the specification, and, if there is a structure, it is limited to the AMD 7971 chip mentioned in the '995 Patent specification. Burst argues that the structure is mentioned in the specification: compressor/decompressor 26, which runs three types of algorithms also described in the specification. ' 995 Patent at 5:4-8.

Apple's argument that there is no structure is dependent upon its construction of "compression" and "time compressed representation ." Because the patent addresses only TCM, according to Apple, and the specification includes no structure relevant to TCM, there is no corresponding structure for "compression means." The court has rejected Apple's construction of "time compressed representation," and so this argument is unavailing.

Apple next contends that Burst's construction fails as a matter of law. It characterizes compressor 26 as an empty box on Figure 2 of the '995 Patent and argues that compressor 26 is insufficient to be a description of a structure. *See* Default Proof, 412 F.3d at 1291 (holding that a similar box labeled "dispenser" in a figure on the patent without more did not describe a structure sufficiently). Burst, in turn, argues that compressor 26 is not an empty box but represents either a microprocessor or a custom designed chip which executes various data algorithms specified in the patent. *See* '995 Patent at 4:63-68; Hemami Dep. at 138:7-140:9. It also argues that the description of the structure is sufficient as a matter of law.

In S3 Incorporated v. Nvidia Corporation, 259 F.3d 1364, 1371 (Fed.Cir.2001), the Federal Circuit held that an empty box on a patent diagram described as a "selector" was a sufficient description because a "selector" was a well known structure in the relevant field. The court reasoned that "patent documents need not include subject matter that is known in the field of the invention and is in the prior art, for patents are written for persons experienced in the field of the invention." *Id*. The Federal Circuit in In re Dossel, 115 F.3d 942, 946 (Fed.Cir.1997), held that a written description of a "device that receives digital data words from memory and data input from a user," carries out a specified computation, and "outputs the result to a display" was sufficient because it identified to a person skilled in the art a "computer." The court also explained that a description without a specified algorithm is also sufficient if the algorithm is known in the art. *Id*. ("While the written description does not disclose exactly what mathematical algorithm will be used ... it does state that 'known algorithms' can be used to solve standard equations which are known in the art."); *see also* Tehrani v. Hamilton Med., Inc., 331 F.3d 1355, 1362 (Fed.Cir.2003) (concluding that a "microprocessor that is programmed to perform the disclosed algorithm" is a sufficient description of structure).

The court is satisfied that the description of compressor 26 in combination with the description of algorithms is sufficiently definite for the purposes of section 112(6). As the specification notes, the AMD 7971 is merely one example of the type of circuit that can execute the compression algorithms. *See* '995 Patent at 5:4-8. It is not the structure.

The compression means for video contemplates compressor 26 executing any of the three types of algorithms mentioned in the specification-an intraframe algorithm, an interframe algorithm, and an audio algorithm. '995 Patent 4:65-5:35. For audio compression, the corresponding structure is compressor 26 executing the audio algorithm.

In sum, the court construes the "compression means" to mean "for video, a compressor/decompressor executing one or both of the following data compression algorithms: (i) reducing the number of bits by coding each frame independently, i.e., treating each frame as an individual image, and/or (ii) reducing the number of bits by comparing two or more frames and coding certain differences between those frames, plus equivalents; and/or for audio, a compressor/decompressor executing the following data compression algorithm: reducing the number of bits by comparing two or more samples and coding certain differences between those samples, plus equivalents."

5. "*decompression means*" *and* "*selectively decompressing*"

The term "decompression means" appears in the '995 Patent in claims 20, 21, 22, 23, 25, 26, and 28; "selectively decompressing" appears in the same claims as well as claims 20, 21, 22, 23, 26, 28 of the '839 Patent. The following claim presents a representative usage of both terms.

20. An audio/video transceiver apparatus as in claim 1 further comprising:

decompression means, coupled to said random access storage means, for **selectively decompressing** said time compressed representation of said audio/video source information stored in said random access storage means; and

editing means, coupled to said random access storage means and **decompression means,** for editing said **selectively decompressed** time compressed representation of said audio/video source information, and for storing said edited **selectively decompressed** time compressed representation of said audio/video source information in said random access storage means.

@995 Patent at 13:12-26.

The parties agree that the function for the term "decompression means" is "selectively decompressing said time compressed representation of said audio/video source information in said random access storage means." The parties also agree that "selectively decompressing" in the functional language requires that the user select the time compressed representation. However, Burst construes "selectively decompressing" to mean that a user selects some or all of the time compressed representation, while Apple contends that "selective decompressing" is limited to a portion of the time compressed representation. The literal language accommodates both constructions. The specification indicates that the user can select a portion of the representation for decompression-for instance, by selecting one frame at a time for editing. ' 995 Patent 6:30-48. While the specification does not explicitly indicate that all of the representation can be selected, it does not prohibit such a construction. Rather, had such a limitation been intended, the specification might have used language such as "selectively decompressing some but not all of the representation." The court finds that "selectively decompressing" means "decompressing some or all of the stored time compressed representation selected by a user."

Having construed the functional language for "decompression means," the court turns to the corresponding

structure. Burst contends that the structure for this element is the same compressor/decompressor used for the "compression means" using decompression algorithms consistent with those used to compress it. Apple, similar to its argument for "compression means," contends that there is no structure disclosed in the patent for "decompression means." The court's construction of "compression means" and the intrinsic evidence support Burst's construction. The specification identifies a compressor/decompressor 26, which the court has construed as part of the structure of the "compressions means." *See* '995 Patent at 4:65. Moreover, decompression is described in the specification as the reverse process of compression. '995 Patent at 4:63-65. Shortly thereafter, the patent describes the algorithms employed in the structure for "compression means." *Id*. at 5:1-5. Accordingly, the court finds that "decompression means" is a "compressor/decompressor executing a decompression algorithm consistent with the compression algorithm used, plus equivalents."

CONCLUSION

For the foregoing reasons, the court construes the disputed claims in the manner described above.

IT IS SO ORDERED.

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