

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

GENUINE ENABLING TECHNOLOGY, LLC,	:	
	:	
	:	CIVIL ACTION
	:	
Plaintiff,	:	
	:	
v.	:	No. 17-135
	:	
SONY CORPORATION, et al.,	:	
	:	
Defendants.	:	
	:	

Goldberg, J.

March 9, 2020

MEMORANDUM OPINION

Plaintiff Genuine Enabling Technology LLC (“GET”) alleges that Defendants Sony Corporation and Sony Interactive Entertainment LLC (collectively, “Sony”) have infringed GET’s U.S. Patent No. 6,219,730 through the development, manufacture, and sale of video game products, such as console systems and controllers. The parties seek construction of eleven of the patent’s disputed terms pursuant to Markman v. Westview Instruments, Inc., 52 F.3d 967, 976 (Fed. Cir. 1995), aff’d, 517 U.S. 370 (1996).¹

I. FACTUAL AND PROCEDURAL BACKGROUND²

A. The Invention

On April 17, 2001, the United States Patent and Trademark Office (“PTO”) issued U.S. Patent No. 6,219,730 (the “730 Patent”), entitled “Method and Apparatus for Producing a

¹ On May 18, 2017, Chief Judge D. Brooks Smith of the United States Court of Appeals for the Third Circuit designated me as a visiting judge for the United States District Court for the District of Delaware, pursuant to 28 U.S.C. § 292(b), to handle this and other District of Delaware cases.

² The following facts are derived from the Complaint, the ‘730 Patent, and the parties’ claim construction briefs.

Combined Data Stream and Recovering Therefrom the Respective User Input Stream and at Least One Input Signal,” to Nghi Nho Nguyen.³

GET’s action alleging infringement of this patent centers on how Sony’s hand-held video game controllers communicate information to the video game console. In the simplest terms, when a player moves the hand-held controller, it communicates a signal to the video game console so that the character on the screen will also move. The controller is also able to simultaneously communicate a separate signal to the console when the player pushes a button. These two signals, as GET alleges, are different types—the signal from the player’s push of a button is “slow-varying” and the signal from the movement of the controller is higher frequency or a faster signal. GET asserts that, before the claimed invention, a slow-varying signal and a higher frequency signal could not be simultaneously received by a computer, or, in this case, a video game console, without colliding. “The inventor [of the ‘730 Patent] solved . . . this problem of being able to keep those [signals] in synchrony or coordinated in timing and communicate it to the gaming console. So that the gaming console receives both pieces of information, the push button information as well as the movement information, and can then process it for the game. So the player then visually sees whatever it is he or she did at the game controller.” (Markman Hearing Tr., 12/3/19, at 8:8–21.) It is on the basis of this capability that GET alleges infringement of the ‘730 Patent.

Additional relevant background is detailed in the ‘730 Patent itself. As it states, computers utilize user input devices to receive their users’ input. They also use “various kinds of input/output [(“I/O”)] cards or devices to handle I/O signals or information.” (‘730 Patent, col. 1, lines 16–17.) Typical user input devices are the mouse, the trackball, or the keyboard, and common I/O cards

³ The inventor and patentee, Nghi Nho Nguyen, is also the owner and sole employee of GET.

include “the sound card handling I/O speech signals and the fax/modem device transferring information over the telephone line.” (Id. at col. 1, lines 20–22.)

These devices and cards require and share “common computer resources such as the direct memory access (DMA) channels and the interrupt request services (IRQ).” (Id. at col. 1, lines 22–24.) However, computer resources for each card or each device have to be “configured, or assigned, to prearranged memory locations that are limited in number.” (Id. at col. 1, lines 26–27.) At the time that the ‘730 Patent was granted, configuration setup for computer resources was “cumbersome” and “sometimes cause[d] conflict in running software.” (Id. at col. 1, lines 28–20.) Although “plug-and-play technology” existed to “alleviate the configuration mechanism,” it did not solve the problem of limited resources shared among cards and devices. (Id. at col. 1, lines 30–33.) The claimed invention seeks to do so:

As computer technology advances, more cards and devices are offered for richer sets of functions; efficient use of computer resources becomes critical. Furthermore, a conventional computer requires that its user be close to its display screen in order to see and control what is shown on the screen. If somehow the user could issue commands to her computer and receive its responses remotely, she would gain a new freedom, such as walking around or staying in bed, while using the computer. The present invention offers a new kind of [user input device] utilizing the computer resources efficiently and enabling a mode of remote interaction between the computer and its user.

(Id. at col. 1, lines 33–44.) The ‘730 Patent’s “new kind of user input device” “receiv[es]/transmit[s] additional I/O signals transferred to/from the computer, without using any computer resources except those available to the [user input device.]” (Id. at col. 1, lines 46–51.)

B. Claim Construction

GET initiated an action for infringement of the ‘730 Patent on February 8, 2017, alleging direct infringement, inducement of infringement, and contributory infringement. GET asserts that Sony has infringed, and continues to infringe, at least one of the claims of the ‘730 Patent by

“making using selling, offering for sale and/or importing into the United States user input devices and video game consoles, including [the Sony PlayStation® 3 console system, the Sony PlayStation® 4 console system, the Sony DualShock® 3 controller, and the Sony DualShock® 4 controller].” (Compl. ¶¶ 22–24.) For example, GET alleges that the Sony DualShock® 3 controller is a user input device that communicates via Bluetooth with the “PlayStation 3 Console” and meets every element of the ‘730 Patent’s claim 16. (Id. at ¶ 23–24.) Sony denies infringement and asserts that the ‘730 Patent is invalid.

On July 13, 2019, GET submitted its opening claim construction brief regarding disputed terms in the following claims of the ‘730 Patent:

1. A user input apparatus operatively coupled to a computer via a communication means additionally receiving at least one input signal, comprising: user input means for producing a user input stream; input means for producing the at least one input signal; converting means for receiving the at least one input signal and producing therefrom an input stream; and encoding means for synchronizing the user input stream with the input stream and encoding the same into a combined data stream transferable by the communication means.⁴
10. The apparatus of claim 1 wherein the input means is an input transducer.
14. A programming method, executed by a computer communicatively coupled via a communication link to a user input means having means for synchronizing and encoding a user input means and at least one additional input signal into a combined data stream, comprising the steps of: initializing the communication link; servicing a single resource service interrupt for receiving the combined data stream; and recovering from the combined data stream respective information of the user input means and of the at least one additional input signal.

⁴ GET explicitly states that it is not asserting an infringement theory based on claim 1. (Markman Hearing Tr., 12/3/19, at 67:24–68:19.) However, Sony argues that claim 1 is in dispute, specifically regarding the term, “input means for producing at least one input signal,” discussed infra.

16. An apparatus linked to a computer by a communication link, functioning as a user input device and additionally receiving at least one input signal, comprising: a user input device producing a user input stream; an input port receiving at least one input signal; a converter receiving the at least one input signal for producing an input stream; and a framer synchronizing the user input stream with the input stream and encoding the same into a combined data stream transferable by the communication link.
17. The apparatus of claim 16 further comprises means for receiving an output stream from the computer via the communication link and means for converting the output stream into at least one signal.
18. The apparatus of claim 16 wherein the converter further comprises an output port wherein the framer further receives an output stream from the computer via the communication link, the output stream being further received and converted by the converter into at least one input signal going to the output port.
21. A user input apparatus operatively coupled to a computer via a communication link receiving user input signals and additionally at least one digital input signal comprising: a user input device for producing a user input stream; an input port for producing the at least one digital input signal; and a framer for keeping the user input stream and the at least one digital input signal in synchrony and encoding the same into a combined data stream transferable to the computer by the communication link.
22. The apparatus of claim 21 wherein the framer further receives output information from the computer to provide at least one input signal.
23. The apparatus of claim 22 further comprises an output transducer converting the at least one output signal into output energy.

(Id. at col. 7, line 13–col. 8, line 4, 26–27; id. at col. 8, line 37–col. 10, line 15.)

I held a Markman hearing regarding these disputed terms on December 3, 2019. Having fully reviewed the parties’ briefing on these terms, I now set forth their construction.

II. LEGAL STANDARD

Claim construction is the first step in the infringement analysis. At claim construction, the court defines the meaning and scope of the disputed claim terms. See Markman, 52 F.3d at 976. Claim construction is an issue of law for the court to decide. Id.

Following claim construction, the court's interpretations are used by the factfinder to determine whether there has been infringement, by comparing the asserted claims with the accused device or prior art. Id.

“It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude.” Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (*en banc*) (internal quotation marks omitted). Thus, the focus of a court's analysis must therefore begin and remain on the language of the claims, “for it is that language that the patentee chose to use to ‘particularly point[] out and distinctly claim[] the subject matter which the patentee regards as his invention.’” Interactive Gift Express, Inc. v. Compuserve, Inc., 256 F.3d 1323, 1331 (Fed. Cir. 2001). There is a “heavy presumption” that the terms of a claim have their ordinary and customary meaning. Texas Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1202 (Fed. Cir. 2002). That ordinary meaning “is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” Phillips, 415 F.3d at 1313.

Generally, a person of ordinary skill in the art (“POSA”) would not understand the ordinary and customary meaning of a claim term in isolation. As such, the ordinary meaning may be derived from a variety of sources including intrinsic evidence, such as the claim language, the written description, drawings, and the prosecution history; as well as extrinsic evidence, such as

dictionaries, treatises, or expert testimony. Dow Chem. Co. v. Sumitomo Chem. Co., Ltd., 257 F.3d 1364, 1373 (Fed. Cir. 2001).

The “most significant source” of authority is “the intrinsic evidence of record, i.e., the patent itself, including the claims, the patent specification⁵ and, if in evidence, the prosecution history.” Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996); see also Phillips, 415 F.3d at 1313 (holding that a POSA is deemed to read the claim terms in the context of the entire patent, including the specification). The specification “is the single best guide to the meaning of a disputed term” and is usually dispositive as to their meaning. Vitronics, 90 F.3d at 1582. Although it is improper to import limitations from the specification into the claims, “one may look to the written description to define a term already in a claim limitation, for a claim must be read in view of the specification of which it is a part.” Renishaw PLC v. Marposs Societa’ per Azioni, 158 F.3d 1243, 1248 (Fed. Cir. 1998). On occasion, “the specification may reveal a special definition given to a claim term . . . that differs from the meaning it would otherwise possess. In such cases, the inventor’s lexicography governs.” Phillips, 415 F.3d at 1316. The specification may also reveal an intentional disclaimer, or disavowal, of claim scope by the inventor . . . [, which] is regarded as dispositive.” Id. “The construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.” Renishaw, 158 F.3d at 1250.

The court “should also consider the patent’s prosecution history, if it is in evidence.” Markman, 52 F.3d at 980. This consists of “the complete record of proceedings before the Patent Office and includes the prior art cited during examination.” Phillips, 415 F.3d at 1317. “Like the

⁵ The specification is “that part of a patent application which precedes the claim and in which the inventor specifies, describes, and discloses the invention in detail.” McCarthy’s Desk Encyclopedia of Intellectual Property 408 (2d ed. 1995).

specification, the prosecution history provides evidence of how the [PTO] and the inventor understood the patent.” Id. at 1317. Nonetheless, it is the least probative form of intrinsic evidence because it “represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation.” Id.

If ambiguity still exists after considering all intrinsic evidence, the court may rely on extrinsic evidence, which is “all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” Markman, 52 F.3d at 980. “[D]ictionaries, and especially technical dictionaries, . . . have been properly recognized as among the many tools that can assist the court in determining the meaning of particular terminology.” Phillips, 415 F.3d at 1318. Additionally, expert testimony can provide background on the technology at issue, explain how it works, speak to what a POSA would understand, and establish that a particular term has a particular meaning in the pertinent field. Id. Notably, however, extrinsic evidence is “less significant than the intrinsic record in determining ‘the legally operative meaning of claim language.’” C.R. Bard, Inc. v. U.S. Surgical Corp., 388 F.3d 858, 862 (Fed. Cir. 2004) (quoting Vanderlande Indus. Nederland BV v. Int’l Trade Comm’n, 366 F.3d 1311, 1318 (Fed. Cir. 2004)).

III. DISCUSSION

Eleven claim terms in the ‘730 Patent are disputed. The parties disagree on the correct construction of the following terms: (1) “input signal”; (2) “combined data stream”; (3) “input means for producing at least one input signal”; (4) “framer”; (5) “converter”; (6) “communication means”; (7) “means for receiving an output stream from the computer via the communication link”; (8) “user input means”; (9) “encoding means”; (10) “means for converting the output stream into at least one output signal”; and (11) “converting means.”

A. “Input Signal”

The first disputed claim term is “input signal.”

Claims	GET’s Proposed Construction	Sony’s Proposed Construction
10, 14, 16–18, 21–23	A signal having an audio or higher frequency. (Pl.’s Opening Claim Constr. Br., Ex. 2, at 2.)	A signal that comes from a source different from those of motion and selection units. (<u>Markman</u> Hearing Tr., 12/3/19, at 47:2–5; <u>id.</u> at 55:1–25.)

The parties’ dispute over this construction centers on whether GET disavowed the scope of the term during prosecution. Both parties rely primarily on the prosecution history in support of their proposed constructions.

Like the specification, the prosecution history may be useful in revealing either a special meaning assigned by the patentee to the term or a disclaimer clarifying what the claims do not cover. Phillips, 415 F.3d at 1317. Thus, examination of a patent’s prosecution history and the application of prosecution disclaimer is a helpful tool during claim construction as it “ensures that claims are not construed one way in order to obtain their allowance and in a different way against accused infringers.” Chimie v. PPG Indus., Inc., 402 F.3d 1371, 1384 (Fed. Cir. 2005).

However, a court’s reliance on prosecution history must be tempered with the recognition that a “prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation.” Phillips, 415 F.3d at 1317. A prosecution history “often lacks the clarity of the specification and thus is less useful for claim construction purposes.” Id. Prosecution disclaimer is not appropriate in instances “where the alleged disavowal of claim scope is ambiguous,” or where remarks made by an inventor to overcome a rejection may be viewed “as amenable to multiple reasonable interpretations.” Omega Eng’g, Inc. v. Raytek Corp., 334 F.3d 1314, 1324 (Fed. Cir. 2003) (citing N. Telecom Ltd. v. Samsung Elec. Co., 215 F.3d 1281, 1293–95 (Fed. Cir. 2000)). Rather, “for prosecution disclaimer to attach, [Federal Circuit] precedent requires that the alleged disavowing actions or statements made during prosecution be

both clear and unmistakable.” Id. at 1325–26; Cordis Corp. v. Medtronic Ave, Inc., 511 F.3d 1157, 1177 (Fed. Cir. 2008) (reiterating that “arguments made to distinguish prior art references” will be considered disavowals “only if they constitute clear and unmistakable surrenders of subject matter”).

Here, the parties agree that, during prosecution, the patentee, Nghi Nho Nguyen, refined his invention and limited the scope of the claims. Their only dispute is what, in fact, was disavowed.

Consistent with its proposed construction, GET acknowledges that during prosecution the patentee limited “input signal” to those signals that have a higher frequency than the prior art—specifically, an audio frequency or higher. Sony argues that the patentee further limited “input signal,” describing the “high frequency input signal” claimed by the invention as coming from “a source different from those of motion and selection units.” (Defs.’ Responsive Claim Constr. Br. at 5.)

The PTO originally rejected the ‘730 Patent over U.S. Patent No. 5,990,866 (“Yollin”) in part because of the claim term “input signal”: “Yollin teaches the invention substantially as claimed including . . . an input for delivering at-least-one input signal [i.e., input information received from motion translation unit 102, user selection unit 104 and physiological response sensor(s)” (‘730 Patent File History, Office Action dated March 20, 2000, ECF No. 67-3, at 53.) In response, the patentee submitted the following in an attempt to differentiate his invention from Yollin:

Yollin’s invention, . . . utilizes various implementations and configurations for receiving input from motion translation unit 102, user selection unit 104 and physiological response sensor(s) 106, and for processing their information prior to communication to the host system However, Yollin only uses the configuration to receive the slow varying signal coming from the physiological

response sensor(s). Yollin is not motivated and does not anticipate their use for receiving signals containing audio or higher frequencies in place of the physiological response sensor(s). **The high frequency input signal, which comes from a source different from those of motion and selection units, will run asynchronously relative to, and collide with, the other signals.** Yollin's invention does not teach or suggest any approach for receiving and recovering that kind of input signal. Yollin's invention utilizes . . . a controller to receive positional change information, user selection information and physiological change information to generate . . . a composite control signal but does not anticipate its use with signals containing audio or higher frequencies. Using a controller to generate the composite control signal out of the information changes, which are slow-varying, is standard and not worth mentioned [sic] in Yollin's description. Difficulties will arise when one signal runs asynchronously relative to another signal and fast. Yollin's patent does not teach or suggest any method for the controller to receive and recover such signals. In contrast, this invention describes, in its representative embodiments, how to combine the data from a UID (mouse) and from a high-frequency signal, via a framer, which is unique and novel.

(‘730 Patent File History, Response dated September 20, 2000, ECF No. 67-3, at 70–71 (emphasis added).)

Sony relies on the single statement set forth above in bold to support its scope disavowal argument. Sony posits that, based on this phrase, the construction of “input signal” should explicitly exclude signals coming from motion or selection units. Sony contends that, as a result of this disavowal, GET cannot now claim that the invention includes video game controllers with accelerometers or, in other words, motion sensors. (Markman Hearing Tr., 12/3/19, 10:10–13 (“When you move the controller, the accelerometer in the controller, that’s the thing that actually figures out the position that you’re moving to, the movement, that’s a higher . . . frequency signal.”).)

GET responds that the patentee did not distinguish the prior art based on whether the sensor was a motion or selection unit, but rather based on the speed or frequency of the signals. GET

maintains that during prosecution the patentee repeatedly characterized “input signal” as a signal “containing an audio or higher frequency.” (Pl.’s Opening Claim Constr. Br. at 17.)

I agree with GET’s proposed construction. The following portions of the prosecution history reflect that the patentee’s explanation distinguishing Yollin is focused on the frequency of the input signals, not the type of sensors:

Yollin only uses the configuration to receive the slow varying signal coming from the physiological response sensor(s). Yollin is not motivated and does not anticipate their use for receiving signals containing audio or higher frequencies

Difficulties will arise when one signal runs asynchronously relative to another signal and fast. Yollin’s patent does not teach or suggest any method for the controller to receive and recover such signals. In contrast, this invention describes, in its representative embodiments, how to combine the data from a UID (mouse) and from a high-frequency signal, via a framer, which is unique and novel.

(‘730 Patent File History, Response dated September 20, 2000, ECF No. 67-3, at 70–71.)

When read in the context of the patentee’s full response, I conclude that the scope of “input signal” is not limited to signals from sources different from “motion and selection units.” The patentee’s statement to the PTO was that the “high frequency input signal” in *his* invention comes from a source different from the “motion and selection units” in *Yollin’s* invention because the high frequency input signal claimed by the ‘730 Patent “will run asynchronously relative to, and collide with” the slow varying signals produced by the motion and selection units claimed in Yollin. (Id.) This is because Yollin’s invention embodies a configuration for receiving only slow varying signals from motion and selection units and physiological response sensors and does not teach a method for receiving signals containing audio or higher frequencies. The ‘730 Patent teaches such a method. Therefore, the claimed invention’s description of how to combine data from slow varying and higher frequency signals is the basis for its distinction from Yollin.

GET also argues that, in a prior Patent Trial and Appeal Board (“PTAB”) *inter partes* review proceeding (“IPR”) involving the ‘730 Patent, the PTAB construed “input signal” as a signal “having an audio or higher frequency.” (Sony IPR Decision, dated March 14, 2018, ECF No. 67-6, at 11.) The PTAB’s construction is not binding on this Court, but, “where the construction is similar to that of a district court’s review,” it is appropriate for me to take the PTAB’s claim construction into consideration. SunPower Corp. v. PanelClaw, Inc., No. 12-1633, 2016 WL 1293479, at *6 (D. Del. April 1, 2016).

Here, I find the PTAB’s reasoning to be persuasive. The issue of whether there was disavowal of the scope of “input signal” during prosecution was also before the PTAB. (Sony IPR Decision, dated March 14, 2018, ECF No. 67-6, at 9.) In concluding that the arguments in the prosecution history “clearly and unmistakably disavow any interpretation of ‘input signal’ that encompasses a signal that is slow-varying and not a high-frequency signal (i.e., audio or higher frequency),” the PTAB also relied on statements by the patentee distinguishing Yollin from the ‘730 Patent. (Id. at 10–11.) The PTAB likewise interpreted “input signal” as “a signal ‘having an audio or higher frequency.’” (Id. at 11.)

Based on my review of the prosecution history, I will adopt GET’s proposed construction of “**input signal**” as “**A signal having an audio or higher frequency.**”

B. “Combined Data Stream”

The second claim term in dispute is “combined data stream.”

Claims	GET’s Proposed Construction	Sony’s Proposed Construction
10, 14, 16–18, 21–23	No construction necessary. Alternatively, a data stream resulting from synchronizing and merging the user input stream and the input stream. (Pl.’s Opening Claim Constr. Br., Ex. 2, at 6.)	A data stream including data from the user input stream and the input stream without a distinct identification of each source. (Defs.’ Responsive Claim Constr. Br. at 7.)

The focus of the parties' dispute on this term pertains to Sony's addition of "without distinct identification of each source" to its proposed construction.

GET relies on the claim language to support its argument that no construction of this term is necessary, arguing that each independent claim (1, 14, 16, 21) defines "combined data stream." (Id. at col. 8, lines 1–2 ("synchronizing the user input stream with the input stream and encoding the same into a combined data stream"); id. at col. 8, lines 39–41 ("synchronizing and encoding a user input stream and at least one input signal into a combined data stream"); id. at col. 9, lines 7–9 ("a combined data stream containing synchronized and encoded information of a user input means and of at least one additional input signal").)

GET also argues that the specification is consistent with the definition of "combined data stream" as taught by these claims. ('730 Patent, Abstract ("A communication program method, by which a computer receives a combined data stream resulted from two sources, one from a [user input device] another from an additional input signal, recovers from such stream the respective information of the two sources."); id. at col. 2, lines 63–67 ("Another object of the invention provides a method for receiving a combined data stream, resulted from a [user input device] and from an input signal, and for recovering therefrom the respective information of the [user input device] and of the input signal.").)

Sony responds that GET limited the scope of this claim term in the prosecution history when distinguishing U.S. Patent No. 5,870,080 ("Burnett et al."). In support of this alleged disavowal, Sony points to the following statements in response to the PTO's rejection of the '730 Patent over Burnett et al.:

Burnet et al.'s invention uses two [multiplexers/demultiplexers] placed at its both ends in order to interleave, and later separate, the two signals of the mouse and of the transceiver In contrast, this invention implements a framer in place of the first

[multiplexer/demultiplexer] to combine the two signals into a combined data stream which is communicated to the computer without needing the second [multiplexer/demultiplexer]. Thus, this invention does not use the [multiplexer/demultiplexer] 107 shown in Fig. 3, and consequently does not modify the computer between its port 125 and bus 101.

Burnett et al.'s invention, by relying on the second [multiplexer/demultiplexer] 107 to separate the two sources of signals, **receives their data with distinct identification of each source**, therefore requires and maintains the number of resources needed for both devices, of the mouse and of the transceiver. In contrast, this invention's computer method of receiving the combined data stream received at port 103 **without first identifying the data**, whether mouse's or transceiver's. It therefore uses only a single resource to receive the combined data.

(‘730 Patent File History, Response dated September 20, 2000, ECF No. 67-3, at 68–69 (emphasis added).) Sony contends, based on the bolded phrases set forth above, that the data from the user input stream and the input stream combine “without a distinct identification of each source.” GET responds that there is no language in the specification to support this limitation and that the patentee’s distinction of Burnett et al. was based on the structure or type of device used to receive the two signals, not the content of the signals and whether the combined signal had information about its source. For the following reasons, I agree with GET.

My initial focus must be on the language of the claims. Interactive Gift Express, Inc. v. Compuserve, Inc., 256 F.3d 1323, 1331 (Fed. Cir. 2001). Here, the claims define “combined data stream.” (See, e.g., ‘730 Patent, col. 8, lines 1–2 (“synchronizing the user input stream with the input stream and encoding the same into a combined data stream”).) Moreover, the specification does not teach a requirement or limitation that the data stream is combined “without a distinct identification of each source.” Rather, it clearly states that the data from the two streams (input stream and user input stream) can be recovered by the computer after transmission. (Id. at col. 7, lines 47–51 (“[A] communication method by which a computer, receiving a combined data stream

associated with two sources of information, one from a user input means and another from an input signal, recovers from such data the respective information of the two sources.”.)

Additionally, I conclude that the patentee did not clearly and unmistakably disavow the scope of the claim term in his distinction of the Burnett et al. patent. See Cordis Corp. v. Medtronic Ave, Inc., 511 F.3d 1157, 1177 (Fed. Cir. 2008) (reiterating that “arguments made to distinguish prior art references” will be considered disavowals “only if they constitute clear and unmistakable surrenders of subject matter”). Sony reads the patentee’s remarks out of context. The focus of the patentee’s response regarding Burnett et al. is the claimed invention’s structure, that is, the ‘730 Patent’s use of a framer instead of a multiplexer/demultiplexer at each end. (‘730 Patent File History, Response dated September 20, 2000, ECF No. 67-3, at 69 (“In contrast, this invention implements a framer in place of the first [multiplexer/demultiplexer] to combine the two signals into a combined data stream which is communicated to the computer without needing the second [multiplexer/demultiplexer].”).) As characterized by the patentee, the multiplexer/demultiplexers at the receiving end of Burnett et al.’s invention separate or split the combined signal so that each data component can be received by its own computer resource. The claimed invention is different because the combined data stream is received by a common computer resource and the respective input streams are recovered after they are received by the computer.

Finally, the patentee’s explanation that Burnett et al.’s invention “receives [its] data with distinct identification of each source [and] therefore requires and maintains the number of resources needed for both devices” is not a comment on the content of the combined data stream in the claimed invention. Rather, it is an explanation of how Burnett et al.’s invention receives data based on each source’s distinct identity. The patentee distinguishes his invention on this basis—the claimed invention allows a computer to receive the combined data stream without

needing to first identify which data is which so that a single resource on a computer can be shared between the two data sources. This reading is supported by the goals of the invention set forth in the specification—to utilize computer resources more efficiently by providing “an apparatus functioning as a [user input device] to a computer while receiving/transmitting additional [input/output] signals transferred to/from the computer without using any computer resources except those available to the [user input device].” (’730 Patent, col. 1, lines 43–44, 46–50.)

Based on the definition of “combined data stream” recited in the claims and my review of the prosecution history, I conclude that **no construction is necessary** for the term “**combined data stream.**”

C. “Input Means for Producing at Least One Input Signal”

The third claim term in dispute is “input means for producing at least one input signal.”

Claims	GET’s Proposed Construction	Sony’s Proposed Construction
10	The input means is an input transducer. (Pl.’s Opening Claim Constr. Br., Ex. 2, at 17.)	Function: Producing at least one input signal. Structure: An input transducer that is part of a microphone or fax/modem device. (<u>Markman</u> Hearing Tr., 12/3/19, at 72:20–73:1.)

The parties disagree on whether this claim term should be construed as a means-plus-function limitation and, therefore, governed by 35 U.S.C. § 112(f) (formerly, § 112, ¶ 6). Specifically, their dispute centers on whether “input means” should be construed as recited in independent claim 1, in light of GET’s argument that it is only asserting dependent claim 10 for purposes of infringement.

In construing claim terms, a court must consider whether they qualify as “mean-plus-function” limitations. Means-plus-function claim elements are interpreted according to 35 U.S.C. § 112(f):

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

The statute establishes a two-step process for courts to follow in construing means-plus-function limitations: (1) construe the function recited; and (2) determine what structures the specification discloses to perform that function. Kemco Sales, Inc. v. Control Papers Co., 208 F.3d 1352, 1361 (Fed. Cir. 2000). When the specification discloses “distinct and alternative structures for performing the claimed function,” the proper construction embraces each such structure. Creo Prods., Inc. v. Presstek, Inc., 305 F.3d 1337, 1346 (Fed. Cir. 2002); see also Ergo Licensing, LLC v. Carefusion 303, Inc., 673 F.3d 1361, 1363 (Fed. Cir. 2012).

The Federal Circuit has emphasized that the “essential inquiry” in determining whether a term is governed by the means-plus-function strictures of 35 U.S.C. § 112(f) is “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” Williamson v. Citrix Online, LLC, 792 F.3d 1339, 1348 (Fed. Cir. 2015). However, absence of the word “means” in the claim term creates a rebuttable presumption that § 112(f) does not apply. TEK Global, S.R.L. v. Sealant Sys. Int’l, Inc., 920 F.3d 777, 785 (Fed. Cir. 2019); Williamson, 792 F.3d at 1348–49 (abandoning the heightened standard applied to the presumption flowing from the absence of the word “means”). The presumption can be overcome, and § 112(f) will apply to the term at issue, if the challenging party demonstrates that the term “fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.” Id. at 1349 (internal quotation marks omitted). Conversely, presence of the word “means” creates a rebuttable presumption that § 112(f) applies

to the term, unless the challenging party demonstrates that the term recites sufficiently definite structure.

Here, GET recognizes that use of the word “means” in the claim term creates a rebuttable presumption that § 112(f) applies. However, GET claims that the presumption is overcome because claim 10 provides sufficiently definite meaning as the name for structure. See Williamson, 792 F.3d at 1348. Claim 10 teaches “[t]he apparatus of claim 1 wherein the input means is an input transducer.” (‘730 Patent, col. 8, lines 26–27.) Therefore, GET argues that the structure of “input means” is an input transducer.

Sony responds that, because there is no dispute that “input means,” as recited in independent claim 1, is a means-plus-function term, “input means,” as recited in dependent claim 10, should also be construed under § 112(f). Sony further argues that, in order to prove infringement as to dependent claim 10, GET must prove each element of independent claim 1, and, as such, I must consider the construction of “input means” in claim 1, when construing the term in claim 10. In claim 1, Sony explains that the function of “input means”—“producing at least one input signal”—is performed by the structure disclosed in the specification, a microphone and fax/modem device. Sony acknowledges that the structure of claim 10 is an “input transducer” but argues that it must be limited to the microphone or fax/modem device because claim 10 cannot be broader than claim 1.

For several reasons, I disagree that “input means,” as recited in claim 10, is a means-plus-function limitation. First, GET represented at the Markman hearing that it is not asserting claim 1 for purposes of infringement. (Markman Hearing Tr., 12/3/19, 67:24–68:19.) I will, therefore, only consider the term “input means for producing at least one input signal” as taught by claim 10. Claim 10 explicitly recites the structure for performing the function of “input means”—an input

transducer. Sony admits this point and even includes “input transducer” in its proposed construction.

Moreover, construing “input means” as “the input means is an input transducer” does not make dependent claim 10 broader than independent claim 1. Sony construes the structure of “input means” in claim 1 as a microphone or fax/modem device and, therefore, limits “input means” in claim 10 to “an input transducer that is part of a microphone or fax/modem device.” However, by doing so, Sony attempts to restrict the claimed invention to its specific examples or preferred embodiments, when the scope was not limited during prosecution. (‘730 Patent, col. 2, lines 48–51 (“The inventive apparatus *may* integrate means to handle the I/O signals, *such as* the microphone) (emphasis added); *id.* at col. 1, lines 64–67 (“*For example, one inventive apparatus* handling the I/O telephone signals effectively functions as a fax/modem device and at the same time as a UID.”) (emphasis added).)

Federal Circuit precedent prohibits Sony’s suggested restriction. See B.E. Technology, L.L.C. v. Sony Mobile Communications (USA) Inc., 657 F. App’x 982, 988 (Fed. Cir. 2016) (“B.E. contends that the Board’s construction is incorrect because it is broader than the examples depicted in the patent; however, we have rejected the notion that claim terms are limited to the embodiments disclosed in the specification, absent redefinition or disclaimer.” (citing Phillips, 415 F.3d at 1316, 1323); Kinik v. Int’l Trade Commission, 362 F.3d 1359, 1364–65 (Fed. Cir. 2004) (“[W]hen the specification describes the invention in broad terms, accompanied by specific examples or embodiments, the claims are generally not restricted to the specific examples or preferred embodiments unless that scope was limited during prosecution.”); Dow Chem. Co. v. United States, 226 F.3d 1334, 1342 (Fed. Cir. 2000) (as a general rule claims of a patent are not

limited to the preferred embodiment); Intel Corp. v. United States Int’l Trade Comm’n, 946 F.2d 821, 836 (Fed. Cir. 1991).

Because claim 10 recites sufficiently definite structure as to “input means”—an input transducer, I conclude that § 112(f) does not apply to the claim term. I also conclude that “input transducer” is not restricted to the specific examples of a microphone or fax/modem device as described in the specification.

Based on my analysis of the claim language and GET’s representation that it only asserts claim 10 for purposes of infringement, I will adopt GET’s proposed construction of **“inputs means for producing at least one input signal”** as **“The input means is an input transducer.”**

D. “Framer”

The fourth claim term in dispute is “framer.”

Claims	GET’s Proposed Construction	Sony’s Proposed Construction
16, 17, 18, 21, 22, 23	Circuitry that creates a frame, which is a digital data unit to be transmitted via a communication link. (Pl.’s Opening Claim Constr. Br., Ex. 2, at 10.)	Function: (1) synchronizing the user input stream with the input stream, and (2) encoding the user input stream and the input stream into a combined data stream. Structure: The logic design at block 34 of Figure 4A. (Defs.’ Responsive Claim Constr. Br. at 17.)

The parties’ dispute centers on whether “framer” connotes sufficiently definite structure to a POSA. As such, the parties rely primarily on extrinsic expert testimony.⁶

⁶ “In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence.” Vitronics, 90 F.3d at 1583. In other words, “[i]n those cases where the public record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence is improper.” Id. Rather, the public record of the patentee’s claims is comprised of the claims, specification, and file history, and it is that record on which the public and competitors are entitled to rely to ascertain the scope of the patentee’s claimed invention. Id. “Allowing the public record to be altered or changed by extrinsic evidence introduced at trial, such as expert testimony, would make this right meaningless.” Id. Where the intrinsic record is unclear, however, reliance on extrinsic evidence is appropriate. Intel Corp. v. Broadcom Corp., 172 F. Supp. 2d 515, 527 (D. Del. 2001). A court may look to expert and inventor testimony, dictionaries, and learned treatises. Novartis Corp. v. Teva Pharms. USA, Inc., 565 F. Supp. 2d 595, 607 (D.N.J. 2008). “[B]ecause extrinsic evidence can help educate the court regarding the field of the invention and can help the court determine what a

Here, the parties agree that the absence of the phrase “means for” in the claim term creates a rebuttable presumption that § 112(f) does not apply. However, as discussed, “the essential inquiry is not merely the presence or absence of the word ‘means’ but whether the words of the claim are understood by persons of ordinary skill in the art to have sufficiently definite meaning as the name for structure.” Williamson, 792 F.3d at 1348. The presumption may be overcome if the challenging party demonstrates that the claim term “fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.” Id. at 1349 (internal quotation marks omitted).

GET argues that Sony cannot demonstrate that “framer” fails to recite sufficiently definite structure because “the ‘730 Patent clearly points to a structure—a circuit—when it uses the term ‘framer.’ Figure 4A, described as one embodiment of the invention, depicts a logic diagram that shows the components and connections of the circuit designated as ‘framer 34.’” (Pl.’s Opening Claim Constr. Br. at 4.)

GET also relies on the declaration of its expert Dr. Kenneth W. Fernald to prove this point. Dr. Fernald asserts that a POSA at the time of the ‘730 Patent understood “framing” to generally refer to “the concept of transforming data into a format that can be recognized by the receiver of the data.” (Fernald Decl., ECF No. 71, at ¶ 5.) He goes on to explain that a POSA would have understood “framing” to be achieved by a “frame”:

[A] block to be transmitted generally includes the data (generally called the payload) and additional information that allows the receiving computer to recognize the frame, such as a preamble bit of pattern at the beginning, potentially a postamble bit pattern at the end, and possible additional information relating to data link procedures. The exact format of the frame depends on which data

person of ordinary skill in the art would understand claim terms to mean, it is permissible for the district court in its sound discretion to admit and use such evidence.” Phillips, 415 F.3d at 1319. In exercising that discretion, however, the court “should keep in mind the flaws inherent in [extrinsic evidence] and assess that evidence accordingly.” Id.

link control procedure is used. This recognizable block is referred to as a “frame.”

(Id.) Dr. Fernald, therefore, concludes that a POSA would have understood a “framer” to be “a circuit that creates a frame, such creation being referred to as ‘framing.’” (Id.)

Sony points to both intrinsic and extrinsic evidence in response. Sony presses that the claims do not recite any structure for “framer” and, instead, recite the term only in relation to its function. Sony also argues that statements made by the patentee during prosecution that describe the framer in the claimed invention as “unique and novel” demonstrate that a POSA would not have understood its structure. (‘730 Patent File History, Response dated September 20, 2000, ECF No. 67-3, at 70–71 (“In contrast, this invention describes, in its representative embodiments, how to combine the data from a UID (mouse) and from a high-frequency signal, *via a framer, which is unique and novel.*” (emphasis added).)

Additionally, Sony relies on extrinsic evidence to demonstrate that “framer” does not connote sufficiently definite structure. Sony does not dispute that a POSA would have understood the concept of “framing” or “frame” at the time of the ‘730 Patent. Instead, Sony argues that Dr. Fernald’s testimony does not provide a reasonably well understood meaning for “framer,” which is, in fact, the claim term. Sony asserts that Dr. Fernald’s testimony (1) failed to “introduce any other evidence, such as dictionary definitions, suggesting that [framer] is a term commonly understood by [a POSA] to denote a device or class of devices”; (2) failed to “explain with any degree of definiteness what structure or class of structures a [POSA] would understand the term to encompass”; (3) failed to “offer any structural limitation that might serve to cabin the scope of the functional term”; and (4) “did little more than opine that a skilled artisan would understand the functional term [framer] to be any structure capable of performing the claimed function.” (Defs.’ Responsive Claim Constr. Br. at 17–18 (citations omitted) (internal quotation marks omitted).)

Sony relies on Diebold Nixdorf, Inc. v. Int’l Trade Commission, 899 F.3d 1291 (Fed. Cir. 2018) to support the argument that these flaws in GET’s expert testimony demonstrate that “framer” fails to connote sufficiently definite structure.

Finally, Sony cites to the testimony of its own expert, Dr. Gregory F. Welch, who explains that “framer” was not commonly understood to connote any definite structure or class of structures to a POSA. (Welch Decl., ECF No. 78, at ¶¶ 22–23 (“I have never seen nor heard of the word ‘framer’ used in the context of user input devices, the word ‘framer’ was not commonly used in such contexts Claims 16 and 21 of the ‘730 Patent would connote no less structure to a [POSA] had those claims used the word ‘means for’ in place of ‘framer’ in Claim 16 or ‘framer for’ in Claim 21.”).) As explained by Dr. Welch, “the use of the word ‘framer’ and ‘framer for’ connotes no additional information to a [POSA] about the structure or class of structures that is to perform the recited functions than if the claims instead recited ‘means for.’” (Id. at ¶ 23.)

For the following reasons, I agree that “framer” fails to connote sufficiently definite structure to a POSA and that § 112(f) applies to that term. First, the disclosure of Figure 4A (showing the components and connections of “framer 34”) is not alone sufficient to impart structure to the claim term. See MTD Prods. Inc. v. Iancu, 933 F.3d 1336, 1342–43 (Fed. Cir. 2019) (“Just as it is improper to import[] limitations from the specification into the claims, however, a preferred embodiment disclosed in the specification cannot impart structure to a term that otherwise has none. . . . As with all lexicography, [i]t is not enough for a patentee to simply disclose a single embodiment. Rather, the patentee must clearly express an intent to redefine the term.” (internal quotation marks omitted)). And the claims recite “framer” only in relation to its function, not its structure. (‘730 Patent, col. 8, lines 61–63 (“a framer synchronizing the user input stream with the input stream and encoding the same into a combined data stream transferable by

the communication link”); *id.* at col. 10, lines 5–8 (“a framer for keeping the user input stream and the at least one digital input signal in synchrony and encoding the same into a combined data stream transferable to the computer by the communication link.”).

Second, based on the prosecution history, I conclude that the ‘730 Patent fails to convey to a POSA the structure or class of structures known as “framers” because the patentee explicitly stated during prosecution that the framer used “to combine the data from a UID (mouse) and from a high-frequency signal” in the claimed invention was “unique and novel,” a characterization also recognized by the PTO Examiner. (‘730 Patent File History, Response dated September 20, 2000, ECF No. 67-3, at 70–71; PTO Examiner Correspondence, ECF No. 67-3, at 145) (“Your invention, as far as I understand, is a user-interface (UI) with a *novel* framer that combines 2 different signals from 2 different sources.”) (emphasis added).)

GET offers no response to these arguments, relying solely on the testimony of its expert and four documents introduced for the first time in its Reply Brief that it claims represent “framers” on the market at the time of the ‘730 Patent in the field of data communications. (Pl.’s Reply Claim Constr. Br., Ex. 8–11.) GET argues that the field of invention of the ‘730 Patent includes data communications and, therefore, a POSA would have known about these other framers. However, the specification recites the following as the field of the claimed invention: “[t]his invention relates to computer user-input devices including pointing devices, especially to those handling additional input/output signals.” (‘730 Patent, col. 1, lines 8–11.) This description does not expressly include the broad term “data communications,” and GET’s expert, Dr. Fernald, does not address whether it should. In fact, Dr. Fernald’s description of a POSA makes no mention of “data communications.” (See Fernald Decl., ECF No. 71, at ¶ 4.) And Sony’s expert, Dr. Welch,

although asked directly whether data communications was the relevant field of invention, was unwilling to characterize it as such. (Welch Dep., ECF No. 84-1, at 17:2–18:10.)

Finally, I find that Dr. Fernald’s testimony is insufficient to demonstrate that a POSA would have understood the structure or class of structures referred to by “framer” in the claimed invention. Diebold Nixdorf, Inc. v. Int’l Trade Commission, 899 F.3d 1291 (Fed. Cir. 2018), is instructive on this point. In Diebold, the Federal Circuit reversed a decision of the United States International Trade Commission declining to apply § 112(f) to the claim term “cheque standby unit.” See 899 F.3d at 1298. The Court concluded that the claims of the patent at issue did not recite any structure for the term, describing it “solely in relation to its function and location in the apparatus.” Id. The Court rejected expert testimony declaring that a POSA would readily understand that a “cheque standby unit” was a “structure in an ATM that temporarily holds checks pending the customer confirming the deposit.” Id. at 1300. The Court’s reason for doing so was the lack of any other evidence, such as dictionary definitions, suggesting that a “cheque standby unit” is a term commonly understood by a POSA to denote a device or class of devices. Id.

Here, Dr. Fernald’s testimony suffers from the same deficiencies as the expert’s testimony in Diebold. Dr. Fernald’s testimony does not provide a reasonably well understood meaning for “framer.” He defines “framing” and “frame” but offers no support, by way of dictionary definitions or other extrinsic evidence, for his assumption that a POSA who understands “framing” and “frame” would, therefore, understand that a “framer” was “a circuitry that creates a frame.” (Fernald Decl., ECF No. 71, at ¶ 5.) As the expert in Diebold, Dr. Fernald does little more than opine that a POSA would understand “framer” to be any structure that performs the function of “framing” and, therefore, fails to cabin the scope of the functional term. (Id. (“A framer is a circuit

that creates a frame, such creation being referred to as ‘framing.’”).) This is not sufficient to support a *definite* structural meaning of “framer.” See Diebold, 899 F.3d at 1298.

Based on my analysis of the intrinsic and extrinsic evidence identified by the parties, I conclude that § 112(f) applies to “framer” because a POSA would not have understood the term to connote sufficiently definite structure at the time of the ‘730 Patent. I will, therefore, adopt Sony’s proposed construction of **“framer” as “Function: Synchronizing the user input stream with the input stream and encoding the user input stream and the input stream into a combined data stream; Structure: The logic design at block 34 in Figure 4A⁷ and equivalents thereof.”**⁸

E. “Converter”

The fifth claim term in dispute is “converter.”

Claims	GET’s Proposed Construction	Sony’s Proposed Construction
16, 18	A circuit for converting a digital stream into an output signal, such as, for example, the decoder part of a codec; ‘converter’ in Claim 18 does not necessarily refer to the same converter of Claim 16. (Pl.’s Opening Claim Constr. Br., Ex. 2, at 8.)	The converter in Claim 18 refers to the same converter component of Claim 16 and, in the alternative, a codec. (Defs.’ Responsive Claim Constr. Br. at 20); (see also <u>Markman</u> Hearing Tr., 12/3/19, at 89:21–90:25.)

⁷ As discussed further *infra*, and in relation to the term “encoding means,” the ‘730 Patent discloses only one type of structure to perform the function of “framer”—the logic design at block 34 in Figure 4A. Therefore, based on Bennett Marine, Inc. v. Lenco Marine, Inc., 549 F. App’x 947 (Fed. Cir. 2013), I will construe the structure of “framer” as “the logic design at block 34 in Figure 4A and equivalents thereof.” See *id.* at 954-55 (“The ‘780 patent discloses only one specific type of circuit to perform the part of the function required by the fifth limitation. In such a situation, the corresponding structure should be limited to that structure and its equivalents. . . . [T]he ‘780 patent does not disclose alternatives to the circuit shown in figure 2, such as, for example, a general class of known switches. . . . Bennett has not identified any evidence showing that any circuit other than the circuit disclosed in figure 2 was known and capable of performing the function required by the fifth limitation.”); see also J&M Corp. v. Harley-Davidson, Inc., 269 F.3d 1360, 1367 (Fed. Cir. 2001) (“The literal scope of a properly construed means-plus-function limitation does not extend to all means for performing a certain function. Rather, the scope of such claim language is sharply limited to the structure disclosed in the specification and its equivalents.”).

⁸ I will also construe the structure of “framer” to include equivalents thereof as discussed *infra* in Section F. See 35 U.S.C. § 112(f) (“[S]uch claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.”).

The parties' dispute focuses on whether the converter disclosed in claim 18 is the same as the converter in claim 16.

Independent Claim 16 teaches an apparatus comprising, in pertinent part, "a converter receiving the at least one input signal for producing an input stream." ('730 Patent, col. 8, lines 59–60.) The parties agree that this claim term requires no construction because the meaning of "converter" is readily understood by a POSA without the need for clarification and it connotes sufficiently definite structure—a device that converts data or signals from one form to another. (See Pl.'s Opening Claim Constr. Br. at 18; Defs.' Responsive Claim Constr. Br., Ex. 6, at 120.) However, the parties dispute the construction of "converter" in claim 18. Claim 18, which is dependent on claim 16, teaches:

the apparatus of claim 16 **wherein the converter further comprises an output port** wherein the framer further receives an output stream from the computer via the communication link, the output stream being further received and converted by the converter into at least one input signal going to the output port.

('730 Patent, col. 9, lines 1–5 (emphasis added).)

Because claim 16 is an independent claim, it must be at least as broad as claim 18, which depends from it. See Alcon Research, LTD v. Apotex Inc., 687 F.3d 1362, 1367 (Fed. Cir. 2012). Moreover, "the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim." Phillips, 415 F.3d at 1314–15. This "presumption is especially strong when the limitation in dispute is the only meaningful difference between an independent and dependent claim, and one party is urging that the limitation in the dependent claim should be read into the independent claim." SunRace Roots Enter. Co., Ltd. v. SRAM Corp., 336 F.3d 1298, 1303 (Fed. Cir. 2003).

GET argues that the “converter” disclosed in claim 18 does not necessarily refer to the same converter in claim 16 because, as made clear by the specification, the converter in claim 16 performs as an analog-to-digital converter, converting at least one input signal into an input stream, and the converter in claim 18 performs as a digital-to-analog converter, converting an output stream into at least one output signal. (Pl.’s Opening Claim Constr. Br. at 13.) Sony responds that “the antecedent basis for ‘the converter’ in claim 18 is the converter of claim 16 and, therefore, they refer to the same thing.” (Defs.’ Responsive Claim Constr. Br. at 20.)

I disagree with Sony for several reasons. First, the parties do not dispute that “converter” is understood by POSAs to evoke a sufficiently definite structure or class of structures that convert data or signals from one form to another. Therefore, § 112(f) does not apply to the term in question.

The parties have also agreed that no construction of “converter” in claim 16 is necessary. Thus, the converter in claim 16 is construed based on the readily understood meaning taught by the claim language—a converter that must be able to convert an input signal into an input stream.

Claim 18, on the other hand, refers to the apparatus of claim 16, but with a limitation—the converter must also be able to convert an output stream into at least one output signal. (‘730 Patent, col. 9, lines 1–5.) This claim language demonstrates that claim 18 does not necessarily refer to the same converter as claim 16. If it did, then claim 18 would become superfluous. That is, if the converter disclosed in claim 16 was required to perform as not only an analog-to-digital converter, but also a digital-to-analog converter, then there would be no need to disclose the additional digital-to-analog function of the converter in a separate claim, i.e. claim 18. See Seachange Int’l, Inc. v. C-COR, Inc., 413 F.3d 1361, 1368 (Fed. Cir. 2005) (quoting Karlin Tech. Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 971–72 (Fed. Cir. 1999)) (“The doctrine of claim differentiation stems from ‘the common sense notation that different words or phrases used in

separate claims are presumed to indicate that the claims have different meanings and scope.”); Tandon Corp. v. U.S. Int’l Trade Comm’n, 831 F.2d 1017, 1023 (Fed. Cir. 1987) (“To the extent that the absence of such difference in meaning and scope would make a claim superfluous, the doctrine of claim differentiation states the presumption that the difference between the claims is significant.”).

As it stands, based on the claim language, the converter in independent claim 16 must, at least, perform as an analog-to-digital converter, but it is not limited to only this function. The converter in dependent claim 18 is thus limited. It must be able to perform both analog-to-digital and digital-to-analog conversions.

This reading of the claim language, and the conclusion that the converter in claim 18 does not necessarily refer to the same converter as claim 16, is also supported by the specification. In the preferred embodiments, the specification states, in pertinent part, that “[o]ne embodiment of the present invention, having the functional block diagram depicted by FIG. 2A, comprises . . . a signal converting means called converter 30” (’730 Patent, col. 4, lines 1–5.) In Figures 2A, 2B, and 2C, converter 30 “converts input signal 31, delivered by input 32, into input stream 33 representative of the input signal.” (Id. at col. 4, lines 12–13.) Figure 2C “additionally shows converter 30 receiving output stream 54 from framer 34 to produce output signal 52 going out via output 53 to the external device.” (Id. at col. 4, lines 16–19.) In other words, converter 30, in Figure 2C, performs an additional function to the converter 30 depicted in Figures 2A and 2B—it also converts an output stream from the framer into an output signal via an output port to an external device.⁹

⁹ Sony also offers, as an alternative construction, that “converter” in claim 18 is a “codec.” “[A] ‘codec’ is a combined analog-to-digital converter and digital-to-analog converter. The analog-to-digital conversion is referred to as ‘encoding,’ and the digital-to-analog conversion is referred to as ‘decoding.’” (See Fernald Decl., ECF No. 71, at ¶ 7.) Yet, the converter taught by claim 18 is broader than the example

Based on these multiple examples or alternative embodiments of “converter” disclosed in the specification, I conclude that the converter in broader, independent claim 16 and its claimed function are not limited to the converter disclosed in dependent claim 18. See Intel Corp., 946 F.2d at 836 (“Where a specification does not require a limitation, that limitation should not be read from the specification into the claims.”); see also Katz v. AT&T Corp., 63 F. Supp. 2d 583, 591 (E.D. Pa. 1999) (“[I]f a term is used in a variety of ways by the patentee in the specification, this may be indicative of the breadth of the term, rather than a limited definition.”).

Therefore, I will construe “**converter**” in claim 18 as “**A circuit for converting (1) the at least one input signal into an input stream and (2) an output stream into the at least one output signal.**”¹⁰

F. Terms Which the Parties Do Not Dispute are Means-Plus-Function

The parties do not dispute that § 112(f) applies to the remaining disputed claim terms but offer different proposed constructions. Two issues of construction are common to these remaining

or preferred embodiment of a “codec” disclosed in the specification. (See ‘730 Patent, col. 4, lines 41-52 (“FIG. 3A illustrates one implementation of the embodiment of the invention that receives and transmits analog I/O signals while transferring data to/from the computer via the RS-232 cable. It utilizes all the elements shown in FIG. 2A and further includes the feature of receiving an output information sent from the computer via line TXD of the RS-232. Framer 34 serializes such output information to become signal 54, which is converted by converter 30 into output signal 52 to output 53. Converter 30 [in this preferred embodiment] is a codec”); id. at col. 5, lines 7-11 (“FIG. 4A, the codec TP3054, in place of converter 30, converts output information 54, sent from the computer via line TXD, into output signal 52 entering output 53. Concurrently, the codec also converts input signal 31, delivered by input 32, into serial stream 33.”). I will not limit the construction of “converter” to an example without a disclaimer. See, e.g., B.E. Technology, L.L.C., 657 F. App’x at 988 (“B.E. contends that the Board’s construction is incorrect because it is broader than the examples depicted in the patent; however, we have rejected the notion that claim terms are limited to the embodiments disclosed in the specification, absent redefinition or disclaimer.”).

¹⁰ For the reasons discussed supra, I disagree with the parties’ constructions. The converter in claim 18 is not necessarily the same as the converter in claim 16. Therefore, I decline to adopt Sony’s proposed construction. GET’s construction, on the other hand, accounts for only part of the function of the converter disclosed in claim 18. Claim 18’s converter not only converts an output stream into an output signal, but it also performs the function of the converter disclosed in claim 16—converting an input signal into an input stream. (‘730 Patent, col. 9, lines 1-5 (“The apparatus of claim 16 *wherein the converter further comprises* an output port”) (emphasis added).) Therefore, I also decline to adopt GET’s proposed construction.

terms. The first issue is whether each means-plus-function limitation should be construed to include equivalents thereof. The second issue is whether the construction of these terms should specify that each corresponding structure may be implemented by integrated circuit technology or microprocessor-based design. I address each of these issues in turn here.

Regarding the first issue of construction, § 112(f) explicitly permits GET to pursue a literal infringement theory based on the equivalent of any term construed under this provision. 35 U.S.C. § 112(f) (“[S]uch claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.”). Sony agrees but raises the concern that jurors may be confused or misled if equivalents are expressly included in the construction of all means-plus-function limitations without any explanation of how to find equivalents. Sony advocates, instead, for a jury instruction on the right to equivalents, along with a description of how to perform the analysis. GET responds that courts typically include “and equivalents thereof” or similar language in their constructions of means-plus-function limitations. (Pl.’s Reply Claim Constr. Br. at 8.) GET also insists that any potential juror confusion can be addressed through jury instructions and that an omission of equivalents risks prejudice if the jury neglects to apply the law.

I conclude that GET is entitled to pursue a literal infringement theory based on equivalent structures for means-plus-function limitations pursuant to § 112(f). The parties will have an opportunity to propose jury instructions on how to perform this infringement analysis. As such, I will construe each means-plus-function limitation to include “equivalents thereof.”

GET also argues that, based on language in the specification, the construction of all means-plus-function limitations should specify that the corresponding structures may be implemented by

an integrated circuit or microprocessor. (Pl.’s Opening Claim Constr. Br. at 7 (citing ‘730 Patent, col. 7, lines 16–23 and id. at col. 2, lines 53–58).)

However, the specification characterizes these methods as alternatives or preferred embodiments of the inventive apparatus. (‘730 Patent, col. 2, lines 53–60 (“The inventive apparatus *may* be implemented, *at least partially*, by integrated circuit (IC) technology The inventive apparatus *may* be implemented, *at least partially*, by a microprocessor-based design”) (emphasis added); see also id. at col. 7, lines 16–23 (“Also, the IC technology, using the PLDs, the gate arrays, the ASICs, *or* the mixed-signal ICs, *can* integrate many elements of the apparatus into at least one IC device. *For instance*, a combination of the framer, the codec, the electronic part of the UI means, and the transceiver, *can* be packaged into at least one IC device. *Alternatively*, the logic of such combination *can* be implemented by a microprocessor, such as part DSP56xxx from Motorola.”) (emphasis added).) Claims are generally not restricted to or construed as the specific examples or preferred embodiments disclosed in the specification, unless there is evidence of scope disavowal. See, e.g., Kinik, 362 F.3d at 1364–5; Dow Chem. Co. v. United States, 226 F.3d at 1342; Intel Corp., 946 F.2d at 836.

Accordingly, I will not construe the structure of the remaining means-plus-function limitations to include examples or preferred embodiments of the inventive apparatus, such as an integrated circuit or microprocessor.

1. “Communication Means”

The sixth claim term in dispute is “communication means.”

Claims	GET's Proposed Construction	Sony's Proposed Construction
10	Function: Communicating data between the user input apparatus and the computer. Structure: A wired or wireless transceiver (such as, for example, IR or RF) transceiver compatible with a communication protocol, including without limitation transceivers using RS-232 or USB communication protocols and equivalents thereto; may be implemented by integrated circuit or microprocessor-based design. (Pl.'s Opening Claim Constr. Br., Ex. 2, at 2.)	Function: Communicating data between the user input apparatus and the computer. Structure: A transceiver compatible with RS-232 or USB communication protocols. (Defs.' Responsive Claim Constr. Br. at 11, 11 n.4.)

The parties agree that § 112(f) applies to this term. The primary dispute between them is whether to limit the structure of “communication means” to a transceiver compatible with RS-232 or USB communication protocols.

GET argues that the communication means may be either a wired or wireless transceiver as stated in the specification. (‘730 Patent, col. 2, lines 37–39 (“The transmission of the communication signals may be wired (via cable) or wireless (via electromagnetic wave).”).) Sony does not dispute that the structure for performing the function of “communication means” is a transceiver, but it limits the construction to transceivers compatible with RS-232 or USB communication protocols. GET responds that transceivers compatible with RS-232 or USB communication protocols are alternative embodiments or examples and, by limiting the structure of “communication means” to these examples, Sony excludes specific embodiments of the invention disclosed in the specification.

On this construction, I agree with GET. The specification explicitly discloses in the preferred embodiments both wired and wireless transceivers for performing the function of “communication means.” (*Id.* at col. 4, lines 33–40 (“[C]ommunication means 35 is a wireless transceiver which transmits/receives the electromagnetic signals forming link 36, while at port 38 there is a compatible wireless transceiver to receive/transmit the same signals. *Two typical*

wireless transceivers are the infrared-light (IR) . . . and the radio frequency (RF)”) (emphasis added); *id.* at col. 4, lines 41–44 (“FIG. 3A illustrates one implementation of the embodiment of the invention that receives and transmits analog I/O signals while transferring data to/from the computer via the RS-232 cable.”); *id.* at col. 2, lines 34–36 (“*Two examples of communication protocols* used by a UID are the popular RS-232 and the newly standardized Universal Serial Bus (USB).”) (emphasis added).¹¹ By limiting the structure of “communication means” to transceivers compatible with RS-232 or USB communication protocols, I would be improperly reading out preferred embodiments of the claimed invention. (*Id.* at col. 4, lines 33–40.)

Moreover, I will not restrict the claim term to the alternative transceivers disclosed in the specification when there is no disclaimer or disavowal in the file history. *See, e.g., Kinik*, 362 F.3d at 1364–65 (“[W]hen the specification describes the invention in broad terms, accompanied by specific examples or embodiments, the claims are generally not restricted to the specific examples or preferred embodiments unless that scope was limited during prosecution.”); *see also Bennett Marine, Inc. v. Lenco Marine, Inc.*, 549 F. App’x 947, 954–55 (Fed. Cir. 2013) (limiting the structure of a means-plus-function limitation to the circuit disclosed in figure 2 because the patent did not disclose alternatives).

Therefore, I will adopt, in part, GET’s proposed construction of “**communication means**” as “**Function: Communicating data between the user input apparatus and the computer; Structure: A wired or wireless transceiver and equivalents thereof.**”¹²

¹¹ Both the RS-232 and USB communication protocols are for wired transmission of data. (*Markman* Hearing Tr., 12/3/19, at 95:9-11.)

¹² I decline to adopt the remainder of GET’s proposed construction of this term for the reasons discussed *supra* in Section F.

2. “Means for Receiving an Output Stream from the Computer Via the Communication Link”

The seventh disputed claim term is “means for receiving an output stream from the computer via the communication link.”

Claims	GET’s Proposed Construction	Sony’s Proposed Construction
17	Function: Receiving an output stream from the computer via the communication link. Structure: A wired or wireless transceiver and equivalents thereto; may be implemented by integrated circuit technology or microprocessor-based design. (Pl.’s Opening Claim Constr. Br., Ex. 2, at 7.)	Function: Receiving an output stream from the computer via the communication link. Structure: A transceiver compatible with RS-232 or USB communication protocols. (Def.’ Responsive Claim Constr. Br. at 19.)

This term, as agreed to by the parties, is governed by § 112(f). The parties propose the same construction for the function of this term, and their proposed structures, although differently construed, are dependent upon my analysis of the structure of “communication means.” Therefore, for the same reasons discussed supra regarding “communication means,” I will adopt, in part, GET’s proposed construction of **“means for receiving an output stream from the computer via the communication link”** as **“Function: Receiving an output stream from the computer via the communication link; Structure: A wired or wireless transceiver and equivalents thereof.”**

3. “User Input Means”

The eighth disputed claim term is “user input means.”

Claims	GET’s Proposed Construction	Sony’s Proposed Construction
10, 14	Function: Producing a user input stream. Structure: A sensor of user-initiated actuations and an encoder and equivalents thereto; may be implemented by circuit technology or microprocessor-based design. (Pl.’s Opening Claim Constr. Br., Ex. 2, at 3.)	Function: Producing a digital user input stream. Structure: A mouse, trackball, keyboard, pressure tablet, or pen-based input device comprising a sensor of user-initiated actuations and an encoder. (Def.’ Responsive Claim Constr. Br. at 13.)

The parties agree that this term is also governed by § 112(f). They also mostly agree regarding the construction of the term's function. However, Sony adds the word "digital"—“producing a *digital* user input stream.”

For the following reasons, I agree with Sony's addition of the word "digital" to the terms construed function. Claim 1, from which claim 10 depends, teaches an apparatus comprising a “user input means for producing a user input stream.” (‘730 Patent, col. 7, lines 61–64.) This claim language explicitly defines the function of the “user input means” as “producing a user input stream.” The claims do not otherwise limit the user input stream to a digital stream. However, patent claims must also “be read in view of the specification, of which they are a part.” Markman, 52 F.3d at 979 (citing Autogiro Co. of Am. v. United States, 384 F.2d 391, 397 (1967)); see also SRI Int’l v. Matsushita Elec. Corp. of Am., 775 F.2d 1107, 1121 (Fed. Cir. 1985). The specification is “highly relevant to the claim construction analysis” because it contains a written description of the invention that must be clear and complete enough to enable those of ordinary skill in the art to make and use it. Vitronics, 90 F.3d at 1582. “[W]here 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” the specification can provide clarity. Teleflex. Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1325 (Fed. Cir. 2002).

Here, the specification describes the user input stream as a digital stream: “[f]unctionally a UID or UI module comprises a sensor translating a user-initiated actuation into electrical signals, and an encoder converting such signals into a digital stream, called the [user input] stream” (Id. at col. 3, lines 56–59.) GET, in fact, relies on this portion of the specification to support its construction of the structure of “user input means.” (Pl.’s Opening Claim Constr. Br. at 9–10.) GET cannot rely on these select disclosures in the specification when construing one aspect of the

claim term's definition but then ignore their impact in construing another. Therefore, based on the language of the specification, I conclude that the function of "user input stream" must be construed to include "digital."

Regarding the terms structure, the primary dispute between the parties is whether the structure should be limited to a mouse, trackball, keyboard, pressure tablet, or pen-based input device. GET argues that the specification explicitly discloses the structure of the "user input means" as "a sensor translating user-initiated actuations and an encoder." (730 Patent, col. 3, lines 56–59 ("Functionally, a UID or a UI module comprises a sensor translating a user-initiated actuation into electrical signals, and an encoder for converting such signals into a digital stream, called the [user input] stream.").) Sony does not dispute that the structure of "user input means" is a sensor of user-initiated actuations and an encoder. It includes this language in its construction. However, Sony limits its construction to a mouse, trackball, keyboard, pressure tablet, or pen-based input device *comprising* a sensor and an encoder.

GET argues that Sony improperly limits the structure to examples of "user input devices in the specification that incorporate the sensor and encoder." (Pl.'s Opening Claim Constr. Br. at 10.) It explains that the "user input means" is the sensor and encoder of the user input device (the mouse, keyboard, or trackball) that produces the user input stream, "not the [user input device] itself." (*Id.*) Therefore, GET asserts that Sony is attempting to incorporate structure from the written description beyond what is necessary to perform the claimed function. (*Id.* (citing Asyst Tech., Inc. v. Empak, Inc., 268 F.3d 1364, 1369–70 (Fed. Cir. 2001) and Micro Chem., Inc. v. Great Plains Chem. Co., Inc., 194 F.3d 1250, 1258 (Fed. Cir. 1999)).)

I agree that Sony is attempting to improperly limit the structure of "user input means," the sensor and encoder, to examples disclosed in the specification. The specification explains that the

user input stream produced by the sensor and encoder “follows the format of the communication link used by the associated [user input device].” (‘730 Patent, col. 3, lines 60–61; see also id at col. 3, lines 65–67 (“The inventive apparatus receives a [user input] stream coming either from a UI module or from an interface to an external [user input device].”).) The specification describes examples of typical user input devices as the mouse, trackball, keyboard, pressure tablet, and pen-based input device. (See id. at col. 1, lines 16–18; id. at col. 3, lines 61–65 (“In his description, the [user input stream] conforms to the Microsoft serial mouse’s asynchronous frame format . . .”).)

As discussed throughout this Memorandum Opinion, claims should not be restricted to the specific examples or preferred embodiments disclosed in the specification, unless the scope of the claim was limited during prosecution. See, e.g., Kinik, 362 F.3d at 1364–65. Here, there was no disavowal of this claim term’s scope in the file history. Therefore, I will not limit the structure of “user input means” to the mouse, trackball, keyboard, pressure tablet, and pen-based input device comprising a sensor and encoder.

As such, I will construe “user input means” as **“Function: Producing a digital stream, called the user input stream; Structure: A sensor translating user-initiated actuations and an encoder and equivalents thereof.”**¹³

4. “Encoding Means”

The ninth claim term in dispute is “encoding means.”

¹³ I decline to adopt the remainder of GET’s proposed construction of this term for the reasons discussed supra in Section F.

Claims	GET's Proposed Construction	Sony's Proposed Construction
10, 14	<p>Function: Synchronizing the user input stream with the input stream and encoding the same into a combined data stream transferable by the communication means.</p> <p>Structure: A framer that implements a frame format containing data bits of the UI stream and of the additional input signal and equivalents thereto; framer 34 of Figure 4A and equivalents thereto; may be implemented by integrated circuit technology or microprocessor-based design. (Pl.'s Opening Claim Constr. Br., Ex. 2, at 5.)</p>	<p>Function: (1) synchronizing the user input stream with the input stream, and (2) encoding the user input stream and the input stream into a combined data stream.</p> <p>Structure: The logic design at block 34 of Figure 4A. (Defs.' Responsive Claim Constr. Br. at 16.)</p>

The parties agree that § 112(f) applies to this term. The central dispute between the parties is whether the structure, which performs the function of “encoding means,” is limited to the framer disclosed in Figure 4A of the ‘730 Patent.

GET argues that the evidence offered in support of its construction of “framer” is dispositive as to “encoding means” because the structure that performs the function of this term is a “framer.” GET contends that Sony’s proposed construction seeks to limit the term to a single example in the specification, which it asserts is improper when construing means-plus-function limitations.

When the patent discloses only one type of structure to perform the function of a means-plus-function limitation, the Federal Circuit has held that the construed structure of the term should be limited to the structure disclosed in the specification and its equivalents. See Bennett Marine, 549 F. App’x at 954–55. Bennett Marine involved a patent for trim tab systems used on powerboats, which disclosed only one type of circuit for performing the function of the means-plus-function limitation at issue. Id. at 949, 954. The Federal Circuit concluded that, “[i]n such a situation, the corresponding structure should be limited to that [disclosed] structure and its equivalents.” Id. at 954 (citing Mettler-Toledo, Inc. v. B-Tek Scales, LLC, 671 F.3d 1291, 1295–

6 (Fed. Cir. 2012)). In support of this conclusion, the Federal Circuit noted that the patent at issue “did not disclose alternatives to the circuit shown in figure 2, such as, for example, a general class of known switches.” *Id.* at 954–55 (“Bennett has not identified any evidence showing that any circuit other than the circuit disclosed in figure 2 was known and capable of performing the function required by the fifth limitation.”); *see also J&M Corp. v. Harley-Davidson, Inc.*, 269 F.3d 1360, 1367 (Fed. Cir. 2001) (“The literal scope of a properly construed means-plus-function limitation does not extend to all means for performing a certain function. Rather, the scope of such claim language is sharply limited to the structure disclosed in the specification and its equivalents.”).

Here, the ‘730 Patent discloses only one specific structure for performing the function of “encoding means,” framer 34 identified in Figure 4A. (‘730 Patent, col. 5, lines 4–64.) GET admits that the specification identifies framer 34 as the relevant structure. (Pl.’s Opening Claim Constr. Br. at 11 (“The specification clearly identifies the structure that synchronizes the user input stream with the input stream and encodes them into a combined data stream: a framer. ‘Framer 34 keeps UI stream 24 and input stream 33 in synchrony and encodes them into combined data stream 37’ (quoting ‘730 Patent, col. 4, lines 13–16)).) For the same reasons discussed *supra* in regarding “framer,” I disagree that the use of “framer” in the claimed invention refers to a general class of known framers capable of performing the function of “encoding means.”

Therefore, based on my foregoing discussion of “framer” and the reasoning in *Bennett Marine*, I will adopt Sony’s proposed construction of “**encoding means**” as “**Function: Synchronizing the user input stream with the input stream and encoding the user input**

stream and the input stream into a combined data stream;¹⁴ Structure: The logic design at block 34 in Figure 4A and equivalents thereof.”

5. “Means for Converting the Output Stream Into At Least One Output Signal”

The tenth claim term in dispute is “means for converting the output stream into at least one output signal.”

Claims	GET’s Proposed Construction	Sony’s Proposed Construction
17	Function: Converting the output stream into at least one output signals. Structure: A circuit for converting a digital stream into an output signal, such as, for example the decoder part of a codec, and equivalents thereto; may be implemented by integrated circuit technology or microprocessor-based design. (Pl.’s Opening Claim Constr. Br., Ex. 2, at 8.)	Function: Converting the output stream into an output signal. Structure: The decoder portion of a codec. (Defs.’ Responsive Claim Constr. Br. at 20; <u>see also</u> Defs.’ Sur-reply Claim Constr. Br. at 10.)

The parties agree that § 112(f) also applies to this term and do not substantively dispute the construction of the term’s function. Rather, GET disputes Sony’s limitation of the structure of the term to a preferred embodiment of the claimed invention—the decoder portion of a codec.

As discussed supra regarding “converter,” claim 18 teaches a converter that can perform the function of converting an output stream into an output signal. The specification also refers to an embodiment of the converter that performs this same function. (Id. at col. 4, lines 16–19 (“FIG. 2C additionally shows converter 30 receiving output stream 54 from framer 34 to produce output signal 52 going out via output 53 to the external device.”).)

¹⁴ The parties substantively agree regarding the construed function of “encoding means.” Based on this agreement and the language of claim 16, I have adopted a hybrid of the parties’ proposed constructions. (‘730 Patent, col. 8, lines 61-63 (“a framer synchronizing the user input stream with the input stream and encoding the same into a combined data stream transferable by the communication link”).

The specification discloses a “codec” as only one embodiment of converter 30. (‘730 Patent, col. 4, lines 41–52 (“FIG. 3A illustrates one implementation of the embodiment of the invention that receives and transmits analog I/O signals while transferring data to/from the computer via the RS-232 cable. It utilizes all the elements shown in FIG. 2A and further includes the feature of receiving an output information sent from the computer via line TXD of the RS-232. Frammer 34 serializes such output information to become signal 54, which is converted by converter 30 into output signal 52 to output 53. Converter 30 [in this preferred embodiment] is a codec”); *id.* at col. 5, lines 7–11 (“FIG. 4A, the codec TP3054, in place of converter 30, converts output information 54, sent from the computer via line TXD, into output signal 52 entering output 53. Concurrently, the codec also converts input signal 31, delivered by input 32, into serial stream 33.”).)

Because the “codec” disclosed in the specification is a preferred embodiment of the claimed invention, I will not limit the construction of “converter” to this example without a disclaimer. *See, e.g., B.E. Technology, L.L.C.*, 657 F. App’x at 988.

Therefore, I will adopt GET’s proposed construction of **“means for converting the output stream into at least one output signal”** as **“Function: Converting the output stream into at least one output signal; Structure: A circuit for converting a digital stream into an output signal and equivalents thereof.”**¹⁵

6. “Converting Means”

The eleventh and final claim term in dispute is “converting means.”

¹⁵ I decline to adopt the remainder of GET’s proposed construction of this term for the reasons discussed *supra* in Section F.

Claims	GET's Proposed Construction	Sony's Proposed Construction
10	<p>Function: Receiving the at least one input signal and producing therefrom an input stream.</p> <p>Structure: An analog-to-digital converter and equivalents thereto; may be implemented by integrated circuit technology or microprocessor-based design. (Pl.'s Opening Claim Constr. Br., Ex. 2, at 4.)</p>	<p>Function: Receiving the at least one input signal and producing therefrom an input stream.</p> <p>Structure: An analog-to-digital converter. (Def.'s Responsive Claim Constr. Br. at 15.)</p>

The parties again agree that § 112(f) applies to this term. Their central dispute is whether the construction of this term's structure should include "equivalents thereof" and "may be implemented by integrated circuit technology or microprocessor-based design." For the same reasons discussed supra regarding these proposed additions by GET, I will construe "**converting means**" as "**Function: Receiving the at least one input signal and producing therefrom an input stream; Structure: An analog-to-digital converter and equivalents thereof.**"

IV. CONCLUSION

The claims shall be construed as set forth above and in the Claim Construction Order that follows.