IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION

FENNER INVESTMENT, LTD **Plaintiff,**	§	
	§	
v.	§	**CASE NO. 6:07-CV-8 LED**
	§	
MICROSOFT CORPORATION, et al. **Defendants.**	§	
	§	

MEMORANDUM OPINION AND ORDER

Before the Court are Nintendo Co., Ltd., Nintendo of America Inc.'s (collectively "Nintendo"), and Microsoft Corp.'s ("Microsoft") Motions for Summary Judgment of Non-Infringement (Docket No. 207 & 208) and Defendants'[1] Motion for Clarification of Claim Construction (Docket No. 318). After reviewing the parties' written submissions and oral arguments and for the reasons set forth below, Nintendo's and Microsoft's motions for summary judgment are **GRANTED** and Defendants' Motion for Clarification is **DENIED** as moot.

BACKGROUND

Fenner Investments, Ltd. ("Fenner") owns U.S. Patent No. 6,297,751 (the "'751 patent"). The technology described in the '751 patent generally addresses a "low-voltage joystick port interface." The patent teaches that "a user manipulated joystick enables the real-time interaction between a user and a host computer." '751 Patent at 1:11-13. The patent further notes that the purpose of the joystick is so a user may use "certain computer applications (e.g. computer games)." *Id.*

[1] All parties other than Fenner will be collectively referred to as "Defendants."

The '751 patent also discusses prior art joysticks. According to the patent, these prior art joysticks typically included a resister-type device called a potentiometer. *Id.* at 1:14-15. The resistance of the potentiometer varies in direct relation to the coordinate position of the joystick. *Id.* at 1:15-16. Since a potentiometer produces analog signals, prior art devices required an interface circuit to create digital values that could be used with a computer. *Id.* at 1:19-22.

The patent describes the prior art interface circuit as primarily comprising an RC network and a device called a "quad timer." *Id.* at Fig. 1 & 1:23-34. The interface circuit worked by interpreting the joystick's analog signal to produce a responsive digital pulse. The digital pulse had a pulse width in "direct relation to the coordinate position of the joystick." *Id.* at 1:40-51. Since the pulse was digital, the computer could interpret it (measure its width) and thereby know the coordinate position of the joystick. The digital circuits in the prior art joysticks and computers all operated at 5 volts, so all the parts were electrically compatible.

A problem arose when computers and video game systems began to incorporate "CMOS logic circuits that operated with voltages lower than the earlier TTL logic circuits." Fenner's Opening Claim Construction Brief, Docket No. 123 at 5. This was a problem because the joystick and interface circuit (including the quad timer chip) operated at 5 volts, while the new computers operated incompatibly at a lower voltage. '751 Patent at 1:52-57. The invention solved this problem by introducing an interface circuit allowing a 5 volt joystick to work with a "lower power computer port." *Id.* at 1:64-67. As a result, the interface circuit described in the '751 patent replaced the prior art interface circuit and allowed a prior art joystick (operating at 5 volts) to work with a "modern" computer system operating at a lower voltage. *Id.*

Fenner alleges that Defendants infringe claims 1-7, 9-12, and 14-16 of the '751 patent either directly or through the doctrine of equivalents. A claim construction hearing was held on July 7, 2008, and the Court issued a claim construction opinion on August 22, 2008. *See* Memorandum Opinion, Docket No. 142. Defendants filed summary judgment motions on the issue of infringement arguing that there was no genuine issue of material fact given the Court's claim construction. Fenner opposed those motions. It appeared to the Court that the central disputes underlying those motions were issues of claim construction rather than fact. *See* Order of March 13, 2009, Docket No. 325. Accordingly, the Court ordered the parties to appear for a hearing to determine 1) whether there were unresolved and disputed issues of claim construction, 2) the parties' arguments regarding such unresolved issues, and 3) whether triable issues of fact existed after those disputes were resolved. *See id.* Following that hearing, it was apparent that the disputed issues were of claim construction rather than fact, and that summary judgment was appropriate as explained below.

APPLICABLE LAW

Claim interpretation

"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) (quoting *Innova/Pure Water Inc. v. Safari Water Filtration Sys.*, Inc., 381 F.3d 1111, 1115 (Fed. Cir. 2004)). When the parties raise an actual dispute regarding the scope of these claims then the court, not the jury, has a duty to resolve that dispute. *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1360 (Fed. Cir. 2008).

In claim construction, courts examine the patent's intrinsic evidence to define the patented invention's scope. *See id.*; *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 861 (Fed. Cir.

2004); *Bell Atl. Network Servs., Inc. v. Covad Commc'ns Group, Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001). This intrinsic evidence includes the claims themselves, the specification, and the prosecution history. *See Phillips*, 415 F.3d at 1314; *C.R. Bard, Inc.*, 388 F.3d at 861. Courts give claim terms their ordinary and accustomed meaning as understood by one of ordinary skill in the art at the time of the invention in the context of the entire patent. *Phillips*, 415 F.3d at 1312-13; *Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003).

The claims themselves provide substantial guidance in determining the meaning of particular claim terms. *Phillips*, 415 F.3d at 1314. First, a term's context in the asserted claim can be very instructive. *Id.* Other asserted or unasserted claims can also aid in determining the claim's meaning because claim terms are typically used consistently throughout the patent. *Id.* Differences among the claim terms can also assist in understanding a term's meaning. *Id.* For example, when a dependent claim adds a limitation to an independent claim, it is presumed that the independent claim does not include the limitation. *Id.* at 1314-15.

"[C]laims 'must be read in view of the specification, of which they are a part.'" *Id.* (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc)). "[T]he specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'" *Id.* (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)); *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002). This is true because a patentee may define his own terms, give a claim term a different meaning than the term would otherwise possess, or disclaim or disavow the claim scope. *Phillips*, 415 F.3d at 1316. In these situations, the inventor's lexicography governs. *Id.* Also, the specification may resolve ambiguous claim terms "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, Inc.*, 299 F.3d at 1325. But, "'[a]lthough the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims.'" *Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) (quoting *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988)); *see also Phillips*, 415 F.3d at 1323. The prosecution history is another tool to supply the proper context for claim construction because a patent applicant may also define a term in prosecuting the patent. *Home Diagnostics, Inc., v. Lifescan, Inc*., 381 F.3d 1352, 1356 (Fed. Cir. 2004) ("As in the case of the specification, a patent applicant may define a term in prosecuting a patent.").

Although extrinsic evidence can be useful, it is "'less significant than the intrinsic record in determining the legally operative meaning of claim language.'" *Phillips*, 415 F.3d at 1317 (quoting *C.R. Bard, Inc.*, 388 F.3d at 862). Technical dictionaries and treatises may help a court understand the underlying technology and the manner in which one skilled in the art might use claim terms, but technical dictionaries and treatises may provide definitions that are too broad or may not be indicative of how the term is used in the patent. *Id.* at 1318. Similarly, expert testimony may aid a court in understanding the underlying technology and determining the particular meaning of a term in the pertinent field, but an expert's conclusory, unsupported assertions as to a term's definition is entirely unhelpful to a court. *Id.* Generally, extrinsic evidence is "less reliable than the patent and its prosecution history in determining how to read claim terms." *Id.*

Summary judgment

Summary judgment is appropriate following a claim construction when there is no genuine issue of material fact remaining. FED. R. CIV. P. 56(c) ("[Summary judgment] should be rendered if the pleadings, the discovery and disclosure materials on file, and any affidavits show that there is no genuine issue of material fact and that the movant is entitled to judgment as a matter of law."); *Ormco Corp. v. Align Tech., Inc.*, 498 F.3d 1307, 1312 (Fed. Cir. 2007).

THE "PULSE WIDTH" LIMITATION

Independent claims 1, 9, and 14 of the '751 patent require a pulse generator that generates "a pulse . . . a width of said pulse representing a coordinate position of said joystick device." In its August 22 opinion, the Court defined "pulse" as "a single cycle of variation in the logical level of a signal" in accordance with its ordinary meaning to one skilled in the art. The Court also construed the phrase "a width of said pulse representing a coordinate position of said joystick device" as "the width of the pulse, as assessed in time or distance, represents a coordinate position of the joystick device." Therefore, the limitation, read together with its construed definitions requires an infringing product to produce "a single cycle of variation in the logical level of a signal, a width of the single cycle of variation, assessed in time or distance, represents a coordinate position of said joystick device." For ease of reference this limitation will be referred to as the "pulse limitation."

Context of Dispute

In order to put the parties' dispute regarding the pulse limitation into an understandable context, a brief explanation of the accused devices is warranted.[2] There is no dispute over the

[2] This is particularly true because Fenner attempts to frame its "interpretations" regarding claim terms and the Court's construction as questions of fact.

operation of the accused devices. The Microsoft Xbox game controllers implement miniature joysticks or "thumbsticks." The Xbox thumbstick is connected to a potentiometer that generates particular voltage signals depending on the unique position of the thumbstick. The analog voltage signal is then converted into a digital signal using either an 8-bit or 10-bit[3] successive approximation analog to digital converter ("SAADC"). The SAADC compares the analog voltage arriving from the potentiometer with successive approximations of voltage to arrive at a corresponding 10-bit digital representation of the thumbstick's position.

The 10-bit digital word is then transmitted over a carrier signal (either through USB wired bus or radio technology) with two logic levels. A low logic level would indicate a "0" and a high logic level would indicate a "1." The 10-bit "digital word" indicates the particular position of the thumbstick to the processor. In some accused devices, an encoding scheme is used rather than transmitting high logic for a "1" and low logic for a "0." An encoding scheme does not change the nature of the 10-bit digital word. Rather, the same 10-bit digital word is encoded during transmission. For example, in some products, Microsoft uses NRZI encoding, which is a coding scheme that uses two logic levels and where a logic "0" bit is indicated by any transition between the logic levels. Alternatively, Logic "1" bits are indicated for portions of the signal (whether high or low) where there are no transitions for multiple clock cycles (i.e. a logic "1" bit is indicated for each clock cycle where there is no logic transition). Whether or not encoding is used, the 10-bit word is re-assembled when it is received at the console. The processor may then interpret the 10-bit word to calculate the corresponding position of the thumbstick.

[3] Early versions of the Xbox used an 8-bit rather than 10-bit SAADC. The distinction between the two is irrelevant for the purposes of this opinion. For the purposes of illustration, the remainder of this opinion will refer only to the 10-bit SAADC.

The Nintendo Gamecube and Wii consoles operate similarly, converting the analog voltage signal into an 8-bit digital signal. Both of the Nintendo accused products use encoding. In particular, the analog to digital converter (ADC) in the Gamecube creates a short pulse to indicate a "0" and a slightly longer pulse to indicate a "1." Eight of these successive pulses creates an 8-bit digital word that corresponds to a particular thumbstick position. The Wii game controller, in turn, generates no pulse over a clock cycle to indicate a "0" and a short pulse to indicate a "1."

Claim Construction

Fenner makes several arguments for how this limitation is achieved by the 8 or 10-bit digital pulses created by the accused devices. As an initial matter, the parties agree that all of the accused devices produce pulses with a width assessed in time or distance. For instance, the Wii and Xbox controllers will produce the 8-bit word "01100000" by producing no variation for the first clock cycle, a variation in the logical level for the two following clock cycles, then a return to the original logical level for the remaining 5 clock cycles.[4] Therefore, the "width," of the variation in the logical level, measured by time, is two clock cycles. Similarly, the "width" of the "pulse" in the 8-bit word "00110000" would also be two clock cycles.

Fenner argues that the accused devices meet the "pulse limitation" simply because each device creates a pulse with a width that can be measured, and sometimes, based in part on this measurement, the position of the joystick can be determined. Defendants argue that the pulse width has no relevant meaning in the accused devices, but rather, it is the representative "digital word" that reveals joystick position. The dispute centers around the meaning of the word "represents" in the

[4] Of course, this is merely exemplary because the 8-bit "digital word" may be produced in the carrier signal in a variety of ways depending on the encoding.

Court's construction of the pulse limitation. Fenner uses the term to mean that pulse width "provides some information about" or "symbolizes" a coordinate position of the joystick device.[5] Defendants suggest that the term means that the pulse width "fully communicates" a position of the joystick device. Thus, the critical question is a claim construction dispute regarding whether a "pulse width" must provide all the information necessary to determine a particular joystick position.

The Court's original claim construction opinion rejected Defendants' argument that "represent" meant that a pulse width required a "direct relation" to the joystick position. *See* Memorandum Opinion, Docket No. 142 at 12-13 (August 22, 2008) ("Claim Construction Opinion"). Defendants' argument, at that time, was that "represent" required the relationship between the joystick position and pulse width be such that there was a direct mathematical correspondence between the position of the joystick and the width of a pulse.[6] The specification did not require such a mathematical relationship. *See id.*

However, intrinsic evidence strongly suggests that the width of a pulse must communicate all the information necessary to determine a joystick position. Foremost, all of the claims (as well as the Court's construction) require that the pulse width represents "a coordinate position." The words "coordinate position" require precision beyond that of a simple "position." "Coordinates" are precise and not general or simply indicative. In addition, the use of the article "a" reveals that the

[5] Though Fenner has vigorously argued that "represents" has its plain meaning and needs no further construction, it consistently uses the term to mean different things. Sometimes it even indicates that the term means "directly corresponds" or "fully communicates." *See* Fenner's Response to Microsoft's Motion for Summary Judgment of Non-Infringement, Docket No. 226 at 21 ("A reasonable juror could find that the pulse and pulse widths of each of Microsoft's pulses correspond to a distinct joystick coordinate position").

[6] For example, a larger pulse would indicate a joystick in the forward position and a smaller pulse would indicate a joystick in the backward position.

claims call for only a single "coordinate position."[7] In respecting the patentees' specific claim language to relate the pulse width with a single specific joystick position, the Court cannot construe the word "represent" as Fenner suggests. To do so would completely marginalize the meaning of these specific terms.

Furthermore, the patent's abstract further supports this conclusion. A patent's abstract may often be helpful in determining the proper meaning of claim terms. *See Netcraft Corp. v. eBay, Inc.*, 549 F.3d 1394, 1398-99 (Fed. Cir. 2008) (citing several statements in the abstract for construing disputed claim limitations). Here, the abstract recites that the claimed invention operates by "outputting a digital pulse signal to a processor which *signifies a joystick coordinate value*." '751 Patent, Abstract. Importantly, the abstract does not indicate that the pulse only provides some information about joystick position, but rather, that the pulse "signifies . . . a joystick coordinate value." The words "coordinate value" unambiguously require that the pulse signal pinpoints the position of the joystick with a degree of mathematical particularity. Furthermore, the use of the article "a" and the use of the term "value" in the singular indicate that the pulse information does not generally determine a subset or group of possible joystick positions, but a singular joystick position.[8]

Similarly, the summary section of the patent supports this interpretation by also using the words "a joystick coordinate position" to describe the information gleaned from the pulse. *Id.* at 2:2-3. Indeed, this language is almost identical to the language used in the claims themselves. Additionally, in describing the operation of the preferred embodiment the specification explains that

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[7] *See infra* pg. 14-16 (discussing application of the "comprising" canon of claim construction to the "pulse limitation").

[8] *See infra* pg. 14-16 (discussing application of the "comprising" canon of claim construction to the "pulse limitation").

"[t]he duration that PCin remains at a logic "1" level indicates the joystick potentiometer resistance for the corresponding coordinate axis." *Id.* at 4:36-38. The use of the phrase "corresponding coordinate axis" also indicates that the pulse information provides a degree of particularity that precludes Fenner's interpretation. Also, the argument that the invention encompassed methods other than calculating the "duration" of a pulse to determine joystick position is not supported anywhere in the file history, written description, or claim language.

Lastly, a corollary to Fenner's position is that the "width" of a pulse combined with other data (such as the position of the pulse within a given 8 or 10-bit word) does, in some circumstances, indicate a particular joystick position. Fenner's arguments indicate that it views the term "represent" as meaning "pulse width" can be included in some multi-variable formula that, in some circumstances, will produce a particular coordinate position of the joystick. However, the prosecution history indicates that the width of the pulse itself–without the necessity of other information–constitutes the relevant data for determining joystick position. During prosecution, independent claims 1, 9, and 14 were amended to include the limitation that "the capacitance value of said capacitor [is] a function of said predetermined threshold that prevents deviation of the *width of said pulse* from expected values." Prosecution History, 12/19/01 Amd., at 2, 4, 6. This language regarding the expected width of a pulse is also repeated in the claims and confirms that "pulse width" itself has an expected value for a particular joystick position (this would not necessarily be the case if the pulse width were merely a component in a multi-variable position indicator). Further, the claim amendment is particularly instructive when coupled with the language in the specification explaining that "pulse width, which represents rise time, however, should not be less than or exceed expected minimum or maximum pulse width values . . . to ensure optimal joystick position sensing

. . . ." '751 Patent at 4:64-67. This language clearly indicates that pulse width, and not other data, is what is "sensed" to determine joystick position.

Thus, it is clear from the context of the patent and claims that the term "represents"means more than "provides some information about," "symbolizes," or even "suggests." Rather, one skilled in the art would understand that the width of a pulse must itself provide the information necessary to determine joystick position. Accordingly, the Court amends the definition of "a width of said pulse representing a coordinate position of said joystick device" to mean "the width of the pulse, as assessed in time or distance, provides all the information necessary to determine a coordinate position of the joystick device."

Summary Judgment - Direct Infringement

Given the meaning of the pulse limitation, Fenner's infringement arguments fail to create any material fact issues. The parties agree that "pulses" occur within the 8 and 10-bit words produced by the accused products (e.g. "01100000" would have a two cycle pulse toward the beginning of the signal). With respect to such pulses, Fenner first concedes that determining the joystick position in the accused devices requires knowing the position of the pulses within the 8 or 10-bit word. Fenner then attempts to save its infringement position by arguing that the pulse position is not required by the claims. Thus, Fenner suggests that the claims do not require a pulse width that reveals the position of the joystick. Fenner's argument is clearly contrary to the Court's claim construction. As explained above, the claim language requires that the width of the pulse provide all the joystick position information. Because the devices convey information through 8 or 10-bit words, the width of any particular pulse is meaningless, and transmits no useful information to the host computer regarding the joystick position. In fact, though the accused devices create a signal with a variation

between two logic states, the only relevant information is whether the signal is at a high logic state (creating a "1") or a low logic state (creating a "0") at the peak of a clock cycle. The "width" of the "pulse" signal created by the devices (which only varies by virtue of multiple "1's" or "0's" aligning) is meaningless.

Similarly, Fenner argues that three, four, or five "1's" in a row in the digital words produce a carrier signal that appears to be "a single cycle of variation." Particular joystick positions (i.e. the "full forward" position) create such a signal in the accused devices. Fenner argues that in these positions, the devices literally and perfectly infringe because there is a single cycle of variation that corresponds to a joystick position. Once again, this argument fails to grasp the meaning of the claim limitation. As Defendants point out, a shift in position of the three, four, or five "1's" in a row, though the pulse has the same width, conveys entirely different information and represents an entirely different position of the joystick. Fenner has conceded on multiple occasions that the widths of these pulses are byproducts rather than the mechanism by which joystick position is related. *See* Fenner's Response to Microsoft's Motion for Summary Judgment of Non-Infringement, Docket No. 226 at 19 (December 17, 2008) ("Response to Microsoft's Motion")(arguing that "width" infringes regardless of the relationship between width and coordinate position of the joystick). Fenner may not write the relationship between joystick position and pulse width out of the claim. *Mas-Hamilton Group v. LaGard, Inc.*, 156 F.3d 1206, 1211 (Fed. Cir. 1998) ("To prove literal infringement, the patentee must show that the accused device contains every limitation in the asserted claims. If even one limitation is missing or not met as claimed, there is no literal infringement.") (citations omitted).

Fenner cites cases holding that elements can not be added to claims during claim construction and that every possible improvement on a technology need not be accounted for in the claim

language or reflected in claim construction.[9] However, unlike any of the cited cases, in this case the three independent claims, the patent as a whole, and the description of the preferred embodiment specifically call for a particular relationship between pulse width and joystick position. *C.f. Rambus Inc., v. Infineon Techs. Ag*, 318 F.3d 1081, 1092-93 (Fed. Cir. 2003) (finding that additional limitations added during claim construction were contrary to several claims in the patent). The relationship between pulse width and joystick position is made part of the claim language and only bolstered by the written description and prosecution history. Thus, the Court was not adding a limitation, it was there to begin with.

Finally, the signal representing the alignment of two, three, or more "1's" in a row does express "a single variation of the logical level of a signal," but it does not express *an*y information concerning joystick position without the relevant "0's." Given the Court's definition of "pulse," a pulse begins when it varies from one logical level and ends when the signal returns to that original level. *See* Claim Construction Opinion at 10-11. Thus, any single "pulse" that Fenner identifies only provides a portion of the bits necessary to make a full digital word. Since it is the entire 8 or 10-bit word that determines joystick position in the accused devices, Fenner has not yet presented evidence of a single pulse that would be sufficient to determine a joystick position.

In an attempt to remedy this deficiency as well as encompass Nintendo's Gamecube product, Fenner next turns to a rule of claim construction. Rather than representing "0's" and "1's" using two different logic levels, the Gamecube controller uses pulse width modulation ("PWM") to convey 8-

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[9] *See e.g., Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, 1365 (Fed. Cir. 2004); *Suntiger, Inc. v. Sci. Research Funding Group*, 189 F.3d 1327, 1336 (Fed. Cir. 1999); *Rodime PLC v. Seagate Tech., Inc.*, 174 F.3d 1294, 1303 (Fed. Cir. 1999); *A.B. Dick Co. v. Burroughs Corp.*, 713 F.2d 700, 703 (Fed. Cir. 1983).

bit words. PWM represents a "0" with a short deviation (a short pulse) in the carrier signal and a "1" with a slightly longer deviation (a long pulse). Thus, eight of these deviations, taken together in the proper order, represents a single joystick position. Fenner urges that because their claims are "comprising" claims the pulse limitation can be read to mean "[one or more] width[s] of [one or more] pulse[s] representing [one or more] coordinate position[s] of said joystick device. *See, e.g.*, *Baldwin Graphic Sys., Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1343-44 (Fed. Cir. 2008). Fenner claims that all the accused products infringe under this interpretation.

Fenner is correct that the claim language could be read as such in the proper case.[10] However, the "comprising" rule does not excuse the requirement that "width[s]" of "pulse[s]" provide all the information necessary to determine joystick position. The comprising language merely raises a presumption that a list of elements is non-exclusive in that an infringing device may have more structure than that recited in the claims. *Dippin' Dots, Inc. v. Mosey*, 476 F.3d 1337, 1343 (Fed. Cir. 2007). The "comprising" rule does not excuse each element from performing its intended function. *Id.* ("'Comprising' does not reach into [each claim limitation] to render every word and phrase therein open-ended. . . ."). Fenner may not use the rule to accumulate the multiple "widths" of multiple "pulses" in order to perform the intended function of a single "pulse width." Additionally, it is undisputed that widths within the Gamecubes' PWM signal describe bits and not a position of the joystick. Pulse widths in the other accused devices, for the same reasons as explained above, do not describe anything. Accumulating pulse widths does not change the analysis that the widths of the pulses have no relationship with joystick position in the accused devices.

[10] For example, if the pulse generator created several carrier signals, each of which having a pulse, the width of which represented the joystick position.

Lastly, Fenner's "comprising" argument is contrary to the Court's original claim construction opinion specifying that "*the* width of *the* pulse, as assessed in time or distance, represents a coordinate position of the joystick." Claim Construction Opinion at 12-13. Fenner's argument that "comprising" allows multiple pulse widths to be aggregated to represent the position of the joystick was first raised in its Response to Nintendo's Motion for Summary Judgment. Even the day before trial, Fenner never requested the Court clarify or amend its construction. "[N]o party should be allowed to argue to the jury claim constructions that are contrary to the court's claim constructions or to reassert to the jury constructions that the court has already expressly or implicitly rejected." *Transamerica Life Ins. Co. v. Lincoln Nat. Life Ins. Co.*, No. C 06-110-MWB, 2009 WL 88357 at *9 (N.D. Iowa January 8, 2009) (citing *Sulzer Textil A.G. v. Picanol N.V.*, 358 F.3d 1356, 1366 (Fed. Cir. 2004)). Because this argument is contrary to the claim construction order and was not raised prior to or even following the claim construction hearing it is waived. *See Cent. Admixture Pharmacy Servs., Inc. v. Advanced Cardiac Solutions*, *P.C.*, 482 F.3d 1347, 1356 (Fed. Cir. 2007) (finding waiver of claim construction arguments not raised during the claim construction phase of trial).

Fenner next argues that "pulse width" does not just encompass the time or distance that a signal is high, but also encompasses when that signal occurs. Thus, Fenner's position is that "pulse width" describes everything about a signal (even when there is no "variation in the logical level"). This argument is clearly contrary to the Court's claim construction opinion defining "pulse" as "a single cycle of *variation*" and "width" as measurable by time or distance. *See* Claim Construction Opinion at 10-11, 12-13. According to the Court's claim construction Order, it is the variation in logical level that is measurable and that produces "width." Any time (or distance) that a signal has

not varied from some baseline (i.e. the "other" logic level) is not included in the "width" definition. As this argument is clearly inconsistent with the original claim construction Order, it is also rejected.

Summary Judgment - Doctrine of Equivalents

Fenner alternatively argues that it raises a material fact issue with regard to the doctrine of equivalents. Defendants urge that amendments made during prosecution bar application of equivalents. In particular, Defendants argue that the unsolicited amendment of all the independent claims to include a limitation that "the capacitance value of said capacitor [is] a function of said predetermined threshold that prevents deviation of the *width of said pulse* from expected values" bars Fenner from arguing that binary encoded numbers are equivalent to pulse widths for representing coordinate joystick position. Defendants also assert that application of the Doctrine of Equivalents would violate the "all elements rule," regardless of whether prosecution history estoppel applies.

Prosecution history estoppel bars a patentee from narrowing the scope of his claims during prosecution only to later assert that the disclaimed subject matter is covered by the doctrine of equivalence. *Maxwell v. J. Baker, Inc.*, 86 F.3d 1098, 1106-07 (Fed. Cir. 1996). Here, the amendment in question did not change the language in the claim at issue. Rather, the scope of the disputed claim term is clarified by virtue of similar language used in an amendment. Because "[t]he doctrine of equivalents is premised on language's inability to capture the essence of innovation," where a subsequent amendment clarifies the meaning of ambiguous terms, a patentee should be unable to later return to that ambiguity to assert infringement. *See Cook Biotech Inc. v. Acell, Inc.*, 460 F.3d 1365, 1379 (Fed. Cir. 2006) ("A claim that specifically excludes an element cannot through a theory of equivalence be used to capture a composition that contains that expressly excluded

element without violating the 'all limitations rule'"); *Perkin-Elmer Corp. v. Westinghouse Elec. Corp.*, 822 F.2d 1528, 1533 (Fed. Cir. 1987) (holding in finding equivalence, each element must be viewed in light of the entire claim). As discussed above, the inclusion of the amendment discussing the operation of the capacitor, along with the corresponding written description are consistent with, and lend support to, a construction of the "pulse limitation" that requires that there be a relationship between "pulse width" and joystick position.

Nevertheless, Fenner suggests that the production of binary encoded numbers is interchangeable with the production of pulse widths for determining joystick positions regardless of the meaning of the claim terms. An accused embodiment is equivalent if it "performs substantially the same function in substantially the same way with substantially the same result." *Crow Packaging Tech., Inc. v. Rexam Beverage Can Co.*, 559 F.3d 1308, 1312 (Fed. Cir. March 17, 2009). Fenner's expert, Joseph McAlexander opines that he views "pulse width modulation" as an encoding scheme whereby pulse width corresponds to particular joystick positions. 11/14/08 McAlexander Depo., p. 140-41. Fenner argues that the accused products perform substantially the same function by producing variations in the logical level of a signal, in substantially the same way by varying the width of *one or more* digital pulses, to achieve the substantially same result by representing coordinate positions of the joystick. McAlexander's expert report supports Fenner's view.

Fenner's argument uses erroneous analysis to write the "pulse limitation" entirely out of the claims. By replacing "a" with "one or more" in the function-way-result analysis, Fenner renders the limitation obsolete. The pulse limitation limits the claim to a particular type of signal where pulse width modulation is used to transmit joystick position. Fenner's equivalence analysis effectively

encompasses any type of digital carrier signal no matter the method (or "way") that joystick position is communicated. "It is important to insure that the application of the doctrine [of equivalence], even as to an individual element, is not allowed such broad play as to effectively eliminate that element in its entirety." *Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 29 (1997); *see also Cook Biotech*, 460 F.3d at 1379. Fenner's reading would do just that. The "way" in which the accused devices communicate joystick position is by transmitting 8 or 10 bit digital words through carrier signals. The various accused devices use different methods of doing that, each of which perhaps is equivalent to the rest, but not to method employed in the '751 patent. The '751 patent does not teach a method or device whereby analog signals are encoded into digital words. Rather, it describes a system where analog signals (or values) are represented by the width of a variation in a digital signal. The written description details this conversion process at length. Fenner's equivalence argument dispenses with the relevance of "pulse width" clearly manifested in the claims, prosecution history, and specification.

Finally, Fenner's own analysis fails to show equivalence. As discussed, the Court's previous definition of "pulse" was "a single cycle of variation in the logical level of a signal." Fenner's equivalence argument is that many pulses can make up the "way" in which an equivalent operates. However, because the "pulse" has no relation with joystick position in the accused products, this analysis fails to encompass the Xbox or the Wii. In cases of binary encoded numbers, the periods of no variation in the logical level of a carrier signal are just as necessary as the periods of variation for determining joystick position. Therefore, Fenner again fails to show any "cycles of variation" in the accused products that achieve the result of providing all the information necessary to determine joystick position.

Because Fenner can not raise a material issue of disputed fact regarding infringement, either literally or by the doctrine of equivalents, summary judgment is warranted for failure to meet the "pulse limitation."

THE "LOWER SOURCE VOLTAGE" LIMITATION

Claim Construction

The independent claims of the '751 patent call for "[a]n interface between a joystick device having a first source voltage and a processor, comprising . . . an interface circuit having a second source voltage that is lower than the first source voltage, including a buffer circuit . . . and a pulse generator . . . ."[11] The Court's claim construction opinion defined "interface circuit" as "a circuit that connects the joystick and the processor." *See* Claim Construction Opinion at 8. The parties dispute the meaning of several terms within this limitation.

First, the claims call for an interface "between" a joystick device and "processor." Fenner argues that the "interface circuit" can include the periphery of the processor.[12] Fenner points out that a "processor chip" is composed of many different parts. According to the argument, the word "processor" in the '751 patent refers to only the "central processing unit (CPU)" of the chip or the "processor core." Fenner makes this distinction because the processor core is the only component of Defendants' accused products that operates at a lower source voltage than the "joystick device." Defendants assert that processor includes the whole "processor chip" and urges that a "processor"

[11] The quoted language is representative of independent claims 1, 9, and 14.

[12] Fenner urges that "processor" needs no further construction, but consistently uses different language to describe its conception of the claims' use of the word "processor." *Compare* Fenner's Response to Microsoft's Motion, 6:07-CV-8-LED, Docket No. 226 at 8 (12/17/2008) (describing the "processor" as a "processor core" and "chip" as a "processor circuit") *with* Fenner's Response to Defendant's Motion for Clarification, 6:07-CV-8-LED, Docket No. 328 at 9 (3/16/2009) (referring to the "chip" as "processor chip" and the "processor" as the "central processing unit").

(or what Fenner calls a "processor core") would not be functional without its component parts. Neither party disputes that the "interface circuit" must be between and not include the "joystick device" or whatever is meant by the "processor." Thus, the central dispute is whether the "processor" includes the entire "processor chip" or only the "processor core."

The only description of "processor" used in the specification describes it as "being a host computer" but specifies that the definition is "[f]or purposes of discussion only." '751 Patent at 2:24-25. Additionally, Figure 2 of the specification contains no part of any "processor" in the "interface circuit" (marked as 200). The description suggests that the preferred embodiment does not include the "processor core" or the "processor chip" within the "interface circuit" and even suggests that the "processor" could be analogous to an entire host computer. Therefore, no part of the description or specification supports Fenner's argument. In fact, the figures and specification suggest that the term "processor" could be used even more broadly than Defendants suggest. However, given the ambiguity inherent in these intrinsic definitions, "processor" will be accorded its plain and ordinary meaning to one skilled in the art.

The parties, though recognizing the ambiguity in the terms, provided no extrinsic definitions of "processor." The IEEE defines "processor" as "a data processor." The IEEE Standard Dictionary of Electrical and Electronics Terms (6th ed. 1996); The IEEE Standard Dictionary of Electrical and Electronics Terms (7th ed. 2000). "Data processor" is further defined as "a processor capable of performing operations on data. For example: a desk calculator or tabulating machine, or a computer." The IEEE Standard Dictionary of Electrical and Electronics Terms (6th ed. 1996); The Authoritative Dictionary of IEEE Standards Terms (7th ed. 2000). Thus, the extrinsic definition of "processor" is in accordance with the understanding suggested by the specification: that the term is

broad rather than narrow. Additionally, the definition requires the "capability" of performing operations on data. Fenner does not dispute that a "processor core" without its supporting structure, will not function at all.[13] This definition, along with the supporting context of the claim supports a definition of "processor" that includes its peripheral circuitry. Thus, in accordance with the intrinsic and extrinsic evidence, the term "processor" is defined as "the CPU along with its peripheral circuitry."

Summary Judgment

Fenner has conceded that such a definition of processor would preclude any triable issues of fact. *See* Fenner's Response to Defendants Motion to Clarify, 6:07-cv-8, Docket No. 328 at 10. Thus, summary judgment is appropriate.

DEFENDANTS' MOTION TO CLARIFY

Since summary judgment is warranted for the aforementioned reasons, there is no need to address Defendants' Motion for Clarification or Defendants' summary judgment arguments concerning the disputed claim term "buffer circuit."

CONCLUSION

For the reasons explained above, Nintendo and Microsoft's motions for summary judgment are **GRANTED** pursuant to Federal Rule of Civil Procedure 56 and Defendants' Motion to Clarify is **DENIED** as moot.

[13] The IEEE Dictionary has no definition of "processor core."

So ORDERED and SIGNED this 3rd day of June, 2009.

LEONARD DAVIS
UNITED STATES DISTRICT JUDGE