

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

BETTER MOUSE COMPANY, LLC,	§	
	§	
<i>Plaintiff,</i>	§	
	§	
v.	§	Case No. 2:14-cv-198-RSP
	§	
STEELSERIES APS, ET AL.;	§	
	§	
<i>Defendants.</i>	§	
	§	

MEMORANDUM OPINION AND ORDER

On July 16, 2015, the Court held a hearing to determine the proper construction of the disputed claim terms in United States Patent No. 7,532,200 (“the ’200 Patent”). After considering the arguments made by the parties at the hearing and in the parties’ claim construction briefing (Dkt. Nos. 152, 156, and 158), the Court issues this Claim Construction Memorandum and Order.

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I. BACKGROUND

The '200 Patent is titled "Apparatus for Setting Multi-stage Displacement Resolution of a Mouse." It was filed on January 18, 2005, and issued on May 12, 2009. The '200 Patent generally relates to "an apparatus for setting multi-stage displacement resolution of a mouse so as to adjust the mouse resolution without using software driver or tool." '200 Patent at 1:42–45.¹

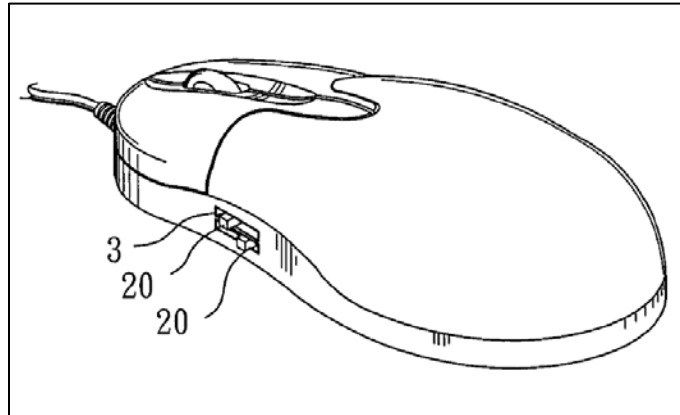
The specification states that prior art systems require a "software driver or tool provided by the manufacturer for operating the mouse setting the operating mode and resolution of the mouse." *Id.* at 1:17–19. The specification adds that the prior art systems require the user to "execute the software driver/tool and find[] out the item to adjust the mouse resolution, so as to click or key in a new resolution for completing resolution adjustment." *Id.* at 1:20–23. The specification further states that adjusting mouse resolution via software on a connected computer posed problems such as users "not understand[ing] the software," "not [being] aware of how to find the item which can adjust the mouse resolution," and "los[ing] the floppy/CD-R that has the software driver/tool." *Id.* at 1:25–32. According to the specification, "a need exists for providing an apparatus for setting multi-stage displacement resolution of a mouse." *Id.* at 1:32–34.

The specification states that the preferred embodiments include an apparatus that "set the mouse resolution directly through a switch of the mouse." *Id.* at 1:38–45. Figure 3 illustrates one

¹ The Abstract of the '200 Patent follows:

An apparatus for setting multi-stage displacement resolution of a mouse is disclosed, which has a X-Y axis plane displacement detector, a switching circuit and a mouse micro controller. The X-Y axis plane displacement detector senses a distance and a moving direction generated by the mouse. The switching circuit has at least one switch. The mouse micro controller is coupled to the X-Y axis plane displacement detector and the switching circuit. The mouse micro controller sets the mouse resolution based on each switch, and responds to the distance and moving direction sensed by the X-Y axis plane displacement detector to provide a control signal to a computer connected to the mouse, thereby moving the mouse cursor on the screen of the computer, wherein the mouse cursor is moved based on the mouse resolution.

embodiment.



Id. at Figure 3.

The specification further describes that the illustrated embodiment may include “a button set 1, a scrolling wheel 5, an X-Y axis plane displacement detector 2, a switching circuit 3 and a mouse micro controller 4.” *Id.* at 2:36–37. The specification states that switching circuit 3 includes a plurality of switches 20, and that “[t]he switching circuit 3 is coupled to the mouse micro controller 4 to set the resolution value.” *Id.* at 2:56–59. The specification further states that “[t]he mouse micro controller 4 sets a resolution value so that the mouse cursor movement is performed based on the resolution value, wherein the resolution value is preferably stored in a register 41 inside the mouse micro controller 4.” *Id.* at 2:51–55. The specification adds that “when the state of the switching circuit 3 is changed, the mouse micro controller 4 reads the state of the switching circuit 3 again to determine the new resolution value and subsequently the mouse is operating based on the new resolution value.” *Id.* at 3:40–44.

Plaintiff brings suit alleging infringement of claims 1 and 6 of the '200 Patent. Claim 1 of the '200 Patent is representative of the asserted claims and recites the following elements (disputed terms in italics):

1. An apparatus for setting multi-stage displacement resolution of a mouse, comprising:

- a X-Y axis plane displacement detector, for sensing a distance and a moving direction generated by the mouse in a two-dimensional space;
- a switching circuit for setting a resolution value, the switching circuit having multiple switches for being manually adjusted to generate the resolution value directly, each switch being coupled to a resolution setting pin, each resolution setting pin having a state determined by the switch coupled thereto; and
- a mouse micro controller with a register, coupled to the X-Y axis plane displacement detector and the switching circuit, the mouse micro controller *determining the resolution value based on the states of the resolution setting pins*, setting a mouse resolution based on the resolution value and storing the resolution value in the register, the mouse micro controller responding to the distance and moving direction sensed by the X-Y axis plane displacement detector to provide a control signal to a computer connected to the mouse, thereby moving the mouse cursor on a screen of the computer, the mouse cursor being moved directly based on the resolution value stored in the register.

II. APPLICABLE LAW

A. Claim Construction

“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)). To determine the meaning of the claims, courts start by considering the intrinsic evidence. *See id.* at 1313. *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). The 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.* The specification may also 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 are 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.*

III. CONSTRUCTION OF AGREED TERMS

The parties agreed to the construction of the following term:

Claim Term/Phrase	Agreed Construction
“multi-stage displacement resolution”	Needs no construction; part of non-limiting preamble
“a X-Y axis plane displacement detector, for sensing a distance and a moving direction generated by the mouse in a two-dimensional space”	“a detector for sensing a distance and a moving direction generated by the mouse when moving horizontally and/or vertically over a flat surface”

“N-stage switch” “N-stage switch circuit” “Positions 1 to N” “N is a positive integer”	In the claim terms using N, N is a whole number greater than one.
“switching button capable of being manually switched to one of positions 1 to N”	“button or switch that can be switched by hand to two or more positions”
“resolution value”	“number of dots or counts per unit of distance”
“resolution setting pin”	“a conductive connection between the mouse micro controller and the switching circuit, used by the microcontroller in determining resolution value”
“register”	“a storage device or storage location having a specified storage capacity”
“mouse resolution”	“the number of dots that the mouse cursor moves for every inch that the mouse moves”
“control signal”	“an electronic signal sent to a computer to direct its behavior”

Dkt. No. 165-1 at 5-9 (Joint Claim Construction and Prehearing Statement). In view of the parties’ agreement on the proper construction of the identified term, the Court hereby adopts the parties’ agreed construction.

During the claim construction hearing, the Court provided the parties with preliminary constructions for the disputed terms/phrases. The parties agreed to the Court’s preliminary construction for the following terms:

Claim Term/Phrase	Agreed Construction
“manually adjusted to generate the resolution value directly”	“adjusted by hand to generate a resolution value without using a software driver or tool that is external to the mouse”
“the mouse cursor being moved directly based on the resolution value stored in	“the mouse cursor being moved based on the resolution value stored in the register, and without

the register”	using a software driver or tool that is external to the mouse to adjust the resolution value”
“switching circuit” / “switch circuit”	Plain and ordinary meaning

The phrase “manually adjusted to generate the resolution value directly” appears in claim 1 of the ’200 Patent. The Court’s construction focuses on two terms within the phrase: **“manually adjusted”** and **“directly.”**

As an initial matter, the Court finds that the term **“manually adjusted”** means **“adjusted by hand.”** The specification makes clear that the recited “switches” are adjusted by hand. For example, the specification states that “FIG. 3 shows that the switching circuit 3 is configured on an edge of the mouse cover, wherein the switch 20 is a DIP (Dual In-line Package) switch so that the user can set the switch 20 to tum on or tum off conveniently.” ’200 Patent at 3:18–21. Likewise, the specification states that “FIG. 5 shows that the N-stage switch is configured on an edge on the mouse cover so that the user can set the resolution as required conveniently.” *Id.* at 3:31–34. Plaintiff does not oppose construing “manually adjusted” to involve adjustment by hand. (Dkt. No. 158 at 6 n.3.) Furthermore, the parties agreed to the Court’s construction for “manually adjusted” during the claim construction hearing.

Regarding the term **“directly,”** the Court finds that the intrinsic and extrinsic evidence indicates that it should be construed as **“without using a software driver or tool that is external to the mouse.”** The preamble of claim 1 recites “an apparatus for setting multi-stage displacement resolution of a mouse.” It is not disputed that the claims are directed to components contained within the mouse. For example, the recited “X-Y axis plane displacement detector,” “switching circuit,” “switches,” “micro controller,” and “register” are all components contained within the claimed mouse.

The specification describes the claimed mouse as addressing a problem in the prior art as being related to software driver or tools that are external to the mouse. For example, the specification states that the prior art required a user to “install a software driver or tool provided by the manufacturer for operating the mouse or setting the operating mode and resolution of the mouse.” ’200 Patent at 1:16–19. The specification further states that “[e]ven [if] the user may install the driver/tool successfully,” the user may not understand “how to find out the item which can adjust the mouse resolution to complete the resolution adjustment.” *Id.* at 1:27–30. Finally, the specification discusses the problem of “loss [of] the floppy/CD-R that has the software driver/tool.” *Id.* at 1:30–31. A person of ordinary skill in the art would understand that the stated problems with the prior art were related to the software driver or tools that were external to the mouse.

The specification claims that the invention addresses this problem. It states that the claimed mouse permits the user to “directly” adjust the resolution of the mouse by, for example, adjusting the resolution of the mouse without first finding, on the computer, the “item which can adjust the mouse resolution.” *Id.* at 1:27–30. Indeed, the specification states that “[a]n object of the present invention is to provide an apparatus for setting multi-stage displacement resolution of a mouse so as to set the mouse resolution *directly* through a switch of the mouse.” *Id.* at 1:38–41 (emphasis added). The specification further states that “[a]nother object of the present invention is to provide an apparatus for setting multi-stage displacement resolution of a mouse so as to adjust the mouse resolution without using software driver or tool.” *Id.* at 1:42–45. Similarly, the specification states that “it is known that the present invention utilizes the switching circuit to set the resolution value of the mouse micro controller so that the user can *directly* set the resolution value via the switching circuit without using software driver or tool.” *Id.* at 3:45–49 (emphasis

added). In light of the intrinsic evidence above, the Court finds that a person of ordinary skill in the art would understand that “**directly**” means “**without using a software driver or tool that is external to the mouse.**”

Turning to the constructions proposed by the parties, Defendants argued in their brief for that “directly” should be construed to mean “without any software driver or tool adjusting the resolution value” for three reasons. First, Defendants asserted that the invention is “a hardware implementation that eschews software of all kinds, and makes no reference to the device executing the software.” (Dkt. No. 156 at 14.) Second, Defendants asserted that if the “micro controller” had software it would change “a hardware patent into a software patent.” (Dkt. No. 156 at 17.) Third, Defendants asserted that if the “micro controller” had software it would render claim 1 meaningless.

The Court disagrees that the invention “eschews software of all kinds” and that if the “micro controller” had software it would change “a hardware patent into a software patent.” The undisputed extrinsic evidence states that “[a] microcontroller is nothing without software,” and that “[o]ne of the most powerful functions of the microcontroller is its ability to replace hardware with software functions.” (Dkt. No. 158-3 at 4) (Programming PIC Microcontroller with Pic Basic (2003)); (Dkt. No. 158-4 at 10) (Practical Embedded Controllers (2003)).

Defendants do not address this extrinsic evidence, and instead, argue that if the “micro controller” of the claims included software, it would change “a hardware patent into a software patent.” (Dkt. No. 156 at 17.) The Court disagrees with Defendants characterization of the patent because a person of ordinary skill in the art would not understand the “micro controller” of the claims to be a special “micro controller” that excluded all software but an ordinary “micro controller” that could include software.

Indeed, Defendants' construction of "without any software driver or tool" does not account for the claim language. A number of claim limitations suggest that the "micro controller" includes software. For example, the mouse "micro controller" determines "the resolution value based on the states of the resolution setting pins" and provides "a control signal to a computer connected to the mouse."

Consistent with the claims, the specification further indicates that "directly" should not be construed as excluding all software. Specifically, the specification states that "FIG. 3 shows that the switching circuit 3 is configured on an edge of the mouse cover, wherein the switch 20 is a DIP (Dual In-line Package) switch so that the user can set the switch 20 to turn on or turn off conveniently." '200 Patent at 3:18–21. The specification further states that "[t]he switching circuit 3 is coupled to the mouse micro controller 4 to set the resolution value." *Id.* at 2:56–57. The specification adds that the switching circuit "includes a plurality of switches 20" and "[e]ach switch 20 is coupled to a resolution setting pin DPI_SET [1]-DPI_SET [N], respectively." *Id.* at 2:58-60. The specification concludes that "the mouse micro controller 4 can determine the resolution value based on the states of the resolution setting pins DPI_SET [1]-DPI_SET [N]." 2:64-67.

Finally, the Court disagrees that claim 1 would be meaningless if the "micro controller" included software. Claim 1 recites numerous physical components including a "switching circuit having multiple switches" and an "X-Y axis plane displacement detector." Claim 1 further recites the arrangement and function of those components. It states that the micro controller is "coupled to the X-Y axis plane displacement detector and the switching circuit," and responds "to the distance and moving direction sensed by the X-Y axis plane displacement detector to provide a control signal to a computer connected to the mouse." Thus, claim 1 is not rendered

meaningless even if “directly” is interpreted as allowing software on the micro controller.

The claims and the specification confirm that “the user can directly set the resolution value via the switching circuit without using software driver or tool” external to the mouse. *Id.* at 3:47–49. Finally, other than the terms “manually adjusted” and “directly,” the Court finds that the remaining claim language is unambiguous and easily understandable to a jury. Accordingly, the Court construes the phrase “**manually adjusted to generate the resolution value directly**” to mean “**adjusted by hand to generate a resolution value without using a software driver or tool that is external to the mouse.**”

The Court also construes two other phrases. Regarding the phrase “**to provide a control signal to a computer connected to the mouse, . . . the mouse cursor being moved directly based on the resolution value stored in the register,**” the Court finds that only the phrase “**the mouse cursor being moved directly based on the resolution value stored in the register**” requires construction. In light of the parties’ agreed construction for the term “control signal,” the phrase “**to provide a control signal to a computer connected to the mouse**” is unambiguous, is easily understandable by a jury, and requires no construction. Accordingly, the Court finds that this phrase should be given its plain and ordinary meaning.

The Court also construes the phrase “**the mouse cursor being moved directly based on the resolution value stored in the register**” which appears in claims 1 and 6 of the ’200 Patent. The Court finds that the phrase is used consistently in the claims and is intended to have the same meaning in each claim. The Court further finds that the parties’ dispute regarding the term “directly” is essentially the same as with the term “manually adjusted to generate the resolution value directly.” The Court further notes that the parties’ proposed constructions place the construction of “directly” at the end of their respective constructions.

As with the previous phrase, the issue is whether “directly” should be construed to mean “without any software driver or tool adjusting the resolution value.” For the reasons discussed above, the Court finds that the term “directly” should be construed as “without using a software driver or tool that is external to the mouse.” Accordingly, the Court finds that the phrase “**the mouse cursor being moved directly based on the resolution value stored in the register**” should be construed to mean “**the mouse cursor being moved based on the resolution value stored in the register, and without using a software driver or tool that is external to the mouse to adjust the resolution value.**”

In addition to Defendants’ proposal for the term “directly,” Defendants’ proposed construction further replaces the recited “stored in the register” with “provided in the hardware register.” The parties have agreed that “register” should be construed as “a storage device or storage location having a specified storage capacity.” Defendants have not provided any arguments for their proposed language of “provided in the hardware register,” or why it should replace the phrase “stored in the register.” In light of the parties agreed construction for the term “register,” the Court finds that the phrase is unambiguous, is easily understandable by a jury, and should not to be replaced with “provided in the hardware register,” as Defendants propose.

Regarding the term “**switching circuit**,” the Court finds that the term appears in claims 1, 4, 5, and 6 of the ’200 Patent. The Court further finds that the term is used consistently in the claims and is intended to have the same meaning in each claim. The term “**switch circuit**” appears in claim 6 of the ’200 Patent. The parties agree, and the Court finds, that the term “**switching circuit**” and “**switch circuit**” refer to the same circuit and should be interpreted to have the same meaning. The Court also finds that, in light of the intrinsic evidence, the terms are unambiguous, are easily understandable by a jury, and should be given their plain and ordinary

meaning. Specifically, the claim language itself defines the “switching circuit.” For example, claim 1 recites “the switching circuit having multiple switches . . . each switch being coupled to a resolution setting pin” Likewise, claim 6 recites “the N-stage switch circuit having a switching button capable of being manually switched to one of positions 1 to N, and accordingly activating a connected resolution setting pin.” Accordingly, the Court finds that the terms should be given their plain and ordinary meaning.

Turning to the construction proposed by Defendants, the Court finds that it repeats what is stated in the claims. Thus, Defendants’ construction would be redundant and potentially confusing to the jury. Moreover, contrary to Defendants’ contention, the Court finds that adopting Defendants’ proposed construction would not simplify the tasks of the trier of fact.

IV. CONSTRUCTION OF DISPUTED TERMS

The parties’ dispute focuses on the meaning and scope of three terms/phrases in the ’200 Patent.

1. “each resolution setting pin having a state determined by the switch coupled thereto”

<u>Disputed Term</u>	<u>Plaintiff’s Proposal</u>	<u>Defendants’ Proposal</u>
“each resolution setting pin having a state determined by the switch coupled thereto”	“resolution setting pin having a state influenced or regulated by the switch coupled thereto”	“resolution setting pin’s logical condition ascertained or established based on the switch coupled thereto”

a) The Parties’ Positions

The parties dispute: (1) whether the term “state” must be construed; and (2) the correct meaning of the term “determined,” in the phrase “resolution setting pin having a state determined by the switch coupled thereto.” Plaintiff argues that when a word like “determine” has “multiple dictionary definitions, [the Court] must consult the intrinsic record to identify which of the different possible dictionary meanings of the claim terms in issue is the most

consistent with the use of the words by the inventor.” (Dkt. No. 152 at 21) (quoting *Tehrani v. Hamilton Med., Inc.*, 331 F.3d 1355, 1361 (Fed. Cir. 2003)). Plaintiff argues that the switch coupled to a resolution setting pin does not calculate the state of the pin. (*Id.*) Plaintiff contends that it instead influences or regulates the state of the pin. (*Id.*) (citing ’200 Patent at 2:59–64). Plaintiff argues that this alternate meaning of determine is the most consistent with the teachings of the ’200 Patent. (Dkt. No. 152 at 21.)

Plaintiff further argues that the term “state” is well-understood term that is similarly defined in both generalist and technical dictionaries. (*Id.* at 22.) Plaintiff contends that the term “state” does not need to be construed in the context of the ’200 Patent. (*Id.*) Plaintiff further contends that the specification’s preferred embodiments show the resolution setting pins as having a state of 0 (low voltage) when a switch coupled thereto is off, changing to a state of 1 (high voltage) when the switch coupled thereto is switched on. (*Id.*) (citing ’200 Patent at 2:59–64). According to Plaintiff, the mouse micro controller can then determine the resolution value based on the states of the resolution setting pins. (Dkt. No. 152 at 22) (citing ’200 Patent at 2:64–67).

Defendants respond that a “state” is a logical condition. (Dkt. No. 156 at 20.) Defendants argue that in the preferred embodiment, each resolution setting pin can have two and only two logical conditions or “states.” (*Id.* at 20) (citing ’200 Patent at 2:56–67). Defendants further argue that in the alternate embodiment, each resolution setting pin can have two and only two logical states or conditions. (Dkt. No. 156 at 20) (citing ’200 Patent at 3:22–34). Defendants contend that in both embodiments, the switch is a latched switch. (Dkt. No. 156 at 20.) Defendants further contend that while the ordinary usage of “state” is clear to a skilled artisan, the jury may lack sufficient context to understand the computer science meaning of the term.

(Id.)

Regarding the term “determined,” Defendants argue that the resolution setting pin does not merely have a “state influenced...by the switch coupled thereto,” as Plaintiff proposes. *(Id.)* Defendants contend that the state of the resolution setting pin is set or established (and remains set) by the fixed position of the switch connected or coupled to the pin. *(Id.)* Defendants argue that Plaintiff presumably proposes that the Court should construe “determined” as merely “influenced” to obtain a more expansive claim scope. *(Id. at 21.)* According to Defendants, Plaintiff’s proposed construction cover devices that use a momentary button or actuator to send a pulse signal rather than requiring a latched switch to set the state of the resolution setting pin as disclosed in the ’200 Patent. *(Id.)*

Defendants further argue that Plaintiff takes an inconsistent approach to construing the word “determine.” *(Id.)* Defendants contend that in the context of this phrase, Plaintiff proposes that “determined” means “influenced or regulated.” *(Id.)* Defendants argue that in the context of the phrase “determining the resolution value based on the states of the resolution setting pins,” Plaintiff contends that “determining” should be construed to mean “ascertaining or establishing.” *(Id.)* According to Defendants, this indicates that their proposed construction should be adopted. *(Id.)*

Plaintiff replies that Defendants do not explain the origins of the phrase “logical condition.” (Dkt. No. 158 at 7.) Plaintiff argues that “logical condition” does not appear anywhere in the specification or prosecution history. *(Id.)* Plaintiff contends that Defendants do not cite to any dictionaries or other sources tying “logical condition” to “state.” *(Id.)* Plaintiff argues that “state” is defined similarly in both generalist and computer science dictionaries as a “condition or mode” of something. *(Id.)* Plaintiff further argues that substituting a commonly

understood word like “state” with an uncommon phrase like “logical condition” does not aid the jury’s understanding of claim scope. (*Id.*) Plaintiff contends that Defendants do not explain why “state” must be narrowly construed. (*Id.*) According to Plaintiff, the term “state” must bear its plain and ordinary meaning to one skilled in the art, absent lexicography or disavowal. (*Id.*)

Regarding the term “determined,” Plaintiff contends that its construction recognizes that a word’s meanings vary by context. (*Id.* at 8.) Plaintiff contends that this holds particularly true for “determine,” a common word with several definitions for different contexts. (*Id.*) (citing Dkt 152-11 at 5) (American Heritage Dictionary). Plaintiff argues that Defendants ignore the case law requiring consultation of intrinsic evidence when construing a term with many possible meanings. (Dkt. No. 158 at 8.) Plaintiff further contends that because the switch does not actively “calculate” or “ascertain” the state of the coupled pin, the best definition of “determine” is the more passive “influence; regulate.” (*Id.*)

For the following reasons, the Court finds that the phrase **“each resolution setting pin having a state determined by the switch coupled thereto”** should be construed to mean **“each resolution setting pin having a mode or condition determined by the switch coupled thereto.”**

b) Analysis

The phrase “each resolution setting pin having a state determined by the switch coupled thereto” appears in claim 1 of the ’200 Patent. In the context of the intrinsic evidence, the Court finds that the term “determined” is unambiguous, is easily understandable by a jury, and requires no construction. Turning to the parties’ construction for the term “determined,” the Court finds that Plaintiff’s construction is too broad. The Court agrees that “determined” can have different meaning in different context, but finds that something that is “influenced” by something may not

necessarily be “determined” by something. The intrinsic evidence indicates that the state of each resolution setting pin is determined by the switch coupled thereto. Accordingly, the Court does not adopt Plaintiff’s construction for the term “determined.” The Court also does not adopt Defendants’ construction because “ascertained or established” is not as clear as “determined.” Moreover, the Court does not necessarily agree that the terms “determined” and “determining” should be construed exactly the same in claim 1.

Regarding the term “state,” the Court agrees with Defendants that the jury may lack sufficient context to understand the computer science meaning of the term. However, the Court disagrees that Defendants’ proposed “logical condition” is more helpful to the jury. Indeed, the Court finds that the term “logical condition” does not appear anywhere in the intrinsic evidence. Moreover, Defendants do not provide any extrinsic evidence indicating that “state” should be construed as a “logical condition.” Instead, Defendants’ only support is a quote from *O2 Micro Int’l Ltd. v. Samsung Elecs. Co., Ltd.* Specifically, Defendants argue that the court in *O2 Micro Int’l Ltd. v. Samsung Elecs. Co., Ltd.*, No. 2:04-cv-00323-TJW, D.I. 84 at 7-8, 2006 U.S. Dist. LEXIS 43904 at *15 (E.D. Tex., June 28, 2006).

Plaintiff argues that “state” is defined similarly in both generalist and computer science dictionaries as a “condition or mode.” Specifically, Plaintiff contends a generalist dictionary defines “state” as “[a] condition or mode of being with regard to a set of circumstances: position.” (Dkt 152-11 at 5) (American Heritage Dictionary). Similarly, Plaintiff contends that a computer science dictionary defines “state” as “[a] condition or mode of existence that a system, component, or simulation may be in; for example, the pre-flight state of an aircraft navigation program or the input state of given channel.” (Dkt 152-8 at 8) (IEEE Standard Glossary of

Software Engineering Terminology). Given these definitions, Plaintiff argues that Defendants' cite to *O2 Micro* confirms the accuracy of the ordinary meaning indicated in these dictionaries. The Court agrees and finds that the term "state" should be construed as a "mode or condition."

During the claim construction hearing, Defendants argued that the Court's preliminary construction should be modified to read "each resolution setting pin having one of two possible conditions or modes determined by the switch coupled thereto." Defendants pointed to the preferred embodiment and argued that it illustrates the switch as either on or off. *See, e.g.*, '200 Patent at 2:56–67. Contrary to Defendants' suggestion, the Court finds that the claim scope should not be limited to the preferred embodiment. *Kara Tech., Inc. v. Stamps.com Inc.*, 582 F.3d 1341, 1348 (Fed. Cir. 2009) ("The patentee is entitled to the full scope of his claims, and we will not limit him to his preferred embodiment or import a limitation from the specification into the claims.").

Defendants' only argument for limiting the claims to the preferred embodiment is their contention that "hardware" and "binary conditions" are the heart of the invention. The Court disagrees. The specification indicates that the heart of the "present invention is to provide an apparatus for setting multi-stage displacement resolution of a mouse so as to adjust the mouse resolution without using software driver or tool." '200 Patent at 1:42–45. As discussed above, a person of ordinary skill in the art would understand that the stated problems with the prior art were related to the software driver or tools that were external to the mouse. Accordingly, the Court finds that the patentee did not limit the scope of the claims to the preferred embodiment of a "binary condition." Indeed, the patentee explicitly stated that "[a]lthough the present invention has been explained in relation to its preferred embodiment, it is to be understood that many other possible modifications and variations can be made without departing from the spirit and scope of

the invention as hereinafter claimed.” *Id.* at 3:50–54.

c) Court’s Construction

In light of the intrinsic and extrinsic evidence, the Court construes the phrase “**each resolution setting pin having a state determined by the switch coupled thereto**” to mean “**each resolution setting pin having a mode or condition determined by the switch coupled thereto.**”

2. “to indicate a state”

<u>Disputed Term</u>	<u>Plaintiff’s Proposal</u>	<u>Defendants’ Proposal</u>
“activating a connected resolution setting pin to indicate a state”	No construction necessary Alternatively: “activating a connected resolution setting pin to signify a change in its state”	
“to indicate a state”		“to specify a logical condition”

a) The Parties’ Positions

The parties dispute whether the phrase “activating a connected resolution setting pin to indicate a state” requires construction, and if it does, how the shorter phrase “to indicate a state” should be construed. Plaintiff argues that the phrase does not require construction. (Dkt. No. 152 at 24.) Plaintiff contends that the phrase is self-explanatory and readily understood by a jury in the context of the ’200 Patent. (*Id.*) Plaintiff further argues that the PTAB agreed that this term needs no construction. (*Id.*) (citing Dkt. No. 152-4 at 10-11) (PTAB Institution Decision).

Alternatively, Plaintiff argues that the term “to indicate a state” refers to what happens when the connected resolution setting pin is activated. (Dkt. No. 152 at 25.) Plaintiff contends that the specification explains that, in a preferred embodiment, activating a resolution setting pin changes its state from 0 to 1. (*Id.*) (citing ’200 Patent at 2:59–64 and 3:24–28). Plaintiff contends that the ordinary meaning of “indicate” is “signify” (Dkt. No. 152 at 25) (citing Dkt 152-11 at 8)

(American Heritage Dictionary). According to Plaintiff, this means that the natural reading of “indicate a state” is to “signify a change in state.” (Dkt. No. 152 at 25.) Plaintiff further argues that the specification makes clear that the mouse micro controller actually acts on changes in state. (*Id.*) (citing ’200 Patent at 3:40–43).

Defendants respond that for the device disclosed in claim 6, each resolution setting pin that may be connected to the switching button has only two possible logical conditions. (Dkt. No. 156 at 22.) Defendants argue that depending on the position in which the user of the mouse manually moves the switching button on the mouse, the resolution setting pin can be set to the logical condition of either on (1) or off (0). (*Id.*) (citing ’200 Patent at 3:22–34). Defendants argue that once the logical condition of the resolution setting pin is set by the position of the switching button connected thereto, the micro controller reads the state of the resolution setting pins, sets the corresponding resolution value, and then sends the appropriate resolution control signal to the computer. (Dkt. No. 156 at 22) (citing ’200 Patent at 3:22–34). According to Defendants, this disclosure indicate that the phrase to “indicate a state” simply refers to the logical condition of the resolution setting pin depending on where the user of the mouse manually moves the switching button on the mouse. (Dkt. No. 156 at 22.) Defendants further contend that this is consistent with their position regarding “resolution setting pin having a state influenced or regulated by the switch coupled thereto.” (*Id.* at 22-23.)

Regarding Plaintiff’s construction, Defendants argue that “to indicate a state” does not refer to “what happens when the connected resolution setting pin is activated.” (*Id.* at 23) (quoting Dkt. No. 152 at 25). Defendants also argue that “to indicate a state” does not mean “to signify a change in state.” (Dkt. No. 156 at 23.) Defendants contend that the position of the switching button in relationship to the resolution setting pins is what sets the logical condition

(*i.e.*, indicates the state) of the resolution setting pins. (*Id.*) Defendants argue that no change of state is necessary for the resolution setting pins to perform their function. (*Id.*) Defendants contend that when the mouse is powered up for the first time, the micro controller reads the state of the resolution setting pins and knows the resolution value based on that information. (*Id.*) Defendants argue that it is after the user moves the position of the switching button that the new resolution setting pin which it is now in contact is activated. (*Id.* at 23-24.) Defendants further argue that the mouse micro controller then determines the significance of that change in logical condition. (*Id.* at 24) (citing '200 Patent at 3:40–52).

Plaintiff replies that as to the term “state,” the dispute here is largely co-extensive with that regarding the construction of the word “state” in “resolution setting pin having a state determined by the switch coupled thereto.” (Dkt. No. 158 at 8.) Plaintiff further argues that Defendants’ attempt to ignore the disputed language of “activating a connected resolution setting pin” by arguing that “‘to indicate a state’ does not refer to ‘what happens when the connected resolution setting pin is activated.’” (*Id.* at 9) (quoting Dkt. No. 156 at 23). Finally, Plaintiff contends that Defendants offer no argument or evidence supporting their position that the verb “indicate” should mean “specify.” (Dkt. No. 158 at 9.) Plaintiff further argues that Defendants do not rebut its argument that the plain and ordinary meaning of “indicate” in this context is “signify.” (*Id.*)

For the following reasons, the Court finds that the phrase “**to indicate a state**” should be construed to mean “**to indicate a mode or condition.**”

b) Analysis

As an initial matter, the Court finds that only the phrase “to indicate a state” requires construction. In light of the parties agreed construction for the term “resolution setting pin,” the

Court finds that the phrase “activating a connected resolution setting pin” is unambiguous, is easily understandable by a jury, and requires no construction. Accordingly, the Court will not construe this phrase.

Turning to the phrase “to indicate a state,” the Court finds that the phrase appears in claim 6 of the ’200 Patent. The Court further finds that the parties’ dispute regarding the term “state” is the same for this phrase as it is for the phrase “resolution setting pin having a state determined by the switch coupled thereto.” Thus, for the reasons discussed above, the Court finds that the term “state” should be construed as “mode or condition.”

Regarding the term “to indicate,” the Court finds the term that is unambiguous, is easily understandable by a jury, and requires no construction. The specification states that “the switching circuit 3 is N-stage switch 31,” and that “[t]he switching button 311 of the switching circuit 31 can be switched to position [i] (i=1-N), thereby making the resolution setting pin DPI_SET [i] of the mouse micro controller 4 to be 1 and making the other resolution setting pins to be 0.” ’200 Patent at 3:23–28. The specification concludes that “the mouse micro controller 4 can determine the resolution value based on the states of the resolution setting pins DPI_SET [1]-DPI_SET [N].” *Id.* at 3:28–30. As described in the specification, the switching button activates a connected resolution setting pin and indicates a state. Accordingly, the Court finds that the term “indicate” does not require construction.

Turning to the parties’ construction for the term “to indicate,” the Court does not adopt Defendants’ construction because Defendants do not provide any support for their construction of “to specify.” Moreover, as discussed above, the Court finds that the term “indicate” is unambiguous, is easily understandable by a jury, and requires no construction. The Court also does not adopt Plaintiff’s construction because it requires “a change,” and construes “to

indicate” to mean “to signify.” The Court agrees with Defendants that “activating a connected resolution setting pin to indicate a state” does not necessarily require a change. Specifically, claim 6 recites that the “N-stage switch circuit” has “a switching button capable of being manually switched to one of positions 1 to N.” Instead of being merely capable, Plaintiff’s construction would require switching the N-stage switch circuit in order to “signify a change in its state.” The Court finds that a change of state is not necessary for the resolution setting pins to perform their function. Thus, Plaintiff’s construction is not consistent with the claim language.

Similarly, the Court is not persuaded that “to indicate” should be construed to mean “to signify,” as Plaintiff proposes. Plaintiff’s only support for its construction is an extrinsic dictionary definition. As discussed above, the Court finds that the term “indicate” is unambiguous, is easily understandable by a jury, and requires no construction. Accordingly, the Court does not adopt Plaintiff’s construction.

c) Court’s Construction

In light of the intrinsic and extrinsic evidence, the Court construes the phrase “**to indicate a state**” to mean “**to indicate a mode or condition.**”

3. “determining the resolution value based on the states of the resolution setting pins” / “determining the resolution value based on the state of the connected resolution setting pins”

<u>Disputed Term</u>	<u>Plaintiff’s Proposal</u>	<u>Defendants’ Proposal</u>
“determining the resolution value based on the states of the resolution setting pins”	“ascertaining or establishing the resolution value based on the states of the resolution setting pins”	“ascertaining or establishing the resolution value based on the logical condition of the resolution setting pins”
“determining the resolution value based on the state of the connected resolution setting pins”	“ascertaining or establishing the resolution value based on the state of the connected resolution setting pin”	“ascertaining or establishing the resolution value directly based on the logical condition of the resolution setting pins”

a) The Parties' Positions

The parties agree that “determining” should be construed as “ascertaining or establishing” in claims 1 and 6. As with the previous phrases, the parties dispute the meaning of the term “state” that appears in both disputed phrases. The parties also dispute whether the phrase “determining the resolution value based on the state of the connected resolution setting pins” should include the word “directly,” as Defendants propose. The parties also dispute whether the phrase “the connected resolution setting pins” should be construed to mean “the connected resolution setting pin,” as Plaintiff proposes.

Plaintiff contends that Defendants’ construction fails to give effect to the word “connected” in the phrase “the connected resolution setting pins” recited in claim 6. (Dkt. No. 152 at 27.) Plaintiff argues that the word “connected” is especially important because the phrase “the connected resolution setting pins” uses the definite article, which requires antecedent basis. (*Id.*) Plaintiff contends that the only antecedent basis for this phrase appears in the phrase “accordingly activating a connected resolution setting pin to indicate a state.” (*Id.* at 28.) According to Plaintiff, this indicates that “a connected resolution setting pin” is a single pin. (*Id.*)

Plaintiff also argues that this term refers to the singular “state” in claim 6, rather than plural “states” recited in claim 1. Plaintiff contends that claim 1 features “multiple switches” requiring multiple pins. (*Id.*) Plaintiff argues that the singular “state” required by this term in claim 6, combined with the antecedent basis issue, shows that the term should be construed to include a single pin. (*Id.*) Plaintiff also argues that Defendants’ construction also errs in not accounting for the difference in pluralization of “state” between the two claims. (*Id.*) Plaintiff contends that claim 1 features “states” in the plural, while claim 6 features “state” in the singular. Plaintiff argues that its construction reflects this difference while Defendants’ construction does not. (*Id.*)

Defendants respond that the slight differences in claim language between claims 1 and 6 reflect the differences in the devices claimed. (Dkt. No. 156 at 25.) Defendants argue that claim 1 discloses a device with a switching circuit comprising a plurality of switches, each switch capable of being coupled to its own dedicated resolution setting pin. (*Id.*) Defendants further argue that claim 6 discloses a device with a switching circuit that comprises a single switch, capable of switching between and connecting to any number of resolution setting pins independently. (*Id.*) Defendants contend that Plaintiff attempts to revise the claim phrase in claim 6 from “the connected resolution setting pins” to “one or more the connected resolution setting pins.” (*Id.*) Defendants argue that Plaintiff contends that the “N-stage switch” can be “connected” to more than one resolution setting pin at a time. (*Id.*) Defendants further contend that Plaintiff attempts to support its construction with confusing semantics surrounding the plural or singular use of pin(s) and state(s). (*Id.*) Defendants argue that Plaintiff’s construction demonstrates a fundamental misconception of the patent disclosure and of the underlying technology. (*Id.*)

Defendants further argue that the N-Stage switch in claim 6 cannot be connected to one or more resolution setting pins simultaneously. (*Id.*) Defendants contend that the N-stage switch may move between multiple (N) resolution setting pins, but it only connects to one of those resolution setting pins at a time. (*Id.* at 26) (’200 Patent at 3:22–34). According to Defendants, the logical state of the resolution setting pin connected to the switching button is 1, while the logical state of any and all other resolution setting pins at that time is 0. (Dkt. No. 156 at 26) (’200 Patent at 3:24–28). Defendants also argue that if the N-stage switch could be connected to more than one resolution setting pin at a time, the potential available resolutions would be would be N^X , with X representing the number of resolution setting pins that could be connected to the

switch. (Dkt. No. 156 at 26.) Defendants argue that this is not what the '200 Patent teaches, and is not possible given the circuit diagrams illustrating the invention of the '200 Patent. (*Id.*)

Plaintiff replies that for claim 6, the parties appear to agree that only one resolution setting pin can be connected to the switching button at any time. (Dkt. No. 158 at 9.) Plaintiff argues that the “connected resolution setting pin” is the one connected to the switching button makes sense given the immediately preceding claim language of “a switching button capable of being manually switched to one of positions 1 to N.” (*Id.*) Plaintiff states that given this apparent agreement about the patent’s teachings, it proposes construing “the connected resolution setting pins” to mean “the connected resolution setting pin” (*i.e.*, a singular pin). (*Id.* at 10.) Finally, Plaintiff argues that Defendants do not explain why their construction for claim 6 includes the word “directly.” (*Id.*) Plaintiff contends that “directly” should not be in any construction of this phrase. (*Id.*)

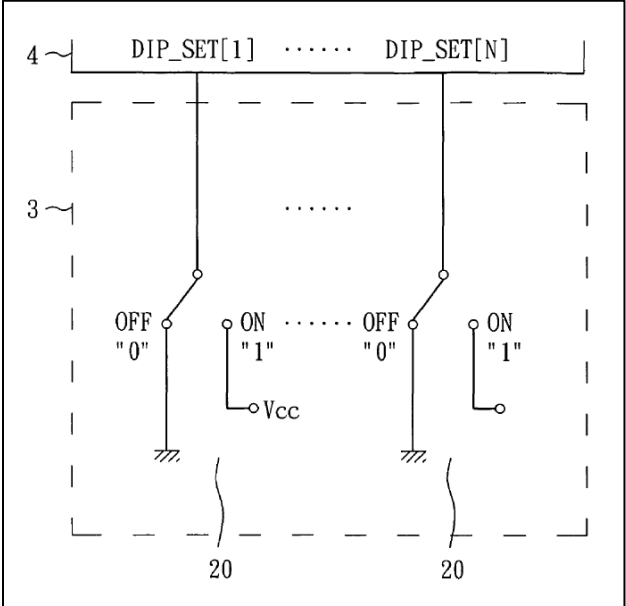
For the following reasons, the Court finds that the phrase **“determining the resolution value based on the states of the resolution setting pins”** should be construed to mean **“ascertaining or establishing the resolution value based on the mode or condition of the resolution setting pins.”** The Court also finds that the phrase **“determining the resolution value based on the state of the connected resolution setting pins”** should be construed to mean **“ascertaining or establishing the resolution value based on the mode or condition of the connected resolution setting pin.”**

b) Analysis

The phrase “determining the resolution value based on the states of the resolution setting pins” appears in claim 1 of the '200 Patent. The phrase “determining the resolution value based on the state of the connected resolution setting pins” appears in claim 6 of the '200 Patent. The

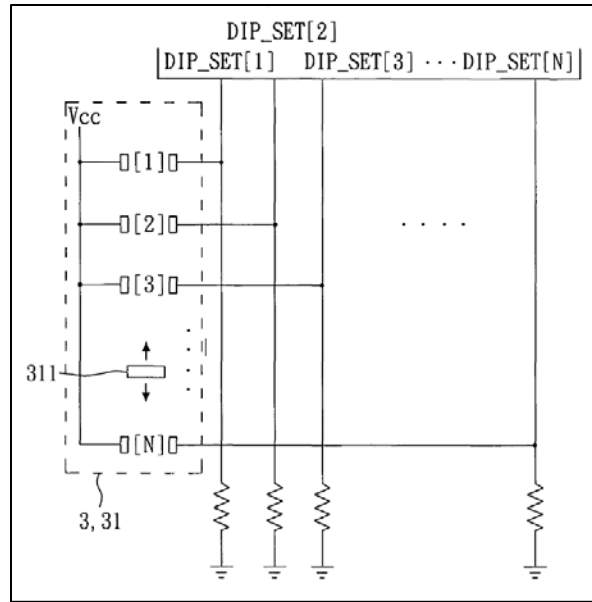
Court finds that the parties’ dispute regarding the term “state” is the same for this phrase as it is for the phrase “resolution setting pin having a state determined by the switch coupled thereto.” Thus, for the reasons discussed above, the Court finds that the term “state” should be construed as “mode or condition.”

The Court further finds that claim 1 and claim 6 are directed to different embodiments of the claimed apparatus. Specifically, claim 1 discloses a device with a switching circuit comprising a plurality of switches, each switch capable of being coupled to its own dedicated resolution setting pin. An example of this embodiment is illustrated in Figure 2.



’200 Patent at Figure 2. Figure 2 illustrates multiple switches 20 that are capable of being coupled to their own dedicated resolution setting pin (“DIP_SET[1]” and “DIP_SET[N]”). The specification states that when “when the switching circuit 3 has N switches 20, the number of available resolution values is 2^N .” ’200 Patent at 3:3–4.

Claim 6 discloses an alternate embodiment that includes a switching circuit that comprises a single switch, capable of switching between and connecting to any number of resolution setting pins independently. An example of this embodiment is illustrated in Figure 4.



'200 Patent at Figure 4. Figure 4 illustrates a single switch that is capable of switching between and connecting to any number of resolution setting pins independently (“DIP_SET[1],” “DIP_SET [2],” “DIP_SET[3],” and “DIP_SET[N]”). The specification states that “[t]he switching button 311 of the switching circuit 31 can be switched to position [i] (i=1-N), thereby making the resolution setting pin DPI_SET [i] of the mouse micro controller 4 to be 1 and making the other resolution setting pins to be 0.” '200 Patent at 3:24–28. Accordingly, “the number of the available resolutions is N.” *Id.* at 3:31.

The Court finds that the differences in these embodiments is accurately captured by Plaintiff’s proposed constructions. Specifically, Plaintiff’s construction for the disputed phrase in claim 1 indicates that the resolution value is established based on the states of the resolution setting pins. As discussed above, this embodiment includes multiple switches that are capable of being coupled to their own dedicated resolution setting pin. Likewise, Plaintiff’s construction for the disputed phrase in claim 6 indicates that the resolution value is established based on the state of the connected resolution setting pin. As discussed above, this embodiment includes a single switch that is capable of switching between and connecting to any number of resolution setting

pins independently. Accordingly, the Court adopts this aspect of Plaintiff's construction.

Turning to Defendants' constructions, other than the term "state," the Court notes that Defendants' construction for the disputed phrase in claim 1 is not substantively different than Plaintiff's construction. That is, the resolution value is established based on the states of the resolution setting pins. However, Defendants' construction for the disputed phrase in claim 6 is considerably different than Plaintiff's construction. Specifically, Defendants' construction fails to indicate that the resolution value is established based on the state of the connected resolution pin. Defendants' construction does not mention a connected pin, but instead only recites "pins." In addition, Defendants' construction includes the term "directly." Defendants have not offered any arguments on why this term should be included in the construction. The Court finds that including "directly" is unnecessary and unwarranted. Accordingly, the Court does not adopt Defendants' construction.

c) Court's Construction

In light of the intrinsic evidence, the Court construes the phrase **"determining the resolution value based on the states of the resolution setting pins"** to mean **"ascertaining or establishing the resolution value based on the mode or condition of the resolution setting pins."** The Court construes the phrase **"determining the resolution value based on the state of the connected resolution setting pins"** to mean **"ascertaining or establishing the resolution value based on the mode or condition of the connected resolution setting pin."**

V. CONCLUSION

The Court adopts the above constructions. The parties are ordered that they may not refer, directly or indirectly, to each other's claim construction positions in the presence of the jury. Likewise, the parties are ordered to refrain from mentioning any portion of this opinion,

other than the actual definitions adopted by the Court, in the presence of the jury. Any reference to claim construction proceedings is limited to informing the jury of the definitions adopted by the Court.

IT IS SO ORDERED.

SIGNED this 3rd day of September, 2015.



ROY S. PAYNE
UNITED STATES MAGISTRATE JUDGE