

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

MICROCHIP TECHNOLOGY	:	
INCORPORATED,	:	
	:	
Plaintiff,	:	
	:	
v.	:	C.A. No. 17-1194-LPS-CJB
	:	
APTIV SERVICES US, LLC	:	
	:	
Defendant.	:	

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MEMORANDUM OPINION

June 17, 2019
Wilmington, Delaware



STARK, U.S. District Judge:

Plaintiff Microchip Technology, Inc. (“Plaintiff”) filed suit against Defendant Aptiv Services US, LLC (“Defendant”) on August 24, 2017, alleging infringement of U.S. Patent Nos. 7,478,191 (the “’191 Patent”), 7,523,243 (the “’243 Patent”), and 7,627,708 (the “’708 Patent”). (D.I. 1) The patents-in-suit relate to switching technologies for USB periphery and host apparatuses.

Presently before the Court is the issue of claim construction. The parties completed briefing on January 28, 2019. (D.I. 96) The Court held a claim construction hearing on February 25, 2019. (D.I. 102) (“Tr”)

I. LEGAL STANDARDS

The ultimate question of the proper construction of a patent is a question of law. *See Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 837 (2015) (citing *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 388-91 (1996)). “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) (citation and internal quotation marks omitted). “[T]here is no magic formula or catechism for conducting claim construction.” *Id.* at 1324. Instead, the court is free to attach the appropriate weight to appropriate sources “in light of the statutes and policies that inform patent law.” *Id.*

“[T]he words of a claim are generally given their ordinary and customary meaning. . . . [which is] the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” *Id.* at 1312-13 (internal citations and quotation marks omitted). “[T]he ordinary meaning of a claim term is its meaning to the ordinary artisan after reading the entire patent.” *Id.* at 1321 (internal quotation marks omitted). The patent “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.” *Vitronics Corp. v. Conception, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

While “the claims themselves provide substantial guidance as to the meaning of particular claim terms,” the context of the surrounding words of the claim also must be considered. *Phillips*, 415 F.3d at 1314. Furthermore, “[o]ther claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment . . . [b]ecause claim terms are normally used consistently throughout the patent.” *Id.* (internal citation omitted).

It is likewise true that “[d]ifferences among claims can also be a useful guide For example, the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.” *Id.* at 1314-15 (internal citation omitted). This “presumption is especially strong when the limitation in dispute is the only meaningful difference between an independent and dependent claim, and one party is urging that the limitation in the dependent claim should be read into the independent claim.” *SunRace Roots Enter. Co., Ltd. v. SRAM Corp.*, 336 F.3d 1298, 1303 (Fed. Cir. 2003).

It is also possible that “the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor’s lexicography governs.” *Phillips*, 415 F.3d at 1316. It bears emphasis that “[e]ven when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction.” *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1372 (Fed. Cir. 2014) (quoting *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004)) (alteration in original) (internal quotation marks omitted).

In addition to the specification, a court “should also consider the patent’s prosecution history, if it is in evidence.” *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995), *aff’d*, 517 U.S. 370 (1996). The prosecution history, which is “intrinsic evidence,” “consists of the complete record of the proceedings before the [Patent and Trademark Office] and includes the prior art cited during the examination of the patent.” *Phillips*, 415 F.3d at 1317. “[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.” *Id.*

“In some cases, . . . the district court will need to look beyond the patent’s intrinsic evidence and to consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art during the relevant time period.” *Teva*, 135 S. Ct. at 841. “Extrinsic evidence consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” *Markman*, 52 F.3d at 980. For instance, technical dictionaries can assist the court in determining the meaning of a term to those of skill in the relevant art because such dictionaries “endeavor to collect the accepted meanings of terms used in various fields of science and technology.” *Phillips*, 415 F.3d at 1318. In addition, expert testimony can be useful “to ensure that the court’s understanding of the technical aspects of the patent is consistent with that of a person of skill in the art, or to establish that a particular term in the patent or the prior art has a particular meaning in the pertinent field.” *Id.* Nonetheless, courts must not lose sight of the fact that “expert reports and testimony [are] generated at the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic evidence.” *Id.* Overall, while extrinsic evidence “may be useful to the court,” it is “less reliable” than intrinsic evidence, and its consideration “is

unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence.” *Id.* at 1318-19. Where the intrinsic record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence is improper. *See Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1308 (Fed. Cir. 1999) (citing *Vitronics*, 90 F.3d at 1583).

Finally, “[t]he construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.” *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998). It follows that “a claim interpretation that would exclude the inventor’s device is rarely the correct interpretation.” *Osram GmbH v. Int’l Trade Comm’n*, 505 F.3d 1351, 1358 (Fed. Cir. 2007) (quoting *Modine Mfg. Co. v. U.S. Int’l Trade Comm’n*, 75 F.3d 1545, 1550 (Fed. Cir. 1996)).

I. CONSTRUCTION OF DISPUTED TERMS¹

A. The ’191 Patent

1. “Coupled” and “Coupling”²

Plaintiff directly or indirectly connected
Defendant directly or indirectly connected, and capable of supporting a USB connection (i.e. one in which the host can enumerate and engage in USB communication with a device) when a USB host and device are coupled
Court directly or indirectly connected

The term “coupled” is expressly defined in the specification as “directly or indirectly connected.” ’191 Patent, col. 4 ll. 27-28. Generally, patentees are bound by their express definitions. *See Sinorgchem Co., Shandong v. Intl. Trade Commn.*, 511 F.3d 1132, 1136 (Fed.

¹ The Court will also adopt the parties’ agreed-upon constructions.

² These terms appear in claims 1, 7, 8, 9, 17, and 19 of the ’191 Patent.

Cir. 2007) (“[T]he patentee must be bound by the express definition.”); *Vitronics*, 90 F.3d at 1582 (“The specification acts as a dictionary when it expressly defines terms used in the claims.”).

While Plaintiff’s construction is identical to the specification definition, Defendant proposes that definition with the addition of the limitation that “coupled” or “coupling” also requires “supporting a USB connection,” based on Defendant’s contention that the entire patent concerns USB connections. (D.I. 96 at 8) However, as Defendant acknowledges (*see id.* at 10-11), the terms are used in the patent to relate to connections in addition to USB connections. *See also* ’191 Patent, cl. 9 (claiming “a memory element coupled to the USB hub,” which need not be “USB connection”); col. 7 ll. 56-60 (discussing “[USB] Host controller, coupled to south bridge 113,” which need not be “USB connection”). Defendant’s construction, therefore, is too narrow.

2. “peripheral devices” and “peripheral USB devices”³

Plaintiff⁴ no construction needed, but if needed: devices that communicate with a host computer over USB
Defendant entities that: (i) perform at least one function; (ii) have a USB device controller; (iii) have a USB device class and device, configuration, and interface descriptors; and (iv) are assigned a unique address when enumerated by a USB host while attached to that bus capable of being <i>attached/detached</i> by end users
Court devices that communicate with a host computer over USB

³ “Peripheral devices” appears in claim 1, and “peripheral USB devices” appears in claims 7 and 17 of the ’191 Patent.

⁴ During oral argument, Plaintiff amended its proposed construction. (Tr. at 13)

Defendant argues that “peripheral (USB) devices” is a technical term that will be unclear to lay jurors, and the Court should read into these terms portions of the USB specification, because “every USB device must be in full compliance with the USB specification.” (D.I. 96 at 16) (quoting patent examiner in Office Action)

The ’191 Patent provides sufficient guidance as to the meaning of these terms, without resorting to the USB specification. The ’191 Patent includes several examples of peripheral devices: “USB printers, scanners, digital cameras, storage devices, card readers, etc.” that “may communicate with a host computer system over USB.” ’191 Patent, col. 1 ll. 27-29. These teachings, in combination with the evidence (including expert testimony) that will be provided at trial, and the Court’s adoption of Plaintiff’s proposed construction, will allow jurors to understand how these terms would be understood by a person of ordinary skill in the art (“POSA”). In particular, jurors will understand how a POSA would distinguish between “peripheral devices” and “host devices.” While the Court is not persuaded that it must read requirements from the USB specification into the claim, devices must substantially comply with some USB standard in order to “communicate with a host computer over USB,” as Plaintiff acknowledges (Tr. at 17).

3. “maintain connectivity”⁵

Plaintiff
No construction needed, but if needed: <i>maintain a connection</i>
Defendant
retain the ability of the first host and at least one of the originally connected peripheral devices to engage in USB communications without requiring re-enumeration or reset of that peripheral device
Court
maintain an electrical connection

⁵ This term appears in claims 1, 7, and 17 of the ’191 Patent.

Defendant argues the USB hub must maintain a communication connection between the host and peripheral devices without any reset or re-enumeration. (*Id.* at 24) Defendant also argues that Plaintiff’s proposal would encompass maintaining a mere physical connection, which was disclaimed as part of the prior art. (*Id.* at 25)

The Court is not persuaded that “maintain connectivity” precludes reset or re-enumeration. The ’191 Patent primarily concerns automatic switching, which the specification describes as a process where “the user is not required to manually press buttons, change cables, etc. to initiate the switching, but rather merely connects second host device to USB hub device.” ’191 Patent, col. 5 ll. 12-15 (internal reference numbers omitted). The specification also states that “[b]y enumerating USB switching hub . . . the downstream devices *may not* have to re-enumerate USB switching hub . . . each time a downstream device is switched.” *Id.* at col. 7 ll. 6-11 (emphasis added). Such language does not expressly forbid reset or re-enumeration, although it does teach that avoiding doing so is a preferred embodiment.

While the Court rejects Defendant’s proposed construction, the Court does agree with the criticism of Plaintiff’s originally-proposed construction as improperly encompassing maintaining a mere physical connection.⁶ At oral argument, Plaintiff revised its proposal to be “maintain an electrical connection,” which requires a flow of electrons across the connection (Tr. at 47-48), and this is the construction the Court is adopting. In doing so, the Court is also holding that “maintain an electrical connection” does not cover a “Powered” state – that is, a state in which electrons flow to provide power but without establishing a communication connection – if subsequent communication to the first or second host device requires a user’s manual

⁶ The ’191 Patent distinguishes between a physical connection and a communication connection. *See* ’191 Patent, col. 1 ll. 33-50 (describing process of initiating communication connection after establishing physical connection).

intervention. See USB Spec. Rev. 2.0 at 241-42 (addressing various states of USB-compliant devices). So long as the peripheral device can communicate or resume communication with the first host device *automatically* (i.e., without manual intervention) after attaching a second host device, the device “maintain[s] connectivity.”

4. **“wherein the USB hub is operable to provide connectivity between the first host device and the plurality of peripheral devices when the first host device is connected to the USB hub and the second host device is connected to the USB device”⁷**

Plaintiff “the USB device” refers to the “USB hub”
Defendant Indefinite
Court “the USB device” refers to the “USB hub”

Plaintiff contends that the ’191 Patent contains a scrivener’s error by claiming in this term “the second host device is connected to the *USB device*” (emphasis added), when the patentee clearly meant to claim the second host device (like the first host device) is “connected to the *USB hub*.” (D.I. 96 at 29) Defendant counters that although the error is clear, the correction is not, so Plaintiff must seek correction (if at all) through the Patent Office. (*Id.* at 31) In Defendant’s view, the Court must find the claim as written to be indefinite. Defendant has failed to prove by clear and convincing evidence that the claim would not be understood with reasonable certainty by a POSA. See *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014) (“[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.”); *Dow Chem. Co. v. Nova Chemicals Corp.*

⁷ The disputed recitation of “USB device” appears in claim 1 of the ’191 Patent.

(*Canada*), 809 F.3d 1223, 1227 (Fed. Cir. 2015) (“[T]he burden of proving indefiniteness remains on the party challenging validity and that they must establish it by clear and convincing evidence.”).

Generally – and here – a district court may correct an “obvious minor typographical [or] clerical” error in a patent if and only if (1) “the correction is not subject to reasonable debate based on consideration of the claim language and the specification” and (2) “the prosecution history does not suggest a different interpretation of the claims.” *Novo Indus., L.P. v. Micro Molds Corp.*, 350 F.3d 1348, 1354 (Fed. Cir. 2003).

Here, the correction is not subject to reasonable debate. The specification repeatedly describes a “USB device” in relation to a “hub” and distinct from a “peripheral USB device.” ’191 Patent, col. 2 ll. 36-43 (“An exemplary system may comprise a USB device [and] a plurality of peripheral devices coupled to the USB device. . . . The USB device may be a display device, computer docking station, multimedia player docking station, camera docking station, or any other type of USB device. The USB device may include a USB switching hub. . . .”); col. 3 ll. 4-5 (“As one example, the USB device may be display (monitor) comprising a hub.”). The specification also discloses the same scenario addressed by the claims using the term “USB hub device.” *Id.* at col. 4 l. 64-col. 5 l. 7 (“When second host device 104 is not connected to USB hub device 106, USB switching hub 119 may operate to provide connectivity between . . . first host device 102 and the plurality of peripheral devices coupled to USB hub device 106.”). The specification, therefore, establishes an association between “USB device” and “USB hub.”

Even if there were any ambiguity remaining after this consideration of the claims and the specification (and the Court finds there is not), it would be entirely resolved by reference to the prosecution history. *See Hoffer v. Microsoft Corp.*, 405 F.3d 1326, 1331 (Fed. Cir. 2005)

(looking beyond specification and claims to prosecution history to resolve obvious error). In an Amendment and Response to a Non-Final Rejection, the patentee replaced all recitations (seven in total) of “USB device” with “USB hub” throughout claim 1, except for the single disputed recitation. (D.I. 76-1 at 32) The amendment destroyed the antecedent basis for the lone remaining recitation of “USB device,” which reinforces the Court’s conclusion that failing to amend this last recitation was an error. There is no reasonable dispute that the term should read “USB hub.”

5. “automatic switching”

Plaintiff No construction necessary; the term is not in the claims
Defendant accomplished by using the VBUS signal received from the second host connector to change configurations when the second host is attached; otherwise indefinite
Court No construction necessary; the term is not in the claims. However, the claims do not cover simultaneous connectivity between any one peripheral device and a plurality of hosts.

The term Defendant proposed for construction, “automatically switching,” does not appear in any of the claim terms. Nor has Defendant shown a “clear and unmistakable” disclaimer of “non-automatic switching” which could require Defendant’s proposed limitation to be read as part of every claim. *See Omega Engr., Inc. v. Raytek Corp.*, 334 F.3d 1314, 1326 (Fed. Cir. 2003).

Defendant relies heavily (including in supplemental, post-hearing briefing (D.I. 100, 101)) on the IPR, but the IPR did not address “automatic switching;” rather, it concerned “automatically provide connectivity,” a term which is an express limitation in the claims.⁸ (*See*

⁸ Defendant argues the Patent survived an *inter partes* review (“IPR”) only because Plaintiff represented to the PTAB that all claims require “automatic switching,” and, therefore, all claims should be subject to this limitation based on prosecution history disclaimer. (D.I. 96 at 37-38; D.I. 101 at 1) Plaintiff argues that the IPR addressed *when* a peripheral device connects to the

D.I. 76-1 at 50) (“The patented USB switching hubs and methods automatically provide connectivity of USB peripherals.”); ’191 Patent, cl. 1, 7, 17 (claiming “automatically provide connectivity”) In fact, every mention of “automatic switching” in the IPR Response was a direct quote from the specification, and those statements primarily concerned the “automatic” nature of the invention. (D.I. 76-1 at 54, 73-74) (addressing shortcomings of manual switching found in prior art)

While the parties in the IPR disputed whether the claims require “switching,” the express statements made were in the context of switching between different “state[s] of connectivity,” not whether a peripheral device must disconnect from the first host to automatically connect to the second host. (D.I. 76-1 at 64-65) (“Claim 17 requires switching between the first state of connectivity (Petitioner’s ‘first-host-plural-peripherals’) and the second state of connectivity (Petitioner’s ‘two-host-distributed peripherals’).”) Even though the patentee admitted that “[a]ccording to the USB standard, a USB hub can only be connected to one host at a time” (D.I. 76-1 at 54), which implies peripheral switching must occur in order to be USB-compliant, this statement is not expressly directed at the claimed invention, which seeks both to work around and substantially (although not fully) comply with the USB standard. (Tr. at 16-17)

The parties have not asked the Court to construe “automatically providing connectivity,” which (as already noted) is a claim term. (*See* D.I. 96 at 37-38; D.I. 101 at 3-4; *see also generally Thorner v. Sony Computer Ent. Am. LLC*, 669 F.3d 1362, 1367 (Fed. Cir. 2012) (“It is the claims that define the metes and bounds of the patentee’s invention. The patentee is free to choose a broad term and expect to obtain the full scope of its plain and ordinary meaning unless

second host device, not whether a peripheral device must “switch” by disconnecting from the first host device to connect to the second host device. (D.I. 100 at 2)

the patentee explicitly redefines the term or disavows its full scope.”) (internal citation omitted); *800 Adept, Inc. v. Murex Sec., Ltd.*, 539 F.3d 1354, 1364-65 (Fed. Cir. 2008) (recognizing that prosecution disclaimer is “typically invoked to *limit the meaning of a claim term* that would otherwise be read broadly”) (emphasis added)) Instead, Defendant asks the Court to read a term into each and every claim, which the Court declines to do.

Even though Defendant has not shown clear and unmistakable disclaimer that requires reading “automatic switching” into each claim (and then construing that unclaimed term), the Court is persuaded, based on the specification and statements made during the IPR, that the claims do not cover simultaneous connectivity between any one peripheral device and a plurality of hosts. (See ’191 Patent, Figs. 8a-9b (showing single (i.e., not simultaneous) connections between each of Devices 125 (Figs. 8a-b), 145 (Figs. 9a-b), and host controllers 111, 209 (Figs. 8a-b), 111, 409, 459 (Figs. 9a-b); *id.* at col. 6 ll. 39-42 (“Thus the embodiments described herein provide for automatic switching of *peripherals* from a first host device to a second host device when the second host device is connected to the system.”) (emphasis added); *id.* at col. 9 ll. 18-48, col. 11 ll. 15-35; (see also D.I. 76-1 at 54 (quoting col. 6 ll. 39-42); 63 (“[T]he terms “switch,” “switching,” and “switches” appear in the specification and claims over 200 times, casting doubt on any conclusion that the claims *do not* require switching. . . . If there is no switching, the user . . . would be unable to use the device as expected.”) (emphasis added))

B. The ’243 and ’708 Patents
6. “USB multi-host device”⁹

<p>Plaintiff Preamble is limiting; the “USB multi-host device” or “device” does not operate as a “USB host”</p>
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⁹ This term appears in claims 1-3, 5-7, 10, 16-18, and 23-25 of the ’243 Patent and claims 3, 5, and 6 of the ’708 Patent.

Defendant
Preamble is not limiting and need not be construed
Court
Preamble is not limiting and need not be construed

The parties dispute whether the preamble is limiting and needs to be construed. (D.I. 96 at 49-57) In general, a preamble is construed as a limitation “if it recites essential structure or steps, or if it is necessary to give life, meaning, and vitality to the claim.” *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (internal quotation marks omitted). A preamble is not limiting, however, “where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention.” *Id.* (internal quotation marks omitted).

In *Catalina*, 289 F.3d at 801, 808-09, the Federal Circuit identified several “guideposts” useful for determining whether a preamble constitutes a claim limitation: (1) the claim is written as a Jepson claim; (2) the preamble is essential to understand limitations or terms in the claim body; (3) the preamble establishes antecedent basis for a term in the claim body; (4) the preamble recites structure or steps underscored as important by the specification; or (5) there was clear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art.

In this case, Plaintiff argues the preamble is essential and establishes antecedent basis for a term in the claim body. (D.I. 96 at 49-50; Tr. at 79-80) Plaintiff has not shown that the preambles are essential. As the PTAB noted, the preamble of the independent claims “provides no structural limitation but, instead, the body of the claim sufficiently defines a complete structure and the preambles merely provide a name for the claimed structures.” (D.I. 76-1 at 444-45) The Court is not persuaded the PTAB was wrong.

Nor is the Court persuaded by Plaintiff’s antecedent basis argument. The claim bodies set forth what constitutes “the USB (multi-host) device;” the preambles merely provide a name for the entire claimed device. See ’243 Patent, cls. 1, 3, 7; ’708 Patent, cl. 3. Some of the claim bodies then refer to the entire device, but “offer[] no distinct definition of any of the claimed invention’s limitations, [and] rather merely state[] the purpose or intended use of the invention.” *Pitney Bowes*, 182 F.3d at 1305; see also ’243 Patent, cls. 1, 3, 7; ’708 Patent, cl. 3 (describing first and second hosts as “simultaneously request[ing] access to the USB (multi-host) device”).

The Court also does not share Plaintiff’s concerns that a jury may read “USB multi-host device” as requiring hosts as part of the device. (D.I. 96 at 51) The specification and claims repeatedly emphasize that the USB multi-host device comprises first and second upstream ports configured to *couple* to a first and second host.¹⁰ ’243 Patent, col. 3 ll. 47-51; cl. 1. While the specification and claims may not preclude the multi-host device from being part of a host device, the preambles alone do not require host devices as part of “the USB multi-host device.”

7. “**respective dedicated USB connection / dedicated USB connection**”¹¹

<p>Plaintiff a USB connection that is not shared¹²</p>
<p>Defendant attachment in which each host has separately enumerated and can engage in USB communication with a shared USB device (claim 18) or a shared USB device block operable to be simultaneously configured by two or more USB hosts (claims 23-25), wherein enumeration requires a buffer for maintaining dedicated address, configuration, and response information for the connection</p>
<p>Court a USB connection that is not shared (except that multiple USB connections may alternate, in some manner, communicating across the same shared physical connection)</p>

¹⁰ This also addresses Plaintiff’s second concern: the USB multi-host device need not *comprise* two hosts, but must only be capable of connecting to two hosts. (Tr. at 82)

¹¹ These terms appear in claims 1, 3, 7, 18, 23, and 24 of the ’243 Patent.

¹² In briefing, Plaintiff amended its proposed construction. (D.I. 96 at 64)

The PTAB previously construed “dedicated USB connections” as “a USB connection that may include some shared physical communication path and includes a buffer for maintaining dedicated address, configuration, and response information for the connection.” (D.I. 96 at 59) Plaintiff distinguishes the PTAB’s construction from “*respective* dedicated USB connections,” which Plaintiff argues cannot share a physical connection. (D.I. 96 at 58-63) (emphasis added) The Court’s construction is a modification of Plaintiff’s proposed construction, to clarify that some limited sharing is possible.

Figure 3 shows a USB multi-host device having two ports connected to a USB multi-host device controller, which then connects to the USB device/function block. ’243 Patent, Fig. 3. Plaintiff argues that Figure 3 shows separate physical connections between the upstream ports and *the multi-host controller* (D.I. 96 at 60), but the claim does not end its signal chain at the controller. Instead, the claim states that the multi-host device controller may establish “concurrent respective dedicated USB connections between *the USB device block* and the . . . upstream ports.” ’243 Patent, cl. 1 (emphasis added). Figure 3 suggests that the connection between the multi-host controller and USB device/function block may be a single physical connection.

The specification also discusses a multi-host device controller having an internal arbitration mechanism that could allow each host to access the shared peripheral function by “interleaving” (essentially alternating) host accesses, or using common request/grant structures to hold off one host while another completes its data transfer. ’243 Patent, col. 4 ll. 19-33. The specification envisions that, at some point in the signal chain between the hosts and USB device/function block, the hosts may share a physical connection while still maintaining “dedicated USB connections.”

In these respects, then, some limited shared physical connection is permitted by the claims. When sharing a physical connection, both hosts have access to the device block through that connection, *but not at the same time*, and instead by interleaving. This does not upset the claims' requirement that the connection be "concurrent." When sharing a physical connection, a plurality of dedicated USB connections may exist concurrently (e.g., the peripheral device has been enumerated by each host and has available buffer memory), but each USB connection alternates communicating across the shared physical connection.

The claims do not permit concurrent data streams from one periphery to two different hosts. That is, one packet may be sent to one host and the next packet sent to the other host, and that process may continue to switch back and forth, but it is not the case that packets may be sent to both hosts at the same time.

The Court will not read in the limitations introduced by Defendant and the PTAB concerning how to achieve dedicated USB connections. Defendant has not persuaded the Court that a person of ordinary skill reading the patent would conclude that separate enumeration and respective buffers are the only means of accomplishing such a shared connection in light of the specification and USB standard. The Court concludes more generally that a "USB connection" must substantially comply with some USB standard.

8. “multi-host device controller”¹³ or “controller . . . for accessing a function of the shared USB device block”¹⁴

Plaintiff No construction necessary
Defendant a device that (i) facilitates simultaneous USB connection of two or more host computers to the same USB device and (ii) manages simultaneous requests for access to the USB device from the two or more hosts, and is not: (i) the USB device block, USB device block corresponding to at least one function, or USB device to which the first and second hosts simultaneously request access ('243 Patent, cls. 2, 6, 10, 16, and 17); (ii) the USB function block or simultaneously accessed USB multi-host device ('708 Patent, cl. 6); or (iii) the shared USB device block ('243 Patent, cls. 23-25)
Court No construction necessary

Defendant argues that because a multi-host device controller is a technical phrase without any independent meaning, it must be defined for the jurors. (D.I. 96 at 72) Plaintiff counters that Defendant’s construction recites limitations already in the claim and provides a list of what the controller is not, which is a fact issue of infringement rather than a legal issue of claim construction. (D.I. 71)

The positive limitations Defendant proposes are already in the claim. Specifically, each independent claim defines a multi-host device controller as coupling the USB device/function block to first and second upstream ports or hosts to establish concurrent connections between the block and ports/hosts. '243 Patent, cls. 1, 3, 7; '708 Patent, cl. 3. It is neither necessary, nor helpful to the jury, to repeat these limitations in the Court’s construction. Moreover, Defendant has provided no persuasive reason for reading its proposed negative limitations into the claim. The claim sets forth what constitutes a “multi-host device controller” and what structure is

¹³ This term appears in claims 1-3, 5-8, 10, and 15-17 of the '243 Patent, and claims 3, 5, and 6 of the '708 Patent.

¹⁴ This term appears in claim 23 of the '243 Patent.

distinguishable, and that language controls. *See Thorner*, 669 F.3d at 1367 (“It is the claims that define the metes and bounds of the patentee’s invention.”).

9. “USB device block”¹⁵

Plaintiff
a segment of a USB device that performs at least one function to provide a capability to a host
Defendant
a USB device or segment of a USB device that performs a USB function to provide a capability to a host (after enumeration according to the USB 2.0 specification and the USB device block is not multiple USB devices in a single housing)
Court
a USB device or segment of a USB device that performs a function to provide a capability to a host over USB

The parties dispute: (i) whether USB device block refers to a “USB device” and/or a “segment of a USB device;” (ii) whether it performs a “function” or a “USB function;” (iii) whether enumeration must be in accordance with the USB 2.0 Specification; and (iv) whether the USB device block cannot be multiple USB devices in a single housing.

In the Court’s view, the “USB device block” of the claims can refer to a USB device or a segment of a USB device.¹⁶ This was the view of the PTAB (*see* D.I. 76-1 at 440), and Plaintiff has made no persuasive showing that the Court’s conclusion should be different.

As to the second dispute, the Court agrees with Plaintiff that it is more appropriate to include in the construction “performs a function” instead of “performs a USB function,” as the

¹⁵ This term appears in claims 1, 3, 7, 23 and 24 of the ’243 Patent, and claim 3 of the ’708 Patent.

¹⁶ The specification never uses the term “USB device block.” Instead, the specification describes a “[a] USB device [that] may be divided into three segments or blocks:” (1) “a USB interface . . . necessary to send and/or receive data over the USB;” (2) “an Endpoint Buffer Block, which may include the endpoint buffers that are used by the first and third blocks to buffer data and control reads and writes to/from the USB;” and (3) “the ‘Peripheral Function’ itself, which may include the circuitry necessary for the specific USB device function, for example an Ethernet Controller, printer, Video Camera, etc.” ’243 Patent, col. 2 ll. 38-50.

latter risks being ambiguous, redundant, and unnecessary. (*See* Tr. at 85) Defendant argues that, because the USB 2.0 Specification defines, in part, a “function” as a “USB device,” the function must be a USB function. (*Id.* at 84) Defendant also relies on the PTAB’s construction, which included “USB function.” (*Id.* at 83) But the PTAB inserted “USB” without explanation. (*See* D.I. 76-1 at 440) (noting “[t]he parties essentially agree that the term means ‘a segment of a device that performs a *function*[,]’” yet construing term as “‘a USB device . . . that performs a *USB function*’”) (emphasis added)

As for the third and fourth disputes, Defendant proposes the Court read into the claim additional limitations, none of which is warranted. First, while the patentee stated, “a USB device must be configured before its function(s) may be used” (D.I. 76-1 at 183), this statement does not amount to a disclaimer warranting limiting the claim to the USB 2.0 Specification. Second, while Defendant expresses concern that a jury could misunderstand “device block” as referring to a physical housing, Defendant concedes that “the PTAB considered and rejected the idea that . . . the word ‘device’ . . . imposes any ‘particular physical packaging constraints.’” (D.I. 96 at 84) (quoting IPR Final Written Decision (D.I. 76-1 at 444-45, 447)) The specification discusses “blocks” in the context of different segments in a USB device; no mention is made of a housing or where the blocks are physically located relative to one another. ’243 Patent, col. 2 ll. 38-67.

10. “A shared USB device . . . that corresponds to at least one function”¹⁷

Plaintiff a USB device that provides the same shared function (or functions) to multiple hosts
Defendant a USB device that provides the same shared function (or functions) to multiple hosts, but multiple USB devices do not become a shared USB device by virtue of being placed in a single housing
Court a USB device that provides the same shared function (or functions) to multiple hosts

Defendant asks the Court to define “shared USB device” by what it is not. That is, Defendant asks the Court to hold that a device is not shared by being placed in a single housing with other USB devices. (D.I. 96 at 91) Defendant argues this clarification is necessary because the USB 2.0 Specification describes “compound devices” as multiple USB devices in the same housing (i.e., one device with printer/scanner/copier functionality). (*Id.* at 92) Each functionality, according to Defendant, is considered a separate device and must be separately enumerated. (*Id.*)

The Court is not persuaded that Defendant’s concern necessitates reading its proposed negative limitation into the claim. Combining multiple USB devices in a single housing does not make the devices “shared” according to the ’243 Patent or the portion of the construction the parties agree upon. According to the agreed-upon portion, only if “***a [(i.e., one)] USB device***” provides “***the same shared function*** (or functions) to multiple hosts” does it become a “shared USB device.” As Defendant acknowledges, a POSA would understand that, in the context of the ’243 Patent, “shared” devices are different than compound devices. (*Id.* at 92-93)

¹⁷ This term appears in claim 18 of the ’243 Patent.

III. CONCLUSION

The Court will construe the disputed terms as explained above. An appropriate Order follows.

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

MICROCHIP TECHNOLOGY	:	
INCORPORATED,	:	
	:	
Plaintiff,	:	
	:	
v.	:	C.A. No. 17-1194-LPS-CJB
	:	
APTIV SERVICES US, LLC	:	
	:	
Defendant.	:	

ORDER

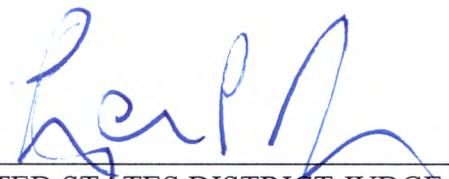
At Wilmington this **17th** day of **June, 2019**:

For the reasons set forth in the Memorandum Opinion issued this date,

IT IS HEREBY ORDERED that the following claim terms of U.S. Patent Nos. 7,478,191 (“the ’191 Patent”), 7,523,243 (“the ’243 Patent”), and 7,627,708 (“the ’708 Patent”) are construed as follows:

Claim Term	Court's Construction
<p>coupled, coupling</p> <p>[claims 1, 7, 8, 9, 17, and 19 of the '191 Patent]</p>	<p>directly or indirectly connected</p>
<p>peripheral devices</p> <p>[claim 1 of the '191 Patent]</p> <p>peripheral USB devices</p> <p>[claims 7 and 17 of the '191 Patent]</p>	<p>devices that communicate with a host computer over USB</p>
<p>maintain connectivity</p> <p>[claims 1, 7 and 17 of the '191 Patent]</p>	<p>maintain an electrical connection</p>
<p>wherein the USB hub is operable to provide connectivity between the first host device and the plurality of peripheral devices when the first host device is connected to the USB hub and the second host device is connected to the USB device</p> <p>[claim 1 of the '191 Patent]</p>	<p>“the USB device” refers to the “USB hub”</p>
<p>automatic switching</p> <p>[this term does not appear in the claims]</p>	<p>No construction necessary; the term is not in the claims. However, the claims do not cover simultaneous connectivity between any one peripheral device and a plurality of hosts.</p>
<p>USB multi-host device</p> <p>[claims 1-3, 5-7, 10, 16-18, and 23-25 of the '243 Patent; claims 3, 5 and 6 of the '708 Patent.]</p>	<p>Preamble is not limiting and need not be construed</p>
<p>respective dedicated USB connection / dedicated USB connection</p> <p>[claims 1, 3, 7, 18, 23, and 24 of the '243 Patent]</p>	<p>a USB connection that is not shared (except that multiple USB connections may alternate, in some manner, communicating across the same shared physical connection)</p>

<p>multi-host device controller</p> <p>[claims 1-3, 5-8, 10, and 15-17 of the '243 Patent, and claims 3, 5, and 6 of the '708 Patent]</p> <p>controller . . . for accessing a function of the shared USB device block</p> <p>[claim 23 of the '243 Patent]</p>	<p>No construction necessary</p>
<p>USB device block</p> <p>[claims 1, 3, 7, 23 and 24 of the '243 Patent; claim 3 of the '708 Patent]</p>	<p>a USB device or segment of a USB device that performs a function to provide a capability to a host over USB</p>
<p>A shared USB device . . . that corresponds to at least one function</p> <p>[claim 18 of the '243 Patent]</p>	<p>a USB device that provides the same shared function (or functions) to multiple hosts</p>



UNITED STATES DISTRICT JUDGE