

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MICROCHIP TECHNOLOGY INC.,
Petitioner,

v.

APTIV TECHNOLOGIES AG,
Patent Owner.

IPR2024-00494
Patent 9,460,037 B2

Before JEAN R. HOMERE, TERRENCE W. McMILLIN, and KEVIN C. TROCK, *Administrative Patent Judges*.

Opinion for the Board filed by *Administrative Patent Judge* McMILLIN.

Opinion Dissenting filed by *Administrative Patent Judge* HOMERE.

McMILLIN, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314

Microchip Technology Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting an *inter partes* review of claims 1, 2, 4, and 6–10 (“the challenged claims”) of U.S. Patent No. 9,460,037 B2 (Ex. 1001, “the ’037 patent”). Aptiv Technologies AG (“Patent Owner”) filed a Preliminary Response (Paper 9, “Prelim. Resp.”).

We have authority to determine whether to institute an *inter partes* review. *See* 35 U.S.C. § 314 (2018); 37 C.F.R. § 42.4(a) (2023). For the reasons stated below, we determine that Petitioner has not established a reasonable likelihood that it would prevail with respect to any claim challenged in the Petition. We therefore deny institution of *inter partes* review.

I. BACKGROUND

A. *Real Parties-in-Interest*

Petitioner identifies itself and its subsidiaries as the real parties-in-interest. Pet. 91. Patent Owner identifies itself and Aptiv Services US, LLC as the real parties-in-interest. Paper 5, 2.

B. *Related Matters*

The parties identify the following proceedings related to the ’420 patent or patents in the same family (Pet. 91–92; Paper 5, 2–3):

Aptiv Technologies AG v. Microchip Technology Inc., Case No. 1:23-cv-00307-JDW (D. Del. filed March 20, 2023);

Microchip Technology Inc. v. Aptiv Technologies AG, IPR2024-00228 (PTAB filed December 27, 2023);

Microchip Technology Inc. v. Aptiv Technologies AG, IPR2024-00229 (PTAB filed December 27, 2023);

Microchip Technology Inc. v. Aptiv Technologies AG, IPR2024-00230 (PTAB filed December 27, 2023);

Microchip Technology Inc. v. Aptiv Technologies AG, PGR2024-00011 (PTAB filed December 27, 2023);

Microchip Technology Inc. v. Aptiv Technologies AG and Aptiv Technologies Limited, IPR2024-00495 (PTAB filed February 27, 2024);

Microchip Technology Inc. v. Aptiv Technologies AG and Aptiv Technologies Limited, IPR2024-00496 (PTAB filed February 27, 2024); and

Microchip Technology Inc. v. Aptiv Technologies AG and Aptiv Technologies Limited, IPR2024-00558 (PTAB filed February 27, 2024);

The IPR2024-00558 proceeding challenges claims 1, 3, 5, and 11–17 of the '037 patent. *See* Paper 4 (“Petitioner’s Explanation for and Ranking of Two Petitions Challenging U.S. Patent No. 9,460,037”).

C. The '037 Patent (Ex. 1001)

The '037 patent relates to a system to enable a vehicle's embedded USB (Universal Serial Bus) host system to connect to multiple mobile devices through a USB hub, regardless of whether the mobile devices are configured to act as USB hosts or USB devices, without USB On the Go (OTG) controllers or additional vehicle wiring or inhibiting the functionality of any consumer devices. Ex. 1001, code (57).

The '037 patent explains that “USB protocols require a point-to-point connection in which one end is the USB Host or master, and the other end is a USB Device or slave. In this way, the flow of messages between the two devices is managed and controlled, whereby the USB Device responds to messages initiated by the USB Host.” *Id.* at 1:32–36. The patent further describes that in vehicle systems that employ USB connections, the vehicle

is typically the USB host and the USB host function is often embedded into a component of the vehicle infotainment system, such as into the radio or other control module. *Id.* at 1:44–56.

As described in the patent, leading mobile device manufacturers and system designers began designing their mobile device products (such as smartphones) to support both USB host and USB device roles. *Id.* at 2:56–65. In other words, a phone may configure itself such that it can function as a USB device when it needs to be, or as a USB host when it needs to be. *Id.*

If a phone acts as a USB host, then the vehicle system will not function because, by USB convention, two USB hosts cannot directly connect with each other. *Id.* at 3:4–17. The patent states that existing solutions to this problem such as On the Go (OTG) technology and dynamic swapping of ports have disadvantages. *Id.* at 3:18–67.

The patent summarizes the invention as follows:

An embodiment of the present invention provides a system which can be employed between a vehicle's embedded USB Host and at least one, but preferably multiple, consumer facing USB ports provided in the vehicle for connection to consumer devices. The system is configured to recognize and control whether the consumer device is required to be connected to each USB port as a USB Host or as a USB Device. Further, the system is able to dynamically switch the device connection between USB Device mode and USB Host mode when desired. In the case where the consumer device is acting as a USB Device, signals are routed normally through a USB Hub to the Head Unit. In the case where the consumer device is acting as a USB Host, signals between the consumer device and the vehicle's embedded USB Host are routed and processed through a USB Host to Host Bridge which is connected to the USB Hub, thereby rendering the consumer device compatible with the vehicle's embedded USB Host.

Id. at 4:12–30.

Figure 4, reproduced below, illustrates an embodiment wherein a USB hub, a USB bridge, and a switching device are provided as discrete components. *Id.* at 5:21–24.

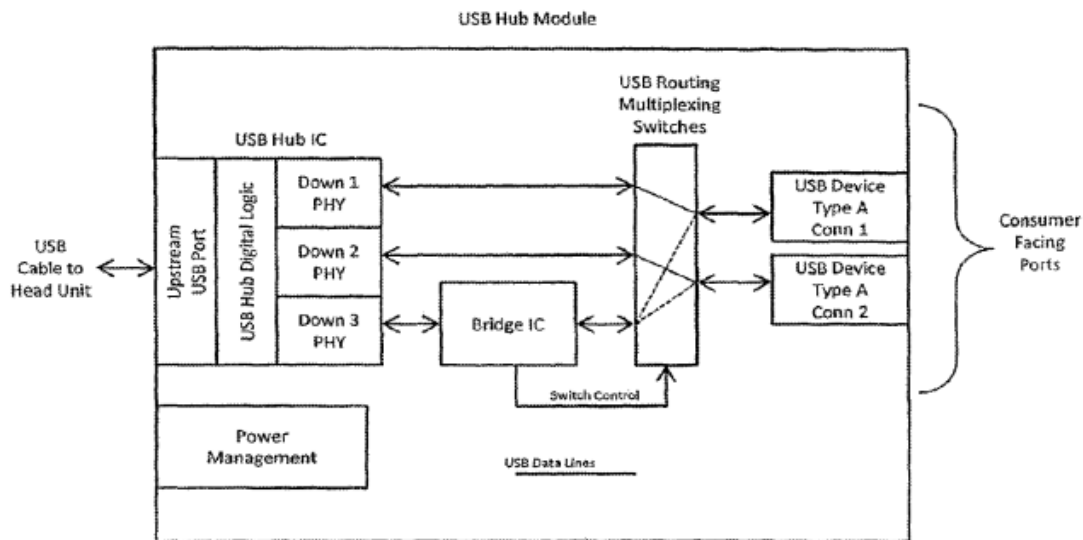


Figure 4 depicts a system configured to render a vehicle's embedded USB host compatible with consumer devices configured to act as a USB host or as a USB device. *Id.* at 5:46–6:18. The system is in the form of a USB hub module having a USB hub IC (integrated circuit), a USB bridge IC, and a switching device having switches. *Id.* The USB hub IC is configured to be connected (via an upstream USB port) to a vehicle's embedded USB host (such as a USB host in a head unit) via vehicle internal wiring. *Id.*

The USB hub IC also includes three downstream USB ports, one of which is connected to the USB bridge IC. *Id.* Two downstream USB ports of the USB hub IC are connected to the switches, such as multiplexing switches. *Id.* The switches are connected to two USB ports in the vehicle, for connection to a consumer device. *Id.* The USB bridge effectively controls the switches. *Id.* The USB hub module is configured such that signals received from a USB port are received by the switching device, and

the switching device routes the signals to the USB bridge or the USB hub.
Id.

In the case where the consumer device is acting as a USB host, the USB bridge IC processes the USB packets from the consumer port and provides them to the USB hub IC, thereby rendering the consumer device compatible with the vehicle's embedded USB host. *Id.* The bridge may be bidirectional and pass USB traffic between two USB hosts. *Id.* at 7:54–66. In the case where the consumer device is acting as a USB device, the USB bridge IC controls the switching device such that the switching device provides the USB signaling directly to the USB hub, bypassing the bridge. *Id.* at 6:10–13.

“The architecture illustrated is capable of handling both the operation and data paths associated with the Bridge and the Hub at the same time, thus allowing concurrent operation of consumer devices operating in USB Device mode with consumer devices operating in USB Host mode.” *Id.* at 8:59–63.

D. Illustrative Claim

Claim 1 is the only independent claim of the '037 patent. Ex. 1001, 9:13–10:51. Claim 1 recites:

A system disposed within a vehicle, comprising:
an embedded Universal Serial Bus (USB) Host system;
a USB Hub having a plurality of USB Ports and
interconnected to the embedded USB Host system, said USB
Hub configured to simultaneously broadcast data from the
embedded USB Host system to each USB Port in the
plurality of USB Ports and to transmit data from each USB
Port to the embedded USB Host system;
a USB Bridge interconnected to the USB Hub and configured
to connect the embedded USB Host system to a second USB
Host; and

a USB routing switch interconnected to the USB Bridge, the USB Hub, and the plurality of USB Ports, wherein the USB routing switch is configured to connect a first USB Port of the plurality of USB Ports to the USB Hub through the USB Bridge when a consumer device connected to the USB Port is the second USB Host and is configured to initiate bidirectional communication with the embedded USB Host, and wherein the USB routing switch is configured to connect the first USB Port directly to the USB Hub when the consumer device connected to the first USB Port is configured to only respond to communication from the embedded USB Host, thereby rendering the consumer device compatible with the embedded USB Host system.

Id. at 9:13–37 (emphasis added).

E. Cited Art

Petitioner relies on the following references:

U.S. Patent Application Publication No. 2006/0206650 A1, filed August 16, 2005, published September 14, 2006 (Ex. 1014, “Chang”);

U.S. Patent Application Publication No. 2009/0268743 A1, filed May 22, 2008, published October 29, 2009 (Ex. 1015, “Chang II”); and

US Patent No. 8,447,598 B2, issued May 21, 2013 (Ex. 1029, “Chutorash”).

F. Asserted Grounds

Petitioner challenges claims 1, 2, 4, 6, and 6–10 of the ’037 patent based on the following grounds (Pet. 4–5):

Claims Challenged	35 U.S.C. §	References
1, 2, 4, and 6–10	103	Chang, Chang II
1, 2, 4, and 6–10	103	Chang, Chang II, Chutorash

Petitioner filed a Declaration of Eric Welch (Ex. 1013) in support of its Petition. Patent Owner filed a Declaration of Henry Houh (Ex. 2001) in support of its Preliminary Response.

II. ANALYSIS

A. *The Petition Is Contingent*

In an *inter partes* review, our claim construction standard is the same as that of a district court. 37 C.F.R. § 42.100(b). Under the standard applied by district courts, claim terms are generally given their plain and ordinary meaning, as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc).

Our rule relating to claim construction provides that “[a]ny prior claim construction determination concerning a term of the claim in a civil action . . . that is timely made of record in the *inter partes* review proceeding will be considered.” 37 C.F.R. § 42.100(b). We have considered the District Court’s claim construction Order and Memorandum (Ex. 1080) that was timely made of record by Petitioner in this proceeding (Paper 8).

Petitioner contends that claim 1 should be construed in accordance with Patent Owner’s implied construction of claim 1 as set forth in Patent Owner’s infringement contentions in the district court litigation between the parties. Pet. 26–30. However, Petitioner requests that we adopt this construction for claim 1, only if, Patent Owner’s interpretation is adopted in

the district court litigation. Pet. 26 (“[I]f the district court adopts [Patent Owner]’s proposed interpretation of claim 1 (EX1076, 11–15; EX1072, 339), the PTAB should analyze patentability under the district court’s construction.”), *id.* (“[I]f the district court adopts [Patent Owner]’s construction, Petitioner requests the Board institute under the district court’s claim construction and find the Challenged Claims unpatentable.”), 29–30 (“Petitioner demonstrates unpatentability of the Challenged Claims under this construction.” (footnote omitted)). Thus, the construction of claim 1 proposed in the Petition is contingent upon a particular construction of claim 1 being adopted in the district court litigation.

Petitioner argues that, in the district court litigation, Patent Owner contends that, in the phrase “a USB Hub *having* a plurality of USB ports” as recited in claim 1 (*see* Ex. 1001, 9:15 (emphasis added)), the term “having” means “interconnected to.” Pet. 29. The District Court considered the arguments of the parties regarding this limitation in claim 1 (Ex. 1080, 13–16),¹ but decided not to construe this limitation (*id.* at 16 (“[I]t is unclear to me if ‘having’ requires further construction. Thus, I will not construe the term.”)).² The contingency upon which the claim construction in the

¹ There are two sets of page numbers on these pages of Exhibit 1080. We refer to the page numbers added to Exhibit 1080 for purposes of this proceeding and set forth in the lower, right corner of the pages. Pages 13–16 of Exhibit 1080 correspond to pages 10–13 of the original document.

² In an email to the Board, Petitioner contends that it could not have anticipated this outcome. Ex. 3001 (“Petitioner could not reasonably anticipate when it filed the Petition that the district court would make such a statement after finding the claim not indefinite.”). Patent Owner argues to the contrary. Ex. 3002 (“Patent Owner disagrees that Petitioner could not reasonably have anticipated that the district court would not construe the term ‘having’ since neither party proposed a construction for that term—a

Petition is based has not been met and, according to its own terms, the Petition should be denied.³

B. The Proposed Construction of Claim 1 Is Not Persuasively Argued Or Adequately Supported

Petitioner disagrees with Patent Owner’s proposed interpretation of claim 1 and, in the district court litigation, contends that claim 1 is indefinite.⁴ Pet. 27 (“Petitioner argues in the district court that claim 1 is indefinite.”); *see also id.* at 28–30 (discussing the indefiniteness of claim 1). Thus, the proposed claim construction upon which the Petition is based is contingent upon adopting a claim construction that Petitioner opposes in the district court litigation and that Petitioner believes is incorrect. In addition, the Petition does not include any explanation or reasoning to support the proposed construction. *See id.* at 26–30. Instead, the Petition refers to the rationale set forth in a brief filed by Patent Owner in the district court litigation. *Id.* at 29 (referring to Exhibit 1076 (Patent Owner’s Opening Claim Construction Brief from the district court litigation)).⁵ This is an

fact Petitioner knew when it filed its Petitions.”). Patent Owner is correct. In the district court litigation, Petitioner contended that claim 1 was indefinite; Patent Owner contended that claim 1 was not indefinite; and the parties argued that the issue was one of indefiniteness. *See Ex. 1080*, 13–16. It does not appear that either party proposed a construction in the district court litigation. *See id.*

³ This is the only contingency upon which the Petition is based. Petitioner does not argue, for example, that trial should be instituted, if in the district court litigation, claim 1 is not found to be indefinite and the disputed language in claim 1 is not construed.

⁴ Indefiniteness is not within the scope of this proceeding. *Cuozzo Speed Techs., LLC v. Lee*, 579 U.S. 261, 275 (2016).

⁵ Moreover, our review of the docket from the district court litigation indicates that there has been considerable additional briefing and oral

improper incorporation by reference. 37 C.F.R. § 42.6(a)(3) (“Arguments must not be incorporated by reference from one document into another document.”). With regard to construction of the phrase “a USB Hub **having** a plurality of USB ports” as recited in claim 1, the Petition states that “[i]n the district court, Petitioner argues that this limitation cannot be squared with claim elements 1[d], [e], and [f]⁶ which require particular connections between the USB hub, ports, bridge, and routing switch.” Pet. 28. Thus, Petitioner contends that the intrinsic evidence shows that claim 1 is indefinite and does not support Patent Owner’s interpretation.

Petitioner’s declarant, Mr. Welch, testifies that claim 1 is indefinite. Ex. 1013 ¶ 216. The only explanation given for adopting Patent Owner’s proposed construction is that the declarant was instructed by Petitioner’s counsel to do so. *Id.* ¶ 217 (“I have been instructed by counsel for [Petitioner] to apply [Patent Owner]’s proposed construction . . . for purposes of rendering my prior art invalidity opinions in this Declaration.”). Neither the Petition nor the supporting declaration contain adequate explanation or reasoning for us to consider the proposed construction.

With regard to claim construction, Patent Owner’s Preliminary Response states:

For purposes of this Petition, Petitioner adopts [Patent Owner]’s proposed construction in parallel district court

argument in the district court litigation on the claim construction issues. We have not had the benefit in this proceeding of adequate briefing and argument on claim construction. We decline to analyze and adopt a claim construction on the inadequate record here.

⁶ Claim elements 1[d], [e], and [f] are defined in the bolded headings on pages 62, 64, and 68, respectively, of the Petition.

litigation.^[7] (Pet., 29-30) At this time, Patent Owner sees no need for the Board to further construe any claim language because the Board need only construe terms that are in controversy. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368 (Fed. Cir. 2019).

Prelim. Resp. 21 (footnote omitted). As noted previously, Patent Owner did not propose a construction relating to the phrase “a USB Hub **having** a plurality of USB ports” as recited in claim 1 in the parallel district litigation, but, instead, argued against Petitioner’s contention that it was indefinite. *See* Ex. 1080, 13–16. Thus, Patent Owner contends that we need not engage in any claim construction relating to the phrase “a USB Hub **having** a plurality of USB ports” as recited in claim 1. Accordingly, Patent Owner does not provide any argument or evidence relating to construction of this phrase. *See id.*

We do not adopt the claim construction upon which the Petition relies because it is not persuasively argued or adequately supported by either party.⁸

⁷ It is clear that Patent Owner is referring to the agreed-upon construction of “embedded Universal Serial Bus (USB) Host” in the preamble of claim 1. *See* Ex. 1080, 3; *see also* Pet. 30. There is no agreed-upon construction of the phrase “a USB Hub **having** a plurality of USB ports” as recited in claim 1. As noted, Petitioner argues this phrase renders claim 1 indefinite. *See* Pet. 26 (“Petitioner argues in district court that claim 1 is indefinite.”), 28–30.

⁸ In a proceeding involving a related patent, IPR2024-00496, Petitioner contends that the parties had an agreed-upon construction relating to the phrase “a USB Hub **having** a plurality of USB ports.” IPR2024-00496 Paper 11, 11–13. This is inaccurate. Petitioner does not direct our attention to any such agreement and we find none in the record of that or this proceeding.

C. The Petition Fails To Show The Cited Art Discloses All Elements of Claim 1 As Recited

As noted above, challenged claim 1 is the only independent claim of the '037 patent. Ex. 1001, 9:13–10:51. All the remaining challenged claims (claims 2–17) are directly or indirectly dependent on claim 1 and, by virtue of their dependency on claim 1, incorporate the limitation “a USB Hub **having** a plurality of USB ports” as recited in claim 1. *See* 35 U.S.C. § 112(d) (“A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.”).

Petitioner maps the cited art to claim 1 as incorporating the interpretation of claim 1 proposed by Patent Owner in the district court litigation. *See* Pet. 56–59. Specifically, in the Petition, the phrase “a USB Hub **having** a plurality of USB ports” is rewritten by Petitioner to read “a USB Hub **[interconnected to]** a plurality of USB ports” or as rewritten with “**possessing**” in place of “interconnected to.” *Id.*⁹ The Petition alleges unpatentability under this construction. *Id.*; *see also id.* at 27 (“Petitioner demonstrates unpatentability of the Challenged Claims under this construction.” (footnote omitted)).

As discussed above, Petitioner contended, in the district court litigation, that “having” as recited in claim 1 rendered the claim “nonsensical” and, thus, indefinite. Ex. 1080, 13–14. And, the District Court considered whether “having” had the same meaning in the context of claim 1 of the '037 patent as “interconnected to” or “possessing” and

⁹ The Petition states that, “[f]or ease of analysis, Petitioner uses [Patent Owner]’s ‘interconnected to’ language since that phrase is used elsewhere in the claims, but the results are the same if ‘possessing’ was used instead.” Pet. 30 n.11.

determined that these terms were not equivalent. *Id.* at 14. We agree with the District Court.

Thus, the Petition fails to provide a showing that the cited art teaches or suggests “a USB port ***having*** a plurality of USB ports” as recited in sole independent claim 1 of the ’037 patent.

D. Summary

We decline to institute trial because: (1) the claim construction contingency in the Petition has not been met; (2) the claim construction proposed in the Petition is not persuasively argued or adequately supported; and (3) the Petition fails to show that all the limitations of any challenged claim are taught or suggested by the cited art. Petitioner has failed to show a reasonable likelihood that it will prevail in establishing the unpatentability of challenged independent claim 1 or any of the challenged dependent claims.

III. CONCLUSION

For the foregoing reasons, we have determined that Petitioner has not established a reasonable likelihood of prevailing with respect to any claim. Therefore, we do not institute an *inter partes* review.

IV. ORDER

Accordingly, it is

ORDERED that the Petition is *denied*, and no trial is instituted.

IPR2024-00494
Patent 9,460,037 B2

PETITIONER:

Travis Jensen
T61ptabdocket@orrick.com

Jeremy Lang
Ptabdocketj12@orrick.com

PATENT OWNER:

Alex Yap
aypa@mofo.com

Mehran Arjomand
marjomand@mofo.com

Andrew Jones
andrewjones@mofo.com

HOMERE, *Administrative Patent Judge*, dissenting.

I write separately to voice my disagreement with the majority's decision not to institute trial in this *inter partes* review. Dec. 14.

As a preliminary matter, I note that the majority repeats herein, almost *verbatim*, the same fact findings, legal precedent, analysis and conclusions that the same majority previously laid out in related IPR2024-00496, mailed August 29, 2024 ("the '496 dec."). To the '496 dec., I appended a comprehensive 27-page dissent detailing my disagreement with the majority's refusal to institute ("the '496 dissent"). In particular, I presented (1) an independent claim construction, (2) an analysis of Petitioner's challenges, and (3) I determined that "the information presented establishes a reasonable likelihood that Petitioner would prevail in showing that at least one challenged claim of the '899 patent is unpatentable." *See generally* the '496 dissent. Petitioner subsequently submitted a Request for Director review¹⁰ of the '496 dec. ("Pet. Director Rev. Req."), which is currently pending.

Because, in this *inter partes* review, the majority's decision incorporates a substantial portion of the '496 dec., I likewise incorporate herein by reference the relevant portions of the '496 dissent.

¹⁰ *See* Pet. Director Rev. Req. 3 (stating "[t]he majority abused its discretion by failing to (1) construe the claims to the extent necessary to resolve the controversy; (2) perform any prior art analysis; and (3) address all of Petitioner's arguments.").

IPR2024-00494
Patent 9,460,037 B2

In light of the foregoing reasons, I respectfully dissent from the majority's decision.