

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

QUALCOMM INCORPORATED,
Petitioner,

v.

FEDEX CORPORATE SERVICES, INC.,
Patent Owner.

IPR2022-00587
Patent 9,974,042 B2

Before LYNNE E. PETTIGREW, BARBARA A. PARVIS, and
CHRISTOPHER L. OGDEN, *Administrative Patent Judges*.

PARVIS, *Administrative Patent Judge*.

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

I. INTRODUCTION

Qualcomm Incorporated (“Petitioner”) filed a Petition (Paper 1 (“Pet.”)) requesting *inter partes* review of claims 1–32 (“challenged claims”) of U.S. Patent No. 9,974,042 B2 (Ex. 1001, “the ’042 patent”), along with the supporting Declaration of Michael Kotzin, Ph.D. (Ex. 1006). FedEx Corporate Services, Inc. (“Patent Owner”) filed a Preliminary Response (Paper 9 (“Prelim. Resp.”)).¹ With our authorization, Petitioner filed a Preliminary Reply to the Preliminary Response (Paper 12, “Prelim. Reply”) relating to whether Petitioner correctly identifies all real parties-in-interest, and Patent Owner filed a Preliminary Sur-reply in response to the Preliminary Reply (Paper 13, “Prelim. Sur-reply”).

The standard for institution is set forth in 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted unless the information presented in the Petition and the Preliminary Response shows that “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314; *see also* 37 C.F.R. § 42.4(a) (“The Board institutes the trial on behalf of the Director.”). Upon consideration of the parties’ contentions and the evidence of record, we conclude that Petitioner has not established a reasonable likelihood of prevailing in demonstrating the unpatentability of any challenged claim of the ’042 patent. Accordingly, we do not grant Petitioner’s request and do not institute an *inter partes* review.

¹ Patent Owner filed confidential and redacted versions of its Preliminary Response as Papers 8 and 9, respectively. Herein we refer to the redacted version of Patent Owner’s Preliminary response, unless otherwise specified.

II. BACKGROUND

A. *Real Parties-in-Interest*

Petitioner identifies itself as the real party-in-interest. Pet. 6. Patent Owner names itself as the real party-in-interest. Paper 3, 1.

Patent Owner argues that Petitioner should have named Roambee Corp. (“Roambee”) as a real party-in-interest. *See, e.g.*, Prelim. Resp. 1. Patent Owner argues we should decline to institute review because Petitioner failed to comply with the requirement to name real parties-in-interest in good faith, which prevents Petitioner from maintaining the Petition’s original filing date. *Id.* at 1–2. We need not address Patent Owner’s arguments relating to naming the real parties-in-interest because we do not institute review for other reasons discussed herein.

B. *Related Matters*

Pursuant to 37 C.F.R. § 42.8(b)(2), the parties inform us that the ’042 patent is involved in the following district court case: *FedEx Corporate Services, Inc. v. Roambee Corp.*, No. 1:21-cv-00175 (D. Del. 2021). Pet. 6, Paper 3, 1.

Petitioner also has contemporaneously filed petitions for review of additional patents as follows: (1) a petition for *inter partes* review of U.S. Patent No. 7,623,033 B2 (IPR2022-00584); (2) a petition for *inter partes* review of U.S. Patent No. 8,766,797 B2 (IPR2022-00585); and (3) a petition for *inter partes* review of U.S. Patent No. 9,182,231 B2 (IPR2022-00586).

C. *The ’042 Patent*

The ’042 patent is titled “Node-enabled Monitoring of a Piece of Equipment using a Hierarchical Node Network. Ex. 1001, code (54). The ’042 patent generally relates to systems, apparatus, and methods in the field of tracking items such as a package, a person, or a piece of equipment. *Id.* at

1:15–17. The '042 patent describes monitoring a piece of equipment using a hierarchical node network having at least an identifier (ID) node, a master node, and a server. *Id.* at code (57).

More specifically, the '042 patent describes an exemplary node-enabled transport vehicle navigating using nodes in a wireless network, as shown in Figure 67A below. *Id.* at 7:37–39.

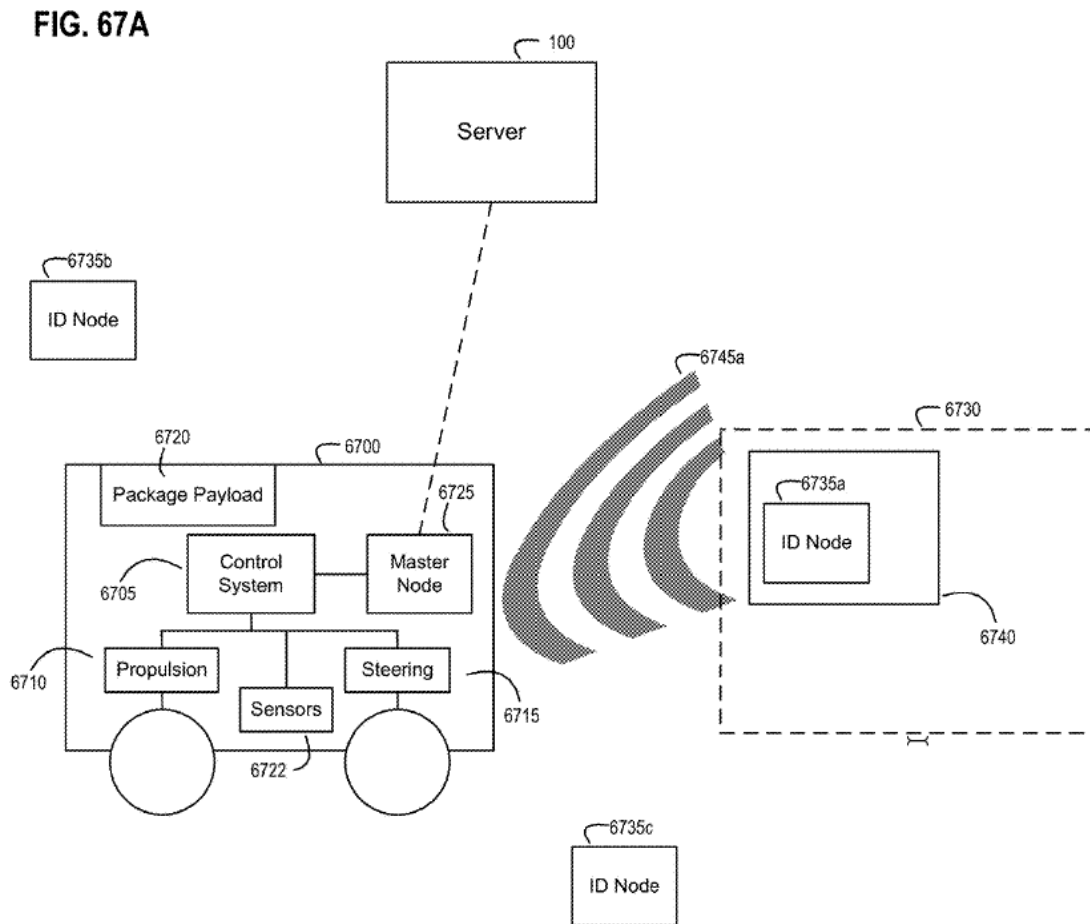


Figure 67A, above, illustrates node-enabled autonomous vehicle 6700 navigating using nodes in a wireless network. *Id.* at 7:37–39, 222:30–32.

Vehicle 6700 includes sensors 6722 and master node 6725 that communicates with server 100 over a long-range communication interface. *Id.* at 222:45–54. Exemplary long-range communication interfaces include

Institute of Electrical and Electronics Engineers (IEEE) 802.11g compliant WiFi transceiver and a cellular radio. *Id.* at 26:32–40. Master node 6725 is integrated into a processor-based system within the electronics onboard vehicle 6700. *Id.* at 222:54–59.

Figure 67A shows ID nodes 6735a–6735c at different locations relative to vehicle 6700. *Id.* at 223:57–58. ID nodes 6735a–6735c operate by broadcasting advertising signals to help vehicle 6700. *Id.* at 223:57–61. Master node 6725 identifies one of ID nodes 6735a–6735c at a desired location, associates with that ID node, instructs that ID node to lower the broadcasting power, and determines the location of the ID node based on sensing the lowered broadcasting power. *Id.* at 223:61–67.

D. Illustrative Claim

Petitioner challenges claims 1–32 of the '042 patent. Pet. 8. Claims 1 and 17 are the independent claims. Claims 2–16 depend, directly or indirectly, from claim 1. Claims 18–32 depend, directly or indirectly, from claim 17. Independent claim 1, reproduced below, is illustrative of the claimed subject matter.

1. [1.p]² A method for monitoring a piece of equipment using a hierarchical node network having at least an ID node, a master node, and a server, the method comprising:

[1.a.i] associating, by the master node, the master node and the ID node when the master node detects a signal broadcast from the ID node without requesting that the ID node broadcast the signal, [1.a.ii] wherein the ID node is associated with the piece of equipment and operative to monitor an operation of the piece of equipment [1.a.iii] and to communicate directly with the master node

² We use Petitioner's designations to refer to the elements of the claim. Pet. 37–52.

[1.a.iv] but is unable to directly communicate with the server, [1.a.v] and wherein the master node is operative to directly communicate with the server and separately communicate with the ID node;

[1.b] determining, by the server, a location of the ID node;

[1.c] detecting, by the ID node, an actionable event related to the operation of the piece of equipment;

[1.d] transmitting, by the ID node to the master node, a message reporting the actionable event;

[1.e] notifying the server by the master node about the actionable event; and

[1.f] initiating, by the server, a responsive action based upon the notification.

Ex. 1001, 252:10–32.

E. Evidence

Petitioner relies on the patent document references summarized below.

Name	Patent Document	Exhibit
Davidson	US 9,256,992 B2, issued Feb. 9, 2016, filed Mar. 30, 2012	1003
Benson	US 2007/0002139 A1, published Jan. 4, 2007	1005

Petitioner relies on the non-patent literature reference summarized below.

Name	Non-Patent Literature Title	Author(s)	Exhibit
Heydon	Bluetooth Low Energy: The Developer's Handbook (2013).	Robin Heydon	1004

F. Asserted Grounds

Petitioner asserts that the challenged claims of the '042 patent are unpatentable based on the following grounds summarized below (Pet. 8):

Claims Challenged	35 U.S.C. § ³	References/Basis
1–32	103	Davidson, Heydon
3, 4, 19, 20	103	Davidson, Heydon, Benson

III. ANALYSIS

A. *Legal Standards*

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, objective evidence of obviousness or nonobviousness, i.e., secondary considerations.⁴ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. *Level of Ordinary Skill in the Art*

Petitioner asserts a

person of ordinary skill in the art (“POSITA”) as of November 29, 2013 . . . would have had at least a bachelor’s degree in electrical engineering, computer engineering, or a related field, and at least two years of experience in design, development and/or testing of hardware and software used in wireless sensor-based networks and/or networking and associated software, or

³ Because the challenged claims of the ’042 patent have an apparent effective filing date after March 16, 2013, the 35 U.S.C. §§ 102 and 103 provisions of the Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, §§ 3(b)–3(c), 3(n)(1), 125 Stat. 284, 285–87, 293 (2011) apply.

⁴ Neither party presents objective evidence of obviousness or nonobviousness.

the equivalent, with additional education substituting for experience and vice versa.

Pet. 9 (citing Ex. 1006 ¶ 39). Patent Owner does not dispute the qualifications of a person having ordinary skill in the art proposed by Petitioner. *See generally* Prelim. Resp.

On the current record, we find Petitioner’s contentions that the skilled artisan would have had “*at least* a bachelor’s degree” and “*at least* two years” of experience to be too vague as Petitioner’s contentions encompass skill levels beyond the proposed level without a defined limit. We, therefore, adopt Petitioner’s proposal except we do not adopt the “at least” terminology above. We determine that with our changes Petitioner’s proposal is consistent with the level of skill reflected in the ’042 patent Specification and the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

C. Claim Construction

We construe the challenged claims by applying the standard used in federal courts, in other words, “the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b),” which is articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b) (2021). Under this standard, the words of a claim generally are given their “ordinary and customary meaning,” which is the meaning the term would have to a person of ordinary skill at the time of the invention, in the context of the entire patent including the specification. *Phillips*, 415 F.3d at 1312–13.

Neither party provides an express construction for any term of the challenged claims. Pet. 18; *see generally* Prelim. Resp. For the reasons provided below, we do not discern a need to construe explicitly any claim

terms because doing so would not change the outcome of the analysis below. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (stating that “we need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

D. Obviousness over Davidson and Heydon—Claims 1–32

Petitioner asserts that claims 1–32 would have been obvious over Davidson and Heydon. Pet. 8. Patent Owner disputes Petitioner’s showing. *See, e.g.*, Prelim. Resp. 48–61. We begin with summaries of Davidson and Heydon and then we turn to the parties’ dispute.

1. Davidson

Davidson is titled “Systems and Methods for Assessing Vehicle Handling.” Ex. 1003, code (54). Davidson relates to efficiency management systems for evaluating operational efficiencies based on operational data. *Id.* at 1:18–20. Davidson describes fleet management system 5 that manages and evaluates the operation of a fleet of vehicles, which is illustrated in Figure 2 below. *Id.* at 6:55–57.

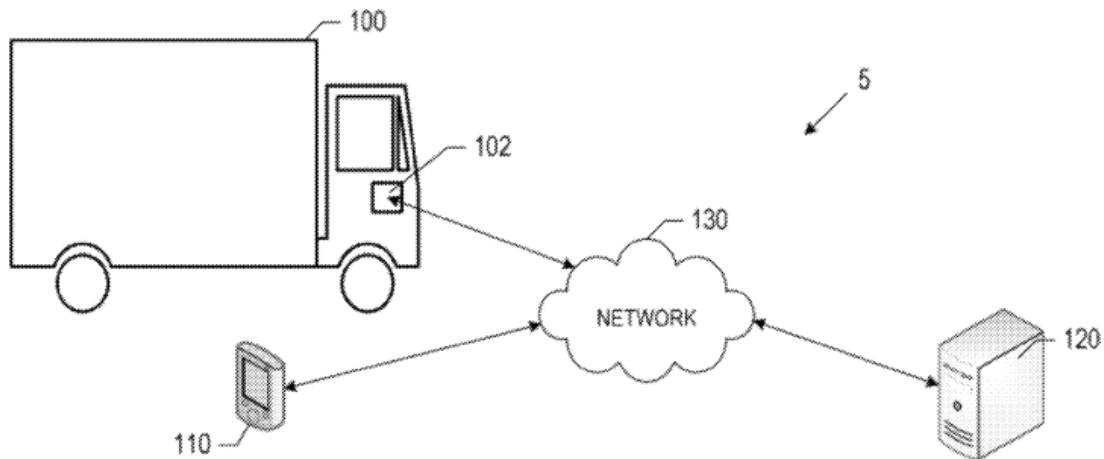


FIG. 2

Figure 2 of Davidson, above, is a block diagram of fleet management system 5 comprising vehicle telematics device 102 positioned on delivery vehicle 100, portable data acquisition device 110, and central server 120. *Id.* at 2:44–45, 6:43–46.

Davidson describes that telematics device 102, portable data acquisition device 110, and central server 120 “are configured to communicate with each other via a communications network 130 (e.g., the Internet, an Intranet, a cellular network, or other suitable network).” *Id.* at 6:46–50. Davidson further describes the following:

Although the telematics device 102, portable data acquisition device 110, and central server 120 are illustrated in FIG. 2 as communicating with one another over the same network 130, these devices may likewise communicate over separate networks. For example, while the telematics device 102

may communicate with the portable data acquisition device 110 over a wireless personal area network (WPAN) (e.g., using Bluetooth™ techniques), the telematics device 102 and/or portable data acquisition device 110 may communicate with the central server 120 over a wireless wide area network (WWAN) (e.g., in accordance with EDGE [Enhanced Data GSM Environment], or some other 2.5G [2.5 generation], 3G [third-generation], or 4G [fourth-generation] wireless communication protocol).

Id. at 8:29–40.

Telematics device 102 includes, among other things, processor 201, a location-determining device or sensor 202 (e.g., GPS (Global Positioning System) sensor), port 206 for receiving data from vehicle sensors 410 located in vehicle 100, and radio frequency identification (RFID) tag 212.

Id. at 9:56–63. Telematics device 102 is configured to capture and store telematics data from vehicle sensors 410 at predetermined time intervals in response to detecting the occurrence of one or more predefined vehicle events. *Id.* at 11:35–40. Exemplary vehicle events include the engine idling and vehicle speed exceeding a certain threshold. *Id.* at 11:40–44.

2. *Heydon*

Heydon is titled “Bluetooth Low Energy: The Developer’s Handbook.” Ex. 1004, 1. Heydon describes Bluetooth low energy technology including the architecture of the system and protocol layers. *Id.* at 17. For instance, Heydon describes a device using an advertising channel to find another device with one device advertising and another device scanning. *Id.* at 112. Heydon describes that an advertising packet’s payload includes “a 6-octet address for the advertising device.” *Id.* at 105.

3. *Independent Claim 1*

The parties' dispute whether the asserted prior art teaches element 1.a.iv, i.e., "but is unable to directly communicate with the server."

a) *Petitioner's Contentions*

In Petitioner's element-by-element analysis, the entirety of Petitioner's contentions for element 1.a.iv are as follows:

Davidson-Heydon discloses this limitation. EX1006, ¶98. As discussed in Section IX.A.4, the Davidson-Heydon combination starts from the embodiment of Davidson in which in which [sic] "telematics device 102" and "portable data acquisition device 110" on one hand, and "portable data acquisition device 110" and "central server 120" on the other hand "***communicate over separate networks***," "telematics device 102 communicate[s] with the portable data acquisition device 110 over a wireless personal area network (WPAN) (e.g., using Bluetooth™ techniques)" (specifically, a Bluetooth LE network), and "portable data acquisition device 110 [] communicate[s] with the central server 120 over a wireless wide area network." EX1003, 8:29-40; EX1006, ¶98. Davidson describes this embodiment in contrast to another embodiment in which "telematics device 102, portable data acquisition device 110, and central server 120 are illustrated in FIG. 2 as communicating with one another over the same network." EX1003, 8:29-33.

Pet. 43-44.

Section IX.A.4 of the Petition, referred to in Petitioner's contentions above, describes Petitioner's contentions regarding using Heydon's teachings relating to Bluetooth LE devices with Davidson's teachings. Pet. 32-37. For instance, Petitioner provides contentions regarding details of telematics device 102's role as advertiser and portable data acquisition device 110's role as scanner/initiator and asserts those roles are consistent with their roles as "peripheral" and "central," respectively. *Id.* at 33-35.

We also consider a section entitled “Motivation to Combine” in the Petition. In that section, relying on the testimony of Dr. Kotzin, Petitioner contends that a person having ordinary skill in the art “would be motivated to start” with the embodiment above “because such an embodiment enables simplification and cost savings for the telematics unit 102 by omitting additional hardware to conduct communications over a wireless wide area network.” *Id.* at 31–32 (citing Ex. 1006 ¶ 76; Ex. 1017, 15:32–40; Ex. 1018, 10:15–17; Ex. 1019 ¶ 128). In support of its contention, Petitioner submits the testimony of Dr. Kotzin as follows:

A POSA would also have been motivated to utilize Benson’s hierarchical system to obtain the known benefit of reduced costs for the “remote sensor units” “only doing a subset of the master device functions.” Benson at [0050]. Lau also recognizes this same benefit. Specifically, Lau likewise discloses a hierarchical sensor system of position-calculating devices and position-sensing devices in which “the position-sensing devices” can “be made compact” and “can be relatively inexpensive” because they need not “include circuitry to perform” functionality delegated to the higher-level device. Lau at 15:32–40. A POSA would have been further motivated to use Benson’s hierarchical system to obtain the known benefit of decreased “communication volume and item history storage costs” by aggregating data at the master node. Ebert at 10:15–17. A POSA would additionally have been motivated to utilize Benson’s hierarchical system to obtain the known benefit of using of a [sic] “a relatively short effective [] range” communication protocol between the master node and ID node to enable “low power consumption.” Altman at [0128].

Ex. 1006 ¶ 76.

b) Patent Owner’s Contentions

Patent Owner argues that Petitioner does not show that Davidson teaches an ID node being “unable to communicate with the server.” Prelim. Resp. 57. Relying on the Specification of the ’042 patent, Patent Owner

argues that each of the independent claims requires an ID node “that is *incapable* of direct communication with the server.” *Id.* at 57–58 (citing Ex. 1001, 11:29–34).

Patent Owner argues that “Davidson explicitly discloses that the telematics device 102, data acquisition device 110, and central server 120 communicate with each other over network 130.” *Id.* at 59 (citing Ex. 1003, 6:46–50). Patent Owner argues “Davidson’s disclosure that these devices can communicate over ‘separate networks’ . . . does not, by itself, negate the ability of telematics device 102 to communicate directly with central server 120.” *Id.* at 59–60. Patent Owner argues that the disclosure in Davidson relied on by Petitioner should be understood as explaining “that telematics device 102 may communicate with device 110 using one network and may also communicate with central server 120 using another network.” *Id.* at 60 (citing Ex. 1003, 8:33–40). Patent Owner argues its understanding of Davidson is consistent with other disclosures in Davidson. *Id.* (citing Ex. 1003, 15:16–21, 23:17–28).

c) Analysis

Upon consideration of the parties’ contentions as to whether Davidson describes a contrasting embodiment to Figure 2 (Pet. 43–44 (citing Ex. 1003, 8:29–33); Prelim. Resp. 60 (citing Ex. 1003, 8:33–40)), we determine Patent Owner has the better argument. Davidson’s disclosure relied on by Petitioner describes the following:

Although the telematics device 102, portable data acquisition device 110, and central server 120 are illustrated in FIG. 2 as communicating with one another over the same network 130, these devices *may likewise communicate over separate networks*. For example, while the telematics device 102 may communicate with the portable data acquisition device 110

over a wireless personal area network (WPAN) (e.g., using Bluetooth™ techniques), the telematics device 102 and/or portable data acquisition device 110 may communicate with the central server 120 over a wireless wide area network (WWAN) (e.g., in accordance with EDGE [Enhanced Data GSM Environment], or some other 2.5G [2.5 generation], 3G [third-generation], or 4G [fourth-generation] wireless communication protocol).

Id. at 8:29–40 (emphasis added).

We disagree with Petitioner and, instead, do not find that the portion above teaches or suggests contrasting embodiments. Instead, we agree with Patent Owner (Prelim. Resp. 59–60) that Davidson’s description that the devices “may likewise communicate over separate networks” indicates the ability to communicate both directly and separately. We also find that Patent Owner’s position is consistent with other disclosures in Davidson. For instance, Davidson explains the following:

For example, the telematics device 102 may be configured to first attempt to establish a connection with central server 120 (e.g., via a wireless signal). If a successful connection is made, the telematics device 102 will transfer captured data to the central server 120. However, if a successful connection cannot be made, the telematics device may be configured to alternatively transfer data to the portable data acquisition device 110 (e.g., via a wireless signal or USB connection).

Ex. 1003, 15:16–21; *see also id.* at 23:17–28 (“[I]n one embodiment the telematics device 102 is configured to first attempt to transmit captured data to the central server 120, and subsequently attempt to transfer data to the portable data acquisition device 110 if a connection with the central server 120 is unavailable.”)

We recognize that Davidson discloses that telematics device 102 may attempt to establish a connection with central server 120 and that attempt may be unsuccessful. *Id.* at 15:16–21, 23:17–28. We do not find that such

disclosure teaches the disputed element. Indeed, Petitioner does not argue that a temporary or accidental inability to make a connection with the server meets element 1.a.iv requiring that the ID node “is unable to directly communicate with the server.” We do not discern based on the record before us a reason to read the claim that broadly. Our determination is consistent with other language in the claim. For instance, the term “*hierarchical* node network” is recited in the preamble, and the body of the claim recites “*master* node,” “ID node,” and that the ID node is operative “to communicate directly with the *master* node but is unable to communicate with the server” (emphasis added). Reading the claim broadly to encompass a temporary or accidental inability to make a connection with the server also is inconsistent with the portion of the ’042 patent Specification relied on by Patent Owner. *See* Pet. 58 (citing Ex. 1001, 11:29–34). That portion states “[g]enerally, an ID node is capable of communicating directly with a master node but incapable of communicating directly with the server.” Ex. 1001, 11:29–34. In summary, a broad reading encompassing a temporary or accidental unavailability of a connection is not consistent with the intrinsic record including the language of claim 1 and the ’042 patent Specification.

We turn to the second sentence of Davidson relied on by Petitioner, i.e., “[f]or example, while the telematics device 102 may communicate with the portable data acquisition device 110” over a WPAN “the telematics device 102 and/or portable data acquisition device 110 may communicate with the central server 120” over a WWAN. Ex. 1003, 8:29–40. Importantly, Davidson describes whether devices are communicating, not whether the devices are able to communicate. *Id.* For instance, Davidson describes that while telematics device 102 “may communicate” with portable data acquisition device 110 “using Bluetooth™ techniques,” telematics device

102 “and/or” portable data acquisition device 110 “may communicate” with server 120 over a WWAN. *Id.* Davidson’s disclosure relied on by Petitioner describes communications occurring between devices, not capabilities of the devices to communicate via a certain protocol. *Id.*

Petitioner also submits the testimony of Dr. Kotzin as support for its contentions. Pet. 43–44 (citing Ex. 1006 ¶ 98). Dr. Kotzin’s testimony is the same as the contentions in the Petition and, like the Petition, includes that Davidson describes that the embodiment relied on by Petitioner is “in contrast to” the embodiment described with respect to Figure 2. *Id.* ¶ 98. We give Dr. Kotzin’s testimony in that regard little to no weight as it is not consistent with the teachings of Davidson for the same reasons discussed with respect to the similar contentions in the Petition (Pet. 43–44). *See* 37 C.F.R. § 42.65 (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”).

We turn to Petitioner’s reference to “Section IX.A.4, above.” Pet. 43. Upon consideration, Section IX.A.4 does not resolve the deficiency. Section IX.A.4 of the Petition describes Petitioner’s contentions regarding using Heydon’s teachings relating to Bluetooth LE devices with Davidson’s teachings. Pet. 32–37.

Accordingly, the Petition’s contentions pertaining to element 1.a.iv, i.e., “but is unable to directly communicate with the server” including the referenced “Section IX.A.4, above” (Pet. 43–44) do not show that Davidson teaches the disputed recitation. Although Petitioner asserts “Davidson-Heydon discloses this limitation” (Pet. 43), Petitioner does not rely on Heydon for teaching element 1.a.iv. Indeed, Petitioner relies solely on Davidson for the disputed limitation, as well as the recitations of “master node,” “ID node,” and “server.” Pet. 18–55.

Petitioner provides contentions in a section of the Petition entitled “Motivation to Combine” and provides the testimony of Dr. Kotzin in support of its contentions. Pet. 30–32 (citing Ex. 1005 ¶¶ 75–76). Patent Owner argues that Petitioner provides “an omnibus ‘Motivation to Combine’” for articulating a motivation to combine Davidson and Heydon that is “untethered to any claim or claim recitation.” Prelim. Resp. 48–49. As explained below, in that section, Petitioner appears to be proposing a modification of Davidson’s teachings that is not set forth in any embodiment of Davidson or in Heydon, and Petitioner also provides reasoning why a person having ordinary skill in the art would have made that proposed modification. Petitioner’s argument in that regard does not set forth clearly which elements of the claim Petitioner argues are met by its proposed modification.

For completeness, we consider Petitioner’s contentions in the section of the Petition entitled “Motivation to Combine” and Dr. Kotzin’s testimony (Pet. 31–32; Ex. 1006 ¶ 76) to the extent that they appear to relate to element 1.a.iv, i.e., “but is unable to directly communicate with the server.” In that regard, Petitioner asserts that a person having ordinary skill in the art “would be motivated to start” with Davidson’s embodiment above “because such an embodiment enables simplification and cost savings for the telematics unit 102 by omitting additional hardware to conduct communications over a wireless wide area network.” *Id.* (citing Ex. 1006 ¶ 76; Ex. 1017, 15:32–40; Ex. 1018, 10:15–17; Ex. 1019 ¶ 128). Petitioner does not direct us to, nor do we discern, teachings in Davidson regarding reducing costs by omitting hardware used for communicating over a wireless wide area network. And

although the Petition cites evidentiary references Lau (Ex. 1017),⁵ Ebert (Ex. 1018),⁶ and Altman (Ex. 1019),⁷ the Petition does not argue that Davidson should be modified by the teachings of these references, which were not included as part of the grounds of the Petition.

We understand Petitioner to be arguing (Pet. 31–32) that a person having ordinary skill in the art would have started with Davidson’s embodiment that telematics device 102, portable data acquisition device 110, and central server 120 “may likewise communicate over separate networks.” Ex. 1003, 8:29–40. Relying on the testimony of Dr. Kotzin, Petitioner argues that “such an embodiment *enables* simplification and cost savings for the telematics unit 102 by omitting additional hardware to conduct communications over a wireless wide area network.” Pet. 32 (emphasis added) (citing, *e.g.*, Ex. 1006 ¶ 76). We understand Petitioner’s argument and Dr. Kotzin’s testimony to be that a person having ordinary skill in the art would have been motivated *to modify Davidson* by omitting hardware. *Id.* Petitioner’s proposed modification, *i.e.*, omitting hardware for communicating over a wireless wide area network, is not set forth in any embodiment of Davidson. Although Petitioner provides reasoning why a person having ordinary skill in the art would have made that proposed modification, *i.e.*, simplification and cost savings (*id.*), Petitioner relies entirely on the testimony of Dr. Kotzin and a bare citation to evidentiary references that are not included in the grounds of the Petition as evidence that such modification would have been known.

⁵ US 7,321,774 B1, issued January 22, 2008 (“Lau,” Ex. 1017).

⁶ US 7,737,857 B2, issued June 15, 2010 (“Ebert,” Ex. 1018).

⁷ US 2017/0070847 A1, published March 9, 2017 (“Altman,” Ex. 1019).

Turning to Dr. Kotzin’s testimony, the first three sentences of Dr. Kotzin’s testimony are substantively the same as the contentions set forth in the Petition and are reproduced below. *Compare* Ex. 1006 ¶ 76, with Pet. 31–32.

Further, a POSA would be motivated to start with the embodiment of Davidson in which “telematics device 102” and “portable data acquisition device 110” on one hand, and “portable data acquisition device 110” and “central server 120” on the other hand “communicate over separate networks,” “telematics device 102 communicate[s] with the portable data acquisition device 110 over a wireless personal area network (WPAN) (e.g., using Bluetooth™ techniques),” and “portable data acquisition device 110 [] communicate[s] with the central server 120 over a wireless wide area network” (Davidson at 8:29–40). A POSA would be so motivated at least because such an embodiment enables simplification and cost savings for the telematics unit 102. For example, such an embodiment may enable omitting additional hardware to conduct communications over a wireless wide area network.

Ex. 1006 ¶ 76.

We find that the first three sentences of Dr. Kotzin’s testimony (*id.*) are conclusory. As we discussed above, Dr. Kotzin testifies for the disputed element that Davidson describes that the embodiment relied on by Petitioner is “in contrast to” the embodiment described with respect to Figure 2. *Id.*

¶ 98. As we discussed, we give Dr. Kotzin’s testimony in that regard little to no weight as it is not consistent with the teachings of Davidson for the same reasons discussed with respect to the similar contentions in the Petition (Pet. 43–44). To the extent that Dr. Kotzin’s testimony in paragraph 76 is consistent with his testimony in paragraph 98 in that Dr. Kotzin relies on Davidson for his proposed modification of Davidson to omit hardware, we also give Dr. Kotzin’s testimony in paragraph 76 little to no weight as not

being consistent with the teachings of Davidson. *See* 37 C.F.R. § 42.65 (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”).

We turn to the remainder of Dr. Kotzin’s testimony in paragraph 76, which is reproduced below.

A POSA would also have been motivated to utilize Benson’s hierarchical system to obtain the known benefit of reduced costs for the “remote sensor units” “only doing a subset of the master device functions.” Benson at [0050]. Lau also recognizes this same benefit. Specifically, Lau likewise discloses a hierarchical sensor system of position-calculating devices and position-sensing devices in which “the position-sensing devices” can “be made compact” and “can be relatively inexpensive” because they need not “include circuitry to perform” functionality delegated to the higher-level device. Lau at 15:32–40. A POSA would have been further motivated to use Benson’s hierarchical system to obtain the known benefit of decreased “communication volume and item history storage costs” by aggregating data at the master node. Ebert at 10:15–17. A POSA would additionally have been motivated to utilize Benson’s hierarchical system to obtain the known benefit of using of a “a relatively short effective [] range” communication protocol between the master node and ID node to enable “low power consumption.” Altman at [0128].

Ex. 1006 ¶ 76.

The remainder of Dr. Kotzin’s testimony in paragraph 76 pertains to using a hierarchical system. *Id.* Dr. Kotzin’s testimony cites to additional references, which are not part of the proposed prior art combination. *Id.* (citing Ex. 1003, 8:29–40; Ex. 1005 ¶ 50;⁸ Ex. 1017, 15:32–40; Ex. 1018 10:15–17; Ex. 1019 ¶ 128). Herein, we refer to the additional references in the same manner as set forth in Dr. Kotzin’s testimony, i.e., as Benson, Lau, Ebert, and Altman, respectively.

⁸ US 2007/0002139 A1, published January 4, 2007 (“Benson,” Ex. 1005).

Dr. Kotzin’s testimony that differs and is in addition to Petitioner’s argument in the Petition needed to be set forth in the Petition. *See* 37 C.F.R. § 42.6 (a)(3) (“Arguments must not be incorporated by reference from one document into another document.”) The Petition does not set forth a theory relating to using either Benson’s or Lau’s hierarchical system. Pet. 8 (not including either Benson or Lau in Ground 1 relating to unpatentability of independent claims 1 and 17), 18–30 (providing overviews of only Davidson and Heydon), 30–31 (articulating a motivation for “implement[ing] Davidson’s system using Bluetooth low energy, as described by Heydon”), 32–37 (describing the proposed combination of “Davidson in view of Heydon” (emphasis omitted)), 37–55 (setting forth an element-by-element analysis based on the teachings of Davidson and Heydon). Also, Dr. Kotzin’s testimony refers to paragraph 50 of Benson (Ex. 1006 ¶ 76 (citing, *e.g.*, Ex. 1005 ¶ 50)), but Benson’s disclosure is not identified in the Petition with respect to the independent claims and cannot be relied on as part of Petitioner’s unpatentability analysis. *See, e.g.*, Pet. 8, 37–55; *see also id.* at 32 (citing Lau, Ebert, and Altman, but not Benson).

Additionally, Petitioner improperly relies on the testimony of Dr. Kotzin to take the place of disclosures required as part of Petitioner’s unpatentability analysis (Pet. 31–32; Ex. 1005 ¶ 76) for element 1.a.iv, *i.e.*, “but is unable to directly communicate with the server,” as well as the recitation “hierarchical” within “hierarchical node network” and “master” within “master node.” Testimony cannot take the place of disclosure in a prior art reference, when that disclosure is required as part of the unpatentability analysis. *See* Consolidated Trial Practice Guide (“Consolidated Practice Guide”) at 36; *see also* 84 Fed. Reg. 64,280 (Nov.

21, 2019). More specifically, the Consolidated Practice Guide sets forth the following:

Expert testimony, however, cannot take the place of a disclosure in a prior art reference, when that disclosure is required as part of the unpatentability analysis. For example, because “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference,” *Verdegaal Bros., Inc. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987), a petitioner asserting anticipation cannot rely on its expert to supply disclosure of a claim element that is not expressly or inherently present in the reference. Similarly, in an obviousness analysis, conclusory assertions from a third party about general knowledge in the art cannot, without supporting evidence of record, supply a limitation that is not evidently and indisputably within the common knowledge of those skilled in the art. *K/S Himpp v. Hear-Wear Techs., LLC*, 751 F.3d 1362, 1365 (Fed. Cir. 2014). Furthermore, because an *inter partes* review may only be requested “on the basis of prior art consisting of patents or printed publications,” 35 U.S.C. § 311(b), expert testimony cannot take the place of disclosure from patents or printed publications. In other words, expert testimony may explain “patents and printed publications,” but is not a substitute for disclosure in a prior art reference itself.

Consolidated Practice Guide at 36.

Dr. Kotzin’s testimony does not specifically argue that hierarchical systems were part of the general knowledge. Ex. 1006 ¶ 76. Instead, Dr. Kotzin’s testimony is that a person having ordinary skill in the art “would also have been motivated to utilize Benson’s hierarchical system,” which Dr. Kotzin describes as having “‘remote sensor units’ ‘only doing a subset of the master functions.’” *Id.* (citing, e.g., Ex. 1005 ¶ 50). Dr. Kotzin testifies “Lau likewise discloses a hierarchical sensor system of position-calculating devices and position-sensing devices in which ‘the position-sensing devices’ can ‘be made compact’ and ‘can be relatively inexpensive’ because they

need not ‘include circuitry to perform’ functionality delegated to the higher-level device.” *Id.* (citing, *e.g.*, Ex. 1017, 15:32–40). To the extent that Petitioner relies on Dr. Kotzin’s testimony for demonstrating hierarchical systems would have been generally known and Benson and Lau are cited as providing supporting examples of the general knowledge, Petitioner’s theory is not set forth sufficiently in the Petition and Dr. Kotzin’s testimony is not sufficiently clear that hierarchical systems would have been generally known. Additionally, such reliance is improper in that Petitioner is improperly relying on expert testimony in the place of prior art disclosure that is required as part of Petitioner’s unpatentability analysis. Consolidated Practice Guide at 36.

To the extent that Petitioner’s reliance on Dr. Kotzin’s testimony is for modifying Davidson in view of Benson or Lau, that theory needed to be set forth in the Petition and was not. *See* 37 C.F.R. § 42.6. Furthermore, even considering Dr. Kotzin’s testimony in that regard (Ex. 1006 ¶ 76), Dr. Kotzin’s testimony is conclusory. We find that Dr. Kotzin’s testimony (*id.*) does not explain sufficiently, for example, how Benson’s “remote sensor units” would have been understood to be akin to Davidson’s telematics device 102 having port 206 for receiving data from vehicle sensors 410 located in vehicle 100 (Ex. 1003, 9:56–61) and data radio 209, which “may be one of several components available in the telematics device 102” (*id.* at 9:56–65, 11:4–6). Dr. Kotzin’s testimony (Ex. 1006 ¶ 76), for example, does not include sufficient explanation as to why Benson’s “remote sensor unit” (Ex. 1005 ¶ 50) would not be akin to Davidson’s “vehicle sensors 410,” as compared to Davidson’s telematics device 102 (Ex. 1003, 8:29–40).

Dr. Kotzin’s testimony also does not explain sufficiently why the other references he relies on, including Lau, Ebert, and Altman, support the

proposed modification of Davidson’s teachings, i.e., omitting hardware for communicating over a wireless wide area network. Ex. 1006 ¶ 76 (citing, e.g., Ex. 1017, 15:32–40; Ex. 1018 10:15–17; Ex. 1019 ¶ 128). Instead, Dr. Kotzin appears to rely on Lau, Ebert, and Altman to support that a person having ordinary skill in the art would have understood that simplification and cost savings are benefits. *Id.* For instance, Lau teaches that its “position-sensing device” may have a “compact” size, may be “relatively inexpensive,” may not have “a display or keyboard entry for input,” and may not “include circuitry to perform processing to calculate its position or determine actions.” Ex. 1017, 15:32–40. Ebert’s disclosure relied on in Dr. Kotzin’s testimony is a single sentence describing reducing “storage costs” “by reporting only the movements of the top-level items in a hierarchy of items,” but with respect to nodes Ebert describes “[t]he system ensures that once a disconnected node is reconnected, unreported data gathered by the disconnected node is reliably communicated to the rest of the system and changes received by other nodes are reliably communicated to the disconnected node.” Ex. 1018, 10:10–17. Altman describes that “Bluetooth® protocol and Bluetooth® devices” are “ideal for many applications of the various embodiments” described in Altman, but “the scope of the claims should not be limited to Bluetooth® or Bluetooth LE devices and protocol unless specifically recited in the claims.” Ex. 1019 ¶ 128.

Petitioner does not rely on Heydon for teaching element 1.a.iv, i.e., “but is unable to directly communicate with the server.” Pet. 18–55. Also, upon consideration, Heydon’s teachings relied on by Petitioner do not remedy the deficiency.

We, therefore, determine Petitioner has not shown sufficiently that the combination of Davidson and Heydon teaches element 1.a.iv, i.e., “but is unable to directly communicate with the server.”

d) Conclusion—Obviousness of Claim 1 over Davidson and Heydon

After consideration of the contentions and the evidence of record, we determine that Petitioner has not shown sufficiently that the combination of Davidson and Heydon teaches each recitation of claim 1. Accordingly, we conclude that Petitioner has not demonstrated a reasonable likelihood that it would prevail in showing that claim 1 is unpatentable under 35 U.S.C. § 103 as obvious over the combination of Davidson and Heydon.

4. Independent Claim 17

Independent claim 17 recites that the ID node is operative to wirelessly communicate directly with the master node “but is unable to directly communicate with the server.” Ex. 1001, 253:34–44. For this recitation, Petitioner relies on its arguments and evidence for element 1.a.iv, i.e., “but is unable to directly communicate with the server” recited in claim 1. Pet. 71. Petitioner does not supplement its arguments or evidence for claim 17. *Id.* Petitioner’s showing is not sufficient for the same reasons given for claim 1. *See supra* § III.D.3.

For the reasons given for claim 1, we determine that Petitioner has not shown sufficiently that the combination of Davidson and Heydon teaches each recitation of independent claim 17. Accordingly, we conclude that Petitioner has not demonstrated a reasonable likelihood that it would prevail in showing that claim 17 is unpatentable under 35 U.S.C. § 103 as obvious over the combination of Davidson and Heydon.

5. *Dependent Claims 2–16 and 18–32*

Claims 2–16 depend, directly or indirectly, from claim 1. Claims 18–32 depend, directly or indirectly, from claim 17. Petitioner’s arguments and evidence for dependent claims 2–16 and 18–32 do not remedy the deficiencies discussed with respect to claims 1 and 17. Pet. 56–69, 72–76.

Accordingly, we conclude that Petitioner has not demonstrated a reasonable likelihood that it would prevail in showing that claims 2–16 and 18–32 are unpatentable under 35 U.S.C. § 103 as obvious over the combination of Davidson and Heydon.

*E. Obviousness over Davidson, Heydon, and Benson—
Claims 3, 4, 19, and 20*

Petitioner asserts that claims 3, 4, 19, and 20 would have been obvious over Davidson, Heydon, and Benson. Pet. 8. Patent Owner relies on its contentions for independent claims 1 and 17 for the disputed recitation. *See, e.g.*, Prelim. Resp. 57–61.

After consideration of the contentions and the evidence of record, we determine that Petitioner’s contentions for claims 3, 4, 19, and 20 do not remedy the deficiency discussed with respect to independent claims 1 and 17. Accordingly, we conclude that Petitioner has not demonstrated a reasonable likelihood that it would prevail in showing that claims 3, 4, 19, and 20 are unpatentable under 35 U.S.C. § 103 as obvious over the combination of Davidson, Heydon, and Benson.

IV. CONCLUSION

We have reviewed the Petition and Preliminary Response, and have considered all of the evidence and arguments presented by Petitioner and Patent Owner. For the foregoing reasons, we conclude that the information presented in the Petition does not establish a reasonable likelihood that

Petitioner would prevail in showing that the challenged claims of the '042 patent are unpatentable on the grounds asserted in the Petition.

V. ORDER

In consideration of the foregoing, it is hereby:

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

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