

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DATASPEED INC.,
Petitioner,

v.

SUCXESS LLC,
Patent Owner.

IPR2020-00147
Patent 10,027,505 B2

Before TREVOR M. JEFFERSON, MINN CHUNG, and
NATHAN A. ENGELS, *Administrative Patent Judges*.

ENGELS, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

This is a Final Written Decision in an *inter partes* review challenging the patentability of claims 1–16 of U.S. Patent No. 10,027,505 B2 (Ex. 1101, “the ’505 patent”). We have jurisdiction under 35 U.S.C. § 6.

For the reasons discussed herein, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–16 of the ’505 patent are unpatentable.

II. BACKGROUND

A. Procedural History

Dataspeed Inc. (“Petitioner”) filed a Petition under 35 U.S.C. § 311 requesting *inter partes* review of claims 1–16 of the ’505 patent. Paper 1 (“Pet.”). Success LLC (“Patent Owner”) filed a Preliminary Response. Paper 9.

We issued a Decision instituting *inter partes* review. Paper 10. After institution, Patent Owner filed a Response. Paper 15 (“PO Resp.”). Petitioner filed a Reply to Patent Owner’s Response. Paper 18 (“Pet. Reply”). Patent Owner filed a Sur-Reply to Petitioner’s Reply. Paper 19 (“PO Sur-Reply”).

An oral hearing was held on February 11, 2021, and the record includes a transcript of the hearing. Paper 24.

B. Real Party-in-Interest

Petitioner states that it, Dataspeed Inc., is the sole real party-in-interest. Pet. 2.

C. Related Proceedings

The parties state that the ’505 patent is the subject of five district-court cases involving Patent Owner and various third parties, namely,

Sucsess LLC v. AutoX Technologies, Inc., No. 1:19-cv-02121 (D. Del.); *Sucsess LLC v. Phantom Auto, Inc.*, No. 1:19-cv-02122 (D. Del.); *Sucsess LLC v. Pony.ai, Inc.*, No. 1:19-cv-02123 (D. Del.); *Sucsess LLC v. SF Motors, Inc.*, No. 1:19-cv-02124 (D. Del.); and *Sucsess LLC v. WeRide Corp.*, No. 1:19-cv-02130 (D. Del.). Paper 8 at 1. Patent Owner also states that Petitioner filed a Petition for review of US 9,871,671 in IPR2020-00116. Paper 8 at 1.

D. The '505 Patent (Ex. 1101)

Titled “Method, Apparatus and System for Retrofitting a Vehicle” (Ex. 1101, code (54)), the '505 patent states that a vehicle could be retrofitted to add, for example, an emergency call apparatus. Ex. 1101, 2:48–49. Among other things, the '505 patent describes a retrofit apparatus in communication with a factory-installed telecommunication apparatus. Ex. 1101, 2:14–2:62, 9:47–10:16. In one embodiment disclosed in the '505 patent, the retrofit apparatus is an emergency call apparatus that mimics the dial command message of a factory-installed apparatus, such as a navigation system, by using “the same message identifier segment that has been assigned to navigation system 218 when transmitting its telephone dial command message.” Ex. 1101, 9:62–65. “By sharing the same message identifier segment a telephone dial command message originating from emergency call apparatus 214 and a telephone dial command message originating from navigation system 218 become indistinguishable for the telecommunication apparatus 200.” Ex. 1101, 9:66–10:3. “Telecommunication apparatus 200 hence responds properly to a telephone dial command message originating from emergency call apparatus 214 even though it may not have been designed for this purpose.” Ex. 1101, 10:3–7.

Messaging described in the '505 patent includes Controller Area Network ("CAN") messages. The '505 patent states that CAN messages may consist of an identifier segment of 11 or 29 bits and a data segment carrying a message payload of up to 8 bits. Ex. 1101, 10:17–34.

E. Challenged Claims

Petitioner challenges claims 1–16 of the '505 patent. Claims 1, 6, and 10 are independent claims, and claim 1 is reproduced below with added identification of claim elements in brackets.

1. [1.p] A method comprising:

[1.1] providing a vehicle having a factory-installed first apparatus including a processor, programmed to communicate with a factory-installed second apparatus through a vehicle data bus with a first message having an identifier;

[1.2] electrically disconnecting the vehicle data bus between the factory-installed first apparatus and the factory-installed second apparatus;

[1.3] electrically connecting a retrofit apparatus to the vehicle data bus; and

[1.4] transmitting a second message from the retrofit apparatus to the factory-installed first apparatus, the second message being indistinguishable from the first message.

F. Prior Art and Asserted Grounds of Unpatentability

Petitioner asserts the following grounds under 35 U.S.C. § 103:

Claim(s) Challenged	35 U.S.C. §¹	Reference(s)/Basis
1–13	103	Munoz ² or Munoz, Negley ³ , SAE ⁴ , Bosch ⁵
14–16	103	Munoz or Munoz, Negley, SAE, Bosch, Lobaza ⁶
1–13	103	Dietz ⁷ , Negley, SAE, Bosch
1–13	103	Dietz, Allen ⁸ , Negley, SAE, Bosch
14–16	103	Dietz, Negley, SAE, Bosch, Lobaza
14–16	103	Dietz, Allen, Negley, SAE, Bosch, Lobaza
6–12	103	Allen, Negley, SAE, Bosch
10, 14–16	103	Lobaza, Allen, Negley, SAE, Bosch

¹ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011), amended 35 U.S.C. § 103 effective March 16, 2013. Because the '505 patent has an effective filing date prior to the effective date of the applicable AIA amendment, we refer to the pre-AIA version of § 103.

² Munoz (US 7,737,831 B2; filed Feb. 6, 2007; issued June 15, 2010). Ex. 1004.

³ Bruce Negley, *Getting Control Through CAN*, The Journal of Applied Sensing Technology, Oct. 2000, vol. 17, no. 10, pages 18–33. Ex. 1006.

⁴ Craig Szydlowski, *A Gateway for CAN Specification 2.0 Non-Passive Devices*, SAE Technical Paper Series, 930005, Society of Automotive Engineers, Inc. 1993, pages 29–37. Ex. 1009.

⁵ Robert Bosch, CAN Specification Version 2.0, Bosch, Sept. 1991. Ex. 1010.

⁶ Lobaza et al. (US 6,812,832 B2; filed Nov. 26, 2002; issued Nov. 2, 2004). Ex. 1014.

⁷ Audiotechnik Dietz, Installation/connection manual for multimedia interface 1280, <http://www.dietz.biz>. Ex. 1005.

Petitioner also relies on the Declaration of Robert Leale (Ex. 1103) to support the Petition. Pet. 1.

III. ANALYSIS

A. Level of Ordinary Skill in the Art

Our Decision instituting *inter partes* review included a preliminary determination that a person of ordinary skill in the art (“POSITA”) would have had a bachelor’s degree in engineering with relevant coursework or post-secondary education (Bachelor’s or associate degree) and four years of work experience in the design, operation, and functioning of CAN systems or systems using similar communications protocols. Dec. 7. After institution, Petitioner did not further address the level of ordinary skill, and Patent Owner “embraced the Board’s guidance” (PO Resp. 9–10). Accordingly, we apply the same level articulated in the Decision.

B. Claim Construction

We construe claims of the challenged patent using the same claim construction standard used to construe claims in a civil action under 35 U.S.C. § 282(b), including construing the claims in accordance with the ordinary and customary meaning as understood by one of ordinary skill in the art reading the claims in light of the intrinsic evidence. 37 C.F.R. § 42.100(b) (2019); *see Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005).

The parties address construction of the terms “data bus,” “responds,” and “receives.” Pet. 6–13; PO Resp. 6–9.

⁸ Allen et al. (US 2007/0016342 A1; filed June 19, 2006; published Jan. 18, 2007). Ex. 1018.

1. “*Data bus*”

Among other limitations, independent claim 1 recites “a processor, programmed to communicate with a factory-installed second apparatus through a vehicle *data bus*,” “electrically disconnecting the vehicle *data bus*,” and “electrically connecting a retrofit apparatus to the vehicle *data bus*” (emphases added). Independent claims 6 and 10 include substantially similar recitations.

According to Petitioner, “a POSITA would understand a ‘data bus’ to refer to ‘a contiguous network providing a communication channel for two or more modules’” when construed in light of the Specification. Pet. 6 (citing Ex. 1103 ¶59). Patent Owner contends Petitioner’s definition is not helpful and that defining “data bus” to be a “contiguous network” is confusing. PO Resp. 6. Patent Owner further states that “‘bus’ should be construed as defined in the applicable ISO-Standard 11898 as a ‘topology of a communication network, where all nodes are reached by passive links which allow transmission in both directions.’” PO Resp. 7 (citing Ex. 2002, 2; Ex. 2028 ¶¶ 21–22).

We determine it is unnecessary to interpret “data bus,” and we apply the term’s plain and ordinary meaning. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (explaining the need to construe only terms that are in controversy and only to the extent necessary to resolve the controversy) (citations omitted).

2. “*Responds*”

Dependent claim 12 recites “the factory-installed first apparatus *responds* to the second message originating from the retrofit apparatus as if it were the first message received from the factory-installed second

apparatus” (emphasis added). Petitioner proposes that “[t]he word ‘responds’ should be interpreted to mean ‘act on,’ which, according to Petitioner, is consistent with the understanding of a POSITA in the field of CAN systems.” Pet. 7 (citing Ex. 1103 ¶ 63; Ex. 1006, 6–7, 13, Figure 8). Patent Owner does not disagree with Petitioner’s proposed construction. PO Resp. 7.

We apply the plain and ordinary meaning of “responds,” which is consistent with Petitioner’s proposed construction.

3. “*Receives*”

Although Petitioner does not directly advance an interpretation of “receives,” Patent Owner contends Petitioner construes the term too broadly by advancing the position that a message is received when it arrives in a processor’s “Receive Assembly Registers” block. PO Resp. 7; *see* Pet. 7–8, 11–14, 31, 57, 62. According to Patent Owner, Petitioner’s interpretation would mean that all nodes on a network receive all messages, such that “receiving a message” would be meaningless to differentiate nodes. PO Resp. 7.

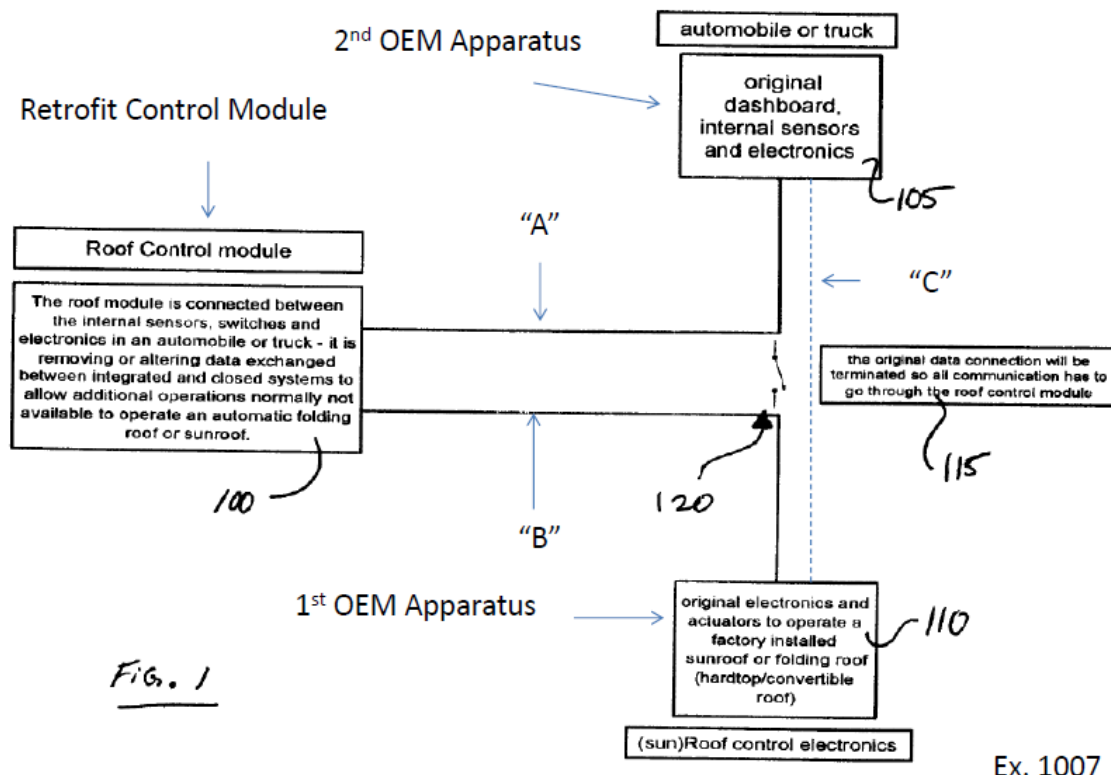
Patent Owner contends “receive” should be construed as “accept.” PO Resp. 8. Also, citing an overview of CAN-bus messaging in Figure 8 of Negley, Patent Owner “construes a message to be received when it has passed the Message Filters/Masks block and is accepted in the ‘Receive Register’ block so that a microcontroller can act on it.” PO Resp. 7–8 (citing Ex. 1006 p. 11, Fig. 8; Ex. 2028 ¶¶ 23–24).

We find nothing in the intrinsic record that supports construing “receive” in terms of the message filters/masks block or receive register

block, and we determine that it is unnecessary to expressly construe “receive.” Accordingly, we apply the term’s plain and ordinary meaning.

C. Munoz

Munoz discloses “control devices that interface with automobile computers in order to control multiple automobile systems.” Ex. 1004, 1:9–10. Specifically, Munoz discloses “an after-market automobile device that is seamlessly integrable to factory automobile networks such as CAN-bus and [its] ECU [(electronic control unit)] systems and allows multiple convenience and performance enhancements to be controlled through factory controls and displayed on factory displays.” Ex. 1004, 3:7–12. Munoz’s Figure 1 is copied below with annotations added by Petitioner.



Ex. 1007.

Munoz's Figure 1 is a flow chart that illustrates the operation of roof control module 100. Ex. 1004, 6:26–30. Figure 1 depicts that switch 120 connects vehicle factory dashboard electronics and controls 105 to Roof Control Electronics 110 via Roof Control Module 100, such that the factory data connection is routed through the Roof Control Module 100. Ex. 1004, 6:32–36. Munoz discloses that the device improves over other systems by operating using only the factory display such that messages to “operate and adjust the device's features and settings are displayed on the vehicle's factory display.” Ex. 1004, 3:43–47. Munoz explains that by using the device, “the user may control multiple additional functions and operations, integrated by the device, without the need for additional displays.” Ex. 1004, 3:47–49.

D. Negley

Negley discloses that the CAN protocol “creates a communications path that links all the nodes connected to the bus and enables them to talk to one another.” Ex. 1006, 18. Negley discloses the CAN protocol uses a message-based data format to transfer information from one location to another. Ex. 1006, 20. Among other things, Negley describes that all messages have an identifier field and that the node uses the identifier to determine whether to accept and act upon an incoming message. Ex. 1006, 21.

E. SAE

SAE discloses that the CAN protocol “offers a comprehensive solution to managing communication between multiple CPUs,” using message identifiers. Ex. 1009, 29.

F. Bosch

Bosch discloses that CAN is a serial communications protocol that supports distributed real-time control with a high level of security.

Ex. 1010, 4. Bosch explains that information on a bus is sent in fixed format messages and that the content of a message uses an identifier, so that all nodes in a network are able to decide whether the data is to be acted upon by them. Ex. 1010, 6.

G. Petitioner's Expert's Alleged Bias

Patent Owner asserts that we should discount Mr. Leale's declaration testimony because, according to Patent Owner, Mr. Leale has an interest in the outcome of the litigation because he may have practiced the claims of the '505 patent. PO Resp. 3–4, 12–16. We find this argument unavailing.

Petitioner filed Mr. Leale's declaration testimony with its Petition. During Mr. Leale's deposition, Patent Owner's counsel asked Mr. Leale whether had installed retrofit devices and spoofed CAN messages. Ex. 2024, 107:6–20, 111:23–112:24.

Patent Owner contends Mr. Leale's testimony suggests that “Mr. Leale is a likely infringer” (PO Resp. 13) and that “Mr. Leale's testimony . . . makes clear that he stands to personally benefit if the '505 patent is found invalid” (PO Resp. 16). Mr. Leale provided his declaration testimony before Mr. Leale was allegedly put in “fear that he would be sued by Patent Owner” (PO. Resp. 14), and Mr. Leale's deposition responses do not establish that the declaration testimony should be discounted in this case. Furthermore, Patent Owner's deposition objections (PO Resp. 15–17; Ex. 2024, 109:8–111:8) do not support discounting Mr. Leale's declaration testimony. We give Mr. Leale's testimony due weight.

H. Obviousness over Munoz or Munoz, Negley, SAE, and Bosch

For its obviousness arguments, Petitioner provides a limitation-by-limitation comparison of each of claims 1–13 to Munoz and states that to the extent certain limitations are “not clearly disclosed by Munoz when viewed in light of the knowledge possessed by a POSITA, it would have been obvious to complement Munoz’s teachings with the standard CAN bus teachings of Negley, SAE, and Bosch.” Pet. 15. Petitioner also cites to the Declaration of Robert Leale (Ex. 1103) in support. Pet. 1–67.

Patent Owner’s arguments address certain individual claims, and Patent Owner cites the Declaration of Mahdi Shahbakhti (Ex. 2028) in support. PO Resp. 29–53. We address both parties’ arguments in the analysis of claim 1, below.

1. Motivation to Combine & Background References

Petitioner provides support for the motivation to combine the teachings of Munoz, Negley, SAE, and Bosch. Pet. 15–17. Petitioner argues that a POSITA would have understood that by the time of the invention of the ’505 patent, use of CAN message identifiers was well known and standard in a CAN bus system, and Petitioner contends there would have been many reasons to use the same CAN bus message identifier for retrofit devices and factory-installed devices in communications intended to control other ECUs. Pet. 16 (citing, e.g., Ex. 1103 ¶¶ 53–85). Among other things, Petitioner contends the CAN protocol teachings of Negley, Bosch, and SAE complement Munoz’s teachings of CAN the protocol. Pet. 15–16.

We determine that Petitioner has provided sufficient rationale for combining the teachings of Munoz, Negley, SAE, and Bosch, each of which relates to CAN bus systems in the automotive industry. In addition to combining the Munoz, Negley, SAE, and Bosch references, Petitioner also provides sufficient testimony and argument to rely on the Negley, SAE, and Bosch references to support the knowledge that skilled artisans would have brought to bear on the prior art functions of CAN systems (Pet. 15–17, 19–22). *See Randall Mfg. v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013); *see also Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1365–66 (Fed. Cir. 2015).

We address Munoz alone in light of Negley, SAE, and Bosch as background knowledge and the combination of Munoz, Negley, SAE, and Bosch with respect to claims 1–15 and 19.

2. Claim 1

- a. [1.1] *A method comprising:*
providing a vehicle having a factory-installed first apparatus
including a processor, programmed to communicate with a factory-
installed second apparatus through a vehicle data bus with a first
message having an identifier

Petitioner contends Munoz teaches limitation 1.1 with its disclosures relating to Munoz’s vehicle with a factory-installed first apparatus 110 programmed to communicate with a factory-installed second apparatus 105 through vehicle data bus 115. Pet. 13–14 (citing Ex. 1004, Fig. 1). According to Petitioner, “[i]n accordance with [the teachings of] Negley, Bosch, and SAE, a POSITA would have known that CAN message protocols use message identifier bits and a bus message transmitted by the [second] factory-installed apparatus 105 to the [first] factory-installed

apparatus 110 would have constituted a ‘first message having an identifier’ of claim 1.” Pet. 15 (citing Ex. 1103 ¶¶ 53–85, 133–145); *see* Pet. 14–16.

Patent Owner argues Petitioner cannot identify the claimed first message in Munoz. PO Resp. 37. Patent Owner contends “Munoz does not disclose any communication between the original dashboard 105 and the roof control electronics 110” (PO Resp. 38), and Patent Owner contends Munoz’s reference to controls on original dashboard 105 refers to controls used only after the addition of Munoz’s retrofit device (PO Resp. 38). Citing evidence relating to several 2007 model year convertible vehicles, Patent Owner contends that controls for the vehicles’ convertible tops were hardwired such that “there cannot be a roof open/roof close first CAN message sent to the original roof electronics 110.” PO Resp. 41–42 (citing Ex. 2028 ¶¶ 64–76); *accord* PO Sur-Reply 3–4; *see* Ex. 2028 ¶ 57 (“[I]t is my opinion that Munoz’s invention had been demonstrated in a VW Eos. My further analysis is therefore based on that vehicle.”).

Although Patent Owner’s evidence relating to controls in several 2007 model year vehicles may not be irrelevant, that evidence is not instructive regarding what a person of ordinary skill would have understood from the teachings of Munoz. Even taking as true the evidence that each 2007 model year vehicle examined by Patent Owner’s declarant had its convertible top controlled by hardwired controls, the fact remains that Munoz describes Figure 1 more generally, describing “vehicle factory dashboard electronics and controls” as follows:

FIG. 1 is a flow chart that illustrates the operation of the roof control module in various embodiments of the invention. 105 illustrates the vehicle factory dashboard electronics and controls that are used to control Roof Control Electronics 110. 100

illustrates the Roof Control Module, which is a portion of the device devoted to roof or cabriolet top controls. As diagramed, a switch 120 connects the vehicle factory dashboard electronics and controls 105 to the Roof Control Electronics 110 via the Roof Control Module 100, such that the factory data connection is routed through the Roof Control Module 100.

Ex. 1004, 6:28–36. Further, Figure 1 itself states that “the original data connection will be terminated so all communication has to go through the roof control module.” Ex. 1004, Fig. 1. In other words, contrary to Patent Owner’s arguments, Munoz teaches that there was an “original data connection” between “original dashboard, internal sensors and electronics 105,” Munoz teaches terminating that original connection, and Munoz teaches that all communication has to go through the roof control module. Ex. 1004, 6:28–36, Fig. 1. As such, regardless of whether real-world vehicles did not implement Munoz’s system as depicted in Figure 1 and the related description, we agree with Petitioner that a person of ordinary skill would have understood Munoz to teach an original data connection between “the vehicle factory dashboard electronics and controls that are used to control Roof Control Electronics 110” (Ex. 1004, 6:28–30). *See Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1076 (Fed. Cir. 2015) (“A reference must be considered for everything it teaches by way of technology and is not limited to the particular invention it is describing and attempting to protect.” (internal quotation marks and alterations omitted)). We further agree with Petitioner that Munoz teaches or at least suggests a CAN bus as the original data connection and that communication through the original data connection would have included a first message having an identifier, as claimed. *See* Pet. 13–17; Ex. 1103 ¶ 152; Ex. 1004, 1:26–40 (describing automobile electronic control units using CAN-bus systems for connecting

to and transmitting data between various ECUs); *see also* Tr. 39:5 (“So the first message requires original module to the original module.”); PO Resp. 39 (“How an open/close roof button is wired indicates whether a roof open/close (first) message can exist. ‘The factory buttons must be connected to a CAN bus module and that CAN bus module must be transmitting the message over the CAN bus in order for the roof control, the factory roof control 110 to receive it.’” (quoting Ex. 2024, 61:20–24)).

- b. [1.2] *electrically disconnecting the vehicle data bus between the factory-installed first apparatus and the factory-installed second apparatus*

Petitioner contends that the annotated Figure 1 of Munoz, reproduced above, depicts this limitation because Munoz’s “[s]witch 120, when open, terminates the connection between the 1st factory-installed apparatus 110 and the 2nd factory-installed apparatus 105. Pet. 17–18 (citing Ex. 1103 ¶¶ 139–145, 153–154; Ex. 1004, 6:32–36; Fig. 1).

Although not directly addressing this claim limitation, Patent Owner argues Munoz’s depiction of switch 120 is merely symbolic and that it would serve no purpose in Munoz’s system. PO Sur-Reply 12–13 (citing Ex. 1004, 3:35–37, Fig. 1; Ex. 1020, 70:9–17; Ex. 2024, 51:5–55:10, 56:11–15); *accord* Ex. 2028 ¶ 80. Contrary to Patent Owner’s arguments, however, Munoz plainly discloses a switch that, according to Munoz, terminates the original data connection (Ex. 1004, 6:32–36, Fig. 1), and the weight of the evidence supports Petitioner’s argument that Munoz teaches this limitation. *Cf.* Ex. 2028 ¶ 80 (“I recognize that Munoz’s specification describes the switch 120 as if it were a real component . . . which is not consistent with my interpretation.”).

- c. [1.3] *electrically connecting a retrofit apparatus to the vehicle data bus*

Petitioner contends the annotated Figure 1 of Munoz, reproduced above, depicts this limitation because Munoz’s “roof control module 100 is connected to both the vehicle data bus ‘A’ and to a vehicle data bus ‘B’ and is disclosed as an aftermarket automobile device.” Pet. 18–19 (citing Ex. 1103 ¶¶ 127–148, 155–156; Ex. 1004, 3:7–12, 3:50–4:33; Fig. 1).

Patent Owner does not contest Petitioner’s showings, and we determine that Petitioner has satisfied its burden regarding this limitation.

- d. [1.4] *transmitting a second message from the retrofit apparatus to the factory-installed first apparatus, the second message being indistinguishable from the first message*

Petitioner contends Munoz teaches or suggests limitation 1.4 by disclosing that all communication passes through the roof control module 100, which a person of ordinary skill would have understood to include “the identical command from the original dashboard 105,” because, according to Petitioner, Munoz’s aftermarket device allows multiple functions to be performed without interfering with vehicle controls or compromising existing factory features. Pet. 19–20 (citing Ex. 1103 ¶¶ 143–145, 160–161; Ex. 1004, 3:50–4:33, 5:21–26, Fig. 1). Further, Petitioner contends a person of ordinary skill would have understood that when aftermarket functionality is disabled,

a first CAN message sent from the original dashboard 105 intended for the original electronics to operate the factory-installed roof 110 would have been received by the retrofit roof control module 100, and the retrofit roof control module 100 would have transmitted a second CAN message, indistinguishable from the first CAN message, to the factory-installed roof 110 with the proper information in the identifier

field, and the identical command from the original dashboard 105.

Pet. 20.

Patent Owner disputes Petitioner's showing for this limitation. PO Resp. 43–46. First, Patent Owner contends that because Munoz does not teach a first message, Munoz cannot teach a second message that is indistinguishable from the first message. PO Resp. 44; PO Sur-Reply 2–3. For the reasons explained above, we disagree with Patent Owner's arguments that Munoz does not disclose the claimed first message.

Regarding the second message, Patent Owner acknowledges that Munoz teaches sending an open roof signal, but Patent Owner contends Munoz does not disclose how it could send a second message as claimed. Patent Owner states “[t]his open roof signal (second message) must be received and acted upon by the original roof control electronics 110, which implies that it is sent with a CAN bus identifier which the roof control electronics 110 is configured to recognize and respond to.” PO Resp. 44–45 (citing Ex. 1004, 6:50–53); PO Sur-Reply 4–5. But according to Patent Owner, Munoz does not explain how that is possible. PO Resp. 45 (citing Ex. 2028 ¶ 96). Citing messaging in real-world vehicles (PO Resp. 45–46 (citing Ex. 2008; Ex. 2010)), Patent Owner argues “Munoz’s open roof message does not mimic any first message sent from a factory-installed device but uses a diagnostic command” (PO Resp. 45 (citing Ex. 2028 ¶ 97)). *Accord* PO Resp. 46 (citing Ex. 2028 ¶ 98); PO Sur-Reply 4.

As noted above, Munoz teaches routing the factory data connection between vehicle factory dashboard electronics and controls 105 and Roof Control Electronics 110 through Roof Control Module 100, as depicted in

Figure 1. Ex. 1004, 6:27–36, Fig. 1 (block 115: “the original data connection will be terminated so all communication has to go through the roof control module”). Munoz’s Figure 2 discloses “the device” connected between a first CAN bus 210 and a second CAN bus 205. Ex. 1004, 5:40–42; 6:37–40, Fig. 2 (block 200: “The VARIO PLUS CONTROL MODULE is connected to the integrated CAN-Network through 2 interfaces”).

We agree with Petitioner that a person of ordinary skill would have understood Munoz to thus teach that messages from factory dashboard electronics and controls 105 would be routed on a first bus to Roof Control Module 100 and then on a second bus from Roof Control Module 100 to Roof Control Electronics 110. *See* Pet. 19. Although Munoz teaches that its Roof Control Module 100 can remove or alter the data exchanged “to allow additional operations normally not available to operate an automatic folding roof” (Ex. 1004, Fig. 1 (block 100)), Munoz teaches that the additional features can be turned off (Ex. 1004, 6:44–46 (“Operation 305 represents the on/off switch that determines whether or not the device features are activated.”)) and that the additional features do not compromise the existing factory features (Ex. 1004, 5:21–26).

We agree with Petitioner that a person of ordinary skill would have understood the messaging required to maintain the factory features with Roof Control Module 100 installed. Pet. 12–13, 15–17, 20, Ex. 1103 ¶¶ 63, 132, 152, 158. And Patent Owner acknowledges that Munoz teaches CAN messaging; Patent Owner recognizes that for Munoz’s system to act on an open roof signal, the “open roof signal (second message) must be received and acted upon by the original roof control electronics 110, *which implies that it is sent with a CAN bus identifier which the roof control electronics*

110 is configured to recognize and respond to.” PO Resp. 44–45 (citing Ex. 1004, 6:50–53) (emphasis added). The same implication applies to the messaging from original factory dashboard and controls 105—to maintain the factory features with the Roof Control Module 100 installed, a first message from factory dashboard electronics and controls 105 would have included a CAN bus identifier that Roof Control Electronics 110 would have been configured to recognize and respond to. Because Munoz teaches that “all communication has to go through the roof control module” (Ex. 1004, Fig. 1 (block 115)), the first message from factory dashboard and controls 105 would have been routed to Roof Control Module 100 on the first CAN bus and then from Roof Control Module 100 to original Roof Control Electronics 110 on the second CAN bus (Ex. 1004, Figs. 1, 2). Following the same reasoning, a person of ordinary skill would have understood this to mean that the message on the second CAN bus from Roof Control Module 100 to original Roof Control Electronics 110 would have been sent with a CAN bus identifier which the roof control electronics 110 is configured to recognize and respond to. *See* PO Resp. 44–45.

Patent Owner argues that in real-world vehicle installations, such aftermarket controls would have been installed using a single CAN bus, with two segments of the CAN bus on either side of the aftermarket controls, and using diagnostic messages instead of mimicking or “spoofing” messages sent from original factory controls. PO Resp. 32–37; PO Sur-Reply 7–8. Again, though, the evidence of real-world installations does not outweigh the fact that Munoz plainly teaches terminating the original data connection and using two CAN buses. *E.g.*, Ex. 1004, 6:37–40 (describing “a first CAN-bus 210 and a second CAN-bus 205”), Figs. 1, 2. Further, we credit

Mr. Leale's testimony that a person of ordinary skill would have understood that Munoz's teachings of maintaining existing factory features with Roof Control Module 100 installed would have included a second message indistinguishable from the first message. Ex. 1103 ¶¶ 132, 158. Mr. Leale's testimony is supported by secondary references describing CAN messaging (Ex. 1006, 18–21, 24–28), and just as Patent Owner acknowledges what a person of ordinary skill would have understood regarding the CAN messaging from Roof Control Module 100 to roof control electronics 110, the weight of the evidence supports Petitioner's argument that a person of ordinary skill would have understood Munoz's CAN messaging from factory dashboard and controls 105. Further, we need not decide whether Munoz's system would have been implemented as an actual gateway (as argued by Petitioner (Pet. Reply 9–10, 22)) or a mere pass-through (as argued by Patent Owner (Sur Reply 13)), because the weight of the evidence supports that a person of ordinary skill would have understood a message on the first CAN bus to be the first message and a message on the second CAN bus to be the second message, and where both messages are sent to the same node (e.g., roof control electronics 110) with the same command (e.g., open roof), the messages would have been indistinguishable.

e. Conclusion: Claim 1

Based on the record before us, we determine that Petitioner has demonstrated by a preponderance of the evidence the claim 1 would have been obvious over Munoz alone or over the combined teachings of Munoz, Negley, Bosch, and SAE.

3. Claim 2

Claim 2 recites “The method as in claim 1, wherein the second message uses the identifier of the first message.” Petitioner contends that “a POSITA would understand that the second message from the retrofit control module 100 employs a message identifier identical to that originally used by the first message . . . so that the first factory-installed apparatus 110 (roof electronics) would recognize, accept, and act upon the second message.” Pet. 21 (citing Ex. 1103, ¶¶ 159–160).

Relying on the same arguments advanced for claim 1, Patent Owner argues that Munoz fails to teach the first message and that the second message sent from Munoz’s retrofit control module would have used an identifier assigned to a diagnostic test device, not one assigned to a factory-installed apparatus. PO Resp. 47 (citing Ex. 2028 ¶¶ 100–101).

For the same reasons discussed above, we determine Petitioner has established by the preponderance of the evidence that claim 2 would have been obvious over Munoz alone or over the combined teachings of Munoz, Negley, Bosch, and SAE.

4. Claim 3

Claim 3 recites “The method as in claim 1, further comprising receiving the first message in the retrofit apparatus.” Petitioner contends Munoz discloses receiving the first message in the retrofit apparatus, because Munoz discloses that “all communication [from 105 to 110] has to go through the [retrofit] roof control module [100].” Pet. 21 (citing Munoz, Fig. 1).

Relying on the same arguments addressed above, Patent Owner argues Munoz does not disclose the claimed first message and, thus, there is no first

message for the retrofit device to receive. PO Resp. 47 (citing Ex. 2028 ¶ 102).

For the same reasons discussed above, we determine Petitioner has established by the preponderance of the evidence that claim 3 would have been obvious over Munoz alone or over the combined teachings of Munoz, Negley, Bosch, and SAE.

5. *Claim 4*

Claim 4 recites “The method as in claim 3, wherein the retrofit apparatus re-transmits messages received on the vehicle data bus to the factory-installed first apparatus.” Petitioner contends that a POSITA would have understood that Munoz’s retrofit roof control module 100 would have retransmitted a second CAN message, indistinguishable from the first CAN message, to allow factory-installed roof 110 to perform its original, pre-existing features as originally programmed. Pet. 22 (citing Ex. 1103 ¶ 167).

Patent Owner argues that Munoz discloses that its device does nothing when the aftermarket controls are turned off and thus does not teach retransmitting messages. PO Resp. 48 (citing Ex. 1004, Figs. 3–7; Ex. 2028 ¶ 103).

For the same reasons explained above, we agree with Petitioner that Munoz teaches transmitting a first message on a first CAN bus to the retrofit apparatus and retransmitting an indistinguishable message from the retrofit apparatus on a second CAN bus to the factory-installed first apparatus. Thus, we determine Petitioner has established by the preponderance of the evidence that claim 4 would have been obvious over Munoz alone or over the combined teachings of Munoz, Negley, Bosch, and SAE.

6. *Claim 5*

Claim 5 recites “The vehicle that has been retrofitted according to the method as in claim 1.” Petitioner contends Munoz discloses an automobile or truck in which a retrofit control module is installed. Pet. 23 (citing Munoz, code (54), Fig. 1; Ex. 1103 ¶ 166). Patent Owner contends Munoz does not teach the method of claim 1 and therefore cannot teach a vehicle that has been retrofitted according to that method. PO Resp. 48.

For the same reasons explained above, we determine Petitioner has established by the preponderance of the evidence that claim 5 would have been obvious over Munoz alone or over the combined teachings of Munoz, Negley, Bosch, and SAE.

7. *Claim 6*

- a. [6.1] *A vehicle comprising:*
a factory-installed first apparatus including a first processor which is programmed to receive a first message on a vehicle data bus from a factory-installed second apparatus; and

Citing Munoz Figure 1 and related disclosures, Petitioner contends Munoz teaches this limitation with its aftermarket automobile accessory using CAN messaging between a factory-installed first apparatus 110, through vehicle data bus 115 to a factory-installed second apparatus 105. Pet. 23–24.

Relying on the arguments equivalent to those advanced for claim 1, Patent Owner argues that Munoz does not disclose any communication between the original dashboard 105 and the roof control electronics 110 because factory open/close buttons would have been wired directly to roof control electronics 110. PO Resp. 49 (citing Ex. 2028 ¶ 105). Patent Owner argues Mr. Leale admits that Munoz does not disclose a first message and

that the second message could be a diagnostic command, which does not originate from a factory installed device. PO Resp. 49 (citing Ex. 2024, 58:3–4, 58:8–10, 69:13; Ex. 2028 ¶¶ 97–99).

For the same reasons discussed above, we agree with Petitioner that Munoz discloses this limitation. Further, we disagree with Patent Owner’s characterization of Mr. Leale’s testimony; Mr. Leale testified that Munoz does not “specifically” state that there is a first message, but Mr. Leale consistently testified that the original factory dashboard and controls 105 transmits the first message. Ex. 2024, 56:20–68:19.

- b. [6.2] *a retrofit apparatus connected to the vehicle data bus including a second processor programmed to transmit a second message which mimics the first message.*

Petitioner contends Munoz teaches this limitation with its retrofit roof control module 100 that has a processor and transmits a second message that is indistinguishable or “mimics” the first message. Pet. 25–26.

Repeating arguments addressed above regarding claim 1, Patent Owner argues Munoz does not teach a first message and therefore cannot teach a second message that mimics a non-existent first message. PO Resp. 50.

For the same reasons explained above, we agree with Petitioner that Munoz discloses this limitation.

c. *Conclusion: Claim 6*

We determine Petitioner has established by the preponderance of the evidence that claim 6 would have been obvious over Munoz alone or over the combined teachings of Munoz, Negley, Bosch, and SAE.

8. Claim 7

Claim 7 recites “The vehicle as in claim 6, wherein the first message comprises a message identifier that has been assigned to the factory-installed second apparatus and wherein the second processor is programmed to transmit the second message with the same message identifier.” Petitioner contends Munoz teaches this limitation with its teachings relating to CAN bus specifications used in Munoz’s system. Pet. 26. According to Petitioner, a person of ordinary skill would have understood that an identifier would have been assigned for the factory-installed second apparatus to correspond with the data the second apparatus desired to send to the first apparatus. Pet. 26. Further, Petitioner argues that a person of ordinary skill would have understood that Munoz’s retrofit apparatus includes a processor and, for the same reasons cited for element 6.1 addressed above, a person of ordinary skill would have understood the processor to transmit the second message with the same identifier as the first message. Pet. 27.

Patent Owner again argues that Munoz does not disclose a first message and that Munoz’s system would have used diagnostic messages having identifiers assigned to a diagnostic tester, not the factory apparatus. PO Resp. 50–51.

For the same reasons explained above, we determine Petitioner has established by the preponderance of the evidence that claim 7 would have been obvious over Munoz alone or the combined teaches of Munoz, Negley, Bosch, and SAE.

9. Claim 8

Claim 8 recites “The vehicle as in claim 7, wherein the message identifier is an 11 bit or a 29 bit CAN ID.” Petitioner argues a person of ordinary skill would have understood from Munoz’s teachings of a CAN bus system that every message (including the claimed first message and the second message) includes a CAN message identifier of either 11 or 29 bits. Pet. 28 (citing Ex. 1003 ¶¶ 56, 64, 175; Ex. 1006 pp. 9–12; Ex. 1010 pp. 3, 13, 45–46). Patent Owner does not contest Petitioner’s showings regarding claim 8.

For the reasons explained above and because the evidence of record establishes that standard CAN messages had identifiers of 11 bits or 29 bits, we determine Petitioner has established by the preponderance of the evidence that claim 8 would have been obvious over Munoz alone or the combined teachings of Munoz, Negley, Bosch, and SAE.

10. Claim 9

Claim 9 recites “The vehicle as in claim 6, wherein the vehicle data bus is a CAN network.” Petitioner contends Munoz discloses a vehicle using a BAN bus network. Pet. 28–29 (citing Ex. 1004, code (57), 1:26–40, 1:50–53, 2:65–3:21, 6:20–40; Ex. 1003 ¶ 177). Patent Owner does not contest Petitioner’s showings regarding claim 9.

For the reasons explained above, we determine Petitioner has established by the preponderance of the evidence that claim 9 would have been obvious over Munoz alone or the combined teachings of Munoz, Negley, Bosch, and SAE.

11. Claim 10

- a. [10.1] *A vehicle, comprising:
a factory-installed first apparatus including a first processor,
programmed to receive a first message via a vehicle data bus from a
factory-installed second apparatus, the first message having a
message identifier; and*

Petitioner contends Munoz teaches this limitation for the same reasons addressed above regarding claim elements 1.1, 6.1, and 7.

Referencing the arguments advanced for claims 1 and 6, Patent Owner contends that Munoz does not disclose any communication between the original dashboard 105 and roof control electronics 110 and that Munoz does not teach the first message required by claim 10. PO Resp. 51.

- b. [10.2] *a retrofit apparatus, operatively connected to the vehicle data bus, including a second processor programmed to send a second message having the same message identifier.*

Petitioner contends Munoz teaches this limitation with its retrofit roof control module 100 connected to a CAN bus. Pet. 30 (citing Ex. 1003 ¶¶ 128–132, 141, 187). Petitioner further states that Munoz’s module 100 would have included a processor programmed to send messages having the same message identifier as the first message from original dashboard 105. Pet. 30–31 (citing Ex. 1003 ¶¶ 134, 139, 182–183, 187).

Patent Owner again argues that Munoz does not teach the first message and therefore cannot teach a second message having the same identifier as the first message.

c. *Conclusion: Claim 10*

We determine Petitioner has established by the preponderance of the evidence that claim 10 would have been obvious over Munoz alone or over the combined teachings of Munoz, Negley, Bosch, and SAE.

12. Claim 11

Claim 11 recites, “The vehicle as in claim 10, wherein the second message originating from the retrofit apparatus is indistinguishable to the first apparatus from the first message received from the second apparatus.” Petitioner contends this limitation is satisfied for the same reasons addressed above for limitation 1.4. Pet. 31 (citing Ex. 1003 ¶¶ 184–185).

Patent Owner again argues that Munoz fails to teach the first message and therefore cannot teach that the second message is indistinguishable to the first apparatus from the first message. PO Resp. 52. Further, Patent Owner argues that Munoz does not teach that the first processor is programmed to receive any messages from the second apparatus. PO Resp. 52 (citing Ex. 2028 ¶ 111).

For the reasons explained above, we determine Petitioner has established by the preponderance of the evidence that claim 11 would have been obvious over Munoz alone or the combined teachings of Munoz, Negley, Bosch, and SAE.

13. Claim 12

Claim 12 recites “The vehicle as in claim 10, wherein the factory-installed first apparatus responds to the second message originating from the retrofit apparatus as if it were the first message received from the factory-installed second apparatus.” Petitioner argues Munoz teaches this limitation for the same reasons discussed above with claim element 1.4. Pet. 31–32.

Patent Owner again argues that Munoz fails to teach the first message and therefore cannot teach that the second message is indistinguishable to the first apparatus from the first message. PO Resp. 52. Further, Patent Owner argues that Munoz does not teach that the first processor is

programmed to receive any messages from the second apparatus. PO Resp. 52 (citing Ex. 2028 ¶ 112).

For the reasons explained above, we determine Petitioner has established by the preponderance of the evidence that claim 12 would have been obvious over Munoz alone or the combined teachings of Munoz, Negley, Bosch, and SAE.

14. Claim 13

Claim 13 recites “The vehicle as in claim 10, wherein the factory-installed first apparatus is electrically disconnected from the vehicle data bus.” Petitioner contends Munoz teaches this limitation with its teachings of switch 120 that electrically disconnects factory-installed first apparatus 110 from vehicle data bus A. Pet. 32 (citing Ex. 1004, 6:32–36, Fig. 1; Ex. 1103 ¶ 188. Patent Owner argues that Munoz only discloses that switch 120 *connects* vehicle factory dashboard and controls 105 to Roof Control Electronics 110. PO Resp. 52.

Based on Munoz’s disclosure of a switch 120, we determine a person of ordinary skill would have understood switch 120 to connect and/or disconnect factory-installed first apparatus 110 from the vehicle data bus, as claimed. Accordingly, we determine Petitioner has established by the preponderance of the evidence that claim 13 would have been obvious over Munoz alone or the combined teachings of Munoz, Negley, Bosch, and SAE.

I. Obviousness over Munoz or Munoz, Negley, SAE, Bosch, and Lobaza

1. Motivation to Combine & Background References

Petitioner provides support for the motivation to combine the teachings of Munoz, Negley, SAE, Bosch, and Lobaza. Pet. 32–33. Petitioner argues that a Lobaza evidences that certain automotive safety features were known in the art and that such features used a CAN bus. Pet. 32–33. According to Petitioner, Munoz is similarly concerned with automotive safety. Pet. 33 (citing Ex. 1004, 4:55–57).

We determine that Petitioner has provided sufficient rationale for combining the teachings of Munoz, Negley, SAE, Bosch, and Lobaza, each of which relates to CAN bus systems in the automotive industry. In addition to combining the Munoz, Negley, SAE, Bosch, and Lobaza references, Petitioner also provides sufficient testimony and argument to rely on the Negley, SAE, and Bosch references to support the knowledge that skilled artisans would have brought to bear on the prior art functions of CAN systems (Pet. 15–17, 19–22). *See Randall Mfg. v. Rea*, 733 F.3d at 1362; *see also Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d at 1365–66.

We address Munoz alone with Negley, SAE, Bosch, and Lobaza as background knowledge and the combination of Munoz, Negley, SAE, Bosch, and Lobaza with respect to claims 14–16.

2. Claim 14

Claim 14 recites “The vehicle as in claim 10, wherein the factory-installed second apparatus is an object sensor capable of detecting objects in a frontal area of the vehicle.” Petitioner contends Munoz teaches using its retrofit device to improve safety features, such as “common factory systems

by automatically activating the vehicle hazard light when the Anti-Lock Braking System (ABS), Traction Control, or Automatic Skid Control (ASC) systems are activated” (Pet. 33 (quoting Ex. 1004, 4:65–5:2)), and Petitioner additionally cites Lobaza as teaching that a known object detection system for detecting objects in front of a vehicle (Pet. 32–33 (citing Ex. 1014, 2:4–10, 4:39–49)). Petitioner contends the limitation of claim 14 would have been obvious based on Munoz in view of Lobaza.

Patent Owner does not contest Petitioner’s showings regarding claim 14.

Because Munoz teaches use of its system for a variety of safety features and Lobaza evidences that an object sensor for detecting objects in front of a vehicle was a known safety feature, we agree with Petitioner’s arguments regarding claim 14. Accordingly, we determine Petitioner has established by the preponderance of the evidence that claim 14 would have been obvious over Munoz alone or the combined teachings of Munoz, Negley, Bosch, SAE, and Lobaza.

3. Claim 15

Claim 15 recites “The vehicle as in claim 10, wherein the factory-installed second apparatus is part of an automatic braking system.” Similar to claim 14, Petitioner cites Lobaza as evidencing that automatic braking systems were known in the art. Pet. 32–33 (citing Ex. 1014, 2:4–10, 4:39–49; Ex. 1103 ¶¶ 190–194). Patent Owner does not contest Petitioner’s showings regarding claim 15.

Because Munoz teaches use of its system for a variety of safety features and Lobaza evidences that automatic braking systems were known safety features, we agree with Petitioner’s arguments regarding claim 15.

Accordingly, we determine Petitioner has established by the preponderance of the evidence that claim 15 would have been obvious over Munoz alone or the combined teachings of Munoz, Negley, Bosch, SAE, and Lobaza.

4. Claim 16

Claim 16 recites “The vehicle as in claim 10, wherein the factory-installed second apparatus is part of a parking aid system.” Petitioner cites Lobaza as teaching that parking aid systems were known in the art. Pet. 32 (citing Ex. 1014, 2:4–10, 4:39–49; Ex. 1103 ¶¶ 190–194). Patent Owner does not contest Petitioner’s showings regarding claim 16.

Because Munoz teaches use of its system for a variety of safety features and Lobaza evidences that parking aid systems were known safety feature, we agree with Petitioner’s arguments regarding claim 16. Accordingly, we determine Petitioner has established by the preponderance of the evidence that claim 16 would have been obvious over Munoz alone or the combined teachings of Munoz, Negley, Bosch, SAE, and Lobaza.

J. Grounds Not Reached

The Petition includes challenges to claims 1–16 as obvious in view of different combinations of references. Pet. 34–67. Patent Owner responded to those grounds, arguing that certain limitations of each claim were not satisfied. PO Resp. 53–78. In its Reply, Petitioner did not address the additional grounds or Patent Owner’s arguments regarding the additional grounds, and neither party substantively addressed the additional grounds at Oral Argument. Because we determine claims 1–16 are unpatentable for the reasons explained above, we do not reach the additional grounds. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding a petitioner “is entitled to a final written decision addressing all of the claims it has

challenged”); *Boston Sci. Scimed, Inc. v. Cook Grp. Inc.*, Nos. 2019-1594, -1604, -1605, 2020 WL 2071962, at *4 (Fed. Cir. Apr. 30, 2020) (non-precedential) (recognizing that the “Board need not address issues that are not necessary to the resolution of the proceeding” and, thus, agreeing that the Board has “discretion to decline to decide additional instituted grounds once the petitioner has prevailed on all its challenged claims”).

IV. CONCLUSION⁹

Petitioner has shown, by a preponderance of the evidence, that the subject matter of claims 1–13 would have been obvious over Munoz alone or the combination of Munoz, Negley, Bosch, and SAE and that the subject matter of claims 14–16 would have been obvious over Munoz alone or the combination of Munoz, Negley, SAE, Bosch, and Lobaza.

The table below summarizes our conclusions.

⁹ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this Decision, we draw Patent Owner’s attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–13	103	Munoz or Munoz, Negley, SAE, Bosch	1–13	
14–16	103	Munoz or Munoz, Negley, SAE, Bosch, Lobaza	14–16	
1–13	103	Dietz, Negley, SAE, Bosch		
1–13	103	Dietz, Allen, Negley, SAE, Bosch		
14–16	103	Dietz, Negley, SAE, Bosch, Lobaza		
14–16	103	Dietz, Allen, Negley, SAE, Bosch, Lobaza		
6–12	103	Allen, Negley, SAE, Bosch		
10, 14–16	103	Lobaza, Allen, Negley, SAE, Bosch		
Overall Outcome			1–16	

V. ORDER

In view of the foregoing, it is hereby:

ORDERED claims 1–16 of the '505 patent are determined to be unpatentable, and

FURTHER ORDERED that, because this is a final written decision, parties to this proceeding seeking judicial review of our Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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