

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

EMERSON ELECTRIC CO.,
Petitioner,

v.

SIPCO, LLC,
Patent Owner.

Case IPR2016-01895
Patent 7,697,492 B2

Before BRYAN F. MOORE, MICHAEL J. FITZPATRICK, and
ROBERT J. WEINSCHENK, *Administrative Patent Judges*.

MOORE, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

Emerson Electric Co. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) pursuant to 35 U.S.C. § 311–19 to institute an *inter partes* review of claims 1–4, 6, 8–11, 13–21, and 25 of U.S. Patent No. 7,697,492 B2 (“the ’492 patent,” Ex. 1001). Pet. 1. The Petition is supported by the Declaration and Rebuttal Declaration of Patrick W. Kinney (Exs. 1002, 1027). SIPCO, LLC (“Patent Owner”) filed a Preliminary Response (“Prelim. Resp.,” Paper 7).

On March 24, 2017, we instituted an *inter partes* review of claims 1–3, 6, 8–11, 13–21, and 25 of the ’492 patent. Paper 8 (“Inst. Dec.”). Patent Owner filed a Response. Paper 12 (“PO Resp.”). The Patent Owner’s Response is supported by the Declaration of Kevin C. Almeroth, Ph.D. (Ex. 2002). Petitioner filed a Reply. Paper 20 (“Reply”). An oral hearing was held on November 14, 2017. Paper 24 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–3, 6, 8–11, 13–21, and 25 are unpatentable.

A. Related Matters

Petitioner advises us that the following district court lawsuits may affect or be affected by this proceeding: *Emerson Electric Co. v. SIPCO, LLC*, No. 1:15-cv-0319-AT (N.D. Ga.); *SIPCO, LLC v. Emerson Electric Co.*, No. 1:16-cv-02690 (N.D. Ga) (consolidated with Civil Action No. 1:15-

cv-0319-AT (N.D. Ga.)). Pet. vi. The '492 patent was the subject of IPR2015-00659 (institution denied).

B. The '492 Patent

The '492 patent is directed to a system and method for remotely operated systems, and more particularly to a system for monitoring, controlling, and reporting on remote systems utilizing radio frequency (RF) transmissions. Ex. 1001, Abstract.

C. Illustrative Claim

Challenged claims 1, 8, 14, 19, and 25 are independent claims. Challenged claims 2, 3, 6, 9–11, 13, 15–18, and 20–21 depend from claims 1, 8, 14, or 19. Claim 1, reproduced below, is illustrative.

1. In a communication system to communicate command and sensed data between remote devices, the system comprising:
 - a receiver address comprising a scalable address of at least one remote device;
 - a command indicator comprising a command code;
 - and
 - a data value comprising a scalable message;
 - and a controller associated with a remote wireless device comprising a transceiver configured to send and receive wireless signals,
 - the remote device configured to send a preformatted message comprising the receiver address, a command indicator, and the data value via the transceiver to at least one other remote device.

Ex. 1001, 13:60–14:8.

D. Prior Art

Petitioner relies upon the following prior art references in the instituted grounds:

Patents

Johnson	US 5,673,252 B1	Sept. 30, 1997 ¹	(Ex. 1003)
Mason	US 6,100,817 B2	Aug. 8, 2000 ²	(Ex. 1006)
Shuey	US 5,874,903 B2	Feb. 23, 1999 ³	(Ex. 1007)

Other References

Control Network Protocol Specification, EIA STANDARD, EIA-709.1 (Mar. 1998) (Ex. 1009, “EIA 709.1”)

Protocol Specification for ANSI Type 2 Optical Port, NEMA, ANSI C12.18-1996 (1996) (Ex. 1008, “C12.18”)

E. Instituted Grounds of Unpatentability

We instituted trial on the following grounds (Inst. Dec. 20):

Challenged Claim(s)	Basis	References
1–3, 6, 8–11, 13, 14, 16, and 18	§ 103	Johnson
14, 15, 17, 19–21, and 25	§ 103	Mason, EIA-709, Shuey, and C12.18
1–3, 6, 8–11, 13, 14, 16, and 18	§ 102	Johnson

¹ Filed May 26, 1995.

² Filed Mar. 17, 1998.

³ Filed June 6, 1997.

II. ANALYSIS

A. Priority

The '492 patent indicates that it is a continuation of U.S. Patent Application No. 09/812,044, which is a continuation-in-part of U.S. Patent Application No. 09/704,150. Pet. 2; Ex. 1001. The '492 patent is also a continuation-in-part of U.S. Patent Application Nos. 09/439,059; 09/412,895; 09/271,517; 09/172,554; and 09/102,178. Ex. 1001, at (63). The '492 patent further claims the benefit of U.S. Provisional Application No. 60/224,043. *Id.* Petitioner contends “[e]ven though the earliest filing date of the parent applications to the '492 patent is June 22, 1998, the concepts of a ‘scalable address’ and ‘determining a location from which the duplicative message originated’ do not appear until application no. 09/439,059, which has a filing date of November 12, 1999 and is now U.S. Patent No. 6,437,692.” *Id.* (citing Exs. 1011–15). Therefore, according to Petitioner “the '492 patent is only entitled to the benefit of November 12, 1999 as a priority date for challenged claims 1–4, 6, 8–11, 13–21, and 25.” *Id.* Patent Owner does not rebut this argument in its Patent Owner Response. Based on the full record before us, we adopt November 12, 1999 as the earliest possible priority date for the challenged claims in this *inter partes* review (“IPR”).

B. Claim Construction

In an *inter partes* review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the

patent in which they appear. 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S.Ct. 2131, 2144–46 (2016). Under the broadest reasonable interpretation standard, claim terms are presumed to have their ordinary and customary meaning as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). That presumption may be rebutted if the patent specification defines the term “with reasonable clarity, deliberateness, and precision.” *In re Paulson*, 30 F.3d 1475, 1480 (Fed. Cir. 1994); see *In re Bigio*, 381 F.3d 1320, 1325–26 (Fed. Cir. 2004) (“Absent claim language carrying a narrow meaning, the PTO should only limit the claim based on the specification or prosecution history when those sources expressly disclaim the broader definition.”).

1. *Level of Skill*

Petitioner, through its declarant, asserts a person of ordinary skill in the art of the subject matter of the ’492 patent would have had “at least a bachelor’s degree in electrical engineering with two or more years of experience in the development and design, or technical marketing, of radio communications or computer network systems [such that a] person having this background would understand how to design and build a wireless, multi-hop communications system for monitoring and controlling remote devices.”

Ex. 1002 ¶ 6. Patent Owner, through its declarant, asserts

a person of ordinary skill in the art for the patent-in-suit would have the equivalent of a four-year degree from an accredited institution (usually denoted as a B.S. degree) in computer science, computer engineering or the equivalent and experience

with, or exposure to, computer networks and routing. A person of ordinary skill in the art would also have approximately two years of professional experience with computer networking, routing, and wireless networks. Additional graduate education could substitute for professional experience, while significant experience in the field might substitute for formal education.

Ex. 2002 ¶ 76. Patent Owner asserts using its lower level of skill in the art “would diminish the motivation of a POSITA would have for combining references identified in the instituted grounds.” *Id.* at ¶ 82. We disagree that an understanding of how to design and build a wireless, multi-hop communications systems is a leap in knowledge that would create a motivation to combine that would not be there under Patent Owner’s articulation of the level of skill. See Ex. 1027 ¶¶ 9–11. Thus, we do not discern a difference between the two proposed levels of skill that affects the analysis in this IPR.

However, for clarity we adopt Petitioner’s articulation of the level of skill, which is reflected by the prior art of record. See *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

2. “*remote device*”/“*remote wireless device*”/“*remote wireless communication device*”

Patent Owner proposes a construction for the claim term “remote [] device” (claims 1–3, 6, 8–11, 13–21, and 25). PO Resp. 18–19.

Specifically, Patent Owner proposes that the terms “remote device,” “remote wireless device,” and “remote wireless communication device” (collectively “remote device terms”) mean “a device, located separately, at least one of

which includes a sensor or actuator.” *Id.* Patent Owner cites only a claim construction decision in the related Amazon litigation⁴ to support this construction. *Id.* In that case, the court relied on argument regarding the term “plurality of remote devices” in a related patent to construe the term “remote device.” Ex. 2001, 74. Specifically, the court decided “[o]n balance, a person of ordinary skill in the art reading the claims would conclude that there could be no ‘sensor data signal’ without a sensor, particularly in light of the recited ability to transmit ‘*an original data message*,’ not merely a repeated message[and, therefore, a] sensor is inherently present.” *Id.* at 16 (emphasis added).

Here, the intrinsic evidence does not support limiting the challenged claims to sending “original” messages. Thus, sending sensed data acquired from another device is within the ambit of the challenged claims. In fact, dependent claims 2, 11, 15, 17, 21 specifically recite a sensor and/or actuator which suggests that the independent claims can be broader and may not require a remote device “including” a sensor and/or actuator. Additionally, the court in the related Amazon litigation did not construe “remote devices” to require actuators. *Id.* at 16, 74.

For the reasons above, the broadest reasonable construction of the remote device terms does not require a sensor and/or actuator. Based on the

⁴ *Sipco, LLC v. Amazon.com, Inc.*, No. 2-08-cv-00359 (E.D. Tex.) (“the related Amazon litigation”).

record before us, it is unnecessary to expressly construe the remote device terms further.

3. “scalable address”

a. Preliminary Construction

Petitioner proposed a construction for the claim term “scalable address” (claims 1–3, 6, 10, 14–21, and 25). Pet. 4–5. Specifically, Petitioner proposed that “scalable address” means “an address that has a variable size based on the size and complexity of the system.” *Id.* at 4 (citing Ex. 1001, 6:25–26, 9:60–61; Ex. 1002 ¶ 12–16). Petitioner stated that this construction was also adopted in the related ABB litigation.⁵ *Id.*

The Board construed this term the same way in IPR2015-00659. In that *inter partes* review, the Board cited the following text from the Specification:

This address can be scalable from one to six bytes based upon the size and complexity of the system. By way of example, the ‘to’ address **700** can indicate a general message to all transceivers, to only the stand-alone transceivers, or to an individual integrated transceiver. In a six byte ‘to’ address, the first byte indicates the transceiver type to all transceivers, to some transceivers, or a specific transceiver. The second byte can be the identification base, and bytes three through six can be used for the unique transceiver address (either stand-alone or integrated). The ‘to’ address **700** can be scalable from one byte to six bytes depending upon the intended recipient(s).

⁵ *Sipco, LLC v. ABB Inc.*, No. 6-11-cv-00048 (E.D. Tx.)

IPR2015-00659 Dec. 7 (citing Ex. 1001, 9:60–10:4). The Board also cited the following text from the Specification:

While the message indicates specific byte length for each section, only the order of the specific information within the message is constant. The byte position number in individual transmission can vary because of the scalability of the “to” address, the command byte, and the scalability of the data.

Id. (citing Ex. 1001, 11:1–4). Based on this evidence, the Board noted “the specification reinforces the understanding that scalability refers to a variation in the size that the address occupies within the frame [or packet]⁶.”

Id. In the Institution Decision here, we adopted the construction and clarification from IPR2015-00659. Although we discern no reason to change this construction, we address a requested clarification of the construction below.

b. Patent Owner’s Proposed Construction

In its Patent Owner Response, Patent Owner argues that we should further construe the term “address” within the term “scalable address,” which is an argument it did not present in its Preliminary Response. PO Resp. 15–18. Specifically, Patent Owner proposes that we construe “a receiver address comprising a scalable address of at least one remote device” to require the address of the remote device (which is within the “receiver address”) to be scalable. PO Resp. 18. As explained below, we decline to construe “scalable address” as including such a requirement.

⁶ “Frame” and “packet” are equivalent in the context of the issues in this IPR. We use the term packet rather than frame.

To provide context, the Specification describes at least three types of addresses that are contained in messages sent according to the invention. “All messages transmitted within the system consist of a ‘to’ address [and] a ‘from’ address . . .” Ex. 1001, 9:53–55. The Specification states that the “to” address is “scalable” from one to six bytes. *Id.* at 9:59–61. The Specification also states that “bytes three through six [of the ‘to’ address] can be used for the unique transceiver address.” *Id.* at 9:67–10:1. The Specification states that the “‘from’ address [] can be [] the six-byte unique transceiver address of the transceiver originating the transmission.” *Id.* at 10:5–6. Finally, the Specification recognizes that “[t]he length of the [unique transceiver] address can be varied as necessary given individual design constraints.” *Id.* at 6:25–26.

c. Construction in Related IPRs

Patent Owner relies on the decisions denying institution in IPR2015-01579 (“1579 IPR”) and IPR2017-00260 (“260 IPR”) (collectively “related IPRs”) and the decision denying rehearing in the 1579 IPR. Those decisions involved challenges to, inter alia, claims 1 and 37 of US Patent No. 6,914,893 (“the ’893 patent”).⁷ In the related IPRs, the independent claims at issue, claims 1 and 37 of the ’893 patent, recite that a “receiver address” comprises “a scalable address of the at least one of the intended receiving [transceivers/remote devices]” similar to independent claims 1, 14, and 19 of

⁷ The ’492 patent states that it “is a continuation of . . . U.S. Pat. No. 6,914,893.” Ex. 1001, 1:8–10.

the challenged patent in this IPR which recite “a scalable address of the at least one of the [intended receiving transceivers/remote wireless device].” *Compare* 1579 IPR Ex. 1001, 15:1–2, 19:17–18 *with* Ex. 1001 13:65–13:66, 15:14–16, 15:48–51, 16:52–54.

The panels of the Board in the related IPRs found that “the claimed ‘receiver address’ is not limited to including only [a unique] address identifying the intended receiving transceiver/remote device,” and “[t]he ‘receiver address’ may also include additional data” because the claim uses the open-ended word *comprising*. IPR2017-01579 Inst. Dec. 9 (Paper 7). Based on that reading, the panels in the related IPRs found that, as to the term “scalable address,” “‘scalable’ refers to the address of the intended receiving transceiver/remote device. ([T]he ‘address of the at least one of the intended receiving [transceivers/remote devices]’ must be scalable.’).” IPR2015-01579 Decision Denying Request for Rehearing, 4 (Paper 11). In other words, the panels limited the term “scalable address” to an address in which the unique address itself is scalable independent of any other codes or addresses associated with the unique address. *Id.* at 4–5 (our interpretation is consistent with the ’893 specification’s disclosure that the ‘unique transceiver identification’ or ‘unique transceiver address’ uniquely identifying an RF transceiver may be scalable.”)

We are not bound by the construction set forth in the related IPRs, as the prior construction was set forth in non-final institution decisions. *See, e.g., Nestle USA, Inc. v. Steuben Foods, Inc.*, No. 2017-1193, slip op. at 1 (Fed. Cir. March 13, 2018). (applying collateral estoppel in claim

construction context and noting that “[c]ollateral estoppel protects a party from having to litigate issues that have been *fully* and fairly tried in a previous action and adversely resolved against a party opponent”) (emphasis added). And, in this IPR, the parties’ arguments are more developed--all post institution briefs have been filed and oral argument has been held. As such, arguments were made in this IPR that were not considered in the related IPRs.

For example, Petitioner makes arguments in this case that were not considered by the panels in the related IPRs. Petitioner, here, asserts that because the claims recite “a unique address and . . . a scalable address field to contain the unique address,” the claims intended that the “scalable address” is different than the “unique address.” Reply 5. Further to that point, the ’492 patent includes claim 10, which depends from claim 8 and recites “at least one scalable address field to contain the unique address for at least one device.” The ’893 patent at issue in the related IPRs does not contain a similar claim.⁸ Therefore, we do not apply the construction from

⁸ The use of different terms in the claims of this case may lead to a different claim construction. *Chicago Bd. Options Exch., Inc. v. Int’l Sec. Exch., LLC*, 677 F.3d 1361, 1369 (Fed. Cir. 2012) (“In the absence of any evidence to the contrary, we must presume that the use of these different terms in the claims connotes different meanings.”) (citing *SEB S.A. v. Montgomery Ward & Co.*, 594 F.3d 1360, 1369 (Fed. Cir. 2010); *nCube Corp. v. Seachange Int’l, Inc.*, 436 F.3d 1317, 1321–22 (Fed. Cir. 2006) (reasoning that, because two unasserted claims “specifically described” a limitation, it was proper not to read that limitation into an asserted claim that did not specifically describe it). Additionally, when a child patent changes terms in the claims this can

the related IPRs in this IPR.

d. Petitioner's Rebuttal

As Petitioner argues, claims 1, 14, 19, and 25 do not indicate that the claimed “scalable address” must be the unique address. *See* Reply 4. We find, as suggested by Petitioner, that the “scalable address” reads on the “to” address described in the Specification. Reply 5. As explained above, Patent Owner argues that the fact that the claims recite “receiver address *comprising* a scalable address” means that the scalable address must be narrower than the “receiver address.” PO Resp. 17–18. Specifically, Patent Owner argues that “scalable address” is narrower in that it is limited to a unique address that is scalable rather than the broader “to” address. Although we agree the word *comprising* indicates that the receiver address *may* contain things other than the scalable address, we disagree that it follows the scalable address excludes all information except the unique address.

The Specification indicates that the “unique address” can be varied in size. The Specification also states that the “unique address” is preferably six bytes in size. For context, figure 8 of the Specification is reproduced below.

indicate the terms are intended to have different meanings. *Dow Chem. Co. v. Sumitomo Chem. Co.*, 257 F.3d 1364, 1374–75 (Fed. Cir. 2001).

FIG. 8

<u>"To Address"</u>	<u>Byte Assignment:</u>
MSB - Byte 1 Device Type	FF-F0 (16) - Broadcast All Devices (1 Byte Address) EF-1F (224) - Device Type Base (2 to 6 Byte Address) 0F-00 (16) - Personal Transceiver Identification (6 Byte Address)
Byte 2 Mfg./Owner ID	FF-F0 (16) - Broadcast all Devices (Byte 1 Type) (2 Byte Broadcast Address) EF-00 (240) - Mfg./Owner Code Identification Number
Byte 3 Mfg./Owner Extension ID	FF-F0 (16) - Broadcast all Devices (Byte 1 & Byte 2 Type) (3 Byte Broadcast Address) EF-00 (240) - Device Type/Mfg./Owner Code ID Number
Byte 4	FF-F0 (16) - Broadcast all Devices (Byte 1 & Byte 2 Type) (4 Byte Broadcast Address) EF-00 (240) - ID Number
Byte 5	(FF-00) 256 - Identification Number
Byte 6	(FF-00) 256 - Identification Number

Figure 8, above, shows the layout of a six byte address. The Specification states bytes three through six (four bytes total) can be used for a unique address (Ex. 1001, 9:66–10:2) or a six byte unique address can also be used (*Id.* at 6:24–25). Therefore, in the case of a six byte unique address the manufacturer/owner code appear to be used in bytes two and three to indicate the transceiver to which the message is intended. Even if the codes are not intended to be a part of the unique address, the codes are a part of the claimed “scalable address” because they help indicate the “at least one of the intended receiving transceivers” or the “at least one remote wireless device,” as recited in claims 1, 14, 19, and 25. In fact, the Specification makes clear

the “to” address “can indicate the [singular] intended recipient of the packet.” Ex. 1001, 9:59–60.

Petitioner also asserts that claims 1, 14, 19, and 25 recite “a receiver address comprising a *scalable address of at least one remote device*”/ “a receiver address comprising *a scalable address of the at least one of the intended receiving transceivers*” suggesting that the scalable address refers to more than one remote device. Reply 4–5. Specifically, Petitioner argues this claim language “indicates that the scalable address can pertain to more than one remote device—thus, it is **not limited** to being the unique address of each intended recipient” and “[r]ather, as the ’492 discloses, the “‘to’ address can indicate a general message to all transceivers, to only the stand-alone transceivers, or to an individual integrated transceiver.” Reply 4–5; Ex. 1001, 9:62–64, 13:65–66, 15:14–16, 15:49–51, 16:52–54; Ex. 1027 ¶¶ 13, 26–27; Ex. 1002 ¶¶ 12–16. Patent Owner argues that the same phrase, “*at least one*,” in the claims indicates that the address that is scalable must be the unique address of the remote device.

We agree with Petitioner. Other than claim 10, the claims do not explicitly state that the “receiver address” or “scalable address” must contain the “unique” address. We find the broader reading, consistent with Specification, is correct—that is, the claims recite that “scalable address” is of “at least one” transceiver/device because, similar to the “to” address in the specification, the “scalable address” may include multiple intended addresses.

e. “scalable address field” (claim 10)

The term “scalable address field” in claim 10 is different than the “scalable address” in claims 1, 14, 19, and 25. The “scalable address field” in claim 10 explicitly must “contain” the unique address. We acknowledge that, “like the term ‘comprising,’ the term[] ‘containing’ [is] open-ended.” *Mars, Inc. v. H.J. Heinz Co., L.P.*, 377 F.3d 1369, 1375 (Fed. Cir. 2004). Therefore, we read the “scalable address field” consistent with the Specification’s description of the “to” address in which “bytes three through six can be used for [or contain] the unique transceiver address” (Ex. 1001, 10:9:67–10: 6). Therefore, “scalable address field” in claim 10 is not limited to a scalable “unique address.”

f. Conclusion Regarding “scalable[] address”

In sum, as explained above, the Specification is explicit that the scalability of the address based on the size and complexity of the system is related to an address scheme that allows an address to represent an individual transceiver, a group, or a broadcast message. Ex. 1001, 9:59–10:4 (“This *address can be scalable* from one to six bytes based upon the size and complexity of the system. *By way of example*, the ‘to’ address **700** can indicate a general message to all transceivers, to only the stand-alone transceivers, or to an individual integrated transceiver.”) (emphases added). We find that the broadest reasonable construction in light of the Specification of “scalable address” (e.g., as set forth in claim 1’s recitation of “a receiver address comprising a scalable address of at least one remote device”) is one that varies in the size that the address occupies within a

packet and the “address” that is “scalable” is not limited to a single scalable unique address. Additionally, we find that “scalable address field” is also one that varies in the size that the address occupies within a packet. Also, the “address field” that is “scalable” must “contain” a unique address but is not limited to a single scalable unique address.

4. “scalable message”

In its Preliminary Response, Patent Owner proposed a construction for the claim term “scalable message” (claims 1–3, 6, 8–11, 13–21, and 25). Prelim Resp. 16–17. Specifically, Patent Owner proposed that “scalable message” means “a message in which the size of the message can vary independent of other fields.” *Id.* (citing Ex. 1001, 10:37–47). As explained below, we rejected that construction. We found the construction adopted in the related Amazon litigation is reasonable, and, thus, we adopted it. *See* Inst. Dec. 10–12 (construing “scalable message” to mean “message in which the size of the message is varied”). Also, as above with the term “scalable address,” we clarified that a “scalable message” is one that varies in the size that the message occupies within the packet. *Id.* at 12. Petitioner agrees with this initial construction of this term. Reply. 7–8.

In its Response, Patent Owner makes the same arguments it made in its Preliminary Response, which arguments we rejected at institution. PO Resp. 19–20; Inst. Dec. 11–12. For example, Patent Owner stated that its proposed construction is “consistent” with the one adopted in the related Amazon litigation, i.e. “message in which the size of the message is varied.” Prelim. Resp. 19 (citing Ex. 2001, 74).

Patent Owner relied on the following quote from the Specification to support its proposed construction:

The data 770 section may contain data as requested by a specific command. The requested data can be many values. By way of example, test data can be encoded in ASCII (American Standard Code for Information Interchange) or many other encoding systems. The data section of a single packet can be scalable up to 109 bytes. When the requested data exceeds 109 bytes, the integrated transceiver can divide the data into appropriate number of sections and concatenates the series of packets for one message using the packet identifiers as discussed above.

Id. at 19–20 (citing Ex. 1001, 10:37–47). Patent Owner asserted that “it is not necessary for another field in the packet of the ‘492 patent to be decreased in size to accommodate [an] increase in the size of the message field. Rather, the message size in the ‘492 patent varies independently of the size of the other fields in the packet and is determined solely on the amount of data that is required to be transmitted.” *Id.* at 20.

In the Decision to Institute, we found Patent Owner’s position not supported by the above-quoted language. Inst. Dec. 11–12. The quoted language merely states that once the size of the data grows beyond 109 bytes it will be divided into multiple packets. The quoted language is silent as to what happens when the data is smaller than 109 bytes. To the extent that Patent Owner suggests that, in an embodiment of the invention of the ‘492 patent, the size of the message can vary independent of other fields, a “scalable message” still would not be so limited. Patent Owner has not shown that the Specification expressly disclaims a broader construction in

favor of a narrower construction consistent with such an embodiment. *See In re Bigio*, 381 F.3d at 1325–26.

Also, as quoted above in the discussion of “scalable address,” the Specification states:

While the message indicates specific byte length for each section, only the order of the specific information within the message is constant. The byte position number in individual transmission can vary because of the scalability of the “to” address, the command byte, and the *scalability of the data*.

Ex. 1001, 11:1–4 (emphasis added). The italicized language makes it clear this quoted language applies to the data field as well as the address field.

We discern no reason to change our preliminary construction. Thus, the broadest reasonable construction of “scalable message” is “message in which the size of the message is varied.” Also, as above with the term “scalable address,” we clarify that a “scalable message” is one that varies in the size that the message occupies within the packet.

5. Other Terms

Based on the full record before us, we determine it is unnecessary to provide express constructions for any other claim terms.

C. Principles of Law

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) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966) (“the Graham factors”).

An obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 418; *see also Translogic*, 504 F.3d at 1259, 1262 (quoting *KSR*, 550 U.S. at 418).

D. Obviousness of Claims over Johnson

Petitioner contends that claims 1–3, 6, 8–11, 13–14, 16 and 18 are unpatentable under 35 U.S.C. § 103(a) as obvious over Johnson. Pet. 11. To support its assertion, Petitioner provides explanations as to how the prior art allegedly teaches each claim limitation. *Id.* at 11–41.

1. Johnson (Ex. 1003)

Johnson (Ex. 1003) discloses a system in which a wide area communications network collects network service module (NSM) data generated by a plurality of physical devices within a geographical area. Ex. 1003, 9:47–51. The wide area communications network includes a plurality of network service modules 110, a plurality of remote cell nodes 112, a plurality of intermediate data terminals 114, and a central data terminal 120.

Id. at 9:51–56, Fig. 1. The physical devices may be, for example, a utility meter for electricity, gas, or water. *Id.* at 9:57–58.

2. Analysis

a. Claims 1 and 14

Claims 1 and 14 contain essentially the same limitations. Our analysis of claim 1 below pertains equally to claim 14.

i. “a communication system . . .”

Petitioner persuades us that Johnson teaches “a communication system to communicate command and sensed data between remote devices,” as recited in claim 1.⁹ Pet. 11–13; Ex. 1003, 5:15–17, 9:47–58, 10:62–11:10, 11:17–20, 46–52, 14:50–56, 20:40–65; Fig. 37; Ex. 1002 ¶¶ 30–32. For example, Petitioner contends “Johnson’s remote cell nodes (RCN) 112 and network service modules (NSM) 110 are examples of the claimed ‘remote devices’” and that “NSM data generated by physical devices in the network corresponds to the claimed ‘sensed data’ and can be sent from an NSM 110 to an RCN 112 in response to a request from the RCN 112.” Pet. 12 (citation omitted).

Patent Owner’s argument regarding this preamble language focuses, in part, on the operation of the NSM and RCN devices in Johnson. The NSMs arrange data from physical devices into packets of data and transmit that data to an RCN. Ex. 1001, 11–20, 39–44. The RCN collates the data

⁹ Both parties appear to treat the preambles of the independent claims as limiting. Whether they are is not of consequence as Petitioner persuades us that the prior art teaches the preamble language.

received from NSMs, eliminates duplicates and transmits that data to intermediate data terminal (ITD). *Id.* at 6:1–9. The ITD collates the NSM data received from RCNs, eliminates duplicates and transmits that data to central data terminal (CDT). *Id.* at 6:48–53. Figure 1, reproduced below, shows the physical architecture of the Johnson system.

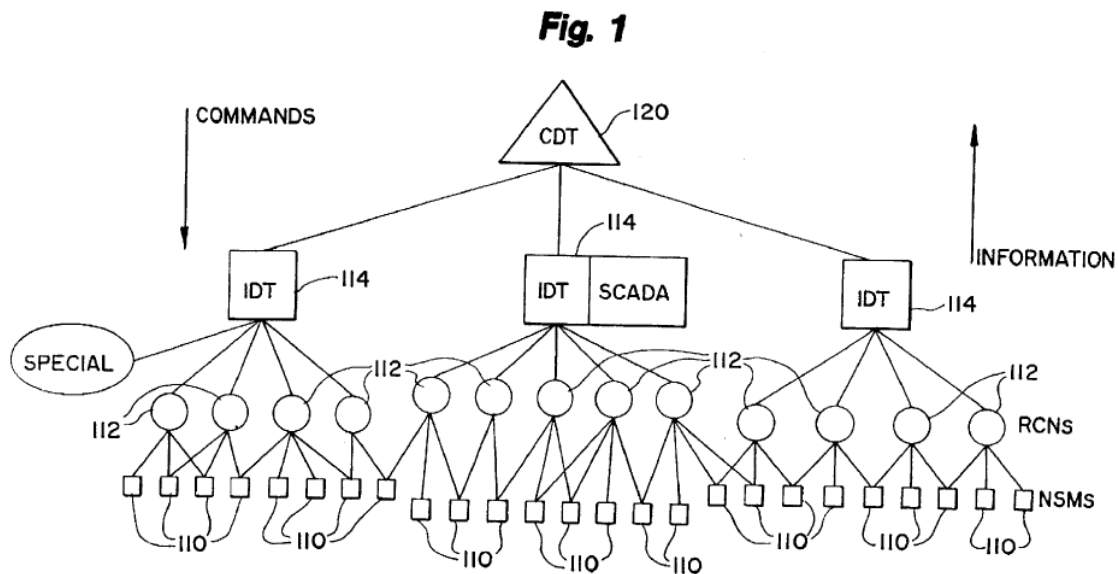


Figure 1, above, shows the relationship between NSMs, RCNs and other devices in the Johnson system.

Patent Owner argues that Johnson does not teach “a communication system to communicate command and sensed data between remote devices/remote wireless communication devices.” PO Resp. 44. Petitioner responds Patent Owner’s “argument [] that Johnson fails to disclose communication between two NSMs (POR 37-39[]) is irrelevant because the Petition cited communication between NSMs and RCNs (both are remote devices). Ex. 1027 ¶36; Pet. 11-13; [*id.*]18.” Reply 15–16. We agree with

Petitioner that communication between NSMs and RCNs is “between remote devices/remote wireless communication devices” as recited in the claim, thus, we are not persuaded by Patent Owner’s argument.

Patent Owner argues that Petitioner did not specify where the preamble claim language is found because Petitioner “identified two different components having two different functions in different portions of Johnson’s system as being the claimed ‘remote device.’” PO Resp. 36. We disagree with Patent Owner. The claims recite communication “between remote devices” but do not specify that each remote device must be identical in structure or function. *See* Ex. 1001, 4:57–66 (supporting such a reading of the claims stating “the transceivers [i.e., the claimed remote devices] (integrated or stand-alone) can differ as known to one of ordinary skill in the art as necessitated by individual design constraints.”).

Patent Owner argues “nothing in Johnson indicates that an RCN might qualify as the claimed ‘remote device’ because there is no indication in Johnson of any sensor attached to an RCN.” PO Resp. 37. Patent Owner’s argument is based on its proposed claim construction, which we do not adopt. Patent Owner’s argument is also not commensurate with Petitioner’s contention because Petitioner relies on the NSM, not the RCN, for a sensor that generates the “sensed data” recited in the preamble. For example, Johnson recites “NSM data may include . . . information or status from a plurality of sensors.” Ex. 1003, 5:15–17 (cited in the Petition at page 12).

Finally, Patent Owner asserts that there is no communication between an NSM and an NSM or between an RCN and an RCN. PO Resp. 37–39.

As explained above, however, the claims do not require that each remote device be entirely the same in structure and function. Petitioner relies on the communication between an NSM and an RCN, which, on this record, is sufficient to meet the claim limitation. Pet. 11–13. For the reasons above, we disagree with Patent Owner’s arguments. We are persuaded that Johnson teaches the preamble language of “a communication system to communicate command and sensed data between remote devices.”

ii. “a receiver address . . .”

Petitioner persuades us that Johnson teaches “a receiver address comprising a scalable address of at least one remote device,” as recited in claim 1. Pet. 17–18, 60–63; Ex. 1003, 10:59–62, 15:46–61; Ex. 1002 ¶¶ 33–42. Petitioner has shown that Johnson discloses a “scalable address” as required by our construction of that term.

Johnson discloses three types of destination addresses of an NSM: broadcast to class in which the address is either 0 or 8 bits; broadcast to individual address in which the destination address is 40 or 32 bits; and a tiered addressing scheme in which the destination address is 24 bits. See Pet. 60–63 (citing multiple paragraphs of Ex. 1003).

Patent Owner argues that each of these individual schemes does not exemplify a “scalable address.” PO Resp. 29–35. We agree. For example, the broadcast to class has an NSMTYP field and an NSMADR field that are always present; although the NSMTYP field is optional, the empty bits are always present in the frame. PO Resp. 29–30. Additionally, in the broadcast to individual, the NSMTYP field is optional but not scalable. In the

situation in which NSMTYP is 0 bits, it is not an address in the frame. As to the tiered address, the address field always occupies 48 bits in the frame.

PO Resp. 30.

Nevertheless, Petitioner argues that the existence of *each* one of these schemes, considered *together*, represents a “scalable address” that is scaled based on which scheme is used to send the packet. Pet. 63. We agree. Petitioner relies on the following section of the Specification to assert that “[t]he scalable addressing used by Johnson is similar to that described by the ‘492 patent” . . . [:]

The “to” address 700 can indicate the intended recipient of the packet. This address can be scalable from one to six bytes based upon the size and complexity of the system. By way of example, the “to” address 700 can indicate a general message to all transceivers, to only the stand-alone transceivers, or to an individual integrated transceiver. In a six byte “to” address, the first byte indicates the transceiver type to all transceivers, to some transceivers, or a specific transceiver. The second byte can be the identification base, and bytes three through six can be used for the unique transceiver address (either stand-alone or integrated).

Pet. 63 (citing Ex. 1001, 9:59–10:2). Petitioner contends that “[b]oth the ‘492 patent and Johnson disclose that one byte in the scalable address can indicate the destination ‘type.’” *Id.* Petitioner further contends “both the ‘492 patent and Johnson disclose that a number of additional bytes can be used to more specifically identify the destination.” *Id.* We agree.

Patent Owner argues that this scheme cannot meet the claim limitation to “scalable address” based on its claim construction, which we did not adopt. PO Resp. 25–29. Specifically, Patent Owner argues that even though

collectively the schemes have an address size of 8, 24, and 32 bytes, individually each scheme has a fixed address size. As explained above, our construction is not limited to a scalable unique address.

Patent Owner, in discussing the tiered address scheme, also states that “[t]wo distinct addresses that are used for two different purposes in two different types of messages cannot possibly constitute a single ‘scalable address.’” *Id.* at 34. To the extent this comment applies to the overall combination of these schemes, we disagree. As explained above, the ’492 patent discloses a system in which multiple “types” of destinations are handled by varying sizes of addresses. Therefore, Johnson’s address is scalable in the same way as in the ’492 patent.

For the reasons above, we are persuaded that Johnson teaches the limitation to “a receiver address comprising a scalable address of at least one remote device.”

iii. “a command indicator comprising a command code”

Petitioner persuades us that Johnson teaches “a command indicator comprising a command code,” as recited in claim 1. Pet. 17–18; Ex. 1003, 55:32–36, Fig. 37; Ex. 1002 ¶ 48. For example, Johnson recites “[s]ubfields of the control field exist for application message (command) type, and for application specific use, such as sequence numbering, which is not used for ARQ [(automatic repeat request)].” Ex. 1003, 55:34–36; Pet. 17.

iv. “a data value comprising a scalable message”

Petitioner persuades us that Johnson teaches “a data value comprising a scalable message,” as recited in claim 1. Pet. 18–20; Ex. 1003, 39:30–38, 55:44–47, 51–55; Ex. 1002 ¶¶ 49–52.

Patent Owner argues that Johnson does not teach a “scalable message” because “the size of the [alleged scalable message, i.e. the] ‘network message’ field is fixed for a particular configuration of the network.” PO Resp. 40–41; *see also id.* at 41 (“If the network has only a single type of NSM on a delivery subchannel, the message size is 28 bits. If the network has multiple types of NSMs on a delivery subchannel, the message size is 20 bits.”) We find the “configuration” of the network is related to the size and complexity of the system. *See* Ex. 1027 ¶¶ 37, 41.

The ’492 patent describes a system in which the address, command, and data field are scalable based on, for example, the type and number of transceivers to which the message is being sent. Ex. 1001, 9:59–10:2. Patent Owner has not provided sufficient evidence that the scalability of the address must be such that it may vary within a single configuration of the system. Patent Owner points out that Johnson states “[t]he [NSMADR field] address may only be omitted, and ‘network message’ field enlarged by 8 bits, if the delivery subchannel is dedicated to a single network service module type.” *Id.* at 40 (quoting Ex. 1003, 55:44–46). Nevertheless, the ’492 patent discloses an address type field that may indicate that no other address bits are necessary. Ex. 1001, 9:59–10:2. Also, dedicating a

subchannel to a single network service module type can be considered an indication of the size and complexity of the system. See Ex. 1027 ¶¶ 37, 41.

For the reasons above, we are persuaded that Johnson teaches the limitation to “a receiver address comprising a scalable address of at least one remote device.”

v. *“a controller associated with a remote device . . .”*

Petitioner persuades us that Johnson teaches “a controller associated with a remote device comprising a transceiver configured to send and receive wireless signals, the remote device configured to send a preformatted message comprising the receiver address, a command indicator, and the data value via the transceiver to at least one other remote device,” as recited in claim 1. Pet. 20–22; Ex. 1003, 10:36–56, 18:3–46, 31:20–43, 39:20–46, 55:30–59; Ex. 1002 ¶¶ 53–55. Petitioner relies persuasively on its positions already examined above in Sections II. D. 2. a. ii.–iv.

b. Claim 2 and 18

i. *“a plurality of transceivers each having a unique address . . .” (claim 2)/“the transceiver comprises a unique transceiver address”(claim 18)*

Petitioner persuades us Johnson teaches “a plurality of transceivers each having a unique address, the transceiver being one of the plurality of transceivers,” as recited in claim 2. Pet. 22–23. Petitioner contends “Each RCN transmitter/receiver pair and each NSM transmitter/receiver pair are transceivers, because each pair sends and receives wireless signals. Johnson discloses that network nodes (such as transceiver/receivers RCNs 112 and NSMs 110) have unique network addresses.” Pet. 22; Ex. 1003, 10:36–43,

11:26–30, 18:14–46, 31:39–41, 41:29–33, 40–46, Fig. 35; Ex. 1002 ¶¶ 56–57.

For the same reasons, Petitioner also persuades us Johnson teaches “the transceiver comprises a unique transceiver address to distinguish the transceiver from other transceivers,” as recited in claim 18. Pet. 22–23, 33.

ii. *“a plurality of controllers” (claim 2)*

Petitioner persuades us Johnson teaches “a plurality of controllers associated with each¹⁰ the controller associated with at least one of the transceivers, the controller being in communication with at least one other transceiver with a preformatted message, the preformatted message having at least one scalable field,” as recited in claim 2. Pet. 23–24. In that regard, Petitioner contends each RCN 112 includes an RCN processor 414 (controller) that can communicate with an NSM transceiver/receiver pair. Pet. 22; Ex. 1003, 10:36–40, 18:3–55, 19:30–38; Ex. 1002 ¶ 58. Additionally, Petitioner contends “Using RCN transmitter 418, an RCN 112 can send an RND message to an NSM 110. An RND message is a

¹⁰ There appears to be a typographical error in the claim, i.e. “associated with each the controller associated with” should be read as “associated with each of the.” We find the claim is sufficiently understandable as written, and neither party attaches any significance to this error. Thus, we read it as we suggest above. See *Novo Indus., L.P. v. Micro Molds Corp.* 350 F.3d 1348, 1354 (Fed. Circ. 2003) (holding obvious errors in a claim can be corrected in construing the claim).

preformatted message that has at least one scalable field.” Pet. 23–24; Ex. 1003, 10:36–56, 18:23–29, 39:20–43, 55:30–59; Ex. 1002 ¶ 59.

iii. “*at least one sensor . . .*” (claim 2)

Petitioner persuades us Johnson teaches “at least one sensor associated with at least one of the transceivers to detect a condition and output a data signal to the transceiver,” as recited in claim 2. Pet. 24.

Petitioner contends

Johnson discloses that each NSM 110 includes sensors 320 and 322. [Ex. 1003,] 10:24-35, FIG. 2. These sensors are associated with the transmitter/receiver pair for the NSM 110, because they are all part of the NSM 110 and because a given transmitter/receiver pair is responsible for sending data from the sensors to an RCN 112. *Id.* at 10:24-35, 10:62-11:33, FIG. 2. The sensors can detect conditions such as meter information, time of use, and other information or status. *Id.* at 10:62-11:20, 14:37-16:21. The sensors are also operable to output NSM data that ultimately is transmitted using the NSM transmitter 318. *Id.* at 10:62-11:33.

Id.

iv. “*at least one actuator . . .*” (claim 2)

Petitioner persuades us Johnson teaches “at least one actuator associated with at least one of the transceivers to activate a device,” as recited in claim 2. Pet. 24–25. Petitioner contends “[t]he load control functions disclosed by Johnson evidence the existence of actuators that activate a device” and such actuators are associated with an NSM receiver. *Id.*; Ex. 1003, 10:53–56, 14:50–56, 18:14–29, 20:40–65, 63–65, 18:3–55, 19:30–38; Ex. 1002 ¶¶ 61–63.

c. Claim 3

Petitioner persuades us Johnson teaches “wherein the controller sends the preformatted message via an associated transceiver, and at least one transceiver sends the preformatted response message,” as recited in claim 3. Pet. 25–27. Petitioner contends “RCN processor 414 sends a preformatted message to an NSM’s transceiver via the RCN’s transceiver. Specifically, Johnson discloses that RCN processor 414 controls the RCN transmitter 418. Ex. [1003] at 18:50-51. Using RCN transmitter 419, an RCN 112 can send an RND message to an NSM 110. *Id.* at 10:36-56, 18:23-29, 39:20-46, 55:30-59.” Pet. 26. Additionally, Petitioner contends, “[i]n response to receiving a preformatted message from an RCN 112, the NSM transmitter 318 can send a preformatted response message. For example, an NSM transmitter 318 can transmit information, using radio waves, to an RCN 112 in response to a command signal received from the RCN 112. *Id.* at 4:2-10, 11:40-45, 11:49-52.” *Id.* at 26–27.

d. Claim 6

Petitioner persuades us Johnson teaches “wherein each remote device is adapted to transmit and receive radio frequency transmissions to and from at least one other transceiver,” as recited in claim 6. Pet. 30. Petitioner contends

Each RCN transmitter 418 and RCN receiver 416 can transmit and receive radio frequency transmissions to and from at least one other transmitter/receiver pair (transceiver) located at an NSM 110. [Ex. 1003,] 10:36-43, 11:26-30, 18:14-46. And each NSM transmitter 318 and NSM receiver 316 can transmit and receive radio frequency transmissions to and from at least one

other transmitter/receiver pair (transceiver) located at an RCN112. *Id.* at 10:36-43, 11:26-30, 18:14-46. *See also*, Kinney, ¶73.

Id.

e. Claim 8

i. *“communicating command and sensed data between remote wireless devices”*

Petitioner persuades us that Johnson teaches “communicating command and sensed data between remote wireless devices.” The analysis is the same as in Section II. D. 2. a. i. above.

ii. *“message has a packet. . .”*

Petitioner persuades us that Johnson teaches “wherein the message has a packet comprising a command indicator comprising a command code, a scalable data value comprising a scalable message, and an error detector that is a redundancy check error detector,” as recited in claim 8. Pet. 34; Ex. 1003, 39:11–15; Ex. 1002 ¶¶ 76–77. As explained in Section II. D. 2. a. iv. above, Petitioner has shown that Johnson alone teaches a packet with a “command code” and a “scalable message.” As to “an error detector,” Petitioner has shown sufficiently that Johnson discloses that an RND message includes a 16-bit CRC (cyclic redundancy check) [] field. Pet. 34; Ex. 1003, 39:11–15.

iii. *“providing a controller. . .”*

Petitioner persuades us that Johnson teaches “providing a controller to determine if at least one received message is a duplicate message and determining a location from which the duplicate message originated,” as

recited in claim 8. Pet. 34–37; Ex. 1003, 20:13–17, 20:17–21, 52:51–54. 52:57–62, 41:44–52, 6:3–5, 10:21–27, 18:47–50, 20:4–7; Ex. 1002 ¶¶ 78–81.

Petitioner contends that “language of claim element [‘providing a controller . . .’] refers to ‘at least one received message’ and does not invoke a definite article such as ‘said’ or ‘the’ which would indicate that the claimed ‘at least one received message’ must be one that was received by the claimed ‘receiver’ and has a format matching that required by claim element [above].” Pet. 34–35. We agree.

Given this understanding, Petitioner has shown sufficiently that the RCN performs redundancy checking that meets the claim limitation to determining if a received message is a duplicate and determining that message’s origin. Pet. 35–36; Ex. 1003, 18:47–50, 20:4–7, 13–21, 41:44–52, 52:51–54, 57–62; Ex. 1011, 6:3–5; Ex. 1002 ¶¶ 78–80.

f. Claim 9

Petitioner persuades us Johnson teaches “providing at least one remote wireless communication device, wherein at least one of the devices comprise geographically remote transceivers adapted to transmit and receive the at least one message using radio frequency transmissions,” as recited in claim 9. Pet. 37–38. In that regard, Petitioner contends

Each RCN transmitter/receiver pair (transceiver) is operable to transmit an RND message to an NSM transmitter/receiver pair (transceiver) using radio frequency transmission. *Id.* at 9:47-58, 10:10-23, 25:33-51, FIGS. 1, 12. And these transceivers are geographically remote from each other. *Id.* at 10:36-56, 18:23-29, 39:20-43, 55:30-59.

Id.

g. Claim 10

Petitioner persuades us that Johnson teaches “providing at least one remote wireless communication device, wherein at least one of the devices has a unique address and the packet further comprises at least one scalable address field to contain the unique address for at least one device,” as recited in claim 10. Pet. 38–39; Ex. 1003, 38:38–39, 41:29–33, 40–46, Fig. 35; Ex. 1002 ¶¶ 84–86. In that regard, Petitioner contends “Johnson discloses that network nodes have unique network addresses.” Pet. 22; Ex. 1003, 41:29–33, 40–46.

As to “scalable address field,” Petitioner shows that Johnson teaches a unique address that is scalable as required by our construction of claim 10. As explained above in Section II. B. 2. e., we found that the phrase “scalable address field contains the unique address” is open ended and can include a type field. The Specification states “The first byte (Byte 1) can indicate the device type . . . [and i]f the message is for a particular device, the fourth, fifth, and sixth bytes (Byte 5 and Byte 6) can be a unique identifier for the particular devices.” Ex. 1001 11:20—29. Therefore, because the device type code is part of the “scalable address field,” Johnson meets this limitation in the same way that it meets the “scalable address” in claim 1.

Even under Patent Owner’s proposed construction, which we do not adopt, Johnson teaches “providing at least one remote wireless communication device, wherein at least one of the devices has a unique address and the packet further comprises at least one scalable address field to contain the unique address for at least one device,” as recited in claim 10.

As Petitioner contends, “[i]n a system where there is only one type of NSM, an NSM can be targeted by using only NSMADR as the unique destination address. If the system includes multiple types of NSMs, the system can use a combination of an NSMTYPE and NSMADR as the unique destination address.” Pet. 39.

h. Claim 11

Petitioner persuades us Johnson teaches “providing an actuator associated with at least one of the remote devices, the actuator configured to actuate in response to the command code,” as recited in claim 11. Pet. 39–40. In that regard, Petitioner contends

The load control functions and radio-controlled switches disclosed by Johnson evidence the existence of actuators that activate a device. Because these actuators perform actions dependent on commands received from an RCN 112 (which sends commands to an NSM 110 using an RND message that includes a command code as noted above in the analysis of [claims 1 and 8] the actuators each “actuate in response to the command code,” as claimed.

Id.; Ex. 1003, 10:53–56, 13:60–62, 14:50–56, 20:40–65; Ex. 1002 ¶ 87.

i. Claim 13

Petitioner persuades us Johnson teaches “providing an actuator associated with at least one of the remote devices, the actuator configured to actuate in response to the command code,” as recited in claim 13. Pet. 40.

In that regard, Petitioner contends

Johnson discloses that all RND messages (which correspond to the claimed “the at least one message” as explained above in the analysis of claim [8] includes a CRC field for error control. [Ex.

1003,] 35:66-36:1, 39:11-15. Packets that fail CRC verification are usually counted and discarded. *Id.* at 36:1-2. The CRC verification described in Johnson corresponds to the claimed “determining if an error exists in a packet of the at least one message.” Kinney, ¶88.

Id.

j. Claim 16

Petitioner relies on essentially the same contentions for “controller is further configured to determine if at least one received message is a duplicate message and determine a location from which the duplicate message originated,” as recited in claim 16 as described above in Section II. *D. 2. e. iii.* Therefore, based on the explanation above, Petitioner persuades us that Johnson teaches the limitations of claim 16. Pet. 40–41.

3. Summary

Upon review of Petitioner’s and Patent Owner’s contentions, evidence, and argument, based on the full record before us, we are persuaded by Petitioner’s evidence and determine that claims 1–3, 6, 8–11, 13–14, 16 and 18 would have been obvious over Johnson.

E. Obviousness of Claims over Mason, EIA-709.1, Shuey, and the C12.18 Protocol

Petitioner contends that claims 14–15, 17, 19–21, and 25 are unpatentable under 35 U.S.C. § 103(a) as obvious over Mason, EIA-709.1, Shuey, and the C12.18 Protocol. Pet. 41. To support its contentions, Petitioner provides explanations as to how the prior art teaches each claim limitation. *Id.* at 41–60. As explained below, Petitioner has shown by a preponderance of the evidence that claims 14–15, 17, 19–21, and 25 would have been obvious over Mason, EIA-709.1, Shuey, and the C12.18 Protocol.

1. Mason (Ex. 1006)

Mason (Ex. 1006) discloses an automatic meter reading (AMR) system that includes a plurality of utility meters 12 (for metering electricity, gas or water). Ex. 1006, 5:32–34. Each of the meters 12 can send or receive RF communications from a node 18. *Id.* at 5:35–41. The meters 12 can also send or receive RF communications directly from another meter 12 by operating as a repeater. *Id.* at 6:27–35.

2. Shuey (Ex. 1007)

Shuey (Ex. 1007) discloses an AMR system that includes a plurality of meters 12, in which each of the meters 12 can send or receive RF communications from a node 18, and the meters 12 can send or receive RF communications directly from another meter 12 by operating as a repeater. Ex. 1007, FIG. 5, 5:2–13. As part of that operation as a repeater, a meter can receive an outbound request from a node 18 and duplicate it, except that the meter alters the repeater field. *Id.* at 5:36–41, 60–65, FIG. 6 (step S3).

3. *C12.18 (Ex. 1008)*

C12.18 is an open platform communications protocol for two-way communication with an electronic metering device. C12.18 discloses, for example, that a write request can be used to transfer data to a target device. C12.18 at 7, 8. The write request includes, among other things, a command code specifying that a write request is to be performed, and data that is to be written to the target device. *Id.* The data is depicted as being a variable number of bytes with a length that is defined in the write request. *Id.* at 2, 8.

4. *EIA-709.1 (Ex. 1009)*

EIA-709.1 (Ex. 1009) supports a simple, connection-less service with reliable message delivery to single and multiple destinations. Ex. 1009, 1, 4, 5, 149–150. Among other features, EIA-709.1 supports store-and-forward repeaters, bridges, routers, duplicate message detection, and numerous addressing formats with an address field that is variable in length. *Id.*

5. *Analysis*

a. *Claim 14*¹¹

i. *“A wireless communication device . . .”*

Petitioner persuades us that Mason teaches a “wireless communication device for use in a communication system to communicate command and sensed data between remote wireless communication devices, the wireless

¹¹ In the Petition, Petitioner relies on its analysis of certain limitations of claim 19 to support its contentions as to claim 14. We cite directly to that analysis where appropriate.

communication device.” Pet. 41; Ex. 1006, 5:32–41, 59–64, 6:8–13, 27–35, 9:56–61, 10:43–47, 11:28–35, 15:28–47; Ex. 1002 ¶ 91.

ii. *“a transceiver configured to send and receive wireless communications”*

Petitioner persuades us that Mason teaches “a transceiver configured to send and receive wireless communications.” Pet. 42; Ex. 1006, 5:35–41; Ex. 1002 ¶ 93.

iii. *“a controller configured . . .”*

Petitioner persuades us that the combination of Mason, EIA 709.1, Shuey, and C12.18 protocol teaches “a controller configured to communicate with at least one other remote wireless device via the transceiver with a preformatted message, the controller further configured to format a message comprising a receiver address comprising a scalable address of at least one remote wireless device; a command indicator comprising a command code; a data value comprising a scalable message.” Pet. 42–44; Ex. 1006, 5:64–67, 6:1–13, 35–38, 48–53, 57–7:13, 55–58, 9:37–40, 9:37–40, 10:1–10, 43–56, 13:14–15:19; Ex. 1007, 4:20–57, 5:2–13, 6:15–23, Figs. 4, 5, Ex. 1002 ¶¶ 97–100, 122, 123. For example, Petitioner contends that Mason teaches that each meter 12 provides a preformatted message that employ the CEBUS RF protocol and the ANSI C12.18 protocol. Pet. 42; Ex. 1006, 6:1–13, 9:37–40.

Petitioner relies on Shuey to show the controller is “configured to communicate with at least one other remote wireless device via the transceiver.” Pet. 43. For example, Shuey teaches that meter 12 can include

a communications processor and a control processor that communicate with the meter's transceiver (radio) and provides preformatted messages for communication. Pet. 43; Ex. 1007, 4:20–57, Fig. 4.

Petitioner articulates sufficient reasons for combining Mason and Shuey. Pet. 43. For example, Petitioner contends that a person of ordinary skill in the art “would have been motivated to incorporate into Mason’s system Shuey’s teaching of a controller in a meter that is separate from a transceiver, because Mason explicitly notes that Shuey’s system is a system for which Mason’s invention is particularly suited.” Pet. 43; Ex. 1006, 6:35–38; Ex. 1002 ¶ 98.

Petitioner persuades us that Mason teaches that messages are formatted to comprise “a command indicator comprising a command code” based on Mason’s Packet Type Field. Pet. 52–53; Ex. 1006, 6:48–53, 57–7:13, 7:55–58, 9:37–40, 10:1–10, 43–49, 13:14–15:19; Ex. 1002 ¶ 123..

Petitioner persuades us that C12.18 teaches a “data value comprising a scalable message.” Pet. 53–54. C12.18 depicts a data field that is variable in size within a frame. Ex. 1008, 2, 3, 7, 8. Petitioner articulates sufficient reasons for combining Mason and C12.18. Pet. 54. For example, Petitioner contends

A [person of ordinary skill in the art] would be motivated to combine the teachings of the C12.18 protocol into Mason, because Mason specifically discloses that the application layer of the C12.18 protocol can be used in the messages taught by Mason. *Id.* at 9:37-40, 9:59-10:10. And the aforementioned write request in the C12.18 protocol is a service in the C12.18

protocol application layer. C12.18 at 3, 7; *see also*, Kinney, ¶¶125-126.” Pet. 43 (citing Ex. 1006, 6:35-38; Ex. 1002 ¶ 98).

Id.

Petitioner persuades us that Mason teaches that messages can be sent using a “unique address.” Pet. 44. Mason discloses that messages can be sent to individual meters using the meter’s unique address. Ex. 1006, 10:43–56.

Petitioner relies on EIA 709.1 to show a “scalable address.” Pet. 44, 48–50. Petitioner persuades us that the combination of Mason and EIA 709.1 teaches “a receiver address comprising a scalable address of at least one remote device.” Pet. 48–50; Ex. 1009, 149–150, Fig. 36; Ex. 1002 ¶ 113–115. Petitioner concedes “Mason does not explicitly disclose that the address comprises a scalable address.” Pet. 44. Nevertheless, EIA-709.1 teaches a destination address having a size (1, 2, or 7 bytes)¹² dependent on the value in the AddrFMT (address format) field. Pet. 48–50; Ex. 1009, 149–150, Fig. 36; Ex. 1002 ¶ 113–115.

Patent Owner argues that EIA-709.1’s teachings of multiple address formats that allow for the use of different destination addresses does not teach a “scalable address” because AddrFmt #0 (a broadcast message) “is

¹² Petitioner explains “The Petition inadvertently recites the full address length for AddrFmt #2a (4 bytes) and AddrFmt #3 (9 bytes), rather than the intended destination address length of 2 bytes and 7 bytes respectively. Pet. 49. As scalability of the destination address is the crux of the issue, there is no impact on Petitioner’s argument.” Reply 20. We agree this error does not affect our decision.

not intended for a particular transceiver or remote device.” PO Resp. 48. As noted above, we do not find that claim 14 is limited to an address of a single unique receiver. Moreover, EIA-709.1 is scalable at least as to formats #2a, #2b, and #3.

Patent Owner also argues that “the address sizes in EIA-709.1 for each of the different ‘types’ of messages are fixed” regardless of the size or the complexity of the system. PO Resp. 48–49. Patent Owner also asserts that “none [of the examples introduced by Petitioner] demonstrate that the use of different PDU formats in Figure 36 in EIA-709.1 is in anyway associated with the ‘size and complexity of the system.’” PO Resp. 48. Nevertheless, the scheme of using different types of addresses is explicitly cited in the Specification as addressing the “size and complexity of the system.” Ex. 1001, (“This address can be scalable from one to six bytes *based upon the size and complexity of the system. By way of example*, the “to” address 700 can indicate a general message to all transceivers, to only the stand-alone transceivers, or to an individual integrated transceiver.”). Also, the number of nodes may be considered an indication of size or complexity of a system. Ex. 1002 ¶¶ 115–116; Ex. 1027 ¶ 43. Therefore, because the ’492 patent discloses a system in which multiple “types” of destinations are handled by varying sizes of addresses EIA 709.1’s address is scalable in the same way as in the ’492 patent. Additionally, our construction of claim 14 does not require that the address field must be scalable independent of the type of node to which the transceiver is sending.

Based on Petitioner's citations to specific prior art disclosures and supporting evidence, we are persuaded that Petitioner sets forth sufficient articulated reasoning with rational underpinning to support the legal conclusion that it also would have been obvious to modify the teachings of Mason, with EIA-709.1's teachings, to include an address that varies in size.

Pet. 50. For example, Petitioner contends:

A [person of ordinary skill in the art] would have been motivated to use the scalable destination address of EIA-709.1 in Mason's system. The '492 patent uses scalable addresses in order to accommodate systems of different sizes and complexity. Ex. 1001 at 9:59-61. The scalable addresses of EIA-709.1 would also accommodate systems of different sizes and complexity in a more flexible manner. Mason expresses a desire to implement a large scale AMR system. Mason at 1:46-48, 5:25-57. Mason also recognizes the importance of uniquely identifying a large number of destination meters. Mason at 10:43-56. Using the scalable addresses of EIA-709.1 in Mason's system would allow a [person of ordinary skill in the art] to effectively identify message destinations in networks with increasing sizes and complexity. Kinney, ¶¶116-117.

Moreover, Mason explicitly discloses that the LonTalk protocol can be used with its system. Mason at 17:4-9. The LonTalk protocol ultimately was adopted as EIA-709.1. Exs. 1022, 1023, 1024. Indeed, the LonTalk protocol specification includes the same scalable addresses disclosed in EIA-709.1. Ex. 1020 at 14-16. A [person of ordinary skill in the art] would thus be motivated to combine Mason and EIA-709.1, with a reasonable expectation of success in doing so. Kinney, ¶118.

Id.

Patent Owner admits that Mason "suggest(s) using Lontalk as a substitute for CEBUS." PO Resp. 53. Patent Owner asserts, however, that

“the specification does not describe how the resulting system would be made compliant with CEBUS.” *Id.* (quoting Ex. 2002 ¶ 173). Patent Owner further asserts

Petitioner and Mr. Kinney have not described what the resulting protocol would be. They have simply attempted to combine particular features without describing the impact such a combination would have on other fields in the protocol, on processing said protocol messages by components of the system, and how the resulting message would maintain other required addressing functionality described in Mason.

Id. at 54 (quoting Ex. 2002 ¶ 175).

For those reasons, according to Patent Owner, Petitioner has not shown how a person of ordinary skill in the art would incorporate the LonTalk Protocol of EIA 709.1 into the CEBUS protocol of Mason. *Id.* Petitioner was not required to make such a showing. Petitioner uses the LonTalk section of Mason to show that one of ordinary skill would look to EIA-709.1 when implementing Mason. Once one of ordinary skill has turned to the scalable address teachings in EIA-709.1, he or she need not bodily incorporate the precise protocol disclosed in the EIA 709.1 reference into Mason. *In re Keller*, 642 F.2d 413, 425 (CCPA 1981); *see also In re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012) (citing *In re Keller*, 642 F.2d at 425)). Rather, one can apply those teachings with ordinary creativity. *KSR*, 550 U.S. at 421 (“[a] person of ordinary skill is also a person of ordinary creativity, not an automaton”).

Patent Owner also asserts “The Board has consistently declined to cancel claims in IPR proceedings when the Petition fails to identify any

objective evidence such as experimental data, tending to establish that two different structures can be combined. Here, the Petitioner did not set forth any such objective evidence.” PO Resp. 4. Patent Owner cites only one case to show that the Board is consistent in this alleged requirement. *Id.* (citing *Epistar, et al. v. Trustees Of Boston University*, Case IPR2013-00298, (PTAB. Nov. 15, 2013) (Paper No. 18). Moreover, Patent Owner is incorrect that this non-precedential case stands for the proposition that experimental data is always necessary to show a reasonable expectation of success. Additionally, in this case Petitioner submitted objective evidence that Mason suggests that the combination is possible. Ex. 1006, 17:4–9; *see also In re Dow Chemical Co.*, 837 F.2d 469, 473 (Fed. Cir. 1988) (the reasonable expectation of success is found in the prior art itself). Patent Owner has not responded to that evidence with evidence tending to show there is no reasonable expectation of success beyond conclusory testimony from its declarant. PO Resp. 52–54.

Patent Owner argues that the evidence Petitioner relies on to show that Lontalk was standardized as EIA 709.1 (Exhibits 1022–1024) is after the critical date. PO Resp. 54. Petitioner contends it “does not argue a [person of ordinary skill in the art] would have been motivated by Exhibits 1022-1024 to implement LonTalk or EIA-709.1. Rather they simply evidence that the ‘LonTalk protocol ultimately was adopted as EIA-709.1.’” Reply 26 n.15. We acknowledge that later dated references may be used to show facts that were known before the critical date but not to show later developed concepts are prior art. *See Application of Hogan*, 559 F.2d 595,

605 (C.C.P.A. 1977) (“The difference may be described as that between the permissible application of later knowledge about art-related facts existing on the filing date and the impermissible application of later knowledge about later art-related facts (here, amorphous polymers) which did not exist on the filing date.”); *c.f. Bd. of Trustees of Leland Stanford Junior Univ. v. Chinese Univ. of Hong Kong*, 860 F.3d 1367, 1378 (Fed. Cir. 2017) (“The Board's inquiry may include an analysis of whether the record contains testimony or evidence, relevant to this written description analysis, showing that any post-filing date publications contain art-related facts on random MPS sequencing or Illumina products existing on the filing date.”).

Here, the evidence (Exhibits 1022–1024) is not used to show features of Lontalk or EIA 709.1 existed prior to the critical date but rather to establish the fact that there is a link between the Lontalk that is described in Mason and EIA 709.1. In other words, the evidence shows that one of ordinary skill in the art at the time of the EIA709.1 would have been aware that it was based on the Lontalk protocol. Additionally, Petitioner presents evidence that the specific features of Lontalk it relies on were present in both Lontalk (Ex. 1020) and EIA 709.1 (Ex. 1009). Reply 26–28.

For the reasons above, we are persuaded the asserted prior art teaches “a controller configured to communicate with at least one other remote wireless device via the transceiver with a preformatted message, the controller further configured to format a message comprising a receiver address comprising a scalable address of at least one remote wireless device;

a command indicator comprising a command code; a data value comprising a scalable message.”

b. Claims 15

Petitioner persuades us that Mason teaches “at least one sensor configured to detect a condition and output a signal to the controller,” as recited in claim 15. In that regard, Petitioner contends each meter 12 of Mason includes a metering board for performing the metering function. Pet. 44; Ex. 1006, 5:59–63. Each meter also includes a set of analog transducers. *Id.*; Ex. 1006, 5:59–64. Thus, according to Petitioner a person of ordinary skill in the art “would appreciate that a sensor is a type of transducer, and that Mason’s transducers are sensors. Mason’s metering board and/or analog transducers correspond to the claimed ‘sensor.’” We agree and credit Petitioner’s declarant’s supporting testimony. Pet. 44; Ex. 1002 ¶ 101. Petitioner also asserts the metering board and/or analog transducers are operable to detect a condition related to, for example, electricity, gas, or water, and output meter information corresponding to the condition to the meter’s controller. Pet. 44; Ex. 1006, 5:32–41, 9:56–65, 15:37–47, 49–53; Ex. 1002 ¶ 101.

c. Claims 17

Petitioner persuades us that Mason teaches “at least one actuator configured to implement an action corresponding to the command code,” as recited in claim 17. In that regard, Petitioner contends Mason discloses that each meter 12 includes a disconnect switch drive circuit. Pet. 45; Ex. 1006, 5:59–64. Thus, according to Petitioner a person of ordinary skill in the art

“would appreciate that a disconnect drive circuit implements an action, such as a disconnect function, in response to receiving a command to do so using the C12.18 protocol. This operation corresponds to the claimed actuator configured to implement an action corresponding to the command code.” Pet. 45; Ex. 1002 ¶ 101. We agree and credit Petitioner’s declarant’s supporting testimony. Ex. 1002 ¶ 101.

d. Claim 19

i. “a system for communicating commands . . .”

Petitioner persuades us that Mason teaches a “a system for communicating commands and sensed data between remote devices comprising a communications device for communicating commands and sensed data, the communications device,” as recited in claim 19. Pet. 41, 45; Ex. 1006, 5:32–41, 59–64, 6:8–13, 27–35, 9:56–61, 10:43–47, 11:28–35, 15:28–47; Ex. 1002 ¶ 91.

ii. “a transceiver operably configured . . .”

Petitioner persuades us that Mason teaches “a transceiver operably configured to be in communication with at least one other of a plurality of transceivers, wherein the transceiver has a unique address, wherein the unique address identities the individual transceiver, wherein the transceiver is geographically remote from the other of the plurality of transceivers, wherein each transceiver communicates with each of the other transceivers via preformatted messages,” as recited in claim 19. Pet. 45–46; Ex. 1006, 3:27–29, 5:35–43, 6:15–35, 7:19–23, 9:37–40, 10:43–11:13, Fig. 1, Ex. 1002 ¶¶ 106–108. For example, Petitioner contends that Mason teaches that

each meter 12 has a corresponding RF module for sending and receiving RF communications. Pet. 45; Ex. 1006, 5:35–43. Petitioner contends that “each of the RF modules is ‘geographically remote’ from the other of the RF modules, as demonstrated in FIG. 1 and further evidenced by the need for a meter to at times function as a repeater in order to reach hard to access meters.” Pet. 45; Ex. 1006, 6:15–35.

Petitioner contends that each meter has unique address and each RF module (transceiver) in a meter on a particular node has a unique address. Pet. 46; Ex. 1006, 3:27–29, 10:43–11:13.

Petitioner contends “Mason also discloses that communication in its system occurs using a protocol that employs the CEBUS RF protocol and the ANSI C12.18 protocol.” Pet. 46; Ex. 1006, 6:1–13, 9:37–40. Therefore, according to Petitioner, each transceiver in Mason “communicates with each of the other transceivers via preformatted messages.” Pet. 46; Ex. 1002 ¶¶106–108.

We are persuaded by Petitioner’s contentions.

iii. “a controller configured . . .”

Petitioner persuades us that the combination of Mason and Shuey teaches “a controller configured to be in communication with the transceiver, the controller configured to provide preformatted messages for communication; wherein the preformatted message comprises at least one packet,” as recited in claim 19. Pet. 46–48; Ex. 1006, 5:41–43, 6:1–13, 6:35–38, 9:37–40; Ex. 1007, 4:20–57, Fig. 4; Ex. 1002 ¶¶ 109–112. For example, Petitioner contends that Mason teaches a controller in

communication with the RF module of node 18 provides a preformatted message that employ the CEBUS RF protocol and the ANSI C12.18 protocol. Pet. 46–47; Ex. 1006, 5:41–43, 6:1–13, 9:37–40; Ex. 1002 ¶ 109.

Petitioner relies on Shuey to show the controller is “configured to be in communication with the transceiver, the controller configured to provide preformatted messages for communication; wherein the preformatted message comprises at least one packet.” For example, Shuey teaches that meter 12 can include a communications processor and a control processor that communicate with the meter’s transceiver (radio) and provides preformatted messages for communication. Pet. 47–48; Ex. 1007, 4:20–57, Fig. 4; Ex. 1002 ¶¶ 110–111.

Petitioner articulates sufficient reason for combining Mason and Shuey. Pet. 48. Specifically, Petitioner contends that a person of ordinary skill in the art “would have been motivated to incorporate into Mason’s system Shuey’s teaching of a controller in a meter that is separate from a transceiver, because Mason explicitly notes that Shuey’s system is a system for which Mason’s invention is particularly suited.” Pet. 48; Ex. 1006, 6:35–38; Ex. 1002 ¶ 112.

iv. “a receiver address . . .”

Petitioner persuades us that the combination of Mason and EIA 709.1 teaches “a receiver address comprising a scalable address of the at least one of the intended receiving transceivers,” as recited in claim 19.

Petitioner relies on EIA 709.1 to show a “scalable address.” Pet. 44, 48–50. As explained above in Section II. E. 5. a. iii., Petitioner persuades us

that the combination of Mason and EIA 709.1 teaches “a receiver address comprising a scalable address of at least one remote device.”

v. “*sender address . . .*”

Petitioner persuades us that the combination of Mason and EIA 709.1 teaches “sender address comprising the unique address of the sending transceiver,” as recited in claim 19.

In that regard, Petitioner relies on EIA 709.1 to show a “sender address.” Pet. 44, 48–50. Petitioner contends that “EIA-709.1 discloses that messages sent in its system include a source subnet identifier that uniquely identifies a subnet within a domain, and a source node number that uniquely identifies a node within a subnet.” Pet. 51; Ex. 1009, 147, 148, Fig. 36. According to Petitioner, the source subnet identifier and source node number together correspond to the claimed “sender address comprising the unique address of the sending transceiver.” Pet. 51–52.

Based on Petitioner’s citations to specific prior art disclosures and supporting evidence, we are persuaded that Petitioner sets forth sufficient articulated reasoning with rational underpinning to support the legal conclusion that it also would have been obvious to modify the teachings of Mason, with EIA-709.1’s teachings, to include a sender address that is unique. Pet. 51. For example, Petitioner contends:

A [person of ordinary skill in the art] would understand that hierarchical addressing decreases the complexity of the network topology, increases routing efficiency, and causes less congestion because of fewer routing advertisements. A [person of ordinary skill in the art] would appreciate the value of a

hierarchical assigned unique address and would be motivated to incorporate EIA-709.1 into Mason’s system. Kinney, ¶121.

Id.

vi. “*a command indicator . . .*”

Petitioner relies on essentially the same contentions for “command indicator comprising a command code” as described above in Section II. E. 5. a. iii. Pet. 52–53. Thus, based on the explanation above, Petitioner persuades us that Mason teaches “command indicator comprising a command code.”

vii. “*at least one data value . . .*”

Petitioner relies on essentially the same contentions for “at least one data value comprising a scalable message” and the motivation to combine Mason with C12.18 as described above in Section II. E. 5. a. iii. Pet. 53–54. Thus, based on the explanation above, Petitioner persuades us that the combination of Mason and C12.18 teaches “at least one data value comprising a scalable message.”

viii. “*an error detector . . .*”

Petitioner persuades us that the combination of Mason and EIA 709.1 teaches “an error detector comprising a redundancy check error detector,” as recited in claim 19. Pet. 54; Ex. 1006, 6:48–54, 15:48–53; Ex. 1009, 11–12; Ex. 1002 ¶ 127.

In that regard, Petitioner contends “Mason discloses that its messages include a checksum, which is a type of error detector.” Pet. 54; Ex. 1006, 6:48–54, 15:48–53. Petitioner relies on EIA 709.1 to show “a redundancy

check error detector.” Pet. 54. Petitioner contends that “The EIA709.1 protocol discloses that a CRC [cyclical redundancy check] field is used as an error detector.” Pet. 51; Ex .1009, 11–12.

Based on Petitioner’s citations to specific prior art disclosures and supporting evidence, we are persuaded that Petitioner sets forth sufficient articulated reasoning with rational underpinning to support the legal conclusion that it also would have been obvious to modify the teachings of Mason, with EIA-709.1’s teachings, to include a sender address that is unique. Pet. 54. For example, Petitioner contends:

It would have been obvious to a [person of ordinary skill in the art] to utilize a redundancy check error detector, such as that disclosed by EIA-709.1, in Mason’s system, because Mason discloses that LonTalk (which ultimately became EIA-709.1) may be used in its system (Mason at 17:8-9), and because CRC is a type of checksum, which is disclosed by Mason as being used as an error detector. Kinney, ¶127.

Id.

ix. “the controller configured . . .”

Petitioner relies on essentially the same contentions for “the controller ‘is configured to interact with the transceiver to send preformatted command messages’” and the motivation to combine Mason with Shuey as described above in Section II. E. 5. d. ii. Pet. 55. Thus, based on the explanation above, Petitioner persuades us that the combination of Mason and Shuey

teaches “the controller ‘is configured to interact with the transceiver to send preformatted command messages’.” *Id.*

e. Claim 20

Petitioner persuades us that the combination of Mason teaches “a sensor operatively configured to detect a condition and output a sensed data signal that corresponds to the condition to the transceiver,” as recited in claim 20. In that regard, Petitioner relies on Mason’s metering board and/or analog transducers as the claimed “sensor.” Pet. 55–56; Ex. 1006, 5:32–41, 9:56–65, 15:37–47, 49–53; Ex. 1002 ¶ 129.

f. Claim 21

Petitioner persuades us that the combination of Mason teaches “transceiver is configured to receive a preformatted command message requesting sensed data, confirms the receiver address as its own unique address, receives the sensed data signal, formats the sensed data signal into scalable byte segments, determines a number of segments required to contain the sensed data signal, and generates and transmits the preformatted response message comprising at least one packet,” as recited in claim 21. For example, Petitioner relies on Mason handling of a CEBUS message. Pet. 56–57; Ex. 1006, 5:32–64, 6:1–35, 9:37–40, 10:1–10, 10:43–64, 13:14–15:19, 16:45–47, Figs. 1, 3; Ex. 1002 130–132.

g. Claim 25

Petitioner persuades us that the combination of Mason and Shuey teaches “controller further configured to reformat a message comprising a receiver address,” as recited in claim 25. Pet. 59–60; Ex. 1006, 5:2–13, 36–

41, 60–65, Fig. 6 (Step S3); Ex. 1002 ¶ 139–141. Petitioner relies on Mason and Shuey to teach this limitation. Pet. 59–60.

Based on Petitioner’s citations to specific prior art disclosures and supporting evidence, we are persuaded that Petitioner sets forth sufficient articulated reasoning with rational underpinning to support the legal conclusion that it also would have been obvious to modify the teachings of Mason, with Shuey’s teachings to include reformatting a message. *Id.* For example, Petitioner contends

Mason also discloses that a meter 12 can act as a repeater so that a node can communicate with another meter that is considered “inaccessible” with respect to the node. Mason at 6:27-35. To successfully act as a repeater, it is logical that a meter may need to reformat the message that it is forwarding. But Mason does not explicitly provide that teaching.

Shuey, similar to Mason, discloses an AMR system that includes a plurality of meters 12, where each of the meters 12 can send or receive RF communications from a node 18, and the meters 12 can send or receive RF communications directly from another meter 12 by operating as a repeater. Shuey at FIG. 5, 5:2-13. As part of that operation as a repeater, a meter can receive an outbound request from a node 18 and duplicate it, except that the meter alters the repeater field to let the remote meter know the message is to be answered with an ASK response rather than an FSK response. Shuey at 5:36-41, 60-65, FIG. 6 (step S3). This message alteration corresponds to the claimed “reformat.” Kinney, ¶¶139-140.

A [person of ordinary skill in the art] would have been motivated to incorporate into Mason’s system Shuey’s teaching of a repeater that reformats a message, because Mason explicitly notes that Shuey’s system is a system for which Mason’s invention is particularly suited. Mason at 6:35-38. Kinney, ¶141.

Pet. 59–60. Therefore, Petitioner shows Mason discloses a repeater without disclosing the method of reformatting the message to indicate, for example, that it is a repeated message or was forwarded from another location, and Shuey provides reformatting the message.

Patent Owner argues that “modifying the content of a packet is very different than the claimed ‘reformat’ of a message.” PO Resp. 50. Patent Owner relies on its declarant, Dr. Almeroth, who testified a packet format defines the syntax of a packet, not its content. *Id.* (citing Ex 2002 ¶¶ 167–171). Therefore, according to Patent Owner, “reformatting a message requires changing the syntax of the packet[, thus, c]hanging the content or value of certain fields within a message does not change the syntax or format of the packet.” *Id.* Patent Owner asserts that Shuey only changes the value of a field in the packet. PO Resp. 50.¹³

Petitioner responds that “[r]eformatting a message encompasses **both** changing syntax **and** altering data in the message.” Reply 23 (citing Ex. 1027 ¶ 47). Petitioner contends “[t]he ’492 supports Petitioner’s reading of ‘formatting/reformatting,’ disclosing that formatting includes concatenating data (Ex. 1001, 6:65-7:2 (‘... format (e.g., concatenate)...’), 7:48-53, 10:11-16), i.e., altering the packet’s content. Ex. 1027 ¶47.13.” We agree with

¹³ Patent Owner asserts that Petitioner’s declarant testified that changing the value of a field in a message does not change the format. PO Resp. 51. We considered this argument but it appears that Petitioner’s declarant was referring to address format not message format. Ex. 2005, 60. Therefore, we are unable to determine if Petitioner’s declarant would agree with Patent Owner’s assertion regarding message format.

Petitioner. Petitioner's contention is supported by the Specification as opposed to Patent Owner's contention which is supported only by its declarant.

6. *Graham Factors*

Patent Owner faults Petitioner for not analyzing the Graham factors.¹⁴ PO Resp. 4–5; *Graham*, 383 U.S. at 17–18. Nevertheless, failure to enumerate and to analyze the Graham factors specifically is not fatal if the proper factual determinations are made and considered in rendering a conclusion of obviousness. See *Specialty Composites v. Cabot Corp.*, 845 F.2d 981, 990 (Fed.Cir.1988). Petitioner does discuss the Graham factors. As noted above, Petitioner proposes a level of skill in the art. Ex. 1002 ¶¶ 6–7. Petitioner then addresses the differences between the claims and the prior art with an eye to the appropriate level of skill. Pet. 10–64; see *Litton Indus. Prod., Inc. v. Solid State Sys.*, 755 F.2d 158, 163–64 (Fed. Cir. 1985) (“A specific finding on the level of skill in the art is not, however, required where the prior art itself reflects an appropriate level and a need for testimony is not shown.”) (citing *Chore-Time Equip., Inc. v. Cumberland Corp.*, 713 F.2d 774, 779 n. 2 (Fed.Cir.1983)). Petitioner also explains sufficiently the scope and content of the prior art as to Johnson, Mason, EIA-709.1, Shuey, and the C12.18 Protocol. Pet. 10–64. Petitioner discusses the

¹⁴ Patent Owner cites the primary reference as Johnson, however, the grounds instituted do not combine Johnson with any other reference. PO Resp. 4–5. Therefore, we assume Patent Owner meant to refer to the grounds based on Mason as well as those based on Johnson.

similarities and differences between these references and the claimed invention. *Id.* Specifically, Petitioner explains what features of Johnson or Mason it relies on and points out where the primary reference may not teach a feature and, in that case, explains what features of the supporting references it relies on and how they are to be combined. *Id.*

7. Summary

For the reasons above, we are persuaded that Petitioner has established by a preponderance of the evidence that claims 14–15, 17, 19–21, and 25 would have been obvious in view of the combination of Mason, EIA-709.1, Shuey, and the C12.18 Protocol.

F. Anticipation of Claims by Johnson

Petitioner contends that claims 1–3, 6, 8–11, 13–14, 16, and 18 are unpatentable under 35 U.S.C. § 102 as anticipated by Johnson. Pet. 60. Petitioner relies on its analysis of the obviousness ground based on Johnson, detailed above in Section II. E.–G., to explain how the prior art allegedly discloses each limitation of claims 1–3, 6, 8–11, 13–14, 16, and 18. *Id.* at 10–33, 60–64. As detailed above in Section II. D., Petitioner has shown that each limitation of claims 1–3, 6, 8–11, 13–14, 16, and 18 is met by Johnson. As to anticipation, below we discuss Patent Owner’s arguments that Petitioner’s contentions are not proper to show anticipation.

Patent Owner also asserts that Petitioner, contrary to Federal Circuit precedent, “picked and chose different parts from different addressing schemes” and “different aspects of two different components” (i.e. the NSM and RCN). PO Resp. 41–43 (citing *Net MoneyIN, Inc. v. Verisign, Inc.*, 545

F.3d 1359, 1371 (Fed. Cir. 2008)). In *Net MoneyIN*, the prior art disclosed two distinct protocols – neither of which met all the limitations of the claim on their own. *Id.* Here, the addressing schemes each work with the other parts of the Johnson system to meet all the limitations of the claims. The import of the different schemes is to show that the address field may change when a new scheme is used just as it is changed based on the type of transceiver that is being sent to in the '492 patent.

Patent Owner also argues that Petitioner did not prove anticipation because it “picked and chose different aspects of two different components of Johnson’s system (i.e., the remote cell nodes (RCN) and the network service module (NSM)) to argue that Johnson disclosed the remote devices and features of the remote devices” PO Resp. 42 We find that the NSM and RCN are not part of different embodiments or protocols, rather they work together in exactly the manner that Petitioner relies on them in its contentions. Therefore, we disagree with Patent Owner’s argument.

For the reasons above, we are persuaded that Petitioner has established by a preponderance of the evidence that claims 1–3, 6, 8–11, 13–14, 16, and 18 are anticipated by Johnson.

III. CONCLUSION

For the foregoing reasons, we determine Petitioner has demonstrated, by a preponderance of the evidence, the unpatentability of claims 1–3, 6, 8–11, 13–21, and 25 of the '492 patent on the following grounds:

Challenged Claim(s)	Basis	References
1–3, 6, 8–11, 13–14, 16, and 18	§ 103	Johnson
14–15, 17, 19–21, and 25	§ 103	Mason, EIA-709, Shuey, and C12.18
1–3, 6, 8–11, 13–14, 16, and 18	§ 102	Johnson

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–3, 6, 8–11, 13–21, and 25 of the US Patent No. 7,697,492 patent have been shown to be unpatentable.

This is a final decision. Parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2016-01895
Patent 7,697,492 B2

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