

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COPELAND COMFORT CONTROL LP,
Petitioner,

v.

OLLNOVA TECHNOLOGIES LTD.,
Patent Owner.

IPR2023-00624
Patent 8,224,282 B2

Before BRIAN J. McNAMARA, ARTHUR M. PESLAK, and
ROBERT J. SILVERMAN, *Administrative Patent Judges*.

PESLAK, *Administrative Patent Judge*.

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

I. INTRODUCTION

Copeland Comfort Control LP¹ (“Petitioner”) filed a Petition requesting an *inter partes* review of claims 1–5, 7–11, 13–16, and 20–21 (“the challenged claims”) of U.S. Patent No. 8,224,282 B2 (“the ’282 patent,” Ex. 1001). Paper 2 (“Petition,” “Pet.”). Petitioner filed a Declaration of Dean P. Neikirk in support of the Petition. Ex. 1002. Patent Owner, Ollnova Technologies Ltd., filed a Preliminary Response. Paper 8 (“Prelim. Resp.”). On October 2, 2023, we instituted this *inter partes* review as to all challenged claims and all grounds presented in the Petition. Paper 12.

After institution, Patent Owner filed a Response to the Petition (“PO Resp.”) supported by a Declaration of Erik De La Iglesia. Paper 16; Ex. 2008. Petitioner filed a Reply (“Pet. Reply”) supported by a Reply Declaration of Dean P. Neikirk. Paper 17; Ex. 1052. Patent Owner filed a Sur-reply² (“Sur-reply”). Paper 22. An oral hearing was held on July 9, 2024 and the transcript is entered into the record. Paper 27 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of the challenged claims of the ’282 patent. For the reasons discussed below, we determine Petitioner establishes by a preponderance of the evidence that all of the challenged claims are unpatentable.

¹ Copeland Comfort Control LP is the legal successor to the original petitioner Emerson Electric Co. Paper 6, 1.

² In the Sur-reply, Patent Owner notes that claims 1, 3, 6, and 21 were adjudged invalid by a district court in a proceeding that did not involve Petitioner. Sur-reply 1. As a result of that judgment, Patent Owner did not address claims 1–5, 20, and 21 in the Sur-reply. *Id.*

A. Related Matters

The parties identify the '282 patent as a subject of:

- 1) *Ollnova Technologies Ltd. v. Emerson Electric Co. et al.*, 4-22-cv-01387 (E.D. Mo.);
- 2) *Ollnova Technologies Ltd. v. Ecobee, Inc.*, 2-22-cv-00072 (E.D. Tex.); and
- 3) *Ollnova Technologies, Ltd. v. Carrier Global Corp.*, 9-22-cv-80388 (S.D. Fla.).

Pet. 2–3; Paper, 3, 2.

B. Real Parties-in-Interest

Petitioner identifies Copeland Comfort Control LP, Copeland LP, Copesub GP 1, LLC, Emerson Electric Co., and Verdant Environmental Technologies Inc. as real parties-in-interest. Paper 6, 1. Patent Owner identifies itself as the sole real party-in-interest. Paper 3, 2.

C. The '282 Patent

The '282 patent is titled “Method and Device to Manage Power of Wireless Multi-Sensor Devices.” Ex. 1001, code (54). The '282 patent issued on July 17, 2012, from Application No. 12/406,799, which was filed on March 18, 2009. *Id.* at codes (45), (21), (22). Application No. 12/406,799 claims priority to Provisional Application No. 61/037,739, filed March 19, 2008. *Id.* at code (60).

The '282 patent “generally relates to communications within a building automation system.” Ex. 1001, 1:15–16. Such a system “typically integrates and controls elements and services within a structure such as the heating, ventilation and air conditioning (HVAC) system, security services, fire systems and the like.” *Id.* at 1:20–23. The system “generally provides

for communicating information between wireless devices and/or automation components” that “may be configured to optimize radio and/or data communications to extend battery life.” *Id.* at 2:23–28.

Figure 2 of the '282 patent is reproduced below:

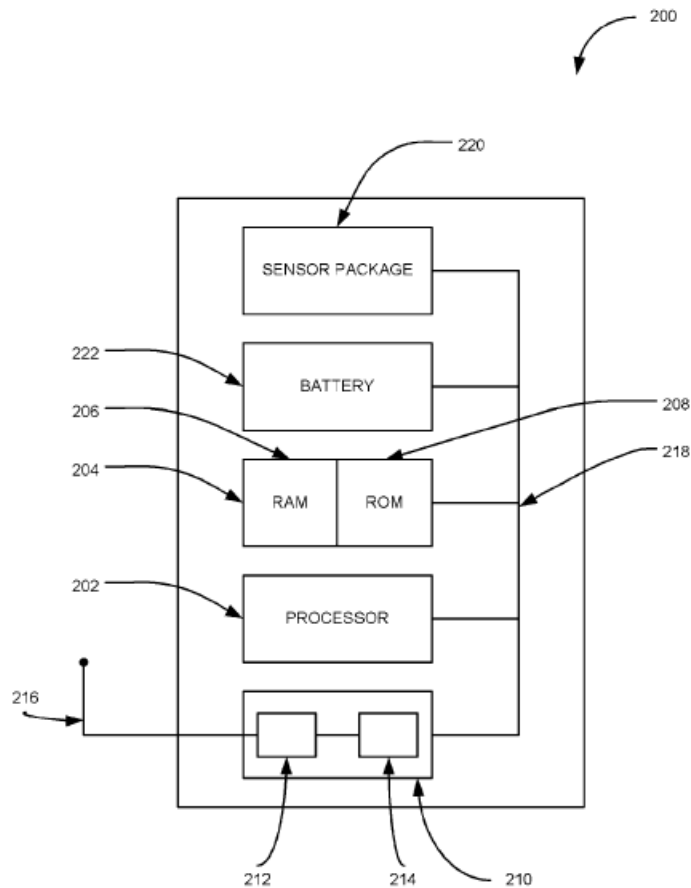


FIG. 2

Figure 2 is “an embodiment of a wireless device or automation component that may be utilized in connection with” a building automation system. Ex. 1001, 3:33–35. Automation component 200 shown in Figure 2 comprises processor 202 in communication with memory 204. *Id.* at 5:52–62.

Automation component 200 further comprises communication component 210 that may implement wireless communications by means of wireless transmitter 212, receiver 214, and antenna 216. *Id.* at 5:66–6:6. Sensor

package 220 can “sense or detect a variety of variables such as, for example, temperature, humidity, carbon dioxide, carbon monoxide, volatile organic compounds, etc.” *Id.* at 6:25–28.

D. Illustrative Claim

Claims 1, 7, 13, and 20 are independent. Claim 1 is reproduced with Petitioner’s annotations below:

- [1.pre] An automation component configured for wireless communication within a building automation system, the automation component comprising:
 - [1.a] a multi-sensor package configured to detect a plurality of variables and generate sensor data for each detected variable;
 - [1.b] a wireless communications component;
 - [1.c] a processor in communication with the wireless communications component and the sensor package;
 - [1.d] a memory in communication with the processor, the memory configured to store sensor data provided by the sensor package and computer readable instructions which are executable by the processor;
 - [1.e] wherein the computer readable instructions are programmed to:
 - receive sensor control information related to sensor data in control at a second automation component in communication with the building automation system; and
 - [1.f] communicate a portion of the stored sensor data corresponding to the received sensor control information to the second automation component.

Ex. 1001, 10:43–10:62.

E. Prior Art and Asserted Grounds

Petitioner asserts that claims 1–5, 7–11, 13–16, and 20–21 would have been unpatentable on the following grounds (Pet. 6):

Claims Challenged	35 U.S.C. § ³	References/Basis
1–5, 7–11, 20–21	102	McFarland ⁴
1–5, 7–11, 20–21	103(a)	McFarland
13–16	103(a)	McFarland, Kates-089 ⁵
1–5, 7–11, 20–21	103(a)	McFarland, Stoner ⁶
13–16	103(a)	McFarland, Stoner, Kates-089
1–5, 7–11, 20–21	103(a)	McFarland, Ahmed-629 ⁷
13–16	103(a)	McFarland, Kates-089, Ahmed-629
1–5, 7–11, 20–21	103(a)	McFarland, Stoner, Ahmed-629
13–16	103(a)	McFarland, Stoner, Kates-089, Ahmed-629
20–21	103(a)	Kates-089, Ahmed-625

II. ANALYSIS

A. Overview

Petitioner bears the burden of establishing the unpatentability of the challenged claims by a preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). This burden of persuasion never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

A claim is anticipated under 35 U.S.C. § 102 “only if each and every element as set forth in the claims is found either expressly or inherently

³ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), included revisions to 35 U.S.C. §§ 102 and 103 that became effective after the effective filing date of the challenged claims. Therefore, we apply the pre-AIA versions of 35 U.S.C. §§ 102 and 103.

⁴ U.S. Patent Publication No. 2007/0242688 A1 (Oct. 18, 2007). Ex. 1027 (“McFarland”).

⁵ U.S. Patent Publication No. 2006/071089 A1 (April 6, 2006). Ex. 1029 (“Kates-089”).

⁶ U.S. Patent No. 8,276,829 B2 (Oct. 2, 2012). Ex. 1030 (“Stoner”).

⁷ U.S. Patent Publication No. 2005/0268629 A1 (Dec. 8, 2005). Ex. 1036 (“Ahmed-625”).

described, in a single prior art reference.” *Verdegaal Bros., Inc. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987). However, this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *See In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990).

A claim is unpatentable under § 103(a) 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 skill in the art; and (4) when in evidence, objective indicia of non-obviousness (i.e., secondary considerations).⁸ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

The Supreme Court explained in *KSR International Co. v. Teleflex Inc.* that

[o]ften, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.

550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir.

⁸ No evidence or argument concerning secondary considerations is in the record.

2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” (alteration in original))).

“Whether an ordinarily skilled artisan would have been motivated to modify the teachings of a reference is a question of fact.” *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1327 (Fed. Cir. 2016). “[W]here a party argues a skilled artisan would have been motivated to combine references, it must show the artisan ‘would have had a reasonable expectation of success from doing so.’” *Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, 876 F.3d 1350, 1360–61 (Fed. Cir. 2017) (quoting *In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.*, 676 F.3d 1063, 1068–69 (Fed. Cir. 2012)).

B. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art “would have had a minimum of a bachelor’s degree in electrical engineering, or a related field, along with at least two years of professional experience in sensors, controls, and/or wireless communications.” Pet. 10–11 (citing Ex. 1002 ¶¶ 46–49). Petitioner further contends that “[a]dditional graduate education could substitute for professional experience, or significant experience in the field could substitute for formal education.” *Id.*

Patent Owner does not address the level of ordinary skill in the art. *See* PO Resp.

We apply Petitioner’s level of skill in the art because it appears consistent with the problems addressed in the ’282 patent and the prior art.

C. Claim Construction

We apply the same claim construction standard used by Article III federal courts and the International Trade Commission, both of which follow *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b) (2021). The claim construction standard includes construing claims in accordance with the ordinary and customary meaning of such claims as understood by one of ordinary skill in the art at the time of the invention. *See id.*; *Phillips*, 415 F.3d at 1312–14. In construing claims in accordance with their ordinary and customary meaning, we take into account the specification and prosecution history. *Phillips*, 415 F.3d at 1315–17.

If the specification “reveal[s] a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess[,] . . . the inventor’s lexicography governs.” *Phillips*, 415 F.3d at 1316 (citing *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002)). Another exception to the general rule that claims are given their ordinary and customary meaning is “when the patentee disavows the full scope of a claim term either in the specification or during prosecution.” *Uship Intellectual Props., LLC v. United States*, 714 F.3d 1311, 1313 (Fed. Cir. 2013) (quoting *Thorner v. Sony Comput. Entm’t. Am., LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)).

Petitioner contends that “[a]ll claim terms should be construed according to their plain and ordinary meaning as would have been understood by a [person of ordinary skill in the art] in view of the specification.” Pet. 11 (citing Ex. 1002 ¶ 50).

Patent Owner proposes a construction for three terms: “multi-sensor package,” “receive sensor control information related to sensor data in

control,” and “a second automation component in communication with the building automation system.” PO Resp. 6, 9, 11.

i. “multi-sensor package”

Patent Owner’s proposed construction is “a single packaged sensor device with multiple operational sensors.” PO Resp. 6. According to Patent Owner, “a multi-sensor package” “must be configurable such that a plurality of variables can be detected and sensor data generated for each detected variable” and “must have multiple operational sensors.” *Id.* at 6–7 (citing Ex. 2008 ¶ 32). Patent Owner cites to various portions of the Specification of the ’282 patent in support of its proposed construction. *Id.* at 7–8 (citing Ex. 1001, 6:25–28, 6:47–51, 8:65–67, 9:9–13, 9:43–46); Sur-reply 4–7.

Patent Owner further contends that, during prosecution, the applicant amended the claims in response to a prior art rejection and argued “that ‘it is clear that a multi-sensor package is configured to detect values and variables related to multiple sensed properties’” and amended the claims “to add ‘configured to detect a plurality of variables and generate sensor data for each detected variable.’” PO Resp. 8 (citing Ex. 1003, 83, 86, 90–91).

Petitioner, in turn, agrees that “the term ‘multi-sensor package’ is a ‘single packaged sensor device, not a group of individual sensors.’” Pet. Reply 3. Nonetheless, Petitioner argues that “the requirement that each of the sensors in the package be ‘operational’ injects ambiguity because it is unclear what ‘operational’ means.” *Id.* Petitioner argues that “operational” could mean “all sensors must operate simultaneously or that they all must be used as part of a system.” *Id.* Petitioner contends that the claim recites that the multi-sensor package is “configured to detect a plurality of variables and

generate sensor data for each detected variable.” *Id.* (citing Ex. 1001, claims 1, 13).

Petitioner next contends that the Specification does not require the sensors to be operational but describes that “[t]he sensor package 220 may be configured to sense or detect a variety of variables such as, for example, temperature, humidity, carbon dioxide, carbon monoxide, volatile organic compounds etc.” Pet. Reply 3 (quoting Ex. 1001, 6:25–29).

Petitioner next contends that Patent Owner’s citations to the prosecution history do not support that the sensors must be operational. Pet. Reply 4. Petitioner argues that the applicant distinguished the cited prior art by arguing “that it discloses ‘utilizing one or more individual sensors’ and not a single combination multi-sensor package.” *Id.* (citing Ex. 1003, 109–113). Petitioner notes that the applicant’s amendments “separately recite that the multi-sensor package is ‘configured to detect a plurality of variables and generate sensor data for each detected variable.’” *Id.* (citing PO Resp. 8; Ex. 1003, 83, 86) (emphasis omitted). According to Petitioner, “the only configuration or operability required of the multi-sensor package is separately recited.” *Id.* (citing Ex. 1052 ¶¶ 17–18).

In the Sur-reply, Patent Owner submits that “[o]perational’ does not require that all sensors must operate simultaneously because the ’282 [p]atent teaches selective powering of sensors and selectively reading one sensor – i.e., the sensor which is currently being analyzed, is primary, or is controlling.” Sur-reply 7 (citing Ex. 1001, 9:9–13). Patent Owner also argues that the ’282 patent “does not suggest that all sensors must be used as part of a system for the same reason.” *Id.* at 8.

For the following reasons, we do not adopt Patent Owner's proposed construction.

Patent Owner does not argue that the Specification provides a lexicographic definition of "multi-sensor package" or that the patentee disavowed the full-scope of the claims in the Specification or during prosecution. PO Resp. 6–9. Further, Patent Owner's declarant Mr. De La Iglesia does not offer an opinion on how a person ordinary skill in the art would interpret this term. Tr. 27:16–25.

Claim 1 recites "a multi-sensor package configured to detect a plurality of variables and generate sensor data for each detected variable." Ex. 1001, 10:46–48. Both parties agree that a "multi-sensor package" is a single packaged device with multiple sensors, not a group of individual sensors. *See* PO Resp. 6; Pet. Reply 2.

Claim 1 does not recite a multi-sensor package with "multiple *operational* sensors." Patent Owner does not explain the difference between operational sensors and sensors "configured" as recited in claim 1 or why claim 1 should be construed as requiring an "operational" limitation that does not appear in the claim. Consequently, a requirement that the sensors comprising the package be "operational" is neither required by claim 1 nor suggested by the language of claim 1.

The Specification of the '282 patent describes that "[t]he sensor package may be configured to sense or detect a variety of variables." Ex. 1001, 6:25–27; *see also* Sur-reply 5 (quoting this portion of the Specification). This description in the Specification aligns with the language of claim 1 and does not suggest adding a limitation that each of the sensors be "operational." Patent Owner directs us to other portions of the

Specification where the word “operate” or “operating” is used. PO Resp. 7–8 (citing Ex. 1001, 6:47–51, 8:65–67; 9:9–13, 9:43–46). But these portions describe what happens when the sensors are in use. The cited portions do not support adding a limitation to claim 1 that multiple sensors are “operational.”

Patent Owner’s citations to the prosecution history do not support its proposed construction. PO Resp. 8. Patent Owner points to claim amendments that added language substantially similar to the language of claim 1 at issue here, i.e., “configured to detect a plurality of values and generate sensor data for each detected variable.” *Id.* (citing Ex. 1003, 83, 86). Patent Owner does not direct us to any portion of the prosecution history where the applicant described multiple sensors as “operational.” *See id.*

For all the foregoing reasons, we do not adopt Patent Owner’s proposed construction of “a multi-sensor package.”

We decline to import the limitation “operational” to the claim and apply the plain and ordinary meaning of the term namely “a single device with multiple sensors configured to detect a plurality of variables and generate sensor data for each detected variable.”

ii. “receive sensor control information related to sensor data in control”

Patent Owner’s proposed construction is “to receive information that identifies which sensor or sensor value is driving or controlling a receiving device in communication with the building automation system.” PO Resp.

10 (citing Ex. 2008 ¶ 33).⁹ In support of this construction, Patent Owner quotes the '282 patent as follows:

[i]n other words, during any given scan cycle, one of the sensor values and/or a corresponding sensor control routine is executed by the receiving device (e.g., the field panel 120). The communicated sensor control information provided by the receiving device identifies for the automation component 200 which sensor and/or sensor value is driving or controlling the receiving device during the scan cycle.

Id. at 9–10 (quoting Ex. 1001, 9:16–22; citing Ex. 2008 ¶ 34).

Petitioner contends that the plain and ordinary meaning of this term should be applied. Pet. Reply 5 (citing Ex. 1052 ¶ 22). Petitioner next contends that Patent Owner's "construction rewrites 'related to' to require that the sensor control information '*identifies* which sensor or sensor value is driving or controlling.'" *Id.* at 6. Petitioner argues that "the specification likewise is clear that 'sensor usage or control information,' which describes this element, either 'relates to *or* identifies the sensor values and routines that are controlling and driving the receiving device.'" *Id.* (citing Ex. 1001, 9:13–21).

For the following reasons, we do not adopt Patent Owner's proposed construction.

Patent Owner's construction rewrites the limitation. The language of claim 1 at issue is "receive sensor control information related to sensor data

⁹ Patent Owner directs us to a construction of this term by a district court but does not argue that we should adopt the district court's construction. PO Resp. 9–10 (citing Ex. 2002, 14). The district court's construction is "receive information that identifies which sensor or sensor value is driving or controlling a second automation component in communication with the building system." *Id.* at 11 (citing Ex. 2002, 14). We focus our analysis on Patent Owner's proposed construction which is before us at this time.

in control at *a second automation component in communication with the building automation system.*” Ex. 1001, 10:57–58 (emphasis added).

Patent Owner’s proposed construction changes the claim language to “receive information that identifies which sensor or sensor value is driving or controlling *a receiving device in communication with the building automation system.*” Patent Owner’s construction removes the recited “a second automation component” from the claim and replaces it with “a receiving device.” Ex. 1052 ¶ 23. Consequently, the language of claim 1 does not suggest Patent Owner’s proposed rewriting of this limitation.

The portions of the Specification cited by Patent Owner provide that field panel 120 is “a receiving device” and “the communicated sensor control information *provided by the receiving device* identifies for the automation component 200 which sensor and/or sensor value is driving or controlling the receiving device.” Ex. 1001, 9:9–10, 9:19–22. Patent Owner’s proposed construction appears to parrot this portion of the Specification, and thus, amounts to a request that we import a limitation from the Specification into the claim. However, to be clear, neither this portion of the Specification, nor any other portion, rises to the level of either a lexicographic definition or disclaimer that would support Patent Owner’s attempt to rewrite claim 1.

We apply the plain and ordinary meaning of this phrase which is receive sensor data related to or identifying sensor data in control at a second automation component.

iii. “second automation component in communication with the building automation system”

Patent Owner contends that we should construe this phrase as “an automation component that communicates with, but is not within, the building automation system.” PO Resp. 15. According to Patent Owner, the ’282 patent “consistently uses the words ‘within’ and ‘with’ to mean different things, which is in accordance with their respective dictionary definitions.” *Id.* at 11. Patent Owner submits that “‘with’ in its most apposite sense, is defined as ‘in the performance, use or operation of,’ ‘to: ONTO,’ or ‘in relationship to.’” *Id.* (citing Ex. 2006, 1267–68). Patent Owner further submits that “the preposition ‘within’ is defined as ‘in the inner part or parts of: INSIDE’ or ‘inside the fixed limits of : not beyond.’” *Id.* at 11–12 (citing Ex. 2006, 1268).

Patent Owner argues that “the ’282 [p]atent specification repeatedly describes an automation component configured for wireless communication within a building automation system while also disclosing a second automation component in communication with the building automation system.” PO Resp. 12 (citing Ex. 1001, 2:29–31, 2:40–41, 2:45–47, 2:54–57, 3:15–17). Patent Owner further argues that the ’282 patent discloses a broad range of wireless communications “with devices that are not within the building automation system.” *Id.* at 12–13 (citing Ex. 1001, 5:44–49, Fig. 1).

Petitioner, in turn, argues that Patent Owner’s construction introduces a negative limitation, i.e., “excluding any second automation component that is ‘within’ the system.” Pet. Reply 7–8. Petitioner further argues that Patent Owner’s construction is “contrary to the plain meaning of the terms ‘with’

and ‘within’” and we “should give this term its plain and ordinary meaning.” *Id.* at 8 (citing Ex. 1052 ¶ 29). Petitioner points out that “[n]othing in the claim language precludes a second automation device from being within the system.” *Id.*

Petitioner next argues that the Specification contradicts Patent Owner’s “construction because it discloses first and second automation components that are both within the building automation system and communicate with the system.” Pet. Reply 9 (citing Ex. 1001, 4:47–49, Fig. 1).

For the following reasons, we do not adopt Patent Owner’s construction of this phrase.

Figure 1 of the ’282 patent describes “an exemplary building automation or control system 100.” Ex. 1001, 4:47–48. Building automation system 100 includes multiple “automation components generally identified by the reference numerals 116a to 116g.” *Id.* at 5:13–15. Mesh network 118a is part of building automation system 100 shown in Figure 1. *Id.* at Fig. 1. Thus, all of the automation components and mesh network are “within” building automation system 100 shown in Figure 1. The ’282 patent describes that automation component “116a may communicate *with* other automation components 116b to 116d *within* the mesh network 118a.” *Id.* at 5:23–25 (emphasis added). Consequently, component 116a communicates with components 116b to 116d where all of the components 116a to 116d are “within” the building automation system and “within” mesh network 118a. Therefore, we do not adopt Patent Owner’s proposed construction because it is contrary to the description of Figure 1 in the Specification.

We will apply the plain and ordinary meaning of this phrase that “the second automation component [is] in communication with the building automation system from any location.”

We have construed the claim terms above to the extent necessary to determine whether Petitioner has met its burden to prove unpatentability. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’”) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

D. Ground 1: Alleged Anticipation/Obviousness of Claims 1–5, 7–11, and 20–21 over McFarland

Petitioner contends claims 1–5, 7–11, and 20–21 would have been anticipated and/or obvious over McFarland. Pet. 13–44. Petitioner supports its contentions with the Declaration of Dr. Neikirk. Ex. 1002.

We begin with a brief summary of McFarland and then address Petitioner’s contentions.

1. McFarland (Ex. 1027)

McFarland is titled “Dynamic Value Reporting for Wireless Automated Systems.” Ex. 1027, code (54). McFarland discloses a wireless automation system that uses dynamic value reporting to “communicate[] data among and between devices related to changes in a value of a monitored condition and/or measured parameter (e.g., a wireless sensor for monitoring environmental temperature).” *Id.* ¶ 16.

Figure 1 of McFarland is reproduced below:

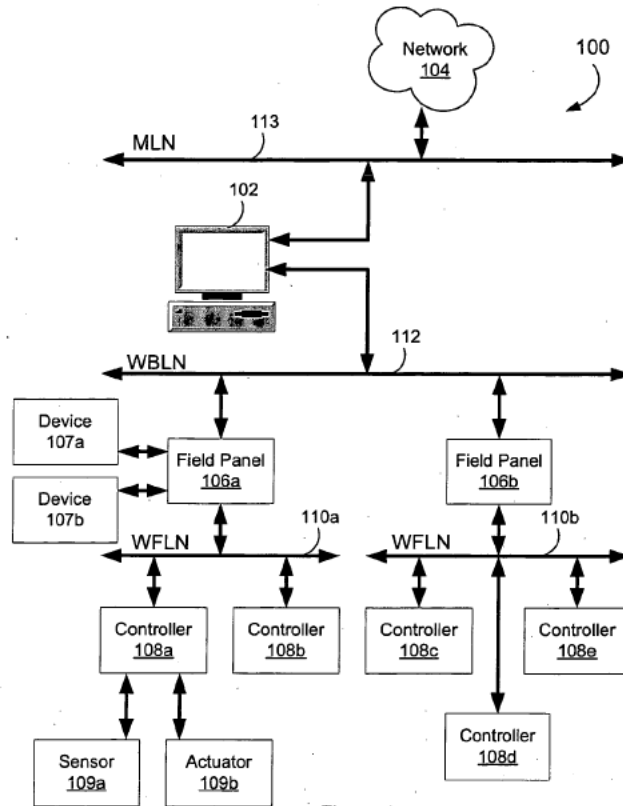


Figure 1 “is a block diagram for an example of a wireless automation system 100 configured for and/or using dynamic value reporting.” Ex. 1027 ¶ 19. System 100 “includes a supervisory control system or workstation 102, one or more field panels 106a, 106b and one or more controllers 108a-108e.” *Id.* ¶ 24. “Controller[s] 108a-108e . . . correspond[] to an associated localized, standard building control subsystem such as a space temperature control, air quality control, lighting control, hazard detection, security, combinations thereof, or the like.” *Id.* Controllers 108a–108e may communicate with sensors 109a or actuators 109b using “two-way wireless communication protocol.” *Id.*

Figure 2 of McFarland is reproduced below:

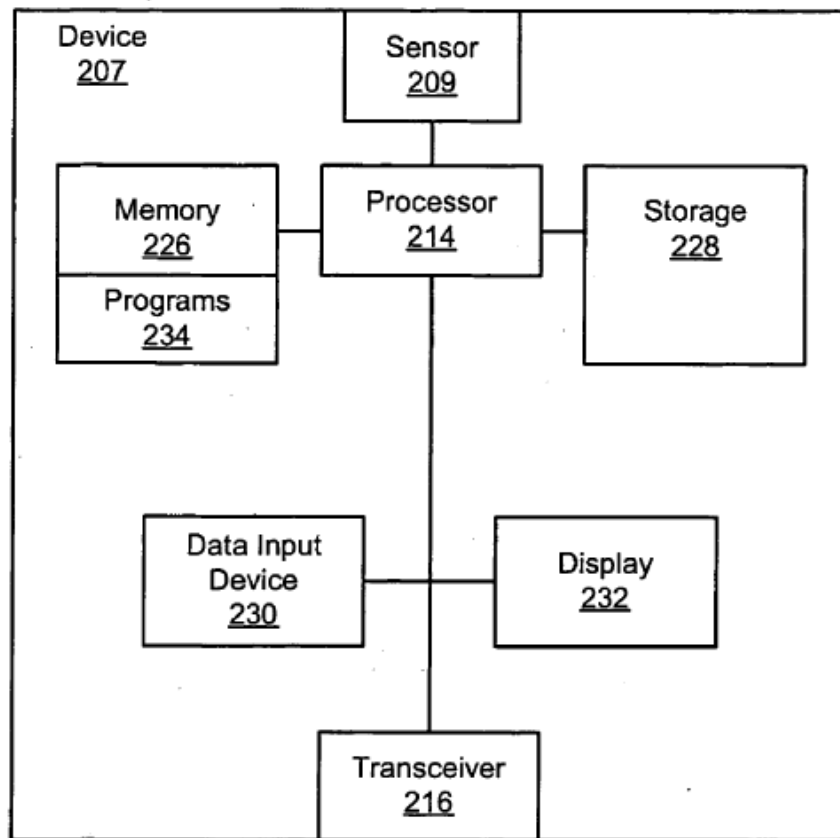


Figure 2

Figure 2 is “a block diagram of an automation device 207 for a wireless automation system using dynamic value reporting.” Ex. 1027 ¶ 36. Device 207 “includes a processor 214, a transceiver 216, and a sensor 209.” *Id.* ¶ 38. Processor 214 “implements a control process for the device 207 . . . based on a signal that is read from and/or provided by the sensor 209, such as a measured value of a parameter, an indicator of a sensed condition and/or status of an event.” *Id.* ¶ 39 Transceiver 216 “wirelessly communicates information using one or a combination of one-way and/or two-way wireless communications.” *Id.* ¶ 42. Sensor 209 “is configured as any of a temperature sensor, humidity sensor, fire sensor, pressure sensor, smoke

sensor, occupancy sensor, air quality sensor, gas sensor, O₂, CO₂, or CO sensor, accelerometer, velocity sensor, [and] combination thereof.” *Id.* ¶ 43.

2. *Independent Claim 1*

Petitioner provides a limitation-by-limitation analysis of independent claim 1, mapping each claim limitation to McFarland. Pet. 16–31.¹⁰

Patent Owner contends that McFarland does not disclose or teach “a multi-sensor package,” “receive sensor control information related to sensor data in control,” or “a second automation component in communication with the building automation system.” PO Resp. 26, 31, 33.

We now analyze the parties’ respective contentions.

McFarland’s Sensor Disclosures

In its mapping of McFarland to the limitations of claim 1, Petitioner points to device 207 shown in McFarland’s Figure 2, device 507 shown in Figure 5, and the system shown in Figure 1. *See, e.g.*, Pet. 19, 27–28.

Petitioner argues that:

McFarland’s automation device 507 implements “dynamic value reporting as described with respect to FIGS. 1-4.” [Ex. 1027 ¶ 60]. In Fig. 1, “sensor 109a” “report[s] sensor information” and other information “using dynamic value reporting.” [Ex. 1027 ¶¶ 19, 23, 25–26]. Similarly, the “automation device . . . 207” in Fig. 2 “reports information” “using dynamic value reporting.” [Ex. 1027 ¶¶ 36–37]. This not only renders obvious but affirmatively discloses that **McFarland’s** teachings of automation and sensor device monitoring and reporting sensor information are applicable to each of devices 207 and 507 and sensor 109a. [Ex. 1002] ¶ 65. Similarly, because controllers 108a-108e and 508 each execute control processes using such monitored and reported information, McFarland not only renders obvious but affirmatively discloses implementing its teachings of such

¹⁰ For ease of reference, we utilize Petitioner’s claim annotations.

‘control’ functions in each of these devices. *See* [Ex. 1027 ¶¶ 2–4, 8, 11, 15, 18, 21, 23–27, 33–34, 60–62]; [Ex. 1002 ¶ 65]. To the extent such disclosures may be considered distinct teachings/embodiments (they are not), it would have been obvious to combine these teachings, which **McFarland** explains are either directly related or the same—and a POSITA would have had a reasonable expectation of success combining the teachings of such embodiments as they are taught as part of the same system. [Ex. 1027 ¶ 60] (“[D]evoke 507 is configured . . . as described . . . with respect to FIGS. 1-4”); [Ex. 1002] ¶ 65.

Pet. 15–16 (ellipses in original).

Patent Owner does not argue that the devices shown in Figures 1, 2 and 5 are distinct embodiments. *See generally* PO Resp. Nor does Patent Owner argue that Petitioner has not shown a motivation to combine the embodiments if they are in fact distinct. *Id.* Consequently, it is not necessary for us to decide whether the embodiments are distinct or not for the purposes of this Decision. However, if they are distinct, we agree with Petitioner that an ordinarily skilled artisan would have been motivated to combine the embodiments with a reasonable expectation of success because they are part of the same system.¹¹

[1.pre] An automation component configured for wireless communication within a building automation system, the automation component comprising:

Petitioner contends that “McFarland discloses a ‘wireless automation system’ that uses ‘dynamic value reporting’ to communicate data ‘between devices related to changes in a value of a monitored condition and/or measured parameter’—e.g., temperature for HVAC.” Pet. 13 (citing Ex.

¹¹ We note it is well settled that “anticipation is the epitome of obviousness.” *In re McDaniel*, 293 F.3d 1379, 1385 (Fed. Cir. 2002) (quoting *Connell v. Sears Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)); *In re Fracalossi*, 681 F.2d 792, 794 (CCPA 1982).

1027 ¶¶ 2, 16). Petitioner next contends that McFarland discloses a “wireless automation device[]” that “performs two-way wireless communication with controllers within a ‘building automation system’ without human interaction.” *Id.* at 16–18 (citing Ex. 1002 ¶¶ 66–68; Ex. 1027 ¶¶ 6, 8, 16, 19–21, 24, 36, 37, 60–62, Fig. 5) (alteration in original). Petitioner does not address whether the preamble is limiting. *See id.*

Patent Owner does not address the preamble. *See* PO Resp. 26–35.

We reviewed the evidence cited by Petitioner and find that McFarland discloses the subject matter of the preamble. Therefore, we need not address whether the preamble is limiting.

[1.a] a multi-sensor package configured to detect a plurality of variables and generate sensor data for each detected variable;

Petitioner contends that McFarland’s sensor 209 corresponds to the recited multi-sensor package because it is disclosed as “a ‘combination[]’ micro-electro-mechanical sensor that detects multiple variables (e.g., temperature and humidity)” and “generates and outputs sensor data for each measured variable as ‘a measured value’ or ‘indicator.’” Pet. 18–19 (citing Ex. 1002 ¶¶ 70–74; Ex. 1003, 110; Ex. 1027 ¶¶ 39, 43, 45, 47, Figs. 2, 3) (alterations in original); *see also id.* at 19–22 (citing Ex. 1027 ¶¶ 38, 39, 40, 43, 45, 47).

Patent Owner responds that “McFarland is particularly directed to ‘wirelessly reporting a sensed condition over a wireless communication network.’” PO Resp. 26 (quoting Ex. 1027 ¶ 1); *id.* at 28 (“McFarland discusses the operation of the sensor in terms of a single sensed or monitored condition.” (citing Ex. 1027 ¶ 43)), 29. Patent Owner next points to McFarland’s Figure 2 which, according to Patent Owner, “discloses a sensor [209], not multiple sensors.” *Id.* at 27 (citing Ex. 1027, Fig. 2). Patent

Owner further contends that “McFarland consistently describes the operation of its disclosed devices in the context of a single operational sensor.” *Id.* at 27–28 (citing Ex. 1027 ¶¶ 23, 37). Patent Owner acknowledges that McFarland “suggest[s] that different components may be provided for device 207, including a plurality of different or the same type of sensors . . . [I]t does not suggest that those would be part of the same sensor (i.e., not a multi-sensor package).” *Id.* at 28 (citing Ex. 1027 ¶ 38). Patent Owner further argues that McFarland “discloses ‘a device or a collection of devices that sense conditions, parameters and/or events such as an environmental condition in a building.’” *Id.* (citing Ex. 1027 ¶ 43).

Petitioner, in turn, contends that McFarland’s sensor 209 is a combination sensor that “is configured as any of a temperature sensor, humidity sensor, fire sensor . . . ***combinations thereof***, or other now known or later developed sensors.” Pet. Reply 12 (quoting Ex. 1027 ¶ 43) (emphasis added by Petitioner) (ellipsis in original). Petitioner further contends that McFarland’s sensors are micro-mechanical sensors which, according to Petitioner, an ordinarily skilled artisan “would have understood to disclose integrating a combination sensor on a single substrate.” *Id.* (citing Ex. 1002 ¶¶ 72, 199). Petitioner also argues that each of McFarland’s “sensors within the combination generates sensed data because the sensor includes ‘***a collection of devices that sense conditions***, parameters, and/or events such as an environmental condition in a building,’ including temperature, humidity, or fire.” *Id.* at 13 (quoting Ex. 1027 ¶ 43 (emphasis added by Petitioner)).

In the Sur-reply, Patent Owner reiterates its position that “McFarland’s sensor 209 does not have multiple operational sensors but

instead is a sensor that senses a single condition or status of an event.” Sur-reply 14 (citing Ex. 2008 ¶¶ 38–39); *id.* (“Sensor 209 is disclosed as a sensor that monitors a condition or status of an event.” (citing Ex. 1027 ¶ 23) (emphasis added by Patent Owner)).

For the following reasons, Petitioner establishes that McFarland teaches this limitation.

To the extent that Patent Owner relies on its proposed construction of “multi-sensor package,” we do not adopt that construction. *See* Section II.C herein. Consequently, Patent Owner’s contentions (PO Resp. 26; Sur-reply 14), based on its construction that the sensors must be “operational” is unavailing.

McFarland discloses an exemplary sensor 209 that “is configured as any of a temperature sensor, humidity sensor, fire sensor, pressure sensor, smoke sensor, occupancy sensor, air quality sensor, gas sensor, O₂, CO₂, or CO sensor, accelerometer, velocity sensor, [or] *combinations thereof*” and “may be . . . micro-mechanical sensors . . . or larger sensors for sensing any condition or parameter.” Ex. 1027 ¶ 43 (emphasis added). Patent Owner submits that paragraph 43 of McFarland describes “a device . . . that sense[s] *conditions, parameters* and/or events such as an environmental condition in a building.” PO Resp. 28 (emphasis added). Based on the foregoing, we find that McFarland teaches “a multi-sensor package configured to detect a plurality of variables.” Ex. 1002 ¶ 72 (“sensor 209 may be configured to detect multiple different variables including temperature, humidity, and other variables”); Ex. 1027 ¶ 43.

McFarland further discloses “sensor 209 generates information or data related to the sensed or monitored condition” and “output as one or more

signals that may be read by the processor 214.” Ex. 1027 ¶ 43. McFarland further discloses that “information may be generated in response to a physical stimulus such as light, sound, pressure, heat, magnetism, motion, and/or acceleration” that “may be detected as a result of sensing or monitoring the conditions or parameters.” *Id.*; *see also id.* ¶ 44 (“A signal generated by the sensor 209 may be an indicator of the sensed condition.”). McFarland also discloses that “processor 214 implements a control process for the device 207” that “may be implemented based on a signal that is read from and/or provided by the sensor 209, such as a measured value of a parameter, an indicator of a sensed condition and/or status of an event.” *Id.* ¶ 39. Thus, we find McFarland teaches that sensor 209 “generate[s] sensor data for each detected variable.” Ex. 1002 ¶ 74 (“For each condition that it monitors, the sensor generates and outputs sensor data for each measured variable in the form of ‘a measured variable’ or ‘indicator.’” (citing Ex. 1027 ¶¶ 39, 45, 47)).

For the foregoing reasons and after reviewing Petitioner’s evidence in light of Patent Owner’s contentions, we find that McFarland teaches this limitation.

[1.b] a wireless communication component;

Petitioner contends that McFarland’s transceiver 216 satisfies this limitation. Pet. 22 (citing Ex. 1002 ¶¶ 75–77; Ex. 1027 ¶¶ 8, 38–42, 46, 52–54, 60, Figs. 2, 5).

Patent Owner does not address this limitation. *See* PO Resp. 26–35.

We reviewed the evidence cited by Petitioner and find that McFarland teaches this limitation. Ex. 1002 ¶¶ 75–77; Ex. 1027 ¶¶ 8, 38–42, 46, 52–54, 60, Figs. 2, 5.

[1.c] a processor in communication with the wireless communications component and the sensor package;

Petitioner contends McFarland discloses processor 214 “that ‘interfaces’ with and ‘controls’ the ‘transceiver,’ and ‘read[s]’ sensor 209, which is ‘responsive to’ ‘logic executed by the processor 214.’” Pet. 23–24 (citing Ex. 1002 ¶¶ 78–80; Ex. 1027 ¶¶ 38–40, 43, 44, 46–48, 52, 60, 61, Figs. 2, 4, 5) (alteration in original).

Patent Owner does not address this limitation. *See* PO Resp. 26–35.

We reviewed the evidence cited by Petitioner and find that McFarland teaches this limitation. Ex. 1002 ¶¶ 78–80; Ex. 1027 ¶¶ 38–40, 43, 44, 46–48, 52, 60, 61, Figs. 2, 4, 5.

[1.d] a memory in communication with the processor, the memory configured to store sensor data provided by the sensor package and computer readable instructions which are executable by the processor;

Petitioner contends that McFarland’s memory 226 “communicates with the ‘processor’ and stores current and prior readings of ‘indicator[s]’ generated by sensor 209 and ‘programs’ executed by processor 214.” Pet. 24–25 (citing Ex. 1002 ¶¶ 81–83; Ex. 1027 ¶¶ 38–40, 47, Fig. 2).

Patent Owner does not address this limitation. *See* PO Resp. 26–35.

We reviewed the evidence cited by Petitioner and find that McFarland teaches this limitation. Ex. 1002 ¶¶ 81–83; Ex. 1027 ¶¶ 38–40, 47, Fig. 2.

[1.e] wherein the computer readable instructions are programmed to: receive sensor control information related to sensor data in control at a second automation component in communication with the building automation system; and

Petitioner first contends that McFarland’s device “507 implements ‘dynamic value reporting as described . . . with respect to FIGS. 1–4.” Pet. 15 (quoting Ex. 1027 ¶ 60) (alteration in original). Petitioner further

contends that sensor 109a shown in Figure 1 and sensor 207 shown in Figure 2 also use dynamic value reporting. *Id.* (citing Ex. 1027 ¶¶ 19, 23, 25, 26, 36, 37). According to Petitioner, “because controllers 108a-108e and 508 each execute control processes using such monitored and reported information, **McFarland** not only renders obvious but affirmatively discloses implementing its teachings of such ‘control’ functions in each of these devices.” *Id.* at 15–16 (citing Ex. 1002 ¶ 65; Ex. 1027 ¶¶ 2–4, 8, 11, 15, 18, 21, 23–27, 33, 34, 60–62).

Petitioner next contends that McFarland’s “‘controller 508’ (represented in Fig. 1, by controller 108a) . . . is a second automation component in communication with the ‘wireless automation device.’” Pet. 26 (citing Ex. 1002 ¶¶ 84–86; Ex. 1027 ¶¶ 25–26, 60). Petitioner further contends “[t]he ‘wireless automation device’ receives sensor control information from the controller including ‘instructions’—e.g., a ‘report instruction’—that causes the wireless automation device to ‘sense and report a current indicator . . . or other requested information’ for a sensor—e.g., temperature or humidity.” *Id.* (citing Ex. 1027 ¶¶ 25, 43, 60–62) (ellipsis in original). Petitioner next contends that “[c]ontrol processes are ‘specific to the sensor’; e.g., if one of ‘a plurality of different types of sensors’ is currently in use (e.g., temperature and not humidity), humidity data ‘may be stored but unused’ during that control process.” *Id.* (citing Ex. 1027 ¶¶ 39–40). Petitioner further contends that “[w]hen controller 508 receives information about ‘the sensed condition,’ then based on the current control process, the controller ‘provides an appropriate control signal to [an] actuator’ to ‘drive the sensed condition to a ‘set point.’” *Id.* (citing Ex. 1027 ¶¶ 25–26) (second alteration in original). According to Petitioner, “[t]he

sensor data is in control at the controller because it is used to control the actuator to reach the set point.” *Id.* Further, Petitioner asserts that “the ‘report instruction’ is sensor control information because the ‘controller’ implements a sensor-specific control operation to obtain an ‘event reported by a sensor,’ including sensor values and other data, to ‘control[] the operation of one or more actuators.’” *Id.* (citing Ex. 1002 ¶¶ 87–88) (alteration in original).

Patent Owner first contends that McFarland does not teach “a second automation component.” PO Resp. 33–35. In support of this contention, Patent Owner relies on its proposed construction of “second automation component” as “an automation component that communicates with, but is not within, the building automation system.” *Id.* at 33 (emphasis omitted). As discussed above in our claim construction analysis, we do not adopt Patent Owner’s construction. *See* Section II.C herein. Because we do not adopt Patent Owner’s construction, this contention is unavailing.

Nonetheless, we find that McFarland’s controller 508 is a second automation component in communication with the building automation system based on the following disclosures in McFarland. McFarland discloses that “controller 508 of a building automation system” “is in communication with a device 507,” “includes one or more processors 520 and at least one transceiver 518,” and “may also include a second transceiver 522.” Ex. 1027 ¶ 60. “[T]ransceivers 518 and 522 send and receive information to and from the device 507 on the WFLN”¹² and “may also send and receive information to and from field panels [106a, 106b in Fig. 1].” *Id.*

¹² “WFLN” stands for “wireless field (or floor) level networks.” Ex. 1027 ¶ 27.

Patent Owner next contends that “[b]ecause McFarland does not disclose or suggest multiple operable sensors, there is no reason to identify which sensor and sensor data is currently being analyzed or is primary or controlling.” PO Resp. 32. Petitioner replies that Patent Owner mischaracterizes McFarland, which discloses using multiple sensors in the multi-sensor package. Pet. Reply 18. To the extent that this contention is based on Patent Owner’s proposed construction of “multi-sensor package,” as discussed above we do not adopt that construction. As further discussed above, we find that McFarland teaches the multi-sensor package recited in limitation 1a. For these reasons, Patent Owner’s contention is unavailing.

Patent Owner next contends that Petitioner “essentially [is] arguing that the data received is self-identifying as the driving or controlling information because it was received.” PO Resp. 32 (citing Pet. 25–26). Patent Owner argues that this limitation “does not encompass any information that may be communicated in a building automation system,” “[n]or is it simply the sensor data,” but “[r]ather it is instead directed to specific information that identifies which sensor or sensor value is driving or controlling a second automation component in communication with the building system.” *Id.* at 32–33.

Petitioner replies that the Petition points to McFarland’s “report instruction” as corresponding to the “sensor control information.” Pet. Reply 17 (citing Pet. 26; Ex. 1027 ¶¶ 25, 26, 43, 60–62). According to Petitioner, “[t]he ‘report instruction’ is sensor control information at least because it is ‘specific to the sensor’ used to ‘implement[] a control process . . . based on’ that sensor signal at a controller 508 (a second automation

component).” *Id.* (citing Pet. 26; Ex. 1002 ¶¶ 87–88; Ex. 1052 ¶ 55) (alterations in original).

Petitioner next contends that McFarland’s “report instruction” teaches “the claimed ‘sensor control information’ even under [Patent Owner]’s construction because the ‘report instruction’ identifies for the wireless automation component . . . which sensor data to report.” Pet. Reply 18 (citing Ex. 1027 ¶¶ 60–62). According to Petitioner, “[t]he requested sensor data is driving or controlling at the controller . . . because the controller uses that data to ‘provide[] control functionality . . . in response to an event reported by’ the sensor—for example, the controller uses the sensor data to ‘provide[] an appropriate control signal to the actuator.’” *Id.* (citing Pet. 25–26; Ex. 1027 ¶¶ 25–26; Ex. 1052 ¶ 59) (second, third, and fourth alterations in original).

For the following reasons, we find that McFarland teaches this limitation.

McFarland’s controller 108 “is programmed with the set points and a code setting forth *instructions that are executed by the controller for controlling the actuators* to drive the sensed condition to be with the set point.” Ex. 1027 ¶ 26 (emphasis added). McFarland’s controller 508 processes information “according to a control algorithm for the system and for the device.” *Id.* ¶ 61. Controller 508 “communicate[s] a report instruction to the device 507. In response to a report instruction, the device 507 may wake up from a sleep mode and sense and report a current indicator V_i or other information.” *Id.* ¶ 62. Further, “device 507 is configured for dynamic value reporting as described in FIGS 1–4.” *Id.* ¶ 60. Device 207 shown in Figure 2 comprises sensor 209 which is “a device or collection of

devices that sense conditions, parameters and/or events such as an environmental condition in a building.” *Id.* ¶ 43, Fig. 2. Based on the foregoing, we find that McFarland’s “report instructions” correspond to the recited “sensor control information related to sensor data in control at a second automation component” because the report instructions are generated by McFarland’s controller 508 and are related to sensor data generated by device 507. Further, McFarland’s controller 508, like controller 108, controls “actuators to drive the sensed condition to be with the set point.” *Id.* ¶ 26; Ex. 1002 ¶ 87.

For the foregoing reasons and after reviewing Petitioner’s evidence in light of Patent Owner’s contentions, we find that McFarland teaches this limitation.

[1.f]: communicate a portion of the stored sensor data corresponding to the received sensor control information to the second automation component.

Petitioner contends that McFarland “discloses that, in response to a ‘report’ command from the controller, the wireless automation device, executes a ‘program’ by sending corresponding reports including a portion of the stored sensor information such as ‘a current value or indicator’ or ‘prior measurements’ or other requested information.” Pet. 29 (citing Ex. 1002 ¶¶ 89–91; Ex. 1027 ¶¶ 23, 38–40, 47, 53–54, 62).

Patent Owner does not address this limitation. *See* PO Resp. 26–35.

We reviewed the evidence cited by Petitioner and find that McFarland teaches this limitation. Ex. 1002 ¶¶ 89–91; Ex. 1027 ¶¶ 23, 38–40, 47, 53–54, 62.

Summary of Claim 1

For the foregoing reasons, we determine that Petitioner establishes by a preponderance of the evidence that claim 1 is unpatentable as anticipated and/or obvious over McFarland.

3. *Claim 2*

Claim 2 depends from claim 1 and recites “wherein the sensor package includes one or more sensors selected from the group consisting of: a temperature sensor; a humidity sensor; a carbon monoxide sensor; a carbon dioxide sensor and a volatile organic compound sensor.” Ex. 1001, 10:63–67.

Petitioner relies on its contentions for limitation 1[a]. Pet. 31 (citing Ex. 1002 ¶¶ 92–94).

Patent Owner does not address claim 2. *See generally* PO Resp.

We reviewed the evidence cited by Petitioner and find that McFarland discloses the subject matter of claim 2. Ex. 1027 ¶ 43.

For the foregoing reasons, we determine that Petitioner establishes by a preponderance of the evidence that claim 2 is unpatentable as anticipated and/or obvious over McFarland.

4. *Claim 3*

Claim 3 depends from claim 1 and recites “wherein the computer readable instructions are further programmed to: identify sensor values within the sensor data that exceed a corresponding change-of-value threshold.” Ex. 1001, 11:1–4.

Petitioner contends that McFarland discloses sensor values are generated during each polling period. Pet. 32 (citing Ex. 1027 ¶ 47). Petitioner further contends that McFarland’s “processor is programmed to

‘process[]’ each sensor reading V_i (the most current value) to determine whether ‘the sensed condition has changed’ by comparing the ‘difference’ . . . to a ‘limit,’ which is a change-of-value threshold.” *Id.* (citing Ex. 1027 ¶¶ 49–50) (first alteration in original). Petitioner also contends that “[w]hen the difference exceeds a limit or range (*i.e.*, change of value threshold), a ‘flag may be set’” which “identif[ies] each sensor value exceeding the change-of-value threshold.” *Id.* (citing Ex. 1002 ¶¶ 95–97; Ex. 1027 ¶¶ 49–50, 52, 54).

Patent Owner does not address claim 3. *See generally* PO Resp.

We reviewed the evidence cited by Petitioner and find that McFarland discloses the subject matter of claim 3. Ex. 1002 ¶¶ 95–97; Ex. 1027 ¶¶ 49–50, 52, 54.

For the foregoing reasons, we determine that Petitioner establishes by a preponderance of the evidence that claim 3 is unpatentable as anticipated and/or obvious over McFarland.

5. Claim 4

Claim 4 depends from claim 1 and recites “wherein the computer readable instructions are further programmed to: set an identification flag for each identified sensor value.” Ex. 1001, 11:5–7.

Petitioner relies on its contentions for claim 3 that McFarland discloses “each time a sensor value is identified (e.g. because it exceeds a limit) the sensor value is flagged” and “that a ‘flag’ is set for every identified sensor value, including, e.g., for sensor values identified each polling period having a ‘change in a sensed condition.’” Pet. 33–34 (citing Ex. 1002 ¶¶ 98–100; Ex. 1027 ¶ 52). Petitioner further contends that McFarland “discloses that each time sensor data is read and stored by processor 214, the

value is associated with ‘timing data or an interval sequence’; this ‘timing data’ or ‘interval sequence’ is also a flag because it is stored with the indicator and used ‘to identify a point in time or interval’ in which the values were identified.” *Id.* at 34 (citing Ex. 1002 ¶¶ 101; Ex. 1027 ¶¶ 47, 50).

Patent Owner does not address claim 4. *See generally* PO Resp.

We reviewed the evidence cited by Petitioner and find that McFarland discloses the subject matter of claim 4. Ex. 1002 ¶¶ 98–101; Ex. 1027 ¶¶ 47, 50, 52.

For the foregoing reasons, we determine that Petitioner establishes by a preponderance of the evidence that claim 4 is unpatentable as anticipated and/or obvious over McFarland.

6. Claim 5

Claim 5 depends from claim 1 and recites “wherein the computer readable instructions are further programmed to: communicate all of the stored sensor data corresponding to the received sensor control information to the second automation component.” Ex. 1001, 11:8–12.

Petitioner contends that McFarland “discloses that the wireless automation device communicates information in response to, e.g., a control signal or report instruction from the controller.” Pet. 35 (citing Ex. 1027 ¶¶ 52, 62). Petitioner further contends that the information communicated in McFarland “includes, e.g., a ‘current indicator,’ ‘prior indicators,’ or ‘other requested information.’” *Id.* (citing Ex. 1027 ¶¶ 53–55, 62). According to Petitioner, McFarland, thus, discloses “report[ing] to the controller all information requested by (i.e., corresponding to) the control signal/instruction, disclosing this element.” *Id.* (citing Ex. 1002 ¶¶ 103–105).

Patent Owner does not address claim 6. *See generally* PO Resp.

We reviewed the evidence cited by Petitioner and find that McFarland discloses the subject matter of claim 6. Ex. 1002 ¶¶ 103–105; Ex. 1027 ¶¶ 52–55, 62.

For the foregoing reasons, we determine that Petitioner establishes by a preponderance of the evidence that claim 5 is unpatentable as anticipated and/or obvious over McFarland.

7. *Independent Claim 7*

Claim 7 contains limitations substantially similar in relevant aspects to corresponding limitations of claim 1. Ex. 1001, 11:15–37, 11:57–12:12. For limitations [7.pre]–[7.d], Petitioner relies on substantially the same disclosure from McFarland for claim 7 as for claim 1. Pet. 35–40. We have reviewed Petitioner’s cited evidence and find that McFarland discloses these claim limitations.

For limitations [7.e], [7.f], and [7.g], Petitioner provides citations to additional disclosure from McFarland.

[7.e] wherein the computer readable instructions are programmed to: receive status data related to sensor data in control at a second automation component in communication with the building automation system;

Petitioner relies on its contentions for limitation [1.e]. Pet. 36. Petitioner specifically contends that McFarland’s “automation device ‘receives’ a ‘status for the . . . sensor’ from the controller” which, according to Petitioner, is “information specifying the ‘condition’ or ‘event’ data that the device must transmit back to the controller to be used for controlling the system.” *Id.* (citing Ex. 1002 ¶ 111; Ex. 1027 ¶¶ 18, 59, 61, 62) (ellipsis in original). Petitioner further contends that McFarland “receives and implements ‘difference limit’ and ‘threshold’ set points, which are also used

in process control algorithms to evaluate conditions for reporting.” *Id.* at 36–37 (citing Ex. 1002 ¶ 112; Ex. 1027 ¶¶ 58, 61).

Patent Owner does not address this limitation. *See* PO Resp. 26–35.

We reviewed the evidence cited by Petitioner and find that McFarland teaches this limitation.

[7.f] determine the sensor data in control at the second automation component based on the received status data; and

Petitioner relies on its contentions for limitations [1.pre] and [1.e].
Pet. 38. Petitioner specifically contends that McFarland “discloses that the wireless automation device stores multiple control processes, only some of which are used at a given time.” *Id.* (citing Ex. 1027 ¶ 39). Petitioner further contends that “when the device receives ‘information’ from the controller, such as ‘control instructions, communications settings or other information,’ the device ‘respond[s] to [the] control commands’ and takes ‘appropriate responsive action[s].’” *Id.* (citing Ex. 1002 ¶¶ 113–115; Ex. 1027 ¶¶ 3, 20, 40, 60) (alterations in original). According to Petitioner, because status data is received by the device specifying “information to be transmitted to the controller, this not only renders obvious, but discloses that when the device receives the ‘status for the . . . sensor’ from the controller . . . the ‘appropriate responsive action’ taken by the device . . . is a determination of the sensor information that is in control at the controller.” *Id.* (citing Ex. 1002 ¶ 116; Ex. 1027 ¶¶ 18, 59, 61, 62) (first ellipse in original).

Patent Owner does not address this limitation. *See* PO Resp. 26–35.

We reviewed the evidence cited by Petitioner and find that McFarland teaches this limitation.

[7.g] communicate the stored sensor data corresponding to the sensor data in control at the second automation component.

Petitioner relies on its contentions for limitation [1.f]. Pet. 39. Petitioner specifically contends that McFarland “discloses that the wireless automation device sends reports that include ‘appropriate sensor information’ including ‘a current value or indicator’ ‘and’ ‘prior measurements’ or other requested information responsive to the request.” *Id.* (citing Ex. 1002 ¶¶ 118–120).

Patent Owner does not address this limitation. *See* PO Resp. 26–35.

We reviewed the evidence cited by Petitioner and find that McFarland teaches this limitation. Ex. 1002 ¶¶ 118–120.

Patent Owner’s Contentions

For claim 7, Patent Owner relies on the same contentions for claim 1, discussed above, that McFarland does not teach “a multi-sensor package” or “a second automation component in communication with a building automation system.” PO Resp. 26–30, 33–35. These contentions are unavailing for the same reasons discussed above for claim 1.

Summary of Claim 7

For the reasons discussed for claim 1 and for claim 7, we determine that Petitioner establishes by a preponderance of the evidence that independent claim 7 is unpatentable as anticipated and/or obvious over McFarland.

8. Claims 8, 9, and 10

Claims 8, 9, and 10 recite substantially the same subject matter as claims 2, 3, and 4 respectively. Ex. 1001, 11:38–54.

Petitioner relies on its contentions for claims 2, 3, and 4. Pet. 40.

Patent Owner does not address claims 8, 9, and 10. *See generally* PO Resp.

For the same reasons discussed above for claims 2, 3, and 4, we determine that Petitioner establishes by a preponderance of the evidence that claims 8, 9, and 10 are unpatentable as anticipated and/or obvious over McFarland.

9. *Claim 11*

Claim 11 depends from claim 7 and recites “wherein the computer readable instructions are further programmed to: communicate all of the stored sensor data corresponding to the received status information to the second automation component.” Ex. 1001, 11:50–54.

Petitioner repeats its contentions for claims 5 and 7. Pet. 40.

Patent Owner does not address claim 11. *See generally* PO Resp.

For the same reasons discussed above for claims 5 and 7, we determine that Petitioner establishes by a preponderance of the evidence that claim 11 is unpatentable as anticipated and/or obvious over McFarland.

10. *Independent Claim 20*

[20.pre]: A method for providing power saving wireless communication within a building automation system, the method comprising:

Petitioner refers to its contentions for claim elements [1.pre] and [7.pre]. Pet. 41. Petitioner further contends that McFarland “discloses that the device’s wireless communication is power saving by ‘using low-power wireless RF communications,’ causing devices to ‘enter a standby or sleep mode’ between transmission intervals, and ‘reducing an amount of communication . . . using dynamic value reporting.’” *Id.* (citing Ex. 1002

¶¶ 126–128; Ex. 1027 ¶¶ 5, 22, 48) (alteration in original). Petitioner does not address whether the preamble is limiting.

Patent Owner does not address the preamble. *See* PO Resp. 26–35.

We reviewed the evidence cited by Petitioner and find McFarland discloses the subject matter of the preamble. Therefore, we need not address whether the preamble is limiting.

[20.a] scanning sensor data associated with each of a plurality of sensors contained within a multi-sensor package of a first automation component;

Petitioner refers to its contentions for claim elements [1.a] and [1.c] and contends that McFarland’s sensor 209 “is a multi-sensor package” and its “processor ‘poll[s]’ (scans) sensor information from the sensor values detected using sensor 209.” Pet. 42 (citing Ex. 1002 ¶¶ 129–131; Ex. 1027 ¶¶ 38–40, 43–47, 52, Figs. 2–3) (alteration in original).

Patent Owner does not address this limitation. *See* PO Resp. 26–35.

We reviewed the evidence cited by Petitioner and find that McFarland teaches this limitation. Ex. 1002 ¶¶ 129–131; Ex. 1027 ¶¶ 38–40, 43–47, 52, Figs. 2–3.

[20.b] identifying changed sensor values within the sensed data;

Petitioner refers to its contentions for claim 3 and contends that McFarland identifies “values of sensor data that have changed by comparing them to a change-of-value threshold.” Pet. 42 (citing Ex. 1002 ¶¶ 132–134); *see also id.* at 32–33 (setting forth contentions for claim 3).

Patent Owner does not address this limitation. *See* PO Resp. 26–35.

We reviewed the evidence cited by Petitioner and find that McFarland teaches this limitation. Ex. 1002 ¶¶ 132–134.

[20.c] receiving a first communication from a second automation component in communication with the first automation component and the building automation system; and

Petitioner refers to its contentions for claim element [1.e]. Pet. 43. Petitioner contends that McFarland’s “wireless automation device receives ‘instructions’ as part of a communication from the controller (i.e., the second automation component)” and “[t]he controller is also part of, and communicates with, the ‘building automation system.’” *Id.* (citing Ex. 1002 ¶¶ 135–137; Ex. 1027 ¶¶ 25, 60–62).

Patent Owner does not address this limitation. *See* PO Resp. 26–35.

We reviewed the evidence cited by Petitioner and find that McFarland teaches this limitation. Ex. 1002 ¶¶ 135–137; Ex. 1027 ¶¶ 25, 60–62.

[20.d] communicating a portion of the identified changed sensor values associated with the first communication received from the second automation component.

Petitioner refers to its contentions for claim element [1.f]. Pet. 43. Petitioner contends that McFarland stores “each indicator when there is a ‘change in the sensed condition’ as an indicator ‘ V_i .’” *Id.* (citing Ex. 1027 ¶ 54). Petitioner further contends that “[t]he most recent indicators V_i are then transmitted in response to ‘other stimulus’ including ‘control signal[s]’ and ‘report’ commands” and the “reports include portions of sensor values, e.g.: current ‘or’ prior measurements.” *Id.* (citing Ex. 1002 ¶¶ 138–140; Ex. 1027 ¶¶ 23, 53–55, 62) (second alteration in original).

Patent Owner does not address this limitation. *See* PO Resp. 26–35.

We reviewed the evidence cited by Petitioner and find that McFarland teaches this limitation. Ex. 1002 ¶¶ 138–140; Ex. 1027 ¶¶ 23, 53–55, 62.

Patent Owner's Contentions

For claim 20, Patent Owner relies on the same contentions for claim 1, discussed above, that McFarland does not teach “a multi-sensor package” or “a second automation component in communication with a building automation system.” PO Resp. 26–30, 33–35. These contentions are unavailing for the same reasons discussed above for claim 1.

Summary of Claim 20

For all the foregoing reasons, we find that Petitioner establishes by a preponderance of the evidence that independent claim 20 is unpatentable as anticipated and/or obvious over McFarland.

11. Claim 21

Claim 21 depends from claim 20 and recites “wherein identifying changed sensor values includes identifying changed sensor values as a function of a change-of-value threshold.” Ex. 1001, 12:49–51.

Relying on its contentions for claim 3, Petitioner contends that McFarland’s “sensor values are processed by a processor to identify values that exceed a change-of-value threshold. During this process, changed sensor values are identified and flagged based on, and therefore a function of, the change-of-value threshold.” Pet. 44 (citing Ex. 1002 ¶¶ 141–143).

Patent Owner does not address claim 21. *See generally* PO Resp.

For the same reasons discussed above for claim 3, we determine that Petitioner establishes by a preponderance of the evidence that claim 21 is unpatentable as anticipated and/or obvious over McFarland.

E. Ground 2: Alleged Obviousness of Claims 13–16 over McFarland and Kates-089

1. Kates-089

Kates-089 is titled “Zone Thermostat for Zone Heating and Cooling.” Ex. 1029, code (54). Kates-089 discloses a system and method for “providing an Electronically-Controlled Register vent (ECRV)” that is “used to convert a non-zoned HVAC system into a zoned system.” *Id.* ¶ 10. The ECRV may comprise temperature sensors, controllers, actuators, and a user input device to set a room temperature. *Id.* ¶ 41, Fig. 4. A central system can “instruct the ECRV to perform additional measurements, to go to a standby mode, to wake up, to report battery status, to change wake-up interval, to run self-diagnostics and report results.” *Id.* ¶ 82.

2. Independent Claim 13

Petitioner provides a limitation-by-limitation analysis of independent claim 13, mapping each claim limitation to McFarland and Kates-089. Pet. 49–51. Petitioner also discusses its contentions concerning motivation to combine and reasonable expectation of success. *Id.* at 45–49.

Patent Owner contends that McFarland does not disclose or teach “a multi-sensor package.” PO Resp. 35–36. This is the same contention discussed above for claim 1 and is unavailing for the same reasons discussed above for claim 1.

We now evaluate Petitioner’s contentions.

For the claim elements that Petitioner identifies as [13.pre] – [13.d], and [13.f], Petitioner relies on its contentions for claim elements [1.pre] – [1.d], [1.f], [7.pre] – [7.d], and [7.g]. Pet. 49 (citing Ex. 1002 ¶ 152).

We have reviewed Petitioner’s contentions for these claim limitations and find that McFarland teaches limitations [13.pre] – [13.d], and [13.f].

[13.e] wherein the computer readable instructions are programmed to: receive a wake-up command from a second automation component;

Petitioner contends that McFarland teaches “that ‘[i]n response to a report instruction, the device 507 may wake up from a sleep mode’ (a low power state).” Pet. 49 (citing Ex. 1027 ¶¶ 48, 62) (alteration in original). According to Petitioner, “[b]ecause the report instruction is a command that causes device 507 to wake up, it is a wake-up command.” *Id.* (citing Ex. 1002 ¶¶ 153–154).

Petitioner alternately contends that Kates-089 “discloses using a ‘wake up’ command to cause a controller to read a sensor.” Pet. 49–50 (citing Ex. 1029 ¶ 86). Petitioner further contends that a person of ordinary skill in the art “would have been motivated to modify **McFarland** by implementing **Kates-089’s** ‘wake up command’ to, e.g., advantageously facilitate the reporting of sensor data outside of periodic reporting intervals with a specific instruction.” *Id.* at 50 (citing Ex. 1002 ¶¶ 155–157; Ex. 1029 ¶¶ 82, 86).

Patent Owner does not address this limitation. *See* PO Resp. 26–35.

We reviewed the evidence cited by Petitioner and find that McFarland alone or in combination with Kates-089 teaches this limitation. Ex. 1002 ¶¶ 153–157; Ex. 1027 ¶¶ 48, 62; Ex. 1029 ¶¶ 82, 86.

[13.g]: receive a power down command from the second automation component.

Petitioner contends that McFarland’s “processor and sensor ‘enter a standby or sleep mode (low power states) between periodic intervals, but [McFarland] leaves it to a [person of ordinary skill in the art] as to how the device reenters the sleep mode after being woken up.” Pet. 51 (citing Ex. 1027 ¶¶ 8, 18, 46, 48, 62). Petitioner further contends that Kates-089

“discloses issuing a ‘standby mode’ command to return the device to a low power state outside the periodic polling cycle.” *Id.* (citing Ex. 1029 ¶¶ 82, 86). Petitioner further contends an ordinarily skilled artisan would have been motivated to modify McFarland with Kates-089 to “advantageously improve power savings within the system by powering down the device before the next periodic cycle.” *Id.* (citing Ex. 1002 ¶¶ 162–164).

Patent Owner does not address this limitation. *See* PO Resp. 26–35.

We reviewed the evidence cited by Petitioner and find that McFarland and Kates-089 teach this limitation. Ex. 1002 ¶¶ 162–164; Ex. 1027 ¶¶ 8, 18, 46, 48, 62; Ex. 1029 ¶¶ 82, 86.

Motivation to Combine/Reasonable Expectation of Success

Petitioner contends that McFarland discloses that a wireless automation device wakes up and enters a standby or sleep mode in response to a report instruction. Pet. 46. Petitioner acknowledges that McFarland “does not explicitly state that the ‘report instruction’ includes a ‘wake-up command’ or describe how the device is instructed to return to a ‘sleep’ mode between reporting intervals.” *Id.* (citing Ex. 1027 ¶¶ 8, 18, 48, 62). Petitioner next contends that Kates-089 “teaches that such a ‘report instruction’ comprises a ‘wake-up command,’ and that a controller issues a ‘standby mode’ instruction (i.e., a ‘power down command’).” *Id.* (citing Ex. 1029 ¶¶ 78, 82, 86). According to Petitioner, an ordinarily skilled artisan “would have been motivated to modify McFarland with” the teachings of Kates-089 “to advantageously facilitate reporting data both periodically and in response to commands while conserving power via ‘wake-up’ and ‘standby’ (i.e., power-down) commands.” *Id.* (citing Ex. 1002 ¶ 147; Ex. 1027 ¶ 62; Ex. 1029 ¶¶ 40, 74–75, 82, 86); *id.* at 47 (arguing that an

ordinarily skilled artisan in light of Kates-089 “would have been motivated to modify McFarland’s ‘report’ instruction to include a wake-up command” (citing Ex. 1002 ¶ 149)) (emphasis omitted). Petitioner further contends that an ordinarily skilled artisan would have been motivated to combine McFarland and Kates-089 “to save power consumed during, e.g., the 99.9% of the polling interval when the device may otherwise be unnecessarily turned on.” *Id.* at 48 (citing Ex. 1002 ¶ 150).

Petitioner next contends that an ordinarily skilled artisan would have had a reasonable expectation of success “applying Kates-089’s wake-up and power-down command teachings to McFarland’s wireless automation device” because “McFarland already teaches that the wireless automation device wakes up and powers down in response to certain commands[] and such commands were well understood.” Pet. 48 (citing Ex. 1002 ¶ 151; Ex. 1005 ¶ 32; Ex. 1027 ¶¶ 8, 18, 48, 62; Ex. 1032, 12:48–54; Ex. 1033, 12:16–22) (emphasis omitted).

Patent Owner does not address motivation to combine or reasonable expectation of success for claim 13. *See* PO Resp. 26–35.

We have reviewed Petitioner’s evidence and contentions and find that Petitioner establishes that an ordinarily skilled artisan would have been motivated to combine McFarland and Kates-089 with a reasonable expectation of success and that the reasons are supported by evidence. Ex. 1002 ¶¶ 147–151.

Summary of Claim 13

For all the foregoing reasons, we determine that Petitioner establishes by a preponderance of the evidence that claim 13 is unpatentable over McFarland and Kates-089.

3. *Claims 14–16*

Claims 14–16 depend from claim 13. Ex. 1001, 12:13–24. The subject matter of these claims is substantially identical to claims 2–4 and 8–10. *See id.*

Petitioner relies on its contentions for claims 2–4 and 8–10. Pet. 51.

Patent Owner does not address claims 14–16. *See generally* PO Resp.

We have reviewed Petitioner’s evidence and determine that Petitioner establishes by a preponderance of the evidence that claims 14, 15, and 16 are unpatentable over McFarland and Kates-089.

F. *Ground 3–9*

Petitioner submits these alternate challenges to the patentability of each of the challenged claims, adding additional prior art references Stoner and Ahmed-629 to McFarland and/or Kates-089 as articulated for Grounds 1 and 2 and a third challenge for claims 20–21 based on Kates-089 and Ahmed-629 only. Pet. 6. As discussed above, we have addressed all challenged claims based on Grounds 1 and 2, and we need not and do not decide whether Petitioner has shown by a preponderance of the evidence that the challenged claims also would have been unpatentable over any of these alternate challenges. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding that a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”); *see also* 35 U.S.C. § 318(a); *cf. In re Gleave*, 560 F.3d 1331, 1338 (Fed. Cir. 2009) (not reaching other grounds of unpatentability after affirming the anticipation ground); *see also Beloit Corp. v. Valmet Oy*, 742 F.2d 1421, 1423 (Fed. Cir. 1984) (holding that once a dispositive issue is decided, there is no need to decide other issues).

III. CONCLUSION¹³

Weighing the competing evidence and testimony, we determine that Petitioner establishes by a preponderance of the evidence that claims 1–5, 7–11, 13–16, and 20–21 of the '282 patent are unpatentable.

¹³ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

In summary:

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–5, 7–11, 20–21	102	McFarland	1–5, 7–11, 20–21	
1–5, 7–11, 20–21	103	McFarland	1–5, 7–11, 20–21	
13–16	103	McFarland, Kates-089	13–16	
1–5, 7–11, 20–21 ¹⁴	103	McFarland, Stoner		
13–16 ¹⁵	103	McFarland, Stoner, Kates-089		
1–5, 7–11, 20–21 ¹⁶	103	McFarland, Ahmed-629		
13–16 ¹⁷	103	McFarland, Kates-089, Ahmed- 629,		
1–5, 7–11, 20–21 ¹⁸	103	McFarland, Stoner, Ahmed-629		

¹⁴ We do not reach this ground because Petitioner has shown that the claims challenged in this ground are unpatentable under §§ 102 and 103 over McFarland.

¹⁵ We do not reach this ground because Petitioner has shown that the claims challenged in this ground are unpatentable under § 103 over McFarland and Kates-089.

¹⁶ We do not reach this ground because Petitioner has shown that the claims challenged in this ground are unpatentable under §§ 102 and 103 over McFarland.

¹⁷ We do not reach this ground because Petitioner has shown that the claims challenged in this ground are unpatentable under § 103 over McFarland and Kates-089.

¹⁸ We do not reach this ground because Petitioner has shown that the claims challenged in this ground are unpatentable under §§ 102 and 103 over McFarland.

13–16 ¹⁹	103	McFarland, Stoner, Kates-089, Ahmed- 629		
20–21 ²⁰	103	Kates-089, Ahmed- 629		
Overall Outcome			1–5, 7–11, 13–16, 20–21	

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–5, 7–11, 13–16, and 20–21 of the '282 patent have been shown by a preponderance of the evidence to be unpatentable; and

FURTHER ORDERED that any party seeking judicial review must comply with the notice and service requirements of 37 C.F.R. § 90.2.

¹⁹ We do not reach this ground because Petitioner has shown that the claims challenged in this ground are unpatentable under § 103 over McFarland and Kates-089.

²⁰ We do not reach this ground because Petitioner has shown that the claims challenged in this ground are unpatentable under §§ 102 and 103 over McFarland.

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