

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HONEYWELL INTERNATIONAL INC.,
Petitioner,

v.

ALLURE ENERGY, INC.,
Patent Owner.

Case IPR2015-01251
Patent 8,626,344 B2

Before BART A. GERSTENBLITH, CHRISTOPHER L. CRUMBLEY, and
KEVIN W. CHERRY, *Administrative Patent Judges*.

CHERRY, *Administrative Patent Judge*.

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

Honeywell International Inc. (“Petitioner”) filed a Petition requesting *inter partes* review of claims 9–18 and 26–29 of U.S. Patent No. 8,626,344 B2 (Ex. 1001, “the ’344 patent”). Paper 6 (“Petition” or “Pet.”). Pursuant to 35 U.S.C. § 314(a), we determined the Petition showed a reasonable likelihood that Petitioner would prevail in establishing the

unpatentability of claims 9–18 and 26–29 and instituted an *inter partes* review of these claims on one asserted ground of unpatentability. Paper 8 (“Inst. Dec.”). Patent Owner Allure Energy, Inc. (“Patent Owner”) filed a Patent Owner Response. Paper 14 (“PO Resp.”). Petitioner filed a Reply to Patent Owner’s Response. Paper 19 (“Reply”). An oral hearing was held on September 8, 2016, pursuant to a request by Petitioner. Paper 24 (“Tr.”); *see* Papers 20–21.

We issue this Final Written Decision pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine Petitioner has proven by a preponderance of the evidence that claims 9–14, 16, and 26–29 of the ’344 patent are unpatentable. *See* 35 U.S.C. § 316(e).

I. BACKGROUND

A. RELATED PROCEEDINGS

The parties indicate that Patent Owner asserted the ’344 patent against Petitioner in the United States District Court for the Western District of Texas in the following lawsuit: *Allure Energy, Inc. v. Honeywell International Inc.*, No. 1:15-cv-00079-RP (W.D. Tex.). Pet. 1; Paper 4, 1. Certain other claims of the ’344 patent were also challenged in IPR2015-01248. *Id.*

B. THE ’344 PATENT

The ’344 patent relates to systems and methods for home energy management. Ex. 1001, 1:20–22. Figure 2 is reproduced below:

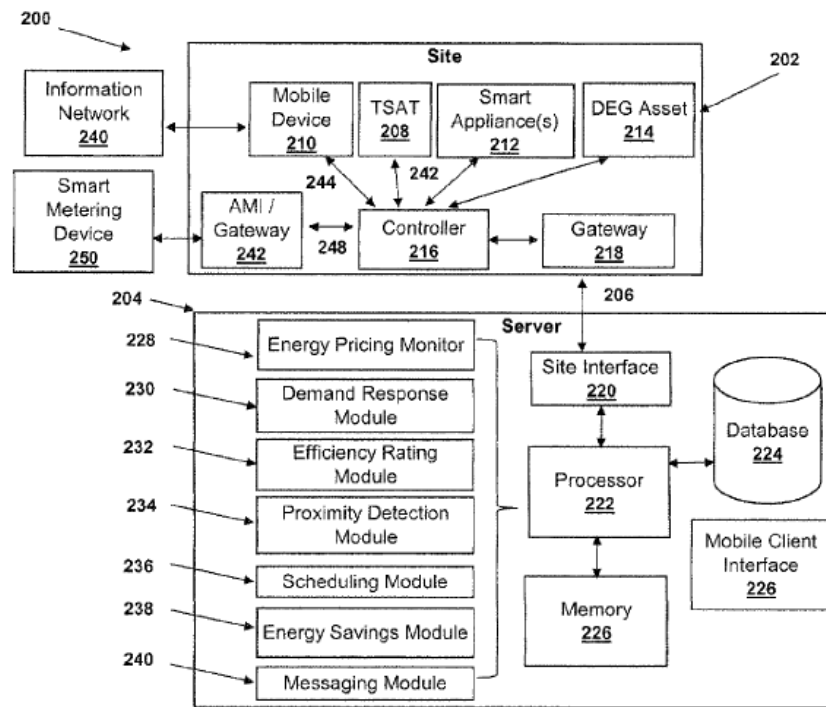


FIG. 2

Figure 2 illustrates an energy management system. *Id.* at 6:35–36. System 200 is configured for use at site 202. *Id.* at 6:35–37. Site 202 can include a residential site, an industrial site, a manufacturing site, a commercial site, or any combination thereof. *Id.* at 6:37–39. Proximity detection module 234 can detect a distance mobile device 210 may be from site 202. *Id.* at 12:25–28. In particular, proximity detection module 234 can detect whether mobile device 210 is within a first zone (e.g., less than one mile from a site, less than three miles from a site, greater than five miles from a site). *Id.* at 12:30–34. Proximity detection module 234 can further detect a current thermostat setting and can determine how much to adjust the thermostat’s temperature based on how close the user is to the site. *Id.* at 12:34–48. The system can be configured for multiple user schedules that may be linked to multiple mobile devices. *Id.* at 13:13–51. For

example, the second user schedule can be used or not used based on a distance a second mobile device may be from site 202. *Id.* at 13:36–40.

C. ILLUSTRATIVE CLAIMS

Claims 9 and 16, both method claims, are the only independent claims of the '344 patent challenged in this proceeding. Claims 10–15 and 26–29 depend, either directly or indirectly, from claim 9. Claims 17 and 18 depend, either directly or indirectly, from claim 16. Claims 9 and 16 are illustrative of the subject matter in this proceeding, and are reproduced below.

9. A method comprising:

- detecting an availability of a network device disposed at a site;
- detecting a location of a first mobile device associated with the site;
- detecting a location of a second mobile device associated with the site;
- initiating communication of a location based input of the first mobile device to a network location configured to compare the location based input of the first mobile device to a location based input of the second mobile device;
- comparing the location of the first mobile device and the location of the second mobile device relative to the site;
- initiating a communication of a control action data in response to detecting the location of the first mobile device and the second mobile device being disposed away from the site;
- altering the network device using the control action data;
- receiving a communication from a network location indicating that an operating condition of the network device has been altered; and
- updating the operating condition at the first mobile device.

Id. at 63:49–64:4.

16. A method comprising:
- identifying a first mobile device with a site having a network device;
 - identifying a second mobile device with the site;
 - detecting an enabled proximity setting of the first mobile device;
 - detecting location information of the first mobile device in response to the enabled proximity setting of the first mobile device;
 - detecting an enabled proximity setting of the second mobile device;
 - detecting location information of the second mobile device in response to the enabled proximity setting of the second mobile device;
 - comparing location information of the first mobile device to location information of the second mobile device; and
 - initiating altering an operating condition of the network device in response to the comparison of the location information of the first mobile device to the location information of the second mobile device.

Id. at 64:45–64.

D. INSTITUTED GROUND OF UNPATENTABILITY

We instituted an *inter partes* review of claims 9–18 and 26–29 of the '344 patent on the following ground of unpatentability asserted in the Petition:

Whether claims 9–18 and 26–29 are unpatentable under 35 U.S.C. § 103(a)¹ as obvious over US 6,909,891 B2 to Yamashita et al. (“Yamashita”) (Ex. 1005) (iss. June 21, 2005)

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29 (2011), revised 35 U.S.C. §§ 102–103, effective March 16, 2013. Because the '344 patent has an effective filing date before March 16, 2013, we refer to the pre-AIA versions of §§ 102 and 103.

and US 6,990,335 B1 to Shamoan et al. (“Shamoan”) (Ex. 1006) (iss. Jan. 24, 2006).

Inst. Dec. 25.

II. ANALYSIS

A. CLAIM CONSTRUCTION

We interpret claims in an unexpired patent using the “broadest reasonable construction in light of the specification of the patent in which [they] appear[.]” 37 C.F.R. § 42.100(b). Under this standard, we presume a claim term carries its “ordinary and customary meaning,” which “is the meaning that the term would have to a person of ordinary skill in the art in question” at the time of the invention. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). The presumption may be overcome by providing a definition of the term in the specification with reasonable clarity, deliberateness, and precision. *See In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). In the absence of such a definition, limitations are not to be read from the specification into the claims. *See In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993).

1. “comparing”

We construed the term “comparing,” as recited in claims 9 and 16, in our Decision on Institution according to its plain and ordinary meaning. Inst. Dec. 10. As representative of that plain and ordinary meaning, we adopted one of the dictionary definitions offered by Patent Owner—“an examination of two or more items to establish similarities and dissimilarities.” *Id.* (citing Ex. 2002). Patent Owner does not offer an alternative construction, but instead further construes this construction. PO Resp. 9–12. Patent Owner argues that “[w]hile the claimed comparison involves determining both similarities and dissimilarities between the

locations of multiple mobile devices, the focus of the comparison is to identify **any dissimilarity** — i.e., which user is closer to the site.” *Id.* at 11. Patent Owner contends that “[a]bsent the ability to evaluate established dissimilarities between the mobile device locations, the claimed system cannot determine which user is closer to the site or subsequently make a decision as to which user’s preferences should control actions taken in response to the comparison.” *Id.* at 11. Petitioner replies that Patent Owner improperly limits the claim by emphasizing the word “dissimilarity” in the construction. Reply 4.

We agree with Petitioner that Patent Owner’s further narrowing of our construction is improperly limiting. As we explained in our Decision on Institution, we declined to limit “comparing” to a particular type of evaluation, and by our construction, we did not find that the “focus” of the comparison is to identify “any dissimilarity” as Patent Owner contends. *See* Inst. Dec. 10. Indeed, as evidenced by the dictionary definitions cited by Patent Owner and that we relied upon, determining dissimilarities is not the “focus” of the plain and ordinary meaning of “comparing” that we adopted; rather, each of them emphasizes determining similarities as well. *See* Inst. Dec. 9 (citing Ex. 2002 (defining “comparison” as “the act of looking at things to see how they are similar or different” and “the act of suggesting that two or more things are similar or in the same category”)); *see also* Ex. 2006 (defining “comparison” as “the representing of one thing or person as similar to or like another” and “an examination of two or more items to establish similarities and dissimilarities”).

The specification does not compel a different understanding. The only embodiment in the specification identified by Patent Owner as

involving “comparing” teaches that if one device is “not located” at the site, but the second device is detected as being located at the site, then the schedule associated with the second device is used. PO Resp. 10 (citing Ex. 1001, 13:38–40). Nowhere does this example discuss any type of comparison of the locations, nor does it discuss what the system does if it detects both mobile devices as being located at the site. The same is true for the other embodiment cited by Patent Owner. *Id.* (citing Ex. 1001, 52:60–53:3, 53:33–39). In this second embodiment, although the specification discusses two energy management schedules, there is no discussion of comparing the locations of the two mobile devices to determine which schedule to use. *See* Ex. 1001, 52:60–53:3, 53:33–39. Thus, we do not agree with Patent Owner that the specification suggests that “dissimilarities” are the “focus” of the comparison of the locations.

Patent Owner directs us to a portion of U.S. Provisional Application Ser. No. 61/255,678 (Ex. 2001, “the Provisional Application”) that allegedly “confirms that the claimed ‘comparison’ **requires** a determination of which mobile device is closer to or farther away from the site.” PO Resp. 10. Patent Owner argues that the Provisional Application shows that “the claimed system compares multiple user locations to determine an ‘effective zone’ for control of the site based on **both** their similarities and dissimilarities.” *Id.* (citing Ex. 2003 ¶ 45); *see also id.* at 21–22 (discussing Patent Owner’s contention that “comparison” requires determination of both similarities and dissimilarities). Patent Owner asserts that “when the comparison reveals that user 1 and user 2 are located in the same zone (i.e., similar), the ‘effective zone’ is the zone they share.” *Id.* at 10 (citing Ex. 2003 ¶ 47). Patent Owner argues that “when the comparison determines

that user 1 and user 2 are located in different zones (i.e., dissimilar), the ‘effective zone’ is the zone of the user closest to the site.” *Id.* at 11 (citing Ex. 2003 ¶ 47). Without resolving whether the Provisional Application is incorporated by reference,² we note that the Provisional Application does not support Patent Owner’s argument that determination of “dissimilarities” is the “focus” of the claimed comparison. Indeed, one of the alleged comparisons identified by Patent Owner, when the users are in the same zone, involves a determination of only how the locations are similar. Thus, we see no basis in the Provisional Application for limiting the term “comparing” to any particular type of determination, as Patent Owner contends.

Thus, we maintain our construction of “comparing” and our previous determination, in our Decision to Institute, that a “comparing” does not require some particular type of determination.

2. “Enabled/Disabled Proximity Setting”

Petitioner submits that the term “proximity setting” should be construed as “a setting that allows a mobile device to generate location information.” Pet. 10. Patent Owner argues that the phrase should be construed as “a selectable setting that allows each user to identify a preference for their location to be automatically considered as part of proximity control at a site.” PO Resp. 15. We are not persuaded that either construction is the broadest reasonable construction of this term. It appears

² The parties dispute whether the Provisional Application is incorporated by reference into the specification of the ’344 patent. See PO Resp. 1; Reply 2–4. We find it unnecessary to resolve this issue because, even accepting Patent Owner’s reliance on the Provisional Application, we find it does not support Patent Owner’s arguments.

that the parties' actual dispute is twofold. First, the parties dispute whether the mobile device must be able to transmit location information to the site regardless of whether the proximity setting is enabled or disabled. *See* Reply 8–9; PO Resp. 14–15. Second, Patent Owner argues that the entire process of proximity detection must be automatic. PO Resp. 14. As we explain below, we agree with Petitioner that this term does not require that the mobile device continue to send location reports if the proximity setting is not enabled, whereas we disagree with Petitioner that the proximity setting is limited to enabling or disabling the ability to send location reports. Instead, we find the specification supports a broader construction.

In particular, we find that the specification states that “[f]or example, a user may enable proximity detection using proximity detection selector 1036 and energy use at a site may be altered based on a user[']s distance to the site.” Ex. 1001, 46:45–48. It further explains that “[i]n some forms, proximity detection selector 1036 can be hidden, displayed, selectable, or any combination thereof in response to a user having a mobile device capable of being detected when a user is at or away from a site.” *Id.* at 46:50–54. Thus, we consider the broadest reasonable construction of “proximity setting” consistent with the specification to be “a setting that can enable or disable proximity detection, where energy use at a site may be altered based on the user’s location.” Both parties acknowledge that this is a reasonable meaning of the term. Reply 8; PO Resp. 12.

As we mentioned above, one dispute between the parties is whether the mobile device must continue to generate or transmit location information if the proximity setting is disabled. PO Resp. 14–15; Reply 8–9. Patent Owner asserts that Petitioner’s construction “expressly contradicts” the

teachings of the Provisional Application that “if the system detects a user has left the site and has disabled automatic set-point control, it will direct a message to the user’s mobile phone advising them that potential energy savings are being lost.” PO Resp. 14 (citing Ex. 2001 §§ 2.1.16, 2.1.33). Patent Owner argues that if the location information was not being sent, then this functionality in the Provisional Application would not work. *Id.* at 15. As such, Patent Owner contends that “[a]s the claimed system requires detecting a user’s relative location even if the proximity setting is enabled, Petitioner’s proposed construction of this term that encompasses turning off location services is not consistent with the specification and is clearly unreasonable.” *Id.*

In support of its contention that this term includes turning off the location report, Petitioner points to Figure 3 of the ’344 patent, which shows a flow chart of the claimed method. Reply 8. Figure 3 shows that, at block 322, the method ascertains whether proximity is enabled; if it is, then the method proceeds to block 344, which is titled “Receive Location Report.” Ex. 1001, Fig. 3. Petitioner asserts that the disclosure in the Provisional Application cannot overcome the plain language of the specification. Reply 9 (citing Ex. 1001, 4:46–47).

We agree with Petitioner that this term does not *require* that the mobile device continue to send location reports if the proximity setting is not enabled, but we also agree with Patent Owner that the claims should not exclude situations where the mobile device continues to send location reports even when the proximity setting is disabled. Patent Owner’s argument, however, that the mobile device must always send location reports is not persuasive for several reasons.

First, as for the embodiment that Patent Owner identified in the Provisional Application, we do not agree with Patent Owner that the Provisional Application categorically excludes turning off the location services at the mobile phone. Our construction does not exclude the embodiment in the Provisional Application. Yet, our construction also does not limit the claims to that embodiment. There is nothing in the Provisional Application that mandates that the location reports always be sent or suggests that the invention should be so limited. *See Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1366 (Fed. Cir. 2012) (“The patentee may demonstrate intent to deviate from the ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.”) (citation omitted).

Second, we do not agree that language of the claims requires the ability to receive location reports. PO Resp. 15. Patent Owner fails to identify any claims that recite the proximity setting term and require the features included in the embodiment from the Provisional Application that Patent Owner cites. Indeed, claims 16–18 recite that the “enabled proximity setting” is detected and the “location information” of the mobile devices is detected “in response to the enabled proximity setting” of each mobile device. This requirement that the location be detected in response to the enabled proximity setting supports Petitioner’s construction.

Finally, we agree with Petitioner that Figure 3 describes an embodiment where a location report is received from the mobile device only when the proximity setting is enabled. Ex. 1001, 20:42–60, Fig. 3; Ex. 1011, 87:3–88:5. Thus, imposing a requirement that the mobile device

must always send a location report would exclude this embodiment in the specification.

Patent Owner also seeks to read the word “automatically” into the construction of this term. PO Resp. 13–14. Patent Owner argues that when the system detects an enabled proximity setting, the system can implement a user’s preferred settings at the site—without any further requirement for user action. *Id.* Although the Patent Owner cites to embodiments in the specification and Provisional Application that discuss automatic modification of the thermostat, we do not see support in these cited portions for reading “automatic” into “enabled proximity setting.” *See id.* (citing Ex. 1001, 37:23–25, 42:3–5, 46:44–48, Fig. 7; Ex. 2001 §§ 1.2, 2.1.1). We find that the description of “proximity setting” provided in the specification is sufficiently clear, and that there is no need to include the term “automatic” in the construction.

Accordingly, we construe proximity setting as “a setting that can enable or disable proximity detection, where energy use at a site may be altered based on the user’s location.” We further note that our construction does not require that the location information be sent when the proximity setting is disabled.

3. “Zone Based Data”

Petitioner contends that the term “zone” means a “defined geographic area” and “zone based data” means “an indication of a location relative to a defined geographic area.” Pet. 11; Reply 12. Patent Owner agrees that “zone” means a “defined geographic area,” but additionally requires that the zone must have an outer boundary enclosing a defined area. PO Resp. 34.

As for “zone based data,” Patent Owner argues that this phrase means “data identifying a particular bound geographic area.” *Id.* at 35.

We do not agree with Patent Owner’s contention that zones must be bounded. There is nothing in the claim language that requires that a “zone” be fully bounded. Indeed, the term “zone” generally refers to an area. We turn to the specification to see how the ’344 patent describes a zone. *See Trs. of Columbia Univ. in the City of N.Y. v. Symantec Corp.*, 811 F.3d 1359, 1363 (Fed. Cir. 2016) (“‘[T]he specification is *always* highly relevant to the claim construction analysis’ and is, in fact, ‘the single best guide to the meaning of a disputed term.’”). The specification describes a zone of “greater than five (5) miles from [the] site,” Ex. 1001, 12:32–34, which would lack an outer boundary. The Provisional Application also shows zones without outer boundaries. *See* Ex. 2001, 6 (Fig. 1 showing “Zone 3: More than 10 miles from home,” which has no outer boundary). We do not see a definition or disclaimer in the portions of the specification cited by Patent Owner, so we see no support for requiring the “defined geographic area” be “bounded.” On the contrary, we see explicit support in the specification and Provisional Application for unbounded zones.

Patent Owner argues that claim differentiation requires that “zone based data” must be construed to exclude a geofence. PO Resp. 35–36. We do not agree. We do not understand Petitioner to be proposing that “zone based data” means “geofence;” Petitioner instead offers the construction of “an indication of a location relative to a defined geographical area.” *See* Pet. 11; Reply 24.

Patent Owner also argues that the term excludes “geofences” based on claim differentiation with claims 27 and 28, which recite, *inter alia*,

“geofence.” Although claim differentiation can be used to support claim constructions of differing scope for different terms, the doctrine of claim differentiation does mean that there cannot be overlap between the scope of the claims. “Moreover, that the claims are presumed to differ in scope does not mean that every limitation must be distinguished from its counterpart in another claim, but only that at least one limitation must differ.” *Kraft Foods, Inc. v. Int’l Trading Co.*, 203 F.3d 1362, 1368 (Fed. Cir. 2000). Claims 14 and 27 differ in a number of respects, for example, claim 27 is limited to the situation of “leaving the geofence.” Hence, we decline to use claim differentiation to construe “zone based data” as excluding anything that could also be considered a “geofence.” Instead, based on our review of the specification, we find the broadest reasonable interpretation of the phrase “zone based data” is “an indication of a location relative to a defined geographic area.”

B. INSTITUTED GROUND OF UNPATENTABILITY

We turn to the instituted ground, which alleges that claims 9–18 and 26–29 of the ’344 patent are unpatentable as obvious over Yamashita and Shamoon. Pet. 2, 38–60; Inst. Dec. 15–25.

1. *Yamashita (Ex. 1005)*

Yamashita, titled “Mobile Terminal, and Automatic Remote Control System and Automatic Remote Control Method” (Ex. 1005, at [54]), describes a system for automatically controlling an appliance based on a positional relation between a mobile terminal and the appliance and other factors (*id.* at 1:9–13). In Yamashita, the mobile terminal holds a message transmission rule for transmitting a message to the control terminal indicating that a control requirement has been met. *Id.* at 9:42–46. One

example given provides that the message transmission rule has a control requirement that a distance from the current position to home is within 300 m is stored in correspondence with a message “approaching.” *Id.* at 9:47–50. The control terminal receiving the message has a rule indicating that when the “approaching” message is received a particular control command is transmitted to an appliance for controlling that appliance. *Id.* at 9:50–54. One example is that receipt of the “approaching” message by the control terminal results in the control terminal sending a control command to turn the air conditioner on, which is executed automatically without any action by the user. *Id.* at 9:54–57, 10:8–15.

Yamashita describes that the mobile terminal of a traveling user checks whether a control requirement has been satisfied based on the position, speed, and direction of the mobile terminal and can, based on these data, determine whether the control condition (e.g., “within 300 m of home”) is met. *Id.* at 9:57–64. Yamashita also discloses that the mobile terminal and controlled target appliance can communicate directly with each other through the network. *Id.* at 10:50–53. Yamashita also describes that a plurality of mobile terminals each can control different appliances at a site. *Id.* at 10:17–34, 46–53. The mobile terminal sends a message to the control terminal and the control terminal selects a control command based on the message received and transmits the control command to the controlled appliance. *Id.* at 11:13–26. This is illustrated in Figure 2, which is reproduced below:

FIG. 2

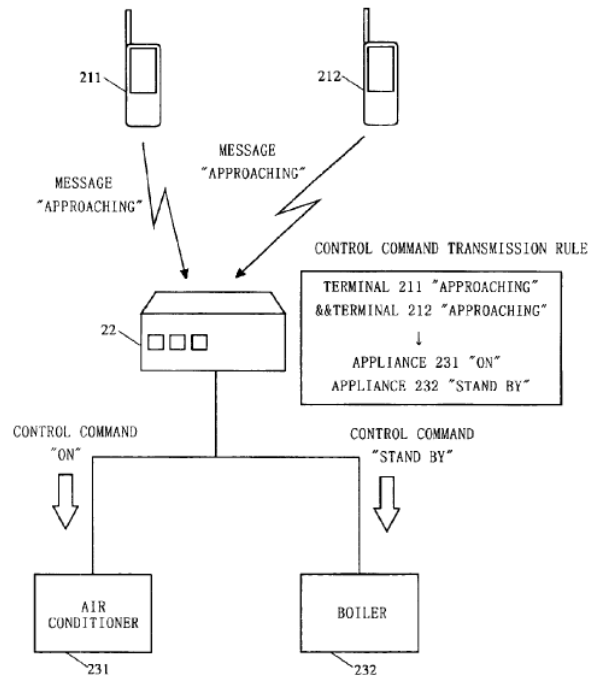


Figure 2 is an illustration showing an embodiment of Yamashita with a plurality of mobile terminals and a plurality of target control appliances. *Id.* at 10:16–20. Yamashita also discloses that different command transmission rules can be set allowing a command message to turn on the air conditioner to be sent if either mobile terminal A or mobile terminal B sends an “approaching” message or requiring that both mobile terminal A and mobile terminal B transmit the “going away” message to transmit the command to turn off the air conditioner. *Id.* at 17:58–18:28.

2. Shamoon (Ex. 1006)

Shamoon, titled “Ubiquitous Connectivity and Control System for Remote Locations” (Ex. 1006, at [54]), describes a thermostat control system for monitoring and controlling environmental characteristics of a building that includes a base station unit and a remote access (or control) unit (*id.* at Abstract). The base control unit is configured to interact with and

respond to multiple remote control units. *Id.* at 8:4–5. The remote control units are “Java/J2ME enable[d] cellular telephones 30 having . . . an LCD display 38 for displaying textual information 40 and graphical icons 42 responsive to commands received from the base control unit 16 or from other control units configured through base control unit 16 to work with system 10.” *Id.* at 3:66–4:6. Figure 2, reproduced below, illustrates the remote control unit:

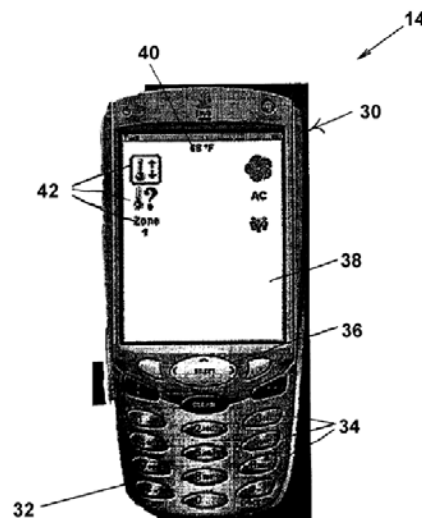


Fig. 2

Figure 2 of Shamoon is a picture of the remote control unit showing the screen, textual display, icons, and keypad.

Shamoon explains that “[t]he data path between the remote control unit and the base control unit is SMS (‘simple message service’). However, the implemented port addressing scheme allows short messages to the remote control unit to bypass standard cellular telephone functions and to operate the features of the unit independently.” *Id.* at 7:12–17. Shamoon states that “[b]y way of illustration, if the base control unit notifies the remote control unit of an activation of an alarm system associated with the

base control unit, the remote control unit receives textual messages and graphical indicators to alert the user.” *Id.* at 7:32–36. Shamoon further teaches that “[t]he base control unit communicates status information to the remote control unit either on a periodic or event-driven basis.” *Id.* at 9:6–8. Shamoon explains that the base control unit “can initiate communications based on its aggregated inputs, or it can respond to individual requests and commands received from the remote control unit.” *Id.* at 9:8–10. Shamoon gives the following examples of potential events that can cause the base control unit to initiate a communication session: “fire or burglar alarm activation, HVAC or freezer temperature thresholds exceeded, equipment failures, an air filter change necessary, a change in the home state vector, (occupied, unoccupied) or a geographical boundary condition exceeded by of one of the other remote control units.” *Id.* at 9:13–18.

The base control unit may adjust the water temperature and thermostats when one of the remote control units comes within a specific distance from the house. *Id.* at 8:36–38. The geographic information is acquired by the GPS subsystem in the remote control unit and can be compared to a setting stored in either the remote control unit itself or the base control unit. *Id.* at 8:38–45. The remote control unit includes application software with a user interface that allows interface with the control unit. *Id.* at 8:59–9:5. Shamoon describes that “[m]ultiple base station units could be controlled through a single cellular phone for those instances where a person desires to have systems installed in multiple residences” and “[t]he application software uses the Source Address field of the message to distinguish between different base control units.” *Id.* at 13:36–41.

3. Analysis

a. Claims 9, 26, and 29

i. Overview

With respect to independent claim 9, we find that Petitioner has shown by a preponderance of the evidence that Yamashita and Shamoon both disclose “[a] method comprising: detecting an availability of a network device disposed at a site.” Pet. 38–40 (citing Ex. 1005, 1:44–47 (automatically controlling an appliance based on location), 2:7–26 (automatically controlled air conditioner), 20:46–48, 21:31–46 (mobile terminal and controlled appliance communicate directly over network); Ex. 1006, 3:66–4:6 (mobile device receiving information from control unit), 7:6–15 (detecting network devices at site), 9:6–17 (communicating status information), 9:63–10:7 (Bluetooth detection of devices); Ex. 1002 ¶¶ 196–198).

We further find that Petitioner also has shown sufficiently that Yamashita accounts for the steps of detecting the locations of the first and second mobile devices associated with the site. *Id.* at 40–41 (citing Ex. 1005, 11:1–12 (mobile terminal determines current position), 10:17–34 (control terminal detects a plurality of control terminals and plurality of appliances), Fig. 12 (showing detecting location); Ex. 1002 ¶¶ 199–202).

As discussed below, we find that the record also supports that Yamashita teaches “initiating communication of a location based input of the first mobile device to a network location configured to compare the location based input of the first mobile device to a location based input of the second mobile device.” *Id.* at 41–42 (citing Ex. 1005, 9:47–50, 11:1–12; Ex. 1002 ¶¶ 203, 204).

As further discussed in greater detail below, Petitioner also has shown sufficiently that Yamashita discloses “comparing the location of the first mobile device and the location of the second mobile device relative to the site.” *Id.* at 42 (citing Ex. 1005, 10:17–34, 10:39–67, 11:1–12, 17:58–18:13; Ex. 1002 ¶ 206). We are also persuaded that Yamashita teaches “initiating a communication of a control action data in response to detecting the location of the first mobile device and the second mobile device being disposed away from the site,” as recited by claim 9. Pet. 42–43 (Ex. 1005, 11:13–26 (transmitting commands to a target appliance), 18:13–28 (going away message scenario); Ex. 1002 ¶¶ 207, 208). Petitioner also has shown sufficiently that Yamashita discloses “altering the network device using the control action data.” *Id.* at 43 (citing Ex. 1005, 11:27–30 (control terminal sending control command to network appliance), 17:58–18:13 (setting thermostat to temperature); Ex. 1002 ¶¶ 210, 211).

Lastly, as discussed below, Petitioner has shown sufficiently that the combination of Yamashita and Shamoan suggests “receiving a communication from a network location indicating that an operating condition of the network device has been altered [and] updating the operating condition at the first mobile device,” as recited in claim 9. *Id.* at 43–44 (citing Ex. 1005, 18:20–25; Ex. 1006, 7:59–63, 9:6–10, 7:59–8:3; Ex. 1002 ¶¶ 194, 212–214, 216, 217).

Petitioner also accounts sufficiently for the limitations of dependent claims 26 and 29. Pet. 57–59.

ii. “Comparing” Limitations

As mentioned above, Petitioner submits that Yamashita teaches “initiating communication of a location based input of the first mobile

device to a network location configured to compare the location based input of the first mobile device to a location based input of the second mobile device.” *Id.* at 41–42 (citing Ex. 1005, 9:47–50, 11:1–12; Ex. 1002 ¶¶ 203, 204). Also, as mentioned *supra*, Yamashita discloses “comparing the location of the first mobile device and the location of the second mobile device relative to the site.” *Id.* at 42 (citing Ex. 1005, 10:17–34, 10:39–67, 11:1–12, 17:58–18:13; Ex. 1002 ¶ 206). Finally, as mentioned *supra*, Yamashita suggests “initiating a communication of a control action data in response to detecting the location of the first mobile device and the second mobile device being disposed away from the site.” Pet. 42–43 (Ex. 1005, 11:13–26 (transmitting commands to a target appliance), 18:13–28 (going away message scenario); Ex. 1002 ¶¶ 207, 208). We address these limitations together (and refer to them as the “comparing limitations”) because all three limitations involve a similar dispute about whether Yamashita teaches or suggests the claimed comparison.

Petitioner argues these limitations are accounted for by Yamashita through the following teachings of Yamashita. First, Yamashita teaches that its control terminal is connected to a network and can receive messages from mobile terminal (mobile device) and generate control action data based on message rules programmed in the mobile terminal. Ex. 1005, 10:17–34, 11:13–38; Ex. 1002 ¶¶ 203–205. Second, Yamashita teaches that the mobile terminal can judge a control requirement based on its current position and, based on that judgment, transmit a message to the control terminal. Ex. 1005, 11:1–12. For example, Yamashita explains that a control requirement could be established to transmit the message “approaching” to the control terminal when the linear distance from the current position of the

mobile terminal and home is within 300 m. *Id.* at 9:58–67. The control terminal then determines the control command corresponding to the received message, e.g., “approaching” message from the mobile terminal, and transmits the determined control command to a control target appliance, e.g., an air conditioner. *Id.* at 10:2–16. Third, Yamashita further discloses that when multiple mobile terminals are associated with the control terminal, the control terminal can have message requirements such as “when receiving the message ‘approaching’ from the mobile terminal 211 and the message ‘approaching’ from mobile terminal 212,” and then transmit a command to the target appliance, if the condition is met. *Id.* at 10:17–34, 17:58–18:18. Finally, Yamashita discloses another rule where both mobile terminals must transmit a “going away” message to the control terminal before the control action is taken. *Id.* at 18:13–18; Ex. 1002 ¶ 206.

Patent Owner argues that Yamashita does not teach “comparing” the relative locations of multiple devices. PO Resp. 19–23. In support of this contention, Patent Owner makes several intertwined arguments regarding different aspects of Yamashita.

First, Patent Owner argues the message transmitted in Yamashita is not a “location based input” and that Yamashita does not compare the “locations” of the mobile devices. *Id.* at 19. Although Patent Owner is correct that Yamashita discloses the use of messages rather than sending GPS information, for example, to the control terminal, we do not agree with Patent Owner that these messages are not location-based inputs and do not contain location information. Mr. McAlexander conceded that the term “location” is broad, and is not limited to a particular form. *See* Ex. 1010, 52:21–60:19 (discussing a number of possibilities for expressing “location”).

As Yamashita explains, the messages are generated by comparing various types of location data (e.g., position, speed, direction) to a command requirement (e.g., distance from current position to home is within 300 m). Ex. 1005, 9:58–10:16, 11:1–12.

Patent Owner also asserts that the messages are not a “location based input” because there are a variety of factors that can result in the transmission of the messages in Yamashita and this confirms that the messages cannot represent any mobile terminal location. PO Resp. 19–20 (citing Ex. 2003 ¶¶ 82, 89). We disagree. The breadth of Yamashita’s disclosure does not diminish the fact that Yamashita discloses scenarios (e.g., the transmission rules for greater or less than 300 m from home) where the messages do represent the relative location of the mobile terminal. Patent Owner repeats this argument elsewhere when it argues that, although the examples in Yamashita have the same transmission rules (e.g., both mobile terminals transmit a message at the same distance threshold), mobile terminals could have different transmission rules, in which case the system would not compare locations. PO Resp. 22–23. But again, this potential implementation Patent Owner posits does not negate Yamashita’s express disclosure of control requirements and messages that represent relative locations. *See Unwired Planet, LLC v. Google Inc.*, Nos. 2015-1810, 2015-1811, 2016 WL 6694955, at *5 (Fed. Cir. Nov. 15, 2016) (“It does not matter that the use of alphabetical order for locations would not always result in farther-over-nearer ordering. It is enough that the combination would sometimes perform all the method steps, including farther-over-nearer ordering.”) (citing *Hewlett-Packard Co. v. Mustek Sys., Inc.*, 340 F.3d 1314, 1326 (Fed. Cir. 2003)).

We also agree with Petitioner that Patent Owner errs by ignoring Yamashita's flexibility in message transmission rules when arguing that Yamashita's messages are too imprecise to be "locations." PO Resp. 21–22; Reply 15. As an example of the more general disclosures of Yamashita, Yamashita discloses that it is not just limited to the "Going Away" and "Approaching" messages disclosed, different messages can sent. See Ex. 1005, 20:33–21:31, Fig. 15 (block S22 ("Set Message")). In addition, as Yamashita makes clear different location-based rules can be implemented in each mobile device for each type of message. See *id.* at 12:45–13:14 (describing possible message transmission rules). Also, Yamashita teaches that these different messages can be compared in different ways to create a more complex set of rules than Patent Owner acknowledges. See *id.* at 20:33–21:31, Fig. 15 (block S24 ("Set 'and' OR 'or'")). We find that Yamashita has more flexibility and precision in ascertaining the physical location of a user than Patent Owner acknowledges. See Ex. 2004, 92:11–93:15, 116:22–118:15 (discussing flexibility of Yamashita's rules). Thus, we find that Yamashita teaches that the messages represent the relative location of the mobile device to the site, and their communication to the control terminal satisfies the initiating step of claim 9. Ex. 1005, 9:58–10:16, 11:1–12. This teaching is supported by testimony of Dr. Selker, which we find has sufficient explanation. Ex. 1002 ¶¶ 203–205.

Second, Patent Owner argues that "[t]he matching of messages to a set of rules in a look-up table does not satisfy the claimed 'comparison'" because "message matching cannot identify **both** similarities and dissimilarities as required by the [construction] of this term." PO Resp. 20. As we explained *supra*, our construction does not *require* that the

comparison include *both* similarities and dissimilarities in every instance. In particular, as we said above, there is no requirement for any particular type of determination, e.g., which device is closer, required by the claims.

Patent Owner is correct that Yamashita discusses how the control terminal receives messages and compares them to a set of rules to determine whether to send control messages to the controlled appliances. The '344 patent, however, expressly states that the proximity detection module can use “rules based logic” to determine if the operating condition should be altered. *See* Ex. 1001, 8:61–9:3 (discussing use of rules-based logic in the proximity detection module). Thus, we do not agree that the use of rules-based logic is outside the scope of the claim.

Patent Owner also contends that it is possible that one of the two mobile terminals in Yamashita could arrive home and manually alter the thermostat by the time the second mobile terminal sends its message to the control terminal. PO Resp. 21–22. Patent Owner argues that this scenario demonstrates its earlier point that the control terminal of Yamashita “merely matches messages to the look-up table to see if a match exists, transmits any necessary control command, and then does not take any other action until another message is received.” *Id.* at 22. Yet, as we discussed above, there is nothing in the claim or specification that prevents the use of rules-based logic, and there is also nothing in the claim that says that the system must compare locations in “real time” or before a user is able to manually alter the thermostat. Patent Owner seeks to impose temporal and precision requirements that are not recited in the claim. When “location” as used in the '344 patent is broad enough to encompass an entire city as Mr. McAlexander acknowledges, *see* Ex. 1010, 52:21–60:19, we decline to

require the operational tolerances that Patent Owner suggests. In other words, these contentions are not commensurate with the scope of the claim.

Here, Petitioner has shown sufficiently that Yamashita discusses that the rules include situations when the messages are compared to determine what actions to take. For example, in Figure 2, the controller issues certain commands only if the same message, “Approaching,” is received from both wireless terminals. Ex. 1005, 10:21–34. Dr. Selker testifies that this would indicate to a person of ordinary skill that Yamashita suggests that messages (which provide relative location of the wireless terminals to the control terminal, such as, less than 300 m) are compared. Ex. 1002 ¶ 206. In Figure 12, Yamashita shows transmission rule (B), where the message requirement is that both terminals send a “Going Away” message. Ex. 1005, 18:14–28. We find that transmission rule (B) requires that the control terminal receive both messages and perform an evaluation to determine whether they are the same. This is similar to the “comparison” in the Provisional Application, where the system applies a rule that the zone closest to the site occupied with a user is the “effective zone” for operating the automatic mode of the thermostat. Ex. 2001, 8.

In sum, Petitioner has shown sufficiently that the control terminal in Yamashita receives messages from the wireless terminals that represent the relative location of the mobile terminal (e.g., within 300 m of the site or moving away from the site) and that the control terminal includes a number of rules to compare the messages to determine what control information to send to the controlled appliances, and that as a result of the comparison sends control information to alter the condition of the controlled appliances.

See Ex. 1002 ¶¶ 214–216. Thus, we are persuaded that Yamashita accounts for the “comparing limitations” of claim 9.

iii. Receiving a Communication

As discussed *supra*, Petitioner submits the combination of Yamashita and Shamoon suggests “receiving a communication from a network location indicating that an operating condition of the network device has been altered [and] updating the operating condition at the first mobile device,” as recited in claim 9. Pet. 43–44 (citing Ex. 1005, 18:20–25; Ex. 1006, 7:59–8:3, 9:6–10; Ex. 1002 ¶¶ 194, 212–214, 216, 217); Reply 16–17. Petitioner submits that Shamoon teaches a two-way system where the base control unit can communicate information, including status information, back to the remote control unit, either on a periodic or event-driven basis. Pet. 44 (citing Ex. 1006, 7:6–15, 9:6–17). In addition, Petitioner notes that Shamoon discloses that the base control unit sends messages to the remote control unit notifying the user of the current temperature at the site. *Id.* (citing Ex. 1006, 7:59–8:3). Petitioner further notes that Shamoon teaches that the remote control unit displays the current operating temperature at the site. *Id.* (citing Fig. 2; Ex. 1002 ¶¶ 214, 216, 217); Reply 17.

Patent Owner raises three main arguments why Shamoon does not teach or suggest this limitation. PO Resp. 23–25. First, Patent Owner argues that Shamoon fails to teach or suggest “communicating from the network device the fact of a change (whether manual or automatic) to an operating condition of a network device.” PO Resp. 24. In other words, Patent Owner asserts that the claim requires that the communication must “constitute a communication advising that a network device operating condition has been altered.” *Id.* Second, Patent Owner further argues that

“[t]he plain language of the claim makes clear that the network device operating condition change that is the subject of the communication must also stem from or be based on the control action data generated from the ‘comparison.’” *Id.* Patent Owner contends that “[w]hile Shamoon teaches various communications to the remote units, these communications are not based on a control action generated from a multi-user location information.” *Id.* (citation omitted). Finally, Patent Owner argues that even if we determine the claim does not require the first two alleged requirements, “Shamoon still fails to teach this claim element as none of the communications to the mobile device cited by Petitioner result in an updating of the altered operating condition at the mobile device.” *Id.* at 25.

We disagree. First, we are not persuaded that the claim requires the communication take a particular form or contain particular data. The claim only requires that the communication “indicat[e] that an operating condition of the network device has been altered.” Ex. 1001, 64:1–3. There is nothing that specifies how the communication must indicate that the operating condition has been altered, and we decline to limit the claim to communications that include the “fact of a change.”

Second, we disagree that the “plain language” of the claim “makes clear” that “network device operating condition change that is the subject of the communication must also stem from or be based on the control action data generated from the ‘comparison.’” PO Resp. 24. There is no support in the claim for this position. The “receiving a communication” step of the claim has no tie to the control action data previously recited and Patent Owner fails to identify any. Unlike other steps in the claim, the receipt of the communication is not conditioned on any other step. In addition, the

claim broadly recites that the communication indicates “an operating condition” of the network device has been altered and does not limit it to alterations made in response to the “comparison.”

Finally, we disagree that Shamoon fails to teach updating the operating condition at the first mobile device. In its Response, Patent Owner cites a lengthy paragraph from Mr. McAlexander’s testimony without providing any explanation. PO Resp. 25 (citing Ex. 2003 ¶ 92). This is improper incorporation by reference. *See* 37 C.F.R. § 42.6(a)(3). We decline to address the arguments made by Mr. McAlexander that were not explained in the Patent Owner Response. In any event, we find that Figure 2 of Shamoon shows that the mobile device receives the temperature and an indication that the air conditioning is running at the site—which we find is “a current operating condition” of the network device. *See* Ex. 1006, 7:59–8:3; Ex. 1002 ¶¶ 213, 216. Thus, we find that Petitioner has shown adequately that the combination of Yamashita and Shamoon accounts for the “receiving a communication” and “updating” steps of claim 9.

iv. Reasons to Combine

Petitioner articulates sufficient reasons with rational underpinning that explain why one of ordinary skill in the art would have been prompted to combine Yamashita’s system for location-based management of controlled appliances using mobile devices with the communications features from Shamoon for receiving information from an automated control system for networkable devices. Pet. 38–40; Ex. 1002 ¶¶ 192–195, 198. Petitioner relies on Shamoon to establish that two-way communications were known and desirable in the art. Pet. 38–39. Petitioner reasons that Yamashita and Shamoon are similar systems in the same field of endeavor, and that the

combination would be the combination of old elements with no change in their respective functions. *Id.* at 39 (citing Ex. 1002 ¶ 193). In particular, Petitioner notes that two-way communication would allow the user to confirm the current condition of the network and verify that the transmission was successful. *Id.* Finally, Petitioner notes that such feedback is common in many control systems. *Id.* We agree with Petitioner's analysis of the evidence.

Patent Owner also argues that there is no motivation to combine because Yamashita and Shamoon approach the problems of remote control systems in different ways. PO Resp. 53. Patent Owner asserts that Yamashita is an automatic control system that seeks to replace manual remote control. *Id.* Patent Owner contends that Shamoon, on the other hand, relies on a manual remote control to effectuate changes at the site. *Id.* at 54. Patent Owner argues combining Yamashita with Shamoon would change the principle of operation of Yamashita. *Id.* (citing *In re Ratti*, 270 F.2d 810, 813 (CCPA 1959)). Patent Owner also contends that because "Yamashita abandoned direct two-way communication (as disclosed in Shamoon) to control devices in favor of one-way messages, one of ordinary skill would not modify Yamashita to include such a feature." *Id.* Patent Owner argues that the direct two-way communication and interaction with select devices of Shamoon would frustrate the purpose of Yamashita which sought to minimize and ideally not 'requir[e] any operation by the user.'" *Id.* at 55. Patent Owner asserts that this combination would require substantial reconstruction and redesign and change the principle of operation of Yamashita. *Id.*

We find that Petitioner has shown adequately that a person of ordinary skill would have been motivated to combine Yamashita with Shamoon. In particular, we do not agree with Patent Owner that Yamashita teaches away from the combination or that the combination would change the principle of operation of Yamashita.³ Patent Owner is correct that Yamashita distinguishes manual control, and notes the disadvantages of “burdensome operations” and the possibility the user may forget to perform the required operations. Ex. 1005, 1:35–40. Patent Owner is also correct that Yamashita states that one objective of the invention is a system that can automatically control an appliance based on position without requiring any operation by the user. *Id.* at 1:44–47. Yet, Yamashita also discloses an embodiment where the user is prompted before a message is sent, which does require an operation by the user. *Id.* at 23:31–51. Thus, we do not agree that Yamashita disparages all manual interaction as Patent Owner contends.

Moreover, teaching away requires that “a person of ordinary skill upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path taken by the applicant.” *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994). Patent Owner cites nothing in Yamashita that says that adding the communication features from Shamoon to transmit the thermostat readings to the mobile terminal to the automatic functionality of Yamashita would be unlikely to work; Yamashita alleges only that manual control alone has certain disadvantages, not that communicating information from the site to

³ We understand Patent Owner to be arguing both that the references teach away from the combination generally, and teach away because, in particular, the combination would change the principle of operation of the system. PO Resp. 53–55.

the mobile device has disadvantages. *See In re Mouttet*, 686 F.3d 1322, 1334 (Fed. Cir. 2012); *see also Baxter Int’l, Inc. v. McGaw, Inc.*, 149 F.3d 1321, 1328 (Fed. Cir. 1998) (finding no teaching away where nothing in the prior art device suggested that the claimed invention was unlikely to work).

As for Patent Owner’s contentions that Yamashita abandoned bi-directional communication, we find no support in the cited portions of Yamashita for these contentions. Although Yamashita does tout the benefits of its automatic control system, the cited portions of Yamashita are silent about the advantages or disadvantages of “bi-directional communication.” As for Patent Owner’s arguments about substantial reconstruction and redesign, we do not find the testimony or argument persuasive. Yamashita’s control terminal and mobile terminals already has built in communication abilities (Ex. 1005, 11:31–38), and we find Dr. Selker’s testimony persuasive that a person of ordinary skill would have been motivated to add the ability to communicate the thermostat reading to verify that Yamashita’s automatic control worked. Ex. 1002 ¶¶ 192–195.

As for Patent Owner’s allegation that the combination with Shamoon would change Yamashita’s principle of operation, we disagree. Yamashita would continue to work as before—the messages, rules, and control information would continue operate in the same manner. Shamoon would only add additional functionality to allow for an improved user interface and two-way communication. Where the device would operate on the same principles as before, the combination does not change the principle of operation. *See Mouttet*, 686 F.3d at 1332 (noting *Ratti* inapplicable where the modified apparatus will operate “on the same principles as before”). As Petitioner explains, Shamoon demonstrates that its known techniques have

been used to improve similar devices in similar ways. We find that Petitioner has articulated sufficient reasoning with rational underpinnings to support the combination. Thus, we conclude that a person of ordinary skill would have had reason to combine the teachings of Yamashita and Shamoon. See *Unwired Planet, LLC v. Google Inc.*, Nos. 2015-1810, 2015-1811, 2016 WL 6694955, at *5 (Fed. Cir. Nov. 15, 2016) (“For a technique’s use to be obvious, the skilled artisan need only be able to recognize, based on her background knowledge, its potential to improve the device and be able to apply the technique.”).

v. Summary

In sum, we find that Petitioner has shown by a preponderance of the evidence the combination of Yamashita and Shamoon accounts for the limitations of claim 9 and the additional limitations of claims 26 and 29. We further find that a person of ordinary skill in the art would have been motivated to combine the references with a reasonable likelihood of success.

b. Claim 10

Claim 10 depends from independent claim 9 and further recites the step of “initiating a communication of the control data in response to detecting the location of the first mobile device being disposed near the site.” Ex. 1001, 64:6–8. Petitioner contends that Yamashita accounts for this additional limitation. Pet. 44–45 (citing Ex. 1005, 9:47–50; Ex. 1002 ¶ 219). Patent Owner argues that “the Yamashita control terminal that initiates any control actions has no visibility into any mobile terminal’s actual location” and “[a]s such, the control terminal does not and cannot know the actual or relative location to the site of any mobile device or even what condition (i.e., distance, time or another factor) triggered transmission

of the message it receives from any mobile terminal.” PO Resp. 26. Patent Owner contends that “[e]ven if an ‘approaching’ or ‘going away’ message in Yamashita indicated that a mobile terminal was away from a site, the control terminal still cannot determine whether the mobile device is *near* or *far* away from the site.” *Id.* at 26–27. Patent Owner, thus, concludes that “the system of Yamashita cannot determine as part of any purported comparison that one mobile device is ‘disposed near the site.’” *Id.* at 27.

We agree with Petitioner that Yamashita teaches or suggests this limitation. As Petitioner explains and we agree, the plain language of the claim only requires that control information be communicated in response to a determination that a single mobile device is within some preset distance of the site, and Yamashita teaches this through its disclosure of its control terminal sending control information to the network device when it receives an “approaching” message from one of the mobile devices. *See* Reply 21. The mobile device sends the “approaching” message when the mobile device detects that the position of the mobile device is within 300 m of the home. Ex. 1005, 9:47–50. As Dr. Selker testified, a distance of 300 m would be considered “near” the home. Ex. 1002 ¶ 219.

Patent Owner’s arguments to the contrary are not commensurate with the scope of this claim. There is no requirement in this method claim that the control terminal have “visibility” into the mobile terminal’s location, that control terminal “know” the location of the mobile device, or that the control terminal make the determination about whether the mobile device is near the site. PO Resp. 26. Therefore, we find that Petitioner has shown by a preponderance of the evidence the combination of Yamashita and Shamoon accounts for the additional limitations of claim 10, and that a person of

ordinary skill in the art would have been motivated to combine the references with a reasonable likelihood of success.

c. Claim 11

i. Overview

Claim 11 depends from claim 9 and further recites “detecting the location of the first mobile device being disposed closer to the site than the second mobile device and initiating a communication using a setting of the first mobile device.” Ex. 1001, 64:9–14. Petitioner contends that Yamashita accounts for these additional steps. Pet. 45–46 (Ex. 1005, 10:17–34, 11:13–26, 17:58–18:13; Ex. 1002 ¶¶ 221–223).

Patent Owner argues that claim 11 requires (i) that the step of “comparing” also determine which device is closer to the site and (ii) that the communicated control action for altering the network device include “settings” of the user closer to the site. PO Resp. 27. Patent Owner asserts that Dr. Selker admitted that Yamashita does not disclose expressly the ability to determine which user is closer to the site. *Id.* (citing Ex. 2005, 24–31). Patent Owner argues that Figure 12 of Yamashita does not disclose comparing the locations, so it cannot meet the claim. *Id.* at 28. Finally, Patent Owner contends that “setting” is limited to managing energy use at the site and Yamashita does not teach such “settings” associated with the first mobile device. *Id.* at 29–31.

ii. Scope of Claim 11

As an initial matter, we disagree with Patent Owner’s assertions regarding the scope of claim 11. Namely, we disagree with Patent Owner that claim 11 requires (i) that the step of “comparing” also determine which device is closer to the site, and (ii) that the communicated control action for

altering the network device include “settings” of the user closer to the site. There are several problems with Patent Owner’s contentions. First, the steps of claim 11 do not limit the steps of claim 9, but recite additional steps that must be performed in addition to the steps of claim 9. Thus, we do not perceive them to limit claim 9 in the particular manner Patent Owner suggests. In addition to being independent steps, we note that the “detecting” step of claim 11 is not tied to the “comparing” step of claim 9. The “detecting” step of claim 11 simply requires detecting the location of the first mobile device “being . . . closer to the site than the second mobile device.” Thus, the plain language of the claim suggests that the detecting can happen independently of the comparison.

Second, claim 11 recites “detecting the location of the first mobile device” not “determining,” as Patent Owner repeatedly contends in its Response. As used in the claim, “detecting” does not require the type of affirmative “determination” that Patent Owner now contends. *See* Ex. 1001, 63:50–51 (“detecting an availability of a network device disposed at a site”), 63:52–53 (“detecting a location of a first mobile device associated with the site”).

Third, claim 11 has no express limitation that the recited “communication” be for a control action. Claim 9 recites three different “communication[s].” Claim 11 appears to be a fourth communication as this new recitation of “communication” does not claim an antecedent basis to any limitation in claim 9. Indeed, claim 11 is completely silent regarding what the recited “a communication” is or does.

Finally, we are not persuaded by Patent Owner’s contention that “settings,” as used in claim 11, are limited to settings to directly managing

energy use at the site. PO Resp. 28–30. The portion of the specification cited by Patent Owner makes clear that it is not intended to be a lexicographic definition of the term “settings.” PO Resp. 29 (quoting Ex. 1001, 30:9–16). This intention not to limit the term is demonstrated several features of the passage cited. Not only does the passage note that it is discussing “general settings,” but it also begins the list of “general settings” with the phrase “for example” and further notes that this list is only what the “general settings” “can include.” See *Prolitec, Inc. v. Scentair Techs., Inc.*, 807 F.3d 1353, 1358 (Fed. Cir. 2015) (“[T]he use of ‘may’ signifies that the inventors did not intend to limit [the claim] . . .”).

Moreover, the alleged definition further expands the recited list to include “any other type of setting that can be used to manage energy consumption or network devices at a site, or any combination thereof.” This alleged definition is so expansive that it could include anything related to almost any aspect of the system. In addition, the specification appears to refer to settings more broadly, at least in its discussion of mobile devices. See Ex. 1001, 60:52–61:2 (“According to a further aspect, an installation, settings, and the like can include prompting a user to use a GPS location in connection with an installation and site 604.”). In light of these factors, we find this does not evidence an intent to define the term “settings” in the way Patent Owner contends.

With this understanding of the scope of claim 11, we evaluate the parties’ respective factual contentions about the scope of the prior art.

iii. Application of Yamashita and Shamoan to Claim 11

We find that Petitioner has shown adequately that Yamashita accounts for “detecting the location of the first mobile device being disposed closer to

the site than the second mobile device.” In particular, we find that Yamashita’s disclosure in Figures 1, 2, and 12 of one of two mobile devices associated with a site being disposed away from the site and one of the two mobile devices transmitting the “Approaching” message once it is within 300 m of the site discloses this limitation, as Petitioner contends. *See* Pet. 45; Reply 21; Ex. 1002 ¶¶ 221, 222.

Contrary to Patent Owner’s arguments, there is no requirement for this step that there be a “determination” of which mobile device is closer. PO Resp. 27. Thus, we find that Yamashita’s disclosure of two devices disclosed away from the site, and the detection that one device is within 300 m and the other is not, is sufficient to meet the requirement for this step of “detecting” the first mobile device “being disposed closer to the site than the second mobile device.”

As for Patent Owner’s contentions regarding Dr. Selker’s alleged admissions, we find that they mischaracterize the testimony. *See* PO Resp. 27 (citing Ex. 2005, 24–31). Although Dr. Selker testified that the controller and the mobile device do not “know” which device is closer, he testified that overall system would. *See* Ex. 2005, 28:20–29:3. Patent Owner contends that this requires that the users talk to each other to determine who is closer, but this is not what Dr. Selker testified. PO Resp. 27 n.8. Rather, Dr. Selker testified that the system overall, with the user-defined rules and transmission criteria, can determine who is closer; this does not require the users talking to each other to tell each other where they are. Patent Owner’s characterization is not a fair statement of Dr. Selker’s testimony. *See* Ex. 2005, 24:19–31:3 (discussing Yamashita’s ability to determine who is closer). As we found *supra*, Yamashita discloses

a system with the flexibility to define a number of rules and different criteria. Thus, we disagree with Patent Owner's characterization that "Yamashita cannot determine which of multiple mobile devices is located closer to a site." PO Resp. 27. As we explained with respect to claim 9, this is not a fair description of the capabilities of the system Yamashita describes. *See supra* pp. 25–26.

As for Patent Owner's argument that the system in Figure 12 of Yamashita does not teach the claimed comparison (PO Resp. 28), we disagree with Patent Owner that a comparison is necessary to meet the "detecting" limitation of claim 11. As we explained, claim 11 does not require the comparison. Thus, we do not find that the claimed comparison is necessary to meet this limitation of claim 11.

We also agree with Petitioner that Yamashita teaches "initiating a communication using a setting of the first mobile device." Pet. 46 (citing Ex. 1002 ¶ 223). As Petitioner explains, Yamashita teaches that the mobile device is configured with communication settings for transmitting messages to the control terminal for controlling the energy management at the site. *Id.*; Ex. 1002 ¶ 223. Thus, the identified "setting" for controlling communication with the control terminal, which controls the network devices at the site, meets the alleged definition in the specification because it is one of "any other type of setting that can be used to manage energy consumption or network devices at a site." *See* Ex. 1002 ¶ 223. Thus, we find that Petitioner has adequately accounted for this limitation.

Therefore, we find that Petitioner has shown by a preponderance of the evidence the combination of Yamashita and Shamoan accounts for the additional limitations of claim 11, and that a person of ordinary skill in the

art would have been motivated to combine the references with a reasonable likelihood of success.

d. Claim 12

Claim 12 depends from claim 9 and further recites the steps of detecting a first/second travel distance setting of the first/second mobile device that are different, and using the first/second travel distance setting of the first/second mobile device and a current location of the first/second mobile device to initiate “the communication.” Ex. 1001, 64:16–27. Petitioner argues that Yamashita accounts for these limitations in its teaching of (1) using travel distance as a control requirement that can be selected by the user setting up the message transmission rules, Pet. 46 (citing Ex. 1005, 9:47–50, 12:45–13:14; Ex. 1002 ¶¶ 225–228); Reply 22, and (2) the control terminal generating control action data in response to receiving messages transmitted based on the control requirements, such as distance traveled, set on the mobile terminal, Pet. 46–47 (citing Ex. 1005, 11:13–26; Ex. 1002 ¶¶ 231, 234).

Patent Owner argues that Yamashita does not suggest different travel distance settings and Petitioner fails to cite any portion of Yamashita for this feature. PO Resp. 32. Patent Owner also argues that Yamashita’s messages “do not include any information about travel distance as that information remains on the mobile device.” *Id.* at 32–33 (citing Ex. 2003 ¶ 107). Thus, Patent Owner argues Petitioner has failed to meet its burden as to claim 12.

We find that Petitioner has shown by a preponderance of the evidence that Yamashita accounts for the elements of claim 12. Contrary to Patent Owner’s arguments, the cited portions of Yamashita expressly state that the user may set the “decision parameter,” which can include travel distance.

See Ex. 1005, 12:45–13:14. We agree with Petitioner and Dr. Selker that the cited portion of Yamashita suggests that each user can set their own travel distance in their respective mobile terminal. Pet. 46; Reply 22; Ex. 1002 ¶¶ 225–228.

We also agree with Petitioner that there is no requirement in the claim that the mobile device transmit the travel setting or distance, or both. Reply 22. The claim steps only require “using” the travel distance setting and the location to initiate the communication. In Yamashita, the system uses the identified travel setting to initiate the communication of control action data because this information is used to cause the transmission of the message, which, in turn, causes the control terminal to initiate the communication. Ex. 1002 ¶¶ 226, 228. Therefore, we find that Petitioner has shown by a preponderance of the evidence the combination of Yamashita and Shamoon accounts for the additional limitations of claim 12, and that a person of ordinary skill in the art would have been motivated to combine the references with a reasonable likelihood of success.

e. Claim 13

Claim 13 depends from claim 9 and further recites the steps of “receiving a communication at the first mobile device that the operating condition of the network device has been altered” and “displaying the communication within a display of the mobile device.” Ex. 1001, 64:28–33. Petitioner relies on Shamoon to suggest these limitations. Pet. 47–48. In particular, Petitioner submits that Shamoon discloses that the base control unit sends a message to notify the mobile unit of a current temperature (Ex. 1006, 7:59–8:3, Figure 2), and also sends commands to the network device that include status information (*see, e.g., id.* at 12:30–48; Ex. 1002

¶ 237). Pet. 47. Petitioner also notes that a number of other communications, such as alarms, are also communicable to Shamoon’s mobile units. *Id.* at 47–48 (citing Ex. 1006, 9:19–30). Petitioner submits that in each of these instances, the system provides an indication of an operating condition, such as the operating condition shown in Figure 2 of Shamoon (current temperature of 68 degrees and an “AC” setting). *Id.* at 48.

Patent Owner argues that Shamoon does not teach communicating changes in operating conditions, and also does not teach or suggest communicating changes to operating conditions for display on the mobile device. PO Resp. 33. Patent Owner argues that the alerts are not related to “automatic operating condition changes.” *Id.* Instead, Patent Owner submits that Shamoon is focused on manual adjustment of devices and improved direct two-way communication and such automatic changes “would not be within the purview of one of ordinary skill at the time of [the] invention of the ’344 patent.” *Id.* at 33–34.

We agree with Petitioner that Shamoon teaches or suggests the limitations of claim 13. As we discussed above with respect to claim 9, we do not agree that the “operating condition . . . has been altered,” recited in claims 9 and 13, is not limited to changes that result from the control data communicated as a result of the comparison; rather, we find that this phrase covers any operating condition change of the network device. *See supra* pp. 29–30.

Here, we agree with Petitioner that Shamoon teaches communications from the base station unit that are received by the remote control units (mobile devices). Ex. 1006, 7:59–8:3; Ex. 1002 ¶¶ 236–238. These communications include the temperature and the AC setting. Ex. 1002

¶¶ 237, 238. We further find that Petitioner has shown adequately that Shamoon suggests those communications (e.g., temperature and AC setting in Figure 2 of Shamoon) are displayed on the display of the mobile device. *See* Pet. 48 (citing Ex. 1006, 7:32–42, 12:2–5, Fig. 2; Ex. 1002 ¶¶ 239–241). As discussed above, Petitioner has shown adequately that a person of ordinary skill would have combined Yamashita and Shamoon to incorporate these functions into Yamashita’s control system. *See supra* pp. 30–34. Therefore, we find that Petitioner has shown by a preponderance of the evidence the combination of Yamashita and Shamoon accounts for the additional limitations of claim 13, and that a person of ordinary skill in the art would have been motivated to combine the references with a reasonable likelihood of success.

f. Claim 14

Claim 14 depends from claim 9 and further recites the step of “initiating communication of zone based data of the first mobile device to a network location configured to compare the zone based data of the first mobile device to zone based data of a second mobile device.” Ex. 1001, 64:34–38. Petitioner argues that the combination of Yamashita and Shamoon accounts for this limitation. Pet. 48–50; Reply 23–24. Specifically, Petitioner relies on Yamashita to teach the use of zones—e.g., defined geographic areas—through its teaching of a “control requirement [that] indicates that the user enters into an area within the distance D1 from a prescribed point of the receiving system 32.” *See* Pet. 48–49 (citing Ex. 1005, 14:49–15:21; Ex. 1002 ¶ 242). Petitioner further argues that the messages of Yamashita constitute “zone-based data” because they are transmitted in response to the mobile device satisfying the control

requirement previously discussed. *Id.* at 49 (citing Ex. 1005, 17:60–64). As discussed above, Petitioner contends that the messages are compared at the control terminal. *See supra* pp. 22–28. Petitioner further notes that Shamoon also teaches zone-based data through its teachings regarding control criteria relative to defined geographic areas, such as geofences. *See* Pet. 49–50 (citing Ex. 1006, 8:36–45; Ex. 1002 ¶ 245). Thus, Petitioner submits that Yamashita and Shamoon accounts for the limitations of claim 14.

Patent Owner argues, based on its proposed claim construction, that neither Yamashita nor Shamoon teaches “zone-based data.” PO Resp. 35–37. Patent Owner further argues, as discussed above, that Yamashita does not perform the claimed comparison. *Id.* at 36.

Here, we agree with Petitioner that Yamashita teaches or suggests zone based data. We agree with Petitioner that Yamashita teaches defined geographic areas essentially identical to those disclosed in the specification—i.e., fixed distances from the site. *See* Pet. 48–49 (citing Ex. 1005, 14:49–15:21; Ex. 1002 ¶ 242). We further agree that Yamashita’s messages, which are transmitted, for example, based on the mobile terminal entering the defined geographic area (300 m from the site), are zone based data within the meaning of the claim. *Id.* at 49 (citing Ex. 1005, 17:60–64; Ex. 1002 ¶ 243). As discussed above, we find that Yamashita teaches performing the claimed comparison on the messages received. *See supra* pp. 22–28. Therefore, we find that Petitioner has shown by a preponderance of the evidence the combination of Yamashita and Shamoon accounts for the additional limitations of claim 14, and that a person of ordinary skill in the

art would have been motivated to combine the references with a reasonable likelihood of success.

g. Claim 15

Claim 15 depends from claim 9 and additionally recites the step of “initiating communication of a location based input of the first mobile device to a network location configured to compare the location based input of the first mobile device to zone based data of the first mobile device and zone based data of a second mobile device.” Ex. 1001, 64:39–44. Petitioner contends that “[t]he only difference between claim 14 and claim 15 is that location based data is compared to zone based data.” Pet. 50. Petitioner asserts that Yamashita discloses the control terminal is configured to compare location information from multiple devices and can compare different types of location data. *Id.* at 50–51. Patent Owner argues that Yamashita does not teach comparing both location data and zone based data, as recited in claim 15. PO Resp. 38–39.

We agree with Patent Owner that Petitioner has failed to adequately account for the added step of claim 15. In particular, we agree with Patent Owner that claim 15 requires a three-way comparison of a location based input of the first mobile device to zone based data of the first mobile device and zone based data of the second mobile device. *Id.* Petitioner’s cited portions of Yamashita only discuss comparing one type of location data from one mobile device to one type of location data from a second mobile device. Pet. 51 (citing Ex. 1005, 11:1–12); Reply 24–25. Petitioner fails to explain how the comparison of two messages representing location data suggests the claimed comparison of two types of location information from one device to one type of location information from a second device. *See*

PO Resp. 38–39. Thus, we find that Petitioner has failed to show by a preponderance of the evidence that claim 15 would have been obvious over the combination of Yamashita and Shamoon.

h. Claim 16

i. Overview

With respect to independent claim 16, we find that Petitioner has shown by a preponderance of the evidence that Yamashita discloses “[a] method comprising: identifying a first mobile device with a site having a network device [and] identifying a second mobile device with the site.” Pet. 51 (citing Ex. 1005, 2:7–26 (automatically controlled air conditioner), 10:17–34 (describing embodiment with multiple mobile devices), 17:58–18:13 (describing message rules in system with multiple mobile devices), 20:46–48 (describing setup of mobile terminal), 21:31–46 (mobile terminal and controlled appliance communicate directly over network), Fig. 2; Ex. 1002 ¶¶ 250–252).

As discussed in detail below, we further find that Petitioner also has shown sufficiently that the combination of Yamashita and Shamoon accounts for the steps of detecting enabled proximity settings of the first and second mobile devices. *Id.* at 51–52 (citing Ex. 1005, 7:54–57 (function where mobile terminal checks with user before sending message to control terminal); Ex. 1006, 7:24–30 (noting “inactive status” for remote control units), 8:60–67 (describing GPS capabilities of remote control unit), 8:4–27 (describing personalization relative to different remote control units), 13:36–41; Ex. 1002 ¶¶ 253, 254, 257, 258). We find that the record also supports that, based on our finding that the combination accounts for proximity settings, Yamashita teaches detecting location information of the first and

second mobile devices in response to the enabled proximity settings. *Id.* at 52–53 (citing Ex. 1005, 9:47–50 (discussing message transmission rules), 11:1–12 (discussing mobile terminal detecting location information); Ex. 1002 ¶¶ 255, 256, 259, 260). As further discussed below, Petitioner also has shown sufficiently that Yamashita discloses “comparing location information of the first mobile device to location information of the second mobile device.” *Id.* at 53 (citing Ex. 1005, 10:17–34, 10:39–67, 11:1–12, 17:58–18:13; Ex. 1002 ¶ 261).

We are also persuaded, based on our finding that Yamashita teaches the previous “comparing” step, that Yamashita teaches “initiating altering an operating condition of the network device in response to the comparison of the location information.” Pet. 53–54 (Ex. 1005, 11:13–26 (transmitting commands to a target appliance); Ex. 1002 ¶¶ 262, 263).

ii. “Comparing”

With respect to the “comparing” step of claim 16, Petitioner relies on the same disclosure discussed above with respect to claim 9. Although this step of claim 16 differs slightly from claim 9—because claim 16 recites comparing “location information” and claim 9 recites comparing the relative locations—we find that “location information” is sufficiently broad that it encompasses information that reflects relative locations. *See* Pet. 52–53. Patent Owner raises similar arguments to those considered with respect to claim 9. *See* PO Resp. 39–42. Thus, for the reasons discussed *supra* with respect to claim 9, we find that Petitioner has shown adequately that Yamashita accounts for the “comparing” step of claim 16. *See supra* pp. 22–28.

iii. “*Enabled Proximity Setting*”

With respect to the limitation of claim 16 requiring an “enabled proximity setting” on each mobile device, Petitioner contends that the combination of Yamashita and Shamoon accounts for the steps of detecting enabled proximity settings of the first and second mobile devices. *Id.* at 51–52 (citing Ex. 1005, 7:54–57 (function where mobile terminal checks with user before sending message to control terminal); Ex. 1006, 7:24–30 (noting “inactive status” for remote control units), 8:60–67 (describing GPS capabilities of remote control unit), 8:4–27 (describing personalization relative to different remote control units), 13:36–41; Ex. 1002 ¶¶ 253, 254, 257, 258). Patent Owner argues that neither Yamashita nor Shamoon individually teaches a selectable setting that a user can enable or disable to indicate a preference that their location be used or a preference that their location not be used in connection with automatic device adjustments at the site. PO Resp. 43–48.

We do not find Patent Owner’s arguments regarding “enabled proximity settings” persuasive because Patent Owner argues the references separately, when the Petitioner is relying on the combined teachings of the references to account for the limitation. *See In re Keller*, 642 F.2d 413, 426 (CCPA 1981) (“[O]ne cannot show non-obviousness by attacking references individually where, as here, the rejections are based on combinations of references.”). Here, Yamashita teaches a function where the user can choose whether to allow control of the target appliance whereby the mobile terminal queries the user whether the message should be transmitted. *See* Ex. 1005, 7:54–57, 22:31–51 (describing operation of checking whether to transmit message). We find that this checking functionality, whether or not it can be

turned on or off in the user profile, would suggest to a person of ordinary skill the capability of disabling the automatic location-based control is described in Yamashita. *See* Reply 18; Ex. 1002 ¶ 253.

Even though Shamoon does not perform the exact proximity detection described in the '344 patent, Shamoon does teach generally location-based control of network devices using the location of a mobile device. *See* Ex. 1006, 8:60–67. As part of its location-based control, Shamoon further teaches that a mobile device can be placed in an “inactive” state. *See id.* at 7:24–30; Ex. 1002 ¶ 254. As Shamoon explains, the data channel used to send information to the base control unit is simple message service or “SMS.” Ex. 1006, 7:24–30. With SMS disabled, the remote control unit will not be able to send location information to the base control unit, effectively disabling its location-based control. *See* Ex. 1002 ¶ 254. As we found above in our claim construction, the term “proximity setting” does not require that location information always be transmitted. *See supra* pp. 11–13. Thus, it is the combined teachings of the system of Yamashita and Shamoon that teach this limitation. Namely, we find that it is the combination of Yamashita’s system incorporating Shamoon’s ability to disable the mobile device that results in the “proximity setting” limitations of claim 16. Ex. 1002 ¶¶ 253, 254.

As for Patent Owner’s arguments regarding the requirement that the location information be detected “in response to” the enabled proximity setting, we do not find them persuasive. PO Resp. 44–45. As Petitioner describes, in the combination, the active setting would allow the transmission of the message to the control terminal. *See* Pet. 52. Petitioner relies on the receipt of the message at the control terminal as fulfilling the

“detecting location information” step. *Id.* at 52–53. Unless the mobile terminal is set in active mode no message will be transmitted, and, in turn, no message detected at the control terminal. Thus, we agree with Petitioner that the detection of the message at the control terminal is in response to the detection of the enabled proximity setting.

iv. Reasons to Combine

Petitioner relies on the same reasons why a person of ordinary skill in the art would have been prompted to combine Yamashita and Shamoon to meet the limitations of claim 16 as was discussed above with respect to claim 9. *See* Pet. 51–52 (discussing motivation to combine for claim 16). Patent Owner relies on the same arguments why there is no motivation to combine the references that were also discussed above with respect to claim 9. *See* PO Resp. 53–55. As discussed above with respect to claim 9, we find Petitioner’s evidence and reasoning persuasive and are not persuaded by Patent Owner’s arguments that a person of ordinary skill would not have been prompted to combine Yamashita and Shamoon. *See supra* pp. 30–34. Thus, we find that that Petitioner has shown adequately that there is a motivation to combine the references as discussed above with respect to claim 9. *See* Ex. 1002 ¶¶ 192–195 (discussing motivation to combine).

v. Summary Regarding Claim 16

Accordingly, we find that Petitioner has shown by a preponderance of the evidence the combination of Yamashita and Shamoon accounts for the limitations of claim 16, and that a person of ordinary skill in the art would have been motivated to combine the references with a reasonable likelihood of success.

i. Claims 17 and 18

Claim 17 depends from claim 16 and Claim 18 depends from claim 17. Claim 17 recites the steps of “detecting a disabled proximity setting of the first mobile device” and “initiating altering the operating condition using a setting of the second mobile device in response to the disabled proximity setting of the first mobile device.” Ex. 1001, 64:65–65:3. With respect to claim 17, Petitioner contends that, given that the combination of Yamashita and Shamoon account for proximity settings, “it would be obvious to the [person of ordinary skill in the art] that if one device had a disabled proximity setting, ‘then logically Yamashita would only monitor the remaining device, with enabled proximity, for purposes of initiating the operating condition.’” Pet. 54 (quoting Ex. 1002 ¶ 270).

However, we agree with Patent Owner that Petitioner has failed to adequately account for why such an arrangement would have been obvious. PO Resp. 49. Simply saying it would be “logical” is no better than saying it would be common sense, which is inadequate without some reasoning or evidence to support it. *See Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1366 (Fed. Cir. 2016) (holding “common sense” requires a reasoned explanation).

As Petitioner has described the proposed combination, the proximity settings would reside on the mobile terminal and take the form of allowing or not allowing transmission of the messages (location information) to the control terminal. Yamashita operates on rule-based logic. Without a mechanism to inform Yamashita’s control terminal that it should rely on rules requiring only the location of one mobile device, there is no way for the control terminal to “initiat[e] altering the operating condition using a

setting of the second mobile device *in response to* the disabled proximity setting of the first mobile device,” as recited in claim 17. Petitioner fails to provide sufficient explanation why such alterations to Yamashita would have been “logical” and “obvious.”

Accordingly, we find that Petitioner has not shown by a preponderance of the evidence that claims 17 and 18, which both recite this step, would have been obvious over Yamashita and Shamoon.

j. Claims 27 and 28

Claim 27 depends from claim 26, which in turn depends from claim 9. Claim 26 recites “establishing a geofence about the site” and entering numbers for each of the first and second mobile devices. Ex. 1001, 65:40–44. Claim 27 further requires “initiating the communication of the control action data in response to detecting the location of one of the first mobile device and the second mobile device leaving the geofence.” *Id.* at 65:45–49. Petitioner submits that the combination of Yamashita and Shamoon accounts for these limitations. Pet. 58–59; Ex. 1002 ¶¶ 285–286.

Patent Owner argues that although Yamashita and Shamoon “each utilize a geofence, neither reference teaches effecting a change in a network device at the site when only a single mobile device leaves the site.” PO Resp. 52. Patent Owner submits that Yamashita, “at best, teaches initiating a communication when both users leave a geofence” and “Yamashita does not teach taking action when only a single user leaves a geofence.” *Id.* As for Shamoon, Patent Owner argues that Shamoon fails to teach or suggest taking an action when a single user leaves a geofence. *Id.* Thus, Patent Owner contends that the combination of Yamashita and Shamoon does not teach monitoring a location of two mobile devices and then taking automatic

action at a site when only one of the mobile devices leaves a geofence. *Id.* at 52–53. Patent Owner argues that this feature allows for personalized control at a site, which is not taught or suggested by either Yamashita or Shamoon. *Id.* at 53.

We agree with Petitioner that claim 27 does not require “personalized” control. It simply requires that the control data be communicated if one user leaves the site. The plain language requires nothing more. Moreover, Petitioner’s understanding of claim 27 is consistent with Patent Owner’s infringement contentions, which took the position that this claim limitation is met when the last person leaves the house. *See* Ex. 1009, 50. We agree with Petitioner that Yamashita discloses both situations—i.e., one user leaving the site and the last user leaving the site. *See* Pet. 58; Ex. 1005, 11:13–26; Ex. 1002 ¶ 285. We further agree that Shamoon also discloses such a circumstance where it teaches that control data is communicated if one user crosses a geofence. *See* Ex. 1006, 8:36–45; Ex. 1002 ¶ 286. Therefore, we find that Petitioner has shown by a preponderance of the evidence the combination of Yamashita and Shamoon accounts for the additional limitations of claim 27, and that, as detailed above with respect to claim 9, a person of ordinary skill in the art would have been motivated to combine the references with a reasonable likelihood of success.

Claim 28 depends from claim 27, and further recites “initiating a communication of control action data in response to detecting the location of one of the first mobile device and the second mobile device entering the geofence.” Petitioner cites evidence showing how Yamashita and Shamoon account for this limitation. Pet. 59 (citing Ex. 1005, 17:58–18:13

(describing transmitting the control message on crossing distance threshold from site); Ex. 1002 ¶ 287). We have reviewed this evidence and reasoning and find it persuasive. Therefore, we find that Petitioner has shown by a preponderance of the evidence the combination of Yamashita and Shamoon accounts for the additional limitations of claim 28, and that a person of ordinary skill in the art would have been motivated to combine the references with a reasonable likelihood of success.

k. Secondary Considerations – Long-Felt Need

Patent Owner submits that there was a “long felt and persistent need for a thermostat proximity control system that can accommodate multiple users.” PO Resp. 56. Patent Owner argues that this “long felt and persistent need” is evidenced by “recent actions of one of Allure’s and Petitioner’s primary competitors—Nest Labs, Inc. (‘Nest’).” *Id.* Patent Owner contends that “[t]he Nest thermostat cannot differentiate between users or make any determinations based on relative locations of multiple users associated with the site — each user ‘looks’ the same to the proximity sensors.” *Id.* at 57 (citing Ex. 2003 ¶ 157). Patent Owner asserts that “[r]ecently, however, Nest introduced new functionality for this proximity thermostat that allows the system to use the location of ‘multiple phones from the same household,’ to affect actions at the site, just as claimed in the ’344 patent.” *Id.* (citing Ex. 2009; Ex. 2010). Patent Owner submits that “[a]ccording to Nest, utilizing these inputs will make its thermostat ‘more accurate and efficient’ ‘because it isn’t relying on a single phone.’” *Id.* (citing Ex. 2009, 9).

Patent Owner contends that “[t]he change by Nest to their product provides evidence that the long felt, but unresolved need of tracking relative locations of multiple phones claimed in the ’344 Patent with individual user

proximity settings was recognized by those of ordinary skill in the art.” *Id.* at 58 (citing Ex. 2003 ¶ 158). Patent Owner argues that the importance of using locations from multiple phones is due to the fact that any transition to an energy savings mode does not happen until everyone is out of the house, and that proximity or activity sensors are inadequate. *Id.* (citing Ex. 2003 ¶ 158; Ex. 2010).

Petitioner responds that Patent Owner has failed to show a nexus between the alleged long-felt need and the claimed invention. Reply 27–28.

We agree with Petitioner that Patent Owner has failed to establish that there was a long-felt need and that, even if the evidence showed a long-felt need, Patent Owner has failed to show a nexus between the claimed invention and the alleged long-felt need. *Id.*

“Evidence of a long felt but unresolved need tends to show non-obviousness because it is reasonable to infer that the need would have not persisted had the solution been obvious.” *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1332 (Fed. Cir. 2016). “[L]ong-felt need is analyzed as of the date of an articulated identified problem and evidence of efforts to solve that problem which were, before the invention, unsuccessful.” *Tex. Instruments v. Int’l Trade Comm’n*, 988 F.2d 1165, 1178 (Fed. Cir. 1993). In particular, the evidence must show that the need was a persistent one that was recognized by those of ordinary skill in the art. *In re Gershon*, 372 F.2d 535, 539 (CCPA 1967).

The first problem we discern with Patent Owner’s long-felt need argument is that neither Patent Owner nor Mr. McAlexander consistently identifies what the alleged long-felt need is. Patent Owner alternatively identifies the long-felt need as “a thermostat proximity control system that

can accommodate multiple users as claimed in the '344 patent” (PO Resp. 56), “tracking relative locations of multiple phones . . . with individual user proximity settings” (PO Resp. 58), and “a need for a method that automatically makes adjustments to the temperature at the home depending upon relative locations of two or more mobile devices” (Ex. 2003 ¶ 156). Without a consistent identification of the problem, it is difficult to evaluate the merits of Patent Owner’s position. Moreover, this inability to consistently identify what the problem is suggests that problem was not recognized or persistent, so we find Patent Owner’s evidence entitled to less weight.

But even accepting the broadest articulation of the alleged problem as the long-felt need—“a thermostat proximity control system that can accommodate multiple users as claimed in the '344 patent”—we still find Patent Owner’s showing lacking. In particular, Patent Owner has failed to explain persuasively how long the alleged need was felt, when the problem first arose, and whether it was recognized by those of ordinary skill in the art, which are fundamental to finding there was a long-felt need. *See Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1332 (Fed. Cir. 2009) (finding showing lacking because no evidence how long need was felt or when problem first arose).

The only date Patent Owner identifies in its discussion of long-felt need is 2011—the date when Nest introduced its first thermostat. PO Resp. 56. However, it is unclear whether this date, which is two years after the Provisional Application to which the '344 patent claims priority was filed, is the date when Patent Owner contends the long-felt need first arose. Yet, even if we accept 2011, a date after the alleged invention, as the date

the alleged need arose, there is still insufficient evidence that there was such a need even as that date. Patent Owner has provided no evidence of the state of the art besides Yamashita and the Nest thermostat. Indeed, without some information about what different competitors existed at the time and what products were also available, we find that evidence of the actions of one competitor insufficient to establish that there was a recognized need in the art in 2011 as Patent Owner contends. Patent Owner also provides no contemporaneous articles from 2011 or other evidence describing the need, which Patent Owner now claims existed, was recognized in 2011.

We note that Patent Owner also mentions Yamashita in passing (PO Resp. 57 (“The system of Yamashita shares similar drawbacks to the Nest device, namely the inability to distinguish between users due to its reliance on a preprogrammed look-up table.”)), but we do not find this to be persuasive evidence of a long-felt need. Yamashita can accommodate multiple users (*see* Ex. 1005, Fig. 2) and can differentiate between users (*see id.* at 17:58–18:13 (explaining each message contains “identifying information indicating the terminal A or the terminal B”). Thus, we do not find Yamashita to be evidence of the long-felt need as Patent Owner has articulated it.

The testimony of Mr. McAlexander does not cure this problem of failing to identify when the need arose and whether it was recognized by persons of skill in the art. *See* Ex. 2003 ¶¶ 156–158 (Mr. McAlexander’s testimony regarding long-felt need). Mr. McAlexander again merely identifies when the Nest system was launched and Yamashita was filed (*id.* ¶¶ 156–157), but does not identify when this long-felt need to accommodate multiple users arose and whether it was recognized in the art. *See Tex.*

Instruments, 988 F.2d at 1178 (“[L]ong-felt need is analyzed as of the date of an articulated identified problem and evidence of efforts to solve that problem.”). Moreover, Mr. McAlexander’s testimony that Yamashita cannot differentiate users contradicts the express disclosure of Yamashita (see Ex. 1005, at 17:58–18:13 (explaining each message contains “identifying information indicating the terminal A or the terminal B”). Thus, we find Mr. McAlexander’s testimony on this point entitled to little weight.

An additional problem with Patent Owner’s contentions is that Patent Owner’s other evidence appears to suggest that there was no long felt need, as Patent Owner has articulated it. As one of the articles that Patent Owner cites explains, “[p]lenty of other smart home platforms already use location tracking as a home/away mechanism, so Nest’s update isn’t exactly groundbreaking.” Ex. 2009, 2. The article does go on to say that “Nest argues that it has a better implementation, however, because it isn’t relying solely on a single phone,” which favors Patent Owner’s argument. However, the article further continues that Nest uses more than just location of the phone in determining whether to switch between home and away mode, explaining that “[i]t may be relying on multiple phones from the same household, and after all that, it still has the data that the thermostat gathers on its own—the core information it’s been using to set home and away states until today.” *Id.* Indeed, Nest’s press release explains that “[w]e’ve wanted to do Home/Away Assist for a long time now . . . [b]ut more importantly, we wanted to do it right . . . [b]y combining sensor data, [learning] algorithms and multiple phones, we think we’ve nailed it.” Ex. 2010, 3. Thus, this evidence suggests that the problem Nest was solving was not Patent Owner’s

identified problem of accommodating multiple users, but a different problem—integrating all these data together to allow its algorithms to accurately predict whether anyone is at home if everyone is away. Patent Owner fails to identify where the level of accuracy Nest was apparently seeking is reflected in its claims.

We further agree with Petitioner that Patent Owner has failed to establish a nexus between any of the claims, the alleged long-felt unresolved need, and the evidence regarding the new Nest thermostat. *See* Reply 27–28. As Petitioner correctly notes, Patent Owner fails to identify what claim or claims it contends were incorporated into the Nest thermostat. *Id.* Moreover, when Mr. McAlexander was asked at his deposition about the new system described in the Nest article (Ex. 2010⁴) that Patent Owner is relying on, he stated that the Nest system was based on “simple rules,” and suggested that such systems based on “simple rules” are outside the scope of the claims of the ’344 patent. Ex. 1010, 25:24–26:22.

In fact, the Nest article does not say whether the Nest system has the capability that Mr. McAlexander said was the distinguishing feature of the ’344 patent over the prior art—differentiating between users. *See* Ex. 2003 ¶ 156 (“Here, the method of the ’344 Patent distinguishes over prior art system that do not differentiate between users.”). Indeed, the Nest article (Ex. 2010) appears to suggest that the system does not differentiate between users, but merely uses the location data to determine whether any one (regardless of who they are) is at home or not. *See* Ex. 2010, 3 (“So

⁴ The deposition refers to Exhibit 2016 from IPR2015-01248, which corresponds to Exhibit 2010 in this proceeding.

Home/Away assist will switch to Away only if *everyone* is out.” (emphasis added)).

Thus, although rules-based logic is not necessarily outside the scope of the claims, given Mr. McAlexander’s conflicting testimony, we find his testimony entitled to little weight in establishing whether there is a nexus between the alleged long-felt need and the claimed inventions of the ’344 patent. Patent Owner provides no other evidence that establishes that a nexus exists between the claimed inventions of the ’344 patent and the alleged long-felt need.

Because we find that there is insufficient evidence to show that there was a long-felt need and insufficient evidence to show there is a nexus between the alleged long-felt need and the claimed invention, we find that the alleged secondary consideration of long-felt need should have little, if any weight, in showing the non-obviousness of the claimed inventions of the ’344 patent.

III. CONCLUSION

As we have found above, Petitioner has shown adequately that the combination of Yamashita and Shamoan teaches or suggests all the limitations of claims 9–14, 16, and 26–29 of the ’344 patent, and that a person of ordinary skill would have had a reason to combine the references. We further find that, on balance, Petitioner’s evidence that the claimed inventions of the ’344 patent would have been obvious to a person of ordinary skill in the art outweighs Patent Owner’s evidence of secondary considerations. Accordingly, based on the arguments and evidence of record, Petitioner has met its burden to prove by a preponderance of the

evidence that claims 9–14, 16, and 26–29 of the '344 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over Yamashita and Shamoon.
See 35 U.S.C. § 316(e).

IV. ORDER

Accordingly, it is:

ORDERED that claims 9–14, 16, and 26–29 of the '344 patent *are unpatentable*;

FURTHER ORDERED that claims 15, 17, and 18 have *not been proven unpatentable*; and

FURTHER ORDERED that, because this is a Final Written Decision, any party to the proceeding seeking judicial review of this Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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Patent 8,626,344 B2

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