

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TILE, INC.,
Petitioner,

v.

CELLWITCH INC.,
Patent Owner.

IPR2020-00317
Patent 8,872,655 B2

Before JONI Y. CHANG, KARA L. SZPONDOWSKI, and
JULIET MITCHELL DIRBA, *Administrative Patent Judges*.

Opinion for the Board *per curiam*.

Opinion dissenting-in-part filed by *Administrative Patent Judge* CHANG.

Per curiam

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

I. INTRODUCTION

Tile, Inc. (“Petitioner”) filed a Petition requesting an *inter partes* review (“IPR”) of claims 1–23 (“the challenged claims”) of U.S. Patent No. 8,872,655 B2 (Ex. 1001, “the ’655 patent”), citing to the Declaration of Mr. Christopher Schmandt (Ex. 1003) for support. Paper 2 (“Pet.”), 3. Cellwitch Inc. (“Patent Owner”) filed a Preliminary Response. Paper 9. We instituted an *inter partes* review as to all of the challenged claims and all of the grounds of unpatentability asserted in the Petition. Paper 13 (“Dec.”). After institution, Patent Owner filed a Response (Paper 16, “PO Resp.”), citing to the Declaration of Mr. Matthew Schor (Ex. 2006) for support. Petitioner filed a Reply (Paper 20, “Reply”). Patent Owner also filed a Sur-reply (Paper 21, “Sur-reply”). The transcript of the oral hearing held on February 8, 2021, is entered into the record as Paper 28 (“Tr.”).

This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a). For the reasons that follow, Petitioner has demonstrated by a preponderance of the evidence that claims 1–3, 10–15, 22, and 23 of the ’655 patent are unpatentable. Petitioner has not, however, demonstrated by a preponderance of the evidence that claims 4–9 and 16–21 are unpatentable.

A. Related Matter

The parties indicate that the ’655 patent is involved in *Cellwitch Inc. v. Tile, Inc.*, Case No. 4:19-cv-01315 (N.D. Cal. filed March 12, 2019). Pet. 3; Paper 6, 2.

B. The '655 Patent

The '655 patent discloses a system for tracking personal items. Ex. 1001, 1:13–43. Specifically, the system provides immediate notification of loss by monitoring for the loss of small items and notifying a person of that loss. *Id.*

Figure 8 is reproduced below.

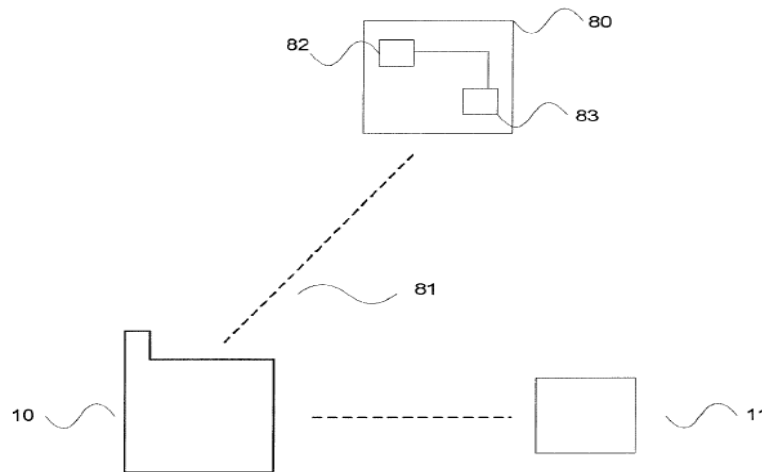


Figure 8 illustrates a system for providing wireless monitoring of personal items, comprising mobile station 10, wireless device 11 (“patch”), and processing system 80. *Id.* at 4:57–67, 8:54–55. Mobile station 10 has a wireless communication system to allow communications with patch 11. *Id.* at 4:58–67. Patch 11 has a unique identity and comprises a wireless communication system and a power source. *Id.* at 5:27–30. Patch 11 is designed to be attached to small personal items. *Id.* at 5:36–38. Processing system 80 is capable of communicating with mobile station 10 via communications link 81. *Id.* at 8:55–57. Processing system 80 comprises database 82 and processing means 83. *Id.* at 8:59–60. Database 82 stores records relating to mobile stations and patches, such as the identity of mobile

stations and patches, and the items to which each patch is attached. *Id.* at 8:63–67.

Figure 14 of the '655 patent is reproduced below.

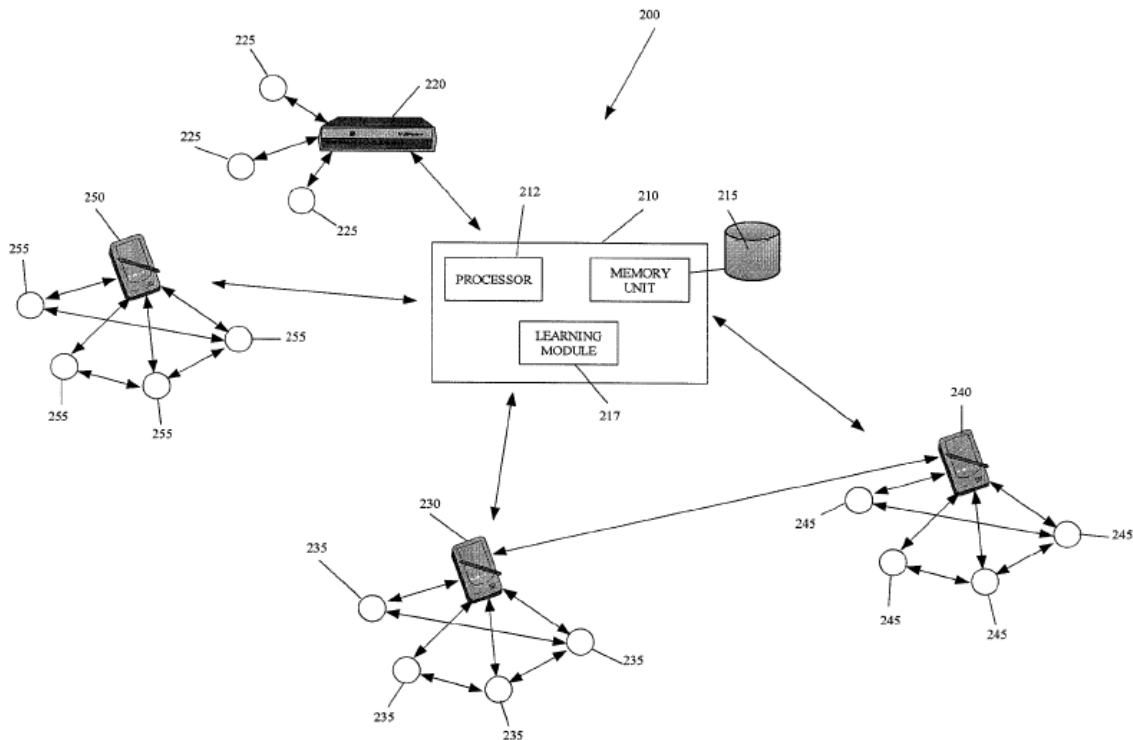


FIG. 14

As shown in Figure 14 above, network 200 comprises server 210 that includes processor 212, learning module 217, and a memory unit including database 215. *Id.* at 12:50–57. Network 200 also comprises base station 220, mobile stations 230, 240, 250, and associated patches 235, 245, 255. *Id.* at 12:57–59. Base station 220 may detect patches 225 and relay the detection to central server 210. *Id.* at 12:59–61. Mobile stations 230, 240, 250 may be configured as “buddies” to one another. *Id.* at 12:62–63. For example, mobile station 230 may be configured so as to monitor patches 245 associated with mobile station 240, and mobile station 240 may be

configured so as to monitor patches 235 associated with mobile station 230.

Id. at 12:63–67.

C. Illustrative Claims

Of the challenged claims, claims 1, 12, and 23 are independent.

Claims 2–11 depend from claim 1, and claims 13–22 depend from claim 12.

Claims 1, 12, and 23 are illustrative:

1. A system for monitoring of location of items, comprising:

[1a] a plurality of *wireless devices*, each of the plurality of wireless devices being associated with a *monitored item*;

[1b] a plurality of wireless communication terminals, each of the plurality of *wireless communication terminals* being associated with a respective user and associated with at least one respective associated wireless device of the plurality of wireless devices and configured *to monitor the proximity* of the at least one respective associated wireless device and *to generate an alert when the proximity* of at least one of the associated respective wireless devices from the associated wireless communication terminal *meets or exceeds a proximity threshold* to alert the respective user to the met or exceeded proximity threshold; and

[1c] *a processing system* that is in communication with the plurality of wireless communication terminals, the processing system comprising *a database that collects and stores data* related to the plurality of wireless devices and the plurality of wireless communication terminals,

[1d] wherein at least one *buddy wireless communication terminal* of the plurality of wireless communication terminals is further configured *to monitor the proximity* of at least one wireless device of the plurality of wireless devices associated with one of the other wireless communication terminals and to *generate an alert* when the proximity of at least one of the wireless devices associated with one of the other wireless communication

terminals from the buddy wireless communication terminal meets or exceeds a proximity threshold *to alert the user of the buddy wireless communication terminal* to the met or exceeded proximity threshold.

Ex. 1001, 15:4–35 (bracketed matters and emphases added).

12. A computer-based method for monitoring of location of items, comprising:

[12a] providing a plurality of wireless devices, each of the plurality of wireless devices being associated with a monitored item;

[12b] configuring each of a plurality of wireless communication terminals, each of the plurality of wireless communication terminals being associated with a respective user and associated with at least one respective associated wireless device of the plurality of wireless devices, *to monitor the proximity* of the at least one respective associated wireless device and *to generate an alert* when the proximity of at least one of the associated respective wireless devices exceeds a proximity threshold to alert the respective user to the met or exceeded proximity threshold;

[12c] collecting and storing, using a processing system that is in communication with the plurality of wireless communication terminals, data related to the plurality of wireless devices and the plurality of wireless communication terminals; and

[12d] configuring at least one *buddy wireless communication terminal* of the plurality of wireless communication terminals *to monitor the proximity* of at least one wireless device of the plurality of wireless devices associated with one of the other wireless communication terminals and *to generate an alert* when the proximity of at least one of the wireless devices associated with one of the other wireless communication terminals from the buddy wireless communication terminal meets or exceeds a proximity threshold *to alert the user of the buddy wireless communication terminal* to the met or exceeded proximity threshold.

Id. at 16:7–40 (bracketed matters and emphases added).

23. A system for monitoring of location of items, comprising:

[23a] a plurality of wireless devices, each of the plurality of wireless devices being associated with a monitored item;

[23b] a plurality of wireless communication terminals, each of the plurality of wireless communication terminals being associated with a respective user and associated with at least one respective associated wireless device of the plurality of wireless devices and configured to monitor the proximity of the at least one respective associated wireless device and to generate an alert *when the proximity* of at least one of the associated respective wireless devices from the associated wireless communication terminal *meets or exceeds a proximity threshold* to alert the respective user to the met or exceeded proximity threshold; and

[23c] a processing system that is in communication with the plurality of wireless communication terminals, the processing system comprising a database that collects and stores data related to the plurality of wireless devices and the plurality of wireless communication terminals,

[23d] wherein each of the plurality of wireless communication terminals is further configured to detect at least one wireless device of the plurality of wireless devices the respective wireless communication terminal is not configured to monitor and to transmit data related to the at least one wireless device of the plurality of wireless devices the respective wireless communication terminal is not configured to monitor to the processing system,

[23e] wherein, if the proximity of a lost wireless device of the plurality of wireless devices from the associated wireless communication terminal exceeds the proximity threshold, the processing system is configured to identify one of the other wireless communication terminals that detects the lost wireless device and *to generate a signal enabling direct communication* between the user of the wireless communication terminal associated with the lost wireless device and the user of the

wireless communication terminal that detects the lost wireless device to facilitate return of the lost wireless device.

Id. at 17:12–18:25 (bracketed matters and emphases added).

D. Prior Art Relied Upon

Petitioner relies upon the references listed below (Pet. 3–4):

Reference	Date	Exhibit No.
Hayes, US 6,967,576 B2	Nov. 22, 2005	1005
Ritter, US 2006/0055538 A1	Mar. 16, 2006	1006
Duncan, US 2004/0087314 A1	May 6, 2004	1007

E. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability (Pet. 3–4)¹:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
23	102(b)	Ritter
1–4, 10–16, 22	103(a)	Ritter, Duncan
5–9, 17–21	103(a)	Ritter, Duncan, Hayes

¹ For this proceeding, we assume the claims at issue have an effective filing date prior to March 16, 2013, the effective date of the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), and we apply the pre-AIA versions of 35 U.S.C. §§ 102 and 103. The parties do not dispute this assessment.

II. ANALYSIS

A. Claim Construction

In an *inter partes* review, we construe a patent claim “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b).” 37 C.F.R. § 42.100(b) (2019). Under this standard, the words of a claim are generally given their “ordinary and customary meaning,” which is the meaning the term would have to a person of ordinary skill at the time of the invention, in the context of the entire patent including the specification. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc).

1. “*generate an alert when the proximity . . . meets or exceeds a proximity threshold*”

Claims 1 and 23 each recite:

each of the plurality of *wireless communication terminals* being associated with a respective user and associated with at least one respective associated wireless device of the plurality of wireless devices and configured to monitor the proximity of the at least one respective associated wireless device and *to generate an alert when the proximity* of at least one of the associated respective wireless devices from the associated wireless communication terminal *meets or exceeds a proximity threshold* to alert the respective user to the met or exceeded proximity threshold.

Ex. 1001, 15:7–18, 17:15–25 (emphases added). Claim 12 also recites a similar limitation. *Id.* at 16:13–22. Neither party proffers an explicit construction for the term “when” as recited in the claim language “generate an alert *when* the proximity . . . meets or exceeds a proximity threshold.”

Nevertheless, through their prior art arguments, the parties' dispute regarding this limitation centers on the interpretation of the claim term "when" as used in the '655 patent.

For example, in its Response, Patent Owner contends that the claims "require that an alert is provided at the moment of loss—i.e., for loss prevention." PO Resp. 17 (citing Ex. 1001, 6:67–7:3; Ex. 2006 ¶¶ 120–125). In its Reply, Petitioner argues that the claims recite "no additional requirement that the alert is generated at the instant the threshold is met or exceeded" and that Patent Owner's "attempt to rewrite the claims to require instantaneous notification is contrary to the claim language, which includes no such strict timing requirement." Reply 1–3. In its Sur-reply, Patent Owner argues that it "never suggested the claims require instantaneous notification." Sur-reply 2. Patent Owner nonetheless argues that the U.S. Court of Appeals for the Federal Circuit ("Federal Circuit") in *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1252 (Fed. Cir. 1998), "found 'when' [to] 'mean[] at the time of, and not some appreciable time thereafter.'" *Id.* at 3.

Although the Federal Circuit's analysis in *Renishaw* is helpful, we cannot adopt Patent Owner's implicit construction of "when" without considering the specific claim language and Specification of the '655 patent here. As the Federal Circuit explained in *Renishaw*, "[t]he construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *Renishaw*, 158 F.3d at 1250. In *Phillips*, the Federal Circuit also explained that "claims must be read in view of the specification, of which they are a

part.” *Phillips*, 415 F.3d at 1315. “In most cases, the best source for discerning the proper context of claim terms is the patent specification wherein the patent applicant describes the invention.” *Id.*

We first turn to the claim language “each of the plurality of wireless communication terminals . . . configured to . . . generate an alert *when* the proximity of at least one of the associated respective wireless devices from the associated wireless communication terminal meets or exceeds a proximity threshold.” Ex. 1001, 15:7–18 (emphasis added). This claim language indicates that the wireless communication terminal cannot generate the “alert” until it determines that the proximity of the wireless device has met or exceeded the proximity threshold.

This is consistent with the Specification. The Specification describes a polling method for determining when the proximity of a patch (wireless device) meets or exceeds a threshold. *Id.* at 5:57–67, 6:49–7:11, Fig. 6. The Specification indicates that the mobile station (wireless communication terminal) would not consider a patch as lost until it determines a patch has exceeded the threshold by sending a polling message to the patch and receiving no response. *Id.* at 6:67–7:3.

Figure 6 of the '655 patent is reproduced below.

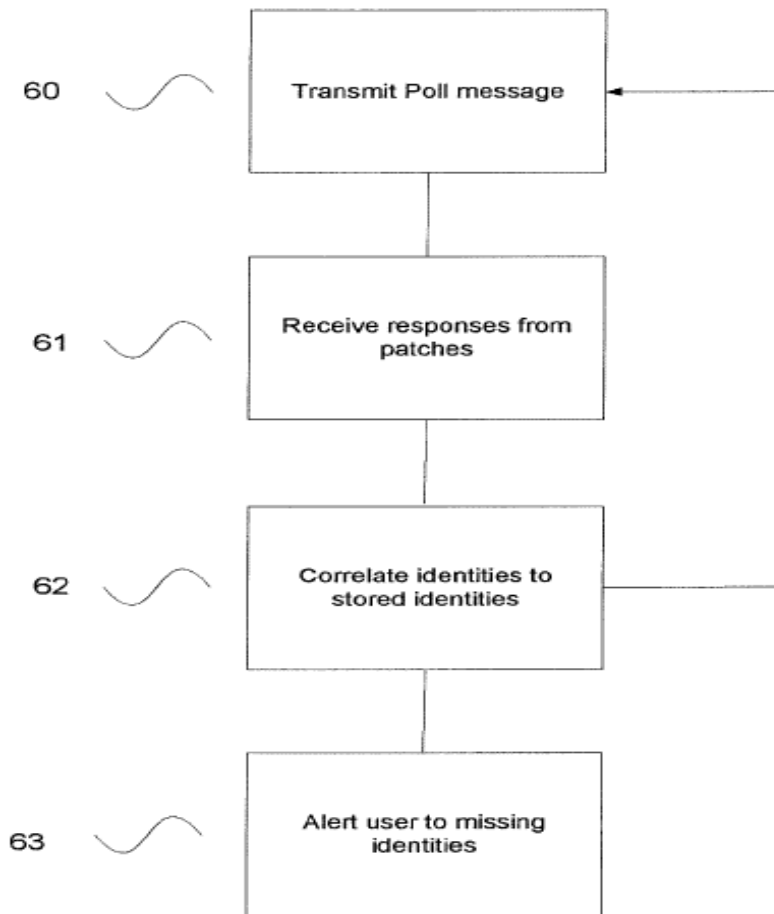


Figure 6 above shows a flow chart of a method of monitoring the proximity of patches. Ex. 1001, 6:49–50. At step 60, a mobile station (wireless communication terminal) transmits a polling message which requests all patches receiving the message to respond. *Id.* at 6:50–52. At step 61, the mobile station receives responses from those patches within range and ascertains the identity of each of the patches of the responses. *Id.* at 6:52–54. At step 62, the identities of the patches that responded to the poll are checked against the identities of patches related to the mobile station during the set-up process. *Id.* at 6:55–57. If all of the related patches

respond to the polling message, the method returns to the polling stage and the process is repeated at a predetermined time interval. *Id.* at 6:58–61. The time interval may be set by the user, depending on the battery power consumption requirements and the speed with which notification of loss is required. *Id.* at 6:61–66. If any of the related patches did not respond to the polling message, an alert is issued at step 63 to the user indicating the patch is not in proximity to the mobile station. *Id.* at 6:67–7:3. Thus, the user is alerted that one of their patched items has moved outside of proximity with the mobile station and may be lost. *Id.* at 7:8–10.

Based on the Specification, the term “when” as recited in the claims encompasses a time close to the moment when the mobile station determines one of its patches fails to respond to a polling message. That time depends on (1) the predetermined time interval between polling messages, and (2) the length of time the mobile station takes to send a polling message, receive responses from those patches within range, ascertain the identities of the patches, and check the identities of the patches that responded to the polling message against those related to the mobile station. *Id.* at 5:57–67, 6:50–7:10. This is because the associated patch may move outside of the proximity threshold immediately after responding to a polling message, but before the next polling message. *Id.* at 6:52–66.

Mr. Schor admitted that “polling is not a continuous communication,” and that “as an indicator that the proximity threshold has been exceeded, it couldn’t happen any faster than the polling frequency.” Ex. 1009, 109:16–110:15. Mr. Schor also conceded that “having read through the patent more than once, [he doesn’t] recall a specific polling frequency being

called out in either the claims or the description of the invention.” *Id.* at 87:6–9. Moreover, Patent Owner confirms that “the ’655 Patent does not require a specific polling frequency” and that “the response time for indicating a proximity threshold has been exceeded is based on the polling frequency.” Sur-reply 4–5.

In light of the claim language, Specification, and evidence of record, we do not agree with Patent Owner’s implicit construction that interprets the term “when” as “at the time of” meeting the threshold, or requires generating an alert “at the moment of loss” or at the precise moment of meeting the threshold. PO Resp. 16–17, 58; Sur-reply 1–3. Rather, we determine that “when” encompasses a time close to the moment when the terminal (mobile station) determines one of its wireless devices (patches) fails to respond to a polling message. That time depends on (1) the time interval between polling messages, and (2) the length of time the terminal takes to send a polling message, receive responses from those patches within range, ascertain the identities of the patches, and check the identities of the patches that responded to the polling message against those associated with the terminal. A contrary interpretation would exclude the preferred embodiment described in the Specification. “[A] claim construction that does not encompass a disclosed embodiment is rarely, if ever, correct.” *Accent Packaging, Inc. v. Leggett & Platt, Inc.*, 707 F.3d 1318, 1326 (Fed. Cir. 2013) (quoting *On-Line Techs., Inc. v. Bodenseewerk Perkin-Elmer GmbH*, 386 F.3d 1133, 1138 (Fed. Cir. 2004)).

2. “*the processing system is configured . . . to generate a signal enabling direct communication*”

Claim 23 recites:

the processing system is configured to identify one of the other wireless communication terminals that detects the lost wireless device and *to generate a signal enabling direct communication* between the user of the wireless communication terminal associated with the lost wireless device and the user of the wireless communication terminal that detects the lost wireless device to facilitate return of the lost wireless device.

Ex. 1001, 18:18–23 (emphases added). In our Institution Decision, we declined to adopt Patent Owner’s implicit construction that interprets this limitation to require the “processing system” itself to establish the direct communication between the terminals. Dec. 8–10. We noted that Patent Owner’s construction would improperly import an extraneous limitation into the claim and lacked support in the Specification. *Id.* We pointed out that “Patent Owner also does not explain, nor do we discern, how or why the Specification requires that the claimed processing system itself initiates and establishes the direct communication.” *Id.* at 9. We determined that the claim language “to generate a signal enabling direct communication” encompasses “to generate a transmission of information that allows a wireless communication terminal to establish a direct communication between the two wireless communication terminals.” *Id.* at 10. We made clear that our preliminary construction did not require that the “processing system” itself establishes the direct communication. *Id.*

After Institution, Patent Owner advances a new implicit construction that requires the claimed “signal” by itself to establish the direct

communication between the terminals, precluding the user of the mobile station from taking additional actions to establish the direct communication. PO Resp. 59. Patent Owner does not provide support from the Specification for its implicit construction. PO Resp. 59–60; Sur-reply 23–24. Rather, Patent Owner merely argues that a Mobile Station International Subscriber Directory Number (“MSISDN”) is not “a signal enabling direct communication” because it requires the user to take additional actions. PO Resp. 59–60; Sur-reply 23–24.

However, Mr. Schor admitted that “using that MSISDN number, the third party is then *enabled to communicate* with the owner of the patch directly via phone call,” because “if you know somebody’s phone number as described here, you could call them” and “*the phone number enables you to make that phone call.*” Ex. 1009, 168:20–169:7 (emphases added). Moreover, the claim language does not require the “signal” alone to establish the direct communication between the two terminals, and the claim does not preclude the user of the terminal from taking additional actions to establish the direct communication. *See* Ex. 1001, 18:19–24.

Based on the claim language and the evidence of record, we decline to adopt Patent Owner’s new implicit construction that requires the “signal” itself to establish the direct communication, as it would improperly import an extraneous negative limitation into the claim. *See Hoganas AB v. Dresser Indus., Inc.*, 9 F.3d 948, 950 (Fed. Cir. 1993) (quoting *E.I. Du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1433 (Fed. Cir. 1988)) (“It is improper for a court to add ‘extraneous’ limitations to a claim,

that is, limitations added ‘wholly apart from any need to interpret what the patentee meant by particular words or phrases in the claim.’”).

Instead, we maintain that the claim language “to generate a signal enabling direct communication” encompasses “to generate a transmission of information that allows a wireless communication terminal to establish a direct communication between the two wireless communication terminals.” Our construction does not require that the claimed “signal” by itself establishes the direct communication between the terminals. Nor does our construction preclude the user of the terminal from taking additional actions to establish the direct communication.

3. “*base station*”

Claim 3 recites “a *base station* that receives data relating to the plurality of wireless devices and forwards the data to the processing system.” Ex. 1001, 15:38–40 (emphasis added). Patent Owner argues that the term “base station” should be construed as a “wireless transceiver at a fixed location,” consistent with the Specification and the ordinary and customary meaning of the term. PO Resp. 10–13 (citing Ex. 2006 ¶¶ 40–60; Ex. 2015, 28:20–23). Petitioner disagrees with Patent Owner’s construction. Reply 12–13. Petitioner argues that we need not construe “base station.” *Id.*

Based on the record before us, we agree with Patent Owner and construe “base station” as a “wireless transceiver at a fixed location.” This construction is consistent with the Specification and with the ordinary and customary meaning of the term. *See* Ex. 1001, 9:53–58, 10:7–9, 10:29–36, 10:41–64, 11:19–33; Ex. 2021, 70; Ex. 2017, 61; Ex. 2020, 13–14 (defining

base station as “not intended to be used while in motion”). Moreover, Mr. Schmandt admits that “base station” is a term with a well-known meaning in the art and refers base stations as “fixed receivers.” Ex. 1003, 44; Ex. 2015, 28:20–23.

In view of foregoing, we adopt Patent Owner’s construction, interpreting “base station” as a “wireless transceiver at a fixed location.”

B. Principles of Law

To establish anticipation, each and every element in a claim, arranged as recited in the claim, must be found in a single prior art reference. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008). There is no requirement that the prior art must use the same words to describe a claim element in order to teach or disclose that claim element. Identity of terminology is not required for a claim element to be anticipated by the prior art. *See In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009).

A reference anticipates a claim “if a person of skill in the art, reading the reference would ‘at once envisage’ the claimed arrangement or combination.” *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015) (quoting *In re Petering*, 301 F.2d 676, 681 (CCPA 1962)). For anticipation, the dispositive question is whether one skilled in the art would reasonably understand or infer from a prior art reference that every claim element is disclosed in that reference. *Eli Lilly & Co. v. Los Angeles Biomedical Res. Inst. At Harbor-UCLA Med. Ctr.*, 849 F.3d 1073, 1074–75 (Fed. Cir. 2017); *see also AstraZeneca LP v. Apotex, Inc.*, 633 F.3d 1042, 1055 (Fed. Cir. 2010).

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

C. Level of Ordinary Skill in the Art

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (quotation marks omitted).

Here, Petitioner asserts that a person of ordinary skill in the art in the context of the ’655 patent would have been a person having “a bachelor’s degree in computer science, computer engineering, or a related field, with at least two years of experience working with device tracking systems,” citing to Mr. Schmandt’s testimony for support. Pet. 20 (citing Ex. 1003 ¶ 24). Patent Owner does not dispute that assessment. *See generally* PO Resp.

We adopt the level of ordinary skill as articulated by Petitioner because this proposal is consistent with the '655 patent, the asserted prior art, and supported by the testimony of Mr. Schmandt.

D. Overview of the Asserted Prior Art

Ritter

Ritter discloses a method and system “for finding lost or stolen objects, including products, intellectual property, persons and animals, on the basis of RFID (Radio Frequency Identification) tags.” Ex. 1006, code (54), ¶ 2. Figure 2 of Ritter is reproduced below.

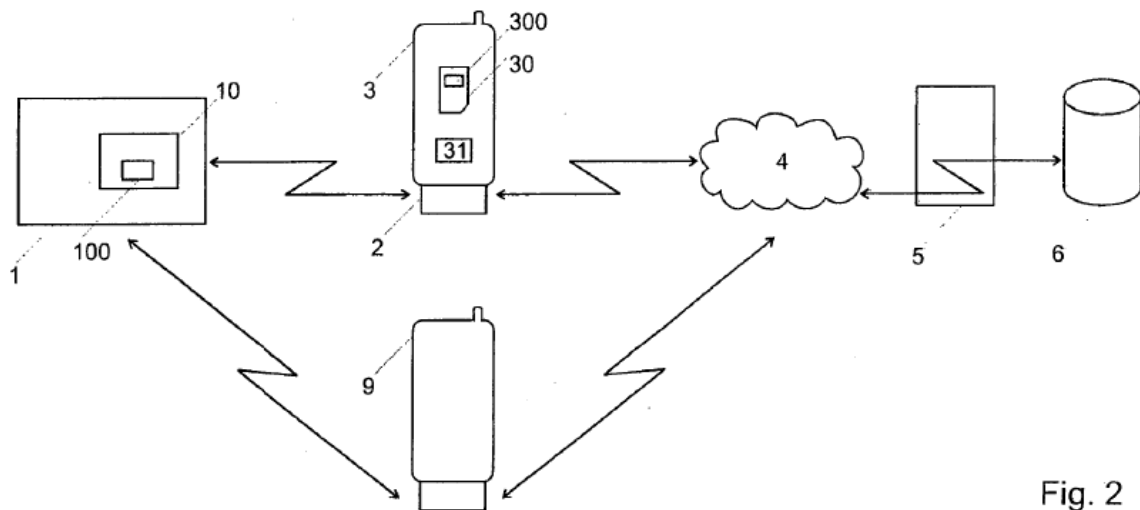


Fig. 2

Figure 2 of Ritter above shows a system used by a mobile device user to mark and find objects. *Id.* ¶ 27. Mobile device 3 can receive or send messages and data from or to mobile radio network 4. *Id.* Mobile device 3 includes RFID reader/writer part 2 which includes a micro controller and an antenna in order to exchange data with RFID tags 10. *Id.* ¶ 28. The pairing between tag identification 100 and owner identification 300 from the SIM card 30 is stored in central database 6. *Id.* ¶ 43.

Duncan

Duncan discloses an apparatus and method for tracking the location and position of an individual utilizing a direct radio frequency link between a mobile target and a mobile monitor. Ex. 1007, codes (54), (57).

Figure 1 of Duncan is reproduced below.

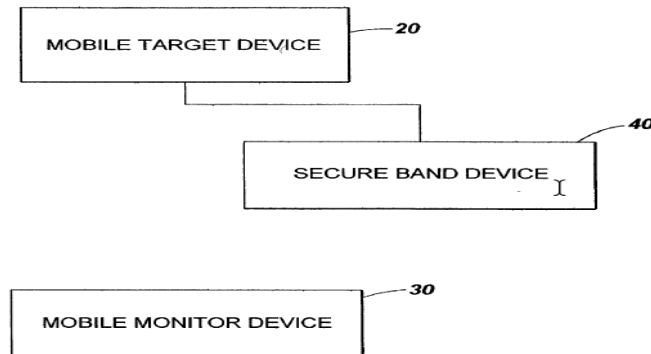


Figure 1 above illustrates an apparatus for locating an individual. *Id.* ¶ 21. The apparatus includes mobile target device 20 sized and constructed for attachment to an individual to be tracked. *Id.* Attachment of the mobile target device 20 can be accomplished utilizing a secure band device 40. *Id.* Mobile monitor device 30 communicates with mobile target device 20, and determines the distance and location of mobile target device 20 relative to mobile monitor device 30. *Id.* The distance and direction information may be displayed to a user of mobile monitor device 30 on a display element. *Id.*

Hayes

Hayes discloses a system and method for tracking an item. Ex. 1005, code (57), 3:11–15. Figure 1 of Hayes is reproduced below.

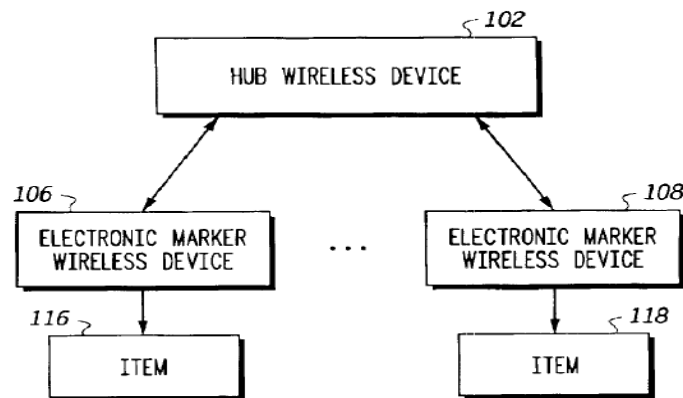


Figure 1 of Hayes above illustrates an item location tracking system. *Id.* at 2:43–45. The system includes hub 102 and marker wireless devices 106–108, which are detachably coupled to items 116–118. *Id.* at 3:18–21. The “primary purpose of the hub 102 is to determine the location of the electronic markers 106 through 108 and to inform the user of the hub 102 of the whereabouts of the electronic markers 106 through 108.” *Id.* at 4:55–58.

E. Anticipation Based on Ritter

Petitioner asserts that claim 23 is unpatentable under § 102(b) as anticipated by Ritter. Pet. 11–15, 57–62. Patent Owner argues that Ritter does not disclose several limitations recited in claim 23. PO Resp. 58–60. For the reasons stated below, we determine that Petitioner has established by a preponderance of the evidence that claim 23 is anticipated by Ritter.

1. The Preamble and Element 23a

Claim 23 recites:

A system for monitoring of location of items, comprising:
a plurality of wireless devices, *each of the plurality of wireless devices being associated with a monitored item.*

Ex. 1001, 17:12–14 (emphasis added). Petitioner asserts that Ritter discloses a system for monitoring of location of items, as recited in the preamble² and the “wireless device” limitation of claim 23. Pet. 21–22, 57. Petitioner explains that Ritter discloses a “system for finding lost or stolen objects,” and that, as shown in Figure 2 of Ritter, RFID tag 10 (wireless devices) is associated with product 1 (items) because “tag 10 is usually affixed by the product manufacturer onto the product 1.” *Id.* at 21–22 (citing Ex. 1006 ¶¶ 28, 33, 34, 68 (“it can be automatically determined that a read tag 10 marks a lost object 1”)). Petitioner also explains that “[a]lthough Figure 2 depicts a single RFID tag affixed to a single product, Ritter discloses that a plurality of products and tags may likewise be associated with one another.” *Id.* (citing Ex. 1006 ¶ 21, claim 12). Patent Owner does not dispute Petitioner’s showing as to the preamble of claim 23 and Element 23a. PO Resp. 57–60. Upon consideration of Petitioner’s undisputed evidence and reasoning, we determine that Petitioner has shown sufficiently that Ritter discloses a system for monitoring of location of items (products/objects), comprising: a plurality of wireless devices (RFID tags), each of the plurality of wireless devices being associated with a monitored

² The parties do not address whether the preamble of claim 23 recites a claim limitation. Pet. 21–22, 57; PO Resp. 57–60. “Generally, the preamble does not limit the claims.” *Allen Eng’g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1346 (Fed. Cir. 2002). For this proceeding, we determine that, if the preamble is limiting, Petitioner has shown sufficiently that Ritter discloses the preamble of claim 23.

item (each tag is affixed to the monitored product/object), as required by claim 23.

2. Element 23b

Claim 23 also recites:

a plurality of *wireless communication terminals*, each of the plurality of wireless communication terminals being associated with a respective user and associated with at least one respective associated wireless device of the plurality of wireless devices and configured *to monitor* the proximity of the at least one respective associated wireless device and *to generate an alert* when the proximity of at least one of the associated respective wireless devices from the associated wireless communication terminal meets or exceeds a proximity threshold to alert the respective user to the met or exceeded proximity threshold.

Ex. 1001, 17:15–25 (emphases added).

To account for Element 23b, Petitioner explains that each mobile device in Ritter is associated with a respective user, and includes RFID reader/writer 2 that communicates wirelessly with RFID tags 10. Pet. 22–25, 57–58 (citing Ex. 1006 ¶¶ 13 (“said tag identification is paired with an owner identification”), 27, 28, 35, 67, claim 12, Fig. 2). Petitioner explains that Ritter discloses tags that are associated or paired with one of the mobile devices through a registration process that relies upon the unique identifier of the tag. *Id.* at 23 (citing Ex. 1006 ¶¶ 12, 13, 18).

Petitioner argues that Ritter’s mobile device monitors the proximity of its associated items by “search[ing] continuously or periodically for neighboring tags 10 and reads and processes or forwards identifications 100 in found tags” much the same way as polling is used in the ’655 patent to monitor proximity of patches. *Id.* at 23–24 (citing Ex. 1006 ¶¶ 36, 61,

Fig. 2; Ex. 1001, 6:55–7:11). And, Ritter discloses that “when the mobile device polls RFID tags, if it does not receive an answer from an associated tag, the object is considered lost or outside the reach of the mobile device’s RFID reader 2 and the mobile device outputs an alarm through ‘a visual signal or through a sound signal’ indicating that tag 10 and associated object 1 are lost.” *Id.* at 24 (citing Ex. 1006 ¶ 61).

Patent Owner counters that “Ritter does not disclose generating an alert *when* the proximity threshold is met or exceeded,” but rather “teaches a process where a user may be alerted of a probable loss *some time after* the tag is deemed unreachable.” PO Resp. 16–17, 58. According to Patent Owner, “Ritter expressly teaches *waiting* to generate an alert until *after* the tag ‘remains unreachable.’” *Id.* at 16–17 (citing Ex. 1006 ¶ 61). Patent Owner also contends that “[t]his is directly in contrast with the ’655 Patent’s disclosure and claims, which require that an alert is provided at the moment of loss—i.e., for loss prevention,” citing Mr. Schor’s testimony for support. *Id.* (citing Ex. 1001, 6:67–7:3; Ex. 2006 ¶¶ 120–125).

In its Reply, Petitioner contends that Patent Owner “ignores Ritter’s overriding disclosure by focusing on a single phrase in Ritter.” Reply 1–3. According to Petitioner, Patent Owner’s declarant, Mr. Schor, “agrees that Ritter performs the generating an alert limitation in the same way described in the challenged patent—by treating an item as ‘lost’ (meeting or exceeding a proximity threshold) and generating an alert on the mobile device if the patch fails to respond to continuous or periodic messaging (polling) from the mobile device.” *Id.* (comparing Ex. 1001, 6:49–7:5, 7:54–61, 10:16–17, with Ex. 1006 ¶¶ 36, 61, claim 6; citing Ex. 1009, 163:25–166:25).

Petitioner also argues that Patent Owner “rewrites the claims in conflict with its own patent disclosure to require generating an alert *at the exact moment* the proximity threshold is exceeded.” *Id.*

In its Sur-reply, Patent Owner argues that it “never suggested the claims require instantaneous notification.” Sur-reply 2. Patent Owner argues that the Federal Circuit in *Renishaw*, 158 F.3d at 1252, “found ‘when’ ‘means at the time of, and not some appreciable time thereafter.’” *Id.* at 3. Patent Owner also avers that “Ritter teaches alerting of a probable loss *some time* after the tag remains unreachable,” not “generating an alert when a proximity threshold is met or exceeded.” *Id.* at 2–3. Patent Owner also contends that Petitioner improperly relies upon a new embodiment disclosed in Ritter’s claim 6 for the first time in its Reply. *Id.* at 3–4.

Based on the evidence of record, we determine that Petitioner has shown sufficiently that Ritter discloses Element 23b. Specifically, we are persuaded by Petitioner’s showing that Ritter discloses: a plurality of terminals (mobile devices 3, 9); each terminal being associated with a respective user (a mobile user) and associated with a wireless device (tag 10); each terminal monitors the proximity of its tags (through polling for nearby tags) and generates an alert (an alarm), when the proximity of the tags from the associated terminal meets or exceeds a threshold (communication is lost because tag exceeds RFID communication reach). Pet. 22–25, 57–58. Patent Owner’s arguments and Mr. Schor’s supporting testimony do not undermine Petitioner’s showing as they are based on an improper claim construction and narrowly focus on Ritter’s “try once more” option, which is optional.

As discussed above, we do not agree with Patent Owner's implicit construction that interprets the term "when" as "at the time of" meeting the threshold, or as requiring generating an alert "at the moment of loss" or at the precise moment of meeting the threshold. Rather, "when" encompasses a time close to the moment when the terminal (mobile station) determines one of its wireless device (patches) fails to respond to a polling message. That time depends on (1) the time interval between polling messages, and (2) the length of time the terminal takes to send a polling message, receive responses from those patches within range, ascertain the identities of the patches, and check the identities of the patches that responded to the polling message against those associated with the terminal. Therefore, we are not convinced by Patent Owner's argument related to its implicit claim construction for the term "when."

In addition, we also are not convinced by Patent Owner's argument that "Ritter does not disclose generating an alert *when* the proximity threshold is met or exceeded." PO Resp. 16–17, 58; Sur-reply 2–5. As Petitioner explains, each of Ritter's mobile devices "monitors the proximity of its associated tag(s) and alerts the user when the proximity exceeds a threshold distance from the mobile device in much the same way as the embodiments of the '655 patent." Pet. 23–24 (*comparing* Ex. 1001, 6:49–7:5, *with* Ex. 1006 ¶¶ 36, 61). Indeed, Ritter's mobile device 3 monitors the proximity of items by "search[ing] continuously or periodically for neighboring tags 10 and reads and processes or forwards identifications 100 in found tags." Ex. 1006 ¶ 36. Ritter discloses that "[i]f no answer is received, it can be assumed that the object has been lost or is located outside

the reach of the reader device 2,” and “[t]his state can be communicated to the owner through a visual signal or through a sound signal of the mobile device 2, 3.” *Id.* ¶ 61.

Furthermore, Mr. Schor admitted that Ritter performs much the same way as the polling process in the ’655 patent to monitor proximity of patches. Ex. 1009, 163:13–164:16. Patent Owner also concedes that “both Ritter and the ’655 Patent teach polling” and acknowledges that “the ’655 Patent does not require a specific polling frequency” and “the response time for indicating a proximity threshold has been exceeded is based on the polling frequency.” Sur-reply 4–5 (citing Ex. 1009, 86:24–87:14, 109:17–110:15). Thus, under our claim construction which is consistent with the ’655 patent disclosure, Patent Owner’s argument that “Ritter does not disclose generating an alert *when* the proximity threshold is met or exceeded” is unavailing.

In addition, Patent Owner’s arguments that Ritter “teaches a process where a user may be alerted of a probable loss *some time after* the tag is deemed unreachable,” and that “Ritter expressly teaches *waiting* to generate an alert until *after* the tag ‘remains unreachable’” do not undermine Petitioner’s showing. PO Resp. 16–17, 58; Sur-reply 2–5. Patent Owner’s arguments narrowly focuses on Ritter’s “try once more” option:

The mobile device *can* in such a case *try once more* to find the tag, for example only after a certain time or with a greater transmitting power. If the tag 10 remains unreachable, the marked object is considered to be probably lost.

Ex. 1006 ¶ 61 (emphases added). Patent Owner’s reliance on this option is misplaced, as it is optional. *Id.* ¶¶ 36, 61, claim 6. Patent Owner’s reliance

on Mr. Schmandt's cross-examination testimony also is misplaced because Mr. Schmandt was answering questions regarding the entire paragraph 61 of Ritter, including the "try once more" option. PO Resp. 17; Ex. 2015, 66:1–12.

We agree with Petitioner that "the proper reading of 'can' is that it's alternative." Tr. 9:15–16; Reply 2–3. Notably, Ritter makes clear that "[i]f no answer is received, it can be assumed that the object has been lost or is located outside the reach of the reader device 2." Ex. 1006 ¶ 61. Ritter also discloses that "[i]t is also possible that other mobile users are informed automatically or after confirmation of the owner about the loss," indicating that other mobile users are informed of the loss before the "try once more" option. *Id.* Moreover, Ritter discloses that "the tag is considered lost if the connection cannot be established." *Id.* at Claim 6. Therefore, Patent Owner's arguments that Ritter "teaches a process where a user may be alerted of a probable loss *some time after* the tag is deemed unreachable," and that "Ritter expressly teaches *waiting* to generate an alert until *after* the tag 'remains unreachable'" are misplaced.

We further disagree with Patent Owner's contention that Petitioner improperly relies upon a new embodiment disclosed in Ritter's claim 6 for the first time in its Reply. Sur-reply 3–4. Petitioner is not advancing a new argument, but merely points out that Ritter's claim 6 confirms that the "try once more" option relied upon by Patent Owner is optional. Tr. 9:19–10:13; *see* Reply 3. Importantly, claim 6 of Ritter is consistent with the portions of Ritter relied upon in the Petition. Pet. 23–24 (citing Ex. 1006 ¶¶ 36, 61). The Federal Circuit has held, "the petitioner in an inter partes review

proceeding may introduce new evidence after the petition stage if the evidence is a legitimate reply to evidence introduced by the patent owner.” *Anacor Pharm., Inc. v. Iancu*, 889 F.3d 1372, 1380–81 (Fed. Cir. 2018). Also “[p]arties are not barred from elaborating on their arguments on issues previously raised.” *Chamberlain Grp., Inc. v. One World Techs., Inc.*, 944 F.3d 919, 925 (Fed. Cir. 2019). Therefore, Patent Owner’s argument that Petitioner improperly relies upon a new embodiment disclosed in Ritter’s claim 6 for the first time in its Reply is unavailing.

For the foregoing reasons, we determine that Petitioner has shown sufficiently that Ritter discloses Element 23b.

3. Element 23c

Claim 23 also recites:

a processing system that is in communication with the plurality of wireless communication terminals, the processing system comprising *a database* that collects and stores data related to the plurality of wireless devices and the plurality of wireless communication terminals.

Ex. 1001, 18:1–5 (emphases added). To account for this element, Petitioner asserts that Ritter discloses a processing system in communication with database 6 that collects and stores data related to mobile devices and tags, such as “a list of tag identifications and corresponding owner identifications.” Pet. 25–26, 58 (citing Ex. 1006 ¶ 43, Fig. 2; Ex. 1003 ¶¶ 33–36). Petitioner also contends that Ritter discloses that the database stores pairings between tag identification 100 and owner identification 300. *Id.* at 25–26 (citing Ex. 1006 ¶¶ 42–45). Petitioner avers that database 6 may be hosted in a central server and can communicate with server 7, as

shown in Figure 3 of Ritter, to “request an authentication of the server.” *Id.* (citing Ex. 1006 ¶¶ 46, 64).

Based on the evidence in this entire trial record, we are persuaded that Petitioner has shown sufficiently that Ritter discloses a *processing system* (database 6 alone or in combination with a server) that is in communication with the plurality of terminals (mobile devices 3, 9), the processing system comprising a *database* (database 6) that collects and stores data related to the wireless devices and the terminals (e.g., pairing between identifiers in the mobile devices and tags), as recited in claim 23. Pet. 25–26, 58; Ex. 1003 ¶¶ 33–36. Patent Owner does not challenge Petitioner’s showing regarding Element 23c. *See* PO Resp. 57–60. In short, we determine that Petitioner has shown sufficiently that Ritter discloses Element 23c.

4. Element 23d

Claim 23 further recites:

wherein *each of the plurality of wireless communication terminals* is further configured to *detect* at least one wireless device of the plurality of wireless devices the respective wireless communication terminal is not configured to monitor and to *transmit data* related to the at least one wireless device of the plurality of wireless devices the respective wireless communication terminal is not configured to monitor to the processing system.

Ex. 1001, 18:6–14 (emphases added). To account for this element, Petitioner asserts that Ritter discloses third-party mobile devices detect neighboring tags including those associated with other users and transmit information about other users’ tags. Pet. 59–60 (citing Ex. 1006 ¶ 36, 63–64, Fig. 2; Ex. 1003, 76). According to Petitioner, Ritter discloses that

when a third-party mobile device finds a lost tag associated with another user, the third-party mobile device transmits information about the found tag to the processing system. *Id.* (citing Ex. 1006 ¶ 71). We are persuaded by Petitioner’s showing. Patent Owner does not challenge Petitioner’s showing regarding this limitation. *See* PO Resp. 57–60. Therefore, we determine that Petitioner has shown sufficiently that Ritter discloses Element 23d.

5. Element 23e

Claim 23 further recites

wherein, if the proximity of a lost wireless device of the plurality of wireless devices from the associated wireless communication terminal *exceeds the proximity threshold*, the *processing system* is configured *to identify* one of the other wireless communication terminals that detects the lost wireless device and *to generate a signal enabling direct communication* between the user of the wireless communication terminal associated with the lost wireless device and the user of the wireless communication terminal that detects the lost wireless device to facilitate return of the lost wireless device.

Ex. 1001, 18:15–24 (emphases added). To account for Element 23e, Petitioner asserts that Ritter discloses that, if the proximity of a lost tag exceeds the RFID communication reach of its owner’s mobile device, the processing system is configured to identify the third-party mobile device that detects the lost tag. Pet. 60–61 (citing Ex. 1006 ¶¶ 61, 64, 66, 71; Ex. 1003, 77–79). Petitioner also explains that because Ritter’s database 6 of the processing system stores the MSISDN number of each mobile device user, which uniquely identifies the user in a GSM (Global System for Mobile Communications) system, “[t]he third-party user can retrieve the owner’s MSISDN number from Ritter’s database, and then the third party ‘can

simply use this number to build a telephonic data or voice connection with the owner’ to facilitate return of the lost tag.” *Id.* at 62 (quoting Ex. 1006 ¶¶ 68–69). Petitioner contends that the “transmission of the MSISDN number from Ritter’s processing system to the third-party user is the signal generated by the processing system to enable direct communication between the third-party and owner mobile devices.” *Id.* (citing Ex. 1003, 77–81).

In its Response, Patent Owner counters that “the transmission of the MSISDN from Ritter’s processing system is not ‘a signal enabling direct communication’ generated by the processing system.” PO Resp. 59. According to Patent Owner, “Ritter only teaches that a third-party user can retrieve a telephone number from Ritter’s database,” and that “because the third-party user only retrieves the telephone number, the user of the third-party device in Ritter must take additional actions in order to enable communication.” *Id.* at 60 (citing Ex. 2006 ¶¶ 178–179).

In its Reply, Petitioner argues that Patent Owner “does not dispute that Ritter discloses database 6 (of Ritter’s processing system) storing the MSISDN number for each mobile device user” and “likewise does not dispute that . . . the third party ‘can simply use this number to build a telephonic data or voice connection with the owner’ to facilitate return of the lost tag.” Reply 17 (quoting Ex. 1006 ¶¶ 68–69). Petitioner further contends that Mr. Schor agreed that the MSISDN number enables direct communication as recited in the claim. *Id.* at 18 (citing Ex. 1009 at 168:11–169:7).

In its Sur-reply, Patent Owner admits that “Ritter teaches ‘the third party 9 can simply *use* this number *to build* a telephone data or voice

connection with the owner.” Sur-reply 23 (quoting to Ex. 1006 ¶ 68). Nonetheless, Patent Owner argues that “Ritter does not teach the limitation because Ritter’s third-party user only retrieves the telephone number from Ritter’s database” and “[t]his alone does not enable direct communication because the third-party user must take additional actions in order to communicate with another user.” *Id.*

We are persuaded by Petitioner’s showing that “[t]he transmission of the MSISDN number from Ritter’s processing system to the third-party user is the signal generated by the processing system to enable direct communication between the third-party and owner mobile devices.” Pet. 62 (citing Ex. 1003, 77–81). Petitioner has shown sufficiently that Ritter’s MSISDN number of the owner’s mobile device enables the third-party device to establish a direct communication between the mobile devices. Ex. 1006 ¶ 68 (disclosing that “[a]fter the finding third party 9 has ascertained that a found object is considered by its owner to be lost, the electronic or postal address of this owner must be found,” and that “the MSISDN number of the owner can be available; the third party 9 can simply use this number to build a telephonic data or voice connection with the owner”); *id.* ¶ 69 (disclosing that “this identification can be retrieved . . . from the database 6”).

Patent Owner’s arguments do not undermine Petitioner’s showing. Patent Owner improperly construes the claim to require the “signal” itself establish the direct communication between the terminals and to preclude a user of the terminal from taking additional actions that establish this communication. As discussed above, we decline to adopt Patent Owner’s

construction. Instead, we maintain that the language “to generate a signal enabling direct communication” encompasses “to generate a transmission of information that allows a wireless communication terminal to establish a direct communication between the two wireless communication terminals.” Our construction does not require that the “signal” alone establishes the direct communication. Nor does our construction preclude the user of the terminal from taking additional actions to establish the direct communication.

In addition, Patent Owner’s arguments and Mr. Schor’s testimony that “the transmission of the MSISDN from Ritter’s alleged processing system is not ‘a signal enabling direct communication’ generated by the processing system” and that “the user of the third-party device in Ritter must take additional actions in order to enable communication” are unavailing. PO Resp. 59–60; Sur-reply 23–24; Ex. 2006 ¶¶ 177–179. Mr. Schor admitted that “using that MSISDN number, the third party is then enabled to communicate with the owner of the patch directly via phone call,” because “if you know somebody’s phone number as described here, you could call them” and “the phone number enables you to make that phone call.” Ex. 1009, 168:20–169:7. Ritter discloses that third-party device 9 communicates with database 6 via mobile network 4. Ex. 1006, Fig. 2–3. Patent Owner admits that “Ritter’s third-party user [] retrieves the telephone number [the MSISDN] from Ritter’s database.” Sur-reply 23.

Therefore, we are persuaded that the transmission of the MSISDN from the database of Ritter’s processing system discloses a “signal enabling direct communication” between the terminals, as required by claim 23.

Ex. 1006 ¶¶ 68–69. We are not convinced by Patent Owner’s arguments and Mr. Schor’s testimony. PO Resp. 59–60; Sur-reply 23–24; Ex. 2006 ¶¶ 177–179. Accordingly, we determine that Petitioner has demonstrated sufficiently that Ritter discloses Element 23e.

6. Conclusion on Anticipation

In light of the foregoing, we determine that Petitioner has established by a preponderance of the evidence that claim 23 is anticipated by Ritter.

F. Obviousness Over Ritter in Combination With Other References

Petitioner asserts that claims 1–4, 10–16, and 22 are unpatentable under § 103(a) as obvious over Ritter and Duncan. Pet. 21–42. Patent Owner opposes. Based on the evidence of record, we determine that Petitioner has shown by a preponderance of evidence that claims 1–3, 10–15, and 22, but not claims 4 and 16, are unpatentable as obvious over Ritter and Duncan.

1. Claims 1 and 12

a. Elements 1a–c and Elements 12a–c

Elements 1a–c and Elements 12a–c are similar to Elements 23a–c. The parties do not argue these elements separately. *See, e.g.*, Pet. 21–26, 57–58; PO Resp. 16–17, 58. As discussed above in Section II.E.1–3, we determine that Petitioner has shown sufficiently that Ritter discloses Elements 23a–c, including generating an alert when the proximity meets or exceeds a threshold. Notably, Patent Owner argues that Ritter does not disclose “generate an alert when the proximity meets or exceeds a proximity

threshold” as recited in Elements 1b, 12b, and 23b. PO Resp. 16–17, 58. We already addressed Patent Owner’s arguments regarding those elements in our analysis above (Section II.E.2), and we find those arguments unavailing here for the reasons stated above. In short, we determine that Ritter discloses Elements 1a–c and Elements 12a–c.

b. Elements 1d and 12d – the “buddy” limitation

Claim 1 further recites:

wherein at least *one buddy wireless communication terminal* of the plurality of wireless communication terminals is further configured *to monitor the proximity* of at least one wireless device of the plurality of wireless devices *associated with one of the other wireless communication terminals* and *to generate an alert* when the proximity of at least one of the wireless devices associated with one of the other wireless communication terminals from the buddy wireless communication terminal meets or exceeds a proximity threshold *to alert the user of the buddy wireless communication terminal* to the met or exceeded proximity threshold.

Ex. 1001, 15:24–35 (emphases added) (the “buddy” limitation). Claim 12 recites a similar limitation. *Id.* at 16:28–40.

Petitioner’s showing

In its Petition, Petitioner explains that the “buddy” limitation “describes performing the exact same steps of monitoring the proximity of a wireless device (patch) and generating an alert if a proximity threshold is exceeded, but in this step a ‘buddy’ wireless device monitors a patch associated with a *different wireless communication terminal*.” Pet. 26–27 (emphasis added). Relying on its analysis for Elements 1a–b and 12a–b

(Pet. 21–25, 40), Petitioner asserts that Ritter discloses a system “in which mobile devices monitor proximity of their associated tags (and the related object) to generate an alert when the proximity threshold is exceeded.” *Id.* at 27–28. Additionally, Petitioner contends that Ritter’s system also allows “more than one mobile device [to] communicate[] with a single tag” because Ritter describes that “multiple mobile devices 3, 9 can monitor multiple tags by continuously or periodically searching for neighboring tags 10 and reading or processing identifications in found tags,” including someone else’s tags. *Id.* (citing Ex. 1006 ¶¶ 15–17, 36, 61–64, Fig. 2; Ex. 1003, 36–38). According to Petitioner, “Ritter discloses all the technology needed to perform this limitation: multiple mobile devices that can monitor a single tag and alert a user when the tag exceeds a proximity threshold from the respective mobile device.” *Id.* at 27; Ex. 1003, 42.

Petitioner acknowledges that Ritter does not fully disclose the “buddy” limitation. Pet. 29. Ritter describes notifying the owner when a “lost” tag is found or is unreachable, but does not explicitly state that an alert is also generated when the proximity of someone else’s “lost” tag exceeds a threshold. Ex. 1006 ¶¶ 61–64. Petitioner explains that Duncan discloses a tracking system in which multiple monitors may monitor the same targets and generate an alert when the proximity of its own tag or someone else’s tag exceeds a threshold, allowing two parents to “monitor the position and location of their two children simultaneously, yet independently of each other.” Pet. 27–31 (citing Ex. 1007 ¶¶ 1, 2, 5–7, 15, 16, 21, Fig. 1).

Mr. Schmandt testifies that a person of ordinary skill in the art would have been motivated to modify Ritter’s system to include this feature of Duncan

“to reduce the risk of loss and increase surveillance among trusted users (e.g., buddies like the parents disclosed in Duncan).” Ex. 1003, 40–42; Pet. 30–31.

Patent Owner’s arguments

Patent Owner counters that “Ritter in view of Duncan does not teach or render obvious the ‘buddy’ limitations of independent claims 1 and 12.” PO Resp. 17–27; Sur-reply 5–12. According to Patent Owner, the “buddy” limitation requires that a “buddy” terminal “monitors (1) the proximity of its *own* associated respective patch(es) and (2) the proximity of patch(es) *associated with another* device; and (3) generates an alert when a proximity threshold for either is met or exceeded.” PO Resp. 19; Ex. 2006 ¶ 133. Patent Owner argues that Ritter alone does not disclose the “buddy” element because “*finding* another’s tag is a very different thing than *monitoring* another’s tag.” PO Resp. 19–22; Sur-reply 8–9. Patent Owner also argues that Duncan alone does not teach the “buddy” limitation because Duncan lacks association and discloses that only one device generates an alert. PO Resp. 22–27; Sur-reply 10–12.

Our analysis

Based on the evidence of record, we determine that Petitioner has shown adequately that the combination of Ritter and Duncan, as a whole, teaches the “buddy” limitation. Moreover, as explained in more detail below in Section II.F.1.c, we determine that Petitioner has articulated a sufficient reason to combine Ritter and Duncan.

The “buddy” limitation requires a buddy terminal of the plurality of wireless communication terminals further configured to monitor the proximity of *someone else’s* patch and generate an alert when the proximity of that patch from the buddy terminal meets or exceeds a threshold *to alert the user of the buddy terminal*. Ex. 1001, 15:24–35.

As discussed above, Ritter discloses that each of the mobile devices monitors the proximity of its own tag and generates an alert when the proximity of its own tag meets or exceeds a proximity threshold to alert the user of the mobile device. Ex. 1006 ¶¶ 12, 13, 18, 27, 28, 35, 36, 61, 67, claim 12, Fig. 2. Ritter also discloses monitoring someone else’s tag. In particular, Ritter describes that each mobile device searches continuously or periodically for neighboring tags, and reads and processes or forwards tag identifications, including someone else’s tags. Ex. 1006 ¶¶ 15–17, 36, 61–64, Fig. 2; Ex. 1003, 36–38. Further, Ritter expressly discloses that if tag 10 associated with mobile device 3 is located within the reach of third-party mobile device 9, third-party mobile device 9 initiates a connection with tag 10 to determine whether tag 10 is considered lost and contacts the tag’s owner, the user of mobile device 3. Ex. 1006 ¶¶ 63, 64, 68, Fig. 2; *see also* Ex. 1003, 38 (testifying that “the mobile devices in Ritter are already communicating with any nearby tags, including those associated with other users”). In short, Ritter discloses a mobile device that monitors nearby tags, including someone else’s tags. We agree with Petitioner that “Ritter discloses all the technology needed to perform [the ‘buddy’] limitation: multiple mobile devices that can monitor a single tag and alert a

user when the tag exceeds a proximity threshold from the respective mobile device.” Pet. 27–28 (citing Ex. 1006 ¶¶ 15–17, 36, 61–64, Fig. 2).

As discussed above, Petitioner acknowledges that Ritter does not fully disclose the “buddy” limitation. Pet. 29. Petitioner explains that Duncan discloses a tracking system in which multiple monitoring devices may monitor the same targets and generate an alert when the proximity of its own tag or someone else’s tag exceeds a threshold, allowing two parents to “monitor the position and location of their two children simultaneously, yet independently of each other.” Pet. 27–31 (citing Ex. 1007 ¶¶ 1, 2, 5–7, 15, 16, 21, Fig. 1). Mr. Schmandt testifies that a person of ordinary skill in the art would have been motivated to modify Ritter’s system to include this feature of Duncan “to reduce the risk of loss and increase surveillance among trusted users (e.g., buddies like the parents disclosed in Duncan).” Ex. 1003, 40–42; Pet. 30–31.

In light of the foregoing, we determine that Petitioner has shown adequately that the combination of Ritter and Duncan, as a whole, teaches the “buddy” limitation. Moreover, as explained in more detail below in Section II.F.1.c, we determine that Petitioner has articulated a sufficient reason to combine Ritter and Duncan.

Our responses to Patent Owner’s arguments

We are not convinced by Patent Owner’s arguments that Ritter alone does not disclose the “buddy” limitation and that Duncan alone does not teach the “buddy” limitation. PO Resp. 19–27; Sur-reply 8–12. Patent Owner and Mr. Schor narrowly focus on portions of the references

individually, requiring either Ritter or Duncan alone to disclose the entire “buddy” limitation. They ignore Petitioner’s analysis that relies on a combination of Ritter and Duncan to teach the limitation. Pet. 21–32. As our reviewing court has held, nonobviousness cannot be established by attacking prior art teachings individually where the ground of unpatentability is based upon a combination of the prior art teachings. *In re Keller*, 642 F.2d 413, 426 (CCPA 1981). The relevant issue here is whether the prior art combination, taken as a whole, would have suggested the patentee’s claimed invention to a person having ordinary skill in the art. *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986).

Further, we are not convinced by Patent Owner’s argument that the combination of Ritter and Duncan fails to teach the “buddy” limitation. Patent Owner argues that the claim requires that a “buddy” terminal “monitors (1) the proximity of its *own* associated respective patch(es) and (2) the proximity of patch(es) *associated with another* device; and (3) generates an alert when a proximity threshold for either is met or exceeded.” PO Resp. 19; Ex. 2006 ¶ 133. Even applying Patent Owner’s three requirements, we still find Petitioner has shown sufficiently that the combination of Ritter and Duncan, as a whole, teaches the “buddy” limitation.

As discussed above, we find that each mobile device in Ritter monitors its own patch and generates an alert for its own patch. Notably, Patent Owner’s first requirement of the “buddy” limitation (monitoring the proximity of the terminal’s own associated patches) and the first portion of its third requirement (generating an alert when a proximity threshold for the

terminal's own associated patch is met or exceeded) are the same requirements as those recited in Elements 1b, 12b, and 23b. As discussed above, we determine that Ritter discloses a plurality of terminals (mobile devices) each configured to monitor the proximity of their associated wireless devices (tags) and to generate an alert when the proximity of each associated tag meets or exceeds a threshold (the RFID communication reach of the mobile device). Ex. 1006 ¶¶ 12, 13, 18, 27, 28, 35, 36, 61, 67, claim 12, Fig. 2. Therefore, Ritter discloses Patent Owner's first requirement and the first portion of its third requirement of the "buddy" limitation.

We similarly find that Ritter's mobile devices monitor the proximity of other devices' tags (i.e., Patent Owner's second requirement). Patent Owner's assertion that "*finding* another's tag is very different thing than *monitoring* another's tag" is unavailing. PO Resp. 20–21 (citing Ex. 2006 ¶ 136 (Mr. Schor merely repeats Patent Owner's argument)); Sur-reply 8–9. To the extent that Patent Owner requires the prior art to use the exact terminology as the claims, an obviousness determination is not an *ipsissimis verbis* test. Cf. *Gleave*, 560 F.3d at 1334 (addressing similar concept in the context of anticipation).

More importantly, Ritter discloses that each mobile device monitors the proximity of nearby tags, including its own tags and someone else's tags. Ex. 1006 ¶¶ 63, 64, 68, Fig. 2; Ex. 1003, 36–38 (testifying that "the mobile devices in Ritter are already communicating with any nearby tags, including those associated with other users"). In Ritter, the process of monitoring the mobile device's own tags is similar to the process of monitoring someone

else's tags. Ex. 1006 ¶¶ 34, 36, 61–66. Each mobile device in Ritter searches continuously or periodically for neighboring tags, which includes the mobile device's own tags and tags associated with other mobile devices; and each mobile device reads the identifications of the neighboring tags. *Id.* ¶ 34 (a mobile device can “read tag identifications in neighboring tags”), ¶ 36 (a mobile device “searches continuously or periodically for neighboring tags 10 and reads and processes or forwards identifications 100 in found tags”), ¶ 61 (other mobile users “that find the object can read the tag identification with their mobile device”), ¶ 63 (“each third party 9 that automatically or manually initiates a connection with the tag 10, asks whether the tag 10 is registered and whether it is still in contact with its owner”); Ex. 1003, 38. Ritter expressly discloses that, if another device's tag is within reach of a mobile device, that device initiates a connection with that tag to determine whether it is lost and may contact the owner. Ex. 1006 ¶¶ 63, 64, 68, Fig. 2; *see also* Ex. 1003, 58 (testifying that “the mobile devices in Ritter are already communicating with any nearby tags, including those associated with other users”). Moreover, Mr. Schor admitted that Ritter performs much the same way as the polling process used in the '655 patent to monitor proximity of patches. Ex. 1009, 163:13–164:16 (admitting that Ritter “doesn't use the word ‘polling,’ but, you know ‘searches periodically for neighboring tags,’ I think that's another way of stating the same thing”). Patent Owner also concedes that Ritter's mobile devices can “‘communicate’ with another's tag (i.e. ‘*find* through *polling*’)” and that, in Ritter, both “[o]wners and third parties can find and report the finding of a lost object.” Sur-reply 7–8 (the second emphasis ours).

Therefore, we are not convinced by Patent Owner's argument that Ritter's third-party device does not monitor the tag associated with another mobile device because "*finding* another's tag is a very different thing than *monitoring* another's tag." PO Resp. 19–22; Ex. 2006 ¶ 136; Sur-reply 8–9. Rather, we determine that Ritter teaches monitoring the proximity of patches associated with another terminal (i.e., Patent Owner's second requirement).

With respect to Patent Owner's third requirement (generates an alert when a proximity threshold for either is met or exceeded), as discussed above, Ritter expressly discloses generating an alert for *its own tag*, but not for *someone else's tag*. Petitioner relies upon Duncan to teach this feature. Pet. 27, 29–32 (citing Ex. 1007 ¶¶ 1, 2, 5–7, 15, 16, 21, Fig. 1).

Patent Owner advances several arguments regarding Duncan. First, Patent Owner argues that "Petitioner now provides a *new argument* not found in the Petition: 'Duncan need not disclose all three requirements alone to meet the "buddy" limitation.'" Sur-reply 10 (quoting Reply 6–7). Patent Owner's argument is misplaced. As discussed above, in its Petition, Petitioner clearly relies upon a combination of Ritter and Duncan to account for the "buddy" limitation. Pet. 21–32, 41. As Federal Circuit has held, "[p]arties are not barred from elaborating on their arguments on issues previously raised." *Chamberlain*, 944 F.3d at 925. Also "the petitioner in an inter partes review proceeding may introduce new evidence after the petition stage if the evidence is a legitimate reply to evidence introduced by the patent owner." *Anacor*, 889 F.3d at 1380–81. Therefore, Patent Owner's argument regarding Petitioner advancing a new argument is unavailing.

Second, Patent Owner argues that Duncan lacks “association” between the monitoring device, the user, and the target. PO Resp. 22–27 (citing Ex. 2006 ¶ 143); Sur-reply 11–12. This argument is conclusory, and not supported by Duncan’s disclosure.

As Petitioner points out (Pet. 29–31), Duncan discloses a tracking system in which a target is attached to a person or object being tracked and communicates its location to a monitoring device, allowing a father to monitor the location and position of his two children simultaneously. Ex. 1007 ¶¶ 5, 21, Fig. 1. “A parent/guardian can also define a fixed ‘safe zone’ for a target,” and “[s]hould a target venture outside this . . . safe zone, the mobile monitor user will be alerted.” *Id.* ¶ 15. In addition, a parent may enter the target’s identification number and other additional identifying information for the target into the parent’s monitoring device. *Id.* Therefore, contrary to Patent Owner’s assertion, Duncan discloses that a target (associated with a child) is associated with the parent’s monitoring device, which is associated with a user (the parent), allowing a parent using his or her device to monitor his or her own associated target and child. *Id.* ¶¶ 5, 7, 15, 21, Fig. 1.

Duncan also discloses monitoring a target associated with another monitoring device. Duncan states that “multiple mobile monitors may monitor one or more targets,” allowing two parents to “monitor the position and location of their two children *simultaneously, yet independently of each other.*” *Id.* ¶¶ 5, 15, 16, 21 (emphasis added). Hence, the second parent’s device (the buddy device) is also configured to monitor the target associated with the first parent’s device. *Id.* ¶ 15 (“A parent/guardian can also define a

fixed ‘safe zone’ for a target,” and “[s]hould a target venture outside this . . . safe zone, the mobile monitor user will be alerted.”). When the target associated with the first parent’s device ventures outside the safe zone of the second parent’s device, the second parent (the user of the buddy device) will be alerted. *Id.* ¶ 16.

Therefore, we are not convinced by Patent Owner’s argument that Duncan lacks association. PO Resp. 22–27; Ex. 2006 ¶ 143; Sur-reply 11–12.

Third, Patent Owner argues that Duncan fails to teach “more than one device monitors a target and generates an alert when a target ventures outside the safe zone” because the initial monitor “does not receive an alert signal” after a “hand off,” passing its responsibility to a second monitor. PO Resp. 24–26 (citing Ex. 1006 ¶ 16); Sur-reply 10–11.

However, Patent Owner’s arguments ignore Duncan’s disclosure as a whole, and narrowly focus on the optional “hand off” feature. Notably, Duncan discloses that two parents may “monitor the position and location of their two children simultaneously, yet independently of each other” and that each parent’s monitor defines a safe zone for each of the targets that it is authorized to monitor, and each parent will be alerted when such a target exceeds the parent’s safe zone. Ex. 1007 ¶¶ 5, 15 (disclosing that “[a] parent/guardian can also define a fixed ‘safe zone’ for a target” and that “[s]hould a target venture outside this . . . safe zone, *the mobile monitor user will be alerted*” (emphases added)). For example, the first parent is alerted when its target exceeds the first parent’s safe zone. The second parent (the user of the buddy monitor) is alerted when the target associated with the first

parent exceeds the second parent's safe zone. *Id.* ¶ 16. Duncan makes clear that "multiple mobile monitors may track multiple mobile targets" and that the initial monitor and other authorized monitors each have its own safe zone. *Id.* ¶¶ 15–17. In short, Duncan discloses generating an alert when a proximity threshold for either parent's safe zone is met or exceeded.

In addition, Patent Owner's reliance on the "hand off" optional feature is misplaced. Patent Owner's argument relies upon the following sentence in Duncan: "The initial mobile monitor is *now no longer responsible* for monitor of the mobile target and does not receive an alert signal when the safe zone between monitor and target's exceeded." PO Resp. 24–26 (citing Ex. 1007 ¶ 16) (emphasis added). Duncan in the same paragraph makes clear that the stated condition applies only *after*: (1) "the mobile target device *strays beyond the 'safe zone'* of an initial mobile monitor," (2) "this monitor sends a query to all other monitors who are authorized to watch the mobile target device," (3) "[i]f the mobile target device remains within the safe zone of a second monitor, monitoring of the target *may be passed* from a first monitor to a second monitor." Ex. 1007 ¶ 16 (emphases added). Patent Owner's argument is based on the premise that the initial monitor did not receive an alert when the target strays beyond the safe zone before sending a query to other monitors, and that the "hand off" feature applies to the situation where two parents monitor their two children simultaneously, yet independently of each other. PO Resp. 24–26. Such a premise is not supported by Duncan's disclosure. Ex. 1007 ¶¶ 5, 15, 16.

Accordingly, we are not convinced by Patent Owner's argument that Duncan fails to teach generating an alert when the proximity of someone

else's target exceeds a threshold. PO Resp. 24–26 (citing Ex. 1006 ¶ 16); Sur-reply 10–11. Rather, in view of the foregoing, we find Duncan discloses monitoring its own target and someone's target and generating an alert when a proximity threshold for either is met or exceeded, meeting all three Patent Owner's requirements of the “buddy” limitation.

In sum, we determine that Petitioner has shown adequately that the combination of Ritter and Duncan, as a whole, teaches all of the limitations recited in claims 1 and 12, including the “buddy” limitation.

c. Reasons to combine the prior art teachings

Petitioner articulates a reason to combine the teachings of Ritter and Duncan, citing to Mr. Schmandt's testimony for support. Pet. 28–32 (citing Ex. 1003, 40–42). Upon review of the evidence of record, we are persuaded that Petitioner has articulated a sufficient reason to combine the prior art teachings with a reasonable expectation of success.

A reason to combine or modify the prior art may be found explicitly or implicitly in market forces, design incentives, the “interrelated teachings of multiple patents,” “any need or problem known in the field of endeavor at the time of invention and addressed by the patent,” and the background knowledge, creativity, and common sense of the person of ordinary skill. *Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1328–29 (Fed. Cir. 2009).

As discussed above, Ritter discloses a system in which each of the mobile devices monitors neighboring tags, including the mobile device's own tags and someone else's tag. Ex. 1006 ¶¶ 36, 61–64, Fig. 2. Ritter also

expressly discloses generating an alert for *its own tag*, but not for *someone else's tag*.

Nevertheless, Petitioner explains that Duncan discloses a tracking system in which multiple monitors may monitor one or more targets and generate an alert when the proximity of its own tag or someone else's tag exceeds a threshold, allowing two parents to “monitor the position and location of their two children simultaneously, yet independently of each other.” Pet. 27–31 (citing Ex. 1007 ¶¶ 1, 2, 5–7, 15, 16, 21, Fig. 1). Mr. Schmandt testifies that one of ordinary skill in the art would have been motivated to modify Ritter's system to include Duncan's feature that generates an alert when the proximity of someone else's tag exceeds a threshold “to reduce the risk of loss and increase surveillance among trusted users (e.g., buddies like the parents disclosed in Duncan).” Ex. 1003, 40–42. Mr. Schmandt further explains that “[t]his realtime monitoring addresses the inherent problems of a traditional remotely based monitor system while concurrently offering the benefits gained by tracking of one or more target simultaneously” and testifies that “given that the purpose of all of these systems is to track people and avoid loss, that improving that function should be more than adequate motivation.” Ex. 2015, 58:8–15, 75:3–11.

Indeed, such a modification would improve Ritter's system, allowing two parents to “monitor the position and location of their two children simultaneously, yet independently of each other,” as taught by Duncan. Ex. 1007 ¶¶ 5, 15. As the U.S. Supreme Court has stated, “if a technique has been used to improve one device, and a person of ordinary skill in the art

would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *KSR*, 550 U.S. at 417.

Here, the evidence of record shows that generating an alert for someone else’s tag is not beyond the skill of a pertinent artisan. Ritter’s mobile devices already monitor all neighboring tags, including their own tags and someone else’s tags, and generate an alert for their own tags. As Petitioner explains, “Ritter discloses all the technology needed to perform . . . multiple mobile devices that can monitor a single tag and alert a user when the tag exceeds a proximity threshold from the respective mobile device.” Pet. 27; Ex. 1003, 42. Mr. Schmandt testifies that “this basic concept of using more than one monitor to prevent loss was well-known to a person of ordinary skill, who would have been motivated to lightly modify Ritter to allow for a second (buddy) monitor with the structure already in place in Ritter.” Ex. 1003, 40–42. “[W]hen a patent ‘simply arranges old elements with each performing the same function it had been known to perform’ and yields no more than one would expect from such an arrangement, the combination is obvious.” *KSR*, 550 U.S. at 417 (*quoting Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 282 (1976)). We credit Mr. Schmandt’s testimony (Ex. 1003, 36–42; Ex. 2015, 58:8–15, 75:3–11) as it is consistent with the teachings of Ritter and Duncan (Ex. 1006 ¶¶ 15–17, 36, 61–64, Fig. 2; Ex. 1007 ¶¶ 2, 5–7, 16, 21, Fig. 1).

In light of the foregoing, we are persuaded that Petitioner has articulated a sufficient reason to combine the teachings of Ritter and Duncan with a reasonable expectation of success.

Patent Owner counters that Petitioner fails to show that a person of ordinary skill in the art would have been motivated to combine Ritter and Duncan, advancing two main arguments. PO Resp. 27–41; Sur-reply 18–20. We address below each of Patent Owner’s arguments in turn.

First, Patent Owner argues that, “Petitioner provides no evidence that the functionalities of the Bluetooth standard leveraged by Duncan could have been implemented using RFID technology at the time,” citing *IPR Licensing, Inc. v. ZTE Corp.*, 685 Fed. App’x 933, 939 (Fed. Cir. 2017) (“ZTE I”), and *In re IPR Licensing, Inc.*, 942 F.3d 1363, 1370 (Fed. Cir. 2019) (“ZTE II”), for support. PO Resp. 27–30 (citing Ex. 2006 ¶¶ 97–99); Sur-reply 18–20. According to Patent Owner, “Petitioner’s vague assertion that references relate to similar technology is insufficient,” and Petitioner does not show “how a person of ordinary skill in the art would have achieved the features of Duncan’s Bluetooth-based solution within Ritter’s RFID environment.” PO Resp. 32–34. Patent Owner also contends that Petitioner fails to present evidence to support a motivation to combine because “each reference clearly teaches two *entirely different systems*, using *entirely different wireless communication protocols*.” *Id.* at 34–41. Additionally, Patent Owner argues, as a separate subsection of its Response, that Petitioner’s expert does not offer credible testimony regarding motivation to combine. *Id.* at 44–45. Because this latter argument is closely related to Patent Owner’s allegations of deficiencies in Petitioner’s treatment of the asserted art, we address these arguments together as follows.

Patent Owner’s arguments are unavailing. Patent Owner’s arguments and testimonial evidence narrowly focus on one aspect of Petitioner’s

contentions, but fail to consider Petitioner's analysis and Mr. Schmandt's testimony in their entirety (Pet. 21–32; Ex. 1003, 36–42). Patent Owner's reliance on *ZTE I* and *ZTE II* is misplaced because Patent Owner fails to recognize that Petitioner does not propose to implement Duncan's communication system and protocol with Ritter's system and protocol.

Pet. 21–32. As Petitioner explains, Ritter already has the necessary components and operations to monitor and generate an alert for someone else's tag. *Id.*; Ex. 1003, 42. "It is well-established that a determination of obviousness based on teachings from multiple references does not require an actual, physical substitution of elements." *In re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012). The criterion for obviousness is not whether the references could be combined physically, but whether the claimed invention is rendered obvious by the teachings of the prior art as a whole. *In re Etter*, 756 F.2d 852, 859 (Fed. Cir. 1985) (en banc). Therefore, Patent Owner's aforementioned arguments are unavailing.

Second, Patent Owner argues that Ritter teaches away from Duncan. PO Resp. 41–44. According to Patent Owner, "a person of ordinary skill in the art would have been discouraged from looking to Duncan's teachings because Duncan teaches *exactly the type of system Ritter disparages*." *Id.* at 42. Patent Owner also argues that "the statements in Ritter suggest against the combination advocated by Petitioner." *Id.* at 43 n.11.

"A reference may be said to teach away when 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 that was taken by the applicant." *In re Gurley*, 27 F.3d 551, 553

(Fed. Cir. 1994). Thus, the “mere disclosure of alternative designs does not teach away.” *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004).

Furthermore, just because better alternatives exist in the prior art does not mean that an inferior combination is inapt for obviousness purposes.

Gurley, 27 F.3d at 553.

Patent Owner’s theory of teaching away and Patent Owner’s argument that “the statements in Ritter suggest against the combination advocated by Petitioner” are inapposite. Patent Owner improperly presumes that Duncan’s communication protocol and system would be replacing Ritter’s communication protocol and system.

Significantly, nothing in Ritter discourages an ordinarily skilled artisan from using Ritter’s mobile device (that already generates an alert for its own tags) to generate an alert for someone else’s tag, allowing two parents to “monitor the position and location of their two children, *simultaneously, yet independently of each other*,” as taught by Duncan. *See generally* Ex. 1006; Ex. 1007 ¶¶ 5, 15, 16, 21 (emphasis added). Indeed, Ritter’s invention also is directed to tracking “persons, children and animals.” Ex. 1006 ¶¶ 2, 66. Moreover, as discussed above, Mr. Schmandt testifies that “[t]his modification would be simple to implement using the technology already disclosed in Ritter.” Ex. 1003, 38. Mr. Schmandt also testifies that “this basic concept of using more than one monitor to prevent loss was well-known to a person of ordinary skill, who would have been motivated to lightly modify Ritter to allow for a second (buddy) monitor with the structure already in place in Ritter.” *Id.* at 40–42. We credit

Mr. Schmandt's testimony because it is consistent with Ritter and Duncan. Ex. 1006; Ex. 1007.

Therefore, Patent Owner's arguments that Ritter teaches away from the technology of Duncan and that "the statements in Ritter suggest against the combination advocated by Petitioner" are inapposite.

In light of the foregoing, we determine that Petitioner has articulated an adequate reason to combine the teachings of Ritter and Duncan with reasonable likelihood of success.

d. Objective Evidence of Non-Obviousness

We must consider any evidence of objective indicia of non-obviousness before reaching our conclusion on obviousness. *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1328 (Fed. Cir. 2016). Factual inquiries for an obviousness determination include secondary considerations based on evaluation and crediting of objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). Notwithstanding what the teachings of the prior art would have suggested to one with ordinary skill in the art at the time of the invention, the totality of the evidence submitted, including objective evidence of nonobviousness, may lead to a conclusion that the claimed invention would not have been obvious to one with ordinary skill in the art. *In re Piasecki*, 745 F.2d 1468, 1471–1472 (Fed. Cir. 1984). Secondary considerations may include any of the following: long-felt but unsolved needs, failure of others, unexpected results, commercial success, copying, licensing, and praise. *See Graham*, 383 U.S. at 17.

“For objective evidence of secondary considerations to be accorded substantial weight, its proponent must establish a nexus between the evidence and the merits of the claimed invention.” *ClassCo, Inc. v. Apple, Inc.*, 838 F.3d 1214, 1220 (Fed. Cir. 2016). “A nexus may not exist where, for example, the merits of the claimed invention were readily available in the prior art.” *Id.*; *see also In re Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011) (“Where the offered secondary consideration actually results from something other than what is both claimed and *novel* in the claim, there is no nexus to the merits of the claimed invention.”). Ultimately, “[t]he patentee bears the burden of showing that a nexus exists.” *WMS Gaming, Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1359 (Fed. Cir. 1999).

Patent Owner argues that the Ty system is commensurate with the scope of the ’655 patent claims and, therefore, a nexus is presumed. PO Resp. 53. Patent Owner avers that the introduction of Patent Owner’s commercial system, the Ty system, solved a long-felt but unresolved need, and received significant industry praise. *Id.* at 51–57. We address each of Patent Owner’s arguments in turn.

Presumption of Nexus

“[A] patentee is entitled to a rebuttable presumption of nexus between the asserted evidence of secondary considerations and a patent claim if the patentee shows that the asserted evidence is tied to a specific product and that the product *is* the invention disclosed and claimed.” *FOX Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019) (citing *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392 (Fed. Cir. 1988))

(internal quotations omitted). “That is, presuming nexus is appropriate when the patentee shows that the asserted objective evidence is tied to a specific product and that product embodies the claimed features, and is coextensive with them.” *Id.* (citing *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1072 (Fed. Cir. 2018)) (internal quotations omitted).

Patent Owner argues that the “Ty product embodies at least claims 1–22 of the ’655 Patent, thereby establishing a presumption of nexus should apply here.” PO Resp. 53 (citing Ex. 2006 ¶¶ 163–165). According to Patent Owner, the Ty system is “a physical embodiment of the claimed inventions.” *Id.* In its Response and Sur-reply, Patent Owner does not identify how the Ty system maps to the claim limitations. *Id.* at 51–57; Sur-reply 22–23. Instead, Patent Owner mainly relies on Mr. Schor’s testimony (Ex. 2006 ¶¶ 163–165), which refers to a claim chart in Appendix C of his Declaration (*id.* at 86–174), and the Declaration of Mr. Hamish Orrick, a named inventor of the ’655 patent and Chief Executive Officer of Cellwitch, Inc. (Ex. 2007 ¶¶ 9–19). In its Sur-reply, Patent Owner argues that Mr. Orrick’s testimony (Ex. 2007 ¶¶ 9–19) is unrebutted. Sur-reply 22.

Patent Owner “bears the burden of showing that a nexus exists.” *WMS Gaming*, 184 F.3d at 1359. Based on the entirety of the trial record, we find Mr. Schor’s testimony, including his claim chart, and Mr. Orrick’s testimony, are conclusory and unsupported by the cited evidence.

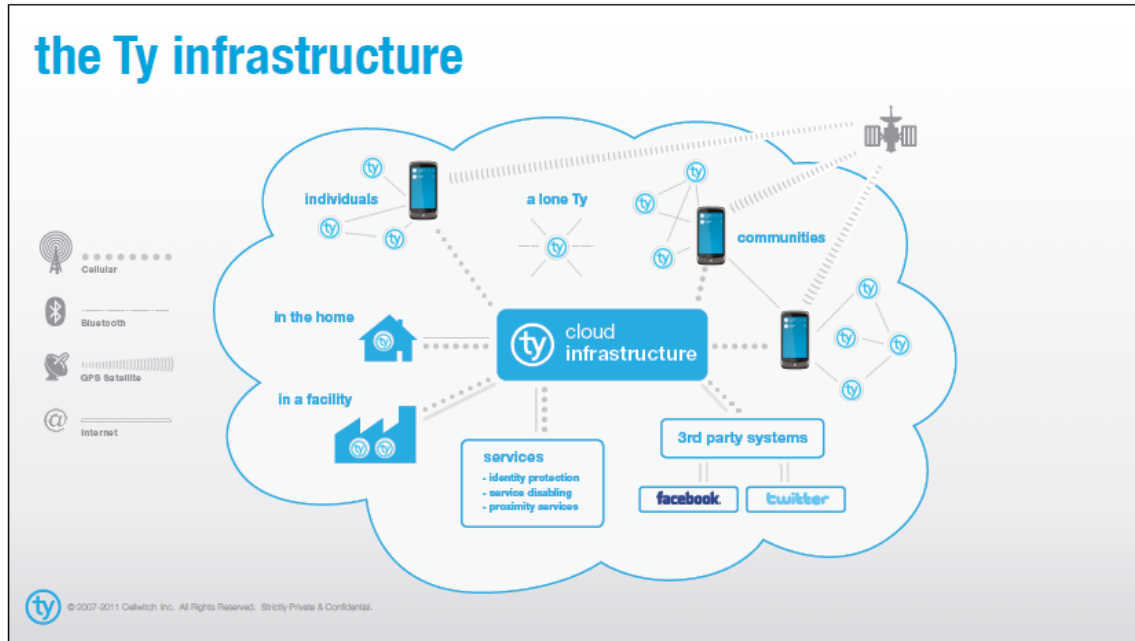
For the nexus issue, Mr. Schor testifies that “the Ty system is the invention disclosed and claimed in the ’655 Patent and is commensurate in scope with the ’655 Patent claims.” Ex. 2006 ¶ 164. Mr. Schor’s attached claim chart states that the Ty system embodies the “buddy” limitation

because “the Ty system includes a local user LAN and a social network feature that enables lost Tys to be returned to owners,” citing Exhibits 2010–2012 for support. *Id.* at 105–110.

Mr. Orrick testifies that “the Ty product is a physical embodiment of the inventions described in the ’655 Patent.” Ex. 2007 ¶ 12 (citing Ex. 1001, Figs. 4, 14). Mr. Orrick also testifies that “a Ty product can be shared with a buddy, enabling a second device (and second user) to track the same item.” *Id.* ¶ 13. Citing to Exhibits 2010 and 2014, Mr. Orrick further testifies that the cloud infrastructure enabled communication between users (networked loss prevention) and the Ty product include a Social Network “to enable lost Tys to be returned to owners.” *Id.* ¶¶ 15–17.

The description of a local user LAN, cloud infrastructure, and social network, as shown in Exhibits 2010–2012 and 2014, describes a system only at a high level. More significantly, those Exhibits do not describe a “buddy” terminal that monitors someone else’s patch and generates an alert when that the proximity threshold for that patch is met or exceeded, as required by the “buddy” limitation. *Id.*

For example, Exhibits 2010 and 2011 contain the same Ty infrastructure Figure relied upon by Mr. Schor (Ex. 2006, 107) and Mr. Orrick (Ex. 2007 ¶ 19). That infrastructure Figure is reproduced below.



The Figure above shows that the Ty infrastructure includes a Ty cloud infrastructure, a network of mobile devices that enables communication between the devices and Ty centrally. Ex. 2010, 4; Ex. 2011, 9. However, as shown, none of the mobile devices is monitoring a patch that is associated with someone else's mobile device, much less generating an alert when someone else's patch meets or exceeds a proximity threshold.

Therefore, both Mr. Schor's testimony (Ex. 2006 ¶¶ 163–165, App'x C 86–174) and Mr. Orrick's testimony (Ex. 2007 ¶¶ 9–19) are not supported by the cited Ty cloud infrastructure, shown in Exhibits 2010 and 2011.

As another example, Mr. Schor relies upon the following portion of Exhibit 2012 (Ex. 2006, 105):

Ty is a system combining a small Bluetooth wireless transmitter and smartphone app which pass proximity data between each other to identify if either the item the transmitter is attached to,

or the smartphone is lost. The system also includes a supporting cloud infrastructure to enable communication between users (networked loss prevention) and to Ty centrally.

The second sentence above describes a cloud infrastructure that enables communication between users and to Ty centrally at a high level. Ex. 2012, 1. Mr. Schor relies on the second sentence to show that the Ty system embodies the “buddy” limitation. Ex. 2006, 105; Ex. 1009, 125:19–127:21. But, that sentence, without more, is insufficient. It does not describe a “buddy” terminal monitoring someone else’s patch, nor does it describe generating an alert when a proximity threshold for that patch is met or exceeded. Ex. 2012, 1.

Furthermore, it seems to describe a cloud infrastructure that is part of the Ty infrastructure shown in the Figure of Exhibits 2010 and 2011 (reproduced above). Ex. 2010, 4; Ex. 2011, 9. As discussed above, none of the mobile devices in the Ty infrastructure is monitoring a patch that is associated with someone else’s mobile device, or generating an alert when someone else’s patch meets or exceeds a proximity threshold. Ex. 2010, 4; Ex. 2011, 9. Therefore, Mr. Schor’s testimony is not supported by the cited disclosure in Exhibit 2012. For these reasons, Exhibit 2012 does not support Mr. Schor’s testimony.

As a third example, another portion of Exhibit 2010 relied upon by Mr. Schor and Mr. Orrick is reproduced below (Ex. 2006, 106; Ex. 2007 ¶¶ 16, 17).

Cloud Services Summary Specification
Ty Bluetooth Product

Summary

PHASE 1 - Social Network

Leveraging the SOS capabilities of the Ty LAN by providing the infrastructure, communications and reporting to create the macro overlay to the Ty network of users.

1. Local User LAN - Report metrics from user's LAN to central server and store in database (App-->Server)
2. Reporting System - Query databases for analysis, reporting user & system metrics (Server Query)
3. Social Network - system to enable lost Tys to be returned to owners:
 - a. anonymously communicate ID, location and time of lost ty to server, initiate immediate notification to Ty owner of location and time
 - b. enable real-time communications between users to facilitate retrieval and return of lost item
 - c. users opt in/out
4. Network Sharing - provide system metrics to user App (Server-->App) and to Web

The portion of the Exhibit 2010 depicted above describes a Summary of PHASE 1 of the Social Network. The Summary in Exhibit 2010 above describes at a high level a Social Network that “enable[s] lost Tys to be returned to owners.” Again, the Summary does not describe a “buddy” device monitoring someone else’s patch and generating an alert to the “buddy” device when the proximity of that patch from the “buddy” device meets or exceeds a threshold, as required by the “buddy” limitation. Ex. 2010, 1.

In addition, Patent Owner’s counsel during oral hearing conceded that Exhibit 2010 discusses the social networking features that are claimed in claim 23 (which does not recite the “buddy” limitation and is anticipated by Ritter), and that he does “not see a specific disclosure of the monitoring aspect of the buddy limitation in Exhibit 2010.” Tr. 47:16–17, 48:12–15.

Mr. Schor also admitted that the “buddy” limitation is distinguished “from the social network of other users who, when an item is lost and it comes within range, it’s simply alerting that it’s now been found.” Ex. 1009, 123:8–25. Therefore, Mr. Schor and Mr. Orrick’s reliance on Exhibit 2010 to show that the Ty system embodies the “buddy” limitation is not supported.

We have reviewed all of the evidence relied upon by Mr. Schor and Mr. Orrick, including Exhibits 2010–2014, in their entirety. Patent Owner has not established, nor is it apparent, where any of these Exhibits describes the claimed “buddy” terminal.

In addition, neither Mr. Schor nor Mr. Orrick explains sufficiently in their testimony how the cited Exhibits show the Ty system embodying the “buddy” limitation. Ex. 2006 ¶¶ 163–165, App’x C, 105–110; Ex. 2007 ¶¶ 9–19. During cross-examination, Mr. Schor admitted that he did not test the Ty system, and that he did not know the version or release date of the Ty system. Ex. 1009, 58:15–16, 230:23–231:5. Mr. Schor also conceded that those Exhibits “are broad . . . marketing materials” and they are “not engineering design specifications” and do not contain “the buddy description.” *Id.* at 124:7–125:11. Mr. Schor further admitted that he “interpret[s] it as you’re enabling communication between users” and “[t]hat includes the buddy feature described in the patent.” *Id.* at 125:19–127:21 (citing Ex. 2012, 1). Mr. Schor does not explain sufficiently how a system that merely enables communication between users embodies the “buddy” limitation that requires a terminal to monitor its own patch and someone else’s patch and generate an alert when a proximity threshold for either

patch is met or exceeded. *Id.*; Ex. 2006 ¶¶ 163–165, App’x C, 105–110. In light of the foregoing, we find Mr. Schor’s testimony including his claim chart (Ex. 2006, ¶¶ 163–165, App’x C, 105–110) conclusory, and not supported by sufficient factual evidence or explanations. We give little, if any, weight to Mr. Schor’s testimony regarding nexus. *See* 37 C.F.R. § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”); *see also Rohm and Haas Co. v. Brotech Corp.*, 127 F.3d 1089, 1092 (Fed. Cir. 1997) (nothing requires a fact finder to credit the inadequately explained testimony of an expert). In short, Mr. Schor’s testimony, including his claim charts, fails to establish that the Ty system embodies the “buddy” limitation.

We are also not persuaded by Patent Owner’s argument that Mr. Orrick’s testimony (Ex. 2007 ¶¶ 9–19) is unrebutted. Sur-reply 22. Mr. Orrick’s testimony is conclusory. As discussed above, none of Exhibits 2010, 2011, and 2014 relied upon by Mr. Orrick shows the Ty product embodies the “buddy” limitation. During the oral hearing, when we asked multiple times for evidentiary support that the Ty system embodies the “buddy” limitation, counsel for Patent Owner merely directed us to Paragraphs 7, 13, 16, and 17 of Mr. Orrick’s Declaration and the claim chart submitted by Mr. Schor. Tr. 32:16–33:8, 48:1–15.

However, as discussed above, Mr. Schor’s claim chart is conclusory, and not supported by sufficient factual evidence or explanations. Ex. 2006, 105–110. We also have reviewed Mr. Orrick’s Declaration in its entirety. We find only Paragraphs 7 and 13 of Mr. Orrick’s Declaration discuss a “buddy” device. Ex. 2007 ¶¶ 9–19. In Paragraph 7, Mr. Orrick merely

offers opinion regarding “the then-existing technological solutions,” not the Ty system. *Id.* ¶ 7.

In Paragraph 13, Mr. Orrick testifies that “a Ty product can be shared with a buddy, enabling a second device (and second user) to track the same item.” *Id.* ¶ 13. Such a high level statement, without more, is insufficient to establish that the Ty system embodies the “buddy” limitation. Notably, Mr. Orrick does not explain whether the second device has the capability of monitoring both its own item and someone else’s item and generating an alert when a proximity threshold for either item is met or exceeded, as required by the “buddy” limitation. Ex. 2007 ¶¶ 9–19. Nor does Mr. Orrick provide sufficient factual support to show that the Ty system encompasses a “buddy” terminal. *Id.* More significantly, Mr. Orrick’s testimony is inconsistent with the Ty infrastructure Figure (reproduced above) which shows none of the mobile devices is monitoring a patch that is associated with someone else’s mobile device or generating an alert when someone else’s patch meets or exceeds a proximity threshold. Ex. 2010, 4; Ex. 2011, 9. In short, Mr. Orrick’s testimony is conclusory, and not supported by sufficient factual evidence or explanations.

In Paragraphs 16 and 17, Mr. Orrick describes a cloud-based database, a cloud infrastructure, and a social network at a high level, citing Exhibit 2010 for support. Ex. 2007 ¶¶ 16, 17. Paragraphs 16 and 17 are silent as to a “buddy” terminal. *Id.* Mr. Orrick does not explain how the description of a cloud-based database, a cloud infrastructure, and a social network describe the claimed a “buddy” terminal. *Id.* As discussed above, Mr. Orrick’s testimony (Ex. 2007 ¶¶ 9–19) is not supported with the Ty infrastructure that

includes a Ty cloud infrastructure shown in the Figure of Exhibits 2010 and 2011 because the Ty infrastructure does not show any mobile device that is monitoring a patch that is associated with someone else's mobile device, or generating an alert when someone else's patch meets or exceeds a proximity threshold. Ex. 2010, 4; Ex. 2011, 9. Moreover, both Patent Owner's counsel during oral hearing and Mr. Schor during cross-examination admitted that the social network described in Exhibit 2010 does not describe the "buddy" limitation. Tr. 47:16–17, 48:12–15; Ex. 1009, 123:8–25.

In light of the foregoing, we find Mr. Orrick's testimony (Ex. 2007 ¶¶ 7, 9–19) conclusory and not supported by sufficient factual evidence or explanation. We give little, if any, weight to Mr. Orrick's testimony regarding nexus. *See In re American Academy of Science Tech Center*, 367 F.3d 1359, 1368 (Fed. Cir. 2004) ("[T]he Board is entitled to weigh the declarations and conclude that the lack of factual corroboration warrants discounting the opinions expressed in the declarations."); *see also In re Cree, Inc.*, 818 F.3d 694, 703–04 (Fed. Cir. 2016) (agreeing with the Board that a declaration that merely repeats, in conclusory fashion, that the success of the product is due to the claimed invention is insufficient to establish a nexus). As such, Mr. Orrick's testimony fails to establish that the Ty system embodies the "buddy" limitation.

In short, Patent Owner does not demonstrate sufficiently that the Ty product or system is the invention disclosed and claimed in claims 1 and 12 of the '655 patent. Accordingly, we determine that Patent Owner is not entitled to a rebuttable presumption of nexus between the asserted evidence of secondary considerations and claims 1 and 12 of the '655 patent.

We are mindful that “[a] finding that a presumption of nexus is inappropriate does not end the inquiry into secondary considerations” because “the patent owner is still afforded an opportunity to prove nexus by showing that the evidence of secondary considerations is the ‘direct result of the unique characteristics of the claimed invention.’” *FOX Factory*, 944 F.3d at 1373–74 (quoting *In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996)). We next address whether Patent Owner’s evidence of secondary considerations is the direct result of the unique characteristics of the claimed invention.

Long-felt but unsolved need

The relevance of long-felt need to the issue of obviousness depends on several factors. First, the need must have been a persistent one that was recognized by those of ordinary skill in the art. *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1383 (Fed. Cir. 1983). Second, the long-felt need must not have been satisfied by another before the invention by the patent owner. *Newell Cos. v. Kenney Mfg. Co.*, 864 F.2d 757, 768 (Fed. Cir. 1988). Third, the invention must in fact satisfy the long-felt need. *In re Cavanagh*, 436 F.2d 491, 496 (CCPA 1971). Moreover, an allegation of failure of others is not sufficient evidence of nonobviousness, unless it is shown that widespread efforts of skilled workers having knowledge of the prior art had failed to find a solution to the problem. *In re Allen*, 324 F.2d 993, 997 (CCPA 1963).

Here, Patent Owner contends that “there was a pressing need to prevent loss, more efficiently identify the moment an object was lost, notify

the owner of said object, and enable return of the found object to the owner.” PO Resp. 54 (citing Ex. 1001, 1:19–21 (“Existing approaches typically address[ed] the tracking and locating of already lost objects but [did] not address the moment of loss itself.”)). According to Patent Owner, “none of the prior solutions enabled the benefits of using the network effects of other users to notify of loss and recover such property.” *Id.* at 55 (citing Ex. 2007 ¶¶ 2–9; Ex. 2006 ¶ 166).

However, the purported long-felt need was solved by others before the ’655 patent’s earliest priority date, January 22, 2008. As the Federal Circuit has held, “once another supplied the key element, there was no long-felt need or, indeed, a problem to be solved.” *Newell*, 864 F.2d at 768. Notably, as discussed above (Section II.E.2), Ritter discloses a mobile device that monitors a tag and generates an alert when the proximity of the tag from the mobile device meets or exceeds a threshold to alert the user of the mobile device. Ex. 1006 ¶¶ 12, 13, 18, 27, 28, 35, 36, 35, 61, 67, Fig. 2. As Petitioner explains, Ritter discloses that “when the mobile device polls RFID tags, if it does not receive an answer from an associated tag, the object is considered lost or outside the reach of the mobile device’s RFID reader 2 and the mobile device outputs an alarm through ‘a visual signal or through a sound signal’ indicating that tag 10 and associated object 1 are lost.” Pet. 24 (citing Ex. 1006 ¶ 61). Mr. Schor “agrees that Ritter performs the generating an alert limitation in the same way described in the challenged patent—by treating an item as ‘lost’ (meeting or exceeding a proximity threshold) and generating an alert on the mobile device if the patch fails to respond to continuous or periodic messaging (polling) from the mobile

device.” Reply 1 (*comparing* Ex. 1001, 6:49–7:5, 7:54–61, 10:16–17, *with* Ex. 1006 ¶¶ 36, 61, claim 6; citing Ex. 1009, 163:25–166:25 (agreeing polling in challenged patent and Ritter is the same and that patch is considered lost if monitoring device cannot communicate or gets no response from patch)). Therefore, the purported long-felt need was solved by Ritter long before the ’655 patent’s earliest priority date.

In addition, as discussed above (Section II.F.1.b), Duncan also discloses a mobile device that monitors a target and generates an alert when the proximity of the target from the mobile device meets or exceeds a threshold to alert the user of the mobile device, allowing a father to monitor the location and position of his children using a mobile device. Ex. 1007 ¶¶ 5–7, 15, 21, Fig. 1. Therefore, the purported long-felt need also was solved by Duncan long before the ’655 patent’s earliest priority date.

In view of the foregoing, we find that the named inventors of the ’655 patent are not the first to meet the purported long-felt need. Accordingly, the objective evidence proffered by Patent Owner, including the testimonial evidence of Mr. Schor and Mr. Orrick, regarding long-felt but unsolved needs, is accorded little weight.

Industry praise

Patent Owner argues that “when Cellwitch announced the Ty product at CES [Consumer Electronics Show] in 2011, it received praise for the ‘buddy’ feature,” and “an InfoWorld article specifically praised Cellwitch’s Ty product in an article entitled ‘7 wacky products you missed at CES 2011,’” relying on Mr. Schor’s testimony (Ex. 2006 ¶ 170), Mr. Orrick’s

testimony (Ex. 2007 ¶¶ 20–23), and Exhibits 2002, 2003, 2009, and 2016, for support. PO Resp. 55–56. In its Sur-reply, Patent Owner argues that Mr. Orrick’s testimony is un rebutted. Sur-reply 23.

We are not persuaded by Patent Owner’s arguments. The testimonial evidence of Mr. Schor (Ex. 2006 ¶ 170) and Mr. Orrick (Ex. 2007 ¶¶ 20–23) is conclusory, and not supported by sufficient factual evidence or explanations.

Upon review of the entire record, we find none of Exhibit 2002 (marketing web page), Exhibit 2003 (InfoWorld article), Exhibit 2009 (the press release), and Exhibit 2016 (a list of CES 2011 judges) discloses or describes the claimed “buddy” terminal. For example, Exhibit 2002 contains only one generic sentence concerning an award—namely “We introduced at CES 2011, and won a design and innovation award.” Ex. 2002, 3. Exhibit 2016 contains nothing about the Ty product.

Exhibits 2003 and 2009 contain a description of the Ty product at a high level and describe a feature that allows other users to find a lost item, similar to the social network feature described in Exhibit 2010. As discussed above, during oral hearing Patent Owner’s counsel conceded that Exhibit 2010 discusses the social networking features that are claimed in claim 23 (which does not recite the “buddy” limitation and is anticipated by Ritter), and that he does “not see a specific disclosure of the monitoring aspect of the buddy limitation in Exhibit 2010.” Tr. 47:16–17, 48:12–15. Mr. Schor also admitted that the “buddy” limitation is distinguished “from the social network of other users who, when an item is lost and it comes within range, it’s simply alerting that it’s now been found.” Ex. 1009,

123:8–25. Furthermore, the Ty infrastructure depicted in Exhibit 2010 shows none of the mobile devices is monitoring a patch that is associated with someone else’s mobile device, or generating an alert when someone else’s patch meets or exceeds a proximity threshold. Ex. 2010, 4.

In addition, Mr. Schor testifies that “[t]his praise, relating directly the claimed ‘buddy’ feature evidences the non-obviousness of the ’655 Patent claims at the time,” relying on an excerpt from Exhibit 2003. Ex. 2006 ¶¶ 171, 172. However, during his cross-examination, Mr. Schor admitted that he does not “see any language in the excerpt from the article that directly say, you know, buddies or - - or similar language that would imply buddies.” Ex. 1009, 232:21–234:2. Mr. Schor also agreed that “this excerpt from the InfoWorld article isn’t related to the buddy feature” and that he did not “identify any actual praise about specifically the buddy feature” in his testimony. *Id.* at 233:3–18.

Therefore, we find Mr. Schor’s testimony regarding industry praise of the Ty product conclusory. Ex. 2006 ¶¶ 170–172. Consequently, we give little, if any, weight to Mr. Schor’s testimony on this point. *See* 37 C.F.R. § 42.65(a).

Mr. Orrick testifies that “the industry press observed the innovations that the Ty product achieved, enabling mobile phones to track the loss of personal items,” relying on Exhibits 2002, 2003, and 2009 for support. Ex. 2007 ¶¶ 20–23. As discussed above, those Exhibits do not describe a “buddy” feature. Tellingly, Mr. Orrick’s testimony is also silent as to the “buddy” feature. *Id.*

In any event, “[a] nexus may not exist where, for example, the merits of the claimed invention were ‘readily available in the prior art.’” *ClassCo*, 838 F.3d at 1220. “[T]he identified objective indicia must be directed to what was not known in the prior art.” *Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1333 (Fed. Cir. 2019). As discussed above (Section II.E), features that enable mobile devices to track the loss of personal items and allow other users to find a lost item are recited in claim 23, which is anticipated by Ritter. Therefore, Patent Owner fails to establish a nexus between the objective evidence and the merits of the claimed invention.

In the absence of an established nexus with the claimed invention, objective evidence is entitled little weight, and generally has no bearing on the legal issue of obviousness. *See In re Vamco Machine & Tool, Inc.*, 752 F.2d 1564, 1577 (Fed. Cir. 1985). Accordingly, Patent Owner’s objective evidence concerning industry praise is accorded little weight.

Conclusion on objective evidence of nonobviousness

We have weighed Patent Owner’s objective evidence of nonobviousness against the evidence of obviousness in the entire record. We conclude that, on balance, the strong evidence of obviousness outweighs the weak evidence of nonobviousness. *See Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007) (holding that the objective considerations of nonobviousness presented, including substantial evidence of commercial success, praise, and long-felt need, were inadequate to overcome a strong showing of primary considerations that rendered the claims at issue invalid); *see also Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348,

1372 (Fed. Cir. 2007) (The Federal Circuit held “that even if Pfizer showed . . . unexpectedly superior results, this secondary consideration does not overcome the strong showing of obviousness in this case. Although secondary considerations must be taken into account, they do not necessarily control the obviousness conclusion.”).

e. Conclusion on Claims 1 and 12

In view of the foregoing, we conclude that Petitioner has established by a preponderance of the evidence that claims 1 and 12 are unpatentable under § 103 as obvious over Ritter in combination with Duncan.

2. Claims 3 and 15

Claim 3 depends on claim 1 and recites “a base station that receives data relating to the plurality of wireless devices and forwards the data to the processing system.” Ex. 1001, 15:38–40. Claim 15 depends on claim 12 and recites a similar limitation. *Id.* at 16:45–48. As discussed above, we adopted Patent Owner’s proposed claim construction, which interprets “base station” as a “wireless transceiver at a fixed location.”

Petitioner relies on Ritter to disclose the claimed “base station.” Pet. 33–35, 42. Petitioner explains that “Ritter describes a mobile device (9) that performs the operations required for the claim’s base station: mobile devices (9) receive data relating to the plurality of wireless devices (tags in Ritter) and forward the data to the processing system.” *Id.* at 34 (citing Ex. 1006 ¶¶ 61, 64, 66, 71). Petitioner also argues that, if Patent Owner’s claim construction for a “base station” (such as a relay component in a cellular system) are adopted, “such base stations are inherently disclosed in

Ritter because Ritter describes mobile networks that include, for example, GSM that relied on base stations to relay communications from mobile devices.” *Id.* at 35 n.3 (citing Ex. 1006 ¶ 27; Ex. 1003, 44).

Patent Owner counters that Ritter does not teach the claimed “base station” because the term “base station” means “wireless transceiver at a fixed location.” PO Resp. 10–13; 45–47; Sur-reply 20–22. Patent Owner also argues that “it is the claimed functions attributed to the base station in the ’655 Patent that distinguish the art.” PO Resp. 10–11 n. 5.

Even applying Patent Owner’s construction for a “base station,” we determine that Petitioner has demonstrated sufficiently that the combination of Ritter and Duncan teaches the claimed “based station.” We do not find Patent Owner’s argument undermines Petitioner’s showing.

We agree with Petitioner that “base stations are inherently disclosed in Ritter because Ritter describes mobile networks that include, for example, GSM that relied on base stations to relay communications from mobile devices.” Pet. 35 n.3 (citing Ex. 1006 ¶ 27; Ex. 1003, 44). As the Federal Circuit has held, “inherency may supply a missing claim limitation in an obviousness analysis.” *PAR Pharm., Inc. v. TWI Pharm., Inc.*, 773 F.3d 1186, 1194–95 (Fed. Cir. 2014). And “inherency renders a claimed limitation obvious only if the limitation is ‘necessarily present,’ or is ‘the natural result of the combination of elements explicitly disclosed by the prior art.’” *Persion Pharm. LLC v. Alvogen Malta Operations Ltd.*, 945 F.3d 1184, 1191 (Fed. Cir. 2019) (quoting *PAR*, 773 F.3d at 1195–96).

Here, there is no dispute that GSM networks inherently included base stations, which were wireless transceivers at fixed locations. Pet. 35 n.3; PO

Resp. 45–47; Sur-reply 20–22. Indeed, Mr. Schmandt testifies that GSM mobile networks were known to include base stations, which were fixed receivers, because base stations were an essential component of any mobile telephone system for converting radio signals from the mobile phone into electrical or optical signals to transmit to the global telephone network.

Ex. 1003, 44. Also Mr. Schor admitted that a “base station must communicate with a mobile device and act as a relay to the rest of the network,” and that “in a wireless communication system, . . . the mobile phones are communicating back to the base station . . . [which] is playing an important role in moving data from the phone back to your central server.” Ex. 1009, 196:6–21, 207:20–208:10. Both Mr. Schmandt’s testimony and Mr. Schor’s testimony are consistent with other technical publications submitted by Patent Owner. *See, e.g.*, Ex. 2018, 1 (“A base station . . . is part of a wireless communications network . . . [and] connects to any cell phones in its area and relays the calls to the wired network.”). Therefore, Petitioner has shown that base stations are necessarily present in Ritter’s mobile network 4. *See Persion*, 945 F.3d at 1191; *PAR*, 773 F.3d at 1194–96.

In addition, these base stations inherently perform the claimed function—namely, receiving data relating to the plurality of wireless devices and forwarding the data to the processing system (e.g., database 6 alone or with an associated server). Pet. 34 (citing Ex. 1006 ¶¶ 61, 64, 66, 71 Fig. 2; Ex. 1003, 44–46). Indeed, Ritter’s third-party mobile devices 9 poll nearby tags (wireless devices) to determine whether a tag is lost and “record in the database 6 respectively on the PML page 7 that the lost object has been

found,” by sending this information over mobile radio network 4. Ex. 1006 ¶¶ 27, 61, 64, 66, 71, Fig. 1. In view of the evidence before us, we are persuaded that a person of ordinary skill in the art would have understood that Ritter discloses a mobile network that includes base stations, which are “playing an important role in moving data from the phone back to your central server,” including receiving data from third-party mobile devices 9 relating to the lost tags and forwarding the data to the processing system, which includes database 6 (Ex. 1009, 196:6–21, 207:20–208:10; Ex. 1003, 44; Ex. 2018, 1). *See Randall Mfg. v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013) (noting that when considering whether a claimed invention would have been obvious, “the knowledge of such an artisan [that] is part of the store of public knowledge [] must be consulted”).

For the foregoing reasons, we determine that Petitioner has shown sufficiently that Ritter teaches or suggests the claimed “base station.”

In addition, Patent Owner relies upon the same arguments and evidence of secondary considerations of nonobviousness presented in connection with claims 1 and 12. PO Resp. 51–57. For the same reasons discussed above (Section II.F.1.d), we determine that Patent Owner’s objective evidence is accorded little weight here. We conclude that, on balance, the strong evidence of obviousness based on the combination of Ritter and Duncan outweighs the weak evidence of nonobviousness. *See Leapfrog*, 485 F.3d at 1162; *Pfizer*, 480 F.3d at 1372.

In view of the foregoing, we conclude that Petitioner has established by a preponderance of the evidence that claims 3 and 15 are unpatentable under § 103 as obvious over Ritter and Duncan.

3. Claims 4 and 16

Claim 4 depends from claim 1, and claim 16 depends from claim 12.

Each of claims 4 and 16 recites:

wherein the collected data comprises data relating to *at least one of the following*: [1] time of day the wireless device exceeds the proximity threshold, [2] location at which the wireless device exceeds the proximity threshold, and [3] the frequency at which the wireless device exceeds the proximity threshold.

Ex. 1001, 15:41–46, 16:49–54 (emphasis and bracketed matter added).

We begin our analysis with a few observations about the claims’ requirements. First, the claim language makes clear that “the collected data” need only include one of the three options listed: (1) time of day, (2) location, or (3) frequency. Second, on this record, there is no dispute that “the collected data” refers to the “data” introduced in the respective independent claims, which the database of claim 1 (for claim 4) and the processing system of claim 12 (for claim 16) “collects and stores.” *See* PO Resp. 47; Reply 14–16; *see also* Ex. 2015, 44:3–6; Ex. 2006 ¶ 157. Third, Petitioner contends that the claimed “processing system” (recited in independent claims 1 and 12) is taught by Ritter’s database 6 alone or in combination with server 7, and the claimed “database” (recited only in claim 1) is taught by Ritter’s database 6. *See* Pet. 25–26, 40–41. Thus, to remain consistent with Petitioner’s mapping of the independent claims, Petitioner must sufficiently show that “the collected data” recited in claims 4 and 16 is collected and stored by Ritter’s database 6.

Petitioner contends that Ritter discloses the additionally recited limitations of claims 4 and 16. Pet. 35–38, 42. In support, Petitioner argues

that Ritter discloses that the collected data includes time of day (the first option) (*id.* at 35–37) and, alternatively, that the collected data includes location (the second option) (*id.* at 37–38). Patent Owner disputes each of these alternatives, largely focusing on an assertion that Ritter fails to teach that any of this data is collected *and stored* by Ritter’s database. PO Resp. 47–49.

For the reasons explained below, we are not persuaded that Ritter discloses collecting and storing the time of day in database 6, and we are not persuaded that Ritter discloses collecting and storing the location in database 6. Accordingly, we are not persuaded that claims 4 and 16 are unpatentable.

a. Time of Day

Petitioner contends that Ritter discloses collecting data relating to the time of day at which the tag exceeds the RFID communication reach of the mobile device. Pet. 35–37. First, Petitioner points to Ritter’s disclosure that a mobile device can notify the system that a tag is lost. *Id.* at 36 (citing Ex. 1006 ¶¶ 61, 64). According to Petitioner, an ordinary artisan “would have known that the notification of loss communicated to Ritter’s processing system includes a timestamp that indicates the time the tag exceeded the RFID communication reach of the mobile device” because the wireless mobile networks identified by Ritter “require that messages . . . include a timestamp indicating when the transmission takes place.” *Id.* at 36–37 (citing Ex. 1006 ¶ 27; Ex. 1003, 47).

Second, Petitioner points to Ritter’s disclosure that a mobile device can “periodically write[] time stamps into the tag.” Pet. 37 (citing Ex. 1006

¶¶ 61–62). Petitioner asserts that, “when a mobile device recognizes that a tag is lost based on the age of the last time mark in the tag made by the owner’s mobile device (i.e., the last time stamp before it was lost), the mobile device will send this notification of loss, with a timestamp, to the processing system.” *Id.* (citing Ex. 1006 ¶¶ 62, 64; Ex. 1003, 46–47).

We are not persuaded. Regarding Petitioner’s first contention, even if we were to agree with Petitioner’s arguments (*see* Pet. 35–37), we would still find that Ritter fails to disclose the claim limitation because Petitioner fails to show that Ritter’s database 6 (or server 7) receives this timestamp. Ritter states that mobile device 3 transmits to mobile radio network 4 (Ex. 1006 ¶ 27, Fig. 2), and Petitioner asserts that the timestamp would be required for such a message by virtue of the mobile radio network protocols (Pet. 36–37). But Petitioner fails to show that this information is then relayed from mobile radio network 4 to server 7 and database 6. *See* Ex. 1006, Fig. 2 (illustrating configuration). Petitioner also identifies no disclosure in Ritter stating that database 6 and server 7 receive similarly formatted messages, and moreover, Petitioner fails to show that Ritter’s database stores such a timestamp.

Regarding Petitioner’s second contention, we disagree with Petitioner’s assertion that “when a mobile device recognizes that a tag is lost based on the age of the last time mark in the tag made by the owner’s mobile device (i.e., the last time stamp before it was lost), the mobile device will send this notification of loss, *with a timestamp*, to the processing system.” Pet. 37 (emphasis added) (citing Ex. 1006 ¶¶ 62, 64; Ex. 1003, 46–47). In paragraph 62, Ritter states that a mobile device can periodically write

information to a tag (e.g., time and location) when connecting with the tag. Ex. 1006 ¶ 62. This way, if a third party finds the tag, it can determine how long the tag has been away from its owner “on the basis of the age of the time mark.” *Id.* Ritter also discloses that a third party can notify database 6 if it finds a lost tag and states that the third party can determine whether a tag is lost by accessing that database. *Id.* ¶ 64. However, Ritter simply *does not* disclose that the third-party sends a tag’s time information to database 6. Mr. Schmandt does not testify that such a disclosure is present in Ritter. *See* Ex. 1003, 46–48.

Accordingly, we determine that Petitioner has not shown that Ritter discloses that the collected data comprises a “time of day the wireless device exceeds the proximity threshold,” as recited in claims 4 and 16.

b. Location

Petitioner contends that Ritter discloses collecting data relating to the location at which the tag exceeds the RFID communication reach of the mobile device. Pet. 37–38. According to Petitioner, “Ritter explains that, in addition to the time mark recorded in the tag, the location is ‘recorded in order to determine where the owner connected himself for the last time with the object.’” *Id.* (citing Ex. 1006 ¶ 62). Petitioner contends that Ritter’s “processing system (e.g., the database 6 and associated server) collects this time and location data.” *Id.* at 38 (citing Ex. 1006 ¶ 61). Petitioner further notes that Ritter’s system can broadcast a loss to mobile devices “in a limited geographical area around the place of loss.” *Id.* (quoting Ex. 1006 ¶ 64; citing Ex. 1006 ¶ 62). Relying on Mr. Schmandt’s testimony,

Petitioner asserts: “In other words, the processing system collects from a mobile device the location at which the tag exceeded the RFID communication reach of its associated mobile device, and then uses that location information to broadcast a notification of the loss only to mobile devices near that location.” *Id.* (citing Ex. 1003, 48–49).

Patent Owner argues that “Ritter lacks any teachings that . . . ‘location at which the tag exceeds the reach’ is ever sent to Ritter’s database or server.” Prelim. Resp. 47–48 (citing Ex. 2006 ¶¶ 155–157). According to Patent Owner, Ritter discloses storing time of day and location on the tag itself, but “does not teach that such information is ever communicated to Ritter’s server, much less stored at the server or collected and stored at Ritter’s database.” *Id.* at 49 (citing Ex. 1006 ¶¶ 61, 64).

In its Reply, Petitioner asserts that “Ritter’s processing system (server 7 alone or with database 6)”³ collects the location from mobile device and uses that information to broadcast a notification of loss in the geographic area around the loss. Reply 15 (citing Ex. 1006 ¶¶ 61, 62, 64; Ex. 1003, 48–49). According to Petitioner, “The server in which database 6 is hosted must store the location the tag was lost (i.e., where it exceeded the RFID of its

³ Petitioner’s Reply contends that Ritter’s *server 7* (alone or with database 6), rather than *database 6* (alone or in combination with server 7), teaches the claimed “processing system.” Reply 15. To the degree this is intentional (and not a typographical error), we will not consider this new and untimely argument. In the Petition, Petitioner argued that Ritter’s *database 6* (alone or in combination with server 7) teaches the claimed “processing system.” Pet. 25–26.

associated mobile device) to broadcast the notification ‘in a limited geographical area’ around that location.” *Id.* (citing Ex. 1003, 48–49).

In its Sur-reply, Patent Owner argues that “Petitioner fails to cite any support for its argument that the server ‘must store the location the tag was lost,’” asserting that “Mr. Schmandt does not opine that the server must store the location the tag was lost.” Sur-reply 13 (citing Reply 15; Ex. 1003, 48–49). Patent Owner also argues that Petitioner’s argument erroneously focuses on what allegedly must be stored by the *server* as opposed to what must be stored by the *database*, as required for consistency with the Petition’s contentions. *Id.* at 13–14 (citing Pet. 26, 40–41; Dec. 19).

Based on the evidence of record, we are not persuaded that Ritter discloses, expressly or inherently, that database 6 stores data relating to the location at which the tag exceeds the proximity threshold. To be sure, Ritter discloses that *some portion* of its system receives location information associated with a lost tag and then sends a broadcast message “in the geographical area where the tag is located.” Ex. 1006 ¶¶ 61, 64. On that point, Ritter states that this broadcast message “can be initiated by the mobile device . . . or by a central server, for example the server in which the database 6 is hosted.” *Id.* ¶ 64. But even if this discloses that *Ritter’s server* receives the location information, it does not disclose that *Ritter’s database 6* also receives the location information. Moreover, nothing in these passages discloses that Ritter’s database 6 *stores* the location information, as the claim also requires.

In paragraphs 61 and 64, Ritter also provide another way that users can be informed of a tag’s loss: “an indication of the loss” can be recorded

in database 6. Ex. 1006 ¶¶ 61, 64. As Ritter explains, “Mobile users that find the object can read the tag identification with their mobile device, access the database 6 respectively the PML page 7, find out that the object is considered lost and get into contact with the owner.” *Id.* ¶ 61. But Ritter *does not say* that the location information is also stored in database 6.⁴

In support of its assertion that “[t]he server in which database 6 is hosted must store the location the tag was lost,” Petitioner cites to testimony from Mr. Schmandt. Reply 15 (citing Ex. 1003, 48–49). But Mr. Schmandt’s testimony does not support Petitioner’s assertion. Mr. Schmandt testifies that Ritter’s “processing system” “collects” location information (Ex. 1003, 48–49), and as explained above, we agree. However,

⁴ Ritter identifies two separate ways to notify other users of a loss: with a broadcast message, and/or with a loss indication in database 6. Specifically, Ritter says, “It is also possible that other mobile users are informed automatically or after confirmation of the owner about the loss, for example [1] *by a message being sent in broadcast mode* at least in the geographical area where the tag is located and/or [2] *by the database 6* respectively the PML page in the server 7 that corresponds to the tag identification *being complemented with an indication of the loss.*” Ex. 1006 ¶ 61 (reference numerals and emphasis added); *see id.* ¶ 64 (server may send broadcast message). The dissent states that “one of ordinary skill in the art would have understood that Ritter’s database collects and stores the location . . . in order for the server . . . to broadcast the notification.” We disagree. The dissent does not explain *why* database 6 would need to collect and store this information “in order” for the server to send the broadcast message. Moreover, none of the evidence cited by the dissent indicates that an ordinary artisan would have understood Ritter to disclose that database 6 stores location information.

Mr. Schmandt does not address Ritter’s database 6 or whether the location information is stored therein:

Ritter also discloses that its *processing system collects* from a mobile device the location at which the tag exceeded the RFID communication reach of its associated mobile device, and then uses that location information to broadcast a notification of the loss only to mobile devices near that location.

* * *

Thus, Ritter discloses this limitation because it discloses that the data *collected by the processing system* may include “at least one of” the items of data listed in this claim: the time of day the wireless device exceeds the proximity threshold (e.g., the time it was reported lost by the owner or third party) and the location at which the wireless device exceeds the proximity threshold.

Ex. 1003, 48–49 (emphasis omitted and added) (citing Ex. 1006 ¶¶ 61, 62, 64).

Finally, we also do not agree with Petitioner’s contention that paragraph 62 of Ritter contains the missing disclosure. Ritter describes a “second embodiment” where the mobile device periodically writes information to a tag (e.g., time and location) when connecting with the tag. Ex. 1006 ¶ 62. Ritter simply does not indicate that this information is also stored in database 6. *See id.*

Accordingly, we determine that Petitioner has not shown that Ritter discloses that the collected data comprises a “location at which the wireless device exceeds the proximity threshold,” as recited in claims 4 and 16.⁵

c. Conclusion

Because Petitioner has not shown that Ritter discloses the aforementioned limitation recited in claims 4 and 16, we conclude that Petitioner has not established by a preponderance of the evidence that claims 4 and 16 are unpatentable under § 103 as obvious over Ritter and Duncan.

4. Remaining challenged claims

Petitioner provides detailed explanations as to how the combination of Ritter and Duncan teaches or suggests claims 2, 10–14, and 22 and articulates reasons to combine the prior art teachings, citing Mr. Schmandt’s testimony for support. Pet. 32–42. Patent Owner does not make any additional arguments regarding these remaining claims, except Patent Owner relies upon the same arguments and evidence of secondary considerations of nonobviousness presented in connection with claims 1 and 12. PO Resp.

⁵ Although the dissent states that “Ritter suggests” this claim limitation, Petitioner never made this argument. See Pet. 35–38, 42; Reply 14–16. Accordingly, we decline to consider whether this limitation is suggested by Ritter or would have been obvious in light of Ritter. See *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016) (“[T]he Board must base its decision on arguments that were advanced by a party, and to which the opposing party was given a chance to respond”); cf. *M & K Holdings, Inc. v. Samsung Elecs. Co., Ltd.*, 985 F.3d 1376, 1385 (Fed. Cir. 2021) (holding that the Board’s anticipation finding “deviated impermissibly” from the petition’s theory of obviousness based on reference).

51–57. For the same reasons discussed above (Section II.F.1.d), we determine that Patent Owner’s objective evidence is accorded little weight here. We conclude that, on balance, the strong evidence of obviousness based on the combination of Ritter and Duncan outweighs the weak evidence of nonobviousness. *See Leapfrog*, 485 F.3d at 1162; *Pfizer*, 480 F.3d at 1372. In view of the foregoing, we determine that Petitioner has established by a preponderance of the evidence that claims 2, 10–14, and 22 are unpatentable under § 103(a) as obvious over Ritter and Duncan.

5. Conclusion on Obviousness Over Ritter in Combination with Duncan

Based on the entire trial record, we determine that Petitioner has established by a preponderance of the evidence that claims 1–3, 10–15, and 22, but not claims 4 and 16, are unpatentable under § 103(a) as obvious over Ritter and Duncan.

G. Obviousness Over Ritter in Combination With Duncan and Hayes

For this ground, Petitioner asserts that claims 5–9 and 17–21 are unpatentable under § 103(a) as obvious over Ritter, Duncan, and Hayes. Pet. 43–57. Claims 5–9 depend from claim 4, and claims 17–21 depend from claim 16. Thus, each of claims 5–9 includes the elements of claim 4, and each of claims 17–21 includes the elements of claim 16.

As discussed above, we determined that Petitioner has not established by a preponderance of the evidence that claims 4 and 16 are unpatentable under § 103 as obvious over Ritter and Duncan. Petitioner does not argue that Hayes cures the deficiency discussed above with regard to claims 4 and 16. Therefore, we conclude that Petitioner has not established by a

preponderance of the evidence that claims 5–9 and 17–21 are unpatentable under § 103 as obvious over Ritter, Duncan, and Hayes.

III. CONCLUSION

For the foregoing reasons, we conclude that Petitioner has established by a preponderance of the evidence that claims 1–3, 10–15, 22, and 23 of the '655 patent are unpatentable. Petitioner has not, however, demonstrated by a preponderance of the evidence that claims 4–9 and 16–21 are unpatentable.

IV. ORDER⁶

For the foregoing reasons, it is

ORDERED that claims 1–3, 10–15, 22, and 23 of the '655 patent have been shown to be unpatentable; and

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

In summary:

⁶ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

Claim(s)	35 U.S.C. §	Reference(s)/ Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
23	102(b)	Ritter	23	
1–4, 10–16, 22	103(a)	Ritter, Duncan	1–3, 10–15, 22	4, 16
5–9, 17–21	103(a)	Ritter, Duncan, Hayes		5–9, 17–21
Overall Outcome			1–3, 10–15, 22, 23	4–9, 16–21

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TILE, INC.,
Petitioner,

v.

CELLWITCH INC.,
Patent Owner.

CHANG, *Administrative Patent Judge*, dissenting-in-part.

I respectfully dissent from the majority’s determination that Petitioner fails to establish by a preponderance of the evidence that claims 4–9 and 16–21 of the ’655 patent are unpatentable. I join the majority opinion in all other respects.

The purported deficiency found by the majority is that Petitioner fails to establish that Ritter, in combination of Duncan, teaches or suggests *storing* “data relating to . . . location at which the wireless device exceeds the proximity threshold” *in a database*.

Each of claims 4 and 16 recites:

wherein the collected data comprises data relating to *at least one of the following*: [1] time of day the wireless device exceeds the

proximity threshold, [2] *location at which the wireless device exceeds the proximity threshold*, and [3] the frequency at which the wireless device exceeds the proximity threshold.

Ex. 1001, 15: 41–46, 16:49–54 (emphases and bracketed matter added).

Claim 4 depends from claim 1, and claim 16 depends from claim 12.

Claims 5–9 depend from claim 4, and claims 17–21 depend from claim 16.

The claim language (“at least one of the following”) of claims 4 and 16 makes clear that only one of the listed data items is required to meet this limitation—e.g., “the collected data comprises data relating to . . . location at which the wireless device exceeds the proximity threshold.” *Id.*

Among other things, Petitioner argues that Ritter discloses collecting data relating to the location at which the tag (the wireless device) exceeds the RFID communication reach of the mobile device (the proximity threshold). Pet. 37–38 (citing Ex. 1006 ¶¶ 61, 62, 64; Ex. 1003, 48–49). During cross-examination, Mr. Schor admitted that “Ritter describes collecting data relating to a location at which a tag exceeds its RFID communication reach of the mobile device.” Ex. 1009, 218:2–5.

The parties’ main dispute is whether the “location” information is *stored in Ritter’s database*. For example, Patent Owner argues that the “collected data” recited in claims 4 and 16 is the data that “the *database* of claim 1 and processing system of claim 12 ‘collects and stores,’” and that Ritter does not teach storing the information at the database. PO Resp. 47–49; Sur-reply 12–15. In response, Petitioner argues that “[t]he server in which database 6 is hosted must store the location the tag was lost (i.e., where it exceed the RFID of its associated mobile device) to broadcast the

notification ‘in a limited geographical area’ around that location.” Reply 15 (citing Ex. 1003, 48–49).

I agree with the Petitioner. Mr. Schmandt testifies that Ritter discloses “the processing system comprising a database (e.g., database 6) that collects and stores data related to the plurality of wireless devices and the plurality of wireless communication terminals (e.g., pairings between identifiers in the mobile devices and tags).” Ex. 1003, 33–36 (citing Ex. 1006 ¶¶ 25, 43, 45, 64, Fig. 2). Indeed, as discussed above in Sections II.E.3 and II.F.1.a, it is undisputed that Ritter discloses a processing system comprising a database that collects and stores data related to tags (wireless devices) and the associated mobile devices (wireless communication terminals), including a list of tag identifications and mobile device identifications, as well as the paring between the tags and mobile devices. Pet. 25–26, 58 (citing Ex. 1006 ¶¶ 42–45, Fig. 2); PO Resp. 14–45, 57–60 (not challenge Petitioner’s showing regarding Elements 1c, 12c, and 23c.).

Mr. Schmandt also testifies that Ritter discloses that its processing system, which includes a database, “collects from a mobile device the location at which the tag exceeded the RFID communication reach of its associated mobile device, and then uses that location information to broadcast a notification of the loss only to mobile devices near that location.” Ex. 1003, 48–49. Indeed, Ritter discloses that when an object associated with a tag is lost, the server in which the database is hosted sends a broadcast message “in a limited geographical area around the place of the loss.” Ex. 1006 ¶¶ 61, 64. In particular, Ritter discloses that “other mobile users are informed automatically . . . by a message being sent in broadcast

mode at least *in the geographical area where the tag is located* and/or *by the database 6* respectively the PML page in the server 7 that corresponds to the tag identification being complemented with an indication of the loss.” *Id.*

¶ 61 (emphasis added). Ritter also expressly discloses that “[i]t is also possible that the loss is announced to a community of mobile users over data messages sent in broadcast mode at least in *a limited geographical area around the place of the loss,*” and that “the sending of the broadcast message can be initiated . . . by a central server, for example *the server in which the database 6 is hosted.*” *Id.* ¶ 64 (emphases added). I credit Mr. Schmandt’s testimony (Ex. 1003, 33–36, 48–49) as it is consistent with Ritter’s disclosure and Mr. Schor’s admission. Ex. 1006 ¶¶ 25, 42–45, 61, 62, 64, Fig. 2; Ex. 1009, 218:2–5 (admitting that “Ritter describes collecting data relating to a location at which a tag exceeds its RFID communication reach of the mobile device”).

In view of the foregoing, I am persuaded that one of ordinary skill in the art would have understood that Ritter’s database collects and stores the location where the tag was lost (i.e., where it exceeds the RFID communication reach of its associated mobile device) in order for the server in which the database is hosted to broadcast the notification “in a limited geographical area” around that location. Ex. 1003, 33–36, 48–49; Ex. 1006 ¶¶ 42–45, 61, 62, 64, Fig. 2. In my view, based on the evidence of record, Petitioner has established by a preponderance of the evidence that Ritter suggests collecting and storing the claimed “collected data” in its database. *Merck & Co., Inc. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) (In a determination of obviousness, a reference may be relied upon for all

that it would have reasonably suggested to one having ordinary skill in the art.); *see also In re Preda*, 401 F.2d 825, 826 (CCPA 1968) (“[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom.”).

Consequently, I disagree with the majority’s determination that Ritter does not teach or suggest storing the “location” information in a database. I respectfully dissent from the majority’s determination that Petitioner fails to establish by preponderance of the evidence that claims 4–9 and 16–21 of the ’655 patent are unpatentable.

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Patent 8,872,655 B2

For PETITIONER:

Kevin McGann
Dargaye Churnet
FENWICK & WEST LLP
kmcgann@fenwick.com
dchurnet@fenwick.com

For PATENT OWNER:

Nicole Jantzi
Ian Brooks
Paul Schoenhard
MCDERMOTT WILL & EMERY LLP
pschoenhard@mwe.com
njantzi@mwe.com
ibrooks@mwe.com