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95/000,647	10/07/2011	757064	52637-0025	6409

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95/002,111	08/30/2012	75701614	846487	9870

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CSR TECHNOLOGY INC. & MOTOROLA MOBILITY, LLC
Requesters and Respondents

v.

BANDSPEED, INC.
Patent Owner and Appellant

Appeal 2018-001061
Inter partes Reexamination Control 95/000,647 & 95/002,111[1]
United States Patent 7,570,614 B2
Technology Center 3900

Before JAMES T. MOORE, JOHN A. JEFFERY, and PATRICK M. BOUCHER, *Administrative Patent Judges*.

JEFFERY, *Administrative Patent Judge*.

DECISION ON APPEAL

[1] These two reexamination proceedings were merged on July 18, 2013.

Patent Owner appeals under 35 U.S.C. §§ 134 and 315 the Examiner's decision to reject claims 1, 3–6, 8–15, 19–28, 30–41, 43–47, 49–53, 55–58, 60–67, 71–80, and 82–97. App. Br. 1.[2] Claims 2, 7, 16–18, 42, 48, 54, 59, and 68–70 were cancelled, and claims 29, 81, and 98–516 are indicated as patentable. RAN 1. We have jurisdiction under 35 U.S.C. §§ 134 and 315. We affirm-in-part.

STATEMENT OF THE CASE

This proceeding arose from a first request for *inter partes* reexamination filed on behalf of Requester, CSR Technology, Inc., on October 7, 2011, of United States Patent 7,570,614 ("the '614 patent"), issued to Treister et al. on August 4, 2009. This proceeding was assigned Control No. 95/000,647 ("'647 Request").

A second request for *inter partes* reexamination was filed on behalf of another Requester, Motorola Mobility LLC, on August 30, 2012, and was assigned Control No. 95/002,111 ("("'111 Request"). These two proceedings were merged on July 18, 2013.

The '614 patent describes selecting communication channels and participants with which to communicate based on channel performance.

[2] Throughout this opinion, we refer to (1) the Right of Appeal Notice mailed October 23, 2015 ("RAN"); (2) Patent Owner's "Compliant" Appeal Brief filed October 3, 2016 ("App. Br.") that was entered via a Petition Decision mailed May 9, 2017; (3) the Examiner's Answer mailed September 1, 2017 ("Ans."); and (5) Patent Owner's Rebuttal Brief filed October 2, 2017 ("Reb. Br."). Requesters did not file briefs in this appeal.

Based on a selected channel, channel identification data is provided to another participant to determine on which channel to respond. The communication sent in response may include a performance measurement of the channel used to provide the channel identification data. *See generally* '614 patent, Abstract; col. 1, ll. 25–28. Claims 1, 8, 13, 30, and 33 are illustrative of the invention and reproduced below:

1. (Amended) A method performed by a particular participant communications device for selecting communications channels for a communications system, the method comprising the computer-implemented steps of:

[a communications device] selecting, based upon performance of a plurality of communications channels and at least one performance criterion, a first communications channel from the plurality of communications channels;

generating channel identification data that identifies the first communications channel;

providing the channel identification data to a first participant;

receiving a first communication from the first participant over a second communications channel from the plurality of communications channels;

wherein the plurality of communications channels correspond to a set of frequencies and the first communication received from the first participant is based on a hopping sequence among at least two communications channels of the plurality of communications channels, according to a frequency hopping protocol; [and]

wherein the channel identification data specifies that the first communications channel is not to be used by the first participant for the first communication;

sending a second communication to the first participant over a third communications channel;

receiving a third communication from the first participant that includes first performance quality data for the third communications channel, wherein the first performance quality data specifies the performance quality of the third communications channel between the

particular participant and the first participant, and is generated by the first participant based on information contained in the second communication; and

updating a set of channel data maintained by the particular participant using the first performance quality data.

8. (Amended) [The method of claim l,] A method for selecting communications channels for a communications system, the method comprising the computer-implemented steps of:

a communications device selecting, based upon performance of a plurality of communications channels and at least one performance criterion, a first communications channel from the plurality of communications channels;

generating channel identification data that identifies the first communications channel;

providing the channel identification data to a first participant;

wherein the step of providing the channel identification data to the first participant comprises the computer-implemented step of:
providing the channel identification data to the first participant over a third communications channel of the plurality of communications channels,

wherein the third communications channel is not the first communications
channel; and

receiving a first communication from the first participant over a second communications channel from the plurality of communications channels,

wherein the first communication from the first participant includes data that indicates the performance of the third communications channel;
wherein the plurality of communications channels correspond to a set of frequencies and the first communication received from the first participant is based on a hopping sequence among at least two communications channels of the plurality of communications channels, according to a frequency hopping protocol; and

wherein the channel identification data specifies that the first communications channel is not to be used by the first participant for the first communication.

13. (Amended) [The] A method for selecting communications channels for a

communications system, the method comprising the computer-implemented steps of [Claim 10,];

a communications device selecting, based upon performance of a plurality of
communications channels and at least one performance criterion, a first communications channel from the plurality of communications channels;

wherein the step of selecting the first communications channel from the plurality of communications channels comprises the computer-implemented steps of:

classifying one or more communications channels of the plurality of communications channels based upon whether the performance of the one or more communications channels satisfies at least one performance criterion; and

selecting the first communications channel from the one or more communications channels that are classified as satisfying the at least one performance criterion;

generating channel identification data that identifies the first communications channel;

providing the channel identification data to a first participant;
receiving a first communication from the first participant over a second communications channel from the plurality of communications channels:

wherein the plurality of communications channels correspond to a set of frequencies and the first communication received from the first participant is based on a hopping sequence among at least two communications channels of the plurality of communications channels, according to a frequency hopping protocol; and

wherein the channel identification data specifies that the first communications channel is not to be used by the first participant for the first communication;

determining a number of communications channels of the plurality of communications channels that satisfy the at least one performance criterion; and

if the number of communications channels that satisfy the at least one performance criterion is less than a specified number, reclassifying one or more communications channels of the plurality of communications channels;
wherein the step of reclassifying the one or more communications channels comprises the computer-implemented step of:

reclassifying one or more communications channels of the plurality of

communications channels based upon the performance of the one or more communications channels and at least one revised performance criterion; and

wherein the at least one revised performance criterion is selected such that the number of communications channels that satisfy the at least one revised performance criterion is not less than the specified number.

30. (Original) A method for managing performance data for communications channels between participants in a communications system, the method comprising the computer-implemented steps of:

a communications device determining the performance of a plurality of communications channels;

creating and maintaining, at a first participant of a plurality of participants, first performance data that indicates the performance of at least one communications channel of the plurality of communications channels between the first participant and at least a second participant of the plurality of participants;

requesting and receiving second performance data from a third participant, wherein the second performance data indicates the performance of at least one communications channel of the plurality of communications channels between the third participant and at least a fourth participant of the plurality of participants; and

creating and maintaining revised first performance data based on the first performance data and the second performance data.

33. (Twice Amended) [The method of Claim 30,] A method for managing performance data for communications channels between participants in a communications system, the method comprising the computer-implemented steps of:

a communications device determining the performance of a plurality of communications channels;

creating and maintaining, at a first participant of a plurality of participants, first performance data that indicates the performance of at least one communications channel of the plurality of communications channels between the first participant and at least a second participant of the plurality of participants;

requesting and receiving second performance data and third performance data from a third participant, wherein the second performance

data indicates the performance of at least one communications channel of the plurality of communications channels between the third participant and at least a fourth participant of the plurality of participants, and the third performance data indicates the performance of at least one communications channel of the plurality of communication channels between the third participant and at least a sixth participant of the plurality of participants;

creating and maintaining revised first performance data based on the first performance data and the second performance data;

wherein the third participant is the second participant and wherein the fourth participant is the first participant.

RELATED PROCEEDINGS

This appeal is said to be related to various pending proceedings. First, Patent Owner informs us of six cases in the U.S. District for the Western District of Texas involving the '614 patent and various related patents, including U.S. Patents 7,477,624, 7,903,608, 8,542,643, and 8,873,500. App. Br. 2–3; Reb. Br. 1–3. Five of those cases have concluded. *Id.*

Patent Owner also informs us of ten *inter partes* reviews involving the related patents, namely (1) IPR2015-00237; (2) IPR2015-00314; (3) IPR2015-00315; (4) IPR2015-00316; (5) IPR2015-00531; (6) IPR2015-01577; (7) IPR2015-01580; (8) IPR2015-01581; (9) IPR2015-01582; and (10) IPR2016-00620. App. Br. 2–3; Reb. Br. 2–3.

Lastly, this appeal is related to other merged *inter partes* reexamination proceedings involving the same parties, namely Control Numbers 95/000,648 and 95/002,108. In an appeal involving those merged proceedings, we affirmed-in-part the Examiner's decision to reject claims 2–18, 20–24, 28–78, 83–106, 108–110, 114–122, 125–434, 436–591, and 593–598 that were at issue in that appeal. *See CSR Tech. Inc. & Motorola*

Mobility, LLC v. Bandspeed, Inc., No. 2017-010093 (PTAB Sept. 11, 2017), *reh'g denied* Jan. 19, 2018 ("*Bandspeed I*").

THE APPEALED REJECTIONS

Patent Owner appeals the Examiner rejecting the claims as follows:

Claims 1, 4, 5, 8–14, 25, 26, 36–38, 41, 43–47, 49, 51, 53, 55–58, 60–66, 77, 78, 88–90, and 93–95 under 35 U.S.C. § 102(a) as anticipated by Sivakumar (WO 01/47308 A1; June 28, 2001). RAN 6, 13, 17–24, 28, 30, 33–35, 38–46, 48–52, 55, 56, 59–61, 63–65.

Claims 1, 4, 6, 8, 9, 25, 27, 36, 37, 41, 44, 46, 47, 49, 53, 56, 58, 60, 61, 77, 79, 88, 89, 93, and 94 under 35 U.S.C. § 102(b) as anticipated by JP10-107693 A; Apr. 24, 1998 ("Imamura"). RAN 8–9, 14–15, 17, 19, 21, 28–29, 31, 33–34, 37, 38, 40–41, 43, 43–48, 56–57, 59, 61, 63–64.

Claims 1, 3, 8–14, 25–28, 30, 33, 34, 36–41, 43–47, 49–53, 55–58, 60–66, 77–80, 85, 86, and 88–97 under 35 U.S.C. § 102(a)[3] as anticipated by Gendel (US 6,115,407; Sept. 5, 2000). RAN 6–7, 15–24, 29–31, 33–46, 48–52, 56–58, 60–63, 65–66.

Claims 13 and 65 under 35 U.S.C. § 102(e) as anticipated by Dicker (US 6,272,353 B1; Aug. 7, 2001). RAN 7–8, 23, 52.

Claims 15, 19–21, and 71–73 under 35 U.S.C. § 102(e) as anticipated by Gerten (US 6,760,319 B1; July 6, 2004). RAN 24–26, 53–54.

[3] Although Gendel qualifies as prior art under § 102(e), we treat any error associated with this omission as harmless as it does not affect our assessment of the merits of the anticipation rejection.

Claims 30–32, 35, 82–84, and 87 under 35 U.S.C. § 102(e) as anticipated by Sonetaka (US 6,487,392 B1; Nov. 26, 2002). RAN 9, 32–33, 58–59.

Claims 30, 33, 34, 82, 85, and 86 under 35 U.S.C. § 102(b) as anticipated by Haartsen (US 6,009,332; Dec. 28, 1999). RAN 9–10.

Claims 30, 33, 34, 82, 85, and 86 under 35 U.S.C. § 102(b) as anticipated by Bergström (US 4,716,573; Dec. 29, 1987). RAN 10.

Claims 8, 11, 13, 37, 60, 63, 65, 89, and 94 under 35 U.S.C. § 103(a) as obvious over Sivakumar and Kim (US 7,050,479 B1; May 23, 2006). RAN 10–11, 20, 34–35, 47, 49–51, 60, 64.

Claims 8, 37, 38, 63, 89, 94, and 95 under 35 U.S.C. § 103(a) as obvious over Sivakumar and Koivu (US 5,737,359; Apr. 7, 1998). RAN 11, 20, 35–36, 50, 60–62, 64–65.

Claims 15, 19–24, 67, and 71–76 under 35 U.S.C. § 103(a) as obvious over Schmidl (US 6,965,590 B1; Nov. 15, 2005) and Dicker. RAN 25–27, 53–55.

THE ANTICIPATION REJECTION OVER SIVAKUMAR

The Examiner finds that Sivakumar discloses every recited element of independent claim 1 including a "particular participant" communications device providing channel identification data, namely information indicating "black-listed" channels, to a first participant (i.e., a "slave" node). *See* RAN 13–14 (incorporating pages 83 to 89 of the '647 Request by reference). According to the Examiner, the particular participant (1) receives a first communication from the first participant over a second non-blacklisted

channel; (2) sends a second communication to the first participant over a third channel; and (3) receives a third communication from the first participant, where this communication includes first performance quality data, namely interference indices, for the third channel. *Id.* This quality data is said to be generated by the first slave node participant based on information contained in the second communication, namely by generating transmittable interference indices from stored indices responsive to a master node's command. Ans. 2–4.

Patent Owner argues, among other things, that Sivakumar's performance quality data, namely the interference indices, are not generated based on information in the second communication as claimed, but rather this data is generated long before the command to transmit that information is sent. App. Br. 23–25; Reb. Br. 4–5. According to Patent Owner, because previously-stored performance quality data is transmitted responsive to this command, this data remains unchanged and, therefore, is not generated based on this received command. Reb. Br. 5. Patent Owner argues various other recited limitations summarized below.

ISSUES

Under § 102, has the Examiner erred by finding that Sivakumar discloses:

(1) a particular participant communications device receiving a third communication from a first participant, the communication including first performance quality data for the third channel, where the data (a) specifies the performance quality for the third channel between the particular

participant and first participant, and (b) is generated by the first participant based on information contained in the second communication as recited in claim 1?

(2) providing channel identification data to the first participant over a third communications channel, where the third channel is not the first communications channel, and the channel identification data specifies that the first channel is not to be used by the first participant for the first communication as recited in claim 8?

(3) determining a number of communication channels that satisfy at least one performance criterion, and if the number of channels that satisfy that criterion is less than a specified number, reclassifying one or more channels, where reclassifying is based on (a) the channel performance, and (b) at least one revised performance criterion, the revised criterion selected such that the number of channels satisfying the revised criterion is not less than the specified number as recited in claim 13?

(4) providing (a) first channel identification data to a first participant over a second channel that is not the first channel, and (2) second channel identification data to a second participant over a fifth channel that is not the fourth channel as recited in claim 36?

(5) selecting the first and fourth channels from channels classified as bad as recited in claim 37?

ANALYSIS

Claims 1, 4, 5, 9–12, 14, 25, 26, 41, 43–45, 47, 49, 51, 53, 55–58, 61–64, 66, 77, and 78

We begin by noting that the method of claim 1 is performed by a "particular participant" communications device that is distinct from the "first participant" with which the particular participant device communicates. Although the Examiner does not precisely map the "particular participant" device to a corresponding element in Sivakumar, Sivakumar's master node 10 apparently corresponds to this "particular participant" device, particularly in view of the Examiner's finding that the master's command to transmit interference indices is contained in the second communication sent by the particular participant to the first participant. *See* Ans. 3. *Accord id.* (referring to master-to-node communication 100b in Sivakumar's Figure 1 in connection with the recited second communication). This mapping also comports with the definition of "participant," namely "any device or mechanism that exchanges data with other devices or mechanisms over a communications medium." *See* '614 patent, 1:34–36.

As noted above, claim 1 recites two key aspects of the first performance quality data included in the third communication—data that the Examiner maps to Sivakumar's interference indices. *See* RAN 14 (finding that Sivakumar's interference indices are a form of performance quality data). Under the terms of claim 1, the performance quality data (1) specifies the performance quality for the third channel between the particular participant and first participant, and (2) is *generated* by the first participant *based on* information contained in the second communication.

Our emphasis underscores the key aspect of this dispute. Although the Examiner apparently acknowledges that Sivakumar's interference indices are stored (and therefore were generated) *before* the second communication, namely before the master commands their transmission from the slave nodes in step 132 of Sivakumar's Figure 4, the Examiner nevertheless finds that *transmittable* interference indices are generated from *stored* indices responsive to the master's command. Ans. 2–4. In other words, Sivakumar is said to generate *transmittable* performance quality data based on information in the second communication, despite that data being previously generated and stored. *See id.*

These findings are problematic on this record. As shown in Sivakumar's Figure 4, during an evaluation phase, each slave node calculates and stores interference indices I_{Fi} based on the number of successful transmissions on each frequency band in steps 122 to 129. Sivakumar 7:20–8:30. Then, during a configuration phase, the master node sends a command addressed to a selected node to transmit its interference indices to the master node in step 132, and, in response, the slave node sends its indices to the master in step 136. *Id.* 9:1–6. The master then uses the received interference indices to calculate system-aggregate performance of each frequency band in the channel using equation 2, and uses this information to create and transmit a "black list" of the two worst-performing frequencies in steps 144 to 148. *Id.* 9:12–27.

The clear import of this functionality is that Sivakumar's interference indices are not generated *based on* the master's command to transmit these indices in step 132 even assuming, without deciding, that this command is

included in a second communication over a third channel as the Examiner indicates. *See* RAN 14; Ans. 3. Rather, as Patent Owner explains, the performance quality data itself remains unchanged from that which was stored. Reb. Br. 5.

Therefore, to say that Sivakumar's previously generated and stored performance quality data is somehow *generated* because it is *transmitted* responsive to a command as the Examiner suggests is unreasonable on this record. *See* RAN 14 (finding that Sivakumar's interference indices are *generated into a form to be sent* based on the master's request); Ans. 3 (finding that Sivakumar's *transmitted* data bits are generated from the *stored* interference indices data bits); Ans. 3–4 (finding that *transmittable* performance quality data is generated from the *stored* data regardless of when the stored information is generated).

To the extent that the Examiner finds that Sivakumar's *transmittable* interference indices involves packetizing this data or otherwise reformatting the data for transmission to the master is unsubstantiated on this record. Although a control *packet* is sent from the master indicating the black-listed frequencies in step 148 (Sivakumar 9:24–26), Sivakumar says nothing about the particular data structures or format of the interference indices that are transmitted to the master in step 136 of Figure 4, let alone that these structures or format differ from those that were stored previously in the evaluation phase. Therefore, to say that these indices are *necessarily* packetized or reformatted for transmission as the Examiner apparently suggests is unsubstantiated given Sivakumar's silence in this regard; nor will we speculate in that regard here in the first instance on appeal. Even if it is

probable that Sivakumar's interference indices are packetized or reformatted for transmission to the master, that still does not mean that this is *necessarily* the case—a crucial requirement for inherent anticipation. *See In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999) ("Inherency . . . may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.") (citations omitted). Rather, Sivakumar, at best, suggests that the interference indices are the same data that was previously stored as Patent Owner indicates. *See* Reb. Br. 5 (noting that Sivakumar's performance quality data that is transmitted to the master remains unchanged from that which was stored).

Therefore, we are persuaded that the Examiner erred in rejecting (1) independent claim 1; (2) independent claims 25, 41, 53, and 77 that recite commensurate limitations; and (3) dependent claims 4, 5, 26, 43–45, 47, 49, 51, 55–58, 61–64, 66, and 78 for similar reasons. Because this issue is dispositive regarding our reversing the Examiner's rejection of these claims, we need not address Patent Owner's other associated arguments.

Claims 8, 46, and 60

On the other hand, we sustain the Examiner's rejection of claim 8 reciting, in pertinent part, providing channel identification data to the first participant over a third communications channel, where the third channel is *not* the first communications channel, and the channel identification data specifies that the first channel is not to be used *by the first participant for the first communication*. *See* RAN 6 (incorporating pages 56 and 57 of the '111

Request by reference); RAN 19 (incorporating pages 211 and 212 of the '647 Request by reference). Our emphasis underscores that the claim merely specifies that (1) the third channel is not the first channel, and (2) the first channel is not to be used by the first participant for the first communication.

Claim 8, however, does not specify that the first channel is not to be used *to provide the channel identification data*: rather, the claim merely specifies that the *third channel* on which this data is provided is *not the first channel*. That is, the claim merely distinguishes the third and first channels, but does not prohibit providing channel identification data over the first channel so long as this data is *also* provided over the third channel—a channel that is not the first channel. The Examiner's point in this regard is well taken. *See* Ans. 8 (noting claim 8 does not indicate that a first channel *cannot* be used for channel identification so long as at least a third channel is *also* used to communicate the channel identification data); *see also id.* (noting that claim 8 does not require not using the first channel to provide the channel identification data to the first participant/device). That claim 8's preamble includes the term "comprising" which does not preclude additional unrecited steps,[4] and the fact that the claim does not explicitly prohibit using the first channel to provide the channel identification data—unlike the explicit prohibition for using that channel for the first communication by the

[4] "'Comprising' is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim." *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501 (Fed. Cir. 1997) (citation omitted).

first participant—only further bolsters the reasonableness of the Examiner's construction.

Patent Owner contends that Sivakumar's broadcasting an indication of the two black-listed frequencies on the remaining "D" slots[5] in the configuration interval in step 148 of Figure 4 and page 9, lines 24 to 27, uses black-listed frequencies for that broadcast. App. Br. 33. Even assuming, without deciding, that Patent Owner is correct, Sivakumar nevertheless contemplates at least one scenario where this broadcast *also* occurs over other non-blacklisted channels, particularly in view of the four "D" slots in Sivakumar's Figure 1 as the Examiner indicates. *See* Ans. 9 (noting that Sivakumar's Figure 1 shows at least four "D" transmission slots/channels which means that at least two of these channels are not black-listed channels). Patent Owner's arguments to the contrary (App. Br. 32–35) are unavailing and not commensurate with the scope of the claim.

We reach this conclusion even assuming, without deciding, that black-listed channels are not avoided until after the black list is transmitted in step 148 such that these channels are avoided only until the evaluation phase of the next epoch as Patent Owner contends. *See* App. Br. 35–36 (citing Sivakumar 9:29–10:3). Leaving aside the fact that nothing in the claim precludes providing channel identification data over the first channel so long as this data is *also* provided over the third channel as noted previously, the

[5] The Examiner's finding that the "D" slots in Sivakumar's Figure 1 (e.g., 100b) indicate communication from master to node, and "U" slots (e.g., 100a) indicate communication from node to master (Ans. 3) is undisputed. Nor do we see error in this finding given the associated description on Sivakumar's page 7, lines 24 to 29.

third channel used to provide this data would also differ from the first channel used by the first participant for the first communication in the *subsequent* epoch (i.e., after the system reenters the evaluation phase following the previous epoch) because the black-listed channels are omitted in that subsequent epoch. *See* Sivakumar 9:29–10:3. To the extent that Patent Owner contends otherwise (*see* App. Br. 35–36), such arguments are unavailing and not commensurate with the scope of the claim.

Therefore, we are not persuaded that the Examiner erred in rejecting claim 8, and claims 46 and 60 not argued separately with particularity.

Claims 13 and 65

We also sustain the Examiner's rejection of claim 13 reciting, in pertinent part, determining a number of communication channels that satisfy at least one performance criterion, and *if* the number of channels that satisfy the at least one performance criterion is less than a specified number, reclassifying one or more channels, where reclassifying is based on (1) the channel performance, and (2) at least one revised performance criterion, the revised criterion selected such that the number of channels satisfying the revised criterion is not less than the specified number. *See* RAN 6 (incorporating pages 61 and 62 of the '111 Request by reference); RAN 23 (incorporating pages 282 to 285 of the '647 Request by reference).

Our emphasis on the word "if" underscores that this is a conditional limitation that need not be satisfied to meet the claim under its broadest reasonable interpretation. *See Ex parte Schulhauser*, No. 2013-007847, slip

op. at 9–10 (PTAB Apr. 28, 2016) (precedential).[6] Therefore, Patent Owner's contentions regarding Sivakumar's alleged shortcomings in this regard (App. Br. 53–59) are not commensurate with the scope of the claim and, therefore, are unavailing for that reason alone.

Nevertheless, even if the recited condition had to occur (which it does not), we are still unpersuaded of error in the Examiner's reliance on Sivakumar for anticipating claim 8, including its conditional limitations. First, despite Patent Owner's arguments to the contrary (App. Br. 52–53; Reb. Br. 8–9), Sivakumar effectively determines a number of channels that satisfy at least one performance criterion as the Examiner indicates. Ans. 17–20 (citing Sivakumar 4:4–15). By creating a black list of the *two* worst-performing frequencies, Sivakumar effectively determines a number of channels that satisfy at least one performance criterion, namely the number of channels that are black-listed. *Accord* '647 Request 243. Patent Owner's contention that Sivakumar never determines the number of worst-performing frequency bands (App. Br. 53) is unavailing given Sivakumar's explicit determination of *two* such bands. *See* Sivakumar 9:21–23; 10:2–3.

Notably, after the channels are so classified in the current epoch, the channels are effectively *reclassified* in a *subsequent* epoch (i.e., after the system reenters the evaluation phase following the previous epoch). *See* Sivakumar 9:29–10:3. Notably, this reclassification occurs in a variety of scenarios, including when the channels that satisfy the black-list criteria in a

[6] This decision is available at the Board's web site at https://www.uspto.gov/patents-application-process/appealing-patent-decisions/decisions-and-opinions/precedential.

subsequent epoch is less than a specified number of black-listed channels in a *previous* epoch, such as when black-listed channels are removed from the black list due to a small value of β or to comply with governmental regulations. *See* Sivakumar 12:6–8 (noting that if β is small, the black-listed channels have a greater chance of being taken off the black list); *see also id.* 12:15–18 (noting that although two frequency bands are placed onto the black list in the described embodiment, this number may be dictated or at least constrained by governmental regulations). *Accord* '647 Request 243 ("If there are not enough good channels that have a good enough performance [in Sivakumar], the channels classified as black listed are reclassified as being not blacklisted."); Ans. 20 (quoting this passage).

Notably, this reclassification is based not only on channel performance, but is also based on least one revised performance criterion, including the modified probability determination in Sivakumar's equation 3 that, unlike equation 2, reflects the channel performance not only over the evaluation interval, but also historic performance over previous intervals. *See* Sivakumar 10:5–15 (equation 3). *Compare id.* 9:12–19 (equation 2). In addition to this probability-based revised performance criterion involving equation 3, Sivakumar contemplates other revisions to performance criteria as well, including varying black list creation frequency depending on environmental conditions, such as noise or interference. *See* Ans. 19–20; *see also* '647 Request 283 (citing Sivakumar 4:4–15). Appellants' arguments to the contrary (App. Br. 53–59; Reb. Br. 9–11) are unavailing and not commensurate with the scope of the claim.

Therefore, we are not persuaded that the Examiner erred in rejecting claim 13, and claim 65 not argued separately with particularity.[7]

Claims 36, 38, 88, 90, 93, and 95

We also sustain the Examiner's rejection of claim 36 reciting, in pertinent part, providing (1) first channel identification data to a first participant over a second channel that is not the first channel, and (2) second channel identification data to a second participant over a fifth channel that is not the fourth channel. *See* RAN 33 (incorporating pages 514 to 524 of the '647 Request by reference).

Despite Patent Owner's arguments to the contrary (App. Br. 97–100), nothing in the claim precludes providing first channel identification data, namely information indicating black-listed channels, to a first slave-node participant over a second non-blacklisted channel that is not the first channel for the reasons indicated previously and by the Examiner. *See* '647 Request 519–20; Ans. 40–42. Nor does the claim preclude providing second channel identification data to a second slave-node participant over a fifth non-blacklisted channel that is not a fourth black-listed channel in a *subsequent* epoch. *See* '647 Request 522–24 (citing Sivakumar 11:3–16).

We find unavailing Patent Owner's contention that because Sivakumar's master allegedly sends the same black list to all slave nodes,

[7] Although Patent Owner also argues that claim 52 is also not anticipated by Sivakumar (App. Br. 52), the claim was not so rejected. *See* RAN 6, 13, 17–24, 28, 30, 33–35, 38–46, 48–52, 55, 56, 59–61, 63–65.

Sivakumar does not provide different channel identification data to different participants over different channels. App. Br. 97–99.

First, nothing in the claim precludes providing channel identification data over the first and fourth channels so long as this data is *also* provided over the second and fifth channels. That the channel identification data specifies that first and fourth channels are not *to be* used does not necessarily mean that they are avoided for all communications, including providing the channel identification data that specifies their future intended non-use. *Accord* Ans. 41 ("[W]hether Sivakumar broadcasts on the black-listed channels is irrelevant so long as it *also* broadcasts on a second channel that is not the first channel and on a fifth channel that is not [t]he fourth channel.") (emphasis added); *see also id.* (noting that the claims do not recite that the first channel is *avoided* or not used for every communication). Nevertheless, as noted previously, channels used to provide this data would also differ from channels used for communication in *subsequent* epochs (i.e., after the system reenters the evaluation phase following the previous epoch) because the black-listed channels are omitted in that subsequent epoch. *See* Sivakumar 9:29–10:3.

Nor does the claim preclude providing the recited channel identification data to multiple participants, so long as (1) the first channel identification data is *also* provided to a first participant over a second channel that is not the first channel, and (2) the second channel identification data is *also* provided to a second participant over a fifth channel that is not fourth channel. *Accord* Ans. 41 ("[W]hether Sivakumar broadcasts on the same channel to two participants is irrelevant so long as it also broadcasts on

another frequency to another participant."). So even assuming, without deciding, that Sivakumar's master sends the same black list to all slave nodes *in one epoch* as Patent Owner contends, the same cannot be said for *subsequent* epochs given the revised evaluations in those later epochs, including omitting previously black-listed channels. *See* Sivakumar 9:29–12:18. Nor does the claim preclude multiple recipients receiving channel identification data as noted previously. Patent Owner's arguments to the contrary are unavailing and not commensurate with the scope of the claim.

Therefore, we are not persuaded that the Examiner erred in rejecting claim 36, and claims 38, 88, 90, 93, and 95 not argued separately with particularity.

Claims 37, 89, and 94

We also sustain the Examiner's rejection of claim 37 reciting, in pertinent part, selecting the first and fourth channels from channels classified as bad. *See* RAN 34 (incorporating pages 549 to 553 of the '647 Request by reference); Ans. 43–44.

Despite Patent Owner's arguments to the contrary (App. Br. 108–11; Reb. Br. 16–17), we see no error in the Examiner's incorporated finding that Sivakumar's blacklisted channels are (1) classified as bad, and (2) selected *to be identified* to a slave. '647 Request 551–52 (citing Sivakumar 9:21–27). As noted in the cited passage, Sivakumar's master node (1) identifies the worst-performing frequency bands, and (2) creates a black list of the two worst-performing frequencies in step 146. Then, in step 148, the master

node transmits a control *packet* indicating the black-listed frequencies to the slave nodes. Sivakumar 9:24–27.

Given this functionality, we find Sivakumar anticipates claim 37 even assuming, without deciding, that the recited classifying, selecting, generating, and providing steps must be performed in that order as Patent Owner contends (App. Br. 108). First, identifying the worst-performing channels in step 146 effectively classifies those channels as bad. These blacklisted channels are then selected *for inclusion in a packet* to be transmitted to the slaves for identification. *See* Sivakumar 9:24–27. Channel identification data, including packetized information indicating the blacklisted channels, is then generated and subsequently provided to the slaves by transmitting this data in step 148.

Given this sequential process, Patent Owner's contention that transmitting and selecting the black list in Sivakumar occur simultaneously (App. Br. 109) is unavailing. As noted above, Sivakumar's black-listed channels in Sivakumar are selected for inclusion in a packet *before* that packet is generated and transmitted. Without this preliminary selection, the packet would not indicate the particular black-listed channels that were so classified as bad. *See* Sivakumar 9:21–27.

Lastly, Patent Owner's contention that Sivakumar allegedly does not select a different channel from channels classified as bad for different participants (App. Br. 110–11) is likewise unavailing for the reasons noted previously. Even assuming, without deciding, that Sivakumar's master sends the same black list to all slave nodes *in one epoch* as Patent Owner contends, the same cannot be said for *subsequent* epochs given the revised

evaluations in those later epochs, including omitting previously black-listed channels. *See* Sivakumar 9:29–12:18. Nor does the claim preclude multiple recipients receiving channel identification data as noted previously. Patent Owner's arguments to the contrary are unavailing and not commensurate with the scope of the claim.

Therefore, we are not persuaded that the Examiner erred in rejecting claim 37, and claims 89 and 94 not argued separately with particularity.

THE ANTICIPATION REJECTION OVER IMAMURA

Claims 1, 4–6, 9–12, 14, 25, 27, 41, 44, 47, 49, 53, 56, 58, 61, 77, and 79

We also sustain the Examiner's anticipation rejection of claim 1 reciting, in pertinent part, the channel identification data specifies that the first channel is not to be used by the first participant for the first communication. *See* RAN 8 (incorporating pages 140 to 149 of the '111 Request and the '111 Requester's Comments filed Dec. 5, 2013 by reference); RAN 14–15 (incorporating pages 89 to 92 of the '647 Request by reference); Ans. 43–44.

Despite Patent Owner's arguments to the contrary (App. Br. 25–28; Reb. Br. 5–6), we see no error in the Examiner's reliance on Imamura's functionality in paragraph 27 for anticipating the recited channel identification data. As Imamura explains, data is classified into subgroups with high and low communication quality, where high-quality frequencies are hopped for "significant" data, and low-quality frequencies are hopped for "insignificant" data. Imamura ¶ 27. For either case, a message is sent that

the transmission side uses those particular frequencies, and frequencies are hopped accordingly. *See id.*

In the incorporated Requests, the Examiner equates the recited channel identification data to the message sent indicating that the transmission side uses low-quality frequencies for frequency hopping insignificant data. *See* '111 Request 144; *see also* '647 Request 91. We see no error in these adopted findings. To be sure, this message-based data indicates what frequencies *to use*, and does not indicate explicitly what frequencies *not* to use as Patent Owner indicates. App. Br. 27. But because significant data is only communicated via high-quality frequencies, specifying using low-quality frequencies for insignificant data effectively specifies *not* to use high-quality frequencies for insignificant data. *Accord* '111 Request 144; '647 Request 92; Ans. 4 (citing Imamura ¶¶ 22, 27). Moreover, this data is provided by at least a particular participant to at least a first participant as claimed. To the extent Patent Owner contends otherwise (*see* App. Br. 28–29), such arguments are unavailing and not commensurate with the scope of the claim.

Therefore, we are not persuaded that the Examiner erred in rejecting claim 1, and claims 4, 6, 9, 25, 27, 41, 44, 47, 49, 53, 56, 58, 61, 77, and 79 not argued separately with particularity.[8]

[8] Although Patent Owner nominally argues claims 25, 27, 77, and 79 separately (App. Br. 77–78), Patent Owner principally reiterates arguments made for claim 1. We, therefore, group these claims accordingly. We treat other nominally-argued claims similarly, and group those claims accordingly.

Claims 8, 36, 37, 46, 60, 88, 89, 93 and 94

We will not sustain the Examiner's rejection of claim 8 reciting, in pertinent part, providing channel identification data to the first participant over a third communications channel, where the third channel is *not* the first communications channel, and the channel identification data specifies that the first channel is not to be used *by the first participant for the first communication*. *See* RAN 8–9 (incorporating page 145 of the '111 Request by reference); RAN 19 (incorporating pages 212 to 214 of the '647 Request by reference). Our emphasis underscores that the claim merely specifies that (1) the third channel is not the first channel, and (2) the first channel is not to be used by the first participant for the first communication.

Claim 8, however, does not specify that the first channel is not to be used *to provide the channel identification data*: rather, the claim merely specifies that the *third channel* on which this data is provided is *not the first channel*. That is, the claim merely distinguishes the third and first channels, but does not prohibit providing channel identification data over the first channel so long as this data is *also* provided over the third channel—a channel that is not the first channel.

Nevertheless, we find the Examiner's anticipation rejection problematic on this record. First, although the messages transmitted in the first and second message transmission steps in Imamura's paragraph 27 indicate whether high-quality or low-quality frequencies are used for frequency hopping, Imamura does not indicate the frequency on which these messages are transmitted as Patent Owner indicates. App. Br. 38.

Nor does Imamura indicate the frequency on which the table of Figure 3 is transmitted to stations, despite this table indicating 100 system frequencies—40 of which are used for frequency hopping, and 60 frequencies are unused. *See* Imamura ¶¶ 42, 47; Fig. 3. Although the Examiner finds that these 40 channels are used to communicate about *not* using 60 channels (Ans. 10), Imamura is silent regarding such a communication via these channels. Although these 40 channels are used for frequency hopping, Imamura says nothing about using these particular channels to *also* (1) transmit associated messages in the first and second message transmission steps, or (2) transmit the table in Figure 3 and its associated quality information to stations in paragraph 47. *Accord* App. Br. 38–39 (noting this deficiency). Therefore, we cannot say that Imamura *necessarily* provides channel identification data to a first participant over a third channel that is not the first channel as claimed.

Accordingly, we are persuaded that the Examiner erred in rejecting (1) independent claim 8; (2) independent claims 36, 46, 60, 88, and 93 that recite commensurate limitations; and (3) dependent claims 37, 89, and 94 for similar reasons. Because this issue is dispositive regarding our reversing the Examiner's rejection of these claims, we need not address Patent Owner's other associated arguments.

THE ANTICIPATION REJECTION OVER GENDEL

Claims 1, 3, 9, 25–28, 41, 43–45, 47, 49, 50, 53, 55–58, 61, 66, and 77–80

We sustain the Examiner's anticipation rejection of claim 1 reciting, in pertinent part, receiving a third communication from a first participant

over a third channel, the communication including first performance quality data for the third channel, where the data specifies the performance quality for the third channel between the particular participant and first participant. *See* RAN 6–7 (incorporating pages 67 to 82 of the '111 Request and the '111 Requester's Comments filed Dec. 5, 2013 by reference); RAN 15–16 (incorporating pages 93 to 97 of the '647 Request by reference); Ans. 6–7.

Despite Patent Owner's arguments to the contrary (App. Br. 29–32; Reb. Br. 6–7), we see no error in the Examiner's equating the data exchanged between participants regarding which channel to use reasonably constitutes "performance quality data" because this usage is tied to channel quality, namely whether the channel satisfies a particular error value. *See* Ans. 6–7; *see also* Gendel 7:20–35 (noting that when the error value of a particular used segment reaches or exceeds a predetermined threshold, subsystems 122, 124, 132, and 134 (1) replace the erred segment and all its hopping frequencies with an unused segment, and (2) notify the other communicating party of the replacement in the hopping pattern); *Id.* 12:36–42. This replacement notification effectively communicates this "performance quality data" because the replacement is due to the channel's poor performance—performance that is based on the channel's quality.

So even assuming, without deciding, that there could possibly be other potential reasons to remove a channel as Patent Owner contends (App. Br. 30; Reb. Br. 7)—a contention that is unsubstantiated—the reason to remove a channel in the context of Gendel's disclosure is based on the channel's performance quality, namely whether a particular error value is satisfied.

Patent Owner's arguments to the contrary (App. Br. 29–32; Reb. Br. 6–7) are unavailing and not commensurate with the scope of the claim.

Therefore, we are not persuaded that the Examiner erred in rejecting claim 1, and claims 3, 9, 25–28, 41, 43–45, 47, 49, 50, 53, 55–58, 61, 66, and 77–80 not argued separately with particularity.[9]

Claims 8, 36–40, 46, 60, and 88–97

We do not sustain the Examiner's rejection of claim 8 reciting, in pertinent part, providing channel identification data to the first participant over a third communications channel, where the third channel is *not* the first communications channel, and the channel identification data specifies that the first channel is not to be used *by the first participant for the first communication*. *See* RAN 6–7 (incorporating page 74 of the '111 Request by reference); RAN 19 (incorporating pages 214 to 215 of the '647 Request by reference). Our emphasis underscores that the claim merely specifies that (1) the third channel is not the first channel, and (2) the first channel is not to be used by the first participant for the first communication.

Claim 8, however, does not specify that the first channel is not to be used *to provide the channel identification data*: rather, the claim merely specifies that the *third channel* on which this data is provided is *not the first*

[9] Although Patent Owner nominally argues claims 25, 27, 77, and 79 separately (App. Br. 77–79), Patent Owner again principally reiterates arguments made for claim 1. We, therefore, group these claims accordingly. We treat other nominally-argued claims similarly, and group those claims accordingly.

channel. That is, the claim merely distinguishes the third and first channels, but does not prohibit providing channel identification data over the first channel so long as this data is *also* provided over the third channel—a channel that is not the first channel.

Nevertheless, we find the Examiner's anticipation rejection problematic on this record. Although Gendel's system transmits replacement requests and request signals as noted above, Gendel does not indicate the frequency on which these messages are transmitted as Patent Owner indicates. App. Br. 41–43. Despite the Examiner's indicating that Gendel uses *any* of the segments/frequencies for transmission, reception, or removal from the hopping sequence (Ans. 11), Gendel is silent regarding the particular frequency on which the requests are transmitted, let alone whether this channel is not the first channel as claimed. *See* Gendel 12:18–57. Nor will we speculate in that regard here in the first instance on appeal.

Therefore, we are persuaded that the Examiner erred in rejecting (1) independent claim 8; (2) independent claims 36, 46, 60, 88, and 93 that recite commensurate limitations; and (3) dependent claims 37–40, 89–92, and 94–97 for similar reasons. Because this issue is dispositive regarding our reversing the Examiner's rejection of these claims, we need not address Patent Owner's other associated arguments.

Claims 10–13, 51, 52, and 62–65

We sustain the Examiner's rejection of claim 13 reciting, in pertinent part, determining a number of communication channels that satisfy at least one performance criterion, and *if* the number of channels that satisfy the at

least one performance criterion is less than a specified number, reclassifying one or more channels, where reclassifying is based on (1) the channel performance, and (2) at least one revised performance criterion, the revised criterion selected such that the number of channels satisfying the revised criterion is not less than the specified number. *See* RAN 6–7 (incorporating pages 77 and 78 of the '111 Request by reference); RAN 23 (incorporating pages 285 and 286 of the '647 Request by reference).

Our emphasis on the word "if" underscores that this is a conditional limitation that need not be satisfied to meet the claim under its broadest reasonable interpretation. *See Schulhauser*, at 9–10. Therefore, Patent Owner's contentions regarding Gendel's alleged shortcomings in this regard (App. Br. 61–65) are not commensurate with the scope of the claim and, therefore, are unavailing for that reason alone.

Nevertheless, even if the recited condition had to occur (which it does not), we are still unpersuaded of error in the Examiner's reliance on Gendel for anticipating claim 13, including its conditional limitations. First, despite Patent Owner's arguments to the contrary (App. Br. 59–61; Reb. Br. 11–12), Gendel effectively determines a number of channels that satisfy at least one performance criterion. As noted above, when the error value of a particular used segment reaches or exceeds a predetermined threshold, the erred segment (and all its hopping frequencies) is replaced with an unused segment. Gendel 6:30–56; 7:20–35. Notably, this segment-based evaluation effectively determines a number of channels that satisfy the performance criterion, namely *zero*, because this segment (and its associated hopping frequencies) is erroneous and, therefore, does not satisfy the performance

criterion. *Accord* Ans. 20–21 (construing the term "a number" to include one or zero, and finding that Gendel determines if *one or none* of each segment as its own group satisfies the performance criterion). Patent Owner's contention that "a number" as claimed must have at least three different values, and that Gendel does not determine the total number of used segments (App. Br. 60) is unavailing and not commensurate with the scope of the claim.

Notably, Gendel's system replaces an erred segment (and all its hopping frequencies) with an unused segment when the number of channels satisfying the performance criterion, namely *zero*, is less than a specified number, namely *one*. In this scenario, the erred segment (and all its hopping frequencies) is effectively *reclassified as not to be used* as noted in the Examiner's incorporated findings. *See* '647 Request 285–86 (citing Gendel, col. 6, ll. 46–56; Fig. 2B); *see also* '111 Request 77–78. Patent Owner's arguments to the contrary (App. Br. 64–65) are unavailing and not commensurate with the scope of the claim.

Nor are we persuaded of error in the Examiner's reliance on Gendel's operating parameter adjustment functionality in column 10, lines 53 to 59 for disclosing the recited revised performance criterion (Ans. 22), even if the recited reclassification condition had to occur to satisfy claim 13—which it does not. *See Schulhauser*, at 9–10. In the relied-upon passage, Gendel notes that values for operating parameters (e.g., penalty value, increment and decrement values, threshold value) may be *adjusted* to optimize error detection and link quality control for a particular frequency hopping system. Gendel, col 10, ll. 53–59.

Patent Owner, however, contends that it is ostensibly unnecessary to revise Gendel's predetermined threshold to ensure the number of used segments satisfying that threshold is not less than a specified number since an erred segment is always immediately replaced with an unused segment. App. Br. 63–64. This argument is unavailing. First, Patent Owner's arguments in this regard are limited solely to the *threshold* operating parameter in Gendel's column 10, lines 53 to 59, and ignore the *other* exemplary operating parameters that are revised, including penalty values, increment values, and decrement values. That the Examiner refers to these adjusted exemplary operating parameters in a non-limiting sense, namely as *including* a threshold value (Ans. 22), is telling in this regard.

Nevertheless, despite Patent Owner's arguments to the contrary (App. Br. 63–64), Gendel adjusts threshold values to optimize error detection and link quality for a particular frequency hopping system. Gendel, col 10, ll. 53–59. Therefore, Gendel fully meets reclassifying based on a revised performance criterion, where this criterion is selected such that the number of channels satisfying the criterion is not less than the specified number (i.e., one), namely in situations where segments are not replaced.

Therefore, we are not persuaded that the Examiner erred in rejecting claim 13, and claims 10–12, 51, 52, and 62–65 not argued separately with particularity.[10]

[10] Although Patent Owner nominally argues claims 10, 51, and 62 separately (App. Br. 108), Patent Owner again principally reiterates arguments made for claim 13. We, therefore, group these claims accordingly.

Claims 30, 34, 82, and 86

We also sustain the Examiner's rejection of claim 30 reciting, in pertinent part, (1) creating and maintaining, at a first participant, first performance data indicating the performance of at least one channel between the first and second participants; (2) requesting and receiving second performance data from a third participant, where the second performance data indicates the performance of a channel between the third participant and at least a fourth participant; and (3) creating and maintaining revised first performance data based on the first and second performance data.

We first note that the Examiner's mapping the recited (1) third participant to the second participant, and (2) fourth participant to the first participant (Ans. 31) is undisputed. Indeed, this mapping is consistent with a similar correspondence recited in claim 33. *Accord* Ans. 31 (noting this correspondence); '647 Request 480 (same).

We also see no error in the Examiner's reliance on the functionality associated with Gendel's error segment replacement as detailed, for example, in Figures 5 and 6 for anticipating the recited limitations. *See* Ans. 31 (citing Gendel, col. 12, ll. 18–32). First, because Gendel's subsystems store error values for associated segments, Gendel discloses that a first participant creates and maintains first performance data as claimed. *Accord* '647 Request 479; '111 Request 84.

As shown in Gendel's Figure 5, if (1) an error occurs in a received packet for a current hopping frequency in a currently-used segment in step 604, and (2) the associated error value is greater than a threshold in step 618, the segment is marked as a candidate for replacement in step 616, and the

replacement process with the other party commences in step 614. Gendel, col. 11, ll. 24–54. This process then repeats for the next frequency in the next used segment until all frequencies in all segments have been visited at least once, thus completing one cycle. *See* Gendel Fig. 5 ("NO" prong in step 620); col. 11, ll. 54–65. After completing this cycle, the error values of segments with no reception errors are modified in step 622, and the process returns to step 604 to repeat the process. Gendel, col. 11, ll. 57–65; col. 12, ll. 10–17.

Gendel details the segment replacement process in Figure 6. In step 654, Gendel's system transmits a signal, such as a replacement request, to another party requesting that a particular erroneous segment is to be replaced with an unused segment. Gendel, col. 12, ll. 36–39. Then, in step 656, the system checks whether a reply was received from the other party acknowledging receipt of the request to modify the hopping pattern and, if so, the segment hopping table is updated accordingly in step 662. *Id.* col. 12, ll. 42–48.

Given this functionality, Gendel discloses requesting and receiving second performance data, namely either a reply acknowledging receipt of a request to modify the hopping pattern and/or a request to modify the hopping pattern from third participant (i.e., the second participant) in steps 656 and 658 of Figure 6. *Accord* '111 Request 85. Moreover, despite Patent Owner's arguments to the contrary (App. Br. 84–85), Gendel also discloses creating and maintaining revised first performance data based at least partly on the first and second performance data. *Accord* '647 Request 481 (noting that notifications sent from one device to another in Gendel include details

of erred segments and replacement segments). '111 Request 85 ("The requests to update segments sent from one party to another party requesting replacement of segments contain *performance data* in the form of identification of a segment to be replaced, S_{ERROR}, and the identification of a replacement segment, S_{UNUSED}.") (emphasis added).

Appellants' contention that Gendel allegedly does not create and maintain revised first performance data based on the first *and* second performance data (App. Br. 85) is unavailing and not commensurate with the scope of the claim. Although Gendel's segment hopping table is updated based on at least the second performance data as Patent Owner acknowledges (*id.*), revised first performance data is nonetheless also created and maintained in connection with this process.

Therefore, we are not persuaded that the Examiner erred in rejecting claim 30, and claims 34, 82, and 86 not argued separately with particularity.[11]

Claims 33 and 85

We also sustain the Examiner's rejection of claim 33 reciting, in pertinent part, requesting and receiving second performance data and third performance data from a third participant, where the third performance data indicates performance of at least one channel between the third participant

[11] Although Patent Owner nominally argues claims 34 and 86 separately (App. Br. 96–97), Patent Owner again principally reiterates arguments made for claim 30. We, therefore, group these claims accordingly.

and at least a sixth participant. RAN 6–7 (incorporating page 86 of the '111 Request 86 by reference).

In rejecting the claim, the Examiner equates (1) the third participant to the second participant; (2) the sixth participant to the first participant; and (3) third performance data to the second performance data. RAN 7. We see no error in this mapping. First, the claim itself specifies the first mapping explicitly. Nor do we see error in the Examiner's second and third mappings despite Patent Owner's arguments to the contrary (App. Br. 88–89).

To be sure, using the terms "first" and "second" in claim language is a common patent-law convention to distinguish between repeated instances of an element or limitation. *3M Innovative Properties Co. v. Avery Dennison Corp.*, 350 F.3d 1365, 1371 (Fed. Cir. 2003). Therefore, the terms "first," "second," and "third" used in the claim distinguish repeated instances of the recited performance data, and the terms "first," "second," "third," "fourth," "fifth," and "sixth" distinguish repeated instances of the recited participants.

But nothing in the claims nor the Specification requires these elements to be *different*; indeed, the claims themselves suggest otherwise. That claim 33 recites that (1) the third participant is the second participant, and (2) the fourth participant is the first participant is telling in this regard. Merely because the claim does not also recite explicitly that (1) the sixth participant is the first participant; and (2) the third performance data is the second performance data does not mean that this equivalence cannot exist or is otherwise prohibited. We reach this conclusion noting that claim 34's preamble includes the term "comprising" which does not preclude additional unrecited steps. *See Genentech*, 112 F.3d at 501. That claim 34 does not

prohibit the above mapping explicitly—unlike other explicit prohibitions in the claims[12]—only further bolsters the reasonableness of the Examiner's construction. *See* Ans. 35–36.

Patent Owner's contention, then, that the sixth participant is not the same as any other participant recited in claim 33 (App. Br. 88) is unavailing and not commensurate with the scope of the claim. And to the extent that Patent Owner contends that the third performance data is not the second performance data (*see* App. Br. 88–89), such a contention is likewise unavailing for similar reasons.

To be sure, claim 33 recites that the third performance data indicates performance of at least one channel between the *third* participant and at least a *sixth* participant as Patent Owner indicates. App. Br. 89.[13] But given the Examiner's mapping (1) the sixth participant to the first participant, and (2) the third performance data to the second performance data (RAN 7), we see no error in the Examiner's reliance on Gendel's segment-replacement functionality for anticipating the recited limitations for the reasons previously discussed.

Therefore, we are not persuaded that the Examiner erred in rejecting claim 33, and claim 85 not argued separately with particularity.

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[12] *See, e.g.,* claim 8 (reciting that the third channel is *not* the first channel); *see also* claims 36 and 88 (reciting that the second channel is *not* the first channel, and the fifth channel is *not* the fourth channel).

[13] *But see* App. Br. 88 (arguing that the third performance data is performance data of at least one channel between the *third* participant and at least a *fourth* participant).

THE ANTICIPATION REJECTION OVER SONETAKA

We sustain the Examiner's rejection of independent claim 30 reciting, in pertinent part, (1) creating and maintaining, at a first participant, first performance data indicating the performance of at least one channel between the first and second participants; (2) requesting and receiving second performance data from a third participant, where the second performance data indicates the performance of a channel between the third participant and at least a fourth participant; and (3) creating and maintaining revised first performance data based on the first and second performance data. RAN 9 (incorporating pages 150 to 152 of the '111 Request by reference); RAN 32 (incorporating pages 471 to 474 of the '647 Request by reference); Ans. 28–30.

In the incorporated findings, the Examiner finds that first performance data in the form of "CH (channel)[14] information" is created and maintained at a first participant, namely Sonetaka's base station "B" in Figures 4 and 5. *See* '647 Request 472; '111 Request 151. This first performance data is said to indicate the performance of at least one channel between the first participant (base station "B") and at least a second participant, namely its respective subscriber terminal, because channels are later assigned between these participants based on this data to minimize interference. '647 Request 472.

Similarly, the Examiner finds that second performance data in the form of "CH information" is received from a third participant, namely base

[14] Sonetaka abbreviates the term "channel" as "CH." *See* Sonetaka, col. 6, l. 35.

station "C." *See* '647 Request 472; '111 Request 151–52. This second performance data is said to indicate the performance of at least one channel between the third participant (base station "C") and at least a fourth participant, namely its respective subscriber terminal, because channels are later assigned between these participants based on this data to minimize interference. '647 Request 473.

We see no error in these findings. Because Sonetaka's CH information (1) indicates a channel's performance with respect to, among other things, interference, and (2) channels are later assigned for communications between base stations "B" and "C" and their respective subscriber terminals *based on* this performance data to, among other things, minimize interference, the performance data at least *indicates* the channels' performance between the recited participants, at least with respect to interference. *See* Sonetaka col. 4, ll. 46–58; Figs 4–5. Patent Owner's arguments to the contrary (App. Br. 79–82) are unavailing and not commensurate with the scope of the claim.

Nor do we see error in the Examiner's finding that Sonetaka's system creates and maintains revised first performance data, namely "CH assignment information," based on the first and second performance data as claimed. *See* '111 Request 152 (citing Sonetaka col. 4, ll. 48–57); '647 Request 473–74 (same). As shown in Sonetaka's Figure 5, after master base station "A" selects appropriate channels based on the CH information received from slave base stations "B" and "C," the master then sends "CH assignment information to base stations "B" and "C" for optimum channel assignment. Sonetaka, col. 4, ll. 48–58. Despite Patent Owner's arguments

to the contrary (App. Br. 82–84), we see no reason why Sonetaka's CH assignment information cannot constitute revised first performance data, particularly since it is based at least partly on performance data, namely the CH information.

Patent Owner's contention that Sonetaka's CH assignment information is not performance data because it differs from CH information (App. Br. 83–84) is unavailing. First, this contention unsubstantiated by any persuasive evidence on this record apart from attorney argument that has little probative value. *See In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997). Second, both CH *information* and CH assignment *information* are data that at least relate to channel performance. Therefore, we see no error in the Examiner's mapping Sonetaka's CH assignment information to the recited revised first performance data given the scope and breadth of the limitation.

Therefore, we are not persuaded that the Examiner erred in rejecting claim 30, and claims 31, 32, 35, 82–84, and 87 not argued separately with particularity.

THE OBVIOUSNESS REJECTION OVER SCHMIDL AND DICKER

We sustain the Examiner's rejection of independent claim 15 reciting, in pertinent part, selecting the particular participant based on (1) the performance of the first channel between the specified participant and the other participants and (2) at least one selection criterion. Despite Patent Owner's arguments to the contrary (App. Br. 75–76; Reb. Br. 13–14), we see no error in the Examiner's reliance on Schmidl for at least suggesting

selecting a particular participant based on the recited channel performance and selection criterion. RAN 25 (incorporating pages 332 to 342 of the '647 Request by reference); Ans. 26–27.

In column four, lines 39 to 51, Schmidl describes an example where a master device transmits data packets to two slave devices. If the frequency specified by the normal frequency hopping pattern for the master's next transmission to the *first slave* is in a deep fade for the channel to the first slave, but the channel to the second slave device is good, then the frequency for transmission to the *second slave* is chosen because transmitting a packet to the second slave on that frequency is more likely to be successful than transmitting a packet to the first slave on that frequency. Schmidl, col. 4, ll. 41–51.

Our emphasis underscores that although Schmidl's system selects a frequency as Patent Owner indicates (App. Br. 75–76), Schmidl also effectively selects particular participants at least with respect to their associated frequencies. *Accord* Ans. 26 (noting that Schmidl's column 4, lines 39 to 51 indicates that a particular participant is selected as well as a frequency); '647 Request 335–36. That Schmidl's system also chooses to transmit to the *second slave* on a frequency specified by the frequency hopping pattern for transmission to the *first slave* due to lower attenuation (Schmidl, col. 4, l. 52–col. 5, l. 3) only further bolsters the Examiner's finding that Schmidl at least suggests selecting a particular participant at least with respect to their associated frequencies. Patent Owner's arguments to the contrary (App. Br. 75–76; Reb. Br. 13–14) are unavailing and not commensurate with the scope of the claim.

Therefore, we are not persuaded that the Examiner erred in rejecting claim 15, and claims 19–24, 67, and 71–76 not argued separately with particularity.

THE REMAINING REJECTIONS

Because our decision is dispositive regarding patentability of all appealed claims based on the foregoing prior art references, we need not reach the merits of the Examiner's decision to also reject (1) claims 13 and 65 under 35 U.S.C. § 102(e) as anticipated by Dicker[15]; (2) claims 15, 19–21, and 71–73 under 35 U.S.C. § 102(e) as anticipated by Gerten[16]; (3) claims 30, 33, 34, 82, 85, and 86 under 35 U.S.C. § 102(b) as anticipated by Haartsen; (4) claims 30, 33, 34, 82, 85, and 86 under 35 U.S.C. § 102(b) as anticipated by Bergström; (5) claims 8, 11, 13, 37, 60, 63, 65, 89, and 94 under 35 U.S.C. § 103(a) as obvious over Sivakumar and Kim[17]; and (6) claims 8, 37, 38, 63, 89, 94, and 95 under 35 U.S.C. § 103(a) as obvious over Sivakumar and Koivu. *See Beloit Corp. v. Valmet Oy*, 742 F.2d 1421, 1423 (Fed. Cir. 1984) (approving ITC's determination based on a single dispositive issue, and not reaching other issues not decided by the lower tribunal).

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[15] Although Patent Owner also argues that claim 52 is also not anticipated by Dicker (App. Br. 65–69; Reb. Br. 12–13), the claim was not so rejected. *See* RAN 7–8, 23.

[16] Although Patent Owner also argues that claim 67 is also not anticipated by Gerten (App. Br. 74–75), the claim was not so rejected. *See* RAN 24–25.

[17] Although Patent Owner also argues that claims 46 and 52 are also not obvious over Sivakumar and Kim (App. Br. 44, 69), the claims were not so rejected. *See* RAN 10–11, 20, 34–35, 47, 49–51, 60, 64.

CONCLUSION

We affirm the Examiner's rejections as follows:

(1) claims 8, 13, 36–38, 46, 60, 65, 88–90, and 93–95 under 35 U.S.C. § 102(a) as anticipated by Sivakumar;

(2) claims 1, 4, 6, 9, 25, 27, 41, 44, 47, 49, 53, 56, 58, 61, 77, and 79 under 35 U.S.C. § 102(b) as anticipated by Imamura;

(3) claims 1, 3, 9–14, 25–28, 30, 33, 34, 41, 43–45, 47, 49–53, 55–58, 61–66, 77–80, 85, and 86 under 35 U.S.C. § 102(a) as anticipated by Gendel;

(4) claims 30–32, 35, 82–84, and 87 under 35 U.S.C. § 102(e) as anticipated by Sonetaka; and

(5) claims 15, 19–24, 67, and 71–76 under 35 U.S.C. § 103(a) as obvious over Schmidl and Dicker.

We reverse the Examiner's rejections as follows:

(1) claims 1, 4, 5, 9–12, 14, 25, 26, 41, 43–45, 47, 49, 51, 53, 55–58, 61–64, 66, 77, and 78 under 35 U.S.C. § 102(a) as anticipated by Sivakumar;

(2) claims 8, 36, 37, 46, 60, 88, 89, 93 and 94 under 35 U.S.C. § 102(b) as anticipated by Imamura; and

(3) claims 8, 36–40, 46, 60, and 88–97 under 35 U.S.C. § 102(a) as anticipated by Gendel.

We do not reach the following rejections:

(1) claims 13 and 65 under 35 U.S.C. § 102(e) as anticipated by Dicker;

(2) claims 15, 19–21, and 71–73 under 35 U.S.C. § 102(e) as anticipated by Gerten;

(3) claims 30, 33, 34, 82, 85, and 86 under 35 U.S.C. § 102(b) as anticipated by Haartsen;

(4) claims 30, 33, 34, 82, 85, and 86 under 35 U.S.C. § 102(b) as anticipated by Bergström;

(5) claims 8, 11, 13, 37, 60, 63, 65, 89, and 94 under 35 U.S.C. § 103(a) as obvious over Sivakumar and Kim; and

(6) claims 8, 37, 38, 63, 89, 94, and 95 under 35 U.S.C. § 103(a) as obvious over Sivakumar and Koivu.

DECISION

The Examiner's decision to reject claims 1, 3–6, 8–15, 19–28, 30–41, 43–47, 49–53, 55–58, 60–67, 71–80, and 82–97 is affirmed-in-part.

Requests for extensions of time in this *inter partes* reexamination proceeding are governed by 37 C.F.R. § 1.956. *See* 37 C.F.R. § 41.79.

In the event neither party files a request for rehearing within the time provided in 37 C.F.R. § 41.79, and this decision becomes final and appealable under 37 C.F.R. § 41.81, a party seeking judicial review must timely serve notice on the Director of the United States Patent and Trademark Office. *See* 37 C.F.R. §§ 90.1 and 1.983.

AFFIRMED-IN-PART

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