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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/969,875	01/04/2008	Stephen J. Shellhammer	070631	1838

23696 7590 11/18/2016  
QUALCOMM INCORPORATED  
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EXAMINER
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LIAO, HSINCHUN

ART UNIT	PAPER NUMBER
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2649

NOTIFICATION DATE	DELIVERY MODE
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11/18/2016

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* STEPHEN J. SHELLHAMMER

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Appeal 2015-006034  
Application 11/969,875  
Technology Center 2600

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Before CARLA M. KRIVAK, CARL W. WHITEHEAD JR., and  
KARA L. SZPONDOWSKI, *Administrative Patent Judges*.

SZPONDOWSKI, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1–6, 10–12, 15–20, 24–38, 46, 49, 52, 55–62, 64, 65, 67, and 96–117, all claims pending in the present application. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.

## STATEMENT OF THE CASE

Appellant's invention is directed to a method and apparatus for distributed spectrum sensing for wireless communication, and in particular for determining if a signal of interest is present in a wireless spectrum.

Spec. ¶ 2. Claims 1 and 6, reproduced below, are exemplary of the claimed subject matter:

1. A method for use in a system including wireless channel spectrum, the method comprising:

sensing at a device a wireless channel spectrum and generating a corresponding signal measurement;

deciding at the device, based on the signal measurement and a detection threshold, whether a signal of interest is present or is not present in said wireless channel spectrum and generating, based on the deciding, a resulting decision that the signal of interest is present or a resulting decision that the signal of interest is not present; and

in association with the resulting decision that said signal of interest is present, determining at the device a confidence measure of said resulting decision that said signal of interest is present, said confidence measure indicating a relation of the signal measurement to the detection threshold, and

transmitting the resulting decision that said signal of interest is present and the confidence measure of said resulting decision that said signal of interest is present to another device.

6. The method of claim 1, further comprising:

performing at the device multiple field strength measurements of said signal of interest over a time period;

generating at the device a measured field strength value from said multiple field strength measurements of said signal of interest;

generate at the device a reliability indicator value indicating the reliability of the generated field strength, based on generating one of: i) a variance and ii) a standard deviation from said multiple measurements of the field strength measurements and

transmitting the measured field strength value indicating the measured field strength of said signal of interest and with said measured field strength value said reliability indicator value indicating the reliability of the measured field strength value.

### REJECTIONS

Claims 1–6, 10–12, 15–20, 24–38, 42, 46, 49, 52, 55–62, 64, 65, 67, and 96–117 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor regards as the invention. Final Act. 3.<sup>1</sup>

Claims 1–5, 11, 15–19, 25, 27–37, 55, 56, 58, 60, 62, 63, 65, 66, 96, 98, and 99 stand rejected under 35 U.S.C. § 102(e) as anticipated by Mangold (WO 2006/051509 A1; published May 18, 2006). Final Act. 4–8.<sup>2</sup>

Claims 6–9 and 20–23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Mangold and Endo (US 6,067,455; issued May 23, 2000). Final Act. 8–10.<sup>3</sup>

Claims 10, 12, 24, 26, 57, 59, 61, 64, 67, and 97 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Mangold

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<sup>1</sup> Independent claims 38, 42, 46, 49, and 52 do not recite the limitation at issue, and therefore appear to have been inadvertently included in the title of the rejection. *See* Br. 27–29, Claims Appx.

<sup>2</sup> Claims 63 and 66 have been cancelled, and therefore appear to have been inadvertently included in the title of the rejection. *See* Br. 15.

<sup>3</sup> Claims 7–9 and 21–23 have been cancelled, and therefore appear to have been inadvertently included in the title of the rejection. *See* Br. 21, Claims Appx.

and Bae (US 2003/0093364 A1; published May 15, 2003). Final Act. 10–11.

Claims 38, 40–42, 44–46, 48, 49, 51, 52, and 54 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Endo and Mangold. Final Act. 11–13.

Claims 13 and 14 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Mangold and Behrens (US 5,754,353; issued May 19, 1998). Final Act. 13–14.<sup>4</sup>

## ANALYSIS

### *Indefiniteness Rejection*

*Issue 1:* Did the Examiner err in concluding claims 1–6, 10–12, 15–20, 24–38, 42, 46, 49, 52, 55–62, 64, 65, 67, and 96–117 are indefinite?

The Examiner concludes claims 1–6, 10–12, 15–20, 24–38, 42, 46, 49, 52, 55–62, 64, 65, 67, and 96–117 are indefinite because “the [S]pecification fails to disclose the limitation of ‘resulting decision,’” thus it is unclear if the “‘resulting decision’” is the “‘local decision’” or the “‘global decision,’” as described in Appellant’s Specification. Final Act. 3; *see also* Ans. 2–3.

Appellant contends the Examiner’s position is not consistent with the Specification (Br. 12, citing Spec. ¶¶ 7, 68) and the Examiner was able to discern the meaning of the “‘resulting decision’” as the intended meaning of “‘local decision.’” Br. 12.

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<sup>4</sup> Claims 13 and 14 have been cancelled, and therefore appear to have been inadvertently included in the Final Action. *See* Br. 19.

We are persuaded by Appellant’s arguments. The mere fact that a term or phrase used in the claim is not used in the Specification does not mean, necessarily, that the term or phrase is indefinite. *See* Manual of Patent Examining Procedure § 2173.05(e)II.A., 9th Ed., Rev. 7, 2015; *see Bankcorp Services L.L.C. v. Hartford Life Ins. Co.*, 359 F.3d 1367, 1373 (Fed. Cir. 2004). The test for definiteness under 35 U.S.C. § 112, second paragraph, is whether “those skilled in the art would understand what is claimed when the claim is read in light of the specification.” *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1576 (Fed. Cir. 1986) (citations omitted).

Appellant directs us to paragraph 7 of the Specification, which states “terminals report not only their decision but also a confidence measure corresponding to their decision to the control node.” In our view, we do not consider use of the term “resulting decision” to be unclear, as stated by the Examiner; rather, it is merely the decision resulting from the previously claimed “deciding at the device” limitation. Accordingly, we will not sustain the Examiner’s 35 U.S.C. § 112, ¶ 2 rejection of claims 1–6, 10–12, 15–20, 24–38, 42, 46, 49, 52, 55–62, 64, 65, 67, and 96–117.

*Claims 1, 16, 28, 32, 35, 55, 58, 60, 62, 65, and 96*

*Issue 2: Did the Examiner err in finding Mangold discloses “determining at the device a confidence measure of said resulting decision that said signal of interest is present, said confidence measure indicating a relation of the signal measurement to the detection threshold,” as recited in independent claim 1, and commensurately recited in independent claims 16, 28, 32, 35, 55, 58, 60, 62, 65, and 96?*

Appellant contends Mangold’s “confidence level” does not disclose the disputed limitation because it is “based on the ‘total number of counted Medium Sensing Events’ that the sender provides with” the report, which “indicates nothing of each event’s signal power relative to the threshold that the sender used for generating that count.” Br. 14 (emphasis omitted).

We are not persuaded by Appellant’s arguments and agree with the Examiner’s findings. Final Act. 4; Ans. 3–4. Mangold describes “detecting and counting durations of times when the medium is busy and times when the medium is idle.” Mangold 2, ll. 19–20. If the received power level is larger than a certain pre-determined Received Power Indicator (“RPI”) value, the medium is identified as busy. Mangold 2, ll. 21–21. The count of these Medium Sensing Events is used to create RPI histograms. Mangold 2, ll. 18–20. To assess the confidence level of the reported data, the total number of counted Medium Sensing Events is provided. Mangold 8, l. 13 – 9, l. 5. Because the Medium Sensing Events are only counted when they exceed a certain pre-determined RPI threshold, we agree with the Examiner that under the broadest reasonable interpretation in light of the Specification, Mangold discloses “said confidence measure [counted Medium Sensing Events] indicating a relation of the signal measurement [sensing] of the detection threshold [certain pre-determined RPI threshold].”

Accordingly, we are not persuaded the Examiner erred in finding Mangold discloses the disputed limitation. Therefore, we sustain the Examiner’s 35 U.S.C. § 102(b) rejection of independent claims 1, 16, 28, 32, 35, 55, 58, 60, 62, 65, and 96. For the same reasons, we sustain the Examiner’s 35 U.S.C. § 102(b) rejection of dependent claims 2–5, 11, 17–19, 25, 27, 29–31, 56, 98, and 99, which were not separately argued. *See* Br.

15. Further, for the same reasons we sustain the Examiner's 35 U.S.C. § 103(a) rejection of dependent claims 10, 12, 24, 26, 57, 59, 61, 64, and 67, which were not separately argued. *See* Br. 18.

*Claims 6 and 20*

*Issue 3:* Did the Examiner err in finding the combination of Mangold and Endo teaches or suggests “generating one of: i) a variance and ii) a standard deviation from said multiple measurements of the field strength measurements,” as recited in dependent claim 6 and commensurately recited in dependent claim 20?

The Examiner relies on Mangold's histogram to teach or suggest the disputed limitation. Final Act. 10, Ans. 5. Specifically, the Examiner finds “variance or a standard deviation can be estimated from a histogram” (Final Act. 10) and “variance or standard deviation describe[] the shape of a histogram (e.g.[,] how the data points spread in the histogram.” Ans. 5.

Appellant contends, “claims 6 and 20 do not recite ‘sending information from which a variance or a standard deviation can be estimated.’” Br. 17. Appellant further argues Mangold's “histogram bin counts reflect nothing of the signal strength of the Medium Sensing Events.” Br. 18. Finally, Appellant contends the Examiner “has not shown motivation for modifying Mangold and/or Endo to generate such a histogram (if any exists).” Br. 18 (emphasis omitted).

We are not persuaded by Appellant's argument and agree with the Examiner's findings. *See* Final Act. 8–10; Ans. 5. As described *supra*, Mangold's histograms are created by counting Medium Sensing Events, which are detected when a received power level is larger than a certain pre-

determined RPI value. Mangold 2, ll. 18–21. We, therefore, disagree with Appellant’s argument that Mangold’s histograms “reflect nothing of the signal strength of the Medium Sensing Events.” Further, the test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). Appellant presents no evidence that generating a variance or standard deviation from a histogram was “uniquely challenging or difficult for one of ordinary skill in the art.” *See Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007) (citing *KSR Intern. Co. v. Teleflex Inc.*, 550 U.S. 398, 418–419 (2007)).

Appellant also argues the Examiner’s “taking of Official Notice is in error on its face.” Br. 18. We find Appellant’s arguments inadequate to traverse the noticed findings. Appellant has not specifically pointed out the supposed errors in the Examiner’s taking of Official Notice, “includ[ing] stating why the noticed fact is not considered to be common knowledge or well-known in the art.” *See Manual of Patent Examining Procedure (“MPEP”) § 2144.03(C)* (9th Ed., Rev. 7, 2015). An adequate traverse must contain adequate information or argument to create on its face a reasonable doubt regarding the circumstances justifying Examiner’s notice of what is well known to one of ordinary skill in the art. *See In re Boon*, 439 F.2d 724, 728 (CCPA 1971).

Accordingly, we are not persuaded the Examiner erred in finding the combination of Mangold and Endo teaches or suggests the disputed limitation. Therefore, we sustain the Examiner’s 35 U.S.C. § 103(a) rejection of dependent claims 6 and 20.

*Remaining Claims*

Appellant does not present additional arguments for independent claims 38, 42, 46, 49, and 52, nor for dependent claims 15, 33, 34, 36, 37, 97, and 99. Therefore, we summarily sustain the Examiner's 35 U.S.C. § 103(a) rejection of claims 38, 42, 46, 49, 52, and 97 and the Examiner's 35 U.S.C. § 102(e) rejection of claims 15, 33, 34, 36, 37, and 99.

DECISION

The Examiner's 35 U.S.C. § 112 rejection of claims 1–6, 10–12, 15–20, 24–38, 42, 46, 49, 52, 55–62, 64, 65, 67, and 96–117 is reversed.

The Examiner 35 U.S.C. § 102(e) rejection of claims 1–5, 11, 15–19, 25, 27–37, 55, 56, 58, 60, 62, 65, 96, 98, and 99 is affirmed.

The Examiner's 35 U.S.C. § 103(a) rejection of claims 6, 10, 12, 20, 24, 26, 38, 40–42, 44–46, 48, 49, 51, 52, 54, 57, 59, 61, 64, 67, and 97 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART