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EXAMINER

NGUYEN, HIEN NGOC

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patti.demichele@Philips.com

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* JING-MING JONG

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Appeal 2014-009337  
Application 12/562,236<sup>1</sup>  
Technology Center 3700

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Before STEFAN STAICOVICI, FREDERICK C. LANEY, and  
ARTHUR M. PESLAK, *Administrative Patent Judges*.

LANEY, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Jing-Ming Jong (Appellant) appeals under 35 U.S.C. § 134(a) from the Examiner's final decision rejecting claims 10–20 and 22.<sup>2</sup> We have jurisdiction over this appeal under 35 U.S.C. § 6(b).

SUMMARY OF DECISION

We REVERSE.

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<sup>1</sup> According to Appellant, the real party in interest is Koninklijke Philips Electronics N.V. Br. 3 (filed April 22, 2014).

<sup>2</sup> Claims 1–9 and 21 have been canceled. *See* Br. 13, 15 (Claims App.).

## INVENTION

Appellant's invention "relates to medical diagnostic imaging systems and, in particular, to diagnostic imaging systems which automatically control ultrasonic imaging for optimal tissue penetration, imaging frame rate, and image resolution." Spec. ¶ 1.<sup>3</sup>

Claims 10 and 22 are independent. Claim 10, reproduced below, is illustrative of the claimed subject matter:

1. A method for automatically adjusting the relationship between image resolution (Res) and the depth of penetration (Pen) of an ultrasound system comprising:

acquiring a plurality of ultrasound images over time;

*calculating the electronic noise between temporally different ultrasound images;* and

increasing the image resolution in response to relatively less electronic noise and increasing the penetration in response to relatively greater electronic noise.

Br. 13 (Claims App.) (emphasis added).

## REJECTIONS

The following rejections are before us for review:

I. The Examiner rejected claims 10–15 under 35 U.S.C. § 103(a) as unpatentable over Hossack (US 5,873,830, iss. Feb. 23, 1999) and Chiao (US 6,312,384 B1, iss. Nov. 6, 2001).

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<sup>3</sup> For citations to the Specification, Appellant refers to the Certified Copy of Foreign Priority Application (filed in divisional application No. 10/596,113 on May 11, 2007) and the Examiner refers to the United States Patent Application Publication (US 2010/0010352 pub. Jan. 14, 2010). In this opinion, we refer to the published application.

- II. The Examiner rejected claims 16–20 and 22 under 35 U.S.C. § 103(a) as unpatentable over Hossack, Chiao, Gilbert (US 2003/0028113 A1, pub. Feb. 6, 2003), and Shvarts (US 2006/0241455 A1, pub. Oct. 26, 2006).

## ANALYSIS

### *Rejection I*

Claim 10 requires a method that includes, *inter alia*, “calculating the electronic noise between temporally different ultrasound images.” Br. 13 (Claims App.). The Examiner finds Hossack discloses the claimed calculating step. Final Act. 2 (citing Hossack 10:60–67). Hossack states,

An advantage of this implementation is that the sum of absolute differences is an error signal related to noise in the image. If the detected motion is small or varies randomly between sequences and the sum of absolute differences is larger than a threshold, the image is probably stationary and noisy.

Hossack, 10:59–64. The Examiner explains that the “sum of absolute differen[ces] of error signal related to noise is calculating the electronic noise between ultrasound images.” Final Act. 2.

Appellant argues the Examiner misapprehends the teachings of Hossack. Br. 6–8. According to Appellant, “the ‘noise’ to which Hossack et al. are referring to is not electronic noise as recited in Claim 10, [but rather] it is motion.” *Id.* at 7. Furthermore, Appellant asserts the reference to “error signal” that the Examiner points to in Hossack “is not electronic noise but a difference due to motion.” *Id.* at 8.

In response, rather than disagreeing with Appellant’s representation of what Hossack teaches, the Examiner finds, “Appellant’s specification does not disclose a special definition of electronic noise that is different from

motion.” Ans. 8. The Examiner asserts, “according to Appellant’s abstract and specification . . . the electronic noise is the motion noise.” *Id.* (citing Spec. ¶¶ 3, 17, 19, 28, and 31). We, therefore, understand the Examiner’s obviousness determination to depend on the conclusion that electronic noise and motion noise are the same.

The dispute between the Examiner and Appellant is largely a matter of claim construction. During examination of a patent application, pending claims are given their broadest reasonable construction consistent with the specification. *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). Under the broadest reasonable interpretation standard, claim terms are given their ordinary and customary meaning as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). We look to the specification to see if it provides a definition for claim terms. *See In re ICON Health and Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007). However, “[e]ven when guidance is not provided in explicit definitional format, ‘the specification may define claim terms “by implication” such that the meaning may be found in or ascertained by a reading of the patent documents.’” *Irdeto Access, Inc. v. Echostar Satellite Corp.*, 383 F.3d 1295, 1300 (Fed. Cir. 2004).

Having studied the Specification, and, in particular, the portions of the Specification cited by the Examiner, we do not agree “electronic noise” is construed properly to encompass “motion” or “motion noise.” In claim 10, the term “noise” is modified by the term “electronic” and, as such, the plain meaning of the phrase “electronic noise” is noise generated by the electronics of the ultrasound system. The Specification does not otherwise

define the term “electronic noise” more broadly. Contrary to the Examiner’s finding that the Specification uses “motion” and “noise” synonymously, we find that the Specification consistently identifies “motion” and “noise” as distinctly separate factors.

At paragraph 3, the Specification describes automating controls “by sensing the amount of motion *and/or noise* in the anatomy being imaged.” (emphasis added). At paragraph 17, the Specification describes using a processor 46 “to detect the motion of objects *and/or noise in the image field.*” (emphasis added). The Specification states, at paragraph 19, “[a]s the motion and/or noise characteristic of the image field is detected and used to determine appropriate automatic settings for the Res/Speed control and/or the Pen/Gen/Res control, the marker 66 will move automatically.” Further, contrasting an approach *using motion* to adjust automatically the Res/Speed control, the Specification states, “[a] similar approach can be used to automatically adjust the Pen/Gen/Res control 64 setting *as a function of image signal/noise*” by determining whether there is a large initial drop in correlation between different images, which “is believed to be caused by the decorrelation of electronic noise (signal noise) in the far field.” Spec. ¶ 28 (emphasis added). Finally, at paragraph 31, the Specification describes separating out “decorrelation between images due to probe or tissue motion” to isolate “the signal/noise (electronic noise) factor as a decorrelative effect.” The above descriptions from the Specification differentiate between motion and electronic noise. A person of ordinary skill in the art, having read the entire disclosure of Appellant’s Specification, would not reasonably view motion and electronic noise as the same parameter.

As a result, the Examiner's rejection of claim 10 is based on an improper interpretation of the phrase "electronic noise." We are persuaded the Examiner has not established, by a preponderance of the evidence, that Hossack discloses, "calculating the electronic noise between temporally different ultrasound images," as claim 10 requires. While the sum of absolute differences may *relate* to noise in the image, the Examiner offers no persuasive evidence that this sum is, in fact, a calculation of the electronic noise. We note Hossack further states, "[i]f the detected motion is small or varies randomly between sequences *and* the sum of absolute differences is larger than a threshold, the image is *probably* stationary and noisy." Hossack, 10:61–64 (emphasis added). That statement undermines the Examiner's position because it indicates an assumption about the level of noise in the image. The assumption, moreover, is derived from a relationship between the amount of motion detected and the absolute sum of differences, rather than from a direct calculation isolating and determining the level of electronic noise in the image.

In conclusion, for the foregoing reasons, we do not sustain the rejection under 35 U.S.C. § 103(a) of claims 10–15 as unpatentable over Hossack and Chiao.

### *Rejection II*

We also do not sustain the Examiner's rejection of claims 16–20 under 35 U.S.C. § 103(a) as unpatentable over Hossack, Chiao, Gilbert, and Shvarts for reasons similar to those discussed for Rejection I. In particular, claims 16–20 depend, directly or indirectly, from claim 10 (Br. 14–15 (Claims App.)), and the Examiner's use of the teachings of Gilbert and

Shvarts, respectively, does not cure the deficiencies in Rejection I based upon Hossack and Chiao, as discussed *supra*. See Final Act. 4–5.

Regarding independent claim 22, which requires “a sensor coupled to the probe which senses electronic noise in the image field” (Br. 16 (Claims App.)), the Examiner finds Hossack’s motion sensor 1133 discloses such a sensor “because the [electronic] noise is caused by motion.” Final Act. 5–6 (citing Hossack, col. 17, ll. 10–28, Fig. 11). Appellant argues a motion sensor 1133 fails to evidence the claimed sensor because it “is for sensing image or transducer motion.” Br. 11–12. The Examiner does not dispute Appellant’s point, but finds it unpersuasive “because electronic noise comes from the motion in images which are sensed by the [motion] sensor” of Hossack. Ans. 10–11. The Examiner offers no evidentiary support, however, that Hossack’s motion sensor 1133, in fact, senses electronic noise in the image field. Given the Examiner offers no persuasive evidence that the motion sensor 1133 in Hossack actually senses electronic noise, a preponderance of the evidence fails to support the Examiner’s rejection of claim 22. Therefore, we do not sustain the Examiner’s rejection of claim 22 as unpatentable over Hossack, Chiao, Gilbert, and Shvarts.

#### DECISION

We reverse the Examiner’s rejection of claims 10–20 and 22.

REVERSED