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EXAMINER

GAY, SONIA L

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ROMAN A. DYBA, PERRY P. HE,
and LUCIO F.C. PESSOA¹

Appeal 2015-006759
Application 11/343,781
Technology Center 2600

Before DEBRA K. STEPHENS, MICHAEL M. BARRY, and
DAVID J. CUTITTA II, *Administrative Patent Judges*.

CUTITTA, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1, 3–10 and 12–24. Claims 2 and 11 are cancelled. We have jurisdiction over this appeal under 35 U.S.C. § 6(b).

We AFFIRM.²

¹ According to Appellants, the real party in interest is Freescale Semiconductor Inc. *See* Appeal Br. 3.

² Throughout this Opinion, we refer to: (1) Appellants' Specification filed Jan. 21, 2006 ("Spec."); (2) the Final Office Action ("Final Act.") mailed June 10, 2014; (3) the Appeal Brief ("Appeal Br.") filed Dec. 10, 2014; (4) the Examiner's Answer ("Ans.") mailed May 5, 2015; and (5) the Reply Brief ("Reply Br.") filed July 2, 2015.

BACKGROUND

Appellants' application relates to a system and method using a multi-rate filter to detect reflections in communication channels. Spec. 3. Claims 1 and 10 are independent claims. Claim 1 is representative and is reproduced below with disputed limitations emphasized:

1. A method of detecting reflections in a communication channel comprising:

filtering a first signal using a first multi-rate filtering system having a first bandpass characteristic to provide a first filtered signal, the first filtered signal comprising energy levels due to aliasing that are less than, (<), 20 dB below the level of the first filtered signal;

filtering a second signal using a second multi-rate filtering system having a second bandpass characteristic to provide a second filtered signal;

adaptively filtering the first filtered signal and the second filtered signal to provide filter coefficients; and

analyzing the filter coefficients to provide a time delay corresponding to each of one or more reflections.

REFERENCES

The prior art relied upon by the Examiner in rejecting the claims on appeal includes:

Jones	US 6,021,192	Feb. 1, 2000
Oh et al. ("Oh")	US 2003/0179840 A1	Sept. 25, 2003
Dyba et al. ("Dyba")	US 2003/0235294 A1	Dec. 25, 2003
Chandran et al. ("Chandran")	US 2005/0131678 A1	June 16, 2005
Woodard et al. ("Woodard")	US 7,027,942 B1	Apr. 11, 2006
Wang et al. ("Wang")	US 7,102,548 B1	Sept. 5, 2006

REJECTIONS

Claims 1, 3, 5, 6, 8–10, 12, 14, 15, 17, 18, 23, and 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Dyba and Woodard. Final Act. 2–6.

Claims 4 and 13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Dyba, Woodard, and Wang. Final Act. 6–7.

Claims 7 and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Dyba, Woodard, and Oh. Final Act. 7–8.

Claims 19–21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Dyba, Woodard, and Chandran. Final Act. 9.

Claim 22 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Dyba, Woodard, and Jones. Final Act. 11.

Our review in this appeal is limited to the above rejections and issues raised by Appellants. We have not considered other possible issues that have not been raised by Appellants and which are, therefore, not before us. *See* 37 C.F.R. § 41.37(c)(1)(iv) (2014).

ISSUES

1. Did the Examiner err in finding that the combination of Dyba and Woodard teaches or suggests “filtering a first signal using a first multi-rate filtering system having a first bandpass characteristic to provide a first filtered signal, the first filtered signal comprising energy levels due to

aliasing that are less than, ($<$), 20 dB below the level of the first filtered signal,” as recited in claim 1?

2. Was the Examiner’s rationale for modifying Dyba based on Woodard erroneous because Woodard teaches away from the claimed combination?

DISCUSSION

After review of Appellants’ arguments and the Examiner’s findings and reasoning, we determine that Appellants have not persuaded us of error in the Examiner’s rejection of claims 1, 3–10, and 12–24. Accordingly, we sustain the rejection for reasons set forth by the Examiner in the Final Office Action and the Answer. *See* Final Act. 2–12; Ans. 12–15. We add the following for emphasis and completeness.

Issue 1

In rejecting claim 1, the Examiner finds Woodard’s Figure 10, which illustrates “a graph depicting the aliasing energy as a function of decimation for various baseband filter orders,” teaches or suggests “a multi-rate filtering system, wherein a first filtered signal comprises energy levels due to aliasing that are less than 20 dB below the level of the first filtered signal.” Final Act. 3; Ans. 12 (*see also* Woodard col. 4, ll. 7–8, col. 10, ll. 7–28, and col. 8, l. 46 to col. 9, l. 55).

Appellants contend Woodard’s Figure 10 does not show any relation between first filtered signal levels and aliasing levels. Appeal Br. 8. We disagree. In describing the filter of Figure 10, Woodard indicates that the aliasing energy A_D indicated by the y-axis of Figure 10 is a ratio of the

aliasing energy to the filtered signal levels of Woodard's filter. *See* Woodard col. 9, ll. 37–40 (“The aliasing energy caused by the multirate filter is defined as the ratio of the aliasing energy in the passband to the total energy and expressed in dB.”). We agree, therefore, with the Examiner's finding that the filter of Woodard's Figure 10 reduces aliasing energy, with respect to the total energy in the passband, by less than 20 dB. Ans. 14 (citing Woodard, Fig. 10).

Indeed, Appellants note that “almost any filter has some point in its response where energy is reduced by less than 20 dB” and, more specifically, acknowledge that in Woodard's Figure 10 “there are some combinations where aliasing energy appears to be reduced less than 20 dB.” Appeal Br. 8. Despite this acknowledgment, Appellants contend “[t]here is nothing about finding a filter with a response region with less than 20 dB of rejection that begins to anticipate the claimed invention.” Appeal Br. 8.

We disagree with Appellants' arguments. Initially, we note that the Examiner does not rely on Woodard to anticipate claim 1 under 35 U.S.C. § 102 but instead rejects claim 1 under 35 U.S.C. § 103(a) as obvious over the combination of Dyba and Woodard. More specifically, the Examiner finds that in Woodard, “[t]he prototype filter with $N=512$ reduces aliasing energy by less than 20 dB at a D before maximum decimation”³ and thus, finds Woodard teaches or suggests “the first filtered signal comprises energy levels due to aliasing that are less than, ($<$), 20 dB below the level of the first

³*See, e.g.*, Woodard col. 5, ll. 5–7 *and* col. 6, ll. 31–67 for exemplary discussion of decimation and the decimation factor D .

filtered signal,” as recited in claim 1. Final Act. 3; Ans. 10 (citing, inter alia, Woodard Fig. 10). We agree with the Examiner’s findings.

We also agree with the Examiner’s finding that a filter that has, at some point in its response, a filtered signal output that comprises aliasing energy levels that are less than 20dB below the energy level of the filtered signal, *including the Woodard filter*, teaches the claimed “comprising energy levels due to aliasing that are less than, (<), 20 dB below the level of the first filter[ed] signal” requirement. Final Act. 12.

Appellants additionally contend Woodard never discloses or suggests the use of filters with less than 20 dB of reduction. Appeal Br. 9. We find this argument unpersuasive, particularly in light of Appellants’ contradictory statement that “there are some combinations [of Woodard’s filter] where aliasing energy appears to be reduced less than 20 dB.” *Id.* We also agree with the Examiner’s finding that claim 1 does not limit the filter to providing exclusively a filtered signal with energy levels due to aliasing that are less than 20 dB below the level of the filtered signal. Final Act. 12.

Accordingly, we agree with the Examiner’s finding that the combination of Dyba and Woodard teaches or suggests “filtering a first signal,” as recited in claim 1. Final Act. 3.

Issue 2

Appellants contend Woodard teaches away from the claimed invention because Woodard discusses a “sweet spot” where aliasing is reduced by greater than 45 dB. Appeal Br. 8. We disagree with Appellants’ contention. If a prior art reference discloses a different solution to a similar problem, it does not teach away from the claimed subject matter unless the

prior art reference also criticizes, discredits, or otherwise discourages the solution claimed. *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). Here, it is undisputed that Woodard teaches “some combinations where aliasing energy appears to be reduced less than 20 dB.” Appeal Br. 8. Appellants contend, nevertheless, that “Woodard teaches away from such low levels of aliasing reduction” because Woodard describes as a “sweet spot” a filter response where aliasing is reduced by higher levels, i.e., greater than 45 dB. *Id.* (citing Woodard Fig. 10).

We agree with the Examiner that Woodard does not criticize, discredit, or otherwise discourage the claimed solution simply because Woodard indicates a sweet spot may exist where aliasing is reduced by greater than 45 dB. Appeal Br. 14. We agree with the Examiner’s rationale that “other sweet spots can exist.” Ans. 14–15. Thus, rather than teaching away from the claimed combination, Woodard discusses other solutions to the problem of aliasing without specifically discrediting reducing alias energy less than 20 dB.

Accordingly, in view of the discussion above, we sustain the Examiner’s 35 U.S.C. § 103(a) rejection of claim 1. Claim 10, which Appellants do not argue separately, recites a system with requirements analogous to those of claim 1 and stands rejected on the same basis and, thus, for the reasons discussed above, the rejection of claim 10 is also sustained. Appeal Br. 9. Appellants do not make any other substantive argument regarding the rejection of dependent claims 3–9 and 12–24 and so the rejection of these claims is also sustained. *See* App. Br. 9–11.

DECISION

We sustain the Examiner's decision to reject claims 1, 3–10, and 12–24.⁴

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

⁴ In the event of further prosecution, the Examiner should consider ascertaining whether independent claims 1 and 10 meet the requirements of 35 U.S.C. 112, second paragraph, to particularly point out and distinctly define the metes and bounds of the subject matter to be protected by the patent grant. As an example, the Examiner should ascertain whether there is sufficient antecedent basis for the limitation “*the level* of the first filtered signal.”