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EXAMINER

CHENG, DIANA

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MEEI-LING CHIANG, BOON-AIK ANG,
and DENNIS FISCHETT, JR.

Appeal 2015-007377
Application 13/887,485
Technology Center 2800

Before TERRY J. OWENS, LINDA M. GAUDETTE, and
DEBRA L. DENNETT, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

The Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1–8 and 14–20. We have jurisdiction under 35 U.S.C. § 6(b).

The Invention

The Appellants claim a phase locked loop system and a method for measuring a bandwidth of a phase locked loop. Claim 1 is illustrative:

1. A phase locked loop system comprising:
a phase locked loop having a reference clock input, a voltage controlled oscillator (VCO) clock output, and a feedback clock output; and

a calibration circuit for providing a reference clock signal to said reference clock input of said phase locked loop, inducing first and second phase disturbances between said reference clock signal and a feedback clock signal, measuring respective first and second zero crossing times of a phase error between said reference clock signal and said feedback clock signal, and estimating a bandwidth of said phase locked loop in response to said first and second zero crossing times.

The Reference

Galloway

US 7,042,252 B2

May 9, 2006

The Rejection

Claims 1–8 and 14–20 stand rejected under 35 U.S.C. § 102(a)(1) over Galloway.

OPINION

We reverse the rejection. We need address only the independent claims (1 and 14). Those claims require estimating a bandwidth of a phased lock loop in response to first and second zero crossing times.

“Anticipation requires that every limitation of the claim in issue be disclosed, either expressly or under principles of inherency, in a single prior art reference.” *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1255–56 (Fed. Cir. 1989). “[D]uring examination proceedings, claims are given their broadest reasonable interpretation consistent with the specification.” *In re Translogic Tech. Inc.*, 504 F.3d 1249, 1256 (Fed. Cir. 2007) (quoting *In re Hyatt*, 211 F.3d 1367, 1372 (Fed. Cir. 2000)).

Regarding the meaning of “bandwidth” the Appellants’ Specification states (Spec. ¶ 24):

The bandwidth of PLL [phase locked loop] 100 is generally defined as the frequency where PLL 100 begins to

lose lock with the REFCLK [reference clock] signal, and is indicated for each of waveforms 201, 220, and 230 [Fig. 2], by the -3 dB point (P_2) on the vertical axis of graph 200. A particular bandwidth corresponds to the phase error, settling time, and jitter tracking capability of PLL 100. Bandwidth is a measure of the ability of PLL 100 to track the REFCLK signal and the associated jitter of the REFCLK signal.

In response to the Appellants' assertion that "there is no indication that Galloway ever estimates the bandwidth of PLL 10, nor does the word 'bandwidth' ever appear in Galloway" (App. Br. 13), the Examiner finds (Ans. 8):

Galloway discloses in Col. 5, lines 36–56 that "the DC offset causes ... the medial transition point [to become] a median transition region" (i.e. bandwidth). The median transition region demonstrates the bandwidth of the phase locked loop because the region shows the width of the band in which the phase locked loop is stable. *See* Fig. 5B. That is, "the PLL is stable if the transistor sample location (and therefore the phase of the recovered clock) is anywhere within the median transition region as indicated by FIGS. 5A, 5B, and 6.

The meaning the Examiner gives to the Appellants' claim term "bandwidth" does not appear to be within the broadest reasonable interpretation of that term consistent with the Specification. The Examiner does not address the Appellants' Specification's disclosure and establish that the broadest reasonable interpretation of "bandwidth" consistent with that disclosure encompasses the Examiner's interpretation of that term. Nor does the Examiner establish that Galloway discloses estimating a bandwidth, let alone estimating it in response to first and second zero crossing times.

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Hence, the Examiner has not established that Galloway discloses, either expressly or inherently, each limitation of the Appellants' claims. Accordingly, we reverse the rejection.

DECISION/ORDER

The rejection of claims 1–8 and 14–20 under 35 U.S.C. § 102(a)(1) over Galloway is reversed.

It is ordered that the Examiner's decision is reversed.

REVERSED