The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WOLFDIETRICH G. KASPERKOVITZ and CICERO S. VAUCHER

Appeal No. 2001-0583
Application No. 09/039,348

ON BRIEF

Before HAIRSTON, KRASS and SAADAT, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

ON REQUEST FOR REHEARING

Appellants request rehearing of our decision of July 16, 2002, wherein we sustained the rejection of claims 1 and 4-8 under 35 U.S.C. § 102 (b) as anticipated by Gilmore.

First, appellants contend that if we redraw the boxes around the elements of Gilmore, as suggested at page 5 of our decision, and as shown by appellants at page 2

of the request for rehearing, then the stepped-frequency signal, produced at the output of either filter 110 or optional divider 112, is not the output of the frequency synthesis circuit, since phase detector 116 becomes the last element in the frequency synthesis circuit and the phase detector does not output the stepped-frequency signal. Rather, the stepped-frequency signal is the top input to the phase detector 116.

While we agree with the notion that the stepped-up frequency of the redrawn Gilmore figure is still the top input to the phase detector 116, the claim language of interest recites "a frequency-synthesis circuit for generating a stepped-frequency signal having a frequency varying in steps with a step size." This does not require the "final element" of the frequency-synthesis circuit generate the stepped-frequency, as contended by appellants. The stepped-frequency signal is still generated by the frequency-synthesis circuit of Gilmore. It is generated at the output of either filter 110 or optional divider 112. It is of no moment that the stepped-frequency signal is then applied to a further element, such as phase detector 116.

Appellants next contend that the frequency-synthesis circuit of Gilmore does not comprise means for varying the step size of the stepped frequency signal in dependence on the adjustable integer frequency relationship, as claimed. As appellants urge, nothing that takes place in the VCO, phase detector, or other elements

of Gilmore's phase-locked loop can affect the stepped-frequency signal. We disagree with appellants as to the affect on the stepped-frequency signal because the stepped-frequency is input to the phase detector 116 and a tuning signal from divider 122 is also input to the phase detector. This tuning signal from divider 122 effects, within phase detector 116, a change in the stepped-frequency signal so that the output of the phase detector 116 may be considered an altered stepped-frequency signal. The question, then, is whether that altered stepped-frequency signal is a signal which is the original stepped-frequency signal which has been varied in step size, as required by the instant claim language.

It is appellants' position that the phase detector does not vary the step size of the stepped-frequency signal because the phase detector generates a direct-current output voltage which varies with the difference, in phase, between the applied stepped-frequency signal and the divided output of the VCO 120. However, as is clear from Gilmore, the synthesizer output frequency is a function of the input reference (which is the stepped-frequency signal input to the top of phase detector 116), the number of bits in the frequency control signal and the DDS step size as determined by the frequency control signal (See the abstract of Gilmore). As is further clear from Gilmore, (column 6, lines 56-59), the step size of the DDS driven phase lock loop varies with the divisor

value of the loop divider (N) 122. Also, since the top input to the phase detector is the "reference signal" to which Gilmore refers, and this frequency "may be made to vary in extremely small steps" (column 6, lines 55-56), it appears that there is a relationship between the step sizes of the reference frequency signal (top input to the phase detector) and the synthesizer output frequency (output of the phase locked loop). Since the phase detector plays a role in this step-size relationship, by operating on the stepped-frequency signal in accordance with a signal generated by loop divider 122, and the phase detector 116 is a part of the claimed "frequency-synthesis circuit, " it appears fair to conclude that the frequency-synthesis circuit does comprise means for varying the step size of the stepped-frequency signal in dependence on the adjustable integer frequency relationship (provided in Gilmore by loop divider 122).

Appellants further argue that the "synchronization circuit" of Gilmore is "inoperative" because the combination of a loop filter, VCO, and a loop divider cannot "synchronize" the VCO to the input signal. If so, the VCO would not oscillate.

Instant claim 1 does not define the "synchronization circuit" other than synchronizing a tuning oscillator to the stepped-frequency signal to form a tuning frequency and that the synchronization circuit comprise means for providing an adjustable integer frequency relationship between the stepped-frequency signal and the

tuning frequency. As shown in Gilmore, the tuning frequency and the stepped-frequency signal do have a relationship based on an adjustable integer frequency (the function of divider 122). Since the output of Gilmore's phase lock loop 114 (the output of VCO 120), the tuning frequency, is directly related to the stepped-frequency signal input to the phase detector 116, it is fair to conclude that the tuning oscillator of Gilmore is "synchronized" to the stepped-frequency signal to form a tuning frequency, as broadly claimed.

Finally, appellants argue that Gilmore does not provide a tuning frequency having substantially uniform tuning steps, as required by the final paragraph of claim 1. However, it appears to us, from Gilmore's disclosure at column 6, lines 41-59, especially lines 47-48, that Gilmore, in providing for phase lock loop outputs of 200, 210, 220, 230, ..., 390 and 400 MHZ, clearly provides for a tuning frequency having substantially uniform tuning steps, the uniformity being 10 MHz steps.

We have granted appellants' request for rehearing to the extent that we have reconsidered our decision in light of appellants' arguments. However, we deny the request with respect to making any changes in our decision.

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

DENIED

KENNETH W. HAIRSTON Administrative Patent Judge	)
ERROL A. KRASS Administrative Patent Judge	) BOARD OF PATENT) APPEALS) AND) INTERFERENCES
MAHSHID D. SAADAT Administrative Patent Judge	)

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