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Mesecher et al.

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[54] **CONTINUOUSLY ADJUSTED-BANDWIDTH DISCRETE-TIME PHASE-LOCKED LOOP**

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Related U.S. Application Data

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[51] **Int. Cl.**[7] **H04B 7/216**; H04J 3/06

[52] **U.S. Cl.** **370/342**; 370/514; 375/376

[58] **Field of Search** 375/206, 209, 375/200, 375, 376, 224; 370/335, 320, 342, 441, 206, 514; 530/399; 455/422

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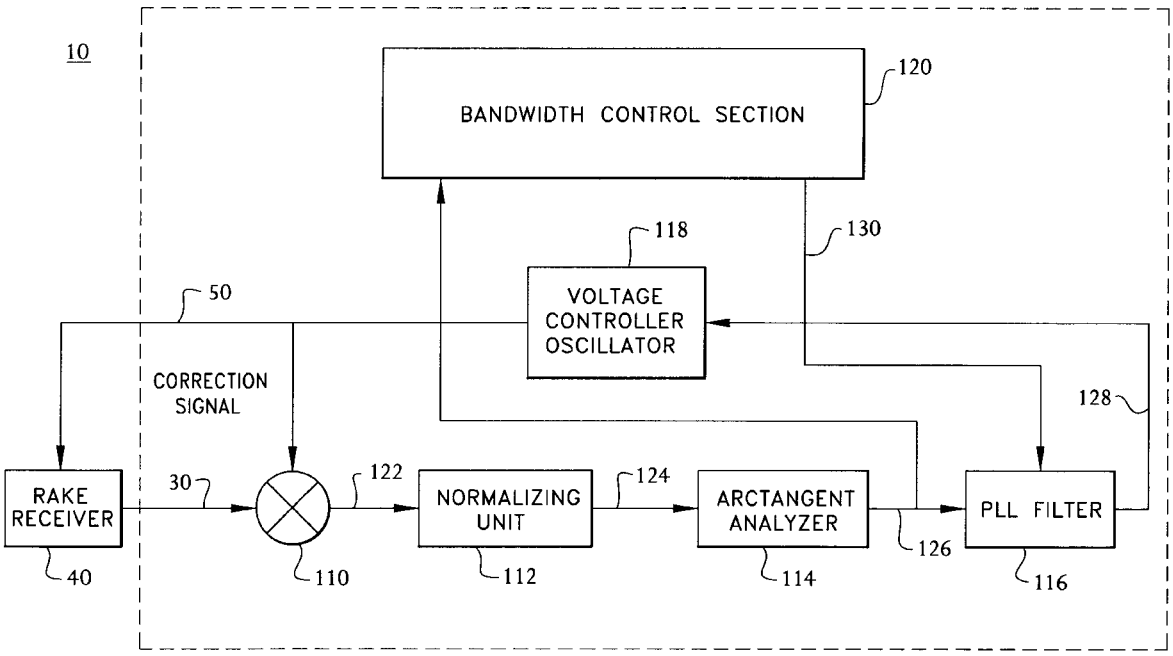
[57] **ABSTRACT**

A continuously adjusted bandwidth phase-locked loop is used by a B-CDMA™ receiver to correct for any deviation, or offset, that may exist between the received radio frequency (RF) carrier signal and the frequency of the first stage LO that converts the received RF carrier signal to an intermediate frequency (IF). The PLL in the receiver includes a filter with an adjustable bandwidth. A wider bandwidth is used during initial acquisition of the received signal. After the PLL has acquired the received carrier signal using the wider bandwidth, the bandwidth of the filter is gradually narrowed to provide a low steady-state error.

19 Claims, 14 Drawing Sheets