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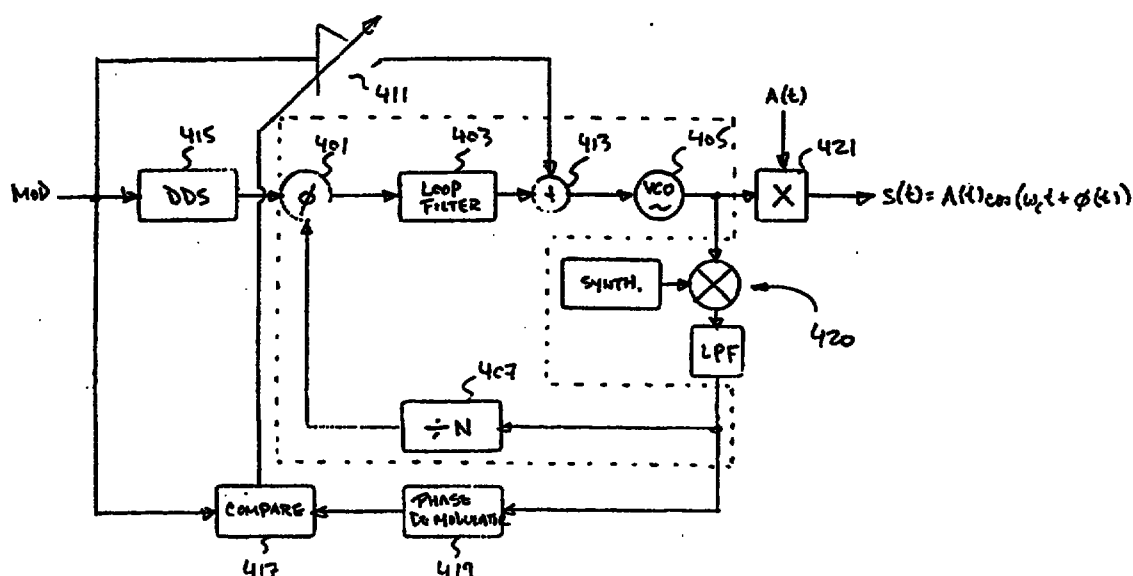
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(54) Title: DIRECT DIGITAL SYNTHESIS OF PRECISE, STABLE ANGLE MODULATED RF SIGNAL



(57) Abstract

An RF modulator that allows precise, stable phase shifts to be obtained. The modulator uses a PLL structure including an auxiliary feedforward path including an adaptive gain amplifier (411) used to inject a modulation signal into the PLL at a point past a loop filter (403). A phase demodulator (419) recovers from the output of the PLL phase information which is compared in a comparator (417) to the phase information of the modulation signal. A resulting error signal is used to control the gain of the adaptive gain amplifier (411). The modulator compensates for variability of the VCO (405) and other components of the PLL.