Abstracts

Phase decrement type direct frequency synthesizer driven by a DDS

K. Tajima, H. Tsuru, H. Ikematsu, K. Itoh, Y. Isota and O. Ishida. "Phase decrement type direct frequency synthesizer driven by a DDS." 2001 MTT-S International Microwave Symposium Digest 01.2 (2001 Vol. II [MWSYM]): 709-712 vol.2.

A phase decrement type direct frequency synthesizer with a quadrature mixer driven by a DDS is presented. Phase decrement of a DDS signal can increase the bandwidth of the direct synthesizer. Overflow of a DDS is employed to achieve phase decrement of the signal without adding an extra circuit. A developed 2 GHz-band synthesizer with sub Hz order frequency step achieves 240 MHz bandwidth, frequency switching time of less than 2 /spl mu/s, phase noise of -117 dBc/Hz at 100 kHz offset, and consumption current of 685 mA.

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