Abstracts

A Novel Injection-Locked Oscillator MMIC with Combined Ultrawide-Band Active Combiner/Divider and Amplifiers

T. Tokumitsu, K. Kamogawa, I. Toyoda and M. Aikawa. "A Novel Injection-Locked Oscillator MMIC with Combined Ultrawide-Band Active Combiner/Divider and Amplifiers." 1994 Transactions on Microwave Theory and Techniques 42.12 (Dec. 1994, Part II [T-MTT] (1994 Symposium Issue)): 2572-2578.

A subharmonically injection-locked oscillator (ILO) MMIC for local oscillators, synthesizers, and phased-array antennas is proposed. An ultrawide-band four-port active combiner/divider in the oscillator feedback loop provides an FET-oriented circuit topology extremely suitable for single-chip integration, and performs subharmonic injection locking at various subharmonic factors, 1/n. Two types of ILO MMIC's were constructed. One of them exhibits a locking range as wide as 1 GHz at n = 1, and the other operates at n from 1 to 16, with an output power larger than 5 dBm. The proposed ILO MMIC is promising for applications such as microwave and millimeter-wave synthesizers, large-aperture phased array antennas, frequency-selective FM-receivers, and so on.

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