Abstracts

A 94 GHz HEMT-oscillator using high order subharmonic synchronization

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A new approach for the stabilization of millimeter-wave solid state oscillators using high order subharmonic injection locking is presented. A 94 GHz VCO MMIC was developed, consisting of the oscillator circuit and an integrated harmonic generator, based on GaAs PHEMT technology. The oscillator can be stabilized by injection power levels of -45 dBm at 94 GHz using the reflection type injection locking technique, allowing reference frequencies as low as the 15/sup th/ to 21/sup st/ subharmonic as the input for the harmonic generator. Additionally, an injection locked PLL was developed, which improves the locking range from 30 MHz to 1 GHz, using the 21/sup st/ subharmonic as a reference signal.

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