Abstracts

A Phase Controlled Self-Oscillating Mixer

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A subharmonic synchronized and phase controlled self-oscillating mixer has been developed and tested. This new circuit has a number of advantages, such as, large locking range, low FM noise, and high frequency conversion gain. Experimental results demonstrate that this injection locked and phase locked self-oscillating mixer has efficient phase control capability at K/sub u/-band. Unlike the conventional subharmonic phase locking approach which needs either a frequency multiplier or divider for phase comparison, this circuit takes advantage of its inherent mixing gain to accomplish phase control. This phase locking approach can be extended to phase lock a millimeter-wave frequency oscillator, where efficient frequency multiplier and divider are hardly achieved.

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