Abstracts

A unified analytical model and experimental validations of injection-locking processes

Unified analytical expressions predicting the locking range for fundamental, subharmonic (n=2), superharmonic (n=2), and parametric injection (m=n=p=1) locking are presented and compared in this paper. Power series are employed to model the device nonlinearity. The /spl alpha/-parameters, relating nonlinear I-V behavior, are extracted using a harmonic-balance approach. These expressions are verified using an UHF oscillator; and good agreement is obtained between the experimental and analytical results.

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