Abstracts

Theory of Subharmonic Synchronization of Nonlinear Oscillators

A.S. Daryoush, T. Berceli, R. Saedi, P.R. Herczfeld and A. Rosen. "Theory of Subharmonic Synchronization of Nonlinear Oscillators." 1989 MTT-S International Microwave Symposium Digest 89.2 (1989 Vol. II [MWSYM]): 735-738.

Synchronization is an important technique to provide frequency coherency of remotely located independent oscillators to the same frequency reference. To extend this technique to the millimeter wave frequencies of interest, subharmonic injection locking is used as a viable technique. This attractive method primarily relies on nonlinear characteristics of microwave devices, such as FET, to extend injection locking of millimeter wave oscillators to large subharmonic numbers. Important figure of merit of injection locked oscillators is locking range, and goal of this paper is to present analytical method to express locking range of the subharmonically locked oscillators in terms of nonlinear current voltage relationship. Experimental results of a subharmonically injection locked FET oscillator at 18GHz are also presented.

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