Abstracts

Comparison of Indirect Optical Injection-Locking Techniques of Multiple X-Band Oscillators (Dec. 1986 [T-MTT])

A.S. Daryoush, P.R. Herczfeld, Z. Turski and P.K. Wahi. "Comparison of Indirect Optical Injection-Locking Techniques of Multiple X-Band Oscillators (Dec. 1986 [T-MTT])." 1986 Transactions on Microwave Theory and Techniques 34.12 (Dec. 1986 [T-MTT] (1986 Symposium Issue)): 1363-1370.

Experimental results of indirect optical injection-locking of two X-band FET oscillators are presented. An S-band master source is used to synchronize both oscillators simultaneously, with 18-MHz locking range using the fiber-optic link nonlinearity. The source of the optical link nonlinearity is traced to the laser diode by interferometric measurement. Both the laser diode and the FET oscillator nonlinearities can be exploited to achieve frequency multiplication of the master oscillator signal. The merits of these different methods are evaluated based on the locking range and the FM noise level of the injection-locked oscillator.

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