

Injection-Locked Oscillators as Amplifiers for Angle-Modulated Signals

H.L. Stover and R.C. Shaw. "Injection-Locked Oscillators as Amplifiers for Angle-Modulated Signals." 1966 G-MTT International Microwave Symposium Digest 66.1 (1966 [MWSYM]): 60-66.

Under certain conditions an oscillator can lock to and track an external driving signal whose frequency is near the free-running frequency of the oscillator and whose amplitude is considerably less than the oscillator output amplitude; this property has led to speculation whether the locked oscillator can serve as an amplifier for angle-modulated signals. We have conducted experimental and theoretical investigations in order to clearly define what the conditions are which would allow such an application. the investigations have included steady-state locking performance, dynamic amplifier response, and noise behavior of the locked oscillators. The experiments were performed on tunnel-diode oscillators at X-band. The theory is valid for a wide number of oscillator types.

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