# Abstracts

## Transmission Cavity and Injection Stabilization of an X-Band Transferred Electron Oscillator

*J.R. Ashley and F.M. Palka. "Transmission Cavity and Injection Stabilization of an X-Band Transferred Electron Oscillator." 1973 G-MTT International Microwave Symposium Digest of Technical Papers 73.1 (1973 [MWSYM]): 181-182.*

The theory and operation of a novel new oscillator is presented. The F.M. Noise at X-band is less than .3 Hz rms in a 100 Hz bandwidth while the carrier stability is that of a high quality Quartz oscillator. The oscillator consists of a Transferred Electron Oscillator (Gunn Diode) in a moderate Q cavity transmission stabilized with a TE/sub 011/ resonator at X-band. A low level signal is injected between the oscillator cavity and the stabilizing cavity to synchronize the X-band oscillation with a harmonic of a 100 MHz Quartz oscillator. The locking power is sufficient to hold synchronization for tens of minutes without significantly degrading the F.M. noise of the system. The oscillator system has made possible several break-throughs in frequency and time measurements.

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