Abstracts

Locking of Magnetrons by an Injected RF Signal

H.L. Thal and R.G. Lock. "Locking of Magnetrons by an Injected RF Signal." 1965 Transactions on Microwave Theory and Techniques 13.6 (Nov. 1965 [T-MTT]): 836-846.

An equivalent circuit is given which quantitatively predicts the performance of magnetron oscillators when they are frequency locked by an injected RF signal. A method is presented for the reciprocal coupling of magnetrons to a traveling wave without reflection. The theory is supported by experimental results which include: 1) a single-tube locked oscillator with nonreciprocal (circulator) coupling, 2) a three-tube locked oscillator array with reciprocal coupling, 3) a two-tube oscillator with reciprocal coupling. The feasibility of various locked oscillator and self-oscillating arrays, including the effect of mismatched loads, is discussed.

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