Abstracts

A novel method of pulse power amplification using a CW injection locked oscillator pair

M. Simonutti. "A novel method of pulse power amplification using a CW injection locked oscillator pair." 1999 MTT-S International Microwave Symposium Digest 99.4 (1999 Vol. IV [MWSYM]): 1793-1796 vol.4.

A new oscillator phenomenon is described, and this paper reports the first laboratory demonstration. A continuously running matched pair of oscillators and a magic-tee hybrid coupler are configured for amplification of pulsed RF input signals. During the OFF time of the input pulse, the power combined, free-running, cw output power generated by the oscillators is dumped, i.e. diverted away from the amplifier output port and directed to the fourth port of the magic-tee. This is accomplished passively, with no external electronics. A simple modification is made to the conventional configuration for cw injection locking and power combining a pair of oscillators using a magic-tee. Controlled transfer occurs between two operating conditions: injection locking during the ON time of the input pulse, and inter-injection locking during the OFF time.

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