Abstracts

Miniaturized, X-Band Solid-State Transmitter

M. Mizan, D. Sturzebecher, T. Higgins and E. Maluszczak. "Miniaturized, X-Band Solid-State Transmitter." 1993 MTT-S International Microwave Symposium Digest 93.2 (1993 Vol. II [MWSYM]): 813-816.

A compact X-band solid-state transmitter capable of 26 watts peak output power, with state-of-the-art frequency stability is reported in this paper. A dielectric resonator oscillator (DRO), employed as a frequency source, has a frequency stability of 80 parts per million (ppm) over the temperature range of -50°C to +50°C. A six stage GaAs MESFET RF amplifier, with an associated gain of 37 dB, also functions as a pulse modulator by changing the gate bias voltages. The last amplifier stage consists of four amplifiers operating in a power combining configuration. The transmitter including the pulse modulator is packaged into a size 7.6 cm x 5.1 cm x 2.5 cm, and has a total weight of 0.22 Kgm, The transmitter operates from a ±12 volt battery, and has an overall D.C. to RF conversion efficiency of 15%.

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