Abstracts

CPW-Fed Active Slot Antennas

B.K. Kormanyos, W. Harokopus, Jr., L.P.B. Katehi and G.M. Rebeiz. "CPW-Fed Active Slot Antennas." 1994 Transactions on Microwave Theory and Techniques 42.4 (Apr. 1994, Part I [T-MTT]): 541-545.

We have combined microwave oscillator design with theoretical characterization of planar antennas to build active slot-oscillators. The design is uniplanar, does not require via holes and is compatible with monolithic transistor technology. The coplanar waveguide (CPW) fed antenna impedance is calculated using the space domain integral equation technique (SDIE), a full wave method of moments approach. Slot-oscillators were built at 7 GHz and 20 GHz and the predicted oscillation frequencies agree well with experiments. The 20 GHz medium power oscillator has an output power of 17 mW and a DC to RF efficiency of 14%. The design is easily scaled to millimeter-wave frequencies and can be extended to power combining arrays.

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