Abstracts

Millimeter-wave sideband generation using varactor phase modulators

D.S. Kurtz, J.L. Hesler, T.W. Crowe and R.M. Weikle, II. "Millimeter-wave sideband generation using varactor phase modulators." 2000 Microwave and Guided Wave Letters 10.6 (Jun. 2000 [MGWL]): 245-247.

A sideband generator based on phase modulation is presented. The sideband generator consists of a Schottky varactor diode mounted in a WR-10 waveguide tuned resonant circuit. A microwave pump signal modulates the phase of the reflection coefficient the circuit presents to an incident millimeter-wave signal. This proof-of-principle circuit has shown a sideband conversion loss of 9 dB and bandwidth of nearly 10% at 80 GHz. These results represent significant improvements over the performance of sideband generators based on resistive mixing in corner-cube mounts.

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