Abstracts

Millimeter-Wave Slot Ring Mixer Array Receiver Technology

R.L. Gingras, C. Drubin, B. Cole, W. Stacey, R. Pavio, J. Wolverton, K.S. Yngvesson and A. Cardiamenos. "Millimeter-Wave Slot Ring Mixer Array Receiver Technology." 1992 Microwave and Millimeter-Wave Monolithic Circuits Symposium Digest 92.1 (1992 [MCS]): 105-111.

This paper describes a novel quasioptical millimeter-wave (MMW) monolithic monopulse receiver and its performance when integrated with a quasioptical diplexer and antenna. Integration of the antenna, diplexer and receiver forms a complete MMW radar front end. The receiver, which is fabricated on 0.025 in. thick GaAs substrates, includes four monolithic chips. The entire receiver is packaged on the planar back surface of a 1.5 in. diameter lens. This lens, hyperhemispherical in shape, provides a dual function as a focussing lens and carrier for the monolithic receiver. Measured noise figure and conversion gain of the receiver is 8.7 dB and 19.0 dB, respectively, at 35.0 GHz.

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