Abstracts

A Planar 94-GHz Transceiver with Switchable Polarization

E.C. Niehenke, P. Stenger, T. McCormick and C. Schwerdt. "A Planar 94-GHz Transceiver with Switchable Polarization." 1993 MTT-S International Microwave Symposium Digest 93.1 (1993 Vol. I [MWSYM]): 167-170.

Design and performance of a unique, low cost, planar microstrip 94-GHz transceiver is described. It includes a two axis, monopulse fed, four element, switchable, right hand-left hand circularly polarized patch antenna. All circuits are MMIC (mixer, IF amplifier, and RF PIN diode switch) interconnected with low loss, Z-cut quartz microstrip. The miniature 1.1-inch diameter by 0.25-inch thick transceiver operated both in the transmit as well as the receive mode with a 3-dB beamwidth of 58 degrees. When mounted as a feed for a 5-inch diameter parabolic dish, the assembly exhibited a 1.7-degree 3-dB beamwidth, 12-dB sidelobes, a gain of 26 dB, with a difference pattern null of 30 dB.

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