Abstracts

A Millimeter-Wave Integrated-Circuit Antenna Based on the Fresnel Zone Plate

M.A. Gouker and G.S. Smith. "A Millimeter-Wave Integrated-Circuit Antenna Based on the Fresnel Zone Plate." 1991 MTT-S International Microwave Symposium Digest 91.1 (1991 Vol. I [MWSYM]): 157-160.

A new type of millimeter-wave integrated-circuit antenna is investigated. The antenna is based on a quasi-optical design, with a Fresnel zone plate on one side of a dielectric substrate and a resonant strip dipole antenna at the focus of the zone plate on the opposite side of the substrate, Figure 1. The unique feature of this design is that all of the components are made using simple IC fabrication techniques: simple metal depositions on dielectric layers. Another unusual feature of this design is the short focal length of the zone plate; the f/d of the zone plate ranges from 0.1 to 0.5.

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