Abstracts

Millimeter-Wave Gaussian-Beam Antenna and Integration with Planar Circuits

T. Matsui, M. Kiyokawa and N. Hirose. "Millimeter-Wave Gaussian-Beam Antenna and Integration with Planar Circuits." 1996 MTT-S International Microwave Symposium Digest 96.1 (1996 Vol. I [MWSYM]): 393-396.

A quasi-planar antenna, which uses a dielectrc loaded Gaussian-beam resonator is developed for 60 GHz. The resonator antenna with a Gaussian distribution of the aperture electric field is formed with a spherical and a plane mirror surfaces, which were fabricated on both sides of a piano-convex fused quartz lens with 20-mm diameter and 1.3mm thickness. This new antenna features a very low sidelobe level (<-30 dB) and a high radiation efficiency (>90%). Antenna characteristics and integration with a mixer circuit are described.

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