Abstracts

A Planar Quasi-Optical Mixer Using a Folded-Slot Antenna (Short Papers)

S.V. Robertson, L.P.B. Katehi and G.M. Rebeiz. "A Planar Quasi-Optical Mixer Using a Folded-Slot Antenna (Short Papers)." 1995 Transactions on Microwave Theory and Techniques 43.4 (Apr. 1995, Part I [T-MTT]): 896-898.

A quasioptical mixer using only planar structures such as co-planar wave guide and slotline is presented. The mixer, which can be scaled for millimeter-wave applications and placed on a substrate lens, uses orthogonal modes in a folded-slot antenna to achieve intrinsic RF/LO isolation without RF filtering or subharmonic pumping. The folded-slot balanced mixer was fabricated on RT/Duriod and obtained a minimum isotropic conversion loss of 1.2 dB at 11.6 GHz. Numerical integration of full two-dimensional antenna patterns yielded an antenna directivity of 7 dB, corresponding to a single side-band (SSB) mixer conversion loss of 8.2dB. The mixer demonstrated -18 dB RF/IF isolation and -30dB LO/IF isolation.

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