Abstracts

A Novel Polarization-Independent Beam Splitter

R. Watanabe. "A Novel Polarization-Independent Beam Splitter." 1980 Transactions on Microwave Theory and Techniques 28.7 (Jul. 1980 [T-MTT]): 685-689.

This paper presents the design and experimental results of a novel broad-band quasi-optical polarization-independent beam splitter. The novel beam splitter consists of parallel metallic strips formed on a dielectric sheet. The width and spacing of the metallic strips and thickness of the dielectric sheet are optimized. This experimentally manufactured 3-dB beam splitter has a frequency bandwidth from 80 to 110 GHz, and the transmission and reflection coefficients for mutually orthogonal polarisation are within 3±0.5 dB over this entire frequency band. The insertion losses are 0.2 dB over the abovementioned frequency band. The obtained insertion losses are less than that obtained with any other quasi-optical polarisation-independent beam splitter presented in the literature to date. This type of beam splitter holds great promise as a device for constructing signal-multiplexing and demultiplexing circuits in the millimeter-wave region and above.

❑ Return to main document.