Abstracts

A Self-Diplexing Quasi-Optical Magic Slot Balanced Mixer

C.-Y.E. Tong and R. Blundell. "A Self-Diplexing Quasi-Optical Magic Slot Balanced Mixer." 1994 Transactions on Microwave Theory and Techniques 42.3 (Mar. 1994 [T-MTT]): 383-388.

Drawing on the principles of operation of the magic tee balanced mixer, a quasi-optical magic slot balanced mixer is proposed. The mixer exploits a diametrically fed annular slot radiator which radiates two orthogonal polarizations which are used as signal and local oscillator input ports. The idea has been tested at microwave frequencies. The measured radiation impedances, radiation patterns and conversion efficiency show that reasonable performance is readily obtained over a 30% bandwidth and that this quasi-optical balanced mixer is suitable for sub-millimeter wave applications.

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