

Abstracts

Design and Fabrication of a Nonradiative Dielectric Waveguide Circulator Mode Ferrite (Short Papers)

H. Yoshinaga and T. Yoneyama. "Design and Fabrication of a Nonradiative Dielectric Waveguide Circulator Mode Ferrite (Short Papers)." 1988 Transactions on Microwave Theory and Techniques 36.11 (Nov. 1988 [T-MTT]): 1526-1529.

A technique for constructing a high-performance nonradiative dielectric waveguide (NRD guide) circulator for use at 50 GHz has been developed. A novel type of mode suppressor, which serves to reduce unwanted modes to a negligible level, has been devised and used to improve circulator performance significantly. A half-wavelength step transformer was installed at each port of the circulator to increase the operational bandwidth. The insertion loss of this fabricated circulator is less than 0.3 dB, and the 20 dB isolation bandwidth is about 2.6 GHz. Characteristics of the NRD guide circulator are analyzed based on an equivalent circuit representation. This analysis considerably facilitates the design procedure of the circulator.

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