Abstracts

Magnetically Tunable Rectangular Waveguide E-Plane Integrated Circuit Filters

J. Uher, J. Bornemann and F. Arndt. "Magnetically Tunable Rectangular Waveguide E-Plane Integrated Circuit Filters." 1988 Transactions on Microwave Theory and Techniques 36.6 (Jun. 1988 [T-MTT]): 1014-1022.

A rigorous field theory method is described for the computer-aided design of magnetically tunable E-plane metal insert filters, where the waveguide sections are symmetrically loaded with ferrite slabs, and for large-gap finline filters on a ferrite substrate. The design method is based on field expansion in suitably normalized eigenmodes which yields directly the modal scattering matrix of all discontinuities. The theory includes both higher order mode interaction and finite thickness of the metal inserts. Optimized data are given for magnetically tunable Ku-band metal insert and finline filter examples. The metal insert type achieves a tuning range of its operating midband from about 14.1 to 15.7 GHz. The theory is verified by measurements.

❑ Return to main document.