Abstracts

An Exact Three-Dimensional Field Theory for a Class of Cyclic H-Plane Waveguide Junction

R.J. Copplestone. "An Exact Three-Dimensional Field Theory for a Class of Cyclic H-Plane Waveguide Junction." 1979 Transactions on Microwave Theory and Techniques 27.6 (Jun. 1979 [T-MTT]): 577-584.

The device analyzed consists of g waveguides meeting in a cavity with a central metal disk. A conducting boundary such as this occurs in practical waveguide-junction circulators and the technique developed here may find application in circulator field theory. A special case of the geometry considered here is the "tuning screw" which arises when g = 2. The method of analysis is by representing the fields by mode summation, in the usual way, and then matching to the metal surfaces and across various imaginary internal boundaries. The device is assumed lossless. The agreement between experimental and theoretical results is very good, thus indicating the method is valid and has been formulated correctly.

❑ Return to main document.