Abstracts

Dual-Mode Dielectric-Loaded Resonators with Cross-Coupling Flats

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Cross coupling in dual-mode dielectric resonators is obtained by introducing asymmetries in the normally circular cross section of the resonator in the form of flattened regions at an angle of 45 degree to the two orthogonal modes. When the dielectric resonator occupies the full length of the cavity the coupling is obtained based on the relationship between the waveguide polarizer and filter coupling coefficient as described in [1], and a perturbation theory is applied to obtain the dimensions. The theory has been checked against results obtained by a three dimensional field theory program. When the dielectric resonator is shorter than the cavity the simple relationship between waveguide polarizability and filter coupling coefficient no longer applies, but good results are still obtained from perturbation theory.

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