Abstracts

Dielectric Ring Resonators Loaded in Waveguide and on Substrate

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A rigorous mode matching technique is used to analyze the dielectric ring resonators loaded in waveguide and on top of substrate. Variation of several lowest order modes' resonant frequencies as a function of structure parameters is presented and is helpful for optimization of spurious modes separation. Two-dimensional electric and magnetic field lines pattern and three-dimensional field intensities distribution of the ring resonators are plotted and provide valuable information for modes excitation, coupling, and spurious modes suppression. Coupling between two dielectric ring resonators loaded in a metallic cavity are analyzed. The dielectric ring resonators are used to design a C-band elliptic function dual mode band-pass filter employing HE/sub 11/ modes. Experimental results are presented and shows excellent agreement with the analytical solutions.

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