Abstracts

Two Cylindrical Obstacles in a Rectangular Waveguide--Resonances and Filter Applications

Two metallic or lossy dielectic cylinders placed in one cross section of a rectangular waveguide are investigated by means of the orthogonal expansion method. Resonances are shown by frequency responses of the transmission coefficient. They are discussed by patterns of the magnetic field and diagrams of the Poynting vector. Physical explanations of the resonances are given. The structure may be used as a filter element. With two small dielectric posts, a frequency characteristic with two stopbands can be obtained. Center frequencies are tunable by moving the posts. Using one large metallic and one small dielectric post, a tunable passband characteristic can be realized.

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