Abstracts

The Filling Factor of Shielded Dielectric Resonators

J.-L. Pellegrin. "The Filling Factor of Shielded Dielectric Resonators." 1969 Transactions on Microwave Theory and Techniques 17.10 (Oct. 1969 [T-MTT]): 764-768.

The use of dielectric resonators at microwave frequencies usually requires a shield to prevent loss of energy by radiation, and a coupling network. The efficiency of a given circuit depends on the filling factor, which expresses the circuit ability to store most of the input energy in the resonator, and little in the coupling network and surrounding space. The resonator is sometimes excited by means of a coupling loop inside the shield, or with a propagating waveguide. In any case, some energy is stored outside the dielectric material. A calculation is presented for the internal and external stored energies, for the case of a rectangular dielectric resonator in a rectangular waveguide. Verification was performed by measuring the insertion loss of an acoustic delay line, which illustrates an interesting application of dielectric resonators.

❑ Return to main document.