Abstracts

Electromagnetic Waves in Toroidal Vessels of Arbitrary Cross Section Filled with Radially Inhomogeneous Dielectric Medium

F.F. Cap. "Electromagnetic Waves in Toroidal Vessels of Arbitrary Cross Section Filled with Radially Inhomogeneous Dielectric Medium." 1984 Transactions on Microwave Theory and Techniques 32.10 (Oct. 1984 [T-MTT]): 1336-1341.

In this paper, analytical solutions of Maxwell's equations in cylindrical coordinates are presented for toroidal resonators filled with homogeneous or inhomogeneous unmagnetized plasma or another dielectric medium. It is shown that the electromagnetic boundary conditions valid on a conducting toroidal surface of arbitrary meridional cross section can be satisfied by the general solution since the general solution contains an infinite set of arbitrary constants. A method is given to show how these constants and the eigenfrequency of the resonator can be calculated for a given cross section of the toroidal vessel.

❑ Return to main document.