Abstracts

Whispering-gallery modes in shielded hemispherical dielectric resonators

Z.E. Eremenko, Y.F. Filipov, S.N. Kharkovsky, V.V. Kutuzov and A.E. Kogut. "Whispering-gallery modes in shielded hemispherical dielectric resonators." 2002 Transactions on Microwave Theory and Techniques 50.11 (Nov. 2002 [T-MTT] (Mini-Special Issue on the 2002 IEEE Radio Frequency Integrated Circuit (RFIC) Symposium)): 2647-2649.

The results of the numerical and experimental investigations of whispering-gallery (WG) modes in shielded hemispherical dielectric resonators are presented in this paper. It is shown that the Q factor of WG modes in the shielded resonator can be ten times much higher than the Q factor of the similar open hemispherical dielectric-resonator modes. Shielding the resonator can decrease the dimensions of both the dielectric hemisphere and resonator as a whole, saving the high-Q factor of WG modes. The usage of a cylindrical shield and local flat reflectors in the experiment provides the investigation of the high-Q factor of WG modes in the resonator.

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