Abstracts

Miniaturization Technologies of Dielectric Resonator Filters for Mobile Communications

K. Wakino, T. Nishikawa and Y. Ishikawa. "Miniaturization Technologies of Dielectric Resonator Filters for Mobile Communications." 1994 Transactions on Microwave Theory and Techniques 42.7 (Jul. 1994, Part II [T-MTT] (Special Issue on Filters and Multiplexers)): 1295-1300.

The unloaded Q of a fixed frequency cavity resonator which is filled with low-loss dielectric material is proportional to the cubic root of its volume due to the intensified current loss in the cavity wall. Utilization of such materials to reduce resonator size must be evaluated by taking this volume dependency into account. This paper describes several resonator miniaturization techniques, including the multimode reuse of space, the use of supplementary energy resonators (so called active resonator) with a enhanced apparent Q value, the low-stored-energy filter technique using transversal filters, and the reduced size resonators using mirror image technique.

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