Abstracts

Microwave filters with improved spurious performance based on sandwiched conductor dielectric resonators

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Microwave filters based on a novel resonator comprised of a sandwiched conductor dielectric resonator (SCDR) loaded in a cylindrical cavity are analyzed in this paper. The SCDR is a compact resonator that exhibits good spurious performance. Resonant frequencies of the lower order modes are analyzed, and mode charts, unloaded Q, slot coupling, and screw coupling graphs are presented. S-parameters are computed using the finite-difference time-domain (FDTD) method for one- and four-pole SCDR filters and compared with measured results. The measured spurious performance for the four-pole elliptic function filter shows a large improvement over conventional dielectric-resonator filters. The measured results agree closely with predicted values obtained using the FDTD method.

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