Abstracts

High-Q Dielectrically Loaded Electrically Small Cavity Resonators

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The quality factor (Q) of a dielectrically loaded cavity resonator is reduced due to conductor losses. An electrically small dielectrically loaded cavity resonator is described where the conductor losses are minimized by the use of corrugated cylindrical walls. When excited in the TE/sub 01d/ dielectric resonator mode the unloaded Q-factor was seen to be 89% higher for the corrugated cavity than an equivalent cylindrical cavity. The calculated conductor Q-factor was 4.7 times greater. The proposed cavity structure therefore allows the dielectrically loaded cavity to have an unloaded Q-factor determined primarily by the dielectric loss of the dielectric resonator.

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