Abstracts

Comparing unloaded Q-factor of a high-Q dielectric resonator measured using the transmission mode and reflection mode methods involving S-parameter circle fitting

K. Leong, J. Mazierska, M.V. Jacob and D. Ledenyov. "Comparing unloaded Q-factor of a high-Q dielectric resonator measured using the transmission mode and reflection mode methods involving S-parameter circle fitting." 2002 MTT-S International Microwave Symposium Digest 02.3 (2002 Vol. III [MWSYM]): 1665-1668 vol.3.

A comparative study of unloaded Q-factor measurements of a TE/sub 011/ mode sapphire dielectric resonator with unloaded Q-factor value of 731,000 at a frequency of 10 GHz and temperature of 65 K using two best Q-factor measurement methods are presented. The transmission (TMQF) and reflection methods are based on relevant multifrequency S-parameter measurements and circle-fitting procedures to compute the unloaded Q-factor of the resonator. For accurate comparison of the methods, a delay compensation procedure (introduced in the TMQF technique to remove delay due to noncalibrated cables) has been applied also to the reflection data.

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