Abstracts

Unloaded Q-Factor of Stepped-Impedance Resonators

G.B. Stracca and A. Panzeri. "Unloaded Q-Factor of Stepped-Impedance Resonators." 1986 Transactions on Microwave Theory and Techniques 34.11 (Nov. 1986 [T-MTT]): 1214-1219.

The paper presents general expressions for the unloaded Q-factor of stepped-impedance resonators partially loaded with high-dielectric constant ceramics to realize miniaturized microwave bandpass filters. Some theoretical calculations for coaxial resonators are also presented in diagrams to show a correct design optimization of coaxial miniaturized filters. The formulas presented in this paper take into account the imaginary component of the characteristic impedance Z of the lines constituting the resonator; the results previously presented by other authors neglected such an imaginary component of Z. The relevant influence that this imaginary component has for the calculation of the correct unloaded Q of the resonator is pointed out by this paper through a comparison between correct calculations and calculations performed by neglecting the imaginary component of Z. Some experimental results are compared with theoretical calculations.

❑ Return to main document.