Abstracts

The design of a temperature-stable stepped-impedance resonator using composite ceramic materials

Sang-Kyu Lim, Han-Young Lee, Jun-Chul Kim and Chul An. "The design of a temperature-stable stepped-impedance resonator using composite ceramic materials." 1999 Microwave and Guided Wave Letters 9.4 (Apr. 1999 [MGWL]): 143-144.

The authors present a method to design a coaxial ceramic resonator, whose resonance frequency is unchanged with temperature, using a material with a positive temperature coefficient of resonant frequency (/spl tau//sub f/) and a negative /spl tau//sub f/ material. From the resonance conditions according to temperature variation, the length to be filled with each material is calculated to minimize the resonance frequency shift with temperature change. As an example, Ba(Zn/sub 1/3/Nb/sub 2/3/)O/sub 3/ and CaZrO/sub 3/ are selected in this work, and their lengths are obtained at various resonant frequencies. The temperature dependence of the resonant frequency of this resonator is simulated.

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