Abstracts

A field theoretic approach to the analysis of practical coupled dielectric resonators

T.K. Sarkar, Chaowei Su, A.R. Djordjevic, B. Kolundzija, M. Salazar-Palma and J.L. Caceras. "A field theoretic approach to the analysis of practical coupled dielectric resonators." 1999 MTT-S International Microwave Symposium Digest 99.1 (1999 Vol. I [MWSYM]): 167-170 vol.1.

Conventional methods for the analysis of dielectric resonators utilize the mode-matching technique. Other methods have also been used. However, most of the analysis exists for analysis of single resonators. However, for practical dielectric resonators (when more than one loaded cavity is used) there may be apertures coupling one resonator to the other. In addition there may be probes coupling one resonator to the other to carry out response shaping or even cancel out the effects of the higher order modes. Also, probes may be utilized to couple energy into and out of the resonators. The high dielectric constant resonator is generally placed on top of a low dielectric constant material for support. Hence an effective analysis modeling is necessary which will predict the actual experimental data accurately if the appropriate material properties are correctly specified for coupled multiple dielectric resonators. This includes analysis of dielectric resonators with aperture couplings along with probe feeds.

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