Abstracts

Transitional combline/evanescent-mode microwave filters

R. Levy, Hui-Wen Yao and K.A. Zaki. "Transitional combline/evanescent-mode microwave filters." 1997 Transactions on Microwave Theory and Techniques 45.12 (Dec. 1997, Part I [T-MTT]): 2094-2099.

Traditional combline-filter theory based on TEM-mode coupling results in bandwidths which are too large-the increase being a function of the ground-plane spacing to wavelength ratio b//spl lambda/. As the b//spl lambda/ ratio increases from 0.05 to 0.35, the bandwidth ratio (BWR), defined as actual bandwidth/TEM bandwidth, increases from unity to over 2:1. This bandwidth increase has now been confirmed by calculation of the coupling coefficient between combline resonators using mode matching. Accompanying the increased bandwidth is a considerable increase in the unloaded Q in accordance with the higher Q of the evanescent waveguide modes. A similar study carried out in the case of interdigital filters shows that these effects are much less significant.

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