Abstracts

Transitional Combline/Evanescent Mode Microwave Filters

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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/lambda. As the b/lambda ratio increases from 0 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, as expected from the higher Q of the evanescent waveguide modes.

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