Abstracts

Asymmetric Iris Coupled Cavity Filters with Stopband Poles

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An improved type of asymmetric iris coupled cavity filters is introduced which utilizes the dual mode resonance and interference characteristics of the fundamental mode and the next higher order odd mode in suitably optimized resonators. This design achieves additional stopband poles which may advantageously be employed to improve the edge steepness and the rejection characteristic in the second stopband. Based on the modal scattering matrix method, the rigorous design takes into account both the finite iris thickness and the higher order mode interaction at all step discontinuities. Computer-optimized design examples of asymmetric inductive and resonant iris coupled resonator filters for the waveguide Ku- (12 - 18 GHz), and W-band (75 - 110 GHz), respectively, demonstrate the improved stopband behaviour. The theory is verified by available measured results.

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