

## Rigorous Design of Evanescent-Mode E-Plane Finned Waveguide Bandpass Filters

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This paper presents a new design of compact, low-cost and low-insertion loss evanescent-mode waveguide bandpass filters with bilateral metallic E-plane fins. Based on the modal scattering matrix method, the rigorous design takes into account the influences of both, the finite fin thickness and the higher-order mode interaction at all discontinuities. Computer optimized design data are given for filters with passbands in the X- and the E-band with wide stopbands. The theory is verified by measurements.

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