Abstracts

Microwave filters-applications and technology

I.C. Hunter, L. Billonet, B. Jarry and P. Guillon. "Microwave filters-applications and technology." 2002 Transactions on Microwave Theory and Techniques 50.3 (Mar. 2002 [T-MTT] (50th Anniversary Issue)): 794-805.

This paper describes the development of microwave filter technology from an applications perspective. Military applications required wide-band and tunable devices for electronic support measures receivers, which led to the development of highly selective wide-band waveguide filters, coaxial resonator and suspended-substrate multiplexers, and electronically tunable filters. The satellite communications industry created demand for low-mass narrow-band low-loss filters with severe specifications on amplitude selectivity and phase linearity. These requirements resulted in the development of dual-mode waveguide and dielectric-resonator filters, and advances in the design of contiguous multiplexers. Cellular communications base-stations demanded low-loss high power-handling selective filters with small physical size, capable of being manufactured in tens of thousands at a reasonable cost. These demands led to advances in coaxial resonator, dielectric resonator, and superconducting filters, and also to methods of cost-reduction, including computer-aided alignment. Cellular radio handsets have required the manufacture of hundreds of millions of extremely small very low-cost filters, still with reasonably low loss and high selectivity. This has driven significant advances in integrated ceramic, surface, and bulk acoustic-wave active filters and filters using micromachined electromechanical systems.

❑ Return to main document.