Abstracts

Miniature Microstrip Stepped Impedance Resonator Bandpass Filters and Diplexers for Mobile Communications

A.F. Sheta, J.P. Coupez, G. Tanne, S. Toutain and J.P. Blot. "Miniature Microstrip Stepped Impedance Resonator Bandpass Filters and Diplexers for Mobile Communications." 1996 MTT-S International Microwave Symposium Digest 96.2 (1996 Vol. II [MWSYM]): 607-610.

Miniature microstrip stepped impedance resonator bandpass filters and diplexers for satellite mobile communications have been developed. A very high dielectric constant substrate (epsilon r=89 and h=2mm) is used. Experimental results show that an unloaded half wave resonator quality factor as high as 400 at 1.5 GHz, with such substrate, maybe possible. The merit of this circuit lies in the simplicity of design procedure, the possibility of developing this filter with quite a variety of high dielectric constant substrate materials and the simplicity of simulation with most commercial software packages. A four resonator bandpass filter with 35 MHz bandwidth at 1.55 GHz was designed and implemented with this substrate. Based on this filter, a diplexer which meets satellite mobile communications performance has been developed. Experimental results are in good agreement with theoretical predictions

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