Abstracts

Design of Multisection Impedance-Matched Dielectric-Slab Filled Waveguide Phase Shifters

F. Arndt, J. Bornemann and R. Vahldieck. "Design of Multisection Impedance-Matched Dielectric-Slab Filled Waveguide Phase Shifters." 1984 Transactions on Microwave Theory and Techniques 32.1 (Jan. 1984 [T-MTT]): 34-39.

Optimum-matched dielectric-slab filled waveguide phase shifters are designed with the method of field expansion into eigenmodes, which includes higher order mode interaction between the step discontinuities. The relative phase shift is mechanically adjustable between 0° and about 360° at midband frequency by lateral displacement of the dielectric slab. Computer-optimized design data are given for Ku-, K-, and Ka-band prototypes which achieve return losses of better than 40 dB, both as a function of displacement at midband frequency and as a function of frequency at fixed displacements. Measurements verify the theory.

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