Abstracts

Millimeter Wavelength Diplexing Filters Utilizing Circular Te/sub 011/ Mode Resonators (Correspondence)

R.D. Standley. "Millimeter Wavelength Diplexing Filters Utilizing Circular Te/sub 011/ Mode Resonators (Correspondence)." 1968 Transactions on Microwave Theory and Techniques 16.1 (Jan. 1968 [T-MTT]): 50-51.

This correspondence details the procedure for designing a diplexing filter with rectangular waveguide inputs and outputs using circular TE/sub 011/ mode resonators, as shown in Fig. 1. The advantage of using TE/sub 011/ mode resonators in the otherwise conventional arrangement lies in their high intrinsic Q characteristic. The latter is, of course, necessary in realizing Iow-loss, high loaded Q diplexers. Four such diplexers were developed for use as local oscillator injection filters to mixers at a center frequency 50.4 GHz. The signal band of interest was 51.7±0.3 GHz. The experimental models had a 3 dB bandwidth of 50 GHz and midband insertion loss of 1.5 dB. Figs. 2 and 3 show typical frequency responses observed at the various ports. Correlation between theory and experiment was good.

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