Abstracts

Evacuated Waveguide Filter for Suppressing Spurious Transmission from High-Power S-Band Radar

H.A. Wheeler and H.L. Bachman. "Evacuated Waveguide Filter for Suppressing Spurious Transmission from High-Power S-Band Radar." 1959 Transactions on Microwave Theory and Techniques 7.1 (Jan. 1959 [T-MTT]): 154-162.

A one-megawatt magnetron, used in a search radar, tunes over the S band of 3.1 to 3.5 kmc, and simultaneously causes interference in the band of 3.7 to 4.0 kmc by occasional oscillation in spurious modes. For insertion in the antenna line of this radar, a band-pass filter has been designed to provide over 120 db attenuation in the interference band. It is a wave filter with M-derived terminations for impedance matching and with three sections including traps resonant in the stop band, for high attenuation, all made of nine resonant irises spaced ¼ wavelength in a waveguide. Each filter is sealed by pressure windows and evacuated to handle the high-power pulses. Two such filters are connected in parallel between 3-db directional couplers to make a nonreflecting assembly.

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