Abstracts

A Field Displacement Isolator at 57 kmc

C.E. Fay and E.F. Kankowski. "A Field Displacement Isolator at 57 kmc." 1961 PGMTT National Symposium Digest 61.1 (1961 [MWSYM]): 21-22.

Ferrite devices employing the field displacement principle or ferromagnetic resonance are difficult to build in the millimeter wavelength region because of the high magnetic fields usually required for biasing the ferrite. In conventional ferrites, the upper limit of the saturation magnetization, 4piM/sub s/, is about 6000 gauss. For resonance with the most favorable ferrite shape, namely, a thin slab magnetized in the direction of one of its longer dimensions, the Kittel relation for resonance becomes, f = gamma /spl radic H/sub A/(H/sub A/+ 4piM/sub S/)/. Here f is the frequency of operation, gamma is the gyromagnetic ratio of the electron, and H/sub A/ is the applied biasing field. Using a 6000 gauss ferrite, for resonance at 55 kmc, the required biasing field, H/sub A/, is about 17,000 oersteds. This field is obviously difficult to obtain in a device of convenient size.

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