Abstracts

Operation of a Microwave Garnet Limiter

R.L. Comstock and L.J. Varnerin. "Operation of a Microwave Garnet Limiter." 1962 PGMTT National Symposium Program and Digest 62.1 (1962 [MWSYM]): 142-145.

It is now possible to design a class of low level, milliwatt range ferrimagnetic microwave limiters which exhibit distinctive characteristics and important advantages over previously reported ferrimagnetic limiters. The limiter characteristically consists of a microwave transmission cavity containing as a nonlinear element a large single crystal spherical sample of yttrium iron garnet (YIG) biased to the subsidiary absorption by a dc magnetic field perpendicular to the rf magnetic field. Garnet losses increase with power above the subsidiary absorption threshold and result in a nonlinear decline in cavity Q which limits the output power. Large filling factors are needed for a significant limiting range and the large YIG single crystals now available make this limiter practical. At a given frequency the limiting threshold can be varied with the bias magnetic field, in contrast to gyromagnetic coupler limiters.

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