Abstracts

A High Power X-Band Frequency Selective Passive YIG Limiter

S.N. Stitzer, P.S. Carter, Jr. and H. Goldie. "A High Power X-Band Frequency Selective Passive YIG Limiter." 1977 MTT-S International Microwave Symposium Digest 77.1 (1977 [MWSYM]): 528-531.

This paper describes a multistage frequency-selective power Iimiter in which the limiting takes place in three tandem connected stages. The diameters of the YIG sphere power limiting elements used in each stage are optimized for sharpest selectivity, lowest threshold, and widest dyanmic range. The passive YIG limiter provides 28 dB of dynamic range, will handle up to 3 watts CW, has a 1 percent bandwidth in X-band and a below threshold loss of 1.7 dB. Limited output power is under 5 milliwatts; third order intermodulation products at the output are better than 20 dB down from a 0 dBm in-band signal beating with a second in-band signal of +33 dBm. The device has application to high power FW/CW monostatic radars when simultaneous transmission and reception is required, RF signal leveling, ordinary limiting, and protection of communications receivers from strong RF signals without causing loss of reception during the overload period.

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