Abstracts

A General Theory for Spin-Wave Suppression in Ferrites

C.D. Hannaford and M.J. Howes. "A General Theory for Spin-Wave Suppression in Ferrites." 1967 G-MTT International Microwave Symposium Program and Digest 67.1 (1967 [MWSYM]): 95-99.

When the microwave magnetic field applied to a ferrite polarised by a static magnetic field set to a value below that required for resonance exceeds a certain threshold value, unstable spin waves cause absorption of energy in the ferrite. This effect, termed the subsidiary absorption, manifests itself in a ferrite component as a non-linear increase in attenuation above a critical power level and can far exceed the attenuation at low power levels. There are two ways af suppressing such non-linear loss. One is to reduce the grain size of the ferrite so as to break up the unstable spin waves; the other achieves the same result by frequency modulation of the microwave field or amplitude modulation of the applied static field. These modulation methods are discussed in this paper, and for reasons outlined later, only the parallel-pump instability is considered.

❑ Return to main document.