Abstracts

Radiation Resistance in Radial Transducer (Short Papers)

E. Sawado. "Radiation Resistance in Radial Transducer (Short Papers)." 1982 Transactions on Microwave Theory and Techniques 30.11 (Nov. 1982 [T-MTT]): 2039-2040.

The purpose of the present paper is to give an intuitive explanation for the characteristics of radial wave and to demonstrate that this mode has no cutoff below the critical frequency omega = gamma(BH)/sup 1/2/, where omega is the angular frequency, gamma = 1.76 X 10/sup 7/ ((oe sec)/sup -1/ in CGS unit), B = μ/sub 0/(H + M) is the magnetic flux density, H the magnetic field, M the saturation magnetization. Ganguly and Webb, and others presented an initial theory and experiments for magnetostatic surface wave transducers. They obtained some of the useful results for resistance of a microstrip due to radiation. Previous investigations have calculated dispersion characteristics and characteristic impedance of composite microstrip slab structure. These investigations conclude that microstrip excitation of magnetostatic surface wave has proven particularly convenient, because of strong coupling from electromagnetic waves to magnetostatic waves. It is easy to see that the lowest operating frequency of the Ganguly type delay line is gamma H. Below this cutoff, no modes can exist. In view of the above, investigation of radial wave type delay line should produce useful developments in low frequency microwave (0.5 to 1.0 GHz) applications.

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