Abstracts

Theoretical and Experimental Study of Measurement of Microwave Permittivity Using Open Ended Elliptical Coaxial Probes

Y. Xu, F.M. Ghannouchi and R.G. Bosisio. "Theoretical and Experimental Study of Measurement of Microwave Permittivity Using Open Ended Elliptical Coaxial Probes." 1992 Transactions on Microwave Theory and Techniques 40.1 (Jan. 1992 [T-MTT]): 143-150.

In this paper, a new kind of coaxial probe for measurement of microwave permittivity--open-ended elliptical aperture--is studied from theoretical and experimental view points. Calculated results are discussed and compared with experimental values. Wideband measurements of the dielectric constants of fluids are performed by rising this kind of needle type probe. Both theory and experiment show that open-ended elliptical coaxial probes can be successfully used in wideband dielectric constant measurements with the advantage of increased sensitivity, especially at low frequencies. Moreover, this kind of probe can easily be fitted into gels and living tissues: these features are very important in biological applications both for measurements and microwave radiation treatment.

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