Cured epoxy resin dielectric characterization based on accurate waveguide technique

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ABSTRACT

Complex permittivity of a substrate plays an important role in designing a compact and robust antenna. Thus, measuring complex permittivity must be done carefully in order to achieve accurate and reliable result. Waveguide is a widely used technique to determine complex permittivity of a dielectric material. In this paper the permittivity of cured epoxy resin is determine using waveguide technique, within the G-band frequency range. It determines the complex permittivity by analyzing only the measured transmission coefficient of the material and easily noise affected reflection coefficient is not used. Sample is only partially loaded in the waveguide to avoid the resonance during measurement. Therefore, results obtained are accurate and reliable. Also, the estimated real part of complex permittivity is in a good agreement with available data from other work.

KEYWORDS

Complex permittivity; Dielectric material; Dielectric characterization

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