Abstracts

Attenuation Measurement of Very Low Loss Dielectric Waveguides by the Cavity Resonator Method Applicable in the Millimeter/Submillimeter Wavelength Range

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A dielectric waveguide shorted at both ends is constructed as a cavity resonator. By measuring the Q of this cavity, one can determine the attenuation constant of the guided mode on this dielectric structure. The complex permittivity of the dielectric waveguide material can also be derived from the measurements. Measurements were made at Ka-band for dielectric waveguides constricted of nonpolar, low-loss polymers such as Teflon, polypropylene, polyethylene, polystyrene, and rexolite.

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