Abstracts

Precision Dielectric Measurements of Nonpolar Polymers in the Millimeter Wavelength Range

M.N. Afsar. "Precision Dielectric Measurements of Nonpolar Polymers in the Millimeter Wavelength Range." 1985 Transactions on Microwave Theory and Techniques 33.12 (Dec. 1985 [T-MTT] (1985 Symposium Issue)): 1410-1415.

Complex refractive index and complex dielectric permittivity and loss tangent data for polyethylene, polypropylene, poly-4 methyl-perrtene1 (TPX), and polytetrafluorethylene (Teflon) are presented over the frequency range 60-300 GHz. All of these nonpolar polymers are extremely low-loss materials. As in the microwave region, polyethylene demonstrates exceptionally low-loss characteristics in the entire millimeter-wave region. Polar polymers such as nylon and plexiglass exhibit much higher absorption (nearly an order of magnitude higher) loss compared to nonpolar polymers.

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