Abstracts

Measurement of transmittance and scattering of radome membranes from 30 to 1000 GHz (Dec. 1997, Part II [T-MTT])

M.N. Afsar, I.I. Tkachov and T.B. Wells. "Measurement of transmittance and scattering of radome membranes from 30 to 1000 GHz (Dec. 1997, Part II [T-MTT])." 1997 Transactions on Microwave Theory and Techniques 45.12 (Dec. 1997, Part II [T-MTT] (1997 Symposium Issue)): 2454-2460.

Transmittance of a number of woven and nonwoven radome membranes with various diameters of threads of the fabric and thickness of the laminate has been studied as a continuous function of frequency over the 30-1000-GHz range by utilizing Fourier transform spectroscopy (FTS). These woven and nonwoven radome membranes, now known as "Gore-Tex," were manufactured by W. L. Gore and Associates, Inc. In this paper and for the first time, the transmittance has been measured with various angles of incidence of the incident wave for both TE and TM modes. Strong diffractive scattering has been found above the frequency with wavelength comparable with the fabrics' period (240 GHz for the standard Gore-Tex product). Gore-Tex woven-membrane materials were found to be suitable for radome applications up to 1000 GHz.

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