Abstracts

Ultra-Wideband Characterization of Lossy Materials: Short-Pulse Microwave Measumments

D. Kralj and L. Carin. "Ultra-Wideband Characterization of Lossy Materials: Short-Pulse Microwave Measumments." 1993 MTT-S International Microwave Symposium Digest 93.3 (1993 Vol. III [MWSYM]): 1239-1242.

Planar antennas are switched photoconductively to generate picosecond bursts of freely-propagating radiation with usable spectral amplitudes in the 5 to 85 GHz frequency range. This radiation is used to measure the frequency dependent, complex index of refraction of dispersive materials in reflection and transmission; new deconvolution techniques are also demonstrated for extracting frequency domain information from time domain measurements. Experimental results are presented for the particular case of water, and a discussion is included on the relative merits of reflection and transmission time domain measurements on materials.

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