Abstracts

A 225 GHz Polarimetric Radar

J.B. Mead and R.E. McIntosh. "A 225 GHz Polarimetric Radar." 1990 Transactions on Microwave Theory and Techniques 38.9 (Sep. 1990 [T-MTT] (Special Issue on Multifunction MMIC's and their System Applications)): 1252-1258.

This paper describes an incoherent 225 GHz polarimetric radar capable of measuring the Mueller matrix of point and distributed targets. The transmitter employs an extended interaction oscillator that transmits 60 W pulses of 50 to 600 ns duration. Incoherent measurements of the Mueller matrix are achieved by transmitting four polarization states and measuring the scattered wave using a dual polarized receiver. A novel calibration technique is presented that requires a single in-scene reflector. We also present polarimetric measurements of a dihedral corner reflector and foliage which are the first polarimetric measurements reported at this wavelength. The foliage measurements indicate a pronounced sensitivity of the polarimetric data to fine-scale surface structure.

❑ Return to main document.