

DIELECTRIC PERMITIVITY MEASUREMENT OF COTTON LINT

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Abstract

A technique was developed for making broad band measurements of cotton lint electrical permittivity. The fundamental electrical permittivity value of cotton lint at various densities and moisture contents; is beneficial for the future development of cotton moisture sensors as it provides a geometry independent measurement that can be translated to a specific test fixture of interest. This technique was used to measure the permittivity of cotton lint at varying densities and moisture contents over the frequency range from of 30 kHz to 20 MHz. Validation trials are currently being conducted to verify the accuracy of the permittivity measurements and are currently being analyzed.