Abstracts

A Microwave Technique for the Measurement of the Dielectric Properties of Soils (Correspondence)

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During a recent investigation of antennas mounted flush with the earth, it was necessary to measure the dielectric properties of soil. Many different techniques for the measurement of dielectric constants and loss tangent have been developed. These techniques generally fall into two categories: those which utilize transmission through a sample and those which use the reflection from the sample. The particular technique employed is modified to suit the range of parameters being measured and the physical characteristics of the sample. In general, a measurement that provides an accurate determination of dielectric constant is relatively insensitive to variations in loss tangent and vice versa. The technique described here utilizes both types of measurements to find in a practical manner the dielectric constant and loss tangent of relatively moist loamy soil at microwave frequencies.

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