Abstracts

A High-Power Automatic Network Analyzer for Measuring the RF Power Absorbed by Biological Samples in a TEM Cell

J.R. Juroshek and C.A. Hoer. "A High-Power Automatic Network Analyzer for Measuring the RF Power Absorbed by Biological Samples in a TEM Cell." 1984 Transactions on Microwave Theory and Techniques 32.8 (Aug. 1984 [T-MTT] (Special Issue on Electromagnetic-Wave Interactions with Biological Systems)): 818-824.

A device for measuring the radiofrequency (RF) power absorbed by biological samples while they are being irradiated in a transverse electromagnetic (TEM) cell is described. The report discusses the design, calibration, and performance of this automated measurement system. The power absorption analyzer is based on a six-port type of automatic network analyzer, and operates at an incident power to the TEM cell of 1 to 1000 W, over a frequency range of 100 to 1000 MHz. Experiments show that an absorbed power of 0.02 to 0.05 percent of the incident power can he measured. Measurements of the power absorbed by a 1-percent saline solution were made rising the power absorption analyzer and by an independent calorimetric measurement. The two measurement techniques show excellent agreement.

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