

## Broadband Calibration of E-Field Probes in Lossy Media

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*K. Meier, M. Burkhardt, T. Schmid and N. Kuster. "Broadband Calibration of E-Field Probes in Lossy Media." 1996 Transactions on Microwave Theory and Techniques 44.10 (Oct. 1996, Part II [T-MTT] (Special Issue on Medical Application and Biological Effects of RF/Microwaves)): 1954-1962.*

A broadband calibration procedure for E-field probes that minimizes the overall uncertainties inherent in E-field measurements in lossy dielectric liquids has been developed. The analysis of the calibration requirements shows that probes that are symmetrical with respect to their axis greatly facilitate accurate calibration, since the calibration procedure can be divided into several discrete steps. Such a procedure is presented and analyzed with respect to its uncertainties. Absolute calibration is performed at three frequency bands utilized in Europe for mobile communications (450 MHz, 900 MHz, and 1.8 GHz) and in different tissue-simulating liquids. The parameters obtained are verified by numerical simulations of the probe in the surrounding media. Such simulations allow the assessment of some of the calibration parameters with sufficient accuracy in cases where the experimental determination would be too tedious and time consuming.

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