

Automated E-Field Scanning System for Dosimetric Assessments

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The interest in accurate dosimetric measurements inside phantoms that simulate biological bodies has burgeoned since several regulatory commissions began calling for or recommending the testing for compliance with safety standards of low power devices. This paper presents a newly developed, robot-based system that allows automated E-field scanning in tissue simulating solutions. The distinguishing characteristics of the system are its high sensitivity and its broad dynamic range (1 μ W/g to 100 mW/g) over the entire frequency range (10 MHz to over 3 GHz) used for mobile communications. The reproducibility of the dosimetric evaluations has been shown to be considerably better than $\pm 5\%$. This has been accomplished by the use of an improved isotropic E-field probe connected to amplifiers with extremely low noise and drift characteristics in conjunction with digital processing of the data. Special emphasis has been placed on system reliability, user-friendliness and graphic visualization of data.

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