Abstracts

RF Cavity Irradiation Dosimetry (Short Papers)

W.P. Edwards and H.S. Ho. "RF Cavity Irradiation Dosimetry (Short Papers)." 1975 Transactions on Microwave Theory and Techniques 23.3 (Mar. 1975 [T-MTT]): 311-313.

A right circular cylindrical cavity designed to resonate at 380 MHz was developed to irradiate a monkey head with little or no radio frequency exposure to other tissues. The system is used in studies of the behavioral effects of the absorption of radiant power. Dose-rate measurements were made with an electrically equivalent calorimetric load, consisting of a saline-filled plastic cylinder whose geometry and position in the cavity reproduced cavity and transmission line parameters measured with a test animal. Since integral dose rate P/sub m/ (total power absorbed) is proportional to the net power transmitted to the cavity P/sub t/ the constant of proportionality K/sub m/= P/sub m/ / P/sub t/ must account for the absorption of field energy by the tissue. K/sub m/ was determined by comparing the temperature rise produced in a fixed time period by the dissipation of dc power to the temperature rise produced by RF radiation in the same time period. It was found that, at an ambient temperature of 25±2°C and a relative humidity of 55±5 percent, K/sub m/ was 0.62.

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