Abstracts

Changes in Cardiac-Cell Membrane Noise During Microwave Exposure

R.L. Seaman, R.K. Ayer, Jr. and R.L. DeHaan. "Changes in Cardiac-Cell Membrane Noise During Microwave Exposure." 1982 MTT-S International Microwave Symposium Digest 82.1 (1982 [MWSYM]): 436-437.

The microscopic voltage fluctuations (noise) of a biological membrane result from electrical and chemical processes within the membrane. Analysis of spontaneously-occurring noise can reveal changes in ion channel kinetics which are not readily apparent from other types of analysis as well as information about membrane electrical properties. We report here the results of preliminary studies in which 2450-MHz CW energy was applied to aggregates of embryonic heart cells in culture with an open-ended coaxial exposure device. Irradiation at Specific Absorption Rates (SARs) of 122 to 237 mW/g caused a bulk temperature rise of no more than 0.8°C, but increased the power ratio of the membrane noise by 1.94±3.81 dB. Because of the large variability, this increase was not significant at the 5% level.

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