Abstracts

Continuous Exposure of Chicks and Rats to Electromagnetic Fields

A.J. Giarola and W.F. Krueger. "Continuous Exposure of Chicks and Rats to Electromagnetic Fields." 1974 Transactions on Microwave Theory and Techniques 22.4 (Apr. 1974 [T-MTT]): 432-437.

Growth rate and feed consumption depressions were observed in groups of 25 day-old male chicks when exposed in metal cage environments to the following CW fields: 1) a UHF wave at 880 MHz in a very low-Q cavity resonator energized by a 220-mW power source (values of electric field square E^2 divided by the intrinsic impedance of free space eta = 377 omega were measured resulting in a maximum value of 550 µW cm^2 with a "hot spot" of 900 µ W cm^2); 2) a VHF wave at 260 MHz in a very low-Q cavity resonator, energized by a 220-mW power source (values of E^2eta were not measured, but the values should have been similar to those measured in the UHF facility); 3) an extremely low frequency (ELF) electric field at either 45 or 60 Hz with calculated electric field strength of 3500 V/m; 4) an ELF magnetic field at either 45 or 60 Hz with 1.3 G was measured. Adrenal glands of chicks exposed to the 880-MHz wave were compared with those from control chicks. Smaller adrenals were observed in the treated group of birds. Growth depression was also observed in rats exposed to the UHF field at 880 MHz. Mean adrenal weights of the treated and control rats did not differ significantly; however, spleen and thymus weights of the treated rats were notably larger. Potential causes of the growth responses observed are discussed.

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