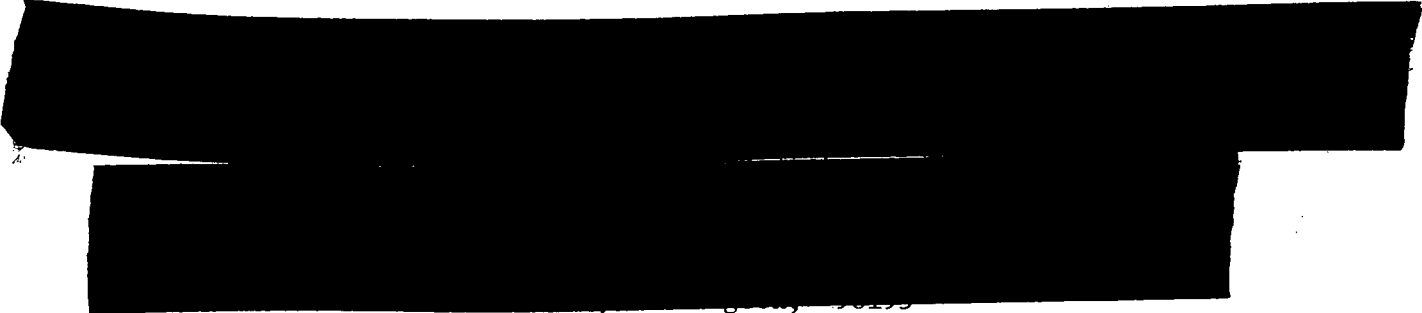


Chronic Exposure of Rats to 2450-MHz Microwaves at 5 mW/cm² Defining
Frequency Dependent Dose-Determinate Effects



ABSTRACT

Eight male rats were exposed for 16 weeks to 2450-MHz circularly polarized microwaves at an averaged power density of 5 mW/cm². The rats were exposed for ten hours every night for a total of approximately 1000 hours while 8 other rats were sham-exposed for the same time periods. Daily measurements of body mass, and of intake of food and of water, both in home cage and exposure apparatus, revealed statistically significant decrements in the exposed rats' daily food and water intake, although body mass failed to differentiate groups. Monthly assessments of blood chemistry parameters also failed to differentiate groups in a consistent manner as did post-exposure determinations of footpad shock threshold, open field behavior, and the acquisition of a shuttlebox conditioned avoidance response. These findings are discussed in the context of three other similar chronic exposure studies conducted in our laboratory employing 918-MHz circularly polarized guided waves incident at 10, 5 and 2.5 mW/cm². When the present findings at 2450-MHz (e.g., reduction in food intake) are compared to the 918-MHz dose-response function in terms of incident energy, the effects common to both 918-MHz and 2450-MHz chronic exposure are frequency dependent. However, when the effects are plotted as a function of SAR (W/Kg), the effects obtained here can be easily predicted from the 918-MHz dose-response curve.