Biological Effects of Microwave Radiation

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Abstract

Microwave technology has provided with many exciting new therapeutic and diagnostic methods. Frequencies from RF as low as 400 kHz through microwave frequencies as high as 10 GHz are presently used for therapeutic applications in areas such as cardiology, urology, surgery, ophthalmology, cancer therapy and for diagnostic applications in areas such as cancer detection, organ imaging and more. At the same time, microwaves affect living systems directly at a low level of exposure. This microwave radiation penetrates the human body, animals and birds and converted into thermal energy with in material .To understand the phenomena occurring within the human body due to absorption of microwave radiation, a detailed knowledge of heat absorbed and temperature distribution in human body is necessary. This paper shows temperature gradient, current density, electric field distribution and total power dissipated because of EM wave in different parts of the body.

Reference

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Figures used in the abstract

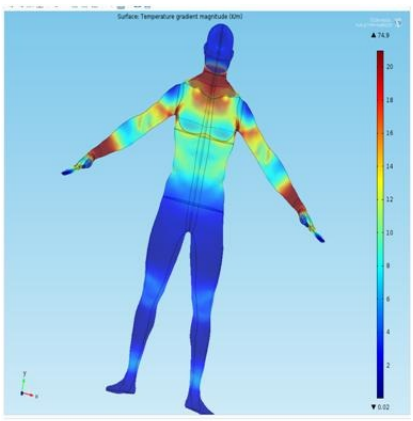

Figure 1: Temperature gradient in human body.

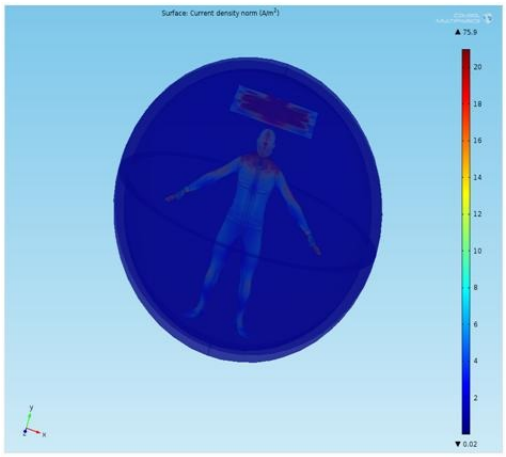

Figure 2: Current density in human body.

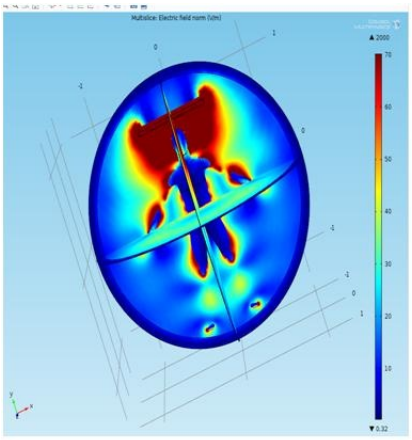

Figure 3: Electric field in human body.

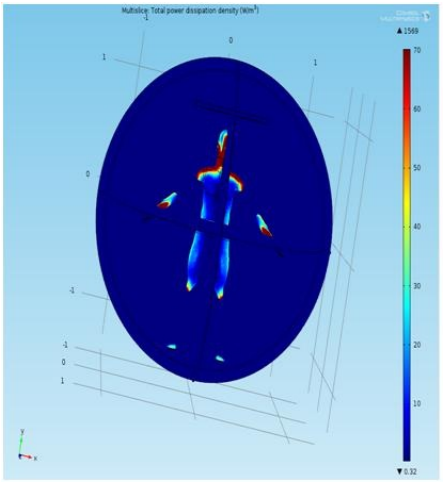

Figure 4: Power dissipation density.