Abstracts

Electric current and electric field induced in the human body when exposed to an incident electric field near the resonant frequency

R.W.P. King. "Electric current and electric field induced in the human body when exposed to an incident electric field near the resonant frequency." 2000 Transactions on Microwave Theory and Techniques 48.9 (Sep. 2000 [T-MTT] (Mini-Special Issue on Research Reported at the 8th Topical Meeting on Electrical Performance of Electronic Packaging (EPEP) 1999)): 1537-1543.

The electric field and current density induced in the human body when this is exposed to electric fields near the resonant frequency, 53 MHz, are determined analytically. Since this frequency range includes an important amateur radio band of 50-60 MHz and exposure to electric fields at this frequency has been shown to be hazardous, the study has a specific motivation. A cylindrical model of the body is used to derive formulas for the total axial current and current density induced in the body subject to skin effect. Tabulations and graphical representations illuminate the results.

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