

Comparison Between SAR Values Induced in the Head by Cellular Phones and Hands-Free Kits

R. Pinto, S. Mancini, D. Asta and G.A. Lovisolo

Section of Toxicology and Biomedical Science, C.R. Casaccia, ENEA, 00060 Rome, ITALY

INTRODUCTION

In recent years handheld mobile telecommunication equipments (MTE) have become a common and used consumer product. Despite of this wide use, public concern about health safety is growing up. General advice was to use hands-free kits to reduce the RF radiation in the head. There are, however, many discussions about the effective usefulness of this type of devices. For this reason it is important to go deep into this issue to reduce doubts already existing. For two years several European laboratories have been involved in an UE project (CEPHOS) on the standardization of measurement procedures for compliance test of MTE: the same procedures were used to evaluate the real effect of hands free kits on SAR values induced in the head.

OBJECTIVE

The radiation levels for many different MTEs with their hands free kits were tested, to evaluate the effective SAR values reduction inside the head caused by use of these type of devices.

MATERIALS AND METHODS

A standard procedure [1, 2] of measurement was used to evaluate SAR (Specific Absorption Rate) levels induced inside an anthropomorphic phantom filled with brain equivalent material at the frequency of interest ($\epsilon=56.5$ and $\sigma=1.04$ at 900 MHz and $\epsilon=53.2$ and $\sigma=1.94$ at 1800 MHz). An isotropic E-field probe was used to measure E-field and so SAR values induced inside the phantom.

At first, maximum SAR value for each MTE was found and evaluated at about 0.5 cm from the bottom of phantom. Then SAR measurements have been performed inside the head close the ear to evaluate SAR induced by MTE in normal use and by hands-free kit.

RESULTS

The results of the tests show without exception that the level of radiation transmitted inside the phantom through a personal hands-free kit is significantly less than that induced by a MTE.

REFERENCES

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