

Electromagnetic spectrum measurement of mobile phones of different technology

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Abstract

This thesis reports measurements of the electric field versus frequency in mobile phones. A total of 416 thirty minute measurements have been conducted under different conditions of calls. The measurements were performed with equipment fully adapted to the technology and the properties of the mobile phones tested.

1. Introduction

Daily, we are exposed, to electromagnetic radiation, coming from the environment as from the sun, the outer space, even from the earth itself. Since the beginning of the 20th century, however, there has been an increased exposure of the population to non-ionizing radiation, especially in the LF-EMR due to the increased use of radios, radars, televisions, PCs, mobile phones, Wi-Fi, DECT bases and so on. All these technological achievements have raised concerns about the health problems that may occur and are associated to the increased use of these devices, involving an increased exposure to EMR. (NRPB 2003; HPA 2004a, 2004b; Valberg et al 2007; Ahlbom et al 2008; SCENIHR 2007, 2009).

2. Indicative Measurement

The measurements of Mobile 04 have been selected as indicative (both in 0 and 1 meter). There are four conditions of measurements: Inactivity, Incoming call, Usage, End of call. Generally the measurements received were below the thresholds of 61 V / m set by the ICNPR (ICNPR 1998) and the frequency was set by 1.5 GHz to 2.1 GHz. Below characteristic graphs are presented for

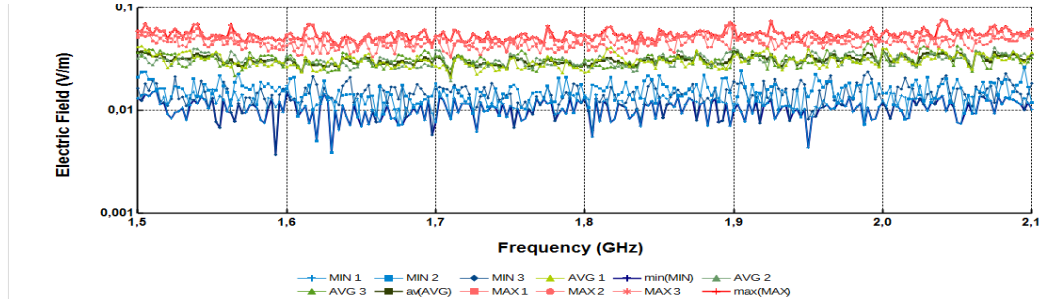
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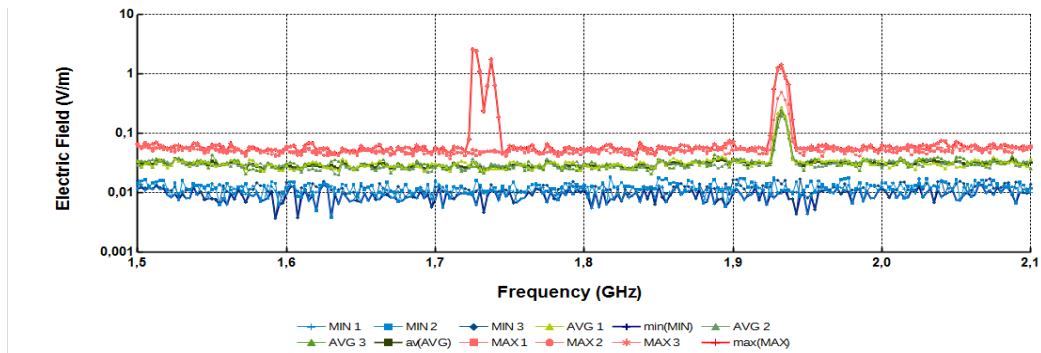
all the typical conditions performed at the distance of 0 and 1 meter by NARDA SRM-3006:

Mobile 04 in 0 meter

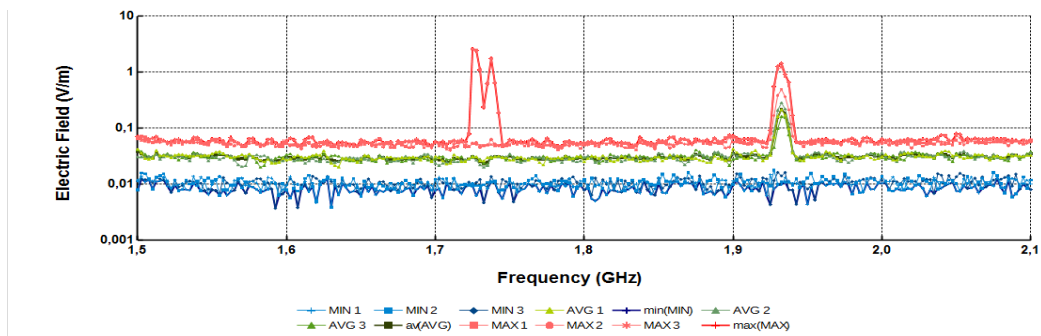
Inactivity:



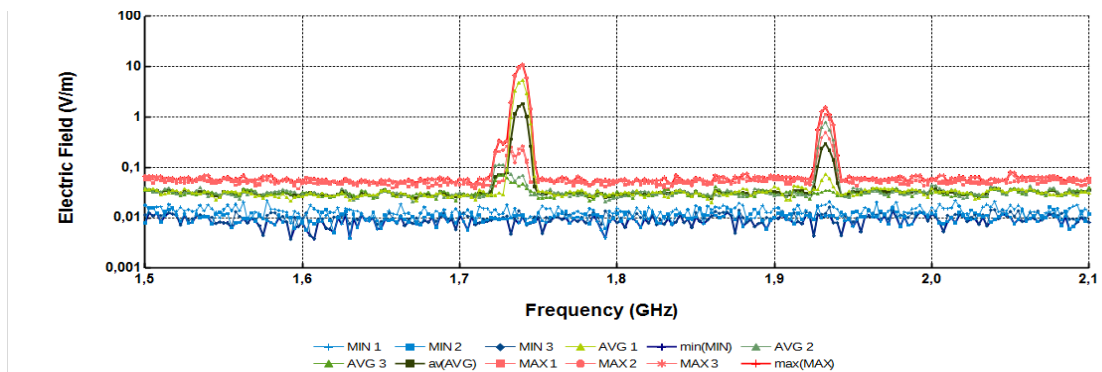
Incoming Call:



Usage:



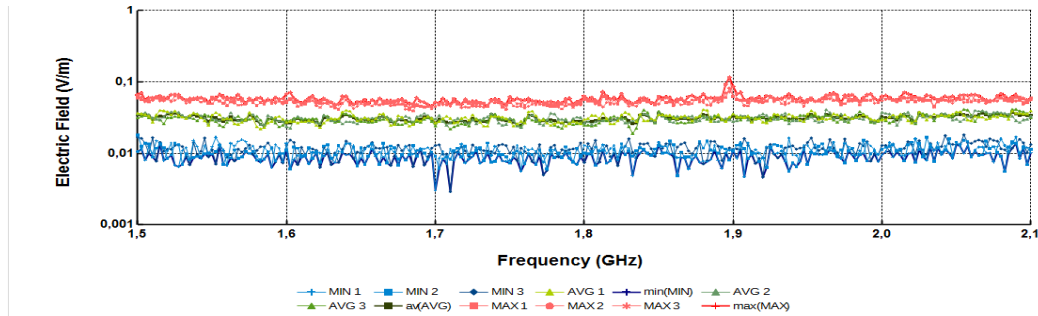
End of call:



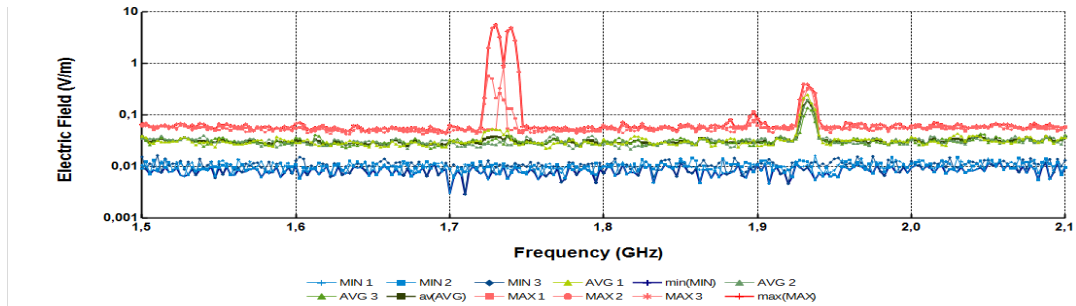
Mobile 04 at 1 meter:

At a distance of one meter, we observe that radiation is minimal except for some instantaneous values at the start of the call, time to connect with the provider but which is less than 1 V / m.

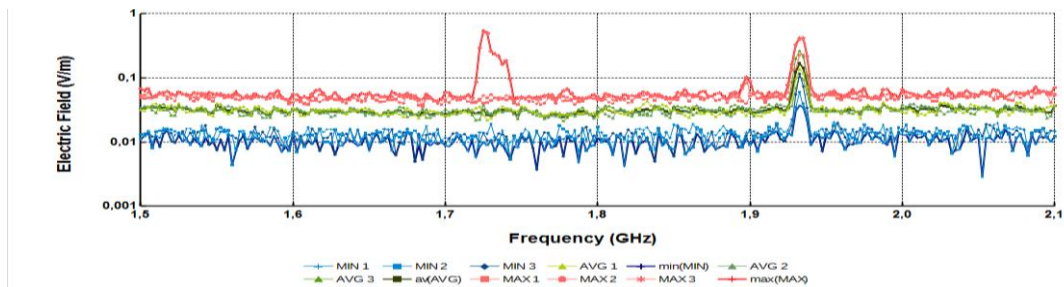
Inactivity:



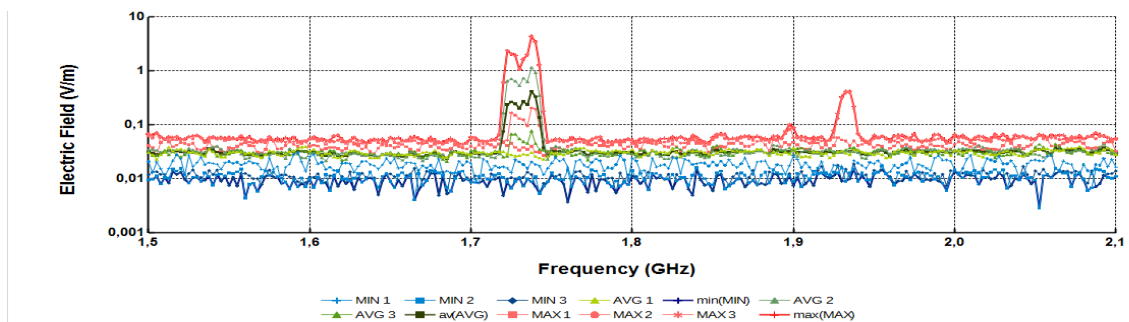
Incoming Call:



Usage:



End of call:



3. Conclusion

In conclusion, the results of the above study show that we can absorb low radiation from latest technology mobile phones. However, due to specific factors such as their misuse and that mobile phones are devices of this emitted radiation which are placed directly in our head, should not go unnoticed.

4. References

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