



INTERNATIONAL EMF PROJECT ADVISORY COMMITTEE (IAC) MEETING



Anatel Report on EMF Activities in Brazil

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1. Introduction

The main purpose of this document is to present an update of what has been done in Brazil regarding Electromagnetic Fields – EMF since the IAC meeting in June 2017 (22rd).

2. Activities related to EMF Exposure

Anatel's researchers published four papers regarding EMF Exposure:

- Fernandes, Leandro Carísio, “*The Design and Development of an App to Compute Exposure to Electromagnetic Fields [EM Programmer's Notebook]*”, IEEE Antennas and Propagation Magazine, Volume 59, Issue 2, April 2017, pp. 149-160.
 - This paper presents an Android App to estimate the exposure level due to base station radiation.
- Linhares, Agostinho, “*Review on Human Exposure to Radiofrequency Electromagnetic Field*” (Invited Paper). SBMO/IEEE MTT-S International Microwave and Optoelectronics Conference 2017.
 - This paper reviews many important aspects of human exposure to RF-EMF, considering exposure limits and its rationale; the electromagnetic environment, where people are exposed in indoor and outdoor places; international standards and possible health effects.
- Linhares, Agostinho; Soares, Antonio Martins; Pires, Alex. “*Measurement of RF Field Strength in Home Environments from a Nearby Base Station and Wireless Devices*” SBMO/IEEE MTT-S International Microwave and Optoelectronics Conference 2017.
 - This paper presents in-situ evaluations comparing the EMF exposure associated with a BTS installed in the vicinity of an apartment, WLAN device and baby monitor in a typical scenario. The results show that under certain circumstances the exposure in the latter cases can be higher than the former.
- Grubisic, Stevan; Linhares, Agostinho; TRAVASSOS, X. ; CARPES JR., W. . “*EMF Exposure Assessment in Proximity to Metallic Parapets*”. The 17th

Biennial Conference on Electromagnetic Field Computation - IEEE CEFC 2016, 13-16/11/2016, 2016, Miami/FL/USA, 2016.

- This paper presents RF-EMF exposure assessment carried out in an observatory recently opened for general public visitation, where there are many RF sources in the surrounding area.

Additionally, some contributions based on these papers were sent to ITU-T SG 5, Q.3 (Human exposure to EMFs from information and communication technologies) and the Android App (with some adaptations) presented in the first paper was added as Appendix VIII, of the Rec. ITU-T K.91- 01/2018 (Guidance for assessment, evaluation and monitoring of human exposure to radio frequency electromagnetic fields).

3. New policies and legislations regarding EMF Exposure

The current Brazilian regulation concerning limits of human exposure to electromagnetic fields for frequencies between 9 kHz and 300 GHz is being revised. It will take into account some of the base stations evaluation procedures described in Recommendation ITU-T K.100.

The draft of the new regulation was released for public consultation in 2016 and the final version is expected to be approved by the Council of Directors this year.

4. New public information activities

Related to NIR, the enforcement area from Anatel is studying an interesting program to establish this year. The program is in elaboration and intends to be achieved by all the regional offices from Anatel around of the country. Maybe in the next year we could talk about that in details.

5. Final comments

Finally, ANATEL continues to keep an open dialogue with society, operators, lawmakers and other governmental authorities to present clear information about what is being done in Brazil and worldwide regarding EMF exposure issues, always following WHO points of view.