

ABSTRACT

COELHO NETTO, Marco Luiz. Non-Ionizing Radiation Emission Map for Citizen. 102 p. Dissertation (Master in Electronic Engineering) - Faculty of Engineering, State University of Rio de Janeiro (UERJ), Rio de Janeiro, 2018.

This dissertation is about the mapping of Non-Ionizing Radiation (NIR) generated by mobile communication systems in the regions of Saúde, Centro and Botafogo, in the city of Rio de Janeiro, where there is expansion and, consequently, an increase of exposure to citizens. Currently there is a global concern led by research entities with efforts to identify the effects resulted from the exposure to electromagnetic fields stemming from mobile communication systems, evaluating the intensity and safety levels to which an individual is exposed daily in almost all urban areas. The NIR levels perceived today are higher than those before the wireless technology advent. The several initiatives of registering NIR aim for more public transparency as well as for future epidemiological studies. This work set to evaluate the application of the Inverse Distance Weighing (IDW) interpolator in the mapped regions resulted from electromagnetic field measuring in georeferenced points with the goal to create a radiation map of these regions and make it available for the citizens. The studied locations were chosen in light of their urban characteristics: the Saúde neighborhood, where the Porto Maravilha is situated, has a recreational vocation and it's currently an important revitalized area. Avenida Rio Branco is located downtown and has comercial and administrative features while the Botafogo neighborhood is a mixed landscape, where households co-exist with businesses and markets.

Keywords: Map of NIR; Base station; IDW interpolator; NIR measurement; emission of NIR by the base station.