

Over 600 mobile base station measurements in Buenos Aires City, How far are general public limits?

Eng. Anibal Aguirre^{*1}, Eng. Norberto Dalmas Di Giovanni^{*1}, Eng. Analía Douthat^{*2}
Eng. Claudio Muñoz^{*2}, Eng. Roxana Saint Nom^{*2}, Tec. Javier García Díaz^{*1}

¹Ministry of Defense (CITEFA)

J.B de La Salle 4397, (1603) Villa Martelli, Argentina

²Buenos Aires, Institute of Technology (ITBA), Av Eduardo Madero 399, (1106),
Buenos Aires, Argentina

Abstract

The general public worries about non ionizing radiation (NIR), produced by mobile base station aren't new, mainly in big cities like Buenos Aires where the amount of antennas of wide communication services (mobile, data links, FM Broadcasting, TV and others), are so considerable.

Buenos Aires City has 3 million inhabitants in a surface of 203 km² and has about 700 mobile base stations between macro and micro cells.

When public demand arrived to local government authorities, the first logical step was to promote a big measurement campaign to do a radiation map of the city. This measurement campaign has been done for two measurement teams, one with CITEFA NIR specialists and the other with ITBA NIR specialists, during 6 months.

Local NRI measurement guidelines established that has to be taken between 12 and 16 points around NRI source in a 50 m or 100 m radius, depending on the neighbourhood buildings features (buildings located in the centre of the city aren't the same as a quiet house district). The obtained measured values had to be compared with Argentinean exposure limits, which are the same that ICNIRP limits.

With over 7500 measured points in the entire city with wide band instruments (200 kHz-40GHz), we have started our analysis. This information has been used by local authorities to upgrade a radiation map that can be consulted on the local government internet site.

We have compared the obtained values with some international general public exposure limits. From this comparison we found that over 90% of measured points were under general public ICNIRP cell phone frequency limits, but the surprise was that, about 80% of them were below Russian limits (6V/m) that are the strictest of the world.

According to the obtained results and to provide a conclusion we could say that, if in a big city with a very high NIR sources density, we find a majority of lower limits values, this situation will be better in a little town with few NIR sources. However, a permanent NIR monitoring task is a good way to take the NIR emission under control and a very important tool to provide real time information to the public demand.

* Presenting author, E-mail: aaguirre@citefa.gov.ar