

## The block next door

This fact sheet answers questions about living or working near buildings where mobile telephone base stations are located.

Mobile phones work by sending and receiving radiofrequency (RF) signals to and from mobile phone base stations. The radio signal generated by mobile phone base station antennas is often referred to as radio frequency (RF) electromagnetic energy (EME).

In most instances, mobile phone coverage is provided by base stations located externally on building rooftops, facades, towers and poles, signs and traffic light poles. The antennas need to be located at a certain height and a certain direction to provide the required coverage services.

The antennas work by sending a radio signal to provide coverage to a particular area. Rectangular shaped “panel” antennas are most commonly used on roof tops and the sides of buildings.

## What about the building next to me – am I safe?

Mobile phone base stations must comply with strict safety regulations. The signal strength of a base station can be calculated at different height levels, using the ARPANSA EME Environmental Report. This report provides information about the levels of EME from the site as a percentage of the mandatory public exposure limit.

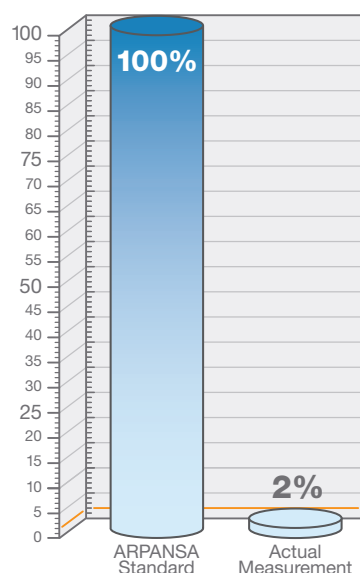
Information about this report can be found in the MCF fact sheet about the ARPANSA EME Report. The “Other Areas of Interest” section of the Report caters for areas where the assumption of a person located at flat ground level may not be the case. The calculations can take in to account the height of the building as well as the rise or fall of the land. In other words, the Environmental EME Report can predict the estimated level of EME at a specific location in relation to the base station, and at a specific height in relation to the antennas.

Information about specific sites can be found at the Mobile Carriers Forum’s National Site Archive at [www.rfnsa.com.au](http://www.rfnsa.com.au). EME Environmental reports on existing sites can be found by searching for a site under an address or by searching on a post code. The EME Environmental reports may not include information about different height levels as this option was only recently introduced by ARPANSA to cater for buildings in very close proximity to base stations.

It is also important to note that the type of building material, including the type, thickness or treatment of glass windows will also have some affect in reducing the signal strength that is measured inside the building.

In the example below, the antennas are mounted on the side of a building. Measurements taken inside the room show that the maximum signal strength measured is 2% of the General Public Exposure Limit.

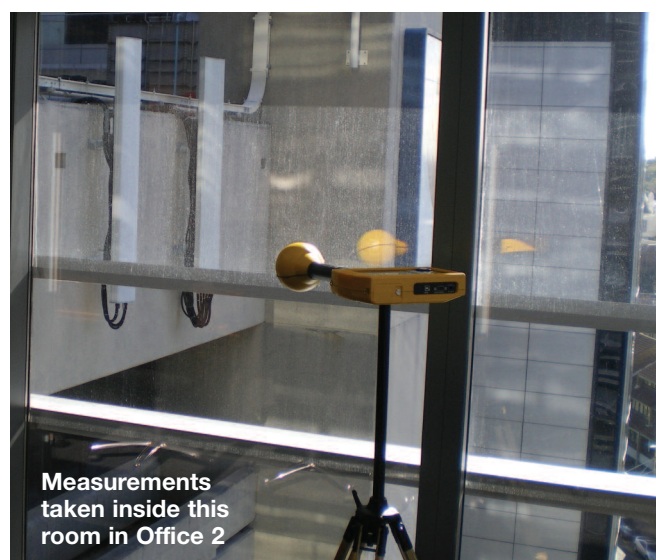
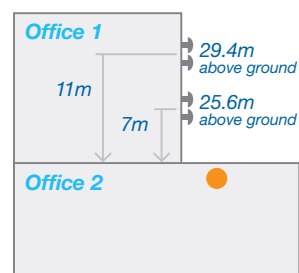
### EME Measurements sample building



**Diagram 1**

*A birds eye view of the measurement location and proximity to antennas*

- ➔ Wall mounted panel antennas (2 carriers)
- Measurement location inside Office 2



## Do any regulations apply to these antennas?

All mobile phone networks must comply with strict regulations set by the Federal Government in relation to exposure to EME, known as the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) Radiation Protection Standard (RPS3).

The Standard is based on guidelines set by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and is endorsed by the World Health Organization (WHO). ICNIRP's Standards are based on a careful analysis of published scientific literature (including evidence for both thermal and non-thermal effects) and offer protection against all identified hazards of RF energy with large safety margins.

Base stations operate at low power levels. Independent surveys (including ARPANSA's measurement survey of a sample of base stations around Australia) demonstrate that the EME level in the community from base stations is very low.

## What do the experts say?

ARPANSA states:

*"Mobile phone base stations and telecommunications towers produce weak radiofrequency (RF) electromagnetic energy (EME) exposure levels. The weight of national and international scientific opinion is that there is no substantiated evidence that RF emissions associated with living near a mobile phone base station or telecommunications tower poses a health risk."*

**ARPANSA EME Fact Sheet 9 "What about base stations and telecommunications towers - are there any health effects?"**

The World Health Organization says:

*"Antennas emit a very narrow beam of radiowaves which spreads out almost parallel to the ground. Therefore, radiofrequency fields at ground level and in regions normally accessible to the public are many times below hazard levels. Guidelines would only be exceeded if a person were to approach to within a metre or two directly in front of the antennas."*

**World Health Organization web site "What are Electromagnetic fields"**  
<http://www.who.int/peh-emf/about/WhatisEMF/en/index3.html>

## Summary

The World Health Organization monitors scientific research into EMF and concludes:

*"Considering the very low exposure levels and research results collected to date, there is no convincing scientific evidence that the weak RF signals from base stations and wireless networks cause adverse health effects"*

## More information

**For more information, please contact:**

**Mobile Carriers Forum**

Email us at [contact@mcf.amta.org.au](mailto:contact@mcf.amta.org.au)

MCF Contact Details: [www.mcf.amta.org.au/pages/Contact.Us](http://www.mcf.amta.org.au/pages/Contact.Us)

[www.mcf.amta.org.au](http://www.mcf.amta.org.au)

**Additional independent information can be obtained from:**

**Australian Communications and Media Authority (ACMA)**

Ph: (03) 9963 6800

<http://acma.gov.au>

**Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)**

Ph: (03) 9433 2211

[www.arpansa.gov.au](http://www.arpansa.gov.au)

**EMF Explained web site**

[www.emfexplained.info](http://www.emfexplained.info)