



Mobile Phone Base Stations and Health

Based on current research there are no established health effects that can be attributed to the low RF EME exposure from mobile phone base station antennas.

Introduction

There are mobile phone base station antennas on towers and buildings throughout Australia's populated areas. These antennas are part of the mobile phone network and they emit low level radiofrequency (RF) electromagnetic energy (EME). This fact sheet provides information about concern of adverse health effects arising from exposure to RF EME from base station antennas.

How does the mobile phone network operate?

When a call is made from a mobile phone, RF signals are transmitted between its antenna and the antenna at a nearby base station. The phone call is then routed through the phone network to the destination phone. Base station antennas must be elevated and located clear of physical obstruction to ensure wide coverage.

In an area of increasing mobile phone use the number of additional base stations needed to maintain service quality increases, even in areas where mobile network coverage already exists. If this is not done the mobile network will not operate properly and, as a result, mobile phone users may not be able to connect to their network.

Are base stations regulated in Australia?

The RF EME emissions from mobile phone base stations and other communications installations are regulated by the Australian Communications



and Media Authority (ACMA). The ACMA's regulatory arrangements require base stations to comply with the exposure limits in the ARPANSA RF Standard. The ARPANSA Standard is designed to protect people of all ages and health status against all known adverse health effects from exposure to RF EME. The ARPANSA Standard is based on scientific research that shows the levels at which harmful effects occur and it sets limits, based on international guidelines, well below these harmful levels.

The ACMA also requires base stations to comply with an industry code of practice which requires telecommunications carriers to inform and consult with the local community when planning, installing or upgrading base stations.

How much RF EME are people exposed to from base stations?

The maximum levels of exposure of RF EME from base stations may be calculated from details of the equipment installed. These calculations are made available in the ARPANSA EME reports provided by the telecommunications companies on the Radio Frequency National Site Archive website, www.rfnsa.com.au. The base station sites may be located by searching by postcode or town.

EME exposure to the public from base stations is typically hundreds of times below the limits of the ARPANSA RF Standard.

Do base stations cause any health effects?

Health authorities around the world, including ARPANSA and the World Health Organization, have examined the scientific evidence regarding possible health effects from base stations. Current research indicates that there are no established health effects from the low exposure to the RF EME from mobile phone base station antennas.

How about people who work very close to base station antennas?

Workers accessing rooftops and towers that house base station antennas must consult with building and facility management before entering the site. A guide to working safely near mobile phone base stations is available at <https://www.radioworksafes.com.au/>.

Conclusion

No adverse health effects are expected from continuous exposure to the RF EME emitted by the antennas on mobile phone base stations.

ARPANSA will continue to review the research into potential health effects of RF EME emissions from mobile phone base stations and other sources in order to provide accurate and up-to-date advice.

Useful Links

ARPANSA fact sheet on RF EME
www.arpansa.gov.au/RadiationProtection/basics/rf.cfm

The ARPANSA RF Standard
www.arpansa.gov.au/Publications/codes/rps3.cfm

WHO fact sheet on base stations
www.who.int/peh-emf/publications/facts/fs304/en/

AMTA information on Australian base stations
www.rfnsa.com.au
www.mobilesitesafety.com.au