

Reading the Australian Radiation Protection and Nuclear Safety Agency EME Report

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The ARPANSA EME Report has been developed by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) to ensure that information about mobile phone base stations and levels of electromagnetic energy (EME) is clearly provided to interested stakeholders.

An ARPANSA EME Report must be prepared for all new mobile phone base station installations and for upgrades of existing sites where the ACIF Industry Code requires an ARPANSA EME report. This report format is not intended to be used retrospectively. The ARPANSA EME Reports are prepared by the carrier or a consultant on the carrier's behalf.

Mobile phone networks operate by sending radio signals from mobile phone base station antennas placed in strategic locations to and from mobile phones. These antennas are radio transceivers that transmit and receive electromagnetic energy in a specific surrounding area, much like other two-way radio signals.

For more information on electromagnetic energy, please refer to the ARPANSA fact sheet "Electromagnetic energy and its effects" found at http://www.arpansa.gov.au/pubs/eme_comitee/fact1.pdf

EME is estimated using the mandated ARPANSA EME Report methodology. This methodology produces a predictive report based on information provided on a site specific basis adopting uniform assessment criteria. The report provides estimates based on the **maximum** predicted levels of EME.

The first two headings of the report provide introductory information about how the report is prepared and the EME regulations in relation to mobile phone base stations. All mobile phone base stations must comply with strict regulations set by the Federal Government.

For more information about the EME exposure limits, please refer to the Australian Communications and Media Authority (ACMA) fact sheet "Mobile base stations and EME" found at http://www.acma.gov.au/web/STANDARD//pc%3DPC_1750

Existing Site Radio Systems

This section of the ARPANSA EME Report provides information about any existing mobile phone systems already operating at the specific location. This would include other carriers' operating systems.

The ARPANSA EME Report predictions take in to account the EME levels of operating systems at that specific location, so that the EME information provided in the Table of Predicted EME Levels is **cumulative** information.

Table of Predicted EME Levels - Existing

This table shows the predicted levels of electromagnetic energy from the existing site. Information about the levels of EME are predicted from immediately beneath the proposed antennas to a distance of 500m from the site.

The left side of the table shows the levels calculated in "bands" from the site, i.e. from the base to 50m distance, 50m to 100m distance and so on. For example, if you were interested in the maximum predicted level of EME at a distance of 90m from the site, you would refer to the level in the 50m – 100m band. The level reported in each band is the maximum level that will occur in that band.

The right side of the table provides information about the predicted levels of EME. The information is expressed as a percentage of the Federal Government's mandated **ARPANSA Standard (RPS3)**. This Standard is designed to provide protection for all people (including children, the infirm and the elderly) for assumed exposure 24 hours a day, 7 days a week.

The levels are predicted at interval distances from the mobile phone base station at a height of 1.5m above the ground. This table assumes that the ground level is flat. Appendix A of the EME Report may provide further information if there is a significant variation in the ground level from the site.

Existing and proposed radio systems

This section details the existing radio systems and provides further detail about the proposed radio systems. It should be noted that this section is used when there are existing systems, rather than for new facilities where there is no existing mobile phone base station equipment.

Proposed radio systems

This section provides details about the operating systems that the carrier **intends** to install at the site. It should be noted that this section is used when there is no existing mobile phone base station equipment at the site.

This information is usually expressed in terms of the generic frequency band at which the systems will operate. (E.g. GSM 900)

For more information on radio frequencies and systems, please refer to the ARPANSA fact sheet "About mobile phone networks" found at http://www.arpansa.gov.au/pubs/eme_comitee/fact6.pdf

Table of predicted EME levels - proposed

This table provides calculations of the predicted levels of electromagnetic energy from the proposed site. This includes both the existing and the proposed installations

The left side of the table shows levels calculated in "bands" from the site, i.e. from the base to 50m distance, 50m to 100m distance and so on. For example, if you were interested in the maximum predicted level of EME at a distance of 90m from the site, you would refer to the level in the 50m – 100m band. The level reported in each band is the maximum level that will occur in that band.

The right side of the table provides information about the predicted levels of EME from any existing radio transceiver equipment and the proposed equipment. The information is expressed as a percentage of the Federal Government mandated **ARPANSA Standard (RPS3)**. This Standard is designed to provide protection for all people (including children, the infirm and the elderly) for assumed exposure 24 hours a day, 7 days a week.

The levels are calculated uniformly out to a distance of 500m from the mobile phone base station at a height of 1.5m above the ground. This table assumes that the ground level is flat. Appendix A of the EME Report may provide further information if there is a significant variation in the ground level from the site.

The bottom of the table highlights the maximum predicted **cumulative** EME level from the site. It provides information about the maximum predicted level and the actual distance from the site at which it occurs.

The predicted cumulative levels of EME do not include any predictions from other equipment on the site other than mobile phone antennas.

Summary - Proposed Radio Systems

This section provides a statement about the maximum level of EME for the proposed site expressed as a percentage of the mandatory public exposure limits.

Appendix A: Other areas of interest

This section of the report provides information on specific locations which may be considered as an "area of interest". This would include areas identified as community sensitive locations as identified in the ACIF Code consultation plan, and areas which may be affected by differing topography i.e. the land is not flat.

Mobile phone carriers are required to identify areas of interest as part of their planning and consultation process. The ARPANSA EME Report can provide information about predicted levels of EME at certain identified locations such as schools and child care centres. Appendix A allows for up to 5 locations to be included in the report.

This section of the report can also provide predictions for situations such as land sloping upward away from the base station or for differing building heights.

For example, a primary school may be located 205m away from the mobile base station. The report can be prepared so that the location of the school is expressed by its distance from the mobile base station, and the predicted level of EME at that specific location is calculated and shown in Appendix A.

Similarly, if a 3 storey building is located 50m from the base station, the maximum EME levels can be predicted at an estimated height on the façade of the building, such as the balcony on the second floor. If the building was on ground level higher than the mobile phone base station, the calculations can be adjusted accordingly.

Summary

The ARPANSA EME Report is an important tool for providing information about estimated levels of EME from mobile phone base stations. It is prepared by mobile phone carriers as part of the process for deploying mobile phone base stations.

Each report is prepared on a site specific basis following a methodology developed by ARPANSA. For more information about the methodology, please refer to the ARPANSA Fact sheet "Understanding the ARPANSA EME Report" found at <http://www.arpansa.gov.au/emeReports/explanation.cfm>

If you have any questions about site specific reports, please refer them directly to the relevant carrier.

For more information about EME, the Australian Communications and Media Authority have a web site specifically focussing on this issue "Mobile phone towers and EME: information for Communities and Councils" which can be found at <http://emr.acma.gov.au/>