

WHAT DO THE RESULTS MEAN?

The RF EME levels from mobile base station facilities are measured in units of equivalent power flux density or W/m^2 . While this is the actual measured value, because the General Public Limits of RPS3 in W/m^2 vary with frequency, and a wide range of frequencies may be used at each base station, it is necessary to do some calculations to understand what the measured values mean in terms of total RF EME level in comparison to the RPS3 limit. MCF Accredited assessors have done these calculations and provide the result as a percentage of the RPS3 General Public limit. It is important to understand that any value less than 100% would comply with the ARPANSA standard.

Adjusted Measured Level (MCF Survey)

The total transmitted power from a mobile base station facility varies throughout the day depending on the amount and type of traffic (number of voice, data and other connections) and a variety of other factors that impact on the service provided. When the mobile base station facility is measured, it may not be transmitting at full power (in fact it may rarely do so).

To determine the maximum level the mobile base station facility would ever produce, it is necessary to adjust the measurement taken based on the operating condition of the base station at the time the measurement was taken. Hence, while based on the actual measured value, the adjusted level is a combination of measurement and calculation.

ARPANSA EME Report (Calculated)

While the mobile base station facility may rarely (or never) operate at its theoretical maximum power, the evaluations undertaken for the ARPANSA Environmental EME Report are required to be calculated for the scenario where all services from all Carriers present are operating at maximum power at the same time. This is sometimes called the 'worst case' condition. All evaluations provided for the ARPANSA report are based on calculations alone using a variety of data and assumptions provided by the Carriers and the manufacturers of the equipment installed at the site.

Other interesting results

Over all the sites measured, we can calculate the average RF EME level produced by the mobile base station facilities included in this program. Remember that the sites were specifically selected because they were expected to produce an RF EME level that was relatively high, so the average produced will certainly reflect a level which is somewhat higher than typical. This value is shown in the table below for all the surveyed sites as well as state by state.

We can also calculate how the measured (MCF Survey) and calculated (ARPANSA Environmental Report) values differed on average across this sample. Because the number of assumptions included in the calculation of the values for the ARPANSA Environmental EME Report are deliberately conservative, we expect the measured (adjusted) values will always be less than in the report, as seen in the tables and graph. The average factor by which the levels published in the ARPANSA EME report exceed the actual measured values is also shown in the table below.

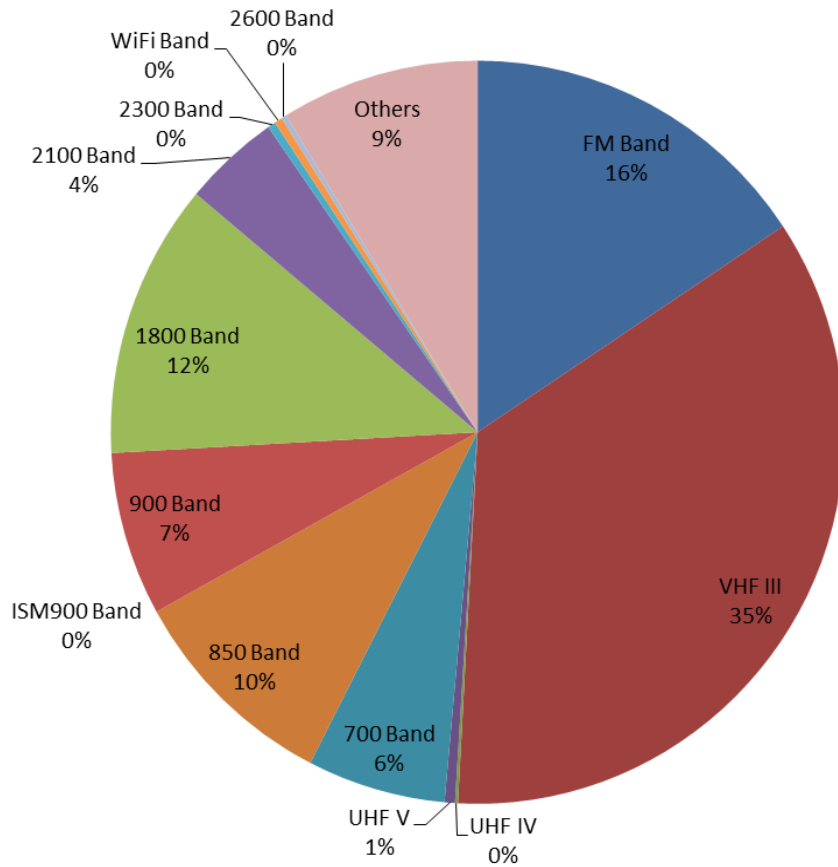
The actual value measured at each site (i.e. not adjusted for ‘worst case’) can also be presented as an average across all the sites measured for this program. This value more fairly represents what a member of the public might typically be exposed to from a mobile base station facility on any day under normal operating conditions. For the sites included in this survey, the overall average adjusted measured value was just 0.4%. Again, any value less than 100% complies with the ARPANSA Standard.

Finally, the MCF survey also included measurements at selected sites of background levels of EME from all radio sources in the nearby environment such as those from broadcast radio and TV. These measurements allow the fields produced by mobile networks to be placed in context of the total RF fields present in the community. A typical example of the overall fields present is shown in the pie-chart below, showing results for a suburban location in Melbourne. From the chart, it can be seen that mobile networks typically produce only about 40% of the fields, while broadcast radio and TV produce more than half of the fields present (as related to the overall limits in the Australian safety standards specified by ARPANSA).

State	No. Sites	Measured (Adjusted)	Reported	Ratio
All	78	1.4	9.0	13.0
NSW	24	1.7	10.5	11.1
VIC	21	1.0	6.7	14.0
QLD	16	1.0	8.8	17.2
SA	6	1.6	10.0	7.9
WA	11	1.6	10.1	11.8

Summary Results - % RPS3 General Public Limit

Percentage of Measured Background RF EME Level (27 MHz to 3 GHz)



Typical example of RF fields produced in a suburban location by all sources including mobile networks. Jells Park Victoria

