

ICNIRP Measurement Report

This report presents the results of measurements of electromagnetic field emission levels in the vicinity of mobile base stations. Results are presented as percentages of the power density reference levels for general public exposure in the 1998 edition of the Guidelines published by the International Commission on Non-Ionizing Radiation Protection (ICNIRP)¹, with figures provided for individual frequency bands used for base station (downlink) transmissions as well as an overall figure for all other frequency bands between 30 MHz to 6 GHz. The total percentage equals the sum of all individual percentages.

The power density reference levels in the ICNIRP Guidelines are the root mean square (rms) values averaged over six minutes. In this report, we have measured the average E-field strength over a six-minute period in each measurement location.

We have applied a measurement threshold of 3dB above the system noise floor² of the measurement equipment, below which any E-field strength levels measured are deemed not sufficiently above the system noise floor to be valid. In the results tables below, measurement results are shown to a precision of four decimal places. Results which are not sufficiently above the system noise floor to record as a valid measurement are shown as a dash (-). Results which are too small to register to four decimal places are shown as 0.0000%.

Date of Survey:	21/01/2025	Time Survey completed:	13:31
Survey address:	Penrith CA11		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	US55240265	17/04/2024
Probe	Agos Aria-6000 Antenna	6000-1024	30/03/2021
Cabling	1.7m cable	1383	12/10/2023

¹ <https://www.icnirp.org/cms/upload/publications/ICNIRPemfgdl.pdf>

² The noise floor of the measurement equipment is the level of background noise that is present before detecting any external signals. In other words, it indicates the absolute minimum level of detectable signals.

Broadcast bands covered by this report

Frequency Band	Frequency Range	Technology*
	87.5-108 MHz	FM Radio
	174-230 MHz	DAB
	470-694 MHz	Digital TV

Mobile bands covered by this report

Frequency Band	Frequency Range	Technology*
700 MHz	738-788 MHz	4G, 5G
800 MHz	791-821 MHz	4G
900 MHz	925-960 MHz	2G, 3G, 4G
1400 MHz	1452-1492 MHz	4G (Supplementary downlink)
1800 MHz	1805-1880 MHz	2G, 4G
1900 MHz	1900-1920 MHz	4G
2100 MHz	2110-2170 MHz	3G, 4G
2300 MHz	2350-2390 MHz	4G
2600 MHz TDD	2570-2620 MHz	4G
2600 MHz FDD	2620-2690 MHz	4G
3.4 GHz	3410-3680 MHz	5G, 4G
3.8 GHz	3680-4200 MHz	Various
Others**		

** This is an indication of the type of technologies typically deployed in these bands; not all frequency bands and technologies may be in use at all locations. ** All other frequencies between 420 MHz and 6 GHz.*

Survey locations

The survey was conducted within the area shown in the map below. Measurements were taken at six locations and are presented in the following pages of this report.



Location 1

Measurement time:	12:40
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00742
174-230 MHz	0.00885
470-694 MHz	0.00550
700 MHz	0.00075
800 MHz	0.09319
900 MHz	0.11632
1400 MHz	0.00390
1800 MHz	0.00033
1900 MHz	0.00011
2100 MHz	0.03003
2300 MHz	0.00028
2600 MHz TDD	0.00049
2600 MHz FDD	0.00634
3.4 GHz	0.00261
3.8 GHz	0.00594
Others	0.12553
Total	0.40759

Location 2

Measurement time:	12:48
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00772
174-230 MHz	0.00736
470-694 MHz	0.00574
700 MHz	0.00077
800 MHz	0.02199
900 MHz	0.00913
1400 MHz	0.00049
1800 MHz	0.00034
1900 MHz	0.00012
2100 MHz	0.00639
2300 MHz	0.00030
2600 MHz TDD	0.00035
2600 MHz FDD	0.00072
3.4 GHz	0.00269
3.8 GHz	0.00622
Others	0.13209
Total	0.20241

Location 3

Measurement time:	12:57
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00808
174-230 MHz	0.00812
470-694 MHz	0.00594
700 MHz	0.00080
800 MHz	0.00323
900 MHz	0.00185
1400 MHz	0.00031
1800 MHz	0.00042
1900 MHz	0.00012
2100 MHz	0.00225
2300 MHz	0.00031
2600 MHz TDD	0.00035
2600 MHz FDD	0.00058
3.4 GHz	0.00282
3.8 GHz	0.00637
Others	0.13939
Total	0.18095

Location 4

Measurement time:	13:07
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00809
174-230 MHz	0.00840
470-694 MHz	0.00618
700 MHz	0.00083
800 MHz	0.00622
900 MHz	0.01030
1400 MHz	0.00075
1800 MHz	0.00040
1900 MHz	0.00013
2100 MHz	0.00420
2300 MHz	0.00032
2600 MHz TDD	0.00038
2600 MHz FDD	0.00080
3.4 GHz	0.00308
3.8 GHz	0.00687
Others	0.14642
Total	0.20339

Location 5

Measurement time:	13:15
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00842
174-230 MHz	0.00793
470-694 MHz	0.00681
700 MHz	0.00085
800 MHz	0.02249
900 MHz	0.06570
1400 MHz	0.00090
1800 MHz	0.00038
1900 MHz	0.00013
2100 MHz	0.00238
2300 MHz	0.00034
2600 MHz TDD	0.00039
2600 MHz FDD	0.00052
3.4 GHz	0.00321
3.8 GHz	0.00707
Others	0.15259
Total	0.28012

Location 6

Measurement time:	13:25
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00863
174-230 MHz	0.01014
470-694 MHz	0.00650
700 MHz	0.00087
800 MHz	0.17316
900 MHz	0.10129
1400 MHz	0.00358
1800 MHz	0.00041
1900 MHz	0.00014
2100 MHz	0.04437
2300 MHz	0.00034
2600 MHz TDD	0.00054
2600 MHz FDD	0.00469
3.4 GHz	0.00365
3.8 GHz	0.00761
Others	0.15701
Total	0.52291

Disclaimer: The results detailed in this report apply only to the tests made at the reported time, using the test equipment detailed. They do not indicate that on another date an identical set of results would be achieved, due to changes in local environmental conditions or other factors which may or may not have an effect on the measurement results obtained at that future time.