

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 420 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:	14/02/2023	Time Survey completed:	12:56
Survey address:	Perth PH1		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY57271744	24/01/2023
Probe	Agos Aria-6000 Antenna	60001089	28/11/2022
Cabling	1.7m Cable	1274	28/11/2022

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.

Mobile bands covered by this report

Frequency Band	Frequency	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**		

Notes

* 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.



Map data: © Google

Location 1

Measurement time:	12:12
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.01008
800 MHz	0.01191
900 MHz	0.01032
1400 MHz	0.00089
1800 MHz	0.00521
1900 MHz	0.00019
2100 MHz	0.01521
2300 MHz	0.00417
2600 MHz TDD	0.00031
2600 MHz FDD	0.00017
3.4 GHz	0.00101
3.8 GHz	0.00243
Others	0.05123
Total	0.11313

Location 2

Measurement time:	12:20
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00362
800 MHz	0.00788
900 MHz	0.00512
1400 MHz	0.00193
1800 MHz	0.00777
1900 MHz	0.00020
2100 MHz	0.00421
2300 MHz	0.00106
2600 MHz TDD	0.00032
2600 MHz FDD	0.00011
3.4 GHz	0.00107
3.8 GHz	0.00257
Others	0.05339
Total	0.08925

Location 3

Measurement time:	12:27
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00696
800 MHz	0.00553
900 MHz	0.00284
1400 MHz	0.00338
1800 MHz	0.01965
1900 MHz	0.00021
2100 MHz	0.00373
2300 MHz	0.00342
2600 MHz TDD	0.00034
2600 MHz FDD	0.00017
3.4 GHz	0.00111
3.8 GHz	0.00267
Others	0.05504
Total	0.10505

Location 4

Measurement time:	12:34
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00588
800 MHz	0.00897
900 MHz	0.00849
1400 MHz	0.00300
1800 MHz	0.01169
1900 MHz	0.00020
2100 MHz	0.00572
2300 MHz	0.00415
2600 MHz TDD	0.00034
2600 MHz FDD	0.00011
3.4 GHz	0.00114
3.8 GHz	0.00274
Others	0.05635
Total	0.10878

Location 5

Measurement time:	12:42
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00648
800 MHz	0.00926
900 MHz	0.01875
1400 MHz	0.00146
1800 MHz	0.00407
1900 MHz	0.00021
2100 MHz	0.01284
2300 MHz	0.00449
2600 MHz TDD	0.00035
2600 MHz FDD	0.00011
3.4 GHz	0.00117
3.8 GHz	0.00281
Others	0.05796
Total	0.11996

Location 6

Measurement time:	12:50
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00562
800 MHz	0.00591
900 MHz	0.00690
1400 MHz	0.00153
1800 MHz	0.00273
1900 MHz	0.00021
2100 MHz	0.01123
2300 MHz	0.00133
2600 MHz TDD	0.00035
2600 MHz FDD	0.00012
3.4 GHz	0.00120
3.8 GHz	0.00286
Others	0.05820
Total	0.09819

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.