

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:	11/03/2024	Time Survey completed:	13:53
Survey address:	Warrington WA3		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY 56072599	25/01/2024
Probe	Agos Aria-6000 Antenna	60001156	25/09/2023
Cabling	1.7m Cable	1459	25/09/2023

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.

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:	13:04
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00253
800 MHz	0.00562
900 MHz	0.00511
1400 MHz	0.00266
1800 MHz	0.00351
1900 MHz	0.00018
2100 MHz	0.00240
2300 MHz	0.00037
2600 MHz TDD	0.00033
2600 MHz FDD	0.00022
3.4 GHz	0.00242
3.8 GHz	0.00447
Others	0.16206
Total	0.19188

Location 2

Measurement time:	13:12
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00135
800 MHz	0.00246
900 MHz	0.00336
1400 MHz	0.00149
1800 MHz	0.00784
1900 MHz	0.00019
2100 MHz	0.00266
2300 MHz	0.00039
2600 MHz TDD	0.00036
2600 MHz FDD	0.00022
3.4 GHz	0.00271
3.8 GHz	0.00483
Others	0.17246
Total	0.20032

Location 3

Measurement time:	13:22
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00247
800 MHz	0.00320
900 MHz	0.00089
1400 MHz	0.00329
1800 MHz	0.00662
1900 MHz	0.00020
2100 MHz	0.00298
2300 MHz	0.00040
2600 MHz TDD	0.00037
2600 MHz FDD	0.00021
3.4 GHz	0.00307
3.8 GHz	0.00520
Others	0.18316
Total	0.21206

Location 4

Measurement time:	13:31
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00131
800 MHz	0.00095
900 MHz	0.00095
1400 MHz	0.00077
1800 MHz	0.00143
1900 MHz	0.00021
2100 MHz	0.00113
2300 MHz	0.00043
2600 MHz TDD	0.00039
2600 MHz FDD	0.00021
3.4 GHz	0.00273
3.8 GHz	0.00546
Others	0.19074
Total	0.20671

Location 5

Measurement time:	13:39
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00224
800 MHz	0.00274
900 MHz	0.00082
1400 MHz	0.00473
1800 MHz	0.03821
1900 MHz	0.00022
2100 MHz	0.01504
2300 MHz	0.00044
2600 MHz TDD	0.00041
2600 MHz FDD	0.00022
3.4 GHz	0.00308
3.8 GHz	0.00570
Others	0.19790
Total	0.27175

Location 6

Measurement time:	13:47
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00372
800 MHz	0.00737
900 MHz	0.00489
1400 MHz	0.00248
1800 MHz	0.00419
1900 MHz	0.00023
2100 MHz	0.00240
2300 MHz	0.00046
2600 MHz TDD	0.00043
2600 MHz FDD	0.00030
3.4 GHz	0.00305
3.8 GHz	0.00590
Others	0.20313
Total	0.23855

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.