

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:	30/04/2025	Time Survey completed:	12:18
Survey address:	Warrington WA5		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY56072599	11/02/2025
Probe	Agos Aria-6000 Antenna	ARIA-6000-1156	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.

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 30 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:	11:25
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01739
174-230 MHz	0.01899
470-694 MHz	0.01449
700 MHz	0.00193
800 MHz	0.03346
900 MHz	0.02560
1400 MHz	0.00073
1800 MHz	0.00103
1900 MHz	0.00033
2100 MHz	0.00108
2300 MHz	0.00069
2600 MHz TDD	0.00059
2600 MHz FDD	0.00039
3.4 GHz	0.00266
3.8 GHz	0.00600
Others	0.23215
Total	0.35752

Location 2

Measurement time:	11:33
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01722
174-230 MHz	0.01918
470-694 MHz	0.01461
700 MHz	0.00195
800 MHz	0.05389
900 MHz	0.04702
1400 MHz	0.00073
1800 MHz	0.00114
1900 MHz	0.00034
2100 MHz	0.00129
2300 MHz	0.00070
2600 MHz TDD	0.00061
2600 MHz FDD	0.00043
3.4 GHz	0.00276
3.8 GHz	0.00605
Others	0.23454
Total	0.40246

Location 3

Measurement time:	11:41
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01757
174-230 MHz	0.01955
470-694 MHz	0.01478
700 MHz	0.00195
800 MHz	0.03389
900 MHz	0.04409
1400 MHz	0.00074
1800 MHz	0.00146
1900 MHz	0.00034
2100 MHz	0.00128
2300 MHz	0.00070
2600 MHz TDD	0.00063
2600 MHz FDD	0.00055
3.4 GHz	0.00288
3.8 GHz	0.00621
Others	0.23813
Total	0.38476

Location 4

Measurement time:	11:51
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01788
174-230 MHz	0.01969
470-694 MHz	0.01503
700 MHz	0.00198
800 MHz	0.00264
900 MHz	0.00499
1400 MHz	0.00075
1800 MHz	0.00100
1900 MHz	0.00034
2100 MHz	0.00156
2300 MHz	0.00071
2600 MHz TDD	0.00063
2600 MHz FDD	0.00058
3.4 GHz	0.00270
3.8 GHz	0.00628
Others	0.24043
Total	0.31719

Location 5

Measurement time:	12:02
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01782
174-230 MHz	0.01980
470-694 MHz	0.01501
700 MHz	0.00199
800 MHz	0.00349
900 MHz	0.00297
1400 MHz	0.00075
1800 MHz	0.00110
1900 MHz	0.00035
2100 MHz	0.00112
2300 MHz	0.00072
2600 MHz TDD	0.00063
2600 MHz FDD	0.00032
3.4 GHz	0.00271
3.8 GHz	0.00630
Others	0.24272
Total	0.31780

Location 6

Measurement time:	12:12
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01841
174-230 MHz	0.02049
470-694 MHz	0.01538
700 MHz	0.00203
800 MHz	0.04085
900 MHz	0.03411
1400 MHz	0.00077
1800 MHz	0.00108
1900 MHz	0.00036
2100 MHz	0.00128
2300 MHz	0.00074
2600 MHz TDD	0.00063
2600 MHz FDD	0.00042
3.4 GHz	0.00303
3.8 GHz	0.00646
Others	0.24907
Total	0.39510

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.