

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:	23/07/2024	Time Survey completed:	11:46
Survey address:	Altrincham WA14		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY56072592	26/02/2024
Probe	Agos Aria-6000 Antenna	ARIA-6000	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 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:	10:53
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00924
174-230 MHz	0.01054
470-694 MHz	0.00828
700 MHz	0.01723
800 MHz	0.00330
900 MHz	0.00060
1400 MHz	0.00078
1800 MHz	0.00075
1900 MHz	0.00020
2100 MHz	0.00075
2300 MHz	0.00048
2600 MHz TDD	0.00036
2600 MHz FDD	0.00019
3.4 GHz	0.00242
3.8 GHz	0.00464
Others	0.13969
Total	0.19946

Location 2

Measurement time:	11:02
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01051
174-230 MHz	0.01132
470-694 MHz	0.00913
700 MHz	0.00344
800 MHz	0.00142
900 MHz	0.00064
1400 MHz	0.00360
1800 MHz	0.00195
1900 MHz	0.00022
2100 MHz	0.00081
2300 MHz	0.00052
2600 MHz TDD	0.00039
2600 MHz FDD	0.00021
3.4 GHz	0.00236
3.8 GHz	0.00517
Others	0.15247
Total	0.20417

Location 3

Measurement time:	11:14
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01130
174-230 MHz	0.01244
470-694 MHz	0.00996
700 MHz	0.01717
800 MHz	0.00273
900 MHz	0.00072
1400 MHz	0.00110
1800 MHz	0.00109
1900 MHz	0.00023
2100 MHz	0.00084
2300 MHz	0.00047
2600 MHz TDD	0.00043
2600 MHz FDD	0.00023
3.4 GHz	0.00266
3.8 GHz	0.00580
Others	0.16808
Total	0.23525

Location 4

Measurement time:	11:22
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01194
174-230 MHz	0.01278
470-694 MHz	0.00989
700 MHz	0.00462
800 MHz	0.00171
900 MHz	0.00071
1400 MHz	0.00202
1800 MHz	0.00105
1900 MHz	0.00025
2100 MHz	0.00075
2300 MHz	0.00050
2600 MHz TDD	0.00045
2600 MHz FDD	0.00023
3.4 GHz	0.00276
3.8 GHz	0.00608
Others	0.17429
Total	0.23004

Location 5

Measurement time:	11:33
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01208
174-230 MHz	0.01307
470-694 MHz	0.01014
700 MHz	0.00901
800 MHz	0.00168
900 MHz	0.00092
1400 MHz	0.00139
1800 MHz	0.00159
1900 MHz	0.00025
2100 MHz	0.00136
2300 MHz	0.00051
2600 MHz TDD	0.00046
2600 MHz FDD	0.00026
3.4 GHz	0.00307
3.8 GHz	0.00628
Others	0.18035
Total	0.24244

Location 6

Measurement time:	11:40
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01171
174-230 MHz	0.01331
470-694 MHz	0.01022
700 MHz	0.01823
800 MHz	0.00382
900 MHz	0.00073
1400 MHz	0.00090
1800 MHz	0.00093
1900 MHz	0.00025
2100 MHz	0.00103
2300 MHz	0.00053
2600 MHz TDD	0.00047
2600 MHz FDD	0.00025
3.4 GHz	0.00329
3.8 GHz	0.00640
Others	0.18242
Total	0.25451

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.