

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:	03/07/2024	Time Survey completed:	12:40
Survey address:	Manchester M41		

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:	11:40
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00896
174-230 MHz	0.01012
470-694 MHz	0.00801
700 MHz	0.00135
800 MHz	0.06105
900 MHz	0.01271
1400 MHz	0.00038
1800 MHz	0.00114
1900 MHz	0.00019
2100 MHz	0.00278
2300 MHz	0.00053
2600 MHz TDD	0.00035
2600 MHz FDD	0.00017
3.4 GHz	0.00191
3.8 GHz	0.00458
Others	0.13416
Total	0.24838

Location 2

Measurement time:	11:56
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00974
174-230 MHz	0.01096
470-694 MHz	0.00862
700 MHz	0.00155
800 MHz	0.01258
900 MHz	0.01850
1400 MHz	0.00042
1800 MHz	0.00316
1900 MHz	0.00021
2100 MHz	0.00344
2300 MHz	0.00205
2600 MHz TDD	0.00038
2600 MHz FDD	0.00019
3.4 GHz	0.00215
3.8 GHz	0.00539
Others	0.14702
Total	0.22635

Location 3

Measurement time:	12:05
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01005
174-230 MHz	0.01133
470-694 MHz	0.00881
700 MHz	0.00182
800 MHz	0.02386
900 MHz	0.03810
1400 MHz	0.00043
1800 MHz	0.02013
1900 MHz	0.00021
2100 MHz	0.00395
2300 MHz	0.00180
2600 MHz TDD	0.00039
2600 MHz FDD	0.00020
3.4 GHz	0.00222
3.8 GHz	0.00595
Others	0.15273
Total	0.28200

Location 4

Measurement time:	12:15
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01031
174-230 MHz	0.01174
470-694 MHz	0.00912
700 MHz	0.00329
800 MHz	0.02595
900 MHz	0.03531
1400 MHz	0.00044
1800 MHz	0.00599
1900 MHz	0.00022
2100 MHz	0.00143
2300 MHz	0.00126
2600 MHz TDD	0.00040
2600 MHz FDD	0.00021
3.4 GHz	0.00231
3.8 GHz	0.00619
Others	0.15692
Total	0.27109

Location 5

Measurement time:	12:24
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01072
174-230 MHz	0.01189
470-694 MHz	0.00924
700 MHz	0.00198
800 MHz	0.01982
900 MHz	0.02192
1400 MHz	0.00045
1800 MHz	0.00420
1900 MHz	0.00023
2100 MHz	0.00179
2300 MHz	0.00122
2600 MHz TDD	0.00041
2600 MHz FDD	0.00022
3.4 GHz	0.00240
3.8 GHz	0.00626
Others	0.16186
Total	0.25462

Location 6

Measurement time:	12:34
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01072
174-230 MHz	0.01211
470-694 MHz	0.00942
700 MHz	0.00181
800 MHz	0.04104
900 MHz	0.01737
1400 MHz	0.00046
1800 MHz	0.00163
1900 MHz	0.00023
2100 MHz	0.00235
2300 MHz	0.00073
2600 MHz TDD	0.00042
2600 MHz FDD	0.00022
3.4 GHz	0.00245
3.8 GHz	0.00581
Others	0.16498
Total	0.27175

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.