

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:	02/07/2024	Time Survey completed:	12:40
Survey address:	Manchester M17		

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:	11:38
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00979
174-230 MHz	0.01049
470-694 MHz	0.00824
700 MHz	0.00556
800 MHz	0.03941
900 MHz	0.02552
1400 MHz	0.00878
1800 MHz	0.01098
1900 MHz	0.00020
2100 MHz	0.01950
2300 MHz	0.00090
2600 MHz TDD	0.00036
2600 MHz FDD	0.00022
3.4 GHz	0.00397
3.8 GHz	0.00497
Others	0.13946
Total	0.28834

Location 2

Measurement time:	11:49
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00983
174-230 MHz	0.01108
470-694 MHz	0.00871
700 MHz	0.00294
800 MHz	0.01788
900 MHz	0.12207
1400 MHz	0.00403
1800 MHz	0.02509
1900 MHz	0.00021
2100 MHz	0.00573
2300 MHz	0.00992
2600 MHz TDD	0.00040
2600 MHz FDD	0.00103
3.4 GHz	0.00340
3.8 GHz	0.00568
Others	0.14942
Total	0.37742

Location 3

Measurement time:	12:00
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01019
174-230 MHz	0.01139
470-694 MHz	0.00893
700 MHz	0.00277
800 MHz	0.02979
900 MHz	0.02098
1400 MHz	0.00079
1800 MHz	0.01070
1900 MHz	0.00022
2100 MHz	0.00770
2300 MHz	0.00162
2600 MHz TDD	0.00040
2600 MHz FDD	0.00126
3.4 GHz	0.00323
3.8 GHz	0.00690
Others	0.15252
Total	0.26938

Location 4

Measurement time:	12:10
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01062
174-230 MHz	0.01164
470-694 MHz	0.00902
700 MHz	0.00220
800 MHz	0.03521
900 MHz	0.02486
1400 MHz	0.00048
1800 MHz	0.00776
1900 MHz	0.00022
2100 MHz	0.00772
2300 MHz	0.00318
2600 MHz TDD	0.00039
2600 MHz FDD	0.00032
3.4 GHz	0.00396
3.8 GHz	0.00668
Others	0.15501
Total	0.27926

Location 5

Measurement time:	12:20
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01069
174-230 MHz	0.01179
470-694 MHz	0.00931
700 MHz	0.00167
800 MHz	0.01074
900 MHz	0.01942
1400 MHz	0.00052
1800 MHz	0.00975
1900 MHz	0.00023
2100 MHz	0.00750
2300 MHz	0.00231
2600 MHz TDD	0.00042
2600 MHz FDD	0.00025
3.4 GHz	0.00323
3.8 GHz	0.00638
Others	0.16059
Total	0.25479

Location 6

Measurement time:	12:34
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01116
174-230 MHz	0.01242
470-694 MHz	0.00958
700 MHz	0.00707
800 MHz	0.05428
900 MHz	0.03827
1400 MHz	0.00621
1800 MHz	0.00942
1900 MHz	0.00024
2100 MHz	0.03063
2300 MHz	0.00256
2600 MHz TDD	0.00043
2600 MHz FDD	0.00027
3.4 GHz	0.00720
3.8 GHz	0.00676
Others	0.16902
Total	0.36551

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.