

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:	02/05/2024	Time Survey completed:	12:27
Survey address:	Manchester M17		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY56072592	06/03/2024
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 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:	11:31
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00983
174-230 MHz	0.01019
470-694 MHz	0.00836
700 MHz	0.00110
800 MHz	0.10480
900 MHz	0.06695
1400 MHz	0.00039
1800 MHz	0.00058
1900 MHz	0.00019
2100 MHz	0.03329
2300 MHz	0.00038
2600 MHz TDD	0.00034
2600 MHz FDD	0.00018
3.4 GHz	0.00407
3.8 GHz	0.00443
Others	0.13568
Total	0.38078

Location 2

Measurement time:	11:40
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00985
174-230 MHz	0.01110
470-694 MHz	0.00868
700 MHz	0.00146
800 MHz	0.00781
900 MHz	0.00360
1400 MHz	0.00041
1800 MHz	0.00075
1900 MHz	0.00021
2100 MHz	0.02050
2300 MHz	0.00042
2600 MHz TDD	0.00037
2600 MHz FDD	0.00019
3.4 GHz	0.00304
3.8 GHz	0.00487
Others	0.14536
Total	0.21862

Location 3

Measurement time:	11:50
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01020
174-230 MHz	0.01150
470-694 MHz	0.00915
700 MHz	0.00122
800 MHz	0.02963
900 MHz	0.02165
1400 MHz	0.00043
1800 MHz	0.00454
1900 MHz	0.00022
2100 MHz	0.00517
2300 MHz	0.00044
2600 MHz TDD	0.00040
2600 MHz FDD	0.00071
3.4 GHz	0.00723
3.8 GHz	0.00523
Others	0.15441
Total	0.26212

Location 4

Measurement time:	11:59
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01068
174-230 MHz	0.01205
470-694 MHz	0.00945
700 MHz	0.00127
800 MHz	0.04897
900 MHz	0.01731
1400 MHz	0.00046
1800 MHz	0.00085
1900 MHz	0.00023
2100 MHz	0.01785
2300 MHz	0.00046
2600 MHz TDD	0.00042
2600 MHz FDD	0.00025
3.4 GHz	0.00354
3.8 GHz	0.00558
Others	0.16321
Total	0.29257

Location 5

Measurement time:	12:09
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01145
174-230 MHz	0.01287
470-694 MHz	0.00986
700 MHz	0.00134
800 MHz	0.03080
900 MHz	0.00668
1400 MHz	0.00049
1800 MHz	0.00262
1900 MHz	0.00024
2100 MHz	0.02033
2300 MHz	0.00049
2600 MHz TDD	0.00044
2600 MHz FDD	0.00042
3.4 GHz	0.00387
3.8 GHz	0.00602
Others	0.17395
Total	0.28190

Location 6

Measurement time:	12:21
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01213
174-230 MHz	0.01311
470-694 MHz	0.01037
700 MHz	0.00137
800 MHz	0.09000
900 MHz	0.18384
1400 MHz	0.00051
1800 MHz	0.00075
1900 MHz	0.00025
2100 MHz	0.03950
2300 MHz	0.00050
2600 MHz TDD	0.00046
2600 MHz FDD	0.00024
3.4 GHz	0.00613
3.8 GHz	0.00623
Others	0.17998
Total	0.54539

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.