

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:	01/05/2024	Time Survey completed:	14:03
Survey address:	Manchester M50		

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:	13:11
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01221
174-230 MHz	0.01340
470-694 MHz	0.01029
700 MHz	0.01993
800 MHz	0.00628
900 MHz	0.00464
1400 MHz	0.00123
1800 MHz	0.00758
1900 MHz	0.00025
2100 MHz	0.00093
2300 MHz	0.00075
2600 MHz TDD	0.00048
2600 MHz FDD	0.00032
3.4 GHz	0.00412
3.8 GHz	0.00653
Others	0.18438
Total	0.27331

Location 2

Measurement time:	13:20
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01232
174-230 MHz	0.01394
470-694 MHz	0.01058
700 MHz	0.09910
800 MHz	0.02953
900 MHz	0.02553
1400 MHz	0.00289
1800 MHz	0.00429
1900 MHz	0.00026
2100 MHz	0.00170
2300 MHz	0.00177
2600 MHz TDD	0.00048
2600 MHz FDD	0.00035
3.4 GHz	0.00615
3.8 GHz	0.00680
Others	0.18889
Total	0.40459

Location 3

Measurement time:	13:28
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01258
174-230 MHz	0.01405
470-694 MHz	0.01068
700 MHz	0.03703
800 MHz	0.00751
900 MHz	0.01077
1400 MHz	0.00095
1800 MHz	0.00210
1900 MHz	0.00027
2100 MHz	0.00116
2300 MHz	0.00088
2600 MHz TDD	0.00049
2600 MHz FDD	0.00029
3.4 GHz	0.00336
3.8 GHz	0.00682
Others	0.19243
Total	0.30135

Location 4

Measurement time:	13:38
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01333
174-230 MHz	0.01421
470-694 MHz	0.01127
700 MHz	0.01478
800 MHz	0.00699
900 MHz	0.00435
1400 MHz	0.00337
1800 MHz	0.00481
1900 MHz	0.00027
2100 MHz	0.00382
2300 MHz	0.00081
2600 MHz TDD	0.00049
2600 MHz FDD	0.00101
3.4 GHz	0.00413
3.8 GHz	0.00690
Others	0.19169
Total	0.28223

Location 5

Measurement time:	13:50
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01275
174-230 MHz	0.01395
470-694 MHz	0.01064
700 MHz	0.14438
800 MHz	0.06098
900 MHz	0.04367
1400 MHz	0.00462
1800 MHz	0.00151
1900 MHz	0.00026
2100 MHz	0.00139
2300 MHz	0.00288
2600 MHz TDD	0.00051
2600 MHz FDD	0.00069
3.4 GHz	0.00465
3.8 GHz	0.00701
Others	0.19255
Total	0.50244

Location 6

Measurement time:	13:57
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01213
174-230 MHz	0.01388
470-694 MHz	0.01055
700 MHz	0.01284
800 MHz	0.00702
900 MHz	0.00406
1400 MHz	0.00142
1800 MHz	0.00841
1900 MHz	0.00026
2100 MHz	0.00078
2300 MHz	0.00069
2600 MHz TDD	0.00048
2600 MHz FDD	0.00035
3.4 GHz	0.00404
3.8 GHz	0.00668
Others	0.18869
Total	0.27229

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.