

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:	20/08/2024	Time Survey completed:	11:42
Survey address:	Manchester M50		

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:	10:43
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00874
174-230 MHz	0.00988
470-694 MHz	0.00782
700 MHz	0.01934
800 MHz	0.00768
900 MHz	0.00250
1400 MHz	0.03126
1800 MHz	0.05306
1900 MHz	0.00018
2100 MHz	0.01633
2300 MHz	0.00077
2600 MHz TDD	0.00034
2600 MHz FDD	0.01634
3.4 GHz	0.00460
3.8 GHz	0.00446
Others	0.13038
Total	0.31369

Location 2

Measurement time:	10:54
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00936
174-230 MHz	0.01050
470-694 MHz	0.00830
700 MHz	0.03700
800 MHz	0.00471
900 MHz	0.00073
1400 MHz	0.04112
1800 MHz	0.02409
1900 MHz	0.00020
2100 MHz	0.01166
2300 MHz	0.00044
2600 MHz TDD	0.00036
2600 MHz FDD	0.00300
3.4 GHz	0.00530
3.8 GHz	0.00481
Others	0.14024
Total	0.30181

Location 3

Measurement time:	11:04
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00977
174-230 MHz	0.01122
470-694 MHz	0.00872
700 MHz	0.00811
800 MHz	0.00704
900 MHz	0.00151
1400 MHz	0.01680
1800 MHz	0.02155
1900 MHz	0.00021
2100 MHz	0.00642
2300 MHz	0.00057
2600 MHz TDD	0.00039
2600 MHz FDD	0.00057
3.4 GHz	0.00355
3.8 GHz	0.00548
Others	0.14940
Total	0.25133

Location 4

Measurement time:	11:14
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01040
174-230 MHz	0.01182
470-694 MHz	0.00926
700 MHz	0.03443
800 MHz	0.02537
900 MHz	0.00110
1400 MHz	0.01751
1800 MHz	0.03135
1900 MHz	0.00022
2100 MHz	0.01911
2300 MHz	0.00065
2600 MHz TDD	0.00041
2600 MHz FDD	0.00045
3.4 GHz	0.00559
3.8 GHz	0.00602
Others	0.15885
Total	0.33253

Location 5

Measurement time:	11:25
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01120
174-230 MHz	0.01223
470-694 MHz	0.00948
700 MHz	0.04727
800 MHz	0.02832
900 MHz	0.00073
1400 MHz	0.03207
1800 MHz	0.02103
1900 MHz	0.00023
2100 MHz	0.00799
2300 MHz	0.00048
2600 MHz TDD	0.00043
2600 MHz FDD	0.00993
3.4 GHz	0.01360
3.8 GHz	0.00652
Others	0.16570
Total	0.36722

Location 6

Measurement time:	11:36
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01136
174-230 MHz	0.01242
470-694 MHz	0.00955
700 MHz	0.02198
800 MHz	0.00816
900 MHz	0.00680
1400 MHz	0.01562
1800 MHz	0.12478
1900 MHz	0.00023
2100 MHz	0.03005
2300 MHz	0.00274
2600 MHz TDD	0.00045
2600 MHz FDD	0.01513
3.4 GHz	0.00723
3.8 GHz	0.00621
Others	0.16968
Total	0.44238

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.