

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:	25/09/2024	Time Survey completed:	12:01
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 30 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:	11:11
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00892
174-230 MHz	0.01011
470-694 MHz	0.00807
700 MHz	0.00107
800 MHz	0.00060
900 MHz	0.00057
1400 MHz	0.00039
1800 MHz	0.01670
1900 MHz	0.00019
2100 MHz	0.00113
2300 MHz	0.00039
2600 MHz TDD	0.00035
2600 MHz FDD	0.00018
3.4 GHz	0.00196
3.8 GHz	0.00450
Others	0.13527
Total	0.19039

Location 2

Measurement time:	11:19
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00951
174-230 MHz	0.01063
470-694 MHz	0.00860
700 MHz	0.00111
800 MHz	0.00078
900 MHz	0.00062
1400 MHz	0.00040
1800 MHz	0.00527
1900 MHz	0.00020
2100 MHz	0.00118
2300 MHz	0.00040
2600 MHz TDD	0.00037
2600 MHz FDD	0.00019
3.4 GHz	0.00207
3.8 GHz	0.00479
Others	0.14172
Total	0.18785

Location 3

Measurement time:	11:28
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00992
174-230 MHz	0.01107
470-694 MHz	0.00882
700 MHz	0.00118
800 MHz	0.00081
900 MHz	0.00063
1400 MHz	0.00042
1800 MHz	0.04171
1900 MHz	0.00021
2100 MHz	0.00537
2300 MHz	0.00042
2600 MHz TDD	0.00038
2600 MHz FDD	0.00025
3.4 GHz	0.00220
3.8 GHz	0.00503
Others	0.14847
Total	0.23690

Location 4

Measurement time:	11:40
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01020
174-230 MHz	0.01143
470-694 MHz	0.00893
700 MHz	0.00119
800 MHz	0.00068
900 MHz	0.00063
1400 MHz	0.00044
1800 MHz	0.01077
1900 MHz	0.00022
2100 MHz	0.00279
2300 MHz	0.00044
2600 MHz TDD	0.00040
2600 MHz FDD	0.00021
3.4 GHz	0.00232
3.8 GHz	0.00534
Others	0.15574
Total	0.21173

Location 5

Measurement time:	11:48
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01054
174-230 MHz	0.01173
470-694 MHz	0.00910
700 MHz	0.00123
800 MHz	0.00068
900 MHz	0.00064
1400 MHz	0.00045
1800 MHz	0.00844
1900 MHz	0.00023
2100 MHz	0.00184
2300 MHz	0.00045
2600 MHz TDD	0.00041
2600 MHz FDD	0.00022
3.4 GHz	0.00240
3.8 GHz	0.00551
Others	0.16032
Total	0.21421

Location 6

Measurement time:	11:55
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01064
174-230 MHz	0.01206
470-694 MHz	0.00928
700 MHz	0.00124
800 MHz	0.00069
900 MHz	0.00066
1400 MHz	0.00046
1800 MHz	0.01473
1900 MHz	0.00023
2100 MHz	0.00127
2300 MHz	0.00046
2600 MHz TDD	0.00042
2600 MHz FDD	0.00022
3.4 GHz	0.00248
3.8 GHz	0.00569
Others	0.16390
Total	0.22443

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.