

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:	14:12
Survey address:	Manchester M44		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY56072592	26/02/2024
Probe	Agos Aria-6000 Antenna	ARIA-6000	25/09/2024
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 30MHz 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:	13:19
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01019
174-230 MHz	0.01171
470-694 MHz	0.00910
700 MHz	0.00122
800 MHz	0.04802
900 MHz	0.03372
1400 MHz	0.00109
1800 MHz	0.00064
1900 MHz	0.00022
2100 MHz	0.00267
2300 MHz	0.00044
2600 MHz TDD	0.00042
2600 MHz FDD	0.00069
3.4 GHz	0.00242
3.8 GHz	0.00543
Others	0.15894
Total	0.28692

Location 2

Measurement time:	13:28
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01066
174-230 MHz	0.01210
470-694 MHz	0.00935
700 MHz	0.00127
800 MHz	0.02844
900 MHz	0.04524
1400 MHz	0.00112
1800 MHz	0.00072
1900 MHz	0.00023
2100 MHz	0.00114
2300 MHz	0.00046
2600 MHz TDD	0.00044
2600 MHz FDD	0.00085
3.4 GHz	0.00275
3.8 GHz	0.00572
Others	0.16544
Total	0.28592

Location 3

Measurement time:	13:38
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01113
174-230 MHz	0.01249
470-694 MHz	0.00958
700 MHz	0.00129
800 MHz	0.01502
900 MHz	0.04764
1400 MHz	0.00286
1800 MHz	0.00075
1900 MHz	0.00024
2100 MHz	0.00563
2300 MHz	0.00048
2600 MHz TDD	0.00050
2600 MHz FDD	0.00193
3.4 GHz	0.00289
3.8 GHz	0.00590
Others	0.17116
Total	0.28948

Location 4

Measurement time:	13:48
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01093
174-230 MHz	0.01236
470-694 MHz	0.00953
700 MHz	0.00128
800 MHz	0.08253
900 MHz	0.08506
1400 MHz	0.00187
1800 MHz	0.00069
1900 MHz	0.00024
2100 MHz	0.00144
2300 MHz	0.00047
2600 MHz TDD	0.00044
2600 MHz FDD	0.00044
3.4 GHz	0.00296
3.8 GHz	0.00592
Others	0.17186
Total	0.38803

Location 5

Measurement time:	13:57
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01128
174-230 MHz	0.01267
470-694 MHz	0.00978
700 MHz	0.00131
800 MHz	0.00645
900 MHz	0.01109
1400 MHz	0.00094
1800 MHz	0.00074
1900 MHz	0.00024
2100 MHz	0.00243
2300 MHz	0.00049
2600 MHz TDD	0.00047
2600 MHz FDD	0.00064
3.4 GHz	0.00277
3.8 GHz	0.00611
Others	0.17437
Total	0.24178

Location 6

Measurement time:	14:06
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01131
174-230 MHz	0.01294
470-694 MHz	0.00999
700 MHz	0.00132
800 MHz	0.03975
900 MHz	0.02300
1400 MHz	0.00100
1800 MHz	0.00071
1900 MHz	0.00025
2100 MHz	0.00260
2300 MHz	0.00049
2600 MHz TDD	0.00048
2600 MHz FDD	0.00088
3.4 GHz	0.00276
3.8 GHz	0.00625
Others	0.17828
Total	0.29202

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.