

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:	03/07/2024	Time Survey completed:	14:06
Survey address:	Manchester M30		

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:	13:16
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01253
174-230 MHz	0.01413
470-694 MHz	0.01078
700 MHz	0.00771
800 MHz	0.03159
900 MHz	0.00166
1400 MHz	0.00053
1800 MHz	0.00789
1900 MHz	0.00027
2100 MHz	0.00234
2300 MHz	0.00060
2600 MHz TDD	0.00049
2600 MHz FDD	0.00076
3.4 GHz	0.00339
3.8 GHz	0.00707
Others	0.19300
Total	0.29475

Location 2

Measurement time:	13:25
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01248
174-230 MHz	0.01408
470-694 MHz	0.01083
700 MHz	0.00713
800 MHz	0.02872
900 MHz	0.00907
1400 MHz	0.00054
1800 MHz	0.00654
1900 MHz	0.00027
2100 MHz	0.00500
2300 MHz	0.00054
2600 MHz TDD	0.00049
2600 MHz FDD	0.00064
3.4 GHz	0.00312
3.8 GHz	0.00686
Others	0.19233
Total	0.29864

Location 3

Measurement time:	13:33
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01217
174-230 MHz	0.01392
470-694 MHz	0.01069
700 MHz	0.00896
800 MHz	0.06347
900 MHz	0.00233
1400 MHz	0.00053
1800 MHz	0.02309
1900 MHz	0.00026
2100 MHz	0.00343
2300 MHz	0.00053
2600 MHz TDD	0.00048
2600 MHz FDD	0.00069
3.4 GHz	0.00327
3.8 GHz	0.00684
Others	0.19003
Total	0.34069

Location 4

Measurement time:	13:43
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01208
174-230 MHz	0.01379
470-694 MHz	0.01046
700 MHz	0.00196
800 MHz	0.00758
900 MHz	0.00545
1400 MHz	0.00052
1800 MHz	0.00833
1900 MHz	0.00026
2100 MHz	0.01400
2300 MHz	0.00052
2600 MHz TDD	0.00048
2600 MHz FDD	0.00056
3.4 GHz	0.00323
3.8 GHz	0.00692
Others	0.18653
Total	0.27265

Location 5

Measurement time:	13:52
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01192
174-230 MHz	0.01344
470-694 MHz	0.01025
700 MHz	0.00486
800 MHz	0.01208
900 MHz	0.00111
1400 MHz	0.00051
1800 MHz	0.00262
1900 MHz	0.00026
2100 MHz	0.00154
2300 MHz	0.00051
2600 MHz TDD	0.00047
2600 MHz FDD	0.00035
3.4 GHz	0.00308
3.8 GHz	0.00648
Others	0.18210
Total	0.25158

Location 6

Measurement time:	14:00
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01189
174-230 MHz	0.01369
470-694 MHz	0.01043
700 MHz	0.01253
800 MHz	0.03869
900 MHz	0.00177
1400 MHz	0.00051
1800 MHz	0.00826
1900 MHz	0.00025
2100 MHz	0.00246
2300 MHz	0.00054
2600 MHz TDD	0.00047
2600 MHz FDD	0.00042
3.4 GHz	0.00328
3.8 GHz	0.00655
Others	0.18270
Total	0.29445

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.