

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:	18/07/2024	Time Survey completed:	14:13
Survey address:	Manchester M27		

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:	13:17
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01193
174-230 MHz	0.01329
470-694 MHz	0.01016
700 MHz	0.01573
800 MHz	0.03577
900 MHz	0.07323
1400 MHz	0.00338
1800 MHz	0.00331
1900 MHz	0.00025
2100 MHz	0.00271
2300 MHz	0.00083
2600 MHz TDD	0.00047
2600 MHz FDD	0.00080
3.4 GHz	0.00397
3.8 GHz	0.00668
Others	0.18326
Total	0.36577

Location 2

Measurement time:	13:28
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01222
174-230 MHz	0.01361
470-694 MHz	0.01049
700 MHz	0.01999
800 MHz	0.03946
900 MHz	0.05852
1400 MHz	0.01033
1800 MHz	0.00284
1900 MHz	0.00026
2100 MHz	0.00488
2300 MHz	0.00153
2600 MHz TDD	0.00050
2600 MHz FDD	0.00115
3.4 GHz	0.00435
3.8 GHz	0.00694
Others	0.18979
Total	0.37687

Location 3

Measurement time:	13:37
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01357
174-230 MHz	0.01402
470-694 MHz	0.01096
700 MHz	0.01662
800 MHz	0.03571
900 MHz	0.04147
1400 MHz	0.00674
1800 MHz	0.00397
1900 MHz	0.00027
2100 MHz	0.00523
2300 MHz	0.00139
2600 MHz TDD	0.00050
2600 MHz FDD	0.00072
3.4 GHz	0.00387
3.8 GHz	0.00731
Others	0.19451
Total	0.35686

Location 4

Measurement time:	13:48
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01281
174-230 MHz	0.01423
470-694 MHz	0.01084
700 MHz	0.03848
800 MHz	0.03083
900 MHz	0.03344
1400 MHz	0.01504
1800 MHz	0.02039
1900 MHz	0.00027
2100 MHz	0.00728
2300 MHz	0.00224
2600 MHz TDD	0.00051
2600 MHz FDD	0.00065
3.4 GHz	0.00404
3.8 GHz	0.00753
Others	0.19907
Total	0.39765

Location 5

Measurement time:	13:58
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01315
174-230 MHz	0.01446
470-694 MHz	0.01101
700 MHz	0.02818
800 MHz	0.01413
900 MHz	0.01826
1400 MHz	0.01754
1800 MHz	0.02312
1900 MHz	0.00028
2100 MHz	0.03347
2300 MHz	0.00241
2600 MHz TDD	0.00064
2600 MHz FDD	0.00655
3.4 GHz	0.00445
3.8 GHz	0.00767
Others	0.20229
Total	0.39761

Location 6

Measurement time:	14:07
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01314
174-230 MHz	0.01447
470-694 MHz	0.01105
700 MHz	0.01002
800 MHz	0.02866
900 MHz	0.05672
1400 MHz	0.00285
1800 MHz	0.00273
1900 MHz	0.00028
2100 MHz	0.00202
2300 MHz	0.00088
2600 MHz TDD	0.00052
2600 MHz FDD	0.00066
3.4 GHz	0.00388
3.8 GHz	0.00756
Others	0.20293
Total	0.35835

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.