

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 420 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:	13/09/2023	Time Survey completed:	12:01
Survey address:	Birmingham B12		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY 56072612	27/03/2023
Probe	Agos Aria-6000 Antenna	60001117	28/11/2022
Cabling	1.7m Cable	1319	28/11/2022

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.

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:	10:51
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.0053
800 MHz	0.0011
900 MHz	-
1400 MHz	0.0084
1800 MHz	0.0113
1900 MHz	0.0000
2100 MHz	0.0029
2300 MHz	0.0001
2600 MHz TDD	0.0001
2600 MHz FDD	0.0010
3.4 GHz	0.0004
3.8 GHz	0.0001
Others	0.0014
Total	0.0320

Location 2

Measurement time:	11:06
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.0030
800 MHz	0.0003
900 MHz	0.0000
1400 MHz	0.0025
1800 MHz	0.0022
1900 MHz	0.0001
2100 MHz	0.0004
2300 MHz	0.0001
2600 MHz TDD	0.0001
2600 MHz FDD	0.0002
3.4 GHz	0.0005
3.8 GHz	0.0001
Others	0.0036
Total	0.0132

Location 3

Measurement time:	11:20
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.0019
800 MHz	0.0043
900 MHz	0.0016
1400 MHz	0.0013
1800 MHz	0.0010
1900 MHz	0.0001
2100 MHz	0.0008
2300 MHz	0.0001
2600 MHz TDD	0.0001
2600 MHz FDD	0.0001
3.4 GHz	0.0006
3.8 GHz	0.0005
Others	0.0054
Total	0.0178

Location 4

Measurement time:	11:33
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.0011
800 MHz	0.0003
900 MHz	0.0002
1400 MHz	0.0008
1800 MHz	0.0034
1900 MHz	0.0001
2100 MHz	0.0005
2300 MHz	0.0001
2600 MHz TDD	0.0001
2600 MHz FDD	0.0001
3.4 GHz	0.0006
3.8 GHz	0.0006
Others	0.0062
Total	0.0140

Location 5

Measurement time:	11:55
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.0302
800 MHz	0.0070
900 MHz	0.0002
1400 MHz	0.0094
1800 MHz	0.0063
1900 MHz	0.0001
2100 MHz	0.0030
2300 MHz	0.0001
2600 MHz TDD	0.0001
2600 MHz FDD	0.0010
3.4 GHz	0.0007
3.8 GHz	0.0006
Others	0.0078
Total	0.0664

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.