

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:	23/07/2024	Time Survey completed:	14:33
Survey address:	Birmingham B72		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY59221930	11/04/2024
Probe	Agos Aria-6000 Antenna	ARIA6000-1158	16/04/2024
Cabling	1.7m cable	1458	16/04/2024

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 five locations and are presented in the following pages of this report.



Location 1

Measurement time:	13:32
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00057
800 MHz	0.00454
900 MHz	0.01152
1400 MHz	0.00012
1800 MHz	0.00087
1900 MHz	0.00005
2100 MHz	0.00106
2300 MHz	0.00095
2600 MHz TDD	0.00010
2600 MHz FDD	0.00021
3.4 GHz	0.00068
3.8 GHz	0.00060
Others	0.00694
Total	0.02821

Location 2

Measurement time:	13:43
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00048
800 MHz	0.00346
900 MHz	0.02498
1400 MHz	0.00014
1800 MHz	0.00021
1900 MHz	0.00006
2100 MHz	0.00550
2300 MHz	0.00230
2600 MHz TDD	0.00011
2600 MHz FDD	0.00027
3.4 GHz	0.00077
3.8 GHz	0.00084
Others	0.00982
Total	0.04892

Location 3

Measurement time:	13:58
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00055
800 MHz	0.00671
900 MHz	0.06115
1400 MHz	0.00013
1800 MHz	0.00025
1900 MHz	0.00006
2100 MHz	0.00134
2300 MHz	0.00121
2600 MHz TDD	0.00011
2600 MHz FDD	0.00031
3.4 GHz	0.00072
3.8 GHz	0.00100
Others	0.01196
Total	0.08549

Location 4

Measurement time:	14:14
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00044
800 MHz	0.00277
900 MHz	0.02233
1400 MHz	0.00016
1800 MHz	0.00038
1900 MHz	0.00006
2100 MHz	0.00194
2300 MHz	0.00175
2600 MHz TDD	0.00017
2600 MHz FDD	0.00209
3.4 GHz	0.00072
3.8 GHz	0.00116
Others	0.01347
Total	0.04744

Location 5

Measurement time:	14:27
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00059
800 MHz	0.00421
900 MHz	0.01308
1400 MHz	0.00013
1800 MHz	0.00108
1900 MHz	0.00006
2100 MHz	0.00109
2300 MHz	0.00106
2600 MHz TDD	0.00011
2600 MHz FDD	0.00020
3.4 GHz	0.00073
3.8 GHz	0.00107
Others	0.01325
Total	0.03666

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.