

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:	05/03/2024	Time Survey completed:	11:51
Survey address:	Birmingham B16		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY59221930	27/03/2023
Probe	Agos Aria-6000 Antenna	ARIA6000-1158	25/09/2023
Cabling	1.7m cable	1458	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.

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:	10:43
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00223
800 MHz	0.00143
900 MHz	0.00034
1400 MHz	0.00233
1800 MHz	0.00443
1900 MHz	0.00004
2100 MHz	0.00083
2300 MHz	0.00008
2600 MHz TDD	0.00008
2600 MHz FDD	0.00032
3.4 GHz	0.00055
3.8 GHz	0.00008
Others	0.00171
Total	0.01445

Location 2

Measurement time:	10:55
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00141
800 MHz	0.00208
900 MHz	0.00066
1400 MHz	0.00041
1800 MHz	0.00225
1900 MHz	0.00005
2100 MHz	0.00050
2300 MHz	0.00010
2600 MHz TDD	0.00009
2600 MHz FDD	0.00030
3.4 GHz	0.00058
3.8 GHz	0.00009
Others	0.00305
Total	0.01156

Location 3

Measurement time:	11:21
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00485
800 MHz	0.00652
900 MHz	0.00227
1400 MHz	0.00073
1800 MHz	0.00049
1900 MHz	0.00005
2100 MHz	0.00110
2300 MHz	0.00009
2600 MHz TDD	0.00009
2600 MHz FDD	0.00016
3.4 GHz	0.00053
3.8 GHz	0.00011
Others	0.00353
Total	0.02053

Location 4

Measurement time:	11:34
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00170
800 MHz	0.00493
900 MHz	0.00127
1400 MHz	0.00131
1800 MHz	0.00160
1900 MHz	0.00005
2100 MHz	0.00107
2300 MHz	0.00009
2600 MHz TDD	0.00010
2600 MHz FDD	0.00040
3.4 GHz	0.00061
3.8 GHz	0.00027
Others	0.00411
Total	0.01752

Location 5

Measurement time:	11:45
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00154
800 MHz	0.00304
900 MHz	0.00093
1400 MHz	0.00226
1800 MHz	0.00670
1900 MHz	0.00005
2100 MHz	0.00040
2300 MHz	0.00009
2600 MHz TDD	0.00009
2600 MHz FDD	0.00051
3.4 GHz	0.00062
3.8 GHz	0.00025
Others	0.00404
Total	0.02051

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.