

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:	09/05/2024	Time Survey completed:	11:50
Survey address:	Worcester WR11		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY56072590	18/04/2024
Probe	Agos Aria-6000 Antenna	ARIA6000-1158	16/04/2023
Cabling	1.7m cable	1458	16/04/2023

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



Location 1

Measurement time:	10:48
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.01008
800 MHz	0.04630
900 MHz	0.03599
1400 MHz	0.00170
1800 MHz	0.00293
1900 MHz	0.00017
2100 MHz	0.00077
2300 MHz	0.00035
2600 MHz TDD	0.00027
2600 MHz FDD	0.00015
3.4 GHz	0.00167
3.8 GHz	0.00376
Others	0.05834
Total	0.16249

Location 2

Measurement time:	11:01
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.01273
800 MHz	0.36105
900 MHz	0.21014
1400 MHz	0.00214
1800 MHz	0.00315
1900 MHz	0.00019
2100 MHz	0.00092
2300 MHz	0.00040
2600 MHz TDD	0.00032
2600 MHz FDD	0.00017
3.4 GHz	0.00195
3.8 GHz	0.00440
Others	0.07419
Total	0.67175

Location 3

Measurement time:	11:14
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.01090
800 MHz	0.03479
900 MHz	0.00967
1400 MHz	0.00401
1800 MHz	0.01135
1900 MHz	0.00021
2100 MHz	0.00431
2300 MHz	0.00043
2600 MHz TDD	0.00034
2600 MHz FDD	0.00019
3.4 GHz	0.00212
3.8 GHz	0.00478
Others	0.07215
Total	0.15525

Location 4

Measurement time:	11:30
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.02796
800 MHz	0.06677
900 MHz	0.01730
1400 MHz	0.00080
1800 MHz	0.00303
1900 MHz	0.00022
2100 MHz	0.00113
2300 MHz	0.00046
2600 MHz TDD	0.00037
2600 MHz FDD	0.00020
3.4 GHz	0.00233
3.8 GHz	0.00522
Others	0.07851
Total	0.20429

Location 5

Measurement time:	11:44
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.01618
800 MHz	0.12892
900 MHz	0.04138
1400 MHz	0.00187
1800 MHz	0.00384
1900 MHz	0.00023
2100 MHz	0.00092
2300 MHz	0.00049
2600 MHz TDD	0.00039
2600 MHz FDD	0.00022
3.4 GHz	0.00251
3.8 GHz	0.00561
Others	0.08508
Total	0.28766

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.