

# 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)<sup>1</sup>, 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 floor<sup>2</sup> 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%.

<b>Date of Survey:</b>	08/03/2024	<b>Time Survey completed:</b>	10:54
<b>Survey address:</b>	Warrington WA1		

	Measurement equipment	Serial number	Calibration Date
<b>Meter</b>	Keysight Fieldfox N9915A Spectrum Analyser	MY56072599	25/01/2024
<b>Probe</b>	Agos Aria-6000 Antenna	60001156	25/09/2023
<b>Cabling</b>	1.7m Cable	1459	25/09/2023

---

<sup>1</sup> <https://www.icnirp.org/cms/upload/publications/ICNIRPemfgdl.pdf>

<sup>2</sup> 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:	09:57
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00114
800 MHz	0.00325
900 MHz	0.00218
1400 MHz	0.00050
1800 MHz	0.00077
1900 MHz	0.00018
2100 MHz	0.00102
2300 MHz	0.00054
2600 MHz TDD	0.00035
2600 MHz FDD	0.00036
3.4 GHz	0.00218
3.8 GHz	0.00453
Others	0.16436
<b>Total</b>	<b>0.18136</b>

### Location 2

Measurement time:	10:04
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00115
800 MHz	0.01915
900 MHz	0.00602
1400 MHz	0.00054
1800 MHz	0.00120
1900 MHz	0.00019
2100 MHz	0.00192
2300 MHz	0.00045
2600 MHz TDD	0.00036
2600 MHz FDD	0.00046
3.4 GHz	0.00253
3.8 GHz	0.00478
Others	0.17174
<b>Total</b>	<b>0.21049</b>

### Location 3

Measurement time:	10:14
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00116
800 MHz	0.00116
900 MHz	0.00109
1400 MHz	0.00044
1800 MHz	0.00069
1900 MHz	0.00020
2100 MHz	0.00064
2300 MHz	0.00041
2600 MHz TDD	0.00036
2600 MHz FDD	0.00027
3.4 GHz	0.00233
3.8 GHz	0.00501
Others	0.17840
<b>Total</b>	<b>0.19216</b>

### Location 4

Measurement time:	10:23
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00126
800 MHz	0.00755
900 MHz	0.01768
1400 MHz	0.00074
1800 MHz	0.00114
1900 MHz	0.00020
2100 MHz	0.00096
2300 MHz	0.00057
2600 MHz TDD	0.00042
2600 MHz FDD	0.00056
3.4 GHz	0.00251
3.8 GHz	0.00522
Others	0.18415
<b>Total</b>	<b>0.22296</b>

## Location 5

Measurement time:	10:48
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.00129
800 MHz	0.00352
900 MHz	0.00253
1400 MHz	0.00067
1800 MHz	0.00086
1900 MHz	0.00021
2100 MHz	0.00124
2300 MHz	0.00062
2600 MHz TDD	0.00042
2600 MHz FDD	0.00038
3.4 GHz	0.00271
3.8 GHz	0.00554
Others	0.19369
<b>Total</b>	<b>0.21368</b>

*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.*