

## 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>	22/11/23	<b>Time Survey completed:</b>	14:38
<b>Survey address:</b>	Widnes WA8		

Measurement equipment		Serial number	Calibration Date
<b>Meter</b>	Keysight Fieldfox N9915A Spectrum Analyser	MY56072599	24/01/2023
<b>Probe</b>	Agos Aria-6000 Antenna	60001024	30/03/2021
<b>Cabling</b>	1.7m Cable	1383	12/10/2023

<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	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**		

### Notes

\* 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.



Map data: © Google

**Location 1**

<b>Measurement time:</b>	13:47
<b>Frequency band</b>	<b>Percentage of the ICNIRP reference levels for general public exposure</b>
700 MHz	0.0248
800 MHz	0.0108
900 MHz	0.0026
1400 MHz	0.0004
1800 MHz	0.0017
1900 MHz	0.0002
2100 MHz	0.0018
2300 MHz	0.0004
2600 MHz TDD	0.0003
2600 MHz FDD	0.0002
3.4 GHz	0.0028
3.8 GHz	0.0046
Others	0.1656
<b>Total</b>	0.2161

**Location 2**

<b>Measurement time:</b>	13:57
<b>Frequency band</b>	<b>Percentage of the ICNIRP reference levels for general public exposure</b>
700 MHz	0.0078
800 MHz	0.0038
900 MHz	0.0016
1400 MHz	0.0004
1800 MHz	0.0023
1900 MHz	0.0002
2100 MHz	0.0016
2300 MHz	0.0004
2600 MHz TDD	0.0004
2600 MHz FDD	0.0002
3.4 GHz	0.0025
3.8 GHz	0.0050
Others	0.1781
<b>Total</b>	0.2042

**Location 3**

<b>Measurement time:</b>	14:05
<b>Frequency band</b>	<b>Percentage of the ICNIRP reference levels for general public exposure</b>
700 MHz	0.0074
800 MHz	0.0037
900 MHz	0.0014
1400 MHz	0.0004
1800 MHz	0.0034
1900 MHz	0.0002
2100 MHz	0.0034
2300 MHz	0.0004
2600 MHz TDD	0.0004
2600 MHz FDD	0.0002
3.4 GHz	0.0027
3.8 GHz	0.0053
Others	0.1872
<b>Total</b>	0.2162

**Location 4**

<b>Measurement time:</b>	14:16
<b>Frequency band</b>	<b>Percentage of the ICNIRP reference levels for general public exposure</b>
700 MHz	0.0178
800 MHz	0.0070
900 MHz	0.0091
1400 MHz	0.0005
1800 MHz	0.0056
1900 MHz	0.0002
2100 MHz	0.0019
2300 MHz	0.0004
2600 MHz TDD	0.0004
2600 MHz FDD	0.0002
3.4 GHz	0.0028
3.8 GHz	0.0056
Others	0.1946
<b>Total</b>	0.2461

**Location 5**

<b>Measurement time:</b>	14:25
<b>Frequency band</b>	<b>Percentage of the ICNIRP reference levels for general public exposure</b>
700 MHz	0.0319
800 MHz	0.0196
900 MHz	0.0019
1400 MHz	0.0005
1800 MHz	0.0014
1900 MHz	0.0002
2100 MHz	0.0010
2300 MHz	0.0004
2600 MHz TDD	0.0004
2600 MHz FDD	0.0002
3.4 GHz	0.0030
3.8 GHz	0.0056
Others	0.1976
<b>Total</b>	0.2636

**Location 6**

<b>Measurement time:</b>	14:32
<b>Frequency band</b>	<b>Percentage of the ICNIRP reference levels for general public exposure</b>
700 MHz	0.0276
800 MHz	0.0129
900 MHz	0.0026
1400 MHz	0.0005
1800 MHz	0.0014
1900 MHz	0.0002
2100 MHz	0.0017
2300 MHz	0.0005
2600 MHz TDD	0.0004
2600 MHz FDD	0.0002
3.4 GHz	0.0041
3.8 GHz	0.0058
Others	0.2007
<b>Total</b>	0.2584

*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.*