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 30 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[2] 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:	12/03/2024	**Time Survey completed:**	14:12
Survey address:	Wigan WN6		

Measurement equipment		**Serial number**	**Calibration Date**
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY56072599	25/01/2024
Probe	Agos Aria-6000 Antenna	ARIA-6000-1156	25/09/2023
Cabling	1.7m cable	1459	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.

Broadcast bands covered by this report

Frequency Band	Frequency Range	Technology*
	87.5-108 MHz	FM Radio
	174-230 MHz	DAB
	470-694 MHz	Digital TV

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:	13:17
Frequency band	**Percentage of the ICNIRP reference levels for general public exposure**
87.5-108 MHz	0.02441
174-230 MHz	0.01614
470-694 MHz	0.01071
700 MHz	0.00214
800 MHz	0.05431
900 MHz	0.02300
1400 MHz	0.00453
1800 MHz	0.00874
1900 MHz	0.00026
2100 MHz	0.01457
2300 MHz	0.00048
2600 MHz TDD	0.00136
2600 MHz FDD	0.00319
3.4 GHz	0.00505
3.8 GHz	0.00696
Others	0.25703
Total	**0.43289**

Location 2

Measurement time:	13:25
Frequency band	**Percentage of the ICNIRP reference levels for general public exposure**
87.5-108 MHz	0.02463
174-230 MHz	0.01629
470-694 MHz	0.01078
700 MHz	0.00379
800 MHz	0.03528
900 MHz	0.10485
1400 MHz	0.01276
1800 MHz	0.01611
1900 MHz	0.00026
2100 MHz	0.03676
2300 MHz	0.00048
2600 MHz TDD	0.00160
2600 MHz FDD	0.00695
3.4 GHz	0.00558
3.8 GHz	0.00748
Others	0.25761
Total	**0.54122**

Location 3

Measurement time:	13:38
Frequency band	**Percentage of the ICNIRP reference levels for general public exposure**
87.5-108 MHz	0.02487
174-230 MHz	0.01650
470-694 MHz	0.01097
700 MHz	0.00241
800 MHz	0.05468
900 MHz	0.05625
1400 MHz	0.00656
1800 MHz	0.01070
1900 MHz	0.00027
2100 MHz	0.02966
2300 MHz	0.00050
2600 MHz TDD	0.00077
2600 MHz FDD	0.00289
3.4 GHz	0.00416
3.8 GHz	0.00723
Others	0.26495
Total	**0.49337**

Location 4

Measurement time:	13:50
Frequency band	**Percentage of the ICNIRP reference levels for general public exposure**
87.5-108 MHz	0.02498
174-230 MHz	0.01671
470-694 MHz	0.01101
700 MHz	0.00976
800 MHz	0.03091
900 MHz	0.03682
1400 MHz	0.00392
1800 MHz	0.00952
1900 MHz	0.00027
2100 MHz	0.01366
2300 MHz	0.00050
2600 MHz TDD	0.00067
2600 MHz FDD	0.00486
3.4 GHz	0.00446
3.8 GHz	0.00723
Others	0.26549
Total	**0.44077**

Location 5

Measurement time:	13:58
Frequency band	**Percentage of the ICNIRP reference levels for general public exposure**
87.5-108 MHz	0.02579
174-230 MHz	0.01685
470-694 MHz	0.01111
700 MHz	0.00782
800 MHz	0.04851
900 MHz	0.10692
1400 MHz	0.01120
1800 MHz	0.02030
1900 MHz	0.00028
2100 MHz	0.04439
2300 MHz	0.00050
2600 MHz TDD	0.00097
2600 MHz FDD	0.00200
3.4 GHz	0.00442
3.8 GHz	0.00747
Others	0.26987
Total	**0.57842**

Location 6

Measurement time:	14:06
Frequency band	**Percentage of the ICNIRP reference levels for general public exposure**
87.5-108 MHz	0.02617
174-230 MHz	0.01717
470-694 MHz	0.01132
700 MHz	0.00227
800 MHz	0.04160
900 MHz	0.01977
1400 MHz	0.00735
1800 MHz	0.02385
1900 MHz	0.00028
2100 MHz	0.02365
2300 MHz	0.00052
2600 MHz TDD	0.00131
2600 MHz FDD	0.00454
3.4 GHz	0.00598
3.8 GHz	0.00763
Others	0.27516
Total	**0.46856**

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.