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:	20/06/2024	**Time Survey completed:**	13:04
Survey address:	Liverpool L25		

Measurement equipment		**Serial number**	**Calibration Date**
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY56072599	25/01/2024
Probe	Agos Aria-6000 Antenna	6000-1024	30/03/2021
Cabling	1.7m cable	1383	12/10/2023

[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:	12:17
Frequency band	**Percentage of the ICNIRP reference levels for general public exposure**
87.5-108 MHz	0.01081
174-230 MHz	0.01169
470-694 MHz	0.00913
700 MHz	0.05209
800 MHz	0.04975
900 MHz	0.02454
1400 MHz	0.00339
1800 MHz	0.00466
1900 MHz	0.00021
2100 MHz	0.00437
2300 MHz	0.00043
2600 MHz TDD	0.00038
2600 MHz FDD	0.00021
3.4 GHz	0.00465
3.8 GHz	0.00542
Others	0.16039
Total	**0.34213**

Location 2

Measurement time:	12:26
Frequency band	**Percentage of the ICNIRP reference levels for general public exposure**
87.5-108 MHz	0.01191
174-230 MHz	0.01311
470-694 MHz	0.01009
700 MHz	0.01167
800 MHz	0.12918
900 MHz	0.04857
1400 MHz	0.00393
1800 MHz	0.00325
1900 MHz	0.00024
2100 MHz	0.01088
2300 MHz	0.00048
2600 MHz TDD	0.00043
2600 MHz FDD	0.00024
3.4 GHz	0.00439
3.8 GHz	0.00625
Others	0.18123
Total	**0.43585**

Location 3

Measurement time:	12:34
Frequency band	**Percentage of the ICNIRP reference levels for general public exposure**
87.5-108 MHz	0.01267
174-230 MHz	0.01434
470-694 MHz	0.01080
700 MHz	0.00425
800 MHz	0.00977
900 MHz	0.00373
1400 MHz	0.00103
1800 MHz	0.00215
1900 MHz	0.00026
2100 MHz	0.00223
2300 MHz	0.00052
2600 MHz TDD	0.00047
2600 MHz FDD	0.00027
3.4 GHz	0.00355
3.8 GHz	0.00692
Others	0.19700
Total	**0.26995**

Location 4

Measurement time:	12:43
Frequency band	**Percentage of the ICNIRP reference levels for general public exposure**
87.5-108 MHz	0.01363
174-230 MHz	0.01537
470-694 MHz	0.01148
700 MHz	0.01036
800 MHz	0.02038
900 MHz	0.01772
1400 MHz	0.00220
1800 MHz	0.00326
1900 MHz	0.00028
2100 MHz	0.00562
2300 MHz	0.00056
2600 MHz TDD	0.00050
2600 MHz FDD	0.00029
3.4 GHz	0.00530
3.8 GHz	0.00756
Others	0.21352
Total	**0.32803**

Location 5

Measurement time:	12:50
Frequency band	**Percentage of the ICNIRP reference levels for general public exposure**
87.5-108 MHz	0.01432
174-230 MHz	0.01603
470-694 MHz	0.01198
700 MHz	0.02678
800 MHz	0.09681
900 MHz	0.08053
1400 MHz	0.00875
1800 MHz	0.00588
1900 MHz	0.00029
2100 MHz	0.00997
2300 MHz	0.00060
2600 MHz TDD	0.00052
2600 MHz FDD	0.00031
3.4 GHz	0.00439
3.8 GHz	0.00799
Others	0.22512
Total	**0.51029**

Location 6

Measurement time:	12:58
Frequency band	**Percentage of the ICNIRP reference levels for general public exposure**
87.5-108 MHz	0.01529
174-230 MHz	0.01670
470-694 MHz	0.01248
700 MHz	0.02953
800 MHz	0.04309
900 MHz	0.02327
1400 MHz	0.00255
1800 MHz	0.00529
1900 MHz	0.00031
2100 MHz	0.00665
2300 MHz	0.00062
2600 MHz TDD	0.00055
2600 MHz FDD	0.00033
3.4 GHz	0.00692
3.8 GHz	0.00845
Others	0.23644
Total	**0.40847**

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.