

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 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:	27/11/2024	Time Survey completed:	14:12
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:	13:21
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00926
174-230 MHz	0.01000
470-694 MHz	0.00796
700 MHz	0.00125
800 MHz	0.00621
900 MHz	0.03734
1400 MHz	0.00039
1800 MHz	0.00073
1900 MHz	0.00018
2100 MHz	0.00140
2300 MHz	0.00129
2600 MHz TDD	0.00032
2600 MHz FDD	0.00018
3.4 GHz	0.00203
3.8 GHz	0.00634
Others	0.13697
Total	0.22183

Location 2

Measurement time:	13:30
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01004
174-230 MHz	0.01080
470-694 MHz	0.00852
700 MHz	0.00165
800 MHz	0.05897
900 MHz	0.28537
1400 MHz	0.00043
1800 MHz	0.00106
1900 MHz	0.00019
2100 MHz	0.00900
2300 MHz	0.00234
2600 MHz TDD	0.00035
2600 MHz FDD	0.00020
3.4 GHz	0.00228
3.8 GHz	0.00557
Others	0.15936
Total	0.55614

Location 3

Measurement time:	13:39
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01019
174-230 MHz	0.01134
470-694 MHz	0.00887
700 MHz	0.00138
800 MHz	0.00641
900 MHz	0.02803
1400 MHz	0.00044
1800 MHz	0.00069
1900 MHz	0.00020
2100 MHz	0.00216
2300 MHz	0.00096
2600 MHz TDD	0.00037
2600 MHz FDD	0.00021
3.4 GHz	0.00241
3.8 GHz	0.00608
Others	0.15577
Total	0.23549

Location 4

Measurement time:	13:48
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01067
174-230 MHz	0.01162
470-694 MHz	0.00922
700 MHz	0.00142
800 MHz	0.01719
900 MHz	0.02246
1400 MHz	0.00045
1800 MHz	0.00068
1900 MHz	0.00021
2100 MHz	0.00141
2300 MHz	0.00290
2600 MHz TDD	0.00038
2600 MHz FDD	0.00021
3.4 GHz	0.00247
3.8 GHz	0.00612
Others	0.16109
Total	0.24852

Location 5

Measurement time:	13:57
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01118
174-230 MHz	0.01197
470-694 MHz	0.00946
700 MHz	0.00137
800 MHz	0.00239
900 MHz	0.00848
1400 MHz	0.00046
1800 MHz	0.00064
1900 MHz	0.00022
2100 MHz	0.00426
2300 MHz	0.00238
2600 MHz TDD	0.00039
2600 MHz FDD	0.00022
3.4 GHz	0.00254
3.8 GHz	0.00607
Others	0.16462
Total	0.22664

Location 6

Measurement time:	14:06
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01121
174-230 MHz	0.01238
470-694 MHz	0.00946
700 MHz	0.00152
800 MHz	0.00806
900 MHz	0.05686
1400 MHz	0.00048
1800 MHz	0.00090
1900 MHz	0.00022
2100 MHz	0.00245
2300 MHz	0.00277
2600 MHz TDD	0.00040
2600 MHz FDD	0.00023
3.4 GHz	0.00265
3.8 GHz	0.00725
Others	0.17213
Total	0.28896

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.