

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:	30/01/2025	Time Survey completed:	12:18
Survey address:	Barrow-in-Furness LA14		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	US55240265	17/04/2024
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:	11:28
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00897
174-230 MHz	0.00823
470-694 MHz	0.00658
700 MHz	0.00089
800 MHz	0.01356
900 MHz	0.03733
1400 MHz	0.00031
1800 MHz	0.00069
1900 MHz	0.00014
2100 MHz	0.00974
2300 MHz	0.00317
2600 MHz TDD	0.00041
2600 MHz FDD	0.00171
3.4 GHz	0.00321
3.8 GHz	0.00708
Others	0.15463
Total	0.25664

Location 2

Measurement time:	11:37
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00919
174-230 MHz	0.00836
470-694 MHz	0.00673
700 MHz	0.00092
800 MHz	0.00883
900 MHz	0.01925
1400 MHz	0.00032
1800 MHz	0.00063
1900 MHz	0.00014
2100 MHz	0.00344
2300 MHz	0.00172
2600 MHz TDD	0.00041
2600 MHz FDD	0.00097
3.4 GHz	0.00337
3.8 GHz	0.00730
Others	0.15907
Total	0.23065

Location 3

Measurement time:	11:45
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00930
174-230 MHz	0.00840
470-694 MHz	0.00671
700 MHz	0.00124
800 MHz	0.04724
900 MHz	0.02680
1400 MHz	0.00032
1800 MHz	0.00412
1900 MHz	0.00014
2100 MHz	0.00424
2300 MHz	0.00528
2600 MHz TDD	0.00045
2600 MHz FDD	0.00202
3.4 GHz	0.00357
3.8 GHz	0.00738
Others	0.15912
Total	0.28635

Location 4

Measurement time:	11:54
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00908
174-230 MHz	0.00847
470-694 MHz	0.00669
700 MHz	0.00097
800 MHz	0.00602
900 MHz	0.01277
1400 MHz	0.00031
1800 MHz	0.00161
1900 MHz	0.00014
2100 MHz	0.00647
2300 MHz	0.00140
2600 MHz TDD	0.00041
2600 MHz FDD	0.00077
3.4 GHz	0.00337
3.8 GHz	0.00738
Others	0.15804
Total	0.22391

Location 5

Measurement time:	12:05
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00913
174-230 MHz	0.00828
470-694 MHz	0.00664
700 MHz	0.00089
800 MHz	0.00309
900 MHz	0.00671
1400 MHz	0.00031
1800 MHz	0.00043
1900 MHz	0.00014
2100 MHz	0.00458
2300 MHz	0.00204
2600 MHz TDD	0.00040
2600 MHz FDD	0.00075
3.4 GHz	0.00329
3.8 GHz	0.00708
Others	0.15506
Total	0.20883

Location 6

Measurement time:	12:12
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00902
174-230 MHz	0.00828
470-694 MHz	0.00665
700 MHz	0.00090
800 MHz	0.01487
900 MHz	0.04028
1400 MHz	0.00031
1800 MHz	0.00094
1900 MHz	0.00014
2100 MHz	0.01008
2300 MHz	0.00360
2600 MHz TDD	0.00041
2600 MHz FDD	0.00135
3.4 GHz	0.00329
3.8 GHz	0.00717
Others	0.15678
Total	0.26407

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.