

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:	15:57
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:	15:09
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00977
174-230 MHz	0.00906
470-694 MHz	0.00726
700 MHz	0.06542
800 MHz	0.00541
900 MHz	0.00092
1400 MHz	0.01176
1800 MHz	0.00218
1900 MHz	0.00015
2100 MHz	0.00221
2300 MHz	0.00041
2600 MHz TDD	0.00044
2600 MHz FDD	0.00051
3.4 GHz	0.00464
3.8 GHz	0.00801
Others	0.17175
Total	0.29992

Location 2

Measurement time:	15:17
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00996
174-230 MHz	0.00915
470-694 MHz	0.00727
700 MHz	0.03071
800 MHz	0.00558
900 MHz	0.00062
1400 MHz	0.01553
1800 MHz	0.00177
1900 MHz	0.00015
2100 MHz	0.00113
2300 MHz	0.00038
2600 MHz TDD	0.00044
2600 MHz FDD	0.00044
3.4 GHz	0.00400
3.8 GHz	0.00802
Others	0.17219
Total	0.26732

Location 3

Measurement time:	15:26
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01014
174-230 MHz	0.00911
470-694 MHz	0.00726
700 MHz	0.03515
800 MHz	0.00154
900 MHz	0.00057
1400 MHz	0.00147
1800 MHz	0.00108
1900 MHz	0.00015
2100 MHz	0.00088
2300 MHz	0.00038
2600 MHz TDD	0.00043
2600 MHz FDD	0.00044
3.4 GHz	0.00404
3.8 GHz	0.00798
Others	0.17166
Total	0.25229

Location 4

Measurement time:	15:34
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01010
174-230 MHz	0.00916
470-694 MHz	0.00734
700 MHz	0.01345
800 MHz	0.00168
900 MHz	0.00071
1400 MHz	0.00617
1800 MHz	0.00772
1900 MHz	0.00015
2100 MHz	0.00764
2300 MHz	0.00038
2600 MHz TDD	0.00043
2600 MHz FDD	0.00045
3.4 GHz	0.00390
3.8 GHz	0.00797
Others	0.17211
Total	0.24937

Location 5

Measurement time:	15:44
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00990
174-230 MHz	0.00911
470-694 MHz	0.00724
700 MHz	0.02050
800 MHz	0.00786
900 MHz	0.00332
1400 MHz	0.01569
1800 MHz	0.00358
1900 MHz	0.00015
2100 MHz	0.01009
2300 MHz	0.00039
2600 MHz TDD	0.00082
2600 MHz FDD	0.00201
3.4 GHz	0.00546
3.8 GHz	0.00806
Others	0.16852
Total	0.27271

Location 6

Measurement time:	15:51
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00964
174-230 MHz	0.00885
470-694 MHz	0.00705
700 MHz	0.07724
800 MHz	0.00462
900 MHz	0.00085
1400 MHz	0.01592
1800 MHz	0.00272
1900 MHz	0.00015
2100 MHz	0.00180
2300 MHz	0.00038
2600 MHz TDD	0.00042
2600 MHz FDD	0.00049
3.4 GHz	0.00452
3.8 GHz	0.00757
Others	0.16483
Total	0.30705

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.