

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:	27/02/2025	Time Survey completed:	14:18
Survey address:	Grasmere LA22		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY56072593	06/03/2024
Probe	Agos Aria-6000 Antenna	6000-1022	22/01/2021
Cabling	1.7m cable	1462	18/01/2024

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 30 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:	13:12
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01320
174-230 MHz	0.01483
470-694 MHz	0.01145
700 MHz	0.00239
800 MHz	0.00659
900 MHz	0.00325
1400 MHz	0.00060
1800 MHz	0.00110
1900 MHz	0.00029
2100 MHz	0.00098
2300 MHz	0.00059
2600 MHz TDD	0.00056
2600 MHz FDD	0.00034
3.4 GHz	0.00315
3.8 GHz	0.00713
Others	0.20168
Total	0.26813

Location 2

Measurement time:	13:23
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01253
174-230 MHz	0.01402
470-694 MHz	0.01068
700 MHz	0.00236
800 MHz	0.00540
900 MHz	0.00171
1400 MHz	0.00055
1800 MHz	0.00150
1900 MHz	0.00026
2100 MHz	0.00208
2300 MHz	0.00055
2600 MHz TDD	0.00051
2600 MHz FDD	0.00044
3.4 GHz	0.00301
3.8 GHz	0.00654
Others	0.18707
Total	0.24922

Location 3

Measurement time:	13:36
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01165
174-230 MHz	0.01314
470-694 MHz	0.01016
700 MHz	0.00371
800 MHz	0.02990
900 MHz	0.01750
1400 MHz	0.00052
1800 MHz	0.02728
1900 MHz	0.00025
2100 MHz	0.00228
2300 MHz	0.00052
2600 MHz TDD	0.00048
2600 MHz FDD	0.00038
3.4 GHz	0.00278
3.8 GHz	0.00604
Others	0.18196
Total	0.30854

Location 4

Measurement time:	13:46
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01121
174-230 MHz	0.01265
470-694 MHz	0.00986
700 MHz	0.00178
800 MHz	0.00173
900 MHz	0.00104
1400 MHz	0.00050
1800 MHz	0.00106
1900 MHz	0.00024
2100 MHz	0.00079
2300 MHz	0.00050
2600 MHz TDD	0.00046
2600 MHz FDD	0.00024
3.4 GHz	0.00254
3.8 GHz	0.00580
Others	0.16891
Total	0.21931

Location 5

Measurement time:	13:59
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01111
174-230 MHz	0.01260
470-694 MHz	0.00976
700 MHz	0.00280
800 MHz	0.01133
900 MHz	0.00629
1400 MHz	0.00050
1800 MHz	0.00140
1900 MHz	0.00024
2100 MHz	0.00110
2300 MHz	0.00049
2600 MHz TDD	0.00046
2600 MHz FDD	0.00036
3.4 GHz	0.00258
3.8 GHz	0.00576
Others	0.16821
Total	0.23500

Location 6

Measurement time:	14:12
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00995
174-230 MHz	0.01128
470-694 MHz	0.00871
700 MHz	0.00201
800 MHz	0.00601
900 MHz	0.00224
1400 MHz	0.00041
1800 MHz	0.00076
1900 MHz	0.00019
2100 MHz	0.00074
2300 MHz	0.00041
2600 MHz TDD	0.00041
2600 MHz FDD	0.00027
3.4 GHz	0.00219
3.8 GHz	0.00502
Others	0.14613
Total	0.19674

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.