

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:	01/05/2025	Time Survey completed:	15:29
Survey address:	Longtown CA6		

Measurement equipment			Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY56072610	05/03/2025	
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:	14:32
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01678
174-230 MHz	0.01837
470-694 MHz	0.01387
700 MHz	0.00190
800 MHz	0.00276
900 MHz	0.00230
1400 MHz	0.00069
1800 MHz	0.00168
1900 MHz	0.00033
2100 MHz	0.00131
2300 MHz	0.00066
2600 MHz TDD	0.00057
2600 MHz FDD	0.00050
3.4 GHz	0.00359
3.8 GHz	0.00810
Others	0.24694
Total	0.32033

Location 2

Measurement time:	14:43
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01662
174-230 MHz	0.01823
470-694 MHz	0.01411
700 MHz	0.00225
800 MHz	0.00963
900 MHz	0.00888
1400 MHz	0.00068
1800 MHz	0.00326
1900 MHz	0.00032
2100 MHz	0.00146
2300 MHz	0.00066
2600 MHz TDD	0.00058
2600 MHz FDD	0.00065
3.4 GHz	0.00360
3.8 GHz	0.00810
Others	0.24711
Total	0.33615

Location 3

Measurement time:	14:51
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01700
174-230 MHz	0.01892
470-694 MHz	0.01443
700 MHz	0.00206
800 MHz	0.00332
900 MHz	0.00195
1400 MHz	0.00070
1800 MHz	0.00160
1900 MHz	0.00033
2100 MHz	0.00167
2300 MHz	0.00068
2600 MHz TDD	0.00058
2600 MHz FDD	0.00048
3.4 GHz	0.00361
3.8 GHz	0.00828
Others	0.25267
Total	0.32828

Location 4

Measurement time:	15:00
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01700
174-230 MHz	0.01874
470-694 MHz	0.01409
700 MHz	0.00201
800 MHz	0.00504
900 MHz	0.00294
1400 MHz	0.00069
1800 MHz	0.00326
1900 MHz	0.00033
2100 MHz	0.00111
2300 MHz	0.00068
2600 MHz TDD	0.00059
2600 MHz FDD	0.00040
3.4 GHz	0.00363
3.8 GHz	0.00826
Others	0.25123
Total	0.33000

Location 5

Measurement time:	15:09
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.02137
174-230 MHz	0.01871
470-694 MHz	0.01409
700 MHz	0.00208
800 MHz	0.01044
900 MHz	0.00487
1400 MHz	0.00070
1800 MHz	0.00323
1900 MHz	0.00033
2100 MHz	0.00130
2300 MHz	0.00068
2600 MHz TDD	0.00058
2600 MHz FDD	0.00043
3.4 GHz	0.00369
3.8 GHz	0.00829
Others	0.25085
Total	0.34164

Location 6

Measurement time:	15:23
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01745
174-230 MHz	0.01905
470-694 MHz	0.01415
700 MHz	0.00193
800 MHz	0.00252
900 MHz	0.00330
1400 MHz	0.00070
1800 MHz	0.00165
1900 MHz	0.00033
2100 MHz	0.00132
2300 MHz	0.00069
2600 MHz TDD	0.00059
2600 MHz FDD	0.00049
3.4 GHz	0.00363
3.8 GHz	0.00832
Others	0.25334
Total	0.32946

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.