

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:	05/07/2024	Time Survey completed:	12:42
Survey address:	Leeds LS16		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY56072594	02/11/2023
Probe	Agos Aria-6000 Antenna	6000-1024	30/03/2021
Cabling	1.7m cable	1383	12/11/2023

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:	11:56
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00950
174-230 MHz	0.01107
470-694 MHz	0.00870
700 MHz	0.00162
800 MHz	0.02346
900 MHz	0.01212
1400 MHz	0.00042
1800 MHz	0.00352
1900 MHz	0.00020
2100 MHz	0.00241
2300 MHz	0.00137
2600 MHz TDD	0.00038
2600 MHz FDD	0.00021
3.4 GHz	0.00241
3.8 GHz	0.00518
Others	0.14908
Total	0.23166

Location 2

Measurement time:	12:04
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00990
174-230 MHz	0.01156
470-694 MHz	0.00893
700 MHz	0.00137
800 MHz	0.02711
900 MHz	0.00921
1400 MHz	0.00044
1800 MHz	0.00501
1900 MHz	0.00020
2100 MHz	0.00330
2300 MHz	0.00106
2600 MHz TDD	0.00039
2600 MHz FDD	0.00021
3.4 GHz	0.00240
3.8 GHz	0.00534
Others	0.15296
Total	0.23938

Location 3

Measurement time:	12:12
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01021
174-230 MHz	0.01186
470-694 MHz	0.00920
700 MHz	0.00220
800 MHz	0.01895
900 MHz	0.01028
1400 MHz	0.00045
1800 MHz	0.00386
1900 MHz	0.00021
2100 MHz	0.00597
2300 MHz	0.00121
2600 MHz TDD	0.00041
2600 MHz FDD	0.00022
3.4 GHz	0.00256
3.8 GHz	0.00555
Others	0.15899
Total	0.24214

Location 4

Measurement time:	12:20
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01110
174-230 MHz	0.01224
470-694 MHz	0.00951
700 MHz	0.00145
800 MHz	0.00648
900 MHz	0.00974
1400 MHz	0.00047
1800 MHz	0.00372
1900 MHz	0.00022
2100 MHz	0.00299
2300 MHz	0.00200
2600 MHz TDD	0.00042
2600 MHz FDD	0.00024
3.4 GHz	0.00261
3.8 GHz	0.00585
Others	0.16436
Total	0.23340

Location 5

Measurement time:	12:28
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01086
174-230 MHz	0.01273
470-694 MHz	0.00981
700 MHz	0.00145
800 MHz	0.00469
900 MHz	0.00403
1400 MHz	0.00049
1800 MHz	0.00204
1900 MHz	0.00023
2100 MHz	0.00119
2300 MHz	0.00068
2600 MHz TDD	0.00044
2600 MHz FDD	0.00024
3.4 GHz	0.00261
3.8 GHz	0.00605
Others	0.17107
Total	0.22861

Location 6

Measurement time:	12:36
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01124
174-230 MHz	0.01307
470-694 MHz	0.00997
700 MHz	0.00141
800 MHz	0.00385
900 MHz	0.01072
1400 MHz	0.00049
1800 MHz	0.00321
1900 MHz	0.00023
2100 MHz	0.00257
2300 MHz	0.00135
2600 MHz TDD	0.00045
2600 MHz FDD	0.00175
3.4 GHz	0.00277
3.8 GHz	0.00623
Others	0.17634
Total	0.24566

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.