

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:	07/11/2024	Time Survey completed:	11:23
Survey address:	Leeds LS18		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY56072606	04/06/2024
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 30MHz 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:	10:18
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01116
174-230 MHz	0.01230
470-694 MHz	0.00956
700 MHz	0.00542
800 MHz	0.01185
900 MHz	0.07446
1400 MHz	0.00211
1800 MHz	0.00407
1900 MHz	0.00022
2100 MHz	0.00367
2300 MHz	0.00096
2600 MHz TDD	0.00037
2600 MHz FDD	0.00015
3.4 GHz	0.00192
3.8 GHz	0.00397
Others	0.15240
Total	0.29462

Location 2

Measurement time:	10:30
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01147
174-230 MHz	0.01286
470-694 MHz	0.01003
700 MHz	0.00313
800 MHz	0.00231
900 MHz	0.00108
1400 MHz	0.00468
1800 MHz	0.00734
1900 MHz	0.00023
2100 MHz	0.00323
2300 MHz	0.00075
2600 MHz TDD	0.00040
2600 MHz FDD	0.00016
3.4 GHz	0.00216
3.8 GHz	0.00422
Others	0.15731
Total	0.22136

Location 3

Measurement time:	10:47
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01219
174-230 MHz	0.01340
470-694 MHz	0.01031
700 MHz	0.00509
800 MHz	0.00194
900 MHz	0.00075
1400 MHz	0.00197
1800 MHz	0.00571
1900 MHz	0.00024
2100 MHz	0.00162
2300 MHz	0.00049
2600 MHz TDD	0.00042
2600 MHz FDD	0.00017
3.4 GHz	0.00214
3.8 GHz	0.00454
Others	0.16567
Total	0.22665

Location 4

Measurement time:	10:57
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01245
174-230 MHz	0.01392
470-694 MHz	0.01058
700 MHz	0.01744
800 MHz	0.00569
900 MHz	0.00083
1400 MHz	0.00543
1800 MHz	0.00492
1900 MHz	0.00024
2100 MHz	0.00389
2300 MHz	0.00050
2600 MHz TDD	0.00043
2600 MHz FDD	0.00018
3.4 GHz	0.00229
3.8 GHz	0.00465
Others	0.16955
Total	0.25298

Location 5

Measurement time:	11:09
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01274
174-230 MHz	0.01408
470-694 MHz	0.01076
700 MHz	0.00257
800 MHz	0.00659
900 MHz	0.00563
1400 MHz	0.00210
1800 MHz	0.00262
1900 MHz	0.00025
2100 MHz	0.00120
2300 MHz	0.00065
2600 MHz TDD	0.00044
2600 MHz FDD	0.00018
3.4 GHz	0.00210
3.8 GHz	0.00477
Others	0.17375
Total	0.24043

Location 6

Measurement time:	11:17
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01365
174-230 MHz	0.01436
470-694 MHz	0.01092
700 MHz	0.00550
800 MHz	0.03449
900 MHz	0.07536
1400 MHz	0.00308
1800 MHz	0.00443
1900 MHz	0.00025
2100 MHz	0.00475
2300 MHz	0.00109
2600 MHz TDD	0.00045
2600 MHz FDD	0.00019
3.4 GHz	0.00231
3.8 GHz	0.00486
Others	0.17727
Total	0.35297

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.