

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:	25/11/2024	Time Survey completed:	12:47
Survey address:	Doncaster DN4		

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 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:	12:02
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01078
174-230 MHz	0.01212
470-694 MHz	0.00939
700 MHz	0.00128
800 MHz	0.00114
900 MHz	0.00115
1400 MHz	0.00046
1800 MHz	0.00609
1900 MHz	0.00022
2100 MHz	0.00108
2300 MHz	0.00044
2600 MHz TDD	0.00037
2600 MHz FDD	0.00015
3.4 GHz	0.00169
3.8 GHz	0.00396
Others	0.14830
Total	0.19863

Location 2

Measurement time:	12:10
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01150
174-230 MHz	0.01280
470-694 MHz	0.00980
700 MHz	0.00134
800 MHz	0.00181
900 MHz	0.00115
1400 MHz	0.00049
1800 MHz	0.01690
1900 MHz	0.00023
2100 MHz	0.00171
2300 MHz	0.00047
2600 MHz TDD	0.00040
2600 MHz FDD	0.00016
3.4 GHz	0.00180
3.8 GHz	0.00424
Others	0.15664
Total	0.22145

Location 3

Measurement time:	12:18
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01201
174-230 MHz	0.01313
470-694 MHz	0.01009
700 MHz	0.00138
800 MHz	0.00376
900 MHz	0.00411
1400 MHz	0.00051
1800 MHz	0.00145
1900 MHz	0.00024
2100 MHz	0.00117
2300 MHz	0.00049
2600 MHz TDD	0.00041
2600 MHz FDD	0.00017
3.4 GHz	0.00186
3.8 GHz	0.00439
Others	0.16161
Total	0.21677

Location 4

Measurement time:	12:27
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01193
174-230 MHz	0.01330
470-694 MHz	0.01021
700 MHz	0.00145
800 MHz	0.00440
900 MHz	0.00178
1400 MHz	0.00052
1800 MHz	0.00347
1900 MHz	0.00024
2100 MHz	0.00112
2300 MHz	0.00050
2600 MHz TDD	0.00042
2600 MHz FDD	0.00017
3.4 GHz	0.00190
3.8 GHz	0.00448
Others	0.16425
Total	0.22012

Location 5

Measurement time:	12:33
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01215
174-230 MHz	0.01353
470-694 MHz	0.01038
700 MHz	0.00144
800 MHz	0.01130
900 MHz	0.01010
1400 MHz	0.00054
1800 MHz	0.01028
1900 MHz	0.00025
2100 MHz	0.00255
2300 MHz	0.00050
2600 MHz TDD	0.00042
2600 MHz FDD	0.00018
3.4 GHz	0.00195
3.8 GHz	0.00458
Others	0.16736
Total	0.24750

Location 6

Measurement time:	12:41
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01226
174-230 MHz	0.01372
470-694 MHz	0.01043
700 MHz	0.00142
800 MHz	0.00126
900 MHz	0.00133
1400 MHz	0.00054
1800 MHz	0.00761
1900 MHz	0.00025
2100 MHz	0.00134
2300 MHz	0.00050
2600 MHz TDD	0.00043
2600 MHz FDD	0.00018
3.4 GHz	0.00197
3.8 GHz	0.00462
Others	0.16858
Total	0.22643

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.