

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:	16/09/2024	Time Survey completed:	14:06
Survey address:	Peterborough PE1		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY56072591	27/11/2023
Probe	Agos Aria-6000 Antenna	ARIA-6000-1023	22/01/2021
Cabling	1.7m cable	1188	23/11/2024

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 four locations and are presented in the following pages of this report.



Location 1

Measurement time:	12:57
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01609
174-230 MHz	0.01813
470-694 MHz	0.01400
700 MHz	0.00319
800 MHz	0.01225
900 MHz	0.01139
1400 MHz	0.00819
1800 MHz	0.00988
1900 MHz	0.00036
2100 MHz	0.00378
2300 MHz	0.00293
2600 MHz TDD	0.00062
2600 MHz FDD	0.00098
3.4 GHz	0.00491
3.8 GHz	0.00734
Others	0.22931
Total	0.34336

Location 2

Measurement time:	13:24
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01803
174-230 MHz	0.02026
470-694 MHz	0.01559
700 MHz	0.00526
800 MHz	0.02099
900 MHz	0.00764
1400 MHz	0.00561
1800 MHz	0.01631
1900 MHz	0.00040
2100 MHz	0.00940
2300 MHz	0.00322
2600 MHz TDD	0.00070
2600 MHz FDD	0.00186
3.4 GHz	0.00616
3.8 GHz	0.00839
Others	0.25993
Total	0.39977

Location 3

Measurement time:	13:43
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01849
174-230 MHz	0.02025
470-694 MHz	0.01555
700 MHz	0.00518
800 MHz	0.02066
900 MHz	0.05285
1400 MHz	0.00692
1800 MHz	0.00589
1900 MHz	0.00040
2100 MHz	0.01469
2300 MHz	0.00218
2600 MHz TDD	0.00069
2600 MHz FDD	0.00160
3.4 GHz	0.01016
3.8 GHz	0.00810
Others	0.25966
Total	0.44325

Location 4

Measurement time:	14:00
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01842
174-230 MHz	0.02066
470-694 MHz	0.01577
700 MHz	0.00614
800 MHz	0.04447
900 MHz	0.01675
1400 MHz	0.00721
1800 MHz	0.06137
1900 MHz	0.00041
2100 MHz	0.00805
2300 MHz	0.01066
2600 MHz TDD	0.00071
2600 MHz FDD	0.00100
3.4 GHz	0.00456
3.8 GHz	0.00821
Others	0.26452
Total	0.48892

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.