

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:	08/01/2025	Time Survey completed:	13:30
Survey address:	Colchester CO2		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY56072607	29/10/2024
Probe	Agos Aria-6000 Antenna	ARIA-6000-1023	22/01/2021
Cabling	1.7m cable	1407	23/11/2023

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:	12:41
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00958
174-230 MHz	0.01066
470-694 MHz	0.00859
700 MHz	0.01236
800 MHz	0.01098
900 MHz	0.00066
1400 MHz	0.00574
1800 MHz	0.00560
1900 MHz	0.00020
2100 MHz	0.00439
2300 MHz	0.00042
2600 MHz TDD	0.00037
2600 MHz FDD	0.00070
3.4 GHz	0.00225
3.8 GHz	0.00465
Others	0.13852
Total	0.21567

Location 2

Measurement time:	12:49
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01099
174-230 MHz	0.01075
470-694 MHz	0.00862
700 MHz	0.01531
800 MHz	0.01794
900 MHz	0.00064
1400 MHz	0.02280
1800 MHz	0.01645
1900 MHz	0.00020
2100 MHz	0.00546
2300 MHz	0.00042
2600 MHz TDD	0.00037
2600 MHz FDD	0.04601
3.4 GHz	0.00269
3.8 GHz	0.00462
Others	0.13956
Total	0.30284

Location 3

Measurement time:	12:57
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00989
174-230 MHz	0.01084
470-694 MHz	0.00862
700 MHz	0.01458
800 MHz	0.01088
900 MHz	0.00083
1400 MHz	0.00777
1800 MHz	0.00710
1900 MHz	0.00020
2100 MHz	0.00294
2300 MHz	0.00043
2600 MHz TDD	0.00038
2600 MHz FDD	0.00062
3.4 GHz	0.00271
3.8 GHz	0.00469
Others	0.14001
Total	0.22247

Location 4

Measurement time:	13:06
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00992
174-230 MHz	0.01080
470-694 MHz	0.00865
700 MHz	0.04395
800 MHz	0.04888
900 MHz	0.00083
1400 MHz	0.00492
1800 MHz	0.00853
1900 MHz	0.00020
2100 MHz	0.00489
2300 MHz	0.00043
2600 MHz TDD	0.00037
2600 MHz FDD	0.00126
3.4 GHz	0.00255
3.8 GHz	0.00481
Others	0.14031
Total	0.29132

Location 5

Measurement time:	13:14
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00994
174-230 MHz	0.01068
470-694 MHz	0.00858
700 MHz	0.01752
800 MHz	0.02365
900 MHz	0.00081
1400 MHz	0.00196
1800 MHz	0.00430
1900 MHz	0.00020
2100 MHz	0.00210
2300 MHz	0.00041
2600 MHz TDD	0.00037
2600 MHz FDD	0.00606
3.4 GHz	0.00250
3.8 GHz	0.00478
Others	0.13842
Total	0.23227

Location 6

Measurement time:	13:24
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01117
174-230 MHz	0.01069
470-694 MHz	0.00863
700 MHz	0.00976
800 MHz	0.01990
900 MHz	0.00067
1400 MHz	0.00915
1800 MHz	0.00769
1900 MHz	0.00020
2100 MHz	0.00335
2300 MHz	0.00042
2600 MHz TDD	0.00037
2600 MHz FDD	0.00104
3.4 GHz	0.00223
3.8 GHz	0.00464
Others	0.13869
Total	0.22860

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.