

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:	12:26
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:	11:31
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00866
174-230 MHz	0.00958
470-694 MHz	0.00778
700 MHz	0.00327
800 MHz	0.05680
900 MHz	0.04464
1400 MHz	0.00038
1800 MHz	0.06627
1900 MHz	0.00018
2100 MHz	0.03131
2300 MHz	0.00460
2600 MHz TDD	0.00033
2600 MHz FDD	0.00310
3.4 GHz	0.00341
3.8 GHz	0.00412
Others	0.12304
Total	0.36747

Location 2

Measurement time:	11:40
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00874
174-230 MHz	0.00990
470-694 MHz	0.00795
700 MHz	0.00461
800 MHz	0.05921
900 MHz	0.01912
1400 MHz	0.00039
1800 MHz	0.00919
1900 MHz	0.00018
2100 MHz	0.00805
2300 MHz	0.00394
2600 MHz TDD	0.00033
2600 MHz FDD	0.00069
3.4 GHz	0.00381
3.8 GHz	0.00417
Others	0.12602
Total	0.26631

Location 3

Measurement time:	11:49
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00884
174-230 MHz	0.00991
470-694 MHz	0.00801
700 MHz	0.00307
800 MHz	0.02135
900 MHz	0.01016
1400 MHz	0.00041
1800 MHz	0.01749
1900 MHz	0.00019
2100 MHz	0.00301
2300 MHz	0.00252
2600 MHz TDD	0.00035
2600 MHz FDD	0.00053
3.4 GHz	0.00284
3.8 GHz	0.00448
Others	0.12795
Total	0.22111

Location 4

Measurement time:	11:59
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00899
174-230 MHz	0.01003
470-694 MHz	0.00811
700 MHz	0.00223
800 MHz	0.02776
900 MHz	0.02493
1400 MHz	0.00039
1800 MHz	0.00584
1900 MHz	0.00019
2100 MHz	0.00312
2300 MHz	0.00129
2600 MHz TDD	0.00035
2600 MHz FDD	0.00041
3.4 GHz	0.00235
3.8 GHz	0.00421
Others	0.12954
Total	0.22975

Location 5

Measurement time:	12:07
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00937
174-230 MHz	0.00999
470-694 MHz	0.00809
700 MHz	0.00230
800 MHz	0.04406
900 MHz	0.01847
1400 MHz	0.00040
1800 MHz	0.00725
1900 MHz	0.00019
2100 MHz	0.00336
2300 MHz	0.00128
2600 MHz TDD	0.00035
2600 MHz FDD	0.00034
3.4 GHz	0.00244
3.8 GHz	0.00423
Others	0.12914
Total	0.24126

Location 6

Measurement time:	12:20
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00938
174-230 MHz	0.01036
470-694 MHz	0.00840
700 MHz	0.00307
800 MHz	0.05571
900 MHz	0.03993
1400 MHz	0.00042
1800 MHz	0.08964
1900 MHz	0.00019
2100 MHz	0.02188
2300 MHz	0.00329
2600 MHz TDD	0.00036
2600 MHz FDD	0.00393
3.4 GHz	0.00400
3.8 GHz	0.00458
Others	0.13435
Total	0.38951

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.