

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:	15/05/2024	Time Survey completed:	13:06
Survey address:	Shrewsbury SY2		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY56072599	25/01/2024
Probe	Agos Aria-6000 Antenna	6000-1024	30/03/2021
Cabling	1.7m cable	1383	12/10/2023

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:	12:14
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01187
174-230 MHz	0.01302
470-694 MHz	0.01011
700 MHz	0.00476
800 MHz	0.00187
900 MHz	0.00070
1400 MHz	0.00051
1800 MHz	0.00251
1900 MHz	0.00024
2100 MHz	0.00170
2300 MHz	0.00048
2600 MHz TDD	0.00042
2600 MHz FDD	0.00024
3.4 GHz	0.00302
3.8 GHz	0.00620
Others	0.17912
Total	0.23678

Location 2

Measurement time:	12:22
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01278
174-230 MHz	0.01431
470-694 MHz	0.01083
700 MHz	0.00552
800 MHz	0.00167
900 MHz	0.00077
1400 MHz	0.00055
1800 MHz	0.00183
1900 MHz	0.00026
2100 MHz	0.00212
2300 MHz	0.00052
2600 MHz TDD	0.00046
2600 MHz FDD	0.00026
3.4 GHz	0.00331
3.8 GHz	0.00689
Others	0.19649
Total	0.25857

Location 3

Measurement time:	12:32
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01360
174-230 MHz	0.01527
470-694 MHz	0.01146
700 MHz	0.01664
800 MHz	0.00247
900 MHz	0.00082
1400 MHz	0.00060
1800 MHz	0.00190
1900 MHz	0.00028
2100 MHz	0.00153
2300 MHz	0.00056
2600 MHz TDD	0.00050
2600 MHz FDD	0.00029
3.4 GHz	0.00349
3.8 GHz	0.00748
Others	0.21179
Total	0.28869

Location 4

Measurement time:	12:41
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01405
174-230 MHz	0.01578
470-694 MHz	0.01178
700 MHz	0.02009
800 MHz	0.00394
900 MHz	0.00082
1400 MHz	0.00061
1800 MHz	0.00249
1900 MHz	0.00029
2100 MHz	0.00119
2300 MHz	0.00058
2600 MHz TDD	0.00051
2600 MHz FDD	0.00030
3.4 GHz	0.00377
3.8 GHz	0.00779
Others	0.21895
Total	0.30294

Location 5

Measurement time:	12:50
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01439
174-230 MHz	0.01653
470-694 MHz	0.01221
700 MHz	0.00617
800 MHz	0.00265
900 MHz	0.00085
1400 MHz	0.00063
1800 MHz	0.00193
1900 MHz	0.00030
2100 MHz	0.00177
2300 MHz	0.00061
2600 MHz TDD	0.00053
2600 MHz FDD	0.00031
3.4 GHz	0.00406
3.8 GHz	0.00813
Others	0.22725
Total	0.29831

Location 6

Measurement time:	13:00
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01483
174-230 MHz	0.01682
470-694 MHz	0.01245
700 MHz	0.00608
800 MHz	0.00245
900 MHz	0.00087
1400 MHz	0.00065
1800 MHz	0.00308
1900 MHz	0.00030
2100 MHz	0.00204
2300 MHz	0.00061
2600 MHz TDD	0.00055
2600 MHz FDD	0.00032
3.4 GHz	0.00410
3.8 GHz	0.00837
Others	0.23358
Total	0.30711

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.