

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:	09/01/2025	Time Survey completed:	11:18
Survey address:	Middlesbrough TS2		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY56072594	04/11/2024
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 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:	10:35
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00615
174-230 MHz	0.00707
470-694 MHz	0.00606
700 MHz	0.00113
800 MHz	0.00151
900 MHz	0.00159
1400 MHz	0.00053
1800 MHz	0.00112
1900 MHz	0.00012
2100 MHz	0.00103
2300 MHz	0.00064
2600 MHz TDD	0.00024
2600 MHz FDD	0.00012
3.4 GHz	0.00132
3.8 GHz	0.00308
Others	0.09155
Total	0.12326

Location 2

Measurement time:	10:42
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00639
174-230 MHz	0.00752
470-694 MHz	0.00638
700 MHz	0.00168
800 MHz	0.00108
900 MHz	0.00085
1400 MHz	0.00123
1800 MHz	0.00148
1900 MHz	0.00013
2100 MHz	0.00123
2300 MHz	0.00040
2600 MHz TDD	0.00025
2600 MHz FDD	0.00013
3.4 GHz	0.00172
3.8 GHz	0.00319
Others	0.09662
Total	0.13029

Location 3

Measurement time:	10:49
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00655
174-230 MHz	0.00767
470-694 MHz	0.00658
700 MHz	0.00179
800 MHz	0.00154
900 MHz	0.00120
1400 MHz	0.00183
1800 MHz	0.00163
1900 MHz	0.00013
2100 MHz	0.00098
2300 MHz	0.00038
2600 MHz TDD	0.00026
2600 MHz FDD	0.00014
3.4 GHz	0.00168
3.8 GHz	0.00331
Others	0.10027
Total	0.13594

Location 4

Measurement time:	10:57
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00688
174-230 MHz	0.00791
470-694 MHz	0.00669
700 MHz	0.00163
800 MHz	0.00493
900 MHz	0.00378
1400 MHz	0.00039
1800 MHz	0.00107
1900 MHz	0.00014
2100 MHz	0.00100
2300 MHz	0.00052
2600 MHz TDD	0.00027
2600 MHz FDD	0.00014
3.4 GHz	0.00149
3.8 GHz	0.00343
Others	0.10287
Total	0.14315

Location 5

Measurement time:	11:04
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00686
174-230 MHz	0.00799
470-694 MHz	0.00735
700 MHz	0.00180
800 MHz	0.00256
900 MHz	0.00169
1400 MHz	0.00050
1800 MHz	0.00194
1900 MHz	0.00014
2100 MHz	0.00099
2300 MHz	0.00053
2600 MHz TDD	0.00027
2600 MHz FDD	0.00015
3.4 GHz	0.00156
3.8 GHz	0.00352
Others	0.10453
Total	0.14239

Location 6

Measurement time:	11:12
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00706
174-230 MHz	0.00834
470-694 MHz	0.00717
700 MHz	0.00151
800 MHz	0.00127
900 MHz	0.00252
1400 MHz	0.00097
1800 MHz	0.00134
1900 MHz	0.00015
2100 MHz	0.00125
2300 MHz	0.00082
2600 MHz TDD	0.00028
2600 MHz FDD	0.00015
3.4 GHz	0.00160
3.8 GHz	0.00368
Others	0.10852
Total	0.14662

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.