

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:	04/04/2025	Time Survey completed:	13:30
Survey address:	Middlesbrough TS7		

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 30 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:	12:37
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00750
174-230 MHz	0.00840
470-694 MHz	0.00678
700 MHz	0.00109
800 MHz	0.00948
900 MHz	0.00862
1400 MHz	0.00031
1800 MHz	0.00045
1900 MHz	0.00015
2100 MHz	0.00109
2300 MHz	0.00201
2600 MHz TDD	0.00028
2600 MHz FDD	0.00014
3.4 GHz	0.00153
3.8 GHz	0.00367
Others	0.10844
Total	0.15994

Location 2

Measurement time:	12:46
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00802
174-230 MHz	0.00945
470-694 MHz	0.00711
700 MHz	0.00123
800 MHz	0.00555
900 MHz	0.01096
1400 MHz	0.00033
1800 MHz	0.00053
1900 MHz	0.00015
2100 MHz	0.00114
2300 MHz	0.00141
2600 MHz TDD	0.00030
2600 MHz FDD	0.00017
3.4 GHz	0.00166
3.8 GHz	0.00394
Others	0.11664
Total	0.16860

Location 3

Measurement time:	12:57
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00853
174-230 MHz	0.00958
470-694 MHz	0.00744
700 MHz	0.00143
800 MHz	0.00628
900 MHz	0.00500
1400 MHz	0.00039
1800 MHz	0.00072
1900 MHz	0.00016
2100 MHz	0.00152
2300 MHz	0.00305
2600 MHz TDD	0.00032
2600 MHz FDD	0.00022
3.4 GHz	0.00183
3.8 GHz	0.00428
Others	0.12267
Total	0.17340

Location 4

Measurement time:	13:06
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00823
174-230 MHz	0.00977
470-694 MHz	0.00773
700 MHz	0.00131
800 MHz	0.00514
900 MHz	0.00644
1400 MHz	0.00040
1800 MHz	0.00061
1900 MHz	0.00017
2100 MHz	0.00172
2300 MHz	0.00912
2600 MHz TDD	0.00033
2600 MHz FDD	0.00018
3.4 GHz	0.00187
3.8 GHz	0.00445
Others	0.12878
Total	0.18625

Location 5

Measurement time:	13:14
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00849
174-230 MHz	0.01012
470-694 MHz	0.00802
700 MHz	0.00168
800 MHz	0.01457
900 MHz	0.03444
1400 MHz	0.00039
1800 MHz	0.00055
1900 MHz	0.00018
2100 MHz	0.00390
2300 MHz	0.00304
2600 MHz TDD	0.00034
2600 MHz FDD	0.00018
3.4 GHz	0.00196
3.8 GHz	0.00468
Others	0.13478
Total	0.22732

Location 6

Measurement time:	13:24
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00922
174-230 MHz	0.01049
470-694 MHz	0.00829
700 MHz	0.00124
800 MHz	0.00331
900 MHz	0.00735
1400 MHz	0.00040
1800 MHz	0.00057
1900 MHz	0.00019
2100 MHz	0.00138
2300 MHz	0.00176
2600 MHz TDD	0.00036
2600 MHz FDD	0.00019
3.4 GHz	0.00206
3.8 GHz	0.00490
Others	0.13991
Total	0.19162

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.