

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:	29/04/2025	Time Survey completed:	15:01
Survey address:	Southport PR8		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY56072610	05/03/2025
Probe	Agos Aria-6000 Antenna	6000-1022	22/01/2021
Cabling	1.7m cable	1462	18/01/2024

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:	14:09
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01326
174-230 MHz	0.01486
470-694 MHz	0.01137
700 MHz	0.00150
800 MHz	0.03899
900 MHz	0.02920
1400 MHz	0.00055
1800 MHz	0.01051
1900 MHz	0.00026
2100 MHz	0.00339
2300 MHz	0.00053
2600 MHz TDD	0.00047
2600 MHz FDD	0.00088
3.4 GHz	0.00301
3.8 GHz	0.00676
Others	0.19644
Total	0.33197

Location 2

Measurement time:	14:17
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01442
174-230 MHz	0.01579
470-694 MHz	0.01198
700 MHz	0.00159
800 MHz	0.25817
900 MHz	0.03363
1400 MHz	0.00059
1800 MHz	0.01355
1900 MHz	0.00028
2100 MHz	0.00847
2300 MHz	0.00057
2600 MHz TDD	0.00059
2600 MHz FDD	0.00444
3.4 GHz	0.00352
3.8 GHz	0.00699
Others	0.21165
Total	0.58621

Location 3

Measurement time:	14:27
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01567
174-230 MHz	0.01740
470-694 MHz	0.01308
700 MHz	0.00173
800 MHz	0.04991
900 MHz	0.11190
1400 MHz	0.00065
1800 MHz	0.00136
1900 MHz	0.00030
2100 MHz	0.03784
2300 MHz	0.00063
2600 MHz TDD	0.00061
2600 MHz FDD	0.00307
3.4 GHz	0.00367
3.8 GHz	0.00770
Others	0.23365
Total	0.49918

Location 4

Measurement time:	14:38
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01669
174-230 MHz	0.01857
470-694 MHz	0.01402
700 MHz	0.00185
800 MHz	0.16237
900 MHz	0.15665
1400 MHz	0.00070
1800 MHz	0.01891
1900 MHz	0.00033
2100 MHz	0.01735
2300 MHz	0.00068
2600 MHz TDD	0.00066
2600 MHz FDD	0.00317
3.4 GHz	0.00404
3.8 GHz	0.00840
Others	0.25270
Total	0.67709

Location 5

Measurement time:	14:47
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01752
174-230 MHz	0.01946
470-694 MHz	0.01451
700 MHz	0.00192
800 MHz	0.01640
900 MHz	0.03333
1400 MHz	0.00072
1800 MHz	0.00667
1900 MHz	0.00034
2100 MHz	0.01381
2300 MHz	0.00071
2600 MHz TDD	0.00061
2600 MHz FDD	0.00065
3.4 GHz	0.00387
3.8 GHz	0.00879
Others	0.26207
Total	0.40137

Location 6

Measurement time:	14:55
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.01843
174-230 MHz	0.02003
470-694 MHz	0.01489
700 MHz	0.00198
800 MHz	0.02921
900 MHz	0.03463
1400 MHz	0.00075
1800 MHz	0.01994
1900 MHz	0.00035
2100 MHz	0.00305
2300 MHz	0.00073
2600 MHz TDD	0.00063
2600 MHz FDD	0.00084
3.4 GHz	0.00403
3.8 GHz	0.00925
Others	0.27053
Total	0.42928

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.