

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:	22/01/2025	Time Survey completed:	14:49
Survey address:	Fulwood PR2		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	US55240265	17/04/2024
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 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:	14:00
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00681
174-230 MHz	0.00622
470-694 MHz	0.00502
700 MHz	0.00875
800 MHz	0.10165
900 MHz	0.04987
1400 MHz	0.00621
1800 MHz	0.00233
1900 MHz	0.00010
2100 MHz	0.01515
2300 MHz	0.00025
2600 MHz TDD	0.00032
2600 MHz FDD	0.00181
3.4 GHz	0.00368
3.8 GHz	0.00478
Others	0.11073
Total	0.32368

Location 2

Measurement time:	14:08
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00707
174-230 MHz	0.00659
470-694 MHz	0.00532
700 MHz	0.00705
800 MHz	0.08821
900 MHz	0.10012
1400 MHz	0.00363
1800 MHz	0.00245
1900 MHz	0.00011
2100 MHz	0.01670
2300 MHz	0.00027
2600 MHz TDD	0.00038
2600 MHz FDD	0.00299
3.4 GHz	0.00343
3.8 GHz	0.00522
Others	0.12035
Total	0.36988

Location 3

Measurement time:	14:16
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00751
174-230 MHz	0.00694
470-694 MHz	0.00555
700 MHz	0.01103
800 MHz	0.10381
900 MHz	0.07847
1400 MHz	0.00746
1800 MHz	0.02392
1900 MHz	0.00011
2100 MHz	0.02128
2300 MHz	0.00029
2600 MHz TDD	0.00033
2600 MHz FDD	0.00109
3.4 GHz	0.00693
3.8 GHz	0.00581
Others	0.12839
Total	0.40893

Location 4

Measurement time:	14:24
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00777
174-230 MHz	0.00711
470-694 MHz	0.00576
700 MHz	0.00169
800 MHz	0.01436
900 MHz	0.02095
1400 MHz	0.00081
1800 MHz	0.00100
1900 MHz	0.00012
2100 MHz	0.00501
2300 MHz	0.00030
2600 MHz TDD	0.00034
2600 MHz FDD	0.00059
3.4 GHz	0.00276
3.8 GHz	0.00597
Others	0.13380
Total	0.20834

Location 5

Measurement time:	14:36
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00801
174-230 MHz	0.00737
470-694 MHz	0.00602
700 MHz	0.00629
800 MHz	0.09437
900 MHz	0.31730
1400 MHz	0.00693
1800 MHz	0.00933
1900 MHz	0.00013
2100 MHz	0.03232
2300 MHz	0.00031
2600 MHz TDD	0.00042
2600 MHz FDD	0.00302
3.4 GHz	0.00393
3.8 GHz	0.00659
Others	0.14446
Total	0.64679

Location 6

Measurement time:	14:43
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00826
174-230 MHz	0.00756
470-694 MHz	0.00610
700 MHz	0.00599
800 MHz	0.13663
900 MHz	0.06557
1400 MHz	0.00668
1800 MHz	0.00157
1900 MHz	0.00013
2100 MHz	0.01688
2300 MHz	0.00032
2600 MHz TDD	0.00041
2600 MHz FDD	0.00174
3.4 GHz	0.00443
3.8 GHz	0.00677
Others	0.14611
Total	0.41514

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.