

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 420 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:	10/02/2023	Time Survey completed:	12:00
Survey address:	Dundee DD1		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY57271744	24/01/2023
Probe	Agos Aria-6000 Antenna	60001089	28/11/2022
Cabling	1.7m Cable	1274	28/11/2022

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.

Mobile bands covered by this report

Frequency Band	Frequency	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**		

Notes

* 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.



Map data: © Google

Location 1

Measurement time:	11:02
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.02685
800 MHz	0.01267
900 MHz	0.01033
1400 MHz	0.00077
1800 MHz	0.00426
1900 MHz	0.00021
2100 MHz	0.01326
2300 MHz	0.00324
2600 MHz TDD	0.00034
2600 MHz FDD	0.00014
3.4 GHz	0.00162
3.8 GHz	0.00272
Others	0.05578
Total	0.13219

Location 2

Measurement time:	11:13
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.03992
800 MHz	0.00637
900 MHz	0.00219
1400 MHz	0.00069
1800 MHz	0.00694
1900 MHz	0.00021
2100 MHz	0.01096
2300 MHz	0.00153
2600 MHz TDD	0.00035
2600 MHz FDD	0.00018
3.4 GHz	0.00141
3.8 GHz	0.00284
Others	0.05766
Total	0.13125

Location 3

Measurement time:	11:22
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.01576
800 MHz	0.00360
900 MHz	0.00192
1400 MHz	0.00126
1800 MHz	0.00201
1900 MHz	0.00021
2100 MHz	0.01041
2300 MHz	0.00074
2600 MHz TDD	0.00036
2600 MHz FDD	0.00014
3.4 GHz	0.00147
3.8 GHz	0.00290
Others	0.05868
Total	0.09946

Location 4

Measurement time:	11:30
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.08799
800 MHz	0.02136
900 MHz	0.00252
1400 MHz	0.00086
1800 MHz	0.00146
1900 MHz	0.00022
2100 MHz	0.00971
2300 MHz	0.00162
2600 MHz TDD	0.00036
2600 MHz FDD	0.00028
3.4 GHz	0.00149
3.8 GHz	0.00293
Others	0.05968
Total	0.19048

Location 5

Measurement time:	11:44
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.02731
800 MHz	0.01486
900 MHz	0.00203
1400 MHz	0.0013
1800 MHz	0.00176
1900 MHz	0.00022
2100 MHz	0.00446
2300 MHz	0.00079
2600 MHz TDD	0.00036
2600 MHz FDD	0.00013
3.4 GHz	0.00157
3.8 GHz	0.00296
Others	0.05983
Total	0.11758

Location 6

Measurement time:	11:54
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
700 MHz	0.02531
800 MHz	0.01537
900 MHz	0.00772
1400 MHz	0.00082
1800 MHz	0.00357
1900 MHz	0.00022
2100 MHz	0.01240
2300 MHz	0.00613
2600 MHz TDD	0.00036
2600 MHz FDD	0.00015
3.4 GHz	0.00178
3.8 GHz	0.00298
Others	0.06028
Total	0.13709

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.