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 floor[2] 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:	02/01/2025	**Time Survey completed:**	14:14
Survey address:	Wellington TA21		

Measurement equipment		**Serial number**	**Calibration Date**
Meter	Keysight Fieldfox N9915A Spectrum Analyser	US55240263	24/11/2024
Probe	Agos Aria-6000 Antenna	1117	28/11/2022
Cabling	1.7m cable	1319	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.

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 five locations and are presented in the following pages of this report.

Location 1

Measurement time:	13:27
Frequency band	**Percentage of the ICNIRP reference levels for general public exposure**
87.5-108 MHz	0.00660
174-230 MHz	0.00613
470-694 MHz	0.00485
700 MHz	0.00386
800 MHz	0.01007
900 MHz	0.00037
1400 MHz	0.00384
1800 MHz	0.00535
1900 MHz	0.00009
2100 MHz	0.00065
2300 MHz	0.00021
2600 MHz TDD	0.00022
2600 MHz FDD	0.00010
3.4 GHz	0.00103
3.8 GHz	0.00197
Others	0.07957
Total	**0.12490**

Location 2

Measurement time:	13:36
Frequency band	**Percentage of the ICNIRP reference levels for general public exposure**
87.5-108 MHz	0.00652
174-230 MHz	0.00609
470-694 MHz	0.00484
700 MHz	0.00141
800 MHz	0.00306
900 MHz	0.00037
1400 MHz	0.00081
1800 MHz	0.00091
1900 MHz	0.00009
2100 MHz	0.00044
2300 MHz	0.00021
2600 MHz TDD	0.00022
2600 MHz FDD	0.00010
3.4 GHz	0.00112
3.8 GHz	0.00198
Others	0.07936
Total	**0.10751**

Location 3

Measurement time:	13:45
Frequency band	**Percentage of the ICNIRP reference levels for general public exposure**
87.5-108 MHz	0.00662
174-230 MHz	0.00614
470-694 MHz	0.00484
700 MHz	0.00325
800 MHz	0.01065
900 MHz	0.00039
1400 MHz	0.00554
1800 MHz	0.02666
1900 MHz	0.00009
2100 MHz	0.00555
2300 MHz	0.00021
2600 MHz TDD	0.00022
2600 MHz FDD	0.00010
3.4 GHz	0.00255
3.8 GHz	0.00199
Others	0.07957
Total	**0.15437**

Location 4

Measurement time:	13:54
Frequency band	**Percentage of the ICNIRP reference levels for general public exposure**
87.5-108 MHz	0.00658
174-230 MHz	0.00621
470-694 MHz	0.00490
700 MHz	0.00106
800 MHz	0.00213
900 MHz	0.00038
1400 MHz	0.00129
1800 MHz	0.00313
1900 MHz	0.00009
2100 MHz	0.00072
2300 MHz	0.00021
2600 MHz TDD	0.00022
2600 MHz FDD	0.00010
3.4 GHz	0.00139
3.8 GHz	0.00201
Others	0.08068
Total	**0.11111**

Location 5

Measurement time:	14:08
Frequency band	**Percentage of the ICNIRP reference levels for general public exposure**
87.5-108 MHz	0.00668
174-230 MHz	0.00626
470-694 MHz	0.00495
700 MHz	0.00261
800 MHz	0.00751
900 MHz	0.00038
1400 MHz	0.00382
1800 MHz	0.00500
1900 MHz	0.00009
2100 MHz	0.00079
2300 MHz	0.00021
2600 MHz TDD	0.00023
2600 MHz FDD	0.00010
3.4 GHz	0.00103
3.8 GHz	0.00205
Others	0.08162
Total	**0.12332**

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.