

# 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)<sup>1</sup>, 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<sup>2</sup> 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%.

<b>Date of Survey:</b>	18/10/2024	<b>Time Survey completed:</b>	11:31
<b>Survey address:</b>	Newtownards BT23		

Measurement equipment		Serial number	Calibration Date
<b>Meter</b>	Keysight Fieldfox N9915A Spectrum Analyser	55240264	21/12/2023
<b>Probe</b>	Agos Aria-6000 Antenna	1112	28/11/2022
<b>Cabling</b>	1.7m cable	1314	28/11/2022

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<sup>1</sup> <https://www.icnirp.org/cms/upload/publications/ICNIRPemfgdl.pdf>

<sup>2</sup> 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

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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

<b>Measurement time:</b>	10:38
<b>Frequency band</b>	<b>Percentage of the ICNIRP reference levels for general public exposure</b>
87.5-108 MHz	0.00929
174-230 MHz	0.33892
470-694 MHz	0.00660
700 MHz	0.00076
800 MHz	0.00053
900 MHz	0.00053
1400 MHz	0.00025
1800 MHz	0.00043
1900 MHz	0.00011
2100 MHz	0.00037
2300 MHz	0.00026
2600 MHz TDD	0.00026
2600 MHz FDD	0.00013
3.4 GHz	0.00104
3.8 GHz	0.00254
Others	0.10070
<b>Total</b>	<b>0.46273</b>

## Location 2

<b>Measurement time:</b>	10:48
<b>Frequency band</b>	<b>Percentage of the ICNIRP reference levels for general public exposure</b>
87.5-108 MHz	0.01058
174-230 MHz	0.20646
470-694 MHz	0.00729
700 MHz	0.00078
800 MHz	0.00112
900 MHz	0.00063
1400 MHz	0.00026
1800 MHz	0.00082
1900 MHz	0.00011
2100 MHz	0.00069
2300 MHz	0.00025
2600 MHz TDD	0.00025
2600 MHz FDD	0.00013
3.4 GHz	0.00103
3.8 GHz	0.00254
Others	0.09995
<b>Total</b>	<b>0.33290</b>

### Location 3

<b>Measurement time:</b>	10:56
<b>Frequency band</b>	<b>Percentage of the ICNIRP reference levels for general public exposure</b>
87.5-108 MHz	0.00974
174-230 MHz	0.55847
470-694 MHz	0.00683
700 MHz	0.00078
800 MHz	0.00053
900 MHz	0.00050
1400 MHz	0.00025
1800 MHz	0.00035
1900 MHz	0.00011
2100 MHz	0.00037
2300 MHz	0.00026
2600 MHz TDD	0.00026
2600 MHz FDD	0.00013
3.4 GHz	0.00103
3.8 GHz	0.00253
Others	0.10268
<b>Total</b>	<b>0.68481</b>

#### Location 4

<b>Measurement time:</b>	<b>11:05</b>
<b>Frequency band</b>	<b>Percentage of the ICNIRP reference levels for general public exposure</b>
87.5-108 MHz	0.00990
174-230 MHz	0.35198
470-694 MHz	0.00605
700 MHz	0.00078
800 MHz	0.00047
900 MHz	0.00048
1400 MHz	0.00025
1800 MHz	0.00033
1900 MHz	0.00011
2100 MHz	0.00033
2300 MHz	0.00026
2600 MHz TDD	0.00026
2600 MHz FDD	0.00013
3.4 GHz	0.00104
3.8 GHz	0.00253
Others	0.10072
<b>Total</b>	<b>0.47561</b>

## Location 5

<b>Measurement time:</b>	11:16
<b>Frequency band</b>	<b>Percentage of the ICNIRP reference levels for general public exposure</b>
87.5-108 MHz	0.00848
174-230 MHz	0.13744
470-694 MHz	0.00587
700 MHz	0.00077
800 MHz	0.00044
900 MHz	0.00046
1400 MHz	0.00025
1800 MHz	0.00033
1900 MHz	0.00011
2100 MHz	0.00032
2300 MHz	0.00026
2600 MHz TDD	0.00026
2600 MHz FDD	0.00013
3.4 GHz	0.00104
3.8 GHz	0.00253
Others	0.09918
<b>Total</b>	<b>0.25785</b>



## Location 6

Measurement time:	11:25
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00877
174-230 MHz	0.92334
470-694 MHz	0.00653
700 MHz	0.00078
800 MHz	0.00058
900 MHz	0.00052
1400 MHz	0.00025
1800 MHz	0.00044
1900 MHz	0.00011
2100 MHz	0.00039
2300 MHz	0.00026
2600 MHz TDD	0.00025
2600 MHz FDD	0.00013
3.4 GHz	0.00102
3.8 GHz	0.00250
Others	0.10400
<b>Total</b>	<b>1.04987</b>

*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.*