

# 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>	15/08/2024	<b>Time Survey completed:</b>	15:55
<b>Survey address:</b>	London HA1		

Measurement equipment		Serial number	Calibration Date
<b>Meter</b>	Keysight Fieldfox N9915A Spectrum Analyser	MY58311497	23/05/2024
<b>Probe</b>	Agos Aria-6000 Antenna	ARIA-6000-1023	22/01/2021
<b>Cabling</b>	1.7m cable	1188	22/01/2021

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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>	<b>15:13</b>
<b>Frequency band</b>	<b>Percentage of the ICNIRP reference levels for general public exposure</b>
87.5-108 MHz	0.00674
174-230 MHz	0.00768
470-694 MHz	0.00614
700 MHz	0.00203
800 MHz	0.00550
900 MHz	0.00056
1400 MHz	0.00944
1800 MHz	0.01736
1900 MHz	0.00014
2100 MHz	0.00236
2300 MHz	0.00031
2600 MHz TDD	0.00026
2600 MHz FDD	0.00142
3.4 GHz	0.00534
3.8 GHz	0.00349
Others	0.10124
<b>Total</b>	<b>0.17002</b>

## Location 2

Measurement time:	15:20
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00711
174-230 MHz	0.00810
470-694 MHz	0.00641
700 MHz	0.00212
800 MHz	0.00520
900 MHz	0.00061
1400 MHz	0.00571
1800 MHz	0.01029
1900 MHz	0.00015
2100 MHz	0.00211
2300 MHz	0.00033
2600 MHz TDD	0.00028
2600 MHz FDD	0.00235
3.4 GHz	0.02244
3.8 GHz	0.00388
Others	0.10665
<b>Total</b>	<b>0.18376</b>

### Location 3

<b>Measurement time:</b>	15:27
<b>Frequency band</b>	<b>Percentage of the ICNIRP reference levels for general public exposure</b>
87.5-108 MHz	0.00746
174-230 MHz	0.00835
470-694 MHz	0.00661
700 MHz	0.00496
800 MHz	0.02660
900 MHz	0.00048
1400 MHz	0.00282
1800 MHz	0.00811
1900 MHz	0.00016
2100 MHz	0.00247
2300 MHz	0.00034
2600 MHz TDD	0.00028
2600 MHz FDD	0.00173
3.4 GHz	0.00991
3.8 GHz	0.00396
Others	0.11133
<b>Total</b>	<b>0.19559</b>

#### Location 4

<b>Measurement time:</b>	15:35
<b>Frequency band</b>	<b>Percentage of the ICNIRP reference levels for general public exposure</b>
87.5-108 MHz	0.00757
174-230 MHz	0.00858
470-694 MHz	0.00678
700 MHz	0.00189
800 MHz	0.00440
900 MHz	0.00057
1400 MHz	0.00188
1800 MHz	0.00464
1900 MHz	0.00016
2100 MHz	0.00162
2300 MHz	0.00036
2600 MHz TDD	0.00029
2600 MHz FDD	0.00177
3.4 GHz	0.00346
3.8 GHz	0.00403
Others	0.11424
<b>Total</b>	<b>0.16225</b>

## Location 5

<b>Measurement time:</b>	15:42
<b>Frequency band</b>	<b>Percentage of the ICNIRP reference levels for general public exposure</b>
87.5-108 MHz	0.00770
174-230 MHz	0.00878
470-694 MHz	0.00688
700 MHz	0.00407
800 MHz	0.01726
900 MHz	0.00099
1400 MHz	0.00192
1800 MHz	0.00605
1900 MHz	0.00016
2100 MHz	0.00222
2300 MHz	0.00036
2600 MHz TDD	0.00029
2600 MHz FDD	0.00053
3.4 GHz	0.00533
3.8 GHz	0.00412
Others	0.11676
<b>Total</b>	<b>0.18343</b>



## Location 6

Measurement time:	15:49
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00771
174-230 MHz	0.00883
470-694 MHz	0.00694
700 MHz	0.00159
800 MHz	0.00307
900 MHz	0.00054
1400 MHz	0.00825
1800 MHz	0.01948
1900 MHz	0.00016
2100 MHz	0.00300
2300 MHz	0.00036
2600 MHz TDD	0.00030
2600 MHz FDD	0.00089
3.4 GHz	0.00607
3.8 GHz	0.00421
Others	0.11782
<b>Total</b>	<b>0.18923</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.*