

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:	15/02/2024	Time Survey completed:	11:08
Survey address:	Welwyn Garden City AL7		

Measurement equipment		Serial number	Calibration Date
Meter	Keysight Fieldfox N9915A Spectrum Analyser	MY59221931	05/04/2023
Probe	Agos Aria-6000 Antenna	ARIA-6000-1023	22/01/2021
Cabling	1.7m cable	1188	04/01/2021

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:	10:32
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00203
174-230 MHz	0.00169
470-694 MHz	0.00152
700 MHz	0.05943
800 MHz	0.00251
900 MHz	0.00014
1400 MHz	0.00007
1800 MHz	0.00062
1900 MHz	0.00004
2100 MHz	0.00029
2300 MHz	0.00007
2600 MHz TDD	0.00007
2600 MHz FDD	0.00005
3.4 GHz	0.00051
3.8 GHz	0.00093
Others	0.02706
Total	0.09704

Location 2

Measurement time:	10:39
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00214
174-230 MHz	0.00180
470-694 MHz	0.00159
700 MHz	0.03244
800 MHz	0.00204
900 MHz	0.00015
1400 MHz	0.00007
1800 MHz	0.00093
1900 MHz	0.00004
2100 MHz	0.00074
2300 MHz	0.00008
2600 MHz TDD	0.00007
2600 MHz FDD	0.00006
3.4 GHz	0.00066
3.8 GHz	0.00099
Others	0.02845
Total	0.07228

Location 3

Measurement time:	10:46
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00223
174-230 MHz	0.00184
470-694 MHz	0.00165
700 MHz	0.02760
800 MHz	0.00212
900 MHz	0.00016
1400 MHz	0.00008
1800 MHz	0.00257
1900 MHz	0.00004
2100 MHz	0.00326
2300 MHz	0.00008
2600 MHz TDD	0.00008
2600 MHz FDD	0.00006
3.4 GHz	0.00079
3.8 GHz	0.00105
Others	0.02970
Total	0.07330

Location 4

Measurement time:	10:54
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00231
174-230 MHz	0.00189
470-694 MHz	0.00171
700 MHz	0.00423
800 MHz	0.00059
900 MHz	0.00017
1400 MHz	0.00008
1800 MHz	0.00081
1900 MHz	0.00004
2100 MHz	0.00047
2300 MHz	0.00009
2600 MHz TDD	0.00008
2600 MHz FDD	0.00006
3.4 GHz	0.00060
3.8 GHz	0.00109
Others	0.03081
Total	0.04503

Location 5

Measurement time:	11:02
Frequency band	Percentage of the ICNIRP reference levels for general public exposure
87.5-108 MHz	0.00236
174-230 MHz	0.00195
470-694 MHz	0.00176
700 MHz	0.03801
800 MHz	0.00247
900 MHz	0.00014
1400 MHz	0.00008
1800 MHz	0.00043
1900 MHz	0.00004
2100 MHz	0.00038
2300 MHz	0.00009
2600 MHz TDD	0.00008
2600 MHz FDD	0.00006
3.4 GHz	0.00062
3.8 GHz	0.00113
Others	0.03174
Total	0.08134

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.