# 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 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:** | 28/08/2024 | **Time Survey completed:** | 12:24 |
| **Survey address:** | Merthyr Tydfil CF48 | | |

| Measurement equipment | | Serial number | Calibration Date |
|---|---|---|---|
| **Meter** | Keysight Fieldfox N9915A Spectrum Analyser | MY56072611 | 23/01/2024 |
| **Probe** | Agos Aria-6000 Antenna | ARIA-6000-1117 | 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.

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

### Location 1

| Measurement time: | 11:52 |
|---|---|
| **Frequency band** | **Percentage of the ICNIRP reference levels for general public exposure** |
| 700 MHz | 0.00249 |
| 800 MHz | 0.00959 |
| 900 MHz | 0.00082 |
| 1400 MHz | 0.01764 |
| 1800 MHz | 0.01582 |
| 1900 MHz | 0.00026 |
| 2100 MHz | 0.00384 |
| 2300 MHz | 0.00058 |
| 2600 MHz TDD | 0.00050 |
| 2600 MHz FDD | 0.00037 |
| 3.4 GHz | 0.00371 |
| 3.8 GHz | 0.00705 |
| Others | 0.09750 |
| **Total** | **0.16015** |

### Location 2

| Measurement time: | 12:00 |
|---|---|
| **Frequency band** | **Percentage of the ICNIRP reference levels for general public exposure** |
| 700 MHz | 0.00311 |
| 800 MHz | 0.02372 |
| 900 MHz | 0.00190 |
| 1400 MHz | 0.01483 |
| 1800 MHz | 0.01269 |
| 1900 MHz | 0.00026 |
| 2100 MHz | 0.00404 |
| 2300 MHz | 0.00059 |
| 2600 MHz TDD | 0.00050 |
| 2600 MHz FDD | 0.00053 |
| 3.4 GHz | 0.00373 |
| 3.8 GHz | 0.00707 |
| Others | 0.09883 |
| **Total** | **0.17179** |

### Location 3

| Measurement time: | 12:09 |
|---|---|
| **Frequency band** | **Percentage of the ICNIRP reference levels for general public exposure** |
| 700 MHz | 0.00405 |
| 800 MHz | 0.03285 |
| 900 MHz | 0.00077 |
| 1400 MHz | 0.01546 |
| 1800 MHz | 0.09731 |
| 1900 MHz | 0.00026 |
| 2100 MHz | 0.01989 |
| 2300 MHz | 0.00060 |
| 2600 MHz TDD | 0.00051 |
| 2600 MHz FDD | 0.00101 |
| 3.4 GHz | 0.00332 |
| 3.8 GHz | 0.00713 |
| Others | 0.10065 |
| **Total** | **0.28382** |

### Location 4

| Measurement time: | 12:18 |
|---|---|
| **Frequency band** | **Percentage of the ICNIRP reference levels for general public exposure** |
| 700 MHz | 0.00266 |
| 800 MHz | 0.01903 |
| 900 MHz | 0.00168 |
| 1400 MHz | 0.00823 |
| 1800 MHz | 0.00948 |
| 1900 MHz | 0.00026 |
| 2100 MHz | 0.00426 |
| 2300 MHz | 0.00060 |
| 2600 MHz TDD | 0.00051 |
| 2600 MHz FDD | 0.00063 |
| 3.4 GHz | 0.00337 |
| 3.8 GHz | 0.00713 |
| Others | 0.10032 |
| **Total** | **0.15819** |

*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.*