



RADIO EMISSION ELECTROMAGNETIC FIELD (EMF) SPOT MEASUREMENTS

Under the Communications Act 2006, the GRA is responsible for the management of the radio spectrum in Gibraltar. This includes ensuring that all licensed and licence-exempt radio transmitters comply with guidelines adopted by the International Commission on Non-Ionizing Radiation Protection (“ICNIRP”). This standard has been adopted by His Majesty’s Government of Gibraltar and provides the basis by which the GRA measures the power levels in respect of electromagnetic fields (“EMF”), emitted by the various transmitters around Gibraltar. These transmitters include mobile telephony antennas, radio and TV transmitters, as well as fixed communication links which connect multiple sites via radio.

EMFs are measured in units called volts per meter (“V/m”) and the higher the measurement, the stronger the EMF. For preliminary site audits, the GRA conducts measurements at locations with clear line of sight to known sources of EMF such as mobile base stations. The location nearest these sources that are accessible by the public is chosen as a starting point. If the measured levels are high but still within the ICNIRP guidelines, a subsequent test is conducted as close as practicable to the transmitter to ensure compliance. If the levels are in excess of the ICNIRP guidelines, the operators in the area are notified immediately to power off so that a detailed investigation using high end spectrum analysers can be conducted in the area.

Initial measurements are taken using a SMP2 “Electromagnetic Meter” with a WPF40 probe (antenna). In line with ICNIRP recommendations, the SMP2 is pre-programmed to measure all frequencies in the tuneable range of the probe (20 MHz – 40 GHz¹) for a period of 6 minutes.

The ICNIRP standard upper limit for the frequency range 20 MHz to 40 GHz is 27.5 V/m and this denotes a level under which EMF is considered compliant. For ease of reference, the SMP2 displays the information as a percentage of field strength compared to the ICNIRP guidelines denoted by %E where “E” is electric field strength in V/m. i.e. a value of 10%E = 2.75 V/m. The final result is the average of over 2000 measurements taken over a sample period of 6 minutes.

Please note that the radio spectrum is continually changing, and these measurements only provide information on the radio frequency conditions for the specific locations at the time of monitoring.

The GRA will endeavour, subject to workloads and the availability of appropriate resources, to carry out and report EMF spot measurements on a weekly basis.

For further information, please visit the GRA website at <https://www.gra.gi/communications/spectrum-use/emf-monitoring>

¹ The frequency range 20 MHz – 40 GHz encompasses all radio spectrum currently used in Gibraltar for mobile telephony as well as broadcasting TV/Radio stations, Radar, WiFi and other commonly used technologies.

Site Audit Conclusion: 13/JAN/2023

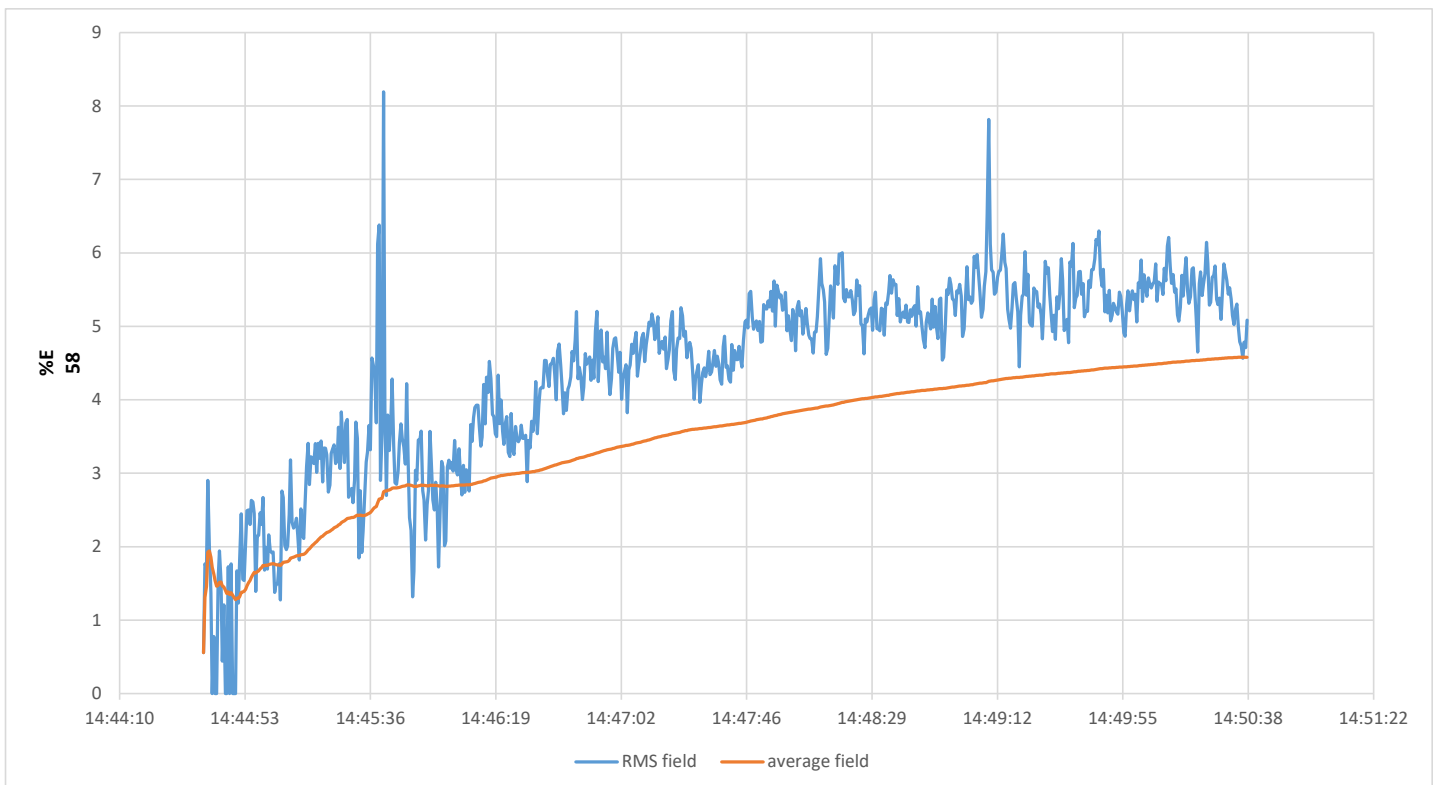
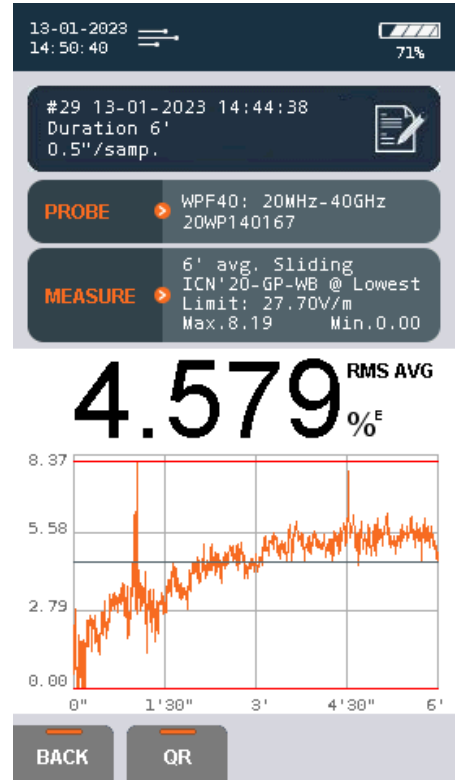
Measurements conducted reflect the EMF at the prevailing locations were all well within the ICNIRP guidelines. No follow up investigation in the locations below was required.

| Location | Date | Average Measurement | |
|---------------------------|-------------|----------------------------|----|
| Albert Risso House | 13/01/2023 | 4.579 | %E |
| GBC | 13/01/2023 | 2.896 | %E |
| Poca Roca | 13/01/2023 | 5.029 | %E |
| Queen's Spot (Upper Rock) | 13/01/2023 | 4.524 | %E |
| Shrine | 13/01/2023 | 5.260 | %E |

Measurement information

| | |
|-------------------|-----------------------|
| Location | Albert Risso House |
| Software version | 1.8.0.0 |
| SMP2 serial | 20SN1321 |
| SMP2 firmware | 1.82 |
| Probe serial | 20WP140167 |
| Probe frequencies | 20MHz-40GHz |
| Initial time | 13/01/2023 14:44:38.0 |
| Final time | 13/01/2023 14:50:38.0 |
| Measurement time | 0:06:00 |
| Average interval | 6m |
| Average type | sliding |
| Limit | 58 |
| Limit value | 27.7 V/m |
| Units | %E |
| Last average | 4.579 |
| Maximum | 8.193 |
| Minimum | 0 |

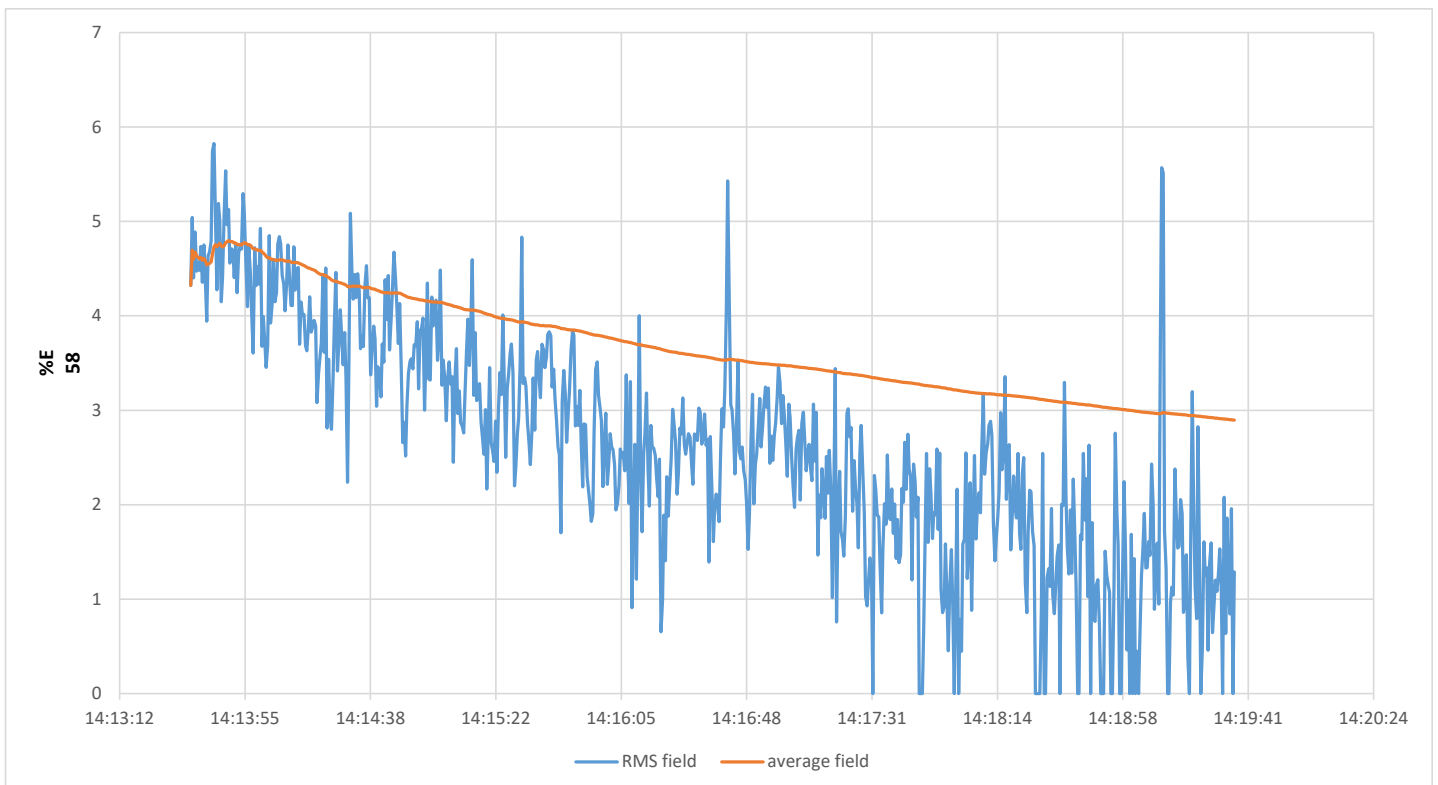
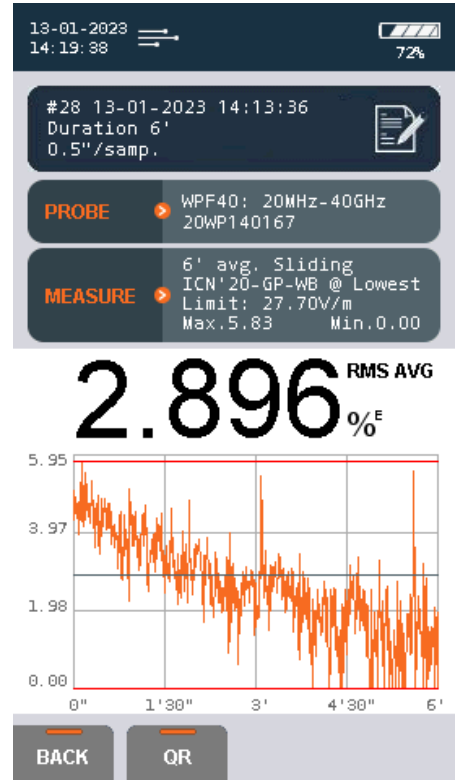
Screenshot



Measurement information

| | |
|-------------------|-----------------------|
| Location | GBC |
| Software version | 1.8.0.0 |
| SMP2 serial | 20SN1321 |
| SMP2 firmware | 1.82 |
| Probe serial | 20WP140167 |
| Probe frequencies | 20MHz-40GHz |
| Initial time | 13/01/2023 14:13:36.0 |
| Final time | 13/01/2023 14:19:36.0 |
| Measurement time | 0:06:00 |
| Average interval | 6m |
| Average type | sliding |
| Limit | 58 |
| Limit value | 27.7 V/m |
| Units | %E |
| Last average | 2.896 |
| Maximum | 5.825 |
| Minimum | 0 |

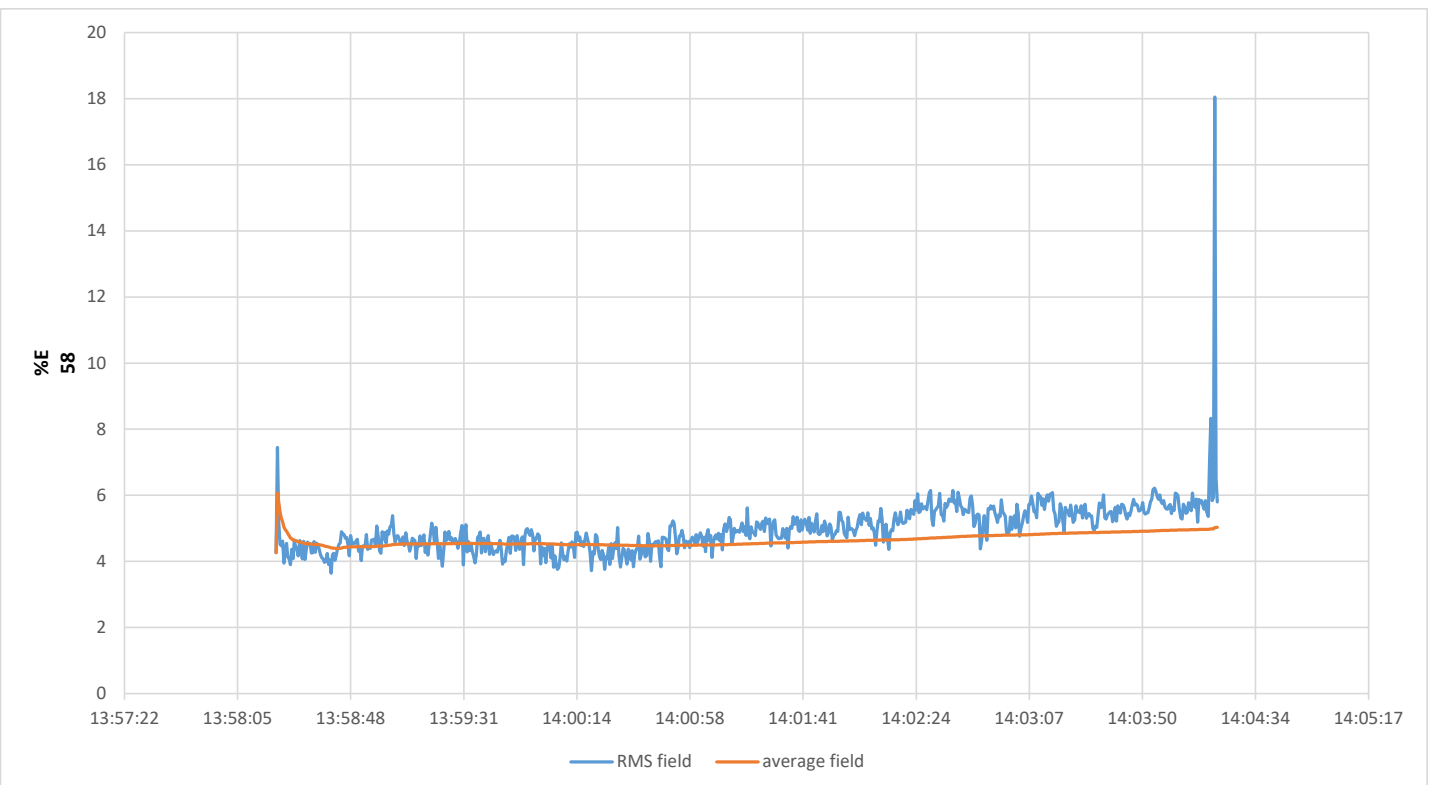
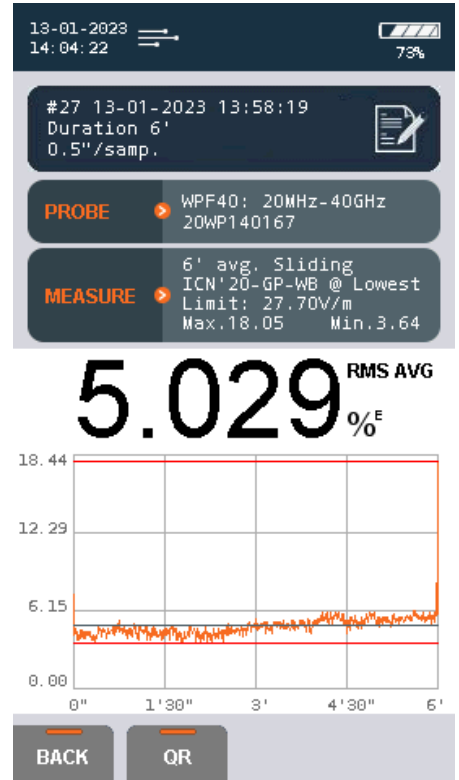
Screenshot



Measurement information

| | |
|-------------------|-----------------------|
| Location | Poca Roca |
| Software version | 1.8.0.0 |
| SMP2 serial | 20SN1321 |
| SMP2 firmware | 1.82 |
| Probe serial | 20WP140167 |
| Probe frequencies | 20MHz-40GHz |
| Initial time | 13/01/2023 13:58:19.0 |
| Final time | 13/01/2023 14:04:19.0 |
| Measurement time | 0:06:00 |
| Average interval | 6m |
| Average type | sliding |
| Limit | 58 |
| Limit value | 27.7 V/m |
| Units | %E |
| Last average | 5.029 |
| Maximum | 18.05 |
| Minimum | 3.641 |

Screenshot



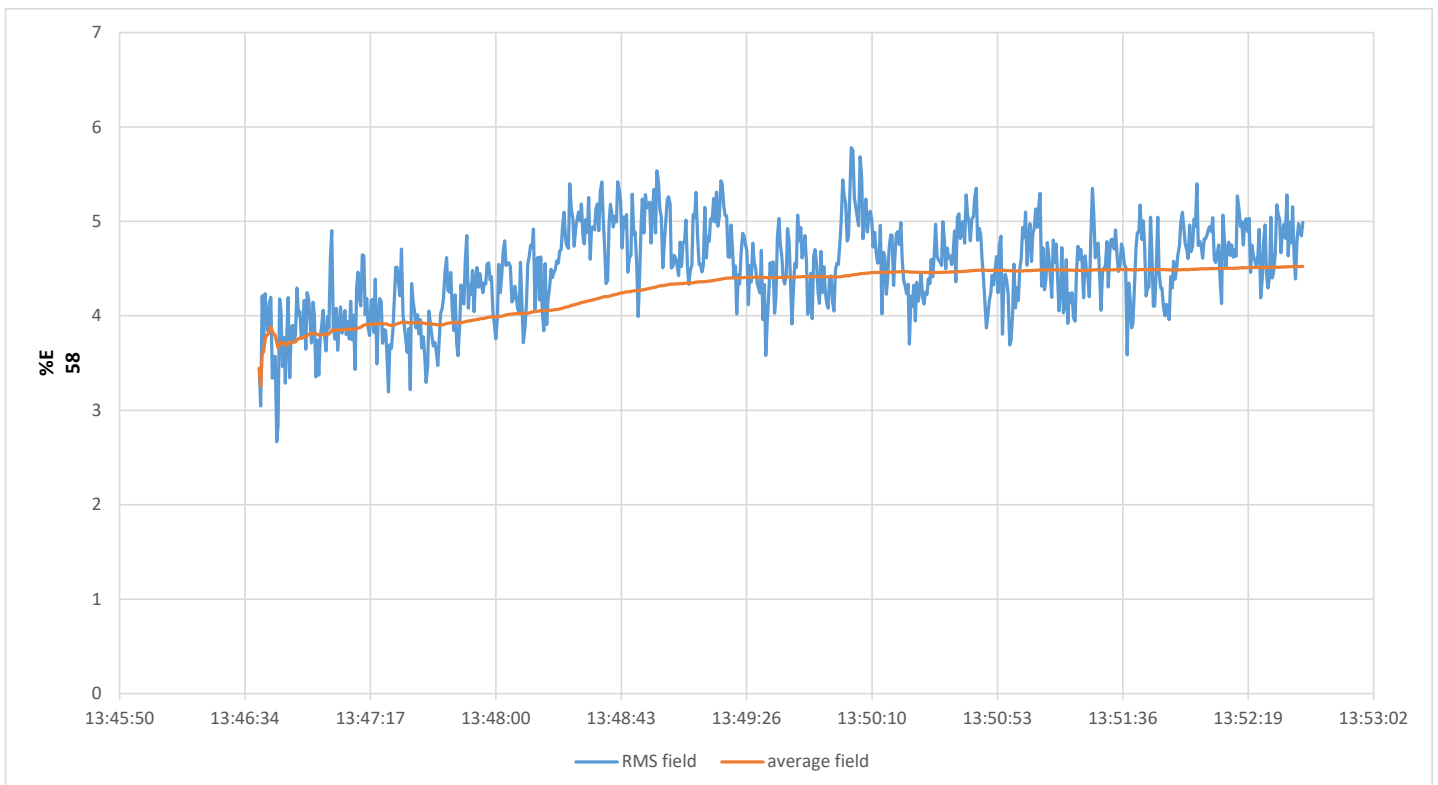
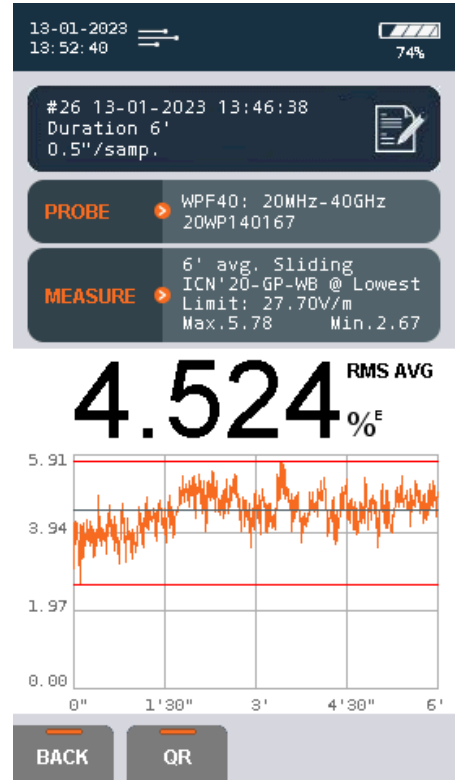
WAVECONTROL

Safety, Quality, Service

Measurement information

| | |
|-------------------|-----------------------|
| Location | Queen's Spot |
| Software version | 1.8.0.0 |
| SMP2 serial | 20SN1321 |
| SMP2 firmware | 1.82 |
| Probe serial | 20WP140167 |
| Probe frequencies | 20MHz-40GHz |
| Initial time | 13/01/2023 13:46:38.0 |
| Final time | 13/01/2023 13:52:38.0 |
| Measurement time | 0:06:00 |
| Average interval | 6m |
| Average type | sliding |
| Limit | 58 |
| Limit value | 27.7 V/m |
| Units | %E |
| Last average | 4.524 |
| Maximum | 5.782 |
| Minimum | 2.667 |

Screenshot



Measurement information

| | |
|-------------------|-----------------------|
| Location | Shrine |
| Software version | 1.8.0.0 |
| SMP2 serial | 20SN1321 |
| SMP2 firmware | 1.82 |
| Probe serial | 20WP140167 |
| Probe frequencies | 20MHz-40GHz |
| Initial time | 13/01/2023 13:30:09.0 |
| Final time | 13/01/2023 13:36:09.0 |
| Measurement time | 0:06:00 |
| Average interval | 6m |
| Average type | sliding |
| Limit | 58 |
| Limit value | 27.7 V/m |
| Units | %E |
| Last average | 5.26 |
| Maximum | 6.559 |
| Minimum | 3.915 |

Screenshot

