



## **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 GHz<sup>1</sup>) 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>

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<sup>1</sup> 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: 09/SEPT/2022

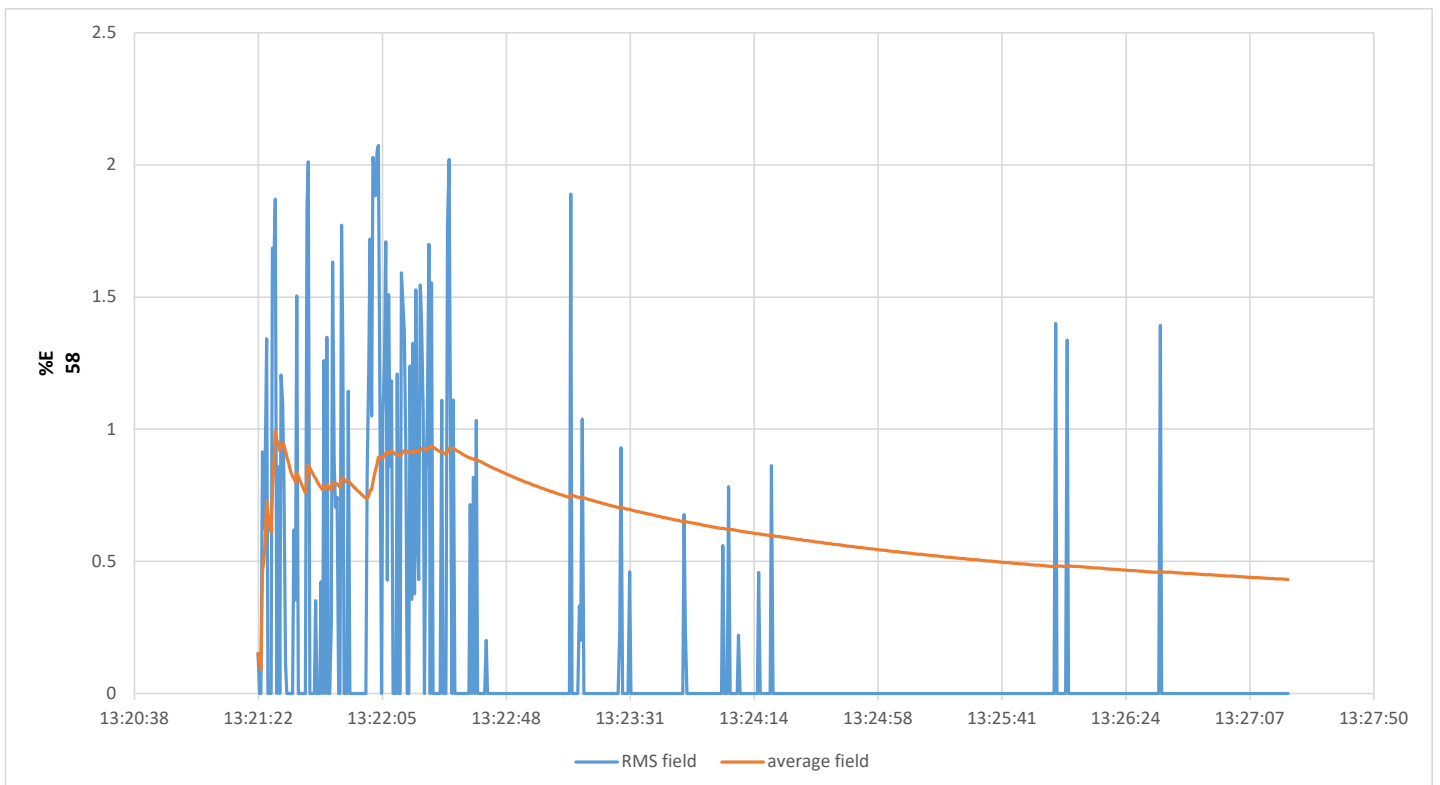
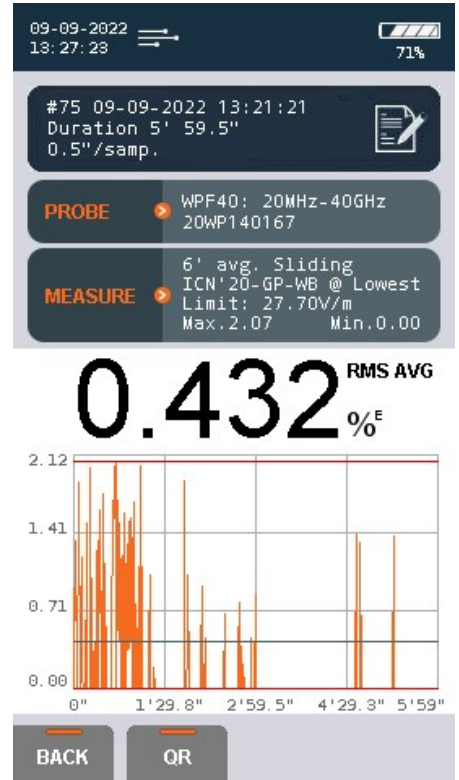
Measurements conducted reflect the EMF at the prevailing locations were all well within the ICNIRP guidelines. No follow up investigation in the locations below was required.

<b>Location</b>	<b>Date</b>	<b>Average Measurement</b>	
ICC	09/09/2022	0.432	%E
Princess Caroline's Battery	09/09/2022	2.140	%E
HM Prison	09/09/2022	2.539	%E
Cable Car	09/09/2022	0.659	%E
New Harbours	09/09/2022	4.642	%E

## Measurement information

Location	ICC
Software version	1.8.0.0
SMP2 serial	20SN1321
SMP2 firmware	1.82
Probe serial	20WP140167
Probe frequencies	20MHz-40GHz
Initial time	09/09/2022 13:21:21.0
Final time	09/09/2022 13:27:20.5
Measurement time	0:05:59.5
Average interval	6m
Average type	sliding
Limit	58
Limit value	27.7 V/m
Units	%E
Last average	0.432
Maximum	2.074
Minimum	0

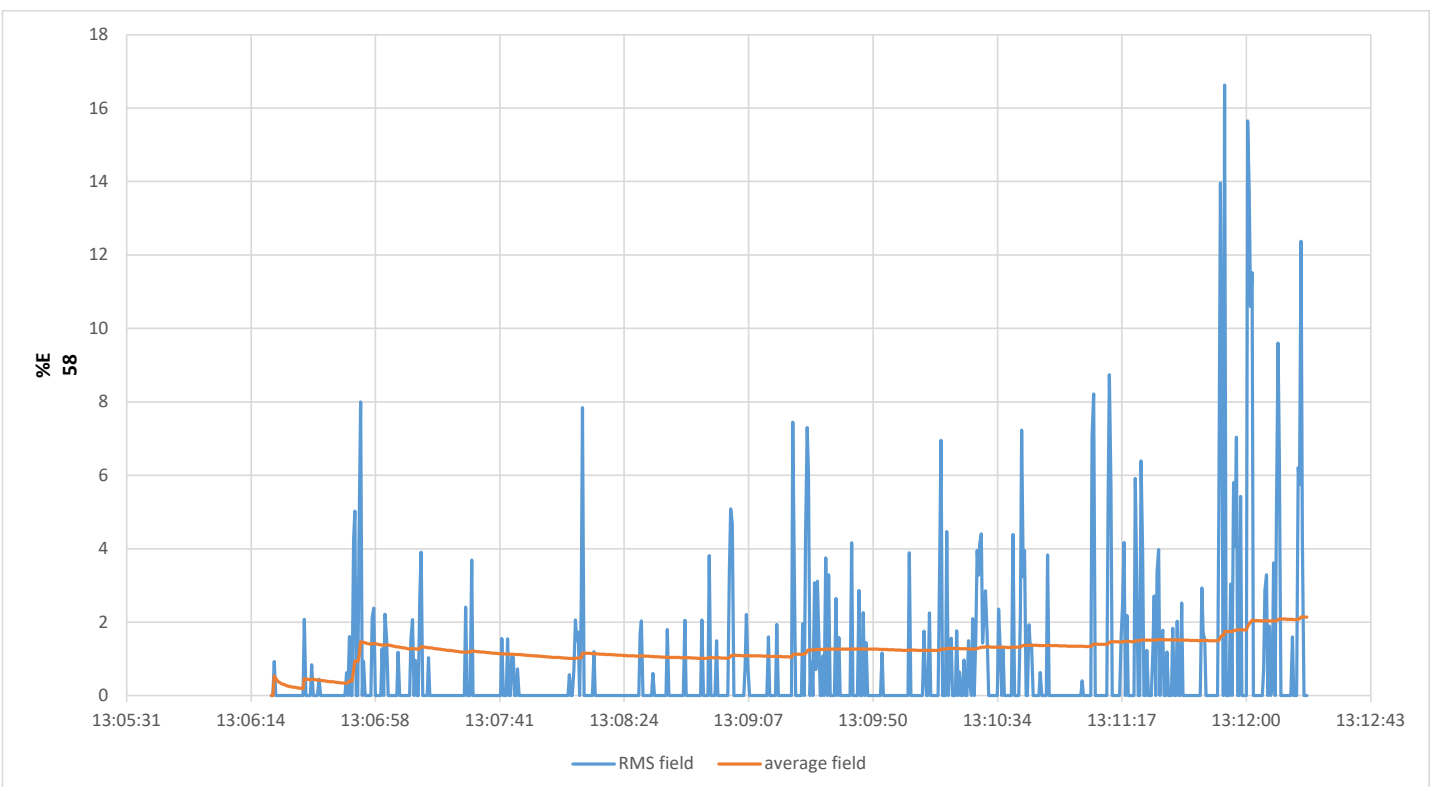
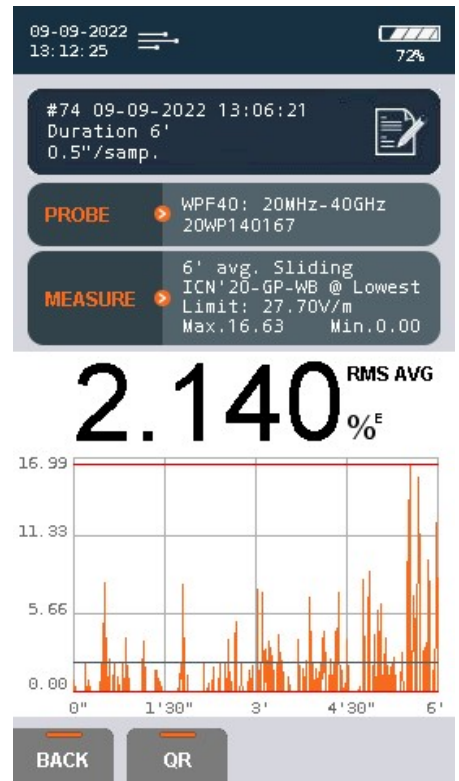
## Screenshot



## Measurement information

Location	Princess Caroline's Battery
Software version	1.8.0.0
SMP2 serial	20SN1321
SMP2 firmware	1.82
Probe serial	20WP140167
Probe frequencies	20MHz-40GHz
Initial time	09/09/2022 13:06:21.0
Final time	09/09/2022 13:12:21.0
Measurement time	0:06:00
Average interval	6m
Average type	sliding
Limit	58
Limit value	27.7 V/m
Units	%E
Last average	2.14
Maximum	16.63
Minimum	0

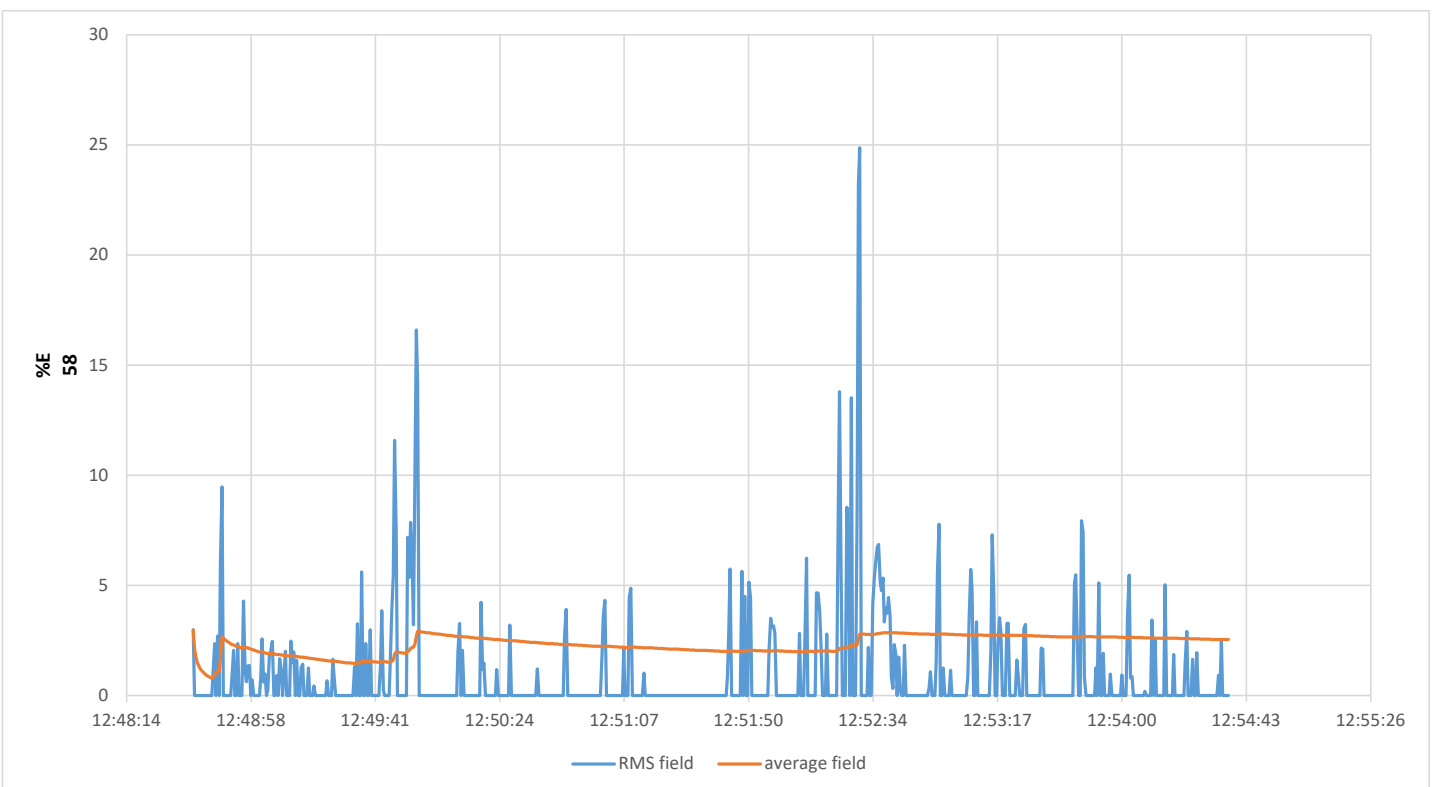
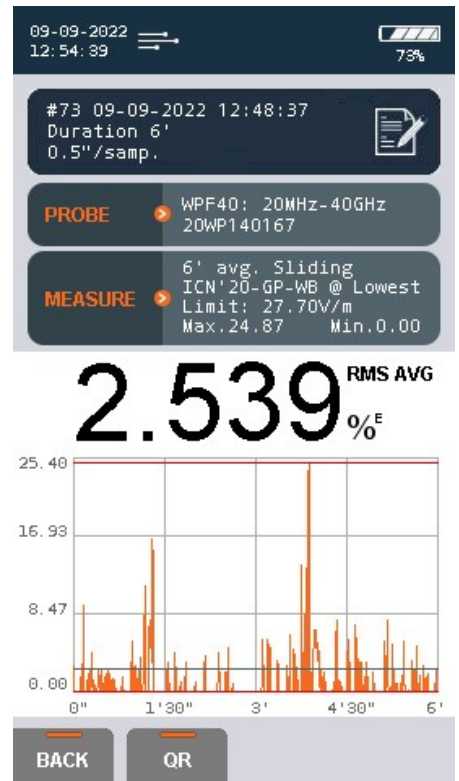
## Screenshot



## Measurement information

Location	HM Prison
Software version	1.8.0.0
SMP2 serial	20SN1321
SMP2 firmware	1.82
Probe serial	20WP140167
Probe frequencies	20MHz-40GHz
Initial time	09/09/2022 12:48:37.0
Final time	09/09/2022 12:54:37.0
Measurement time	0:06:00
Average interval	6m
Average type	sliding
Limit	58
Limit value	27.7 V/m
Units	%E
Last average	2.539
Maximum	24.87
Minimum	0

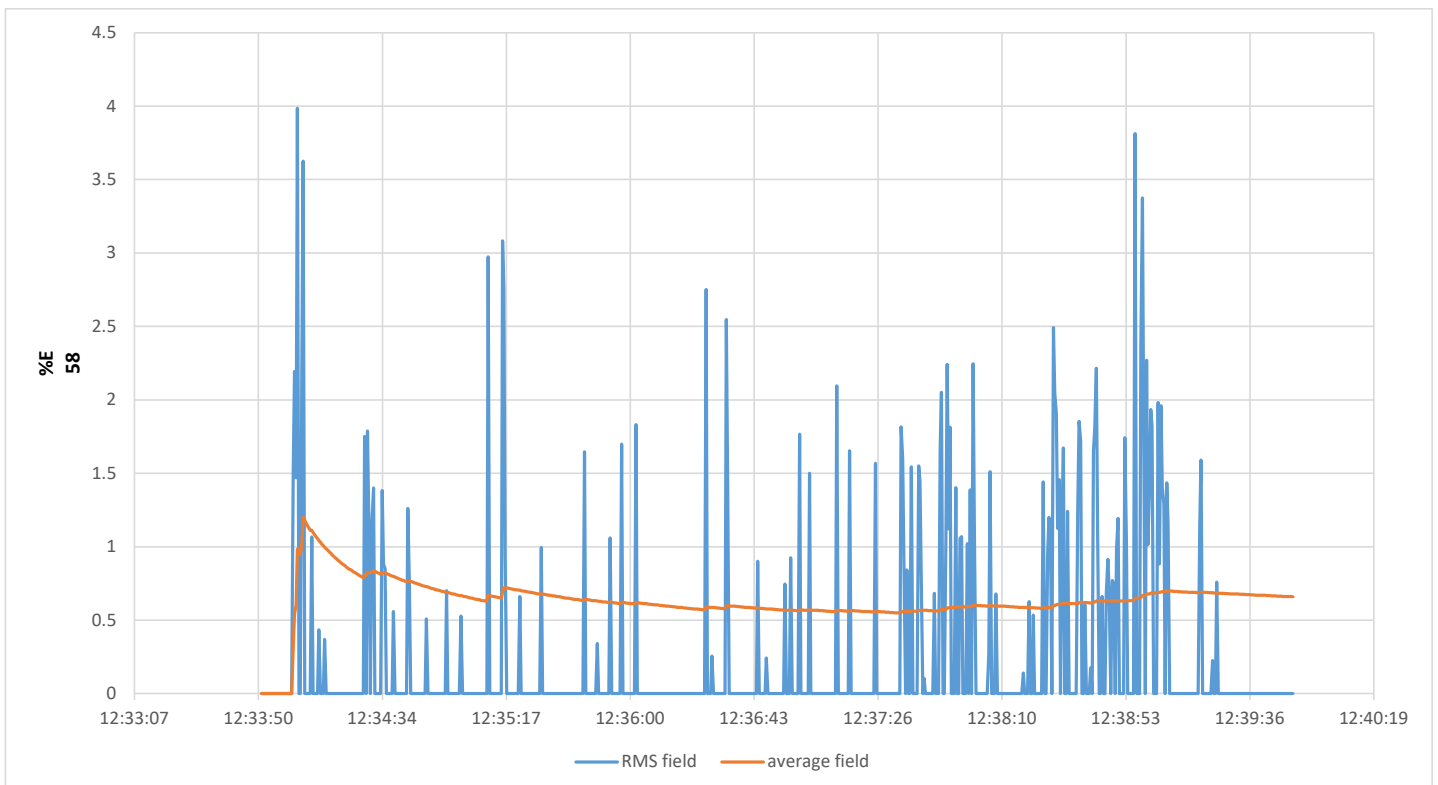
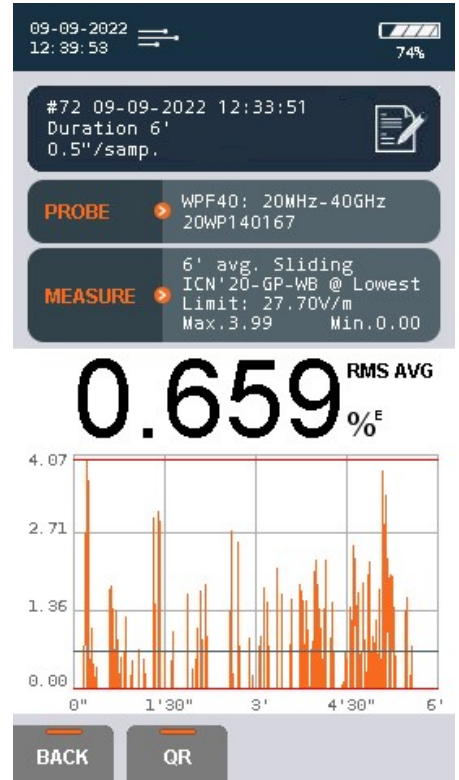
## Screenshot



## Measurement information

Location	Cable Car
Software version	1.8.0.0
SMP2 serial	20SN1321
SMP2 firmware	1.82
Probe serial	20WP140167
Probe frequencies	20MHz-40GHz
Initial time	09/09/2022 12:33:51.0
Final time	09/09/2022 12:39:51.0
Measurement time	0:06:00
Average interval	6m
Average type	sliding
Limit	58
Limit value	27.7 V/m
Units	%E
Last average	0.6595
Maximum	3.986
Minimum	0

## Screenshot



## Measurement information

Location	New Harbours
Software version	1.8.0.0
SMP2 serial	20SN1321
SMP2 firmware	1.82
Probe serial	20WP140167
Probe frequencies	20MHz-40GHz
Initial time	09/09/2022 12:20:43.0
Final time	09/09/2022 12:26:43.0
Measurement time	0:06:00
Average interval	6m
Average type	sliding
Limit	58
Limit value	27.7 V/m
Units	%E
Last average	4.642
Maximum	13.49
Minimum	1.191

## Screenshot

