## WAVECONTROL

## Datasheets

#### GENERAL CATALOG





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# WAVECONTROL

## Datasheets

#### GENERAL CATALOG

### Table of Contents

SMP2	2
SMP2 Case	7
MonitEM	9
MonitEM Case	12
MonitEM-Lab	14
MonitEM-Lab (Outdoors)	17
MapEM	19
Field Probes	
WP50	
WP400	23
WP400-3	25
WP400c	27
WPF3	29
WPF6	
WPF8	31
WPF18	
WPF40	
WPF60	
WPF60S	35
WPH60	
WPH1000	
WPH-DC	
WPT	
WP-WiFi	
WaveMon LF-400	41
WaveMon RF-8	
WaveMon RF-60	
Control Centre	

### Electromagnetic field meter



**3 INSTRUMENTS IN 1:** Static field measurement, Spectrum analysis & Broadband field meter

EMF WORKER'S SAFETY ICNIRP, EU Directive, FCC, SC6 (2015),...



From 1 Hz to 400 kHz

**BROADBAND MEASUREMENT** (0 Hz - 60 GHz)







### **SMP2** Applications











WAVECONTROL

Safety, Quality, Service

### **Technical specifications**

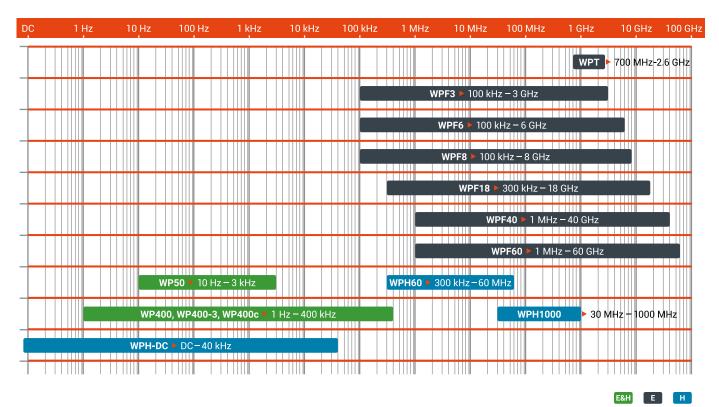
	Broadband	For broadband measurements using the following probes: WPFx, WPT, WP50, WPH60 and WPH1000.				
Versions	Selective	For frequency selective measurements from 0 to 400 kHz using WP400, WP400-3, WP400c and WPH-DC.				
	Dual	For both kinds of measurements using all field probes.				
Field probes		Automatic detection and recognition				
Broadband		0 Hz – 60 GHz (depending on field probe)				
Spectrum an	alysis	up to 400 kHz				
Weighted Pe	ak Method	1 Hz – 400 kHz (Real time WPM for direct comparison with limits)				
Readout valu	les	Total field (instantaneous, max., min. and average) Field components (X, Y, Z)				
E Field units		V/m, kV/m, µW/cm², mW/cm², W/m², %				
H Field units		nΤ, μΤ, mΤ, Τ, Α/m, %, mG, G				
Log time		Configurable (from 0.5 s to 6 min)				
Average mod	les	Fixed o Sliding, according to international standards				
Average inte	rvals	10 s, 15 s, 30 s, 1 min, 2 min, 5 min, 6 min, 10 min, 15 min, 30 min				
Schedule measurement		Customized (up to 24 hours)				
Memory capacity		More than 1 million samples				
Data downloading		Mini-USB and Fibre Optics				
Firmware up	dating	Mini-USB				
Alarm		2400 Hz audible signal (adjustable threshold)				
Display type		Color transmissive TFT (480 x 272 pixels)				
GPS (optiona	al)	Built-in u-blox 7 (56 independent tracking channels)				
Battery		Internal rechargeable Li-ion				
Autonomy		> 24 hours				
Temperature range		-10 °C to +50 °C				
Humidity		5% to 95%, non-condensing				
Size		100 x 215 x 40 mm (3.9 x 8.4 x 1.5 ")				
	Broadband	560 g (19.7 oz.)				
Weight	Selective	635 g (22.4 oz.)				
	Dual	635 g (22.4 oz.)				

### Electromagnetic field meter. Compatible field probes

Wavecontrol provides a full range of E-Field, H-Field and E&H Field probes covering different frequency ranges starting at 0 Hz and up to 60 GHz. Probes are plug and play and come with an individual ISO 17025 accredited calibration. All sensors are isotropic, RMS and highly accurate.



#### Frequency range of compatible field probes





Model	Frequency range	Response	Measurement range	Linearity	Size
WPH-DC Selective & Broadband	0 – 40 kHz	Flat	H-Field: 10 µT – 10 T	0.6% (100 uT - 1 T) 1% (100 uT - 2.4 T)	27.3 cm x 2.1 cm Ø 10.8 " x 0.8 " Ø Sensor stick: 0.94 cm Ø 0,37 " Ø
WP400 Selective & Broadband	1 Hz – 400 kHz	Flat / Shaped (Weighted Peak Method)	E-Field: 1 V/m – 100 kV/m H-Field: 50 nT – 30 mT @50 Hz 50 nT – 10 mT (100 Hz – 10 kHz)*	±1% (Typical) ±2% (Maximum)	28 cm x 12.8 cm Ø 11 ″ x 5 ″ Ø
WP400-3 Selective & Broadband	1 Hz – 400 kHz	Flat / Shaped (Weighted Peak Method)	E-Field: 10 V/m – 400 kV/m H-Field: 200 nT – 50 mT (100 Hz – 10 kHz)*	±1% (Typical) ±2% (Maximum)	27.5 x 3.3 cm Ø 10.8 " x 1.3 " Ø
WP400c Selective & Broadband	1 Hz – 400 kHz	Flat / Shaped (Weighted Peak Method)	E-Field: 1 V/m – 100 kV/m H-Field: 50 nT – 30 mT @50 Hz 50 nT – 1.5 mT (820 Hz – 40 kHz)*	±1% (Typical) ±2% (Maximum)	28 cm x 12.8 cm Ø 11 ″ x 5 ″ Ø
WP50	10 Hz – 3 kHz	Flat / Shaped	E-Field: 2.5 V/m – 20,000 V/m H-Field: 0.05 μT – 2,000 μT	±1% (Typical) ±2% (Maximum)	27 cm x 11.5 cm Ø 10.6 " x 4.5 " Ø
WPH60	300 kHz – 60 MHz	Flat	H-Field: 0.018 – 1 A/m (RMS) 0.018 – 20 A/m (CW)	±1 dB (0.04 – 4 A/m)	27 cm x 9 cm Ø 10.6 " x 3.5 " Ø
WPH1000	30 MHz – 1000 MHz	Flat	H-Field: 0.018 – 20 A/m	±1 dB (0.04 – 4 A/m)	28.4 cm x 6 cm Ø 11.2 " x 2.4 " Ø
WPF3		Flat	E-Field: 0.2 – 20 V/m (RMS) 0.2 – 130 V/m (CW)	±0.5 dB (0.5 – 100 V/m)	28.4 cm x 6 cm Ø 11.2 " x 2.4 " Ø
WPF3-HP	100 kHz – 3 GHz	Flat	E-Field: 0.2 – 20 V/m (RMS) 0.2 – 1,000 V/m (CW)	±0.5 dB (0.5 – 100 V/m)	28.4 cm x 6 cm Ø 11.2 " x 2.4 " Ø
WPF6	100 kHz – 6 GHz	Flat	E-Field: 0.2 – 20 V/m (RMS) 0.2 – 130 V/m (CW)	±0.5 dB (0.5 – 100 V/m)	28.4 cm x 6 cm Ø 11.2 " x 2.4 " Ø
WPF6-HP	100 KHZ - 0 GHZ	Flat	E-Field: 0.2 – 20 V/m (RMS) 0.2 – 1,000 V/m (CW)	±0.5 dB (0.5 – 100 V/m)	28.4 cm x 6 cm Ø 11.2 " x 2.4 " Ø
WPF8	100 kHz – 8 GHz	Flat	E-Field: 0.2 – 20 V/m (RMS) 0.2 – 130 V/m (CW)	±0.5 dB (0.5 – 100 V/m)	28.4 cm x 6 cm Ø 11.2 " x 2.4 " Ø
WPF8-HP	100 KHZ - 6 GHZ	Flat	E-Field: 0.2 – 20 V/m (RMS) 0.2 – 1,000 V/m (CW)	±0.5 dB (0.5 – 100 V/m)	28.4 cm x 6 cm Ø 11.2 " x 2.4 " Ø
WPF18	300 kHz – 18 GHz	Flat	E-Field: 0.5 – 30 V/m (RMS) 0.5 – 250 V/m (CW)	±0.5 dB (0.5 – 100 V/m)	28.4 cm x 6 cm Ø 11.2 " x 2.4 " Ø
WPF18-HP	500 KHZ - 18 GHZ	Flat	E-Field: 0.5 – 30 V/m (RMS) 0.5 – 1,000 V/m (CW)	±0.5 dB (0.5 – 100 V/m)	28.4 cm x 6 cm Ø 11.2 " x 2.4 " Ø
WPF40	1MHz – 40 GHz	Flat	E-Field: 1 – 55 V/m (RMS) 1 – 1,000 V/m (CW)	±2 dB (1 – 2 V/m) ±1 dB (2 – 250 V/m)	28.4 cm x 6 cm Ø 11.2 " x 2.4 " Ø
WPF60	1MHz – 60 GHz	Flat	E-Field: 1 – 55 V/m (RMS) 1 – 1,000 V/m (CW)	±2 dB (1 – 2 V/m) ±1 dB (2 – 250 V/m)	28.4 cm x 6 cm Ø 11.2 " x 2.4 " Ø
WPF60S	1MHz – 60 GHz	Shaped (ICNIRP 1998/2020, FCC)	E-Field: 0.1% – 35% (RMS) 0.1 – 800% (CW)	±2 dB (1 – 2 V/m) ±1 dB (2 – 250 V/m)	28.4 cm x 6 cm Ø 11.2 " x 2.4 " Ø
WPT	Selective: 700 – 900, 1800 – 1900, 2100, 2600 Hz	Flat	E-Field: 0.04 – 65 V/m (RMS)	<±0.4 dB (0.2 - 50 V/m)	28.5 x 10.5 x 10.5 cm 11.2 x 4.1 x 4.1 "
WP-WIFI	WiFi 2.45 GHz	Flat	E-Field: 0.04 – 65 V/m (RMS)	<±0.5 dB (0.2 - 50 V/m)	28.5 x 10.5 x 10.5 cm 11.2 x 4.1 x 4.1 "

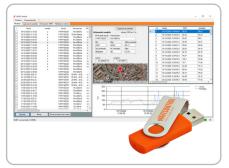
\*Below and above the stated frequency range, upper limit of the measurement range changes (See datasheets for more information).

Visit www.wavecontrol.com/rfsafety/en/products/probes, for detailed datasheets of each field probe model.



### Electromagnetic field meter. Accessories

#### SMP2 included accessories



'SMP2 Reader' PC software Included / Downloadable from wavecontrol.com

Compatible with Windows 7 or later versions

#### SMP2 optional accessories



SMP2 carrying case Part # WSN0001-2-3

Robust case to fit the SMP2 and up to 5 probes



USB cable USB to mini-USB cable



AC/DC charger

International plug types available



Non-reflective wooden tripod Part # WSNA0001

Including transport cover



GPS Part # WSN00001

Internal embedded GPS



Fiber optics interface Part # WSNA0004

10-meter fiber optics + Converter USB to PC



Tripod extension Part # WSNA0002

Horizontal extension for LF vertical E-field measurements



Vehicle DC charger Part # WSNA0007

Charge SMP2 from a vehicle DC connector



SMP2 protective pouch Part # WSNA0009

Easily portable protective soft sheath



tripod Part # WSNA0013

Recommended with the probe extension cable



Probe extension cable Part # WSNA0011

5-meter extension cable



SMP2 backpack
Part # WSNA0008

Soft backpack to fit up to 3 probes



## SMP2 Case

WAVECONTROL

Safety, Quality, Service



The SMP2 case is specially designed to safely transport the SMP2 field meter, its accessories and up to 5 electromagnetic probes.

The exterior of the case is highly resistant, has an IP67 environmental protection and pressure valve. The interior is composed of foam compartments and pockets that provide full protection of the equipment.

The case has two latches that allow quick opening of the lid and a front handle and a polyester strap to ensure ease of transport and use onsite.

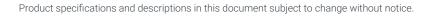






### **Technical Specifications**

	Length	437 mm		
Interior	Width	304 mm		
	Depth	127 mm		
	Length	465 mm		
Exterior	Width	360 mm		
	Depth	157 mm		
Weight, en	npty	3.7 kg (attached foam included)		
Protection		Waterproof, crushproof, dustproof, corrosion-proof		
IP Rating		IP67 (depth of 1 meter for 30 minutes)		
Pressure v	alve	Automatic pressure equalization valve		
Handle		Collapsible front handle		
Latches		2 easy-open latches		
Strap		Heavy-duty polyester carrying strap		
Color		Black		
Nameplate		Yes		



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## Monit**EM**



### Electromagnetic field monitoring

- 24/7 Monitoring of electromagnetic field levels and verification that they meet the safety standards established by the competent authorities.
- Any source, any sector: Cellular, Broadcast, 50/60 Hz Power Systems, Industry, Defense...
- Measurements can be published on the Internet.



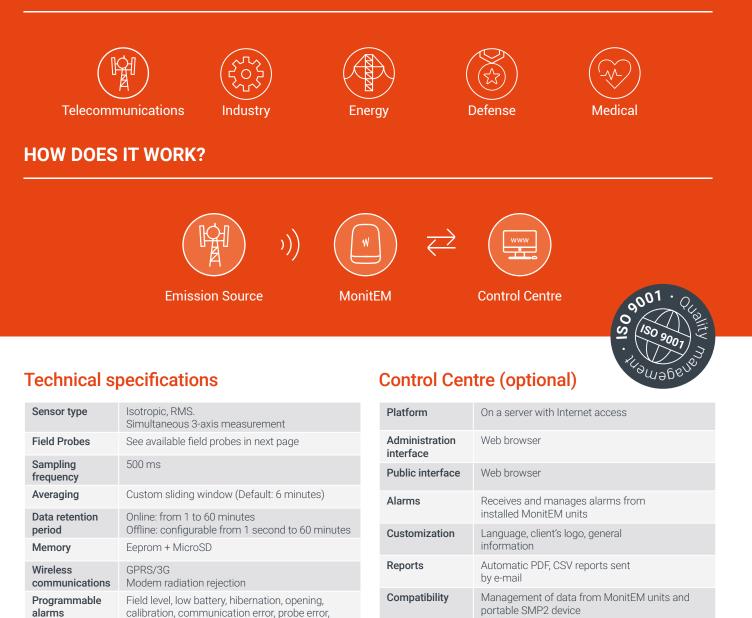
5G READY

Ready for 5G measurements





#### Monit**EM Applications.** Measurement of EMF radiation in:



#### **Additional services**

Hosted Control Centre:

Eliminate infrastructure and server costs by using Wavecontrol's cloud server

Warranty extension:

The 2-year standard warranty can be extended to 3, 4 or 5 years.

#### Calibration plans:

Plan future calibrations now for 24 and 48 months with further discounts.

Update plans:

Keep the system up to date with the latest firmware versions and software development.

#### Training courses:

EMF theory and practical sessions at Wavecontrol or the client's offices.

Product specifications and descriptions in this document subject to change without notice

High-sensitivity WGS84 device (built-in)

temperature

3 models:

operating modes, etc.

> 10 days (without sun)

Smart power control unit

253 mm x 292 mm x 385 mm

3.6 kg (including solar panel)

- 25 °C to + 60 °C

Wall, mast or tripod

IP66

MonitEM Solar: Solar + battery

MonitEM AC: 110 - 220V (50 - 60 Hz)

MonitEM Hybrid: Solar + battery + AC

**Operating log** 

Power supply

Battery life

Watchdog

Temperature

Dimensions

Environmental

Installation kits

protection

GPS

Weight

Temperature, communications, power supply,



## Monit**EM**

### Compatible field probes

Wavecontrol provides a full range of E-Field, H-Field and E&H Field probes covering different frequency ranges starting at 10 Hz and up to 60 GHz. Probes are plug and play and come with an individual ISO 17025 accredited calibration. All sensors are isotropic, RMS and highly accurate.



#### Frequency range of compatible field probes

1 Hz	10 Hz	100 Hz	1 kHz	10 kHz	100 kHz	1 MHz	10 MHz	100 MHz	1 GHz	10 GHz	100 GHz
									WPT	700 MHz-2	2.6 GHz
						W	<b>/PF3                                    </b>	z – 3 GHz			
							<b>WPF6 &gt;</b> 100 k	Hz – 6 GHz			
							<b>WPF8 ►</b> 100	kHz – 8 GHz			
							WPF18 ►	300 kHz – 1	8 GHz		
							WF	PF40 ► 1 MH:	z – 40 GHz		
							W	′ <b>PF60 ►</b> 1 Mł	Hz — 60 GHz		
	WF	<b>≥50 ►</b> 10 Hz –	- 3 kHz			WPH60 ► 3	300 kHz – 60 M	Hz			
								WPH100	00 - SO N	/Hz – 1000	MHz

#### **Control Center (optional)**

MonitEM devices can be optionally used together with a web server using software that is unique on the market and allows:

Management and configuration of equipment

Data reception, consultation and storage

Report generation and automatic delivery

Display of photographs and diagrams

User friendly, with Google Maps positioning



E&H

E

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## Monit**EM** Case

WAVE<u>CONTROL</u>

Safety, Quality, Service



The MonitEM case is specially designed to safely transport the MonitEM area EMF monitor, a solar panel, accessories and up to 3 electromagnetic probes.

The exterior of the case is highly resistant, has an IP65 environmental protection and pressure valve. The interior is composed of foam compartments and pockets that provide full protection of the equipment.

The case has four latches that allow a quick lid opening. A frontal handle and two lateral handles allow ease of manipulation. The rear retractable handle and the wheels make possible the rolling transportation of the case.











### **Technical Specifications**

	Length	560 mm
Interior	Width	430 mm
	Depth	315 mm
	Length	630 mm
Exterior	Width	500 mm
	Depth	345 mm
Weight, en	npty	9.45 kg
Protection		Crushproof, dustproof, avoids water condensation
IP Rating		IP65
Pressure v	alve	Automatic pressure equalization valve
Handles		1 collapsible front handle 2 collapsible lateral handles 1 retractable rear handle
Wheels		2 auxiliary wheels incorporated into the structure of the case
Latches		4 easy-open latches
Color		Black

MonitEM-Case\_EN\_2108\_v1.0



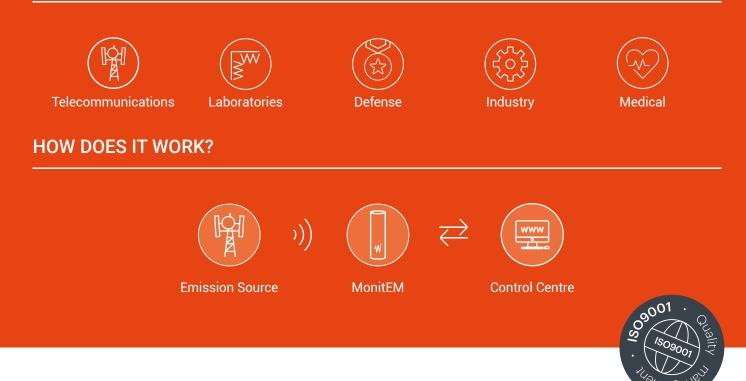
## Monit**EM**-Lab







#### MonitEM-Lab Applications. Measurement of EMF radiation in:



#### **Technical specifications**

Sensor type	Isotropic, RMS. Simultaneous 3-axis measurement
Probe system	Interchangeable, 100 kHz to 60 GHz
Sampling frequency	500 ms
Averaging	6-minute or custom sliding window
Data retention period	Online: from 1 to 60 minutes Offline: configurable from 1 second to 60 minutes
Memory	Eeprom + MicroSD card
Communications	Ethernet
Operating log	Temperature, communications, power supply, operating modes, etc.
Power supply	AC 110 - 220V
Watchdog	Smart power control unit with ON/OFF button
Dimensions	445 x Ø 120 mm (17.5 x Ø 4.72 in.)
Weight	2.4 kg
Environmental protection	Not yet available
Installation kits	Wall, mast or tripod
Alarms	Audible and visual alarm (configurable). The sound can be stopped by an external switch.

#### **Control Centre (optional)**

Platform	On server with internet/intranet access
Administration interface	Web browser
Public interface	Web browser
Remote alarms	Field level, calibration, communication error, probe error, temperature
Customization	Language, client's logo, general information
Reports	Automatic PDF, CSV reports sent by e-mail
Compatibility	Management of data from MonitEM units and portable SMP2 device

#### **Additional services**

#### Warranty extension:

The 2-year standard warranty can be extended to 3, 4 or 5 years.

#### Calibration plans:

Plan future calibrations now for 24 and 48 months with further discounts.

#### Update plans:

Keep the system up to date with the latest firmware versions and software development.

#### Training courses:

EMF theory and practical sessions at Wavecontrol or the client's offices.



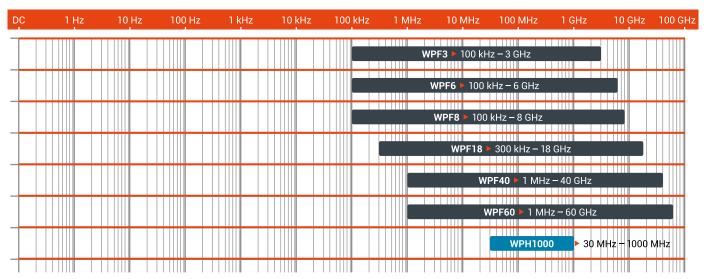
## Monit**EM**-Lab

### Compatible field probes

Wavecontrol provides a full range of E-Field, H-Field and E&H Field probes covering different frequency ranges starting at 10 Hz and up to 60 GHz. Probes are plug and play and come with an individual ISO 17025 accredited calibration. All sensors are isotropic, RMS and highly accurate.



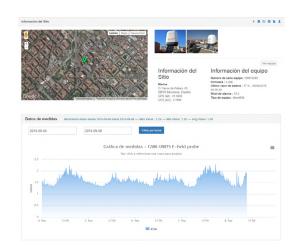
#### Frequency range of compatible field probes



### Control Center (optional)

MonitEM devices can be optionally used together with a web server using software that is unique on the market and allows:

- Management and configuration of equipment
- Data reception, consultation and storage
- Report generation and automatic delivery
- Display of photographs and diagrams
- User friendly, with Google Maps positioning







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# Monit**EM**-Lab (Outdoors)

### Continuous measurement of electromagnetic fields

A permanent monitoring system that allows on-going scrutiny of the emission levels of electromagnetic radiation sources (mobile telephony, WiFi, RF generators, etc.) and verification that they meet the safety standards established by the competent authorities and regulations in each country. The measurements taken can be published via the Intranet/Internet.







### MonitEM-Lab Applications. Measurement of EMF radiation in:





Laboratories





#### HOW DOES IT WORK?





Control Centre



#### **Technical specifications**

Sensor type	Isotropic, RMS. Simultaneous 3-axis measurement
Probe system	Interchangeable, 10 Hz to 40 GHz
Sampling frequency	500 ms
Averaging	6-minute sliding window
Data retention period	Online: from 1 to 60 minutes Offline: from 1 second to 60 minutes
Memory	Eeprom + MicroSD card
Communications	Ethernet
Programmable alarms	Field level, low battery, hibernation, opening, calibration, communication error, probe error, temperature
Operating log	Temperature, communications, power supply, operating modes, etc.
Power supply	AC 110-220V
Watchdog	Smart power control unit
Dimensions	253 mm x 292 mm x 385 mm
Weight	3.6 kg
Environmental protection	IP66
Installation kits	Wall, mast or tripod
Alarms	Audible and visual alarm
Output (optional)	Output alarm connector with internal relay up to 240 Vac or 30 Vdc, 5A (normally closed)

#### **Control Centre (optional)**

Platform	On server with internet/intranet access
Administration interface	Web browser
Public interface	Web browser
Remote alarms	Field level, calibration, communication error, probe error, temperature
Customization	Language, client's logo, general information
Reports	Automatic PDF, CSV reports sent by e-mail
Compatibility	Management of data from MonitEM units and portable SMP2 device

#### **Additional services**

#### Warranty extension:

The 2-year standard warranty can be extended to 3, 4 or 5 years.

#### Calibration plans:

Plan future calibrations now for 24 and 48 months with further discounts.

#### Update plans:

Keep the system up to date with the latest firmware versions and software development.

#### Training courses:

EMF theory and practical sessions at Wavecontrol or the client's offices.

MonitEM\_Lab\_EN\_1810\_v1.2



# Map**EM**



### RF Electromagnetic Field Level Maps

The MapEM system consists of a MonitEM monitoring device and a control software. It allows the creation of a comprehensive map of electromagnetic field levels covering a large area, such as a city.

The monitoring device can be easily installed on a vehicle to measure the electric field strength (V/m) as it drives around the streets, providing a clear view of the RF field levels throughout the area.





Compliance with ITU-T K.113

of electromagnetic radiation at street level in large areas (cities).

YEAR-ON-YEAR COMPARISON to assess developments in electromagnetic fields depending on changes to infraestructure or technology. **DETECTION OF SENSITIVE POINTS** with high radiation to take corrective measures.

VISUAL COMMUNICATION TOOL to allow simple presentation of the public's exposure to electromagnetic fields





#### **HOW DOES IT WORK?**



MonitEM on Vehicle

#### **Technical specifications**

#### Measurement equipment

Sensor type	Isotropic, RMS
Frequency range	Depending on field probe (see next page)
Probe system	Interchangeable, 100 kHz to 60 GHz
Sampling frequency	1 measurement per second
Calibration	ISO 17025 accredited
Operating temperature	- 25 °C to + 60 °C

### **Mechanical properties**

Dimensions	70 x 40 x 8 cm
Weight	8 Kg
Environmental protection	IP66
Installation kit	Magnetic base
	Easily installation and removal from vehicle roof

### **Operating characteristics**

Data transfer	External USB connector
Memory	Micro SD (1 GByte) + Eeprom
Power supply	12 Volt DC connected to vehicle and internal battery
Software	Compatible with Windows O.S.
Results	Display software / database

#### **Results**

Display software	Display interface that superimposes measurement levels on the map
Coding	Editable scale: by colour and values
Data downloading	Georeferenced data in Access, KML, or CSV format
Exportation	Level map images in JPG format



## MapEM

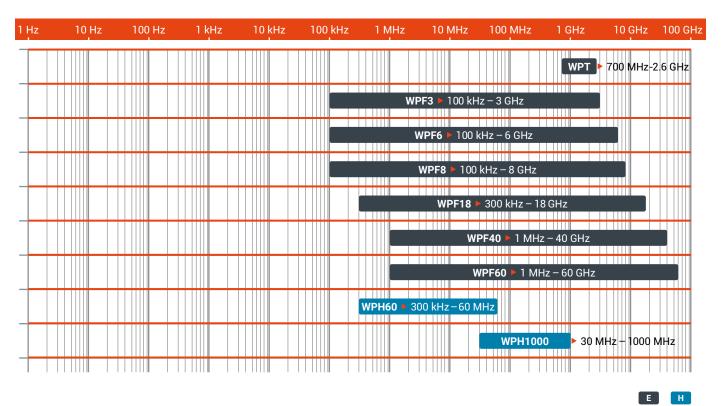
### RF Electromagnetic Field Level Maps. Compatible Field Probes

Wavecontrol provides a full range of E-Field and H-Field probes covering different frequency ranges starting at 100 kHz and up to 60 GHz. Probes are plug and play and come with an individual ISO 17025 accredited calibration. All sensors are isotropic, RMS and highly accurate.





#### Frequency range of compatible field probes





## **WP50** Probe 10 Hz - 3 kHz

Power grid Spot or continuous

Railway

Industry

Measurement in

measurement of E and H

Measurement of E and H fields generated in trains

or near railway facilities.

manufacturing facilities with

strong electromagnetic fields to ensure workplace safety.

at transformer stations and high-voltage lines. W

- Electric & Magnetic field measurement
- Isotropic & True RMS measurement
- Probe weighted dependant on the selected limit
- Measurements in accordance with IEC 62110 and IEC 61786



#### **Technical Specifications**

Frequency range	10 Hz - 3 kHz
Sensor type	Isotropic, RMS Combined measurement of electric and magnetic field
Type of frequency response	1) Weighted (Results displayed in % of the selected standard) 2) Flat response (Results in V/m, $\mu T$ , etc. )
Exposure limits (probe in weighted mode)	Public and occupational ICNIRP 2010 Customizable to other standards
Measurement range	
Weighted mode → (ICNIRP 2010) Field Strength Mode →	E field: 0.025 % - 200 % of limit (RMS value) H field: 0.025 % - 200 % of limit (RMS value) E field: 2.5 V/m - 20000 V/m (RMS)
	H field: 0.05 μT - 2000 μT (RMS)
Dynamic range	92 db
Sensitivity	Weighted (E, H) 0.025 % Flat response E field 2.5 V/m Flat response H field 0.05 µT
Frequency response	± 20 % (typ.) of standard (25 Hz - 1 kHz) ± 25 % (max.)
Linearity	± 1 % (typ.) (1 % - 100 % of standard) ± 2 % (max.)
Isotropic response	± 5 % (typ.)
Calibration	ISO 17025 Accredited Calibration (ILAC)
Calibration period	24 months (recommended)
Operating temperature	- 15 °C to 50 °C
Dimensions	270 mm x 115 mm Ø
Field sensor area	100 cm <sup>2</sup>
Weight	210 g





Product specifications and descriptions in this document subject to change without notice.

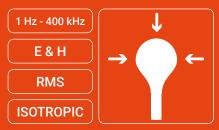


NP50\_EN\_1905\_v2.1

## **WP400** Probe 1 Hz - 400 kHz



- Electric & Magnetic field measurement
- Isotropic & True RMS measurement
- Spectrum analysis probe
- Measurements in accordance with International Standards
- 100 cm<sup>2</sup> sensor





#### Power grid

Measurement of the exposure to EM fields at transformer stations and high-voltage lines.



#### Railway Measurement of EM fields

in trains and in the railway environment with respect to human exposure.



#### Industry

Assessment of workers' exposure to EM fields in all kind of manufacturing facilities.



#### **Technical Specifications**

	Electric Field	Magnetic Field
Sensor type	Isotropic patented electrodes	
Frequency range	1 Hz – 400 kHz	1 Hz – 400 kHz
Field Strength Mode		
Measurement range	1 V/m to 100 kV/m	50 nT - 30 mT @ 50 Hz 50 nT - 10 mT (100 Hz - 10 kHz) • Upper range increases linearly with decreasing frequency below 100 Hz. • Upper range decreases linearly with increasing frequency above 10 kHz.
Graphical display	RMS, Axis Values, AVG, MAX	, MIN, PEAK, RMS time graph
Peak value	digital realtime	digital realtime
Resolution	< 0.4 mV/m above 8 Hz	< 0.1 nT (at 50 Hz) and < 0.05 nT above 100 Hz
Noise level	< 1 V/m (10 Hz - 400 kHz)	< 50 nT (10 Hz – 400 kHz)
Weigthed Peak Method mode	•	
Measurement range	200 % (min)	200 % (min)
Graphical display	PEAK (%), AXIS VALUES (%), AVG (%), MAX (%), MIN (%), RMS (%), Time graph	
Standards/Limits	EU Directive 2013/35/EU, IEEE, ICNIRP, BGV B11. Easy software update to future modifications and to other limits.	





## **WP400** Probe 1 Hz - 400 kHz



	Electric Field	Magnetic Field
FFT Mode		
Measurement range	4 mV/m – 100 kV/m	0.5 nT - 30 mT @ 50 Hz 0.5 nT - 10 mT (100 Hz - 10 kHz) • Upper range increases linearly with decreasing frequency below 100 Hz. • Upper range decreases linearly with increasing frequency above 10 kHz.
Graphical display	Frequency analysis	, total field and axis
SPAN (Resolution)	400 Hz (1 Hz) - 4 kHz (10 Hz) - 4	0 kHz (100 Hz) - 400 kHz (1 kHz)
Noise level	< 4 mV/m	< 0.5 nT
FFT	1024 point FFT	
General specifications		
Isotropy	± 5 %	±4%
Typical Uncertainty (1)	0.67 dB	0.60 dB
Temperature deviation [typ. At 50/60 Hz] (referred to 25 °C, 50 % relative humidity)	- 0.005 dB/°C (- 15 °C to 40 °C)	- 0.003 dB/°C (- 15 °C to 25 °C) + 0.003 dB/°C (25 °C to 40 °C)
Damage level	> 200 kV/m	> 2000 mT up to 60 Hz Damage level decreases linearly with increasing frequency above 60 Hz
Linearity	± 1 % (typ.) ± 2 % (max.)	
Weight	220 g	
Probe size	280 mm x 128 mm Ø	

 $(1) \ {\rm Total, \ counting \ isotropy, \ temperature \ deviation, \ resolution, \ frequency \ response, \ linearity, \ repetability.}$ 





## **WP400-3** Probe 1 Hz - 400 kHz



- Electric & Magnetic field measurement
- Isotropic & True RMS measurement
- Spectrum analysis probe
- Measurements in accordance with International Standards





#### IEC/EN 62233

Household appliances and similar apparatus: Measurement methods for electromagnetic fields with regard to human exposure.

#### IEC/EN 62822

Electric welding equipment: Assessment of restrictions related to human exposure to electromagnetic fields.

#### IEC/EN 62311

Assessment of electronic and electrical equipment for which no dedicated product- or product family standard regarding human exposure to electromagnetic fields applies.

#### **Technical Specifications**

	Electric Field	Magnetic Field
Sensor type	Isotropic electrode	Isotropic 3 cm <sup>2</sup> coils
Frequency range	1 Hz – 400 kHz	1 Hz – 400 kHz
Field Strength Mode		
Measurement range	10 V/m to 400 kV/m	200 nT - 50 mT (100 Hz - 10 kHz) · Upper range increases linearly with decreasing frequency below 100 Hz. · Upper range decreases linearly with increasing frequency above 10 kHz.
Graphical display	RMS, Axis Values, AVG, MAX	, MIN, PEAK, RMS time graph
Peak value	digital realtime	digital realtime
Resolution	< 0.4 mV/m above 8 Hz	< 0.3 nT (at 50 Hz) and < 0.15 nT above 100 Hz
Noise level	< 10 V/m (10 Hz - 400 kHz)	< 200 nT (10 Hz - 400 kHz)
Typical Uncertainty (10 Hz - 100 kHz) (1)	0.67 dB	0.60 dB
Weigthed Peak Method mod	e	
Measurement range	200 % (min)	200 % (min)
Graphical display	PEAK (%), AXIS VALUES (%), AVG (%), MAX (%), MIN (%), RMS (%), Time graph	
Standards/Limits	Standards / Limits EU Directive 2013/35/EU, FCC/IEEE, ICNIRP 1998 workers, ICNIRP 2010 workers, BGV B11	
Trucio al Una anta inte	, i	nodifications and to other limits.
Typical Uncertainty (10 Hz - 100 kHz) (1)	0.67 dB	0.60 dB



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(1) Total, counting isotropy, temperature deviation, resolution, frequency response, linearity, repetability.



## **WP400-3** Probe 1 Hz - 400 kHz



	Electric Field	Magnetic Field
FFT Mode		
Measurement range	40 mV/m to 400 kV/m	2 nT to 50 mT (100 Hz - 10 kHz)
		<ul> <li>Upper range increases linearly with decreasing frequency below 100 Hz.</li> </ul>
		Upper range decreases linearly with increasing frequency above 10 kHz.
Graphical display	Frequency analysis	s, total field and axis
SPAN (Resolution)	400 Hz (1 Hz) - 4 kHz (10 Hz) - 4	0 kHz (100 Hz) - 400 kHz (1 kHz)
Noise level	< 40 mV/m	< 1.8 nT
FFT	1024 point FFT	
General specifications		
Isotropy	± 5 %	±4%
Temperature deviation	- 0.005 dB/°C (- 15 °C to 40 °C)	- 0.003 dB/°C (- 15 °C to 25 °C)
[typ. at 50/60 Hz] (referred to 25 °C, 50 % relative humidity)		+ 0.003 dB/°C (25 °C to 40 °C)
Damage level	> 600 kV/m	> 5000 mT up to 60 Hz
		Damage level decreases linearly with increasing frequency above 60 Hz
Linearity	± 1 % (typ.)	
	± 2 %	(max.)
Weight	125 g	
Probe size	275 x 33 mm Ø	

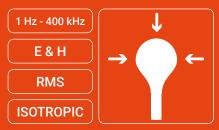




## **WP400c** Probe 1 Hz - 400 kHz

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- Electric & Magnetic field measurement
- Isotropic & True RMS measurement
- Spectrum analysis probe
- Measurements in accordance with International Standards
- 100 cm<sup>2</sup> sensor





#### Power grid

Measurement of the exposure to EM fields at transformer stations and high-voltage lines.



#### Railway Measure

 Measurement of EM fields in trains and in the railway environment with respect to human exposure.



#### Industry

Assessment of workers' exposure to EM fields in all kind of manufacturing facilities.



#### **Technical Specifications**

	Electric Field	Magnetic Field	
Sensor type	Isotropic patented electrodes		
Frequency range	1 Hz – 400 kHz	1 Hz – 400 kHz	
Field Strength Mode			
Measurement range	1 V/m to 100 kV/m	50 nT - 30 mT @ 50 Hz 50 nT - 1.5 mT (820 Hz - 40 kHz) • Upper range increases linearly with decreasing frequency below 820 Hz. • Upper range decreases linearly with increasing frequency above 40 kHz.	
Graphical display	RMS, Axis Values, AVG, MAX, MIN, PEAK, RMS time graph		
Peak value	digital realtime	digital realtime	
Resolution	< 0.4 mV/m above 8 Hz	< 0.1 nT (at 50 Hz) and < 0.05 nT above 100 Hz	
Noise level	< 1 V/m (10 Hz - 400 kHz)	< 50 nT (10 Hz – 400 kHz)	
Weigthed Peak Method mode	9		
Measurement range	200 % (min)	200 % (min)	
Graphical display	PEAK (%), AXIS VALUES (%), AVG (%), MAX (%), MIN (%), RMS (%), Time graph		
Standards/Limits	EU Directive 2013/35/EU, IEEE (except Restricted and Limb), ICNIRP, BGV B11, GB 8702-2014. Easy software update to future modifications and to other limits.		





## **WP400c** Probe 1 Hz - 400 kHz



	Electric Field	Magnetic Field
FFT Mode		
Measurement range	4 mV/m – 100 kV/m	0.5 nT - 30 mT @ 50 Hz 0.5 nT - 1.5 mT (820 Hz - 40 kHz) • Upper range increases linearly with decreasing frequency below 820 Hz. • Upper range decreases linearly with increasing frequency above 40 kHz.
Graphical display	Frequency analysis	s, total field and axis
SPAN (Resolution)	400 Hz (1 Hz) - 4 kHz (10 Hz) - 40 kHz (100 Hz) - 400 kHz (1 kHz)	
Noise level	< 4 mV/m	< 0.5 nT
FFT	1024 point FFT	
General specifications		
Isotropy	± 5 %	±4%
Typical Uncertainty (1)	0.67 dB	0.60 dB
Temperature deviation [typ. at 50/60 Hz] (referred to 25 °C, 50 % relative humidity)	- 0.005 dB/°C (- 15 °C to 40 °C)	- 0.003 dB/°C (- 15 °C to 25 °C) + 0.003 dB/°C (25 °C to 40 °C)
Damage level	> 200 kV/m	> 2000 mT up to 60 Hz Damage level decreases linearly with increasing frequency above 60 Hz
Linearity	± 1 % (typ.) ± 2 % (max.)	
Weight	220 g	
Probe size	280 mm x 128 mm Ø	
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(1) Total, counting isotropy, temperature deviation, resolution, frequency response, linearity, repetability.





## **WPF3** Probe 100 kHz - 3 GHz

- Electric field measurement
- Isotropic & True RMS measurement
- High sensitivity from 0.2 V/m
- Excellent attenuation at 50/60 Hz
- Measurements in accordance with International Standards





Telecommunications Certification and audit of telecommunication services (GSM, 3G, LTE, TDT, FM, WiFi, etc.).

Industry Assessment of industrial processes for worker's exposure protection.



**Defence** Assessment of military sites and personnel exposure protection.



### Labs/R&D

RF exposure protection of R&D and labs personnel.

### **Technical Specifications**

	WPF3	WPF3-HP High Power version
Frequency range	100 kHz - 3 GHz	
Sensor type	Isotropic RMS diode technology	
Type of frequency response	Flat	
Measurement range	0.2 - 130 V/m (CW) 0.2 - 20 V/m (RMS)	0.2 – 1000 V/m (CW) 0.2 - 20 V/m (RMS)
Dynamic range	52 dB	74 dB
Sensitivity	0.2 V/m	
Resolution	0.02 V/m (until 7.5 V/m) < 2% (starting from 7.5 V/m)	
Frequency response (*)	± 1.5 dB (250 kHz – 3 GHz) - 3 dB (100 kHz)	
Linearity	± 0.5 dB (0.5 V/m - 100 V/m)	
Isotropic deviation	± 1.2 dB (@ 2 GHz)	
Calibration	ISO 17025 Accredited Calibration (ILAC)	
Calibration period	24 months (recommended)	
Temperature range	- 20 °C to 50 °C	
Temperature response	+ 0.1 / - 1 dB (related to 20 °C)	
Dimensions	28.4 cm x 6 cm Ø	
Weight	95 g	
Attenuation at 50/60 Hz	> 80 dB	
(4) The feature represented with the CNID2 buying the extraction feature started in the make (ICO 17005 extendited solibration)		

(\*) The frequency response can be corrected with the SMP2 by using the correction factors stored in the probe (ISO 17025 accredited calibration).

### Compatible with SMP2, MonitEM, MapEM







## **WPF6** Probe 100 kHz - 6 GHz

025

WAVECONTROL SMP2

4.08<sub>V/m</sub>

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4011ex

- High sensitivity from 0.2 V/m
- Isotropic & True RMS measurement
- Excellent attenuation at 50/60 Hz
- Measurements in accordance with International Standards





#### Telecommunications Certification and audit of telecommunication services (GSM, 3G, LTE, TDT, AM, FM, WiFi, etc.).



Industry Assessment of industrial processes for worker's exposure protection.



**Defence** Assessment of military sites and personnel exposure protection.



#### Labs/R&D

RF exposure protection of R&D and labs personnel.

### **Technical Specifications**

	WPF6	<b>WPF6-HP</b> High Power version
Frequency range	100 kHz – 6 GHz	
Sensor type	Isotropic RMS diode technology	
Type of frequency response	Flat	
Measurement range	0.2 – 130 V/m (CW) 0.2 – 20 V/m (RMS)	0.2 – 1000 V/m (CW) 0.2 – 20 V/m (RMS)
Dynamic range	56 dB	73 dB
Sensitivity	0.2 V/m	
Resolution	0.02 V/m (until 7.5 V/m) 0.1 V/m (from 7.5 V/m to 130 V/m)	
Frequency response (*)	better than -3 dB @ 100 kHz ±1.5 dB (250 kHz – 5.5 GHz) better than -2 dB (5.5 – 6 GHz)	
Linearity	± 0.5 dB (0.5 V/m – 100 V/m)	
Isotropic deviation	±0.3 dB (1 GHz) ±1 dB (6 GHz)	
Calibration	ISO 17025 Accredited Calibration (ILAC)	
Calibration period	24 months (recommended)	
Temperature range	- 20 °C to 50 °C	
Temperature response	+ 0.1 / - 1 dB (related to 20 °C)	
Dimensions	28.4 cm x 6 cm Ø	
Weight	95 g	
Attenuation at 50/60 Hz	> 80 dB	
(*) The frequency response can be corrected with the SMP2 by using the correction factors stored in the probe (ISO 17025 accredited calibration).		

Compatible with **SMP2**, **MonitEM**, **MapEM** 



## **WPF8** Probe 100 kHz - 8 GHz

- High sensitivity from 0.2 V/m
- Isotropic & True RMS measurement
- Excellent attenuation at 50/60 Hz
- Measurements in accordance with International Standards





#### Telecommunications Certification and audit of telecommunication services (GSM, 3G, LTE, TDT, AM, FM, WiFi, etc.).



Industry Assessment of industrial processes for worker's exposure protection.



**Defence** Assessment of military sites and personnel exposure protection.



#### Labs/R&D

RF exposure protection of R&D and labs personnel.

### **Technical Specifications**

	WPF8	<b>WPF8-HP</b> High Power version
Frequency range	100 kHz – 8 GHz	
Sensor type	Isotropic RMS diode technology	
Type of frequency response	Flat	
Measurement range	0.2 – 130 V/m (CW) 0.2 – 20 V/m (RMS)	0.2 – 1000 V/m (CW) 0.2 – 20 V/m (RMS)
Dynamic range	52 dB	70 dB
Sensitivity	0.2 V/m	
Resolution	0.02 V/m (until 7.5 V/m) 0.1 V/m (from 7.5 V/m to 130 V/m)	
Frequency response (*)	± 1.5 dB (250 kHz – 6 GHz) + 0.5 / - 2.5 dB (6.5 GHz - 8 GHz) - 3 dB (100 kHz)	
Linearity	± 0.5 dB (0.5 V/m - 100 V/m)	
Isotropic deviation	± 1 dB (@ 2 GHz)	
Calibration	ISO 17025 Accredited Calibration (ILAC)	
Calibration period	24 months (recommended)	
Temperature range	- 20 °C to 50 °C	
Temperature response	+ 0.1 / - 1 dB (related to 20 °C)	
Dimensions	28.4 cm x 6 cm Ø	
Weight	95 g	
Attenuation at 50/60 Hz	> 80 dB	
(*) The frequency response can be corrected with the SMP2 by using the correction factors stored in the probe (ISO 17025 accredited calibration).		

### Compatible with SMP2, MonitEM, MapEM

Product specifications and descriptions in this document subject to change without notice.





025



## WPF18 Probe 300 kHz – 18 GHz

025

4011ex

WAVECONTROL SMP2

4.08v/m

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- Electric field measurement
- Isotropic & True RMS measurement
- High sensitivity from 0.5 V/m
- Excellent attenuation at 50/60 Hz
- Measurements in accordance with International Standards





Telecommunications Certification and audit of telecommunication services (GSM, 3G, LTE, TDT, FM, WiFi, etc.).

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Industry Assessment of industrial processes for worker's exposure protection.



**Defence** Assessment of military sites and personnel exposure protection.



### Labs/R&D

RF exposure protection of R&D and labs personnel.

### **Technical Specifications**

	WPF18	WPF18-HP High Power version	
Frequency range	300 kHz – 18 GHz		
Sensor type	Isotropic RMS diode technology		
Type of frequency response	Flat		
Measurement range	0.5 – 250 V/m (CW) 0.5 – 30 V/m (RMS)	0.5 – 1000 V/m (CW) 0.5 – 30 V/m (RMS)	
Dynamic range	54 dB	66 dB	
Sensitivity	0.5 V/m		
Resolution	0.1 V/m (from 10 V/m to 250 V/m)		
Frequency response (*)	±2 dB (1 MHz – 5 GHz) +0 / -6 dB (5 GHz – 18 GHz)		
Linearity	±0.5 dB (1 V/m – 150 V/m)		
Isotropic deviation	±1.2 dB (up to 10 GHz) ±3 dB (10 GHz - 18 GHz)		
Calibration	ISO 17025 Accredited Calibration (ILAC)		
Calibration period	24 months (recommended)		
Temperature range	-20 °C to 50 °C		
Temperature response	+0.1 / -1 dB (related to 20 °C)		
Dimensions	28.4 cm x 6 cm Ø		
Weight	95 g		
Attenuation at 50/60 Hz	> 60 dB		
(#) The frequency representation is the second with the SMD2 by using the correction factors stored in the probe (ISO 17025 correction ellipsic)			

(\*) The frequency response can be corrected with the SMP2 by using the correction factors stored in the probe (ISO 17025 accredited calibration).

### Compatible with SMP2, MonitEM, MapEM



## WPF40 Probe 1 MHz – 40 GHz

1025

WAVECONTROL SMP2

4.08<sub>V/m</sub>

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4011ex

- Electric field measurement
- Isotropic & True RMS measurement
- High dynamic range of 60 dB
- Excellent attenuation at 50/60 Hz
- Measurements in accordance with International Standards





Telecommunications Certification and audit of telecommunication services (GSM, 3G, LTE, TDT, FM, WiFi, etc.).

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Industry

Assessment of industrial processes for worker's exposure protection.



**Defence** Assessment of military sites and personnel exposure protection.



#### Labs/R&D RF exposure protection of R&D ar

RF exposure protection of R&D and labs personnel.

#### **Technical Specifications**

Frequency range	1 MHz - 40 GHz	
Sensor type	Isotropic RMS diode technology	
Type of frequency response	Flat	
Measurement range	1 – 1000 V/m (CW)	
	1 – 55 V/m (RMS)	
Dynamic range	60 dB	
Sensitivity	1 V/m	
Frequency response (*)	± 2 dB (2 MHz – 17 GHz)	
	± 3 dB (17 GHz – 40 GHz)	
	- 3 dB @ 1 MHz	
Linearity	± 2 dB (1 – 2 V/m)	
	± 1 dB (2 – 250 V/m)	
Isotropic deviation	± 1 dB (< 12 GHz)	
	± 2 dB (12 GHz to 40 GHz)	
Damage level (CW)	1200 V/m	
Calibration	ISO 17025 Accredited Calibration (ILAC)	
Calibration period	24 months (recommended)	
Temperature range	- 20 °C to 50 °C	
Temperature response	+ 0.1 / - 1 dB (related to 20 °C)	
Dimensions	28.4 cm x 6 cm Ø	
Weight	95 g	
Attenuation at 50/60 Hz	> 40 dB	

(\*) The frequency response can be corrected with the SMP2 by using the correction factors stored in the probe (ISO 17025 accredited calibration).

### Compatible with SMP2, MonitEM, MapEM





## WPF60 Probe 1 MHz – 60 GHz

1025

Vonex

- Electric field measurement
- Isotropic & True RMS measurement
- High dynamic range of 60 dB
- Excellent attenuation at 50/60 Hz
- Measurements in accordance with International Standards





Telecommunications Certification and audit of telecommunication services (GSM, 3G, LTE, TDT, FM, WiFi, etc.).

Assessment of industrial processes for worker's exposure protection.



**Defence** Assessment of military sites and personnel exposure protection.



#### Labs/R&D RF exposure protection of R&D at

RF exposure protection of R&D and labs personnel.

#### **Technical Specifications**

Frequency range	1 MHz - 60 GHz	
Sensor type	Isotropic RMS diode technology	
Type of frequency response	Flat	
Measurement range	1 – 1000 V/m (CW) 1 – 55 V/m (RMS)	
Dynamic range	60 dB	
Sensitivity	1 V/m	
Frequency response (*)	± 2 dB (2 MHz – 17 GHz) ± 3 dB (17 GHz – 40 GHz) ± 6 dB (40 GHz – 60 GHz) - 3 dB @ 1 MHz	
Linearity	± 2 dB (1 – 2 V/m) ± 1 dB (2 – 250 V/m)	
Isotropic deviation	± 1.1 dB (< 12 GHz) ± 2.2 dB typ. (12 GHz to 60 GHz)	
Damage level (CW)	1200 V/m	
Calibration	ISO 17025 Accredited Calibration (ILAC)	
Calibration period	24 months (recommended)	
Temperature range	- 20 °C to 50 °C	
Temperature response	+ 0.1 / - 1 dB (related to 20 °C)	
Dimensions	28.4 cm x 6 cm Ø	
Weight	95 g	
Attenuation at 50/60 Hz	> 40 dB	

(\*) The frequency response can be corrected with the SMP2 by using the correction factors stored in the probe (ISO 17025 accredited calibration).

### Compatible with SMP2, MonitEM, MapEM





## **WPF60S** Probe 1 MHz – 60 GHz

- Shaped
- Isotropic & True RMS measurement
- Excellent attenuation at 50/60 Hz
- Measurements in accordance with International Standards





Telecommunications Certification and audit of telecommunication services (GSM, 3G, LTE, TDT, FM, WiFi, etc.).

Industry Assessment of industrial processes for worker's exposure protection.



**Defence** Assessment of military sites and personnel exposure protection.



Labs/R&D RF exposure protection of R&D and labs personnel.

### **Technical Specifications**

Frequency range	1 MHz - 60 GHz			
Sensor type	Isotropic RMS diode technology			
Type of frequency response	Shaped (FCC or ICNIRP 1998)			
Measurement range Power density	0.1 - 800 % (CW) 0.1% - 35% (RMS)			
Dynamic range	39 dB			
Sensitivity	0.1 %			
Frequency response (*)	<b>ICNIRP 1998</b> 1 MHz - 35 GHz: ±4 dB 35 GHz - 60 GHz: ±7 dB	FCC 1 MHz - 35 GHz: ±3.5 dB 35 GHz - 60 GHz: ±7 dB		
Linearity	± 2 dB (1 – 2 V/m) ± 1 dB (2 – 250 V/m)			
Isotropic deviation	± 1.5 dB (< 16 GHz) ± 3 dB (16 GHz – 30 GHz) ± 5 dB (30 – 60 GHz)			
Damage level (CW)	2500 %			
Calibration	ISO 17025 Accredited Calibration (ILAC)			
Calibration period	24 months (recommended)			
Temperature range	- 20 °C to 50 °C			
Temperature response	+ 0.1 / - 1 dB (related to 20 °C)			
Dimensions	28.4 cm x 6 cm Ø			
Weight	95 g			
Attenuation at 50/60 Hz	> 40 dB			

(\*) The frequency response can be corrected with the SMP2 by using the correction factors stored in the probe (ISO 17025 accredited calibration).

### Compatible with SMP2





# **WPH60** Probe 300 kHz - 60 MHz



1025

4011ex

- Magnetic field measurement
- Isotropic & True RMS measurement
- High sensitivity from 0.018 A/m
- Measurements in accordance with International Standards





Industry Assessment of industrial processes for worker's exposure protection.

telecommunication services (GSM, 3G, LTE, TDT, FM, WiFi, etc.).

Telecommunications Certification and audit of



Defence Assessment of military sites and personnel exposure protection.



Labs/R&D RF exposure protection of R&D and labs personnel.

### **Technical Specifications**

Frequency range	300 kHz - 60 MHz
Sensor type	Isotropic RMS diode technology
Type of frequency response	Flat
Measurement range	0.018 - 20 A/m (CW) 0.018 - 1 A/m (RMS)
Damage Level (CW)	35 A/m (350 A/m Peak 1 µs, period 100 µs)
Dynamic range	60 dB
Sensitivity	0.018 A/m
Frequency response (*)	± 0.5 dB (500 kHz - 30 MHz) - 3 / + 0.5 (300 kHz - 60 MHz)
Linearity	± 1 dB (0.04 to 4 A/m)
Axial isotropy	±1 dB
Calibration period	24 months (recommended)
Temperature range	- 10 °C to 50 °C
Dimensions	270 mm x 90 mm Ø
Weight	170 g

(\*) The frequency response can be corrected with the SMP2 by using the correction factors stored in the probe (ISO 17025 accredited calibration).

### Compatible with SMP2, MonitEM





# **WPH1000** Probe 30 MHz - 1000 MHz



025

4011ex

- Magnetic field measurement
- Isotropic & True RMS measurement
- High sensitivity from 0.018 A/m
- Measurements in accordance with International Standards





Telecommunications Certification and audit of telecommunication services (GSM, 3G, LTE, TDT, FM, WiFi, etc.).

Industry Assessment of industrial processes for worker's exposure protection.



**Defence** Assessment of military sites and personnel exposure protection.



Labs/R&D RF exposure protection of R&D and labs personnel.

### **Technical Specifications**

Frequency range	30 MHz - 1000 MHz
Sensor type	Isotropic RMS diode technology
Type of frequency response	Flat
Measurement range	0.018 - 20 A/m
Damage Level (CW)	35 A/m (350 A/m Peak 1 µs, period 100 µs)
Dynamic range	60 dB
Sensitivity	0.018 A/m
Frequency response (*)	± 0.5 dB (30 MHz -400 MHz) ± 1 dB (30 MHz - 1000 MHz) > -3 dB @ 25 MHz
Linearity	± 1 dB (0.04 to 4 A/m)
Axial isotropy	±1 dB
Calibration period	24 months (recommended)
Temperature range	- 10 °C to 50 °C
Dimensions	28.4 cm x 6 cm Ø
Weight	95 g

(\*) The frequency response can be corrected with the SMP2 by using the correction factors stored in the probe (ISO 17025 accredited calibration).

### Compatible with SMP2, MonitEM

Product specifications and descriptions in this document subject to change without notice.



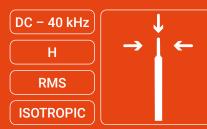


P. 37

## WPH-DC Probe DC – 40 kHz



- Magnetic field measurement
- Isotropic & True RMS measurement
- · Static and time-variable fields
- Spectrum analysis probe
- · Measurements in accordance with **International Standards**





#### Medical Magnetic resonance

in hospitals. Implants protection.



#### Railway High static field due to DC powered railroads.

Industry



permanent magnets, DC generators, etc.

### **Technical Specifications**

Sensor type	Triaxial Hall sensor			
Frequency range	0 – 40 kHz			
Measurement range	10 uT – 10 T			
Resolution		< 50 nT		
Noise		< 5 uT		
Overload	20 T			
Dynamic range	> 120 dB			
Field	Static	Static and Variable	Variable	
Frequency range	0 – 1 Hz 0 – 40 kHz 1 Hz – 40 kHz		1 Hz – 40 kHz	
Linearity		0.6% (100 uT – 1 T) 1% (100 uT – 2.4 T)		
Low pass filter	1Hz None			
FFT	– SPAN 40 Hz – 400 Hz – 4 kHz – 40 kHz			
Graphical display	Static field, axis RMS, Peak, FFT, axis information			
Calibration period	24 months (recommended)			
Dimensions	273 x Ø 21 (mm) – Sensor stick Ø 9.4 (mm)			
Weight		90 g		
<b>_</b>				

Recommended accesory: 5 meters extension cable

### Compatible with SMP2







# WPT Probe Mobile frequency bands

Telecommunications

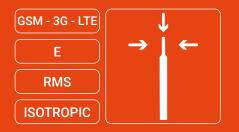
of radiation.

The WPT probe allows measurement

spectrum, ignoring all other sources

of the electromagnetic field only within the mobile telephone

- Specific mobile frequencies probe
- Isotropic & True RMS measurements
- Best sensitivity starting at 0.04 V/m
- High interband attenuation



### **Technical Specifications**

Frequency bands	700 - 900, 1800 - 1900, 2100 and 2600
Sensor type	Isotropic, True RMS
Measurement range	0.04 - 65 V/m (RMS)
Dynamic range	> 64 dB
Sensitivity	0.04 V/m
Resolution	0.07 dB
Interband attenuation	> 20 dB (1100 MHz) > 5 dB (2300 MHz)
Frequency response	± 3.3 dB
Linearity	< ± 0.4 dB (0.2 - 50 V/m)
Isotropic deviation	< ± 1.7 dB
Calibration period	24 months (recommended)
Calibration	ISO 17025 accredited (ILAC)
Operating temperature	- 30°C to + 80°C
Temperature response	± 0.8 dB (- 20°C to 60°C)
Dimensions	28.5 x 10.5 x 10.5cm
Weight	140 g

### Compatible with SMP2, MonitEM, MapEM

WAVECONTROL

Safety, Quality, Service

Product specifications and descriptions in this document subject to change without notice.



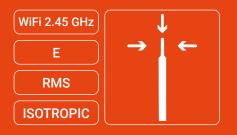
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4011ex

# WPT\_EN\_1703\_v1.1

### WP-WiFi Probe Measuring Electric Field at 2.45 GHz

- Specific 2.45 GHz frequency probe
- Isotropic & True RMS measurements
- Best sensitivity starting at 0.04 V/m
- High out of band attenuation



### **Technical Specifications**

Frequency band	WiFi 2.45 GHz
Sensor type	Isotropic, True RMS
Measurement range	0.04 – 65 V/m (RMS)
Dynamic range	> 64 dB
Sensitivity	0.04 V/m
Resolution	0.07 dB
Out of band attenuation	> 28 dB
Frequency response	± 0.95 dB
Linearity	< ± 0.5 dB (0.2 - 50 V/m)
Isotropic deviation	< ± 1.7 dB
Calibration period	24 months (recommended)
Calibration	ISO 17025 accredited (ILAC)
Operating temperature	- 30°C to + 80°C
Temperature response	± 0.6 dB (- 20°C to 60°C)
Dimensions	28.5 x 10.5 x 10.5cm
Weight	140 g

### Compatible with SMP2, MonitEM, MapEM

Product specifications and descriptions in this document subject to change without notice.



WP-WiFi\_EN\_1702\_v1.1



Vonex







Telecommunications The WP-WiFi probe

allows measurement of the electromagnetic field

only generated by WiFi

of radiation.

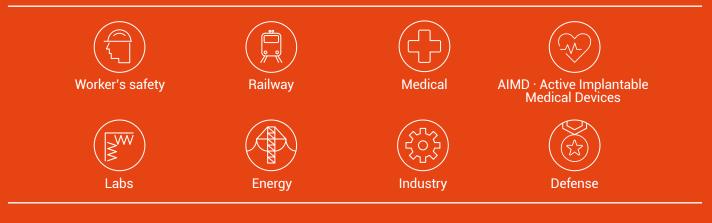
communications at 2.45 GHz, ignoring all other sources

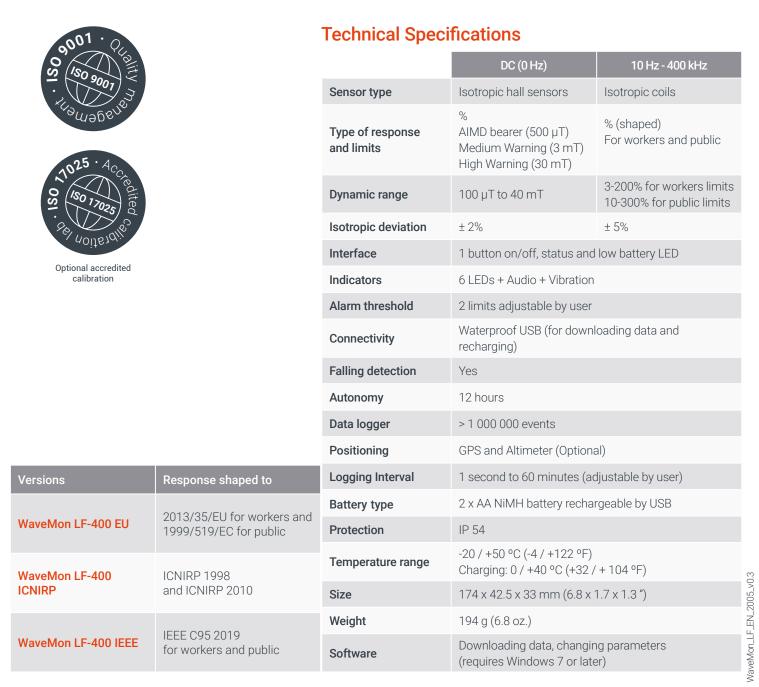






#### WaveMon Applications













### WaveMon Applications







Optional accredited calibration

### **Technical Specifications**

Sensor type	Isotropic, RMS diode technology		
Response	Shaped (ICNIRP 1998/2020, Directive 2013/35/EU, FCC and Safety Code 6)		
Interface	1 button ON/OFF, status and low batte	ry LED	
Indicators	6 LEDs + Audio + Vibration		
Alarm threshold	2 limits adjustable by user		
Connectivity	Waterproof USB (for downloading data	a and recharging)	
Falling detection	Yes		
Autonomy	> 1 month (at 8 h/day, 5 days/week)		
Data logger	> 1 000 000 events		
Positioning	GPS and Altimeter		
Logging Interval	1 second to 60 minutes (adjustable by user)		
Averaging Interval	1 second to 60 minutes (adjustable by user)		
Battery Type	2 x AA NiMH battery rechargeable by USB		
Protection	IP 54		
LF inmunity (50 – 60 Hz)	> 30 kV/m		
Temperature range	-20 / +50 °C (-4 / +122 °F) - Charging: 0 / +40 °C (+32 / + 104 °F)		
Size	174 x 42.5 x 33 mm (6.8 x 1.7 x 1.3 ")		
Weight	190 g (6.7 oz.)		
	E-field	H-field	
Dynamic range	1 - 300 %	2 - 300 %	
Linearity	±0.5 dB (2% - 200%)	±1 dB (5% – 200%)	
Isotropic deviation	±1 dB @ 1GHz	±1 dB @ 400 MHz	



### WaveMon Version Selection Table

		Frequency range and response	
Versions	Response shaped to	E-field	H-field
WaveMon RF-8 ICN WaveMon RF-8 EUD	ICNIRP EU Directive 2013/35	300 kHz – 8 GHz ±3.5 dB	25 MHz – 1 GHz ±1 dB (30 MHz – 700 MHz) +0 dB / -2.5 dB (700 MHz – 850 MHz) +0 dB / -5 dB (850 MHz – 1 GHz)
WaveMon RF-8 FCC	FCC	3 MHz – 8 GHz ±3.5 dB	3 MHz – 1 GHz ±1 dB (3 MHz – 400 MHz) ±2 dB (400 MHz – 850 MHz) +0 dB / -4 dB (500 MHz – 1 GHz)
WaveMon RF-8 SC6	Safety Code 6	10 MHz – 8 GHz ±3.5 dB	25 MHz – 1GHz ±2 dB (30 MHz – 800 MHz) +0 dB / -5 dB (800 MHz – 1 GHz)

### WaveMon accessories



GPS Part # W-WAVEMON-GPS

WaveMon Internal GPS



WaveStick Part # WWMA0002

Adjustable extension stick (73 cm / 28,74 ")



Safety cable Part # WWMA0001

WaveMon safety attachment cable



WaveMon Lanyard Part # WWMA0003

Breakaway neck security lanyard









### WaveMon Applications



# $S_{1}^{0}$



Optional accredited calibration

### **Technical Specifications**

Sensor type	Isotropic, RMS diode technology
Frequency	<b>E-Field:</b> 100 kHz – 60 GHz (see version selection table in next page) <b>H-Field:</b> 3 MHz – 1 GHz (see version selection table in next page)
Response	$Shaped to {\it specific standards} (see version selection table in next page)$
Isotropic deviation	E-Field: ±1 dB (<4 GHz) H-Field: ±1 dB
Dynamic Range	Up to 1000% (see version selection table in next page)
Linearity	<b>E-Field:</b> 0.5 dB (2% - 200%) <b>H-Field:</b> 0.5 dB (5% - 200%)
Interface	1 button ON/OFF, status and low battery LED
Indicators	6 LEDs + Audio + Vibration
Alarm threshold	2 alarm thresholds adjustable by user
Connectivity	Waterproof USB (for downloading data and recharging)
Falling detection	Yes
Autonomy	>1 month (at 8 h/day, 5 days/week)
Data logger	>1 000 000 events
Positioning	GPS and Altimeter (Optional)
Logging Interval	1 second to 60 minutes (adjustable by user)
Averaging Interval	1 second to 60 minutes (adjustable by user)
Battery Type	2 x AA NiMH battery rechargeable by USB
Protection	IP 54
LF immunity (50 / 60 Hz)	> 30 kV/m
Temperature range	-20 / +50 °C (-4 / +122 °F) – Charging: 0 / +40 °C (+32 / + 104 °F)
Humidity	5% to 95%, non-condensing
Size	174 x 42.5 x 33 mm (6.8 x 1.7 x 1.3 ")
Weight	190 g (6.7 oz.)



### WaveMon Version Selection Table

		E Field		H Field	
Versions	Response shaped to	Frequency response	Dynamic range	Frequency response	Dynamic range
	ICNIRP 1998/2020 * Occupational	±3.5 dB (100 kHz – 10 GHz) ±4 dB (10 GHz – 35 GHz) +10 / -6 dB (35 GHz – 60 GHz)	0.5 - 1000%	±3 dB (25 MHz – 1 GHz)	1 - 1000%
RF-60 ICN	ICNIRP 1998/2020 * General public	±3.5 dB (5 MHz – 10 GHz) ±4 dB (10 GHz – 35 GHz) +10 / -6 dB (35 GHz – 60 GHz)	0.5 - 1000%	±3 dB (25 MHz – 1 GHz)	3 - 1000%
	FCC 96-326 Occupational	±3.5 dB (100 kHz – 10 GHz) ±4 dB (10 GHz – 35 GHz) +10 / -6 dB (35 GHz – 60 GHz)	0.5 - 1000%	±2 dB (3 MHz – 1 GHz)	1 - 1000%
	FCC 96-326 General public	±5 dB (100 kHz – 2 MHz) ±3.5 dB (2 MHz – 10 GHz) ±4 dB (10 GHz – 35 GHz) +10 / -6 dB (35 GHz – 60 GHz)	0.5 - 1000%	±2 dB (3 MHz – 1 GHz)	3 - 1000%
RF-60 EUD	EU Directive 2013/35	±3.5 dB (100 kHz – 10 GHz) ±4 dB (10 GHz – 35 GHz) +10 / -6 dB (35 GHz – 60 GHz)	0.5 - 1000%	±3 dB (25 MHz – 1 GHz)	1 - 1000%
R	Recommendation 1999/519/EC	±3.5 dB (5 MHz – 10 GHz) ±4 dB (10 GHz – 35 GHz) +10 / -6 dB (35 GHz – 60 GHz)	0.5 - 1000%	±3 dB (25 MHz – 1 GHz)	3 - 1000%
	Safety Code 6 Controlled	±3.5 dB (5 MHz – 10 GHz) ±4 dB (10 GHz – 35 GHz) +11 / -6 dB (35 GHz – 60 GHz)	0.5 - 1000%	±2 dB (25 MHz – 1 GHz)	1 - 1000%
RF-60 SC6	Safety Code 6 Uncontrolled	±3.5 dB (5 MHz – 10 GHz) ±4 dB (10 GHz – 35 GHz) +11 / -6 dB (35 GHz – 60 GHz)	0.5 – 1000%	±2 dB (25 MHz – 1 GHz)	3 - 1000%
RF-60 NATO	NATO standards Zone 1	±3.5 dB (100 kHz - 10 GHz) ±5 dB (10 GHz - 35 GHz) +12 / -6 dB (35 GHz - 60 GHz)	0.5 - 1000%	±2 dB (100 MHz – 1 GHz)	1 - 1000%

\* compliant with ICNIRP 2020 from 27 MHz

### WaveMon accessories



GPS Part # W-WAVEMON-GPS

WaveMon Internal GPS



WaveStick
Part # WWMA0002

Adjustable extension stick (73 cm / 28,74 ")



Safety cable Part # WWMA0001

WaveMon safety attachment cable



WaveMon Lanyard Part # WWMA0003

Breakaway neck security lanyard

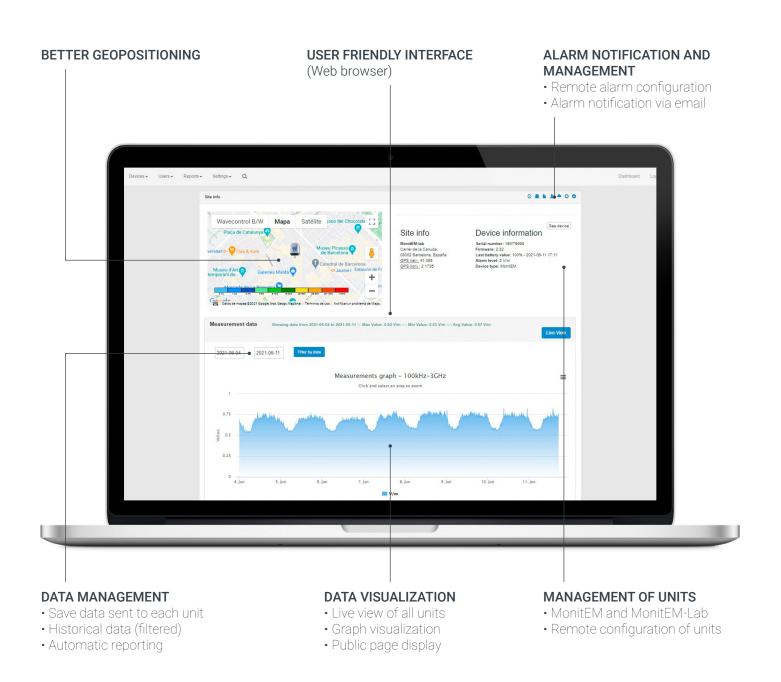


# Control Centre

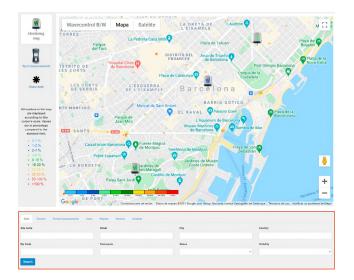


Control Centre is a web-based application that allows remote configuration, data consultation, report generation, and management of MonitEM and MonitEM-Lab continuous monitors, among other functions.

The Control Centre is accessible from any computer with a web browser and offers the option of a public Internet page to display data and compare it easily with regulated limits.







#### **User-friendly interface**

The Control Centre is designed for a web browser interface with powerful parametric search functions. Users can easily position units and measurement sites on Google map and easily monitor the status of each sites and their units, if they are active, inactive or with any incident.

Users 🔻	Reports 🕶		
Create us Manage i			
Edit user			
Usernar	ne	* Username	
Email		* user@email.com	
Enabled	í.		
Interface	e language	* en	~
Comme	nts		

#### **Powerful User Roles**

User roles can be effectively assigned with different levels of control over the management over the Control Centre, to configure the data sent, create, and manage a single or multiple Control Centres or just able to use the basic general features of the Control Centre. Different languages can be assigned also.



#### **Management of Units**

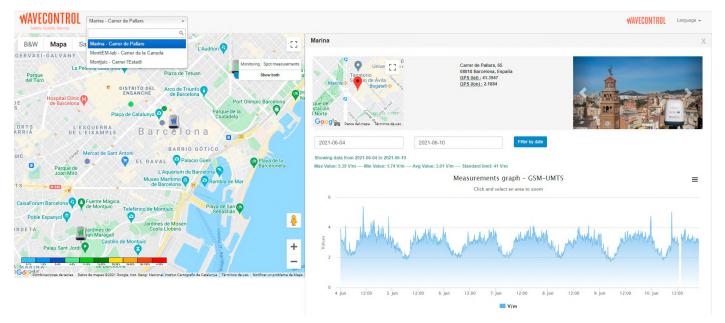
Unlimited number of MonitEM and MonitEM-Lab units can be remotely configured and managed through the Control Centre. Data from the MonitEM, MonitEM-Lab and the portable SMP2 devices can be sent to the Control Centre easily. Intelligent and global search for units, sites, users, reports, and incidents.



#### **Visualization Tools**

The Control Centre has excellent visualization of the measurement data and battery information. The user has a live view of their measurement from the available units. The graphs of individual units can be viewed as well as the graphs of all units simultaneously. Indication of the weather history in battery graphs.





#### **Public Page Display**

The Control Centre provides a public page, where the public can have access to the EMF levels in the areas near them and see how these EMF levels compare to the standard limits.

#### **Open API for customized pages**

Availability of open API for easy creation and customization of pages effectively with an external service.

#### Data Management

Access to all the measurement historical data and device logs saved on the Control Centre. User can filter the data by dates and manage measurement results and graphs of all units on the Control Centre... Easy configuration of parameters such as device and site settings, alarm levels, communication parameters and Control Centre settings.

				Validate all alar
Alarm type	Created at	Status	Log	Action
Battery	23/06/2020 07:35:49	Validation pending	View Log	Validate alarm Report alarm
Hibernation	29/06/2020 10:50:41	Validation pending	View Log	Validate alarm Report alarm
Battery	02/07/2020 16:39:52	Validation pending	View Log	Validate atarm Report atarm
Hibernation	07/07/2020 23:57:05	Validation pending	View Log	Validate alarm Report alarm
Battery	23/07/2020 23:43:41	Validation pending	View Log	Validate alarm Report alarm
Hibernation	29/07/2020 23:08:27	Validation pending	View Log	Validate alarm Report alarm
Battery	14/08/2020 00:51:11	Validation pending	View Log	Validate alarm Report alarm
Hibernation	19/08/2020 20:16:42	Validation pending	View Log	Validate alarm Report alarm
Battery	07/09/2020 20:23:58	Validation pending	View Log	Validate alarm Report alarm
Battery	28/09/2020 12:39:53	Validation pending	View Log	Validate atarm Report atarm
Hibernation	04/10/2020 09:08:15	Validation pending	View Log	Validate atarm Report atarm



Marina Status : Incident Carrer de Pallars 65,Barcelona España Serial number : 13MT0249

#### **Automatic Reports and Notification**

Automatic reports (in different formats) sent weekly or monthly via email. Manage notification contacts for reports and incidences for any measurement site. Easy creation and customization of user-friendly report templates. Reports can also be obtained at any time upon request.

#### **Alarms and Events**

The Control Centre provides a quick way to check whether any alarm has been raised at any of the registered measurement sites, which are sent via email to the administrator of each site for validation.





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