narda
Safety Test Solutions

Datasheet | AMB-8059

Continuous, remote monitoring and logging of electromagnetic fields

Narda Multi-Band Area Monitors are constantly in use in areas where electromagnetic radiation levels need to be continuously assessed by means of long-term observation. The wideband Area Monitor AMB-8059 combines the latest technology with traditional reliability. There are more than 4,500 stations in use worldwide.

The use of an internal modem 2G/4G and Wi-Fi for communications ensures compatibility with every data service throughout the world.

The low power consumption ensures up to 80 days of operation, despite the lack of sunlight(*).

ITU-T K.83 compliant

- Interchangeable probes from 10 Hz to 60 GHz for low frequency & high frequency applications
- Shaped probes compliant with ICNIRP 1998, ICNIRP 2020, SC 6 2015, FCC 96 326
- Simultaneous monitoring of electric and magnetic fields
- Broadband and multi-band probes for telecommunications monitoring
- 24/7 fully autonomous operation:
  - Solar panel power supply
  - Built-in 2G/4G modem
  - Built-in Wi-Fi
  - Automatic data transfer
  - Daily reports, warnings & alarm messages via SMS
  - On-board GPS
- Easy integration into test environments and Web Based Applications
- Low weight, robust design, compact size for indoor and outdoor operations
- Drive test capability of AMB-8059/00 model according to ITU-K.113
- Stand by power consumption 1mA

(*) Area monitor model AMB-8059/01 or 03 with Solar Panel

Minimum outlay, maximum result

An EMF monitoring system is made up from a series of EMF monitors installed wherever the EMF presence needs to be assessed continuously or by long term observation.

The EMF monitors store the data and report them using conventional mobile data communication at set time intervals to a central unit, e.g. PC or data server.

The system size can range from a single location up to countrywide coverage. Narda EMF monitors combine all the features that are essential for this purpose: autonomy, outdoor usability, mobility, robustness, and low operating costs.

You can be certain to find the ideal solution for every area of application with Narda. And you can depend on its reliability, thanks to our decades of experience coupled with cutting edge technology, backed up by our own certified calibration laboratory.

The AMB Series

Its broadband application is the optimum solution for technical superiority from a tight budget.

Four models are available:

Unit designation	AMB-8059/03	AMB-8059/02	AMB-8059/01	AMB-8059/00
Solar panel (24/7) & back-up battery	✓		✓	
Li-Ion battery (life time about 8 months)		✓		✓
Internal 2G/4G modem	✓	✓		
Wi-Fi	✓	✓	✓	✓
Ethernet port	✓		✓	
USB	✓	✓	✓	
RS232	✓		✓	
Micro SD card	✓	✓	✓	✓
Optical link	✓		✓	✓
GPS sensor	✓	✓	✓	✓
Remote capabilities	✓	✓	✓	✓
Long-term measurement	✓	✓	✓	✓
Short-term measurement	✓	✓	✓	✓
Drive test measurement				✓ (1)

(1) Car mounting kit required, see optional accessories

Complete program for all requirements

Narda offers a wide range of different isotropic probes. These include quad-band probes for separating mobile telephone services as well as wideband measurement from 0.1 MHz to 60 GHz either with a flat or shaped frequency response.

Special probes are available for low frequency magnetic or electric fields from 10 Hz to 5 kHz.

This means that emissions from high-voltage cables and transformer stations can be recorded. Further, it is possible to combine up to two probes, e.g. an electric and a magnetic field probe in the so-called “dual probe configuration”.

Magnetic field probe

Electric field probe

Dual probe configuration (without radome)

Narda Area Monitor Single-Band Probes

Application versus Probes							
Mobile communications	●	●		●	●	●	
Radio / TV broadcasting	●	●		●	●	●	
Directional radio		●		●	●	●	
Satellite communications				●	●		
Radar				●	●		
Industry	●	●	●			●	●
Railroads			●				●
Power lines			●				●
Transformers			●				●
Frequency range	0.1 MHz to 3 GHz	0.1 MHz to 7 GHz	10 Hz to 5 kHz	0.3 MHz to 18 GHz	0.3 MHz to 40 GHz	0.1 MHz to 8 GHz	10 Hz to 5 kHz
Field type (isotropic sensors)	E	E	E	E	E	E	H
Band type	Single	Single	Single	Single	Single	Single	Single
Probe designation	EP-1B-01	EP-1B-03	EP-1B-04	EP-1B-05	EP-1B-06	EP-1B-08	HP-1B-01

Narda Dual Probes for simultaneous monitoring of electric and magnetic fields

Possible dual probe configuration							
Probe combination		HP-1B-01 + EP-1B-01	HP-1B-01 + EP-1B-03	HP-1B-01 + EP-1B-04	HP-1B-01 + EP-1B-05	HP-1B-01 + EP-1B-06	HP-1B-01 + EP-1B-08
Frequency range Field type	H	10 Hz to 5 kHz	10 Hz to 5 kHz	10 Hz to 5 kHz	10 Hz to 5 kHz	10 Hz to 5 kHz	10 Hz to 5 kHz
	E	0.1 MHz to 3 GHz	0.1 MHz to 7 GHz	10 Hz to 5 kHz	0.3 MHz to 18 GHz	0.3 MHz to 40 GHz	0.1 MHz to 8 GHz

Narda Area Monitor Multi Band and Shaped Probes

Application versus Probes							
Mobile communications	●	●	●	●	●	●	●
Radio / TV broadcasting	●	●	●	●	●	●	●
Directional radio	●	●	●	●	●	●	●
Satellite communications	●	●	●	●			
Radar	●	●	●	●			
Industry							
Railroads							
Power lines							
Transformers							
Frequency range	E: 500 kHz to 9,25 GHz H: 20 MHz – 1 GHz	E: 500 kHz to 60 GHz H: 20 MHz – 1 GHz	E: 1,34 MHz to 9,25 GHz H: 1 MHz – 1 GHz	E: 1,34 MHz to 60 GHz H: 1 MHz – 1 GHz	0.1 - 3000 MHz 0.1 - 862 MHz 3 GHz	0.1 MHz to 3 GHz GSM, UMTS	0.1 MHz to 7 GHz GSM, UMTS
Field type (isotropic sensors)	E & H	E & H	E & H	E & H	E	E	E
Band type	Shaped ICNIRP 98, SC6	Shaped ICNIRP 98, SC6	Shaped ICNIRP 20, FCC	Shaped ICNIRP 20, FCC	Tri-Band	Quad-Band	Quad-Band
Probe designation	EHP-2B-01	EHP-2B-02	EHP-2B-03	EHP-2B-04	EP-3B-01	EP-4B-01	EP-4B-02

Why a shaped probe?

Filters in the area monitor shaped probes ensure that all services are evaluated according to the standard, e.g. directly compliant with ICNIRP, FCC or SC6, regardless of their frequencies, which is a patented function unique to these devices.

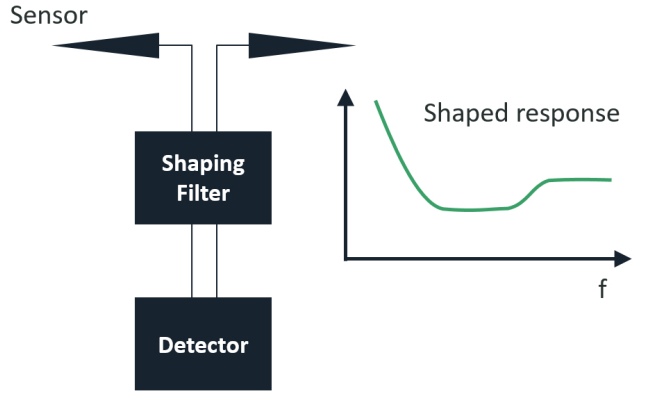
Weighting filters in the sensors simulate the frequency response of the standard and they ensure that the alarm thresholds (settable by user's) are correct over the entire frequency range.

Benefits of a "shaped" probe for AMB-8059:

- Selectivity is not necessary, shaping ensures automatic standard compliant evaluation over the entire frequency range of the probe
- Standard compliance by means of shaped frequency response
- Direct reading in % of standard for both E & H field
- Shaped probes for several standards available (ICNIRP, SC6 and FCC)
- Direct reading for both occupational and general public limit values
- Works perfectly even in a multi frequency environment
- Economical alternative to selective measuring devices

SHAPED PROBES REALIZATION

- The output signal of the probe is first fed to a filter circuit and then passed on to the detection system.



Specifications

EP-1B-01

Electric Field Probe*	
Frequency range	0.1 MHz to 3 GHz
Measurement range	0.2 to 200 V/m (dynamic range > 60 dB)
Measurement resolution	0.01 V/m
Sensitivity	0,2 V/m
Overload	600 V/m
Flatness @ 20 V/m	1 to 200 MHz ± 0.8 dB 0.15 MHz to 3 GHz ± 1.5 dB
Linearity	± 0.5 dB (0.5 to 100 V/m)
Anisotropy @ 6 V/m	± 0.8 dB @ 50 MHz (typical 0.6 dB)
H-Field rejection	> 20 dB
Temperature error	0,1 dB/°C
A/D conversion	On board
Calibration factors	On board E^2prom
Temperature sensor	On board
Dimensions	450 mm length, 55 mm Ø
Weight	180 g

EP-1B-03

Electric Field Probe*	
Frequency range	0.1 MHz to 7 GHz
Measurement range	0.2 V/m to 200 V/m (dynamic range > 60 dB)
Measurement resolution	0.01 V/m
Overload	600 V/m
Sensitivity	0,2 V/m
Flatness @ 20 V/m	3 MHz to 200 MHz: ±0.8 dB 0.15 MHz to 3 GHz: ±1.5 dB 0.1 MHz to 6 GHz: ±2 dB
Linearity	± 0.5 dB (0.5 to 100 V/m)
Anisotropy @ 6 V/m	± 0.8 dB @ 50 MHz (typical 0.6 dB)
H-Field rejection	> 20 dB
Temperature error	0,1 dB/°C
A/D conversion	On board
Calibration factors	On board E^2prom
Temperature sensor	On board
Dimensions	450 mm length, 55 mm Ø
Size and weight	180 g

(*) All probes include on board A/D conversion, calibration factors on E^2PROM, and temperature sensor

EP-1B-04

Electric Field Probe*	
Frequency range	10 Hz to 5 kHz
Measurement range	5 V/m to 20 kV/m (dynamic range > 72 dB)
Measurement resolution	0.1 V/m
Overload	> 30 kV/m
Sensitivity	5 V/m
Flatness @ 100 V/m (40 Hz – 1 kHz)	1 dB (typical 0.5 dB)
Anisotropy @ 100 V/m	0.5 dB @ 50 Hz
H-Field rejection	> 20 dB
A/D conversion	On board
Calibration factors	On board E^2prom
Temperature sensor	On board
Dimension	77 mm x 53 mm Ø
Size and weight	110 g

EP-1B-05

Electric Field Probe*	
Frequency range	0.3 MHz to 18 GHz
Measurement range	0.5 V/m to 800 V/m (dynamic range > 64 dB)
Measurement resolution	0.01 V/m
Overload	1200 V/m
Sensitivity	0,5 V/m
Flatness @ 6 V/m	1 MHz to 1 GHz ± 1.5 dB 1 GHz to 12 GHz ± 3.0 dB 12 GHz to 18 GHz ± 4.0 dB
Linearity	±0,5 dB (±0.3 typical) (1.2 V/m to 200 V/m) @ 200 MHz
Anisotropy @ 200 MHz	±0,8 dB (typical 0,5 dB @ 930 and 1800 MHz)
H-Field rejection	> 20 dB
Temperature error	0,02 dB/°C
A/D conversion	On board
Calibration factors	On board E^2prom
Temperature sensor	On board
Dimension	450 mm length, 55 mm Ø
Size and weight	180 g

(*) All probes include on board A/D conversion, calibration factors on E^2PROM, and temperature sensor

EP-1B-06

Electric Field Probe*	
Frequency range	0.3 MHz to 40 GHz
Measurement range	0.5 V/m to 800 V/m (dynamic range > 64 dB)
Measurement resolution	0.01 V/m
Overload	1200 V/m
Flatness @ 6 V/m	1 MHz to 1 GHz ±1.5 dB 1 GHz to 12 GHz ±3.0 dB 12 GHz to 23 GHz ±4.0 dB 23 GHz to 40 GHz ±5.0 dB
Linearity	± 0.5 dB (± 0.3 typical) (1.2 V/m to 200 V/m) @ 200 MHz
Anisotropy @ 200 MHz	± 0.8 dB (typical 0.5 dB @ 930 and 1800 MHz)
H field rejection	> 20 dB
Size and weight	450 mm x 55 mm Ø, 180 g

EP-1B-08

Electric Field Probe*	
Frequency range	0.1 MHz to 8 GHz
Measurement range	0.2 V/m to 200 V/m (dynamic range > 60 dB)
Measurement resolution	0.01 V/m
Overload	600 V/m
Flatness @ 20 V/m	3 MHz to 200 MHz: ±0.8 dB 0.15 MHz to 6 GHz: ±2 dB 0.1 MHz to 8 GHz: ±3 dB
Linearity	± 0.5 dB (0.5 to 100 V/m) @ 50 MHz
Anisotropy @ 6 V/m	± 0.8 dB @ 50 MHz (typical 0.6 dB)
H-Field rejection	> 20 dB
Size and weight	450 mm x 55 mm Ø, 180 g

HP-1B-01

Magnetic Field Probe*	
Frequency range	10 Hz to 5 kHz
Measurement range and overload	50 nT to 200 µT (dynamic range >72 dB); overload: > 1 mT
Measurement resolution	1 nT
Flatness	40 Hz to 1 kHz, 1 dB (typical 0.6 dB)
Linearity	± 0.5 dB (200 nT to 100 µT)
Anisotropy	0.3 dB @ 50 Hz, 3 µT
E field rejection	> 20 dB
Size and weight	83 mm x 53 mm Ø, 110 g

(*) All probes include on board A/D conversion, calibration factors on E^2PROM, and temperature sensor

EHP-2B-01 ELECTRIC AND MAGNETIC SHAPED FIELD PROBE - For ICNIRP 1998 and SC 6 2015*

			Electric Field	Magnetic Field
Frequency range	ICNIRP 1998	Occupational	0.5 – 9250 MHz	20 – 1000 MHz
		General Public	3 – 9250 MHz	
	SC6 2015	Controlled		
		Uncontrolled		
Level range (1)	Occupational / Controlled		0.1 – 1000 %	0.3 – 1000 %
	General Public / Uncontrolled		0.5 – 1000 %	1.5 – 1000 %
Overload			2000 %	
Linearity (2)			+/- 0.5 dB	
Power (Amplitude) dynamic range	Occupational / Controlled		40 (80) dB	35 (70) dB
	General Public / Uncontrolled		33 (66) dB	28 (56) dB
Resolution			0.01 %	
Sensitivity	Occupational / Controlled		0.1 %	0.3 %
	General Public / Uncontrolled		0.5 %	1.5 %
Frequency flatness (3) (typ)	ICNIRP 1998	Occupational	0.5 – 3 MHz +4/-2 dB 3 – 9250 MHz +/-3 dB	20 – 1000 MHz +/-3 dB
		General Public	3 – 10 MHz +2/-3 dB 10 – 9250 MHz +/-3 dB	
	SC6 2015	Controlled	3 – 9250 MHz +/-3.5 dB	
		Uncontrolled		
Anisotropy (4)			+/-0.5 dB	
Temperature error (4)			0.03 dB/°C	0.01 dB/°C
Temperature sensor			On board	
Field sensor			Triaxial orthogonal dipoles	Triaxial orthogonal loops
A/D convertion			On board	
Calibration (5)			internal E2PROM	
Operating temperature			-20 to +55 °C	
Operating relative humidity (6)			5 to 95 %	
Storage temperature			-30 to +75°C	
Dimensions			450 mm length, 55mm diameter	
Weight			200 g	

When not differently specified the following specifications are referred to operating ambient temperature 23°C and relative humidity 50%.
Note (1): Power density referred.
Note (2): At 50 MHz on related level range 6 dB above the noise floor
Note (3): Relative to 10% of the standard limit
Note (4): At 50 MHz / 10% of the standard limit
Note (5): Recommended re-calibration interval 24 month
Note (6): Without condensation

(*) All probes include on board A/D conversion, calibration factors on E^2PROM, and temperature sensor

EHP-2B-02 ELECTRIC AND MAGNETIC SHAPED FIELD PROBE - For ICNIRP 1998 and SC 6 2015*

			Electric Field	Magnetic Field
Frequency range	ICNIRP 1998	Occupational	0.5 MHz – 60 GHz	20 – 1000 MHz
		General Public	3 MHz – 60 GHz	
	SC6 2015	Controlled		
		Uncontrolled		
Level range (1)	Occupational / Controlled		0.1 – 1000 %	0.3 – 1000 %
	General Public / Uncontrolled		0.5 – 1000 %	1.5 – 1000 %
Overload			2000 %	
Linearity (2)			+/- 0.5 dB	
Power (Amplitude) dynamic range	Occupational / Controlled		40 (80) dB	35 (70) dB
	General Public / Uncontrolled		33 (66) dB	28 (56) dB
Resolution			0.01 %	
Sensitivity	Occupational / Controlled		0.1 %	0.3 %
	General Public / Uncontrolled		0.5 %	1.5 %
Frequency flatness (3) (typ)	ICNIRP 1998	Occupational	0.5 – 3 MHz +4/-2 dB 3 – 18000 MHz +/-3 dB 18 – 60 GHz +8/-1 dB	20 – 1000 MHz +/-3 dB
		General Public	3 – 10 MHz +2/-3 dB 10 – 18000 MHz +/-3 dB 18 – 60 GHz +8/-1 dB	
	SC6 2015	Controlled	3 – 9250 MHz +/-3.5 dB 9250 – 18000 MHz +6/0 dB 18 – 60 GHz +8/-1 dB	
		Uncontrolled		
Anisotropy (4)			+/-0.5 dB	
Temperature error (4)			0.03 dB/°C	0.01 dB/°C
Temperature sensor			On board	
Field sensor			Triaxial orthogonal dipoles	Triaxial orthogonal loops
A/D convertion			On board	
Calibration (5)			internal E^2PROM	
Operating temperature			-20 to +55 °C	
Operating relative humidity (6)			5 to 95 %	
Storage temperature			-30 to +75°C	
Dimensions			450 mm length, 55mm diameter	
Weight			200 g	

When not differently specified the following specifications are referred to operating ambient temperature 23°C and relative humidity 50%.
(1) Power density referred.
(2) At 50 MHz on related level range 6dB above noise floor
(3) Relative to 10% of the standard limit
(4) At 50 MHz / 10% of the standard limit
(5) Recommended re-calibration interval 24 month
(6) Without condensation

(*) All probes include on board A/D conversion, calibration factors on E^2PROM, and temperature sensor

EHP-2B-03 ELECTRIC AND MAGNETIC SHAPED FIELD PROBE - For ICNIRP 2020 and FCC 96 326*

			Electric Field	Magnetic Field
Frequency range	ICNIRP 2020	Occupational	5 – 9250 MHz	1 – 1000 MHz
		General Public		
	FCC 96-326	Occupational	2 – 9250 MHz	2 – 1000 MHz
		General Pop.	1.34 – 9250 MHz	1 – 1000 MHz
Level range (1)	Occupational		0.1 – 1000 %	0.3 – 1000 %
	General P.		0.5 – 1000 %	1.5 – 1000 %
Overload			2000 %	
Linearity (2)			+/- 0.5 dB	
Power (Amplitude) dynamic range	Occupational		40 (80) dB	35 (70) dB
	General P.		33 (66) dB	28 (56) dB
Resolution			0.01 %	
Sensitivity	Occupational		0.1 %	0.3 %
	General P.		0.5 %	1.5 %
Frequency flatness (3) (typ)	ICNIRP 2020	Occupational	5 – 9250 MHz +/-2 dB	1 – 200 MHz +3.5/-1 dB 200 – 1000 MHz +3.5/-4 dB
		General Public		
	FCC 96-326	Occupational	2 – 9250 MHz +/-3 dB	2 – 1000 MHz +/-3 dB
		General Pop.	1.34 – 9250 MHz +/-3 dB	1 – 1000 MHz +/-3 dB
Anisotropy (4)			+/-0.5 dB	
Temperature error (4)			0.03 dB/°C	0.01 dB/°C
Temperature sensor			On board	
Field sensor			Triaxial orthogonal dipoles	Triaxial orthogonal loops
A/D convertion			On board	
Calibration (5)			internal E^2PROM	
Operating temperature			-20 to +55 °C	
Operating relative humidity (6)			5 to 95 %	
Storage temperature			-30 to +75°C	
Dimensions			450 mm length, 55mm diameter	
Weight			200 g	

When not differently specified the following specifications are referred to operating ambient temperature 23°C and relative humidity 50%.
Note (1): Power density referred.
Note (2): At 50 MHz on related level range 6dB above noise floor
Note (3): Relative to 10% of the standard limit
Note (4): At 50 MHz / 10% of the standard limit
Note (5): Recommended re-calibration interval 24 month
Note (6): Without condensation

(*) All probes include on board A/D conversion, calibration factors on E^2PROM, and temperature sensor

EHP-2B-04 ELECTRIC AND MAGNETIC SHAPED FIELD PROBE - For ICNIRP 2020 and FCC 96 326*

			Electric Field	Magnetic Field
Frequency range	ICNIRP 2020	Occupational	5 MHz – 60 GHz	1 – 1000 MHz
		General Public		
	FCC 96-326	Occupational	2 MHz – 60 GHz	2 – 1000 MHz
		General Pop.	1.34 MHz – 60 GHz	1 – 1000 MHz
Level range (1)	Occupational		0.1 – 1000 %	0.3 – 1000 %
	General P.		0.5 – 1000 %	1.5 – 1000 %
Overload			2000 %	
Linearity (2)			+/- 0.5 dB	
Power (Amplitude) dynamic range	Occupational		40 (80) dB	35 (70) dB
	General P.		33 (66) dB	28 (56) dB
Resolution			0.01 %	
Sensitivity	Occupational		0.1 %	0.3 %
	General P.		0.5 %	1.5 %
Frequency flatness (3) (typ)	ICNIRP 2020	Occupational	5 – 9250 MHz +/-2 dB 9250 – 18000 MHz + 3/-2 dB 18 – 60 GHz +8/-1 dB	1 – 200 MHz +3.5/-1 dB 200 – 1000 MHz +3.5/-4 dB
		General Public		
	FCC 96-326	Occupational	2 – 18000 MHz +/-3 dB 18 – 60 GHz +8/-1 dB	2 – 1000 MHz +/-3 dB
		General Pop.	1.34 – 18000 MHz +/-3 dB 18 – 60 GHz + 8/-1 dB	1 – 1000 MHz +/-3 dB
Anisotropy (4)			+/-0.5 dB	
Temperature error (4)			0.03 dB/°C	0.01 dB/°C
Temperature sensor			On board	
Field sensor			Triaxial orthogonal dipoles	Triaxial orthogonal loops
A/D convertion			On board	
Calibration (5)			internal E2PROM	
Operating temperature			-20 to +55 °C	
Operating relative humidity (6)			5 to 95 %	
Storage temperature			-30 to +75°C	
Dimensions			450 mm length, 55mm diameter	
Weight			200 g	

When not differently specified the following specifications are referred to operating ambient temperature 23°C and relative humidity 50%.
Note (1): Power density referred.
Note (2): At 50 MHz on related level range 6dB above noise floor
Note (3): Relative to 10% of the standard limit
Note (4): At 50 MHz / 10% of the standard limit
Note (5): Recommended re-calibration interval 24 month
Note (6): Without condensation

(*) All probes include on board A/D conversion, calibration factors on E^2PROM, and temperature sensor

EP-3B-01 Tri-Band Electric Field Probe*

Frequency range	Wideband: 0.1 MHz to 3 GHz	Low pass: 0.1 to 862 MHz	High pass: 933 MHz to 3 GHz
Measurement resolution	0.01 V/m		
Measurement range	0.2 to 200 V/m (dynamic range > 60 dB)		
Overload	600 V/m		
Flatness @ 20 V/m	1 to 200 MHz ± 0.8 dB 0.15 MHz to 3 GHz ±1.5 dB	1 to 200 MHz ± 0.8 dB 0.15 MHz to 862 MHz ± 1.5 dB	933 to 3 GHz ± 1.5dB
Linearity	± 0.5 dB (0.5 to 100 V/m)		
Anisotropy @ 6 V/m	± 0.8 dB @ 50 MHz (typical 0.6 dB)		± 0.8dB @1 GHz(typical 0.6 dB)
Out of band attenuation	Not applicable	933 MHz to 3 GHz > 23 dB (ref. to 50 MHz)	0,1 to 862 MHz > 23 dB (ref. to 1 GHz)
H field rejection	> 20 dB		
Size and weight	450 mm x 55 mm Ø, 180 g		

EP-4B-01 Quad-Band Electric Field Probe*

Frequency range	Wideband 0.1MHz to 3 GHz	EGSM 900 925 to 960 MHz	EGSM 1800 1805 to 1880 MHz	UMTS 2110 to 2170 MHz
Meas. range	0.2 to 200 V/m	0.03 to 30 V/m	0.03 to 30 V/m	0.03 to 30 V/m
Meas. resolution	0.01 V/m			
CW damage level	300 V/m			
Flatness @ 6 V/m	1 to 200 MHz ± 0.8 dB 0.15 MHz to 3 GHz ± 1.5 dB	925 to 960 MHz +0.5/-2.5 dB	1805 to 1880 MHz +0.5/-2.5 dB	2110 to 2170 MHz +0.5/-2.5 dB
Linearity	± 0.5 dB (0.5 to 100 V/m)	± 0.5 dB (0.06 to 20 V/m)	± 0.5 dB (0.06 to 20 V/m)	± 0.5 dB (0.06 to 20 V/m)
Anisotropy	± 0.8 dB @ 50 MHz, 3 V/m (typical 0.6 dB)	± 0.8 dB@ 942.5 MHz, 3 V/m (typical 0.6 dB)	± 0.8 dB@ 1842.5 MHz, 3 V/m (typical 0.6 dB)	± 0.8 dB@ 2140 MHz, 3 V/m (typical 0.6 dB)
Out of band attenuation	Not applicable	Rejection to 1842 MHz(GSM): 25 dB to 2140 MHz(UMTS): 25 dB	Rejection to 942 MHz(GSM): 15 dB to 2140 MHz(UMTS): 13 dB	Rejection to 942 MHz(GSM): 17dB to 1842 MHz(GSM): 10 dB
Centre frequency drift	Not applicable	40 °C – 50 °C = ± 100kHz -20 °C – 40 °C = ± 100 kHz/°C		
H field rejection	> 20 dB			
Size and weight	450 mm x 55 mm Ø, 210 g			

EP-4B-02 Quad-Band Electric Field Probe*

Frequency range	Wideband 0.1 MHz to 7 GHz	EGSM 900 925 to 960 MHz	EGSM 1800 1805 to 1880 MHz	UMTS 2110 to 2170 MHz
Meas. range	0.2 to 200 V/m	0.03 to 30 V/m	0.03 to 30 V/m	0.03 to 30 V/m
Meas. resolution	0.01 V/m			
Dynamic range	>60 dB			
Flatness @ 6 V/m	3 to 200 MHz ± 1.5 dB 0.15 MHz to 3 GHz ± 2 dB 0.1 MHz to 7 GHz ± 3 dB	925 to 960 MHz +0.5 / -2.5 dB	1805 to 1880 MHz +0.5 / -2.5 dB	2110 to 2170 MHz +0.5 / -2.5 dB
Linearity	± 0.5 dB (0.5 to 100 V/m)	± 0.5 dB (0.1 to 20 V/m)	± 0.5 dB (0.1 to 20 V/m)	± 0.5 dB (0.1 to 20 V/m)
Anisotropy	± 0.8 dB@ 50 MHz, 3 V/m (typical 0.6 dB)	± 0.8 dB@ 942.5 MHz, 3 V/m (typical 0.6 dB)	± 0.8 dB@ 1842.5 MHz, 3 V/m (typical 0.6 dB)	± 0.8 dB@ 2140 MHz, 3 V/m (typical 0.6 dB)
Out of band attenuation	Not applicable	Rejection to 1842 MHz(GSM): 25 dB to 2140 MHz(UMTS): 25 dB	Rejection to 942 MHz(GSM): 15 dB to 2140 MHz(UMTS): 13 dB	Rejection to 942 MHz(GSM): 17dB to 1842 MHz(GSM): 10 dB
Centre frequency drift	Not applicable	40 °C – 60 °C = ± 100 kHz -20 °C – 40 °C = - 100 kHz / °C		
H field rejection	> 20 dB			
Size and weight	450 mm x 55 mm Ø, 210 g			

(*) All probes include on board A/D conversion, calibration factors on E^2PROM, and temperature sensor

AMB-8059 Multi-band EMF Area Monitor

Technical Specifications	
Frequency range	Depending on probe (see probe specifications)
Dynamic range	Depending on probe (see probe specifications)
Resolution	Depending on probe (see probe specifications)
Sensitivity	Depending on probe (see probe specifications)
Linearity	Depending on probe (see probe specifications)
Accuracy	Depending on probe (see probe specifications)
Measurement Units	V/m, kV/m, nT, µT, mT, %. The unit shown depends on the probe connected
Field measured	Total field, average and Peak (MAX)
Sampling	1 measurement every 1 s

Measurement / acquisition functions	
Memorization interval	Programmable from 30 seconds to 15 minutes
Memory	Over 128 MB
Max data storage capacity (before old data are replaced by new ones)	Over 364 days with 1 acquisition every minute
Data download	Manual Automatic managed by the unit at predefined timings (1), (3) Automatic by PC (2), (3) Automatic creation of a .TXT and .BMP file after download
Functions	AVG, RMS, maximum peak; daily report via SMS (3) Display and marking of data acquired during modem transmission (3)
Field strength alarm	Two programmable field strength thresholds (warning and alarm) with automatic notice both of exceeding the limit and returning within the limits (3)
Clock	Real time internal clock
Messages	SMS which can be sent to up to 10 mobile phones simultaneously (3)
Sensor	Display of model and calibration date
Battery management	Every record includes Battery Voltage and Charge Current value
Temperature management	Every record includes Internal Temperature value
Humidity management	Every record includes Internal Humidity value
GPS coordinates	Programmable record

Notes:
(1): To the controller PC or to the user's FTP server depending on the preferred communication mode
(2): Directly from the station or from the user's FTP server depending on the preferred communication mode
(3): AMB-8059/02 and AMB-8059/03 only are equipped with 4G modem
(4): AMB-8059/00 and AMB-8059/01 power autonomy is longer as they are not equipped with 4G modem module
(5): Specifications depending on battery age, ambient temperature and GSM field coverage
(6): Optical link only for the model AMB-8059/03, AMB-8059/01, AMB-8059/00
(7): Only AMB-8059/00 with option car mounting kit for drive test solution
(8): AMB-8059/01 and AMB-8059/03 only; as service in maintenance or backup of solar panel in field from S/N prefix 170WY
(9): RS232 and Ethernet only for the model AMB-8059/01 and AMB-8059/03
(10): USB only for the model AMB-8059/01, AMB-8059/02 and AMB-8059/03

General Specifications	
Modem	Worldwide LTE, UMTS/HSPA+/GSM/GPRS/EDGE coverage (3)
SIM card type (not included)	Enabled for CSD: Circuit Switched Data service or GPRS or both data communication modes Enabled for SMS & FTP: required
Wi-Fi	Wi-Fi 802.11 b/g
Field probes	Interchangeable, several models available, single and dual probe operation
Interfaces	RS232 (9),Ethernet (9), USB (10), Micro SD Card, Wi-Fi, Optical (6), 2G/4G modem (3)
Protection	Sensor to notify case opening
Other alarms	Protective case opening, internal overheat, internal humidity, low battery, battery overload (model AMB-8059/01 and AMB-8059/03 only), probe malfunction, field over limit.
Internal battery	AMB-8059/00 - AMB-8059/02: Non rechargeable primary battery, lithium SAFT LSH20 3.6 V,13 A/h AMB-8059/01 - AMB-8059/03: Lead, 4 V, 2.5 A/h, rechargeable
Consumption	1 mA with 4G module and Wi-Fi module off (only with RF field probes) 500 mA max when 4G module is transmitting and Wi-Fi module off (3) 120 mA max when Wi-Fi module is transmitting and 4G off (3) module 6 mA optical link data query every 1 second; Wi-Fi and 4G off module
External power	DC, 5 V, 1 A max(8)
Operating time @ 1 sec. rate	AMB-8059/02: about 8 months @ 1min GSM module transmission per day and single probe operating mode (autonomy depends on probe and setting) (4), (5) AMB-8059/03: > 80 days in total darkness @ 1min GSM module transmission per day and single probe operating mode (autonomy depends on probe and setting) (4), (5) For best performance install solar panels in direct sunlight.
Recharging time	24 hours with external power unit (AMB-8059/01 and AMB-8059/03 only)
Auto test	Automatic
Compliance	2014/30, 2014/35, CEI 211-6, CEI 211-7, ITU-T K.83, ITU-T K.113(7)
Ambient temperature	-20 °C / +55 °C
Dimensions	(W x D x H) 112 x 112 x 730 mm
Weight	AMB-8059/00 and AMB-8059/02: 1.2 kg (unit only); 6.5 kg (total weight including supports and base) AMB-8059/01 and AMB-8059/03: 2.4 kg (unit only); 7.7 kg (total weight including supports and base)
Environmental protection	IP55, IP66 with IP66K optional accessory (Not suitable with dual probe radome extension and Car Mount Kit option)
Country of origin	Italy

(1): To the controller PC or to the user's FTP server depending on the preferred communication mode
(2): Directly from the station or from the user's FTP server depending on the preferred communication mode
(3): AMB-8059/02 and AMB-8059/03 only are equipped with 2G/4G modem (for station which serial number starts with 290ZY….. or higher)
(4): AMB-8059/00 and AMB-8059/01 power autonomy is longer as they are not equipped with 2G/4G modem module
(5): Specifications depending on battery age, ambient temperature and GSM field coverage
(6): Optical link only for the model AMB-8059/03, AMB-8059/01, AMB-8059/00
(7): Only AMB-8059/00 with option car mounting kit for drive test solution
(8): AMB-8059/01 and AMB-8059/03 only; as service in maintenance or backup of solar panel in field from S/N prefix 170WY
(9): RS232 and Ethernet only for the model AMB-8059/01 and AMB-8059/03
(10): USB only for the model AMB-8059/01, AMB-8059/02 and AMB-8059/03

Ordering Information

Remote stations - AMB-8059	
Area Monitor station powered by internal primary Li-Ion battery	**AMB-8059/00**
Area Monitor station powered by solar panel and back-up battery	**AMB-8059/01**
Area Monitor remote station with 2G/4G internal modem, powered by internal primary Li-Ion battery	**AMB-8059/02**
Area Monitor remote station with 2G/4G internal modem, powered by solar panel and back up battery	**AMB-8059/03**
Field probes	
Electric field probe 0.1 MHz to 3 GHz; 0.2 to 200 V/m	**EP-1B-01**
Electric field probe 0.1 MHz to 7 GHz; 0.2 to 200 V/m	**EP-1B-03**
Electric field probe 10 Hz to 5 kHz; 5 V/m to 20 kV/m	**EP-1B-04**
Electric field probe 0.3 MHz to 18 GHz; 0.5 V/m to 800 V/m	**EP-1B-05**
Electric field probe 0.3 MHz to 40 GHz; 0.5 V/m to 800 V/m	**EP-1B-06**
Electric field probe 0.1 MHz to 8 GHz; 0.2 to 200 V/m	**EP-1B-08**
Magnetic field probe 10 Hz to 5 kHz; 50 nT to 200 µT	**HP-1B-01**
Electric and magnetic shaped field probe - For ICNIRP 1998 and SC 6 2015 E: 500 kHz to 9.25 GHz; 0.1 (0.5) to 1000 % H: 20 MHz to 1 GHz; 0.3 (1.5) to 1000 %	**EHP-2B-01**
Electric and magnetic shaped field probe - For ICNIRP 1998 and SC 6 2015 E: 500 kHz to 60 GHz; 0.1 (0.5) to 1000 % H: 20 MHz to 1 GHz; 0.3 (1.5) to 1000 %	**EHP-2B-02**
Electric and magnetic shaped field probe - For ICNIRP 2020 and FCC 96 326 E: 1.34 MHz to 9,25 GHz; 0.1 (0.5) to 1000 % H: 1 MHz to 1 GHz; 0.3 (1.5) to 1000 %	**EHP-2B-03**
Electric and magnetic shaped field probe - For ICNIRP 2020 and FCC 96 326 E: 1.34 MHz to 60 GHz; 0.1 (0.5) to 1000 % H: 1 MHz to 1 GHz; 0.3 (1.5) to 1000 %	**EHP-2B-04**
Tri-band electric field probe 0.1 MHz to 3 GHz / 0.1 MHz to 862 MHz / 933 MHz to 3 GHz; 0.2 to 200 V/m	**EP-3B-01**
Quad-band electric field probe 0.1 to 3 GHz; 0.2 to 200 V/m 925 to 960 MHz / 1805 to 1880 MHz / 2110 to 2170 MHz; 0.03 to 30 V/m	**EP-4B-01**
Quad-band electric field probe 0.1 MHz to 7 GHz; 0.2 to 200 V/m 925 to 960 MHz / 1805 to 1880 MHz / 2110 to 2170 MHz; 0.03 to 30 V/m	**EP-4B-02**

Ordering Information

Included in delivery	
› Primary Li-ion battery (AMB-8059/00 and AMB-8059/02 only) › Power supply / Battery Charger (AMB-8059/01 and AMB-8059/03 only) › Assembled Solar Unit (AMB-8059/01 and AMB-8059/03 only) › 10 m optical cable and O/E converter USB (AMB-8059/00 only) › Four-wire USB cable, 1.8 m, USB(A)/USB(B) › Swivel joint for installation on AMB-8059-MAST › Operating Manual, Test & Calibration Certificates › PC Software 8059-NSTS › PC Software EMF GPS logger (used only by model AMB-8059/00 Car Mounting Kit option) › PC software Area monitor Installer	
Optional accessories	
8059/mast - Metallic T-shaped base and Fiberglass mast (includes kit of screws, ties and 3 ballast bags)	**650.800.085**
8059/CMK - Car Mounting Kit for drive test solution (AMB-8059/00 only)	**650.800.300**
Cover extension for AMB-8059 dual probe configuration	**231.830.084**
O/E optical converter USB	**650.000.176**
Cable, FO Duplex RP-02 with cable clamp, 10 m (only models AMB-8059/03 and AMB-8059/01 with optical link)	**650.000.289**
Cable, FO Duplex RP-02 with cable clamp, 20 m (only models AMB-8059/03 and AMB-8059/01 with optical link)	**650.000.290**
Cable, FO Duplex RP-02 with cable clamp, 40 m (only models AMB-8059/03 and AMB-8059/01 with optical link)	**650.000.291**
Cable, FO Duplex RP-02, 10 m (only models AMB-8059/00 with optical link)	**650.000.196**
Cable, FO Duplex RP-02, 20 m (only models AMB-8059/00 with optical link)	**650.000.257**
Cable, FO Duplex RP-02, 40 m (only models AMB-8059/00 with optical link)	**650.000.275**
New IP66 Kit adapter (only models AMB-8059/01 and AMB-8059/03)	**650.000.310**
Ethernet cable, IP67 on station side (AMB-8059/01 and AMB-8059/03 only)	**210.500.027**
Two-wire USB cable, 2.5 m, USB(A)/USB(B), IP67 on station side (AMB-8059/01 and AMB-8059/03 only) from serial number 170WY	**210.500.046**

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