narda
Safety Test Solutions
an L3 Communications Company

MULTI-BAND EMF AREA MONITOR

AMB-8057

Continuous, remote monitoring and logging of electromagnetic fields

⚠ **Discrimination of GSM and UMTS contributions to total emf values**

⚠ **Magnetic fields monitoring from 10Hz to 5kHz**

⚠ **Accurate and safe data measurement and storage**

⚠ **GSM remote communication**

⚠ **Automatic data download to PC**

⚠ **Daily report by SMS**

⚠ **Sends warning and alarm messages to PC and mobile phones**

⚠ **Its large memory does not require frequent downloading**

⚠ **Easy to use PC software**

⚠ **Easy integration in systems for data collection and publishing**

⚠ **Outdoor and indoor installation**

⚠ **Self supplied by solar panel**

⚠ **Lightweight, easy to install and remove**

*Area Monitor AMB-8057-03
with Solar Panel*

APPLICATIONS

The Area Monitor AMB-8057 offers the ultimate, reliable, accurate solution for the remote and continuous monitoring and logging of electric (E) or magnetic (H) fields generated by low and high frequency sources such as Radio/TV, GSM, UMTS, Transformer stations, Power lines etc., in order to assess the population's long-term exposure to potentially hazardous Electromagnetic Fields (EMF).

Several AMB-8057 Area Monitors connected to the base station through the GSM network can be used to build reliable monitoring systems to cover large geographical areas, including nation-wide coverage.

The Area Monitor AMB-8057 is weatherproof, lightweight (< 3 kg) and can easily be installed outdoors or indoors, using its specifically designed pole and base. Thanks to its exceptionally low power consumption, the AMB-8057 does not require any external power supply. Two versions are available with different power supply modes:

- solar panel and internal rechargeable battery, for unlimited outdoor operations;
- internal Li-Ion disposable battery, for up to one year's operation.
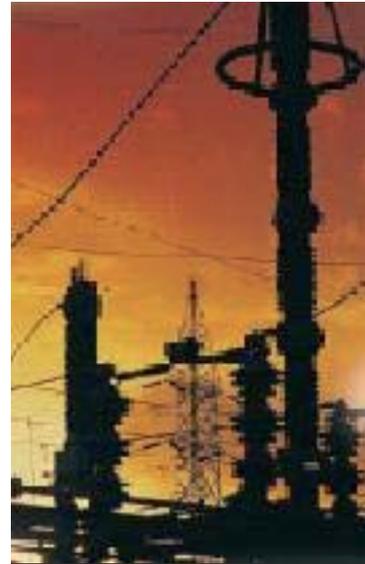
All-in-one concept

One single, small-size housing (60 mm dia. x 780 mm length) includes:

- the high-sensitivity probe to measures the EMF along three axes;
- the sophisticated data logger to store in a non-volatile memory the measured values, events (alarm signals, communications) and settings;
- the dual-band GSM modem for data uploading and remote control

Unique Features

The AMB-8057 has been designed to offering unique features like:

- Correct measurements from any EMF source direction
- Excellent accuracy and repeatability of measurements
- Simultaneous measurement of all bands
- Easy to calibrate Field Probes

THE SOFTWARE

PC Software
The AMB-8057-SW02 software is a complete, easy to use Windows™ based program fully integrated into the AMB-8057 System for Distributed Monitoring of Electromagnetic Fields. It allows access to all the remote Field Monitoring Stations for:

*   reading, changing and sending all measurement settings and communication schedules;
*   selecting and downloading logged data, either manually or automatically;
*   receiving warnings & alarm signals;
*   saving, printing and exporting data;
*   showing data in graphs or tables.

Data transferring and all parameters of the station can therefore be monitored, modified and set by use of this software, through either a remote (GSM) or direct (serial cable) connection. Data integrity checks and double-password access provide a maximum of reliability and security.

Control window
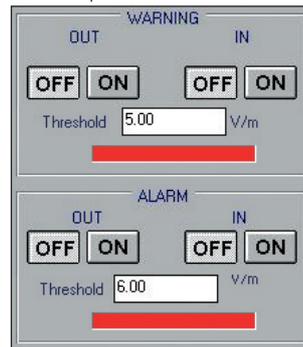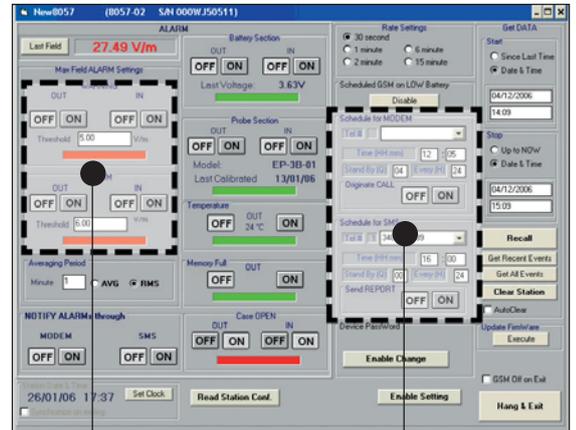
Field Alarm Setting

Modem/SMS Settings

A Calendar-Style Data Memory Block presentation allows an easy selection of the period to be analysed.

Zoom, marker and other common functions are available to improve data readability.

Polling of the station from the PC is easy, and it can be conveniently set according to the User's requirements.

An extensive list of SMS commands and the daily report makes easy to interfacing the AMB-8057 Area Monitor with standard GSM mobile phones.
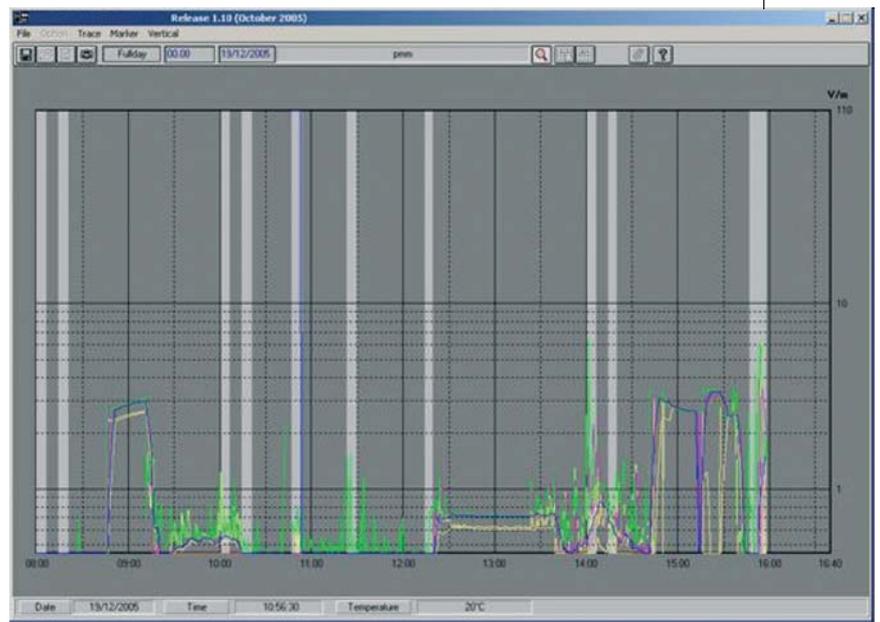
Data can be displayed as either graphs or tables, and exported in standard ASCII format.

When GSM is ON, the graph shows highlighted bands and the ASCII reports have data conveniently marked, in order to exclude from calculation those values measured in line with the RF emission of the modem.

The Calendar-style Data Memory Block

The graphical display

TECHNICAL SPECIFICATIONS

EP-1B-01 Electric Field Broadband Probe

Specifications

Frequency range	100 kHz to 3 GHz
Measurement range	0.2 to 200 V/m
Measurement resolution	0.01 V/m
CW damage level	600 V/m
Typical accuracy @ 6V/m	± 0.8 dB @ 50 MHz
Flatness @ 20V/m	1– 200 MHz ± 0.8 dB / 150 kHz - 3 GHz ± 1.5 dB
Anisotropy @ 6V/m	± 0.8 dB @ 50 MHz (typical 0.6 dB)
H-Field rejection	> 20 dB
Temperature error	0.1 dB/°C
Size and weight	450 mm length, 55 mm diameter – 180 g

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

Frequency range	Wide band 0.1 to 3000 MHz	Low pass 0.1 to 862 MHz	High pass 933 to 3000 MHz
Measurement range	0.2 to 200 V/m		
Measurement resolution	0.01 V/m		
CW damage level	600 V/m		
Typical accuracy @ 6V/m	± 0.8 dB @ 50 MHz		± 0.8 dB @ 1 GHz
Flatness @ 20V/m	1-200 MHz±0.8 dB 150 kHz-3 GHz±1.5 dB	1-200 MHz±0.8 dB 150 kHz-862 MHz±1.5 dB	933-3000 MHz±1.5 dB
Anisotropy @ 6V/m	± 0.8 dB @ 50 MHz (typically 0.6 dB)		± 0.8 dB @ 1 GHz (typically 0.6 dB)
Out of band attenuation	Not applicable	933 MHz-3 GHz > 23 dB (ref. to 50 MHz)	0.1- 862 MHz > 23 dB (ref. to 1 GHz)
H-Field rejection	> 20 dB		
Temperature error	0.1 dB/°C		
Size and weight	450 mm length, 55 mm diameter - 195 g		

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

Frequency range	Wide band 0.1 to 3000 MHz	EGSM 900 Bandpass 925 to 960 MHz	EGSM 1800 Bandpass 1805 to 1880 MHz	UMTS Bandpass 2110 to 2170 MHz
Meas. range	0.2 to 200 V/m	---------	0.03 to 30 V/m	--------
Meas. resolution	0.01 V/m			
CW damage level	300 V/m			
Flatness @ 6 V/m	1-200 MHz±0.8 dB 150 kHz-3 GHz±1.5 dB	925-960 MHz +0.5/-2.5 dB	1805 – 1880 MHz +0.5/-2.5 dB	2110 – 2170 MHz +0.5/-2.5 dB
Anisotropy	± 0.8 dB (typical 0.6 dB) @ 50 MHz, 3 V/m	± 0.8 dB (typical 0.6 dB) @ 942.5 MHz, 3 V/m	± 0.8 dB (typical 0.6 dB) @ 1842.5 MHz, 3 V/m	± 0.8 dB (typical 0.6 dB) @ 2140 MHz, 3 V/m
Out of band attenuation	Not applicable	>8 dB @ 860 MHz >8 dB @ 1035 MHz (ref. to 942.5 MHz)	>8 dB @ 1540 MHz >8 dB @ 2050 MHz (ref. to 1842.5 MHz)	>8 dB @ 1860 MHz >8 dB @ 2350 MHz (ref. to 2140 MHz)
Centre frequency drift	Not applicable	40 – 50 °C = ± 100kHz -20 – 40°C = ± 100 kHz / °C		
H-field rejection	> 20 dB			
Temperature error	0 – 50 °C = ± 0.3 dB -20 – 0 °C = -0.1 dB/°C			
Size and weight	450 mm length, 55 mm diameter – 210 g			

HP-1B-01 Magnetic Field Probe

Specifications	
Frequency range	10 Hz to 5 kHz
Measurement range and overload	50 nT to 200 mT -- >1 mT without damage
Measurement resolution	1 nT
Flatness	40 Hz – 1 kHz ± 1 dB (typical 0.6)
Anisotropy	±0.3 dB @ 50 Hz, 3 mT
E-Field rejection	> 20 dB
Size and weight	83 mm length, 53 mm diameter -- 110 g

Electric field probe   *Magnetic field probe*

AMB-8057 Multi-band EMF Area Monitor

General Specifications

Sampling time	Simultaneous measurement of all bands every 3 seconds
Storing rate	30 seconds to 15 minutes
Stored field values	AVG or RMS (calculated over the selected averaging period), MAX value
Max. logging before overwriting	1-and 3-band: 338 days @ 15 min. storing rate; 11 days @ max storing rate 4-band: 169 days @ 15 min. storing rate; 5 days @ max storing rate
Communication	Internal Dual band GSM modem for SIM card (not included)
SIM card type	Must be allowed for data transmission to/from mobile phones
Download of measurement result from area monitor	Automatic and/or manual
Call	Automatic from area monitor or from PC; manual from PC
TXT file generation	Generation of a .TXT file for every data download
SMS	Up to two mobile phones
Interface	RS-232C with DB9 connector
Power supply	AMB-8057-02 Li-Ion primary battery 3,6 V – 13 Ah, Type LSH20 SAFT or equivalent	AMB-8057-03 Solar panel & Pb battery 4 V 2.5 Ah Battery charger 230 VAC-50 Hz
Battery operating time	> 6 months @ 30 min. GSM stand-by and 1 min. transmission per day	> 80 days in total darkness @ 30 min. GSM stand-by and 1 min. transmission per day
Operating temperature	-10 °C to 50 °C
Protection grade	IP54
Alarms	Field over limit, full memory, open case, overheating, battery overcharge, low battery, probe failure
Dimensions and weight	Station: 60 x 780 mm (diameter x height) -- 2.4 kg Base and mast: 600 x 600 x 2000 mm (w x d x h) -- 5.1 kg

AMB-8057-SW-02 PC Software

Functions and Requirements

Data download	Manual; Automatic by the AMB-8057 or by PC at scheduled times
Alarms	Two programmable thresholds (attention and alarm) with notice of trespassing from both ways (bottom-up and top-down)
Functions	Set-up of unlimited number of AMB-8057
	Calculation of AVG; RMS; Max.
	Vertical and Horizontal Zoom
	Linear and Logarithmic graphs
	Displaying of the probe type and calibration date, AMB-8057 Serial number
	Battery voltage and internal temperature recording

ORDERING INFORMATION

AMB-8057 set	
Remote stations	
Area Monitor remote station with internal primary Li-Ion battery	AMB-8057-02
Area Monitor remote station with solar panel and back-up battery	AMB-8057-03
Field probes	
• Electric field probe 0.1 to 3000 MHz; 0.2 to 200 V/m	EP-1B-01
• Tri-band electric field probe 0.1 to 3000 MHz / 0.1 to 862 MHz / 933 to 3000 MHz; 0.2 to 200 V/m	EP-3B-01
• Quad-band electric field probe 0.1 to 3000 MHz; 0.2 to 200 V/m / 925 to 960 MHz / 1805 to 1880 MHz / 2110 to 2170 MHz, 0.02 to 20 V/M	EP-4B-01
• Magnetic field probe 10 Hz to 5 kHz; 50 nT to 200 _T	HP-1B-01
Optional accessories	
• Metallic T-shaped base and Fibreglass mast (includes kit of screws, ties and 3 ballast bags)	AMB-8057-MAST

Standard accessories supplied with Area Monitor:

- RS232 cable, 2 m
- Power supply/Charger
- Operating Manual, Test & Calibration Certificates
- Rotating joint for installation on mast
- AMB-8057-SW02 PC Software