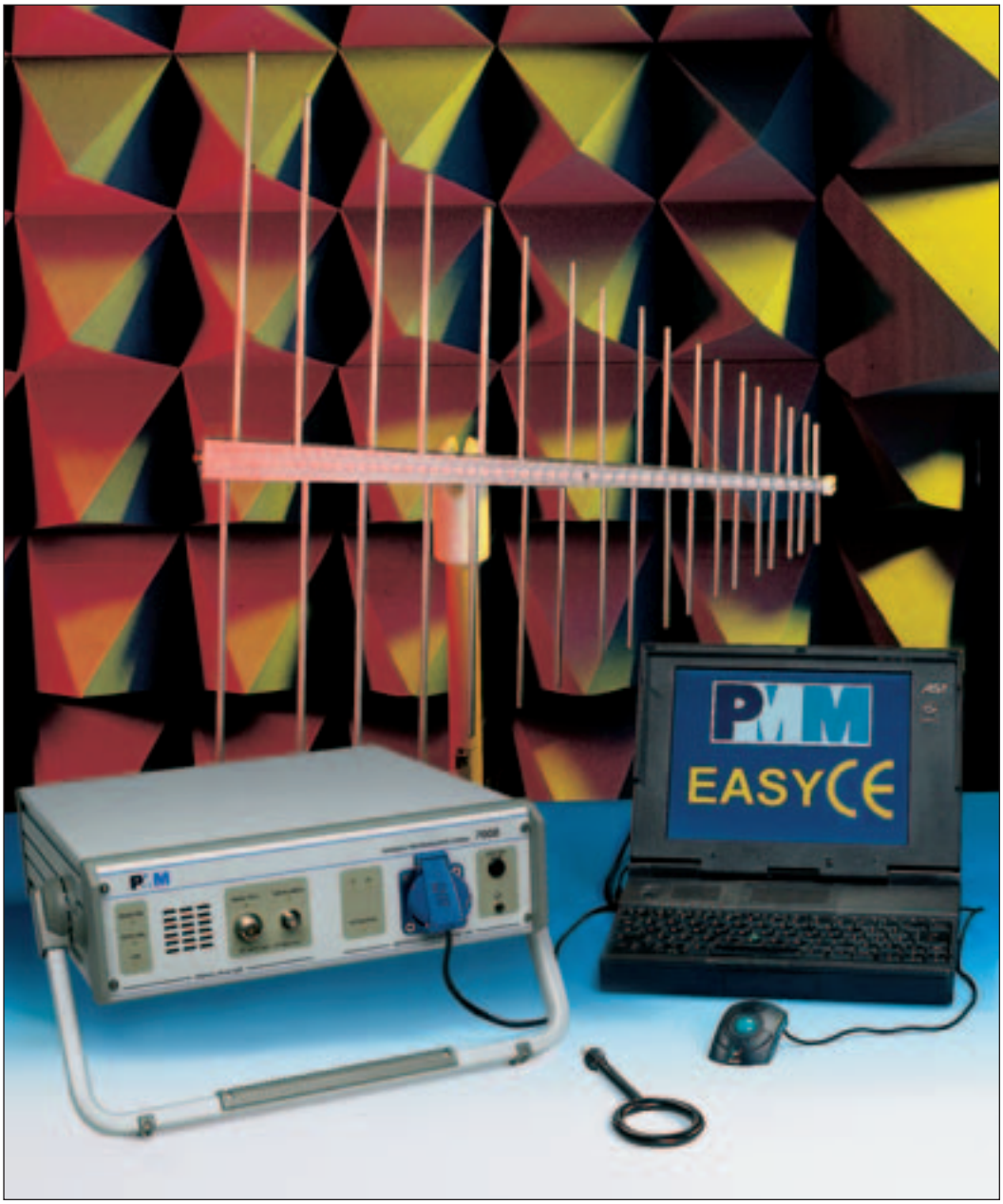
PMM 7000

EMISSION PRECOMPLIANCE SYSTEM

from 150 kHz to 1000 MHz



PMM
COMPETENT BODY

ONE SOLUTION FOR ALL EMISSION PROBLEMS - E

Low cost solution

The PMM 7000 system is certainly the best solution for all precompliance emission test according to CISPR 16. Everything you need is included in a simple and cost effective box. You can perform conducted as well radiated measurements in the easiest way, without any spectrum analyzer or computer theory background. PMM design philosophy was to develop an instrument understandable by any non EMC expert and affordable by all pockets. Despite the low cost, performances are not sacrified at all. All needed commands are available on one single screen to perform any EMC measurement.

Moreover, all the current Standards used for "CE" marking have been preloaded into the software.

Conducted emission

Thanks to the internal LISN you can perform conducted measurements up to 16 A. The software automatically will switch between phase to neutral reporting on the screen the worst case envelope. Even if it is possible to change set-up parameters, (Fig.1) most common Start, Stop and Step Frequency are assigned automatically. For higher currents you can use either an external three phase LISN or the optional 30 or 35 dB voltage probe.

Easy to use

PMM 7000 software is Windows™ based. Entering the main menu you have only to select which kind of test you need to perform (i.e. conducted, radiated power or radiated emission) and immediately PMM 7000 will configure itself according to your choice, including unit selection. Then simply click START button: everything will be performed automatically. All the measurements can be performed using Peak, Quasi-Peak or Average detectors simultaneously. The accuracy is good enough to offer very high confidence to predict if your product will pass the compliance test. The measurement results are in a form of graph, ready to be printed or saved as a file into your PC.

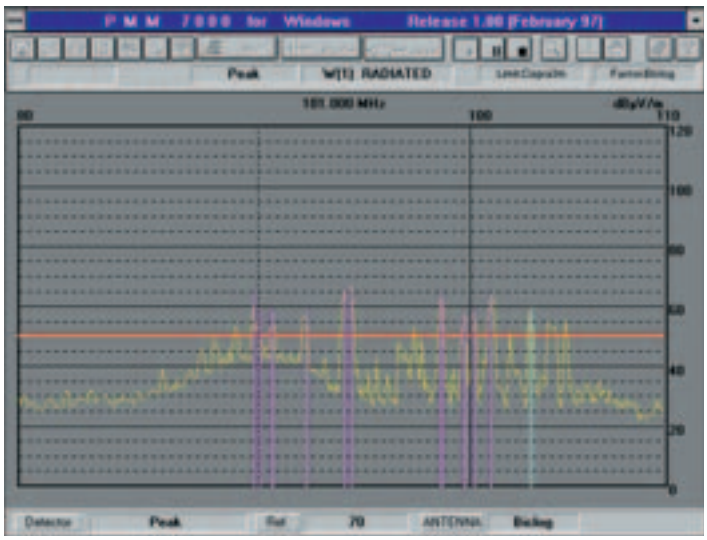
Worst points

Just clicking "Worst 10 Pks" function you get 10 Worst Frequencies (Fig.2). During the design phase you can modify your circuits and see immediately the result of the changes at those specific frequencies only.

Ideal for field application

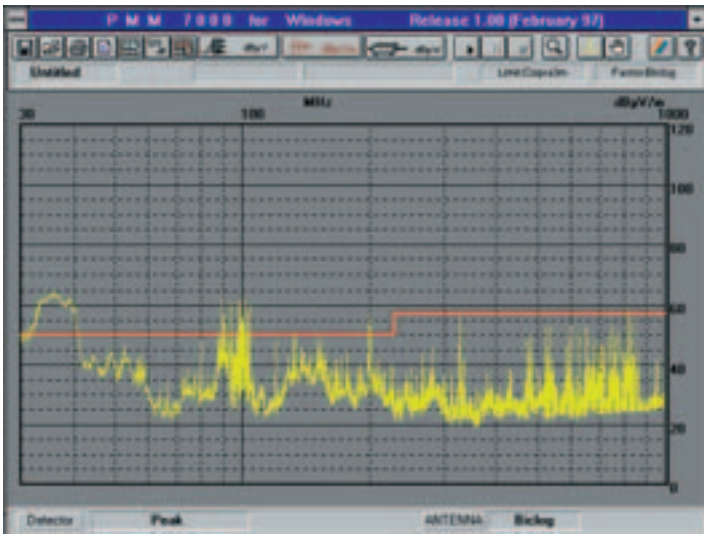
Thanks to its small size and weight, PMM 7000 is an ideal tool to perform on site reliable measurements.

(Fig.1)

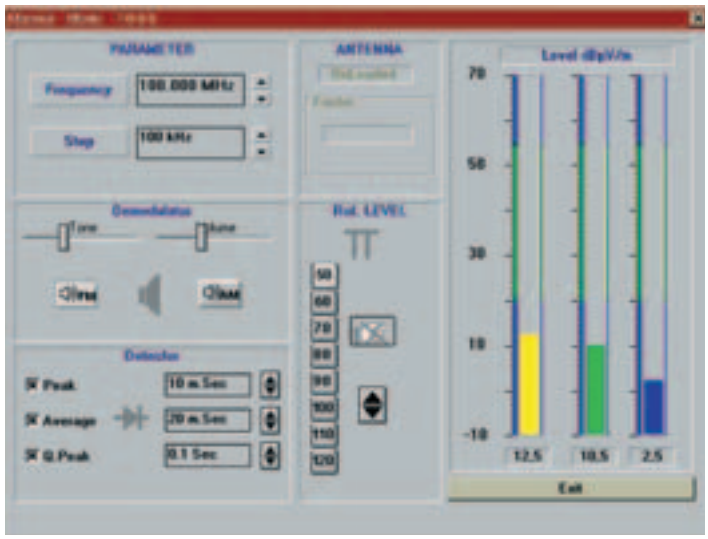


(Fig.2)

ASY CE - THREE MAGIC BUTTONS FOR EVERYTHING



(Fig.3)



(Fig.4)

The PC that drives it can load all set-up and save all measurements you have done; then, back to the office, you can easily write your reports.

Radiated emission

PMM 7000 performs radiated measurements up to 1 GHz, offering a complete solution to all available Standards (Fig.3).
These precompliance tests are performed easily and quickly.
You need only to connect an antenna to the proper RF input and start the test.
Immediately, while sweeping you can see how the emission disturbances look like.

Radiated Power

The same user friendly approach drives radiated power applications. If your job is to test white-goods or household appliances, PMM offers, as an option, a suitable emission Clamp.

Manual mode

Entering Manual Mode you can examine all disturbances noises frequency by frequency (Fig.4).
All the PMM 7000 features are under your control to perform a very detailed signal analysis.

AM/FM demodulator

Normally, if you are not operating inside an anechoic chamber, you are also detecting the broadcasting signals. PMM 7000 provides a FM/AM demodulator to listen to the acquired signal, just like a radio, and therefore disregard it if not of your interest.

Spectrum mode

To perform fast signal analysis PMM 7000 also has a "Spectrum mode" of operation (Fig.5).
During debugging you can, for example, modify your power line filter or the shielding material in use and see in "real time" the result of the modifications.

All three detectors

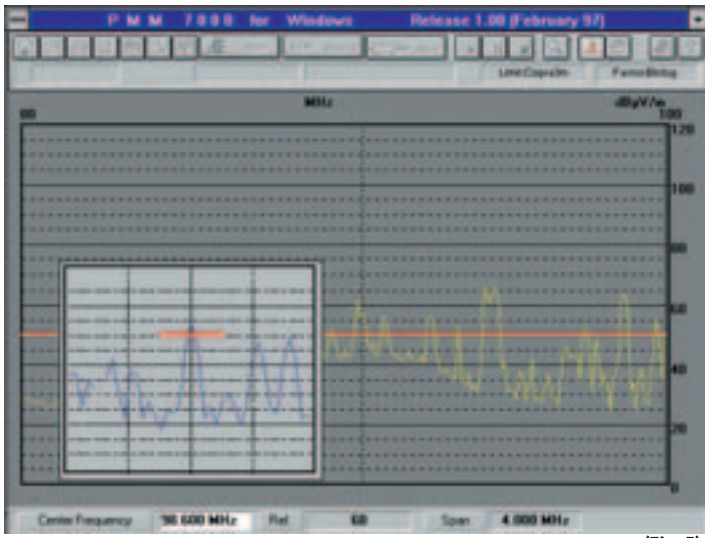
PMM 7000 has three hardware detectors: with this function it is possible to display simultaneously all the curves for Peak, Quasi-Peak and Average detector.

Zoom mode

All parts of the graph can be elarged using zoom function for a better view of a specific portion of the signal.
For your convenience, inside the zoom window you can read the central frequency and the associated level.

Near field debugging

During design debugging phase it is important to find the emission source and where is getting out in order to implement the proper countermeasure.
Using optional near field probe this is an easy and fast task. When using PMM antennas, clamps or other options the correction factors are preloaded.
Of course, other antenna factors can be loaded any time.



(Fig.5)

ORDERING INFORMATIONS

7000	150 kHz – 1000 MHz EMI receiver with AD7000 antenna
7000/AS-TC	150 kHz – 1000 MHz EMI receiver with AS-02 antenna set with typical calibration factor
AD7000	Active dipole antenna
L1-150	Single line LISN, 150A (50Ω//1Ω + 5µH)
L2-16A	Two lines, Single phase, 16A LISN, (50Ω//5Ω + 50µH)
L3-32	Four lines, 3-phase, 32A LISN, (50Ω//5Ω + 50µH)
L3-64	Four lines, 3-phase, 64A LISN, (50Ω//5Ω + 50µH)
L3-100	Four lines, 3-phase, 100A LISN, (50Ω//5Ω + 50µH)
L3-500	Four lines, 3-phase, 350A LISN, (50Ω//5Ω + 50µH)
SHC-1	35 dB Voltage probe, 1500Ω
PL-01	Pulse Limiter
TR-01	Tripod
SHC-2	30 dB Voltage probe, 1500Ω
F-201	Absorbing clamp, 30 MHz – 1 GHz
AS-02	Antenna set (Biconic, log-periodic, tripod, 5 m. cable, carrying case)
CTK-015	Set of active Credence Technology. Near Field Probes
RF-300	Van Veen Loop
TRF-1	Balanced to unbalanced transformer
VNET-150	VNET
RA-01	Rod Antenna

ACCESSORIES

L1-150 (1 line, 5µH, 150A LISN)

L2-16A (single-phase, 16A LISN)

L3-32 (3-phase, 32A LISN)

L3-64/100 (3-phase, 64/100A LISN)

L3-500 (4 lines, 3-phase, 350A LISN)

SHC-1&SHC-2 (35 or 30 dB probe)

F-201 (Absorbing Clamp, 30 MHz -1GHz)

AS-02 (30MHz-1GHz antenna Set)

PL-01 (pulse limiter)

RA-01 (10kHz-30MHz, rod antenna)

VNET-150 & TRF-1 (insertion loss LISN & balance to unbalance transformer)

RF-300 (Van Veen Loop)

CTK-015 (Set of active Credence Technology)

PMM 7000
EMISSION PRECOMPLIANCE SYSTEM SPECIFICATIONS

The system is composed by PMM 7000 EMI receiver with built-in 16 A LISN, active dipole, software, RS-232 cable and operating manual.

Frequency Range

Input A	150 kHz - 30 MHz
Input B	30 MHz - 1000 MHz
Frequency step	10 kHz (input A), 100 kHz (input B)
Setting error	$<1x10^{-6}$

RF Input

Input A	50 Ohm, female BNC connector
Input B	50 Ohm, female N connector
VSWR	<1.2 with ≥10 dB attenuation <2 with 0 dB attenuation

Maximum input signal

Sinewave AC voltage	<127 dBµV

Noise indication (dBµV) typical values:

	BW = 9 kHz		BW = 120 kHz	
	(150 kHz -1 MHz)	(1 - 30 MHz)	(30 - 300 MHz)	(300 - 1000 MHz)
Peak value	<20	<8	12	14
Quasi-peak value	<16	<4	10	12
Average value	<10	<2	8	10

Measurement time

Peak detector	10 msec - 1000 msec
Quasi-peak detector	200 msec - 10 sec
Average detector	20 msec - 1000 msec

Measurement error	**Guaranteed**	**Typical**
Range 150 kHz - 30 MHz	± 2 dB	± 2 dB
Range 30 MHz - 300 MHz	+ 2 - 3 dB	± 2 dB
Range 300 MHz - 1000 MHz	+ 2 - 4 dB	± 2 dB

Display units dBµV, dBµV/m, dBpW

Demodulation AM/FM with incorporated speaker (tone and volume adjustable)

IF Bandwidths (-6 dB) 9 kHz/120 kHz (CISPR tolerance)

Internal LISN

Frequency range	150 kHz - 30 MHz
Network impedance	50 Ω//50 µH
Continuous I out	2x16 A
Max AC supply voltage	250 V
EUT power plug	SCHUKO 10/16 A
Artificial hand & protective earth	built-in
Pulse limiter	built-in

Power supply

AC	115/230 VAC ± 10% (user selectable)
Frequency	50/60 Hz
Power	30 VA Max
Fuse	(250 V) T 125 mA (115 V) T 250 mA

General data

Interface	RS-232 (9 pin)
Operating temperature	5° - 40°C
Operating Humidity Max	80%
Storage temperature	-25° - +75°C
RF suppression	in conformity with CISPR 22
Dimensions	364x120x376 mm (WxHxD)
Weight	5 Kg

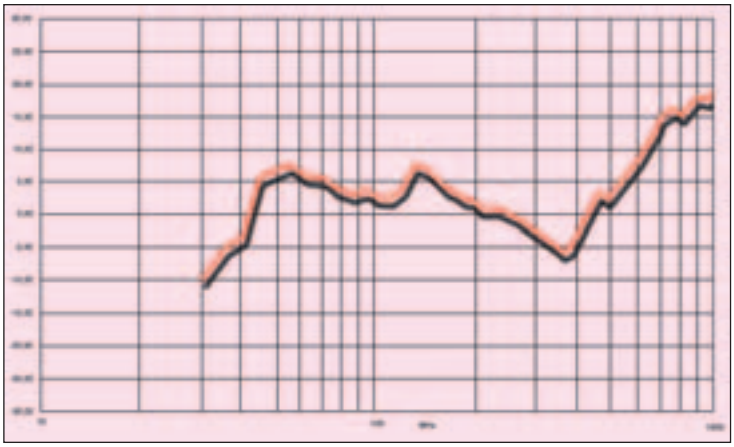
AD7000
ACTIVE DIPOLE ANTENNA SPECIFICATIONS

Frequency range	30 MHz - 1000 MHz
Impedance	50 Ohm
Power supply (from PMM 7000 or tee connector)	12 V 30 mA
Antenna Factor	see diagram

General Data

Output	50 Ohm, female N connector
Size	45x7x3,5 cm
Weight	330 gr (included antenna support)
Operating temperature	0° to 40° C

- PMM AD7000 is a broadband active receiving antenna suitable for EMC emission precompliance measurement, developed to work with the PMM 7000 receiver system
- PMM AD7000 features an extremely large bandwidth and a very small size with a high field strength sensitivity comparable to that antennas with considerably large dimension
- The antenna is completed by an holding insulated support which allows easy antenna polarization change
- The supply voltage, for the PMM AD7000 built in preamplifier, is supplied directly from the PMM 7000 receiver through the antenna feed coaxial cable



OTHER PMM PRODUCTS

COMPETENT BODY

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