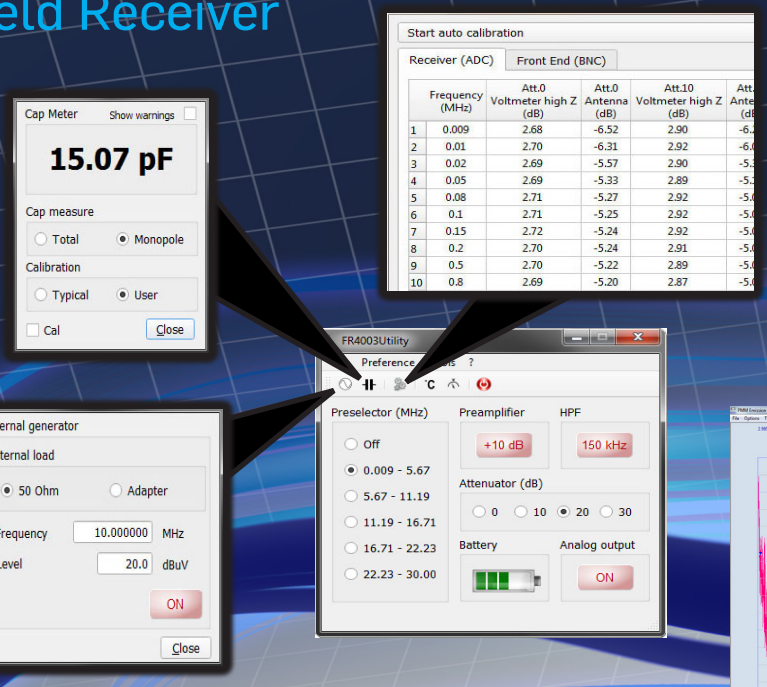
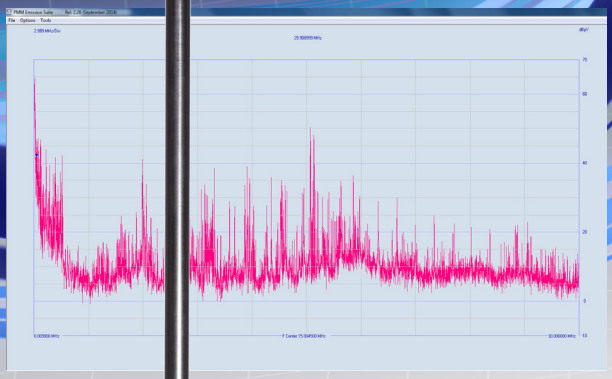
FR4003

Field Receiver

PRELIMINARY





Main Features

- 9 kHz to 30 MHz frequency range
- Antenna CISPR 12, CISPR 16, CISPR 25, MIL-STD, DO-160 fully compliant
- Internal full CISPR 16-1-1 receiver
- Embedeed Attenuator, Preamplifier and Preselectors
- Fiber optic serial link to 9010 series or directly to PC
- Grounding Effectiveness Auto-Diagnostic Capability
- On board tracking generator and antenna CISPR adapter
- Automatic diagnostic and calibration
- Scattering free
- PC softwares
- RF Front-End Output
- On board capacitance meter
- Replaceable Li-Ion battery

The FR4003 is a new reference in measuring electric fields up to 30 MHz. Thanks to its innovative approach it replaces traditional rod antennas adding several benefits. It fully meets all MIL-STD and CISPR specifications of the rod antenna and it is a real full compliant CISPR 16-1-1 receiver with the capability of working, via fiber optic link, either stand alone when connected to a PC or connected to a PMM receiver. Nonetheless, it can maintain full legacy with any standard receiver, because it also has the traditional coaxial cable output. However, this way is not recommended as the cable has a significant influence, such as scattering, which is one of the major drawbacks of rod antennas. The internal receiver structure features preselectors, attenuators and preamplifiers fully controlled either by the internal firmware or manually by the operator. Hence, a test set-up does not need any additional receiver. Moreover, an internal tracking generator allows performing a self-calibration procedure which always guarantees optimum performances, ensuring the accuracy of measurements. The same internal tracking generator is part of an internal capacitance meter that becomes essential not only for the self-calibration, but also for verifying the grounding effectiveness of the antenna. Last but not least, the FR4003 can become a field generator. In this case the antenna broadcasts the signal made by the internal signal generator and can thus be used to characterize environments or other receiving set-ups.

In addition to the standard PEMS software, the FR4003 comes also with a controlling software, which can be used when connected to a standard receiver. Thanks to its replaceable Li-Ion battery, the FR4003 can work for several hours with no connection having thus unperturbed field.

PMM A BRAND OF narda Safety Test Solutions® an L3 Communications Company

FR4003

Field Receiver

PRELIMINARY

SPECIFICATIONS

Frequency range	9 kHz to 30 MHz			
Resolution	1 Hz			
Frequency accuracy	< 1 ppm			
RF Input	High impedance N fem.			
Attenuator	Built-in 0 dB to 30 dB (10 dB steps)			
HPF	Built-in 9 kHz or 150 kHz HPF (selectable)			
Preamplifier gain	Built-in 10 dB gain (selectable)			
Max input level	BNC analog output saturation (1 dB compression point @ 1MHz) (SD Spectral Density with HPF 9 kHz)		Internal process (SD with HPF 9 kHz and Preselector ON)	
	100/104 cm rod	**N input**	**100/104 cm rod**	**N input**
Preamp OFF, Att 20/30 dB	380 V/m CW 137 dBµV/m/MHz SD		12 V/m CW 128 dBµV/m/MHz SD	
Preamp OFF, Att 0/10 dB	38 V/m CW 117 dBµV/m/MHz SD	137 dBµV CW 103 dBµV/MHz SD	1,2 V/m CW 98 dBµV/m/MHz SD	107 dBµV CW 84 dBµV/MHz SD
Preamp ON, Att 0/10 dB	14 V/m CW 108 dBµV/m/MHz SD	129 dBµV CW 94 dBµV/MHz SD	0,35 V/m CW 88 dBµV/m/MHz SD	97 dBµV CW 74 dBµV/MHz SD
Damage level	500 V/m CW			
Noise level	**100/104 cm rod**	**N input (50 Ω term)**		
Preamp ON, Att 0 dB, 1 kHz RBW	-5 dBµV/m	-13,5 dBµV		
Spurious response	< -5 dBuV; < 10 dBuV over 150 kHz (Att 0 dB, 50 Ω term, AVG, Ht 10 ms, RBW auto)			
Measurement accuracy	9 kHz to 30 MHz ± 0,8 dB			
Preselector	Two highpass filters: 9 kHz 150 kHz			
	Five bandpass filters: 9 kHz to 5,67 MHz 5,67 MHz to 11,19 MHz 11,19 MHz to 16,71 MHz 16,71 MHz to 22,23 MHz 22,23 MHz to 30 MHz			
Internal receiver	Fully digital Fast Fourier Transform based. Operates both in conjunction with 9010F and in stand alone			
IF bandwidth	3, 10, 30, 100, 300 kHz			
6 dB bandwidth	200 Hz, 9 kHz (CISPR 16-1-1) 10, 100 Hz and 1, 10 kHz (MIL-STD-461) (Option)			
Level measuring time	CISPR 16-1-1 as default			
(hold time)	0,2 ms to 120 s			
Detectors	Peak, Quasi-Peak, Average, RMS, RMS-Average (Optional), C-Average Smart Detector function			
Demodulation	AM (In conjunction with PMM 9010)			
Antenna Factor				
At BNC service analog output	-10 dB/m (Att 0 dB PreAmp ON)			
Analog output	50 Ω BNC fem.			
Internal generator	Tracking & CW generator (for auto calibration, capacitance meter and field source)			
Frequency range	9 kHz to 30 MHz			
Frequency resolution	1 Hz			
Level range	65 to 95 dBuV			
Level resolution	1 dB			
Level accuracy	0,3 dB			
Internal capacitance meter				
Range	0 to 100 pF			
Resolution	0,01 pF			
Calibration	Automatic by external text fixtures			
Auto test	Automatic at power on			
Auto calibration	Through internal generator and matching network			
Fiber optic connection	RP-02 series serial optical interface 115 Kbaud 9010/9010F series high speed optical interface			
PC softwares	PMM Emission suite – PMM FR4003 Utility			
Display units	dBm, dBµV, dBµA, dBpW, dBµV/m, dBµA/m, dBpT			
with PMM Emission Suite SW	80 to 200 dB selectable dynamic range			
Standard conformity	CISPR 16-1-1, MIL-STD 461F full compliant on board receiver CISPR 12, CISPR 25, MIL-STD 461F, DO-160 full compliant rod antenna			
FW updating	Through the optical link by USB or RS232			
Operating temperature	-10° to 60°C			
Power Supply	7,4 V - 6,9 Ah Li-Ion rechargeable & interchangeable battery (8h operations, typical)			
Tripod support	Threaded insert UNC ¼"			
Dimensions and weights	Receiver 134 x 285 x 84 mm 2,40 kg			
(Overall W x D x H)	Counterpoise 600 x 600 x 2 mm 4,15 kg			
	Rod (1000 mm) Ø 29 x 1020 mm 0,50 kg			
	Rod extension (40 mm) Ø 20 x 47 mm 0,05 kg			
	TOTAL (w rod ext.) 600 x 600 x 1122 mm 4,85 kg			

Ordering Information:

FR4003 Field Receiver
Include: 50 ohm to rod capacitance fixture for CISPR calibration; 15 pF fixture for capacitance meter calibration; MILSTD 40 mm rod extention; 600x600 mm counterpoise, battery pack; AC adapter/ charger; PC softwares; 20 m high speed fiber optic for 9010F; 10 m plastic fibre optic for PC; USB-fiber optic adapter; certificate of calibration; operating manual.

Optional accessories:

Li-ion Battery Pack BP-01
High speed Fiber optic cable 9010/FO-20 (length: 20m)
High speed Fiber optic cable 9010/FO-50 (length: 50m)
High speed Fiber optic cable 9010/FO-100 (length: 100m)
10 m plastic fiber optic for PC
20 m plastic fiber optic for PC
40 m plastic fiber optic for PC
USB-fiber optic adapter
TR-01 Wooden tripod extensible 60 - 180 cm

Related Products

Receivers

- 7010/00: EMI receiver 150 kHz to 1 GHz
- 7010/01: EMI receiver 9 kHz to 1 GHz
- 7010/02: EMI receiver 9 kHz to 30 MHz
- 7010/03: EMI receiver 9 kHz to 3 GHz
- 9010: EMI Receiver 10 Hz to 30 MHz
- 9010F: EMI Receiver 10 Hz to 30 MHz
- 9010/03P: EMI Receiver 10 Hz to 300 MHz
- 9010/30P: EMI Receiver 10 Hz to 3 GHz
- 9010/60P: EMI Receiver 10 Hz to 6 GHz
- 9030: EMI Receiver 30 MHz to 3 GHz
- 9060: EMI Receiver 30 MHz to 6 GHz
- 9180: EMI Receiver 6 GHz to 18 GHz
- 9010/Click4E: Four Channels Click Meter

Antennas

- BC-01: Biconical Antenna 30 to 200 MHz
- LP-02: Log Periodic Antenna 200 MHz to 3 GHz
- LP-03: Log Periodic Antenna 800 MHz to 6 GHz
- VDH-01: Van der Hoofden test-head 20 kHz to 10 MHz
- TR-01: Antenna Tripod
- Antenna Set AS-02 (BC01+LP02+TR01)
- Antenna Set AS-03 (BC01+LP02+LP03+TR01)
- RA01: Rod Antenna 9 kHz to 30 MHz
- RA01-HV: Rod Antenna 150 kHz to 30 MHz
- RA01-MIL: Rod Antenna 9 kHz to 30 MHz

LISN&Probes

- L2-16B: single phase AMN, 16 A
- L3-32: 4 lines, 3-phase AMN, 32 A
- L3-64: 4 lines, 3-phase AMN, 63 A
- L3-64/690V: 4 lines, 3-phase AMN, 63 A
- L3-100: 4 lines, 3-phase AMN, 100 A
- L1-150M: single-path, 50 Ohm AMN, 150 A
- L1-150M1: single-path, 50 Ohm AMN, 150 A
- L1-500: single phase AMN, 500 A
- L3-500: 4 lines, 3-phase AMN, 500 A
- L2-D: Delta LISN for telecom, 2 A, 150 Ω
- SBRF4: RF Switching Box
- SHC-1/1000: Voltage probe, 1000 Vac, 35 dB
- SHC-2/1000: Voltage prove, 1000 Vac, 30 dB

PMM A BRAND OF narda Safety Test Solutions® an L3 Communications Company

Sales Office:
Via Leonardo da Vinci, 21/23
20090 Segrate (Milano) - ITALY
Phone: +39 02 2699871
Fax: +39 02 26998700

E-Mail: nardait.support@L-3com.com
Internet: www.narda-sts.it

Headquarter:
Via Benessea, 29/B
17035 Cisano sul Neva (SV) - ITALY
Phone: +39 0182 58641
Fax: +39 0182 586400