RF Safety
Test Solutions

Electric and Magnetic Field Measurement

50 Years of Excellence

EMR-300 Broadband RF Survey Meter

- **Available with Isotropic Probes to cover 3 kHz to 60 GHz**
- **Easy-to-Use Design**
- **Lightweight and Rugged**
- **Cost Effective**
- **Fully Automatic Zeroing**
- **24 Month Calibration Interval**

Description

The EMR-300 Meter features a lightweight design with an integral shock resistant cover. Customers utilize this meter for high sensitivity and high dynamic range surveys. Electric, Magnetic and shaped probes are available to satisfy virtually every survey need. Every probe available has approximately 60dB of dynamic range, without changing measurement ranges. Unique to this series are H-field probes available from 3 kHz to 1 GHz.

All other specifications are the same. This lightweight meter provides simple operation. All probes are automatically detected at turn-on, and automatically “zeroed”, even while immersed in an RF field. At six-minute intervals, this meter re-zeroes itself without operator intervention. The EMR-300 is supplied with the EMR-TS software and data transfer package. This includes 2 meter and 20 meter fiber optic cables that allow bi-directional communication from your computer to the EMR meter.

The EMR-300 has the ability to store readings and also has time and spatial averaging capabilities. Spatially averaged limits are the basis for almost all international standards or guidance’s. For readings of averaged fields such as vertical scans over the height of the body, or time averaged readings in front of a rotating radar, averaging is almost always required to properly assess the whole body limits.

Data logging is an additional feature of the EMR-300. Being able to store readings can be a time saving, important method of documenting your survey. Data is stored with time-of-day information so that you can tie readings directly to the date and time of your survey.

The probes compatible with the EMR-300 are available as calibrated (“C”) or non-calibrated versions. See pages 48-51 for more details.

The EMR-300 is supplied with a case that holds the meter, manual, charger and multiple probes (available probes are listed on pages 48-51). The EMR-TS software and cable system is also supplied as standard, which consists of the software, 2 and 20 meter fiber optic cables and an adapter to convert the fiber optic signals to a common 9-pin serial connector. All EMR meters and probes have a two-year warranty and calibration interval.

narda
Safety Test Solutions
an L3 communications company

USA TEL: (1) 631 231-1700 • **FAX:** (1) 631 231-1711 • **E-MAIL**: NardaSTS@L-3COM.com • **www**.narda-sts.com
GERMANY TEL: 49-7121-9732-777 • **FAX**: 49-7121-9732-790 • **E-MAIL**: support@narda-sts.de • **www**.narda-sts.de

Specifications

Specifications	EMR-300
Display Specification	
Display Type	4 ½ Digit LCD
Display Refresh Rate	400 msec., typical
Resolution	0.01 V/m, 0.0001 A/m
Settling Time (Typical)	1 sec. (0 to 90% of measured value)
Warning Circuits	Red LED's in the keypad
Visible	ON/OFF and variable threshold
Audible	Piezoelectric, tone varies with measured value
Measurement Functions	
Units	V/m, A/m, mW/cm^2, W/m^2, % of limit value
Results Displayed	Current result or maximum value since turn-on
Averaging	Current result or variable from 4 sec. to 15 min.
Calibration Data	One calibration factor settable per probe
Self Tests	Automatic self-test of A/D converter, battery, supply voltages, memory and zero adjustment. Periodic zero adjustment and battery check during operation All tests can be performed during exposure to the field.
Interfaces	Fiber optic, serial interface for results transfer, remote control and calibration. V.24 (RS-232)
Additional Functions	Storage of up to 1500 values, real-time clock and spatial averaging (over time or over measurement points)
General Specifications	
Power Supply	2 ea. AA type, re-chargeable batteries
Operating Time	8 hours (typical), re-charged via supplied charger
Operating Temperature Range	0 to +50°C
Size (H x W x D)	18.3" x 3.78" x 2.52" (465 x 96 x 64 mm)
Weight	450 grams (approx.)

Ordering Information

EMR-300 Meter	Supplied with non-metallic support, EMR-TS PC transfer set, carrying case, batteries, charger and manuals	**2244/31**
Optional Accessories	Non-metallic Tripod	**2244/90.31**
	Probe Cable, 1.2 meter	**2244/90.35**
	27 MHz, Test Generator	**2244/90.38**

USA TEL: (1) 631 231-1700 • **FAX:** (1) 631 231-1711 • **E-MAIL**: NardaSTS@L-3COM.com • **www**.narda-sts.com
GERMANY TEL: 49-7121-9732-777 • **FAX**: 49-7121-9732-790 • **E-MAIL**: support@narda-sts.de • **www**.narda-sts.de

EMR-300 Probes

Electric Field

Probe Model	Frequency Range	Measurement Range	Frequency Sensitivity
Type 8C 2244/90.21	100 kHz to 3 GHz	0.6 to 800 V/m	±0.5 dB (100 kHz to 100 MHz) ± 1.4 dB (100 MHz to 3 GHz)
Type 18C 2244/90.73	100 kHz to 3 GHz	0.2 to 320 V/m	± 1.2 dB (300 kHz to 1.2 GHz) ±1.5 dB (1.2 to 2.5 GHz) -3dB (at 3 GHz)[a]
Type 9C 2244/90.23	3 MHz to 18 GHz	0.8 to 1000 V/m	±1.5 dB (10 to 100 MHz) ± 2.4 dB (100 MHz to 8 GHz) ±3.0 dB (8.0 to 18 GHz)[a]
Type 11C 2244/90.25	27 MHz to 60 GHz	0.7 to 300 V/m	±0.5dB (27 to 150 MHz) ± 0.8dB (150 MHz to 1 GHz) ± 0.5 dB (1 to 40 GHz) ±1dB (40 to 60 GHz)
Type 25C 2244/90.59	300 kHz to 40 GHz	0.3 to 600% of Standard[b]	±1.0 dB (300 kHz to 1 MHz) ± 1.0 dB (1 to 200 MHz) ±1.2 dB (200 MHz to 1 GHz) ±1.5 dB (1 to 2 GHz) ± 2.0 dB (2 to 4 GHz) +4/-3 dB (4 to 18 GHz) +5/-2 dB (18 to 36 GHz) +0/-6 dB (36 to 40 GHz)
Type 26C 2244/90.61	300 kHz to 40 GHz	0.3 to 600% of Standard[b]	±6.0 dB (300 kHz to 1 MHz) ±1.0 dB (1 to 200 MHz) ±1.2 dB (200 MHz to 1 GHz) ±1.5 dB (1 to 2 GHz) ±2.0 dB (2 to 4 GHz) +4/-3 dB (4 to 18 GHz) +5/-2 dB (18 to 36 GHz) +0/-6 dB (36 to 40 GHz)
Type 33C 2244/90.81	300 MHz to 50 GHz	8.0 to 614 V/m	±1.25 dB (1.8 to 40 GHz)

Linearity[c]	Isotropic Deviation[d]	Overload Limit	H-field Suppression	Thermal Response[e]	Dimensions Diameter, Length
±3 dB (0.6 to 1.25 V/m) ±1.0 dB (1.25 to 2.5 V/m) ±0.5 dB (2.5 to 400 V/m) ±0.7 dB (400 to 800 V/m)	±1.0 dB for f > 1 MHz	700 mW/cm^2, 70 W/cm^2	>45 dB (300 kHz) >35 dB (1 MHz) >20 dB (above 5 MHz)	+0.2 / -1.5 dB	64 mm, 310 mm
±0.5 dB (1.2 to 200 V/m) ±0.7 dB (200 to 320 V/m)	±1.0 dB	175 mW/cm^2, 17.5 W/cm^2	>20 dB (Typ.)	+0.2 / -1.5 dB	75 mm, 310 mm
±3dB (0.8 to 1.65 V/m) ±1.0 dB (1.65 to 3.3 V/m) ±0.5 dB (3.3 to 300 V/m) ±8 dB (300 to 1000 V/m)	±1.5 dB (10 MHz to 8 GHz) ±2.0 dB (f > 8 GHz)	700 mW/cm^2, 70 W/cm^2	> 20 dB	±0.8 dB	64 mm, 310 mm
+2/-3 dB (1.0 to 2.0 V/m) ±1.0 dB (2 to 250 V/m)	±1.0 dB	1600 V/m, 1 W/cm^2	>20 dB (Typ.)	±0.8 dB	64 mm, 310 mm
±3 dB (0.3 to 1.3%) ±1.0 dB (1.3 to 5%) ±0.5 dB (5 to 10,000%)	+3.0 dB/- 0.5 dB (10 to 300 MHz) ±1.0 dB (300 MHz to 1 GHz) ±2.0 dB (1 to 12 GHz)	32 dB (< 10kV/m), 50 dB (< 100 kV/m)	>45 dB (300 kHz) >35 dB (1 MHz) >20 dB (above 5 MHz)	+0.8 /- 1.0 dB	64 mm, 310 mm
±0.5 dB (39 to 614 V/m)	±1.0 dB	0.6W/m^2, 200 W/m^2	N/A	±0 dB	64 mm, 310 mm

Notes:

[a] Typical performance data

[b] Type 25 is shaped to FCC limits for "Controlled Occupational" environments,
Type 26 probe is shaped to Canadian Safety Code 6 (RF/microwave workers) and recommendations of ICNIRP for occupational exposures.

[c] Linearity referred to 27.5 V/m at 27.12 MHz (27.5 V/m and 100 MHz for Type 9C, 27.5 V/m for Type 11C and 50% of standard and 100 MHz for Types 25C and 26C) where there is an absolute error of ±1.0 dB

[d] Includes EMR meter, Typical

[e] 0 to +50°C, except Types 11C, 25C and 26C which are -10 to +50°C

USA TEL: (1) 631 231-1700 • **FAX:** (1) 631 231-1711 • **E-MAIL**: NardaSTS@L-3COM.com • **www**.narda-sts.com
GERMANY TEL: 49-7121-9732-777 • **FAX**: 49-7121-9732-790 • **E-MAIL**: support@narda-sts.de • **www**.narda-sts.de

Magnetic Field Probes

Probe Type	Frequency Range	Measurement Range	Frequency Sensitivity
Type 13C 2244/90.51	3 kHz to 3 MHz	0.25 to 250 A/m	±0.5 dB (10 kHz to 3 MHz)
Type 12C 2244/90.29	300 kHz to 30 MHz	0.017 to 17 A/m	± 0.5 dB (100 kHz to 30 MHz)
Type 10C 2244/90.27	27 MHz to 1 GHz	0.025 to 16 A/m	±0.5 dB (10 to 300 MHz) ±0.65 dB (300 to 750 MHz) ±1.2 dB (750 MHz to 1 GHz)
Type 14C 2244/90.53	100 MHz to 1 GHz	0.008 to 5 A/m	±0.4 dB (100 to 300 MHz) ±0.65 dB (300 to 750 MHz) ±1.2 dB (750 MHz to 1 GHz)

Electric and Magnetic Field Measurement

Linearity[c]	Isotropic Deviation[d]	Overload Limit	E-field Suppression	Thermal Response[e]	Dimensions Diameter, Length
±dB (0.25 to 0.5 A/m) ±1 dB (0.5 to 1 A/m) ±0.5 dB (1 to 40 A/m)	±1 dB (Typical, 100 kHz)	>500 A/m, >5000 A/m	>20 dB, Typical	±0.8 dB	120 mm, 300 mm
±3 dB (0.017 to 0.033 A/m) ±1 dB (0.033 to 0.066 A/m) ±0.5 dB (0.066 to 3 A/m) ±1 dB (3 to 17 A/m)	±1 dB (Typical, 27.12 MHz)	>35 A/m, 350 A/m	>20 dB, Typical	±0.8 dB	120 mm, 300 mm
±3 dB (0.025 to 0.05 A/m) ±1 dB (0.05 to 0.1 A/m) ±0.5 dB (0.1 to 3 A/m) ±1 dB (3 to 16 A/m)	±1 dB, Typical	20 A/m, 200 A/m	> 20 dB	±0.8 dB	65 mm, 310 mm
±1 dB (0.015 to 0.035 A/m) ±0.5 dB (0.035 to 1 A/m) ±1 dB (1 to 5 A/m)	±1 dB, Typical	> 6.3 A/m, > 63 A/m	>20 dB, Typical	±.5/-0.8 dB	65 mm, 310 mm

Notes:

[a] Typical performance data

[b] Type 25 is shaped to FCC limits for "Controlled Occupational" environments,
Type 26 probe is shaped to Canadian Safety Code 6 (RF/microwave workers) and recommendations of ICNIRP for occupational exposures.

[c] Linearity referred to 27.5 V/m at 27.12 MHz (27.5 V/m and 100 MHz for Type 9C, 27.5 V/m for Type 11C and 50% of standard and 100 MHz for Types 25C and 26C) where there is an absolute error of ±1.0 dB

[d] Includes EMR meter, Typical

[e] 0 to +50°C, except Types 11C, 25C and 26C which are -10 to +50°C

USA TEL: (1) 631 231-1700 • **FAX:** (1) 631 231-1711 • **E-MAIL**: NardaSTS@L-3COM.com • **www**.narda-sts.com
GERMANY TEL: 49-7121-9732-777 • **FAX**: 49-7121-9732-790 • **E-MAIL**: support@narda-sts.de • **www**.narda-sts.de