*Electric and Magnetic Field Measurements
from RF to Microwave*

NBM-550 Broadband Field Meter

♦ **Available with Isotropic Probes to cover 100 kHz to 60 GHz**

♦ **Large Graphical Display**

♦ **Intelligent Probe Interface with Automatic Probe Parameter Detection**

♦ **Fully Automatic Zeroing**

♦ **Extensive Memory for Logging of up to 5000 Results**

♦ **GPS Interface and Mountable Receiver for Positioning Data Documentation (Optional)**

♦ **Voice Recorder for Adding Comments (Optional)**

Description

The NBM-500 Series is the most accurate non-ionizing radiation survey system available. It provides the broadest frequency coverage of electric and magnetic fields. Both flat response probes and probes shaped to international standards are available. All NBM probes have a non-volatile memory containing device parameters and calibration data. Probes are calibrated independently of the meter. Any NBM probe can be used with any NBM-500 Series meter and still maintain total calibration.

Applications

Precision measurement of electric or magnetic field strength for personal safety at work where high radiation levels are present, such as:

- General RF Safety program measurements
- Service work on transmitting and radar equipment
- Service work on mobile antennas, broadcasting and satellite communication systems
- Working with heating and packaging machines in the food industry
- Working with heating and hardening machines in the automotive industry
- Operating diathermy equipment and other medical instruments producing short-wave radiation
- Drying equipment in the tanning and timber industries

NBM-550 Broadband Field Meter

Features

DISPLAY
- Backlit Monochrome LCD; readable even in bright daylight
- Graphical User Interface (GUI) with selectable languages

OPERATION
- Simple-to-Use 9 button keypad
- Hold button soft key for "freezing" measurement display during readings
- User defined setups can be saved for repetitive survey needs
- Keypad can be locked to guard against inadvertent inputs
- User selectable "auto-off" feature to save battery life

READINGS DISPLAYED
- 5 Types of results can be displayed - actual, minimum, maximum, average and maximum average
- History Mode – history memory operates continuously in the background, allowing you to display past readings at any time, up to 8 hours
- Selectable Units – V/m, A/m, W/m^2, mW/cm^2 and "% of Standard" when using shaped frequency response probes
- Stored standards and guidances in the NBM's memory allow you to simultaneously display readings as a "% of Standard" if frequency is known
- Data memory for up to 5000 measurements

AVERAGING FUNCTIONS
- Time Averaging – 4 seconds to 30 minutes, in 2-second intervals
- Spatial Averaging – discrete or continuous

AUDIBLE ALARM
- Variable alarm threshold setting
- Audible indication of increasing or decreasing field strength

PROBE INTERFACE
- Automatic detection of probe type and calibration information
- Fully automatic and variable zero adjustment interval times
- Additional optical input for separating probe from meter

REMOTE CONTROL
- PC connection via USB or Optical interface
- Trigger input for externally initiating readings to be taken
- NBM-TS software enables remote controlled measurements
- Screenshots can be downloaded to PC

Rugged and lightweight housing, designed for easy one-hand operation
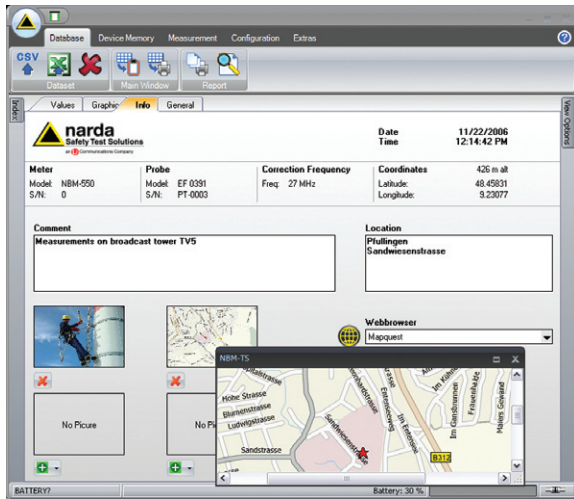
NBM-TS Software (supplied with NBM-550)

The supplied NBM-TS software provides for convenient data management, documentation of results and future evaluation. It also provides you the capability to remotely control the NBM and perform firmware upgrades. This innovative software package also allows you to link the optional GPS data with actual pictures from mapping programs like Google Earth™, making field survey data take on more relevance with the reader. And, to ensure it will be viable for years to come, this software was designed with Microsoft's Vista™ operating system in mind.

NBM Option Set

Consider the Option Set for the NBM-550 and how it can simplify your survey reports – a major advantage. This Option Set adds a GPS receiver and conditional logging. It also allows you to add voice storage to stored readings via our built-in microphone. By adding the power and versatility of audible comments to stored readings, you will not have to remember the particulars of when and where readings were taken – imagine that!

THE NBM-550 OPTION SET INCLUDES:

- GPS Receiver, cable and mounting hardware
- Audio Recorder for adding voice comments to stored readings
- Conditional Logging – data can be logged when threshold is exceeded (upper or lower), outside of a user-defined level "window," or only store first and last time readings that cross conditional boundaries

The Option Set is field (or factory) installable, so it can be added any time you choose, without having to return it to the factory.
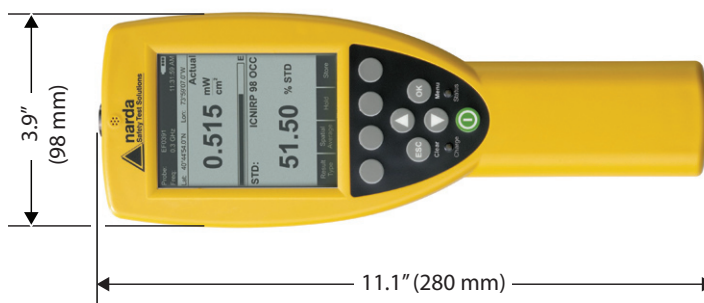

NOTE: Narda strongly recommends that an optional check source be used to verify operation of the NBM Series. Any device capable of generating an upscale indication at microwave frequencies is acceptable, as well as Narda P/N 8699.

NBM-550 Broadband Field Meter

Specifications

NBM-550	
DISPLAY	
Display Type	Transflective LCD, monochrome
Display Size	10 cm (4 inch), resolution 240 x 320 dots
Backlight	White LEDs, selectable illumination time (OFF, 5s, 10s, 30s, 60s, PERMANENT)
Refresh Rate	200 ms for bar graph and graphics, 400 ms for numerical results
MEASUREMENT FUNCTIONS	
Result Units	mW/cm^2, W/m^2, V/m, A/m, % of Standard
Display Range, Fixed Triads	0.0001 to 9999 for all units (4 digits)
Display Range, Variable Triads	0.01 V/m to 100 kV/m 0.027 mA/m to 265.3 A/m 0.265 $\mu W/m^2$ to 26.53 MW/m^2 0.027 nW/cm^2 to 2.653 kW/cm^2 0.0001% to 9999%
Result Types (Isotropic, RSS)	Actual (ACT), Maximum (MAX), Minimum(MIN), Average (AVG), Maximum Average (MAX AVG)
Result Types (X-Y-Z mode)	Actual X, Actual Y, Actual Z (requires a probe with separate axes)
Averaging Time	Selectable, 4 seconds to 30 minutes (2 second steps)
Spatial Averaging	Discrete or continuously
Multi-position Spatial Averaging	Averaging of up to 24 spatially averaged results, each position and total will be stored
History View	Graphical display of actual results versus time (span of 2 minutes to 8 hours)
Frequency Correction	1 kHz to 100 GHz or OFF (direct frequency entry, interpolation between calibration points)
Hot Spot Search	Audible indicator for increasing and decreasing field strength (result type Act or Max)
Alarm Function	2 kHz audible signal (4 Hz repetition), adjustable threshold
Timer Logging	Start time pre-selection: up to 24 hours or immediately Logging duration: up to 100 hours Logging interval: 1 second to 6 minutes (in 11 steps)
RESULTS MEMORY	
Physical Memory	12 MB non-volatile flash memory for measurement results and voice comments
Storing Capacity	Up to 5000 results (including test parameters, time stamp and GPS data when available)
INTERFACES	
Remote Control	Via USB or optical RS-232 interface (selectable)
USB	Serial, full duplex, 460 kBaud (virtual COM port), multi-pin connector
Optical Interface	Serial, full duplex, 115 kBaud, no parity, 1 start and 1 stop bit
Earphone	3.5 mm TRS, > 16 ohms (mono), for voice recorder option only
External Trigger (to store results)	Uses the multi-pin connector. Interface cable with BNC connector available as an option, triggers when contacts shorted.
External GPS Receiver	Uses the multi-pin connector. GPS receiver with interface cable is available as an option
Probe Interface	Plug-and-play auto detection, compatible with all NBM series probes

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Environmental Specifications

NBM-550	
Recommended Calibration Interval	24 months
Battery	NiMH rechargeable batteries, 4 x AA size, 2500 mAh
Operation Time	20 hours (backlight off, no GPS)
	12 hours (permanent backlight, no GPS)
	10 hours (GPS receiver connected, no backlight)
Charging Time	2 hours
Battery Level Display	100%, 80%, 60%, 40%, 20%, 10%, low level (< 5%)
Humidity	5 to 95%, non condensing ≤29 g/m^3 absolute humidity (IEC 60721-3-2 class 7K2)

Temperature Range
    Operating
    Non-Operating (Transport)
	
	-10°C to +50°C
	-30°C to +70°C

Size (h x w x d)	11.1 x 3.9 x 1.8 inches (280 x 98 x 45 mm) without probe and GPS receiver
Weight	20 oz. (550 g) without probe and GPS receiver
Supplied Accessories	Transit case for meter and up to 4 probes, NBM-TS PC Transfer Software, USB interface cable, rechargeable batteries, power supply, shoulder strap, bench-top tripod, manual, certificate of calibration

Option Set (Ordering Number 2401/40/USA)

CONDITIONAL LOGGING	

Logging Conditions	Selectable,
	- On upper threshold:
	   Storing when measurements exceed the adjustable threshold
	- Out of gap:
	   Storing when measurements are higher than the upper or lower than the lower threshold

Logging Range	Selectable, - Store all (as long as the condition is true), sampling rate 5 Hz - Store first and last event (when the condition was true)
VOICE RECORDER	
Microphone	Integral microphone at the top side of the instrument near the Narda logo
Recording Level	Fix level, VU-meter displayed when recording for level monitoring
Recording Length	30 seconds max. length per voice comment, 1 voice comment stored with relevant result
Recording Format	8-bit PCM mono, stored as WAV file (approx. 240 kB per 30 seconds)
Output	External earphone (adjustable output level) or via NBM-TS PC Software
GPS POSITION LOGGING	
Receiver Type	12-channel satellite tracking, DGPS capability, WAAS / EGNOS compatible
Displayed Position Data	Latitude (Lat) and Longitude (Long), selectable unit: DMS (degrees, minutes, seconds) / MinDec (decimal minutes) / DegDec (decimal degrees)
Geodetic System	WGS84 / NAD83
Position Accuracy	< 3 m (DGPS, WAAS), <15 m (SPS), high precision mode indicated by the NBM-550
Update Rate	1 second
Acquisition Time	2 seconds (reacquisition) up to 5 minutes (no data known)
Receiver Size/ Weight	2.4 inches (61 mm) in diameter, .8 inches (19.5 mm) in height 2.2 oz. (62 g) — approx. 3.5 oz. (100 g) with mounting plate
Receiver Mounting	Uses the tripod thread on the underside of NBM-550, mounting plate included

NBM-550 Broadband Field Meter

Ordering Information

NBM-550	Ordering Part No.

NBM-550 Narda Broadband Field Meter System Includes:
    NBM-550 Basic Unit (2401/01)
    Transit Case, holds field meter and up to 4 probes (2400/90.06)
    Power Supply / Charger 100 VAC to 240 VAC Input, 9 VDC Output (2259/92.06)
    NBM-TS Software and PC Transfer (2400.93.01)
    USB Interface cable for NBM, 2 m (2400/90.05)
    Bench-top Tripod, 0.16 m, non-conductive 2244/90.32)
    Shoulder Strap, 1 m (2244/90.49)
    Operating Manual
    Certificate of Calibration
	2400/101

Probes are NOT included	
Option Set for NBM-550 (GPS Interface and Receiver, Voice Recorder, Conditional Logging)	2401/40/USA
PROBES	
Probe EF 0391, E-Field, 100 kHz – 3 GHz, Isotropic	2402/01
Probe EF 0392, E-Field, 100 kHz – 3 GHz, Isotropic	2402/12
Probe EF 0691, E-Field, 100 kHz – 6 GHz, Isotropic	2402/14
Probe EF 1891, E-Field, 3 MHz – 18 GHz, Isotropic	2402/02
Probe EF 5091, E-Field, Thermocouple, 300 MHz – 50 GHz, Isotropic	2402/03
Probe EF 5092, E-Field, Thermocouple, 300 MHz – 50 GHz, Isotropic	2402/11
Probe EF 6091, E-Field, 100 MHz – 60 GHz, Isotropic	2402/04
Probe HF 3061, H-Field, 300 kHz - 30 MHz, Isotropic	2402/05
Probe HF 0191, H-Field, 27 MHz – 1 GHz, Isotropic	2402/06
Probe EA 5091, Shaped E-Field, FCC, 300 kHz - 50 GHz, Isotropic	2402/07
Probe EB 5091, Shaped E-Field, IEEE, 3 MHz - 50 GHz, Isotropic	2402/08
Probe EC 5091, Shaped E-Field, SC6, 300 kHz - 50 GHz, Isotropic	2402/09
Probe ED 5091, Shaped E-Field, ICNIRP, 300 kHz - 50 GHz, Isotropic	2402/10
ACCESSORIES	
Test-Generator 27 MHz, Hand-Held	2244/90.38
Tripod, Non-Conductive, 1.65 m with Carrying Bag	2244/90.31
Tripod Extension, 0.50 m, Non-Conductive (for 2244/90.31)	2244/90.45
Handle, Non-Conductive Extension 0.42m	2250/92.02
Cable, Coaxial Multi-pin / BNC for NBM-550 External Trigger, 2 m	2400/90.04
Cable, Fiber Optic Duplex (1000 µm) RP-02, 2 m	2260/91.02
Cable, Fiber Optic Duplex (1000 µm) RP-02, 20 m	2260/91.03
Cable, Fiber Optic Duplex FSMA / RP-02, 0.3 m	2260/91.01
O/E Converter RS-232C (RP-02/DB-9)	2260/90.06
O/E Converter USB (RP-02/USB)	2260/90.07
Cable, Adapter, USB 2.0 - RS-232, 0.8 m	2260/90.53