



narda®
Safety Test Solutions
an  communications company



NBM Series

Broadband Electric and Magnetic Field
Probes, Meters and Accessories for
Isotropic Measurements

The NBM Series

— *Designed For You and By You*

The ergonomic design of the NBM Series meters and probes sets a new level of human interface engineering. Every detail of each model was developed by first-class measurement experts backed by a team of portable instrument design engineers. No other product in Narda's history was more thoroughly researched, with clients around the world sharing their ideas on the features and performance they wanted. Years in the making, we think you'll like the result of your input. With the NBM release, Narda reaffirms its' commitment to you and the RF safety measurement industry.



The History of Narda and Electromagnetic Fields

Narda has been designing equipment to measure electromagnetic fields for over 40 years — from the early days when products were released before standards were set, to today's products that exceed the standards. Encouraged by a technology that captures exact exposure, people around the world have trusted Narda engineering to provide accurate measurement systems. With the release of our new NBM series, Narda is providing another state-of-the-art measurement solution to accurately detail fields from 100 kHz to over 60 GHz.

Performance doesn't stop with ergonomics in the NBM Series. Each new probe is calibrated at multiple frequencies with that information stored in the probe. You simply plug the probe in the meter for information to be displayed. New probe designs are more rugged (as well as more intelligent) and now have a two-year calibration interval. Drawing on past experience with the EMR and 8700 Series, we've perfected the best designs for the NBM Series. You can choose Electric or Magnetic field probes, flat or shaped response (E-field) probes and even diode or thermocouple detection. These new probes can be connected directly to the meters or you can use fiber optic cables and accessories for remote operation away from the meter.



Universal Meters & Multiple Probes to Meet Your Changing Needs

Narda offers solutions for almost every measurement need. The NBM Series consists of universal meters that can be operated with multiple probes. You can start with one probe and expand the number of probes as your needs grow. Common measurement needs, such as radar or broadcast, as well as more challenging multiple-emitter environments are all satisfied

by NBM probes. Narda invented and perfected shaped probe technology that allows you to rapidly determine total field strength related to international standards and guidances. For power users, we even supply probes that allow you to read field strength of each axis separately for polarization measurements.

NBM Features for Industry

| | Military | Broadcast | Telecommunications | Industrial |
|-------------------|----------|-----------|--------------------|------------|
| Audible Alarm | ● | ● | ○ | ○ |
| Spatial Averaging | ● | ● | ● | ● |
| Time Averaging | ● | ○ | ○ | ● |
| Data Logging | ○ | ● | ● | ○ |
| GPS Location | ○ | ● | ● | ○ |
| Data Histogram | ● | ● | ○ | ● |
| Shaped Probes | ● | ● | ○ | ○ |

● More Important ○ Variable Importance



Description

No other meter from any manufacturer (including Narda) has the features this meter does. We learned from you that the complexities of standards today require that more information be obtained and displayed on your meter, and that you need easy transmittal of this data into survey reports.

So we included an LCD display that is a full 4 inches diagonally with 240 x 320 resolution. Comprehensive screen displays like those above show you more information at a glance than traditional meters ever have. You can have actual total field strength displayed with individual readings from each axis' (if provided) or display the "History" mode. The NBM-550 history mode provides an on-screen histogram with up to 8 hours of information. You can choose to display the maximum, minimum

average and maximum average field levels. Of course, all the normal features you would expect in a top line meter are all still there; maximum signal hold, audible alarms, time and spatial averaging. When you turn the unit on, it even "auto zeros" itself. No inserting the probes into zero density areas – just turn on and begin.* With the optional GPS, even the latitude and longitude coordinates are shown. Operating the meter has been made easy with the most common measurement functions displayed above four "soft keys" allowing you to quickly grasp operation without tedious operation manuals. Narda has also incorporated a trigger input that can be used to remotely display and save readings for use with a measurement wheel or odometer.

***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.

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/m², mW/cm² and "% of Std" when using shaped frequency response probes
- Stored standards and guidances in the NBM's memory allow you to simultaneously display readings as a "% of Std" 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

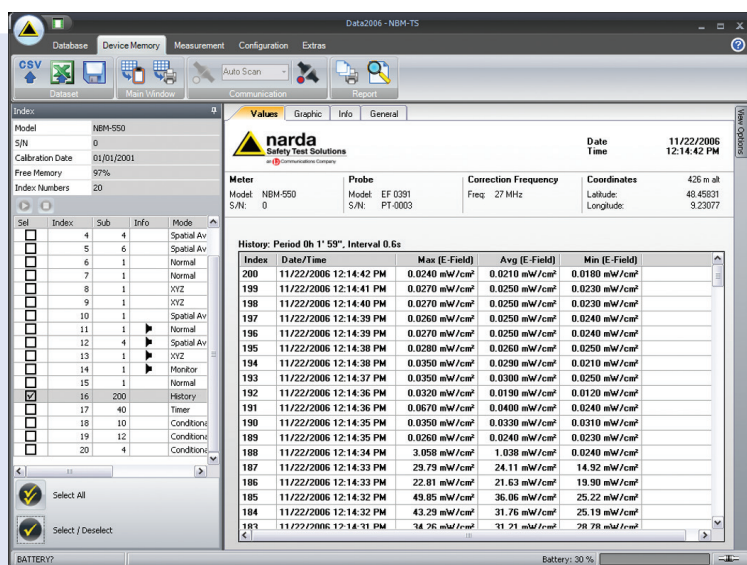
Remote Control

- 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



NBM-TS Software (supplied with NBM-550 and NBM-520)

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.

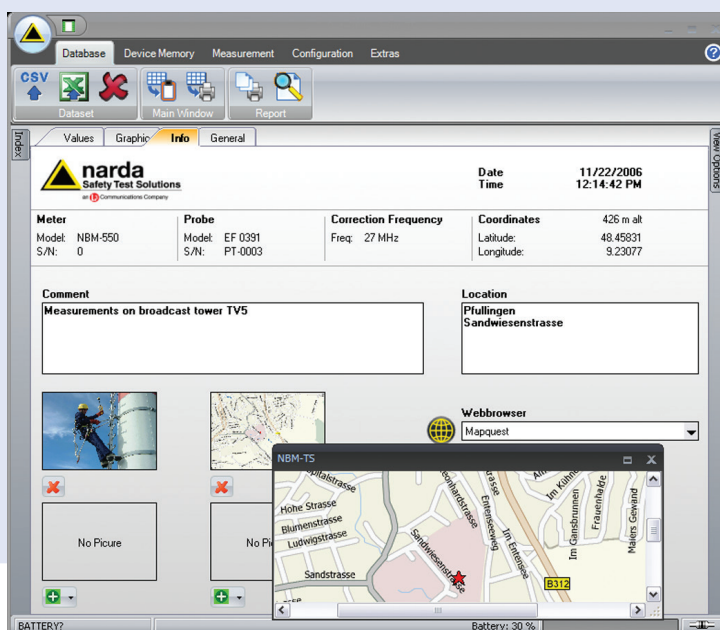


NBM-TS SOFTWARE supports all instrument functions, including **Device Memory Management (shown left) Database Management (shown below), Meter Control and Meter Configuration.**

Device Memory Management (NBM-550 only) enables you to see full information each time you store data. The software shows you at-a-glance, what type of measurement, when and, with the optional GPS, where it took place.

Database Management (NBM-550 only)

Your database of stored readings can be enhanced with digital pictures or satellite maps from popular web sites, in street map or satellite view. Data is easily exported or printed directly.



NBM-550 Option Set

Fully Equipped GPS

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.





Description

The Model NBM-520 Survey meter combines an unprecedented ease of operation with powerful measurement capabilities. It is fully compatible with all NBM series probes. This cost-effective, small, lightweight meter is ideal for most applications that do not require data logging or some of the advanced features incorporated into the NBM-550 meter. However, the NBM-520 is just as accurate as its larger sibling and extremely easy to use.

A key feature of the NBM-520 is its ability to make precise time and spatially averaged measurements. By simply pressing a button and moving the system vertically in front of a source, at a constant rate of speed, the NBM provides a precise spatial average. The NBM-520 is also supplied standard with

a fiber optic cable and converter, allowing for readings to be displayed remotely on a computer. It has a backlit display for surveys in low-light areas.

For complex surveys, you can use the NBM-520 with longer fiber optic cables to minimize field exposures to equipment and/or personnel. Users can even employ two meters (NBM-520 and NBM-550) together for remote readings and remote control, without computers. Since the NBM meters work together, safety programs can utilize both meter's strengths – the NBM-520 for simpler measurements, the NBM-550 for storage and documentation and both meters for the highest flexibility and accuracy under all conditions.

***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.

Features

Operation

- Easiest 4 button operation
- Automatic probe type recognition
- Intelligent probes (automatic probe data transfer)
- Audible alarm function (threshold adjustable by PC software)
- Auto-Zeroing (time interval adjustable by PC software)

Averaging Functions

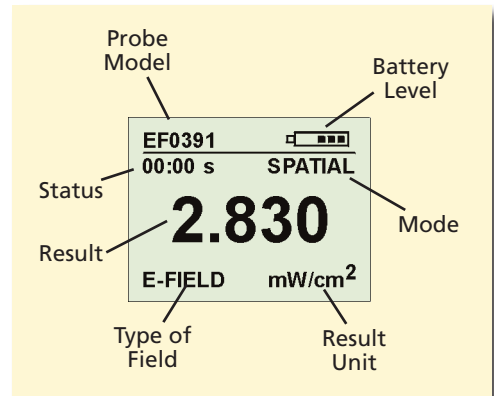
- Time Averaging (time adjustable by PC software)
- Spatial Averaging (discrete samples or continuously)

Readings Displayed

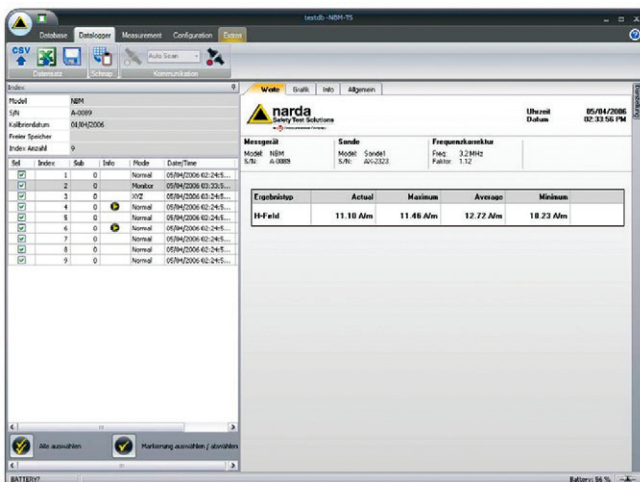
- Maximum Hold display function
- Calibration Due Date check by PC software
- LCD Backlight (adjustable illumination time by PC software)
- Auto Power-Off (adjustable time by PC software)
- Selectable unit (V/m, A/m, mW/cm² or W/m², % for shaped probes)
- Hold key to freeze the current display

Remote Control

- Optical link to connect to a PC
- Remote control via optical link
- Interoperability with NBM-550 (NBM-550 controls NBM-520)
- PC software included for instrument setup and remote testing



NBM-520 LCD Display Description



PC Software

The NBM-TS transfer software is used for:

- changing instrument settings
- controlling firmware updates
- performing remote controlled measurements

| NBM METER MODEL NUMBER | | NBM-550 | NBM-520 |
|-------------------------------------|---|--|---------|
| DISPLAY | | | |
| Display Type | Transflective LCD, monochrome | | |
| Display Size | 10 cm (4 inch), resolution 240 x 320 pixels | 3.8 cm (1.5"), 128 x 64 pixels | |
| 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 | 400 ms | |
| MEASUREMENT FUNCTIONS | | | |
| Direct Result Units | mW/cm ² , W/m ² , V/m, A/m (for flat probes), % of Standard (% for shaped probes only) | | |
| 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 μW/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) | Actual (ACT), Maximum (MAX), Average (AVG), Spatial Average (SPATIAL) | |
| Result Types (X-Y-Z mode) | Actual X, Actual Y, Actual Z (requires a probe with separate axes) | — | |
| Averaging Time | 4 seconds to 30 minutes (2 second steps) | 4 seconds to 30 minutes (2 second steps), selectable by PC software | |
| Spatial Averaging | Discrete or continuously | Discrete or continuously, selectable by PC software | |
| Multi-Position Spatial Averaging | Averaging of up to 24 spatially averaged results, each position and total can 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 | 2 kHz audible signal (4 Hz repetition), threshold adjustable by PC software | |
| 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, 115200 Baud, 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 | | |

| NBM METER MODEL NUMBER | NBM-550 | NBM-520 |
|----------------------------------|---|--|
| GENERAL SPECIFICATIONS | | |
| Recommended Calibration Interval | 24 months | |
| Battery | NiMH rechargeable batteries 4 x AA size (Mignon), 2500 mAh | NiMH rechargeable batteries, 2 x AA size (Mignon), 2500 mAh |
| Operation Time | 20 hours (backlight off, no GPS) 12 hours (permanent backlight, no GPS) 10 hours (GPS receiver connected, no backlight) | 22 hours (backlight off) 16 hours (permanent 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 | -10°C to +50°C | |
| Non-Operating (Transport) | -30°C to +70°C | |
| Size (h x w x d) | 11.4 x 3.9 x 1.8 inches (290 x 98 x 45 mm) | 8 x 2.1 x 1.5 inches (203 x 52 x 38 mm) |
| Weight | 20 oz. (550 g) | 11 oz. (300 g) |

NBM-550 OPTION SET (Ordering Number 2401/40)

Conditional Logging

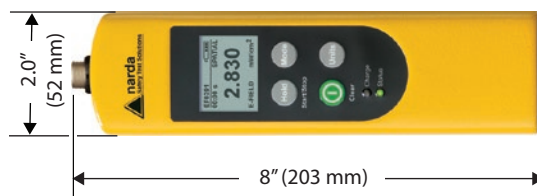
| | |
|--------------------|---|
| Logging Conditions | Selectable, - On upper threshold: Storing when measurements exceed the adjustable threshold - Out of gap: Storing when measurements are higher than the upper or lower than the lower threshold |
| Logging Range | Selectable, - Store all (as long 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 sec. maximum 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 | 61 mm in diameter, 19.5 mm in height, 62 grams (approx. 100 grams with mounting plate) |
| Receiver Mounting | Uses the tripod thread on the underside of NBM-550, mounting plate included |



| Frequency Range | 100 kHz – 3 GHz | | 100 kHz – 6 GHz | 100 kHz – 6 GHz | 3 MHz – 18 GHz | 300 MHz – 50 GHz | | 27 MHz – 60 GHz | 300 kHz – 30 MHz | 27 MHz – 1 GHz | 300 kHz – 50 GHz |
|--|-----------------|---------|-----------------|-----------------|----------------|------------------|---------|-----------------|------------------|----------------|------------------|
| Field Type | E | E | E | E | E | E | E | E | H | H | E Shaped |
| Probe Model | EF 0391 | EF 0392 | EF 0691 | EF 0691 | EF 1891 | EF 5091 | EF 5092 | EF 6091 | HF 3061 | HF 0191 | EX 5091 |
| Mobile Phone and Telecom Transmitters | ● | | ● | | ● | | | | ● | ● | ● |
| Broadcasting (TV, Radio) | ○ | ● | ● | | ● | | | | ● | ● | ● |
| Satellite Communication | | | | | | ● | ○ | ● | | | ○ |
| Radar Signals | | | | | | ○ | ● | ● | | | ○ |
| Metal (Induction) Heating and Hardening | ● | | ○ | | | | | | ● | | |
| Plastic (or High Frequency) Welding Machines | ○ | ● | ○ | | | | | | ● | | |
| Industry Semiconductor Production | ● | | ● | | | | | | ● | | |
| Medical Diathermy / Hyperthermia | ○ | ● | ○ | | | | | | | | ○ |
| Leak Detection | | | ○ | | ● | ● | | ● | | | ○ |
| General Public (or Action) Exposure Levels | ● | | ● | | ● | ● | ○ | ● | ● | ○ | ○ |
| Controlled or Occupational Exposure Levels | | ● | ○ | | ● | ● | ● | ● | ● | ● | ● |

● Best Use For ○ Partially Suited For

Shaped Probes

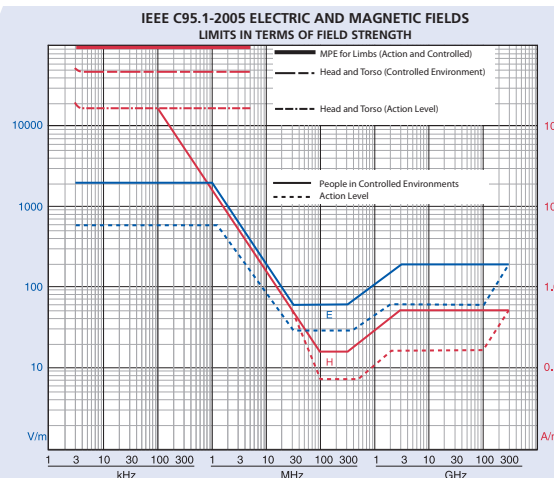
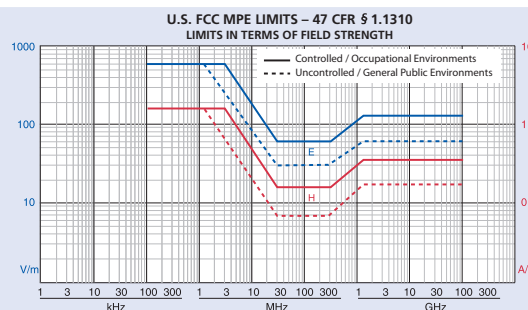
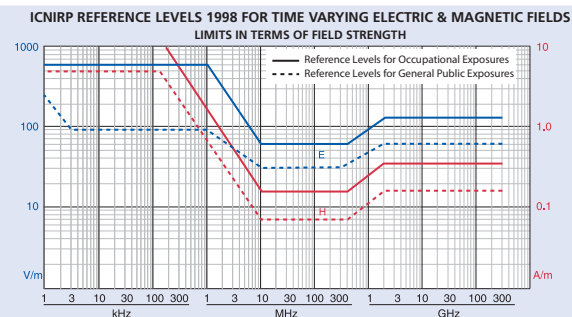
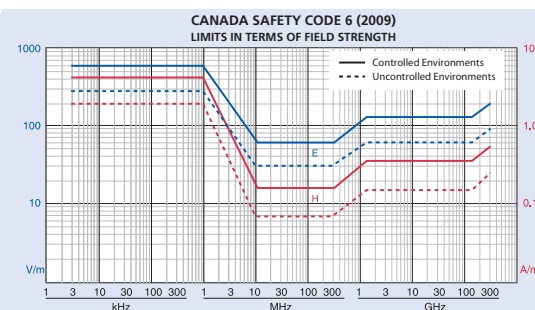
The goal in designing and manufacturing a traditional, “flat” frequency response probe is to make the probe equally responsive to energy at every frequency within its rated frequency range. In contrast, Narda’s patented shaped frequency response probes are designed and manufactured so that their sensitivity mirrors a particular standard (or guidance) as closely as possible. For example, many of the major guidances and standards in the world set E-field limits for maximum human exposure at 614 V/m (1000 W/m²) at lower frequencies (~1 MHz). At frequencies of 10 to 400 MHz the limits are typically much less, 61.4 V/m (10 W/m²), a difference of 20 dB (100 times the power). A shaped frequency response probe designed for such limits is 100 times more sensitive in the 100 MHz region, than at 1 MHz.



If you were performing a survey of a site with a flat frequency response probe that has both of the above frequency ranges and your survey indicated 137 V/m (or 50 W/m²), it would be difficult to determine if the site was out of compliance without turning one of the emitters off. Again, given the example above, the site could be generating anywhere from 5% to 500% of the human exposure limit. There are many sites with multiple emissions (roof-tops, flight lines, broadcast towers) that have emitters at different exposure limits.

If your interest is general safety measurements, to know if you comply with an exposure limit or not, you will find shaped probes easy to use in any environment. The display of total field strength with shaped probes is not in terms of V/m or W/m², it is "% of Std." So at a multiple emitter site, a result of 15% is simple to understand. The total detected field strength of each emitter (to its limit, at its frequency) has added up to 15%. An additional use of these probes is for Military (classified) environments, since you no longer have the "need to know" the frequency when using a shaped probe.

| Standard or Guidance | Level | Model |
|------------------------|---------------------------|---------|
| US FCC 1997 | Occupational / Controlled | EA 5091 |
| IEEE C95.1-2005 | Controlled | EB 5091 |
| Canada Safety Code 6 | Controlled | EC 5091 |
| ICNIRP Recommendations | Occupational | ED 5091 |



| Probe Model No. | Probe Ordering No. | Frequency Range ^a | Measurement Range | Linearity | Frequency Sensitivity ^{c, d} |
|--|--------------------|------------------------------|--|---|--|
| Probe EF 0391, E-Field, Flat | 2402/01B | 100 kHz to 3 GHz | 0.2 to 320 V/m | ±0.5 dB (1.2 to 200 V/m) ±0.7 dB (200 to 320 V/m) | ±0.5 dB (100 kHz to 100 MHz) ±1.4 dB (100 MHz to 3 GHz) |
| Probe EF 0392, E-Field, Flat | 2402/12B | 100 kHz to 3 GHz | 0.8 to 1300 V/m | +2/-3 dB (1 to 2 V/m) ±1 dB (2 to 4 V/m) ±0.5 dB (4 to 400 V/m) ±1 dB (400 to 1300 V/m) | ±1 dB (1 MHz to 1 GHz) ±1.25 dB (1 to 2.45 GHz) |
| Probe EF 0691, E-Field Flat | 2402/14B | 100 kHz to 6 GHz | 0.35 to 650 V/m | ±0.5 dB (2 to 400 V/m) | ±1.5 dB (1 MHz to 4 GHz) |
| Probe EF 1891, E-Field, Flat | 2402/02B | 3 MHz to 18 GHz | 0.8 to 1000 V/m | ±3 dB (0.8 to 1.65 V/m) ±1 dB (1.65 to 3.3 V/m) ±0.5 dB (3.3 to 300 V/m) ±0.8 dB (300 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) |
| Probe EF 5091, E-Field, Flat | 2402/03B | 300 MHz to 50 GHz | 8 to 614 V/m | ±1 dB (8 to 27 V/m) ±0.3 dB (> 27 V/m) | +1.25 / -3 dB (0.3 to 1.0 GHz) ±1.25 dB (1 to 50 GHz) |
| Probe EF 5092, E-Field, Flat | 2402/11B | 300 MHz to 50 GHz | 18 to 1370 V/m | ±1 dB (18 to 61.4 V/m) ±0.3 dB (> 61.4 V/m) | +1.25 / -3 dB (0.3 to 1.0 GHz) ±1.25 dB (1 to 50 GHz) |
| Probe EF 6091, E-Field, Flat | 2402/04B | 100 MHz to 60 GHz | 0.7 to 400 V/m | ±3 dB (.7 to 2 V/m) ±1 dB (2 to 250 V/m) ±2 dB (250 to 400 V/m) | +3.0 / -7.0 dB (100 MHz to 60 GHz) ±3 dB (300 MHz to 40 GHz) |
| Probe HF 3061, H-Field, Flat | 2402/05B | 300 kHz to 30 MHz | 0.017 to 16 A/m | ±3 dB (0.017 to 0.033 A/m) ±1 dB (0.033 to 0.068 A/m) ±0.5 dB (0.068 to 3 A/m) ±1 dB (3 to 16 A/m) | ±0.5 dB (500 kHz to 30 MHz) |
| Probe HF 0191, H-Field, Flat | 2402/06B | 27 MHz to 1 GHz | 0.026 to 16 A/m | ±3 dB (0.026 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) | ±0.5 dB (27 to 300 MHz) ±0.65 dB (300 to 750 MHz) ±1.2 dB (750 MHz to 1 GHz) |
| Probe EA 5091, E-Field, Shaped FCC | 2402/07B | 300 kHz to 50 GHz | 0.5 to 600% of FCC "Occupational / Controlled" limits | | |
| Probe EB 5091, E-Field, Shaped IEEE | 2402/08B | 3 MHz to 50 GHz | 0.5 to 600% of IEEE C95.1-2005 for People in Controlled Environments | ±3 dB (0.5 to 6%) ±1 dB (6 to 100%) ±2 dB (100 to 600%) | ±2.0 dB from Standard |
| Probe EC 5091, E-Field, Shaped SC 6 Canada | 2402/09B | 300 kHz to 50 GHz | 0.5 to 600% of Safety Code 6 for People in Controlled Environments | | |
| Probe ED 5091, E-Field, Shaped ICNIRP | 2402/10B | 300 kHz to 50 GHz | 0.5 to 600% of ICNIRP Recommendations for Occupational Exposures | | |

NOTES:

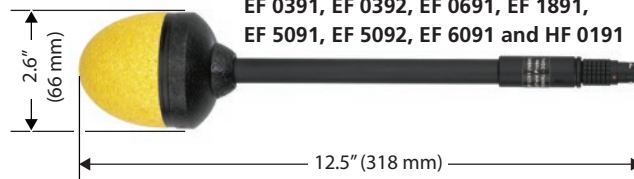
- Cutoff frequency at approximately -3 dB (-6 dB for EF 6091)
- Pulse Length 1 µsec., duty cycle 1:100 (1:1000 for EF5091 and EF 5092)
- Frequency Sensitivity can be compensated for by the use of correction factors stored in the probes' memory.
- Accuracy of the fields generated to calibrate the probes is ±1 dB.
- Uncertainty due to varying polarization (verified by type approval test for meter with probe).
- Ellipse ratio included and calibrated for each probe.
- Frequencies above 30 MHz.

Unless otherwise noted, specifications apply at reference condition: device in the far-field of source, ambient temperature 23 ±3°C, relative humidity 25 - 75%, sinusoidal signal

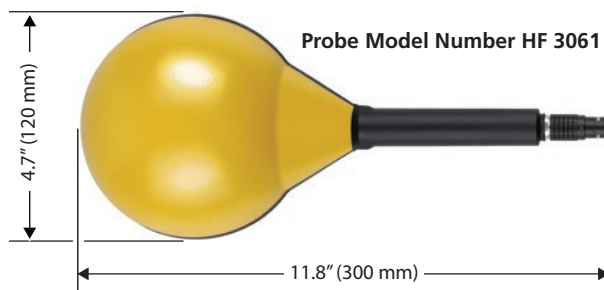
Probe Model Numbers beginning with EF or HF are flat frequency response and employ diode sensors, except EF 5091 and EF 5092, which employ thermocouple sensors.

Probe Model Numbers:

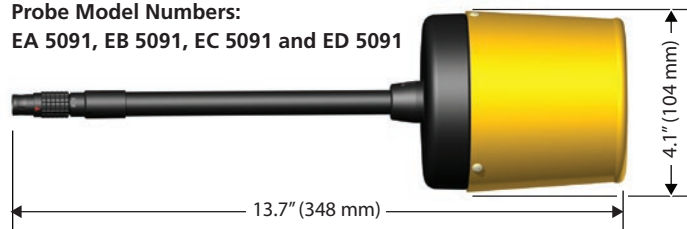
EF 0391, EF 0392, EF 0691, EF 1891, EF 5091, EF 5092, EF 6091 and HF 0191



| Isotropic Response ^e | CW Overload | Peak Overload ^b | Calibration Frequencies | Thermal Response | Humidity | Weight |
|---|-------------------------|----------------------------|---|--|-------------------------|----------------------|
| ±1 dB for f > 1 MHz | 170 mW/cm ² | 17 W/cm ² | 0.1, 0.2, 0.3, 1.0, 3.0, 10, 27.12, 100, 200, 300, 500, 750, 1000, 1800, 2450, 2700, 3000 MHz | +0.2 / -1 dB | 5 to 95% RH @ ≤ 25°C | 3.2 oz., 90 gms. |
| ±1 dB | 1000 mW/cm ² | 100 W/cm ² | 0.1, 0.2, 0.3, 1.0, 3.0, 10, 27.12, 100, 200, 300, 500, 750, 1000, 1800, 2450, 2700, 3000 MHz | +0.2 / -1.5 dB (±0.025 dB/K @ 10 to 50°C) | 5 to 95% RH @ ≤ 25°C | 3.2 oz., 90 gms. |
| ±1 dB | 265 mW/cm ² | 26 W/cm ² | 0.1, 0.2, 0.3, 1.0, 3.0, 10, 27.12, 100, 200, 300, 500, 750, 1000, 1800, 2450, 2700, 3000, 4000, 5000, 6000 MHz | +0.2 / -1 dB | 5 to 95% RH @ ≤ 25°C | 3.2 oz., 90 gms. |
| ±1.5 dB (10 MHz to 8 GHz), ±2.0 dB (f > 8 GHz) | 700 mW/cm ² | 70 W/cm ² | 3, 10, 27, 100, 200, 300, 500, 750 MHz 1.0, 1.8, 2.45, 3.0, 4.0, 5.0, 6.0, 7.0, 8.2, 9.3, 10, 11, 18 GHz | +0.2 / -1.5 dB (±0.025 dB/K @ 10 to 50°C) | 5 to 95% RH @ ≤ 28°C | 3.2 oz., 90 gms. |
| ±0.75 dB | 600 mW/cm ² | 200 W/cm ² | 300, 750 MHz, 1.0, 1.8, 2.45, 4.0, 8.2, 9.3, 10, 11, 18, 26.5, 40, 45.5 GHz | ±0.0 dB | 5 to 95% RH @ ≤ 25°C | 3.2 oz., 90 gms. |
| ±0.75 dB | 1500 mW/cm ² | 600 W/cm ² | 300, 750 MHz, 1.0, 1.8, 2.45, 4.0, 8.2, 9.3, 10, 11, 18, 26.5, 40, 45.5 GHz | ±0.0 dB | 5 to 95% RH @ ≤ 25°C | 3.2 oz., 90 gms. |
| ±1.0 dB | 680 mW/cm ² | 1 W/cm ² | 27, 50, 80, 100, 200, 300, 500, 750 MHz 1.0, 1.7, 2.45, 3.0, 4.0, 5.0, 6.0, 7.0, 8.2, 10, 11, 18, 26.5, 40, 45.5, 60 GHz | ±0.9 dB (-0.03 dB/K) | 5 to 95% RH @ ≤ 25°C | 3.2 oz., 90 gms. |
| ±1.0 dB | > 35 A/m | > 350 A/m | 0.1, 0.15, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.2, 1.5, 2.0, 3.0, 4.0, 5.0, 10, 15, 20, 25, 27.12, 30 MHz | +0.2 / -0.8 dB (±0.025 dB/K @ 10 to 50° C) | 5 to 95% RH @ ≤ 28°C | 6.7 oz., 190 gms. |
| ±1.0 dB | > 20 A/m | > 200 A/m | 10, 15, 20, 27.12, 30, 35, 40, 50, 60, 70, 80, 90, 100, 120, 150, 180, 200, 250, 300, 400, 433, 500, 600, 700, 800, 900, 1000 MHz | +0.5 / -0.8 dB (±0.025 dB/K @ 10 to 50° C) | 5 to 95% RH @ ≤ 28°C | 3.2 oz., 90 gms. |
| ±2.0 dB ^f | 3000% of Standard | 32 dB above Standard | 0.3, 3.0, 10, 30, 100, 300, 750 MHz, 1.0, 1.8, 2.45, 4.0, 8.2, 10, 18, 26.5, 40, 45.5 GHz | ±0.5 dB | 5 to 95% RH @ ≤ 25°C | 7.3 oz., 206 gms |



Probe Model Numbers:
EA 5091, EB 5091, EC 5091 and ED 5091



| NBM-550 | | Ordering Part No. |
|---|--|-------------------|
| NBM-550 Broadband Field Meter System Includes: - NBM-550 Basic Unit (2401/01B) - Transit Case, holds field meter and up to 5 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, NBM-550 - Certificate of Calibration <i>Probes are NOT included</i> | | 2400/101B |
| Option Set for NBM-550 (GPS Interface and Receiver, Voice Recorder, Conditional Logging) Includes: GPS receiver, GPS mounting set, earphone, option key | | 2401/40/USA |
| NBM-520 | | |
| NBM-520 Narda Broadband Field Meter System Includes: - NBM-520 Basic Unit (2403/01B) - Transit Case, holds meter and up to 2 probes (2400/90.07) - Power Supply / Charger 100 to 240 VAC Input, 9VDC Output (2259/92.06) - 2 NiMH "AA" Rechargeable Batteries - Shoulder Strap, 1m (2244/90.49) - Cable, Fiber Optic Duplex (1000 µm) RP-02, 2m (2260/91.02) - Fiber Optic to USB Converter (RP-02/USB) (2260/90.07) - NBM-TS Software and PC Transfer (2400/93.01) - Operating Manual, NBM-520 - Certificate of Calibration <i>Probes are NOT included</i> | | 2400/102B |
| PROBES | | |
| Probe EF 0391, E-Field, 100 kHz - 3 GHz, Isotropic | | 2402/01B |
| Probe EF 0392, E-Field, 100 kHz - 3 GHz, Isotropic | | 2402/12B |
| Probe EF 0691, E-Field, 100 kHz - 6 GHz, Isotropic | | 2402/14B |
| Probe EF 1891, E-Field, 3 MHz - 18 GHz, Isotropic | | 2402/02B |
| Probe EF 5091, E-Field, Thermocouple, 300 MHz - 50 GHz, Isotropic | | 2402/03B |
| Probe EF 5092, E-Field, Thermocouple, 300 MHz - 50 GHz, Isotropic | | 2402/11B |
| Probe EF 6091, E-Field, 100 MHz - 60 GHz, Isotropic | | 2402/04B |
| Probe HF 3061, H-Field, 300 kHz - 30 MHz, Isotropic | | 2402/05B |
| Probe HF 0191, H-Field, 27 MHz - 1 GHz, Isotropic | | 2402/06B |
| Probe EA 5091, Shaped E-Field, FCC, 300 kHz - 50 GHz, Isotropic | | 2402/07B |
| Probe EB 5091, Shaped E-Field, IEEE, 3 MHz - 50 GHz, Isotropic | | 2402/08B |
| Probe EC 5091, Shaped E-Field, SC6, 300 kHz - 50 GHz, Isotropic | | 2402/09B |
| Probe ED 5091, Shaped E-Field, ICNIRP, 300 kHz - 50 GHz, Isotropic | | 2402/10B |
| 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 0.42 m | | 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 |

**USA**

435 Moreland Road
Hauppauge, NY 11788, USA
Phone: +1 631 231-1700
Fax: +1 631 231-1711
E-Mail: NardaSTS@L-3COM.com
www.narda-sts.us

Germany

Sandwiesenstrasse 7
72793 Pfullingen, Germany
Phone: +49 (0) 7121-97 32-777
Fax: +49 (0) 7121-97 32-790
E-Mail: support@narda-sts.de
www.narda-sts.de

Italy

Via Leonardo da Vinci, 21/23
20090 Segrate (MI) ITALY
Phone: +39 02 26952421
Fax: +39 02 26952406
E-Mail: support@narda-sts.it
www.narda-sts.it