



ELECTROMAGNETIC FIELDS



MEASURE: WHY?

MEASURE: HOW?

MEASURE RIGHT!

MONITOR OR METER?

NARDA SAFETY TEST SOLUTIONS



Measure: Why?

- Measurement determines whether the limit values for electromagnetic radiation specified in laws, national regulations, and recommendations are being adhered to. This is essential for occupational safety and to protect the general public.
- Measurement gives reassurance. It is the most important step in effective protection. Take maintenance work on an antenna array, for example: Are the transmitters switched off? Or is the field strength safe? Do the actual values agree with the theoretical ones?
- Measurement gives facts. For example, public protection: On site measurements show the actual exposure levels. This can help to allay unfounded anxiety, and can be used to initiate further preventive action – even if the values are well below the permitted limits.
- Measurement makes sure. For instance, when planning high tension transmission lines or antenna arrays, spot check measurements show whether the field strength simulation used in planning corresponds to reality.



Measure: How?

- Only standard-compliant measurements provide comparable, reproducible, and legally defensible results.
- The measurement results must be understandable, even for someone who is not constantly concerned with electromagnetic fields.
- The electric and magnetic fields must be measured separately in the near field.
- Non-directional (isotropic) measurement is demanded by the standards.
- The permitted field strengths depend on the frequency. The measuring instrument must therefore be sensitive enough, have a wide dynamic range, and be capable of frequency selective field strength evaluation complying with regulations.
- If the field strength is high or unknown, fit the instrument on a tripod and measure by remote control.



Measure right!

- Measurement means comparison with a known quantity. Since field strength units are also defined by national standards, our instruments are calibrated against quantities that are traceable to these standards.
- Measuring equipment for outdoor use must be robust, dustproof, and weather-proof, to keep working accurately in the rough conditions of everyday use.
- Simple operation avoids mistakes and leads to reliable and dependable results.
- Minimum down time: We calibrate instruments in our own laboratory in rapid time. Recalibration is recommended every one to three years, depending on the device.



MEASURE RIGHT!

Monitor or meter?

- Personal monitors are worn on the body and give visual and audible warning when the field strength approaches the permitted limit value. Company safety officers can use them to protect everyone whose occupation brings them into contact with electromagnetic fields, as well as tradesmen and visitors who are only occasionally exposed to them. Data logger functions record the exposure levels.
- Meters provide overall or detailed results, averaging and evaluating them automatically if necessary. They are essential for operators, industrial safety officers, measurement service providers, and public authorities for monitoring and qualifying transmitters and industrial equipment, high tension lines, or transformer stations. On site result storage and documentation on a PC with database support is important when managing large quantities of measurement data.
- Area monitors are fixed measuring stations that monitor the field levels continuously. The results can be uploaded and recorded by remote control. They give everyone a clear view of the level of exposure.



NARDA SAFETY TEST SOLUTIONS

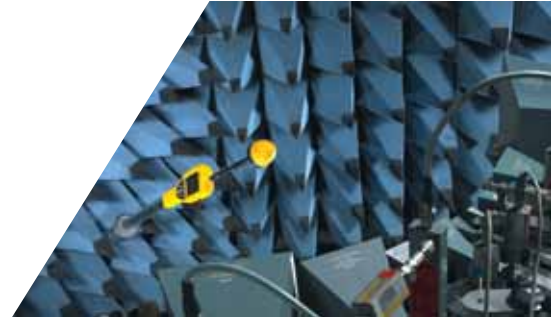
Narda Safety Test Solutions is a global leader in the development and production of measuring equipment for electric, magnetic, and electromagnetic fields. The fact that we own around 95% of all published patents for measuring such fields bears witness to this. Choosing a Narda instrument is choosing a product from a company renowned for innovation, that is specialized in EMF (measurements for safety in electromagnetic fields), and that is continually building upon its reputation in this sector.

THREE LOCATIONS – ONE GOAL

Our three sites are located at Hauppauge, Long Island (USA), Pfullingen (Germany) and Cisano (Italy). Our goal is to provide you, the user, with products tailored exactly to your needs, using the highest quality in cutting-edge technology.

WHAT WE OFFER

Our comprehensive range of products for human safety in electromagnetic fields (EMF) includes broadband measuring instruments, selective measurement equipment, monitoring stations, and personal radiation monitors. Under our PMM brand, we offer instruments for assessing the electromagnetic compatibility (EMC) of devices. As our customer, you can benefit from our program of services, including servicing, calibrating, and training.



BROADCASTING, TELECOMS, MOBILE RADIO



- Occupational safety: Safety zones must be defined and observed when working in the immediate vicinity of antennas.

NBM-550, the Narda Broadband Field Meter, uses isotropic E-field and H-field probes to measure the electric and magnetic field components – simply, precisely, and non-directionally.

RadMan and **Nardalert**, the clip-on monitors, keep an eye on your personal safety.

- Protecting people and informing the general public: People want uninterrupted coverage, but at the same time, the radiation levels have to be kept low.

SRM-3000, the Selective Radiation Meter, shows the source and magnitude of individual contributions to the overall field strength and evaluates them on site.

Area Monitors keep an eye on electromagnetic fields, day and night.

EFC-400, the Simulation Software, estimates the field situation by calculation before new antennas are installed.





- Industrial safety: Low frequency and high frequency welding equipment, RF heating for plastic welding, drying, bonding, coating – whatever the application, the limits must not be exceeded.
- Human safety in medicine: Magnetic Resonance Imaging, magnet therapy, diathermy, hyperthermy – the diagnosis must be correct, the therapy must benefit the patient, and medical staff must not be put in any danger.
- Public safety: Close to high tension cables and transformer stations, proof that the field exposure is within the permitted limits is required.
- Domestic appliances must meet the magnetic field properties specified in the European Standard EN50366. Security and identification tags (RF-ID) on goods must not produce excessive field levels.

EFA-200/300, the Electromagnetic Field Analyzer detects electric and magnetic fields from the lowest of frequencies right up to the high frequencies used in industry and medicine.

ELT-400, the Exposure Level Tester, also measures pulsed magnetic fields in industry and the home.



RADAR, AIR TRAFFIC CONTROL, RADIO LINK



- Directional radio antennas strongly concentrate the radiation power, and radar equipment uses extremely high impulse power levels as well. Primarily, those who work close to such equipment need protection, but the exposure levels for the general public also need to be checked.

NBM-550, the Narda Broadband Field Meter, can also measure the true power of pulsed electric fields if fitted with a suitable measuring probe.

SRM-3000, the Selective Radiation Meter, can continuously register even short radar impulses with frequency-selective accuracy in Time Analysis mode.

RadMan XT und **Nardalert XT**, the clip-on monitors, keep an eye on your personal safety.

RadMan XT, used as **leak detector**, can find radiation leaks caused by damaged feeders.



POWER UTILITIES AND ELECTRIC RAILROADS



- Power utilities use 50 or 60 Hz AC in transformer stations and high tension lines; inverters and switched mode power supplies generate harmonics at several kilohertz.
- Subways and railroads operate using high value direct currents or alternating currents at 16 2/3, 50, or 60 Hz that cause magnetic fields.
- Telecommunications equipment alongside railroad routes or on high tension masts can overlap high frequencies into the gigahertz range.

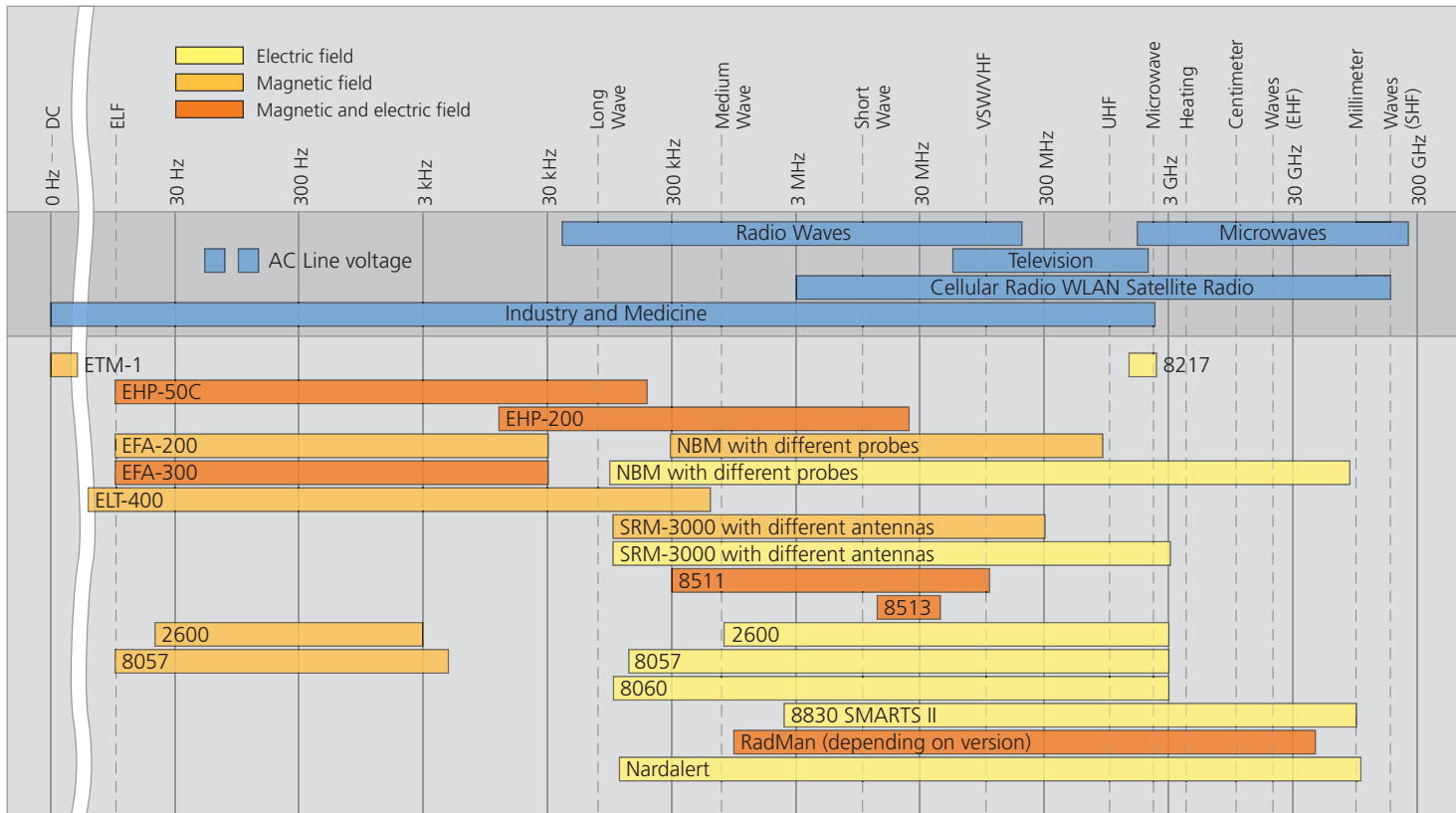
EFA-200/300, the Electromagnetic Field Analyzer, detects electric and magnetic fields from the lowest of frequencies right up to the harmonic frequency range.

SRM-3000, the Selective Radiation Meter, selectively registers the fields due to the telecommunications channels.

EFC-400 simulates the field situation by calculation, including all components – from DC up to telecommunication frequencies, and can even determine the noise pollution level due to high tension lines, for example.



EVERYTHING YOU NEED!



BROADCASTING, TELECOMS, MOBILE RADIO
INDUSTRY, MEDICINE, PUBLIC SAFETY
RADAR, AIR TRAFFIC CONTROL, RADIO LINK
POWER UTILITIES AND ELECTRIC RAILROADS
EVERYTHING YOU NEED!

LEADERS IN EMF MEASUREMENT



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