Narda Safety Test Solutions GmbH
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

Narda Safety Test Solutions
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.com

Narda Safety Test Solutions Srl
Via Leonardo da Vinci, 21/23
20090 Segrate (Milano), Italy
Phone: +39 02 2699871
Fax: +39 02 26998700
E-mail: support@narda-sts.it
www.narda-sts.it

NSTS 0307-E0211C Technical advances, errors and omissions excepted

narda
Safety Test Solutions
an L3 Communications Company

SELECTIVE RADIATION METER SRM-3000

FREQUENCY-SELECTIVE, ISOTROPIC MEASUREMENT, EVALUATION, AND RECORDING OF HIGH FREQUENCY ELECTROMAGNETIC FIELDS

narda
Safety Test Solutions
an L3 Communications Company

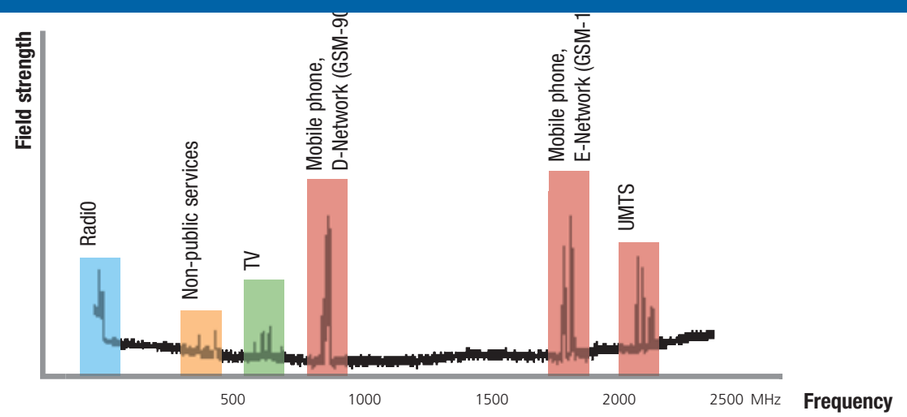
TELECOMMUNICATION IS EVERYWHERE. SELECTIVE MEASUREM

Total coverage with radio, TV and mobile phone services also means total coverage with electromagnetic radiation. To prevent any damaging effects on humans and their environment, all industrialized countries have specified immission limit values. These are mostly based on the recommendations made by the International Commission for Non-Ionizing Radiation Protection (ICNIRP), which is a body recognized as a non-governmental radiation protection organization by the World Health Organization (WHO) and the Council of Europe (EU). In many countries, the limit values for sensitive areas such as kindergartens, schools, and hospitals are even lower.

Limit values are only useful if they are kept to. The responsible authorities have to keep a check on things. That's their job. They can contract it out to measurement service providers. Quite often, communities, action groups, works councils, and even private persons will ask a measuring service or a building ecologist to check the electromagnetic radiation situation at a particular location. The results can be confusing, since radio, TV, pagers, police and emergency services, mobile phones – from GSM to UMTS – are all putting out their part.

A broadband measurement only lets you see the overall picture. It won't tell you the difference between contributions to the overall radiation level made by individual sources such as the GSM-900 and GSM-1800 mobile phone services. And most broadband test sets are not sensitive enough to measure these – usually low level – individual sources. So it would be next to impossible to detect an unknown source such as an illegal video monitor. High sensitivity, frequency-selective measuring equipment is therefore essential.

There used to be only two ways to measure and evaluate: broadband, which is quick and easy, or selective, which is slow and complicated. Now there's a third option: fast and selective. Narda has the solution.



Typical field strength scenario in an urban environment

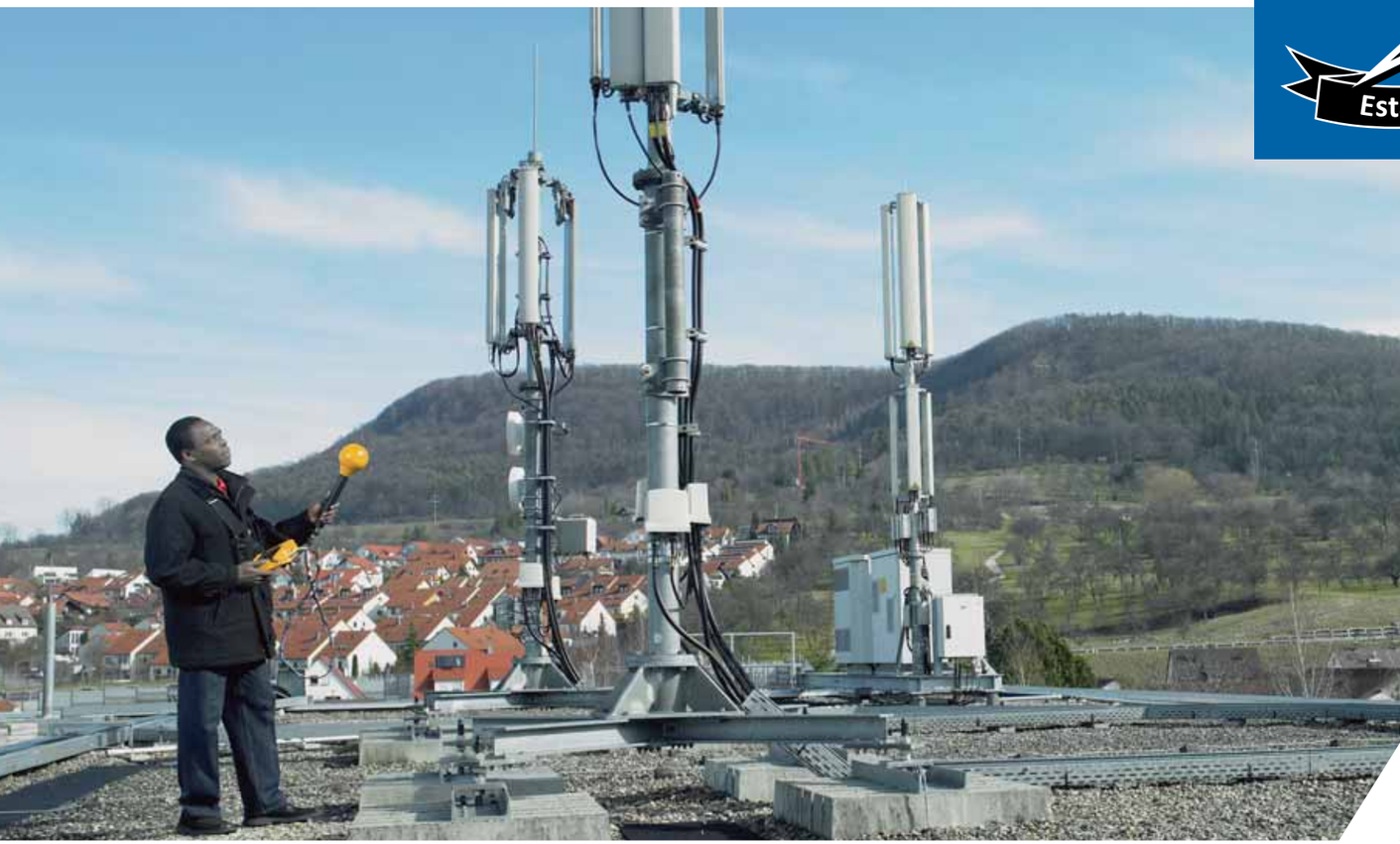
SELECTIVE.

You can't hear electromagnetic radiation. If you could, there would be music in the air. On some rooftops, there are whole choirs and orchestras of antennas. Are they too loud? Do some stand out as soloists?

Test equipment that captures the whole frequency spectrum measures the total radiation level. That's good enough, if the permitted immission limit value is not exceeded.

But what if it is? Then you need to find the reason. A frequency-selective test set is the answer. It separates the GSM choir from the VHF orchestra, identifies the loudest "voices" individually and shows their field strengths. And, if it's sensitive enough, it will also tell you who is humming away in the background.

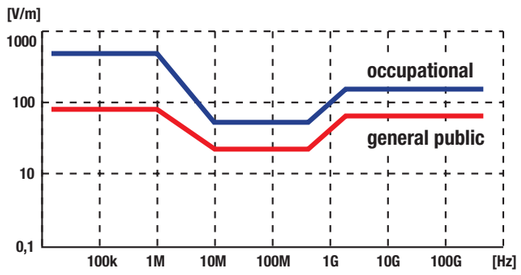
THE SRM FROM NARDA. FREQUENCY-SELECTIVE. HIGHLY SENSITIVE.



A FOREST OF ANTENNAS. NON-DIRECTIONAL MEASUREMENT HELPS YOU SEE CLEARLY. ALL ROUND.

There's not much space left on some rooftops, thanks to the rising need for communications. That doesn't just apply to the space required for transmitter antennas. There's also not a lot of room to maneuver when it comes to electromagnetic immission limits. These limits fall into two categories.
People who routinely work in high frequency fields are usually properly trained, aware of the dangers, and informed about the regulations governing the length of time they may be exposed to such fields. The permitted limit value for occupational safety is therefore somewhat higher than that prescribed for the general public. This lower limit also applies to casual labor, tradesmen, and visitors who are untrained but who are nevertheless exposed to high frequency fields.
What happens when the limit is exceeded? Well, then the awkward question arises: Who needs to reduce output power? And, by how much?

For a start, both operators and authorities want to know where the major components of the electromagnetic radiation are coming from. It's not only the antennas you can see that are playing a part. Sometimes you just can't see the wood for the trees – radio broadcasters with a wide range, or hidden services located nearby can also have a share.
Measurement services can use a broadband orientation measurement to locate the so-called hot spots, areas where the field strength is highest. If the immission limit is exceeded, the measurement service needs to separate out and measure the known sources such as VHF radio and particular mobile phone services. This can only be done with a selective measurement in the relevant frequency ranges. Narda has the solution for this, too.



Limit values for electric field strength according to ICNIRP, 1998, for areas accessible to the general public and for higher exposure occupational (workplace) areas.

ISOTROPIC.

You can't see electromagnetic radiation. Even so, it behaves in much the same way as visible light.
Rod antennas radiate in a circular pattern in one plane, sector antennas illuminate a certain angle, and concave reflectors send out a focused beam.
Measuring antennas are similar. A unidirectional antenna only has two "eyes" – one lobe on each side. That's no use if they're both looking in the wrong direction to see the transmitter.
Only an isotropic, i.e. non-directional antenna can see the whole panorama.
Naturally, you shouldn't stand in the light when making the measurement!

THE SRM FROM NARDA. NON-DIRECTIONAL. IN THE PALM OF YOUR HAND.

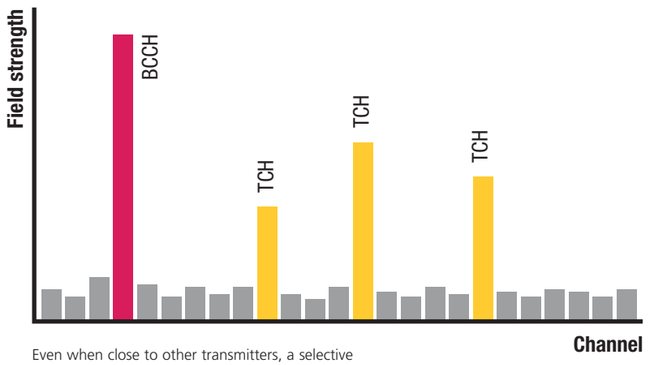
SERVICES, CHANNELS. SELECTIVE MEASUREMENT SORTS OUT TH ON THE SPOT.

Wherever you are, you're seldom alone. Many operators make use of common facilities or at least use the same location to provide the services required by their customers. If there's any dispute, each one will want to be able to show how much their transmitter is contributing to the overall field exposure.
That's impossible with a simple, broadband measurement. For that to work, the operator would need to be the only one present, or the effects of other services would have to be negligible. And, the transmitter would have to output full power on all channels to generate the maximum level of electromagnetic radiation.
The answer here is a selective measurement that detects every output frequency used, and every occupied channel separately, and displays the corresponding field strengths. Intelligent instruments can also integrate over the frequency range of a particular service and display the result, either as an absolute value or as a percentage of the permitted limit value.
There's another, clever way to check out GSM: you can selectively measure one or all of the control channels, which always transmit at full power, and calculate the field strength that would occur if all voice channels were running at full load too.

A similar method can be used for UMTS. At off-peak times, you can measure a frequency block and calculate the overall exposure on the assumption that only the pilot channel was operating.
Whatever the method, the test equipment must have the matching bandwidths, adjustable to individual channels, channel groups, or entire frequency blocks. Narda has the solution.

LONG TERM MONITORING

How does the field strength of your own service or the irradiation from a neighboring medium wave transmitter vary during the day? Recording all the measured values or all values above a given threshold level together with a timestamp makes it easy to trace long term trends.



Even when close to other transmitters, a selective test set can detect individual mobile phone channels. This is a typical GSM channel map with 200 kHz between channels. BCCH is the control channel, TCH signifies voice channels each carrying up to eight calls simultaneously.

RADIATION PROOF.

You can't feel electromagnetic radiation.
Mechanical robustness is easy to assess, by taking an object in your hands. Resistance to electromagnetic radiation can only be shown by measurement.
The field strength emanating from a radio broadcast antenna can be ten thousand times more than that from a mobile phone channel – a real challenge for any test set. It needs to be highly sensitive on the one hand, yet on the other hand, strong radiation must not be able to bypass the test antenna and enter the electronic circuits directly, leading to wrong results or even impaired function.

THE SRM FROM NARDA. MEASURES ANYWHERE. RADIATION PROOF.

SRM – SELECTIVE RADIATION METER. GET TO GRIPS WITH THI

Selective and complicated, or quick and easy broad-band? No need to make this choice any longer. The SRM measures selectively and gives you reliable results. Without additional cables or an external PC. We at Narda have designed it especially for the safety concerns in electromagnetic fields.
So it's handy, battery operated, and radiation proof, and you can take it anywhere.
It has an isotropic measuring antenna, so you don't have to worry about where the radiation is coming from.

It detects everything in the frequency range from VHF to UMTS. For measurements in the mobile phone range, which are most often needed, just pick it up and measure.
It evaluates the measured field strength according to applicable regulations and presents the results just the way you want – ideal for telecoms and mobile phone providers, measurement services, and authorities.

- Choice of field strength or power density units, or as a percentage of the permitted limit value.
- For a single source or an individual channel.
- As a list of sources or channels.
- As a proportion due to a telecommunication service.
- As the proportion due to all services and their percentage contribution to the overall field exposure level.

The SRM for safety-related analysis of electromagnetic fields. Complete. You can also use it as a fully-fledged spectrum analyzer for field strength measurements unrelated to human safety issues.

The SRM's isotropic measuring antenna detects the electric field strength in all directions equally.
Alternatively, you can use single-axis measuring antennas from Narda, or your own measuring antennas.

The SRM takes care of the rest. Immediately. Wherever you are. Without cables or computers. You can, of course, upload the results to a PC, using the SRM's built in RS 232 and USB ports.

REVOLUTION:

A selective measuring instrument especially designed for safety related concerns in electromagnetic fields.

**THE SRM FROM NARDA.
FOR FREQUENCY-SELECTIVE,
NON-DIRECTIONAL MEASUREMENTS.
IN THE PALM OF YOUR HAND, ANYWHERE.**

SRM – SELECTIVE RADIATION METER. DO EVERYTHING. ON TH

Narda has achieved a breakthrough with the SRM: A frequency-selective, precision measuring instrument that is operated just like a simple, broadband, hand-held tester. That saves time.
The SRM is especially designed for safety related concerns in electromagnetic fields. That means you can take it into any field environment, without having to carry additional cables, power supplies or even a PC. And there's no need to worry about excessive field strengths.
Especially designed for safety related concerns in electromagnetic fields also means that anyone can use the instrument, as no specialist background knowledge is needed.
Safety in electromagnetic fields can only be guaranteed if the measurement results are sound. The SRM is a precision instrument, so it always delivers reliable results. Because it is a special device for safety measurements, it also reduces an often underestimated uncertainty factor: Improper operation and errors in evaluation.
Safety in electromagnetic fields: The SRM gives you the answers immediately, on the spot. No need to go back to the office and work out the results.
These are features you can also take advantage of, even when you "only" use the SRM as a spectrum analyzer for field strength measurements.

APPLICATION:
ANALYSIS FROM VHF TO UMTS.

Equipped with an isotropic measuring antenna, the SRM works in the frequency range from 75 MHz to 3 GHz. It thus covers all services from VHF radio up to UMTS. Using other antennas, it can measure down to 100 kHz, so it can cover the entire broadcasting spectrum from long wave up.
The resolution (RBW) can be set to match the service you are measuring, such as 1 kHz for long wave, 200 kHz for the GSM channel map or 5 MHz for a complete UMTS frequency block.

TECHNOLOGY:
HIGH SENSITIVITY, RADIATION PROOF.

The SRM's sensitivity is more than enough to measure individual GSM channels, even indoors, and to reliably demonstrate compliance to limit values of a few Volts per meter in sensitive areas. And if you're standing right next to a strong medium wave transmitter or a VHF repeater and measuring other services, you won't have a problem. The SRM can withstand fields in excess of 200 V/m.

OPERATION:
COULDN'T BE EASIER. SAFE AND SURE.

It's not easy to upset the SRM. Just hang it over your shoulder, and off you go – in the heat of summer (up to 50 °C), in ice and snow (down to -10 °C), through mist and fog (up to 95 % humidity). It will even put up with water splashes and a bit of condensation. Use it with the carry strap, and you can operate it with one hand, and call up test setups at the press of a button. You don't have time to make complicated settings when you're up an antenna mast. But you do want reliable results. The SRM delivers.

CONCEPT:
FLEXIBLE FOR EVERY APPLICATION.

The SRM is based on an open concept. So, you can upload new standards and evaluation curves for safety measurements as they are published. But not just that: future applications can also make use of its superb performance as a spectrum analyzer.

Frequency range of basic unit	100 kHz to 3 GHz
Resolution bandwidths (RBW)	1 kHz to 5 MHz
Sweep time for one spectrum	50 ms to 1 s, depending on frequency span, measurement in one axis direction
Memory size	Holds up to 9999 data sets
Operating time	Typically 4 hours from fully charged batteries
Weight of basic unit	1.9 kg including batteries

SRM: The major specifications of the basic unit. See page 18 for measurement antennas.

We haven't re-invented the wheel. We just make use of its best features. Just turn the control to scan through resolution and frequency settings instead of entering rows of figures. Scan through lists of results instead of fiddling with a cursor. There's no faster way to get results.

EVOLUTION:

There's no mistaking the origins of Narda's family of instruments. The SRM is precision measurement technology in a workday package. High tech inside, rugged and simple outside. Just switch on and measure – and get reliable results.

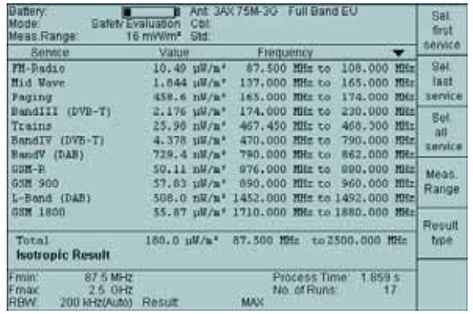
THE SRM FROM NARDA.
EASY, FAST, PRECISE MEASUREMENTS.
IN THE PALM OF YOUR HAND, ANYWHERE.

OPERATING MODES. FOR EVERYDAY MEASUREMENT SITUATIONS

All the measurements are aimed at safety in electromagnetic fields. And that's why the first operating mode is called Safety Evaluation.

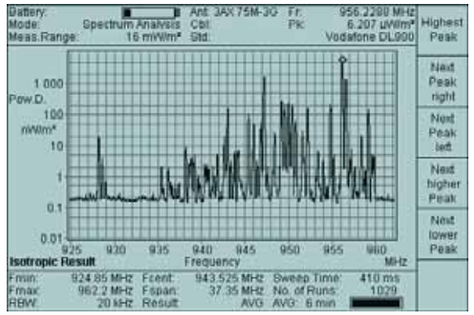
SAFETY EVALUATION

Everything is prepared for measurement and evaluation. Simply select the services you want to measure, and the regulations you want to use as standards. Or start an overview measurement of the entire frequency range. The SRM does the rest. Automatically.
You don't need to be concerned about frequency span, RBW and sweep time, especially if measuring electromagnetic fields is only a part of your job of measuring environmental pollution such as gases or noise. For expert users, there's another operating mode: Spectrum Analysis.



SAFETY EVALUATION

Unknown or unclear field environment? The SRM automatically shows the overall field exposure (Total) as well as the contributions made by individual services.



SPECTRUM ANALYSIS

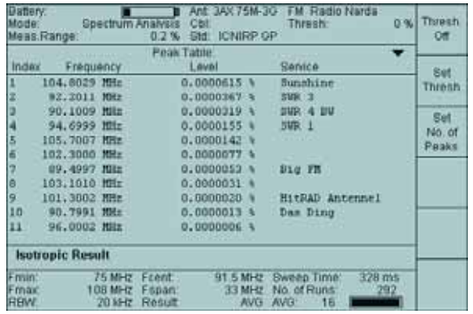
Classic spectrum display with extra features: Peak marker lets you read off individual values. And the field strength values can be integrated over a variable frequency range.

SPECTRUM ANALYSIS

This lets you use the SRM just like a spectrum analyzer. If you want to know how the field varies over a longer period of time, choose another mode: Time Analysis.

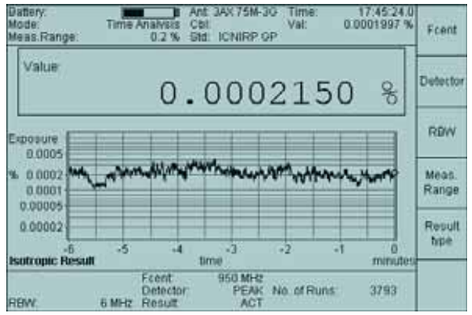
TIME ANALYSIS

In this operating mode you can make narrow bandwidth measurements and show the results graphically or numerically. Resolution bandwidths between 1 kHz and 6 MHz, variable averaging time, RMS or peak value detector.



SPECTRUM ANALYSIS

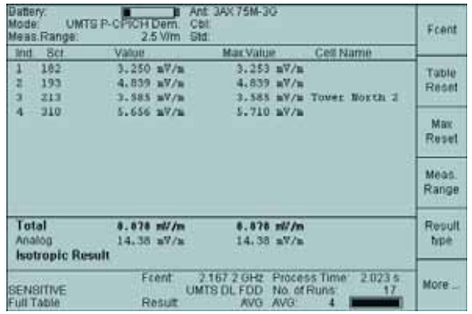
Which field sources are the major field emitters? The SRM displays a table listing the 20 highest field strength values and matches them to the services present.



TIME ANALYSIS

How does the channel field strength change over the course of a second? A minute? Hours? The SRM displays the changes, saves the peak values, and averages according to a specific standard or your own settings.

With its 5 MHz bandwidth, the SRM can already directly and selectively measure an entire UMTS frequency channel. With the UMTS option, it can decode the Primary Common Pilot Channel (P-CPICH). Based on this result, you can extrapolate to the worst case scenario with all traffic channels fully loaded.



UMTS P-CPICH DEMODULATION

How much radiation is due to each UMTS cell?
The SRM with UMTS option automatically detects the P-CPICHs, displays the scrambling code used and the corresponding field strength.

EVALUATION. IN LINE WITH CURRENT REGULATIONS

The SRM has all the accepted limit values already stored: ICNIRP (International Commission on Non-Ionizing Radiation Protection), IEEE (Institute of Electrical and Electronic Engineering), FCC (US Federal Communications Commission), Canadian Safety Code 6, and the German BGV B11 (Berufsgenossenschaftliche Vorschrift für Sicherheit und Gesundheit bei der Arbeit) and 26. BImSchV (Bundesimmissionsschutz-Verordnung). You can also define and edit your own limit value curves using the SRM-Tools or SRM-TS PC software.

LOADS

Importing settings, exporting results: easy to do using the RS-232 or USB ports. Using the matching PC software SRM-Tools, for example, you can create or edit tables of services and frequencies, upload the data for your own measuring antennas and cables, load new limit value curves, or upgrade the software and transfer everything to the SRM. Or you can download the results from the SRM and paste them into standard applications or your own, special, documentation.
If you have a lot of results to save and manage, you can step up to the SRM-TS PC software instead (page 20).

STANDARD-COMPLIANT WEIGHTING.

The measured values of field strength are physical quantities, so they are "neutral" results. The resulting radiation exposure is the relationship between the measured field strength and a frequency-dependent limit value, which makes it a "weighted" result. These limit values are set at different levels by different bodies: the ICNIRP (International Commission on Non-Ionizing Radiation Protection), the IEEE (Institute of Electrical and Electronic Engineering) and others. The occupational standard in Germany is known as BGV B11 (Trades Union Regulation for Health and Safety at Work). For the private and public sector, the applicable standard is the 26th BImSchV (Federal Immission Protection Regulation), which is based on ICNIRP. You can simply choose the weighting you want from the SRM Configuration menu.

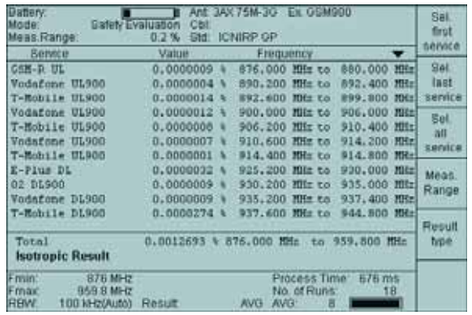
**THE SRM FROM NARDA.
STANDARD-COMPLIANT MEASUREMENTS.
IN THE PALM OF YOUR HAND, ANYWHERE.**

SAFETY EVALUATION: AUTOMATED FOR SAFETY.

No need for long tables of frequencies, or complex weighting factors. From the Configuration menu, simply select the services you want to measure, and the standards you want to use for evaluation.
Narda has prepared tables of services and corresponding frequency ranges for the major countries. These tables can be edited or new ones created using the PC software. Just enter a name for the service, along with the upper and lower frequency limits. You can do the same for the frequency ranges of individual providers: simply enter the provider's name and the frequency limits. When you're ready, upload the data to the SRM using the serial or USB port. These tables are then ready for use, at any time.

ONE BUTTON TO PRESS FOR A COMPLETE MEASUREMENT.

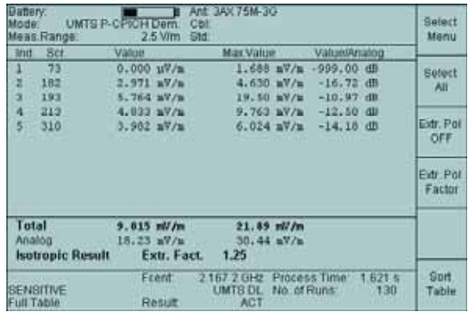
The usual way of expressing the result is as a percentage of the permitted limit level. The SRM does this by automatically evaluating each spectral line according to the selected standard or regulation. If you prefer absolute values, you can simply switch the display to field strength (V/m) or power density (W/m²). The results are no longer weighted.



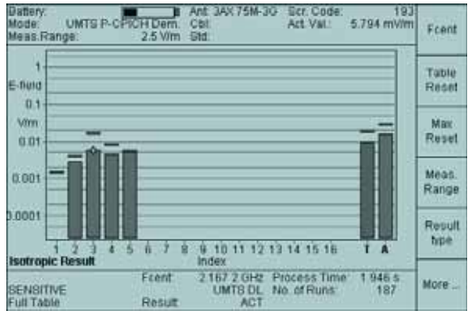
In Safety Evaluation mode, the SRM automatically displays the overall field exposure level (Total) as a percentage of the permitted limit value, as well as the contribution of each separate service to the total.

Safety Evaluation with a single axis measuring antenna?
No problem with the SRM. First axis, first measurement, and the SRM shows the first intermediate result. Turn the antenna, make the second measurement, and the SRM shows the updated result. Same again for axis number three; the third measurement gives the final result.

UMTS frequency bands have generally cost operators a lot of money to secure. They are well defined and can be measured by frequency selection. The field exposure due to a single UMTS frequency channel is thus easy to determine, and can be matched up with its known operator.
You can't use frequency selection for everything else, since the latest pulse code modulation procedures mean that everything takes place within this frequency band. Every UMTS cell, and every voice or data channel uses the same, roughly 5 MHz wide frequency band. They can only be distinguished by the code used. Each cell uses its own so-called scrambling code.
So the SRM doesn't just directly measure the field strength of the entire UMTS channel using a resolution bandwidth of 5 MHz. Fitted with the UMTS option, it also decodes all the scrambling codes that appear in the selected UMTS frequency channel.



The SRM uses the variable extrapolation factor to calculate the worst case values for the results of UMTS P-CPICH demodulation: "Value", "Max. Value", "Total". The actual value resulting from an analog measurement is shown as "Analog".



Clear bar graph display of instantaneous values with indication of maximum value. The scrambling codes shown can be selected, e.g. according to service operator.

SELECTION, DEMODULATION, EVALUATION.

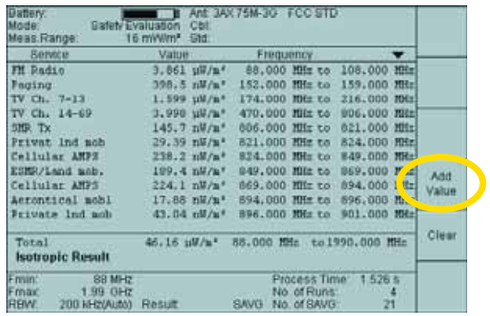
The SRM evaluates the results according to the applicable safety standards and shows the results down to each separate radio channel and cell, or collected together according to operator, communications service, or entire radio frequency ranges.

THE SRM FROM NARDA. MEASURES SAFETY. RELIABLY.

SPATIAL AVERAGING: SPATIAL RESOLUTION AND AVERAGING FUNCTIONS.

Close to transmitter arrays and in reflecting spaces, the field strength is not distributed evenly. There are definite "hot spots" and minima. To realistically determine how humans are affected, various standards require spatial averaging over a volume corresponding roughly to the human body.

The "Spatial Averaging" function of the SRM (option) makes this easy. The measuring antenna is simply moved along the desired path in space for continuous averaging. For discrete averaging, pressing a button adds the measured value at each required point in space. The SRM then averages the values automatically and displays the resulting average value according to IEEE as the end result, for example.



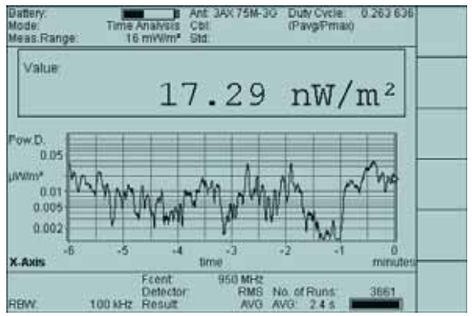
SPATIAL AVERAGING

How high is the average field exposure determined over the volume of the human body? The SRM averages several spatial values continuously or discretely and displays the result directly at the end of the procedure.

TIME ANALYSIS: TIME RESOLUTION AND TIME AVERAGING.

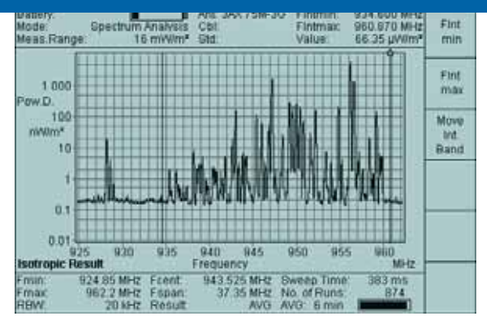
Pagers switch on and off without warning, communications channels are used sporadically, so the frequency spectrum is constantly changing. In "Time Analysis" mode, the SRM can record the variation with time down to one-second accuracy, so you can see how individual channels behave over a period of time. With "Time Controlled Storing" (option), you can preprogram a specific starting time and measurement duration.

Most standards prescribe time averaging over a six-minute period to determine exposure levels for the human body. The SRM does this automatically, too, regardless of the observation period displayed on the screen.



TIME ANALYSIS

Past values can be read out using the marker. The so-called duty cycle function automatically determines the ratio of average to maximum power (Pavg/Pmax).



SPECTRUM ANALYSIS

How high is the total power level? The integration range can be set just as easily as the zoom range. The numerical result is displayed automatically at the top right of the measurement window.

MAXIMUM VALUES AND AVERAGES.

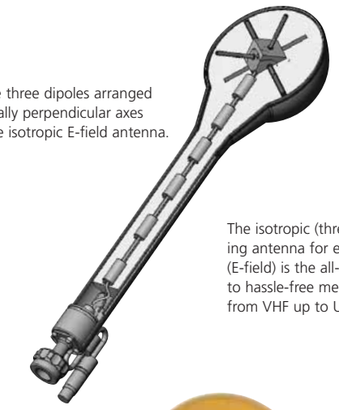
Where is the field strength highest in the room? At what frequency? When do peak values occur, and how long do they last? The SRM shows all this directly. And if you need to know the average values instead, the SRM shows them, too.

THE SRM FROM NARDA: ANALYZES, AVERAGES, AND INTEGRATES. IN FREQUENCY, SPACE, AND TIME.

ONE AXIS OR THREE? THE RIGHT MEASURING ANTENNA FOR T

The isotropic measuring antennas for the SRM measure in three mutually perpendicular axes. Even with the close connection to the SRM basic unit, their anisotropy, i.e. the degree to which they deviate from the ideal isotropic characteristic, is so good that most measurements can be made with the instrument held in your hand. The antenna can be mounted on a tripod and connected to the SRM by a cable when utmost precision is required. This minimizes the effects of reflections from the instrument casing and the person making the measurement.

Single axis measurement antennas from Narda are ideal for high sensitivity measurements at up to 3 GHz or for precision measurements of electric and magnetic fields down to 100 kHz. They can also be used to make three axis measurements with the SRM. All you need is a mounting that allows the receiving axis of the antenna to be oriented in three mutually perpendicular positions. The SRM saves the result for each of the three axes, and then calculates the resulting field strength. You can also use the isotropic antennas for single axis measurements. Simply switch to "uniaxial" in the SRM menu and select the desired receiving axis.



There are three dipoles arranged on mutually perpendicular axes inside the isotropic E-field antenna.

The isotropic (three axis) measuring antenna for electric fields (E-field) is the all-round answer to hassle-free measurements from VHF up to UMTS.

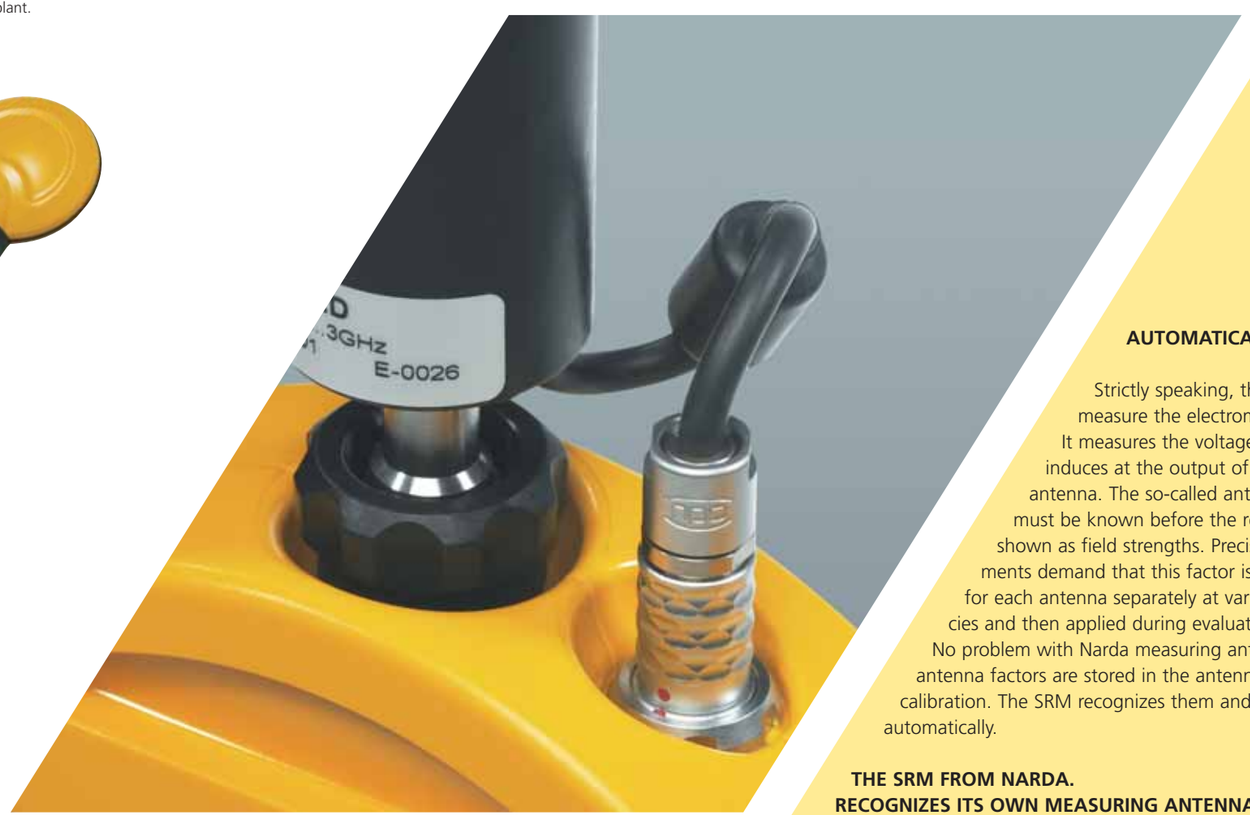
High-sensitivity single axis E-field antennas can be fitted to a tripod and positioned for precision measurements. Held in the hand, they are also suitable for locating maximum values within a room.

The single axis H-field antenna lets you make precise measurements of magnetic field components close to transmitters and industrial plant.

Antenna type	Three axis E-field antenna (isotropic), passive dipole array	Single axis E-field antenna, passive dipole	Single axis E-field antenna, active dipole	Three axis H-field antenna (isotropic), active coil array	Single axis H-field antenna, active coil
Frequency range	75 MHz to 3 GHz	27 MHz to 3 GHz	100 kHz to 300 MHz	100 kHz to 250 MHz	100 kHz to 300 MHz
Recommended application	Fast, non-directional measurements, e.g. at mobile phone frequencies	Precision measurements at VHF and TV frequencies	Precision measurements of electric fields on radio / TV transmitters and industrial plant	Fast, non-directional near-field magnetic field measurements on radio / TV transmitters and industrial plant	Precision near-field magnetic field measurements on radio / TV transmitters and industrial plant

Measuring antennas from other manufacturers can also be used with the SRM basic unit.

The measurement antenna connection to the SRM basic unit is an N connector. The basic unit can read the measuring antenna data from an EPROM via an auxiliary control cable.



AUTOMATICALLY CORRECT.

Strictly speaking, the SRM doesn't measure the electromagnetic field. It measures the voltage that the field induces at the output of the measuring antenna. The so-called antenna factor must be known before the results can be shown as field strengths. Precision measurements demand that this factor is determined for each antenna separately at various frequencies and then applied during evaluation.
No problem with Narda measuring antennas. The antenna factors are stored in the antenna itself during calibration. The SRM recognizes them and applies them automatically.

**THE SRM FROM NARDA.
RECOGNIZES ITS OWN MEASURING ANTENNAS.**

SRM-TS PC SOFTWARE. DATABASE FOR HANDLING DEVICE DATA AND ANY NUMBER OF RESULTS.

It's easy to get results with the SRM. And just as easy to get a lot of results. To handle all this data easily, too, you can use the SRM-TS PC software.
SRM-TS can download all the results from the SRM and save them in databases on a PC. The results can then be analyzed further, e.g. for peak or average values in the time domain or in the frequency domain. The zoom function lets you take a closer look at certain details. You can also paste the results into the usual Office applications, so you can easily prepare customer-specific test reports.
Going the other way, you can configure the test set from the PC using SRM-TS. Import and export functions let you upload antenna data from other manufacturers into the test set, for example.

In on-line mode, you can use SRM-TS to make all the settings on the test set and carry out timer controlled measurements from your PC. The results are displayed directly on the monitor. That is an advantage when you're monitoring the radiation levels over a long period. The measuring antenna is placed in the desired position relative to the radiation source; the test set is located close by, but is remote-controlled from your office up to 100 m away using an electro / optical serial interface (RS232).
This remote operation via optical cable is also very useful if you want to avoid any influence on the field that might be caused by the person making the measurement.

OPTIONAL ACCESSORIES

Additional cables
- High frequency cables
- USB adapter cables
- Serial interface cables and optical / electrical converters

Power supply
- Additional batteries

Antenna holders
- Antenna holder for single axis and three axis antennas
- Antenna holder for three axis antennas allowing horizontal and vertical fitting
- Tripod adapter
- Tripod

Other antennas
- Single axis E-field measuring antennas
- Single and three axis H-field measuring antennas
(see p. 19)

Software
- SRM-TS with convenient evaluation and management functions

BASIC EQUIPMENT.

SRM-3000 is the designation for a complete set of basic equipment. It includes the SRM basic unit, the isotropic E-field measuring antenna, a carry strap, various cables, batteries, and an AC adapter / charger unit, as well as the SRM-Tools PC software. All packed in a rugged hard shell case. Or, if you prefer, in a soft case on rollers.

READY TO GO!

LOW-FREQUENCY TEST EQUIPMENT

Test equipment for electric and magnetic fields from DC up to several hundred kilohertz. For power utility companies, electric railroads, industry. Standard-compliant evaluation, e.g. conforming to the EN 50366 standard for domestic appliances.

BROADBAND HIGH-FREQUENCY TEST EQUIPMENT

NBM-500 – the new series that covers practically every application between 100 kHz and 60 GHz.

SELECTIVE HIGH-FREQUENCY TEST EQUIPMENT

SRM-3000 – the tester that selectively detects and measures every source in the range from 100 kHz to 3 GHz. With a sensitivity that can still detect individual telecommunications channels, even inside buildings.

PERSONAL MONITORS

Worn on the body, these devices give reliable warning of excessive radiation levels.

AREA MONITORING STATIONS

For permanent monitoring of the field strength situation. Frequency-selective or broadband. With data transfer via mobile phone.

EVERYTHING YOU NEED FOR SAFETY IN ELECTROMAGNETIC FIELDS

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.