narda®
Test Solutions
an L3 Communications Company

Measuring and monitoring with precision

NRA-RX

Narda Remote Analyzer

Exceptional: Measurement range. Exemplary: Price and performance

The Narda NRA Series is a winner, thanks to its exceptional range of features and its exemplary price to performance ratio. Developed specially for the radio monitoring market, the NRA-RX Analyzers with receiver characteristics are the ideal remotely controllable and addressable measuring stations for everyone that relies on reliable measurement, analysis and monitoring of RF signals. Remote control and data transfer is via Ethernet, which means that the NRA Analyzers can be controlled from any location using a PC or laptop. Drivers for numerous Control and Monitoring systems are available from many well-known manufacturers for this purpose. That means a saving in time and cost: There is no need to physically visit each measuring station in order to collect data or change the configuration, as they are all controlled from one location. So Narda NRA opens up technical opportunities and practical advantages to system integrators, operators and authorities that are exemplary in this price class.

Innovative technology with guaranteed reliability

The digital design of the NRA Analyzers is based on an intelligent combination of the heterodyne principle with state of the art FFT analysis and trigger functions. The Narda NRA can capture pulsed signals as well as random signals, and is ideal for both short and long term monitoring of all types of RF signals. By combining an analog heterodyne receiver with digital FFT analysis, the Analyzers can achieve sweep rates of up to 12 GHz/s. The captured signals are preprocessed in all operating modes, thus reducing the quantity of data and relieving pressure on the network. Despite this, the up to 600,000 measurement points per scan ensure gapless frequency monitoring with high resolution.

Easy to install, simple to control

The compact size of the NRA devices coupled with their low power consumption means that they can be quickly integrated without fuss into existing measuring stations. The measurement data are presented in ASCII, or in binary form for faster data transfer.
The Analyzers work with a wide variety of wideband and directional antennas. Your own antennas, cables and other devices can be configured; the antenna factors and calibration values are stored in the NRA and taken into account automatically during measurements.
The "Antenna Control" option allows direct use of Narda antennas and cables, with all antenna factors and calibration data being detected and applied automatically to ensure that the Analyzers deliver precise results expressed directly in units of field strength.

Narda. Innovative by experience

Narda Safety Test Solutions is the global leader in the development and production of measuring instruments for electric, magnetic, and electromagnetic fields. Our expertise derives from know-how gathered over many years of experience in the field of high frequency and microwave technology – and we hold more than 95% of all published patents concerned with the measurement of such fields. The result is a range of high quality measurement solutions tailored to each application, permanently based on our management system, which covers all aspects and implements the requirements of the ISO 9001/2008 and ISO/IEC 17025 standards.

One system for every situation

The devices in the NRA series are all-round performers with lots of options. Their applications are based on practical requirements. All NRA devices can detect even very weak signals because of their very low intrinsic noise. Four different operating modes are available in total. Spectrum Analysis with Wideband FFT and Channel Monitoring are installed as standard.

Optional functions that can be selected in addition to the above are:

- Multi-Channel Power
- Level Meter
- Scope with I/Q data capture and streaming

The NRA-RX series: Product features

- Frequency resolution (RBW) from 10 Hz to 20 MHz
- 50 dB input attenuator settable in 1 dB steps
- Display range from -150 dBm to +21 dBm (RBW 10 Hz)
- DANL < -155 dBm/Hz
- < 1,2 dB level measurement uncertainty at 15 °C bis 30 °C
- High-resolution spectrum with more than 600,000 measurement points (approx.)
- Detector for fixed resolution (BINs), choice of data compression using +Peak, -Peak or RMS
- ASCII or binary data transfer
- Multi-Channel Power: Up to 500 freely definable channels
- Level Meter (Zero Span): Resolution bandwidths from 100 Hz to 32 MHz
- Scope and IQ Data: Real-time analysis in the time domain from 100 Hz to 32 MHz, IQ data up to 32 MHz (block by block) or streaming up to 400 kHz CBW

Use in digital satellite newsgathering

Teleport, e.g. for testing SatCom control rooms

The comprehensive remote control functions enable quick and economical integration into applications for signal monitoring.

NRA instruments support the performance and status analysis of a wide range of very different signals. They provide a rapid overview of channel occupancy as well as the signals in neighboring channels, and provide the basis for eliminating interference before this impairs the quality of service.

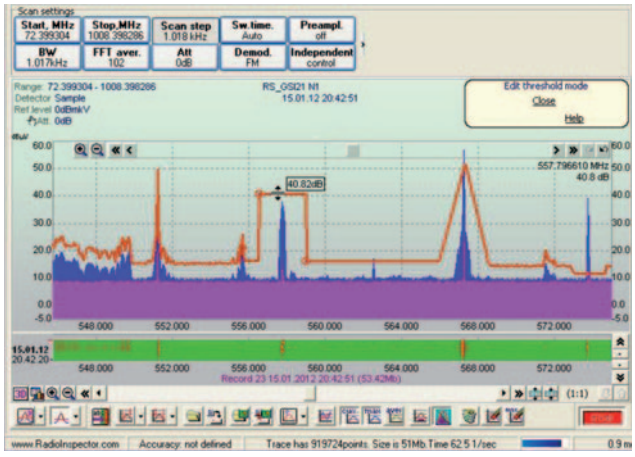
Radio monitoring

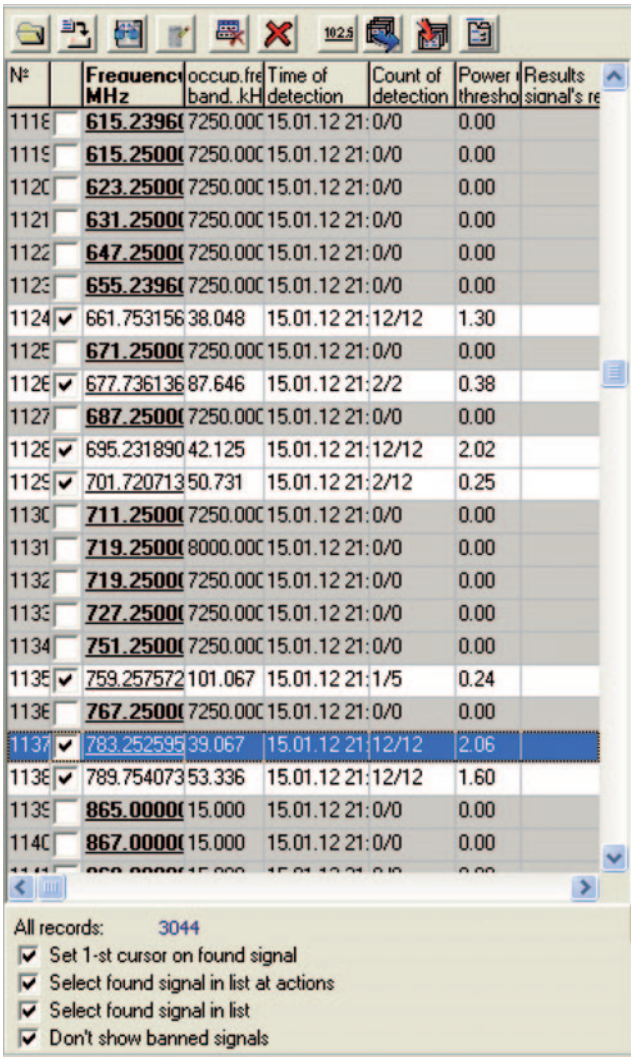
Detecting mobile communications interference

Remote surveillance

RadioInspector™: Detecting and analyzing signals that exceed limit values

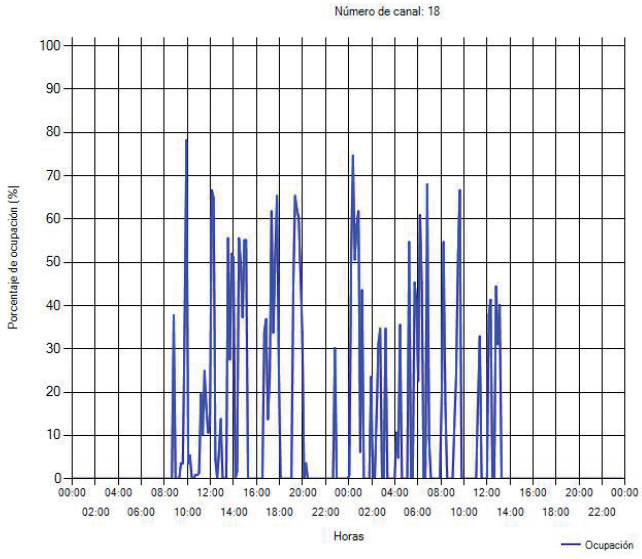
Effective spectrum management demands the detection of illegally operating transmitters as well as of signals that exceed prescribed limit values. Detection is based on a preset limit value (such as a frequency mask) for the specific measurement location. All signals that exceed this specified limit are recorded and subjected to separate analysis. The software enables complete analysis of all the data because every signal exceeding the limits is stored in the signal list. GSM, TETRA, APCO 25, DRM and Wifi signals can be decoded in addition to DECT and Bluetooth.





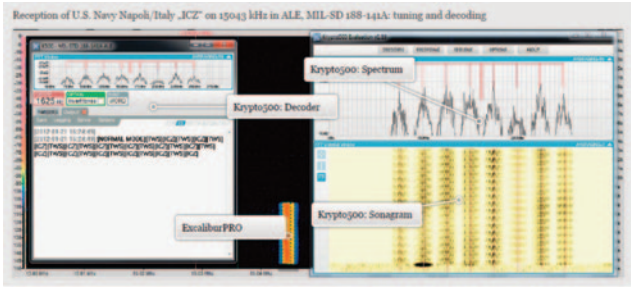
TesMonitor: Spectrum occupancy, measurement and evaluation

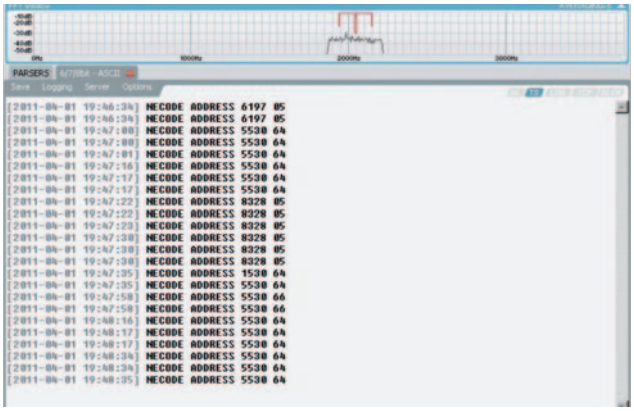
This software from TesAmerica is ideal for monitoring frequency spectrum occupancy. The increasing use of wireless technologies makes I progressively more difficult to squeeze all the legitimate users into the limited available spectrum. It is important to know the actual occupancy in particular frequency bands in order to maximize frequency use.
Some frequency bands are more heavily used at certain times, others less so. To guarantee optimum utilization of the frequency spectrum, it must be monitored over a specific time period so that frequency occupancy can be optimized.



Krypto500: Decode. Analyze. Record

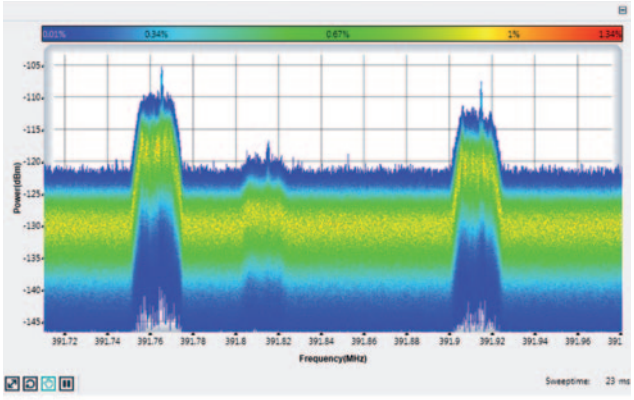
Krypto500 is a complete solution for SIGINT provided by COMINT Consulting. The system is capable of decoding and analyzing unknown signals. Hundreds of current decoders for the LF, MF and SHF bands are available. The intuitive and powerful user interface assists users to quickly and precisely interpret the information about the desired signals.
The data is displayed in the Spectrum and Sonogram windows. These can be adjusted to wholly match user requirements with regard to color, resolution, dynamic range, span, and other functions.

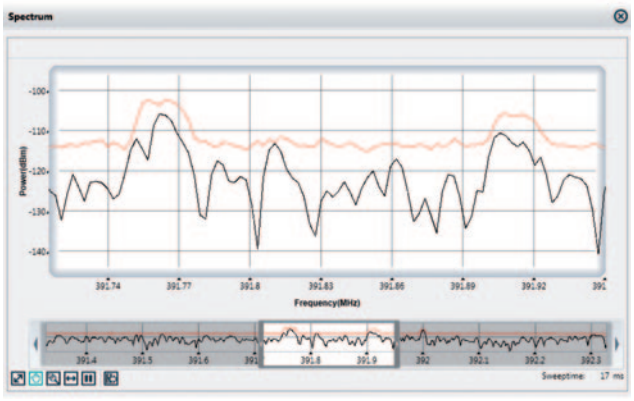




CSM: Spectrum density mode

"Communication System Monitoring" from Inradios displays the number of times an amplitude value occurs at a particular frequency as different colors. In this way, sporadic signals can be easily seen. The color display makes it easy to distinguish spurious signals that are swamped by the wanted signal in other types of display. With its broad palette of graphical visualizations, Inradios allows detailed spectrum and signal measurements. Individually defined signal analysis is possible by visualizing the frequency range. Signal identification covers modulation schemes such as DVB -S1/-S2, TPC, DECT, TETRA, WLAN a/b/g, etc.





Ready for new ideas

Systems integrators, too, are convinced by the high degree of flexibility, ease of programming, and technical facilities. Developers and systems architects profit from a fast learning curve, enabling rapid realization of successful customer-oriented solutions. The excellent technical characteristics provide further advantages, as does the impressive degree of usability for the end user. Added to this: Exemplary documentation to provide support in every phase of programming. The potential for flexible adaptation of the NRA series assures tailor made applications with a guaranteed future, regardless of whether you are enhancing a feature of a standard product or implementing a brand new, customized solution.

Efficient, even from a distance

Everything a programmer needs: Comprehensive documentation, simple ASCII commands, and clear presentation. All this makes it quicker to get familiar with the system and enables the rapid production of user applications.

Command
Response

MODE SPECTRUM;
0;

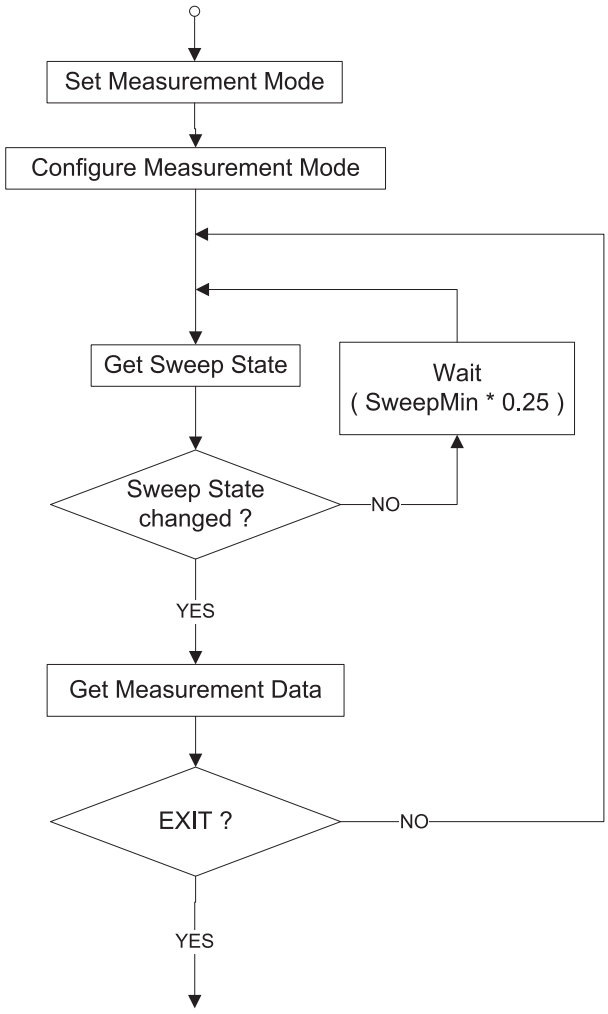
SPECTRUM_CONFIG
26.995e6 , ... , ...;
0;

SWEEP_STATE?;
3,400,60,100,0*;*

SWEEP_STATE?;
4,400,20,100,0*;*

SPECTRUM_TRACE? 1,ACT;
4,400,100,0,
..., ..., ..., ...,
ACT,NO,21,
36.77,-30.52,-43.30,-41.15,-35.68,-42.16,
-34.77,-34.81,-39.91,-51.26,-43.05,-41.96,
-37.74,-37.17,-43.39,-37.62,-37.98,-39.22,
-36.63,-44.73,-37.03,
0;

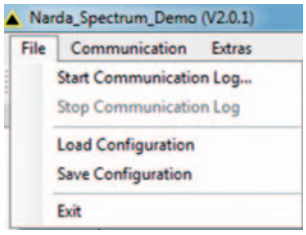
Diagram

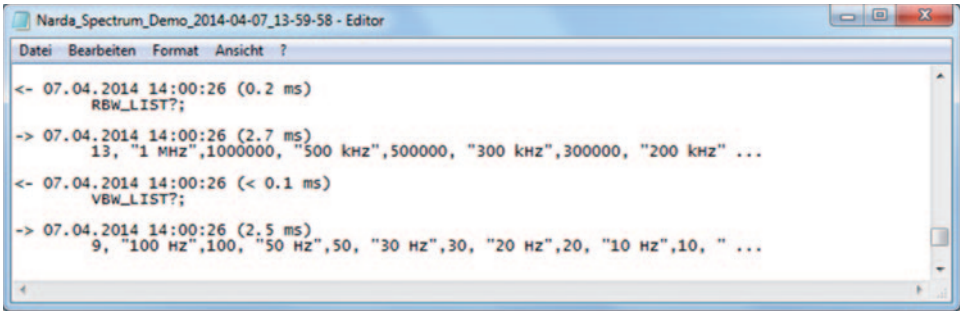


An example of user-friendly programming:
"Spectrum operating mode" flowchart;
extract from the Command Reference Guide.

Simple integration and remote control

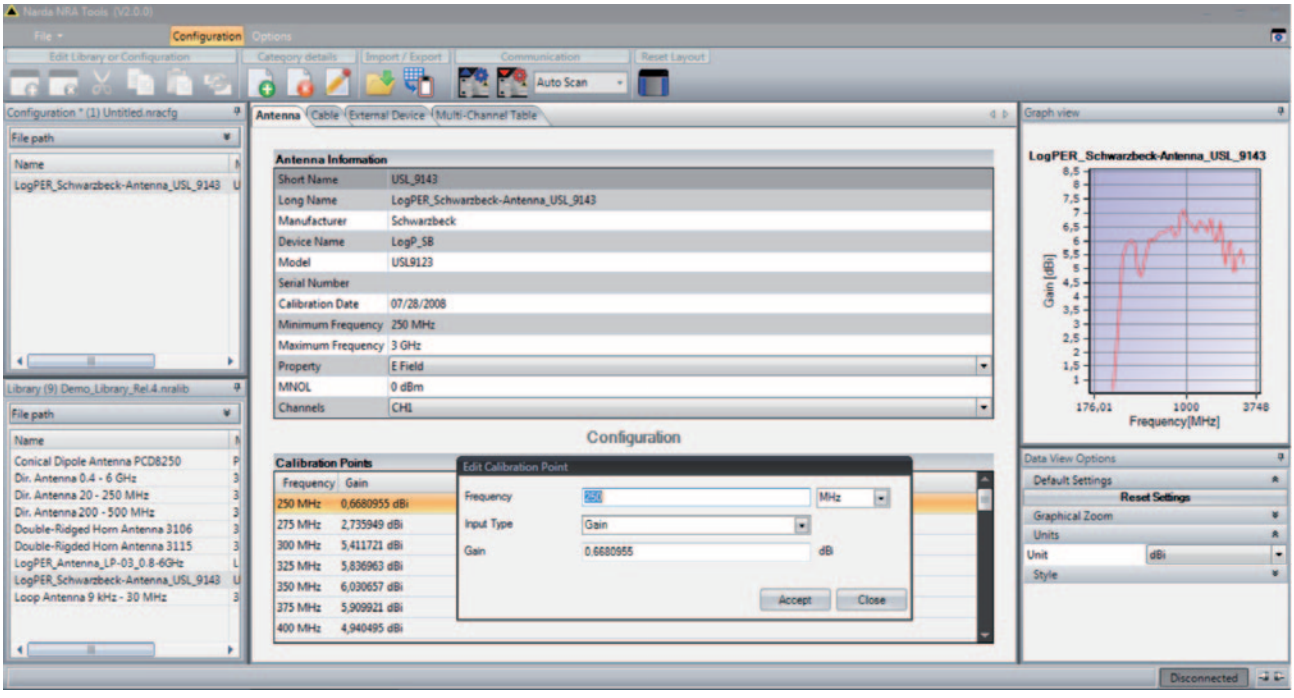
Every Narda demo software includes the "Communication Log File" function. This records communication between the PC and the NRA. This simple but effective and helpful tool makes integration much easier. As a result, various scenarios can be simulated and evaluated by varying the settings.





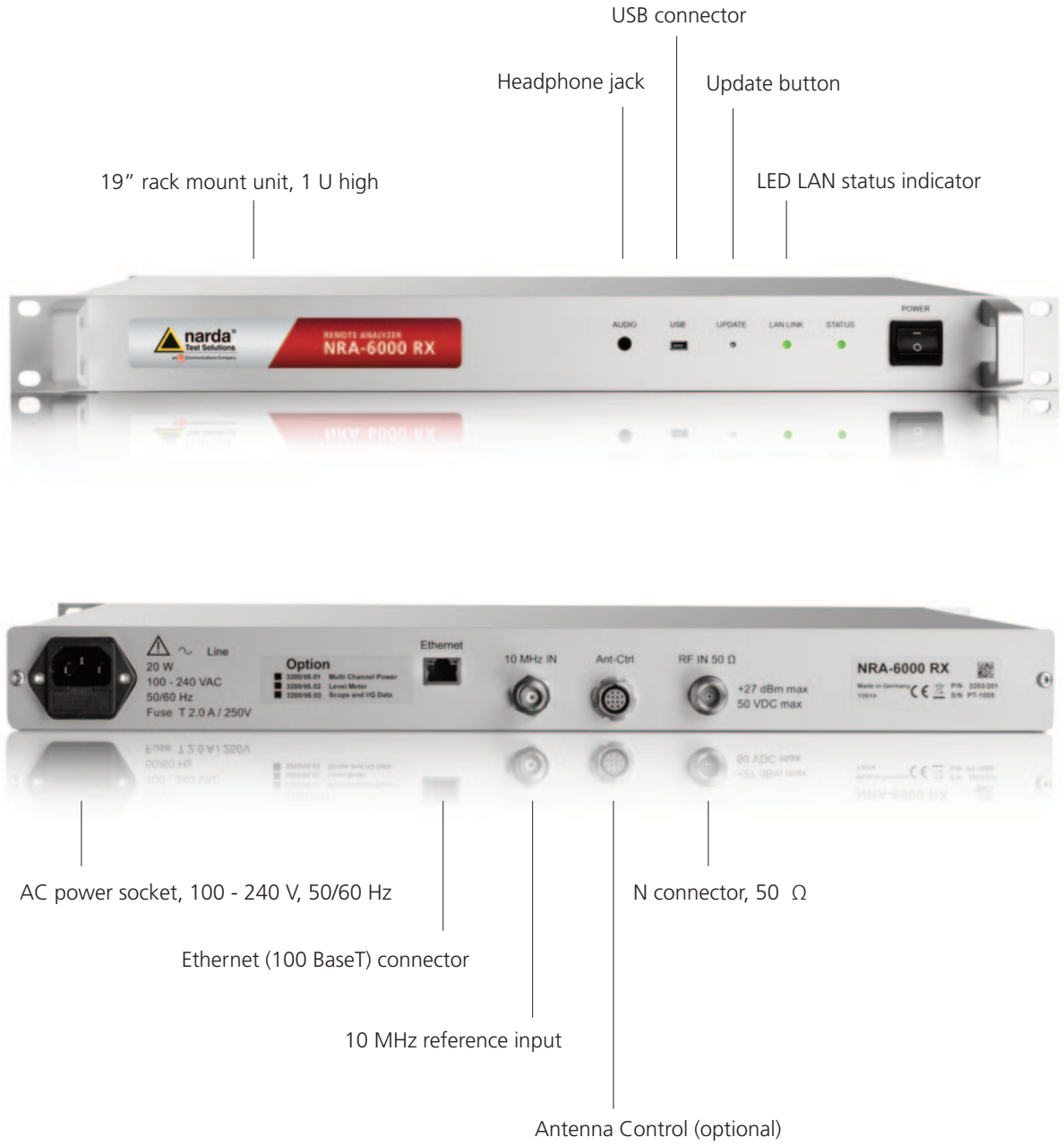
Straightforward and versatile: NRA Tools

The NRA instruments can be tailored to match individual users requirements even further by using the NRA Tools software. For example, antenna profiles can be created and saved to the NRA, simply by entering the antenna factors corresponding to the frequency points. The NRA will then automatically make measurements in units of field strength when the desired antenna is selected. In the same way, cable profiles can be generated and stored using NRA Tools. Only the calibration data (attenuation) for each frequency point needs to be entered; the NRA does the rest by factoring the attenuation into the measurement automatically. Multi-channel tables can be generated just as easily. Up to 500 freely definable channels can be saved in the NRA using this feature.



Flexible specialists

The NRA Series covers practically the entire bandwidth for short- and long-term observation of RF signals. Useful options further augment the functions of these specialist devices, so that the functions and investment needed can be tailored exactly to individual requirements, for example by adding the Level Meter, Multi-Channel Power or Scope and I/Q Data functions and the Antenna Control hardware option. An optional calibration report can also be ordered with every NRA.



NRA-2500: 5 MHz to 2.5 GHz

Entry-level model for signal analysis. Ideal for satellite tracking, antenna alignment, and carrier monitoring.

NRA-3000 RX: 9 kHz to 3 GHz

NRA-6000 RX: 9 kHz to 6 GHz

Powerful device with receiver performance: Ideal for radio reconnaissance and radio monitoring, for demodulating and decoding signals, for measuring frequency band occupancy and testing network coverage, as well as for signal analysis and classification, and for detecting illegal transmitters.

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Leaders in EMF Measurement

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