NRA RX – Spectrum Analyzer
Measurement, Analysis and Monitoring of RF signals

The NRA is a family of 19” 1RU rack mountable Spectrum Analyzers for remote controlled measurements and analysis of RF signals, ranging from 9 kHz up to 6 GHz. The digital design of the NRA Analyzers is based on a smart combination of the super heterodyne principle with leading-edge FFT analysis and trigger functions. It captures pulsed and random signals and is ideal for short- and long-term observation of all types of RF signals. Evaluation functions and signal integration capabilities reduce the amount of raw data and increase measurement speed and performance.

- Application-oriented Operating Modes with Resolution Bandwidth (RBW) up to 32 MHz
- High Speed Measurement (12 GHz/sec)
- Excellent Frequency Resolution of up to 600,000 Frequency Points per Sweep
- 10 MHz Reference Input
- Antenna Control Interface
- Analog Demodulation
- Ethernet Interface for Remote Control and easy Integration into any Test and Monitoring System
- Fan-less Design for Silent Continuous Operation
- Compact and Efficient: 1RU high, < 5kg (11lbs), < 20W

APPLICATIONS

  - Signal Analysis from 9 kHz to 6 GHz
  - From FM to Cellular / LTE and WiFi
  - Coverage Measurements
  - Detection of illegal Transmitters
  - SIGINT data collection
  - Industrial RF Interference

- Satellite Operation, Monitoring and Maintenance Stations (NRA-3000 RX, optional with LNB control)
  - Versatile analyzer for line-up, troubleshooting and wideband monitoring of TV/ radio/ telemetry carriers (9 kHz to 3 GHz)
  - Integrated with various carrier monitoring systems

- Satellite News Gathering, Teleports and VSAT Sites (NRA-2500)
  - Powerful L-Band (950 – 2150 MHz) analyzer for satellite pointing and tracking, antenna peaking, and carrier monitoring
**OPERATING MODES**

The NRA is designed for flexible multi-purpose use in an operational M&C environment as well as on the test bench, and is equipped with general and special measurement modes for spectrum, power level, and oscilloscopic observation of RF signals. Recorded Signals are pre-processed to reduce the quantity of data across the network. Highly specialized setups can be programmed and stored in all measurement modes.

- **Spectrum Analysis with wideband FFT and Channel Monitoring**
  Up to 600,000 samples per sweep

- **Multi Channel Power** for rapid evaluation of up to 500 channels
- **Level Meter with true RMS and Peak detectors**
- **Scope and IQ Data** (real-time streaming up to 32 MHz – gapless up to 400 kHz)

**KEY TECHNICAL PARAMETERS**

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<th>Narda Remote Analyzer</th>
<th>NRA-2500</th>
<th>NRA-3000 RX</th>
<th>NRA-6000 RX</th>
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<tr>
<td>Frequency Range</td>
<td>5 MHz to 2.5 GHz</td>
<td>9 kHz to 3 GHz</td>
<td>9 kHz to 6 GHz</td>
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<td>5 MHz to 3 GHz w/ LNB contr.</td>
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**RF Features**

- **Phase Noise (SSB)** f_c = 57.5 MHz
  - NRA-2500: < -121 dBc / Hz (at 10 kHz carrier offset)
  - NRA-3000 RX: f ≤ 50 MHz: < -160 dBm / Hz (noise figure < 14 dB) f ≤ 2 GHz: < -156 dBm / Hz (noise figure < 18 dB)
  - NRA-6000 RX: f ≤ 2 GHz: < -126 dBc / Hz (noise figure < 18 dB)

- **Display Average Noise Level (DANL)** for RL = 30 dBm (input attenuation = 0 dB)
  - < -140 dBm / Hz (noise figure < 34 dB)
  - f ≤ 3 GHz: < -155 dBm / Hz (noise figure < 19 dB)

- **Extended level Measurement Uncertainty**
  - ≤ 1.5 dB (15 ºC to 30 ºC)
  - ≤ 2.3 dB (-10 ºC to 50 ºC)

- **RF Input**
  - N-connector, 50 Ω, max +27 dBm RF power level, max 50V DC voltage (LNB control: max 24V)

- **Return Loss (typ)**
  - RL ≥ -28 dBm (input attenuation ≥ 2 dB)
  - > 10 dB

- **LNB control**
  - NA
  - LNB Current 350 mA max LNB control voltage (typical): 13V, 18V, 22 kHz

- **10 MHz Reference Input**
  - Z=600 Ω, U=0.1 Vpp up to 3 Vpp, max 10 V DC

**Resolution Bandwidth RBW/ Channel Bandwidth CBW**

- Spectrum Analysis Mode (-3 dB nominal)
  - 1 kHz to 1 MHz RBW (1-2-3-5 steps)
  - 10 Hz to 20 MHz RBW (1-2-3-5 steps)

- Multi-channel Power Mode (Option) (-3 dB nominal)
  - Channel Bandwidth is individually selectable for each channel, from 40 Hz to 6 GHz

- Level Meter Mode (Option) and Scope and IQ Data Mode (Option) (-6 dB nominal)
  - 100 Hz to 32 MHz Channel Bandwidth
  - Steps: 100, 125, 160, 200, 250, 320, 400, 500, 640, 800, 1000, … 10 MHz, 13.333 MHz, 16 MHz, 20 MHz, 26.666 MHz, 32 MHz

**General Specifications**

- **Operating Temperature**
  - -10 °C to +50 °C

- **Dimensions & Weight & Power**
  - 1 RU rack: 19” x 1.75” x 14.3 ” (482 mm x 45 mm x 362 mm), < 11 lbs (5 kg), < 20W (fanless)

A complete Set of Parameters is available at www.narda-nra.com

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