

Virtual System Analyzer (VSA)

Precision RF/Microwave Testing of Complex Electronic Warfare Systems



For versatile, RF/microwave testing in a small footprint, the Northrop Grumman Virtual System Analyzer (VSA) is the test solution. Built around commercial off-the-shelf equipment, VSA takes advantage of the latest industry solutions available. Using a core set of hardware in a commercial standard VXI platform, functional blocks of instruments are configured in software to perform the precise measurements demanded in RF/microwave tests. This software reconfiguration of instruments, termed virtual instrumentation, has been in use by Northrop Grumman since the early 1990s and has evolved into an effective test methodology for several automatic test equipment products.

The characteristics of changing signals can be observed in both the frequency domain and time domain. Applying innovative algorithms to sampled data exposes discrete points of change in the frequency domain not observable with other test equipment. Time domain information is extracted in extreme detail to present the user a concise

record of pulse position changes in a video-detected signal. VSA is controlled from a standard PC in a familiar Windows environment for the greatest ease of use. A variety of test techniques and uniquely designed soft panel instruments provide incomparable analysis capability.

Features

- Precision narrowband signal analysis
- Accurate pulse-to-pulse edge placement
- Extensive signal conditioning with video detection in Northrop Grumman designed downconverter
- Powerful DSP algorithms
- Vertical compatibility
- Multiple test uses
- Fielded units
- Low life cycle cost
- Low maintenance
- Small size: One "C" size, 13 slot, standard VXI cage

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Configurations



Organizational Level

VSA can be adapted to a number of configurations as part of a complete test suite. As a flightline test instrument it provides electronic warfare performance information to keep aircraft operational. In the lab and factory environment, it can be used in a stand-alone mode to verify signal characteristics important to electronic countermeasures integrity. As part of a complete test suite for the Depot or Intermediate Level, it can be included as part of a large test set used in place of standard test equipment to reduce the size of a test station.



Lab Instruments



Depot Level
Intermediate Level



Northrop Grumman
VXI Downconverter

High Performance Measurement Instruments

- 2 to 19 GHz operation (options down to 100 MHz)
- +30 dB max input power level
- Dynamic range >70 dB
- Spectral analysis
 - Spurious measurements
 - Harmonics measurements
 - Selectable resolutions
 - Narrowband and wideband scans
- Network analysis
- Digitizer functions
- Integrated video detection over full range
- Jitter analysis

Technique Analysis

- Velocity gate pull-off (VGPO)
- Velocity false targets (VFT)
- Range gate pull-off (RGPO)
- Random range programs (RANRAP)
- Range false targets (RFT)
- Correlated range/velocity
- AM analysis
- Noise shape/center frequency/bandwidth

For more information, please contact:

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Specifications and features subject to change without notice.