

# NBS-2500 ELINT System with Demodulated IF Receiver

The **NBS-2500 ELINT system** represents the latest in ELINT receiver and signal analysis technology. The system architecture stresses modularity making extensive use of commercial-off-the shelf (COTS) equipment, allowing future modular technology refresh and insertion without requiring total system replacement.

## The basic NBS-2500 system consists of:

- Omni acquisition antenna
- Spinning DF antenna
- Scanning and set-on microwave receiver(s)
- Pulse Analyzer
- Rack mounted display and keyboard / mouse

## Applications:

- Range Monitoring
- ELINT collection and analysis
- Geolocation using multiple installations
- Laboratory test tool

## Features:

- Offers both pulse (PDW) and Intra-pulse (IDW) collection and analysis features
- Low latency real-time displays as well as post analysis of collected pulses
- Integrated signal search plan and emitter library database
- Generic microwave receiver interface allows integration with a number of receiver manufacturers
- Scalable—supporting multiple simultaneous receiver channels
- Digital IF version available (See NBS-2501)



## Advantages:

- Extensive use of COTS equipment
- Runs on Unix, Linux and Windows operating systems
- Highly tailorable using PMC based interfaces and VME plug-in capabilities.
- High reliability, easy maintenance and fully supported with training material and operators' manual.
- Suitable for many applications:
  - Fixed sites
  - Land Mobile
  - Airborne
  - Surface
  - Sub-surface
  - Carry-on / carry-off



## Operational ELINT Signal Analysis

NBS-2500 Rack Configuration



<b>Automatic Parameter Extraction (Deinterleaver)</b>	PRI, PRI Modulation and Type, Pulse Width, Amplitude AOA, FMOP Indication, Scan Type, Scan Time
<b>Signal Types – RF</b>	Stable, Agile, CW
<b>Signal Types – PRI</b>	Stable, Stagger (32 levels), Jitter (up to 15%) Switch and Dwell, CW
<b>Scan Types</b>	Circular, Sector, Steady, Conical, Complex
<b>Library</b>	Supports Master Library with up to 15,000 modes. User create / edit custom scratch pads.
<b>Number of Emitters</b>	Tracks 500 signals
<b>Manual Parameter Extraction (Analysis Displays)</b>	All of the above, plus: AMOP (Minimum, Maximum, and Pattern) FMOP (Minimum, Maximum, and Pattern)

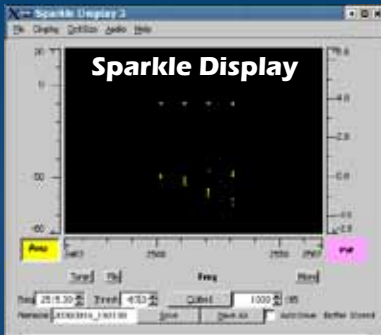
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## Typical Displays



## Technical ELINT Analysis Capability

### MANUAL DISPLAY TYPES:

<b>Spectrum Display</b>	Real-time RF and IF pan display showing received energy across the spectrum
<b>Sparkle</b>	Real time scatter plot of received data with signal isolation features
<b>X-Y Plot</b>	Analysis display of collected pulse data. Any / all parameters plotted against any one parameter
<b>Real-Time Raster</b>	Real-time, continuous PRI vs. time display with data alignment / analysis tools
<b>IDW Analysis</b>	Analysis display of collected intra-pulse data
<b>Deinterleaver Summary</b>	Display segment with deinterleaver results from pulse data
<b>Polar Display</b>	Direction finding display showing signal activity over azimuth

### AUTOMATIC FUNCTIONS:

<b>Signal Search and Acquisition</b>	Tuner channel(s) allocated to a step-dwell function over user selected frequency range in support of automatic signal detection and reporting
<b>Tip Commands</b>	Accepted from external source over Ethernet

## Performance Characteristics

PARAMETER	DEMODULATED IF RECEIVER	
Input Signal	Baseband (Log and FM Video)	
Instantaneous Bandwidth	80 MHz (Developed from 160 MHz IF)	500 MHz (Developed from 1 GHz IF)
A/D Sample Rate	213 MHz	213 MHz
Number of Bits	14	14
Instantaneous Dynamic Range	70dB	60dB
<b>PRI:</b>		
Range	300 ns to 100 ms	300 ns to 100 ms
Resolution	9.4 ns	9.4 ns
Accuracy (Threshold Crossing)	± 9.4 ns	± 9.4 ns
Display Resolution	0.1 ns	0.1 ns
<b>Pulse Width:</b>		
Range	50 ns to 300 µs	50 ns to 300 µs
Resolution	9.4 ns	9.4 ns
Accuracy (Threshold Crossing)	± 9.4 ns	± 9.4 ns
<b>TOA:</b>		
Resolution	9.4 ns	9.4 ns
Stability	10 <sup>-7</sup> internal 10 <sup>-13</sup> with external referenced	
Accuracy (Threshold Crossing)	± 9.4 ns	± 9.4 ns
Synchronization	1 pps conditioned	1 pps conditioned
Throughput	3 mpps	3 mpps
<b>Real-Time Storage Capacity</b>		
PDW	1M PDW/s	1M PDW/s
IDW	2 Million	2 Million

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