NBS-2501 ELINT SYSTEM

with Digital Receiver

General Description

The NBS-2501 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-2501 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) 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.
- ✓ Scaleable – supporting multiple simultaneous receiver channels.
- ✓ Demodulated IF version available (See NBS-2500).

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

NBS-2501 Rack Configuration

Operational ELINT Signal Analysis

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

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CERTIFIED ISO 9001: 2000

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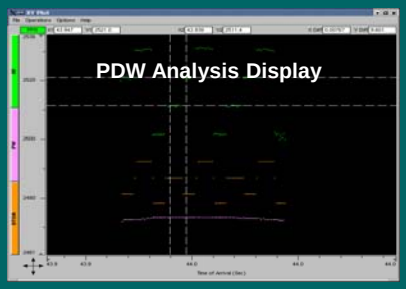
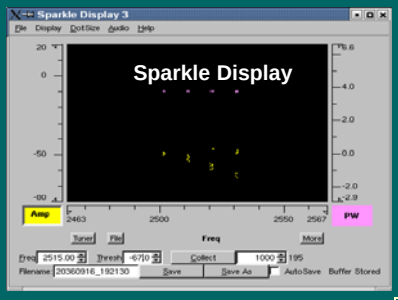
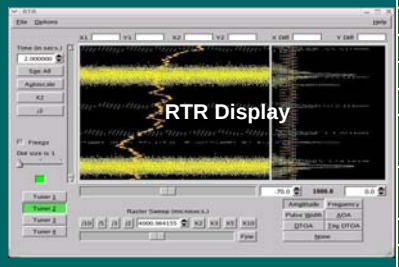
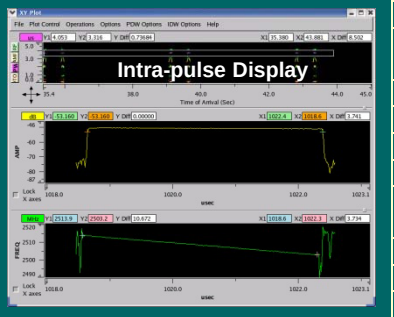
Technical ELINT Analysis Capability

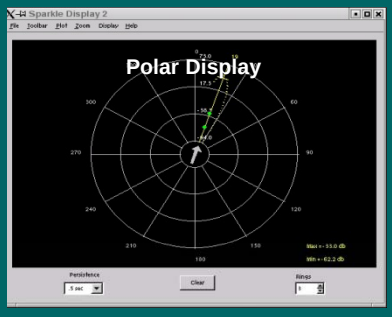
TYPICAL DISPLAYS











MANUAL DISPLAY TYPES:

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

AUTOMATIC FUNCTIONS:

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

Performance Characteristics

PARAMETER	DIGITAL RECEIVER		
Input Signal	160 MHz IF	1 GHz IF	2.66 GHz IF
Instantaneous Bandwidth	80 MHz	500 MHz	4 GHz
A / D Sample Rate	213 MHz	1.3 GHz	10.66 GHz
Number of Bits	12	8	8
Effective Bits (After Processing Gain)	10.7	8.5	9
Instantaneous Dynamic Range (SFDR)	60 dB	53 dB	57 dB
PRI:			
Range	300 ns to 100 ms	300 ns to 100 ms	300 ns to 100 ms
Resolution	9.4 ns	6 ns	6 ns
Accuracy (Threshold Crossing)	± 9.4 ns	± 6 ns	± 6 ns
Display Resolution	0.1 ns	0.1 ns	0.1 ns
Pulse Width:			
Range	50 ns to 300 µs	50 ns to 300 µs	50 ns to 300 µs
Resolution	9.4 ns	6 ns	6 ns
Accuracy (Threshold Crossing)	± 9.4 ns	± 6 ns	± 6 ns
TOA:			
Resolution	9.4 ns	6 ns	6 ns
Stability	10^-7 internal 10^-13 with external referenced	10^-7 internal 10^-13 with external referenced	10^-7 internal 10^-13 with external referenced
Accuracy (Threshold Crossing)	± 9.4 ns	± 6 ns	± 6 ns
Synchronization	1 pps conditioned	1 pps conditioned	1 pps conditioned
Throughput	3 mpps	3 mpps	3 mpps
Real Time Storage Capacity			
PDW	512K PDWs	512K PDWs	512K PDWs
IDW	2M (19.7 msec continuous)	4M (12.6 msec continuous)	2M (19.7 msec continuous)

Creative People Applying Advanced Technology

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