

More Than a Traditional Spectrum Analyzer

KRATOS



The SAT Digital Spectrum Analyzer (SAT-DSA) from Kratos, is a modern spectrum analyzer with advanced features; made possible by digitizing large portions of the spectrum. SAT-DSA's unique signal characterization, not possible with traditional spectrum analyzers, helps to maintain traffic quality and determine the identification of interfering carriers up to 85 MHz in bandwidth.

When an interfering carrier is present in an unused portion of the transponder, or under the desired carrier, SAT-DSA will produce an alarm and traces and measured data are stored. Then, the operator can view the offending carrier, even those under the desired carrier. Automatic monitoring repeatedly tests carriers designated by a user initiated plan and alarms alert the operator when abnormal carriers are detected.

Automatic Operations

Basic Parameter Measurement: RF Power, CF, BW, Eb/ No, C/No

Unique Parameter Measurements: Modulation type, symbol rate, BER and Eb/No

Alarming for Abnormal Carriers: Reference trace or carrier parameter measurement

Measurement and Trace Storage: Stores carrier measurements and traces for later viewing

Reporting and Displays

Spectrum Trace: Displays a single trace or multiple traces simultaneously

Trace and Measurement History: Stores data for replay over any period of time

Remote Access

The user interface software can be loaded on a Windows server to provide remote or local control. SAT-DSA includes a Windows server that is loaded with SAT-DSA and user interface application software. The user interface software can run concurrently with other non-SAT-DSA software; thus remote control can be

SAT-DSA Architecture

The SAT-DSA is available for 70 MHz or L-Band (950 to 2,150 MHz) applications.

- *L-Band Input: L-Band (950 to 2,150 MHz) is converted to a second IF before digitizing. This configuration provides 85 MHz of instantaneous bandwidth.*
- *70 MHz Input: The input is applied directly to the Digitizer Assembly. This configuration provides 40 MHz of instantaneous bandwidth.*
- *Computer: The SAT-DSA is predominantly, commonly, usually used on 1RU type servers, but can be adapted on request to run on high performance and ruggedized laptop system.*

accomplished on an existing computer running other applications. The operator can view carrier information, spectrum traces, automatic monitoring, and alarms, and gather historical information.

Carrier Under Carrier Display

The interfering carrier is shown in red; the desired (traffic) carrier is in black. The interfering carrier is displayed properly, even when its bandwidth is as wide as the traffic (desired) carrier. An interfering carrier-under-carrier condition will cause an Eb/No alarm.

Alarm and Spectrum Display

Operators can organize various windows to simultaneously view spectrum displays, automatic processes and alarms. Two windows display operator selected carriers (carrier lineup for example). The remaining spectrum window displays the automatic monitoring process. Alarms and alarm conditions are also displayed. The operator can assign an "Alarm Action" to any carrier and an Operator defined action can be initiated to: Dial a phone number; send an email; send an SNMP trap; or run an executable file. Alarms occur for abnormal conditions:

- RF Power
- Bandwidth
- Frequency
- C/No
- Eb/No

SAT-DSA Monitoring Windows

Spectrum Analysis

The SAT-DSA has spectrum analyzer style controls and provides automatic carrier measurements: RF Power, Bandwidth, Frequency and C/No are reported. The display profile can be stored under an operator defined name.

Reference Trace Window

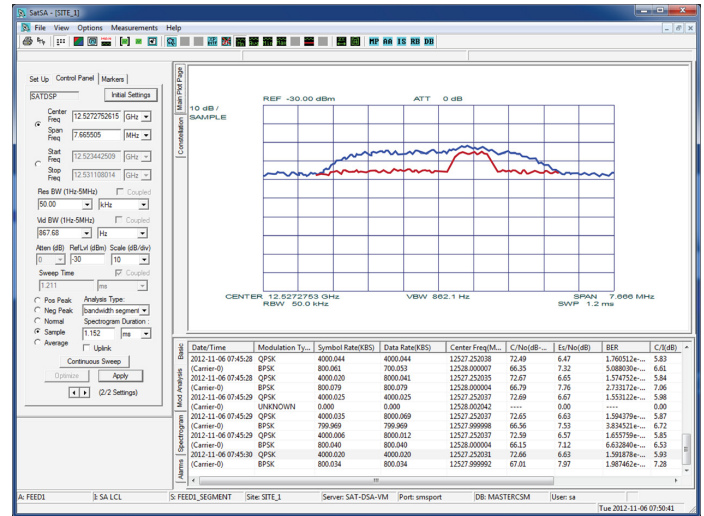
The measured spectrum trace is compared to the spectral mask (referred to as a Reference Trace). The mask - created by a mouse-click- is stored for recall as needed. The trace color main and mask trace- is defined by the operator.

Automatic Carrier Measurements

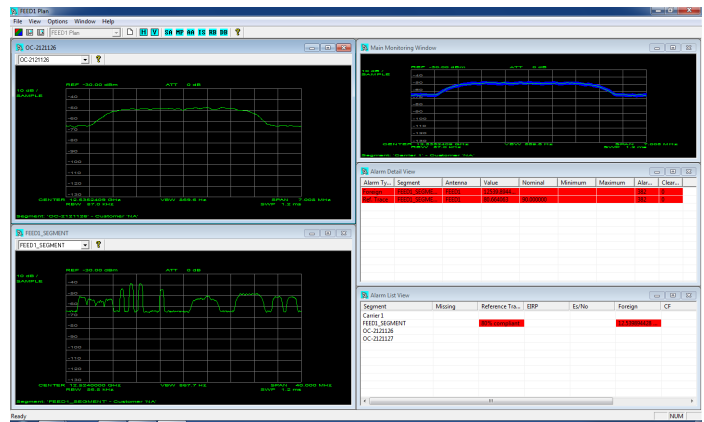
RF Power, Bandwidth, Frequency and C/No for analog and digital carriers User configurable to display frequency measurements as L-Band or RF.

Modulation Analysis

Signal Characterization includes: Modulation Type, Symbol Rate, BER and Eb/No. With the Forward Error Correction (FEC) Recognition option SAT-DSA will detect QPSK 1/2, 3/4 and 7/8 Viterbi inner coding with k=7 and R&S outer coding per IESS-308, 8PSK, 2/3 Viterbi per IESS-310. 1/2, 2/3, 3/4, 5/6 and 7/8 with k=7 inner coding and R&S outer coding per DVB-S and DVB-S2.



Carrier Under Carrier Display



Alarm and Spectrum Display