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CS1104

Broadband Signal Analyzer

Data Sheet

The most important thing we build is trust

Other analyzers tell you what happened. The Cobham BSA shows you why.

The portable Scout CS1104 Broadband Signal Analyzer (BSA) instrument is designed to find and to solve the toughest RF issues. It combines live and off-line signal analysis capabilities to address multiple test applications, including:

- Communications
- Radar
- Satellite
- OTA Testing
- Electromagnetic Environment (EME)
- Drive (mobile collections)

The Aeroflex BSA is used to record, process and analyze RF signals.

The system consists of:



Tunable RF downconverter:
Convert RF signals from RF to baseband IF

A/D converter:
Digitize baseband signal

Digital tuner:
Focus on signal of interest and reduce unnecessary data

Processing:
Process raw digitized samples with various algorithms such as advanced triggering, filtering, scaling, statistics

Signal storage:
Store digitized signal for analysis or archiving

Controller:
Computer used to control the system, perform analysis, display results and write data from RAM to archival storage (disk, USB device)

The CS1104 BSA supports collecting contiguous recordings up to a 40 MHz instantaneous bandwidth (IBW). It also supports scanning across wider bandwidths using sequential recordings. As it is capable of simultaneously processing and coherently displaying time, spectral, and modulation domain data, the CS1104 BSA is ideal for R&D, Validation & Verification (V&V), and general RF testing. The rich set of analysis tools and features below are included with the CS1104.

- Tunable frequency coverage from 30 MHz to 6 GHz
- Live signal monitoring (display and processing)
- Contiguous signal recording and archiving into 32 GB RAM (162 sec @ 40 MHz BW)



CS1104 Broadband Signal Analyzer

- Scanned sequential mode for monitoring change wider than the IBW (SSA Mode)
- Digital tuners from 40 MHz to 41 kHz bandwidth
- Interactive spectrum/spectrogram/time plots
- Results strip charting
- Signal notepad for recording plots and data
- Channel Power stream to disk
- Modulation domain analysis function with simple modulation classification (AM, FM, CW, pulse, other)
- GPS; latitude, longitude, time stamp
- Sequential mode for recording and archiving
- Spectrum Allocation Table (SAT)
- AM/FM/PM analysis functions
- ASK/FSK/PSK/QAM analysis functions
- ASK Burst/FSK Burst/PSK Burst analysis functions
- Pulse/Radar analysis function
- Environmental Signal Parameterization identifies and measures parameters for signals in the environment
- Remote control

* Features subject to export restriction

All Aeroflex products come with the support of highly-experienced and solution-oriented technical staff.

BSA Features and Functions

This section briefly presents some of the BSA features and functions.



Standard BSA software allows the operator to record signals to RAM and then to archive them to internal and external disk drives. These recorded signals can be post-processed by the BSA software suite.

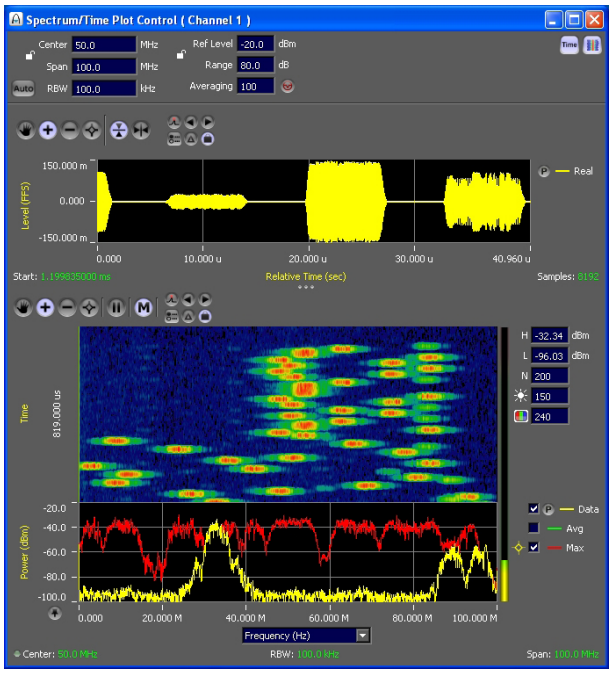
Applications and Descriptions	Included BSA Functions and Features									
	Spectrum/Spectrogram/Time plot	Strip Chart	Signal Notepad	Channel Power & ACPR	Modulation Domain	Pulse Analysis	Digital Modulations (PSK/QAM/FSK/ASK)	Burst/Agile Signal Analysis (PSK/QAM)	Environment Signal Parameterization	Spectrum Allocation Table (SAT)
Communications Test This includes testing radios and radio subsystems. The BSA has had the most impact in engineering design, verification and test (DVT) in the lab and in the field. Both commercial and military radio manufacturers should be targeted along with organizations that specialize in testing radios. The BSA is an excellent fit to emerging standards or proprietary radio waveforms where there is no test equipment yet.	•	•	•	•	•		•	•		
Radar Test The BSA has been valuable in a number of radar applications, including DVT, field tests, ECM/ECCM tests, stability measurements and radar cross section measurements.	•	•	•	•	•	•				
Satellite Test The BSA has been used in a variety of satellite payload, ground station and operational monitoring.	•	•	•	•	•	•	•			

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Electromagnetic Environment (EME) Test BSAs have been used to characterize the EME in many places around the world for a wide variety of missions.	•	•	•	•	•	•	•	•	•	•
EW Test The BSA is suitable for EW tests, including radar, ECM/ECCM and CREW.	•	•	•	•	•	•		•	•	•
Drive Test BSAs have been used to measure signal characteristics (such as RF power) from a moving vehicle for both civilian and military applications.	•	•	•	•	•	•		•	•	•
General test and debug	•	•	•	•	•					

Spectrum/Spectrogram/Time Plot

Interactive display of the spectrum, spectrogram (waterfall plot) and the time domain waveform. This analysis tool provides a multi-dimensional tool for viewing data that is valuable for every BSA application.



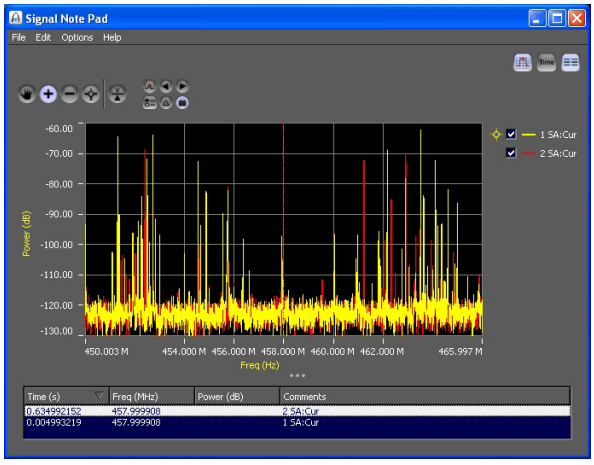
Strip Chart

Various analysis functions calculate numeric values (carrier frequency, power, etc.). Any value from any analysis function can be sent to the strip chart to display the value over time. This display tool provides a multi-dimensional view into data that is valuable for every BSA application.



Signal Notepad

Any spectrum trace can be stored and viewed with the signal notepad. This allows different traces to be overlaid for easy comparison. The traces can be stored to disk in ASCII format.

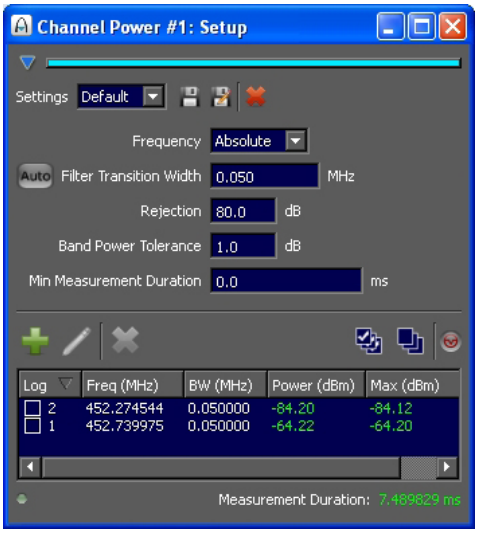


Channel Power and ACPR

Channel Power measures the power in a user defined frequency band. This function is useful in many applications.

The Adjacent Channel Power Ratio (BSA- ACPR) analysis function measures the power and ratio of the powers in a main frequency band and bands

on either side of this band. This can also be used to estimate the Signal-to-Noise Ratio (SNR) of signals for many applications.



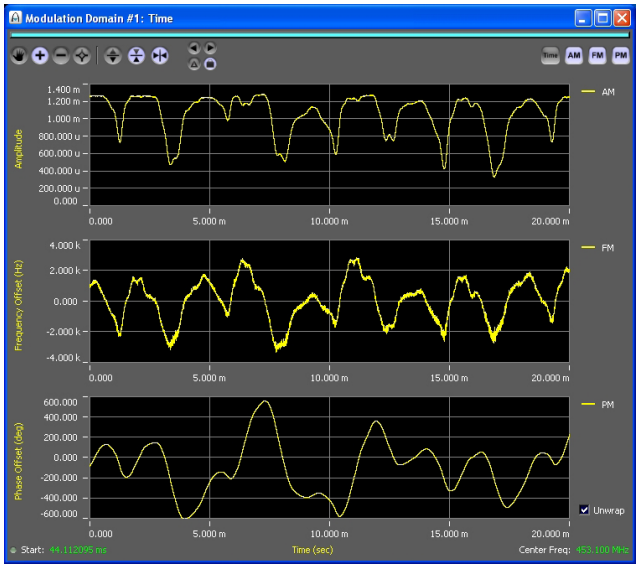
Modulation Domain

Plots and coherently measures parameters on the AM, FM and PM demodulated waveforms. Estimates the basic modulation type. This is one of the most used functions in BSA and is highly recommended for most applications.



Pulse Analysis

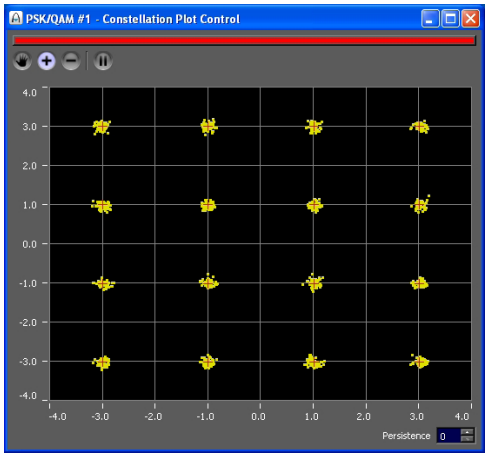
Measures and plots pulse parameters, including carrier frequency, power, pulse width, PRI and modulation (chirp, Barker, etc.) characteristics. This is used for pulse tasks such as radar applications.



Digital Modulations

The Vector Signal Analyzer demodulates, plots and characterizes ASK, FSK, PSK and QAM signals. These analysis tools operate on continuous or burst signals.

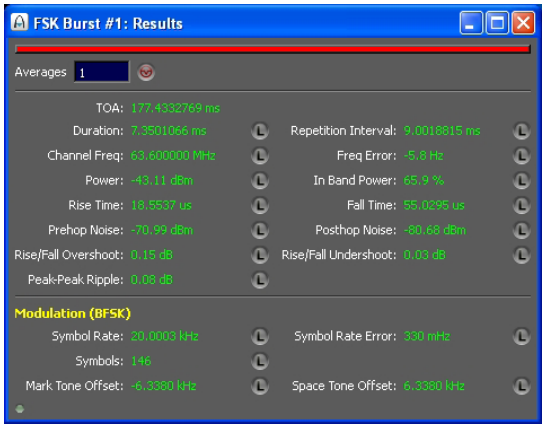
The PSK/QAM plots eye diagram, constellation, spectrum, and timing offset data. One function will estimate the PSK/QAM signal type order and its fundamental parameters. These functions are useful for digital communications applications.



Burst/Agile Signal Analysis

The burst variants of the digital modulation analysis functions process frequency agile signals such as frequency hoppers. The software adds the pulse width, PRI and carrier frequency of every burst. This function is useful in many digital communications applications.

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Environment Signal Parameters (ESP)

Environment Signal Parameterization detects all signals in a band and measures the signal frequency, power, bandwidth and on-time statistics. This function is used in spectrum monitoring and EME characterization applications.



Spectrum Allocation Table (SAT)

The Spectrum Allocation Table (SAT) displays text associated with the spectrum marker frequency. This tool is useful for signal search applications such as spectrum management and EME analysis, but it could be creatively used by all applications.



CS1104 PRODUCT SPECIFICATIONS

CONTACT FACTORY FOR DETAILED SPECIFICATIONS

Recommended Calibration Cycle

24 months

Ordering and Contact Information

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