

Broadband Signal Analyzer and Recorder

Celerity CS35000F Series

Analyze and record broadband, high data rate and frequency agile signals

AEROFLEX
A passion for performance.



The Broadband Signal Analyzer and Recorder (BSA) quickly and accurately records, demodulates and analyzes advanced broadband and frequency agile communications and radar signals.

- Analyze communications and radar signals with instantaneous bandwidths up to 600 MHz and hop rates to 500,000 hops per second
- Capture up to 150 seconds of full bandwidth signals for detailed review, analysis and storage (150 minutes with optional RAID configuration)
- Extended recording times using digital down conversion with tuning
- Measure time, frequency and modulation signal parameters quickly, accurately and simultaneously with a single instrument
- Demodulate continuous, burst and hopped signals (FSK, MSK, ASK, OOK, PSK, QAM, AM, SSB, FM, and PM) into analog data and digital bit streams
- Characterize broadband next generation communications and radar signals with digital precision and repeatability using advanced BSA analysis software
- Capture transmission faults with this real time RF recorder and pre-trigger mode
- Simultaneously display frequency, waterfall, time, modulation (AM, FM, PM), and symbol plots

The **Aeroflex Broadband Signal Analyzer and Recorder (BSA)** series provides the widest bandwidth and deepest memory RF/baseband signal analyzers available. The BSA combines broadband RF downconverters, wide bandwidth high dynamic range ADCs and very deep high speed memory with powerful DSP-based signal analysis software. The new F-Series BSA provides enhanced performance and capabilities, with dual-Xeon processors, gigabit Ethernet, deeper memory, larger removable disk storage, fast memory to disk transfers, and RAID options. The BSA instruments have bandwidths of up to 600 MHz and full bandwidth signal memory configurations up to 150 seconds (to 150 minutes with optional RAID). The bandwidth, memory depth and dynamic range make the BSA an essential tool for broadband satellite, broadband wireless network, agile radio, jammer, and radar test. The DSP software analyzes both real time signal inputs and signals captured into BSA signal memory. Digital acquisition and processing achieve the highest fidelity, accuracy and repeatability. Signals recorded into memory can be saved to multiple medias; internal or removable hard drives, DVD-R/W drives, and RAID systems. Recorded signals can be imported into Aeroflex's Broadband Signal Generators and played back. Powerful and flexible data visualization allows simultaneous plotting of the signal in frequency, time and modulation domains. Measurement and analysis software packages include digital spectrum analysis, channelized signal power and ACPR, demodulation and analysis (PSK/QAM, FSK/MSK, OOK and ASK, AM, FM, and PM), NPR, radar pulse parameters, signal-specific agile radio and SATCOM signal analysis. Robust PSK and QAM (burst and continuous) signal demodulation includes measurements of EVM, eye diagrams, symbol rate, and carrier frequency, along with symbols written to files. Radar and agile radio analysis includes rise and fall time, pulse width, pulse repetition interval, carrier frequency, modulation on pulse, and bits. Parameters for each hop or burst are written to an ASCII-format file for incorporation into reports and use in further analysis. The multi-threaded analysis software allows simultaneous analysis of signals with multiple analysis functions, providing tight correlation of time, frequency and modulation measurements on the same signal space. Parameters can be either plotted on strip charts, analyzed in real time or saved to disk. Integrated strip charts display statistics on all measurements (min, max, mean and standard deviation).

Select bandwidth, dynamic range, signal memory depths, and options to match your most demanding signal acquisition, analysis and recording applications (example configurations shown).

Model Number	Bandwidth	RF Range (Hz)	SFDR (typical)	Recording Time (max)	Applications
CS35020F	86 MHz	Baseband	65 dB	88 sec (solid state)	High data rate PSK/QAM demodulator test, satellite transponder monitoring , agile radio test, RF environment capture, radar test, jammer test, military radio test, MIL SATCOM test, UHF/VHF radio test, cellular test, DVB/HDTV test, WLAN band monitoring, UNII test, link monitoring, drive test
CS35020F-R	64 MHz	Baseband	65 dB	>150 min (stream to RAID)	
CS35020F-RF	60 MHz	2 MHz to 18 GHz	58 dB	88 sec (solid state)	
CS35020F-RF-R	42 MHz	2 MHz to 18 GHz	58 dB	>150 min (stream to RAID)	
CS35040F	160 MHz	Baseband	50 dB	75 sec (solid state)	
CS35040F-R	100 MHz	Baseband	50 dB	>120 min (stream to RAID)	
CS35040F-RF	120 MHz	2 MHz to 18 GHz	45 dB	75 sec (solid state)	
CS35080F	295 MHz	Baseband	50 dB	40 sec (solid state)	
CS35080F-RF	255 MHz	10 MHz to 18 GHz	45 dB	40 sec (solid state)	
CS35150F	600 MHz	Baseband	50 dB	20 sec (solid state)	
CS35150F-RF	400 MHz	10 MHz to 18 GHz	45 dB	20 sec (solid state)	

Broadband Signal Analyzer Software

Powerful software to analyze the most demanding broadband signals with digital speed and precision. Advanced software features and DSP based analysis modules provide the latest tools to measure and characterize signals captured in BSA hardware or loaded from stored signal files.

BSA Software Features

Frequency spectrum
Time analysis
Modulation analysis
Real time and capture analysis
Simultaneous parametric analysis
Frequency banded analysis
Parameter logging and display

Software Analysis Modules

Channel power measurements
PSK/QAM demodulation
ASK/OOK demodulation
FSK/MSK demodulation
AM, FM, PM, SSB demodulation
Radar analysis
Radio / SATCOM specific analysis (e.g. SINGARS, DAMA, etc.)
Multi-domain analysis of burst and frequency hopped signals
Modulation specific (Gain/Phase)
Customer specified

All Models Include

Dual-high speed Xeon processors with 4 GB system memory, dual-gigabit Ethernet, internal system hard drive, removable 73 GB data drive, DVD-R/W, USB, video, keyboard, and monitor ports, and powerful BSA control and analysis software.

Broadband Signal Analyzer Options

Data Memory 4 GB to 28 GB
RAID Storage or Input Streaming 500 GB to 2 TB
Downconverter Options Tunable or fixed, Up to 40 GHz in bands
Sample Clock Option Low phase noise
Input Options Precision programmable attenuators
High speed attenuators
Anti-aliasing filters
High sensitivity
Multiple Channel Options 1 to 8 coherent or independent I/Q baseband
Disk Storage Options Fixed and removable drives
146 & 300 GB hard drives
RAID up to 2 TB
Multiple/Mixed Signal Options RF, baseband, digital, I/Q
Remote Control Option Software control via 100/1000baseT Ethernet
Data Input Options Broadband analog
High speed digital (LVDS, DECL, PECL, TTL)

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