

# Broadband Signal and Environment Generator Family

## Celerity CS25000 Series

**AEROFLEX**  
A passion for performance.

### Generate Accurate Broadband Communications and Radar Signals and Environments

The Broadband Signal and Environment Generator (BSG) creates precise, repeatable communications and radar signals and realistic environments for testing broadband and frequency agile communications and radar systems.

- Generate radio and radar signals with instantaneous bandwidths up to 500 MHz and hop rates to 500,000 hops per second
- Create FSK, MSK, PSK, QAM, AM, FM, bursted, hopped, and radio-specific waveforms with powerful VSS software
- Maximize signal and environment realism with up to 10 seconds of full bandwidth signal memory
- Control all time, frequency and modulation signal parameters
- Combine real signal and environment recordings with digitally generated impairments
- Emulate Golden Radios using real radio recordings captured with Celerity CS35000-series Broadband Signal Analyzers and Recorders
- Add digitally precise signal impairments including thermal noise, phase noise, passband amplitude and phase distortion, and CW and co-channel interference



The Aeroflex Broadband Signal and Environment Generator (BSG) family provides the widest bandwidth and deepest memory RF/baseband signal sources available today. The BSG combines a very deep memory, very high-speed arbitrary waveform generator and a broadband RF up converter with powerful signal generation software. The BSGs have bandwidths of up to 500 MHz and full bandwidth signal memory of up to 10 seconds. The bandwidth, memory depth and dynamic range make the BSG a powerful tool for broadband satellite communications, frequency agile radio communications, broadband wireless network communications, and radar test. An open, software defined instrument architecture allows easy imports of user created waveforms. Vector Signal Simulator software (VSS) creates signal files for commercial wireless standards as well as generic nPSK, nQAM, nFSK, MSK, CW, tone combs, and notched noise signals. Any of these generic signal types can be gated or bursted in time, as well as hopped in frequency. Real signals, including recorded signals from Aeroflex's Broadband Signal Analyzers or other recorder sources, can be imported and combined with digitally generated signals, and then played back on the BSG. Impairments can be added to the signals including thermal noise, phase noise, and passband amplitude and phase distortion. VSS provides the unique ability to mix any combination of signals and impairments to generate complex signal environments. Aeroflex's Vector Signal Player software (VSP) provides simple controls for signal file selection, output frequency con-

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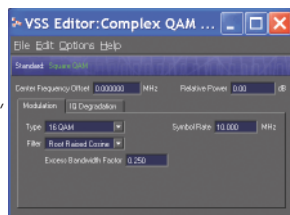
Select bandwidth, dynamic range, memory depths and options to match your most demanding signal and environment generation applications.

Model Number	Bandwidth	Spurious Free Dynamic Range	Max Generate Time at Full Bandwidth	Applications
CS25020	60 MHz	70 dB typ	10 seconds	High data rate PSK/QAM modulator test, satellite transponder simulation, link loading, agile radio test, radar test, environment simulation, UHF/VHF radio test, cellular test, DVB/HDTV test, WLAN test, link simulation
CS25025	105 MHz	60 dB typ	10 seconds	
CS25040	160 MHz	45 dB typ	10 seconds	
CS25255	255 MHz	70 dB typ	10 seconds	
CS25080	280 MHz	45 dB typ	10 seconds	
CS25082	280 MHz	55 dB typ	10 seconds	
CS25130	500 MHz	45 dB typ	10 seconds	
CS25132	500 MHz	55 dB typ	10 seconds	

trol and output power control. Aeroflex's up converters use real (non-I/Q) conversion architectures, generating high dynamic range waveforms without the carrier leakage and signal image problems associated with I/Q modulators found in traditional signal sources.

#### Vector Signal Simulator Software

Advanced signal generation software for creating communication signals and broadband environments including realistic impairments and additive recorded signals. Intuitive graphical interface creates signals in single and multiple carrier formats with full control of all RF parameters and underlying data. Mix different signals together and add realistic impairments. Play back actual recorded RF radio signals captured on CS35000-series Broadband Signal Analyzers for Golden Radio functionality.



#### VSS Signals Include

QAM to 1024, PSK to 256, GSM, IS-136, EDGE, IS-95, WCDMA, CDMA2000 FSK, MSK  
Pulsed and frequency hopped waveforms 802.11a, 802.11b, 802.11g  
CW and tone combs  
Mixed signal mode

#### VSS Software Impairments Include

Banded thermal noise  
Phase noise  
CW interference  
Passband phase distortion  
Passband amplitude distortion  
Multiple signal channel loading  
Multipath



#### All Models Include

An embedded Pentium controller with 512 MB RAM running Windows 2000

High speed 36 GB HD, 100baseT Ethernet adapter, keyboard, mouse and monitor connection

Powerful Vector Signal Simulator (VSS) signal and environment generation software

Vector Signal Player (VSP) control software

Precision synthesized time base

#### Broadband Signal and Environment Generator Options

- |                               |  |
|-------------------------------|--|
| Upconverter Options           | Tunable or fixed<br>Up to 40 GHz in bands  |
| Memory Sequencing Option      | High speed address sequencing  |
| Output Options                | Precision attenuators<br>High speed attenuators<br>Reconstruction filters<br>High output power |
| Sample Clock Option           | Low phase noise  |
| Disk Storage Options          | Fixed and removable drives<br>73 & 146 GB HD, CD-RW, DVD-RW                                    |
| Multiple Channel Options      | 1 to 8 coherent or independent<br>I/Q baseband   |
| Multiple Signal Options       | RF, baseband, digital, I/Q   |
| Controller Option             | UltraSPARC/Solaris   |
| Remote Control Option         | 10/100baseT Ethernet   |
| Peripheral Options            | Keyboard and mouse<br>Flat panel and CRT monitors  |
| Real World Data Input Options | Wideband analog<br>High speed digital<br>(LVDS, DECL, PECL, TTL)                               |

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Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.