

# Broadband Channel Simulator

## Celerity CS80072 Series

Simulate real world broadband channels in real time

**AEROFLEX**  
A passion for performance.



The Broadband Channel Simulator (BCS) creates precise and repeatable channels for testing high speed communications systems, point-to-point microwave links and satellite links.

- Simulate 72 MHz channel bandwidth
- Maximize channel integrity with dynamic ranges to 65 dB
- Create glitch free dynamic delay changes with total delays exceeding 10 seconds
- Ensure complete system testing with realistic channel impairments including:
  - Dynamic Doppler and dynamic delay
  - High speed attenuation
  - Phase noise
  - Thermal noise
  - CW and co-channel interference
- Control all channel impairments accurately and repeatably with embedded controller and easy-to-use graphical control software

The Aeroflex Broadband Channel Simulator (BCS) series provides the widest bandwidth channel simulation and link emulation solutions available, along with the most extensive collection of realistic impairments. These real time instruments provide 72 MHz signal bandwidth, time delays of up to 10 seconds and 1 to 4 independent channels. The BCS instruments add realistic impairments to the input signal, thereby simulating real world transmission channels. Available signal impairments include dynamic delay, dynamic Doppler, precision phase noise, thermal noise, flat fading and added CW and modulated interference signals. Dynamic delay is optimized for GEO type satellite paths. Frequency converters for independent and or coherent channels can match RF path requirements and allow frequency translation from input signal to output signal. A satellite simulation software package generates Doppler and delay for scenario durations of up to 24 hours from industry standard Two Line Element (TLE) sets. Aeroflex's BCS instruments are an important test tool used on a variety of commercial and military satellite projects. Simulating ground terminal satellite channels and all their impairments in a controlled and repeatable lab environment prior to satellite launch provides invaluable testing. The BCS allows communication design issues, anomalies and channel transmission problems to be identified and solved in the early development stages, reducing costly re-design and schedule slips.

For the very latest specifications visit [www.aeroflex.com](http://www.aeroflex.com)

Select bandwidth, dynamic range, delays and options to match your most demanding signal and channel simulation applications.

Model Number	Bandwidth	SFDR (typical)	Min/Max Delay
CS80072	72 MHz	45 dB	14 $\mu$ s/10 s

**Real Signal Simulator (RSS) Control Software**

Intuitive graphical software for controlling all simulator operations and impairments. Includes real time system controls using GUI and scenario files, plus graphical displays of current simulator status.

**RSS Features**

Scenario file control of dynamic delay and dynamic Doppler  
 Scenario file control of high speed attenuation  
 Precision control of phase noise

**Software Options**

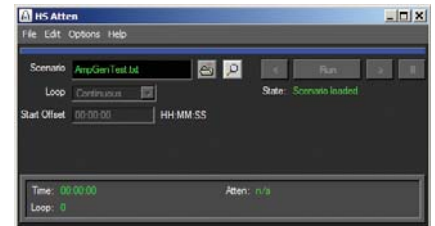
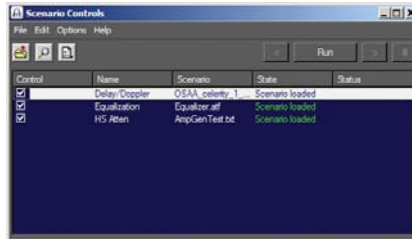
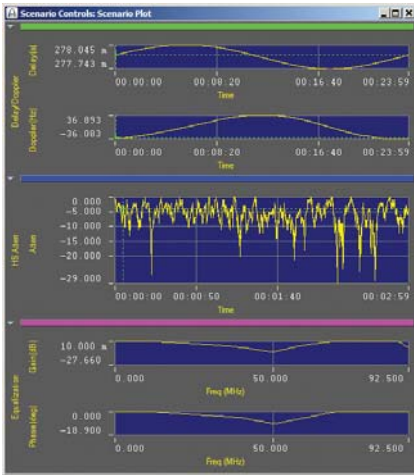
Doppler and delay satellite scenario generation from TLE sets

**All Models Include**

Powerful Real Signal Simulator control software  
 Precision synthesized time base

**Broadband Channel Simulator Options**

Frequency Converter Options	Fixed 1.2 GHz IF Input and Output
Sample Clock Option	Low phase noise
Multiple Channel Options	1, 2, 3 or 4 coherent or independent
Dynamic Delay Option	<1 ns scenario resolution
Dynamic Doppler Option	<1 Hz scenario resolution
Phase Noise Options	Precision continuous Precision spurious
Thermal Noise Option	Precision wideband noise
High Speed Attenuator Options	50 dB range, 0.5 dB steps
Input/Output Signal Options	Fixed 1.2 GHz IF input and output
Remote Control Option	10/100 baseT Ethernet



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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.