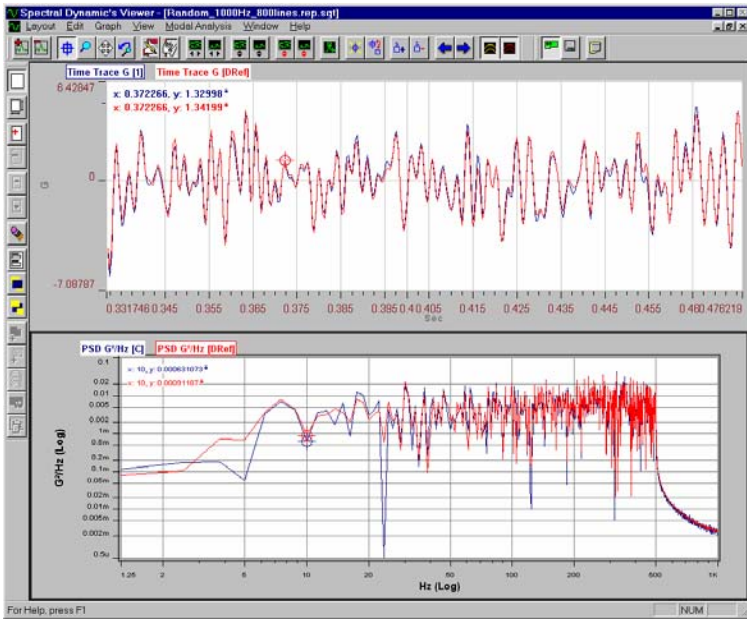




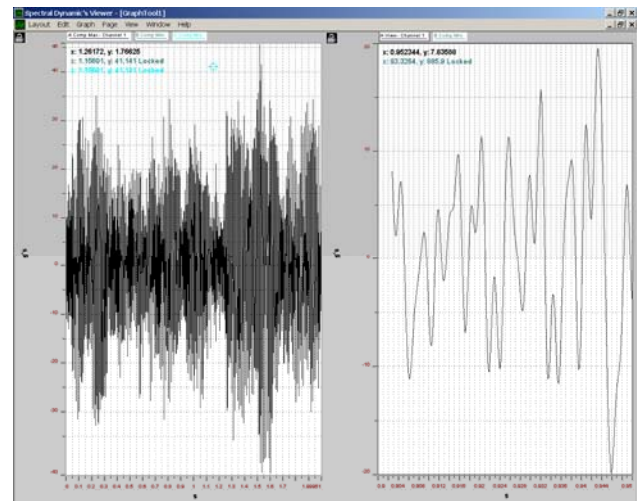
CATS Road Simulation

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Road Simulation makes it possible to reproduce actual measured time history vibration data in the laboratory on a shaker system. Extensive time history editing features enable large sets for field data to be easily reduced to the desired test time history. Spectral Dynamics convolution filter technique corrects for shaker system response and accurately replicates time histories. The basic method behind replication is similar to that employed by the shock application. In the Road Simulation case, a system response function is measured and a compensation "filter" is created. This filter is then applied to the reference waveform via a continuous FFT convolution method. The System ID function serves to measure the system response (transfer) function. This function is then converted into an impulse response function to be used for compensation.

- Time domain editor for analysis and editing of field data (resample, truncate, copy, cut, paste, append, filter)
- Filter (low pass, high pass, band pass) any segment or entire waveform
- Output time history limited only by available throughput disk space (up to 73 Gbyte)
- Convolution filter corrects for changes in system response during output
- Auto gain adjust provides nearly instantaneous correction for gain level changes



Graphics so POWERFUL, the user interface can be simple



Road Simulation/Replication	
Time History Format	Analog (measured with Time Domain Replication) or Spectral Dynamics binary time stream format (STS) from Waveform Editor or CATS Signal Analyzer
Data Acquisition	
Channels	Up to maximum installed (4 to 32), Note: limited to 4 acquisition channels during control
Sample Rate	Up to 51.2 kHz, Note: acquisition is limited to control sample rate during control
Frame Size (FFT)	256, 512, 1024, 2048, 4096, 8192
Voltage Coupling	AC or DC
ICP power	4 mA (20 V maximum into open circuit)
Duration	Continuous throughput limited only by available throughput disk space (standard disk > 73 Gbyte)
Control	
Sample Rate	Up to 5120 Hz (practical control limitations will depend on shaker system and test article dynamics)
Equalization Excitation	Random, Pseudo Random, Shaped Pseudo Random, User specified excitation level and number of averages
Frame Size (FFT)	256, 512, 1024, 2048, 4096, 8192
Drive Compensation	Convolution filter based on system transfer function
Auto Gain Adjust	On, Off
Reference scaling	Scale reference in % of full level or dB
Duration	Continuous throughput limited only by available throughput disk space
Cycles	User-specified number of cycles of reference time history or continuous until abort
Real-Time Data Analysis	
Functions	Time, PSD, H(f), Auto Spectra, Cross Spectra, Overlay of reference and control
Windowing	None, Hanning, Blackman, Harris
Spectral Averaging	Linear, Exponential, Peak Hold(max)

Time Domain Editor	
Waveform Editor	
Input Format	Spectral Dynamics binary time stream format (STS).
Time History Duration	Limited only by available disk space
Sample Rates	Up to 51.2 kHz
Data Review	Play, rewind, step rewind, forward, step forward, pause
Data Displays	
Compressed Time View	Complete time history with variable size zoom window
Process	View/edit data in compressed time zoom window
Edit	View/save processed data from compressed time history, includes Time, PSD, Filter
Processing Options	Edit/save all or parts of data from compressed time history files
Filter Options	Resample, truncate, copy, cut, paste, append, filter
Data Editing	Low pass, high pass, band pass, on entire waveform or any segment of the waveform
Data Storage Format	Edit amplitude in groups or point by point. Select points and drag using "rubber banding" tool
	Spectral Dynamics binary time stream format (STS)

