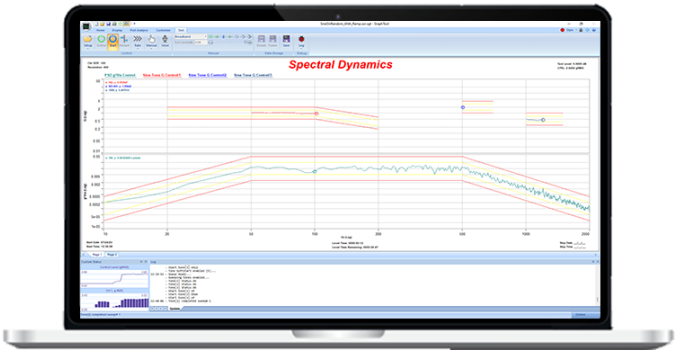
Sine On Random starts with the same high quality Random signal generation and control quality that Lynx™ Random employs. Tones are added with the same quality of signal generation and sweep capability that Lynx™ Sine employs.

The feature that makes Lynx™ SOR unique is its ability to add or subtract the tones without harming the Random energy. Random is a Frequency Domain product. Sine is a Time Domain product. Simply summing the signals is incorrect methodology resulting in distortion. By employing Spectral Dynamics' unique tone insertion technique there is no distortion and no spectral hole is created to harm the distribution of the random energy. High performance distributed processing makes this technique possible for Lynx™.



FEATURES

- Up to 10 independent tones on a broadband random
- Independent sweep profile for each tone (acceleration, velocity, displacement, and straight-line segments)
- Independent sweep rate and direction for each tone
- Smooth, phase continuous sweep (tone frequencies independent of broadband FFT lines)
- Time domain level extraction, independent control for each tone with automatic adjustment for tone sweep
- Independent display and storage of tone sweep amplitude vs. frequency
- Sweeping Tones DO NOT leave a "hole" as they change frequency i.e. the random energy remains correct

.

Lynx™ Sine On Random- Technical Specifications

Control Methods

Broadband control	Adaptive control algorithm controlling the shape of the drive spectrum and overall RMS level optimizes both control speed and stability
Tone (sine) control	Smooth, phase-continuous sweep (tone frequencies independent of broadband FFT lines); Time domain level extraction, independent control for each tone with automatic adjustment for tone sweep, true continuously swept sine tones (no stepping)
Drive signal generation	Digital drive signal generation from broadband and tone components, tones added after randomization to assure pure sine waves

Input/Output

Input channels	4 to 16, dependent on hardware subsystem
Input/output dynamic range	>92 dB

Reference Spectrum

Broadband definition	Easily defined by up to 500 frequency break points/slopes
Frequency range	50,80,100, 200, 400,500,800,1000, 2000, 5000 Hz
Frequency resolution	(Broadband) 100, 200, 400, 800 lines
Reference import	Import broadband reference profile from data file (SDD) or Universal File Format (UFF); cut and paste from spreadsheets
Tone definition	Arbitrary frequencies created by high precision sine generation algorithm; user-defined sweep profile, sweep rate, start frequency, direction
Tone sweep profile	Displacement, velocity, acceleration, log-log line, lin-lin line
Tone points per sweep	Up to 1600
Number	Up to 10 tones, including harmonics
Sweep	Linear or log; user defined sweep start frequency, sweep end frequency and sweep rate; independent for each tone
Initial sweep direction	Up, down, or stationary
Linear sweep rate	0 to 30 Hz/sec
Log sweep rate	0 to 5 oct/min
Units	g-in/s-in; g-m/s-mm; m/s^2-m/s-mm

Control Parameters

Mode of operation	Manual, automatic, automatic only
Test duration	User defined, maximum 9999:59:59 (hhh:mm:ss)
Degrees of freedom	User defined, minimum 8. maximum 30000
Number of control channels	1 to all available channels
Multi-channel control strategy	Average
Tone Extraction	Control Channel or All Measurement Channels

Startup Parameters

Initial test level	User-selectable, -99 dB to 0 dB
Time at initial level	Off, 0 to 99 control loops
Level increment	1 to 99 dB
Time to full level	0 to 100000 seconds

Test Automation Features

Level scheduling	User-defined level, time at level, transition time to reach the level
Pre-schedule time	User-defined time at full level prior to level schedule start
Test scheduling	User-defined sequence of independent tests can be scheduled to run automatically
Remote Communication Interface	Supported, enables integration with environmental chamber controllers
Print Automation	Ability to create reports Automatically with Customized displays

Safety Features

Shaker limits	Pretest verification that broadband spectrum dynamic limits are within shaker operational limits (acceleration, velocity, displacement and voltage)
Loop check max. drive signal	User-selectable, 1 to 5000 mV RMS
Alarm/Abort RMS	RMS acceleration, specified in dB or absolute level
Alarm/Abort spectral lines	Number of lines, or percent of lines within user-specified range
Control signal loss	Standard (programmed abort when control signal drops to within 3 dB of measured noise floor), low, or off
Drive signal clipping	2 to 20 sigma
Startup/shutdown rates	Independently selectable, 0.1 dB/sec to 999 dB/sec

Channel Setup

Channel type	Control, measurement, inactive
Sensitivity	0.01 to 9,999 mV/g or mV/(m/s2) EU for Measurement Channels
ICP power	On/off
Coupling	AC or DC
Channel loop check	Enabled, disabled
Channel label	Up to 8 characters for each channel
Transducer serial number	Up to 10 characters for each channel
Transducer Database	Table Driven Archival Database
Control channel weighting	Individuality defined, -20 to 6 dB
RMS abort	Individually defined, 0 to 999 grms or (m/s2)rms
Base Engineering Units	Label(EU), Conversion(EU/Transducer Units)
Engineering Units Calculations	Integrated (Label and Scale Factor), Double Integrated(Label and Scale Factor), Differentiated (Label and Scale Factor), Double Differentiated (Label and Scale Factor)

On-Line Status Monitors

Test status	Elapsed and remaining test time
Level status	Schedule level number, elapsed and remaining level time
Control status	Test dB level, test and drive RMS level
Channel status	RMS levels for all active channels
Tone status	Tone status for each tone: frequency, sweep direction, sweeps completed
Message log	Records all test operations, including operator commands, and reports on alarm or error conditions

On-Line Controls

Start/Abort test	Smoothly initiates or terminates test
Resume test	Restart test and complete remaining time
Test Mode	Manual or automatic
Drive update	Update of drive spectrum on or off
Broadband level control	Step up or step down (manual mode)
Tone control	Operator control of tones during test (in manual mode only), including on/off, sweep direction, sweep rate
Pause	Lower drive level to -90 dB, hold until resume

On-line Analysis

Real-time displays	Spectra for all available channels may be

	simultaneously displayed during the test
Spectra analyzed	PSD, auto-spectrum, linear-spectrum, frequency response function (magnitude/phase or real/imaginary), coherence,
Tone displays	Independent display of entire sine sweep with tone tolerances
Averaging control	User-defined DOF exponential or linear averaging
Real-time/stored data	Simultaneous display and overlay of spectra or time histories for real-time data and any stored data
Data Storage	
Setup options	Automatic storage every 1 to 999 seconds, save on level change, save on alarm, save on external command, save every sweep, manual save
Playback	Automatic play of entire test data file, with adjustable display update delay; manual selection
Run message log	Text file records all system status messages displayed during test run

SPECTRAL DYNAMICS

Spectral Dynamics Inc.
2199 Zanker Road
San Jose, CA 95131-2109

(800) 778-8755

www.spectraldynamics.com

CATS™ Computer Aided Test Suite