

Vibration Control Software Version 8.1



**Featuring
Kurtosis Parameter Control Enhancements
&
VCS Software Fixes**

**Release Note
May – 2010**

By: Dave Galyardt

CONFIDENTIAL – For Internal Use Only

Contents

SUMMARY	3
Ordering Information	4
Campaigns	4
Software Download	4
USER INTERFACE CHANGES.....	5
SUMMARY OF CHANGES.....	9
General.....	9
Random, SoR, and RoR Applications.....	9
Sine and RSTD Applications.....	9
Shock Applications	10
Long Time History and Waveform Editor Applications.....	10
Data Displays and Reports	10

VCS Version 8.1 Release Notes - Kurtosis Parameter Control Enhancements

SUMMARY

Kurtosis Control Enhanced

Version of 8.1 of the Vibration Control Software extends the kurtosis control capabilities offered to our LaserUSB customers. A higher limit for the maximum K value, up to K=12, allows even a wider range of test simulations of real world vibration environments. To provide additional test tailoring capabilities, the Sigma Clipping control parameter now allows values of up to 100 so the user can specify both the kurtosis value and sigma clipping level.

Other user features, such as an on-line probability density function plot (or histogram), a recording of the instantaneous K value using a user defined time resolution, and an on-line readout for the target K value, make it easier to monitor and document tests.

Other Enhancements

Other general enhancements include pre-defined abort limits template in Classical Shock per the IEC 60068-2-27 specification.

Fixes

In addition to the above enhancements, twenty-four Customer Reports have been Fixed and Closed with Version 8.1.

Reference

VCS Version 8 Release Notes BN-0666

Please refer to this document for a full description of Kurtosis Control, key benefits, sales approaches, product literature, and competitors.

Ordering Information

SCO-01P-04 Kurtosis Parameter Control

RSP €2869 \$4200

Requires SCO-01P Premier Random

Note: Kurtosis Parameter Control is only available on the *LASER*_{USB}

Campaigns

No current campaign specifically for Kurtosis Control.

Software Download

Go to the web link below to download VCS version 8.1.

<http://www.bksv.com/Support/Downloads/dactron/shakercontrollerdownloads.aspx>

USER INTERFACE CHANGES

The picture below shows the new Kurtosis Parameter dialog with the new features highlighted.

Control Option Setup

Non-Acceleration Control | Variable Resolution Control | Control Loss Detection | Kurtosis Parameter

Control

Kurtosis Parameter Target (3 ~ 12)

High Pass Filter Cutoff (Hz)

Feedback Gain (%)

Kurtosis Chart

Time Resolution (ms)

Number of Points

Histogram

Number of Bins

Maximum Range (gn)

Alert: Check that the Signal Clipping setting is compatible with the Kurtosis target value

Probability - %

K = 3

K = 4

K = 5

K = 6

K = 7

WARNING: When the Kurtosis Parameter is greater than 3.0 the Vibration Limits estimates in the Profile table are not accurate and these values will understate the possible peak values for the test.

Use the plot above to estimate the greatest Peak-to-RMS ratio based on the setting of the K value.

OK Cancel

Maximum K value increased from 7 to 12

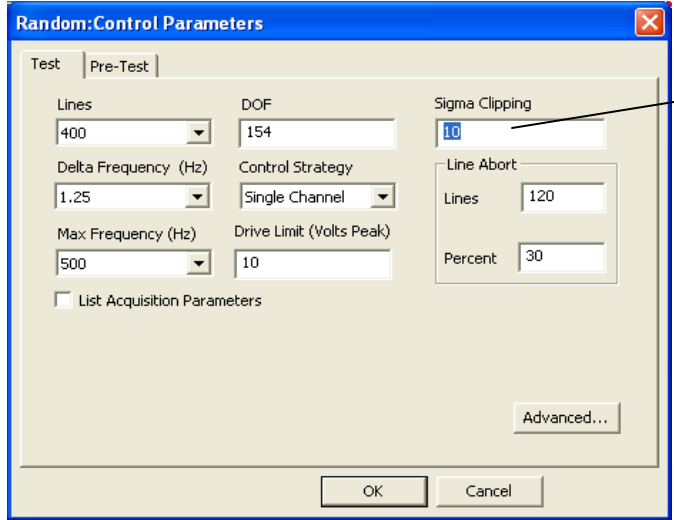
Feedback gain parameter added

New time resolution setting

New Histogram setup for on-line PDF plot

Control Section

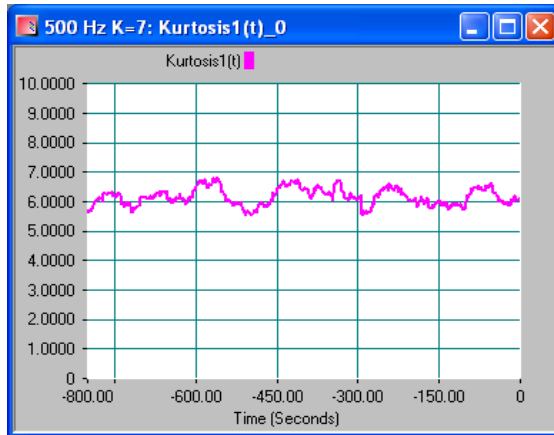
Kurtosis Parameter Target (3 ~ 12) – The maximum K value has been increased from 7 to 12. In addition, sigma clipping can be used when kurtosis control is used so that the user can tailor the characteristics of the drive signal. Sigma Clipping is in set in the main dialog for Control Parameters. Typically, the sigma clipping should be set no lower than the K values or one plus the K value. For example, if the Kurtosis Parameter is set to be 7 then sigma clipping should be set no lower than 7 or 8. If the sigma clipping value is less than the kurtosis value, it may not possible to achieve the target K value during a test run.



Feedback Gain (%) - This control parameter sets how rapidly the control loop does error correction to make the measured kurtosis K value match the target K value. The higher the feedback gain, the faster the K value error is reduced, but possibly at the expense of the stability of the K value. The Feedback Gain is settable from 10% to 100%.

Kurtosis Chart

Time Resolution and the Numbers of Points set the time interval and total period for the Kurtosis K value chart of the measured kurtosis. The Time Resolution is settable from 1 millisecond to 1000 seconds between update points. The total number of points is set by the Number of Points entry from 512 to 4096 points. The combination of time resolution and points allows the user to monitor the test kurtosis over a period of minutes, hours, or days.



The control signal's kurtosis parameter can be monitored on-line using the special "Kurtosis(t)" signal display.

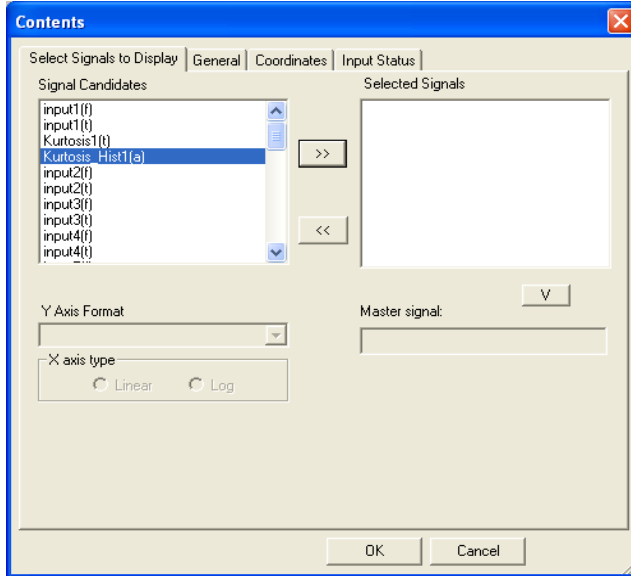
Histogram

The histogram provides a Probability Density Function (PDF) that can have the Y axis in a linear or logarithmic scale. The Number of Bins determines the X axis resolution. From 256 to 4096 Bins can be

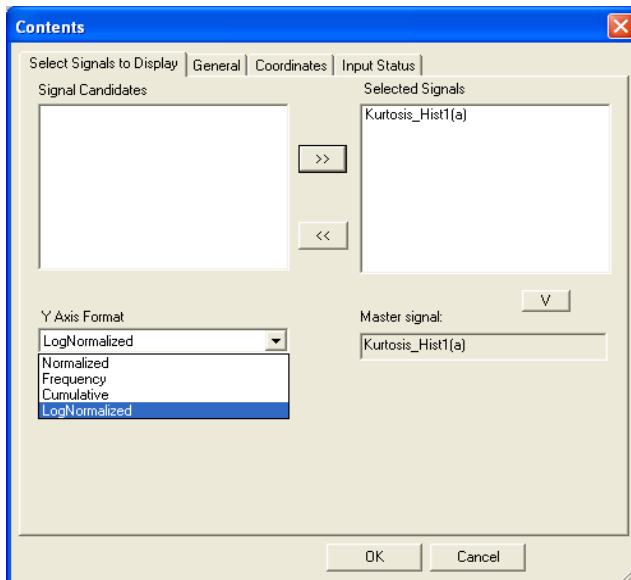
used. Maximum Range sets the expected maximum acceleration range for the control signal. Typically, this range is set to be somewhat higher than the Sigma Clipping setting times the RMS of the broadband random profile.

To create a Histogram display, use the following steps:

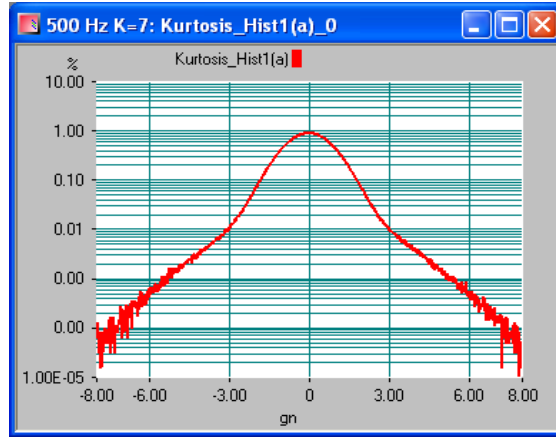
1. Create a new display Pane.
2. Open the Contents dialog for the new pane and select the Kurtosis_Hist(a) signal.



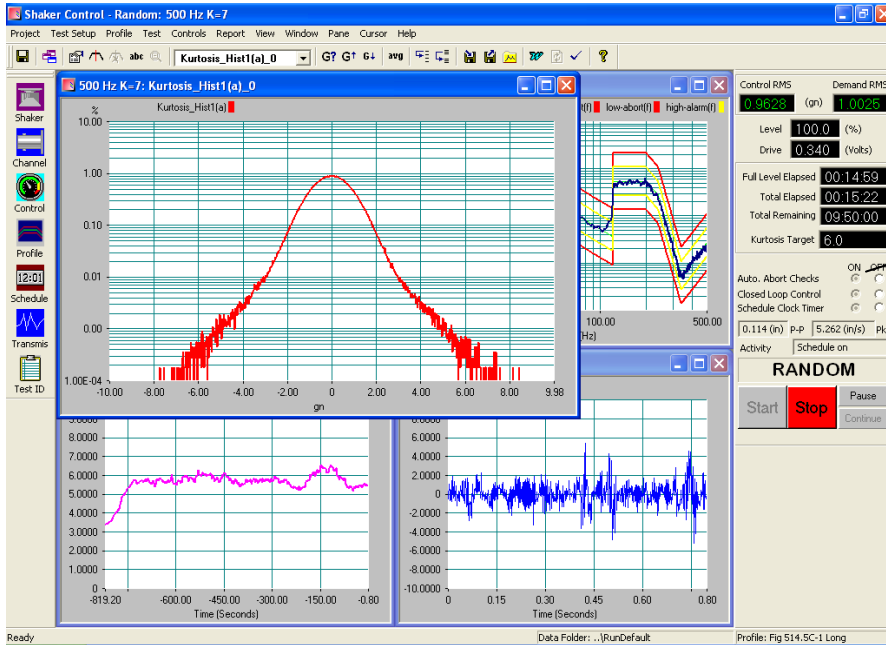
3. Use the Y Axis Format pull down menu to select the format of the Histogram. Usually you will want to use the “LogNormalized” format, as this format will provide a Probability Density Function plot with the Y axis on a logarithmic scale.



- Once the test starts, you will see a display similar to the one shown below.



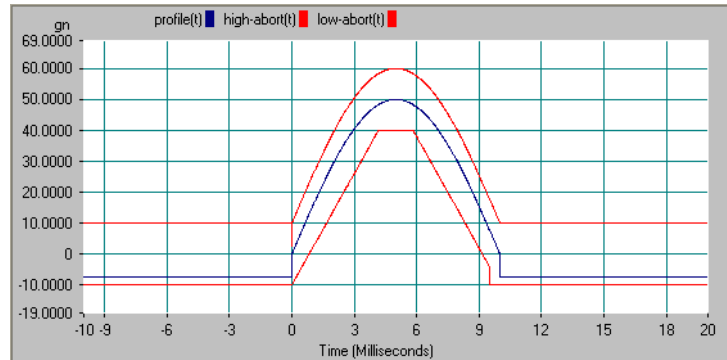
To help the test operator verify that the test is achieving the correct kurtosis value the Control Panel now includes a readout for the Kurtosis Target value. This value can be compared to the Kurtosis Chart during a test to verify that the test target is achieved.



Kurtosis Target value readout shows the operator what kurtosis value should be obtained during the test

Classical Shock Abort Limit Templates

Version 8.1 includes a pre-defined abort limit template that matches the limits specified in the IEC 60068-2-27 specification.



SUMMARY OF CHANGES

General

- 9445 Transducer Calibration function in Channel Parameters can give a 3 dB deviation from the correct calibration value when the 0.1 V input range is used
- 9421 Channel Parameters Transducer Calibration can cause a software lockup when used repeatedly
- 9314 Signal Manager settings for default projects changed to have Auto Save Frequency Domain Data or Auto Save Time Domain Data checked
- 9072 Detect TEDS does not update the sensitivity field if the current TEDS accelerometer is swapped with another TEDS accelerometer
- 9008 HTML Help files page display error

Random, SoR, and RoR Applications

- 9469 Random Schedule - minimum level allowed changed to -40 dB in test schedule
- 9499 Default sigma clipping value is now set to be 3
- 9457 Kurtosis Control - added feedback control gain setting in Kurtosis Parameter setup dialog
- 9449 Kurtosis Control - high pass filter modified to smooth the transition band
- 9448 Kurtosis Control - increased maximum sigma clipping allowed to 100
- 9447 Kurtosis Control - increased maximum K value allowed to 12
- 9438 Kurtosis Control - added time resolution setting for Kurtosis(t) strip chart
- 9437 Kurtosis Control - added probability density function (histogram) plot
- 9414 Kurtosis Control - added K value display on control panel for on-line reference during a test
- 9188 Sine on Random - Crashes and bugs associated with the SoR Tone Profile dialog and setup

Sine and RSTD Applications

- 9463 Sine Limiting - kurtosis check prevents the use of a Notching/Limiting channel

- 9454 RSTD - frequency locked dwell causes software to run indefinitely
- 9423 RSTD - dwell tests run longer than the user specified number of cycles
- 9257 RSTD - the displacement spectrum does not correctly update when pk-pk is selected as the Sine Displacement setting in Engineering Units
- 8421 Sine - Engineering Units - Sine Displacement function for displaying pk-pk units or peak units does not work

Shock Applications

- 9172 Classical Shock - added capability to define a custom abort limit to meet the requirement of IEC 60068-2-27
- 9190 Classical Shock - problem with Customized Pre-Pulse/Post-Pulse/Main Pulse functions in Abort Settings page

Long Time History and Waveform Editor Applications

- 9498 LTH small drive signal discontinuity at the beginning of some output frames

Data Displays and Reports

- 9446 ActiveX Quick Report plots do not show the X scale numerical values
- 9460 Report Setup dialog - Line Thickness menu has Medium/Thick/Medium instead of Normal/Medium/Thick
- 9215 Random - display units when manually changed are overwritten by default units on each new test start
- 8152 Random - acceleration PSD data displayed in English units is saved in SI units when exported in ASCII (*.txt) format
- 8195 Random - Transmissibility Amplitude Only saved signal file vs. displayed signal amplitude discrepancy
- 5330 Sine – amplitude issue with recall of Transmissibility signal saved in ASCII X-Y