



Sine-on-Sine Testing

Running Sine-on-Sine tests in VibrationVIEW V. 2014

Aaron Offringa

V-Note # 0012

Abstract

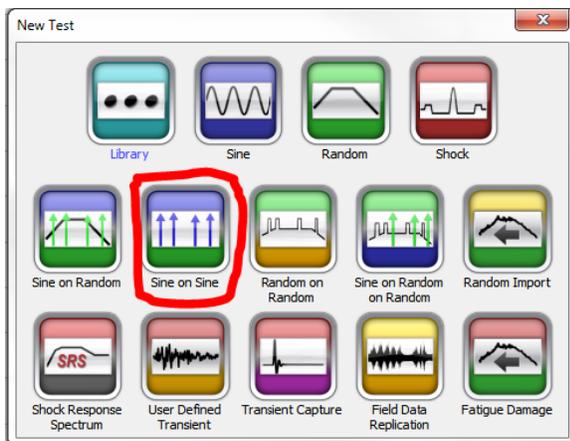
The Sine-on-Random VibrationVIEW software can be used to run the Sine-on-Sine Tests.

Question

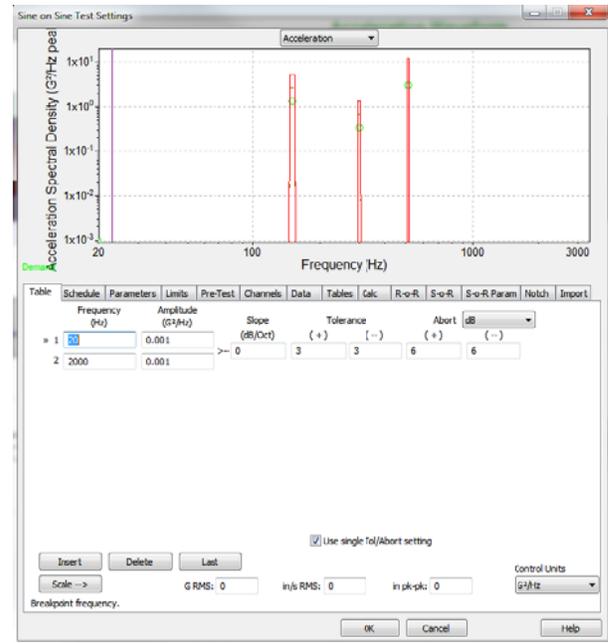
A customer asked if we could help him with setting up a Sine-on-Sine test to match a spec that he had. He was familiar with the Sine-on-Random and Random-on-Random testing modes from Vibration Research, but was wondering what he needed to be able to do a Sine-on-Sine test.

Answer

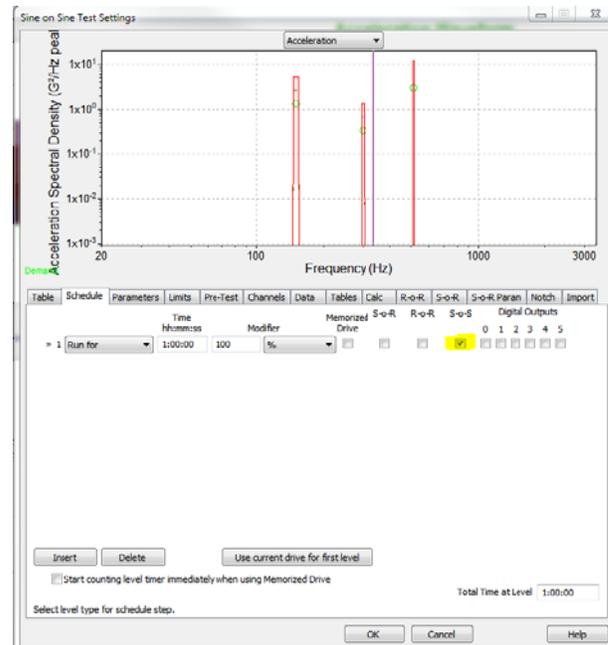
To do this type of testing, the customer must have our Sine-on-Random Vibration Research test module. The first step is to click 'New Test' in the VibrationVIEW Software. Then click the Sine-on-Sine button as seen below.



Prior to VibrationVIEW 9 it was required to manually set the random broadband to '0 GRMS'. With the inclusion for a test type of Sine-on-Sine in VibrationVIEW 9 and later, the software automatically does this and assumes sine tones only.



You can see below that the Sine-on-Sine mode is already selected. From here you can enter the length of your test and create the steps you wish to take.





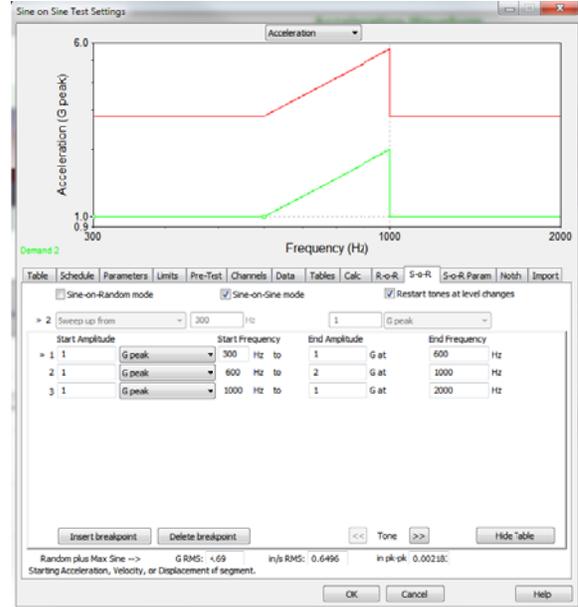
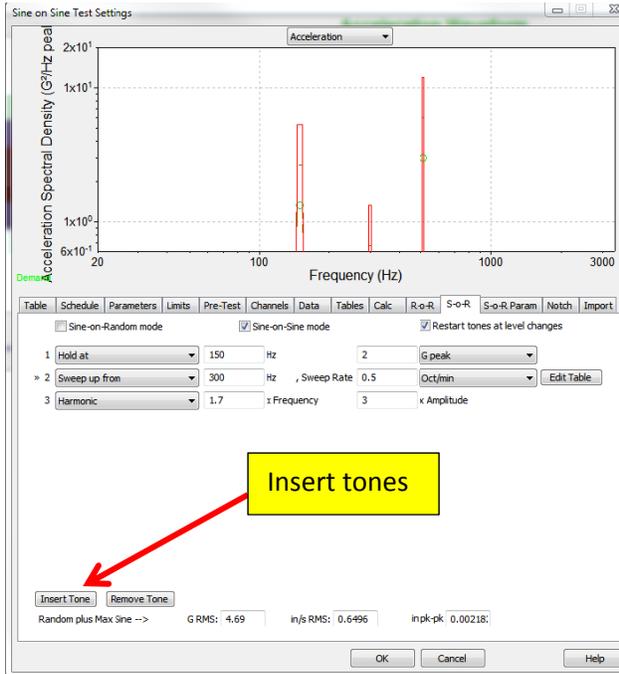
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Once this is complete, click on the Sine-on-Random tab (S-o-R). Verify that the S-o-S checkbox is checked. Then you can begin entering the tones that you desire for this test up to a maximum of 32 tones. You can add tones by clicking on the "Insert Tone" button.

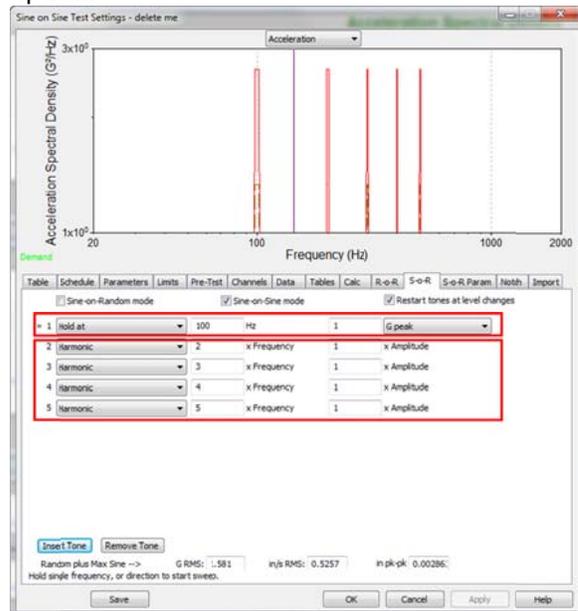


The last option 'Harmonic' is used in conjunction with one of the other three options, where you set an initial fundamental frequency and amplitude, then select 'Harmonic' with a multiplier for the fundamental frequency and amplitude. Here is an example of how to use the 'Harmonic' option:

As you can see above, there are many options for the sine tones you wish to run. You can select to:

- 1) Sweep Down from
- 2) Hold at
- 3) Sweep Up from
- 4) Harmonic

The 'Hold at' option holds at the desired frequency with a desired amplitude. In the 'Sweep up from' and 'Sweep down from' drop down menu you work with a table within that option to select the frequency range of the sweep, the sweep rate and starting and ending amplitudes.





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In this example the fundamental frequency is 100Hz, with subsequent harmonics at 2,3,4 and 5 times the fundamental frequency. This means the subsequent tones will be at 200, 300, 400 and 500Hz respectively.

At the bottom of the S-o-R tab window will be the required Grms, velocity rms and displacement for the given set of test conditions.

Once these steps are completed you are ready to run your Sine-on-Sine test. Click the 'Ok' button to save the test and begin the test. Also Note: the 'Parameters' tab allows you to further edit the test settings for your Sine-on-Sine Test.