

**Greetings!**

**Welcome to Issue #67**

Busy, busy, busy! Everyone is busy! The Modal Shop has recently been engaged with many different standards organizations, including NIST with the below update on vibration calibration. Feel free to contact me with any questions on the standards discussed. Thanks for reading!

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**Tip of the Month:  
Calibrating Reference Accelerometers**



Since double-ended reference accelerometers are designed to calibrate accelerometers in a "piggyback" back-to-back configuration, they are not well-suited to being calibrated themselves in the same fashion.

Flipping the reference accelerometer and mounting on a second double-ended reference accelerometer does not produce accurate results. Instead, these types of reference accelerometers should be calibrated using a single-ended transfer standard, or directly against a laser primary.

**NIST To Reaffirm Vibration Calibration**

You may recall that in the summer of 2012, the National Institute of Standards (NIST) announced that it was considering discontinuing vibration calibration service.



In the latest news from NIST, vibration calibration will stay active in terms of both primary calibration services and research. The results of the NIST-written request for feedback provided concrete response from a number of markets. Feedback resulted in the opinion that NIST service to the technical and commerce market is extremely valuable, important for satisfying contracting, and that as a BIPM signatory, participation in the global standards is critical.

[Click to read full discussion](http://modalshop.com/calibration.asp?ID=825)  
modalshop.com/calibration.asp?ID=825

**Low Frequency Calibration Needs Support Standard ISO 8041:2005**

Recently when discussing a low frequency vibration test application with a test engineer, the engineer expressed doubts about any measurements she could produce due to a lack of sensor calibration data below 10 Hz. Not only is this common to hear from test engineers, this assumption was published as recently as 2005 by an ISO standards committee on human vibration measurements. I assume this belief is propagated due to traditional manufacturer calibration certificates, which typically stop at 10 Hz.

Unfortunately, this popular misconception is held not only by the engineers mentioned above, but also the vibration test community at large. Even more importantly, the measurement community is letting this misconception alter the advance of the associated

### Technical Exchanges

[Cincinnati IRIS Show \(Independent Representatives Information Services\)](#)

May 7, 2013

[International Instrumentation Symposium](#)

May 13-17, 2013

[SAE Noise & Vibration Conference](#)

May 20-23, 2013

### Quick Links

[PTB](#)

[NIST](#)

[ISO TC 108](#) - Mechanical vibration, shock and condition monitoring

[ISO TC 108/SC 3](#) - Use and calibration of vibration and shock measuring instruments

[ISO TC 108/SC 6](#) - Vibration and shock generating systems

[SAVE \(Formerly SAVIAC\)](#)

[Vibration Institute](#)

[Equipment Reliability Institute \(ERI\)](#)

[TMS Video Vault](#)

[Learn More Calibration](#)

### Previous Newsletters

[Dynamic Sensor & Calibration Tips #66](#) -

Does a Manufacturer's Nominal Spec Matter?; Technology Fundamentals of Microphone Types

[Dynamic Sensor & Calibration Tips #65](#) -

What's Happening at NIST?; Benefits of ICP® Operation in Vibration Calibration References

### Select Newsletter Articles by Topic

[Function and Structure of Accelerometers](#)

[Similarities Between Charge and ICP Operation](#)

[Selecting Accelerometers for Mechanical Shock](#)

[Master List of Topics \(T.O.C.\)](#)

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[PCB Load & Torque Website](#)

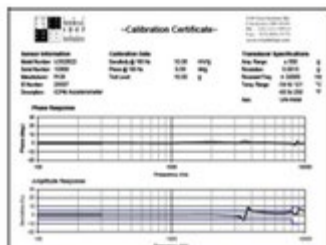
[SimuTech FEA Website](#)

science...

[Click to read full article](#)

[modalshop.com/calibration.asp?ID=826](http://modalshop.com/calibration.asp?ID=826)

### Blast From The Past: Interpreting Calibration Results



As you may remember from your studies (or maybe you read the first newsletter in this series), ideal sensors provide straight line performance. That is to say, they treat amplitudes proportionally (straight line linearity), frequencies of

interest the same (flat amplitude frequency response), and do not appreciably delay the signal (flat phase frequency response). Hence, the frequency response output plot from an accelerometer and on a calibration system should be a flat line. In the real world, however, things are not perfect...

[Click to read full article](#)

[modalshop.com/calibration.asp?ID=229](http://modalshop.com/calibration.asp?ID=229)

Thanks for joining us for another issue of Dynamic Sensor & Calibration Tips. As always, please, speak up and [let us know what you like](#). We appreciate all feedback: positive, critical or otherwise. Take care!

Sincerely,

Michael J. Lally  
The Modal Shop  
A PCB Group Company  
[mike.lally@modalshop.com](mailto:mike.lally@modalshop.com)



