

sensor & calibration tips



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Greetings!

Welcome to issue #22-

Thanks for joining us for another month. This month is special as today's newsletter celebrates [World Metrology Day](#) today, May 20th. The celebration highlights the importance of metrology in global commerce. From the most mundane certification on a grocery scale or gas pump to the more exotic like the calibration of test equipment used in space programs, metrology is the basis for "getting it right". The procedures, verifications and controls of a metrology mindset instill the knowledge and confidence which is counted on by millions of people all over the world. Our jobs are important and they make a difference. Thank you for your role in measurement and metrology which helps to make our world a better place.

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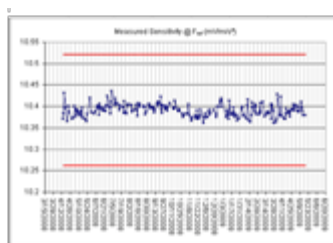
Tip of the Month

Interlaboratory Comparisons

When participating in inter-laboratory comparisons (ILC), be sure the test definition is clear from the start and calibrations are performed at the same frequencies. This avoids the possibility of additional error due to interpolation. For example, if the ILC calls for reporting results at 5, 7 and 10 Hz and the participating lab calibrates at 5, 8 and 10 Hz, interpolation must be used to estimate the sensitivity at 7 Hz. If this falls in a region where the sensor's frequency response is not flat, this can lead to an interpolation error on the order of 1% which could cause the participating lab's results to fall outside acceptable criteria.

Quick Links

Proficiency Deficiency



You do it. I do it. Everyone does it. What is "it"?...we make mistakes. In the technical and business world, quality systems have a regularly administered audit component to provide a means for testing and

finding these "opportunities for improvement". The Modal Shop's calibration product group manager, Mr. Eric Seller, recently attended a [regional meeting of NCSLI](#) in Ann Arbor, Michigan. Despite the region's current economic woes and the plight of the American auto industry, the meeting found an upbeat tone with a full house of around 50 metrology practitioners. Of particular interest and usefulness, Eric brought back an excellent presentation by Mr. Robert Knake of [A2LA](#) addressing the "Most Common Deficiencies" found during the ISO17025 assessment audit process. We thank Mr. Knake and the A2LA organization for the approval to reprint his [presentation](#) in this newsletter. As an ongoing educational topic, for the next few months we'll discuss a few of the major deficiencies and present the hows and whys of avoiding or addressing them within your own accelerometer or microphone calibration program. To start off the discussion, let's look at the number 10 deficiency: Infractions in ISO17025 Section 5.9, Assuring the Quality of Test and Calibration Results...

[Click to read more about proficiency deficiency](http://www.modalshop.com/test_calibration.asp?ID=268)(http://www.modalshop.com/test_calibration.asp?ID=268)

Got your TEDS on?

[NCSL](#)
[IMEKO](#)
[NIST](#)
[PTB](#)

[SAE Noise & Vibe - St. Charles, IL \(May 19-21\)](#)

[SEM Annual Conference - Albuquerque, NM \(June 1-4\)](#)

[Sensors Expo - Chicago, IL \(June 8-10\)](#)

[NCSL - San Antonio, TX \(July 26-30\)](#)

[Vibration Institute](#)

[The Modal Shop website](#)
[PCB Piezotronics website](#)
[IMI website](#)

Newsletter Archive

[sensor & cal tips #18](#) - Why calibrate; Accelerometer selection considerations

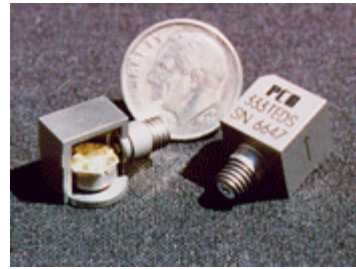
[sensor & cal tips #19](#) - Linearity and the small world

[sensor & cal tips #20](#) - Low frequency calibration; Cable considerations

[sensor & cal tips #21](#) - ICP Triaxial Accelerometers Aid Vehicle Field Diagnostics; New Transverse Methods of Calibration

[Archived sensor & cal tips](#) - all the back issues

Have you ever... stared at your accelerometer (with its arcane model number neatly etched), only to wonder about the useful information like: What's the high or low frequency point? What's the exact sensitivity? Or when was this last calibrated?



Without reflecting on sanity, you wish, "...if only this little guy could talk." Well it turns out that now they can. Sensors with Transducer Electronic Data Sheet (TEDS) capability provide a standardized means for various types of sensors to "tell" the data acquisition system (or test personnel) their specifications on demand. At the International Modal Analysis Conference (IMAC) in Orlando this year, the Modal Shop's Structural Test Product group manager, Mr. Marco Peres, gave a talk about the [history and current status of the TEDS](#) in the dynamic sensor industry. While estimates of the number of TEDS accelerometers in service are approaching 200,000 units, there are many test professionals who are still learning...

[Click here to learn more about the functions of TEDS](http://www.modalshop.com/test_calibration.asp?ID=269)(http://www.modalshop.com/test_calibration.asp?ID=269)

We appreciate your interest and are glad to be providing you information on a regular basis to help with your dynamic testing and calibration needs. If you have any questions you would like answered or have a topic you would like to see covered, please contact us and we'll be glad to help out.

Sincerely,

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