Welcome to Issue #71

"Hallo" global "Dynamic Sensors & Calibration Tips" readers. Recent travels have taken me to both India and the Middle Eastern city of wonder called Dubai. No matter where travel takes me, I have the chance to meet great people in the measurement sciences who are making a difference in their corner of the world...enabling engineering feats as varied as building the next million automobiles to constructing the world's tallest skyscraper.

At the top of the 2,716.5-ft (828-meter) tall Burj Khalifa Skyscraper in Dubai, it was certainly surprising and fun to see a dynamic wind load instrumented scale model. This engineering display from consultant group, RWDI of Guelph Ontario, Canada, is just one more example of dynamic measurements soaring to new heights...

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Tip of the Month: How To Select a Pressure Calibration System

When selecting a pressure calibration system, it is important to not only consider the maximum calibration pressure, but also the minimum calibration pressure required. Ultra high-pressure calibration references suffer from resolution issues at low levels.

Technical Exchanges

Noise-Con - Denver, CO
Aug. 26-28
Cincinnati Dynamic Sensor & Calibration Open House
Sept. 10
Cleveland IRIS Show

Pressure Calibration in Ballistics Testing
By Mike Dillon, Pressure Calibration Product Mgr

PCB Piezotronics recently hosted a two-day pressure measurement and calibration training in Depew, NY for the Sporting Arms & Manufacturer's Institute (SAAMI). This group's Technical Committee develops product standards for firearms and ammunition. The Modal Shop also attended the training, supporting the metrology aspects of the program.

One of the topics discussed was fundamental measurement problems in ballistics. A key issue is the fact that the transducer needs to be as close as possible to the physical event while at the same time not interfering with the measurement event. In this case, we want to measure the pressure change inside a piece of ammunition when it is fired. To put the sensor inside the brass casing is impossible. So the measurement alternative is to put it on the outside of the brass casing and measure the pressure event on the outside of the brass casing...

Click to read full article
modalshop.com/calibration.asp?ID=875

Shakers and Accelerometers
By Marco Peres, Structural Test Product/ Portable Vibration Calibrator Product Manager

Sept. 24

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 #70 -
Methods for Field Calibration; Giant Crystal Cave Comes to Light

Dynamic Sensor & Calibration Tips #69 -
Accelerometer Calibration - 'Trust But Verify'; Upcoming NIST Colloquium

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.)

PCB Group Companies

The Modal Shop Systems & Service Website
PCB Piezotronics Sensor Website
IMI Monitoring Website
Larson Davis Acoustics Website
PCB Load & Torque Website
SimuTech FEA Website

Electrodynamic Shakers and piezoelectric accelerometers are widely used in the field of vibration in applications like experimental modal analysis. Without getting too technical, one can describe modal analysis as the process whereby we describe a structure in terms of its natural characteristics--which are its natural frequencies, damping and mode shapes - i.e. its dynamic properties.

In an effort to demystify the practical aspects of modal testing, earlier this year University of Massachusetts Lowell professor Peter Avitable and students Sergio Obando (featured in the picture) and Julie Harvie, joined The Modal Shop at the **IMAC conference** for a hands-on tutorial presentation on shaker test set-up. The presentation was the result of a **paper presented** during the **ISMA conference** in Belgium last year titled: "Effects of Shaker, Stinger and Transducer Mounting on Measured Frequency Response Functions - Proceedings of ISMA2012."

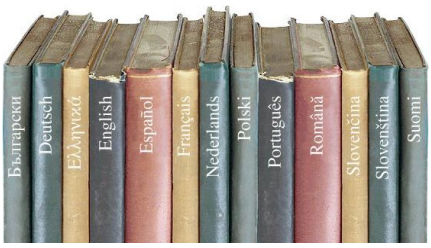
Another interesting **article on the practical aspects of modal testing** was published a few years ago in *Sound & Vibration* magazine.

Last but not least, for those of you who are new to the world of modal analysis, make sure to download and read the series of **articles from professor Peter Avitable**.

Click to read full ISMA paper

Blast From the Past: The Language of Metrology

The Modal Shop has been actively presenting one-day seminars on dynamic sensing and calibration around the world. This education on the function and structure of dynamic sensors (PE, VC, PR, etc) and the associated methods and means of calibration is key in keeping pace with global growth in acceleration sensing. Ensuring the users' control and confidence in dynamic analysis serves the measurement and engineering community, in everything from aerospace structures to consumer electronics to plant floor efficiencies.



The following is a presentation used to orient audiences in the **framework of metrological terminology**. This presentation makes a nice primer, or overview, to share with your new hires and also includes a number of handy links to other useful resources.

Additionally, on September 10th The Modal Shop will be

hosting a "Dynamic Sensors & Calibration" Open House. For more information or to register, **click here**.

Thanks for joining us for another issue of "Dynamic Sensors & 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