Regional News

1210 Mid-Atlantic Region

Hosted By: National Electronics Museum
April 8, 2009

The Mid-Atlantic Region held its spring meeting in Pioneer Hall at the National Electronics Museum located just outside Baltimore-Washington International Airport. Borrowing a format seen at Tom Hettenhouser's 1213 Section meeting last fall, vendors were invited to sponsor "Table Top Displays" to exhibit their products. Twelve companies sponsored 13 tables providing continental breakfast, lunch and an afternoon snack catered by Simply Elegant Catering. Many thanks to the following companies for their sponsorship and Door Prize contributions:

- Creative Marketing Associates/Aeroflex
- Northrop Grumman SureCAL
- Fluke/Hart Scientific
- Rohde & Schwarz
- GE Sensing – Druck – Ruska
- TEGAM, Inc.
- Kaymont Consolidated Industries
- Tektronix
- Mensor Corporation
- TestEquity
- Newark/Fluke
- The Scale People/ Sartorius

The sign-in register showed 29 attendees, 19 exhibitors and three presenters for a total of 51 people. After an hour of exhibits, breakfast and networking, Region Coordinator Vernon Alt opened the meeting with a warm welcome and an invitation for someone to fill the vacant 1211 Maryland Section Coordinator position. Unfortunately there were no recruits and the position remains open. After an overview of the agenda, an update was provided on actions taken to support comments and suggestions from previous Meeting Surveys.

This led us to the first presentation by Elizabeth Gentry of NIST and Co-Chair of the 164 Education Liaison and Outreach Committee. Elizabeth spoke about becoming a Metrology Ambassador, describing the learning objectives and available tools. Then the games began, the Metric Estimation Game to be exact. What better way to demonstrate how the game works than audience participation? Briefly, the Metric Estimation Game is loosely modeled on the game show *Jeopardy*. Pictures of common everyday objects lay beneath point amounts arranged in categories such as Mass, Length, and Volume. The audience is broken up into teams, and then a category and point amount is selected to reveal an item which is either passed around to all contestants (like a hot potato) or paraded in front of the contestants by a lovely/handsome assistant. The contestants now have 30 seconds to determine weight, perimeter, volume, length, or whatever is apropos to the chosen category. The team or teams with the closest estimation, expressed in the proper metric units, earns the point amount. During a demonstration of the Metric Estimation Game at the 2008 Conference in Florida the group was asked to quiet down because the people attending the paper next door couldn't hear the speaker. This game invoked the same enthusiasm in Pioneer Hall as it did in Florida, and as I witnessed in December when Elizabeth presented it to a classroom of 3rd to 7th graders. If you haven't witnessed or participated in this game, you simply must! The "Metric O's" won the game with 4,700 points. Thanks to Elizabeth for a great presentation and for lugging all of the objects around, including a full size bowling ball.

About 20 people took the guided tour of the National Electronics Museum. One person was heard to comment, "I still use that Electrostatic Voltmeter back at my Lab." Afterwards, lunch was served and people explored the Table Top Displays.

Next up was Charlie Sperrazza of Tegam who spoke about Reference Output Port Matching with a Power Meter. Charlie started off by posing the question, what is a power sensor REALLY measuring? Of course there were slides with formulas, and diagrams identifying reflection paths, and more formulas taking all the paths into consideration to calculate correction factors. Charlie showed us how various influences on the power sensor could have a dramatic affect on the measurement result, and the calculations for a sensor calibrated at 20 frequency points could go into the hundreds. He then asked if we could imagine a technician, not too many years ago, performing these calculations by hand? He also asked if, back then, any calculations may have been skipped in the interest of time. Charlie's presentation really hammered home how computers, software, and calibration standards can provide fast, accurate measurements with repeatable results.

Elizabeth Gentry

Charlie Sperrazza

From there he went into the Direct Comparison *substitution and feedthru* techniques and showed how calculations can be simplified by marrying the power splitter to the standard power sensor to create the RF Power Standard. Charlie showed a picture of a Primary RF Power Standard, typical of those used by NIST and other NMI's, then a graphic representation detailing the inner workings of the Primary Standard. Charlie wrapped up his outstanding presentation by discussing the Reference and Working Standards manufactured by TEGAM.

The last technical speaker was Larry Mock of Mensor presenting a Pressure Calibration Primer. Larry started off with a pressure meter sitting on a chair close by, explaining that the air pressure all around us behaves like the pressure under water, where the deeper you go the greater the pressure. To demonstrate this he took the meter from the chair, held it near the

Tom Hettenhouser and Vernon Alt

Pat O'brien and Bob Marsh

floor and asked everyone to note the reading on the meter, which displayed to one ten thousandth of a psi. Larry said the meter wasn't terribly accurate at that resolution, but it was highly repeatable. As Larry lifted the meter and raised it over his head we could see the digits on the meter dropping. Proving the air pressure at our feet is greater than the pressure at our heads. Larry defined the various types of pressure such as absolute, gauge, vacuum, sealed gauge and differential. Using some very creative and effective PowerPoint animations Larry described the many phenomena taking place in a pressure system, while dropping names like Newton, Boyle, Charles, Avogadro, Clapeyron, Van der Waals, and Knudsen. He spoke about the viscous and molecular flow regions in vacuum systems and practical concerns. From vacuum Larry moved into pressure systems where he discussed calibrator types such as deadweight testers, pressure generating controller/calibrators and digital pressure gauges. Larry completed his talk by explaining how linearity, repeatability, hysteresis, creep, and temperature affect accuracy and the Mensor method of TUR. Thanks for an intriguing and informative presentation Larry.

After a short break 31 door prizes were handed out. The last two prizes were a Dale Earnhardt Jr. die cast model donated by Kaymont Consolidated and a handheld IR Thermometer donated by Newark/Fluke.

Thanks to all of the companies whose Table Top Displays provided great food for everyone, with special thanks to Mensor and Tegam for providing Technical Speakers as well as Table Top Displays. Special thanks also to curator Mike Simons and his staff at the National Electronics Museum, what a wonderful venue!

The next regional event will be the "Fundamentals of Metrology" training on August 11th and 12th. Keep an eye out for information on this event which will also be held at the National Electronics Museum.

Vernon Alt, Region Coordinator

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