EMC Standards Activity

Another Packed Standards Activity Week in Chicago and Beyond

Don Heirman, Associate Editor

The Chicago Symposium presented another excellent venue to keep our Society's standards moving ahead and to further our cooperation with other standards developers who also were present. The activity continued on to the work of ANSI ASC C63 as well. We'll address this C63 activity later in this article.

The EMCS standards "week" started on the Thursday before the week of the symposium. The first standards event was the annual workshop which compares the IEC/CISPR Publication 22 on ITE measurement methods to the ANSI C63.4 measurement methods. The latter is the standard which the FCC references in its rules when making emission measurements for Part 15 and other devices. This training was given by Don Heirman (Don HEIRMAN Consultants). The next two days on Friday and Saturday, the focus was on the application of ANSI C63.4. The training was given by Don Heirman, Bob Hofmann (Hofmann EMC Consulting) and Bill Hurst (FCC Labs). A major part of this workshop was team problem solving. Two teams were formed with the attendees to set up the testing scenario for two products: a scanner and a "learning mode" remote control device.

The students in their feedback indicated their appreciation in getting the information and that they will use the material well. That was especially heartening as the class was made up of not only those who have tested before but several that were new to the testing world and had new responsibilities to make sure their products complied with the FCC rules using the FCC referenced C63.4-2003 standard.

The standards activity continued for the rest of the symposium period. The EMCS standards activity started with working group meetings on Sunday, August 7 with a meeting of the task group on shielding effectiveness measurements (IEEE Standard 299). Monday brought meetings of the Standards Development Committee (SDCOM). The highlights of this meeting attended by up to 20 symposium registrants were as follows:

1. Presentation by SDCom member Ed Hare (American Amateur Relay League) on the EMC standards implication by the new Broadband Access over Power Line technology. In particular, the discussion that ensured brought up the interference potential to radio services as well as its usefulness as a way to easily secure internet connection via plugging into an AC outlet and using the power cord as the "receptor". IEEE project 1775 relates to this subject and the EMC SDCom involvement.
2. Discussion of the next edition of Standards 1309 on probe calibration let by SDCom member Dr. Nigel Carter. He indicated that the approved edition of IEEE Standard 1309 was scheduled for publishing by October. That contained, for example, an annex on calibration procedures for use in calibrating immunity test levels per IEC 61000-4-3. The next edition will go further and identify calibration techniques for use in TEM devices and in reverberation chambers.
3. Fred Heather indicated that he needed working group members for his project on measuring line replacement modules and then predicting overall system emission and immunity performance based on module measurements.
4. Dale Svetanoff discussed progress on the next edition of IEEE Standard 299 as a result of the Sunday meeting noted above. Final editing of the doc-

During the C63.4 workshop, a student presents the results of his "team" deliberations in applying the C63.4 standard to setting up a product to be tested.

Instructor Don Heirman (standing) asked many questions to be sure that the students understood all aspects of the standards. This shows the intensity of the C63.4 workshop.

PHOTOS ON THIS PAGE BY RICHARD GEORGERIAN

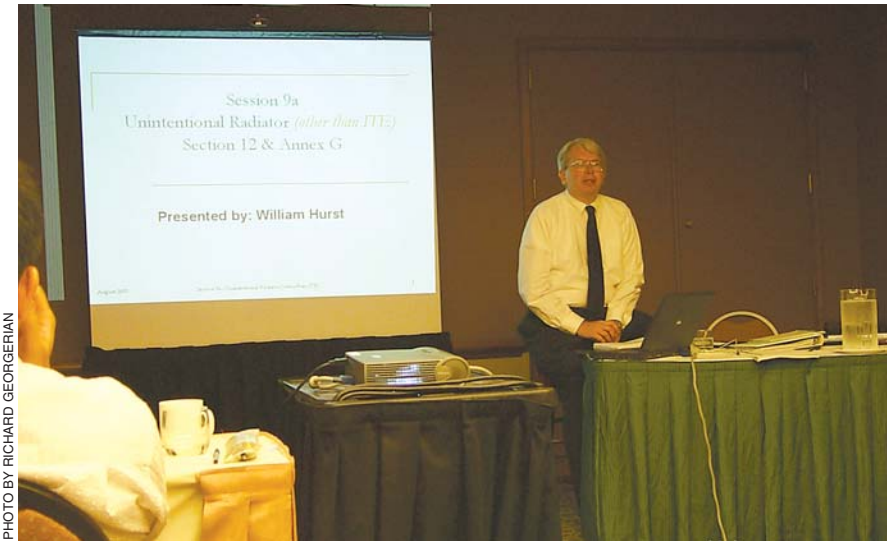


PHOTO BY RICHARD GEORGERIAN

Instructor Bill Hurst of the FCC presented Section 12 of C63.4 which covers testing of unintentional radiators other than information technology equipment at the C63.4 workshop held in Chicago.

At the September C63 meetings in Irvine, California, Don Heirman, ASC C63's vice chairman (far right), toasted Dr. Showers (far left) with many memories of his work on the committee.

PHOTOS BY DON HEIRMAN UNLESS OTHERWISE NOTED

Note the appreciation on Dr. Showers' face at the surprise luncheon for him in Northwest EMC's lunch room. Dr. Showers was honored for his long term leadership of ANSI ASC C63. Northwest EMC hosted a wonderful Italian lunch buffet for the members of the C63 committee.

Janet O'Neil helps Dr. Showers cut his celebration cake with Poul Andersen looking on and Dan Hoolihan in the background. ETS-Lindgren hosted the special cake and champagne for the toasts honoring Dr. Showers.

ument is underway and it is expected that this edition will be out by the end of 2005.

5. Andy Drozd, SDCom member, presented the status of two projects on computational electromagnetics under the project numbers P1597.1 and P1597.2. Balloting on the first output is expected prior to the end of the year.
6. Elya Joffe, SDCom member, described the status of the revision to IEEE Standard 473 on RF field surveys. He expects that the revision which will include the use of more current measurement instrumentation will be ready by the end of the year.
7. Stephen Berger, SDCom chair and project leader, reported on P1900 on conformance evaluation of software defined radio, which was featured as the cover article of the Winter 2005 EMC Newsletter published early this year.

There were also the usual business meeting aspects where the SDCom policy and procedures are reviewed, budgets are considered for next year, and the need to carefully identify all working on our standards so that they are indemnified by the IEEE. This is required for their participation if they follow the Society's Policy and Procedures, maintained by SDCom member Andy Drozd.

After the SDCom meeting, it was off to a luncheon sponsored by another standards committee activity—the Stan-

dards Coordination and Advisory Committee (SACCom)—with the EMCS Representative Advisory Committee (RAC). The luncheon meeting provided the EMCS Board of Directors an opportunity to hear what is happening in standards not only from the EMCS SDCom, but from many other developers. These representatives exchange information about their respective standards activity to know what each other is doing and to answer questions by the Board. The RAC deals with representatives of other organizations not associated with standards. Here is a sampling of the list of organizations in the SACCom and the RAC. First the RAC:

1. American Council of Independent Laboratories (ACIL) and the US Council of EMC Laboratories (USCEL)
2. IEEE Committee on Man and Radiation (COMAR)
3. IEEE Nanotechnology Council
4. National Association of Telecommunications Engineers (NARTE)
5. IEEE Society of the Social Implications of Technology (SSIT)

Again, this is just a sampling of the organizations on the RAC. There are many more.

For the SACCom, here are a few of the representatives from the following standards development organizations:

1. American National Standards Institute (ANSI) Accredited Standards Committee (ASC) C63 (EMC)
2. Multiple International Electrotechnical Commission (IEC)/Special International Committee on Radio Interference (CISPR) Subcommittees
3. European Electrotechnical Standards Committee (CENELEC)
4. Information Technology Industry Council (ITIC)
5. Society of Automotive Engineers (SAE)
6. Several IEEE Standards Association Coordinating Committees (SCCs)

Again, this is just a sampling of the organizations on the SACCom. There are many more.

Continuing on during the Symposium week, the following standards working groups met to conduct business and to advance their projects towards publication. The list includes:

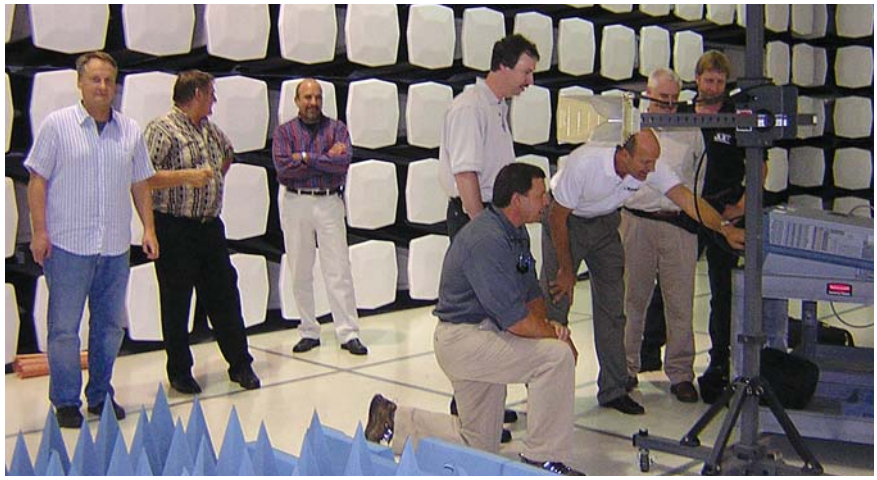
1. IEEE 1309 on probe calibration
2. IEEE P1900.2 on software defined

Members of C63 gather around a vector network analyzer to listen to Mike Windler of UL (second from right) explain the technique of time domain reflectometry.

The ANSI ASC C63 committee is shown deliberating the C63 standards activity.

Dr. Showers chairs the meeting of ANSI ASC C63 with secretary Bob Pritchard at his right side and next to Bob, Dave Southworth, chairman of subcommittee 2. Vice chairman Don Heirman is to the left of Dr. Showers, and Dan Hoolihan, chairman of two subcommittees (SC 6 and SC 8) is in the foreground.

Colin Brench of HP holds up a copper screen which was used to demonstrate how the technique easily picked up that irregularity in the semi anechoic ten meter chamber which was made available to the ANSI ASC C63 committee by Northwest EMC.



Greg Kiemel (far left) and Dean Ghizzone (third from left) of Northwest EMC assist the members of ANSI ASC C63 in preparing for testing in their 10-meter chamber.

This is when the fun begins as the committee gets serious about taking the test measurements to support their time domain reflectometry work, including, (from left) Dennis Camell of NIST, Mike Windler (kneeling) and Bob DeLisi of UL, Colin Brench of HP and Bill Stumpf of DLS Electronics.

Dennis Camell of NIST checks the Vector Network Analyzer Rohde & Schwarz loaned to support the ANSI ASC C63 test efforts.

radio measurements
3. IEEE P1642/3 on protecting public accessible computer systems from intentional EMI
4. IEEE P1597 on computational electromagnetics computer modeling
5. IEEE P1302 on RF gasket characterization
6. IEEE P1560 on RF filter characterization
7. IEEE 473 on electromagnetic site surveys

So it was a week to remember for all the energy expended for our Society's standards efforts. Please note that there is still room for expert contribution to these working groups. You are encouraged to get in touch with the chairs. They conduct business not only at the annual EMC symposium, but also during the year by teleconferences and email exchanges so that you can participate even at a distance. For more information on the standards efforts of the Society, log onto the web site at the following URL: http://grouper.ieee.org/groups/emc/emc/index.htm and then click on the boxes there which will deliver you to the particular standards committee you are interested in. Note that this web site is undergoing updating and hence the names are not necessarily current. But the chair of the SDCom can direct you if you want to send him an email directly on Stephen.berger@ieee.org. Also please note that each of these standards committees are looking for leadership volunteers to fill the chair, vice chair, and secretary positions. If you are interested in any of those positions, please contact the author on d.heirman@ieee.org.

To then complete the summer blitz of standards activities, we'd like to share with you a celebration of the leadership in ANSI ASC C63, of which the IEEE EMC Society is a member. On 29 Sep-

tember, Dr. Ralph Showers, professor emeritus of the University of Pennsylvania, stepped down as chair of ASC C63 after over four decades of leadership. This event was celebrated during the fall ASC C63 meeting series in Irvine, California, at the Northwest EMC test facility. Northwest EMC was our gracious host for the three day meeting series.

Then it was back to the meeting which Dr. Showers chaired one last time. ASC C63's agenda included many items of interest to the EMC Society. In particular, there were reports from the various C63 subcommittees on the following activity:

1. Measurements and site validation above 1 GHz
2. Use of wide band TEM devices above 1 GHz
3. Automation of both emission and immunity measurements
4. Use of fully absorber lined chambers
5. Measurement uncertainty
6. Use of spectrum analyzers
7. Cellular phone compatibility with hearing aids
8. Compliance measurements of unlicensed personal communications services
9. In-situ immunity measurement of medical and business devices
10. Status of all the C63 standards
11. Power line communication measurements

…..and many more.

Finally, there was an experiment conducted to show a new technique for finding test facility irregularities in performing site validation above 1 GHz. The technique uses time domain reflectometry, which is very sensitive to "seeing" any site irregularities or simple performance that does not meet proposed site validation standards in the IEC/CISPR and in C63's work itself. (Incidentally, this topic was referenced in the Summer 2004 EMC Newsletter in the practical paper titled "Comparison of Frequency Domain and Time Domain Measurement Procedures for Ultra Wideband Antennas.") Mike Windler (UL) explained the technique that can be used to "gate" the transmitted signal and the received reflected signal to show performance in certain portions of the test area. In general, this is the area above a turntable used to rotate products during emission testing.

After several days of long meetings, Don Heirman, Dan Hoolihan, Bob Pritchard and Janet O'Neil (from left) enjoy dinner in Laguna Beach, California. The "Santa Ana" warm winds made the weather very pleasant on the beach for dining outdoors.

All in all, the months of August and September were quite full of EMC standards activities. We will keep you in touch with the ongoing activity and welcome others to send information on their standards work from around the world. Send it to the author on d.heirman@ieee.org. **EMC**