

Standards Activity on Both Sides of the "Pond"

Don Heirman, Associate Editor

The two subcommittee chairs, Martin Wright of British Telecom, Chair of SC I (left) and Don Heirman, Chair of SC A are shown at the CISPR A meetings in London.

The month of March was an especially active month for key EMC standards activity as the EMC Society standards committees met in beautiful downtown Red Bank, New Jersey and the IEC Special International Committee on Radio Interference (CISPR) Subcommittee A (basic measurement instrumentation and methods of measurement of emissions) working groups met the following week in London at the British Standards Institution. The American National Standards Institute Accredited Standards Committee on Electromagnetic Compatibility (ANSI ASC C63[™]) also met the last week in March at IEEE Headquarters in Piscataway, New Jersey.

EMC Society Standards Activity

We first start with our EMC Society (EMCS) standards committee activity in Red Bank. Both the Standards Education and Training Committee (SETCom) and Standards Development Committee (SDCom) met. SETCom chair Qiubo Ye's meeting had the following agenda:

- Review status of the SETCom tutorial for the EMC 2007 symposium
- Discuss how to package standards symposium tutorials for presentation to EMC Chapters
- Develop a questionnaire to solicit what EMCS members want in standards training
- Consider presentations on the reasons why standards exist and are needed
- Focus on how to get more people involved with EMCS standards activity
- Continue submitting EMCS Newsletter articles

While the chair of the Standards Advisory and Coordination Committee (SACCom), Dave Guzman, was not present, there was a discussion of some of the ideas that SACCom can use to expand its role in bringing together EMC standards activity





Ghery Pettit of Intel, Don Heirman of Don HEIRMAN Consultants, and Ed Hare of the American Radio Relay League (from left) are shown at the start of the IEEE EMC Society Standards meeting held in Red Bank, New Jersey.

outside the Society with that inside the Society. A key discussion revolved around how SACCom can "reinvent" itself to provide "bi-directional" interactions with the non-EMCS standards community. Some of the ideas included:

- SACCom members giving EMCS presentations at liaison organizations
- Advertise that liaison organizations are welcome to participate in EMCS standards activity
- Sort out liaison reps who are not active and also organizations that have no longer continued their work in EMC activity and bring into SACCom liaison reps from identified new standards communities that deal with EMC issues

The meeting period then turned to issues and reports for the SDCom, which is chaired by Stephen Berger. The agenda was fairly lengthy but there were a few items that were dealt with in some depth. The first is our EMCS work in the Broadband Power Line (BPL) Communications standard P1775. Key points were enumerated:

- This is a joint effort among three IEEE Societies including Communications, Power Engineering, and EMCS
- Communication with P1775 on EMC issues are improving but not perfect yet
- SDCom remains concerned that the P1775 standard is FCC/US-centric
- A major technical issue is related to in-situ measurements for showing compliance with radiated emission limits and how many installations need be tested to show that all will comply. For example, for large telecom systems, the FCC acknowledges that all such systems are compliant with emission limits if the first three typical systems are measured and they all comply. Outside the US, there is no such relaxation of measuring all installations for compliance.

As a result of this discussion the following actions occurred: An ad hoc working group (SDCom vice chair Colin Brench



Qiubo Ye of the Communications Research Centre in Canada and SETCom Chair, Don Sweeney of DLS Electronics, Kwok Soohoo of IBM and SDCom Chair Steve Berger of TEM Consulting (from left) visit during one of the breaks at the IEEE EMC Society Standards meeting.



Martin Wiles from ETS-Lindgren in the UK (left) and John Mowbray from NCR, Canada, enjoy visiting during the coffee break.

was named to lead the effort) was formed to develop positions on the standard and then forward the response to the chair of P1775. The response will include a process by which SDCom will determine whether the P1775 standard is ready for ballot and how that will be handled with the other two Societies

- To further cement the relationship, the SDCom voted to recommend Ed Hare as Vice Chair of P1775 to represent the EMCS
- Most action items to be completed by mid April The rest of the agenda included reviews of all the EMCS

standards and their status, including:

- ISM measurements (Std. 139): Standard is current
- TV emission measurements (Std. 187): Reaffirmation ballot in progress
- Shielding effectiveness (Std. 299.1): New, no report received, Secretary to follow up
- EM site survey (Std. 473): New chair V. Arafiles; need new PAR, 80 percent or so completed. No action since last meeting, Secretary to follow up
- RF Intrusion (Std.475): Current
- RF absorber evaluation (Std. 1128): Current
- VDT emission measurements (Std. 1140): Current
- Gasket characteristic (Std. 1302): Draft circulated to SDCom for last-minute comments several days ago, should be ready for ballot soon
- Probe calibration (Std. 1309 amendment): Nigel Carter is chair, latest draft was expected at end of February, Secretary to follow up
- RF filter performance (P1560): Current
- Computational Electromagnetics 1597.1 ballot was expect-





Manfred Stecher from Rohde & Schwarz in Germany (standing) presenting a paper during the CISPR meeting.



Heinrich Ryser from Switzerland, Lutz Dunker from Germany, and Professor Sugiura from Tohoku University in Japan (from left) during the coffee break.

ed by Feb 2007; Andy Drozd gave thorough report outlining that the final draft was approved by the working group, ready for IEEE mandatory edit. 1597.2 is estimated to be ready for edit by July 2007

• Intentional EMI to computers (1642/3): Bill Radasky did not provide a report; Secretary to follow up

Another interesting discussion ensured on the subject of Software Defined Radio Conformity. There are now four projects in this series:

- P1900.1 Definitions: Not reported at SDCom meeting (was balloted by end of last November)
- P1900.2 Interference: Close to final draft, nearly ready for ballot
- P1900.3 Software: Not reported at SDCom meeting (awaiting initial draft)
- P1900.4 End to End Reconfigurability: Not reported at SDCom meeting– checking if PAR was submitted; possible coordination with ComSoc

The final project update was on the standard activity involving line replaceable module (P1688). The completed first draft is expected by July 2007; the final draft is expected next year.

IEC Special International Committee on Radio Interference (CISPR)

Next we will report on meetings held in London of the CISPR Subcommittee A (SC A) working groups, which are responsible for basic standards in measurement instrumentation and methods of measurement as contained in its publication 16.



The Chair of JTF, Ben Gorini of Alcatel-Lucent Italy, representing SC A, (left) and Andy Griffin, co-chair from Cisco, representing SC I.



Jens Medler and Manfred Stecher of Rohde & Schwarz join Professor Sugiura of Tohoku University (from left) in reviewing the menu and the day's activities.

SC A is also participating in joint task force standardization with IEC TC77 (EMC), which is responsible for the IEC 61000-4 and 3-X series of standards.

- We now report briefly on the following topics:
- Joint Task Force (JTF) work with TC77
- Instrumentation (Pub 16-1-X)
- Site Validation (Pub 16-1-X)
- Test Methods (Pub 16-2-X)
- Uncertainty (Pub 16-4-X)
- Other CISPR SC A activities
- Parallel ANSI ASC C63 work

First, we review two of the JTF projects between SC A and SC 77B, including:

A. Reverberation chamber testing (published as 61000-4-21). This work includes:

- Radiated emission and immunity tests (200 MHz- 18 GHz)
- Can also be used for screening effectiveness tests
- Accommodates large products
- Annexes contain wide ranging information on use
- First CD for revision circulated in March

B. Testing in a fully absorber-lined room (FAR) per the frequency range:

Below 1 GHz

First step applied to radiated emission measurements:



Don Heirman stood in for Werner Schaefer and chaired the meeting in London (right). Janne Nyman from Nemko in Finland secretary (center) is shown taking minutes and Martin Alexander gives a presentation from the National Physics Lab in the UK.



The Da Mario restaurant's nameplate, location of an offsite CISPR A "meeting."

- Published in Pub 16-2-3, Clause 7.2.9.2
- Site validation published in Pub 16-1-4
- Added immunity (80 MHz to 1 GHz) in Pub 16-2-3, Clause 7.2.9.3 (2006)
- Above 1 GHz, Up to 18 GHz
- Fully free space application (includes SAC/OATS converted sites)
- Radiated emission measurements in Pub 16-2-3, Clause 7.3
- Site validation published in 16-1-4 (2007) To be published as 61000-4-22 for immunity

Now on to specific SC A areas that the A working groups deliberated in London:

A. Turntable, test setup table and tower

- Use NSA-type of measurements; broadband antenna for 200-1000 MHz range only at this time
- Covers "raised" turntable/tabletop combination
- If floor standing product extends beyond any setup table, no need to perform test
- Work to cover what is needed above 1 GHz is to be an addition to Pub 16-1-1; first results of table comparisons experiments discussed; technique to be similar to that for under 1 GHz

B. Antenna Calibration

• First CD initially covered up to 1 GHz, but had some appli-



Clark Vitek of Aruba Networks, Ken Hall of Hewlett Packard, Martin Alexander of NPL, and Eric Winter, a consultant from South Africa, (from left) all paying attention to the CISPR deliberations.

cation over 1 GHz

- Includes reference to C63.5-2006
- Project set to 'Stage Zero' last September to allow more deliberation; still underway as NC comments in many cases were diametrically opposite
- Draft second CD being prepared and will be attached to a new work item proposal for national committee consideration; greater than 1 GHz application planned

C. Site Validation Above 1 GHz

- Published in 16-1-1 and uses VSWR method of comparing maximum deviations for several antenna positions using both polarizations
- Broadband transmit antenna E and H plane requirements stated and moved to illuminate sides of test volume
- Receive antenna at normal position for making radiated emission measurements
- Site VSWR must be less than or equal to 6 dB (assumes site imperfections are less than 2 dB)
- Alternate: Omnidirectional probe in test volume; transmit antenna at receive antenna site

D. Measurement Method > 1 GHz

- No antenna "aiming" or "boresighting" in present Pub 16.
- Height search limited for EUTs not contained in antenna beamwidth
- No antenna height search if EUT contained in receiving antenna beamwidth; however, experiments show that at least 2 antenna heights needed to capture narrow beam radiation; changes expected
- EUT rotated no more than 15 degree steps

E. Measurement Uncertainty

- Limited now to below 1 GHz but...
- Includes only measurement instrumentation components
- Compliance of emission measurements is new work, including technical report published in 16-4-1 showing general concepts and basic considerations (such as measurement instrumentation and procedures, different test sites and RF ambient, different test setup and modes of EUT operation, application to semi-anechoic chambers and OATS)

ANSI ASC C63™

This meeting series for ANSI ASC $C63^{TM}$ was held the last week in March at the IEEE headquarters. The IEEE holds the secretariat and secretary positions on the committee and the IEEE EMC Society is a voting member. The ANSI ASC $C63^{TM}$ has activity in CISPR related to test site acceptability above 1 GHz. This work is being addressed in Subcommittee 1 (Techniques and Developments). Mike Windler is the chair of this subcommittee as well as the chair of the working group on this topic. This is planned as an addition to ANSI C63.4 and uses the time domain reflection technique. It is aimed as an alternative to work in CISPR if more user friendly and/or finds more site obstructions. However, the ANSI standard must give similar results as the CISPR SVSWR technique.

Also during the meetings, this year's ANSI ASC C63[™]

Get Ready For The Next Wave In EMI Receivers



The CER2018 Compliant Emissions Receiver is here. And in many ways it's unlike any receiver that came before it.

This complete EMI test solution offers continuous coverage from 20 Hz to 18 GHz with expandability to 110 GHz. And to ensure the highest accuracy, it self-calibrates on-demand at every frequency scan.

It includes a built-in computer that operates under Windows XP. Software is also included free along with a 19" flat screen monitor, keyboard and mouse. Programmed-in test formats include CISPR 16-1-1, MIL-STD 461/462, ANSI C63 and FCC. All functions are menu-driven. There is no need to fiddle with switches, buttons or sliders.

Like all AR products, the CER2018 is backed by the best and most comprehensive warranty in the business. AR is here to help you – today, tomorrow and always.

To learn more, visit us at www.ar-worldwide.com or for technical support: call 800-964-1424 (within U.S.) or 818-700-0330.



receiver systems

Other **ar** divisions: rf/microwave instrumentation • modular rf • ar europe

Copyright© 2007 AR. The orange stripe on AR products is Reg. U.S. Pat. & TM. Off.

workshop on C63.5 (antenna calibration) was addressed. Based upon the success of this workshop last year before the 2006 IEEE International Symposium in EMC, the same three speakers will return and provide an update on this important standard on Friday, July 6. A registration form for this workshop is on line at www.emc2007.org and may also be found in the advance program for EMC 2007 bundled with this Newsletter mailing.

Check out www.C63.org for more information on ANSI ASC C63TM activity and visit the C63TM booth at the 2007 IEEE International Symposium on EMC over July 8-13 in Honolulu, Hawaii. It will be located next to the IEEE membership booth.

Summary

Attached is a series of photos of the CISPR SC A WG meetings. See if you can recognize familiar faces!!

In summary, we could have continued this update for pages, but alas the space and time to put into this has elapsed. As a reminder again, please look at the advance program on the EMC 2007 web site www.emc2007.org to see all the activity including when the standards committees are meeting at the 2007 IEEE International Symposium on EMC. That list includes the EMCS standards committees as well as the non-EMCS committees that will meet in Hawaii at EMC 2007.



Some of the 25 standards working group members having dinner at the world famous Da Mario restaurant.

Also, don't forget to attend the special IEC workshop on Monday night between 5:30 and 7:00 pm where you can meet some of the leaders of the IEC technical committees and hear them answer questions on the international EMC standards activity in the IEC. **EMC**

Popular ANSI C63.5-2006 Antenna Calibration Workshop Repeats at the 2007 IEEE International Symposium on EMC in Hawaii Friday, July 6

here will be a "hands on" antenna calibration workshop describing the techniques contained in ANSI C63.5-2006 on July 6, 2007, two days before the start of the 2007 IEEE International Symposium on EMC in Honolulu, Hawaii. This workshop was first held in Portland, Oregon at Northwest EMC, just prior to the 2006 IEEE International Symposium on EMC. Based upon the success of that workshop, it will be repeated this year! Registration is now available on the EMC 2007 web site (www.emc2007.org) and is shown in the advance program for the Hawaii Symposium included in this Newsletter mailing. Participation is restricted due to space limitations. Register early if you want to participate in this state of the art workshop conducted by the three principle contributors to the ANSI standard C63.5-2006, namely Don Heirman of Don HEIRMAN Consultants, Dennis Camell of the National Institute of Standards and Technology (NIST), and Michael Windler of Underwriters Laboratories. For more information, contact the registrar, Janet O'Neil, at j.n.oneil@ieee.org.

Da Mario

The CISPR A dined one night at the renowned Da Mario restaurant following their meeting in London. Their famous pizza called the Pizza Margherita was named after an interesting story. The story goes that one day in 1889 the Queen of Italy, Margherita de Sovia, having heard so much about pizzas, and being at the time a pizzeria was not a place for a Royal to visit, she invited at the Royal Palace of Capodimonte the famous pizzaiolo Raffaele Esposito to prepare this new dish in order to satisfy her gastronomical curiosity. With a touch of simple creativity, Don Raffaele Esposito for the first time introduced mozzarella cheese to the already existing tomato pizza and decorated it with fresh basil leaves. He called this pizza with the colors of the Italian flag, Pizza Margherita, in honor of his Queen. In 1996, history repeated itself. Chef Mario Molino prepared a pizza for Princess Diana and her young Princes, inspired by the origins of pizza Margherita, and by the many visits to "da Mario" of this humble and caring mother of the future King of England. "I was delighted, excited and thrilled to create Pizza Diana and incorporate it in this cookery book." Pizza Diana was conceived with four different cheeses, roasted sweet peppers, oyster mushrooms and spiced with a passionate love for pizza, invisible, but an essential ingredient of this tasty, Neapolitan art.

The above was extracted from the "Successo Napoletano" by Mario Molino who was the chef at the Da Mario restaurant.