



EMC Standards Activities

Don Heirman, Associate Editor

EMC Workshop in Singapore a Success!

On 22 May 2008, the IEC (International Electrotechnical Commission) Advisory Committee on EMC (ACEC) presented a major EMC workshop at the Asia Pacific EMC Symposium in Singapore chaired by Professor Erping Li. The workshop came at the end of the symposium and was held in the evening to attract local industry. Speakers included Dr. William Radasky (Metatech), Chairman of ACEC; Don Heirman (Don HEIRMAN Consultants), Chairman of CISPR (International Special Committee on Radio Interference); and Professor Michel Ianoz (Professor emeritus), former Chairman of IEC SC 77B (EMC: High Frequency Phenomena). Arrangements were provided by Mr. Dennis Chew, of the IEC Central Office on location in Singapore and by Professor Erping Li, Chairman of the Asia Pacific EMC Symposium.

The objectives of the workshop were as follows:

- Provide product committees and industry participants with:
- The structure of EMC standards within the IEC
- Publications and work underway in CISPR and TC 77
- Review joint task force (JTF) work in developing new test methods

- Provide details about TEM cells and reverberation chambers
- Provide an overview of the IEC "EMC Zone"
- Provide the opportunity to ask questions and to obtain contact information for help in the future

The workshop topics and who presented the material included:

- Introduction - William Radasky
- ACEC - William Radasky
- CISPR - Don Heirman
- TC 77 - Michel Ianoz
- JTFs (Joint Task Forces-between CISPR and TC77) - Don Heirman
- TEM cells/reverberation chambers - Michel Ianoz
- EMC Zone on the IEC home page - William Radasky

Dr. Radasky then introduced the audience to ACEC and its role. In particular, he indicated the following:

- ACEC coordinates all of the EMC work within the IEC and also coordinates with other standardization bodies
- Provides advice to the IEC Standardization Management Board (SMB)
- Coordinates the EMC work of IEC committees



Bill Radasky, Chairman of the ACEC, presenting at the ACEC EMC workshop in Singapore.



Don Heirman, Chairman of CISPR, presenting his talk on CISPR challenges at the workshop in Singapore.



Speakers at the start of the workshop being introduced by Dr. Radasky (far left) included Michel Ianoz (middle) and Don Heirman (right).



Professor Michel Ianoz, former Chairman of IEC SC 77B, gives his presentation on the scope of IEC TC 77 (EMC) at the ACEC EMC workshop in Singapore.

- Coordinates the EMC work of the IEC with other organizations (e.g. ITU, ISO, OIML, etc.)
- Identifies market needs in EMC
- Publicizes the EMC work in the IEC
- Writes IEC Guide 107 (Title: Electromagnetic compatibility - Guide to the drafting of electromagnetic compatibility publications), which is available at no cost to IEC participants by downloading EMC Zone
- Development of an EMC product standard review procedure, which covers these questions: Are emission standards being correctly applied? Are immunity test levels consistently applied?
- Guide is intended to help all product Technical Committees (TC) to observe the recommendations in IEC Guide 107
- ACEC also reviews TC working documents related to product EMC standards
- Review comments sent to the relevant product TC/SC for consideration; further direct coordination with ACEC may occur

After Dr. Radasky presented the overview of the major activities of ACEC and the outline of the workshop, Don Heirman presented the challenges of CISPR so that the attendees were made aware and might also consider participating via appointment by their National Committee of the IEC. Here are a few points that Don made:

- The CISPR challenges: Protect digital radio and TV
- Addressing the increase in interfering sources of RF
- Changing the way products react to the RF interference
- Expanding the need for protection by covering wider frequency ranges (i.e. above 1 GHz) while keeping the measuring time and cost reasonable

Mr. Heirman concluded by showing the work topics/publications of CISPR including:

Measurement Methods

- CISPR Subcommittee A (includes test instrumentation and statistical techniques)
- CISPR 16 publication series
- IEC 61000 series
 - In cooperation with TC 77 (Joint Task Forces)
 - IEC 61000-4-20 (TEM cells) and -21 (reverberat-

ing chambers), in preparation (Fully Absorber-lined Room - FAR - testing)

- Special considerations
- Justified deviations in product standards

Product Standards

- Industrial Products
 - CISPR 11 (emission)
- Vehicles
 - CISPR 12, CISPR 25 (emission)
- Domestic & Lighting Products
 - CISPR 14 (emission and immunity) and 15 (emission)
- ITE & Multi-Media Products
 - CISPR 13 (broadcast receiver emission)
 - CISPR 20 (broadcast receiver immunity)
 - CISPR 22 (Information Technology – emission)
 - CISPR 24 (Information Technology – immunity)
 - ITE & Multi-Media Products
 - In preparation: New combined multimedia products (CISPR 32 and 35 on emission and immunity, respectively)

Generic Standards

- Based on the EMC environment
- IEC 61000-6-3 (domestic, residential, light industrial environments)—emission limits
- IEC 61000-6-4 (industrial environment)—emission limits

Professor Ianoz then described the role and scope of IEC TC 77 (EMC). Specifically, he provided the following on the scope of TC 77 which includes:

- Preparing EMC standards and reports with emphasis on basic immunity and emission limits (under 9 kHz);
- Support product committees on EMC problems
- Give the general rules to achieve electromagnetic compatibility which may be applied by all product families
- Serve as reference documents for the product committees and taken by CENELEC with no, or slight amendments, and by CISPR with amendments as needed especially for multimedia equipment
- The standards that their committee supports include the



The ACEC workshop in Singapore was well attended by a diverse audience representing industry, Government and academia.



A lively question and answer discussion followed the conclusion of the workshop. Note Franz Schlagenhauer, Distinguished Lecturer for the EMC Society, is shown in the foreground at right.

following basic EMC publications which:

- a) May be standards or technical reports
- b) Are general if not dedicated to a specific product and concern:

- Terminology (IEC 61000-1-y)
- Description of EM phenomena (IEC 61000-2-y)
- Description and classification of the environment (IEC 61000-2-y)
- Specification of compatibility levels (IEC 61000-3-y)
- General requirements for emission limitation (IEC 61000-3-y)
- Suggested test levels with regard to the immunity of equipment (IEC 61000-4-y)
- Measurement and test techniques (IEC 61000-4-y)
- Installation guidelines (IEC 61000-5-y) which includes standardization addressing HEMP (High Altitude Electromagnetic Pulse)

Don Heirman then presented a brief review of the joint task forces between CISPR and TC77. He indicated the JTFs, which now are developing and/or maintaining the standards and how they work. The basic scope and operation of the JTFs are as follows:

- Experts from both subcommittees participate (CISPR SC A and SC 77B)
- Focus on new emission and immunity measurement standards
- Assist product committees in using these standards for product compliance
- Extend test capability for new product technology
- The JTF subjects include:
 - a. TEM waveguide testing (IEC 61000-4-20)
 - b. Reverberation testing (IEC 61000-4-21)
 - c. Emission testing in a fully absorber lined room (FAR) (draft IEC 61000-4-22)
 - d. Emission and immunity testing in a FAR

Finally, Dr. Radasky reviewed the IEC web site EMC Zone (<http://www.iec.ch/zone/emc/>). He indicated what was on the site:

- Short history
- Organizational chart showing all of the “players”
- Introduction to CISPR and TC 77
- Discussion of liaisons

Dr. Radasky then closed the workshop with an open session where the attendees could ask questions of the speakers. There was an excellent interaction with the audience that extended even into the lobby after the session was closed. It is clear that these ACEC EMC workshops are well received and will continue for the immediate future when there is a suitable venue such as what has been done at the IEC annual General Meetings. **EMC**



The Secretary of the Singapore IEC National Committee, Mrs. Leong Suet Mui, asks a question.



The speakers, Bill Radasky, Don Heirman and Michel Ianoz (from left), relaxed after the conclusion of the successful workshop.