Commission E (Electromagnetic Noise and Interference) Activity Report

November 2013 - March 2014

Domestic academic activities:

The Technical Committee on Electromagnetic Compatibility (EMCJ) of the Institute of Electronics, Information and Communication Engineers (IEICE) had four regular technical meetings in the period of November 2013 to March 2014 and 59 regular reports and one special talk were presented. The regular presentations include four reports from the Technical Committee on EMC of the Institute of Electrical Engineers of Japan (IEEJ TC-EMC) and 7 reports from the Technical Committee on Wireless Power Transmission (WPT).

In the November meeting, a "Special Talk" below was presented.

（1） Prof. Takehiko Kobayashi (Tokyo Denki Uni.), "Intentional EMI (IEMI) and its Countermeasures "

The monthly meeting in December was prepared with co-sponsorship by IEEJ TC-EMC, under the technical topics of "power electronics and biomedical EMC", and 4 reports were from IEEJ EC-EMC. The technical meeting on January 30 – 31 was co-organized with the Technical Committee on WPT (http://www.ieice.org/~wpt/). Selected special topics for the monthly meeting were Communication EMC and Wireless Power Transmission. Seven reports were presented in the WPT sessions.

(http://www.ieice.org/ken/program/index.php?instsoc=IEICE-B&tgid=IEICE-EMCJ)

International Conferences and Meetings:

The following conference, symposium and workshop related to EMC were held;

1. "EMC Europe 2013", Sept. 2-6, 2013, Brugge, Belgium. (http://www.emceurope2013.eu/)

   The technical program includes 32 oral sessions, 3 poster sessions, 12 workshops and tutorials and an exhibition. The topics of the workshops, tutorials and a short course are as follows.

   WS1: LF EMC in Smart Grid, WS2: EMC Test Methods in Industry Environment, WS3: EM Attacks, WS4: EMC & Functional Safety, WS5: NF Scanning for PCB characterization, WS6: Building your own reverberation chamber and perform measurements within 3 hours, WS7: Automotive EMC, WS8: Anechoic chamber design, WS9: Near-field for FF problem solving, TU1: High-Speed PCB Design, TU2: Board-Level Shielding, SC1: Near-Field Probes.

   In the regular technical sessions including one special session and three poster sessions, 25 papers were presented from Japanese groups in EMC Europe 2013. In the Special Session "Information Leakage", three papers were from Japan. The topics and the number of papers from japan were as follows. "Information Leakage (3)", "Radio Communication EMC (2)", "Human Exposure (4)", "Wireless Power Transfer (1)", "EMC Measurements (3)", "Integrated Circuits EMC (2)", "Transmission Lines (2)", "Printed Circuit Boards (2)", "Automotive EMC (1)", "Power Electronics EMC (3)", "Lightning (2)".
2. "2013 IEEE Electrical Design of Advanced Packaging & Systems Symposium (EDAPS 2103)", Dec. 12-14 & 15, 2013, Nara, Japan. (http://edaps2013.dept.eng.gunma-u.ac.jp/)

EDAPS symposium is one of the symposiums sponsored by IEEE Components, Packaging and Manufacturing Technology (CPMT) Society and has been held annually in Asia Pacific region for the researchers and developers related to the electrical design issues on chip, package and system levels. In conjunction with the development of high-speed and high-frequency electronic systems, many of the topics are strongly related to the EMC problems and many researchers and engineers are dealing with both of the fields. In this context, this EDAPS 2014 was planned with EMC Compo2013, see the next item "3", and was held in Nara. Additionally, a special joint workshop was presented. The technical program includes IC design, SiP/SoP packaging, EMI/EMC, and EDA tools, advanced 3-D IC and packaging design. 68 technical papers were presented in three special sessions, five regular sessions and two poster sessions. Additionally seven keynote speeches were presented including three in the Joint Workshop with EMC Compo 2013.

3. "The 9th International Workshop on Electromagnetic Compatibility of Integrated Circuits (EMC Compo 13)", Dec. 15-18, 2013, Nara, Japan. (http://www.emccompo2013.org/)

   EMC Compo started in Europe as a workshop on EMC of integrated circuits, and EMC Compo 2013 is the first workshop held outside Europe. As described above, EMC Compo 2013 was prepared and organized as a series Symposium/Workshop with EDAPS 2013. Since the previous EMC Compo 2011 held at Dubrovnik, Croatia, EMC Compo has been officially technically cosponsored by IEEE EMC Society.

   The topics of EMC Compo 2013 cover EMC issues related to integrated circuits including "signal/power/thermal integrity", "high-performance mobile systems", and "3D IC design". An introduction to a new activity in Japan, the LPB interoperable design process working group (LPB-WG: http://www.jeita-edatc.com/wg_lpb/home/lpb-en.html) was presented. LPB stands for the entire set of LSI, Packages and Boards, which shall be co-designed for high-performance electronic systems. After two tutorials and one keynote speech, forty eight regular papers in nine regular sessions, one special session, and a poster session including eleven posters were presented. The title of the special session is "Tackling EMC in Real IC Chips", and in the workshop new methods for EM noise evaluation with APD measurements were introduced. Topics of the regular sessions are as follows; Signal Integrity (4), Emission Measurement and Control (3), Standards for Semiconductor EMC (5), EMC-aware IC Design (4), Power Device EMC (3), Power Integrity and Conducted Emission Modeling (5), ESD and Robustness Evaluation in IC-level (3), Chip Level Immunity (4), Automotive Immunity (3), Poster Session (11).

Future International Conferences and Meetings:

1. "2014 Global Symposium on EMC, Safety and Product Compliance Engineering (GLOBESPACE2014)", March 3-6, 2014, Tel-Aviv, Israel. (http://www.globespace.org)
2. "2014 International Symposium on Electromagnetic Compatibility, Tokyo (EMC'14/Tokyo)".
   It is a symposium of periodically held every five years in Japan. This will be held in May 13-16, 2014 in Tokyo. More than 450 audiences and 200 presentations are expected.
   (http://www.ieice.org/~emc14/)
3. "2014 International Symposium on EMC", August 3-8, 2014, Raleigh, NC USA.
   (http://www.emc2014.org/).
4. "EMC Europe 2014", Sept. 1-4, 2014, Gothenburg, Sweden. (www.emceurope2014.org)

Commission E