Activity Report of Commission E, March, 2010,

(Electromagnetic Noise and Interference)

Term from August 2009 to March 2010

.EMI control technologies are still of prime interest of high-speed electronic device supplier. Engineers who design electronic apparatuses are always more effective, more versatile method of EMI control. Research activities are held in many farms, but results are apt to be closed to the farm. EMC researches are held in a few universities out of more than 100 Universities that have engineering department.

Automobiles as well as consumer electronics are commodities to be exported in order to support Japanese people. These days the electric vehicles are expected as a resolution for the global green-house effect, in which radio receivers must work with 30-100kW driving electric system. The EMC problems in automotives are problems of today and tomorrow in Japan. Thus EMC technologies to suppress noise are fundamental technologies that assure the existence of the country.

Academic activities:

1. Commission E had, in the period of September 2009 to March 2010, 6 technical meetings in corporation with the Technical Committee on Electromagnetic Compatibility (EMCJ) of the Institute

2. A session on EMC was held in the Society Meeting of IEICE at Niigata University. It comprised about 80 presentations for four days.

3. The Fifth Asia-Pacific Conference on Environmental Electromagnetics & Exhibition (CEEM’2009) was held in Xi’an, China, Sept. 16-20, 2009.

   The term was just coincided with the meeting of IEICE listed above, and not so many people could attend to it. About 10 people, however, joined the meeting and reported their latest results, and weaved relationship between Asian people.

   Scopes are Antenna, Seismo-Electromagnetic Phenomena, Probe & Sensor, Signal Integrity & Power Integrity, CAD in Antenna, Filtering, Electromagnetic Field Theory, Shielding & Grounding, Transmission Lines & Cables, Immunity & Susceptibility, EM Wave Propagation, Scattering, EMC in Communications, EMI Sources, EM Environment, EMC in Power Engineering, Coupling & Crosstalk, Numerical Modeling of Circuits & PCBs, EM Calculation, EMC standards & Regulation, EMC Modeling Techniques, Test Chambers, Non-Ionizing Radiation & EM Bio-effect, Spectrum Management, ESD, lightning, transient & EMP, and EMC Measurement.

4. 2009 IEEE Electrical Design of Advanced Packaging & Systems(EDAPS) Symposium was held in December 2-4, 2009 (Wednesday ~ Friday) at Hong Kong / China. Scopes are

   - Signal integrity topics including High-speed Digital Signal Integrity Modeling, Design, and Measurement;
   - Power Distribution Network;
   - System in Package (SiP)/System on Package (SoP) Design;
   - High-performance Packaging for System on Chip (SoC);
   - RF/Microwave Packaging for Wireless Communication and Mobile Phone;
   - Interconnect Modeling, Simulation, and Measurement;
   - Embedded Passives Modeling and Measurement;
   - High-speed Channels Modeling and Measurement;
   - EMI/EMC and Electromagnetic Modeling and Measurement;
   - EDA Tools for Chip, Package, and Board Co-design and Simulation.

5. IEICE General Meeting was held 16-19 March 2010, at Tohoku University, Sendai City. The EMC session was held over four days comprising 78 presentations.

6. A Technical Committee on EMC inside The Institute of Electrical Engineers of Japan, had four meetings in a year and operating four ad hoc studying groups, viz. EMC, EM wave and Information security, Noise-immunity of electrical and electronic devices, and EMC of ESD.

7. Japan Institute of Electronics Packaging includes three groups on EMC, viz., EMC modeling, Ultra-high speed electronics packaging, and low noise packaging.