

## 2009 Activity Report of Commission E (Electromagnetic Noise and Interference)

October 29, 2009, By Ryuji KOGA

### Domestic Topics:

EMI control technologies are of the prime interest of engineers who supply high-speed electronic devices. Those who design electronic apparatuses are always looking for more effective, 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 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.

Bioelectromagnetics is the continuing subject that resolves the anxious of the public.

### Academic activities:

1. Commission E had, in the period of April 2009 to September 2009, 3 technical meetings in corporation with the Technical Committee on Electromagnetic Compatibility (EMCJ) of the Institute of Electronics, Information and Communication Engineers of Japan (IEICE). More than 33 papers were read there, 20-30 minutes each. All of them were held in Japanese with English abstracts in proceedings. List of the titles are found in a web-page, <http://www.ieice.org/cs/emcj/index.html#abstract>.

2. The 2009 International Symposium on Electromagnetic Compatibility, Kyoto (EMC'09/Kyoto), was held 20-24 July, 2009, at the Kyoto International Conference Center. The Symposium has been held every five years since 1974, and this is the 6th since its start.

The symposium was held just after the "Gi'on Festival" in Kyoto, which is one of three famous festivals in Japan, attracting many visitors from all over the world, not to mention many domestic visitors. Ordinarily the climate at this time of year is very hot, drawing people away from work and toward these enjoyable summer festivals. It was, however, rather cool this year, and the heavens cooperated in welcoming our symposium guests. The Sun and Moon also displayed an attractive show? a partial solar eclipse? right in the midst of our symposium.

The venue of this symposium, KICC, was built 40 years ago in order to accommodate

“international level” meetings by the Japanese government as a part of the ministry of foreign affairs. The scenery around the center is designed according to a traditional Japanese principle, “borrowed scenery”, namely the environmental scenery of nearby mountains and forests appearing to be part of the garden. Tall buildings are prohibited by law to be in view from the garden. Inside the conference center visitors would feel as if they are stepping into the “Starship Enterprise,” while the outer profile of the building is modeled after ancient 2000-year-old Japanese architecture.

The number of attendees was around 420 from 20 countries and districts. Two hundred and twelve technical papers were presented in four days, during four parallel sessions. Sessions on automotive electronics were originally planned, but the global economic recession that arose last autumn spoiled those plans. Most of the affected companies denied permission for their engineers to either present papers or attend the symposium, due to traveling costs. Similar situations occurred in other fields, but not to the extent that we saw in the automotive field. It is our great relief to hear that the economy is gradually recovering these days, and that this recovery features the dramatic auto industry switch from pure combustion engines to hybrids, or directly to pure electric automobiles, both in the sense of ecology and the expansion of our field, EMC.

The number of presentations increased, as a whole, compared to the last symposium in Sendai. This symposium is already taken as the central event for EMC engineers in the Asian region.

Presentations were classified under a number of subjects (see Table 1). The dominant category was EMI from PCB/IC/chip. Interest in EMI is now no longer confined to PCB but also extends to IC and chips. The field of bio-effect of EM radiation is still of social concern. System level EMC seems to have moved beyond the nurturing stages and is now at the stage of harvesting. Security problems are on, not under, the table to help realize their approaches.

Table 1 Number of presentations as classified under subjects.

Category	Number of Presentation
Security	11
Solar Power Satellite	4
EM Wave Propagation and Scattering	8
Measurement Technique	11
Dosimetry and Bio Effect	32
Power and Automotive EMC	8
PCB	20
IC and Chip Level	16
System Level EMC	12
Numerical Modeling	16
Immunity and Susceptibility	5
Shielding and Grounding/ Transmission Lines and Cables	7
EMC Testing	13
EM Environment Measurement	6
ESD and Lightning	16
Material	11
EMC Standards	6
Installations of Wireless Communication in Hospitals and Their EMC	3
Statistical Methods in EMC	4
Total	209

3. 2009 Asia-Pacific Conference on Environmental Electromagnetics(CEEM'2009) was held in September 16-20, Xi' An, China. Attendee from Japan was not so many because Japanese Domestic Meeting held by IEICE was totally overlapped.

4. Future International Meetings Related to Electromagnetic Noise:

2010 Asia-Pacific International Symposium on Electromagnetic Compatibility (APEMC) will be held in April 12-16, 2010 , Beijing, China.