

**IEEE TC-5: High Power Electromagnetics (HPEM)
Annual Meeting at the 2014 IEEE International Symposium on EMC in Raleigh, NC
Wednesday, 6 August 2014 (Noon – 1:30 pm)**

Draft Minutes

1. Opening of the meeting—W. Radasky, Chairman

Chairman Dr. William (Bill) Radasky brought the meeting to order at 12:04 PM. Chairman Radasky welcomed the attendees, reviewed the agenda and asked for suggested changes; none were offered. Dr. Radasky made a motion to approve the agenda. MSC.

The following items were discussed.

2. Minutes—W. Price, Secretary

Secretary William Price reviewed the minutes of the 2013 meeting in Denver, CO. Item 10 was corrected to show Don Heirman as chairman of SC-1. A motion was made to approve the minutes as corrected. MSC.

3. Update TC-5 membership list--All

All attendees introduced themselves. The Secretary circulated a roster, a summary of which is attached.

4. Technical papers—W. Radasky

Dr. Radasky reported that 19 papers were submitted for review of which 17 were accepted (13 oral and 4 poster papers). Of these, 7 had to do with HPEM, 6 with information leakage, 2 with lightning, and 2 with ESD. One oral presentation was nominated for best paper.

5. Report from the Lightning Subcommittee—M. Rubinstein

Professor Rubinstein reported on symposia and meetings in which lightning is a significant topic:

- 2014
 - AMS Annual Meeting, Atlanta, February
 - ILDC/ILMC, Tucson, March (next in 2016)
 - EMC'14, Tokyo, May (next in 2019)
 - ICAE, Norman, June (next in 2018)
 - AMEREM, Albuquerque, July-August
 - IEEE EMC Symposium, Raleigh, August

- URSI GA, Beijing, August (next in 2017)
- ICLP, Shanghai, October
- 2015
 - AMS Annual Meeting, Phoenix, January
 - ASIAEM 2015, Jeju, Republic of Korea, August
 - Joint IEEE EMC/EMC Europe, Dresden, August
 - ICOLSE, Toulouse, September
 - SIPDA XIII, Camoriú, Brazil, September.

Professor Rubinstein also reported the following lightning workshops:

- 2014
 - A workshop on time reversal has been organized for this symposium on Friday afternoon
 - A workshop was conducted during EMC' 14 in Tokyo
- 2015
 - A workshop, tutorial, or lightning session will be organized for the Joint IEEE EMC/EMC Europe meeting or ASIAEM.

Professor Rubinstein noted the following CIGRE working groups:

- Working Group C4.23 “Guide to Procedures for Estimating the Lightning Performance of Transmission Lines” (2013, Chair: Christiaan Engelbrecht)
- Working Group C4.26 ” Evaluation of Lightning Shielding Analysis Methods for EHV and UHV DC and AC Transmission-lines" (2011, Chair: Jinliang He)
- Working Group C4.33 ” Impact of Soil-Parameter Frequency Dependence on the Response of Grounding Electrodes and on the Lightning Performance of Electrical Systems" (2013, Chair: Silverio Visacro)
- Working Group C4.410 “Lightning Striking Characteristics for Very High Structures” (2010, Chair: Takatoshi Shindo)
- Working Group 4.36 “Winter Lightning – Parameters and Engineering Consequences for Wind Turbines” (2014, Chair: Masaru Ishii)
- Working Group 4.37 “Electromagnetic Computation Methods for Lightning Surge Studies with Emphasis on the FDTD Method” (2014, Chair: Yoshihiro Baba)

Professor Rubinstein noted other working groups on lightning:

- The IEEE PES Lightning Performance of Overhead Lines Working Group at IEEE PES GM, National Harbor, July, 2014
- An international project on EM radiation from lightning to tall structures at ICLP in October, 2014

Professor Rubinstein reported instrumentation has been added at Santis Tower to measure electric and magnetic fields from lightning discharges within 5 to 10 km.

Dr. Radasky asked Prof. Rubinstein if the lightning subcommittee would propose a tutorial or workshop in a future international conference. Prof. Rubinstein answered that they propose a special session for the Joint IEEE EMCS/EMC Europe conference in Dresden.

6. Report from the EM Information Leakage Subcommittee—Y. Hayashi

Professor Hayashi reported that 6 papers were presented in a special session on Information Leakage at EMC'14 in Tokyo and 6 more will be presented at the special session on Information Leakage at this week's symposium in Raleigh.

Professor Hayashi will propose a special session on Information Leakage at the Joint IEEE EMC/EMC Europe symposium in Dresden in 2015.

7. Report from the IEMI Subcommittee—F. Sabath

Dr. Frank Sabath reported on an interesting study of IEMI involving cargo carriers. He also proposed a special session on IEMI at the Joint IEEE EMC/EMC Europe symposium in Dresden in 2015 and perhaps a workshop at the 2015 EMC Symposium in Santa Clara.

8. Coordination with SC-1, Smart Grid—All

Dr. Radasky attended the SC-1 meeting at this symposium on Monday. The committee is chaired by Don Heirman and Dr. Radasky is the vice chair. The purpose of the committee is to coordinate activities of other committees working on the smart grid.

9. Status of the IEMI standard practice activities and possible future HPEM IEEE standards—W. Radasky

Dr. Radasky reported that IEEE draft standard P1642, Recommended Practice for Protecting Public Accessible Computer Systems from Intentional EMI, has finally gone to ballot, was approved with some editorial changes, and will soon be published. Technical Committee chairs are being urged to become more involved in standards activity. Dr. Radasky solicited suggestions from the membership. Fred Heather has suggested a lightning direct effects standard.

10. Status of the TC-5 web page—M. McInerney

The technical committee is now able to edit our own web page. Changes should be communicated to the vice chairman. Dr. Radasky urged subcommittee chairs to update their web pages.

11. Review of HPEM activities since the last TC-5 meeting—W. Radasky

Dr. Radasky reported his attendance at AMEREM in the last week. He mentioned that the following year would be very busy:

- INCEMIC, Vishakhapatnam, India, February
- 2015 IEEE EMC&SI Symposium, Santa Clara, March
- APEMC, Taipei, May
- ASIAEM, Jeju Island, August
- Joint IEEE EMC/EMC Europe, Dresden, August

- CEEM, Hangzhou, November

Dr. Radasky also reported there is growing interest about IEMI within the IEC.

12. Discussion concerning whether a tutorial, workshop, and/or special session should be organized for next year—All

Dr. Radasky reminded the committee members that separate recommendations are required for the 2 IEEE EMC conferences next year. After discussion, the following were recommended:

- IEEE EMC&SI Symposium, Santa Clara
 - IEMI tutorial
 - Information Leakage tutorial
 - Lightning special session
- Joint IEEE EMC/EMC Europe Symposium, Dresden
 - IEMI special session
 - Information Leakage special session
 - Lightning special session

13. Other business

- iNARTE—Dr. Radasky is the TC-5 point of contact; there has been no activity for several years.
- Dr. Radasky asked a show of hands among the committee members of those who plan to attend next year's conferences
 - Santa Clara: 12
 - Dresden: 9
- Dr. Radasky facilitated discussion concerning low-level IEMI. There have been some papers on the topic but it does not seem to fit within our charter.

14. Adjournment

The committee adjourned at 1:22 PM.

ATTENDEES

NAME

AFFILIATION

Mr. Ben Andros	The Boeing Company
Prof. Per Ånskog	KTH, Royal Institute of Technology
Mr. Robert Berkovits	Chair, IEEE EMC Baltimore chapter
Mr. Larry Cohen	Consultant
Dr. Heyno Garbe	Leibniz University, Hannover
Dr. Jim Gilbert	Metatech Corp.
Dr. Yu-ichi Hayashi	Tohoku University
Dr. Tom Jerse	The Boeing Company
Mr. Matt Juszcyk	Rockwell Collins
Mr. Galen Koepke	NIST
Mr. Matthias Kreitlow	WIS
Dr. Frank Leferink	Thales Communications, Inc.
Mr. Mike McInerney	USACE-ERDC
Mr. Nicolas Mora	Ecole Polytechnique Federale de Lausanne
Mr. Yuichiro Murata	Mitsubishi Electric Corp.
Prof. Petre-Marian Nicolae	University of Craiova, Romania
Dr. Magnus Olofsson	Elforsk AB
Prof. David Pommerenke	Missouri University of Science and Technology
Dr. William Price	The Boeing Company
Dr. William Radasky	Metatech Corp.
Dr. Marcos Rubinstein	Univ. of Applied Science, Switzerland
Dr. Frank Sabath	Bundeswehr Research Institute
Mr. Edward Savage	Metatech Corp.
Prof. Sarah Seguin	University of Kansas
Mr. Abtin Spantman	Dan Foss Power Electronics
Mr. Dennis Swanson	Lockheed-Martin Corp.
Prof. David Thomas	University of Nottingham
Mr. Allen Wilcox	BAE Systems