

**IEEE TC-5: High Power Electromagnetics (HPEM)
Meeting at the 2017 IEEE International Symposium on EMC in National Harbor, MD
(Washington, DC)
Wednesday, 9 August 2017 (Noon – 13:30)**

Confirmed Minutes

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

Chairman Dr. William (Bill) Radasky brought the meeting to order at 12:07. Dr. 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.

25 persons attended the meeting.

2. Minutes — W. Radasky, Chairman

Dr. Radasky reviewed the minutes of the 2016 meeting in Ottawa, Canada. There were no changes to the minutes and a motion was made to approve the minutes. MSC.

3. Update TC-5 membership list — All

The Chairman requested that each member review and update the membership list. TC-5 has a “five-year of inactivity rule.” You remain a member-in-standing for five years since the last time you participated. Participation is not limited solely to symposium meeting attendance. Participation includes activities such as reviewing papers, organizing and/or chairing symposium sessions, and chairing subcommittees.

The updated membership list is attached.

4. Technical papers — W. Radasky

Dr. Radasky reported on the TC-5 technical paper review process for the National Harbor (Washington, DC) Symposium.

14 papers submitted

2 rejected

3 required mandatory changes – all were accepted after changes were made.

Therefore there were 12 papers accepted with:

11 oral

1 poster

6 abstracts – all accepted

4 oral

2 poster

TC-5 sponsored one (1) Tutorial

- Measurement Techniques for Lightning Currents (Rubinstein and Rachidi) (FR-AM-4)

TC-5 chaired three (3) regular sessions

- ESD (TU-PM-4)
- HPEM Topics (WED-AM-4)
- ESD and ICS (TH-AM-7)

TC-5 had two (2) nominations for best EMC paper

- Detection Methods for Secondary ESD Discharge during IEC 61000-4-2 Testing
Shubhankar Marathe, Hossein Rezaei, David Pommerenke, and Mike Hertz
- Efficient Circuit and EM Model of Electrostatic Discharge Generator
Jawad Yousaf, Jaeyoung Shin, Hosang Lee, Wansoo Nah, Jinsung Youn, Daehee Lee, and ChanSeok Hwang

TC-5 had three (3) nominations for best EMC student paper

- An On-Chip Detector of Transient Stress Events
A. Patnaik, M. Suchak, R. Seva, K. Pamidimukkala, D. Pommerenke, G. Edgington, R. Moseley, J. Feddeler, M. Stockinger, and D. Beetner
- Detection Methods for Secondary ESD Discharge during IEC 61000-4-2 Testing
Shubhankar Marathe, Hossein Rezaei, David Pommerenke, and Mike Hertz
- Efficient Circuit and EM Model of Electrostatic Discharge Generator
Jawad Yousaf, Jaeyoung Shin, Hosang Lee, Wansoo Nah, Jinsung Youn, Daehee Lee, and ChanSeok Hwang

5. Report from the Lightning Subcommittee — M. Rubinstein

Professor Rubinstein reported on the activities of the Lightning subcommittee.

Reviewed 2017/2018 conferences and committee meetings held and planned

Lightning European Project

Lasers to trigger lightning

Lightning Mapping Array

A recently published book on time reversal has a chapter on lightning

There was a short discussion on future lightning related workshops and papers for upcoming IEEE EMC and other conferences.

Possible workshops at the IEEE EMC, Long Beach and EMC Europe, Amsterdam

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

Professor Hayashi reported on some activities of the EM Leakage subcommittee.

New R&D

Attack to hardware using inexpensive equipment

Special sessions under consideration for 2018 IEEE EMC/APEMC, Singapore and EMC Europe, Amsterdam. Possible topics are:

Traditional EM leakage

EM Information leakage from Smart Grid

Hardware Trojans

7. Report from the IEMI Subcommittee — F. Sabath

Dr. Frank Sabath reported on activities of the IEMI subcommittee.

- Conference activities
 - Participated in other symposia this year but not this one.
 - 2018 IEEE EMC/APEMC, Singapore – workshop on IEMI risks to the critical infrastructures
 - 2018 IEEE EMC, Long Beach – Special session on IEMI
- IEEE EMC Society to issue a public policy position statement on a survey of offender capabilities

8. Report from ESDA — Nate Peachey

Misha Khazhinsky is the official coordinator between ESDA and IEEE EMC Society TC-5. Annual conference/workshop on ESD is in Tucson this year (2017).

Robustness of IoT hot topic

Perhaps the ESD Symposium and the EMC Symposium can interchange papers, workshops, and/or tutorials in the future.

Possible ESD tutorials at future IEEE EMC symposia

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

The SC-1 committee on Smart Grid 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.

Paper on immunity testing for Smart Grid devices was mentioned.

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

The entire EMC website is being revamped. Mike McInerney is tracking changes and page update procedures.

Recommended changes should be communicated to the vice chairman or chairman. If you would like to place an article on the website it must be open source / not copyrighted.

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

Some electrical power companies are independently hardening equipment to HEMP and IEMI.

The U.S. Congressional committee on EMP restarted work in January 2017 and reviewed work done in response to its recommendations for protecting the critical infrastructures in 2008.

12. Discussion concerning whether a tutorial, workshop, and/or special sessions should be organized for next year in Singapore or Long Beach — All

All subcommittees expressed interest in holding a tutorial, workshop, or a special session: Lightning, Information Leakage, IEMI, and ESD.

There will be a TC-5 committee meeting at both the Singapore and Long Beach Symposia.

13. HPEM standards for lightning direct effects on aircraft — F. Heather

There was a lot of positive feedback on Fred's proposal to develop of a new IEEE standard on specific test methods for lightning direct effects to aircraft. MIL-STD-461-G (CS 117) covers indirect effects but Fred believes there is also a need for direct effects testing. Fred is preparing the PAR.

14. Any other business

There was no other business raised from the floor.

15. Adjournment

The committee adjourned at 13:30