



## August 2012 IEEE Reliability Society Newsletter

### Joint-Section Chapter - Boston - New Hampshire - Providence

June – August 2012

<http://www.ieee.org/bostonrel>

Greetings,

The joint-section chapter had a very successful spring, with meeting attendance up from 33 to 45 people. With higher attendance of both IEEE members and non-members, you have opportunities to see people you know and meet new people of interest, whether networking for information to help with your current job, looking for a new job, or just socializing.

In June, I had the honor of representing the IEEE Boston Reliability Chapter at the IEEE Reliability Society Chapter Chairs Congress in Denver, and received awards for our joint chapter for our 2011 participation and accomplishments. MIT Lincoln Laboratory sponsored my travel to the congress event.

Plans are under way for our fall presentations. Dr. Gary Smith will talk about Analyzing High-Power Semiconductor Laser Reliability on September 12. Andrew Olney will present "Counterfeit Semiconductor Products: The #1 Threat to Electronics Reliability" in a joint meeting with the Northeast ESDA (Electrostatic Discharge Association) on October 17. Dr. J. Duncan Glover will speak about power systems, as they relate to legal cases on November 14. Arrangements are being made for the December "Past Chairs" meeting, where we will honor the past IEEE Boston Reliability Chapter chairs.

Best regards and I hope to see you at our meetings this fall,  
Dr. Daniel Weidman  
Boston Joint-Section Chapter Chair

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#### Upcoming Events

- September 12, 2012 • "Analyzing High-Power Semiconductor Laser Reliability," Dr. Gary Smith, MIT Lincoln Labs, at MIT Lincoln Laboratory in Lexington, MA.
- October 17, 2012 • "Counterfeit Semiconductor Products: The #1 Threat to Electronics Reliability" by Andrew Olney, Director of Reliability and Product Analysis, Analog Devices, Inc., at Teradyne, North Reading, MA.
- November 14, 2012 • "Reliability of power systems as they relate to legal cases," Dr. J. Duncan Glover, Expert Electrical Engineering Consultant, at Teradyne, North Reading, MA.
- December 2012 • Past Chairs meeting, date, topic, and speaker to be determined.

#### Society Participation

- Links for topic suggestions, committee participation, e-notices, and presentations.

## Recent Activities

### June 16, 2012: IEEE Reliability Society Chapter Chairs Congress in Denver, CO

On Saturday, June 16th, the IEEE Reliability Society Chapter Chairs Congress in Denver, CO was attended by Dr. Daniel Weidman, Boston Joint-Section Chapter Chair, and his trip was sponsored by MIT Lincoln Laboratory. This gathering of Chairs of Reliability Chapters from around the world included representatives from Denver, Taiwan, Dallas, Chicago, China, and Canada, among others. With the improved economy and travel budgets, it is hoped that these meetings can be held every two years.

The results of the annual competition among the 23 reliability chapters of the world are as follows: Taiwan won first place, Dallas won second place, and Boston won third place. We should be proud of being among the top three IEEE reliability chapters in the world.

The award process is based on membership and your member participation, publications, and presentations in any technical journals and conferences, with extra points for those affiliated with IEEE sponsored functions. As an IEEE and Reliability Society member, your participation contributes "points" to this annual competition, as do monthly meeting attendance, and even the number of newsletters such as the one you're reading now. The results determine financial awards to each chapter, which helps pay for activities such as refreshments at our monthly meetings throughout the year. The other chapters that submitted information for the 2011 competition were Cleveland, Italy, Japan, San Diego, Twin Cities (Minnesota), the United Kingdom, and Rhode Island.

The Reliability Society is professionally interested in product assurance and concerned with reliability, quality, and effectiveness of processes, hardware, systems, software, as well as product liability.

Lou Gullo is the IEEE Reliability Standards Chair, on the Management Committee at RAMS, and a Sr. Principal Systems Engineer at Raytheon. He spoke about the following society purposes and benefits:

The Reliability Society purposes are for engineers and managers to

- Become more competent
- Provide a medium for exchange
- Advance the reliability discipline
- Mold the body of specialists into a force dedicated to product development

Benefits include:

- Knowing local professionals
- Professional meetings
- Professional publicity
- Recognition
- Validation as an expert

Society participation allows members to take state of the art knowledge back to their organizations for immediate dissemination.

Lou also spoke about IEEE 1413.1, being drafted by IEEE-SA (Standards Association), which references MIL-HDBK-217F, Telcordia, China 299, Telecom, and Siemens corporate SN29500. They are planning to complete this standard by the end of 2012. It is a guide to reliability tools rather than duplicating information in existing standards.

Society members have electronic access to TRANSACTIONS on IEEE XPIore where standards development like IEEE 1413.1 may be accessed by searching for the latest draft. (Some information above was extracted from IEEE.org: <http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=05721874>.)

## Local Awards: IEEE Milestone Ceremony

A dedication ceremony for three IEEE Milestones was held on June 27, 2012 at the Westin Copley Place Hotel in Boston, Massachusetts the same week and location as the annual June IEEE Sections conference. The projects being honored were MIT's LORAN, Whirlwind, and SAGE. Dan Weidman, IEEE Boston Reliability Chapter Chair, and Ramon De la Cruz, IEEE Boston Reliability Chapter Vice-Chair, attended the ceremony in Boston along with several other Chairs of the various Boston IEEE chapters of societies such as Communications and Robotics & Automation. MIT Lincoln Laboratory was represented by Director Eric Evans, Associate Director Mark Bernstein, and Executive Officer John Kuconis.

### LORAN

LORAN was the global Long-Range Navigation system that provided coverage throughout the most heavily traveled portions of the world. LORAN provided the first near-real-time positioning information. It was accurate to a small fraction of its wavelength due to its pulsed mode of operation and highly accurate timing. It started operating in 1942 during World War II. It was so effective and reliable, that it was kept as a backup to the United States GPS (Global Positioning System), with operational funding terminated in 2010. [http://www.ieeeqhn.org/wiki/index.php/Milestones:Loran,\\_1940-1946](http://www.ieeeqhn.org/wiki/index.php/Milestones:Loran,_1940-1946)

### Whirlwind

Whirlwind was the first digital computer. This was a reliable, useful computer built from vacuum tubes before transistors were available. Developed from 1945 to 1952 at MIT in Cambridge, MA using magnetic core memory, it was the first computer with Random-Access Memory. Project lead Jay Forrester, 94, spoke at the IEEE Milestone ceremony. He said that the Mean Time To Failure (MTTF) was increased by orders of magnitude to make a vacuum-tube computer viable through two key design changes. One change increased vacuum tube life from 500 to 500,000 hours, which was essential with 50,000 vacuum tubes. Another factor of ten was obtained by self-checks and duplicate system hardware, with one system watching the other. The final uptime was 99.8%. [http://www.ieeeqhn.org/wiki/index.php/Milestones:Whirlwind\\_Computer](http://www.ieeeqhn.org/wiki/index.php/Milestones:Whirlwind_Computer)

### SAGE

SAGE was the Semi-Automated Ground Environment that used Whirlwind as a key component. SAGE was the first project by MIT Lincoln Laboratory and was deployed across North America to watch for incoming airplanes over the North Pole from the Soviet Union. The success of SAGE established the lab as a key scientific resource and qualified MIT Lincoln Laboratory for further research contracts continuing even today. [http://www.ieeeqhn.org/wiki/index.php/SAGE\\_\(Semi-Automatic\\_Ground\\_Environment\)](http://www.ieeeqhn.org/wiki/index.php/SAGE_(Semi-Automatic_Ground_Environment))

The plaques for LORAN and Whirlwind are on display at 211 Massachusetts Avenue, in Cambridge, Massachusetts, at MIT Building N42.

The plaque for SAGE may be viewed in the main lobby of MIT Lincoln Laboratory, in Lexington, Massachusetts.

MIT Lincoln Laboratory generously sponsored the refreshments after the dedication of the three IEEE Milestone Awards.

## Upcoming Meetings and Events

The monthly Joint Boston – Providence – New Hampshire Chapter events are resuming in September. The Advisory Committee has arranged the following events:

### September 12, 2012

Wednesday, September 12, Dr. Gary Smith, an engineer at MIT Lincoln Laboratory, will present “Analyzing High-Power Semiconductor Laser Reliability,” at MIT Lincoln Laboratory in Lexington, MA.

### October 17, 2012

On Wednesday, October 10, nationally recognized ESD expert Andrew Olney, Director of Reliability and Product Analysis, Analog Devices, Inc., will present "Counterfeit Semiconductor Products: The #1 Threat to Electronics Reliability," in a joint meeting with NE-ESDA, at Teradyne, North Reading, MA.

### November 14, 2012

On Wednesday November 14, expert electrical engineering consultant Dr. J. Duncan Glover, will present “Reliability of power systems as they relate to legal cases,” at Teradyne, North Reading, MA.

### December 2012

Arrangements are still being finalized for the speaker, topic, and location for the December 2012 “Past Chairs” meeting.

## Society Participation

For updates on upcoming events: <http://ewh.ieee.org/r1/boston/rl/events.html>.

- If you would like to present a reliability-based topic at a future meeting, have meeting topic suggestions, or ideas about how to improve our meetings, we want to hear from you! Please send an e-mail to any AdCom member or click on [Suggest a Meeting Topic](#) on our website.
- To participate or provide input to chapter technology development activities, sign up to become a TDC (Technology Development Committee) participant using our website by clicking on [Technology Development](#).
- You can also be added to the chapter e-notice distribution via our website by clicking on [Subscribe to E-Notices](#) or send a request to [dermarderosiana@ieee.org](mailto:dermarderosiana@ieee.org) (Vice-Chair, notices, and registration).
- Select presentations are available on the IEEE Reliability Society Joint Boston – New Hampshire – Providence Chapter website at <http://ewh.ieee.org/r1/boston/rl/presentations.html>.

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[http://ewh.ieee.org/r1/boston/rl/newsletters/boston\\_chapter\\_newsletter\\_aug12.pdf](http://ewh.ieee.org/r1/boston/rl/newsletters/boston_chapter_newsletter_aug12.pdf)