

IEEE Reliability Society Newsletter

Joint Section Chapter

(Boston - New Hampshire - Providence)

September - November 2010

2010 marks the 50th Anniversary for the IEEE Reliability Joint Section Chapter (Boston - New Hampshire - Providence).

50 Years Ago (courtesy of Aaron Dermarderosian, chapter vice chair)

In 1960....

- US President: Dwight D. Eisenhower, Vice-President: Richard Nixon
- Unemployment was ~5.5% ; The cost of a first class stamp: \$0.04
- American U-2 spy plane (Francis Gary Powers) was shot down over Russia
Subsequently released 2 years later in a spy exchange deal!
- Boston Celtics DEFEAT the St. Louis Hawks (4-3) for the NBA Championship!
- 59-60 Emmy Awards, Outstanding:
 - > Performance by an Actor- Robert Stack "*The Untouchables*"
 - > Writing achievement (Drama)- Rod Serling "*Twilight Zone*"
 - > Achievement in the field of children's programming- "*Huckleberry Hound*"
- Alfred Hitchcock's Psycho terrifies movie-goers!
- Book Release: "To Kill a Mockingbird" by Harper Lee
- Science:
 - Theodore Harold Maiman constructed first functioning LASER (May 16th 1960, HRL- California)
 - NASA launches Echo I (first communications satellite) & Tiros I (first weather satellite)
- Teradyne is founded
and
- ***The Boston area Reliability chapter is established!!***

THREE years before the IRE & AIEE merge to form what we know as the IEEE Today!

Fall 2010:

The Joint Section Chapter (Boston - New Hampshire - Providence) has held several meetings and events since our last newsletter.



September 2010: on the 15th, 22 members and guests celebrated the chapter 50th Anniversary.

Charles Recchia, Senior Reliability Engineering Manager at Intel Corporation in Hudson, Massachusetts presented “*Microprocessor Industry-Wide Soft Error Reliability Trends and Challenges*”. This meeting was held at Teradyne, Inc. headquarters in North Reading, MA. Charles’ presentation discussed industry-wide soft error trends, challenges, test and mitigation approaches as it relates to microprocessor reliability and computer system resiliency.



October 2010 - Joint IEEE/SMTA Meeting @ Finetech & Martin, Manchester, NH. Images Courtesy of Ramon D. (Teradyne)

October 2010: on Tuesday the 12th, we held a joint IEEE/SMTA meeting at Finetech & Martin, Manchester, NH. Joe Belmonte, Principal Consultant, ITM Consulting, presented “*Considerations in Miniature SMT Component Assembly*” to 27 members and guests. Joe’s presentation covered how the use of such a miniature component presents several significant challenges to the Surface Mount Technology (SMT) Manufacturing Process, including solder paste selection (what powder size is required, etc.), determining the optimum printed circuit board pad size, the optimum stencil aperture design, component placement nozzle selection and maintenance, solder paste printing and component placement accuracy. The presentation was followed by live process demonstrations by the Finetech & Martin staff.



Oct 2010 - 58th ASQ NEQC Conference, Marlborough, MA. Images Courtesy of Ramon D. (Teradyne) & Aaron D. (Raytheon)

October 2010: on Tuesday, the 19th the IEEE Reliability Joint Section Chapter (Boston - New Hampshire - Providence) actively participated in the 58th ASQ NEQC Conference in Marlborough, MA.

Chapter members and guests were greeted by chapter chair, Ramon De la Cruz (Teradyne), and chapter vice chair, Aaron Dermarderosian (Raytheon) while conducting an IEEE Reliability Society membership drive.

Key note speaker, John Bergeron from Raytheon Company presented “*Quality, Reliability & Risk Management During a Product Life Cycle*”. John works in Corporate Engineering Technology & Mission Assurance as the director of Raytheon Six Sigma & Corporate Mission Assurance.



Lisa Markewicz (Raytheon) and Donald Restiano (Raytheon) explained “*Risk Management: Pro-active Principals for Project Success*”. They described how Risk Management is expected to ensure a successful program, the on-schedule and within-budget delivery of a system that meets the customer’s requirements.

Kenneth Rispoli (Raytheon) talked about “*Physics of Failure (PoF) Tools and Methodologies*” and how failing to understand the basic mechanism for part and system failures is at the heart of some very expensive, high profile warranty claims. This presentation detailed the application of the PoF approach.

In Jim Whitman’s Workshop, he discussed “*Gauge R&R Analysis*”. He helped understand the measurement system methodologies including the measurement process, variation, MSA studies, and the improvement of measurement systems.

David Dwyer (BAE Systems) discussed “*The Papers of Downs and Tractenberg*”, an approach to the problem of modeling software testing in which the mathematical requirements for relaxing the various assumptions can be clearly seen.



On Wednesday, the 20th the RelSoc chapter hosted the ASQ NEQC Conference **Reliability Track**. Chapter vice chair, Aaron Dermarderosian (Raytheon), chaired and moderated the track and presented “*Detection & Prevention of Counterfeit Commercial & Mil-grade Electronics*”.

Aaron covered the definitions of counterfeit electronics and its impact on the trade industry. During the session, he provided examples of counterfeit electronics, and presented an overview of best practice strategies, best practice supplier selection, and in-coming inspection analysis.

Harry Saraidaridis (iRobot) explained “*Service Life Estimation Analysis*” by providing guidelines for performing a service life estimation analysis. He talked about establishing service life requirements and goals, and also discussed key factors and field system usage, as well as how these factors can influence a systems’ service life.

Philip Bedard (Raytheon) and James Perreira (Raytheon) talked about “*Benefits of Collaborative Approach to RAM and Supportability Modeling*” by highlighting the sensitivities and the relationships between the RAM and supportability parameters. They discussed the omissions and the pitfalls of common assumptions, made a case for a more collaborative approach, and introduced recommended process flows for developing and maintaining iterative and closely coupled RAM and Supportability models throughout the lifecycle.

Philip Scarff, (Alcatel-Lucent) explained “*A New Approach to System- Availability Analysis: An Integrated Hardware, Software, and Procedures Model*”. He discussed system and model, comparisons to field data, analysis, sensitivity analysis, along with applications and comments. Phillip concluded with a summary of future work to further validate the model parameters with additional field data.



Oct 2010 - 58th ASQ NEQC Conference, Marlborough, MA. Images Courtesy of Ramon D. (Teradyne) & Aaron D. (Raytheon)

David Cadge, (SIMULIA-DS) presented “*Workshop: SIMULIA Analysis Toolset for Electronics (Dassault Systemes)*”. David focused on the capabilities of the Abaqus Unified FEA product suite.

During the session, attendees learned more about how the Abaqus Unified FEA product suite improves a company’s work flow.

The IEEE Reliability Joint Section Chapter (Boston - New Hampshire - Providence) would like to thank all the presenters, participants, volunteers and sponsors for their contributions to a very successful 58th NEQC conference.



November 2010 - Meeting @ Thermo Fisher Scientific, Wilmington, MA. Images Courtesy of Ramon D. (Teradyne)

November 2010: on Wednesday the 10th, the chapter held a joint meeting with the North East chapter of the ESD Association (NE-ESDA). Arnold Steinman, Ionization Consultant, Dangelmayer Associates, presented "*Air Ionization - Uses and Limitations for ESD Sensitive Applications*" to 34 members and guests.

The presentation covered ionization fundamentals and methods of producing ions as well as discussed limitations in the application of ionizers and ways that ionizers are misapplied. The presentation also reviewed some ionizer selection criteria and a variety of ionizer applications. Subsequently, the presentation discussed the considerations for using ionizers in ESD Class 0 environments where extremely ESD-sensitive devices are handled.

Upcoming meetings & events:

2011 AdCom Officer Elections: the 2011 IEEE Reliability Joint Section Chapter (Boston - New Hampshire - Providence) Officer Elections ballot opened for vote on November 7 and is scheduled to close on December 7.

For the 2011 term the candidates are:

- Chair: Ramon De la Cruz (Teradyne) or write-in
- Vice-chair: Aaron DerMarderosian Jr. (Raytheon) or write-in

- Treasurer: Don Markuson (ArrAy) or write-in
- Secretary: Shivarajiv Somisetty (M/A-COM) or write-in

Election results will be announced at the December annual past chairs dinner meeting.

December 2010: the Joint section chapter will host on the 9th, its annual past chairs dinner meeting. This event will take place at Teradyne in North Reading, MA.

January 2011: the Joint section chapter will host on the 12th the first meeting of the year, with the presentation “*Qualifying MEMS Products for Diverse Applications*” by Andrew Olney, Director, Worldwide Reliability and Product Analysis Department, Analog Devices, Inc. The event will be a joint meeting with the Solid State Circuits Society. This meeting will take place at Analog Devices in Wilmington, MA.

For updates on upcoming events, please check our website periodically!

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

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 of the AdCom members or go to our website and click on: [Suggest a Meeting Topic](#).

To participate or provide input to chapter technology development activities, sign up to become a [TDC committee](#) participant using our website. [Click here to participate in Technology Development](#).

You can also be added to the chapter e-notice distribution via our website, click on: [Subscribe to E-Notices](#) or send a request to: dermarderosiana@ieee.org (Vice-chair, notices & registration).

Best Regards,

Ramon De la Cruz. - Chair, Reliability Joint Section Chapter
(Boston - New Hampshire - Providence)