Albuquerque
Leland Bowen, the Chapter Chair for the joint AP/EMC/MTT/NPS Chapter, reports that the Chapter was very active this Fall. In August, Dr. Jamesina J. Simpson, Assistant Professor, Department of Electrical and Computer Engineering, University of New Mexico, gave a presentation entitled, “Computational Electrodynamics Modeling from Near DC to Light.” Fifteen people, including four EMC Society members, were in attendance. In late October, a talk entitled, “Plasma and Megagauss Fields” was given to the Chapter by Dr. Peter J. Turchi, Los Alamos National Laboratory, IEEE Fellow (NPS Distinguished Lecturer). Twelve Chapter members enjoyed the presentation, including seven EMC Society members. In November, the Chapter enjoyed a presentation entitled, “Practical Aspects of Microwave Filter Development.” The talk was given by Dr. Richard V. Snyder, RS Microwave and the New Jersey Institute of Technology, and enjoyed by 10 Chapter members. To cap off a great year, the Chapter enjoyed a New Year’s Eve party at Dr. Carl Baum’s residence. The 12 Chapter members at the party enjoyed plenty of “Good food, including sushi, good social time, good music and good drink” in a “highly non-technical” environment.

Chicago
Jerry Meyerhoff, secretary of the Chicago Chapter reports that the Chapter was very busy this last Fall. In August, Dr. Jamesina J. Simpson, Assistant Professor, Department of Electrical and Computer Engineering, University of New Mexico, gave a presentation entitled, “Computational Electrodynamics Modeling from Near DC to Light.” Fifteen people, including four EMC Society members, were in attendance. In late October, a talk entitled, “Plasma and Megagauss Fields” was given to the Chapter by Dr. Peter J. Turchi, Los Alamos National Laboratory, IEEE Fellow (NPS Distinguished Lecturer). Twelve Chapter members enjoyed the presentation, including seven EMC Society members. In November, the Chapter enjoyed a presentation entitled, “Practical Aspects of Microwave Filter Development.” The talk was given by Dr. Richard V. Snyder, RS Microwave and the New Jersey Institute of Technology, and enjoyed by 10 Chapter members. To cap off a great year, the Chapter enjoyed a New Year’s Eve party at Dr. Carl Baum’s residence. The 12 Chapter members at the party enjoyed plenty of “Good food, including sushi, good social time, good music and good drink” in a “highly non-technical” environment.

Special ESD Test from Down Under
Dan Hoolihan has been practicing in the EMC arena for more than three decades. The following story falls into the ‘strange but true’ category that experienced EMC engineers, such as Dan, always have a number of in their files. How would users react today with these kind of operational instructions?

“Back in the 1970s when electrostatic discharge (ESD) and its impact on electronic equipment was first being researched, many companies were experimenting with various ways to test equipment for ESD susceptibility. Since “standard” ESD generators were not available, many companies developed their own generators including small Van de Graaff machines, lab-built generators, and standard nylon carpets.

A low-cost computer terminal (an electronic station designed to allow a person to communicate with a large, high-speed mainframe) was developed by a computer company in the United States. The terminal was successfully designed, tested for conformance to internal corporate specifications, and went into production. The design verification testing included both emission and immunity testing for EMC performance. One of the immunity tests was an ESD test using a “standard” nylon carpet that the tester would shuffle his feet on and measure about 5 kilo volts (with a sensitive electrostatic voltmeter) before discharging himself to the unit under test. The terminal passed the test and was used successfully around the world except in Australia.

In Australia, the terminal had consistent ESD failures. In attempting to trouble-shoot the problem, an engineer from Australia came to the United States and worked with the design engineers. The computer terminal was placed in a large environmental chamber and the relative humidity was lowered to about 10% for a worst-case test of ESD. The engineer from Australia stepped on the “standard” nylon carpet, shuffled his feet and the electrostatic voltmeter measured 15 kilovolts instead of the usual 5 kilovolts, and, of course, when he discharged to the terminal, it failed.

The design engineers were amazed at the amplitude of the voltage and started to quiz the Australian on what he was doing or what clothes he was wearing. He convinced the design engineers he had on “normal” clothing except for his kangaroo leather shoes!

The company had a choice of coming up with a special fix for the product for Australia or outlawing kangaroo leather shoes. They chose to recommend to their Australian customers to preclude the wearing of kangaroo leather shoes if they wanted to avoid ESD problems with the low-cost terminal.”

Chicago
Jerry Meyerhoff, secretary of the Chicago Chapter reports that the Chapter was very busy this last Fall. Chicago held its fall season kickoff meeting on September 19 hosted by DLS Electronic Systems. The meeting focused on a review of the 2007 50th Anniversary Symposium in Hawaii. Jerry Meyerhoff, Continental Automotive Systems, delivered a breezy slide show on representational technical subjects, committee activities, exhibits and social events - complete with photos. Roy Leventhal of Leventhal Design & Communications also shared his experiences during the open discussion. Then, Don Sweeny of DLS and Chapter Angel presented his condensed version of the impressive “History of EMC” CD, which is an IEEE EMC Society slide show. The October 17 meeting presentation was “Managing the White Space in Spec-
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Edgar Reihl, third from left, after his presentation on Spectrum White Space in Chicago.

Bernie Sanders of the IEEE Chicago Section addresses the Chicago EMC Chapter in November.

Steve Laya is shown during his presentation on MIL-STD testing to the Chicago Chapter.

Jack Black (left) and Ray Klouda present an award to Tina Fanning at the annual Chicago Chapter holiday party.

Ray Klouda (left) and Jack Black (center) award “Person of the Year” to Frank Krozel at the Chicago holiday party.

“Santa the Pool Shark” made a guest appearance at the Chicago holiday party.

Dwayne Davis of Associated Research appearing as Santa the Pool Shark, Carla Robinson of Bunn, and Frank Krozel of Electronic Instrument Associates at the Chicago holiday party.

What a spread! The Chicago Chapter enjoys a great selection of eats at their holiday party.
“Trum” by Edgar Reihl of Shure Brothers. The meeting was again hosted by DLS. He described the EMC and performance issues of the loosely controlled spectrum used by wireless microphone systems. Edgar described the complex practical problems of designing channel assignments for many wireless mics in large public venues like sports or political events. Edgar also shared his insights into the regulatory and technical processes behind frequency band assignments in the FCC and industry associations. Elite Electronic Engineering, who offered their traditional Oktoberfest style hospitality, hosted the November 14 meeting. The annual election of officers went smoothly from the slate organized by Roger Swanberg of DLS. The meeting was a very well-attended joint session including regional SAE and Fox Valley IEEE Section members. Bernie Sander of the IEEE Chicago Section briefly addressed the group. The featured speaker, Steve Laya of Elite, spoke on the MIL-STD specifications and processes. It was fascinating to gain an understanding of the interplay between subsystem suppliers and master contractors. These three groups need to work together to optimize the EMC specifications and performance for the vehicle as a whole, depending on its mission: air, sea or ground. The 6th Annual Holiday Party on December 11 was again organized by Ida Krozel and held at Dave & Busters in Addison. A DeVry University EE Professor and his students happily joined us. The buffet dinner was followed by the Holiday Jeopardy-Trivia word game by Ray Klouda of Elite. The billiards tournament, organized by Chapter Chair Jack Black of DLS, brought out all the sharks. Gift cards and table decorations were awarded to winners and runner-up's. Co-sharing the EMC Person of the Year Award were Nick Karnezos (Omron Automotive) and Frank Krozel (Electronic Instrument Associates) for their tireless efforts in promoting the multiple goals of the Chapter. The Chicago EMC Chapter Student Scholarship program led by Treasurer Bob Hofmann is perpetually funded by the surplus from the 2005 Chicago Symposium and the ongoing Chapter income surplus. Additional contributions from individuals and corporations are always welcome! After repeatedly contacting targeted area universities to identify candidates, the winner will be presented the $1000 award at the February 2008 meeting. The 2008 calendar is filling with monthly meetings, organized by Tom Braxton of Shure Brothers and Yaquing Liu of DLS. Maxine Martin of DLS distributes regular e-mail notices. The season finale on May 13 will be the 10th Annual MiniSymposium organized by Frank Krozel. Please check www.emccchicago.org for all upcoming events and contact information.

Croatia
Since the last report, the Croatia Chapter has successfully organized a few technical, professional and social meetings. However, the most important activity of the Chapter in the second half of 2007 was the organization of the annual Symposium on EMC: Environmental and Safety Aspects. The Symposium was held for the third time on 27 - 29 September in Split, on the ship cruising along the Adriatic coast and in Dubrovnik. As previously, the Symposium on EMC was organized in conjunction with the 15th International Conference on Software, Telecommunications and Computer Networks - SoftCOM 2007, co-sponsored by the IEEE Communication Society.
Discussion during the meeting "Ask the Experts" on EMC organized on the conference ship while sailing from Split to Dubrovnik.

Andrew Drozd, 2006-2007 President of the IEEE EMC Society, giving the President's State of the EMC Society Message to the members and guests of the Croatia Chapter.

Elya Joffe, IEEE EMC Society President-Elect, during the tutorial he gave to the members of the Croatia Chapter and the guests interested in grounding design.

Elya Joffe and Antonio Sarolic (right) adjusting the instruments before starting the EMC Experiments/Demonstrations at the Symposium on EMC in Split.

Promoting the interests of the IEEE and EMC Society at the promotional booth during the EMC Symposium and SoftCOM 2007 in Split.

Elya Joffe demonstrating the change in current flow for the participants of the EMC Symposium and SoftCOM 2007 in Split.

A demonstration of the error in EM field measurement for modulated RF signals was performed by Antonio Sarolic from the University of Split.

Traditional Dalmatian dance performed by the Jedinstvo group during the reception in Split organized for the participants of the EMC Symposium and SoftCOM 2007.
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President of the IEEE EMC Society, Mr. Andrew Drozd, and the President-Elect, Mr. Elya Joffe. Their significant contributions directly increased the quality of the Symposium. Twenty-seven Chapter members and guests had the opportunity to attend very interesting and instructive presentations about Electromagnetic Diversity given by Andrew Drozd as well as his President's State of the EMC Society Message. The Chapter is especially thankful to its Angel Elya Joffe for his valuable support in organizing the Symposium as well as his great contribution during the Symposium. His well attended tutorial titled “Grounding, the Essence of the EMC Design” was very interesting for all in attendance, not only for the EMC members. Over 30 attendees showed a great interest in these two presentations accompanied with experiments and demonstrations. The technical presentations were completed with an intensive informal discussion during the meeting “Ask the Experts” on EMC topics, which was held on the conference ship while sailing from Split to Dubrovnik. Pleasant social events were organized in both conference towns. The participants and their guests enjoyed receptions given by the mayors of Split and Dubrovnik, respectively. In Split, a short concert of the local Dalmatia was held in the basement of the Diocletian Palace (a monument listed as the UNESCO World Heritage). While traveling from Split to Dubrovnik by ship, the participants had the opportunity to enjoy the beautiful landscape of the Dalmatian coast. In Dubrovnik, the participants were able to experience a piece of history while sailing around the old Dubrovnik walls in the 15th century replica boat “Karaka.” A presentation of the IEEE and EMC Chapter has been traditionally organized during the Career Day in the frame of the Faculty Days at the University of Split, FESB.

Similar action promoting the interests of the IEEE and EMC Society was also organized during SoftCOM 2007 at the promotional booth.

**Hong Kong**

The IEEE Hong Kong EMC and AP/MTT Chapters enjoyed a successful meeting on November 6. Dr C-K Chou, Chairman of IEEE International Committee on Electromagnetic Safety - Technical Committee 95, gave an interesting technical presentation on the topic, “RF Bio-Effect Research to Address Human Safety Concerns.” The IEEE Hong Kong EMC Chapter held a very successful technical event on December 15. On that date, Mr. Elya B. Joffe addressed two EMC topics of EMC principals and practices that were enjoyed by 25 attendees. Specific topics addressed by Mr. Joffe included 1) Current, if not obstructed,
will always flow in the “Path of...” and 2) Basics of EMI Diagnostics & Troubleshooting (with Case Studies). The Chapter is grateful to Elya for his presentation and was honored to host the EMC Society President-Elect for 2008-2009.

Huntsville
Glenn Shelby reports that the Huntsville Chapter finished out a busy and educational 2007 meeting year with one monthly technical meeting, an IEEE EMC Society Distinguished Lecturer presentation and the annual Chapter business meeting. In addition, the 2008 officers were elected and the technical presentations and meeting sponsors selected. Planning is well underway for the Chapter’s Huntsville IEEE EMC 2008 one-day EMC tutorial and exhibition to be held on April 29, 2008. The Chapter met at Mindready Systems on August 9 to hear Mr. Jeff Bruce of Steward present “Ferrites in the Suppression of EMI.” Fifty-four Chapter members and guests enjoyed the presentation and the barbecue buffet that Steward sponsored. Mr. Bruce discussed the basics of ferrites, practical design considerations when choosing ferrites, ferrite materials and performance, and ferrite part size and configuration. He also discussed Steward’s industry-leading SPICE models that correctly model ferrite performance under changing load conditions. Attendees spent time after the meeting asking technical questions and looking over the entire line of Steward ferrite kits that were on display. The Chapter is grateful to Mr. Bruce for both the presentation and for the meal sponsorship.

The Chapter met at ADTRAN on September 13 to hear EMC Society Distinguished Lecturer (DL) Dr. Jun Fan present “Power Distribution Network (PDN) Design for High-Speed Printed Circuit Boards (PCBs).” The talk was well attended with 66 Chapter members and guests present. A delicious buffet meal was provided by Gold sponsor Mr. Tom Eichelberger of Amplifier Research and Silver sponsors Mr. Jim Stone of Underwriters Laboratories and Mr. David Provancha of Stanley Associates. Dr. Fan provided an overview of PDN design issues in multi-layer PCBs and focused on minimizing interconnect inductance, decoupling capacitor values and placement, and the advantages of using a thin power/ground plane pair. Dr. Fan’s talk was well received as evidenced by an extended question and answer session after the presentation. The Chapter is grateful to Dr. Fan for his traveling to Huntsville to talk to us.

The 2008 Chapter officer nominations and election were held in October. The 2008 officers are as follows: Doug Parker from ADTRAN will be the Chair, Jeff Whitmire from ADTRAN will be the Vice-Chair, Jim Stone from Underwriters Laboratories will be the Treasurer, and Jack McFadden of Wyle Laboratories will be the Secretary. The Chapter is grateful to these new officers who volunteered to step up and lead the Chapter. The annual Chapter business meeting was held at ADTRAN on November 1. The main topics of discussion were the 2008 meet-
IEEE EMC Society Distinguished Lecturer Dr. Jun Fan presenting to a packed house at the Huntsville September meeting.

Huntsville Chapter Chair Glenn Shelby (left) presenting a certificate and gift to Dr. Jun Fan in grateful appreciation for his presentation at the September technical meeting.

Food always figures big in Huntsville Chapter meetings and the August meal sponsored by Jeff Bruce of Steward was a hit.

Huntsville Chapter members listen attentively during the business portion of the August meeting.

Jeff Bruce of Steward presenting “Ferrites in the Suppression of EMI” during the Huntsville August technical meeting.

Huntsville Chapter members Ken Javor (left), Brian Smith (center), and Jeff Whitmire (right) signing in for the September meeting.

Huntsville Chapter members enjoying the September buffet meal provided by Amplifier Research, Underwriters Laboratories, and Stanley Associates.

Doug Parker of ADTRAN (left) catching up with meal co-sponsor Tom Eichelberger (right) of Amplifier Research before the Huntsville September meeting.

Huntsville Chapter members Ken Javor (left), Brian Smith (center), and Jeff Whitmire (right) signing in for the September meeting.
ing schedule, 2008 officer election results, and planning for the Chapter's Huntsville IEEE EMC 2008 one-day tutorial and exhibition. 2007 was a successful year with four monthly technical meetings and the Distinguished Lecturer presentation. The average attendance at the monthly meetings was 55. The Chapter is indebted to both ADTRAN and Mindready Systems for hosting the monthly meetings. Without their support, the Chapter would not have been able to educate the large Huntsville technical community about EMC. The 2008 monthly technical presentations will include "MIL-STD-461F Revisions" by Mr. Jack McFadden of Wyle Laboratories, "Sources of Noise, Modes and Paths of Electrical Noise Generated by Switch Mode Power Supplies" by Mr. Steve Robinson of ADTRAN, "Updates on RTCA DO-160 Lightning Testing" by Mr. Mike Hopkins of KeyTek, and "EMI Troubleshooting Commandments" by Mr. Glenn Shelby of NASA. An EMC Society Distinguished Lecturer presentation is planned for September and the year will close out with the annual business meeting in October. The Huntsville IEEE EMC 2008 one day EMC Tutorial and Exhibition will be held Tuesday April 29, 2008 at the Von Braun Center in Huntsville. Dr. Bruce Archambeaut of IBM will be presenting "PCB Design Techniques for Real-World EMI Control." Be sure to get your registration in early for this outstanding tutorial and exhibition! For details on the event, please see the Chapter website at http://ewh.ieee.org/r3/huntsville/emc/ or contact event chair Glenn Shelby at glenn.shelby@nasa.gov.

Japan

More than 100 EMC professionals in Japan joined a meeting in Sendai on October 25, 2007 to celebrate thirty years of EMC research activity in Japan. The two Chapters, one in Sendai and one in Japan, started in 1977. A research and technical meeting of Japan, the Technical Committee on EMC Institute of Electronics, Information and Communication Engineers (IEICE), is helping with its monthly activity. Also, the EMC Sendai Seminar marked its 179th technical meeting recently. Special lectures came before the ceremony. Professors Risaburo Sato and Tasuku Takagi talked on topics related to the birth and growth of EMC research in Japan and its history over the past thirty years. After the commemorative lectures by these two forerunners, Professor Masamitsu Tokuda talked about his recent research in EMC as a new IEEE EMC Society Fellow. The 30th anniversary event was a warm and bright ceremony. The two meeting Chairs, Professors Hiroshi Inoue (Akita University) and Hideaki Sone (Tohoku University), expressed their thanks to many people in the research field of electromagnetic compatibility. Eight researchers, who were successive chairpersons of the EMCJ, Professors Masamitsu Tokuda, Shuichi Nitta, Yoji Nagasawa, Akira Sugihara, Yoshi K Kami, Hiroshi Echigo, Youji Kotsuka and Ryuji Koga, received awards recognizing their contribution to establishing EMC activity in Japan.
Long Island
David W. Sterner of the Long Island Chapter reports that in 2007 they had six meetings, including a presentation at LISAT 2008 (Long Island Systems Applications and Technology Conference). Topics included antenna characterization, Mohr on minimizing crosstalk in wiring and cabling, performance characteristics of capacitors, metalization of plastics, and techniques to reduce conducted emissions in a power supply. At IEEE EMC 2007, Anthony Zimbaldi represented the Chapter and was honored as one of the Founders of the IEEE Electromagnetic Compatibility Society. The officers for 2008 are Tom Schneider, Chairman, and Don Lerner, Vice Chairman.

Central New England
John Clarke, Secretary, reports that the Chapter held a meeting on Wednesday, November 7. The speaker was Douglas C. Smith of D.C. Smith Consultants in Los Gatos, California. The presentation covered the topic “Locating ESD and other Impulsive Events using the Speed of Light.” Modern electronic equipment can be much more susceptible to impulses in the environment or even on the same printed wiring board. At the same time, digital oscilloscopes now can single shot sample a waveform at 40 gigasamples/sec. Methods of using high-speed scopes to track down sources of noise in a room or on a circuit board were described. Several “war stories” were shared with the audience to illustrate the point. Also, experiments were conducted with volunteers from the audience in order to demonstrate the phenomena described. Twelve people attended the November meeting, including 11 IEEE members and one guest. During calendar year 2007, the Chapter was only able to schedule the minimum requirement of two meetings - on April 17 and November 7. However, the Chapter was also a Co-sponsor of the nationally successful Tech Tour, held at the Westford Regency Hotel and Conference Center on June 19. Chapter members Lee Hill and Randal Vaughn were two of the speakers. Chapter Chair Boris Shusterman represented the Chapter at the 2007 IEEE International Symposium on EMC in Hawaii. This year, the Chapter will resume its normal schedule of three or four meetings. Boris has been in contact with a number of potential speakers for 2008.

New Jersey Coast
Chrisna Raghunandan, Chapter Chair, reports that the New Jersey Coast Chapter actively presented four technical talks that were very well attended. The first two talks were held at the Infogae Museum in Wall Township. This museum was an active site that supported military communications through the Second World War and later. There was a brief introduction to the museum and its artifacts by its curator prior to the IEEE talk. On November 11, 2007, Elya Joffe gave a presentation entitled, “Don’t Want a Cell Tower Near Your Home?” His talk covered a topic that caught a lot of public attention. The talk was well attended with many representatives of township boards who were actively considering towers in their townships. The presentation brought a lot of detailed material yet was presented with a good sense of humor to keep such a controversial topic both honest and down to earth. Slides were made available on the New Jersey coast web site prior to the talk so that many members of the public, who could not attend, could benefit from the material. The same day, Elya also spoke on, “Frequently Asked Q & As on EMC and PCB Design.” This was a hands on technical talk that presented commonly encountered questions on how to design circuits and systems keeping EMC in mind. This talk was very much appreciated by active design engineers. The talk was kept highly interactive with many questions from the audience on do’s and don’ts that were presented during the talk. On November 30, Krishna Raghunandan gave a presentation entitled, “Environmental Effects of Wireless Radiation.” This was a companion talk to the first talk and covered facts and figures from a variety of standards bodies including the IEEE. The talk focused on engineers who were involved in the design of antennas and towers and had to respond to townships or other agencies. The talk brought to light typical power levels used by communication transmitter today and corresponding power levels of hand held devices used by the public. The talk was well received and there were many questions from the audience. On December 12, 2007, Amit Mukhopadhyay gave a talk regarding, “Cell Phones on Board Airplanes.” This talk addressed the issue of using cell phones on board commercial aircraft. Technical issues concerning how different service providers intend servicing customers were discussed. It brought to light a variety of safety concerns as well as services that were offered until recently and what is likely to be offered in future. This was an illuminating talk not only for the frequent flyer, but also for engineers who need to work through many agencies to make such systems operable. Slides of the New Jersey Coast meetings are available at: http://ewh.ieee.org/r1/njcoast/ Click on the talk’s title after selecting “calendar of events.”

Orange County
Jeff Klinger, Chapter Chair, reports that the Orange County Chapter resumed meetings after the 2007 summer break with a very interesting and well attended presentation by Jack Unger, of Askwi.com, on the wireless internet service provider (WISP) industry. His talk focused on the need for FCC compliance on the hardware that is being assembled from radios that are mostly not approved, or only partially approved, in a very limited fashion. Other topics from this presentation included the progress and state of WiMAX and the effect on the WISP industry. In October, Mathieu van den Bergh, of CNS Inc. Poway, California, gave a very rich and informative presentation on “Compliance testing for low voltage power line immunity and low frequency emissions of electrical products.” Electrical products are used in just about every industry segment and need to be tested to assure they are immune to common disturbances occurring on the public low voltage supply system. Also, electrical products offered for sale in Europe and most Asian countries must meet emissions standards; that is, they cannot inject too many current harmonics or cause excessive voltage fluctuations of the public supply (100/220/230 V-rms at either 50 or 60 Hz). The presentation by Mathieu van den Bergh included discussions on test methods, equipment needed for the tests, and some case histories of measurements and problem resolution with tested equipment. In the process, measurement standards, such as IEC61000-4-7 and IEC61000-4-15, which apply for these compliance tests, were reviewed in great detail. Upcoming amendments to both measurements standards were presented. Also, amendments for IEC61000-3-2/12 and 61000-3-3/11
Joe Butler of Chomerics speaks to the Phoenix Chapter about shielding effectiveness testing of EMI shielding materials.

Phoenix

Glen Gassaway reports that the fall meeting included the election of Chapter officers for 2008. After some discussion, the Chapter voted to retain the existing officers for another year. Harry Gaul then introduced our featured speaker, Joe Butler of Chomerics. Joe is also a Past-President of the IEEE EMC Society. Joe started his presentation on shielding effectiveness testing of EMI shielding materials (such as EMI gaskets, paints, shielded windows and vents) by mentioning that the industry does not have a consensus standard in place. Rather, the test methods for shielding effectiveness range from variants of the long ago retired MIL-STD-285 to the more recent IEEE-STD-299. For military oriented products, the shielding data is quite often a result of a modified MIL-DTL-83528 test method. Although Joe described several shielding test methods for various products from various sources, the majority of shielding effectiveness data tends to be derived from radiated field-testing methods. While many large corporations that have EMC groups on staff may use transfer impedance and reverberation chamber test methods due to their more inherent accuracy and repeatability, most vendors of shielding components have not followed their lead. The reasons for this difference in approach run from factors such as lack of resources, the comfort level of the vendor’s EMC engineers in interpreting the internally generated data, to the inherent frequency limitations of these latter test techniques when contrasted against the market need for 30 MHz to 40 GHz shielding effectiveness test data needed to market the products. Current standards activities include revisions to IEEE-STD-299, generally creating three methods based on enclosure size. These activities are trending more towards reverberation chamber techniques, generally thought of as the most accurate. Unfortunately, these techniques may generate test data that makes shielding products look 'worse' than presently used methods. For this reason, as well as cost and resources, most shielding manufacturers have not yet incorporated reverberation techniques as part of their material test programs. Joe mentioned that some customers have recently been interested in assurances of long-term reliability through post environmental testing (such as ALT). The industry is also interested in 94V-0 flammability ratings, RoHS and other “green” initiatives. Customers have requested elemental analyses of various products. Material shielding effectiveness using modern trivalent coatings (MIL-C-5541F) has also been an issue. Some agree that new standards are needed for these trivalent coating techniques. Information on future meetings is available on the Phoenix EMC Chapter Web site at http://www.ewh.ieee.org/r6/phoenix/phoenixemc/.

Pittsburgh

A meeting of the Pittsburgh EMC Society Chapter was conducted on October 25, 2007 at the Westinghouse Energy Center in Monroeville, Pennsylvania. Michael Oliver, IEEE EMC Chapter Chair and Harry Godlewski, Vice Chair, hosted the meeting with 12 IEEE members. The meeting started with a social prior to a technical presentation. We had the privilege of having Steven Ferguson as our technical speaker; Steven is the Vice President of Operations with Washington Labs. Initial discussions encompassed EMC related job openings from two recruiting companies, Enlow & Associates Inc. (peggy@enlowinc.com) and HBE Corporation (kdulatt@hbecorp.com). The upcoming technical presentation agenda and an introduction of Mr. Steven Ferguson was then announced. In Stevens’ career, he has worked on the space shuttle, Hubble telescope, and many other high profile jobs performing and/or coordinating EMC testing. The technical presentation by Steven is titled “MIL-STD-461E (F) Requirements and Techniques.” This presentation is based upon the military standard and its new requirements along with the expert
product testing experience that Steven brings to his audience. Steven discussed EMC testing per MIL-STD-461E with emphasis on requirements for documentation (the DIDs), instrumentation, and preparation of the test article. A brief overview of each test method was included along with advice about tailoring for the unusual test. Such an overview of MIL-STD-461 is helpful to the test engineer to enable better understanding of the test data. In addition, this overview helps the design engineer to understand what could happen to his product during the testing. MIL-STD-461, revision F is tentatively scheduled for release near the end of October; the presentation included these proposed changes in comparison to revision E. As the Vice President of Operations, Steve Ferguson is responsible for the day-to-day testing and engineering activities at Washington Labs. He also prepares control plans, test plans, and test reports to guide the design from concept to qualification test acceptance for DoD and commercial programs. He has over 28 years of experience in the EMC area with prior management positions for US Government and commercial electronics manufacturers. At times, he can be found in the laboratory or on-site performing a test or presenting a hands-on course in testing per MIL-STD-461.

Rocky Mountain Meeting in Westminster (northern suburb of Denver), the Rocky Mountain Chapter of the EMC Society (RMCEMC) continues to have a strong program with a wide variety of EMC related topics. The Chapter was the first to try out the Webinar technology for an EMC Distinguished Lecturer technical presentation. On October 9, EMC Society Distinguished Lecturer Dr. Jun Fan (of the Missouri Institute of Science and Technology) presented a talk to the Chapter on "Power Distribution Network Design for High-Speed Printed Circuit Boards" using the Webinar technology. Dr. Fan presented from Missouri; 80% of the participants met in Westminster, Colorado; and the last 20% of the Chapter participants participated from as far as a two-hour drive away from Westminster. This format was well received especially for those people that live and work far away from our normal Chapter meeting location. Admittedly, on-site speakers always have the advantage of more informal interaction with the speaker before and after the actual presentation, but the Webinar allows more presentations to be made worldwide for minimal cost. For this meeting, we also implemented a new online survey using SurveyMonkey services that made entering and collecting the survey data much more efficient. On October 30, Mr. Ian Dodd provided an on-site technical presentation on "Multi-Gbps Channel Analysis for the IC and System Level Designer." Then on December 3, Mr. Otto Buhler gave a presentation on "Power-Ground Plane Transient Impedance." He provided some insightful conclusions regarding the limits of usefulness of the imbedded capacitance and appropriate implementations of decoupling capacitance. The slides and papers from
these talks are posted on the Chapter web
site at http://www.ewh.ieee.org/r5/den-
ver/rockymountainemc/. In Chapter
elections, the 2008 Chapter officers
are Monrad Monsen (Chairman), Ste-
fen Munford (Vice Chairman), and
Chuck Still (Secretary).

Seattle
Pat André, Chapter Chair, reports that
the Seattle hosted a four-hour, afternoon
meeting on October 10, 2007. The
speaker was Dr. Bruce Archambeault,
Distinguished Engineer from IBM
(Research Triangle Park, North Caroli-
na), and the author of the book “PCB
Design for Real-World EMI Control.”
Dr. Archambeault gave two talks during
that time, “The Ground Myth” and
“Proper Decoupling Strategies for Both
EMC and Signal Quality.” The talks
were very well attended and received.
With a lively crowd and a hearty lunch
provided by CKC Laboratories, atten-
dees enjoyed an afternoon of fellowship
and a highly informative discussion. Dr.
Archambeault is always well received
and most entertaining to listen to, and is
able to make Maxwell’s equations easy to
understand. His board layout techniques
challenge the status quo, but are sup-
ported by sound physics and much
research. In support of the Society, Gene
Garat of Moss Bay EDA supplied three
IBM thumb drives to be given away as
Sendai
On December 11, the 3rd EMC Colloquium of 2007 was held at the Akita University. The event was made possible largely due to the efforts of the Chapter's Vice Chair, Professor Hiroshi Inoue of the University. There were two great lectures given by Professor Christos Christopoulos of the University of Nottingham in the U.K. and Professor Koushi Abe of the Akita Prefectural University. Professor Christopoulos presented the interesting and well-organized lecture entitled, “Towards the Virtual EMC Laboratory” for a large audience of over 150 people. Colorful slides were displayed for the EM fields and waves of simulations and experiments. New approaches will start as mentioned in his lecture. We all would like to express great thanks to Professor Christopoulos for visiting our Sendai Chapter after the long trip from the U.K. and Haneda. Professor Abe gave the lecture entitled “Progress of Microwave Technology for Public Communications” about his entire research efforts up to now. His research involved microwave communications and applications including EMC technologies. His experiences on the
developing systems in the early days of microwave communication systems were presented. After the lecture, two Professors and the Chapter officers were all smiles in front of the Sendai Chapter flag. A special thank you goes to Professor Yoichi Kotsuka, Chairperson of the Japan Chapter, for promoting this lecture and helping the speaker plan his trip.

Singapore

In the second half of 2007, the Singapore Chapter organized a series of well-attended technical meetings. On 19 July 2007, Dr. Zhang Yaojiang, a Researcher from the Missouri Institute of Science and Technology, delivered an interesting talk titled “Signal Integrity and Power Integrity in High-Speed Digital Packages and PCBs.” Twelve people attended the event. Professor David Chen Zhizhang, Dalhouse University, Canada, gave a talk entitled “A DSP Based Retrodirective Array System for Duplex Digital Communications at 2.4 GHz” on September 12, 2007. The EMC Singapore Chapter and the MTT/AP Singapore Chapters jointly organized this seminar. Twenty attendees participated in the meeting. Another technical seminar jointly organized with the MTT/AP Chapters was held on October 3, 2007. The speaker was Professor Jose Schutt-Aine from the University of Illinois, Urbana-Champaign. He delivered a talk on “Perspectives and Challenges in the Future of Integration.” More than 30 people attended the seminar. Later that month, the Singapore Chapter was pleased to welcome Todd Hubing, a Michelin Endowed Professor from Clemson University. Dr. Hubing gave a very interesting seminar on “Essential New Tools for EMC Diagnostics and Testing.” Nearly 50 attendees came to the seminar. The attendees enjoyed the presentation as well as the informative Q&A session held at the end of the seminar. On December 10, 2007, Professor Jin-Fa Lee of The Ohio State University gave a presentation titled, “Vector Finite Element Methods with Efficient Matrix Solution Techniques.” More than 10 people attended the seminar. All the above events were held at the Institute of High Performance Computing in Singapore. Last, but not least, the Singapore Chapter was very pleased to have Mr. Elya B. Joffe, President Elect for 2008-2009, IEEE EMC Society, give an excellent talk entitled, “Why is EMC Immunity Testing INADEQUATE for Functional Safety Verification?” Mr. Joffe’s presentation was held on December 11, 2007 at the Nanyang Technological University in Singapore. More than 20 people attended the event. 2007 was another fruitful year for the Singapore Chapter. The IEEE EMC Society presented its “Most Improved Chapter 2007” award to the Chapter. It is the second time that the Singapore Chapter won this award. The Chapter Chair, Professor See Kye Yak, personally received the award from IEEE EMC Society President, Mr. Andrew L. Drozd, at the 2007 IEEE International Symposium on EMC, in Honolulu, Hawaii in July.
The Twin Cities EMC Chapter held its first 2008 meeting at the Hilton Hotel in Minneapolis on January 22. A cocktail hour and a three-course dinner preceded the meeting. Approximately 30 people were in attendance; twenty of who were IEEE/EMCS members. The meeting was held in conjunction with a weeklong IEC SC62A Maintenance Team 23 standards meeting, which addressed IEC 60601-1-2. The speakers of the evening were Jim Conrad (consultant) and Jeff Silberberg (FDA) who both spoke on the latest changes to IEC 60601-1-2 (EMC Medical Devices Standard) and the potential splitting of the standard into a “safety” related standard and an EMC performance standard. Jeff also showed several slides on the new facility at the FDA, which includes EMC test capabilities.

Twin Cities chapter members enjoy the social mixer prior to their January 2008 meeting. Left to right: Bob Schlentz, (Consultant) (back to camera), Harald Buchwald (Mikes and MT23 member), Joel Peltier (Medtronic), Tim O’Shea (Medtronic), and Veronica Ivans (Medtronic).

Curt Spanberg (Medtronic), Colleen Spanberg, Christer Sommar (Synergus Medtech Consulting), Mrs. Sommar, and Jeff Silberberg (from left) enjoyed dinner before the meeting.

Joel Peltier (Medtronic), the Twin Cities Chapter Chair, with the Chapter’s January 2008 guest speakers: Jim Conrad and Jeff Silberberg (from left).