

## News bits

### ANSI/ESD S541 on Web site

Packaging standard *ANSI/ESD S541-2003: Packaging Materials for ESD Sensitive Items* is now available from the ESD Association. The new standard can be downloaded at no charge from the ESDA Web site, [www.esda.org](http://www.esda.org), or it may be purchased by contacting Association headquarters. The document defines the packaging properties needed to protect electrostatic discharge susceptible (ESDS) electronic items, discusses application requirements, and references the testing methods for evaluating packaging and packaging materials.

### Exhibit at the EOS/ESD Symposium

Over 50 exhibitors have already committed to the 2003 EOS/ESD Symposium. There is good space available, but it's going fast. For information on exhibiting, contact Scien-Tech Associates, Inc., P.O. Box 2097, Banner Elk, NC 28604-2097; Tel: 828-898-6375, Fax: 828-898-6379.

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## EOS/ESD Symposium

### Insights from those in the know

The 25<sup>th</sup> anniversary edition of the EOS/ESD Symposium opens in Las Vegas in just a couple of months. For an "insider's" view of what this year's event has to offer, we talked with four of the individuals responsible for overseeing the 2003 Symposium: Joe Bernier, Inter-sil Corporation, general chair; Christian Russ, Sarnoff Corporation, technical program committee chair; Leo G. Henry, ESD/EMI/TLP Consultants, national tutorial chair; and Larry Ting, Texas Instruments, workshops chair. Here's what they had to say.

**Threshold:** *Twenty-five years seems to be an impressive run for a technical conference such as the EOS/ESD Symposium. What are some of the factors that help the Symposium continue to attract technical presentations as well as attendees year after year?*

**Bernier:** The Symposium is the best source for ESD information and solutions across the board. For 25 years we have brought together the experts in the field to share their knowledge, understanding, and ideas. Our university outreach helps attract leading edge papers from academia. The



Joe Bernier

*Symposium Proceedings* are referenced frequently and people want to contribute to this knowledge base. Attendees want to be here for the presentations by the leading authors in the field, and

they want to talk to and work with our vendor community at the exhibits.

**Threshold:** *What are some of the highlights this year that follow the Symposium's past traditions or that attendees might find are totally new?*

**Bernier:** As in past years, we have a full slate of tutorials on Sunday, Monday, and Thursday. This year, many of them earn credit towards the new Program Manager certification that the ESDA has announced. (**Editor's note:** see story on page 7) The tutorials are always very popular, so be sure to register early to reserve a space.

We have a welcome reception in the exhibits area on Monday evening where you can get a head start at checking out the exhibits in a relaxed atmosphere. The awards breakfast on Tuesday morning is always a good kick-off to the technical sessions. We have parallel technical sessions plus a new plenary session that features a talk on electronic packaging and ESD. This session should be of interest to people in all of our traditional "tracks". We also have some new workshops as well as some returning favorites.

**Threshold:** *The technical papers are a primary focus of the Symposium. What general topic areas are covered in the technical sessions this year? Which areas are new or expanded this year?*

**Russ:** We have received and selected papers from literally every area with an ESD concern. The range of topics starts with electrostatic control and preven-

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## 2003 Symposium insights

tion in the *Factory and Materials* session and also includes handling of electronic



Christian Russ

components of ultra-high ESD susceptibility in the *Magnetic Recording Heads* session. Then we move to *Discharge Phenomena in Theory and Practice* where you can listen to papers about how electrostatic discharges occur

and how they affect your electronic system.

Eventually, the Symposium program deals with everything about ESD in integrated circuits. While this has been a classic focus of the Symposium for many years, the seemingly never-ending miniaturization—or should I say *nanotization*—in IC technology receives ever-growing attention at the Symposium. Attendees can hear about the new challenges in on-chip protection design that are truly the latest state-of-the-art!

**Threshold:** *What papers are introducing new technologies or making major advances in the field?*

**Russ:** I am a “device guy.” That’s what some folks tell me. Naturally, I feel very much attracted to the latest advances in on-chip ESD protection. We have several sessions with papers about on-chip ESD that reflect the hottest areas and latest challenges. Not only will there be papers about the device itself, *Characterization of On-Chip Protection*, but also on how to test these devices, *Trends in ESD Testing*. Then, there is an entire session for the “hard core device guys,” *On-Chip Protection Strategies, Physics, and Modeling*, where there are essentially two different focal points: devices and circuits.

High speed ICs with electrical signals topping many GHz have become increasingly important. If you want to hear about ESD protection of these devices, attend the session *RFIC and Novel Protection Devices*. We also have a session dedicated specifically to the latest developments in IC power supply line ESD protection, *Advanced Power Clamps for On-Chip Protection*, which is another key topic that you don’t want to miss.

**Threshold:** *What opportunities are there for the attendees to interact with the authors and discuss the issues in greater depth?*

**Russ:** After each paper presentation, we have some time set aside for Q&A in the technical sessions. I encourage the audience to bring up their questions and enter the dialog. The authors’ corners create the opportunity to meet the speakers and authors in a more relaxed atmosphere. The authors will have their presentation slides available on poster board for further discussions with the attendees. Attendees may prefer this more direct, face-to-face conversation with the authors. In addition, speakers and authors are identified by colored ribbons on their name badges. You’ll be surprised at how many speakers and authors you will bump into!

**Threshold:** *This year’s tutorial program has been expanded from last year. Would you describe some of the new tutorials that have been added?*

**Henry:** In 2002, there were 15 tutorials and for 2003, there will be 20 offered. Three totally new tutorials are being presented this year: *Packaging of Electronic Products for Shipment*, *Design of TLP Systems and Applications of the Very-Fast TLP*, and *Transmission Line Pulse Measurements: Parametric Analyzer for ESD On-Chip Protection*. As part of the process of rotating some classes every year, three courses are returning to the schedule this year: *System Level ESD/EMI—Part 1: Principles, Design*



Leo G. Henry

*Troubleshooting, and Demonstrations; ESD Handling and Tool Design Practices for Extremely ESD-Sensitive Devices; and Troubleshooting On-Chip ESD Failures.* And, because

of the attendee demand and interest, we have increased the time period for two courses: *Application and Process Dependent ESD Design Strategy* and *Device Testing—Component Level: HBM, CDM, MM, and TLP*.

**Threshold:** *What tutorials would be appropriate for first time attendees?*

**Henry:** This depends on what your ESD goal is. The three tutorial tracks are meant to help guide you relative to your discipline. If you are entering ESD for the first time and you are in ESD control, then you might consider choosing courses like *ESD Basics*, *ESD Control in Cleanrooms*, or *Organizing and Managing an ESD Control Program* from track 2 on *Factory, Materials, and ESD Control*.

**Threshold:** *There are also more advanced tutorials. What topics do these tutorials cover?*

**Henry:** There are several intermediate and advanced tutorials on topics such as *ESD Handling and Tool Design Practices for Extremely ESD-Sensitive Devices* and *EOS/ESD Failure Models and Mechanisms*. Some previous exposure to ESD is expected of attendees at these tutorials.

**Threshold:** *The tutorial program traditionally provides educational opportunities for those seeking to obtain NARTE ESDC*

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## EOS/ESD Symposium

*continued from page 2*

### 2003 Symposium insights

*certification. What opportunities are being offered this year? How about tutorials supporting the newly announced ESDA certification programs?*

**Henry:** The ESD tutorial program continues to provide education for those seeking to obtain NARTE ESDC certification for both technicians and engineers. We are offering four courses that will be helpful to those taking the technician exam and seven courses that will be helpful to those taking the engineer exam.

New this year are courses to support the recently announced ESDA certification program for ESD program managers. The three tutorials are *Air Ionization: Issues and Answers*, *How To's of In-Plant ESD Survey and Evaluation Measurements*, and *Electrostatic Calculations for the ESD*

*Engineer*. This new ESD certification program requires taking courses over a 2-3 year period, so additional courses will be offered next year. In addition, a separate two-day seminar, *ANSI/ESD S20.20 Seminar for Independent Assessors, Program Managers, and Consultants*, is being offered in support of Program Manager certification.

**Threshold:** *The workshop sessions continue to be quite popular each year. Can you describe the role that they play in the attendee's Symposium experience?*

**Ting:** The workshop attendees get the opportunity to learn from other ESD experts or present their own views regarding the biggest headaches in their jobs or on current practices of approaching the

issues. Everyone participates and contributes his views, opinions, and ideas. It is fully interactive among a large group of experts in the field. The issues raised could be a common concern or problem to many people or a new phenomenon that others overlook or will encounter later. I sometimes check out sessions that are new to me, just to pick up the names and a quick update of the current hot topics in the area.

Some workshops are mini-seminars that are presented by panelists. In each session, the moderator invites well-recognized experts in the field to provide an overview and a list of issues for discussion. This list is the backbone and the

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## EOS/ESD Symposium and Exhibits Program and Schedule Summary September 21-25, 2003, Riviera Hotel, Las Vegas NV (Program Subject to Change)

### Saturday, September 20

Registration Opens

### Sunday, September 21

Registration  
ANSI/ESD S20.20 Seminar, Part 1  
Tutorials

### Monday, September 22

Registration  
ANSI/ESD S20.20 Seminar, Part 2  
Tutorials  
Welcome Reception (Exhibit Hall)  
Exhibits Open

### Tuesday, September 23

Registration  
Awards Breakfast  
Plenary Session, *High Performance IC Package Design and Electrical Reliability*

Exhibits Open

Technical Sessions  
*Advanced Power Clamps for On-Chip Protection*  
*Trends in ESD Testing*  
*On-Chip Protection Strategies, Physics, and Modeling*  
*Discharge Phenomena in Theory and Practice*  
Professional and Technical Women's Reception  
25th Anniversary Gala (Dinner and Entertainment)

### Wednesday, September 24

Registration  
Technical Sessions  
*RFIC and Novel Protection Devices*  
*Factory and Materials*  
Exhibits Open  
Workshops

### Thursday, September 25

Registration  
Technical Sessions  
*Characterization of On-Chip Protection*  
*Magnetic Recording Heads*  
Tutorials

### Friday, September 26

NARTE ESDC Technician Exam  
NARTE ESDC Engineer Exam



## Symposium

*continued from page 3*

### 2003 Symposium insights



Larry Ting

attendees are encouraged to add new issues to the list.

**Threshold:** *How do the workshops tie in with the technical sessions or the tutorials?*

**Ting:** There are always open issues from the technical sessions and the tutorials. The workshop is the place for

detailed discussion, with adequate time and with all interested parties involved. The workshop discussion sometimes inspires new ideas, contributes to follow up studies, and leads to presentations in the technical session in the next year.

I consider the workshops, the technical sessions, and the tutorials to be the essential elements of a flow that drives the industry to advance. New ESD issues often show up first at the workshop. At that point in time, we often do not know everything about what the problem really is. It takes time to fully characterize the problem and to come up with feasible

solutions, which are then often presented at future technical sessions. As the new issues settle down, the lessons learned are summarized and passed down through the tutorials.

**Threshold:** *What special events are being planned for this 25<sup>th</sup> anniversary Symposium?*

**Bernier:** The biggest is certainly our 25<sup>th</sup> gala celebration on Tuesday evening, which will take an irreverent look

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**Advance your professional career! Get NARTE certified!**

## Preparing for the NARTE certification exams

If you're considering becoming NARTE certified as an ESD Control (ESDC) Engineer or ESD Control (ESDC) Technician, this year's Symposium will feature a number of tutorials that will help you prepare for the NARTE certification exams.

Examinations for the ESDC Engineer and ESDC Technician certification will be held Friday, September 26. You can prepare for the exams and add to your education by attending the tutorials that have been designated as examination preparation courses.

### Preparing for the technician Exam

*ESD Basics* (Sunday)

*Air Ionization: Issues and Answers* (Monday)

*How To's of In-Plant ESD Auditing and Evaluation Measurements* (Monday)

*ESD Standards and Procedures* (Thursday)

### Preparing for the engineer Exam

*ESD Basics* (Sunday)

*Air Ionization: Issues and Answers* (Monday)

*EOS/ESD Failure Models and Mechanisms* (Monday)

*How To's of In-Plant ESD Auditing and Evaluation Measurements* (Monday)

*Device Testing-Component Level: HBM, CDM, MM, & TLP* (Monday)

*ESD Standards and Procedures* (Thursday)

*Electrostatic Calculations for the ESD Engineer* (Thursday)

### Certification exams

**Friday, September 26**

ESDC Engineer exam

ESDC Technician exam

Additional information on the NARTE ESD certification program is available at the Symposium information booth, at the ESD Association booth, or by contacting ESD Association headquarters.



Symposium

*continued from page 4*

**2003 Symposium insights**

at *The History of ESD, Part I*, with all due apologies to Mel Brooks. We will have dinner, drinks, songs, and skits, as well as recognition of those people and companies that helped us get started 25 years ago and have been with us throughout the years.

**Threshold:** *You've added a special plenary session this year. Could you please discuss this session in more detail?*

**Russ:** For our topic on IC package design and ESD, we created a technical plenary session that will be interesting for everyone at the Symposium. We are very happy that we could attract Darwin Edwards, a Texas Instruments Fellow and an excellent speaker. Mr. Edwards will deliver key information about how IC packages will look in the future, the number of pins they will have, the mate-

rials that are being used for them, and the electrical and thermal requirements. You will be able to draw some conclusions about ESD implications in IC package assembly, during board assembly, and during IC operation. I am personally very excited and look forward to this and all other presentations at the Symposium.

**Threshold:** *In this tight economy, what benefits will attendees receive by attending the Symposium? Are there financial incentives that will help attendees reduce their costs of attendance?*

**Bernier:** The benefits of attending the Symposium are enormous. The educational opportunities alone are well worth the trip. You can hear about the latest in ESD protection designs, prevention strategies, and static mitigation techniques. You can talk to the experts in various

forums like the authors' corners, the workshops, or just walking around the exhibits. You can see the latest products, materials, and services that can help you solve your ESD issues.

We also realize that the economic situation requires some additional incentives, so we have developed several money-saving opportunities for people and companies. Bundled fees allow those people who are attending a full set of tutorials plus the Symposium to register at a significant discount. We have discounts for full-time students. And there are corporate sponsorship opportunities that include memberships, standards licenses, and Symposium passes all rolled into one package for a much lower price than if purchased individually. And, of course, there are discounts for those who register by August 8.

**Symposium Registration and Fees**

**Save by registering early**

You can save money and you can save time by registering in advance. Advance registration fees are valid only if received no later than **August 8, 2003**. Registrations received after this date will be processed at the on-site fees.

You can save several hundred dollars by registering early. Plus, attendees who participate in the "total Symposium experience" and full-time students will save even more.

To register, use the registration form in the program you received in the mail, download the form from the ESDA Web site, [www.esda.org](http://www.esda.org), or contact Association headquarters.

	Advance Fees On or Before <u>August 8, 2003</u>	On-Site Fees After <u>August 8, 2003</u>
<b>Symposium</b>		
ESD Association Members	\$495	\$695
Non-Members	\$595	\$695
<b>Tutorials</b>		
Sunday (Full Day)	\$475	\$550
Monday (Full Day)	\$475	\$550
Thursday (Full Day)	\$475	\$550
Thursday (Half Day, AM or PM)	\$275	\$275
<b>Student Fees</b>		
50% discount for full-time students. Proof of enrollment required. Student fees apply only to Symposium or Tutorial registration and do not apply to Bundled Fees.		
<b>Total Symposium Experience: Save with Bundled Fees</b> (Symposium plus 3 full days of tutorials)		
ESD Association Members	\$1,725	\$2,110
Non-Members	\$1,815	\$2,110
<b>\$20.20 Seminar</b> (Attendance limited to first 30 registrants)	\$1,495	\$1,495
<b>Exhibits Only</b>	No Charge	No Charge

Symposium

## Exhibits feature products, services, solutions, information

When you're searching for ESD products and services, where do you begin? If you're looking through a myriad of purchasing directories, checking the magazine ads, or walking the floors of major electronics trade shows, you're probably doing things the hard way.

There's an easier alternative. The 2003 EOS/ESD Symposium features nearly 100 exhibit spaces displaying ESD products and services from leading companies. All in one place and all at one time, you'll cover the broad spectrum of static protection, control, testing, and analysis, as well as prominent trade publications.

Admission to the exhibits is free. You don't even need to register for the Symposium or tutorials, although if you don't, you'll miss out on all the information that the technical sessions, tutorials, and workshops have to offer.



### List of Exhibitors

As of June 30, 2003

3M Electronic & Interconnect Solutions Division  
 ACL/Staticide  
 Advanced Test Equipment Rentals  
 Aesops, Inc.  
 Associated/ACC International, Ltd.  
 Barth Electronics, Inc.  
 Botron Company, Inc.  
 Bradford Company  
 ByStat International, Inc.  
 Carmelstat by Carmel Olefins  
 Century Container Corporation  
 Conductive Containers, Inc.  
 Credence Technologies, Inc.  
 Desco  
 Domco Tarkett  
 Dou Yee Enterprises Pte. Ltd  
 Electro-Tech Systems, Inc.  
 Electronic Polymers, Inc.  
 E-Mat  
 Ex-Tech Plastics, Inc.  
 Flexco  
 GOEX Corporation  
 Ion Systems, Inc.  
 Klockner Pentaplast of America, Inc.  
 Kostat, Inc.  
 Molded Fiber Glass Tray Company  
 Monroe Electronics

Noveon, Inc. Static Control  
 NOVX Corporation  
 NRD, LLC  
 Oryx Instruments Corporation  
 Panelyte/Laminated Plastics, Inc.  
 Premix Thermoplastics, Inc.  
 Prent Corporation  
 Prostat Corporation  
 Richmond Technology-ITW  
 RTP Company  
 Rubbermaid Commercial Products  
 Sarnoff Corporation  
 Semtronics Corporation  
 Senawang Laminating Technologies, Sdn Bhd  
 Simco Static Control & Cleanroom Products  
 Static Control Components, Inc.  
 Static Solutions, Inc.  
 Statico  
 Stephen Halperin & Associates, Ltd  
 Tech Wear, Inc.  
 Technical Coating International, Inc.  
 Tek Stil Concepts, Inc.  
 Thermo KeyTek  
 Trek, Inc.  
 Uniglobe Kisco, Inc.  
 Vidaro Corporation

VPI (Vinyl Plastics, LLC)-Flooring  
 White Mountain Labs

#### Publications

A<sup>2</sup>C<sup>2</sup>  
 Canon Communications  
 Clean Rooms  
 EE-Evaluation Engineering  
 Test & Measurement World

#### Sponsor

ESD Association

#### Exhibit Hours

Monday, September 22,  
 7:00 PM-10:00 PM  
 Tuesday, September 23,  
 9:00 AM-5:00 PM  
 Wednesday, September 24,  
 9:00 AM-4:00 PM

Information on exhibiting may be obtained by contacting David F. Barber, Jr., Scien-Tech Associates, Inc., P.O. Box 2097, Banner Elk, NC 28604-2097, Phone: 828-898-6375, Fax: 828-898-6379.

## Association approves new certification program for ESD program managers

The ESD Association has announced a new professional certification program for individuals who manage ESD programs. Approved at the June board of directors meeting, the new *Program Manager* certification is designed for persons who are actively involved in managing an ESD control program, consultants, and potentially even sales personnel for suppliers of ESD control products.

Currently, there is no formal program for training people who want to learn how to manage an ESD program or who want to demonstrate their skills to their present or future employer. The Association's national tutorial program has presented educational tutorials and seminars for many years, but the content of these classes has, for the most part, been left to the author. There has been no conscious attempt to develop a set curriculum based on the skills that an ESD program manager needs to do the job. In addition, the NARTE ESD certification designation does not specifically address a person's knowledge or skills in this area and the exam prep classes do not necessarily teach the student what they need to know in order to operate an ESD program.

"We are very excited about this new program," says ESDA president Steve Halperin. "It fills one of those gaps in ESD professional development that our membership has identified and asked us to act upon."

The new Program Manager certification addresses these issues through a four-element program of

1. Required prerequisite courses
2. An optional certification exam review class

3. An in-depth examination including multiple choice and essay style questions

4. Continuing education

### Prerequisite courses

The prerequisite course curriculum is based on the types of skills generally required by people who have responsibilities as ESD program managers. The current list of required classes are

- ESD Basics
- Ionization
- Packaging
- ESD Standards
- ESD Calculations
- Cleanroom Considerations
- ESD Program Development and Troubleshooting
- ESD Program Assessment
- Environmental Overview
- Device Input Protection/Failure Analysis/Device Testing Overview
- Test Equipment and Program Auditing Techniques

The courses, in the form of tutorials or seminars, will be offered during EOS/ESD Symposium week and throughout the year, possibly in conjunction with the Association's winter and spring meeting series. Because all courses may not be offered in a given calendar year, it is anticipated that it likely would take two

years for an applicant to complete the course requirements.

### Optional review class

The ESDA will offer a half-day preparatory class at the EOS/ESD Symposium that would summarize the course material and provide examples of what might be included in the certification exam.

### Examination

A comprehensive examination will be held annually during Symposium week. The exam will be open book and will consist of multiple choice and essay questions. The first examination would tentatively be held in 2005.

### Continuing education

There will be a requirement for taking additional classes in order to maintain certification. The exact details are not complete, but credits could be based on attending the EOS/ESD Symposium or taking on-line classes.

### Initial course offerings

The ESD Association will offer the first Program Manager certification classes at the 2003 EOS/ESD Symposium in Las Vegas. The classes being offered are

- ESD Calculations for the ESD Engineer
- Program Development and Assessment
- Air Ionization: Issues and Answers
- How To's of In-Plant ESD Survey and Evaluation Measurements

### Additional details

Complete informational materials, including application forms, are being developed and will be available later in the year on the ESDA Web site.

## Facility certification

# Register now for July S20.20 seminar

There's still time to register for the *ANSI/ESD S20.20 Seminar for Independent Assessors, Program Managers, and Consultants* being presented on July 16 and 17 at ESD Association headquarters in Rome, NY.

This two-day course is intended for companies or individuals who wish to help clients design and implement an ESD control program based on ANSI/ESD S20.20, as well as for those firms who are implementing their own programs.

This course will provide attendees with the tools and techniques to help their companies or their clients prepare for a facility audit (pre-assessment). Examples of control programs will be presented and general role-playing will be used in the assessment section. Interactive participation and case studies are integral parts of the seminar.

Presented by Ron Gibson, Celestica, Inc., and John Kinnear, Jr., IBM Corpo-

ration, the course will cover the following topics:

- Overview of ANSI/ESD S20.20
- Administrative elements
- Technical elements
- ESD program techniques for different applications
- Overview of the assessment process
- How to approach an assessment
- The audit checklist and follow-up questions

Seminar fees are \$1,495. Attendance is limited. For more information or to register for this two-day program, contact ESDA headquarters.

## Symposium

# Symposium promotion opportunities

The 25th annual EOS/ESD Symposium will offer exhibitors and other companies a number of marketing and promotion opportunities.

### Exhibits directory

The Symposium will again publish a separate exhibits directory containing detailed information on the 3-day exhibits program. In addition to the free company and product listings in the directory, exhibiting companies also may purchase half and full page advertisements to expand awareness of their company products and services. Details are in the exhibitor kits mailed to all exhibitors.

### Advertising opportunities

Also this year, companies can support the Symposium and create company awareness at various events such as the tutorial lunches, coffee breaks, the welcome reception, and the opening breakfast. Event signage or on-screen slides will prominently identify and promote companies participating in these opportunities.

Costs, deadlines, and other requirements for each of these programs are included in the exhibitors kit mailed to each exhibiting company. Additional information also may be obtained by contacting ESDA headquarters.

## Calendar of events

### July 2003

**ANSI/ESD S20.20 Seminar for Independent Assessors, Program Managers, and Consultants:** July 16 and 17, 2003; ESD Association Headquarters, Rome, NY; [www.esda.org](http://www.esda.org)

### September 2003

**Texas ESD Association Seminar:** September 12, 2003, Fundamentals of ESD Training; Sematech, Austin, TX; [www.centxesdassoc.home-stead.com](http://www.centxesdassoc.home-stead.com)

**North Central ESD Association Chapter Meeting:** September 15, 2003; topic and location to be determined; [www.esdnorthcentral.org](http://www.esdnorthcentral.org)

**ESDA Standards and Committee Meetings:** September 19-21, 2003; Riviera Hotel, Las Vegas, NV; [www.esda.org](http://www.esda.org)

**EOS/ESD Symposium:** September 21-25, 2003; Riviera Hotel, Las Vegas, NV; [www.esda.org](http://www.esda.org)

**NARTE ESD Certification Exams:** September 26, 2003; Riviera Hotel, Las Vegas, NV; [www.esda.org](http://www.esda.org)

### October 2003

**ESD Impact and Control Workshop:** October 16, 2003; Sematech, Austin, TX; [www.centxesdassoc.home-stead.com](http://www.centxesdassoc.home-stead.com)

## Standards

# Enterprise-wide standards license provides savings for multiple users, multiple facilities

Looking to save money on quantity purchases of ESDA standards documents to satisfy your company's multiple users and multiple facilities?

The Association's Standards Enterprise-Wide License may be a cost effective way for your company to obtain the documents you need and distribute them to employees throughout your company, even in other countries.

Developed specifically for companies who have multiple users in multiple facilities, the Standards Enterprise-Wide License provides you with copies of all

ESDA standards documents in PDF format on a CD. Included on the CD are all current standards, standard test methods, standard practices, the *Glossary of Terms*, and the *ESD Handbook*. You also will receive all updated and new documents issued during the year.

You can place the documents on your company's intranet or print them out for internal distribution to all company departments, divisions, or wholly owned subsidiaries located anywhere in the world. The documents, however, cannot be distributed to vendors or customers.

The cost for the enterprise-wide license is \$5,000 (US) and allows one year of use. Purchasers will be notified three months in advance that their license is about to expire. At the time of renewal, the purchaser will receive a new disk if there are new documents that have been released since they received their last update.

For information on purchasing the Standards Enterprise-Wide License, contact Association headquarters. Phone 315-339-6937 or e-mail [info@esda.org](mailto:info@esda.org).

# ESDA standards committee approves new draft standard practice documents

The ESDA standards committee has approved the publication of four new draft standard practice documents. The four documents are

## *ESD DSP5.5: Transmission Line Pulse (TLP) Component Level*

This standard practice document covers the techniques for transmission line pulse testing of semiconductor components.

## *ESD DSP5.3.2: Socketed Device Model (SDM) - Component Level*

This draft standard practice test procedure defines a method on how to perform component level socketed device model ESD tests and how to verify the operational state of the ESD simulator test equipment.

## *ESD DSP14.1: System Level Electrostatic Discharge (ESD) Simulator Verification, Part I - Discharge Current*

This draft document defines a time-domain measurement technique for verifying compliance with discharge current specifications given in system-level ESD standards.

## *ESD DSP5.4: Transient Latch-Up Testing - Component Level Supply Transient Stimulation*

This standard practice establishes a procedure for testing, evaluating, and characterizing the transient-induced latch-up (TLU) sensitivity of CMOS (complementary metal oxide semiconductor), bipolar, and BiCMOS (Bipolar-

CMOS) devices typically requiring less than 30 volts for operation.

These draft standard practices cover procedures for performing one or more operations or functions that may or may not yield a test result. If a test result is obtained, it may not be reproducible between labs.

As drafts, these documents are released for industry review and are subject to change before being released as full standards. Copies of all documents will be available for purchase from Association headquarters shortly.

Download the  
Symposium program at

[www.esda.org](http://www.esda.org)

Register by August 8 and save

## Letters to the editor

### Transmission line pulse draft standard practice

#### To the Editor:

A significant step forward has taken place in device testing with the approval of the draft Standard Practice for Transmission Line Pulse (TLP) testing by ESDA's Standards Committee at the June 2003 meetings. Through the hard work of the ESD Device Testing Working Group 5.5 and the ESD Standards Committee, a draft standard practice was released to meet the rapidly evolving needs of the semiconductor industry.

Interest in TLP testing is growing rapidly in the testing of electronic components in the semiconductor industry. TLP testing techniques are being used for semiconductor process development, device and circuit design. This technique or practice is being utilized on products in both wafer level and packaged environments. TLP testing is used as an ESD characterization tool to obtain voltage-current pulse characterization parameters, failure levels, and ESD metrics. The TLP technique is being used today as a standard measurement for ESD devices. The TLP system to the ESD engineer has become a tool as critical as the "parameter analyzer" is to the semiconductor engineer.

When this effort was initiated only a few years ago, most TLP systems were home-grown garage-shop lab toys, but today this method is supported by commercial TLP systems rapidly displacing the garage-shop systems. At each ESD working group device testing meeting series, new commercial TLP systems are rapidly being announced and introduced. Hence, it is clear a TLP specification is needed for the TLP vendors, semiconductor industry and product customers to be able to make valid data comparisons. With the usage of TLP data for ESD characterization, technology benchmarking, and product quality evaluation, there is a growing need to have standard methodologies, failure criteria, and means of reporting to allow dialogue to begin between semiconductor suppliers, vendors, and product customers.

What is next? We will be marching toward a TLP standard, and other related efforts to keep up and define the ESD technology roadmap for ESD device testing! Already the industry is launching CDM-like TLP or Very Fast TLP (VF-TLP) systems opening the door for future TLP testing methods.

The ESDA Device Testing Working Group 5.5 would like to thank the ESD Association and ESD STDCOM for sponsoring this effort to establish the first standard practice document for TLP testing. I also would like to thank personally the members of the TLP working group who have contributed by supplying their thoughts, creativity, cooperation and innovation as well as the hard work associated with revisions, editing, and completion. It was a great team, as well as a fun team to work with, which only gets more fun as we progress!

It is our expectation that this document will be of significant value to ESD engineers, vendors, faculty and students in the semiconductor industry. It is the belief of the members of the ESDA Device Testing WG5.5 that establishment of a device testing specification will have significant value in promoting the growth of TLP testing in our industry as well as establishing a guideline for ESD test vendors in the semiconductor industry.

One small step for ESD...one giant step for ESD device testing!

Steven Voldman, IEEE Fellow  
ESDA Device Testing WG5.5  
Chairman

### On discussions of technical views and issues

#### Editor:

Looking through a few recent issues of *Threshold*, it seemed to me a pity that opportunity is not being taken to use the magazine to discuss technical views and queries. There used to be some "Letters to the Editor", but this seems to have disappeared. In the hope of generating some useful discussion, I offer the following thoughts:

How do we assess whether the materials we recommend and use in static sensitive areas are in fact suitable?

1) The feature of practical interest is surface voltage.

2) The voltage on surfaces is limited by having an adequately fast route for charge to migrate off the material and away to earth. The time for charge migra-

tion needs to be short compared to the timescale of separation of rubbing action on the material surface.

3) Resistivity does not measure how quickly charge moves over surfaces. It is particularly inappropriate for materials like cleanroom clothing that include surface conductive threads.

4) Measurement of charge decay tells you how quickly charge can migrate on materials. The method of measurement must give results that match behaviour observed with tribocharging.

5) Surface voltages can also be limited if surface charge experiences a high "capacitance" on a material. This effect is particularly helpful with materials like cleanroom garment fabrics that include

core conductive threads. With such materials, charge decay times can be very long so one might conclude the materials are not suitable—but if maximum surface voltages are low, then can the materials be assessed as "good"?

Yours sincerely,  
John Chubb  
John Chubb Instrumentation

**Editors note:** Threshold welcomes Letters to the Editor as well as technical articles. We suggest contacting the editor regarding article guidelines prior to preparing any technical article.

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