GRAND PARK XIAN

12 Xi Duan, Huan Cheng South Road Xi'an Shaanxi, China 710068 November 15-18, 2016











EOS/ESD Association, Inc. in cooperation with China National Institute of Standardization (CNIS), are organizing the 1st EOS/ESD Manufacturing Symposium in China. The EOS/ESD Manufacturing Symposium in China is focused on discussing the issues and providing the answers to electrostatic discharge in electronic production and assembly. The China National Institute of Standardization (CNIS) Workshop will be held in conjunction with this event.















ESD Technology Consulting & Licensing









If you are interested in sponsoring this event please contact: EOS/ESD Association, Inc. Phone +1-315-339-6937, info@esda.org



EOS/ESD Manufacturing Symposium in China GRAND PARK XIAN

12 Xi Duan, Huan Cheng South Road Xi'an Shaanxi, China 710068 November 15-18, 2016



ESD Basics NOVEMBER 15, 2016 • 9:00 - 12:30

Instructor: Reinhold Gaertner, Infineon Technologies

This talk will discuss the fundamental causes of ESD and its control. It includes how ESD impacts industry, with brief explanations of charge generation, field measurement, the role of capacitance and voltage, charge measurement, and charge decay. Device failure mechanisms, including the respective test models like human body model or charged device model, will also be explained. Will discuss how to protect ESD sensitive devices and assemblies, give definitions of an electrostatic protected area (EPA), and show how to assess the risk in an automated production line.

Process Assessment NOVEMBER 15, 2016 • 13:30 - 17:00

Instructor: Reinhold Gaertner, Infineon Technologies

This tutorial describes the measurement techniques that are needed for elements of ESD control programs. This covers measurement methods for compliance verification, product qualification, and trouble-shooting. These techniques will be demonstrated by actual measurements on materials and products. The seminar ends with an overview of risk analysis and trouble-shooting methodologies applied to actual field problems.

Reinhold Gaertner received his diploma in physics from the Technical University of Munich in 1987. Then he joined the Federal Armed Forces University Munich, where he was working on measurement techniques for ESD protective packaging materials. After working as an independent ESD consultant, he joined Siemens Semiconductors in 1996; which is now Infineon Technologies. He is responsible for all problems regarding external ESD protection at Infineon worldwide and also for problems in customer production, as well as for ESD device testing for qualification. Since 1989, he has lectured on static control and since 1991, he has been an active member of the German ESD Association, where he has been acting as vice president for the last couple of years. Since 1995, he has worked in the ESD standardization of IEC TC101, where he is currently convener of two working groups (static decay and device testing). In 2009, he received the outstanding contribution award of the ESDA and in 2011 he joined the ESDA board of directors.



ANSI/ESD S20.20 - Process Design Overview NOVEMBER 16, 2016 • 9:00 - 17:00

Instructor: John Kinnear, IBM

This overview provides instruction on designing and implementing an ESD control program based on ANSI/ESD S20.20. The course provides participants with the tools and techniques to help with the selection of the ESD controls that are appropriate for the devices to be handled.

The following topics are covered

- ANSI/ESD S20.20 Administrative Requirements
 - Grounding/Bonding Systems
- Personal Grounding
 ESD Controls for the EPA
 Packaging Requirements

John Kinnear is an IBM Senior Engineer specializing in process & system technology, and facility certification in accordance with ANSI/ESD S20.20. He has been the ESD Site Coordinator for the Poughkeepsie site since 1989 and is currently the ESD Coordinator for IBM. As a member of the ESD Association since 1990, John has served in several Standards Development Committees. John is the appointed Technical Adviser to the United States National Committee/IEC Technical

Committee 101, where he represents the United States to the International Electrotechnical Commission (IEC). As Chair of the ESDA's Facility Certification (ANSI/ESD S20.20) development program, John coordinated the initial development of Lead Assessor training, ISO Registrar Certification and witness audits. John has served as ESD Association Vice President, Senior Vice President and President. He has also served as past General Chairman of the 2004 EOS/ ESD Symposium. For his contributions to the ESD Association John was presented with the Joel Weidendorf Award for Standards in 2005, the Outstanding Contribution Award in 2006, and the President's Award in 2010. John has presented many papers both internal to IBM and at external conferences. He participates as an instructor for the Program Management series and has presented tutorials in North America and Asia. John also holds patents in the industry.

Simultaneous translation services are available.



Xian, Shaanxi Province, China November 15-18, 2016

Schedule TUESDAY, NOVEMBER 15, 2016		FRIDAY, NOVEMBER 18, 2016 continued		
GRAND PARK XIAN		9:55 – 10:20	Technical Presentation 3	
8:00 – 10:00	REGISTRATION		Dummy Versus Live ESD Sensitive Devices Charge Analysis for Automated Handling Equipment ESD	
9:00 – 12:30	ESD Basics Reinhold Gaertner, Infineon Technologies		Qualification Jeremy Ong, Bernard Chin, UTAC Headquarters Pte., Ltd.;	
13:30 – 17:00	Process Assessment Reinhold Gaertner, Infineon Technologies	10:20 – 11:00	L.H. Koh, Everfeed Technology Pte., Ltd, BREAK AND EXHIBITION	
WEDNESDAY, NOVEMBER 16, 2016 8:00 – 10:00 REGISTRATION		11:00 – 11:25	Technical Presentation 4 Factory ESD Grounding System Design Applications Copper Hou, LEAN ESD Technology (Guangzhou) Co., Ltd.	
9:00 – 17:00	ANSI/ESD S20.20 - Process Design Overview John Kinnear, IBM	11:25 – 11:50	Technical Presentation 5 A Brief Analysis of Ground Resistance of ESD Systems in China Xiaorong Zhuang (Chuang), Sanwei/Sunway	
THURSDAY, NOVEMBER 17, 2016			ESD Equipment Ltd.	
CNIS WORKSHOP www.esd-conf.org Tianyu Fields International Hotel		11:50 – 12:15	Technical Presentation 6 Pitfalls in ESD Control of Factories and Assembly Plants	
For complimentary admittance to the CNIS workshop EOS/ESD			Yalong Zhang, Qorvo (Beijing) Inc.	
Manufacturing Symposium attendees may RSVP by email to us-chinasccp@ansi.org		12:15 – 13:30		
FRIDAY, NOVEMBER 18, 2016 GRAND PARK XIAN		13:30 – 13:55	Technical Presentation 7 Evaluation of ESD Garment with Conductive Ribbon Bernard Chin, Jeremy Ong, UTAC Headquarters Pte., Ltd.; L.H. Koh, Y.H. Goh, Everfeed Technology Pte., Ltd.	
8:00 – 10:00	REGISTRATION	13:55 14:40	Technical Presentation 8/9 EMI and Electrical Overstress	
9:00 - 5:00	EXHIBITS OPEN		Vladimir Kraz, OnFilter	
9:00 - 9:05	OPENING	14:40 15:15	BREAK AND EXHIBITION	
9:05 – 9:30 9:30 – 9:55	Technical Presentation 1 Die Attached and Wire Bonder ESD Risk Assessment Y.H. Goh, W.F. Wong, Mohamed Farhan bin Azmi, Mohamed Ibrahim s/o Badruddin, L.H. Koh, Everfeed Technology Pte., Ltd, Technical Presentation 2	15:15 - 15:40	Technical Presentation 10 A Comparison Between ESD Protection Elements and ESD Countermeasure Material by Using Novel ESD Test System Takayoshi Ohtsu, National Institute of Technology Numazu College; Kouichi Sagisaka, Yuka Denshi Co., Ltd.	
	Measurement Methods and Air Ionization Affected by Manufacturing Changes Arnold Steinman, Electronics Workshop,	15:40 - 16:05	Technical Presentation 11 Humidity Control Device for Static Charge Reduction 2 Albert Kow Kek Hing, ESD Consultancy Sdn., Bhd.	
	Dangelmayer Associates	16:05 - 16:15	CLOSING	

Simultaneous translation services are available.



Technical Presentations

Technical Presentation 1

Die Attached and Wire Bonder ESD Risk Assessment

Y.H. Goh, W.F. Wong, Mohamed Farhan bin Azmi, Mohamed Ibrahim s/o Badruddin, L.H. Koh, Everfeed Technology Pte., Ltd,

ANSI/ESD SP10.1 acts as an ESD risk assessment guideline for test personnel to audit automated handling equipment. Two units each of die attached and wire bonder machine were audited. Additional ESD risk assessment considerations, on top of ANSI/ESD SP10.1, were proposed and discussed.

Technical Presentation 2

Measurement Methods and Air Ionization Affected by Manufacturing Changes

Arnold Steinman, Electronics Workshop, Dangelmayer Associates

Manufacturing has brought increased semiconductor device functionality through smaller geometries, larger wafer sizes, and faster operating speeds, as well as increased disk drive storage density. It has also resulted in lower ESD withstand voltages for products. Measurements are needed to assure that the manufacturing process can safely handle these products. To produce these advanced technologies the use of air ionization for static control has changed. This paper explores measurement methods for process risk assessment and new ionization requirements.

Technical Presentation 3

Dummy Versus Live ESD Sensitive Devices Charge Analysis for Automated Handling Equipment ESD Qualification

Jeremy Ong, Bernard Chin, UTAC Headquarters Pte., Ltd.; L.H. Koh, Everfeed Technology Pte., Ltd,

Dummy units are commonly used for automated handling equipment (AHE) ESD qualification prior to releasing for production, due to resource limitations. Charge analysis for one hour vs 72 hours baking time for ESD sensitive devices (ESDS) were studied. This paper proposes live ESDS for AHE ESD qualification.

Technical Presentation 4

Factory ESD Grounding System Design Applications

Copper Hou, LEAN ESD Technology (Guangzhou) Co., Ltd.

This paper begins by demonstrating ESD control principles of ESD grounding and equipotential bonding, and derive what is effective or better ESD grounding system designs in an EPA. An equipotential based composite ESD grounding system practice is raised.

- Personnel electrical safety assurance is also demonstrated in relation with an ESD grounding system design. Several facility cases and issues related with ESD grounding are shared.
- Finally, this paper provides a clear design guideline for facilities especially in China to set up their appropriate ESD grounding system.

Technical Presentation 5

A Brief Analysis of Ground Resistance of ESD Systems in China

Xiaorong Zhuang (Chuang), Sanwei/Sunway ESD Equipment Ltd.

At microelectronics super large-scale integrated circuits, the fine devices within can be broken down, with just a few volts of electrostatic micro-voltage, or be burnt the devices due to overcurrent. Therefore, as the demands of the information technology industry evolve, the problem of how to effectively control static charge accumulation and discharge in the production, storage, and transport of microelectronics continues to present new challenges.

Technical Presentation 6

Pitfalls in ESD Control of Factories and Assembly Plants

Yalong Zhang, Qorvo (Beijing) Inc.

In this presentation the author will share 3 case studies were ESD failures were observed in the factory. All of these were due to some type of ESD event occurring in a processing tool caused by a dynamic event. In most cases, the issue was not observed until parts with sensitivities of 125 to 250V HBM or 125 to 250V CDM were processed. In each case, a resolution was found for the problem but investigation was required to fully understand and address the issue.

Technical Presentation 7

Evaluation of ESD Garment with Conductive Ribbon

Bernard Chin, Jeremy Ong, UTAC Headquarters Pte., Ltd.; L.H. Koh, Y.H. Goh, Everfeed Technology Pte., Ltd.

A new batch of ESD garment (smock) was found to fail on compliance verification after 10 washes. An experiment was carried out to verify if smocks attached with conductive ribbon will have longer durability. This paper evaluates the durability of two types of smocks up to 110 and 420 washes.

Technical Presentation 8/9

EMI and Electrical Overstress

Vladimir Kraz, OnFilter

High-frequency noise, or Electromagnetic Interference (EMI) in manufacturing environment has a potential of creating a number of problems, including:

- Equipment malfunctioning
- Errors in measurements
- Component damage
- Interference with wireless communication

Without proper measurements it is impossible to effectively control EMI This paper describes basics of measurement of conducted EMI in manufacturing environment and EMI diagnostics. Due to limitations of time the focus is made on practical aspects of measurements, not on theoretical foundation.

- What is EOS and its importance
- EMI as a significant cause of EOS
- How does EMI turn into EOS
- EMI sources in automated equipment
- Acceptable EMI limits
- Mitigation of EMI-caused EOS

Technical Presentation 10

A Comparison Between ESD Protection Elements and ESD Countermeasure Material by Using Novel ESD Test System

Takayoshi Ohtsu, National Institute of Technology Numazu College; Kouichi Sagisaka, Yuka Denshi Co., Ltd.

The countermeasure technology in the system level is important for the next generation electric devices. The purpose of this study is to support the countermeasure technology in Factory level, Component level and System level using the developed observation system that ESD gun to protection element can observe Current waveform. Voltage waveform and Radiated electromagnetic waveform.

Technical Presentation 11

Humidity Control Device for Static Charge Reduction 2

Albert Kow Kek Hing, ESD Consultancy Sdn., Bhd.

The RH static eliminator presented here is an advanced version to that presented in Singapore ESD Symposium 2012. The device comprises a moisture generator and delivery system to eliminate/minimise static charges like a maintenance-free air ioniser. This novel device is readily scalable to multiple workstations hence achieving substantial cost advantage

> **Simultaneous translation** services are available.





Xian, Shaanxi Province, China November 15-18, 2016

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	Tutorials November 15-16, 2016		\$ 680 USD	
	Symposium Only November 1	18, 2016	\$ 400 USD	
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EXHIBITS OPEN 9:00 – 5:00 FRIDAY, NOVEMBER 18, 2016

Promote your company by exhibiting at the EOS/ESD Manufacturing Symposium. Table Top Exhibit Space Rental: \$1,000.00 USD - payable to ESDA only.

EXHIBITORS

ESD Technology Consulting & licensing Co., Ltd.

Booth 1 Futian District, Shenzhen 518000 CHINA Web Site: www.esdconsultancy.com/

Polyonics, Inc.

Booth 7 Westmoreland N.H. 03467 USA

Web Site: www.polyonics.com/

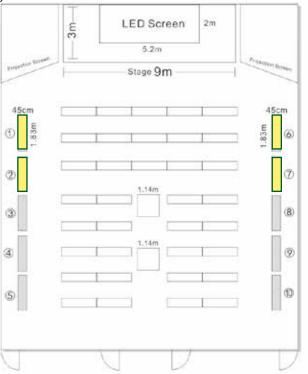
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Booth 2 Qiuchang Town, Huizhou Guangdong CHINA Web Site: www.szbtree.com

Winifred International Technology Ltd.

Booth 6 Shanghai 201114 CHINA

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Accomodations

November 15-16 ESDA Tutorial Program November 18 EOS/ESD Manufacturing Symposium

Grand Park Xian

12 Xi Duan, Huan Cheng South Rd. Xian, Shaanxi Province, 710068 China

Phone: +86-29-87608888

E-Mail: holly.yao@parkhotelgroup.com Website: http://www.parkhotelgroup.com

Superior room: RMB500 (including two breakfasts)

November 17 CNIS Workshop

Tianyu Fields International Hotel

No239,3Rd Shenzhou Rd, Xi'an (Shaanxi), China

Phone: +86-29-85586666 E-Mail: tanglonghotel@163.com

Street View (Double): RMB468 (including two breakfasts) Garden View (Single): RMB400 (including one breakfast)



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APPLICATION FOR EXHIBIT SPACE

Name of Compa	ny:
Street Address:_	
	l Code:
Country:	
Contact:	Email:
Please provide w	eb address to be used for your link on ESDA website:
We will exhibit ar	d demonstrate the following products or services:
We areMa	nufacturersOther (please specify)
	Exhibit Space Rental: \$1,000.00 USD FULL PAYMENT DUE WITH REGISTRATION
Req	uested Booth SpaceSecond choiceThird Choice
Amount enclosed \$_	Check Visa® MasterCard® American Express® Discover®
Credit card numbe	r:Expiration date:
Name on card:	Security code:
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Billing Address	
	State:Zip/Postal Code: NED HAS READ AND AGREES TO ABIDE BY THE TERMS ON BOTH SIDES OF THIS
Application By:	Date: (Signature)
NOTES	(Signature)

NOTES:

- 1. Each exhibitor receives one (1) symposium registration package for each booth rented.
- 2. SPACE WILL BE ASSIGNED IN THE ORDER OF RECEIPT OF REGISTRATION
- 3. Management reserves the right to relocate exhibit space, as necessary, to conform to show regulations.



EXHIBIT RULES – EOS/ESD Manufacturing Symposium

CONTRACT

This application, properly executed by the applicant, shall, upon written acceptance and notification of exhibit space assigned by the EOS/ESD Association, Inc., constitute a valid and binding contract.

QUALIFICATIONS FOR EXHIBITING

Exhibitors must be manufacturers or representatives of manufacturers that produce products or perform services which conform to the subject matter covered by the symposium technical program. Management reserves the right to accept or reject any exhibitor.

PRODUCT PRESENTATION

Audio-Visual presentations and operational equipment demonstrations will be permitted only at intensity levels that will not interfere with neighboring exhibitors. Product and service demonstrations may be given by professional presenters or models, who must dress and conduct themselves in an appropriate manner. Exposition management shall determine the suitability of all presentations and/or demonstrations.

EXHIBIT SPACE CHARGES AND CANCELLATIONS

All exhibit space will be rented at the rate described on the front of this Application for Exhibit Space. Full payment of \$1,000.00 per booth must accompany the application for space. Checks should be made payable to EOS/ESD Association, Inc., and sent to EOS/ESD Association, Inc., 7900 Turin Rd., Bldg. 3, Rome, NY 13440-2069. No refunds will be given for cancellation.

ANCILLARY EVENTS

Exhibitors ARE NOT allowed to schedule events, for Association/Symposium attendees that are in direct conflict with the Association/Symposium event schedule.

SUBLETTING OF SPACE

The exhibitor shall not assign, sublet, or apportion the whole or any part of the space assigned or have representatives, equipment, or materials from other firms than his own in the exhibit space without written consent of the Management. Only one company shall be considered as the exhibitor; any other company or unit in the space shall be considered a subsidiary or affiliate.

ADVERTISING

All literature, sales brochures, or other advertising or promotional media shall be displayed ONLY within the space rented by the exhibitor.

Exhibit Space MATERIALS PROVIDED BY THE SYMPOSIUM

1 Table & 2 Chairs

CONSTRUCTION OF EXHIBITS

Exhibits shall be constructed and arranged so that they do not obstruct the general view, nor hide the exhibits or others. All booth equipment must fit within the space rented, and must not extend into aisles or corridors.

SUITABILITY OF EXHIBITS

All exhibits are expected to be educational in nature and should describe products and/or services available from the exhibiting company.

COMPLIANCE WITH LOCAL RULES

Exhibitors assume responsibility for compliance with pertinent ordinances, regulations, and codes of duly authorized local, state and federal governing bodies concerning fire safety and health, and the rules and regulations of operators and owners of the property in which the exhibit is held.

UNION JURISDICTION

The exhibitors will abide by and comply with rules and regulations concerning local unions having jurisdiction over the facility in which the exhibit is held, and specifically in the exhibit area and loading docks.

LOSS OR DAMAGE

In the event that the premises in which the Symposium is conducted shall become unfit for occupancy or substantially interfered with by reason of any cause or causes not reasonably within the control of the EOS/ESD Association, Inc., this agreement may be terminated by the EOS/ESD Association, Inc. For this purpose, the term "cause or causes" shall include, but not by way of limitations, fire, flood, epidemic, earthquake, explosion, acts of terrorism, accident, blockage, embargo, inclement weather, government restrictions, strikes, lockouts, boycotts, lack of adequate transportation services. or acts of God other than those named. Should the Committee terminate this agreement pursuant to the provisions of this paragraph, the exhibitor waives any and all claims of damage and agrees that the EOS/ESD Association, Inc., after computing the total amount refundable to all exhibitors, shall make appropriate refunds. The amount refundable to exhibitors shall be the amount by which the total amount of fees paid by all exhibitors exceeds the total amount of the EOS/ ESD Association's costs and expenses in connection with its preparation for conducting the Symposium and exhibits including a reasonable reserve for claims and other continaencies.

LIABILITY WAIVER

The ESD Association, its committees, agents or sponsors, shall not be liable for any damage to property or for any injury to persons during the terms of this agreement from any cause whatsoever, by reasons of use, occupancy and enjoyment of exhibit space by exhibitors or any person thereon with the consent of the exhibitor. The exhibitor will indemnify and save harmless the EOS/ESD Association, Inc., its committees, agents or sponsors from all liability on account of any such damage or injury. Please see enclosed insurance form.

ADDITIONAL INFORMATION

Contact:

EOS/ESD Association, Inc. 7900 Turin Rd., Bldg. 3, Rome, NY 13440

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