

**In-Person
Facility ESD Auditor Training & Certification Course
March 26, 27, 28th, 2024**

**TR53 HBM Plus CDM + CBE + CDE
Charged Device Model (CDM) + Charged Board Event (CBE) + Cable Discharge Event (CDE)**

Location



Elks at Bass Rocks, Gloucester, MA 01930

The objective of this virtual course is to provide information and instruction for personnel who will be performing ESD control measurements as part of a compliance verification program. The primary learning outcome will be that the student will be familiar with and be able to execute ESD test methods. This includes an understanding of the relevant concepts and test equipment, the ability to choose what equipment is needed and verify that it is working properly and know how to troubleshoot in situations where the measurements do not meet expectations.

The test methods will cover TR53 test methods (primarily HBM related) as well as additional methods and measurements beyond TR53 that include charged-device model (CDM), charged-board event (CBE), cable discharge event (CDE) and discharges from isolated conductors in tools and production equipment. CDM and related metal-metal discharge events have been recognized to be, by far, the most common cause of ESD damage in electronics assembly.

The virtual training segment of this course will be delivered over three days and each day will have four hours of interactive training with a 30 min lunch break. It will include live demonstrations, videos, and class exercises. An optional practical exam will be offered on the fourth and fifth day. The exam will be taken by students one at a time and will consist of directing the instructor to make the required measurements as previously demonstrated during the class. Students are not required to have test equipment, but it is recommended to follow along with your own equipment if you have it available.

TR53 Certification Agenda

- **Introduction**
 - Preliminaries
 - Example: TR53 Compliance Verification Process
- **5 Class Exercises**
- **TR53 ESD Basics**
- **TR53 Compliance Verification & Troubleshooting**
- **TR53 Auditor Measurement Pitfalls**
- **Bonus Material Not in TR53**
 - Additional Auditing Measurements
 - ESD Basics Beyond TR53
 - Examples: Auditor CDM & HBM Audit Findings
 - Example: ESD Internal Auditing QMS Strategy
- **Practical Exam: TR53 + CDM + CBE + CDE**

Class Exercises

1. **Meter Verification**

2. **Workstation Measurements**
3. **Ionizer Measurements**
4. **Packaging Resistance Measurements**
5. **Fieldmeter & Electrostatic Voltmeter**

Registration Form Next Page

Registration Form
TR53 Training & Certification
3-Day ESD Auditor Certification Course \$2,289 (Group Discounts Available)
March 26, 27, 28th, 2024

Location: The Elks at Bass Rocks, Gloucester, MA

TR53 + Charged Device Model + Charged Board Event + Cable Discharge Event

Send Registration to: Kristin@dangelmayer.com or FAX 978 282 4884

No refunds after February 15, 2024

Name: _____ Title: _____

Company: _____

Mail Stop: _____

Address: _____

City: _____ State: ____ Zip: _____

Phone: work _____ cell _____

E-mail: _____

Preferred method of contact: Phone ____ E-mail: _____

Credit Card __Visa __Master Card __Amex

Card # _____ Expiration _____

Security Code _____

Billing Address _____

Name on Card _____

If paying by check, please make check payable to:

Dangelmayer Associates

14 Butternut Lane

Gloucester, MA 01930

Seating is limited!

Complete your registration today!

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Rockport & Gloucester, MA

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