

ESD Training

Date I/II – 2020
(Stand: 19.02.2020)

Program for training and development of ESD coordinator ESD basics, ESD measurements, ESD standardization

The valid standard about the arrangement of EPAs in electronic manufactures requires the development of ESD coordinators. The standard IEC 61340-5-1 (2016) and IEC/TR 61340-5-2 (2018) described, that the ESD coordinator need a comprehensive know-how in this field. That's why we have extended our ESD training program.

The training of an ESD coordinator starts with the seminar “**ESD Basics**”. The participant gets to know how electrostatic charges are generated. Ensuing from that knowledge the differences between charging and discharging processes are explained. Electrostatic charges are not avoidable in principle. But the discharge just afterwards causes damages at electronic devices and assemblies. That's why discharge must happen controllable. The human being plays an important role although charging and discharging processes in machinery and plants are becoming more and more important as well. In the meantime, the human is now controllable. ESD steps exist, through which the influence of employees can be reduced. However, there are only some basic approaches for machinery a plant because it's necessary to detect the source of electrostatic charges first.

The seminar “ESD Basics” also includes: modeling of discharging processes and failure models – HBM, HMM, MM, CDM and FIM. Which kind of discharge could appear in which special case? Personal discharges are described by the HBM. However, the other ones are more complex. Further on, the failure models are used for classification of ESDS' sensitivity. First references for discharge models at electronic assemblies (PCB) highlighted: CBM (CBE), FICBM etc.

The seminar “**ESD Measurements**” built up every time with standard measurement methods. Regarding the increasing complexity of the requirements, the whole seminar is just about measurements. Simple algorithms for calculation are described ensuing from the basic's measurement methods for electrostatic charges and electrostatic field strength. Every participant gets to know how to measure and what is measured, of course. The second seminar part is about resistance measurement, definitions, basic measurements methods, measurement arrangements and the interpretation of measurement results. A further topic are practical measurement demonstrations. On practical measurements and the results demonstrated the different values of resistance, electrostatic charge and voltage at common and different materials.

In the seminar “**ESD Standards**” the ESD coordinator gets an overview about the development of ESD standards. The participant gets to know which themes are worked out at the moment and how to play an active part if interested. Suggestions how to be on a state of play of the current standard work are also given, because this is an important part of the ESD coordinator's daily work.

In another part of the seminar the participant gets to know which kind of material is able to cause electrostatic charges and what could be done against it?

Participants of the seminars are:

- Employees of areas, which handle electrostatic sensitive devices and assemblies, in particular the management and executive employees, production managers and managers of the production planning
- ESD coordinators and ESD officers
- Employees of the quality management
- Employees of the purchasing department, which are responsible for ESD materials and equipment

Analyses – Trainings – Qualifications – Audits

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ESD Coordinator I

Requirements to ESD coordinators, tasks
ESD standards
ESD Control Program – requirements, content, development/creation, review and check
Requirements to ESD grounding within an EPA
Requirements to personal grounding
Requirements to ESD equipment
Requirements to packing materials

ESD Coordinator II

Requirements to machinery and plants, failure models – solution approaches, measurement methods, measurements; further failure models: CBM, FICBM
Practical ESD measurements
Ionization - principles of function, composition of ionizers, usage, choice of location, review, calibration
Requirements to electronic manufactures with clean room conditions
Comparison of the failure models HBM and MM at single components, assemblies and hardware-/ system tests (ESD test – EMV test)

The **final test** is an integral part of the ESD coordinator's education. It proofs the qualification as ED coordinator after having successfully visited the ESD seminars: ESD Basics, ESD Measurements, ESD Standards as well as ESD Coordinator I + II. The participation in all these seminars is required for a successful final test.

For a **continuing education** a regular attendance of the seminars ESD Coordinator I + II is recommended. The seminar ESD Coordinator II is extended through a new part "**practical ESD measurements**", which is permanently adapted with the newest measurement methods according to the latest standards. This happens yearly. Additionally, all kinds of packing materials, which may be used in an EPA are part of such measurements.

| Basic training for ESD coordinators | | Continuing education of ESD coordinators | |
|-------------------------------------|----------|--|---|
| ESD Basics | required | - | - |
| ESD Measurements | required | ESD Measurements | as needed |
| ESD Coordinator I | required | ESD Coordinator I | required |
| ESD Coordinator II | required | ESD Coordinator II | required |
| Final test | required | Final test | repetition after 3 years is recommended or according to the requirements of the ESD Control Program |

Notes:

1. All seminars can be attended step by step. Depending on the group of themes all participants get a certification of attendance.

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Registration

Last name, first name

Department

Company

Street

Zip code, City

Country

Phone Fax

Email address

Participation to

(cross the right one, sign it and send it to +49 35204 2039-19)

| | | | | |
|---|---|---------------------|-----------------|--------------------------|
| ESD Basics | 30.03.2020 (09.30 am - 05.00 pm) | KESSELSDORF* | S47/2020 | <input type="checkbox"/> |
| ESD Measurements + Standardization | 31.03.2020 (09.00 am - 05.00 pm) | KESSELSDORF* | S48/2020 | <input type="checkbox"/> |
| ESD Coordinator I | 01.04.2020 (09.00 am - 05.00 pm) | KESSELSDORF* | S49/2020 | <input type="checkbox"/> |
| ESD Coordinator II | 02.04.2020 (09.00 am - 12.30 pm without test) | KESSELSDORF* | S50/2020 | <input type="checkbox"/> |
| | (09.00 am - 05.00 pm with test) | | | <input type="checkbox"/> |

*Germany

| | | |
|-------|------|-----------|
| Stamp | Date | Signature |
|-------|------|-----------|

| | | | |
|--------------|---------|---|----------|
| <i>Fees:</i> | seminar | ESD – Basics | 395.00 € |
| | seminar | ESD – Measurements and Standardization | 450.00 € |
| | seminar | ESD – Coordinator I | 425.00 € |
| | seminar | ESD – Coordinator II (without test) | 225.00 € |
| | seminar | ESD – Coordinator II (with test) | 495.00 € |

In addition to the fee price, sales tax of 19 % will be charged!

The fees include the seminar documentation and a snack. The seminar documentation can be ordered individually (ESD Basics I + II, ESD Standard = 140.00 € (+ 19 % VAT)/each; ESD Coordinator I + II = 180.00 € (+ 19 % VAT). After having received your registration, you will get an invoice, which confirms your participation. If you can't take part after the deadline 14 days before beginning of the seminar, the total fee will be invoiced. A replacing participant can be named. A cancellation before the end of registration will be invoiced with 80.00 € + 19 % VAT.

End of registration: 7 days before the date of the seminar

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