

# TECHNICAL SPECIFICATION

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**Electrostatics -  
Part 5-6: Protection of electronic devices from electrostatic phenomena -  
Process assessment techniques**



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IEC Secretariat  
3, rue de Varembeé  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

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## CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references .....	7
3 Terms, definitions, symbols and abbreviated terms.....	7
3.1 Terms and definitions.....	8
3.2 Symbols and abbreviated terms .....	8
3.2.1 Symbols .....	8
3.2.2 Abbreviated terms .....	10
4 Personnel safety.....	10
5 Experience level required .....	10
6 Measurement techniques for ESD risk assessment.....	11
7 ESD robustness of ESDS used in processes .....	13
7.1 General considerations .....	13
7.2 ESD withstand currents of single devices (components).....	13
7.2.1 Human body model.....	13
7.2.2 Discharge of charged conductors.....	14
7.2.3 Charged device model.....	14
7.3 ESD withstand currents of electronic assemblies .....	16
7.3.1 Discharge of charged personnel .....	16
7.3.2 Discharge of charged conductors.....	16
7.3.3 Discharge of boards/systems.....	16
7.4 Voltage sensitive devices.....	17
8 ESD risk assessment flows.....	17
8.1 General considerations .....	17
8.2 Manual handling steps .....	18
8.2.1 General considerations.....	18
8.2.2 Parameter limits for ESD risk assessment in manual handling steps.....	18
8.2.3 Detailed ESD risk assessment flow.....	19
8.3 Conductors .....	21
8.3.1 General considerations.....	21
8.3.2 Parameter limits for ESD risk assessment of conductors .....	22
8.3.3 Detailed ESD risk assessment flow.....	22
8.4 Charged ESDS .....	24
8.4.1 General considerations.....	24
8.4.2 Parameter limits for ESD risk assessment of charged ESDS.....	24
8.4.3 Detailed ESD risk assessment flow.....	25
8.5 Risks due to process essential insulators.....	27
8.5.1 General considerations.....	27
8.5.2 Parameter limits for ESD risk assessment of process essential insulators.....	27
8.5.3 Detailed ESD risk assessment flow.....	28
8.6 ESD risk assessment by ESD event detection.....	30
8.6.1 General considerations.....	30
8.6.2 General procedure.....	31
8.6.3 Detailed ESD risk assessment flow.....	31

Annex A (informative) Measurement techniques and equipment.....	33
A.1 General considerations .....	33
A.2 Measurements of grounding.....	33
A.2.1 Resistance measurement apparatus .....	33
A.2.2 Low resistance meter (DC ohmmeter, multimeter).....	35
A.2.3 AC voltage check.....	36
A.3 Measurements of contact resistance .....	37
A.3.1 Background information and application to ESD risk assessment.....	37
A.3.2 Surface, point to point or volume resistance measurements at 10 V and 100 V.....	37
A.3.3 Surface, point to point or volume resistance measurements at voltages greater than 100 V.....	38
A.3.4 Determination of contact resistance under ESD conditions .....	39
A.4 Measurements of electrostatic fields .....	41
A.4.1 General considerations .....	41
A.4.2 Electrostatic field meter .....	41
A.5 Measurements of charges .....	42
A.5.1 General considerations .....	42
A.5.2 Faraday pail .....	43
A.5.3 Electrometer .....	43
A.5.4 Current probe or CDM discharge head or Pellegrini target .....	44
A.6 Measurements of electrostatic voltages .....	44
A.6.1 Charged plate monitor .....	44
A.6.2 Walking test kit.....	45
A.6.3 Non-contacting electrostatic voltmeter (ESVM) .....	46
A.6.4 Contact voltmeter .....	47
A.7 Measurements of discharge events.....	48
A.7.1 Antenna with oscilloscope .....	48
A.7.2 ESD event detectors.....	50
A.8 Measurements of discharge currents .....	50
A.8.1 General considerations .....	50
A.8.2 Current probe .....	51
A.8.3 Pellegrini target.....	53
A.8.4 CDM test head.....	54
Annex B (informative) Grounding of automated handling equipment (AHE) .....	56
B.1 Background information .....	56
B.2 Test equipment.....	56
B.3 Test procedure.....	57
B.4 Suggested equipment grounding guidelines .....	57
Annex C (informative) Preparation: What is necessary to prepare an effective ESD risk assessment? .....	59
C.1 Best practices .....	59
C.2 Measurement of temperature, humidity and basic electrostatic conditions.....	59
C.3 Further hints for preparation .....	59
Annex D (informative) ESD risk assessment and mitigation .....	60
Annex E (informative) Examples for defining limits in ESD risk assessment for risks due to charged personnel .....	61
Annex F (informative) Example for ESD risk assessment in a "pick and place" process .....	63

F.1	Process description .....	63
F.2	Parameter limits and equipment.....	64
F.3	ESD risk assessment of "Pick operation" .....	64
	Bibliography.....	66
Figure 1	– Direct (best correlation) and indirect (least correlation) measurements to assess an ESD risk.....	12
Figure 2	– Flow to assess ESD risk induced by personnel .....	21
Figure 3	– Flow to assess the ESD risk induced by conductors .....	24
Figure 4	– Flow to assess the ESD risk induced by charged ESDS .....	26
Figure 5	– Flow to assess the ESD risk induced by process essential insulators .....	30
Figure 6	– Flow to assess the ESD risk by detecting the electromagnetic radiation using ESD event detectors or antennas and oscilloscopes.....	32
Figure A.1	– Circuit diagram of experiments and simulations of contact resistance .....	39
Figure A.2	– Examples of current probes .....	52
Figure A.3	– Example of a 4-GHz Pellegrini target .....	53
Figure A.4	– Commercially available CDM test head used for discharge current measurements .....	54
Figure E.1	– Discharge current measured in the field and during device qualification [17].....	61
Figure F.1	– Schematic representation of a "pick and place" operation with two handlers .....	63
Table 1	– Resistance ranges of materials used in this document.....	11
Table 2	– Overview of possible instruments used for different scenarios to assess ESD risk .....	12
Table A.1	– Peak current ranges of CDM discharges of small and large verification modules for oscilloscopes with a bandwidth of 1 GHz and 6 GHz according to ANSI/ESDA/JEDEC JS-002-2022 [28].....	55

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**Electrostatics -**  
**Part 5-6: Protection of electronic devices from electrostatic phenomena –**  
**Process assessment techniques**

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IEC TS 61340-5-6 has been prepared by IEC technical committee 101: Electrostatics. It is a Technical Specification.

This Technical Specification cancels and replaces IEC PAS 61340-5-6 published in 2022. This first edition constitutes a technical revision.

The text of this Technical Specification is based on the following documents:

Draft	Report on voting
101/734/DTS	101/741/RVDTS

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Technical Specification is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

A list of all parts in the IEC 61340 series, published under the general title *Electrostatics*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under [webstore.iec.ch](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

## INTRODUCTION

This document describes a set of methodologies, techniques, and tools that can be used to characterize a process where ESD sensitive items (ESDS) are handled. This document's procedures are meant to be used by those possessing knowledge and experience with electrostatic measurements.

This document provides methods to determine the level of ESD risk that remains in the process after ESD control items and materials are implemented.

These test methods' objective is to identify if possibly damaging ESD events are occurring or if significant electrostatic charges are generated on people, equipment, materials, components, or printed circuit board assemblies (PCBA) even though there are ESD control precautions in place.

Sensitivities of ESDS are characterized by industry standard ESD testing and rated by their withstand voltages or withstand currents. This document is intended to provide methods to determine whether items of a given withstand voltage or withstand current are at risk in the process.

The wide variety of ESD control items and materials and the environment in which these items are used can require test setups different from those described in this document. Users of this document can adapt the test procedure and setups described in Annex A to produce meaningful data for the user's application.

Organizations performing these tests can determine if on-going process characterization is necessary, and if so, the time interval between observations. These observations can also be made when new products are introduced or when process changes occur. Examples of process changes include tools, fixtures, equipment, new items/products, and additional manufacturing steps.

The topics below are not addressed in this document:

- Program management: see IEC 61340-5-1.
- Compliance verification: see IEC TS 61340-5-4 [1]<sup>1</sup>.

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<sup>1</sup> Numbers in square brackets refer to the Bibliography.

## 1 Scope

This part of IEC 61340 establishes a set of methodologies, techniques, and instruments to characterize a process where electrostatic discharge (ESD) sensitive items (ESDS) are handled. ESD risk assessment covers risks by charged personnel, ungrounded conductors, charged ESDS, charged insulators, and ESDS in an electrostatic field.

This document applies to activities that manufacture, process, assemble, install, package, label, service, test, inspect, transport, or otherwise handle electrical or electronic parts, assemblies, and equipment susceptible to damage by electrostatic discharges.

This document does not apply to electrically initiated explosive items, flammable gases and liquids or powders.

The document does not address program management, compliance verification or program manager/coordinator certification.

Risks due to electromagnetic sources that produce AC fields are not considered.

Descriptions of measurement techniques are given in Annex A.

Annex B provides best practices for grounding automated handling equipment (AHE), Annex C summarizes the best practices to prepare an effective ESD risk assessment, and Annex D introduces mitigation measures resulting from the ESD process assessment.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61010-1, *Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements*

IEC 61340-2-3, *Electrostatics – Part 2-3: Methods of test for determining the resistance and resistivity of solid materials used to avoid electrostatic charge accumulation*

IEC 61010-2-030, *Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 2-030: Particular requirements for equipment having testing or measuring circuits*

IEC 61340-5-1, *Electrostatics – Part 5-1: Protection of electronic devices from electrostatic phenomena – General requirements*

## 3 Terms, definitions, symbols and abbreviated terms

For the purposes of this document, the terms and definitions given in IEC 61010-1, IEC 61010-2-030, IEC 61340-5-1 and the following apply.

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