Electronics assembly technology - Part 3: Selection guidance of environmental and endurance test methods for solder joints

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NATIONAL FOREWORD

See Eesti standard EVS-EN 62137-3:2012 sisaldab Euroopa standardi EN 62137-3:2012 ingliskeelset teksti.	This Estonian standard EVS-EN 62137-3:2012 consists of the English text of the European standard EN 62137-3:2012.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 20.01.2012.	Date of Availability of the European standard is 20.01.2012.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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Techniques d'assemblage des composants électroniques - Partie 3: Guide de choix des méthodes d'essai d'environnement et d'endurance des joints brasés (CEI 62137-3:2011)

Montageverfahren für elektronische Baugruppen - Teil 3: Leitfaden für die Auswahl von Umwelt- und (Lebens)dauerprüfungen für Lötverbindungen (IEC 62137-3:2011)

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Foreword

The text of document 91/986/FDIS, future edition 1 of IEC 62137-3, prepared by IEC/TC 91 "Electronics assembly technology" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62137-3:2012.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2012-09-13
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2014-12-13

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Endorsement notice

The text of the International Standard IEC 62137-3:2011 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60068-1:1988 + A1:1992	NOTE	Harmonized as EN 60068-1:1994 (not modified).
IEC 60068-2-2	NOTE	Harmonized as EN 60068-2-2.
IEC 60068-2-14	NOTE	Harmonized as EN 60068-2-14.
IEC 60068-2-78	NOTE	Harmonized as EN 60068-2-78.
IEC 61760-1	NOTE	Harmonized as EN 61760-1.
IEC 62137:2004	NOTE	Harmonized as EN 62137:2004 (not modified).

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60194	-	Printed board design, manufacture and assembly - Terms and definitions	EN 60194	-
IEC 61188-5	Series	Printed boards and printed board assemblies - Design and use - Part 5: Attachment (land/joint) considerations	EN 61188-5	Series
IEC 61249-2-7	-	Materials for printed boards and other interconnecting structures - Part 2-7: Reinforced base materials, clad and unclad - Epoxide woven E-glass laminated sheet of defined flammability (vertical burning test), copper-clad	EN 61249-2-7	-
IEC 62137-1-1	2007	Surface mounting technology - Environmental and endurance test methods for surface mount solder joint - Part 1-1: Pull strength test	EN 62137-1-1	2007
IEC 62137-1-2	2007	Surface-mounting technology - Environmental and endurance test methods for surface mount solder joint - Part 1-2: Shear strength test	EN 62137-1-2	2007
IEC 62137-1-3	2008	Surface mounting technology - Environmental and endurance test methods for surface mount solder joint - Part 1-3: Cyclic drop test	EN 62137-1-3	2009
IEC 62137-1-4	2009	Surface mounting technology - Environmental and endurance test methods for surface mount solder joint - Part 1-4: Cyclic bending test	EN 62137-1-4	2009
IEC 62137-1-5	2009	Surface mounting technology - Environmental and endurance test methods for surface mount solder joint - Part 1-5: Mechanical shear fatigue test	EN 62137-1-5	2009

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ELECTRONICS ASSEMBLY TECHNOLOGY –

Part 3: Selection guidance of environmental and endurance test methods for solder joints

1 Scope

This part of IEC 62137 describes the selection methodology of an appropriate test method for a reliability test for solder joints of various shapes and types of surface mount devices (SMD), array type devices and leaded devices, and lead insertion type devices using various types of solder material alloys.

2 Normative references

The following referenced documents are indispensable for the application of this document. For a dated reference, only the edition cited applies. For an undated reference, the latest edition of the referenced document (including any amendment) applies.

IEC 60194, *Printed board design, manufacture and assembly – Terms and definitions*

IEC 61188-5 (all parts), *Printed boards and printed board assemblies – Design and use*

IEC 61249-2-7, *Materials for printed boards and other interconnecting structures – Part 2-7: Reinforced base materials clad and unclad – Epoxide woven E-glass laminated sheet of defined flammability (vertical burning test), copper-clad*

IEC 62137-1-1:2007, *Surface mounting technology – Environmental and endurance test methods for surface mount solder joint – Part 1-1: Pull strength test*

IEC 62137-1-2:2007, *Surface mounting technology – Environmental and endurance test methods for surface mount solder joint – Part 1-2: Shear strength test*

IEC 62137-1-3:2008, *Surface mounting technology – Environmental and endurance test methods for surface mount solder joint – Part 1-3: Cyclic drop test*

IEC 62137-1-4:2009, *Surface mounting technology – Environmental and endurance test methods for surface mount solder joint – Part 1-4: Cyclic bending test*

IEC 62137-1-5:2009, *Surface mounting technology – Environmental and endurance test methods for surface mount solder joints – Part 1-5: Mechanical shear fatigue test*

3 Terms and definitions

For the purposes of this document, the terms and definitions in IEC 60194, as well as the following, apply.

3.1
pull strength for SMD
maximum force to break the joint of a lead to substrate when a gull-wing lead of a surface mount device is pulled using a pulling tool at an angle of 45° to the substrate surface

[IEC 62137-1-1:2007, modified]