ICS 31.240 SLOVENSKÁ TECHNICKÁ NORMA September 2014

STN	**Mechanické konštrukcie pre elektronické zariadenia. Skúšky pre IEC 60917 a IEC 60297. Časť 5: Seizmické skúšky pre kostry, zásuvné jednotky a zásuvné moduly.**	**STN EN 61587-5** 18 8003

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 08/14

Obsahuje: EN 61587-5:2014, IEC 61587-5:2013

119390

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61587-5

March 2014

ICS 31.240

English version

Mechanical structures for electronic equipment - Tests for IEC 60917 and IEC 60297 - Part 5: Seismic tests for chassis, subracks and plug-in units

(IEC 61587-5:2013)

Structures mécaniques pour équipement électronique - Essais pour la CEI 60917 et la CEI 60297 -
Partie 5: Essais sismiques pour châssis, bacs et unités enfichables
(CEI 61587-5:2013)

Mechanische Bauweisen für elektronische Einrichtungen - Prüfungen für IEC 60917 und IEC 60297 -
Teil 5: Seismische Prüfungen für Einschübe, Baugruppenträger und steckbare Baugruppen
(IEC 61587-5:2013)

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 61587-5:2014 E

Foreword

The text of document 48D/549/FDIS, future edition 1 of IEC 61587-5, prepared by SC 48D, "Mechanical structures for electronic equipment", of IEC/TC 48, "Electromechanical components and mechanical structures for electronic equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61587-5:2014.

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)	2014-10-14
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2017-01-14

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Endorsement notice

The text of the International Standard IEC 61587-5:2013 was approved by CENELEC as a European Standard without any modification.

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 60068-2-6	-	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	-
IEC 60068-2-47	-	Environmental testing - Part 2-47: Tests - Mounting of specimens for vibration, impact and similar dynamic tests	EN 60068-2-47	-
IEC 60068-2-57	-	Envionmental testing - Part 2-57: Test methods - Test Ff: Vibration - Time-history & sine-beat method	EN 60068-2-57	-
IEC 60068-3-3	-	Environmental testing - Part 3: Guidance - Seismic test methods for equipments	EN 60068-3-3	-
IEC 60297	-	Dimensions des structures mécaniques de la série de 482,6 mm (19 in)	-	-
IEC 60297-3-101	-	Mechanical structures for electronic equipment - Dimensions of mechanical structures of the 482,6 mm (19 in) series - Part 3-101: Subracks and associated plug-in units	EN 60297-3-101	-
IEC 60512-2-1	-	Connectors for electronic equipment - Tests and measurements - Part 2-1: Electrical continuity and contact resistance tests - Test 2a: Contact resistance - Millivolt level method	EN 60512-2-1	-
IEC 60721-2-6	-	Classification of environmental conditions - Part 2: Environmental conditions appearing in nature - Earthquake vibration and shock	HD 478.2.6 S1	-
IEC 60917 (Series)	-	Modular order for the development of mechanical structures for electronic equipment practices -	EN 60917 (Series)	-
IEC 61587-1	-	Mechanical structures for electronic equipment - Tests for IEC 60917 and IEC 60297 series - Part 1: Environmental requirements, test set-up and safety aspects for cabinets, racks, subracks and chassis under indoor conditions	EN 61587-1	-
IEC 61587-2	-	Mechanical structures for electronic equipment - Tests for IEC 60917 and IEC 60297 - Part 2: Seismic tests for cabinets and racks	-	-

Publication	Year	Title	EN/HD	Year
IEC 61587-3	-	Mechanical structures for electronic equipment - Tests for IEC 60917 and IEC 60297 - Part 3: Electromagnetic shielding performance tests for cabinets and subracks	EN 61587-3	-

IEC 61587-5

Edition 1.0 2013-12

INTERNATIONAL STANDARD

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Mechanical structures for electronic equipment – Tests for IEC 60917 and IEC 60297 – Part 5: Seismic tests for chassis, subracks and plug-in units

Structures mécaniques pour équipement électronique – Essais pour la CEI 60917 et la CEI 60297 – Partie 5: Essais sismiques pour châssis, bacs et unités enfichables

IEC 61587-5:2013

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IEC 61587-5

Edition 1.0 2013-12

INTERNATIONAL STANDARD

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Mechanical structures for electronic equipment – Tests for IEC 60917 and IEC 60297 – Part 5: Seismic tests for chassis, subracks and plug-in units

Structures mécaniques pour équipement électronique – Essais pour la CEI 60917 et la CEI 60297 – Partie 5: Essais sismiques pour châssis, bacs et unités enfichables

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

PRICE CODE
CODE PRIX

T

ICS 31.240

ISBN 978-2-8322-1300-1

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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MECHANICAL STRUCTURES FOR ELECTRONIC EQUIPMENT – TESTS FOR IEC 60917 AND IEC 60297 –

Part 5: Seismic tests for chassis, subracks and plug-in units

FOREWORD

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International Standard IEC 61587-5 has been prepared by subcommittee 48D: Mechanical structures for electronic equipment, of IEC technical committee 48: Electromechanical components and mechanical structures for electronic equipment.

The text of this standard is based on the following documents:

FDIS	Report on voting
48D/549/FDIS	48D/553/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of IEC 61587 series, under the general title *Mechanical structures for electronic equipment – Tests for IEC 60917 and IEC 60297*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This standard is based on IEC 61587-2: *Mechanical structures for electronic equipment – Tests for IEC 60917 and IEC 60297 – Part 2: Seismic tests for cabinets and racks* and ATIS-0600329:2008:*Network Equipment – Earthquake Resistance*.

This standard sets forth test setups, performance requirements, and acceptance criteria for determining the robustness of chassis, subracks, and associated plug-in units according to the IEC 60297 and IEC 60917 series that may provide a level of survivability and preserve functionality during and after a seismic occurrence (an earthquake). This standard does not replace regional seismic system, installation standards, or specifications.

The intent of this standard is to provide a common methodology to perform and report seismic test conformance of chassis, subracks, and plug-in units according to the IEC 60297 and IEC 60917 series within a specified weight category. Mass distribution is based on the intended use. The terms “intended use” or “simulation of service condition” or “worst-case simulated configuration” are widely used in the telecom industry but also in the electronics industry.

Seismic ground motion occurs simultaneously and randomly in all directions. Single-axis or tri-axis tests may be selected to simulate the seismic environment for testing.

MECHANICAL STRUCTURES FOR ELECTRONIC EQUIPMENT – TESTS FOR IEC 60917 AND IEC 60297 –

Part 5: Seismic tests for chassis, subracks and plug-in units

1 Scope and object

This part of IEC 61587 specifies seismic test requirements for chassis, subracks, and plug-in units as defined in the IEC 60297 and IEC 60917 series. It applies in whole or in part, only to the mechanical structures of chassis, subracks, and plug-in units for electronic equipment, according to the IEC 60297 and IEC 60917 series, and does not apply to electronic components, equipment or systems within the mechanical structures.

NOTE Subracks may be an integral part of a chassis (often called in the industry a shelf or a crate).

The object of this standard is to establish a level of physical integrity of chassis, subracks, and plug-in units according to IEC 60297 and IEC 60917 series that may provide a level of survivability that will preserve functionality during and after a seismic occurrence. It is intended to provide the user with a high level of confidence in the selection of an equipment practice to meet such needs.

Since IEC 60297 and IEC 60917 series chassis, subracks, and plug-in units come in many sizes, weights and mechanical complexities, it is not possible to define a single minimum seismic test requirement for all weight categories. Therefore, overall mass categories are defined in this standard. However, the mass distribution inside a chassis and subrack is considered “application-specific” and herein defined as “intended use”.

The single-axis or tri-axis acceleration for the seismic testing is selectable.

2 Normative references

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.

IEC 60068-2-6, *Environmental testing – Part 2-6: Tests – Fc: Vibration (sinusoidal)*

IEC 60068-2-47, *Environmental testing – Part 2-47: Test – Mounting of specimens for vibration, impact and similar dynamic tests*

IEC 60068-2-57, *Environmental testing – Part 2-57: Tests – Test Ff: Vibration – Time-history and sine-beat method*

IEC 60068-3-3, *Environmental testing – Part 3-3: Guidance – Seismic test methods for equipment*

IEC 60297 (all parts), *Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series*

IEC 60297-3-101, *Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 3-101: Subracks and associated plug-in units*

IEC 60512-2-1, *Connectors for electronic equipment – Tests and measurements – Part 2-1: Electrical continuity and contact resistance tests – Test 2a: Contact resistance – Millivolt level method*

IEC 60721-2-6, *Classification of environmental conditions – Part 2: Environmental conditions appearing in nature. Earthquake vibration and shock*

IEC 60917 (all parts), *Modular order for the development of mechanical structures for electronic equipment practices*

IEC 61587-1, *Mechanical structures for electronic equipment – Tests for IEC 60917 and IEC 60297 series – Part 1: Environmental requirements, test set-up and safety aspects for cabinets, racks, subracks and chassis under indoor conditions*

IEC 61587-2, *Mechanical structures for electronic equipment – Tests for IEC 60917 and IEC 60297 – Part 2: Seismic tests for cabinets and racks*

IEC 61587-3, *Mechanical structures for electronic equipment – Tests for IEC 60917 and IEC 60297 – Part 3: Electromagnetic shielding performance tests for cabinets and subracks*