Mechanical structures for electronic equipment - Dimensions of mechanical structures of the 482, 6 mm (19 in) series - Part 5-105: Subracks and associated plug-in units; Alignment and/or earth pin

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 60297-5-105:2002 sisaldab Euroopa standardi EN 60297-5-105:2001 ingliskeelset teksti.	This Estonian standard EVS-EN 60297-5-105:2002 consists of the English text of the European standard EN 60297-5-105:2001.
Standard on kinnitatud Eesti Standardikeskuse 18.12.2002 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 18.12.2002 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on .	Date of Availability of the European standard text .
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

ICS 31.240

19 inch series, 482, 6 mm series, junction boxes, mecha, mechanical properties, modular, movable pins, plug boxes, plug-in units, printed- circuit boards, replaceability, representations, series, shields, structural systems, subracks, suitable for plug-in connection

EUROPEAN STANDARD **EN 60297-5-105**

NORME EUROPÉENNE

EUROPÄISCHE NORM April 2001

ICS 31.240

English version

Mechanical structures for electronic equipment - Dimensions of mechanical structures of the 482,6 mm (19 in) series Part 5-105: Subracks and associated plug-in units - Alignment and/or earth pin

(IEC 60297-5-105:2001)

Structures mécaniques pour équipement électronique -
Dimensions des structures mécaniques de la série de 482,6 mm (19 in)
Partie 5-105: Bacs et blocs enfichables associés - Broche d'alignement et/ou de terre
(CEI 60297-5-105:2001)

Bauweisen für elektronische Einrichtungen -
Maße der 482,6-mm-(19-in-)Bauweise
Teil 5-105: Baugruppenträger und zugehörige Baugruppen - Führungs- und/oder Erdungsstift
(IEC 60297-5-105:2001)

This European Standard was approved by CENELEC on 2001-03-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 60297-5-105:2001 E

Foreword

The text of document 48D/243/FDIS, future edition 1 of IEC 60297-5-105, 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 was approved by CENELEC as EN 60297-5-105 on 2001-03-01.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2001-12-01

– latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2004-03-01

Annexes designated "normative" are part of the body of the standard.
In this standard, annex ZA is normative.
Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 60297-5-105:2001 was approved by CENELEC as a European Standard without any modification.

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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 60297-3	[1)]	Dimensions of mechanical structures of the 482,6 mm (19 in) series Part 3: Subracks and associated plug-in units	HD 493.3 S2	1993[2)]
IEC 60297-4	[1)]	Part 4: Subracks and associated plug-in units - Additional dimensions	EN 60297-4 + A1	1995[2)] 1999
IEC 60297-5-100	[1)]	Part 5-100: Subracks and associated plug-in units - Design overview	EN 60297-5-100	2001[2)]
IEC 60297-5-101	[1)]	Part 5-101: Subracks and associated plug-in units - Injector/extractor handle	EN 60297-5-101	2001[2)]
IEC 60297-5-102	[1)]	Part 5-102: Subracks and associated plug-in units - Electromagnetic shielding provision	EN 60297-5-102	2001[2)]
IEC 60297-5-103	[1)]	Part 5-103: Subracks and associated plug-in units - Electrostatic discharge protection	EN 60297-5-103	2001[2)]
IEC 60297-5-104	[1)]	Part 5-104: Subracks and associated plug-in units - Keying	EN 60297-5-104	2001[2)]
IEC 60297-5-107	[1)]	Part 5-107: Subracks and associated plug-in units - Rear mounted plug-in units	EN 60297-5-107	2001[2)]
IEC 60917-1	[1)]	Modular order for the development of mechanical structures for electronic equipment practices Part 1: Generic standard	EN 60917-1	1998[2)]

[1)] undated reference.

[2)] valid edition at date of issue.

Publication	Year	Title	EN/HD	Year
IEC 61587-1	1)	Mechanical structures for electronic equipment - Tests for IEC 60917 and IEC 60297 Part 1: Climatic, mechanical tests and safety aspects for cabinets, racks, subracks and chassis	EN 61587-1	1999 2)
IEC 61587-3	1)	Part 3: Electromagnetic shielding performance tests for cabinets, racks and subracks	-	-

INTERNATIONAL STANDARD

IEC 60297-5-105

First edition
2001-01

Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series –

Part 5-105: Subracks and associated plug-in units – Alignment and/or earth pin

Structures mécaniques pour équipement électronique – Dimensions des structures mécaniques de la série de 482,6 mm (19 in) –

Partie 5-105: Bacs et blocs enfichables associés – Broche d'alignement et/ou de terre

Reference number
IEC 60297-5-105:2001(E)

Publication numbering

As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series. For example, IEC 34-1 is now referred to as IEC 60034-1.

Consolidated editions

The IEC is now publishing consolidated versions of its publications. For example, edition numbers 1.0, 1.1 and 1.2 refer, respectively, to the base publication, the base publication incorporating amendment 1 and the base publication incorporating amendments 1 and 2.

Further information on IEC publications

The technical content of IEC publications is kept under constant review by the IEC, thus ensuring that the content reflects current technology. Information relating to this publication, including its validity, is available in the IEC Catalogue of publications (see below) in addition to new editions, amendments and corrigenda. Information on the subjects under consideration and work in progress undertaken by the technical committee which has prepared this publication, as well as the list of publications issued, is also available from the following:

- **IEC Web Site (www.iec.ch)**

- **Catalogue of IEC publications**

  The on-line catalogue on the IEC web site (www.iec.ch/catlg-e.htm) enables you to search by a variety of criteria including text searches, technical committees and date of publication. On-line information is also available on recently issued publications, withdrawn and replaced publications, as well as corrigenda.

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INTERNATIONAL STANDARD **IEC 60297-5-105**

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

PRICE CODE F

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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MECHANICAL STRUCTURES FOR ELECTRONIC EQUIPMENT – DIMENSIONS OF MECHANICAL STRUCTURES OF THE 482,6 mm (19 in) SERIES –

Part 5-105: Subracks and associated plug-in units – Alignment and/or earth pin

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60297-5-105 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/243/FDIS	48D/252/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 3.

IEC 60297-5 consists of the following parts under the general title: Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series:

Part 5-100, Subracks and associated plug-in units – Design overview

Part 5-101, Subracks and associated plug-in units – Injector/extractor handle

Part 5-102, Subracks and associated plug-in units – Electromagnetic shielding provision

Part 5-103, Subracks and associated plug-in units – Electrostatic discharge protection
Part 5-104, Subracks and associated plug-in units – Keying
Part 5-105, Subracks and associated plug-in units – Alignment and/or earth pin
Part 5-107, Subracks and associated plug-in units – Rear mounted plug-in units

The committee has decided that the contents of this publication will remain unchanged until 2004. At this date, the publication will be

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

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

This part of IEC 60297 is based on IEC 60297-3 (1984), its Amendment 1 (1992), and IEC 60297-4 (1995). It contains detail dimensions which ensure dimensional interchangeability of subracks and plug-in units, with alignment and/or earth pins where removable board type plug-in units require a method of aligning and/or earthing subrack front and/or rear mounted plug-in unit front panels (in the case of an earthing in, plugged-in condition) to the subrack chassis earth.

The basic function of the alignment and/or earth pin for the board type plug-in unit with front panel is to align the printed board type plug-in unit mounted connector prior to engagement with the subrack mounted connector, and to control electromagnetic shielding gasket pressure (see IEC 60297-5-102).

For the purpose of this standard, a minimum printed board type plug-in unit front panel with a width of four horizontal pitches (4HP) has been chosen. This is to permit the combination with plug-in unit keying (see IEC 60297-5-104) and/or plug-in unit injector/extractor handles (see IEC 60297-5-101).

Alignment of printed board type plug-in unit front panels of less than 4HP, box type plug-in unit front panels or filler panels, typically required when electromagnetic shielding gaskets are used, may use commercially available solutions designed within the rules of interchangeability, or other standardized methods.

A further function of the alignment and/or earth pin is to act as an earth contact between the subrack and the plug-in unit front panel using no retention screw (see IEC 60297-3). In such a case, the alignment and/or earth pin can act as an electrostatic discharge protection and/or a earth device (see IEC 61587-1).

This standard applies only to the mechanical structures for electronic equipment practices according to the IEC 60297 series.

MECHANICAL STRUCTURES FOR ELECTRONIC EQUIPMENT – DIMENSIONS OF MECHANICAL STRUCTURES OF THE 482,6 mm (19 in) SERIES –

Part 5-105: Subracks and associated plug-in units – Alignment and/or earth pin

1 Scope and object

This part of IEC 60297 covers extended features of an alignment and/or earth pin method added to board type plug-in units with front panels of a minimum width of four horizontal pitches (HP) and subracks according to IEC 60297-3, IEC 60297-4 and IEC 60297-5-107. The electrical test requirements are defined in IEC 61587-1. This alignment and/or earth pin feature will also counteract the pressure exerted by the plug-in unit and/or filler panel shielding gaskets as defined in IEC 60297-5-102. By implementing this extended feature in the subracks and plug-in units, a new subrack and plug-in unit type (incompatible with IEC 60297-3 and IEC 60297-4) is created.

The purpose of this standard is to specify dimensions which will ensure dimensional interchangeability of subracks and associated plug-in units using the extended function of an alignment and/or earth pin method added to IEC 60297-3, IEC 60297-4 and IEC 60297-5-107.

For mechanical and climatic tests refer to IEC 61587-1.

For electromagnetic shielding performance tests refer to IEC/TS 61587-3.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IE 60297. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 60297 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

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

IEC 60297-4, *Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 4: Subracks and associated plug-in units – Additional dimensions*[1]

IEC 60297-5-100, *Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 5-100: Subracks and associated plug-in units – Design overview*

IEC 60297-5-101, *Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 5-101: Subracks and associated plug-in units – Injector/extractor handle*

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[1] There is a consolidated edition 1.1 (1999) that includes IEC 60297-4 (1995) and its amendment 1 (1999).

IEC 60297-5-102, *Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 5-102: Subracks and associated plug-in units – Electromagnetic shielding provision*

IEC 60297-5-103, *Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 5-103: Subracks and associated plug-in units – Electrostatic discharge protection*

IEC 60297-5-104, *Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 5-104: Subracks and associated plug-in units – Keying*

IEC 60297-5-107, *Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 5-107: Subracks and associated plug-in units – Rear mounted plug-in units*

IEC 60917-1, *Modular order for the development of mechanical structures for electronic equipment practices – Part 1: Generic standard*

IEC 61587-1, *Mechanical structures for electronic equipment – Tests for IEC 60917 and IEC 60297 – Part 1: Climatic, mechanical tests and safety aspects for cabinets, racks, subracks and chassis*

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

3 Definitions

For the purpose of this part of IEC 60297, the definitions of IEC 60917-1 apply.

4 Extended features added to IEC 60297-3 and IEC 60297-4

This standard gives dimensions only where they differ from or supplement those to be found in IEC 60297-3 and 60297-4. The dimensions used in this standard shall take precedence over those of IEC 60297-3 and 60297-4 when conformance to this standard is claimed. Dimensions shown in brackets are for reference only and are found in the stated standards.

The drawings in this standard are not intended to indicate product design.

Extended feature	Basic standards	Extended standards	Environmental standard(s)
Alignment and/or earth pin	IEC 60297-3 IEC 60297-4	IEC 60297-5-102 **IEC 60297-5-105** IEC 60297-5-107	IEC/TS 61587-3 IEC 61587-1