



NSAI
Standards

Irish Standard
I.S. EN 60297-3-105:2009

Mechanical structures for electronic equipment - Dimensions of mechanical structures of the 482,6 mm (19 in) series -- Part 3-105: Dimensions and design aspects for 1U high chassis (IEC 60297-3-105:2008 (EQV))

I.S. EN 60297-3-105:2009

Incorporating amendments/corrigenda issued since publication:

<i>This document replaces:</i>	<i>This document is based on:</i> EN 60297-3-105:2009	<i>Published:</i> 8 January, 2009
This document was published under the authority of the NSAI and comes into effect on: 3 April, 2009		ICS number: 31.240
NSAI 1 Swift Square, Northwood, Santry Dublin 9	T +353 1 807 3800 F +353 1 807 3838 E standards@nsai.ie W NSAI.ie	Sales: T +353 1 857 6730 F +353 1 857 6729 W standards.ie
Price Code: M		
Údarás um Chaighdeáin Náisiúnta na hÉireann		

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60297-3-105

January 2009

ICS 31.240

English version

**Mechanical structures for electronic equipment -
Dimensions of mechanical structures of the 482,6 mm (19 in) series -
Part 3-105: Dimensions and design aspects for 1U high chassis
(IEC 60297-3-105:2008)**

Structures mécaniques
pour équipements électroniques -
Dimensions des structures mécaniques
de la série 482,6 mm (19 pouces) -
Partie 3-105: Dimensions et aspects
de conception pour les châssis
d'une hauteur de 1U
(CEI 60297-3-105:2008)

Bauweisen für
elektronische Einrichtungen -
Maße der 482,6-mm-(19-Zoll-)Bauweise -
Teil 3-105: Maße und Ausführungen
von 1U-Einschüben
(IEC 60297-3-105:2008)

This European Standard was approved by CENELEC on 2008-12-01. 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, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

Central Secretariat: avenue Marnix 17, B - 1000 Brussels

I.S. EN 60297-3-105:2009

EN 60297-3-105:2009

- 2 -

Foreword

The text of document 48D/381/FDIS, future edition 1 of IEC 60297-3-105, 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 60297-3-105 on 2008-12-01.

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) 2009-09-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2011-12-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60297-3-105:2008 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 referenced documents are indispensable for the application 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.

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-581	- ¹⁾	International Electrotechnical Vocabulary (IEV) - Part 581: Electromechanical components for electronic equipment	-	-
IEC 60297-3-100	- ¹⁾	Mechanical structures for electronic equipment - Dimensions of mechanical structures of the 482,6 mm (19 in) series - Part 3-100: Basic dimensions of front panels, subracks, chassis, racks and cabinets	EN 60297-3-100	2009 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⁾
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	2007 ²⁾
IEC 61587-2	- ¹⁾	Mechanical structures for electronic equipment - Tests for IEC 60917 and IEC 60297 - Part 2: Seismic tests for cabinets and racks	EN 61587-2	2001 ²⁾
IEC 61587-3	- ¹⁾	Mechanical structures for electronic equipment - Tests for IEC 60917 and IEC 60297 - Part 3: Electromagnetic shielding performance tests for cabinets, racks and subracks	EN 61587-3	2006 ²⁾

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.



INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series –
Part 3-105: Dimensions and design aspects for 1U high chassis**

**Structures mécaniques pour équipements électroniques – Dimensions des structures mécaniques de la série 482,6 mm (19 pouces) –
Partie 3-105: Dimensions et aspects de conception pour les châssis d'une hauteur de 1U**



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2008 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester.

If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de la CEI ou du Comité national de la CEI du pays du demandeur.

Si vous avez des questions sur le copyright de la CEI ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de la CEI de votre pays de résidence.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland
Email: inmail@iec.ch
Web: www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

- Catalogue of IEC publications: www.iec.ch/searchpub

The IEC on-line Catalogue enables you to search by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, withdrawn and replaced publications.

- IEC Just Published: www.iec.ch/online_news/justpub

Stay up to date on all new IEC publications. Just Published details twice a month all new publications released. Available on-line and also by email.

- Electropedia: www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing more than 20 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary online.

- Customer Service Centre: www.iec.ch/webstore/custserv

If you wish to give us your feedback on this publication or need further assistance, please visit the Customer Service Centre FAQ or contact us:

Email: csc@iec.ch
Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00

A propos de la CEI

La Commission Electrotechnique Internationale (CEI) est la première organisation mondiale qui élabore et publie des normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications CEI

Le contenu technique des publications de la CEI est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

- Catalogue des publications de la CEI: www.iec.ch/searchpub/cur_fut-f.htm

Le Catalogue en-ligne de la CEI vous permet d'effectuer des recherches en utilisant différents critères (numéro de référence, texte, comité d'études,...). Il donne aussi des informations sur les projets et les publications retirées ou remplacées.

- Just Published CEI: www.iec.ch/online_news/justpub

Restez informé sur les nouvelles publications de la CEI. Just Published détaille deux fois par mois les nouvelles publications parues. Disponible en-ligne et aussi par email.

- Electropedia: www.electropedia.org

Le premier dictionnaire en ligne au monde de termes électroniques et électriques. Il contient plus de 20 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans les langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International en ligne.

- Service Clients: www.iec.ch/webstore/custserv/custserv_entry-f.htm

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions, visitez le FAQ du Service clients ou contactez-nous:

Email: csc@iec.ch
Tél.: +41 22 919 02 11
Fax: +41 22 919 03 00



IEC 60297-3-105

Edition 1.0 2008-11

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series –
Part 3-105: Dimensions and design aspects for 1U high chassis**

**Structures mécaniques pour équipements électroniques – Dimensions des structures mécaniques de la série 482,6 mm (19 pouces) –
Partie 3-105: Dimensions et aspects de conception pour les châssis d'une hauteur de 1U**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX



ICS 31.240

ISBN 2-8318-1017-8

CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references	6
3 Terms and definitions	6
4 Arrangement overview.....	7
5 Dimensions of the 1U chassis.....	9
5.1 Chassis type A	9
5.2 Chassis type B	10
5.3 Chassis type C	11
6 Climatic, mechanical tests (safety aspects, EMC, seismic)	12
Annex A (informative) Chassis and rack/cabinet relationship	13
Annex B (informative) Cooling air flow	15
Annex C (informative) Chassis depth relationship to the rack/cabinet	16
Figure 1 – Chassis type A	8
Figure 2 – Chassis type B	8
Figure 3 – Chassis type C	8
Figure 4 – Dimensions of chassis type A.....	9
Figure 5 – Dimensions of chassis type B.....	10
Figure 6 – Dimensions of chassis type C	11
Figure A.1 – Chassis type B and rack/cabinet relationship	13
Figure A.2 – Chassis type C rack/cabinet relationship.....	14
Figure B.1 – Cooling airflow direction.....	15
Table C.1 – Maximum depth <i>D</i> in relation to corresponding cabinet depth.....	16

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MECHANICAL STRUCTURES FOR ELECTRONIC EQUIPMENT –
DIMENSIONS OF MECHANICAL STRUCTURES
OF THE 482,6 mm (19 in) SERIES –**
Part 3-105: Dimensions and design aspects for 1U high chassis**FOREWORD**

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. 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 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 IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60297-3-105 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/381/FDIS	48D/387/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 60297 series, published under the general title *Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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.

INTRODUCTION

Electronic systems based on 1U chassis design have become one of the most important platforms used for servers, industrial electronics, information technology (IT) and telecommunication equipment. 1U chassis are sometimes referred to as “Pizza Boxes”.

Applications for 1U chassis designs are wide spread and solutions are found in every segment of the electronics industry.

IEC 60297-3-100 defines the dimensional rack/cabinet details such as the available aperture and the front panel mounting dimensions. However, IEC 60297-3-100 falls short of providing guidance or dimensional requirements for assembling 1U chassis designs into these IEC 60297 conforming racks/cabinets either in singles or in multiples (stacked in $n \times 1U$).

This part of IEC 60297 will give guidance and provide for dimensional requirements for 1U chassis based on weight loading, physical size and service accessibility.

In this standard, various chassis types are identified according to application needs.

The defined interface dimensions of the various chassis types permit the development of common mounting accessories. Due to this clarification and the application specific chassis type choice, the serviceability and airflow aspects of the chosen 1U chassis can be addressed by the designer.

Similar attributes for multiple unit high equipment may be derived from this standard. The economical value of this standard lies in the predefined interface dimensions of chassis for which suitable accessories may be developed. In addition, as a consequence of the chosen mounting support, the cooling possibilities are indicated.

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

Part 3-105: Dimensions and design aspects for 1U high chassis

1 Scope

This part of IEC 60297 specifies the dimensions for 1U chassis mounted into IEC 60297-3-100 compliant racks/cabinets where dimensions, loaded weight and accessibility require differing assembly methods.

Guidance for cooling and reference for EMC, seismic and for the climatic and mechanical requirements and tests are provided, as defined in the IEC 61587 series.

The drawings used in this standard are not intended to indicate product design, only the specific dimensions shall be used.

The terminology used complies with IEC 60917-1.

2 Normative references

The following referenced documents are indispensable for the application 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 60050-581, *International electrotechnical vocabulary – Part 581: Electromechanical components for electronic equipment*

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

IEC 60297-3-100, *Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 3-100: Basic dimensions of front panels, subracks, chassis, racks and cabinets*

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 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, racks and subracks*

3 Terms and definitions

For the purposes of this document, the terms and definitions of IEC 60917-1 and IEC 60050-581 apply, as well as the following.

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- Looking for additional Standards? Visit Intertek Inform Infostore
 - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-