



NSAI
Standards

Irish Standard
I.S. EN 60297-3-108:2015

Mechanical structures for electronic equipment - Dimensions of mechanical structures of the 482,6 mm (19 in) series - Part 3-108: Dimensions of R-type subracks and plug-in units

I.S. EN 60297-3-108:2015

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN 60297-3-108:2015

Published:

2015-01-16

This document was published under the authority of the NSAI and comes into effect on:

2015-02-19

ICS number:

NOTE: If blank see CEN/CENELEC cover page

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

Údarás um Chaighdeáin Náisiúnta na hÉireann

EUROPEAN STANDARD

EN 60297-3-108

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2015

ICS 31.240

English Version

**Mechanical structures for electronic equipment - Dimensions of
mechanical structures of the 482,6 mm (19 in) series - Part 3-
108: Dimensions of R-type subracks and plug-in units
(IEC 60297-3-108:2014)**

Structures mécaniques pour équipements électroniques -
Dimensions des structures mécaniques de la série 482,6
mm (19 pouces) - Partie 3-108: dimensions des bacs de
type r et des blocs enfichables
(IEC 60297-3-108:2014)

Bauweisen für elektronische Einrichtungen - Maße der
482,6-mm-(19-in-)Bauweise - Teil 3-108: Maße von
Baugruppenträgern und steckbaren Baugruppen Typ R
(IEC 60297-3-108:2014)

This European Standard was approved by CENELEC on 2014-10-14. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

Foreword

The text of document 48D/565/FDIS, future edition 1 of IEC 60297-3-108, 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 60297-3-108:2015.

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) 2014-07-16
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-10-14

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 60297-3-108:2014 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 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
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	EN 60297-3-100	-
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 60297-3-105	-	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	EN 60297-3-105	-
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 61587-3	-	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	-
IEC 61587-5	-	Mechanical structures for electronic equipment - Tests for IEC 60917 and IEC 60297 -- Part 5: Seismic tests for chassis, subracks, and plug-in units	EN 61587-5	-
IEC/TS 62610-2	-	Mechanical structures for electronic equipment - Thermal management for cabinets in accordance with IEC 60297 and IEC 60917 series - Part 2: Design guide: Method for the determination of forced air-cooling structure	-	-

This page is intentionally left blank



IEC 60297-3-108

Edition 1.0 2014-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series –
Part 3-108: Dimensions of R-type subracks and plug-in units**

**Structures mécaniques pour équipements électroniques – Dimensions des structures mécaniques de la série 482,6 mm (19 pouces) –
Partie 3-108: Dimensions des bacs de type R et des blocs enfichables**



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2014 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 l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

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

IEC Catalogue - webstore.iec.ch/catalogue

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub

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

IEC Just Published - webstore.iec.ch/justpublished

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

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing more than 30 000 terms and definitions in English and French, with equivalent terms in 14 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

More than 55 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) 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 IEC

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

Catalogue IEC - webstore.iec.ch/catalogue

Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

Recherche de publications IEC - www.iec.ch/searchpub

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient plus de 30 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 14 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary

Plus de 55 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.



IEC 60297-3-108

Edition 1.0 2014-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series –
Part 3-108: Dimensions of R-type subracks and plug-in units**

**Structures mécaniques pour équipements électroniques – Dimensions des structures mécaniques de la série 482,6 mm (19 pouces) –
Partie 3-108: Dimensions des bacs de type R et des blocs enfichables**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX

U

ICS 31.240

ISBN 978-2-8322-1790-0

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD	4
INTRODUCTION	6
1 Scope	7
2 Normative references	7
3 Terms and definitions	8
4 Arrangement overview	8
5 RA – type subrack	9
5.1 General	9
5.2 RA-type subrack rear mounting dimensions	11
6 RB-type subrack	12
6.1 General	12
6.2 RB-type subrack rear mounting dimensions	13
7 R-type subrack guide rails	13
8 Electromagnetic shielding provisions and mounting flanges	14
9 Chassis integrated subrack	15
9.1 General	15
9.2 RA– C-type chassis/subrack	16
9.3 RB–C-type chassis/subrack	16
10 Front panel/plug-in unit compatible with RA – type subrack	17
11 Front panel/plug-in unit compatible with RB – type subrack	19
12 Injector/extractor handle	20
13 Printed board dimensions	20
14 Dimensions	21
15 Nomenclature	22
15.1 Reference plane (given in square boxes of figures)	22
15.2 Dimensions of Table 1	22
Annex A (normative) Mounting support	23
A.1 Chassis/subrack mounting support in cabinets	23
Annex B (normative) Environmental tests	24
B.1 Static and dynamic load test	24
B.2 Seismic test	24
B.3 Electromagnetic shielding performance test	24
Annex C (normative) Thermal management	25
C.1 Air ducting	25
Annex D (informative) Comparison of IEC 60297-3-101 with IEC 60297-3-108	26
Figure 1 – Subrack application	6
Figure 2 – Arrangement of a R-type subrack and plug-in units	9
Figure 3 – RA-type subrack front mounting dimensions	10
Figure 4 – RA-type subrack rear mounting dimensions	11
Figure 5 – RB-type subrack front mounting dimensions	12
Figure 6 – RB-type subrack rear mounting dimensions	13
Figure 7 – R-type subrack guide rails	14

Figure 8 – R-type subrack front attachment plane and mounting flanges	15
Figure 9 – RA – C type chassis/subrack	16
Figure 10 – RB–C – type chassis/subrack	17
Figure 11 – Front panel/ plug-in unit compatible with RA – type subrack	18
Figure 12 – Front panel/ plug-in unit compatible with RB – type subrack	19
Figure 13 – Injector/extractor handle	20
Figure 14 – Printed board dimensions	21
Figure A.1 – Subrack/chassis mounting support	23
Figure C.1 – Thermal management example	25
 Table 1 – Dimensions	 21
Table D.1 – Comparison of dimensions and features	26

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 3-108: Dimensions of R-type subracks and plug-in units**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 itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 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 60297-3-108 has been prepared by subcommittee 48D: Mechanical structures for electronic equipment, of IEC technical committee 48: Electrical connectors and mechanical structures for electrical and electronic equipment.

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

FDIS	Report on voting
48D/565/FDIS	48D/570/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, 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 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.

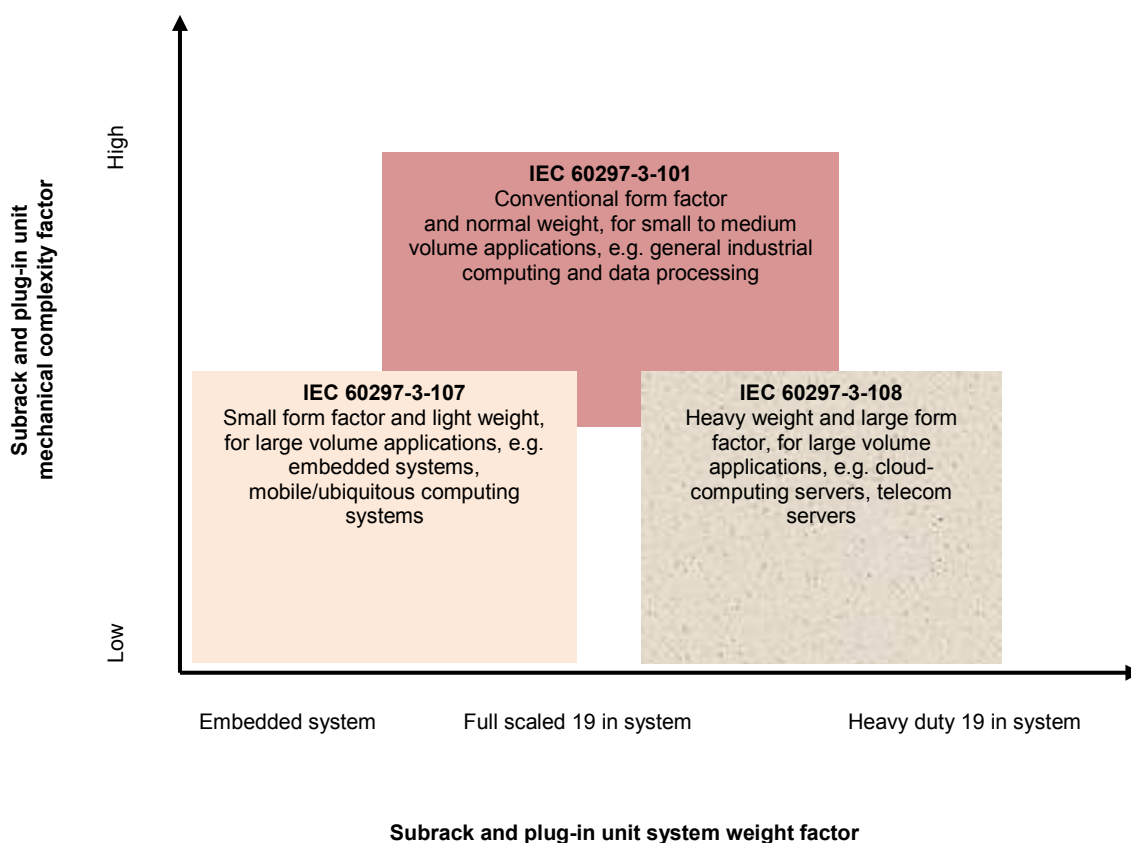
IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

The purpose of this standard is to establish alternative dimensions and features for subracks and associated plug-in units, compared with IEC 60297-3-101. These alternatives allow more sturdy designs for the load bearing members of the subrack. In addition, the plug-in units are with alignment pins and fastened with M3 screws. Chassis integrated subracks are also part of this standard.

The main differing dimensions/features compared with IEC 60297-3-101 are:

- The subrack height aperture is decreased in order to increase the dimension for the top and bottom members (most critical load bearing parts).
- Incorporated alignment between the subrack and the plug-in units. Injecting and extracting provisions for plug-in units.
- The mounting flanges of the subracks are recessable. This feature meets the mounting requirements of heavy subracks and allows the positioning to the centre of gravity.
- Chassis integrated subracks for optimized thermal management features.
- Comparison of dimensions and features with IEC 60297-3-101 is shown in appendix D, Table D.1. For an application image of the subrack based on this standard see Figure 1.



IEC

Figure 1 – Subrack application

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

Part 3-108: Dimensions of R-type subracks and plug-in units

1 Scope

This part of IEC 60297 provides dimensions and features for R-type subracks and plug-in units, i.e. ruggedized variants of the mechanical structures of the 482,6 mm (19 in) series, with enhanced vibration and shock resistance and/or improved EMC performance, for use in more harsh environment. This leads to a subrack standard which is externally compatible with IEC 60297-3-100 but internally largely incompatible with IEC 60297-3-101. R-type subracks, chassis integrated subracks and plug-in units incorporate dimensions and features which provide for a higher level of ruggedness, compared with IEC 60297-3-101 (test set-up and load definitions are selected from IEC 61587-1 and IEC 61587-5).

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 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 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 60297-3-105, *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 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 61587-3, *Mechanical structures for electronic equipment – Tests for IEC 60917 and IEC 60297 – Part 3: Electromagnetic shielding performance tests for cabinets and subracks*

IEC 61587-5, *Mechanical structures for electronic equipment – Tests for IEC 60917 and IEC 60297 – Part 5: Seismic tests for chassis, subracks, and plug-in units*

IEC TS 62610-2, *Mechanical structures for electronic equipment – Thermal management for cabinets in accordance with IEC 60297 and IEC 60917 series – Part 2: Design guide: Method for determination of forced air-cooling structure*

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
-