

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**

ICS 31.240

National foreword

This British Standard is the UK implementation of EN 60297-3-101:2004. It is identical with IEC 60297-3-101:2004. It supersedes BS 5954-3:1985, BS EN 60297-5-100:2001, BS EN 60297-5-102:2001, BS EN 60297-5-103:2001 and BS EN 60297-5-107:2001 which are withdrawn. Together with BS EN 60297-3-102, supersedes BS EN 60297-4:1995, which is now withdrawn.

The UK participation in its preparation was entrusted to Technical Committee EPL/48/4, Mechanical structures for electronic equipment.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 18 January 2005

© BSI 2008

ISBN 978 0 580 62595 4

Amendments/corrigenda issued since publication

Date	Comments
30 May 2008	Addition of supersession details in national foreword

**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 60297-3-101:2004)**

Structures mécaniques
pour équipement électronique -
Dimensions des structures mécaniques
de la série de 482,6 mm (19 in)
Partie 3-101: Bacs et blocs enfichables
associés
(CEI 60297-3-101:2004)

Bauweisen für elektronische
Einrichtungen -
Maße der 482,6-mm-(19-in-)Bauweise
Teil 3-101: Baugruppenträger
und Baugruppen
(IEC 60297-3-101:2004)

This European Standard was approved by CENELEC on 2004-09-01. 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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, 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

Foreword

The text of document 48D/299/FDIS, future edition 1 of IEC 60297-3-101, 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 60297-3-101 on 2004-09-01.

This European Standard supersedes HD 493.3 S2:1993, EN 60297-4:1995 + A1:1999, EN 60297-5-100:2001, EN 60297-5-102:2001 + corrigendum July 2001, EN 60297-5-103:2001 and EN 60297-5-107:2001.

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) | 2005-06-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn | (dow) | 2007-09-01 |

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60297-3-101:2004 was approved by CENELEC as a European Standard without any modification.

CONTENTS

INTRODUCTION.....	4
1 Scope and object.....	5
2 Normative references	5
3 Terms and definitions	6
4 Arrangement overview.....	6
5 Subrack dimensions, front mounting area	7
6 Subrack dimensions, rear mounting area	10
7 Printed board type plug-in units, front mounted.....	12
8 Box type plug-in units, front mounted	14
9 Printed board type plug-in units, rear mounted	16
10 Subrack and plug-in units with electromagnetic shielding provisions.....	17
11 Plug-in units electrostatic discharge provisions.....	19
12 Dimensions used in the figures.....	21
Annex ZA (normative) Normative references to international publications with their corresponding European publications	22
Figure 1 – Relationship between the new IEC 60297-3 series and the old IEC 60297 series ...	4
Figure 2 – Arrangement overview	6
Figure 3 – Subrack dimensions, front mounting area – Part 1	7
Figure 4 – Subrack dimensions, front mounting area – Part 2	8
Figure 5 – Subrack dimensions, front mounting area – Part 3	9
Figure 6 – Subrack dimensions, rear mounting area	10
Figure 7 – Printed board type plug-in unit, 3U	12
Figure 8 – Printed board type plug-in unit, 6U	13
Figure 9 – Printed board type plug-in unit, 9U	13
Figure 10 – Box type plug-in unit, 3U	14
Figure 11 – Box type plug-in unit, 6U	15
Figure 12 – Box type plug-in unit, 9U	15
Figure 13 – Printed board type plug-in units, rear mounting dimensions.....	16
Figure 14 – Subrack shielding interface dimensions.....	17
Figure 15 – Plug-in unit and filler panels shielding interface dimensions	18
Figure 16 – ESD contact interface dimensions	19
Figure 17 – ESD strip interface dimensions	19
Table 1 – RD1 dimensions	11
Table 2 – Depth dimensions RD3, RD4	16
Table 3 – Height dimensions.....	20
Table 4 – Depth dimensions.....	20

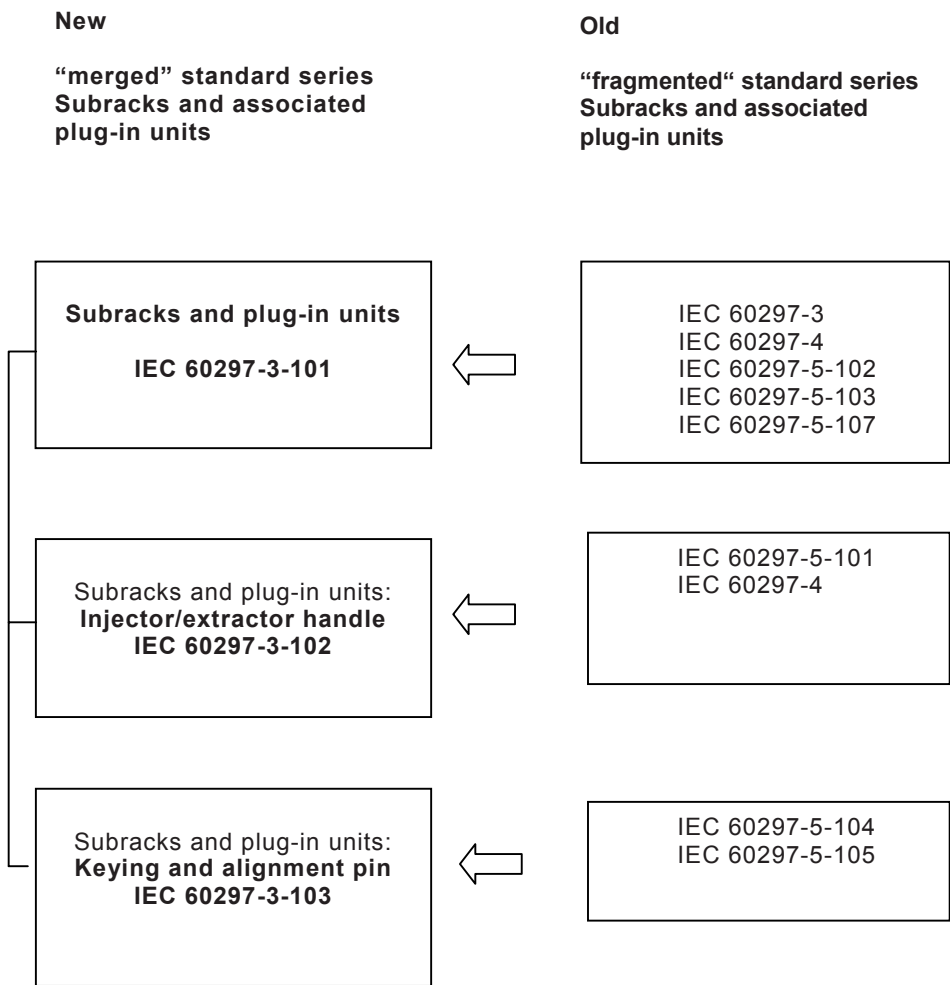
INTRODUCTION

The “Dimensions of mechanical structures of the 482,6 mm (19 in) standards are defined in IEC 60297. To the original IEC 60297-3:1988 publication was added Amendment 1:1995. The additional requirements were published in IEC 60297-4:1995 with Amendment 1:1999.

The extended requirements were published in the IEC 60297-5-1XX series (2001). Responding to market requirements and for more clarity it became necessary to merge and technically enhance these standard “parts” into 3 “new” standards for subracks and associated plug-in units. This “merged” standard series now defined as IEC 60297-3-101, IEC 60297-3-102 and IEC 60297-3-103 explains its relationship to the previous “fragmented” IEC 60297-X standards, see Figure 1.

The nomenclature of these new standards has been revised. The relationship to IEC 60297-1 (Part 1: Panels and Racks) has been maintained. The relationship to IEC 60297-2 (Part 2: Cabinets and pitches of rack structures) has been maintained. The relationship to IEC 61587-1 (Part 1: Climatic, mechanical tests and safety aspects for cabinets, racks, subracks and chassis) and IEC TS 61587-3 (Part 3: Electromagnetic shielding performance tests for cabinets, racks and subracks) has been added.

The IEC 60297-3-101 standard defines the interfaces of the basic 482,6 mm (19 in) subrack and associated plug-in units.



IEC 1089/04

Figure 1 – Relationship between the new IEC 60297-3 series and the old IEC 60297 series

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

1 Scope and object

This part of IEC 60297 covers the basic dimensional relationship of a modular range of subracks and associated plug-in units in compliance with the IEC 60297 series.

The purpose of this standard is to specify dimensions which will ensure dimensional interchangeability of subracks and associated plug-in units. Connector related dimensions are limited to “inspection dimensions” only.

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

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

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 60249-2-1, *Base materials for printed circuits – Part 2: Specifications. Specification No. 1: Phenolic cellulose paper copper-clad laminated sheet, high electrical quality*

IEC 60297-1:1986, *Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 1: Panels and racks*

IEC 60297-2:1982, *Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 2: Cabinets and pitches of rack structures*

IEC 60603-2:1995, *Connectors for frequencies below 3 MHz for use with printed boards – Part 2: Detail specification for two-part connectors with assessed quality, for printed boards, for basic grid of 2,54 mm (0,1 in) with common mounting features*

IEC 60917-1:1998, *Modular order for the development of mechanical structures for electronic equipment practices – Part 1: Generic standard*

IEC 61076-4-101:2001, *Connectors for electronic equipment – Part 4-101: Printed board connectors with assessed quality – Detail specification for two-part connector modules, having a basic grid of 2,0 mm for printed boards and backplanes in accordance with IEC 60917*

IEC 61076-4-113:2002, *Connectors for electronic equipment – Printed board connectors – Part 4-113: Detail specification for two-part connectors having 5 rows with a grid of 2,54 mm for printed boards and backplanes in bus applications*

IEC 61587-1:1999, *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*

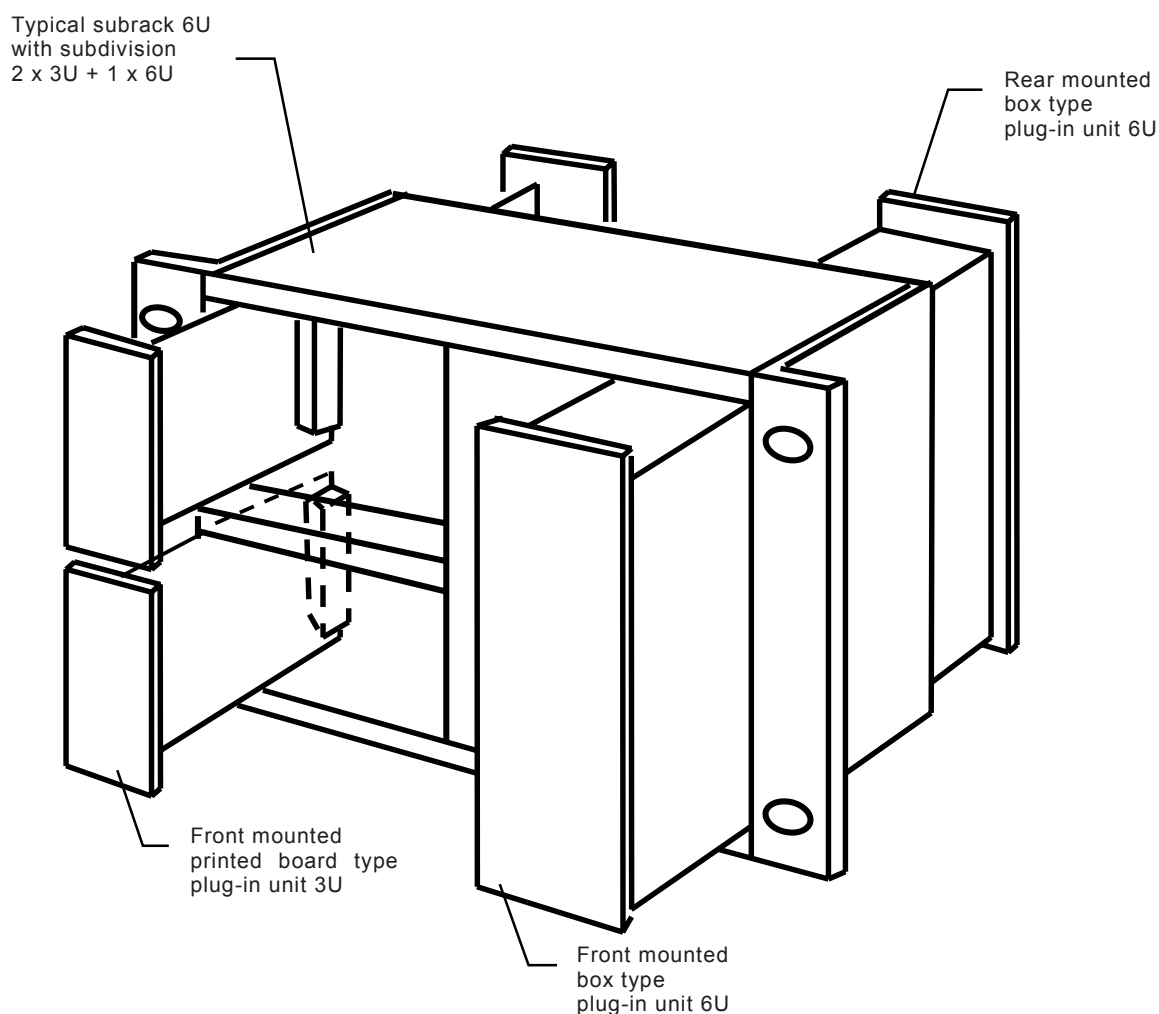
IEC 61587-3:1999, *Mechanical structures for electronic equipment – Tests for IEC 60917 and IEC 60297 – Part 3: Electromagnetic shielding performance tests for cabinets, racks and subracks*

3 Terms and definitions

For the purposes of this part of IEC 60297, the terms and definitions given in IEC 60917-1 apply.

4 Arrangement overview

The arrangement overview shown in Figure 2 illustrates a typical 6U subrack with subdivisions and rear mounted plug-in units.



IEC 1090/04

Abbreviation: 1U = 44,45 mm (see Table 3).

Optional features: Subrack and plug-in units electromagnetic shielding provisions (see Clause 10).
Plug-in units electrostatic discharge provisions (see Clause 11).

Figure 2 – Arrangement overview