INTERNATIONAL STANDARD

IEC 60297-5-103

First edition
2001-01

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

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

Partie 5-103: Bacs et blocs enfichables associés – Protection contre les décharges électrostatiques

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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 5-103: Subracks and associated plug-in units – Electrostatic discharge protection

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.
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International Standard IEC 60297-5-103 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/241/FDIS	48D/250/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 requiring electrostatic discharge protection.

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 5-103: Subracks and associated plug-in units – Electrostatic discharge protection

1 Scope and object

This part of IEC 60297 covers the extended features of electrostatic discharge protection added to subracks and plug-in units according to IEC 60297-3, IEC 60297-4 and IEC 60297-5-107. By implementing this extended feature to 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 electrostatic discharge protection added to IEC 60297-3, IEC 60297-4 and IEC 60297-5-107. For mechanical and climatic tests refer to IEC 61587-1.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 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 60297-5-107, *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*

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

3 Definitions

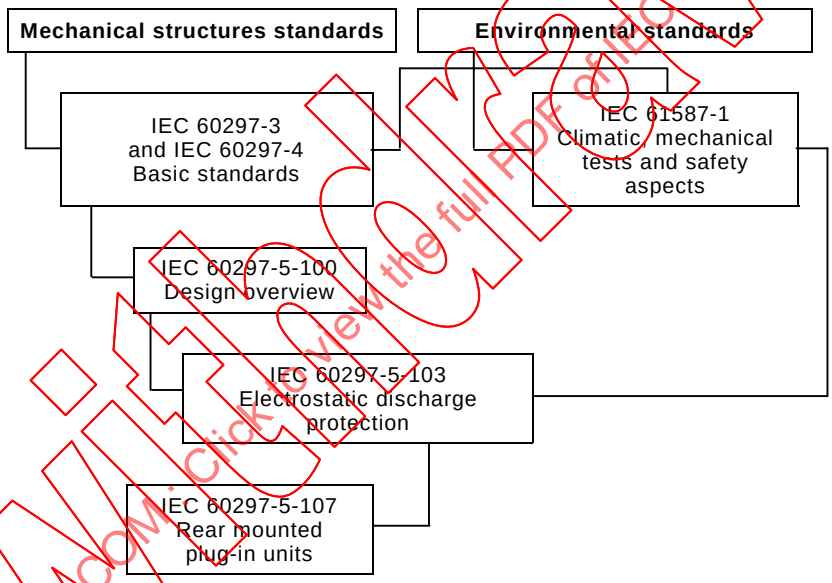
For the purpose of this part of IEC 60297, the definitions of IEC 60917-1 apply.

4 Extended feature 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)
Electrostatic discharge protection	IEC 60297-3 IEC 60297-4	**IEC 60297-5-103** IEC 60297-5-107	IEC 61587-1



5 General equipment arrangement

Generally, these are subracks featuring front and/or rear subrack mounted plug-in units with electrostatic discharge protection.

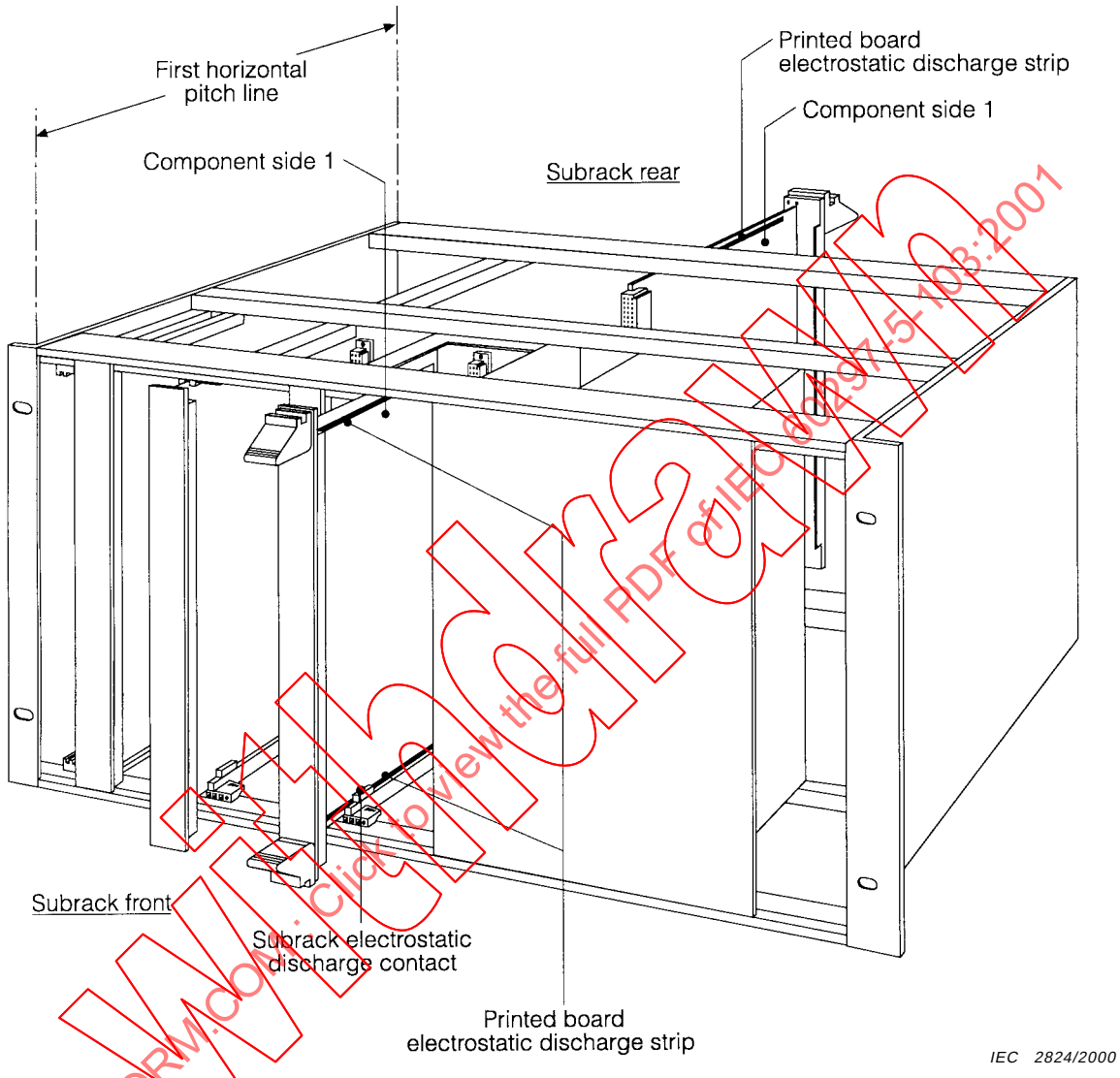


Figure 1 – General equipment arrangement – Typical 6U subrack front and/or rear mounted plug-in units featured with electrostatic discharge protection

6 Provision for electrostatic discharge protection

Electrostatic discharge (ESD) protection is for applications where plug-in boards require to have an electrostatic charge bled off prior to the engagement of the connector pins. This standard defines an ESD clip that can be mounted in the subrack guide rail and connects to the chassis ground, and an ESD strip which is added to the component side 1 of the printer board.

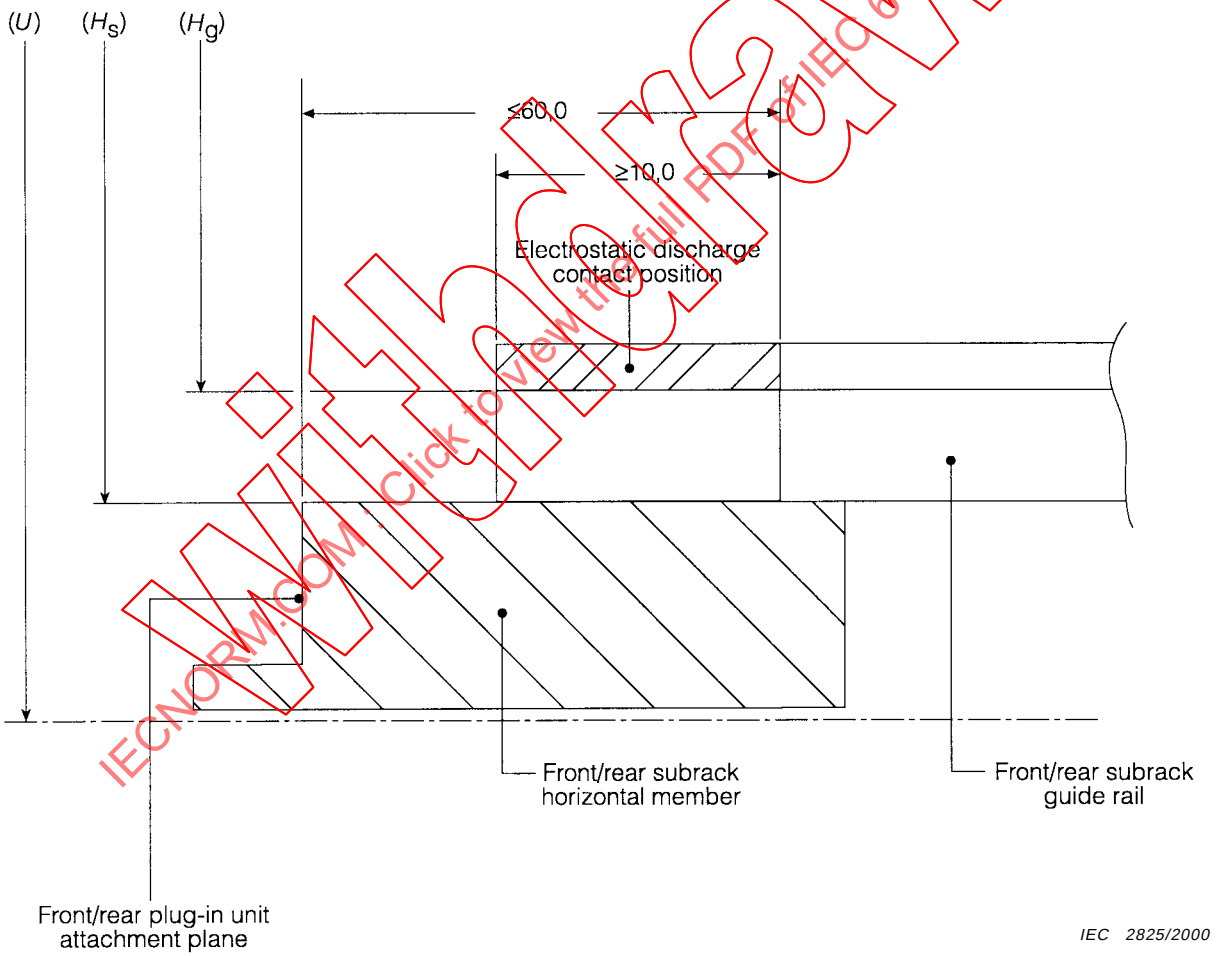
The ESD clip shall be embedded close to the front of the subrack guide rail to ensure early contact with the discharge strips on the printed board.

NOTE In order to avoid uncontrolled discharge, discharge resistors may be used between the circuit and or logic ground and the discharge strip(s). However, this standard does not define electronic circuitry

6.1 Subrack front and/or rear interface dimensions for electrostatic discharge protection

( ) See IEC 60297-1; IEC 60279-3 and IEC 60297-4

NOTE The discharge contact in the guide rails should be connected to the subrack ground.



Dimensions in millimetres

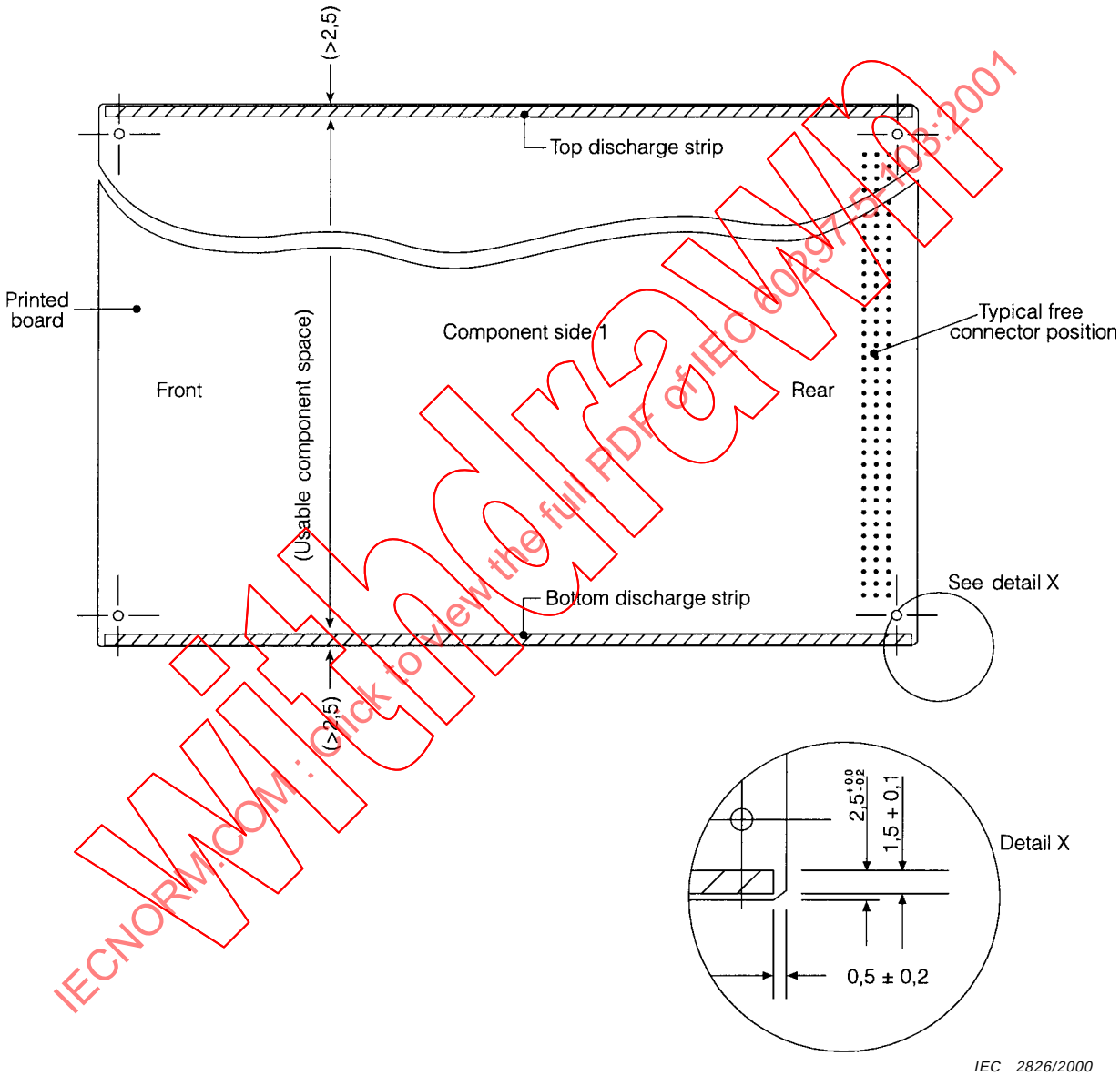
Figure 2 – Subrack guide rail dimensions for the electrostatic discharge contact position

6.2 Plug-in unit interface dimensions for electrostatic discharge protection

Depending on the application, the discharge contacts in the subrack guide rails and the discharge strips on the plug-in unit printed board shall maintain ESD contact while the plug-in unit connector is engaged or shall break contact before the plug-in unit connector is engaged.

6.2.1 Maintaining ESD contact during plug-in unit connector engagement

( ) See IEC 60297-3 and IEC 60297-4.

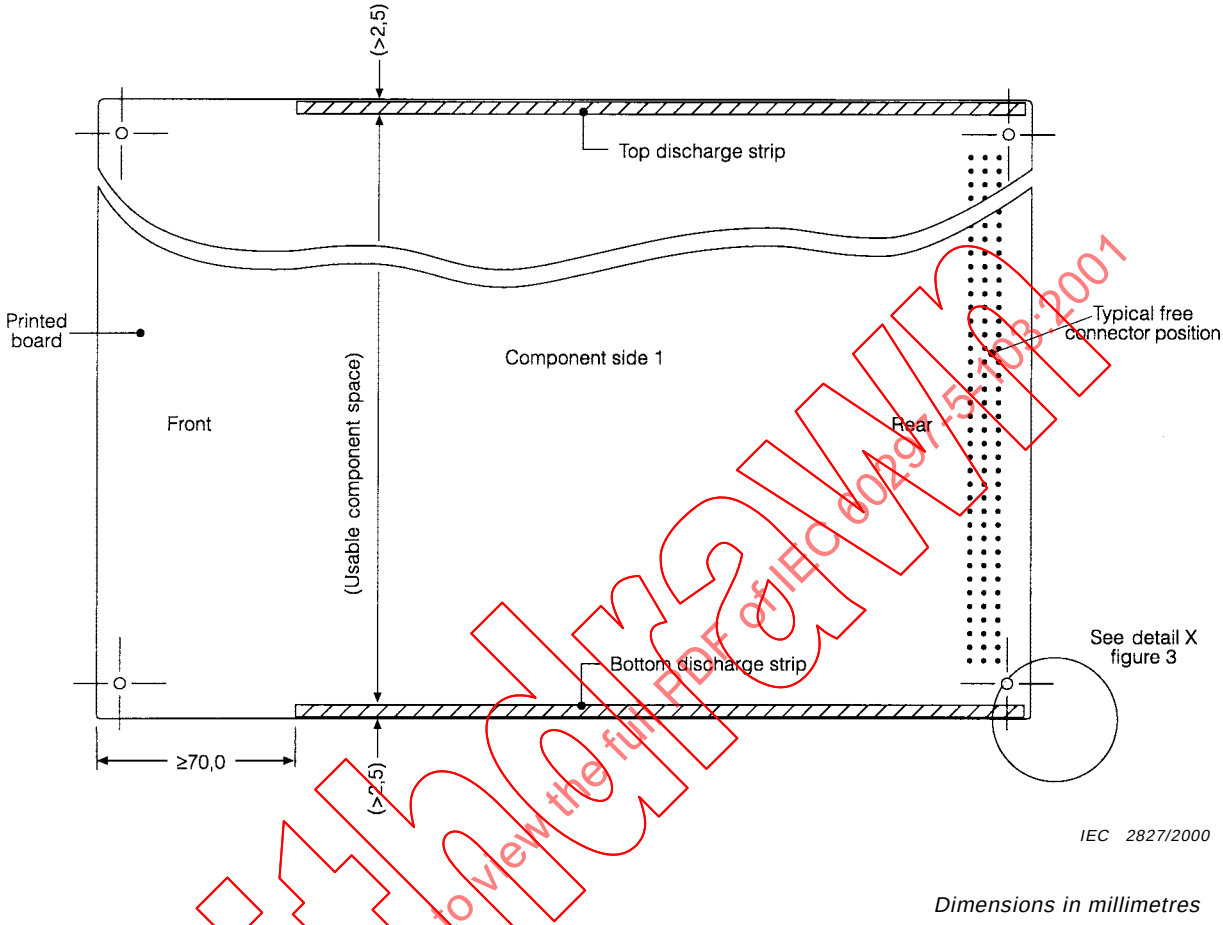


Dimensions in millimetres

Figure 3 – Printed board discharge strip dimensions maintaining ESD contact during connector engagement

6.2.2 Breaking ESD contact before plug-in unit connector engagement

( ) See IEC 60297-3 and 60297-4.



Dimensions in millimetres

Figure 4 – Printed board discharge strip dimensions breaking ESD contact before connector engagement