IEC 60917-1

Edition 2.0 2019-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Modular order for the development of mechanical structures for electrical and electronic equipment practices – Part 1: Generic standard

Ordre modulaire pour le développement des structures mécaniques pour les infrastructures électriques et électroniques – Partie 1: Norme générique

IEC 60917-1:2019-09(en-fr)

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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MODULAR ORDER FOR THE DEVELOPMENT OF MECHANICAL STRUCTURES FOR ELECTRICAL AND ELECTRONIC EQUIPMENT PRACTICES –

Part 1: Generic standard

FOREWORD

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International Standard IEC 60917-1 has been prepared by subcommittee 48D: Mechanical structures for electrical and electronic equipment, of IEC technical committee 48: Electrical connectors and mechanical structures for electrical and electronic equipment.

This second edition cancels and replaces the first edition published in 1998 and its Amendment 1:2000. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) added information on newly developed detail specification standards of mechanical structures for the electrical and electronic equipment practices;
b) added information on newly developed performance test standards for the verifications of environmental performances and safety aspects and issues of the thermal performance and thermal management for the electrical and electronic equipment practices;

c) introduced the relations between the mechanical structure for electrical and electronic system, the verification of environmental performance and safety aspects and issues of the thermal performance and thermal management for the electrical and electronic equipment practices.

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

FDIS	Report on voting
48D/703/FDIS	48D/708/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.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

A list of all parts in the IEC 60917 series, published under the general title *Modular order for the development of mechanical structures for electrical and electronic equipment practices*, 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.

INTRODUCTION

There is a continuous trend towards higher functional integration and smaller electronic components and integrated circuits. At the same time, new manufacturing methods, automatic manufacturing and testing equipment, and Computer Aided Engineering (CAE) systems have created commercial advantages for their users.

For users to take technical and economic advantage of these new components and technologies during planning, design, manufacturing, and testing, it is necessary for equipment practices to meet the following requirements (see IEC Guide 103): arrangement of products with a minimum loss of area and space;

– dimensional interchangeability of products, e.g. regarding overall dimensions, mounting dimensions (fixing holes, cut-out, etc.);
– dimensional compatibility and determination of interface dimensions of products which:
  - are combined with other products, e.g. instruments, racks, panels and cabinets, etc.;
  - are used in buildings that have been built in accordance with a modular system, e.g. column spacing, room height, door height, etc.

An obstacle arises from the use of two systems of dimensioning (inch – metre) that are not compatible with each other. The use of an interface between both dimensioning systems represents one way around this obstacle. The recommendation is:

– to use only one dimensioning system and to use SI units.

The dimensions given in 5.3 of this document have been taken from System I of IEC Guide 103 in consideration with other documents on dimensional coordination.

In accordance with the above considerations, IEC 60917-1 Ed.1 was published in 1998. This generic standard for mechanical structures for electronic equipment practices has been used to meet advanced requirements for various industrial applications of micro-electronics technology.

After publication of this generic standard, development of dimensional sectional and detail specifications consisting of the metric 25 mm modular standards, IEC 60917-2-X, and 19 inch (in) conventional standards, IEC 60297-3-XXX, was undertaken. In parallel, standards to address environmental performance and safety aspects of the mechanical structures were developed as the IEC 61587 series. All these standards are based on indoor system applications. The next step for the mechanical structure was the developments of the IEC 61969 series for outdoor applications.

In the first decade of the 21st century, the IEC 62194 and IEC 62610 series were developed to define the verification of the thermal performance of enclosures and address thermal management issues of the electrical and electronic equipment practices.

This document describes the relationships between the mechanical structure for electrical and electronic systems, the verification of environmental performance and safety aspects, and the issues of the thermal performance and of the thermal management for the electrical and electronic equipment practices.

MODULAR ORDER FOR THE DEVELOPMENT OF MECHANICAL STRUCTURES FOR ELECTRICAL AND ELECTRONIC EQUIPMENT PRACTICES –

Part 1: Generic standard

1 Scope

This part of IEC 60917 specifies the relationships between equipment practices and the modular order which are applicable to the main structural dimensions of electronic and electrical equipment mounted in various installations where dimensional interfaces have to be considered for mechanical compatibility.

This document also established terms for parts and assemblies of mechanical structures for electrical and electronic equipment, to clarify the specific relations between equipment practices and modular order.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60297 (all parts), *Mechanical structures for electronic equipment*

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 60297-3-102, *Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 3-102: Injector/extractor handle*

IEC 60297-3-103, *Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 3-103: Keying and alignment pin*

IEC 60297-3-104, *Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 3-104: Connector dependent interface dimensions of subracks and 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 60297-3-106, *Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 3-106: Adaptation dimensions for subracks and chassis applicable with metric cabinets or racks in accordance with IEC 60917-2-1*