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Modular order for the development of mechanical structures for electronic equipment practices –
Part 2-5: Sectional specification – Interface co-ordination dimensions for the 25 mm equipment practice – Cabinet interface dimensions for miscellaneous equipment

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Ordre modulaire pour le développement des structures mécaniques pour les infrastructures électroniques –
Partie 2-5: Spécification intermédiaire – Dimensions de coordination pour les interfaces des infrastructures au pas de 25 mm – Dimensions pour les interfaces des baies pour équipements divers



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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

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MODULAR ORDER FOR THE DEVELOPMENT OF MECHANICAL
STRUCTURES FOR ELECTRONIC EQUIPMENT PRACTICES –**
**Part 2-5: Sectional specification –
Interface co-ordination dimensions for the 25 mm equipment practice –
Cabinet interface dimensions for miscellaneous equipment**

FOREWORD

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

FDIS	Report on voting
48D/509/FDIS	48D/516/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 the parts in the IEC 60917 series, published under the general title *Modular order for the development of mechanical structures for 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

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- withdrawn,
- replaced by a revised edition, or
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INTRODUCTION

The standards IEC 60297-3-100 and IEC 60917-2-1 for electronic cabinets have been established for systematically defined external dimensions and for the internal mounting dimensions of subracks and chassis considered as the most common mechanical designs of electronic equipment.

Comparing the above two mentioned standards it becomes obvious that both follow the same metric footprint but differ with respect to the mounting dimensions for the installed equipment.

Furthermore, there are no definitions in either standards for the interface dimensions of any other miscellaneous equipment. This kind of equipment is primarily not designed to standardized mounting dimensions insofar as it is meant for subracks or chassis. The installation of such non-standard equipment into cabinets used to be accomplished by supporting shelves or special mounting devices.

In addition to the above mentioned lack of dimensional definitions there are many accessories for special applications where a definition of interface dimensions could facilitate the adaptation to a cabinet, e.g. internally or externally mounted cooling device and other miscellaneous devices.

It seems worthwhile to create a standard for modular cabinets with the definition of interface mounting planes and mounting points for internally and externally mounted miscellaneous devices.

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Such an attempt could fulfil the dimensional preconditions for an environmentally optimised modular structure, such as:

- definition of a frame-based cabinet structure for the individual combination of piece parts e.g. doors, side covers, top covers;
- interfaces for miscellaneous devices by definition of mounting planes with mounting points on the cabinet frame structure;
- mounting of equipment of the IEC 60297 and IEC 60917 series within the same cabinet with associated mounting uprights;
- modularity of the frame-based structure supporting shipment in the form of kits in order to maximize logistics efficiency and to minimize costs.

Legacy cabinets complying with IEC 60917-2-1 and IEC 60297-3-100 may be considered in conjunction with cabinets of IEC 60917-2-5 without significant technical modifications due to the fact that all follow the same coordination dimensions. Whilst the internal mounting points for mounting standardized equipment are defined in IEC 60297-3-100 and IEC 60917-2-1 in case of IEC 60917-2-5 additional mounting planes and mounting points are defined to be used for attaching miscellaneous equipment or accessories.

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

Part 2-5: Sectional specification – Interface co-ordination dimensions for the 25 mm equipment practice – Cabinet interface dimensions for miscellaneous equipment

1 Scope

This part of the IEC 60917 series applies to a frame-based cabinet structure with the specification of interface dimensions for the installation of miscellaneous equipment. The frame structure provides the mounting planes with mounting points for the assembly of internal and external accessories. Unlike the existing standards IEC 60917-2-1 and IEC 60297-3-100, this standard allows cover parts like top covers and front/rear doors to exceed the cabinet's external coordination dimensions.

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

IEC 60917-2-1, *Modular order for the development of mechanical structures for electronic equipment practices – Part 2: Sectional specification – Interface co-ordination dimensions for the 25 mm equipment practice – Section 1: Detail specification – Dimensions for cabinets and racks*

3 Terms and definitions

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

3.1

cabinet mounting uprights

parts of a cabinet providing the mounting points for front panels, chassis and subracks

3.2

cabinet mounting plane and mounting point

surface of the frame structure of a cabinet providing the mounting points for miscellaneous equipment and for mounting uprights

3.3

frame-based modular cabinet

frame-based modular cabinet structure providing the possibility to combine different cabinet frame members for a specific cabinet size and for mounting of doors, roofs, side and rear covers as per the required performance level

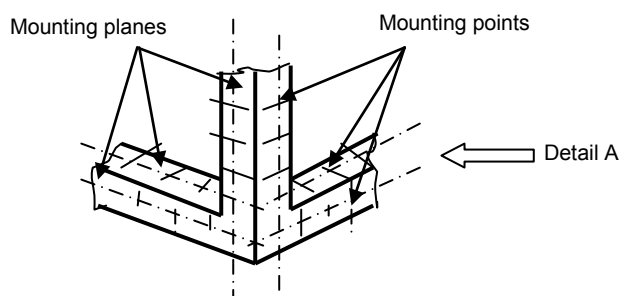
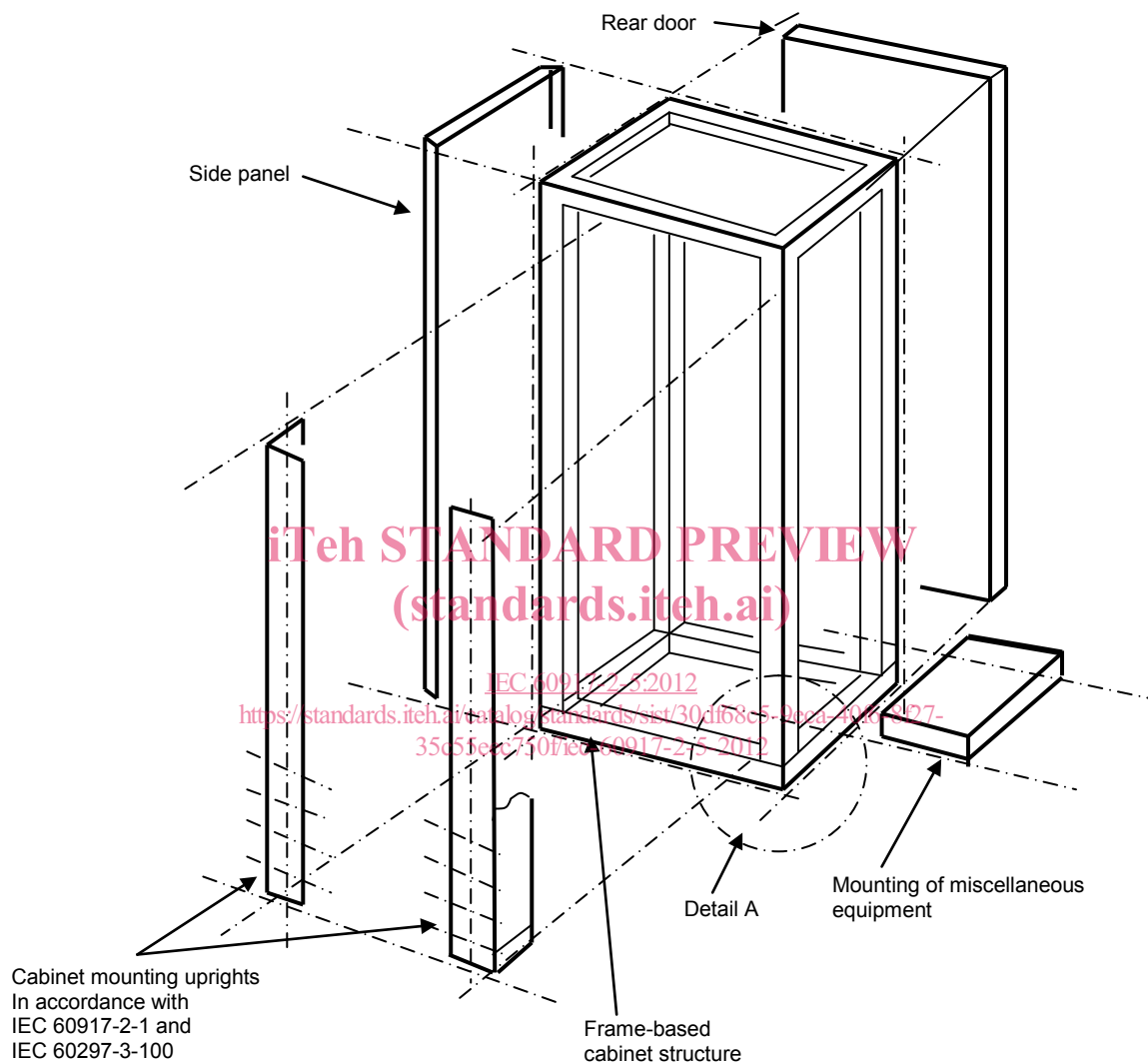
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4 Arrangement overview of a frame-based cabinet structure

The arrangement of a modular cabinet, as shown in Figure 1, illustrates a frame-based cabinet structure with the definition of mounting planes and mounting points. These definitions enable the mounting of miscellaneous equipment with related accessories, mounted on the cabinet frame members.



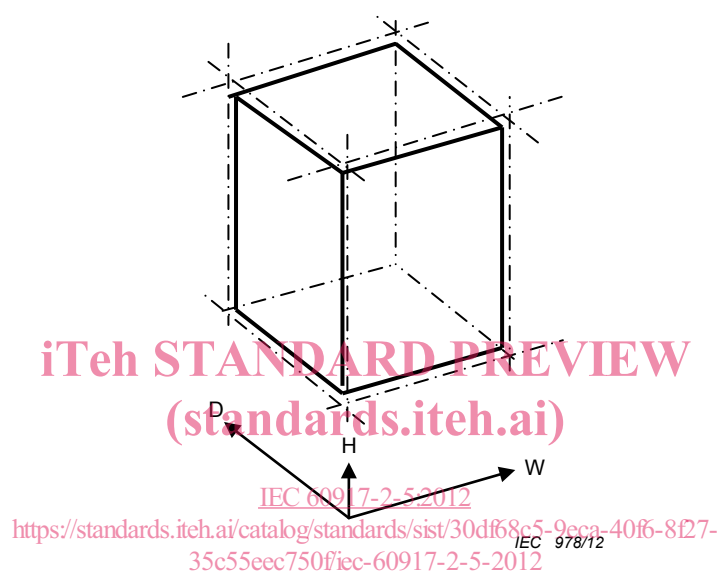
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Figure 1 – Arrangement overview of a frame-based cabinet structure

5 External coordination dimensions of a cabinet

5.1 General

The external coordination dimensions of a cabinet, as shown in Figure 2 and Table 1 are the references used to coordinate mechanical interfaces of a range of cabinet sizes. Based on a 600 mm × 600 mm cabinet, the external frame dimensions of cabinets, as shown in Figure 3 define the boundaries which shall be always within the pitch lines of the coordination dimensions. Doors, roofs, side and rear covers may stay within or exceed the pitch lines by 25 mm, max as shown in Figure 3. Side covers exceeding the coordination dimensions may be used on single cabinets or at the end of a row of cabinets. For side by side mounted cabinets, the side covers mounted between the cabinets shall not exceed the pitch line.



Key

H	height
W	width
D	depth

Figure 2 – External coordination dimensions of cabinet

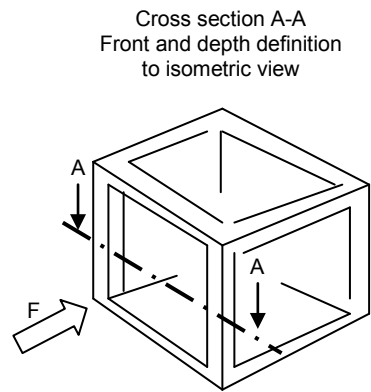
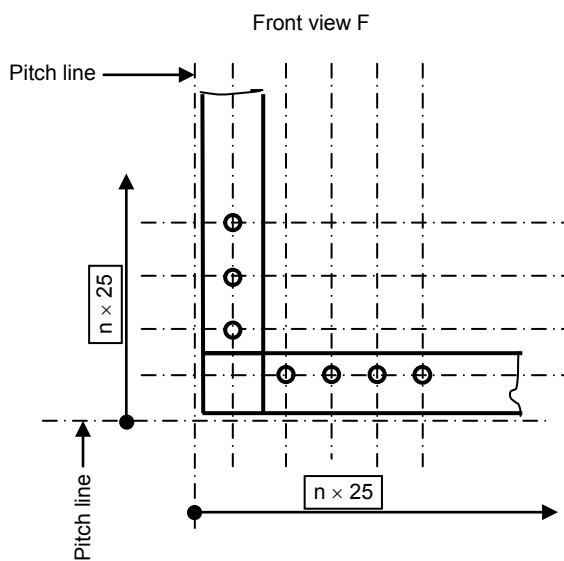
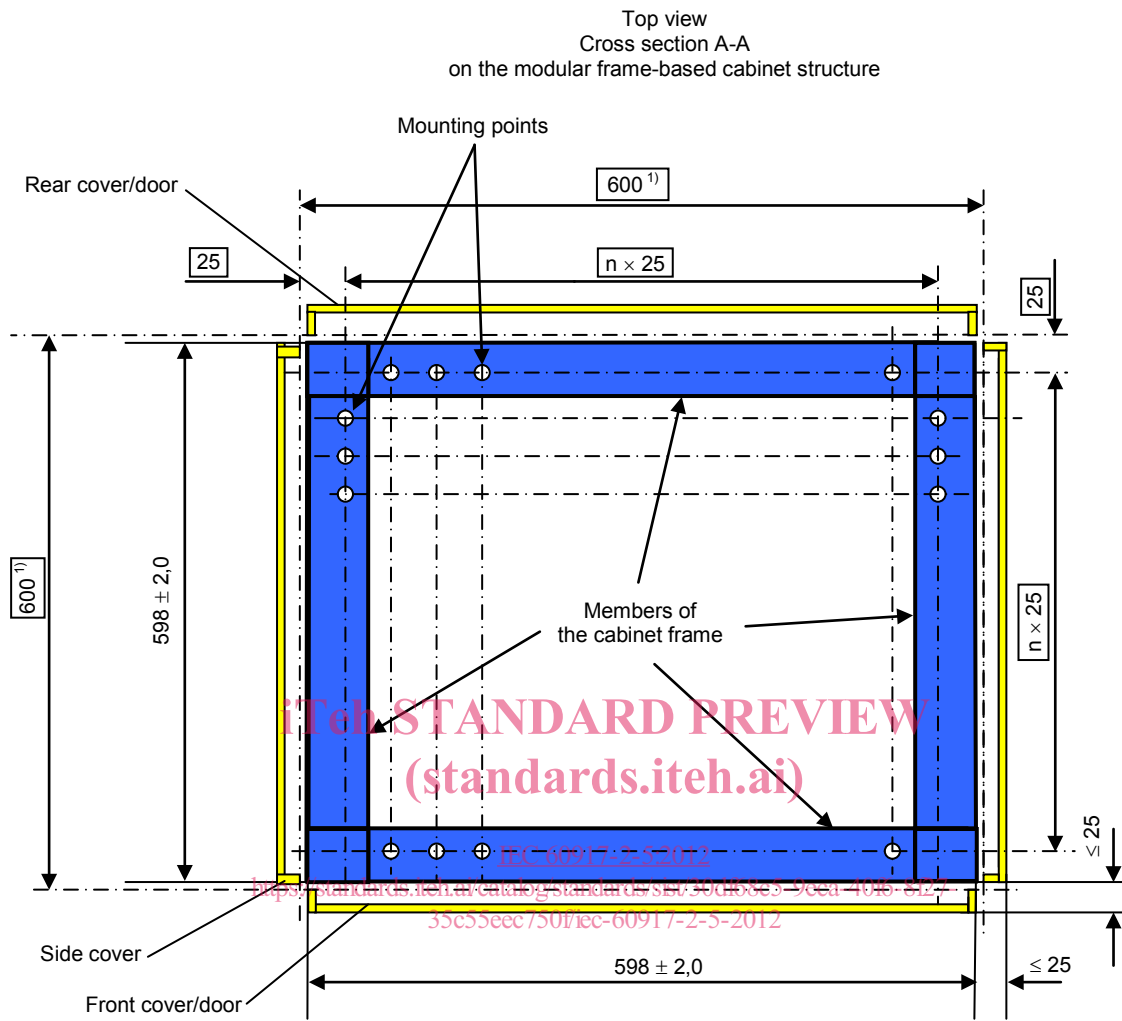
5.2 Cabinet frame mounting points

The cabinet frame mounting points may be on any cross point of the 25 mm grid. The start points are on the cross points of the pitch lines of the external coordination dimensions as shown in Figure 3.

The mounting points of a cabinet are, by definition of this standard, on the mounting planes of the cabinet frame structure. The mounting points identify the location of the mounting holes for the attachment of internal and external equipment or accessories.

The mounting points in Figure 3 are shown as a top view of a 600 mm wide and 600 mm deep cabinet frame. The same applies to all members of the cabinet frame. The figures used for the definition of mounting planes and mounting holes are not intended for purposes of physical design, but only for locating the mounting points. Depending on the intended application of the cabinet, the mounting points on the frame design may be selected for placing the mounting holes as necessary.

Dimensions in millimetres



Key

- 1) See Table 1

Figure 3 – Frame mounting points of a modular cabinet

6 Modular frame type cabinet structure

6.1 General

The modular frame type cabinet structure consists of horizontal, vertical and depth members. These structural parts provide the mounting planes with the mounting points for internal and external equipment/accessories.

6.2 Modular frame type “M”

The front aperture dimension of 535,00 mm for the frame type “M” is determined for mounting uprights in accordance with IEC 60917-2-1 or IEC 60297-3-100. Figure 4 illustrates the frame type “M” with the frame mounting points for internal and external equipment/accessories. The depth aperture dimension of 485,00 mm follows the same systematic approach as the front aperture but, for the sake of structural stability of the frame members, the aperture is reduced by 2×25 mm ($535,00 - 50,00 = 485,00$ mm). The number and position of mounting points may be chosen from any of the defined positions on the frame. The preferred dimension for the holes shall be suitable for thread forming screws M6.

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