IEC 60297-3-110

Edition 1.0 2018-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Mechanical structures for electrical and electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 3-110: Residential racks and cabinets for smart houses

Structures mécaniques pour équipements électriques et électroniques – Dimensions des structures mécaniques de la série 482,6 mm (19 pouces) – Partie 3-110: Bâtis et baies domestiques pour maisons intelligentes

IEC 60297-3-110:2018-08(en-fr)

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Structures mécaniques pour équipements électriques et électroniques – Dimensions des structures mécaniques de la série 482,6 mm (19 pouces) – Partie 3-110: Bâtis et baies domestiques pour maisons intelligentes

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MECHANICAL STRUCTURES FOR ELECTRICAL AND ELECTRONIC EQUIPMENT – DIMENSIONS OF MECHANICAL STRUCTURES OF THE 482,6 MM (19 IN) SERIES –

Part 3-110: Residential racks and cabinets for smart houses

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The text of this International Standard is based on the following documents:

FDIS	Report on voting
48D/668/FDIS	48D/665/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

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A list of all parts in the IEC 60297-3 series, published under the general title *Mechanical structures for electrical and electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series*, can be found on the IEC website.

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.

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INTRODUCTION

As a result of increasing worldwide environmental awareness, there are significant requirements for effective management of electricity supply between consumers, distributors and generators. The smart grid is considered one of the most important key technologies to realize an effective electricity supply channel. In the grid, smart meters connected with IP/cloud networking will be used to provide demand-response communication between suppliers and consumers.

In the residential sector, a movement similar to that for the management of electricity is ongoing also for other utility lines, and for such demands, many efforts for the development of specifications for smart houses have been proceeding, in the framework of the current development of smart cities. We can see such activities e.g. in SHR/HEMS program[1]. In the near future, smart cities will require the deployment of smart houses, that by suitable adoption of platforms and technologies (e.g. cloud-based services, Internet of Things, etc.) will provide various services for residents, which are not only utility management, but also e.g. health care, security, entertainment and other services. The electronic equipment for the providing of public utility management and of these services apply broadband IP/cloud networking for their interactive data communication. In future, residential buildings will be equipped with such gateways, servers and home networks. This equipment has to be secured to be operated in a trouble-free environment, the same as telecommunication and internet access, to protect it from unsuitable environmental conditions in the residences.

This document defines 486,2 mm (19 in) residential racks and cabinets based on IEC 60297-3-100, suitable for installing equipment for smart houses in proper conditions[2].

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[1] SHR/HEMS (Smart House Roadmap/Home Energy Management System): Projects for development of international standards for smart houses, based on activities at ISO/IEC JTC 1/SC 25/WG 1: “Interconnection of information technology equipment”.

[2] In actual applications, based on the volume of the equipment for the smart house and the applicable space in the residential building, rack or cabinet with smaller dimensions may be applied as subset of this standard.

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MECHANICAL STRUCTURES FOR ELECTRICAL AND ELECTRONIC EQUIPMENT – DIMENSIONS OF MECHANICAL STRUCTURES OF THE 482,6 MM (19 IN) SERIES –

Part 3-110: Residential racks and cabinets for smart houses

1 Scope

This part of IEC 60297 specifies dimensions, specification for installation, environmental aspects and safety aspect of residential racks and cabinets based on IEC 60297 series, for smart houses, likely to be part of smart cities.

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 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 60917-2-5, *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*

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 condition use and transportation*

IEC 61587-2, *Mechanical structures for electronic equipment – Tests for IEC 60917 and 60297 series – Part 2: Seismic tests for cabinets and racks*

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*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

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3.1
vertical members
parts of a rack or a cabinet providing mounting positions for front panels, chassis and subracks

3.2
residential rack or cabinet
racks or cabinets installed in residential buildings or apartment units, used to secure and protect equipment dedicated to managing smart houses

3.3
equipment category and relevant mounting location
technical information for a residential rack or cabinet providing the description of the category (function) and the relevant mounting space (measured in number of units U) in a rack or a cabinet, for each specific equipment dedicated to managing smart houses

4 Arrangement overview

Residential rack or cabinet for a smart house is installed in a room of a residential building.

Figure 1 and Figure 2 introduce examples of arrangement for residential rack and cabinet installations.

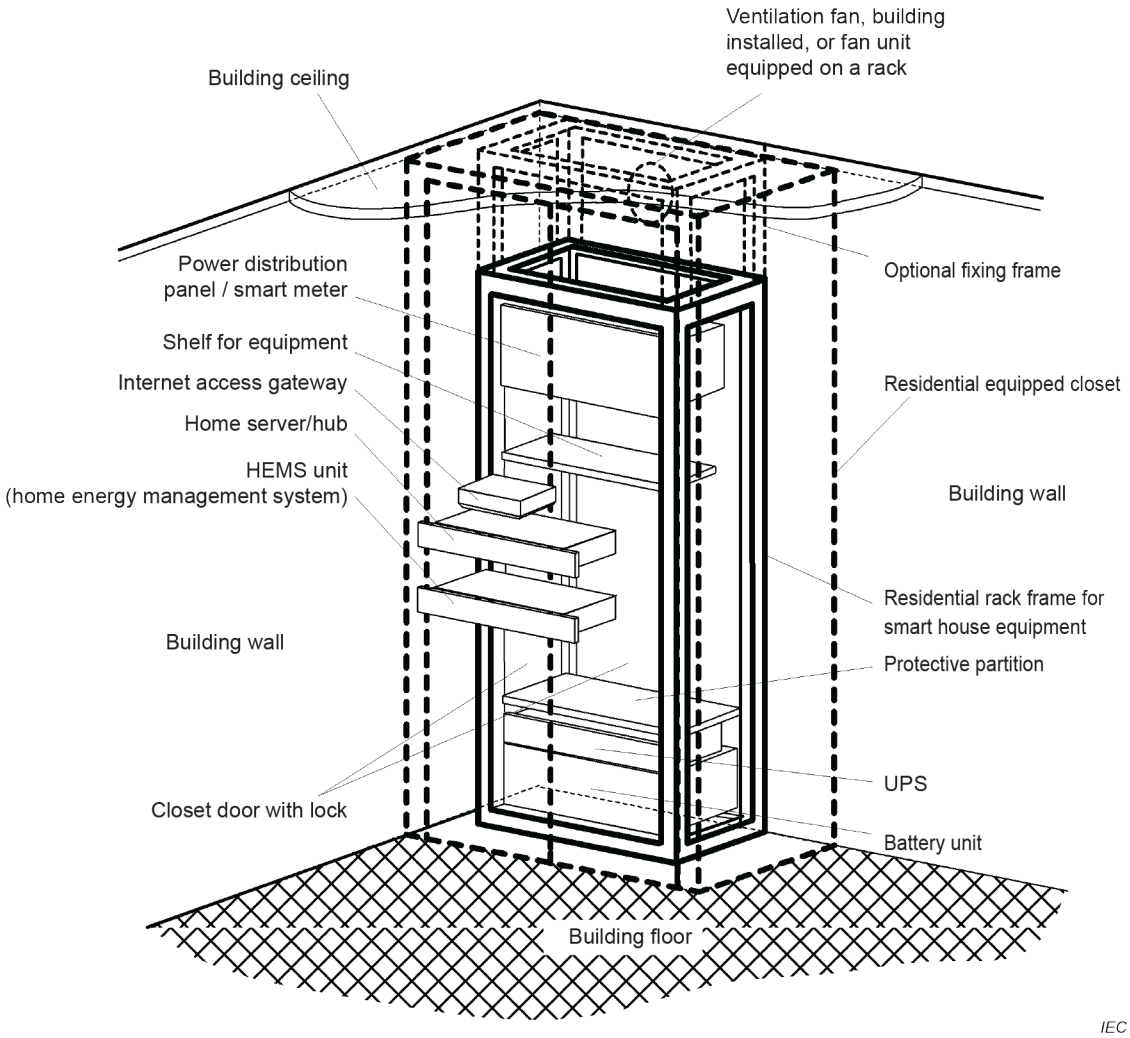

Figure 1 – Example of a residential rack arrangement for a smart house

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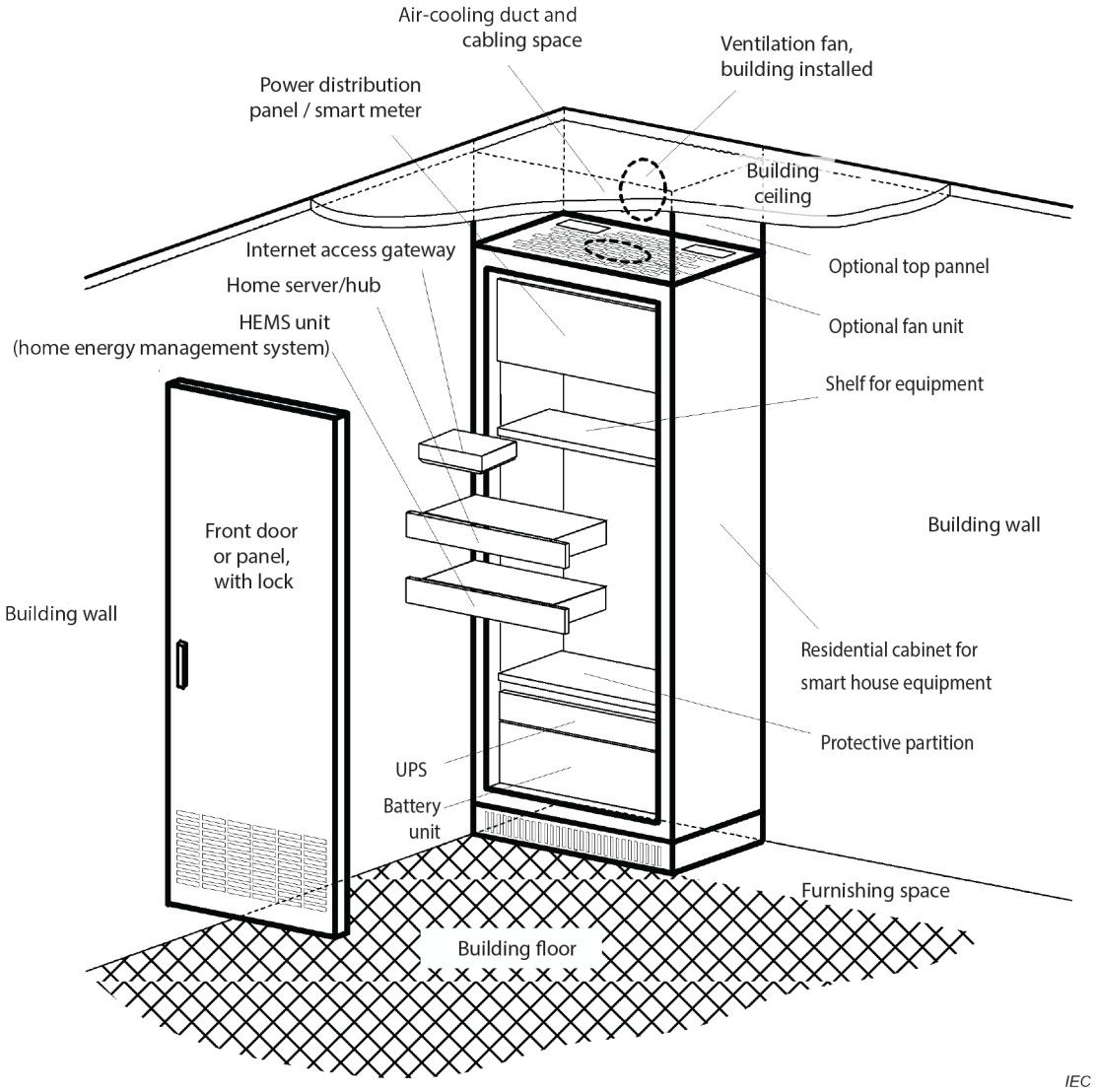

Figure 2 – Example of a residential cabinet arrangement for a smart house

5 Dimensions

5.1 Dimensions for residential racks

Figure 3 and Table 1 show dimensions of residential racks.

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Dimensions in millimetres

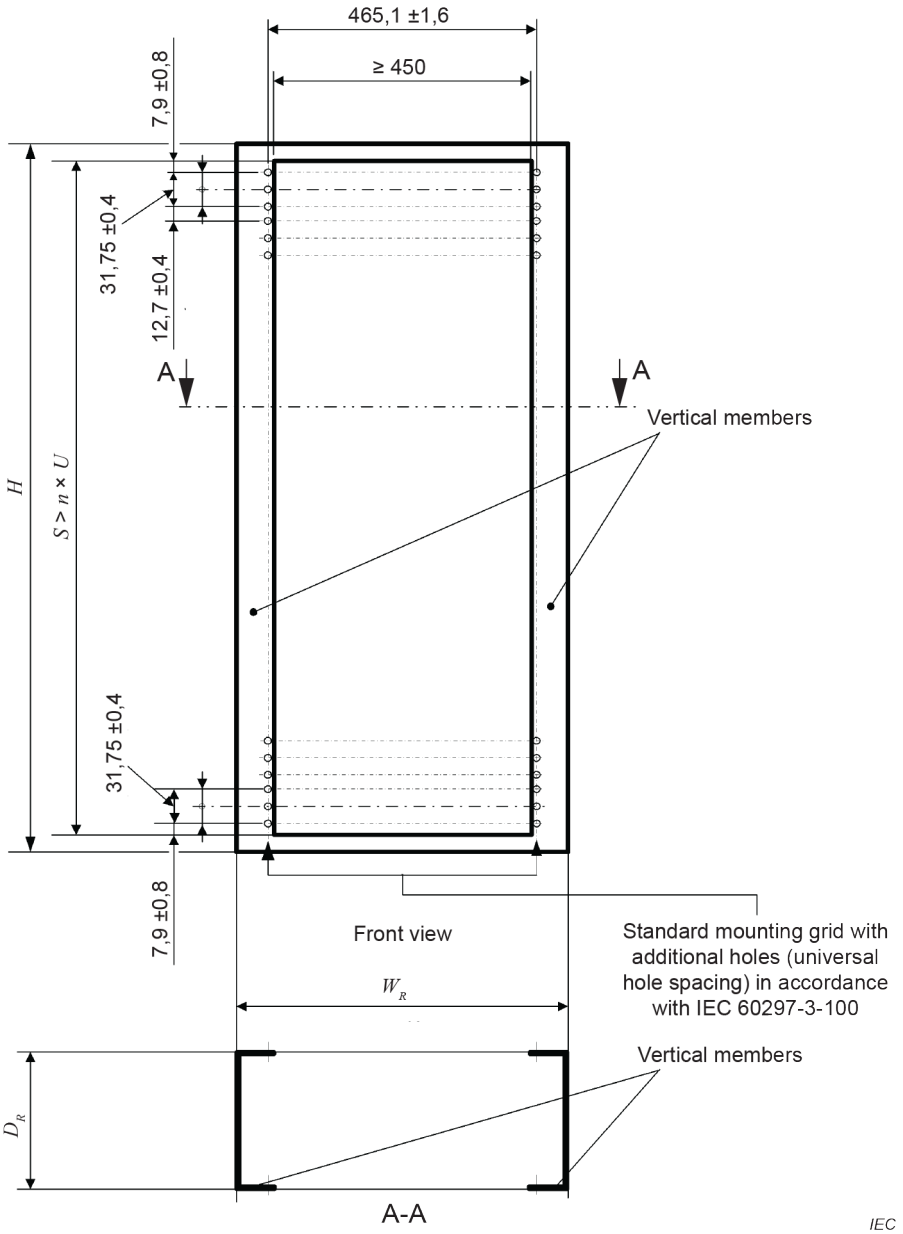

Figure 3 – Dimensions of residential racks

Table 1 – Dimensions of residential racks

Height H mm	**Aperture height** ($S>n$ × U) n × U mm	**Width** W_R mm	**Depth** D_R mm
1 200	22 × U = 977,90	500 550 600	250 300 400
1 800	36 x U = 1 600,20		
2 000	40 x U = 1 778,00		
2 200	45 x U = 2 000,25		
NOTE 1U = 44,45 mm. See IEC 60297-3-100.			

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5.2 Dimensions for residential cabinets

Figure 4 and Table 2 show dimensions of residential cabinets.

Dimensions in millimetres

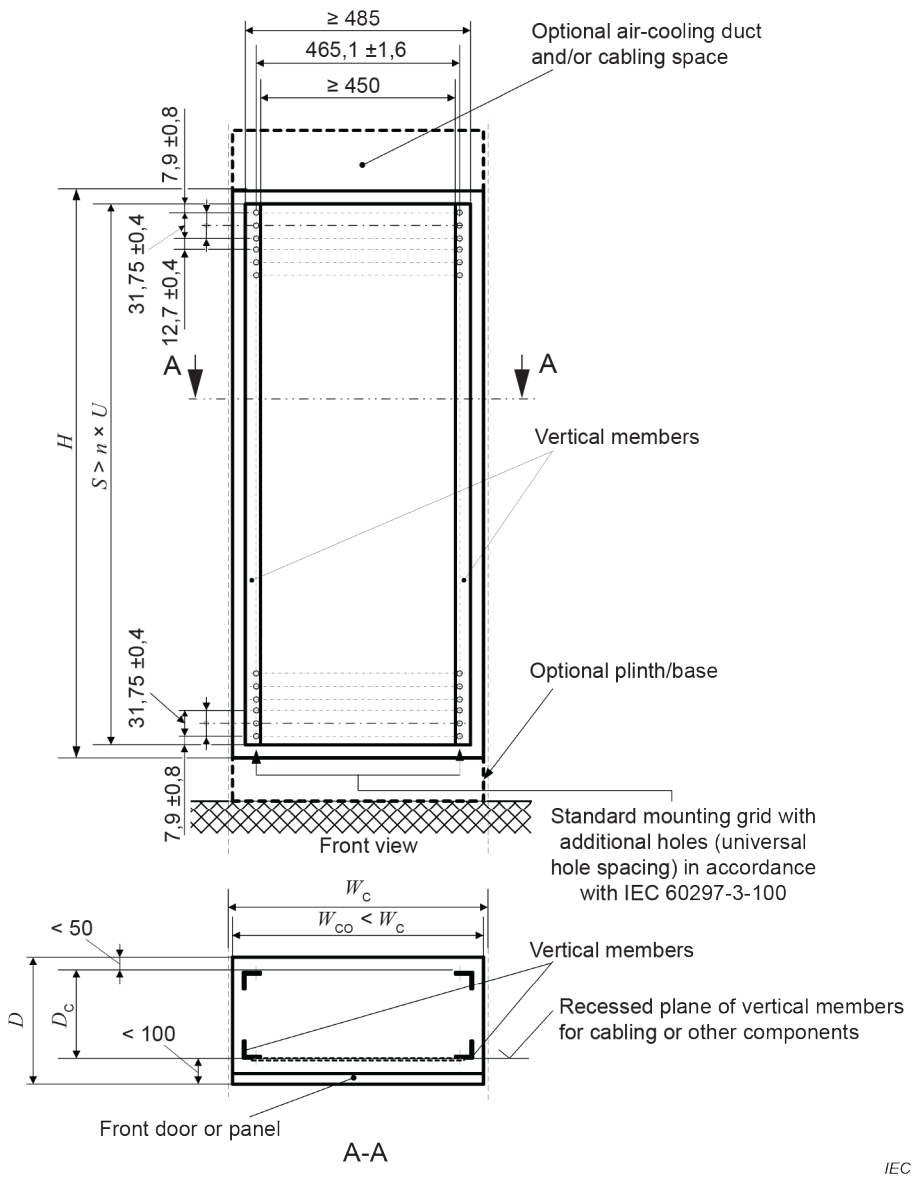

Figure 4 – Dimensions of residential cabinets

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Table 2 –Dimensions of residential cabinets

Height H mm	Aperture height ($S>n$ × U) n × U mm	Width W_C mm	Depth D_C mm
1 200	22 × U = 977,90	550 600	250 300 400 450 500
1 800	36 x U = 1 600,20		
2 000	40 x U = 1 778,00		
2 200	45 x U = 2 000,25		
2 400	49 x U = 2 178,05		
NOTE 1U = 44,45 mm. See IEC 60297-3-100.			

6 Equipment categories and the relevant mounting locations

Figure 5 shows typical equipment categories and their mounting locations in a residential rack or cabinet. One protective partition may be equipped in 1 U space between tier 1 and tier 2. Respective mounting spaces from tier 1 to tier 3 can be adjusted within Figure 5 indicated mounting spaces according to the rack or cabinet height and volume of equipment to be mounted.

Rack or cabinet manufacturers shall provide a document specifying the allowable location of equipment categories in their product.

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