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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 19520.21-2023

**Mechanical structures for electrical and electronic equipment -
Dimensions of mechanical structures of the 482.6 mm (19 in) series -
Part 3-109: Dimensions of chassis for embedded computing devices**

电气和电子设备机械结构 482.6 mm(19 in)系列机械结构尺寸 第3-109部分：嵌
入式计算设备的机箱尺寸

(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents" Drafting:

This document is Part 3-109 of GB/T 19520: GB/T 19520 has published the following parts:

---Electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-100: panels, plug-in boxes, chassis, Basic dimensions of racks and cabinets;

---Electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-101: plug-in boxes and plug-ins;

---Electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-102: plug handle;

---Electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-103: Coding keys and positioning pins;

---Electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-104: Connector-based plug-in box and plug-in interface dimensions;

---Electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-105: 1U height chassis dimensions size and design requirements;

---Electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-106: Applicable to compliance with IEC 60917-2-1 Adaptable dimensions for plug-in boxes and chassis in metric cabinets or racks;

---Electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-107: Miniaturized plug-in boxes and plug-ins size of;

--- Electrical and electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-108: R-type plug-in box and Dimensions of the plug-in;

--- Electrical and electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-109: Embedded computing the chassis size of the device;

---Electrical and electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-110: for smart houses Residential racks and cabinets:

This document is equivalent to IEC 60297-3-109:2015 "Mechanical Structure of Electrical and Electronic Equipment 482:6mm (19in) Series Mechanical Structure" Architectural Dimensions Part 3-109: Chassis Dimensions of Embedded Computing Devices:

Please note that some content in this document may be subject to patents: The publisher of this document assumes no responsibility for identifying patents:

Introduction

The mechanical structure of electrical and electronic equipment is an important part of electrical and electronic equipment: To realize and improve electrical and electronic equipment Functional elements such as versatility, interchangeability and reliability, GB/T 19520 regulates the dimensions and interfaces of mechanical structures of electrical and electronic equipment:

Regulation: The main problems it solves are:

---Specify the basic dimensions of panels, sub-boxes, chassis, racks and cabinets;

---Specify the basic size relationship between the plug-in box and the plug-in;

---Specify the dimensions and interfaces of accessories such as puller handles, coding keys, positioning pins, etc.;

---Specify the interface dimensions related to plug-in boxes, plug-ins and connectors;

---Specify the dimensions of 1U height chassis, miniaturized plug-ins and plug-ins, R-type plug-ins and plug-ins, and chassis of embedded computing equipment;

---Specifies the dimensions of residential racks and cabinets for smart homes:

GB/T 19520 is a series of dimensional standards for the mechanical structure of electrical and electronic equipment, and is intended to consist of 11 parts:

---Electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-100: panels, plug-in boxes, chassis, Basic dimensions of racks and cabinets: The purpose is to specify 482:6mm (19in) series panels, plug-in boxes, chassis, racks and cabinets basic size:

---Electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-101: plug-in boxes and their plug-ins: Head the purpose is to stipulate the basic dimensional relationship of the 482:6mm (19in) series plug-in boxes and their plug-ins to ensure their interchangeability:

---Electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-102: Plug and puller handle: Purpose it specifies the size of the puller handle for use with the 482:6mm (19in) series subracks and plug-ins:

---Electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-103: Coding keys and positioning pins:

The purpose is to specify the interface dimensions of coding keys and locating pins for use with 482:6mm (19in) series subracks and inserts:

---Electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-104: Connector-based plug-in box and plug-in interface dimensions: The purpose is to specify the interface dimensions related to the 482:6mm (19in) series of plug-in boxes and plug-ins and connectors:

The relationship between the size and the installation spacing of the plug-in box and the printed board type plug-in and the backplane:

---Electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-105: 1U height chassis dimensions size and design requirements: The purpose is to specify the dimensions and dimensions of a 1U height chassis installed on a 482:6mm (19in) rack or cabinet:

Carrying weight and installation method:

---Electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-106: Applicable to compliance with IEC 60917-2-1 Adaptable dimensions for plug-in boxes and chassis in metric cabinets or racks: Intended for installation in metric cabinets or the 482:6mm (19in) plug-in box of the rack and the flange mounting dimensions of the chassis:

---Electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-107: Miniaturized plug-in boxes and plug-ins size of: The purpose is to standardize the use of connectors and other connectors specified by PICMG MicroTCA:0

and IEC 61076-4-116 Dimensions of miniaturized jacks and plug-ins for two-piece connectors and their interface dimensions:

--- Electrical and electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-108: R-type plug-in box and the size of the plug-in: The purpose is to specify the specifications of R-type sub-boxes and plug-ins (reinforced sub-boxes and plug-ins) that can be used in harsh environments:

size:

--- Electrical and electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-109: Embedded computing the device's chassis size: The purpose is to specify the dimensions and physical properties of embedded computing device chassis and their printed boards:

---Electrical and electronic equipment mechanical structure 482:6mm (19in) series mechanical structure dimensions Part 3-110: for smart houses Residential racks and cabinets: The purpose is to specify the dimensions, installation specifications, environmental requirements and safety of residential racks and cabinets for smart homes:

All requirements:

Through the formulation of this document, a 44:45mm three-dimensional grid that can meet the most common size environments is established to form the chassis and printed board:

Coordinated size, thereby bringing significant convenience and economic benefits to the design and manufacturing of embedded computing solutions and application users:

Electrical and electronic equipment mechanical structures 482:6mm (19in) series mechanical structure dimensions Part 3-109: Chassis dimensions for embedded computing devices

1 Scope

This document specifies the dimensions and physical properties of the chassis and its printed boards to provide mechanical and environmental integrity for embedded computing devices:

Embedded computing devices are used in various applications such as machine control, medical care, transportation, aerospace, and communications: They are usually based on single-board computing:

computer:

To facilitate determination of appropriate chassis and board dimensions, this document is based on a 44:45mm (1.75in) structural grid: