SLOVENSKI STANDARD
SIST EN IEC 62610-6:2020

01-julij-2020

Mehanske strukture za električno in elektronsko opremo - Uravnavanje toplote v omaricah v skladu s skupinama standardov IEC 60297 in IEC 60917 - 6. del: Recirkulacija zraka in obvod notranjih omaric (IEC 62610-6:2020)

Mechanical structures for electrical and electronic equipment - Thermal management for cabinets in accordance with IEC 60297 and IEC 60917 Series - Part 6: Air recirculation and bypass of indoor cabinets (IEC 62610-6:2020)

Mechanische Bauweisen für elektrische und elektronische Einrichtungen - Wärmemanagement für Schränke nach den Reihen IEC 60297 und IEC 60917 - Teil 6: Luftrezirkulation und Verlustluftstrom von Innenschränken (IEC 62610-6:2020)

Structures mécaniques pour équipements électriques et électroniques - Gestion thermique pour les armoires conformes aux séries IEC 60297 et IEC 60917 - Partie 6 : Recyclage et dérivation de l'air des armoires intérieures (IEC 62610-6:2020)

Ta slovenski standard je istoveten z: **EN IEC 62610-6:2020**

ICS:

31.240	Mehanske konstrukcije za elektronsko opremo	Mechanical structures for electronic equipment

SIST EN IEC 62610-6:2020 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 62610-6

May 2020

ICS 31.240

English Version

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN IEC 62610-6:2020 E

European foreword

The text of document 48D/700/CDV, future edition 1 of IEC 62610-6, prepared by SC 48D "Mechanical structures for electrical and electronic equipment" of IEC/TC 48 "Electrical connectors and mechanical structures for electrical and electronic equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62610-6:2020.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2021-01-29
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-04-29

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Endorsement notice

The text of the International Standard IEC 62610-6:2020 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60297-3-101	NOTE	Harmonized as EN 60297-3-101
IEC 60917-2-1	NOTE	Harmonized as EN 60917-2-1
IEC 60917-2-2	NOTE	Harmonized as EN 60917-2-2
IEC 62610-2	NOTE	Harmonized as EN IEC 62610-2
IEC 62610-5	NOTE	Harmonized as EN 62610-5

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
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	EN 60297-3-100	-
IEC 60917-1	-	Modular order for the development of mechanical structures for electrical and electronic equipment practices - Part 1: Generic standard	EN IEC 60917-1	-

IEC 62610-6

Edition 1.0 2020-03

INTERNATIONAL STANDARD

Mechanical structures for electrical and electronic equipment – Thermal management for cabinets in accordance with IEC 60297 and IEC 60917 series – Part 6: Air recirculation and bypass of indoor cabinets

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 31.240

ISBN 978-2-8322-8006-5

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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MECHANICAL STRUCTURES FOR ELECTRICAL AND ELECTRONIC EQUIPMENT – THERMAL MANAGEMENT FOR CABINETS IN ACCORDANCE WITH IEC 60297 AND IEC 60917 SERIES –

Part 6: Air recirculation and bypass of indoor cabinets

FOREWORD

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International Standard IEC 62610-6 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.

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

CDV	Report on voting
48D/700/CDV	48D/715/RVC

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.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62610 series, published under the general title *Mechanical structures for electrical and electronic equipment – Thermal management for cabinets in accordance with iec 60297 and iec 60917 series*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

The signal speed and component density of electrical and electronic equipment in the ICT field and the FA field, such as high performance servers, communications equipment, and electronic control equipment have been steadily increasing. As a result, the heat generation density of the integrated circuits, the power consumption of the equipment, and therefore the cooling task has also been increasing. In a computer room common in the ICT field, where many cabinets for mounting subrack and/or chassis-based equipment are installed and high availability is required, it is necessary to pay attention so that the equipment does not experience high temperature problems.

To prevent high temperature problems with the electronic equipment, it is important that the air conditioning installed in a computer room effectively contributes to the cooling of the cabinet for mounting subrack and/or chassis-based equipment. Indicators relating to airflow such as recirculation and bypass**,** are used to judge the effectiveness of the air conditioning system. Recirculation is the ratio at which the cabinets in the computer room suck in their own exhaust air, which affects the thermal problems of the equipment as it raises the intake air temperature. Bypass is the ratio at which the cooled supply air does not pass through the cabinets in the computer room, and affects the energy efficiency as it increases the air conditioning energy. If these ratios, especially the recirculation ratio, are kept low, the airflow of the computer room can be regarded as effectively cooling the cabinets. Conversely, if air recirculation or bypass occurs, the temperature of subracks and/or chassis-based equipment in the cabinet rises. Therefore it is necessary to provide similar indices to measure the effectiveness of the cooling airflow for the equipment in the cabinet.

The existing standard for forced air cooling, IEC 62610-2, introduces a method for determining the ideal airflow for a forced air cooled cabinet assembled with associated subrack and/or chassis-based equipment. The standard also defines qualitative guidelines for avoiding recirculation in such cabinets and a server(computer) room. However, concrete numerical values and the evaluation method of the recirculation have not been defined. It was impossible to judge in advance whether the cabinet for mounting subrack and/or chassis-based equipment satisfies the environmental conditions, or whether the empty cabinet has sufficient cooling when subrack and/or chassis-based equipment are mounted.

This document defines a method for easily measuring the recirculation ratio (RC) and the bypass ratio (BP) of the airflow in a cabinet and provides performance levels of recirculation on effectiveness of the cooling airflow in such cabinets. This can be regarded as the degree of conformity with respect to behaviour of the airflow in the cabinet in the computer room. Alternatively, even for an outdoor cabinet including a heat exchanger and an air conditioner, this method can be effectively utilized as an index for knowing the degree of airflow appropriately contributing to cooling the internal space in which the equipment is mounted.

The purpose of this document is to provide:

- for the equipment integrator and development designer of the cabinet the criteria for efficiently and correctly determining the specification, and
- for the supplier of the cabinet the measuring and classifying method for the airflow recirculation rate of the subrack and/or chassis-based equipment installed in the cabinet.

This document is addressed to the mechanical structures in accordance with IEC 60297 and IEC 60917 series.