SLOVENSKI STANDARD
SIST EN 62610-4:2014

01-april-2014

Mehanske strukture elektronske opreme - Obravnava toplotnih lastnosti omaric v skladu s serijama IEC 60297 in IEC 60917 - 4. del: Preskušanje hladilnih zmogljivosti vodnih toplotnih izmenjevalnikov v elektronskih omaricah

Mechanical structures for electronic equipment - Thermal management for cabinets in accordance with IEC 60297 and IEC 60917 series - Part 4: Cooling performance tests for water supplied heat exchangers in electronic cabinets

Mechanische Bauweisen für elektronische Einrichtungen - Wärmemanagement - Teil 4: Kühlleistungsprüfungen für Wasser-Wärmetauscher in Elektronikschränken

Structures mécaniques pour équipements électroniques gestion thermique pour les armoires conformes aux séries CEI 60297 et CEI 60917 - Partie 4: Essais de performances de refroidissement pour les échangeurs de chaleur alimentés par de l'eau dans des baies

Ta slovenski standard je istoveten z: **EN 62610-4:2013**

ICS:

31.240	Mehanske konstrukcije za elektronsko opremo	Mechanical structures for electronic equipment

SIST EN 62610-4:2014 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62610-4

November 2013

ICS 31.240

English version

Mechanical structures for electronic equipment - Thermal management for cabinets in accordance with IEC 60297 and IEC 60917 series - Part 4: Cooling performance tests for water supplied heat exchangers in electronic cabinets

(IEC 62610-4:2013)

Structures mécaniques pour équipements électroniques – Gestion thermique pour les armoires conformes aux séries CEI 60297 et CEI 60917 – Partie 4: Essais de performances de refroidissement pour les échangeurs de chaleur alimentés par de l'eau dans des baies électroniques
(CEI 62610-4:2013)

Mechanische Bauweisen für elektronische Einrichtungen - Wärmemanagement für Schränke nach den Reihen IEC 60297 und IEC 60917 - Teil 4: Kühlleistungsprüfungen für Wasser-Wärmetauscher in Elektronikschränken
(IEC 62610-4:2013)

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CENELEC

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 62610-4:2013 E

Foreword

The text of document 48D/542/FDIS, future edition 1 of IEC 62610-4, prepared by SC 48D, "Mechanical structures for electronic equipment", of IEC TC 48, "Electromechanical components and mechanical structures for electronic equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62610-4:2013.

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)	2014-06-19
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2016-09-19

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60297	Series	Mechanical structures for electronic equipment - Dimensions of mechanical structures of the 482,6 mm (19 in) series	EN 60297	Series
IEC 60917	Series	Modular order for the development of mechanical structures for electronic equipment practices	EN 60917	Series

IEC 62610-4

Edition 1.0 2013-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

PRICE CODE
CODE PRIX

R

ICS 31.240

ISBN 978-2-8322-1037-6

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 4: Cooling performance tests for water supplied heat exchangers in electronic cabinets

FOREWORD

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International Standard IEC 62610-4 has been prepared by subcommittee 48D: Mechanical structures for electronic equipment, of IEC technical committee 48: Electromechanical components and mechanical structures for electronic equipment.

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

FDIS	Report on voting
48D/542/FDIS	48D/545/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 parts of IEC 62610 series, under the general title *Mechanical structures for 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 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

Electronic cabinets of the IEC 60297 and IEC 60917 series are used for the housing of electronic devices in many different fields of application. A wide field of application is represented by installations of communication networks with electronic devices in information technology (IT) environments. The classic way is to install rows of cabinets into defined foot print patterns and interconnect them via cables managed from overhead cable trays or raised floor cable management. So far, cooling has been facilitated by equipping the entire IT room with air conditioning in order to provide for air flow and air temperatures required for the safe operation of the electronic devices. With the growing heat load in data centers, this form of cooling has become more and more inefficient. Thermal problems with respect to high-performance electronic devices have become more difficult to solve. The environmental aspect is gaining crucial importance forcing us to cut down on wasting resources and to reduce CO_2 emissions.

Alternatives to the air conditioning of rooms need to be looked at more closely. Under the aspect of increasing cooling efficiency, there are some major concepts, two cases serve as examples here:

Case 1. The equipped group of cabinets, with dedicated temperature control.

This method is the cold aisles / hot aisles arrangement of a smaller number of cabinets, typically four to twelve. Its advantage over the air conditioning of rooms is the smaller air volume which allows a focused heat management with optimised dimensioning of power consumption for the cooling devices and increased temperatures in the warm zones of the room. In such cases, efficiency can be increased by adopting exhaust heat recovery for room heating in cold periods. Due to the improved energy efficiency contained aisles are becoming more and more popular.

Case 2. Single cabinets with water-air heat exchangers.

This method is used for cabinets accommodating high-performance/heat dissipating electronic equipment, typically servers and mainframe computers. Its advantage over the room air conditioning or cold aisles consists in the high degree of constant air inlet temperature for sensitive electronic devices. Closed air circulation within a cabinet allows a very precise temperature control. The power consumption aspect may be similar to that of the cold aisle, but the temperature control aspect is more important and favourable to a longer life-cycle of costly equipment.

This standard has been created for case 2: Cooling performance tests for water-supplied heat exchangers in single electronic cabinet configurations. The parameters with reference to the described test sample are shown in diagrams which may be useful to provide for a standardized calculation method for specific cabinet dimensions and heat exchanger cooling requirements. The typical required cooling capacity for such cabinets is normally higher than 12 kW. The described test methods of this standard address a cooling capacity of more than 12 kW. However, since IT equipment varies the heat load to a cabinet the test also considers values below 12 kW for partial heat load.