SLOVENSKI STANDARD
SIST-TP CEN/TR 15500-2:2018

01-maj-2018

Energijske lastnosti stavb - Naprave za regulacijo sistemov za ogrevanje, prezračevanje in klimatizacijo - 2. del: Razlaga in utemeljitev prEN 15500-1:2015 - Moduli M3-5, M4-5, M5-5

Energy Performance of Buildings - Control for heating, ventilating and air-conditioning applications - Part 2: Accompanying TR prEN 15500-1:2015 - Modules M3-5,M4-5,M5-5

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: **CEN/TR 15500-2:2016**

ICS:

91.140.10	Sistemi centralnega ogrevanja	Central heating systems
91.140.30	Prezračevalni in klimatski sistemi	Ventilation and air-conditioning systems
97.120	Avtomatske krmilne naprave za dom	Automatic controls for household use

SIST-TP CEN/TR 15500-2:2018 **en**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

TECHNICAL REPORT

RAPPORT TECHNIQUE

TECHNISCHER BERICHT

CEN/TR 15500-2

August 2016

English Version

Energy Performance of Buildings - Control for heating, ventilating and air-conditioning applications - Part 2: Accompanying TR prEN 15500-1:2015 - Modules M3-5,M4-5,M5-5

Begleitender TR zu EN 15500

This Technical Report was approved by CEN on 11 April 2016. It has been drawn up by the Technical Committee CEN/TC 247.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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

Ref. No. CEN/TR 15500-2:2016 E

CEN/TR 15500-2:2016 (E)

Contents

Page

2

iTeh STANDARD PREVIEW
(standards.iteh.ai)

CEN/TR 15500-2:2016 (E)

European foreword

This document (CEN/TR 15500-2:2016) has been prepared by Technical Committee CEN/TC 247 "Building Automation, Controls and Building Management", the secretariat of which is held by SNV.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

This document is currently divided into the following parts:

— Control for heating, ventilating and air-conditioning applications — Part 1: Electronic individual zone control equipment — Modules M3-5,M4-5,M5-5 [currently at Enquiry stage];

— Control for heating, ventilating and air-conditioning applications — Part 2: Accompanying prEN 15500-1:2016 Modules M3-5,M4-5,M5-5 [the present Technical Report; currently at Voting stage].

Introduction

The CENSE project, the discussions between CEN and the Concerted action highlighted the high page count of the entire package due to a lot of "textbook" information. This resulted in flooding and confusing the normative text.

A huge amount of informative contents shall indeed be recorded and available for users to properly understand, apply and nationally adapt the EPB standards.

The detailed technical rules CEN/TS 16629 Detailed Technical Rules ask for a clear separation between normative and informative contents:

— to avoid flooding and confusing the actual normative part with informative content;

— to reduce the page count of the actual standard;

— to facilitate understanding of the package.

Therefore each EPB standard shall be accompanied by an informative technical report, like this one, where all informative contents is collected.

Table 1 shows the relative position of this TR within the EN EPB set of standards.

CEN/TR 15500-2:2016 (E)

Table 1 — Position of this TR within the EPBD set of standards

Over-arching	Building (as such)	Technical Building System									
Descriptions	Descriptions	Descriptions	Heating	Cooling	Ventilation	Humidification	Dehumidification	Domestic Hot waters	Lighting	Building automation and control	PV, wind,..
M1	M2		M3	M4	M5	M6	M7	M8	M9	M10	M11
General	General	General									
Common terms and definitions; symbols, units and subscripts	Building Energy Needs	Needs									
Application	(Free) Indoor Conditions without Systems	Maximum Load and Power									
Ways to Express Energy Performance	Ways to Express Energy Performance	Ways to Express Energy Performance									
Building Functions and Building Boundaries	Heat Transfer by Transmission	Emission and control	x	x	x						
Building Occupancy and Operating Conditions	Heat Transfer by Infiltration and Ventilation	Distribution and control									
Aggregation of Energy Services and Energy Carriers	Internal Heat Gains	Storage and control									
Building Partitioning	Solar Heat Gains	Generation and control									
Calculated Energy Performance	Building Dynamics (thermal mass)	Load dispatching and operating conditions									

Over-arching	Building (as such)	Technical Building System									
Descriptions	Descriptions	Descriptions	Heating	Cooling	Ventilation	Humidification	Dehumidification	Domestic Hot waters	Lighting	Building automation and control	PV, wind, ..
M1	**M2**		**M3**	**M4**	**M5**	**M6**	**M7**	**M8**	**M9**	**M10**	**M11**
Measured Energy Performance	Measured Energy Performance	Measured Energy Performance									
Inspection	Inspection	Inspection									
Ways to Express Indoor Comfort		BMS									
External Environment Conditions											
Economic Calculation											

iTeh STANDARD PREVIEW
(standards.iteh.ai)

1 Scope

This Technical Report refers to prEN 15500-1, *Control for heating, ventilating and air-conditioning applications — Part 1: Electronic individual zone control equipment — Modules M3-5,M4-5,M5-5*.

It contains information to support the correct understanding, use and national adaption of prEN 15500-1:2016.

This Technical Report does not contain any normative provision.

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.

prEN 15500-1:2016, *Control for heating, ventilating and air-conditioning applications — Part 1: Electronic individual zone control equipment — Modules M3-5,M4-5,M5-5*

EN ISO 7345:1995, *Thermal insulation - Physical quantities and definitions (ISO 7345:1987)*

prEN ISO 52000-1:2016, *Energy performance of buildings — Overarching EPB assessment — Part 1: General framework and procedures (ISO/DIS 52000-1:2015)*

CEN/TR 15500-2:2016 (E)

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 7345:1995, prEN ISO 52000-1:2016 and prEN 15500-1:2016 (the accompanied EPB standard) apply.

4 Symbols and abbreviations

4.1 Symbols

For the purposes of this Technical Report, the symbols given in prEN ISO 52000-1:2016 and prEN 15500-1:2016 (the accompanied EPB standard) apply.

4.2 Abbreviations

For the purposes of this Technical Report, the abbreviations given in prEN ISO 52000-1:2016 and prEN 15500-1:2016 (the accompanied EPB standard) apply.

5 Functional and acceptance test

5.1 Objective of the Test methodology

This section provides a test method for the compliance of controllers with the specified control accuracy in EN 15500-1:2016, 5.4. For the facility of the reader, these definitions will be duplicated in this Technical Report.

iTeh STANDARD PREVIEW

This consists of the following elements:

(standards.iteh.ai)

— testing procedures;

— test facilities description: gives a description of the different equipment pertaining to the bench, their functions, requirements and specifications;

— description of the simulator: gives details about the simulator framework, user interfaces, models layout and the running of the tests.

The time parameters for the test procedures are given in the informative Annex A.

5.2 Testing procedures — Test principle

This standard covers the test of a terminal control loop as shown in Figure 1.

The temperature in the room is measured by the temperature sensor of a controller which commands then the HVAC terminal system in the room, via an actuator e.g. actuator/valve combination for water systems.
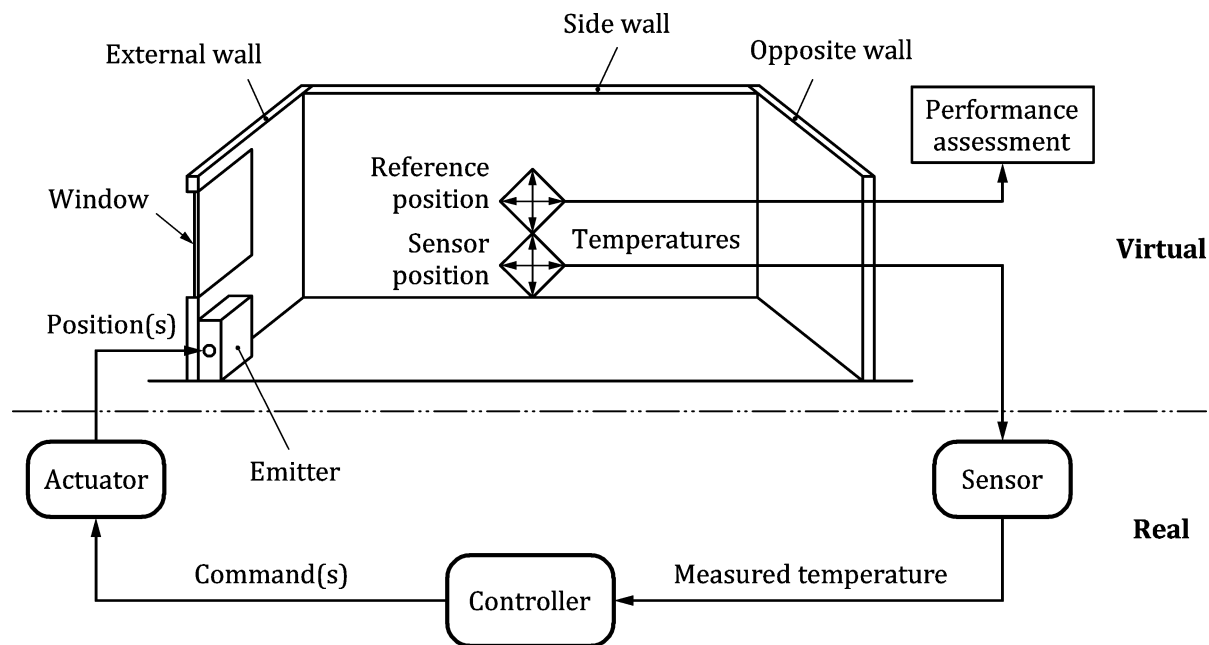
8

Figure 1 — Example for Control loop for HVAC terminal systems

The test of this controller is carried out by emulation technique in transient state and the real controller to be tested is implemented in a simulated environment with the room (dynamic model of the heat and mass transfer) and the HVAC system (Figure 1). The room temperature is finally used to assess the performance of the controller.

In this approach, the sensor as well as the actuator can be real or simulated.

The test procedures and parameters are described in the following sections.

5.3 Test parameters

5.3.1 Temperature parameters

Tests are conducted by simulating three periods of 20 %, 50 % and 80 % load conditions for HVAC emitter during heating and cooling tests. The variation of the internal gains in the zone presents also three periods: 0 %, 30 % and 60 % of the load. Following these variations of the load and internal gains, six periods are defined: