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STN	**Elektronické železničné zariadenia. Vlaková komunikačná sieť (TCN). Časť 2-3: Komunikačný profil TCN.**	**STN EN 61375-2-3** 34 2675

Electronic railway equipment - Train communication network (TCN) - Part 2-3: TCN communication profile

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 02/16

Obsahuje: EN 61375-2-3:2015, IEC 61375-2-3:2015

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EUROPEAN STANDARD

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EUROPÄISCHE NORM

EN 61375-2-3

September 2015

ICS 45.060

English Version

Electronic railway equipment - Train communication network (TCN) - Part 2-3: TCN communication profile (IEC 61375-2-3:2015)

Matériel électronique ferroviaire - Réseau embarqué de train (TCN) - Partie 2-3: Profil de communication TCN (IEC 61375-2-3:2015)

Elektronische Betriebsmittel für Bahnen - Zug-Kommunikations-Netzwerk (TCN) - Teil 2-3: TCN Kommunikationsprofil (IEC 61375-2-3:2015)

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

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Ref. No. EN 61375-2-3:2015 E

European foreword

The text of document 9/2029/FDIS, future edition 1 of IEC 61375-2-3, prepared by IEC/TC 9 "Electrical equipment and systems for railways" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61375-2-3:2015.

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) 2016-05-13
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-08-13

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Endorsement notice

The text of the International Standard IEC 61375-2-3:2015 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 61131-3:2013	NOTE	Harmonized as EN 61131-3:2013 (not modified).
IEC 61375-3-4	NOTE	Harmonized as EN 61375-3-4.
IEC 61508-1:2010	NOTE	Harmonized as EN 61508-1:2010 (not modified).
IEC 61784-3-3:2010	NOTE	Harmonized as EN 61784-3-3:2010 (not modified).
IEC 62580	NOTE	Harmonized in EN 62580 series.
ISO/IEC 7498-1	NOTE	Harmonized as EN ISO/IEC 7498-1.

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 1 When 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 61375-1	-	Electronic railway equipment - Train communication network (TCN) - Part 1: General architecture	EN 61375-1	-
IEC 61375-2-1	-	Electronic railway equipment - Train communication network (TCN) - Part 2-1: Wire Train Bus (WTB)	EN 61375-2-1	-
IEC 61375-2-4	- [1)]	Electronic railway equipment - Train communication network (TCN) - Part 2-4: TCN Application profile	-	-
IEC 61375-2-5	-	Electronic railway equipment - Train communication network (TCN) - Part 2-5: Ethernet train backbone	EN 61375-2-5	-
IEC 62280	-	Railway applications - Communication, signalling and processing systems - Safety related communication in transmission systems	-	-
ISO/IEC 9646-6	1994	Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 6: Protocol profile test specification	-	-
ISO/IEC 9646-7	1995	Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements	-	-

1) At draft stage.

EN 61375-2-3:2015

Publication	Year	Title	EN/HD	Year
ISO/IEC 17011	2004	Conformity assessment - General requirements for accreditation bodies accrediting conformity assessment bodies	EN ISO/IEC 17011	2004
ISO/IEC 17025	2005	General requirements for the competence of testing and calibration laboratories	EN ISO/IEC 17025	2005

IEC 61375-2-3

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INTERNATIONAL STANDARD

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Electronic railway equipment – Train communication network (TCN) – Part 2-3: TCN communication profile

IEC 61375-2-3:2015-07(en)

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INTERNATIONAL STANDARD

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Electronic railway equipment – Train communication network (TCN) – Part 2-3: TCN communication profile

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTRONIC RAILWAY EQUIPMENT – TRAIN COMMUNICATION NETWORK (TCN) –

Part 2-3: TCN communication profile

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 61375-2-3 has been prepared by IEC technical committee 9: Electrical equipment and systems for railways.

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

FDIS	Report on voting
9/2029/FDIS	9/2048/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 in the IEC 61375 series, published under the general title *Electronic railway equipment – Train communication network (TCN)*, 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 website 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.

A bilingual version of this publication may be issued at a later date.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

The IEC 61375 standard series specifies a Train Communication Network for usage in railway vehicles (trains) mainly intended for the exchange of TCMS related information, but not restricted to it. The specification starts from the physical layer up to the application layer and it involves different communication technologies.

This part of IEC 61375 (IEC 61375-2-3) defines the communication profile of the Train Communication Network so as to achieve interoperability between Consists connected by Ethernet Train Backbones as defined in IEC 61375-2-5.

The reasons for prompting the preparation of this part of IEC 61375 are:

- definition of the requirements necessary for communication interoperability on Ethernet Train Backbone level
- full documentation of the requirements of all users, aligning them and setting them out in standard form
- providing guidelines for the technical solution adopted for the train backbone interoperable communication
- defining a conformance test guideline (Annex F) which gives guidance for checking the conformity of consists to the communication profile

Concrete train applications for certain functionalities are not dealt with in this part of IEC 61375. They are contained in IEC 61375-2-4.

ELECTRONIC RAILWAY EQUIPMENT – TRAIN COMMUNICATION NETWORK (TCN) –

Part 2-3: TCN communication profile

1 Scope

This part of IEC 61375 specifies rules for the data exchange between consists in trains. The aggregation of these rules defines the TCN communication profile.

The objective of the communication profile is to ensure interoperability between consists of the said trains with respect to the exchange of information. For this it defines all those items which are necessary for communication interoperability:

- an architecture with defined train directions related to different train views
- a common functional addressing concept
- common communication protocol for data exchange between functions
- a set of services for train communication control.

As a restriction, this communication profile is adhered to the Ethernet Train Backbone (ETB) technology as defined in IEC 61375-2-5. Towards the consist networks, a more abstract interface is defined which does not restrict the appliance of any consist network technology as for instance MVB (IEC 61375-3-1), CANOpen (IEC 61375-3-3) or ECN (IEC 61375-3-4).

It is not within the scope of the communication profile to define application data content and its meaning (e.g. syntax and semantics). This is within the responsibility of the application profiles. Namely two application profiles are explicitly supported as shown in Figure 1: the TCMS application profile as defined in IEC 61375-2-4, and the onboard multimedia and telematic services (OMTS) related profiles as defined in the IEC 62580 series.

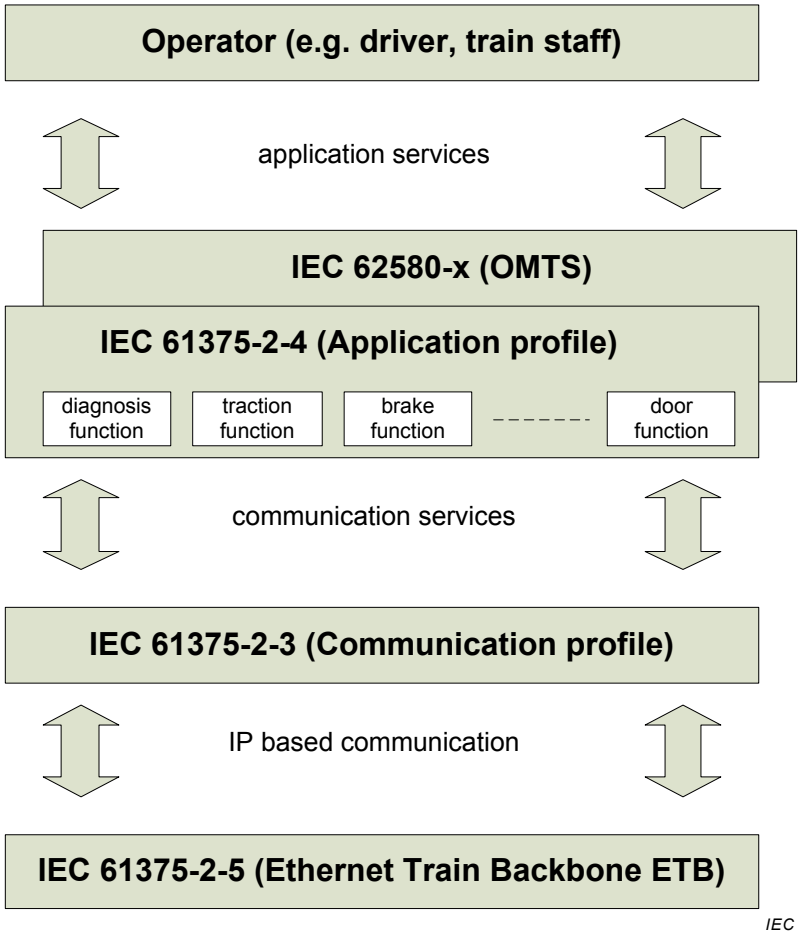

Figure 1 – IEC 61375-2-3 as connecting element between train backbone and application

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.

IEC 61375-1, *Electronic railway equipment – Train communication network (TCN) – Part 1: General architecture*

IEC 61375-2-1, *Electronic railway equipment – Train communication network (TCN) – Part 2-1: Wire Train Bus (WTB)*

IEC 61375-2-4, *Electronic railway equipment – Train communication network (TCN) – Part 2-4: Application Profile* (to be published)

IEC 61375-2-5, *Electronic railway equipment – Train communication network (TCN) – Part 2-5: Ethernet train backbone*

IEC 62280*, Railway applications – Communication, signalling and processing systems – Safety related communication in transmission systems*

ISO/IEC 9646-6:1994, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 6: Protocol profile test specification*

ISO/IEC 9646-7:1995, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 7: Implementation Conformance Statements*

ISO/IEC 17011:2004, *Conformity assessment – General requirements for accreditation bodies accrediting conformity assessment bodies*

ISO/IEC 17025:2005, *General requirements for the competence of testing and calibration laboratories*