SVENSK STANDARD SS-EN 62580-1

Fastställd	Utgåva	Sida	Ansvarig kommitté
2016-12-14	1	1 (1+76)	SEK TK 9

Elektronisk utrustning för järnvägar – Fordonsbaserade delsystem för multimedia och telematik – Del 1: Övergripande arkitektur

Electronic railway equipment –
On-board multimedia and telematic subsystems for railways –
Part 1: General architecture

Som svensk standard gäller europastandarden EN 62580-1:2016. Den svenska standarden innehåller den officiella engelska språkversionen av EN 62580-1:2016.

Nationellt förord

Europastandarden EN 62580-1:2016

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 62580-1, First edition, 2015 - Electronic railway equipment - On-board multimedia and telematic subsystems for railways - Part 1: General architecture**

utarbetad inom International Electrotechnical Commission, IEC.

ICS 45.060.00

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
Postadress: Box 1284, 164 29 KISTA
Telefon: 08 - 444 14 00.
E-post: sek@elstandard.se. Internet: www.elstandard.se

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

Genom att utforma sådana standarder blir säkerhetsfordringar tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK Svensk Elstandard
Box 1284
164 29 Kista
Tel 08-444 14 00
www.elstandard.se

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62580-1

November 2016

ICS 45.060

English Version

Electronic railway equipment - On-board multimedia and telematic subsystems for railways - Part 1: General architecture (IEC 62580-1:2015)

Matériel électronique ferroviaire - Sous-systèmes ferroviaires multimédias et télématiques embarqués - Partie 1: Architecture générale (IEC 62580-1:2015)

Elektronische Betriebsmittel für Bahnen - Bordinterne Multimedia- und Telematik-Untersysteme für Bahnanwendungen - Teil 1: Allgemeine Architektur (IEC 62580-1:2015)

This European Standard was approved by CENELEC on 2015-03-24. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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

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 62580-1:2016 E

SEK Svensk Elstandard

European foreword

The text of document 9/1990/FDIS, future edition 1 of IEC 62580-1, 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 62580-1:2016.

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)	2017-05-11
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2019-11-11

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

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive.

For relationship with EU Directive 2008/57/EC amended by Commission Directive 2011/18/EU, see informative Annex ZZ, which is an integral part of this document.

Endorsement notice

The text of the International Standard IEC 62580-1:2015 was approved by CENELEC as a European Standard without any modification.

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
-	-	Railway applications - Classification system for railway vehicles - Part 4: Function groups	EN 15380-4	-
IEC 61375	Series	Electronic railway equipment - Train communication network (TCN)	EN 61375	Series
IEC 61375-2-3	-	Electronic railway equipment - Train communication network (TCN) - Part 2-3: TCN communication profile	EN 61375-2-3	-
IEC/TS 61375-2-4	-	Electronic railway equipment - Train communication network (TCN) - Part 2-4: TCN Application profile	-	-
IEC 61375-2-6 [1)]	-	Electronic railway equipment - Train communication network - Part 2-6: Onboard to ground communication	EN 61375-2-6 [1)]	-
IEC 62280	-	Railway applications - Communication, signalling and processing systems - Safety related communication in transmission systems	-	-
ISO/IEC 8824	series	Information technology - Abstract Syntax Notation One (ASN.1)	-	-
ISO/IEC 8825-1	-	Information technology - ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)	-	-
ISO/IEC 9646	series	Information technology - Open Systems Interconnection - Conformance testing methodology and framework	-	-
ISO/IEC/IEEE 42010	2011	Systems and software engineering - Architecture description	-	-

[1)] At draft stage.

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

ELECTRONIC RAILWAY EQUIPMENT – ON-BOARD MULTIMEDIA AND TELEMATIC SUBSYSTEMS FOR RAILWAYS –

Part 1: General architecture

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.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62580-1 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
9/1990/FDIS	9/2005/RVD

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

A list of all parts of IEC 62580 series, under the general title *Electronic railway equipment – On-board multimedia and telematic subsystems for railways*, 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.

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

IEC 62580-1 defines the general architecture of the On-board Multimedia and Telematic Subsystems (OMTS), so as to achieve compatibility between subsystems in the same vehicle and between subsystems on-board of different vehicles in the same train.

NOTE 1 The acronym OMTS replaces the previous OMMS (On-board MultiMedia Subsystem) definition, due to a change in the title of this standard.

The multimedia and telematic system is composed of but not limited to:

A Video surveillance/CCTV

B Driver and crew orientated services

C Passenger orientated services

D Train operator and maintainer orientated services

OMTSs installed in the same vehicle (consist) communicate by means of the consist network.

OMTSs, installed in different vehicle (consist) in the same train, communicate by means of the train network.

It is likely that each OMTS exchanges information with applications installed on-ground by means of a wireless communication gateway.

The on-board communication and the on-board to ground communication are specified by the IEC 61375 series.

NOTE 2 Board-to-ground communication is intended as a generic link, with no assumption on the underlying technology (radio, satellite or other).

As illustrated in Figure 1, the IEC 62580 series is structured as follows:

IEC 62580-1: General architecture

IEC 62580-2: Video surveillance/CCTV services

Driver and crew orientated services, passenger orientated services and train operator/maintainer orientated services are matters of standardisation which can be addressed in the future.

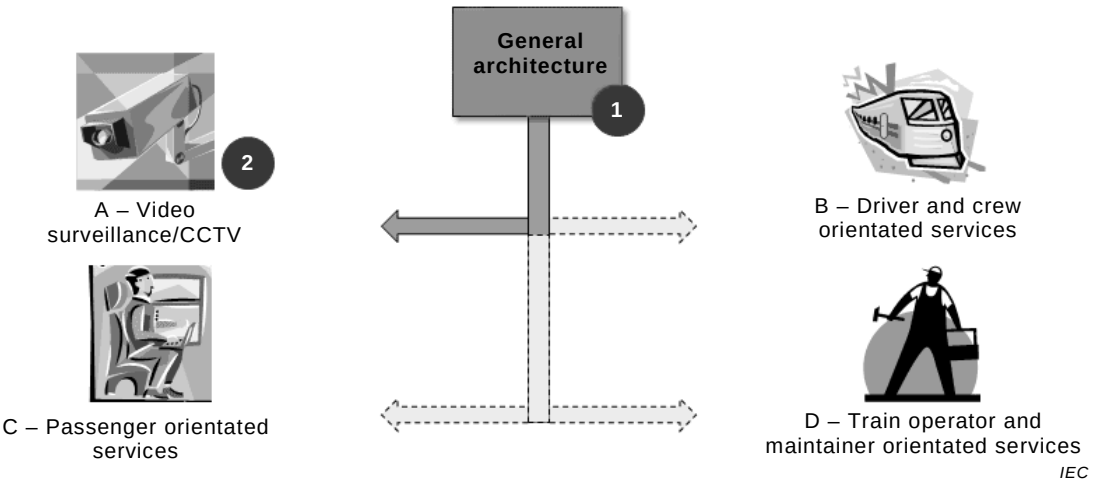

Figure 1 – OMTS categories and structure of the IEC 62580 series

ELECTRONIC RAILWAY EQUIPMENT – ON-BOARD MULTIMEDIA AND TELEMATIC SUBSYSTEMS FOR RAILWAYS –

Part 1: General architecture

1 Scope

This part of IEC 62580 specifies the general architecture of the On-board Multimedia and Telematic Subsystem, which includes four categories of multimedia and telematic subsystems identified as:

A Video surveillance/CCTV

B Driver and crew orientated services

C Passenger orientated services

D Train operator and maintainer orientated services

This part establishes:

- the boundary between the OMTS and the on-board communication system, as described by the IEC 61375 series
- the methodology to describe an OMTS in terms of abstract model
- the general principles and the basic requirements to specify the services provided/needed by each category
- the approach to ensure interoperability between services

This part gives guidelines for:

- OMTS classification
- functional breakdown structuring
- system breakdown structuring
- formal specification of an OMTS

This part is applicable to any type of train, e.g. open trains, multiple unit trains and closed trains.

NOTE The general architecture provides a common basis for the application categories defined in part 2 and possible future parts of this series of standards. Consequently, the approach is homogeneous for all multimedia and telematic subsystems addressed by this series of standards.

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 (all parts), *Electronic railway equipment – Train communication network (TCN)*

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

IEC 61375-2-4, *Electronic railway equipment – Train communication network (TCN) – Part 2-4: TCN application profile*[1]

IEC 61375-2-6, *Electronic railway equipment – Train communication network – Part 2-6: On-board to ground communication*

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

ISO/IEC 8824 (all parts), *Information technology – Abstract Syntax Notation One (ASN.1)*

ISO/IEC 8825, *Information technology – ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)*

ISO/IEC 9646 (all parts), *Information technology – Open Systems Interconnection – Conformance testing methodology and framework*

ISO/IEC 42010:2011, *Systems and software engineering – Architecture description*

EN15380-4, *Railway applications – Classification system for railway vehicles – Part 4: Function groups*

1 To be published.