

SLOVENSKI STANDARD
SIST-TS CEN ISO/TS 18234-10:2014
01-marec-2014

Inteligentni transportni sistemi - Prometne in potovalne informacije (TTI) prek izvedenske skupine za transportne protokole, binarni podatkovni format 1. generacije (TPEG) - 10. del: Informacije o pogojnem dostopu (TPEG1-CAI) (ISO/TS 18234-10:2013)

Intelligent transport systems - Traffic and travel information (TTI) via transport protocol experts group, generation 1 (TPEG1) binary data format - Part 10: Conditional access information (TPEG1-CAI) (ISO/TS 18234-10:2013)

iTeh STANDARD PREVIEW

Intelligente Transportsysteme - (Reise und Verkehrsinformation über Datenströme der Transportprotokoll Expertengruppe (TPEG) - Teil 10: Bedingte Zugriffsinformationen (TPEG-CAI) (ISO/TS 18234-10:2013) CEN ISO/TS 18234-10:2014

<https://standards.iteh.ai/catalog/standards/sist/e4103553-6444-49ee-8ecd-82fda6d22b52/sist-ts-cen-iso-ts-18234-10-2014>

Systèmes intelligents de transport - Informations sur le trafic et le tourisme via les données de format binaire du groupe d'experts du protocole de transport, génération 1 (TPEG1) - Partie 10: Information d'accès conditionnel (TPEG1-CAI) (ISO/TS 18234-10:2013)

Ta slovenski standard je istoveten z: CEN ISO/TS 18234-10:2013

ICS:

03.220.01	Transport na splošno	Transport in general
35.240.60	Uporabniške rešitve IT v transportu in trgovini	IT applications in transport and trade

SIST-TS CEN ISO/TS 18234-10:2014 **en,fr,de**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST-TS CEN ISO/TS 18234-10:2014](https://standards.iteh.ai/catalog/standards/sist/e4103553-6444-49ee-8ecd-82fda6d22b52/sist-ts-cen-iso-ts-18234-10-2014)

<https://standards.iteh.ai/catalog/standards/sist/e4103553-6444-49ee-8ecd-82fda6d22b52/sist-ts-cen-iso-ts-18234-10-2014>

TECHNICAL SPECIFICATION
SPÉCIFICATION TECHNIQUE
TECHNISCHE SPEZIFIKATION

CEN ISO/TS 18234-10

October 2013

ICS 35.240.60

English Version

Intelligent transport systems - Traffic and travel information via transport protocol experts group, generation 1 (TPEG1) binary data format - Part 10: Conditional access information (TPEG1-CAI) (ISO/TS 18234-10:2013)

Systèmes intelligents de transport - Informations sur le trafic et le tourisme via les données de format binaire du groupe d'experts du protocole de transport, génération 1 (TPEG1) - Partie 10: Information d'accès conditionnel (TPEG1-CAI) (ISO/TS 18234-10:2013)

Intelligente Transportsysteme - Reise- und Verkehrsinformation über Datenströme der Transportprotokoll Expertengruppe (TPEG) - Teil 10: Bedingte Zugriffsinformationen (TPEG-CAI) (ISO/TS 18234-10:2013)

This Technical Specification (CEN/TS) was approved by CEN on 15 July 2013 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

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

Contents

Page

Foreword.....3

**iTeh STANDARD PREVIEW
(standards.iteh.ai)**

[SIST-TS CEN ISO/TS 18234-10:2014](https://standards.iteh.ai/catalog/standards/sist/e4103553-6444-49ee-8ecd-82fda6d22b52/sist-ts-cen-iso-ts-18234-10-2014)
<https://standards.iteh.ai/catalog/standards/sist/e4103553-6444-49ee-8ecd-82fda6d22b52/sist-ts-cen-iso-ts-18234-10-2014>

Foreword

This document (CEN ISO/TS 18234-10:2013) has been prepared by Technical Committee ISO/TC 204 "Intelligent transport systems" in collaboration with Technical Committee CEN/TC 278 "Intelligent transport systems" the secretariat of which is held by NEN.

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

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: 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 the United Kingdom.

Endorsement notice

The text of ISO/TS 18234-10:2013 has been approved by CEN as CEN ISO/TS 18234-10:2013 without any modification.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST-TS CEN ISO/TS 18234-10:2014
https://standards.iteh.ai/catalog/standards/sist/e4103553-6444-49ee-8ecd-82fda6d22b52/sist-ts-cen-iso-ts-18234-10-2014](https://standards.iteh.ai/catalog/standards/sist/e4103553-6444-49ee-8ecd-82fda6d22b52/sist-ts-cen-iso-ts-18234-10-2014)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST-TS CEN ISO/TS 18234-10:2014](https://standards.iteh.ai/catalog/standards/sist/e4103553-6444-49ee-8ecd-82fda6d22b52/sist-ts-cen-iso-ts-18234-10-2014)

<https://standards.iteh.ai/catalog/standards/sist/e4103553-6444-49ee-8ecd-82fda6d22b52/sist-ts-cen-iso-ts-18234-10-2014>

TECHNICAL
SPECIFICATIONISO/TS
18234-10First edition
2013-10-15

**Intelligent transport systems — Traffic
and travel information via transport
protocol experts group, generation 1
(TPEG1) binary data format —**

Part 10:

**Conditional access information
(TPEG1-CAI)****(standards.iteh.ai)***Systèmes intelligents de transport — Informations sur le trafic et le
tourisme via les données de format binaire du groupe d'experts du
protocole de transport, génération 1 (TPEG1)*<https://standards.iteh.ai/catalog/standards/sist/e4105553-6444-49ce-8eed-82fda6d7270a/sist-ts-cen-iso-ts-18234-10-2014>**Partie 10: Information d'accès conditionnel (TPEG1-CAI)**Reference number
ISO/TS 18234-10:2013(E)

© ISO 2013

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST-TS CEN ISO/TS 18234-10:2014
https://standards.iteh.ai/catalog/standards/sist/e4103553-6444-49ee-8ecd-82fda6d22b52/sist-ts-cen-iso-ts-18234-10-2014](https://standards.iteh.ai/catalog/standards/sist/e4103553-6444-49ee-8ecd-82fda6d22b52/sist-ts-cen-iso-ts-18234-10-2014)



COPYRIGHT PROTECTED DOCUMENT

© ISO 2013

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction.....	vi
1 Scope.....	1
2 Normative References.....	1
3 Abbreviated terms	1
4 Application identification and version number signalling	2
4.1 Application identification.....	2
4.2 Version number signalling	2
5 Service Component Data.....	3
6 Conditional Access Methodology.....	3
7 Message Components	4
7.1 List of Generic Component Ids	4
7.2 CAIMessage	5
7.3 CAIDataUnit.....	5
Annex A (normative) Binary SSF and Data Types.....	6
A.1 Conventions and symbols.....	6
A.1.1 Conventions	6
A.1.2 Symbols.....	6
A.2 Representation of syntax.....	7
A.2.1 General	7
A.2.2 Data type notation	7
A.2.3 Application dependent data types.....	10
A.2.4 Toolkits and external definition	14
A.2.5 Application design principles	15
A.3 TPEG data stream description	15
A.3.1 Diagrammatic hierarchy representation of frame structure	15
A.3.2 Syntactical Representation of the TPEG Stream	16
A.3.3 Description of data on Transport level.....	20
A.3.4 Description of data on Service level.....	22
A.3.5 Description of data on Service component level.....	22
A.4 General binary data types	23
A.4.1 Primitive data types.....	23
A.4.2 Compound data types.....	28
A.4.3 Table definitions	31
A.4.4 Tables	32
Bibliography.....	48

ISO/TS 18234-10:2013(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of normative document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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

ISO/TS 18234-10 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 278, *Road transport and traffic telematics*, in collaboration with ISO Technical Committee ISO/TC 204, *Intelligent transport systems*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

ISO/TS 18234 consists of the following parts, under the general title *Intelligent transport systems — Traffic and travel information via transport protocol experts group, generation 1 (TPEG1) binary data format*:

- *Part 1: Introduction, numbering and versions (TPEG1-INV)*
- *Part 2: Syntax, semantics and framing structure (TPEG1-SSF)*
- *Part 3: Service and network information (TPEG1-SNI)*
- *Part 4: Road Traffic Message application (TPEG1-RTM)*
- *Part 5: Public Transport Information (PTI) application*
- *Part 6: Location referencing applications*

- *Part 7: Parking information (TPEG1-PK1)*
- *Part 8: Congestion and travel-time application (TPEG1-CTT)*
- *Part 9: Traffic event compact (TPEG1-TEC)*
- *Part 10: Conditional access information (TPEG1-CAI)*
- *Part 11: Location Referencing Container (TPEG1-LRC)*

iTeh STANDARD PREVIEW **(standards.iteh.ai)**

[SIST-TS CEN ISO/TS 18234-10:2014](https://standards.iteh.ai/catalog/standards/sist/e4103553-6444-49ee-8ecd-82fda6d22b52/sist-ts-cen-iso-ts-18234-10-2014)

<https://standards.iteh.ai/catalog/standards/sist/e4103553-6444-49ee-8ecd-82fda6d22b52/sist-ts-cen-iso-ts-18234-10-2014>

ISO/TS 18234-10:2013(E)

Introduction

TPEG technology uses a byte-oriented data stream format, which may be carried on almost any digital bearer with an appropriate adaptation layer. TPEG-messages are delivered from service providers to end-users and used to transfer information from the database of a service provider to an end-user's equipment.

The brief history of TPEG technology development dates back to the European Broadcasting Union (EBU) Broadcast Management Committee establishing the B/TPEG project group in autumn 1997 with the mandate to develop, as soon as possible, a new protocol for broadcasting traffic and travel-related information in the multimedia environment. TPEG technology, its applications and service features are designed to enable travel-related messages to be coded, decoded, filtered and understood by humans (visually and/or audibly in the user's language) and by agent systems.

One year later in December 1998, the B/TPEG group produced its first EBU specifications. Two Technical Specifications were released. ISO/TS 18234-2, described the Syntax, Semantics and Framing Structure, which is used for all TPEG applications. ISO/TS 18234-4 (TPEG-RTM) described the first application, for Road Traffic Messages.

Subsequently, CEN/TC 278/WG 4, in conjunction with ISO/TC 204, established a project group comprising the members of B/TPEG and they have continued the work concurrently since March 1999. Since then two further parts were developed to make the initial complete set of four parts, enabling the implementation of a consistent service. ISO/TS 18234-3 (TPEG-SNI) describes the Service and Network Information Application, which should be used by all service implementations to ensure appropriate referencing from one service source to another. ISO/TS 18234-1 (TPEG-INV), completes the series, by describing the other parts and their relationship; it also contains the application IDs used within the other parts. Additionally ISO/TS 18234-5 the Public Transport Information Application (TPEG-PTI) and ISO/TS 18234-6 (TPEG-LRC), were developed.

TPEG applications are developed using UML modelling and a software tool is used to automatically select content which then populates this TS. Diagrammatic extracts from the model are used to show the capability of the binary coding in place of lengthy text descriptions; the diagrams do not necessarily include all relevant content possible.

This Technical Specification describes the binary data format of the on-air interface of the Conditional Access Information application, (TPEG-CAI) with the technical version number TPEG-CAI_1.0/001.

CAI application

The basic concept behind the CAI application is to transport CAI in separate TPEG service components of a dedicated application type and to define an SNI table that contains the link between scrambled content and related CAI.

Intelligent transport systems — Traffic and travel information via transport protocol experts group, generation 1 (TPEG1) binary data format —

Part 10: Conditional access information (TPEG-CAI)

1 Scope

This Technical Specification contains the definition of the TPEG Conditional Access Information (CAI) application. It enables dedicated conditional access data, such as management messages (e.g. Control Words and Entitlement Control Messages) to be delivered to recipient client devices. This TPEG application is designed for a service provider to: establish setup, prolongation or revocation of services to a specific client device, using a limited capacity unidirectional broadcast channel and without recourse to service-client handshaking.

iTeh STANDARD PREVIEW

This TPEG application defines:

(standards.iteh.ai)

— the logical channel, for the transmission of the additional CA information (CAI);

[SIST-TS CEN ISO/TS 18234-10:2014](#)

— how the CAI is linked and synchronized to the scrambled content.

[https://standards.iteh.ai/catalog/standards/sist/82fda6d22b52/sist-ts-cen-iso-ts-18234-10-2014](#)

This Technical Specification is related to conditional access applied at the service component level of a TPEG service. It is an open design for the integration of various different conditional access systems, externally specified, which are signalled by the TPEG service Encryption Indicator to allow client devices to operate correctly.

2 Normative References

The following referenced documents are indispensable for the application of this Technical Specification. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/TS 18234-1, *Intelligent transport systems — Traffic and travel information via transport protocol experts group, generation 1 (TPEG1) binary data format — Part 1: Introduction, numbering and versions (TPEG1-INV)*

ISO/TS 18234-2, *Intelligent transport systems — Traffic and travel information via transport protocol experts group, generation 1 (TPEG1) binary data format — Part 2: Syntax, semantics and framing structure (TPEG1-SSF)*

ISO/TS 18234-3, *Intelligent transport systems — Traffic and travel information via transport protocol experts group, generation 1 (TPEG1) binary data format — Part 3: Service and network information (TPEG1-SNI)*

3 Abbreviated terms

For the purposes of this document, the following abbreviated terms apply.

ISO/TS 18234-10:2013(E)

AID	Application Identification
CA	Conditional Access
CAI	Conditional Access Information
CRC	Cyclic redundancy check
ECM	Entitlement Control Message
EMM	Entitlement Management Message
TPEG	Transport Protocol Expert Group
SSF	Syntax, Semantics and Framing Structures
TTI	Traffic and Traveller Information

4 Application identification and version number signalling**4.1 Application identification**

The word 'application' is used in the TPEG specifications to describe specific subsets of the TPEG structure. An application defines a limited vocabulary for a certain type of messages, for example parking information or road traffic information. Each TPEG application is assigned a unique number, called the Application Identification (AID). An AID is defined whenever a new application is developed and these are all listed in ISO/TS 18234-1.

The application identification number is used within the TPEG-SNI application to indicate how to process TPEG content and facilitates the routing of information to the appropriate application decoder.

4.2 Version number signalling

Version numbering is used to track the separate versions of an application through its development and deployment. The differences between these versions may have an impact on client devices.

The version numbering principle is defined in ISO/TS 18234-1.

Table 1 shows the current version numbers for signalling CAI within the SNI application:

Table 1 — Current version numbers for signalling of CAI

major version number	1
minor version number	0

5 Service Component Data

TPEG-CAI makes use of the "Service component data with dataCRC" according to Annex A, section A.3.2.6.2.1. For explanatory purposes, this is repeated here.

< ServCompFrameProtected >:=	: CRC protected service component frame
<ServCompFrameHeader> (header),	: Component frame header as defined in A.3.2.6.1
external <ApplicationContent> (content),	: Content specified by the individual application
<CRC> (dataCRC);	: CRC starting with first byte after the header

The main frame of CAI defines ApplicationContent as follows:

<ApplicationContent>:=	: application content
messageCount * <CAIMessage> (msg);	: Any number of any CAI message components

6 Conditional Access Methodology

Conditional access (CA) is specified within TPEG-SSF and TPEG-SNI as a function being applied on service frame or service component level. The method used is indicated via the Encryption Identifier (EnclID) directly in the service frame or for components via the SNI Fast Tuning Table (Guide to the Services 1). This specification is related to conditional access applied on service component level.

Generally, a broadcast based CA-system requires encryption related data to be transmitted which is independent from the content, but necessary for decryption and subscriber management.

If a conditional access system is applied on the TPEG service component level, some service components may be encrypted using the same "encryption key", while others remain unencrypted or use different "encryption keys". Therefore, several service components can share the same conditional access information, if they are supposed to be offered as one bundle and hence are encrypted with the same keys.

Each of the aforementioned bundles may require CA-management-messages, which have to be transmitted separated from the (encrypted) content in the corresponding service components. The most appropriate way for the transport is the use of separate service components of a dedicated application type.

For each encrypted TPEG-Service component a link or reference to the service component carrying the relevant CA information is required. This is handled by TPEG-SNI GST-Table 6, Conditional Access Information Reference.

EXAMPLE

A TPEG Service may contain the following service components:

SCID	Application
0	SNI
2	TEC
5	TEC (encrypted)
7	TEC (encrypted)
8	PTI
10	PKI (encrypted)
20	CAI
21	CAI
30	CAI