



SLOVENSKI STANDARD
SIST-TS CEN ISO/TS 18234-5:2006
01-julij-2006

Prometne in potovalne informacije (TTI) – TTI preko toka podatkov ekspertne skupine za prometne in potovalne protokole (TPEG) – 5. del: Aplikacija informacije javnega transporta (PTI) (ISO/TS 18234-5:2006)

Traffic and Travel Information (TTI) - TTI via Transport Protocol Expert Group (TPEG) data-streams - Part 5: Public Transport Information (PTI) application (ISO/TS 18234-5:2006)

Reise- und Verkehrsinformation (TTI) - TTI über Datenströme der Transportprotokoll Expertengruppe (TPEG) - Teil 5: Informationsanwendungen des Öffentlichen Nahverkehrs (ISO/TS 18234-5:2006)

Informations sur le trafic et le tourisme (TTI) - Messages TTI via les flux de données du groupe d'experts du protocole de transport (TPEG) - Partie 5: Application d'information de transport public (ISO/TS 18234-5:2006)

Ta slovenski standard je istoveten z: CEN/ISO TS 18234-5:2006

ICS:

03.220.01

35.240.60

SIST-TS CEN ISO/TS 18234-5:2006 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST-TS CEN ISO/TS 18234-5:2006](https://standards.iteh.ai/catalog/standards/sist/fc0f4ca3-e251-4af3-acb8-55b91ff52a6e/sist-ts-cen-iso-ts-18234-5-2006)

<https://standards.iteh.ai/catalog/standards/sist/fc0f4ca3-e251-4af3-acb8-55b91ff52a6e/sist-ts-cen-iso-ts-18234-5-2006>

ICS 03.220.01; 35.240.60

English Version

**Traffic and Travel Information (TTI) - TTI via Transport Protocol
Expert Group (TPEG) data-streams - Part 5: Public Transport
Information (PTI) application (ISO/TS 18234-5:2006)**

Informations sur le trafic et le tourisme (TTI) - Messages
TTI via les flux de données du groupe d'experts du
protocole de transport (TPEG) - Partie 5: Application
d'information de transport public (ISO/TS 18234-5:2006)

Reise- und Verkehrsinformation (TTI) - TTI über
Datenströme der Transportprotokoll-Expertengruppe
(TPEG) - Teil 5: Informationsanwendungen des
Öffentlichen Nahverkehrs (ISO/TS 18234-5:2006)

This Technical Specification (CEN/TS) was approved by CEN on 28 September 2004 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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

<https://standards.cen.eu/catalog/standards/sist/fc0f4ca3-e251-4af3-acb8-55b91ff52a6e/sist-ts-cen-iso-ts-18234-5-2006>



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Foreword

This document (CEN ISO/TS 18234-5:2006) has been prepared by Technical Committee CEN/TC 278 "Road transport and traffic telematics", the secretariat of which is held by NEN, in collaboration with Technical Committee ISO/TC 204 "Transport information and control systems".

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this CEN Technical Specification: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST-TS CEN ISO/TS 18234-5:2006](https://standards.iteh.ai/catalog/standards/sist/fc0f4ca3-e251-4af3-acb8-55b91ff52a6e/sist-ts-cen-iso-ts-18234-5-2006)

<https://standards.iteh.ai/catalog/standards/sist/fc0f4ca3-e251-4af3-acb8-55b91ff52a6e/sist-ts-cen-iso-ts-18234-5-2006>

**Traffic and Travel Information (TTI) — TTI
via Transport Protocol Expert Group
(TPEG) data-streams —**

**Part 5:
Public Transport Information (PTI)
application**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

*Informations sur le trafic et le tourisme (TTI) — Messages TTI via les
flux de données du groupe d'experts du protocole de transport*

SIS (TPEG) — ISO/TS 18234-5:2006

<https://standards.iteh.ai/catalog/standards/sist/f09f1ea3-e251-4a93-ach8-55b91ff52a6e/sist-ts-cen-iso-ts-18234-5-2006>
Partie 5: Application d'information de transport public



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST-TS CEN ISO/TS 18234-5:2006](https://standards.iteh.ai/catalog/standards/sist/fc0f4ca3-e251-4af3-acb8-55b91ff52a6e/sist-ts-cen-iso-ts-18234-5-2006)

<https://standards.iteh.ai/catalog/standards/sist/fc0f4ca3-e251-4af3-acb8-55b91ff52a6e/sist-ts-cen-iso-ts-18234-5-2006>

© ISO 2006

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing 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	v
1 Scope	1
2 Normative references	2
3 Terms and definitions.....	2
4 Abbreviations	6
5 PTI application overview	7
5.1 Introduction	7
5.2 TPEG-message concept.....	9
5.3 TPEG-messages delivering additional information	10
5.4 Elements of a TPEG public transport information message.....	10
5.5 Message management container	12
5.6 Application event (PTI) container.....	15
5.7 Location referencing	16
6 PTI container	16
6.1 Structure of public transport information	16
6.2 Notation	17
6.3 PTI application component frame	18
7 Message management container	19
7.1 Mandatory elements	19
7.2 Date and time elements	19
7.3 Severity and reliability elements	20
7.4 Coding of the message management container.....	20
8 Event container	21
8.1 Event description.....	21
8.2 Level one classes and their descriptions	21
8.3 Sub-level classes	22
8.4 End-user presentation modes	25
8.5 Coding structure.....	27
8.6 Event container data types	28
8.7 Coding of event container	29
8.8 PTI application primitives	35
8.9 TPEG tables (pti01 to pti34) indexing	37
Bibliography	58

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 18234-5 was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

ISO/TS 18234 consists of the following parts, under the general title *Traffic and Travel Information (TTI) — TTI via Transport Protocol Expert Group (TPEG) data-streams*:

- *Part 1: Introduction, numbering and versions*
- *Part 2: Syntax, Semantics and Framing Structure (SSF)*
- *Part 3: Service and Network Information (SNI) application*
- *Part 4: Road Traffic Message (RTM) application*
- *Part 5: Public Transport Information (PTI) application*
- *Part 6: Location referencing applications*

Introduction

The TPEG technology uses a byte-oriented 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 are used to transfer information from the database of a service provider to an end-user's equipment.

This CEN ISO Technical Specification describes the Public Transport Information Application, its underlying data structure as well as the means of encoding and decoding hierarchically structured messages containing public (i.e. collective) transport information. This application is intended to provide service providers, including broadcasters, with a means to transmit to an end-user public transport related travel news. The scope of TPEG is intended to cover content as diverse as network disruption, cancellations and even aspects of timetable information.

Messages generated can be classified to fit into user perceived categories. The underlying data elements used for these classifications are taken from a superset that, the designers believe, is a complete set of elements needed to fully describe the broadest range of public transport information.

The Broadcast Management Committee of the European Broadcast Union (EBU) established 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. The 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 public specifications. Two documents were released. Part 2 (TPEG-SSF, CEN ISO/TS 18234-2) described the Syntax, Semantics and Framing structure, which will be used for all TPEG applications. Part 4 (TPEG-RTM, CEN ISO/TS 18234-4) described the *first* application, for Road Traffic Messages.

CEN/TC 278/WG 4, in conjunction with ISO/TC 204/WG 10, 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 have been developed to make the initial complete set of four parts, enabling the implementation of a consistent service. Part 3 (TPEG-SNI, CEN ISO/TS 18234-3)) describes the Service and Network Information Application, which is likely to be used by all service implementations to ensure appropriate referencing from one service source to another. Part 1 (TPEG-INV, CEN ISO/TS 18234-1) completed the work, by describing the other parts and their relationships; it also contains the application IDs used within the other parts.

In April 2000, the B/TPEG group released revised Parts 1 to 4, all four parts having been reviewed and updated in the light of initial implementation results. Thus a consistent suite of specifications, ready for wide scale implementation, was submitted to the CEN/ISO commenting process.

In November 2001, after extensive response to the comments received and from many internally suggested improvements, all four parts were completed for the next stage: the Parallel Formal Vote in CEN and ISO. But a major step forward has been to develop the so-called TPEG-Loc location referencing method, which enables both map-based TPEG-decoders and non map-based ones to deliver either map-based location referencing or human readable information. Part 6 (TPEG-Loc, CEN ISO/TS 18234-6) is now a separate specification and is used in association with the other parts of CEN ISO/TS 18234 to provide comprehensive location referencing. Additionally Part 5, the Public Transport Information Application (TPEG-PTI, CEN ISO/TS 18234-5), has been developed and been through the commenting process.

This Technical Specification, CEN ISO/TS 18234-5, provides a full specification for the public (i.e. collective) transport information application. This document has been prepared by CEN/TC 278, *Road Transport and Traffic Telematics* in co-operation with ISO/TC 204, *Intelligent Transport Systems*.

During the development of the TPEG technology a number of versions have been documented and various trials implemented using various versions of the specifications. At the time of the publication of this Technical

Specification, all parts are fully inter-workable and no specific dependencies exist. This Technical Specification has the technical version number TPEG-PTI_3.0/001.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST-TS CEN ISO/TS 18234-5:2006](https://standards.iteh.ai/catalog/standards/sist/fc0f4ca3-e251-4af3-acb8-55b91ff52a6e/sist-ts-cen-iso-ts-18234-5-2006)

<https://standards.iteh.ai/catalog/standards/sist/fc0f4ca3-e251-4af3-acb8-55b91ff52a6e/sist-ts-cen-iso-ts-18234-5-2006>

Traffic and Travel Information (TTI) — TTI via Transport Protocol Expert Group (TPEG) data-streams —

Part 5: Public Transport Information (PTI) application

1 Scope

This Technical Specification describes the Public Transport Information (PTI) Application, which is intended to cover all modes of public (i.e. collective) transport as well as inter-urban and intra-urban travel. The application is designed to allow the efficient and language independent delivery of public transport information directly from service provider to end-users.

The term “application” is used in TPEG specifications to describe specific applications, such as in this case the public transport information application, which comprises three information containers: the message management container, the application event container and the TPEG-location container. The first two containers are fully described herein and the TPEG-location container is described in CEN ISO/TS 18234-6.

Each TPEG Application (e.g. TPEG-PTI) is assigned a unique number that is called the Application IDentification (AID). An AID is defined whenever a new application is developed. The AID is used within the TPEG-Service and Network Information Application (CEN ISO/TS 18234-3) to indicate how to process TPEG content and allows routing of data to an appropriate Application decoder.

AID = 0002 (hex) is assigned to the TPEG-PTI application, described in this specification.

The TPEG-PTI application aims at describing “legs” of a journey also described as “rides” by other methodologies. However, it is important to note that TPEG-PTI is not limited to describing single services, because it also allows the more general description of route, service and area-wide problems.

Public (or collective) transport information is usually consumed in one of four principle ways as follows:

- Leader board information as used at stations or terminals;
- A report on the state of a network;
- The description of an individual service;
- As a news flash report.

The elements needed to provide information for any one of the four end-user presentation modes are largely the same. The end-user focus of TPEG applications makes it useful to be able to mimic presentations, to which end-users are accustomed, for example a railway station indicator board.

TPEG-PTI messages can therefore group data elements to present one of the following end-user presentation modes:

- Incident message report;
- Station/terminal information;

- Route information;
- Individual service information.

It is important to bear in mind that these end-user presentation modes are merely presentational aides; they have little to do with the content in the individual data elements. They do, however indicate how data elements must be grouped if a presentation in any of these views is intended. Unlike the TPEG-RTM application (CEN ISO/TS 18234-4), TPEG-PTI benefits from the nodal structure of public transport, making use of its discrete start, end and stopping points as well as being limited to fixed, be it real or virtual, routes.

2 Normative references

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

ISO 8601, *Data elements and interchange formats — Information interchange — Representation of dates and times*

ISO/TS 18234-1, *Traffic and Travel Information (TTI) — TTI via Transport Protocol Expert Group (TPEG) data-streams — Part 1: Introduction, Numbering and Versions*

ISO/TS 18234-2, *Traffic and Travel Information (TTI) — TTI via Transport Protocol Expert Group (TPEG) data-streams — Part 2: Syntax, Semantics and Framing Structure (SSF)*

ISO/TS 18234-6, *Traffic and Travel Information (TTI) — TTI via Transport Protocol Expert Group (TPEG) data-streams — Part 6: Location referencing for Applications*

3 Terms and definitions

[SIST-TS CEN ISO/TS 18234-5:2006](https://standards.iteh.ai/catalog/standards/sist/fc0f4ca3-e251-4af3-acb8-55b91ff52a6e/sist-ts-cen-iso-ts-18234-5-2006)

<https://standards.iteh.ai/catalog/standards/sist/fc0f4ca3-e251-4af3-acb8-55b91ff52a6e/sist-ts-cen-iso-ts-18234-5-2006>

For the purposes of this Technical Specification, the following terms and definitions apply.

NOTE Definitions in this specification are in some cases derived from definitions found in the DATEX Data Dictionary (ENV 13106). TPEG-PTI is completely focussed at delivering messages to end-users, so for this key operational reason some definitions have a different meaning from that found in the DATEX Data Dictionary. These differences are highlighted in this section.

3.1 additional information (ADI)

a combination of several elements to allow making full use of media links and back channels and to facilitate the description of less common occurrences and allow the listing of emergency numbers. For the full use, it needs function types as defined in TPEG table pti30

3.2 brand name (BDN)

an element permitting the use of the name of the service type given by the transport operator, intended to provide a means of easy identification of a service by an end-user

EXAMPLE “InterCity”, “Thalys”, “Eurostar”.

3.3 booking status (BS)

BS is used to indicate availability of a particular service. It is used together with TPEG table pti24

3.4**cross reference information (CRI)**

pointer to one or more messages in the same, or another, TPEG service

3.5**day types (DYT)**

element used in conjunction with other time types, such as the timetable or the time types, to allow describing the day on which a service is available or withdrawn. They are listed in TPEG table pti34

3.6**event reason (ER)**

ER permits the reason for an event to be added to a message. It is structured to reflect on four subtypes of reasons, whether it is general, personnel, equipment or environment. The lead table is TPEG table pti18; the subtypes are listed in TPEG tables pti19 to TPEG table pti22

3.7**interval time (IVT)**

IVT allows the description of repeated events within a certain time frame, such as running a special service but only for a limited period. For example, an additional service may be added for a period of three weeks, but it only runs on Tuesdays and Thursdays, so the STA and STO will mark the period, but IVT will be needed to clarify the addition applies to specific days

3.8**location referencing**

method for referencing locations to facilitate the exchange of location related information between different systems

3.9**message**

collection of coherent information sent through an information channel

3.10**message expiry time (MET)**

date and time in accordance with EN ISO 8601 when the message should be deleted from all TPEG-decoders (used for message management purposes)

3.11**message generation time (MGT)**

date and time stamp in accordance with EN ISO 8601 originated at the actual time and point of message generation (used for message management purposes)

3.12**message identifier (MID)**

unique identifier for a sequence of versions of one message relating to a particular event of a particular service component

3.13**message report type (MRT)**

element to signal the type of message for presentation purposes. It may be an incident message report, station/terminal information, route information or individual service information, as defined in TPEG table pti27

3.14**predicted time (PSTA/PSTO)**

predicted time is dynamic, representing actual timings combined with estimates taking into account real-time events with bearings on the operating schedule. To indicate this, the start and stop time elements are as defined below but are prefixed with "P". See also scheduled time

3.15

route description point (RDP)

TPEG-Locs with additional flags to indicate whether they are start, end and stopping as well as non-stopping points. Types are listed in TPEG table pti15

3.16

scheduled time (SSTA/SSTO)

scheduled time indicates intended or planned timings, usually available in advance of a journey. To indicate this, the start and stop time elements are as defined below but are prefixed with "S". See also predicted time

3.17

service condition (SCO)

a description of what is happening with a service, e.g. additional train, cancelled ferry. Elements are listed in TPEG table pti13

3.18

service delivery point (SDP)

element permitting the refining of the TPEG-Loc description of a place of service by adding information on terminal gate or platform number/section. The details are listed in TPEG table pti17. To indicate whether it is a scheduled or predicted SDP, it is associated with TPEG table pti16_01 for scheduled or pti16_02 for predicted

3.19

service facilities (SF)

element allowing the description of available amenities for a particular service. They are found TPEG table pti23

3.20

severity factor (SEV)

amount of disruption to traffic likely to be caused by a particular event

NOTE This definition varies from the DATEX Data Dictionary definition (ENV 13106).

3.21

start time (STA)

date and time in accordance with EN ISO 8601 at which an event, or status information, began or is scheduled to begin (used for presentation to the end-user)

NOTE This definition varies from the DATEX Data Dictionary definition (ENV 13106).

3.22

stop time (STO)

date and time in accordance with EN ISO 8601 at which an event, or status information, ended or is scheduled to end (used for presentation to the end-user)

NOTE This definition varies from the DATEX Data Dictionary definition (ENV 13106).

3.23

ticket restrictions (TR)

TR is used to indicate validity of ticket types on particular services. It is used together with TPEG table pti25

3.24

time types (TMT)

element used to distinguish between scheduled and predicted times, be they once or repeated. The details are listed in TPEG table pti28. To indicate whether it is a scheduled or predicted time, it is associated with TPEG table pti16_01 for scheduled or pti16_02 for predicted

3.25**timetable type (TTT)**

TTT is used to indicate the timetable period to which reference is made. It is used together with TPEG table pti33

3.26**transport mode (TM)**

element specifying the mode of transport, whether train, ferry or other. TPEG table pti01 contains the modes identified

3.27**transport operator (TO)**

the name of the operator of a service

EXAMPLE SNCF, Eurolinies Maritimes, EasyJet.

NOTE The TO might also be the overall responsible organization, for example in “code-sharing” agreements.

3.28**transport operator subsidiary (TOS)**

the name of the provider of a particular service, applicable if an operator has different divisions

EXAMPLE Cross Country, West Coast as part of the Virgin Group.

NOTE This would also apply to the particular service within a “code-sharing” agreement.

3.29**transport service ID (TSID)**

a unique alphanumeric designation of a service

EXAMPLE A flight number or a train number.

3.30**transport submode (TSM)**

TSM refines the notion of transport mode. It allows distinguishing between fast and stopping services, and urban services. They are defined in TPEG table pti02 to TPEG table pti12

3.31**transport service name (TSN)**

the name of a service

EXAMPLE A ship’s name or Metro Line name such as Koningin Beatrix or Circle Line.

3.32**unverified information (UNV)**

UNV indicates that a message includes information from an unverified source

3.33**version number (VER)**

serial number to distinguish successive messages having a particular message identifier. Version numbers are used incrementally, allowing the progress of an event to be tracked from first notification (VER = 0), through updates, to eventual cancellation (VER = 255)

NOTE This definition varies from the DATEX Data Dictionary definition (ENV 13106).