

---

---

**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)**

(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/d05-407f-c216-4ec4-b850-18234-3>

**Partie 3: Informations relatives aux services et au réseau (TPEG1-SNI)**



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

[ISO/TS 18234-3:2013](https://standards.iteh.ai/catalog/standards/sist/d034f07f-e2f6-4ec4-b850-f81fd213d1a6/iso-ts-18234-3-2013)

<https://standards.iteh.ai/catalog/standards/sist/d034f07f-e2f6-4ec4-b850-f81fd213d1a6/iso-ts-18234-3-2013>



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2013

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](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

Page

Foreword .....	v
Introduction.....	vii
1 Scope .....	1
2 Normative references .....	1
3 Terms and definitions .....	2
4 Abbreviations.....	4
5 Application identification.....	5
6 Conceptual model .....	5
6.1 Scope .....	5
6.2 Multiplexed applications and services .....	6
7 Design principle.....	7
7.1 Variable content referencing.....	7
7.2 Example of the TPEG-SNI application in a TPEG data-stream .....	7
7.3 Concept of allocating services .....	8
7.4 General rules for the TPEG-SNI application .....	10
8 Description of SNI Data Types .....	11
8.1 Types for periodic time functions.....	11
8.1.1 Masked time .....	11
8.1.2 Start time .....	11
8.1.3 Time slot .....	12
8.2 Operating time function .....	12
8.2.1 Operating time .....	12
8.3 Compound type for geographical coverage .....	13
9 Description of basic features .....	14
9.1 Service information .....	14
9.1.1 Service name and service description .....	14
9.1.2 Service logo .....	14
9.1.3 Subscriber information .....	14
9.1.4 Free text information.....	15
9.1.5 Help information .....	15
9.2 Component information.....	15
9.2.1 Guide to the Service Table 1 (fast tuning) .....	16
9.2.2 Guide to the Service Table 2 (time schedule).....	17
9.2.3 Guide to the Service Table 3 (content description) .....	18
9.2.4 Guide to the Service Table 4 (geographical coverage) .....	18
9.2.5 Guide to the Service Table 5 (service component reset) .....	19
9.2.6 Service Table accelerator .....	19
9.2.7 Guide to the Service Table 6 (Conditional Access Information Reference).....	19
9.2.8 Guide to the Service Table 7 (Versioning) .....	20
9.3 Linkage information .....	21
9.3.1 Linkage information to the components of the same service .....	21
9.3.2 Linkage information to the components of related services .....	23
9.4 Service Information Tables .....	24
9.4.1 Service Information Table 1 (Number of Messages).....	24
10 Coding structure of basic features.....	25
10.1 Component frame.....	25
10.2 Service and network information component template .....	25

10.3	Definition of service information.....	26
10.3.1	Definition of service name and service description.....	26
10.3.2	Coding of the service logo.....	26
10.3.3	Subscriber information .....	26
10.3.4	Free text information .....	27
10.3.5	Help information .....	27
10.4	Definition of the guide to the Service Tables.....	27
10.4.1	Guide to the Service Table 1 (fast tuning).....	27
10.4.2	Guide to the Service Table 2 (time schedule).....	27
10.4.3	Guide to the Service Table 3 (content description).....	28
10.4.4	Guide to the Service Table 4 (geographical coverage).....	28
10.4.5	Guide to the Service Table 5 (service component reset) .....	28
10.4.6	Service Table accelerator .....	29
10.4.7	Guide to the Service Table 6 (Conditional Access Information).....	29
10.4.8	Guide to the Service Table 7 (Versioning) .....	29
10.5	Definition of the linkage table to the same service components .....	30
10.6	Definition of the linkage table to related service components .....	32
10.7	Service Information Table 1 (Number of Messages).....	33
	Bibliography.....	34

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

[ISO/TS 18234-3:2013](https://standards.iteh.ai/catalog/standards/sist/d034f07f-e2f6-4ec4-b850-f81fd213d1a6/iso-ts-18234-3-2013)

<https://standards.iteh.ai/catalog/standards/sist/d034f07f-e2f6-4ec4-b850-f81fd213d1a6/iso-ts-18234-3-2013>

## 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 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 18234-3 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 TC 204, *Intelligent transport systems* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO/TS 18234-3:2006), which has been technically revised.

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

- *Part 1: Introduction, numbering and versions (TPEG1-INV)*
- *Part 2: Syntax, Semantics and Framing Structure (SSF)*
- *Part 3: Service and network information (TPEG1-SNI)*
- *Part 4: Road Traffic Message (RTM) application*
- *Part 5: Public Transport Information (PTI) application*

- *Part 6: Location referencing applications*
- *Part 7: Parking Information (TPEG-PKI)<sup>1)</sup>*
- *Part 8: Congestion and travel-time application (TPEC1-CTT)<sup>2)</sup>*
- *Part 9: Traffic event compact (TPEG1-TEC)<sup>3)</sup>*
- *Part 10: Conditional access information (TPEG1-CAI)<sup>4)</sup>*
- *Part 11: Location Referencing Container (TPEG1-LRC)*

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

[ISO/TS 18234-3:2013](https://standards.iteh.ai/catalog/standards/sist/d034f07f-e2f6-4ec4-b850-f81fd213d1a6/iso-ts-18234-3-2013)

<https://standards.iteh.ai/catalog/standards/sist/d034f07f-e2f6-4ec4-b850-f81fd213d1a6/iso-ts-18234-3-2013>

---

1) To be published.  
2) To be published.  
3) To be published.  
4) To be published.

## 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 documents were released. Part 2 (TPEG-SSF, which became ISO/TS 18234-2) described the Syntax, Semantics and Framing structure, which is used for all TPEG applications. Part 4 (TPEG-RTM, which became ISO/TS 18234-4) described the first application, for Road Traffic Messages.

Subsequently, 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 were developed to make the initial complete set of four parts, enabling the implementation of a consistent service. Part 3 (TPEG-SNI, ISO/TS 18234-3) 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. Part 1 (TPEG-INV, ISO/TS 18234-1), completes the series, by describing the other parts and their relationship; it also contains the application IDs used within the other parts. Additionally, Part 5, the Public Transport Information Application (TPEG-PTI, ISO/TS 18234-5), was developed.

A major step forward was to develop the so-called TPEG-LOC location referencing method, which enabled both map-based TPEG-decoders and non-map-based ones to deliver either map-based location referencing or human readable text information. The original issue of ISO/TS 18234-6 described the TPEG-LOC application in detail and was used in association with the other parts of ISO/TS 18234 series to provide location referencing.

This update to the first edition of ISO/TS 18234-3 provides additional specifications for the Service and Network Information Application.

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, the original parts are fully inter-workable and no specific dependencies exist.

This Technical Specification has the technical version number TPEG-SNI/3.2/001.

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

[ISO/TS 18234-3:2013](https://standards.iteh.ai/catalog/standards/sist/d034f07f-e2f6-4ec4-b850-f81fd213d1a6/iso-ts-18234-3-2013)

<https://standards.iteh.ai/catalog/standards/sist/d034f07f-e2f6-4ec4-b850-f81fd213d1a6/iso-ts-18234-3-2013>



# 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)

### 1 Scope

This Technical Specification establishes the method of delivering service and network information within a TPEG service. The TPEG-SNI application is designed to allow the efficient and language independent delivery of information about the availability of the same service on another bearer channel or similar service data from another service provider, directly from service provider to end-users.

The term “application” is used in TPEG specifications to describe specific applications which are at the highest layer of the ISO/OSI protocol stack (ISO/IEC 7498-1). Each TPEG application (e.g. TPEG-RTM) 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 (this document) to indicate how to process TPEG content and allows routing of data to an appropriate application decoder.

<https://standards.iteh.ai/catalog/standards/sist/d034f07f-e2f6-4ec4-b850->

AID = 0000 is assigned to the TPEG-SNI application described in this Technical Specification.

A number of tables of information are described, which provide comprehensive options for describing services, their timing, content, geographical coverage, etc. In all TPEG streams it is mandatory to deliver to so-called GST. Additionally, it is possible to signal linkage of content between different bearers and services.

### 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/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 18234-2:2006, *Traffic and Travel Information (TTI) — TTI via Transport Protocol Expert Group (TPEG) data-streams — Part 2: Syntax, Semantics and Framing Structure (SSF)*

EN 300 401, *Radio broadcasting systems; Digital Audio Broadcasting (DAB) to mobile, portable and fixed receivers*

RFC 1738, *Uniform Resource Locators (URL)*<sup>5)</sup>

5) RFC 1738 can be found at <http://www.ietf.org/rfc/rfc1738.txt>.

### 3 Terms and definitions

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

#### 3.1 guide to the Service Tables

**GST**  
guide that carries the basic service information

EXAMPLE Service structure, service timing and content description, etc.

##### 3.1.1 fast tuning GST

**FT-GST**  
directory of the applications and content of the service that indicates in which components the relevant information can be found

Note 1 to entry: This contains the minimum set of information required for the acquisition of application data.

##### 3.1.2 time schedule GST

**TS-GST**  
optional table that indicates the operation times of selected service components

##### 3.1.3 content description GST

**CD-GST**  
optional table that gives the textual descriptions of selected service components

##### 3.1.4 geographical coverage GST

**GC-GST**  
optional table that defines the spatial range of selected service components

##### 3.1.5 service component reset GST

**SCR-GST**  
optional table that is used by the service provider to delete application specific data older than a certain moment

##### 3.1.6 Conditional Access Information Reference GST

**CAI-GST**  
optional table that is used by the service provider to indicate which service component carries the CAI application data required to decode encrypted service components

##### 3.1.7 Versioning of TPEG Applications GST

**VER-GST**  
mandatory table that is used by the service provider to indicate to which version of the application specification the service component complies

##### 3.1.8 Number of Messages within a TPEG Service Component

**NOM-SIT**  
optional table that is used to transmit the number of messages currently available for each service component

**3.2****service**

defined flow (from the service provider) of information meant for either the general public or a special target group

Note 1 to entry: A service comprises one or more applications.

**3.3****service provider**

organisation that constructs a data service, by gathering data, processing data and supplying the data service

Note 1 to entry: The service provider also decides whether a service is encrypted or not.

- the service provider that generates the content of a service is called the originator;
- the service provider that carries content generated by another originator is called the carrier;
- there is only one originator of content but there may be more than one alternative carrier.

**3.4****application**

specific subset of the TPEG structure that defines a certain type of message

EXAMPLE Parking information or road traffic message information.

**3.5****content**

information inside an application

Note 1 to entry: A service may contain several instances of the same application type, each containing different content. Within an application, different content is labelled with a unique content ID (COID) specified by the originator of the content.

**3.6****application instance**

actual data stream containing content as defined by an application

**3.7****content originator**

original provider of an application instance

Note 1 to entry: The content originator may distribute the application data to different service providers. In some cases, the service provider generates its own application data and is therefore also the content originator.

**3.8****service component**

“channel” within the multiplex of a TPEG stream with each stream comprising a number of these “channels” which are identified by the component identifier in ISO/TS 18234-2 (TPEG-SSF) and linked to the COID and AID in the TPEG-SNI application

Note 1 to entry: Each service component carries an application instance service identification.

**3.9****SID-A, SID-B, SID-C**

worldwide unique identifier for a service consisting of three elements called SID-A, SID-B, SID-C which are allocated as described in ISO/TS 18234-2

Note 1 to entry: There are two instances where service identification is used:

- originator SID (SID-A, SID-B, SID-C). This is the service identification of the service provider who generates the content;
- carrier SID (SID-A, SID-B, SID-C). This is the service identification of the service provider who is delivering the service at the service frame level.

Note 2 to entry: See ISO/TS 18234-2:2006, 7.3 and 7.3.2.1.

**3.10**  
**content identification**  
**COID**

identification that is used for labelling the content of a component

Note 1 to entry: The COID is defined by the originator of the content and is unique within a specific application.

**3.11**  
**application and content identification**  
**ACID**

identification that uniquely identifies the content on a worldwide basis, composed of the originator service identification (SID-A, SID-B, SID-C), the content identification (COID) and the application identification (AID)

**3.12**  
**application identification**  
**AID**

identification that indicates how to process TPEG content and routes information to the appropriate application decoder

Note 1 to entry: Each TPEG application has a unique number, which identifies the application according to Clause 5. The application identification is part of the TPEG specification and is defined as and when new applications are developed.

**3.13**  
**service component identification**  
**CID**

identification that uniquely identifies a service component within a service and is chosen by the carrier service provider

Note 1 to entry: It identifies a component which itself has an ACID comprising originator SID, COID and AID.

[https://standards.iteh.ai/catalog/standards/sist/d034f07f-e2f6-4ec4-b850-](https://standards.iteh.ai/catalog/standards/sist/d034f07f-e2f6-4ec4-b850-81a222222222/iso-ts-18234-3)

Note 2 to entry: The same number may be used in a different service or, in the same service at a later time to identify a completely different combination of originator SID, COID and AID.

## 4 Abbreviations

For the purposes of this document, the following abbreviations apply.

BPN	Broadcast, Production and Networks (an EBU document publishing number system)
B/TPEG	Broadcast/TPEG (the EBU project group name for the specification drafting group)
CEN	Comité Européen de Normalisation
DAB	Digital Audio Broadcasting
DARC	Data Radio Channel (an FM sub-carrier system for data transmission)
DVB	Digital Video Broadcasting
EBU	European Broadcasting Union
ETSI	European Telecommunications Standards Institute
GST	Guide to Service Tables
INV	Introduction, Numbering and Versions [ISO/TS 18234-1]
IPR	Intellectual Property Right(s)

ISO	International Organization for Standardization
OSI	Open Systems Interconnection
PTI	Public Transport Information [ISO/TS 18234-5]
RTM	Road Traffic Message application [ISO/TS 18234-4]
SCID	Service Component Identification
SID	Service Identification
SNI	Service and Network Information application (this Technical Specification)
SSF	Syntax, Semantics and Framing Structure [ISO/TS 18234-2]
STI	Status and Travel-Time Information (proposed TPEG application)
TBA	To Be Announced
TPEG	Transport Protocol Experts Group
TTI	Traffic and Travel Information
UTC	Coordinated Universal Time
WEA	Weather Information Application
CAI	Conditional Access Information
SIT	Service Information Table
LHW	Local Hazard Warning <a href="https://standards.iteh.ai/catalog/standards/sist/d034f07f-e2f6-4ec4-b850-f81fd213d1a6/iso-ts-18234-3-2013">ISO/TS 18234-3:2013</a>
TEC	Traffic Event Compact <a href="https://standards.iteh.ai/catalog/standards/sist/d034f07f-e2f6-4ec4-b850-f81fd213d1a6/iso-ts-18234-3-2013">https://standards.iteh.ai/catalog/standards/sist/d034f07f-e2f6-4ec4-b850-f81fd213d1a6/iso-ts-18234-3-2013</a>

iTeH STANDARD PREVIEW  
(standards.iteh.ai)

## 5 Application identification

The word “application” is used in the TPEG specifications to describe specific applications, which are at the highest layer of the ISO/OSI model as defined in ISO/IEC 7498-1. 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.

Since TPEG-SNI is itself classed as an application, it is assigned the AID = 0000.

## 6 Conceptual model

### 6.1 Scope

The Service and Network Information (SNI) application was developed to facilitate the navigation through several services distributed over different bearers. This enables the end-user to find a chosen service and information on it. It also allows the possibility of switching between similar and related services transmitted on the same or on several bearers. Information concerning the operation time, the content description, the availability or access conditions, is also provided by the SNI application. These features allow a quick and easy selection of a specific service.