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

**Part 3:  
Service and Network Information (SNI)  
application**

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*Informations sur le trafic et le tourisme (TTI) — Messages TTI via les  
flux de données du groupe d'experts du protocole de transport  
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**Partie 3: Application de service et d'information de réseau**



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## 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order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn.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 18234-3 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

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 application data from the database of a service provider to a user's equipment.

This document describes the Service and Network Information Application, which provides a means of informing end-users about all possible services and their content which are considered relevant by a service provider to either provide continuity of his services or inform the end-user about other related services. As stated in the design criteria, TPEG is a bearer independent system. Therefore some rules are established for the relation of information contents of the same service on different bearers. Also the mechanisms for following a certain service on one single bearer have to be defined. For the client decoder it is essential to find an adjacent or similar service if it leaves the current reception area. Nonetheless, basic information describing the service itself is necessary. For the ease of the user, e.g. the service name, the service provider name, the operating time and many other hints are delivered by the TPEG-SNI application.

Also, general models for the hand-over and the referencing of services are developed and shown in detail. It is important to note that this Part 3 of CEN ISO/TS 18234 (TPEG-SNI) is closely related to Part 2 (TPEG-SSF) and so they shall be used together, being dependent upon each other.

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, this document) 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) completes 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 18234-3, provides a full specification 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, all parts are fully inter-workable and no specific dependencies exist. This Technical Specification has the technical version number TPEG-SNI\_3.0/002.

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

## Part 3: Service and Network Information (SNI) application

### 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.

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

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

CEN 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)*

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

ETSI TS 101 759, *Digital Audio Broadcasting (DAB); Data Broadcasting — Transparent Data Channel*

IEC 62106, *Specification of the radio data system (RDS) for VHF/FM sound broadcasting in the frequency range from 87,5 to 108,0 MHz*

ETSI EN 300 751, *Radio broadcasting systems; System for Wireless Infotainment Forwarding and Teledistribution (SWIFT)*

ETSI EN 300 468, *Digital Video Broadcasting (DVB); Specification for Service Information (SI) in DVB systems*

ISO/IEC 7498-1, *Information technology — Open Systems Interconnection — Basic Reference Model: The Basic Model*

RFC 1738, *Uniform Resource Locators (URL)*<sup>1</sup>

### 3 Terms and definitions

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

#### 3.1 guide to the service tables (GST)

the guide to the service table (GST) carries the basic service information such as service structure, service timing and content description, etc.

##### 3.1.1 fast tuning GST (FT-GST)

This is a directory of the applications and content of the service and indicates in which components the relevant information can be found. This contains the minimum set of information required for the acquisition of application data

##### 3.1.2 time schedule GST (TS-GST)

this optional table indicates the operation times of selected service components

##### 3.1.3 content description GST (CD-GST)

this optional table gives the textual descriptions of selected service components

##### 3.1.4 geographical coverage GST (GC-GST)

this optional table defines the spatial range of selected service components

##### 3.1.5 service component reset GST (SCR-GST)

this optional table is used by the service provider to delete application specific data older than a certain moment

#### 3.2 service

a service comprises one or more applications; a service is a defined flow (from the service provider) of information meant for either the general public or a special target group

#### 3.3 service provider

the service provider manages the content of his service(s) and determines the TPEG applications in use and their content. 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**

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<sup>1</sup> RFC 1738 can be found at <http://www.ietf.org/rfc/rfc1738.txt>



**3.4****application**

the application is used to describe a specific part (e.g. TPEG-RTM) of the TPEG specifications

**3.5****content**

the content is the information inside an application. 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**

an application instance is an actual data stream containing content as defined by an application

**3.7****content originator**

the content originator is the original provider of an application instance. 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**

a TPEG stream is logically divided into parts known as service components. Each service component carries an application instance. A service component is effectively a “channel” within the multiplex of a TPEG stream. Each stream comprises a number of these “channels” which are identified by the component identifier in CEN ISO/TS 18234-2 (TPEG-SSF) and linked to the COID and AID in the TPEG-SNI application

**3.9****service identification (SID-A, SID-B, SID-C)**

the service identification is a worldwide unique identifier for a service. It consists of three elements called SID-A, SID-B, SID-C. These are allocated as described in CEN ISO/TS 18234-2

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

(see CEN/ISO/TS 18234-2, sections 7.3 and 7.3.2.1)

**3.10****content identification (COID)**

the content identification (COID) is used for labelling the content of a component. The COID is defined by the originator of the content and is unique within a specific application

**3.11****application and content identification (ACID)**

the application and content identification uniquely identifies the content on a worldwide basis and is 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)**

the AID indicates how to process TPEG content and routes information to the appropriate application decoder. Each TPEG application has a unique number, which identifies the application according section 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 (SCID)**

the SCID uniquely identifies a service component within a service and is chosen by the carrier service provider. It identifies a component which itself has an ACID comprising originator SID, COID and AID. 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 Technical Specification, the following abbreviations apply.

**4.1**

**AID**

Application Identification

**4.2**

**ACID**

Application and Content Identification

**4.3**

**BPN**

Broadcast, Production and Networks (an EBU document publishing number system)

**4.4**

**B/TPEG**

Broadcast/TPEG (the EBU project group name for the specification drafting group)

**4.5**

**CEN**

Comité Européen de Normalisation

[ISO/TS 18234-3:2006](https://standards.iteh.ai/catalog/standards/sist/e7fb007c-f57b-41fd-97a7-8ea29924d2b6/iso-ts-18234-3-2006)

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**4.6**

**COID**

Content Identification

**4.7**

**DAB**

Digital Audio Broadcasting

**4.8**

**DARC**

Data Radio Channel - an FM sub-carrier system for data transmission

**4.9**

**DVB**

Digital Video Broadcasting

**4.10**

**EBU**

European Broadcasting Union

**4.11**

**ETSI**

European Telecommunications Standards Institute

**4.12**

**GST**

Guide to Service Tables

**4.13****INV**

Introduction, Numbering and Versions (see CEN ISO/TS 18234-1)

**4.14****IPR**

Intellectual Property Right(s)

**4.15****ISO**

International Organization for Standardization

**4.16****OSI**

Open Systems Interconnection

**4.17****PTI**

Public Transport Information (see CEN ISO 18234-5)

**4.18****RTM**

Road Traffic Message application (see CEN ISO 18234-4)

**4.19****SCID**

Service Component Identification

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**4.20****SID**

Service Identification

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**4.21****SNI**

Service and Network Information application (this specification)

**4.22****SSF**

Syntax, Semantics and Framing Structure (see CEN ISO/TS 18234-2)

**4.23****STI**

Status and Travel-time Information (proposed TPEG application)

**4.24****tba**

to be announced

**4.25****TPEG**

Transport Protocol Experts Group

**4.26****TTI**

Traffic and Travel Information

**4.27****UTC**

Coordinated Universal Time

4.28

**WEA**

Weather Information (proposed TPEG application)

## 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 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 CEN 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 Conceptual model — 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.

From a technical viewpoint the TPEG-SNI application manages the tuning to, and the tracking of, a TPEG service automatically. By means of suitable decoder equipment, the only action for the end-user is the selection of his desired service from the many different services on different bearers.

In detail the following requirements are met:

- The SNI application enables a quick search for a specific service.
- The SNI application gives information about transmission times and repetition cycles of a service.
- The SNI application provides the tuning (identification) parameters for the underlying digital bearers.
- The SNI application supports the tracking of a service from one network or system to another.
- The SNI application enables the linkage of one service to another on the same bearer.
- The SNI application can also link services across different digital bearers.
- The SNI application manages the interaction of all other TPEG applications.