
**Intelligent transport systems —
Traffic and travel information (TTI)
via transport protocol experts group,
generation 2 (TPEG2) —**

**Part 1:
Introduction, numbering and versions
(TPEG2-INV)**

*Systèmes intelligents de transport — Informations sur le trafic et le
tourisme via le groupe expert du protocole de transport, génération 2
(TPEG2) —*

Partie 1: Introduction, numérotage et versions (TPEG2-INV)



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Published in Switzerland

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

This first edition cancels and replaces the first edition (ISO/TS 21219-1:2016), which has been technically revised.

The main changes are as follows:

- the document status has been changed from Technical Specification (TS) to International Standard (IS);
- the content has been updated to reflect new TPEG2 specifications and corresponding Application Identifications (AID), e.g. TPEG2-VLI, TPEG2-WEA, etc.

A list of all parts in the ISO 21219 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

0.1 History

TPEG technology was originally proposed by the European Broadcasting Union (EBU) Broadcast Management Committee, who established the B/TPEG project group in the autumn of 1997 with a brief 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 were 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. Originally, a byte-oriented data stream format, which can be carried on almost any digital bearer with an appropriate adaptation layer, was developed. Hierarchically structured TPEG messages from service providers to end-users were designed to transfer information from the service provider database to an end-user's equipment.

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 was used for all TPEG applications. Meanwhile, Part 4 (TPEG-RTM, which became ISO/TS 18234-4) described the first application for road traffic messages.

Subsequently, in March 1999, CEN/TC 278, in conjunction with ISO/TC 204, established a group comprising members of the former EBU B/TPEG and this working group continued development work. Further parts were developed to make the initial set of four parts, enabling the implementation of a consistent service. Part 3 (TPEG-SNI, ISO/TS 18234-3) described the service and network information (SNI) application used by all service implementations to ensure appropriate referencing from one service source to another.

Part 1 (TPEG-INV, ISO/TS 18234-1) completed the series by describing the other parts and their relationship. It also contained the application IDs used within the other parts. Additionally, Part 5, the public transport information application (TPEG-PTI, ISO/TS 18234-5), was developed. 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, was issued as ISO/TS 18234-6 to be used in association with the other applications of parts of the ISO/TS 18234 series to provide location referencing.

The ISO 18234 series has become known as TPEG Generation 1.

0.2 TPEG Generation 2

When the Traveller Information Services Association (TISA), derived from former forums, was inaugurated in December 2007, TPEG development was taken over by TISA and continued in the TPEG applications working group.

It was about this time that the (then) new Unified Modelling Language (UML) was seen as having major advantages for the development of new TPEG applications in communities who would not necessarily have binary physical format skills required to extend the original TPEG TS work. It was also realized that the XML format for TPEG described within the ISO 24530 series (now superseded) had a greater significance than previously foreseen, especially in the content-generation segment, and that keeping two physical formats synchronised, in different standards series, would be rather difficult.

As a result, TISA set about the development of a new TPEG structure that would be UML-based. This has subsequently become known as TPEG Generation 2.

TPEG2 is embodied in the ISO 21219 series and it comprises many parts covering the introduction, rules, toolkit and application components. TPEG2 is built around UML modelling and has a core of rules that contain the modelling strategy covered in ISO 21219-2, ISO 21219-3 and ISO 21219-4 and the conversion to two current physical formats: binary and XML; others can be added in the future. TISA uses an automated tool to convert from the agreed UML model XMI file directly into an MS Word document file that forms the annex for each physical format.

TPEG2 has a three-container conceptual structure: message management (ISO 21219-6), application (several parts) and location referencing (ISO/TS 21219-7). This structure has flexible capability and can accommodate many differing use cases that have been proposed within the TTI sector and more broadly for hierarchical message content.

TPEG2 also has many location referencing options as required by the service provider community, any of which may be delivered by vectoring data included in the location referencing container.

The following classification provides a helpful grouping of the different TPEG2 parts according to their intended purpose. Note that the list below is potentially incomplete, as it is possible that new TPEG2 parts will be introduced after the publication of this document.

- Toolkit parts: TPEG2-INV (ISO 21219-1), TPEG2-UML (ISO 21219-2), TPEG2-UBCR (ISO 21219-3), TPEG2-UXCR (ISO 21219-4), TPEG2-SFW (ISO 21219-5), TPEG2-MMC (ISO 21219-6), TPEG2-LRC (ISO/TS 21219-7).
- Special applications: TPEG2-SNI (ISO 21219-9¹⁾), TPEG2-CAI (ISO 21219-10²⁾), TPEG2-LTE (ISO/TS 21219-24).
- Location referencing: TPEG2-OLR (ISO/TS 21219-22), TPEG2-GLR (ISO/TS 21219-21), TPEG2-TLR (ISO 17572-2), TPEG2-DLR (ISO 17572-3).
- Applications: TPEG2-PKI (ISO 21219-14³⁾), TPEG2-TEC (ISO 21219-15⁴⁾), TPEG2-FPI (ISO 21219-16⁵⁾), TPEG2-TFP (ISO 21219-18), TPEG2-WEA (ISO 21219-19⁶⁾), TPEG2-RMR (ISO/TS 21219-23), TPEG2-EMI (ISO/TS 21219-25), TPEG2-VLI (ISO/TS 21219-26).

TPEG2 has been developed to be broadly (but not totally) backward compatible with TPEG1 to assist in transitions from earlier implementations, while not hindering the TPEG2 innovative approach and being able to support many new features, such as dealing with applications with both long-term, unchanging content and highly dynamic content, such as parking information.

This document is based on the TISA specification technical/editorial version reference: SP20008 version 205.

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- 1) Under preparation. Stage at the time of publication: ISO/PRF 21219-9:2023.
 - 2) Under preparation. Stage at the time of publication: ISO/PRF 21219-10:2023.
 - 3) Under preparation. Stage at the time of publication: ISO/PRF 21219-14:2023.
 - 4) Under preparation. Stage at the time of publication: ISO/PRF 21219-15:2023.
 - 5) Under preparation. Stage at the time of publication: ISO/DIS 21219-16:2023.
 - 6) Under preparation. Stage at the time of publication: ISO/DIS 21219-19:2023.

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1 Scope

This document defines an index to the complete set of TPEG Generation 2 toolkit components and applications. New applications are enumerated with an application identification (AID) as they are added to the TPEG applications family.

NOTE 1 This document will be updated when new applications occur in order to indicate the latest status and the inter-working of the various TPEG specifications. This document will be revised as a new edition every time a new issue of any other specification is issued.

NOTE 2 Preliminary AIDs are allocated and managed by TISA and are listed at Reference [10].

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

service

collection of different information streams (applications) logically bound together and delivered from a service provider to the end user

3.2

service component

information stream (application) that is part of a *service* (3.1)

Note 1 to entry: 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 TPEG2-SFW and linked to the content identification (COID) and application identification (AID) in the TPEG2-SNI application.

4 Abbreviated terms

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