

English Version

**Traffic and Travel Information (TTI) - TTI via Transport Protocol
Expert Group (TPEG) data-streams - Part 4: Road Traffic
Message (RTM) application (ISO/TS 18234-4:2006)**

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 4: Application de
message de trafic sur route (RTM) (ISO/TS 18234-4:2006)

Reise- und Verkehrsinformation (TTI) - TTI über
Datenströme der Transportprotokoll-Expertengruppe
(TPEG) - Teil 4: Anwendungen für
Straßenverkehrsmeldungen (RTM) (ISO/TS 18234-4:2006)

This Technical Specification (CEN/TS) was approved by CEN on 28 September 2004 for provisional application.

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Foreword

This document (CEN ISO/TS 18234-4:2006) 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.

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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 18234-4 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 Road Traffic Message application in detail.

It should be remembered that the TPEG-RTM has been derived from earlier work that resulted in the RDS-TMC standards (EN ISO 14819-2). Upon analysis, RDS-TMC can be seen to drift into other application areas, where it covers a few public transport, parking and weather messages. TPEG-RTM is just one of several applications required to provide a fully comprehensive traffic and travel information service, for example a service is likely to need public transport information, parking information and weather information – these are or will be the subject of other TPEG-application specifications.

Nevertheless, TPEG-RTM, where reasonable, has included the ability to convey similar content to RDS-TMC, in order to offer considerable backwards compatibility and the prospect of automatically generating RDS-TMC messages from TPEG-RTM messages.

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 18234-4, provides a full specification provides a full specification for the Road Traffic Message 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-RTM_3.0/003.

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

Part 4: Road Traffic Message (RTM) application

1 Scope

This document establishes the method of delivering Road Traffic Messages within a TPEG service. The TPEG-RTM application is designed to allow the efficient and language independent delivery of road information directly from service provider to end-users. The information provided relates to event and some status information on the road network and on associated infrastructure affecting a road journey. For example, limited information about abnormal operation of links in the network may be included, such as ferries, lifting-bridges, etc.

The term “application” is used in TPEG specifications to describe specific applications, such as in this case the Road Traffic Message 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-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 (CEN ISO/TS 18234-3) to indicate how to process TPEG content and allows routing of data to an appropriate application decoder.

AID = 0001 is assigned to the TPEG-Road Traffic Message application, described in this specification.

A hierarchical methodology has been developed to allow the creation of messages from a set of TPEG-RTM tables, which are essentially word oriented and cover most needs. Many of the TTI descriptive words, in the TPEG-RTM tables, were obtained from the DATEX dictionary (ENV 13106), which embodies European TTI knowledge of the last ten years or more, including a deconstruct of the phrase oriented RDS-TMC events list (EN ISO 14819-2). These TPEG-RTM tables (essentially word oriented data object dictionaries) comprise a wide ranging ability to describe a TTI event and some status information, introducing new precision in a number of areas such as “vehicle types”, “positional information on the carriageway” and “diversion routing advice”.

NOTE Explicit backwards compatibility with the RDS-TMC events list (EN ISO 14819-2) could not be achieved since some “update classes”, such as “29 Reference to Audio Broadcasts” and “30 Service Messages”, fall outside the TPEG-RTM remit.

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

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 18234-3, *Traffic and Travel Information (TTI) — TTI via Transport Protocol Expert Group (TPEG) data-streams — Part 3: Service and Network Information (SNI) Application*

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

3 Terms and definitions

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-RTM is completely focussed on 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

cross reference information (CRI)

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

3.2

event description (EVE)

part of a message describing the event, unplanned or planned occurrence affecting the road or transport network, (for example the transport network in the case of a ferry carrying vehicles between parts of the road network) or status information, including qualifiers and quantifiers

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

3.3

locations

see CEN ISO/TS 18234-6 for full details of the location referencing container explanations

3.4

location referencing

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

3.5

message

collection of coherent information sent through an information channel. Describes an event or a collection of related events, or status information and including message management information. The latter is contained in the message header

3.6

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)