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Traffic and Travel Information (TTI) – TTI via Transport Protocol Experts Group (TPEG) Extensible Markup Language (XML) – Part 2: tpeg-locML (ISO/TS 24530-2:2006)

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English Version

**Traffic and Travel Information (TTI) - TTI via Transport Protocol
Experts Group (TPEG) Extensible Markup Language (XML) -
Part 2: tpeg-locML (ISO/TS 24530-2:2006)**

Informations sur le trafic et le tourisme (TTI) - Messages
TTI via le langage de balisage extensible (XML) du groupe
d'experts du protocole de transport (TPEG) - Partie 2: tpeg-
locML (ISO/TS 24530-2:2006)

Reise- und Verkehrsinformation (TTI) - TTI über
Datenströme der Transportprotokoll-Expertengruppe
(TPEG) Erweiterbare Auszeichnungssprache (XML) - Teil
2: tpeg-locML (ISO/TS 24530-2:2006)

This Technical Specification (CEN/TS) was approved by CEN on 5 March 2005 for provisional application.

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Foreword

This document (CEN ISO/TS 24530-2:2006) 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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Introduction

TPEG in XML (tpegML) provides the solution to diverse requirements for the ultimate delivery of TPEG applications (potentially simultaneously) via for example ARIB, ATSC, DAB, DVB and the Internet. This will solve the minimal adaptation layers requirement and without doubling up on message carousels, which are handled at different layers of the protocol stacks.

The original 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 an end-user's equipment.

TPEG binary was initially designed to meet a particular brief, from the EBU's Broadcast Management Committee; to develop a new protocol for Traffic and Travel Information, for use in the multimedia broadcasting environment. TPEG applications were developed with service and transport features, which enable travel-related messages to be coded, decoded, filtered and understood both by humans (visually and/or audibly) and by agent systems. This brief was also endorsed by the EBU TTI Broadcast Strategy Team, who recognized the vital importance of a bearer independent TTI protocol.

The development of TPEG binary technology is excellently matched both technically and economically to DAB and possibly to internet bearers, where of the order of up to 10 kbits/s is considered acceptable. However other bearers such as ARIB, ATSC and DVB may be able to offer much higher data rates with economic and technical utility. Nevertheless these bearers are highly structured (layered) in their ability to handle transparent data services and they include mechanisms suitable for carousel delivery, which would require a considerably different TPEG data structure before real transparency could be achieved.

Another potential use of tpegML is provided to Service Providers who would have a standardised message generation interface, yet be able to develop systems suited to their own requirements. This will enable Service Providers to exchange pre-edited information regardless of their message generation systems and be substantially language independent.

tpegML has been developed using the DTD approach, which allows the use of different language entity files to easily provide a truly language independent service. This approach has the advantage that tpegML files can be rendered in any language, provided the language entity file is available to the internet browser. This document provides English language entity files only. For other languages the entity files in this document only require direct translation.

The development of this ISO/TS 24530 series was undertaken jointly with European Broadcasting Union B/TPEG Group, which has evolved into the TPEG Forum Standards Task Force. Attention is drawn to the EBU sponsored TPEG Forum development principles, which require all inputs containing IPR to be declared during drafting work. No such declarations have been made.

Traffic and Travel Information (TTI) — TTI via Transport Protocol Experts Group (TPEG) Extensible Markup Language (XML) —

Part 2: tpeg-locML

1 Scope

This document establishes the XML encoding of the method of Location Referencing used by TPEG applications.

TPEG applications contain the information required by a client TPEG decoder (i.e. both Location Referencing and event information), to present all the information intended for the end-user when it was originated by the service provider.

Location Referencing requires a service provider to give an impression or image, to the human end-user, of where an event has taken place. This cannot be done easily because the human end-user may or may not be familiar with the location. tpeg-loc has the added challenge of attempting to be as language independent as possible. This is achieved by the use of tpeg-loc tables (essentially word-oriented data object dictionaries).

tpeg-loc is the recommended Location Referencing system for TPEG. It provides location data in a machine readable form that allows a “thick” client such as a navigation system to map-match, on-the-fly, to locate the event being described onto a digital map display. However, it is possible to additionally use other location methods, such as the ‘Link-id’ method by suitably modifying the tpegML.dtd to include the relevant lines, e.g.:

```
<!ENTITY % link-idML PUBLIC "-//EBU//DTD tpeg-locML//EN" "link-idML.dtd">
%link-idML;
```

It is vital, for further understanding of this document, to have more than a passing understanding of the tpeg-loc binary specification which describes, among other things, in a step-by step approach: point, link and area definitions, and how they are structured to provide a full Location Referencing system.

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 24530-1, *Traffic and Travel Information (TTI) — TTI via Transport Protocol Experts Group (TPEG) Extensible Markup Language (XML) — Part 1: Introduction, common data types and tpegML*

ISO/TS 24530-3, *Traffic and Travel Information (TTI) — TTI via Transport Protocol Experts Group (TPEG) Extensible Markup Language (XML) — Part 3: tpeg-rtmML*

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ISO/TS 24530-4, *Traffic and Travel Information (TTI) — TTI via Transport Protocol Experts Group (TPEG) Extensible Markup Language (XML) — Part 4: tpeg-ptiML*

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

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*

ISO 3166-1, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes*

3 Abbreviated terms

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

3.1

ARIB

Association of Radio Industries and Business (Japan)

3.2

ATSC

American Television Standards Committee (USA)

3.3

DAB

Digital Audio Broadcasting

3.4

DTD/dtd

Document Type Definition - lower case used for file naming

3.5

DVB

Digital Video Broadcasting

3.6

EBU

European Broadcasting Union

3.7

IPR

Intellectual Property Right(s)

3.8

PTI

Public Transport Information

3.9

RTM

Road Traffic Message

3.10

SSF

Syntax, Semantics and Framing Structure

3.11

TPEG

Transport Protocol Experts Group

3.12

tpegML

tpeg XML applications - use lower case to distinguish them from the TPEG binary applications which use upper case

3.13

tpeg-loc

location referencing for applications

3.14

tpeg-ilc

descriptor formed according to tpeg-loc rules

3.15

TTI

Traffic and Travel Information

3.16

WGS84

World Geodetic System 1984

3.17

XML

Extensible Markup Language

4 Format of this document

This document is divided into Sections, each describes an XML element used in tpegML. Each element has an introduction explaining what it is for, the DTD definition relevant to it, guidelines “extending” the DTD and an example. The complete .dtd and .ent files are contained in Annexes A and B.

4.1 Tables

A large number of attributes used in elements in tpegML are based on tables in the TPEG specifications. To encode this in XML there are defined general entity references for all the table entries. In this Technical Specification series these entities are taken from the TPEG tables defined in the equivalent part of the ISO/TS 18234-series.

For display in other languages these entity files only need to be replaced by directly translated equivalents.

These are named, for example `locX_Y`, where X is the table number and Y is the row number (e.g. “`loc01_01`” is the entry in the `Loc location_type` table for `large area`). The DTD does not restrict the entity references that can be used in an attribute so the ‘guidelines’ sections indicate which entities/tables should be used for which attributes.

Table numbers use a leading zero below 10, whereas the row number within a table does not use a leading zero. Table numbers are random and entries within a table are random – no priority order is implied.