TPEG services on a global scale

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1.) TISA
2.) TPEG DEVELOPMENT & STANDARDIZATION
3.) TISA LIAISON & OUTREACH
4.) TPEG PRODUCTS & DEPLOYMENT
5.) OUTLOOK
History and current TISA scope

TISA - founded 2007 as an independent ASBL under Belgium law

- Promotes technologies for services that facilitate efficient, comfortable & clean travel.
- Coordinates the concerns of its global membership to foster business, customer and society value.
- Creates and maintains global, open standards for Traveller and Traffic Information Services.

TISA
- TPEG Forum (1997 - 2007)
TISA global membership

along the entire value chain

Public authorities & private road operators
Information Provider
Service Provider
Communication
Devices
OEM

TISA - Traveller Information Services Association - © 2016
TISA global membership

- Public authorities & private road operators
- Information Provider
- Service Provider
- Communication
- Devices
- OEM

Driving the Future of Automotive Software

EB is a world-wide provider of automotive software products and services

Contributing TISA member since 2010

TPEG services of different partners are integral part of EB’s global navigation and electronic horizon solution

Service information is received via online connection and/or broadcast services

EB is pro-actively driving standardization in ITS and autonomous driving domain
Worldwide migration from TMC to TPEG

TMC
- Broadcast
- Traffic only
- Limited coverage (road network)

TPEG
- Digital broadcast
- IP
- Traffic
- Travel times
- Parking
- Weather
- ..
- Full coverage (road network)
TISA activities

- 4 Committee meetings per year (2 days)
  - Reporting from Working Groups and Task Forces
  - Collocated WG & TF meetings during the 2 days
  - Collocated Steering Board face-to-face meeting the day before the Committee meetings
  - Asia-Pacific WG convenes in Asia and links their reporting into the Committee Meetings (by video conference or by sending delegate)

- Regular telcos or F2F meetings of various WGs and TFs between Committee Meetings
  - e.g. bi-weekly TPEG Application Working Group
2.) TPEG DEVELOPMENT & STANDARDIZATION
TPEG™ standardization is the core activity of TISA

TPEG is a family of international standards (ISO 21219) that support real-time traffic and traveller information services.

- Traffic Event Compact (TEC)
- Traffic Flow and Prediction (TFP)
- Weather Information (WEA)
- Parking Information (PKI)
- Fuel Price Information (FPI)
- Road and Multimodal Routes (RMR)
- Electro Mobility Information (EMI)

... more under development in the TPEG2 series
International standardization through ISO

Intelligent transport systems - Traffic and travel information (TTI) via transport protocol experts group, generation 2 (TPEG2) -- Part 18: Traffic flow and prediction application (TPEG2-TPF)
(Only available in English)

Abstract

ISO/TS 21219-18:2015 specifies the TPEG application Traffic Flow and Prediction (TFP). It has been specifically designed to provide information to a variety of receivers using different channels, including in the first instance Digital Broadcasting and Internet technologies. Traffic flow and prediction messages are intended for in-car applications and may be as well presented directly to the user by textual, voiced and graphically output devices.

ISO 14819-1:2013
Intelligent transport systems -- Traffic and travel information messages via traffic message coding -- Part 1: Coding protocol for Radio Data System -- Traffic Message Channel (RDS-TMC) using ALERT-C
(Only available in English)

Abstract

ISO 14819-1:2013 describes the ALERT-C protocol concept and message structure used to achieve densely coded messages to be carried in the RDS-TMC feature.
TPEG™ technology facilitates scalable business cases

- Cost efficiency through standardization
- Scalable & expandable
- Flexible location referencing
- Multi-channel or hybrid distribution
- Global deployment (bearer independent)
TPEG interoperability events “Test Fest”
TPEG APPLICATION EXAMPLE
TPEG2 Traffic Event Compact (TEC)

TPEG application to ensure travel safety for the driver

- enable the calculation of alternative routes
- avoid delays (e.g. traffic jams)
- warn the driver of obstructions on route
- provide the driver with information on infrastructural problems (e.g. closed petrol stations, non-functioning emergency phones)

Example courtesy by Teun Hendriks, iHeartMedia
TPEG APPLICATION EXAMPLE
TPEG2 Traffic Event Compact (TEC)

- Warnings for upcoming events on route
- Overview of incidents

Example courtesy by Teun Hendriks, iHeartMedia
TPEG APPLICATION EXAMPLE

TPEG2 Shared Passenger Transport (SPT)

- TPEG2-SPT - Shared Passenger Transport information
  - A new TPEG2 public transport information specification
    - Supports multiple usage scenarios for public transport - specifically distinguish between scheduled information and real-time information
    - Incorporates standardised provision of information on “Major deviations / disruptions” and “Accessibility in public transport”

- Supports multimodal travel planning by providing
  - real-time information on high-level public transport status to all end-users
  - well-known one-to-many information (e.g. time schedules), as well as the requests for individual information (travel planning)
**TPEG Application Example**

**TPEG2 Shared Passenger Transport (SPT)**

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**SPT Message**

- MMC
- station: `Station`
- service: `ServiceDescription`
- timetable: `Timetable`

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**Station**

- stationName: München Flughafen
- stationId: 444.345
- stationType: airport
- locStation: `StationLocationLink`

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**ServiceDescription**

- modeOfTransport: `air service`

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**Timetable**

- timezone: CET
- timetableFor: Flughafen München Abflug
- timetableEntry: `TimetableEntry`

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**TimetableEntry**

- shortLineDescription: LH 2040
- pointType: destination
- pointName: Berlin (TXL)
- serviceStatus: on time
- scheduledDepartureTime: 14.00
- platform/gate: T2/12

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**TimetableEntry**

- shortLineDescription: FI 533
- pointType: destination
- pointName: Reykjavik KEF
- serviceStatus: on time
- scheduledDepartureTime: 14.05
- platform/gate: T1D/5

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**TimetableEntry**

- shortLineDescription: LH 2096
- pointType: destination
- pointName: Hannover
- serviceStatus: delayed
- scheduledDepartureTime: 14.35
- estimatedDepartureTime: 15.30
- platform/gate: T2/37
- comment: Vorsicht. Das Gate wurde geändert.

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**Work in progress**
- **TPEG2-EAW - Emergency Alert & Warning information**
  - TPEG application aligned with ‘Content’ standard CAP (Common Alerting Protocol)
  - Ongoing, more work to be done for (more) language independence
- **Work item in progress - current status submitted to GSDI 15 conference**
3.) TISA LIAISON & OUTREACH
Liaison and Outreach

EBU and ERTICO ITS Europe (founding members of TISA)
Open Autodrive Forum (TISA is founding member)
World DMB
RDS Forum
ETSI
DATEX community and EIP
Amsterdam Group
C-ITS Platform
iMobility Forum
Traffic Management 2.0

currently under discussion: UITP

TISA covers the entire value chain and is a meeting place for all stakeholders in the ITS arena.
TISA is present in the Asia-Pacific region

- 18 out of 103 TISA members are located in the Asia-Pacific region*
- 12 organizations from the Asia-Pacific region are involved via European subsidiaries

20% of TISA members are directly or indirectly from the Asia-Pacific

- 2012 Committee Meetings held in Singapore
- DYNASTY project (2004-2005)
- Several workshops & presentations of individual TISA members

*) as per 2015
Strengthening the relation and intensifying the collaboration

- Memorandum of Understanding (MoU) with the Taiwan Telematics Industry Association
Coming Activities in 2016
ITS World Congress

- TISA internal workshop on
  - Urban mobility
  - Mobility-as-a-Service
  - Autonomous vehicles & automated driving

- TISA - Intelematics Associated Event
  Quality of Traffic Information
  - Johanna Tzanidaki, TomTom
  - Risto Kulmala, Finnish Transport Agency
  - Dan Kelly, Intelematics
  - Road operators Asia-Pacific

- TISA presence at the exhibition in the European Pavillion
4.) TPEG PRODUCTS & DEPLOYMENT
EB street director Navigation

Industry-leading navigation

• Versatile and intelligent architecture for global use
• High-performance 3D map engine
• Automotive series quality electronic horizon
• Rich set of integrated connected services
• Aligns with Navigation Data Standard (NDS) and TPEG Services

Benefits

• Outstanding customer portfolio
• 15+ years of navigation experience
• Extensive partner ecosystem
• Global company – local presence
• Millions of systems on the road
• Test and award winning technology
EB Navigation Customer Overview

Navigation Key Projects


Premium OEM
TPEG Services In Use at EB

Supported TPEG Applications

• TPEG-TEC based real-time traffic information is being used for dynamic routing, map display and traffic list display
• TPEG-TFP based traffic flow information is used for dynamic routing and map display
• Full location coverage due to support of TMC location referencing and OpenLR
• Flexible data transmission via TPEG over HTTP and DAB

TPEG – A Success Story

• EB benefits a lot from the high degree of interoperability of TPEG services and the strong partner eco-system within TISA
• EB has implemented TPEG successfully in more than one million cars for e.g. Audi and Volkswagen since 2012 with service providers TomTom and INRIX in the markets Europe and North America
TPEG Deployment today

- TPEG real-time traffic information is widely being used on the road by
  - OEMs: e.g. BMW, Audi and VW
  - Client and client software providers: e.g. EB and Garmin

- Content is being provided and distributed by
  - Information and service providers: e.g. TomTom, Inrix, ARD, Here and Mediamobile

- Bearers in use
  - DAB/DAB+
  - TPEG over HTTP
TPEG™ Coverage worldwide (2016)
OUTLOOK
Outlook: current & future TISA scope

TISA addressing major ITS trends in Urban Mobility and Autonomous Driving
Current focus of activities of TISA

**Enhancing TPEG to support automated driving and autonomous vehicles**
- Founding partner of the Open Autodrive Forum
- Alignment with ADASIS Forum & NDS Association, working on autonomous driving standards

**TPEG to support multimodal travel & new modes of transportation**
- Road & Multimodal Routes (RMR)
- New use cases under discussion with European rail operators (e.g. SBB)
- Planned liaison with UITP

**Mobility-as-a-Service**
- Combine sharing economy & different mobility modes (incl. autonomous vehicles)
- Strong focus on new business models
- Liaison via ERTICO MaaS platform
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