TPEG Digital Radio Traffic Data
Next generation of Traffic and Travel Information services

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Expectation has increased

Drivers want more

- Vast amount of data choice
- Connected devices
The problem ~ Despite success of RDS TMC, drivers now expect more

- **Location referencing**: Can only be described between pre-defined location codes (i.e. inaccurate)
- **Delivery channel**: Can only be delivered over FM (i.e. low bandwidth)
- **Traffic content**: Can only provide incident-based information
- **Other content**: Can only provide traffic-related content (i.e. not suitable for travel information)
- **Flexibility**: Can only describe events using pre-defined sentences (i.e. inflexible)
- **Scalability**: Cannot be easily expanded or changed (i.e. not-scalable)

Customer expectation surpasses RDS TMC capabilities
DAB provides a step change in speed to deliver new content (500-1000+ times faster than RDS-TMC)

- RDS-TMC 37b/s
- DAB-TPEG 8-32kb/s (typ)
The vision

Traffic 1.0

Incident information

PrecisionTraffic

Full network flow information

Predictive/historic data

Additional Applications

Multimodal travel information

“Confidence”

High-speed delivery channel

More information detail

Less latency in delivery

Improved driver experience

- additional services

Added value from traffic services focussed on the driver’s needs

- Multimodal travel information
- High-speed delivery channel
- Improved driver experience
- Additional services

- Predictive/historic data
- Full network flow information
- Incident information

WORLD DMB
Digital Multimedia Broadcasting
Broadcast / Mobile TV Multimedia Traffic Data
TPEG ....?

- TPEG technology standardised method for providing the delivery of all types of Traffic and Travel Information content by any required digital delivery channel.
- Provides Language independent human and machine readable content.
- Extensible with multiple applications
- TPEG applications use a set of Location Referencing
- Coordinated and controlled by industry users via TISA
- http://www.tisa.org
Applications

- TPEG Applications have been defined for several types of data.
- There are many more in development.
- Others due to be developed.
- For the Automotive use (Navigation Systems) the applications with most focus are TEC and TFP.
Applications: TPEG-TEC

- TPEG-TEC
- Basic Traffic information for navigation systems is focused on TPEG-TEC (Traffic Event Compact)
- Similar application to TMC; incident based.
- Provides machine and human readable incident information. In a compact form with defined structured content.
Applications: TPEG - TEC

- Specifically designed for use with Automotive Navigation systems with DRG.
- Preferred over RTM due to Clearly defined Cause and Effect fields
- Also used to provide a sub-set application called Local Hazard Warning informing of dangerous situations on road.

(ice, bad corner, broken down vehicle… etc)
Traffic Flow and Prediction provides detailed flow information to Navigation devices.

- Improved routing choice and ETA calculations.
- Highly accurate reporting of traffic flow typ.100m resolution.
Improved route choice based on live network speeds
Resolution not limited to TMC; offsets can be used
PKI application allows dynamic and semi dynamic information to be sent.
- Available Spaces
- Opening Times and Pricing
- Not available in Mapping data

Currently broadcast in ITIS UK Broadcast TPEG service
TPEG-FPI (Fuel Price Information)

- Fuel price information could save drivers money by allowing them to find cheapest fuel in local area or along their route.
- FPI application is fully defined TISA spec ready for implementation

- Data readily exists, often based on fuel card transactions.
- UK Situation requires ~10,000 stations for national coverage.
- Data transmission needed within 10-15 minutes.
- Provides challenges to find best coding structure to limit required bandwidth.
Applications: TPEG-SPI

- Variable Speed limits in Active Traffic Management zones
- Additional notification to driver of current speed limit
- Potentially large Infrastructure Cost saving for road agencies.
- Additional Safety for drivers
  - Audible warning/Speed limiter?
  - Supplements embedded fixed speed limit datasets in Navigation maps.
- Under development
  - Currently only Speed defined, Other lane signage to be included
Applications: TPEG-RPI

- Road Pricing Information
  - Road, Bridge & Tunnel Tolls
  - Time of day Pricing, payment/ticket collection locations
  - Booth lane identification, payment methods, car side access
  - Enables journey cost calculation before journey starts
  - Lane selection prior to approach
- Under development
Applications: TPEG-WEA

- General Weather Related Information
- Emergency/Severe weather situations
- Environmental conditions (Smog/Pollen/Air Quality)
- Current status, Forecast
- Include evacuation information

- Early stage of development
On Air in UK

- In UK there are 2 DAB-TPEG test services already on air.
- Transmission via commercial DAB multiplex “Digital 1”
  - Incident Data
  - Flow Data
  - Parking Information
- Development s on going with several OEMs and receiver manufacturers
- Commercial service rollout during 2011
TISA TPEG Application development

- New applications are developed by TAWG
- Anyone TISA member with an idea can raise a use case
- Specs Developed by volunteers
- Data format defined by UML Model
- Auto generation (partly) of Specification Document
- Binary and XML versions
# TPEG Applications Status

<table>
<thead>
<tr>
<th>Application</th>
<th>Status</th>
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<tbody>
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<td>Traffic Event Compact</td>
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<tr>
<td>Traffic Flow &amp; Prediction</td>
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<tr>
<td>Safety/Speed Camera Information</td>
<td>Use Case</td>
</tr>
<tr>
<td>?</td>
<td>?</td>
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</tbody>
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Adaption Layer Profiles for DAB

- TPEG is bearer agnostic
- TISA has created a clear definition about how to transmit TPEG over DAB

TPEG Adaption Layer Profile, Part1: Digital Audio Broadcast (DAB) - Packet Mode with Data Groups

- Similar documentation for HD-Radio has also been developed
Transition to DAB-TPEG enabled traffic services

- DAB TPEG traffic data provides many advantages
- In the move to switch to DAB, we must be aware of our existing FM clients.
- Careful consideration of switchover timing needed
- FM and DAB need to coexist for several years to allow new systems to be developed and deployed in vehicles by OEMs
- Must be aware of the lifecycle of OEM Navigation systems
“TPEG” …… Not just a 4-letter word
now an enlarging set of Applications and supporting documents
RTM, PTI, PKI, TEC, CAI, FPI, SPI, WEA, TFP…
becoming more and more an important additional offer to service providers within the DAB/DMB family.
“TPEG......The right tool for the job”

- Thank You

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