Towards A National Specification For Interoperable Road Charging Systems

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UK Department for Transport
The UK Situation

- The European Union has 'passed' an Interoperability Directive to establish a European Electronic Toll Service (EETS)

- The UK Department for Transport (DfT) has published its Road Pricing Feasibility Study Report to start a wider debate on charging in the UK

- HM Customs and Excise are implementing a UK Lorry Road User Charging (LRUC) Scheme to be operational from 2008

- DfT is implementing its DIRECTS research programme, due to go operational in Winter 2004/5
DfT began the DIRECTS Project for three main purposes:

- To prepare a suite of specifications for Road Charging systems that could be used by local authorities, tolled crossings, or other schemes that would ‘guarantee’ interoperability
- To demonstrate interoperability within the context of the DfT’s Road Charging Business Model
- To undertake a 12 month trial of a charging system based on the draft specifications covering OBU installation in cars through to the preparation of invoices and Penalty Notices
The OMISS Documents

- The Specifications are known as OMISS - Open Minimum Interoperability Specification Suite

- OMISS comprises 3 Volumes
  - Volume 1 - Functional and performance requirements for RUC systems and services
  - Volume 2 - Interface Specifications
  - Volume 3 - Charging Application Specification for off-board charging using DSRC
Volume 1 will cover:

- Systems Description –
  - Introduction
  - System Business Model
  - Functional & Process Description
  - Generic System Architecture
  - Glossary and Abbreviations
  - References
Annex A System-Wide Performance, Safety and Approval Requirements
  - System Performance Requirements
  - System Safety Requirements
  - Type Approval Requirements

Annex B - Entity Requirements (Functions & Performance)
  - OBE / Hybrid OBE
  - Road Side Equipment
  - On Road Services Provider
Annex B - Entity Requirements (Continued)

- Data Clearing Operator
- Payment Services Provider
- Fraud Detector
- Trusted Third Party (Key Management)
- Driver And Vehicle Licensing Authority
- RUC Regulatory Body
- Arbitration & Adjudication Service
- Environmental System
- NRA/I - (Unique OBE numbering)
Volume 2 - Interface Specification (Data flows between system entities) - Handling:

- Electronic Transactions
- Exception Handling
- Hotlisting
- Tariff Tables
- Image Handling
- Accounting (between entities)
- Performance Management
- Fraud Detection
Volume 3 - Charging Application

- Purpose
- Scope and Context
- References
- Abbreviations
- OBU and RSE Common Requirements
- OBU Requirements
- RSE Requirements
- Transaction Requirements (off-board)
- Data Requirements
- Vehicle Classification Definitions
- Annexes
The document advises on data to be programmed into OBUs at initialisation – varying by Vehicle Class

Seven vehicle Groups (classes) are defined:

- Group 0 - Motorcycles
- Group 1 - Private Cars
- Group 2 - Light Goods Vehicles (<= 3.5 Tons)
- Group 3 - Buses (<= 5 Tons, > 5 Tons)
- Group 4 - Medium Goods Vehicles (>= 3.5 Tons, <= 12 Tons)
- Group 5 - Heavy Goods Vehicles (> 12 Tons)
- Group 6 - Special Vehicles
Data to be programmed into UK vehicle OBUs is likely to be as follows:

<table>
<thead>
<tr>
<th>OBU Declared Parameter</th>
<th>Vehicle Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M'cycle (No OBU)</td>
</tr>
<tr>
<td>Trailer Present</td>
<td>-</td>
</tr>
<tr>
<td>Euro Vehicle Group</td>
<td>-</td>
</tr>
<tr>
<td>Local Class</td>
<td>-</td>
</tr>
<tr>
<td>Number Of Axles</td>
<td>-</td>
</tr>
<tr>
<td>Max Drive Unit Weight</td>
<td>-</td>
</tr>
<tr>
<td>Max Train Weight</td>
<td>-</td>
</tr>
<tr>
<td>Euro Value (Emissions)</td>
<td>-</td>
</tr>
<tr>
<td>Number Plate</td>
<td>-</td>
</tr>
<tr>
<td>Suspension Type</td>
<td>-</td>
</tr>
<tr>
<td><strong>Contact Information</strong></td>
<td></td>
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<tr>
<td><strong>Copies of the draft OMISS specifications are to be made available for industry and wider comment early in 2005</strong></td>
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<td><strong>Those specifically interested in receiving electronic copies please contact me after the session or at:</strong></td>
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