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EFC Standardisation, and how it can support the EETS

Electronic Toll Committee
26 June 2007

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CEN/TC278/WG1 ISO/TC204/WG5 – Electronic Fee Collection
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- EFC standardisation in the TC278 domain
- Pros, cons and problems in standardisation
- How standards can support the EETS



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What is a standard?

- It is a document:
 - voluntary in application
 - established by all interested parties
 - reflects consensus
 - approved by a recognized body
 - meant for common and repeated use

Overall benefits of standards

- Enable open and competitive **market** development
 - Help manufacturers comply with European legislation
- **Interoperability** for products and services
 - Lower costs, foster competition
 - Easier to use for users
 - Facilitating tendering processes
- Harmonise technical systems in the **EU**
 - Seamless travel
 - Removing trade barriers
 - Harmonised standards and New approach directive (98/34/EC)
- Promote common **understanding**

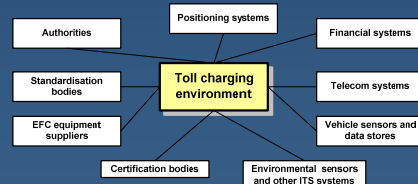
Benefits of using EFC standards

- Clear ownership of documents
- Handling of revisions and corrections
- Structured decision making and voting processes
- Strong legal status
 - for use in tendering and for industry acceptance
- Structured documents
 - listing of requirements
 - easier to add conformity evaluation requirements

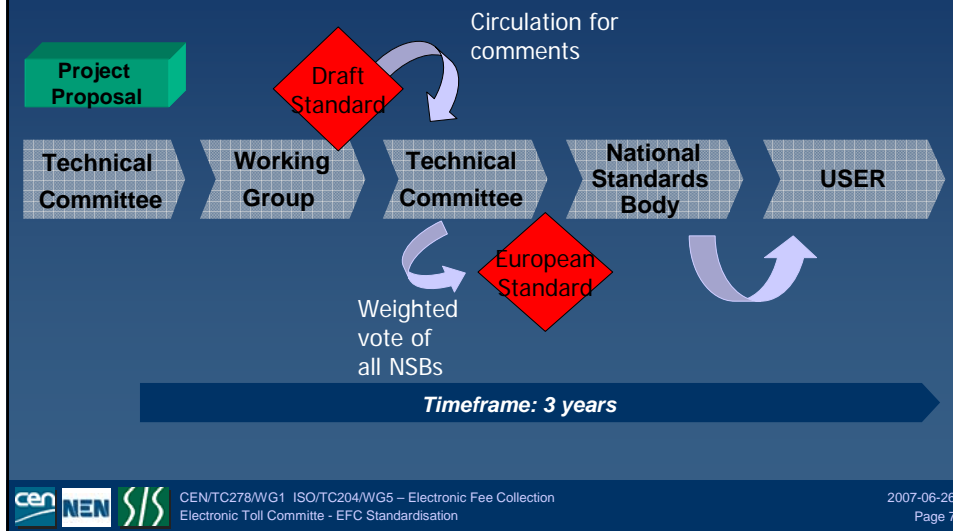
1 standard, 1 test, accepted everywhere

Scope of EFC standardisation in TC278

- CEN/TC278/WG9 – **DSRC**
 - DSRC-communication, test standards for DSRC
- CEN/TC278/WG1 – Electronic Fee collection
 - Focus on the **EFC-application**
- Things that are "inside" of the EFC community:
 - EFC architecture, clearing, information exchange, IC-cards, security, EFC-DSRC application interface, EFC-GNSS/CN application interface and test procedures
- Does not include:
 - positioning technologies, sensor technologies, financial/banking systems, etc.



Drafting European Standards



Principles for EFC standards

- Voluntary work
- Formal process
- Consensus
- Standards remain voluntary
- May be referred to as part of national / international legislation
 - public procurement (93/36/EEC, Art 8)
- Different types and levels of documents:
 - EN, TS, TR
- Co-operation with ISO globally (ISO/TC204)

TC278 – Communication standards

- DSRC-suite:
 - EN 12253, RTTT — Dedicated short-range communication — Physical layer using microwave at 5,8 GHz
 - EN 12795, RTTT — Dedicated Short-Range Communication (DSRC) — DSRC data link layer: medium access and logical link control
 - EN 12834, RTTT — Dedicated Short Range Communication (DSRC) — DSRC application layer
 - EN 13372, RTTT — Dedicated short-range communication — Profiles for RTTT applications
- Test standards for DSRC (see ETSI presentation)
- TC224/WG 11 standards on IC cards



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TC278/WG1 - Completed Work

TS 17573	EFC System architecture for vehicle related transport services
TS 17574	EFC security services framework – guidelines for EFC security protection profiles
ENV 14904	Interface specification for clearing between operators
EN 14906	EFC application interface definition for DSRC
ENV 14907-1	EFC Test procedures user and fixed equipment - Part 1: Description of test procedures
TS 14907-2	EFC Test Procedures user and fixed equipment - Part 2: Conformance test specification for onboard units
EN 15509	Interoperable Application Profile for DSRC



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Example – EN 14906 “EFC-DSRC application interface definition”

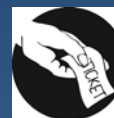
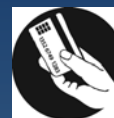
Scope / properties:

- Transaction model
- 16 functions (e.g. “read”, “write”)
- 31 data sets (contract, vehicle, payment, receipt etc)
- To build tolling transactions
- Informative transaction (CARDME)

Impact: harmonised OBU equipment, basis for national / international tolling service

Used:

- > 25 countries and 80 systems
- > 22 millions OBU and 15k RSE



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WG1 – Under work

TS 17573	EFC System architecture for vehicle related transport services – ongoing revision of the standard
(-)	EFC information flows between operators in EFC Systems
TS 25110	Interface definition for on-board account using Integrated Circuit Card
(-)	Conformity evaluation of on-board unit and roadside equipment to EN 15509 Part 1 – Test Suite Structure and Test Purposes Part 2 – Abstract test suite
TS 17575	Application Interface Definition for GNSS/CN : Part 1 – Charging Part 2 – Communication Part 3 – Update Part 4 – Roaming



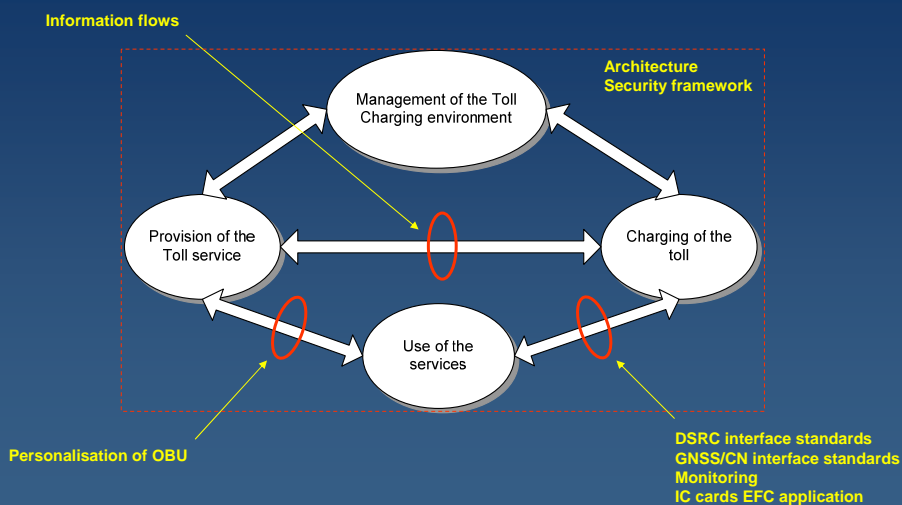
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Problems in EFC standardisation

- These are **no blueprints** – but enabling standards
- CEN has never had the task to do a “**full**” solution for EFC interoperability, only parts of the systems
- Decision process takes time (2-3 years)
- Basic problem is to agree on **common** (member states') **requirements** in a "young" sector.
 - Early national implementations (before standards)
 - Implementations have not started in some member states.
- We rely on **voluntary work** – the task is (sometimes) huge

How standards can support EETS



Possible new EFC standards to support the EETS

- Programme in the Mandate 338 report
- Proposed new work for support of the EETS:
 - **Toolboxes**: 17575, information flows between operators
 - **Profiles**: monitoring, localisation augmentation using DSRC, IAP for GNSS/CN
 - **Test standards** for: 17575, IAP-GNSS/CN, monitoring, etc.
 - Technical reports: personalisation of first mount OBU, urban RUC requirements, universal pre-payment, value added services based on GNSS/CN compatible OBE
- Details in TC278 input to new ICT work programme (N1937)

Support needed?

- (Pro)-active interest and support from the EC
- Funding
- Stakeholder involvement
 - In particular from industry & service providers
 - Willingness to harmonise requirements
- Co-operation with other standardisation bodies (e.g. ETSI)

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