CEN/TC278/WG1 & ISO/TC204/WG5
Status report to CEN/TC278
February 2012

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Overview of work items under development (1)

Architecture and technology independent

- prCEN TS **Security framework** (CEN WI 270, WI adopted in Feb 2011, TC278 N2429)

- prCEN ISO/TS 17444-1 **Charging performance – Part 1: Metrics** (CEN WI 273, WI adopted in Feb 2011, TC278 N2430; ISO NP adopted in 2011-08, TC204 N2830)

- prCEN TR **Guidelines for EFC-applications based on in-vehicle ITS Stations** (CEN WI 315, adopted in 2011-08, TC278 N2538)
Overview of work items under development (2)

DSRC-based EFC

- ISO/PWI TS 16875 *Interface definition between DSRC – OBE and external in-vehicle devices* (ISO PWI)
- EN 15509 *Interoperability application profile for DSRC* (CEN WI 187, review)
Overview of work items under development (3)

**Autonomous EFC**

- prCEN/TS Secure monitoring for autonomous toll systems — **Compliance checking** (CEN WI 282, adopted in 2011-08, TC278 N2539; )
- CEN PNWI TS EFC - Secure monitoring for autonomous toll systems — **Trusted recorder** (TC278 N2333)
EFC application standards overview (5)

### Frameworks
- **DSRC-based EFC**
  - Tests: 14907-1 Test Procedures
  - Requirements: 17573 EFC Architecture, 17574 Security Profiles, XXXXX Security Framework
- **EFC-tech. independent**
  - Requirements: 17575-1/2/3/4 AID Auto.-EFC
- **Autonomous-EFC**
  - Tests: 16401, etc Auto-test (4*2 parts)

### Toolboxes
- **DSRC-based EFC**
  - Tests: 14907-2 DSRC-OBU Tests
  - AID for DSRC-EFC: 14906, 25110 AID, IC-cards
  - Info Exchange: 12855
  - Charging Perf. Indic.: 17444-1/2
- **EFC-tech. independent**
  - Security Framework: XXXXX
- **Autonomous-EFC**
  - Tests: 16401, etc Auto-test (4*2 parts)

### Profiles
- **DSRC-based EFC**
  - Tests: 15876-1/2 IAP Test
  - IAP for DSRC-EFC: 15509
- **EFC-tech. independent**
  - Tests: 16331 IAP for Auto-EFC
  - CCC for Auto-EFC: 12813 CCC Test
- **Autonomous-EFC**
  - Tests: 13141 LAC for Auto-EFC, 13140-1/2 LAC Test

### Technical Reports
- **DSRC-based EFC**
  - TR 16040 Urban DSRC
- **EFC-tech. independent**
  - TR 16152 First Mount OBE
  - Pre-Paid Req.: TR 16092
- **Autonomous-EFC**
  - TR 16219 Value Added Serv.
  - EFC on ITS stations: TR XXXXX
**Objectives**
- Security framework, defining a framework and necessary elements for interoperable EFC systems
- Support for the European Electronic Toll Service

**Scope**
- Threat analysis – asset-based and attack-based assessment
- Requirements specification
- Security measures focusing on the interoperable interfaces
- Trust model and Basic key management requirements

**Status**
- WI adopted in Feb 2011 (TC278 N2429)
- TC review completed (TC278 N2549 in 2011-09)
- Recommendation to include Internet Engineering Task Force’s specifications as normative references. TC278 resolution by correspondence (TC278 N2622) closing on 2012-03-09
- CRR and draft ready for FV, awaiting adoption of Res re IETF refs

**Drafting is supported by PT133**
CEN ISO/TS 17444-1 Charging performance – Part 1: Metrics

- **Objectives**
  - Charging performance metrics for discrete and continuous charging schemes to support procurement and service level agreements

- **Scope**
  - Charging performance metrics information:
    - Charge reports
    - Toll declarations
    - Billing details
    - Invoicing Accuracy on the level of user accounts.

- **Status**
  - WI adopted in Feb 2011 (TC278 N2430)
  - For TC information (TC278 N2522) and internal WG review, closing on 2011-08-31. ISO NP adopted in 2011-08 (TC204 N2830).
  - CEN TC review / ISO working draft comments: TC278 N2607
  - **Updated draft and CRR available (WG N1531-1532), version for FV being prepared**

- Drafting is supported by PT134
prCEN TR WI 278315  Guidelines for EFC-applications based on in-vehicle ITS stations

**Objective:**
- Assessment of the technical and operational feasibility of using a generic ITS Station @ ETSI EN 302 665 "ITS – Com arch" for EFC applications

**Scope**
- Comparison of the ITS and EFC architectures
- Core requirements for operation of an EFC app on an ITS Station
- Potential synergies between EFC and ITS applications
- Requirements for the ITS Station to support EFC apps
- Recs on standards needed to support deployment of or actions to reduce barriers for deployment of EFC applications on an ITS Station

**Status and target**
- WI adopted in 2011-08 (TC278 N2538)
- TC review: 2012-02
- FV: 2012-08

- EC grant application signed in Dec 2011. Call for N2618), deadline for replies is 2012-03-01
PWI TS 16785 - Interface definition between DSRC-OBE and external in-vehicle devices

- **PWI TS “EFC - Interface definition between DSRC-OBE and external in-vehicle devices”**
  - Idea originating from Japan (editorial support from Korea, Singapore, etc)
  - DRSC-based OBU that might be combined with external devices (GNSS, cellular etc)
  - Scope: To define the interface between DSRC based OBE and external unit to cope with diversified tolling schemes.

- **Status and target**
  - PWI TS adopted in Nov 2010 (TC204 N2674, Nov 2010)
  - Working draft (WG N1547)
  - Broader commitment indicated by WG members (JP, KO, FR, ES, NO provisionally noted) to actively support the preparation
  - **ISO NP TS ballot (N2899), closing by 2012-03-27**
EN 15509 Interoperability application profile (IAP, review)

- **Objectives**
  - Interoperability, equipment compatibility, best industry practice

- **Scope**
  - DSRC requirements
  - EFC functions and data, security and ICS proforma

- **Status and target**
  - Result of review enquiry (TC278 N2556, 2009-09)
  - Decision to revise 15509 (TC278 Res 025-2011)
  - Draft ready for CEN Enquiry: 2012-04
  - Draft ready for FV: 2013-02
Objective
- Support for the Toll Charger to check the trustworthiness of the toll declarations from the Toll Service Provider whilst respecting the privacy of the user

Scope
- Secure monitoring concept and stake holder reqs
- Transactions and data
- Using whenever possible existing standards (CEN/ISO TS 12813, EN CEN/ISO 12855, CEN/ISO TS 17575-1...)

Status and target
- CEN WI adopted in 2011-08 (TC278 N2539)
- TC review: 2012-07
- FV: 2013-02

EC grant application signed in Dec 2011. **Call for experts (TC278 N2618)**, deadline for replies is 2012-03-01
Miscellaneous (1) – Recently approved EFC standards

- **CEN ISO/TS 14907-2** “Test procedures for user and fixed equipment – Part 2: Conformance test for the OBU application unit” (TC278 N2573) and published in 2011-11
- **EN ISO 12855** “EFC - Information exchange between service provision and toll charging” (TC278 N2606, approved in 2011-12)
- **CEN/TS 16331** “EFC – Interoperable application profiles for autonomous systems” (CEN/TC278 N2598)
- **Evaluation of equipment for conformity to CEN ISO/TS 17575**: 6 standards published in 2012-03
  - **CEN ISO/TS 16407-2** (TC278 N2613)
  - **CEN ISO/TS 16401-1/2** (TC278 N2609-2610)
  - **CEN ISO/TS 16410-2** (TC278 N2615)
  - **CEN ISO/TS 16403-1/2** (N2611-N1612)
Miscellaneous (2)

• **Submitted work item proposals and proposed TC resolutions**
  - **TC278 N2622** Normative references to IETF specifications in FprCEN/TS EFC — Security framework, deadline for replies 2012-03-09
  - **TC278 N2635** : new work item proposal for “Charging performance – Part 2: Examination framework”, for approval at the 48th meeting on 2012-03-22
  - **TC204 N2899 ISO/NP TS 16785**, Interface definition between DSRC-OBE and external in-vehicle devices, for reply to ISO by 2012-03-27 (ISO only)

• **Ideas for future work**
  - CEN PNWI TS Secure monitoring – **Trusted recorder** – an NWIP is being prepared
  - **Profile standard for EN ISO 12855** “Information exchange between Service provision and Toll charging”; a questionnaire is being prepared to collect stakeholders’ requirements and experiences.
  - “Extension of ISO 17573 and EN ISO 12855 to support on-board account systems” : ISO (NP) TR is being prepared
  - **Test standards for EN ISO 12855** “Information exchange”
  - Potentially “Framework to support suitability for use assessment”
### Miscellaneous (3)

- **EFC 2006 Grant Agreement**
  - 2 ENs and 4 TS
  - Completed

- **EFC 2007 Grant Agreement**
  - 1 ENs, 15 TS and 4 TRs
  - All deliverables approved. Final report submitted

- **EFC 2010 Grant Agreement**
  - Agreement signed in Dec 2010
  - Security framework & Charging performance metrics (TC278 N2362)
  - Target : 3 TS - approval expected by H1/2013

- **EFC 2011 Grant Agreement (2011-38)**
  - Agreement signed in December 2011
  - Secure monitoring for autonomous toll systems — Compliance checking
  - Guidelines for EFC-applications based on in-vehicle ITS stations
  - Target : 1 TS and 1 TR – approval expected by mid 2014
  - **Call for experts closes on the 1st of March 2012 (TC278 N2618)**
**Miscellaneous (4)**

- **Joint ISO/TC/joint WG meetings** in conjunction with the TC204 October 2012 meeting? *Anticipated desire to meeting to discuss*
  - Fee and fare – w TC204/WG8
  - EFC app on ITS stations – w TC204/WG18

- **Overall appreciation of the relevance of the EFC published standards and work in progress relating to cooperative ITS (TC278 N2533)**

- **Review and input to ITS reference architecture** (TS 14813 rev) – terms and open distributed processing model (WG N1562-1563, ISO 17573)

- **Intellectual property and patent rights** – Monitoring and initial assessment of potentially relevant new patent or patent applications (WG N1502, N1512 and N1549)

- **Overview of CEN and ISO standards development stages** (WG N1565) – support the coordination within the WG and between the TCs

- **M338 progress report** to the ITSCG (TC278 N2633)

- **WG convenor access to CEN’s projex – easy access to WI status info 😊**
CEN/TC278/WG1 and ISO/TC204/WG5

Recent meetings: 5-6 October 2011, Stockholm (Sweden)  
25-26 January 2012, Warsaw (Poland)

Next meetings: 11-12 April 2012, Delft (the Netherlands)  
27-28 June 2012, Zürich (Switzerland)  
16-17 October 2012, Moscow (Russia)

Members: Australia, Austria, Canada, China, Czech Republic, Finland,  
France, Germany, Italy, Japan, Korea, Netherlands,  
Norway, Poland, Portugal, Slovenia, South Africa, Spain,  
Sweden, Switzerland, United Kingdom

In total 47 expert members from 21 countries (15 CEN)

Subgroups: SG1 - Trond Foss: Info exchange, architecture, security  
SG2 - Jean François Jouen: DSRC based EFC, testing  
SG5 - Ian Catling: GNSS/CN based EFC

Liaisons: EC DG TREN, EC Electronic Toll Committee, ETSI ITS,  
CEN/WG3 & ISO/WG8, CEN WG16 & ISO/WG18,  
ISO/WG16, IEEE 1609, CEN/TC224/WG11
Team of EFC standardisation experts

WG meeting in Stockholm in October 2011 (courtesy of Sweco)
Convenor’s recommendations to TC278

1) CEN/TC 278 resolves to adopt the resolution 006-2012 (see CEN/TC278 N2635), concerning the new work item proposal for “Electronic fee collection – Charging performance – Part 2: Examination framework”

2. Noting that different standards sometimes have the same numbers, e.g.
   - EN 12855: 2003 Food processing machinery - Rotating bowl cutters - Safety and hygiene requirements
   - EN ISO 12855:2012 Electronic fee collection - Information exchange between service provision and toll charging

CEN/TC278 resolves to encourage CEN CMC, in consultation with ISO/CS, to review the assignment of standard reference numbers in order to promote clarity and easy referencing of CEN deliverables on the market
### Completed Work (1) - Architecture and technology independent

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>EN ISO 12855</strong></td>
<td>EFC - Information exchange between service provision and toll charging (published in 2012-02)</td>
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<tr>
<td><strong>ISO 17573</strong></td>
<td>EFC - System architecture for vehicle-related tolling (published in 2010-12, replacing ISO TS 17573:2004)</td>
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<tr>
<td><strong>CEN ISO/TS 17574</strong></td>
<td>EFC – Guidelines for security protection profiles (2nd ed published in 2009-09)</td>
</tr>
<tr>
<td><strong>CEN TR 16092</strong></td>
<td>EFC - Requirements for pre-payment systems (adopted in 2010-08, target publication date 2011-03-02)</td>
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<tr>
<td><strong>CEN TR 16152</strong></td>
<td>EFC – Personalisation and mounting of first mount OBE (published in 2011-03)</td>
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<td><strong>CEN TR 16219</strong></td>
<td>EFC – Value added services based on EFC on-board equipment (published in 2011-07)</td>
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<tr>
<td><strong>CEN ITR</strong></td>
<td>Integration of payment systems for transport services (CEN/TC278 N278, 1994-03-17)</td>
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<tr>
<td><strong>CEN ITR</strong></td>
<td>Definition of Threats and Security Controls for the Charging Interface in Electronic Fee Collection (CEN/TC278 N780, 1997-10)</td>
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### Completed Work (2) – DSRC-based EFC

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<tr>
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<tbody>
<tr>
<td><strong>EN ISO 14906</strong></td>
<td>EFC - <em>application interface definition for DSRC</em> (3rd edition published in 2011-10)</td>
</tr>
</tbody>
</table>
| **CEN ISO/TS 14907**| EFC - *Test procedures* user and fixed equipment  
Part 1: Description of *test procedures* (3rd ed published in 2010-06)  
Part 2: *Conformance test for the onboard unit application interface* (2nd ed in 2011-11) |
| **EN 15509**        | EFC - *Interoperable application Profile for DSRC* (published 2007-05) |
| **EN 15876**        | EFC – *Conformity evaluation* of on-board and roadside equipment to EN 15509  
Part 1: *Test suite structure and test purposes* (FprA1 approved through UAP vote in 2012-02)  
Part 2: *Abstract test suite* (published 2011-04) |
| **CEN ISO/TS 25110**| EFC - Interface definition for *on-board account* using ICC  
(approved in 2008-10) |
| **CEN TR 16040**    | EFC - Requirements for *urban DSRC systems* (published in 2010-06) |
| **CEN ITR**         | AFC requirements for *DSRC* (CEN/TC278 N318, 1994-08) |
| **CEN ITR**         | EFC - Requirements for *Integrated Circuit Cards* (CEN/TC278 N779, 1997-10) |
**Completed Work (3)**

**Autonomous and support for autonomous EFC systems**

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<thead>
<tr>
<th>Standard</th>
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<th>Parts/Editions</th>
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<tbody>
<tr>
<td><strong>CEN ISO/TS 17575</strong></td>
<td>EFC - Application interface definition for autonomous systems</td>
<td>Part 1: <strong>Charging</strong> (published in 2010-06)</td>
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<td>Part 2: <strong>Communication and connection to the lower layers</strong> (published in 2010-06)</td>
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<td>Part 3: <strong>Context data</strong> (published in 2011-04)</td>
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<td>Part 4: <strong>Roaming</strong> (published in 2011-04)</td>
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<tr>
<td><strong>CEN/TS 16331</strong></td>
<td>EFC – Interoperable application profiles for autonomous systems</td>
<td><em>(approved in 2011-12)</em></td>
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## Completed Work (4)
### Autonomous and support for autonomous EFC systems

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<th>Standard ID</th>
<th>Title</th>
<th>Part 1</th>
<th>Part 2</th>
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## Completed Work (5)
### Autonomous and support for autonomous EFC systems

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<tr>
<th>Standard</th>
<th>Description</th>
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<tbody>
<tr>
<td>CEN ISO/TS 12813</td>
<td>EFC - <strong>Compliance check communication</strong> (Published in 2009-11)</td>
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</tbody>
</table>
| CEN ISO/TS 13143 | EFC - **Evaluation** of on-board and roadside equipment for conformity to CEN ISO/TS 12813  
Part 1: **Test suite structure and test purposes** (published in 2011-04)  
Part 2: **Abstract test suite** (published in 2011-05) |
| CEN ISO/TS 13141 | EFC – **Localisation augmentation communication** (published in 2010-02) |
| CEN ISO/TS 13140 | EFC - **Evaluation** of on-board and roadside equipment for conformity to CEN ISO/TS 13141  
Part 1: **Test suite structure and test purposes** (published in 2011-04)  
Part 2: **Abstract test suite** (approved in 2011-12) |
| CEN ITR | Application requirements for EFC systems based on **GNSS/CN** (CEN/TC278 N798, 1997-11) |