



**CEN/TC278/WG1 & ISO/TC204/WG5
Electronic Fee Collection (EFC)
Status report to CEN/TC278
August 2013**

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Overview of work items under development (1)

Architecture and technology independent

- prCEN/TS 17444-2 **Charging performance – Part 2: Examination framework** (CEN WI 328, WI adopted in March 2012, TC278 N2666; ISO NP adopted in 2012-06, TC204 N2944)
- prCEN/TR **Guidelines for EFC-applications based on in-vehicle ITS Stations** (CEN WI 315, adopted in 2011-08, TC278 N2538)
- prCEN/TS **Interoperable application profiles for information exchange between Service Provision and Toll Charging** (“IAP for info exchange between SP and TC”, CEN WI 348, adopted in 2013-01, TC278 N2817)
- “How to apply **EFC** standards to multi-modal transport services **using common payment media**” – ISO/TR is being drafted

Overview of work items under development (2)

DSRC-based EFC

- ISO/WD-TS 16785 **Interface definition between DSRC – OBE and external in-vehicle devices** (ISO WI adopted in 2012-03, TC204 N2912)

Autonomous EFC

- prCEN/TS Secure monitoring for autonomous toll systems - **Part 1: Compliance checking** (CEN WI 282, adopted in 2011-08, TC278 N2539)
- prCEN/TS Secure monitoring for autonomous toll systems - **Part 2: Trusted recorder** (CEN WI 338, adopted in 2012-05, TC278 N2694)

Overview of publications under revision/conversion

Revision:

- EN **15509**:2007 **Interoperability application profile for DSRC** (CEN WI 327, revision)
- EN ISO **12855**:2012 **Information exchange** between service provision and toll charging (ISO/TC204 res 961, 2012-10 : CEN WI 335, ISO lead). Draft submitted in May 13 for launching of the **DIS ballots / CEN Enquiries; target dates 2013-08-29—2014-01-30**

Revision and conversion into Standards, drafts submitted in July & August for launching of the DIS ballots / CEN Enquiries (TC204 res 960, 2012-10):

- CEN ISO/TS **17575-1**:2010 Application interface definition for autonomous systems – Part 1: **Charging; DIS ballot/CEN Enquiry target dates 2013-09-26—2014-02-27**
- CEN ISO/TS **17575-2**:2010 Application interface definition for autonomous systems – Part 2: **Communication and connection to the lower layers**
- CEN ISO/TS **17575-3**:2011 Application interface definition for autonomous systems – Part 3: **Context data**
- CEN ISO/TS **17575-4**:2011 Application interface definition for autonomous systems – Part 4: **Roaming**
- CEN ISO/TS **12813**:2009 **Compliance check** communication for autonomous systems
- CEN ISO/TS **13141**:2010 **Localisation augmentation** communication for autonomous systems

Proposed new revisions and amendments

- **Proposed amendment to EN ISO 14906 submitted in August 13 for parallel DIS ballot / CEN Enquiry**
 - Addition of enhanced environmentally friendly vehicle, hybrid and hydrogen engine characteristics (WG N1822)
 - Proposed amendment fully incorporates the elements requested by the AFNOR delegation at the latest TC278 meeting (i.e. resolves action TC278 05/40)
 - **DIS ballot / CEN Enquiry target dates: 2013-10-10–2014-03-11**

- **Proposed revision of CEN/TS 16439 "Security Framework"**
 - CEN: **combined review and a new WI proposal for a new edition (N2893), closes on 2013-08-20**
 - ISO: resolved to a PWI and submit for combined NP-Comments only ballot for 16439 (N3178, 2013-07). **NP-Comments only ballot (N3186) closes on 2013-09-23**
 - 16439 already used in ISO, if joint WIs, 16439 will be withdrawn in CEN and be assigned reference number 19299

EFC application standards overview

	DSRC-based EFC		EFC-tech. independent	Autonomous-EFC	
	Tests	Requirements		Requirements	Tests
Frameworks	14907-1 Test Procedures		17573 EFC Architecture 17574 Security Profiles 16439 Security Framework		
Toolboxes	14907-2 DSRC-OBUs Tests	14906 AID for DSRC-EFC 25110 AID, IC-cards 16875 Interface OBE+	12855 Info Exchange 17444-1/2 Charging Perf. Indic.	17575-1/2/3/4 AID Auto.-EFC XXXXX-1/2 Sec.Mon: CC & TR	16401 , etc Auto-test (4*2 parts)
Profiles	15876-1/2 IAP Test	15509 IAP for DSRC-EFC	TS XXXX IAP for Info Exchange	16331 IAP for Auto-EFC 12813 CCC for Auto-EFC 13141 LAC for Auto-EFC	13143-1/2 CCC Test 13140-1/2 LAC Test
Technical Reports		TR 16040 Urban DSRC	TR 16152 First Mount OBE TR 16092 Pre-Paid Req. TR 16219 Value Added Serv. TR XXXXX EFC on ITS stations		

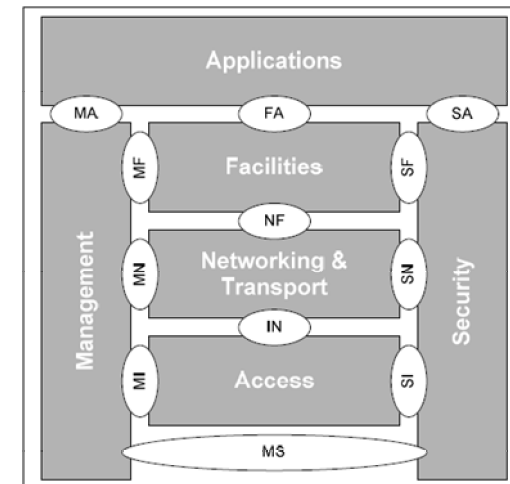
prCEN ISO/TS 17444-2 Charging performance – Part 2: Examination framework

- **Objectives**
 - Charging performance evaluation and monitoring for discrete and continuous charging schemes to support procurement and service level agreements
- **Scope**
 - Definition of the methods (data collection, processing...) to support the evaluation and monitoring of the Charging performance metrics defined in part 1
- **Outside the scope**
 - Specific numeric performance bounds, or average or worst-case error bounds in percentage or monetary units
 - Evaluation of the expected performance of a system based on modelling and measured data from trial at another place
- **Status and target**
 - CEN WI adopted in March 2012 (TC278 N2666)
 - ISO NP letter ballot, replies by 2012-05-28 (TC204 N2909)
 - Parallel "TC review" closed in 2012-09 (TC278 N2777). CRR in TC278 N2841
 - **CEN FV closes on 2013-08-30 and ISO DTS ballot on 2013-08-31**
- 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)
 - Working draft (WG N1654)
 - **Result of TC review in N2875 (2013-04)**
CRR in WG N1799
 - being prepared for FV: 2013-08
- Drafting is supported by PT136



prCEN/TS IAP for information exchange between SP and TC

- **Objective :**
 - Technical interoperability support for the EFC information exchange between Service Providers (SPs) and Toll Chargers
- **Scope**
 - Interoperable application profiles (IAP) – coherent definition of specific sets of options and values provided by EN ISO 12855
- **Status and target**
 - WI adopted in 2013-01 (TC278 N2817)
 - **TC review: 2014-04**
 - FV: 2015-01
- Is dependent on an updated and stable EN ISO 12855 (WG N1676)
- **Drafting is supported by PT138**

ISO/WD-TS 16785 - Interface definition between DSRC-OBE and external in-vehicle devices

- **“Interface definition between DSRC-OBE and external in-vehicle devices”**
 - Idea originating from Japan (editorial support from Korea, Singapore ...)
 - DSRC-based OBU that might be combined with external devices (GNSS, cellular etc)
 - Scope: interface definition between DSRC based OBE and external unit(s) to cope with diversified tolling schemes
- **Status and target**
 - PWI TS adopted in Nov 2010 (TC204 N2674, Nov 2010)
 - Latest working draft (WG N1613)
 - ISO TS WI adopted in March 2012 (N2912, NP letter ballot result)
 - **Result of “TC review” TC204 N3155 (in 2013-07). Comments from 3 NSBs. These comments are general and show interest in this TS**
 - ISO DTS ballot: 2013-10

EN 15509 Interoperability application profile (IAP, rev)

- **Objectives**

- Interoperability, equipment compatibility, best industry practice
- Support the European EFC Directive (2004/52/EC)

- **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)
- **CEN Enquiry / DIS ballot : Result in TC278 N2856 (2013-03),
Comments from 4 NSBs. Comment on adding new security profiles
still needs to be resolved**
- Draft ready for FV: 2013-10

prCEN/TS WI 278282 "Secure monitoring for autonomous toll systems systems - Part 1: Compliance checking"

- **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**

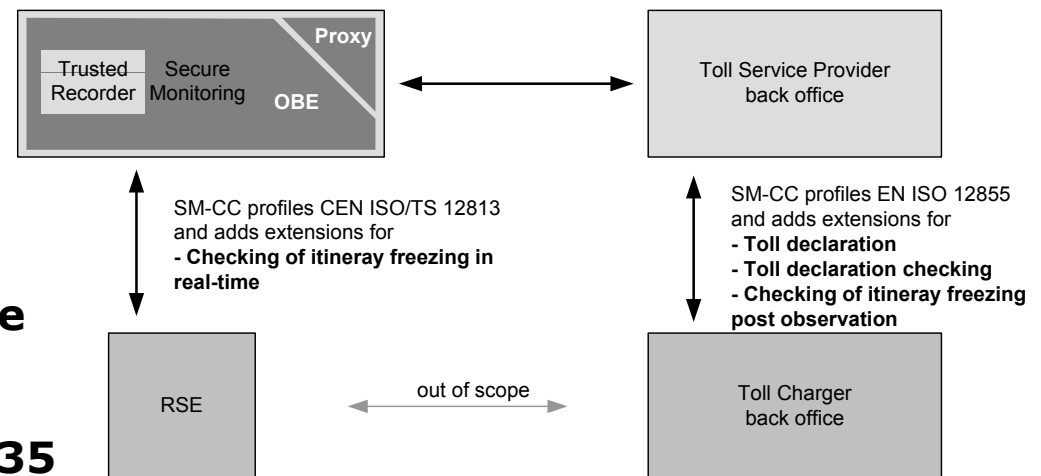
- Secure monitoring concept and stake holder reqs
- Transactions and data
- Using whenever possible existing standards (CEN/ISO TS 12813, EN CEN/ISO 12855, CEN/ISO TS 17575-1...)

- **Status and target**

- CEN WI adopted in 2011-08
- TC review: result in TC N2814 (in 2013-01)
- FV: 2013-07

- **TC decision to ref NIMA Technical report as normative (TC 2927, 2013-08)**

- **Drafting is supported by PT135**



prCEN/TS WI 278338 "Secure monitoring for autonomous toll systems systems - Part 2: Trusted recorder"

- **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

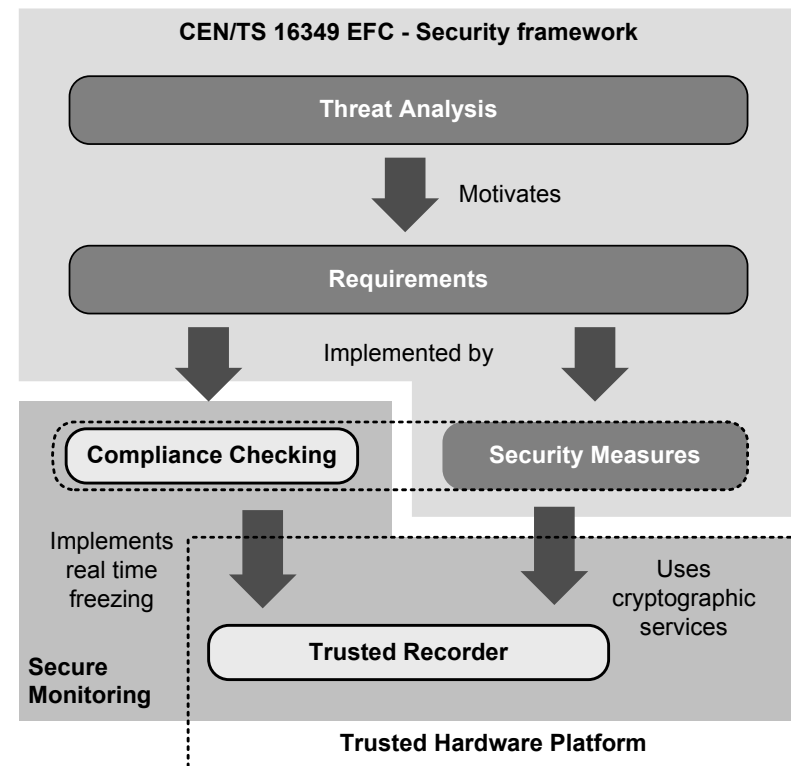
- **Scope**

- 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 2012-05
- Working draft (WG N1611)
- **TC review: 2013-10**
- FV: 2014-04

- **Drafting is supported by PT137**



How to apply EFC standards to multi-modal transport services using common payment media

- **Objective and scope**

- Overall assessment of requirements and models for multi-modal transport services using on-board accounts
- Assess the need to extend the EFC standards suite (e.g. ISO 17573 and EN ISO 12855) to provide a suitable support for on-board account EFC systems
- Assess the need for a standardised interface between EFC and other transport services, e.g. public transport

- **Status and target**

- Input to the revision of EN ISO 12855 accepted
- Proposals for additions to ISO 17573 drafted
- Possible ISO/TR is being considered (WG N1796-N1797)
- **Target: combined NP-Comments only ballot in 2013-10**
- DTR target date to be defined

Miscellaneous (1) – Recently published TS and EN ISO

- **Recently approved and published**
 - CEN ISO/TS 25110 EFC - Interface definition for on-board account using ICC (result in TC278 N2876 in 2013-04, 2nd ed in 2013-05)
- **Corrigenda published in 2013-03:**
 - EN ISO 14906, Cor1:2013
 - EN ISO 12855, Cor1:2013
 - CEN ISO/TS 13141, Cor1:2013
 - CEN ISO/TS 17575-1, Cor1:2013
 - CEN ISO/TS 17575-3, Cor1:2013

Miscellaneous (2) - Progress in relation to M/338

Overall progress in relation to M/338:

- DSRC-EFC standards: most work is done
- Autonomous- and EFC tech-independent stds: A set of good "building blocks" provided to support the EETS. Revisions and further profile-standards started, taking into account implementation experiences
- All agreed CEN (ISO) work has been done
- **Not possible to convert existing stds into harmonized stds**, as this is not permitted (called for) in the EFC-Directive
- **New and revised stds intended to encompass an informative Annex on the "use of the std for the EETS"** including the correspondence of the provisions of the std and the essential reqs in the EETS decision (cf. WG N1823)

Focus on ideas for new work

- Revision of stds started, further revisions will follow in the coming years
- Active discussion on ideas for new work items in the WG. Clear interest among WG1-members to develop further EFC-stds
- Challenge to standardise a "moving target", as EFC-systems are being developed and EFC-services planned/implemented with (slightly) new reqs
→ **need for maintenance** of the stds, incl provisional handling of post adoption comments on published stds – **WG internal repository (WG N1628)**

Miscellaneous (3) Grant Agreements

- EFC 2006 Grant Agreement (2 ENs and 4 TS)
- EFC 2007 Grant Agreement (1 EN, 15 TS and 4 TRs)
- EFC 2010 Grant Agreement (3 TS)
- **EFC 2011 Grant Agreement (2011-38)**
 - 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
- **EFC 2012 Grant Agreement Application (2012-21)**
 - Secure monitoring for autonomous toll systems — Trusted recorder
 - Interoperable application profiles for information exchange between Service Provision and Toll Charging
 - Coordination of PTs and support to the EC
 - Agreement signed in 2012-09
 - Experts selected in 2013-02 (TC278 N2820)
- **New EFC Grant Agreement application being submitted**
 - Revision of the test specifications for "Autonomous-based EFC"
 - Revision of the test specifications for "EFC-DSRC communications"

Miscellaneous (4) – Releases in (EFC) standardisation

Release concept being discussed (WG N1819)

- **With the provisional aim to**
 - ensure backward compatibility
 - provide extensibility: Release n+1 should provide “more” than Release n
 - be future-proof: standards, but also releases, should not hinder future developments
- **Versioning, referencing and data types**
 - A release “identifies/freezes” a coherent set of standards in such a way that, by referencing a Release, an implementer/procurer is confident on the choice of correct versions
 - A Release ensures coherent set of data type definitions
 - The definition of a Release should be made public available and be referable

Miscellaneous (5) – Potential overlap issues with TARV-13

- **WG1 endorses the forward path as outlined in the report (WG N1771) of the liaison meeting between B. Williams (TC204/WG7) and F. Caneschi (TC204/WG5) concerning potential overlap issues regarding ISO 15638-13**

Miscellaneous (6) Initial QA thoughts concerning terms

- **Current situation**

- Room for improvement
- Importance of QA grows with the number of EFC standard compliant systems and standards

- **Needs (WG N1583, 2012-04)**

- Ensure appropriate and harmonised definitions of terms across the (ITS/)EFC suite of stds
- Early identification and resolution of conflicting definitions
- Effective procedures for maintenance of our standards (corrections, extensions ...)
- Appropriate dissemination of corrections and anticipated future extensions

- **Outline of solution**

- ISO database for standardized terms and definitions
- **Central repository of standardised EFC terms** (TC278 N2799 & TC204 N3041)
- **EFC terminology task force, procedures** and (Excel-based) **tool** for classification of the status/revision priority of the EFC terms, handling of proposals and documenting agreed definitions for use in new/revised EFC stds

Miscellaneous (7) Initial QA thoughts re data definitions

- **Current situation – same as for EFC terms, see previous slide**
- **Needs (WG N1583, 2012-04)**
 - Largely the same as for EFC terms, see last 3 points in the previous slide
 - Ensure correct ASN.1 data definitions and use of existing definitions whenever applicable
- **Outline of solution**
 - **Central repository of the proposed changes and their provisional handling (WG N1606)**, incl maintenance of the ASN.1 modules
 - Rec to include **ASN.1 module as electronic inserts** in future (ITS/)EFC stds
 - **Best practice and recs on how to present (EFC) data definitions (WG N1684)**. ISO/TR 25100:2012 “Harmonization of ITS data concepts” and ISO 14813-6:2009 “ITS ref model – Data presentation in ASN.1” taken into account in the analysis
 - **Use of a Release concept?**

Miscellaneous (8) Initial feedback on the proposed DRDD (N2862)

1. Agree with the importance of the topic and that it is addressed by the TC
2. Proposed changes to standards content on **slide 9 “the following terms have been used in this standard...”**; My immediate reaction is **fundamental disagreement, and a request for a comprehensive analysis of the impact of such a change would entail**. Is this possible according to the CEN/ ISO regulations? Would it not seriously jeopardise the stability of the definitions used in the ITS standards? What measures would be needed in order to ensure that an amended definition would (still) be appropriate in all published ENs, TS and TRs?
3. **With what content will the “first edition” of the DRDD be populated? The definitions in the published ITS standards should be fully taken into account** in the “first official edition”, and before the DRDD would be “open” to receive new proposals. E.g. **TC278 N2799 (2011-11) provides an inventory of EFC terms that can be used to populate the DRDD**. An up to date inventory is being prepared and can soon be made available
4. **Handling of conflicting views, between the Submitter and the “Steward” merits to be further described**. My understanding after a first reading is that the “Steward” decides/approves the terms. If this interpretation is correct, then I believe that his powers go to far as **it should be the TC that decides**

Miscellaneous (9) Initial feedback on the proposed DRDD (N2862)

5. "user" access to entries must be quick & easy: indeed extremely important. It would be make sense to **test the operation of the DRDD** (procedures and interface issues) on **a small scale, learn lessons from the pilot phase, before deciding on its future (mandatory) use.**
6. **What is the overall scope? Terms and data definitions?** I note that the **definition of message sets (data definitions) raises additional issues to be solved**, such as

- a. Copyright issues (of ISO, CEN and national standardization bodies)
 - Access management to data repository?
 - E.g. buying one standard → references to other modules?
- b. Version management and consistency of data type definitions?
- c. Responsibility for repository hosting and maintenance?
 - Including TC278 external ASN.1 modules?
 - Maintenance of such modules?

(see also presentation data in standards - Improvement of the ASN.1 data definition quality in standards)

It would **essential to test the operation of the "DRDD message sets" on a small scale, learn lessons from the pilot phase, before deciding on its future (mandatory) use.**

Miscellaneous (10) Initial feedback on the proposed DRDD (N2862)

7. What would be the **formal status of the content published as "Freely available on-line (ISO TC204 website)"**? Would this content have a status that is defined in the CEN/ISO regulations?
8. The proposed DRDD ought to **highlight that the overall aim include provision of appropriate definitions so that their meaning are clear in the context of their use**, i.e. in the standards where they are used. Hence the harmonization of terms is not (necessarily) the number one driver of this activity
9. **an open access (read rights) to the database must be ensured, at least for the TC278 community.**
10. It should be made clear **who may submit proposals** for new or improved definitions. Anyone? Only nominated TC278 experts?
11. It would **probably facilitate the harmonization and consensus-building if each WG appointed an expert "responsible" for the definition of terms**. This expert could e.g. be consulted by the "Steward" in case a new proposed definition potentially would impact the next edition of a standard for which he is "responsible"

CEN/TC278/WG1 and ISO/TC204/WG5

Recent meetings: 9-11 April 2013, Vienna (Austria)
25-27 June 2013, Helsinki (Finland)

Next meetings: 8-9 October 2013, Kobe (Japan)
15-16 January 2014, Paris (France)
9-10 April 2014, Madrid (Spain)
25-26 June 2014, Berlin (Germany)

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 **50+ expert members** from 21 countries (15 CEN)

Subgroups: SG1 - Wolfgang Beier: 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

Convenor's recommendations to TC278

- 1. To request updating of the proposed DRDD taking into account TC278's guidance at the upcoming meeting in London**

Completed Work (1) - Architecture and technology independent

ISO 17573	EFC - System architecture for vehicle-related tolling (published in 2010-12, replacing ISO/TS 17573:2004)
EN ISO 12855	EFC - Information exchange between service provision and toll charging (published in 2012-02 + Cor 1:2013)
CEN ISO/TS 17444	EFC – Charging performance Part 1: Metrics (published in 2012-10)
CEN/TS 16439	EFC – Security framework (published in 2013-01)
CEN ISO/TS 17574	EFC – Guidelines for security protection profiles (2nd ed published in 2009-09)
CEN TR 16092	EFC - Requirements for pre-payment systems (published in 2011-03)
CEN TR 16152	EFC – Personalisation and mounting of first mount OBE (published in 2011-03)
CEN TR 16219	EFC – Value added services based on EFC on-board equipment (published in 2011-07)

Completed Work (2) - Architecture and technology independent

CEN ITR

Integration of **payment systems for transport services**
(CEN/TC278 N278, 1994-03-17)

CEN ITR

Definition of **Threats and Security Controls** for the Charging
Interface in Electronic Fee Collection (CEN/TC278 N780, 1997-
10)

Completed Work (3) – DSRC-based EFC

EN ISO 14906	EFC - application interface definition for DSRC (3 rd edition published in 2011-10 + Cor 1:2013)
CEN ISO/TS 14907	EFC - Test procedures user and fixed equipment Part 1: Description of test procedures (3 rd ed published in 2010-05) Part 2: Conformance test for the onboard unit application interface (2 nd ed in 2011-10)
EN 15509	EFC - Interoperable application Profile for DSRC (published 2007-05)
EN 15876	EFC – Evaluation of on-board and roadside equipment for conformity to EN 15509 Part 1: Test suite structure and test purposes (2010+A1:2012) Part 2: Abstract test suite (published 2011-03)
CEN ISO/TS 25110	EFC - Interface definition for on-board account using ICC (2 nd ed in 2013-05)
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 (4)

Autonomous and support for autonomous EFC systems

- CEN ISO/TS 17575** EFC - **Application interface definition for autonomous systems**
- Part 1: **Charging** (published in 2010-06 + Cor 1:2013)
 - Part 2: **Communication and connection to the lower layers** (published in 2010-06)
 - Part 3: **Context data** (published in 2011-04 + Cor 1:2013)
 - Part 4: **Roaming** (published in 2011-04)
- CEN/TS 16331** EFC – **Interoperable application profiles for autonomous systems** (published in 2012-03)

Completed Work (5)

Autonomous and support for autonomous EFC systems

CEN ISO/TS 16407 EFC – Evaluation of equipment for conformity to CEN ISO / TS 17575-1

Part 1: Test suite structure & test purposes (published in 2011-10)

Part 2: Abstract test suite (published in 2012-02)

CEN ISO/TS 16401 EFC – Evaluation of equipment for conformity to CEN ISO / TS 17575-2

Part 1: Test suite structure & test purposes (published in 2012-02)

Part 2: Abstract test suite (published in 2012-02)

CEN ISO/TS 16410 EFC – Evaluation of equipment for conformity to CEN ISO / TS 17575-3

Part 1: Test suite structure & test purposes (published in 2011-10)

Part 2: Abstract test suite (published in 2012-02)

CEN ISO/TS 16403 EFC – Evaluation of equipment for conformity to CEN ISO / TS 17575-4

Part 1: Test suite structure & test purposes (published in 2012-02)

Part 2: Abstract test suite (published in 2012-02)

Completed Work (6)

Autonomous and support for autonomous EFC systems

- CEN ISO/TS 12813** EFC - **Compliance check communication** (Published in 2009-11)
- 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 + Cor 1:2013)
- 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 (published in 2012-02)
- CEN ITR** Application **requirements** for EFC systems based on **GNSS/CN** (CEN/TC278 N798, 1997-11)

Team of EFC standardisation experts

