

CEN EFC standards update in relation to M/338 and the EETS

**Intelligent Transport Systems
Co-ordination Group (ITS-CG)**

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On behalf of CEN/TC 278

- **Standardisation and the EETS so far**
 - Mandate m/338, history and scope
- **Overview of progress in EFC standardisation since 2011-09**
 - Recently approved standards
 - Work started or underway
 - Published standards
 - New work ideas
 - Progress of grant agreements and project teams
- **Results in relation to the EETS**
- **EFC and co-operative ITS**
- **Organisational update**

Note: This presentation covers only CEN/ISO activities, not other standardisation (e.g. ETSI)

EFC application standardisation since 1992: CEN/TC 278/WG1

- Supporting communications technologies in CEN/TC278/WG9 and ETSI

Directive (2004): Standards development to support the EETS:

- Mandate m/338 initiated (see below)
- EC financial support for work in project teams (grant agreements)

CEN Reporting at Comité Télépéage, also:

- Taking part as a liaison in the Ad Hoc Working Group
- Invitation to take part as guests in the EETS-NB co-ordination group

EFC standardisation has a different (and wider) scope than the EETS:

- The EETS is a single complementary service (while CEN/ISO shall cover all possible services)
- EFC standardisation supports the EETS by providing "building blocks"...
- ... but EFC standardisation does not have the task to deliver tailor-made specifications to the EETS
- ... this is up to the owner of the service
- Non-technical and similar service-related parts are normally out of the ESOs scope

Mandate M/338:

“Standardization Mandate addressed to CEN, CENELEC and ETSI in support of Interoperability of electronic road toll systems in the Community”

- Was set up in 2003 (CEN BT N6957)
- ESOs invited to "prepare a coherent set of standards, specifications and guidelines in support of the EETS Directive".

Process is monitored by ITS-CG (starting in 2011)

- Previously monitored by ICTSB/ITSSG.

First phase included a report of foreseen work:

- m/338 report finalised in 2005-12 (K. Perrett)
- Last years changes in business model and architecture are not reflected in the report. It was agreed (at as meeting between EC & CEN in June 2008) to deal with it informally, rather than updating the report.

Mandate M/338 scope and task:

- Deals with "technical standardisation".
- It is wide enough to cover all necessary standards supporting the EETS.
- ... but there is no comprehensive, active, detailed "work programme" for carrying out m/338.
- Concrete initiatives for work comes normally from CEN/TC278/WG1 experts. In addition stakeholders (e.g. the EC, StoGrp and members of the Electronic Toll Committee) have voiced some specific needs.

EFC application standards - overview

	DSRC-based EFC		EFC-tech. independent	Autonomous-EFC		
	Tests	Requirements		Requirements	Tests	
Frameworks	14907-1 Test Procedures		17573 EFC Arch.			Tech. Rep. TR 16040 Urban req.
			17574 Sec. Prof. Frame.			TR 16152 First mou. OBE
			16439 Sec. Frame.			TR 16092 Pre-paid req.
Toolboxes	14907-2 DSRC-OBUs Tests	14906 AID, DSRC-EFC	12855 Info Exchange	17575-1/2/3/4 AID Auto-EFC	16401, 16403, 16407, 16410	TR 16219 VAS
		25110 AID, IC-cards	17444-1/2 Charg. Perf..			TR xxxxx EFC on C-ITS
Profiles	15876-1/2 IAP Test stnd	15509 IAP for DSRC-EFC		16331 IAP for Auto-EFC		TR xxxxx MM pay.med
		16785 DSRC+ext. device		12813 CCC for Auto-EFC	13143-1/2 CCC Test	
				13141 LAC for Auto-EFC	13140-1/2 LAC Test	
				XXXXX Sec.Mon: CC		
				XXXXX Sec.Mon: TR		

Main deadlines were at the end of 2011:

- CEN EN 15786-1/A1 approved in 2012-02
- No other new standards have been approved in early 2012

Standards currently under vote

- CEN prTS 16439, EFC - Security Framework
- CEN/ISO prTS 17444-1, EFC - Charging performance, Part 1: Metrics.

EFC Secure Monitoring – Compliance Checking

EFC Secure Monitoring – Trusted Recorder (NWI vote, May 2012)

EN 15509 – periodic revision

**CEN/ISO prTS 17444-2, EFC - Charging performance: Part 2:
Examination framework**

**Guidelines for EFC-applications based on in-vehicle ITS Stations
(TR)**

**ISO prTS 16785 EFC - Interface definition between DSRC-OBE
and external in-vehicle devices** (mainly Asian oriented)

**How to apply EFC standards to multi-modal transport services
using common payment media** (TR, mainly for Asian use)

Also: Newly started WG1 effort to harmonise terms and data definitions between our standards.

ISO 17573 EFC – System Architecture for vehicle related tolling

EN ISO 12855 EFC – Information exchange between service provision and toll charging

CEN ISO/TS 17574 EFC - Security services framework for EFC

EN ISO 14906 EFC - application interface definition for DSRC
(published in 2011-10)

CEN ISO/TS 14907 EFC - Test procedures user and fixed equipment

- Part 1 Test procedures user and fixed equipment
- Part 2 Conformance test for the onboard unit application interface

ISO/TS 25110 EFC - Interface Definition for On-Board Account Using Integrated Circuit Card

EN 15509 Interoperability application profile for DSRC

EN 15876 Evaluation of equipment for conformity to EN 15509

- Part 1: Test suite structure & test purposes
- Part 2: Abstract test suite

CEN ISO/TS 17575 EFC - Application interface definition for autonomous systems

- Part 1: Charging
- Part 2: Communication and connection to the lower layers
- Part 3: Context data
- Part 4: Roaming

CEN/TS 16331, EFC – Interoperable application profiles for autonomous system

CEN ISO/TS 12813 EFC - Compliance Check Communication

CEN ISO/TS 13141 EFC - Localisation Augmentation Communication

CEN ISO/TS 13143, EFC - Evaluation of on-board and roadside equipment for conformity to CEN ISO/TS 12813

- Part 1: Test suite structure & test purposes
- Part 2: Abstract test suite

CEN ISO/TS 13140-2, EFC - Evaluation of on-board and roadside equipment for conformity to CEN ISO/TS 13141

- Part 1: Test suite structure & test purposes
- Part 2: Abstract test suite

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

- Part 1: Test suite structure & test purposes
- Part 2: Abstract test suite

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

- Part 1: Test suite structure & test purposes
- Part 2: Abstract test suite

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

- Part 1: Test suite structure & test purposes
- Part 2: Abstract test suite

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

- Part 1: Test suite structure & test purposes
- Part 2: Abstract test suite

CEN TR 16219, EFC – Value added services based on EFC on-board equipment

CEN TR 16092 EFC – Requirements for pre-payment systems

CEN TR 16152 EFC – Personalisation and mounting of a first mount OBE

CEN TR 16040 EFC – Requirements for urban DSRC systems

GA 2006: Finished. EC approved.

- PT20, PT21 finished;
- 2 EN and 4 TS done.

GA 2007: All PT work is finished and all standards approved. Final report submitted.

- PT22, PT23, PT24, PT25, PT26, PT27, PT28, PT30, PT31, PT32 finished
- 1 EN, 15 TS and 4 TR done.

GA 2010: GA signed

- PT133 & PT134 started (Security Framework, Charging Performance); target 3 TS.

GA 2011: GA signed

- PT135 & PT136 started (Secure Monitoring Compliance Checking, EFC on ITS station); target 1 TS and 1 TR.

GA 2012: GA proposal submitted, is under evaluation.

- Project teams (Secure Monitoring Trusted Recorder, IAP for information exchange, Co-ordination and dissemination)

Overall assessment of progress in relation to M/338:

- DSRC-EFC standards: Most work is done
- Autonomous-EFC and technology-independent standards: A set of good “building blocks” delivered for the EETS. Revisions and further profile-standards might follow after implementation experience and market convergence
- All agreed CEN (ISO) work has been done. Further standards under work.
- Possible migration towards harmonised standards (add Annex Z) is being examined

Focus on ideas for new work

- Revision of published standards during the coming years
- Active discussion on new work ideas in the WG. Clear interest among WG1-members to develop further EFC-standards
- Challenge to standardise a “moving target” as EFC-systems are developing and EFC-services are being planned and implemented

Survey on "IAP for 12855" concluded

- 11 replies (TCs and TSPs)
- Clear interest and support for the task among stakeholders
- EN 12855 is being widely used, and needs to be narrowed (is a "toolbox").
- NWI being prepared in WG1 for vote Q3 2012

Secure Monitoring – Trusted Recorder

- The second part of the Secure Monitoring suite (Compliance Checking is #1)
- NWI being prepared in WG1

Several other ideas are also being discussed in WG1

EFC as such is not in the original scope

- EFC has its own standardisation mandate, m/338

WG1 response to ISO/TC204 (and CEN/TC278) on co-operative systems (TC278 N2533):

- "Given the (current) definition of cooperative ITS in ISO (and in CEN), most of the electronic fee collection standards and works in progress, if not all, are relevant to take into account in order to facilitate integration and fostering of best practice of cross-cutting elements when preparing standards on cooperative ITS."
- List of our work
- Mapping of EFC-standards towards ITS co-operative standards in annex

Value Added Services (using EFC as a platform); CEN TR 16219

EFC-services (using ITS as a platform): prTR "Guidelines for EFC-applications based on in-vehicle ITS Stations"

- TC278 N2508 and N2538: Approved as NWI. Work started. PT136
- Possible joint workshop in 2012-10

Recent meetings: 25-26 January 2012 (Warsaw, Poland)
11-12 April 2012 (Delft, The Netherlands)

Next meetings: 27-28 June 2012 (Zürich, Switzerland)
16-17 October 2012 (Moscow, Russia)
23-24 January 2013 (UK, tbc)

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 52 expert members from 21 countries (15 CEN)

Subgroups: SG1 - Trond Foss: Info exchange, architecture, security
SG2 - Jean François Jouen: DSRC based EFC
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, ITS-CG.

WG1 experts meeting in October 2011



Co-ordination of EFC standardisation: CEN/TC278/WG1

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Thank you for your attention!