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English Version

Electronic fee collection - Requirements for pre-payment systems

Perception de télépéage - Exigences relatives aux systèmes de pré-paiement

Elektronische Gebührenerfassung - Anforderungen für Systeme zur Vorauszahlung

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Foreword

This document (CEN/TR 16092:2011) has been prepared by Technical Committee CEN/TC 278 "Road Transport and Traffic Telematics", the secretariat of which is held by NEN.

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This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

Introduction

The discussion on payment-modes within the environment of electronic fee collection at present is based on the existence of a post-payment contract between the Toll Service Provider (TSP) and the Service User (SU).

Pre-conditions of such a contractual agreement are

- sufficient creditworthiness of the SU, and
- existence of a bank account with the SU.

Questions arise in the context of the access to an EFC system for

- SUs not being able to meet the aforementioned pre-conditions;
- SUs with occasional needs to use an EFC system (mainly from the private sector)
 - not willing to open a bank account;
 - not able to open a bank account (by reasons what so ever) and therefore not allowed to participate;
 - from countries with limited access to the card market to participate in an interoperable EFC system, which may otherwise not be open to them.

To meet the requirements of this clientele, one or more suitable ways of pre-payments have to be established for EFC to grant interoperability:

- stored value on an electronic medium;
- stored value in a central account.

As far as private users are concerned legislation could ask for anonymous payment modes as nobody can be forced to open or communicate a bank account. On the other hand such payment modes help Toll Service Providers to offer an interoperable EFC service to customers with a limited monetary risk.

Before defining necessary standards in that field the requirements of a universal Pre-Payment system able to communicate with the OBE have to be evaluated, especially with regard to validity and feasibility for private users.

1 Scope

This technical report (TR) analyses requirements for a universal Pre-Pay account system for EFC including the following issues:

- relations to other existing standards in this domain;
- the core requirements and functionality that must be provided.

This technical report will show an analysis of the requirements for a universal prepaid system and categorise possible different types of pre-pay solutions, in terms of functionality, technical and legal considerations. As far as legal requirements are concerned it will be clarified whether the pre-payment means fall within the scope of European Directive 2000/46/EC on the taking up, pursuit of and prudential supervision of the business of electronic money institutions and whether the medium-issuing organisation has to act as a financial institution and falls within the scope of the Payment Service Directive 2007/64/EC. The latter applying exactly to payment activities undertaken by entities but do not require a full bank license.

The technical report will describe the current state-of-affairs of EFC pre-payment systems, including the demand for standards and inventory of provisions provided by standards. It will identify and prioritize gaps in terms of standards or other enablers needed in order for the market to provide viable pre-payment solutions in a European context.

There are two general approaches to represent the content of the TR:

- a) allocate each requirement under each pre-pay solution;
- b) allocate each pre-pay solution under each requirement.

To achieve a better understanding and readability alternative a) has been decided (this refers to Clause 8 and Clause 9 only).

The TR does not give any decision on how or whether one of the pre-payment solutions described is commercially feasible to be considered as an implementable offer to the Service User. The return for invest for any TSP regarding the system architecture requirements and other obligations (refunding of SU) is questionable.

This TR just gives a summary of the requirements of possible pre-pay solutions. It is up to decision makers to evaluate the alternatives in the light of their individual preconditions of their tolling regime and of market acceptance.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 15509, *Road transport and traffic telematics — Electronic fee collection — Interoperability application profile for DSRC*

prEN ISO 12855, *Electronic fee collection — Information exchange between service provision and toll charging (ISO/DIS 12855:2009)*

EN ISO 14906, *Road transport and traffic telematics — Electronic fee collection — Application interface definition for dedicated short-range communication (ISO 14906:2004)*

prEN ISO 17573, *Electronic fee collection — System architecture for vehicle related tolling (ISO/DIS 17573:2009)*

CEN ISO/TS 25110, *Electronic fee collection — Interface definition for on-board account using integrated circuit card (ICC) (ISO/TS 25110:2008)*

ISO 4217, *Codes for the representation of currencies and funds*

ISO/IEC 7810, *Identification cards — Physical characteristics*

ISO/IEC 7816-1, *Identification cards — Integrated circuit(s) cards with contacts — Part 1: Physical characteristics*

ISO/IEC 7816-2, *Identification cards — Integrated circuit cards — Part 2: Cards with contacts — Dimensions and location of the contacts*

ISO/IEC 7816-3, *Identification cards — Integrated circuit cards — Part 3: Cards with contacts — Electrical interface and transmission protocols*

ISO/IEC 7816-4, *Identification cards — Integrated circuit cards — Part 4: Organization, security and commands for interchange*

ISO/IEC 7816-6, *Identification cards — Integrated circuit cards — Part 6: Inter-industry data elements for interchange*

ISO/IEC 7816-8, *Identification cards — Integrated circuit cards — Part 8: Commands for security operations*

ISO/IEC 14443-1, *Identification cards — Contactless integrated circuit cards — Proximity cards — Part 1: Physical characteristics*

ISO/IEC 14443-2, *Identification cards — Contactless integrated circuit cards — Proximity cards — Part 2: Radio frequency power and signal interface*

ISO/IEC 14443-3, *Identification cards — Contactless integrated circuit(s) cards — Proximity cards — Part 3: Initialization and anticollision*

ISO/IEC 14443-4, *Identification cards — Contactless integrated circuit cards — Proximity cards — Part 4: Transmission protocol*

ISO/IEC 15693-1, *Identification cards — Contactless integrated circuit cards — Vicinity cards — Part 1: Physical characteristics*

ISO/IEC 15693-2, *Identification cards — Contactless integrated circuit cards — Vicinity cards — Part 2: Air interface and initialization*

ISO/IEC 15693-3, *Identification cards — Contactless integrated circuit cards — Vicinity cards — Part 3: Anticollision and transmission protocol*

ISO/IEC 18092, *Information technology — Telecommunications and information exchange between systems — Near Field Communication — Interface and Protocol (NFCIP-1)*

3 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

3.1

Electronic Fee Collection (EFC)

toll charging by electronic means via a wireless interface

3.2

enforcement

process of compelling observance of a law, regulation, etc.