



The European Electronic Toll Service (EETS)

- GUIDE FOR THE APPLICATION OF THE DIRECTIVE ON THE INTEROPERABILITY OF ELECTRONIC ROAD TOLL SYSTEMS

"This brochure comprises the text of a working document of the Directorate-General for Mobility and Transport on the interoperability of electronic road toll systems in the Union and the European Electronic Toll Service — Guide for the application of Directive 2004/52/EC of the European Parliament and of the Council and of Commission Decision 2009/750/EC."

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Luxembourg: Publications Office of the European Union, 2011

ISBN 978-92-79-18637-0
doi:10.2833/6832

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FOREWORD



Efficient transport networks are essential to the competitiveness of our economies. EU internal market success and sustainable mobility greatly rest on the availability and efficient operation of an adequate road network.

Road transport continues to grow apace, with congestion and bottlenecks affecting an ever growing part of the network. But road infrastructure cannot be extended forever: we need better overall traffic management in order for it to be used to its full capacity.

Charging for road use was initially introduced to finance motorway construction and maintenance. By also taking into account time/distance/place as well as other users and vehicles parameters (e.g. weight, size, energy efficiency, environmental characteristics, number of passengers), it can also be effective for reaching broader transport policy objectives such as modification of users' habits, internalisation of road externalities, infrastructure usage optimisation and ecological impact limitation.

The various European electronic road toll systems introduced at local and national levels from the early 1990s onwards were, and generally still are, non-interoperable. They oblige drivers to affix several electronic tags inside their vehicle in order to take advantage of the various systems encountered on their itinerary. In view of the growth of international road traffic, the objective to internalise road externalities has gained particular weight and a number of Member States actively consider introducing extensive electronic road toll systems. The interoperability of existing and future systems must be ensured.

The European Electronic Toll Service (EETS) will ensure interoperability of tolling services on the entire European Union road network. EETS will enable road users to easily pay tolls throughout the whole EU with only one subscription contract with one service provider and a single on-board unit. By limiting cash transactions at toll stations and eliminating cumbersome procedures for occasional users, EETS will facilitate daily operations for road users, improve traffic flow and reduce congestion.

It will also help to further extend information society towards road transport, as the EETS on-board equipment functionalities can be used by various other added-value telematic applications and services, such as eCall, real-time traffic and travel information. EETS will therefore contribute to further strengthening the competitiveness of the European information and communications technologies industry in this sector, already at the international forefront.

Today's congested roads and increasing emissions of the road sector are a clear indication that something needs to be done. The European Electronic Toll Service is a first step that can enable the implementation of many road policy instruments.



Siim Kallas
Vice-President of the European Commission
Commissioner in charge of mobility and transport

NOTES

1. This guide is intended to be a reference manual for all parties directly or indirectly concerned by Directive 2004/52/EC ⁽¹⁾ on the interoperability of electronic road toll systems and Decision 2009/750/EC ⁽²⁾ on the definition of the European Electronic Toll Service (EETS) and its technical elements. It should be read and used as a help for the implementation of electronic fee collection (EFC) interoperability and EETS; it does not substitute Directive 2004/52/EC or Decision 2009/750/EC. It simply explains and clarifies some of the most important aspects related to the implementation of EFC interoperability and EETS. This guide should help to minimise the number of applications of the safeguard clauses foreseen in Chapter V of Decision 2009/750/EC, in particular those originating from divergent interpretations of Directive 2004/52/EC and Decision 2009/750/EC.
2. For the purpose of the transposition of Directive 2004/52/EC and for the implementation of Decision 2009/750/EC, Member States' authorities should refer to the directive and the decision mentioned before.
3. In no circumstances can the present document be taken as substituting the content of the directive and of the decision.
4. This guide has been prepared by the Directorate-General for Mobility and Transport with the assistance of a working group comprising representatives of the Regulatory Committee set up by Directive 2004/52/EC, the European standardisation bodies and the industry.
5. The guide is publicly available. It is not binding in the sense of legal acts adopted by the Union ⁽³⁾.
6. It is important to note that references and procedures contained in this guide concerning the assessment of the conformity to specifications or the suitability for use of EETS interoperability constituents relate only to Decision 2009/750/EC. The placing of an EETS interoperability constituent on the market requires also the fulfilment of all the relevant European Union legislation, national legislation and regulatory provisions which are compatible with the European Union legislation and are applied in a non-discriminatory manner.
7. The guide will be timely reviewed and updated to reflect progress and experience gained with the implementation of the European Electronic Toll Service, as necessary.

(1) Directive 2004/52/EC of the European Parliament and of the Council of 29 April 2004 on the interoperability of electronic road toll systems in the Community (OJ L 166, 30.4.2004, pp. 124; corrected version in OJ L 200, 7.6.2004, pp. 50–56).

(2) Commission Decision 2009/750/EC of 6 October 2009 on the definition of the European Electronic Toll Service and its technical elements (notified under document C(2009) 7547) (OJ L 268, 13.10.2009, p. 11–29).

(3) The Lisbon Treaty substitutes 'European Union' for 'European Community'. The former terminology is kept where the corresponding documents have not yet been adapted.

CONTENTS

| | |
|---|-----------|
| 1. INTRODUCTION | 5 |
| 1.1. Scope | 5 |
| 1.2. Target audience | 5 |
| 1.3. Content of the guide | 5 |
| 2. DIRECTIVE 2004/52/EC, DECISION 2009/750/EC AND EETS | 6 |
| 2.1. Objectives and principles | 6 |
| 2.2. Legislation, standards and other normative documents | 6 |
| 2.2.1. Directive 2004/52/EC | 6 |
| 2.2.2. Commission Decision 2009/750/EC | 7 |
| 2.3. Roadmap | 13 |
| 2.4. EETS general architecture | 16 |
| 3. EETS CONTEXT AND ROLES/STAKEHOLDERS | 23 |
| 3.1. Introduction | 23 |
| 3.2. Stakeholders | 24 |
| 3.2.1. Internal entities | 24 |
| 3.2.2. External systems/entities | 25 |
| 3.2.3. Manufacturer-authorised representative | 27 |
| 4. ASSESSMENT OF EETS INTEROPERABILITY CONSTITUENTS | 28 |
| 4.1. Principles | 28 |
| 4.2. Responsibilities | 28 |
| 4.3. Requirements | 28 |
| 4.4. Procedures | 29 |
| 4.4.1. Conformity to specifications | 29 |
| 4.4.2. Suitability for use | 29 |
| 4.5. Standards and other normative documents with EETS relevance | 30 |
| 4.5.1. Published standards and other normative documents of mandatory application | 31 |
| 4.5.2. Published standards and other normative documents of voluntary application | 33 |
| 4.5.3. Standards and other normative documents under revision or in development | 39 |
| 5. RELATIONSHIP BETWEEN TOLL CHARGERS AND EETS PROVIDERS | 41 |
| 5.1. Principles | 41 |
| 5.2. Requirements | 41 |
| 5.3. EETS domain statement | 42 |
| 5.3.1. Foreword | 42 |
| 5.3.2. Language | 42 |
| 5.3.3. Legal aspects | 43 |
| 5.3.4. Content | 43 |
| 5.4. Dispute settlement | 45 |

| | |
|---|-----------|
| 6. PROVISION OF THE SERVICE | 46 |
| 6.1. Responsibilities | 46 |
| 6.2. Toll violation and enforcement | 46 |
| 6.2.1. Toll violation | 46 |
| 6.2.2. Enforcement | 47 |
| 6.2.3. Cross border enforcement | 47 |
| ANNEX 1: REFERENCES TO DIRECTIVE 2004/52/EC NATIONAL TRANSPOSITIONS | 48 |
| ANNEX 2: VEHICLE CLASSIFICATION PARAMETERS | 51 |
| ANNEX 3: USEFUL INTERNET LINKS AND ADDRESSES | 51 |
| 3.1. List of the sales agents of the Publications Office of the European Union | 51 |
| 3.2. European legislation and documents on electronic toll systems' interoperability and EETS | 51 |
| 3.3. Harmonised standards | 53 |
| 3.4. List of the bodies notified under Commission Decision 2009/750/EC | 53 |
| 3.5. National EETS domains and EETS Providers registers | 53 |
| 3.6. Professional association Toll Chargers | 53 |
| 3.7. Professional association EETS Providers | 53 |
| ANNEX 4: EETS INTEROPERABILITY CONSTITUENTS ASSESSMENT MODULES | 54 |
| ANNEX 5: MANUFACTURERS' AND NOTIFIED BODYS' TASKS FOR EETS INTEROPERABILITY CONSTITUENTS ASSESSMENT | 57 |
| ANNEX 6: ELEMENTS TO BE MENTIONED ON THE CERTIFICATES AND OTHER FORMAL DOCUMENTS ISSUED BY NOTIFIED BODIES | 59 |
| ANNEX 7: THE EUROPEAN STANDARDISATION CONTEXT | 62 |
| ANNEX 8: TERMINOLOGY RELATING TO CONFORMITY ASSESSMENT | 63 |
| ANNEX 9: DEFINITIONS | 64 |
| 9.1. Harmonised standard | 64 |
| 9.2. Technical specification | 65 |
| 9.3. Conformity to specifications | 65 |
| 9.4. Suitability for use | 65 |
| 9.5. Assessment of conformity to specifications | 65 |
| 9.6. Assessment of suitability for use | 65 |
| 9.7. Placing on the market | 65 |
| 9.8. Placing into service | 65 |
| ANNEX 10: LIST OF ACRONYMS | 66 |
| ANNEX 11: QUESTIONS STAKEHOLDERS MAY HAVE ABOUT EETS | 67 |
| ANNEX 12: SECTIONS OF PREN ISO 17573 REFERRED TO IN THIS APPLICATION GUIDE | 68 |

1. INTRODUCTION

1.1. Scope

The objective of this guide is to help clarify certain concepts and procedures referred to in Directive 2004/52/EC on the interoperability of electronic road toll systems and the related Commission Decision 2009/750/EC on the definition of the European Electronic Toll Service (EETS). In particular, the guide aims to explain how EETS interoperability constituents might be assessed with a view to meeting the essential requirements of Decision 2009/750/EC.

Directive 2004/52/EC — which entered into force on 26 June 2004 — has been transposed into national law by all the Member States (Annex 1 lists the references to national transpositions of the directive).

Commission Decision 2009/750/EC of 6 October 2009 lays down the essential requirements which will apply to EETS for the whole of the Union. The decision entered into force on 8 October 2009, upon its notification to the Member States.

This guide ⁽⁴⁾ should be used in conjunction with Directive 2004/52/EC, Decision 2009/750/EC and all relevant legislation. It constitutes an aid for the correct application of the decision that should lead to the removal of obstacles and difficulties related to the free movement of EETS and the associated on-board equipment (OBE) within the Union ⁽⁵⁾. It is not intended to contain guidelines for designing or manufacturing EETS equipment.

1.2. Target audience

The aim of this guide is to facilitate the deployment of EETS by the Member States and the economic actors and agents concerned, such as the Toll Chargers, EETS Providers, equipment manufacturers, maintenance service providers, trade associations, contracting entities and the notified bodies habilitated to assess the EETS interoperability constituents' conformity to specifications and/or suitability for use. Users or user associations may probably also find information of interest to them.

1.3. Content of the guide

In order to ensure transparency, this guide intends to assist all the parties concerned by the implementation of EETS. The guide contains, inter alia, a synthesis of all the relevant information contained in the reports produced by the expert groups ⁽⁶⁾ which contributed to the development of Decision 2009/750/EC. In addition, the guide provides the picture at the time of its writing of the standardisation process related to EETS, presenting a list of the existing or draft European standards and other documents relevant to Directive 2004/52/EC and Decision 2009/750/EC, including those not explicitly referred to in the decision.

⁽⁴⁾ This guide does not have a regulatory character; its provisions cannot prevail on those of Directive 2004/52/EC and Decision 2009/750/EC.

⁽⁵⁾ According to the Agreement on the European Economic Area (EEA) (Council and Commission Decision 94/1/EC of 13 December 1993 (OJ L 1, 3.1.1994, p. 1)) the territories of Liechtenstein, Iceland and Norway have to be considered, for the implementation of Directive 2004/52/EC, as part of the Union territory. When the terms 'Union', 'Union territory' or 'single market' are used in this guide, they mean the EEA territory.

⁽⁶⁾ See the list of expert groups and tasks attribution in Annex 3 to this guide.

2. DIRECTIVE 2004/52/EC, DECISION 2009/750/EC AND EETS

2.1. Objectives and principles

Directive 2004/52/EC and related Decision 2009/750/EC aim to achieve the interoperability of all the electronic road toll systems in the European Union in order to avoid the proliferation of incompatible systems, which may compromise both the smooth operation of the internal market and the achievement of transport policy objectives.

The directive therefore stipulates that a European Electronic Toll Service shall be set up, which covers all the road networks and tolled (infra)structures in the Union on which road-usage is declared electronically by means of a single on-board equipment, and defines the allowed technological solutions for carrying out electronic toll transactions, namely 5.8 GHz microwave and satellite positioning coupled with mobile communications. EETS will allow any road user to pay easily the tolls incurred on any road or (infra)structure in the Union by means of a single subscription contract with an EETS Provider and a single item of on-board equipment. Each EETS Provider shall build full coverage of EETS domains within a 24-month transition period after being registered.

The directive did not set up EETS as such, but rather provided the framework for its establishment. Commission Decision 2009/750/EC then went on to define EETS, inter alia by setting out the essential requirements for interoperability, as well as procedural, contractual and legal aspects relating to EETS provision. The Commission decision lays down rights and obligations on EETS Providers, Toll Chargers and EETS Users.

2.2. Legislation, standards and other normative documents

2.2.1. Directive 2004/52/EC

With regard to the objectives, the following Articles of Directive 2004/52/EC are of a particular importance:

2.2.1.1. Article 1(3): Creation of EETS

'... a European electronic toll service shall be created. This service, which is complementary to the national electronic toll services of the Member States, shall ensure the interoperability throughout the Community, for users, of the electronic toll systems that have already been introduced in the Member States and of those to be introduced in the future in the framework of this Directive.'

Comments:

Member States are not required to replace their current electronic toll systems by EETS, nor are they prevented from bringing into service new national or local toll systems utilising a technological solution of Article 2(1) of the directive (satellite positioning, mobile communications and 5.8 GHz microwave). As it happens, EETS will be available alongside the national or local electronic toll systems at conditions which should not deter potential users from subscribing to this service. In any case the toll (?) charged by Toll Chargers to EETS Users shall not exceed the corresponding national/local toll. EETS Users can be asked for a fee by the EETS Provider. The invoice to the EETS User should clearly separate the toll collected on behalf on the Toll Charger and the fee to the EETS Provider.

2.2.1.2. Article 2(4): Technological solutions (open on-board equipment)

'Without prejudice to [the technological solutions listed in] paragraph 1, on-board equipment may also be suitable for other technologies, on condition that this does not lead to an additional burden for users or create discrimination between them. Where relevant, on-board equipment may also be linked to the vehicle's electronic tachograph.'

(?) I.e. the charge, tax or duty levied in relation with circulating a vehicle in a toll domain.

Comments:

The fact that the on-board equipment features services other than EETS and technologies other than those strictly required by EETS shall not lead to a Toll Charger's discrimination of the users and EETS Provider concerned. The EETS Provider has the ultimate responsibility towards a Toll Charger that the conditions for delivering EETS are fully met, irrespective of the functionalities and services offered by the OBE in addition to EETS. The OBE design shall ensure that the additional functionalities and services bear no impact on the overall EETS performance and correctness.

2.2.1.3. Article 3(1): EETS coverage

'A European electronic toll service shall be set up which encompasses all the road networks in the Community on which tolls or road-usage fees are collected electronically.'

Comments:

EETS covers all the toll domains falling under the scope of Directive 2004/52/EC, i.e. all road toll systems (except for small, strictly local toll systems for which the costs of compliance with the requirements of this directive would be disproportionate to the benefits) requiring on-board equipment for toll declarations. Full European coverage is an essential element of EETS. As reaching full European coverage represents a considerable effort for new EETS Providers and takes time, they are allowed a 24-month period to fulfil this requirement (for more details see below: Section 2.2.2.3, Article 4(1) and (2): European coverage).

2.2.1.4. Article 3(2): Tolling and EETS subscription

The European Electronic Toll Service shall be independent of the fundamental decisions taken by Member States to levy tolls on particular types of vehicles, of the level of charges and of the purpose for which such charges are levied. It shall concern only the method of collecting tolls or fees. The service shall allow for contracts to be concluded irrespective of the place of registration of the vehicle, the nationality of the parties to the contract, and the zone or point on the road network in respect of which the toll is due.'

Comments:

Without prejudice to European legislation, Member States take the fundamental decisions to introduce tolling and on the technological solutions. In conformity with the single market principle of free movement of services, users are entitled to subscribe to EETS with the service providers of their choice. However, there is no public service obligation: EETS Providers may have a user acceptance policy, which must be non-discriminatory and should be made public.

2.2.2. Commission Decision 2009/750/EC

The Commission decision was elaborated with the assistance of the Toll Committee, composed of Member States representatives and chaired by the Commission, in accordance with Article 5 of Directive 2004/52/EC (comitology procedure). The Toll Committee gave a unanimous positive opinion on the Commission decision proposal at its 27 March 2009 meeting where 26 Member States were present and one Member State was represented.

The decision sets out the general requirements necessary to achieve interoperability between the EETS Providers' and Toll Chargers' equipment and procedures.

With regard to this objective, the following articles of Commission Decision 2009/750/EC establish the rights and duties of the stakeholders in view of allowing the deployment of EETS:

2.2.2.1. Rights and duties of Member States

- *Article 17 and Annex V: Notified bodies*

'1. Member States shall notify to the Commission and the other Member States any bodies entitled to carry out or supervise the procedure for the assessment of conformity to specifications or suitability for use [...] indicating each body's area of competence, and the identification numbers [...]

2. Member States shall apply the criteria provided for in Annex V for the assessment of the bodies to be notified [...]

Comments:

For further information on the accreditation of conformity assessment bodies, on the conformity assessment modules and on the application of certain national technical rules, see:

- Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products and repealing Regulation (EEC) No 339/93 (OJ L 218, 13.8.2008, pp. 30–47);
- Decision No 768/2008/EC of the European Parliament and of the Council of 9 July 2008 on a common framework for the marketing of products, and repealing Council Decision 93/465/EEC (OJ L 218, 13.8.2008, pp. 82–128);
- Regulation (EC) No 764/2008 of the European Parliament and of the Council of 9 July 2008 laying down procedures relating to the application of certain national technical rules to products lawfully marketed in another Member State and repealing Decision No 3052/95/EC (OJ L 218, 13.8.2008, pp. 21–29).

See Annex 3 to this guide for a link to the list of bodies notified in relation to the assessment of EETS interoperability constituents' conformity to specifications and suitability for use.

- *Article 19: Registers*

'1. For the purposes of the implementation of this Decision, each Member State shall keep a national electronic register of the following:

(a) the EETS domains within their territory, including information relating to:

[...]

— the EETS Providers having EETS contracts with the Toll Chargers active in their area of competence.

[...]

(b) the EETS Providers to whom it has granted registration [...]

[...]

[...]

3. The registers shall be electronically accessible to the public.'

[...]

Comments:

To foster information dissemination and enhance competition, the Commission decision requires that the publicly accessible EETS domains registers include information relating to the EETS Providers active on each domain. For their part EETS Providers will obviously endeavour to publicise their services to their target customers segment.

- *Articles 10 and 11: Establishment of a conciliation body*

'10(1)Each Member State with at least one EETS domain shall designate or establish a Conciliation Body in order to facilitate mediation between Toll Chargers with a toll domain located within its territory and EETS Providers which have contracts or are in contractual negotiations with those Toll Chargers. The Conciliation Body shall especially be empowered to examine

whether the contractual conditions imposed by a Toll Charger on different EETS Providers are non-discriminatory and a fair reflection of the costs and risks of the parties to the contract.

10(2) That Member State shall take the necessary measures to ensure that its Conciliation Body is independent in its organisation and legal structure from the commercial interests of Toll Chargers and EETS Providers.

[...]

11(4) In order to facilitate its tasks, Member States shall empower the Conciliation Body to request relevant information from Toll Chargers, EETS Providers and any third parties active in the provision of EETS within the Member State concerned.

[...]

Comments:

To provide a faster alternative for dispute resolution to the traditional juridical procedures, Member States shall establish a body in charge of facilitating mediation between Toll Chargers and EETS Providers within the field of EETS. These bodies shall be empowered with the right to examine the contractual conditions between EETS Providers and Toll Chargers. It may designate a pre-existing mediation body to carry out these functions.

These bodies shall be independent in their organisation and legal structure from the interests of any Toll Charger or EETS Provider. This does not prevent a part of the Member State's administration to be dedicated to this conciliation role, even where the Member State is assuming the Toll Charger's role, directly or through a delegated structure, subject to the necessary independence being guaranteed, as required by Article 10(2).

In Member States where no EETS domain exists, there is no need for a conciliation body.

2.2.2.2. Rights and duties of Toll Chargers

- *Article 5(1): Compatibility to EETS*

'1. Where an EETS domain does not comply with the technical and procedural EETS interoperability conditions set by Directive 2004/52/EC and this Decision, the responsible Toll Charger shall assess the problem with the involved stakeholders and, if within its sphere of responsibilities, take remedial actions in view to ensure EETS interoperability of the toll system. If the case arises, the Toll Charger shall inform the Member State in order to update the register referred to under Article 19(1)(a).'

Comments:

To allow for the creation of EETS as required by Article 1(3) of Directive 2004/52/EC (see Section 2.2.1.1 above), Toll Chargers whose toll domains fall under the scope of the directive shall ensure that their systems provide sufficient interoperability conditions for EETS to exist. Toll Chargers are responsible for taking remedial actions if an assessment of the problems with other involved stakeholders shows that their systems do not provide sufficient interoperability conditions. These remedial actions could concern both material and immaterial interoperability constituents (for example DSRC devices as well as software updates). Toll Chargers may have interest in adapting their enforcement systems to EETS.

- *Article 5.2: EETS domain statement*

'2. Each Toll Charger shall develop and maintain an EETS domain statement setting out the general conditions for EETS Providers for accessing their toll domains, in accordance with Annex I.'

Comments:

In order to facilitate the deployment of EETS, Toll Chargers shall publish all information necessary to prepare and ensure interoperability between EETS Providers and Toll Chargers. This statement shall include technical specifications as well as generic contractual terms (see Chapter 5 of this guide for further details).

- *Article 5.3: Acceptance of EETS Providers; fair and non-discriminatory contractualisation*

3. Toll Chargers shall accept on a non-discriminatory basis any EETS Provider requesting to provide EETS on the EETS domain(s) under the Toll Charger's responsibility.

Acceptance of an EETS Provider in a toll domain [...] may also be subject to specific contractual conditions.'

Comments:

Any EETS Provider has the right to enter into contract negotiations with a Toll Charger and, if it fulfils the EETS domain statement requirements, should obtain access to the corresponding EETS domain(s). The contractualisation process must be inspired by principles of transparency and fair pricing, according to the decision's preamble (7). In this respect, each Toll Charger should:

- set up consistent rules applicable to any EETS Provider;
- seek efficiency in the application of EETS;
- create conditions for a permanent dialogue with EETS Providers in order to improve processes;
- define fair remuneration rules in view of the services exchanged between the EETS Providers and the Toll Charger.

The fair and non-discriminatory conditions of contractualisation may be scrutinised by the conciliation body of the Member State where the Toll Charger operates the toll domain. This does not prevent the parties from calling for the appropriate jurisdiction to settle a dispute, without prejudice to national procedures.

2.2.2.3. *Rights and duties of EETS Providers*

- *Article 3: Requirements to be fulfilled by EETS Providers (registration)*

'EETS Providers shall seek registration in a Member State where they are established, which shall be granted if they fulfil the following requirements:

- hold EN ISO 9001 certification or equivalent;
- demonstrate having the technical equipments and the EC declaration or certificate attesting the compliance of the interoperability constituents as laid down in Annex IV(1) to the present Decision;
- demonstrate competence in the provision of electronic tolling services or in relevant domains;
- have appropriate financial standing;
- maintain a global risk management plan, which is audited at least every two years;
- be of good repute.'

Comments:

Principles: To become an EETS Provider, a company has to be registered as such in a Member State where it is established, i.e. a Member State where this company has been formed in accordance with the law of that Member State and has a registered office there.

The company seeking registration as an EETS Provider can be a subsidiary, branch, agency, office or other establishment of any other company. However the status of EETS Provider belongs strictly to the company registered as such by a Member State. The principal place of business of the mother company(ies) can be somewhere else in the European Union. Subsidiaries, branches,

agencies, offices etc. of extra European Union mother company(ies) shall be treated in compliance with international treaties and conventions.

Responsibility: The Member State approached by a company for registration decides to enter it in its EETS Providers register on the basis of the requirements mentioned in Article 3 of Decision 2009/750/EC. The Member State should be able to justify its decision to grant registration or not, and to provide relevant information at the request of interested parties. Refusal to register a company applying for the EETS Provider status should be communicated by the Member State to the Commission and the other Member States' registration authorities.

Requirements: (a) An EETS Provider holding a certification other than EN ISO 9001 shall be in a position to demonstrate the equivalence of its quality assurance certification with EN ISO 9001.

(b) No further comments.

(c) EETS provision requires to process large numbers of transactions with appropriate security mechanisms against data loss and corruption as well as data privacy breaches. Competence and experience in EFC or in domains such as banking and insurance, services auxiliary to financial intermediation, telecommunication operators, utility companies, operation of large information and/or telematics systems are of relevance to EETS provision. This list of EETS relevant domains of experience is not exhaustive.

(d) Being of appropriate financial standing in relation with EETS provision relates to having available sufficient financial resources to ensure the establishment and proper administration of a business intending to provide EETS. Member States should exchange information with the appropriate level of detail on the criteria they have applied in assessing the financial standing of a (candidate) EETS Provider. Without prejudice to the payment services directive ⁽⁸⁾ and any other applicable legislation ⁽⁹⁾, examples of applicable criteria could be:

- to have an equity ratio based on the common rules of this business area and established in conformity with an international accounting standard adopted in accordance with Regulation (EC) No 1606/2002 ⁽¹⁰⁾;
- to have a certain minimum amount of shareholders' equity;
- to have available capital and reserves at least equal to a minimum amount multiplied by the number of vehicles which are to carry an EETS on-board equipment for which the EETS Provider will be liable to pay the corresponding tolls. The minimum amount should be commensurate with the average toll paid by subscribers and a reasonable coverage of non-payment by subscribers.

(e) A global risk management plan should contain evaluation and mitigation measures of the risks relevant to the electronic toll collection sector and especially EETS.

The management plan should identify the main risks facing the EETS business such as:

- business interruption (failure in the information processing chain ...);
- cash flow/liquidity risk;
- economic slowdown;
- increasing competition;

⁽⁸⁾ Directive 2007/64/EC of the European Parliament and of the Council of 13 November 2007 on payment services in the internal market amending Directives 97/7/EC, 2002/65/EC, 2005/60/EC and 2006/48/EC and repealing Directive 97/5/EC (OJ L 319, 5.12.2007, pp. 1–36).

⁽⁹⁾ E.g. Directive 2000/46/EC of the European Parliament and of the Council of 18 September 2000 on the taking up, pursuit of and prudential supervision of the business of electronic money institutions (OJ L 275, 27.10.2000, pp. 39–43).

⁽¹⁰⁾ Regulation (EC) No 1606/2002 of the European Parliament and of the Council of 19 July 2002 on the application of international accounting standards (OJ L 243, 11.9.2002, pp. 1–4).

- damage to reputation;
- failure to reach or maintain full EETS domains coverage;
- difficulty to reach required quality-of-service levels;
- third party liability;
- regulatory/legislative changes.

The management plan will detail the mitigation measures envisaged to face these risks.

(f) To be of good repute means not to be in any situation of exclusion defined by the Member State. Examples of situations of exclusion could be:

- being bankrupt or wound up, having their affairs administered by the courts, having entered into an arrangement with creditors, have suspended business activities, being the subject of proceedings concerning those matters, or being in any analogous situation arising from a similar procedure provided for in national legislation or regulations;
- having been convicted of an offence concerning their professional conduct by a judgment which has the force of res judicata;
- not having fulfilled the obligations relating to the payment of social security contributions or the payment of taxes in accordance with the legal provisions of the country in which they are established;
- having been the subject of a judgment which has the force of res judicata for fraud, corruption, involvement in a criminal organisation or any other illegal activity.

12

Dispute settlement: dispute settlement relative to the registration process should be sought with the relevant national jurisdiction.

- *Article 4(1) and (2): European coverage*

'1. EETS Providers shall conclude EETS contracts covering all EETS domains within 24 months following their registration in accordance with Article 19.

The EETS Provider shall maintain its coverage of all EETS domains at all times. In the event of changes to the EETS domains or any other reason affecting full coverage, it shall re-establish full coverage within six months.

2. EETS Providers shall inform EETS Users of their EETS domains coverage and of any changes thereto.

EETS Providers shall make a yearly declaration to the Member State of registration concerning their EETS domains coverage.'

Comments:

Given the complexity for a new EETS Provider to reach full European coverage of all toll domains falling under the scope of Directive 2004/52/EC and the necessity to generate revenues as soon as possible, the Commission decision allows for a 24-month period to reach this requirement, during which time a new EETS Provider should complete its contract negotiations in view to gain access to all the EETS domains. If an EETS Provider and a Toll Charger cannot reach an agreement, any of the parties may refer the matter to the conciliation body responsible for the toll domain, commence proceedings before the national jurisdiction or eventually log a complaint before the European Commission for non-application of the European legislation.

If an EETS Provider cannot attain full coverage 24 months after its registration or later re-establish full coverage within 6 months, the Member State of registration should take any necessary decision concerning that EETS Provider and inform the Commission thereof. The infringing service provider may be deprived from its EETS registration and the decision made public. This service provider would no longer be able to take advantage of the rights EETS Providers have in their relations with Toll Chargers.

The right of EETS Providers to access an EETS domain is ensured by the obligation that the Toll Chargers should comply with Article 5(3) of Decision 2009/750/EC (see Section 2.2.2.2 above).

2.2.2.4. *Rights and duties of EETS Users*

- *Article 9(1): Subscription*

'1. EETS Users may subscribe to EETS through any EETS Provider, regardless of nationality, State of residence or the State in which the vehicle is registered. When entering into a contract, EETS Users shall be duly informed about the processing of their personal data and the rights stemming from applicable legislation on the protection of personal data.'

Comments:

EETS Users may seek subscription with the EETS Provider of their choice within any Member State. The EETS Provider must pay particular attention to inform the user about the treatment of the users' personal data, according to the applicable legislation.

- *Article 9(5): Payment responsibility'*

'5. The payment of a toll by an EETS User to its EETS Provider shall be deemed to fulfil the EETS User's payment obligations towards the relevant Toll Charger.'

Comments:

The payment of the toll by the user to his/her EETS Provider voids any further toll payment responsibility of the user towards the Toll Charger. The latter may not require a payment when the user can prove that he/she already paid the toll to his/her service provider.

2.3. Roadmap

This section sets a high-level roadmap for the implementation of EETS. It draws on the conclusions of the Cesare IV⁽¹¹⁾ study and information from standards organisations. As reminder, EETS Providers have 24 months to reach full European coverage after their registration in a Member State.

It is recommended that stakeholders with similar interests develop their own European forums to discuss and promote the problems common to their particular group. Toll Chargers are already often represented in Asecap. EETS Providers, when they appear, may wish to develop their own European association(s). Such organisations have an important role to play in the implementation, deployment and operation of EETS.

The availability of agreed detailed specifications and procedures, mainly for GNSS-based toll systems, is important in order to reach a top-down development of EETS. Where necessary these specifications and procedures will be mandated by further Commission decision(s). Common specifications and procedures will facilitate the conformity and suitability for use assessment of EETS interoperability constituents.

The European Standards Organisations will cater for the development and maintenance of the standards relevant for electronic fee collection and EETS.

For DSRC systems, many of the key technical specifications are already specified in standards, most notably EN 15509 which covers the air interface for DSRC charging transactions. Other standards necessary for meeting EETS essential requirements as set by Annex III(1.5) and (2.1.1.4) to Decision 2009/750/EC and for profiling key performance metrics and indicators still need to be finalised.

(11) Cesare IV (common electronic fee collection system for a road tolling european service) is a project set up by Asecap (the European Association of Toll Motorways Operators) and co-financed by the European Commission (See Section 3.2 of Annex 3 to this guide for Internet links to the related reports).

It will be necessary to decide which architecture elements and performance standards should be made mandatory in addition to the requirements set out in Directive 2004/52/EC and Decision 2009/750/EC, which will require further Commission decision(s). In this respect the reliance on standards raises important issues in relation to the roadmap for achieving EETS. A strong liaison will be created with the standardisation bodies. The development of a set of interim performance specifications and protocols with the assistance of the Toll Committee can help to bridge the gap and meet the deadlines set by Directive 2004/52/EC for implementing EETS. This includes in particular the security framework and the secure monitoring of electronic road toll systems. The finalisation of prEN ISO 12855 on the information exchange between service provision and toll charging is also of particular importance.

Obviously stakeholders can proceed with putting in place those elements that are required for getting EETS in place but not critically dependent on standards, such as the format for and content of EETS domain statements.

The Coordination Group of EETS Notified Bodies has a key role in detailing the certification process and proposing working arrangements (recommendations for use) to the Commission and the Toll Committee.

EETS implementation and operation will mostly rely on Member States and professional stakeholders with few centralised procedures.

The contractual relations between stakeholders will probably mainly be between individual parties. They will be largely governed by national laws, without prejudice to possible voluntary agreements within or between European bodies grouping EETS stakeholders with similar interests.

ROADMAP

| Latest end date | Activity/milestone |
|---------------------------|--|
| 8 October 2009 | Entry into force of Commission Decision 2009/750/EC on EETS definition |
| April 2010 | European Commission: finalisation of first version of the application guide for Directive 2004/52/EC and Decision 2009/750/EC |
| 8 July 2010 | EETS domains and EETS Providers registers |
| July 2010 to January 2011 | prCEN ISO/TS 13140-1 and -2 EFC — Conformity evaluation of on-board and roadside equipment to CEN ISO/TS 13141 |
| July 2010 to October 2010 | prCEN ISO/TS13143-1 and -2 EFC — Conformity evaluation of on-board and roadside equipment to CEN ISO/TS12813 |
| August 2010 onwards | European Commission: start activities of EETS Notified Bodies Coordination Group. Proposals on: <ul style="list-style-type: none"> • recommendation for use; • detailed certification process; • working arrangements for conformity and suitability for use assessment; • adaptation of standards, technical specifications, test procedures; • ... |
| October 2010 | Member States concerned: set up conciliation body |
| October 2010 | Member States/Toll Chargers: format for and content of EETS domain statement |
| To be started during 2010 | CEN: EFC security framework |
| To be started during 2010 | CEN: charging performance metrics and examination framework |
| January 2011 | CEN: interoperable application profile (IAP) for GNSS/CN-based EFC systems |
| April 2011 | European Commission: mid-term review |
| April 2011 to August 2012 | Toll Chargers: design/implementation/certification |
| June 2011 to August 2012 | EETS Providers: design/implementation/certification |
| July 2011 | CEN: prEN ISO 12855, EFC — Information exchange between service provision and toll charging |
| October 2012 | EETS available for heavier vehicles |

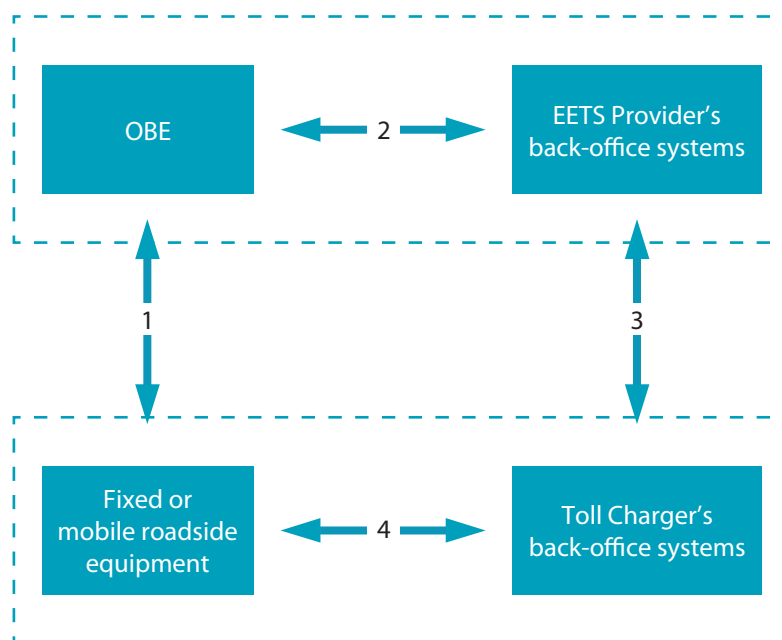
2.4. EETS general architecture

Based on Annex II (EETS stakeholder roles and interfaces) to and Chapter II (General principles) of Decision 2009/750/EC, this section provides a description of the technical systems and interfaces essential to the EETS interoperability scheme.

All other systems and interfaces are implemented under the responsibility of the relevant stakeholder. This allows differentiation of the services and competition on the market. In particular, the described EETS general architecture does not propose a method for detecting toll events. EETS Providers may implement different solutions, e.g. thick or smart clients, which provide geo-referencing and toll calculation inside the OBE, or so-called thin clients, which only gather elementary time/position data and report them to at least the EETS Providers' back-office systems for further processing. Toll Chargers may require receiving complete toll transactions in their back-offices.

The figure underneath illustrates the EETS general architecture. It identifies four entities corresponding to actual systems or groups of systems, as well as their interfaces. The general architecture comprises only the entities mentioned in Decision 2009/750/EC on EETS definition. It covers more detailed models, like the architecture described in the RCI study. For example the optional proxy-element in the EETS front-end proposed in the RCI architecture can be assigned to the EETS Providers' back-office systems. The figure is also compliant with the stakeholder roles model of Cesare III ⁽¹²⁾.

The proposed EETS general architecture puts in evidence the main interfaces between the entities.



Two of the four main interfaces (interfaces 1 and 3) are essential to achieve interoperability between the EETS Providers' and Toll Chargers' equipment. These interfaces need therefore to be standardised to achieve an efficient implementation of the EETS architecture.

- Interface 1 carries all the interoperable data exchange between an EETS Provider's OBE and a Toll Charger's fixed or mobile roadside equipment. Annex II to Decision 2009/750/EC identifies the following sub-interfaces:

(a) DSRC (dedicated short-range communication) charging transactions;

⁽¹²⁾ See Section 3.2 of Annex 3 to this guide for Internet links to the related reports.

- (b) real-time compliance checking transactions;
- (c) localisation augmentation (where applicable).

These interfaces are depicted in the figure below.

2. Interface 2 caters for the data exchange between the OBE and the EETS Providers' back-office systems. This includes the remote configuration of the OBE with contract or vehicle parameters, sending charging data, updating the OBE with Toll Context Data, etc. For GNSS-based toll systems, Interface 2 is implemented with mobile communications technology (e.g. GSM/GPRS). This interface is under sole responsibility of an EETS Provider and therefore is not further covered in this document.
3. Interface 3 caters for the data exchange between the back-office systems of the EETS Providers and Toll Chargers. It carries as a minimum the data exchange stipulated in Annex II(4) to Decision 2009/750/EC.
4. Interface 4 caters for data exchange between a Toll Charger's fixed or mobile roadside equipment and back-office systems. This includes in particular sending charging or enforcement data from RSE to back-office systems. This interface is under sole responsibility of a Toll Charger and is therefore not further covered in this document. No application standards are currently foreseen for this interface.

This application guide only further considers Interface 1 and Interface 3, as Interface 2 and Interface 4 are internal to an EETS Provider or a Toll Charger and therefore not essential to EETS interoperability.

The availability of specifications for the data exchange on Interface 1 and Interface 3, is necessary to ensure an efficient implementation of these interfaces. These specifications would also be the basis for any conformity assessment, certification or approval procedures performed by the manufacturers, notified bodies, Toll Chargers or EETS Providers.

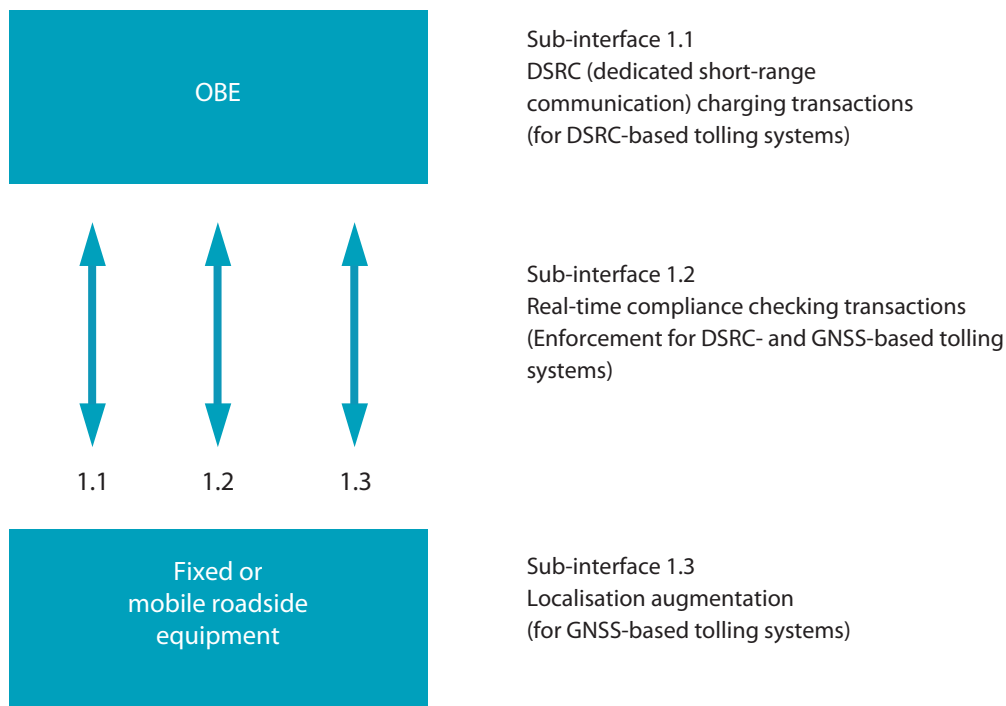
For Interface 1 and Interface 3, standardisation activities are finalised, in progress or being started. However, most of these standards are or will be so-called 'toolboxes' allowing various possible implementations. This means that simply referencing such 'toolbox' standards or family of standards is not sufficient to unequivocally define EETS. An EETS specification profile needs to be defined based on the relevant 'toolbox' standards.

An EETS specification should only reference draft standards when they are stable ⁽¹³⁾. A standard finalisation process foresees commenting and voting periods, which can take several months with eventually no significant changes on the original draft.

Interface 1 (between OBE and fixed or mobile roadside equipment)

The following figure shows the three sub-interfaces for exchanging data between OBE and a Toll Charger's fixed or mobile roadside equipment.

⁽¹³⁾ Most of the referenced standards in this document have not been published.



Sub-interface 1.1: Exchange of DSRC toll declaration data

18

In DSRC-based toll systems, toll declaration data are exchanged between OBE and roadside equipment (RSE). The OBE will generally communicate to the RSE all the vehicle's and user's parameters necessary for further toll processing, in compliance with the Toll Charger's Toll Context Data.

For EETS, standard EN 15509 shall be used for this data exchange. However, even though being a profile standard, EN 15509 still leaves open some implementation options. Two examples are the security levels and the use of security keys.

- Security levels: EN 15509 distinguishes two security levels. Level 0 foresees the service provider's authentication for the data sent from the OBE to the RSE. Level 1 foresees an access control of the OBE's data by RSE, which has to demonstrate it has the credentials to access the OBE's data.
- EN 15509 mandates level 0 and leaves level 1 optional. It must be stressed that OBE using level 1, i.e. access control, would expect level 1 to be implemented everywhere. Consequently OBE can implement security level 1 only if it is supported by the RSE of all the EETS domains ⁽¹⁴⁾. In contrast, OBE implementing only level 0 can exchange data with any RSE as the latter, on the basis of the EFC context mark exchanged during the VST phase, should adapt its behaviour according to the security level supported by the OBE. Security keys: EN 15509 supports eight security keys which can be used for authentication. For most European DSRC operators (and according to the report of Expert Group 12) these eight keys are split into two groups: four keys for Toll Charger authentication and four keys for EETS Provider authentication. The use of these security keys must be harmonised among EETS stakeholders.

As microwave technologies, EETS OBE will support both EN 15509 and ETSI ES 200 674-1 for this interface. Toll Chargers' fixed and mobile roadside equipment will support EN 15509. Within Italy, Toll Chargers' fixed and mobile roadside equipment may support

⁽¹⁴⁾ Security mechanisms have increasing operational costs in direct relation with their corresponding security level; they should be implemented in proportion with the assessment of the fraud level EETS is likely to be confronted with. The security level to be achieved should be agreed between Toll Chargers and EETS Providers. The highest level security mechanisms would require new procedures and equipment to manage access credentials and authentication master keys and would introduce additional responsibilities.

instead ETSI ES 200 674-1 and its related technical reports for protocol implementation. In any case, a Toll Charger should provide the complete detailed specifications of its DSRC RSE in order to allow for an efficient suitability for use assessment procedure.

Sub-interface 1.2: OBE compliance checking

EETS shall provide means for Toll Chargers to easily and unambiguously detect whether a vehicle circulating on their toll domain and allegedly using EETS is actually equipped with validated and properly functioning EETS OBE providing truthful information.

- For DSRC-based toll systems, this is supported by EN 15509.
- For GNSS-based systems, Toll Chargers and EETS Providers may rely on CEN ISO/TS 12813, which allows for checking a number of current and past OBE attributes as well as user and vehicle parameters. It supports real-time compliance checking transactions in the sense of Annex II(3)(b) to Decision 2009/750/EC.

Sub-interface 1.3: Localisation augmentation

This sub-interface is of relevance for GNSS-based systems only. It provides for localisation augmentation information where reception of satellite signals is difficult and the correct determination of tolled object usage can not therefore be guaranteed. According to Annex III(2.1.3) to Decision 2009/750/EC, 'Toll Chargers shall use the information received [from the EETS Providers relative to the reception of satellite signals] to identify problem areas and, where necessary, provide augmentation localisation signals, in agreement with EETS Providers.'

It must be stressed that the provision of any localisation augmentation systems may not depend on EETS Providers' different tolled object detection techniques. Otherwise an EETS Provider with poorly performing OBE could ask for more augmentation support than EETS Providers with better performing OBE. Objective criteria need to be defined to determine when augmentation signals are required for EETS Providers to provide correct charging events.

ISO 13141 has been developed for the exchange of localisation augmentation data. It provides authenticated positioning information to the vehicle's localisation system, which can be used to optimise the detection of a tolled object.

Interface 3 (between back-office systems)

Decision 2009/750/EC requires the following standardised back-office sub-interfaces to be implemented:

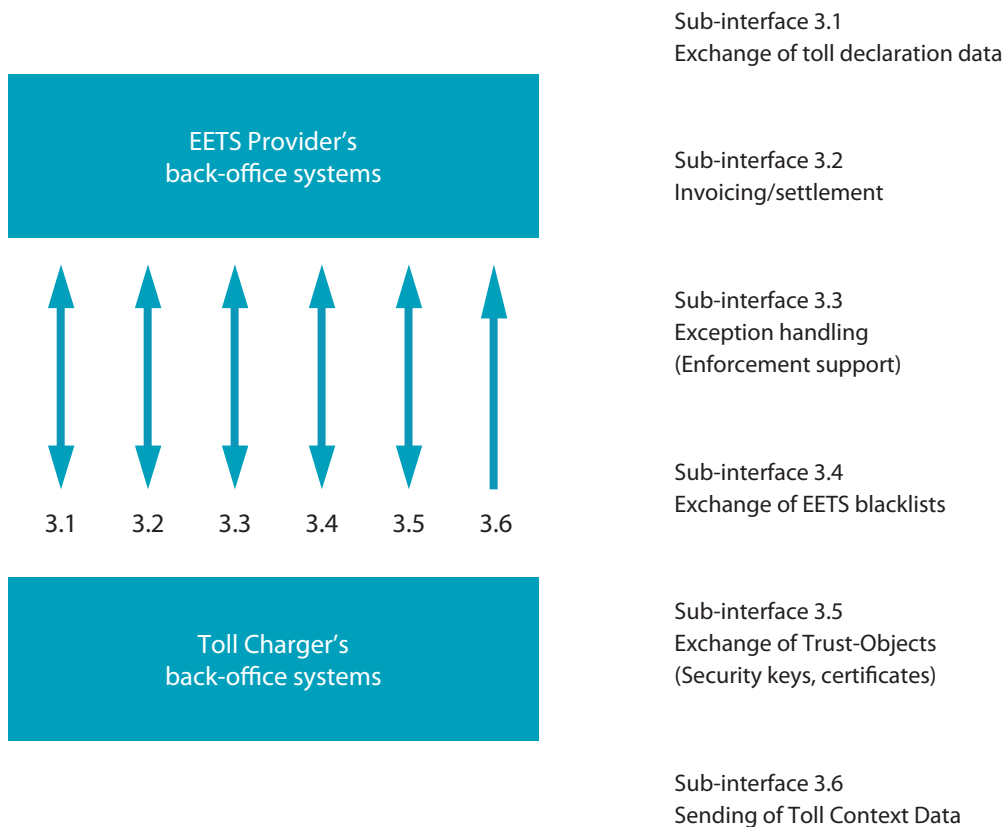
- (a) exchange of toll declaration data between EETS Providers and Toll Chargers, more specifically for submission and validation of claims for charges incurred in DSRC- or/and GNSS-based toll systems;
- (b) invoicing/settlement;
- (c) exchange of information in support of exception handling in DSRC- or/and GNSS-based toll systems;
- (d) exchange of EETS blacklists;
- (e) exchange of Trust-Objects;
- (f) communication of Toll Chargers' Toll Context Data to EETS Providers.

Toll Chargers must implement each interface, but can choose only to support either the GNSS or DSRC charging process.

These sub-interfaces are depicted in the figure below.

The set-up of these sub-interfaces may depend on the usage of DSRC- or GNSS-based tolling systems. The transferred data will be different depending on the actual tolling context and technology.

prEN ISO 12855, currently available as a draft, describes all the mentioned interfaces.



The described sub-interfaces would need to be implemented between each EETS Provider/Toll Charger pair. However the agreed use of intermediate entities, like clearing houses, etc. can make the communication more efficient. The responsibility lies with the EETS Providers and Toll Chargers.

Sub-interface 3.1: Exchange of toll declaration data

This interface is for exchanging data on the usage of tolled infrastructure ⁽¹⁵⁾ in compliance with the Toll Charger reporting rules (see Sub-interface 3.6: Exchange of Toll Context Data).

⁽¹⁵⁾ In standards terminology, toll relevant data produced by the OBE and to the service provider back-office systems (GNSS-based tolling) or to the Toll Charger RSE (DSRC-based tolling) is called charge data. Charge data can be subject to further processing before being transferred via back-office communication to the Toll Charger (GNSS) or to the service provider (DSRC). This data is called billing details. Billing details are exchanged and confirmed between the service provider and Toll Charger and the ultimate basis for any claim from the Toll Charger to the service provider.

Sub-interface 3.2: Invoicing/Settlement

This interface is for sending and settling invoices between Toll Chargers and EETS Providers. They may agree on the use of prEN ISO 12855 to implement this interface. For bookkeeping purposes, this standard foresees the exchange of financial objects.

Note that although prEN ISO 12855 supports the exchange of itemised invoices (called 'charge data', 'billing details' or 'financial objects'), it does not claim to support a commercial invoicing process.

Sub-interface 3.3: Exception handling (Enforcement support)

Exception handling or Enforcement support is a way in which Toll Chargers can manage enforcement. A Toll Charger and an EETS Provider may agree on using prEN ISO 12855 for one or more of the following functions supported by this standard.

- Identification of an EETS Providers' contract on the basis of a license plate: This could be a kind of broadcast communication to EETS Providers supporting this service to ask whether an identified license plate belongs to a service contract of these EETS Providers. This supports the identification of EETS Users where no OBE communication could be established. Compliance with European and local privacy legislation shall be ensured.
- Request additional parameters for billing details: If the Toll Charger needs more information to update or justify billing details, it can request them from the EETS Provider. This could be parameters which are not stored on the OBE or missing information, like security authenticators.
- Request payment guarantee for an inferred object: In some cases a Toll Charger may request payment for toll events where an enforcement action showed the usage of a specific part of the network but no billing details have been generated.
- Report CCC (compliance check communication) events to the EETS Providers: For monitoring and customer care reasons, it can be useful to transfer these events from the Toll Charger to the EETS Provider.

Decision 2009/750/EC does not prescribe any of the particular functions mentioned here-above.

Sub-interface 3.4: Exchange of EETS blacklists

Since the EETS Provider is responsible for the OBE and contracts with its users, it will be the entity to manage and distribute blacklists. Blacklists need to be exchanged for various reasons. An EETS User might no longer have a proper contract with the EETS Provider but still be in possession of the OBE, or the EETS User's solvency may no longer be ensured. Technical problems could also lead to the blacklisting of EETS OBE, at the EETS Provider's initiative or at the Toll Charger's request, e.g. in cases where recurrent communication problems with fixed or mobile RSE equipment occur with specific OBE.

A Toll Charger and an EETS Provider may agree to use one or more of the referencing options foreseen by prEN ISO 12855 listed below:

- PersonalAccountNumber;
- ContractSerialNumber;
- LicensePlateld;
- Obeld.

Alternatively, the parties may also rely on the revocation of certificates in which an EETS Provider acknowledges the use of user account or of OBE identifier for a vehicle with a particular license plate.

Decision 2009/750/EC does not prescribe any of the particular functions mentioned here-above. In any case, an EETS Provider shall ensure that the length of its blacklist does not exceed the limit agreed with the Toll Charger (Article 7(3) of Decision 2009/750/EC).

Sub-interface 3.5: Exchange of Trust-Objects

This sub-interface is used for exchanging Trust-Objects like certificates, keys or revocation lists. A Toll Charger and an EETS Provider may agree to use prEN ISO 12855 for exchanging this data.

Alternatively, a Toll Charger may publish its certificates as part of its Toll Context Data and an EETS Provider may publish its certificates as 'service context data'.

Sub-interface 3.6: Exchange of Toll Context Data

The Toll Context Data is the data defined by the responsible Toll Charger necessary to establish the toll due for circulating a vehicle on a particular toll domain and conclude the toll transaction.

The Toll Context Data specifies inter alia:

- (a) the definition of the EETS domain, in particular its geographic extension and infrastructure subject to toll;
- (b) the nature of toll and levy principles;
- (c) the vehicles liable to toll;
- (d) the vehicle classification parameters with their mapping into the Toll Charger's tariff structure;
- (e) toll declarations required.

A Toll Charger shall make its Toll Context Data available to the EETS Providers and communicate it to the Member State.

22

In essence, the Toll Context Data describes the location/extension of the toll domain and tolled objects, the tariff scheme, and the format of toll declarations. Although also required for DSRC-based toll systems, special attention should be paid to the precise description of the location/extension of a toll domain and/or tolled objects, which are of particular importance in GNSS-based toll systems. Where a Toll Charger refers to an official text defining these locations but uses geographic coordinates for toll calculations, these coordinates should be made available to EETS Providers to ensure non-discriminatory treatment.

The tariff scheme shall allow an EETS Provider to determine the correct tariff class of a vehicle and, where applicable, the toll due based on the corresponding tariff class. The toll declarations requirements shall specify the allowed formats, including the security provisions.

The format and the method for making available or exchanging the Toll Context Data is not specified by Decision 2009/750/EC. A Toll Charger and an EETS Provider may agree on one or more of the options of prEN ISO 12855.

3. EETS CONTEXT AND ROLES/STAKEHOLDERS

3.1. Introduction

The general context of a toll charging environment is shown in Figure 1 below, taken from draft standard prEN ISO 17573:2010⁽¹⁶⁾. The main roles within EETS are depicted in Figure 2.

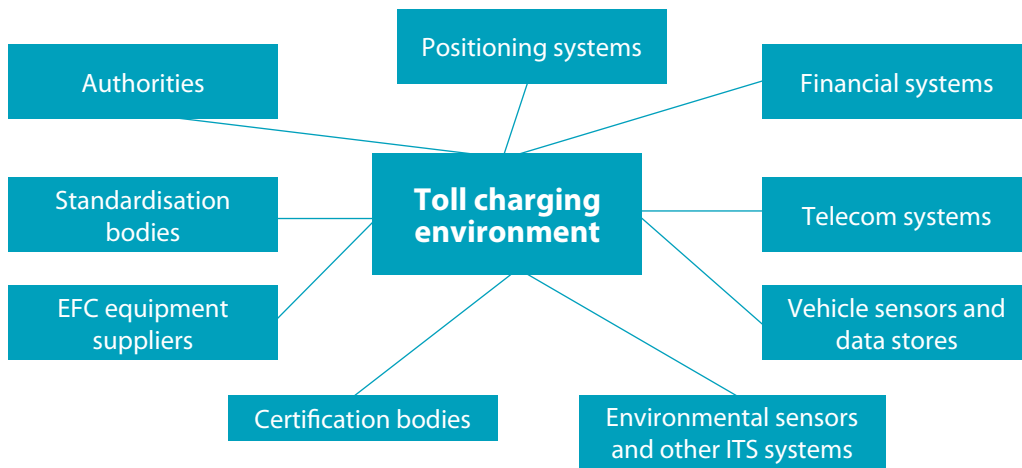


Figure 1: General context surrounding an electronic road toll system

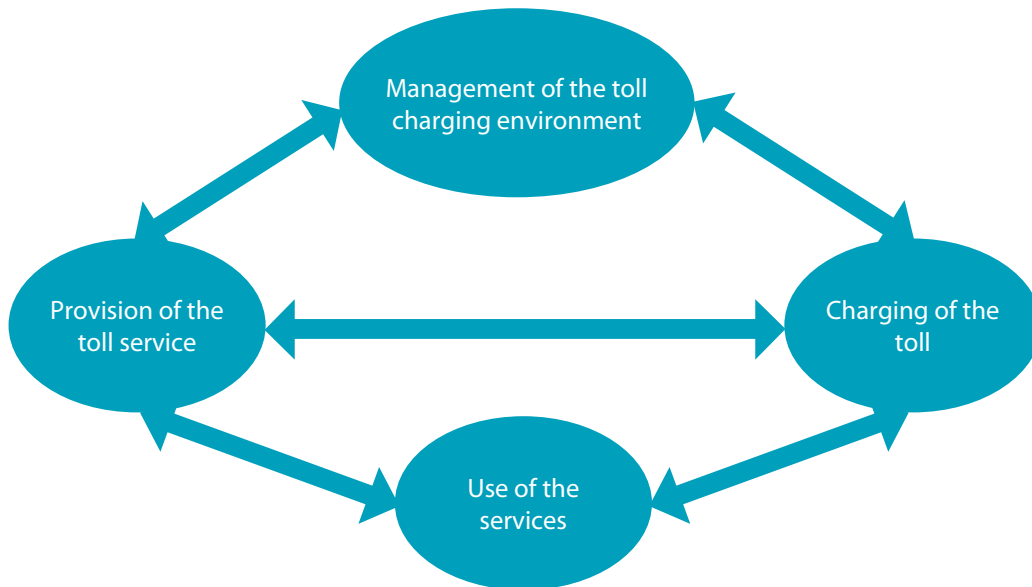


Figure 2: Main roles in EETS

⁽¹⁶⁾ prEN ISO 17573:2010—Electronic fee collection—Systems architecture for vehicle related tolling. Annex 12 to this application guide list the sections of prEN ISO 17573:2010 referred to in this chapter.

3.2. Stakeholders

The EETS stakeholders are listed and briefly described below. prEN ISO 17573:2010 makes a distinction between entities **external** to EETS, i.e. those entities intervening in the toll charging process but which are not primarily set up for that purpose (e.g. satellite positioning systems, standardisation bodies, banks ...) and entities **internal** to EETS, which are essentially involved in EETS operations.

The roles or stakeholders:

- EETS environment management (EETS interoperability management in Cesare IV);
- Toll Charger;
- service provider (EETS Provider in Decision 2009/750/EC);
- EETS User.

Those listed above are identified as internal entities in prEN ISO 17573:2010.

prEN ISO 17573:2010 further identifies the following external entities or systems:

- financial systems (composed of entities such as banks, credit card companies, clearing houses ...);
- telecom systems;
- positioning systems;
- vehicle sensors and data stores;
- environmental sensors and other ITS systems;
- manufacturers (EFC equipment suppliers);
- notified bodies (Certification bodies);
- Standardisation bodies;
- authorities (e.g. road and transport authorities, telecom authorities, financial authorities, data protection authorities);
- conciliation bodies.

The various entities/systems are covered below. To avoid duplication with prEN ISO 17573:2010, direct reference is made to the relevant section of this draft standard wherever possible.

This guide identifies a 'manufacturer authorised representative' role which does not appear in prEN ISO 17573:2010.

3.2.1. Internal entities

3.2.1.1. *EETS interoperability management (EETS environment management in prEN ISO 17573:2010)*

The EETS interoperability management role comprises the responsibilities dealing with the overall functioning of EETS. These responsibilities cover setting the overall rules and procedures for interoperability, enforcement, identification schemes, certification requirements, common specifications, etc. Therefore this role represents generally the regulatory role in the EETS interoperability scheme.

All these diverse responsibilities do not need to and cannot effectively be performed by a single organisation. Cesare IV and prEN ISO 17573:2010 (Section 3.25) recognise that, instead of a unique body being in charge of the entire Interoperability Management role, Interoperability management will be performed at European, national or local levels by a number of different actors and authorities. Below the European level, there is a certain flexibility for actors to develop and adopt specific organisations.

The following entities play a role in EETS interoperability management:

- the Coordination Group of Notified Bodies: ref. Articles 17 and 18 of Decision 2009/750/EC and Section 3.2.2.7 of this guide;
- conciliation bodies: ref. Articles 10 and 11 of Decision 2009/750/EC;
- stakeholders associations: Toll Chargers and EETS Providers should set up professional associations as forums to discuss and agree on voluntary detailed operational rules within their sector; examples of such stakeholders collaboration exist in numerous other sectors of activity;
- standardisation bodies: ref. Section 5.3.8 of prEN ISO 17573:2010;
- Member States: the national authorities in charge of EETS supervision are required to exchange information between them and with the European Commission (ref. Articles 15(1) and (3) and 19(5) of and Annex VI to Decision 2009/750/EC) or to take action in certain situations: ref. Articles 8 and 17(3) of Decision 2009/750/EC;
- The European Commission and the Toll Committee: ref. Article 15(2) et al. of Decision 2009/750/EC.

See also Section 6.5 of prEN ISO 17573:2010 for more information on EETS interoperability management.

3.2.1.2. Toll Charger

Ref. Section 6.4 of prEN ISO 17573:2010.

3.2.1.3. EETS Provider

Ref. Section 6.2 of prEN ISO 17573:2010.

3.2.1.4. EETS User

Ref. Section 6.3 of prEN ISO 17573:2010.

3.2.2. External systems/entities

3.2.2.1. Financial systems

Ref. Section 5.3.1, paragraph 1 of prEN ISO 17573:2010.

3.2.2.2. Telecom systems

Ref. Section 5.3.2 of prEN ISO 17573:2010.

3.2.2.3. Positioning systems

In GNSS-based tolling, the role of positioning systems is to provide the positioning services required for toll calculation, i.e. to provide signals allowing determination of the time/position of a vehicle in relation to a toll domain. Thanks to the positioning

systems, toll declarations can be made, for instance, when a vehicle enters or leaves a road user charging zone or according to the distance travelled by that vehicle on a tolled road network. GPS and Galileo are examples of global navigation satellite systems ⁽¹⁷⁾. The interactions between the EETS internal entities and positioning systems external entities can be based on implicit and/or explicit contracts, to be negotiated between the stakeholders.

3.2.2.4. *Vehicle sensors and data stores*

Ref. Section 5.3.4 of prEN ISO 17573:2010.

3.2.2.5. *Environmental sensors and other ITS systems*

Ref. Section 5.3.5 of prEN ISO 17573:2010.

3.2.2.6. *Manufacturers (EFC equipment suppliers in prEN ISO 17573:2010)*

Manufacturers, in the meaning of this guide, are the organisations responsible for designing and producing EETS interoperability constituents and equipment covered by Directive 2004/52/EC and Decision 2009/750/EC, with a view to placing them on the Union market directly or indirectly. As it happens, a Toll Charger and/or an EETS Provider could be involved in the design of EETS equipment or interoperability constituents.

Whoever substantially modifies an interoperability constituent resulting in an 'as-new' interoperability constituent, with a view to placing it on the Union market, is considered a manufacturer.

For the role of manufacturers/EFC equipment suppliers, see also Section 5.3.6 of prEN ISO 17573:2010.

The manufacturers bear responsibility for:

- designing and producing the EETS interoperability constituents;
- applying the procedures for the certification of the conformity to specifications and, when relevant, the suitability for use of interoperability constituents with the requirements laid down in Directive 2004/52/EC, Decision 2009/750/EC, relevant standards and other normative documents.

The manufacturer has sole and ultimate responsibility for the conformity of its products with any applicable specifications. It must understand both the design and construction of its products, where required arrange for EC certification by one or more notified bodies, and issue an 'EC' declaration of conformity to specifications or suitability for use in respect of all applicable provisions and requirements of the relevant directives.

The 'EC' declaration of conformity to specifications or suitability for use of an interoperability constituent must precisely identify its field of application.

The manufacturer may subcontract certain operations — for instance design or production — provided that it retains overall control and responsibility for its product as a whole. By the same token, it may use ready-made items or components, 'EC' marked or not, to produce EETS interoperability constituents without losing its status as a manufacturer.

Annex IV to Decision 2009/750/EC defines the obligations incumbent upon the manufacturer with regard to the 'EC' declaration of conformity to specifications and suitability for use of an interoperability constituent.

The manufacturer may be based in the Union or elsewhere. In either case, the manufacturer may appoint an authorised representative (see Section 3.2.3 of this guide) in the Union to act on its behalf in carrying out certain tasks required in the

⁽¹⁷⁾ They can be used in association with augmentation systems like EGNOS with a view to enhancing certain performance parameters, where necessary.

applicable directives. However, a manufacturer established outside the Union is not obliged to have an authorised representative, although this may present some advantages.

3.2.2.7. *Notified bodies*

Bodies notified in relation to Directive 2004/52/EC and Decision 2009/750/EC are entitled to assess EETS interoperability constituents' technical and operational functional compliance.

As mentioned in Article 17(1) of and Annex IV to Decision 2009/750/EC, these notified bodies may intervene to assess the conformity to specifications and/or suitability for use of EETS interoperability constituents.

The *Guide to the implementation of directives based on the new approach and the global approach* ⁽¹⁸⁾ is relevant to the activities of notified bodies appointed in relation with the assessment of EETS interoperability constituents' conformity to specifications and suitability for use.

Decision 2009/750/EC requires the notified bodies to closely cooperate with a view to coordinating their activities. For this purpose, a coordination group of the notified bodies for EETS (the NB-EETS Coordination Group) has been set up to discuss any problems that may arise in relation to the assessment of the conformity to specifications or suitability for use of EETS interoperability constituents, and to propose solutions to these problems. Solutions adopted according to the procedure described in Article 5 of Directive 2004/52/EC become recommendations for use. RFUs do not supersede but complement Union legislation by giving additional support and information to the notified bodies on technical issues.

3.2.2.8. *Standardisation bodies*

Ref. Section 5.3.8 of prEN ISO 17573:2010 and Annex 7 to this guide.

3.2.2.9. *Authorities*

Ref. Section 5.3.9 of prEN ISO 17573:2010.

3.2.3. *Manufacturer-authorised representative*

A manufacturer may expressly appoint by written mandate any natural or legal person to act on its behalf as its authorised representative in respect of certain of its obligations. The extent to which the authorised representative may enter into commitments binding on the manufacturer is determined in accordance with the mandate conferred on the authorised representative by the manufacturer.

As an example, a manufacturer could appoint an authorised representative to request the assessment of its EETS products, sign the 'EC' declaration of conformity to specifications and/or suitability for use, and hold the required documents and technical files at the disposal of the competent authorities during the lifetime of the interoperability constituent.

The authorised representative may be addressed by the authorities of the Member States instead of the manufacturer with regard to the latter's obligations under Decision 2009/750/EC. The manufacturer remains responsible for actions carried out or decisions taken on its behalf by its authorised representative(s).

Within the framework of EETS, a manufacturer's authorised representative should be established in the Union.

Commercial representatives (such as authorised distributors or sales persons), whether or not established inside the Union, are not to be confused with an authorised representative in the meaning of Decision 2009/750/EC.

⁽¹⁸⁾ ISBN 92-828-7500-8, Office for Official Publications of the European Communities, 2000.

4. ASSESSMENT OF EETS INTEROPERABILITY CONSTITUENTS

4.1. Principles

A distinction is made between interoperability constituents 'conformity to specifications' and 'suitability for use'.

Conformity to specifications is relative to the requirements of Directive 2004/52/EC, Decision 2009/750/EC and all relevant standards and technical specifications. OBE's conformity to specifications can be assessed without physically accessing the Toll Chargers' toll domains.

Suitability for use means the ability of an interoperability constituent to achieve and maintain in-service interoperability at a specified level of performance when integrated representatively into EETS in relation to a Toll Charger's toll system.

Where relevant, conformity to specifications or suitability for use certificates may stipulate an expiry date. In this case recertification should take place at the end of the certificate validity period.

4.2. Responsibilities

Conformity to specifications or suitability for use of interoperability constituents can be assessed at the initiative/request of one or several of the concerned actors: the **manufacturer**, the **EETS Provider** and the **Toll Charger**. An EETS Provider or a Toll Charger could also act as an authorised representative of the manufacturer in the framework of such assessments. In any case, the manufacturer is likely to be involved as it has the ultimate responsibility for its product.

The **manufacturer** shall affix CE markings to the packaging where feasible. In compliance with Annex IV to Decision 2009/750/EC, a CE marking relative to EETS is accompanied by a declaration, which will clearly specify whether it concerns conformity to specifications or suitability for use. This 'EC' declaration should contain all relevant information to identify the European legislation according to which it is issued, the manufacturer or its authorised representative, the notified body if applicable, the product, reference to relevant standards or other normative documents as appropriate, etc.

The **EETS Provider** is primarily concerned by the conformity to specifications with a view to fulfilling the registration requirements and by the suitability for use of its EETS interoperability constituent integrated in the service it provides within a toll domain. The suitability for use covers aspects such as communications, data exchange, performance and service level agreement monitoring, security and privacy.

The **Toll Charger** is primarily concerned by the conformity to specifications and suitability for use relative to communications and data exchange with EETS Providers, its Toll Context Data, performance and service level agreement monitoring, etc.

4.3. Requirements

For assessing conformity to specifications of EETS interoperability constituents ⁽¹⁹⁾ with the requirements set out in Directive 2004/52/EC, Decision 2009/750/EC and all relevant standards and technical specifications, the manufacturer or its authorised representative shall choose from among the modules for conformity assessment procedures listed in Decision 768/2008/EC.

The suitability for use of interoperability constituents is assessed by operation or use of the constituents in service over a specified operation time, integrated representatively into the EETS toll system of the Toll Charger(s) on whose domain the on-board equipment shall circulate.

Annex 4 to this guide gives the articulation of Decision 768/2008/EC modules for conformity to specifications assessment with the suitability for use assessment.

Annex 5 summarises the tasks incumbent upon manufacturers and notified bodies in the framework of these assessment procedures.

⁽¹⁹⁾ Such as on-board equipment (including proxy functionality), roadside equipment (including localisation augmentation beacons and enforcement devices), EETS Providers and Toll Chargers' back-office data exchange systems.

4.4. Procedures

4.4.1. Conformity to specifications

4.4.1.1. Manufacturer

Depending on the chosen module, the 'EC' declaration of conformity to specifications to be drawn up by the manufacturer or its authorised representative covers the manufacturer's self-assessment or is subject to obtaining an examination certificate from a notified body.

Conformity to specifications shall be reassessed in case of a significant modification of the interoperability constituent or at the expiry date, if any, of the notified body's certificate.

4.4.1.2. EETS Provider

The assessment of conformity to specifications requested or performed by an EETS Provider should cover elements and interfaces not already covered by the tests carried out by the manufacturer or another party. This would typically include the toll context implementation in relation with a Toll Charger's Toll Context Data in order to verify, among others, that:

- in a DSRC context: the parameterisation of the OBE (attributes, security mechanism, personalisation/customisation, etc.) is correct and allows enforcement;
- in a GNSS/CN context: in relation to Toll Context Data:
 - (1) the identification of tolled objects and the transmission of toll declarations, the handling of toll and enforcement events, etc. are correct, and
 - (2) the parameterisation of the OBE is correct and allows enforcement.

4.4.1.3. Toll Charger

The assessment of conformity to specifications requested or performed by a Toll Charger should cover elements and interfaces not already covered by the tests carried out by the manufacturer or another party.

This would typically include implementation of the Toll Context Data (tolling and enforcement requirements, description of toll domains (road sections, bridges, tunnels, areas, etc.) with the relevant standards and specifications. The quality (accuracy, correctness, timeliness, etc.) of this implementation impacts on the exactitude of the toll declarations derived from it. The Toll Context Data definition should allow for certification and monitoring in operation.

- For DSRC-based systems, the conformity to specifications assessment shall, among others, cover EN 15509 and related standards.
- For GNSS-based systems, where applicable, the description of the geographical extension of a toll domain shall comply with the Inspire directive ⁽²⁰⁾. CEN ISO/TS17575-3 (Application interface definition for autonomous systems — Part 3: Context data) and prEN ISO 12855 (Information exchange between service provision and toll charging) provide for the transmission of context data, including the description of the geographical properties of a toll domain.

4.4.2. Suitability for use

As a reminder, suitability for use tests intended to demonstrate by in-service operation that EETS interoperability constituents conform to specifications are indeed interoperable with a Toll Charger toll system in its EETS domains. Therefore the suitability for use assessment examines the complete EETS system in operational conditions. Where the case applies this may include proving

⁽²⁰⁾ Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (Inspire) (OJ L 108, 25.4.2007, pp. 1–14).

that non-EETS-related applications or services residing on/making use of the same hardware platform do not affect correct toll calculations. Relevant design information in that respect shall be communicated to the Toll Charger and the notified body. Where possible the suitability for use tests shall also cover exception handling and other less usual scenario conditions (robustness).

Suitability for use assessment should pay special attention to the monitoring of performance parameters and the respect of essential clauses of EETS service level agreements (SLAs), e.g. the correct implementation of toll contexts, security and privacy protection levels.

A manufacturer can be involved in a suitability for use assessment procedure, as the result of its own initiative or at the request of another party (EETS Provider, Toll Charger, notified body).

The Toll Chargers shall allow and support suitability for use tests of EETS Providers' on-board equipment and procedures.

The suitability for use tests:

- should be agreed between the concerned parties, and
- where requested, shall be approved and surveyed by a notified body.

Before assessing the suitability for use in a live operational environment, it is advised to first perform interoperability tests in validated EETS reference implementations of benchmark EETS domains. Such preliminary suitability for use tests would contribute:

- to minimise the risk of disturbing the operations of a live toll system, and
- to test efficiency by deploying only pre-tested, mature specimens in a live environment.

Article 5(1) of Decision 2009/750/EC applies where suitability for use tests show that an EETS domain does not comply with the technical and procedural EETS interoperability conditions of Directive 2004/52/EC and of Decision 2009/750/EC.

30

4.5. Standards and other normative documents with EETS relevance

This part of the guide lists standards and other normative documents relevant for assessing the conformity to specifications and suitability for use of EETS interoperability constituents.

Where the EETS European legislation specifically refer to or quote (part(s) of) European standards or other documents, compliance with those (part(s) of) standards or documents becomes mandatory.

Only those (part(s) of) standards and documents that are strictly necessary to achieve the interoperability of the European electronic road toll systems are specifically referred to or quoted in, and therefore mandated by, the European legislation. However, various other standards and documents are also relevant to EETS even though they are not referred to in the legislation. Compliance with these standards or documents remains voluntary.

The sections below list three groups of documents:

- published standards and other normative documents of mandatory application;
- published standards and other normative documents of voluntary application;
- standards and other normative documents under revision or in development and of voluntary application.

As a general reminder, products manufactured in compliance with harmonised standards (see Section 3.3.2 of Annex 3 to this guide for a link to harmonised standards and Section 9.1 of Annex 9 for a definition) benefit from a presumption of conformity with the essential requirements of the corresponding European legislation.

Annex 7 gives a brief description of the European standardisation context.

Annex 8 gives a common definition for the most important terms used in the context of certification.

4.5.1. Published standards and other normative documents of mandatory application

| Decision 2009/750/EC sections | Characteristics | Mandatory standards and other normative documents |
|-------------------------------------|--------------------------------|---|
| | Spatial data sets and services | <p>Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (Inspire) (OJ L 108, 25.4.2007, pp. 1–14)</p> <p>Related implementing legislation: Commission Regulation (EC) No 1205/2008 of 3 December 2008 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata (OJ L 326, 4.12.2008, pp. 12–30) Commission Decision 2009/442/EC of 5 June 2009 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards monitoring and reporting (OJ L 148, 11.6.2009, pp. 18–26)</p> |
| Article 4(6) Annex III(2.2.1) | Private data protection | Directive 2006/24/EC of the European Parliament and of the Council of 15 March 2006 on the retention of data generated or processed in connection with the provision of publicly available electronic communications services or of public communications networks and amending Directive 2002/58 EC. (OJ L 105, 13.4.2006, pp. 54–63) |
| | Private data protection | Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data (OJ L 281, 23.11.1995, pp. 31–50) |
| | Private data protection | Regulation (EC) No 45/2001 of the European Parliament and of the Council of 18 December 2000 on the protection of individuals with regard to the processing of personal data by the Community institutions and bodies and on the free movement of such data (OJ L 8, 12.1.2001, pp. 1–22) |
| | Product safety | Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (OJ L 37, 13.2.2003, pp. 19–23) |
| | Disposal of waste reduction | <p>Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment (WEEE) (OJ L 37, 13.2.2003, pp. 24–38)</p> <p>Joint declaration of the European Parliament, the Council and the Commission relating to Article 9 (OJ L 37, 13.2.2003, pp. 39)</p> |

| Decision 2009/750/EC sections | Characteristics | Mandatory standards and other normative documents |
|--------------------------------------|---|--|
| | Health and safety protection Electromagnetic compatibility | Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (OJ L 91, 7.4.1999, pp. 10–28) |
| | Health and safety protection Electromagnetic compatibility | Directive 2004/108/EC of the European Parliament and of the Council of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC (OJ L 390, 31.12.2004, pp. 24–37) |
| | Radio and telecommunications terminal equipment | Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (OJ L 91, 7.4.1999, pp. 10–28) |
| | Intelligent Transport Systems | Directive 2010/40/EU of the European Parliament and of the Council of 7 July 2010 on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport (OJ L 207, 6.8.2010, pp. 1–13) |
| | UNECE Vehicle regulations | ECE R-21: Uniform provisions concerning the approval of vehicles with regard to their interior fittings (http://www.unece.org/trans/main/wp19/wp29regs21-40.html) |
| Annex III(2.1.2) Annex VI(2.1)(b) | Interoperable Application Profile for DSRC-EFC | EN 15509:2007 Road transport and traffic telematics — Electronic fee collection — Interoperability application profile for DSRC |
| Annex III(2.1.2) Annex VI(2.1)(b) | Application profile for DSRC (Italy) | ETSI ES 200 674-1 and its related Technical Reports for protocol implementation testing |
| Annex VI(2.1)(c) | | CEN ISO/TS24534 Automatic vehicle and equipment identification — Electronic Registration Identification (ERI) for vehicles — Part 3: Vehicle data (2008) |
| Annex V | Accreditation of conformity assessment bodies | EN 45000 standards |

4.5.2. Published standards and other normative documents of voluntary application

| Decision 2009/750/EC sections | Characteristics | Voluntary standards or other normative documents |
|-------------------------------------|--|--|
| | Security protection profile in EFC | CEN ISO/TS 17574:2009 RTTT — EFC — Guidelines for security protection profiles |
| | Application interface definition for autonomous EFC | CEN ISO/TS 17575-1 EFC — Application interface definition for autonomous systems — Part 1: Charging |
| | Application interface definition for autonomous EFC | CEN ISO/TS1 7575-2 EFC — Application interface definition for autonomous systems — Part 2: Communication and connection to the lower layers |
| | Application interface definition for autonomous EFC | CEN ISO/TS 17575-3 EFC — Application interface definition for autonomous systems — Part 3: Context data |
| | Application interface definition for autonomous EFC | CEN ISO/TS 17575-4 EFC — Application interface definition for autonomous systems — Part 4: Roaming |
| | Compliance check communication for autonomous systems | CEN ISO/TS 12813:2009 Electronic fee collection — Compliance check communication for autonomous systems |
| | Localisation augmentation communication for autonomous systems | CEN ISO/TS 13141 Electronic fee collection — Localisation augmentation communication |
| | Test suite for DSRC | EN 15876-1 Electronic fee collection — Conformity evaluation of on-board unit and roadside equipment to EN 15509 — Part 1: Test suite structure and test purposes |
| | Test suite for DSRC | EN 15876-2 EFC — Conformity evaluation of on-board and roadside equipment to EN 15509 — Part 2: Abstract test suite |
| | Application interface definition for DSRC–EFC | EN ISO 14906:2004 EFC — Application interface definition for DSRC |
| | EFC test procedures | CEN ISO/TS 14907-1:2005 EFC — Test procedures user and fixed equipment — Part 1: Description of test procedures |

| Decision 2009/750/EC sections | Characteristics | Voluntary standards or other normative documents |
|-------------------------------------|----------------------------------|---|
| | EFC test procedures for DSRC-OBU | CEN ISO/TS 14907-2:2005 EFC — Test Procedures user and fixed equipment — Part 2: Conformance test for the onboard unit application interface |
| | DSRC physical layer | EN 12253:2004 Road transport and traffic telematics — Dedicated short- range communication — Physical layer using microwave at 5.8 GHz |
| | DSRC data link layer | EN 12795:2003 Road transport and traffic telematics — Dedicated short- range communication (DSRC) — DSRC data link layer: medium access and logical link control |
| | DSRC application layer | EN 12834:2003 Road transport and traffic telematics — Dedicated short- range communication (DSRC) — DSRC application layer |
| | DSRC RTTT application profiles | EN 13372:2004 Road transport and traffic telematics (RTTT) — Dedicated short-range communication — Profiles for RTTT applications |
| | ERM — RTT | ETSI ES 200 674-1 Intelligent transport systems (ITS) — Road transport and traffic telematics (RTTT) — Dedicated short-range communications (DSRC) — Part 1: Technical characteristics and test methods for High data rate (HDR) data transmission equipment operating in the 5.8 GHz Industrial, scientific and medical (ISM) band |
| | ERM — RTT | ETSI EN 300 674 Electromagnetic compatibility and radio spectrum matters (ERM) — Road transport and traffic telematics (RTTT) — Technical characteristics and test methods for Dedicated short-range communication (DSRC) transmission equipment (500 kbit/s / 250 kbit/s) operating in the 5.8 GHz Industrial, scientific and medical (ISM) band |
| | ERM — RTT | ETSI EN 300 674-1 ERM — RTTT — Dedicated short-range communication (DSRC) transmission equipment (500 kbit/s / 250 kbit/s) operating in the 5.8 GHz Industrial, scientific and medical (ISM) band — Part 1: General characteristics and test methods for RSU and OBU |

| Decision 2009/750/EC sections | Characteristics | Voluntary standards or other normative documents |
|-------------------------------------|-----------------|---|
| | ERM — RTT | ETSI EN 300 674-2 ERM — RTTT — Dedicated short-range communication (DSRC) transmission equipment (500 kbit/s / 250 kbit/s) operating in the 5.8 GHz Industrial, Scientific and Medical (ISM) band — Part 2: Harmonised EN for the RSU under article 3.2 of the R & TTE directive — Sub-part 1: requirements for the Road Side Unit (RSU) — Sub-part 2: requirements for the On-Board Unit (OBU). |
| | ERM — RTT | ETSI TS 102 486-1-1 Intelligent transport systems (ITS) — Road transport and traffic telematics (RTTT) — Test specifications for DSRC transmission equipment — Part 1: DSRC data link layer: Medium access and logical link control — Sub-Part 1: Protocol implementation conformance statement (PICS) pro forma specification |
| | ERM — RTT | ETSI TS 102 486-1-2 Intelligent transport systems (ITS) — Road transport and traffic telematics (RTTT) — Test specifications for DSRC transmission equipment — Part 1: DSRC data link layer: medium access and logical link control — Sub-Part 2: Test suite structure and test purposes (TSS & TP) |
| | ERM — RTT | ETSI TS 102 486-1-3 Intelligent transport systems (ITS) — Road transport and traffic telematics (RTTT) — Test specifications for DSRC transmission equipment — Part 1: DSRC data link layer: medium access and logical link control — Sub-Part 3: Abstract test suite (ATS) and partial PIXIT pro forma |
| | ERM — RTT | ETSI TS 102 486-2-1 Intelligent transport systems (ITS) — Road transport and traffic telematics (RTTT) — Test specifications for DSRC transmission equipment — Part 2: DSRC application layer — Sub-Part 1: Protocol implementation conformance statement (PICS) pro forma specification |
| | ERM — RTT | ETSI TS 102 486-2-2 Intelligent transport systems (ITS) — Road transport and traffic telematics (RTTT) — Test specifications for DSRC transmission equipment — Part 2: DSRC application layer — Sub-Part 2: Test suite structure and test purposes (TSS & TP) |
| | ERM — RTT | ETSI TS 102 486-2-3 Intelligent transport systems (ITS) — Road transport and traffic telematics (RTTT) — Test specifications for DSRC transmission equipment — Part 2: DSRC application layer — Sub Part 3: Abstract test suite (ATS) and partial PIXIT pro forma |

| Decision 2009/750/EC sections | Characteristics | Voluntary standards or other normative documents |
|-------------------------------------|---|--|
| | Conformance test specifications for Italian DSRC system | ETSI TS 102 708-1-1 Intelligent transport systems (ITS) — Road transport and traffic telematics (RTTT) — Test specifications for High data rate (HDR) data transmission equipment operating in the 5.8 GHz Industrial, scientific and medical (ISM) band — Part 1: Data Link Layer — Sub-Part 1: Protocol implementation conformance statement (PICS) pro forma specification |
| | Conformance test specifications for Italian DSRC system | ETSI TS 102 708-1-2 Intelligent transport systems (ITS) — Road transport and traffic telematics (RTTT) — Test specifications for High data rate (HDR) data transmission equipment operating in the 5.8 GHz Industrial, scientific and medical (ISM) band — Part 1: Data Link Layer — Sub-Part 2: Test suite structure and test purposes (TSS & TP) |
| | Conformance test specifications for Italian DSRC system | ETSI TS 102 708-1-3 Intelligent transport systems (ITS) — Road transport and traffic telematics (RTTT) — Test specifications for High data rate (HDR) data transmission equipment operating in the 5.8 GHz Industrial, scientific and medical (ISM) band — Part 1: Data Link Layer — Sub-Part 3: Abstract test suite (ATS) and partial PIXIT pro forma |
| | Conformance test specifications for Italian DSRC system | ETSI TS 102 708-2-1 Intelligent transport systems (ITS) — Road transport and traffic telematics (RTTT) — Test specifications for High data rate (HDR) data transmission equipment operating in the 5.8 GHz Industrial, scientific and medical (ISM) band — Part 2: Application Layer Common Application Service Elements — Sub-Part 1: Protocol implementation conformance statement (PICS) pro forma specification |
| | Conformance test specifications for Italian DSRC system | ETSI TS 102 708-2-2 Intelligent transport systems (ITS) — Road transport and traffic telematics (RTTT) — Test specifications for High data rate (HDR) data transmission equipment operating in the 5.8 GHz Industrial, scientific and medical (ISM) band — Part 2: Application Layer Common Application Service Elements — Sub-Part 2: Test suite structure and test purposes (TSS & TP) |

| Decision 2009/750/EC sections | Characteristics | Voluntary standards or other normative documents |
|-------------------------------------|---|---|
| | Conformance test specifications for Italian DSRC system | ETSI TS 102 708-2-3 Intelligent transport systems (ITS) — Road transport and traffic telematics (RTTT) — Test specifications for High data rate (HDR) data transmission equipment operating in the 5.8 GHz Industrial, scientific and medical (ISM) band — Part 2: Application Layer Common Application Service Elements — Sub-Part 3: Abstract test suite (ATS) and partial PIXIT pro forma |
| | Data transfer models between RSE and ICC/Interface definition | CEN ISO/TS 25110:2008 Electronic fee collection — Interface definition for on-board account using integrated circuit card (ICC) |
| | ESOP on human-machine interface | Commission Recommendation 2007/78/EC of 22 December 2006 on safe and efficient in-vehicle information and communication systems: update of the European Statement of Principles on human machine interface (OJ L 32, 6.2.2007, pp. 200–241) |
| | OBE installation | CEN/TR 15762:2008 Road transport and traffic telematics — Electronic fee collection (EFC) — Ensuring the correct function of EFC equipment installed behind metallised windshield |
| | EFC relevant | CEN ISO 14816:2005 Road transport and traffic telematics — Automatic vehicle and equipment identification — Numbering and data structure |
| | EFC relevant | ENV 14062:2001 Identification card systems — Surface transport applications — Electronic fee collection — Part 1: Physical characteristics, electronic signals and transmission protocols — Part 2: Message requirements |
| | EFC relevant | ISO/IEC 15408-1:2005 Information technology — Security techniques — Evaluation criteria for IT security — Part 1: Introduction and general model |
| | EFC relevant | ISO/IEC 15408-2:2005 Information technology — Security techniques — Evaluation criteria for IT security — Part 2: Security functional requirements |

| Decision 2009/750/EC sections | Characteristics | Voluntary standards or other normative documents |
|-------------------------------------|------------------------------|--|
| | EFC relevant | ISO/IEC 15408-3:2005 Information technology — Security techniques — Evaluation criteria for IT security — Part 3: Security assurance requirements |
| | EFC relevant | EN ISO 9000:2005 Quality management systems — Fundamentals and vocabulary |
| Article 3(a) | EETS Providers' requirements | EN ISO 9001:2008 Quality management systems — Requirements |
| | EFC relevant | EN ISO 9004:2000 Quality management systems — Guidelines for performance improvements |
| | | ISO 17572-3:2008 Intelligent transport systems (ITS) — Location referencing for geographic databases |
| | | ETSI TR 102 893 V1.1.1 Intelligent transport systems (ITS) — Security; Threat, vulnerability and risk analysis (TVRA) |
| | | EN ISO 19115:2005 Geographic information — Metadata |
| | | EN ISO 19119:2006 Geographic information — Services |
| | | ETSI EN 302 665 Intelligent transport systems (ITS) — Communications Architecture |

NB: Directive 2004/22/EC of the European Parliament and of the Council of 31 March 2004 on measuring instruments (OJ L 135, 30.4.2004, pp. 1–80) applies to the devices and systems with a measuring function defined in its annexes. Annex MI-007 to this directive gives specific requirements for taximeters; the requirements on maximum permissible errors for certain taximeters' performance parameters could be of interest to EETS on-board equipment.

4.5.3. Standards and other normative documents under revision or in development

| Decision 2009/750/EC sections | Characteristics | Standards or other normative documents under revision or in development |
|-------------------------------------|---|---|
| | System architecture for EFC (currently under revision) | prEN ISO 17573 Road transport and traffic telematics — Electronic fee collection (EFC) — System architecture for vehicle-related transport services |
| | Information exchange between roles in EFC | prEN ISO 12855 Electronic fee collection — Information exchange between service provision and toll charging |
| | Conceptual and logical data model for geographic databases | prEN ISO 14825 Geographic Data Files — GDF5.0 |
| | Test standard for TS 17575-1 | prCEN ISO/TS 16407-1 EFC — Conformity evaluation of equipment to CEN ISO/ TS 17575-1 — Part 1: Test suite structure and test purposes |
| | Test standard for TS 17575-1 | prCEN ISO/TS 16407-2 EFC — Conformity evaluation of equipment to CEN ISO/ TS 17575-1 — Part 2: Abstract test suites |
| | Test standard for TS 17575-2 | prCEN TS XXXXX EFC — Conformity evaluation of equipment to 17575-2 — Part 1: Test suite structure and test purposes (TSS & TP) — Part 2: Abstract test suite (ATS) |
| | Test standard for TS 17575-3 | prCEN ISO/TS 16410-1 EFC — Conformity evaluation of equipment to CEN ISO/ TS17575-3 — Part 1 Test suite structure and test purpose |
| | Test standard for TS 17575-3 | prCEN ISO/TS 16410-2 EFC — Conformity evaluation of equipment to CEN ISO/ TS 17575-3 — Part 2: Abstract test suites |
| | Test standard for TS 17575-4 | prCEN TS XXXXX EFC — Conformity evaluation of equipment to 17575-4 — Part 1: Test suite structure and test purposes (TSS & TP) — Part 2: Abstract test suite (ATS) |
| | Application interface definition for DSRC–EFC (currently under revision) | prEN ISO 14906 EFC — Application interface definition for DSRC |
| | EFC test procedures (currently under revision) | prCEN ISO/TS 14907 EFC — Test procedures for user and fixed equipment — Part 1: Description of test procedures — Part 2: Conformance test for onboard unit application interface |

| Decision 2009/750/EC sections | Characteristics | Standards or other normative documents under revision or in development |
|-------------------------------------|---|--|
| | Report on urban requirements | prCEN TR 16040 EFC — Requirements for urban DSRC systems |
| | Report on personalisation and mounting of first mount OBE | prTR XXXXX EFC — Personalisation and mounting of first mount OBE |
| | Framework for application profiles for autonomous EFC | prCEN TS XXXXX EFC — Interoperable Application Profile (IAP) for GNSS/CN-based EFC systems |
| | Test standard for TS 12813 | prCEN ISO/TS 13143-1 EFC — Conformity evaluation of on-board and roadside equipment to CEN ISO/TS 12813 — Part 1: Test suite structure and test purposes ('CCC testing part 1') |
| | Test standard for TS 12813 | prCEN ISO/TS 13143-2 EFC — Conformity evaluation of on-board and roadside equipment to CEN ISO/TS 12813 — Part 2: Abstract test suite ('CCC testing part 2') |
| | Test standard for TS 13141 | prCEN ISO/TS 13140-1 EFC — Conformity evaluation of on-board and roadside equipment to CEN ISO/TS 13141 — Part 1: Test suite structure and test purposes ('LAC testing part 1') |
| | Test standard for TS 13141 | prCEN ISO/TS 13140-2 EFC — Conformity evaluation of on-board and roadside equipment to CEN ISO/TS 13141 — Part 2: Abstract test suite ('LAC testing part 2') |
| | Report on value added services in EFC | prTR XXXXX EFC — Value added services based on EFC on-board equipment |
| | Report on requirements for pre-payment systems | prTR XXXXX EFC — Requirements for pre-payment systems |

5. RELATIONSHIP BETWEEN TOLL CHARGERS AND EETS PROVIDERS

5.1. Principles

EETS Providers are entitled to enter into contract negotiations with each Toll Charger operating an EETS domain in order to deliver EETS and their other services, if any.

The general principles of the European single market apply to EETS as to any other economic activity. The legal framework for the relationship between Toll Chargers and EETS Providers is therefore fixed by the general legal environment and the requirements of Directive 2004/52/EC and Decision 2009/750/EC.

The relationship between Toll Chargers and EETS Providers will be governed by bilateral contractual clauses. Other terms of multilateral relationships can be defined, for instance in the framework of professional associations. Directive 2004/52/EC and Decision 2009/750/EC lay down the rights and obligations on EETS Providers, Toll Chargers and EETS Users.

The European legislation mainly aims at ensuring fair and non-discriminatory relationships between the stakeholders. Next to general access rules for EETS Providers to an EETS domain which are common to all service providers, specific commercial conditions are allowed to be agreed bilaterally between the Toll Charger and an EETS Provider. Annex I(2) to Decision 2009/750/EC requires that the conditions set by Toll Chargers are non-discriminatory. National conciliation bodies are especially empowered to examine whether the relationships between a Toll Charger and different EETS Providers are non-discriminatory and fairly reflect the costs and risks of the parties to the contract ⁽²¹⁾. Without prejudice to national legislation, a conciliation body generally intervenes at the request of a Toll Charger and/or EETS Provider.

5.2. Requirements

EETS Providers have to be registered in a Member State where they are established. Their registration is subject to the fulfilment of the requirements listed in Article 3 of Decision 2009/750/EC. An EETS Provider is entitled to perform the suitability for use assessment procedure of its interoperability constituents and processes described in Section 4.4 of this guide.

Operational acceptance of an EETS Provider on an EETS domain is subject to a contract between the EETS Provider and the Toll Charger. Certain contractual provisions relative to commercial conditions can be the object of bilateral negotiations and may vary depending on the particular conditions of the EETS Provider. However the principle of non-discriminatory access for all EETS Providers shall be respected, meaning that the varying contractual conditions may not lead to distortion of competition between EETS Providers.

In order to attain interoperability of their equipment and processes, Toll Chargers and EETS Providers have to cooperate with each other. This includes, but is not limited to, cooperation in the area of overall EETS system tests (including End-to-End tests) which are impossible to carry out without a Toll Charger and an EETS Provider cooperating. Toll Chargers have to ensure compliance of their EETS domains' infrastructure and tolling processes with the conditions set out in Directive 2004/52/EC and Decision 2009/750/EC. This compliance should be assessed prior to EETS Providers' suitability for use tests on these domains.

EETS Providers for their part are responsible for their back-office systems and EETS on-board equipment, including the proxy (see RCI architecture), if any. They must provide support for Toll Chargers' enforcement efforts. Furthermore an EETS Provider is required to pay Toll Chargers the tolls related to a user account managed by that EETS Provider. This may also include the substantiated cases of toll non-declaration due to any action/situation which prevents the determination of the correct data necessary for the computation of the toll. The EETS Provider can lift this responsibility by declaring to the Toll Charger under agreed terms its on-board equipments which are invalid (blacklist). The EETS Provider shall not be held liable for any further toll incurred through

⁽²¹⁾ Based for instance on the costs borne by the Toll Charger for his local customers; the costs of the OBE; the costs of cellular communications in GNSS-based systems; the cost of debt collection and payment risks coverage, etc.

the use of such invalidated on-board equipment. Non-repudiation mechanisms should be put in place to avoid disputes between Toll Chargers, EETS Providers and EETS Users.

5.3. EETS domain statement

5.3.1. Foreword

An important task of a Toll Charger regarding its relationship with EETS Providers is to publish fair and non-discriminatory access rules. Toll Chargers shall develop and maintain an EETS domain statement which describes the general conditions for EETS Providers for accessing the EETS domain and is the basis of its contracting policy (see Article 5(2) of and Annex I to Decision 2009/750/EC, and Section 2.2.2.2 of this guide).

EETS domain statements have two broad objectives:

- to provide sufficient details for an EETS Provider to be able to provide EETS while meeting the Toll Charger's operating rules, and
- to provide sufficient explanation to satisfy the relevant national conciliation body that the contractual conditions and commercial arrangements being offered to EETS Providers are fair and reasonable. The conciliation body is entitled to ask for more information.

Toll Chargers should make their EETS domain statement(s) easily available and electronically accessible to EETS Providers, for instance by using Internet technologies.

Each Member State shall keep a register of the EETS domains within its territory, which includes information relative to the EETS domain statements. Member States should take appropriate measures to avoid discrepancy problems between different information sources.

42

In order to take into account possible EETS Providers' specificities which may justify particular contractual conditions, the EETS domain statement contains a section on commercial conditions between the Toll Charger and an EETS Provider, which can be subject to bilateral negotiations.

The precise form of an EETS domain statement depends on the Member State and/or Toll Chargers. Based on the outline EETS domain statement given in Annex I to Decision 2009/750/EC, the structure of an EETS domain statement ⁽²²⁾ could adapt the suggestions in this chapter.

It is in the Toll Charger's interest to define its Toll Context Data, particularly the toll domain description in autonomous systems, in the most precise and least ambiguous way possible, to avoid various implementations of the detection and reporting of toll events by the various EETS Providers and ensuing possible disputes. It is advised to look also at EETS domain statements of other Toll Chargers and Member States as a source of best practice. Use could be made of ISO prTS 17575-3 (Application Interface Definition for autonomous systems — Part 3: Context data).

5.3.2. Language

It is supposed that the EETS domain statement will usually be written in the language used in the contracts between a Toll Charger and the EETS Providers.

A certified translation of the EETS domain statement in one or more largely used European language(s) should help to avoid misunderstandings with non-native EETS Providers.

⁽²²⁾ See also Cesare IV, Deliverable D3.1 'Interoperability management implementation plan', Annex 2: Outline EETS toll domain statement.

5.3.3. Legal aspects

Precautions, such as those below, should be taken so that disputes about EETS domain statements are avoided.

- The authorship of and the responsibility for an EETS domain statement should be incontestably attributable.
- Where relevant, the periods of validity of certain clauses or parameters must be unambiguous. Attention shall be paid to avoid gaps between validity periods.
- One should be able to demonstrate that an EETS Provider had access at any point in time to the complete EETS domain statement.

5.3.4. Content

This section proposes what an EETS domain statement should contain. Member States and/or Toll Chargers may adapt this to their specific situation and needs. The list may change as the service develops.

1. Conditions applicable to all EETS Providers (Annex I(2)(a) to (d) to Decision 2009/750/EC)
 - 1.1. Technical elements
 - 1.1.1. Toll transaction policy (e.g. description of used technology and procedures)
 - Toll Context Data (including references to relevant data) (Article 2(l) and Article 6 of and Annex II to Decision 2009/750/EC)
 - Authorisation parameters, such as authentication keys or other possible security measures
 - Definition of the EETS domain, in particular its geographical extension and infrastructure subject to toll. The definition should use relevant standards and, where applicable, shall comply with the Inspire directive ⁽²³⁾. Other possibilities are descriptions by maps, plain language, a national surveying department, geographical boundary coordinates, broadly used digital mapping technologies (e.g. Openstreetmap.org) ⁽²⁴⁾.
 - Nature of toll and levy principles (tax/charge, toll event (cordon, usage, etc), tariff parameters (time/distance/place/other criteria))
 - Vehicles liable to/exempt from toll
 - Vehicle classification parameters (Annex VI to Decision 2009/750/EC) (number of axles, (trailer) maximum permissible weight, suspension type, emission classes, etc.) with their correspondence with the Toll Charger's tariff structure
 - Update procedures
 - Format and content of toll declarations and toll transactions (Articles 2(m) and (p) of Decision 2009/750/EC; prEN ISO 12855); for DSRC-based systems, see also EN 15509; for GNSS-based systems, standards are under development (see Section 4.4.1.3). The trustworthiness of toll declarations to Toll Chargers needs to be ensured.

⁽²³⁾ Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (OJ L 108, 25.4.2007, pp. 1–14). (See Annex 3 to this guide for the link to Inspire's portal.)

⁽²⁴⁾ To ensure EETS Providers non-discriminatory access condition, a Toll Charger should provide the same detailed data as it has available for its own system.

- Blacklists (Article 4(6) of Decision 2009/750/EC; format and content, update frequency, lifting of payment obligation, non-repudiation mechanisms)

1.1.2. Procedures and service level agreements (Annex I(2)(b) to Decision 2009/750/EC)

- Technical and procedural interoperability requirements, such as protocols for data exchange with an EETS Provider, security features (e.g. public encryption key certificates)
- Deadlines and periodicity for communicating toll declaration data
- Acceptable percentage of missed or erroneous tolls and monitoring procedures; link with remuneration/sanction
- Description of enforcement policy and procedures
- Accuracy of toll declaration data and monitoring procedure ⁽²⁵⁾
- System availability ratio and monitoring procedure
- Other key performance indicators and monitoring procedure (e.g. OBE's DSRC communication performance (for tolling in DSRC free-flow systems, for enforcement in autonomous systems, etc.) and operational reliability; quality of toll relevant data)
- Where applicable, modalities of augmentation signals provision
- Procedures and modalities for assessing the compatibility of the EETS Provider's equipment (in particular suitability for use procedures, and any other test procedure necessary to assess the proper functioning of the EETS Provider's equipment within an operational context ⁽²⁶⁾)
- Any other areas of mandatory cooperation.

1.2. Economic elements

1.2.1. Fixed remuneration and charges;

1.2.2. Guarantee against EETS Provider's default (Decision 2009/750/EC, Annex I.1): e.g. bank guarantee or alternatives, monitoring, adaptation over time;

1.2.3. Invoicing policy [Decision 2009/750/EC, Annex I.2(c)]: e.g. invoicing periodicity, format and content, language, value dates;

1.2.4. Payment policy [Decision 2009/750/EC, Annex I.2(d)]: e.g. due date, currency, penalties/compensation for payment delays/anticipation, interests calculation and liquidation;

Could also be considered:

- sharing of liabilities and costs (e.g. sharing of the test procedures costs, etc.);

⁽²⁵⁾ Directive 2004/22/EC of the European Parliament and of the Council of 31 March 2004 on measuring instruments (OJ L 135, 30.4.2004, pp. 1–80) applies to the devices and systems with a measuring function defined in its annexes. Annex MI-007 to this directive gives specific requirements for taximeters; the requirements on maximum permissible errors for certain taximeters' performance parameters could be of interest for EETS on-board equipment.

⁽²⁶⁾ The Coordination Group of EETS Notified Bodies could possibly develop a proposal for a European framework for EETS interoperability constituents suitability for use assessment.

- modalities of management of modifications asked for by any of the parties (timeframe, acceptance procedures, costs allocations, etc.).
2. Conditions negotiable between the Toll Charger and an EETS Provider (Annex I(2)(e) to Decision 2009/750/EC)
 - 2.1. Commercial conditions, e.g. variable remuneration and charges (elements of variability: number of customers and/or transactions, infrastructure usage, etc.), degraded mode(s), due date, indexation, periodicity of contract revision, condition for terminating the contract.
 - 2.2. Service level requirements and monitoring procedures; impact on remuneration.

5.4. Dispute settlement

EETS-related disputes that may arise between a Toll Charger and an EETS Provider during their contractual negotiations or working relationship should be brought before the conciliation body or, for any kind of dispute, before the relevant jurisdiction.

6. PROVISION OF THE SERVICE

6.1. Responsibilities

European Commission

The European Commission is mainly responsible for setting and managing the overall legal framework for electronic road toll systems interoperability and EETS. This includes bringing any changes to this framework that may prove necessary, for instance to adapt to technical progress and standardisation developments and to ensure the efficient implementation and operation of EETS. The direct role of the European Commission in EETS operation will mainly concern the surveillance of the EETS market at European level.

Member States

The Member States shall put in place the national conditions enabling EETS deployment and operation.

More specifically, Member States with at least one EETS domain are required:

- to arrange, without prejudice to their legislative corpus, for the possibility of efficient conciliation procedures between Toll Chargers under their jurisdiction and EETS Providers concerning EETS matters;
- to maintain registers of the EETS domains on their territory and of the service providers they have agreed to inscribe as EETS Provider in compliance with Article 19 and Article 3 of Decision 2009/750/EC.

Toll Chargers

The essence of EETS is that Toll Chargers will be required to accept on their EETS domains vehicles equipped with EETS equipment and collect the charges due by those vehicles for the use of their infrastructure through EETS Providers with whom they have to contract if these providers fulfil their EETS domain statement.

EETS Providers

EETS Providers are required to obtain registration as such in a Member State where they are established and to validate the suitability for use of their equipment and processes with the Toll Charger(s) responsible for a particular EETS domain.

EETS Providers shall be clear about their contracting policy towards EETS Users.

EETS Users

See Section 2.2.2.4 of this guide.

6.2. Toll violation and enforcement

6.2.1. Toll violation

There is violation in case of toll non-payment or toll non-declaration due to any action/situation which prevents the determination of the correct data necessary to the computation of the toll. Such action/situation may arise because of the non-fulfilment of the obligations a user has according to the toll regime where he/she circulates and/or to his/her contract with a service provider relative to the operation of the on-board equipment.

For all practical purposes, Toll Chargers will also detect as toll violations situations due by force of circumstances, e.g. sudden and unforeseeable malfunction of the OBE. Alternative ways of payment offered by the Toll Charger, like retroactive or manual payments, should be used to avoid that a violation possibly due by force of circumstances finally turns into enforcement cases.

6.2.2. Enforcement

The scope of enforcement covers detection, chasing and prosecution of toll violations. Enforcement would appear to operate most effectively through national enforcement systems.

This guide considers liability questions between a Toll Charger and an EETS Provider in the case of an offending vehicle covered by a valid EETS contract. Enforcement authorities should be able to determine whether an offending vehicle is an 'EETS vehicle' and therefore covered by the payment guarantee of the responsible EETS Provider (see Article 7(2) of Decision 2009/750/EC). Annex II to Decision 2009/750/EC foresees a direct communication link between the EETS on-board equipment and the fixed or mobile roadside enforcement equipment for real-time compliance checking transactions.

6.2.3. Cross border enforcement ⁽²⁷⁾

The considerations below show that cross-border enforcement mechanisms cannot be included in the arrangements for EETS; to do so would go beyond the scope of Directive 2004/52/EC.

Where it has not been possible for enforcement authorities to stop a vehicle which is registered in another country and has committed violations, whether they relate to toll violations, speeding offences or any other form of infraction, raises questions of how sanctions are taken against those vehicles from other countries. In general, sanctions can only be exercised by identifying the vehicle using its registration mark and identifying the keeper through the national vehicles record of its country of origin.

The extent to which it is possible to obtain this information varies between Member States. In some Member States, the national registration authorities are relatively willing to release information; in others there are considerable legal difficulties in obtaining such information and in particular transferring it to foreign entities, especially where those entities are in the private sector.

The matter is further complicated in the case of tolling infractions by the fact that the nature of the offence may be either civil or criminal, depending on the national legal status of the toll. For example, where the duty to pay toll is directly based on a legal act, as in Austria, or the charge is a tax the sanction concerns public law and where it is a toll based on private law the redress is likely to be civil, as in Spain. This means that there may be questions of convention rights with enforcement regimes' establishment.

The availability of cross-border enforcement is important to Toll Chargers for the implementation of free-flow systems, considering the potential difficulties to recover the tolls due in the absence of such a mechanism. Keeping barriers ⁽²⁸⁾ may then be a Toll Charger's preferred option in comparison to beefing up enforcement systems with e.g. additional roadside enforcement equipment. Smaller toll domains (bridges/tunnels) might decide to implement the possibility of proceeding offences inside their own network to avoid extra costs and/or toll evasion.

⁽²⁷⁾ See:

- Prüm Convention (Schengen III) between Belgium, Germany, Spain, France, Luxembourg, the Netherlands and Austria;
- Council Decision 2008/615/JHA of 23 June 2008 on the stepping up of cross-border cooperation, particularly in combating terrorism and cross-border crime (OJ L 210, 6.8.2008, pp. 1–11) and Council Decision 2008/616/JHA of 23 June 2008 on the implementation of Council Decision 2008/615/JHA (OJ L 210, 6.8.2008, pp. 12–72); and
- Council Framework Decision 2005/214/JHA of 24 February 2005 on the application of the principle of mutual recognition of financial penalties (OJ L76, 22.03.2005, p. 16–30).

⁽²⁸⁾ As a principle, controls performed in the field of road transport between Member States shall no longer be performed as frontier-control but solely as part of the normal control procedures applied in a non-discriminatory manner throughout the territory of a Member State (see Council Regulation (EEC) No 4060/89 of 21 December 1989 (OJ L 390, 30.12.1989, pp. 18–21)).

ANNEX 1: REFERENCES TO DIRECTIVE 2004/52/EC NATIONAL TRANSPOSITIONS

| Member State (protocol order) | Reference |
|----------------------------------|--|
| BE | <p>Legal act:</p> <p>Loi du 21 décembre 2006 transposant la directive 2004/52/CE du Parlement européen et du Conseil du 29 avril 2004 concernant l'interopérabilité des systèmes de télépéage routier dans la Communauté, p. 76063.</p> <p>Wet van 21 december 2006 houdende omzetting van richtlijn 2004/52/EG van het Europees Parlement en de Raad van 29 april 2004 betreffende de interoperabiliteit van elektronische tolheffingssystemen voor het wegverkeer in de Gemeenschap, bl. 76063.</p> <p><i>Moniteur Belge/Belgisch Staatsblad</i>, Ed. 6, 29.12.2006, p. 76063.</p> |
| BG | <p>Legal act: Ordinance No 1 of 4.4.2007 on the minimum safety requirements for tunnels on the roads concurrent with the Trans-European Road Network on the territory of the Republic of Bulgaria and on the requirements to electronic road toll collection on the territory of the Republic of Bulgaria.</p> <p>Bulgarian Official Journal No 58, 17.7.2007.</p> |
| CZ | <p>Legal act: Zákon č. 80/2006 Sb., kterým se mění zákon č. 13/1997 Sb., o pozemních komunikacích, ve znění pozdějších předpisů, a další související zákony</p> <p>Official Journal: <i>Sbírka zákonů ČR</i>, 15.3.2006.</p> |
| DK | <p>Legal act: Bekendtgørelse nr. 725 om interoperabilitet mellem elektroniske bompengesystemer i Fællesskabet</p> <p>Official Journal: <i>Lovtidende A</i> 2008, 8.7.2008, Entry into force: 9.7.2008.</p> |
| DE | <p>Legal act: 'Gesetz über den Betrieb elektronischer Mautsysteme (Mautsystemgesetz)'</p> <p><i>Bundesgesetzblatt</i>, Teil 1 (BGB 1), 22.12.2005, p. 3692.</p> |
| EE | <p>Legal act: seaduse parandus, No RT I, 7.12.2007, 63, 398.</p> <p>Official Journal: <i>Elektroniline Riigi Teataja</i>, No RT I, 7.12.2007, 63, 398.</p> |
| IE | <p>Statutory Instruments S.I. No 757 of 2005; European Communities (Interoperability of Electronic Road Toll Systems) Regulations, 2005</p> <p>Official Journal: <i>Iris Oifigiúil</i>, 16.12.2005.</p> |
| EL | <p>Legal act: Προεδρικό Διάταγμα, No 177</p> <p>Official Journal: <i>Efimeris Tis Kyverniseos (FEK)(Tefchos A)</i>, No 216, 11.9.2007, pp. 4771–4773.</p> |

| Member State (protocol order) | Reference |
|---|--|
| ES | Real Decreto 94/2006, de 3 de febrero, por el que se regula la interoperabilidad de los sistemas de telepeaje instalados en las carreteras estatales <i>Boletín Oficial del Estado</i> (B.O.E), 17.2.2006, No 41/2006, pp. 6339–6342. |
| FR | Loi N° 2006-10 du 5/1/2006 relative à la sécurité et au développement des transports <i>Journal Officiel de la République Française</i> (JORF), 6.1.2006, pp. 1–18. Décret N° 2006-1711 du 22 décembre 2006 relatif aux procédés technologiques à utiliser pour le télépéage routier <i>Journal Officiel de la République Française</i> (JORF), N° 2006-1711, 29.12.2006, Entry into force: 30.12.2006. |
| IT | Decreto ministeriale: Recepimento della direttiva 2004/52/CE del Parlamento europeo e del Consiglio del 29 aprile 2004, relativa all'interoperabilità dei sistemi di telepedaggio stradale nella Comunità <i>Gazzetta Ufficiale della Repubblica Italiana</i> , 13.3.2006, No 60. |
| CY | Legal act: Ο περί Διαλειτουργικότητας των Συστημάτων Τηλεδιοδίων Νόμος του 2006 Cyprus Gazette, 17.2.2006, No 4069, pp. 35–36. |
| LV | Ministru Kabineta noteikumi, No 724: Ceļu lietotāju maksājumu elektronisko iekasēšanas sistēmu savstarpējās izmantojamības kārtība <i>Latvijas Vēstnesis</i> , No 147, dated 14.9.2006. |
| LT | Legal act: Įsakymas, number: 3-35/2007: Lietuvos Respublikos susisiekimo ministro 2007 m. vasario 6 d. įsakymas Nr. 3-35 „Dėl reikalavimų elektroninėms kelių rinkliavų surinkimo sistemoms“ <i>Valstybės žinios</i> , No 18, 10.2.2007. |
| LU | Règlement grand-ducal du 4 juin 2007 concernant l'interopérabilité des systèmes de télépéage routier dans la Communauté européenne <i>Mémorial Luxembourgeois A</i> , No 97, 20.6.2007, p. 1810. |
| HU | A gazdasági és közlekedési miniszter 47/2007. (IV. 17.) GKMrendelete a hazai közutakon használható elektronikusútdíjszedő rendszerekről <i>Miniszteri rendelet, Magyar Közlöny</i> , No 2007/48, pp. 3111–3112. |
| MT | L.N. 148 of 2006 Malta Transport Authority Act (CAP. 332) Traffic Regulation Ordinance (CAP. 65) Motor Vehicles (Interoperability of Electronic Road Tolls Systems) Regulations, 2006 <i>The Malta Government Gazette</i> , No 17941, dated 11.7.2006, pp. 2601–2625. |
| NL | Regeling van 8 november 2005, nr. HDJZ/I&O/2005-2159, Hoofddirectie Juridische Zaken houdende regels met betrekking tot de interoperabiliteit van elektronische tolheffingssystemen <i>Staatscourant</i> , No 225, 8.11.2005, p. 15. <i>Staatsblad</i> , No 593, 29.11.2005, pp. 1–3. |

| Member State (protocol order) | Reference |
|---|---|
| AT | Bundesgesetz, mit dem das Bundesstraßen-Mautgesetz 2002, das ASFINAG-Gesetz und das ASFINAG-Ermächtigungsgesetz 1997 geändert werden <i>Bundesgesetzblatt für die Republik Österreich (BGBl.), I, No 26/2006, 23.2.2006.</i> |
| PL | Legal act: Nowelizacja; Ustawa z dnia 28 lipca 2005 r. o zmianie ustawy o drogach publicznych oraz niektórych innych ustaw <i>Dziennik Ustaw, No 2005/172/1440, 9.9.2005.</i> |
| PT | Lei n.º 30/2007 Assembleia da República Transpõe para a ordem jurídica interna a Directiva n.º 2004/52/CE, do Parlamento Europeu e do Conselho, de 29 de Abril, relativa à interoperabilidade dos sistemas electrónicos de portagem rodoviária na Comunidade, tendo em vista a implementação do serviço electrónico europeu de portagem. <i>Diário da República, No 150, 6.8.2007, pp. 5030–5032.</i> |
| RO | Hotărâre de Guvern, number: 39; Ordonanță privind interoperabilitatea sistemelor electronice de tarife pentru utilizarea infrastructurii rutiere <i>Monitorul Oficial al României, No 589, 27.8.2007, pp. 2–3.</i> |
| SI | Zakon o spremembah in dopolnitvah Zakona o javnih cestah <i>Uradni list RS, No 92/2005, 18.10.2005 pp. 9394–9399.</i> |
| SK | Zákon č. 25/2007 Z. z. o elektronickom výbere mýta za užívanie vymedzených úsekov pozemných komunikácií a o zmene a doplnení niektorých zákonov <i>Zbierka zákonov SR, No 16, 17.1.2007.</i> |
| FI | Electronic Road Toll Systems Act (No 995), 17 November 2006 http://www.cen.eu/boss/supporting/Guidance%20documents/draft_elecprep/Pages/default.aspx |
| SE | Lag (2007:58) om elektroniska vägavgiftssystem Svensk författningssamling (SFS), No 2007:58 Vägverkets föreskrifter (VFS 2007:202) om tekniska krav på elektroniska vägavgiftssystem Vägverkets författningssamling (VFS), No VFS 2007:202, Entry into force: 1.5.2007; Förordning (2007:59) om elektroniska vägavgiftssystem Svensk författningssamling (SFS), No 2007:59. |
| UK | Statutory instrument (SI): The Road Tolling (Interoperability of Electronic Road User Charging and Road Tolling Systems) Regulations 2007 N° 58 Her Majesty's Stationery Office (HMSO), No 2007-58. Gibraltar Regulations: Traffic (Interoperability of Electronic Road Toll Systems) Regulations 2006 <i>Gibraltar Gazette, No LN.2006/152.</i> |

ANNEX 2: VEHICLE CLASSIFICATION PARAMETERS

For further information, see:

- Annex VI to Decision 2009/750/EC, and
- EN 15509.

It is expected that development with applications such as automatic vehicle identification may lead to certain vehicle parameters becoming available electronically in some form of secure in-vehicle storage device.

When such data is available, it might be more appropriate for EETS on-board equipment to be connected directly to these in-vehicle devices. This would provide a higher level of assurance of the data and eliminate the need for EETS Providers to certify and enter the data into the EETS on-board equipment.

ANNEX 3: USEFUL INTERNET LINKS AND ADDRESSES

3.1. List of the sales agents of the Publications Office of the European Union

http://publications.europa.eu/others/agents/index_en.htm

Online services of the Publications Office of the European Union:

- <http://bookshop.europa.eu>: EU publications
- <http://cordis.europa.eu>: Research and development
- <http://eur-lex.europa.eu>: EU law
- <http://ted.europa.eu>: Public procurement

3.2. European legislation and documents on electronic toll systems' interoperability and EETS

- **Directive 2004/52/EC** of the European Parliament and of the Council of 29 April 2004 on the interoperability of electronic road toll systems in the Community:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:200:0050:0057:EN:PDF>

- Commission **Decision 2009/750/EC** of 6 October 2009 on the definition of the European Electronic Toll Service and its technical elements:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:268:0011:0029:EN:PDF>

- **Directive 2007/2/EC** of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (Inspire):

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:108:0001:0014:EN:PDF>

<http://inspire.jrc.ec.europa.eu/> (Inspire website portal).

- **ITS action plan:** Communication from the Commission — Action plan for the deployment of intelligent transport systems in Europe (COM(2008) 886 final):

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52008DC0886:EN:NOT>

- **Directive 2010/40/EU** of the European Parliament and of the Council of 7 July 2010 on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:207:0001:0013:EN:PDF>

- **Expert groups and studies reports** ⁽²⁹⁾

Directive 2004/52/EC did not fully define EETS and left it to the Commission to decide on the detailed EETS definition with the assistance of the Toll Committee. Long preparatory works were necessary to address the many issues. Following the adoption of Directive 2004/52/EC, the Commission set up 12 expert groups and launched four studies to determine the conditions necessary for EETS to work from all points of view, including technical, legal and commercial.

The expert groups' reports cover the following topics:

1. Microwave technologies (DSRC)
2. Vehicle classification
3. Enforcement
4. Equipment certification
5. Satellite technologies
6. Integration of on-board units into vehicles
7. The role of financial institutions — Payment and contractual aspects
8. Final review of draft UNI (Italian) DSRC specifications
9. Specification of the EFC application based on satellite technologies
10. Recommendations on enforcement specifications and technologies
11. Definition of the EFC application based on DSRC
12. EETS security aspects

The studies cover:

13. Economic and social impact of the implementation of Directive 2004/52/EC
14. Feasibility of a European network of certification centres (ENCC)
15. Road charging interoperability (RCI): validation of EETS architecture and essential specifications by field operational tests of prototypes in cross-border operations through German, Swiss, French, Spanish, Italian and Austrian tolling schemes
16. Cesare (common electronic fee collection system for a road tolling European service) series of studies: definition of the EETS business model introducing the roles of Toll Chargers, EETS Providers and service users

The expert groups and studies reports can be found at:

http://ec.europa.eu/transport/its/studies/eets_en.htm

⁽²⁹⁾ The expert groups' studies and reports are subject to a disclaimer: These reports produced for the European Commission by external experts and contractors represent the views of the authors. The expressed views have not been adopted or in any way approved by the European Commission and should not be relied upon as a statement of the Commission's views. The reports may be of interest in informing on the thinking process having led to the EETS decision. The European Commission does not guarantee the accuracy of the data included in these reports, nor does it accept responsibility for any use made thereof.

3.3. Harmonised standards

3.3.1. Guidance — Drafting of harmonised standards

http://www.cen.eu/boss/supporting/Guidance%20documents/draft_elecprep/Pages/default.aspx

3.3.2. List of harmonised standards

<http://ec.europa.eu/enterprise/policies/european-standards/documents/harmonised-standards-legislation/list-references/>

The link provides access to the summary list of titles and references to harmonised standards in relation to the corresponding European legislation.

The information contained in the summary list is a compilation of the references of standards that have been published in the Official Journal of the European Union.

Although this list is updated regularly, it may not be complete and it does not have any legal validity; only publication in the Official Journal produces legal effect.

Additional information can be found at the European standardisation organisations websites:

- CEN: <http://www.cen.eu>
- Cenelec: <http://www.cenelec.eu>
- ETSI: <http://www.etsi.org>

3.4. List of the bodies notified under Commission Decision 2009/750/EC

<http://ec.europa.eu/enterprise/newapproach/nando/>

This list of notified bodies is given for information only and is valid at the date indicated on the Internet site.

Information is made available on the basis of the documentation provided by the designating authorities of the Member States.

3.5. National EETS domains and EETS Providers registers

See related documents at http://ec.europa.eu/transport/its/road/application_areas/electronic_pricing_and_payment_en.htm

3.6. Professional association Toll Chargers

Asecap (European Association of Tolloed Motorways, Bridges and Tunnels)

Headquarters: 3 rue Edmond Valentin, 75007 Paris, FRANCE; tel. +33 147533700, fax +33 145558488

General Secretariat: 15 rue Guimard, 1040 Bruxelles/Brussel, BELGIQUE/BELGIË; tel. +32 22892620, fax +32 25146628

Internet site: <http://www.asecap.com>

3.7. Professional association EETS Providers

At the time of writing this guide, prospective EETS Providers intended to create a professional association to be called AETIS (Association for Electronic Tolling and Interoperable Services).

ANNEX 4: EETS INTEROPERABILITY CONSTITUENTS ASSESSMENT MODULES

The modules are based on Decision 768/2008/EC ⁽³⁰⁾.

Before it can be placed on the market, an interoperability constituent must at least be covered by an 'EC' declaration of conformity to specifications. Where feasible, the interoperability constituent and/or its packaging will carry a CE marking in relation with the 'EC' Declaration, affixed by the manufacturer of the interoperability constituent.

In addition, the interoperability constituent and/or its packaging may carry CE markings covered by 'EC' declarations of suitability for use.

An 'EC' declaration of conformity to specifications or suitability for use (see Annex 6 to this guide) attests to the compliance of an interoperability constituent with the appropriate standards, normative documents, essential requirements or EETS domains.

A new 'EC' declaration of conformity to specifications is necessary for an interoperability constituent to be placed on the market when it is substantially modified.

A new 'EC' declaration of suitability for use is also necessary when the constituent is used in a new field of application.

The entity placing the interoperability constituent on the market on the Union territory, be it the manufacturer, its authorised representative in the Union, importer or any other person, must retain at the disposal of the competent authority the 'EC' declarations and, where applicable, the technical file not attached to the declarations (see Annex 6). These documents shall be maintained by such entity at the disposal of the competent authorities for a period covering the lifetime of the last interoperability constituent placed on the market. This applies for interoperability constituents manufactured in the Union as well as those imported from a third country.

The choice of the specific modules to be applied in the assessment procedure of a given interoperability constituent's conformity to specifications lies with the manufacturer, which entrusts the assessment and certification procedure to a notified body of its choice, where necessary.

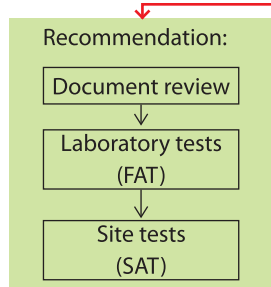
For the suitability for use assessment procedure, the Module V shall be applied. Module V is always complementary to the conformity to specifications assessment modules chosen by the manufacturer.

The figure below illustrates the EETS interoperability constituents' conformity to specifications and suitability for use assessment process.

⁽³⁰⁾ Decision No 768/2008/EC of the European Parliament and of the Council of 9 July 2008 on a common framework for the marketing of products, and repealing Council Decision 93/465/EEC (OJ L 218, 13.8.2008, pp. 82–128).

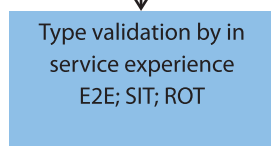
EETS — Certification and monitoring process

Conformity to specifications,
(Modules A to H)
according to Decision 768/2008/EC



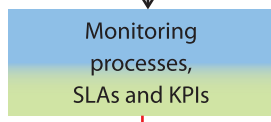
'EC' Declaration of Conformity
(EC marking)

Suitability for use,
(Module V: End-to-End tests;
System Integration Testing in
test environment; Real
Operational Testing)



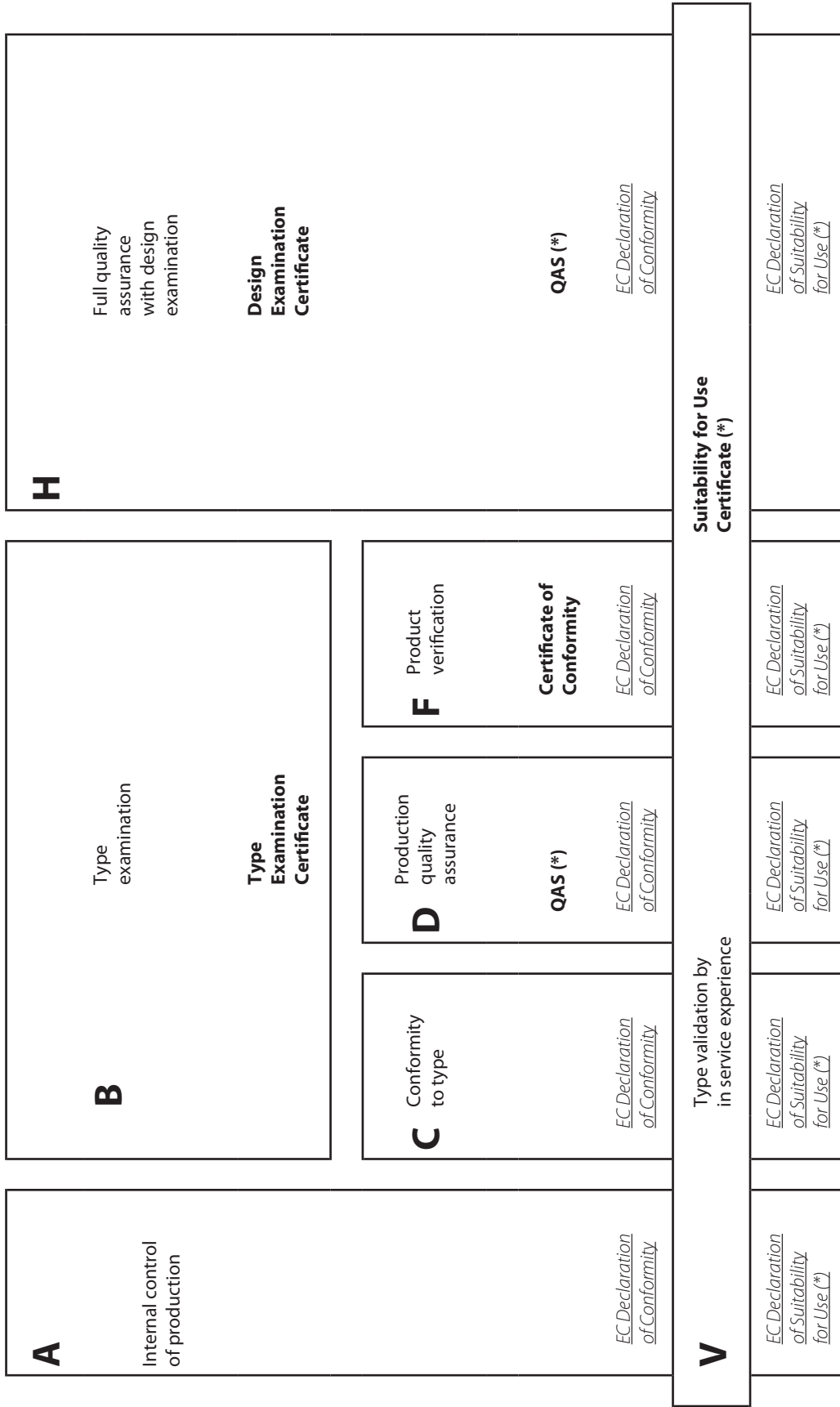
'EC' Declaration of Suitability
for Use

Operation phase
Quality system approval and
surveillance (quality audits
and quality measurement)



essential
changes

Structure of the modules for EETS Interoperability Constituents Assessment



(*) Quality system approval and surveillance

Documents issued by notified bodies
Documents issued by manufacturers

ANNEX 5: MANUFACTURERS' AND NOTIFIED BODYS' TASKS FOR EETS INTEROPERABILITY CONSTITUENTS ASSESSMENT

| Module | Tasks of the manufacturer or its authorised representative | Tasks of the notified body |
|--|---|---|
| A Internal control of production | All phases <ul style="list-style-type: none"> • Takes all measures necessary to ensure that the design and the manufacturing process assures compliance of the interoperability constituent (IC) with the requirements specified in Decision 2009/750/EC • Draws up the 'EC' declaration of conformity to specifications | All phases <ul style="list-style-type: none"> • No tasks |
| B Type examination | Design <ul style="list-style-type: none"> • Establishes technical documentation which, as far as relevant for assessment, covers the design, manufacture and operation of the product • Places at the disposal of the NB one (or more) specimens representative of the production envisaged • applies for the type examination by an NB | Design <ul style="list-style-type: none"> • Performs an EETS-relevant design review: examination of the design methods, the design tools and the design results • Performs a review of the manufacturing process • Carries out tests or has them carried out • Issues a type-examination certificate (1) |
| C Conformity to type (only together with B) | Production <ul style="list-style-type: none"> • Takes all measures necessary to ensure that manufacturing assures compliance of the IC with the approved type • draws up the 'EC' declaration of conformity (with the approved type) | Production <ul style="list-style-type: none"> • No tasks |
| D Production quality assurance (only together with B) | Production <ul style="list-style-type: none"> • Operates a quality system for production and testing, approved and surveyed by an NB • Draws up the 'EC' declaration of conformity (with the approved type) | Production <ul style="list-style-type: none"> • Approves the quality system • Carries out surveillance of the quality system • Issues visit report or audit report |
| F Product verification (only together with B) | Production <ul style="list-style-type: none"> • Applies for verification of conformity of products by an NB • Draws up the 'EC' declaration of conformity to specifications (with requirements of Decision 2009/750/EC) | Production <ul style="list-style-type: none"> • Verifies conformity of products • Issues a certificate (1) of conformity to specifications |

| Module | Tasks of the manufacturer or its authorised representative | Tasks of the notified body |
|--|---|---|
| <p>H</p> <p>Full quality assurance with design examination</p> | <p>Design</p> <ul style="list-style-type: none"> • Operates an approved quality system for design • Carries out type tests in an appropriate laboratory • Gives evidence to the NB that the IC meets all requirements of Decision 2009/750/EC, including the results of tests • Applies for design examination by an NB <p>Production</p> <ul style="list-style-type: none"> • Operates a quality system for production and testing, approved and surveyed by an NB • draws up the 'EC' Declaration of conformity to specifications | <p>Design</p> <ul style="list-style-type: none"> • Assesses and approves the quality system • Carries out surveillance of the quality system • Performs a design examination: examination of the application including: <ul style="list-style-type: none"> • technical design specifications applied, • supporting evidence of design adequacy with provisions of Decision 2009/750/EC • results of type tests performed in an appropriate laboratory • Issues a design examination certificate (!) <p>Production</p> <ul style="list-style-type: none"> • Approves the quality system • Carries out surveillance of the quality system |
| <p>V</p> <p>Suitability for use (type validation by in-service experience)</p> | <p>In-service experience</p> <ul style="list-style-type: none"> • Applies for type validation by in-service experience by an NB • Places in service one (or more) specimens representative of the production envisaged • Monitors the in-service behaviour of the IC by a procedure, approved and surveyed by an NB • Gives evidence to the NB that the IC meets all requirements of Decision 2009/750/EC, including the results of in-service experience • Draws up the 'EC' declaration of suitability for use | <p>In-service experience</p> <ul style="list-style-type: none"> • Verifies the technical documentation and the programme for validation by in-service experience • Approves the monitoring procedure of the in-service behaviour and carries out specific surveillance • Assesses if the in-service behaviour meets the requirements of Decision 2009/750/EC • Issues a suitability for use certificate (!) |

(!) See Annex 6 for the necessary elements to be mentioned on the NBs' certificates.

ANNEX 6: ELEMENTS TO BE MENTIONED ON THE CERTIFICATES AND OTHER FORMAL DOCUMENTS ISSUED BY NOTIFIED BODIES

Type of procedure:

1 — Assessment of the conformity to specifications of interoperability constituents

2 — Assessment of the suitability for use of interoperability constituents

| Necessary information to be included in the certificate/ formal document's FRONT PAGE | | Type of procedure | | | | | | | | | | | | | |
|--|---|----------------------------------|----------|--------------------------------|---|----------------------------------|---|---------------------------|------|-----------------------------|---|-----------------------------------|---|----------|----------|
| (Bilingual: official language of the applicant's Member State and English) | | 1 | 2 | | | | | | | | | | | | |
| 1. | <p>Type and identification number of the certificate/formal document</p> <p>In accordance with the modules, NBs issue certificates but also other formal documents.</p> <p>In total, five types of certificates/formal documents have been identified:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Certificate/formal document type</th> <th style="text-align: left; border-bottom: 1px solid black;">Module</th> </tr> </thead> <tbody> <tr> <td>• Type examination certificate</td> <td>B</td> </tr> <tr> <td>• Design examination certificate</td> <td>H</td> </tr> <tr> <td>• Quality system approval</td> <td>D, H</td> </tr> <tr> <td>• Certificate of conformity</td> <td>F</td> </tr> <tr> <td>• Suitability for use certificate</td> <td>V</td> </tr> </tbody> </table> <p>The NB attributes a unique identification number to each certificate/formal document. The reader should refer to the Coordination Group NB-EETS for details on the numbering system for certificates and other formal documents</p> | Certificate/formal document type | Module | • Type examination certificate | B | • Design examination certificate | H | • Quality system approval | D, H | • Certificate of conformity | F | • Suitability for use certificate | V | X | X |
| Certificate/formal document type | Module | | | | | | | | | | | | | | |
| • Type examination certificate | B | | | | | | | | | | | | | | |
| • Design examination certificate | H | | | | | | | | | | | | | | |
| • Quality system approval | D, H | | | | | | | | | | | | | | |
| • Certificate of conformity | F | | | | | | | | | | | | | | |
| • Suitability for use certificate | V | | | | | | | | | | | | | | |
| 2. | European legal base and reference of Directive 2004/52/EC transposition into the national law of the NB's Member State | X | X | | | | | | | | | | | | |
| 3. | Designation of the interoperability constituent certified (type, product family, identification, version number, etc.) | X | X | | | | | | | | | | | | |
| 4. | <p>Name and address of the manufacturer (or of its authorised representative established within the Union) of the certified interoperability constituent</p> <p>Place of manufacture</p> | X | X | | | | | | | | | | | | |
| 5. | Name and address of the NB; registration number at the European Commission | X | X | | | | | | | | | | | | |

| Necessary information to be included in the certificate/ formal document's FRONT PAGE | | Type of procedure | |
|---|--|--|--|
| | | 1 | 2 |
| (Bilingual: official language of the applicant's Member State and English) | | | |
| 6. | Statement about the assessment results NB's statement declaring the conformity of the interoperability constituent with the appropriate requirements or formally confirming the results of its investigations. This is the central statement in the certificate/formal document. | X | X |
| 7. | Framework of the assessment/verification <ul style="list-style-type: none"> • relevant directives • modules • standards or other documents referred to in Decision 2009/750/EC (and therefore mandatory), where applicable • standards or other documents not referred to in Decision 2009/750/EC (and therefore voluntary), where applicable. | X X X X | X X X X |
| 8. | Reference to annexes In most cases, the certificate/formal document will be the first part of a larger set of documents. This information aims to make all relevant documents (technical files, etc.) easily traceable. | X | X |
| 9. | Integration conditions of the certified constituent in EETS (application field, conditions of use, functioning, etc.) | X | X |
| 10. | Expiry date, if applicable. | X | X |
| 11. | Place, date of issue and signature of the NB's authorised signatory. | X | X |

| Necessary information to be included in the certificate/ formal document's ANNEXES | | Type of procedure | |
|--|---|----------------------|--------|
| | | 1 | 2 |
| (Official language of the applicant's Member State) | | 1 | 2 |
| 12. | Reference of the technical file (containing documentation as defined in the modules). | X | X |
| 13. | List of optional requirements implemented in the IC | X | X |
| 14. | List of any restrictions to the approval (ICs' area of use etc.) | X | X |
| 15. | Name(s), place(s) and address(es) of manufacturer(s), when it is (they are) different from the name and address on the front page of the certificate/formal document | X | X |
| 16. | When necessary, list of approvals and other certifications issued for the interoperability constituent(s) within the field of certification, the relevant standard(s), the name and address of the certification body, in the case of: <ul style="list-style-type: none"> • a quality management certificate (modules D, H), • a product certification against not mandatory standards for ICs, restricted to those directly pertaining to this certificate/formal document. | X | X |
| 17. | When necessary, name and address of inspection body(ies) and/or test centre(s), sub-contractor(s) of the NB and action(s) sub-contracted (in particular for assessment of suitability for use) | X | X |
| 18. | For modules F, D, design/type examination, 'EC' certificates/reports with reference of the NB involved (if not on the certificate/formal document's front page). | X | X |
| 19. | Basis for assessment/verification (calculation results, test reports, inspection reports, design examination, etc) including references to not attached documents and references to the evaluation report. | X | X |
| 20. | For assessment based on type tests: <ul style="list-style-type: none"> • type delivery date to the testing body • type manufacturing conditions (if special) | X X | X X |
| 21. | For assessment of suitability for use by in-service experience: <ul style="list-style-type: none"> • detail of the Toll Charger(s) and EETS Provider(s) operating the interoperability constituent for in-service experience • inspection report for monitoring the constituent behaviour and the conditions of use and maintenance | | X X |

ANNEX 7: THE EUROPEAN STANDARDISATION CONTEXT

There are three European standardisation organisations (ESO) working in partnership:

- the CEN (European Committee for Standardisation);
- the Cenelec (European Committee for Electrotechnical Standardisation);
- the ETSI (European Telecommunications Standards Institute).

The CEN covers all the subjects outside the scope of Cenelec and ETSI.

The mission of the ESOs is to promote voluntary technical harmonisation in Europe, in conjunction with worldwide organisations.

With regard to the elements of electronic tolling, those are mainly treated:

- for the CEN, under Technical Committee TC 278 'Road Transport and Traffic Telematics';
- for the ETSI, under Technical Committee TC ITS; and

their respective subcommittees. These committees also collaborate closely with the ISO (mainly ISO TC 204) in developing EFC standards that may be applied globally.

A standardisation mandate (m/338) has been set up between the European Commission and the ESOs for standardisation in support of Directive 2004/52/EC.

62

The ESOs' process for developing standards respects the following principles.

- **Openness and transparency:** all interested parties can take part in the preparation of standards. This is usually achieved through the national standards bodies.
- **Consensus:** whenever possible, European Standards are developed and adopted with the agreement of all the interested parties. When necessary, adoption of the final text is obtained by weighed majority voting.
- **National commitment:** national members are normally obliged to eliminate any previous national standard which may conflict with a European standard.
- **Technical coherence:** continuity and consistency of technical content between European standards is looked at.
- **Global coherence:** the ESOs take into account the activities of the European sectorial bodies and the work of international standardisation bodies, especially the ISO.

The ESOs do not themselves publish European standards. The ratified texts are sent to the national members, which publish them as national measures, keeping the EN catalogue entry (e.g. BS EN 71, DIN EN 71, etc.).

In addition, national standards bodies may adopt international standards, e.g. from the ISO (or IEC). In this case, the national reference numbers also maintain the original ISO (or IEC) reference (e.g. BS ISO 13296).

The CEN or Cenelec may also adopt international standards from the ISO (or IEC). In this case, the standards published by the national members have triple prefixes (e.g. DIN EN ISO 9000).

ANNEX 8: TERMINOLOGY RELATING TO CONFORMITY ASSESSMENT

Common definition for the most important terms used in the framework of EETS

| Term | Definition (reference) |
|--|---|
| Suitability for use | Ability of a product to achieve and maintain a specified performance during its period of use |
| In-service experience | Validation of product requirements for suitability for use by operation or use of the product in service, integrated representatively into the EETS system, over specified conditions and operation time |
| Conformity assessment | Demonstration that specified requirements relating to a product are fulfilled (modified from CEN ISO/IEC 17000:2004, where also a process, system, person or body are included) |
| Design examination ⁽¹⁾ (*) | Assessment of the design of a product by examination of the design methods, the design tools and the design results, taking into account, if appropriate, the results of tests and reviews and validation by in service experience (*) Procedure within Module H provided in Decision 768/2008/EC. |
| Design review ⁽¹⁾ (**) | Documented, comprehensive and systematic examination of a design to evaluate its capability to fulfil the requirements for conformity at the completion of the design process (**) In a general sense, modified from EN ISO 8402:1995; 3.11. |
| Design examination certificate | Document certifying the ability of the design of a product such that the product will meet the requirements |
| Review of manufacturing process ⁽¹⁾ | Documented, comprehensive and systematic examination of the manufacturing process devised for manufacturing a product, to evaluate its contribution to product conformity, carried out at the completion of the design process |
| Type examination ⁽¹⁾ | Assessment of a product type to its conformity and where applicable suitability for use by design review, review of the manufacturing process, type tests and in-service experience (if specified) (Procedure within Module B also provided in Decision 768/2008/EC) |
| Type examination certificate | Document certifying the conformity and suitability for use of a product type |
| Sampling ⁽¹⁾ | Selection of one or more specimens out of a whole lot (e.g. on a statistical base) to ensure that the specimens represent the whole |
| Testing ⁽¹⁾ | Determination of one or more characteristics of an object of conformity assessment, according to a procedure (CEN ISO/IEC 17000:2004; 4.2) |

| Term | Definition (reference) |
|--|--|
| Inspection (!) | Examination of a product design, product, process or installation and determination of its conformity with specific requirements or, on the basis of professional judgement, with general requirements. (CEN ISO/IEC 17000:2004; 4.3) |
| Evaluation report | A report on the results of a systematic examination of the extent to which a product fulfils specific requirements. |
| Verification (!) | Assessment of the product's conformity to specified technical requirements, performed step by step during the product development phase by specified tests or alternative methods. |
| Validation (!) | Confirmation, by examination and provision of objective evidence, that the particular requirements for a specific intended use are fulfilled. (ISO 8402:1994; 2.18) |
| Surveillance of product conformity (!) | Constant or frequent monitoring and verification of product conformity, to ensure that specified requirements are being fulfilled (Modified from ISO 8402:1994; 4.7, which concerns quality surveillance and is not restricted to products) |
| Certification (!) | Third-party issue of a statement, based on a decision following review, that fulfilment of specified requirements related to a product has been demonstrated. (Modified from CEN ISO/IEC 17000:2004; 5.5., where processes, systems or persons are also included) |

(!) Actions within the conformity assessment procedure.

ANNEX 9: DEFINITIONS

9.1. Harmonised standard

A standard which has been:

- mandated by the Commission under a new approach (or new approach-type) European legislation; and
- developed by the European standards organisations (CEN, Cenelec, ETSI) in accordance with the general internal rules of these organisations.

Harmonised standards are deemed to exist when the European standards organisations formally present to the Commission the (part(s) of) standards helping to fulfil some essential requirements of the European legislation, in conformity with a mandate of the European Commission.

Harmonised standards are considered to carry a broad consensus.

The reference numbers of 'harmonised' standards are published in the *Official Journal of the European Union* (Series C). 'Harmonised' standards are then transposed by Member States at national level.

9.2. Technical specification

A technical specification can be:

- a technical normative requirement which can be defined among others by reference to a European standard, a European technical approval or a common technical specification;
- a type of standard being developed in CEN or ISO.

Unless otherwise stated, in this application guide the first of these meanings is intended when the term 'technical specification' is used.

9.3. Conformity to specifications

In the context of EETS, fulfilment by a product of requirements specified in Directive 2004/52/EC, Decision 2009/750/EC or in relevant standards, technical specifications and normative documents compiled by the EETS Coordination Group of Notified Bodies and deemed relevant by the Toll Committee.

9.4. Suitability for use

Ability of an interoperability constituent to achieve and maintain a specified performance during its period of use when in service, integrated representatively into EETS in relation with a Toll Charger's system.

9.5. Assessment of conformity to specifications

Any activity concerned with determining directly or indirectly that specified requirements are fulfilled.

9.6. Assessment of suitability for use

Any activity concerned with determining directly or indirectly the in-service interoperability of an interoperability constituent.

9.7. Placing on the market

The process by which an interoperability constituent is made available within the European Union, with a view to distribution or use within the Union.

9.8. Placing into service

The process by which an interoperability constituent is put into use in its designed state.

ANNEX 10: LIST OF ACRONYMS

| | |
|--------------|--|
| CEN | European Committee for Standardisation |
| CEN #number# | CEN standard project: item of work in a standard programme, intended to lead to a new, amended or revised standard. (NB: Contrary to CEN and Cenelec, ETSI directly allocates a standard number to a project.) |
| Cenelec | European Committee for Electrotechnical Standardisation |
| CLC #number# | Cenelec standard project: item of work in a standard programme, intended to lead to a new, amended or revised standard. (NB: Contrary to CEN and Cenelec, ETSI directly allocates a standard number to a project.) |
| CN | Cellular Network |
| DSRC | Dedicated Short-Range Communications |
| EC | European Community |
| ECE | Economic Commission for Europe (see UNECE) |
| EEA | European Economic Area |
| EEC | European Economic Community |
| EETS | European Electronic Toll Service |
| EFC | Electronic Fee Collection |
| EMC | Electromagnetic Compatibility |
| EN | European standard |
| ENV | European pre-standard (This is an older form of standard in CEN that is being phased out. It will normally be replaced with a TS-type standard.) |
| ES | ETSI Standard (a type of standard document) |
| ESO | European Standardisation Organisations (CEN, Cenelec and ETSI) |
| ETS | European Telecommunications Standard |
| ETSI | European Telecommunications Standards Institute |
| EU | European Union |
| FAT | Factory Acceptance Tests |
| GDF | Geographic Data File |
| GNSS | Global Navigation Satellite System |
| GPRS | General Packet Radio Service |
| GSM | Global System for Mobile Communications |
| HD | Harmonisation Document |
| HMI | Human–Machine Interface |
| IC | Interoperability Constituent |
| IEC | International Electrotechnical Commission |
| ISO | International Organisation for Standardisation |
| JPC | Joint Programming Committee of CEN/Cenelec/ETSI |
| JWG | Joint Working Group (in standardisation) |
| KPI | Key Performance Indicator |
| MMI | Man–Machine Interface |
| MS | Member State |
| NB | Notified Body |

| | |
|-------|---|
| OBE | On-Board Equipment |
| OBU | On-Board Unit |
| OJ | <i>Official Journal of the European Union</i> |
| prEN | Draft European Standard |
| prTS | Draft Technical Specification (a type of standard document) |
| QAS | Quality Assurance System |
| RAMS | Reliability, Availability, Maintainability and Safety |
| RCI | Road Charging Interoperability |
| RFU | Recommendation For Use |
| RSE | Roadside Equipment |
| SAT | Site Acceptance Tests |
| SC | Standard Committee |
| SLA | Service Level Agreement |
| TC | Technical Committee |
| TR | Technical Report (a tentative form of standard) |
| TS | Technical Specifications (a type of standard document) |
| UNECE | United Nations Economic Commission for Europe |
| VST | Vehicle Service Table |
| WG | Working Group (in CEN or ISO) |
| WP | Working Party |

ANNEX 11: QUESTIONS STAKEHOLDERS MAY HAVE ABOUT EETS

It is essential that all EETS stakeholders in the Union share a common understanding and application of the content and requirements of Directive 2004/52/EC and Decision 2009/750/EC.

Even though this guide provides guidance in implementing EETS, stakeholders will probably still have questions, which remain unanswered.

- Bodies notified under Decision 2009/750/EC may refer to their Co-ordination Group NB-EETS for any questions they may have regarding the assessment procedures in relation with the implementation of EETS (see Section 4.8).

Each question and its draft answer will be sent to the European Commission and the Toll Committee by the Coordination Group NB-EETS.

The European Commission shall give its opinion on the draft answer, where necessary in accordance with the procedure defined in Article 5(2) of Directive 2004/52/EC. In all cases, the Toll Committee and the Coordination Group NB-EETS will be kept informed of the procedure and the European Commission's opinion.

- All stakeholders, including the notified bodies, may refer their questions directly to the European Commission ⁽³¹⁾.

Where appropriate the questions together with the answers will be made publicly available on the websites of the European Commission and/or of the Coordination Group NB-EETS.

⁽³¹⁾ European Commission, Directorate-General for Mobility and Transport, 1049 Bruxelles/Brussel, BELGIQUE/BELGIË.

ANNEX 12: SECTIONS OF PREN ISO 17573 ⁽³²⁾ REFERRED TO IN THIS APPLICATION GUIDE

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3 Terms and definitions

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3.2.5 toll systems environment management

Controlling enterprise object for the toll systems environment.

NOTE The toll systems environment management may encompass several distinct entities, e.g. a political/legislative one, a regulatory one, private associations, standardization authorities, and so on.

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5 The EFC community: roles and objectives

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68 5.3.1 Financial systems, e.g. banks, credit cards companies and clearing houses

The role of a financial system is to provide the financial services requested by a toll charging environment. The services will mainly be transfer of money between entities in the toll charging environment, including users. It is important to note that the toll charging environment roles handle charging data while the financial system handles payment information ('money'). The interactions between the toll charging environment and the financial system are based on explicit and implicit contracts between the objects in the toll charging environment and the objects in the financial system.

5.3.2 Telecom systems

The role of the telecom systems is to provide telecom services requested by a toll charging environment. Examples of such services could be cable network for transfer of data between the operators of the toll charging environment and air-interface network for transfer of data between the toll charging equipment and the On-Board Equipment. The interactions between the toll charging environment and the telecom system are based on explicit and implicit contracts between the objects in the toll charging environment and the objects in the telecom system.

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5.3.4 Vehicle sensors and data stores

A toll charging environment may use information from vehicle sensors and data stores integrated in the vehicle where the main purposes of the sensor or data store are not related to EFC. The information is retrieved from the sensors and data stores and used for the toll calculation. Examples of such sensors and data stores are GNSS sensors (e.g. in devices used for navigation, fleet management), tachograph, trailer sensor, suspension sensors, axle in use sensors and vehicle related information stored in a secure application module (SAM). The data stores could be either in the vehicle or elsewhere, e.g. a computer installed within the toll domain.

⁽³²⁾ The listed sections are excerpts from a draft standard and are for information only. They may be subject to change as the preN ISO 17573 text develops.

5.3.5 Environmental sensors and other ITS systems

A toll charging environment may use data from environmental sensors, e.g. pollution measurements, for the toll calculation. Also data from other ITS systems, e.g. traffic management system (TMS), may be used for toll calculation. A dynamic road pricing scheme may for instance use both the pollution measurements from environmental sensors and the data on traffic flows and speeds from a TMS for the dynamic toll calculation.

5.3.6 EFC equipment suppliers

The role of the EFC equipment suppliers is to provide EFC equipment to a toll charging environment, e.g. On-Board Equipment and Roadside Equipment. The interactions between the EFC equipment suppliers and the toll charging environment are based on contracts between the different objects in the toll charging environment and the EFC equipment suppliers. The main role of the toll charging environment will be to provide system requirements while the main role of the EFC equipment suppliers will be to provide EFC equipment with EFC functionality in accordance with the requirements.

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5.3.8 Standardisation bodies

The role of the standardisation bodies is to provide EFC standards and other standards or specifications relevant for toll charging environments. There are interactions with a toll charging environment concerning EFC standards to be used for toll charging environment requirements as well as input from toll charging environment to the standardisation bodies, e.g. by toll charging operators taking part in the preparation of EFC standards.

5.3.9 Authorities

The role of the authorities is to define the framework in which a toll charging environment shall operate. The framework is defined by policies constituting of laws and regulations, mandates, constraints and requirements. Different authorities define different policies:

- Road and Transport Authorities, e.g. a Department of Transport, may define policies related to the type of and availability, reliability and quality of the transport service subject to a toll. The authorities may also, in cooperation with the financial authorities, define policies for tariffing principles to be used in a toll charging environment. The authorities may also, in cooperation with the financial authorities, define the policies that govern the configuration of the EFC enterprise objects and assignment of roles to enterprise objects as well as the environment contracts that govern the system. An example here would be that the authorities define the policy which is the basis for the contract between an operator taking the role of issuing EFC contracts and the operators taking the toll charging roles.
- Telecom authorities, may define policies for the use of telecom systems, e.g. frequencies in air-interface communication systems.
- Financial authorities may define policies for a toll charging environment and the financial environment it shall operate, e.g. whether the toll is a tax or a fee. They may also define policies for the use of certain types of payment means, e.g. electronic purses, and the split of roles between the toll charging environment and the financial systems.
- Data protection authorities may define policies for the security and privacy in a toll charging environment.
- Certification authorities may issue public key certificates.

The interactions with the authorities also cover access to information kept by the authorities, e.g. National Vehicle Registers.

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6 Roles in a toll charging environment

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6.2 Role related to the provision of the toll service

The role related to the provision of the toll service is responsible of providing the basic artefacts, mechanisms, organisation structures, and information transfer tools needed to run an EFC system.

Responsibilities related to this role include:

- Providing basic provision, including:
 - providing the OBE;
 - guaranteeing that the entity performing the charging of the toll role will be paid for it;
 - providing the payment means to the user or accepting an existing one;
 - collecting the money from the signer of the EFC contract;
 - managing the customer relationships related to the use of the toll service concerning information, claims, questions and answers, error handling and any contractual or financial matters;
 - implementing and adhering to the security and privacy policies for the toll systems;
 - monitoring the actual operational quality relative to agreed SLA's.
- Acting as a contract agent, including:
 - offering contractual relations according to defined conditions to interested users and concluding contractual agreements;
 - providing and managing the EFC contract including the service rights for the toll service user.
- Providing toll declaration, including:
 - making sure that the OBE is reporting in a secure way information needed for the toll charging
- Providing EFC context data, including:
 - providing context data originated elsewhere (e.g. by a Toll Charger) in a way that they can be installed in the OBE.
- Customising the OBE, including:
 - customising the OBE in a secure way.
- Maintaining the OBE, including:
 - maintaining the functionality of the OBE.

6.3 Role related to the use of the toll service

In this International Standard a transport service is related to the use of or the presence of a vehicle in a toll domain. The toll domain may encompass a road network, a specific section of a road (e.g. a bridge, a tunnel or a ferry connection) or a specific area offering a service (e.g. a parking lot or access to a protected area in a city). It could also be any service related to the use of a vehicle in the transport system, e.g. a petrol station enabling the driver to buy petrol by means of EFC.

A role is thus identified that covers all aspects of using the toll system and, if applicable, of the transport service. Implementations of toll systems in various domains identify actors in this role that are commonly referred to as, e.g., driver, user or customer.

This role covers the following responsibilities:

- Driving the vehicle subject to toll including:
 - using the OBE as a tool to fulfil his obligations;
 - interacting with the OBE, e.g. declaring the vehicle characteristics for the vehicle subject to toll or receiving messages and acting on the messages from the OBE;
 - behaving according to the rules of a specific toll system, e.g. recognising a signal or a road sign.
- Owning or operating a vehicle, including:
 - adhere to the toll regime for a toll domain;
 - signing a contract with a Toll Service Provider;
 - signing a contract with the issuer of the EFC contract becoming responsible for compliance to the rules related to the use of the toll service;
 - acquiring OBE;
 - installing and eventually de-installing the OBE in the vehicle;
 - terminating the contractual relation to the Toll Service Provider;
 - receiving the claim, e.g. by means of an invoice, for a service that has been used and a toll to be paid;
 - paying the toll included in the claim;
 - storing and protecting the contractual data and eventually the payment means, e.g. an electronic purse, needed for the toll charging and communicating the data to other actors having roles related to issuing or toll charging. This role is always bound to the OBE;
 - Contacting the CRM of the service provider in order to clarify uncertainties about issues covered by his contractual relations.

6.4 Role related to the charging of the toll

The role related to the charging of the toll covers all actors who define the toll regime, operate the toll system and may provide transport services. The role includes the related charging infrastructures and who defines the toll and operates the toll system. Enforcement operators are also playing this role.

The role related to the toll charging includes the following responsibilities:

- Basic Charging, including:
 - providing, if applicable, the transport service, e.g. access to a road network, a parking lot or a ferry connection;
 - defining the charging principles for the service offered, e.g. the tariffing principles for a tolled road or zone.
- Calculating Toll, including:
 - possibly communicating to the user the result of the charging process;
 - communicating in a secure way with actors having roles related to the issuing of the EFC contract, payment means and OBE.
- Originating EFC context data, including:
 - informing the driver of the vehicle about the EFC availability and the toll charging principles, e.g. through signs and messages either directly or via the OBE.
- Communicating with passing vehicles, including, whenever applicable and according to the technology chosen in the given toll domain:
 - providing, if applicable, to autonomous systems geographical details of the charge objects in the toll domain, as well as providing positioning information. This process is also known as Localisation Augmentation;
 - detecting a vehicle subject to a toll;
 - collecting the characteristics of a vehicle enabling a correct classification of the vehicle used for a toll calculation. The information collected can either be read from the OBE, measured (both used for toll calculation or verification of data read from the OBE) or collected from a central database or vehicle register (offline toll calculation);
 - communicating in a secure way with the OBE exchanging information needed for the toll charging;
 - accepting the service rights stored in the OBE, i.e. the medium carrying the contractual data;
 - collecting the information enabling the operator of the toll domain to identify the receiver of a claim for a transport service provided, e.g. by license plate recognition. The role enables toll collection without OBE installed in the vehicle.
- Operating enforcement, including:
 - detecting, recording and handling exceptions (including fraud) whenever a vehicle passes through a toll domain. Compliance check of autonomous systems is included in this responsibility;
 - handling enforcement cases while protecting the privacy of the actors having taken the role as driver;
 - implementing and adhering to the security and privacy policies for the toll charging environments.

6.5 Role related to the management of a toll charging environment

There is also a need for an overall management of a toll charging environment defining and organising the policy that enables the daily operation of the toll charging equipment involving several different actors. A specific role is identified to manage a toll charging environment, i.e. defining and maintaining a set of rules that, taken together, defines the policy of a given regime or of the overall toll charging environment.

The responsibilities of this role include:

- Setting rules, including:
 - Defining the supported security and privacy policies for the EFC system, acting as security authority that defines the security interaction policy among the different security domains;
 - Define and maintain ID-schemes and, if necessary, support the issuing of IDs ensuring unique registration codes for organisations and components and unique identifiers or rules for generating unique identifiers for the EFC applications and messages.
- Certifying EFC constituents, including:
 - Defining the certification requirements for actors involved and equipment used in the EFC system.
- Handling disputes, including:
 - Defining the operational procedures among the operators;
 - Managing dispute among operators.

European Commission

**The European Electronic Toll Service (EETS)
GUIDE FOR THE APPLICATION OF THE DIRECTIVE
ON THE INTEROPERABILITY OF ELECTRONIC ROAD TOLL SYSTEMS**

Luxembourg: Publications Office of the European Union

2011 — 73 pp. — 21 x 29,7 cm

ISBN 978-92-79-18637-0

doi:10.2833/6832



Publications Office

ISBN 978-92-79-18637-0



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