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# Electronic fee collection — EETS gap analysis and proposed standards roadmap

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TECHNICAL REPORT

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October 2020

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English Version

# Electronic fee collection - EETS gap analysis and proposed standards roadmap

Perception de télépéage - Analyse des lacunes du SET et feuille de route des normes proposées

Elektronische Gebührenerhebung - EETS Lückenanalyse und vorgeschlagener Handlungsplan für die Normierung

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# European foreword

This document (CEN/TR 17546:2020) has been prepared by Technical Committee CEN/TC 278 “Intelligent Transport Systems”, the secretariat of which is held by NEN.

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# 1 Scope

This document provides an EETS gap analysis with the aim to identify the need for new or updated standards to provide an enhanced support of the recast of the EU EETS legislation [29], [31], [32].

# 2 Normative references

There are no normative references in this document.

# 3 Terms and definitions

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

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

**3.1**
**back end**
part of a back-office system interfacing to one or more *front ends* (3.9)

[SOURCE: ISO/TS 17573-2:2020, 3.22]

**3.2**
**certification**
act of providing an official document, as proof that something has happened or been done

**3.3**
**toll service provider**
legal entity providing toll services on one or more *EETS domains* (3.8)

[SOURCE: ISO/TS 17573-2:2020, 3.206]

**3.4**
**toll charger**
entity which levies toll for the use of vehicles in a toll domain

[SOURCE: ISO/TS 17573-2:2020, 3.194]

**3.5**
**European Electronic Toll Service**
**EETS**
toll service provided under a contract on one or more *EETS domains* (3.8) by an *EETS provider* (3.6) to an *EETS user* (3.7)

**3.6**
**EETS provider**
entity which, under a separate contract, grants access to the *EETS* (3.5) to an *EETS user* (3.7), transfers the tolls to the relevant toll charger, and which is registered by its Member State of establishment

**3.7**
**EETS user**
natural or legal person who has a contract with an *EETS provider* (3.6) in order to have access to the *EETS* (3.5)



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**3.8**
**EETS domain**
road, road network, structure, such as a bridge or a tunnel, or ferry, where tolls are collected using an electronic road toll system

**3.9**
**front end**
part of a tolling system consisting of *on-board* equipment (OBE) (3.10) and possibly a proxy where road tolling information and usage data are collected and processed for delivery to the back end

[SOURCE: ISO/TS 17573-2:2020, 3.85]

**3.10**
**on-board equipment**
**OBE**
all required equipment on-board a vehicle for performing required electronic fee collection (EFC) functions and communication services

[SOURCE: ISO/TS 17573-2:2020, 3.126]

**3.11**
**notified body**
organisation that has been designated by a member state to assess the conformity of certain products, before being placed on the E.U. market

## 4 Abbreviated terms

For the purposes of this document, the following abbreviated terms apply.

| | |
|---|---|
| ADU | Application data unit (EN ISO 14906) |
| ANPR | Automatic Number Plate Recognition |
| ASN.1 | Abstract syntax notation one (ISO/IEC 8824-1) |
| CCC | Compliance check communication |
| DSRC | Dedicated short-range communication (EN ISO 14906) |
| EETS | European Electronic Tolling Service |
| EFC | Electronic fee collection (EN ISO 14906) |
| GNSS | Global Navigation Satellite System |
| GPRS | General Packet Radio Service |
| GSM | Global System for Mobile communication |
| HMI | Human Machine Interface |
| LAC | Localization augmentation communication |
| OBE | On-board equipment (EN ISO 14906) |
| OJEU | Official Journal of the European Union |
| PICS | Protocol implementation conformance statement |
| REETS | Regional EETS |

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| | |
|---|---|
| RSE | Roadside equipment (EN ISO 14906) |
| TC | Toll Charger |
| TSP | Toll Service Provider |

# 5 EETS legislation and relevant standards

## 5.1 Introduction

This clause is to list the standards **currently** referenced in the EETS legislation. Standards are divided into requirement and test standards. The information contained in this clause forms the basis for the gap analysis in Clause 6.

The EETS legislation lists requirements for all actors in the European Tolling Service, including the Toll Chargers, the Toll Service Providers, and the certification entities (e.g. Notified Bodies). In the requirement statements, a number of International standards are cited. The following clauses list the standards exactly as they are referred to in the EETS legislation, independent of their latest status and versions. This type of information is then needed in Clause 6 for the gap analysis. It is noteworthy that not all EETS required functionalities are covered by international standards, nor all existing standards covering EETS functionalities are quoted in the EETS legislation. This will be dealt with in Clause 6, as part of the Gap analysis.

Conformance testing is dealt with in the Annex III of the Implementing Act, which states that conformity assessment can be done by either one of the following two procedures as defined by Decision No 768/2008/EC [45]:

a) internal production control (module A);

b) EU type examination (Module B), followed by conformity to type based on internal production control.

Test standards for all requirement standards are cited in the EU legislation and may be used to evaluate conformity. Its usage, however, is not mandatory.

## 5.2 Standards supporting the EETS definition

### 5.2.1 Generalities

The EETS is defined by requirements (technical specifications) and tests (certification specifications) functionalities.

As far as technical specifications are involved, the EETS foresees three types of electronic tolling, namely based on dedicated short-range communication (DSRC), autonomous, and automatic number plate recognition (ANPR) technologies.

Standards applying to both requirements and tests functionalities, and mentioned in the legislation, are listed in the following clauses.

### 5.2.2 Requirement standards

For DSRC-based tolling systems tolling transactions, the EETS considers two alternative requirement standards, as shown in Figure 1:

- EN 15509:2014, that can be used in all EETS systems in Europe;
- ETSI ES 200 674-1 V2.4.1, that may alternatively be used in Italy.



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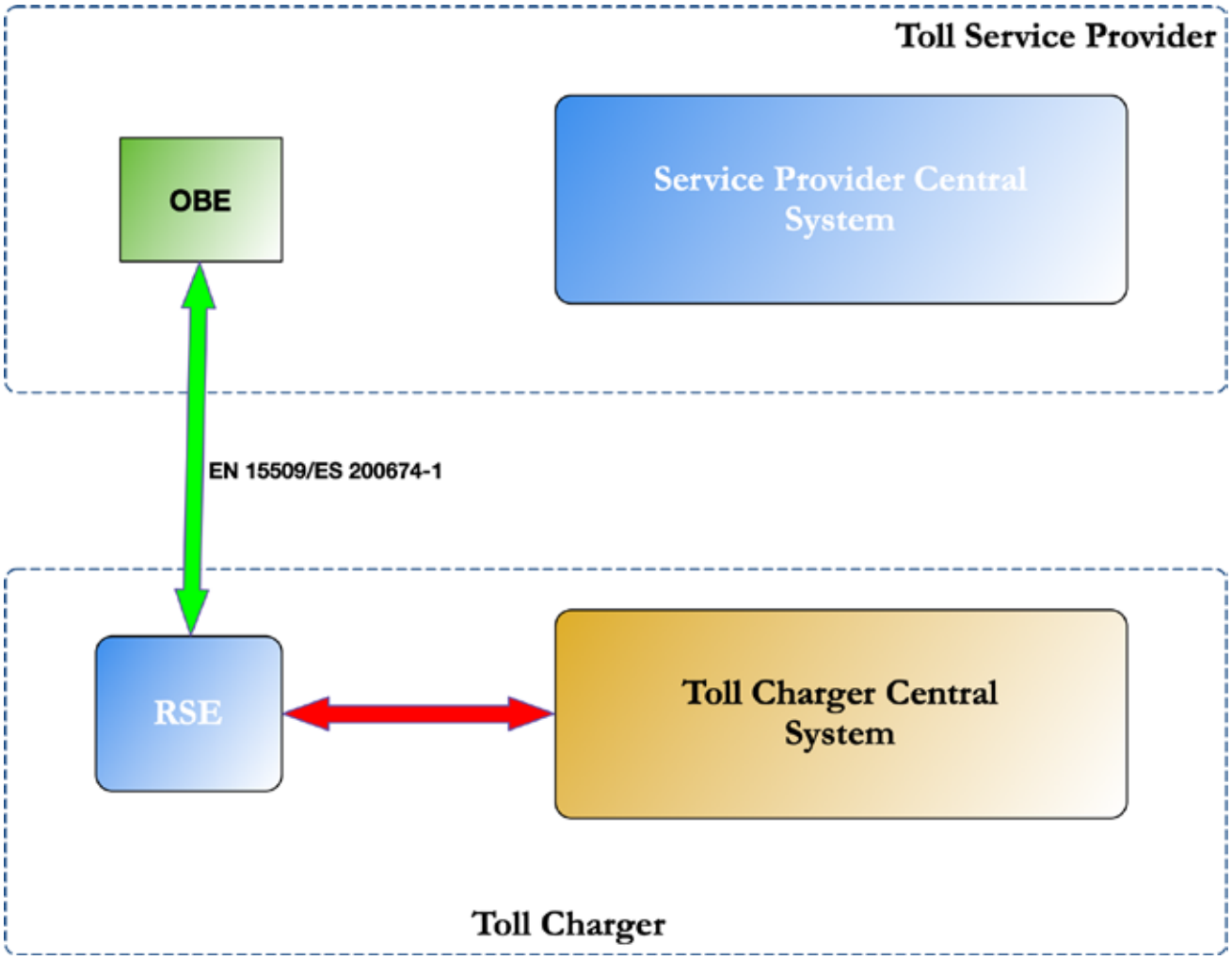


**Figure 1 — Standards supporting tolling transactions in DSRC systems**

For checking conformity of OBUs and enhancing location coordinates in autonomous tolling domains, the EETS considers two requirement standards, as shown in Figure 2:

- EN ISO 12813:2015 to check conformity and functioning of OBE devices respectively EN ISO 12813:2019 to retrieve vehicle classification parameters from OBE devices
- EN ISO 13141:2014 to enhance location information



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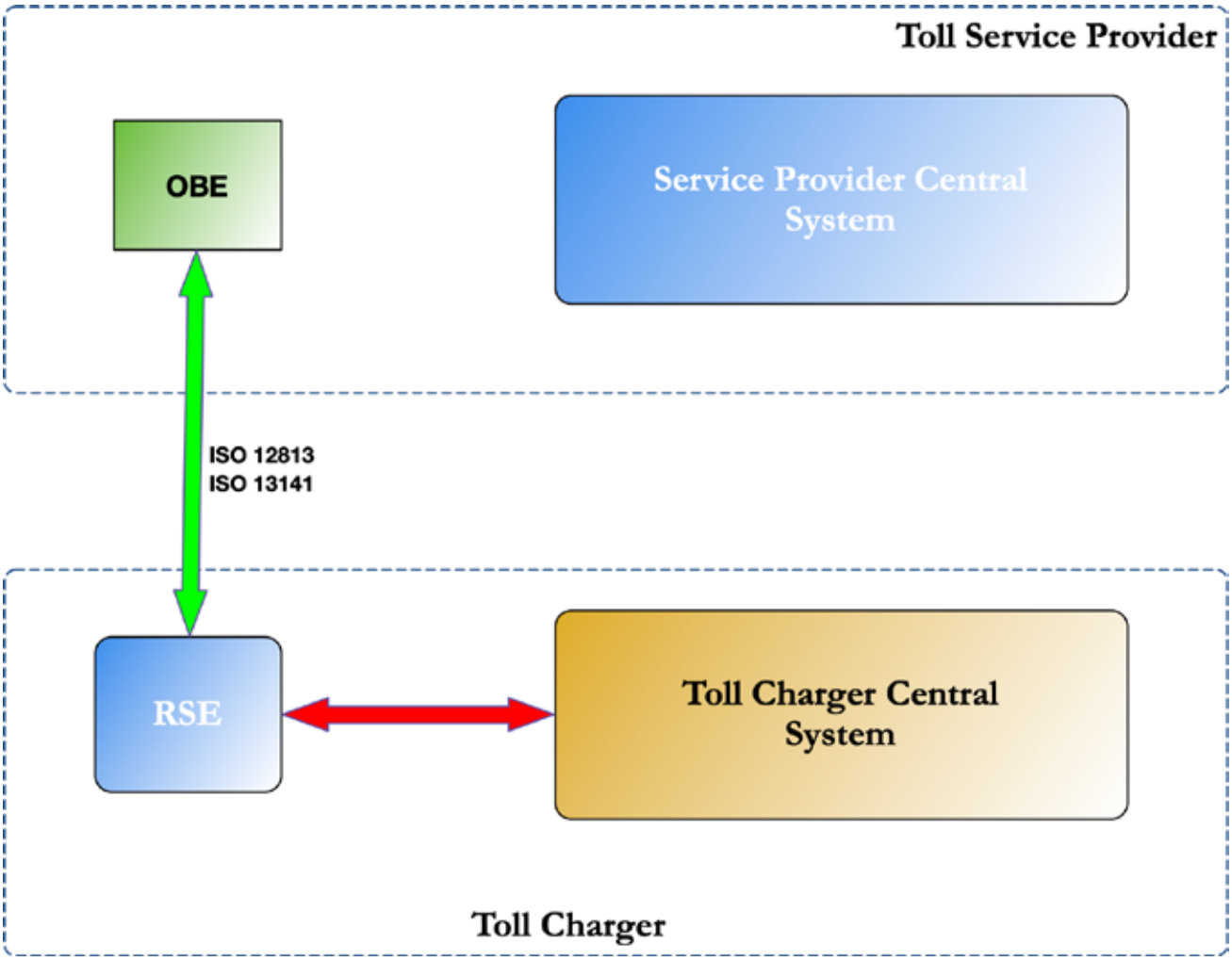


**Figure 2 — Standards supporting CCC and LAC DSRC interactions in autonomous tolling systems**

For all types of tolling systems, the EETS considers the standard CEN/TS 16986:2016 and CEN/TS 16986:2016/AC:2017 to exchange tolling related information between toll chargers and toll service providers, as shown in Figure 3.



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