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**Electronic fee collection — System  
architecture for vehicle related  
tolling —**

**Part 2:  
Vocabulary**

*Perception de télépéage — Architecture de systèmes pour le péage lié  
aux véhicules —*

*Partie 2: Vocabulaire*

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# Contents

	Page
Foreword.....	iv
Introduction.....	v
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	1
4 Abbreviated terms.....	22
Bibliography.....	23

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

A list of all parts in the ISO 17573 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

This document is a part of the ISO 17573 series that defines the system architecture for vehicle-related tolling. Part 1 gives a reference model for the system architecture, whilst this document (Part 2) provides a collection of terms and definitions within the field of electronic fee collection (EFC) and road user charging that are used in the different documents published in ISO and CEN under the general title, *Electronic fee collection*.

This document is based on guidelines from the relevant ISO International Standards for terminologies, in particular: ISO 704 and ISO 1087-1. Experiences were also drawn from more general work done on terminology, in particular from the work on the Nordic ITS terminology<sup>[27]</sup>.

This document is intended to be used as a reference by editors of documents in EFC and in related areas of standardization (such as Intelligent Transport Systems, ITS). It may also be used by the general public and the stakeholders in EFC as a vocabulary, fostering a harmonized language when describing EFC systems in specifications, reports and other texts.

As this document is intended to become the main source for EFC terms, any previous source references have intentionally been left out. However, source references are listed in the Bibliography.

It is foreseen that the terminology work on EFC terms will continue with addition of new terms, revision of existing terms and replacement/deletion of deprecated terms.

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# Electronic fee collection — System architecture for vehicle related tolling —

## Part 2: Vocabulary

### 1 Scope

This document defines terms within the field of electronic fee collection (EFC).

This document defines:

- terms within the fields of electronic fee collection and road user charging;
- terms that are used in standards related to electronic fee collection;
- terms of a more general use that are used more specifically in standards related to electronic fee collection.

This document does not define:

- Terms related primarily to other fields that operate in conjunction with EFC, such as terms for intelligent transport systems (ITS), common payment systems, the financial sector, etc.
- Deprecated terms.

### 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:

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

#### 3.1

##### **absolute charging error**

difference between the measured charge (*toll* [3.193]) value and the actual value as measured by a reference system where a positive error means that the measurement exceeds the actual value

#### 3.2

##### **acceptance testing**

examination that a product, process or service is in conformity with the system specification

#### 3.3

##### **accepted charging error interval**

interval of the *relative charging error* (3.154) that the *toll charger* (3.194) considers as acceptable, i.e. as correct charging

**3.4**  
**access credentials**  
**AC-CR**

trusted *attestation* (3.11) or secure module that establishes the claimed identity of an object or application

**3.5**  
**accountability**

property that ensures that the actions of an entity can be traced uniquely to the entity

**3.6**  
**accreditation**

third-party *attestation* (3.11) related to a *conformity assessment body* (3.46) conveying formal demonstration of its competence, consistent operation and *impartiality* (3.89) in performing specific conformity assessment activities

**3.7**  
**activist**

especially active, vigorous advocate of a cause, especially a political cause

**3.8**  
**area charging**  
**area pricing**

charging based on road usage within a given area

**3.9**  
**asset**

anything that has value to a stakeholder

**3.10**  
**assurance requirement**

security requirements to assure confidence in the implementation of *functional requirements* (3.86)

**3.11**  
**attestation**

issue of a statement, based on a decision that fulfilment of *specified requirements* (3.176) has been demonstrated

Note 1 to entry: The resulting statement, referred to in this document as a “statement of conformity”, is intended to convey the assurance that the specified requirements have been fulfilled. Such an assurance does not, of itself, afford contractual or other legal guarantees.

**3.12**  
**attack**

attempt to destroy, expose, alter, disable, steal or gain unauthorized access to or make unauthorized use of an *asset* (3.9)

**3.13**  
**attribute**

addressable package of data consisting of a single *data element* (3.54) or structured sequences of data elements

**3.14**  
**audit**

independent review and examination in order to ensure compliance with established *policy* (3.141) and operational procedures

**3.15**  
**authentication**

security mechanism allowing *verification* (3.233) of the provided identity

**3.16****authenticator**

data, possibly encrypted, that is used for *authentication* ([3.15](#))

**3.17****authenticity**

property that an entity is what it claims to be

**3.18****automated number plate recognition****ANPR**

technology to automatically read vehicle registration plates

Note 1 to entry: A vehicle registration plate typically contains the indicator or the code of the country that issued the vehicle registration plate.

Note 2 to entry: Optical character recognition techniques are typically part of the technology associated with automated number plate recognition.

**3.19****autonomous EFC system**

*EFC system* ([3.69](#)) which is able to obtain usage data using *on-board equipment* ([3.126](#)) independent from *roadside equipment (RSE)* ([3.161](#))

**3.20****availability**

property of being accessible and useable upon demand by an authorized entity

**3.21****average relative charging error**

ratio between the sum of computed charges (measurement) associated to a set of vehicles during a certain period of time and the actual charge due (reference) minus 1

**3.22****back end**

part of a back-office system interfacing to one or more *front ends* ([3.85](#))

**3.23****base standard**

approved International Standard, Technical Specification or ITU-T Recommendation

Note 1 to entry: This includes but is not limited to approved standard deliverables from ISO, ITU, CEN, CENELEC, ETSI and IEEE.

**3.24****big-endian**

format for transmission of binary data in which the most significant byte appears first

**3.25****billing detail**

information needed to determine or verify the amount due for the usage of a given service

**3.26****black list**

list of users for which the service provider denies contractual responsibility

**3.27****central account**

*payment means* ([3.134](#)), value or service rights stored in a central system

**3.28**

**certificate revocation list**

signed list indicating a set of certificates that are no longer considered valid by the certificate *issuer* (3.105)

**3.29**

**certification**

third-party *attestation* (3.11) related to *objects of conformity assessment* (3.124), with the exception of *conformity assessment bodies* (3.46)

Note 1 to entry: Certification is applicable to all objects of conformity assessment except for conformity assessment bodies themselves, to which *accreditation* (3.6) is applicable.

**3.30**

**channel**

information transfer path

**3.31**

**charge object**

geographic or road related object for the use of which a charge is applied

**3.32**

**charge object detection**

event marking the usage of a *charge object* (3.31)

**3.33**

**charge object detector**

functionality of the system responsible for detecting chargeable events associated with a *charge object* (3.31)

**3.34**

**charge parameter change**

event occurring within a tolling system, that is relevant for charge calculation, such as change of vehicle category, but not for the detection of a *charge object* (3.31) itself

**3.35**

**charge report**

information containing road usage and related information originated at the *front end* (3.85)

**3.36**

**charging data**

relevant data on the usage of a certain service

**3.37**

**charging performance metrics**

specific calculations used to describe the charging performance of a system

**3.38**

**charging point**

location where the *toll* (3.193) is charged

**3.39**

**charging scheme**

general description of a tolling system and its context including the motivation and strategy for the fee collection and the *toll context data* (3.197)

**3.40**

**clearing house**

organization that reallocates value generated in the payment system between the various actors, which enables these actors to execute settlement

**3.41****common service rights**

service rights for use in two or more schemes

EXAMPLE Number of trips, usage allowance for a time span, zone and distance.

**3.42****communication provider**

provider of information transmission services

**3.43****compatibility**

suitability of products, processes or services for use together under specific conditions to fulfil relevant requirements without causing unacceptable interactions

**3.44****confidentiality**

prevention of information leakage to non-authenticated individuals, parties or processes

**3.45****conformance testing**

assessment to determine whether an implementation complies with the *specified requirements* ([3.176](#))

**3.46****conformity assessment body**

body that performs conformity assessment activities, excluding *accreditation* ([3.6](#))

**3.47****consent**

freely given specific and informed written permission allowing *personal data* ([3.136](#)) to be processed

**3.48****context dependent itinerary**

*itinerary* ([3.106](#)) of which the syntax and semantics depend on the *toll domain's* ([3.201](#)) context data ([3.197](#))

**3.49****context independent itinerary**

*itinerary* ([3.106](#)) of which the syntax and semantics are independent of the *toll domain's* ([3.201](#)) context data ([3.197](#))

**3.50****continuous toll scheme**

*toll scheme* ([3.204](#)) where the charge is calculated based on the accumulation of continuously measured parameter(s)

EXAMPLE Distance and time.

**3.51****cordons**

border line of an area

**3.52****cordons charging****cordons pricing**

charging for the crossing of a *cordons* ([3.51](#))

**3.53****cryptology**

principles, means and methods for the transformation of data in order to hide its information content, prevent its undetected modification or prevent its unauthorized use

**3.54**

**data element**

coded information, which might itself consist of lower level information structures

**3.55**

**data group**

class of closely related *attributes* (3.13)

**3.56**

**data integrity**

**information integrity**

property that data has not been altered or destroyed in an unauthorized manner

**3.57**

**data privacy**

**information privacy**

rights and obligations of individuals and organizations with respect to the collection, use, retention, disclosure and disposal of personal information

**3.58**

**data protection commissioner**

**data privacy commissioner**

person responsible for the *enforcement* (3.73) and *monitoring* (3.120) of compliance with the applicable data protection legislation

**3.59**

**data set**

logical set of *data elements* (3.54) with a semantic relation

**3.60**

**dedicated short-range communication**

**DSRC**

short-range wireless communication for the exchange of information between *on-board equipment* (OBE) (3.126) and *roadside equipment* (RSE) (3.161)

Note 1 to entry: DSRC technologies are designed to provide small communication service areas for information exchange between OBU (3.127)/OBE (3.126) and RSE (3.161).

**3.61**

**digital signature**

one or more *data elements* (3.54) resulting from the digital signature process

**3.62**

**discrete toll scheme**

*toll scheme* (3.204) where the charge is calculated based on distinct events associated with the identification of *charge objects* (3.31) such as crossing a *cordon* (3.51), passing a bridge and being present in an area

**3.63**

**domestic state agency**

agency of the state under whose jurisdiction a *toll scheme* (3.204) is operated

**3.64**

**DSRC on-board unit**

minimum component of an *on-board equipment* (3.126), whose functionality always includes at least the support of the *dedicated short-range communication* (DSRC) (3.60) interface

**3.65**

**dynamic toll**

*toll* (3.193) adjusted in real time in response to the actual traffic situation or other actual external conditions

**3.66****EFC architecture**

description of the key elements of an *electronic fee collection (EFC) system* (3.69), their functions and interrelationships

**3.67****EFC information exchange**

to exchange *electronic fee collection (EFC)* (3.70)-related information between EFC actors

**3.68****EFC-session**

exchange of information and interaction, via *dedicated short-range communication (DSRC)* (3.60) between the *roadside equipment (RSE)* (3.161) and the *on-board equipment (OBE)* (3.126)

**3.69****EFC system**

system that electronically debits for the use of *transport services* (3.217)

**3.70****electronic fee collection****EFC**

*fee* (3.193) collection by electronic means

**3.71****EFC Element**

coherent set of data and functionality

Note 1 to entry: The functionality includes, where applicable, the security-related functions and the associated security keys.

Note 2 to entry: EFC Elements are created by the applications and addressed using Element identifiers.

Note 3 to entry: In a given *on-board equipment (OBE)* (3.126), the EID is used to address a *toll context* (3.196), identified by the EFC-ContextMark, in which *attributes* (3.13) can be addressed unambiguously by AttributeIDs inside an EFC Element of the OBE.

**3.72****electronic money****e-money**

electronic store of monetary value on a technical device used for making payments to entities other than the e-money *issuer* (3.105)

Note 1 to entry: The electronic money can be stored on an IC-card or on a computer, for example.

Note 2 to entry: This definition is based on the European Central Bank's definition of electronic money<sup>[26]</sup>.

**3.73****enforcement**

measures or actions performed to achieve compliance with laws, regulations or rules

**3.74****equipment access point**

point of control and observation of the *implementation under test* (3.94)

**3.75****evaluation**

systematic process of determining how individuals, procedures, systems or programs have met formally agreed objectives and requirements

**3.76**  
**evaluation assurance level**  
**EAL**

set of *assurance requirements* (3.10), usually involves documentation, analysis and testing, represents a point on a predefined assurance scale, that forms an assurance package

**3.77**  
**external in-vehicle device**

component that can be connected to a piece of on-board equipment (*OBE*) (3.126) in a vehicle

EXAMPLE Mobile phone or digital tachograph.

**3.78**  
**false positive event**

event that was erroneously detected, but did not take place

**3.79**  
**fare collection regime**

set of rules, including *enforcement* (3.73) rules, which governs the fare system in the public transport domain

**3.80**  
**field test**

*test* (3.182) that is performed under real-life conditions

**3.81**  
**fixed roadside equipment**

*roadside equipment* (3.161) located at a fixed position

**3.82**  
**fixed toll**

*toll* (3.193) applied according to a predefined *tariff scheme* (3.180)

**3.83**  
**foreign state agency**

agency of any state except the state under whose jurisdiction a *toll scheme* (3.204) is operated

**3.84**  
**freezing per declaration**

process that freezes the *itinerary* (3.106) related to the *toll declaration* (3.199) by sending a cryptographic commit or the whole itinerary to the *toll charger* (3.194)

**3.85**  
**front end**

part of an *EFC system* (3.69) which consists of *on-board equipment (OBE)* (3.126) and possibly of a *proxy* (3.148) where road tolling information and usage data are collected and processed for delivery to the *back end* (3.22)

**3.86**  
**functional requirement**

requirement for a function that a system or system component is able to perform

**3.87**  
**functionality test**

assessing the performance of a system, based on specific parameters

**3.88**  
**hacker**

person who attempts or succeeds to gain unauthorized access to protected resources

**3.89****impartiality**

objectivity with regard to the outcome of a conformity assessment activity

Note 1 to entry: Objectivity can be understood as freedom from bias or freedom from conflicts of interest.

**3.90****implementation conformance statement****ICS**

statement of capabilities and options that have been implemented that defines to what extent the implementation is compliant with a given specification

**3.91****implementation conformance statement proforma**

document, in the form of a questionnaire, which when completed for an implementation or a system becomes an *implementation conformance statement* (ICS) (3.90)

**3.92****implementation extra information for testing****IXIT**

statement containing all of the information related to the *implementation under test* (IUT) (3.94) and its corresponding *system under test* (SUT) (3.178) which will enable the testing laboratory to run an appropriate test suite against that IUT

**3.93****implementation extra information for testing proforma**

document, in the form of a questionnaire, which when completed for an *implementation under test* (IUT) (3.94) becomes an *implementation extra information for testing* (IXIT) (3.92)

**3.94****implementation under test****IUT**

implementation of one or more open systems interconnection (OSI) protocols in an adjacent user/provider relationship, being part of a real system, which is to be studied by testing

**3.95****information asset**

knowledge or data that has value to the relevant stakeholder

**3.96****information security**

preservation of *confidentiality* (3.44), *integrity*, *availability* (3.20), *authenticity* (3.17), *accountability* (3.5), *non-repudiation* (3.122) and *reliability* (3.156) of information

**3.97****information security event**

identified occurrence of a system, service or network state indicating a possible breach of information *security policy* (3.168) or failure of controls, or a previously unknown situation that may be *security* (3.141) relevant

**3.98****information security incident**

unwanted *information security event(s)* (3.97) that have a significant probability of compromising business operations and threatening *information security* (3.96)

**3.99**

**inspection**

examination of an *object of conformity assessment* (3.124) and determination of its conformity with detailed requirements or, on the basis of professional judgement, with general requirements

Note 1 to entry: For additional information on the concepts of *testing* (3.182) and *inspection* (3.99) see ISO/IEC 17000.

Note 2 to entry: The procedure can be intended to control variables within testing as a contribution to the accuracy or *reliability* (3.156) of the results.

Note 3 to entry: The output of testing can include comments (e.g. opinions and interpretations) about the test results and fulfilment of *specified requirements* (3.176).

**3.100**

**integrated circuit card**

**IC card**

**ICC**

card with electronic components performing processing or memory functions and with the capability to communicate with an interrogator

**3.101**

**international registrar**

organization authorized to register protection *profiles* (3.146) at an international level

**3.102**

**international standardized profile**

internationally agreed-to, harmonized document which describes one or more *profiles* (3.146)

**3.103**

**interoperability**

ability of systems to exchange information and to make mutual use of the information that has been exchanged

**3.104**

**interoperable application profile**

**IAP**

*profile* (3.146) to support *interoperability* (3.103) between systems on an application level

**3.105**

**issuer**

entity responsible for issuing the *payment means* (3.134) to the user

**3.106**

**itinerary**

travel diary organized in one or more *itinerary records* (3.110) enabling assessment of the correctness of the *toll declaration* (3.199)

**3.107**

**itinerary leaf**

sequence of sequential *itinerary records* (3.110) of the same type all pertaining to a defined set of *toll domains* (3.201)

**3.108**

**itinerary freezing**

registering an *itinerary* (3.106) and undeniably committing oneself to it

**3.109**

**itinerary trunk**

sequence of aggregated data committing to a number of underlying *itinerary leaves* (3.107)

**3.110****itinerary record**

atomic *data element* (3.54) describing use of the road network or use of the vehicle

**3.111****key certification authority**

authority trusted by one or more users to create and assign public-key certificates

**3.112****key management****encryption key control**

generation, distribution, storage, application and revocation of encryption keys

**3.113****laboratory test**

test which is performed in a laboratory under specified conditions

**3.114****level of transport service**

rating of the quality of transportation facilities and services from the user perspective, with reference to speed, travel time, freedom to manoeuvre or traffic interruptions

Note 1 to entry: The level of transport service can be used to evaluate problems and potential solutions.

**3.115****localization augmentation**

information delivered to *on-board equipment (OBE)* (3.126) about the current geographical location or the identity of a *charge object* (3.31)

Note 1 to entry: The localization augmentation may e.g. be used at locations where the satellite signals are insufficient for positioning.

**3.116****maintainability**

ability of a system or subsystem to be maintained or restored to specified conditions within a given period of time

**3.117****message authentication code****MAC**

fixed-length string of bits used to verify the *authenticity* (3.17) of a message, usually generated by the sender of the message, transmitted together with the message, and verified by the receiver of the message

**3.118****missed recognition event**

usage of a *charge object* (3.31) that is not recorded by the system

**3.119****mobile roadside equipment**

equipment mounted on a mobile unit or handheld equipment to be used along the road

**3.120****monitoring**

collection and assessment of status data for a process or a system

**3.121****multi-modal transport**

transport of people or goods by more than one mode of transport during a single journey

**3.122**

**non-repudiation**

ability to prove the occurrence of a claimed event or action and its originating entities

**3.123**

**OBE personalization**

transferring personalization *assets* (3.9) to the *on-board equipment (OBE)* (3.126)

**3.124**

**object of conformity assessment**

**object**

entity to which *specified requirements* (3.176) apply

Note 1 to entry: Examples are product, process, service, system, installation, project, data, design, material, claim, person, body or organization or any combination thereof.

Note 2 to entry: The term “body” is used in this document to refer to *conformity assessment bodies* (3.46) and *accreditation* (3.6) bodies. The term “organization” is used in its general meaning and may include bodies according to the context. The more specific ISO/IEC Guide 2 definition of an organization as a body based on membership is not applicable to the field of conformity assessment.

**3.125**

**on-board account**

*payment means* (3.134), value or service rights stored in the *payment medium* (3.135)

**3.126**

**on-board equipment**

**OBE**

all required equipment on-board a vehicle for performing required *electronic fee collection (EFC)* (3.70) functions and communication services

**3.127**

**on-board unit**

**OBU**

electronic unit on-board a vehicle for performing specific *electronic fee collection (EFC)* (3.70) functions and for communication with external systems

**3.128**

**on-road service integrator**

*toll service provider* (3.206) that in addition delivers services from various *value-added service (VAS)* (3.231) providers to its clients

**3.129**

**open payment**

use of open industry interface standards or specifications for payment

**3.130**

**overcharging**

situation where the calculated charge is above the *accepted charging error interval* (3.3)

**3.131**

**passive RFID**

*RFID* (3.151) using passive-backscatter

**3.132**

**passive UHF RFID**

passive *RFID* (3.151) operating in the UHF frequency range

Note 1 to entry: The UHF range is 860 MHz to 960 MHz.

**3.133****payment claim**

statement made available to the payer by the payee to justify the amount due

Note 1 to entry: The statement can include the concluded *billing details* (3.25).

**3.134****payment means**

means accepted by the service provider, that gives the user the right to use provided services

EXAMPLE *On-board account* (3.125) examples: Tokens and stored electronic values. Central account examples: Fleet card number, bank account number, credit card number and contract ID.

**3.135****payment medium**

carrier of *payment means* (3.134)

EXAMPLE IC-card, *on-board equipment (OBE)* (3.126) and smart phone.

**3.136****personal data**

information relating to an identified or identifiable natural person

**3.137****personalization assets**

specific data stored in the *on-board equipment (OBE)* (3.126) related to the user and the vehicle

**3.138****personalization equipment**

equipment for transferring *personalization assets* (3.137) to the *on-board equipment (OBE)* (3.126)

**3.139****personalization card****set-up card**

IC card used to transcribe individual data such as vehicle or contract information into *on-board equipment (OBE)* (3.126)

**3.140****point of observation**

interface, or other identifiable access to a system, where conformance can be stated and verified

**3.141****policy**

overall intention and direction as formally expressed by management

**3.142****population**

totality of items under consideration

**3.143****prebilling operator**

entity for clearing of billing data and for informing on *payment claims* (3.133) to *issuers* (3.105)

**3.144****probe data**

in-vehicle sensor information that is transmitted to *roadside equipment (RSE)* (3.161) or a central system

Note 1 to entry: The probe data can be used to create an improved understanding of the driving environment.

**3.145**

**processing of personal data**

operation or set of operations performed upon *personal data* (3.136), whether or not by automatic means

Note 1 to entry: Operations can include collection, recording, organization, storage, adaptation or alteration, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, blocking, erasure or destruction.

**3.146**

**profile**

set of requirements and selected options from *base standards* (3.23) or international standardized profiles used to provide a specific functionality

**3.147**

**profile taxonomy**

classification scheme for referencing *profiles* (3.146) or sets of profiles unambiguously

**3.148**

**proxy**

optional part of a *front end* (3.85) that communicates with external equipment and processes the data received into an agreed format to be delivered to the *back end* (3.22)

**3.149**

**public transport services**

shared passenger *transport service* (3.217) which is available for use by the general public

EXAMPLE Bus, tram and train.

**3.150**

**quality**

degree to which a set of inherent characteristics of an object fulfils requirements

**3.151**

**radio frequency identification**

**RFID**

wireless system that uses radio-frequency electromagnetic fields to obtain an identifier

**3.152**

**rationale**

**verification**

process determining that a product of each phase of the system life cycle development process fulfils all the requirements specified in the previous phase

**3.153**

**real-time freezing**

freezing of each *itinerary record* (3.110) as soon as its acquisition has terminated using a trusted recorder

**3.154**

**relative charging error**

ratio between the *absolute charging error* (3.1) and the reference value

**3.155**

**relative time**

point in time relative to a defined event

**3.156**

**reliability**

ability of a device or a system to perform its intended function under given conditions of use for a specified period of time or number of cycles

**3.157****representative trips**

*trips* (3.220) that are of a distance larger than a defined threshold and so have to be considered by the related metrics

**3.158****road and traffic manager****RTM**

manager responsible for a road transport network operation including *monitoring* (3.120) of the *level of transport service* (3.114)

**3.159****road section charging****road section tolling**

tolling principle where the *fee* (3.193) is due if predefined sections of roads are used

**3.160****road usage data**

time, place and distance-related information accumulated per road user

Note 1 to entry: The road usage data can be used to calculate the toll due.

**3.161****roadside equipment****RSE**

fixed or movable *electronic fee collection (EFC)* (3.70) equipment located along or on the road

Note 1 to entry: Movable RSE can be mounted temporarily along the road or in a vehicle.

**3.162****roaming rules**

set of *attributes* (3.13) to be used in the *electronic fee collection (EFC)* (3.70) communication to enable users to circulate between contracting *toll domains* (3.201)

**3.163****role**

specified responsibilities

**3.164****sample**

subset of a *population* (3.142) made up of one or more of its individual parts

**3.165****secure application module****SAM**

physical module that securely executes cryptographic functions and stores keys

**3.166****secure application module for verification****SAM for verification**

*secure application module* (3.165) capable of providing cryptographic services to verify a trusted recorder *message authentication code (MAC)* (3.117) in such a manner that the proof of *non-repudiation* (3.122) is given

**3.167****secure monitoring compliance checking**

concept that allows a *toll charger* (3.194) to rely on the trustworthiness of *toll declarations* (3.199) produced by *toll service providers* (3.206)

**3.168**

**security policy**

set of rules that regulate how to handle *security threats* (3.171) or define the appropriate security level

**3.169**

**security service**

service, provided by communicating systems, which ensures adequate security of the systems or of data transfers

EXAMPLE Confidentiality (3.44), data integrity (3.56), authentication (3.15) and non-repudiation (3.122).

**3.170**

**security target**

set of security requirements and specifications to be used as the basis for *evaluation* (3.75) of an identified *target of evaluation (TOE)* (3.179)

**3.171**

**security threat**

potential action or manner to violate the security of a system

**3.172**

**sensitive EFC data**

EFC (3.70)-related data, either data itself or combined with other EFC-related data, that could be used for identifying an EFC user

**3.173**

**service primitive**

elementary communication service provided by the application layer protocol to the application processes

**3.174**

**short-range communication**

transfer of information via a radio connection over a short distance

Note 1 to entry: technique commonly used in tolling to transfer information between *roadside equipment (RSE)* (3.161) and *on-board equipment (OBE)* (3.126).

Note 2 to entry: Active (transceiver or backscatter) and passive radio frequency technologies which provide bi-directional or unidirectional communication and have low capability of causing interference to other radio equipment.

EXAMPLE CEN, Italian, ARIB and WAVE *dedicated short-range communication (DSRC)* (3.60) technologies.

**3.175**

**simulation**

representation of selected behavioural characteristics of one physical or abstract system using another system

**3.176**

**specified requirement**

need or expectation that is stated

Note 1 to entry: Specified requirements may be stated in normative documents such as regulations, standards and technical specifications.

Note 2 to entry: Specified requirements can be detailed or general.

**3.177**

**successful charging**

situation where the user has been correctly charged according to the rules of the system

**3.178****system under test****SUT**

real system in which the *implementation under test* (3.94) resides

**3.179****target of evaluation****TOE**

set of software, firmware or hardware possibly accompanied by guidance

**3.180****tariff scheme**

set of rules to determine the *fee* (3.193) due for a vehicle within a *toll domain* (3.201)

**3.181****tariff modifier**

classes of *attributes* (3.13) on which the tariff depends for a given road usage

**3.182****test**

procedure designed to measure characteristics of a component or system in specified conditions

**3.183****test case**

description of test purpose, unique test case identifier, test inputs, test execution conditions, test steps, and the results required to pass the test

**3.184****test house**

third party that carries out the *test* (3.180)

**3.185****test parameter**

parameter that specifies one or more characteristics of a system to be tested

**3.186****test procedure**

instructions for the set-up, execution, and *evaluation* (3.75) of results for a given *test case* (3.183)

**3.187****test type**

kind of test, such as *inspection* (3.99), *simulation* (3.175), *laboratory test* (3.110) or *field test* (3.80)

**3.188****tester**

combination of equipment, humans and processes able to perform specified conformance tests

**3.189****threat**

potential cause of an unwanted *information security incident* (3.98), which may result in harm

**3.190****threat agent**

entity that has the intention to act adversely on an *asset* (3.9)

**3.191****threat analysis**

systematic detection, identification, and *evaluation* (3.75) of *threats* (3.189)

**3.192**

**time lock**

mechanism ensuring that a new operation can only be commissioned after a configurable period of time or processor clock cycles since the previous operation

**3.193**

**toll**

**fee**

charge, tax or duty levied in connection to using a vehicle in a *toll domain* ([3.201](#))

**3.194**

**toll charger**

**TC**

entity which levies *toll* ([3.193](#)) for the use of vehicles in a *toll domain* ([3.201](#))

**3.195**

**toll cluster**

group of *toll schemes* ([3.204](#)) operating under a common agreement providing *interoperability* ([3.103](#)) for road users having a contract with a service provider being part of the cluster

**3.196**

**toll context**

logical view as defined by *attributes* ([3.13](#)) and functions of the basic elements of a *toll scheme* ([3.204](#)) consisting of a single basic tolling principle, a spatial distribution of the *charge objects* ([3.31](#)) and a single behaviour of the related *front end* ([3.85](#)).

**3.197**

**toll context data**

information defined by the responsible *toll charger* ([3.194](#)) necessary to establish the *toll* ([3.193](#)) due for using a vehicle on a particular *toll context* ([3.196](#)) and to conclude the *toll transaction* ([3.211](#))

**3.198**

**toll context layout**

group of *attributes* ([3.13](#)) of the *toll context data* ([3.197](#)) providing the geographic information of a *toll domain* ([3.201](#))

**3.199**

**toll declaration**

statement to declare the usage of a given *toll service* ([3.205](#)) to a *toll charger* ([3.194](#))

**3.200**

**toll declaration period**

period covered by a *toll declaration* ([3.199](#))

**3.201**

**toll domain**

area or a part of a road network where a certain *toll regime* ([3.203](#)) is applied

**3.202**

**toll domain identifier**

**toll domain ID**

unique identifier of a *toll domain* ([3.201](#))

**3.203**

**toll regime**

set of rules, including *enforcement* ([3.73](#)) rules, governing the collection of *tolls* ([3.193](#)) in a *toll domain* ([3.201](#))

**3.204**

**toll scheme**

organizational view of a *toll regime* ([3.203](#)), including the actors and their relationships

**3.205****toll service**

service enabling users to pay *toll* ([3.193](#))

**3.206****toll service provider****TSP**

entity providing *toll services* ([3.205](#)) in one or more *toll domains* ([3.201](#))

**3.207****toll service user**

customer of a *toll service provider* ([3.206](#)), i.e. one liable for *toll* ([3.193](#)), owner of the vehicle, fleet operator or driver depending on the context

**3.208****toll system layout**

technical description of the location of tolled objects including their borders

**3.209****tolled area**

geographic area where a *toll* ([3.193](#)) is charged for road usage

**3.210****traffic flow information**

average speed, traffic volume and traffic density as a function of time

**3.211****transaction**

whole of the exchange of information between two physically separated communication facilities

**3.212****transaction counter**

data value in the *on-board unit (OBU)* ([3.127](#)) that is incremented by the *roadside equipment* ([3.161](#)) at each *transaction* ([3.211](#))

**3.213****transaction model**

functional model describing the structure of electronic payment *transactions* ([3.211](#))

**3.214****transaction type**

identifier of a set of *transactions* ([3.211](#)) that adhere to the same rules for the exchanged application protocol data units in terms of triggers, timings, content and sequence

**3.215****transit data**

*road usage data* ([3.160](#)) necessary to calculate fees based on used road sections or passage of certain points

**3.216****transport performance requirement**

needed *level of transport service* ([3.114](#)) related to a set of operational goals and performance measures

**3.217****transport service**

transport infrastructure-related service which is offered to the user