A stylized map of Europe in light blue, overlaid with several concentric, wavy blue lines that sweep across the continent from the bottom left towards the top right.

A compilation of European Electronic Tolling Service conditions for:

- **Service User**
- **Toll Charger**
- **EETS Provider**
- **Interoperability
Manager**

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1. Introduction

The Project

CESARE is a suite of projects promoted by ASECAP, the ASECAP associated organizations and the road administrations of several European countries known as “the Stockholm Group” (SG). CESARE is supported by the European Commission, with the objective to help specifying, designing, developing, promoting and implementing a common Interoperable European Electronic Toll Collection System (EETS) on the European road network. CESARE has been divided into several phases, whereby the previous phase called CESARE III has been completed in October 2006. The results of CESARE III showed that there was a need for further actions in a next project phase (CESARE IV) in order to realize the interoperability objectives. The main goal of CESARE IV is to define a framework for establishing an interoperable European Electronic Tolling Service (from now on, EETS), functioning in a coordinated way at the European level, while allowing the Member States to fasten the pace of their national implementation plans for EETS. In this way CESARE IV will contribute to the implementation of the Directive 2004/52/EC.

Scope of the Document D1.2 “EETS Basic Guidelines”

This document is part of the reporting of the CESARE IV Work Package 01 “EETS Basic Guidelines”. The Report D1.2 is the core report of this Work Package, and includes the list of Guidelines for the European Electronic Tolling Service (EETS).

By **Guideline** is meant a principle put forward to set standards or determine a course of action. CESARE IV has decided to introduce a distinction within the scope of the term guideline by defining a suite of Necessary Conditions and a suite of Facilitative Conditions for the EETS. In this context, the following definitions have been used:

| | |
|-------------------------------|---|
| Necessary Condition | <p>A mandatory rule, reflecting a legal, procedural, functional, technical or informational (data element or data flow) requirement, that has to be fulfilled by each person or entity acting in one of the EETS roles in order to achieve EETS interoperability.</p> <p>It is recommended to implement the necessary conditions at the legislative level. This is to ensure that the principles outlined are binding for all actors, independent of their status as public or private organisations.</p> |
| Facilitative Condition | <p>An EETS recommendation described in terms of a legal, procedural, functional, technical or informational (data element or data flow) advice.</p> <p>A Facilitative condition is not required for achieving EETS interoperability but should be implemented as far as possible to give the EETS users (and operators) a harmonised, available and seamless fee collection system on a European level.</p> <p>A Facilitative condition can be regarded as a recommendation, which the actors may reflect in their contracts.</p> |

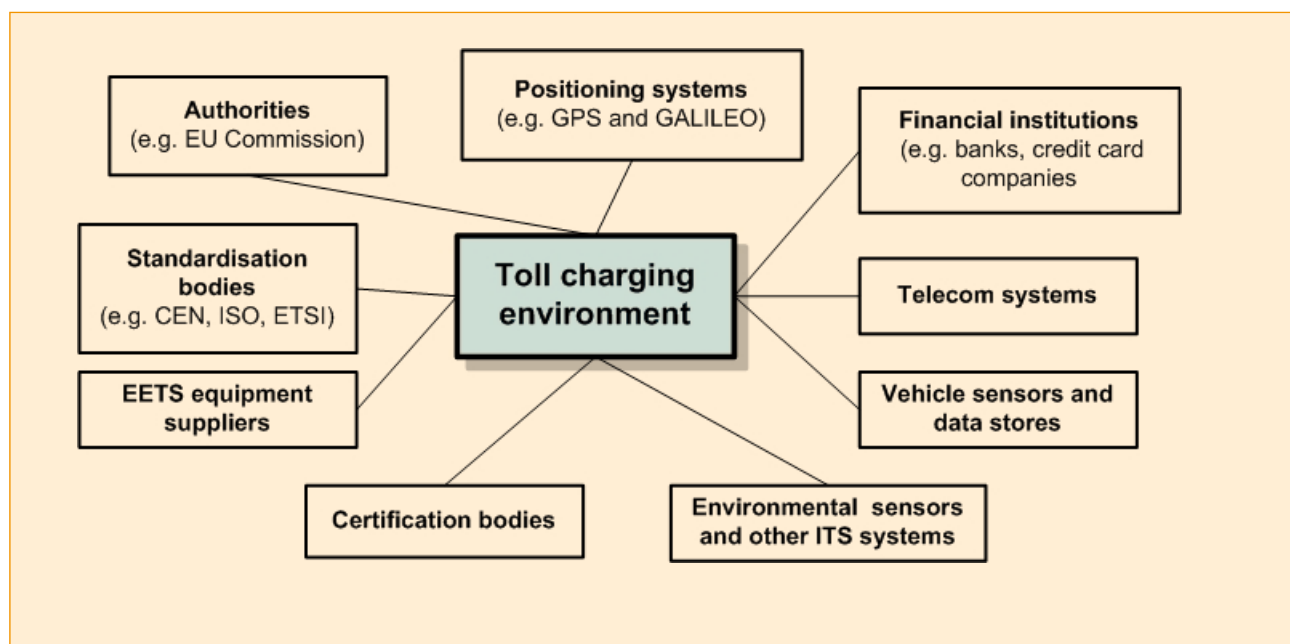
The Conditions are included in Chapter 4 of this document.

2. EETS overall Architecture

2.1 EETS CONTEXT

The EETS context is represented by a Toll charging environment and the objects that the Toll charging environment interacts with. All objects, including the toll charging environment, act as a configuration of objects formed for providing the European Electronic Toll Service (EETS).

Figure 1 shows the objects that define the environment of the EETS context. They are the major objects, although there may be others, explicitly or implicitly involved in the toll collection. The lines indicate interfaces between the Toll charging environment and the other objects in the EETS context. They will be external interfaces to the Toll charging environment while interfaces within the Toll charging environment will be internal interfaces. CESARE I – IV covers the internal interfaces. There are interfaces between the external objects not shown in the figure, e.g. the interaction between the certification bodies and the EETS equipment suppliers.



The main purpose of the Toll charging environment is to electronically collect in a secure and safe way all types of road fees, on the entire Community road network, urban and interurban, motorways, major and minor roads, and various structures such as tunnels, bridges and ferries. Tolls can be fixed in various ways, e.g. at a charging point like a toll station, or for circulating in a particular area, e.g. within a city centre or a charging zone.

The interactions between the Toll charging environment and the other objects in the EETS context are described below. The interactions are based on explicit and implicit bilateral or multilateral contracts.

Financial institutions, e.g. banks, credit cards companies and clearing houses

The role of the financial institutions is to provide the financial services requested by the Toll charging environment. The services will mainly be transfer of money between actors in the Toll charging environment.

It is important to note that the Toll charging environment actors handle charging data while the financial institutions handle payment information ('money'). A financial institution, e.g. a bank, could also have a role inside the Toll charging environment, e.g. as an EETS Provider, in addition to its role in the financial system.

Telecom systems

The role of the telecom systems is to provide telecom services requested by the Toll charging environment. Examples of such services could be cable networks for transfer of data between the operators of the Toll charging environment and air-interface networks for transfer of data between the toll charging equipment and the On-Board Equipment.

Positioning systems

The role of the positioning systems is to provide positioning services as part of the toll calculation, i.e. to provide the signals allowing the determination of the time/position information relative to a vehicle subject to a toll. Examples on such information are the registration of when a vehicle enters and leaves a charging zone or the distance that a vehicle has travelled in a road network. DSRC beacons at the roadside could also be used for generalised positioning services; these beacons would be part of the Toll charging environment if they serve no other purpose outside the EETS context.

Vehicle sensors and data stores

The 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 dedicated to EETS. 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 or fleet management), tachograph, trailer sensor, suspension sensors, axle in use sensors and vehicle related information stored in a secure application module. The data stores could be either in the vehicle (in the On-Board Equipment), accessible via HMI interface, or elsewhere, e.g. in an EETS Provider system.

Environmental sensors and other ITS systems

The 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.

EETS equipment suppliers

The role of the EETS equipment suppliers is to provide EETS equipment to the Toll charging environment, e.g. On-Board Equipment and Roadside Equipment. The main role of the Toll charging environment will be to provide EETS requirements while the main role of the EETS equipment suppliers will be to provide EETS equipment with EETS functionality in accordance with the requirements.

Certification bodies

The role of the Certification bodies is to certify the objects in the Toll Charging environment. The certification may cover both the certification of the different EETS roles and EETS equipment/functions in the Toll charging environment.

Standardisation bodies

The role of the Standardisation bodies is to provide electronic toll collection standards used by EETS and other standards or specifications relevant for Toll charging environments.

Authorities

The role of the authorities is to define the framework in which the Toll charging environment shall operate. The framework is defined by policies constituting of laws and regulations, mandates, constraints and requirements. Different authorities define different domains policies. Some examples: Road and transport authorities may define policies related to the type of and the availability, reliability and quality of the transport service subject to a toll. Telecom authorities may define policies for the use of telecom systems, e.g. frequencies for air-interface communication systems. Financial authorities may define policies for the Toll charging environment and the financial environment it shall operate, e.g. whether the toll is a tax or a fee. Data protection authorities may define policies for the security and privacy in the Toll charging environment. The interactions with the authorities also cover access to information kept by the authorities, e.g. national vehicle registers.

2.2 TOLL CHARGING ROLES

The toll charging environment was described in the CESARE III project, where a role model was developed based upon four main roles. Each main role consists of several sub-roles, which might be performed by one or more organisations. Figure 2 shows the roles and sub-roles model developed in CESARE III.

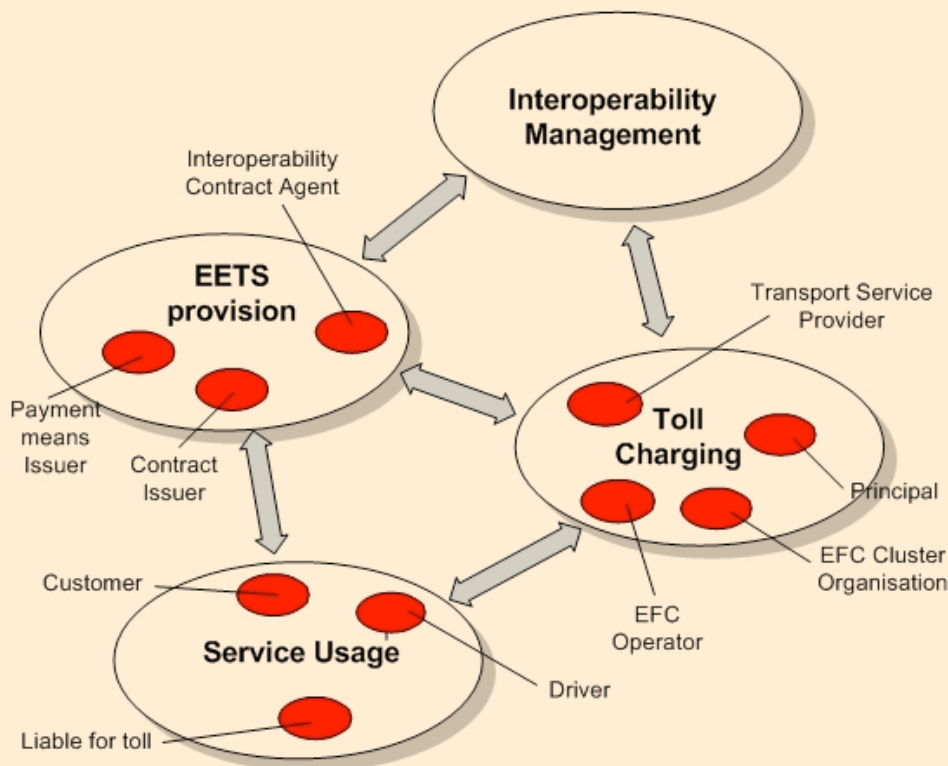


Figure 2: CESARE III role and sub-roles model

The report document “CESARE III D2.1 - Detailed service definition” defines the four main EETS roles as follows:

Toll Charging Role

Toll Charging means providing a transport service (often road usage) to a Service User and charge the latter a fee for this (the “toll”). The responsibility for levying toll in a toll domain is part of the Role and results in claiming payment from a third party within the EETS Provision Role.

EETS Provision Role

EETS Provision means providing equipment (OBE), contracts and payment means to those who want to use the EETS. EETS Provision includes claiming money from users and guaranteed payment for genuine claims received from the Toll Charging Role.

Service Usage Role

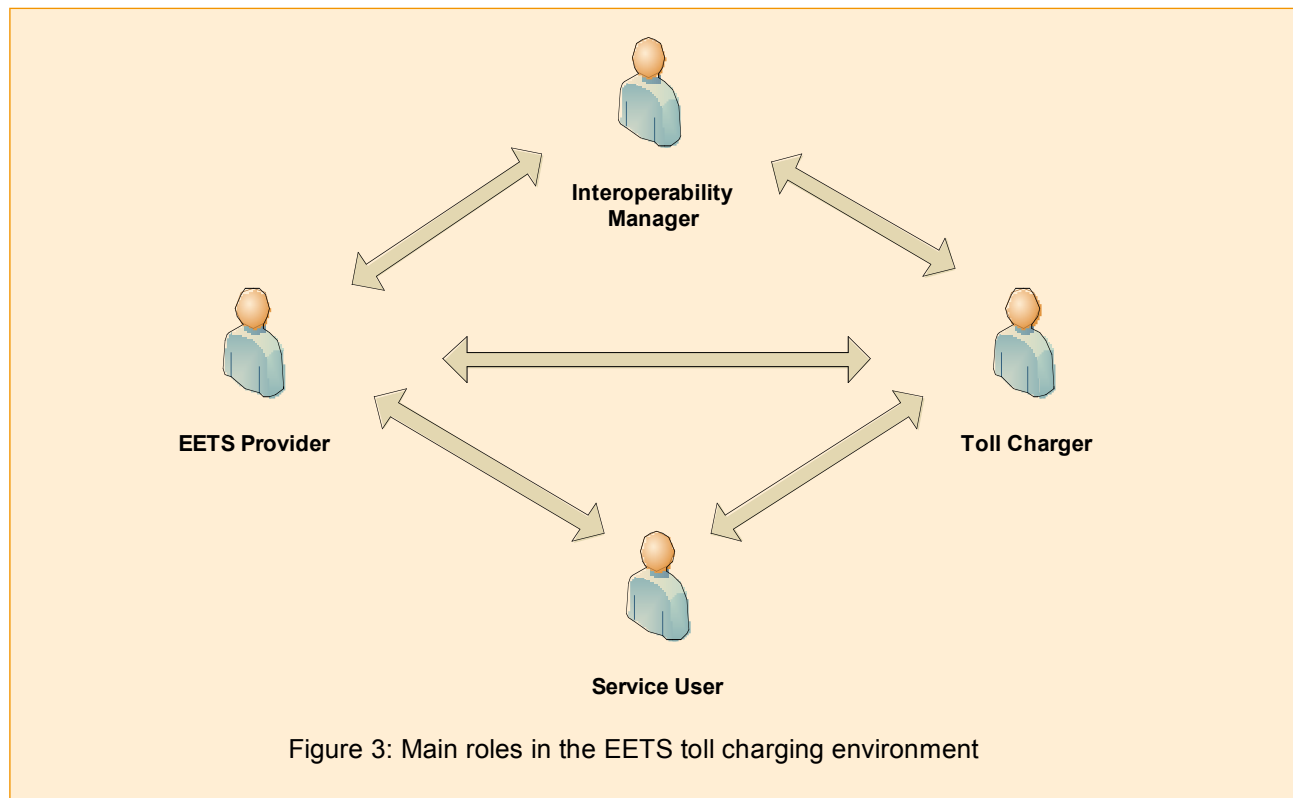
Service Usage means taking advantage of the EETS for payment of tolls in the toll domains of the Toll Charging Role.

Interoperability Management Role

Interoperability Management gathers the functionality that deals with overall management of interoperable EFC. This includes rules for interoperability, id-schemes, certification, common specifications, etc. Therefore this role represents the regulatory role of the EETS interoperability scheme.

In real life, the functions of one role can be performed by a person, an organisation, or several organisations acting together, as each context can develop its own architecture.

For the matter of simplicity the names of the roles have been replaced with the names of the virtual organisations that would perform all functions of one role. This is shown in Figure 3.



2.3 EETS DAILY OPERATION FROM AN EETS USER POINT OF VIEW

This chapter describes the daily operation of EETS from an EETS User point of view. The list below is the complete list of service components as they are defined in CESARE III.

- Governance and Certification
- Contract Issuing
- Service Use on toll roads
- Service payment
- Service User support
- Enforcement
- Promotion

The following scenarios will from a Service User point of view be the most relevant ones:

- The Service User acquires an EETS contract and OBE (Contract issuing)
- The Service User benefits from the transport service and EETS (Service Use on toll roads)
- The Service User pays for the transport services by means of EETS (Service Payment)
- The Service User is supported in case of questions, errors etc (Service User support)

The Service User acquires an EETS contract and OBE (Contract Issuing)

The EETS Provider supplies information regarding the EETS to the Service User (commercial, service subscription, service usage, etc) and the Service User supplies the EETS Provider with required Service User information (e.g. vehicle data). The Service User indicates an accepted payment means (or bank account) to support the EETS and the EETS contract is issued and signed by both parties.

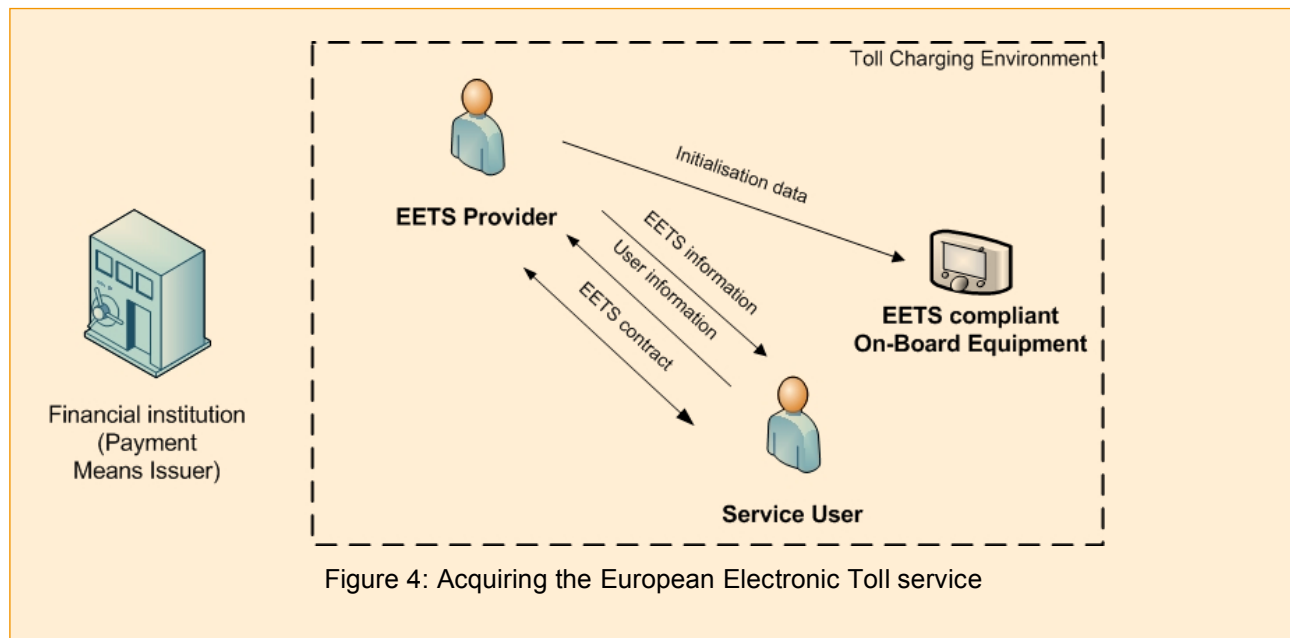
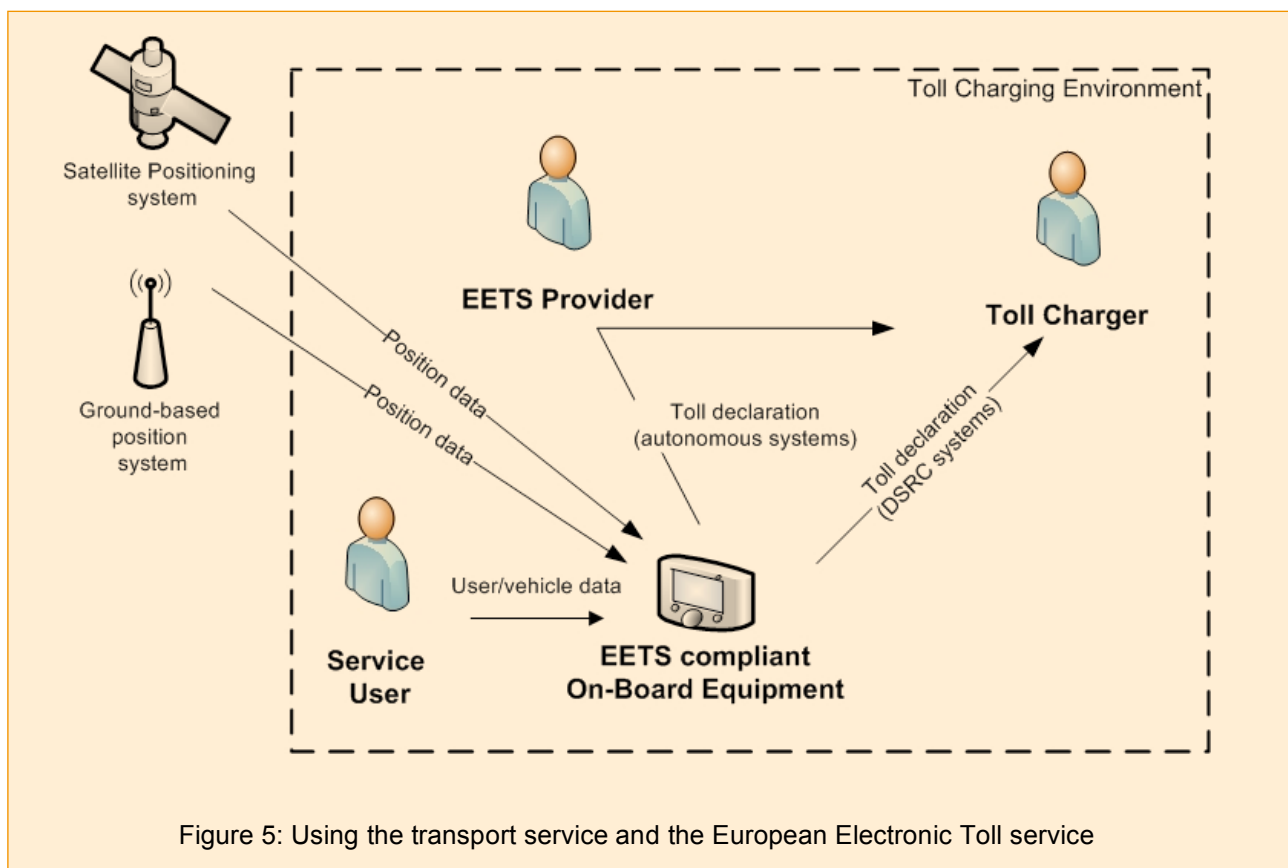


Figure 4: Acquiring the European Electronic Toll service

The OBE is personalized with required data according to Vehicle Group and supplied to the Service User who either installs the OBE himself or have the OBE installed by an authorised entity in those cases where the OBE is complex concerning power supply and interfaces to other devices and/or in those cases where the EETS Providers requires an installation by an authorised entity.

The Service User benefits from the transport service and EETS (Service Use on toll roads)

The EETS contract and the EETS compliant OBE will ensure a seamless use of transport services and EETS charging procedures inside a toll domain falling under the scope of Directive 2004/52/EC. Whenever entering or leaving a toll domain the Service User should be informed about the entry/exit either by road signs or via the OBE interface. In some cases the Service User has to communicate with his OBE entering data required for a correct tolling, e.g. dynamic vehicle data as trailer/no trailer.



The OBE will send toll declarations to the Toll Charger either via the Roadside Equipment owned and operated by the Toll Charger or via equipment operated by the EETS Provider. So far EETS is, according to the Directive 2004/52/EC, based on the following two types of technology: DSRC and Global Navigation Satellite Systems (GNSS) / Cellular Network (GSM) (called autonomous systems in Figure 5). It is also indicated that GNSS may be supported by other positioning systems where needed due to local GNSS problems (augmentation beacons).

An EETS compliant OBE shall comprise both technologies described above and the Service User will experience a seamless tolling service in all EETS compliant toll domains.

The Service User pays for the transport services by means of EETS (Service Payment)

The Service User is invoiced by the EETS Provider for the use of the transport services in the toll domains. The invoice is based on the claims including the EETS transactions from the Toll Charger(s) to the EETS Provider.

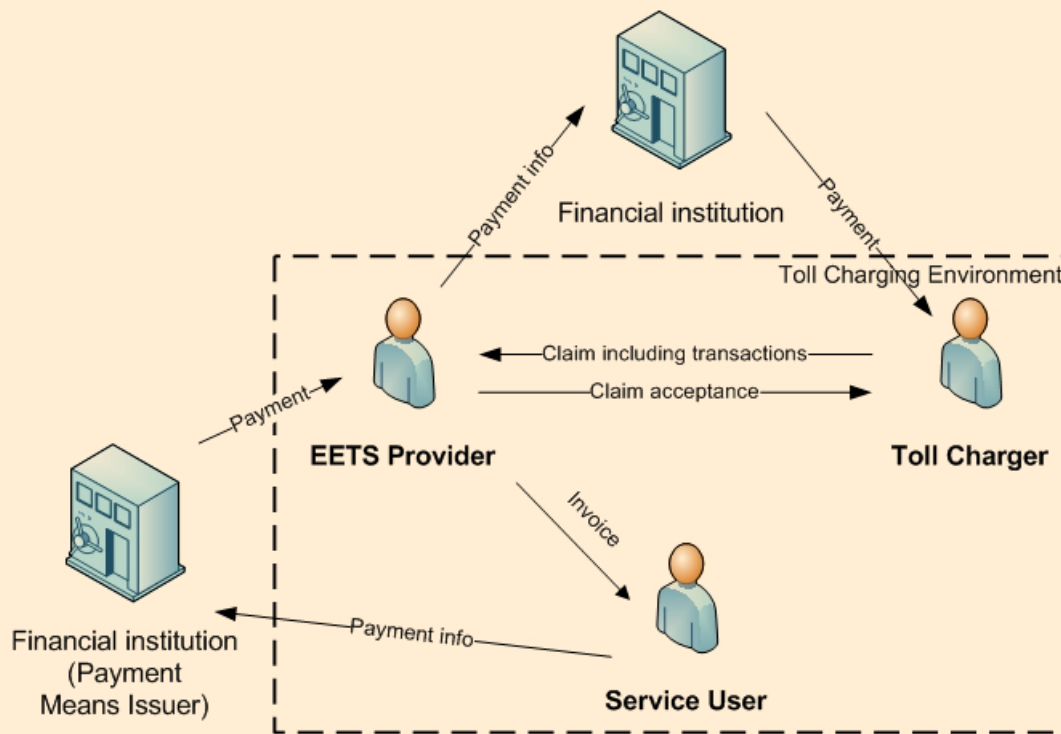


Figure 6: The Service User is invoiced and pays for the transport services in the toll domains

The Service User is supported in case of questions, errors etc. (Service User support)

The Service User will generally be supported via his interface with the EETS Provider, e.g. for EETS service information, contract management, complaints and OBE support. The EETS Provider will in some cases involve the Toll Charger to solve complex complaints. Toll Chargers may at times intervene directly, for instance in case of EETS unavailability of his responsibility or for toll enforcement.

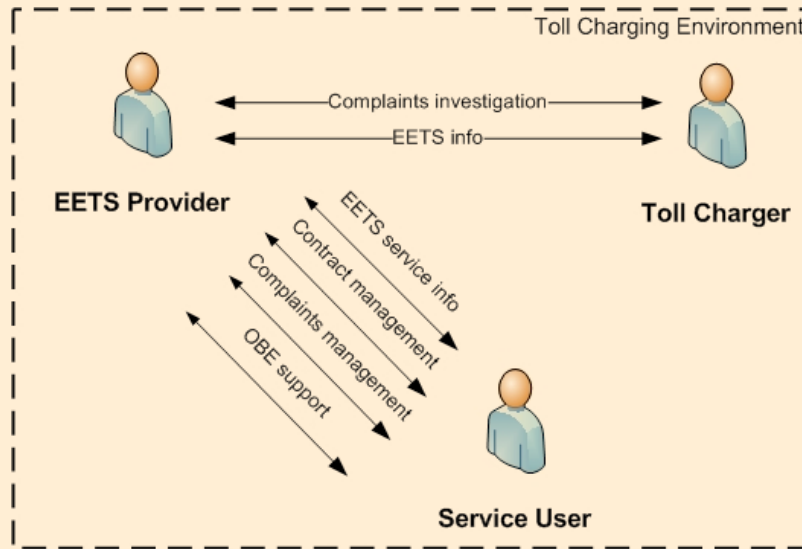


Figure 7: The Service User is supported in case of questions, errors etc.

3. Purpose, Structure and Usage of this Document

Purpose

The Directive 2004/52/EC lines out the European Electronic Toll Service and establishes the principle that subscribers to the EETS should be able to access all electronic tolling schemes in Europe with a single on-board unit and account. The Directive requires the EETS service to be defined by the Commission, assisted by a regulatory committee – the Electronic Tolling Committee.

This report is not designed as a legal text but as an input to the European Commission and the Electronic Tolling Committee. It aims to provide a complete and comprehensive list of conditions for interoperability, building on the business model and service specifications developed during CESARE III. It seeks to present a complete and comprehensive set of conditions and therefore does not seek to reflect the contents of working documents developed by the Commission during the process of developing the EETS decision. It is designed as a free-standing document, rather than as a commentary on progress in developing the regulatory decision. It does however reflect both the work of CESARE III and the various Expert Group reports compiled for the European Commission as part of the work to define EETS.

Structure

The following chapters of this document set out a list of the EETS Conditions, sorted by the EETS Functions as they were defined in the Project CESARE III:

- Governance and Certification
- Contract Issuing
- Service Use on Toll roads
- Service Payment
- Service User Support
- Enforcement
- Promotion

For each Function, the Conditions are placed in the column corresponding to the specific EETS Role, according to their character of “Duty” or “Right”. This way of organizing the EETS Conditions aims to make as explicit as possible the dependencies between the different actors in the CESARE model and allows those conditions to be cross-checked.

The functions are divided into two categories – necessary and facilitative. The necessary conditions should be reflected in regulation, and in particular should be implicit or included in the Commission Decision defining EETS; the facilitative conditions are meant as a checklist for the contractual arrangements and will be adjusted by the parties, reflecting the actual circumstances in each individual relationship. They are essentially of advisory nature, but represent the conclusions of the CESARE programme on what conditions are strongly desirable for the delivery of EETS.

Key outstanding issues

Work Package WP01 has undertaken a detailed consideration of the conditions necessary for interoperability, and this report aims to describe those at a practical level. There are however a number of higher-level issues that have emerged during the deliberations of this Work Package. These include:

- How to implement EETS as a mandatory service offering, based on contracts between private parties while ensuring a balance between the need for consistency and the demands of market dynamics, including the key issue of the degree of detail required in the regulatory specification, especially in relation to the resolution of disputes;
- How to incorporate the necessary conditions into the Decision on the basis of consistency in structure and terminology without compromising the meaning;
- The need to deal with the issues arising from the fact that Toll Chargers will be required to enter into contracts with EETS Providers and each EETS Provider must conclude contracts with all Toll Chargers in order to become eligible for EETS services; as the normal regulator in negotiations in terms of refraining from a deal does not exist there has to be a mechanism for assisting the parties to come to mutually acceptable and fair commercial terms;
- The need to establish guidelines in relation to the role of the EETS Providers as the role could range from that of a reseller (acting in its own name and for its own account) to the role of an intermediary (acting for the account of the Toll Charger and/or the Service User); as the role of the EETS Provider in relation to each Toll Charger will depend on e.g. the status of the toll in terms of tax or fee as well as on VAT registration/return, the system should probably be flexible enough for permitting variable roles of the EETS Providers;
- The need to establish guidance for the monitoring of the implementation of EETS both on the local level and also for the purpose of securing a proper and consistent development on a pan-European level. As commented further below it is anticipated that there ought to be a dedicated public body in each member state for the purpose of monitoring and facilitating; Such local bodies need to be supported by a global EETS management with the primary duty to follow the development from a European perspective;
- The right for any Service User to have access to EETS and related consequences that should be clearly set out.

We recommend that the Commission addresses these issues at a policy level before any EETS decision is taken.

Remuneration and cost issues

The question of remuneration in relation to EETS services between the EETS Provider and the Toll Charger raises difficult issues, on which it has proved difficult to formulate clear conditions within the structure of this report. These questions arise because EETS does not operate in a normal commercial environment, in which contracts are entered into on a voluntary basis. The essence of EETS is that Toll Chargers are required to enter into agreements with certified EETS Providers and an individual EETS Provider cannot refrain from concluding a contract with a certain Toll Charger; thus the option to walk away from the contract negotiation does not exist in the normal sense even in cases where the parties are unable to reach a common understanding of the commercial terms to apply.

The remuneration of actors in the EETS model might take a number of forms:

- Service Users might make payments to EETS Providers, to cover the costs of providing services and on-board equipment. That payment could involve a subscription or a charge per EETS transaction, but such payment can imply a disincentive to use EETS if it becomes too high;
- Toll Chargers might make payments to EETS Providers in respect of the work they undertake in e.g. handling contractual arrangements including regular information and communication, handling of customer complaints, issuing and maintaining on-board equipment, collecting revenue on behalf of Toll Chargers and assuming the risks for proper payment of tolls;
- EETS Providers might make payments to Toll Chargers in respect of the costs of establishing, operating and maintaining an EETS-compliant system on their toll domains. Such costs might include costs of contractual arrangements, costs of infrastructure, or costs of the provision of digital maps of toll domains;
- EETS Providers and Toll Chargers might make payments to the Interoperability Manager for upholding the service function and for the services provided both on a general basis and as called for by individual parties from time to time.

None of these payments will be mutually exclusive and it is entirely possible to envisage a system in which all or several of these elements of remuneration take place.

The costs incurred by Toll Chargers and others involved in EETS provisions will also take a number of forms:

- **One-off costs** – including costs of providing infrastructure, on-board units etc.
- **Periodic costs** – such as provision of blacklists, transfer of data, map-matching etc.
- **Per-transaction costs** – the costs of transferring charging data and calculating charges due

In practical terms, the nature of any remuneration regime is likely to differ between DSRC and autonomous schemes; the overall structure of costs will require detailed analysis and a consistent methodology for ensuring that costs and remuneration are calculated in a fair and objective way. It will also be essential to ensure that EETS actors are required to inform the relevant regulatory authorities of their costs in a transparent and consistent way.

Consideration of how these costs are managed and how the flows of revenue associated with them are managed needs to be seen against the background of the fact that EETS will require private sector entities to enter into contractual arrangements, without the normal right to walk away from commercial negotiations.

It will therefore be absolutely essential for the nature of the different costs and approaches to compensation to be clearly understood before it is possible to take any decisions describing the regulatory regime that will apply to EETS.

As indicated in the next section below, WP01 of CESARE IV has applied the working premise that the issues of compensation among the different parties shall to the largest extent possible be left to the market, but certain recourse must be available locally in those cases where individual parties have failed to reach mutually acceptable commercial terms.

Regulatory/contractual regime

In response to the key question of how to develop a contractual framework within the regulatory regime - which was discussed in WP04 of CESARE III, and on which no clear agreed view was reached – CESARE IV has developed a road-map for combining the regulations with contractual arrangements. The key points of this road map are:

- The importance of understanding that the statutory powers to manage interoperability will be vested in national governments and there should be a designated public body in each country with the task and mandate to monitor and control the implementation along the same principles as exist with respect to other industrial sectors where operators are dependant on separate holders of infrastructure (e.g. energy, railway and telecom);
- Recognition of the fact that there will be a legal requirement for entities to enter into contracts, with limited right to withdraw, and therefore the need to provide adequate protection for safeguarding equitable requirements and avoiding the risk for abuse;
- The consequent need for national systems of regulation to ensure that the needs of all parties are respected in the contractual process;
- Recognition of the dynamics in the market with the ensuing need to permit varying service levels, commercial conditions and service fees.

Interoperability Management

In relation to the Interoperability Management Role (IM), WP01 of CESARE IV has defined in this document the functions, rights and duties pertaining to this role. It will therefore describe what the rights and duties of Interoperability Management are. On the other hand, WP02 is expected to define the rest of the IM features, its proposed structure and the different alternatives (Central European organization versus National or Regional bodies; a public entity with private support; a corporative organisation supervised by a public regulatory body, etc.). In other words, WP02 will deal with the aspects related to “who” will perform the Interoperability Management tasks and “how” these tasks are to be carried out. In particular, this Work Package is expected to undertake the following items of work:

- Benchmark study (investigation of administrative bodies existing at industries where independent operators are given access to infrastructure/installations/systems owned by others or where different types of operators (private or public) may be involved, such as rail, telecommunications, mail, energy, and banking services. This first task should be structured pursuant to the following items 2 - 5 and should be very focused on the knowledge necessary for selected tasks of the IM role);
- Essential objectives and requirements calling for an IM for EETS seen from the perspective of the paramount objectives of the EETS project (what are the reasons and the needs for an IM; why is an IM required for implementing and developing the EETS; what are the essential objectives to be achieved by establishing an IM for EETS);
- Tasks to be performed by the IM to meet the objectives and requirements (strategy and policy related tasks and operational tasks; distribution according to IM structure);
- Organisational structure and legal status of the IM (form of entity/association, establishment based on contractual regime or on act/decision by public bodies, decision-making procedures, management, reporting duties, accounting, mandates and authorities, responsibility for debts and liabilities, impartiality, etc.); and
- Resources (identification of necessary resources required for discharging the IM duties premises, personnel, equipment) and funding (proposal for financing the operation).

It is not of course possible at the time of completion of WP01 to predict the outcome of WP02. While the work of this WP will be based on the outputs from WP01 and will aim for consistency with those outputs, it is possible that issues will emerge from W0P2 which will require the conclusions of WP01 to be revisited. It is therefore essential that the outputs from the two work packages should be considered together.

4. EETS Conditions by EETS Service Components/Functions

This chapter describes the EETS by means of Necessary and Facilitative conditions. The CESARE III Detailed Service Definition has been used as the platform and reference for the different conditions given in this chapter.

The project team has reached a consensus on the Conditions by looking for compromises which can be acceptable for all parties and can work in practice. Only on one condition, related to the fair compensation from TC to EP for the services provided, we could not reach a full consensus on the guiding principle. This has been marked correspondingly below.

Abbreviations used in the tables:

- IM = Interoperability Management role
- EP = EETS Provider role
- TC = Toll Charger role
- SU = Service User role
- D = Duty
- R = Right

The reference numbers are defined as S-Xnnn,
where

S = service component (part of service component),

X = N for necessary conditions and F for facilitative conditions,

nnn = sequential number

4.1 GOVERNANCE AND CERTIFICATION

4.1.1 Governance - Necessary Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|---|----|----|----|----|------|
| | | | | | | |
| G-N001 | EP and TC shall provide IM with all necessary information for carrying out its duties. | R | D | D | | |
| G-N002 | IM shall develop and continuously update the EETS core service definition and procedures for interoperability from a technical, functional, contractual and service quality perspective. | D | | | | |
| G-N003 | IM shall provide a set of standard EETS terms and conditions to be taken into account by the EETS actors in their respective contractual relationship. | D | | | | |
| G-N004 | IM shall involve EP and TC in the definition of EETS core rules and regulations. IM shall in particular establish appropriate procedures ensuring that EP and TC are given the opportunity to express their opinions before any major decisions are made. | D | R | R | | |
| G-N005 | IM shall base the technical and functional requirements on international and European standards for the EFC application and different types of communication used by the EETS. | D | | | | |
| G-N006 | IM shall inform EP and TC about changes of the EETS procedures, process and documentation, e.g. standard contracts | D | R | R | | |

4.1 GOVERNANCE AND CERTIFICATION

4.1.1 Governance - Necessary Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|--|----|----|----|----|---|
| | | | | | | |
| G-N007 | IM shall ensure that common rules and procedures for data exchange between EP and TC are established, as necessary to operate the service. | D | D | D | | |
| G-N008 | TC shall establish all organisational and technical measures according to IM regulations, so that the EETS can be provided on its toll domain | | | D | | |
| G-N009 | TC and EP shall implement new EETS common contractual requirements (security keys, contract types, EFC context) established according to a defined decision making procedure | | D | D | | |
| G-N010 | IM shall inform EP and TC without delay about EETS core definitions and rules, inclusive their evolution and updates | D | R | R | | |
| G-N011 | EP and TC have the right to ask for clarifications of the EETS rules by IM in particular concerning perceived breaches of the EETS rules. | D | R | R | | |
| G-N012 | EP has the right to expect that tolling schemes implemented after the introduction of EETS will comply with EETS processes and rules. | | R | D | | A "re"-certification of the EP's procedures and equipments currently in use for the EETS is unacceptable for this reason if a new tolling scheme goes in operation. |
| G-N013 | EP and TC have the right to give recommendations to IM for creating and updating standard terms and conditions to be incorporated in contracts. | | R | R | | |
| G-N014 | EP and TC shall accept the Service Definitions, rules and regulations required for the EETS | | D | D | | |
| G-N015 | IM shall maintain and continuously update the register of authorised EP and TC. | D | | | | |

4.1 GOVERNANCE AND CERTIFICATION

4.1.1 Governance - Necessary Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|---|----|----|----|----|--|
| | | | | | | |
| G-N016 | IM shall provide and continuously update a single European numbering scheme enabling a unique identification and a proper registration of entities, procedures and equipment needed for the EETS operation. | D | | | | |
| G-N017 | IM shall develop procedures and monitor the adhesion and withdrawal of EPs to the service on non-discriminatory basis. | D | | | | The role of the IM will extend to the interpretation of the adhesion criteria given in the Directive/Decision for the purpose of ensuring consistency and efficiency |
| G-N018 | IM shall develop procedures for and assist in the adhesion of new TCs to the service. The criteria for the incorporation, maintenance and withdrawal of TCs shall also be established and managed by IM. | D | | | | |
| G-N019 | IM shall develop procedures for settling of disputes between any of the EP and TC. | D | R | R | | This applies both to disputes before closing a contract between TC and EP and to disputes regarding valid contracts |
| G-N020 | EP and TC shall accept the procedures set out by the IM for settling disputes between actors in the EETS | | D | D | | |
| G-N021 | IM shall audit the operation of EP and TC and the status of their EETS related equipment for the purpose of ensuring compliance with the EETS requirements. | D | | | | |
| G-N022 | EP and TC shall co-operate with IM while auditing the compliance of equipment according to the defined rules and standards. | R | D | D | | |

4.1 GOVERNANCE AND CERTIFICATION

4.1.1 Governance - Necessary Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|--|----|----|----|----|------|
| | | | | | | |
| G-N023 | IM shall develop and continuously update an EETS security policy framework to secure the interest of the EETS users as well as assisting EPs and TCs in their efforts to avoid any economical loss and/or loss of credibility. | D | R | R | | |
| G-N024 | IM shall monitor that appropriate security lists (e.g. hot lists, black lists, white lists) are distributed according to proper standards. | D | R | R | R | |
| G-N025 | IM shall monitor that the security policy is properly implemented and adhered to by EPs and TCs. | D | | | | |
| G-N026 | TC shall take necessary measures so that EETS will be available on the toll domain(s) under its responsibility | | | D | | |
| G-N027 | Without prejudice to the EP's right to access the TC network, TC has the right to perform end-to-end tests of an EP's equipment and processes on it's toll domain to ensure continued mutual compliance with the initial service level requirements. | | | R | | |
| G-N028 | EP shall fulfil the minimum service level agreements and key performance indicators towards TC as defined in the EETS rules and regulations. | | D | R | | |

4.1 GOVERNANCE AND CERTIFICATION

4.1.2 Governance - Facilitative Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|---|----|----|----|----|------|
| | | | | | | |
| G-F001 | IM may identify cross border enforcement issues and develop/promote proposals for solutions in relation to authorities/legislators. | D | | | | |
| G-F002 | IM may monitor relevant technical development and initiate Research and Development activities as it deems fit. | D | | | | |

4.1 GOVERNANCE AND CERTIFICATION

4.1.3 Certification- Necessary Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|---|----|----|----|----|------|
| | | | | | | |
| C-N001 | IM shall be responsible for the development of the EETS test and certification policies, based on international and European testing and certification standards for the EFC applications and the different types of communication used for EETS. | D | | | | |
| C-N002 | IM shall inform TC and EP of any changes of the EETS test and certification policy. | D | R | R | | |
| C-N003 | IM shall monitor that the defined test and certification policy is properly implemented and adhered to by the EPs and TCs. | D | | | | |
| C-N004 | IM shall monitor test and certification procedures and make recommendations to the appropriate bodies to ensure the operation of EETS. | D | | | | |
| C-N005 | IM shall establish appropriate procedures ensuring that EP and TC are given the opportunity to express their opinions before any major decisions are made with respect to certification and testing. | D | R | R | | |
| C-N006 | TC and EP have to comply with the EETS test and certification policy and other regulatory obligations. | | D | D | | |
| C-N007 | EP and TC shall comply with the procedures set out by the IM for distribution, certification and testing of technical equipment for the EETS. | R | D | D | | |

4.1 GOVERNANCE AND CERTIFICATION

4.1.4 Certification- Facilitative Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|---|----|----|----|----|------|
| | | | | | | |
| C-F001 | TC and EP have the right to request IM to investigate that the processes and procedures of a certification body are compliant with EETS requirements. | D | R | R | | |

4.2 CONTRACT ISSUING

4.2.1 Contract Issuing - Necessary Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|--|----|----|----|----|------|
| | | | | | | |
| CI-N001 | EP shall provide contracts to SU containing adequate terms and conditions for his rights and obligations in relation to EETS, including payment means. | | D | | R | |
| CI-N002 | EP shall establish SU record, protected from unauthorised access and use. | | D | | | |
| CI-N003 | SU's personal data shall be protected from unauthorised access and use, in fully compliance with the European Union and National data protection legislation. | | D | | R | |
| CI-N004 | TC shall accept any SU with a valid EETS contract (associated with a certified OBE working properly) without prejudice to SU's duty to comply with relevant toll domain requirements. | | | D | R | |
| CI-N005 | The EP has the right to check the solvency of a potential SU before issuing a (post-payment) contract, and to reject the application for EETS from an SU if it appears that the SU cannot meet required standards of solvency as set by EP. If a potential SU is rejected due to solvency reasons, EP has to offer EETS only on the basis of pre-payments from SU. | | R | | | |
| CI-N006 | TC shall give EP the opportunity to offer its SU to benefit from local rebate schemes on non-discriminatory basis. | | R | D | | |

4.2 CONTRACT ISSUING

4.2.1 Contract Issuing - Necessary Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|---|----|----|----|----|---|
| | | | | | | |
| CI-N007 | EP shall issue at least one certified and personalised EETS OBE to SU according to standards. | | D | | R | |
| CI-N008 | EP shall organise correct installation of OBE | | D | | R | |
| CI-N009 | EP shall inform SU when he can start using the EETS. | | D | | R | |
| CI-N010 | EP shall provide SU with the required service information for a correct and safe usage of the OBE in all EETS toll domains. | | D | | R | |
| CI-N011 | EP shall inform SU on a regular basis about significant aspects of the EETS and its evolution. | | D | | R | |
| CI-N012 | Within the time frames defined in the contract, SU shall provide to EP all necessary accurate user and vehicle registration information and updates hereto. | | R | | D | |
| CI-N013 | SU shall provide an acceptable payment means to EP according to the terms in the contract before getting access to the network. | | R | | D | |
| CI-N014 | SU shall upon request from EP or TC make the OBE available for updating of changed parameters. | | R | R | D | It may be necessary to update the OBE parameters used by the EP and/or the TC, e.g. contract data |
| CI-N015 | EP shall update EETS front-end systems (OBE, EETS proxy) with the toll-context data in a timeframe specified by TC | | D | | R | |

4.2 CONTRACT ISSUING

4.2.2 Contract Issuing - Facilitative Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|--|----|----|----|----|------|
| CI-F001 | EP may provide to SU the EETS contract in a language where the SU is domiciled | | D | | R | |

4.3 SERVICE USE ON TOLL ROADS

4.3.1 DSRC and Autonomous Systems - Necessary Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|---|----|----|----|----|---|
| | | | | | | |
| DSAS-N001 | TC shall fulfill the minimum service level agreements and key performance indicators towards EP as defined in the EETS rules and regulations. | | R | D | | |
| DSAS-N002 | The SU shall declare any variable parameters affecting the classification of the vehicle (and trailer) before entering an EETS toll domain | | | | D | |
| DSAS-N003 | TC shall treat SU so that SU has no disadvantages concerning toll calculations due to failure in the TC systems. | | | D | R | |
| DSAS-N004 | EP shall provide SU with methods of declaration which allow declaring of all parameters that are needed for uninterrupted driving through all EETS toll domains in compliance with European standards | | D | | R | |
| DSAS-N005 | EP shall inform SU about the tariff schemes and the actual amounts charged in each individual EETS toll domain. | | D | | R | The information about the actual amounts charged may take place in real-time through a HMI on the OBE, but it can just as well take place through an Internet portal which is updated periodically. |
| DSAS-N006 | SU shall react in case of apparent errors pursuant to instructions received by TC and EP | | R | R | D | |

4.3 SERVICE USE ON TOLL ROADS

4.3.1 DSRC and Autonomous Systems - Necessary Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|---|----|-----|----|----|---|
| | | | | | | |
| DSAS-N007 | TC shall give EP access to any systems operated on its domain that support the achievement of service level agreements or key performance indicators, for example augmentation beacons operated in autonomous systems | | R | D | | |
| DSAS-N008 | EP has to use authenticity mechanisms to allow the TC to check if the transactions have been initiated by the OBE issued by the EP. | | R/D | | | In DSRC-based tolling systems the authenticity mechanisms are used in the communication between the OBE of EP and the RSE of TC. In the following the authenticity information is used to verify how the tolling declarations were created. |

4.3 SERVICE USE ON TOLL ROADS

4.3.2 DSRC and Autonomous Systems - Facilitative Conditions

No facilitative conditions.

4.3 SERVICE USE ON TOLL ROADS

4.3.3 DSRC Systems - Necessary Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|--|----|----|----|----|---|
| | | | | | | |
| DS-N001 | TC shall control the valid transmission of the transaction data between OBE and RSE. | | | D | | |
| DS-N002 | TC shall conclude tolling transaction based on valid toll declaration data (in real time or in back office). | | | D | | |
| DS-N003 | TC shall signalise to SU the correct usage of the toll system in its toll domain, including the correct lane usage at the toll plazas. | | | D | | |
| DS-N004 | TC shall inform SU about transaction results in real-time at DSRC beacons where SU has a user obligation. | | | D | R | |
| DS-N005 | TC shall at least provide the same level of service regarding tolling lane capacity to SU as to local users. | | | D | R | |
| DS-N006 | EP shall inform SU about the status of OBE, procedures to adopt in case of non-valid transactions including alternative methods of declaration and payment in the event of OBE malfunction and invalidity. | | D | | R | |
| DS-N007 | TC shall provide an alternative non-discriminating way to pay the tolls in case of EETS malfunction | | | D | | |
| DS-N008 | EP shall accept toll declarations which are collected and verified by TC in extended mode due to (a) malfunction of RSE or OBE, and/or (b) national legislation and regulations. | | D | R | | It shall be transparent for all parties when toll transactions are collected and verified in extended mode. |

4.3 SERVICE USE ON TOLL ROADS

4.3.4 DSRC Systems - Facilitative Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|---|----|----|----|----|------|
| | | | | | | |
| DS-F001 | TC may check if the OBE has a valid contract and may proceed security checks on the OBE status before concluding toll transaction. | | | R | | |
| DS-F002 | TC may use stored data for other purposes in compliance with the contract with EP, the national legislation and data protection provisions in particular. | | | R | | |
| DS-F003 | TC may inform EP in case anomalies or a non-compliant activity from SU are detected on the toll domain(s) under its responsibility. | | R | D | | |

4.3 SERVICE USE ON TOLL ROADS

4.3.5 Autonomous Systems - Necessary Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|--|----|----|----|----|------|
| | | | | | | |
| AS-N001 | TC shall provide up-to-date toll context data to EP in a standardised format within a defined time frame and fulfilling a defined quality level. | | R | D | | |
| AS-N002 | EP shall submit valid and quality checked toll declarations in a specified format to TC for justification and claiming of tolls charged. | | D | R | | |
| AS-N003 | For autonomous systems EP shall provide TC with toll declaration data within an agreed time frame to avoid that unjustified enforcement procedures are applied against any compliant SU. | | D | R | | |
| AS-N004 | EP shall submit the toll declarations to TC within a timeframe specified in the toll context data | | D | R | | |
| AS-N005 | EP shall on request provide raw charging data to the TC for enforcement, monitoring and auditing purposes. | | D | R | | |

4.3 SERVICE USE ON TOLL ROADS

4.3.6 Autonomous Systems - Facilitative Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|--|----|----|----|----|---|
| AS-F001 | EP may inform SU about the potential amounts charged before receiving the concluded toll transactions from TC. These amounts are only informative and non-binding. | | R | | | If information shall be given, then only EP can perform this task. There are currently national systems where such information is mandatory. It should be noted, that TC cannot have a duty to inform SU about the potential amounts charged since the contacts to SU are held by EP. |

4.4 SERVICE PAYMENT

4.4.1 Service Payment - Necessary Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|--|----|----|----|----|--|
| | | | | | | |
| SP-N001 | TC shall transmit the claim and transaction data to EP in a standardized format and in an agreed timeframe. | | R | D | | |
| SP-N002 | TC shall not claim payment from EP for OBEs that have been listed as non-valid by EP. | | | D | | EP shall be able to prove that TC has received the data on non-valid OBEs in such cases. |
| SP-N003 | EP shall pay correct claims to TC based on concluded valid toll transactions within the period agreed by the parties. | | D | R | | |
| SP-N004 | EP shall provide a payment guarantee to the TC for correct claims | | D | R | | |
| SP-N005 | TC shall give EP a fair compensation for the services provided, reflecting the costs for providing the defined services efficiently in connection with the passage through the toll domain of the TC by SU having a contract with the EP plus a reasonable profit and such compensation shall also be calculated with due regard to (a) the costs discharged from the TC by virtue of the EP's services, and (b) revenues obtained by the EP from other sources for providing the relevant services. | | R | D | | This condition was a matter of discussion amongst the work team members and did not reach a full consensus. For further details please refer to the item regarding "Remuneration and cost issues" in the previous chapter. |
| SP-N006 | EP shall provide SU with the necessary information to check the accuracy of invoices. | | D | | R | |
| SP-N007 | The payment of toll by SU to EP shall be deemed to satisfy | | | | D | In case EP at any time should withdraw from EETS or become bankrupt SU shall not be liable |

4.4 SERVICE PAYMENT

4.4.1 Service Payment - Necessary Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|---|----|----|----|----|--|
| | | | | | | |
| SP-N008 | SU shall pay EP the tolls subject to EETS according to the terms in the contract | | R | | D | |
| SP-N009 | EP shall release SU from its payment obligation related to the use of OBE after notification of loss or theft within a specified time frame as documented in EP's terms and conditions. | | D | | R | |
| SP-N010 | SU shall pay EP the service charges subject to EETS according to the contract terms. | | R | | D | |
| SP-N011 | EP has the right to charge SU an additional fee on top of the toll charge to cover the costs of providing EETS services | | R | | D | |
| SP-N012 | EP shall issue invoices/financial statements to SU, specifying tolling transactions and, if applicable, VAT. | | D | | R | |
| SP-N013 | EP and TC shall agree on a model for issuing statements and invoices of tolls (resale or agency). | | D | D | | If an agency model is used, EP shall issue invoices on behalf of TC. That means that no direct invoicing of TC to SU is needed in case of using the agency model (e.g. for a tax or duty). |

4.4 SERVICE PAYMENT

4.4.2 Service Payment - Facilitative Conditions

No facilitative conditions.

4.5 SERVICE USER SUPPORT

4.5.1 Service User Support - Necessary Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|---|----|----|----|----|------|
| | | | | | | |
| SUS-N001 | EP shall manage user contracts, including modification and cancellation of contracts and changes of payment means. | | D | | R | |
| SUS-N002 | EP shall disable and blacklist a certain OBE at the request of SU (e.g. in case of theft or loose). | | D | | R | |
| SUS-N003 | EP shall provide technical support to SU when required, including updates, repair and replacement of OBE as necessary. | | D | | R | |
| SUS-N004 | SU shall be able to cancel the contract at any time and without charge if EP loses his status as EP. | | D | | R | |
| SUS-N005 | EP shall provide all reasonable support to allow TCs to measure the performance of the EP. | | D | R | | |
| SUS-N006 | EP shall implement updates received as toll context data in an agreed time frame to ensure that TC does not lose revenue. | | D | R | | |
| SUS-N007 | TC shall make information about EETS available on the toll domain(s) under its responsibility. | | R | D | R | |
| SUS-N008 | EP shall provide one single point of contact for SU complaints. | | D | | R | |
| SUS-N009 | EP shall investigate complaints from Sus about charged transactions and the functioning of OBE and communicate with SU the outcome of those investigations. | | D | | R | |

4.5 SERVICE USER SUPPORT

4.5.1 Service User Support - Necessary Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|---|----|----|----|----|------|
| | | | | | | |
| SUS-N010 | TC shall support EP to investigate and solve SU complaints and provide a second level support. | | R | D | | |
| SUS-N011 | TC shall provide on request justification to EP in case of complaints about charged tolls. | | R | D | | |
| SUS-N012 | TC shall not be held responsible for user complaints about charged tolls unless it is proven that TC has not met its obligations. | | | R | | |
| SUS-N013 | EP shall inform SU about procedures to be followed in case of complaints, including deadlines for submitting claims or complaints after using EETS at a certain tolling domain. | | D | | R | |
| SUS-N014 | EP shall provide to TC management information regarding SU complaints on the toll domain(s) under TC responsibility. | | D | R | | |
| SUS-N015 | EP shall provide management information about complaints and support requests to IM as needed. | R | D | | | |
| SUS-N016 | SU shall return the OBE to EP on request and against receipt of replacement unit. | | R | | D | |
| SUS-N017 | SU shall follow updated instructions for use of the EETS prescribed by EP and/or TC. | | R | R | D | |

4.5 SERVICE USER SUPPORT

4.5.2 Service User Support – Facilitative Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|---|----|----|----|----|------|
| SUS-F001 | EP may have the right to effectuate appropriate sanctions against a non-compliant SU pursuant to the terms of the contract and the law applicable provided that fault has been established based on full investigation and communication of the relevant circumstances. | | R | | | |

4.6 ENFORCEMENT

4.6.1 Enforcement - Necessary Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|---|----|----|----|----|---|
| | | | | | | |
| ES-N001 | TC has the right to implement local enforcement means to detect any non-compliant activity (incl. personal identification in case of taxes) | | | R | | |
| ES-N002 | TC has the right to use a real-time communication link to the OBE in a certified and agreed way for enforcement purposes. | | | R | | |
| ES-N003 | TC shall adopt enforcement procedures which are safeguarding the rights and interests of an SU who is acting in good faith. | | | D | R | |
| ES-N004 | TC shall provide to EP all necessary information about enforcement regulations in his toll domain. | | R | D | | |
| ES-N005 | TC shall notify EP about any non-compliant activity or anomalies in OBE or data. | | | D | | |
| ES-N006 | EP has the duty to address anomalies or non-compliant activities of OBE when reported by TC. | | D | | | These activities are performed to increase the quality of the toll collection |
| ES-N007 | The EP shall provide timely information concerning security keys, blacklisting etc. for access by TCs and IM to the extent required. | R | D | R | | |
| ES-N008 | EP shall provide information to TC on request to confirm that an OBE is working correctly and is associated with a valid EETS contract. | | D | R | | |

4.6 ENFORCEMENT

4.6.1 Enforcement - Necessary Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|---|----|----|----|----|---|
| | | | | | | |
| ES-N009 | EP shall provide support to TC as necessary to allow TC to check whether an enforced vehicle has a contract with the EP and if the OBE is valid. | | D | R | | |
| ES-N010 | EP shall provide information on SU to TC in case of a qualified enforcement case. | | D | R | | |
| ES-N011 | EP shall specify in the contract with SU that data will be supplied to TC for control and enforcement purposes. | | D | | R | It is generally required that SU accepts that EP forwards his data to TC. Therefore it should be reflected in the contract. |
| ES-N012 | EP shall, upon request, inform his SU about the enforcement regulations in all toll domains. | | D | | R | |
| ES-N013 | In case of non-compliant activity due to failure in reading the OBU, TC and/or EP shall convert the transaction from non-compliant to ordinary transaction without cost for SU providing the instruction for OBU use are fulfilled. | | D | D | R | |
| ES-N014 | SU shall not suffer in case of failure of the enforcement system. | | | | R | |

4.6 ENFORCEMENT

4.6.2 Enforcement - Facilitative Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|--|----|----|----|----|------|
| | | | | | | |
| ES-F001 | TC may have the right to institute enforcement action pursuant to local laws and regulations against a non-compliant SU subject to establishment of fault based on an appropriate investigation and communication of the relevant factual and contractual circumstances. | | | R | | |
| ES-F002 | In case of non-compliant behaviour by an SU, TC may apply an administrative fee pursuant to local laws and regulations subject to establishment of fault based on an appropriate investigation and communication of the relevant factual and contractual circumstances. | | | R | | |
| ES-F003 | TC may ask the EP to support payment of additional charges for non-compliant activity (penalty), provided that it has been agreed between the parties | | D | R | | |
| ES-F004 | EP may ask SU for payment for non-compliant activities, provided that this payment procedure for enforcement purposes has been agreed between TC and EP | | R | D | | |

4.7 PROMOTION

4.7.1 Promotion - Necessary Conditions

| Reference Number | Condition | IM | EP | TC | SU | Note |
|------------------|---|----|----|----|----|------|
| | | | | | | |
| PR-N001 | IM shall provide and continuously update an EETS PR scheme. | D | | | | |
| PR-N002 | EP and TC shall implement the EETS PR scheme defined by IM. | R | D | D | | |
| PR-N003 | EP shall promote the use of EETS and inform SU about the service use rules. | | D | | R | |

4.7 PROMOTION

4.7.2 Promotion - Facilitative Conditions

No facilitative conditions

5. Conclusions

The document D1.2 is the compilation of the work carried out during around six months by a group of 25 people involved on the Work Package WP01 of CESARE IV. The scope of the work included the definition and the discussion of a set of rules (called “Conditions”) to be compiled for the implementation of the European Electronic Tolling Service (EETS). These Conditions, divided into Necessary and Facilitative, correspond to the activities to be carried out by the different actors involved in the service, defined in CESARE III in the four EETS Roles (Interoperability Management, Toll Charger, EETS Provider and Service User) designated by their respective abbreviations (IM, TC, EP and SU).

The definition, analysis and discussion of the EETS Conditions has been a process with several iterations. The Work Package members have included their points of view and have discussed items with further colleagues from their respective organisations. A draft version was also provided to the CESARE IV Advisory Forum, where individual experts from potential EETS Providers participate. The Advisory Forum experts provided comments which were taken as input to the final considerations.

The list of the EETS Conditions developed in the above chapters shows the duties and rights of the different actors involved in the service. When taken Role by Role, the EETS conditions configure the scope of the activities for each Role in the Service. The Necessary duties are the mandatory activities that an organisation playing a certain Role has to develop and evaluate in its business plan. An organisation unable to provide the Necessary duties should not be eligible to be certified to participate in EETS, and failing to fulfil the necessary obligations could lead to being excluded from EETS. The Facilitative duties are not mandatory but recommendable for the actors.

The Necessary Duties and Rights of the different Roles should, as far as possible, be incorporated at the legislative level, in the EC Decisions and national legislation regarding EETS, especially in the case of IM. It should be taken into account that some IM conditions might be revised after the results of the Work Package WP02 IM framework, functions and procedures.

The Facilitative Rights and Duties should be incorporated in the contractual arrangements between the EETS actors. However, there might be national rules and legislations, which as a consequence lead to that a Facilitative Condition is mandatory at the national level. An example would be rules regarding VAT for tolls in a country. This kind of national rules have not been reflected in the work of CESARE IV. Instead the focus has been on rules that should be valid for EETS as a European solution.

The Work team members in charge of writing D1.2 believe that the set of Rules/Conditions as defined in the above chapters can be a powerful tool for developing the legal and operational framework of EETS. We hope that all relevant aspects of EETS have been covered and we expect that the transcription of the Conditions into rules at the legislative levels would be relatively easy. A guiding principle for our work has been to develop solutions which can work in practice. We have used our experience from national and regional projects as a key input for this work. A major challenge for a functioning EETS is nevertheless the diversity between tolling solutions in the different European countries. Respecting the diversity and the right of the Member States to develop the solutions which fit to their purposes, it has to be said that it is vital for EETS to reduce complexity to the extent possible. Any reduction in the complexity will assist to find practical and cost-effective solutions for EETS.

6. References

6.1 GLOSSARY

The following Terms are used in the document.

| Term | Definition |
|----------------------------|--|
| Autonomous Systems | Electronic Toll Collection systems using OBE that gathers data from one or more sensors (e.g. GNSS or connection to an odometer) which are used together with declaration data in the process of detecting toll charging events, mainly without relying on local roadside infrastructure |
| Classification | Determination of the category of the vehicles being tolled. <i>The category is based upon the vehicle parameters (e.g. dimensions, shape, structure, weight, number of axles, number of tyres).</i> |
| Concluded Toll Transaction | <i>See Valid Toll Transaction</i> |
| EETS Condition | A principle put forward to set EETS standards or determine a course of action. <i>See also Necessary EETS Conditions and Facilitative EETS Conditions.</i> |
| EETS Service Provider (EP) | A legal entity (or group of legal entities) providing the European Electronic Toll Services (EETS) on one or more toll domains to Service Users, for one or more categories of vehicles. |
| Enforcement | The process of compelling observance of a law, regulation, etc. (<i>EN ISO 17573</i>). |
| Expert Groups (EG) | A collection of teams of advisors, which were selected by the EC to produce twelve reports on different aspects of EFC to support the development of the EC/52/2004 Directive. |
| Extended Mode | In a toll transaction in case of malfunctioning of the electronic components of the system the OBE relevant data are collected by alternative methods (e.g. bar code readers or by keying the OBE identifier). |
| EETS toll | The data describing the charged road use concluded by the Toll Charger according to national and local law taking into |

| Term | Definition |
|----------------------------------|--|
| transaction | account the toll declarations. |
| Facilitative EETS Condition | <p>An EETS recommendation described in terms of a legal, procedural, functional, technical or informational (data) advice.</p> <p>A Facilitative condition is not required for achieving EETS interoperability but it should be implemented as far as possible to give the EETS users (and operators) a harmonized, available and seamless toll collection system on a European level.</p> |
| Interoperability | The ability of systems to provide services to and accept services from other systems and to use the services so exchanged to enable them to operate effectively together (EN ISO 17573). |
| Interoperability Management (IM) | In the EETS context, the Interoperability Management (IM) is an entity or a set of entities), which fulfil the role of managing the interoperability of the European Electronic Tolling Service, including in their functions the governance and other main components of the Service. |
| Necessary Condition | A mandatory rule, reflecting a legal, procedural, functional, technical or informational (data element or data flow) requirement that has to be fulfilled by each person or entity acting in one of the EETS roles in order to achieve EETS interoperability. |
| OBE Personalisation | Suite of the technical and administrative activities that allow the coding of specific contract data in the OBE. |
| On-Board Equipment (OBE) | Equipment fitted to or carried on a vehicle, which is used for toll declaration purposes. |
| Raw Charging Data | Data collected by the OBE (in Autonomous Systems). |
| Role | <p>Identifier for a behaviour, which may appear as a parameter in a template for a composite object, and which is associated with one of the component objects of the composite object.</p> <p><i>Roles defined in the European Electronic Service: Interoperability Manager (IM), Toll Charger (TC), EETS Provider (EP) and Service User (SU).</i></p> |
| Service User (SU) | A generic term used for the customer of an EETS Provider, one liable for toll, the owner of the vehicle, a fleet operator, a driver etc. depending on the context (EN ISO 17573). |

| Term | Definition |
|------------------------|---|
| Tariff Scheme | A set of rules to determine the fee due for a vehicle in a toll domain for a tolled object at a certain day and time (<i>EN ISO 17573</i>). |
| Toll | A charge, a tax, a fee, or a duty in connection with using a vehicle within a toll domain (<i>EN ISO 17573</i>). |
| Toll Charger (TC) | A legal entity (or group of legal entities) in charge of the Toll Charging role, including amongst others, the operation of toll domains, collection of tolls and enforcement tasks. |
| Toll Context Data | A set of EETS relevant data related to a certain Toll domain. |
| Toll Declaration | A statement (from the OBE of a vehicle) to a toll charger, not necessarily transmitted via a direct communication channel, that confirms the presence of a vehicle in a toll domain in a format agreed between the Electronic Toll Service Provider and the Toll Charger (<i>EN ISO 17573</i>). |
| Toll Domain | An area or part of a road network where a toll regime is applied (<i>EN ISO 17573</i>). |
| Toll Point | A location within a toll domain where the OBE has to issue a toll declaration (<i>EN ISO 17573</i>). |
| Toll Regime | The set of rules, including enforcement rules, governing the collection of tolls in a toll domain (<i>EN ISO 17573</i>). |
| Valid Toll Transaction | Complete set of data associated to the actual presence of a vehicle in a control point of a toll domain, compiled in a format agreed between Toll Charger and EETS Provider. |

6.2 ABBREVIATIONS

The following abbreviations are used in this document.

| | |
|---------|---|
| CEN | Comité Européen de Normalisation |
| CENELEC | Comité Européen de Normalisation Electrotechnique |
| CESARE | Common Electronic Fee Collection System for a Road Tolling European Service |
| CN | Cellular Networks |
| DSRC | Dedicated Short Range Communications |
| EFC | Electronic Fee Collection |
| EETS | European Electronic Toll Service |
| EP | EETS Provider |
| ETC | Electronic Toll Collection |
| ETSI | European Telecommunication Standardization Institute |
| GIS | Geographic Information System |
| GNSS | Global Navigation Satellite Systems |
| GPS | Global Positioning System |
| GSM | Global System for Mobile Communications |
| GALILEO | A European satellite-based global navigation system |
| HGV | Heavy Goods Vehicle |
| HMI | Human-Machine Interface |
| IM | Interoperability Management (EETS Interoperability Manager) |
| ISO | International Organization for Standards |
| OBE | On-Board Equipment |

6.2 ABBREVIATIONS

| | |
|------|--|
| SU | Service User (EETS Service User) |
| TC | Toll Charger (EETS Toll Charger) |
| UMTS | Universal Mobile Telecommunications System |
| VES | Violation Enforcement System |
| WAN | Wide Area Network |

6.3 DOCUMENT REFERENCE

| Ref no. | Document |
|---------|--|
| [1] | D2.1 Detailed Service Definition CESARE III project |
| [2] | D1.2 Revised CESARE Model CESARE III project |
| [3] | Pr-EN ISO 17573 - Road Transport and Traffic Telematics — Electronic Fee Collection System Architecture for vehicle related tolling |
| [4] | IBTTA Glossary of Terms related to Electronic Tolling |

6.3 DOCUMENT REVISION HISTORY

| Version | Date | Author | Main changes |
|---------|------------|--------|---|
| 1.0 | 03/07/2008 | TER | First complete version provided to CESARE IV Steering Committee |
| 1.1 | 07/07/2008 | TER | Removed internal references, added explanation to abbreviations in Chapter 4, corrected allocation of two conditions, made a few editorial corrections. |
| 1.2 | 17/09/2008 | TER | Some linguistic improvements (wording), as well as layout improvements. No content changes. |

