

Procedure for proving the interoperability with the Electronic Toll Collection System in accordance with Part II of the General Terms and Conditions

I. Scope of tests for proving the interoperability with the Electronic Toll Collection System

This document describes the scope of the required test stages, the possible roles of the EETS Provider in the certification process (reflecting the scope of the service they intend to provide) and the basic functionality tests connected with them.

The procedure for proving the interoperability consists of three stages:

Stage 1: Assessment of the compliance of the technology offered by the applicant in relation to the documents required in Part II of the General Terms and Conditions

Stage 2: “End-to-end” overall integration tests

Stage 3: Application “end-to-end” tests

The document provides comprehensive information related to the conduct of the tests for proving interoperability.

Documents provided with restricted access after completion of Stage 1. Assessment of compliance of the technology offered by the applicant:

- Annex 2.1 – Detailed description of the interface specification for data exchange according to documents related to the conduct of the procedure under ISO 12855:2015;
- Annex 2.2 – Information security requirements and standards applicable;
- Annex 2.3 – Specification of “end-to-end” integration tests;
- Annex 2.4 – Specification of the pilot test (application "end-to-end" tests).

1. Description of the activities by the stage of the tests for proving the interoperability

The purpose of the test is to assess the ability of the constituent elements of interoperability of the EETS Provider to achieve and maintain the necessary operation efficiency. The procedure consists of stages that are carried out over time in the following order:

- Stage 1. Compliance assessment – examination of the admissibility of the required documents in accordance with the General Terms and Conditions;
- Sub-stage: Exchange of restricted documents pursuant to Annexes 2.1 to 2.4
- Stage 2. “End-to-end” integration tests;
- Stage 3. Application tests for proving the “end-to-end” interoperability.

1.1. Compliance assessment – examination of the admissibility of the required documents in accordance with the General Terms and Conditions

The required documents under the General Terms and Conditions certify the Provider's readiness to offer toll services and are a condition for the Contract conclusion. The Commission, which shall be assigned by an order of the Chairman of the Management Board of the Road

Procedure for proving the interoperability with the Electronic Toll Collection System in accordance with Part II of the General Terms and Conditions

Infrastructure Agency, shall be formed upon registration of the Provider in the Register of European Electronic Toll Providers. The appointed Commission shall assess whether the requirements set out in the Ordinance and the General Terms and Conditions are complied with and in particular, shall assess the compliance of the Operational Plan and the evidence to it with the requirements of the Contract and the General Terms and Conditions.

The successful completion of this stage is certified by a Certificate of successful completion of Stage 1, with the issuance of which it is considered that the Provider may proceed to Stage 2 of the tests for proving the interoperability with the Electronic Toll Collection System.

1.2. “End-to-end” integration tests

The purpose of the end-to-end integration tests is to assess the correct implementation of the interface in the Provider's system, in accordance with the specification presented in Annex 2.1 under ISO 12855:2015.

“End-to-end” integration tests shall include the following elements:

- Exchange of charge objects;
- Management of the list of exceptions (white list / black list);
- Obtaining data for toll context;
- Provision of data on the calculated amount for a reporting period.

Provision of a request for payment from the Agency to the Provider – requires manual adjustment and is part of the “end-to-end” integration tests.

“End-to-end” integration tests cover the following processes:

- Introduction of the Service Provider – handing over and introduction of charge objects;
- Interface Bus Test – testing the flow of transactions between the Provider and the Agency;
- Claim management processes covering claims from the EETS Provider against the Agency and from the Agency against the EETS Provider;
- Payment by the Provider in favour of the Agency – invoicing and reconciliation.

At stage 2 “End-to-end” integration tests specific indicators and performance indicators presented in Annex 2.3 are applied and they are a consequence of the performance indicators upon provision of an electronic toll service defined in Annex 1 of the General Terms and Conditions.

The successful completion of this stage is certified by a Certificate of successful completion of Stage 2, with the issuance of which it is considered that the Provider can proceed to Stage 3 of the tests to prove interoperability with the Electronic Toll Collection System.

1.3. Application tests for proving the “end-to-end” interoperability

The purpose of the application tests for proving the “end-to-end” interoperability is to assess the readiness of the EETS Provider's interoperability of the constituents by using the fleet of vehicles equipped with on-board units or GPS on-board devices to detect the passing of users of the tolled road on sections of tolled road (toll segments) subject to tolling. Application tests

Procedure for proving the interoperability with the Electronic Toll Collection System in accordance with Part II of the General Terms and Conditions

for proving the “end-to-end” interoperability shall be carried out by means of predefined routes using the road infrastructure subject to tolling for a certain period of operation.

The scope of the application tests for proving the “end-to-end” interoperability shall reflect the regular operation of the EETS Provider's interoperability of the constituents within the Electronic Toll Collection System:

- registration of a new service provider – registration of the new service provider in the Electronic Toll Collection System, including the transmission of charge objects;
- interface bus testing – testing of a flow of transactions from the fleet of vehicles used for the application tests covering the processing of declarations of data (toll declarations), invoicing data and payment claims;
- removal or deactivation of Provider – coordination of payments and de-registering of the Provider from the Electronic Toll Collection System.

The successful completion of this stage is certified with a Certificate for successful completion of Stage 3 with the issuance of which it is considered to be established and proved the full interoperability between the EETS Provider's technical systems and the Electronic Toll Collection System.

2. Roles of the participants in the “end-to-end” tests

In order to properly implement the required “end-to-end” interoperability test components mandatory for the EETS Provider, the following roles shall be adopted in relation to the service offered:

- EETS Provider – an organisation providing a service within the scope defined in the General Terms and Conditions;
- Toll Charger – an entity with rights and responsibilities with regard to the ownership and operation of the Electronic Toll Collection System as defined in the General Terms and Conditions.

Entities acting as an operator/integrator in the framework of the procedure for proving the interoperability shall be notified to the EETS Provider prior to the start of the "end-to-end" interoperability demonstration tests.

The table presents mandatory tests and tests for the EETS Provider depending on the intended scope of service to be provided in the Bulgarian toll domain of the Electronic Toll Collection System.

Role	Mandatory tests
EETS Provider	<ol style="list-style-type: none"> 1. “End-to-end” integration tests 2. Application tests for proving the “end-to-end” interoperability

Procedure for proving the interoperability with the Electronic Toll Collection System in accordance with Part II of the General Terms and Conditions

II. Description of the procedure for proving the interoperability with the Electronic Toll Collection System according to Part II of the General Terms and Conditions

This section provides information on the individual steps to be taken in the framework of the procedure for proving the interoperability with the Electronic Toll Collection System.

Successful completion of each stage shall be certified by a certificate issued by the Agency as a result of the work of the Evaluation and Compliance Assessment Commission, which is a subsidiary body to the Agency and is responsible for all activities regarding the conducting of the stages, performance assessment and substantive assessment of the level of interoperability achieved by each EETS Provider.

The Evaluation and Compliance Assessment Commission shall consist of five members, which shall be appointed by an order of the Chairman of the Management Board of the Road Infrastructure Agency for each individual procedure for proving the interoperability of the individual EETS Providers. The composition of the Commission shall remain unchanged in the event of a repeated procedure for proving the interoperability in relation to the same EETS Provider.

The procedure for proving the interoperability starts with the implementation of Stage 1, which can be initiated after the conclusion of the Contract, but not later than 5 working days from its conclusion. The completion of this stage is certified by a certificate of successful completion of Stage 1, after which Stage 2 of the procedure can be initiated. Its completion is certified by a certificate of successful completion of Stage 2, after which Stage 3 can be initiated. Upon successful completion of Stage 3, which is also certified by a certificate, the procedure for proving the interoperability is considered to have been successfully completed.

The complete procedure should be successfully completed within 1 (one) year as of the date the Contract conclusion. During the procedure, the EETS Provider may make one attempt to successfully complete Stage 1 and no more than two consecutive attempts to successfully complete Stage 2 and Stage 3 respectively. In the event that the EETS Provider fails to achieve interoperability at the first attempt in Stage 1 or within two attempts, whether at Stage 2 or Stage 3 of the procedure, the Contract shall be terminated in accordance with Part II, Chapter 4, Section 1 of the General Terms and Conditions. If a period of more than 4 (four) months has elapsed between the failure of the first attempt to move to Stage 2, respectively Stage 3, and the initiation of a second attempt, the attempt to carry out the procedure shall be considered unsuccessful and the Contract shall be terminated.

The time for conducting each stage, as well as the expected duration, shall be agreed in advance between the Agency and the EETS Provider, where the Agency shall have the right to determine another time and schedule for conducting the tests in the event that there is a circumstance that would endanger and/or impair the operational suitability and/or security of the

Procedure for proving the interoperability with the Electronic Toll Collection System in accordance with Part II of the General Terms and Conditions

Electronic Toll Collection System. In the event that the Agency establishes such a schedule which would delay the completion of the procedure within the deadlines referred to in the preceding paragraph, the deadline for the completion of the relevant stage shall be extended accordingly to the delay caused by the establishment of the new schedule.

1. Role of the Service Provider

This document defines the specific role of the EETS Provider, depending on the nature of the service the Provider stated that will provide to the user in the Bulgarian toll domain for the Electronic Toll Collection System. The Provider is obliged to specify such service before the start of the proving of the interoperability procedure (using the official means of communication specified for the whole process and in accordance with the General Terms and Conditions).

2. Prerequisites for conducting the procedure for proving the interoperability with the Electronic Toll Collection System

In order to initiate the procedure for proving the interoperability with the Electronic Toll Collection System, the Provider undertakes to:

- comply with the requirements set out in the Ordinance regarding the entry in the Register of EETS Providers;
- be registered in the Register of EETS Providers in the country where it is established;
- meet the requirements set out in the General Terms and Conditions;
- have a contract under Part II of the General Terms and Conditions;
- the Toll Charger has opened a window for proving the interoperability.

Within 3 working days after the completion of Stage 1 and receipt of the Certificate from the Agency for the successful completion of Stage 1, the Provider shall receive the restricted documents: Annex 2.1, Annex 2.2, Annex 2.3, and Annex 2.4.

3. Time frame of “end-to-end” interoperability tests

In the event that the mandatory prerequisites are met, the EETS Provider and the Toll Charger (operator/integrator) shall agree on the schedule for conducting the interoperability tests, including at least the following elements:

- Adjusting trust relationships;
- “End-to-end” integration test configuration;
- Implementation and reporting of “end-to-end” integration tests;
- Configuration of the application “end-to-end” interoperability tests;
- Implementation and reporting of the application “end-to-end” interoperability tests.

The detailed planning of the activities listed above, including their duration, is outside the scope of this document.

In order to carry out the “end-to-end” integration tests, it is necessary to exchange charging facilities (trusted sites) before the initiation of the tests.

Procedure for proving the interoperability with the Electronic Toll Collection System in accordance with Part II of the General Terms and Conditions

4. Conditions for completing the “end-to-end” integration tests and the application “end-to-end” interoperability tests

The performance of the tests and examinations shall follow the agreed plan. The conditions for successfully passing the tests and examinations are as follows:

- “End-to-end” integration tests
 - o Successful passing of all test cases defined in Annex 2.3 to this document within the time frame agreed between the EETS Provider and the Toll Charger.
 - o The purpose of the “end-to-end” integration tests is to assess the correct implementation of the interface in accordance with the specification set out in the technical part of the EETS Domain Statement.

- Application tests for proving the end-to-end interoperability
 - o Successful passage of all test scenarios defined in Annex 2.3 to this document within the time frame agreed between the EETS Provider and the Toll Charger
 - o Full compliance with the key performance indicators according to Annex 1 of the General Terms and Conditions

5. Repetition of the “end-to-end” integration tests and the application “end-to-end” interoperability tests

In the event that “end-to-end” integration tests and the application “end-to-end” interoperability tests need to be repeated due to technical deficiencies in the EETS Provider's system constituents, the Toll Charger will charge for the additional (re-)tests.

6. Requirements for the start of “end-to-end” integration tests and the application “end-to-end” interoperability tests

6. General requirements

The provider shall ensure the necessary staff members and their presence during the conduct of the procedure for proving the interoperability and shall at minimum ensure that the following professionals are present:

- Test Coordinator – a member of the staff responsible for the test management and their conducting, responsible for the technical arrangements (by the EETS Provider) necessary for conducting the tests, the technical performance of the tests in cooperation with the other participants in the procedure, the collection of the necessary evidence and the preparation of the test reports. The test coordinator is required to be physically present during the tests.

- Drivers Coordinator – a member of the staff responsible for coordinating and communicating with the drivers of the vehicles to be used for the purpose of the pilot test, responsible for sending the timetable and schedule of test crossings (provided by the Agency),

Procedure for proving the interoperability with the Electronic Toll Collection System in accordance with Part II of the General Terms and Conditions

managing the connection of drivers with vehicles, monitoring the status of vehicles of the fleet and replacing vehicles with an appropriate category and characteristics of vehicles when necessary (vehicle malfunction, accidents, etc.).

- Driver – members of the staff (internal/external) responsible for complying with the specified timetable of test crossings (sent by the Drivers Coordinator) driving vehicles related to drivers before the start of the pilot test. The driver is obliged to inform the Drivers Coordinator if a situation prevents him from continuing the journey with the vehicle initially connected to the driver.

- Test Engineer – a member of the staff responsible for conducting the pilot test together with the members of the provider's staff.

The Agency should provide the necessary number of experts for the purpose of conducting the pilot test, to be designated by the Evaluation and Compliance Assessment Commission.

The required number of test team members, as well as any necessary additional roles are specified in the test specifications (Annexes 2.3 and 2.4).

6.2. Requirements for “end-to-end” integration tests

“End-to-end” integration tests shall be carried out in the test environment. The EETS Provider shall be obliged to:

- provide the necessary personnel – Test Coordinator and Test Engineer;
- prepare the test environment;
- ensure that the geolocation data used in the test are collected from the vehicle circulating on the charge republican toll road network.

In the event that some of the steps of the “end-to-end” integration tests need to be certified by both the EETS Provider and the Agency, this shall be done at the Agency's premises or those chosen by the Agency.

The detailed definition of individual test scenarios/test cases is given in Annex 2.3 to this document. After their successful completion, Stage 2 is completed, which is certified by the issuance of a Certificate of successful completion of Stage 2.

6.2. Requirements for the application “end-to-end” interoperability tests

In order to carry out the application “end-to-end” interoperability tests, the Provider shall provide a valid “end-to-end” integration successful passing test certificate.

Application “end-to-end” interoperability tests are carried out in a production environment (i.e. actual operations).

The Provider shall be obliged to:

- provide a fleet of vehicles equipped with on-board devices or GPS on-board devices (detailed classification requirements are listed in Annex 2.4);

Procedure for proving the interoperability with the Electronic Toll Collection System in accordance with Part II of the General Terms and Conditions

- provide documents for fleet vehicles (original/copy of documents) – Road vehicle registration ticket – Part 1 and, if applicable, Eco Category Certificate.
- provide the necessary personnel – Test Coordinator, Drivers Coordinator, Driver, Test Engineer;
- prepare the test environment.

As the scope of the application “end-to-end” interoperability tests is to assess readiness and efficiency, the fleet of cars shall move in the area of tolling of the Agency for a certain number of days (specified in Annex 2.4) by carrying out the specified test crossings on the toll network. These crossings must reflect different traffic conditions in order to fully assess the efficiency and readiness of the service levels

The travel scenarios cover the following:

- urban areas;
- non-urban areas;
- parallel roads;
- mountain areas.

More detailed information on the relevant test trips is provided in Annex 2.4 of this document.

The EETS Provider shall equip all fleet vehicles with an additional GPS on-board device (location device) which shall be used as further evidence of trips made within the pilot test (data from such devices shall be provided to the Agency).

In case any of the steps of the application “end-to-end” interoperability tests are to be carried out in an office, this shall be done at the premises of the Agency and/or those designated by the Agency.

The successful completion of this stage is certified by a Certificate of successful completion of Stage 3, the issuance of which is considered to have established and proved the full interoperability between the EETS Provider's technical systems and the Electronic Toll Collection System.