Description of the solution

This document describes the communication interface between the Toll Collection System (TCS) and the EETS provider's system (EETS System).

As part of communication, the following information will be exchanged:

• EETS System -> TCS

- Full list of authorized vehicles
- Incremental list of authorized vehicles

• TCS -> EETS System

- Single transaction
- Daily transaction report
- Transaction correction

Individual messages are described in detail later in this document.

1.1 Description of the process at the entrance lane

A vehicle drives up activating the detection system. The vehicle verification process begins. After correctly recognizing the registration number and confirming that it is on the List of vehicles authorized to travel from the EETS provider, the vehicle receives green light to enter the Motorway.

In any other case, when the vehicle is not automatically admitted, the driver is obliged to collect an entry ticket from the ticket dispenser.

1.2. Description of the process at the exit lane

A vehicle drives up activating the detection system. The vehicle verification process begins. After correctly recognizing the registration number, time and place of entry and confirming that it is on the List of authorized vehicles received from the EETS provider, the vehicle receives green light to exit the Motorway, the toll system calculates the toll rate and transmits the charge request to the EETS provider.

Then, the system automatically verifies the vehicle category and, in the event of a discrepancy in relation to the declared category, submits a report for verification by the staff of the Motorway Operator. If the Motorway Operator's staff confirms a different category than the declared one, the system will calculate the difference and send a request with correction. In any other case, when the vehicle is not automatically released, the driver is required to use a manually operated lane.

1.3 Communication EETS System -> TCS

This point describes the structure of information sent from the EETS System to the TCS. Communication between the parties is secured using an encrypted method of communication. In the scope of communication with the EETS System, the following information was assumed to be transmitted:

• Full list of authorized vehicles

• Incremental list of authorized vehicles

1.3.1 Full list of authorized vehicles

The full list of authorized vehicles is a document containing a list of all vehicle registration numbers registered in the service of the EETS provider. . Each registration number on the list of authorized vehicles may use the AmberOne cashless journey on the A1 Motorway employing the service of the EETS provider. Registration numbers are recognized by the TCS upon entering the motorway. In case of the lack of positive verification of the registration number, the user should use the standard payment method, i.e. collect a ticket and chose a manually processed lane on exit..

1.3.1.1 Required fields in the file 'List of authorized vehicles'

The list of authorized vehicles is a compressed text file. In the file containing the full list of authorized vehicles it is required to send the following fields:

- Vehicle registration number
- Country of vehicle registration
- Vehicle category

1.3.1.2 Input and output parameters

The list of authorized vehicles is transferred to TCS and accepts the input parameters described below.

• Input parameters

Number	**Description**
1	File title
2	List of authorized vehicles

1.3.2 Incremental list of authorized vehicles

The incremental list of authorized vehicles is a document containing a list of new or removed vehicle registration numbers, i.e. those whose registration in EETS System or removal from EETS System took place after the last list change.

1.3.2.1 Required fields in the file 'Incremental list of authorized vehicles'

The list of authorized vehicles is a compressed text file. In the file containing the full list of authorized vehicles it is required to send the following fields:

- Vehicle registration number
- Country of vehicle registration
- Vehicle category

1.4 Communication TCS-> EETS System

This point describes the structure of information sent from the TCS system to EETS System. Communication between the parties is secured by means of an encrypted method of communication. The communication of the TCS system assumes the transmission of the following information:

- Single transaction
- Transaction daily report
- Transaction correction

1.4.1 Single Transaction

A single transaction record is generated each time a vehicle whose registration number is on the List of Authorized Vehicle enters (Entry Transaction) or exits (Exit Transaction) AmberOne A1 Motorway using the AmberGO system.

• Entry transaction

The entry transaction is forwarded by the TCS to the EETS System each time a vehicle on the list of authorized vehicles is correctly identified and admitted to enter the AmberOne A1 Motorway. The following information must be provided in the input transaction:

- ID Transaction
- Identification of the toll plaza
- Identification of entry lane
- Date and time of entry
- Vehicle category
- Country and vehicle registration number

• Exit transaction

The exit transaction is forwarded by the TCS to the EETS System each time a vehicle on the list of authorized vehicles is correctly recognized and exits the AmberOne A1 Motorway. The following information must be provided in the output transaction:

- ID Transaction
- Identification of the toll plaza
- Identification of entry lane
- Date and time of entry
- Vehicle category
- Country and vehicle registration number
- Identification of exit lane
- Date and time of entry
- Net amount in PLN
- VAT rate expressed as a percentage
- Value of VAT in PLN
- Gross amount in PLN

1.4.2 Daily transaction report

The daily transaction report is generated by the TCS at the end of the day and transmitted to the EETS System via a shared FTP server. A daily report is generated regardless of its completeness. If there are missing transactions in the report for a given day, they will be sent in the report of the next day.

1.4.2.1 File structure Daily transaction report

The Daily Transaction Report requires submission of the following fields:

- ID Transaction
- Identification of the toll plaza
- Identification of entry lane
- Date and time of entry
- Vehicle category
- Country and vehicle registration number

- Identification of exit lane
- Date and time of exit
- Net amount in PLN
- VAT rate expressed as a percentage
- Value of VAT in PLN
- Gross amount in PLN
- Total number of transactions in the report
- Total transaction value in the report

1.4.3 Transaction correction

The transaction correction is transferred from the TCS system to the EETS System each time a declared vehicle category differs from the one that was identified after verification of the vehicle category. If the EETS System is updated with vehicle category updates, an additional charge or refund to the customer for an amount equal to the difference in the price of travel between categories is necessary.

1.4.3.1 Transaction correction structure

The following fields must be sent in the Transaction correction:

- ID Transaction
- ID Correction
- Identification of the toll plaza
- Identification of entry lane
- Date and time of entry
- Vehicle category
- Corrected vehicle category
- Country and vehicle registration number
- Identification of exit lane
- Date and time of exit
- Net amount in PLN
- Corrected net amount in PLN
- VAT rate expressed as a percentage
- Corrected VAT rate expressed as a percentage
- Value of VAT in PLN
- Corrected VAT value in PLN
- Gross amount in PLN
- Corrected gross amount in PLN