

RULES FOR TESTING ON-BOARD EQUIPMENT (OBE) BY MEANS OF CLOSED-ROUTE RUNNING TESTS

<p>Applicable to: Specify departments covered</p>	<p>Responsible for implementation: Position</p>
<p>Prepared by: Position, first name, surname</p>	<p>Approved by: Position, first name, surname</p>
<p>Agreed by: Position, first name, surname Position, first name, surname</p>	<p>Function: According to the function map</p>

1. PURPOSE

- 1.1. The purpose of AB Via Lietuva (hereinafter – the Company) Rules for testing on-board equipment (hereinafter – OBE) by means of closed-route running tests (hereinafter – the Rules) shall be to establish a uniform and clear procedure for the approval of electronic road toll devices installed in vehicles for use in Lithuania with a view to ensuring high data quality, security and interoperability with the electronic road toll system “Via Toll” and to create preconditions for involvement of private service providers.
- 1.2. These Rules establish the procedure of testing the on-board equipment by conducting the closed-route running tests. The verification procedure for geolocation data collected during the closed-route tests shall be carried out in a dedicated OBE Certification Environment, integrated in the EETS certification environment.
- 1.3. The requirements set forth in these Rules shall apply to on-board equipment available on the market the minimum parameters of which are specified in Annex 1.
- 1.4. The requirements set out in these Rules may apply to legal persons who intend to provide the services of collection, transmission and processing of vehicle location data required for the calculation of tolls.
- 1.5. For the purposes these Rules the following legal acts shall apply:
 - 1.5.1. the Republic of Lithuania Law on Roads;
 - 1.5.2. the Republic of Lithuania Law on the Financing of the Road Maintenance and Development Programme;
 - 1.5.3. Directive (EU) 2019/520 of the European Parliament and of the Council on the interoperability of electronic road toll systems, which facilitates the cross-border exchange of information on cases of non-payment of road tolls within the Union.
- 1.6. The documents on the Electronic Road Toll System applicable under these Rules:
 - 1.6.1. The EETS Integration Guide;
 - 1.6.2. The OBE Certification Guide.

2. TERMS, ABBREVIATIONS AND DEFINITIONS

- 2.1. Terms, abbreviations and definitions used in the Rules:

Term, abbreviation	Definition
EETS provider	An entity which grants access to EETS to an EETS user under a separate contract, transfers tolls to the relevant toll collector and is registered in the EU Member State of its establishment.
EETS domain	A road, a road network, a structure such as a bridge or a tunnel, or ferry, where road fees are collected using an electronic toll collection system.
Electronic Road Toll System	A toll collection system in which the obligation, for the user, to pay the toll is exclusively triggered by and linked to the automatic detection of the presence of the vehicle in a certain location through remote communication with OBE in the vehicle.
European Electronic Toll Service (EETS)	A service that enables users to use a vehicle in one or more EETS domains under a single contract.
GNSS	Global Navigation Satellite System.
Toll service provider	A legal entity providing toll services on one or more EETS domains for one or more classes of vehicles.

4. INTEGRATION WITH EETS CERTIFICATION ENVIRONMENT OF THE ELECTRONIC ROAD TOLL SYSTEM “VIA TOLL”

4.1. Integration of OBE operators or EETS providers in EETS certification environment – to verify data transmission functionality in accordance with requirements set out in “Via Toll” electronic road toll system documents – EETS Integration Guide and OBE Certification Guide (sections 1.6.1 and 1.6.2), which consists of two stages:

4.1.1. integration of OBE operators or EETS providers in EETS certification environment of the Electronic Road Toll System “Via Toll”;

4.1.2. verification of data received from OBE in OBE Certification Environment integrated in EETS Certification Environment. This stage shall be carried out by analysing the data received after the closed-route running tests.

5. CLOSED-ROUTE RUNNING TESTS

5.1. The purpose of closed-route running tests shall be to verify the accuracy of events recorded by OBE that occurred during the closed-route running test.

5.2. Closed-route running tests shall be carried out on one of the three test routes located within the territory of the Republic of Lithuania (Fig. 2); the map can be accessed by clicking on the link: [‘E-toll maps’ – ‘Google My Maps’](#)



Fig. 2. Test routes for the full-cycle running test

5.3. Each of the three test routes shall be a closed, i.e. the entire route shall be run in a loop in the direction of traffic flow.

5.4. Closed route tests shall be conducted on one of the three test routes, with the entire route covered at least twice.

- 5.5. Closed route running tests on the running section shall be carried out by OBE suppliers or OBE operators, or EETS providers.
- 5.6. There may be up to two OBE of different types in one vehicle, with up to three units of each type, making a total of six OBE units (three units of each of the two different types of OBE).
- 5.7. The vehicle must be equipped with OBE that meet the minimum parameters specified in Annex No 1.
- 5.8. Procedure for running the closed-route test on the test route:
- 5.8.1. OBE must be switched on, connected to a power source and have the GNSS signal before starting to move along the test route.
- 5.8.2. It shall be recommended to start the closed-route test at the beginning of the test route and to finish it at the end of the test route. A closed-route running test may be started at any point on the test route, but it must be finished at the same point.
- 5.8.3. Closed-route tests shall be carried out on a toll road, a non-toll road and by stopping at a designated rest area.
- 5.8.4. The duration of the stop at the rest area shall be 30 minutes.
- 5.8.5. During one of the two stops at the rest area in the closed-route test, OBE must be switched on.
- 5.8.6. During one of the two closed-route running tests, OBE must be switched off during stops at the rest area. OBE shall be switched off once the vehicle has come to a complete stop. After 30 minutes of standing, OBE shall be switched on and, once it is confirmed that the devices have a GNSS signal, the closed-route running test shall be resumed.
- 5.8.7. After completing the closed-route running tests, a form provided for in Annex No 2 shall be filled in for each run.
- 5.8.8. Test routes may be adjusted in the event of road repair works on the specified routes.
- 5.9. Test routes for closed-route running tests:
- 5.9.1. Route No 1. Klaipėda – Kryžkalnis – Klaipėda (Fig. 3), length – 203 km.



Fig. 3. Closed-route running test Route No 1

Start / end of the Route:

Jakai roundabout

Route description:

1) At Jakai roundabout, take the toll-free slip road in Vilnius direction and continue until entering the toll road A1 Vilnius–Kaunas–Klaipėda;

- 2) the route shall continue along the toll road A1 Vilnius–Kaunas–Klaipėda to one-level intersection with Road 228 Dauparai–Gargždai–Vėžaičiai;
- 3) at the intersection, exit the toll road A1 Vilnius-Kaunas-Klaipėda and enter the non-toll road 228 Dauparai–Gargždai–Vėžaičiai;
- 4) follow the route along the whole toll-free road 228 Dauparai–Gargždai–Vėžaičiai to the two-level intersection with road A1 Vilnius-Kaunas-Klaipėda;
- 5) at the junction, exit the toll-free road 228 Dauparai–Gargždai–Vėžaičiai onto the toll-free slip road and continue by entering the toll road A1 Vilnius-Kaunas-Klaipėda in the direction of Vilnius;
- 6) proceed along the route on the toll road A1 Vilnius-Kaunas-Klaipėda to the two-level intersection of Kryžkalnis (the two-level intersection of roads A1 Vilnius-Kaunas-Klaipėda and A12 Riga*–Šiauliai–Tauragė–Kaliningrad*);
- 7) at Kryžkalnis intersection, take the exit from the toll road A1 Vilnius-Kaunas-Klaipėda onto the toll-free slip road in the direction of Šiauliai and proceed to the roundabout;
- 8) at the roundabout, take the second exit and proceed along the toll-free road towards the toll road A1 Vilnius-Kaunas-Klaipėda in the direction of Klaipėda;
- 9) continue the route along the toll road A1 Vilnius-Kaunas-Klaipėda to the two-level junction with road 4516 Skaudvilė–Bijotai–Karyznos;
- 10) at the junction, exit the toll road A1 Vilnius-Kaunas-Klaipėda onto the toll-free slip road until the entrance to the petrol station – the parking area for heavy-duty vehicles on the right-hand side of the road;
- 11) choose the entry to the petrol station – the parking area for heavy-duty vehicles and take a stop there;
- 12) after stopping, the continue the route by exiting the parking area onto the toll-free slip road towards the toll road A1 Vilnius-Kaunas-Klaipėda in the direction of Klaipėda;
- 13) continue the route continues along the toll road A1 Vilnius-Kaunas-Klaipėda to the two-level intersection with road 228 Dauparai–Gargždai–Vėžaičiai;
- 14) at the intersection, exit the toll road A1 Vilnius-Kaunas-Klaipėda onto the non-toll slip road and continue along the toll road 166 Plungė–Vėžaičiai in the direction of Gargždai;
- 15) from the toll road 166 Plungė–Vėžaičiai, enter the non-toll road 228 Dauparai–Gargždai–Vėžaičiai;
- 16) continue the route along the toll-free road 228 Dauparai–Gargždai–Vėžaičiai to the one-level intersection with road 2210 Eglynai–Dauparai;
- 17) turn right at the intersection and proceed along the toll-free road 2210 Eglynai–Dauparai;
- 18) continue the route along the toll-free road 2210 Eglynai–Dauparai to the two-level intersection with the road A1 Vilnius–Kaunas–Klaipėda;
- 19) at the junction, exit the toll-free road 2210 Eglynai–Dauparai onto the toll-free slip road and continue by entering the toll road A1 Vilnius-Kaunas-Klaipėda in the direction of Klaipėda;
- 20) continue the route along the toll road A1 Vilnius-Kaunas-Klaipėda to Jakai roundabout;
- 21) at the roundabout, exit the toll road A1 Vilnius-Kaunas-Klaipėda onto the toll-free slip road towards the Jakų roundabout;
- 22) exit the toll-free slip road to enter Jakai roundabout.

5.9.2. Route No 2. Panevėžys – Raubonys – Panevėžys (Fig. 4), length – 128 km.



Fig. 4. Closed-route running test Route No 2.

Start / end of the Route:

A two-level intersection of the roads A2 Vilnius–Panevėžys, A8 Panevėžys–Aristava–Sitkūnai and A17 Panevėžys bypass.

Route description:

- 1) At the two-level junction, take the toll road A17 Panevėžys bypass in the direction of Riga. Continue the route along the entire toll road A17 Panevėžys bypass to the roundabout with the toll road A10 Panevėžys–Pasvalys–Riga*;
- 2) at the roundabout, take the third exit and continue on the toll road A10 Panevėžys–Pasvalys–Riga* towards Riga;
- 3) continue the route along the toll road A10 Panevėžys–Pasvalys–Riga* to the one-level intersection with road 3014 Gegužinė–Puodžiūnai–Sereikoniai;
- 4) at the intersection, turn right from the toll road A10 Panevėžys–Pasvalys–Riga* to the non-toll road 3014 Gegužinė–Puodžiūnai–Sereikoniai;
- 5) continue the route along the entire toll-free road 3014 Gegužinė–Puodžiūnai–Sereikoniai to the intersection with road A10 Panevėžys–Pasvalys–Riga*, then turn right and join the toll road A10 Panevėžys–Pasvalys–Riga* in the direction of Riga;
- 6) continues the route along the toll road A10 Panevėžys–Pasvalys–Riga* to the one-level intersection with road 125 Biržai–Raubonys;

- 7) at the one-level intersection, exit onto the toll-free slip road and continue to the toll road 125 Biržai–Raubonys;
- 8) continue the route along the toll road 125 Biržai–Raubonys until the entrance to the petrol station – the parking area for heavy-duty vehicles on the left-hand side of the road.
- 9) turn to the petrol station – the parking area for heavy-duty vehicles and take a stop;
- 10) after the stop, the continue the route by exiting the parking area onto the toll road A10 Panevėžys–Pasvalys–Riga* in the direction of Panevėžys;
- 11) continues the route along the toll road A10 Panevėžys–Pasvalys–Riga* to the one-level intersection with road 3021 Gegužinė–Pajstrys–Stanioniai;
- 12) at the intersection, turn right off the toll road A10 Panevėžys–Pasvalys–Riga* onto the non-toll road 3021 Gegužinė–Pajstrys–Stanioniai;
- 13) continue the route along the entire toll-free road 3021 Gegužinė–Pajstrys–Stanioniai to the intersection with road A10 Panevėžys–Pasvalys–Riga*, turn right and join the toll road A10 Panevėžys–Pasvalys–Riga* in the direction of Panevėžys;
- 14) continue the route along the toll road A10 Panevėžys–Pasvalys–Riga* to the roundabout with the road A17 Panevėžys bypass.
- 15) Before this roundabout, exit the toll road A10 Panevėžys–Pasvalys–Riga* onto the non-toll slip road and proceed by joining the toll road A17 Panevėžys bypass;
- 16) continue the route along the toll road A17 Panevėžys Bypass to the two-level intersection of the roads A2 Vilnius–Panevėžys, A8 Panevėžys–Aristava–Sitkūnai and A17 Panevėžys bypass.

5.9.3. Route No 3. Garliava – Polish-Lithuanian border – Garliava (Fig. 5), length – 168 km.

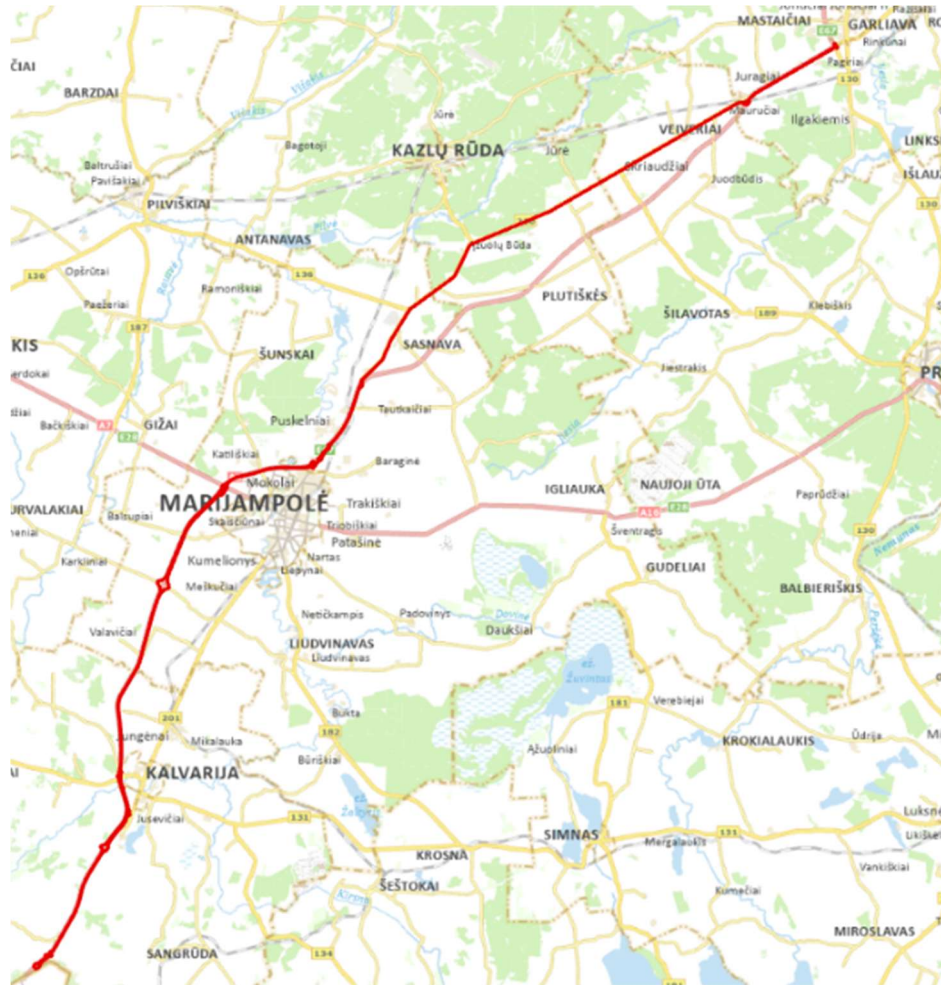


Fig. 5. Closed-route running test Route No 3.

Start/end of the Route:

Garliava intersection (two-level intersection of roads A5 Kaunas–Marijampolė–Suvalkai* and 130 Kaunas–Prienai–Alytus).

Route description:

- 1) at Garliava intersection, take the toll road A5 Kaunas–Marijampolė–Suvalkai* towards Marijampolė until Mauručiai intersection (a two-level intersection of roads A5 Kaunas–Marijampolė–Suvalkai* and 230 Mauručiai–Vinčiai–Puskelniai);
- 2) at Mauručiai intersection, exit the toll road A5 Kaunas–Marijampolė–Suvalkai* onto the toll-free slip road and continue to the roundabout with the toll-free road 230 Mauručiai–Vinčiai–Puskelniai;
- 3) continue the route along the toll-free road 230 Mauručiai–Vinčiai–Puskelniai and enter the toll-free slip road. From the slip road, proceed onto the toll road A5 Kaunas–Marijampolė–Suvalkai* in the direction of Marijampolė;
- 4) continue the route along the toll road A5 Kaunas–Marijampolė–Suvalkai* to Puskelniai intersection (a two-level intersection of the road A5 Kaunas–Marijampolė–Suvalkai* and the local road (Ramunės g., Vienkiemių g.));
- 5) at Puskelniai intersection, exit the toll road A5 Kaunas–Marijampolė–Suvalkai* onto the toll-free slip road in the direction of Marijampolė;

- 6) continue the route along the toll-free slip road towards Marijampolė to the roundabout; at the roundabout, take the third exit and continue along the toll-free road to the next roundabout;
- 7) at the roundabout, take the first exit; continue the route along the toll-free road to the next roundabout and take the second exit; proceed along the toll-free road onto the toll road A5 Kaunas–Marijampolė–Suvalkai* in the direction of the Polish-Lithuanian border;
- 8) continue the route along the toll road A5 Kaunas–Marijampolė–Suvalkai* to Pakusinė viaduct – the two-level intersection with the road A7 Marijampolė–Kybartai–Kaliningrad*;
- 9) at the two-level intersection with the road A7 Marijampolė–Kybartai–Kaliningrad*, exit the toll road A5 Kaunas–Marijampolė–Suvalkai* onto the toll-free slip road and proceed to the roundabout with the district road 5122 Ožkabaliai–Turgalaukis–Liudvinavas;
- 10) at the roundabout, take the third exit and continue along the toll-free slip road until entry to the toll road A5 Kaunas–Marijampolė–Suvalkai* in the direction of the Polish-Lithuanian border;
- 11) continue along the toll road A5 Kaunas–Marijampolė–Suvalkai* to the two-level intersection with the road 200 Kalvarija–Gražiškiai–Vištytis;
- 12) at the two-level junction with the road 200 Kalvarija–Gražiškiai–Vištytis, exit the toll road A5 Kaunas–Marijampolė–Suvalkai* onto the non-toll slip road;
- 13) continue the route along the toll-free slip road to the roundabout and take the second exit;
- 14) after leaving the roundabout, continue the route along the toll-free slip road to the roundabout with road 200 Kalvarija–Gražiškiai–Vištytis, where the second exit is taken;
- 15) after exiting the roundabout, continue the route along the toll-free slip road to the roundabout and take the second exit towards the toll road A5 Kaunas–Marijampolė–Suvalkai* in the direction of the Polish-Lithuanian border;
- 16) after exiting the roundabout, proceed along the toll-free slip road until entering the toll road A5 Kaunas–Marijampolė–Suvalkai* in the direction of the Polish-Lithuanian border;
- 17) continue along the toll road A5 Kaunas–Marijampolė–Suvalkai* until the exit towards Pasiekos settlement;
- 18) exit the toll road A5 Kaunas–Marijampolė–Suvalkai* onto the toll-free slip road, proceed to the roundabout and take the second exit;
- 19) after leaving the roundabout, continue the route along the toll-free slip road; after passing the viaduct, turn right at the intersection and, at the next intersection, turn right towards the viaduct;
- 20) after passing the viaduct, turn left at the intersection towards the roundabout and use the third exit;
- 21) the route continues along the toll-free slip road to the roundabout, where the third exit towards the viaduct is taken;
- 22) continues the route along the toll-free slip road from the viaduct to the roundabout and take the second exit onto the slip road;
- 23) continues the route to the intersection described in point 19, turn left and at the next intersection turn right towards the viaduct;
- 24) after passing the viaduct, turn left at the intersection towards the roundabout and take the second exit, then continue the route along the toll-free slip road until entering the toll road A5 Kaunas–Marijampolė–Suvalkai* in the direction of Kaunas;
- 25) continue along the toll road A5 Kaunas–Marijampolė–Suvalkai* to the exit at the two-level intersection in the direction of Naujienėlė settlement;
- 26) exit the toll road A5 Kaunas–Marijampolė–Suvalkai* onto the non-toll slip road, go to the roundabout and take the third exit;

- 27) after exiting the roundabout, continue the route along the toll-free slip road to the roundabout with road 201 Marijampolė–Kalvarija, take the third exit and proceed along the slip road to the next roundabout;
- 28) at the roundabout, take the third exit and continue along the toll-free slip road to the next roundabout;
- 29) at the roundabout, take the fourth exit and continue along the toll-free slip road until joining the toll road A5 Kaunas–Marijampolė–Suvalkai* in the direction of Kaunas;
- 30) continue the route along the toll road A5 Kaunas–Marijampolė–Suvalkai* to the two-level intersection with road 5122 Ožkabalai–Turgalaukis–Liudvinavas;
- 31) at the two-level intersection with road 5122 Ožkabalai–Turgalaukis–Liudvinavas, exit the toll road A5 Kaunas–Marijampolė–Suvalkai* onto the toll-free slip road, proceed to the roundabout with the district road 5122 Ožkabalai–Turgalaukis–Liudvinavas and take the third exit;
- 32) after exiting the roundabout, continue the route along the toll-free slip road to the roundabout and take the first exit;
- 33) after exiting the roundabout, continue the route along the toll-free slip road to the roundabout and take the first exit;
- 34) after exiting the roundabout, enter the parking area and stop. In the parking area, select any available parking space for heavy-duty or light-duty vehicles;
- 35) after stopping, continue the route by exiting the parking area via the toll-free slip road and take the third exit at the roundabout with the road A7 Marijampolė–Kybartai–Kaliningrad*;
- 36) after exiting the roundabout, continue the route along the toll-free slip road until entering the toll road A5 Kaunas–Marijampolė–Suvalkai* in the direction of Kaunas;
- 37) continue the route along the toll road A5 Kaunas–Marijampolė–Suvalkai* to the two-level intersection in the direction of Marijampolė;
- 38) exit the toll road A5 Kaunas–Marijampolė–Suvalkai* onto the non-toll slip road and proceed to the roundabout, take the second exit there and proceed to the next roundabout;
- 39) at the roundabout, take the third exit, continue along the toll-free slip road to the next roundabout and take the first exit there;
- 40) after exiting the roundabout, continue the route along a toll-free slip road to the three-way intersection and turn left;
- 41) continue the route along the toll-free slip road until entering the toll road A5 Kaunas–Marijampolė–Suvalkai* in the direction of Kaunas;
- 42) continue the route along the toll road A5 Kaunas–Marijampolė–Suvalkai* to the two-level intersection with road 230 Mauručiai–Vinčiai–Puskelniai;
- 43) exit the toll road A5 Kaunas–Marijampolė–Suvalkai* onto the toll-free slip road, continue to the roundabout, take the first exit and proceed to the next roundabout;
- 44) at the roundabout, take the first exit, continue along the entire toll-free road 230 Mauručiai–Vinčiai–Puskelniai, take the second exit at the roundabout and enter the toll-free slip road;
- 45) continue the route along the toll-free slip road until entering the toll road A5 Kaunas–Marijampolė–Suvalkai* in the direction of Kaunas;
- 46) continue the route along the toll road A5 Kaunas–Marijampolė–Suvalkai* to Garliava intersection.

6. RESULTS

- 6.1. The test result will be positive if the geolocation data sent by each device tested in the OBE certification environment does not deviate from the test route and entries and exits to/from the toll road section are correctly recorded.
- 6.2. The test result will be negative if the geolocation data sent by each device tested in the Electronic Road Tolling test environment deviate from the test route, or if it is recorded that the devices collected geolocation data at intervals longer than 5 seconds or that data transmission took place at intervals longer than 60 seconds.

7. TESTS AFTER OBE MODIFICATION

- 7.1. When OBE operators or EETS providers make OBE modifications relating to the extension of the existing functions that do not affect the accuracy of geolocation determination or data transmission to the Electronic Road Tolling System, then in order to obtain authorisation to use the modified OBE, the OBE operators or EETS providers may use a shortened testing procedure:

7.1.1. Verification of the OBE connection with the Electronic Road Toll System;

7.1.2. Test runs on any test route, comprising two runs of at least 50 km, including stops.

7.1.3. The OBE modifications referred to in point 7.1 shall be:

- 1) user interface improvements;
- 2) additional reporting functions;
- 3) internal optimisations of the programme code that do not affect data generation or transmission;
- 4) extension of diagnostic or monitoring functions.

7.2. Following any substantial changes to the OBE software or hardware, closed-route running tests shall be performed again.

7.2.1.7.1.3. The OBE modifications referred to in point 7.2 shall be:

- 1) changes to the GNSS module or its algorithms;
- 2) change of data transmission protocols or communication modules;
- 3) change of hardware components affecting data generation.

8. FINAL PROVISIONS

8.1. The Rules / Instruction and amendments shall be approved by the function owner.

8.2. The Rules / Instruction shall be reviewed in accordance with the procedure established by the Document Management Operations Manual.

8.3. The department of the document owner shall be responsible for reviewing the Rules / Instruction, initiating updates and coordinating them with other departments.

9. ANNEXES

Annex 1. Technical requirements for equipment installed in vehicles.

Annex 2. Form for closed-route running test on the test route.