MINISTERIO
DEL INTERIOR

DGT
Dirección General de Tráfico

Subject: Framework Programme for Safety Assessment and Technology of Automated Vehicles (**ES-AV Programme**)
Authorisation of testing of automated vehicles on roads open to general traffic

INSTRUCTION VEH 2025/07

Automated driving systems embedded in vehicles are rapidly evolving, posing challenges and opportunities for the improvement of the transport system and road safety. These present a great opportunity as they contribute to improved safety, security, reliability, comfort and accessibility, as well as boost EU leadership in services and in the manufacture of transport equipment. The European Sustainable and Smart Mobility Strategy[1], published in December 2020, highlighted the importance of automation as an indispensable driver for modernising the whole system, improving global competitiveness through efficient logistics chains and achieving the EU's Vision Zero[2] on road fatalities and serious injuries by 2050.

The recent EU Industrial Action Plan for the automotive sector[3] identifies as a priority the promotion of automated vehicles by developing a roadmap including, inter alia, working with Member States to establish, from 2026, large-scale cross-border test beds, regulatory testing environments and European automated driving corridors.

In this context, Spain should consolidate itself as a reference country in Europe for the deployment of automated vehicles. Starting in 2015, with the publication of first testing regime for automated vehicles (Instruction 15/V-113), Spain was a pioneer in promoting the development of tests on automated technologies. Subsequently, in 2022, Instruction VEH 2022/07 was published introducing some new elements in regard to technology verification.

Royal Legislative Decree 6/2015 of 30 October 2015 approving the Law on Traffic, Motor Vehicle Traffic and Road Safety gives the Ministry of the Interior the power to determine the traffic and road safety rules that vehicles equipped with an automated driving system must comply with (Article 5(u)). Besides, Article 12(j) of Royal Decree 207/2024 of 27 February 2007, which implements the basic organisational structure of the Ministry of the Interior, confers on the Directorate-General for Traffic, through the Subdirectorate-General for Mobility Management and Technology, the development of automated vehicles technology.

On this basis, the existing framework, both Instruction VEH 2022/07 and the overarching provisions for conducting tests provided for in Article 44 of the General Regulation on Vehicles, approved by Royal Decree 2822/1998 of 23 December, require an update to address the growing technological evolution, the needs of the industry and the harmonisation with the European Commission's[4] guides, as well as to ensure appropriate legal certainty, and to support the correct definition of public policies and regulations, considering the emergence of mobility services associated with fully automated vehicles or remotely driven vehicles.

To reflect this current picture, this instruction is established to complement and deepen monitoring, regulatory, research and transparency efforts, as well as to support innovation and progress in technology and the automotive industry. The framework is also aimed at realising the opportunity to make Spain a pioneering and

[1] Communication from the Commission: European strategy for sustainable and smart mobility
[2] Vision Zero: Zero road fatalities in Europe by 2050
[3] Industrial Action Plan for the European automotive sector
[4] Interpretation of EU Regulation 2022/1426 on the Type Approval of Automated Driving Systems

leading space in the field of automated vehicle technology, also trying to provide solutions to help overcome or alleviate certain shortcomings or externalities of the current transport system.

Consequently, this Instruction approving the Framework Programme for Safety Assessment and Technology of Automated Vehicles (ES-AV Programme) is published as a regulatory framework for automated vehicles testing on roads open to general traffic (covered by Royal Legislative Decree 6/2015) will be authorised and supervised.

This instruction shall enter into force on the day following that of its publication.

Instruction VEH 2022/07 and Guideline MOV 2023/13 of the Directorate-General for Traffic are hereby repealed.

The Director-General for Traffic, Pere Navarro Olivella.

FRAMEWORK PROGRAMME ES-AV

SAFETY ASSESSMENT AND TECHNOLOGY OF AUTOMATED VEHICLES

CODE FOR AUTOMATED VEHICLES TESTING

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CONTENT

SECTION 1. OBJECT

1.1. The Framework Programme for Safety Assessment and Technology of Automated Vehicles (hereinafter ES-AV) establishes a national code for testing and operations with automated vehicles or remotely driven vehicles that intend to operate at any stage before they are put into service on public roads in Spain (from prototypes to pre-approval), with the aim of advancing the definition of safe deployment and certification policy, and improving public transparency related to the safety of automated vehicles, while enabling the responsible development of this technology.

1.2. **Three test phases are identified in the programme** based on technological maturity and the scope of operations, including: (I) a controlled testing phase relating to initial stadiums or testing in controlled domains; (II) an extensive phase corresponding to intermediate situations of development or promotion of technological maturity, and extension of operating domains; and (iii) a pre-deployment phase prior to the entry into service of the vehicle or system. It is up to each applicant to indicate the stage at which they wish to participate in the programme according to the specific technological development and tehir plans for testing. A number of minimum eligibility requirements are set at each stage.

1.3. **Three access schemes to the programme and its phases** are established in relation to the procedure for verification and certification of the safety of vehicles and their systems in order to **obtain authorisation to carry out the tests**: (I) the first, based on a technological verification process by an independent evaluator; (II) the second, linked to the recognition of another authorisation issued by another Member State of the European Economic Area; and (iii) the third, exceptional, linked to the recognition of tests carried out in third countries.

1.4. Vehicle manufacturers, their legal representatives, bodies, importers or distributors of motor vehicles for any of these activities, as well as official laboratories or technical services, developers of automated driving systems, fleet operators and system integrators, may carry out tests under the ES-AV programme.

1.5. The ES-AV programme includes procedures for participation, public reporting and programme administration. It identifies content requirements for applications, including independent assessments, safety use cases and compliance with industry standards. The proposal also contains reporting requirements for participants, including periodic, final and post-incident reports.

1.6. The ES-AV programme is designed to complement research objectives in support of future regulatory efforts in both type-approval and safe deployment. Given the current state of technology, some safety metrics are new or developing. This programme would therefore make it possible to consider the effectiveness of such metrics to assess the safety of these vehicles, exploring their value in improving road safety and traffic, and to serve as a basis for identifying data elements that could form effective monitoring tools or be integrated into future national and European sectoral rules. To this end, the results would also provide the Directorate-General for Traffic (DGT) with high-quality information on the development and operations of the technology as it continues to evolve, with a view to updating the process of admitting automated vehicles or remotely driven vehicles to traffic, strengthening Spain's positioning as an attractive hub for this technology in Europe.

1.7. The authorisation process for the operation of these vehicles complements the traditional process of testing on public roads regulated in Article 44 of the General Vehicle Regulation, from a more ambitious perspective, incorporating corresponding adjustments, focusing on the whole range of processes and projects in both their material and technological fields, favouring the spectrum of possibilities for testing. Similarly, it goes beyond and repeals Instruction VEH 2022/07, establishing a more realistic code that is more conducive to initiatives and adapted to the needs of the industry.

1.8. In addition, this programme is intended to be a point of knowledge exchange that fosters innovation and technological developments, not only between administrations and developers or manufacturers, but also between technology developers themselves, thus enabling cooperation between industry and improving information, both of which are essential for safe deployment, especially in Spain and throughout the European Union.

1.9. DGT considers that companies that strive to develop and implement robust security practices will understand that participation in the ES-AV programme implies a public commitment to safety, transparency and continuous improvement of its operations. Public confidence is often difficult to establish for the circulation of such vehicles, particularly as incidents in which they might be involved receive significant negative attention. Within this climate, some entities may see ES-AV as an opportunity to demonstrate their commitment to transparency and willingness to subject their security decision-making to external scrutiny. In this regard, DGT considers as a priority to regularly publish on its website the basic data of the entities and programme participants, together with basic details on the scope and status of each operation. This programme aims to increase public confidence, awareness and understanding of the operations of these vehicles on public roads.

1.10. The authorising decision issued under this programme covers any stage of operation of the automated vehicle or remotely driven, including those which, prior to the autonomous mode operation, are carried out in conventional driving mode for the purpose of collecting the necessary data for the subsequent autonomous mode operation.

SECTION 2. DEFINITIONS

2.1. For the purposes of this programme, the following definitions are adopted:

a) 'Applicant entity: actors eligible to participate in the Programme may be vehicle manufacturers, their legal representatives, bodywork, importers, vehicle distributors, official laboratories, developers of automated driving systems and fleet operators. The requesting entity shall be responsible for ensuring compliance with traffic rules and other legislation applicable to the operation.

b) "Manufacturer"; 'manufacturer's representative' and 'importer' and 'distributor': they shall take the definition given in Regulation (EU) 2018/858.

c) 'System developer': the entity that is primarily responsible for manufacturing the ADS at system level, including but not limited to its design, development and testing.

d) 'Fleet operator': the person or entity exercising all or part of the operational control over the ADS installed in a vehicle or group of vehicles.

e) 'System integrator': entity responsible for the integration of an ADS at vehicle level. For example, an ADS that was developed for use on various vehicle platforms could be integrated into a given vehicle and validated for such vehicle integration by an entity that is not considered a manufacturer, developer or fleet operator.

f) "Fully automated vehicle": A vehicle equipped with an automated driving system and certified to move, within a predefined operational environment of use, autonomously without supervision by a person.

g) 'Automated driving system' (ADS): the hardware and software that are collectively capable of performing the entire DDT task on a continuous basis in a specific operational environment domain.

h) 'Operational Use Environment' (ODD): operating conditions under which it is specifically designed to operate a given ADS, including but not limited to environmental, geographical and time of day

restrictions, or the requirement of presence or absence of certain traffic or road characteristics.

i) ‘Dynamic Driving Tasks (DDT)’: all real-time operational functions and tactical functions necessary for vehicle operation, excluding strategic functions such as trip scheduling and selection of destinations and route points, including but not limited to the following sub-tasks:

   1. lateral vehicle motion control via steering (operational);
   2. longitudinal vehicle motion control via acceleration and deceleration (operational);
   3. monitoring the driving environment via object and event detection, recognition, classification, and response preparation (operational and tactical);
   4. object and event response execution (operational and tactical);
   5. manoeuvre planning (tactical);
   6. enhancing conspicuity via lighting, sounding the horn, signalling, gesturing, etc. (tactical).

j) ‘Event data recorder’: a system designed exclusively to record and store critical collision-related parameters and information shortly before, during and immediately after a collision.

k) ‘DDT fallback’: User’s or ADS response to perform the DDT or achieve a minimal risk condition after the occurrence of a system failure relevant to the performance of the DDT or when exiting ODD.

l) ‘Minimum risk manoeuvre (MRM)’: manoeuvre aimed at minimising traffic risks by stopping the vehicle safely (i.e. under minimal risk conditions).

m) ‘On-board security operator’: person inside the vehicle occupying the driver’s seat who shall be responsible for monitoring the correct operation of the vehicle and take control in the event of an emergency or when required by the system.

n) ‘Remote security operator’: where relevant to the ADS safety concept, the person (s) outside the fully automated vehicle who can remotely perform the tasks of the on-board operator, provided that it is safe to do so. This operator shall not drive the fully automated vehicle and the ADS shall continue to perform the dynamic driving task.

o) ‘Remote driving’: continuous and permanent driving of a motor vehicle when the driver is not on board.

p) ‘Remote driver’ means: the driver who conducts remote driving.

SECTION 3. ACCESS TO AND AUTHORISATION SYSTEMS

GENERAL CONDITIONS

3.1. Access to the ES-AV Programme shall require upon request accompanied by the documentation and information referred to in Section 7.

3.2. Several **systems for access to the ES-AV programme,** and subsequent authorisation, are established in relation to the procedure for verification and certification of the safety of vehicles and their systems:

a. **Third-Party Assessment System:** access and authorisation by means of independent technical evaluation based either on the procedure set out in Appendix 4 to this programme, or on the procedure set out in the European Union Guide to the Testing of Automated Vehicles.

b. **EEA Recognition System:** access and authorisation by recognition of the authorisation issued by any State of the European Economic Area, provided that the tests, operations and vehicles covered by that authorisation are similar to those presented in Spain, without prejudice to the submission of the application, data on the operational environment, operators and vehicles, results of tests already carried out or other documentation that may be required.

c. **Special System**, of an exceptional nature and based on: (I) provision of information and data on actual security metrics of operations carried out in any European Economic Area State or in third countries; and, (ii) assessment of the safety of the vehicle and its systems by any of the procedures referred to above or, exceptionally, by means of a self-declaration scheme or by the recognition of an authorisation issued by a third country.

Third countries shall be contracting parties to the United Nations Convention on Road Traffic (Geneva 1949 or Vienna 1968) and must have similar conditions to those of Spain as regards the quality of road infrastructure and its signalling, levels of traffic flows and road safety index.

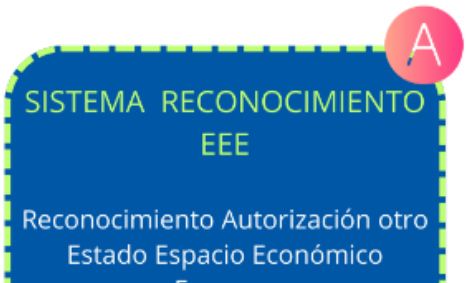
The operations, tests and vehicles presented as evidence will be similar to those presented in Spain.

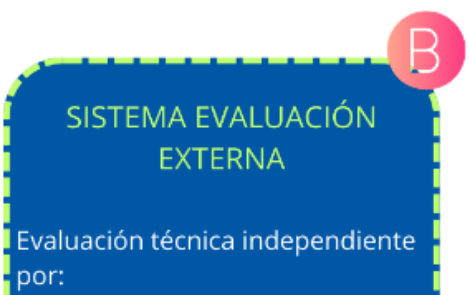
3.3. The applicant entity may opt for any of these systems to access the ES-AV Programme and obtain the subsequent authorisation taking into account that the systems in points (a) and (b) of the previous point may be used in any case. However, the special access system (point (c) above) is restricted to operations in phase 2 and phase 3, exclusively for those projects that have a significant impact on the transport system and on the Spanish positioning in this field.

3.4. The Directorate-General for Traffic will analyse the characteristics of the operations of each application and will accept their participation in the Programme, taking into account not only the above, but also the scope and impact of the operations, their link with the objectives of improving road safety and mobility, as well as promoting the development of regulations, public policies and their social impact.

3.5. If an application is not eligible, the Directorate-General for Traffic may refer the applicant entity to the general procedure laid down in Article 44 of the General Vehicle Regulation.

3.6. The applicant must conclude and maintain in force a **compulsory motor vehicle insurance contract and civil liability in respect of any damage caused to** persons or property in connection with traffic on roads open to traffic in general, amounting to five million euros (EUR 5.000.000) for operations in phase 1 and ten million euros (EUR 10.000.000) for operations in phases 2 and 3.





SUBSECTION 3.1 ENTITIES

3.7. The entities eligible to participate in the Programme shall be vehicle manufacturers, their legal representatives, bodies, importers or distributors of motor vehicles with an establishment open in Spain

for any of these activities, as well as official laboratories, automotive technology centres, automated vehicle technology recognition centres, driving automation system developers, fleet operators and system integrators with an open establishment in the European Economic Area (EEA).

3.8. The same entity can play the role of several entities. For example, some vehicle manufacturers are responsible for the development and integration of the vehicle driving system and many developers carry out fleet operations for their own vehicles. However, when one or more of these entities are separated, their collective contributions are critical for the functioning of a vehicle system. Therefore, the case of an association of entities as an applicant consortium is permissible.

3.9. In any event, in relation to the provisions of the previous point, the participation of one of these entities is mandatory: vehicle manufacturer, system developer, fleet operator or system integrator.

SUBSECTION 3.2 VEHICLES

3.10. Vehicles shall belong to categories M and N as defined in Regulation (EU) 2018/858 of the European Parliament and of the Council of 30 May 2018 on the approval and market surveillance of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles, amending Regulations (EC) 715/2007 and (EC) 595/2009 and repealing Directive 2007/46/EC, and category L as defined in Regulation (EU) No 168/2013 of the European Parliament and of the Council of 15 January 2013 on the approval and market surveillance of two- or three-wheel vehicles and quadricycles. It shall also apply to any other category which may be defined by UN regulation or which may be categorised by internal regulations of the Directorate-General for Traffic under this programme.

3.11. Vehicles intending to operate under this programme shall be equipped with a system which, under their intended design, allows one of these functionalities (without prejudice to the requirement of an on-board or remote safety operator during operations either by design or as a condition of authorisation):

a. assist a driver in controlling the longitudinal and lateral movement of the vehicle continuously, but for which the driver is required to carry out ongoing supervision.

b. move autonomously for certain periods of time without continuous supervision by a person, but in respect of which his/her intervention is still expected or needed to complete his/her journey.

c. move autonomously without the need for supervision or intervention by a person to complete his/her journey within his/her operating environment.

d. travel remotely operated by a person outside the vehicle continuously throughout the journey (remote driving).

3.12. Although these eligibility criteria are not linked to any pre-existing taxonomy on vehicle automation, for illustrative purposes, under the current levels of driving automation established by SAE International, these eligibility criteria could be applied to certain vehicles operating at SAE 2 to 5 automation levels.

3.13. Compliance with the functional safety requirements included in Appendix 5 to this programme shall be required for remotely driven vehicles.

3.14. On the other hand, other limitations related to vehicle components or components, as well as possible technological developments that are currently not foreseeable, are not considered. Therefore, the admission of other types of vehicles with certain automation functionalities not provided for in the previous types and which could have a positive impact on mobility in terms of road safety, accessibility or inclusion will be assessed on a case-by-case basis by the Directorate-General for Traffic.

3.15. It is more than feasible that certain vehicles to be incorporated into the operations could have a vehicle permit issued by a Member State of the European Union or a third country, and given the nuclear research and testing nature of the ES-AV programme, the operation of such vehicles shall be permitted, provided that it relates to vehicles with a registration certificate issued by a Contracting Party to the Geneva Convention on Road Traffic (1949) or Vienna (1968) or with a type-approval certificate or similar declaration issued by that Party, subject to additional requirements being laid down in the authorisation and conditions relating to their use.

3.16. Operational control of the vehicle shall always be subject to the vehicle manufacturer, system developer, fleet operator or system integrator, so the participation of one of these entities in the programme becomes mandatory.

3.17. All vehicles must carry a connected pre-warning device V-16 which must be activated in the event of immobilisation of the vehicle (breakdown, accident, etc.) in accordance with the requirements laid down in the legislation in force. In the case of vehicles without an operator on board, the entity responsible for the operations shall ensure that they are activated, including remotely. In no case shall an emergency pre-warning triangle be carried.

3.18. The vehicle shall be equipped with an Automated Driving System (DSSAD) data recorder or, failing that, Event Data Recorder (EDR).

3.19. In order to identify unequivocally those vehicles operating under this ES-AV Framework Programme, they shall all carry an adhesive with the design set out in Appendix 2 to this programme.

SUBSECTION 3.3 OPERATIONS

3.20. Operations under the ES-AV programme shall be carried out on the public roads covered by Royal Legislative Decree 6/2015 of 30 October 2015 approving the recast text of the Law on Traffic, Motor Vehicle Traffic and Road Safety.

3.21. In addition, operations are expected to be complemented by closed-track tests or computer simulations, although these tests are not authorised under the ES-AV programme. The information obtained may be of value for the purposes of the safety assessment and transparency.

3.22. For the systems referred to in point 3.11 (a), the complexity and variety of environments in which it may operate shall be wide, covering all or most of the typology of roads and areas, urban and interurban.

3.23. For systems referred to in point 3.11 (c) and (d), the operation may be geographically limited.

3.24. It is envisaged that during the participation in the ES-AV programme and for a given phase, the applicant entity may apply for an extension of the operational testing domain without the need for a new authorisation. This extension will be assessed by the Directorate-General for Traffic on the basis of the results of the operations carried out up to the time of this request and of the assessment of the security of the system if this is required according to the scope of the proposed extension.

3.25. In the case of operations with a zonal limitation or track limitation, the applicant shall provide a map in digital format where the planned journeys shall be clearly identified.

3.26. In particular, attention shall be paid to the limitations of the operational design domain that vehicles may have in relation to coexistence with vulnerable users and their safety. These limitations shall be explicitly described and communicated in the application, as well as the corrective or mitigation mechanisms foreseen during the operations.

SUBSECTION 3.4 VEHICLE OPERATOR

3.27. Three types of operators are distinguished depending on the use case, system capabilities, type of vehicle and its systems, and scope of operations: (I) on-board security operator; (II) remote driver; and, (iii) remote security operator.

3.28. Depending on the phase in which the programme is intended to participate or the proposed use case, the presence of a on-board security operator may be required within the vehicle, who must have the corresponding permits depending on the category of the vehicle.

3.29. In any case, the on-board or remote security operator and the remote driver must be staff at the service of the requesting entity, which must be documented, and it is not essential that the provision of this service involve an exclusive employment relationship.

3.30. The application may include several on-board or remote security operators or remote drivers.

3.31. The on-board or remote safety operator and the remote driver shall at all times be responsible for driving and operating the vehicle. This safety operator shall be required to be at all times in a position to take full control of the vehicle, whether inside the passenger compartment or driving it or operating remotely, during use, in particular in the event of any risk to the occupants of the vehicle or other road users. In the event of a loss of connectivity between the remote security operator or remote driver and the vehicle, the requesting entity shall be responsible for ensuring the continuity of the operation or the performance of a MRM by the vehicle.

3.32. The security operator on board or remote, or the remote driver, shall hold a valid driving licence corresponding to the category of vehicle being tested or tested at least two years old.

SECTION 4. PROGRAMME PHASES

4.1. Depending on the scope and degree of maturity or development of automated or remote driving system technology, and the scope of operations, 3 access and authorisation phases are distinguished:

a. Controlled testing phase (phase 1): the technology is newly created or in the process of initial research and development, or has only been tested in restricted environments or simulation and therefore requires its safety validation, development and supervision. This phase is typically linked to early or intermediate stages of technology, prototypes or solutions that operate in a restricted area.

b. Extensive testing phase (Phase 2): the technology is already sufficiently developed and tested to be able to operate in broader operational areas and on a continuous basis. It may refer to vehicles for which no type-approval legislation is in force or which intend to obtain thier type-approval certificate. Corresponds to intermediate levels of development prior to commissioning or commissioning of the associated service.

c. Pre-deployment phase (phase 3): this phase is typical of impending stages prior to the placing on the market or start of service, in vehicles whose automated driving systems: (I) have previously undergone an extensive or similar test phase; (II) already approved systems for which a check of functionalities on tracks open to traffic in Spain is intended to be carried out prior to obtaining the administrative authorisation to circulate; or (iii) partially approved systems, i.e. with functionalities that are not approved or whose certification and approval regulations are in progress.

4.2. Access to the Programme may take place in one or more of these phases, with no obligation to operate in all phases sequentially or simultaneously.

4.3. The duration of operations in each phase shall be determined by the applicant entity with a maximum of 2 years, after which a renewal of the authorisation is required to continue operating within the same phase or a new application for the transition to the next phase. In both cases, the corresponding reports referred to in section 9 of this programme shall be provided.

4.4. A maximum number of vehicles that can be operated simultaneously by the applicant entity is set out for each phase. At the entity request, DGT may authorise increases in the number of vehicles to be tested, subject to the previous limits and provided that the vehicles are similar to those already authorised. The aim is to enable the evolution of technology and innovation according to its degree of maturity and security.

4.5. Similarly, DGT could reduce the number of vehicles authorised to participate in the ES-AV programme depending on the results and safety of operations.

4.6. For tests relating to European cross-border projects involving testing in Spain, in particular, those to be carried out on priority corridors identified by the European Commission, authorised vehicles may carry plates from another EU Member State, either temporary or ordinary, but shall always affix the sticker referred to in Appendix 2 to this programme.

SUB-SECTION 4.1 PHASE 1: CONTROLLED TESTING PHASE

4.7. In this phase, the presence of a **safety operator on board shall always be** required, and only the following people may be occupants: own staff of the applicant, technicians or mechanics.

4.8. The operational area is limited to pre-defined road or road sections, with a maximum limitation of 3 vehicles and with operating hours-restriction, in addition to those other operational constraints given by the system design.

4.9. In this phase, vehicles with automation **SAE level 2** are **not allowed**.

4.10. In any case, they shall circulate with Spanish temporary plates (except as provided for in point 4.6) together with the sticker referred to in Appendix 2 to this programme.

4.11. An entity may choose to access via the external evaluation system or the EEA Authorisation Recognition System.

SUB-SECTION 4.2 PHASE 2: STAGE OF EXTENSIVE TESTS

4.12. At this stage, the vehicle will **always** have the presence of a **safety operator on board** and other people not dependent on the applicant entity may be occupants.

4.13. The **operational area is only subject to design limitations of the system**. Simultaneous operation of up to 10 vehicles is allowed.

4.14. In any case, vehicles shall circulate with Spanish temporary or ordinary registration plates (except as provided for in point 4.6), together with the sticker referred to in Appendix 2 to this programme.

4.15. Access systems to the extended testing phase of the ES-AV programme shall be any one of those referred to in point 3.2.

4.16. Operations from the controlled testing phase carried out in Spain under the ES-AV programme and wishing to extend its scope will also be eligible for this phase.

SUB-SECTION 4.3 PHASE 3: PRE-DEPLOYMENT PHASE

4.17. At this stage, the presence of an on-board safety operator is only mandatory if the design of system functionalities or capabilities so provides (e.g. for levels 2 and 3 SAE presence will always be required). **The presence of a remote safety operator may be required** or if the design of functionalities or capabilities of the system so provides. Occupants of the vehicle or vehicles may be persons not dependent on the applicant entity, depending on the available safety information from previous phases or tests.

4.18. **The operational area is only subject to design limitations of the system**. **Simultaneous operation of more than 10 vehicles** is permitted.

4.19. In any case, they will circulate with Spanish temporary or ordinary plates (except as provided for in point 4.6). Exceptionally, circulation on ordinary plates of another Member State of the European Union may be authorised. In any case, they shall carry the sticker referred to in Appendix 2 to this programme.

4.20. Access systems to the extended testing phase of the ES-AV programme shall be any one of those referred to in point 3.2.

4.21. Operations from any of the previous stages carried out in Spain under the ES-AV programme and wishing to extend its scope will also be eligible for this phase.

4.22. In particular, the following shall in any event be assigned to this phase:

a. systems already approved in the EU for which it is intended to carry out a cross-check of functionalities on tracks open to traffic in Spain prior to obtaining an administrative authorisation to circulate, operations carried out in any of the countries referred to in the preceding points may

be accepted under the same conditions, as well as information on tests carried out on simulators. In any case, the final report referred to in section 9 of this programme shall be provided; and,

b. systems partially approved in the EU, i.e. with functionalities not approved or for which approval regulations are pending or under development, may be accepted for operations carried out in any of the countries referred to above and under the same conditions, as well as information on tests performed on simulators. In any case, the final report referred to in section 9 of this programme will be provided.

4.23. If they are not included in any of these options, participation will be assigned to one of the previous phases of this programme.

SECTION 5. CONDITIONS OF OPERATION

5.1. The traffic rules laid down in the Code for Traffic approved by Royal Decree 1428/2003 of 21 October shall be respected at all times, taking into account the design limitations of vehicles and their systems.

5.2. The applicant entity shall be ultimately responsible for ensuring the safe operation of vehicles. In the case of an on-board or remote safety operator, this shall be considered the driver for all purposes. The remote driver shall always be considered the driver for the above purposes.

5.3. All occupants of the vehicle shall behave safely, meeting the applicable regulatory requirements.

5.4. It is not permitted to operate above generic speed limits or those set by specific or variable signalling. Nor is it permitted to exceed the limits on masses, dimensions or number of occupants laid down in the legislation in force depending on the category of vehicle.

5.5. In general, the operation of automated vehicles or vehicles with remote driving functionalities without authorisation issued under this programme is not permitted, regardless of whether it is carried out in an autonomous or conventional mode.

5.6. It is not permitted to circulate vehicles bearing ordinary or temporary registration plates that have not been authorised or issued under the authorisation of this programme. The registration number shall be the same as that indicated on the ES-AV sticker defined in Appendix 2.

5.7. The Directorate-General for Traffic may lay down special conditions for the circulation of vehicles depending on the features or functionalities of the system, in particular as regards light-signalling or geolocation.

SECTION 6. ES-AV PROGRAMME MANAGEMENT CENTRE

6.1. The ES-AV Programme Management Centre (CG-ESAV), belonging to the Subdirectorate-General for Mobility Management of the Directorate-General for Traffic, shall be responsible for managing authorisations and admissions to the ES-AV Programme and for monitoring and evaluating the safety of operations.

6.2. External experts may be invited to the DGT, other administrations or entities in the automotive and technological sectors for the purposes of assessing, monitoring and evaluating the safety of operations, as well as in relation to transparency, exchange of experience and communication actions.

6.3. The ES-AV Programme Management Centre may publish on DGT's website information on operations and tests carried out under the ES-AV Programme, including basic data and without any information relating to technology or subject to intellectual property being disclosed at any time. Among others, these basic data will be:

a. Participating entity(ies).

b. Authorisation number.

c. The phase to which the operations are assigned.

d. Level of automation of the vehicle(s) or remote driving functionality.

e. Number of vehicles used in operations, their category and registration plate.

f. Operational environment for use.

g. Extract of half-yearly or final reports indicating the main metrics.

h. Any other evidence data that the participating entity considers relevant to advertise.

6.4. The Office for the Facilitation of Automated Vehicle Tests on Public Road (OFVA) is the one-stop-shop for those interested in participating in the ES-AV programme to:

a. Access information on the necessary procedures.

b. Carry out the required formalities, including the declarations, notifications or applications required to obtain an authorisation.

c. Be aware of the state of processing of applications in which they have the status of data subject and be notified of the necessary procedural measures, if any, and their decision.

d. Report incidents and report.

6.5. The applications and authorisations required for admission to the ES-AV programme and operation on public roads will be managed by the interested parties via the OFVA (DGT website).

SECTION 7. REQUEST

7.1. The application shall follow the model set out in Appendix I of this Programme and shall include the information and documentation necessary for the determination of eligibility for participation in the ES-AV Programme.

7.2. An original copy of the insurance taken out shall be provided in accordance with the conditions and terms set out in point 3.6.

7.3. The I.4 fee shall be paid for each application submitted, in accordance with Article 6 of Law 16/1979 of 2 October on fees for the Central Traffic Office. For the issue of the corresponding temporary registration plates, if the number of vehicles exceeds one, an I.4 fee shall also be paid for each extra vehicle.

SUBSECTION 7.1 TRANSACTIONS DETAILS

7.4. Definition of the operational area: in particular, route, tracks or stretches of tracks, timetable, weather conditions, etc.

SUBSECTION 7.2 VEHICLE DATA

7.5. Vehicle data shall be at least the following:

a. Each vehicle shall be univocally identified by the applicant by means of the VIN and registration number of any Member State of the European Union, if any.

b. Description of the vehicle containing at least category, number of axles, technical characteristics (Type Approval Certificate may be provided if fitted), as well as accessibility features if designed for this purpose.

c. Software version or RXSWIN of the system.

d. Description of the functionalities and capabilities of the automated driving system, of driving assistance systems or of remote driving systems, in particular those relating to compliance with the rules, manoeuvres, behaviour and behaviour laid down in the traffic rules.

e. Definition of the operational design domain of the system (ODD).

f. Type-approval certificate (or corresponding self-declaration system in the case of vehicles under this regime) of the vehicle, if it has been issued prior to the installation of the automated or remote driving system.

g. Documentation on assessment and technical certification of driving systems and vehicle systems, where one of the following three options may be chosen depending on the access phase and system:

- **Third-party Assessment System:**[5] carried out by an approval or similar technical body or service with a permanent establishment in the European Economic Area, or by a technology recognition centre accredited by the DGT. This assessment shall relate to the operation of the vehicle and its systems, safety analysis and risk assessment and may be carried out in accordance with:

  1. Guide to the testing of automated vehicles in the European Union[6].
  2. For phase 1 and phase 2 vehicles, as set out in Appendix 4 to this programme.

- **EEA Recognition System:** Proof of having obtained prior authorisation from the competent authority of another Member State of the European Union or the European Economic Area, through an equivalent prior checking procedure, to carry out tests on roads open to general traffic for automated vehicles using technologies and configurations of the same nature (recognition of authorisation issued in another Member State).

- **Special System**: self-declaration or authorisation from a third country, under the conditions set out in point 3.2 (c) together with the final report in section 9 on results and operations, without prejudice to other requirements that may be required in light of the application and its documentation.

SUBSECTION 7.3 OPERATORS' DETAILS

7.6. Identification and copy of their valid driving licences, two years old for the vehicle category to be operated.

7.7. The application may include several operators.

7.8. The applicant shall provide a declaration of responsibility on operators training and abilities, certifying under their responsibility that they are aware of the vehicle technology and systems, have received the training required for the type of test requested and have the ability to drive, operate or control the vehicle, in terms of safety and under any conditions.

SUBSECTION 7.4 CHANGES TO THE APPLICATION

7.9. Any change to certain elements of the existing authorisation may be requested by the responsible entity at any time by means of a simple communication to the OFVA, provided that it affects any of the following data:

a. Operators.

[5] These independent evaluations shall be carried out in accordance with the European Union ADAS and ADS Test Guide and shall include at least sections on: (a) compliance with relevant industry standards, best practices and guidance related to design, development or operation; (b) an operational safety case, including safety and risk management systems with indicators and compliance with traffic rules; and (c) security policies and specific capabilities.

[6] Guideline on a uniform EU-wide procedure for the subjects of pre-type approval assisted (ADAS) and automated vehicle (ADS) testing and recognition of testing approvals among member states

b. Replacement, withdrawal or extension of the number of vehicles. A change of vehicles is allowed only if they are of the same category and with the same systems as those already authorised.

c. Reduction of the operational area.

d. Extension of the operational area: in this case, a specific eligibility analysis will be carried out by DGT, depending on the operations already carried out and the scope of the requested extension. If the extension affects at some point the assessment already carried out by the accredited service, the vehicle shall be checked on the uncertified part.

e. Software update: The communication shall contain a statement of the changes to functionalities involved in the update. If the extension affects at some point the assessment already carried out by the accredited service, the vehicle shall be subject to verification.

7.10. Transfer of authorisation from one entity to another is not permitted. In this case, a new application would be required, even if the elements of the transactions are the same.

7.11. Renewal of the authorisation on the same terms as those initially requested or in case of a different stage of the application will require the submission of the documentation required for the initial application plus the final test report referred to in section 9.

7.12. Any change to the application shall entail the payment of a fee I.4. Where new vehicles are added in, for the issue of the corresponding temporary registration plates, if the number of vehicles exceeds one, an I.4 fee shall also be paid for each extra vehicle.

SECTION 8. RESOLUTION

8.1. The decision granting or refusing admission to the programme shall be issued by the Subdirectorate-General for Mobility Management, or by a person to whom it delegates, no later than 3 months after entry in the register of the Directorate-General for Traffic.

8.2. The authorisation to be granted shall include, inter alia, the stage to which operations are assigned, a general description of the scope, authorised vehicles and operators, operational environment and other conditions under which it is to be carried out.

8.3. Together with the authorisation, the corresponding temporary permits and registration plates will be issued. Permits and temporary plates already available to the applicant entity shall not be used for tests under this framework.

8.4. The Directorate-General for Traffic may publish on its website and on the National Access Point on traffic and mobility information on the tests and authorised operations, including basic data, under the terms and conditions set out in point 6.3.

8.5. The Directorate-General for Traffic may at any time revoke or suspend the authorisation issued where necessary for reasons of road safety, traffic flow and operational safety, in particular in the following cases:

a. in cases of serious events or incidents, in others, casualties involving material damage or injury to road users;

b. where the mandatory reports contained data reflecting a potential serious impact on road safety;

c. operations carried out outside the authorised operational environment;

d. operations with unauthorised vehicles;

e. vehicles subject to manufacturer's call;

f. any other non-compliance with the conditions laid down in the authorisation;

g. continued failure to report;

h. loss of vehicle undercover as specified in paragraph 3.6.

8.6. Operations shall not be resumed until DGT has verified all elements actively involved in the operation that comply with the safety requirements.

8.7. For the analysis and evaluation of the documentation submitted, the CG-ESAV may rely on the collaboration of independent experts with proven experience in the automotive and technology sector, who shall be subject to confidentiality by signing an NDA.

8.8. The decision authorising the operations shall be at the national level and shall establish, where appropriate, the urban and interurban road sections for which the vehicle is authorised to carry out the tests or tests.

8.9. Authorisation holders shall be responsible for ensuring that vehicles meet the technical characteristics suitable for use on public roads and for complying with all the requirements laid down in this programme.

8.10. The duration of the authorisation shall be for a maximum period of 2 years and may be extended successively for identical periods of time.

SECTION 9. REPORTS AND REPORT

9.1. Participation in the Programme entails the submission of regular and timely reports, as well as the reporting of incidents or events occurring during operations or any information to be determined by the Directorate-General for Traffic in respect of the tests carried out.

9.2. The Directorate-General for Traffic may publish, for the purposes of transparency, the basic data from the reports on operations it authorises under the ES-AV programme, in compliance with the rules in force on the protection of personal data and industrial and intellectual property.

SUBSECTION 9.1 INCIDENT REPORTING

9.3. The entity responsible for the operations shall immediately inform the Directorate-General for Traffic via the ES-AV Programme Management Centre of any failure or serious incident to the vehicle, as well as any collision or accident occurring during the tests.

9.4. The information to be conveyed shall be the minimum necessary for the determination of the type of incident, location, vehicles involved, probable cause of the incident and condition of the vehicle, its occupants and other road users.

SUBSECTION 9.2 REPORTING

INCIDENT REPORT

9.5. Any accident or accident on the road involving the vehicle with indication of the vehicle, operator, location, type of incident, other vehicles involved (if any) and occupant condition shall be reported immediately to the CG-ESAV.

9.6. The incident report shall be submitted no later than 24 hours after the event and shall include detailed information on what happened on the public highway, including:

a. Location in UTM coordinates;

b. Date and time of the event;

c. Vehicle involved;

d. Responsible operator;

e. Performance of the remote operator or the security operator;

f. Type of incident: collision, accident, exceeding system boundaries, system failure, vehicle failure, safety gap, etc.

g. Minimum risk manoeuvre executed or emergency manoeuvre;

h. Prior detection of the incident by the system;

i. Status of occupants and other road users.

j. Information contained in the event recorder in relation to the vehicle operating variables (dynamic variables and control actions).

k. Videos or photograms collected by vehicle cameras or information collected by vehicle perception systems, covering at least 30 seconds prior to the incident.

BIANNUALL REPORT

9.7. To continuously assess the performance of the participating operations, certain data will be submitted on a biannual basis. If the duration of operations is less than six months, at the mid-point of the tests.

9.8. Each half-yearly report shall be submitted on the last working day of the first month following the reporting period.

9.9. The data to be included in this report shall be at least:

a. Number of vehicles operated. Total number of vehicles that operated according to the authorised operational environment during the reporting period.

b. Vehicle identification number (VIN). The VIN of each vehicle covered by the above requirement.

c. Total KMS travelled per vehicle.

d. KMS travelled per vehicle with the system activated or in continuous remote operation. Total kilometres of the vehicle running with the system activated or operating in remote mode, it being advisable to include a GPS track in digital format.

This data shall also be provided broken down into:

- KMS travelled by type of track. Km travelled segmented by type of track: motorway, motorway, conventional and urban roads.
- KMS travelled day/night segmented by type of track.
- KMS travelled under adverse weather conditions segmented by track type. KMS travelled with rain, snow, fog, etc.

e. Deactivations/disconnections per vehicle. Number of system deactivations/disconnections during testing and its cause.

f. Vehicle recovery events. These events refer to any case where a vehicle needs to be retrieved during operations by security operator or personnel other than the one already on board the vehicle in question. They shall provide details on the location of the event, the duration and the reason for the immobilisation and recovery. Information on similar past events recorded in the same vehicle or in other vehicles of the entity shall also be included.

g. Vehicle Acceleration or Deceleration instances. Total number of vehicle acceleration or deceleration cases exceeding a pre-defined personalised threshold in the system design itself.

h. Unplanned interruptions.

- Start of MRM by: (1) the system; (2) an occupant of the vehicle concerned; or (3) remote staff.
- Acquisitions of DDT other than those reported in the item above. Most of these interruptions are likely to involve the intervention of the on-board or remote security operator to disconnect the ADS and take control of the vehicle. If the system started or completed a MRM and the operator subsequently assumed control of the vehicle to resume driving, the situation would be reported under the previous element instead of the latter, in order to avoid double-counting events.
- Cases in which assistance on board the vehicle alters operations. This requirement would capture situations where an operator on board or security corrects or changes the system's anticipated behaviour.
- Communication and connectivity failures in case of vehicles operated in remote driving.
- Others

i. Road traffic offences. Type of offence, location, date and time.

j. Interacting with emergency services and police forces. Information on events where the vehicle has had to interact with emergency services (e.g. formation of an emergency lane, ceasing the passage at a crossing, etc.) or police forces (observation of signposting of officers, etc.).

FINAL REPORT

9.10. At the end of the period requested for carrying out operations and tests, a full report shall be submitted containing at least the information provided for the half-yearly report and:

a. Number of security incidents or system failures.

b. Number of collisions or accidents and their cause.

c. Number of collisions or accidents avoided by the vehicle.

d. Safety performance of automated or remote driving system, including adherence to design and scenarios where an accident is most likely to occur.

e. Adhesion to internal safety processes during the development or operations of the vehicle concerned.

f. Security gaps or failures in the cybersecurity system.

g. Policy measures and their results on communication with occupants, other road users, in particular persons with disabilities.

9.11. This report shall also include, if available, comparative safety metrics of the operation of the vehicle with the automated system activated or in remote driving mode versus running in conventional mode of similar vehicles.

SECTION 10. ES-AV PROGRAMME UPDATES

10.1. The Subdirectorate-General for Mobility Management and Technology may update the appendices to this programme, in particular by adding, if necessary, new appendices aimed at defining specific technical requirements depending on the use case applied for in the ES-AV programme.

APPENDIX 1 APPLICATION FORM

REQUEST FOR TESTS AND OPERATIONS
ES-AV FRAMEWORK PROGRAMME

DIRECTORATE-GENERAL FOR MOBILITY MANAGEMENT AND TECHNOLOGY
CG ESAV- OFVA

DETAILS OF THE COMPLAINANT						
IDENTIFICATION						
Name/Business name:			NIF/NIE/CIF:			
Surname 1:			Surname 2:			
DOMICILE						
Type of track:	Name of track:					Post code:
Number:	Block:	Portal:	Ladder:	Plant:	Door:	Km:
Municipality:		Population:			Area/County:	
REPRESENTATIVE DETAILS						
Name:			NIF/NIE:			
Surname 1:			Surname 2:			

VEHICLE AND OPERATOR DATA					
Registration number:	Frame	Brand name:	Model:	Category[1]:	VIN[2]:
Name of operator:			NIF/NIE:		
Registration number:	Frame	Brand name:	Model:	Category[1]:	VIN[2]:
Name of operator:			NIF/NIE:		
Registration number:	Frame	Brand name:	Model:	Category[1]:	VIN[2]:
Name of operator:			NIF/NIE:		

DETAILS OF OPERATIONS					
Purpose of operations/tests:					
ES-AV programme phase:					
Planned operating hours:					
Start:	Start:	Start:	Start:	Start:	Start:
End:	End:	End:	End:	End:	End:
Maximum duration:					
It is envisaged to make recordings of:					

BRIEF DESCRIPTION OF THE OPERATIONAL ENVIRONMENT FOR USE (ODD)					
ODD Limited ☐	Province (s):			City/Cities	
ODD Unlimited ☐	Scope: national ☐	Province (s):		City/Cities	
Type of track[3]	Section (PPKK)/City[3]	Max Speed	Luminance conditions (day/night)	Weather conditions	Others

(1) Category: Category classified by EU type-approval (M1, N1,...)
(2) Level: Vehicle SAE Automation Level/Remote Driving (CR)
(3) Only in case of limited ODD

APPENDIX 2 ES-AV PROGRAMME LOGO

A2.1. All vehicles covered by an authorisation under this programme shall carry the **ES-AV Sticker** as defined in this Appendix.

A2.2. If the vehicle is fitted with front windscreens, the sign shall be placed in its lower left corner by its inner face. The printed face of the logo shall be self-adhesive.

A2.3. If the vehicle is not fitted with a windscreen, the logo shall be placed in a conspicuous position. In this case, the unprinted side shall be self-adhesive.

A2.4. The logo is circular with a diameter of not more than 97 mm for vehicles fitted with windscreens and a maximum of 87 mm for other vehicles.

APPENDIX 3 PROCEDURE FOR DESIGNATING A TECHNOLOGY RECOGNITION CENTRE

1. APPLICATION PROCEDURE

REQUIREMENTS OF THE APPLICANT FOR DESIGNATION

A3.1 Applicants for the designation of a technology recognition centre shall comply with the following requirements:

a) Have a legal status.

b) Have been designated as the Technical Service by the competent authority (Ministry of Industry and Tourism) for the approval of vehicles in at least one of the regulations listed in section 5 of this Appendix. In case of suspension or withdrawal of this designation, the centre is not authorised to continue this activity.

c) Have, before applying for designation, demonstrable technical competence in carrying out the activities for which he is applying to be designated as a Technology Recognition Centre.

   i. The technical capacity for testing in all regulations is ensured by this point.

   ii. Proof of the required technical competence may also be provided by supplementing its capacities with the technical competence of another body or entity. For this purpose, a self-declaration in accordance with the model in paragraph 7 of this Appendix shall be provided.

   Only the applicant entity shall be included in the decision of the Directorate-General for Traffic designating the CRT.

   In the same vein, only the CRT bearing the designation shall appear on the certificates issued to vehicles.

   iii. Where the technical competence of the applicant, or of the body or entity supplementing the technical competence, is partially demonstrated in one of the regulations referred to in section 5 of this Appendix, it shall be necessary to attach to each technical assessment report for the certification of vehicles for autonomous testing on roads open to traffic in general, a self-declaration by the CRT that this partial accreditation corresponds to the technical competence required to deal with all the procedures required for the certification of the particular vehicle covered by that report. For this purpose, and for these cases of partial accreditation, a self-declaration in accordance with the model in paragraph 7 shall be provided.

D) The applicant must provide all the documentation provided for in the General Vehicle Regulation, in this programme and in any subsequent regulations that may apply to it.

SUBMISSION OF REQUESTS

A3.2 Eligible applicants shall submit:

a) Application completed in accordance with section 4 of this Appendix to the Subdirectorate-General for Mobility Management and Technology.

b) Payment of the 4.5 fee, in accordance with Article 6 of Law 16/1979 of 2 October, on fees of the Central Traffic Office.

c) Proof of compliance with the defined requirements for Technological Reconnaissance Centres.

D) Authorised technology recognition centres may be required for the duration of their authorisation to update compliance with their requirements as a result of technological and regulatory developments.

2. DECISION ON THE DESIGNATION

A3.3 The decision granting or refusing the requested designation shall be issued by the Subdirectorate-General for Mobility and Technology within 3 months of entry in the register of the Directorate-General for Traffic, in accordance with the model set out in section 8 of this Appendix.

A3.4 If defects or false evidence of compliance with the requirements applicable to applicants are detected, the designation process shall be automatically rejected.

A3.5 The reports and resolutions of the Technology Recognition Centres shall be valid at national level. This designation shall be for a maximum period of 5 years and may be extended successively for periods of 2 years upon request for extension.

A3.6 If the CRT designation has been granted under an ongoing accreditation, the accreditation shall be valid for one year. When the CRT sends the final accreditation, the designation shall be valid until the previous maximum period.

A3.7 The submission of a new application by the JTRs under a new accreditation procedure will not be allowed.

A3.8 In addition, if the designated entity no longer meets the requirements laid down, the designation as the Technology Recognition Centre shall be revoked ex officio.

A3.9 Any changes affecting the information submitted in the CRT designation process shall: changes in the accreditation of the regulations, in the entities that supplement the technical capacity of the CRT, etc. must be notified to the DGT in the same way as the initial application for designation.

3. COORDINATION OF PROCEDURES

A3.10 The Subdirectorate-General for Mobility and Technology through the CG-ESAV shall coordinate the procedures relating to the designation of Technology Recognition Centres competent to authorise tests or research tests carried out on automated vehicles on roads open to traffic in general, and may, to this end, make the necessary amendments to this Appendix and corresponding administrative procedures by means of a guideline.

4. APPLICATION FOR THE DESIGNATION OF A TECHNOLOGY RECOGNITION CENTRE

MINISTERIO DEL INTERIOR

DGT

SUBDIRECCIÓN GENERAL DE GESTIÓN DE LA MOVILIDAD Y TECNOLOGÍA

SOLICITUD DE DESIGNACIÓN DE CENTRO DE RECONOCIMIENTO TECNOLÓGICO

DATOS DEL INTERESADO					
NIF/DOI:	Nombre y apellidos/Razón social:				
Tipo de vía:	Nombre de la vía:				Número:
Bloque:	Portal:	Escalera:	Planta:	Puerta:	KM:
Código postal:	Provincia:		Municipio:	Localidad:	
País:	Teléfono:		Correo electrónico:		

DATOS DEL REPRESENTANTE	
NIF/DOI:	Nombre y apellidos:

LISTADO DE DOCUMENTACIÓN ADJUNTA

Solicita:

Sea concedida a la entidad antes indicada, de acuerdo con lo establecido en la Instrucción de Autorización de pruebas o ensayos de investigación realizados con vehículos de conducción automatizada en vías abiertas al tráfico en general la designación como Centro de Reconocimiento Tecnológico autorizado para la emisión de certificados de vehículos par a la realización de pruebas de conducción automática.

5. TECHNICAL SKILLS OF TECHNOLOGY RECOGNITION CENTRES

Object

The purpose of this section is to define the technical skills required of the Technology Recognition Centres that will certify the requirements of the vehicles intended to be used for testing under the ES-AV programme.

Requirements for the entity applying for designation as authorised Technology Recognition Centres

Sufficient technical competence in the technical and administrative requirements laid down in this programme shall be deemed to be sufficient if ENAC has or is in the process of obtaining ISO 17025 Accreditation for the tests provided for in each of the following regulations:

Regulation	Content
UNECE R13 AND R13H	Braking systems for light and heavy duty vehicles
UNECE R79.03	Steering systems
UNECE R131	AEBS Heavy Vehicle
UNECE R152	AEBS Light Vehicle
UNECE R157	ALKS (lane keeping, light and heavy, SAE3 automation level)
Implementing Regulation (EU) 2021/646	ELKS (emergency lane-keeping systems)

Alternatively, have or are in the process of obtaining ISO 17025 Accreditation by ENAC for the tests provided for in the following Regulation:

Regulation	Content
Implementing Regulation (EU) 2022/1426	ADS (Automated Driving System of Full Automated Vehicles)

6. RESPONSIBLE DECLARATION OF COMPLEMENTARITY OF CAPABILITIES

Name and surname: ___ IDENTITY CARD: ___

Declares that, to the Directorate-General for Traffic, for the purposes of applying for the designation of the Technology Recognition Centre under the ES-AV Programme (Instruction VEH 2025/XXX) in favour of ___ (applicant body), that it complies with the requirements laid down in the legislation in force, and in particular that:

It complements sufficient technical competence in the technical and administrative requirements prescribed by the means of ___ (body/entity) for regulations (tick the appropriate one/n):

- ☐ UNECE R13 AND R13H Braking systems for light and heavy duty vehicles
- ☐ UNECE R79.03 Steering systems
- ☐ UNECE R131 AEBS Heavy Vehicle
- ☐ UNECE R152 AEBS Light Vehicle
- ☐ UNECE R157 ALKS (lane keeping, light and heavy, SAE3 automation level)
- ☐ UNECE R171 DCAS
- ☐ Implementing Regulation (EU) 2021/646 ELKS (emergency lane-keeping systems)

It has the documentation proving all of the above and will make it available to the Administration on request.

This is demonstrated by knowledge of the criminal, civil or administrative liability that would arise in the event of any essential inaccuracy, misrepresentation or omission of any data or information in this declaration or in the event of failure to submit the documentation required of it to prove compliance with the declaration. And to ensure that this is known and has the appropriate effect

At ___, on ___ ___ of 20___

Signed: ___

7. DECLARATION OF RESPONSIBILITY FOR HAVING THE TECHNICAL COMPETENCE TO CARRY OUT THE PROCEDURES DESCRIBED IN APPENDIX V TO THE ES-AV PROGRAMME IN THE CASE OF PARTIAL ACCREDITATION IN ONE OF THE REGULATIONS

Name and surname: ___ IDENTITY CARD: ___

Declare WITH ITS RESPONSABILITY, to the Directorate-General for Traffic, for the purpose of certifying and issuing the technical assessment report on automated vehicles accompanying this self-declaration, with report number ___, made under the designation as the Technology Recognition Centre under the ES-AV Programme (Instruction VEH 2025/XXX) in favour of ___ (name of the Technology Recognition Centre), which complies with the requirements laid down in the legislation in force, and in particular that:

With partial accreditation in Regulations ___, this corresponds to the technical competence required to deal with all the procedures in Appendix 4 to the ES-AV Programme required for the certification of the particular vehicle covered by the aforementioned report.

This is demonstrated by knowledge of the criminal, civil or administrative liability that would arise in the event of any essential inaccuracy, misrepresentation or omission of any data or information in this declaration or in the event of failure to submit the documentation required of it to prove compliance with the declaration. And to ensure that this is known and has the appropriate effect

At ___, on ___ ___ of 20___

Signed: ___

8. MODEL FOR THE DESIGNATION OF A TECHNOLOGY RECOGNITION CENTRE

Having regard to the request submitted by the entity indicated below, and verified the documentation submitted regarding compliance with the conditions laid down in Programme ES-AV (Instruction VEH 2025/XXX) on authorisation of operations and circulation for tests carried out on automated vehicles on roads open to traffic in general of the Directorate-General for Traffic,

The Subdirectorate-General for Mobility Management and Technology RESUELVE the **designation** of the aforementioned entity as a **Centre for Technological Recognition in the context of carrying out tests or research tests with automated vehicles on roads open to general traffic**, and its inclusion in the corresponding DGT register with the following data:

Data from the Centre for Technological Recognition in the field of testing or research on automated vehicles on roads open to general traffic		
Centre	Business name	
	CIF/TIN	
	Country	
Address		
Postal code		
Municipality		
Province		
E-mail address		
Phone		

This designation decision as the Technology Recognition Centre for the certification and issuing of technical assessment reports of vehicles for independent testing on roads open to traffic generally considers, for the purposes of demonstrating the technical competence of the applicant entity or of the body or entity with which it complements its capabilities, the accreditation of the following regulations:

	Regulation	Content	Scope of Regulation accreditation	Accreditation status according to ISO 17025 by ENAC
☐	UNECE R13 and UNECE R13H	Braking systems for light and heavy duty vehicles	Whole/Partial	Concedida/ In process
☐	UNECE R79.03	Steering systems	Whole/Partial	Concedida/ In process
☐	UNECE R131	AEBS Heavy Vehicle	Whole/Partial	Concedida/ In process
☐	UNECE R152	AEBS Light Vehicle	Whole/Partial	Concedida/ In process
☐	UNECE R157	ALKS (lane keeping, light and heavy, SAE3 automation level)	Whole/Partial	Concedida/ In process
☐	UNECE R171	DCAS	Whole/Partial	Concedida/ In process
☐	Implementing Regulation (EU) 2021/646	ELKS (emergency lane-keeping systems)	Whole/Partial	Concedida/ In process
☐	Implementing Regulation (EU) 2022/1426	ADS (Automated Driving System of Full Automated Vehicles)	Whole/Partial	Concedida/ In process

This designation shall remain valid until ___ ___ 20___

Date

The SUBDIRECTORATE-GENERAL FOR
MOVILITY and TECNOLOGY MANAGEMENT

Date:

APPENDIX 4 PROCEDURE FOR THE CERTIFICATION OF VEHICLES FOR THE TESTING OF AUTOMATED VEHICLES

Object
The purpose ofthe appendix is to:

1. Establish a standardised procedure for the certification of vehicles for the testing of automated vehicles on roads open to general traffic.
2. Procedure for issuing a technical assessment report by the approved technology recognition centre.

The standardised procedure for the certification of vehicles for autonomous vehicle testing shall serve as the sole objective to ensure the highest level of safety for persons performing such tests as well as for other road users.

The present procedure consists of stages:

- Documentation
- Verification of compliance between the documentation submitted by the applicant and the vehicle to be tested
- Security check
- Dynamic check

OJcomplimentation
The documentation requirement refers to the identification of the type of vehicle to be tested (dimensions, masses, power, etc.), its base approval (if applicable), the identification of risks by and at the discretion of the applicant and the countermeasures applied, the functionalities to be tested and those for which the vehicle is not intended, the emergency shutdown system and other safety functionalities (e.g. electromagnetic compatibility).
This documentation shall be the basis for the identification of the vehicle typology and for continuing with the following steps of the procedure: dynamic inspection and verification.
This phase is developed in paragraph 1 and partly in section 5 of this Appendix.

Verification of compliance between the documentation submitted by the applicant and the vehicle to be tested
The compliance verification process is carried out with the objective of checking that the vehicle submitted for open on-road tests corresponds to the documentation submitted by the applicant.
In security spection
The inspection process is carried out (based on the documentation provided) with the aim of approving or refusing testing on prototype vehicles. The inspection always refers to safety features such as external projections, interior space, wheel condition, instrumentation/ballast attachment (if applicable). The inspection shall allow to proceed to the next step: dynamic testing.
This phase is further developed in section 2 of this Annex.

CoDynamic Testing
Dynamic check is the final step of this procedure and is divided into manual driving check, check of override systems (go to manual control) and check basic functionalities impacting safety for vehicle occupants and other road users. This will make it possible to certify that the vehicle:

1) it is possible to drive manually,
2) allows manual control to be resumed at the request of the manager/operator, and

3) in autonomous driving mode it is capable of maintaining minimum safety standards (e.g. braking when a pedestrian crosses).

   This phase is further developed in paragraphs 3 and 4 of this Annex.

The procedure is summarised in the diagram in Figure 1.

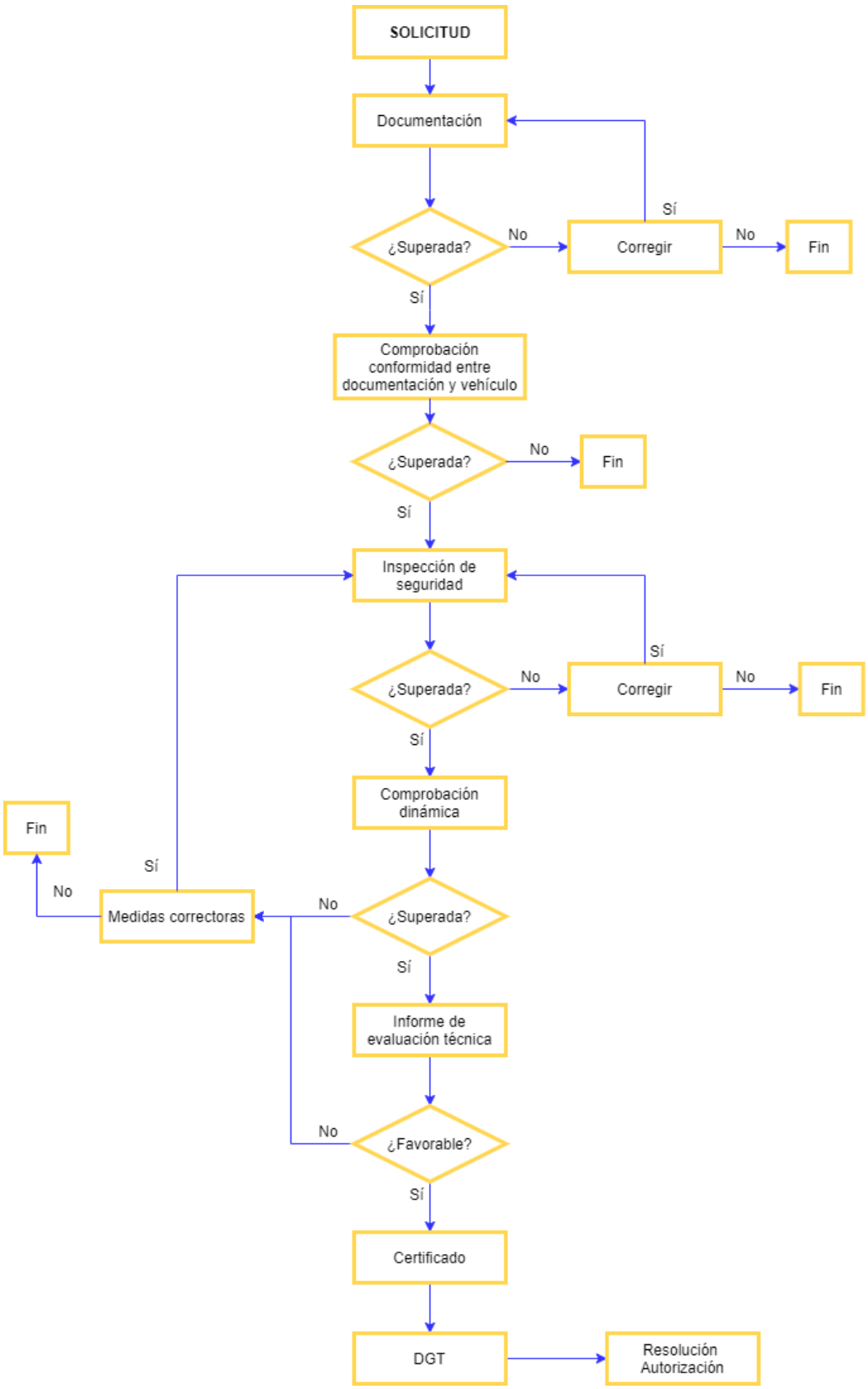


Figure 1 Blocks Diagram of the Certification Procedure

The sole purpose of the procedure described is to ensure safety during the preparation and execution of the tests to be carried out on roads open to traffic in general and must be carried out by the technology recognition centres for certification. The procedure has been developed using existing and reference standards for each of the functionalities (e.g. ISO, UNECE, and Euro NCAP protocols).

As a result of the documentary and testing process described in this Appendix, the Technology Recognition Centre shall issue a test results report and a certificate containing the information listed in Annex 5.

The steps of the procedure are set out below: documentation, inspection and dynamic verification.

1. MANUFACTURER'S TECHNICAL DOCUMENTATION FOR APPLICATION

The applicant shall provide the technical documentation relating to the vehicle submitted for this authorisation in accordance with the points below according to the model of descriptive technical documentation in Annexes 3 and 4.

REDUCED INFORMATION DOCUMENT (REDUCED DOCUMENT)

In order to document the technical characteristics of the vehicle (masses and dimensions, drive unit, transmission, suspension, direction, lighting and light-signalling devices, braking, and bodywork) a completed sheet shall be submitted at the start of any technical verification.

The reduced form is governed by Royal Decree 750/2010 of 4 June 2006 regulating the type-approval of motor vehicles and their systems, parts and parts (see Annex I).

On the basis of the Reducted Sheet, a Technical Sheet will be established and submitted in the application for a provisional registration, which is essential to allow the vehicle to circulate on roads open to traffic in general.

TECHNICAL INFORMATION DOCUMENT (TECHNICAL DOCUMENT)

The Technical Sheet (see Annex II) is a document provided by the applicant.

The approved technology recognition centre shall verify that all the data provided by the applicant are true and provide the applicant with the documentation required to be submitted to DGT.

This document together with the Safety Check and the test results will be the minimum requirements to be submitted to DGT for obtaining a registration certificate (provisional registration).

FUNCTIONAL SAFETY ASSOCIATED WITH RISK ASSESSMENT

In order to ensure safe testing, it is essential that manufacturers of automated vehicles identify situations that represent a potential risk based on their likelihood of occurrence, controllability by the operator and their severity by taking them into account during the development of their vehicles.
Functional safety takes into account all modes of operation and potential failures of the systems implemented in vehicles, and it will therefore be possible to analyse with this document whether or not risks can be assumed.
The ISO 26262 standard defines a procedure for the development of functionally secure hardware systems. Within this standard, HARA (Hazard Risk Analysis) and FMEA (Failure Mode Effects Analysis) are highlighted as two of the tools used to identify and quantify these risks.

It is a condition for accepting the risk assessment that the applicant submits a document proving that the risk assessment has been carried out by means of a HARA, FMEA or an equivalent method following normal functional safety practices associated with automotive software development. In cases of identified potential risks and failures that cannot be accepted for driving on roads open to traffic in general, they shall be required to be checked or mitigated for the issue of the certificate.

Section 5. of this appendix sets out the tests to be carried out to check the malfunction of the systems.

SOFTWARE VERSION CONTROL

Due to the fact that a large part of a system with autonomous functionalities is associated with software development, all the verifications described in this Appendix will be performed on a software version previously validated in tests by the applicant and in accordance with the security functional requirements described in the previous paragraph and the description of the functionalities provided (see section: Documentation related to system design and testing functionalities/scenarios – functions).
If, during the testing and data collectionprocess, system improvements or changes are implemented in the form of new software versions, these must also comply with the minimum functional safety requirements and continue to respect the tests subject to DGT's request for authorisation.
In order to avoid the additional cost of carrying out the entire certification process for each level, version or review of the software used during the tests, documentation must be available that the system has been extensively tested and validated in bench tests, simulation or test tracks.
The applicant shall provide documentation clearly indicating the software version to be used during the tests, as well as the autonomous functionalities implemented, whether or not they match the functionalities to be tested. In case of submission of a new software version compared to the one originally submitted in the permit application, you must provide details of any changes made to the previous version, as well as the fact that functionalities are affected and to what extent, demonstrating that the safety of the vehicle remains at least at the same level as the version originally submitted.
In case you wish to carry out on-road tests (a) with new functionalities acquired as a result of the software modification (b) these tests are not described in the original request, (c) involve new tests of a different nature, or in general substantially vary the documentation in this appendix originally provided, this software modification will not be considered as a new version and the authorisation process must be reviewed again in order to be able to determine the scope of the new situation.

EMERGENCY AND 'OVERRIDE' DOCUMENTATION OF THE AUTONOMOUS SYSTEM

The documentation shall justify that the following minimum requirements have been taken into account:

Emergency disconnection:

1. Have an emergency disconnection that stops the actuators' action (steering wheel, brake, accelerator and gearbox if applied).
2. The emergency stop must be accessible to any occupant of the vehicle or with access to the vehicle controls at any time.
3. The brake pedal actuator cannot interfere with the driver's ability to act on the brake pedal.

4. The maximum torque of the steering wheel actuator must be capable of being exceeded by the operator at any time.

Override:

1. The override must be detected after the following events:
    a. Operator presses brake pedal
    b. Operator presses accelerator pedal
    c. Operator rotates steering wheel
2. If an override is detected, all system actions shall be interrupted until the operator manually restores the autonomous driving process.

It must be justified that both override and emergency shutdown are independent of each other and of automated driving algorithms and that they will always have priority over automated driving actions.

DOCUMENTATION ON SYSTEM DESIGN AND TESTING FUNCTIONALITIES/SCENARIOS

FUNCTIONALITIES

This document shall describe the functionality of the automated driving system in order to be able to identify the possible scenarios that the vehicle may face and those that are intended to be assessed during traffic on roads open to traffic in general. This will make it possible to predict possible traffic conditions and interaction with other road users.
This should be done by defining the possible test scenarios to be evaluated together with the manoeuvres to be replicated.
Similarly, all traffic conditions known in advance that the automated driving system cannot address must be described. The purpose of this information is to identify those traffic situations to be avoided and to define appropriate measures to avoid them.

TEST SCENARIOS

Open road test scenarios

These are those scenarios that are intended to be assessed during traffic under actual traffic conditions. The vehicle may only run in autonomous mode (under the supervision of an operator) in the scenarios described as test scenarios. The applicant shall provide a detailed description of the test scenario and the conditions under which the vehicle may run in autonomous or remotely controlled mode.
For each test scenario, the following shall be indicated:

- Type of traffic situation
    - Urban (-50 km/h in city)
    - Interurban (-100 km/h on the road)
    - Fast track (-120 km/h on motorway)
- Infrastructure
    - Type of track to be used
        - urban area
        - pedestrian zone
        - secondary road running in dual direction without separation of lanes
        - secondary road running in dual direction with separation of lanes
        - national road, 1 lane of movement
        - national road, multiple lanes
        - highway

        - motorway
    - Identified pathways meeting these conditions
- Traffic conditions
    - Traffic intensity required
    - Test vehicles/users involved in the test
    - Non-test vehicles/users that may be involved in the test
- Assay Conditions
    - Target light conditions
    - Climatic conditions sought
- Manoeuvres to be carried out
    - Type of manoeuvre
    - Expected boundary conditions:
        - Maximum speed
        - Maximum longitudinal deceleration
        - Maximum lateral acceleration.

CYBERSECURITY

The electronic systems needed to enable autonomous driving functions require high levels of software for their operation, increasing their vulnerability to cyber-attacks that may compromise the safety of the vehicle occupant and other road users.

The applicant shall provide a document demonstrating that all test vehicles, as well as all their systems and subsystems, have been developed taking into account the provision of appropriate cybersecurity levels.

ELECTROMAGNETIC COMPATIBILITY (EMC)

The electronic components currently used by vehicles can be sensitive to the electromagnetic emissions present on the track or emitted by other components of the vehicle itself.

Electronics is the basis for advanced security systems (e.g. ADAS) and it is therefore expected that future prototypes of automated vehicles will have an even higher electronic system load.

In order to avoid unexpected failures of these systems, the applicant must provide a document proving that the equipment installed complies with the legislation in force as regards electromagnetic emissions.

SIGNAL RECONNAISSANCE FUNCTION

The applicant shall submit documentation describing the technological solution chosen enabling the vehicle to survey road signs and the environmental conditions that ensure or prevent its correct operation (light, weather, etc.).

In the case of having only telematics systems for this purpose, the procedure and resources necessary to ensure the availability of truthful and reliable information relating to traffic signs which are constantly updated during the period during which the tests covered by the authorisation are carried out must be documented.

2. PRE-TEST INSPECTION

The inspection of the vehicle shall be carried out by an approved technology survey centre on the basis of the documentation provided by the applicant.

3. ASSESSMENT OF DYNAMIC BEHAVIOUR

The dynamic tests to be passed by the vehicle are then included. For those vehicles or uses for which the dynamic check procedure referred to in this paragraph is not applicable, the applicant must justify this and the technology recognition centre shall be responsible for validating it, applying the provisions of paragraph IV of this Appendix. This situation may occur for one or more of the tests.

Even if the vehicle is driven in an autonomous driving mode, access to the vehicle controls (or, where appropriate, the emergency disconnection control) must always be available and capable of being manually operated. The vehicle operator shall be responsible for supervising the conduct of the tests and for taking action in the event of an emergency.

In the case of an automated vehicle which does not require a driver within the vehicle's compartment and can therefore be remotely checked, the applicant must provide the technology survey centre approved by DGT with the equipment necessary to enable the dynamic testing tests described in the following sections to be carried out.

CONVENTIONAL DRIVING TESTS (MANUAL)

It is imperative that the vehicle can be driven at any time in conventional mode and therefore it will be verified that it complies with this functionality by performing the following manoeuvres:

- Straight driving up to 50 km/h to check speedometer and absence of deviation, vibration, noise or other anomalies.
- Curve output up to 50 km/h for self-return check of the steering wheel and absence of vibrations, noise or other anomalies.

- Supporting changes within the same lane with initial speeds up to 50 km/h for assessment of stability, control and absence of vibrations, noise or other anomalies
- Braking up to 0.5 g with initial speeds up to 50 km/h for verification of absence of diversion, noise vibration or other anomalies.
- Braking to ABS locking or activation at initial speeds of up to 50 km/h for verification of absence of diversion, noise vibration or other abnormalities.
- Acceleration at 3/4 accelerator up to 80 km/h
- Straight running up to 120 km/h for verification of absence of diversion, vibrations, noise or other anomalies.
- Overall titration (up to 120 km/h) for verification of absence of diversion, vibrations, noise or other anomalies.

The first 5 tests apply to all vehicles while the last three tests do not apply to vehicles intended solely for urban use and which, due to their technical capabilities (e.g. maximum speed), are unable to carry out the tests.

OVERRIDE TESTS (PREDOMINANCE OF MANUAL CONTROLS OVER AUTOMATED FUNCTIONS)

OVERRIDE OF THE STEERING WHEEL:

At any stage of autonomous driving, the operator's override must be detected when acting on the steering wheel. This test shall apply to both the on-board operator and the remote security operator.

At any stage of autonomous driving, the operator override shall be detected after applying a maximum torque of 10Nm to the steering wheel, the following scenarios shall be checked:

Speed	Radius of curvature of track	Intention of the operator	Maximum torque applied by the operator
30 ± 1 km/h	Infinite, straight	Turn right	—10Nm
30 ± 1 km/h	Infinite, straight	Left-hand turn	—10Nm

In case a scenario requires a torque greater than 10Nm from the operator, the test shall not be passed. Once the override has been detected, the autonomous driving system must stop all its actions.
Procedure:

1. The vehicle shall be driven in autonomous driving mode, at steady speed while maintaining a straight track. The test shall be carried out for the first time without *override* from the operator to ensure that the vehicle is capable of maintaining the desired path for 100 m. During this test, the operator may not exercise any type of control or contact on the vehicle controls.
2. If the vehicle passes the autonomous driving test, the *override*test shall be carried out:
    a. The autonomous driving process, constant speed, straight line starts.
    b. The distance travelled in autonomous driving before reaching door 1 shall be greater than 100 m.
    c. The operator shall not exercise any type of control or contact on the vehicle controls before reaching door 1.
    d. While the vehicle is between door 1 and 2 the operator shall take control of the steering wheel in order to change the path of the vehicle.
3. The test shall be deemed to have been passed if the following conditions are met:
    a. The vehicle has maintained the desired path while driving in autonomous driving mode.
    b. The operator has changed the trajectory within the limits defined by the doors.
    c. The maximum torque applied by the operator during the path change process has not exceeded 10Nm.
    d. The autonomous driving process has stopped before reaching door 3.

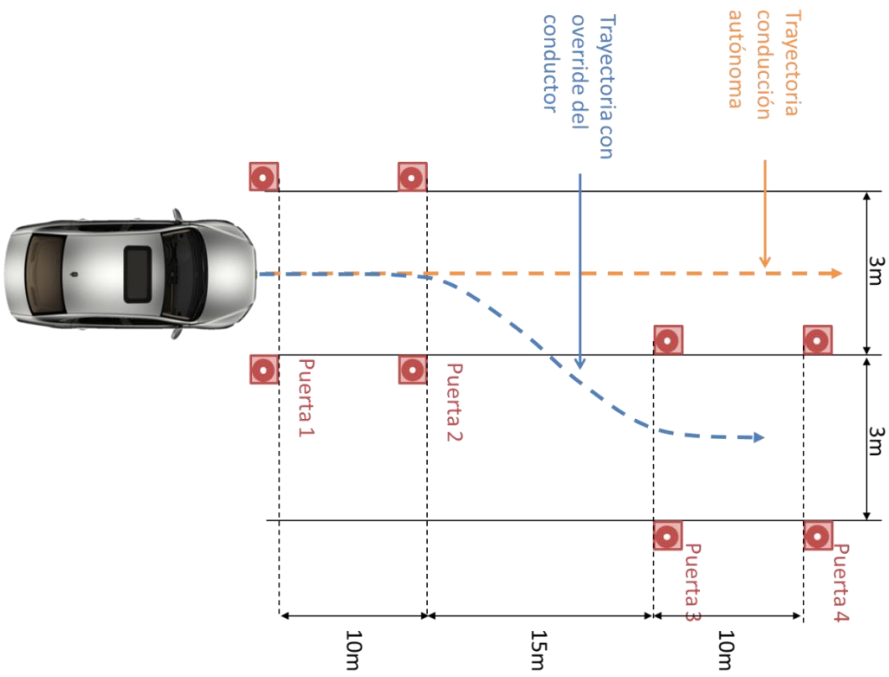


Figure 2 Schedule of the steering wheel override test (the dimensions shown in the figure may be modified in a manner justified by the Centre for Technological Recognition depending on the type of vehicle)

In the case of a vehicle with a steering system other than the conventional steering wheel, the Technology Recognition Centre may adapt the test or consider it to be inappropriate in a justified manner. In addition, depending on the type of vehicle, the Technology Recognition Centre may adapt the test values on a justified basis.

BRAKE PEDAL OVERRIDE:

At any stage of autonomous driving, the operator's override must be detected when acting on the brake pedal. This test shall apply to both the on-board operator and the remote security operator.

The test shall be carried out at a constant speed of 100 km/h, in a straight line and in dry asphalt (or any other surface with a friction coefficient > 0,9). In case the vehicle is not capable of reaching 100 km/h in autonomous driving, the test shall be carried out at the maximum speed allowed by the system.
Procedure:

1. The vehicle shall be driven in autonomous driving mode, at steady speed and on a straight track. The test shall be carried out for the first time without *override* from the operator to ensure that the vehicle is capable of maintaining the desired trajectory for 200 m.
   During this test, the operator may not exercise any control or contact over the vehicle controls.
2. If the vehicle passes the autonomous driving test, the *override*test shall be carried out:
   a. The driving process is started in autonomous mode, constant speed, straight line.
   b. The operator may not exercise any control or contact on the vehicle's controls before having travelled 200 m at the desired speed.
   c. After having travelled 200 m, the operator shall apply a maximum force of 300N on the brake pedal.
3. The test shall be deemed to have been passed if the following conditions are met:
   a. The vehicle has maintained the desired path in autonomous driving mode.

b. The maximum deceleration of the vehicle has exceeded 0.8 m/s2.
c. The mean deceleration during the braking process has exceeded 0.7 m/s2.
d. The autonomous driving mode has stopped during braking.

The mean and maximum decelerations shall be measured according to ISO 43.040.40.

Depending on the type of vehicle, the Technology Recognition Centre may adapt the test values on a justified basis.

ACCELERATOR PEDAL OVERRIDE

At any stage of autonomous driving, the operator's override must be detected when acting on the accelerator pedal. This test shall apply to both the on-board operator and the remote security operator.

The test shall be carried out at a constant speed of 30 km/h (or maximum of the vehicle in automated driving, whichever is lower), in a straight line and in dry asphalt (or any other surface with a friction coefficient > 0,9). The manoeuvre consists of approaching a stationary vehicle and at the moment when the vehicle starts its deceleration phase to prevent impact, the operator shall fully depress the accelerator. This manoeuvre checks that the operator's decision always prevails over that of the autonomous driving system.

Procedure:

1. The vehicle shall be driven in autonomous driving mode, at steady speed while maintaining a straight track. The test shall be carried out for the first time without *override* from the operator to ensure that the vehicle is capable of stopping without impacting.
2. If the vehicle passes the autonomous driving test, the *override*test shall be carried out:
    a. The autonomous driving process, constant speed, straight line starts.
    b. The operator shall not exercise any control or contact over the vehicle controls during the approach phase.
    c. As soon as the autonomous driving system has reduced the speed to less than 25 km/h the operator shall fully depress the accelerator.
3. The test is passed if:
    a. Test 1: The vehicle has maintained the desired path and prevented the impact while driving in autonomous driving.
    b. Test 2: It has resulted in the impact with the vehicle parked in the face of the operator's action on the accelerator.
    c. The autonomous driving process has stopped after the operator's *override*.

The stationary vehicle shall comply with the requirements of Annex A to the EURO-NCAP protocol "*TEST Protocol – AEB systems*". Version1.1.

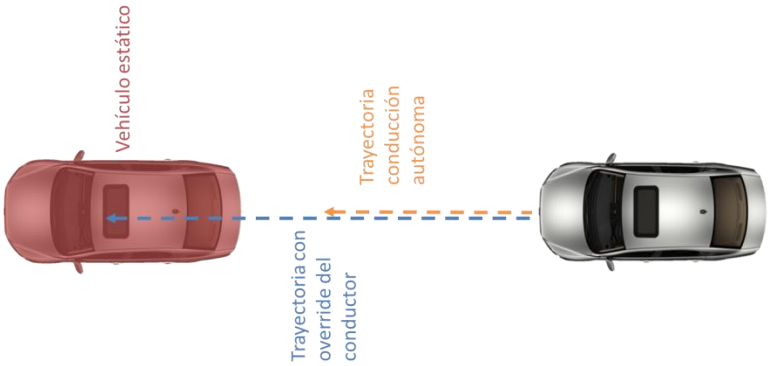


Figure 3 Schedule of the accelerator pedal override test procedure

Depending on the type of vehicle, the Technology Recognition Centre may adapt the test values on a justified basis.

OVERRIDE: EMERGENCY DISCONNECTION (E.G. EMERGENCY PUSHER):

At any stage of autonomous driving, the operator's override must be detected when acting on the emergency disconnection system. This test shall apply to both the on-board operator and the remote security operator. Similarly, it shall be checked for an on-board safety operator in the case of a remotely driven vehicle.
The test shall be carried out at a constant speed of 30 km/h (or maximum of the vehicle in automated driving, whichever is lower), in a straight line and in dry asphalt (or any other surface with a friction coefficient > 0,9). The manoeuvre consists of approaching a parked vehicle and as soon as the vehicle starts its deceleration phase to prevent impact the operator shall actuate the emergency override mechanism. This manoeuvre shows that the operator's decision always prevails over that of the autonomous driving system.
Procedure:

1. The vehicle shall be driven in autonomous driving mode, at steady speed while maintaining a straight track. The test shall be carried out for the first time without *override* from the operator to ensure that the vehicle is capable of stopping without impacting.
2. If the vehicle passes the autonomous driving test, the *override*test shall be carried out:
   a. The autonomous driving process, constant speed, straight line starts.
   b. The operator shall not exercise any control or contact over the vehicle controls during the approach phase.
   c. As soon as the autonomous driving system has reduced the speed to less than 25 km/h the operator shall actuate the emergency override mechanism.
3. The test is passed if:
   a. Test 1: The vehicle has maintained the desired path and prevented the impact while driving in autonomous driving.
   b. Test 2: Resulted in the impact with the vehicle parked in the face of the operator's action on the switch-off system;
   c. The autonomous driving process has stopped after the operator's *override*.

The stationary vehicle shall comply with the requirements of Annex A to the EURO-NCAP protocol "*TEST Protocol – AEB systems"* Version1.1.

Depending on the type of vehicle, the Technology Recognition Centre may adapt the test values on a justified basis.

LONGITUDINAL CONTROL TESTS

The purpose of these tests is to assess the ability of the vehicle to maintain longitudinal control and brake in the event of an emergency. Minimum requirements for longitudinal vehicle control capability are required to ensure that in autonomous driving mode the vehicle is capable of braking in a stable and emergency manner. These tests shall be carried out for vehicles with automated driving capabilities and remotely controlled vehicles.

Requirements for maximum wet deceleration and the ability of the system to avoid scopes and collisions against other possible vehicles and road users are defined.

The brake, autonomous emergency braking and side control test are detailed below.

BRAKING TEST:

The main purpose of this test is to check and ensure the correct functioning of the braking system. Where a vehicle has been approved and the applicant provides a declaration that the brake system has not been modified, these tests may be simplified.

To meet this objective, the vehicle will have to be capable of braking under different conditions and situations as explained below.

Regulation ECE R13H Uniform provisions concerning the approval of passenger cars with regard to braking and ECE R13 Uniform provisions concerning the approval of vehicles of categories M, N and O with regard to braking have been taken as reference documents.

The tests to be carried out must check that the vehicle conforms to the provisions of the braking regulation, but only those tests considered to be basic in the operation of the brake system shall be carried out.

The test specifications shall be adapted to the vehicle where necessary, e.g. in case the initial test speed conditions are not met.

Type 0 – Cold test (Temperature between 65 and 100 °C)

The vehicle shall be laden, the distribution of its mass among the axles being that indicated by the manufacturer. Each test shall also be repeated with the vehicle unladen.

For each case (loaded or unloaded) the test shall be performed as follows:

- Test with engine disconnected (for details see UNECE Regulation No. 13 – Rev.8 – Amend.2 and Regulation No. 13-H – Rev.2 – Amend.3)
- Test with engine connected (for details see UNECE Regulation No. 13 – Rev.8 Amend.2 and Regulation No. 13-H – Rev.2 – Amend.3)

The limits prescribed for the minimum braking performance for both the unladen vehicle and the laden vehicle for M1 shall be as set out below:

Type 0 – Engine disconnected test	v s ≤ D_m≥	100 km/h, $0.1v + 0.0060V^2$ (m) 6.43 m/s^2
Type 0 – Engine connected test	v s ≤ D_m≥	80 % v_{max} ≤ 160 km/h $0.1v + 0.0067V^2$ (m) 5.76 m/s^2
	f	6.5-50 dan

The prescribed limits for minimum performance, both for tests with the unladen vehicle as with vehicle laden for M2, M3 and N are as follows:

	Category	**M2**	**M3**	**N1**	**N2**	**N3**
	Type of test	0 – I	0 – I	0 – I	0 – I	0 – I
Type 0 – Engine disconnected test	v	60 km/h,	60 km/h,	80 km/h,	60 km/h,	60 km/h,
	s ≤ D_m≥	$0.15v + \frac{v^2}{130}$ 5.0 m/s^2				
Type 0 – Engine disconnected test	v – 0.80 * v_{max} but not exceeding	100 km/h,	90 km/h,	120 km/h,	100 km/h,	90 km/h,
	s ≤ D_m≥	$0.15v + \frac{v^2}{103.5}$ 4.0 m/s^2				
	F ≤	6.5-50 dan				

Where

v = test speed, km/h

s = stopping distance, in metres,

D_m = mean fully developed deceleration, m/s^2

f or F = brake pedal force, daN

v_{max} = maximum speed of the vehicle, in km/h

Type I – fatigue test

Heating:

The service brakes of all vehicles shall be tested by accelerating and braking a number of times (respecting the braking intervals between braking and braking), with the vehicle laden, under the conditions shown in the table below (initial braking shall be at 3 m/s^2):

Conditions				
	v_1 (km/h)	**v_2 (km/h)**	**Δt (sec)**	**N**
M1	80 % v_{max} ≤ 120 km/h	0.5v_1	45	15
M2	80 % v_{max} ≤ 100 km/h	0.5v_1	55	15
N1	80 % v_{max} ≤ 120 km/h	0.5v_1	55	15
M3, N2, N3	80 % v_{max} ≤ 60 km/h	0.5v_1	60	20

Where

V1 = initial speed, at start of braking

V2 = speed at end of braking

v_{max} = maximum speed of vehicle

N = number of brakes

Δt = duration of a braking cycle: time elapsing between the start of one brake application and the start of the next brake application.

Hot performance:

At the end of the Type-I test, the hot performance of the service braking system shall be measured under the same conditions as for the Type-0 test with the engine disconnected (temperature conditions may be different). This hot efficiency shall not be less than 75 per cent of that prescribed for M1 and 80 per cent for M2, M3, N1, N2 and N3 and not less than 60 per cent of the figure recorded in the Type 0 test with the engine disconnected.

Evaluation of the system

The performance of the braking system shall be determined by measuring the braking distance in relation to the initial vehicle speed or by measuring the mean fully developed deceleration developed during the test.

- The stopping distance shall be the distance travelled by the vehicle from the moment the operator starts actuating the control of the braking system until the moment when the vehicle stops; the initial speed shall be the speed at the moment when the operator starts actuating the braking system; the initial speed shall not be less than 98 per cent of the speed prescribed for the test in question.

- The mean fully developed deceleration (d_m) shall be calculated as the mean deceleration in relation to distance in interval v_b to v_e, in accordance with the following formula:

$$d_m = \frac{v_b^2 - v_e^2}{25.92\ (s_e - s_b)}$$

Where

v_o = initial vehicle speed in km/h,

v_b = vehicle speed at 0.8 v_{or} km/h,

v_e = vehicle speed at 0.1 v_{or} km/h,

s_b = distance travelled between v_o and v_b in metres,

s_e = distance travelled between v_o and v_e in metres.

The speed and distance shall be determined by instrumentation, the accuracy of which shall be within ± 1 per cent of the speed required for the test. D_m may be determined by methods other than the measurement of speed and distance; in this case, the accuracy of d_m shall be ± 3 per cent.

AUTONOMOUS EMERGENCY BRAKING:

The main purpose of this test is to check and ensure the proper functioning of the autonomous emergency braking system.

To meet this objective, the vehicle will have to be able to avoid impact under different conditions and situations as explained below.

Test protocol – AEB systems, Version 1.0, July 2013 and TEST Protocol – AEB VRU systems Version 1.0, February 2015 have been taken as reference documents.

The autonomous emergency braking performance shall be assessed in the scenarios considered most representative by the reference protocols. Two main scenarios will be assessed in the tests: reach and atrocity. Both situations will be assessed under different conditions:

- Scopes
  - Stationary vehicle
    - Vehicle speed tested: 30, 50 and 70 km/h
  - Vehicle at lower speed
    - Vehicle speed tested: 50 and 70 km/h
    - Opposing vehicle: 20 km/h,
  - Vehicle that stops
    - Both running at 50 km/h and 12 m distance, a vehicle at -4 m/s^2
    - Both running at 50 km/h and 40 m distance, a vehicle at -4 m/s^2
- Atrovities
  - Adult crossing right, 50 % impact point
  - Child crossing right, 50 % point of impact

The vehicle shall be required to avoid impact on all scenarios.

Depending on the type of vehicle, the Technology Recognition Centre may adapt the test values on a justified basis.

LATERAL CONTROL TESTS

The purpose of these tests is to assess the ability of the vehicle to stay on a lane marked with road markings (continuous/discontinuous line). Minimum lateral controllability of the vehicle is required to ensure that in autonomous driving mode the vehicle is capable of running within its lane in a stable manner and without interfering with the adjacent rails.

These tests shall be carried out for vehicles with automated driving capabilities and remotely controlled vehicles.

To meet this objective, the vehicle will have to be able to stay in different conditions on a lane marked by road markings. It shall not be assessed whether the system is capable of operating on an open road without road markings.

The reference documents for these tests shall be taken from the Euro NCAP protocol for Lane Support Systems 2016, which applies to Lane Departure Warning and Lane Keeping Assistance systems.

Two scenarios will be tested:

- Scenario 1 – rail departure, lane signalled with road markings on one side. In this scenario, the vehicle shall be driven in manual mode in the lane indicated. With the vehicle stable, a lane change shall be initiated until a vehicle speed relative to the line is between 0.1 and 0.8 m/s. When the vehicle is 0.5 m

from the line, the operator shall leave the manual driving mode and allow the autonomous driving mode to take control. The systems fitted to the vehicle shall prevent the lane line from being crossed.

- Scenario 2 – maintenance at the centre of the lane, lane marked with road markings on both sides. In this scenario, the vehicle shall be driven in autonomous driving mode in the lane indicated. The vehicle shall remain stable within the lane, without any oscillations.

For each scenario, the following combinations of past events shall be performed:

- Straight line and curve with radius R = 250 m
- Running speed at 30, 50 and 80 km/h
- Left and right rail departure (scenario 1 only).

Each pass (combination of tests) shall be repeated 3 times.

Road markings on lanes or information contained in the digital map shall be representative of the public roads where the tests will be carried out.

The autonomous driving system shall be considered to comply with the lateral control criteria if:

- In all past scenarios 1, the system avoids crossing the line. The cross of the line is defined when the inner edge of the line touches the outer face of the front tyre nearest to the line.
- In all passages of scenario 1, the autonomous driving system maintains the centre of the vehicle on the centreline of the lane within a range of ± 0.25 m for a minimum period of 3 seconds. In addition, the steering wheel speed during the tests is required to always be less than 15°/s.

Depending on the type of vehicle, the Technology Recognition Centre may adapt the test values on a justified basis.

TESTING FOR AND COMPLIANCE WITH ROAD SIGNS

The aim of these tests is to ensure that vehicles are able to ensure that these vehicles, in an autonomous manner, are able to recognise and respect road signs, both vertical and horizontal.

The terms and conditions for accepting this requirement consider two alternative testing methodologies:

- A closed circuit test with physical vertical and horizontal signs.
- A circuit test using digital maps including information from different speed limits.

Only one of the two tests will need to be passed in order to be able to pass this request, although a combination of the two tests may be carried out.

In order to be able to carry out only the second test, the applicant shall demonstrate that he has a digitalised map of the test area permanently updated and with reliable information during the public road test period.
If the applicant can ensure that road signs are identified and respected by another system described above, the Technology Recognition Centre may develop a testing methodology to ensure compliance with general traffic regulations.

In the case of remotely controlled vehicles, a test shall be carried out in which the remote operator can adapt the vehicle speed as indicated.

SPECIFIC SCENARIO TESTING

The test plan shall check the performance declared by the applicant for the vehicle in the scenarios contained in the vehicle documentation (e.g. incorporation manoeuvres, intersections, glorides, overtaking, etc. which have not been explicitly covered by the above tests).
The Technology Recognition Centre may consider test scenarios that replicate those conditions and the applicant shall provide the appropriate means for carrying out those tests.
As an acceptance criterion, it is established that the vehicle should respond as declared by the applicant and that this response is safe for traffic.
This test shall apply to both the on-board operator and the remote security operator.

4. DYNAMIC CHECK IN THOSE VEHICLES OR USE CASES WHERE SOME OF THE TERMS OF PARAGRAPH 3 DO NOT APPLY.

For those vehicles or uses for which the dynamic check procedure set out in this programme does not apply, the technology recognition centre responsible for its verification shall analyse the functionalities and environment in which the automated vehicle will move and establish the test conditions representative of all situations that may be encountered. Similarly, the applicant shall document the vehicle's operating scenarios as well as the control decisions taken by the vehicle under certain circumstances which will be checked in the test procedure designed by the technology recognition centre.
The Technology Recognition Centre shall consider representative tests adapted for that vehicle, taking into account the signals or means used for longitudinal control, lateral guidance, stopping of obstacles and action in the event of unforeseen events or failures in the operation of the systems.
The technology recognition centres shall assess the technologies used by the vehicle for its guidance and action in order to provide appropriate evidence of its proper functioning in the face of unfavourable situations.

The tests are aimed at assessing the performance of the vehicle for a pre-defined scenario and environment. The test procedure defining the technology survey centre, which shall be representative of the operational conditions for each vehicle in question, shall include, on a non-exclusive basis, the following test blocks:

CONVENTIONAL DRIVING TESTS

The applicant shall indicate the means available for the operation of the vehicle in manual mode by means of a driver – operator. The correct longitudinal and lateral control shall be checked if the available controls so permit. In the case where the vehicle does not have a steering wheel (or similar type of control), the technology survey centre shall establish the adaptation or relevance of the tests.
These requirements shall be verified on the test vehicle from the following manoeuvres:

- Straight driving up to 50 km/h (or maximum permitted speed in manual mode, whichever is lower) to check speedometer and absence of deflection, vibrations, noise or other anomalies.
- Curve output up to 50 km/h (or maximum permitted speed in manual mode, whichever is lower) for the self-return check of the steering wheel (if the vehicle is equipped with a steering wheel) and absence of vibrations, noise or other anomalies.
- Support changes within the same lane with initial speeds up to 50 km/h (or maximum permitted speed in manual mode, whichever is lower) for the assessment of stability, control and absence of vibrations, noise or other anomalies
- Braking up to 0.5 g with initial speeds up to 50 km/h (or maximum permitted speed in manual mode, whichever is lower) for the check of absence of diversion, noise vibration or other anomalies.
- Braking to ABS locking or activation (if the vehicle is equipped with ABS) with initial speeds up to 50 km/h (or maximum permitted speed in manual mode, whichever is lower) for the absence of diversion check, noise vibration or other anomalies.

OVERRIDE TESTS (PREDOMINANCE OF MANUAL CONTROLS OVER AUTOMATED FUNCTIONS)

Vehicles not fitted with a conventional steering control or longitudinal control system operated in the same mode (accelerator/brake) shall not be subject to the override requirements specified in this Appendix. In this

case, it is mandatory to have an emergency actuator capable of activating an 'emergency manoeuvre' on the vehicle. The purpose of this manoeuvre is to stop the vehicle as soon as possible, reducing the autonomous driving time to a minimum in order to ensure safety and avoid collision. If some of these override systems are available, the Technology Recognition Centre may adapt the tests provided for in this programme.
The applicant shall declare which safety systems can be used by the driver – operator in case of detection of a risk situation or malfunction.
It is for the applicant to define in its technical documentation the characteristics of its "emergency manoeuvre" and the technology recognition centre to assess whether it is a safe manoeuvre. In addition, it shall verify its operation in accordance with the applicant's specifications.
Once this 'emergency manoeuvre' is completed, it must be the driver – vehicle operator who deliberately reactivates the autonomous driving function.

LONGITUDINAL CONTROL TESTS

For vehicles for which it is not possible to apply the tests described in this Appendix due to system limitations or other justified reasons, the means used by the vehicle to perform the speed control (pre-charged profile, reading of road signs, etc.) should be evaluated and the tests adapted to be representative of that medium.

BRAKING TEST (CONVENTIONAL MODE)

In the case that the vehicle is unable to perform the longitudinal control tests in manual mode, the technology survey centre shall adapt the tests mentioned below by changing the specified speed or mass by values corresponding to the characteristics of the test vehicle or of the track/route where the vehicle is to be tested:

- Type 0 cold test: Adapting the initial stop speed
- Type I test (fading): In case the vehicle for construction reasons is not capable of achieving the speed v1 within the prescribed time, 10 s shall be added to the time shown in the table (-t) and shall be braked at the speed reached (even if v1 has not been reached).

The criterion of compliance with these tests shall be the same as that established for the tests specified in this Appendix.
In case the vehicle has a maximum design speed of less than 25 km/h it is exempted from conducting the longitudinal check tests.

AUTONOMOUS BRAKING TEST

All tests defined as defined shall be carried out. If these checks cannot be performed, the technology survey centre shall adapt the conditions of these tests to the construction characteristics of the vehicle or to the route conditions.

- If the vehicle does not reach any of the set test speeds, the test shall be conducted at the maximum speed achievable by the vehicle.
- The in-motion target speed, in this case, shall be determined by the Technology Recognition Centre (or agreed between the Technology Recognition Centre and the applicant) depending on the other users running on the track during open track tests.

The vehicle is required to avoid impact on all scenarios.
Similarly, the Technology Recognition Centre may adapt the obstacle typology according to the operations and in-vehicle systems declared by the applicant.

PRE-CHARGED SPEED PROFILE/TRAFFIC SIGNALS READING

The Technology Recognition Centre shall carry out tests in which it can be verified that the vehicle is able to follow as closely as possible the pre-charged speed profile (or, where appropriate, the reading of road signs).

LATERAL CONTROL TESTS

For vehicles where longitudinal and lateral control is carried out by guidance or similar (tracking of lines, GPS coordinates,...), the tests described should be considered according to the operation of such guidance systems and the technical documentation provided by the applicant.

In case the vehicle is not designed to perform the actions described in scenario 1 (lane exit), it may be exempted from the lane.

The tests in Scenario 2 (centre of lane maintenance) shall be performed on an agreed path between the applicant and the Technology Recognition Centre, using the same method to be used during the open road tests.

In both scenarios the test conditions will be adapted to the limitations and specifications of the vehicle (radius of curves, speed of running and lane departure, if applicable).

The autonomous driving system shall be considered to comply with the lateral control criteria if:

- In all past scenarios 1, the system avoids crossing the line. The cross of the line is defined when the inner edge of the line touches the outer face of the front tyre nearest to the line.
- In all passages of scenario 2, the autonomous driving system keeps the vehicle within the defined lane or safety area for that vehicle (in the case that it does not move through a lane).

SPECIFIC SCENARIO TESTING

The test plan shall check the performance declared by the applicant for the vehicle in the scenarios contained in the vehicle documentation (e.g. incorporation manoeuvres, intersections, glorides, overtaking, etc. which have not been explicitly covered by the above tests).

The Technology Recognition Centre may consider test scenarios that replicate those conditions and the applicant shall provide the appropriate means for carrying out those tests.

As an acceptance criterion, it is established that the vehicle should respond as declared by the applicant and that this response is safe for traffic.

This test shall apply to both the on-board operator and the remote security operator.

5. CHECK OF FUNCTIONAL SAFETY SYSTEMS DECLARED IN THE RISK ASSESSMENT REQUIRED IN I.3 (MALFUNCTION TESTS)

The applicant shall provide the Technology Recognition Centre sufficiently in advance with a methodological risk assessment (HARA, HAZOP or other alternative methods) including the proposed mitigation where necessary.

The purpose of the tests is to confirm that the behaviour of the vehicle is the same as that declared by the applicant in situations of system failure and it can be ensured that the tests are carried out safely.

The Technology Recognition Centre will assess the suitability of the risk list defined in 1.3 and the validity of all proposed mitigations and whether this study is complete and consistent.

Following the analysis, the risks and mitigations proposed by the applicant shall be assessed by simulating the occurrence of these risks. The number of situations and risks to be tested shall be chosen at the discretion of the Technology Recognition Centre, establishing the appropriate testing procedure based on the analysis provided by the applicant. . Appropriate tests shall be carried out to check the correct operation of the vehicle against the situations described in the risk assessment.

Annex 1: Factsheets Reducted

Category M1 and N1 derivatives (passenger cars and their derivatives)	
Data	
Brand	
Type/variant/version	
Commercial name	
Vehicle category	
Name and address of the manufacturer of the base vehicle:	
Name and address of the manufacturer of the last stage of manufacture of the vehicle	
Location of the manufacturer's plate	
Fixed part VIN	
Location of the vehicle identification number	
Base vehicle:	
Approval number (including extension):	
Date:	
Complete/completed vehicle	
Approval number (including the relevant extension)	
Date	
GENERAL CONSTRUCTION OF THE VEHICLE	
Number of axles and wheels	
Drive axles (no, location and interconnection):	
MASSES AND DIMENSIONS	
Distance between axles	
Axle tracks	
Length	
Maximum permissible length of the completed vehicle	
Width	
Maximum permissible width of the completed vehicle	
Height	
Rear overhang	
Mass of the vehicle in running order	
Minimum permissible mass of the completed vehicle	
Technically permissible maximum laden mass (MATM)	
Intended registration/in service maximum permissible laden mass (MMA) X X	
Technically permissible maximum laden mass on each axle (MMTA 1°, 2°...) X X X	
Intended registration/in service maximum permissible laden mass on each axle (MMA 1°, 2°,..)	
Technically permissible maximum mass of the combination (MMTC):	
Intended registration/in service maximum permissible laden mass of the combination (MMAC)	
Technically permissible maximum towable mass of the motor vehicle, in the case of:	

Drawbar trailer:	
Centre-axle trailer:	
Maximum mass of unbraked trailer:	
Technically permissible static vertical load/maximum mass at the coupling point of the motor vehicle	
POWER PLANT	
Engine manufacturer or make	
Manufacturer's engine code	
Internal combustion engine	
Principle of operation	
Number and arrangement of cylinders:	
Engine capacity (cm^3)	
Type of fuel or energy source	
Maximum net power (kW) at (min)	
Pure Electric Engine (if/not)	
Maximum hourly power (kW)	
Hybrid Engine (yes/no)	
Type	
TRANSMISSION	
Type (Mechanical/Hydraulic/Electrical/etc.)	
Gearbox (type)	
No of relationships	
SUSPENSION	
Brief description of the type of front and rear suspension	
Tyres and wheels (main characteristics)	
ADDRESS	
Address, type of assistance.	
BRAKING	
Brief description of the braking system. ABS: yes/no	
BODYWORK	
Type of bodywork (according to Annex II, Part C of Directive 2007/46/EC)	
Devices for indirect vision other than rear-view mirrors	
Number and arrangement of doors	
Number of seating positions (including driver)	
EC type-approval number of coupling device, if any	
Delantera Protection Systems: Yes/No Details of	
devices	
LIGHTING AND LIGHT-SIGNALLING DEVICES	
Mandatory devices (Number)	
Optional devices (Number)	
SEVERAL	
Maximum speed	
Stationary noise level: DB (A) to min-1	
Emission level: Euro....	
CO2 emission (Mixed cycle): g/km	

Fiscal Power (CVF)	
Observations	
Options included in type-approval	
Signature authorised according to RFFR	

Categories M2 and M3 (coaches and buses) and N2 and N3 (commercial vehicles)	
Make (*)	
Type (*)/Variant/Version	
Trade name (*)	
Category of vehicle (*)	
Name and address of manufacturer of the base vehicle	
Name and address of the manufacturer of the last stage of manufacture of the vehicle:	
Location of the manufacturer's plate (*)	
Fixed part of the VIN (complete chassis number) (*)	
Location and identification number of the vehicle (*)	
Base vehicle:	
Type approval number	
Date:	
Complete/completed vehicle:	
Approval number (including extension):	
Date:	
GENERAL CONSTRUCTION OF THE VEHICLE:	
Number of axles and wheels (*)	
Number and location of axles with twin wheels (*)	
Description of axles. Type and capacity (*)	
Number and position of steered axles (*)	
Drive axles (no, location and interconnection) (*)	
MASSES AND DIMENSIONS:	
Distance between consecutive axles 1°, 2°, 3°... (*)	
Advance 5st wheel (maximum and minimum in case of 5st adjustable wheel) (*)	
Track of each axle 1.o/2.o/3.o... (*)	
Length (*)	
Width (*)	
Height (in running order) (*)	
Rear overhang (*)	
Mass of the vehicle in running order (*)	
Technically permissible maximum laden mass (MMTA) (*)	
Distribution of this mass among the axles 1.o/2.o/3/punto coupling if there is a trailer...	
Technically permissible maximum laden mass for each axle 1.o/2.o/3.o... (*)	
Technically permissible maximum mass of the combination (MMTC) (*)	

Intended registration/in service maximum permissible laden mass (MMA) (*)	
Intended registration/in service maximum permissible laden mass on each 1.o/2.o/3.o axle (*)	
Intended registration/in service maximum permissible laden mass of the combination (MMTC) (*)	
Intended registration/in service maximum permissible laden mass of the combination (MMAC) (*)	
Technically permissible maximum towable mass of the motor vehicle, in the case of:	
Drawbar trailer (*) (if available)	
Semi-trailer (*) (if available)	
Centre-axle trailer (*) (if fitted)	
Maximum mass of unbraked trailer (*) (if available)	
Technically permissible static vertical load/maximum mass at the coupling point of the motor vehicle (*) (if available)	
POWER PLANT:	
Engine manufacturer or make (*)	
Engine manufacturer's code (in case of heavy-duty vehicles, if relevant include marking, fuel identification) (*)	
Internal Combustion Engine	
Working principle (*)	
Number and arrangement of cylinders (*)	
Cylinder capacity (*)	
Type of fuel or energy source (*)	
Maximum net power kW at min^{-1} (*)	
Pure Electric Engine (if/not)	
Maximum hourly power (KW) (*)	
Hybrid motor (yes/no)	
Type (*)	
TRANSMISSION:	
Type (mechanical/hydraulic/electric, etc.) (*)	
Gearbox (type) (*)	
Number of relationships (*)	

Category L (vehicles with 2 and 3 wheels and quadricycles)	
Chassis type	
Number of axles and wheels	
Drive axles	
Distance between axles	
Masses AND DIMENSIONS (in mm and kg)	
Front track	
Rear track	
Length	
Maximum permissible length of the completed vehicle	

Width	
Maximum permissible width of the completed vehicle	
Height	
Front/rear overhang	
Mass of the vehicle with bodywork in running order	
Distribution of this mass among the axles	
Technically permissible maximum laden mass	
Technically permissible maximum laden mass 1° axle	
Technically permissible maximum laden mass 2° axle	
Maximum towable mass: Braked/unbraked brake (if applicable)	
POWER PLANT	
Engine manufacturer or make	
Code marked on the engine	
INTERNAL COMBUSTION ENGINE	
Principle of operation	
Number and arrangement of cylinders:	
Displacement	
Type of fuel or energy source	
Maximum net power (kW) at (min-1)	
Type of refrigeration	
Supply system (Carburettor/injection)	
Power ratio max/mass of Col. in running order	
ELECTRIC ENGINE	
Maximum continuous power (Kw)	
HYBRID ENGINE (YES/NO)	
Type	
TRANSMISSION	
Clutch (type)	
Gearbox (type)	
No of relationships	
Final ratio	
Gear ratio	
SUSPENSION	
Brief description of the type of front suspension	
Brief description of the type of rear suspension	
Description of the measurement of axle tyre 1 (provide minimum load and speed indices)	
Description of the measurement of axle tyre 2, (provide minimum load and speed indices)	
Regulation on Tyre Approval	
ADDRESS	

Address	
BRAKING	
Brief description of the service braking system (front/rear/combined)	
Braking devices on the front axle	
Braking devices on the rear axle	
Parking braking system	
ABS: Yes/No	
BODYWORK	
Type of bodywork	
Number and arrangement of doors	
Number and location of seats	
Number of places	
EC component type-approval mark of coupling device, if any	
Types or classes of coupling devices that can be fitted	
Characteristics values: D/S	
Stationary noise level: DB (A) to min-1	
Silencer reference	
Brand	
Reference	
Catalyst	
CO value (g/min) in mopeds, (% volume) other categories	
Corrected value absorption coefficient: min-1 (for compression ignition).	
CO2 emission (combined) (if applicable)	
Fiscal Power (CVF)	
Observations	
Options included in type-approval	
Signature authorised according to RFFR	

Annex 2: Technical fiche (ITV card data)

A.1	Manufacturer name of base vehicle
A.2	Address of manufacturer of base vehicle
B.1.	Manufacturer name of the completed vehicle
B.2.	Address of manufacturer of completed vehicle
C.I	ITV code
C.L	Categorisation of the vehicle
C.V	VIN control
D.1	Brand
D.2	Type/Variant/Version
D.3	Commercial description of the vehicle
D.6	Provenance
E	Vehicle identification No
EP	Protection structure
EP.1	Marking of the protective structure
EP.2	Model of the protective structure
EP.3	Approval No of the protective structure
EP.4	No identification of the protective structure
F.1	Technically permissible maximum laden mass (MMTA)
F.1.1	Technically permissible maximum laden mass on each 1.o/2.o/3.o axle
F.1.5	Technically permissible maximum laden mass on 5st wheel or coupling pin
F.2	Permissible maximum laden mass of the in-service vehicle (MMA)
F.2.1	Maximum permissible mass on each axle 1.o/2.o/3.o
F.3	Technically permissible maximum mass of the set (MMTAC)
F.3.1	Authorised Maximum Mass of MMC Assembly
F.4	Total height
F.5	Overall width
F.5.1	Maximum bodyable width
F.6	Total length
F.6.1	Maximum bodyable length
F.7	Previous track
F.7.1	Backward track
F.8	Back overhang
F.8.1	Maximum back overhang
G	Mass in running order (MOM)
G.1	Unladen mass for L-category vehicles
G.2	Permissible minimum mass of the completed vehicle
J	Vehicle category
J.1	Vehicle body

J.2	Class
J.3	Volume of wineries
K	Base vehicle approval number
K.1	Approval No of the completed vehicle
K.2	TITV base vehicle number
L	Number of axles and wheels
L.0	No and position of axles with twin wheels
L.1	Drive axles
L.2	Dimensions of tyres
M.1	Wheelbase 1°-2°, 2°-3°
M.4	Distance between 5st wheel or coupling pin and last axle
O.1	Braked towable mass/Technical permissible towable mass of the power-driven vehicle in the case of:
O.1.1	Drawbar
O.1.2	Semi-trailer
O.1.3	Centre-axle trailer
O.1.4	Trailer without brake
O.2.1	Technically permissible maximum towable mass with mechanical brakes
O.2.2	Technically permissible maximum towable mass with inertia brakes
O.2.3	Technically permissible maximum towable mass with hydraulic or pneumatic brakes
O.3	Type of service brake
P.1	Displacement
P.1.1	Number and arrangement of cylinders:
P.2	Engine power
P.2.1	Fiscal power
P.3	Type of fuel or energy source
P.5	Engine identification code
P.5.1	Engine manufacturer or make
Q	Power to mass ratio
R	Color
S.1	No of seating positions/No of seats or saddles
S.1.2	Safety belts
S.2	No of standing places
T	Maximum speed
U.1	Sound level in stopping
U.2	Engine speed at which sound level or stationary vehicle is measured
V.7	Emissions of CO2
V.8	CO emissions
V.9	Level of emissions
Z	Year and number of short series

Annex 3: Model technical documentation describing the characteristics of the vehicle

0. GENERAL
   - 0.1. Vehicle manufacturer:
     - 0.1.1. Name and address of manufacturer... .....
     - 0.1.2. Name (s) and address (es) of assembly plant (s): .....
     - 0.1.3. Name and address of representative (if applicable): .....
   - 0.2. Vehicle data:
     - 0.2.1. Brand name: .....
     - 0.2.2. Types: .....
     - 0.2.3. Chassis number: .....
1. GENERAL CONSTRUCTION CHARACTERISTICS
   - 1.1. Description of the functionalities of the system to be tested (indicate whether they are optional or if it is an update) .....
   - 1.2. List of functionalities and software version: .....
2. DESCRIPTIVE DOCUMENTATION
   - 2.1. Functional safety associated with risk assessment:
     - 2.1.1. Hazard Risk Analysis (HARA): .....
     - 2.1.2. Failure Mode Effect Analysis (FMEA): .....
     - 2.1.3. Equivalent method: .....
   - 2.2. Emergency unemployment:
     - 2.2.1. Description of *override* on brake pedal: .....
     - 2.2.2. Description of the *override* on the accelerator pedal: .....
     - 2.2.3. Description of *override* in steering wheel: .....
     - 2.2.4. Description of *override* by another system: .....
   - 2.3. Cybersecurity:
     - 2.3.1. Description of the cybersecurity measures taken into account in the development of the system:
   - 2.4. Electromagnetic Compatibility (EMC):
     - 2.4.1. Electromagnetic emissions entitlement document: .....
   - 2.5. Signal recognition:
     - 2.5.1. Description of the signal recognition system: .....
3. ADDITIONAL DOCUMENTATION:
   - 3.1. Declaration of vehicle characteristics or use cases where some of the terms of Annex IV paragraph 3 do not apply (if applicable): .....

Annex 4: Checklist scenarios and functionalities

(as required in the Documentation section on system design and testing functionalities/scenarios)

HOJA de CHEQUEOS DE SEGURIDAD DEL VEHÍCULO			
ESCENARIOS Y FUNCIONALIDADES			
CÓDIGO DE MUESTRA:		VIN:	
SOLICITANTE:	MODELO:	MATRICULA:	
Situación de tráfico: (marcar todas las que apliquen)	Urbana ☐ Interurbana ☐ Vía rápida ☐		
Tipo de vía: (marcar todas las que apliquen)	Zona urbana ☐ Zona peatonal ☐ Carretera secundaria con circulación en doble sentido sin separación de carriles ☐ Carretera secundaria con circulación en doble sentido con separación de carriles ☐ Carretera nacional, 1 carril de circulación ☐ Carretera nacional, múltiples carriles de circulación ☐ Autovía ☐ Autopista ☐		
Vías identificadas que cumplen estas condiciones:			
Condiciones de tráfico: (marcar todas las que apliquen)	Intensidad de tráfico requerida:	Muy alta ☐ Alta ☐ Media ☐ Baja ☐ Muy baja ☐	
	Vehículos / usuarios propios del ensayo que intervendrán en el ensayo:	Turismos ☐ Camiones ligeros ☐ Camiones pesados ☐ Motocicletas ☐ Bicicletas ☐ Otros ☐ Especificar:	
	Vehículos / usuarios ajenos al ensayo que pueden intervenir en el ensayo	Turismos ☐ Camiones ligeros ☐ Camiones pesados ☐ Motocicletas ☐ Bicicletas ☐ Otros ☐ Especificar:	
Condiciones de ensayo (marcar todas las que apliquen)	Condiciones de luz:	Dia ☐ Noche ☐ Amanecer/atardecer ☐	
	Condiciones climatológicas	Soleado ☐ Lluvia ligera ☐ Lluvia intensa ☐ Nieve ☐ Nublado ☐ Niebla ☐	
Maniobras a realizar (marcar todas las que apliquen)	Tipo de maniobra:	Adelantamiento ☐ Intersección ☐ Otras ☐ Especificar:	
	Condiciones límiete esperadas	Velocidad maxima ☐ km/h Deceleración longitudinal máxima ☐ g Aceleración lateral máxima ☐ g	

Annex 5: MODEL CERTIFICATE OF THE TECHNOLOGY RECOGNITION CENTRE

CERTIFICATE
FOR THE AUTHORISATION OF TESTS OR RESEARCH TESTS CARRIED OUT ON AUTOMATED VEHICLES ON ROADS OPEN TO TRAFFIC IN GENERAL

1. Applicant:
2. Vehicle trademark:
3. Type of vehicle
4. Vehicle chassis number:
5. Name and address of the vehicle manufacturer:
6. Name and address of the manufacturer of the automated driving system (if different from above):
7. Name and address of legal representative (if any):
8. Location of open road tests:
9. Restrictions on use:
10. Technology recognition centre responsible for certification:
11. Date of report delivered by this centre:
12. Report number delivered by this centre:

The described vehicle complies with the requirements laid down in the ES-AV Programme (Instruction DGT VEH 2025/07) on authorisation of operations and circulation for tests carried out on automated vehicles on roads open to traffic in general.

Place:

Date:

Signature:

APPENDIX 5 REMOTE DRIVING AND REMOTE SECURITY OPERATOR. FUNCTIONAL SAFETY REQUIREMENTS

A5.1 Vehicles equipped with systems enabling remote driving as an operating model or a remote safety operator shall ensure the necessary communication properties (at least latency and resolution, but not exclusively) to enable the remote operator at all times to control the vehicle safely, complying with traffic rules and ensuring the safety of vehicle occupants and other road users.

A5.2 It is not for this programme to define the permissible values of the communications properties in which the vehicle is to operate, but it will be for the applicant entity itself to establish those criteria on the basis of the characteristics of the operations and the capabilities of the system. The Centre for Technological Recognition should assess whether these limits are appropriate for the concrete application.

A5.3 However, the applicant shall include risk assessment, mitigation of potential communications failures and security gaps, which shall have been assessed by a duly accredited independent third party.

A5.4 In any case, at a controlled and extensive testing phase, the operation of these vehicles shall always be equipped with an on-board safety operator who shall be able to take control of the vehicle in the event of system failures or loss of communications. The applicant entity must have specifically defined and tested the intervention scenarios of this operator, in particular in cases of loss of communications or latency exceeding the design thresholds.

A5.5 The remote driving system should ensure that, in the event of a communication failure between the vehicle and the remote operator, the vehicle is able to maintain safety by performing manoeuvres leading to a minimum state of risk to ensure the safe stopping of the vehicle. The minimum risk manoeuvre that can be taken by the vehicle shall be consistent with the autonomous driving capabilities of the vehicle (in the case of a remotely controlled vehicle without autonomous navigation capability, the vehicle shall be capable of carrying out at least the emergency stop).

For this purpose, two fault scenarios shall be tested to verify the response of the vehicle to communication problems:

a. remote-driver-vehicle communication cut: and,

b. deterioration of the properties of communications between the two.

The applicant must provide the means to the Technology Recognition Centre to be able to check the operation in these scenarios. If software modifications are necessary, the applicant shall describe them in a self-declaration.

A5.6 In order to ensure the provisions of the first subparagraph, simulations of total or partial loss of communications shall be carried out bidirectionally between the remote operator and the vehicle and vice versa in such a way as to verify the ability of the vehicle to stop when there are failures in latency or resolution, including deteriorations not detectable by the remote operator. In addition, it must be ensured that the remote driver has the operational capability to stop the vehicle as well as to perform the safe state manoeuvre.

A5.7 In addition to the provisions of point A5.5, vehicles must be equipped with the following ADAS systems which must be operated at all times and automatically activated in the event of remote driving system failures, loss of communications and safety gaps.

a. AEBS

b. ACC, combined with lane keeping system

c. LKAS

A5.8 The entity shall determine the minimum time during which the above systems will operate automatically from the moment of detection of the failure until the on-board security operator takes full control of the vehicle.

A5.9 The system and the vehicle shall comply with the provisions of UN Regulations 155 and 156 in so far as they apply to them. Compliance with ISO/SAE 21434 standards is also recommended in order to protect communications and avoid interference from unauthorised third parties. For this purpose, the applicant shall provide a certificate of cybersecurity tests to verify the system's resilience to possible interference.

For those aspects which are not included in this Appendix, vehicles with automated driving capabilities shall additionally comply with the requirements set out in Appendix 4 where remote driver or remote safety operator shall act as a conventional driver. Vehicles with remote driving but without automated driving capabilities shall, in addition to the requirements of this Appendix, comply with the conventional driving and emergency stop conditions where the remote driver shall act as a conventional driver.