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Interpretation of EU Regulation 2022/1426 on the Type Approval of Automated Driving Systems

Addendum 2 on testing for type approval and Operational Design Domain

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Contents

Abstract

In 2022, the European Commission adopted the first worldwide legislation concerning the type-approval of the Automated Driving Systems of fully Automated Vehicles, opening the road to their introduction to the European market. The EU, in this way, becomes the first market in the world where this new generation of vehicles can be placed with a complete and unambiguous legislative framework.

In order to define the conditions for the type-approval of vehicles operating without the presence of a driver, the EU Regulation 2022/1426 introduces a series of completely innovative elements that both industry and the Approval Authorities of the European Member States have the task to operationalise.

The European Commission has launched in 2022 the process of drafting an interpretation of some among the most innovative aspects of the Regulation. At the beginning of the 2024 the first interpretation document was published (ref. JRC136417) to ensure the establishment of as harmonized as possible practices across the EU. Furthermore, at the beginning of 2025, a first addendum to the interpretation document covering aspects of the Safety Management System and Remote Management sections has been published to expand the scope of the initial work (ref. JRC140978).

The present report is therefore a second addendum to the first interpretation document which includes some guidance and interpretation material concerning the testing to be conducted by the Type-Approval Authority for type-approval and the Operational Design Domain of the Automated Driving System.

It has been drafted with the active contribution by the experts who compose the Automated and Connected Vehicles sub-group of the Working Group on Motor Vehicles (MVWG-ACV).

Acknowledgements

The report is the result of the discussions and the contributions by the experts part of the Working Group on Motor Vehicles (MVWG), established 1970 to assist the European Commission (in particular DG GROW) in the preparation of legislative proposals and policy initiatives related to motor vehicles. In particular, the contributors are all part of the sub-group focusing on Automated and Connected Vehicles (ACV)[1]. Tobias Reich has supported the development of this report on behalf of the European Commission Joint Research Centre.

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[1] All documents produced by the MVWG-ACV sub-group are available in the relevant section of the European Commission Communication and Information Resource Centre for Administrations, Businesses and Citizens (Circabc) Library

1. Introduction

1.1 The present document provides information to support the interpretation of the requirements established in the Commission Implementing Regulation (EU) 2022/1426 on laying down rules for the application of Regulation (EU) 2019/2144 of the European Parliament and of the Council as regards uniform procedures and technical specifications for the type-approval of the automated driving system (ADS) of fully automated vehicles (European Commission, 2022, referred to as "Regulation" hereinafter). The document also provides information and guidance on possibilities to comply with those requirements, and how to provide evidence of such compliance.

1.2 In a similar way concerned is the type approval of the automated driving system (ADS) of highly automated vehicles. Hence, the considerations in this interpretation document may also be applied to other complex systems related to ADS presented for type approval.

1.3 The target audience are manufacturers submitting systems for type-approval, other organizations involved in the ADS lifecycle, and the Technical Services / Approval Authorities assessing those systems. The purpose is to facilitate a harmonized interpretation and implementation of the Regulation.

1.4 The document strictly provides information to support the interpretation of the Regulation; it does in no form introduce new requirements. Whenever conflicting, the contents of the Regulation are legally binding.

2. Note regarding evidencing the requirements

2.1 This document is intended to provide support for the interpretation of the Regulation, and provides indications on what may constitute "acceptable means of compliance" (AMC) for the Technical Services / Approval Authorities and on the information that manufacturers and other organizations involved in the ADS lifecycle should supply. It provides information only, it is applicable on a voluntary basis and it is not intended to be exhaustive, i.e., means of compliance other than those illustrated here may be acceptable. The document cannot create additional obligations; moreover, it provides material to assist in understanding what information may be useful in demonstrating compliance and to contribute to uniform implementation. The AMCs are developed with the presumption of compliance with the rules, so that it is recognised that conforming to these AMCs is one acceptable way of complying with the relevant section of the Regulation.

3. Guidance on the requirements of Regulations (EU)2022/1426

3.1. In the following, paragraph numbers refer to the same articles of the Regulation.

3.2. In the following, text in "italic" recalls the original text from the Regulation, whereas text in "grey" outlines the interpretation to the corresponding regulatory text.

A. Articles of the Regulations

No guidance included in this document as regards this Annex.

B. ANNEX I - Information document for EU type-approval of fully automated vehicles with regard to their automated driving system

No guidance included in this document as regards this Annex.

C. ANNEX II - Performance Requirements

1. DDT under nominal traffic scenarios

No guidance included in this document as regards this paragraph.

2. DDT under critical traffic scenarios (emergency operation)

No guidance included in this document as regards this paragraph.

3. DDT at ODD boundaries

No guidance included in this document as regards this paragraph.

4. DDT under failure scenarios

No guidance included in this document as regards this paragraph.

5. Minimal risk manoeuvre (MRM) and Minimal risk Condition (MRC)

No guidance included in this document as regards this paragraph.

6. Human machine interaction

No guidance included in this document as regards this paragraph.

7. Functional and operational safety

No guidance included in this document as regards this paragraph.

8. Cyber security and software updates

No guidance included in this document as regards this paragraph.

9. ADS data requirements and specific data elements for event data recorder for fully automated vehicles

No guidance included in this document as regards this paragraph.

10. Manual driving mode

No guidance included in this document as regards this paragraph.

11. Operating manual

No guidance included in this document as regards this paragraph.

12. Provisions for periodic roadworthiness tests

No guidance included in this document as regards this paragraph.

D. ANNEX III - Compliance assessment

This document provides a general guidance on the process for the overall compliance assessment. However, the focus is on providing guidance on the tests performed by the type-approval authority (or its technical service) in accordance to the Part 2 and Part 3 of the compliance assessment

Part 1 Traffic scenarios to consider

1. Minimum set of traffic scenarios

No dedicated guidance included in this document as regards this paragraph.

2. Scenarios not covered by point 1

Part 2 Assessment of the ADS safety concept and audit of the manufacturer Safety Management System

1. General

No guidance included in this document as regards this paragraph.

2. Definitions

No guidance included in this document as regards this paragraph.

3. Documentation on the ADS

3.1. Requirements

The manufacturer shall provide a documentation package which gives access to the basic design of the ADS and the means by which it is linked to other vehicle systems or by which it directly controls output variables as well as off-board hardware/software and remote capabilities. [...]

[...] The type-approval authority shall assess the documentation package which shall show that the ADS:

(a) is designed and was developed to operate in such a way that it is free from unreasonable risks for a vehicle occupants and other road users within the declared ODD and boundaries;

(b) fulfils the performance requirements of Annex II to this Regulation;

(c) was developed according to the development process/method declared by the manufacturer.

3.1.1. Documentation shall be made available in three parts:

(a) Application for type-approval: the information document submitted to the type-approval authority at the time of the type-approval application shall contain brief information on the items listed in Annex I. It will become part of the type-approval.

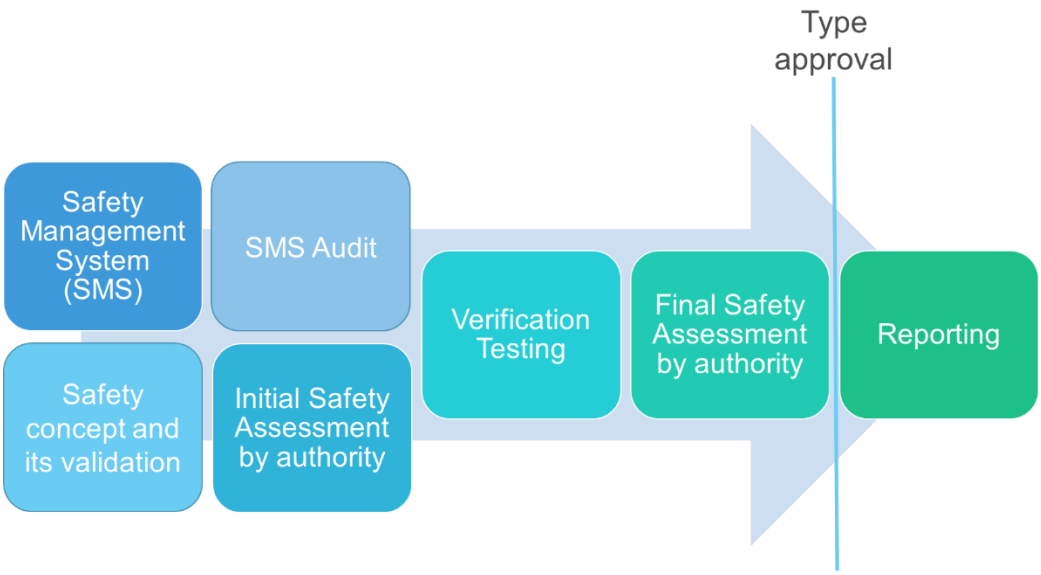
(b) The formal documentation package for the type-approval, containing the material listed in this Section 3. (with the exception of that of point 3.5.5.) which shall be supplied to the type-approval authority for the purpose of conducting the ADS type-approval. This documentation package shall be used by the type-approval authority as the basic reference for the verification process set out in point 4. of this annex. The type-approval authority shall ensure

that this documentation package remains available for a period of at least 10 years counted from the time when production of the vehicle type is definitely discontinued.

(c) Additional confidential material and analysis data (intellectual property) of point 3.5.5. which shall be retained by the manufacturer, but made open for inspection (e.g. on-site in the engineering facilities of the manufacturer) at the time of the ADS type-approval. The manufacturer shall ensure that this material and analysis data remains available for a period of 10 years counted from the time when production of the vehicle type is definitely discontinued. [...]

These sections introduce the requirements for the documentation that the manufacturer has to submit to the type-approval authority for the purpose of conducting the ADS type-approval. In paragraph 3.1.1.(b) in particular the text indicates that this documentation "shall be used by the type-approval authority as the basic reference for the verification process set out in point 4. of this annex". The text therefore acknowledges that the type-approval authority expects to find in the documentation the evidence necessary to assess the ADS compliance with the requirements laid down in the regulation, and that its role will be to evaluate whether the evidence provided is correct and complete. The type approval as a process can therefore be seen as in the following simplified schematic representation.

Figure 1. Simplified schematic representation of the ADS type-approval process



Source: JRC

3.5. Safety concept of the manufacturer and validation of the safety concept by the manufacturer

3.5.1. The manufacturer shall provide a statement which affirms that the ADS is free from unreasonable risks for the vehicle occupants and other road users. [...]

[...] 3.5.5. The documentation shall be supported, by an analysis that shows, how the ADS will behave to mitigate or avoid hazards that can have a bearing on the safety of vehicle occupants and other road users.

3.5.5.1. The chosen analytical approach(es) shall be established and maintained by the manufacturer and shall be made open for inspection by the type-approval authority at the time of the type-approval and afterwards.

3.5.5.2. The type-approval authority shall assess the application of the analytical approach(es):

(a) Inspection of the safety approach at the concept level. This approach shall be based on a Hazard analysis/Risk assessment appropriate to system safety.

(b) Inspection of the safety approach at the ADS level including a top down (from possible hazard to design) and bottom-up approach (from design to possible hazards). The safety approach may be based on a failure mode and effect analysis (FMEA), a fault tree analysis (FTA) and a System-theoretic process analysis (STPA) or any similar process appropriate to system functional and operational safety.

(c) Inspection of the validation/verification plans and results including appropriate acceptance criteria. This shall include testing appropriate for validation, for example, hardware in the Loop (HIL) testing, vehicle on-road operational testing, testing with real end users, or any other testing appropriate for validation/verification. Results of validation and verification may be assessed by analysing coverage of the different tests and setting minimum coverage thresholds for various metrics.

3.5.5.3. The analytical approach under 3.5.5.2. shall confirm that at least each of the following items is covered:

(i) Issues linked to interactions with other vehicle systems (e.g. braking, steering);

(ii) Failures of the automated driving system and system risk mitigation reactions;

(iii) Situations within the ODD where the ADS may create unreasonable safety risks for the vehicle occupants and other road users due to operational disturbances (e.g. lack of or wrong comprehension of the vehicle environment, lack of understanding of the reaction from the operator/remote operator, vehicle occupants or other road users, inadequate control, challenging scenarios)

(iv) Identification of the relevant scenarios within the boundary conditions and management method used to select scenarios and validation tool chosen.

(v) Decision making process resulting in the performance of the dynamic driving tasks (e.g. emergency manoeuvres), for the interaction with other road users and in compliance with national traffic rules

(vi) Reasonably foreseeable misuse by the vehicle occupants/other road users, mistakes or misunderstanding by the operator/remote operator/occupants/other road users (e.g. unintentional override) and intentional tampering of the ADS.

(vii) Cybersecurity threats on the safety of the ADS (to be covered by the analysis done in accordance with UN Regulation No 155 on Cyber Security and Cyber Security Management System).

(viii) Operational safety issues: problems with the supporting off-board infrastructure, problem with the remote intervention operator, loss of connectivity, lack of maintenance, etc.

3.5.5.4. The assessment by the type-approval authority shall consist of spot checks to establish that argumentation supporting the safety concept is understandable and logical and implemented

in the different functions of the ADS. The assessment shall also check that validation plans are robust enough to demonstrate safety (e.g. reasonable coverage of chosen scenarios testing by the validation tool chosen) and have been properly completed.

3.5.5.4.1. It shall demonstrate that the operation of fully automated vehicle is free from unreasonable risks for the vehicle occupants and other road users in the operational design domain, i.e. through:

(a) an overall validation target (i.e. overall validation acceptance criteria) supported by validation results, demonstrating that the entry into service of the ADS will overall not increase the level of risk for the vehicle occupants and other road users compared to a manually driven vehicles; and

(b) a scenario specific approach (i.e. scenario based validation acceptance criteria) showing that the ADS will overall not increase the level of risk for the vehicle occupants and other road users compared to a manually driven vehicles for each of the safety relevant scenarios;

3.5.5.5. The type-approval authority shall perform or shall require to perform tests as specified in point 4. of this Annex to verify the safety concept.

3.5.5.6. This documentation shall itemize the parameters being monitored and shall set out, for each failure condition of the type defined in point 3.5.4. of this annex, the warning signal to be given to the operator/remote operator/vehicle occupants/other road users and/or to service/technical inspection personnel.

3.5.5.7. This documentation shall also describe the measures in place to ensure the ADS is free from unreasonable risks to vehicle occupants, and other road users when the performance of the ADS is affected by environmental conditions e.g. climatic, temperature, dust ingress, water ingress, ice packing, inclement weather.

These sections define the principle for the definition and validation of the ADS safety concept by the manufacturer. For the purpose of the present interpretation document it is worth highlighting the content of paragraphs 3.5.5.2.(c), 3.5.5.4, and 3.5.5.5, which further specify that the manufacturer will provide evidence of tests carried out using different tools to validate the ADS, that the authority will assess this evidence by checking coverage, suitability and robustness as well as by sampling the evidence provided, also by conducting tests.

4. Verification and tests

Taking into account the results of the analysis of the manufacturer's documentation package, the type-approval authority shall request the tests to be performed or witnessed by the Technical Service to check specific points arising from the assessment.

4.1. The functional operation of the ADS, as laid out in the documents required in point 3., shall be tested as follows:

4.1.1. Verification of the function of the ADS

The type-approval authority shall verify the ADS under non-failure conditions by testing on a track a number of selected functions, as deemed necessary by the type-approval authority, from those described by the manufacturer, and by checking the overall behaviour of the ADS in real driving conditions including compliance with traffic rules.

These tests shall include scenarios whereby the ADS is overridden by the remote intervention operator (if applicable).

These tests can be based on test scenarios listed in Part 3 of this Annex and/or on additional scenarios not covered by Part 3.

4.1.1.1. The test results shall correspond with the description, including the control strategies, provided by the manufacturer in point 3.2. and shall comply with the performance requirements of this regulation.

4.1.2. Verification of the ADS safety concept

The reaction of the ADS shall be checked under the influence of a fault in any individual unit by applying corresponding output signals to electrical units or mechanical elements in order to simulate the effects of internal failure within the unit.

The type-approval authority shall verify that these tests include aspects that may have an impact on vehicle controllability and user information (HMI aspects e.g. interaction with the operator/remote operator).

4.1.2.1. The type-approval authorities shall also check a number of scenarios that are critical for the Object and Event Detection and Response (OEDR) and Characterisation of the decision-making and HMI functions of the ADS (e.g. object difficult to detect, when the ADS reaches the ODD boundaries, traffic disturbance scenarios, connectivity issue, problem with off-board systems, remote capabilities issues e.g. the absence of the remote intervention operator) as defined in this regulation.

4.1.2.2. The verification results shall correspond with the documented summary of the hazard analysis, to a level of overall effect such that the safety concept and execution are confirmed as being adequate and in compliance with the requirements of this regulation.

4.2. Simulation tool and mathematical models to verify of the safety concept may be used in accordance with Annex VIII to Regulation (EU) 2018/858, in particular for scenarios that are difficult on a test track or in real driving conditions. Manufacturers shall demonstrate the scope of the simulation tool, its validity for the scenario concerned as well as the validation performed for the simulation tool chain (correlation of the outcome with physical tests). To demonstrate the validity of the simulation toolchain, the principles of Part 4 of this Annex shall apply. Simulation shall not be a substitute for physical tests in Part 3 of this Annex.

4.3 The manufacturer shall have a valid certificate of compliance for the safety management system (SMS) relevant to the vehicle type being approved.

Following the spirit outlined in Part 2, paragraph 3 and sub-paragraphs of the Regulation, paragraph 4 and sub-paragraphs indicate the aspects that the type-approval authority shall verify upon requesting the tests to be carried out or witnessed by the Technical Service. The section indicates that (par. 4.1.1) "*These tests can be based on test scenarios listed in Part 3 of this Annex and/or on additional scenarios not covered by Part 3*" leaving the selection and number of the tests to be executed or witnessed to the discretion of the authority.

It is worth noticing the reference to virtual testing (carried out by means of simulation tools and mathematical models) in paragraph 4.2. This reference does not imply that type-approval authorities or technical services on their behalf will make use of virtual testing. At the same time the Regulation foresees the possibility for manufacturers to use "simulation models and mathematical tools" in

addition to physical testing if the manufacturer is able to demonstrate that these tools fulfil the credibility requirements provided in Part 4 of the Regulation. Among the other provisions, Part 4 (in particular paragraph 3.4.5.8 and sub-paragraphs) foresees that "The type-approval authority shall assess the documentation provided by the manufacturer and may carry out physical tests of the complete integrated tool" to perform an independent validation of the models and simulation used for virtual testing. It is in fact crucial that the methods, simulation models and/or mathematical tools, intended by the manufacturer to be used for virtual testing are approved by the relevant type-approval authority before the manufacturer makes use of them during the verification procedure required for type-approval.

It is also important to highlight that the type-approval authority is required to conduct some physical tests. Verification testing is therefore not an optional phase, but the extent of such verification activity is subject to the discretion of the type-approval authority.

5. Safety management system (SMS)

No guidance included in this document as regards this paragraph.

6. Reporting provision

No guidance included in this document as regards this paragraph.

7. Competence of the auditors/assessors

No guidance included in this document as regards this paragraph.

Part 3 Tests

1. General provisions

Pass- and fail-criteria to assess ADS safety shall be based on the requirements set out in Annex II and the scenario described in Part 1 of this annex. The requirements are defined in such a way that the pass/fail criteria can be derived not only for a specific set of test parameters, but also for all safety-relevant combinations of parameters that may occur in the operating conditions covered by the type approval and the specified operating range (e.g., speed range, longitudinal and transverse acceleration range, radii of curvature, brightness, number of lanes). For conditions not tested but that may occur within the defined ODD of the system, the manufacturer shall demonstrate as part of the assessment described in Part 2 to the satisfaction of the type-approval authority, that the vehicle is safely controlled.

These tests shall confirm the minimum performance requirements described in Annex II and the functionality of the ADS and the safety concept of the manufacturer as described in Part 2 of this Annex. Test results shall be documented and reported in accordance with point 6 of Part 2 of this annex.

These tests shall also confirm, that the ADS complies with the traffic rules, adapts its operations to environmental conditions, avoids disruption to the flow of traffic (e.g. blocking the lane because of too many MRMs), does not show unpredictable behaviour and shows reasonable cooperative and anticipatory behaviour in relevant situations (i.e. merging in dense traffic or in vicinity of vulnerable road users).

2. Test site

The test site shall comprise characteristics (example: friction value) that correspond to the specified ODD of the ADS. As necessary to apply the specific conditions of the ODD of the

ADS, physical tests will be performed within the actual ODD (on-road) or at any test facility that replicates the ODD conditions and shall be determined by the manufacturer and the type approval authority. The ADS shall be tested on-road in accordance with the applicable law of the Member States and provided that tests can be carried out safely and without any risk to other road users. [...]

[...] 7. Test parameter variation

The manufacturer shall declare the system boundaries to the type-approval authority. The type-approval authority shall define different combinations of test parameters (e.g. present speed of the vehicle, type and offset of target, curvature of lane, etc.) in order to test the ADS. The selected test cases shall provide sufficient test coverage for all scenarios, test parameters and environmental influences. Adequate robustness of the perceptions systems for the ADS against input/sensor data malfunction and adverse environmental conditions shall be demonstrated.

Test parameters selected by the type-approval authority shall be recorded in a test report in a manner that allows traceability and repeatability of the test setup.

8. Tests scenarios to assess the performance of the ADS on a test track (points 8.1., 8.2., 8.5, 8.6, 8.7, 8.8, 8.9.) and on-road (8.3., 8.4., 8.10.)

The scenarios included in the following points have to be considered a minimum set of tests. At the request of the type-approval authority, additional scenarios that are part of the ODD can be executed. If a scenario described in point 8 of this annex does not belong to the ODD of the vehicle, it shall not be taken into consideration.

Depending on the ODD, test scenarios shall be selected as part of the type-approval test. The test scenarios shall be selected in accordance with Part 1 of this annex. Type-approval testing may be carried out on the basis of simulations, manoeuvres on the test track and driving tests on real road traffic. However, it may not be based solely on computer simulations and at the time of type-approval, the type-approval authority shall conduct or shall witness at least the following tests to assess the behaviour of the ADS.

Part 3 of the Regulation provides more details on some of the aspects related to the execution of tests for the type-approval. It is worth highlighting that the tests mentioned in the overall section do not only refer to the tests conducted by the type-approval authority but to all the tests carried out in the ADS type-approval. They will therefore mainly concern the tests carried out by the manufacturer. The authority, instead, as outlined in the previous section, will mainly have the role of verifying the evidence provided by the manufacturer by i) agreeing on the test parameter selection to ensure a sufficient testing coverage for the scenario included in the part 3, and ii) selecting which tests, among all the tests to be carried out as per the part3, are witnessed or conducted by the TAA/TS.

The same interpretation holds also for paragraph 8 and the related sub-paragraphs. The minimum sets of tests to be carried out for the ADS type-approval are not meant to be all conducted by the type-approval authority. This includes the test carried out to assess vehicle compliance with traffic rules (laid down in paragraph 8.4). The regulation does require that evidence about compliance with traffic rules is evaluated in all EU MSs included in the ADS ODD by the manufacturer, but does not require the type-approval authority to conduct tests to verify this compliance in all EU MSs. The same holds for the assessment of all other requirements that would need testing evidence in multiple locations within the EU.

It is also worth noticing from the text above that the Regulation (Part 3, paragraph 2) seems to provide to the ODD a geographical characterization ("[..] *As necessary to apply the specific conditions of the ODD of the ADS, physical tests will be performed within the actual ODD (on-road) [...]*"). This is in line with the definition of ODD (Article 2, paragraph 16), which includes reference to its geographical characteristics ("*'operational design Domain ('ODD')' means operating conditions under which a given ADS is specifically designed to function, including, but not limited to, environmental, geographical, and time-of-day restrictions, and/or the requisite presence or absence of certain traffic or roadway characteristics.*") and to the provisions included in Part 2, paragraph 3.2.2.1 concerning the general description of the ADS ("*the operational design domain such as maximum speed of operation, road type (e.g. dedicated lane), country(ies)/areas of operation, road conditions and environmental conditions required (e.g. no snow), etc.)/Boundary conditions*"). However, the way in which the ODD is eventually defined is left to the discretion of the manufacturer, which will need to justify the choice made with the type-approval authority. Independently from the way in which the ODD is defined by the manufacturer, the evidence produced by the manufacturer shall ensure that a type-approved ADS complies with all the requirements of the Regulation in the actual location(s) included in the ODD. This has two implications:

- On the one hand, as new/further location(s) are included in the ODD, the type-approval shall be amended accordingly, possibly leading to complementary tests;
- On the other hand, there should be no need to perform additional verification tests to check the capability of the ADS to safely and effectively perform the DDT in the actual locations included in the ODD after the TA is granted.

While EU type-approval certifies the ADS complies with Regulation (EU) 2022/1426 for operation within its declared ODD, a question is then raised on the subsidiary between European vehicle type-approval and national regulations within the EU for the circulation and the safety of operation of fully automated vehicles in traffic and the safety of operation of those vehicles in local transport services[2].

Relevant Member State local transport service authorities may impose requirements for granting a permit/commission to services that use fully automated vehicles - e.g. those for "Automated Road Transport Systems" in France, although they should not duplicate or conflict with the requirements of Regulation (EU) 2022 /1426 (e.g. the ADS shall comply with traffic rules of the country of operation). Contingent on national regulation, they may ask service operators to demonstrate the safety of the transport service as a whole, including how the vehicle, when placed into service, will satisfy those requirements as well as handling the reasonably expected operating conditions in a manner consistent with those defined in the type-approved ODD.

Note that this is distinct from the EU type-approval assessment itself, which evaluates the ADS against the requirements of Regulation (EU) 2022/1426 across the entire stated ODD.

To facilitate smooth deployment and ensure any local operational requirements do not create undue burdens, early dialogue between manufacturers, service operators, and relevant national or local authorities is encouraged. This can facilitate understanding the alignment between vehicle's type-approved capabilities and ODD with the specificities of the local expected operating conditions.

Part 4 Principles for credibility assessment for using virtual toolchain in ADS validation

[2] Reference: Recital (7) of (EU) Regulation 2022/1426 which states that this regulation is without prejudice to the right of Member States to regulate the circulation and the safety of operation of fully automated vehicles in traffic and the safety of operation of those vehicles in local transport services.

No guidance included in this document as regards this paragraph.

Part 5: In-service reporting

No guidance included in this document as regards this paragraph.

4. Conclusions

The EU Regulation 2022/1426 has opened the road to the market introduction and deployment of fully automated vehicles in Europe. It defines minimum safety requirements that vehicles needs to fulfil and different validation methods to assess their performances. Being the first regulation developed worldwide for the type-approval of fully automated vehicles, it introduces various elements of completely innovative character. In order to support ADS developers and Approval Authorities in the application of the Regulation and in order to ensure that related practices around the EU may be as harmonized as possible, the European Commission has initiated the process to provide an interpretation to some of the most innovative aspects of the legislation. The work has been carried out by the experts of the ACV sub-group of the Working Group on Motor Vehicles, under the lead of the European Commission. The result of this process is the present report. The parts of the Regulation for which an interpretation and/or examples and references have been provided have been identified by the stakeholders involved in the process. In the future, the work will continue to include additional parts of the Regulation as well as to strengthen and consolidate the parts dealt with in the present and previous reports in the light of the evidence that will be gathered by the use of the Regulation.

References

European Commission (2022) Commission Implementing Regulation (EU) 2022/1426 of 5 August 2022 laying down rules for the application of Regulation (EU) 2019/2144 of the European Parliament and of the Council as regards uniform procedures and technical specifications for the type-approval of the automated driving system (ADS) of fully automated vehicles (Text with EEA relevance), OJ L 221, 26.08.2022, p. 1. ELI: http://data.europa.eu/eli/reg_impl/2022/1426/oj

List of abbreviations and definitions

ADS	Automated Driving System
AMC	Acceptable Means of Compliance
ACV	Automated and Connected Vehicles
DDT	Dynamic Driving Task
EU	European Union
MRM	Minimum Risk Manoeuvre
MVWG-ACV	Automated and Connected Vehicles sub-group of the Working Group on Motor Vehicles
SMS	Safety Management System
TAA	Type Approval Authority
TS	Technical Service

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