

Progress report of the informal group on Automated Driving Systems and the GRVA Workshops on Automated Driving Systems

The text reproduced below was submitted by the chairpersons of the informal group on ADS and the chairpersons of the GRVA Workshops on ADS. It provides a progress report on the activities under the informal working group and GRVA workshops. It proposes the structure for the progress reports on the activities and work.

It includes an Addendum containing the progress report to AC.3. that relates specifically to the development of a new UN GTR on ADS (ECE/TRANS/WP.29/AC.3/64).

I. Objective of the proposal to develop regulation on ADS

1. The representatives of China, Canada, European Commission, Japan, United Kingdom of Great Britain and Northern Ireland and the United States of America proposed that GRVA develop of a UN Regulation and a UN GTR on Automated Driving System based on the outcome of the pre-regulatory phase which concluded with the adoption of “Guidelines and recommendations for Automated Driving System safety requirements, assessments and test methods to inform regulatory development” (ECE/TRANS/WP.29/2024/39). The World Forum for Harmonization of Vehicle Regulations and the Executive Committee of the 1998 Agreement (WP.29/AC.3) gave their consent for development of a global regulation on the safety of automated driving systems (ECE/TRANS/WP.29/AC.3/64).
2. The objective of this regulatory activities is to develop a truly global regulation addressing the needs of the Contracting Parties to the 1958 and 1998 vehicle regulations Agreements, aimed to prevent the fragmentation of regulatory approaches and avoid delaying the deployment of new technologies with the potential of improving road safety, promoting cleaner and greener transport, promoting social inclusion, and supporting economic growth.

II. Background

3. Since its inception in 2018, GRVA structured its activities using the Framework Document on Automated Vehicles, which provided a safety vision and key principles that needed to be considered when developing requirements connected and automated vehicles as well as the mandate for the GRVA activities on Functional Requirements for Automated Vehicles and on the Validation Method / New Assessment Test Method. The two activities produced the document title “Guidelines and recommendations for Automated Driving System safety requirements, assessments and test methods to inform regulatory development”. Following the completion of this pre-regulatory phase and the adoption by WP.29, GRVA discussed the modalities of the following activities.

4. As established in the Framework Document¹, GRVA started in 2018 to develop several legislative elements for vehicle automation:
 - 1) Functional Requirements for Automated/Autonomous Vehicles (FRAV)
 - 2) Validation Methods for Automated/Autonomous Driving (VMAD)
 - 3) Requirement for Cyber Security and Software updates (CS/OTA)
 - 4) Requirements for data storage (EDR and DSSAD)
5. Items 3 and 4 (EDR) have been mostly completed and resulted in harmonised guidelines and UN Regulations (UN Regulation 155 on cybersecurity and UN Regulation 156 on software updating). Item 4 (DSSAD) is still in progress.
6. The informal working group on FRAV delivered guidelines for regulatory requirements to be accepted in GRVA and finally in WP29.
7. The informal working group for VMAD had their first deliverable (“Master Document on New Assessment and Test Methods”) endorsed in WP.29 in June 2021 as a reference document. A second iteration was endorsed in WP.29 in June 2022, together with its translation into Guidelines. These Guidelines are an extract of all requirements from the Master Document, leaving out backgrounds and explanations.
8. The integration of the results from FRAV and VMAD led to the overall ADS requirements and validation document mentioned above. The FRAV and VMAD mandates expire in September 2024.
9. During that process, the industry has repeatedly indicated the need for an ADS regulation to be delivered by 2025; the European Commission urged WP.29 and GRVA to update their work programme in that direction. The industry consistently expressed its concern with the lack of progress in addressing such request.
10. In 2022, the European Commission issued rules for the type-approval of specific ADS functionalities in small series, implementing the principles and methodologies developed by the FRAV and VMAD IWGs². At present, also other 1958 Agreement CPs started the regulatory work to allow ADS-equipped vehicles on their roads.
11. In 2022, the UK government set out its vision and plan for connected and automated mobility in a policy paper titled 'Connected and automated mobility 2025: realising the benefits of self-driving vehicles'³. In 2024, the UK Government passed the Automated Vehicles Act (2024) into law which built upon a multi-year review of the law relating to self-driving vehicles⁴. Work has begun to establish a legislative framework for the safe and secure roll-out of automated vehicles, for which a harmonised approval regulation for automated driving systems would play an important role.

¹ UN Economic Commission for Europe, Revised Framework document on automated/autonomous vehicles (ECE/TRANS/WP.29/2019/34/Rev.2), last amended March 2023 by ECE/TRANS/WP.29/2023/43 and ECE/TRANS/WP.29/2023/151

² 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 (OJ L 221, 26.8.2022, p. 1–64)

³ UK government, Connected and automated mobility 2025: realising the benefits of self-driving vehicles, 19th August 2022

⁴ Law Commission of England and Wales and the Scottish Law Commission, Automated Vehicles: joint report, 26th January 2022

III. Subjects for review and tasks to be undertaken

12. The task undertaken by the IWG on ADS are listed in para. X below.

13. The tasks of the GRVA Workshops on ADS include the development of administrative requirements for a GTR ADS, a UNR ADS as well as the development of an interpretation document which is planned as a second phase activity.

For the UN GTR:

Task #	Topic
1	Statement of technical rationale
2	Introduction
3	Procedural background
4	Technical background
5	Principle for developing the regulation
6	Technical rationale and justification
7	Benefits and costs
/	Appendix: Documentation of development of GTR

For the UN Regulation:

Task #	Topic
1	Application for approval
2	Approval
3	Modification of vehicle type and extension of approval
4	Conformity of production
5	Penalties for non-conformity of production
6	Production definitively discontinued
7	Names and addressed of Technical Services responsible for conduction approval tests and of Type Approval Authorities
8	Communication and information document
9	Arrangement of approval marks

IV History of the discussions

A. Details from the IWG on ADS session

14. See. ECE/TRANS/WP.29/202X/XXX/Add.1

B. Details from the GRVA Workshops on ADS.

(i) First workshop

15. The first GRVA Workshop on Automated Driving System took place on June 2024 as an online meeting. The experts reviewed in detail the three tasks assigned by the Regulatory approach for Automated Driving System (WP.29-191-31/Rev.1):

- (a) Drafting and discussing the specific provisions needed for a UN Global Technical Regulation (e.g. technical rationale),
- (b) Drafting and discussing the specific provisions for a UN Regulation (e.g. marking provisions),
- (c) Preparing a guiding/interpretation document for the implementation of the regulations.
- (d) The Workshop called for volunteers to be “Officers of Principal Interest” (OPI) to develop the necessary paragraphs mentioned in the tasks (a) and (b).

(ii) Second workshop

16. The second GRVA Workshop on Automated Driving System was organized as an online meeting in September 2024. The Workshop reviewed the initial input provided by the volunteers. They noted that the final wording would develop following the review of the draft paragraph in light of the progress made by the IWG on ADS. The workshop received a presentation from industry providing views and considerations for an Automated Driving System (ADS) regulation.

V. Work schedule

17. Schedule of meetings:

	2024						2025											
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
WP.29 sessions					12-15 UN				4-7 UN			24-27 UN						18-21 UN
GRVA sessions			23-27 UN				20-24 UN				19-22 TH				22-26 UN			
ADS IWG sessions	9-12 EC			8-11 UK		9-11 RoK		17-19 Web		14-16 JP		2-3 Web			16-18 UN			??
GRVA ADS Workshops			10-11 Web	15-16 CN		12-13 RoK		13-14 Web		17-18 JP		9-10 Web			15 & 19			3-4 Web

Legend –
 UN – UN office, Geneva
 EC – European Commission, Brussels
 CN – China
 UK – United Kingdom
 JP – Japan
 RoK – Republic of Korea
 TH – Thailand
 Web – Online Meeting

In-Person event only

Hybrid Session

Web-only sessions

VI. Specific reporting to AC.3

See. ECE/TRANS/WP.29/202X/XXX/Add.1

Addendum

Interim report to WP.29/AC.3

I. Objective of this proposal

1. The representatives of China, Canada, the European Commission, Japan, the United Kingdom of Great Britain and Northern Ireland and the United States of America proposed the development of a UN Regulation and a UN GTR on Automated Driving System (ADS).

This activity is based on the work and results of the two informal working groups Functional Requirements for Automated and Autonomous Vehicles (FRAV) and Validation Methods for Automated Driving (VMAD) and their joint deliverable, namely the FRAV-VMAD integrated document (ECE/TRANS/WP.29/2024/39).

II. Background

2. At the 191st session of the World Forum for Harmonization of Vehicle Regulations and the 68th session of the Executive Committee of the 1998 Agreement in Nov. 2023, WP.29 adopted a proposal for the regulatory approach for Automated Driving Systems (WP.29-191-30/Rev.1), including among others, the collaborative development of a UN GTR as well as UN Regulation for ADS until 2026 with the establishment of an IWG on ADS and the organisation of at least two ADS related two-days-workshops per year by GRVA

3. The amendments to the programme of work and the framework document on automated/autonomous vehicles were adopted equally (WP.29-191-31, WP.29-191-32).

4. At the 18th session the Working Party on Automated/Autonomous and Connected Vehicles (GRVA) the regulatory approach for Automated Driving Systems was discussed as adopted by WP.29. GRVA discussed about the establishment of a bureau composed by Canada, China, European Commission, United Kingdom, Japan, and the United States of America to lead the activity. GRVA adopted the draft terms of reference for the IWG on ADS and the WS on ADS and submitted them to WP.29 (GRVA-18-41/Rev.2 and GRVA-18-42/Rev.2).

5. At the 192nd session of the World Forum for Harmonization of Vehicle Regulations and the 69th session of the Executive Committee of the 1998 Agreement in March 2024, WP.29 noted that the IWG on ADS would be sponsored and led by Canada, China, European Commission, Japan, United Kingdom of Great Britain and Northern Ireland and the United States of America. WP.29 also noted that the secretariat services would be provided by the representatives of AAPC, OICA, JASIC and SAE International. The IWG on ADS will develop the technical requirements for the ADS regulation. The Workshop will develop the administrative requirements for the ADS regulation. Two ambassadors (from Australia and the Netherlands) are tasked to align the activities of the IWG on ADS and the Workshops, and evaluate the progress of both activities.

6. WP.29 during the same session adopted an amendment to the Framework Document on automated/autonomous vehicles (ECE/TRANS/WP.29/2024/33 based on WP.29-191-31).

7. AC.3 endorsed at its 69th session the request authorization to develop a new UN GTR on ADS (ECE/TRANS/WP.29/2024/38, ECE/TRANS/WP.29/AC.3/62).

6. The first meeting of the Workshop on ADS took place on 5 June 2024. The main outcome of this meeting was to inform the participants about the mandate and tasks, to define the organization and methods for carrying out the three tasks, to prioritize the tasks, and to set a schedule

7. The second meeting of the IWG on ADS was held on 17 May online.

8. The activities to draft a UNR and a GTR on ADS were reported during the 19th session of GRVA in May/June 2024. The status report (GRVA-19-52) of the IWG on ADS was endorsed. It was explained that sections of the regulation under development were assigned to Officers of Principle Interests (OPIs) with a specific role. The first Workshop took place on 5 June 2024.

The expert from OICA provided views and considerations for an Automated Driving System (ADS) regulation (GRVA-19-34). GRVA advised act under both the 1958 and the 1998 Agreements and to discuss this document at a future session of the IWG on ADS.

9. The first Workshop on ADS took place on 5 June 2024 under the leadership of the Chair and Vice-chairs of GRVA. The Ambassadors from Australia and the Netherlands including the Secretariat supported the management of the discussion. This workshop was intended to clarify mainly organizational matters for the tasks of the workshop.

10. At the 193rd session of the World Forum for Harmonization of Vehicle Regulations and the 70th session of the Executive Committee of the 1998 Agreement Canada on behalf of the sponsoring countries informed delegates about the ongoing activities of the informal group on ADS. The delegates were informed about the first meeting and the management of the group. The information was given that the second meeting was planned as web conference for 17 May 2024 to start the technical discussion and to transpose the integration document into text for the regulations on ADS. The third meeting would be held from 9 to 12 July 2024 in Brussels hosted by the European Commission, also with the possibility of online participation (hybrid format).

11. From 9 to 12 July 2024 the 3rd IWG on ADS session was held in Brussels.

12. 2nd Workshop (Online) was held online on 10-11 September 2024. on 10-11 September 2024 as an online meeting. The main outcome of the meeting was to monitor the progress on the tasks 1 and 2 and prepare for the 3rd Workshop scheduled as an in-person (hybrid) meeting in Beijing.

III. Subjects for review and tasks to be undertaken

13. The informal working group has divided its work and tasks in three phases:

Phase 1

- Collating existing standards
- Scope, purpose and definitions
- Safety management system
- Performance of the dynamic driving task
- Interactions with users
- ADS safety assessment
- In-service monitoring and reporting
- Virtual testing credibility assessment

Phase 2:

- Audit
- Testing
- Safety assessment
- In-service monitoring and reporting
- Provisions relevant to CS/OTA, EDR/DSSAD, AVC and FADS

Phase 3 (to be further specified and detailed at a later stage):

- Open items
- New issues

15. The three deliveries of the Workshop on ADS are the development of the administrative requirements for the GTR ADS, likewise for the UNR ADS and the development of an interpretation document. The work was divided in tasks and topics:

<i>Task</i>	<i>Topic</i>
1	Statement of technical rationale
2	Introduction
3	Procedural background
4	Technical background
5	Principle for developing the regulation
6	Technical rationale and justification
7	Benefits and costs
/	Appendix: Documentation of development of GTR

IV History of the discussions

17. During the 1st session of the IWG on 22nd April, which was held as online conference, the work plans and a draft structural framework referring to the ADS GTR and UNR content were explained based on the specific sections (ADS-01-03), especially for the sections “General requirements”, “Performance requirements/Test specifications” and “Assessment/Test procedures”. It was agreed to install “Officers of principal interest” (OPI) for each section. The OPI acts as a point of contact and a coordinator responsible for its section. The OPI will receive assistance of experts in ADS IWG.

The initial objective of the IWG is to transpose the existing guidelines (FRAV/VMAD integrated document) into draft regulatory requirements.

The GRVA Chair explained the setup, planning and tasks of the GRVA workshops (ADS-01-04). He introduced ambassadors from Australia and the NL who serve not only as point of contacts, but also give advice and recommendations to both the IWG and the WS.

The coordination between the IWG ADS and other related IWG such as TF AVC and TF FADS was discussed. As these activities are within GRVA, the ambassadors could take a role for coordination.

Areas of primary responsibility between the IWG ADS and the GRVA workshops were indicated during the discussion.

The IWG also agreed on the internal methodology for the work. It will hold sessions roughly every 2-3 months. Volunteers will serve as OPI to prepare draft content for specific sections and to act as points of contact to consolidate input from experts. The plan is to have a phased development with defined OPI tasks for work between the IWG sessions.

18. The 2nd meeting on 17th May was held as online conference. The main objective was to review and discuss the updated core document structure (ADS-01-03 and ADS-02-03).

The initial objective of the IWG to work on a “translation” of the Integration document into an UNR & GTR was further defined. While new and additional considerations not addressed yet in here may come up during the preparation, these shall become part of a “list of open issues” and be considered for follow up versions of the regulations (example: ADS interaction with other road users).

The items of Annex 10 of the Integration document (“parked items”) shall be prioritized based on both urgency and timing needed to be delivered. The guideline document (Task 3 of Workshop of IWG on ADS) can be used to address some of these items (example: template for description of an ODD).

18. 1st WS on ADS 05th June (see details above)

19. From July 9 to 12 the 3rd IWG meeting was held in Brussels, Belgium.

The status of work for the phases 1 to 3 was reviewed. Phase 1 covering the ADS requirements on the basis of the FRAV work is under progress. Plan is to finish it in December during the 5th meeting of the IWG. The activities for Phase 2 are starting in July and include the regulatory provisions for the ADS assessment and the test methods, both based on the VMAD work. It is also planned to finalise this task until December at the 5th meeting.

While the beginning of Phase 3 is scheduled for later in 2024, the plan is to finish it until May 2025. This includes the consideration of open issues in Annex 10 (“parked items”).

A main part of the 3rd meeting was to further work on the core document (ADS-03-10rev.2). While the scope for the UN regulation was agreed (categories M and N with regard to ADS), the scope of the GTR is under preparation with the objective to fix it at the 4th session. Further items under discussion were the critical occurrence, the safety management system, the safety assessment, the ADS performance of the DDT, the credibility assessment, the In Service Monitoring and Reporting requirements (ISMR) and the coverage of existing regulations, directives and international voluntary standards.

For the unfinished business and open issues, a categorization in three patterns was seen (new expressions needed during transformation, structural changes in the document, deeper discussion of new or open items issues)

The planning of phase 2 was further defined and OPIs were tasked for the assessment and test methods (SMS Audit, virtual, track, real-world testing, ISMR, safety assessment). For the incorporation of inputs from other IWG (CS/OTA, EDR/DSSAD, FADS/AVRS/AVSR, AVC) the responsibilities were agreed.

The forward planning includes major open issues that were identified during the discussion. These are going to be addressed at the following meetings. The schedule of IWG session was discussed and agreed with a specific timeline for the submission of contributions and task deliveries.

Industry presented “Considerations for ADS regulation - Basic principles and conceptual overview”. It led to a first discussion which will be continued during the further development, especially as general consensus was that this concept might need discussion by the GRVA Workshop given it is mainly a type approval consideration.

xx. 2nd WS on ADS 10-11 September 2024

V. Work schedule

23. Work schedule

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Past sessions

Nov 2023	GRVA to seek consent of WP.29 and AC.3 to mandate a new informal group on ADS
Jan 2024	Proposal of Draft ToR to GRVA (informal documents)
Mar 2024	Adoption of Draft ToR by WP.29 and authorisation by AC.3
22 April 2024	1st IWG on ADS session (Web-only)
17 May 2024	2nd IWG on ADS session (Web-only)
May 2024	Progress Report to GRVA
5 June 2024	1st WS on ADS (Web-only)
June 2024	First Progress Report to WP.29
9 to 12 July 2024	3rd IWG on ADS session (Brussels, Belgium, hybrid)
10 to 11 Sept 2024	2nd WS on ADS (Web-only)

Next meetings (IWG on ADS and WS on ADS)

- 4th IWG on ADS session, 8-11 October, London
- 3rd WS on ADS, 15-16 October, Beijing
- 5th IWG on ADS session, 9-13 December, Seoul
- 4th WS on ADS, 12-13 December, Seoul
- 6th IWG on ADS session, February ONLINE
- 7th IWG on ADS session, April HYBRID (Japan)
- 8th IWG on ADS session, June ONLINE
- 9th IWG on ADS session, September HYBRID (Geneva)
- 10th IWG on ADS session, December tbd

VI. Documents

24. Documents for the IWG on ADS meetings

ADS-01-01	(Co-chairs)	Invitation to the first ADS informal working group session
ADS-01-02	(Co-chairs)	Agenda for the first ADS IWG session
ADS-01-03	(Co-chairs)	Initial working document structure, contents, and OPI table
ADS-01-04	(Co-chairs)	GRVA workshops structure, tasks, planning, and IWG coordination
ADS-01-05	(GRVA)	ADS IWG terms of reference
ADS-01-06	(WP.29)	GRVA table from Programme of Work
ECE-TRANS-WP29-2024-39e	(GRVA)	ADS guidelines and recommendations submitted to WP.29
ADS-02-01		Adopted wrap-up report of the first ADS session
ADS-02-02r2		Adopted agenda for the 2nd ADS session
ADS-02-03r1	(Chairs)	Initial structure for content development
ADS-02-04	(Secretariat)	Draft working table (scope, purpose, definitions)
ADS-02-05	(Chairs)	Orientation slides for the 2nd ADS session
ADS-03-01	(Secretary)	Wrap-up report of the 2nd ADS session
ADS-03-02r1	(Chairs)	Agenda for the 3rd ADS IWG session
ADS-03-03-rev1	(OPI)	Initial SMS requirements from ADS guidelines
ADS-03-04	(OPI)	Initial Safety Assessment requirements from ADS guidelines
ADS-03-05	(OPI)	Initial user safety requirements
ADS-03-06	(OPI)	ADS user interactions-open issues
ADS-03-07-rev.1	(OPI)	Directives, regulations, industry standards
ADS-03-08	(OPI)	Initial DDT performance requirements
ADS-03-09r1	(OPI)	Initial monitoring and reporting requirements
ADS-03-10r2	(Secretary)	Table of draft ADS safety provisions
ADS-03-11	(OPI)	Initial provisions concerning virtual testing credibility assessment
ADS-03-12	(OPI)	DDT performance open issues
ADS-03-13	(OPI)	FADS IWG status (inc. AVC task force)
ADS-03-14	(OICA/CLEPA)	Considerations for an ADS Regulation (Principles/concepts)
ADS-04-01	(Chairs)	Wrap-up report of the 3rd ADS IWG session

25. Documents for the Workshops on ADS

GRVA-WS01-01	(UNECE)	Provisional agenda for the first GRVA Workshop on ADS
GRVA-WS01-02	(Secretariat)	Slide deck prepared for the kick off meeting
GRVA-WS01-02/Rev.1	(Secretariat)	Slide deck (reflecting the outcome of the workshop)
GRVA-WS02-01	(Secretariat)	Provisional agenda prepared for the 2nd GRVA Workshop on ADS*

GRVA-WS02-01/Rev.1 Revision 1	(Secretariat) Provisional agenda prepared for the 2nd GRVA Workshop on ADS -
GRVA-WS02-02	(Secretariat) Minutes of the first GRVA workshop on ADS
GRVA-WS02-03 Regulation on ADS	(OPIs) Input provided by the OPIs regarding the relevant paragraphs of a new UN
GRVA-WS02-03/Rev.1	(OPIs) Input provided by the OPIs regarding the relevant paragraphs of a new UN Regulation on ADS - Revision 1*
GRVA-WS02-04	(OPIs) UN GTR on ADS - Benefits and Costs section
GRVA-WS02-04/Rev.1	(OPIs) UN GTR on ADS - Benefits and Costs section - Rev. 1
GRVA-WS02-05 GTR	(Secretariat) Detailed Task Decomposition Framework Structure and OPIs Table for
GRVA-WS02-05/Rev.1 - Revision 1	(China) Detailed Task Decomposition Framework Structure and OPIs Table for GTR
GRVA-WS02-06	(Japan) Status report of the 3rd IWG on ADS session
GRVA-WS02-07 the UN Regulation	(Secretariat) Detailed Task Decomposition Framework Structure and OPIs Table for
GRVA-WS02-08	(OICA/CLEPA) Considerations on a new approach for the ADS Regulation
