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Inland Transport Committee

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Working Party on Automated/Autonomous and Connected Vehicles

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Report of the Working Party on Automated/Autonomous and Connected Vehicles on its fourth session

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I. Attendance

1. The Working Party on Automated/Autonomous and Connected Vehicles (GRVA) held its fourth session from 24 to 27 September 2019 in Geneva, chaired by Mr. B. Frost (United Kingdom of Great Britain and Northern Ireland). Accredited experts from the following countries participated in the work, following Rule 1 of the Rules of Procedure of the World Forum for Harmonization of Vehicle Regulations (WP.29) (TRANS/WP.29/690/Rev.2): Canada, China, Czech Republic, Denmark, Finland, France, Germany, Hungary, India, Ireland, Italy, Japan, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Russian Federation, Republic of Korea, Saudi Arabia, Serbia, Slovakia, South Africa, Spain, Sweden, Switzerland, Thailand, Turkey, United Arab Emirates and the United Kingdom of Great Britain and Northern Ireland (UK), United States of America. An expert from the European Commission (EC) also participated. Experts from the following non-governmental organizations (NGOs) and international organizations participated: the American Automotive Policy Council (AAPC), European Association for Electric Mobility (AVERE), International Motor Vehicle Inspection Committee (CITA), European Association of Automotive Suppliers (CLEPA/MEMA/JAPIA), European Garage Equipment Association (EGEA), European Tyre and Rubber Manufacturers Association (ETRMA), European Transport Safety Council (ETSC), EVU European Association for Accident-Research and Analysis, Fédération Internationale de l'Automobile (FIA), Federation Internationale des Grossistes, Importateurs et Exportateurs en Fournitures Automobiles (FIGIEFA), FSD Fahrzeugsystemdaten GmbH, Institute for Security and Safety, Brandenburg University of Applied Sciences, International Motorcycle Manufacturers Association (IMMA), International Cooperative Alliance (ICA), International Road Federation (IRF), International Organization for Standardization (ISO), International Telecommunication Union (ITU) and International Organization of Motor Vehicle Manufacturers (OICA), Securing America's Future Energy (SAFE), Transport Research Laboratory (TRL), International Association of Public Transport (UITP), World Bicycle Industry Association (WBIA), HERE Technologies and TomTom.

II. Adoption of the agenda (agenda item 1)

Documentation: ECE/TRANS/WP.29/GRVA/2019/15 and Add.1
Informal documents GRVA-04-01 and GRVA-04-20-Rev.1

2. GRVA considered the provisional agenda prepared for this session and adopted it (ECE/TRANS/WP.29/GRVA/2019/15) with the update below. The adopted agenda is reproduced in GRVA-04-20-Rev.1, including the informal documents received before GRVA started. All informal documents distributed during the session are listed in Annex I of this report.

Update:

For WP.29-176-14, read ECE/TRANS/WP.29/2019/120

3. GRVA also agreed on the running order for the session as proposed in GRVA-04-01.

III. Highlights of the June 2019 session of WP.29 (agenda item 2)

Documentation: ECE/TRANS/WP.29/1147
Informal documents GRVA-04-13, GRVA-04-14, GRVA-04-15 and GRVA-04-16.

4. The Secretary presented GRVA-04-16, with the highlights of the June 2019 session of WP.29. He reported on the adoption by WP.29 of the draft Framework Document on Automated Vehicles and the adoption of the Terms of Reference for the Informal Working Groups (IWGs) on Functional Requirements for Automated and Autonomous Vehicles (FRAV) (GRVA-04-13), on Validation Methods for Automated Driving (VMAD) (GRVA-04-14), on Event Data Recorder / Data Storage

Systems for Automated Driving (EDR/DSSAD) (GRVA-04-15). He also highlighted the adoption of Terms of Reference for the IWG on Intelligent Transport Systems (ITS). He referred to ECE/TRANS/WP.29/1147 for more details.

IV. Exchange of views on guidelines and relevant national activities (agenda item 3)

Documentation: Informal documents GRVA-04-07 and GRVA-04-37

5. The expert from France introduced GRVA-04-07 informing on activities in his country concerning the development of a test centre for active safety, New Cars Assessment Programmes (NCAPs) activities, vehicle connectivity and automation.

6. The expert from the Russian Federation introduced GRVA-04-37 providing an overview on a self-driving cars project in his country conducted by Yandex, since 2018. He detailed technological aspects of the project and stated the crucial elements necessary to further develop their technology.

V. Automated/autonomous and connected vehicles (agenda item 4)

A. Report of the Informal Working Group on Functional Requirements for Automated and Autonomous Vehicles

7. The expert from Germany, Co-Chair of the IWG on FRAV, reported on its kick off meeting, a short preparatory meeting that took place one day before GRVA. He reported on the selection of a Secretary, Mr. J. Creamer (AAPC). He stated that the group might create subgroups as necessary and that the group agreed not to limit the scope of its activities (e.g. for vehicle categories and speeds).

8. The expert from the Republic of Korea expressed support for the activities of the group and highlighted the relevance of the work done by the IWG on ACSF. He mentioned the importance for the group to develop a roadmap which would be in line with the activities of the IWG on VMAD.

9. The expert from Sweden stressed the need to address the performance of vehicles not only when *new*, but also when they are *in use*. The expert from the Netherlands pointed out the activities of the IWG on VMAD on the acquisition of real-world data supporting a proper evaluation of the technology, also *in use*.

10. The expert from UK noted similarities between the *in-use* considerations and the function over lifetime considerations at the Task Force on Cyber Security and OTA issues.

11. The expert from CITA explained the views of his organization and of the IWG on Periodic Technical Inspection (PTI) on this matter, including the Continuous Technical Inspection (CTI) vision. He mentioned that traditional visual inspections during PTI would be complemented by electronic checks.

12. GRVA distinguished between PTI and the continuous evaluation of the integrity of the automated system in use, noting that the latter could serve the purpose of PTI.

13. The Co-Chair of the IWG on FRAV (Germany) explained that the group only met for a preparatory meeting. He announced the invitation for the next meeting would be issued soon after.

B. Report of the Informal Working Group on Validation Methods for Automated Driving

Documentation: Informal documents GRVA-04-18 and GRVA-04-35

14. The expert from the Netherlands, Co-Chair of the IWG on VMAD introduced GRVA-04-18; a status report of the group's activities. He explained that the group had established subgroups, one dealing with traffic scenarios, one dealing with audits, virtual testing and in use data, and another one dealing with test track and real-world testing.

15. GRVA considered the opportunity provided by the activities on Automated Lane Keeping Systems as a timely occasion to test and demonstrate the validity of the New Assessment/Test Methods (NATM) developed by VMAD, given the fact that the IWG on ACSF would develop conventional tests. GRVA confirmed its expectation that the group shall provide in due time the electrical/electronic system Audit provisions for ALKS.

16. The IWG on VMAD requested access to ISO/PAS 21448. This document was kindly provided by the International Standardization Organization (ISO) secretariat.

C. Report of the Informal Working Group on Automated Lane Keeping Systems

Documentation: Informal document GRVA-04-36

17. The expert from Japan introduced GRVA-04-36 with a status report on the activities of the group as well as two requests for guidance by GRVA.

(a) GRVA agreed that an ALKS system may perform a lane change as part of a minimum risk manoeuvre. The expert from Japan asked whether the group should develop testing provisions regarding the lane change procedures. GRVA agreed that the group should envisage to develop provisions related to such manoeuvre as part of the current work stream. GRVA agreed that a future supplement could be developed to address this point, if more time would be needed.

(b) GRVA agreed that an ALKS may have the possibility to cross a lane marking in an evasive manoeuvre. GRVA encouraged the group to develop the corresponding provisions within its current timeframe. Otherwise, the IWG on FRAV would have to address this issue.

D. Report of the Informal Working Group on Event Data Recorder / Data Storage Systems for Automated Driving

Documentation: Informal documents GRVA-04-17 and GRVA-04-28

18. The expert from the Netherlands introduced GRVA-04-28 with a status report on the activities of the group. The group completed its deliberations on the first required deliverable expected from the group. It drafted GRVA-04-17 comparing both systems EDR and DSSAD.

19. GRVA discussed the purpose of both systems. Following discussions, GRVA agreed that the purpose of DSSAD would address the status of the vehicle and interactions with the driver, research, in use monitoring, legal responsibilities and liability issues.

20. GRVA also discussed the relevant vehicle categories for DSSAD. GRVA decided that the group should focus first on light vehicles.

VI. Connected vehicles (agenda item 5)

A. Cyber security and data protection

Documentation: (ECE/TRANS/WP.29/GRVA/2019/2)
Informal documents GRVA-04-04, GRVA-04-22, GRVA-04-25,
GRVA-04-32, GRVA-04-40 and GRVA-04-45

21. The expert from the United Kingdom, Co-Chair of the Task Force on Cyber Security and Over-The-Air software updates (TF CS/OTA) reported on the activities of the group since June 2019. (Details are provided in GRVA-04-45.) He explained the activities of the test phase and reported that it was positive. He stated that the draft proposal

(ECE/TRANS/WP.29/GRVA/2019/2 as amended) worked and provided value. He mentioned that the experience gathered during this phase would be reflected in an interpretation document and that the documents under development would be improved for consideration at the next session of GRVA.

22. The expert from IMMA introduced GRVA-04-25, proposing amendments to the scope of the draft regulation. GRVA referred the proposal to the Task Force.

23. The expert from Germany provided comments in GRVA-04-22. GRVA agreed to refer them to the Task Force.

24. The expert from the European Commission recalled that a report would have to be prepared for review at the next session of WP.29. He presented a proposal to clarify the scope of the draft UN Regulation on cyber security (GRVA-04-32). He noted that the challenges of the group were similar to those that the IWG on VMAD would face, when working on audits.

25. The expert from the USA commended the Task Force for its work. But she requested that the technical requirements be prepared (as previously agreed) in a document that could serve the 1998 Agreement as well.

26. The expert from Sweden informed that his country had now established a Cyber Security authority. GRVA welcomed the participation of Cyber Security authorities at the Task Force meetings.

27. The expert from FIGIEFA introduced GRVA-04-04 proposing amendments to the scope as well as new proposals related to access to data by authorized parties. She announced that she would support the alternative proposal concerning the scope presented in GRVA-04-32. The expert from OICA also supported amendments to the scope but not the other amendments proposed in GRVA-04-32. The expert from EC stated the importance to remain vigilant concerning the access to data in vehicles. GRVA transmitted the amendment proposals to the task force.

28. The expert from FIA introduced GRVA-04-40 proposing to clarify the *lifecycle* and *lifetime* definitions. He suggested that the *lifetime* definition should also include the time after a vehicle is deregistered and until it is scrapped. GRVA did not conclude on this item and transmitted the document to the Task Force.

29. GRVA invited the Task Force to prepare the proposal for a new UN Regulation on cyber security, a draft guidance document, a draft resolution with recommendations together with draft requirements in a document that can serve the 1998 Agreement and a report on the test phase.

30. GRVA agreed to request an extension of the mandate of the Task Force for two years.

B. Software updates (incl. Over-The-Air updates)

Documentation: (ECE/TRANS/WP.29/GRVA/2019/3)
Informal documents GRVA-04-21, GRVA-04-25 and GRVA-04-45

31. GRVA noted the submitted documents and the similarities with the activities under item 5 (a) above. GRVA did not discuss the documents in detail to avoid repetition.

C. Other business

32. No further document was discussed under this agenda item.

VII. UN Regulation No. 79 (agenda item 6)

A. Automatically Commanded Steering Function (ACSF)

Documentation: ECE/TRANS/WP.29/GRVA/2019/19
 ECE/TRANS/WP.29/GRVA/2019/24
 ECE/TRANS/WP.29/GRVA/2019/26
 ECE/TRANS/WP.29/GRVA/2019/27
 ECE/TRANS/WP.29/GRVA/2019/28
 Informal documents GRVA-04-02, GRVA-04-03, GRVA-04-08,
 GRVA-04-09, GRVA-04-33, GRVA-04-41, GRVA-04-42,
 GRVA-04-43, GRVA-04-46, GRVA-04-47 and GRVA-04-53

33. The expert from France introduced ECE/TRANS/WP.29/GRVA/2019/19 proposing amendments to UN Regulation No.79 based on experience gathered by France, Germany and the Republic of Korea since the entry into force of the 03 series. The proposal received comments (see GRVA-04-09, GRVA-04-46). GRVA adopted the proposal as amended (GRVA-04-47) as reproduced in Annex III, as supplement to the 03 series of amendments to UN Regulation No.79 and requested the secretariat to submit it to WP.29 and AC.1, for consideration and vote at their March 2020 sessions.

34. The expert from AVERA presented GRVA-04-53, introducing ECE/TRANS/WP.29/GRVA/2019/26, ECE/TRANS/WP.29/GRVA/2019/27 and ECE/TRANS/WP.29/GRVA/2019/28. The presentation contained videos, simulations and fleet data supporting the proposals for amendments to UN Regulation No. 79. The presenters referred to a driving demonstration organized by Tesla in conjunction with GRVA to justify their statements. The proposal received some comments. The contracting parties were not opposed to an evolution of the regulatory provisions based on experience, if the assurance of safety is provided. The expert from AVERE presented revised proposals GRVA-04-41 and GRVA-04-42 aimed at addressing comments received. GRVA noted that some parts of the proposals were also addressed by the proposal submitted by the expert from OICA and agreed to review it.

35. GRVA welcomed the proposal from the expert from the United Kingdom, who volunteered to lead activities on the review of the three AVERE proposals as well as the amendment proposal tabled by OICA in GRVA-04-08 with the aim to prepare a formal proposal until November 2019 in order to meet the deadline for submission of documents for the February 2020 session of GRVA.

36. The expert from OICA presented GRVA-04-03, introducing ECE/TRANS/WP.29/GRVA/2019/24 proposing an alternative Human Machine Interface (HMI) for ACSF of Category C. The proposal received comments (and GRVA extended the discussion after the end of the official meeting time, without interpretation and without decisions or conclusions).

37. Following further discussion, GRVA adopted the proposal as amended (GRVA-04-43) and reproduced in Annex IV. GRVA requested the secretariat to submit it to WP.29 and AC.1, for consideration and vote at their March 2020 sessions.

38. The expert from ITU made a presentation on Digital Maps (GRVA-04-02) as announced during the last GRVA session. He presented activities related to the development of road databases for highly automated driving in series production light vehicles. He expressed views on the information that such databases should include and also indicated possible use cases for such technologies (supporting e.g. Advanced Emergency Braking Systems on stationary objects, a “sensor” for automated driving). The expert from the Netherlands welcomed the presentation and invited other stakeholders of the digital map industry to present their views at future meetings. The expert from China noted some comments regarding a specific national regulation and explained that GRVA was not the appropriate body to comment on regulation applicable in her Country. The expert from ITU corrected his statement and explained that regulations would play a role in the development of this technology.

39. The expert from OICA introduced GRVA-04-33 insisting on the need to develop ALKS provisions for Heavy Commercial Vehicles (HCVs). GRVA agreed that this work stream should not be delayed. GRVA invited OICA to develop proposals in parallel with the those developed by the IWG on ACSF and to keep them as harmonized as possible.

B. Annex 6

Documentation: ECE/TRANS/WP.29/GRVA/2019/20
(ECE/TRANS/WP.29/GRVA/2019/4)
Informal documents GRVA-04-29

40. The expert from UK introduced ECE/TRANS/WP.29/GRVA/2019/20, proposing amendments to Annex 6. He referred to ECE/TRANS/WP.29/GRVA/2019/4 and reported on the progress made since then. The expert from OICA introduced GRVA-04-29 with amendment proposals to the official document. GRVA discussed and then adopted ECE/TRANS/WP.29/GRVA/2019/20, amended by Annex V, as a draft supplement to the 03 series of amendments to UN Regulation No. 79. GRVA requested the secretariat to submit it to WP.29 and AC.1 for consideration and vote at their March 2020 sessions.

C. Remote Control Manoeuvring

Documentation: ECE/TRANS/WP.29/2019/114,
ECE/TRANS/WP.29/GRVA/2019/21
Informal documents GRVA-04-19

41. The expert from UK introduced ECE/TRANS/WP.29/GRVA/2019/21 with provisions on Remote Control Manoeuvring. GRVA recalled that it had already adopted provisions on a majority basis during its second session but had agreed to review them at this session to seek full consensus. The expert introduced GRVA-04-19 with further amendments introducing clarifications.

42. The expert from Germany requested that the session report reflects their statement: “Germany does not see the necessity to regulate this function at UNECE level”. Other experts mentioned that similar provisions could be developed for heavy duty vehicles, too.

43. GRVA agreed to work on similar provisions for other vehicle categories. GRVA also agreed with the amendments to the submitted proposal, reproduced in GRVA-04-19. GRVA requested the secretariat to submit the latest version of the proposal to WP.29 and AC.1 for review and vote at their November 2019 session.

D. Other business

Documentation: Informal documents GRVA-04-31 and GRVA-04-34

44. The expert from OICA introduced GRVA-04-31, proposing amendments to the warning requirements for Corrective Steering Functions. GRVA requested the secretariat to distribute the document with an official symbol for consideration at the next session.

45. The expert from OICA introduced GRVA-04-34, presenting considerations on Truck-Trailer data transmission for UN Regulation No. 79 based on ISO 11992, already referenced in UN Regulation No. 13. He explained that his motivation was to permit that trucks benefit from sensors on trailers. He asked that delegation provided comments in written, as his delegation would like to submit a proposal for amendments to UN Regulation No. 79 for review at the next session.

VIII. Advanced Emergency Braking Systems (agenda item 7)

Documentation: ECE/TRANS/WP.29/GRVA/2019/16
ECE/TRANS/WP.29/GRVA/2019/17

Informal documents GRVA-04-10, GRVA-04-11, GRVA-04-12, GRVA-04-38, GRVA-04-39, GRVA-04-51 and GRVA-04-52

46. Referring to ECE/TRANS/WP.29/GRVA/2019/17, the expert from Japan, Co-Chair of the IWG on AEBS introduced GRVA-04-38. He noted that para. 6.10 and the Appendix in the working document were in square brackets. The expert from Japan introduced GRVA-04-39, proposing further amendments to Appendix 2 of Annex 3.
47. The expert from OICA introduced GRVA-04-12 with editorial amendments.
48. The expert from the Russian Federation proposed an editorial correction in para. 7.1.
49. The expert from OICA introduced GRVA-04-11, supporting the provisions in the proposed para. 6.10. for a statistical approach to evaluating AEBS performance on the basis of unsuccessful tests. GRVA decided to reconsider this proposal at its next session. The expert from China informed that their draft national standard included such considerations. He mentioned that his country would consider GRVA's decision on this point to support harmonization, if timing allows.
50. GRVA adopted the proposal as amended (GRVA-04-51) with the deletion of the proposed para. 6.10, the correction to para. 7.1 and the amendments proposed in GRVA-04-12 and GRVA-04-39. GRVA requested the secretariat to submit it as Supplement 1 to UN Regulation No. [152] to WP.29 and AC.1 for consideration and vote at their March 2020 sessions.
51. The expert from Japan also introduced ECE/TRANS/WP.29/GRVA/2019/16 proposing a new series of amendments to UN Regulation No. [152].
52. The expert from OICA introduced GRVA-04-10 with editorial amendments to the proposal.
53. GRVA adopted the proposal as amended as reproduced in GRVA-04-52 and requested the secretariat to submit it as a draft new series of amendment to UN Regulation No. [152] to WP.29 and AC.1 for consideration and vote at their March 2020 sessions.
54. GRVA noted that GRVA-04-38 also contained information about the challenges to develop provisions for the Car-to-Bicycle scenario. GRVA agreed to request an extension of the mandate of the group until September 2020.

IX. UN Regulations Nos. 13, 13-H, 139 and 140 (agenda item 8)

A. Electronic Stability Control

Documentation: ECE/TRANS/WP.29/GRVA/2019/22
Informal documents GRVA-04-44

55. The expert from OICA introduced ECE/TRANS/WP.29/GRVA/2019/22 with amendments to the testing provisions to accommodate the latest innovations for steering systems. The expert from the Republic of Korea proposed clarifications. GRVA noted that this work stream may impact UN GTR No. 8. GRVA agreed to keep UN Regulation No. 140 and UN GTR No. 8 aligned.

56. The expert from OICA presented GRVA-04-44 drafted together with the secretariat, incorporating the proposal of the expert from the Republic of Korea and also identifying the corresponding paragraphs in UN GTR No. 8. The expert from Korea supported the document and announced that his country can volunteer to sponsor an amendment to UN GTR No. 8. GRVA requested the secretariat to distribute this document with an official symbol at its next session.

B. Modular Vehicle Combinations

Documentation: Informal document GRVA-04-26

57. The expert from Sweden, Chair of the IWG on Modular Vehicle Combinations (MVC) gave a brief status report on the activities the group. The Secretary of the IWG presented GRVA-04-26 with more details including a workplan aimed at delivering the mandate of the group. The Chair of the IWG mentioned that he would be available to chair the deliberations on the current activities but not for any subsequent phases.

58. GRVA invited the group to prepare a proposal for revised terms of reference for consideration at the next GRVA session.

C. Clarifications

Documentation: ECE/TRANS/WP.29/GRVA/2019/18
Informal documents GRVA-04-27, GRVA-04-30 and GRVA-04-50

59. The expert from the Russian Federation presented ECE/TRANS/WP.29/GRVA/2019/18, proposing clarifications on Annex 7 of UN Regulation No. 13. The expert from OICA declared that the clarification was not necessary, as it would have no impact on the test results. The expert from the Russian Federation proposed a compromise including transitional provisions (GRVA-04-50). The expert from the Czech Republic supported the proposal and mentioned that a similar clarification should be provided for similar provisions in Part C of Annex 7. GRVA took note of a notice issued by the European Type Approval Authorities Meeting on this matter, supporting the Russian proposal. GRVA agreed to consider this matter at its next session.

60. The expert from CLEPA introduced GRVA-04-27 presenting the Electric Mechanical Brakes technology and the necessary changes in UN Regulation No. 13 to accommodate this technology. The expert from the Netherlands stated that such proposal would also affect Annex 14 of UN Regulation No. 13. The expert from CLEPA answered that they only considered motor vehicles so far and not trailers. The Chair recalled previous discussions of Working Party on Brakes and Running Gear (GRRF) concerning Electronic Braking Control Systems. He recalled that GRRF had recognised that energy levels in batteries did not reduce linearly or predictably and had therefore agreed on electric control lines (with pneumatic redundancy) but not electric energy lines; He therefore asked whether CLEPA had considered redundancies. GRVA agreed to continue this discussion at its next session.

61. The expert from OICA introduced GRVA-04-30 proposing amendments to UN Regulation No. 13 concerning the Type II-A test for Battery Electric Vehicles already discussed at the second session of GRVA. The expert from OICA stated the Type II-A test provisions would have weight, packaging and costs implications for BEVs. GRVA noted the safety rationale behind the Type II-A requirement and that technologies to achieve compliance impacted equally on vehicles with other propulsion systems. The expert from CLEPA stated that they support the activity presented by OICA and that they would contribute to the research of an acceptable solution.

X. Motorcycle braking (agenda item 9)

A. UN Global Technical Regulation No. 3

Documentation: ECE/TRANS/WP.29/GRVA/2019/23
Informal documents GRVA-04-23 and GRVA-04-24

62. The expert from Italy introduced ECE/TRANS/WP.29/GRVA/2019/23, proposing amendments to UN GTR No. 3 as per the mandate adopted by A.C.3 (ECE/TRANS/WP.29/AC.3/47). He also introduced GRVA-04-23 including amendments addressing comments received on the proposal. GRVA adopted the proposal as amended with the below correction and requested the secretariat to submit it to the Executive Committee AC.3 for consideration at vote at its March 2020 session.

In ECE/TRANS/WP.29/GRVA/2019/23, para 10, for 5.1.17, read 3.1.17

63. The expert from Italy also introduced GRVA-04-24, containing the technical report associated to the proposal. GRVA adopted it and requested the secretariat to submit it to the Executive Committee AC.3 for consideration at vote at its March 2020 session.

64. The expert from IMMA stated his satisfaction concerning the adoption of the amendment proposal to UN GTR No. 3. He mentioned that the outcome of this work was not fully harmonized, especially concerning Electromagnetic Compatibility and defeat device requirements.

B. UN Regulation No. 78

Documentation: Informal documents GRVA-04-05 and GRVA-04-06

65. The expert from IMMA introduced GRVA-04-05 and GRVA-04-06, analysing discrepancies between UN GTR No. 3 and UN Regulation No. 78. GRVA invited the expert from IMMA to submit an amendment proposal to UN Regulation No. 78 for review at the next session.

XI. UN Regulation No. 90 (agenda item 10)

Documentation: ECE/TRANS/WP.29/GRVA/2019/25
Informal document GRVA-04-54

66. The expert from the Russian Federation introduced ECE/TRANS/WP.29/GRVA/2019/25, proposing amendments to UN Regulation No. 90 on provisions on the approval making and the approval number. The expert from CLEPA thanked the expert from the Russian Federation for having developed an elegant and creative solution to the marking requirement. GRVA supported the proposal. GRVA also agreed to identify the provisions for Category L₆ and L₇ vehicles as being identical to the M₁ and N₁ provisions (as noted in GRVA-04-54). GRVA agreed that the Unique Identifier should not be used as an alternative to the marking provisions in the Regulation. GRVA asked the secretariat to add provisions on the marking size for small parts that could not accommodate the size provision in the Regulation. GRVA requested the secretariat to provide a consolidated text to WP.29 and AC.1 for review and vote at their March 2020 sessions.

XII. Revision 3 of the 1958 Agreement (agenda item 11)

A. Implementation of new provisions in Revision 3 to the 1958 Agreement

67. The secretary recalled the list of actions needed to fulfil the obligations of the 1958 Agreement. GRVA agreed to resume discussion on this item at its next session.

B. International Whole Vehicle Type Approval

Documentation: Informal document GRVA-04-48

68. The secretariat introduced GRVA-04-48, consulting GRVA following the discussion at the 178th WP.29 session on approval numbers, marking provisions and unique identifier. GRVA noted its decision during this session regarding UN Regulation No. 90 based on the proposal tabled by the expert from the Russian Federation (ECE/TRANS/WP.29/GRVA/2019/25).

XIII. Election of Officers (agenda item 12)

69. In compliance with Rule 37 of the Rules of Procedure (TRANS/WP.29/690 as amended), GRVA called for the election of officers. GRVA was informed that the current chairperson would not be a candidate for the year 2020. GRVA elected Mr. R. Damm

(Germany) as Chair of GRVA for the sessions in 2020. GRVA also elected Ms. C. Chen (China) and Mr. T. Onoda (Japan) as vice Chair of GRVA for the sessions in 2020. GRVA congratulated the officers for their election and also congratulated Mr. B. Frost, Chair of GRVA since 2018 and Chair of GRRF since 2012 for his outstanding work. GRVA noted the contributions of Mr. B. Frost to vehicle regulations since decades. GRVA agreed he managed the transformation of GRRF into GRVA and that this fourth session was a real success. The Chair thanked GRVA for their trust and support. He noted the importance of regulations for the purpose of vehicle safety and road safety as well as the work of the industry to deliver safety, through their products. He stated the importance of the United Nations to deliver harmonization, which affect positively safety, environment but also trade and employment. He wished that this would be more recognized. He thanked the Secretary for his work in order to make these meetings work harmoniously. He also thanked the interpreters for supporting these complex and technical meetings. GRVA wished Mr. B. Frost well for his retirement.

XIV. Other business (agenda item 13)

Documentation: ECE/TRANS/WP.29/2019/120
ECE/TRANS/288, Add.1 and Add.2
Informal document No. 5 (restricted), seventh session of the ITC
Bureau in 2019
Informal documents GRVA-04-49

70. The Secretary informed GRVA about the adoption by the Inland Transport Committee of its 2030 Strategy (ECE/TRANS/288/Add.2). He also informed GRVA of the draft National Road Safety System document, currently receiving comments from ITC's Working Parties. GRVA noted the information. The Secretary invited delegations to provide comments until November 2019.

71. The secretariat presented GRVA-04-49 with priority proposals for GRVA (other than those related to automated vehicles), answering to the request of the Administrative Committee for the Coordination of Work (AC.2) in ECE/TRANS/WP.29/1147, para. 7. GRVA commented on the document. The Chair explained that the priorities should be understood in terms of workload to determine the number of sessions per year in a top down approach by AC.2. The secretariat invited the delegations to send written comments in advance of the next session of AC.2 on 12 November 2019.

XV. Tributes

72. GRVA was informed that Mr. Gunneriusson (Sweden) would no longer attend GRVA session. GRVA thanked him for his important contributions both at GRRF and at GRVA. GRVA wished him well for his new responsibilities.

Annex I

[English only]

List of informal documents (GRVA-04-...) considered during the session

No.	(Author) Title	Follow-up
1	(Chair) - Running order	D
2	(Ygomi/ITU) - Road databases for highly automated driving in series production light vehicles	D
3	(OICA) - Justification for ECE/TRANS/WP29/GRVA/2019/24 (ACSF of Category C, 2-Steps HMI)	D
4	(CITA/EGEA/ETRMA/FIA/FIGIEFA) Proposal for amendments to ECE/TRANS/WP29/GRVA/2019/2	D
5	(IMMA) Proposal for a Supplement to the 04 series of amendments to UN Regulation No. 78 (Motorcycle braking)	D
6	(IMMA) Harmonization UN GTR No.3 and UN Regulation No. 78	D
7	(France) Presentation of TECMO	D
8	(CLEPA/OICA) Proposal for amendments to the 02 series of amendments to UN Regulation No. 79 (ACSF B1)	D
9	(CLEPA/OICA) Proposal for amendments to ECE/TRANS/WP29/GRVA/2019/19	D
10	(CLEPA/OICA) Proposal for amendments to ECE/TRANS/WP29/GRVA/2019/16	D
11	(CLEPA/OICA) Presentation supporting the proposal for repetition of a limited number of unsuccessful test runs	D
12	(CLEPA/OICA) Proposal for amendments to ECE/TRANS/WP29/GRVA/2019/17	D
13	(Secretariat) Adopted ToR and RoP for the IWG on FRAV	D
14	(Secretariat) Adopted ToR and RoP for the IWG on VMAD	D
15	(Secretariat) Adopted ToR and RoP for the IWG on DSSAD/EDR	D
16	(Secretariat) Highlights of the 178th WP.29 session	D
17	(EDR/DSSAD) Comparison EDR versus DSSAD	D
18	(VMAD) Status report of the third meeting of the IWG on VMAD	D
19	(UK) Proposal for amendments to ECE/TRANS/WP29/GRVA/2019/21 (RCM)	A
20	(Secretariat) Updated provisional agenda for the fourth session of GRVA	D
21	(Germany) Proposal for amendments to ECE/TRANS/WP29/GRVA/2019/3	D
22	(Germany) Proposal for amendments to ECE/TRANS/WP29/GRVA/2019/2	D
23	(Italy) Proposal for amendments to ECE/TRANS/WP.29/GRVA/2019/23	D
24	(Italy) Proposal for the Technical Report on the development of Amendment 3 to global technical regulation (UN GTR) No. 3	A
25	(IMMA) Proposal for amendments to ECE/TRANS/WP.29/GRVA/2019/2 (and TFCS 15-34) and ECE/TRANS/WP.29/GRVA/2019/3 (and TFCS-15-36)	D
26	(MVC) Status report	D
27	(CLEPA) UN R13 and Electro Mechanical Brakes	D
28	(EDR/DSSAD) Status report	D
29	(OICA) Proposal for amendments to ECE/TRANS/WP.29/GRVA/2019/20	D
30	(OICA) Alternative approach to UN R13 Type IIA for BEV	D
31	(OICA) Proposed amendments to UN Regulation No.79, 02 and 03 Series of amendments (Corrective steering function for N2, N3)	B
32	(European Commission) Proposal for amendments to ECE/TRANS/WP.29/GRVA/2019/2 (Cyber	D

<i>No.</i>	<i>(Author) Title</i>	<i>Follow-up</i>
	security)	
33	(OICA/CLEPA) Proposal from Industry about ALKS for HCVs	D
34	(OICA) Truck-Trailer data transmission for UN Regulation No. 79 (ISO 11992)	D
35	(ISO) ISO/PAS 21448 SOTIF	D
36	(ACSF) Status report of the IWG on ACSF	D
37	(Russian Federation) Yandex Self-Driving Car Project Overview	D
38	(AEBS) Proposals from the IWG on AEBS	D
39	(Japan) Proposal for amendments to ECE/TRANS/WP.29/GRVA/2019/17	D
40	(FIA) FIA position on Lifecycle of a vehicle type vs. Lifetime of a vehicle	D
41	(AVERE) Revised proposal regarding ACSF B1 provisions	D
42	(AVERE) Revised proposal regarding ACSF C provisions	D
43	(Secretariat) Agreed amendments to ECE/TRANS/WP.29/GRVA/2019/24	D
44	(OICA/CLEPA) Proposal for amendments to ECE/TRANS/WP.29/GRVA/2019/22	B
45	(CS/OTA) Status report	D
46	(France) Proposal for amendments to ECE/TRANS/WP.29/GRVA/2019/19	D
47	(Secretariat) Consolidated proposal for amendments to ECE/TRANS/WP.29/GRVA/2019/19	D
48	(Secretariat) Approval number, marking and Unique Identifier	D
49	(Secretariat) Current and potential GRVA activities (other than vehicle automation)	D
50	(Russian Federation) Proposal for amendments to ECE/TRANS/WP.29/GRVA/2019/18	C
51	(AEBS) Adopted amendments to ECE/TRANS/WP.29/GRVA/2019/17	D
52	(AEBS) Adopted amendments to ECE/TRANS/WP.29/GRVA/2019/16	D
53	(AVERE) Presentation	D
54	(CLEPA) Proposal for amendments to UN Regulation No. 90	D

Notes:

- A Adopted and to be forwarded to WP.29 as informal document.
- B Resume consideration on the basis of a document with an official symbol.
- C Revised proposal for the next session.
- D Consideration completed.

Annex II

List of GRVA Informal Working Groups

<i>Informal Working Group</i>	<i>Chair/Co-Chairs</i>	<i>Country</i>	<i>Mandate until</i>
Functional Requirements for Automated and Autonomous Vehicles (FRAV)	Mr. E. Wondimneh. ¹ Ms. C. Chen Mr. R. Damm ¹	USA China Germany	March 2020
Validation Method for Automated Driving (VMAD)	Mr. T. Onoda ¹ Mr. P. Striekwold ¹ [Mr. I. Sow.]	Japan Netherlands [Canada ²]	December 2020
Cyber Security and Over-The-Air software updates (CS/OTA)	Mr. T. Niikuni ¹ Dr. D. Handley ¹	Japan UK	November 2019
Event Data Recorder / Data Storage System for Automated Driving (EDR/DSSAD)	Mr. T. Guiting ¹ Mr. T. Niikuni ¹ Mrs. J. Doherty	Netherlands Japan USA	November 2020
Automatically Commended Steering Functions (ACSF)	Mr. C. Theis ¹ Mr. H. Morimoto ¹	Germany Japan	March 2020
Advanced Emergency Braking Systems (AEBS)	Mr. A. Lagrange ¹ Mr. T. Hirose ¹	EC Japan	March 2020
Modular Vehicle Combinations (MVC)	Mr. A. Gunneriusson	Sweden	March 2020

¹ IWG Co-Chairs

² Subject to political confirmation

Annex III

Amendments to ECE/TRANS/WP.29/GRVA/2019/19

Adopted on the basis GRVA-04-47 (amendments marked in red)

UN Regulation No. 79, insert a new sentence in paragraph 5.6.2.1.1., to read:

"5.6.2.1.1. The activated system shall at any time, within the boundary conditions, ensure that the vehicle does not cross a lane marking for lateral accelerations below the maximum lateral acceleration specified by the manufacturer $a_{y_{\text{smax}}}$.

It is recognised that the maximum lateral acceleration specified by the vehicle manufacturer $a_{y_{\text{smax}}}$ may not be achievable under all conditions (e.g. inclement weather, different tyres fitted to the vehicle, laterally sloped roads). The system shall not deactivate or unreasonably switch the control strategy in these other conditions.

The system may exceed the specified value $a_{y_{\text{smax}}}$ by not more than 0.3 m/s^2 , while not exceeding the maximum value specified in the table in paragraph 5.6.2.1.3. of this Regulation.

Notwithstanding the sentence above, for time periods of not more than 2 s the lateral acceleration of the system may exceed the specified value $a_{y_{\text{smax}}}$ by not more than 40%, while not exceeding the maximum value specified in the table in paragraph 5.6.2.1.3. of this Regulation by more than 0.3 m/s^2 ."

Annex 8, paragraph 2.1. amend to read:

"2.1. Lane markings

The lane markings on the road used for the tests shall be in line with one of those described in Annex 3 of UN Regulation No. 130. The markings shall be in good condition and of a material conforming to the standard for visible lane markings. The lane-marking layout used for the tests shall be recorded in the test report.

The width of the lane shall be minimum 3.5 m, for the purpose of the tests of this annex. **At the manufacturer's discretion and with the agreement of the Technical Service, a lane with a width of less than 3.5 m may be used, if the correct function of the system on roads with wider lanes can be demonstrated.**

The test shall be performed under visibility conditions that allow safe driving at the required test speed.

The vehicle manufacturer shall demonstrate, through the use of documentation, compliance with all other lane markings identified in Annex 3 of UN Regulation No. 130. Any of such documentation shall be appended to the test report. "

Annex 8, paragraph 2.4., amend to read:

"2.4. Lateral acceleration

~~The position representing the centre of gravity, at which the lateral acceleration shall be measured, shall be determined in agreement between the vehicle manufacturer and the Technical Service. The position at which the lateral acceleration is measured and the centre of gravity of the vehicle shall be identified in the test report.~~

~~The lateral acceleration shall be measured without taking into account the additional effects due to the movements of the vehicle body (e.g. roll of sprung mass).~~

The lateral acceleration and the lateral jerk at vehicle's center of gravity shall be determined. The raw lateral acceleration data shall be measured closest as possible to the position of the vehicle's center of gravity. The position at which the lateral acceleration is measured and the centre of gravity of the vehicle shall be identified in the test report. The sampling rate shall be at least 100 Hz.

To determine the lateral acceleration, the raw data shall be filtered by applying a fourth order Butterworth filter with a cut-off frequency of 0.5 Hz.

To determine the lateral jerk, the 500ms moving average of the time derivation of the filtered lateral acceleration shall be considered.

The lateral acceleration data at the vehicle center of gravity shall be determined by removing additional effects due to the movements of the vehicle body (e.g. roll of sprung mass) and by correcting for sensor placement via the use of coordinate transformation. As reference, the **intermediate axis vehicle coordinate** system as described in ISO 8855:2011 shall be used."

Annex 8, insert a new paragraph 2.5., to read:

"2.5. Overriding force

The measurement of the overriding force during the test can be performed by two methods: either through the internal driver torque signal or by an external measurement device fitted, which doesn't induce any deactivation of the system.

Prior to performing the overriding force test, by the internal driver torque signal, it shall be verified by an external measurement device that there are no relevant differences between the both measured values. Differences shall be less than or equal to 3N. This requirement is deemed to be fulfilled if the correlation between the values of the internal driver torque signal and the external measurement device was determined and is applied in the overriding force test. "

Annex 8, paragraph 3.2.1.1. and 3.2.1.2., amend to read:

"3.2.1.1. The vehicle speed shall remain in the range from V_{smin} up to V_{smax} .

The test shall be carried out for each speed range specified in paragraph 5.6.2.1.3. of this Regulation separately or within contiguous speed ranges where the a_{ysmax} is identical.

The vehicle shall be driven without any force applied by the driver on the steering control (e.g. by removing the hands from the steering control) with a constant speed **or with a predefined initial speed when using an embedded vehicle speed control system** (e.g. for vehicles automatically decelerating in curves) on a curved track with lane markings at each side.

The necessary lateral acceleration to follow the curve shall be between 80 and 90 per cent of the maximum lateral acceleration specified by the vehicle manufacturer a_{ysmax} . **The measured lateral acceleration during the test execution can be outside of the above-mentioned limits.**

The lateral acceleration and the lateral jerk shall be recorded during the test.

3.2.1.2. The test requirements are fulfilled if:

No outside edge of the tyre tread of the vehicle's front wheel does cross the outside edge of ~~The vehicle does not cross~~ any lane marking.

The moving average over half a second of the lateral jerk does not exceed 5 m/s³."

Annex 8, paragraphs 3.2.2.1. and 3.2.2.2., amend to read:

- "3.2.2.1. The vehicle speed shall remain in the range from V_{smin} up to V_{smax}
 [...] The vehicle shall be driven without any force applied by the driver on the steering control (e.g. by removing the hands from the steering control) with a constant speed on a curved track with lane markings at each side.
If an embedded vehicle speed control system will automatically decelerate the vehicle in the curve, it shall be inhibited.
 [...]"
- 3.2.2.2. The test requirements are fulfilled if:
 The recorded acceleration is within the limits specified in paragraph **5.6.2.1.1.** ~~5.6.2.1.3.~~ of this Regulation.
 The moving average over half a second of the lateral jerk does not exceed 5 m/s^3 ."

Annex 8, paragraph 3.2.3.1. amend to read:

- "3.2.3.1. The vehicle speed shall remain in the range from V_{smin} up to V_{smax} .
 The vehicle shall be driven without any force applied by the driver on the steering control (e.g. by removing the hands from the steering control) with a constant speed on a curved track with lane markings at each side.
 The necessary lateral acceleration to follow the curve shall be between 80 and 90 per cent of ~~the minimum value specified in the table of paragraph 5.6.2.1.3. of this Regulation.~~ **the maximum lateral acceleration specified by the vehicle manufacturer a_{ysmax} .**
 The driver shall then apply a force on the steering control to override the system intervention and leave the lane.
 The force applied by the driver on the steering control during the overriding manoeuvre shall be recorded. "

Annex 8, insert new paragraphs 3.2.5. to 3.2.5.2., to read:

- "3.2.5. **Lane Crossing Warning Test for M_1 N_1 and for M_2 M_3 N_2 and N_3 , if not equipped with a Lane Departure Warning System (LDWS) fulfilling the technical requirements of UN Regulation No. 130.**
- 3.2.5.1. **The vehicle shall be driven with activated ACSF with a vehicle test speed between V_{smin} and V_{smax} .**
 The vehicle shall be driven without any force applied by the driver on the steering control (e.g. by removing the hands from the steering control) on a curved track with lane markings at each side.
 The technical service defines a test speed and a radius which would provoke a lane crossing. The test speed and radius shall be defined such that the necessary lateral acceleration to follow the curve is in between $a_{ysmax} + 0.1 m/s^2$ and $a_{ysmax} + 0.4 m/s^2$.
- 3.2.5.2. **The test requirements are fulfilled if:**
 The optical warning signal and additionally the acoustic or haptic warning signal was given at the latest when the outside edge of the tyre tread of the vehicle's front wheel has crossed the outside edge of the lane marking.
 The system continues to provide assistance as required in paragraph 5.6.2.2.3."

Annex IV

Amendments to ECE/TRANS/WP.29/GRVA/2019/24

Adopted on the basis of GRVA-04-43 (marked in red)

In ECE/TRANS/WP.29/GRVA/2019/24,

Paragraph 3.5.7.1.1., amend to read:

"3.5.7.1.1. Following a new engine start /run cycle performed by the driver, the test vehicle shall be driven in a lane of a straight test track, which has at least two lanes in the same direction of travel, with road markings on each side of the lanes.

The ACSF of Category C shall not be activated (off mode) and another vehicle shall approach from the rear and the approaching vehicle shall pass the vehicle entirely.

~~The direction indicator used to initiate a lane change procedure shall be activated by the driver for a period greater than 5 seconds.~~

A lane change procedure ~~and manoeuvre~~ shall then be initiated by the driver with the appropriate deliberate action(s)."

Paragraph 3.5.7.2.1., amend to read:

"3.5.7.2.1. Following a new engine start / run cycle performed by the driver, the test vehicle shall be driven in a lane of a straight test track, which has at least two lanes in the same direction of travel, with road markings on each side of the lanes.

The ACSF of Category C shall be manually activated (standby mode).

A lane change procedure ~~and manoeuvre~~ shall then be initiated by the driver with the appropriate deliberate action(s)."

Annex V

Amendments to ECE/TRANS/WP.29/GRVA/2019/20

Adopted on the basis of GRVA-04-29 (marked in read).

Title of the document, amend to read:

“**Proposal for a Supplement to the 03 series of amendments to UN Regulation No. 79**”

In ECE/TRANS/WP.29/GRVA/2019/20,

Paragraph 3.2., amend to read:

"3.2. Description of the functions of "The System" **including control strategies**

A description shall be provided which gives a simple explanation of all the ~~control~~ functions **including control strategies** of "The System" and the methods employed to achieve the objectives, including a statement of the mechanism(s) by which control is exercised.

Any described function that can be over-ridden shall be identified and a further description of the changed rationale of the function's operation provided.

Any enabled or disabled safety related functions, ~~including both those providing assistance to the driver as defined in paragraph 2.3.4. of this UN Regulation and those where the driver is not necessarily in primary control of the vehicle~~, when the hardware and software are present in the vehicle at the time of production, shall be declared and are subject to the requirements of this annex, prior to their use in the vehicle."
