



Economic and Social Council

Distr.: General
5 August 2021

Original: English

Economic Commission for Europe

Inland Transport Committee

World Forum for Harmonization of Vehicle Regulations

Working Party on Automated/Autonomous and Connected Vehicles

Tenth session

Geneva (online), 25-28 May 2021

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

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I. Attendance and opening

1. The Working Party on Automated/Autonomous and Connected Vehicles (GRVA) met from 25 to 28 May 2021 online, hosted in Geneva. The meeting was chaired by Mr. R. Damm (Germany), except for item 4(d), which was chaired by the Vice-Chair Mr. T. Onoda (Japan). 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): Australia, Austria, Brazil, Canada, China, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Hungary, India, Italy, Japan, Luxembourg, Malaysia, the Netherlands, Norway, Republic of Korea, Romania, Russian Federation, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, the United Kingdom of Great Britain and Northern Ireland (UK) and the United States of America (USA). 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), Automotive Open System Architecture (AUTOSAR), European Association for Electric Mobility (AVERE), European Agricultural Machinery Organization (CEMA), International Motor Vehicle Inspection Committee (CITA), European Association of Automotive Suppliers (CLEPA/MEMA/JAPIA), European Garage Equipment Association (EGEA), European Tyre and Rim Manufacturer Association (ETRMA), European Transport Safety Council (ETSC), European Association of Internal Combustion Engine Manufacturers (EUROMOT), Federation of European Manufacturers of Friction Materials (FEMFM), International Automobile Federation (FIA), International Federation of Automotive Distributors (FIGIEFA), International Motorcycle Manufacturers Association (IMMA), International Organization for Standardization (ISO), International Telecommunication Union (ITU), International Organization of Motor Vehicle Manufacturers (OICA), Recreational Vehicle Industry Association (RVIA), SAE International, Securing America's Future Energy (SAFE), Union Internationale des Transports Publics (UITP), and World Bicycle Industry Association (WBIA).
2. The Deputy Executive Secretary of UNECE, Mr. D. Mariyasin, welcomed participants from all over the world to the tenth session of GRVA.
3. He highlighted the importance of road safety, recalling that 1.36 million persons were killed and some 50 million severely injured in road crashes in 2020. He underlined that the achievement of Sustainable Development Goal (SDG) target 3.6, aiming at halving the number of road fatalities and serious injuries, urged for concerted efforts from all road safety stakeholders. He recalled that in July 2020 the United Nations General Assembly had proclaimed the Second Decade of Action for Road Safety, 2021 to 2030, reinforcing SDG 3.6 target, adding that work dedicated to achieving SDG 11.2 calling for safe, affordable, accessible and sustainable transport in cities and communities, was also crucial.
4. The Deputy Executive Secretary highlighted the importance of GRVA's activities in terms of road safety and mentioned as an example UN Global Technical Regulation (GTR) No. 8 and UN Regulation No. 140 on Electronic Stability Control and UN Regulation No. 152 on Advanced Emergency Braking System, and stated their importance for reaching the SDG targets.
5. He congratulated GRVA not only on its achievement related to cyber security and Automated Lane Keeping System (ALKS) as initial steps, but also for the group's bigger ambitions with the activities under the Framework Document on the safety of Automated Vehicles (FDAV).
6. He recognized that GRVA had a very busy agenda with highly challenging items, some of them having a technical nature, others having a more fundamental nature. He recommended GRVA to consider the note by the secretariat concerning possible responses to the letter to GRVA addressed by the Council of Europe, calling the group to conduct a human rights impact assessment of automated vehicles.
7. The Deputy Executive Secretary concluded his statement by wishing delegates a fruitful discussion and the achievement of good results during the tenth session of GRVA.

8. The Chair of GRVA thanked Mr. D. Mariyasin for opening this session. He stated that GRVA would continue to contribute to improving road safety and in cooperation with all Working Parties under WP.29, and WP.29 itself, strive to, through carrying out work within respective mandates, play a leading role towards the achievement of all road safety related SDG goals and their targets. He mentioned that GRVA was envisaging to organize sessions outside of Geneva in 2022, one session in Asia and one session in America and thanked in advance Mr. D. Mariyasin for UNECE's support. He praised the excellent work of the GRVA Secretary and congratulated Mr. D. Mariyasin on his appointment.

9. The Chair continued by mentioning the new Coronavirus 2019 outbreak context, the reason why the meeting was conducted online.

II. Adoption of the agenda (agenda item 1)

Documentation: ECE/TRANS/WP.29/GRVA/2021/18
Informal documents GRVA-10-01, GRVA-10-19 and
GRVA-10-20/Rev.1

10. GRVA considered the provisional agenda prepared for this session (ECE/TRANS/WP.29/GRVA/2021/18) and decided to insert a new item 12(d) "Arrangements of meetings". GRVA adopted the agenda as reproduced in GRVA-10-20/Rev.1, which included the informal documents received before the session started. (All informal documents submitted are listed in Annex I of this report.). Annex II provides the list of Informal Working Groups (IWG) reporting to GRVA.

11. GRVA also agreed on the running order for the session (GRVA-10-01) and noted the technical information contained in GRVA-10-19 for this online session.

III. Highlights of the March 2021 session of WP.29 (agenda item 2)

Documentation: (ECE/TRANS/WP.29/1157)
Informal document GRVA-10-18

12. The Secretary presented GRVA-10-18 with the highlights of the March 2021 session of WP.29. He referred to ECE/TRANS/WP.29/1157 for more details.

13. The Secretary also mentioned that the Administrative Committee for the Coordination of Work (AC.2) met informally in April 2021 and discussed updates to FDAV, reproduced in GRVA-10-02, tabled to discussion under item 12 (b).

IV. Artificial Intelligence in vehicles (agenda item 3)

Documentation: Informal documents GRVA-09-23 and WP.29-175-21

14. The expert from the Russian Federation continued the presentation of GRVA-09-23 "Artificial intelligence definition and specifics of its application for automated road vehicles" that he briefly started at the ninth session.

15. The secretariat recalled the purpose of WP.29-175-21, proposing considerations related to Artificial Intelligence (AI) and vehicle regulations.

16. The expert from the United States of America highlighted the need to define what is AI. He stated that what GRVA should do remained an open question.

17. The expert from the Russian Federation stated that requirements should be technology neutral. He also stated that self-learning functions in operation should not be allowed.

18. GRVA requested the secretariat, together with the GRVA officers, to draft an informal document based on the input received, containing definitions and some general best practices and recommendations related to Artificial Intelligence in the context of vehicle regulations, for review at the September 2021 session of GRVA.

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

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

Documentation: Informal document GRVA-10-31/Rev.1

19. The expert from the United States of America, Co-Chair of the IWG on Functional Requirements for Automated and Autonomous Vehicles (FRAV), presented GRVA-10-31/Rev.1, providing a progress report on the activities of the group. He described the various workstreams of the group, mentioned the timeline envisaged and explained how the group would liaise with the IWG on Event Data Recorder (EDR) / Data Storage Systems for Automated Driving (DSSAD). GRVA endorsed the report provided.

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

Documentation: Informal document GRVA-10-32

20. The expert from Japan, Vice-Chair of GRVA and Co-Chair of the IWG on Validation Method for Automated Driving (VMAD), presented the progress report of the group (GRVA-10-32). He detailed the activities of the four subgroups and their schedule. He explained that the group provided comments on the 40 safety topics elaborated by the IWG on FRAV, to get a sense of how each topic may relate to or fall within the work of the respective VMAD Subgroups. GRVA endorsed the report provided.

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

Documentation: Informal document GRVA-10-30

21. The expert from the United States of America, Co-Chair of the IWG on EDR/DSSAD, informed GRVA (GRVA-10-30) about the results of the group on DSSAD so far, as well as about ongoing discussions regarding the work plan for the group.

22. The expert from China, Vice-Chair of GRVA, inquired whether the timeline could be shortened. She explained that the corresponding activities in her country were expected to be concluded earlier and she encouraged the group to deliver sooner for the sake of harmonization.

23. The expert from the European Commission thanked the group for the achievements on Event Data Recorder and supported the statement by the expert from China.

24. The expert from the United States of America invited China to contribute to the activities of the group. She explained that the sooner the inventory work would be performed the quicker the work could be expedited. She explained that the workplan would be discussed by the group at the June 2021 session of the group. GRVA endorsed the status report provided.

D. UN Regulation on Automated Lane Keeping Systems

Documentation: (ECE/TRANS/WP.29/GRVA/2020/32
ECE/TRANS/WP.29/GRVA/2020/33
ECE/TRANS/WP.29/GRVA/2021/2
ECE/TRANS/WP.29/GRVA/2021/3
ECE/TRANS/WP.29/GRVA/2021/4)
Informal documents GRVA-10-08, GRVA-10-25, GRVA-10-26,
GRVA-10-27, GRVA-10-34, GRVA-10-35 and GRVA-10-36

25. The expert from the United Kingdom of Great Britain and Northern Ireland presented the report of the Special Interest Group on UN Regulation No. 157 (GRVA-10-34). He introduced GRVA-10-25 and GRVA-10-26.
26. The expert from University of Leeds, representing ETSC, warned that ALKS could become a fully-fledged Level 3 system.
27. The expert from China, Vice-Chair of GRVA, noted the two workstreams taking place in parallel, the one on ALKS and the one on FRAV and VMAD. She explained that some countries could wonder which stream to follow for harmonization and warned about duplications.
28. The expert from the United States of America mentioned that there was a risk of overlap between both workstreams. He saw the risk for the industry that the FRAV work would supersede ALKS and he stated that if he were a manufacturer, he would go for the requirements under the 1998 Agreement as it would open a wider market.
29. On request of GRVA, the Secretary recalled the guidance provided by WP.29 and AC.2 at their November 2020 sessions (GRVA-08-10). GRVA discussed the coordination of work related to this agenda item in line with the guidance.
30. The expert from AAPC invited GRVA to recognize that UN Regulation No. 157 was developed to allow the approval of a specific ADS. He explained the need to avoid conflict and to understand the differences between lane keeping systems and full highway pilot systems. He stated that it might make sense that a lane keeping system such as ALKS would perform a lane change in some situations, for the sake of safety.
31. The expert from the Netherlands, Co-Chair of the IWG on VMAD, recognized the concerns expressed. He explained that the wording chosen by AC.2 was aimed to address it. He stated that it would be disappointing if the implementation of the work done by the IWGs on FRAV and VMAD in UN Regulation No. 157 would take time. He, therefore, invited GRVA to consider inserting a proactive sentence in the regulation in the spirit of the guidance provided by WP.29/AC.2.
32. The expert from the European Commission asked if the concerns expressed were of general nature and anticipating future situations or if there were already concrete concerns.
33. GRVA reviewed GRVA-10-25, proposing clarifications to the regulation. The expert from the United States of America questioned the use of the word “significant” in the proposal as it was not quantifiable. The expert from OICA explained that the word was chosen to accommodate the variation among traffic rules among the contracting countries, concerning situations that should lead to a stop. Following discussions, GRVA drafted amendments to the proposal reproduced in GRVA-10-35. GRVA also reviewed GRVA-10-26, containing amendment proposals extending the scope of the regulation to heavy vehicles. Following discussion, GRVA modified the proposal in session, as reproduced in GRVA-10-36.
34. The expert from Japan introduced GRVA-10-27, exploring the way to make progress on UN Regulation No. 157 related activities, concerning lane changes. GRVA discussed the coordination of work related to this agenda item in line with the guidance provided by AC.2 (GRVA-08-10).
35. GRVA adopted GRVA-10-35 as reproduced in Annex III and requested the secretariat to submit it to WP.29 and AC.1 as draft supplement for consideration and vote at their November 2021 sessions.
36. GRVA requested the secretariat to submit GRVA-10-36 (as reproduced in Annex VIII) to WP.29 and AC.1 for consideration and vote at their November 2021 sessions, subject to final review by GRVA at its September 2021 sessions.
37. The expert from the United States of America suggested that all informal working groups should review these proposals. GRVA recalled the existing mechanism in place to allow coordination among IWGs.

E. Other business

38. No discussion took place under this agenda item.

VI. Connected vehicles (agenda item 5)

A. Cyber security and data protection

Documentation: Informal documents GRVA-10-12 and GRVA-10-41

39. The expert from Japan, Co-Chair of the IWG on Cyber Security and Over-the-Air issues (CS/OTA) reported on the activities of the group.

40. The Chair asked whether the draft framework document amendment was in line with the current plan of the group. The Co-Chair of the IWG confirmed it.

41. The secretariat recalled that GRVA referred to the group a proposal for Corrigendum to UN Regulation No. 156 under agenda item 5(b). The Co-Chair of the Group responded that the Group did not finalize the consideration of this proposal.

42. GRVA reviewed GRVA-10-12, proposing clarifications to the transitional provisions in UN Regulation No. 155. The expert from Japan proposed an alternative proposal in GRVA-10-41. GRVA agreed to resume consideration of this matter at its September 2021 session.

43. GRVA discussed the implementation of UN Regulation No. 155 and agreed to organize a workshop on this matter (as virtual meeting) to take place, if possible, before mid of July 2021.

B. Software updates and Over-the-Air issues

Documentation: (ECE/TRANS/WP.29/GRVA/2021/6)

44. The expert from France withdrew ECE/TRANS/WP.29/GRVA/2021/6 and explained that the concern addressed in that document had already been solved at the ninth session of GRVA with an amendment to UN Regulation No. 157.

C. Data and vehicle communications

Documentation Informal document GRVA-10-09

45. The expert from FIGIEFA introduced GRVA-10-09, informing on the activities of the alliance for the freedom of car repair in Europe and describing the Secure On-board Telematic Platform (S-OTP) as an alternative to the Extended Vehicle model presented by the expert from the International Standards Organization (ISO) at the ninth session of GRVA. He concluded his presentation by stating that access to vehicle data harmonization was not suitable in the context of Mutual Recognition Agreements and that such activities would be better addressed at the European level.

46. The expert from ISO, member of the Technical Committee 22, explained that, in his view, there were some misconceptions about the Extended Vehicle model.

47. GRVA recalled the statement of CITA at the ninth session and asked if other models could be presented. The expert from CITA explained that he was not able to offer a presentation due to internal discussions within CITA.

48. The expert from OICA explained that his organization supported the Extended Vehicle Model and mentioned concerns with S-OTP, due to the fact that with this concept, some third party software should be executed on a customer hardware with access to the vehicle (write and read) under the responsibility of the vehicle manufacturer.

49. The Chair noted the concern of FIGIEFA about potential GRVA activities in this field and he invited the delegations to reflect on the role of GRVA in this field.
50. The expert from FIA supported the view of FIGIEFA. He recalled that the security concept of the S-OTP had been presented in September 2020.
51. The expert from ITU highlighted the risks associated with third party software that can be executed in a vehicle, especially one equipped with an ADS, that would be the open door for all kind of malwares. He suggested that GRVA should develop regulatory requirements around the Extended Vehicle concept. He explained that his expectation was that GRVA would support the extended Vehicle concept and make sure that stakeholders, such as FIGIEFA and FIA, would have access to data according to the requirements.
52. The expert from FIGIEFA responded that S-OTP included a robust concept regarding security and that low latency and high-resolution data was a must in any case.
53. The expert from ISO explained that aspects such as low latency and a high resolution would make sense for safety use cases but not necessarily for all services.
54. The expert from Germany pointed out the need for GRVA to clarify access to data.
55. The expert from France stated that GRVA should reflect on what would be relevant for harmonization and should clarify the competencies at international, regional and national levels.
56. GRVA agreed to resume the discussion on the role of GRVA at its next session.

D. Other business

57. No discussion took place under this agenda item.

VII. Advanced Driver Assistance Systems and UN Regulation No. 79 (agenda item 6)

A. Advanced Driver Assistance Systems

Documentation: Informal documents GRVA-10-14/Rev.1, GRVA-10-16, GRVA-10-38, (and WP.29-184-05)

58. The expert from the European Commission introduced GRVA-10-14/Rev.1, the progress report of the Task Force on Advanced Driver Assistant Systems (ADAS). He provided an overview of the various activities of the group, among others, the ongoing amendment proposals to UN Regulation No. 79, the activities related to a new UN Regulation on ADAS as well as the review of the Risk Mitigation Function (RMF) adopted in principle by GRVA at its February 2021 session subject to final review by GRVA at this session.
59. GRVA reviewed GRVA-10-16, amending the document tabled for adoption by WP.29 and AC.1 at their June 2021 session.
60. GRVA adopted ECE/TRANS/WP.29/2021/82 as amended by GRVA-10-38 (as amended in session and reproduced in WP.29-184-05) and requested the secretariat to submit it to WP.29 and AC.1 for consideration and vote at their June 2021 sessions.

B. UN Regulation No. 79 (Steering equipment)

Documentation: (ECE/TRANS/WP.29/GRVA/2021/7
ECE/TRANS/WP.29/GRVA/2021/8
ECE/TRANS/WP.29/GRVA/2021/9
ECE/TRANS/WP.29/GRVA/2021/10
ECE/TRANS/WP.29/GRVA/2021/11
ECE/TRANS/WP.29/GRVA/2021/12)

ECE/TRANS/WP.29/GRVA/2021/13)
 Informal documents GRVA-10-13, GRVA-10-17, GRVA-10-21 and
 GRVA-10-22, GRVA-10-24 and GRVA-10-39

61. The expert from AVERE introduced GRVA-10-21, providing an update to the justification contained in their amendment proposal to UN Regulation No. 79, ECE/TRANS/WP.29/GRV/2021/10. The expert from OICA introduced GRVA-10-22, proposing amendments to ECE/TRANS/WP.29/GRV/2021/10. GRVA remained divided on the proposal for amendments to the provisions related to ACSF of Category C in UN Regulation No. 79. GRVA noted that the Task Force discussed this item and that the positions expressed did not change.

62. The expert from OICA briefly mentioned GRVA-10-24. He explained that he received recent relevant comments on the document and that he would submit a revised proposal for consideration in September 2021.

63. The expert from OICA presented GRVA-10-13, based on ECE/TRANS/WP.29/GRVA/2021/12, with an amendment to the Remote Control Parking (RCP) provisions in UN Regulation No. 79, defining the approval conditions for RCP based on an alternative HMI not necessarily including a hand held device. The expert from Germany explained that Germany did not feel comfortable with the proposal but did not want to block it and, therefore, was following the majority.

64. GRVA requested the secretariat to submit ECE/TRANS/WP.29/GRVA/2021/12 as amended by GRVA-10-39 (as amended in session and reproduced in Annex IV) to WP.29 and AC.1 for consideration and vote at their November 2021 sessions, subject to final review by GRVA at its September 2021 sessions.

65. The expert from OICA introduced GRVA-10-17, proposing provisions for the approval of low speed manoeuvring systems. He explained that this revised proposal addressed the concern raised by the expert from Japan at the seventh session of GRVA.

66. The expert from Japan explained that Japan indeed expressed a concern about potential collision risks such as with pedestrians and cyclists and that according to their understanding, the concern was resolved, as the Emergency Steering Function provisions already address it. The expert from OICA confirmed that they did not include the relevant paragraph in the amendment proposal as they did not propose to amend it.

67. GRVA adopted GRVA-10-17 as reproduced in Annex V and requested the secretariat to submit it to WP.29 and AC.1, as draft supplement to UN Regulation No. 79, for consideration and vote at their November 2021 sessions.

C. Other business

68. No discussion took place under this agenda item.

VIII. Advanced Emergency Braking Systems (agenda item 7)

Documentation: Informal documents GRVA-10-03, GRVA-10-04, GRVA-10-05, GRVA-10-37 and GRVA-10-40

69. The expert from OICA introduced GRVA-10-03, proposing minor amendments concerning: the AEBS reactivation after the vehicle restarts, the reference update to the 06 series of amendments to UN Regulation No. 10 (Electromagnetic compatibility), the system initialization and an editorial correction.

70. GRVA requested the secretariat to submit GRVA-10-03 as reproduced in Annex VI to WP.29 and AC.1 for consideration and vote at their November 2021 sessions.

71. The expert from OICA presented GRVA-10-04 and GRVA-10-05 related to the discussion on Peak Break Coefficient (PBC) reference in UN Regulation No. 152.

72. GRVA requested the secretariat to distribute GRVA-10-04 and GRVA-10-05 with an official symbol at the September 2021 GRVA session.

73. The expert from Japan, Co-Chair of the IWG on AEBS (for M₁ and N₁), presented a progress report (GRVA-10-40) to GRVA on their activities on virtual testing.

74. GRVA received progress reports from the IWG on AEBS-HDV (GRVA-10-37) announcing first deliverables for consideration in September 2021.

IX. UN Regulations Nos. 13, 13-H, 139 and 140 and UN GTR No. 8 (agenda item 8)

A. Electronic Stability Control

Documentation: (ECE/TRANS/WP.29/GRVA/2020/34,
ECE/TRANS/WP.29/2020/99)

75. The expert from the Republic of Korea, technical sponsor for the amendment to UN GTR No. 8 (see ECE/TRANS/WP.29/2020/99), recalled the purpose of this workstream. He mentioned that no progress was achieved since the last GRVA session.

76. The expert from the United States of America said that it appeared that the test procedure issue might be due to the differences between self-certification and type approval. He invited the expert from the Republic of Korea to provide more details on the issue.

77. GRVA agreed to resume consideration of this agenda item dealing with UN GTR No. 8 (ESC) at its September 2021 session.

B. Electromechanical Brakes

Documentation: (ECE/TRANS/WP.29/GRVA/2020/21)
Informal document GRVA-10-23

78. The expert from CLEPA briefly introduced GRVA-10-23, explaining their ongoing activities related to Electromechanical Brakes. He announced that an amendment proposal to UN Regulation No. 13 would be prepared for review in September 2021.

79. GRVA agreed to resume consideration of this agenda item dealing with Electro-Mechanical Brakes at its September 2021 session.

C. Clarifications

Documentation: Informal documents GRVA-10-08 and GRVA-10-33

80. The expert from Germany informed GRVA that GRVA-10-08 contained an amendment proposal to the parking brake provisions, as announced at the ninth session of GRVA. He added that it was superseded by GRVA-10-33.

81. The expert from OICA introduced GRVA-10-33, proposing amendments to GRVA-10-08. The expert from the Russian Federation mentioned that the proposed para. 12.6 was redundant. The expert from Norway asked whether consideration had been given to low temperatures with low friction conditions.

82. Following discussions, GRVA requested the secretariat to distribute GRVA-10-33 with an official symbol for consideration at its September 2021 session or to discuss a revised proposal, if any.

X. Motorcycle braking (agenda item 9)

A. UN Global Technical Regulation No. 3

83. No discussion took place under this agenda item.

B. UN Regulation No. 78

Documentation: Informal document GRVA-10-11

84. The expert from IMMA introduced GRVA-10-11, recalling the adoption of revised stop lamp activation criteria in UN Regulation No. 13-H at the last session of GRVA. He proposed that GRVA would harmonise stop lamp activation thresholds for regenerative braking in UN Regulation No. 78 with new provisions in UN Regulation No. 13-H. The experts from France and Italy welcomed the initiative.

85. GRVA agreed to resume consideration of this item on the basis of an official document based on GRVA-10-11, submitted by the expert from IMMA for consideration by GRVA at its September 2021 session.

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

Documentation: (ECE/TRANS/WP.29/GRVA/2021/15)
Informal document GRVA-10-28 and GRVA-10-29/Rev.1

86. The expert from CLEPA introduced GRVA-10-29/Rev.1, recalling their proposal for amendments to the Conformity of Production provisions and exchanges with the expert from Germany.

87. GRVA adopted ECE/TRANS/WP.29/GRVA/2021/15 as amended by GRVA-10-28 (as reproduced in Annex VII) and requested the secretariat to submit it as draft supplement to UN Regulation No. 90 to WP.29 and AC.1 for consideration and vote at their November 2021 sessions.

XII. Exchange of views on guidelines and relevant national activities (agenda item 11)

88. The expert from Germany informed GRVA on ongoing regulatory activities taking place in his country, which provide a national framework for level 4 of automation in defined traffic areas. GRVA experts raised several questions for clarification. The expert from Germany agreed to provide an update at the September 2021 session.

89. The expert from France informed GRVA that France published an ordinance clarifying the criminal liability regime applicable to automated vehicles and their condition of use.

XIII. Other business (agenda item 12)

A. List of priorities concerning GRVA activities

Documentation: (Informal document WP.29-183-13)
Informal documents GRVA-10-06

90. The secretariat presented GRVA-10-06, the reformatted list of priorities for GRVA in 2021, which was prepared on request of AC.2, in the format used by other subsidiary bodies of WP.29. He explained that this exercise could be performed because of the progress made on the update of the framework document.

91. The expert from the United States of America highlighted that the dates for EDR and DSSAD would need to be updated and could depend on the collaboration with the IWG on FRAV.

92. GRVA requested the secretariat to introduce GRVA-10-06 in the revised proposal for a programme of work (ECE/TRANS/WP.29/2021/1/Rev.1).

B. Framework document on automated/autonomous vehicles (FDAV)

Documentation: Informal document GRVA-10-02 and Rev.1

93. GRVA reviewed GRVA-10-02 prepared by AC.2 at its informal session in April 2021.

94. The expert from the European Commission stated that the reference to ALKS in the DSSAD row was missing. The expert from the United States of America explained that the current text was satisfactory.

95. The expert from China asked whether the work with regards to EDR could go faster. She explained that China was working on this item and would be able to consider GRVA's work, if available. The expert from the European Commission supported the request of China. He added that the European Union would need to work on EDR requirements for ADS as soon as possible. The expert from the United States of America invited all experts to provide data to support the progress of the group.

96. GRVA provided input for the rows related to EDR and DSSAD (GRVA-10-02/Rev.1). GRVA kept unchanged the row related to cyber security. GRVA invited the AC.2 Secretary to distribute this input to AC.2 for consideration in June 2021.

C. Any other business

Documentation: Informal document GRVA-10-07, GRVA-10-10 and GRVA-10-15

97. The Secretary informed GRVA that the GRVA received a letter, reproduced in GRVA-10-07, from the Parliamentary Assembly of the Council of Europe (PACE) which aimed at informing GRVA about Resolution 2346, dated 27 October 2020. He explained that the letter had been shared with AC.2 in November 2020 and that AC.2 discussed it at its March 2021 session.

98. He presented GRVA-10-10, providing background information related to the letter of the Parliamentary Assembly of the Council of Europe (PACE). He explained that the PACE adopted a resolution inviting, among others, GRVA "to conduct a human rights impact assessment as part of its preparatory work on future regulation of autonomous vehicles, as part of a general, comprehensive framework for ensuring that safety in all its forms is maximised during future development and production of autonomous vehicles." He provided information about the Council of Europe and the PACE. He recalled the role of the United Nations with regards to Human Rights and highlighted the principal documents related to this subject. He recalled the formal obligations of GRVA as per the Terms of Reference and the Rules of Procedures. He presented possible actions in response to GRVA-10-07 and reported on the recommendation of AC.2.

99. GRVA agreed to follow the recommendation of AC.2 (as noted in the last section of GRVA-10-10) and requested the secretariat to prepare a response to the letter accordingly.

100. The expert from CLEPA introduced GRVA-10-15, on behalf of CLCCR, with information on technological developments related to advanced axles in trailers. GRVA agreed to resume consideration of this topic at the next session of GRVA.

D. Arrangement of meetings

101. GRVA discussed the difficult conditions in which some delegations, from Asia and America, participated in meetings organized in direct conjunction with GRVA activities.

102. GRVA noted in particular that, since March 2020, the delegations were participating in numerous virtual meetings, sometimes on a daily basis, in order to cope with the limitations due to the COVID-19 pandemic situation and to meet the ambitious workplan of GRVA.

103. The expert from Japan mentioned that most of the virtual meetings organized in connection with the GRVA activities were of high importance for Japan and that they were taking place at night-time in Asian Countries. He invited GRVA to consider measures to ensure the effectiveness of meetings and to avoid late-hour meetings.

104. The Chair supported the views expressed by Japan. He recalled that GRVA was investigating the possibility to organize meetings outside of Geneva in 2022, possibly one in America and one in Asia, not only to demonstrate the global ambition of the activities endeavoured by GRVA, but also to acknowledge the efforts made by the delegations from Asia and America since March 2020.

105. GRVA agreed that the Co-Chairs of IWG, Task Force and Special Interest Group should pay attention to these difficulties when organizing meetings. GRVA recommended them to consider a set of good practice to minimize the impact of GRVA meetings on the delegations in these regions. It was discussed that some work could be done in written, via emails and that sufficient time between two meetings of a group should be considered to make sure that proper preparation can be done and that faster progress can be made during meetings.

106. GRVA welcomed the suggestion to organize sessions of GRVA outside of Geneva in 2022 and requested the Chair and the secretariat to consult, if possible, already in June 2021, the delegations from Asia and America on the possibilities to host such meetings.

Annex I**List of informal documents (GRVA-10-...) considered during the session**

<i>No.</i>	<i>(Author) Title</i>	<i>Follow-up</i>
1	(Chair) Running order of the tenth session	B
2	(Secretariat) Proposal for amendments to Table 1 in ECE/TRANS/WP.29/2019/34/Rev.2	B
2r1	(Secretariat) Proposal for amendments to Table 1 in ECE/TRANS/WP.29/2019/34/Rev.2	A
3	(CLEPA/OICA) Proposal for amendments to UN Regulation No. 152 (AEBS for M ₁ /N ₁)	A
4	(CLEPA/OICA) Proposal for amendments to UN Regulation No. 152 (AEBS for M ₁ /N ₁)	D
5	(CLEPA/OICA) Proposal for amendments to UN Regulation No. 152 (AEBS for M ₁ /N ₁)	D
6	(Chair) GRVA priorities	A
7	(PACE) Letter to GRVA	B
8	(Germany) Proposal to amend UN Regulation No. 13 (Heavy vehicle braking) based on GRVA-09-04	B
9	(FIGIEFA) Secure On-board Telematic Platform (S-OTP) proposal	B
10	(Secretariat) Background note and possible responses to GRVA-10-07	B
11	(IMMA) Proposal for a new Supplement to the 04 and 05 series of amendments to UN Regulation No. 78	B
12	(CLEPA/OICA) Proposal for amendments to UN Regulation No. 155 (Cyber Security and Cyber Security Management System)	B
13	(CLEPA/OICA) Proposal for amendments to UN Regulation No. 79	B
14	(TF on ADAS) Report of the TF on ADAS to the 10th GRVA session	B
14r1	(TF on ADAS) Report of the TF on ADAS to the 10th GRVA session	B
15	(CLCCR) Advanced axles in trailers - New technologies to reduce CO ₂ emissions for vehicle combinations	B
16	(TF on ADAS) Proposal for amendments to ECE/TRANS/WP.29/2021/82	B
16r1	(TF on ADAS) Proposal for amendments to ECE/TRANS/WP.29/2021/82 (tracked changes)	B
17	(CLEPA/OICA) Proposal for a Supplement to the 03 series of amendments to UN Regulation No. 79 (Steering equipment)	A
18	(Secretariat) Highlights of the March 2021 sessions (hybrid) of WP.29, AC.1, AC.2 and AC.3	B
19	(Secretariat) Information on the 10th session of GRVA (Technical details)	B
20	(Secretariat) Updated provisional agenda for the 10th GRVA session (incl. informal documents submitted until 21 May 2021 COB)	B
20r1	(Secretariat) Updated provisional agenda for the 10th GRVA session (incl. informal documents submitted until 25 May 2021, session start)	A
21	(AVERE) Informal document supplementing the justification in ECE/TRANS/WP.29/GRVA/2021/10	B
22	(CLEPA/OICA) Proposal for amendments to ECE/TRANS/WP.29/GRVA/2021/10	B
23	(CLEPA) UN Regulation No. 13 and Electro-Mechanical Brakes	B
24	(CLEPA/OICA) Proposal for amendments to ECE/TRANS/WP.29/GRVA/2021/8 as amended by informal document GRVA-09-37	B
25	(SIG UNR157) Proposal for amendments to amend UN Regulation No. 157	B
26	(SIG UNR157) Proposal for amendments to ECE/TRANS/WP.29/GRVA/2021/03	B
27	(Japan) Progressing the Lane Change Discussion in the SIG-ALKS	B
28	(CLEPA) Proposal for amendments to ECE/TRANS/WP.29/GRVA/2021/15	A
29	(CLEPA) UN Regulation No. 90 – CoP	B

<i>No.</i>	<i>(Author) Title</i>	<i>Follow-up</i>
29r1	(CLEPA) UN Regulation No. 90 – CoP (Annex 9 – 3.1.1 HCV)	B
30	(DSSAD) DSSAD/EDR IWG progress report	B
31	(FRAV) FRAV Status Report to the 10th GRVA session	B
31r1	(FRAV) FRAV Status Report to the 10th GRVA session	B
32	(VMAD) Status report of the IWG on VMAD	B
33	(CLEPA/OICA) Proposal for amendments to GRVA-09-04 (UN Regulation No. 13, EPB)	D
34	(Co-Chairs of the SIG-UN R157) Update from the Special Interest Group on UN Regulation 157	B
35	(Secretariat) In session modifications to GRVA-10-25	A
36	(Secretariat) In session modifications to GRVA-10-26	A
37	(AEBS-HDV) Report from the IWG on AEBS-HDV	B
38	(Secretariat) Proposal for amendments to ECE/TRANS/WP.29/2021/82 (reissued)	C
39	(Secretariat) Amendments to ECE/TRANS/WP.29/GRVA/2021/12 (reissued)	A
40	(AEBS) Report from the IWG on AEBS	B
41	(Japan) Alternative proposal to GRVA-10-12	B

Notes:

Administrative follow-up, for the secretariat, with the informal documents:

- A Adopted;
- B Consideration completed;
- C Submitted to WP.29 and AC.1 for consideration at their June 2021 sessions;
- D Distribute with an official symbol at the eleventh session of GRVA.

Annex II

List of Informal Working Groups reporting to GRVA (as of June 2021)

<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)	Ms. C. Chen ¹ Mr. R. Damm ¹ Mr. E. Wondimneh ¹	China Germany USA	June 2022 ²
Validation Method for Automated Driving (VMAD)	Mr. I. Sow ¹ Mr. T. Onoda ¹ Mr. P. Striekwold ¹	Canada Japan Netherlands	June 2022 ²
Cyber Security and Over-The-Air software updates (CS/OTA)	Mr. T. Niikuni ¹ Mr. D. Handley ¹ Mr. E. Wondimneh ¹	Japan UK USA	November 2021
Event Data Recorder / Data Storage System for Automated Driving (EDR/DSSAD)	Mr. T. Guiting ¹ Mr. T. Tokai ¹ Ms. J. Doherty ¹	Netherlands Japan USA	June 2024 ²
Advanced Emergency Braking Systems (AEBS) for M ₁ and N ₁	Mr. A. Lagrange ¹ Mr. T. Hirose ¹	EC Japan	March 2022
Advanced Emergency Braking Systems (AEBS) for heavy vehicles	Mr. P. Seiniger ¹ Mr. T. Hirose ¹	Germany Japan	March 2022

¹ IWG Co-Chairs

² The mandate dates are derived from the current draft revised Framework Document on Automated Vehicles

Annex III

Adopted Supplement to UN Regulation No. 157 (ALKS)

Adopted on the basis of GRVA-10-35 (see para. 35)

Paragraph 2.5., amend to read:

“2.5. *“Unplanned event”* is a situation which is unknown in advance, but assumed as very likely in happening, ~~e.g. road construction, inclement weather, approaching emergency vehicle, missing lane marking, load falling from truck (collision)~~ and which requires a transition demand. **This may include: road construction, inclement weather, approaching emergency vehicles/enforcement vehicles, missing lane markings, load falling from truck.**”

Paragraph 5.1.2., amend to read:

“5.1.2. The activated system shall comply with traffic rules relating to the DDT in the country of operation, **including responding to emergency/enforcement vehicles.**”

Annex IV

Adopted amendments to ECE/TRANS/WP.29/GRVA/2021/12

Adopted on the basis of GRVA-10-39 (see para. 64)

Paragraph 2.4.8., amend to read:

“2.4.8. *“Remote Controlled Parking (RCP)”* means an ACSF of category A, actuated by the driver, providing parking or low speed manoeuvring. The actuation is made ~~by remote control~~ in close proximity to the vehicle.”

Paragraph 2.4.9., amend to read:

“2.4.9. *“Specified maximum RCP operating range (SRCPmax)”* means the maximum distance between the nearest point of the motor vehicle and the remote control device **or alternatively the driver (for systems based on detection of driver position and movement)**, up to which ACSF is designed to operate.”

Paragraphs 5.6.1.2.1. and 5.6.1.2.2. (5.6.1.2. for reference only), amend to read:

“5.6.1.2. Additional provisions for RCP

5.6.1.2.1. The parking A direct influence on steering angle, value of acceleration and deceleration via the remote-control device **or by the movement of the driver** shall not be possible.

5.6.1.2.2. **Either** a continuous actuation of the remote-control device by the driver **or alternatively (for systems based on detection of driver position and movement) a continuous movement of the driver in the same longitudinal direction as the vehicle**, is required during the parking manoeuvre.”

Paragraph 5.6.1.2.3., amend to read:

“5.6.1.2.3. **For systems based on continuous actuation of the remote-control device, the vehicle shall stop immediately if:**

- (a) The continuous actuation is interrupted; ~~or~~
- (b) The distance between vehicle and remote-control device exceeds the specified maximum RCP operating range (S_{RCPmax}); or
- (c) The signal between remote control and vehicle is lost.

~~the vehicle shall stop immediately.~~

For systems based on detection of driver position and movement, the vehicle shall stop immediately if:

- (a) **The continuous movement of the driver is interrupted;**
- (b) **The distance between vehicle and remote-control device or driver exceeds the specified maximum RCP operating range (S_{RCPmax});**
- (c) **The detection of the driver is lost; or**
- (d) **There is a rapid increase in the movement speed of the driver.”**

Insert a new paragraph 5.6.1.2.9., to read:

5.6.1.2.9. For RCP systems based on detection of driver position and movement, the deactivation referred to in paragraph 3.6.1.1.3. shall be through a simple and obvious action that will be recognised by the system.

New paragraph 5.6.1.3.1.4., insert to read:

“5.6.1.3.1.4. For RCP systems based on detection of driver position and movement the manufacturer shall demonstrate to the technical service during type approval how a person is identified as the driver, how this person is tracked and how the driver initiates and terminates control. This shall be subject to agreement of the technical service.”

Annex V

Adopted Supplement to the 03 and 04 series of amendments to UN Regulation No. 79 (Steering equipment)

Adopted on the basis of GRVA-10-17 (see para. 67)

Paragraphs 5.1.6.2.3. and 5.1.6.2.3.2., amend to read:

- “5.1.6.2.3. An automatic avoidance manoeuvre initiated by an ESF shall not lead the vehicle to leave the road **if applicable for the specified use case according to paragraph 5.1.6.2.10.**”
- “5.1.6.2.3.2. In the absence of a lane marking on one or on both side(s) of the vehicle, a single ESF intervention is permitted, provided that it does not produce a lateral offset of the vehicle greater than 0.75 m in a direction where the lane marking is absent. The lateral offset during the automatic avoidance manoeuvre shall be determined using a fixed point on the front of the vehicle at the start and at the conclusion of the ESF intervention.

The lateral offset of 0.75 m may be exceeded by a system intervention if the vehicle speed during the whole intervention is below 20 km/h and the lateral offset rate generated by the system is limited to 2 m/s, calculated as an average for a time period of 1 s.”

Annex 8, paragraph 3.3.4., amend to read:

- “3.3.4. Tests for systems able to operate in the absence of lane markings. In case any system works in absence of lane markings the corresponding tests from paragraphs 3.3.1. to 3.3.3. need to be repeated on a test track without lane markings. These test requirements are fulfilled if,
- (a) An ESF intervention is started; and
 - (b) The warnings specified in paragraph 5.1.6.2.6. of this UN Regulation are provided no later than the ESF intervention starts; and
 - (c) The lateral offset during the manoeuvre is 0.75 m, as specified in paragraph 5.1.6.2.3.2., at maximum **or if exceeded in case of an intervention below 20 km/h, the lateral offset rate does not exceed 2 m/s; and**
 - (d) The vehicle has not left the road due to the ESF intervention, **if applicable for the specified use case.”**

Annex VI

Adopted Supplement to the 00, 01 and 02 series of amendments to UN Regulation No. 152 (AEBS for M₁ and N₁)

Adopted on the basis of GRVA-10-03 (see para. 70)

Paragraph 5.4.1.1., amend to read:

“5.4.1.1. The AEBS function shall be automatically reinstated at the initiation of each new ~~ignition~~ engine start/run cycle.

This requirement does not apply when a new engine start/run cycle is performed automatically, e.g. the operation of a stop/start system.”

Paragraph 5.1.2., amend to read:

“5.1.2. The effectiveness of AEBS shall not be adversely affected by magnetic or electrical fields. This shall be demonstrated by fulfilling the technical requirements and respecting the transitional provisions of the 056 series of amendments to UN Regulation No. 10.”

Paragraph 5.1.4.1.2. and 5.1.4.1.3., amend to read (transfer of paragraph 5.1.4.1.2. to a new paragraph 5.1.4.2.)

“5.1.4.1. A failure warning when there is a failure in the AEBS that prevents the requirements of this Regulation of being met. The warning shall be as specified in paragraph 5.5.4.

5.1.4.1.1. There shall not be an appreciable time interval between each AEBS self-check, and subsequently there shall not be a delay in illuminating the warning signal, in the case of an electrically detectable failure.

~~5.1.4.1.2. If the system has not been initialised after a cumulative driving time of 15 seconds above a speed of 10km/h, information of this status shall be indicated to the driver. This information shall exist until the system has been successfully initialised.~~

5.1.4.1.32. Upon detection of any non-electrical failure condition (e.g. sensor blindness or sensor misalignment), the warning signal as defined in paragraph 5.1.4.1. shall be illuminated.

5.1.4.2. If the system has not been initialised after a cumulative driving time of 15 seconds above a speed of 10km/h, information of this status shall be indicated to the driver. This information shall exist until the system has been successfully initialised.

5.1.4.23. A deactivation warning, if the vehicle is equipped with a means to deactivate the AEBS, shall be given when the system is deactivated. This shall be as specified in paragraph 5.4.3.”

Paragraph 5.2.1.4., amend to read (addition of “and” at the end of item (f) in the list of conditions):

5.2.1.4. Speed reduction by braking demand

In absence of driver’s input ...

...

(f) In absence of weather conditions affecting the dynamic performance of the vehicle (e.g. no storm, not below 0°C); **and**

(g) When driving straight with no curve, and not turning at an intersection. It is recognised ...”

Annex VII

Adopted amendments to ECE/TRANS/WP.29/GRVA/2021/15

Adopted on the basis of GRVA-10-28 (see para. 87)

Annex 9,

Part A,

Insert a new paragraph 3.1.1.1. (after para. 3.1.1.), to read:

“3.1.1.1. Alternatively the machine may be equipped with a disc brake and corresponding brake disc having a diameter of 278 ± 2 mm such as to allow a rectangular piece of the friction material with a surface area of $44 \text{ cm}^2 \pm 0.5 \text{ cm}^2$ and a thickness of at least 6 mm to be attached to the backing plates of the disc brake.

In this case the Registered Values of friction to be used for ongoing COP checks shall be established in accordance with the technical service by comparative tests using the same batch of friction material with the test hardware specified in paragraph 3.1.1. and the alternative hardware.

The applicant shall provide the values for the friction behavior resulting from the use of alternative test hardware in accordance with Annex 9 paragraph 3.4.1. of this Regulation and the results shall be attached to the type-approval report.”

Annex VIII

Adopted amendments to ECE/TRANS/WP.29/GRVA/2021/3

Adopted on the basis of GRVA-10-36 (see para. 36)

Introduction, amend to read:

“Introduction

The intention of the Regulation is to establish uniform provisions concerning the approval of vehicles with regard to Automated Lane Keeping Systems (ALKS).

ALKS ...

ALKS can be activated under certain conditions on roads where pedestrians and cyclists are prohibited and which, by design, are equipped with a physical separation that divides the traffic moving in opposite directions and prevent traffic from cutting across the path of the vehicle. In a first step, the original text of this UN Regulation limits the operational speed to 60 km/h maximum ~~and passenger cars (M₁ vehicles).~~

This UN Regulation ... (See e.g. Informal Document 4 Revision 1 of the seventy-eight session of WP.1).”

Paragraph 1.1., amend to read:

“1.1. This Regulation applies to the type approval of vehicles of Categories ~~M₁~~ **M** and **N**¹ with regards to their Automated Lane Keeping System.”

Paragraph 5.2.3.3., amend to read:

“5.2.3.3. The activated system shall detect the distance to the next vehicle in front as defined in paragraph 7.1.1. and shall adapt the vehicle speed in order to avoid collision.

While the ALKS vehicle is not at standstill, the system shall adapt the speed to adjust the distance to a vehicle in front in the same lane to be equal or greater than the minimum following distance.

In case the minimum time gap cannot be respected temporarily because of other road users (e.g. vehicle is cutting in, decelerating lead vehicle, etc.), the vehicle shall readjust the minimum following distance at the next available opportunity without any harsh braking unless an emergency manoeuvre would become necessary.

The minimum following distance shall be calculated using the formula:

$$d_{\min} = v_{\text{ALKS}} * t_{\text{front}}$$

Where:

d_{\min} = the minimum following distance

v_{ALKS} = the present speed of the ALKS vehicle in m/s

t_{front} = minimum time gap in seconds between the ALKS vehicle and a leading vehicle in front as per the table below:

¹ As defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3.), document ECE/TRANS/WP.29/78/Rev.6, para. 2 - www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html

Present speed of the ALKS vehicle	Minimum time gap		Minimum following distance M_1/N_1	Minimum time gap		Minimum following distance $M_2/M_3 // N_2/N_3$
	M_1/N_1	(s)		$M_2/M_3 // N_2/N_3$	(s)	
(km/h)	(m/s)	(s)	(m)	(s)	(m)	
7.2	2.0	1.0	2.0	1.2	2.4	
10	2.78	1.1	3.1	1.4	3.9	
20	5.56	1.2	6.7	1.6	8.9	
30	8.33	1.3	10.8	1.8	15.0	
40	11.11	1.4	15.6	2.0	22.2	
50	13.89	1.5	20.8	2.2	30.6	
60	16.67	1.6	26.7	2.4	40.0	

For speed values not mentioned in the table, linear interpolation shall be applied.

Notwithstanding the result of the formula above for present speeds below 2 m/s the minimum following distance shall never be less than 2 m for M_1 , N_1 and **2.4 m for M_2 , M_3 , N_2 , N_3 .**

Paragraph 5.2.5.2., amend to read:

“5.2.5.2. The activated system shall avoid a collision with a cutting-in vehicle,

- (a) Provided the cutting in vehicle maintains its longitudinal speed which is lower than the longitudinal speed of the ALKS vehicle and
- (b) Provided that the lateral movement of the cutting in vehicle has been visible for a time of at least 0.72 seconds before the reference point for *TTCLaneIntrusion* is reached,
- (c) When the distance between the vehicle’s front and the cutting in vehicle’s rear corresponds to a TTC calculated by the following equation:

$$TTCLaneIntrusion > v_{rel} / (2 \cdot x \ 6 \text{ m/s}^2) + 0.35 \text{ s}$$

Where:

V_{rel} = relative velocity between both vehicles, positive for vehicle being faster than the cutting in vehicle

$TTCLaneIntrusion$ = The TTC value, when the outside of the tyre of the intruding vehicle’s front wheel closest to the lane markings crosses a line 0.3 m beyond the outside edge of the visible lane marking to which the intruding vehicle is being drifted.”

Paragraph 5.3.4., amend to read:

“5.3.4. The vehicle shall implement a logic signal indicating emergency braking as specified in UN Regulation No. 13-H or **13, as appropriate.**”

Paragraph 7.1., amend to read:

7.1. Sensing requirements

“The fulfilment of the provisions of this paragraph shall be demonstrated by the manufacturer to the technical service during the inspection of the safety approach as part of the assessment to Annex 4 and according to the relevant tests in Annex 5.

The ALKS vehicle shall be equipped with a sensing system such that, it can at least determine the driving environment (e.g. road geometry ahead, lane markings) and the traffic dynamics:

(a) Across the full width of its own traffic lane, the full width of the traffic lanes immediately to its left and to its right, up to the limit of the forward detection range;

(b) Along the full length of the vehicle **or combination** and up to the limit of the lateral detection range.

The requirements of this paragraph are without prejudice to other requirements in this Regulation, most notably paragraph 5.1.1. **and 5.1.2.**”

Paragraph 7.1.2., amend to read:

“7.1.2. Lateral detection range

The manufacturer shall declare the lateral detection range. The declared range shall be sufficient to cover the full width of the lane immediately to the left and of the lane immediately to the right of the vehicle **or combination**.

The Technical Service shall verify that the vehicle sensing system detects vehicles during the relevant test in Annex 5. This range shall be equal or greater than the declared range.”

Paragraph 7.1.5., amend to read:

“7.1.5. The fulfilment of the provisions of paragraph 7.1. and its subparagraphs shall be demonstrated to the technical service and tested according to the relevant tests in Annex 5.

Where the ALKS can operate with a vehicle combination, the manufacturer shall demonstrate to the Technical Service at the time of type approval the strategies implemented to ensure that the sensing capability is always sufficient for the length of trailer attached.”

Paragraph 8.4.3., delete and replace by new heading with subparagraphs to read:

“8.4.3. ~~The data shall be retrievable even after an impact of a severity level set by UN Regulations Nos. 94, 95 or 137. If the main on-board vehicle power supply is not available, it shall still be possible to retrieve all data recorded on the DSSAD, as required by national and regional law.~~

Retrievability of data

8.4.3.1. For vehicles of Category M₁ and N₁, the data shall be retrievable even after an impact of a severity level set by UN Regulations Nos. 94, 95 or 137 as applicable.

8.4.3.2. For vehicles of Categories M₂, M₃, N₂ and N₃, the following applies.

Either:

(a) **The data shall be retrievable even after a mechanical shock of a severity level as specified in the component test of Annex 9C of the 03 series of amendment to UN Regulation No. 100, and**

(b) **The DSSAD shall be mounted in a position such as to be protected against mechanical damage resulting from a typical vehicle crash (e.g. frontal impact). This shall be demonstrated to the technical service together with appropriate documentation (e.g. calculations or simulations);**

Or, alternatively,

Sufficient crash protection may be demonstrated by the manufacturer by fulfilling the requirements of paragraph 8.4.3.1. (e.g. for M₂ / N₂ vehicles derived from M₁ / N₁).

8.4.3.3. If the main on-board vehicle power supply is not available, it shall still be possible to retrieve all data recorded on the DSSAD, as required by national and regional law.”