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Inland Transport Committee

World Forum for Harmonization of Vehicle Regulations

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 sixteenth session

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I. Attendance

1. The Working Party on Automated/Autonomous and Connected Vehicles (GRVA) met from 22 to 26 May 2023 in Geneva. The meeting was chaired by Mr. R. Damm (Germany). 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, Canada, China, Czech Republic, Denmark, Finland, France, Germany, India, Italy, Japan, Luxembourg, Netherlands, Norway, Poland, Republic of Korea, Russian Federation, Slovakia, South Africa, Spain, Sweden, Switzerland, Türkiye, the United Kingdom of Great Britain and Northern Ireland (UK), the United States of America (USA), Zimbabwe. An expert from the European Commission (EC) and from the International Telecommunication Union (ITU) also participated.

2. Experts from the following non-governmental organizations (NGOs) and international organizations participated: the American Automotive Policy Council (AAPC), European Association for Electric Mobility (AVERE), European Agricultural Machinery Organization (CEMA), the International Association of the Body and Trailer Building Industry (CLCCR), International Motor Vehicle Inspection Committee (CITA), European Association of Automotive Suppliers (CLEPA/MEMA/JAPIA), European Garage Equipment Association (EGEA), European Tyre and Rim Technical Organisation (ETRTO), European Association of Internal Combustion Engine Manufacturers (EUROMOT), International Automobile Federation (FIA), International Federation of Automotive Distributors (FIGIEFA), Forum 21 Institute, Institute of Electrical and Electronics Engineers (IEEE), International Motorcycle Manufacturers Association (IMMA), International Road Federation (IRF), International Road Union (IRU), International Organization for Standardization (ISO), International Organization of Motor Vehicle Manufacturers (OICA), SAE International, Securing America's Future Energy (SAFE) and the Union Internationale des Transports Publica (UITP).

II. Adoption of the agenda (agenda item 1)

Documentation: ECE/TRANS/WP.29/GRVA/2023/7
Informal documents GRVA-16-01 and GRVA-16-02/Rev.1

3. GRVA considered the provisional agenda prepared for its sixteenth session (ECE/TRANS/WP.29/GRVA/2023/7). GRVA adopted it (without modifications), as reproduced in GRVA-16-02/Rev.1, which is a version that included the reference to all informal documents received until 22 May 2023 11.30 a.m. (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.)

4. GRVA also agreed on the running order for the session (GRVA-16-01).

III. Highlights of the March 2023 session of WP.29 (agenda item 2)

Documentation: (ECE/TRANS/WP.29/1171)
Informal document GRVA-16-03

5. The secretariat presented GRVA-16-03, with highlights from the WP.29 session in March 2023, having relevance for GRVA. He referred to the session report ECE/TRANS/WP.29/1171 for more details. GRVA noted the report from the secretariat.

6. GRVA received further details on (a) the discussion regarding the collaboration with The Global Forum for Road Traffic Safety (WP.1) and (b) ITU's offer to UNECE to host an electronic repository of the traffic rules. The expert from ITU clarified upon request that they were not offered to present it at the WP.1 March 2023 session.

IV. Artificial Intelligence in vehicles (agenda item 3)

Documentation: Informal documents GRVA-16-04, GRVA-16-05 and GRVA-16-48
(Informal documents GRVA-11-03 and GRVA-13-04/Rev.1)

7. The expert from OICA presented GRVA-16-04, a position paper of the industry regarding the use of Artificial Intelligence (AI), in the context of vehicle regulations, for creating software or for automating testing. He stated that the WP.29 regulations produced so far were still effective, also for AI and Machine Learning (ML) as currently used in vehicles.
8. The expert from ITU assessed the document as a good paper in the sense that it highlighted a good practice in terms of software development, testing, freezing and deployment.
9. The expert from Canada regretted that the position paper only considered the context of the 1958 Agreement. Separately, he stated that that technology neutral requirements were still preferable.
10. The expert from UK highlighted the challenge related to testing and assessing systems developed using machine learning algorithms. He acknowledged the relevance of the provisions developed by the IWGs on Functional Requirements for Automated and Autonomous Vehicles (FRAV) and on Validation Methods for Automated Driving (VMAD) but also noted the need for regulators to consider the specific challenges created by AI.
11. The expert from Japan raised potential concerns on the technology after deployment.
12. The expert from France welcomed the principle according to which software should be validated and then frozen. He noted the potential role of the IWG on VMAD to cover the specificity of that technology in terms of evolution over time and non-repeatability.
13. The expert from the European Commission highlighted the difficulties encountered while evaluating the technology in terms of “expandability” and highlighted the potential benefit of the In-Service Monitoring and Reporting (ISMR) pillar of the New Assessment/Test Method (NATM).
15. The expert from ITU advised GRVA to consider the general ban of “online leaning features” in automotive products. He pointed out the potential negative impact of map data updates on the performance of Advanced Driver Assistance Systems (ADAS) and ADS.
16. The expert from OICA stated that a major issue to be addressed was “poisoned data”.
17. GRVA reviewed the definitions in GRVA-16-05 prepared by OICA and agreed to resume consideration of this document at its September 2023 session.
18. GRVA resumed consideration of this agenda item later in this session’s week. The expert from OICA presented GRVA-16-48 (derived from GRVA-16-04), a document containing a draft resolution with guidelines regarding the use of AI in vehicles.
19. The proposal received clarifying questions and comments. The expert from UK offered initial reflections regarding the need to add provisions on training data in the document. The expert from Germany inquired whether recommendations would be too weak. The expert from the Russian Federation proposed to name the document a mutual resolution under the 1958 and 1998 Agreements.
20. GRVA requested the secretariat to distribute GRVA-16-48 with an official symbol at the September 2023 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 documents GRVA-16-29/Rev.1 and GRVA-16-30

21. The expert from the United States of America, Co-Chair of the IWG on FRAV, presented GRVA-16-30 containing the status report of the group. He recalled the mandate and the history of the work of the IWG on FRAV. He informed GRVA that the group was currently focusing on the Human Machine Interface (HMI) and began a close collaboration with the IWG on VMAD to combine their work via a joint integration group. He introduced the interim document and detailed its five sections. He stated that FRAV envisaged to finish the document until the January 2023 session of GRVA. GRVA endorsed the progress report from the IWG on FRAV.

22. GRVA noted the progress made and discussed the current challenges on HMI and the temporary lack of consensus on that matter, expected to be resolved during the weeks following that session of GRVA.

23. GRVA endorsed GRVA-16-29/Rev.1, the work prepared by the IWG on FRAV on Guidelines for Regulatory Requirements and Verifiable Criteria for Automated Driving System (ADS) Safety Validation. GRVA requested the secretariat to submit GRVA-16-29/Rev.1 to WP.29 to its June 2023 session for information.

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

Documentation: Informal documents GRVA-16-38 and GRVA-16-39

24. The expert from Japan, Co-Chair of the IWG on VMAD, presented GRVA-16-38 with a brief overview of deliverables until the WP.29 session in June 2024 and the two pillars of the work performed by the Group, one related to the four subgroups activities and the second related to the collaboration with the IWG on FRAV. He briefly introduced GRVA-16-39, containing updates to ECE/TRANS/WP.29/2023/44, and therefore aimed to be tabled for consideration by WP.29 at its June 2023 session.

25. The expert from Sweden noted the late submission of GRVA-16-38 and inquired about the implication of the submission to WP.29. The Chair clarified that there would be no formal vote on that document at the June 2023 session of WP.29.

26. The expert from OICA pointed out that the ISMR provisions would require extensive reporting. She suggested to revisit this item to keep the amount of data transmitted to a reasonable level and also to limit or avoid the overlap with the Data Storage Systems for Automated Driving (DSSAD) provisions. She added that vehicle manufacturers did not have access to all data listed in the current draft. She mentioned, as an illustrative example, that rather than the manufacturers, emergency responders had data on the number of victims and injured persons in case of road crashes.

27. The expert from Canada, Co-Chair of the Group, justified the potential big amount of data required by the fact that consumers expect certainty and that various jurisdictions also request data for their purposes. He noted that the identification of the entities that should receive the data was still an open question.

28. The expert from ITU pointed out that the FRAV and VMAD groups should explicitly specify to whom are addressed their recommendations on data transmission.

29. The expert from the European Commission clarified that various stakeholders would indeed be involved in reporting. She noted that this was already the case in aviation and that it was a good practice for safety management. She suggested that the mandate of VMAD was

extended with this regard and recalled that the VMAD Subgroup 3 was liaising with the DSSAD group on this topic.

30. GRVA endorsed the work prepared by the Group reflected in GRVA-16-39 updating ECE/TRANS/WP.29/2022/58, the New Assessment/Test Method for Automated Driving Guidelines for Validating ADS. GRVA requested the secretariat to submit GRVA-16-39 to WP.29 for consideration at the June 2023 session.

31. GRVA discussed the FRAV/VMAD integration work. It was clarified that one integration group would perform three tasks on definitions, structure and matrix during autumn 2023.

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

Documentation: Informal document GRVA-16-34

32. The expert from Japan, Co-Chair of the IWG on Event Data Recorder (EDR) / DSSAD, presented GRVA-16-34 with an update on progress achieved by the Group. He mentioned the Group's focus, identifying the data elements to be recorded, and the ongoing discussion on privacy information and inconsistencies between countries regarding the data storage duration expectation. GRVA endorsed the status report.

D. UN Regulation on Automated Lane Keeping Systems

Documentation: ECE/TRANS/WP.29/GRVA/2023/8
Informal document GRVA-16-37

33. The expert from the Netherlands presented ECE/TRANS/WP.29/GRVA/2023/8, a proposal for amendments to UN Regulation No. 157, aiming to align the reference to UN Regulation No. 10 (EMC) with the text adopted in other regulations, as per the guidelines in ECE/TRANS/WP.29/1144/Rev.3.

34. The expert from France supported the proposal. He proposed to clarify the testing conditions (see GRVA-16-37), with and without Automated Lane Keeping System being activated during testing. The expert from OICA offered to provide clarifications to the proposal at the next session.

35. GRVA adopted ECE/TRANS/WP.29/GRVA/2023/8, as amended by GRVA-16-42, and requested the secretariat to submit it as a supplement to the original version and to the 01 series of amendments to UN Regulation No. 157 (Automated Lane Keeping System) to WP.29 and AC.1 for consideration and vote at their November 2023 sessions.

36. GRVA requested the secretariat to distribute GRVA-16-37 with an official symbol at the next session.

E. Coordination of work on automation between working parties (GRs)

1. Review of UN Global Technical Regulations and UN Regulations

Documentation: Informal document GRVA-16-33

37. The expert from France, Co-Chair of the Task Force on the Fitness for ADS of GRVA Regulations and Global Technical Regulations (TF on FADS), presented GRVA-16-33. He recalled the request from WP.29 to review UN Global Technical Regulations (GTRs) and UN Regulations regarding their fitness for ADS. He detailed the screening process and reported on the activities of the task force as well as on the outcome of the recent meeting hosted in Tianjin, China. He also reported on the results of the screening performed by the other subsidiary bodies of WP.29 to date, he provided a summary of open issues identified during the screening process and gave an outlook on the next possible steps. He recommended to start working on amendments for fully automated vehicles right after the screening task was completed, to be followed by amendments for the dual mode vehicles.

38. The expert from France answered to the questions received. He clarified that the active safety regulations (UN Regulations Nos. 131, 140, 152) would not be fit for ADS in the sense that an authority could not grant a type-approval for ADS vehicles based on these regulations. He detailed, upon request, that remote driving was not considered by the task force as it was not part of the existing regulations to date. He explained that UN Regulation No. 89 (speed limitation device) would require special consideration.

39. GRVA commended the work done and requested that a report is prepared for WP.29 in June 2023. GRVA suggested two alternatives to WP.29 regarding the follow-up activities, either direct coordination by WP.29 or continuation of the task force activities. GRVA recommended that open issues and fundamental questions were presented to WP.29, together with the potential answers and guidance to facilitate decision making. GRVA discussed planning and structure considerations. GRVA agreed to deal with the questions on slide 8 of GRVA-16-33 at its September 2023 session.

2. Considerations on the categorization of Automated Vehicles

Documentation: Informal documents GRVA-16-13 and GRVA-16-47

40. The expert from OICA introduced GRVA-16-13, proposing new vehicle subcategories aimed at characterizing the variety of ADS equipped vehicles for the purpose of vehicle regulations.

41. The expert received clarifying questions and comments. The expert from France stated that GRVA must identify the actual need before setting up subcategories and raised concerns about the complexity of the proposed subcategories. The expert from the United States of America recommended that OICA should consider not only the consolidated resolution R.E.3 but also the special resolution S.R.1. The expert from AAPC noted that the terms used by OICA were not always consistent with the definitions drafted by the IWG on FRAV. The expert from the Netherlands proposed to harmonize the wording with existing provisions such as those in Regulation (EU) 2022/1426. The expert from Canada advised to consult WP.1 on this issue.

42. The expert from OICA explained that they would also consider S.R.1 and would present their ideas to the Working Party on General Safety provisions (GRSG) after having received the comments by GRVA. He proposed to develop a Questions and Answers document to be presented later in the course of the session's week. He also proposed to organize a joint workshop between GRVA and GRSG.

43. On the last day, the expert from OICA presented GRVA-16-47 with the answers to the questions received on their proposal for new vehicle subcategories for ADS equipped vehicles. Many stakeholders welcomed the proposal as it only included subcategories to existing categories. Some pointed out the complexity of the proposal due to the many subcategories suggested. GRVA requested the secretariat to distribute GRVA-16-47 with an official symbol at the September 2023 session.

3. GRE Task Force on autonomous Vehicle Signalling Requirements

Documentation: Informal document GRVA-16-12 (based on ECE/TRANS/WP.29/GRE/2023/9)

44. GRVA received an amendment proposal to UN Regulation No. 48, GRVA-16-12 (based on ECE/TRANS/WP.29/GRE/2023/9), tabled by the Working Party on Lighting and Light-signalling (GRE) Task Force on Autonomous Vehicle Signalling Requirements (AVSR), aimed at "introducing provisions for vehicles with a *driving system*, which controls its operations or may be operated by driver support features or automated driving features or by an ADS.

45. The expert from AVERE commented that many of the amendments in the document were valid for ADS as well as for Driver Control Assistance System (DCAS). The expert from OICA inquired if AVSR considered the use case covering vehicles without seats and suggested to consider loading conditions criteria also for such vehicles. The expert from Japan clarified that para. 2.3.12 was only relevant for ADS but not for ADAS. He invited the task force to refer to the work done by the IWG on FRAV. The expert from France stated

that bidirectional vehicles were not a priority. The expert from OICA noted that AVSR did not consider many use cases. He recommended to postpone the adoption of amendments to UN Regulation No. 48. The expert from Germany recalled the priorities defined by GRVA regarding the screening of vehicle regulations and recalled that new seating position concepts and bidirectional vehicles were considered but not as a priority. The expert from France reflected on possible collaborations between the TF on FADS and GRE.

F. Other business

Documentation: Informal documents GRVA-16-24, GRVA-16-31 and GRVA-16-32

46. GRVA received information on the progress made by the Technical Committee 22 of ISO concerning their activities on test scenarios for the evaluation of ADS, presented by the expert from China (GRVA-16-24) and the expert from Japan (GRVA-16-31). The expert from CLEPA highlighted the importance of this work done by ISO.

47. The expert from UITP presented GRVA-16-32, introducing their project that explored the deployment of shared, connected and electrified Automated Vehicles (AVs) on open roads aimed at advancing sustainable urban mobility. The project was aiming at gathering knowledge to prepare recommendations for adapting the regulatory strategies related to AVs at local level. She stated that automated public transport, shared and on-demand, would be the next step and would affect strongly all business cases, which would be heavily impacted by regulations and local authorities, e.g. speed limitations for AVs, data set exchange, presence of a mandatory safety operator. She pointed out that the project faced many challenges when requesting permission to deploy AVs on the open road. She informed GRVA about the lessons learned and advised to moderate requests for data and also advised against extra speed limits for AVs, as it would conflict the traffic with other road users. She stated that regulations should not be elaborated for pre-mature technology, like low-speed shuttles, but should rather focus on the future.

48. The expert from Canada inquired about the reasons explaining the difficulties to obtain authorization from authorities for AVs deployment.

49. The expert from UITP replied that these difficulties were caused by administrations at various levels, including municipalities, not being ready for the deployment of AVs. She offered GRVA to share the lessons learned with the Group.

50. The expert from Norway confirmed, as one of the road authorities involved in such deployments, that these authorities have to take action for safety, in the context of deployment of AVs in mixed traffic, yet due to the low maturity of the technology.

VI. Connected vehicles (agenda item 5)

A. Cyber security and data protection

Documentation: (Informal document GRVA-15-18)
Informal documents GRVA-16-15, GRVA-16-16, GRVA-16-26 and GRVA-16-40

51. The expert from UK, Co-Chair of the IWG on Cyber Security and Over the Air (CS/OTA) issues, presented GRVA-16-40 (status report). He clarified that the proposed Terms of Reference (ToR) did not explicitly mention AI (see ECE/TRANS/WP.29/GRVA/15, para. 11.) since the group did not identify AI-specific deliverables. He also introduced GRVA-16-15, proposing to align the recommendations on cyber security and software updates with recent amendments to UN Regulation No. 155.

52. GRVA adopted the updated Terms of Reference for the IWG on CS/OTA (GRVA-16-16), as reproduced in Annex III of the report.

53. GRVA adopted GRVA-16-15, updating the guideline on cyber security and software updates and requested the secretariat to submit it to WP.29 for consideration and adoption at its November 2023 session.

54. GRVA resumed its discussion on the inclusion of the vehicle categories R, S and T in UN Regulation No. 155. GRVA recalled the preference of CEMA to cover cyber security of agricultural vehicles through the European Union (EU) Cyber-Resilience Act (CRA). The expert from Germany introduced GRVA-16-26, comparing UN Regulation No. 155 and the CRA with regard to CS requirements on agricultural and forestry vehicles. He concluded that the CRA was not the right instrument for agricultural vehicles. He recalled that UN Regulation No. 155 even covered trailers (Category O) and found remarkable that vehicles of Category T were not in the scope of this regulation.

55. The expert from CEMA commented that the document prepared by Germany offered a fair comparison. He explained that some variant of their vehicles did not belong to the vehicle Category T and therefore some vehicle types would be subject to two different regulations. He urged GRVA to not make quick decisions on this topic.

56. The expert from CLEPA proposed that also all Category L vehicles should be included in the scope of the regulation.

57. The expert from UK explained that his country had a similar act to the European CRA, aimed to be applicable to consumer goods. He explained that such acts were not stringent enough for agricultural vehicles. He recalled that the issue dated back from the sixth session of GRVA in March 2020, when the Category T was in square brackets and removed at the last minute to achieve consensus and manage adoption in a short and extraordinary session organized in the beginning of the COVID-19 pandemic. He noted that CEMA did not explain the elements of concern in UN Regulation No. 155 that would pose a specific issue for Category T vehicles.

58. The expert from Italy noted that the comparison did not show huge differences in terms of stringency between the Regulation and the European CRA. He proposed to freeze the discussion until CRA is adopted in Europe.

59. The expert from Germany noted that freezing the discussion would lead to a *de facto* decision, due to the way CRA was drafted, as it stipulates that it would apply to all products that are otherwise not already regulated regarding cyber security.

60. GRVA discussed that adding vehicle categories in the scope of UN Regulation No. 155 would provide the flexibility that a general act cannot provide and would permit to address specificities of all vehicle categories. GRVA noted the fact that CRA was not applicable for contracting parties outside of the EU. GRVA accepted the Chair's proposal to finalize the discussion in September 2023.

B. Software updates and Over-the-Air issues

61. No document was submitted under this agenda item.

C. Data and vehicle communications

Documentation: Informal document GRVA-16-43

62. The expert from Japan, Co-Chair of the Task Force (TF) on Vehicular Communication (VC), presented GRVA-16-43, recalling the mandate given by WP.29 and informing GRVA about the current status and potential next steps. He reported that during the first meeting, the TF on VC defined their purpose, reviewed the initial ideas for Terms of Reference, and identified a draft list of activities.

63. The expert from Canada stressed that the work should focus on Vehicle-to-Vehicle (V2V) communication. The expert from ITU confirmed that the initial area to look at was V2V. GRVA noted the report.

D. Other business

Documentation: Informal document GRVA-16-21

64. The expert from ISO provided a copy of one of their standards (GRVA-16-21, submitted under agenda item 5(c)) at the request of some GRVA delegates. GRVA thanked ISO for this effort in keeping GRVA up to date, regarding their activities.

65. The Secretary informed GRVA about a workshop of WP.5 scheduled on 5-6 September 2023 regarding cyber security threads of electric vehicles and their charging systems.

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

A. Advanced Driver Assistance Systems

Documentation: Informal document GRVA-16-18

66. The expert from the Russian Federation, Co-Chair of the Task Force on ADAS, presented the status report of the Group contained in GRVA-16-18. He detailed the progress made, he announced that the first draft UN Regulation on Driver Control Assistance System covering the type approval of “hands on” systems, would be submitted in June 2023 as official document for consideration by GRVA in September 2023. He proposed that the Task Force organize workshops further exploring hands-off systems. He also drew the attention of GRVA to the current discussions within the task force related to driver education in the context of ADAS.

67. The expert from Japan noted that the task force had addressed his concern related to the potential double standards in the new UN Regulation and the existing UN Regulation No. 79. He pointed at slide 3 of the presentation for further details.

68. The expert from Germany noted that the task force implemented the VMAD multi-pilar approach. He inquired about the effectiveness of this methodology to test driver interactions with the system.

69. GRVA noted that the Task Force was on the home straight with the drafting of the UN Regulation. GRVA recalled the importance of this activity, ADAS being the bridging technology until ADS becomes mature. GRVA therefore encouraged increased participation of all contracting parties in these activities.

70. GRVA supported the organization of additional workshops to address the challenges posed by hands-off systems and to clarify the border between ADAS and ADS.

71. GRVA discussed the task force views on driver education. The expert from OICA recalled the role of WP.1 on this matter. The expert from Germany clarified that the boundaries between WP.1 and WP.29 were clear, he stated that driver engagement monitoring and HMI were technical issues addressed by WP.29. He specified that there should not be technical solutions offered to consumers that would require a new driving licence. The expert from Canada confirmed that vehicles shall indeed be built in an intuitive and user-centric manner. He added that to date, many vehicles equipped with ADAS were used without extra training. The expert from AAPC confirmed the importance of the goal to develop technology that does not require further driver education. He explained that challenges were already identified and that the issues were being solved. GRVA agreed to wait for the text proposed by the task force and also to inform WP.29 about this discussion.

B. UN Regulation No. 79 (Steering equipment)

Documentation: Informal documents GRVA-16-06, GRVA-16-08 and GRVA-16-09

(a) Assistance system helping the driver to form an emergency and enforcement vehicles lane in the case of heavy traffic

72. The expert from OICA presented GRVA-16-06, with amendments to the provisions on “Automatically Commanded Steering Function (ACSF) of Category B1”, in UN Regulation No. 79, aimed at allowing the type approval of assistance systems helping the driver to form an emergency and enforcement vehicles lane in the case of heavy traffic. He detailed that such systems already obtained approval on the basis of a national exemption.

73. The expert from Japan proposed that such system would be covered by the Risk Mitigation Function (RMF) provisions.

74. The expert from France proposed to develop the safety and validation provisions for such systems.

75. The expert from OICA stated that the safety would be covered by Annex 6.

76. The expert from the United States of America inquired whether other countries granted an exemption for such system in another region of the world.

77. The expert from Norway reported that the traffic rules of his country did not request the building of a corridor for emergency vehicles.

78. The expert from Germany recognised that traffic rules differ among countries in this specific case and proposed to elaborate on two cases, (a) in slow moving traffic and (b) in emergency cases.

79. The expert from UK referred to the Level 3 technology, required to perform the Dynamic Driving Task and to comply with traffic rules. He wondered, in the case of assistance systems, what would be the driver’s responsibility when using this function and what was the safety case here. He stated that the DCAS provisions would be probably more appropriate for such a function.

80. The expert from Switzerland stated that such system could provide benefits in his country given the existing traffic rules and its poor implementation by drivers.

81. The expert from OICA volunteered to prepare a revised proposal addressing the comments received.

(b) Remote Controlled Parking

82. The expert from OICA presented (GRVA-16-09) an amendment proposal to the Remote-Controlled Parking (RCP) provisions in UN Regulation No. 79 to extend these systems to vehicle combinations (GRVA-16-08).

83. Several experts asked whether the length of the vehicle combination should be limited for such systems and noted potential issues with overhanging load in trailers.

84. GRVA requested the secretariat to distribute GRVA-16-08 with an official symbol at the September 2023 session.

C. Acceleration Control for Pedal Error

Documentation: Informal document GRVA-16-36

85. The expert from Germany, Co-Chair of the IWG on Acceleration Control for Pedal Error (ACPE), presented the status report of the Group (GRVA-16-36).

86. The expert from China welcomed these activities and asked if HMI would be covered by the Group, in order to avoid potential confusion. The expert from Norway confirmed that data showed the relevance of such system in his Country, he mentioned the case of double pedal errors.

87. The expert from Germany, Co-Chair of the Group, explained that HMI was not yet discussed, he noted the issue with double pedal errors for discussion within the Group and answered upon request by OICA that the Group would discuss issues related to overriding an Advanced Emergency Braking System (AEBS) and implications for ACPE. The expert from Japan confirmed that the November 2023 meeting would take place in Tokyo, Japan.

D. Other business

88. No document was submitted under this agenda item.

VIII. Advanced Emergency Braking Systems (agenda item 7)

A. Advanced Emergency Braking Systems

Documentation: (ECE/TRANS/WP.29/GRVA/2022/24,
Informal documents GRVA-15-19 and GRVA-15-20)
Informal document GRVA-16-22

89. GRVA agreed to keep ECE/TRANS/WP.29/GRVA/2022/24 (Urban Emergency Braking System (UEBS)) on the agenda for its next session.

90. The expert from OICA presented GRVA-16-20 on virtual testing for AEBS and mentioned GRVA-15-16 for reference. She stated that industry supported the use of simulation and that the simulation validation should be based on the IWG on VMAD outcome on this topic adapted to AEBS to foster harmonization.

91. The expert from Germany recalled the initial discussions on this topic. He explained that such discussion would now require addressing methodology, metrics and repetitions. The expert from France volunteered to organize a one-day workshop on the topic of AEBS virtual testing. The experts from Germany, UK, CLEPA and OICA welcomed the initiative and stated their interest in participating in the workshop.

92. GRVA requested the secretariat to distribute GRVA-15-19 with an official symbol at the next session.

B. Lane Departure Warning Systems

Documentation: Informal document GRVA-16-10/Rev.1

93. The expert from Australia introduced GRVA-16-10/Rev.1, a proposal aiming to include the Australian lane markings in UN Regulation No. 130 (Lane Departure Warning System (LDWS)) to facilitate effective functioning of the LDWS fitted to Australian supplied vehicles of category M₂, M₃, N₂ and N₃ primarily used under highway conditions, as studies showed that such systems were not always as effective as expected on this market.

94. The expert from OICA recalled that such proposal would impact trucks not being sold in Australia. He also recalled that such proposals would impact UN Regulation No. 79 due to cross references. He therefore proposed to introduce transitional provisions to the proposal. The expert from Japan welcomed the reasonable proposal made by the expert from Australia.

95. The expert from Australia agreed to consider the comments received and to provide a revised proposal for consideration in September 2023.

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/2023/9
Informal document GRVA-16-23/Rev.1

96. The expert from OICA introduced ECE/TRANS/WP.29/GRVA/2023/9 as amended by GRVA-16-23/Rev.1, aimed at modifying testing requirements on the final steering amplitude in case of front tyres saturation. The experts from Japan and UK supported the revised document, as it addressed their comments.

97. The experts from Canada and the United States of America inquired if there was enough evidence demonstrating that the modification proposed would not lead to a safety decrease. They asked for more data and documentation to support this proposal.

98. The expert from OICA responded that no negative impact on the safety of vehicles was expected, as shown in previous GRVA sessions, based on evidence. She clarified that the reason for this proposal was the introduction of new steering technologies with low steering ratio. She stated that there was no added value in continuing to increase the steering wheel amplitude during the test after the front tyre saturation.

99. GRVA agreed to resume the discussion at its next session.

B. Electromechanical brakes

Documentation: ECE/TRANS/WP.29/GRVA/2023/10
(ECE/TRANS/WP.29/GRVA/2023/3)
Informal documents GRVA-16-07, GRVA-16-11, GRVA-16-17 and GRVA-16-27

100. The Secretary reported on the GRVA workshop dedicated to Electro-Mechanical Braking (EMB) that took place on 29-30 March 2023 (GRVA-16-11). He informed GRVA that participants discussed the review of the current EMB technology, Periodical Technical Inspection considerations for such systems, Brake By Wire (BBW), issues related to the traction battery and battery ageing. He recalled the conclusion of the workshop, which were the wish of working in a first step on the principles rather than on definitions, and the proposal to establish a new working structure at this session, e.g. a special interest group to accelerate progress.

101. The expert from UK presented a proposal on drafting guidance principles for UN Regulations Nos. 13 and 13-H (GRVA-16-07). He stated that the document set out seven performance-based principles and described how they could be beneficial when drafting provisions for new technologies related to braking systems employing stored energy, while still respecting the intent of the regulations.

102. The experts from CLEPA, Germany, Japan and OICA generally supported these principles and expressed the need to continue the activities related to EMB.

103. GRVA endorsed GRVA-16-07 as a guidance document for further activities on EMB.

104. The expert from CLEPA introduced draft ToR and Rules of Procedure (RoP) for a potential Special Interest Group (SIG) on EMB and BBW (GRVA-16-17), proposing one subgroup to address UN Regulation No. 13 and another subgroup to focus on UN Regulation No. 13-H. He offered to take on the role of the Secretary for that SIG.

105. The expert from UK presented alternative draft ToR, RoP and deliverables of a potential SIG on EMB (GRVA-16-27), aiming at a harmonized approach and understanding for UN Regulations Nos. 13 and 13-H. He proposed to establish one subgroup solely dedicated to principles around energy supply and another subgroup tackling the challenges the technology presents. The expert from UK volunteered to provide the Chair of SIG.

106. The experts from CLEPA and Japan supported the UK proposal. The expert from Japan suggested to remove the square brackets in paragraph 8.

107. The expert from China informed GRVA about his interest to participate in SIG on EMB, as it was an important topic for future technologies.

108. GRVA endorsed the draft ToR and RoP of SIG on EMB reproduced in Annex IV (based on GRVA-16-27 as amended during the session).

109. The expert from UK requested to keep ECE/TRANS/WP.29/GRVA/2023/10 and GRVA-16-41 on the agenda until the next session, as they would be further discussed and finalised by SIG on EMB. GRVA agreed to this proposal.

C. Clarifications

Documentation: ECE/TRANS/WP.29/GRVA/2023/3
Informal document GRVA-16-45

110. GRVA resumed discussions on the document tabled by CLCCR at the last session, jointly developed together with CLEPA and OICA (ECE/TRANS/WP.29/GRVA/2023/3). The expert from CLEPA informed GRVA that further discussions on definitions were needed, e.g. for threshold values and requirements. He requested to keep the document on the agenda until the next GRVA session as discussions on solutions and impacts on motor vehicles were still ongoing. GRVA agreed to this request.

111. The expert from UK presented a proposal for amendments to UN Regulation No. 13 (GRVA-16-45), resulting from the review of a query raised by the Working Party on the Transport of Dangerous Goods (WP.15) on amendments to UN Regulation No. 13 (Supplement 18 to the amendments of the 11 series), which introduced special requirements on endurance brakes for vehicles using regenerative braking systems. He stated that the proposed amendment aimed at clarifying the current understanding of provisions related to the Type IIA test.

112. The expert from the Netherlands welcomed the proposal and stated that he would come back to it after further internal exchange.

113. The expert from the Czech Republic, also attending the sessions of WP.15, stated that the new wording was in line with WP.15's understanding of this Supplement 18 to the 11 series of amendments to UN Regulation No. 13. He stated that more clarifications were also needed for Annex 5 on ADR, as the provisions explicitly referred to paragraph 1.8 of Annex 4, but did not address the alternatives for electric vehicles that were introduced in the Regulation (see paragraph 5.1.2. of the regulation itself).

114. The experts from Norway and OICA supported the proposal in principle.

115. GRVA requested the secretariat to distribute informal document GRVA-16-45 with an official symbol at the next session.

X. Motorcycle braking (agenda item 9)

A. UN Global Technical Regulation No. 3

116. The expert from Italy recalled the decision from AC.3. The expert from IMMA suggested to wait for further amendments to UN Regulation No. 78, to collect them and introduce them collectively in UN GTR No. 3 for alignment.

B. UN Regulation No. 78

117. No document was submitted under this agenda item.

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

Documentation: ECE/TRANS/WP.29/GRVA/2023/11
ECE/TRANS/WP.29/GRVA/2023/12
ECE/TRANS/WP.29/GRVA/2023/13
ECE/TRANS/WP.29/GRVA/2023/14
ECE/TRANS/WP.29/GRVA/2023/15
Informal document GRVA-16-14

118. The expert from CLEPA introduced the proposals for amendments to the 01 and 02 series of amendments to UN Regulation No. 90 (ECE/TRANS/WP.29/GRVA/2023/11 and ECE/TRANS/WP.29/GRVA/2023/12, as amended by GRVA-16-14), submitted by CLEPA and Italy. He informed GRVA that these proposals aimed at introducing amendments for calliper/ drum set packaging and at allowing, as an option, to report the approved vehicles/brakes/axle information as well as fitting instructions through digital format (e.g. Quick Response (QR) code, website).

119. The experts from France, Germany and UK supported the amendments.

120. The expert from FIA asked what would happen in case there was no available internet connection. He added that the consumer should not be asked for personal data when he asks for the QR code.

121. The expert from CLEPA responded that the proposal did not prevent that instructions are made available in printable format. He agreed that it should be avoided that any person is asked to provide personal data.

121. GRVA adopted ECE/TRANS/WP.29/GRVA/2023/11 and requested the secretariat to submit it as a supplement to the 01 series of amendments to UN Regulation No. 90 to WP.29 and AC.1 for consideration and vote at their November 2023 sessions.

122. GRVA adopted ECE/TRANS/WP.29/GRVA/2023/12, as amended by GRVA-16-14, and requested the secretariat to submit it as a supplement to the 02 series of amendments to UN Regulation No. 90 to WP.29 and AC.1 for consideration and vote at their November 2023 sessions.

123. GRVA noted the documents ECE/TRANS/WP.29/GRVA/2023/13, ECE/TRANS/WP.29/GRVA/2023/14 and ECE/TRANS/WP.29/GRVA/2023/15, which were not introduced as no representative of FEMFM was present.

124. The experts from CLEPA and the Netherlands stated that they could not support these documents.

125. GRVA agreed to keep the documents ECE/TRANS/WP.29/GRVA/2023/13, ECE/TRANS/WP.29/GRVA/2023/14 and ECE/TRANS/WP.29/GRVA/2023/15 on the agenda until its next session.

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

Documentation: Informal document GRVA-16-25

126. The expert from Norway presented GRVA-16-25, informing GRVA on safety recommendations from the Norwegian Safety Investigation Authority (NSIA) on vehicle stability systems and tyre explosion. He stated that it was identified that the scope of damage could be reduced by introducing technical solutions or driver support systems that enable drivers of heavy vehicles to make a controlled stop if the steering tyre on the front axle explodes. He inquired whether functions like Electronic Stability Control, Emergency Steering Function, Minimum Risk Manoeuvre or Emergency Manoeuvre could support vehicle stability after tire explosion.

127. The expert from OICA explained that the functions mentioned above were not specifically designed to react in such dramatic situations and that they were relying on

working system. He recalled that these functions were aiming at either to correct mistakes by the driver, who may have entered too fast in a curve, or to avoid collisions with other vehicles.

128. The expert from France stated that further tests would be needed to determine if new systems (taking into account tyre bursting) would help the driver in such a case. He inquired for additional information on the causes of the tyre bursting.

129. The expert from CLEPA confirmed that exploding tyres are tested. He confirmed some requirements for buses and coaches regarding brakes and ABS. He agreed to check if Electronic Stability Control and ADAS could help in such circumstances and report at the next session.

XIII. Revision 3 of the 1958 Agreement (agenda item 12)

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

Documentation: (Informal document GRVA-15-11)
Informal documents GRVA-16-19, GRVA-16-20 and GRVA-16-44

130. The expert from the Russian Federation presented GRVA-16-20, introducing GRVA-16-19 and informing GRVA on the outcome of the assessment of UN Regulations under the purview of GRVA with regards to the use of the Unique Identifier (UI). He stated that the review was done, assuming that the concept of UI would be realized and activated in the Database for the Exchange of Type Approval documentation (DETA).

131. The expert from the Netherlands recalled their position and their doubts regarding the UI concept.

132. The expert from CITA presented GRVA-16-44 in response to GRVA-16-20, recalling the initial justification for using the concept of UI, i.e. issues related to space on automotive products which was not always sufficient to put multiple markings. He stated that there was no benefit of using UI for any of the regulations under the purview of GRVA, as there were no space issues. He concluded that using UI as an alternative to the current approval marking would not support harmonization of providing information.

133. The Chair recalled the underlying idea of UI, being to replace the current approval marks in a long-term perspective to achieve global harmonization of information sharing in the future.

134. The expert from the Russian Federation agreed that UI did not have many benefits for the time being. He stated that, to date, it was not foreseeable how much time the implementation of UI in DETA would take. He mentioned the potential UI benefits in the future. He stated that he neither supported nor objected to the use of UI.

135. The Secretary informed GRVA of the possible procedures that could be used to translate the positions expressed into concrete action, e.g. amending Schedule 5 of the 1958 Agreement accordingly.

136. The expert from OICA agreed with CITA and stated that there was mainly a benefit of UI for small parts, not for the whole vehicle. He welcomed the option presented by the Secretary and suggested to put UI on hold for the moment.

137. The expert from CLEPA supported the statement by the Chair and suggested to devote more time for evaluating benefits and problems of UI, which were not foreseen at the time of drafting Schedule 5, before the practical implementation of UI. He stated that CLEPA did not support nor object putting UI on hold.

138. The expert from UK highlighted that GRVA should consider the long-term benefits and should not be concerned about the current circumstances.

139. GRVA agreed to approach WP.29 and AC.2 for guidance on how to proceed and to inform them about the different views and difficulties presented.

B. International Whole Vehicle Type Approval

140. No document was submitted under this agenda item.

XIV. Other business (agenda item 13)

A. Arrangement of meetings

141. The Chair recalled the willingness of GRVA to organize sessions outside of Geneva as a way to show appreciation to the efforts made during the COVID-19 pandemic by the experts from America and Asia. He noted the ITC discussion in February 2023 with regards to organizing a session in the United States of America. The Secretary asked for guidance regarding the May 2024 session organized in Geneva and recalled the rules for organizing session outside of Geneva, in terms of hosting agreement, costs and needs such as interpretation. GRVA recalled the precedent in May 2022, during which no interpretation services had been provided. GRVA agreed that such session outside of Geneva could be organized as informal hybrid session (English only).

142. The expert from the Russian Federation could not express support to this proposal. The expert from France explained that he would have to check with his capital if an English only session would be acceptable.

143. The experts from Australia, Canada, Japan and the United States of America welcomed the idea.

144. The expert from the United States of America inquired whether the next May sessions of GRVA would also be organized outside of Geneva, with rotations in Asia and America.

145. GRVA agreed to consult AC.2 and WP.29, whether such an informal session could be organized in place of the formal session scheduled in May 2023.

B. Any other business

1. Activities of Inland Transport Committee and its subsidiary bodies

Documentation: Informal document GRVA-16-46

146. GRVA welcomed the presentation from the ITC Secretary (GRVA-16-46) informing GRVA on the ITC invitation to its Working Parties to submit to the secretariat their ongoing contributions, future plans and suggestions in support of climate change mitigation (ECE/TRANS/328, para. 57).

147. GRVA noted with satisfaction the decisions of the Inland Transport Committee on climate change and confirmed its support for the development of an ambitious ITC strategy on the reduction of greenhouse gas emissions in inland transport until 2050, with priority actions for ITC and its subsidiary bodies, and supported by a strong action plan with milestones. GRVA was informed of the draft outline presented at the session by the ITC Secretary. Noting that the deadline for contributions and comments on the draft was Friday, 29 September 2023, GRVA invited delegations to send their contributions to the Chair before the September 2023 session on (a) the ITC climate change mitigation strategy until 2050: reflections and considerations as to contributions and ambitious actions (with milestones) GRVA could provide and conduct, (b) contributions by GRVA to the in-depth report on climate change and inland transport for ITC's eighty-sixth session, on the basis of the preliminary work contained in document ECE/TRANS/2023/21.

2. Programme of Work

Documentation: Informal documents GRVA-16-28/Rev.1 and GRVA-16-35

148. The Secretary presented the draft programme of work (GRVA-16-28/Rev.1) including the GRVA priorities for 2024.

149. The expert from Germany proposed to include activities related to ACPE in the list of priorities. The expert from Canada expressed his interest in looking at this topic more globally. The expert from France supported the proposal by Germany and suggested to add deliverables of the TF on FADS. The expert from Japan suggested to keep CS/OTA as part of the priorities, as it was an important topic for future safety. The expert from OICA suggested to add AI to the list of GRVA priorities, which was supported by FIA. The expert from France agreed on the importance of AI but also pointed out that it was only one technology in the context of technology neutral regulatory activities. The expert from Australia inquired why EMB was not listed as a priority.

150. GRVA agreed on the draft programme of work as reflected in GRVA-16-28/Rev.2.

3. Any other business

Documentation: Informal document GRVA-16-49

151. The Secretary informed GRVA on the draft consolidation of UN Regulation No. 13 prepared by the secretariat (GRVA-16-49) and invited the GRVA delegates to provide comments, if any.

C. Tributes

152. GRVA learned that Mr. H. Nonaka (Japan) would no longer attend GRVA sessions. GRVA acknowledged his great contributions and wished him success in his carrier and all the best for his future.

Annex I

[English only]

List of informal documents (GRVA-16-...) considered during the session

<i>No.</i>	<i>(Author) Title</i>	<i>Follow-up</i>
1	(Chair) Running order of the sixteenth session of GRVA	A
2/Rev.1	(Secretariat) Consolidated and updated provisional agenda for the 16 th GRVA session	A
3	(Secretariat) General information and highlights from the March 2023 sessions of WP.29/AC.1/AC.2/AC.3/AC.4	C
4	(CLEPA, OICA) Industry Position on usage of AI Machine Learning	D
5	(CLEPA, OICA) Initial points and Terms to support discussions around the use of AI ML in automotive industry	D
6	(OICA) Proposal for amendments to UN Regulation No. 79	C
7	(UK) UN Regulations Nos. 13 & 13-H Electrical Brake System Drafting Guidance	A
8	(CLEPA, OICA) Proposal for amendments to UN Regulation No. 79	B
9	(CLEPA, OICA) UN R79 ACSF A RCP - Remote Controlled Parking RCP open up for vehicle combinations	C
10/Rev.1	(Australia) Proposal for amendments to UN Regulation No. 130 – Lane Departure Warning System	D
11	(Secretariat) Minutes of the Informal Workshop of GRVA dedicated to Electromechanical Brakes (EMB)	C
12	(TF AVSR) Proposal for a supplement to UN Regulation No. 48	C
13	(CLEPA, OICA) Considerations on the categorization of Automated Vehicles	C
14	(Italy, CLEPA) Proposal for a supplement to the 02 series of amendments to UN Regulation No. 90 (Replacement braking parts)	A
15	(CS/OTA) Proposal for an update of Recommendations for Automotive Cyber Security and Software Updates	A
16	(CS/OTA) Terms of Reference and the Rules of Procedure of the Informal Working Group on Cyber Security and Software Updates	A
17	(CLEPA, OICA) Special Interest Group on Electro Mechanical Brakes (EMB) and Brake By Wire (BBW)	C
18	(TF on ADAS) Report of the TF on ADAS for the 16th GRVA session	C
19	(Russian Federation) Assessment of UN Regulations under the purview of GRVA with regards to the use of the Unique Identifier	C
20	(Russian Federation) Assessment of UN Regulations Under the Purview of GRVA With Regards to the Use of the Unique Identifier (presentation)	C
21	(ISO) Copy of ISO 24089 - Road vehicles - Software update engineering	C
22	(CLEPA, OICA) CLEPA/OICA position on the introduction of Virtual Testing in UN R152	C
23/Rev.1	(CLEPA, OICA) Proposal for amendments to UN Regulation No. 140 Electronic Stability Control (ESC) Systems	B
24	(ISO) Status report ISO TC22 /SC33/WG9 - Test scenarios of automated driving systems	C
25	(Norway) Vehicle stability systems and tyre explosion - Safety recommendation from Norwegian Safety Investigation Authority	C
26	(Germany) Comparison between UN Regulation No. 155 and the EU Cyber-Resilience Act with regard to CSS requirements on agricultural and forestry vehicles	C

<i>No.</i>	<i>(Author) Title</i>	<i>Follow-up</i>
27	(UK) Terms of Reference for the Special Interest Group (SIG) on Electromechanical Braking	A
28/Rev.1	(Secretariat) GRVA priorities for 2024	D
29/Rev.1	(FRAV) Guidelines for Regulatory Requirements and Verifiable Criteria for ADS Safety Validation	A
30	(FRAV) Status Report	C
31	(ISO) ISO 34502:2022 - Scenario-based safety evaluation framework for automated driving systems	C
32	(UITP) Large-scale demonstration of AVs for shared mobility	C
33	(TF on FADS) Status Report	C
34	(EDR/DSSAD) Activities/Deliverables of IWG on EDR/DSSAD	C
35	(ACPE) Proposal for amendments to GRVA-16-28	C
36	(ACPE) Status Report	C
37	(France) Proposal for amendments to ECE/TRANS/WP.29/GRVA/2023/8	B
38	(VMAD) Status Report	C
39	(VMAD) New Assessment/Test Method for Automated Driving (NATM) Guidelines for Validating Automated Driving System (ADS) – amendments to ECE/TRANS/WP.29/2022/58	A
40	(CS/OTA) Status Report	C
41	(OICA/CLEPA) Proposal for amendments to ECE/TRANS/WP.29/GRVA/2023/10	C
42	(OICA/CLEPA) Proposal to amend document ECE/TRANS/WP.29/GRVA/2023/8	A
43	(TF on VC) Information sharing by the Task Force on Vehicular Communication	C
44	(CITA) Unique Identifier - Proposed actions for the IWG on DETA, GRs and WP.29	C
45	(UK) Proposal for amendments to UN Regulation No. 13	B
46	(ITC secretariat) Development of the ITC Strategy on reducing greenhouse gas emissions in inland transport	C
47	(OICA/CLEPA) Considerations on the categorization of Automated Vehicles - Questions and answers based on comments received during the 16th session of GRVA	B
48	(OICA) Artificial Intelligence and Vehicle Regulations - draft	C
49	(Secretariat) Draft consolidated version of UN Regulation No. 13 - Revision 9	C
50	(Secretariat) List of decisions on documents	C

Notes:

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

- A Adopted;
- B Distribute with an official symbol at the next session;
- C Consideration completed;
- D Resume consideration at the next session.

Annex II

[English only]

**List of Informal Working Groups reporting to GRVA
(as of May 2023)**

<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 2024
Validation Method for Automated Driving (VMAD)	Mr. I. Sow ¹ Mr. T. Nonaka ¹ Mr. P. Striekwold ¹	Canada Japan Netherlands	June 2024
Cyber Security and Over-The-Air software updates (CS/OTA)	Mr. T. Niikuni ¹ Mr. D. Hannah ¹ Ms. M. Wondimneh ¹	Japan UK USA	November 2024
Event Data Recorder / Data Storage System for Automated Driving (EDR/DSSAD)	Mr. T. Nonaka ¹ Mr. T. Guiting ¹ Mrs. J. Doherty ¹	Netherlands Japan USA	June 2024
Acceleration Control Pedal Error	Mr. P. Seiniger ¹ Mr. T. Hirose ¹	Germany Japan	May 2024

¹ IWG Co-Chairs

Annex III

Terms of Reference and the Rules of Procedure of the Informal Working Group on Cyber Security and Software Updates

A. Terms of Reference

1. The Informal Working Group (IWG) is the subsidiary body dedicated for Cyber Security and Software Updates (CS/OTA) under the Working Party on Automated/Autonomous and Connected Vehicles (GRVA) of WP.29.

2. Members of the IWG shall have the relevant technical or regulatory expertise to contribute to the delivery of its task.

3. The IWG shall:

(a) Maintain the official documents regarding cyber security regulation (UN R155), software update regulation (UN R156) and "Recommendations on uniform provisions concerning cyber security and software updates". This will be based on practical experience of applying these documents, along with other sources, and will look to maintain consistency between them, where possible. It will also take account of technological developments and evolution of risks and threats that are relevant.

Amendments to the relevant official documents will be carried out by the consensus of the IWG when further clarifications of the texts are demanded.

(b) Provide opportunities to participants to share knowledge, experience and ideas from implementation of national regulation/standards regarding CS/OTA, as well as UN Regulations Nos. 155 and 156.

(c) Consider and develop deliverables regarding recommendations for software updates after registration.

B. Rules of Procedure

4. The IWG is open to all participants of WP.29 and its subsidiary bodies.

5. The IWG will be chaired by the United Kingdom Department for Transport, the United States National Highway Traffic Safety Administration and the National Traffic Safety and Environment Laboratory of Japan. The Technical Secretariat will be provided by OICA.

6. The working language of the IWG will be English.

7. All documents and/or proposals shall be submitted to the Technical Secretary in a suitable electronic format at least one week before the meeting. The group may refuse to discuss any item or proposal which has not been circulated one week in advance.

8. An agenda and related documents will be circulated to all IWG members in advance of all scheduled meetings.

9. All IWG documents will be made available on the dedicated UNECE website by the secretary (<https://wiki.unece.org/pages/viewpage.action?pageId=40829521>).

10. The IWG decisions will be reached by consensus. When consensus cannot be reached, the IWG Chair shall present the different points of view to the GRVA and seek guidance as appropriate.

11. The IWG progress will be routinely reported at sessions of the GRVA by the Chair(s) or representative(s).

C. Timeline

The IWG will continue its activities according to the Terms of Reference until November 2024.

Annex IV

Terms of Reference for the Special Interest Group on Electromechanical Braking (EMB)

I. Introduction

The automotive sector has indicated that new braking technology, employing both electric control transmission and electric energy transmission, is under development. This technology is seen as an important element in the transition from vehicles employing internal combustion engines to alternatives powered by electrical energy.

Industry have been working extensively on an amendment for UN Regulation No. 13 to permit the use of this technology on vehicles of categories M₂, M₃, N₂ and N₃. Separately, interest is growing in the use of such technology on vehicles of categories M₁ and N₁; this will require amendments to both UN Regulations Nos. 13 and 13-H.

Under the 1958 Agreement, the braking requirements for road vehicles are detailed in UN Regulations Nos. 13 (heavy vehicles) and 13-H (light-duty vehicles). As vehicles of category N₁ may be approved to either R.13 or R.13H, these regulations should remain aligned.

To ensure a uniform understanding of this new technology by both the industry sector and the contracting parties, it is desirable that the detailed discussion to develop final proposals be conducted within the auspices of GRVA. This will assist the progress of proposals through GRVA for consideration by WP.29.

II. Objective of the Group

The Brussels EMB Workshop (29-30 March 2023) considered different design strategies for the electric supply and the transmission. These differences bridged across light-duty, heavy-duty, internal combustion engine powered and electrically powered vehicle types. Ensuring that this diversity of design can satisfy the essential safety requirements expected of today's braking systems, and that the regulations are adapted without imposing unwarranted technology limitations, is essential.

Scope of work for the SIG shall include the following items. Should additional items be proposed, the SIG will decide by consensus on their inclusion.

A. Energy supply and brake transmission architectures.

- (a) Identify design principles for the energy supply.
- (b) Identify the brake transmission arrangements that may be recognised by UN Regulations Nos. 13 and 13-H.
- (c) Develop recommendations for the methodology of measuring/monitoring the value of energy available in a reserve of energy suitable for use in identifying critical energy thresholds.
- (d) Identify the safety critical elements of electromechanical braking systems that will require monitoring for fault/failure and the generation of warning signals.

B. Based upon understanding from the above, and building upon the content of the GRVA Informal Document GRVA-15-17:

- (a) Develop proposals to amend UN Regulation No. 13,
- (b) Develop proposals to amend UN Regulation No. 13-H, and
- (c) Make recommendations regarding the application of the electrical system safety principles with respect to other UN Regulations, esp. UN Regulation No. 79.

Objectives A and B will be developed concurrently.

II. Rules of Procedure

1. The SIG is a sub-group of WP29/GRVA and is open to all participants of WP29/GRVA including contracting parties to the 1958 and 1998 Agreements and non-governmental organizations.
2. The SIG will report to GRVA and to WP.29.
3. The SIG may task expert sub-groups to support advancement of the objectives.
4. The Chair of the SIG will be a representative of a Contracting Party. The Secretary of the SIG will be provided by OICA/CLEPA.
5. The Chair may invite experts to the meetings, including non-participants of WP.29, on demand.
6. The working language of the SIG will be English.
7. An agenda and related documents will be circulated to all members of the SIG in advance of all scheduled meetings.
8. All documents of the SIG, or its subgroups, must be submitted to the Secretary of the group at least 5 working days before the meeting. The group may refuse to discuss any item or proposal which has not been circulated as required.
9. All documents shall be provided in digital format. The Secretary shall publish the documents on the dedicated website provided by the UNECE.
10. Decisions of the group shall be reached by consensus based upon written proposals and technical rationale. When consensus cannot be reached, the chair of the group may present the different points of view and seek guidance from GRVA, as appropriate.
11. Meetings of the SIG shall be held at least on a monthly basis but may be more frequent subject to agreement by the majority of the participants. Meetings will be hybrid using web-based technology.
12. A provisional agenda shall be drawn up by the SIG leadership. The first item of the provisional agenda for each session shall be the adoption of the agenda. The second item shall be the minutes of the previous session followed by technical discussions and miscellaneous items.

III. Timeline and deliverables

The SIG shall:

Present an informal paper to the 18th session of GRVA (January 2024) setting out:

- (a) The safety rationale for different arrangements of energy supply and brake transmission to support electromechanical braking systems, and
- (b) A methodology to determine the value of an electrical energy reserve, suitable for application with an electromechanical braking system.

Deliver formal proposals to the 19th session of GRVA (May 2024):

- (a) For an amendment to both UN Regulation No. 13 and UN Regulation No. 13-H to accommodate electromechanical braking systems, and
- (b) Report on recommendations for compatible changes to, for example, UN Regulation No. 79 in respect to the electrical supply, storage, and monitoring.