United Nations ECE/TRANS/WP.1/2018/4/Rev.1

Economic and Social Council

Distr.: General
10 July 2018

English only

Economic Commission for Europe

Inland Transport Committee

Global Forum for Road Traffic Safety

Seventy-seventh session
Geneva, 18-21 September 2018
Item 3 (c) of the provisional agenda
Convention on Road Traffic (1968):
Automated driving

Revised draft resolution on the deployment of highly and fully automated vehicles in road traffic

Submitted by WP.1 Chair and Deputy Chairs

This document contains revisions agreed upon to ECE/TRANS/WP.1/2018/4 by the Global Forum for Road Traffic Safety (WP.1) at the seventy sixth session (Geneva, 19-23 March. 2018) as well as remaining parts.

GE.18-11335(E)
1811335

Please recycle

I. Introduction

Comment: The text below was suggested by the WP.1 Chair and is still pending review by WP.1

The Global Forum for Road Traffic Safety (WP1) of the United Nations Economic Commission for Europe,

- Noting that the 1949 Convention on Road Traffic and 1968 Convention on Road Traffic have had significant bearing in the definition of domestic road traffic policies and have noticeably improved road safety,
- Noting the continuous progress of automotive and digital technological advances,
- Noting that the road safety principles in the 1949 Convention on Road Traffic and 1968 Convention on Road Traffic do not exclude the use of highly and fully automated vehicles in road traffic.
- Acknowledging the importance of setting global road safety principles taking into account the continuous progress of automated road technologies ,
- Recognizing the potential for innovative safety technologies to improve social well-being by preventing motor vehicle crashes, both in ways that can now be foreseen and in ways that cannot yet be predicted, and desiring to avoid further obstacles that could impede the development of such beneficial technologies,
- Recognizing the potential for the mentioned technologies to improve road traffic safety, inclusive mobility, that could help to deliver the United Nations Sustainable Development Goals, and accomplish strategies where safe and efficient mobility is a tool for socio- economic growth and governance,
- Desiring to establish at global level uniformity in the principles relating to the governance of Highly Automated Vehicles in road traffic environment, in order to improve road safety at global level and facilitate international traffic,
- Recommends Governments, which have not done so yet, to ratify or accede to the Convention on Road Traffic done at Geneva on 19 September 1949, and the Convention on Road Traffic done at Vienna on 8 November 1968, that have contributed, and will continue , significantly and promisingly, reduce the number of fatalities and injuries caused by collisions;
- Recommends Governments to take into account for their national legislations relating to traffic and road safety, the principles incorporated in the above mentioned Conventions on Road Traffic and the principles incorporated in this Resolution.

II. Preamble

Comment: The text of this preamble was adjusted to refer to highly and fully automated vehicles and it is still pending review.

1. The Consolidated Resolution is intended to guide Parties to the Convention on Road Traffic done at Geneva on 19 September 1949, and the Convention on Road Traffic done at Vienna on 8 November 1968, as well as the European Agreement Supplementing the 1968 Convention on Road Traffic done at Geneva on 1 May 1971 with respect to the safe deployment of highly and fully automated vehicles in traffic environment, to support the enhancement of road traffic safety, mobility and socio-economic progress.

2. This Resolution does not supersede the legal obligations arising from the 1949 and 1968 Conventions and 1971 European Agreement.

3. Rather, this Resolution complements the principles of the 1949 and 1968 Conventions and 1971 European Agreement in the context of facilitating the safe deployment of highly and fully automated vehicles in the road traffic environment.

Comment: Paragraph 4 has not been agreed yet upon by WP.1. Two alternatives are provided below.

Alternative 1:

4. These principles will evolve as technology develops, and as experience and evidence accumulate regarding the deployment of automated vehicle technologies. As this Resolution is continually under development, the explicit inclusion of a principle or topic should not be construed as the implicit exclusion of any other. Nor does it prevent the development of binding legal instruments on similar topics if this is deemed necessary in the future.

Alternative 2:

4. The Resolution offers recommendations which will evolve as technology develops and as experience and evidence accumulate regarding the deployment of highly and fully automated vehicles. Therefore, the explicit inclusion of a principle in this Resolution should not be construed as the implicit exclusion of any other. Moreover, this Resolution may facilitate the development, under the guidance of the Global Forum for Road Traffic Safety, of binding legal instruments on similar topics if this is deemed necessary in the future.

Comment: WP.1 has not yet agreed on the below paragraph 5 nor on its placement in the resolution.

5. Therefore, governments [including those at a sub national level] should work with civil society and industry to ensure that the principles outlined in this Resolution are incorporated into their domestic traffic frameworks in a way that recognises their specific context] – to be worked on.

Comment: WP.1 agreed that a paragraph on the relationship between the resolution and the conventions should be included in the preamble. However, it has not formulated any text to that end.

Insert the text on relationship with the Conventions here.

III. Definitions

Comment: WP.1 has still to review the section of definitions.

For the purpose of this Resolution,

(a) Highly and fully) automated vehicle(s) refer to/mean vehicles equipped with an automated driving system that can exercise dynamic control (without the need for human intervention as a fall back to ensure road traffic safety)~~,~~ for some or all of a journey

Comment: Alternative proposal from Spain:

Fully automated vehicles refer to vehicles equipped with an automated driving system that can exercise full dynamic control in any ODD i.e. unconditionally. The system is a fall back (without any expectation that a user will respond to a request to intervene)

Highly automated vehicles refer to vehicles equipped with an automated driving system that can exercise full dynamic control within a specific/limited/restricted ODD. The system is the fall back (without the need for human intervention to ensure road traffic safety), for which the system is a fall back, for some or all of a journey (without any expectation that a user will respond to a request to intervene)

(b) Automated driving system means the combination of hardware and software that exercises dynamic control of a vehicle on a sustained basis.

(c) "Dynamic control" means carrying out all the real-time operational and tactical functions required to move the vehicle.

IV. Recommendations for automated driving systems in highly and fully automated vehicles

Comment: WP.1 reviewed and accepted several of the recommendations. Accepted recommendations are marked with '[accepted]', others remain for further review.

Automated driving systems in highly and fully automated vehicles should: [accepted]

- Make road safety a priority, [accepted]

- Endeavour to safely tolerate [detectable] human errors of road users, inside and outside of the vehicle, and minimize potential effects of such errors,

- Comply with traffic rules, especially those referring to:

  (a) Interacting safely with other road users, [accepted]

  (b) Following instructions from authorized officials directing traffic /or

Alternative

  (b) Following instructions from authorized officials directing traffic such as in the area of road works and location of road accidents

  (c) Maintaining smooth and safe flow of traffic [accepted]

- Only function within their operational design domain. [accepted]

- Be capable of achieving a minimal risk condition when necessary, for example in case of a failure in the automated driving system or other vehicle system, or in case the vehicle exits the operational design domain [accepted]

- React to unforeseen situations in a way that minimizes danger to the vehicle's occupants and other road users. [accepted]

- Be capable of clearly communicating [relevant information such as about its status] with its users and other road users, in a way that is consistent and that enables an appropriate interaction. In addition, be capable of monitoring and interacting with the road traffic environment.

- Operate in a way that enables verification as to whether or not they are or were performing dynamic control [accepted]

- Enable their deactivation in a safe manner. [accepted]

V. Recommendations for users of automated driving systems in highly and fully automated vehicles

WP.1 reviewed and accepted several of the recommendations. Accepted recommendations are marked with '[accepted]', others remain for further review.

Users of automated driving systems in highly and fully automated vehicles, depending on the functionalities offered by the system, should:

- Be aware/informed of the proper use of the vehicle prior to starting the journey [accepted].
- Be able to communicate with the systems or

  Alternative

- [Possess the necessary capability to use the vehicle including being able to communicate with it]
- Be able to follow the procedures for safe use of the vehicle [accepted]
- Comply with traffic rules pertaining to users of the vehicle including, when appropriate, those applying to users exercising dynamic control such as holding a driving permit for part of a journey /or
- Be aware/informed when the vehicle leaves its operational design domain

  Be able to, and hold the necessary driving permits, to exercise dynamic control so as to begin or complete a journey where the automated driving system is only engaged for some of the journey, unless another user does so.
- Adapt their behaviour [based on the functionalities] of the vehicle and applicable traffic rules. (*Comment: to be further developed on whether this recommendation should refer to functionalities or rather continuation of a journey as a driver).*

VI. Further recommendations

Comment: WP.1 has not agreed yet on any recommendation under this section. There has been only ideas proposed for which alternative text exists.

Comment: There has been alternative text proposed as below regarding performance monitoring/inspection and registration:

Alternative 1

Governments should:

- Adapt vehicle safety performance monitoring to accommodate highly and fully automated vehicles as necessary
- Adapt policies for the registration of highly and fully automated vehicles as necessary

Alternative 2:

Governments may need to adapt their legislation to accommodate highly and fully automated vehicles that conform with any applicable international law for the construction, technical certification and registration of vehicles.

Comment: The text below regarding recording and sharing of data has not been agreed upon. Alternatives are provided as basis to further develop the recommendation on data recording and sharing.

Governments should:

Alterative 1:

- Work [with industry] so that highly and fully automated vehicles record the necessary data related to exercising the dynamic control by the automated driving system, especially in case of an unexpected event that could impact road traffic safety, such as a collision or violation of traffic rules. This data should be recorded, secured and made available, in accordance with regional or domestic privacy regulations, as necessary.

Alternative 2:

- Adopt policies for recording and sharing of data by highly and fully automated vehicles related to the functioning of their automated driving system, especially in case of an unexpected event that could impact road traffic safety, such as a collision or violation of traffic rules. This data should be recorded, secured and made available, in accordance with regional or domestic privacy regulations, as necessary.

Comment: The recommendation below has not been discussed in the context of formulation of recommendations for user of highly and fully automated vehicles.

Governments should:

Adapt the requirements for issuing driving permits to align with technological progress.