UNECE

Global Forum for Road Traffic Safety (WP.1)

Resolution on safety considerations for activities other than driving undertaken by drivers when automated driving systems issuing transition demands exercise dynamic control

I. Preamble

1. The Global Forum for Road Traffic Safety (WP.1) of the United Nations Economic Commission for Europe,

   a) Aiming at providing a reference for Contracting Parties to the 1949 and 1968 Conventions on Road Traffic, to offer safety considerations to help these Parties in establishing domestic traffic laws for drivers performing activities other than driving in vehicles with automated driving systems that issue transition demands;

   b) Considering that road traffic safety will be increasingly defined and influenced by the combination of and interaction between automated driving systems' capabilities, human behaviour, infrastructure and other interactions;

   c) Noting that the advent of automated driving systems creates the need for safety considerations addressing the circumstances in which activities other than driving may be allowed when automated driving systems are exercising dynamic control;

   d) Acknowledging that the development of safety requirements and/or validation methods for automated driving systems will continue to enhance road traffic safety;

   e) Noting that when introducing new technologies impacting road traffic, there is a need to take into account the relevant scientific evidence in order to continue to improve road traffic safety;

   has prepared and adopted this Resolution.

II. Scope & Definitions

2. This Resolution applies to vehicles equipped with automated driving systems that issue transition demands with the expectation for the human driver to intervene in response to the transition demands issued by the systems. For the purposes of this Resolution:

   a) "Automated driving system" refers to a vehicle system that uses both hardware and software to exercise dynamic control of a vehicle on a sustained basis;

   b) "Dynamic control" refers to carrying out all the real-time operational and tactical functions required to move the vehicle. This includes controlling the vehicle's lateral and longitudinal motion, monitoring the road, responding to events in the road traffic, and planning and signalling for manoeuvres;

   c) "Transition demand" refers to an instruction from the automated driving system to the driver to take over dynamic control.

III. Recommendations regarding automated driving systems issuing transition demands

3. Automated driving systems issuing transition demands should:

   a) Safely exercise dynamic control when engaged and interact with the driver through an effective and intuitive human-machine interface;

   b) Monitor the driver's availability and manage the driver's attention to ensure that the driver is ready and able to respond to a transition demand;

   c) Issue a transition demand when appropriate, in an effective manner with sufficient lead time for the driver to safely assume dynamic control;

   d) After issuing a transition demand, continue exercising dynamic control until the driver has taken dynamic control of the vehicle;

   e) Transition dynamic control safely and in a clear and foreseeable manner to the driver;

   f) Verify that the driver is exercising dynamic control at the end of a transition process;

   g) Perform a risk mitigation manoeuvre if the driver does not take over dynamic control.

IV. Recommendations for drivers

4. Drivers should:

   a) Prior to any road use, familiarize themselves with how to operate the vehicle and the requirements regarding activities other than driving;

   b) Maintain physical and mental ability to safely take over dynamic control of the vehicle;

   c) Respond to a transition demand by taking over dynamic control in an appropriate and timely manner;

   d) Refrain from performing activities other than driving if those activities impede the take-over of dynamic control when a transition demand is issued;

   e) Refrain from interfering with automated driving systems in a way that could compromise the safe functioning of the systems and road safety in general.

V. Recommendations for manufacturers of automated driving systems issuing transition demands and manufacturers of vehicles equipped with automated driving systems issuing transition demands

5. Manufacturers of automated driving systems issuing transition demands and manufacturers of vehicles equipped with automated driving systems issuing transition demands should:

   a) Ensure that the performance of the automated driving systems is consistent with the above recommendations for automated driving systems throughout the systems' life cycles;

   b) Inform and educate drivers about the safe use and limitations of automated driving systems in vehicles;

   c) Refrain from using misleading names, descriptions, or marketing that could encourage improper use of automated driving systems;

   d) Implement measures to prevent tampering with and misuse of automated driving systems in order to safeguard road traffic safety;

   e) Consider additional measures, including cooperation with Contracting Parties, to ensure the safe use of automated driving systems as these technologies evolve.

VI. Recommendations for Contracting Parties

6. Contracting Parties are encouraged to:

   a) Consider appropriate domestic measures taking into account the recommendations of this Resolution;

   b) Consider appropriate domestic measures focusing on driver education and driver testing to ensure that drivers have the skills and knowledge necessary to manage the demands of new technologies;

   c) Continue the cooperation within and between the Global Forum for Road Traffic Safety (WP.1) and the World Forum for Harmonization of Vehicle Regulations (WP.29), including on safety considerations in the context of automated driving.

VII. Final provision

7. This Resolution will be periodically reviewed and updated to address technological and/or regulatory developments concerning automated driving systems issuing transition demands.