

Submitted by the Chairs of
the IWG on ACSF

Informal document **GRVA-06-14**
6th GRVA session, 03 – 04 March 2020
Provisional agenda item 2

Report and summary of activities of Informal Working Group on ACSF

After 5th Session of UNECE GRVA

General overview

Document: GRVA-06-02

Submitted by the IWG on ACISF Informal document GRVA-06-02
6th GRVA, 3 – 4 March 2020
Agenda Item 2

Based on GRVA-05-07-Rev.3:

- without Annex 4 (subject of IWG VMAD)
- without para. 1 for DSSAD (subject of IWG EDR/DSSAD) – also DSSAD related para. (e.g. definitions) were not reviewed by IWG ACISF
- no review regarding Cybersecurity and Software-updates undertaken by IWG ACISF
- All other changes as in [WIP](#) or [Annex 4](#)

Proposal for a new UN Regulation on
Uniform provisions concerning the approval of vehicles with regard to Automated Lane Keeping Systems

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* Page number will be updated at a later stage

Two
web meetings
were held:
Feb 25th &
Feb 27th 2020

- Consensus commonly reached
 - A few open points which could not be resolved in limited time
 - All positions/alternatives expressed are not always contained in the document (para. 5.2.5.)
- No review:
 - DSSAD (IWG EDR/DSSAD)
 - Annex 4 (IWG VMAD)
 - Cybersecurity (TF CS/OTA)

Proposed amendments & significant changes

- Proposed amendments:
 - Modification to Introduction
 - Amendments (mostly language improvements) to some definitions
 - General alignment/consistency check to Annex 4
- Proposed significant changes:
 - Dynamic driving task: see following slides
 - Annex 3: dissolved & intergrated into Annex 4 (CONNECTION TO VMAD!)
 - Annex 5: inclusion of field of view test (para. 4.6.)
 - Annex 5: Appendix (table) dissolved and proposal to incorporate all necessary information into Annex 5 text

Open points – no consensus achieved in limited time

- Incorporating „philosophy of driver model approach“ (para. 5.2.5)
- Defining conditions where a collision shall be avoided (para. 5.2.5.2)
- Clarifying “non-driving activities” provided by the vehicle which shall be suspended in case of transition demand or deactivation of ALKS
- Final check Annex 1 (e.g. with Annex 4 and according Appendixes)

Open points – „Philosophy of driver model approach“

5.2.5. The activated system shall detect the risk of **an imminent a** collision **e.g. in particular** with another road user ahead or beside the vehicle, due to a harsh decelerating lead vehicle, a **suddenly** cutting in vehicle or a suddenly appearing obstacle and shall automatically perform **an appropriate emergency manoeuvres to minimize risks to safety of the vehicle occupants and other road users** as specified in paragraph 5.3.

~~The system shall not deactivate or unreasonably switch the control strategy under conditions not tested in Annex 5. This shall be demonstrated in accordance with Annex 4 of this Regulation.~~

[Request from GRVA-05: Add general requirement incorporating “philosophy of driver model approach”, e.g. to assess the control strategy. First draft by IWG ACSF, but not finally agreed/concluded within IWG ACSF, due to lack of time: Amend para. 5.2.5. to read:

“For conditions not specified in paragraphs 5.2.4., 5.2.5. or its subparagraphs, this shall be ensured at least to the level at which a human driver could minimize the risks. This shall be demonstrated in the assessment carried out under Annex 4.” ↙

An alternative was also proposed by Japan to add *“this assessment shall include in particular scenarios listed in Appendix 4 of Annex 4”* at the end of the para. in order to avoid different interpretations among type approval authorities.

Open points – „collision avoidance conditions“

5.2.5.2. The activated system shall ~~detect the risk of an imminent collision with a suddenly cutting in vehicle and~~ avoid a collision ~~with a suddenly cutting in vehicle,~~

- provided the cutting in vehicle maintains its longitudinal speed **which is lower than the longitudinal speed of the ALKS vehicle** and
- [provided that the cutting in vehicle has been clearly visible to the ALKS vehicle's sensors for a time of at least 0.72 seconds **before the reference point for *TTCLaneIntrusion* is reached,**^{3]}
- when the distance between the vehicle's front and the cutting in road user's rear corresponds to a TTC calculated by the following equation:

$$TTCLaneIntrusion > v_{rel} / (2 \cdot 6 \text{ m/s}^2) + [0.35 \text{ s}]^4$$

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.

No consensus reached in limited time regarding the open issue of value decision [0.35s] together with conditions.

→ Proposed by Germany during GRVA-05 based on industry proposal (GRVA-05-44).

Stakeholders requested to bring proposals to resolve this open issue directly to GRVA-06.

Open points – „non-driving activities“

[6.1.4. Other activities than driving that are provided by the vehicle to the driver once the ALKS is activated, shall be automatically suspended as soon as the system issues a transition demand or is deactivated whichever comes first.]¹¹

1

Alternative to para.6.1.4. proposed by EC:

“On board displays used by the driver for other activities than driving when the ALKS is activated, shall be automatically suspended as soon as the system issues a transition demand” ~~Other activities than driving that are provided by the vehicle to the driver once the ALKS is activated, shall be automatically suspended as soon as the system issues a transition demand or is deactivated whichever comes first.”~~

2

Alternative to para.6.1.4. proposed by JP:

~~“Other activities than driving~~ **Built-in Infotainment Systems** that are provided by the vehicle to the driver once the ALKS is activated, shall be automatically suspended as soon as the system issues a transition demand or is deactivated whichever comes first.”

3

Alternative to para.6.1.4. proposed by Industry:

~~“Other activities than driving~~ **performed by the driver through on-board displays when that are provided by the vehicle to the driver once the** ALKS is activated, shall be automatically suspended as soon as the system issues a transition demand or is deactivated whichever comes first.”

3 alternatives are generally in the same direction to limit the object from “other activities“ to “on board displays“ though IWG on ACSF could not discuss the proposals due to the time restraint.

Open points – Final check Annex 1 *(e.g. with Annex 4)*

- 11. Special requirements to be applied to the safety aspects of electronic control systems (Annex 4)
- 11.1 Manufacturers document reference for Annex 4 (including version number):.....
- [11.2. Information document form (Appendix 2 of Annex 4)].....**

- Final check with Annex 4 (and Appendixes) by IWG VMAD needed,
- input also expected by IWG DSSAD and
- final confirmation expected by TF CS/OTA.