

Submitted by the
TF on ADAS Co-Chairs

Informal document **GRVA-11-16**

11th GRVA session 27 Sept. – 1 Oct. 2021

Provisional agenda item 6 (a)

Report of the TF on ADAS to the 11th GRVA Session

Background

- GRVA adopted at its 9th session in February 2021 the terms of reference for the Task Force on Advanced Driver Assistance Systems (ADAS).
- The Task Force (TF) focuses on Advanced Driver Assistance Systems (ADAS), and shall address the simplification of UN Regulation No. 79 and if needed, develop a new ADAS UN Regulation with a focus on ADAS systems up to of level 2 (as defined in ECE/TRANS/WP.29/1140).
- The TF on ADAS agreed to start developing a new UN Regulation

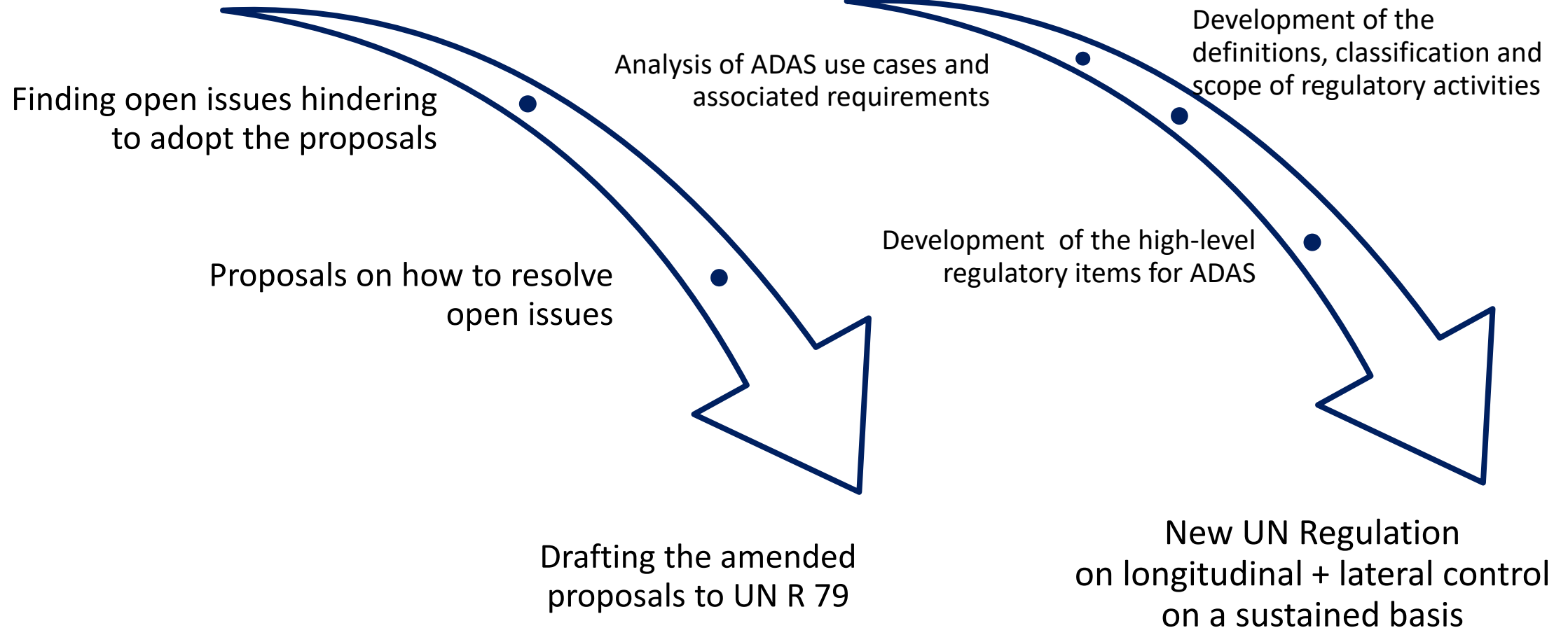
Meetings to Date

- 7 online meetings from February (one meeting per month except for August)
- 80+ participants at each meeting
- A number of side meetings between TF meetings
- Link to the TF documents: <https://wiki.unece.org/display/trans/ADAS>

Two Parallel Workstreams of the TF

Working on the pending proposals for UN R 79

Development of the provisions for the new ADAS use cases



Outcome on the pending proposals for UN R 79

Document	System	Objective of the proposal	Status
GRVA-09-37	ACSF B1	Clarify expected support behavior when reaching the boundary conditions and start crossing lane markings.	Proposal from ADAS TF ready for GRVA adoption. GRVA-11-XX
GRVA/2021/07	ACSF B1	Avoid lane departure or excessive braking when maintaining the max. lateral acceleration 3 m/s^2 .	No progress. The proposal to be withdrawn.
GRVA/2021/09	ACSF C	Introduce a tolerance of 10% to the critical distance.	Put on hold. Pending a revised proposal.
GRVA/2021/10	ACSF C	Extend allowed time to start a LCM to 7 s (or more).	No progress. Some additional discussions expected.
GRVA/2021/11	ACSF C for HCV	Adapt ACSF C to enable the function on HCVs to address the truck-trailer combination in lane change provisions.	The discussion is going on. The proposal is to be submitted to the 12 th GRVA session in February 2022.

Development of a new UN Regulation – Naming of the functionality to be addressed

- The term ‘Dynamic Control Assistance Systems (DCAS)’ is considered as the most appropriate.
- Please refer to ADAS-07-04-rev.2 for the details.

Development of a new UN Regulation – Composition

- The structure of the draft is based on UN R 157 (ALKS).
- The fulfilment of the provisions to be demonstrated by the manufacturer to the technical service during the inspection of the safety approach (audit) and according to the relevant physical (and virtual) tests (tbd).

Development of a new UN Regulation – Specifications (drafting ongoing) (1)

- DCAS functionality
 - General operational principles (identification features ensuring that the system in question falls into the scope of the UN Regulation)
 - Specific provisions to OEDR
 - System boundaries
 - Modes of operation
 - DCAS interaction with other vehicle systems
- DCAS interaction with the human driver
 - Information support to the driver (to ensure driver's education and proper behavior and avoid driver's overreliance, misleading, system misuse, etc.) (relevance to FDAV, item m)
 - System overriding by the driver (shall be possible at any time)

Development of a new UN Regulation – Specifications (drafting ongoing) (2)

- Functional requirements
 - OEDR sensor requirements
 - Predictability of vehicle dynamic behaviour and its controllability for the driver
 - Function-specific requirements (lane keeping, lane changing, etc.)
- Assurance of driver engagement
- Human-machine interface (HMI)
 - General principles
 - System activation/deactivation
 - System status indication
 - System messages/signals to the driver
 - System fallback cases

Conclusive Remarks

- The latest available draft UN Regulation – document ADAS-07-02-rev.2
- To make sure that the requirements are complete, we consider applying SOTIF analysis
- For the compliance assessment purpose, we consider implementing the elements of the NATM delivered by VMAD IWG
- The input from stakeholders, specifically from the CPs, is warmly welcomed

Thank you for your attention!

Back-up

What to be covered in a new UN Regulation?

- To address ADAS in general with a focus on systems combining longitudinal and lateral support on a sustained basis:
 - To provide a safety net (minimum requirements) for any ADAS especially the ones currently not regulated today.
 - To consider combinations of ADAS.
- To introduce a generic approach to the ADAS performance/assessment:
 - More generic performance requirements applying to any (combination of) ADAS whereas UN R 79 is focused on steering systems only. Strong emphasis on driver involvement and HMI.
 - More generic compliance assessment method compared to those in UN R 79 (where specific tests are developed for each use case).
 - Aligned with discussions in FRAV/VMAD on generic requirements/ assessment for ADS.
- GRVA noted the large number of proposals aiming to amend UN R79 and tasked this group to find a solution. A new regulatory approach that ensures more use cases or function variations are addressed is an appropriate approach to resolve this issue
- Without prejudice to possible more detailed requirements on some ADAS in other regulations such as the ones currently covered in UN R 79 (similar to what exists e.g. for braking with UN R 13-H and AEBS Reg)
- ADAS already covered by the other UN Regulations will not fall in the scope of the new UN Regulation.

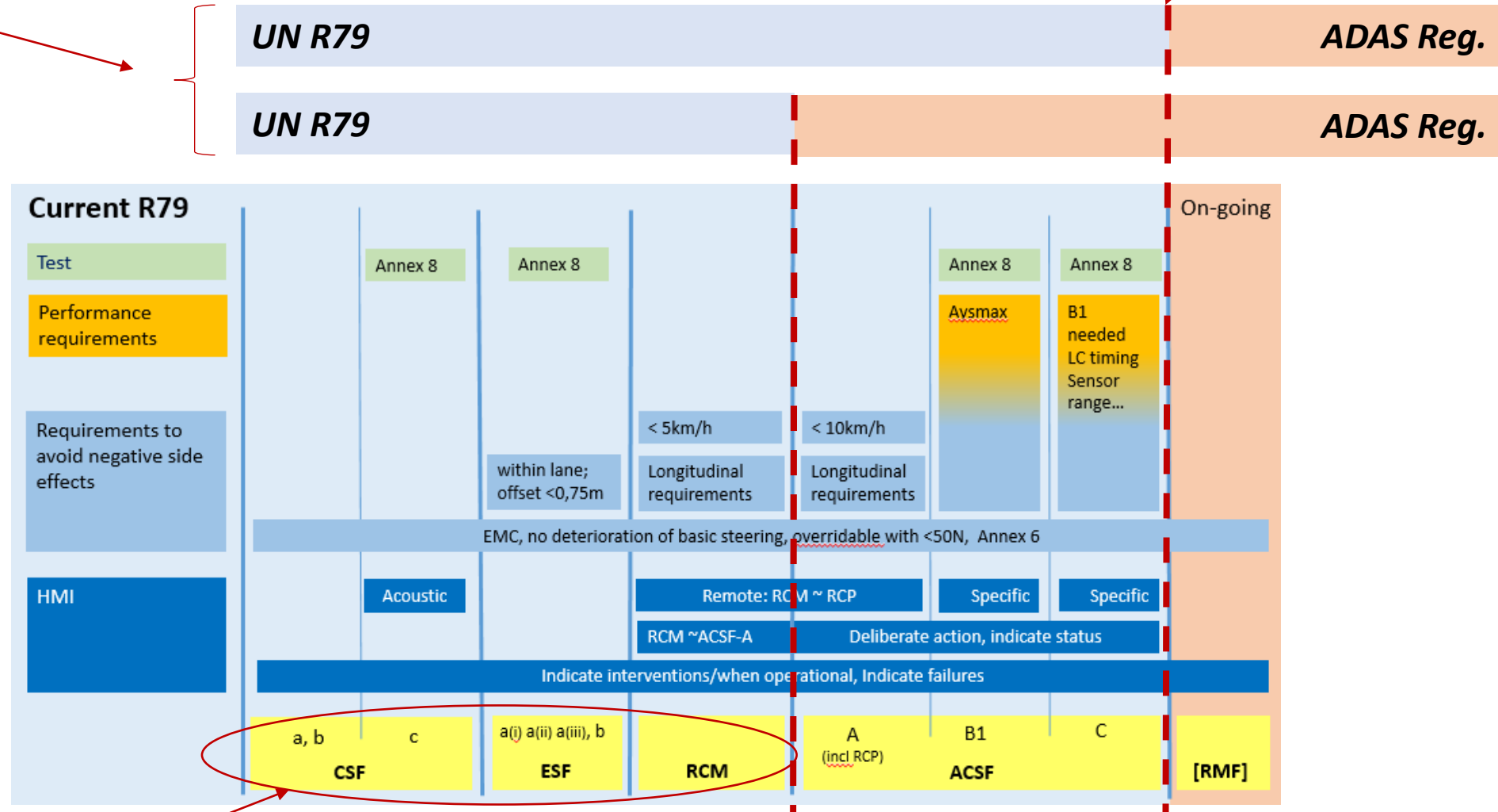
The TF on ADAS agreed to start developing a new UN Regulation on this basis

Annex: Scope of R79 vs future ADAS Regulation (doc ADAS-01-06)

ADAS regulation may only cover ADAS with both "lateral and longitudinal control"

The scope proposals here are addressing the main R79 limitations:

- Longitudinal control does not fit in R79
- A number of Use Cases are restricted / prohibited by R79 (i.e. definitions and ADAS scope in R79 are not general enough)



"Missing use cases" and "adjustments needed" could probably be handled under the current approach (i.e. be kept in R79)

ADAS regulation may as well cover continuous lateral control (which would then address more of the restricted / prohibited UCs by R79)