

Submitted by the Chair of SIG AVRS

Informal Document **GRBP-80-16**
80th GRBP, 17-20 September 2024,
agenda item 12

Report to 80th Session of GRBP (September 2024)

Task Force Automated Vehicles Regulation Screening
(TF AVRS)

TF Automated Vehicles Regulation Screening



6

Number of Meetings

Web-meetings Task Force

- 21st of March 2024 (virtual)
- 17th of April 2024 (virtual)
- 15th of May 2024 (virtual)
- 19th of June 2024 (virtual)
- 17th of July 2024 (virtual)
- 3rd of September 2024 (virtual)

Small Drafting Group

- 6 meetings

Guidance meetings with GRVA FADS and GRVA AVC



22

Participants (Contracting Parties & NGOs)

CPs:

Australia, China, EC, Germany, India, Japan, Netherlands, Switzerland, United Kingdom.

NGO's:

OICA, EUWA, IMMA, SMMT, ETRTO

TF Automated Vehicles Regulation Screening

Targets

Update of GRBP regulations to facilitate the Type Approval of AVs

Considering:

- TF-FADS suggests proposals for amendments to be submitted in 2024
- TF-FADS (GRVA) provides further guidance

Roles

- Chair: Netherlands
- Secretariat: OICA

TF AVRS webpage

<https://wiki.unece.org/pages/viewpage.action?pageId=190087308>

Documentation:

https://unece.org/sites/default/files/2022-07/ECE-TRANS-WP29-1166e_0.pdf

<https://unece.org/sites/default/files/2022-05/GRVA-13-18e.pdf>

Report GRVA FADS from WP29 June 2023: <https://unece.org/sites/default/files/2023-06/ECE-TRANS-WP.29-2023-86e.pdf>

Report WP29 190th meeting, June 2023: https://unece.org/sites/default/files/2023-07/ECE_TRANS_WP.29_1173e_0.pdf items 25 to 32.

[AVC-06-11rev1 update of AVC-05-03rev3 Consolidated R.E.3](#)

Update proposal for Guideline document

The objectives of the task force are to:

- a. Update GRBP regulations to facilitate Type Approval of AVs
- b. Align the work of TF-AVRS with the GRVA TF-FADS and other GRs
- c. Consider the activities and results of GRVA IWGs VMAD and FRAV
- d. Propose amendments to the R28, R51, R138 **and R141, R165** to facilitate the approval of AVs
- e. Present a timeline for the amendments of other relevant regulations under the responsibility of GRBP

Documentation:

GRBP-79-03 - [\(SIG AVRS\) Guidelines of the Task Force on Automated Vehicle Regulation Screening](#)

Priority Regulations

4 types of solutions

I. R28 – Horn

Activation by the ADS is required

II. R51 – Noise

Test mode to be required in ADS, adaption of test road

III. R138 - QRTV

Regulation only needs minor amendments

IV. R141 – TPMS (not in priority list yet)

ADS must receive the TPMS input

Automated Vehicle Categories (TF AVC)

Busses (occupants)

2.9. **Category X Vehicle**

2.9.1. Definition.

Category X vehicles are motor vehicles of categories **M, N and [L]** meeting all of the following conditions:

- (a) They are equipped with an ADS
- (b) They are not capable of being driven manually at speeds exceeding [6] km/h
- (c) They are designed to carry occupants

Trucks (goods only)

2.10. **Category Y Vehicle**

2.10.1. Definition.

Category Y vehicles are motor vehicles of categories **N, and [L]** meeting all of the following conditions:

- (a) They are equipped with an ADS
- (b) They are not capable of being driven manually at speeds exceeding [6] km/h.
- (c) They are not designed to carry occupants

Dual Mode is not defined;
therefore, it needs to be described when it is relevant

About definitions

- Add from TF-AVC (amendment RE3)

1.16*	“Automated Driving System(ADS)”	means the vehicle hardware and software that are collectively capable of performing the entire Dynamic Driving Task (DDT) on a sustained basis.
1.17*	“Dynamic Driving Task (DDT)”	means the real-time operational and tactical functions required to operate the vehicle.
2.2.5.4	"Mass in running order"	... driver (75 kg), if there is a driver seat in the vehicle and, for buses and coaches [and Category X vehicles] , the mass of the crew member (75 kg) if there is a crew seat in the vehicle.
	“Bi-directional vehicle”	means a vehicle that can operate in two opposite forward directions.
Footnote*: This definition is based on SAE J3016 and ISO/PAS 22736 (Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles). These standards define levels of driving automation based on the functionality of the driving automation system feature as determined by an allocation of roles in DDT and DDT fallback performance between that feature and the (human) user (if any). The term “Automated Driving System” is used specifically to describe a Level 3, 4, or 5 driving automation system.		

- Discussion (R51)

“Accelerator”	means an acceleration pedal for manually driven vehicles and acceleration command for vehicles with no accelerator pedal.
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On “Mass in running order”

R138 legacy vs. RE.3 consistency

- Crew seat irrelevant
- Stay close to original R138

*"Mass in running order" means the mass of the vehicle, with its fuel tank(s) filled to at least 90% of its or their capacity/ies, including the mass of the driver (75 kg), of the fuel and liquids, fitted with the standard equipment in accordance with the manufacturer's specifications and, when they are fitted, the mass of the bodywork, the cabin, the coupling and the spare wheel(s) as well as the tools. **If there is no driver seat in the vehicle, the mass of the driver shall not be included.***

General approach

- In case of a **driverless AVs** the m_d (mass of the driver) = 0 kg for the calculations

“Bi-directional”

- Not considered in RE3 by AVC
 - Bi-directional was considered out of scope
- [GRBP Summary on bi-directional vehicles](#)
- Forward and reverse driving
 - Conclusion:
 - Reverse requirements only when applicable.

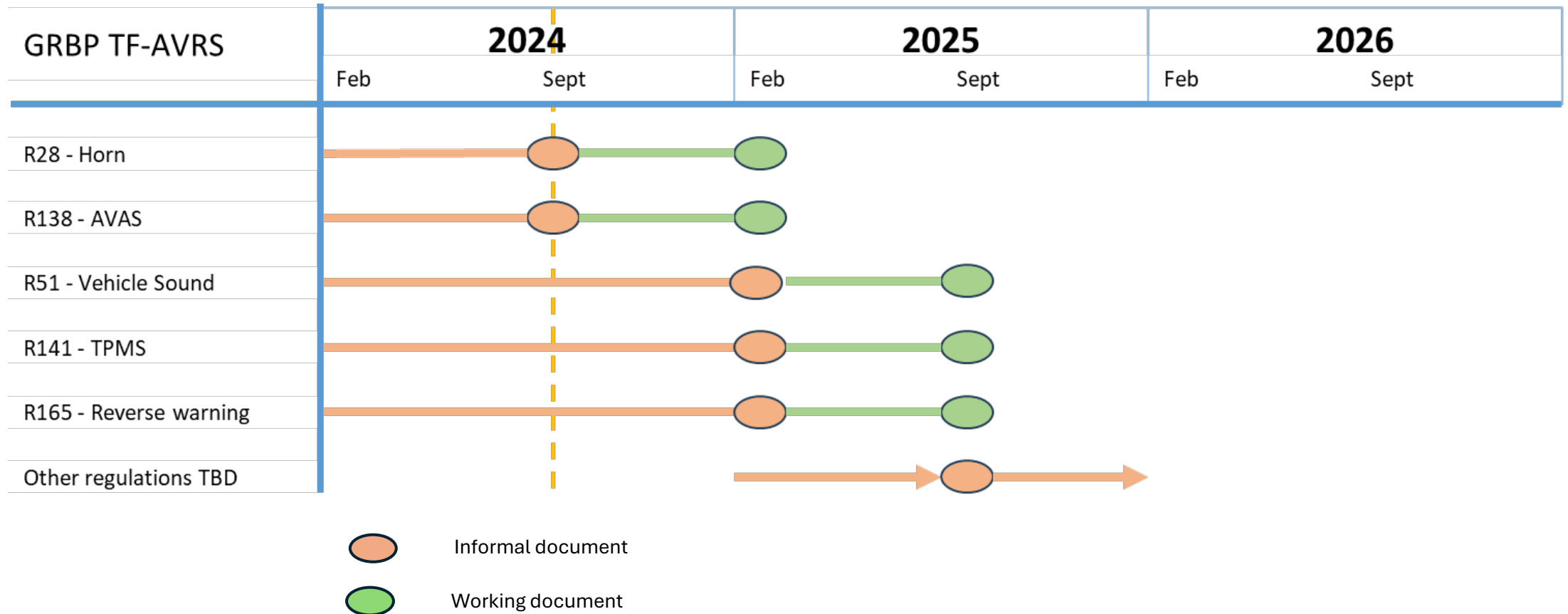
R28 nature of amendments

- Operated by driver **or ADS**
- Definitions in Part II
 - ADS, DDT, Bi-directional (chpt 11)
- Installation specifications
 - 14.1.3 **In the case of bi-directional designed vehicles, the sound pressure shall be measured separately for each front plane of the vehicle.**
- A dedicated Annex for vehicles equipped with ADS is not necessary for this regulation

R138

- Definitions
 - Mass in Running Order, ADS, DDT, Bi-directional
- Driver selectable sound → different available sounds
- Annex 3 Methods..
 - 3.3.1 General
 - For bi-directional vehicles → Reverse sound only when applicable
- Annex 5 Vehicles equipped with ADS
 - Option to test dual mode in manual
 - Preparation by manufacturer to fulfil the conditions for test method
 - Bi-directional

Planning



UN Regulations	Title	Topic	category	to be checked	changes required
UN R 9	Noise of three-wheeled vehicles	Noise	L2, L4, L5	YES	YES
UN R 28	Audible warning devices	Noise	M, N, L3, L4, L5	YES	YES
UN R 41	Noise emissions of motorcycles	Noise	L3	YES	??**
UN R 51	Noise of M and N categories of vehicles	Noise	M, N	YES	YES
UN R 59	Replacement silencing systems	Noise	M1, N1	YES	copy UN R 51
UN R 63	Noise emissions of mopeds	Noise	L1	YES	??**
UN R 64	Temporary use spare unit, run flat tyres	Tyres	M, N	YES	?**
UN R 92	Replacement exhaust silencing systems (RESS) for motorcycles	Noise	L	YES	copy UN R 41**
UN R 124	Replacement wheels for passenger cars	Tyres	M	YES	YES**
UN R 138	Quiet Road Transport Vehicles (QRTV)	Noise	M, N	YES	YES
UN R 141	Tyre Pressure Monitoring Systems (TPMS)	Tyres	M1, N1	YES	YES
UN R 142	Tyres installation	Tyres	M1	YES	?
UN R 165	Audible reverse warning devices and audible reverse warning signals	Noise	M2, N2, M3, N3	YES	?

Thank you for your attention.