

TF-AVRS

Status Update

October 2024

Recapture GRVA-14-54r1

Items to consider during the screening of UN Regulations and UN GTRs:

1. Vehicles in the scope:

- Vehicles equipped with an ADS
 - including, but not limited to:
 - Dual-mode vehicles
 - Vehicles without manual driving capabilities
 - Vehicles with or without occupants

2. Screen regulations with:

- Terms such as “driver” (interaction with controls in the vehicles, signals, etc.), “seating position” (incl. seat references) and other topics (performance requirements)
- Terms such as “driver”, “seating position”, “seat”, etc. in relation with testing provisions

3. Recommendation:

Any proposal to introduce ADS-related terminology shall be reviewed by GRVA to ensure consistent terms and definitions.

Status Update TF-AVRS (Automated Vehicles Regulatory Screening)

1. Since GRSG-127, 1 physical (hybrid) meeting took place:
13/14 May 2024 in Brussels
2. Concentrated on UN R107 (buses) and UN R116 (theft protection)
3. Development and decisions taken in TF-AVC crucial for our work in TF-AVRS
4. After June meeting of TF-AVC in London, it was decided that focus is to align scope and definitions within this TF-AVC, before continuing the work in the TF-AVRS.

State of Play (GRSG relevant from TF-AVC):

- Consensus on (sub)Category X and Y
- Agreement that ADS Type I versus Type II must be distinguished and defined.
 - n.b. (sub)Category X and Y have ADS type II
 - Type I has fall-back user and may issue transition demand;
 - Type II has no fall-back user and will not issue transition demand.
- Industry and several CPs do not see a need to define subcategory for dual-mode vehicles because:
 - Some exemptions may apply for X and Y category, whereas for dual mode vehicles, they would have to comply with all requirements and Regulations anyway.
 - defining subcategory might result in unwanted side effects
- No explicit need to define dual mode and/or a subcategory for dual mode
 - if clear definition of ADS Type I and II exists, then dual mode vehicle can be referred to as: vehicle equipped with ADS Type II and manual driving capabilities at speeds > 6 km/h
 - UN Regs are technical Regulations; in regional/national Regulations it can still be decided to define subcategory (compare to EU 2018/858 where e.g. M1 SH exists for WAV)

State of Play (continued):

- Idea for a UN GSR (GRSP) to include Y category frontal/side crash requirements
- Consensus to include general (visibility etc.) requirements at speeds ≤ 6 km/h in the respective Regulations
 - advantage: harmonised approach within 1958 Agreement
 - disadvantage: still approval needed for those subjects
 - alternative: include those general requirements in the new UN GSR
- Initial idea of TF-AVRS (example from UN R107):

the compartment shall be equipped with an alarm system **providing the driver with both an acoustic and a visual signal**, and activating the hazard warning signal, in the event of



the compartment shall be equipped with a system **transmitting a logic signal to the ADS**, and activating the hazard warning signal, in the event of

But...

State of Play (continued):

Definitions (from FRAV/VMAD and IWG-ADS):

“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.

“Dynamic Driving Task (DDT)” means the real-time operational and tactical functions required to operate the vehicle

- Driver performs DDT and has some additional responsibilities e.g.
 - Are the doors closed ?
 - Who may operate doors and windows ?
 - Everybody buckled up ? What if somebody releases a safety belt during driving ?
 - Who watches small children ?
 - what responsibilities has a bus driver, other than driving the bus ?
 - etc.
- Seems not to make sense to send a logic signal to the ADS, in other words, to a system that is only responsible for performing the DDT, by definition.
(in comparison, we are not sending such logic signal to e.g. the engine's ECU)

State of Play (continued):

- Idea from IWG-ADS (mainly consisting of experts from GRVA): “just send the signal to the ADS and we’ll take care of it”
- Responsibility of GRSG and GRSP to make sure high-level requirement is met. When e.g. red tell-tale is displayed towards the driver, it is the assumption that the driver takes appropriate action.
 - if red tell-tale coming from driving related malfunction, e.g. braking system => ADS becomes responsible to take appropriate action
 - if red tell-tale coming from non-driving related, general safety issue, e.g. passenger not properly seated, door not properly closed => vehicle safety concept becomes responsible to take appropriate action. This is responsibility of GRSG and GRSP in conjunction with WP.1 rather than GRVA.
- Idea to introduce “VSCS” or “GSCS”: Vehicle/General Safety Concept System. This system operates next to, and may be combined with, the Automated Driving System i.e. ADS.

State of Play (continued):

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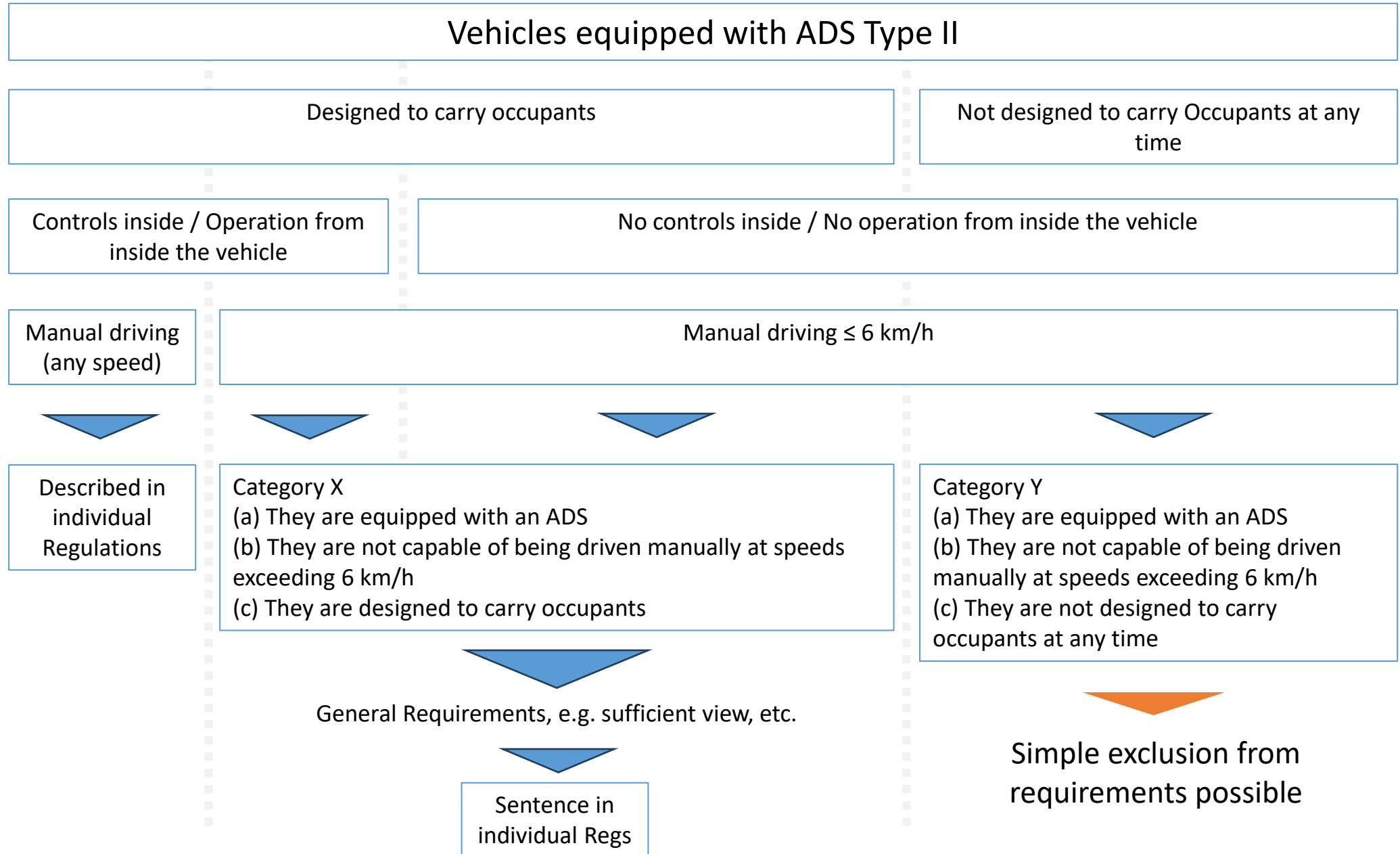


the compartment shall be equipped with a system **transmitting a logic signal to the GSCS**, and activating the hazard warning signal, in the event of

The Technical Service shall verify that the technical solution implemented by the GSCS provides at least the same level of safety for the occupants as can be expected from an alarm system in case of a conventional vehicle.

- This would mean, as a prerequisite, that relevant GRSG and GRSP approvals can only be issued after the ADS approval, incl. all descriptions and solutions, is available and can be studied by the Technical Service and Type Approval Authority. This is to make sure that each high-level safety provision is fulfilled, which in a conventional vehicle, is the responsibility of the driver.

Conclusion after TF-AVC#9 (1-2 October 2024 in Hamburg) (© OICA)



Conclusion

- With the current state of play, it is possible to continue the work of the TF-AVRS and update the Regulations with priority indication.
- Proposal to present them as informal documents at the April 2025 session of GRSG.

Thank you for your attention !