

TF-AVRS Status Update

March 2023

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-124, 3 meetings took place (online):
14 December 2022, 6 February and 22 March 2023.
2. During the first meeting, tasks were assigned to CPs and NGOs.
3. During the second and third meeting, the outcome of the screening was discussed for each Regulation and the common criteria gathered.
4. NL as chair of this TF would like to thank the colleagues from USA, China, Germany, France, Japan, OICA, CLEPA for their participation and input.

List of UN Regulations under responsibility of GRSG (38x +2x GTR +2x GRVA)



<i>UN Regulation No.</i>	<i>Title</i>	<i>Doc #</i>	<i>Screening performed by:</i>
18	Uniform provisions concerning the approval of motor vehicles with regard to their protection against unauthorized use	Not in use; see UN R116	(OICA)
26	Uniform provisions concerning the approval of vehicles with regard to their external projections	GRSG-TF-AVRS-04-13	NL
34	Uniform provisions concerning the approval of vehicles with regard to the prevention of fire risks	GRSG-TF-AVRS-04-14	NL
35	Uniform provisions concerning the approval of vehicles with regard to the arrangement of foot controls	GRSG-TF-AVRS-04-15	NL
36	Uniform provisions concerning the approval of large passenger vehicles with regard to their general construction	Not in use; see UN R107	(Germany)
39	Uniform provisions concerning the approval of vehicles with regard to the speedometer and odometer equipment including its installation	GRSG-TF-AVRS-04-16	NL
43	Uniform provisions concerning the approval of safety glazing materials and their installation on vehicles GTR-6: Safety Glazing Materials and Equipment	GRSG-TF-AVRS-04-25 GRSG-TF-AVRS-05-16r1 GRSG-TF-AVRS-04-24 GRSG-TF-AVRS-05-14r1	USA
46	Uniform provisions concerning the approval of devices for indirect vision and of motor vehicles with regard to the installation of these devices	GRSG-TF-AVRS-05-05	Germany
52	Uniform provisions concerning the approval of M ₂ and M ₃ small capacity vehicles with regard to their general construction	Not in use; see UN R107	(Germany)
55	Uniform provisions concerning the approval of mechanical coupling components of combinations of vehicles	GRSG-TF-AVRS-05-11	CLEPA

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UN Regulation No.	Title	Doc #	Screening performed by:
58	Uniform provisions concerning the approval of: I. Rear underrun protective devices (RUPDs) II. Vehicles with regard to the installation of an RUPD of an approved type III. Vehicles with regard to their rear underrun protection (RUP)	GRSG-TF-AVRS-05-12	CLEPA
60	Uniform provisions concerning the approval of two-wheeled motor cycles and mopeds with regard to driver-operated controls including the identification of controls, tell-tales and indicators	GRSG-TF-AVRS-04-06	Japan
	GTR-12: Motorcycle ID of Controls - Tell Tales	GRSG-TF-AVRS-05-15	USA
61	Uniform provisions concerning the approval of commercial vehicles with regard to their external projections forward of the cab's rear panel	GRSG-TF-AVRS-04-17	NL
62	Uniform provisions concerning the approval of power-driven vehicles with handlebars with regard to their protection against unauthorized use	GRSG-TF-AVRS-04-07	Japan
66	Uniform provisions concerning the approval of large passenger vehicles with regard to the strength of their superstructure	GRSG-TF-AVRS-04-02	OICA
67	Uniform provisions concerning the approval of: I. Specific equipment of vehicles of category M and N using liquefied petroleum gases in their propulsion system II. Vehicles of category M and N fitted with specific equipment for the use of liquefied petroleum gases in their propulsion system with regard to the installation of such equipment	GRSG-TF-AVRS-04-04	OICA
71	Uniform provisions concerning the approval of agricultural tractors with regard to the driver's field of vision	GRSG-TF-AVRS-05-03	Germany
73	Uniform provisions concerning the approval of: I. Vehicles with regard to their lateral protection devices (LPD) II. Lateral protection devices (LPD) III. Vehicles with regard to the installation of LPD of an approved type according to Part II of this Regulation	GRSG-TF-AVRS-05-13	CLEPA

UN Regulation No.	Title	Doc #	Screening performed by:
81	Uniform provisions concerning the approval of rear-view mirrors of two-wheeled power-driven vehicles with or without side car, with regard to the mounting of rear-view mirrors on handlebars	GRSG-TF-AVRS-04-08	Japan
93	Uniform provisions concerning the approval of: I. Front underrun protective devices (FUPDs) II. Vehicles with regard to the installation of an FUPD of an approved type III. Vehicles with regard to their front underrun protection (FUP)	GRSG-TF-AVRS-04-03	OICA
97	Uniform provisions concerning the approval of vehicle alarm systems (VAS) and of motor vehicles with regard to their alarm systems (AS)	GRSG-TF-AVRS-04-05	OICA
102 (GRVA)	Uniform provisions concerning the approval of: I. A close-coupling device (CCD) II. Vehicles with regard to the fitting of an approved type of CCD	GRSG-TF-AVRS-06-02	CLEPA
105	Uniform provisions concerning the approval of vehicles intended for the carriage of dangerous goods with regard to their specific constructional features	GRSG-TF-AVRS-04-18	NL
107	Uniform provisions concerning the approval of category M ₂ or M ₃ vehicles with regard to their general construction	GRSG-TF-AVRS-05-04	Germany
110	Uniform provisions concerning the approval of: I. Specific components of motor vehicles using compressed natural gas (CNG) and/or liquefied natural gas (LNG) in their propulsion system II. Vehicles with regard to the installation of specific components of an approved type for the use of compressed natural gas (CNG) and/or liquefied natural gas (LNG) in their propulsion system	GRSG-TF-AVRS-05-06	OICA
116	Uniform provisions concerning the protection of motor vehicles against unauthorized use	GRSG-TF-AVRS-05-07	OICA
118	Uniform technical prescriptions concerning the burning behaviour and/or the capability to repel fuel or lubricant of materials used in the construction of certain categories of motor vehicles	GRSG-TF-AVRS-05-17 GRSG-TF-AVRS-05-18	France
121	Uniform provisions concerning the approval of vehicles with regard to the location and identification of hand controls, tell-tales and indicators	GRSG-TF-AVRS-04-21	China

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UN Regulation No.	Title	Doc #	Screening performed by:
122	Uniform provisions concerning the approval of vehicles of categories M, N and O with regard to their heating systems	GRSG-TF-AVRS-04-19	NL
125	Uniform provisions concerning the approval of motor vehicles with regard to the forward field of vision of the motor vehicle driver	GRSG-TF-AVRS-04-11	China
144	Uniform provisions concerning: Ia. Accident Emergency Call Components (AECC) Ib. Accident Emergency Call Devices (AECD) which are intended to be fitted to vehicles of categories M ₁ and N ₁ II. Vehicles with regard to their Accident Emergency Call Systems (AECS) when equipped with an AECD of an approved type III. Vehicles with regard to their Accident Emergency Call Systems (AECS) when equipped with an AECD of non approved type	GRSG-TF-AVRS-05-19 GRSG-TF-AVRS-05-20	France
147 (GRVA)	Uniform provisions concerning the approval of mechanical coupling components of combinations of agricultural vehicles	GRSG-TF-AVRS-06-03	CLEPA
151	Uniform provisions concerning the approval of motor vehicles with regard to the Blind Spot Information System for the Detection of bicycles	GRSG-TF-AVRS-05-02	Germany
158	Uniform provisions concerning the approval of devices for reversing motion and motor vehicles with regard to the driver's awareness of vulnerable road users behind vehicles	GRSG-TF-AVRS-04-09	Japan
159	Uniform provisions concerning the approval of motor vehicles with regard to the Moving Off Information System for the Detection of Pedestrians and Cyclists	GRSG-TF-AVRS-04-22	NL
160	Uniform provisions concerning the approval of motor vehicles with regard to the Event Data Recorder	GRSG-TF-AVRS-04-12 GRSG-TF-AVRS-05-21	China
161	Uniform provisions concerning the protection of motor vehicles against unauthorized use and the approval of the device against unauthorized use (by means of a locking system)	GRSG-TF-AVRS-05-08	OICA
162	Uniform technical prescriptions concerning approval of immobilizers and approval of a vehicle with regard to its immobilizer	GRSG-TF-AVRS-05-09	OICA

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<i>UN Regulation No.</i>	<i>Title</i>	<i>Doc #</i>	<i>Screening performed by:</i>
163	Uniform provisions concerning the approval of vehicle alarm system and approval of a vehicle with regard to its vehicle alarm system	GRSG-TF-AVRS-05-10	OICA
166	Uniform provisions concerning the approval of motor vehicles with regard to the Driver's Awareness of Vulnerable Road Users in Close-Proximity to the Front and Lateral Sides of Vehicles	GRSG-TF-AVRS-04-10	Japan
167	Uniform Provisions concerning the approval of motor vehicles with regard to their Direct Vision	GRSG-TF-AVRS-04-20	NL

All documents available at the [UNECE Wiki page](#)

General findings:

- Some of the issues can be easily fixed by rewording; e.g. references to “driver”, “steering control”, etc. => **GRSG task in a next step**
- For some functions, we need to consider the high-level requirement.
For example:
 - Q: what is the reason we have tell-tales in a vehicle ?
 - A: to inform the driver about a setting, a potential issue with the vehicle’s hardware, as a warning for a dangerous situation, etc.
 - Q: what if there is no driver in the vehicle ? Who needs to be informed, if anyone ?
 - A: An operator, a control center, occupants in the vehicle (if any), fellow road users ?
=> **discussion for WP.29**
- For some situations, we need to consider if it is desirable at all to have an automated vehicle w/o driver, e.g. in case of ADR vehicles (UN R105) or buses (UN R107) in case of transport of children. => **Discussion for WP.29**

Way forward (beyond GRSG responsibility) :

- Several pre-requisites have to be defined in order to start the next phase:
 - vehicle categories: new vehicle categories for automated vehicles, dual mode vehicles, vehicles w/o occupants are going to be defined ?
 - or*
 - shall the prescriptions be defined such that different requirements may apply to different scenarios using the current vehicle categories.
- Next pages show some examples of the screening performed

Notes:

- *Special Resolution SR. 1 and referenced industry standards (e.g., ISO, SAE, etc.) were out of scope for this effort.*

Regulation applicable to Automated Vehicles/driverless vehicles: yes no

UN GTR No. 6 Safety Glazing Materials

UN Group: GRSG

Potential approach for application:
~~no amendment required~~ | amendment | ~~new Regulation~~

Content Summary (existing Regulation)

- *GTR No. 6 specifies safety glazing requirements for windshields and windows with regards to **driver visibility** and **occupant safety**.*

Summary of required changes

- *Modify definitions which reference the driver, the driver's field of vision, or the steering wheel.*
- *Extend the applicability of the impact requirements to the rear windscreen for bi-directional vehicles.*
- *Modify the compliance tests to be performed without a driver seat or steering wheel.*

Content relevant for FAV's / driverless vehicles

- *If occupants are present:*
 - *Impact requirements would be applicable.*
 - *Optical requirements may not be relevant.*
- *If occupants are **not** present, GTR No. 6 would not be applicable.*

Specifics for vehicles that can be driven manually and driverless:

- *For dual-mode vehicles, all requirements in GTR No. 6 would be applicable.*

Content to be covered by (potential) ADS Regulation

- *Equivalent occupant safety requirements for HUD screens or alternative windscreen solutions.*

Regulation applicable to Automated Vehicles/driverless vehicles: yes no

UN Regulation No.144 Accident Emergency Call Systems (AECS)

UN Group: GRSG

Potential approach for application:
~~no amendment required~~ | amendment | ~~new Regulation~~

Content Summary (existing Regulation)

- Scope : M1 N1
- the approval of Accident Emergency Call Components (AECC) which are intended to be fitted as part of an Accident Emergency Call Device (AECD).
- The approval of AECDs which are intended to be fitted to vehicles of categories M1 and N1
- the approval of vehicles of categories M1 and N1 with regard to their Accident Emergency Call System (AECS) when equipped with an AECD
- the approval of vehicles of categories M1 and N1 with regard to their AECS when equipped with an AECD which has been separately approved or not according to Part Ib of this Regulation.
- Optional scope : other vehicles categories.

Summary of required changes

- 1) Manual function for transport of goods is not relevant (e.g control)
- 2) Extension of scope to M2 and M3 category ?
- 3) Information and warning signal could be transferred to a supervision center (for vehicles without occupants) and/or duplicate (for vehicles with occupants depending the use cases : robotaxi or private vehicles) ?
- 4) Some requirements are not applicable to vehicles without occupants

Content relevant for FAV's / driverless vehicles

- All regulation R144 for vehicles with occupants
- Some parts not relevant or to be adapted for vehicles without occupants

Specifics for vehicles that can be driven manually and driverless:

- Dual-mode vehicles must comply with current standards + specifications for driverless vehicles.

Content to be covered by (potential) ADS Regulation

- None

Note: Japanese consideration does not include L6/L7

Regulation applicable to Automated Vehicles/driverless vehicles: yes no

UN Regulation No.62 (PROTECTION AGAINST UNAUTHORIZED USE)

UN Group: GRSG

Potential approach for application:
~~no amendment required~~ | amendment | ~~new Regulation~~

Content Summary (existing Regulation)

- Scope: L1-L7, if fitted with handlebars
- Steering lock in a position where you cannot go straight or mission lock
- Variation of key
- Breaking torque
- Electromagnetic compatibility

Summary of required changes

- Define such as digital keys need to be added, as mechanical keys are useless when vehicles are self-parked by unmanned.

Content relevant for FAV's / driverless vehicles

- Define such as digital keys are needed because physical keys (include FOB-keys) are useless when vehicles are self-parked by unmanned.
- If the FAV is not fitted with handlebars, it will be out of scope, so it is necessary to cover it with ADS regulations.

Specifics for vehicles that can be driven manually and driverless:

- Define such as digital keys are needed as physical keys (include FOB-keys) are useless when vehicles are parked by unmanned even if it is DMV.

Content to be covered by (potential) ADS Regulation

- FAVs without handlebars must be covered by ADS regulations.

Regulation applicable to Automated Vehicles/driverless vehicles: yes no

UN Regulation No.67 specific equipment for the use of LPG in their propulsion system

UN Group: GRSG

Potential approach for application:
no amendment required | amendment | ~~new Regulation~~

Content Summary (existing Regulation)

Scope: This Regulation applies to:
Part II Approval of vehicles of category M and N fitted with specific equipment for the use of liquefied petroleum gases in their propulsion system with regard to the installation of such equipment.

Summary of required changes

- For clarification purpose, "if fitted" could be added to the presence of a heating system to heat the passenger compartment. Even without this change, the current Regulation applies and can be used.

Content relevant for FAV's / driverless vehicles

- 100% relevant

Specifics for vehicles that can be driven manually and driverless:

- Not applicable.

Content to be covered by (potential) ADS Regulation

- None

Thank you for your attention !