

Transmitted by the representative of France  
on behalf of the chairs of the WP29 screening taskforces

Informal document **WP.29-189-20**  
189th WP29, 7–9 March 2023  
Agenda item 8.6.2.

# **Review of UN Regulations and GTRs on their fitness for ADS**

# Mandate from WP.29

- At its 186th session in March 2022, WP.29 requested all its subsidiary working parties to perform a screening of the UN Regulations and Global Technical Regulations (GTR) of relevance regarding their fitness for Automated Driving Systems (ADS) until ~~March 2023~~.

*Pending request for deadline extension until **June 2023** to give additional time to GRs with staggered session schedules*

- At its 14<sup>th</sup> session in September 2022, GRVA gave additional guidance as to what kind of automated vehicles to consider, etc. (informal document GRVA-14-54r1)

# Common work method across GRs

The taskforces of the different GRs have agreed to work on the same deliverables:

- **High-level summaries** for each Regulation
- **Comprehensive files** for the detailed screening
- A “**whitebook**” for handling automated driving when drafting new Regulations

*The review does not include definitive solutions for changing Regulations, but taskforces may offer suggestions (amendments, new Regulations, new vehicle categories...)*

# High-level assessment

**DRAFT**



Regulation applicable to Automated Vehicles/driverless vehicles:  yes  no

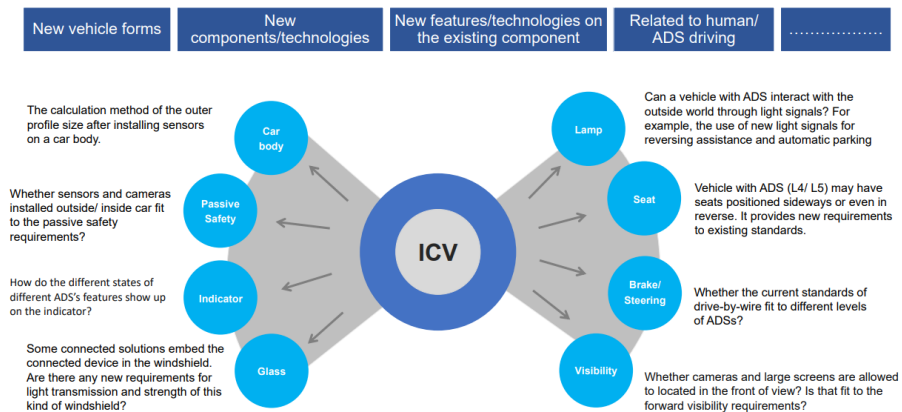
UN Regulation No. 79 (Steering)	UN Group: GRVA	Potential approach for application: <del>no amendment required</del>   amendment   new Regulation
<p><b>Content Summary (existing Regulation)</b></p> <ul style="list-style-type: none"> <li>• Ensure that all components of the steering system are designed properly to ensure high level of safety:</li> <li>• No physical breakage of mechanical components (well dimensioned)</li> <li>• Steering forces are at level which can be handled by the driver, even in case of failure</li> <li>• Steering performance in nominal cases</li> <li>• Steering performance in failure cases</li> <li>• Warnings to be issued to warn the driver</li> <li>• ADAS specific requirements</li> </ul>	<p><b>Summary of required changes</b></p> <ul style="list-style-type: none"> <li>• Replacing the driver actuating the steering control with the steering demand generated by the ADS</li> <li>• Testing section to be updated</li> <li>• Warnings/failure signals to be transmitted to the ADS to ensure adequate response</li> <li>• Driver assistance content not applicable to ADS vehicles could be deleted for standalone Regulation for AV's</li> <li>• Definitions reviewed/added/amended</li> <li>• Scope</li> </ul>	
<p><b>Content relevant for FAV's / driverless vehicles</b></p> <ul style="list-style-type: none"> <li>• System robustness (well dimensioned)</li> <li>• Steering performance under nominal conditions</li> <li>• Steering performance under failure conditions</li> <li>• Steering performance in „maintenance mode“</li> <li>• Warnings/failure signals to be provided to the ADS (e.g. to ensure ADS algorithm to respond adequately, to warn the operator/control tower/occupants as/if appropriate, etc.)</li> <li>• Performance considering max design speed of the vehicles, that the ADS is in control of the entire driving dynamics (safety concept incl. transfer to MRC), ...</li> </ul>	<p><b>Specifics for vehicles that can be driven manually and driverless:</b></p> <ul style="list-style-type: none"> <li>• Consider that the steering demand can be requested by the actuation of manual controls (driver) or by generation of the ADS</li> <li>• HMI</li> <li>• Warning/failure signals (system status/condition)</li> </ul>	
<p><b>Content to be covered by (potential) ADS Regulation</b></p> <ul style="list-style-type: none"> <li>• Generation of steering demand by the ADS</li> <li>• Response to warning/failure signals</li> <li>• HMI intended for communication with driver (control tower, occupants, etc.)</li> </ul>		

*This template can both serve as a preliminary analysis of a Regulation before its detailed review, and as a final report to give a summary of the detected issues and possible options*

# Detailed screening (1/2)

- Points of interest:
  - **Use cases:** full automation, dual-mode, no occupants, etc.
  - **Possible approaches:** amending Regulations, drafting specific Regulations for automated vehicles, creating new vehicle categories, etc.
  - Consider both **explicit and implicit concepts**

Relevant terms for scanning Regulations and GTRs								
Word	Variations							
Driver	Person	Passenger	Rider					
Driving seat	Seating position	R point	Driving position	H point				
Foot	Pedal							
Hand	Steering wheel	Direction	Lever	Handle	Button	Push	Pull	Press
Eye	See	Visible	Ocular					
Hear	Audible							
Telltale	Warning	Signal	instrument pane	Display				
Steering Wheel								
Manual								
Actuate	Force	Reach	Action					
(De)Activate	(De)Activation	Override	Control	Switch				
Front	Forward	Fore	Foremost					
Rear	Rearward	Aft	Rearmost	Behind				



# Detailed screening (2/2)

	R130	Lane Departure Warning System (LDWS)	Issue	Issue for fully automated vehicles?	Issue for dual mode vehicles?	vehicles without occupants?
1		function has been deactivated. The yellow warning signal specified in paragraph 5.4.2 below may be used for this purpose.	OK			
43	5.3.2.					
44	5.4.	<i>Warning indication</i>	NA			
45	5.4.1.	The lane departure warning referred to in paragraph 5.2.1 above shall be noticeable by the driver and be provided by:				
46	(a)	at least two warning means out of optical, acoustic and haptic; or				
47	(b)	one warning means out of haptic and acoustic, with spatial indication about the direction of unintended drift of the vehicle.				
48	5.4.1.1.	Where an optical signal is used for the lane departure warning, it may use the failure warning signal as specified in paragraph 5.4.2 below in a flashing mode.	OK			
49	5.4.2.	The failure warning referred to in paragraph 5.2.2 above shall be a yellow optical warning signal.	OK			
50	5.4.3.	The LDWS optical warning signals shall be visible when the ignition (start) switch is turned to the 'on' position (start) switch is in a position between the 'off' and 'on' positions designated by the manufacturer as a check (power-on)). This requirement does not apply to dual-mode vehicles in a common space.	D50			
51	5.4.4.	The optical warning signals shall be visible when the ignition (start) switch is turned to the 'on' position (start) switch is in a position between the 'off' and 'on' positions designated by the manufacturer as a check (power-on)). This requirement does not apply to dual-mode vehicles in a common space.				

**Test Test** D50 ...

FR: Need to check how this applies to dual-mode vehicles when powering on

Reply

*Online collaborative environment and example of a detailed review for a GRVA Regulation*

# Status of the screening taskforces

**As of early March 2023:**

**GRBP:** Detailed screening ready to start

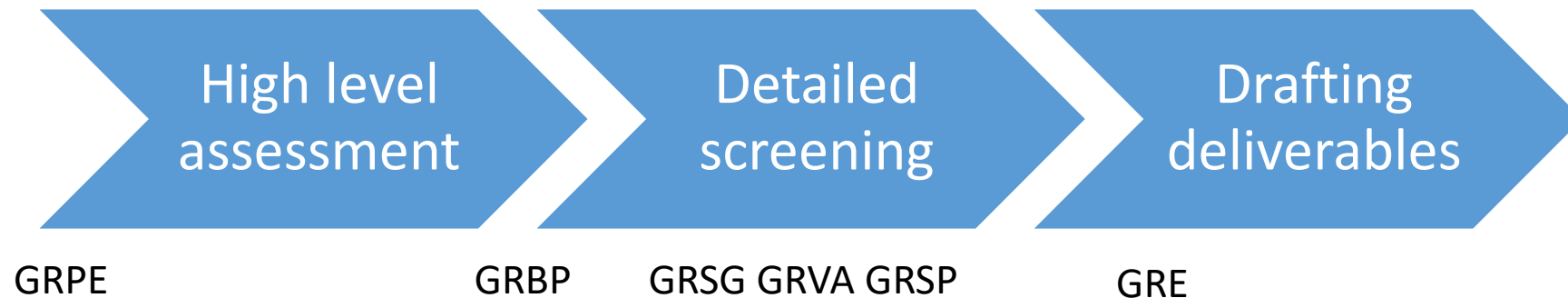
**GRE:** Detailed screening and deliverables done for R48

**GRPE:** First meeting to take place soon

**GRSG:** Detailed screening in progress (55% done)

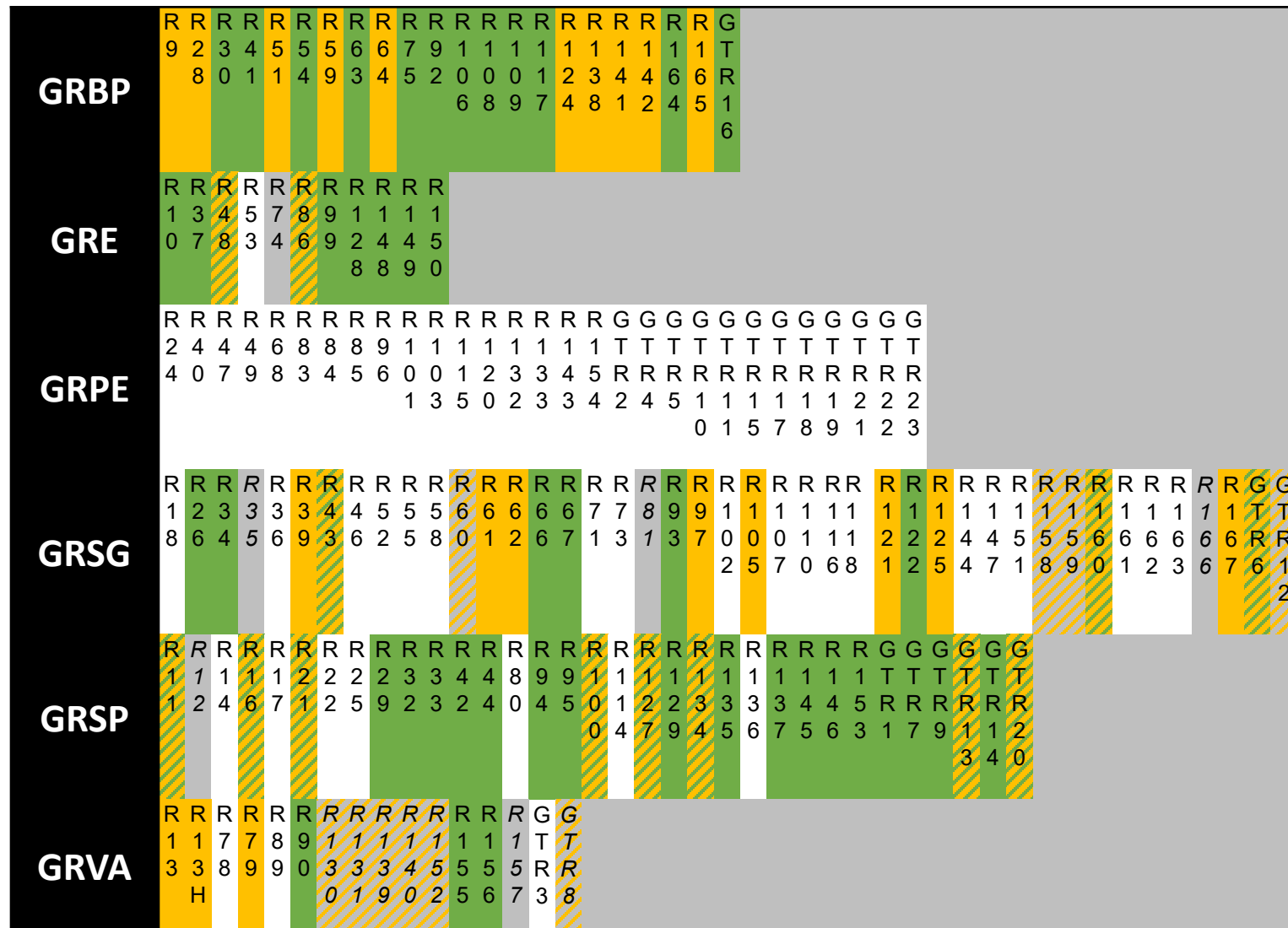
**GRSP:** Detailed screening in progress (80% done)

**GRVA:** Detailed screening in progress (75% done)



*Not all taskforces might be able to get validation from their GR before the June WP29 session*

# Status of all WP29 Regulations and GTRs



R89	Not yet screened
R30	Applicable (or mostly applicable)
R12	Not applicable (or not applicable except in dual mode)
R13	Work needed on the Regulation / new Regulation needed
R158	Not applicable or mostly not applicable AND amendments or new Regulation needed
R48	Applicable or mostly applicable AND amendments or new Regulation needed

*Work in progress, to be validated after completion of screening for all Regulations and GTRs*



# Examples of high level issues

- **Vehicle categories:** current categories do not reflect the diversity of use cases for automated driving:
  - Dual mode vs fully automated
  - Carrying occupants vs freight only
  - Supervision inside vehicle vs remote supervision
- **Telltale & warning signals:** a standardised way to share information is necessary: what information is relevant to whom (passenger, occupant in driver seat, remote supervisor...)
- **Test mode:** might be necessary for certain Regulations

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