

QUESTIONS AND ANSWERS

Regarding the proposal for Revision 8 to the Consolidated Resolution on the Construction of Vehicles (R.E.3)

This document was prepared by the experts of the Task Force on Automated Vehicle Categorisation (TF-AVC), based on the proceedings of the 11th and 12th meetings of the Task Force.

1. Question: Why was TF-AVC created?

Answer: TF-AVC was created to determine if new vehicle categories or new vehicle sub-categories are necessary to address the specificities of vehicles with an automated driving system (ADS). WP.29 agreed to the establishment of the Task Force in its 191st session in November 2023. The Task Force was allocated to a dedicated GRSG and GRVA joint expert group with a target to amend the consolidated resolution on the construction of vehicles (R.E.3) and Special Resolution No. 1 Concerning the Common Definitions of Vehicle Categories, Masses and Dimensions (S.R.1) if necessary, keeping in mind the two categorisation systems set in each Resolution.

2. Question: Why is R.E.3 being amended?

Answer: The decision was made to amend R.E.3 as it outlines general definitions, vehicle categories and the scope of UN Regulations and Rules, as applicable to the 1958 agreement. The current landscape of vehicle categories is the result of decades of successive additions to R.E.3. Vehicle categories of R.E.3 correspond to the majority of vehicles in circulation in most countries and many Regulations have been created with these vehicle categories in mind.

It therefore makes sense to amend R.E.3 to include new definitions, vehicle categories or any other amendments which cater to the specificities of vehicles with an ADS.

3. Question: Why are new categories being created for automated vehicles?

Answer: Vehicle categories classify vehicles according to their typical usage and common characteristics, allowing their inclusion in (or exclusion from) the scope of individual UN Regulations, Global Technical Regulations, and specific requirements within these Regulations.

In keeping with the existing approach for vehicle categorisation, automated vehicles have been considered to establish a broad set of criteria that groups together different features of automated vehicles into two new vehicle categories. These categories sufficiently from existing vehicle categories, to permit the application of a different set of technical requirements and the application of new ADS vehicle specific provisions. For example, an automated vehicle which cannot carry occupants at any time, could be exempted from several technical requirements.

4. Question: How does the work of TF-AVC impact the GR screening groups and IWG-ADS?

Answer: The work of TF-AVC has a direct impact on the work of the GR screening groups. The screening groups require direction on what types of automated vehicles to consider when making amendments to UN Regulations and Global Technical Regulations. The creation of vehicle categories and their definitions provides a clear framework for amendments. GR screening groups can reference vehicles of category X and category Y in amendments, where suitable.

In addition, TF-AVC is providing common definitions to ensure consistency across the different GRs and their Regulations.

Future vehicles equipped with an ADS are expected to fulfil requirements set out in the new ADS regulation (coming from IWG ADS), yet still also fulfil fundamental vehicle requirements (e.g. regarding braking, steering, active and passive safety; managed by the GR screening groups). To ensure compatibility between the new ADS regulation and the fundamental regulations for all varieties/types of automated vehicles, the creation of categories and their definitions is essential.

5. Question: What is a category X and category Y vehicle?

Answer: To be considered a vehicle of category X or category Y, two cumulative conditions must be met: a vehicle must be equipped with an ADS and must not be capable of being driven manually at speeds exceeding 6 km/h. Additionally, a third condition regarding the vehicle's ability to carry occupants must be met. The third condition is different for vehicles of category X and category Y (see question 6).

Vehicles of category X or category Y cannot be used as a standalone category. Accordingly, vehicles of category X can be combined with the existing vehicle categories: M, N, L and T. Vehicles of category Y can be combined with the existing vehicle categories: N, L and T. This is a wide-ranging and future-proof approach which has no impact on the existing categorisation of non-automated vehicles. This approach mirrors the approach and precedent set by category G vehicles in R.E.3.

6. Question: What is the difference between category X and category Y?

Answer: Vehicles of category X are designed to carry occupants, whereas vehicles of category Y are not designed to carry occupants at any time.

7. Question: Why were the letters X and Y chosen?

Answer: Initial proposals for the creation of new automated vehicle categories, featured categories 'A' and 'B'. These letters were initially chosen as it was proposed that the letter 'A' would easily denote an automated vehicle. After some discussion it became clear that using the letters 'A' and 'B' would add complication to the text of R.E.3 which already makes reference to vehicle classes A and B. The letters X and Y do not cause conflicts with existing references in R.E.3.

8. Question: Why have we not introduced a separate category for 'dual-mode' vehicles?

Answer: As ‘dual-mode’ vehicles are intended to be driven manually under nominal conditions, these vehicles would need to meet all existing technical requirements related to manual driving.

These vehicles would also have to meet different technical requirements for when the ADS is active. However, additional requirements or exemptions might be stipulated in relation to whether a particular feature of the ADS is active, rather than the feature merely being present in the vehicle. Therefore, a decision was made to not categorise such a vehicle.

9. Question: Why have we not defined ADS features in R.E.3?

Answer: Definitions for ADS features have been proposed by TF-AVC experts and it was agreed that these definitions are needed, especially for the work of the screening Task Forces. Most important is the distinction between an ADS feature which requires a fallback user and an ADS feature which does not require a fallback user. For vehicles of category X and category Y, only ADS features which do not require a fallback user are relevant. It was decided that these definitions should first be discussed and finalised in the IWG-ADS. Proposed definitions have now been put forward to IWG ADS for their consideration.

10. Question: Why make vehicles of category L and category T compatible with vehicles of category X and category Y?

Answer: To future-proof amendments to R.E.3, and remain technologically neutral, TF-AVC experts have agreed to include category L and category T vehicles within the scope of category X and category Y vehicles. In addition, it is anticipated that some category L vehicles (e.g. L6, L7) with an ADS will seek approval in the near future, with similar potential for category T vehicles.

It should be noted that despite the inclusion of category L and category T vehicles in the scope of category X and category Y vehicles, it shall not be possible to approve such vehicles until relevant Regulations are amended.

11. Question: Why accept any manual operation when defining vehicles of category X and category Y?

Answer: TF-AVC has accepted that vehicles of category X and category Y may still need to be operated manually, under certain circumstances. Examples include vehicle recovery and vehicle maintenance. TF-AVC did initially list out the limited circumstances where manual driving would be acceptable. It was felt however that this approach was too prescriptive and might not adequately outline all scenarios in which manual driving could be necessary, while requirements for specific conditions would be difficult to apply and verify.

12. Question: Why limit manual operation for vehicles of category X and category Y to a certain speed?

Answer: Vehicles of category X and category Y are likely to be subject to several exemptions from requirements related to manual driving (e.g. direct and indirect vision, controls and tell-tales, etc.). These exemptions would affect a driver's ability to operate the vehicle safely. Thus, it was decided to limit the speed at which vehicles of category X and category Y can be manually operated, for these exceptional manoeuvres.

13. Question: Why was a speed of 6 km/h chosen as the limit for manual operation?

Answer: A speed of 6 km/h was chosen for a number of reasons. Firstly, 6 km/h is the maximum typical speed of a walking pedestrian. Limiting manual operation to this speed therefore considerably reduces any risk for vulnerable road users. In addition, many national and regional frameworks for type approval only apply to vehicles that have a maximum design speed above 6 km/h. TF-AVC experts collectively agreed that they were content to have reduced technical requirements at speeds of 6 km/h and below. In R.E.3 text there is already a precedent to refer to the speed boundary of 6 km/h, in the definition of a category T vehicle.

14. Question: What about automated vehicles that can be manually operated above 6 km/h?

Answer: Automated vehicles, equipped with an ADS, which can be driven manually at speeds exceeding 6 km/h are not considered to be vehicles of category X or category Y. These vehicles would be approved as a traditional category M, N, L or T vehicle. These vehicles would have to meet all existing technical requirements related to manual driving. In addition, these vehicles would also have to meet relevant technical requirements when the ADS is active.

15. Question: For vehicles of category M₁, why was the text “eight seats in addition to the driver seat” replaced by “nine seats”?

Answer: To amend existing definitions to make them inclusive of vehicles of category X and category Y, which would not have a driver (and may not have a driver’s seat), it was agreed that the simplest and least invasive amendment would be to simply remove the reference to the driver’s seat and refer instead to the total number of seats. With this proposed amendment, the total number of possible seats has not been altered.

16. Question: For vehicles of category M₂ and M₃, why was the text “22 passengers in addition to the driver” changed to “23 occupants”?

Answer: To amend existing definitions to make them inclusive of vehicles of category X and category Y, which would not have a driver, it was agreed that the simplest and least invasive amendment would be to remove references to ‘passengers’ and ‘the driver’. Instead, it has been proposed to refer to a total number of occupants. With this proposed amendment, the total number of possible occupants has not been altered.

17. Question: Why was the term ‘occupants’ chosen for vehicles of category X and category Y?

Answer: This term is inclusive of all potential human beings being carried by the vehicle, e.g. driver, fall back user, passenger. In addition, the term ‘occupants’ is already frequently used in existing UN Regulations, is well understood and would not require additional definition.

18. Question: Why have we not amended category M definitions, which refer to ‘the carriage of passengers’?

Answer: TF-AVC agreed that the spirit of the current definition of category M vehicles was understood, i.e. category M vehicles are intended to be passenger carrying vehicles. Discussions were had on amending the text to align more with text used in S.R.1 and the reference to “a person(s)”. Ultimately, it was agreed to keep proposed amendments as simple as possible and

limited to what is necessary. It was agreed that maintaining existing categories and their definitions is less complex than redefining existing vehicle categories.

In the future, amendments could be recommended, to simplify and harmonise terminology used in both R.E.3 and S.R.1.

19. Question: Why have we amended the definition of “Mass of a vehicle in running order”?

Answer: For vehicles of category X we don't expect there to be a driver, in nominal circumstances and vehicles of category Y will not have a driver in the vehicle at any time. As such, we have amended the existing definition to exempt the mass of a driver for vehicles of category X and category Y. The existing definition includes reference to a crew member, even if the vehicle may operate without one. In keeping with the spirit of the text, vehicles with an ADS, that are not vehicles of category X or category Y should include the mass of a driver, even though a driver may not be required at all times. For Regulations where testing the minimum possible operating mass is critical for worst-casing, this can be specified in the specific Regulation.

20. Question: Why is there no reference to bi-directional vehicles?

Answer: TF-AVC has agreed to postpone the consideration of this topic until the next phase of its work. Whilst the topic of bi-directional vehicles should be discussed, it was agreed by TF-AVC experts that the priority of work should be to ensure the creation of vehicle categories that allow the screening Task Forces to proceed with their amendments to UN Regulations and Global Technical Regulations.

In addition, TF-AVC has agreed at this time that only characteristics directly related to automated driving should be considered when creating categories for automated vehicles. Bi-directional vehicles are not unique to vehicles of category X or category Y.

Needs from IWG ADS shall also be considered when discussing this topic in the future.

21. Question: Why is there no reference to small shuttle type vehicles with standees?

Answer: Thanks to the space gained by removing the driver's compartment, several manufacturers have designed small, automated public transportation vehicles with fewer than ten seats and the ability to carry standing passengers, which may constitute a useful means of transportation in urban environments. Although the definition of M₁ in R.E.3 does not specifically forbid the carriage of standing passengers, most UN Regulations assume that M₁ vehicles can only be passenger cars with only seated passengers. Therefore, these small shuttles cannot currently be approved to category M₁ nor to category M₂. Accommodating such vehicles in R.E.3 could imply a redefinition of the M₂ category, or a new subcategory within M. This topic is not necessarily unique to ADS vehicles and as such, TF-AVC has agreed to postpone the consideration of this topic until the next phase of its work.

22. Question: Why is there no reference to low-speed vehicles?

Answer: This topic is not necessarily unique to ADS vehicles and as such, TF-AVC has agreed to postpone the consideration of this topic until the next phase of its work.

23. Question: Why is there no reference to remote driving?

Answer: Remote driving is not within the scope of consideration of the screening Task Forces, or TF-AVC at this time. Some Contracting Parties have reported about national activities in TF-

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AVC, therefore it could be considered in future work. Needs from IWG ADS shall also be considered when discussing this topic in the future.