

**List of open issues**

UNR157-03-08 Submitted by experts from Japan

Topic	Sub-topic	Open issue(s)	Positions	Possible solution(s) and conclusions	Status	Text proposal	Reference	
Speed increase	1. How to regulate vehicle behaviour in nominal/complex situations?	Current approach in UN R 157 for <b>minimum headway/safety distance</b> appropriate?	(JP)The table should not be deleted because the requirement like "the vehicle shall not cause collision" is ambiguous and considered differently between TSs, and the minimum requirements for important parameters are effective in order to ensure safety. Without table, there is some concern for approval of ADS with substandard level. Therefore, minimum headway/safety distance should be decided in a same manner as <60km/h. Notwithstanding this requirement, appropriate following distance for complying other requirements (e.g. traffic rules, avoid collisions) should be maintained.	New approach: generic requirement based on traffic rules, amendment table, preventing collision, RSS, 2 seconds, etc.?	TBD			
		Current approach in UN R 157 for <b>minimum detection range</b> appropriate?	(JP)Minum detection range should not be deleted and should be decided in a same manner as <60km/h. (Distance after 0.5s and 3.7m/s <sup>2</sup> deceleration.)					
		How should the <b>speed limit</b> , which varies in each country, be treated under the Regulation? (JP)	(JP)No need to modify UNR157 text because compliance to speed limit is covered by "traffic rule requirement".			TBD		
		No negative effect of the safety distance on traffic flow (EC)				TBD		
		Line between type approval/traffic rules (JP: Are there any cases where following traffic law could cause danger? If so, how should we treat those cases in regulation)				TBD		
	2. Expected reaction of the vehicle to critical situations	Any differences with ALKS low speed which need particular consideration?				TBD		
		<b>Cut in scenarios</b> as defined currently in UN R 157 appropriate for higher speeds (> 60 km/h)?	(JP)Scenarios should be added considering the speed range extension.			TBD		
		To what level should <b>pedestrian crossing</b> be covered? (it could be difficult to avoid a collision in a high-speed area but what should be the level required under the Regulation?) (JP)	(JP)Collision to a pedestrian in the same lane shall be avoided. ADS should avoid collision in front of the ego vehicle as safe as a human driver. If necessary, we can accept to discuss amendments to current test procedure from the point of view above.			TBD	(JP)5.2.5.3. The activated system shall avoid a collision with an unobstructed crossing pedestrian in front of the vehicle. In a scenario with an unobstructed pedestrian crossing with a lateral speed component of not more than 5 km/h where the anticipated impact point is displaced by not more than 0.2 m compared to the vehicle longitudinal center plane, the activated ALKS shall avoid a collision up to the maximum operational speed of the system. (note: the red part should not be deleted)	5.2.4. The activated system shall be able to bring the vehicle to a complete stop behind a stationary vehicle, a stationary road user or a blocked lane of travel to avoid a collision. This shall be ensured up to the maximum operational speed of the system.

Note for 3rd meeting  
 - This sheet is created based on UNR157-03-03 (list of open issues).  
 - Open issues are copied from UNR157-03-03 and Japan added some issues with red text.  
 - Japan added Japan position to "Positions" column. Regarding the blank cell, Japan is now under discussion and will present Japan position in the future meeting.  
 - It is welcome to add any positions from other CPs.

	Is it necessary to consider situations where <b>lane marking is not visible</b> ?	(JP)No need to modify UNR157 text because it is obvious that the vehicle should keep control until the transition to the driver even if the lane marking is disappeared suddenly. (During MRM, the case when the lane marking is not visible is already described (5.5.1.)).		TBD		5.4.4.1. In case the driver is not responding to a transition demand by deactivating the system (either as described in paragraph 6.2.4. or 6.2.5.), a minimum risk manoeuvre shall be started, earliest 10 s after the start of the transition demand.
	<b>Is evasive emergency manoeuvre required?</b> Distinction < 80 km/h and above?	(JP)The function of evasive emergency manoeuvre should be optional (i.e. not mandatory but may be fitted). If the function of evasive emergency manoeuvre is fitted, it is necessary that the function can only be activated when the braking is not capable of avoiding accidents.		TBD		
	<b>During evasive emergency manoeuvre, is it permitted to cross lane marking?</b>	(JP)The function of evasive emergency manoeuvre should be optional (i.e. not mandatory but may be fitted). If the function of evasive emergency manoeuvre is fitted, it is necessary that the function can only be activated when the braking is not capable of avoiding accidents.		TBD		
	<b>Is it required to react appropriately to "wrong way driver"?</b>			TBD		
Lane change	Shall <b>different types of lane change</b> be defined (nominal, during MRM and evasive)?	(JP) "during MRM", "evasive manoeuvre", "regular lane change" should be clearly differentiated. (see UNR157-02-05)		TBD		
	What are the items that need to be strengthened when <b>compared to ACSF category C</b> ?	(JP)[REGULAR] Lv3 Lane change during normal driving (not emergency situation) should consider the situation around the ego vehicle including forward and side (including 2 lane next). These requirements should be discussed in FRAV. (note: Detection of forward and side are not required in ACSF provisions.) [MRM] The requirements for Lane change during MRM should be discussed based on ACSF category C (can be based on category E but the requirements are not yet specified). [EVASIVE] The requirements for evasive manoeuvre is difficult to define because the impact of secondary accident (i.e. collision to vehicle passing the next lane) should be considered. The function of evasive emergency manoeuvre should be optional (i.e. not mandatory but may be fitted). If the function of evasive emergency manoeuvre is fitted, it is necessary that the function can only be activated when the braking is not capable of avoiding accidents.		TBD		
	<b>Should criteria for permitting lane change be defined? If so, what should be the criteria?</b>	(JP) See above.		TBD		
	Need to <b>define what is a safe lane change</b> (parameters or general principles?)	(JP) See above.		TBD		
	Need to define triggering conditions for lane change. Should aim to prevent erratic lane change. (NO)	(JP) See above.		TBD		

		Shall driver interruption (over ride) during auto lane change be acceptable? What kind of action should be required for override during auto lane change? (JP)	(JP)No special modification to present text is needed.		TBD		
		Is there any other additional requirement necessary for the Level 3 lane change function? (JP)			TBD		
		Is it necessary to decide a <b>minimum detection range for directions other than forward</b> (side, diagonal)? (JP)			TBD		
Both	1. Traffic situations	Any <b>additional traffic situations</b> which need particular attention and possibly need to be introduced? (based on VMAD input)			TBD		
	2. MRM	During MRM, is it acceptable to stop within the lane? Or <b>should lane change to the shoulder (lane change during MRM) be mandatory?</b> (JP)	(JP)Having the function to change lane to the shoulder (lane change during MRM) should be mandatory for ADS with ODD higher than 60km/h because a stopped vehicle in highway without traffic jam is dangerous. (It is important to have the function of MRM lane change and it can be allowed that MRM lane change is not achieved under some conditions (e.g. when shoulder does not exist).)		TBD		
	3. HMI	Any change/improvement to current <b>HMI requirement</b> given that more time will be spent without any intervention from the driver? Further harmonization needed?			TBD		
	4. Test, Audit & In-service monitoring	During Type Approval, what type of tests should be conducted or provided by the documentation? ( <b>Should current requirement be further clarified?</b> ) (JP)			TBD		
		Need to improve present test, especially <b>track tests</b> ?			TBD		
		Does the <b>audit and in-service monitoring need enhanced</b> ?			TBD		
Clarifying Regulation	1. Emergency vehicles	How should a vehicle respond? Is it with transition demand or shall it create a corridor?			TBD		
		Does the system need to react to the direction of an <b>enforcement officer</b> ? (UK)			TBD		
	2. Detectable collision	What is a detectable collision? (UK)			TBD		
Other modifications	1. Appendix3 to Annex4	<b>Should Appendix 3 to Annex4 be replaced?</b>	(JP)Current Appendix3 to Annex4 is important to assess the human driver level. Therefore, Japan suggests to keep current Appendix3 with amendment (e.g. speed extension). If other CP requests to add other requirement, we can discuss to add it as other Appendix or something else.		TBD		
		What are the items that need to be changed from M1? (JP)			TBD		
		Influence of vehicle dynamics for safety distance to the front/detection range.			TBD		
		<b>Current requirements applicable to M1 are limiting the maximum deceleration during the MRM to 4m/s<sup>2</sup>; should this value be adapted to other vehicle categories, given the lower deceleration potential of heavier categories compared to passenger cars?</b>	(JP) 4m/s <sup>2</sup> can be acceptable because no safety concern has been observed. (However, buses with standing passengers should require additional consideration.)		TBD		UNR-157-02-10(OICACLEPA) ALKS for HDV - Preliminary responses to GRVA-09-34.pdf

HDV ALKS below 60 km/h*	The requirements define a table with the minimum following distance between a passenger car equipped with an active ALKS and the preceding vehicle. Industry is expected to review whether and how the HCV's parameters impacts the values in the table.	(JP)Minimum following distance should be calculated by the same method as M1 by useing HDV parameters(the distance with maximum deceleration).		TBD		UNR-157-02-10(OICACLEPA) ALKS for HDV - Preliminary responses to GRVA-09-34.pdf
	Minimum forward detection range for HDV	(JP)The same requirements as M1 can be acceptable.		TBD		
	In the section about the cutting-in scenario, should the parameter "TTCLaneIntrusion" be modified, considering the width of HDVs compared to a passenger car?	(JP)No need to modify UNR157.		TBD		UNR-157-02-10(OICACLEPA) ALKS for HDV - Preliminary responses to GRVA-09-34.pdf
	Effect of the trailer.			TBD		