

TF ADAS – 2nd meeting
Input for Risk Mitigation Function (RMF)

	Open issue listed in ADAS-01-02Rev1	Proposal by Germany to amend GRVA-09-43 in green (---: no concrete proposal for the time being)	Comment/question by Germany
1	Concern with lane change	<p>5.1.6.3.6. Additional provisions for systems with the purpose of bringing the vehicle to a safe stop outside its own lane of travel.</p> <p>5.1.6.3.6.1. Leaving the original lane of travel shall only be possible on roads where pedestrians and cyclists are prohibited and which, by design, are equipped with a physical separation that divides the traffic moving in opposite directions.</p> <p>5.1.6.3.6.2. A lane change manoeuvre shall only be performed in an uncritical way as described in paragraph 5.1.6.3.6.5. towards the nearest appropriate target stop area. In case the target stop area cannot be reached in an uncritical way the RMF shall aim to keep the vehicle within its current lane of travel while coming to a safe standstill.</p> <p>5.1.6.3.6.3. During the intervention the system shall only perform a single or multiple lane change(s) across regular lanes of traffic as well as to the hard</p>	<p>Consider reinserting the definitions for lane change procedure (LCP), as proposed by industry in GRVA/2021/13 (deleted in GRVA-09-43)?</p> <p>Proposal to add basic principles for lane change.</p> <p>“Nearest” shall express the lane change may take as long as necessary, but shall be completed as quickly as possible.</p>

	<p>shoulder, if under the current traffic situation the lane change can be considered to minimize the risk to safety of the vehicle occupants and other road users.</p> <p>5.1.6.3.6.4. A lane change during the intervention shall only be performed if the system has sufficient information about its surrounding to the front, side and rear in order to assess the criticality of the lane change.</p> <p>5.1.6.3.6.5. A lane change shall only be started if vehicles in the target lane are not forced to unmanageably decelerate due to the lane change of the vehicle.</p> <p>The intervention shall not cause a collision with another vehicle or road user in the predicted path of the vehicle during a lane change or after a lane change in the target stop area.</p> <p>5.1.6.3.6.6. The intention of performing a lane change shall be indicated in advance of the lane change to the surrounding traffic (direction indicator).</p> <p>5.1.6.3.6.7. The lane change shall be aimed to be one continuous movement (to avoid confusion and distraction of other road users).</p> <p>[Until uniform provisions and test procedures have been agreed, the manufacturer shall provide to the satisfaction of the Technical Service as part of the assessment according to Annex 6 appropriate documentation and supporting evidence including physical tests to demonstrate a safe behaviour of the function when bringing the</p>	<p>Reminder: currently there are no provisions e.g. regarding a detection (range) to the front, side or rear of the vehicle.</p> <p>Provisions to define “unmanageably decelerate” were proposed by industry in GRVA/2021/13 (deleted in GRVA-09-43); maybe worth to revisit this proposal and discuss?</p> <p>In square brackets, as Germany would prefer to work on the test provisions rather than including this general paragraph.</p>
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		<p>vehicle to a stop outside its lane of travel.]</p> <p>5.1.6.3.7. System information data</p> <p>The following data shall be provided, together with the documentation package required in Annex 6 of this Regulation, to the Technical Service at the time of type approval:</p> <p>[...]</p> <p>(f) In case of lane changing capability, a detailed description of the design provisions implemented to ensure safety of the manoeuvre and the means by which the vehicle detects it is in a <u>permitted driving environment</u>.</p>	<p>Should “permitted driving environment” be specified in terms of a definition?</p>
2	<p>Concern with lack of HMI provisions</p>	<p>5.1.6.3.2. Unless a request for action was already given [or the system was manually activated], there shall be an optical and acoustical warning signal upfront before every RMF intervention in order to stimulate the driver to take back control.</p> <p>Every RMF intervention shall be indicated to the driver [and co-driver?] at least by a clearly visible optical and an acoustic warning signal for as long as the intervention exists.</p> <p>These warning signals shall be distinct and of a great urgency. [Include warning escalation?]</p>	<p>Square brackets due to open issue no. 3 (concern with manual deactivation).</p> <p>It is unclear to us what the difference between „a request for action” is compared to the “optical and acoustical warning signal upfront every RMF intervention”?</p> <p>Does it mean the same or are these two things?</p> <p>Should information about an on-going RMF intervention also “reach” the co-driver (and therefore be part of the HMI requirements)?</p>

	<p>5.1.6.3.7. System information data</p> <p>The following data shall be provided, together with the documentation package required in Annex 6 of this Regulation, to the Technical Service at the time of type approval:</p> <p>[...]</p> <p>(e) Description of the driver warning and information concept Information including documented evidence regarding the warning concept aiming for the driver’s control before the RMF intervention bringing the vehicle to a safe standstill.</p> <p>(new) Description of information given to co-driver (or other vehicle occupants?) during an on-going RMF intervention.</p> <p>[...]</p>	<p>Should the warning be escalated over time (e.g. including haptic warnings) to actively (re-)activate the driver to resume manual control?</p> <p>Propose stronger requirement than “just” description of the warning concept. In our view the warning concept/strategy for (re-)activating and animating the driver to resume control is very important before RMF “kicks-in” and brings the vehicle to a stop.</p> <p>Should a warning cascade using optical, acoustical and/or haptic warnings be included?</p> <p>How are multiple warnings of other assistance systems (AEBS, CSF, ESF, B1, C ...) “aligned”, e.g. how is “distinct RMF-warning” made</p>
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			sure to be really distinct?
3	Concern with manual deactivation	<p>5.1.6.3.1. Any RMF shall only start an intervention in case the driver is confirmed to be unavailable to control the vehicle e.g. through driver monitoring, or a failed response to a request for action or warning as described in paragraph 5.1.6.2.3. [or if it is manually activated by the driver.</p> <p>In case the system provides a means for manual activation, this means shall be protected against unintentional operation.]</p>	In square brackets, because more understanding about the manual activation would be helpful (e.g. are some general provisions needed to specify positioning of activation mean? Should it be a unique mean? Standardized symbol? Who should be able to use this mean – only the driver or other front-seated passengers?)
4	Lack of requirement to bring vehicle to safe stop	<p>5.1.6.3.3. The RMF shall aim to bring the vehicle to a safe stop within the target stop area.</p> <p>5.1.6.3.3.1. RMF shall aim to avoid collisions or mitigate them at the least. [Detection of other road users (vehicles, pedestrians) or obstacles?]</p>	Additional provision needed to make clear collision avoidance or mitigation as in respect to other road users?
5	Transitional provision	---	Which systems on the market are affected and need to be covered by transitional provisions?
6	ODD of function (i.e. speed range, triggering conditions)	<p>5.1.6.3.7. System information data</p> <p>The following data shall be provided, together with the documentation package required in Annex 6 of this Regulation, to the Technical</p>	

	<p>Service at the time of type approval:</p> <p>(a) Information including documented evidence on how the system confirms that the driver is no longer available;</p> <p>(b) Description of the means to detect the driving environment (including other road users and obstacles and the target stop area);</p> <p>(new) Description how the system selects an appropriate target stop area and a description of the safety criteria on which this selection is based.</p> <p>(c) Information/specification in which infrastructural conditions, e.g. on which road types (e.g. motorway, country roads, urban areas, etc.) the system is designed to intervene and how this a safe operation in this infrastructure is ensured;</p> <p>(new) Information in which environmental conditions, e.g. rain, fog, snow, ice RMF is capable to operate and how a safe operation in this environment is ensured.</p> <p>[...]</p> <p>(g) Information/specification of the maximum speed the system operates (e.g. also in dependence of the traffic environment (highway, urban, etc.) as well as information/specification on how the</p>	<p>Trigger conditions very important, as this is a “last resort-function” which should not falsely begin.</p> <p>Propose to add.</p> <p>Propose to add.</p>
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		<p>speed is reduced (e.g. adapted to surrounding traffic; no harsh braking endangering other road users) in order to come to a safe stop.</p>	
7	Signalling requirements	<p>5.1.6.3.4. The signal to activate the hazard warning lights shall be generated with the start of the intervention.</p> <p>[Add automatic e-call once in standstill?]</p>	<p>„Signaling“ understood in a broader sense: Once RMF has brought the vehicle to standstill, should an automatic emergency call be given (since obviously a medical health issue of the driver has occurred?)</p>
8	Test provisions	---	<p>Consider test provisions proposed by industry in GRVA/2021/13 (deleted in GRVA-09-43)?</p>
9	Clarification for applicable vehicle categories needed	<p>5.1.6.3. Vehicles equipped with an RMF shall fulfil the following requirements.</p> <p>[Limit lane change to vehicle category M₁?]</p> <p>An RMF system shall be subject to the requirements of Annex 6.</p>	<p>Overview by industry would be helpful to understand which vehicle categories are equipped with these systems (with and without lane change capability) already on the market today.</p>