

Section from guidance document	Text	Comments
4.12	These guidelines-regulations address the safety of ADS vehicle users via sets of requirements aligned with the relationships that users might have with a given ADS during use of the ADS vehicle. These relationships can vary depending on whether a user is located inside or outside the ADS vehicle, the degree(s) of control that a user may exercise over the vehicle during a trip, and whether a user has a one-to-one relationship with a single vehicle or may be performing functions relative to multiple vehicles.	Not in scope but relevant to users
4.13.	Regardless of any assistance systems, drivers perform the DDT until they activate an ADS feature. An ADS feature is specific to an ODD. Activation of an ADS feature initiates ADS performance of the tactical and operational functions required to perform the entire DDT within the ODD of the feature. In the context of the driver relationship, the vehicle is moving (i.e., the user is driving the vehicle) and the activation involves a transition of control over vehicle operation from the driver to the ADS.	Not in scope but relevant to users
4.14	Upon activation of a feature, the ADS performs the entire DDT necessary to operate the vehicle within the ODD of the feature. The driver, therefore, shifts to the role of fallback user or passenger. Some ADS designs may initiate-start a system-initiated deactivation of the ADS (i.e., fall back to the user) in the event that the ADS can no longer perform the DDT (e.g., prior to reaching the boundary of the ODD of the feature in use).	Not in scope but relevant to users
4.15	A passenger has no [means/capabilities] to perform the DDT. Nonetheless, passengers require means to select destinations, routes, and stops and therefore have necessary interactions with the ADS.	Not in scope but relevant to users Canada: with regards to passengers, they may be fully capable but not have the means to perform the DDT.
4.16	These guidelines-regulations propose-outline principles and specifications to ensure-support the safety of users and their use of ADS vehicles across these relationships. The guidelines recognise that additional relationships might need consideration in the further	Not in scope but relevant to users
5.7.2	Examples of processes and activities that should-shall be documented to ensure the robustness of the design and development phase: (b) Vehicle/system development, integration, and implementation: (iv) Management of Human Factors such as safe user interfaces (e.g. Human-centred design processes);	Not in scope but relevant to users (only relevant items included)
7	Requirements for safe interactions between Users and ADS	
7.1	The following subsections provide safety-related requirementsrecommendations to support user interactions with ADS. It is noted that the recommendations-requirements vary depending on user	Useful context

	role, system design, and tasks to be performed by the user during the use of the ADS equipped vehicle.	
7.2	For a safe use of the ADS by users who may need to can take over control of the driving task from the ADS, it is necessary to provide correct information on the capabilities of the ADS to ensure that the user can develop <u>an understanding (i.e., mental model)</u> that correctly reflects these capabilities. This information shall should be provided before and during driving with an ADS <u>equipped</u> vehicle.	Useful context
7.3	To further detail some of t <u>The recommendations requirements it is recommended to</u> draw on Human Factors knowledge, which is an established multidisciplinary science that applies knowledge of human abilities and limitations to the design and evaluation of technology for improved safety and usability.	Useful context
7.4	It has to be noted that knowledge on testing the interaction between user and ADS including pass/fail criteria partly still needs to be developed. It also relevant to aim for a certain level of 'commonality' in the user interactions with the ADS for all brands and models. This will help users to develop and apply a single mental model and will also help to reduce the risk of user confusion (e.g., mode confusion) when changing between vehicles with ADS from different manufacturers. Such commonality cannot be defined now, but it is vital to establish it as a goal of future design.	This is not a requirement per-se, likely part of future work or standardization in parallel with regulations. Could revise and add as requirement when available
7.5	This section provides recommendations requirements on the design of the ADS user interactions between users and ADS vehicles to obtain safe operation of ADS vehicles . These recommendations requirements do not apply to ADS vehicles and ADS features designed without accommodations for a user. The types of ADS users considered in this document are driver, fallback user, passenger.	Useful context
7.5.1	General recommendations requirements : <ul style="list-style-type: none"> (a) The ADS shall signal the presence of any failure that limits the operation of an available feature; (b) The ADS shall signal its intention to place the vehicle in an MRC to the ADS user(s); (c) An ADS that controls the operation of doors shall provide an emergency override to the user; (d) The ADS HMI shall provide safety relevant information and signals clearly noticeable to the target user(s) under all operating conditions, multimodal (e.g., optical, acoustic, haptic) if needed, simply and unambiguously. 	
7.5.2	ADS features that allow a user to take over manual control of the DDT	
7.5.2.1	General requirements recommendations : <ul style="list-style-type: none"> (a) The ADS shall be designed to prevent misuse and errors in operation by the user; (b) When the ADS is active, the vehicle driving controls, indicators, tell-tales, and DDT-related warnings may be disabled, suppressed, de-activated, inhibited or by other means made unavailable, as needed to mitigate the risk of errors in operation, misuse and reduce ambiguous states of vehicle control; 	Bullets (a) and (b) re-ordered. Bullet (e) is taken from 7.5.4.1 (c) with (iv) removed – Applies generally instead of only for ADS deactivation. Subpoint (iv) handled through other provisions

	<ul style="list-style-type: none"> (c) The vehicle controls dedicated to the ADS shall be clearly identified and distinguishable to accommodate only the appropriate interactions;¹ (d) While an ADS feature is active, it shall inform the user on: <ul style="list-style-type: none"> i. ADS status information; ii. The role of the fallback user, if applicable; iii. Any failure of the ADS that limits the operation of an available feature; iv. The ADS shall indicate the availability of a feature for activation. (e) <u>While active, features that have a system-initiated deactivation of the ADS to a fallback user shall:</u> <ul style="list-style-type: none"> i. Continuously assess <u>through a user monitoring system</u> whether the fallback user is available <u>and in a position to resume the role of the driver;</u> ii. Provide effective procedures for re-engaging the fallback user who has been detected not to be available; iii. Trigger a fallback to an MRC where it has not been possible, feasible and/or safe to re-engage the fallback user; 	<p>Open issue with regards to system status (active, standby, on/off, engaged/disengaged)</p>
7.5.2.2	<p><u>Recommendations-Requirements</u> on ADS feature activation</p> <ul style="list-style-type: none"> (a) The ADS shall ensure a safe ADS feature activation; (b) The ADS shall provide immediateprompt feedback to indicate success or failure when the user attempts to enable an ADS feature; (c) The feature activation process (e.g., sequence of actions and states) shall take into account relevant recommendations or standards; (d) An ADS feature activation resulting in a user becoming a fallback user shall <u>immediately and explicitly</u> inform the fallback user of the consequent expectations on them <u>[to be ready to resume the DDT]</u>. 	
7.5.2.3	<p><u>Requirements-Recommendations</u> on ADS feature deactivation to manual driving:</p> <ul style="list-style-type: none"> (a) A system-initiated deactivation in nominal situations should <u>shall</u> be indicated in a timely manner to support the fallback user re-engaging to the driving task; <u>Where appropriate, the process (e.g, timing, levels of warnings) may be adapted according to the current circumstances (e.g., the engagement of the fallback user, the status of the ADS and vehicle, the current road traffic situation).</u> (b) The ADS shall only allow the user to initiate a system deactivation process if the ADS verifies can verify that the user is in a position to resume the role of the driver; 	<p>7.5.2.3 was combined with sections 7.5.3 and 7.5.4 to yield a section with all deactivation requirements. This was done to avoid duplication and misalignment between the sections.</p> <p>Bullet (a) was expanded to include the concept which was previously in 7.5.4.1 (c) (iv)</p> <p>For bullet (h) specify in interpretation document this means ACC, lane</p>

¹ Through size, form, location, colour, type, action, spacing and/or control shape. The provision aims to promote correct use and is not intended to prohibit multifunction controls.

	<ul style="list-style-type: none"> (c) The ADS shall remain active until the system deactivation process has been completed <u>and the driver is in control</u> or the ADS vehicle reaches a minimal risk condition; (d) ADS feature deactivation may be delayed if it is assessed by the ADS that the situation is unsuitable <u>or unsafe</u> for the subsequent mode of vehicle operation. <u>In this case, the user shall be informed of this circumstance.</u> (e.g., due to the current situation being unsuitable or unsafe for the subsequent mode of operation); (e) The user initiated system deactivation process (e.g., sequence of actions and states) shall take into account relevant recommendations or standards; (f) The ADS shall assess the user is suitably engaged to resume the DDT before completion of the deactivation process; (g) The ADS shall provide a specific indication of the completion of the deactivation of the ADS; (h) At the completion of the deactivation process, control shall be returned to the driver without any continuous lateral or longitudinal control assistance active.² (i) If applicable upon ADS deactivation, the vehicle controls, indicators, warnings, and tell-tales shall be set to an appropriate state for manual driving; (j) If applicable, ADS features operating control of closures shall no longer influence closures or the controls associated with closures. 	<p>centring, L2/L3 systems not meant to capture steer by wire, stability control or non-continuous systems (AEB, lane departure etc.)</p> <p>(h) footnote removed. If such evidence is obtained regulation may be amended</p>
7.5.5	<p>ADS features that do not allow a user to take manual control of the DDT</p> <ul style="list-style-type: none"> (a) The ADS shall provide the passenger(s) with means to request to stop the vehicle; (b) The ADS vehicle shall provide safety-related information to the passengers; (c) The ADS shall not initiate motion unless the safety risks to the passenger(s) have been mitigated; (d) The ADS may provide the user(s) with information related to ongoing operations (e.g., destination, upcoming stops, route progress); (e) Controls provided for manual driving (e.g., steering, service brake, parking brake, accelerator, lighting) shall be designed to prevent any effect on the DDT whilst the ADS is performing the DDT, or reasonable safeguards shall be put in place to prevent access to controls. 	
7.5.6	[deleted]	Considerations for testing procedures. These are not

~~This provision may be changed pursuant to evidence from manufacturers demonstrating assurance of the safety of continuous control assistance pursuant to ADS deactivation~~

		requirements, not in scope at this time but will be useful for current or future test procedures.
--	--	---