**Questionnaire - DCAS Phase 3**

Please fill in the table indicating need for new requirements, modifications of existing ones, or current DCAS requirements already addressing the specific topic.

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| **Topic/Category** | **SIM on Highway with withholding HOR** | **SIM in non-highway with Hands-On** |
| **Monitoring of DCAS by the driver:** The driver is able to detect/anticipate wrong actions of DCAS | * How can the driver identify when the DCAS has not recognised something within its system boundaries? * How will the driver know the system is experiencing difficulties? * Should the system provide regular prompts (perhaps linked to level of input?) to ensure the driver is monitoring the system effectively? * How much information should the system communicate? Should information be context- or event-specific, or a simpler warning/alert notification? * How does the system prepare a driver for hands on before the event? * **Requirement on consistency of system behaviour indicating when it is approaching something is not within its system boundaries, and sufficient information being given to the driver for this** | * How can the system convey to the driver its intentions in a clear and intuitive way whilst the driver also monitors the surroundings outside the vehicle? * How will the system communicate intentions in higher risk or lower confidence scenarios where the system has perceived a potential hazard, e.g. bus parked in road requiring slower, wider berth. * How does the system react to rapidly unfolding events/hazards, e.g. unsafe takeover, rapid deceleration? * How should the system educate/inform drivers about system capabilities? * Should drivers have advance knowledge of potentially higher risk scenarios? * How does the system communicate the 'cooperative' and 'assisted' nature of the driving task without confusing liability? * **How can the driver monitor the complex urban environment whilst also monitoring the confidence of the system as it navigates this environment? What should the signals look like and how can they be as clear as possible when the driver needs to take control?** |
| **Attentiveness:** The driver is attentive, aware of the situation and focused on the driving task | * How does the system detect the driver has their hands ready to take the steering wheel? * Should the system request hands on periodically through a journey? * Should the system provide other regular prompts outside of requests/warnings to ensure engagement? * How does the system categorise behaviour types? E.g. difference between low gaze % and illegal behaviour such as mobile phone use. How does the system respond to different categories of behaviours? * How can the system monitor driver attentiveness over time? E.g. comparing segments of journeys to see % change and deploying strategies to maintain high attentiveness * **How can the system detect different behaviour types when it comes to the driver’s hands (on their lap vs holding phone on their lap texting) and give attention requests as appropriate?** | * How can the system encourage high levels of cooperation and proactivity from the driver? * How is the system communicating its intended path and decision making? * How does the system communicate low confidence or system boundary events? * Does the system revert to driver-confirmed if SIM system boundaries are met? Or does the driver take back full control? How is this communicated? * How do we ensure the driver is still performing the tactical function of the DDT? * **How can the system encourage cooperative driving without the driver overriding the system as a way of keeping drivers engaged?** |
| **Controllability:** The driver can control the vehicle (safely override) as needed | * Is issuing a DCA when the system exits its system boundaries always the best solution? What is the driver cannot take control of the situation either? * How are drivers prepared / instructed to perform a safe override before the event? How will driver training or education material be delivered? * What are the inputs required for override? E.g. button press, braking, steering, hands on. Do these different inputs have different effects? * **What more can the system do to help the driver resume full control on highways and how can we make this at intuitive as possible?** | * How much input is needed to override the DCAS when the driver needs to and how intuitive is this? * How much input is needed to override the system when performing a SIM? * How does the system 'step back' when the driver already has their hands on the wheel? How does the system avoid sudden change in trajectory or vehicle behaviour? * **How much input is needed for the driver to turn the DCAS feature from ‘active’ to ‘passive’ mode, and how can this be done in a way that it doesn’t keep happening unintentionally? Is another separate action needed from the driver to override when they want to?** |
| **Useability:** The driver can easily interact with the HMI and it is intuitive what they need to do to carry out a certain action (such as cancel a SIM) | * How is a successful/safe override communicated to the driver via HMI? * How does the system handle a cancelled event vs an override? * **What is an appropriate signal to give to the driver that the override was successful and should the system wait [10] seconds before initiating another manoeuvre ?** | |  | | --- | | * How does the system communicate effectively a system boundary event during hands on SIM? * How does the system make clear when a manoeuvre is imminent? | | * How does the system handle a cancelled event vs an override? | | * How does the system handle continuous overriding (e.g. in the case of a proactive driver that still wants SIM support)? * How do we ensure the driver is not focused on the HMI for a series of manoeuvres? * **How can the system easily portray a series of manoeuvres without distracting the driver and how does it deal with the driver overriding during this series of manoeuvres?** | |
| **Reactiveness:** The driver remains aware and ready to intervene even when not contributing to the operational control | * Is the assumption of at least 1 second for the driver to react accurate? * How much notice will be given to the driver to react when the system does not identify something in its system boundaries? * **Is ‘sufficient lead time’ in 5.3.5.5. clear enough for notifying the driver when the system is approaching a system boundary?** | **Is ‘sufficient lead time’ in 5.3.5.5. clear enough for notifying the driver when the system is approaching a system boundary?** |
| **System performance:** The DCAS is always performing in a consistent mannerand alerting the driver when it cannot handle a situation | * **How do we protect against the system performing manoeuvres when it is uncertain?** | * **Are the system boundaries defined enough that the system can recognise when it is going to exit them and alert the driver of this? Should the system have a minimum level of competency?** * **How do we protect against the system performing manoeuvres when it is uncertain?** |