Submitted by Japan

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Proposal: Driver availability recognition system and Transition demand

x.x.a. Driver availability recognition system

The system shall comprise a driver availability recognition system that is active whenever the ACSF system is active.

The driver availability recognition system shall detect that the driver is present in the driver seat and that he is available to take over the driving task.

x.x.a.1. Driver not present in the driver seat

When the driver is not present in the driver seat the system shall provide a distinctive warning until the driver is detected to be back in the driver seat or until a transition demand is initiated.

When the driver is not back in the driver seat during the distinctive acoustic warning with a max. duration of [15 s] a transition demand shall be initiated according to para. x.x.b.3.

x.x.a.2. Driver not available to take over the driving task

The system shall check if the driver is available to take over the driving task by permanently evaluating driver's activity. The manufacturer shall select appropriate means to detect driver's activity. Driver's activity shall be checked by the use of at least two independent means.

When the driver does not show any activity for a time span of maximum [3] min the system shall provide a distinctive warning until appropriate actions of the driver are detected or until a transition demand is initiated.

When the system does not detect appropriate actions from the driver during the distinctive warning with a max. duration of [15 s] a transition demand shall be initiated according to para. x.x.b.3.

x.x.b. Transition demand and system operation during transition

x.x.b.1. If the system boundaries are reached or will be reached shortly or in case of a system failure which is relevant to the performance requirements of this category B2, it shall provide a transition demand.

x.x.b.2. The timing of the transition demand shall be such that sufficient time is provided for a safe transition to manual driving.

x.x.b.2.1. In case of normal operating conditions and in case that the system has the information that system boundaries will be reached [(e.g. exit of the highway)] a transition demand shall be given not later than [15] s before system boundaries are reached.

x.x.b.2.2. In case of a sudden unexpected event with imminent danger of a collision [(e.g. an obstacle in front of the vehicle which cannot be avoided a collision by normal braking with lower than [3.7 m/s^2])] a transition demand shall be given immediately and an emergency manoeuvre shall be initiated.

x.x.b.2.3. In case of a sudden unexpected event without imminent danger of a collision [(e.g. road construction, approaching an emergency vehicle, missing a lane marking)] or the system failure a transition demand shall be given immediately and the system shall control the vehicle so that the vehicle does not cross any lane marking for at least [10] s after the transition demand or shall initiate the Minimum Risk Manoeuvre (specified in para. x.x.x.) immediately.

x.x.b.3. If a transition demand is given because a driver availability recognition system has detected that the driver is not present in his/her seat and/or is not available to take over the driving task, the system shall control the vehicle so that the vehicle does not cross any lane marking until when the driver takes the manual driving or the Minimum Risk Manoeuvre (specified in para. x.x.x.) is initiated.

x.x.b.4. The transition demand shall be provided by an acoustic signal and either a visual signal or by imposing a haptic signal. These signals shall include cause of the transition in order to make the driver recognize the situation [(e.g. voice guidance etc.)].