

## Draft Proposal for category [C1] requirements

Based on document ACSF-12-03 (Draft Proposal for category C requirements)

### I. Proposal

#### 5.6.5.2.11. Safety distance requirements

The following safety distance requirements are deemed to be satisfied if the tests for Category [C1] as specified in Annex 8 are met.

5.6.5.2.11.1 The vehicle with ACSF category [C1] shall not carry out any lane change manoeuvre or shall abort an already started manoeuvre if an overtaking vehicle is within the safety distance to the rear ( $S_{dRear}$ ) and the safety distance to the left and to the right (side). In both cases the system shall clearly inform the driver about the system status by an optical warning signal and additionally by an acoustic or haptic warning signal.

5.6.5.2.11.2 The safety distance to the rear ( $S_{dRear}$ ) of the ACSF category [C1] system shall be calculated according to the following formula:

$$1) S_{dRear} = \max(\Delta v * [3.5], L * (v * 3.6) / 100) \quad (3.5 = TTC \text{ of } 3.5 \text{ s})$$

where:

$\Delta v$  = speed difference between the vehicle speed of the vehicle equipped with ACSF category [C1] and the vehicle speed of approaching vehicle from behind, measured in m/s.

$$L = [10 / 20 / 48.6] \text{ m}$$

$v$  = vehicle speed of the vehicle equipped with ACSF category [C1], measured in m/s.

2) In case of  $\Delta v$  is larger than  $\Delta v_{max}$  which is defined in paragraph 5.6.5.2.12.2,  $\Delta v$  deems to be  $\Delta v_{max}$ .

5.6.5.2.11.3 The safety distance to the left and to the right (side) of the ACSF category [C1] system shall be 6 m measured from the medium longitudinal centerline of the vehicle equipped with ACSF of category [C1]

#### 5.6.5.2.12. Sensor requirements

~~5.6.5.2.12.1. The vehicle with ACSF category [C1] shall not carry out any lane change manoeuvre or shall abort an already started manoeuvre if an overtaking vehicle is within the safety distance defined under 5.6.5.2.11.2. and 5.6.5.2.11.3. In both cases the system shall clearly inform the driver about the system status by an optical warning signal and additionally by an acoustic or haptic warning signal.~~

The following sensor requirements are deemed to be satisfied if the tests for Category [C1] as specified in Annex 8 are met.

5.6.5.2.12.2. The minimal distance to detect vehicles to the rear ( $S_{Rear}$ ) of the ACSF category [C1] system shall be calculated according to the following formula:

$$1) S_{Rear} = (\Delta v_{max}) * (3.5) \quad (3.5 = TTC \text{ of } 3.5 \text{ s})$$

where:

*$\Delta v_{max}$  = initial speed difference between the minimum design speed of category [C1] and [130 km/h] as the maximum speed of approaching vehicle from behind, measured in m/s.*

2) In case of  $\Delta v_{max}$  is less than 50 km/h,  $\Delta v_{max}$  deems to be 50 km/h.

- 5.6.5.2.12.3. The minimal detection range to the left and to the right (side) of the ACSF category [C1] system shall be at least 6 m measured from the medium longitudinal centerline of the vehicle equipped with ACSF of category [C1]
- 5.6.5.2.12.4. In case the system is not fulfilling the requirement of paragraph 5.6.5.2.12.2. and 5.6.5.2.12.3, under any driving conditions, the system shall indicate this to the driver by an optical warning signal and shall not perform any lane change manoeuvre.