

Careful and competent (Open item table DDT#1)

Location

4.1.2

Justification

Text accepted in Petten meeting as a general concept, but concerns raised around the text “minimizing unreasonable safety risk” if the risks are unreasonable, they should be eliminated not minimized. Solution to simplify the sentence to a general goal for the ADS without mentioning risk.

Original text

As a general concept, the safety level of ADS shall be at least to the level at which a competent and careful human driver could minimize the unreasonable safety risks to the ADS vehicle user(s) and other road users.

Revised text

As a general concept, the safety level of ADS shall be at least to the level of a competent and careful human driver

ADS shall not cause a collision (Open item table DDT#2)

Location

5.1.2.1

Justification

There was discussion of this point in Petten, Industry and SAE favour removing but some CPs are very clear they want it to stay. Suggestion to add a footnote clarifying the difficulties. By what process cause is determined could be expanded upon or discussed in the interpretation document (possible link to ISMR?). Alternatively, the text of other requirements could be changed to ensure this is covered, but that would be challenging considering CPs views on this requirement.

Original text

The driving behaviour of the ADS shall not cause a collision.

Revised text

Option 1

5.1.2.1. The driving behaviour of the ADS shall not cause a collision.¹

1. It is acknowledged that establishing causation can be complex, and not always possible. However, where it is established that the behaviour of an ADS caused a collision, this is a non-compliance with this requirement.

Option 2

Delete 5.1.2.1 As covered by 5.12.11 The ADS shall avoid collisions with safety-relevant objects and 5.1.2.9 The ADS shall comply with traffic rules in accordance with application of relevant law within the area of operation.

Forcing evasive action (Open item table DDT#4)

Location

5.1.2.8

Justification

SAE and industry have raised concerns that this requirement is problematic, it is very hard to tell if another road user was “forced” to take evasive action. Evasive action is not defined. Potentially covered by other requirements

- 5.1.2.3. The ADS shall maintain appropriate distances from other road users by controlling the longitudinal and lateral motion of the vehicle.
- 5.1.2.4. The ADS shall avoid unreasonable disruption to the flow of traffic in line with safety risks.
- 5.1.2.5. The ADS shall adapt its driving behaviour in line with safety risks.
- 5.1.2.5.1. This shall include the anticipation of risks in the driving environment to reduce the likelihood of encountering a critical scenario.
- 5.1.2.9. The ADS shall comply with traffic rules in accordance with application of relevant law within the area of operation.

Original text

The ADS shall not force other road users to take evasive action to avoid a collision with the ADS vehicle.

Revised text – Following discussion suggest option 2

Option 1

Leave unchanged

Option 2

Delete

Collisions with safety relevant objects

Location

5.1.2.11

Justification

Safety relevant objects is currently undefined. It seems this is meant to exclude objects that it is ok to collide with (e.g. a plastic bag) but still be the base “Don’t collide with things” requirement. Non-insignificant is slightly clunky wording but it captures the level of damage that should be avoided well. “significant”, and similar words go too far, words like “notable” are too subjective.

Original text

The ADS shall avoid collisions with safety-relevant objects.

Revised text – accepted pending discussion on “non-insignificant damage” Changed to non-trivial damage

The ADS shall avoid collisions with safety-relevant objects.

Add new definition: "Safety relevant objects" means objects which if collided with are likely to cause non-**trivial** damage to the vehicle or that is likely to pose a safety risk to other road users, vehicle occupants or infrastructure.

Suggest Safety case OPI group to cover manufacturer's strategy for detecting collisions and determining if damage in "non-trivial"

ADS behaviour with regards to road safety agents following a collision (Open item table DDT#6)

Location

5.1.3.2.2

Justification

5.1.3.2.2 covers when the ADS is told to move by a road safety agent following a collision before the safe operational state has been verified (e.g. it is blocking an ambulance).

The DDT group developed text but there is still the question of if it should be a permissive requirement or a shall requirement

- the ADS may move the vehicle – with the decision based on the safety case, specific circumstances and technical capability
- The ADS shall move the vehicle, if able – If the following the instruction is technically possible and safe then it would be a noncompliance to not follow the road safety agent instruction for any other reason.

Original text

5.1.3.2.1. The ADS shall not resume travel unless:

- (a) The safe operational state of the ADS vehicle has been verified, and
- (b) It is permissible under the applicable law.

5.1.3.2.2. Notwithstanding 5.1.3.2.1., if possible, the ADS [may move the vehicle if this is required/ shall move the vehicle, if technically possible and safe] in order to appropriately respond to a road safety agent.

Revised text - New text and clarify Road Safety Agent

5.1.3.2.1. The ADS shall not resume travel unless:

- (a) The safe operational state of the ADS vehicle has been verified, and
- (b) It is permissible under the applicable law.

5.1.3.2.2. Notwithstanding para. 5.1.3.2.1. (a), While an ADS feature of type 2 is active, when directed by a road safety agent the ADS shall move the vehicle unless the ADS determines that the manoeuvre poses an unreasonable safety risk or is not technically possible due to damage. Alternatively, the safety case shall describe how the road safety agent's instructions will be complied with in such circumstances.

3.25. “*Road-safety agent*” means a human engaged in directing traffic, enforcing traffic laws, ~~maintaining/constructing roadways~~, and/or responding to traffic incidents.

Signalling intent to place vehicle into an MRC (Open item table DDT#8)

Location

5.1.6.1

Justification

Provisional acceptance to delete this requirement as it does not refer to anything beyond conventional signalling captured by traffic rules requirement. NL requested additional time to consider impact.

Current text

[The ADS shall signal to other road users its intention to place the vehicle in an MRC.]

Revised text – postponed until NL makes a decision

Confirm deletion of 5.1.6.1

Proposals to amend requirements to use the new feature type definitions (Open item table DDT#9)

Location

5.1.6.2 and 6.1.6.3

Justification

With the feature type definitions accepted in the Petten meeting there are various requirements where they would be appropriate. If they are to be used they should be added here.

Also amendment to 5.1.6.2 proposed in Petten to remove the reference to “transition of control”. (see ADS 07-21)

Check numbering for MRC section

Current text

5.1.6.2. In an ADS vehicle that does not require the presence of a fallback user, the ADS fallback response shall be to place the vehicle in an MRC.

5.1.6.3. If the ADS feature is designed to request and enable intervention by a fallback user, the ADS shall execute a fallback to an MRC in the event of a failure in the [transition of control] to the user.

Revised text – accepted pending feature discussion (meeting notes from 7th session show this was agreed)

5.1.6.2. For ADS features of type 2, the ADS Fallback response shall be to place the vehicle in an MRC.

5.1.6.3. For ADS feature of type 1, if it has not been possible to complete a system-initiated deactivation process, the ADS shall execute a fallback to an MRC.

Unmanned ADS (Open item table DDT#10)

Location

N/A

Justification

Proposal from Germany made early on but not yet discussed in IWG.

“Risk minimization does essentially need to differentiate between material and human damage – which will be the reason we ask the ADS to be able to differentiate between a pedestrian and a garbage bin. Asking the ADS to be able to know whether it is manned or unmanned follows the same logic, as this information provides a basic prerequisite to do a proper risk minimization, if necessary”

Original text

N/A

Revised text – further discussion needed

The ADS shall be able to determine whether itself is unmanned when performing the DDT

Other documents

ADS-08-20 (Japan) To confirm the scope of critical traffic scenarios described in 5.1.3.1.

Original text 5.1.3. ADS Performance of the DDT under Critical Traffic Scenarios

5.1.3.1. The requirements for DDT performance under nominal scenarios shall continue to apply during critical scenarios as far as is reasonably practicable under the specific circumstances with the aim of minimising overall safety risks.

Revised text 5.1.3. ADS Performance of the DDT under Critical Traffic Scenarios

5.1.3.1. The requirements for DDT performance under nominal scenarios shall continue to apply during critical scenarios as far as is reasonably practicable under the specific circumstances with the aim of minimising overall safety risks.

5.1.3.3. Even when a collision cannot be avoided, the ADS shall mitigate the damage from the collision as feasible as possible.(e.g. Reduction of collision speed)

ADS-08-21(China) Responding to road safety agents

Original Text 5.1.2.14. The ADS shall have strategies in place to appropriately detect and respond to instructions from road safety agents.

Revised Text 5.1.2.14. The ADS shall have strategies in place to appropriately detect and respond to instructions from road safety agents. **Notwithstanding the paragraph above, a system-initiated deactivation of the ADS may be initiated for ADSF-1.**

ADS-08-22 (China) Detectable collisions

Original text 5.1.3.2. In the event of a collision involving the ADS vehicle, if required to stop by applicable law, the ADS shall stop or fall back to an MRC as appropriate. During this process the user may initiate deactivation of the ADS if the design of the ADS allows.

Revised text 5.1.3.2 In the event of a **detectable** collision involving the ADS vehicle, if required to stop by applicable law, the ADS shall stop or fall back to an MRC as appropriate. During this process the user may initiate deactivation of the ADS if the design of the ADS allows.

ADS-08-23 (China) Remote termination of ADSF-1

Original text 5.1.4.4.1. Remote termination for an ADS performing the DDT shall be capable of triggering an ADS fallback response.

Revised text 5.1.4.4.1 Remote termination for an ADS performing the DDT shall be capable of triggering an ADS fallback response. **Notwithstanding the paragraph above, remote termination shall not be possible while ADSF-1 is still active**

ADS-08-39 (FADS) faults non-ADS systems

Agreement to discuss for next meeting

Original text 5.1.4.2 The ADS shall detect faults, malfunctions, and abnormalities that compromise its capability to perform the DDT within the ODD.

Revised text 5.1.4.2 The ADS shall detect faults, malfunctions, and abnormalities that compromise its capability to perform the DDT within the ODD, **including the general working condition of the ADS vehicle (e.g., condition of tyres, brakes, lighting, steering, etc.)**