

ADS IWG Working Document
Change Proposal Form
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Document Reference

ADS-08-35

Date

11 April 2025

Agenda item

Definitions

Proposed by (affiliation only—no personal information)

Draft secretary

Summary of Change (25 words or less)

Proposal to revise the definitions for “nominal”, “critical”, and “failure” scenarios.

Reason for Change (Justification)

The current definitions have been a source of uncertainty that impedes the work on requirements and assessments (i.e., it is difficult to set performance requirements under nominal, critical, and failure scenarios without a precise understanding of what these scenarios may include). For example, it has been difficult to resolve the open issues concerning DDT performance and crash/disruption causation.

Given that scenarios are infinite, defining categories in terms of anticipated scenario contents is not feasible. This proposal aims to remove uncertainty by basing scenario classification on the outcomes of the scenario-based assessment. It does not matter whether the ADS caused a collision or disruption; what matters is that scenarios generating a collision or disruption are identified as “critical”. In these cases, the “ODD annex” provides for further analysis to determine whether the ADS behaviour was justified.

In line with recent discussions, if an ADS responds to a scenario with “prompt action to avoid or mitigate a collision”, then the manufacturer would be required to classify that scenario as “critical”. Moreover, if the scenario outcome involves a violation of any of the requirements for DDT performance under nominal scenarios (e.g., crash, collision, disruption of traffic flow), then the scenario must be classified as critical. This approach provides visibility over the ADS capability to manage safety-critical situations.

Lastly, failure scenarios may or may not also be nominal or critical depending on the severity of the failure. This proposal suggests defining a failure scenario as a subset of nominal and critical scenarios identifiable by the occurrence of a failure (per the outcome of the SMS failure analysis requirements).

Original text

- 3.29.1. “Nominal scenario” means [any scenario that is not a critical or failure scenario].
- 3.29.2. “Critical scenario” means a traffic scenario [where the operating conditions or behaviour of other road users requires a prompt action of the ADS to avoid or mitigate a collision with adverse consequences on human health or property damage].
- 3.29.3. “Failure scenario” means a traffic scenario representing a system failure that compromises the capability of the ADS to perform the entire DDT.

Revised text

- 3.29.1. “Nominal scenario” “Nominal scenario” means a scenario entirely navigated by the ADS in accordance with the requirements for nominal performance of the DDT (para. 5.1.2.)
- 3.29.2. “Critical scenario” means a scenario that results in a crash, an evasive manoeuvre to avoid a crash, and/or an ADS behaviour inconsistent with the requirements for nominal performance of the DDT (para. 5.1.2.).
- 3.29.3. “Failure scenario” means a nominal or critical scenario during which the ADS executes a fallback in response to a fault in the system, vehicle, or other dependency necessary for performance of the DDT.