

Context

FRAV has reached consensus that a vehicle and/or ADS can have more than one ODD. We have extensively considered terminology to describe this concept. Under the interim definitions, an ADS means the hardware and software that are collectively capable of operating a vehicle on a sustained basis. A feature means an application of ADS hardware and software designed specifically for use within an ODD. An Operational Design Domain means the operating conditions under which an ADS feature is specifically designed to function.

Based upon these definitions,

- An ADS has one or more features.
- A feature has one ODD.

Under these definitions, a manufacturer would define a feature via the description of the ODD. Each ADS feature would, by definition, be associated with an ODD description. The ODD description(s) would inform decisions on the appropriate ADS assessment and test procedures to be conducted under the VMAD New Assessment/Test Method (NATM).

Therefore, FRAV aims to provide guidance on the description of an ODD to support the NATM. The ODD chapter of Document 5 will provide this guidance.

Elements of an ODD Description

This document requests stakeholder input on the content of an ODD description. Under the Framework Document, the ODD description is a manufacturer statement. This statement describes the intended use of an ADS feature and conditions that, by design, limit the use of the feature.

In keeping with FRAV's "high-level first" approach, this document requests stakeholder **proposals for a categorical list of operating conditions** to consider for the guidance on ODD descriptions. The references noted below provide possible categories. In addition, the SAE "AVSC Best Practice for Describing an Operational Design Domain: Conceptual Framework and Lexicon" (circulated to FRAV on 28 April) provides additional candidates.

The immediate goal is to agree on a categorical list of operating conditions. After FRAV has agreed upon the list, we can consider additional explanations that may be useful to ensure that the descriptions meet the needs of FRAV and VMAD.

Please provide any proposals by Friday, 15 May.

References

Framework Document

Operational Design Domain (ODD): For the assessment of the vehicle safety, the vehicle manufacturers should document the ODD available on their vehicles and the functionality of the vehicle within the prescribed ODD. The ODD should describe the specific conditions under which the automated vehicle is intended to drive in automated mode. The ODD should include the following information at a minimum: roadway types, geographic area, speed range, environmental conditions (weather as well as day/night), and other domain constraints.

SAE J3016:2018

Operational Design Domain (ODD): Operating conditions under which a given driving automation system or feature thereof is specifically designed to function, including, but not limited to, environmental, geographical, and time-of-day restrictions, and/or the requisite presence or absence of certain traffic or roadway characteristics.

NHTSA “A Framework for Automated Driving System Testable Cases and Scenarios”

The ODD describes the specific operating domains in which the ADS is designed to function. The ODD will likely vary for each ADS feature on a vehicle and specifies the condition in which that feature is intended and able to operate with respect to roadway types, speed range, lighting conditions, weather conditions, and other operational constraints. The ODD is specified by the technology developer, and the ADS should be able to identify whether it is operating within or outside of that ODD.