

SAE Europe

John Tintinalli, Managing Director

SAE J3259 (ODD taxonomy for ADS)

Provides terminology, definitions and taxonomy, as well as process guidance for use in developing and defining an ODD, and respective attributes, for a driving automation system feature.



Harmonizes and Expands Existing ODD Reference Documents



AVSC00002202004 -
AVSC Best Practice for
Describing an ODD.



ISO 34503 - Road
vehicles – Taxonomy
for ODD

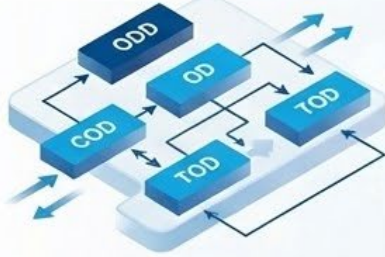


BSI PAS 1883 - ODD
taxonomy for an ADS



NHTSA - A Framework for
ADS Testable Cases,
to severate government
and building

ASAM OpenODD



- Modeling approach & exchange formats for ODDs (UML based)
- Includes OD, COD, TOD modeling
- Technology-independent data model
- Supports YAML, CSV, Spreadsheets, OpenSCENARIO DSL
- Enables format translation for interoperability
- Specifies operational conditions for ADAS, DCAS, ADS



ASAM OpenDRIVE



- Common base for road network description (XML, .xodr)
- Describes geometry of roads, lanes, objects, signals
- Supports synthetic or real-data based networks

Joint SAE-ASAM Application Guide

Applying J3259 to OpenODD



SAE J3259
(Attributes &
Value Ranges)



ASAM OpenODD Model
Concept & Schema

Apply the attribute definitions and value ranges in J3259 to ASAM OpenODD model concept and schema.

Increasing Standard Awareness



OpenODD

OpenDRIVE



Will increase awareness of OpenX standards (OpenODD & OpenDrive) and the standard attributes & value ranges defined in SAE J3259.

Joint Working Group



1. Project Management

- Oversee and coordinate project activities.



2. Technical Development

- 2-4 SMEs (ASAM + SAE) collaborate on development.



3. Technical Review / Approval

- Rigorous review by technical experts.



4. Committee Approval

- Follow organizational committee approval processes.

J3259 Attributes (sample)

1. Environmental Conditions



- Weather, Obscurants, Illumination, Visibility, Electromagnetic interference (EMI)

2. Stationary Elements



- Zones, drivable area, road objects, roadside objects

3. Dynamic Elements



- Road entities w/ location change, state change, both; traffic flow state

4. Connectivity



Reference: What is the Operational Design Domain?

SAE J3016: 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.

The ODD defines the limits within which the driving automation system is designed to operate.

The ODD defines the operating conditions under which a given driving automation system or feature thereof is specifically designed to function.

Current ODD documents provide valuable information on ODD attributes definition with on-going efforts to establish a comprehensive and harmonized set of attributes

Reference: Definitions

Concept	Definition
Automated Driving System (ADS)	The hardware and software collectively capable of performing the entire Dynamic Driving Task (DDT) on a sustained basis. This term specifically describes Level 3, 4, or 5 driving automation systems.
Expected Operating Conditions (EOC)	Conditions a driving automation system is reasonably likely to encounter on its trips, such as environmental, geographical, and roadway characteristics.
Operational Design Domain (ODD)	The specific operating conditions (e.g., environmental, geographical, time-of-day, traffic characteristics) under which a driving automation system or feature is designed to function.
[Operating] Scenario	A description of the temporal development through several consecutive scenes.
[Operating] Scene	A representation of the operating environment at a given point in time, including static elements (static boundaries) and dynamic elements (vehicles).
Required Minimum Operating Conditions (RMOC)	Operating conditions specified by an entity, such as a public authority, that must be included in a system's ODD to operate within its jurisdiction.