SAE J3259-Taxonomy and Definition of Operational Design Domain (ODD) for Driving Automation Systems

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< Background & Need >

To address the industry need for standardization of ODD definition, the SAE On-Road Automated Driving (ORAD) Committee initiated project *J3259 Taxonomy and Definition of Operational Design Domain (ODD) for Driving Automation Systems*.

< Goals >

J3259 will:
- Provide a set of clear and consistent terminology, definitions, taxonomy and methodology for use in describing the ODD for a driving automation system.
- Establish a classification and definition of a harmonized set of ODD attributes/elements.

In order to:
- Facilitate a common understanding and awareness within the development community of a system's capabilities.
- Provide clear and consistent information of system capabilities to grow public awareness and engender trust.

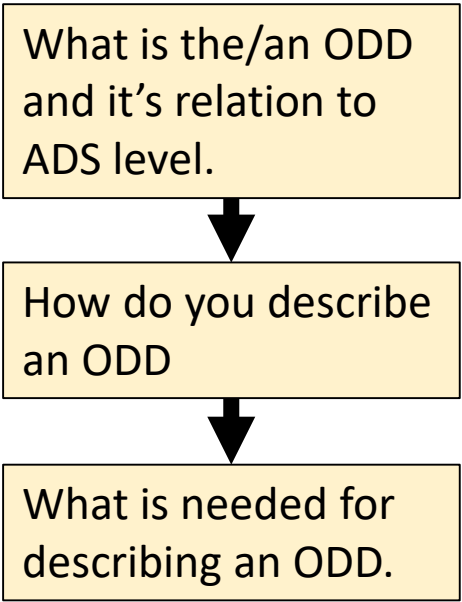# SAE J3259-Taxonomy and Definition of Operational Design Domain (ODD) for Driving Automation Systems

J3259 Flow and Structure:

What is the/an ODD and it's relation to ADS level.

↓

How do you describe an ODD

↓

What is needed for describing an ODD.

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Rationale

1. Scope
2. References
3. **Terms & Definitions**
4. **ODD Taxonomy**

   4.1 What is the ODD for an ADS

   -what it is, what it is not

   4.2 ODD Framework

   4.2.1 General steps for describing an ODD

   - Based on intended user(s)

   4.3 ODD Attributes/Elements

   4.4 ODD Constraint Violations (exit)
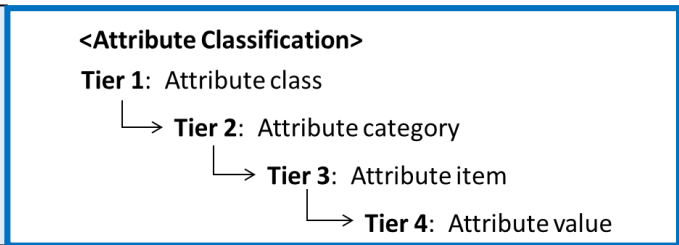
   4.5 Example(s) of ODD description

Cat.	User/Audience	Usage Purpose	Typical content level
Design & dvlpmt.	ADS Development Engineers	Guidance for defining the ODD for an ADS under development.	Tier 4 - Attribute value
	Test Engineers (within ADS developers, risk managers, regulators, fleet operators.......)	Define evaluation items and parameters, test conditions and pass/fail judgment.	Tier 4 - Attribute value
	Technology and Component Development Engineers, Researchers	Understand ADS functionality needs/requirements for technology/component design.	Tier 4 - Attribute value
	Vehicle/platform integrator	Understand ADS functionality and limitations to determine functionality and limitations of vehicle/platform.	Tier 4 - Attribute value
Deploymt.	Infrastructure Owner Operators (IOO)	Guidance for infrastructure characteristics and design to facilitate ADS functionality.	Tier 4 - Attribute item
	Fleet Operators/Transit providers/TNCs	Understand ADS functionality and limitations to define allowable operating conditions of fleet vehicles.	Tier 4 - Attribute item
	First responders (police, fire, medical)	Understand functionality of ADS for risk assessment during an incident. Understand the operation of ADS is within defined operating conditions of the ADS.	Tier 3 - Attribute item
Rules & Regs.	Regulators (inc. various Govt. bodies not related to transportation)	Understand ADS functionality and limitations to define allowable operating conditions of fleet vehicles. Understand the operation of ADS is within defined operating conditions of the ADS.	Tier 3 - Attribute item
	Accident investigators (inc. police/law enforcement)	Understand ADS functionality and limitations to define allowable operating conditions of fleet vehicles. Understand the operation of ADS is within defined operating conditions of the ADS.	Tier 4 - Attribute value
Risk mgmt.	Internal risk managers (ADS developers or fleet operators)	Understand functionality of ADS for risk assessment, legal requirements, and business consideration.	Tier 4 - Attribute value
	Insurers (independent commercial insurance companies, inc. accident investigators)	Understand functionality of ADS for risk assessment, pricing and insurability.	Tier 4 - Attribute value
Public	Personal vehicle End User	Understand functionality of ADS for purchasing and using.	Tier 3 - Attribute item
	Media	Understand functionality of ADS for review and reporting.	Tier 3 - Attribute item
	Advocacy groups	Understand ADS functionality and limitations to confirm how well defined operating conditions are aligned with actual usage conditions.	Tier 3 - Attribute item

Clarify users and their expected needs to provide appropriate content level.

BSI → AVSC → NHTSA

ISO → **J3259** ← SAE
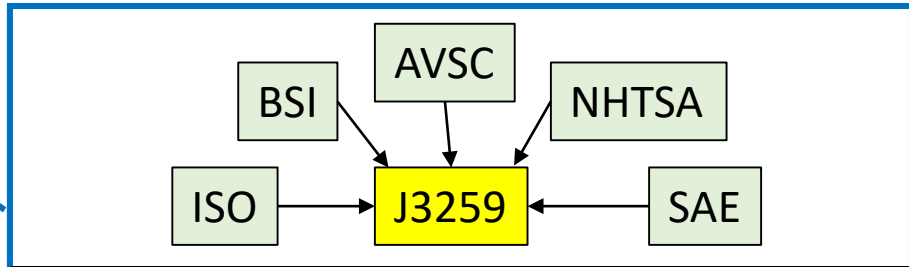
Analyze industry and gov't ODD efforts to develop harmonized set of attributes.

Define attribute classification for describing ODD consistently.

<Attribute Classification>

Tier 1: Attribute class

↳ **Tier 2**: Attribute category

   ↳ **Tier 3**: Attribute item

      ↳ **Tier 4**: Attribute value

Reference: ODD Users

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