



SURFACE VEHICLE RECOMMENDED PRACTICE

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Taxonomy and Definitions for Truck and Bus Automated Vehicle Systems

RATIONALE

Driving automation for trucks and buses has the potential to improve safety, fuel economy, and freight efficiency. To support these objectives, there is a growing need for a framework supporting common terminology and classification of ADS-enabled trucks and buses and multi-vehicle systems and their associated driving automation systems. SAE Recommended Practice J3016 lacks content to reflect the diverse and complex types and use of trucks and buses. To address the current limitations of the SAE J3016 document, it was determined that a new document focusing on trucks and buses is needed. This document is structured to complement SAE J3016.

FOREWORD

This recommended practice provides taxonomy and definitions describing the full range of levels of driving automation for a truck or bus, as well as multiple vehicles operating in concert (i.e., multi-vehicle systems), where multi-vehicle systems shall include at least two vehicles. This document includes definitions for all levels of driving automation and supporting terms for trucks and buses, clarifies the role of the driver, and provides context in developing laws, policies, regulations, and standards.

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1. SCOPE

This document provides definitions, terminology, and classifications for automated truck and bus vehicle applications. Vehicles covered by this document are those with a GVWR of more than 10000 pounds and where each vehicle utilizes driving automation systems that perform part or all of the driving task on a sustained basis and that range in level from some driving automation to full driving automation.

The document also provides levels of driving automation that apply to the driving automation feature engaged in any given instance of operation of an equipped vehicle. A vehicle may be equipped with a driving automation system that is capable of delivering multiple driving automation features that perform at different levels; the level of driving automation exhibited in any given instance is determined by the feature(s) that are engaged.

This document provides guidance for the elements of the dynamic driving task (DDT) for a truck or bus equipped with an Automated Driving System (ADS).

1.1 Document Use

All users of this document are encouraged to review all sections of this document and SAE J3016 prior to the use of any of the document content.

This document is structured to service both the novice and the expert user and developer of automated systems.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J3016	Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles
SAE J3147	Assessment of Evaluation Method Types to Determine Energy Efficiency of Multi-Vehicle Systems
SAE J3216	Taxonomy and Definitions for Terms Related to Cooperative Driving Automation for On-Road Motor Vehicles

2.1.2 Code of Federal Regulations (CFR) Publications

Copies of these documents are available online at <https://www.ecfr.gov>.

49 CFR § 390.5 Definitions

2.1.3 United States Code Publications

Copies of these documents are available online at <https://uscode.house.gov/>.

49 U.S.C. 5103 General regulatory authority

2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Technical Report.

2.2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J670 Vehicle Dynamics Terminology

SAE J3063 Active Safety Systems Terms and Definitions

SAE J3114 Human Factors Definitions for Automated Driving and Related Research Topics

2.2.2 FHWA Publications

Available from Federal Highway Administration, 1200 New Jersey Ave, SE, Washington, DC 20590, Tel: 202-366-4000, <https://highways.dot.gov/>.

FHWA. (2014). *Traffic monitoring guide*. https://www.fhwa.dot.gov/policyinformation/tmguidetmg_2013/vehicle-types.cfm.

2.2.3 ISO Publications

Copies of these documents are available online at <https://webstore.ansi.org/>.

ISO 26262-1:2018 Road Vehicles - Functional Safety - Part 1: Vocabulary

2.2.4 NHTSA Publications

Available from National Highway Traffic Safety Administration, 1200 New Jersey Avenue, SE, Washington, DC 20590, Tel: 1-888-327-4236, <https://www.nhtsa.gov/>.

NHTSA. (2020). *Ensuring American leadership in automated vehicle technologies: Automated vehicles 4.0 (AV 4.0)*. <https://www.nhtsa.gov/vehicle-manufacturers/automated-driving-systems#av-4.0>.

2.2.5 United States Code Publications

Copies of these documents are available online at <https://uscode.house.gov/>.

49 U.S.C. 30102(a)(7) Definitions, "Motor vehicle"

2.3 List of Abbreviations

ADS	Automated Driving System
ADS-DV	Automated Driving System Dedicated Vehicle
CMV	Commercial Motor Vehicle
DOT	Department of Transportation
DDT	Dynamic Driving Task
FHWA	Federal Highway Administration