

ISO/SAE PAS 22736:2021-08 (E)

Taxonomy and definitions for terms related to driving automation systems for on-road motor vehicles

Contents

Page

1.	SCOPE	1
2.	REFERENCES	2
2.1	Applicable Documents	2
2.1.1	SAE Publications	2
2.1.2	ANSI Accredited Publications	2
2.1.3	Other Publications	2
2.2	List of Abbreviations	2
3.	DEFINITIONS	3
4.	TAXONOMY OF DRIVING AUTOMATION	22
5.	LEVELS OR CATEGORIES OF DRIVING AUTOMATION	28
5.1	Level or Category 0 - No Driving Automation	28
5.2	Level or Category 1 - Driver Assistance	28
5.3	Level or Category 2 - Partial Driving Automation	29
5.4	Level or Category 3 - Conditional Driving Automation	29
5.5	Level or Category 4 - High Driving Automation	29
5.6	Level or Category 5 - Full Driving Automation	30
6.	SIGNIFICANCE OF OPERATIONAL DESIGN DOMAIN (ODD)	30
7.	DEPRECATED TERMS	32
7.1	Autonomous, Driving Modes(s), Self-Driving, Unmanned, Robotic	33
7.1.1	Autonomous	33
7.1.2	Driving Mode(s)	33
7.1.3	Self-Driving	33
7.1.4	Unmanned	33
7.1.5	Robotic	33
7.2	Automated or Autonomous Vehicle	34
7.3	Control	34
8.	ADDITIONAL DISCUSSION	34
9.	NOTES	40
Figure 1	Examples of driving automation system features/types that could be available during a given trip	6
Figure 2	Schematic (not a control diagram) view of driving task showing DDT portion	7
Figure 3	.....	9
Figure 4	.....	9
Figure 5	.....	10
Figure 6	.....	10
Figure 7	.....	10
Figure 8	.....	11
Figure 9	Diagram showing vehicle axes of motion (SAE J670)	12
Figure 10	Simplified logic flow diagram for assigning driving automation level to a feature	25
Figure 11	ODD relative to driving automation levels	32
Figure 12	ODD relative to driving automation levels	32
Figure 13	Use case sequence for a Level 3 feature showing ADS engaged, occurrence of a failure or out-of-ODD condition, and the fallback-ready user performing the fallback, or, if the fallback-ready user fails to do so, a failure mitigation strategy, such as stop-in-lane	37
Figure 14	Use case sequence at Level 4 showing ADS engaged, a catastrophic event (e.g., complete power failure) and the system achieving a minimal risk condition	37
Table 1	Summary of levels of driving automation	23
Table 2	Roles of human user and driving automation system by level of driving automation	26
Table 3	User roles while a driving automation system is engaged	28