

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