

ISO/TS 5283-1:2025-10 (E)

Road vehicles - Driver readiness and intervention management - Part 1: Partial automation (Level 2)

Contents

Page

Foreword.....	v
Introduction.....	vi
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	1
4 Implementations of partial driving automation.....	2
4.1 General.....	2
4.2 L2 hands-on and hands-off implementations.....	2
4.3 Current designs of driver state related system interventions.....	3
5 Empirical findings with respect to driver states and behaviour during partial driving automation.....	4
5.1 General.....	4
5.2 General effects of driving automation on driver states and performance.....	4
5.2.1 Driver distraction.....	5
5.2.2 Drowsiness.....	6
5.2.3 Disconnection from physical control.....	6
5.2.4 Mental models, system trust and the role of user expectation.....	9
6 Overview of requirements and guidelines on driver state monitoring from core standardization and regulatory bodies.....	9
6.1 General.....	9
6.2 Legal/regulatory bodies.....	10
6.2.1 UN R79.....	10
6.2.2 UN R171.....	10
6.2.3 EU 2019/2144.....	10
6.2.4 UN R157.....	12
6.3 Standards and norms.....	12
6.3.1 ISO/SAE PAS 22736 (SAE J3016).....	12
6.3.2 SAE J3114.....	12
6.3.3 ISO 21717.....	13
6.4 Other stakeholders.....	13
6.4.1 Euro NCAP.....	13
6.4.2 NTSB.....	14
6.4.3 NHTSA.....	14
6.5 Summary of reports.....	14
7 A conceptual framework for driver readiness and intervention management.....	14
7.1 General.....	14
7.2 The notion of “driver readiness”.....	14
7.3 Conceptualizing driver readiness and intervention management.....	15
7.3.1 Definitions of requirements on driver readiness.....	16
7.3.2 Layers of driver readiness.....	17
7.3.3 Measurement of driver state indicators.....	18
7.3.4 Driver readiness assessment and system intervention.....	19
8 High-level considerations regarding the design of driver readiness and intervention management.....	19
8.1 What and how to measure.....	19

8.1.1	Driver availability	22
8.1.2	Engagement in DDT	23
8.1.3	Intention to intervene.....	25
8.1.4	Utilizing multiple measures for assessing driver readiness	25
8.2	Challenges in the design of system intervention strategies	26
9	Considerations for validation of driver readiness and intervention management systems.....	27
9.1	General.....	27
9.2	Unintended driver behaviour without a DMS and its associated risk.....	27
9.3	Effectiveness of the DMS in mitigating unintended behaviour.....	27
9.4	Impact of the driving automation system integrated with the DMS on safety related measures in realistic corner-case scenario	27
9.5	Field safety effect.....	28
	Bibliography.....	29