

ISO 22839:2013-06 (E)

Intelligent transport systems - Forward vehicle collision mitigation systems - Operation, performance, and verification requirements

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Symbols (and abbreviated terms)	6
5	Classifications	7
5.1	System classification by curve radius capability	7
5.2	Classification by countermeasure types included	7
5.2.1	Collision Warning (CW) countermeasure	7
5.2.2	Speed Reduction Braking (SRB) countermeasure	7
5.2.3	Mitigation Braking (MB) Countermeasure	8
5.2.4	Combining countermeasures	8
6	Requirements	8
6.1	Minimum enabling capabilities	8
6.1.1	Light vehicle necessary functions	8
6.1.2	Heavy vehicle necessary functions	9
6.2	Operating model – State Transition Diagram	9
6.2.1	State functional descriptions	10
6.3	Performance requirements	11
6.3.1	Target vehicle types	11
6.3.2	Collision types	11
6.3.3	Operating speed	11
6.3.4	Target vehicle detection area	13
6.3.5	Target discrimination	14
6.3.6	Countermeasure requirements	15
6.3.7	Driver controls and human interface	18
7	Validation methods	19
7.1	Test target specification	19
7.1.1	Detectability specifications	19
7.1.2	Test target physical constraints	20
7.2	Environmental conditions	20
7.2.1	Driving surface	20
7.2.2	Lighting conditions	20
7.2.3	Ambient air temperature	20
7.2.4	Horizontal visibility	21
7.3	Test method for detection zone	21
7.4	Test method for functional ability	21
7.5	Test method for target discrimination ability	22
7.5.1	Longitudinal discrimination test	22
7.5.2	Straight road lateral discrimination test	23
7.5.3	Straight road lateral offset discrimination test	23
7.5.4	Curved road lateral target discrimination test	24

7.5.5	Overhead discrimination test	24
Annex A (informative)		26
A.1	Mitigation effectiveness and the potential for collision avoidance	26
A.2	Minimum relative speed capability and assumed sensor capability	26
A.3	Operating velocity range minimum upper bound	28
A.4	Reference data on global speed distribution of rear-end collisions	28
A.4.1	USA	29
A.4.2	Canada	29
A.4.3	Japan	30
A.5	Vehicle classifications	31
A.6	Derivation of ETTC	31
Bibliography		33