IVASA

ASEAN NCAP Intelligent Vehicle Advanced Safety Assessment Program

Evaluation Protocol for Basic Driving Assistance

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Contents

IVASA Evaluation Protocol for Basic Driving Assistance

1 Scope

This document specifies the assessment methods for the basic driving assistance component of IVASA under the ASEAN NCAP Intelligent Vehicle Advanced Safety Assessment Program.

2 Assessment Methods

2.1 Overview

Basic driving assistance shall be assessed through proving-ground testing, with a maximum score of 100 points. The assessment comprises Car-to-Vehicle, Car-to-VRU, Car-to-Obstacle, and Car-to-Road-Infrastructure tests, worth 36, 36, 12, and 16 points, respectively.

2.2 Car-to-Vehicle Test Scoring

The car-to-vehicle test has a maximum score of 36 points and comprises nine test scenarios. The scoring method is specified in Table 1.

Table 1 Scoring matrix for car-to-vehicle test scenarios

No.	Test scenario	VUT speed (km/h)	VT speed (km/h)	Assessment criterion	Points
1	Stationary passenger car ahead on a straight road	60	0	Collision avoided	4
2	Stationary passenger car ahead on a curve	110	0	Collision avoided	4
3	Moving light truck ahead on a straight road	60	20	Collision avoided	4
4	Stationary light truck ahead on a curve	80	0	Collision avoided	4
5	Passenger car cutting in at night	80	50	Collision avoided	4
6	Passenger car crossing	40	30	Collision avoided	4
7	Stationary heavy truck ahead in rain	60	0	Collision avoided	4
8	Moving heavy truck ahead	110	30	Collision avoided	4

9	VUT travelling straight with an oncoming passenger car turning right	30	20	Collision avoided	2
		50	20	Collision avoided	2

2.3 Car-to-VRU Test Scoring

The car-to-VRU test has a maximum score of 36 points and comprises nine test scenarios. The scoring method is specified in Table 2.

Table 2 Scoring matrix for car-to-VRU test scenarios

No.	Test scenario	VUT speed (km/h)	Target speed (km/h)	Assessment criterion	Points
1	Stationary motorcycle carrying a child ahead in rain	50	0	Collision avoided	2
		80	0	Collision avoided	2
2	Moving motorcycle carrying a child ahead	60	20	Collision avoided	2
		100	60	Collision avoided	2
3	Motorcycle carrying a child cutting in ahead at night	60	40	Collision avoided	4
4	Motorcycle carrying a child crossing ahead	50	20	Collision avoided	2
		50	30	Collision avoided	2
5	Motorcycle crossing ahead (obstructed)	50	30	Collision avoided	2
		80	30	Collision avoided	2
6	Pedestrian crossing	50	5	Collision avoided	4
7	Pedestrian walking longitudinally at night	50	5	Collision avoided	2
		80	5	Collision avoided	2
8	Secondary target vehicle (motorcycle)	45	0	Collision avoided	2
		60	0	Collision avoided	2
9	VUT travelling straight with an oncoming motorcycle turning right	30	15	Collision avoided	2
		50	15	Collision avoided	2

2.4 Car-to-Obstacle Test Scoring

The car-to-obstacle test has a maximum score of 12 points and comprises three test scenarios. The scoring method is specified in Table 3.

Table 3 Scoring matrix for car-to-obstacle test scenarios

No.	Test scenario	VUT speed (km/h)	Target speed (km/h)	Assessment criterion	Points
1	Cow crossing	60	3	Collision avoided	2
		100	3	Collision avoided	2
2	Wild boar crossing	60	10	Collision avoided	2
		100	10	Collision avoided	2
3	Secondary collision	60	0	Collision avoided	2
		100	0	Collision avoided	2

2.5 Car-to-Road-Infrastructure Test Scoring

The car-to-road-infrastructure test has a maximum score of 16 points and comprises four test scenarios. The scoring method is specified in Table 4.

Table 4 Scoring matrix for car-to-road-infrastructure test scenarios

No.	Test scenario	VUT speed (km/h)	Target speed (km/h)	Assessment criterion	Percentage Score	Points
1	Traffic-signal recognition and response	60	/	When the signal is red, the system shall issue a warning and reduce the VUT speed to 30 km/h or below	50%	4
				When the signal is red, the system shall issue a warning and stop the VUT before the stop line	100%	

2	Stop-sign recognition and response	60	/	The system shall issue a warning and reduce the vehicle speed to 30 km/h or below	50%	4
				The system shall issue a warning and stop the VUT before the stop line	100%	
3	Speed-limit-sign recognition and response	90	/	The system shall reduce the VUT speed to the posted speed limit or below before the rear of the VUT passes the plane of the speed-limit sign	100%	4
4	Roadworks-zone navigation	60	/	Collision avoided	100%	2
		100	/	Collision avoided	100%	2

2.6 Overall Assessment

The overall basic driving assistance assessment comprises five ratings: Good (G), Adequate (A), Marginal (M), Weak (W), and Poor (P). The assessment criteria are specified in Table 5.

a） The overall rating is Good (G) when the basic driving assistance percentage score is at least 80%;

b） The overall rating is Adequate (A) when the basic driving assistance percentage score is at least 70% but less than 80%;

c） The overall rating is Marginal (M) when the basic driving assistance percentage score is at least 60% but less than 70%;

d） The overall rating is Weak (W) when the basic driving assistance percentage score is at least 50% but less than 60%;

e） The overall rating is Poor (P) when the basic driving assistance percentage score is less than 50%.

Table 5 Overall basic driving assistance assessment

Overall rating	**Percentage Score**
Good(G)	Percentage score ≥ 80%

Adequate(A)	70% ≤ Percentage score < 80%
Marginal(M)	60% ≤ Percentage score < 70%
Weak(W)	50% ≤ Percentage score < 60%
Poor(P)	Percentage score < 50%