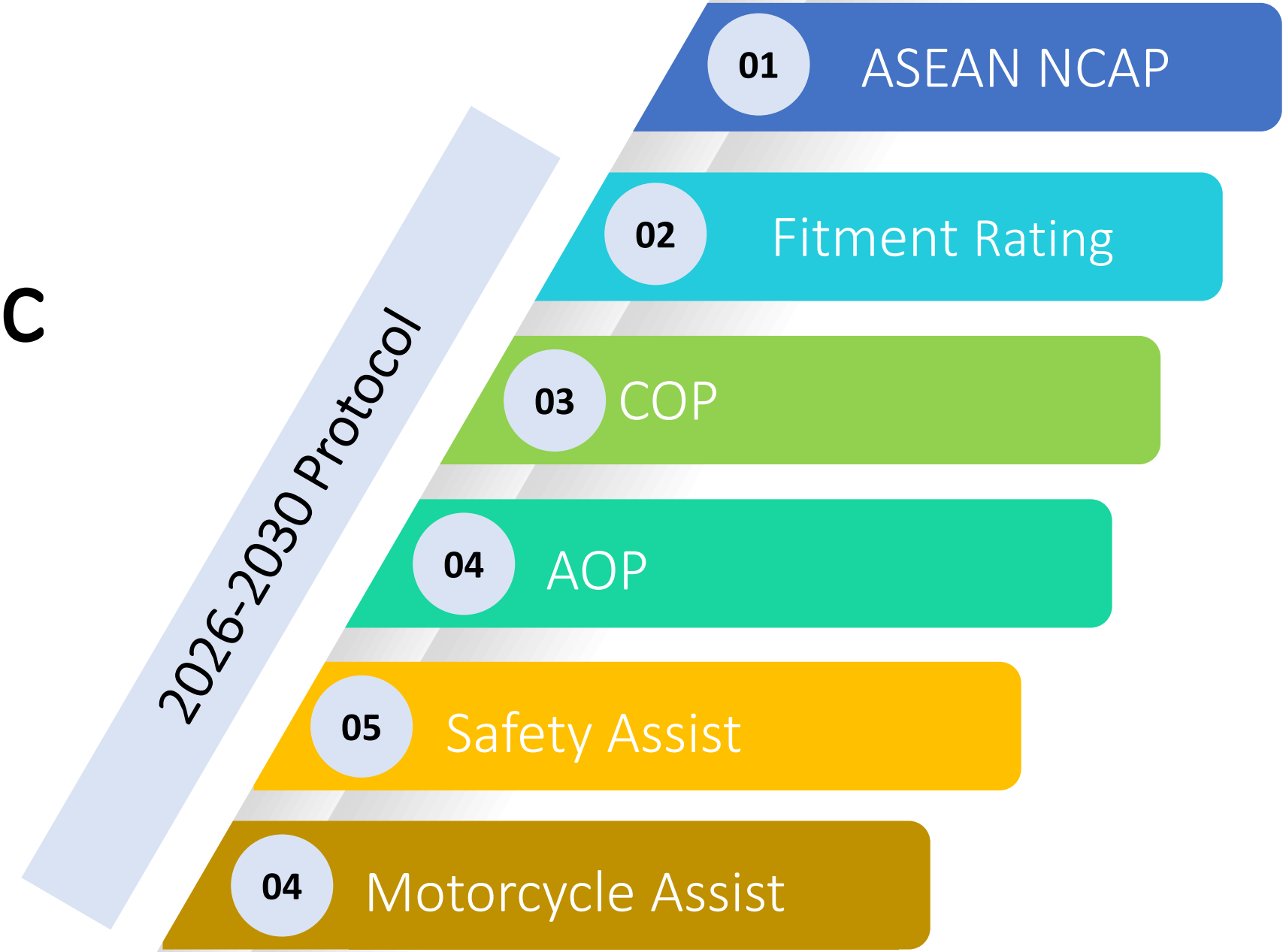
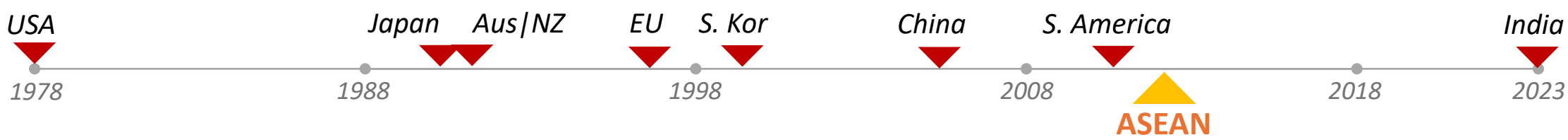
INTRODUCTION OF ASEAN NCAP 2026-2030 PROTOCOLS

Ts. Nurulhana Borhan
Ho Chi Minh University of Technology
29 July 2025

Topic


2026-2030 Protocol
01
ASEAN NCAP
02
Fitment Rating
03
COP
04
AOP
05
Safety Assist
04
Motorcycle Assist



NCAP Worldwide

New Car Assessment Program for ASEAN

ASEAN NCAP

www.aseancap.org

ASEAN NCAP
www.aseancap.org

- Local behaviour
- Local roads
- Local environment

ASEAN NCAP assessment

Vehicle Safety

ASEAN Characteristics

Technology provider

User

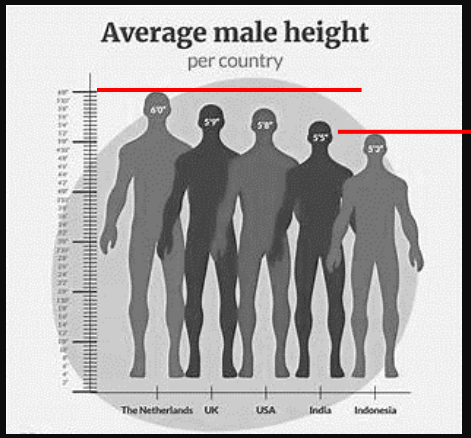
ASEAN **Characteristics**

Traffic composition

Traffic conflicts
Accident scenario

Lane width

Environment
- Temperature
- Humidity



2026-2030 Protocol

ASEAN NCAP

www.aseancap.org

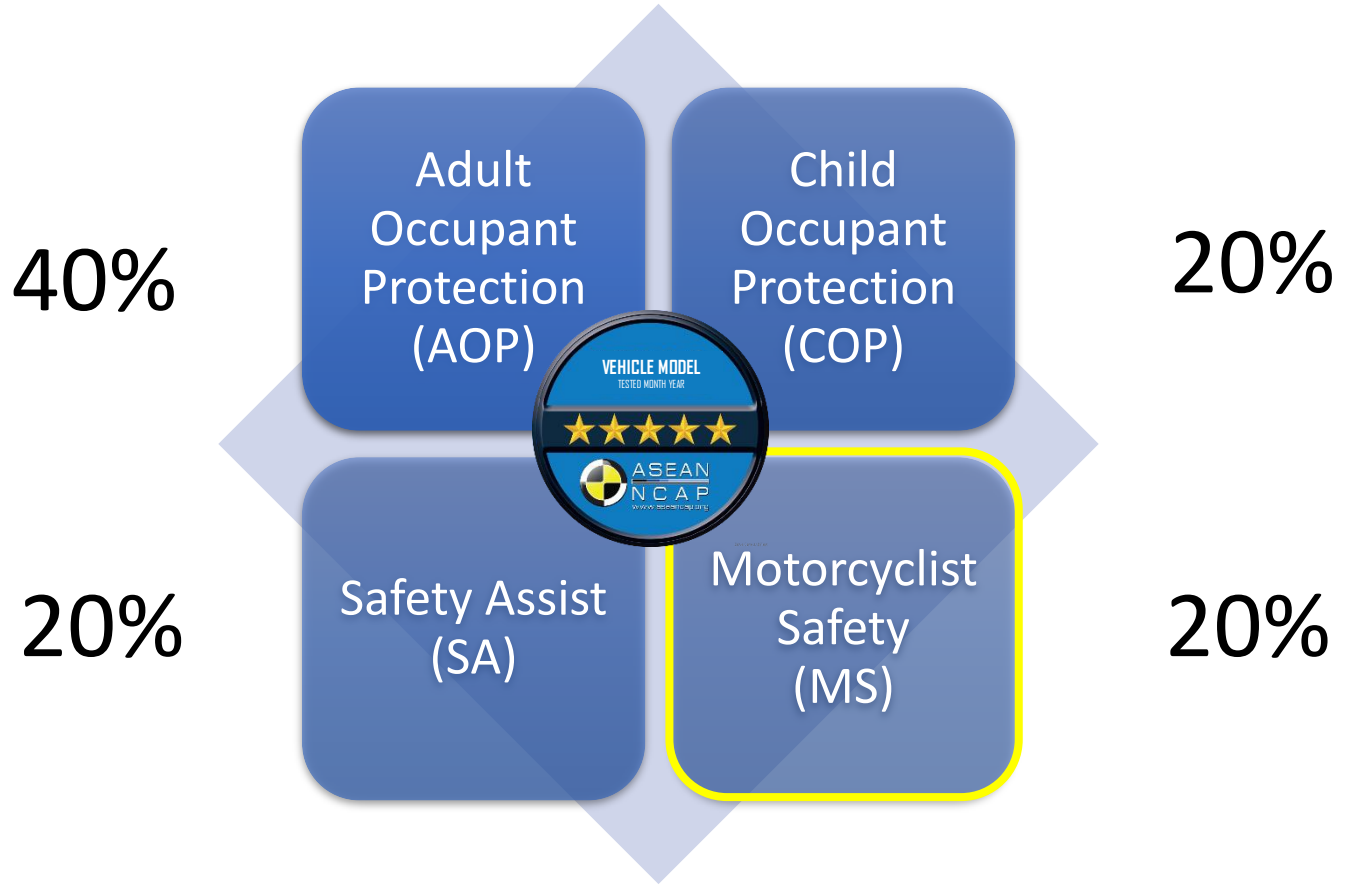
ASEAN NCAP Star Rating

- **Dummy injury**
- **vehicle performance**
- **component performance**

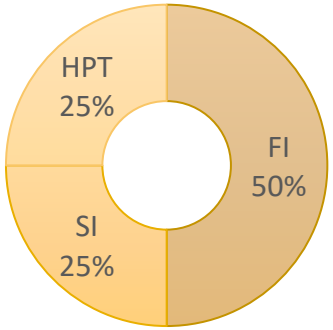
Assessment

Fitment Rating Score

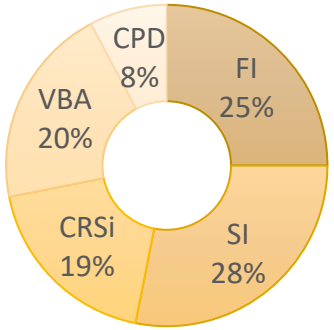
ASEAN NCAP Assessment



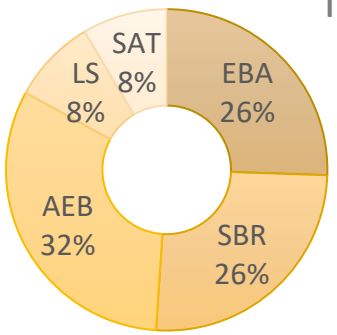
ASEAN NCAP Assessment



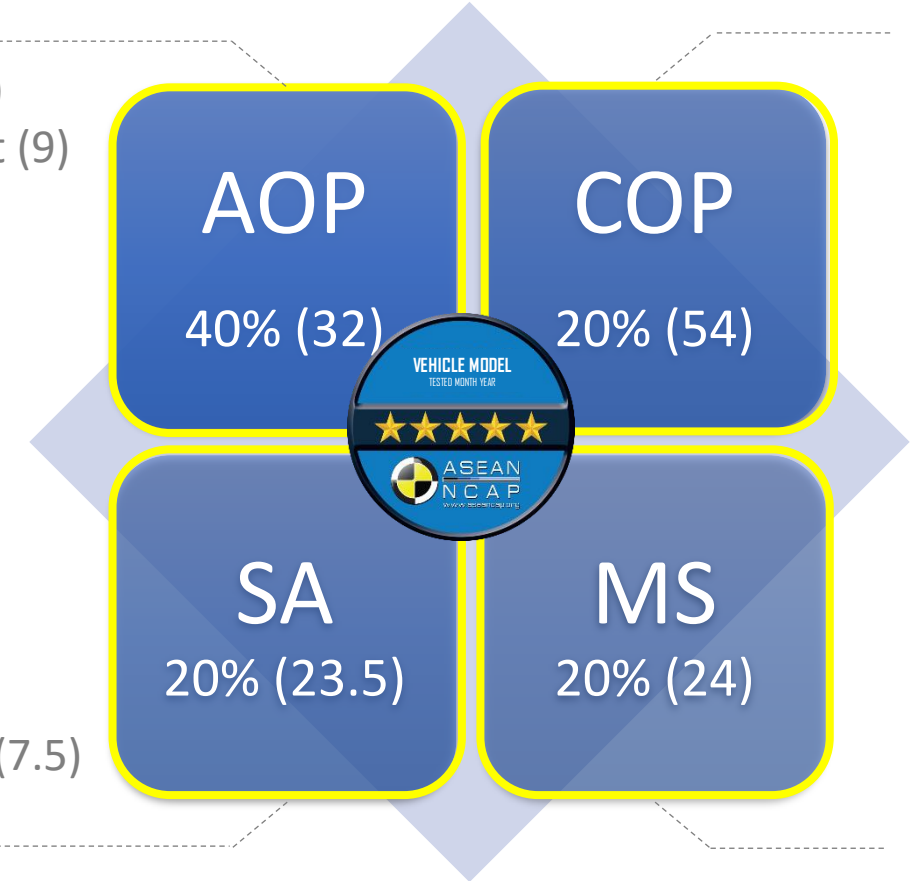
Dummy injury + vehicle performance + component performance



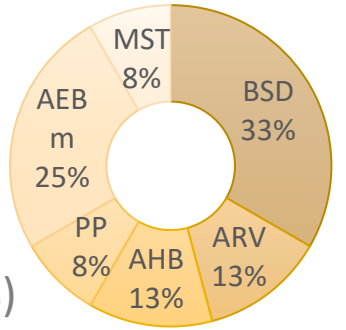
- Frontal crash test (18)
- Side Impact crash test (9)
- Head Protection Technology (9)



- Emergency Brake Assist (6)
- Seatbelt Reminder (6)
- Autonomous Emergency Braking (7.5)
- Lane Support (2)
- Advanced SAT (2)



- Frontal crash test (16)
- Side Impact crash test (8)
- CRS installation (12)
- Vehicle Based Assessment (13)
- Child Presence Detection (5)



- Blind Spot Detection (8)
- Rear View Technology (3)
- Auto High-beam (3)
- AEB Motorcycle (6)
- Pedestrian Protection (2)
- Advanced MST (2)

ASEAN NCAP Star Rating

2026-2030

V/S

2021-2025

2021-2025

40%	20%	20%	20%
AOP	**COP**	**SA**	**MS**
FI 16	FI 16	EBA 6	BSD / BSV 8
SI 8	SI 8	SBR 6	ARV 4
HPT 8	CRSi 12	AEB 6	AHB 2
	VBA 13	SAT 3	PP 2
	CPD 2		MST +2
32	**51**	**21**	**16**
80	75	70	50
70	60	50	40
60	30	40	30
50	25	30	20
40	15	20	10

2026-2030

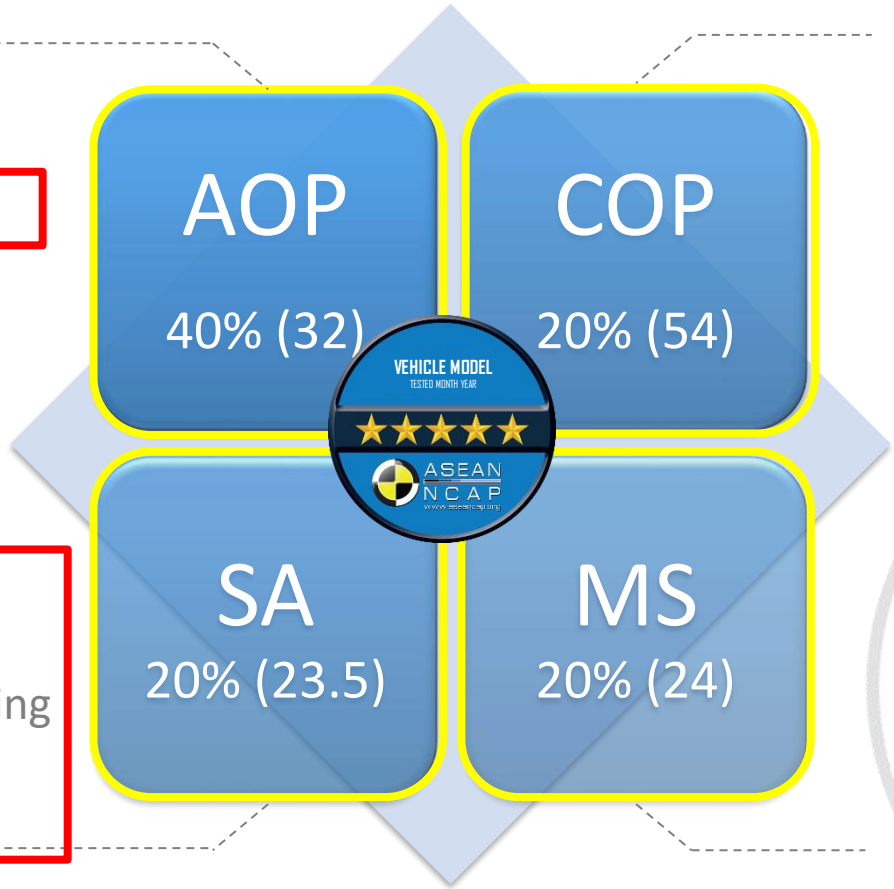
40%	20%	20%	20%
AOP	**COP**	**SA**	**MS**
FI 16	FI 16	EBA 6	BSD / BSV 8
SI 8	SI 8	SBR 6	ARV 3
HPT 8	CRSi 12	AEB 7.5	AHB / ADB 3
	VBA 13	LKA 2	PP 2
	CPD 5	SAT 2	AEB MC 6
			MST 2

	32	54	23.5	24
★★★★★	80	75	75	55
★★★★	70	60	60	45
★★★	60	50	40	40
★★	50	40	30	30
★	40	30	20	20

ASEAN NCAP
www.aseancap.org
Safer Cars for ASEAN Region

Fitment Rating System

- Frontal crash test
- Side Impact crash test
- Head Protection Technology



- Frontal crash test
- Side Impact crash test
- CRS installation
- Vehicle Based Assessment
- Child Presence Detection

- Emergency Brake Assist
- Seatbelt Reminder
- Autonomous Emergency Braking
- Lane Support
- Advanced SA

- Blind Spot Detection
- Rear View Technology
- Auto High-beam
- AEB Motorcycle
- Pedestrian Protection
- Advanced MST

Type A FRS

XXX Technology Application

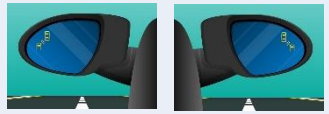
- HPT
- AEB (CCRs, CCRm, CCRb)
- Lane Support (LKA, LDW)
- ARV
- AEB MC

$$\frac{\sum_i^N \alpha \times CS}{\sum_i^N CS} \times TFS \times NS$$

FRS

Fitment Type	Details	Fitment Rating Score, α
Option A	Vehicle model is equipped with XXX as standard equipment	1
Option B	Vehicle model is equipped with XXX as optional equipment	0.5
Option C	Vehicle model is not equipped with XXX	0

FRS for BST/BSV

Fitment Type	Details	Fitment Rating Score, α
Option A	Vehicle model is equipped with BST for both nearside and offside as standard equipment	1  **STD.**
Option B	Vehicle model is equipped with BST for both nearside and offside as optional equipment	0.5  **OPT.**
Option C	Vehicle model is equipped with BST for one side only as standard equipment	0.5  **STD.**
Option D	Vehicle model is equipped with BST for one side only as optional equipment	0.25  **OPT.**
Option E	Vehicle model is not equipped with BST	0

Star Rating Validity

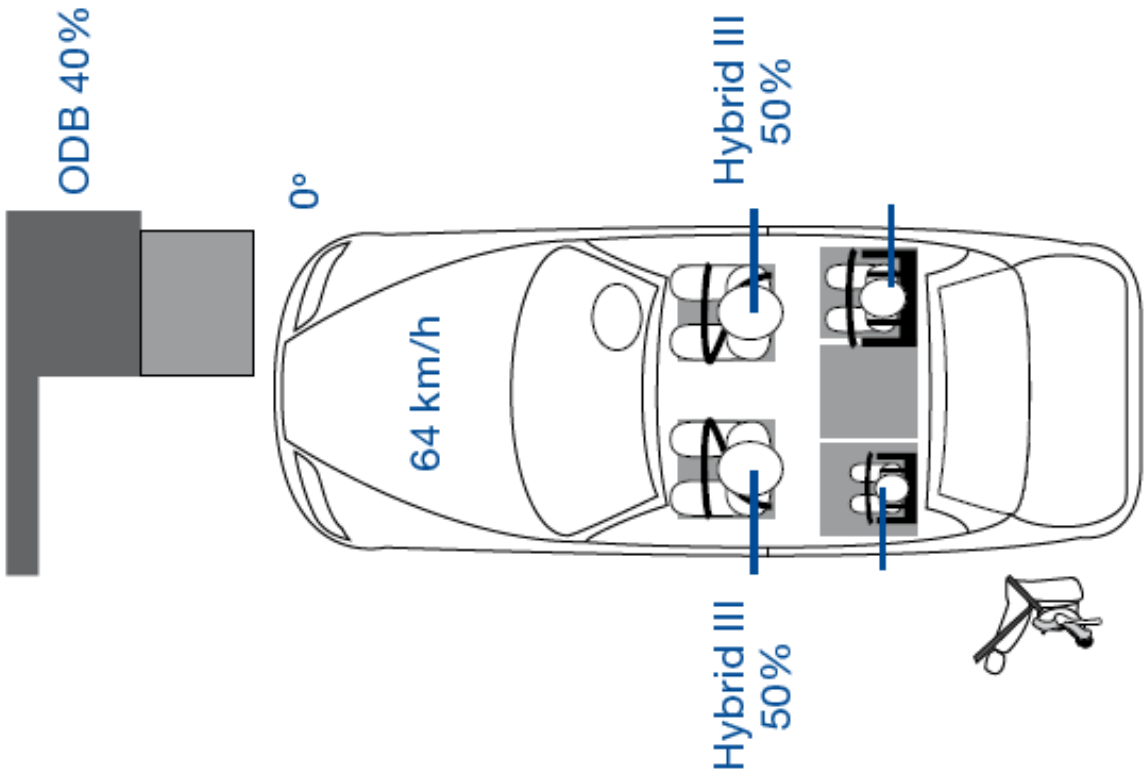
For a particular tested model

Adult Occupant Protection

2026-2030

40%	20%	20%	20%
AOP	**COP**	**SA**	**MS**
FI 16	FI 16	EBA 6	BSD / BSV 8
SI 8	SI 8	SBR 6	ARV 3
HPT 8	CRSi 12	AEB 7.5	AHB / ADB 3
	VBA 13	LKA 2	PP 2
	CPD 5	SAT 2	AEB MC 6
			MST 2
32	**54**	**23.5**	**24**
80	75	75	55
70	60	60	45
60	50	40	40
50	40	30	30
40	30	20	20

Frontal Impact



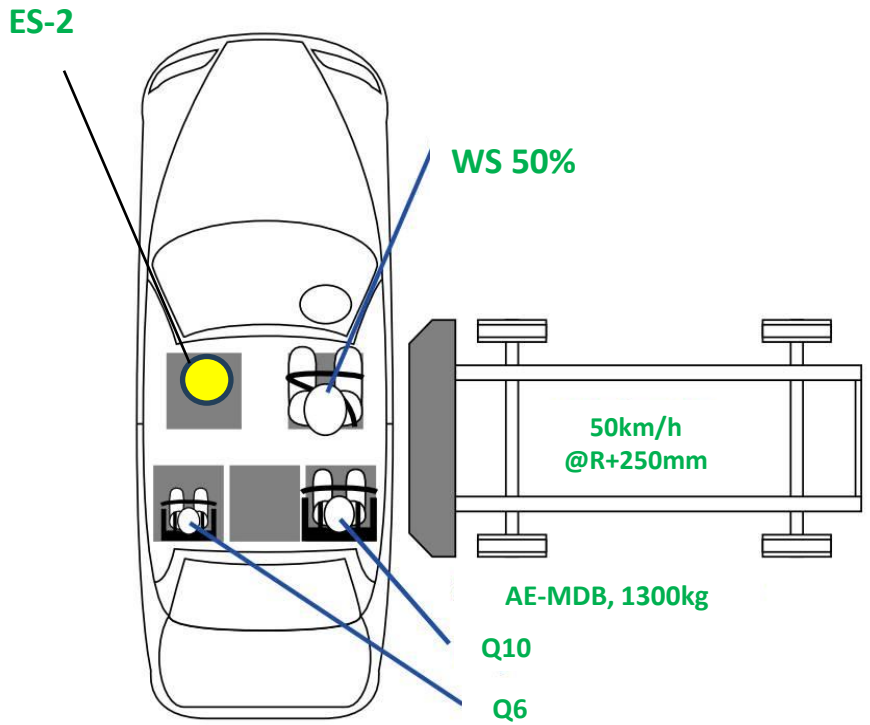
There is no significant change in-term of AOP since no changes on adult dummies & test speed

Side impact

- Dummy (front offside): **WorldSID 50th%ile Male**
- Dummy (front farside): **ES 2 (non-instrumented)**

- Dummy (rear right): **Q10 Child Dummy**
- Dummy (rear left): **Q6 Child Dummy**

- Impactor: AE-MDB 1300 kg
- Impact Speed: **50 km/h ± 1.0 km/h**



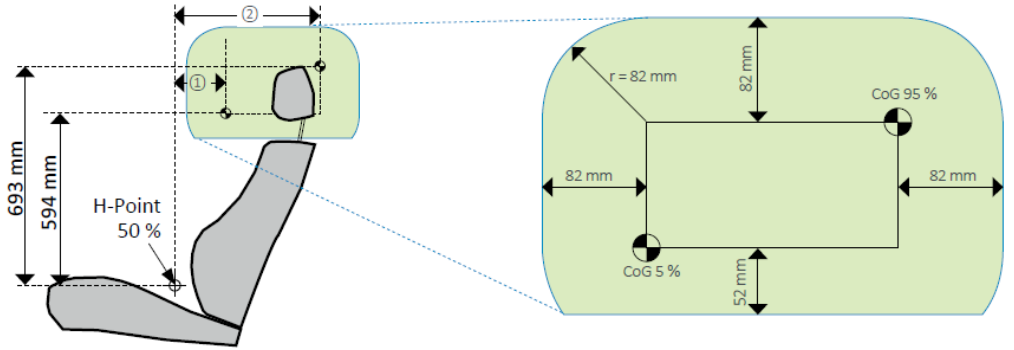
Head Protection Technology (HPT)

- Vehicles equipped with HPT e.g. side airbags, curtain air bags, seat mounted, etc. will have the **inflated energy absorbing areas**

- Evaluated by means of a <u>geometric assessment.</u>

- The airbags must provide protection for
  - a range of occupant size
  - seated at the front on both sides of the vehicle.

- Where a vehicle does offer sufficient protection,
  - maximum 8 point will be awarded
  - based on ASEAN NCAP FRS



Child Occupant Protection

Child Left Incidences

8-month-old baby died, left in the car for more than 7 hours

Another toddler in Malaysia dies after busy mother left her in car for over 7 hours

16-Month-Old Baby Dies After Being Left In The Car For Hours, Police Investigate Case For Possible Neglect

The father forgot to send the baby to the daycare centre which is situated at the IPTA campus where he works.

BY KERAN
OCTOBER 25, 2023

Press Statement No. 42-2023_Child Death Left in Cars-Children Commissioner's Urges Immediate Action and Awareness

November 14, 2023 · by Media with no comment · Press Statement · ♥ 0

KUALA LUMPUR (14 NOVEMBER 2023) – The Children's Commissioner of the Human Rights Commission (SUHAKAM) is distraught over the recent vehicular-related hyperthermia deaths of children resulting from being left unattended in the car.

It is prudent to recognise that the over-reliance on advanced child safety features has gradually taken away the innate vigilance and hinders our memories resulting in enhancing the parents' forgetfulness. Whilst the popularisation of rear-facing car seats has improved the car safety of children, it has collaterally given rise to preventable incidences.

Statistics and studies have shown that these needless deaths of children happen largely to babies below 3 years, taking into account their underdeveloped responses to threats and risks. Parents are warned against complacency and the common belief that incidents alike would never happen to them.

Prevention efforts should be ramped up by all relevant stakeholders especially the Ministry of Transport to create a nationwide campaign warning parents and public on this issue. The automotive and child-care industries including baby stores are encouraged to step up in addressing and advertising the risks of foregoing deaths owing to their potential commercial relationship that allows raising awareness among their clients.

Section 31 of the Child Act 2001 [Act 611] is in place to be enforced on any incidence that negligently places children's safety and lives at risk. Prosecutors are urged to join forces to educate and mainstream this issue within their informative and prosecutorial role as an agent of deterrent to the communities. Parents are strongly advised to routinely check on the safety and presence of their children and avoid taking granted on safety of the children.

2026-2030

40%	20%	20%	20%
AOP	**COP**	**SA**	**MS**
FI 16	FI 16	EBA 6	BSD / BSV 8
SI 8	SI 8	SBR 6	ARV 3
HPT 8	CRSi 12	AEB 7.5	AHB / ADB 3
	VBA 13	LKA 2	PP 2
	CPD 5	SAT 2	AEB MC 6
			MST 2
32	**54**	**23.5**	**24**
80	75	75	55
70	60	60	45
60	50	40	40
50	40	30	30
40	30	20	20

COP Assessment

DYNAMIC ASSESSMENT

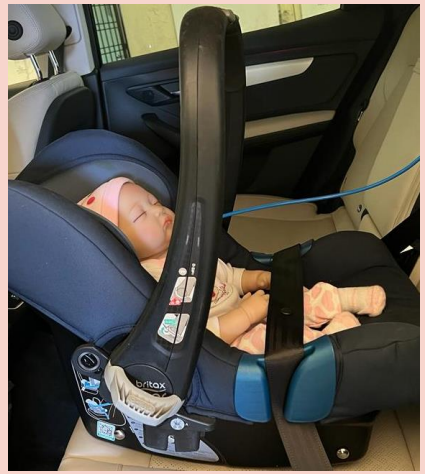
- Frontal Impact

- Side Impact

CRS INSTALLATION

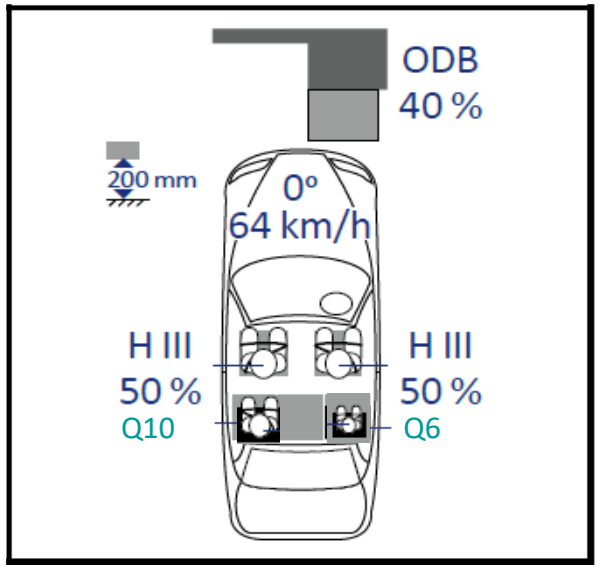
VEHICLE BASED ASSESSMENT

CPD

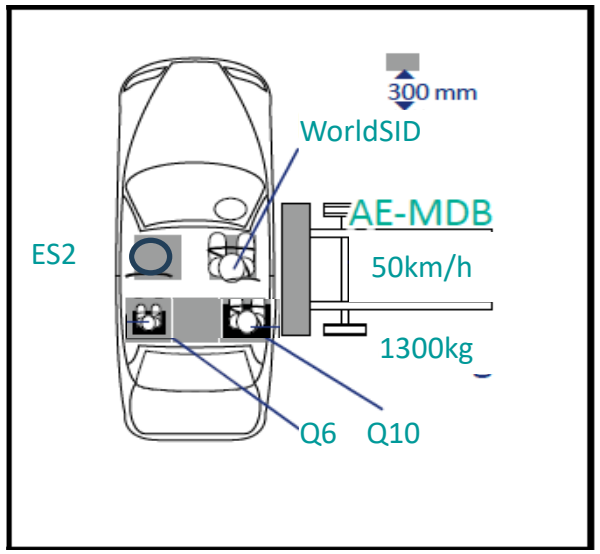


Dynamic Assessment
Frontal & Side Impact Test Protocol

FRONTAL IMPACT



SIDE IMPACT



CRS TYPE USE FOR DYNAMIC ASSESSMENT	
Q6 DUMMY	• Forward facing CRS for a child with a stature of 125cm. • CRS recommended by the vehicle manufacturer, or selection CRS from the top pick list. • Rearwards facing CRS is not allowed.
Q10 DUMMY	• Booster cushion with backrest. • CRS recommended by the vehicle manufacturer or selection from the top pick list. • Foot/toe touch front seat –> booster cushion. • Head touch roof –> seatbelt only.

Installation Matrix

CRS INSTALLATION ASSASSMENT MATRIX				
	Category	CRS	Direction	Interface
REFERENCE LIST	<85 cm	Joie i-Gemm 3	Rwd	B _ _ _
	<85 cm	Joie i-Gemm 3 + Joie i-base 2	Rwd	_ I L _
	40-105 cm	Joie Steadi	Rwd	B _ _ _
	76-105 cm	Joie Steadi	Fwd	B _ _ _
	76-105 cm	Joie Elevate	Fwd	B _ _ _
	40-105 cm	Nuna Todl Next + Nuna Base Next	Rwd / Fwd	_ I L _
	40-105 cm	Recaro Salia	Rwd / Fwd	_ I L _
	40-105 cm	Chicco Seat 3 Fit i-Size Air	Rwd / Fwd	_ I L _
	40-125 cm	Joie i-Spin Grow	Rwd / Fwd	_ I _ S
	100-150 cm	Cozy N Safe Augusta i-Size	Fwd	B I _ _
	100-150 cm	Recaro Mako Elite 2	Fwd	B I _ _
OEM	<85 cm	XXXX		
	76-105cm	XXXX		
	Q6	XXXX		
	Q10	XXXX		

- Based on CRS available in 3 ASEAN Countries.
- The top pick list are UNECE R129 certified.

Introduce ASEAN NCAP Manikin

- Developed according to ASEAN data

Preferable to use

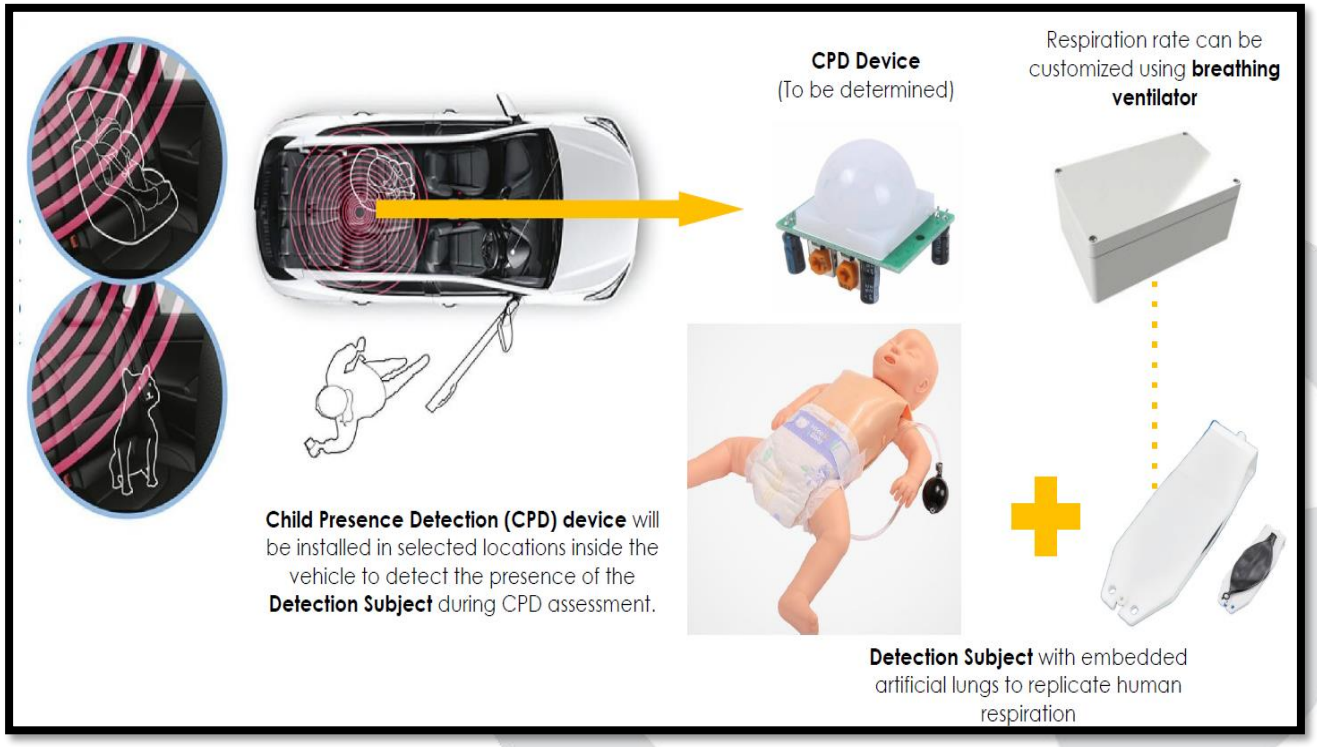
- Manikin 6YO (105-135cm) & Manikin 10YO (≈135cm)
- If not available, allowed to used Q6,Q10 or equivalent.

Child Presence Detection

The following respiration rates shall be used for sleeping children:

- New-born to 2 years : 22-30 bpm
- >2 years to 5 years : 18-20 bpm

No	Criteria	CPD system	Point
1	Detection of all passengers - Rearward Facing - Forward Facing	Direct sensing	5.00
2	Detection of passengers - Forward Facing	Direct Sensing	4.00
3	Reminder System – Alert	Indirect Sensing	2.50



Safety Assist

2026-2030

40%	20%	20%	20%
AOP	**COP**	**SA**	**COP**
FI 16	FI 16	EBA 6	BSD / BSV 8
SI 8	SI 8	SBR 6	ARV 3
HPT 8	CRSi 12	AEB 7.5	AHB / ADB 3
	VBA 13	LKA 2	PP 2
	CPD 5	SAT 2	AEB MC 6
			MST 2

32	**54**	**23.5**	**24**
80	75	75	55
70	60	60	45
60	50	40	40
50	40	30	30
40	30	20	20

SAFETY ASSIST ASSESSMENT (SA)

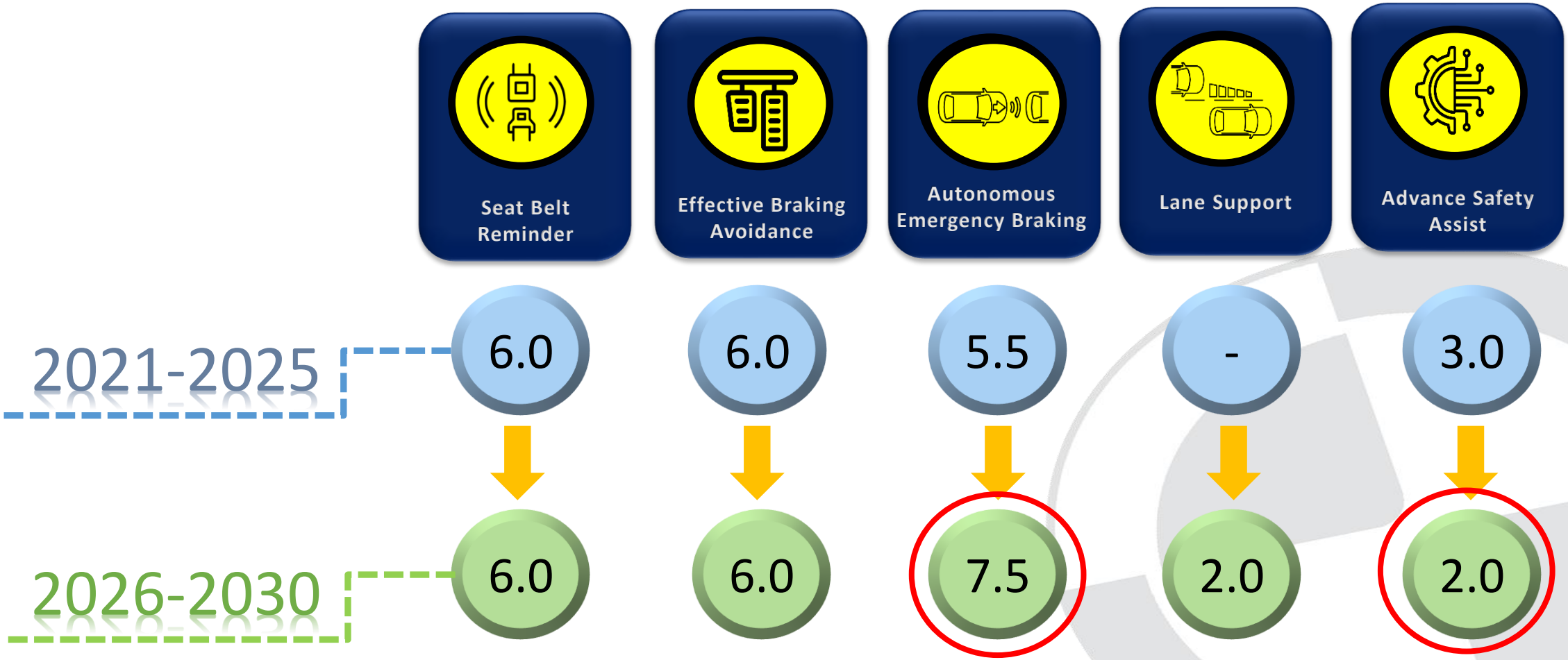
2021 - 2025

1. Seat Belt Reminder (SBR)
2. Anti-Lock Braking System (ABS)
3. Electronic Stability Control (ESC)
4. Autonomous Emergency Braking (AEB)
5. ADVANCED Safety Assist Technology (SAT)

2026 - 2030

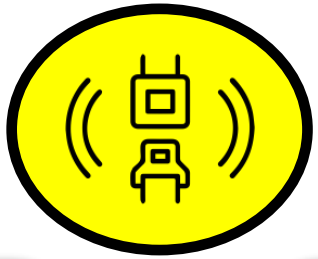
1. Seat Belt Reminder (SBR)
2. **Effective Braking Avoidance (EBA)**
3. Autonomous Emergency Braking (AEB)
4. **Lane Support (LS)**
5. ADVANCED Safety Assist Technology (SAT)

SA POINTS


Seat Belt Reminder
Effective Braking Avoidance
Autonomous Emergency Braking
Lane Support
Advance Safety Assist
2021-2025
6.0
6.0
5.5
-
3.0
2026-2030
6.0
6.0
7.5
2.0
2.0

OVERVIEW

SBR



2021-2025

- Initial signal and
- Intermediate signal

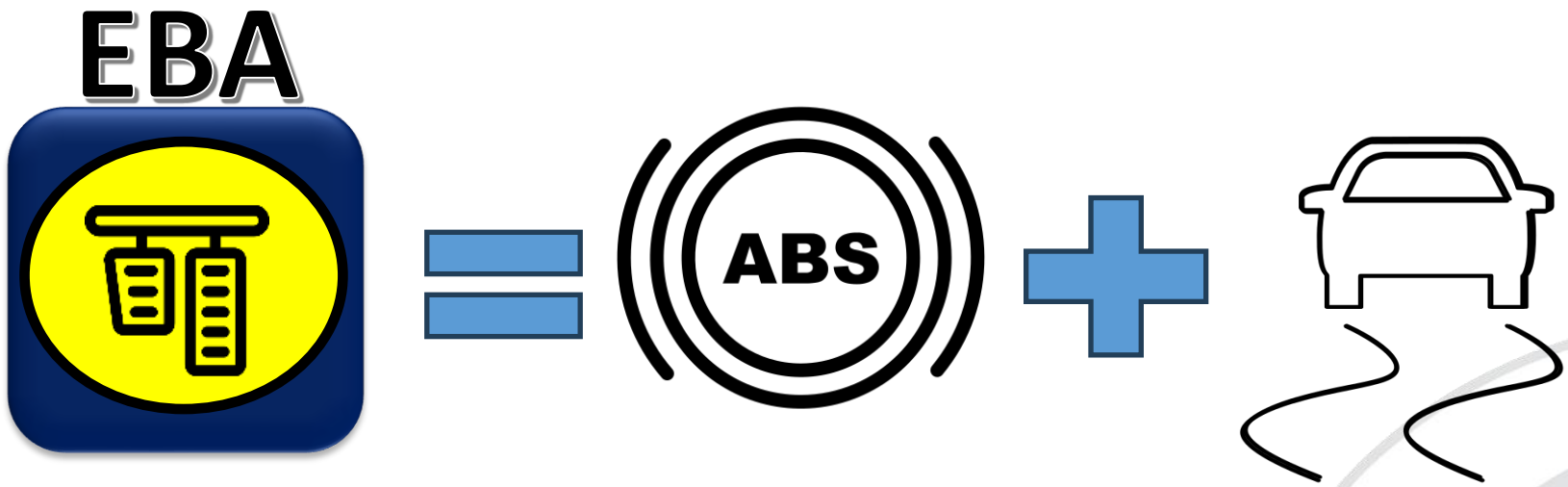
not assessed

REMOVED

2026-2030

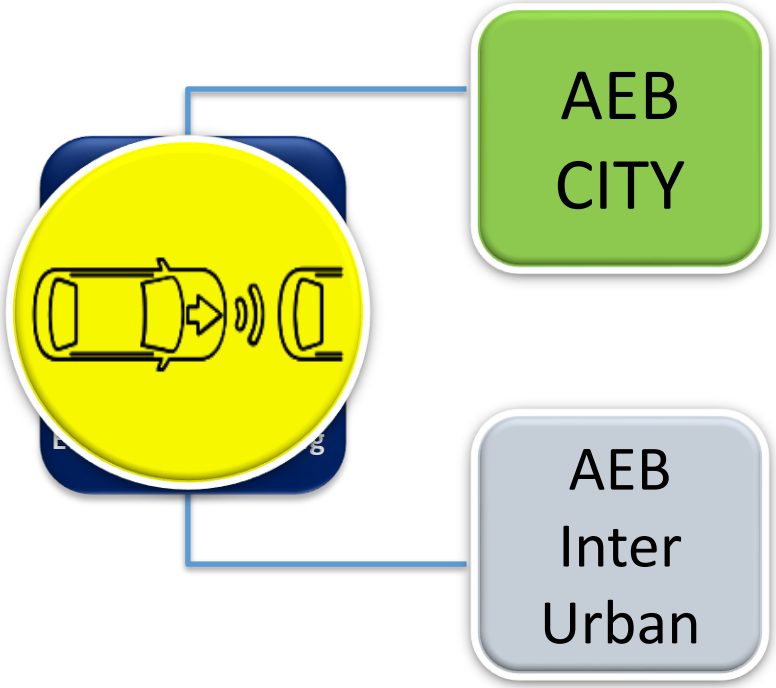
- Simplified Information form

Effective Braking Avoidance (EBA)



- The assessment for Anti-Lock Braking System (ABS) and Electronic Stability Control (ESC) has combined into Effective Braking Avoidance (EBA)

Autonomous Emergency Braking (AEB)



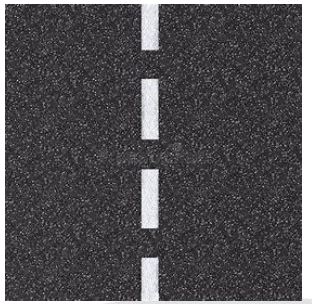
- **Car to Car Rear Stationary (CcRS)** 2.5

- **Car to Car Rear Moving (CcRM)** 2.5
- **Car to Car Rear Braking (CcRB)** 2.5

Lane Support (LS)

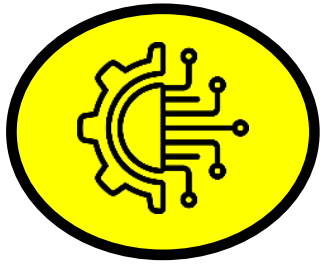
- Lane Keep Assist (LKA)
- Lane Departure Warning (LDW)

- **Dashed line**
- **Solid line**



Advance Safety Assist Technology (SAT)

SAT



Criteria

- Advance Safety Assist Technology that interacts and reacts between two vehicles
- Technology that respond to driver behaviour

List

1. AEB Pedestrian
2. Multi Collision Brake (MCB)
3. Speed Assistance System (SAS)
4. Driver State Monitoring (DSM)
5. Rear Cross Traffic Assist with Alert (RCTA) or Braking (RCTB)
6. Other Advanced SATs proposed by manufacturers-subject to ASEAN NCAP approval.

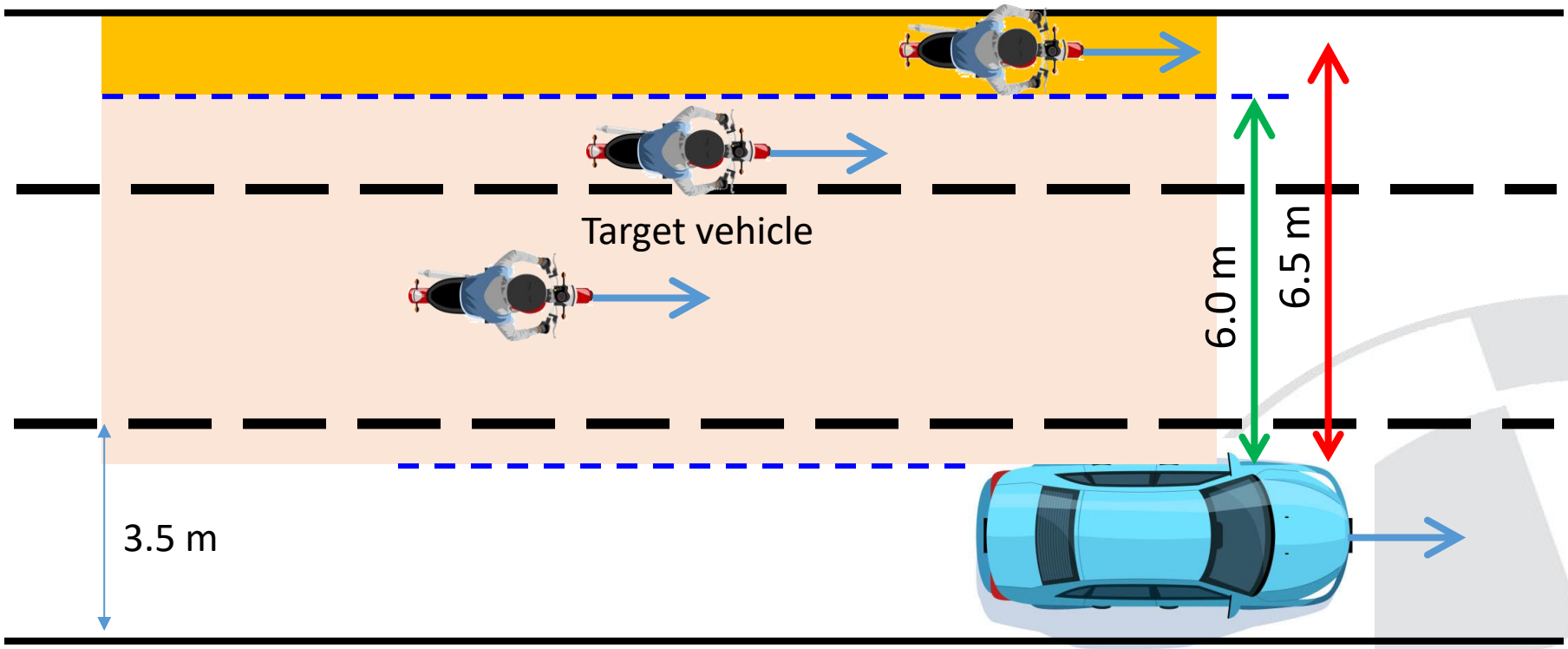
Motorcyclist Safety

2026-2030

40%	20%	20%	20%
AOP	**COP**	**SA**	**COP**
FI 16	FI 16	EBA 6	BSD / BSV 8
SI 8	SI 8	SBR 6	ARV 3
HPT 8	CRSi 12	AEB 7.5	AHB / ADB 3
	VBA 13	LKA 2	PP 2
	CPD 5	SAT 2	AEB MC 6
			MST 2

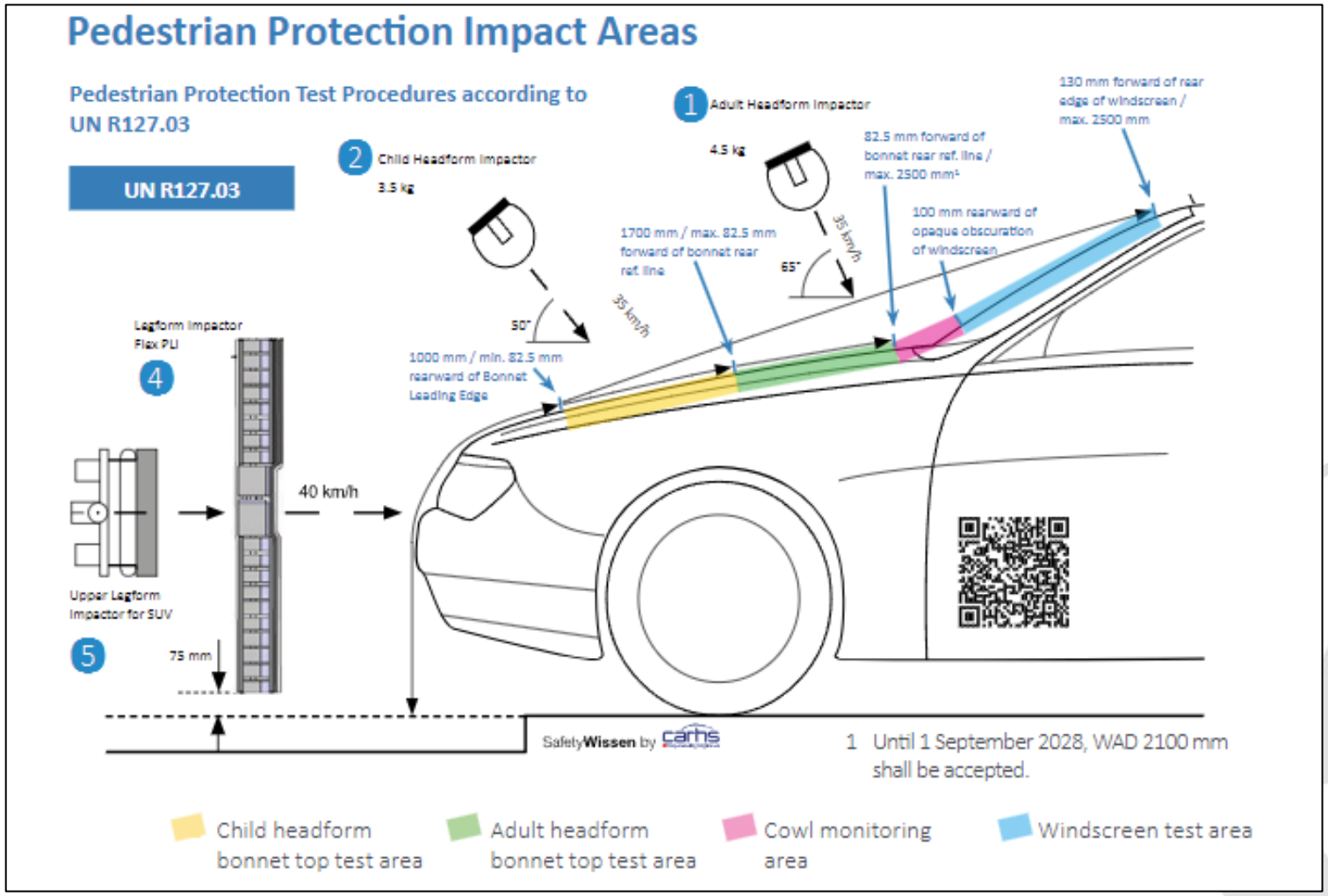
★★★★★	**32**	**54**	**23.5**	**24**
★★★★	80	75	**75**	55
★★★	70	60	60	45
★★	60	50	40	40
★	50	40	30	30
	40	30	20	20

BST/BSV



Change of non-detection lateral distance from 6.5m to 6.0m

Pedestrian Protection



UNR127-02
Impact Area
- Bonnet area only

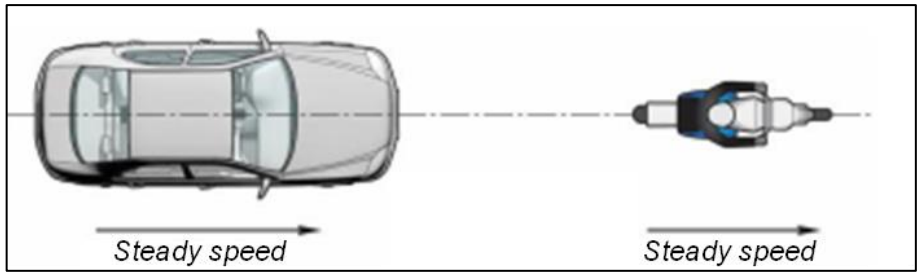
UNR127-03
Impact Area
- Bonnet + Windshield area

Assessment based on UNR127-03 - Impact Area (Bonnet + Windshield area)

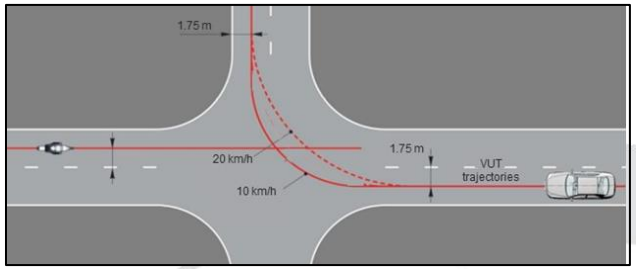
ASEAN NCAP
www.aseancap.org
Safer Cars for ASEAN Region

Scenarios for AEB CM Assessment

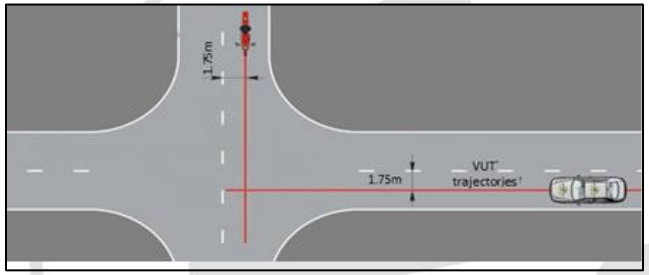
CMRm
- Car-to-Motorcycle Rear-end moving



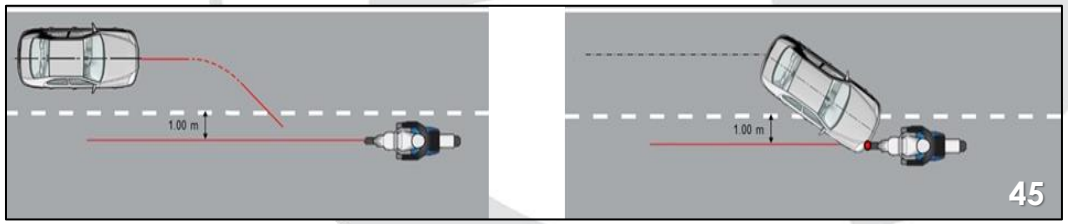
CMFtap
- Car-to-Motorcycle Front Turn Across Path



CMCrossing
- Car-to-Motorcycle Crossing



CMOncoming
- Car-to-Motorcycle Oncoming



ASEAN NCAP Motorcycle Target for 2026 (AEB CM)

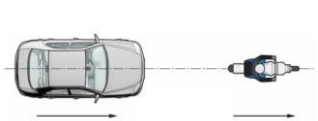
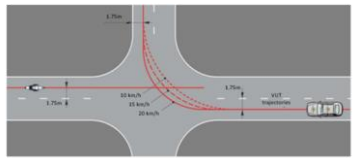
A newly developed motorcycle target for ASEAN NCAP assessment dedicated to the Motorcyclist Safety pillar.

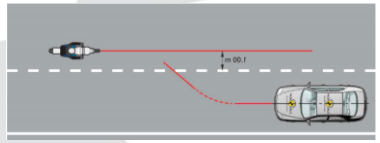
- **Testing materials**
  - Driving robot
  - Test platform
- **Light condition**
  - Day
- **Weather condition**
  - Dry surface

ASEAN NCAP
www.aseancap.org
Safer Cars for ASEAN Region

Test Scenarios for AEB CM

	CMRm		CMFtap	CMCrossing	CM Oncoming
	Car to Motorcycle Rear-end moving		Car to Motorcycle Front Turn Across Path	Car-to-Motorcycle Crossing	Car-to-Motorcycle Oncoming
Type of test	AEB	FCW	AEB	AEB	[LDW / ELK]
VUT Speed [km/h]	40 - 60	40 - 80	10,20	20-60	72
VUT direction	Forward		Farside turn	Farside and nearside	Farside [0,2] 0,3-0,6 m/s
Target speed [km/h]	30,45,60		30,45,60	20	60
Impact location [%VUT width]	50	50 and 25	50	50 -50% motorcycle length	10
Lighting condition	Day		Day	Day	Day
Obstruction	No, 7m /2		No, 9m /2	No, 9m / 2	No
Number of test	36 speed combinations (best case: 20 tests)		6 tests	9 speed combinations (best case: 5 tests)	4 – 5 tests



The assessment of AEB CM has been added and the total score is 6 points

Summary

- Why the update?
  - Technological evolution
  - Increased motorcycle use
  - Align with UN regulations
- Protocol developed through technical reviews and stakeholder input

- Greater emphasis on:
  - Motorcyclist Safety
  - Advanced Safety Technologies
  - Post-Crash Features
- Revised weighting system
- Mandatory feature expectations

THANK YOU

FOR YOUR ATTENTION