ASEAN NCAP
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OVERALL ASSESSMENT PROTOCOL

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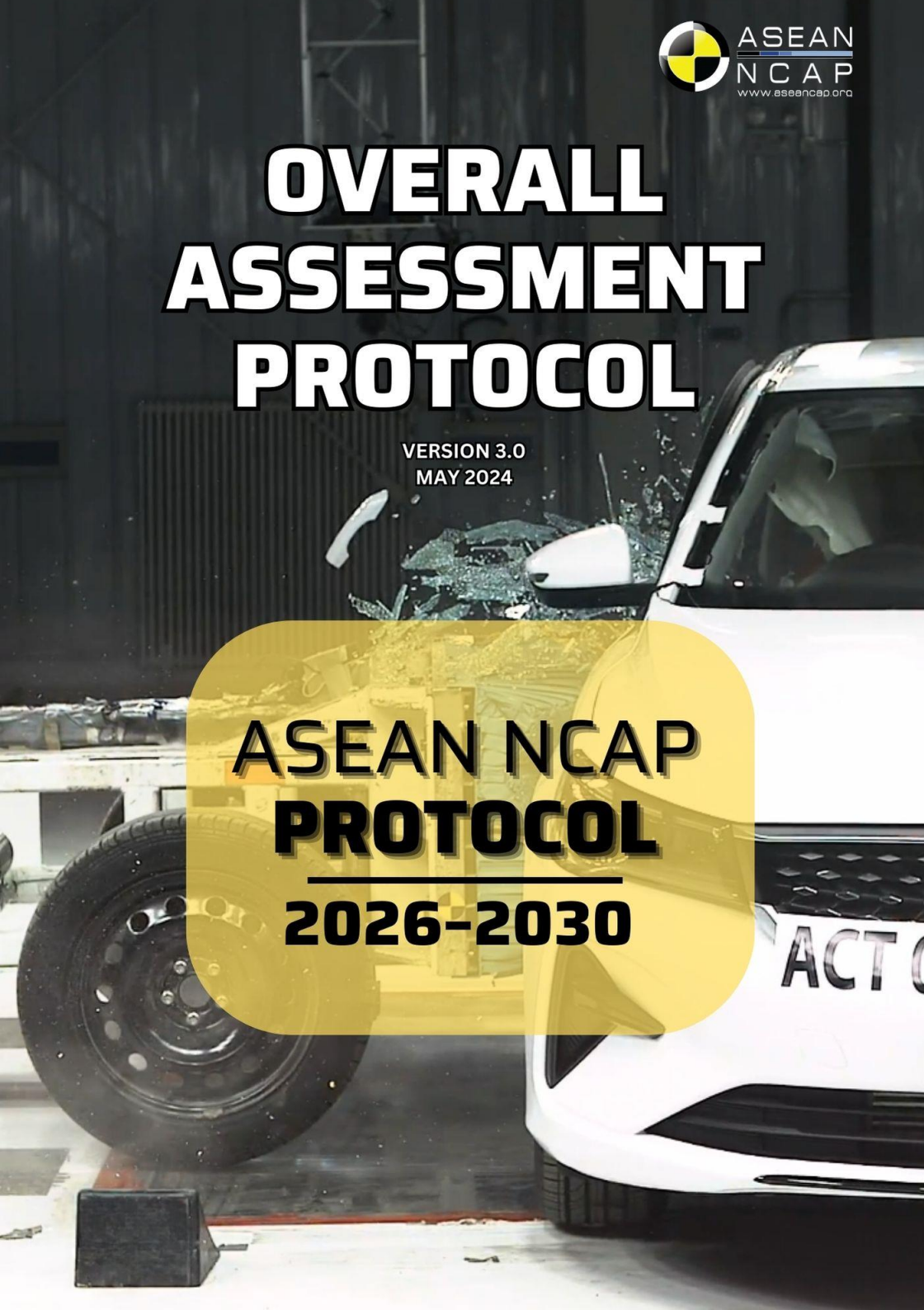

ASEAN NCAP PROTOCOL 2026-2030

Preface

Where text is contained within square brackets, this denotes that the procedure being discussed is currently being trialled in ASEAN NCAP. Its incorporation in the Test Protocol will be reviewed at a later date.

During the test preparation, vehicle manufacturers are encouraged to liaise with the laboratory and to check that they are satisfied with the way cars are set up for testing. Where a manufacturer feels that a particular item should be altered, they should ask the laboratory staff to make any necessary changes. Manufacturers are forbidden from making changes to any parameter that will influence the test, such as dummy positioning, vehicle setting, laboratory environment, etc.

It is the responsibility of the test laboratory to ensure that any requested changes satisfy the requirements of ASEAN NCAP. Where a disagreement exists between the laboratory and manufacturer, the ASEAN NCAP secretariat should be informed immediately to pass final judgement. Where the laboratory staff suspect that a manufacturer has interfered with any of the setup, the manufacturer's representatives should be warned that they are not allowed to do so themselves. They should also be informed that if another incident occurs, they will be asked to leave the test site.

Where there is a recurrence of the problem, the manufacturer’s representatives will be told to leave the test site and the Secretariat

should be immediately informed. Any such incident may be reported by the Secretariat to the manufacturer and the persons concerned may not be allowed to attend further ASEAN NCAP tests.

DISCLAIMER: ASEAN NCAP has taken all reasonable care to ensure that the information published in this protocol is accurate and reflects the technical decisions taken by the organization. In the unlikely event that this protocol contains a typographical error or any other inaccuracy, ASEAN NCAP reserves the right to make corrections and determine the assessment and subsequent result of the affected requirement(s).

In addition to the settings specified in this protocol, the following information will be required from the manufacturer of the car being tested in order to facilitate vehicle preparation. A vehicle handbook should be provided to the test laboratory prior to the assessment.

OVERALL ASSESSMENT PROTOCOL

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NEW CAR ASSESSMENT PROGRAM FOR SOUTHEAST ASIAN COUNTRIES (ASEAN NCAP)

OVERALL ASSESSMENT PROTOCOL

1 INTRODUCTION

In summary, the ASEAN NCAP new rating scheme for 2026-2030 shall feature four pillars, namely Adult Occupant Protection (AOP), Child Occupant Protection (COP), Safety Assist (SA), and Motorcyclist Safety (MS). For each of these pillars, there shall be additional elements and improvements to the previous rating systems as we strive toward an increased car safety standard to suit the ASEAN context.

AOP will maintain two crash assessments, namely the frontal and side-impact tests. For both frontal and side crashes, Q3 and Q1.5 will be replaced with Q6 and Q10. There will be a major change for the side impact crash test, the current side impact trolley replaced with the AE-MDB. In addition, Worldwide Harmonized Side Impact Dummy (WorldSID) was introduced for this test. Thus, the weighting of AOP will provide 40% of the total score with a maximum of 32 points. ASEAN NCAP will continue to require UN R135 as a prerequisite for HPT.

Protecting the children has always been ASEAN NCAP's utmost priority. Hence, the requirement for COP will contribute 20% to the total score. ASEAN NCAP has also taken the step to improve

its test method by introducing Q6 and Q10 dummies. The CRS installation assessment will be more comprehensive and updated with the relevant current CRS market which includes the latest regulation UN R129. The Child Presence Detection assessment is improved with the introduction of the dummy for the detection and the points increased from 2 to 5 points with a maximum score of 54 points.

The Safety Assist pillar holds a maximum of 23.5 points. It will contribute 20% to the overall rating through the key score of 6 points on Effective Braking and Avoidance (EBA). Lane Support has been added to the Safety Assist pillar. Other technologies also assessed in this pillar include Seatbelt Reminder (SBR), Autonomous Emergency Braking (AEB), and Advanced SATs.

Continuous from the 2021-2025 Protocol, the Motorcyclist Safety pillar contributes 20% of the overall score. The highest number of deaths involving motorcyclists every year has spurred ASEAN NCAP to maintain Blind Spot Technology (BST), Advanced Rear Visualization (ARV), and Auto High Beam (AHB) as the comprehensive requirements in the new rating scheme. The importance of the visualization is emphasized by integrating of Adaptive Driving Beam (ADB) in AHB assessment. Motorcycle AEB is added to this pillar to further promote crash avoidance between motorcycles and cars. This effort is one of ASEAN NCAP's strategic approaches in reducing the number of accidents and injuries involving motorcyclists in the region.

Aside from increasing the number of cars with ASEAN NCAP ratings, the demand for such cars among consumers has improved as well. Nevertheless, there is an imbalance in terms of the positive impacts as the safety features of specific models are not necessarily similar across the region. Thus, ASEAN NCAP has formulated the Fitment Rating System (FRS) in order to minimize the number of substandard models.

To fully comprehend the Overall Assessment Protocols, eighteen (18) individual documents are released for the four (4) pillars of assessments, namely:

1. Vehicle Specification, Sponsorship, Testing and Retesting v1.0;
2. ASEAN NCAP Overall Assessment Protocol v3.0
3. ASEAN NCAP Test Model Form v3.0;
4. ASEAN NCAP Application of Star Ratings v1.0
5. ASEAN NCAP Fitment Rating System v2.0;
6. Assessment Protocol – Adult Occupant Protection v3.0;
7. Assessment Protocol – Child Occupant Protection v3.0;
8. Assessment Protocol – Safety Assist v3.0;
9. Assessment Protocol – Motorcyclist Safety v2.0;
10. Test Protocol – Offset Frontal Impact v4.0;
11. Test Protocol – Side Impact v3.0;
12. Test Protocol – Knee Mapping Sled Test v1.0;
13. Test Protocol – AEB Systems (Car to Car) v2.0;
14. Test Protocol – AEB Systems (Car to Motorcyclist) v1.0;
15. Test Protocol – Blind Spot Detection v2.0;
16. Test Protocol – Blind Spot Visualization v1.0;

17. Test Protocol – Advanced Rear Visualization v2.0;
18. Test Protocol – Auto High Beam v2.0;

In addition to these protocols, the present document is prepared to describe the method and criteria by which the overall safety rating is calculated on the basis of car performance in each of the previously mentioned domains.

2 OVERALL RATING CALCULATION

2.1 Method

The overall rating comprises scores achieved in the four areas of assessment or "domains". They include Adult Occupant, Child Occupant, Safety Assist, and Motorcyclist Safety. The score in each domain is based on the car's performance in different tests.

For each domain, a total score is normalized in regard to the maximum achievable score for the domain. In this way, the maximum score for each domain, and hence the total maximum score, is constant. The weighted overall score is calculated from the individual assessment scores by using weight factors. These weight factors reflect the relative importance of the domains.

The overall weighted score, determined by taking the weighted average of the scores in the four domains, is only used to rank cars for the selection of the best class vehicles. This is conducted at the end of every two years for the ASEAN NCAP Grand Prix Award nominations. There will be a minimum score required in each domain to validate a star rating. Refer to Figure 1 in the

Appendix for a flow chart diagram on how to calculate the overall star rating.

2.2 Weight Factors, Limits, and Restricted Star Rating

The weighted overall score is calculated from the individual scores in each domain using weight factors. These weight factors are fixed but may be updated from time to time as priorities or the contents of the domain change. The weight factors to be applied in the upcoming 2026 to 2030 rating scheme are as follows:

Domain 1: Adult Occupant Protection: 40%
Domain 2: Child Occupant Protection: 20%
Domain 3: Safety Assist: 20%
Domain 4: Motorcyclist Safety: 20%

Vehicles that produce poor performance in one of the domains will have their star rating restricted to indicate that they do not provide an all-around protection.

2.3 Balance Criteria

The balance criteria are applied to the individual domain scores in order to assess all-round performance. The limits presented in Table 1 are applied after the individual test scores have been rounded.

2.4 Rounding

The following rounding rules will be applied in the calculation of the overall rating.

2.4.1 Data is entered to 2 decimal places.

2.4.2 Intermediate calculations (e.g. calculations needed to derive parameters are then used to calculate scores) are not rounded.

2.4.3 Calculation of points scores (e.g. for individual body regions) are rounded to 3 decimal points e.g. a head score of 3.1238 in frontal impact would be rounded to 3.124

2.4.4 The total points score in each domain is the sum of scores rounded to 3 decimal points. To calculate the percentage score in each domain, the 3 decimal points total is divided by the maximum points available for that domain, and the resulting percentage is rounded down to the nearest integer. In the example case: 25.124 / 36 * 100% = 69.789 is rounded to 69%.

2.4.5 That integer is then compared with the balance percentage thresholds for the domain in Table 1. In the example case, 69% qualify for 3-star AOP.

Table 1

2026 - 2030	AOP	COP	Safety Assist	Motorcyclist Safety
5-star	80%	75%	75%	55%
4-star	70%	60%	60%	45%
3-star	60%	50%	40%	40%
2-star	50%	40%	30%	30%
1-star	40%	30%	20%	20%

2.4.6 The overall weighted score is calculated as follows.

- The 3 decimal point score in each domain is divided by the maximum points available in that domain.
- The resulting percentage in each domain is rounded to 2 decimal places.
- The percentages are multiplied by the respective weighting factors for each domain; and then added.
- The resulting sum is rounded *down* to the nearest integer.
- This integer is compared with the threshold requirements for star ratings for the relevant year.

APPENDIX

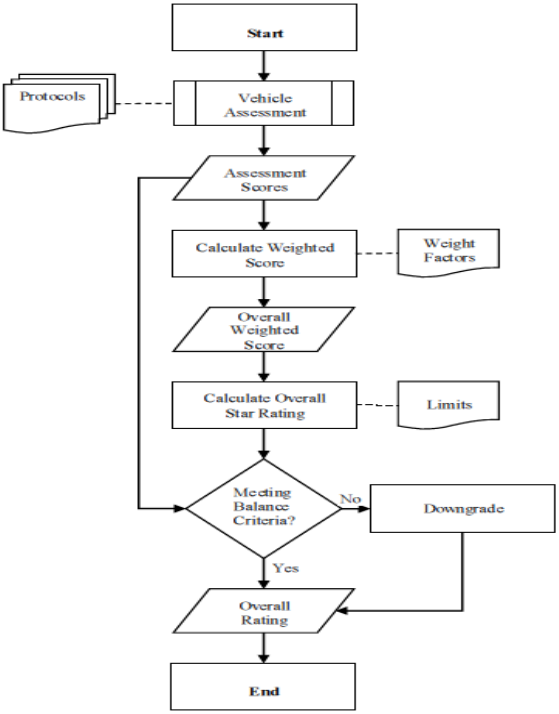

Figure 1: Flow Chart for the Calculation of Overall Rating

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Editors

Ts. Yahaya Ahmad
Malaysian Institute of Road Safety Research (MIROS)

Ts. Zulhaidi Mohd Jawi
Malaysian Institute of Road Safety Research (MIROS)

Ir. Mohd Syazwan Solah
Malaysian Institute of Road Safety Research (MIROS)

Dr. Fauziana Lamin
Malaysian Institute of Road Safety Research (MIROS)

Ts. Noor Faradila Paiman
Malaysian Institute of Road Safety Research (MIROS)

Ts. Mohd Amirudin Mohamad Radzi
Malaysian Institute of Road Safety Research (MIROS)

Ts. Nurulhana Borhan
Malaysian Institute of Road Safety Research (MIROS)

Najwa Shaari
Malaysian Institute of Road Safety Research (MIROS)

Hamizah Makhpol
Malaysian Institute of Road Safety Research (MIROS)

Salina Mustaffa
Malaysian Institute of Road Safety Research (MIROS)

Ainul Bahiah Mohd Khidzir
Malaysian Institute of Road Safety Research (MIROS)

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Editors

Assoc. Prof. Ts. Dr. Siti Zaharah binti Ishak
Malaysian Institute of Road Safety Research (MIROS)

Dr. Annisa Jusof
Institut Teknologi Bandung (ITB)

Dr. Ir. Sigit P. Santosa
Institut Teknologi Bandung (ITB)

Dr. Atsuhiro Konosu
Japan Automobile Research Institute (JARI)

Ahmed Ismail Hj. Amin
Automobile Association of Malaysia (AAM)

Assoc. Prof. Dr. Julaluk Carmai
The Sirindhorn International Thai German Graduate School of Engineering (TGGS)

Assoc. Prof. Dr. Saiprasit Koetniyom
The Sirindhorn International Thai German Graduate School of Engineering (TGGS)

Assoc. Prof. Dr. Ly Hung Anh
Ho Chi Minh City University of Technology (HCMUT)

ASEAN NCAP PROTOCOL 2026-2030

ASEAN NCAP
c/o MIROS
Ground Floor, Lot 127,
Jalan TKS 1,
Taman Kajang Sentral,
43000 Kajang,
Selangor, Malaysia.

+603-8924 9200

aseancapmedia@miros.gov.my

www.aseancap.org

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