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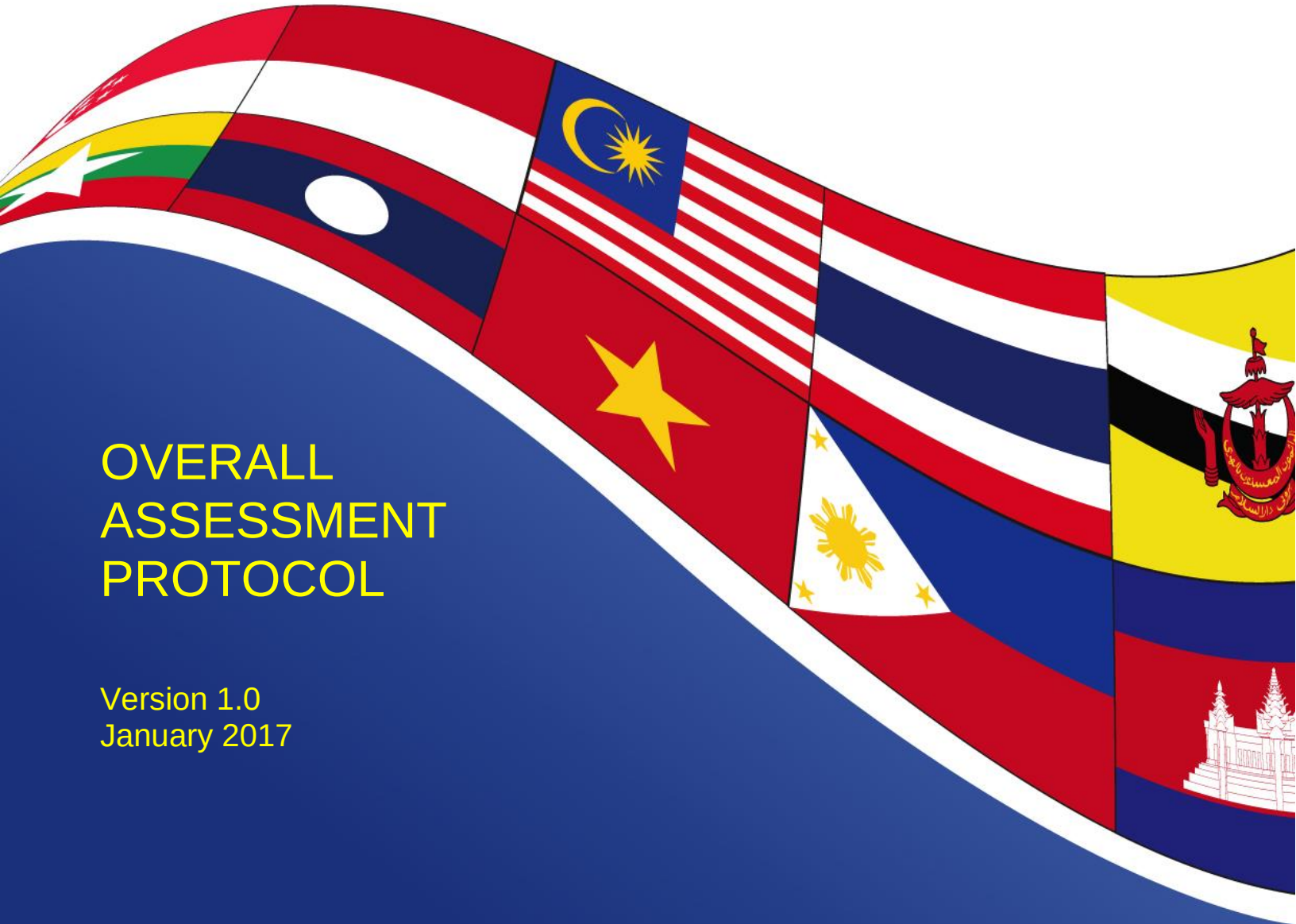

OVERALL ASSESSMENT PROTOCOL

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OVERALL ASSESSMENT PROTOCOL

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

OVERALL ASSESSMENT PROTOCOL

1 INTRODUCTION

In September 2015, ASEAN NCAP has introduced the new rating scheme for 2017 to 2020. The aim of this new rating system is to encourage more cars with best safety practices in the region, which consists of three domains that are Adult Occupant Protection (AOP), Child Occupant Protection (COP) and also Safety Assist.

Starting from 2017 to 2020, instead of a separate rating for AOP and COP, a single rating system is introduced in which AOP contributes 50% of the overall rating system with a maximum of 36 points from three main assessments; offset frontal, side impact and Head Protection Technology (HPT) performance.

Protecting the children has always been ASEAN NCAP priority hence, the new requirement for COP will provide 25% from the total score. As such, ASEAN NCAP has taken the effort to improve its test method by introducing Q dummies. The CRS installation assessment will be more comprehensive with the reference to CRS to be installed in cars are provided for the assessment.

The main aim of the new rating is to promote Safety Assist Technologies (SATs) in the region. It contributes 25% of the overall rating with a maximum of 18 points focusing on Effective Braking and Avoidance, Seatbelt Reminder, Blind Spot Technology (BST) and Advanced SATs. The introduction of BST is one of ASEAN NCAP's strategic approaches in curbing the number of accidents and injuries involving motorcycle in the region.

Apart from increasing the number of cars with ASEAN NCAP ratings, the demand for those cars among consumers are gaining as well. Nevertheless, the positive impact is still imbalanced as the safety features of specific models are not necessarily similar among the countries in the region. Thus, ASEAN NCAP has formulated a Fitment Rating System (FRS) in order to minimize the substandard treatment.

In order to comprehend the Overall Assessment Protocols, six individual documents are released for the three domains:

1. Assessment Protocol – Adult Occupant Protection;
2. Assessment Protocol – Child Occupant Protection;
3. Assessment Protocol – Safety Assist;
4. Frontal Impact Testing Protocol;
5. Side Impact Testing Protocol; and
6. Fitment Rating System.

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 domain.

2 OVERALL RATING CALCULATION

2.1 Method

The overall rating is composed of scores achieved in the three areas of assessment, also referred to as “domain”: Adult Occupant, Child Occupant and Safety Assist. The score in each domain is based on the car performance in different tests.

For each domain, a total score is normalized with respect to the maximum achievable score available for the domain. This way the maximum score for each domain, and hence the total maximum score, is a 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 three 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 to be nominated for ASEAN NCAP Grand Prix Award. Vehicles that show poor performance in one of the domains will have their star rating restricted to show that they do not provide good all-round protection. There will be a minimum score required in each domain to validate a star rating. See Figure 1 in the Appendix for a flow chart diagram on how to calculate the overall star rating.

2.2 Weight Factors and Limits

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 that will be applied in the upcoming 2017 to 2020 are as follows.

Domain 1	:	Adult Occupant Protection: 50%
Domain 2	:	Child Occupant Protection: 25%
Domain 3	:	Safety Assist: 25%

2.3 Balance Criteria

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% qualifies for 4-star AOP.

Table 1

2017 – 2020	AOP	COP	Safety Assist	Overall
5-star	75%	75%	60%	75%
4-star	65%	60%	40%	65%
3-star	45%	30%	30%	50%
2-star	30%	25%	20%	40%
1-star	20%	15%	10%	30%

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

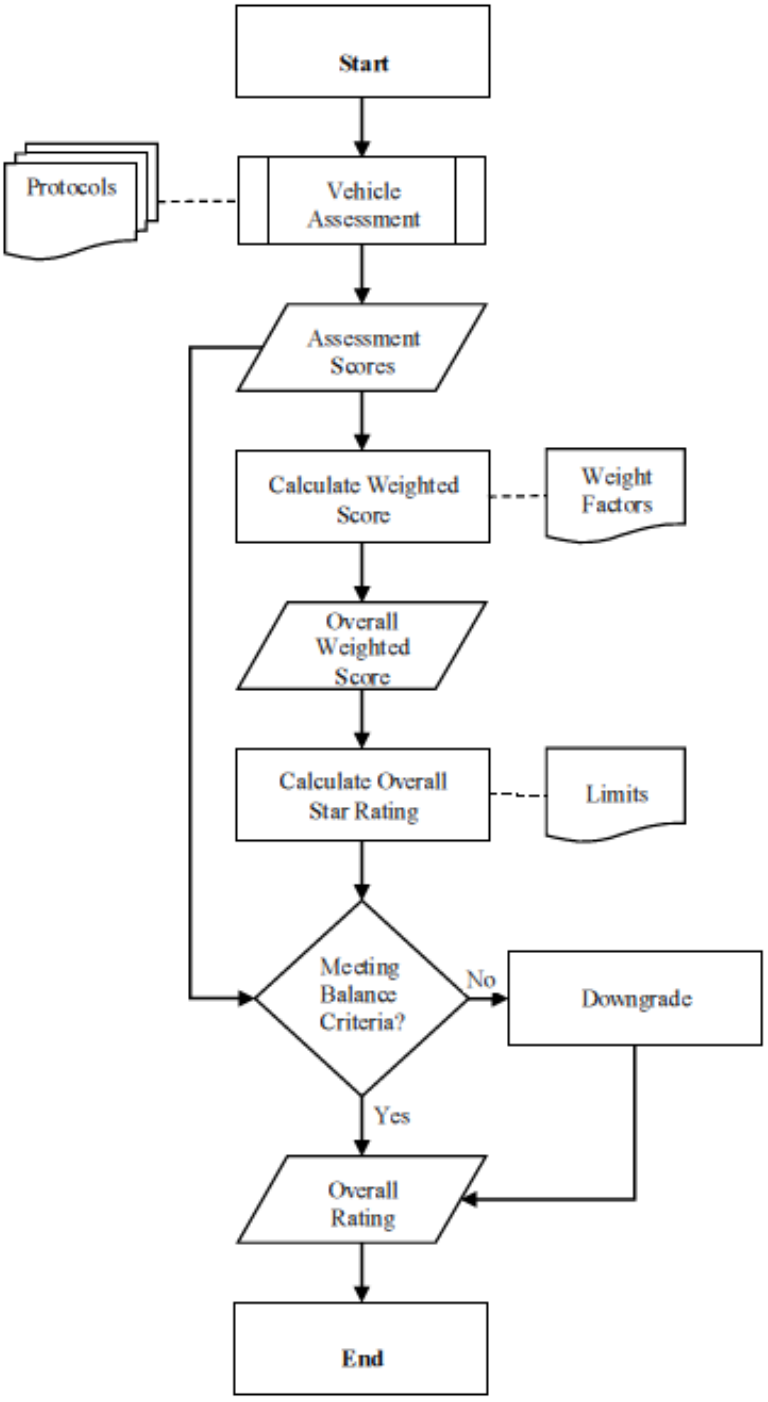

Figure 1: Flow Chart for the Calculation of Overall Rating

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