



**LATIN AMERICAN & CARIBBEAN  
NEW CAR ASSESSMENT PROGRAMME  
(Latin NCAP)**



**ASSESSMENT PROTOCOL – OVERALL RATING**

Version 1.1.1  
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#### **ACKNOWLEDGEMENT**

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## 1. INTRODUCTION

The Latin NCAP programme is designed to provide a fair, meaningful and objective assessment of the impact performance of cars and provide a mechanism to inform consumers.

Latin NCAP is introducing relevant changes on this protocol such as the introduction of the overall rating scheme and together with it, pedestrian protection, whiplash, and safety assist systems assessments such as AEB. Individual documents are released for the four main areas of assessment:

- Assessment Protocol – Adult Occupant Protection.
- Assessment Protocol – Child Occupant Protection.
- Assessment Protocol – Pedestrian Protection.
- Assessment Protocol – Safety Assist.

In addition to these four assessment protocols, this separate document describes the method and criteria by which the overall safety rating is calculated on the basis of the car performance in each of the above areas of assessment.

Finally, Latin NCAP *Car Sponsorship Testing and Retesting Protocol* (CSSTR) details the conditions under which vehicles are tested, the validity of the results, timeline and lead times for nominating a vehicle, general procedures for discussions previous to the result publications as well as communications procedures.

DISCLAIMER: Latin 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 organisation. In the unlikely event that this protocol contains a typographical error or any other inaccuracy, Latin NCAP reserves the right to make corrections and determine the assessment and subsequent result of the affected requirement(s).

## 2. METHOD OF ASSESSMENT

The overall rating is composed of scores achieved in the four areas of assessment, also referred to as “boxes”: Adult Occupant, Child Occupant, Pedestrian Protection and Safety Assist. The score in each box is based on the car performance in different tests. The overall star rating will be determined by the lowest of the scores in the four boxes. Vehicles that show a poor performance in one of the boxes will have their star rating restricted to show that they do not provide good all-round protection however consumers will be informed about the percentage of the full score achieved in each box.

For each box, a total score is calculated by adding all points for each of tests<sup>1</sup>. The total score for the respective box is then normalised with respect to the maximum achievable score available for the box. In this way, the maximum score for each box, and hence the total maximum score, is a constant. Weight factors between the boxes will not be introduced in this protocol.

## 2.1. Star Rating Limits and Balance Criteria

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

- Data is entered to 2 decimal places.
- Intermediate calculations (e.g. calculations needed to derive parameters which are then used to calculate scores) are not rounded.
- 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.
- The total points score in each box is the sum of scores rounded to 3 decimal points. To calculate the percentage score in each box, the 3 decimal points total is divided by the maximum points available for that box and the resulting percentage is rounded down to the nearest integer. In the example case:  $25.124 / 40 * 100\% = 62.810$  is rounded to 62%.
- That integer is then compared with the balance percentage thresholds for the box in Table 1. In the example case, 62% qualifies for 3 stars AOP in 2020.

**Table 1 - Balance limits for year 2019 - 2021**

<b>2020 / 2021</b>	<b>Box 1: Adult Occupant</b>	<b>Box 2: Child Occupant</b>	<b>Box 3: Pedestrian Protection</b>	<b>Box 4: Safety Assist</b>
5 stars	75%	80%	40%	75%
4 stars	70%	65%	35%	65%
3 stars	60%	50%	30%	50%
2 stars	50%	30%	20%	40%
1 star	40%	15%	10%	10%

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<sup>1</sup> In specific cases where certain tests that are required to be sponsored by the manufacturer are not performed, score will be zero for that test or item.

**Table 2 - Balance limits for year 2022 and 2023**

<b>2022 / 2023</b>	<b>Box 1: Adult Occupant</b>	<b>Box 2: Child Occupant</b>	<b>Box 3: Pedestrian Protection</b>	<b>Box 4: Safety Assist</b>
5 stars	80%	80%	50%	80%
4 stars	70%	70%	40%	70%
3 stars	60%	55%	30%	60%
2 stars	50%	40%	25%	50%
1 star	40%	20%	10%	50%

## **2.2. Fitment Rates**

Fitment rates will be established per year, with a minimum production volume. Additionally, the system will be required to be offered in all markets as a stand-alone-optional or as a part of a safety technical package to be pre-approved by Latin NCAP. Some markets exemptions under special circumstances will be considered but enough proof must be presented to Latin NCAP as a justification for the exemption<sup>2</sup>. The stand-alone-optional requirement for technologies which use same hardware can be considered as stand-grouped-optional. Failing to comply with these requirements will result in an immediate rating adjustment. After 2023 AEB systems will only be considered for assessment when fitted as standard.

Latin NCAP will only consider fitment rates for new driver assistance technologies like AEBs, LSS and BSD. All remaining technologies such as ESC, SBR, Speed Assist are not considered for fitment rate and must be fitted as standard across all variants of the vehicle model.

The following Fitment rates will be considered:

<b>AEB City, AEB INTERURBAN, AEB Pedestrian</b>				
	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
Percentage of Total production	10%	10%	30%	30%

<sup>2</sup> Market exemptions will only be considered in the case of extraordinary reasons where the implementation of the technology is explicitly not possible. Corporate decisions due to economic reasons will not be accepted.

In the case that AEB systems cannot be offered as standalone optional, AEB points can still be scored in the case that AEB is fitted in at least 50% of the units sold in the region across all the variants of the model range. Additionally, at least one variant with AEB must be offered in every Latin American country where the model is sold. This applies only for 2020 and 2021<sup>3</sup>.

<b>BSD + LDW + LKA+ RED</b>				
	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
Percentage of Total production BSD+LDW+LKA+RED	25%	35%	45%	55%

*Example A)*

Year 2020: One model range has the following production/equipment volumes:

- 3% of full production volume for LAC fitted only with BSD (no LDW, no LKA, no RED)
- 1% of full production volume for LAC fitted only with LDW (no BSD, no LKA, no RED)
- 5% of full production volume for LAC fitted only with LKA (no BSD, no LDW, no RED)
- 0 % of full production volume for LAC fitted only with RED (no car fitted with RED).

TOTAL BSD+LDW+LKA+RED = 9% - **Does not meet fitment rate for 2020.**

*Example B)*

Year 2020: One model range has the following production/equipment volumes:

- 30% of full production volume for LAC fitted with BSD and LDW (simultaneously in all model range)
- 0 % of full production volume for LAC fitted only with LKA (no car fitted with LKA).
- 0 % of full production volume for LAC fitted only with RED (no car fitted with RED).

TOTAL BSD+LDW+LKA+RED = 30% - **Meets fitment rate for 2020.**

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<sup>3</sup> The manufacturer is responsible for providing the sales market data to prove the fulfilment of the 50% volume requirement. Suppliers information should be available and accessible to Latin NCAP quarterly, otherwise 50% volume will not be considered as valid.