



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



ASSESSMENT PROTOCOL – OVERALL RATING

Version 1.1.0
August 2019

ACKNOWLEDGEMENT

Copyright ©Latin NCAP 2019 - This work is the intellectual property of Latin NCAP and Euro NCAP. This protocol is based on the original Euro NCAP ASSESSMENT PROTOCOL – OVERALL RATING which is the intellectual property of Euro NCAP. Permission is granted for this material to be shared for non-commercial and educational purposes. Copying of parts of the original text is by permission of Latin NCAP and Euro NCAP.

LATIN AMERICAN & CARRIBEAN NEW CAR ASSESSMENT PROGRAMME
(Latin NCAP)

ASSESSMENT PROTOCOL – OVERALL RATING

Table of Contents

1. INTRODUCTION.....	3
2. METHOD OF ASSESSMENT.....	3
2.1. Star Rating Limits and Balance Criteria.....	4
2.2. Fitment Rates	5

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 to this new protocol such as the introduction of the overall rating scheme and together with it the pedestrian, whiplash, and safety assist systems assessment 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 Occupant Protection;
- Assessment Protocol – Safety Assist;

In addition to these four assessment protocols, this separate document provided 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 tests¹. 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 63%.
- That integer is then compared with the balance percentage thresholds for the box in Table 1. In the example case, 63% qualifies for 3 stars AOP in 2020.

Table 1 - Balance limits for year 2019 - 2021

2020 / 2021	Box 1: Adult Occupant	Box 2: Child Occupant	Box 3: Pedestrian Protection	Box 4: Safety Assist
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%

¹ For tests that are required to be sponsored by the manufacturer and are not performed score will be zero for that test or item.

Table 2 - Balance limits for year 2022 and 2023

2022 / 2023	Box 1: Adult Occupant	Box 2: Child Occupant	Box 3: Pedestrian Protection	Box 4: Safety Assist
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 exemption². Stand-alone-optional 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:

AEB URBAN, AEB INTERURBAN, AEB Pedestrian				
	2020	2021	2022	2023
Percentage of Total production	10%	10%	30%	30%

² 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.

For the AEB fitment rate, only for 2020 and 2021, in cases where AEB does not meet the standalone optional condition, volume of units equipped with AEB must be 50% or higher and the AEB versions must be available in all Latin American markets.

BSD + LDW + LKA+ RED				
	2020	2021	2022	2023
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.**