This is a translation to English for reference purpose of JNCAP evaluation procedures which is originally prescribed in Japanese language.
Please be sure to refer to the Japanese evaluation procedures if you need to be precisely correct.

VEHICLE SAFETY PERFORMANCE EVALUATION PROCEDURES 0000 FOR NEW CAR ASSESSMENT INFORMATION PROVISION PROJECT

March 31, 2021
NASVA Assess No.62

Partial Revision (May 2, 2024, NASVA Assess No.14)
(April 25, 2023, NASVA Assess No.7)
(April 1, 2022, NASVA Assess No.2)

Article 1: Pursuant to the provisions of Article 28 of the Implementation Procedures for New Car Assessment Project by the National Agency for Automobile Safety and Victim's Aid (NASVA) (NASVA Assess No.4 of 2020), required matters for evaluation of vehicle safety performance 0000 (0000 shall mean the year by the Gregorian calendar in which the evaluation was made) for new car assessment shall be prescribed as described below.

Article 2: The evaluation of vehicle safety performance 0000 shall be as per the procedure described below.

(1) Evaluation Procedure

The evaluation results shall be the values that correspond to the Total Score in Rating Table 1. The total score shall be calculated as per the procedure described below.

The highest rank in vehicle safety performance 0000 shall not be given if the test subject has not obtained the highest evaluation either in the collision safety performance evaluation or in the preventive safety performance evaluation, or if the test subject is not equipped with an automatic accident emergency call system, regardless of the total score in Rating Table 1.

(2) Total Score Calculation

The total score shall be the sum of all the collision safety performance evaluation and the preventive safety performance evaluation tests.

The total score shall be rounded to 2 decimal places.

When calculating the total score, the value of points before being rounded shall be used for the collision safety performance evaluation and the preventive safety performance evaluation tests.

(3) Others

①Total Score Calculation

In addition to the total score, the sum of the collision safety performance evaluation and the preventive safety performance evaluation and the evaluation for automatic accident emergency call system shall be calculated as a total score for the vehicle safety performance 0000.

The total score for the vehicle safety performance 0000 shall be rounded to 2 decimal places.

When calculating the total score for the vehicle safety performance 0000, the value of points before being rounded shall be used for the collision safety performance evaluation and the preventive safety performance evaluation tests.

②Score Rate Calculation

Score rates shall be calculated for each of the total score of the vehicle safety performance 0000, the collision safety performance evaluation, the preventive safety performance evaluation, and the evaluation for automatic accident emergency call system.

Each score rate shall be a whole number expressed as a percentage, rounded down to the nearest whole number.

[Rating Table 1] (Vehicle Safety Performance 0000)

Evaluation Results	Total Score
☆☆☆☆☆	154.07 points or higher
☆☆☆☆	122.09 to 154.06
☆☆☆	92.27 to 122.08
☆☆	62.85 to 92.26
☆	Under 62.84

Supplementary Provisions (March 31, 2021, NASVA Assess No.62)

1. These regulations shall come into effect as of March 31, 2021.
2. VEHICLE SAFETY PERFORMANCE EVALUATION PROCEDURES 0000 FOR NEW CAR ASSESSMENT INFORMATION PROVISION PROJECT (NASVA Assess No.5-3, May 26, 2020) shall be abolished.

Supplementary Provisions (April 1, 2022, NASVA Assess No. 2)

These rules shall come into effect as of April 1, 2022.

Supplementary Provisions (April 25, 2023, NASVA Assess No. 7)

These rules shall come into effect as of April 25, 2023.

Supplementary Provisions (May 2, 2024, NASVA Assess No.14)

These rules shall come into effect as of May 2, 2024.

This is a translation to English for reference purpose of JNCAP evaluation procedures which is originally prescribed in Japanese language.
Please be sure to refer to the Japanese evaluation procedures if you need to be precisely correct.

COLLISION SAFETY PERFORMANCE EVALUATION PROCEDURES FOR NEW CAR ASSESSMENT INFORMATION PROVISION PROJECT

March 31, 2021
NASVA Assess No.63

Partial Revision (June 25, 2024, NASVA Assess No.24)
(May 2, 2024, NASVA Assess No.15)
(April 25, 2023, NASVA Assess No.8)

Article 1: Pursuant to the provisions of Article 28 of the Implementation Procedures for New Car Assessment Project by the National Agency for Automobile Safety and Victim's Aid (NASVA) (NASVA Assess No.4 of 2020), required matters for evaluation of the results of collision safety performance tests for new car assessment shall be prescribed as described below.

Article 2: Test results obtained from collision safety performance tests shall be evaluated pursuant to the procedures prescribed below:

1. Evaluation of Full-wrap Frontal Collision Safety Performance Tests

(1) Evaluation Procedure for Driver's Seat

(i) Evaluation Procedure

Evaluation results shall be the values that correspond to Total Score (A) in Rating Table 1.
Total Score (A) shall be the sum of the scores of each body part (head, neck, chest and lower legs).
The scores of each body part shall be calculated pursuant to the procedure shown in the following paragraphs.

(ii) Score Calculation

・Head: Score (a) is calculated from Head Injury Criterion (HIC_{15*}) using the evaluation functions (Figure 1).
Score (b) is calculated from the steering wheel upper displacement value using the evaluation functions (Figure 2).
The Head Score shall be obtained by subtracting the score (b) from the score (a) and multiplying the result by the weighting factor (0.8).
The applicable score shall be 0, if the calculated score is negative.

・Neck: Score (a) of each part shall be calculated from tensile load, shearing load and extension moment using the evaluation functions (Figures 3-1 through 3-3).
The Neck Score shall be obtained by multiplying the minimum value of the scores (a) by the weighting factor (0.2).

・Chest: Score (a) shall be calculated with the chest displacement value using the

evaluation functions (Figure 4).
Score (b) shall be calculated from the steering backward displacement value using the evaluation functions (Figure 5).
If a secondary contact is observed between the steering wheel and the dummy's upper chest, 1 point shall be subtracted.
If the shoulder belt load exceeds 6.0 kN, 2 points shall be subtracted.
The Chest Score shall be obtained by subtracting the score (b) from the score (a) and multiplying the result by the weighting factor (0.8). The applicable score shall be 0, if the calculated score is negative.

・Abdomen: Score (a) shall be calculated by applying the criteria for each body part (Attachment 1) to the iliac load reduction rates.
The Abdomen Score shall be obtained by deducting the score (a) from 4 and multiplied the result by the weighting factor (0.8).

・Femur: Score (a) shall be calculated from right and left femur loads using the evaluation functions (Figure 6).
The femur value shall be obtained by multiplying the lower value of the scores (a) by the weighting factor (0.4).

・Other: The applicable score shall be 0, if the result of correction by body deformation value is negative.
Total Score (A) shall be rounded down to 2 decimal places.

*HIC_{15} = HIC values calculated at 15 msec intervals

(2) Evaluation Procedure for Rear Seat

(i) Evaluation Procedure

The evaluation result shall be the values that correspond to Total Score (A) in Rating Table 1.
Total Score (A) shall be the sum of scores for each body part (head, neck, chest, abdomen and lower legs).
The scores of each part shall be calculated pursuant to the procedure shown in the following paragraphs.

(ii) Score Calculation

・Head: Score (a) is calculated from Head Injury Criterion (HIC_{15*}) using the evaluation functions (Figure 1).
Score (b) is calculated by checking secondary collisions for each part with the evaluation criteria (Attachment 1).
The Head Score shall be obtained by multiplying the sum of the score (a) and the score (b) by the weighting factor (0.8).

・Neck: Score (a) shall be calculated from tensile load, shearing load and extension moment using the evaluation functions (Figures 3-1 through 3-3).
Occurrence (or lack) of a secondary collision shall be confirmed by the criteria for each body part (Attachment 1).
If there is no secondary collision, the Neck Score shall be obtained by multiplying the score (a) of tensile load by the weighting factor (0.2).

If there is a secondary collision, the Neck Score shall be the multiplying of the minimum value of the scores (a) by the weighting factor (0.2).

・Chest: Score (a) shall be calculated from the chest displacement value using the criteria for each body part (Appendix 1).
If the shoulder belt load exceeds 6.0 kN, 2 points shall be subtracted.
The Chest Score shall be obtained by multiplying the score (a) by the weighting factor (0.8).

・Abdomen: Score (a) shall be calculated by applying the criteria of each body part (Attachment 1) to the iliac load reduction rates.
The Abdomen Score shall be obtained by deducting the score (a) from 4 and multiplied the result by the weighting factor (0.8).

・Femur: Score (a) shall be calculated from the right and left femur compression load using the evaluation functions (Figure 6).
Femur Score shall be obtained by multiplying the lower of the scores (a) and the weighting factor (0.4).

・Other: Total Score shall be rounded down to 2 decimal places.

*HIC_{15} = HIC values calculated at 15 msec intervals

2. Evaluation by New Offset Frontal Collision Safety Performance Test

(1) Evaluation Procedure for Driver's Seat

(i) Evaluation Procedure

The Score shall be the sum of the scores of each body part (head, neck, chest and lower legs).

The scores of each body part shall be calculated pursuant to the procedure shown in the following paragraphs.

(ii) Score Calculation

・Head: Score (a) is calculated from Head Injury Criterion (HIC_{15*}) using the evaluation functions (Figure 1).
Score (b) is calculated from the steering wheel upper displacement value using the evaluation functions (Figure 2).
If the Diffuse Axonal Multi-Axis General Evaluation (DAMAGE) is 0.42 or higher, 1 point will be subtracted. If it is 0.47 or higher, 2 points will be subtracted.
The Head Score shall be obtained by subtracting the score (b) from the score (a) and multiplying the result by the weighting factor (0.705).
The applicable score shall be 0, if the calculated score is negative.

・Neck: Score (a) of each part shall be calculated from tensile load, shearing load and extension moment using the evaluation functions (Figures 7-1 through 7-3).
The Neck Score shall be obtained by multiplying the minimum value of the scores (a) by the weighting factor (0.180).

・Chest: The Score (a) for each shall be calculated from the chest displacement (upper right, lower right, upper left, lower left) using the evaluation functions (Figure 8).
Score (b) shall be calculated from the steering backward displacement value using the evaluation functions (Figure 5).

If a secondary contact is observed between the steering wheel and the dummy's upper chest, 1 point shall be subtracted.
If the shoulder belt load exceeds 6.0 kN, 2 points shall be subtracted.
The Chest Score shall be obtained by subtracting the score (b) from the minimum value of the score (a) and multiplying the result by the weighting factor (0.705).
The applicable score shall be 0, if the calculated score is negative.

・Abdomen and lumbar: The score (a) is calculated from the acetabular load using the evaluation function (Figure 9).
If the higher value of the abdominal displacement (right or left part) exceeds 88 mm, 1 point shall be subtracted.
The abdominal and lumbar Score shall be obtained by multiplying the score (a) by the weighting factor (0.705).

・Femur and legs: Score (a) shall be calculated from the right and left femur compression load using the evaluation functions (Figure 10).
Score (b) is calculated from the tibial load index (upper right, lower right, upper left, lower left) using the evaluation function (Figure 11).
Score (c) shall be calculated from the brake pedal upper displacement value using the evaluation functions (Figure 12).
Score (d) shall be calculated from the brake pedal backward displacement value using the evaluation functions (Figure 13).
If either left or right tibia axis load exceeds 8kN, 1 point shall be subtracted.
The Femur and legs Score shall be obtained by subtracting the scores (c) and (d) from the sum of the lower value of the score (a) and the minimum value of the score (b) and multiplying the result by the weighting factor (0.705).
The applicable score shall be 0, if the calculated score is negative.

・Other: Total Score shall be rounded down to 2 decimal places.

*HIC_{15} = HIC values calculated at 15 msec intervals

(2) Evaluation Procedure for Passenger Seat

(i) Evaluation Procedure

Score shall be the sum of scores for each body part (head, neck, chest, abdomen and Femur).
The scores of each part shall be calculated pursuant to the procedure shown in the following paragraphs.

(ii) Score Calculation

・Head: Score (a) is calculated from Head Injury Criterion (HIC_{15*}) using the evaluation functions (Figure 1).
The Head Score shall be the product of the score (a) and the weighting factor (0.8).
The applicable score shall be 0, if the calculated score is negative.

・Neck: Score (a) of each part shall be calculated from tensile load, shearing load and extension moment using the evaluation functions (Figures 3-1 through 3-3).
The Neck Score shall be obtained by multiplying the minimum value of the scores

(a) by the weighting factor (0.2).

・Chest: Score (a) for each shall be calculated with the chest displacement value using the evaluation functions (Figure 4).
If the shoulder belt load exceeds 6.0 kN, 2 points shall be subtracted.
The Chest Score shall be obtained by multiplying the score (a) by the weighting factor (0.8).
The applicable score shall be 0, if the calculated score is negative.

・Abdomen: Score (a) shall be calculated by applying the criteria of each body part (Attachment 1) to the iliac load reduction rates.
The Abdomen Score shall be obtained by deducting the score (a) from 4 and multiplying the result by the weighting factor (0.8).

・Femur: Score (a) shall be calculated from the right and left femur compression load using the evaluation functions (Figure 14).
The Femur Score shall be obtained by multiplying the minimum value of the scores (a) by the weighting factor (0.4).

・Other: Total Score shall be rounded down to 2 decimal places.

*HIC_{15} = HIC values calculated at 15 msec intervals

(3) Evaluation Procedure for partner protection performance (PP) Evaluation Method

(i) Evaluation Procedure

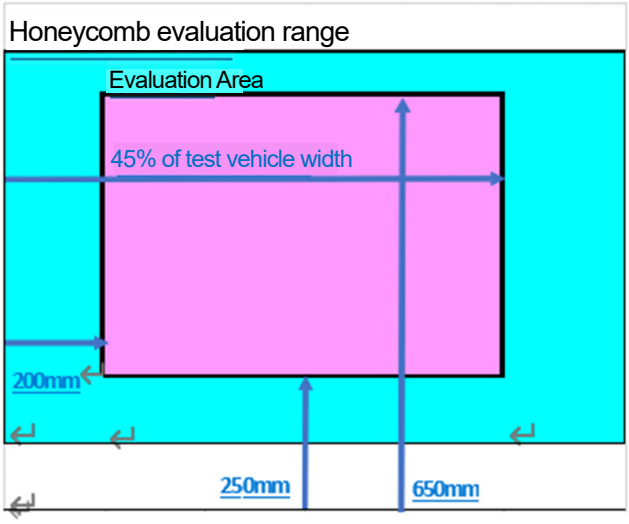
The evaluation result shall be the sum of OLC, SD, and BO.

(ii) Score Calculation

The scores of each body part shall be calculated pursuant to the procedure shown in the following paragraphs.

・OLC: Scores are calculated from the MPDB trolley OLC using the evaluation function (Figure 15).

・SD: The honeycomb evaluation range in MPDB barriers is shown in the figure below, and scores are calculated from the barrier deformation SD (standard deviation) within the evaluation range using the evaluation function (Figure 16).



・BO: If there is a deformation of 630 mm or more in a 40 mm x 40 mm square area from the final deformation of the MPDB barrier, 1 point shall be subtracted.

(4) Evaluation Procedure for new offset frontal collision safety performance evaluation method

Evaluation results shall be the values that correspond to Total Score (B) in Rating Table 2.

Total Score (B) shall be obtained by subtracting the scores of (3) partner protection performance (PP) from the sum of the scores of (1) the driver's seat and (2) the front passenger seat.

The applicable score shall be 0, if the calculated score is negative.

3. Evaluation of Side Collision Safety Performance Test

(1) Evaluation Procedure for Driver's Seat and Passenger's Seat

(i) Evaluation Procedure

Evaluation results shall be the values that correspond to Total Score (A) in Rating Table 1.

Evaluation results for the seat tested shall be applied to the other seat as well.

Total Score (A) shall be the scores of each body part (head, chest, abdomen and lumber).

The scores of each body part shall be calculated pursuant to the procedure shown in the following paragraphs.

(ii) Score Calculation

・Head: Score (a) is calculated from Head Injury Criterion (HIC_{15*}) using the evaluation functions (Figure 17).

The Head Score shall be the product of the score (a) and the weighting factor (1.0).

・Chest: Score (a) shall be calculated from the chest displacement value using the evaluation functions (Figure 18).

The Chest Score shall be obtained by multiplying the minimum value of the scores (a) by the weighting factor (1.0).

If the horizontal-direction shoulder load exceeds 3kN, 4 points shall be subtracted.

・Abdomen: Score (a) shall be calculated from the abdomen displacement value using the evaluation functions (Figure 19).

The Abdomen Score shall be obtained by multiplying the score (a) by the weighting factor (0.5).

・Lumber: Score (a) shall be calculated from the suprapubic load using the evaluation functions (Figure 20).

The Lumber Score shall be obtained by multiplying the score (a) by the weighting factor (0.5).

・Other: Total Score (A) shall be rounded down to 2 decimal places.

*HIC_{15} = HIC values calculated at 15 msec intervals

4. Evaluation of Prevent Electric Shock Protection After Collision for Electric Vehicles

(1) Evaluation Procedure

(i) Electrical Shock Protection Performance

・Direct contact: Protection against live parts of power systems shall meet IP code IPXXB.
・Indirect contact: The value of resistance to the electric chassis connected to exposed conductive parts and the electrical chassis that is accessible shall be less than 0.1 Ω with a current of 0.2 A or higher.
・Insulation resistance: The operating voltage of an AC circuit and a circuit that includes an AC circuit shall be 500 Ω / V or higher.
The operating voltage shall be 100 Ω / V or higher when satisfying the requirements of IP code IPXXB and when the voltage of AC parts is 30V or less.
The operating voltage of a DC circuit shall be 100 Ω / V or higher.
・Residual voltage: Residual voltage of high-voltage parts within 60 seconds after a collision shall be AC 30 V or less or DC 60 V or less.
・Residual energy: Energy of the high voltage parts of power systems within 60 seconds after a collision shall be 0.2J or less.

(ii) REESS Electrolyte Leakage Performance
・Electrolyte shall not leak into the passenger compartment.
・When there is electrolyte leakage to the outside of the passenger compartment, the amount of leakage in 30 minutes from the collision shall be 7% or less of the total electrolyte amount. However, for open-type traction batteries, the amount shall be 7% or less of the total electrolyte amount or 5 L or less.

(iii) REESS Anchorage Performance
・For the REESS inside the passenger compartment, it shall be anchored in a prescribed position.
・For the REESS outside the passenger compartment, it shall not penetrate into the passenger compartment.

(iv) Checking the Operation of Automatic Shutoff Device
・During a collision, the automatic shutoff device shall be activated and the high voltage circuit shut off.

(2) Evaluation Results
When the vehicle meets the requirements for electric shock protection performance, REESS electrolyte leakage performance, REESS anchorage performance and operational check of the automatic shutoff device, compliance label (Figure 21) is given.

5. Evaluation of Neck Injury Protection Performance test for Rear-end Collision

(1) Evaluation Procedure for Driver's Seat and Passenger's Seat

(i) Evaluation Procedure
Evaluation results shall be the values that correspond to Total Score (A) in Rating Table 1. Further, the evaluation results of the selected seat shall be deemed those of both seats. Also, when the test is conducted on both seats by commissioned selection and the like, the evaluation results of each seat shall the evaluation results of the seats concerned.
Total Score (A) shall be the sum of the scores of each body part (neck, upper neck and lower neck).
The scores of each body part shall be calculated pursuant to the procedures shown in the following paragraphs.

(ii) Score Calculation

・Neck: Score (a) shall be calculated from Neck Injury Criterion (NIC *3) (Neck Injury Value or Neck Injury Criterion Value) using the evaluation functions (Figure 22).
The Neck Score shall be the product of the score (a) and the weighting factor (1.0).

・Upper neck and lower neck: Scores (a) of the upper and lower neck are calculated from the shearing load (from the back of the neck) using the evaluation functions (Figure 23).
Score (a) is calculated from the tensile load (from above) using the evaluation functions (Figures 24-1 and 24-2).
Scores (a) on the flexed and extended sides are calculated from the left and right axis turning moment using the evaluation functions (Figure 25).
The Upper neck and lower neck scores shall be obtained by multiplying the minimum value of the scores (a) by the weighting factor (2.0).

・Injury values for each part are considered from the start of the test to the end of the contact between the head and the headrest.

・Other: Total Score (A) shall be rounded down to 2 decimal places.

*1 NIC = Neck Injury Criterion

6. Evaluation of Pedestrian Head Protection Performance Test

(i) Evaluation Procedure

Evaluation results shall be the values that correspond to Total Score (C) in Rating Table 3.

(ii) Score Calculation

Equally-spaced grids shall be marked on the exterior surface of the vehicle in relation to the evaluation area. Prior to testing, a vehicle manufacturer, etc shall submit to NASVA the in-house data that show performance for every grid. NASVA selects impact points (test grids) at random and conduct testing. The results shall be used as the performance of the grids and for verification of the performance of the data submitted by the vehicle manufacturer, etc. Projected values of vehicle performance by all grids submitted by the vehicle manufacturer, etc shall be corrected to obtain scores.

・Submission of Head Impactor Data (projected data) by Vehicle Manufacturers, etc:
Vehicle manufacturers, etc must submit projected data showing performances at all grid points.
Data shall be provided in the colors that correspond to the projected HIC in accordance with the table below:

Green	$HIC_{15} < 650$
Yellow	$650 \leqq HIC_{15} < 1000$
Orange	$1000 \leqq HIC_{15} < 1350$
Brown	$1350 \leqq HIC_{15} < 1700$
Red	$1700 \leqq HIC_{15}$

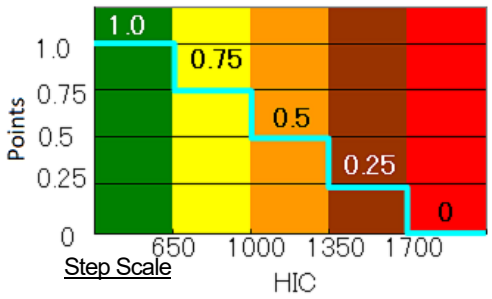
・Scoring
The maximum score for the head is 4 points. The total score for all grid points is calculated as a percentage to the maximum achievable score, which is then multiplied by

4 points.

・HIC and Point Allocation

Following points are awarded to each grid in accordance with the color (HIC):

Green		HIC_{15} <	650	1.00 pt.
Yellow	650 ≦	HIC_{15} <	1000	0.75 pt.
Orange	1000 ≦	HIC_{15} <	1350	0.50 pt.
Brown	1350 ≦	HIC_{15} <	1700	0.25 pt.
Red	1700 ≦	HIC_{15}		0.00 pt.



If the performance cannot be predicted, the vehicle manufacturer, etc can color a limited number of grid points blue. For the blue grid point, a test is conducted for one position in each blue zone and the points obtained in accordance with the HIC shall be used for results of the blue zone grid points.

・Conducting the Test

For the grids excluding default green, default red and blue, test grids shall be selected at random for 10 default grids and additional grids (up to 10 grids) requested by the manufacturer depending on the proportions of the number of colors declared by the manufacturer, and tests shall be conducted.

When a test result of a test grid that differs from the color of HIC from the predicted data is obtained, the color of the predicted data shall be replaced with the color of the test result. Further, for the colors declared by a manufacturer, at least one hit point shall be selected for each color.

If atypical glass breakage occurs because of testing at a windshield test grid point, and the vehicle manufacturer or other party wishes to do so, one additional test may be conducted at the same grid point.

If an additional exam is conducted, the grid points will be replaced by the color of the average of the two scores from the initial exam and the additional exam.

・Correcting Performance Predicted by Manufacturers, etc

The predicted performance (score) of the whole vehicle submitted by the vehicle manufacturer, etc shall be corrected using correction coefficients excluding test grids. For correction, the results of test grids shall be used. For test grids, the test results shall be used as-is. If an additional test is conducted at the windshield test grid point, the initial test and the additional tests the average score of the two times is used.

・HIC Permissible Tolerance

Since test results may fluctuate between predicted data, a permissible tolerance of 10% is applied to the HIC value of the test results, when calculating correction coefficients. The permissible tolerance is applied in both directions. For example, even when a test result is better than the predicted data, if it lies within the permissible tolerance, the predicted data is applied. When it is out of the permissible tolerance, the color (score) of the test result shall be applied. However, permissible tolerance is used only for calculating correction coefficients.

Estimate	HIC_{15} Range	Score	Permissible HIC_{15} Range for Correction Coefficient Calculation
Green	$HIC_{15} < 650$	1.00 pt.	$HIC_{15} < 722.22$
Yellow	$650 \leqq HIC_{15} < 1000$	0.75 pt.	$590.91 \leqq HIC_{15} < 1111.11$
Orange	$1000 \leqq HIC_{15} < 1350$	0.50 pt.	$909.09 \leqq HIC_{15} < 1500.00$
Brown	$1350 \leqq HIC_{15} < 1700$	0.25 pt.	$1227.27 \leqq HIC_{15} < 1888.89$
Red	$1700 \leqq HIC_{15}$	0.00 pt.	$1545.45 \leqq HIC_{15}$

・Correcting Predicted Data Scores

The correction coefficient shall be obtained by dividing the total grid score by the predicted data score of the same grid.

$$\text{Correction coefficient} = \frac{\text{Test grid score}}{\text{Predicted data score of same grid}}$$

(Correction coefficient shall be rounded to 3 decimal places and the obtained value shall be used.)

The total score of the grids, excluding the grids for which default scores are given, blue points and test grids, for which all of the predicted data are submitted, is multiplied by this correction coefficient.

Further, this method is only applied when the correction coefficients range between 0.750 and 1.250. If this is not the case, the cause shall be investigated, and discussions held between NASVA and the vehicle manufacturer, etc. If the above condition is met, the Head Score after the above correction shall be used.

・Total Score (C) Calculation

The sum of the default green score, blue point score, test grid score and the corrected score performed in the correction of predicted data score shall be divided by the total number of grids. This value shall be multiplied by 4 points to obtain Total Score (C).

Total Score (C) shall be rounded down to 2 decimal places.

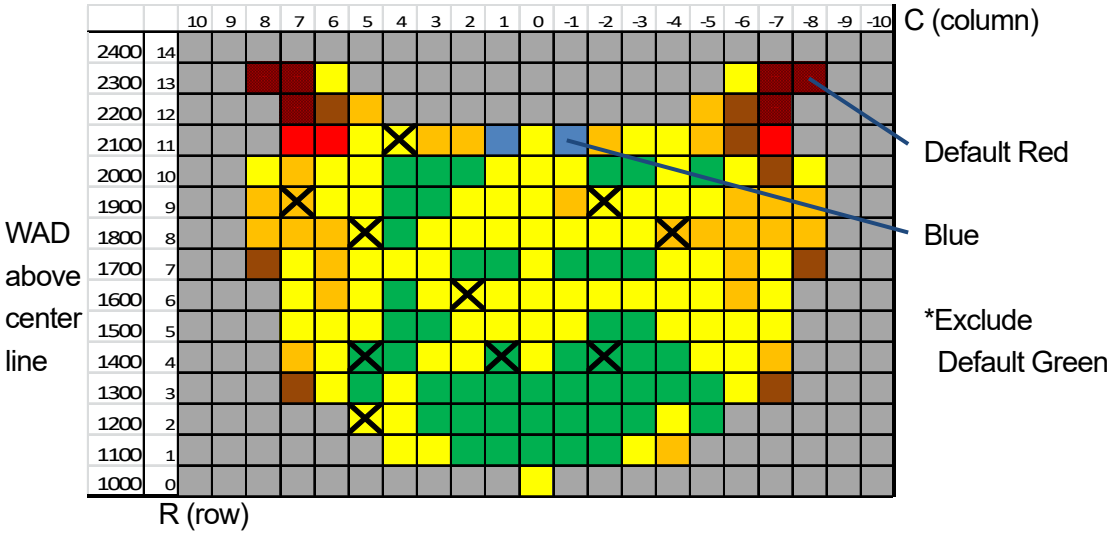
Further, the final score never exceeds 4 points, regardless of the correction coefficient.

When multiplying the correction coefficient to the submitted data from the vehicle manufacturer, etc., the output shall be rounded to 3 decimal places. Also, when calculating the proportion of Total Score (C) to the perfect score, the output shall be rounded to 3 decimal places.

・Example of Score Calculation

A vehicle manufacturer, etc submits the following predicted performance for 168 grids (excluding blue, default green and default red) out of the total 176 grids (highest score of 176.)

<Vehicle Manufacturer-Supplied Predicted Performance (color, points)>



The predictions for this example are as follows:

Green	50 grids x 1.00 =	50.00
Yellow	79 grids x 0.75 =	59.25
Orange	28 grids x 0.50 =	14.00
Brown	8 grids x 0.25 =	2.00
Red	3 grids x 0.00 =	0.00
	168 grid	125.25 pts.

Default Green	0 grids x 1.00 =	0.00
Default Red	6 grids x 0.00 =	0.00
Blue	2 grids	
	8 grid	0.00 pts.

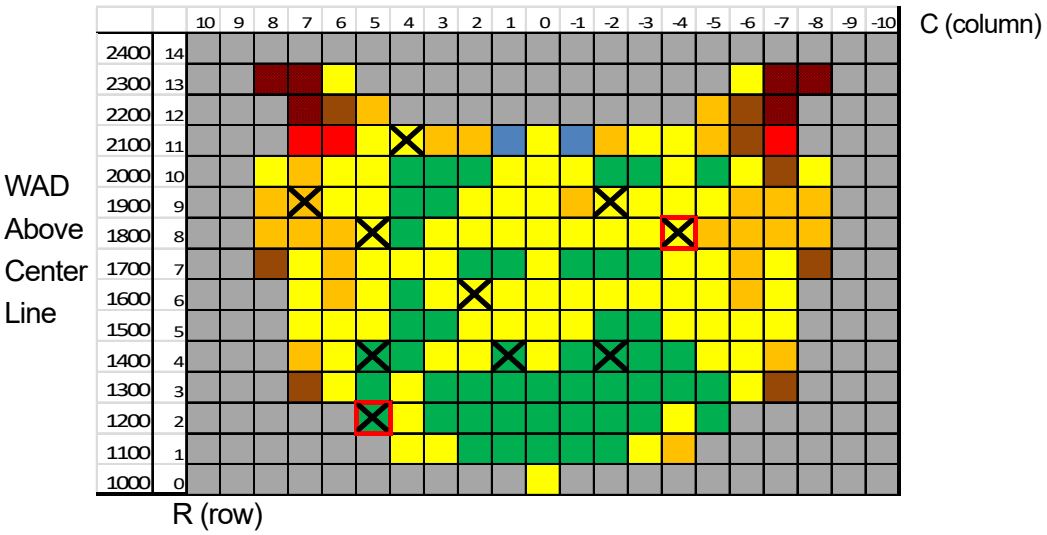
<Test Grid>

Tests for 10 grids shall be carried out by NASVA. (Grids with X)

Predicted Data and Test Grid Test Results (Child data begins GRID with C and adult data with A)

Grid	R2 C5	R4 C-2	R4 C1	R8 C5	R6 C2	R4 C5	R9 C7	R9 C-3	R8 C-4	R11 C4	Total Score
Glass Test Grid	–	–	–	–	–	–	–	–	–	●	
Predicted Data (color, score)	0.75	1	1	0.75	0.75	1	0.5	0.75	0.5	1	8
Test Grid Test Results (HIC)	595.0	438.0	496.0	836.0	820.0	519.0	1200.0	976.0	863.0	1632.0	
Test Grid Test Results (color, score)	1	1	1	0.75	0.75	1	0.5	0.75	0.75	0.25	
Atypical Cracking in Glass Test Grids	–	–	–	–	–	–	–	–	–	●	
Additional Test Results for Glass Test Grids (HIC)	–	–	–	–	–	–	–	–	–	432.0	
Glass Test Grid Test Results (color, score)	–	–	–	–	–	–	–	–	–	1	
Correction Factor (color, score)	0.75	1	1	0.75	0.75	1	0.5	0.75	0.75	0.625	7.875
										Correction Factor	**0.984**

The Test Grid scores shall be determined by the test results (□). For the C, 2, +5 (Child, row 2, column 5), A, 8, -4 (Adult, row 8, column -4), A, 11, 4 (Adult, row 11, column 4) grid, the color (scoring) has changed after testing, so the predicted data performance shall be corrected (□).



For the C, 2, +5 Grid, since the results are within an HIC_{15} permissible error, the predicted color (score) submitted by the vehicle manufacturer, etc shall be used for calculating correction coefficient.

$$\text{Correction coefficient} = \frac{Test\ grid\ sore}{Predicted\ data\ score\ of\ same\ grid} = \frac{7.875}{8.00} = 0.984$$

<Corrections of Performance Predicted by Vehicle Manufacturer, etc>

Excludes Test Grid from Predicted data.

Green	*47* grids x 1.00 =	*47.00*
Yellow	*74* grids x 0.75 =	*55.50*
Orange	*26* grids x 0.50 =	*13.00*
Brown	8 grids x 0.25 =	2.00
Red	3 grids x 0.00 =	0.00
	158 grids	*117.50* pts.

Default Green	0 grids x 1.00 =	0.00
Default Red	6 grids x 0.00 =	0.00
Blue	2 grids	
	8 grids	0.00 pts.

(Figures in italics are portions which changed by the test results)

Performance data (scores) of the grids other than those for which tests are conducted shall be multiplied by the correction coefficient.

117.50×0.984 = 115.620 pts.

<Blue Grid NASVA Performance Test>

2 Blue Zones including 2 Blue Grids shall be tested by NASVA.

Blue Zone	1	2
Grid	R11 C1	R11 C-1
Test Grid's Test Results (HIC)	1199.0	902.0
Test Grid's Test Results (color, score)	0.50	0.75

<Calculating the Total Score>

Predicted	158 grids	115.620
Default Green	0 grids	0.000
Default Red	6 grids	0.000
Total Test Grid		7.875
Total Blue Test		1.250
	176 grids Points	123.50 pts.

The percentage to the perfect score is: 130.502/176＝70.1704 → 70.170%

The final Head Score (Total Score (C)) is: 4×0.70170＝2.8068 → 2.81 pts.

7. Evaluation of Pedestrian Leg Protection Performance Test

(i) Evaluation Procedure

Evaluation results shall be the values that correspond to Total Score (D) in Rating Table 4.

Total Score (D) shall be the average of areas L1, L2 and L3.

The scores of each area shall be the average of the subdivided areas.

The subdivided area score shall be the sum of Femur Score, Tibia Score and Knee Score.

(ii) Score Calculation

・Femur Score Calculation

The following formula shall be used to calculate scores for Femur 1 to Femur 3 (perfect score 4 points) and the lowest value shall be the Femur Score.

Coloring shall be conducted using the color chart by the leg injury value.

440Nm≦Femur Flexion Moment : Femur Score = 0

390Nm<Femur Flexion Moment < 440Nm : Femur Score = 4 - ((Femur Flexion Moment - 390)×4÷50)

Femur Flexion Moment≦390Nm : Femur Score = 4

・Calculating the Tibia Score

The following formula shall be used to calculate scores for Tibia 1 to Tibia 4 (perfect score 4 points) and the lowest value shall be the Tibia Score.

Coloring shall be conducted using the color chart by the leg injury value.

320Nm≦Tibia Flexion Moment : Tibia Score = 0

275Nm<Tibia Flexion Moment < 320Nm : Tibia Score = 4 - ((Tibia Flexion Moment - 275)×4÷45)

Tibia Flexion Moment≦275Nm : Tibia Score = 4

・Knee Score Calculation

For the medial collateral ligament (MCL) stretch amount, a score (perfect score 4 points) shall be calculated by the following formula.

Coloring shall be conducted using the color chart by the leg injury value.

32.0mm≦MCL stretch amount : Knee Score = 0

27.0mm< MCL stretch amount < 32.0mm : Knee Score = 4 - ((MCL stretch amount - 27.0)×4÷5)

MCL stretch amount≦27.0mm : Knee Score = 4

・Calculation of Total Score (D)

Leg Scores for each impact point shall be calculated by the following formula, using Femur, Tibia and Leg Scores. The Leg Score (Total Score (D)) shall be the average scores of the subdivided areas.

Leg Scores for each impact point shall be rounded down to 2 decimal places.

Leg Score of an impact point = Femur Score x 0.24 + Tibia Score x 0.55 + Knee Score x 0.21

8. Evaluation of Safety-belt reminder Performance Test

(1) Evaluation Procedure

・For each seatbelt alarm (front passenger seatbelt alarm, rear seatbelt reminder and change of status alarm), the ones conforming based on the evaluation criteria for each seatbelt alarm described below shall be a subject of evaluation.

・Evaluation results shall be the values that correspond to Total Score (E) in the Rating Table 6.

・Total Score (E) shall be the sum of scores that are calculated based on the evaluation criteria by the target seat, and by the type of alarm, etc.

・Total Score (E) shall be rounded down to 2 decimal places.

・Points shall be given to the ones certified in writing as conformed to UN-R16-07, based on the testing procedure, as conforming to the criteria of front passenger seatbelt alarm (a) and rear seatbelt reminder (a).

(2) Evaluation Criteria

・Based on the total score (perfect score 3.6 points) of visual and audio alarms, levels are indicated in scale of five.

・Evaluation scores for each alarm shall be as per the table below.

【Front Passenger Seatbelt Alarm】

The sum of front passenger seatbelt alarm (a) and front passenger seatbelt alarm (b) shall be an evaluation score for front passenger seatbelt alarm. If equipped with either front passenger seatbelt alarm or change of status alarm, points shall be divided into equal parts.

<<Front Passenger Seatbelt Alarm (a)>>

		Point
Visual Alarm & Audio Alarm	When the alarm indicator and the alarm sound can be confirmed from the driver seat	0.9

<<Front Passenger Seatbelt Alarm (b)>>

If there is more than one seat in front including a bench seat, the score shall be in proportion to the number of seats from which the alarm can be confirmed by dividing the following point by the number of seats.

Audio Alarm	When the alarm sound can be confirmed from the front passenger seat	Point 0.6

【Rear Seatbelt Reminder】

The sum of rear seatbelt reminder (a) and rear seatbelt reminder (b) shall be an evaluation score for rear seatbelt reminder.

<<Rear Seatbelt Reminder (a)>>

Visual Alarm & Audio Alarm	When the alarm indicator and the alarm sound can be confirmed from the driver seat. (the change of status alarm)	Point 0.9

<<Rear Seatbelt Reminder (b)>>

The sum of the visual alarm point and the audio alarm point (also the sum of rear seatbelt reminder and the change of status alarm) shall be an evaluation score for rear seatbelt reminder.

If there is more than one seat including a bench seat in the back, the score shall be in proportion to the number of seats from which the alarm can be confirmed by dividing the point in the following table by the number of seats.

Visual Alarm	When the alarm indicator for the seat in question can be confirmed from the back seat. (the rear seatbelt reminder)	Point 0.2
	When the alarm indicator for the seat in question can be confirmed from the back seat. (the change of status alarm)	0.2

- For the alarm indicator of which the back seat visual alarm visibility is at the center console, the score allocation per seat when confirmed from the following eye point position, based on the testing procedure, shall be as follows.
  - ・If it can be confirmed from eye points of both men and women: 1
  - ・If it can be confirmed from an eye point of either men or women: 0.5
  - ・If it can't be confirmed from eye points of men or women: 0

  (It is acceptable if visibility can be confirmed from either one of the two eye positions.)

Audio Alarm	When the audio alarm for the seat in question can be confirmed from the back seat (the rear seatbelt reminder)	Point 0.4
	When the audio alarm for the seat in question can be confirmed from the back seat (the change of status alarm)	0.4

Article 3**:** The overall collision safety performance evaluation, based on the test results as described in Article 2, shall be as per the procedure described below.

(1) Evaluation Procedure

The evaluation results shall be the values that correspond to the Total Score for Collision Safety Performance in the Rating Table 7.

The total score shall be the sum of all the points obtained from the collision safety performance

evaluation tests.

The total score shall be rounded to 2 decimal places.

The evaluation score for each performance evaluation shall be calculated as described in the following paragraph.

(2) Evaluation Score Calculation

The evaluation score for each test shall be calculated as described below.

When calculating the evaluation score for each test, the value of total points for each test before being rounded shall be used.

- Full-wrap Frontal Collision Safety Performance Test :
  The score shall be the value of the sum of the driver seat and the front passenger seat scores (A) multiplied by the weighting factor of 22/24
- New Offset Frontal Collision Safety Performance Test :
  The score shall be the value of the sum of the driver seat and the back seat scores (B) multiplied by the weighting factor of 22/24
- Side Collision Safety Performance Test :
  The score shall be the value of the sum of the driver seat and the front passenger seat scores (A) multiplied by the weighting factor of 14/24
- Rear Collision Neck Protection Performance Test :
  The score shall be the value of the sum of the driver seat and the front passenger seat scores (A) multiplied by the weighting factor of 1/24
- Pedestrian Head Protection Performance Test :
  The score shall be the value of the total score of the pedestrian head protection performance test results (C) multiplied by the weighting factor of 32/4
- Pedestrian Leg Protection Performance Test :
  The score shall be the value of the total score of the pedestrian leg protection performance test results (D) multiplied by the weighting factor of 5/4
- Seatbelt Reminder Alarm Performance Test :
  The score shall be the value of the total score of the seatbelt reminder alarm performance test results (E) multiplied by the weighting factor of 4/3.6

(3) Others

The A Rank shall not be given to the test subject whose evaluation score in any of the performance tests is lower than the highest level by two levels or higher, regardless of the total score in the Rating Table 7.

[Rating Table 1] (Full-wrap, side collision, rear collision)

Evaluation Results	Total Score (A)
Level 5	10.5 points or higher
Level 4	9.0 ~ 10.4
Level 3	7.5 ~ 8.9
Level 2	6.0 ~ 7.4
Level 1	Under 6.0

[Rating Table 2] (New offset)

Evaluation Results	Total Score (B)
Level 5	21.0 points or higher
Level 4	18.0 ~ 20.9
Level 3	15.0 ~ 17.9
Level 2	12.0 ~ 14.9
Level 1	Under 12.0

[Rating Table 3] (Pedestrian Head)

Evaluation Results	Total Score (C)
Level 5	3.14 points or higher
Level 4	2.61 ~ 3.13
Level 3	2.07 ~ 2.60
Level 2	1.54 ~ 2.06
Level 1	Under 1.54

[Rating Table 4] (Pedestrian Leg)

Evaluation Results	Total Score (D)
Level 5	3.50 points or higher
Level 4	3.00 ~ 3.49
Level 3	2.50 ~ 2.99
Level 2	2.00 ~ 2.49
Level 1	Under 2.00

[Rating Table 5] (Pedestrian Legs) Color-coding by Leg Injury Criterion

Display	Femur (Nm)	Tibia (Nm)	Knee (MCL : mm)
	~ 390.0	~ 275.0	~ 27.0
	390.1 ~ 407.0	275.1 ~ 290.0	27.1 ~ 28.7
	407.1 ~ 424.0	290.1 ~ 305.0	28.8 ~ 30.4
	424.1 ~ 439.9	305.1 ~ 319.9	30.5 ~ 31.9
	440.0 ~	320.0 ~	32.0 ~

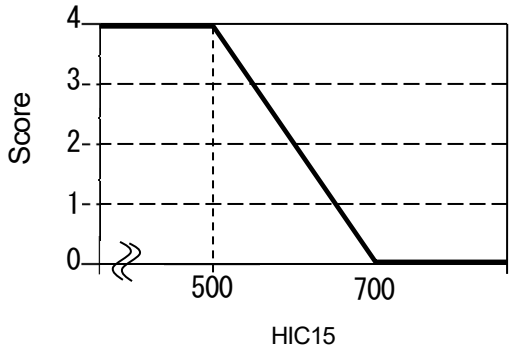
[Rating Table 6] (Seatbelt Reminder)

Evaluation Results	Total Score (E)
Level 5	3.16 points or higher
Level 4	2.71 ~ 3.15
Level 3	2.26 ~ 2.70
Level 2	1.81 ~ 2.25
Level 1	Under 1.81

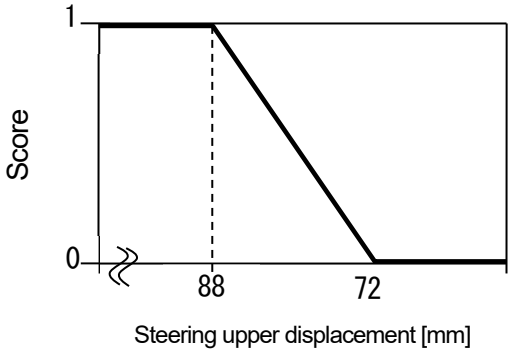
[Rating Table 7] (Collision Safety Performance Evaluation)

Evaluation Results	Total Score for Collision Safety Performance
A Rank	84.63 points or higher
B Rank	71.89 ~ 84.62
C Rank	59.07 ~ 71.88
D Rank	46.33 ~ 59.06
E Rank	Under 46.33

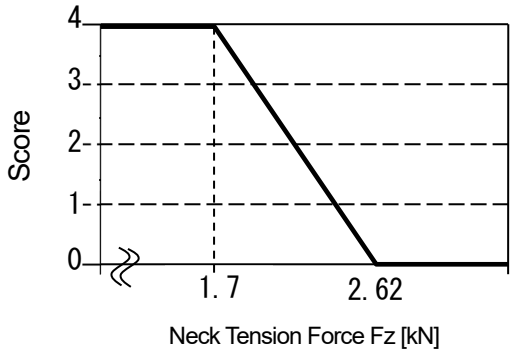
[Fig. 1: Head Injury Criterion]



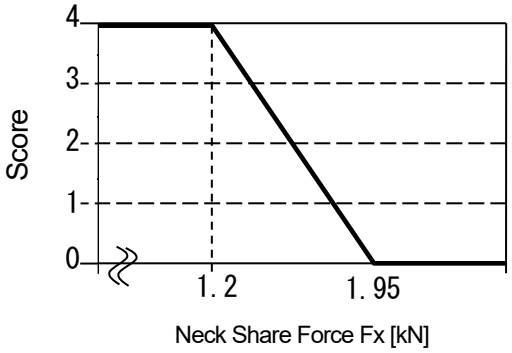
[Fig. 2: Degree of steering Wheel Upward Displacement]



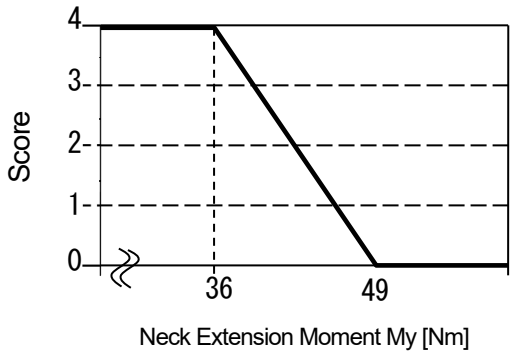
[Fig. 3-1: Tensile Load]



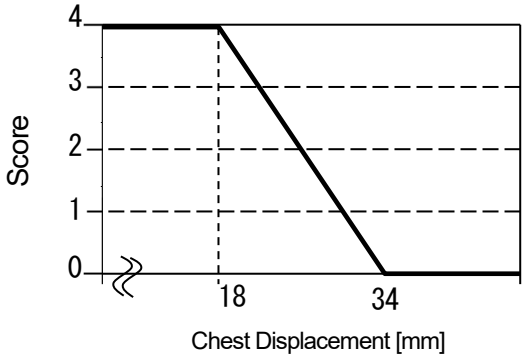
[Fig. 3-2: Shearing Load]



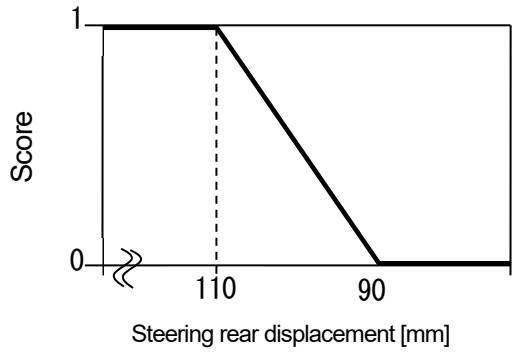
[Fig. 3-3: Extension Moment]



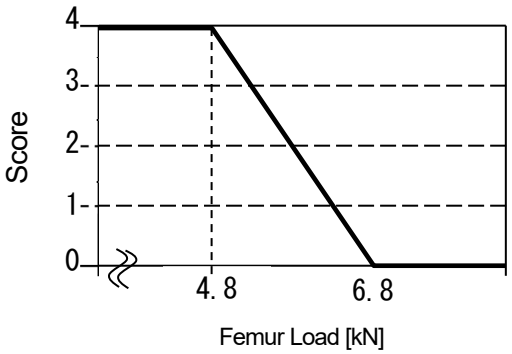
[Fig. 4: Chest Displacement Amount]



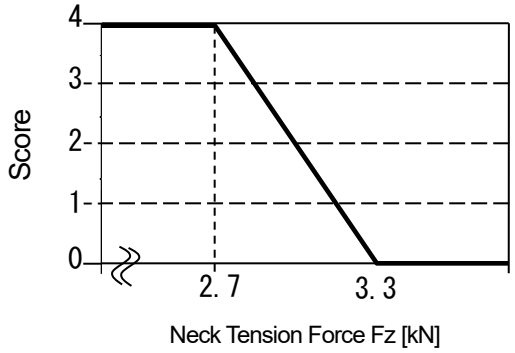
[Fig. 5: Steering Backward Displacement]



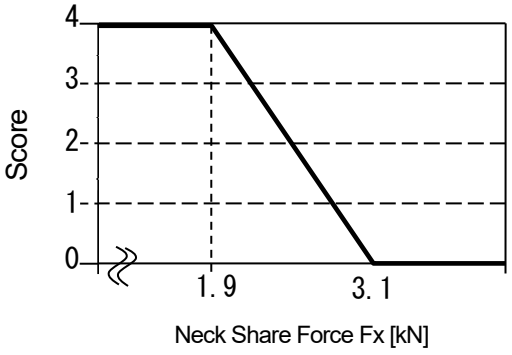
[Fig. 6: Femur load]



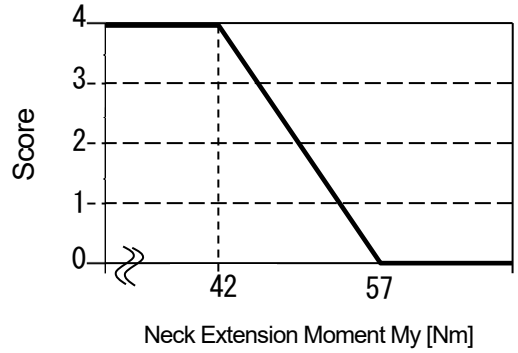
[Fig. 7-1: Tensile Load]



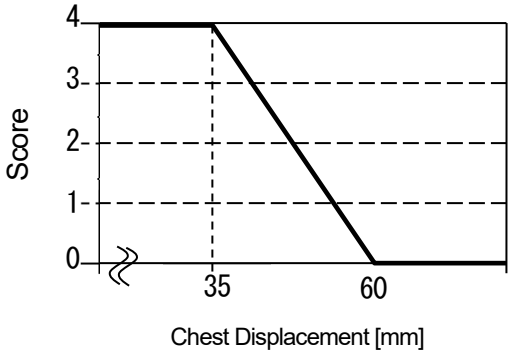
[Fig. 7-2: Shearing Load]



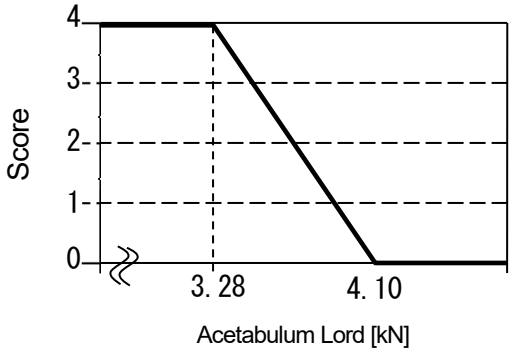
[Fig. 7-3: Extension Moment]



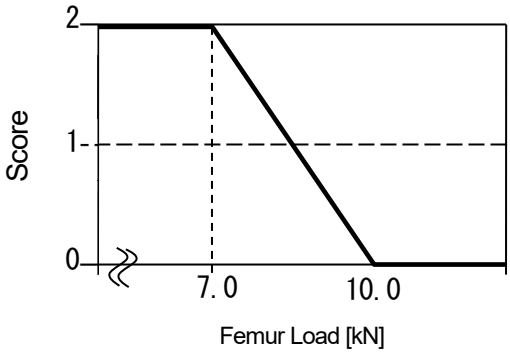
[Fig. 8: Chest Displacement Amount]



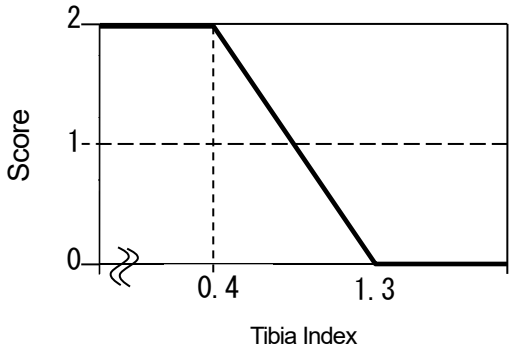
[Fig. 9: Acetabulum Load]



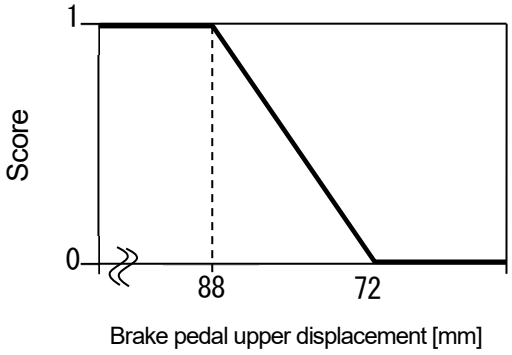
[Fig. 10: Femur Load]



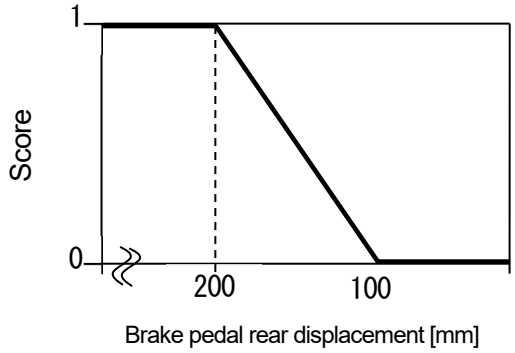
[Fig. 11: Tibia load index]



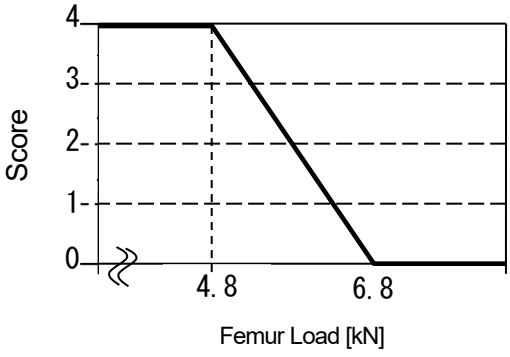
[Fig. 12: Brake Pedal Upper Displacement]



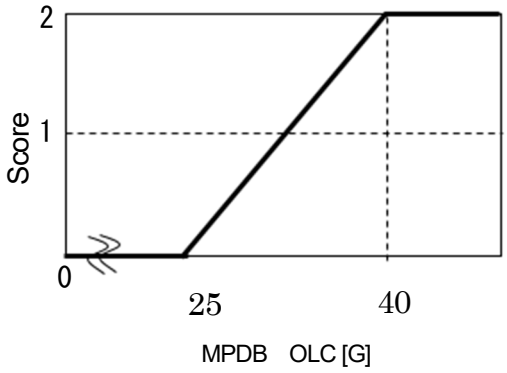
[Fig. 13: Brake Pedal Rear Displacement]



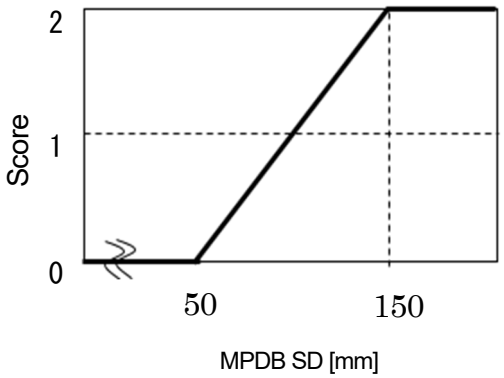
[Fig. 14: Femur Load]



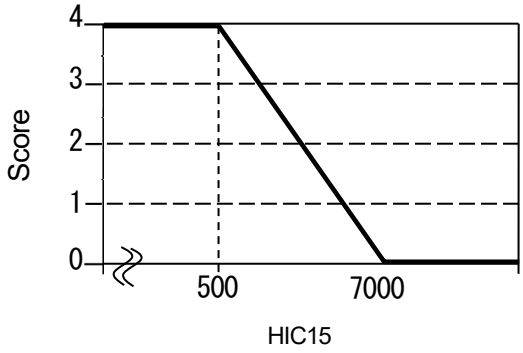
[Fig. 15: OLC]



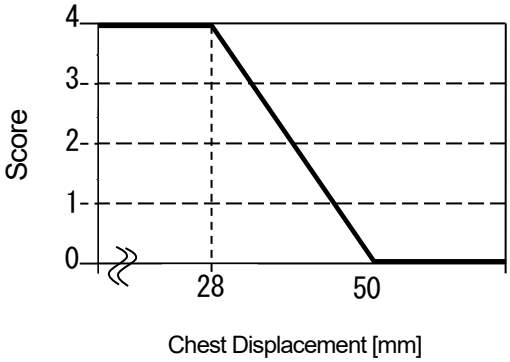
[Fig. 16: SD]



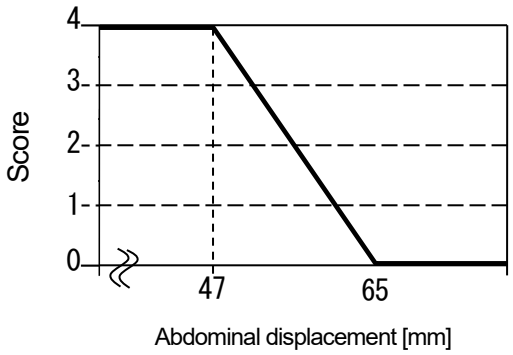
[Fig. 17: Head Injury Criterion]



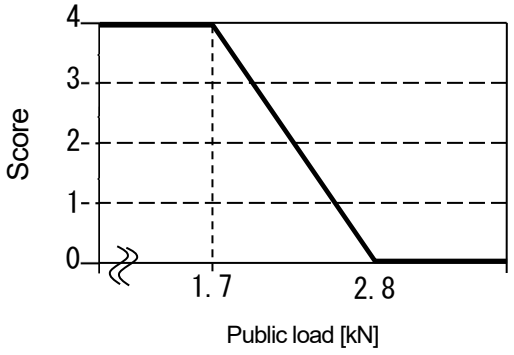
[Fig. 18: Chest Displacement]



[Fig. 19: Abdominal Displacement]

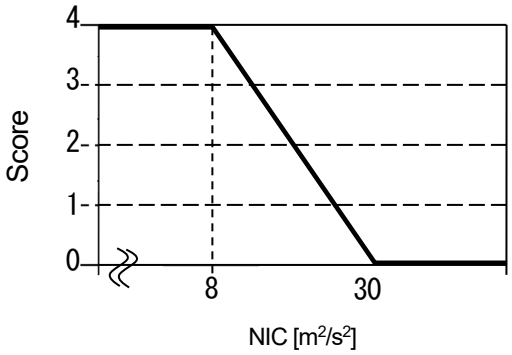


[Fig. 20: Suprapubic Load]

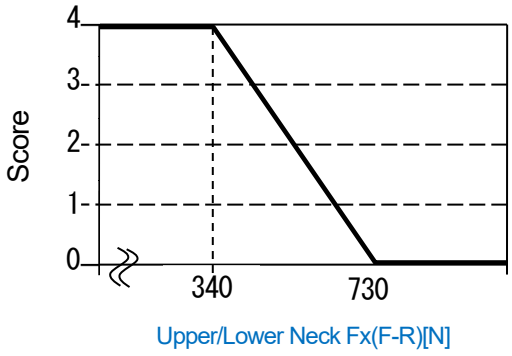


[Fig. 21: Compliance Label]

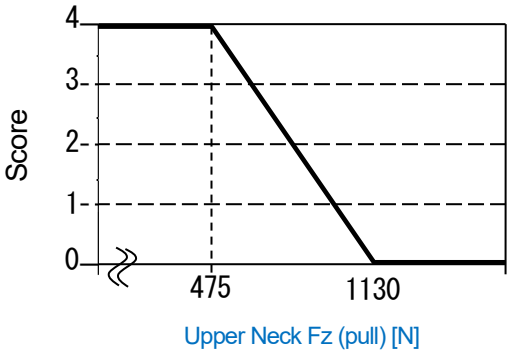
[Fig. 22: Neck Injury Criterion]



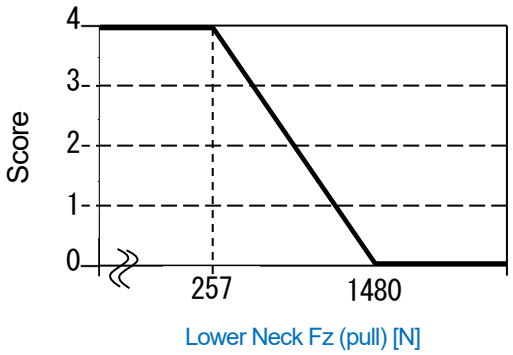
[Fig. 23: Neck Shearing Load (front/rear)]



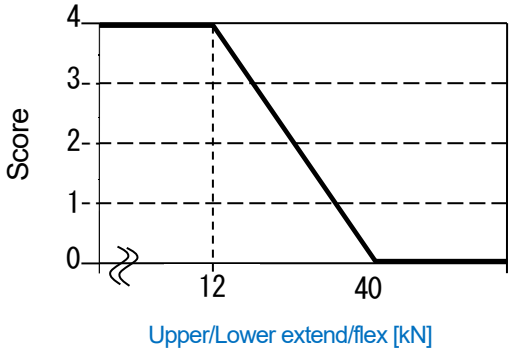
[Fig. 24-1: Neck tensile load: Upper-Neck]



[Fig. 24-2: Neck tensile load: Lower-Neck]



[Fig. 25: Neck Extension Moment]



Supplementary Provisions (March 31, 2021, NASVA Assess No.63)

1. These regulations shall come into effect as of March 31, 2021.
2. COLLISION SAFETY PERFORMANCE EVALUATION PROCEDURES FOR NEW CAR ASSESSMENT INFORMATION PROVISION PROJECT (May 26, 2020, NASVA Assess No.5) shall be abolished.

Supplementary Provisions (April 25, 2023, NASVA Assess No. 8)

These rules shall come into effect as of April 25, 2023.

Supplementary Provisions (May 2, 2024, NASVA Assess No. 15)

These rules shall come into effect as of May 2, 2024.

Supplementary Provisions (June 25, 2024, NASVA Assess No. 24)

These rules shall come into effect as of June 25, 2024.

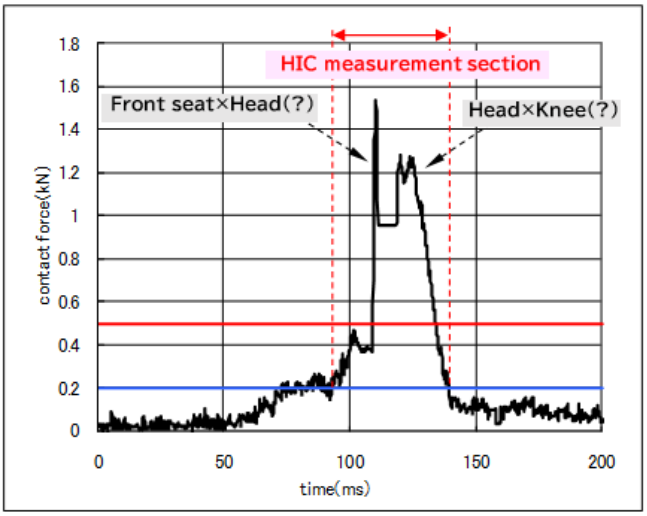
Appendix 1　Evaluation Criteria for Each Body Part

1. Head Part

- To confirm if the secondary collision of the dummy head has occurred by looking at the paint and the car camera image.
- In the case that a secondary collision is not confirmed, a perfect score shall be given without calculating HIC15.
- In the case that a secondary collision has been confirmed or its occurrence is not clear, the contact load on the dummy head shall be calculated to reconfirm its occurrence as per the procedure of SAE J2052.
- In the case that the contact load for the dummy head exceeds 0.5 kN, then its occurrence shall be supposed and HIC15 shall be calculated by determining the calculation range of HIC15 as per the following procedure.
- In the case of the secondary collision between the dummy head and any inner part of the car, evaluation shall be made as per HIC15.
- In the case that the damage of the secondary collision on the dummy body such as between the dummy head and the dummy knee, and the damage of the secondary collision between the dummy head and the inner car structure can be clearly distinguished, it shall be excluded from HIC15 calculation by judging from the car camera image, etc.
- HIC15 calculated by the above procedure shall be evaluated by setting the upper limit / the lower limit as 500 / 700, using FMVSS208 as a reference.

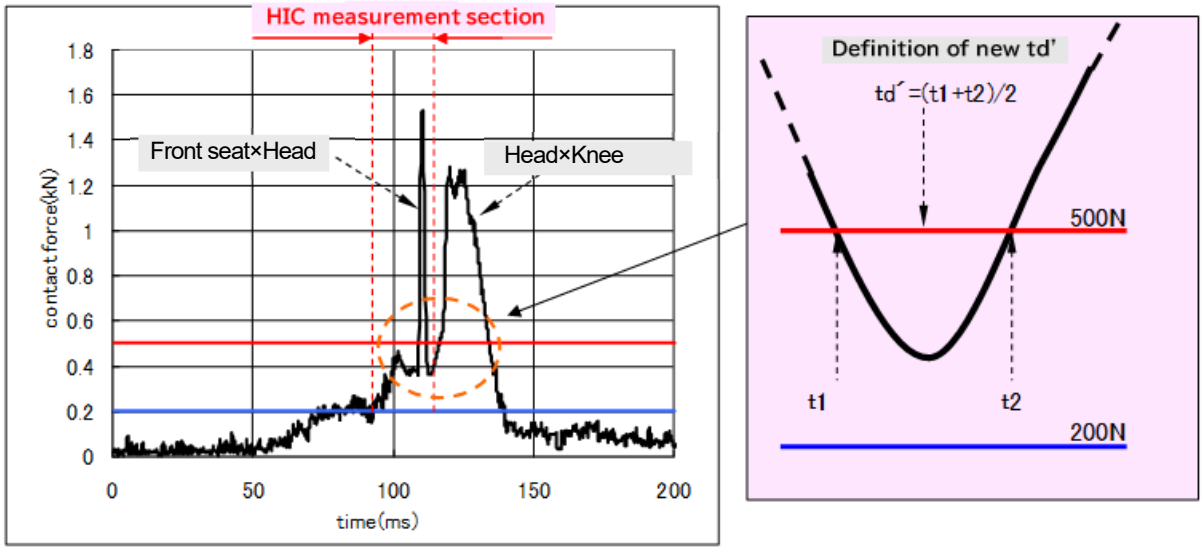
➢ Judgment cases for the secondary collision among the dummy body shall be indicated as below.

➢ The case where the secondary collision between the dummy head and the inner car part, and the secondary collision between the dummy head and the dummy body such as the dummy knee, etc. cannot be distinguished (HIC15 shall be calculated without deducting the wave shape of the collision between the dummy head and the dummy knee, etc. from HIC calculation, standing on the safety side.)

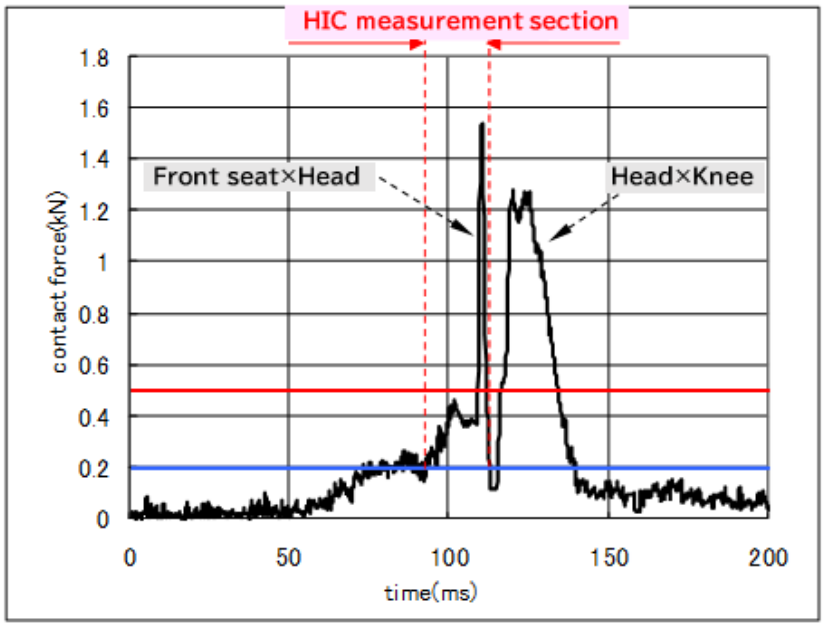


➢ The case where the wave shape of the secondary collision between the dummy head and the dummy knee, etc. can be distinguished, HIC15 calculation time can't be distinguished (HIC shall be calculated by distinguishing HIC15 calculation time for convenience sake and

by excluding the impact between the dummy head and the dummy knee, etc.)



- The case where the wave shape of the secondary collision between the dummy head and the dummy knee, etc. can be distinguished (HIC15 shall be calculated by excluding the secondary collision among the dummy body.)



2. Neck Part

- To confirm if the secondary collision of the dummy head has occurred through the paint and the car camera image, as in the case of the head part.
- In case the secondary collision is not confirmed, the damage shall be evaluated only by the maximum value of the tensile load of the neck part.
- In case the secondary collision has been confirmed or its occurrence is not clear, the contact load on the dummy head shall be calculated to reconfirm its occurrence as per the procedure of SAE J2052.
- In case the contact load for the dummy head exceeds 0.5 kN, then its occurrence shall be

supposed and then the damage shall be evaluated by the maximum value of the tensile load, the shearing load the extension moment of the neck part.

・The upper / lower limit for each evaluation value shall be as follows:

- The maximum value for the tensile load shall be evaluated as 1.7/2.62 kN.
- The maximum value for the shearing load shall be evaluated as 1.2/1.95 kN.
- The maximum value for the extension moment shall be evaluated as 36/49Nm.

3. Chest Part

・The damage shall be evaluated by the maximum value of the compression side of the chest deflection. The upper / lower limit for evaluation shall be 18/42mm.

4. Abdominal Part

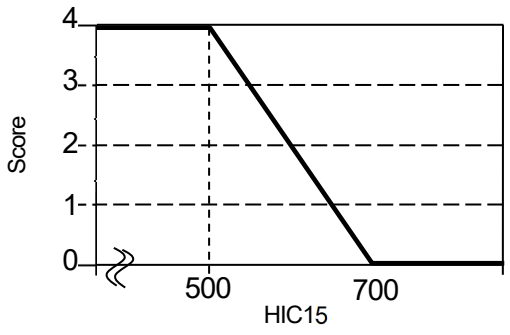
・The damage shall be evaluated by judging the extent of slipping up of the lap belt from the pelvis, calculating the ilium load.

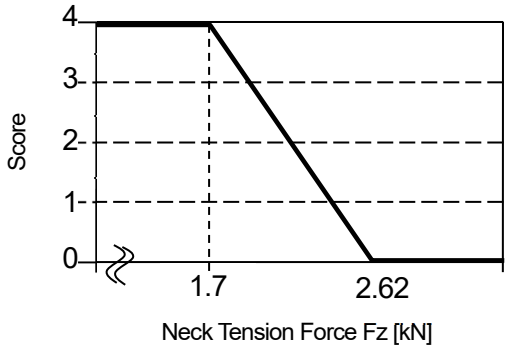
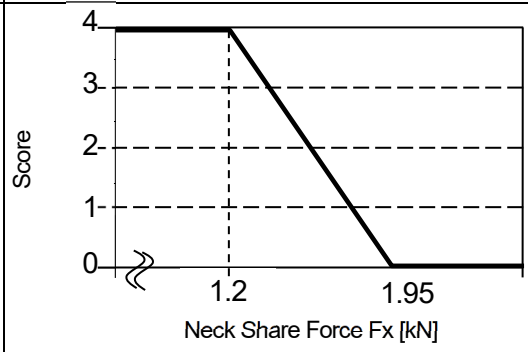
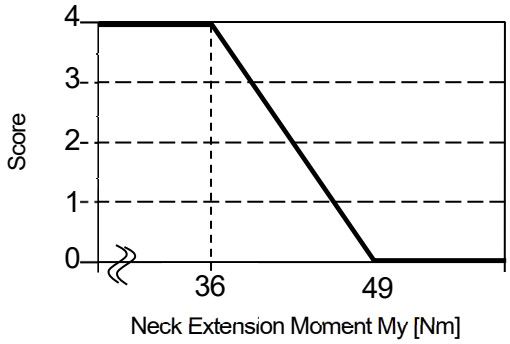
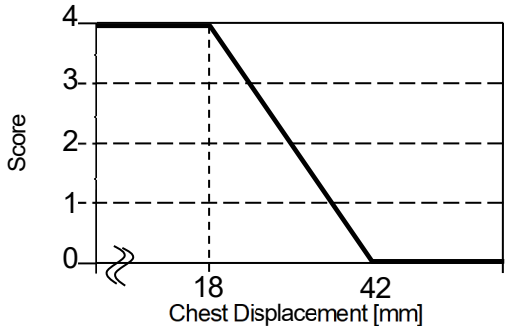
・In case the decreasing rate of the ilium load exceeds 1 kN/msec, the slipping up of the lap belt from the pelvis is supposed and the evaluation shall be downgraded by 2 points per each side. In case the wave shape of the ilium load shows more than 2 chevron wave shapes, the damage shall be evaluated by the decreasing rate after the latest peak. Also, the following cases shall be excluded, as the impact to the abdominal impairment is insignificant.

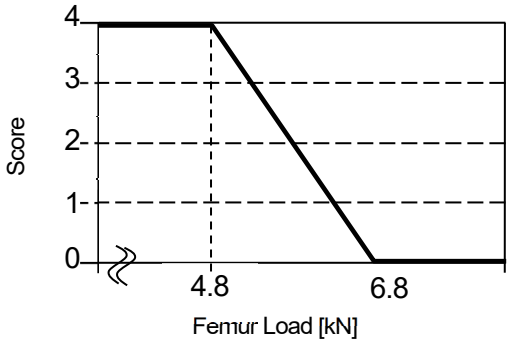
- In case the decreasing rate of the ilium load exceeds the above value after the ilium load at the time of rebound goes below 2.4 kN.
- The rebound timing shall be defined as the timing after the time when the relative velocity of the abdominal part becomes zero, calculated from the composite value of the acceleration toward front-back direction as well as vertical direction of the abdominal part.

5. Leg Part

・The damage shall be evaluated by the maximum value of the compression side of the femur load. The upper / lower limit for evaluation shall be 4.8/6.8kN.

Body Part	Injury Value	Evaluation Function	Remarks
Head	HIC15		The upper / lower limit for HIC15 is as per FMVSS208.

<table>
<tr><td>Neck</td><td>Tension Force</td><td> 
</td><td rowspan="3">Due to long duration, only the peak value was evaluated, not by the usual accumulated time evaluation. The upper / lower value is from the scaling of AM50 peak value.</td></tr>
<tr><td>Share Force</td><td> 
</td></tr>
<tr><td>Extension Moment</td><td> 
</td></tr>
<tr><td>Chest</td><td>Compressive Deflection</td><td> 
</td><td>The upper / lower value is determined based on the probability of the injury severer than AIS3 for Japanese with average age of 40 years old, based on the latest information that the chest deflection has a strong correlation with the age.</td></tr>
</table>

Femur	Compressive Load		The upper / lower value is from the scaling of AM50 value.

This is a translation to English for reference purpose of JNCAP evaluation procedures which is originally prescribed in Japanese language.
Please be sure to refer to the Japanese evaluation procedures if you need to be precisely correct.

PREVENTIVE SAFETY PERFORMANCE EVALUATION PROCEDURES FOR NEW CAR ASSESSMENT INFORMATION PROVISION PROJECT

March 31, 2021
NASVA Assess No.64

Partial Revision (May 2, 2024, NASVA Assess No. 16)
(April 25, 2023, NASVA Assess No. 9)
(April 1, 2022, NASVA Assess No. 3)

Article 1 : Pursuant to the provisions of Article 28 of the Implementation Procedures for New Car Assessment Project by the National Agency for Automobile Safety and Victim's Aid (NASVA) (NASVA Assess No.4 of 2020) for evaluation of the results of the new car assessment tests, required matters shall be prescribed as described below.

Article 2 : Results of the preventive safety performance tests shall be evaluated by the following method.

1. Evaluation by Autonomous Emergency Braking System (car to pedestrian: daytime) Performance Test [Daytime Conditions]

①Evaluation Procedure

Evaluation results shall be the values that correspond to Total Score (A) in Rating Table 1.

Total Score (A) shall be calculated pursuant to the procedure shown in the following paragraphs.

②Score Calculation

Based on the following scoring table specified for each test vehicle speed in the standard evaluation test and partial evaluation test under each test scenario (without obstruction [CPN], with obstruction [CPNO]), base scores for each condition shall be calculated by multiplying the test results of the velocity reduction rate under each condition.

Further, for the additional conditions (the wrap ratio of 25%, 75%, the walking speed of 8 km/h, child target), the velocity reduction rate of the vehicle speed condition for which testing is not carried out shall be calculated, while assuming that the velocity reduction rate shall be equivalent under the vehicle speed conditions of other than the representative vehicle speed based on the "proportions of velocity reduction ratios between the standard evaluation test results and the partial evaluation test results".

Then, from the base scores under each condition, a correction coefficient shall be obtained for the test results under the standard conditions (wrap ratio 50%, pedestrian speed 5/km/h, adult target), which shall be multiplied for each test scenario to determine the point of each test scenario. Total Score (A) of the test subject shall be obtained by rounding the total points to 1

decimal place.

Moreover, regarding the conditions under which the FCWS test was carried out, the same calculation shall be carried out upon equally dividing the scores of the AEBS test and the FCWS test, and the sum of the AEBS test results and the FCWS test results shall be Total Score (A) of the system.

Additionally, even if the test ends in mid-course upon satisfying the termination conditions of the test, the velocity reduction rate obtained under the vehicle speed condition at the time of termination is valid and added as a point.

Base Point Allocation for Standard Evaluation Tests
(without obstruction①, with obstruction②)

Velocity Conditions	w/o obstruction①	w/ obstruction②
10km/h	**1**	
15km/h	**1**	
20km/h	**2**	
25km/h	**2**	**1**
30km/h	**2**	**1**
35km/h	**3**	**1**
40km/h	**3**	**1**
45km/h	**2**	**1**
50km/h	**2**	
55km/h	**1**	
60km/h	**1**	
Total	**20**	**5**

Basic Point Allocation for Partial Tests

③Wrap Ratio Cond. (w/o obstruction)

Velocity Conditions km/h	CPN-5km/h-Adult		
	25%	50%	75%
10	0.2	0.6	0.2
15	0.2	0.6	0.2
20	0.4	1.2	0.4
25	0.4	1.2	0.4
30	0.4	1.2	0.4
35	0.6	1.8	0.6
40	0.6	1.8	0.6
45	0.4	1.2	0.4
50	0.4	1.2	0.4
55	0.2	0.6	0.2
60	0.2	0.6	0.2
Base Score	4	12	4
Allocation Ratio	1	3	1

④Ped. Speed Cond. (w/o obstruction)

Velocity Conditions km/h	CPN-50%-Adult	
	5km/h	8km/h
10	0.9	0.1
15	0.9	0.1
20	1.8	0.2
25	1.8	0.2
30	1.8	0.2
35	2.7	0.3
40	2.7	0.3
45	1.8	0.2
50	1.8	0.2
55	0.9	0.1
60	0.9	0.1
Base Score	18	2
Allocation Ratio	9	1

⑤PT Cond. (w/o obstruction)

Velocity Conditions km/h	CPN-50%-5km/h	
	Adult	Child
10	0.9	0.1
15	0.9	0.1
20	1.8	0.2
25	1.8	0.2
30	1.8	0.2
35	2.7	0.3
40	2.7	0.3
45	1.8	0.2
50	1.8	0.2
55	0.9	0.1
60	0.9	0.1
Base Score	18	2
Allocation Ratio	9	1

⑥Wrap Ratio Cond. (w/obstruction)

Velocity Conditions km/h	CPNO		
	25%	50%	75%
25	0.2	0.6	0.2
30	0.2	0.6	0.2
35	0.2	0.6	0.2
40	0.2	0.6	0.2
45	0.2	0.6	0.2
Base Score	1	3	1
Allocation Ratio	1	3	1

⑦Ped. Speed Cond. (w/obstruction)

Velocity Conditions km/h	CPNO	
	5km/h	8km/h
25	0.9	0.1
30	0.9	0.1
35	0.9	0.1
40	0.9	0.1
45	0.9	0.1
Base Score	4.5	0.5
Allocation Ratio	9	1

⑧PT Cond. (w/obstruction)

Velocity Conditions km/h	CPNO	
	Adult	Child
25	0.9	0.1
30	0.9	0.1
35	0.9	0.1
40	0.9	0.1
45	0.9	0.1
Base Score	4.5	0.5
Allocation Ratio	9	1

Correction by Additional Conditions and Calculation Method of Total Score (A)

Additional Conditions	CPN Results	Correction Factor	CPN Score	CPNO Results	Correction Factor	CPNO Score	Total Score(A)
Wrap Ratio	③	=③／①	=①× The 3 correction factors on the left	⑥	=⑥／②	=②× The 3 correction factors on the left	=CPN SCORE＋CPNO SCORE
Pedestrian Speed	④	=④／①		⑦	=⑦／②		
PT	⑤	=⑤／①		⑧	=⑧／②		
Standard Evaluation Test Results	①			②			

2. Evaluation by Autonomous Emergency Braking System (car to pedestrian: nighttime) Performance Test [Nighttime Conditions]

①Evaluation Procedure

Evaluation results shall be the values that correspond to Total Score (B) in Rating Table 2.

Total Score (B) shall be the sum of the points obtained under <with street lighting> and <without street lighting> calculated in such a manner as described in the following paragraph.

Total Score (B) shall be obtained by rounding the sum of the points to 1 decimal place.

②Score Calculation

【With street lighting】

Based on the following scoring table specified for each test vehicle speed of the standard evaluation test and the partial evaluation test for each test scenario (without obstruction [CPF], with obstruction [CPFO]), base scores for each condition shall be calculated by multiplying the test results of the velocity reduction rates under each condition.

Further, for the additional conditions (the wrap ratio of 25%, 75%, the walking speed of 8 km/h), the velocity reduction rate of the velocity condition for which testing is not carried out shall be calculated, while assuming that the velocity reduction ratio shall be equivalent under the velocity conditions of other than the representative vehicle speed based on the “proportion of velocity reduction ratios between the standard evaluation test results and the partial

evaluation test results".

Then, from the base scores under each condition, a correction coefficient shall be obtained for the test results under the standard conditions (wrap ratio 50%, pedestrian speed 5/km/h), which shall be multiplied for each test scenario to determine the evaluation scores of each test scenario.

Furthermore, regarding the conditions under which the FCWS test was carried out, the same calculation shall be carried out upon equally dividing the scores of the AEBS test and the FCWS test, and the sum of the AEBS test results and the FCWS test results shall be the point of the system.

Additionally, even if the test ends in mid-course upon satisfying the termination conditions of the test, the velocity reduction rate obtained under the velocity condition at the time of termination is valid and added as a point.

Basic Point Allocation for Standard Evaluation Tests

(without obstruction①, with obstruction②)

Velocity Contitions	w/o obstruction①	w/ obstruction②
30km/h	**2**	**1**
35km/h	**4**	**1**
40km/h	**6**	**1**
45km/h	**6**	**2**
50km/h	**6**	**1**
55km/h	**5**	**1**
60km/h	**3**	**1**
Total	**32**	**8**

Point Allocation for Partial Evaluation Tests

③Wrap Ratio Condition(w/o obstruction)

Velocity Conditions km/h	CPF-5km/h		
	25%	50%	75%
30	0.40	1.20	0.40
35	0.80	2.40	0.80
40	1.20	3.60	1.20
45	1.20	3.60	1.20
50	1.20	3.60	1.20
55	1.00	3.00	1.00
60	0.60	1.80	0.60
Base Score	6.40	19.20	6.40
Allocation Ratio	1	3	1

④Pedestrian Speed Condition(w/o obstruction)

Velocity Conditions km/h	CPF-50%	
	5km/h	8km/h
30	1.80	0.20
35	3.60	0.40
40	5.40	0.60
45	5.40	0.60
50	5.40	0.60
55	4.50	0.50
60	2.70	0.30
Base Score	28.80	3.20
Allocation Ratio	9	1

⑤Wrap Ratio Condition (w/obstruction)

Velocity Conditions km/h	CPFO		
	25%	50%	75%
30	0.20	0.60	0.20
35	0.20	0.60	0.20
40	0.20	0.60	0.20
45	0.40	1.20	0.40
50	0.20	0.60	0.20
55	0.20	0.60	0.20
60	0.20	0.60	0.20
Base Score	1.60	4.80	1.60
Allocation Ratio	1	3	1

⑥Ped. Speed Condition (w/obstruction)

Velocity Conditions km/h	CPFO	
	5km/h	8km/h
30	0.90	0.10
35	0.90	0.10
40	0.90	0.10
45	1.80	0.20
50	0.90	0.10
55	0.90	0.10
60	0.90	0.10
Base Score	7.20	0.80
Allocation Ratio	9	1

Correction by Additional Conditions and Calculation Method of Point

Additional Conditions	CPF Results	Correction Factor	CPF Score	CPFO Results	Correction Factor	CPFO Score	Score
Wrap Ratio	③	=③／①	=①× The 2 correction factors on the left	⑤	=⑤／②	=②× The 2 correction factors on the left	=CPF Score +CPFO Score
Pedestrian Speed	④	=④／①		⑥	=⑥／②		
Standard Evaluation Test Results	①			②			

【Without street lighting】

Based on the following scoring table specified for each test speed of the standard evaluation test and the partial evaluation test for each test scenario (without obstruction [CPF], with obstruction [CPFO]), base scores for each condition shall be calculated by multiplying the test results of the velocity reduction rates under each condition.

Further, for the additional conditions (the wrap ratio of 25%, 75%, the walking speed of 8 km/h), the velocity reduction rate of the velocity condition for which testing is not carried out shall be calculated, while assuming that the velocity reduction ratio shall be equivalent under the velocity conditions of other than the representative vehicle speed based on the “proportion of velocity reduction ratios between the standard evaluation test results and the partial evaluation test results".

Then, from the base scores under each condition, a correction coefficient shall be obtained for the test results under the standard conditions (wrap ratio 50%, pedestrian speed 5/km/h), which shall be multiplied for each test scenario to determine the point of each test scenario.

Furthermore, regarding the conditions under which the FCWS test was carried out, the same calculation shall be carried out upon equally dividing the scores of the AEBS test and the

FCWS test, and the sum of the AEBS test results and the FCWS test results shall be the point of the system.

Additionally, even if the test ends in mid-course upon satisfying the termination conditions the test, the velocity reduction rate obtained under the velocity condition at the time of termination is valid and added as a point.

Basic Point Allocation for Standard Evaluation Tests

(without obstruction①, with obstruction②)

Velocity Conditions	w/o obstruction①	w/ obstruction②
30km/h	**1**	
35km/h	**2**	
40km/h	**2**	**1**
45km/h	**2**	**1**
50km/h	**2**	**1**
55km/h	**2**	
60km/h	**1**	
Total	**12**	**3**

Point Allocation for Partial Evaluation Tests

③ Wrap Ratio Condition(w/o obstruction)

Velocity Conditions km/h	CPF-5km/h		
	25%	50%	75%
30	0.20	0.60	0.20
35	0.40	1.20	0.40
40	0.40	1.20	0.40
45	0.40	1.20	0.40
50	0.40	1.20	0.40
55	0.40	1.20	0.40
60	0.20	0.60	0.20
Base Score	2.40	7.20	2.40
Allocation Ratio	1	3	1

④Pedestrian Speed Condition (w/o obstruction)

Velocity Conditions km/h	CPF-50%	
	5km/h	8km/h
30	0.90	0.10
35	1.80	0.20
40	1.80	0.20
45	1.80	0.20
50	1.80	0.20
55	1.80	0.20
60	0.90	0.10
Base Score	10.80	1.20
Allocation Ratio	9	1

⑤Wrap Ratio Condition (w/obstruction)

Velocity Conditions km/h	CPFO		
	25%	50%	75%
40	0.20	0.60	0.20
45	0.20	0.60	0.20
50	0.20	0.60	0.20
Base Score	0.60	1.80	0.60
Allocation Ratio	1	3	1

⑥Pedestrian Speed Condition (w/obstruction)

Velocity Conditions km/h	CPFO	
	5km/h	8km/h
40	0.90	0.10
45	0.90	0.10
50	0.90	0.10
Base Score	2.70	0.30
Allocation Ratio	9	1

Correction by Additional Conditions and Calculation Method of Point

Additional Conditions	CPF Results	Correction Factor	CPF Score	CPFO Results	Correction Factor	CPFO Score	Score
Wrap Ratio	③	=③／①	=①× The 2 Correction factors on the left	⑤	=⑤／②	=②× The 2 Correction factors on the left	=CPF Score＋CPFO Score
Pedestrian Speed	④	=④／①		⑥	=⑥／②		
Standard Evaluation Test Results	①			②			

3. Evaluation by Autonomous Emergency Braking System [car to bicycle] performance Test

①Evaluation Procedure

The evaluation result shall correspond to the total score (C) in Rating Table 3.

The total score (C) shall be calculated according to the procedure shown in the following section.

②Score calculation

Based on the following distribution table specified for each test scenario (CBL, CBF and CBNO) and test speed, the scores for each condition are calculated by multiplying the test results for the velocity reduction ratio in each condition. The total score shall be rounded to one decimal place with the sum of the scores rounded to the second decimal place, and the total score (C) shall be the total score for the device in question.

For conditions where the FCWS test was conducted, the same calculation shall be made by dividing the distribution of points between the AEBS and FCWS tests equally, and the sum of the AEBS and FCWS test results shall be the total score (C) for the device in question.

Even if the test is terminated in the middle of the test by meeting the end conditions of the test, the velocity reduction rate obtained under the velocity conditions at the end of the test shall be considered valid and added as a score.

Velocity Conditions	CBL score	CBF score	CBNO score
10km/h		0.25	0.50
15km/h		0.25	0.50
20km/h		0.25	0.50
25km/h		0.25	0.50
30km/h		0.50	0.50
35km/h		0.50	0.50
40km/h	0.25	0.50	0.50
45km/h		0.50	0.25
50km/h	0.50	0.50	0.25
55km/h		0.25	
60km/h	0.25	0.25	
Total	1.00	4.00	4.00

4. Evaluation by Autonomous Emergency Braking System [on-coming car to car turning right in intersection] Performance Test

①Evaluation Procedure

The evaluation result shall correspond to the total score (D) in Rating Table 4.

The total score (D) shall be calculated according to the procedure shown in the following section.

②Score calculation

For each crossing point, based on the following distribution table specified for each test scenario (each vehicle target speed) and test speed, the scores for each condition are calculated by multiplying the test results for the velocity reduction ratio in each condition. The total score shall be rounded to one decimal place with the sum of the scores rounded to the second decimal place, shall be added to the value obtained in 5. to obtain the total score (D) for the device in question.

For conditions where the FCWS test was conducted, the same calculation shall be made by dividing the distribution of points between the AEBS and FCWS tests equally, and the sum of the AEBS and FCWS test results shall be the total score (D) for the device in question.

Even if the test is terminated in the middle of the test by meeting the end conditions of the test, the velocity reduction rate obtained under the velocity conditions at the end of the test shall be considered valid and added as a score.

Crossing Point①

Test Vehicle Speed	Vehicle Target Speed			
	30km/h	40km/h	50km/h	60km/h
10km/h	**0.045**	**0.045**	**0.045**	**0.045**
15km/h	**0.045**	**0.045**	**0.045**	**0.045**
20km/h	**0.060**	**0.060**	**0.060**	**0.060**

Crossing Point②

Test Vehicle Speed	Vehicle Target Speed			
	30km/h	40km/h	50km/h	60km/h
10km/h	**0.060**	**0.060**	**0.060**	**0.060**
15km/h	**0.060**	**0.060**	**0.060**	**0.060**
20km/h	**0.080**	**0.080**	**0.080**	**0.080**

5. Evaluation by Autonomous Emergency Braking System [car to pedestrian turning right or left in intersection] Performance Test

①Evaluation Procedure

The evaluation result shall correspond to the total score (D) in Rating Table 4.

The total score (D) shall be calculated according to the procedure shown in the following section.

②Score calculation

Based on the following distribution table specified for each test scenario (right-turn, left-turn) and test speed, the scores for each condition are calculated by multiplying the test results for the velocity reduction ratio in each condition. The total score shall be rounded to one decimal place with the sum of the scores rounded to the second decimal place, shall be added to the value obtained in 4. to obtain the total score (D) for the device in question.

For conditions where the FCWS test was conducted, the same calculation shall be made by dividing the distribution of points between the AEBS and FCWS tests equally, and the sum of the AEBS and FCWS test results shall be the total score (D) for the device in question.

Even if the test is terminated in the middle of the test by meeting the end conditions of the test, the velocity reduction rate obtained under the velocity conditions at the end of the test shall be considered valid and added as a score.

Test Vehicle Speed	Right-turn test		Left-turn test	
	Face	Rear	Face	Rear
10km/h	**0.60**	**0.40**	**0.20**	**0.30**
15km/h	**1.20**	**0.80**	**0.10**	**0.15**
20km/h	**1.20**	**0.80**	**0.10**	**0.15**
25km/h	**0.30**	**0.20**		
30km/h	**0.30**	**0.20**		

6. Evaluation by the Acceleration Pedal Misapplication Prevention System Performance Test

①Evaluation Procedure

The evaluation result shall correspond to the total score (E) in Rating Table 5.

The total score (E) shall be calculated by the procedure shown in the next section.

②Score calculation

On the basis of the Acceleration Pedal Misapplication Prevention System Performance Test results, Total Score (E) of the device shall be obtained by rounding the sum of the following

scores (1) and (2) below the following fractional processing to 1 decimal place.

(1) Forward score

For each type of vehicle target and pedestrian target, the scores in the table below are assigned according to the results of the "test run start position" and "speed change rate" in the Fon test results.

Vehicle Target

Score		Velocity change rate		
		1.0 or higher	0.3 or higher, less than 1.0	Less than 0.3
Test run start position	1.0m	1.000	0.650	0.000
	0.9m	0.900	0.585	0.000
	0.8m	0.800	0.520	0.000

Pedestrian Target

Score		Velocity change rate		
		1.0 or higher	0.3 or higher, less than 1.0	Less than 0.3
Test run start position	1.0m	0.400	0.260	0.000
	0.9m	0.360	0.234	0.000
	0.8m	0.320	0.208	0.000

(2) Backward score

For each type of vehicle target and pedestrian target, the scores in the table below are assigned according to the results of the "test run start position" and "speed change rate" in the Ron test results.

Vehicle Target

Score		Velocity change rate		
		1.0 or higher	0.3 or higher, less than 1.0	Less than 0.3
Test run start position	1.0m	0.400	0.260	0.000
	0.9m	0.360	0.234	0.000
	0.8m	0.320	0.208	0.000

Pedestrian Target

Score		Velocity change rate		
		1.0 or higher	0.3 or higher, less than 1.0	Less than 0.3
Test run start position	1.0m	0.200	0.130	0.000
	0.9m	0.180	0.117	0.000
	0.8m	0.160	0.104	0.000

7. Evaluation by Lane Departure Prevention System, etc. Performance Test

①Evaluation Procedure

Evaluation results shall be the values that correspond to Total Score (F) in Rating Table 6.

Total Score (F) shall be calculated pursuant to the procedure shown in the following paragraphs.

②Score Calculation

On the basis of the separately established lane departure prevention device performance test results, Total Score (F) of the device shall be obtained by rounding the sum of the following scores (1) through (3) before the following fractional processing to 1 decimal place.

(1)Evaluation Scores for LDP and LKA Functions in Standard Tests:

For each test condition applied in standard tests (BL60, BR60, BL70, BR70), the following points shall be granted depending on the deviation amount:

Deviation Amount. Evaluation Score: 0.5m or less 4.0 pts.

Deviation Amount. Evaluation Score: between over 0.5m and 1.0m or less 2.0 pts.

(2)Correcting Point by LDWS:

For each test condition carried out in standard tests (BL60, BR60, BL70, BR70), if the LDWS is judged "conformed," points shall be obtained by the formula below and granted:

2.00 - (LDP and LKA Point from Standard Tests) × 0.50

Further, if there is only one type of warning device (limited to haptic or audio), when the deviation direction is easy to confirm, the above shall be the point, Otherwise, the above divided by 2 shall be the point.

(3)Manual Reset-type Device Test Point

①Of the standard tests of (1) above, for those devices on which the LDP and LKA function evaluation scores under the test speed conditions of 70 km/h (BL70 and/or BR70) fall in between over 0.5m and 1.0m or less, if the evaluation value of the departure amount in the manual reset-type device test under the same conditions (EL70 and/or ER70) is 0.5m or less, points shall be calculated by the formula below and granted:

(1.0 – [LDWS Point in a standard test] x 0.50) / 2

②If the standard test is not conducted, or for those devices on which the point of the LDP or LKA function under the test conditions of vehicle speed of 70km/h (BL70 and/or BR70) is over 1.0m, points shall be obtained by the following formula depending on the evaluation values of departure amount in the manual reset-type device test under the same conditions (EL70 and/or ER70) and granted:

A. If the evaluation score is 0.5m or less:

1.00 - (LDWS Point in a standard test) x 0.25

B. If the evaluation score is between over 0.5m and 1.0m or less:

(1.00 - (LDWS Point in a standard test) x 0.25) / 2

8. Evaluation by High-Performance Headlamp Equipment Checking

①Evaluation Procedure

Evaluation results shall be the values that correspond to the Total Score (G) shown in the table in the following paragraph.

Total Score (G) shall be calculated pursuant to the procedure shown in the following paragraphs.

②Score Calculation

From the results of the "Installed Device" and "Operation Speed" in the separately prescribed High-Performance High-beam Headlights Installation Confirmation Procedures, the highest score of 1 through 7 below shall be Total Score (G).

	Installed Device	Operation Speed	Total Score (G)	Evaluation Results
1	Auto. Antiglare Headlight	Entire Speed Range Over 41km/h	5.0	Level 5
2	Auto. Antiglare Headlight	Entire Speed Range Over 51km/h	2.4	Level 4
3	Auto. Antiglare Headlight	Entire Speed Range Over 61km/h	0.7	Level 3
4	Auto. Switch Headlight	Entire Speed Range Over 41km/h	1.4	Level 4
5	Auto. Switch Headlight	Entire Speed Range Over 51km/h	0.6	Level 3
6	Auto. Switch Headlight	Entire Speed Range Over 61km/h	0.2	Level 2
7	(Either Type)	(Other than the above)	0.0	Level 1

Article 3: The overall preventive safety performance evaluation, based on the test results as described in Article 2, shall be as per the procedure described below.

(1) Evaluation Procedure

The evaluation results shall be the values that correspond to the Total Score for Preventive Safety Performance in Rating Table 7.

The total score shall be the sum of all the points obtained from the preventive safety performance evaluation tests.

The total score shall be rounded to 2 decimal places.

The evaluation score for each performance evaluation shall be calculated as described in the following paragraph.

(2) Evaluation Score Calculation

The evaluation score for each test shall be calculated as described below.

When calculating the evaluation score for each test, the value of total points for each test before being rounded shall be used.

・Autonomous Emergency Braking System (car to pedestrian: daytime) Performance Test:
The score shall be the value of the Total Score (A) calculated as per the Article 2.1 multiplied by the weighting factor of 15/25

・Autonomous Emergency Braking System (car to pedestrian: nighttime) Performance Test:
The score shall be the value of the Total Score (B) calculated as per the Article 2.2 multiplied by the weighting factor of 38/55

・Autonomous Emergency Braking System [car to bicycle] Performance Test:
The score shall be the value of the Total Score (C) calculated as per the Article 2.3

・Autonomous Emergency Braking System [intersection] Performance Test:
The score shall be the value of the Total Score (D) calculated as per the Article 2.4 and 2.5

・Acceleration Pedal Misapplication Prevention System Performance Test:
The score shall be the value of the Total Score (E) calculated as per the Article 2.6 multiplied by the weighting factor of 1/2

・Lane Departure Prevention Device Performance Test:
The score shall be the value of the Total Score (F) calculated as per the Article 2.7 multiplied by the weighting factor of 11/16
・High-Performance Headlights Performance Test:
The score shall be the value of the Total Score (G) calculated as per the article 2.8 multiplied by the weighting factor of 4/5

(3) Others

Notwithstanding the overall score in Rating Table 7, the highest rank shall not be obtained in the following cases.

・If all evaluation items have not been evaluated
・If the vehicle is rated two or more levels below the highest rating in each of the evaluation items (however, the device corresponding to scenario in Intersection (on-coming car to car turning right) and scenario in Intersection (car to pedestrian turning right or left) should be equipped regardless of the rating until FY2026, for Autonomous Emergency Braking System [intersection]).

[Rating Table 1] (Autonomous Emergency Braking System [car to pedestrian, daytime] Performance Test)

Evaluation Results	Total Score (A)
Level 5	20.0 points or higher
Level 4	15.0 ~ 19.9
Level 3	10.0 ~ 14.9
Level 2	5.0 ~ 9.9
Level 1	Under 5.0

[Rating Table 2] (Autonomous Emergency Braking System [car to pedestrian, nighttime] Performance Test)

Evaluation Results	Total Score (B)
Level 5	44.0 points or higher
Level 4	33.0 ~ 43.9
Level 3	22.0 ~ 32.9
Level 2	11.0 ~ 21.9
Level 1	Under 11.0

[Rating Table 3] (Autonomous Emergency Braking System [car to bicycle] Performance Test)

Evaluation Results	Total Score (C)
Level 5	7.2 points or higher
Level 4	5.4 ~ 7.1
Level 3	3.6 ~ 5.3
Level 2	1.8 ~ 3.5
Level 1	Under 1.8

[Rating Table 4] (Autonomous Emergency Braking System [intersection] Performance Test)

Evaluation Results	Total Score (D)
Level 5	6.24 points or higher
Level 4	4.68 ~ 6.23
Level 3	3.12 ~ 4.67
Level 2	1.56 ~ 3.11
Level 1	Under 1.56

[Rating Table 5] (Acceleration Pedal Misapplication Prevention System Performance Test)

Evaluation Results	Total Score (E)
Level 5	1.6 points or higher
Level 4	1.2 ~ 1.5
Level 3	0.8 ~ 1.1
Level 2	0.4 ~ 0.7
Level 1	Under 0.4

[Rating Table 6] (Lane Departure Prevention Device Performance Test)

Evaluation Results	Total Score (F)
Level 5	12.8 points or higher
Level 4	9.6 ~ 12.7
Level 3	6.4 ~ 9.5
Level 2	3.2 ~ 6.3
Level 1	Under 3.2

[Rating Table 7] (Preventive Safety Performance Evaluation)

Evaluation Results	Total Score for Preventive Safety Performance
A Rank	69.44 points or higher
B Rank	50.20 ~ 69.43
C Rank	33.20 ~ 50.19
D Rank	16.52 ~ 33.19
E Rank	Under 16.52

Supplementary Provisions (March 31, 2021, NASVA Assess No.64)

1. These regulations shall come into effect as of March 31, 2021.
2. PREVENTIVE SAFETY PERFORMANCE EVALUATION PROCEDURES FOR NEW CAR ASSESSMENT INFORMATION PROVISION PROJECT (May 26, 2020, NASVA Assess No.5-2,) shall be abolished.

Supplementary Provisions (April 1, 2022, NASVA Assess No.3)

These regulations shall come into effect as of April 1, 2022.

Supplementary Provisions (April 25, 2023, NASVA Assess No.9)

These regulations shall come into effect as of April 25, 2023.

Supplementary Provisions (May 2, 2024, NASVA Assess No.16)

These regulations shall come into effect as of May 2, 2024.

This is a translation to English for reference purpose of JNCAP evaluation procedures which is originally prescribed in Japanese language.
Please be sure to refer to the Japanese evaluation procedures if you need to be precisely correct.

CRS PERFORMANCE EVALUATION PROCEDURES FOR NEW CAR ASSESSMENT INFORMATION PROVISION PROJECT

March 31, 2021
NASVA Assess No.65

Article 1: Pursuant to the provisions of Article 28 of the Implementation Procedures for New Car Assessment Project by the National Agency for Automobile Safety and Victim's Aid (NASVA) (NASVA Assess No.4 of 2020), required matters for evaluation of the results of CRS Performance Test for New Car Assessment Test shall be prescribed as described below.

Article 2: The evaluation of the test results obtained from the CRS Performance Test shall be in accordance with the following procedure.

1. Evaluation by CRS Frontal Collision Safety Performance Test
   (i) Evaluation Classifications

Excellent	When there are 4 ◎ marks, excluding cases where there is even 1 ×.
Good	When there are 3 ◎ marks and 1 ○ mark, excluding cases where there is even 1 ×.
Normal	When it does not fall under "Excellent," "Good," or "Not Recommended."
Not Recommended	If there is even 1 × mark.

(ii) Evaluation Items and Evaluation Procedure

<For Infants (Other than Beds)>

Evaluation Items	Individual Evaluation Procedures		Notes
Condition of damage to CRS anchorage part etc. after collision	No damage	◎	・See Attachment 1
	Light damage (cracks, etc.)	○	
	Original construction not maintained	×	
CRS backrest angle after collision	Angle ≦ 55°	◎	
	55° < Angle ≦ 63°	○	
	63° < Angle	×	
Movement position of the tip of the dummy's head immediately after collision	In the upper end surface of the seat back	◎	
	Moved within 73mm from the seat back upper end surface	○	
	Moved by more than 73mm from the upper end surface of the seat back	×	
Chest resultant acceleration measured on the dummy at the time of collision	Chest resultant acceleration ≦ 490m/s^2 (50G)	◎	・3msG
	490m/s^2 (50G) < Chest resultant acceleration	○	
Other	Seatbelt unbuckled itself	×	
	CRS flew out of the seatbelt	×	

<For Infants (Beds)>

Evaluation Items	Individual Evaluation Procedures		Notes
Condition of CRS anchorage part etc. after collision	No damage	◎	・See Attachment 1 (same as backward-facing)
	Light damage (cracks, etc.)	○	
	Original construction not maintained	×	
Restraint condition (overhang of head from bed, inclination of bed bottom surface)	The bed bottom surface tilts towards the rear of the vehicle (No head protrusion)	◎	・See Attachment 2
	The bottom surface of the bed does not tilt (No head protrusion)	○	
	The bottom of the bed tilts forward, or there's head protrusion	×	
Amount of dummy head movement at the time of collision	Movement ≦ 575mm	◎	
	575mm < Movement ≦ 650mm	○	
	650mm < Movement	×	
Chest resultant acceleration measured on the dummy at the time of collision	Chest resultant acceleration ≦ 490m/s^2(50G)	◎	・3msG
	490m/s^2 (50G) < Chest resultant acceleration	○	
Other	Seatbelt unbuckled itself	×	
	CRS flew out of the seatbelt	×	

<For Young child>

Evaluation Items	Individual Evaluation Procedures		Notes
Condition of damage to CRS anchorage part, etc. after collision	No damage	◎	・See Attachment 1
	Light damage (cracking, etc.)	○	
	Original construction not maintained	×	
Amount of dummy head movement at the time of collision	Movement ≦ 525mm	◎	
	525mm < Movement ≦ 600mm	○	
	600mm < Movement	×	
Head resultant acceleration measured on the dummy at the time of collision	Head resultant acceleration ≦ 637m/s^2 (65G)	◎	・3msG
	637m/s^2 (65G) < Head resultant acceleration	○	
Chest resultant acceleration measured on the dummy at the time of collision	Chest resultant acceleration ≦ 588m/s^2 (60G)	◎	・3msG
	588m/s^2 (60G) < Chest resultant acceleration	○	
Chest deflection	If the chest deflection from pressure to the dummy's chest surpasses 40mm, a comment shall be made as of the evaluation announcement.		
Other	Seatbelt unbuckled itself	×	・For "Harmfulness of restraint condition" and "Dummy dropped out of the seat," refer to Attachment 2
	CRS flew out of the seatbelt	×	
	Harmfulness of restraint condition (Abdominal pressure more than 115kPa)	×	
	Dummy dropped out of the seat	×	

2. Evaluation by CRS Usability Test

(i) Evaluation Procedure

1 point shall be granted every time a test item is met, and the maximum achievable score for each test shall be 5.

However, if there is no test result for the following items in the evaluation procedure described in the attachments due to [unavailable function], 1 point shall be given to each of such test items.

・Attachment 1 : Body Display [4], Body Mechanisms [1] [3], Attachability [2-1, 2-2, 2-3]

・Attachment 2 : Body Display [2] [4], Body Mechanisms [1] [2] [3], Attachability [2-1, 2-2, 2-3] [3-1, 3-2] [5]

(ii) Evaluation Results

In addition to the test report, testing institutes must fill in the appendix corresponding to the type of CRS that was tested on the evaluation results and submit it to NASVA.

Supplementary Provisions (March 31, 2021, NASVA Assess No.65,)

1. These regulations shall come into effect as of March 31, 2021.

2. CRS PERFORMANCE EVALUATION PROCEDURES FOR NEW CAR ASSESSMENT INFORMATION PROVISION PROJECT (May 26, 2020, NASVA Assess No.5-4) shall be abolished.

(ATTACHMENT 1)

HOW TO JUDGE THE EVALUATION ITEMS ON "ANCHORAGE PART, ETC. DAMAGE CONDITION" OF CRS FRONTAL COLLISION SAFETY PERFORMANCE TEST EVALUATION PROCEDURE

1. Implementation Procedure

Judgment shall be made visually, by touching, etc., after the test. (CRS shall be disassembled as needed.)

2. Evaluation Procedure

As a concept of the evaluation procedure, basically referring to the reference values of safety standards: "◎" shall be granted when the reference values are met, "×" shall be given when an obvious safety problem was confirmed, and "◯" shall be provided in other cases.

As a concept of judging damage conditions, "×" shall be given when falling under the following items:

(1) When multiple collisions are assumed and protection against the risk of a frontal collision is not provided (e.g. when installation or restraint is extremely loose)

(2) When there is a possibility of direct injury of the restrained child

Actual cases are considered to vary widely and there is a need to wait until more experiences are gained from future tests before providing details of judgment method; however, the following are the judgment cases that are assumed at present.

<Definition of Terms>

- "CRS Anchorage Part" refers to ISO-FIX attachments, holes of a CRS through which a test seat's seatbelt passes, fasteners (including cases of accessories) of a CRS for fastening the test seat's seatbelt and the like.
- "CRS Parts with Strength Retention Functions" refers to the reclining mechanism, the rotation mechanism, harnesses, harness through-holes, the harness mechanism and buckles, top tethers, support legs etc.
- CRS "damage" refers to visible "cracking", "peeling", "rupture", "deformation (excluding support legs that remain contact with the vehicle floor surface)", "fraying" and "disengagement of a button, etc." of a CRS that can be visually checked, and does not include the cases of resin bleaching and others specified in section (4).
- "Test Seat's Seatbelt Damage" refers to "holes", "ripping," and "cutoff" of the test seat's seatbelt that can be visually checked.

<Judgment Cases>

(1) Cases of granting "◎"

No breakage or damage

(2) Cases of granting "○"

When falling under either of the following. (There is breakage or damage, but it does not fall under "×".)

(i) Breakage of the CRS anchorage part with the CRS mounting by the ISO-FIX attachment or the test seat’s seatbelt retained.
(ii) Damage to the test seat's seatbelt with the seatbelt ripped.
(iii) Damage to the CRS parts with strength retention functions that do not fall under the description of (v) through (viii) of section (3) below.

(3) Cases of giving "×"
When falling under either of the following.
(i) Breakage of the CRS anchorage part of with the mounting of CRS by the ISO-FIX attachment coming off on one side or higher, or the mounting of CRS by the test seat’s seatbelt being extremely loose (those with the overlap portion of the test seatbelt released or the CRS released at the shoulder part of the test seat’s seatbelt)
(ii) Breakage of the CRS anchorage part with rupture of the construction around the CRS through-holes through which the test seat’s seatbelt passes.
(iii) Damage to the test seat's seatbelt with the seatbelt cut off.
(iv) Breakage of the CRS parts with strength retention functions with the construction of the whole product not retained.
(v) When the dummy cannot be removed easily, such as the force needed to release the buckle, shield, etc. exceeding 80N or the like.
(vi) Damage of buckles, shields, etc. with sharp protrusions that may cause direct injury to the restrained child.
(vii) Rupture of constructions around the harness through-holes.
(viii) Breakage of the harnesses and/or the harness mechanism with the dummy's restraint being extremely loose such as the harnesses coming off from both shoulders of the dummy.

(4) Cases of no breakage of CRS anchorage part or the parts with strength retention functions after the test.
For a CRS equipped with a mechanism to absorb impact by breaking (hereinafter, referred to as the "impact-absorbing mechanism"), cases are not deemed breakage when meeting all of the following (i) through (iv):
(i) Technical descriptions on the operation of the impact-absorbing mechanism are submitted before testing.
(ii) In-house test data checking the operation of the shock absorbing mechanism are submitted before testing.
(iii) Photographs of the operation of the impact-absorbing mechanism after the in-house test submitted in (ii) above are available.
(iv) By comparing the CRS after testing with the documents submitted in (i) through (iii), proper operations of the impact-absorbing mechanism is confirmed.

(ATTACHMENT 2)

HOW TO JUDGE THE EVALUATION ITEMS "OTHER" (HARMFULLNESS OF RESTRAINT CONDITION) OF CRS FRONTAL COLLISION SAFETY PERFORMANCE TEST EVALUATION METHOD

1. Implementation Procedure

Judgment shall be made by observing dummy restraint conditions and dummy behavior during the collision test with high speed video. (Static restraint conditions shall be checked beforehand for use as reference for making judgment using the high-speed video.)

2. Evaluation Procedure

For judgment of harmfulness of restraint conditions, "×" shall be given when falling under the following items.

(1) When the harness puts pressure on vulnerable parts of the body like crotch or neck.

(2) When restraint is removed (when the restraint by harnesses on shoulders comes free, etc.)

Actual cases are considered to vary widely, and there is a need to wait until more experiences are gained from future tests before providing details of judgement method; however, the following are the judgment cases that are assumed at present.

<Judgment Cases>

(1) Case where "×" is given to a shell-type and the dummy is restrained only by a harness:

(i) The harness is putting pressure on the dummy's neck.

(ii) Restraint on the pelvic bones is weak and the harness is putting pressure on the dummy's abdomen and/or crotch.

(iii) The dummy's shoulder comes free from restraint by harnesses.

(2) Case where "×" is given to a shell-type and the dummy is restrained by pads or shields:

(i) The harness is putting pressure on the dummy's neck.

(ii) The dummy sinks down and pressure is put on crotch.

(iii) It is a type with shoulder harnesses and the dummy’s shoulder comes free from restraint by harnesses.

(3) Case where "×" is given to a clothed-type:

(i) The harness, etc., is putting pressure on the dummy's neck.

(ii) Restraint on the pelvic bones is weak and the harness is putting pressure on the dummy's crotch.

(iii) The dummy's shoulder comes free from restraint by harnesses, etc.

(iv) The dummy moves forward and falls out of the seat. (The dummy's hips sliding off the seat.)

(4) Case where "×"is given to a shell-type and the infant bed undersurface is angled:

(i) The tilt of the bed undersurface is over a level plane.