

# APPLICATION OF STAR RATINGS

Version 1.8.1

Euro NCAP © January 2021

EUROPEAN NEW CAR ASSESSMENT PROGRAMME



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# APPLICATION OF STAR RATINGS PROTOCOL

## 1. Introduction

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Euro NCAP has in the past published a result for a vehicle with little or no follow-up regarding the continued validity of the star rating. The rating has been a ‘snapshot’ of the safety of a vehicle at a point in time and any changes that occur thereafter, either to the vehicle’s design or to the equipment fitted to it, have not been systematically tracked.

With growing recognition and use of the star rating by national authorities, insurance companies and the general public, it is appropriate that Euro NCAP should provide information on the continued validity of the star rating that was originally issued to a vehicle.

This protocol defines the technical aspects concerning the continued validity of the star rating. Manufacturers should also be careful to observe the requirements of Euro NCAP’s “Guidelines for Use of the Star Rating”.

This version 1.8.1 corrects version 1.8 which omitted the provisions made in response to the Covid pandemic.

## 2. Definitions

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**‘Original Assessment’ or ‘Originally-Assessed Vehicle’:** an assessment of a vehicle not previously rated by Euro NCAP. The model name may be new or an existing model name may be applied to the new vehicle type.

**‘Variant’:** is a version of the originally-tested vehicle which shares

- Make (brand)
- Model Name (additional descriptions such as ‘hatch’, ‘sportswagon’ etc are allowed so long as the basic model name is the same)
- All equipment having an influence on safety
- All important structural elements related to safety performance. Where these differ (number of side entry doors, for example), additional data is required.

and which can be shown not to differ from the originally-tested vehicle in terms of Euro NCAP star rating (see 6.2 for a full description).

**‘Partner’:** has the same relationship to the originally-tested vehicle as a variant (same brand) but has a different model name. All important structural elements related to safety performance must be the same as the originally-tested vehicle. Where these differ, additional data is required. Safety equipment and its fitment must be the same as the originally-tested vehicle. See 6.5 for a full description.

**‘Corporate Twins’:** differ with regard to make (brand) and model name but are identical to the originally-tested vehicle in all regards, including the fitment of safety equipment and interior parts and trim. Partners may differ only with regard to minor styling differences such as headlamp and grille shape. See 7 for a full description.

### **3. Validity of Star Rating**

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Once Euro NCAP has published the base star rating and related information on its website, the vehicle has obtained a valid rating.

By default, the base rating (and optional rating if applicable) remains valid for a maximum period of 6 years following the release of the result. The rating scheme is expected to change so significantly during this period that referring to an older result would mislead consumers.

If during this period the specification of the rated vehicle or safety pack alters, for instance because standard equipment is deleted or made optional, the rating may become invalid earlier. To monitor changes to rated vehicles, Euro NCAP will apply Annual and Facelift Reviews (see 4).

In some circumstances, the star rating may be carried over from the original test model to a facelifted model, another model variant or twin model. Specific conditions apply as laid out in sections 6 and 7 respectively.

### **4. Annual and Facelift Reviews**

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4.1. Vehicles will be subject to an annual review of their ratings.

4.1.1. A vehicle's base rating will be subject to an annual review every 12 months from the time the original rating was released until maximum 6 years thereafter, to establish whether or not the original rating remains valid. The annual review will comprise (for all variants and/or corporate twins covered by the rating):

- A check that the base safety equipment is unchanged and will continue so for a further 12 months.
- A check that the fitment of safety equipment met original requirements and is expected to continue to do so for a further 12 months. This check will require information on total sales across the model range and evidence of the number of vehicles to which the safety equipment was fitted as standard equipment.

Note: Information from a third party should be provided to corroborate the sales figures (e.g. for an AEB system, information might be provided by the supplier of the radar or camera system used in that application).

4.1.2. The Secretariat will supply a list to the OEM of all current assessments for which annual review forms should be completed, together with the date they are due. The completed form should be submitted to the Secretariat approximately three to four weeks before the due date. The completed form will be reviewed by the Secretariat and the manufacturer will be contacted if further information is required.

4.1.3. Not returned or not completed forms may lead to discontinuation of the star rating.

4.2. Where a vehicle with a valid overall star rating receives a facelift and the manufacturer wishes to carry over the rating from the original test, the following rules apply:

- 4.2.1. The vehicle manufacturer should contact Euro NCAP approximately four months before the release of the facelifted vehicle.
- 4.2.2. A ‘facelift review’ will be conducted by Euro NCAP to establish whether or not the original star rating can be transferred. This will comprise, in addition to those items examined in an annual review (see above):
  - A review of the changes that have been made to the vehicle.
  - A review of in-house test data, where appropriate.
- 4.2.3. Application should be made even for ‘facelifts’ which have no influence, or a very minor influence, on the safety rating but where the appearance of the car has been altered or where the car is to be marketed as ‘new’. It is Euro NCAP’s intention to keep consumers informed of the applicability of the rating and any changes which distinguish the updated vehicle from the original should be reported.
- 4.2.4. It is the responsibility of the vehicle manufacturer to approach Euro NCAP with information concerning facelift changes. If no information is received from the manufacturer, Euro NCAP may assume that the facelifted vehicle does not meet the requirements of the original star rating. The original star rating may no longer be valid and the facelifted vehicle may be eligible for assessment.
- 4.3. The continued validity of an optional rating based on a safety pack will be checked according to VSSTR protocol v7.0 or later.
- 4.4. The outcome of annual reviews and facelift reviews will be published on the web page of the vehicle in a simple tabulated format, indicating the date and nature of the review and whether or not the original rating remains valid. Annual reviews will be published approximately every 12 months from the date of the original rating.

## **5. Termination of Star Rating**

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- 5.1. The base rating (and optional rating if applicable) expires after 6<sup>1</sup> years or when the original rating is not considered valid for the vehicle on sale at an Annual Review (e.g. original fitment rates not met in practice) or a Facelift Review.
- 5.2. In all cases where the rating has been terminated, the website will list the VIN up to which the rating is valid. Vehicles after this VIN will not be covered by the rating and the manufacturer’s advertising should make no further reference to the rating. The ratings and related information will remain on the website for reference (used car market).
  - 5.2.1. Vehicles produced after this VIN are eligible for testing against the latest Euro NCAP protocols. The manufacturer will first be offered the opportunity to sponsor the upgrade of the rating, after which a Euro NCAP member may consider sponsorship.

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<sup>1</sup> 8 years in the case of vehicles categorised as ‘Heavy Vehicle’ according to the ‘Vehicle Specification, Selection, Testing and Retesting’ (VSSTR) protocol

## 6. Variants and Partner Models

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From 2017, Euro NCAP will provide clearer information to consumers about the variants to which a model's rating applies. On the website and in the datasheet, a table will list all variants in the model range and indicate whether or not the published rating can be considered to apply to that variant. To this end, the equipment matrix sent to vehicle manufacturers before tests begin contains a section where all variants, including partner models, must be defined.

- 6.1. Main Assessment
  - 6.1.1. Euro NCAP will test a single variant, as identified using the Vehicle Specification, Selection, Testing and Retesting (VSSTR) protocol. As part of its assessment of the vehicle, Euro NCAP will ask the manufacturer for data showing the equivalent safety performance of the opposite hand of drive to the one tested (e.g. RHD if LHD tested).
- 6.2. Application of Star Rating to Other Variants
  - 6.2.1. Variants will be considered to share the rating of the tested vehicle if the manufacturer can provide data/information to demonstrate to the satisfaction of the lead inspector that all of the requirements set out in Appendix 1 are met.
  - 6.2.2. In-house data is acceptable to demonstrate compliance with the requirements of Appendix 1, except where official tests are explicitly demanded in that Appendix.
  - 6.2.3. Euro NCAP reserves the right to request additional information to the above.
- 6.3. Variants not covered by the Rating
- 6.4. Any variants which do not meet the requirements of 6.2 will be considered not to be covered by the star rating and will be marked as such in the website table.
- 6.5. Partner Models
  - 6.5.1. Certain variants may be marketed under a different model name to the originally-tested vehicle. Manufacturers may apply for the star rating to be applied to such 'partner models' following the procedures set out in 6.2.1 to 6.2.3.
  - 6.5.2. The Manufacturer must inform Euro NCAP of its intention to apply for a 'partner' rating at the time of application for assessment of the tested model.
- 6.6. Timing
  - 6.6.1. Variants
    - 6.6.1.1. Manufacturers may apply for the star rating to be applied to other variants in years later than the one in which the rating was originally published, but not later than two years<sup>2</sup> before the expiry of the original rating. In such cases, no consideration will be given to the requirements in place at the time of the new application, only those which applied at the time of the original rating. Manufacturers should provide data in support of any application as described in 6.2.1.
    - 6.6.1.2. There is no additional charge for variants included in the initial rating of the vehicle. However, where additional variants are added at a later date, Euro NCAP there will be a

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<sup>2</sup> In the case of vehicles categorised as 'Heavy Vehicle' according to the 'Vehicle Specification, Selection, Testing and Retesting' (VSSTR) protocol, variants may not be added within three years of the expiry of the rating.

charge to cover consideration of the submission, and for any inspection and additional costs incurred.

#### 6.6.2. Partner Models

6.6.2.1. A partner model may not share the original rating if it is released in a calendar year more than two<sup>3</sup> years later than the date stamp of the original assessment.

6.6.2.2. If, between the time of the original assessment and the release of the partner model, the protocol regime has changed, additional data must be supplied demonstrating that:

- the partner model would not be rated more than one<sup>4</sup> star less than the original assessment as a result of the updated protocol requirements. For example, if a model was originally rated as five stars, a partner released in a subsequent protocol scheme must be at least four stars against the newer protocol requirements, taking account of all four areas of assessment.

If this can be satisfactorily demonstrated to the Euro NCAP Secretariat then the partner may make use of the original (pre-protocol change) rating.

#### 6.7. Comparison of Data

6.7.1. The Manufacturer must explain any differences in test results that do not comply with the requirements for audit testing set out in section 4.2.7 of the Vehicle Specification, Selection, Testing and Retesting (VSSTR) protocol 7.1.

## 7. Corporate Twins

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‘Corporate Twins’ are models which are identical to each other in all ways except for brand and model name i.e. they are examples of pure ‘badge-engineering’. Visually, they are virtually identical and it is clear to consumers that they are, in effect, the same vehicle.

7.1. A vehicle’s star rating can be applied to twins if:

- Euro NCAP is satisfied that the twin is, apart from name and branding, identical to the vehicle tested in all ways related to safety.
- The twin has the same base safety specification as the vehicle tested, or better.
- The best-selling variant of the twin has the same body style and powertrain.

7.2. An equipment matrix should be completed for all brand models to which the rating will be applied.

7.2.1. The matrix should be signed by a representative of that brand.

7.2.2. The base safety specification and best-selling variant should be identified for each brand.

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<sup>3</sup> Three years in the case of partners of cars originally rated in 2018 and 2019.

<sup>4</sup> For partners released in 2020 and 2021, the requirement is that the protocol change would not result in a decrease of more than *two* stars against the updated protocol requirements. This allowance is for 2020 and 2021 *only*. Partners released in 2022 must be no more than one star less than the original assessment.



- 7.2.3. The manufacturer agrees to notify Euro NCAP of any changes to standard/optional fitment of safety equipment.
- 7.3. Documentation should be submitted to Euro NCAP which highlights differences, if any, in
- Manufacturing plants.
  - Suppliers of safety equipment.
  - Powertrain options.
- 7.4. Where very minor differences exist, the twin with the lowest base safety specification or the poorer performance will be assessed.
- 7.5. All twins should be made available, on request, for strip-down/parts check at time of inspection or before.
- 7.6. Manufacturers must ask for other brand models to be considered as corporate twins at the time the original assessment is to be done. Retrospective application for twins to ‘share’ the original rating will not be considered.
- 7.7. Data for publication on the corporate twin will be taken from the original model tested. Euro NCAP will make no distinction between the models.
- 7.8. Twins must have the same date stamp on the rating.
- 7.9. If, between the time of the original assessment and the release of a twin model, the protocol regime has changed, the same requirements apply as do for partners (see 6.6.2.2).

## **8. Presentation on Website**

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- 8.1. Presentation of results on Euro NCAP’s website is as follows:
- 8.1.1. Variants are included in the same rating as the originally-tested vehicle and are added to the table of model variants for which the rating is valid.
- 8.1.2. Partners are presented as separate models to the originally-tested vehicle, with their own web pages. The results shown in the assessment of the partner will be a combination of those carried over from the originally-tested vehicle and any additional tests done specifically on the partner. Comments will make clear to consumers that the partner is closely related to the originally-assessed vehicle, to explain why the visual media contains images of tests on that vehicle.
- 8.1.3. Corporate twins are presented as separate models to the originally-tested vehicle, with their own web pages. The results shown for twins will be those of the originally-tested vehicle as the worst-case will have been tested where small differences exist (e.g. pedestrian testing, owing to different grilles, headlamps etc). Comments will make clear to consumers that the twin is closely related to the originally-assessed vehicle, to explain why the visual media contains images of tests on that vehicle.

## APPENDIX 1

Requirements for transfer of rating to variants other than the one tested.

Note: *Additional evidence* is required for model variants failing to meet the criteria set out in the tables below. Additional evidence is test data produced in accordance with Euro NCAP/ANCAP protocols. In-house data is acceptable, except where official tests are explicitly demanded.

**Table 1. ADULT OCCUPANT PROTECTION**

Factor	Criterion
<b>a) Body style (same number of side entry doors)</b>	For assessment, a transverse vertical plane is defined that is 500mm rearward of the upper seat belt anchorage point for the driver seat. Forward of this plane variants must be identical in design and structure for crashworthiness purposes. Drawings showing overlay of structures should be provided. This includes the front seat belt anchorages but not rear seat belt anchorages. Where differences in front structure exist (for example, to accommodate electrical architecture in a BEV, where a combustion-engined vehicle was originally tested), the vehicle manufacturer may apply to the Secretariat for a vehicle to be considered a variant. In this case, additional tests may be required (number and nature of the tests to be agreed between the VM and the Secretariat, depending on the extent of the differences) to demonstrate equivalent crash performance.
<b>b) Body style (different number of side entry doors)</b>	Where a variant differs from the tested vehicle in the number of side entry doors (e.g. a 3 door where a 5 door was tested, or vice versa), and its front-end structure is identical for crashworthiness purposes, <i>additional evidence</i> must be provided (side pole and side AE-MDB). For variants (same brand, same model name) in-house data may be provided. For partner models (same brand, different model names), official Euro NCAP tests must be done. The same rating can be used for the variant or partner in question if the results of the test are comparable, for adult and child dummies, with those of the originally-tested vehicle. If the shape or H point of the rear seats is different from the tested variant, <i>additional evidence</i> may be requested to demonstrate equivalent performance for the full-width test.

<b>c) Kerb mass</b>	Variation up to $\pm 10\%$ of the mass of the frontal offset test vehicle is allowed, provided the car does not receive a modifier for bodysheet instability. Further evidence may be required in cases where the modifier has not been applied but the stability is considered marginal. For variants where the maximum kerb mass (i.e. including all options, safety-related or otherwise) is between 10 and 20 percent more or less than the mass of the frontal offset test vehicle, in-house data for the frontal offset, side AE-MDB and side pole tests should be provided. Where the maximum kerb mass is beyond 20 percent more or less than the mass of the frontal offset test vehicle, the manufacturer must perform additional official frontal offset, side AE-MDB and side pole tests at a Euro NCAP laboratory.
<b>d) Engine (displacement, cylinder configuration, aspiration, block size, type of fuel)</b>	For internal combustion (IC) engines, the same block size & configuration is allowed, irrespective of displacement, aspiration and fuel. Extra components within the engine bay such as LPG convertors and turbo-chargers are acceptable provided that footwell and pedal intrusion are well controlled in the tested vehicle (i.e. 4 points scored for driver's feet and there is no footwell rupture). Note that a 4-cylinder result cannot be used for a V6 result and a V6 result cannot be used for a V8, and vice versa, without <i>additional evidence</i> (in-house or official Euro NCAP frontal offset test). For electric and hybrid vehicles (where a IC variant was originally tested), additional official Euro NCAP tests are needed for frontal offset and side pole tests. Additional factors are checked during tests of electric vehicles, such as battery integrity, so results of IC variants cannot be transferred.
<b>e) Transmission (manual or auto, number of gears)</b>	Any transmission is acceptable.
<b>f) Driven wheels (4x4, 4x2, front-wheel drive, rear wheel drive)</b>	Two-wheel drive results (either front or rear) are not interchangeable with an all-wheel-drive variant without <i>additional evidence</i> (frontal offset test) due to the effect of the rear driveline. Similarly, front-wheel drive results are not interchangeable with rear-wheel-drive results, without additional evidence. Driven wheel differences are acceptable for the side impact and pole tests.
<b>g) Ride height (e.g. height of top of wheel arch) and tyre diameter</b>	In general, a difference of $\pm 50\text{mm}$ from the tested variant is acceptable for both the frontal offset test and the side AE-MDB test. However, manufacturers should submit data illustrating where critical structures are positioned relative to the deformable elements in these tests. The lead inspector may require additional evidence. In any case, <i>additional evidence</i> for the AE-MDB test is required where the ride height is more than 50mm lower than the tested variant.
<b>h) Wheelbase</b>	Wheelbase variation up to $\pm 10\%$ is acceptable. Additional evidence (frontal offset test) is required for larger variations.

<b>i) Driver location (left-hand-drive, right-hand drive)</b>	Manufacturers will be asked, as part of the routine assessment of the vehicle, to provide evidence to demonstrate equivalence in results between the hand of drive tested and the opposite hand of drive.
<b>j) Occupant restraint systems</b>	Seat design must have similar restraint-related features, such as anti-submarining pans. Upholstery and adjustment features may vary. Where restraint systems differ, <i>additional evidence</i> is required (additional evidence required may vary depending on the extent of differences).
<b>k) Whiplash</b>	Cosmetic changes such as upholstery materials are acceptable. Where a different seat structure or mounting is used or the seat geometry is changed (other than due to easily compressible materials) <i>additional evidence</i> is required (static and dynamic whiplash tests). Control changes (electric/memory vs. manual) are acceptable. <i>Additional evidence</i> is required for variants which have structures rearward of the driver seat, to demonstrate that mechanisms designed to control whiplash injuries have sufficient space to operate. For example, a dual cab whiplash rating cannot be applied to a single cab variant without <i>additional evidence (dynamic whiplash tests)</i> .
<b>l) Third row seats</b>	Official Euro NCAP tests are needed for the following: rear whiplash assessment; CRS installation; SBR. If points are lost relative to the tested variant in any of these assessments, the score of the poorer performing variant will be used for <ul style="list-style-type: none"> <li>• Variants (as they share the assessment on the website)</li> <li>• Partners which share a common assessment on the website.</li> </ul> For partner models which have separate assessments on the website, the appropriate results will be separately shown. Where the H point of seats in the second row are different from those of the tested variant, the OEM must supply additional data demonstrating equivalent performance in the frontal offset test and the side AE-MDB.
<b>m) AEB City</b>	Where a grid was submitted for the original rating (i.e. 2018 ratings) onwards, the OEM may submit a revised grid demonstrating equivalent performance for the new variant or partner model. Euro NCAP may ask for additional tests to verify the revised grid. Where no grid was submitted, other variants must use the same components, human-machine-interface and software as the system tested. To transfer the rating from the tested variant: <ol style="list-style-type: none"> <li>i. the system must have the same functional components (e.g. LIDAR, radar transmitter &amp; receiver, and mono or stereo cameras), of the same brand, model and series as tested by Euro NCAP</li> <li>ii. AEB software must be the same as that tested by Euro NCAP.</li> <li>iii. all transmitter, receiver and camera locations must be the same as those tested by Euro NCAP.</li> </ol> Where these conditions are not met <i>additional evidence (AEB)</i> is required demonstrating that the system has the same or better performance than the system tested by Euro NCAP/ANCAP.

**Table 2. CHILD OCCUPANT PROTECTION**

<b>Factor</b>	<b>Criterion</b>
<b>a) Shape of rear bench</b>	Where the rear seats differ from those in the tested variant, in shape, style or H-point, the OEM must provide data on these differences and additional evidence may be requested to demonstrate equivalent performance for child dynamic tests and CRS installation.
<b>b) Pretensioners and load-limiters</b>	Where the rear restraints differ from those in the tested variant, additional evidence should be submitted to demonstrate equivalent performance for child dynamic tests and CRS installation.
<b>c) Third row seats</b>	Official Euro NCAP CRS installation check needed. Results presented as explained in Adult Occupant Protection, item k.

**Table 3. PEDESTRIAN PROTECTION**

Factor	Criterion
<b>a) Head impact zones</b>	<p>Where a grid was submitted for headform testing of the original assessment, a modified grid should be submitted for variants and partner models. Euro NCAP may require additional testing to verify some grid locations.</p> <p>Where a grid was not originally submitted:</p> <p>Where under-bonnet clearances are less than the tested variant and are within 50mm of the bonnet exterior outer surface <i>additional evidence</i> is required (pedestrian headform impact tests). Similarly, <i>additional evidence</i> is required where the stiffness of components within the prescribed adult and child head impact zones (and to a depth of 50mm below the exterior outer surface) is likely to be greater than the tested variant.</p> <p>If the original assessment had active pedestrian protection (a deployable bonnet, for example) official Euro NCAP tests will be needed for any variants that do not have such equipment.</p>
<b>b) Upper leg impact zones</b>	<p>Where the leading edge of the bonnet is changed in geometry or the stiffness of components within the prescribed zone is likely to be greater than the tested variant then <i>additional evidence (upper legform tests)</i> is required.</p>
<b>c) Lower leg impact zones</b>	<p>Where the front bumper bar is changed in geometry or the stiffness of components within the prescribed zone is likely to be greater than the tested variant then <i>additional evidence (legform tests)</i> is required</p>
<b>d) AEB VRU</b>	<p>Where a AEB VRU system was awarded points, other variants must use the same components, human-machine-interface and software as the system tested:</p> <p>To transfer the rating from the tested variant:</p> <ol style="list-style-type: none"> <li>i. the system must have the same functional components (e.g. LIDAR, radar transmitter &amp; receiver, and mono or stereo cameras), of the same brand, model and series as tested by Euro NCAP</li> <li>ii. AEB software must be the same as that tested by Euro NCAP.</li> <li>iii. all transmitter, receiver and camera locations must be the same as those tested by Euro NCAP.</li> </ol> <p>Where these conditions are not met <i>additional evidence (AEB VRU)</i> is required demonstrating that the system has the same or better performance than the system tested by Euro NCAP/ANCAP.</p>
<b>e) Ride height</b>	<p>The impact points for pedestrian protection tests depend on the ride height of the vehicle. Where the ride height varies from the tested variant by more than +/-50mm <i>additional evidence</i> is required (all pedestrian tests).</p>

**Table 4. SAFETY ASSIST**

Factor	Criterion
<b>a) Speed Assistance Systems</b>	<p>Where any of the following functions were awarded points, other variants must use the same components, human-machine-interface and software as the system tested by Euro NCAP:</p> <ul style="list-style-type: none"> <li>a) Camera-based speed limit information function (SLIF)</li> <li>b) Digital map-based speed limit information function (SLIF)</li> <li>c) Combined camera and digital map systems</li> <li>d) Manual speed assistance (MSA) speed warning function- e.g. audible alarm</li> <li>e) Manual speed assistance (MSA) speed limitation function</li> <li>f) Intelligent speed assistance (ISA)</li> </ul> <p>Where these conditions are not met <i>additional evidence</i> (speed assist) is required.</p>
<b>b) AEB Inter-Urban</b>	<p>Where a AEB system was awarded points, other variants must use the same components, human-machine-interface and software as the system tested by Euro NCAP:</p> <p>To transfer the rating from the tested variant:</p> <ul style="list-style-type: none"> <li>i. functional components (e.g. LIDAR, radar transmitter &amp; receiver, and mono or stereo cameras) must be the same brand, model and series as tested by Euro NCAP</li> <li>ii. AEB software must be the same or a later version than that tested by Euro NCAP.</li> <li>iii. all transmitter, receiver and camera locations must be the same as those tested by Euro NCAP.</li> </ul> <p>Where these conditions are not met <i>additional evidence</i> (<i>AEB Inter-Urban</i>) is required demonstrating that the system has the same or better performance than the system tested by Euro NCAP/ANCAP.</p>
<b>c) Lane Support Systems</b>	<p>Where a LSS system was awarded points, other variants must be equipped with a system of the same type (LDW/LKA) that uses the same components, human-machine-interface and software as the system awarded points by Euro NCAP.</p> <p>Where these conditions are not met <i>additional evidence</i> (<i>LSS</i>) is required.</p>