

APPLICATION OF STAR RATINGS

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Euro NCAP © October 2017

EUROPEAN NEW CAR ASSESSMENT PROGRAMME



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APPLICATION OF STAR RATINGS PROTOCOL

1. Introduction

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".

2. Validity of Star Rating

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 3).

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 5 and 6 respectively.

3. Annual and Facelift Reviews

- 3.1. Vehicles whose results are published on or after 1st January 2013 will be subject to an annual review of their ratings.
 - 3.1.1. 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).

- 3.1.2. Approximately nine months from the publication of the original rating, or of the previous annual review or of a facelift review, Euro NCAP will contact the manufacturer with a standard form for completion. The completed form will be reviewed by the Secretariat and the manufacturer will be contacted if further information is required.
- 3.1.3. Not returned or not completed forms may lead to discontinuation of the star rating.
- 3.2. 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:
 - 3.2.1. The vehicle manufacturer should contact Euro NCAP approximately four months before the release of the facelifted vehicle.
 - 3.2.2. 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.
 - 3.2.3. 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.
 - 3.2.4. 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.
- 3.3. The continued validity of an optional rating based on a safety pack will be checked according to VSSTR protocol v7.0 or later.
- 3.4. 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.

4. Termination of Star Rating

- 4.1. The base rating (and optional rating if applicable) expires after 6 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.
- 4.2. 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).
 - 4.2.1. 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.

5. Variants and Partner Models

From 2017, Euro NCAP will provide clearer information to consumers about the variants to which a model's rating applies. It is intended to provide, on the website and in the datasheet, a list of all variants in the model range and to 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 now contains a section where all variants, including partner models, must be defined.

- 5.1. Main Assessment
 - 5.1.1. 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).
- 5.2. Application of Star Rating to Other Variants
 - 5.2.1. 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
 - 5.2.2. In-house data is acceptable to demonstrate compliance with the requirements of Appendix 1, except where official tests are explicitly demanded in that Appendix.
 - 5.2.3. Euro NCAP reserves the right to request additional information to the above.
- 5.3. Variants not covered by the Rating

- 5.4. Any variants which do not meet the requirements of 5.2 will be considered not to be covered by the star rating and will be marked as such in the website table.
- 5.5. Partner Models
- 5.5.1. 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 5.2.1 to 5.2.3.
- 5.5.2. 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.
- 5.6. Timing
- 5.6.1. Variants
- 5.6.1.1. 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. 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 5.2.1.
- 5.6.2. Partner Models
- 5.6.2.1. A partner model may not share the original rating if it is released in a calendar year more than 2 years later than the date stamp of the original assessment.
- 5.6.2.2. Presentation of the results on Euro NCAP's website will depend on the relative timing of the launch of the partner variants.
- If the partner model is marketed in Europe in the same calendar year as the original assessment (and therefore eligible for the same date stamp on the rating), the Manufacturer may choose whether the partner is listed on Euro NCAP's website as a separate model (Model A and Model B appear separately in the list of tested cars) or shares a combined rating with the tested model (presented as Model A/Model in the list). In either case, the comments will make clear that the rating is based on the results of the tested model.
 - If the partner model is marketed in a year subsequent to the original model (and is therefore not eligible for the same date stamp on the rating), the assessment on Euro NCAP's website will be renamed "Model A/Model B", where "Model A" is the marketing name of the variant originally tested and "Model B" is the name of the 'partner'. The comments will make clear that the rating is based on Model A but that sufficient similarities exist, and sufficient data has been provided, for Euro NCAP to apply the rating to Model B.
- 5.7. Comparison of Data
- 5.7.1. 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.

6. Corporate Twins

'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.

- 6.1. 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.
- 6.2. An equipment matrix should be completed for all brand models to which the rating will be applied.
 - 6.2.1. The matrix should be signed by a representative of that brand.
 - 6.2.2. The base safety specification and best-selling variant should be identified for each brand.
 - 6.2.3. The manufacturer agrees to notify Euro NCAP of any changes to standard/optional fitment of safety equipment.
- 6.3. Documentation should be submitted to Euro NCAP which highlights differences, if any, in
 - Manufacturing plants.
 - Suppliers of safety equipment.
 - Powertrain options.
- 6.4. Where very minor differences exist, the twin with the lowest base safety specification or the poorer performance will be assessed.
- 6.5. All twins should be made available, on request, for strip-down/parts check at time of inspection or before.
- 6.6. 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.
- 6.7. Data for publication on the corporate twin will be taken from the original model tested. Euro NCAP will make no distinction between the models
- 6.8. Twins must have the same date stamp on the rating.

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
a) Body style (same number of side entry doors)	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.
a) Body style (different number of side entry doors)	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) Kerb mass	Variation up to $\pm 10\%$ of the mass of the ODB test vehicle is allowed, provided the car does not receive a modifier for bodysell 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 ODB test vehicle, in-house data for the frontal ODB, 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 ODB test vehicle, the manufacturer must perform additional official frontal ODB, side AE-MDB and side pole tests at a Euro NCAP laboratory.
c) Engine (displacement, cylinder configuration, aspiration, block size, type of fuel)	<p>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).</p> <p>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 ODB test).</p> <p>For electric and hybrid vehicles (where a IC variant was originally tested), additional official Euro NCAP tests are needed for frontal ODB 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.</p>
d) Transmission (manual or auto, number of gears)	Any transmission is acceptable.
e) Driven wheels (4x4, 4x2, front-wheel drive, rear wheel drive)	<p>Two-wheel drive results (either front or rear) are not interchangeable with an all-wheel-drive variant without <i>additional evidence</i> (frontal ODB 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.</p> <p>Driven wheel differences are acceptable for the side impact and pole tests.</p>
f) Ride height (e.g. height of top of wheel arch) and tyre diameter	In general, a difference of +/-50mm from the tested variant is acceptable for both the frontal ODB 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.
g) Wheelbase	Wheelbase variation up to $\pm 10\%$ is acceptable. Additional evidence (frontal ODB test) is required for larger variations.

h) Driver location (left-hand-drive, right-hand drive)	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.
i) Occupant restraint systems	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).
j) Whiplash	<p>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.</p> <p><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>.</p>
k) Third row seats	<p>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</p> <ul style="list-style-type: none"> • Variants (as they share the assessment on the website) • Partners which share a common assessment on the website. <p>For partner models which have separate assessments on the website, the appropriate results will be separately shown.</p> <p>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 ODB test and the side AE-MDB.</p>

I) AEB City	<p>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.</p> <p>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:</p> <ul style="list-style-type: none">i. the system must have the same functional components (e.g. LIDAR, radar transmitter & receiver, and mono or stereo cameras), of the same brand, model and series as tested by Euro NCAPii. AEB software must be the same as that tested by Euro NCAP.iii. all transmitter, receiver and camera locations must be the same as those tested by Euro NCAP. <p>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.</p>
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Table 2. CHILD OCCUPANT PROTECTION

Factor	Criterion
a) Shape of rear bench	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) Pretensioners and load-limiters	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.
c) Third row seats	Official Euro NCAP CRS installation check needed. Results presented as explained in Adult Occupant Protection, item k.

Table 3. PEDESTRIAN PROTECTION

Factor	Criterion
a) Head impact zones	<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) Upper leg impact zones	<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</i> (<u>upper legform tests</u>) is required.</p>
c) Lower leg impact zones	<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</i> (legform tests) is required</p>
d) AEB VRU	<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"> i. the system must have the same functional components (e.g. LIDAR, radar transmitter & receiver, and mono or stereo cameras), of the same brand, model and series as tested by Euro NCAP ii. AEB software must be the same as that tested by Euro NCAP. iii. all transmitter, receiver and camera locations must be the same as those tested by Euro NCAP.

	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.
e) Ride height	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).

Table 4. SAFETY ASSIST

Factor	Criterion
<p>a) Speed Assistance Systems</p>	<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"> a) Camera-based speed limit information function (SLIF) b) Digital map-based speed limit information function (SLIF) c) Combined camera and digital map systems d) Manual speed assistance (MSA) speed warning function- e.g. audible alarm e) Manual speed assistance (MSA) speed limitation function f) Intelligent speed assistance (ISA) <p>Where these conditions are not met <i>additional evidence</i> (speed assist) is required.</p>
<p>b) AEB Inter-Urban</p>	<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"> i. functional components (e.g. LIDAR, radar transmitter & receiver, and mono or stereo cameras) must be the same brand, model and series as tested by Euro NCAP ii. AEB software must be the same or a later version than that tested by Euro NCAP. iii. all transmitter, receiver and camera locations must be the same as those tested by Euro NCAP. <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>

c) Lane Support Systems	<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 (LSS)</i> is required.</p>
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