EURO NCAP

#FORSAFERCARS

Version 1.1
May 2025

Child Occupant Protection Prerequisites

Crash Protection

Technical Bulletin CP 008-1

Implementation 1st January 2026

PREFACE

During the test preparation, vehicle manufacturers are encouraged to liaise with the laboratory and to check that they are satisfied with the way cars are set up for testing. Where a manufacturer feels that a particular item should be altered, they should ask the laboratory staff to make any necessary changes. Manufacturers are forbidden from making changes to any parameter that will influence the test, such as dummy positioning, vehicle setting, laboratory environment etc.

It is the responsibility of the test laboratory to ensure that any requested changes satisfy the requirements of Euro NCAP. Where a disagreement exists between the laboratory and manufacturer, the Euro NCAP secretariat should be informed immediately to pass final judgment. Where the laboratory staff suspect that a manufacturer has interfered with any of the set up, the manufacturer's representative should be warned that they are not allowed to do so themselves. They should also be informed that if another incident occurs, they will be asked to leave the test site.

Where there is a recurrence of the problem, the manufacturer's representative will be told to leave the test site and the Secretary General should be immediately informed. Any such incident may be reported by the Secretary General to the manufacturer and the person concerned may not be allowed to attend further Euro NCAP tests.

DISCLAIMER: Euro NCAP has taken all reasonable care to ensure that the information published in this protocol is accurate and reflects the technical decisions taken by the organisation. In the unlikely event that this protocol contains a typographical error or any other inaccuracy, Euro NCAP reserves the right to make corrections and determine the assessment and subsequent result of the affected requirement(s).

CONTENTS

1 SCORING

Children should be as equally well protected as adults in the event of a crash. The assessment of child occupant protection is based on the dynamic performance of the Q6 and Q10 dummies in the MPDB and AE-MDB crash tests. Additionally, this Technical Bulletin defines the prerequisites that must be met to avoid a penalty where vehicle provisions for the carriage of children are lacking.

This assessment is applicable to all classes of vehicle, including vehicles where there is no rear row or where there is limited space for carrying CRS on the rear seats. For vehicles with limited rear space and those with only two seats, special provisions have been made within this Technical Bulletin for their assessment.

1.1 Vehicle provisions assessment

An assessment is made on the vehicle's provisions for the safe carriage of children and how well it accommodates a variety of child restraints available on the European market. Where the prerequisite is met, no penalty will be applied to the overall Crash Protection score. The Vehicle Provisions assessment is detailed in Section 2.1.

The prerequisite number of points required in the vehicle provisions assessment is **7.0 points** in 2026 and 2027. This prerequisite rises to **8.0 points** from 1st January 2028 onwards.

Where the prerequisite score is NOT been met, a penalty shall be applied to the overall Crash Protection score. Individual dynamic scores from the Q6 and Q10 dummies and test scores will not be penalised. The Crash Protection score will be reduced by the difference between the prerequisite limit (e.g. 7 points in 2026), and the number points scored in the Vehicle Provisions assessment. For example:

a) Scoring 6.5 points in the Vehicle Provisions assessment will mean that the Crash Protection score out of 100 points will be reduced by 0.5 points.

b) Scoring 6.0 points in the Vehicle Provisions assessment will mean that the Crash Protection score will be reduced by 1.0 points.

Euro NCAP aims to ensure that vehicle provisions are not reduced after 2026 from the current 'real world' status and will continually review the prerequisite amount for potential future updates.

2 ASSESSMENT PROCEDURE

All vehicle-based assessments will be only performed on vehicles that meet the relevant fitment requirements at the time of assessment. Hence, before the assessment starts, the total number of passenger seating positions in the vehicle must be identified including 1st, 2nd and 3rd row if available.

Where a vehicle is available with optional equipment, the CRS installation assessment will be based on the worst performing configuration. The following optional equipment will be considered for use in the vehicle provisions assessment:

a. Seat rows – e.g. 3rd row
b. Additional seating positions – e.g. position 2 in row 1
c. ISOFIX & i-Size positions
d. Top-tether anchorages
e. Floor storage compartments

Any optional equipment not mentioned above that influences the assessment procedure will also be considered for use in the assessment.

2.1 Vehicle provisions assessment

2.1.1 Requirement 1

2.1.1.1 Install the Gabarit on all passenger seating positions:

a) Use the procedure in UN Regulation No. 173, Annex 6, Appendix 1.
b) Once the belt is correctly routed around the Gabarit fixture, it shall be possible to draw a further 150mm of belt webbing from the reel.
c) For Gabarit installations on the 3rd row, it is acceptable to move or fold the 2nd row seats to enable installation. The 2nd row vehicle seats may remain folded for the Gabarit assessments on the 3rd row.
d) Where a passenger frontal airbag is fitted, it must be possible to activate and deactivate the passenger airbag, either automatically or manually. The requirements of the OSM protocol need not be met to qualify for this award, but the airbag disabling equipment must be standard and the requirements for passenger airbag disabling must also be met.
e) In the case of an adult seat belt that is capable of being switched from an emergency locking retractor (ELR) to an automatic locking retractor (ALR), clear advice, obvious to the user, about how the ALR feature should be used must be present on any labels attached to the seat belt (information given in the handbook is not sufficient as reading of the handbook cannot be assumed for all users).

2.1.2 Requirement 2

2.1.2.1 Install the ISO B2 fixture on all passenger seating positions using the adult belt only. Installation of the fixture shall be according to the procedure detailed in UN Regulation No. 173, Annex 6, Appendix 5.

2.1.3 Requirement 3

2.1.3.1 Install the ISO B2 fixture on all seat positions equipped with ISOFIX anchorages using both the adult belt and ISOFIX attachments:

a) Use the procedure in UN Regulation No. 173, Annex 6, Appendix 5.
b) When placing the fixture on the vehicle seat, connect the ISOFIX attachments of the fixture to the vehicle ISOFIX anchorages before arranging the seatbelt.
c) Once the ISOFIX attachments are engaged, ensure that the adult belt anchorages are accessible and that the belt can be attached.

2.1.4 Requirement 4

2.1.4.1 Check the vehicle attachment points as follows:

a) The location of each ISOFIX approved anchorage must be marked. Markings must include both text and the ISOFIX pictogram detailed in UN Regulation No. 145.
b) The location of each top tether anchorage must be marked. Markings must include both text and the top tether pictogram.
c) The location of each anchorage on i-Size approved seating positions must be marked. i-Size markings must show the relevant i-Size pictogram detailed in UN Regulation No. 145. It is allowed to add the word ISOFIX adjacent to the i-Size pictogram.
d) All markings must be of conspicuous design and both the text and pictogram must have colours which contrast with their background.
e) All markings must be permanently visible. Flag type labels are not acceptable.
f) All markings must be permanently attached to the vehicle.
g) The presence of floor storage compartments, optional or otherwise, must not preclude the installation of i-Size CRS or require the user to check compatible vehicle lists.
h) Floor storage compartments must satisfy the requirements of UN Regulation No. 145. They shall be tested with the lid in the closed position. No preparatory actions are permitted, such as opening the lid or the addition of storage space fillers.

2.1.4.2 ISOFIX anchorage integrity test

a) The OEM must provide physical test data demonstrating that the ISOFIX anchorages for i-Size and ISOFIX positions on the 2nd row outboard seats can withstand (assessed as pass/fail criterion) the peak load and timings defined in part f) below.
b) Where insufficient or no physical test data is provided by the vehicle manufacturer, or the requirements of parts e) and f) are not met, Requirement 4 shall be deemed a failure.
c) i-Size positions shall be tested using the SFAD with support leg as UN Regulation No. 145 defined in Annex 5.

d) ISOFIX positions shall be tested using the SFAD without support leg as UN Regulation No. 145 defined in Annex 5.
e) A forward pull test shall be performed and loading applied as follows regardless of which SFAD is used:

   • A load of at least 8kN shall be reached within a 2 second period and maintained for a further 0.2 seconds.

   • Loading shall be increased to at least 10kN within a further 1 second, which must be maintained for a further 0.2 seconds.

f) There must be no partial rupture or breakage of either the ISOFIX anchorages or their connections to the supporting structure.

2.1.5 Requirement 5

2.1.5.1 Install the ISO R3 fixture on all positions equipped with ISOFIX anchorages:

a) Use the procedure in UN Regulation No.173.

2.1.5.2 When checking a Child Restraint Fixture (CRF) behind the driver's seat, the seat may be adjusted longitudinally forward but not further than the mid position between its 95th and foremost positions. The seat backrest angle may also be adjusted, but not to a more upright angle than corresponding to a torso angle of 15 degrees. The full range of seat height adjustment can be used. All adjustments of any passenger seats are permissible to install the fixture.

2.1.5.3 Two successful ISO R3 installations are required to meet this requirement. Vehicles with only one passenger seat need only allow for one successful installation.

2.1.6 Requirement 6

2.1.6.1 Check the vehicle has at least one seat position equipped with lower tether attachment points as follows:

a) Lower tether anchorages must comply with the requirements of UN Regulation No. 145.
b) Lower tether anchorages must be integrated into the vehicle and require no further attachments or fittings.
c) The vehicle handbook must detail the location and use of the lower tether anchorages.
d) It must be possible to successfully install the ISO B2 fixture as detailed in Requirement 3.
e) The location of each lower tether anchorage must be marked – 2028 onwards.
f) All markings must be of conspicuous design and both the text and pictogram must have colours which contrast with their background.
g) All markings must be permanently visible. Flag type labels are not acceptable.
h) All markings must be permanently attached to the vehicle.

2.2 Installation of child restraint systems

All combinations of CRS and vehicle seat positions will be checked by installing the relevant CRS detailed in APPENDIX B on all passenger seating positions. If any outboard seating positions are identical or symmetrical (adult belts, anchorages, etc) then installation may be performed on one side only. Where there is any asymmetry, including sliding doors, B-pillar position etc. then all seating positions must be assessed individually.

A CRS offering multiple installation modes, e.g. belted only and belt & ISFOIX attachment, will have both modes evaluated separately. However, each installation mode must meet all of the requirement applicable to that particular installation mode. For example, a CRS that must be installed using both the adult belt and ISOFIX must meet the full requirements of both Sections 2.2.3 and 2.2.4 for a successful installation. A CRS that uses the adult belt and a support leg must meet the full requirements of Section 2.2.3 and Section 2.2.5.

When installing each CRS in the vehicle, any simple instructions relating to the preparation of either the vehicle or CRS that are provided in the CRS and/or vehicle handbook will be followed. For example, rear head restraints can be removed if instructed to do in the vehicle handbook for each specific CRS group. It must be clear that head restraints must not be removed when using booster cushions only.

The vehicle seating position is considered as compatible with the CRS fitted as long as the conditions described in the following sections are met.

This part of the assessment is to verify the vehicle's ability to allow for easy installation of a range of different CRS by evaluating its provision of sufficient space and access. This does not include fastening the CRS to the vehicle, only positioning on the rear or front seat in preparation for fastening.

2.2.1 Initial vehicle settings

2.2.1.1 Installations on the rear seat:

a) The front row seats shall initially be set in the 50th percentile test position.
b) The front seats may be adjusted during the assessment. The adjustments allowed are limited to normal day-to-day adjustments to ensure the best possible installation. For the front passenger seat, the full range of fore/aft movement is permissible to create sufficient space for the seat to be installed. The seatback angle must be no further forward than a torso angle of 15 degrees. The full range of seat height is permitted.
c) For the driver's seat, the fore/aft adjustment must be no further forward than mid between fully forward and the 95th percentile positions. The seatback must be no further forward than a torso angle of 15 degrees. The full range of seat height is permitted.
d) It is acceptable to utilise any 'easy entry' function in conjunction with the fore/aft adjustment to move the front seat forward and allow access to the rear seats.
e) Vehicles with three seat rows shall have the row in front of the seat row being assessed positioned as in b).
f) Vehicles with adjustable rear seats shall initially be set in the rearmost position . The flat folded position of a seat is not considered as an in use position. Normal day-to-day adjustments will also be permitted as defined in b).
g) Head restraints shall initially be set to the lowest/not in use position but the full range of height adjustment is considered as a day to day adjustment. However, head restraint removal is permitted but this must be clearly detailed in the vehicle handbook. It must be clear that head restraints must not be removed when using booster cushions only.
h) Movable arm rests shall be positioned so as not to interfere with the CRS installation.

i) Where the front seat interacts with the steering wheel, for example with easy entry functions, the steering wheel shall be set to mid/mid.

2.2.1.2 Installations on the front passenger seat(s):

a) The front seat(s) shall initially be set in the 50th percentile test position.
b) The front seat(s) may be adjusted during the assessment. The adjustments allowed are limited to normal day-to-day adjustments to ensure the best possible installation, the full range of fore/aft movement is permissible to create sufficient space for the seat to be installed. The seatback angle must be no further forward than a torso angle of 15 degrees. The full range of seat height is permitted.
c) Head restraints shall initially be set to the lowest/not in use position but the full range of height adjustment is considered as a day to day adjustment. However, head restraint removal is permitted but must be clearly detailed in the vehicle handbook.
d) Movable arm rests shall be positioned so as not to interfere with the CRS installation.

2.2.2 CRS placement

Procedure:

a) Where necessary, prepare the CRS for installation by lengthening straps and top-tethers so they are accessible once the CRS is in place.
b) Pass the CRS through the relevant occupant entry door. Vehicles with moveable roofs shall have the roof closed during this assessment. No other access routes shall be used, such as the rear hatch/boot.
c) If the CRS cannot be easily placed in the vehicle due to the position of the front seats, adjust the front seat to allow CRS placement. Following this, the driver's seat should then be repositioned back to a position meeting the requirements defined in 2.2.1.1 c). The front passenger seat does not need to be adjusted further from the position defined in 2.2.1.1 b).
d) For CRSs that allow the child to be carried in the seat, the orientation of the CRS may be changed by up to 40 degrees about its axes (x, y,) to enable the CRS to fit into the vehicle. For CRSs that are not intended as infant carriers then any orientation may be used to place the CRS in the vehicle. Infant carriers must be installed with any handles in the carrying position.
e) Where the CRS contains multiple parts, e.g. base and seat, then both items may be installed sequentially and assessed in the same way.
f) For CRS that do not allow installation with the child in the CRS, there must be sufficient space within the vehicle to allow an adult to place a child in the CRS and attached any harnesses or tighten any webbing. This will be assessed using the appropriate sized child dummy.

The vehicle meets the requirements if all of the following are met:

g) The CRS can be placed on the rear seats without excessive force, difficulty or interaction with the door aperture.
h) After adjustment of the front seat, it does not prevent or interfere with correct placement of the CRS. It must be possible to return the driver's seat to a position meeting the requirements defined in 2.2.1.1 c). An easy entry function may be used.
i) Where applicable, the easy entry function allows the front seat to return and lock in a position allowed in day to day use defined in 2.2.1.
j) If there is sufficient space within the vehicle for a child to be correctly placed in the CRS and the child is not prevented from sitting normally in the CRS.

The vehicle would not meet the requirements if any of the following occur:

k) The child seat or base does not individually fit through the door aperture.

l) The CRS cannot be placed in the vehicle.
m) The CRS must be rotated more than the permissible amount to enable placement or where applicable.
n) Vehicle structures prevent a child from being placed correctly in the CRS.
o) The driver's seat cannot be returned to the position defined in 2.2.1.1 c). The passenger's seat cannot be returned to the position defined in 2.2.1.1 b).
p) There is insufficient space within the vehicle to allow the child to occupy the CRS as normal.

2.2.3 Requirements for seat belt mounted CRS

2.2.3.1 Use of 3-point belts - Ease of fastening seatbelt

Procedure:

a) Once placed in the vehicle, the CRS shall be positioned along the centreline of the chosen seating position.
b) Route the adult seatbelt around the CRS in accordance with the instructions on the CRS.
c) Engage the buckle tongue into the buckle.
d) If necessary, some small movement of the CRS is permitted to expose the seat belt buckle. This is limited to rotation of up to 20 degrees about the x and z-axes or 50mm lateral movement from the seat centreline. After buckling the belt, the CRS shall be moved back to the seat centreline if possible.
e) For CRS that are not equipped with integral harnesses an appropriate sized dummy shall be placed in the CRS during this procedure.

The vehicle meets the requirements if all of the following are met:

f) The tongue can be engaged in the buckle with the use of only one hand and without the need to reposition the CRS more than permitted in 2.2.3.1 d) to enable access to the buckle, or the tongue can be engaged using two hands to insert the buckle, where one supports the buckle, and the other is used to insert the tongue.
g) The adult seat belt adjacent to the assessed seating position does not prevent installation of the CRS or lead to any instability.
h) With the CRS installed, the three point belt on another seating position in that same row should be capable of restraining another occupant.

The vehicle would not meet the requirements if any of the following occur:

i) The belt cannot be buckled due to insufficient belt length.
j) The belt length is such that the CRS is not in the correct position on the seat.
k) The CRS has to be moved or rotated more than prescribed above to allow access to the buckle, e.g. the buckle is positioned underneath the CRS.
l) The installation of the CRS means that an adult cannot occupy another seating position on that row, for example due to limited space or interference with the adult belt system.

2.2.3.2 Use of 3-point belts - Ease of tightening belt (Ease of operating the lock-off clip)

This assessment is of the vehicle's ability to be able to correctly restrain the CRS using the adult belt systems.

Procedure:

a) With the seat belt buckled and belt routed correctly around the CRS, tension shall be introduced into the adult seatbelt by pulling on the diagonal section of the belt in the direction of the reel.

b) Remove the slack in the lap belt by pulling on the diagonal belt near the buckle with a force of 150N.
c) A measurement of seatbelt tension will be required for this installation.
d) For seats that do not have an integral harness, a child dummy of the largest appropriate size shall be placed in the CRS during this process.

The vehicle meets the requirements if all of the following are met:

e) When 150N is applied to the diagonal section of the adult belt, the slack in all parts of the lap section is removed.
f) The CRS is held firmly against the seat back and seat base by the adult belt.
g) Movement of the CRS base or back, in any direction, must result in increasing tension within the belt system, e.g. with forward movement of the CRS. The belt reel shall be prevented from spooling out during this check.
h) Where applicable, the seat belt must restrain the dummy and the seat correctly.

The vehicle would not meet the requirements if any of the following occur:

i) When slack has been removed from the belt system, the buckle tongue stop prevents the lock off from operating correctly.
j) It is not possible to remove the slack in any part of the lap section.

2.2.3.3 Additional tethers and/or support leg

Where the chosen CRS is equipped with an additional tether or support leg apply the relevant assessment outlined in Section 2.2.5 before moving on to the next section.

2.2.3.4 Obstruction & Stability of the CRS

Procedure:

a) The CRS shall be installed in the vehicle with the seat belt buckled and any tethers or support legs attached as per the previous steps. The largest appropriate P or Q dummy shall also be installed in the CRS.
b) Any comfort adjustments on the CRS shall be changed up to a maximum stature of 135cm. E.g. incline, recline, head restraint height etc. Adjustments for children larger than 135cm will not be used.
c) Check any contact points between the CRS, dummy and vehicle.
d) The CRS shall be rocked from side to side about the x axis over a 10° to 15° arc. No other restraint shall be placed on the CRS during rocking.
e) The CRS shall be pulled toward the front of the vehicle and twisted about the z axis.
f) The CRS shall be returned to the initial position with the belt tightened as per Section 2.2.3.2 and a force of 100N shall be applied perpendicular to the CRS in the y direction at the shoulder level of the dummy. Ensure the force is applied perpendicularly throughout force application. This assessment will not be applied to RWF CRS with a stature of up to 83cm.
g) The CRS shall be returned to the initial position with the belt tightened as per Section 2.2.3.2 and a force of 100N shall be applied perpendicular to the CRS in the y direction at a small distance above the vehicle seat. This assessment will not be applied to RWF CRS with a stature of up to 83cm.

The vehicle meets the requirements if all of the following are met:

h) The vehicle interior can accommodate installation of the CRS in all orientations and adjustments up to a stature of 135cm without interaction with other parts of the vehicle. E.g. booster seats with adjustable head restraints must not be restricted by the rear head restraints or C-pillars.

i) The presence of vehicle head restraints does not prevent correct installation of the CRS and does not lead to significant forwards rotation of the CRS or create lateral instability.
j) Contact between the CRS and vehicle interior is permitted provided that the CRS is correctly installed, stable and is not rotated by more than 5 degrees.
k) The measured backrest angle of the CRS is not forwards from vertical. This can be measured using the device described in APPENDIX A.
l) The vehicle interior provides stable support for the CRS in the selected installation modes and adjustments. E.g. the CRS back or base tensioning system must be in contact with the vehicle seat base and seat back cushions.
m) The CRS sits flat on the seat base cushion and, for forward facing CRS, is supported by the seat back and/or head restraint.
n) With the load applied to the CRS the rotation about the X axis does not exceed 20 degrees and the CRS remains secured and has a tendency to return back to the original position.
o) As any load is applied, the tension in the belt system increases with the displacement of the CRS.

The vehicle would not meet the requirements if any of the following occur:

p) The CRS does not sit correctly on the seat base cushion or is not sufficiently supported by the seat back and/or head restraint.
q) The vehicle interior can accommodate installation of the CRS with only limited adjustments of the CRS i.e. tilt or adjustable backrests cannot be used due to interference from the vehicle.
r) The vehicle interior encroaches into the space in which the child dummy sits resulting in any contact with the dummy head or legs. For example, where the roof is too low or the knees or tibia are against the back of the front seat. Contact with the head and head restraint or with the toes/feet and seat back is acceptable.
s) Any part of the vehicle interior, including bolsters, arm rests, pillars obstruct the CRS or prevents a particular adjustment from being made. E.g. C-pillar, roof or rear head restraints prevent correct installation of CRS.
t) With the appropriate child dummy installed, the size of the car limits the possible age groups that can be installed.
u) There is limited support offered to the CRS through lack of contact with the supporting structures, e.g. large side bolsters prevent the CRS from sitting flat on the seat base; or where applicable, poor or inadequate support is provided to CRS support legs.
v) When load is applied to the CRS it can move more than the allowed amount or the CRS can move without increasing tension on the belt system.

2.2.4 Requirements for ISOFIX attached CRS

2.2.4.1 Insert and locking ISOFIX probes (only)

This is an assessment of the ease of which the CRS ISOFIX probes can be engaged with the vehicle ISOFIX anchorages. It does not include assessment of any other tethers, straps or supports.

Procedure:

a) The position and orientation of the vehicle anchorages shall be identified and prepared for CRS attachment. Simple, preparatory actions such as sliding a seat belt away from the anchorage, lifting a dedicated flap or covering to expose the anchorage are permissible. Plastic guide funnels supplied with CRS will NOT be used.
b) The CRS shall be placed on the seat centreline, the CRS ISOFIX probes shall be made ready for attachment to the vehicle.

c) The CRS and probes shall be pushed toward the anchorages until they are engaged, keeping the CRS on the vehicle seat cushion. Lifting of the CRS from the seat base is not allowed, but some rotation/tilting of the CRS is permissible provided there is still contact with the seat cushion. Separate support frames and bases (if available) may be lifted.
d) If necessary, 50mm of lateral movement of the CRS is permitted to allow engagement with the ISOFIX anchorages. Where the CRS has movable ISOFIX probes, they may be adjusted to facilitate engagement provided the CRS remains on the vehicle seat.
e) Where the adult belt prevents engagement with the ISOIFX anchorages, it is permissible to reposition the belt to improve access provided that the belt does not have to be held in that position.

The vehicle meets the requirements, once preparatory steps have been performed, if all of the following are met:

f) Each vehicle ISOFIX anchorage can be easily engaged. For example, the anchorages are easily accessible or they are equipped with permanent guidance (plastic funnel, fabric slit, etc) which helps the CRS ISOFIX probes align with the vehicle anchorages avoiding any obstruction from the seat, such as the fabric or cushion etc.
g) For CRS where the probes are attached to the shell, the CRS can be attached to the vehicle by simply pushing it toward the anchorages, with some tilting but without any other actions that are not described on the CRS itself.
h) If the CRS uses a separate support frame, the frame can be easily engaged onto the ISOFIX anchorages without removing fabric, etc.
i) With the CRS installed, one of the three point belts on another seating position in that same row should be capable of restraining one other occupant.

The vehicle would not meet the requirements if any of the following occur:

j) If the anchorages cannot be engaged without further actions. For example, where the seat cushions have to spread apart by hand in order to create access to the anchorages.
k) The CRS has to be lifted off the seat cushion to allow engagement with the anchorages. Lifting of separate support frames is permissible.
l) Any part of the seat, seat cushion, seat belt or buckle prevents attachment of the CRS.
m) Where the CRS probes are clearly misaligned with the ISOFIX anchorages.
n) Where physical guidance is required, such as plastic funnels, they are not permanently attached to the vehicle.

2.2.4.2 Additional tethers and/or support leg

Where the chosen CRS is equipped with an additional tether or support leg apply the relevant assessment outlined in Section 2.2.5 before moving on to the next section.

2.2.4.3 Obstruction & Stability of the ISOFIX CRS

The principle here is identical to that of Section 2.2.3.4.

Procedure:

a) The CRS shall be installed in the vehicle with ISOFIX and any tethers or support legs attached. A child dummy of the appropriate size shall also be installed in the CRS.
b) Any comfort adjustments on the CRS shall be changed up to a maximum stature of 135cm. E.g. incline, recline, head restraint height etc. Adjustments for children larger than 135cm will not be used.
c) Check any contact points between the CRS and vehicle.
d) The CRS shall be pulled toward the front of the vehicle and twisted about the z-axis.

The vehicle meets the requirements if all of the following are met:

e) The vehicle interior can accommodate installation of the CRS in all orientations and seat adjustments up to a stature of 135cm without interaction with other parts of the vehicle. E.g. booster seats with adjustable head restraints must not be restricted by the rear head restraints or C-pillars.
f) The presence of vehicle head restraints must not lead to significant forwards rotation of the CRS or create lateral instability.
g) Contact between the CRS and vehicle interior is permitted provided that the CRS is correctly installed, stable and is not rotated by more than 5 degrees.
h) The measured backrest angle of the CRS is not forwards from vertical. This can to be measured using the device described in APPENDIX A.
i) The vehicle interior provides stable support for the CRS and its attachments with the vehicle in all installation modes and adjustments.
j) There is little or no rotation of the CRS about all axes.

The vehicle would not meet the requirements if any of the following occur:

k) The vehicle interior can accommodate installation of the CRS with only limited adjustments of the CRS i.e. tilt or adjustable backrests cannot be used due to interference from the vehicle.
l) Where applicable, the vehicle interior prevents the seat shell from engaging on the frame or base without the use of excessive force.
m) The vehicle interior encroaches into the space in which the child dummy sits resulting in any contact with the dummy head or legs. For example, where the roof is too low or the knees or tibia are against the back of the front seat. Contact with the head and head restraint or with the toes/feet and seat back is acceptable
n) Any part of the vehicle interior, including bolsters, arm rests, pillars, obstructs the CRS or prevents a particular adjustment from being made. E.g. C-pillar or rear head restraint prevents correct installation of CRS.
o) With the appropriate child dummy installed, the size of the car limits the possible age groups that can be installed.
p) There is limited support offered to the CRS through lack of contact with the supporting structures. E.g. poor or inadequate support is provided to CRS support legs or the support legs cannot be correctly positioned.

2.2.5 CRS Installed Using Additional Tethers, Straps and Support Legs

2.2.5.1 Ease of use of tethers & straps

This is an assessment of the ease of which the additional tether anchorages such as top tethers can be engaged with the vehicle, where applicable.

Procedure:

a) Once the CRS has been attached to the vehicle with the belt or ISOFIX, any additional tethers, straps and corresponding anchorages or brackets shall be readied. Simple, preparatory actions such as lifting a dedicated flap or covering to expose the attachment point are permissible.
b) The removal or repositioning of a parcel shelf or tonneau cover is allowable. It must be possible to replace these parts once the CRS installation has been completed.
c) Head restraints may be repositioned or removed for CRS installation if instructed in the vehicle handbook.

The vehicle meets the requirements if all of the following are met:

d) The top tether can be engaged and tightened easily, without having to carry out any further actions other than already mentioned.
e) Where equipped, any additional tethers can be easily attached to the anchorage and easily tightened, for example the front seat rail or any other attachment points.

The vehicle would not meet the requirements if any of the following occur:

f) The strap(s) or tether(s) cannot be engaged without any further actions of vehicle adjustments, e.g. it would not be acceptable to tilt the rear seat forwards to be able to engage the tether.
g) The strap(s) or tether(s) pass through luggage or occupant space and prevent the use of other parts of the vehicle, including rear seats. Top tether straps that remain above the top of the vehicle seat back are acceptable provided they do not obstruct any other space required for occupants or interfere with the use of the adult belts.
h) The strap(s) or tether(s) obstruct the function or movement of other parts of the vehicle, such as the front seats or luggage space.

2.2.5.2 Ease of use of support legs

This is an assessment of the vehicles ability to provide adequate support to any support legs, where applicable. Where optional storage compartments are available, they will be included in the CRS installation assessment.

The vehicle meets the requirements if all of the following are met:

a) The vehicle provides sufficient space to allow stable placement of any support legs.
b) The support leg must be installed in the intended positions, for example fully locked out.
c) The area upon which a support rests must also be capable of providing adequate restraint during an impact as described in UN Regulation No. 145 with any storage cover closed.

The vehicle would not meet the requirements if any of the following occur:

d) Poor or inadequate support is provided to CRS support legs or where the support leg cannot be positioned correctly due to interference from the front seat or other vehicle structures.
e) The support leg cannot be fully locked out or cannot provide the intended level of support for any reason, such as due to limited space.
f) It is necessary to open any storage cover or use additional components/inserts to support the lid, such as foam blocks.

2.3 Child restraint systems for dynamic testing

Where a vehicle is equipped with a UN Regulation No.129 approved, integrated CRS covering the Q6 and/or Q10 on the rear outboard 2nd row test positions, the integrated CRS will be used in the dynamic tests. Integrated CRS will be used even if they are optional equipment.

Where a vehicle is equipped with only one integrated CRS on either outboard position covering both or only one of two child ages, the integrated CRS will be used only where applicable. If only one integrated CRS is present, the vehicle manufacturer shall recommend a suitable CRS to accommodate the other child dummy. Where this is not the case the steps detailed below will be followed.

Where a vehicle is not equipped with two ISOFIX anchorages on positions 4 and 6, Q6 and Q10 CRS will use the adult seatbelt only installation mode for both full scale tests. This does not apply

to two-seater vehicles providing that ISOFIX anchorages are standard equipment on the passenger's seat in both left and right hand drive vehicles.

If any the recommended CRS are to be used in the dynamic tests, they MUST meet the installation requirements on the 2nd row rear outboard positions.

2.3.1 Q6 Dummy

The Q6 dummy shall be seated in a forward facing booster seat appropriate for a six year old child or a child with a stature of 125cm. This will be the booster seat recommended by the vehicle manufacturer in the vehicle handbook. Rearward facing CRS are NOT accepted for Euro NCAP tests.

If there is no recommendation made in the vehicle handbook for a six year old child or the recommended CRS is rearwards facing, the front MPDB and Side AE-MDB impacts will be performed with the Q6 dummy seated in a booster seat chosen by the Secretariat from APPENDIX B. It will be installed using the ISOFIX anchorages and adult belt.

Where the vehicle offers no ISOFIX anchorages, the Q6 dummy will be seated in a booster seat chosen by the Secretariat from APPENDIX B and installed using the adult belt only.

Any belt guides, such as SecureGuard, shall only be used providing there is clear information in the vehicle handbook instructing the user to install the CRS with the guide.

Any additional CRS adjustments, such as side impact extensions, shall only be used providing there is clear information in the vehicle handbook instructing the user of their use and required position.

Prior to the official Euro NCAP tests, the laboratory must check that any information relating to CRS installation and adjustments as detailed in the vehicle handbook. Where this information is not detailed, testing will be performed without the use of belt guides and/or specific adjustments.

2.3.2 Q10 Dummy

The Q10 dummy shall be seated on a booster cushion only. This will be the booster cushion recommended by the vehicle manufacturer in the vehicle handbook.

Where the vehicle handbook recommends a high back booster seat with detachable backrest, it will be used without the backrest.

If there is no recommendation made in the vehicle handbook or a booster seat with a non-removable backrest is recommended, the front MPDB and Side MDB impacts will be performed with the Q10 dummy seated on a booster cushion (only) selected from APPENDIX B by the vehicle manufacturer, where no selection is made the Secretariat will choose at random.

Any belt guides, such as the SecureGuard, shall only be used providing there is clear information in the vehicle handbook instructing the user to install the CRS with the guide.

Any additional adjustments, such as side impact extensions, shall only be used providing there is clear information in the vehicle handbook instructing the user of their use and required position.

Prior to the official Euro NCAP tests, the laboratory must check that any information relating to CRS installation and adjustments as detailed in the vehicle handbook. Where this information is not detailed, testing will be performed without the use of belt guides and/or specific adjustments.

If the laboratory has established that the vehicle is not able to accommodate the Q10 dummy seated on a booster cushion due to interaction between the dummy head and vehicle roof, the Q10 will be seated directly on the rear seat without the use of any booster cushion. If, with the Q10 seated directly on the rear seat, there is still insufficient space between the dummy head and vehicle roof, the vehicle will be assessed in the same way as a two seater.

2.3.2.1 Q10 Dummy CRS

- Graco Booster Basic R129 approval number: 030597

  135-150CM – Non ISOFIX variant ONLY

- Osann Booster Boost R129 approval number: E8*129R03/08*14413*00

  135-150CM – Non ISOFIX variant ONLY

Under no circumstances will any belt positioning guides or clips be used.

3 ASSESSMENTS AND SCORING

3.1 Vehicle provisions score

The vehicle provisions score is used to determine when the full dynamic score can be awarded to the Crash protection assessment. **10 Points** are available for the vehicle provisions score.

This vehicle provisions score is based on a combination of the vehicle provisions assessment in Section 2.1 and the outcome of the CRS installation in Section 2.2. The CRS used by the Q6 and Q10 dummies in the full scale tests are not included in the score calculation, but are subject to the same requirements to allow use in the full scale tests.

Each CRS has applicable vehicle provisions requirements that must be met in order to be rewarded and are detailed in the table below. When all of the requirements are met for a given CRS to vehicle seating position, it is shown as a 'Pass' and points will be awarded.

Where either the vehicle provisions requirements are not met or the CRS installation was considered to be a safety critical issue, the CRS-Seating position combination is considered a 'Fail'. When a non-safety critical CRS installation requirement is not met, it is considered to be a 'Partial Fail' (P Fail). For both cases, 'Fail' and 'P Fail', no points are awarded for the CRS-seating position combination, however the results will be differently communicated.

Pass	CRS can be installed correctly.
P Fail	CRS can be installed correctly but more actions are needed that do not meet the requirements of Euro NCAP and 0 points are awarded.
Fail	Safety critical issues exist, 0 points awarded.
N/A	This combination of CRS and seating position cannot be installed.

All passenger seating positions will be evaluated equally in the assessment and a percentage of successful CRS installations will be calculated for the individual passenger seating positions. This percentage will be calculated by dividing the number of successful CRS installations on that position, by the total number of applicable CRS that were installed on that position.

The vehicle provisions score is calculated by averaging the percentages of successful CRS installations for each passenger seating position and multiplying by **10 points** (expressed to 3 decimal places)**.**

Vehicle Provisions Assessment				Seating Position									
				Front			2nd row			3rd row			
				1	2	3	4	5	6	7	8	9	
				Left	Centre	Right	Left	Centre	Right	Left	Centre	Right	
	Stature			Belt	N/A	N/A	Lower tether	Belt	i-Size	N/A	N/A	N/A	Applicable requirements
1	< 83cm	Maxi Cosi Pebble 360	B _ _ _	Pass			Pass	Pass	Pass				1
2	135cm	Britax Kidfix i-Size	B _ _ _	Pass			Pass	FAIL	Pass				2
3	150cm	Cybex Solution T i-Fix	B _ _ _	Pass			Pass	FAIL	Pass				2
4	135cm	Cybex Solution T i-Fix	B I _ _				Pass		Pass				3 & 4
5	150cm	Cybex Solution T i-Fix	B I _ _				Pass		Pass				3 & 4
6	40-105cm	Maxi Cosi Pearl 360 & FamilyFix 360	_ I L _				Pass		Pass				4
7	76-105cm	Maxi Cosi Pearl 360 & FamilyFix 360	_ I L _				Pass		Pass				4
8	61-105cm	BeSafe iZi Kid X2 i-Size	_ I L _				Pass		Pass				4
9	76-105cm	Britax Römer TriFix2 i-Size	_ I _ S				Pass		Pass				4
10	100-135cm	BeSafe iZi Flex FIX i-Size	B I _ _				Pass		Pass				3 & 4
11	61-125cm	BeSafe Beyond	_ I L _				FAIL		Pass				4 & 5
12	61-125cm	BeSafe Stretch	B _ L LT				FAIL						2', 5 & 6
13	100-135	Q6 - Tested	B (I) _ _				Pass		Pass				2 OR (3 & 4)
14	145	Q10 - Tested	B (I) _ _				Pass		Pass				2' OR (3 & 4)

SUMMARY						
Percentage of successful installations	100%		83%	33%	100%	

TOTAL VEHICLE PROVISIONS SCORE	7.917

3.1.1 i-Size equipped vehicles

Where the vehicle does not offer two i-Size positions that can be used simultaneously, that do not meet the requirements in Section 2.1.4, the vehicle provisions score shall be set to **0 points**. Vehicles with only one passenger seat need only provide one position meeting the requirements in Section 2.1.4.

3.1.2 Website Information Form

The OEM is required to complete a website information form that details the vehicle's ability to accommodate CRS of all types, e.g. belted, i-Size etc. Information must not conflict with information detailed in the vehicle handbook. Where the OEM has not completed the website information form, the vehicle provisions score shall be set to **0 points.**

3.1.3 Airbag Disabling

3.1.3.1 Where a passenger frontal airbag is fitted (both front and rear seats if applicable) all CRS tables in the vehicle handbook must clearly indicate that when these passenger airbags are active the seat is NOT suitable for any rearward facing CRS. This is to be done with the use of either two separate columns in the relevant CRS tables, belt attached, ISOFIX and i-size where appropriate. One column shall indicate the CRS installation options with the airbag ON and the second column with the airbag OFF. Alternatively, pictograms may be used to indicate the airbag status and equivalent readiness of the passenger seat for accommodating CRS providing the pictograms meet the requirements of the OSM protocol.

3.1.3.2 Where the passenger airbag cannot be activated and deactivated by an airbag disabling system, the RWF CRS installations on the front passenger seat will automatically be deemed a failure.

3.1.3.3 Where a vehicle is equipped with a low-risk deployment frontal airbag, it is not necessary to deactivate the airbag but there must be information in the handbook indicating that this airbag can remain active when installing a RWF CRS. A clear explanation as to why it is safe for the airbag to remain enabled must also be provided in the handbook. The vehicle manufacturer must provide convincing data to Euro NCAP to show that the frontal airbag can indeed be considered as low risk.

3.2 Manufacturers recommended CRS

The overall responsibility of the vehicle manufacturer for safe transport of children is also reflected in the recommendation to the consumer that the vehicle manufacturer must make to regarding the CRS to be used in the vehicle.

Where the OEM does not recommend CRS the vehicle provisions score shall be set to **0 points**.

3.2.1 OEM recommended CRS requirements

Any CRS recommended by the vehicle manufacturer to the public must meet the following requirements:

a) The CRS must be recommended by the vehicle manufacturer to their customers in all countries within the EAA where the vehicle is sold. See Technical Bulletin G 001.
b) The recommended CRS for children up to a stature of 83cm must be rearward facing.
c) The recommend CRS must be suitable for children of all statures up to 150cm. This may be achieved with multiple CRS.
d) The CRS must be fully type approved according to UN Regulation No. 129.
e) Where the recommended CRS are not in Appendix B, the CRS must be available for purchase by the public from vehicle dealers and/or independent retail outlets in all countries within the EAA where the vehicle is sold.
f) The CRS must be evaluated by the ETC or a similar rating programme (including dynamic tests) and obtain a ‘good’ performance rating. This is the case for CRS in Appendix B.
g) For CRS not in APPENDIX B, it is the vehicle manufacturer’s responsibility to provide evidence of ‘good performance’ at the time of CRS recommendation. For Integrated CRS, booster seats with detachable backrests or booster cushions, no ETC testing is necessary.
h) Recommendation of ‘OEM rebranded’ CRS that are already on the installation list can be accepted. Information will be added to the results to highlight the equivalency between original installation list seat and ‘OEM rebranded’ seats to the consumer.
i) Euro NCAP will verify the problem-free installation of manufacturer’s recommended CRS for Q6 and Q10 on the 2nd row rear outboard positions only. The installations will be performed using the CRS installation mode and settings/adjustments recommended by the vehicle manufacturer for dynamic testing. Installation will be in the same way as detailed in Section 2.2. The other CRS recommended by the OEM will not be installed.
j) The CRS must either still be in production at the time of publication, or available for at least 12 months from the end of CRS production, or listed in Appendix B.

3.3 Vehicles with only two seats

3.3.1 Dynamic assessment

For two seater vehicles, specific vehicle provisions must be met as detailed in Section 2.1. All other requirements of the vehicle provisions and CRS installation are applicable, for example minimum score penalty to be applied. The requirements described in Section 3.1 are applicable to the passenger's seat only.

The dynamic assessment of two seater vehicles will be based on physical test data with the Q6 dummy sitting on the front passenger seat in both MPDB and AE-MDB impacts. The dummy shall be seated in an appropriate CRS as detailed in Section 2.3.

The dynamic performance in the MPDB impact will be based on physical test data only provided by the vehicle Manufacturer. Where the manufacturer provides no data, zero points will be awarded for the MPDB test. The official AE-MDB test, conducted by Euro NCAP, will include the Q6 dummy.

The head excursion in the MPDB impact will be measured from the H-point location of 5th female dummy with the front passenger seat adjusted in accordance with the user manual information for the seating position with child restraints. The passenger frontal airbag will be set by the manual switch according to the strategy in the vehicle handbook, in case of automatic deactivation systems, the airbag status will be determined by the vehicle.

3.4 Vehicles with limited rear space

Vehicles will be considered as having limited rear space when the child dummies cannot be installed in the frontal MPDB and/or side AE-MDB test without interference from the vehicle. Where this is the case it will be confirmed by the test laboratory.

The requirements described in Section 3.1 will be applied as normal. The assessment of dynamic performance will be based on Manufacturers data from test(s) with modified seating settings.

Where a manufacturer wishes to avoid being awarded zero points for the CRS dynamic assessments, the dynamic performance will be based on manufacturers data from test(s) with modified front seating positions. These tests shall be performed using the appropriate CRS with the front seats positioned to one notch forwards of contact with the dummy. The dummy pelvis shall be positioned in the last step after adjustment.

A 'hybrid rating' will be produced using the adult data from the official full scale test (performed without CRS but with compensation for the reference mass) and the child data from the additional tests. In the final vehicle rating, Euro NCAP will indicate that it was not possible to install the CRS and/or child dummy with and adult in the normal Euro NCAP front seat test position.

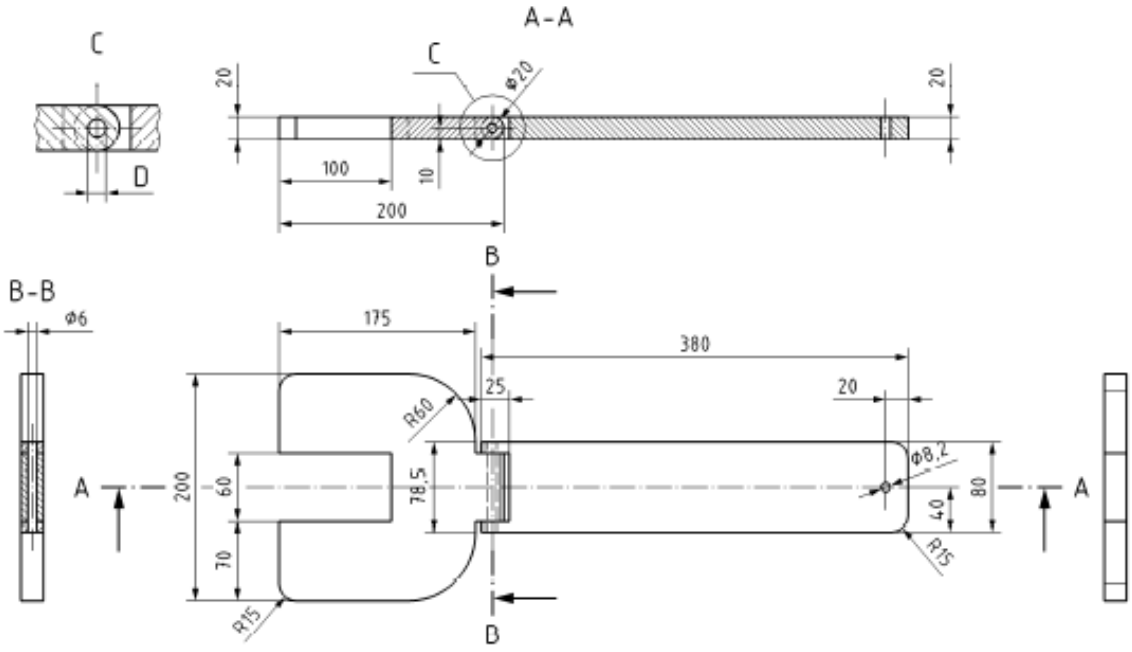
In order to reduce the test burden, it may be possible to install both of the child dummies in the official frontal MPDB impact as the driver and passenger's seats are more forward than in the AE-MDB test. Where this is the case, the official MPDB test will be performed as normal and the manufacturer need only provide in house data from an equivalent side impact. Any of the front or side MDB tests must be performed with both child dummies present to evaluate occupant interaction.

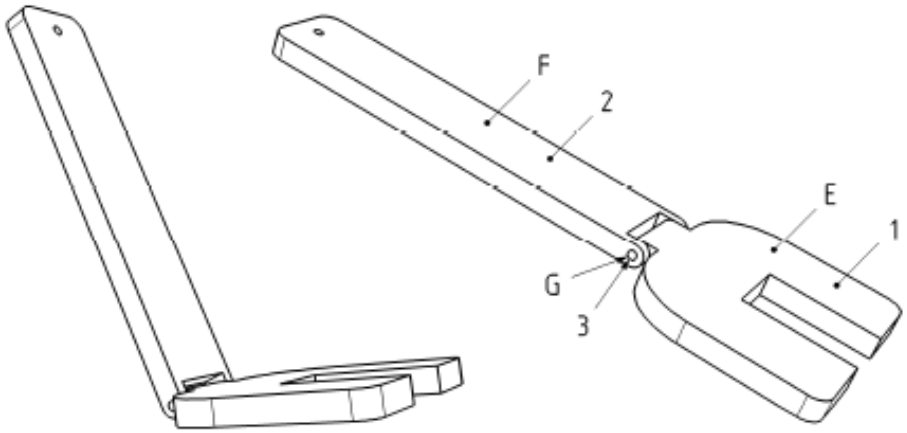
The tests must be equivalent to the Euro NCAP front and side impact tests and contain an equivalent level of instrumentation. Adult dummies are not required but their mass must be compensated for in the final test mass. It is the responsibility of the vehicle manufacturer to ensure that adequate film coverage of the impact, and specifically child head excursion and head containment, is provided.

Where the manufacturer provides insufficient or no data, **zero points** will be awarded for the dynamic child performance.

APPENDIX A ANGLE MEASURING DEVICE

A 9kg articulated steel device used to measure the angle between the seat and the backrest. Extract taken from pr EN1888:2012: Child care articles - Wheeled child conveyances – Safety requirements and test methods.





Key

- 1 part to be placed onto the seat surface made of steel
- 2 part to be placed onto the backrest surface made of steel
- 3 hinge pin made of steel
- E mass: 4495 ± 50 g
- F mass: 4501 ± 50 g
- G mass of hinge axle: 17 ± 0,5 g, length: 79,5 mm.
- total mass tolerance: (9 ± 0,1) kg dimensions tolerance: ± 2 mm
- All edges shall be chamfered

APPENDIX B CRS FOR INSTALLATION ASSESSMENT

The CRS to be used in the installation assessment are detailed below. Each CRS will be installed using the installation mode detailed.

CRS	Approval	Description & installation		
1 Maxi-Cosi Pebble 360	R129 40cm-83cm	Universal Belted Belt mounted, integral infant carrier Rearward facing **Installed on ALL passenger seating positions** Approval No: E1 030063	B _ _ _	ISO R2
2 Britax Römer Kidfix i-Size or Kidfix Pro M	R129 100cm-150cm	i-Size booster seat Belt mounted booster seat 8th adjustment position up from bottom, lowest position is #1 Forward facing **Installed on ALL passenger seating positions** Approval No: E1 030061	B _ _ _ 135cm stature	ISO B2
3 Cybex Solution T i-Fix	R129 100cm-150cm	Specific vehicle booster seat Belt mounted, without linear side impact protection Highest adjustment position Forward facing **Installed on ALL passenger seating positions** Approval No: E1 030036	B _ _ _ 150cm stature	Exceeding ISO B3
4 Cybex Solution T i-Fix	R129 100cm-150cm	Specific vehicle booster seat ISOFIX mounted, without linear side impact protection 8th adjustment position up from bottom, lowest position is #1 Forward facing **Installed on ALL seating positions equipped with ISOFIX anchorages** Approval No: E1 030036	B I _ _ 135cm stature	ISO B3

5 Cybex Solution T i-Fix	R129 100cm-150cm	Specific vehicle booster seat ISOFIX mounted, without linear side impact protection Highest adjustment position Forward facing **Installed on ALL seating positions equipped with ISOFIX anchorages** Approval No: E1 030036	B I _ _ 150cm stature	Exceeding ISO B3
6 Maxi-Cosi Pearl 360 & FamilyFix 360 base	R129 61cm-105cm	i-Size universal ISOFIX ISOFIX mounted with support leg Rearward facing **Installed on ALL i-Size seating positions** Approval No: E1 030062	_ I L _	ISO R2
7 Maxi-Cosi Pearl 360 & FamilyFix 360 base	R129 >15m & 76cm-105cm	i-Size universal ISOFIX ISOFIX mounted with support leg Forward facing **Installed on ALL i-Size seating positions** Approval No: E1 030062	_ I L _	ISO F2X
8 BeSafe iZi Kid X3 i-Size or iZi Kid X2 i-Size	R129 61cm-105cm ≤18.0kg	i-Size universal ISOFIX ISOFIX mounted with support leg, without SIP+ Rearward facing **Installed on ALL i-Size seating positions** Approval No: E4 000002	_ I L _	ISO R2
9 Britax Römer Trifix^2 i-size	R129 76cm-105cm	i-Size universal ISOFIX ISOFIX mounted with top-tether Forward facing **Installed on ALL ISOFIX & i-Size seating positions** Approval No: E4 030015	_ I _ S	ISO F2X

10 BeSafe iZi Flex FIX i-Size or Flex FIX 2	R129 100cm-135cm	i-Size booster seat ISOFIX mounted Height adjustment set up from the bottom with five complete rotations of the adjustment, lowest position is #1. Forward facing **Installed on ALL ISOFIX & i-Size seating positions** Approval No: 030017	B I _ _ 135cm stature	ISO B2
11 BeSafe Beyond	R129 61cm- 125cm	Specific vehicle ISOFIX ISOFIX mounted Headrest in highest position. Anti-rotation bar in upright position. Seat upright. Rearward facing **Installed on ALL ISOFIX & i-Size seating positions** Approval No: E4 030223	_ I L _	ISO R3
12 BeSafe Stretch	R129 61cm- 125 cm	Specific vehicle belted Belt mounted with lower tethers Headrest in highest position. Anti-rotation bar in most compact position. Seat upright. Rearward facing **Installed on ALL lower tether seating positions** Approval No: E4 040129	B _ L _ LT	ISO R3
13 Q6 tested CRS	R129	**Installed on positions 4 & 6**	B (I) _ _	
14 Q10 tested CRS	R129	**Installed on positions 4 & 6**	B (I) _ _	

APPENDIX C CRS MANUFACTURER CONTACTS

Britax Römer Franziska Winterhalder Technical Key Account Manager OEM Theodor-Heuss-Str. 9 89340 Leipheim Germany e-mail: Franziska.Winterhalder@britax.com Phone: + 49 160 94873883
Cybex Costandinos Visvikis Director Industrial Relations Child Safety Riedinger Str. 18 95448 Bayreuth Germany e-mail: costandinos.visvikis@cybex-online.com Phone: +49 921 78511 551
Dorel Europe Erik Salters Safety Research Department Korendijk 5, 5704 RD Helmond, the Netherlands e-mail: erik.salters@dorel.eu Phone: +31 492845745
HTS BeSafe Okke van Mourik Product Development manager HTS BeSafe Nieuwegracht 13 3512 LC Utrecht The Netherlands e-mail: mourik@hts.no Phone: +31 30 2316586