Vehicle Certification Agency

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Report Number: ESU447793 Issue: 0

Test Report: Restraining Devices for Child Occupants of Power-driven Vehicles

Legislation

UNECE Regulation 44.04 to Supplement 14

Test Details

Location of Test:	Britax Excelsior, 1 Churchill Way West, Andover, Hampshire, SP10 3UW, UK
Date of Test:	02-04 April 2019
VCA Representative(s):	Pete Bawn, Elizabeth Durell, Adam Laver
Manufacturer's Representative(s):	Graham Seymour
Reason for Test Report:	~~New approval~~ / Extension of approval / ~~Test report only~~

Manufacturer Details

Name and Address:	Britax Excelsior, 1 Churchill Way West, Andover, Hampshire, SP10 3UW, UK
Type & Commercial Description:	DUALFIX / DUALFIX^{2}R / DUALFIX II
Category:	Semi-universal ISOFIX, 0+ / 1

Conclusion

The above mentioned component was tested in accordance with the above mentioned legislation and was found to comply in all respects. This report relates only to the items tested.

Signature:

Name:	Elizabeth Durell
Position:	Type Approval Engineer
Date:	04 April 2019

List of Annexes

Annex	No of Pages	Subject
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Worst Case Rationale

Extension to approval to include various design improvements including reduced rebound bar height, thicker rotation plate, optimised headrest and optimised newborn insert. See manufacturer's documentation for detailed description and drawings.

Full set of tests carried out apart from Individual Components Testing which remains unchanged from previous.

Product Qualification testing was not required.

Note: Include information on variants and versions this report covers, as applicable. Supporting documents may be annexed to this report

Significant Interpretations, Alternative Test Methods, New Technologies

None

Tests Required

	Yes, NA, See Report … / Approval … / Annex …
Specification:	Yes
Application for Approval:	Yes
Markings:	Yes
Approval:	Yes
General Specifications:	Yes
Particular Specifications:	Yes
Individual Components of the Restraint:	Carry over ref ESN267189
Instructions:	Yes
Production Qualification Tests:	NA

Component Specification

Product Identification:	Part No. M101A
Commercial Names:	DUALFIX / DUALFIX^{2}R / DUALFIX II

Manufacturer's Documentation

Manufacturer's documentation is complete and reflects the agreed specification for the component tested, and covers all variants and versions agreed in the worst case rationale.	Yes

Facility and Equipment Checks

Calibration certificates checked and valid, recorded in the following table:	Yes

Equipment	Serial / Certificate No.	Calibration due*
P3/4 Dummy	ES009	01/08/2019

P3 Dummy	ES011	01/08/2019
Tri-axial accelerometer (P3)	ES146	02/05/2019
Tri-axial accelerometer (P3/4)	ES040	08/03/2020
Single axis accelerometer (sled)	ES201	04/11/2019
Velocity gate	ES020	27/04/2019
Force gauge (sled)	ES204	27/04/2019
Cushion	ES007	05/2019
25mm dummy spacer	ES035	13/10/2019
Single axis accelerometer (drop)	ES202	06/11/2019
Minidau	ES161	22/08/2019
Energy absorption headform	ES027	15/11/2019
Inclinometer	ES087	08/01/2020
Force gauge (turnover)	16-0124-07	09/2019
Buckle release machine	ES163	12/07/2019

**Specify calibrated date + (interval) or calibration due date.*

Test Requirements		Complies Yes / NA
Specification		
	Product name(s):	DUALFIX / DUALFIX^{2}R / DUALFIX II
2.1.	Mass group(s): *Note: May be more than one.*	0-9kg, 9-18kg
	Seat-facing direction:	Rearward of Forward
	Child restraint category:	Semi-universal
	Group category:	0+ and 1
	Class:	Inegral
	Additional symbols: *Note: Where applicable.*	Y
	ISOFIX Only	
	Size class:	B1, D
	Size category:	ISO/F2X, ISO/R2
	Specific Vehicle Category Only – Not applicable	
	Vehicle type:	
	Position(s) approved in vehicle:	
2.1.	Mass group(s): *Note: May be more than one.*	
	Seat-facing direction:	
	Child restraint category:	
	Group category:	
	Class:	
	Additional symbols: *Note: Where applicable.*	
	ISOFIX Only	

Size class:	
Size category:	
Specific Vehicle Category Only	
Vehicle type:	
Position(s) approved in vehicle:	

Application for Approval

3.2.	Application for approval, relating to each type of child restraint, is accompanied by:	Yes
3.2.1.	- Technical description of the child restraint, specifying the straps and other materials used together with the predicted and reproducible behaviour of load limiting devices. It shall be accompanied by drawings of the parts making up the child restraint and, in the case of retractors, installation instructions for these retractors and their sensing devices, declarations on toxicity (paragraph 6.1.5) and flammability (paragraph 6.1.6). The drawings show the position intended for the approval number and additional symbol(s) in relation to the circle of the approval mark. The description mentions the colour of the model submitted for approval.	
3.2.2.	- Four samples of the child restraint;	
3.2.3.	- 10 metre length of each category of strap used in the child restraint;	
3.2.4.	- Additional samples supplied at the request of the Technical Service;	
3.2.5.	- Instructions and details of packaging;	
3.2.6.	- In the case of carry-cots, if the carry-cot restraint may be used in combination with a number of types of carry-cots, the manufacturer provides a list of the latter.	
3.3.	Where an approved adult safety belt is used to secure the child restraint, the application stipulates the category of adult safety belt to be used, e.g. static lap belts.	NA

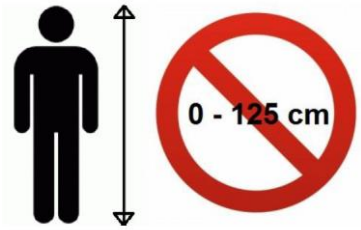
Markings

4.1.	Samples of the child restraint are clearly and indelibly marked with the manufacturer's name, initials or trade mark.	Yes
4.2.	One of the parts made of plastic (except the belt or harness) is clearly and indelibly marked with the year of production.	Yes
4.3.	If the restraint is to be used in combination with an adult safety belt, the correct routing of the webbing is clearly indicated by a drawing permanently attached to the restraint.	NA
4.3.	If the restraint is held in place by an adult safety belt, the routes of the	NA

	webbing are clearly marked on the product by colour coding. The colours for the safety belt route to be used when the device is installed forward-facing, is red, and when installed rear-facing, is blue. Devices that can be installed rearward and forward colours. The same colours are used on the labels on the device that illustrate the methods of use.	
4.3.	There is a clear differentiation between the intended routes for the lap section and the diagonal section of the safety belt. Indication such as colour coding, words, shapes, etc. distinguish each section of the safety belt.	NA
4.3.	In any illustration of the belt route on the product, the orientation of the child restraint relative to the vehicle is clearly indicated. *Note: Belt route diagrams that do not show the vehicle seat are not acceptable.*	NA
4.3.	Marking is visible with the restraint in the vehicle. For group 0 restraints, this marking is also visible with the child in the restraint.	Yes
4.4.	On the visible inner surface (including the side wing beside the child's head), in the approximate area where the child's head rests within the child restraint system, rearward facing restraints have the following label permanently attached. *Note: Information shown is a minimum.*	Yes

4.4.	Minimum size of label is 60 x 120 mm.	Yes

4.4.	Label is stitched to the cover around its entire perimeter and/or permanently bonded to the cover over its entire back surface. *Note: Any other form of attachment that is permanent and not liable to removal from the product or to becoming obscured is acceptable. Flag type labels are specifically prohibited.*	Yes
4.4.	If sections of the restraint or any accessories supplied by the child restraint system manufacturer are able to obscure the label, an additional label is required. One warning label is permanently visible in all situations when the restraint is prepared for use in any configuration.	Yes
4.5.	In the case of child restraints that can be used forward and rear-facing, the following words are included: - 'IMPORTANT – DO NOT USE FORWARD FACING BEFORE THE CHILD'S WEIGHT EXCEEDS ……. (Refer to instructions).'	Yes
4.6.	In the case of child restraints with alternative belt routes, the alternative load bearing contact points between the child restraint and the adult safety belt is permanently marked. This marking indicates that it is the alternative belt route and conforms to the above coding requirements for forward and rearward facing seats.	NA
4.7.	If the child restraint offers alternative load bearing contact points, the marking required in paragraphs 4.3 includes an indication that the alternative belt route is described in the instructions.	NA
	ISOFIX Marking	
4.8.	If the product includes ISOFIX attachments, the following information is permanently visible to someone installing the restraint in a vehicle: - ISOFIX logo followed by the letters appropriate for the ISOFIX size classes into which the product fits; - Essential relevant steps needed for making the seat ready for installation; - Explanation of the position, function and interpretation of any indicators; - Symbol indicating the position and, if necessary, the routing of top tethers or other means of limiting seat rotation requiring action by the user; - Indication of the adjustment of ISOFIX latches and the top tether, or other means of limiting seat rotation requiring action by the user; - Where necessary, a symbol referencing to the child restraint user instructions and to the location of that document.	Yes
4.9	**Marking of a booster cushion without backrest**	
	The below label is permanently visible to someone installing the restraint in a vehicle and is masked when the booster cushion is used with its removable backrest	NA



Approval

5.4.	The following particulars are affixed in a suitable space to every child restraint:	Yes
5.4.1.1.	- 'E11' symbol;	
5.4.1.2.	- Approval number;	
5.4.2.1.	- Category, indicated by the word 'universal', 'restricted', 'semi-universal', or 'vehicle specific';	
5.4.2.2.	- Mass range for which the child restraint has been designed, namely: 0 - 10 kg; 0 - 13 kg; 9 - 18 kg; 15 - 25 kg; 22 - 36 kg; 0 - 18 kg; 9 - 25 kg; 15 - 36 kg; 0 - 25 kg; 9 - 36 kg; 0 - 36 kg;	
5.4.2.3.	- 'Y' symbol, in the case of a device containing a crotch strap;	
5.4.2.4.	- 'S' symbol, in the case of a special needs restraint.	
5.6.	Particulars above are clearly legible and indelible, and affixed by means of a label or direct marking, which is resistant to wear.	Yes

General Specifications

Positioning and Securing on the Vehicle

6.1.2.	In the case of a rear-facing restraint used in conjunction with a specific vehicle, the design ensures that support for the child's head is provided whenever the restraint is ready to use. This is determined by a line perpendicular to the seat-back through the eye-line, the point of intersection being at least 40 mm below the start of the radius of such a head support.	NA
6.1.3.	According to the category that it belongs to, the child restraint is secured to the vehicle structure or to the seat structure, as appropriate.	Yes
6.1.4.	Booster cushion is restrained by either an adult belt, using the test specified in paragraph 8.1.4, or by separate means.	NA
6.1.5.	The Child Restraint System manufacturer declares in writing that the toxicity of materials used in the manufacture of restraint systems and accessible to the restrained child is in conformity with the relevant parts of EN 71-3+A1:2014. *Note: Tests confirming the validity of the declaration may be carried out at the discretion of the test authority. This item does not apply to restraint devices of groups II and III.*	Yes

6.1.6.	The flammability of Child Restraint Systems submitted for approval is assessed by one of the following methods: - Method 1 only for non-built-in Child Restraint Systems - ~~Method 2 only for vehicle specific built-in Child Restraint Systems~~ * *Strikethrough, as appropriate.*	Yes
	Method 1	
	The Child Restraint System manufacturer declares in writing that the flammability of materials used to manufacture the Child Restraint System is in conformity with the method of section 5.4 of EN 71-2:2011+A1:2014 with a maximum rate of spread of flame of 30 mm/s *Note: Tests confirming the validity of the declaration may be carried out at the discretion of the Technical Service.* *Note: Where fabrics are assembled together → tested as a composite* *When different materials are connected together intermittently → tested separately*	Yes
	Method 2	
	The applicant declares in writing that when testing materials in accordance with Annex 24 of this regulation, the materials used do not burn, nor transmit a flame front across its surface, at a rate of more than 100 mm per minute. *Note: Tests confirming the validity of the declaration may be carried out at the discretion of the Technical Service.* *Note: Each material used conforms to these requirements; however, the requirement concerning transmission of a flame front shall not apply to a surface created by cutting a test specimen for purposes of testing pursuant to Annex 23.* *Note: If a material stops burning before it has burned for 60 seconds from the start of timing, and has not burned more than 51 mm from the point where the timing was started, it shall be considered to meet the burn-rate requirement specified above.*	NA
	The requirements are met in both the "in-use" and in the "stowed" positions of the built-in Child Restraint System.	NA
6.1.8.	Child restraint systems of the 'universal' category, (except ISOFIX universal), have a main load-bearing contact point between the child restraint and the adult safety belt. This point is not less than 150 mm from the Cr axis in all adjustment configurations. *Note: Additional alternative belt routes are allowed.*	NA
6.1.8.	Where an alternative belt route exists, the manufacturer makes specific reference to this in the user instructions.	NA
6.1.9.	If the adult belt is required to secure a 'universal' category child restraint, with the child restraint in the installed position, there is no tension in the belt apart from that exerted by the retractor. Where the retractor belt is used, at least 150 mm of belt remains on the spool.	NA

Note: Dummy is not installed unless the design of the restraint is such that installation of a dummy would increase the amount of belt used.

6.1.10.	Child restraints of group 0 and 0+ category are not used forward-facing.	Yes
6.1.11.	Child restraint systems of groups 0 and 0+ (except carry-cots) belong to the integral class.	Yes
6.1.12.	Child restraint systems of group I belong to the integral class, unless they are fitted with an impact shield of Class B, as defined in paragraph 2.7 of this regulation.	Yes
6.1.13	Booster cushion without backrest is only type approved as Child Restraint Systems of Group III *Note: defined in paragraph 2.1.1.5. (Mass range from 22 kg to 36 kg)*	NA
	Configuration	
6.2.1.1.	Restraint gives the required protection in any intended position of the restraint system.	Yes
6.2.1.2.	Child can be easily and quickly installed, and removed.	Yes
6.2.1.3.	If it is possible to change the inclination of the restraint, it requires a deliberate hand action, not manual readjustment of the straps.	Yes
6.2.1.4.	Groups 0, 0+ and I restraint systems keep the child so positioned as to give the required protection, even when the child is asleep.	Yes
6.2.1.5.	All forward facing group I restraints incorporating an integral harness belt system have a crotch strap provided.	Yes
6.2.2.	For groups I, II and III, all restraint devices utilising a ‘lap strap’ positively guide the ‘lap strap’ to ensure that the loads transmitted are through the pelvis.	NA
6.2.2.1.	With the crotch strap attached and in its longest position, if adjustable, it is not possible to adjust the ‘lap strap’ to lie above the pelvis of both the smallest and largest dummy within the mass groups covered by the approval.	NA
6.2.2.1.	For all forward-facing restraints, it is not possible to adjust the ‘lap strap’ to lie above the pelvis of both the smallest and largest dummy within the mass groups covered by the approval.	NA
6.2.3.	All straps of the restraint are placed so that they cannot cause discomfort to the wearer in normal use or assume a dangerous configuration. The distance between the shoulder straps in the vicinity of the neck is at least the width of the neck of the appropriate manikin.	Yes

6.2.4.	Design is such that compression loads are not imposed on the crown of the child's head in the event of a collision.			Yes
6.2.4.1.	Y-shaped belts are only used in rearward-facing and lateral facing child restraint systems (carry-cots).			Yes
6.2.5.1.	Child restraint is designed and installed as to minimise the danger of injury through sharp edges or protrusions.			Yes
6.2.5.2.	There are no sharp edges of protrusions liable to cause damage to vehicle seat covers or to the occupants' clothing.			Yes
6.2.5.3.	Weak parts of the child's body (e.g. abdomen, crotch, etc.) are subjected to supplementary inertial forces.			Yes
6.2.5.4.	Rigid parts do not, at points where they are in contact with straps, exhibit sharp edges capable of abrading the straps.			Yes
6.2.6.	Any part made separable, to enable components to be fixed and detached, is designed to avoid any risk of incorrect assembly and use, as far as possible.			Yes
6.2.7.	For restraints in groups I and II with a chair back, the internal height of this component is at least 500 mm:	555	mm	Yes
6.2.8.	Only automatically locking or emergency locking retractors are used.			NA
6.2.12.	In the case of booster cushions, the ease with which the straps and tongue of an adult belt pass through the fixture points is examined. The fixed buckle is not allowed to pass through the fixture points of booster seats or to permit a lie of belt completely different from that of the test trolley.			NA
6.2.13.	If the child restraint is designed for more than one child, each restraint system is fully independent with regard to load transfer and adjustments.			NA
6.2.14.	Child restraints incorporating inflatable elements are designed so that the conditions of use (pressure, temperature, humidity) have no influence on their ability to comply with the requirements of this regulation.			NA
	ISOFIX Restraint Specifications			
6.3.1.1.	Maximum lateral, downward and rearward dimensions for the ISOFIX child restraint system are not exceeded.			Yes

6.3.1.2.	Mass of ISOFIX child restraint system of 'universal' and 'semi-universal' categories and of mass group 0, 0+ and 1 does not exceed 15 kg.	Yes
6.3.2.-6.3.4.	ISOFIX, and ~~ISOFIX top tether~~ attachments and partial latching indication requirements are met.	Yes

Particular Specifications

Resistance to Corrosion

7.1.1.1.	Complete child restraint, or parts liable to corrosion, has been subjected to the corrosion test specified in paragraph 8.1.1.	Yes
7.1.1.2.	After the corrosion test, no signs of deterioration likely to impair the proper functioning of the child restraint, and no significant corrosion, are visible to the unaided eye.	Yes

Energy Absorption

7.1.2.1.	All parts of the restraint within the head impact area have a peak acceleration of less than 60 g, when measured in accordance with Annex 17.	Yes

Area under Consideration	Maximum Value (g)
On absorbing panel at the rear of the fixture	30.8
On absorbing panel at the left side of the fixture	21.9
On absorbing panel at the right side of the fixture	22.0

Overturning

7.1.3.1.	Child restraint is tested as prescribed in paragraph 8.1.2; the manikin did not fully eject from the device at any point during the test.	Yes
7.1.3.1.	In addition, when the test bench is in the upside-down position, the manikin's head does not move more than 300 mm from its original position in a vertical direction relative to the test bench, once the applied load has been removed.	Yes
8.1.2.	Test procedure specified in section 8.1.2 followed, including additional mass attached to the dummy. *Note: No dummy adjustments permitted during test duration.*	Yes

Test Results – P0 Dummy

Device Facing	Dummy Mass	Vertical Movement (mm)			Rotation
		Start	Finish	S	
Lateral	P0	0	50	5deg/sec	
		0	67	5deg/sec	
Forward/ Rearward		0	67	5deg/sec	
		0	65	5deg/sec	

Test Results – P3 Dummy

Device Facing	Dummy Mass	Vertical Movement (mm)			Rotation
		Start	Finish	S	
Lateral	P3	0	38	5deg/sec	
		0	36	5deg/sec	
Forward/ Rearward		0	44	5deg/sec	
		0	31	5deg/sec	

Dynamic Test Results

	Dummy type(s):	P0, P3/4, P3
	Type of testing device used:	Deceleration
7.1.4.	Direction and support: *(When rear-facing)*	Forward and Rearward facing
	Total velocity change: *(Acceleration rigs)*	Not applicable

Test Matrix

T1 Forward facing, P3/4, forward direction, upright, ISOFIX, short leg
T2 Rearward facing, P3/4, forward direction, upright, ISOFIX, short leg
T3 Forward facing, P3, forward direction, reclined, ISOFIX, short leg
T4 Rearward facing, P3, forward direction, reclined, ISOFIX, short leg
T5 Forward facing, P3/4, forward direction, reclined, ISOFIX, long leg
T6 Rearward facing, P3/4, forward direction, reclined, ISOFIX, long leg
T7 Forward facing, P3, forward direction, upright, ISOFIX, long leg
T8 Rearward facing, P3, forward direction, upright, ISOFIX, long leg
T9 Rearward facing, P0, forward direction, reclined, ISOFIX, long leg
T10 Rearward facing, P0, forward direction, reclined, ISOFIX, long leg, new-born insert (NBI)
T11 Forward facing, P3, forward direction, upright, ISOFIX, misuse test
T12 Rearward facing, P3, rearward direction, upright, ISOFIX, short leg

Sled Tests – Forward-facing Seats*					
Test name		T1	T3	T5	Limit
Dummy type		P3/4	P3	P3/4	
Speed (km/h)		49.45	49.18	49.18	
Stopping distance (mm)		616	613	607	
Anchorage		ISOFIX	ISOFIX	ISOFIX	
Seat position		Upright	Reclined	Reclined	
Seat facing		Forward	Forward	Forward	
Impact type		Front	Front	Front	
Support leg length		Short	Short	Long	
Total velocity change *(Acceleration rigs only)*		NA	NA	NA	*50 - 52 km/h*
Maximum head displacement/time (mm)/(ms) *(Max. time duration 300 ms)*	Horizontal	388/88	394/94	406/90	*Forward facing non isofix≤550 mm Forward facing isofix≤500 mm*
	Vertical	622/50	667/50	603/52	*800 mm (840 mm for P10 on booster seat)*
Resultant chest acceleration (g) 3 ms value		43.19	39.11	37.06	*55 g*
Vertical chest acceleration (g) 3 ms value		19.22	25.14	23.81	*30 g*
Lap belt does not pass fully beyond the pelvic structure of the dummy		NA	NA	NA	*Video (To max. head horizontal)*
Visible signs of penetration in abdomen		No	No	No	*(None Assessment for P0/P1.5 Dummy)*
Buckle opening under load (N)		68	74	73	*Less than 80N*

Sled Tests – Forward-facing Seats*					
Test name		T7	T11		Limit
Dummy type		P3	P3		
Speed (km/h)		48.91	48.91		
Stopping distance (mm)		618	610		
Anchorage		ISOFIX	ISOFIX		
Seat position		Upright	Upright		
Seat facing		Forward	Forward		
Impact type		Front	Front		
Support leg length		Long	Misuse		
Total velocity change *(Acceleration rigs only)*		NA	NA		*50 - 52 km/h*
Maximum head displacement/time (mm)/(ms) *(Max. time duration 300 ms)*	Horizontal	413/90	548/96		*Forward facing non isofix≤550 mm Forward facing isofix≤500 mm*
	Vertical	710/52	715/50		*800 mm (840 mm for P10 on booster seat)*
Resultant chest acceleration (g) 3 ms value		40.30	41.20		*55 g*

Vertical chest acceleration (g) 3 ms value	29.77	27.59		*30 g*
Lap belt does not pass fully beyond the pelvic structure of the dummy	NA	NA		*Video (To max. head horizontal)*
Visible signs of penetration in abdomen	No	No		*(None Assessment for P0/P1.5 Dummy)*
Buckle opening under load (N)	69	68		*Less than 80N*

Sled Tests – Rearward-facing Seats* Forward Impact					
Test name		T2	T4	T6	Limit
Dummy type		P3/4	P3	P3/4	
Speed (km/h)		49.45	49.18	49.18	
Stopping distance (mm)		611	608	607	
Anchorage		ISOFIX	ISOFIX	ISOFIX	
Seat position		Upright	Reclined	Reclined	
Seat facing		Rearward	Rearward	Rearward	
Impact type		Front	Front	Front	
Support leg length		Short	Short	Long	
Total velocity change *(Acceleration rigs only)*		NA	NA	NA	*32 - 34 km/h*
Maximum head displacement/time (mm)/(ms) *(Max. time duration: 300 ms)*	Horizontal forward	550/70	634/72	580/62	*AB or FG#*
	Vertical	632/196	691/180	643/194	*DA/DF (800 mm)*
Resultant chest acceleration (g) 3 ms value		40.08	40.25	43.99	*55 g*
Vertical chest acceleration (g) 3 ms value		11.22	23.88	21.02	*30 g*
Lap belt shall not pass fully beyond the pelvic structure of the dummy		NA	NA	NA	*Video (To max. head horizontal)*
Visible signs of penetration in abdomen		No	No	No	*(None Assessment for P0/P1.5 Dummy)*
Buckle opening under load (N)		71	70	73	*Less than 80N*

Sled Tests – Rearward-facing Seats* Forward Impact				
Test name	T8	T9	T10	Limit
Dummy type	P3	P0	P0	
Speed (km/h)	49.18	48.91	49.18	
Stopping distance (mm)	625	618	618	
Anchorage	ISOFIX	ISOFIX	ISOFIX	
Seat position	Upright	Reclined	Reclined (NBI)	
Seat facing	Rearward	Rearward	Rearward	
Impact type	Front	Front	Front	
Support leg length	Long	Long	Long	
Total velocity change *(Acceleration rigs only)*	NA	NA	NA	*32 - 34 km/h*

Maximum head displacement/time (mm)/(ms) *(Max. time duration: 300 ms)*	Horizontal forward	622/78	NA-Pass	NA-Pass	*AB or FG#*
	Vertical	671/170	NA-Pass	NA-Pass	*DA/DF (800 mm)*
Resultant chest acceleration (g) 3 ms value		37.66	NA	NA	*55 g*
Vertical chest acceleration (g) 3 ms value		17.32	NA	NA	*30 g*
Lap belt shall not pass fully beyond the pelvic structure of the dummy		NA	NA	Na	*Video (To max. head horizontal)*
Visible signs of penetration in abdomen		No	NA	NA	*(None Assessment for P0/P1.5 Dummy)*
Buckle opening under load (N)		74	72	76	*Less than 80N*

Sled Tests – Rearward-facing Seats* Rear Impact					
Test name		T12			Limit
Dummy type		P3			
Speed (km/h)		30.82			
Stopping distance (mm)		270			
Anchorage		ISOFIX			
Seat position		Upright			
Seat facing		Rearward			
Impact type		Rear			
Support leg length		Short			
Total velocity change: *(Acceleration rigs only)*		NA			*32-34 km/h*
Maximum head displacement/time (mm)/(ms) *(Max time duration 300 ms)*	Horizontal rearward	Not past DE line	/	/	*DCr or DE#*
	Vertical	Not past DF line	/	/	*DF (800 mm)*
Resultant chest acceleration (g) 3 ms value		44.19			*55 g*
Vertical chest acceleration (g) 3 ms value		22.84			*30 g*
Lap belt does not pass fully beyond the pelvic structure of the dummy		NA			*Video (To max head horizontal)*
Visible signs of penetration in abdomen		No			*(None Assessment for P0/P1.5 Dummy)*
Buckle opening under load (N)		78			*Less than 80N*

#Supported by dashboard AB 700 mm; Not supported by dashboard group 0/carry-cot AB 600 mm; Not supported by other category 700 mm.

	Camera parallax calibration checked.	Yes
	CRS Condition	
7.1.4.1.4	During the dynamic tests, no part of the child restraint actually helping to keep the child in position shall break, and no buckles or locking system or displacement system or support leg shall break or	Yes

	release or collapse, except where identified as a load limiting device.	
7.1.4.1.8	During the dynamic tests, the standard safety-belt used to install the child restraint shall not become disengaged from any guide or locking device utilised for the test conducted however, for the shoulder portion of the standard safety-belt this shall be judged up to the moment that the maximum horizontal head excursion of the dummy is reached. Furthermore during the dynamic test of a non-integral child restraint, the limit of acceptable movement of the shoulder belt is that the lower edge of the shoulder portion of the standard safety-belt shall not be lower than the dummy's elbow at the point of maximum horizontal head excursion of the dummy	Yes
	Chest Acceleration	
7.1.4.2.1.	Resultant chest acceleration does not exceed 55 g limit. *Note: Not applicable to new-born manikin.*	Yes
7.1.4.2.2.	Vertical component of the acceleration from the abdomen towards the head does not exceed 30 g limit.	Yes
	Abdominal Penetration	
7.1.4.3.1.	There are no visible signs of penetration of the modelling clay of the abdomen caused by any part of the restraining device. *Note: No requirement for new-born manikin and P1.5 Dummy.*	Yes
6.2.2.2.	During the dynamic test, the lap belt does not pass fully beyond the pelvic structure of the dummy during the period prior to maximum horizontal head excursion. Assessment is carried out using high speed video imaging.	NA
	Manikin Displacement	
7.1.4.4.1.	Child restraints of the ‘universal’, ‘restricted’ and ‘semi-universal’ categories:	
7.1.4.4.1.	Value of head displacement: See tables ms	Yes
7.1.4.4.1.	Horizontal value does not exceed limit.	Yes
7.1.4.4.1.	Vertical value did not exceed limit.	Yes

Individual Components of the Restraint - Read across to E11 44R040257

Restraint of Booster Cushions

8.1.4.	With the lower torso block, described in Annex 22, Figure 1, fitted using the test description in Annex 21, the test sample meets the test 250 ± 5 N load requirements.	NA

Instructions

15.	Manufacturer's instructions and point of sale information meets all of the relevant text requirements detailed under paragraphs 15.1 to 15.3.	Yes

Production Qualification Tests – Not applicable – testing not required

Remarks

Note: VCA apply measurement uncertainty to calibrated items but not test results.