SAFETY COMPLIANCE TESTING FOR FMVSS 213 CHILD RESTRAINT SYSTEMS

Britax Child Safety Inc. Boulevard, Model E9LX66C

PREPARED BY: MGA Research Corporation 11480 Robertson Drive Manassas, VA 20109



Report Date: April 6, 2018

FINAL REPORT

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Approved By:	Jay Bullington
Approval Date: _	<u>April 6, 2018</u>

FINAL REPORT ACCEPTANCE BY OVSC:

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Accepted By:	FRASER	Date: 2019.05.22 12:06:39 -04'00'

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SECTION 1 PURPOSE AND TEST PROCEDURE

PURPOSE

The tests performed are part of the safety compliance program for the National Highway Traffic Safety Administration (NHTSA) by MGA Research Corporation under Contract No. DTNH22-12-D-00274. The purpose of the testing is to determine whether production child restraint systems meet the minimum inspection and dynamic test requirements of TP-213-10, "Child Restraint Systems".

TEST PROCEDURE

The MGA Research Corporation Test Procedure for FMVSS 213, submitted and approved by the Office of Vehicle Safety Compliance, National Highway Traffic Safety Administration, contains the specific procedures used to conduct this test. This procedure shall not be interpreted to be in conflict with any portion of FMVSS 213 and amendments in effect as noted in the applicable contract.

SECTION 2 INTRODUCTION AND SUMMARY

This report presents all of the FMVSS 213 compliance inspection and test data obtained on the Britax Child Safety Inc. Boulevard, Model E9LX66C, child restraint system. The restraint was dynamically tested in the following configurations:

- Newborn Infant, rear facing, other configuration, lap belt, tether free, and reclined
- 12 month old, CRABI, rear facing, other configuration, lap belt, tether free, and reclined
- 12 month old, CRABI, forward facing, other configuration, lower anchor, tether, upright
- 3 year old, Hybrid III, forward facing, other configuration, lower anchor, tether, upright
- 6 year old, Hybrid III, forward facing, other configuration, lap belt, tether, and upright
- 6 year old weighted, Hybrid III, forward facing, other configuration, lap belt, tether, and upright

Inversion testing was performed in both the forward Y-axis rotation and in the lateral X-axis rotation for the following configurations:

- Newborn Infant, rear facing, other configuration, lap belt, tether free, and reclined
- 12 month old, CRABI, forward facing, other configuration, lap belt, tether free, and upright
- 3 year old, Hybrid III, forward facing, other configuration, lap belt, tether free, and upright

The inspection and testing of the Britax Child Safety Inc., Boulevard, Model E9LX66C child restraint was conducted in accordance with TP-213-10 in the configurations and conditions documented in this report and no test failures were identified.

Restraint system inspection, dynamic sled testing, and inversion testing were performed by MGA Research Corporation in Manassas, Virginia. Compliance test data sheets for all tests are found in Section 5 of this report.

SECTION 3 CHILD RESTRAINT SYSTEM IDENTIFICATION

Report No. 213-MGA-18-006

Manufacturer:	Britax Child Safety Inc.
Place of Manufacture per S5.5.2(d):	Fort Mill, SC
Model No.	E9LX66C
Group No.	2

	Item Code	006-BE9LX66C-01-NINRN2FR
1	Date of Manufacture	09 2017
	Sled Test No.	V18014F
	Item Code	006-BE9LX66C-02-12CRN2FR
2	Date of Manufacture	09 2017
	Sled Test No.	V18014R
	Item Code	006-BE9LX66C-03-6H3FN2TU
3	Date of Manufacture	09 2017
	Sled Test No.	V18022F
	Item Code	006-BE9LX66C-04-3H3FNLTU
4	Date of Manufacture	09 2017
	Sled Test No.	V18022R
	Item Code	006-BE9LX66C-05-12CFNLTU
5	Date of Manufacture	09 2017
	Sled Test No.	V18045F
	Item Code	006-BE9LX66C-06-6W3FN2TU
6	Date of Manufacture	09 2017
	Sled Test No.	V18045R

SECTION 4

DYNAMIC TEST RESULTS DATA SUMMARY

Child Restraint System - Britax Child Safety Inc. / Boulevard / E9LX66C										
Item Code	Sled Test No.	Dummy and CRS Test Mode*	Lower Anchors Used? Y/N	Tether Used? Y/N	HIC (1000 max)	Chest g clip (60 g max)	Head Excursion (720 mm max - or 813 mm max w/o tether)	Knee Excursion (915 mm max)	Seat Back Angle (70 deg max)	Pass/ Fail
006- BE9LX66C- 01- NINRN2FR	V18014F	NIN (RF) (R)	N	N	N/A	N/A	N/A	N/A	59	Pass
006- BE9LX66C- 02- 12CRN2FR	V18014R	12 mo (RF) (R)	N	N	316	42	N/A	N/A	61	Pass
006- BE9LX66C- 03- 6H3FN2TU	V18022F	6 yo (FF) (U)	N	Y	462	51	639	813	N/A	Pass
006- BE9LX66C- 04- 3H3FNLTU	V18022R	3 yo (FF) (U)	Y	Y	280	37	563	659	N/A	Pass
006- BE9LX66C- 05- 12CFNLTU	V18045F	12 mo (FF) (U)	Y	Y	270	44	468	555	N/A	Pass
006- BE9LX66C- 06- 6W3FN2TU	V18045R	6 yo weighted (FF) (U)	N	Y	N/A	N/A	N/A	N/A	N/A	Pass

*Test Mode:

RF- Rear facing

FF- Forward facing SF- Side facing

U- Upright R- Reclined

B- Backed Booster

N- No Back Booster

F- Flat

SECTION 5 DATA

LABELING

(FMVSS 213, S5.3, S5.5)

Report No.:	213-MGA-18-006	Model No.:	E9LX66C
Test Date:	1/26/2018		

Requirement	Pass/Fail
The labels on the subject child restraint system were inspected and compared to the requirements of FMVSS No. 213 S5.3.1(b) and S5.5, as applicable.	Pass (1)

Remarks:

(1) S5.5.2(c) The word "in" is omitted in the required statement.

Photographs of the labels are included in Section 9.

Recorded by: Matthew James

PRINTED INSTRUCTIONS FOR PROPER USE

(FMVSS 213, S5.6)

Report No.:	213-MGA-18-006	Model No.:	E9LX66C
Test Date:	1/26/2018		

Requirement	Pass/Fail
The printed instructions accompanying the subject child restraint system were inspected and compared to the requirements of FMVSS No. 213 S5.6, as applicable.	Pass (1)

Remarks:

(1) S5.6.1.12(b) On page 15 of the User Guide, the forward-facing diagram is not labeled with the statement required by S5.5.2(I)(3)(i). Visible at the beginning of the installation instructions on page 14, the statement is printed "Do not install forward-facing with the lower anchors for a child weighing more than 50 lbs (22.7 kg)."

Recorded by: Matthew James

REGISTRATION FORM

(FMVSS 213, S5.8)

Report No.:	213-MGA-18-006	Model No.:	E9LX66C
Test Date:	1/26/2018		

Requirement	Pass/Fail
The printed registration form accompanying the subject child restraint system and the electronic registration form were inspected and compared to the requirements of FMVSS No. 213 S5.8.	Pass (1)

Remarks:

(2) S5.8.1(b)(2) The word "registration" is omitted from "manufacturer's registration website" and the phrase "Tear off and mail this part" is replaced with "Tear here" on the attached registration form)

Recorded by: Matthew James

MAXIMUM CHILD WEIGHT FOR LOWER ANCHOR USE

(S213, S5.5.2(I)(3))

Report No.:	213-MGA-18-006	Model No.:	E9LX66C
Test Date:	1/26/2018		

For child restraints manufactured on or after February 27, 2015:

Installation Mode	A Max Child Weight is Required for this Installation Mode (Y or N)	Installation Diagram Shown (Y or N)	Max Child Weight Indicated on Installation Diagram (lb)
Rear Facing	N	Y	40
Forward Facing	Y	Y	50

CRS Weight	Child Weight (CW)	Rounded CW Limit	Calculated CW	Rounded CW
(lb)	(lb)	S5.5.2(I)(3)(i)	15 < CW ≤ 20	20
			20 < CW ≤ 25	25
	Rear Facing		25 < CW ≤ 30	30
	60-CRS Weight = 41.6	45	30 < CW ≤ 35	35
			35 < CW ≤ 40	40
18.4	Forward Facing 65-CRS Weight = 46.6		40 < CW ≤ 45	45
		50	45 < CW ≤ 50	50
		50	50 < CW ≤ 55	55
			55 < CW ≤ 60	60

Section	Requirement	Pass/Fail
S5.5.2(I)(3)(i)	A maximum child weight is required on an installation diagram when the CRS+child weight is greater than 65 lb for CRS that are used with the internal harness and installed with lower anchors. The maximum weight on the label conforms to the limits established in S5.5.2(I)(3)(i)	Pass
S5.5.2(I)(3)(ii)	For CRS that can be used both forward and rear-facing, either: (1) separate diagrams are provided and labeled; or (2) only one diagram is applicable, provided, and labeled; or (3) two diagrams are applicable and the diagram shown contains the lesser of the permitted weights	Pass

Remarks:

None

Recorded by: Matther James

ATTACHMENT TO ANCHORAGE SYSTEM

(S213, S5.9)

Report No.:	213-MGA-18-006	Model No.:	E9LX66C
Test Date:	1/26/2018		

Section	Requirement	Pass/Fail
	This add-on child restraint system (excluding car beds, harnesses, and belt-positioning seats) has a permanently attached anchorage system having components that enable the restraint to be securely fastened to the lower anchorages.	Pass
S5.9(a)	The anchorage system has components which can only be removed with a tool, such as a screwdriver.	Pass
	Note: If this is a rear-facing child restraint system with a detachable base, then only the base is required to have the components.	N/A
S5.9(b)	This child restraint system has components for attaching the system to a tether anchorage, and those components include a tether hook that conforms to the configuration and geometry specified in Figure 22.	Pass
S5.9(c)	This child restraint system has adjustable components for attaching the system to a tether anchorage or to lower anchors to allow the restraint to be tightened to the vehicle.	
S5.9(d)	If the anchorage system on this child restraint system has components, other than hooks, that enable the restraint to be securely fastened to the lower anchorages, it provides either an indication when each attachment to the lower anchorage becomes fully latched or attached, or provides a visual indication that all attachments to the lower anchorages are fully latched or attached.	Pass
	Visual indications are detectable under normal daylight lighting conditions.	N/A

Remarks:

None

Recorded by: Matther James

INSTALLATION

(S213-S5.3)

Report No.:	213-MGA-18-006	Model No.:	E9LX66C
Test Date:	1/26/2018		

Section			Pass/Fail				
S5.3.1	Add-on child res	te	Pass				
S5.3.1(a)	Except for components designed to attach a child restraint anchorage system, this add-on child restraint does not have any means designed for attaching the system to a vehicle seat cushion or vehicle seat back and any component (except belts) that is designed to be inserted between the vehicle seat cushion and vehicle seat back.						Pass
S5.3.1(b)	Harnesses manufactured for use on school bus seats must meet S5.3.1(a) unless labeled appropriately. Refer to the labeling data sheet for the specific requirements.						N/A
	This child restraint system is capable of being installed as required by Table S5.3.2 of FMVSS No. 213. Shaded sections indicate installation means required by standard						
		Lap Belt	Lap Belt & Tether (if needed)	Lower Anchors	Lap & Shoulder Belt	Seat back Mount	
S5.3.2	Harnesses per S5.3.1(b)(1)-(3) and Fig. 12						N/A
001012	Other Harnesses						N/A
	Car Beds						N/A
	Rear-Facing Restraints	Х		Х	Х		Pass
	Belt Positioning Seats						N/A
	Other	X X X X					
S5.3.3	If a car bed, this child restraint system is designed to be installed laterally.					N/A	

Remarks:

None

Recorded by: Matther James

MINIMUM HEAD SUPPORT SURFACE

(FMVSS 213, S5.2.1)

Report No.:	213-MGA-18-006	Model No.:	E9LX66C
Test Date:	1/26/2018		

Section	Requirement					
S5.2.1.2	The child restraint system is exempt from S5.2.1.1 if it is a forward facing restraint and the target points on either side of the dummy's head (using the largest test dummy specified in S7, excluding the 6-year-old) is below the top of the test seat.					
	Maximum Recommended Child Weight	Minimum Seat Back Height Required				
S5.2.1.1.(a)	≤ 18 kg (39.7 lb)	500 mm (19.7 in)				
	> 18 kg (39.7 lb)	560 mm (22.0 in)				
	Side Wing Depth	Minimum Back Support Width				
S5.2.1.1(b)	< 102 mm (4.0 in)	203 mm (8.0 in)				
	≥ 102 mm (4.0 in)	152 mm (6.0 in)				

The child restraint system is **exempt** from S5.2.1.1 \underline{NO}

Back Support Height

Manufacturer's Recommended Maximum Child Weight kg (lb)	Measured Height mm (in)	Pass/Fail
29.4 (65)	720 (28.3)	Pass

Back Support Width

Measured Side Wing Depth mm (in)	Measured Width mm (in)	Pass/Fail
160 (6.3)	215 (8.5)	Pass

Remarks:

None

Recorded by: Matther James

TORSO IMPACT PROTECTION

(FMVSS 213, S5.2.2)

E9LX66C

Report No.:	213-MGA-18-006		Model No.:
Test Date:	1/26/2018		

Contour Section Surface Requirement **Other Requirement** Requirement flat or Continuous surface area of ≥ 85 in² S5.2.2.1(a) **Back Support Surface** concave Continuous surface area flat or of ≥ 24 in² for restraints having a concave recommended child weight \geq 20 lb S5.2.2.1(b) Side Support Surface Continuous surface area flat or of \geq 48 in² for restraints having a concave recommended child weight < 20 lb Horizontal Cross Sections flat or of Surfaces Restraining concave **Torso Forward Movement** S5.2.2.1(c) Vertical Longitudinal Cross Sections of Surfaces flat or convex Radius of curvature ≥ 2 in Restraining Torso Forward Movement Must be used to restrain dummy and Fixed or movable surface S5.2.2.2 allow compliance with injury & forward of dummy excursion criteria

Support Surface- Results

Surface	Contour	Measured Area	Pass/Fail
Back Support Surface	Flat	≥ 85 in²	Pass
Side Support Surface	Flat	≥ 24 in²	Pass

Surfaces Restraining Torso Forward Movement- Results

	Contour	Radius of Curvature	Pass/Fail
Horizontal Cross Section	N/A	N/A	Pass
Vertical Cross Section	N/A	N/A	Pass

Fixed or Movable Surfaces Forward of Dummy- Results

Yes/No	Pass/Fail
No	Pass

Remarks:

None

Recorded by: Matthew James

PROTRUSION LIMITATION

(FMVSS 213, S5.2.4)

Report No.:	213-MGA-18-006	Model No.:	E9LX66C
Test Date:	1/26/2018		

S5.2.4. Any portion of a rigid structural component within or underlying a contactable surface is subject to the protrusion limitations described below.

Test	Compliance Requirement	Result	Pass/Fail
Height	<u><</u> 3/8 in. (9.53 mm)	<u>≤</u> 3/8 in. (9.53 mm)	Pass
Edge Radius	<u>></u> 1/4 in. (6.35 mm)	<u>></u> 1/4 in. (6.35 mm)	Pass

Remarks:

None

Recorded by: Matthew James

DYNAMIC IMPACT TEST CONDITIONS - TEST 1 (FMVSS 213, S6.1)

		_		
Report No.:	213-MGA-18-006		Sled Test No.	V18014F
Test Date:	2/13/2018		Item Code	006-BE9LX66C-01- NINRN2ER

Pulse:

Laboratory Ambient Conditions During Testing:

Test Configuration (I or II)	I	Temperature (ºC)	21.4
Nominal Velocity (km/h)	48 (+0/-3)	Relative Humidity (%)	30

Dummy:

Dummy Description	CAMI Newborn (Part 572K)
Dummy Serial Number	004

Restraint Installation:

Installed Direction	Rear-Facing		
Base Usage	Other Configuration		
Attachment Method	Lap Belt		
Tether Usage	No		
Seat Back Position	Reclined		
Shoulder Harness Position	Slot 1 of 10, Counted from the Bottom		
Buckle Harness Position	Slot 1 of 2, Counted from the Seat Back Outward		
Recline Position	Position 3 of 3, Counted from Most Upright		
Infant Positioning Pillow	Installed		
Shoulder Harness Covers	Installed		
Crotch Buckle Cover	Installed		
Impact Absorbing Chest Pads	Removed		
Lock-offs Used	None		

Remarks:

Pre-test and post-test photographs are presented in Section 9.

Jay Bullington Recorded by:

DYNAMIC IMPACT SLED PULSE - TEST 1

(FMVSS 213, S6.1)

Report No.:	213-MGA-18-006	Sled Test No.	V18014F
Test Date:	2/13/2018	Item Code	006-BE9LX66C-01- NINRN2FR



BELT RESTRAINT - TEST 1

(FMVSS 213, S5.4.3)

Report No.:	213-MGA-18-006	Sled Test No.	V18014F
Test Date:	2/13/2018	Item Code	006-BE9LX66C-01- NINRN2FR

Section	Requirement	Pass/Fail
S5.4.3.1	Snug Fit of Belts . Belts that are part of the restraint and designed to restrain the child are adjustable to snugly fit any child of height and weight identified by the manufacturer in accordance with the manufacturer's installation instructions.	Pass

Section	Requirement	Yes/No	Pass/Fail
	Direct Restraint . Belts impose no loads on the child resulting from the mass of the system or the test seat.		Pass
S5.4.3.2	This restraint has one or more belts that contact the dummy for restraint.		If all are "yes,"
	This restraint has a rigid structure behind the dummy.		restraint fails
	The restraint could move relative to the belt.		S5.4.3.2.

Section	Requirement	Pass/Fail
S5.4.3.3	Seating Systems . Except for harnesses and infant restraints for children up to 10 kg (22 lb), each restraint designed for a child in a seated position and having belts shall provide:	Pass
S5.4.3.3(a)	.3(a) Upper torso restraint (either belts or a shield)	
S5.4.3.3(b) Lower torso restraint (either belts or a shield)		Pass
S5.4.3.3(c)	Crotch restraint (either a belt attached to the lap belt or a shield)	Pass

Section	Requirement	Pass/Fail
S5.4.3.4	Harnesses. Each harness shall:	
S5.4.3.3(a)	Provide upper torso restraint	
S5.4.3.3(b)) Provide lower torso restraint (lap and crotch restraint)	
S5.4.3.3(c)	Prevent standing	N/A

Remarks:

None

Jay Bullington Recorded by:

BUCKLE RELEASE - TEST 1

(FMVSS 213, S5.4.3.5, S6.2)

Report No.:	213-MGA-18-006	Sled Test No.	V18014F
Test Date:	2/13/2018	Item Code	006-BE9LX66C-01- NINRN2FR

Section	Requirement	Measurement	Pass/Fail
S5.4.3.5(a)	Pre-Impact Release Force— Releases under 40-62 N (9-14 lb)	L: 59 N (13.3 lb) R: 59 N (13.3 lb)	Pass (1)
S5.4.3.5(b)	Post-Impact Release Force*— Releases ≤ 71 N (16 lb)	L: 60 N (13.5 lb) R: 60 N (13.5 lb)	Pass (1)
S5.4.3.5(c)	Minimum Surface Area of Buckle- ≥ 0.6 in ² (3.9 cm ²)	0.7 in ² (4.4 cm ²)	Pass
S5.4.3.5(e)	Buckle Integrity Shall not release during testing	No Release	Pass

*Not applicable unless determined using the largest test dummy specified in S7 for use in testing the seat.

Remarks:

(1) The buckle is comprised of right and left buckle tangs that do not always release at the same force.

Recorded by: Jay Bullington

SYSTEM INTEGRITY - TEST 1

(FMVSS 213, S5.1.1)

Report No.:	213-MGA-18-006	Sled Test No.	V18014F
Test Date:	2/13/2018	Item Code	006-BE9LX66C-01- NINRN2FR

S5.1.1 When dynamically tested, the child restraint system shall:

Section	Requirement	Pass/Fail
	Structural Integrity- Exhibit no complete separation of any load bearing structural element	Pass
S5.1.1(a)	Exhibit no partial separation exposing surfaces with a radius of less than $\frac{1}{4}$ in (9.53 mm)	Pass
	Exhibit no partial separation exposing surfaces with protrusions greater than 3/8 in (6.35 mm)	Pass
S5.1.1(b)(1)	Adjustment Position- Remain in the same adjustment position during the test that it was in immediately before the test	Pass
S5.1.1(b)(2)(ii)	i) Exposed Openings- Have no exposed opening larger than ¹ / ₄ inch (9.53 mm) before the test become smaller during the testing as a result of the movement of the seating surface relative to the restraint system as a whole	
S5.1.1(c) Seating Surface Angle- Forward facing restraints do not allow the angle between the system's back support surface and seating surface to be less than 45 degrees at the completion of the test.		N/A

Remarks:

None

Jay Bullington Recorded by:

OCCUPANT EXCURSION - TEST 1

(FMVSS 213, S5.1.3, S5.1.4, S5.2.1.1(c))

Report No.:	213-MGA-18-006	S
Test Date:	2/13/2018	11

Sled Test No.	V18014F
Item Code	006-BE9LX66C-01- NINRN2FR

FORWARD-FACING RESTRAINTS

Section	Requirement	Measurement	Pass/Fail
S5.1.3.1	<i>Torso retention</i> —CRS shall retain the torso within system		N/A
S5.1.3.1(a)(1)	Head excursion- \leq 720 mm (28 in) with tether \leq 813 mm (32 in) no tether	N/A	N/A
S5.1.3.1(a)(2)	<i>Knee target excursion-</i> ≤ 915 mm (36 in)	N/A	N/A
S5.2.1.1(c)	<i>Head-torso angle-</i> rearward change $\leq 45^{\circ}$	N/A	N/A

REAR-FACING RESTRAINTS

Section	Requirement	Measurement	Pass/Fail
S5.1.3.2	<i>Torso retention</i> —CRS shall retain the torso within system		Pass
S5.1.3.2	Head target excursion-Not beyond restraint's top and forward edge		Pass
S5.1.4	Back support angle- Angle between the back support surface and the vertical $\leq 70^{\circ}$	59°	Pass
S5.2.1.1(c)	<i>Head-torso angle-</i> rearward change ≤ 45º	≤ 45°	Pass

Remarks:

Excursion camera locations (distance forward of point Z) = 813 mm, camera speeds = 1,000 frames per second, and lens focal lengths = 15 mm.

Jay Bullington Recorded by:

DYNAMIC IMPACT TEST CONDITIONS - TEST 2 (FMVSS 213, S6.1)

Report No.:	213-MGA-18-006	Sled Test No.	V18014R
Test Date:	2/13/2018	Item Code	006-BE9LX66C-02- 12CRN2FR

Pulse:

Laboratory Ambient Conditions During Testing:

Test Configuration (I or II)	l I	Temperature (°C)	21.4
Nominal Velocity (km/h)	48 (+0/-3)	Relative Humidity (%)	30

Dummy:

Dummy Description	CRABI 12 Month Old (Part 572R)	
Dummy Serial Number	083	

Restraint Installation:

Installed Direction	Rear-Facing
Base Usage	Other Configuration
Attachment Method	Lap Belt
Tether Usage	No
Seat Back Position	Reclined
Shoulder Harness Position	Slot 5 of 10, Counted from the Bottom
Buckle Harness Position	Slot 1 of 2, Counted from the Seat Back Outward
Recline Position	Position 3 of 3, Counted from Most Upright
Infant Positioning Pillow	Installed
Shoulder Harness Covers	Installed
Crotch Buckle Cover	Installed
Impact Absorbing Chest Pads	Installed
Lock-offs Used	None

Remarks:

Pre-test and post-test photographs are presented in Section 9.

Jay Bullington Recorded by: _

DYNAMIC IMPACT SLED PULSE - TEST 2

(FMVSS 213, S6.1)



BELT RESTRAINT - TEST 2

(FMVSS 213, S5.4.3)

Report No.:	213-MGA-18-006	Sled Test No.	V18014R
Test Date:	2/13/2018	Item Code	006-BE9LX66C-02- 12CRN2FR

Section	Requirement	Pass/Fail
S5.4.3.1	Snug Fit of Belts . Belts that are part of the restraint and designed to restrain the child are adjustable to snugly fit any child of height and weight identified by the manufacturer in accordance with the manufacturer's installation instructions.	Pass

Section	Requirement	Yes/No	Pass/Fail
	Direct Restraint . Belts impose no loads on the child resulting from the mass of the system or the test seat.		Pass
S5.4.3.2	This restraint has one or more belts that contact the dummy for restraint.	No	If all are "yes,"
	This restraint has a rigid structure behind the dummy.		restraint fails
	The restraint could move relative to the belt.	No	S5.4.3.2.

Section	Requirement	Pass/Fail
S5.4.3.3	Seating Systems . Except for harnesses and infant restraints for children up to 10 kg (22 lb), each restraint designed for a child in a seated position and having belts shall provide:	Pass
S5.4.3.3(a)	Upper torso restraint (either belts or a shield)	Pass
S5.4.3.3(b)	Lower torso restraint (either belts or a shield)	Pass
S5.4.3.3(c)	Crotch restraint (either a belt attached to the lap belt or a shield)	Pass

Section	Requirement	Pass/Fail
S5.4.3.4	Harnesses. Each harness shall:	N/A
S5.4.3.3(a)	Provide upper torso restraint	N/A
S5.4.3.3(b)	Provide lower torso restraint (lap and crotch restraint)	N/A
S5.4.3.3(c)	Prevent standing	N/A

Remarks:

None

Jay Bullington Recorded by:

BUCKLE RELEASE - TEST 2

(FMVSS 213, S5.4.3.5, S6.2)

Report No.:	213-MGA-18-006	Sled Test No.	V18014R
Test Date:	2/13/2018	Item Code	006-BE9LX66C-02- 12CRN2FR

Section	Requirement	Measurement	Pass/Fail
S5.4.3.5(a)	Pre-Impact Release Force— Releases under 40-62 N (9-14 lb)	L: 54 N (12.1 lb) R: 54 N (12.1 lb)	Pass (1)
S5.4.3.5(b)	Post-Impact Release Force*— Releases ≤ 71 N (16 lb)	L: 69 N (15.5 lb) R: 69 N (15.5 lb)	Pass (1)
S5.4.3.5(c)	Minimum Surface Area of Buckle- ≥ 0.6 in ² (3.9 cm ²)	0.7 in ² (4.4 cm ²)	Pass
S5.4.3.5(e)	Buckle Integrity Shall not release during testing	No Release	Pass

*Not applicable unless determined using the largest test dummy specified in S7 for use in testing the seat.

Remarks:

(1) The buckle is comprised of right and left buckle tangs that do not always release at the same force.

Jay Bullington Recorded by:

SYSTEM INTEGRITY - TEST 2

(FMVSS 213, S5.1.1)

Report No.:	213-MGA-18-006	Sled Test No.	V18014R
Test Date:	2/13/2018	Item Code	006-BE9LX66C-02- 12CRN2FR

S5.1.1 When dynamically tested, the child restraint system shall:

Section	Requirement	Pass/Fail		
	Structural Integrity- Exhibit no complete separation of any load bearing structural element	Pass		
S5.1.1(a)	Exhibit no partial separation exposing surfaces with a radius of less than $\frac{1}{4}$ in (9.53 mm)			
	Exhibit no partial separation exposing surfaces with protrusions greater than 3/8 in (6.35 mm)	Pass		
S5.1.1(b)(1)	Adjustment Position- Remain in the same adjustment position during the test that it was in immediately before the test	Pass		
S5.1.1(b)(2)(ii)	Exposed Openings- Have no exposed opening larger than ¹ / ₄ inch (9.53 mm) before the test become smaller during the testing as a result of the movement of the seating surface relative to the restraint system as a whole	Pass		
S5.1.1(c)	Seating Surface Angle- Forward facing restraints do not allow the angle between the system's back support surface and seating surface to be less than 45 degrees at the completion of the test.	N/A		

Remarks:

None

Jay Bullington Recorded by:

INJURY CRITERIA - TEST 2

(FMVSS 213, S5.1.2)

Report No.:	213-MGA-18-006	Sled Test No.	V18014R
Test Date:	2/13/2018	Item Code	006-BE9LX66C-02- 12CRN2FR

Section	Requirement
S5.1.2.1(a)	Head Injury Criterion - The maximum calculated head injury criterion for a 36 millisecond time interval (HIC36) shall not exceed 1,000. HIC is not calculated when using the 6-year-old weighted and 10-year-old test dummies.
S5.1.2.1(b)	Chest Injury Criterion - The chest acceleration shall not exceed 60g for intervals whose cumulative duration is more than 3 milliseconds.

Head Injury Criterion Results

Calculated HIC36	Pass/Fail
316	Pass

Chest Injury Criterion Results

Max acceleration lasting 3 ms (g)	Pass/Fail
42	Pass

Remarks:

None

Jay Bullington Recorded by:

INJURY CRITERIA - HEAD ACCELERATION PLOTS - TEST 2 (FMVSS 213, S5.1.2)

Report No.:	213-MGA-18-006	Sled Test No.	V18014R
Test Date:	2/13/2018	Item Code	006-BE9LX66C-02- 12CRN2FR



INJURY CRITERIA - CHEST ACCELERATION PLOTS - TEST 2 (FMVSS 213, S5.1.2)

Report No.:	213-MGA-18-006	Sled Test No.	V18014R
Test Date:	2/13/2018	Item Code	006-BE9LX66C-02- 12CRN2FR



OCCUPANT EXCURSION - TEST 2

(FMVSS 213, S5.1.3, S5.1.4, S5.2.1.1(c))

Report No.:	213-MGA-18-006	S
Test Date:	2/13/2018	lte

Sled Test No.	V18014R
Item Code	006-BE9LX66C-02- 12CRN2FR

FORWARD-FACING RESTRAINTS

Section	Requirement	Measurement	Pass/Fail
S5.1.3.1	<i>Torso retention</i> —CRS shall retain the torso within system		N/A
S5.1.3.1(a)(1)	Head excursion- \leq 720 mm (28 in) with tether \leq 813 mm (32 in) no tether	N/A	N/A
S5.1.3.1(a)(2)	<i>Knee target excursion-</i> ≤ 915 mm (36 in)	N/A	N/A
S5.2.1.1(c)	<i>Head-torso angle-</i> rearward change ≤ 45°	N/A	N/A

REAR-FACING RESTRAINTS

Section	Requirement	Measurement	Pass/Fail
S5.1.3.2	<i>Torso retention</i> —CRS shall retain the torso within system		Pass
S5.1.3.2	Head target excursion-Not beyond restraint's top and forward edge		Pass
S5.1.4	Back support angle- Angle between the back support surface and the vertical $\leq 70^{\circ}$	61°	Pass
S5.2.1.1(c)	<i>Head-torso angle-</i> rearward change $\leq 45^{\circ}$	≤ 45 °	Pass

Remarks:

Excursion camera locations (distance forward of point Z) = 813 mm, camera speeds = 1,000 frames per second, and lens focal lengths = 15 mm.

Jay Bullington Recorded by:

DYNAMIC IMPACT TEST CONDITIONS - TEST 3 (FMVSS 213, S6.1)

Report No.:	213-MGA-18-006	Sled Test No.	V18022F
Test Date:	2/14/2018	Item Code	006-BE9LX66C-03- 6H3FN2TU

Pulse:

Laboratory Ambient Conditions During Testing:

Test Configuration (I or II)	l I	Temperature (°C)	21.1
Nominal Velocity (km/h)	48 (+0/-3)	Relative Humidity (%)	30

Dummy:

Dummy Description	Hybrid III 6 Year Old (Part 572N)
Dummy Serial Number	155

Restraint Installation:

Installed Direction	Forward-Facing
Base Usage	Other Configuration
Attachment Method	Lap Belt
Tether Usage	Yes
Seat Back Position	Upright
Shoulder Harness Position	Slot 10 of 10, Counted from the Bottom
Buckle Harness Position	Slot 2 of 2, Counted from the Seat Back Outward
Recline Position	Position 1 of 3, Counted from Most Upright
Infant Positioning Pillow	Removed
Shoulder Harness Covers	Installed
Crotch Buckle Cover	Installed
Impact Absorbing Chest Pads	Installed
Lock-offs Used	None

Remarks:

Pre-test and post-test photographs are presented in Section 9.

Jay Bullington Recorded by:

DYNAMIC IMPACT SLED PULSE - TEST 3

(FMVSS 213, S6.1)


BELT RESTRAINT - TEST 3

(FMVSS 213, S5.4.3)

Report No.:	213-MGA-18-006	Sled Test No.	V18022F
Test Date:	2/14/2018	Item Code	006-BE9LX66C-03- 6H3FN2TU

Section	Requirement	Pass/Fail
S5.4.3.1	Snug Fit of Belts . Belts that are part of the restraint and designed to restrain the child are adjustable to snugly fit any child of height and weight identified by the manufacturer in accordance with the manufacturer's installation instructions.	Pass

Section	Requirement	Yes/No	Pass/Fail
	Direct Restraint . Belts impose no loads on the child resulting from the mass of the system or the test seat.		Pass
S5.4.3.2	This restraint has one or more belts that contact the dummy for restraint.		If all are "yes,"
	This restraint has a rigid structure behind the dummy.		restraint fails
	The restraint could move relative to the belt.		S5.4.3.2.

Section	Requirement	Pass/Fail
S5.4.3.3	Seating Systems . Except for harnesses and infant restraints for children up to 10 kg (22 lb), each restraint designed for a child in a seated position and having belts shall provide:	Pass
S5.4.3.3(a)	Upper torso restraint (either belts or a shield)	Pass
S5.4.3.3(b)	Lower torso restraint (either belts or a shield)	Pass
S5.4.3.3(c)	Crotch restraint (either a belt attached to the lap belt or a shield)	Pass

Section	Requirement	Pass/Fail
S5.4.3.4	Harnesses. Each harness shall:	N/A
S5.4.3.3(a)	Provide upper torso restraint	N/A
S5.4.3.3(b)	Provide lower torso restraint (lap and crotch restraint)	N/A
S5.4.3.3(c)	Prevent standing	N/A

Remarks:

None

Jay Bullington Recorded by:

BUCKLE RELEASE - TEST 3

(FMVSS 213, S5.4.3.5, S6.2)

Report No.:	213-MGA-18-006	Sled Test No.	V18022F
Test Date:	2/14/2018	Item Code	006-BE9LX66C-03- 6H3FN2TU

Section	Requirement	Measurement	Pass/Fail
S5.4.3.5(a)	Pre-Impact Release Force— Releases under 40-62 N (9-14 lb)	L: 59 N (13.3 lb) R: 59 N (13.3 lb)	Pass (1)
S5.4.3.5(b)	Post-Impact Release Force*— Releases ≤ 71 N (16 lb)	L: 57 N (12.8 lb) R: 57 N (12.8 lb)	Pass (1)
S5.4.3.5(c)	Minimum Surface Area of Buckle- ≥ 0.6 in ² (3.9 cm ²)	0.7 in ² (4.4 cm ²)	Pass
S5.4.3.5(e)	Buckle Integrity Shall not release during testing	No Release	Pass

*Not applicable unless determined using the largest test dummy specified in S7 for use in testing the seat.

Remarks:

(1) The buckle is comprised of right and left buckle tangs that do not always release at the same force.

Jay Bullington Recorded by:

SYSTEM INTEGRITY - TEST 3

(FMVSS 213, S5.1.1)

Report No.:	213-MGA-18-006	Sled Test No.	V18022F
Test Date:	2/14/2018	Item Code	006-BE9LX66C-03- 6H3FN2TU

S5.1.1 When dynamically tested, the child restraint system shall:

Section	Requirement	Pass/Fail	
	Structural Integrity- Exhibit no complete separation of any load bearing structural element		
S5.1.1(a)	Exhibit no partial separation exposing surfaces with a radius of less than $\frac{1}{4}$ in (9.53 mm)		
	Exhibit no partial separation exposing surfaces with protrusions greater than 3/8 in (6.35 mm)	Pass	
S5.1.1(b)(1)	Adjustment Position- Remain in the same adjustment position during the test that it was in immediately before the test	Pass	
S5.1.1(b)(2)(ii)	Exposed Openings- Have no exposed opening larger than ¹ / ₄ inch (9.53 mm) before the test become smaller during the testing as a result of the movement of the seating surface relative to the restraint system as a whole		
S5.1.1(c) Seating Surface Angle- Forward facing restraints do not allow the angle between the system's back support surface and seating surface to be less than 45 degrees at the completion of the test.			

Remarks:

None

Jay Bullington Recorded by:

INJURY CRITERIA - TEST 3

(FMVSS 213, S5.1.2)

Report No.:	213-MGA-18-006	Sled Test No.	V18022F
Test Date:	2/14/2018	Item Code	006-BE9LX66C-03- 6H3FN2TU

Section	Requirement
S5.1.2.1(a)	Head Injury Criterion - The maximum calculated head injury criterion for a 36 millisecond time interval (HIC36) shall not exceed 1,000. HIC is not calculated when using the 6-year-old weighted and 10-year-old test dummies.
S5.1.2.1(b)	Chest Injury Criterion - The chest acceleration shall not exceed 60g for intervals whose cumulative duration is more than 3 milliseconds.

Head Injury Criterion Results

Calculated HIC36	Pass/Fail
462	Pass

Chest Injury Criterion Results

Max acceleration lasting 3 ms (g)	Pass/Fail
51	Pass

Remarks:

None

Jay Bullington Recorded by:

INJURY CRITERIA - HEAD ACCELERATION PLOTS - TEST 3 (FMVSS 213, S5.1.2)

Report No.:	213-MGA-18-006	Sled Test No.	V18022F
Test Date:	2/14/2018	Item Code	006-BE9LX66C-03- 6H3FN2TU



INJURY CRITERIA - CHEST ACCELERATION PLOTS - TEST 3 (FMVSS 213, S5.1.2)

Report No.:	213-MGA-18-006	Sled Test No.	V18022F
Test Date:	2/14/2018	Item Code	006-BE9LX66C-03- 6H3FN2TU



OCCUPANT EXCURSION - TEST 3

(FMVSS 213, S5.1.3, S5.1.4, S5.2.1.1(c))

Report No.:	213-MGA-18-006	Sle
Test Date:	2/14/2018	Iter

Sled Test No.	V18022F
Item Code	006-BE9LX66C-03- 6H3FN2TU

FORWARD-FACING RESTRAINTS

Section	Requirement	Measurement	Pass/Fail
S5.1.3.1	<i>Torso retention</i> —CRS shall retain the torso within system		Pass
S5.1.3.1(a)(1)	<i>Head excursion</i> - ≤ 720 mm (28 in) with tether ≤ 813 mm (32 in) no tether	639 mm (25.2 in)	Pass
S5.1.3.1(a)(2)	<i>Knee target excursion-</i> ≤ 915 mm (36 in)	813 mm (32.0 in)	Pass
S5.2.1.1(c)	<i>Head-torso angle-</i> rearward change $\leq 45^{\circ}$	≤ 45 °	Pass

REAR-FACING RESTRAINTS

Section	Requirement	Measurement	Pass/Fail
S5.1.3.2	<i>Torso retention</i> —CRS shall retain the torso within system		N/A
S5.1.3.2	Head target excursion-Not beyond restraint's top and forward edge		N/A
S5.1.4	Back support angle- Angle between the back support surface and the vertical $\leq 70^{\circ}$	N/A	N/A
S5.2.1.1(c)	<i>Head-torso angle-</i> rearward change ≤ 45º	N/A	N/A

Remarks:

Excursion camera locations (distance forward of point Z) = 813 mm, camera speeds = 1,000 frames per second, and lens focal lengths = 15 mm.

Jay Bullington Recorded by:

DYNAMIC IMPACT TEST CONDITIONS - TEST 4 (FMVSS 213, S6.1)

Report No.:	213-MGA-18-006	Sled Test No.	V18022R
Test Date:	2/14/2018	Item Code	006-BE9LX66C-04- 3H3FNLTU

Pulse:

Laboratory Ambient Conditions During Testing:

Test Configuration (I or II)	l I	Temperature (°C)	21.1
Nominal Velocity (km/h)	48 (+0/-3)	Relative Humidity (%)	30

Dummy:

Dummy Description	Hybrid III 3 Year Old (Part 572P)
Dummy Serial Number	031

Restraint Installation:

Installed Direction	Forward-Facing		
Base Usage	Other Configuration		
Attachment Method	Lower Anchor		
Tether Usage	Yes		
Seat Back Position	Upright		
Shoulder Harness Position	Slot 7 of 10, Counted from the Bottom		
Buckle Harness Position	Slot 2 of 2, Counted from the Seat Back Outward		
Recline Position	Position 1 of 3, Counted from Most Upright		
Infant Positioning Pillow	Removed		
Shoulder Harness Covers	Installed		
Crotch Buckle Cover	Installed		
Impact Absorbing Chest Pads	Installed		
Lock-offs Used	None		

Remarks:

Pre-test and post-test photographs are presented in Section 9.

Jay Bullington Recorded by:

DYNAMIC IMPACT SLED PULSE - TEST 4

(FMVSS 213, S6.1)

Report No.:	213-MGA-18-006	Sled Test No.	V18022R
Test Date:	2/14/2018	Item Code	006-BE9LX66C-04- 3H3FNLTU



BELT RESTRAINT - TEST 4

(FMVSS 213, S5.4.3)

Report No.:	213-MGA-18-006	Sled Test No.	V18022R
Test Date:	2/14/2018	Item Code	006-BE9LX66C-04- 3H3FNLTU

Section	Requirement	Pass/Fail
S5.4.3.1	Snug Fit of Belts . Belts that are part of the restraint and designed to restrain the child are adjustable to snugly fit any child of height and weight identified by the manufacturer in accordance with the manufacturer's installation instructions.	Pass

Section	Requirement	Yes/No	Pass/Fail
	Direct Restraint . Belts impose no loads on the child resulting from the mass of the system or the test seat.		Pass
S5.4.3.2	This restraint has one or more belts that contact the dummy for restraint.		If all are "yes," restraint fails
	This restraint has a rigid structure behind the dummy.		
	The restraint could move relative to the belt.	No	S5.4.3.2.

Section	Requirement	Pass/Fail
S5.4.3.3	Seating Systems . Except for harnesses and infant restraints for children up to 10 kg (22 lb), each restraint designed for a child in a seated position and having belts shall provide:	Pass
S5.4.3.3(a)	Upper torso restraint (either belts or a shield)	Pass
S5.4.3.3(b)	Lower torso restraint (either belts or a shield)	Pass
S5.4.3.3(c)	Crotch restraint (either a belt attached to the lap belt or a shield)	Pass

Section	Requirement	Pass/Fail
S5.4.3.4	Harnesses. Each harness shall:	N/A
S5.4.3.3(a)	Provide upper torso restraint	N/A
S5.4.3.3(b)	Provide lower torso restraint (lap and crotch restraint)	N/A
S5.4.3.3(c)	Prevent standing	N/A

Remarks:

None

Jay Bullington Recorded by:

BUCKLE RELEASE - TEST 4

(FMVSS 213, S5.4.3.5, S6.2)

Report No.:	213-MGA-18-006	Sled Test No.	V18022R
Test Date:	2/14/2018	Item Code	006-BE9LX66C-04- 3H3FNLTU

Section	Requirement	Measurement	Pass/Fail
S5.4.3.5(a)	Pre-Impact Release Force— Releases under 40-62 N (9-14 lb)	L: 55 N (12.4 lb) R: 55 N (12.4 lb)	Pass (1)
S5.4.3.5(b)	Post-Impact Release Force*— Releases ≤ 71 N (16 lb)	L: 67 N (15.1 lb) R: 67 N (15.1 lb)	Pass (1)
S5.4.3.5(c)	Minimum Surface Area of Buckle- ≥ 0.6 in ² (3.9 cm ²)	0.7 in ² (4.4 cm ²)	Pass
S5.4.3.5(e)	Buckle Integrity Shall not release during testing	No Release	Pass

*Not applicable unless determined using the largest test dummy specified in S7 for use in testing the seat.

Remarks:

(1) The buckle is comprised of right and left buckle tangs that do not always release at the same force.

Jay Bullington Recorded by:

SYSTEM INTEGRITY - TEST 4

(FMVSS 213, S5.1.1)

Report No.:	213-MGA-18-006	Sled Test No.	V18022R
Test Date:	2/14/2018	Item Code	006-BE9LX66C-04- 3H3FNLTU

S5.1.1 When dynamically tested, the child restraint system shall:

Section	Requirement	Pass/Fail		
	Structural Integrity- Exhibit no complete separation of any load bearing structural element			
S5.1.1(a)	Exhibit no partial separation exposing surfaces with a radius of less than $\frac{1}{4}$ in (9.53 mm)			
	Exhibit no partial separation exposing surfaces with protrusions greater than 3/8 in (6.35 mm)	Pass		
S5.1.1(b)(1)	Adjustment Position- Remain in the same adjustment position during the test that it was in immediately before the test	Pass		
S5.1.1(b)(2)(ii)	Exposed Openings- Have no exposed opening larger than ¹ / ₄ inch (9.53 mm) before the test become smaller during the testing as a result of the movement of the seating surface relative to the restraint system as a whole	Pass		
S5.1.1(c)	S5.1.1(c) Seating Surface Angle- Forward facing restraints do not allow the angle between the system's back support surface and seating surface to be less than 45 degrees at the completion of the test.			

Remarks:

None

Jay Bullington Recorded by:

INJURY CRITERIA - TEST 4

(FMVSS 213, S5.1.2)

Report No.:	213-MGA-18-006	Sled Test No.	V18022R
Test Date:	2/14/2018	Item Code	006-BE9LX66C-04- 3H3FNLTU

Section	Requirement
S5.1.2.1(a)	Head Injury Criterion - The maximum calculated head injury criterion for a 36 millisecond time interval (HIC36) shall not exceed 1,000. HIC is not calculated when using the 6-year-old weighted and 10-year-old test dummies.
S5.1.2.1(b)	Chest Injury Criterion - The chest acceleration shall not exceed 60g for intervals whose cumulative duration is more than 3 milliseconds.

Head Injury Criterion Results

Calculated HIC36	Pass/Fail
280	Pass

Chest Injury Criterion Results

Max acceleration lasting 3 ms (g)	Pass/Fail
37	Pass

Remarks:

None

Jay Bullington Recorded by:

INJURY CRITERIA - HEAD ACCELERATION PLOTS - TEST 4

(FMVSS 213, S5.1.2)

Report No.:	213-MGA-18-006		Sled Test No.	V18022R
Test Date:	2/14/2018		Item Code	006-BE9LX66C-04- 3H3FNLTU
30	FMVSS 213 TES 006-BE9LX66C-0 R HEAD X (G's) vs TIME (ms)	ST 04-3H	I3FNLTU	TEST DATE: 02/14/2018 TEST #: V18022
20 10 -10 -20 -30 -40 0 REAL	25 50 75 100 R HEAD Y (G's) vs TIME (ms)	125	150 175 200 2	Max: 27.7 G's Tmax: 205.0 ms Min: -36.8 G's Tmin: 74.2 ms CFC 1000
	25 50 75 100	125	150 175 200 2	Max: 2.6 G's Tmax: 210.4 ms Min: -2.2 G's Tmin: 155.0 ms CFC 1000
REAF 30 25 20 15 10 5 0 -5 0	R HEAD Z (G's) vs TIME (ms)	125		Max: 31.3 G's Tmax: 60.1 ms Min: -3.5 G's Tmin: 42.7 ms CFC 1000
50 REAF 40 30 20 10	R HEAD Resultant (G's) vs TIME (ms))		Max: 41.6 G's Tmax: 73.3 ms HIC 36: 280 T1: 55.3 ms T2: 91.3 ms

INJURY CRITERIA - CHEST ACCELERATION PLOTS - TEST 4 (FMVSS 213, S5.1.2)

Report No.:	213-MGA-18-006	Sled Test No.	V18022R
Test Date:	2/14/2018	Item Code	006-BE9LX66C-04- 3H3FNLTU



OCCUPANT EXCURSION - TEST 4

(FMVSS 213, S5.1.3, S5.1.4, S5.2.1.1(c))

Report No.:	213-MGA-18-006	Slec
Test Date:	2/14/2018	Item

Sled Test No.	V18022R
Item Code	006-BE9LX66C-04- 3H3FNLTU

FORWARD-FACING RESTRAINTS

Section	Requirement	Measurement	Pass/Fail
S5.1.3.1	<i>Torso retention</i> —CRS shall retain the torso within system		Pass
S5.1.3.1(a)(1)	<i>Head excursion</i> - ≤ 720 mm (28 in) with tether ≤ 813 mm (32 in) no tether	563 mm (22.2 in)	Pass
S5.1.3.1(a)(2)	<i>Knee target excursion-</i> ≤ 915 mm (36 in)	659 mm (25.9 in)	Pass
S5.2.1.1(c)	<i>Head-torso angle-</i> rearward change $\leq 45^{\circ}$	≤ 45 °	Pass

REAR-FACING RESTRAINTS

Section	Requirement	Measurement	Pass/Fail
S5.1.3.2	<i>Torso retention</i> —CRS shall retain the torso within system		N/A
S5.1.3.2	Head target excursion-Not beyond restraint's top and forward edge		N/A
S5.1.4	Back support angle- Angle between the back support surface and the vertical $\leq 70^{\circ}$	N/A	N/A
S5.2.1.1(c)	<i>Head-torso angle-</i> rearward change ≤ 45º	N/A	N/A

Remarks:

Excursion camera locations (distance forward of point Z) = 813 mm, camera speeds = 1,000 frames per second, and lens focal lengths = 15 mm.

Jay Bullington Recorded by:

DYNAMIC IMPACT TEST CONDITIONS - TEST 5 (FMVSS 213, S6.1)

Report No.:	213-MGA-18-006	Sled Test No.	V18045F
Test Date:	2/16/2018	Item Code	006-BE9LX66C-05- 12CFNLTU

Pulse:

Laboratory Ambient Conditions During Testing:

Test Configuration (I or II)	I	Temperature (°C)	21.9
Nominal Velocity (km/h)	48 (+0/-3)	Relative Humidity (%)	39

Dummy:

Dummy Description	CRABI 12 Month Old (Part 572R)
Dummy Serial Number	083

Restraint Installation:

Installed Direction	Forward-Facing		
Base Usage	Other Configuration		
Attachment Method	Lower Anchor		
Tether Usage	Yes		
Seat Back Position	Upright		
Shoulder Harness Position	Slot 6 of 10, Counted from the Bottom		
Buckle Harness Position	Slot 1 of 2, Counted from the Seat Back Outward		
Recline Position	Position 1 of 3, Counted from Most Upright		
Infant Positioning Pillow	Removed		
Shoulder Harness Covers	Installed		
Crotch Buckle Cover	Installed		
Impact Absorbing Chest Pads	Installed		
Lock-offs Used	None		

Remarks:

Pre-test and post-test photographs are presented in Section 9.

Jay Bullington Recorded by: _

DYNAMIC IMPACT SLED PULSE - TEST 5

(FMVSS 213, S6.1)



BELT RESTRAINT - TEST 5

(FMVSS 213, S5.4.3)

Report No.:	213-MGA-18-006	Sled Test No.	V18045F
Test Date:	2/16/2018	Item Code	006-BE9LX66C-05- 12CFNLTU

Section	Requirement	Pass/Fail
S5.4.3.1	Snug Fit of Belts . Belts that are part of the restraint and designed to restrain the child are adjustable to snugly fit any child of height and weight identified by the manufacturer in accordance with the manufacturer's installation instructions.	Pass

Section	Requirement	Yes/No	Pass/Fail
S5.4.3.2	Direct Restraint . Belts impose no loads on the child resulting from the mass of the system or the test seat.		Pass
	This restraint has one or more belts that contact the dummy for restraint.	No	If all are "yes,"
	This restraint has a rigid structure behind the dummy.	Yes	restraint fails
	The restraint could move relative to the belt.	No	S5.4.3.2.

Section	Requirement	Pass/Fail
S5.4.3.3	Seating Systems . Except for harnesses and infant restraints for children up to 10 kg (22 lb), each restraint designed for a child in a seated position and having belts shall provide:	Pass
S5.4.3.3(a)	Upper torso restraint (either belts or a shield)	Pass
S5.4.3.3(b)	Lower torso restraint (either belts or a shield)	Pass
S5.4.3.3(c)	Crotch restraint (either a belt attached to the lap belt or a shield)	Pass

Section	Requirement	Pass/Fail
S5.4.3.4	Harnesses. Each harness shall:	N/A
S5.4.3.3(a)	Provide upper torso restraint	N/A
S5.4.3.3(b)	Provide lower torso restraint (lap and crotch restraint)	N/A
S5.4.3.3(c)	Prevent standing	N/A

Remarks:

None

Jay Bullington Recorded by:

BUCKLE RELEASE - TEST 5

(FMVSS 213, S5.4.3.5, S6.2)

Report No.:	213-MGA-18-006	Sled Test No.	V18045F
Test Date:	2/16/2018	Item Code	006-BE9LX66C-05- 12CFNLTU

Section	Requirement	Measurement	Pass/Fail
S5.4.3.5(a)	Pre-Impact Release Force— Releases under 40-62 N (9-14 lb)	L: 51 N (11.5 lb) R: 51 N (11.5 lb)	Pass (1)
S5.4.3.5(b)	Post-Impact Release Force*— Releases ≤ 71 N (16 lb)	L: 61 N (13.7 lb) R: 61 N (13.7 lb)	Pass (1)
S5.4.3.5(c)	Minimum Surface Area of Buckle- ≥ 0.6 in ² (3.9 cm ²)	0.7 in ² (4.4 cm ²)	Pass
S5.4.3.5(e)	Buckle Integrity Shall not release during testing	No Release	Pass

*Not applicable unless determined using the largest test dummy specified in S7 for use in testing the seat.

Remarks:

(1) The buckle is comprised of right and left buckle tangs that do not always release at the same force.

Jay Bullington Recorded by:

SYSTEM INTEGRITY - TEST 5

(FMVSS 213, S5.1.1)

Report No.:	213-MGA-18-006	Sled Test No.	V18045F
Test Date:	2/16/2018	Item Code	006-BE9LX66C-05- 12CFNLTU

S5.1.1 When dynamically tested, the child restraint system shall:

Section	Requirement					
	Structural Integrity- Exhibit no complete separation of any load bearing structural element	Pass				
S5.1.1(a)	Exhibit no partial separation exposing surfaces with a radius of less than $\frac{1}{4}$ in (9.53 mm)	Pass				
	Exhibit no partial separation exposing surfaces with protrusions greater than 3/8 in (6.35 mm)	Pass				
S5.1.1(b)(1)	Adjustment Position- Remain in the same adjustment position during the test that it was in immediately before the test	Pass				
S5.1.1(b)(2)(ii)	Exposed Openings- Have no exposed opening larger than ¹ / ₄ inch (9.53 mm) before the test become smaller during the testing as a result of the movement of the seating surface relative to the restraint system as a whole					
S5.1.1(c)	Seating Surface Angle- Forward facing restraints do not allow the angle between the system's back support surface and seating surface to be less than 45 degrees at the completion of the test.	/ f				

Remarks:

None

Jay Bullington Recorded by:

INJURY CRITERIA - TEST 5

(FMVSS 213, S5.1.2)

Report No.:	213-MGA-18-006	Sled Test No.	V18045F
Test Date:	2/16/2018	Item Code	006-BE9LX66C-05- 12CFNLTU

Section	Requirement
S5.1.2.1(a)	Head Injury Criterion - The maximum calculated head injury criterion for a 36 millisecond time interval (HIC36) shall not exceed 1,000. HIC is not calculated when using the 6-year-old weighted and 10-year-old test dummies.
S5.1.2.1(b)	Chest Injury Criterion - The chest acceleration shall not exceed 60g for intervals whose cumulative duration is more than 3 milliseconds.

Head Injury Criterion Results

Calculated HIC36	Pass/Fail
270	Pass

Chest Injury Criterion Results

Max acceleration lasting 3 ms (g)	Pass/Fail
44	Pass

Remarks:

None

.

Jay Bullington Recorded by:

INJURY CRITERIA - HEAD ACCELERATION PLOTS - TEST 5

(FMVSS 213, S5.1.2)

Report No.:	213-MGA-18-006	Sled Test No.	V18045F
Test Date:	2/16/2018	Item Code	006-BE9LX66C-05- 12CFNLTU
30 20 10 -10 -20 -30 -30	THEAD X (G's) vs TIME (ms)	ST D5-12CFNLTU	TEST DATE: 02/19/2018 TEST #: V18045 Max: 26.2 G's Tmax: 177.9 ms Min: -32.7 G's Tmin: 67.8 ms CFC 1000
3 2 1 -1 -2 -3 0	25 50 75 100 NT HEAD Y (G's) vs TIME (ms) 25 50 75 100		Max: 2.4 G's Tmax: 74.4 ms Min: -2.9 G's Tmin: 175.2 ms CFC 1000
	25 50 75 100	125 150 175 200	Max: 35.1 G's Tmax: 63.8 ms Min: -5.2 G's Tmin: 110.1 ms CFC 1000 225 250
50 FROI 40 30 20 10	NT HEAD Resultant (G's) vs TIME (m	s)	Max: 45.5 G's Tmax: 64.9 ms HIC 36: 270 T1: 53.5 ms T2: 89.5 ms

INJURY CRITERIA - CHEST ACCELERATION PLOTS - TEST 5 (FMVSS 213, S5.1.2)

Report No.:	213-MGA-18-006	Sled Test No.	V18045F
Test Date:	2/16/2018	Item Code	006-BE9LX66C-05- 12CFNLTU



OCCUPANT EXCURSION - TEST 5

(FMVSS 213, S5.1.3, S5.1.4, S5.2.1.1(c))

Report No.:	213-MGA-18-006	
Test Date:	2/16/2018	

Sled Test No.	V18045F
Item Code	006-BE9LX66C-05- 12CFNLTU

FORWARD-FACING RESTRAINTS

Section	Requirement	Measurement	Pass/Fail
S5.1.3.1	<i>Torso retention</i> —CRS shall retain the torso within system		Pass
S5.1.3.1(a)(1)	<i>Head excursion</i> - ≤ 720 mm (28 in) with tether ≤ 813 mm (32 in) no tether	468 mm (18.4 in)	Pass
S5.1.3.1(a)(2)	<i>Knee target excursion-</i> ≤ 915 mm (36 in)	555 mm (21.9 in)	Pass
S5.2.1.1(c)	<i>Head-torso angle-</i> rearward change $\leq 45^{\circ}$	≤ 45 °	Pass

REAR-FACING RESTRAINTS

Section	Requirement	Measurement	Pass/Fail
S5.1.3.2	<i>Torso retention</i> —CRS shall retain the torso within system		N/A
S5.1.3.2	Head target excursion-Not beyond restraint's top and forward edge		N/A
S5.1.4	Back support angle- Angle between the back support surface and the vertical $\leq 70^{\circ}$	N/A	N/A
S5.2.1.1(c)	<i>Head-torso angle-</i> rearward change ≤ 45º	N/A	N/A

Remarks:

Excursion camera locations (distance forward of point Z) = 813 mm, camera speeds = 1,000 frames per second, and lens focal lengths = 15 mm.

Jay Bullington Recorded by: _

DYNAMIC IMPACT TEST CONDITIONS - TEST 6 (FMVSS 213, S6.1)

Report No.:	213-MGA-18-006	Sled Test No.	V18045R
Test Date:	2/16/2018	Item Code	006-BE9LX66C-06- 6W3FN2TU

Pulse:

Laboratory Ambient Conditions During Testing:

Test Configuration (I or II)	I	Temperature (ºC)	21.9
Nominal Velocity (km/h)	48 (+0/-3)	Relative Humidity (%)	39

Dummy:

Dummy Description	Hybrid III 6 Year Old Weighted (Part 572S)		
Dummy Serial Number	127W		

Restraint Installation:

=

Installed Direction	Forward-Facing	
Base Usage	Other Configuration	
Attachment Method	Lap Belt	
Tether Usage	Yes	
Seat Back Position	Upright	
Shoulder Harness Position	Slot 10 of 10, Counted from the Bottom	
Buckle Harness Position	Slot 2 of 2, Counted from the Seat Back Outward	
Recline Position	Position 1 of 3, Counted from Most Upright	
Infant Positioning Pillow	Removed	
Shoulder Harness Covers	Installed	
Crotch Buckle Cover	Installed	
Impact Absorbing Chest Pads	Installed	
Lock-offs Used	None	

Remarks:

Pre-test and post-test photographs are presented in Section 9.

Jay Bullington Recorded by:

DYNAMIC IMPACT SLED PULSE - TEST 6

(FMVSS 213, S6.1)

Report No.:	213-MGA-18-006	Sled Test No.	V18045R
Test Date:	2/16/2018	Item Code	006-BE9LX66C-06- 6W3FN2TU



BELT RESTRAINT - TEST 6

(FMVSS 213, S5.4.3)

Report No.:	213-MGA-18-006	Sled Test No.	V18045R
Test Date:	2/16/2018	Item Code	006-BE9LX66C-06- 6W3FN2TU

Section	Requirement	Pass/Fail
S5.4.3.1	Snug Fit of Belts . Belts that are part of the restraint and designed to restrain the child are adjustable to snugly fit any child of height and weight identified by the manufacturer in accordance with the manufacturer's installation instructions.	Pass

Section	Requirement	Yes/No	Pass/Fail
S5.4.3.2	Direct Restraint . Belts impose no loads on the child resulting from the mass of the system or the test seat.		Pass
	This restraint has one or more belts that contact the dummy for restraint.	No	If all are "yes,"
	This restraint has a rigid structure behind the dummy.		restraint fails
	The restraint could move relative to the belt.	No	S5.4.3.2.

Section	Requirement	Pass/Fail
S5.4.3.3	Seating Systems . Except for harnesses and infant restraints for children up to 10 kg (22 lb), each restraint designed for a child in a seated position and having belts shall provide:	Pass
S5.4.3.3(a)	Upper torso restraint (either belts or a shield)	Pass
S5.4.3.3(b)	Lower torso restraint (either belts or a shield)	Pass
S5.4.3.3(c)	Crotch restraint (either a belt attached to the lap belt or a shield)	Pass

Section	Requirement	Pass/Fail
S5.4.3.4	Harnesses. Each harness shall:	
S5.4.3.3(a)	Provide upper torso restraint	
S5.4.3.3(b)	Provide lower torso restraint (lap and crotch restraint)	
S5.4.3.3(c)	Prevent standing	N/A

Remarks:

None

Jay Bullington Recorded by:

BUCKLE RELEASE - TEST 6

(FMVSS 213, S5.4.3.5, S6.2)

Report No.:	213-MGA-18-006	Sled Test No.	V18045R
Test Date:	2/16/2018	Item Code	006-BE9LX66C-06- 6W3FN2TU

Section	Requirement	Measurement	Pass/Fail
S5.4.3.5(a)	Pre-Impact Release Force— Releases under 40-62 N (9-14 lb)	L: 55 N (12.4 lb) R: 55 N (12.4 lb)	Pass (1)
S5.4.3.5(b)	Post-Impact Release Force*— Releases ≤ 71 N (16 lb)	L: 62 N (13.9 lb) R: 62 N (13.9 lb)	Pass (1)
S5.4.3.5(c)	Minimum Surface Area of Buckle- ≥ 0.6 in ² (3.9 cm ²)	0.7 in ² (4.4 cm ²)	Pass
S5.4.3.5(e)	Buckle Integrity Shall not release during testing	No Release	Pass

*Not applicable unless determined using the largest test dummy specified in S7 for use in testing the seat.

Remarks:

(1) The buckle is comprised of right and left buckle tangs that do not always release at the same force.

Jay Bullington Recorded by:

SYSTEM INTEGRITY - TEST 6

(FMVSS 213, S5.1.1)

Report No.:	213-MGA-18-006	Sled Test No.	V18045R
Test Date:	2/16/2018	Item Code	006-BE9LX66C-06- 6W3FN2TU

S5.1.1 When dynamically tested, the child restraint system shall:

Section	Requirement	Pass/Fail
	Structural Integrity- Exhibit no complete separation of any load bearing structural element	Pass
S5.1.1(a)	Exhibit no partial separation exposing surfaces with a radius of less than $\frac{1}{4}$ in (9.53 mm)	Pass
	Exhibit no partial separation exposing surfaces with protrusions greater than 3/8 in (6.35 mm)	Pass
S5.1.1(b)(1)	Adjustment Position- Remain in the same adjustment position during the test that it was in immediately before the test	
S5.1.1(b)(2)(ii)	(2)(ii) Exposed Openings- Have no exposed opening larger than $\frac{1}{4}$ inch (9.53 mm) before the test become smaller during the testing as a result of the movement of the seating surface relative to the restraint system as a whole	
S5.1.1(c) Seating Surface Angle- Forward facing restraints do not allow the angle between the system's back support surface and seating surface to be less than 45 degrees at the completion of the test.		Pass

Remarks:

None

Jay Bullington Recorded by: _

OCCUPANT EXCURSION - TEST 6

(FMVSS 213, S5.1.3, S5.1.4, S5.2.1.1(c))

Report No.:	213-MGA-18-006	
Test Date:	2/16/2018	

Sled Test No.	V18045R
Item Code	006-BE9LX66C-06- 6W3FN2TU

FORWARD-FACING RESTRAINTS

Section	Requirement	Measurement	Pass/Fail
S5.1.3.1	<i>Torso retention</i> —CRS shall retain the torso within system		Pass
S5.1.3.1(a)(1)	Head excursion- \leq 720 mm (28 in) with tether \leq 813 mm (32 in) no tether	N/A	N/A
S5.1.3.1(a)(2)	<i>Knee target excursion-</i> ≤ 915 mm (36 in)	N/A	N/A
S5.2.1.1(c)	<i>Head-torso angle-</i> rearward change $\leq 45^{\circ}$	≤ 45 °	Pass

REAR-FACING RESTRAINTS

Section	Requirement	Measurement	Pass/Fail
S5.1.3.2	<i>Torso retention</i> —CRS shall retain the torso within system		N/A
S5.1.3.2	Head target excursion-Not beyond restraint's top and forward edge		N/A
S5.1.4	Back support angle- Angle between the back support surface and the vertical $\leq 70^{\circ}$	N/A	N/A
S5.2.1.1(c)	<i>Head-torso angle-</i> rearward change ≤ 45º	N/A	N/A

Remarks:

Excursion camera locations (distance forward of point Z) = 813 mm, camera speeds = 1,000 frames per second, and lens focal lengths = 15 mm.

Jay Bullington Recorded by:

AIRCRAFT PASSENGER SEAT INVERSION - TEST A

(FMVSS 213, S8.2, S8.2.5, S8.2.6)

Report No.:	213-MGA-18-006	Test No.	А
Test Date:	2/27/2018	Item Code	006-BE9LX66C-Inv01- NINRN2FR

Dummy:

Dummy Description	CAMI Newborn (Part 572K)		
Dummy Serial Number	004		

Restraint Installation:

Installed Direction	Rear-Facing		
Base Usage	Other Configuration		
Attachment Method	Lap Belt		
Tether Usage	No		
Seat Back Position	Reclined		
Shoulder Harness Position	Slot 1 of 10, Counted from the Bottom		
Buckle Harness Position	Slot 1 of 2, Counted from the Seat Back Outward		

ROTATION ABOUT Y-AXIS (FORWARD)

Section	Requirement	Pass/Fail
S8.2.5	The test dummy shall be retained within the CRS	Pass
S8.2.5	The CRS shall be retained within the aircraft seat	Pass

ROTATION ABOUT X-AXIS (LATERAL)

Section	Requirement	Pass/Fail
S8.2.6	The test dummy shall be retained within the CRS	Pass
S8.2.6	The CRS shall be retained within the aircraft seat	Pass

Remarks:

None

un alt Recorded by:

Date: 2/27/2018

AIRCRAFT PASSENGER SEAT INVERSION - TEST B

(FMVSS 213, S8.2, S8.2.5, S8.2.6)

Report No.:	213-MGA-18-006	Test No.	В
Test Date:	2/27/2018	Item Code	006-BE9LX66C-Inv02- 12CFN2FU

Dummy:

Dummy Description	CRABI 12 Month Old (Part 572R)		
Dummy Serial Number	083		

Restraint Installation:

Installed Direction	Forward-Facing		
Base Usage	Other Configuration		
Attachment Method	Lap Belt		
Tether Usage	No		
Seat Back Position	Upright		
Shoulder Harness Position	Slot 6 of 10, Counted from the Bottom		
Buckle Harness Position	Slot 1 of 2, Counted from the Seat Back Outward		

ROTATION ABOUT Y-AXIS (FORWARD)

Section	Requirement	Pass/Fail
S8.2.5	The test dummy shall be retained within the CRS	Pass
S8.2.5	The CRS shall be retained within the aircraft seat	Pass

ROTATION ABOUT X-AXIS (LATERAL)

Section	Requirement	Pass/Fail
S8.2.6	The test dummy shall be retained within the CRS	Pass
S8.2.6	The CRS shall be retained within the aircraft seat	Pass

Remarks:

None

and the Recorded by:

Date: 2/27/2018

AIRCRAFT PASSENGER SEAT INVERSION - TEST C

(FMVSS 213, S8.2, S8.2.5, S8.2.6)

Report No.:	213-MGA-18-006	Test No.	С
Test Date:	2/27/2018	Item Code	006-BE9LX66C-Inv03- 3H3FN2FU

Dummy:

Dummy Description	Hybrid III 3 Year Old (Part 572P)		
Dummy Serial Number	031		

Restraint Installation:

Installed Direction	Forward-Facing
Base Usage	Other Configuration
Attachment Method	Lap Belt
Tether Usage	No
Seat Back Position	Upright
Shoulder Harness Position	Slot 7 of 10, Counted from the Bottom
Buckle Harness Position	Slot 2 of 2, Counted from the Seat Back Outward

ROTATION ABOUT Y-AXIS (FORWARD)

Section	Requirement	Pass/Fail
S8.2.5	The test dummy shall be retained within the CRS	Pass
S8.2.5	The CRS shall be retained within the aircraft seat	Pass

ROTATION ABOUT X-AXIS (LATERAL)

Section	Requirement	Pass/Fail
S8.2.6	The test dummy shall be retained within the CRS	Pass
S8.2.6	The CRS shall be retained within the aircraft seat	Pass

Remarks:

None

ung alf Recorded by:

Date: 2/27/2018

SECTION 6

INTERPRETATION AND/OR DEVIATIONS FROM FMVSS 213

There were no deviations from FMVSS 213.

SECTION 7 TEST CONFIGURATION CODES

The following table explains the code used to describe the test configurations in this report. For example, the test configuration code 12CFNLFU indicates that the child restraint sled test was conducted using a 12-month old CRABI dummy, installed in the forward facing direction with no optional base, the latch system, no tether, and in the upright position.

	NIN – Newborn Infant, CAMI
	12C – 12 MO, CRABI
	3H3 – 3 YO, Hybrid III
Dummy Description	6H2 – 6YO Hybrid II
	6H3 – 6YO, Hybrid III
	6W3 – 6 YO, Weighted Hybrid III
	TH3 – 10 YO, Hybrid III
	R – Rear Facing
Installed Direction	F – Forward Facing
Dirotion	S – Faces Sideways (Carbeds)
Base	B – Optional Base Used with Infant CRS
Usage	N – All Other Configurations
	L – LATCH
Attachment	2 – Lap Belt
Method	3 – Lap and Shoulder Belt
	M – Seat Back Mount
Tether	T – Tether
Usage	F – Tether Free
	U – Upright
Seat Back Position	R – Reclined
	B – Booster with Back
	N – Booster without Back
	F – Flat
SECTION 8 INSTRUMENTATION CALIBRATION

CERTIFICATION INSTRUMENTATION

Sled Accelerometers	S/N	Manufacturer	Model Number	Calibration Date	Due Date			
Primary	1452976	Honeywell	JTF 060-F482-05	12/13/17	6/13/18			
Redundant	1318820	Honeywell	JTF 060-F482-05	12/13/17	6/13/18			
Temperature/Humidity Logger	S/N	Manufacturer	Model Number	Calibration Date	Due Date			
Accuracy 0.5°F, 2% RH	11012026	Veriteq	SP-2000-20R	11/30/17	11/30/18			
				ſ				
Force Gauge	S/N	Manufacturer	Model Number	Calibration Date	Due Date			
100 lb, Accuracy <u>+</u> 0.1 lb	213343	Wagner	FDIX100	9/19/17	9/19/18			
			_					
Scale	S/N	Manufacturer	Model Number	Calibration Date	Due Date			
100 lb, Accuracy <u>+</u> 0.1 lb	16394186GM	Ohaus	D100QL	5/16/17	5/16/18			
100 lb, Accuracy <u>+</u> 0.1 lb	16394186GM	Ohaus	D100QL	5/16/17	5/16/18			
100 lb, Accuracy <u>+</u> 0.1 lb Inclinometer	16394186GM S/N	Ohaus Manufacturer	D100QL Model Number	5/16/17 Calibration Date	5/16/18 Due Date			
100 lb, Accuracy <u>+</u> 0.1 lb Inclinometer Accuracy <u>+</u> 0.1°	16394186GM S/N 25101	Ohaus Manufacturer Pro 360	D100QL Model Number Pro 360	5/16/17 Calibration Date 1/24/18	5/16/18 Due Date 7/24/18			
100 lb, Accuracy <u>+</u> 0.1 lb Inclinometer Accuracy <u>+</u> 0.1°	16394186GM S/N 25101	Ohaus Manufacturer Pro 360	D100QL Model Number Pro 360	5/16/17 Calibration Date 1/24/18	5/16/18 Due Date 7/24/18			
100 lb, Accuracy <u>+</u> 0.1 lb Inclinometer Accuracy <u>+</u> 0.1° Caliper	16394186GM S/N 25101 S/N	Ohaus Manufacturer Pro 360 Manufacturer	D100QL Model Number Pro 360 Model Number	5/16/17 Calibration Date 1/24/18 Calibration Date	5/16/18 Due Date 7/24/18 Due Date			
100 lb, Accuracy <u>+</u> 0.1 lb Inclinometer Accuracy <u>+</u> 0.1° Caliper 6 in, Accuracy <u>+</u> .001in	16394186GM S/N 25101 S/N 2G199506	Ohaus Manufacturer Pro 360 Manufacturer Brown & Sharpe	D100QL Model Number Pro 360 Model Number 590090	5/16/17 Calibration Date 1/24/18 Calibration Date 11/17/17	5/16/18 Due Date 7/24/18 Due Date 5/17/18			
100 lb, Accuracy <u>+</u> 0.1 lb Inclinometer Accuracy <u>+</u> 0.1° Caliper 6 in, Accuracy <u>+</u> .001in	16394186GM S/N 25101 S/N 2G199506	Ohaus Manufacturer Pro 360 Manufacturer Brown & Sharpe	D100QL Model Number Pro 360 Model Number 590090	5/16/17 Calibration Date 1/24/18 Calibration Date 11/17/17	5/16/18 Due Date 7/24/18 Due Date 5/17/18			
100 lb, Accuracy <u>+</u> 0.1 lb Inclinometer Accuracy <u>+</u> 0.1° Caliper 6 in, Accuracy <u>+</u> .001in Tape Measurers	16394186GM S/N 25101 S/N 2G199506 S/N	Ohaus Manufacturer Pro 360 Manufacturer Brown & Sharpe Manufacturer	D100QL Model Number Pro 360 Model Number 590090 Model Number	5/16/17 Calibration Date 1/24/18 Calibration Date 11/17/17 Calibration Date	5/16/18 Due Date 7/24/18 Due Date 5/17/18 Due Date			
100 lb, Accuracy <u>+</u> 0.1 lb Inclinometer Accuracy <u>+</u> 0.1° Caliper 6 in, Accuracy <u>+</u> .001in Tape Measurers 8 m/26 ft	16394186GM S/N 25101 S/N 2G199506 S/N 0011	Ohaus Manufacturer Pro 360 Manufacturer Brown & Sharpe Manufacturer Stanley	D100QL Model Number Pro 360 Model Number 590090 Model Number 33-428	5/16/17 Calibration Date 1/24/18 Calibration Date 11/17/17 Calibration Date 11/20/17	5/16/18 Due Date 7/24/18 Due Date 5/17/18 Due Date 11/20/18			

TEST DUMMY INSTRUMENTATION

SERIAL NUMBER 083

Sensor		S/N	Manufacturer	Model Number	Calibration Date	Due Date
Head Accelerometers	Х	P79762	Endevco	7264C-2KTZ-2-360M17	12/19/17	6/19/18
	Y	P79764	Endevco	7264C-2KTZ-2-360M17	12/19/17	6/19/18
	Ζ	P96871	Endevco	7264C-2KTZ-360M17	12/18/17	6/18/18
Chest Accelerometers	Х	T12064	Endevco	7264C-2KTZ-360M17	12/21/17	6/21/18
	Y	T12066	Endevco	7264C-2KTZ-360M17	12/21/17	6/21/18
	Ζ	T12068	Endevco	7264C-2KTZ-360M17	12/20/17	6/20/18

SERIAL NUMBER 031

Sensor		S/N	Manufacturer	Model Number	Calibration Date	Due Date
Head X Accelerometers Z	Х	P79880	Endevco	7264C-2KTZ-2-360M17	11/27/17	5/27/18
	Y	P79881	Endevco	7264C-2KTZ-2-360M17	11/27/17	5/27/18
	Ζ	P79882	Endevco	7264C-2KTZ-2-360M17	11/27/17	5/27/18
	Х	P82659	Endevco	7264C-2KTZ-2-360M17	11/27/17	5/27/18
Chest Accelerometers	Y	P82660	Endevco	7264C-2KTZ-2-360M17	11/27/17	5/27/18
	Ζ	P86944	Endevco	7264C-2KTZ-360M17	11/27/17	5/27/18

SERIAL NUMBER 155

Sensor		S/N	Manufacturer	Model Number	Calibration Date	Due Date
Head Accelerometers	Х	P79723	Endevco	7264C-2KTZ-2-360M17	12/15/17	6/15/18
	Y	P84426	Endevco	7264C-2KTZ-360M17	12/15/17	6/15/18
	Ζ	P84428	Endevco	7264C-2KTZ-360M17	12/15/17	6/15/18
Chest Accelerometers	Х	P88330	Endevco	7264C-2KTZ-360M17	12/15/17	6/15/18
	Y	P88331	Endevco	7264C-2KTZ-360M17	12/15/17	6/15/18
	Z	P88332	Endevco	7264C-2KTZ-360M17	12/15/17	6/15/18

SECTION 9 PHOTOGRAPHS

Item Code: 006-BE9LX66C-01-NINRN2FR Item Code: 006-BE9LX66C-02-12CRN2FR Item Code: 006-BE9LX66C-03-6H3FN2TU Item Code: 006-BE9LX66C-04-3H3FNLTU Item Code: 006-BE9LX66C-05-12CFNLTU Item Code: 006-BE9LX66C-06-6W3FN2TU





Item Code: 006-BE9LX66C-01-NINRN2FR Pre-Test



Item Code: 006-BE9LX66C-01-NINRN2FR Pre-Test















Item Code: 006-BE9LX66C-02-12CRN2FR Pre-Test





















Item Code: 006-BE9LX66C-03-6H3FN2TU Post-Test













Item Code: 006-BE9LX66C-04-3H3FNLTU Post-Test



Item Code: 006-BE9LX66C-04-3H3FNLTU Post-Test















Item Code: 006-BE9LX66C-06-6W3FN2TU Pre-Test


Item Code: 006-BE9LX66C-06-6W3FN2TU Pre-Test



Item Code: 006-BE9LX66C-06-6W3FN2TU Pre-Test









Item Code: 006-BE9LX66C-06-6W3FN2TU Post-Test



Item Code: 006-BE9LX66C-Inv01-NINRN2FR New Born Y-Axis Pre-Test







Item Code: 006-BE9LX66C-Inv01-NINRN2FR New Born X-Axis Pre-Test





Item Code: 006-BE9LX66C-Inv02-12CFN2FU 12 Month Y-Axis Pre-Test





Item Code: 006-BE9LX66C-Inv02-12CFN2FU 12 Month X-Axis Pre-Test







Item Code: 006-BE9LX66C-Inv03-3H3FN2FU 3 Year Old Y-Axis Pre-Test







Item Code: 006-BE9LX66C-Inv03-3H3FN2FU 3 Year Old X-Axis Pre-Test



Item Code: 006-BE9LX66C-Inv03-3H3FN2FU 3 Year Old X-Axis Post-Test





Item Code: 006-BE9LX66C-04-3H3FNLTU Item Code: 006-BE9LX66C-05-12CFNLTU Item Code: 006-BE9LX66C-06-6W3FN2TU



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Item Code: 006-BE9LX66C-01-NINRN2FR Item Code: 006-BE9LX66C-02-12CRN2FR Item Code: 006-BE9LX66C-03-6H3FN2TU



Item Code: 006-BE9LX66C-01-NINRN2FR Item Code: 006-BE9LX66C-02-12CRN2FR Item Code: 006-BE9LX66C-03-6H3FN2TU



Item Code: 006-BE9LX66C-01-NINRN2FR Item Code: 006-BE9LX66C-02-12CRN2FR Item Code: 006-BE9LX66C-03-6H3FN2TU



Item Code: 006-BE9LX66C-01-NINRN2FR Item Code: 006-BE9LX66C-02-12CRN2FR Item Code: 006-BE9LX66C-03-6H3FN2TU



Item Code: 006-BE9LX66C-01-NINRN2FR Item Code: 006-BE9LX66C-02-12CRN2FR Item Code: 006-BE9LX66C-03-6H3FN2TU



Item Code: 006-BE9LX66C-01-NINRN2FR Item Code: 006-BE9LX66C-02-12CRN2FR Item Code: 006-BE9LX66C-03-6H3FN2TU



Item Code: 006-BE9LX66C-01-NINRN2FR Item Code: 006-BE9LX66C-02-12CRN2FR Item Code: 006-BE9LX66C-03-6H3FN2TU





Item Code: 006-BE9LX66C-01-NINRN2FR Item Code: 006-BE9LX66C-02-12CRN2FR Item Code: 006-BE9LX66C-03-6H3FN2TU





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Item Code: 006-BE9LX66C-04-3H3FNLTU Item Code: 006-BE9LX66C-05-12CFNLTU Item Code: 006-BE9LX66C-06-6W3FN2TU



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Item Code: 006-BE9LX66C-01-NINRN2FR Item Code: 006-BE9LX66C-02-12CRN2FR Item Code: 006-BE9LX66C-03-6H3FN2TU


Item Code: 006-BE9LX66C-01-NINRN2FR Item Code: 006-BE9LX66C-02-12CRN2FR Item Code: 006-BE9LX66C-03-6H3FN2TU



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Item Code: 006-BE9LX66C-04-3H3FNLTU Item Code: 006-BE9LX66C-05-12CFNLTU Item Code: 006-BE9LX66C-06-6W3FN2TU



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Item Code: 006-BE9LX66C-01-NINRN2FR Item Code: 006-BE9LX66C-02-12CRN2FR Item Code: 006-BE9LX66C-03-6H3FN2TU



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Item Code: 006-BE9LX66C-04-3H3FNLTU Item Code: 006-BE9LX66C-05-12CFNLTU Item Code: 006-BE9LX66C-06-6W3FN2TU





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Item Code: 006-BE9LX66C-01-NINRN2FR Item Code: 006-BE9LX66C-02-12CRN2FR Item Code: 006-BE9LX66C-03-6H3FN2TU



Item Code: 006-BE9LX66C-01-NINRN2FR Item Code: 006-BE9LX66C-02-12CRN2FR Item Code: 006-BE9LX66C-03-6H3FN2TU



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	POLYESTER FIBER BATTING - 37%	1.2
	COMFORT PADS (2): POLVESTED EIDER RATTING - 60%	
	POLYURETHANE FOAM PAD - 40%	
	BELLY PAD (1): POLYESTER EIRER BATTING - 55%	
	POLYURETHANE FOAM PAD - 45%	
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Item Code: 006-BE9LX66C-04-3H3FNLTU Item Code: 006-BE9LX66C-05-12CFNLTU Item Code: 006-BE9LX66C-06-6W3FN2TU



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