

REPORT NUMBER: 213-CAL-18-042

**SAFETY COMPLIANCE TESTING FOR FMVSS 213
CHILD RESTRAINT SYSTEMS**

**Graco
4Ever, Model 1943812-JJ**

**PREPARED BY:
CALSPAN CORPOPRATION
4455 GENSESEE ST
BUFFALO, NY 14225**



Report Date: June 2018

FINAL REPORT

**PREPARED FOR:
U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Safety Compliance
Mail Code: NVS-220, W43-481
1200 New Jersey Avenue, SE
Washington, DC 20590**

This publication is distributed by the National Highway Traffic Safety Administration in the interest of information exchange. Opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof.

If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement.

Prepared by:  Date: **June 19, 2018**
Adam Hardbottle, SLED
Engineer

Approved by:  Date: **June 19, 2018**
William Horn, SLED Director

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: _____

Acceptance Date: _____

213-CAL-18-042

Technical Report Documentation Page

1. Report No. 213-CAL-18-042		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Final Report of FMVSS 213 Compliance Testing of Manufacturer: Graco Name: 4Ever Model: 1943812-JJ				5. Report Date Date: June 19, 2018	
				6. Performing Organization Code CAL	
7. Author(s) Adam Hardbattle, William Horn				8. Performing Organization Report No. 213-CAL-18-042	
9. Performing Organization Name and Address Calspan Corporation 4455 Genesee St. Buffalo, NY 14225				10. Work Unit No.	
				11. Contract or Grant No. DTNH22-17-R-0037	
12. Sponsoring Agency Name and Address U. S. DEPARTMENT OF TRANSPORTATION National Highway Traffic Safety Administration Enforcement Office of Vehicle Safety Compliance Mail Code: NVS-220, W43-481 1200 New Jersey Avenue, SE Washington, DC 20590				13. Type of Report and Period Covered Final Test Report April-May 2018	
				14. Sponsoring Agency Code NVS-220	
15. Supplementary Notes					
16. Abstract Compliance tests were conducted on the Graco, 4Ever, Model 1943812-JJ child restraint systems in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-213-10. Test failures identified as follows: None					
17. Key Words Compliance Testing Safety Engineering FMVSS 213				18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Admin., Technology Info Services, (NPO-411) (Rm E12-100) 1200 New Jersey Avenue, SE Washington, D.C. 20590 e-mail: tis@nhtsa.dot.gov FAX: 202-493-2833	
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages Page 3 of 154	
				22. Price	

Table of Contents

Technical Report Documentation Page..... 4

Table of Contents..... 4

SECTION 1..... 9

 PURPOSE AND TEST PROCEDURE..... 9

 PURPOSE..... 9

 TEST PROCEDURE..... 9

SECTION 2..... 10

 INTRODUCTION AND SUMMARY..... 10

SECTION 3..... 11

 DATA SHEET 1..... 11

 CHILD RESTRAINT SYSTEM IDENTIFICATION..... 11

SECTION 4..... 12

 DYNAMIC TEST RESULTS DATA SUMMARY..... 12

SECTION 5..... 13

DATA SHEET 2..... 13

 LABELING..... 13

DATA SHEET 3..... 14

 PRINTED INSTRUCTIONS FOR PROPER USE..... 14

DATA SHEET 4..... 15

 REGISTRATION FORM..... 15

DATA SHEET 5..... 16

 MAXIMUM CHILD WEIGHT FOR LOWER ANCHOR USE..... 16

DATA SHEET 6..... 18

 ATTACHMENT TO ANCHORAGE SYSTEM..... 18

DATA SHEET 7..... 20

 INSTALLATION..... 20

DATA SHEET 8..... 22

 MINIMUM HEAD SUPPORT SURFACE..... 22

DATA SHEET 9..... 24

 TORSO IMPACT PROTECTION..... 24

DATA SHEET 10..... 26

 PROTRUSION LIMITATION..... 26

DATA SHEET 11..... 27

 DYNAMIC IMPACT TEST CONDITIONS – TEST 1..... 27

 DYNAMIC IMPACT SLED PULSE – TEST 1..... 28

DATA SHEET 12..... 29

 BELT RESTRAINT – TEST 1..... 29

DATA SHEET 13..... 30
 BUCKLE RELEASE – TEST 1 30
 DATA SHEET 14..... 31
 SYSTEM INTEGRITY – TEST 1 31
 DATA SHEET 15..... 32
 INJURY CRITERIA – TEST 1 32
 INJURY CRITERIA – HEAD ACCELERATION PLOTS – TEST 1 33
 INJURY CRITERIA – CHEST ACCELERATION PLOTS – TEST 1 34
 DATA SHEET 16..... 35
 OCCUPANT EXCURSION – TEST 1 35
 DATA SHEET 17..... 36
 OCCUPANT EXCURSION – TEST 1 36
 DATA SHEET 18..... 37
 DYNAMIC IMPACT TEST CONDITIONS – TEST 2..... 37
 DYNAMIC IMPACT SLED PULSE – TEST 2 38
 DATA SHEET 19..... 39
 BELT RESTRAINT – TEST 2..... 39
 DATA SHEET 20..... 40
 BUCKLE RELEASE – TEST 2 40
 DATA SHEET 21..... 41
 SYSTEM INTEGRITY – TEST 2 41
 DATA SHEET 22..... 42
 INJURY CRITERIA – TEST 2 42
 INJURY CRITERIA – HEAD ACCELERATION PLOTS – TEST 2 43
 DATA SHEET 23..... 45
 OCCUPANT EXCURSION – TEST 2..... 45
 DATA SHEET 24..... 46
 OCCUPANT EXCURSION – TEST 2..... 46
 DATA SHEET 25..... 47
 DYNAMIC IMPACT TEST CONDITIONS – TEST 3..... 47
 DYNAMIC IMPACT SLED PULSE – TEST 3 48
 DATA SHEET 26..... 49
 BELT RESTRAINT – TEST 3..... 49
 DATA SHEET 27..... 50
 BUCKLE RELEASE – TEST 3 50
 DATA SHEET 28..... 51
 SYSTEM INTEGRITY – TEST 3 51
 DATA SHEET 29..... 52
 INJURY CRITERIA – TEST 3 52

INJURY CRITERIA – HEAD ACCELERATION PLOTS – TEST 3..... 53

INJURY CRITERIA – CHEST ACCELERATION PLOTS – TEST 3..... 54

DATA SHEET 30..... 55

 OCCUPANT EXCURSION – TEST 3..... 55

DATA SHEET 31..... 56

 OCCUPANT EXCURSION – TEST 3..... 56

DATA SHEET 32..... 57

 DYNAMIC IMPACT TEST CONDITIONS – TEST 4..... 57

 DYNAMIC IMPACT SLED PULSE – TEST 4..... 58

DATA SHEET 33..... 59

 BELT RESTRAINT – TEST 4..... 59

DATA SHEET 34..... 60

 BUCKLE RELEASE – TEST 4..... 60

DATA SHEET 35..... 61

 SYSTEM INTEGRITY – TEST 4..... 61

DATA SHEET 36..... 62

 INJURY CRITERIA – TEST 4..... 62

 INJURY CRITERIA – HEAD ACCELERATION PLOTS – TEST 4..... 63

INJURY CRITERIA – CHEST ACCELERATION PLOTS – TEST 4..... 64

DATA SHEET 37..... 65

 OCCUPANT EXCURSION – TEST 4..... 65

DATA SHEET 38..... 66

 OCCUPANT EXCURSION – TEST 4..... 66

DATA SHEET 39..... 67

 DYNAMIC IMPACT TEST CONDITIONS – TEST 5..... 67

 DYNAMIC IMPACT SLED PULSE – TEST 5..... 68

DATA SHEET 40..... 69

 BELT RESTRAINT – TEST 5..... 69

DATA SHEET 41..... 70

 BUCKLE RELEASE – TEST 5..... 70

DATA SHEET 42..... 71

 SYSTEM INTEGRITY – TEST 5..... 71

DATA SHEET 43..... 72

 INJURY CRITERIA – TEST 5..... 72

DATA SHEET 44..... 74

 OCCUPANT EXCURSION – TEST 5..... 74

DATA SHEET 45..... 75

 OCCUPANT EXCURSION – TEST 5..... 75

DATA SHEET 46..... 76

DYNAMIC IMPACT TEST CONDITIONS – TEST 6 76

DYNAMIC IMPACT SLED PULSE – TEST 6 77

DATA SHEET 47 78

 BELT RESTRAINT – TEST 6 78

DATA SHEET 48 79

 BUCKLE RELEASE – TEST 6 79

DATA SHEET 49 80

 SYSTEM INTEGRITY – TEST 6 80

DATA SHEET 50 81

 INJURY CRITERIA – TEST 6 81

 INJURY CRITERIA – HEAD ACCELERATION PLOTS – TEST 6 82

INJURY CRITERIA – CHEST ACCELERATION PLOTS – TEST 6 83

DATA SHEET 51 84

 OCCUPANT EXCURSION – TEST 6 84

DATA SHEET 52 85

 OCCUPANT EXCURSION – TEST 6 85

DATA SHEET 53 86

AIRCRAFT PASSENGER SEAT INVERSION – TEST A 86

DATA SHEET 54 88

 AIRCRAFT PASSENGER SEAT INVERSION - TEST B 88

SECTION 6 90

 INTERPRETATION AND/OR DEVIATIONS FROM FMVSS 213 90

SECTION 7 91

 TEST CONFIGURATION CODES 91

SECTION 8 92

 INSTRUMENTATION CALIBRATION 92

 Sled and Facility Calibrations 92

 ATD Calibrations 93

 Bench Foam Calibrations 96

Section 9 97

PHOTOGRAPHS 97

 Sled Photos 97

 Dynamic Test Photos 98

 Dynamic Test Photos 105

 Dynamic Test Photos 112

 Dynamic Test Photos 119

 Dynamic Test Photos 126

 Dynamic Test Photos 133

 Inversion Test Photos 140

Inversion Test Photos	142
Inversion Test Photos	144
Inversion Test Photos	146
Inspection Photos	148
Label Photos.....	149

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 Calspan Corporation under Contract No. DTNH22-17-R-0037. 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 Calspan 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 Graco, 4Ever, Model 1943812-JJ child restraint system. The restraint was dynamically tested in the following configurations:

- H3 6YO, Forward Facing, other configuration, Lap/Shoulder belt, tether free, Booster NB, Upright 6
- 12 month old CRABI, Rearward Facing, other configuration, lap belt, tether free, Recline 2
- H3 3YO, Forward Facing, other configuration, Lap/Shoulder belt, tether free, Booster HB, Upright 6
- 12 month old CRABI, Forward Facing, other configuration, lower anchor, top tether, Upright 4
- H3 10YO, Forward Facing, other configuration, Lap/Shoulder belt, tether free, Booster NB, Upright 6
- H3 3YO, Forward Facing, other configuration, lower anchor, top tether, upright 4

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

- 12 month old, CRABI, Rearward facing, other configuration, lap belt, tether free and Recline
- 3 year old H3, forward facing, other configuration, lap belt, tether free and Upright

The inspection and testing of the Graco, 4Ever, Model 1943812-JJ child restraint met the requirement(s) of FMVSS No. 213 when tested in accordance with TP-213-10 in the configurations and conditions documented in this report.

No test failures were identified

Restraint system inspection, dynamic sled testing and inversion testing were performed by Calspan Corporation, Buffalo NY. Compliance test data sheets for all tests are found in the Data Sheets and Test Data Sections of this report.

**SECTION 3
DATA SHEET 1
CHILD RESTRAINT SYSTEM IDENTIFICATION**

Report No. 213-CAL-18-042

Manufacturer:	Graco
Place of Manufacture per S5.5.2(d):	China
Model No.	4Ever, Model 1943812JJ
Group No.	042

1	Item Code	042-1943812-01-6H3FN3FN
	Date of Manufacture	02/26/2018
	Sled Test No.	FM06-18-113A
2	Item Code	042-1943812-02-12CRN2FR
	Date of Manufacture	02/26/2018
	Sled Test No.	FM06-18-113B
3	Item Code	042-1943812-03-3H3FN3FB
	Date of Manufacture	02/26/2018
	Sled Test No.	FM06-18-114A
4	Item Code	042-1943812-04-12CFNLTU
	Date of Manufacture	02/26/2018
	Sled Test No.	FM06-18-114B
5	Item Code	042-1943812-05-10H3FN3FN
	Date of Manufacture	02/26/2018
	Sled Test No.	FM06-18-115A
6	Item Code	042-1943812-06-3H3FNLTU
	Date of Manufacture	02/26/2018
	Sled Test No.	FM06-18-115B

SECTION 4
DYNAMIC TEST RESULTS DATA SUMMARY

Child Restraint System – Graco / 4Ever / 1943812JJ										
Item Code	Sled Test No.	Dummy Selection and Test Mode (see legend below)	Lower Anchors Used Y/N	Tether Used Y/N	HIC (1000 max)	Chest g clip (60 g max)	Head Excursion (720 mm max, 813 mm max w/o tether)	Knee Excursion (915 mm max)	Seat Back Angle (70 deg max)	Pass/Fail
042-1943812-01-6H3FN3FN	06-18-113A	6H3 FFN	N	N	667	53	364	554	N/A	Pass
042-1943812-02-12CRN2FR	06-18-113B	12C RFR	N	N	322	36	N/A	N/A	49	Pass
042-1943812-03-3H3FN3FB	06-18-114A	3H3 FFB	N	N	523	40	384	599	N/A	Pass
042-1943812-04-12CFNLTU	06-18-114B	12C FFU	Y	Y	233	49	518	535	N/A	Pass
042-1943812-05-10H3FN3FN	06-18-115A	10H3 FFN	N	N	N/A	47	408	650	N/A	Pass
042-1943812-06-3H3FNLTU	06-18-115B	3H3 FFU	Y	Y	261	39	565	667	N/A	Pass

Test Mode:

RF - Rear Facing
 FF - Forward Facing
 U - Upright mode
 R - Reclined mode
 B – Booster
 N – No Back Booster

ATD:

NIN – Newborn Infant
 12C -12 MO, CRABI
 3H3 – 3 YO, Hybrid III
 6H2 – 6YO Hybrid 2
 6H3 – 6YO Hybrid III
 6W3 – 6 YO, Weighted Hybrid III
 10H3 – 10YO Hybrid III

**SECTION 5
DATA SHEET 2
LABELING
(FMVSS 213, S5.3, S5.5)**

Report No.:	213-CAL-18-042	Model No.:	4Ever, 1943812
Test Date:	14 June 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

The following failures were identified:
No failures

Remarks:
Photographs of the labels are included in section 9.

Recorded by: 
Adam Hardbattle, SLED Engineer

Date: June 15, 2018

DATA SHEET 3
PRINTED INSTRUCTIONS FOR PROPER USE
(FMVSS 213, S5.6)

Report No.:	213-CAL-18-042	Model No:	4Ever, 1943812
Test Date:	14 June 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

The following failures were identified:
 No failures

Remarks:

Recorded by: _____



Adam Hardbattle, SLED
 Engineer

Date: _____

June 15, 2018

**DATA SHEET 4
REGISTRATION FORM
(FMVSS 213, S5.8)**

Report No.:	213-CAL-18-042	Model No.:	4Ever, 1943812
Test Date:	14 June 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 S5.6, as applicable	Pass

The following failures were identified:
No failures

Remarks:
Photographs of the registration are included in section 9.

Recorded by:  Date: June 15, 2018
Adam Hardbattle, SLED
Engineer

**DATA SHEET 5
MAXIMUM CHILD WEIGHT FOR LOWER ANCHOR USE
(FMVSS 213, S5.5.2(I)(3))**

Report No.:	213-CAL-18-042	Model No:	4Ever, 1943812
Test Date:	14 June 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	N	N/A
Forward Facing	Y	Y	45

CRS Weight (lb)	Child Weight (CW) Calculation (lb)	Rounded CW Limit permitted under S5.5.2(I)(3)(A)	Rounded CW	
			Calculated CW	Rounded CW
23 lbs	Rear Facing 60-CRS Weight = 37 lbs	40	15 < CW ≤ 20	20
	Forward Facing 65-CRS Weight = 42 lbs	45 lbs	20 < CW ≤ 25	25
			25 < CW ≤ 30	30
			30 < CW ≤ 35	35
			35 < CW ≤ 40	40
			40 < CW ≤ 45	45
			45 < CW ≤ 50	50
			50 < CW ≤ 55	55
			55 < CW ≤ 60	60

Section	Requirement	Pass / Fail
S5.5.2(I)(3)(A)	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)(A)	N/A
S5.5.2(I)(3)(B)	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

The following failures were identified:
No failures

Remarks:
None

Recorded by: 

Adam Hardbatt, SLED
Engineer

Date: June 15, 2018

DATA SHEET 6
ATTACHMENT TO ANCHORAGE SYSTEM
(FMVSS 213, S5.9)

Report No.:	213-CAL-18-042	Model No:	4Ever, 1943812
Test Date:	14 June 2018		

Section	Requirement	Pass / Fail
S5.9(a)	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
	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 of TP-213-10.	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.	Pass
S5.9(d)	If the anchorage system on this child restraint has components other than hooks, that enables the restraint to be securely fastened to the lower anchors, 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 visible under normal daylight lighting conditions.	N/A

The following failures were identified:
No failures

Remarks:
None

Recorded by: 

Adam Hardbatt, SLED
Engineer

Date: June 14, 2018

**DATA SHEET 7
INSTALLATION
(FMVSS 213, S5.3)**

Report No.:	213-CAL-18-042	Model No:	4Ever, 1943812
Test Date:	14 June 2018		

Section	Requirement	Pass / Fail					
S5.3.1	Add-on child restraints meet either (a) or (b) as appropriate	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 seta 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)	Harness 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					
S5.3.2	The child restraint system is capable of being installed as required by Table S5.3.2 of FMVSS No. 213. Shaded section indicate installation means required by standard.	Pass					
		<i>Lap Belt</i>	<i>Lap belt & Tether (if needed)</i>	<i>Lower Anchors</i>	<i>Lap & Shoulder belt</i>	<i>Seat back Mount</i>	
	<i>Harnesses per S5.3.1(b)(1)-(3) & Figure 12</i>						N/A
	<i>Other Harnesses</i>						N/A
	<i>Car Beds</i>						N/A
	<i>Rear-Facing Restraints</i>	X		X			Pass
	<i>Belt-Positioning Seats</i>				X		Pass
	<i>All other child restraints</i>	X	X	X	X		Pass
S5.3.3	If a car bed, this child restraint system is designed to be installed laterally.	N/A					

The following failures were identified:
No failures

Remarks:
None

Recorded by: 

Adam Hardbattle, SLED
Engineer

Date: June 15, 2018

DATA SHEET 8
MINIMUM HEAD SUPPORT SURFACE
(FMVSS 213, S5.2.1)

Report No.:	213-CAL-18-042	Model No:	4Ever, 1943812
Test Date:	14 June 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	
S5.2.1.1(a)	Maximum Recommended Child Weight	Minimum Seat Back Height Required
	≤ 18 kg (39.7 lb)	50 cm (19.7 in.)
	> 18 kg (39,7 lb)	56 cm (22 in.)
S5.2.1.1(b)	Side Wing Depth	Minimum Back Support Width
	< 102 mm (4.0 in)	203 mm (8 in.)
	≥ 102 mm (4.0 in)	156 mm (6 in.)

The child restraint system is exempt from S5.2.1.1 **NO**

Back Support Height

Manufacturers Recommended Maximum Child Weight kg (lb)	Measured Height mm (in)	Pass / Fail
45kg (100lb)	700mm (27.4in)	Pass

Back Support Width

Measured Side Wing Depth mm (in)	Measured Width mm (in)	Pass / Fail
64mm (2.5in)	220mm (8.6in)	Pass

The following failures were identified:
No failures

Remarks:
Height measured with head rest fully up

Recorded by: 

Adam Hardbatt, SLED
Engineer

Date: June 15, 2018

**DATA SHEET 9
TORSO IMPACT PROTECTION
(FMVSS 213, S5.2.2)**

Report No.:	213-CAL-18-042	Model No:	4Ever, 1943812
Test Date:	14 June 2018		

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

Support Surface Results

Surface	Contour	Measured Area	Pass / Fail
Back Support	Flat	≥ 85 in ²	Pass
Side Support	Flat	≥ 24 in ²	Pass

Surfaces Restraining Torso Forward Movement Results

	Contour	Measured Area	Pass / Fail
Horizontal Cross Section	N/A	N/A	N/A
Vertical Cross Section	N/A	N/A	N/A

Fixed or Movable Surfaces Forward of Dummy Results

Yes/No	Pass / Fail
No	Pass

The following failures were identified:
No failures

Remarks:
None

Recorded by: 
Adam Hardbatt, SLED
Engineer

Date: June 15, 2018

**DATA SHEET 10
PROTRUSION LIMITATION
(FMVSS 213, S5.2.4)**


Report No.:	213-CAL-18-042	Model No:	4Ever, 1943812
Test Date:	14 June 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	Test Result	Pass/Fail
Height	≤ 9.53 mm (3/8 in.)	≤ 9.53 mm ($\leq 3/8$ in)	Pass
Edge Radius	≥ 6.35 mm (1/4 in.)	≥ 6.35 mm ($\geq 1/4$ in)	Pass

The following failures were identified:
No failures

Remarks:
None

Recorded by: 
Adam Hardbattle, SLED
Engineer

Date: June 15, 2018

DATA SHEET 11
DYNAMIC IMPACT TEST CONDITIONS – TEST 1
(FMVSS 213, S6.1)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-113A
Test Date:	14 June 2018	Item Code	042-1943812-01-6H3FN3FN

Laboratory Ambient Conditions During Testing:

Temperature Degrees C (F)	21.8C (71.2F)
Relative Humidity %	47.5%

Pulse:

Test Configuration (I or II):	I
Velocity (km/h (mph)):	47.2 km/h (29.3 mph)

Dummy:

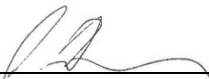
Dummy Description:	H3 6 Year Old (Part 572R)
Dummy Serial Number:	158

Restraint Installation:

Installed Direction:	Forward Facing
Base Usage:	Other Configuration
Attachment Method:	Lap and Shoulder belt
Tether Usage:	NO, Tether Free
Seat Back Position:	Upright 6
Internal Shoulder Harness Position:	N/A
Buckle Harness Position:	N/A

Remarks:

No Back Booster mode
 Pre and Post Test Photos are presented in Section 9.

Recorded by: 
 Adam Hardbattle, SLED
 Engineer

Date: June 15, 2018

**DYNAMIC IMPACT SLED PULSE – TEST 1
(FMVSS 213, S6.1)**

Report No.:	213-CAL-18-042
Test Date:	14 June 2018

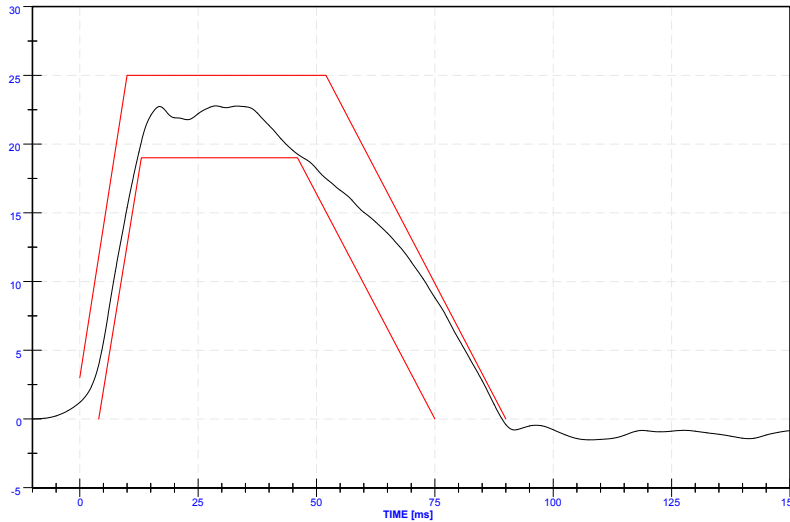
Sled Test No.	FM06-18-113A
Item Code	042-1943812-01-6H3FN3FN



NHTSA FM06-18-113

Test Date: June 14, 2018

SLED Pulse Corridor



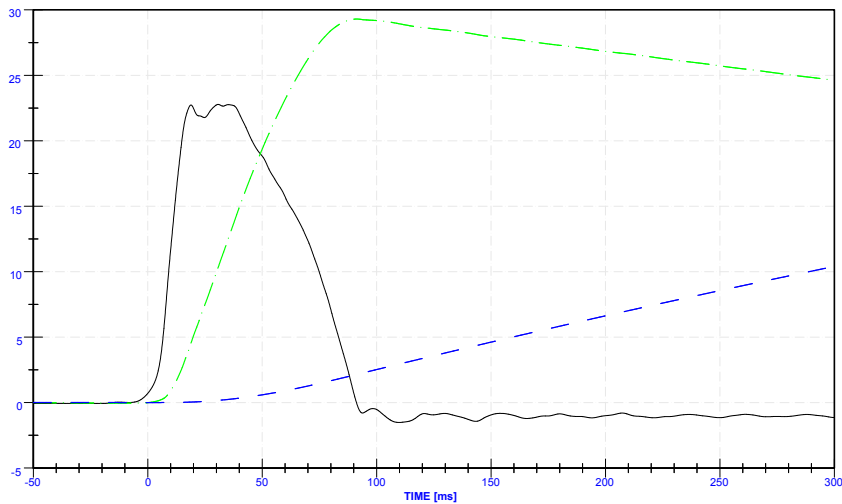
	Maximum	Time (ms)	Filter Class	Legend
SLED Acceleration (G's)	22.77	30.7	CFC 60	SOSLED000000ACXD



NHTSA FM06-18-113

Test Date: June 14, 2018

SLED Pulse



	Maximum	Time (ms)	Filter Class	Legend
SLED Acceleration (G's)	22.77	109.9	CFC 60	SOSLED000000ACXD
SLED Velocity (mph)	29.29	-15.2	CFC 180	SOSLED000000VAXC
SLED Displacement (ft)	10.39	0.4	CFC 180	SOSLED000000DVXC

DATA SHEET 12
BELT RESTRAINT – TEST 1
(FMVSS 213, S5.4.3)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-113A
Test Date:	14 June 2018	Item Code	042-1943812-01-6H3FN3FN

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.	N/A

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

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

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 & crotch)	N/A
S5.4.3.3(c)	Prevent Standing	N/A

Remarks

Backless Booster

Recorded by:


 Adam Hardbattle, SLED Engineer

Date:

June 15, 2018

DATA SHEET 13
BUCKLE RELEASE – TEST 1
(FMVSS 213, S5.4.3.5, S6.2)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-113A
Test Date:	14 June 2018	Item Code	042-1943812-01-6H3FN3FN


Section	Requirement	Measurement	Pass / Fail
S5.4.3.5(a)	Pre-Impact Release Force Releases under 40-60 N	N/A	N/A
S5.4.3.5(a)	Post-Impact Release Force* Releases \leq 71 N	N/A	N/A
S5.4.3.5(a)	Minimum Surface Area of Buckle \geq 3.9 cm ² (0.6 in ²)	N/A	N/A
S5.4.3.5(a)	Buckle Integrity Shall not release during testing	N/A	N/A

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

Remarks

Backless Booster Mode

Recorded by:


 Adam Hardbattle, SLED
 Engineer

Date:

June 15, 2018

DATA SHEET 14
SYSTEM INTEGRITY – TEST 1
(FMVSS 213, S5.1.1)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-113A
Test Date:	14 June 2018	Item Code	042-1943812-01-6H3FN3FN

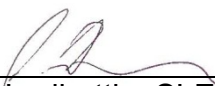
S5.1.1 When dynamically tested, the child restraint shall:

Section	Requirement	Pass / Fail
S5.1.1(a)	Structural Integrity – Exhibit no complete separation of any load bearing structural element	Pass
	Exhibit no partial separation with exposing surfaces with a radius of less than 9.53 mm (3/8 in.)	Pass
	Exhibit no partial separation with exposing surfaces with protrusions greater than 6.35 mm (1/4 in.)	Pass
S5.1.1(b)(1)	Adjustment Position – Remain in the same adjustment position during the test that it was immediately before the test	Pass
S5.1.1(b)(2)(ii)	Exposed Openings – Have no exposed opening larger than 6.35 mm (1/4 in.) before the test becomes smaller during the testing as a result of the movement of the seating service 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

Backless Booster

Recorded by: _____


 Adam Hardbatt, SLED
 Engineer

Date: _____ June 15, 2018

**DATA SHEET 15
INJURY CRITERIA – TEST 1
(FMVSS 213, S5.1.2)**

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-113A
Test Date:	14 June 2018	Item Code	042-1943812-01-6H3FN3FN

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
667	Pass

Chest Injury Criterion Results

Max Acceleration lasting 3ms (g)	Pass / Fail
53	Pass

Remarks

Recorded by: 
 Adam Hardbattle, SLED
 Engineer

Date: June 15, 2018

**INJURY CRITERIA – HEAD ACCELERATION PLOTS – TEST 1
(FMVSS 213, S5.1.2)**

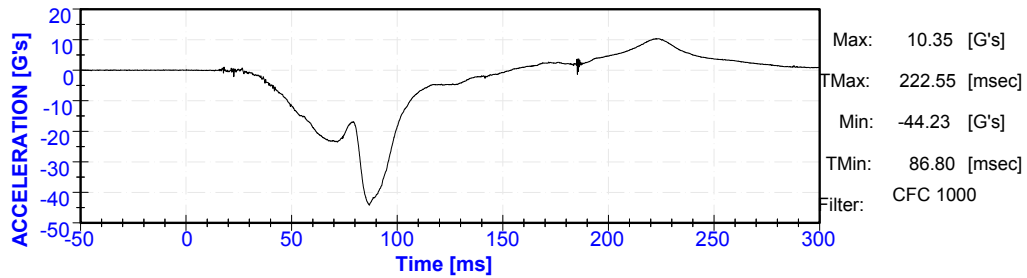
Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-113A
Test Date:	14 June 2018	Item Code	042-1943812-01-6H3FN3FN
3ms Clip	667	Resultant	57 g's



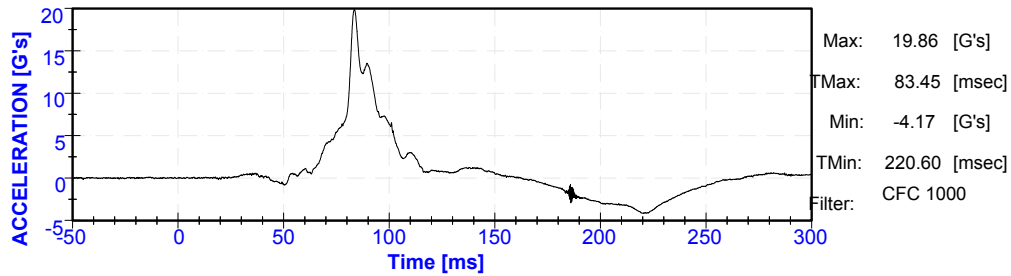
NHTSA FM06-18-113

Test Date: June 14,

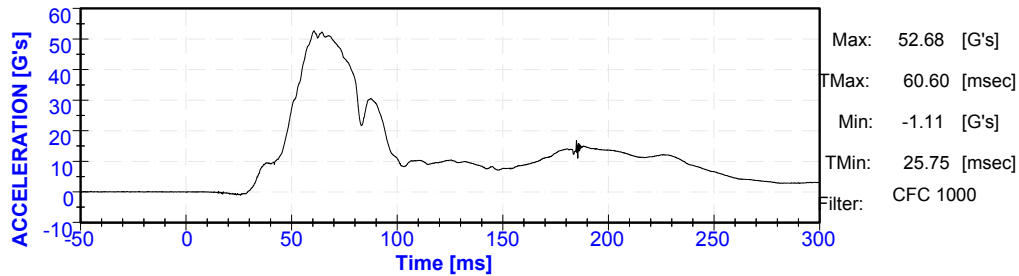
A Bench ATD Head X Acceleration



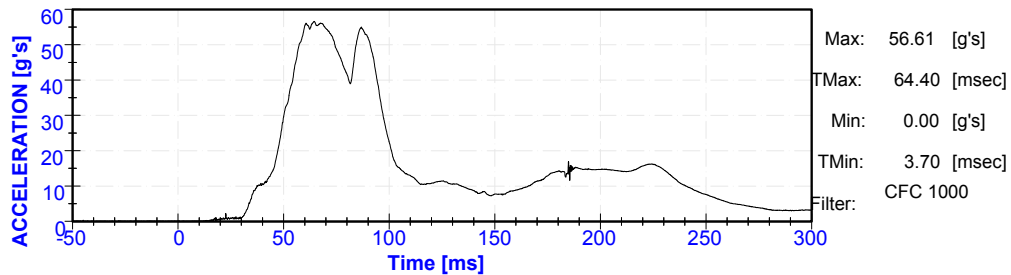
A Bench ATD Head Y Acceleration



A Bench ATD Head Z Acceleration



A Bench ATD Head Resultant Acceleration



**INJURY CRITERIA – CHEST ACCELERATION PLOTS – TEST 1
(FMVSS 213, S5.1.2)**

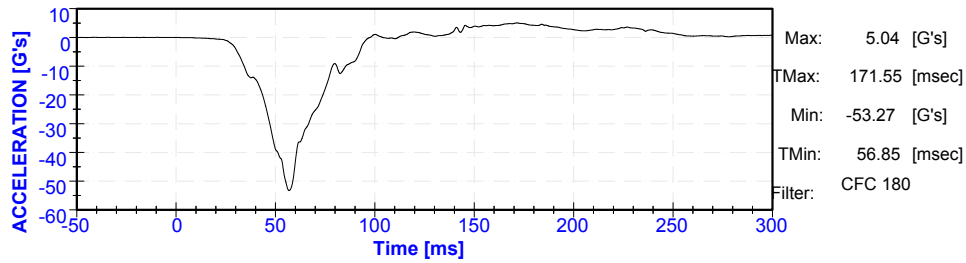
Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-113A
Test Date:	14 June 2018	Item Code	042-1943812-01-6H3FN3FN
3ms Clip	53 g's	Resultant	55 g's



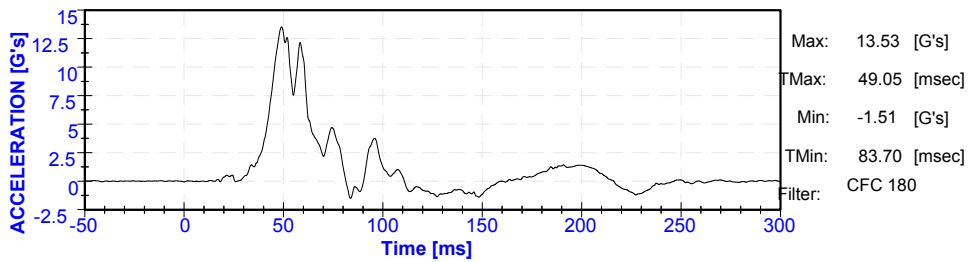
NHTSA FM06-18-113

Test Date: June 14,

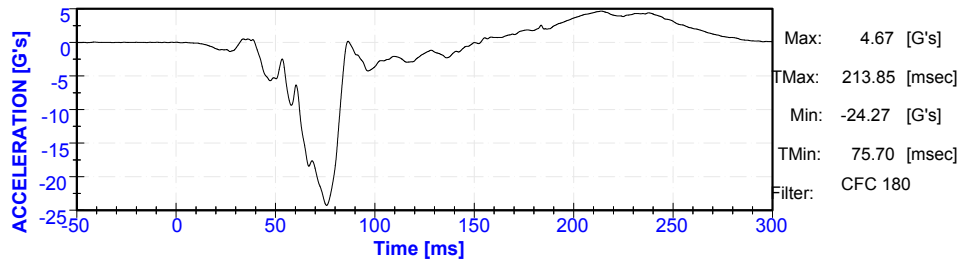
A Bench ATD Chest X Acceleration



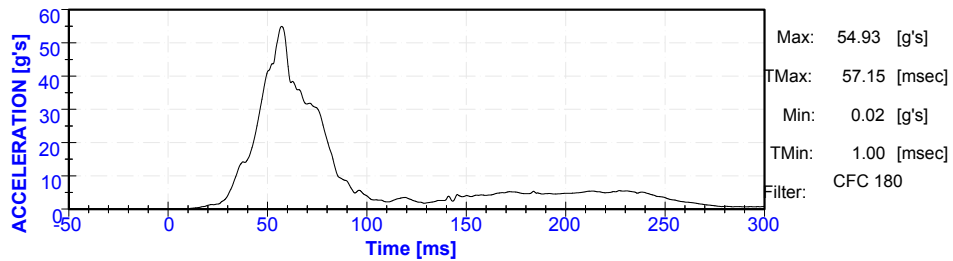
A Bench ATD Chest Y Acceleration



A Bench ATD Chest Z Acceleration



A Bench ATD Chest Resultant Acceleration



DATA SHEET 16
OCCUPANT EXCURSION – TEST 1
(FMVSS 213, S5.1.3, S5.1.4, S5.2.1.1(c))

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-113A
Test Date:	14 June 2018	Item Code	042-1943812-01-6H3FN3FN

FORWARD-FACING RESTRAINTS

Section	Requirement	Measurement	Pass / Fail
S5.1.3.1	Torso Retention – CRS shall retain the torso within system		Pass
S5.1.3.1(a)(1)	Head Excursion - ≤ 720 mm (28.4 in.) with tether ≤ 813 mm (32 in.) No tether	364	Pass
S5.1.3.1(a)(2)	Knee Excursion - ≤ 91.5 cm (36 in.)	554	Pass
S5.2.1.1(c)	Head-Torso Angle - Rearward change ≤ 45 degrees	<45	Pass


REAR-FACING RESTRAINTS

Section	Requirement	Measurement	Pass / Fail
S5.1.3.2	Torso Retention – 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 vertical ≤ 70 degrees	N/A	N/A
S5.2.1.1(c)	Head-Torso Angle - Rearward change ≤ 45 degrees	N/A	N/A

Remarks

Excursion camera locations (forward of Z point) are 32", Camera speed = 2000fps and focal length of lenses = 12.5mm

Recorded by: _____


 Adam Hardbattle, SLED
 Engineer

Date: June 15, 2018

DATA SHEET 17
OCCUPANT EXCURSION – TEST 1
(FMVSS 213, S5.1.3.3)

CAR BED RESTRAINTS

Section	Requirement	Measurement	Pass / Fail
Head – Torso Retention (FMVSS 213, S5.1.3.3)	Retain within confines of system	N/A	N/A

Remarks

Recorded by: _____



Adam Hardbattle, SLED
Engineer

Date: June 15, 2018

DATA SHEET 18
DYNAMIC IMPACT TEST CONDITIONS – TEST 2
(FMVSS 213, S6.1)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-113B
Test Date:	14 June 2018	Item Code	042-1943812-02-12CRN2FR

Laboratory Ambient Conditions During Testing:

Temperature Degrees C (F)	21.8C (71.2F)
Relative Humidity %	47.5%

Pulse:

Test Configuration (I or II):	I
Velocity (km/h (mph)):	47.1 km/h (29.3 mph)

Dummy:

Dummy Description:	CRABI 12 Month Old (Part 572R)
Dummy Serial Number:	085


Restraint Installation:

Installed Direction:	Rearward Facing
Base Usage:	Other Configuration
Attachment Method:	Lap Belt
Tether Usage:	No, Tether Free
Seat Back Position:	Recline 2
Internal Shoulder Harness Position:	5, Counted up from bottom
Buckle Harness Position:	Rear

Remarks:

Pre and Post Test Photos are presented in Section 9.

Recorded by: _____


Adam Hardbatt, SLED
Engineer

Date: June 15, 2018

**DYNAMIC IMPACT SLED PULSE – TEST 2
(FMVSS 213, S6.1)**

Report No.:	213-CAL-18-042
Test Date:	14 June 2018

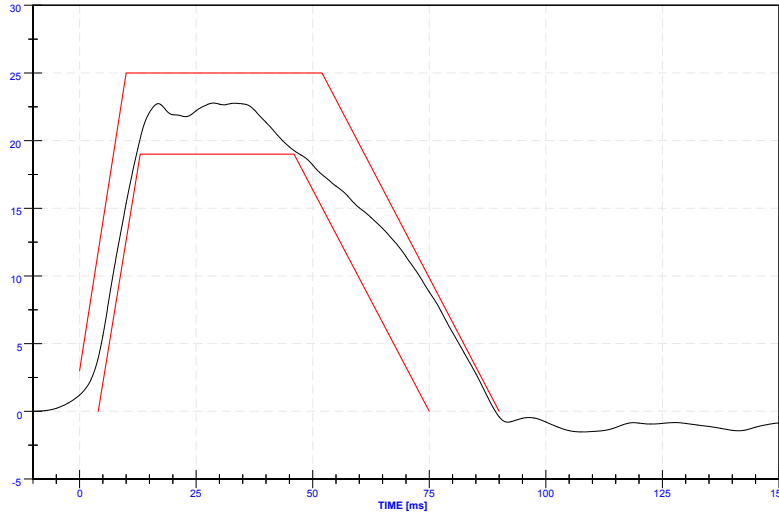
Sled Test No.	FM06-18-113B
Item Code	042-1943812-02-12CRN2FR



NHTSA FM06-18-113

Test Date: June 14, 2018

SLED Pulse Corridor



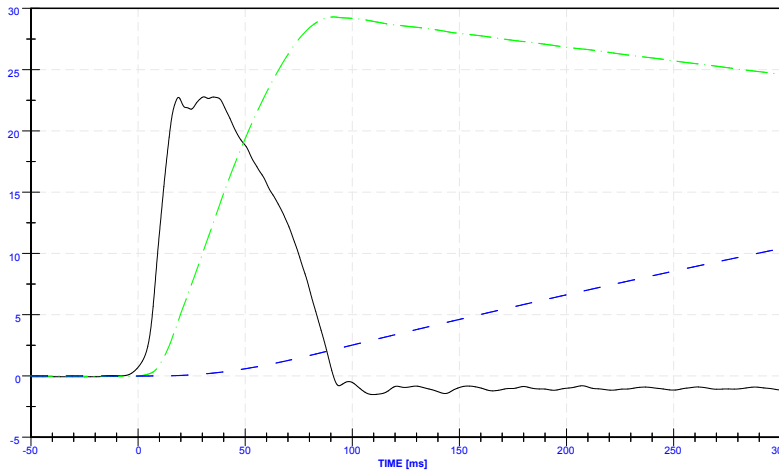
	Maximum	Time (ms)	Filter Class	Legend
SLED Acceleration (G's)	22.77	30.7	CFC 60	SOSLED000000ACXD



NHTSA FM06-18-113

Test Date: June 14, 2018

SLED Pulse



	Maximum	Time (ms)	Filter Class	Legend
SLED Acceleration (G's)	22.77	109.9	CFC 60	SOSLED000000ACXD
SLED Velocity (mph)	29.29	-15.2	CFC 180	SOSLED000000VAXC
SLED Displacement (ft)	10.39	0.4	CFC 180	SOSLED000000DVXC

DATA SHEET 19
BELT RESTRAINT – TEST 2
(FMVSS 213, S5.4.3)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-113B
Test Date:	14 June 2018	Item Code	042-1943812-02-12CRN2FR

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 manufacturers installation instructions.	Pass

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

Section	Requirement	Pass / Fail
S5.4.3.3	Seating Systems. Except for harness and infant restraints for children up to 10kg (22lb), 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 & crotch)	N/A
S5.4.3.3(c)	Prevent Standing	N/A

Remarks

Recorded by: 
Adam Hardbattle, SLED Engineer

Date: June 15, 2018

DATA SHEET 20
BUCKLE RELEASE – TEST 2
(FMVSS 213, S5.4.3.5, S6.2)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-113B
Test Date:	14 June 2018	Item Code	042-1943812-02-12CRN2FR


Section	Requirement	Measurement	Pass / Fail
S5.4.3.5(a)	Pre-Impact Release Force Releases under 40-60 N	46 N	Pass
S5.4.3.5(a)	Post-Impact Release Force* Releases \leq 71 N	53 N	Pass
S5.4.3.5(a)	Minimum Surface Area of Buckle \geq 3.9 cm ² (0.6 in ²)	4 cm ²	Pass
S5.4.3.5(a)	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

None

Recorded by:


 Adam Hardbattle, SLED
 Engineer

Date:

June 15, 2018

DATA SHEET 21
SYSTEM INTEGRITY – TEST 2
(FMVSS 213, S5.1.1)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-113B
Test Date:	14 June 2018	Item Code	042-1943812-02-12CRN2FR

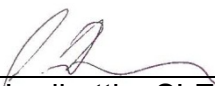
S5.1.1 When dynamically tested, the child restraint shall:

Section	Requirement	Pass / Fail
S5.1.1(a)	Structural Integrity – Exhibit no complete separation of any load bearing structural element	Pass
	Exhibit no partial separation with exposing surfaces with a radius of less than 9.53 mm (3/8 in.)	Pass
	Exhibit no partial separation with exposing surfaces with protrusions greater than 6.35 mm (1/4 in.)	Pass
S5.1.1(b)(1)	Adjustment Position – Remain in the same adjustment position during the test that it was immediately before the test	Pass
S5.1.1(b)(2)(ii)	Exposed Openings – Have no exposed opening larger than 6.35 mm (1/4 in.) before the test becomes smaller during the testing as a result of the movement of the seating service 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 and seating surface to be less than 45 degrees at the completion of the test	N/A

Remarks

None

Recorded by: _____


Adam Hardbatt, SLED
Engineer

Date: _____

June 15, 2018

DATA SHEET 22
INJURY CRITERIA – TEST 2
(FMVSS 213, S5.1.2)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-113B
Test Date:	14 June 2018	Item Code	042-1943812-02-12CRN2FR

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
322	Pass


Chest Injury Criterion Results

Max Acceleration lasting 3ms (g)	Pass / Fail
36	Pass

Remarks

None

Recorded by: _____


Adam Hardbattle, SLED
Engineer

Date: _____

June 15, 2018

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

Report No.:	213-CAL-18-042
Test Date:	14 June 2018
HIC 36ms	322

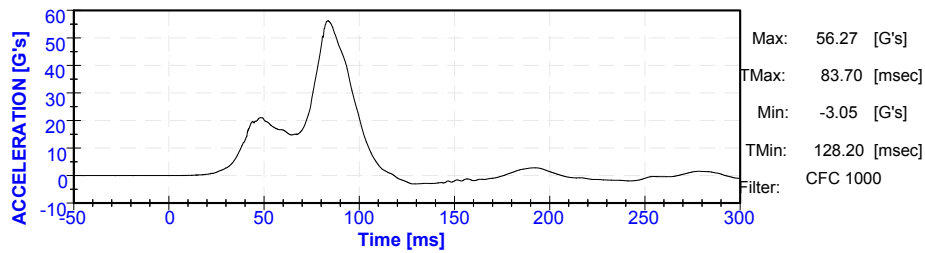
Sled Test No.	FM06-18-113B
Item Code	042-1943812-02-12CRN2FR
Resultant	57 g's



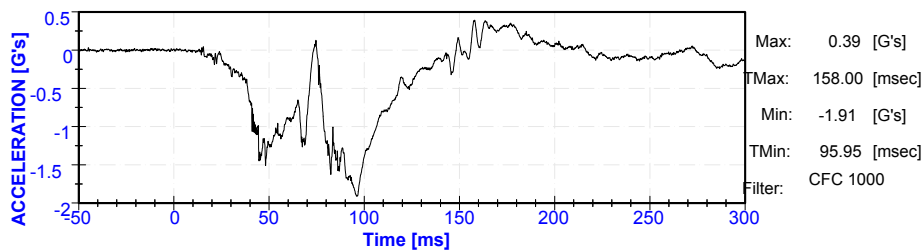
NHTSA FM06-18-113

Test Date: June 14,

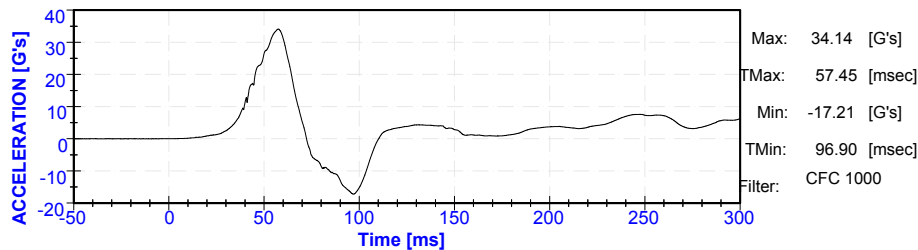
B Bench ATD Head X Acceleration



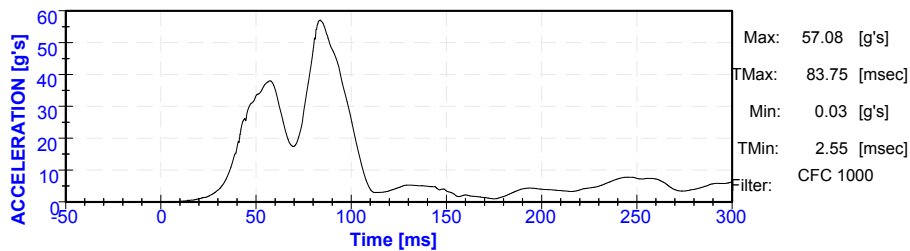
B Bench ATD Head Y Acceleration



B Bench ATD Head Z Acceleration



B Bench ATD Head Resultant Acceleration



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

Report No.:	213-CAL-18-042
Test Date:	14 June 2018
3ms Clip	36 g's

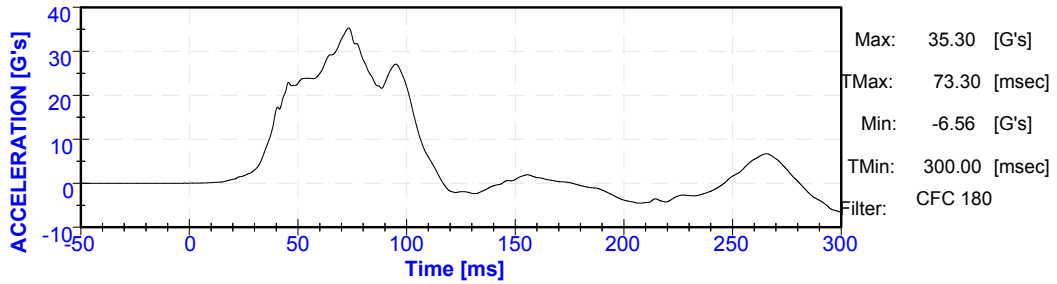
Sled Test No.	FM06-18-113B
Item Code	042-1943812-02-12CRN2FR
Resultant	36 g's



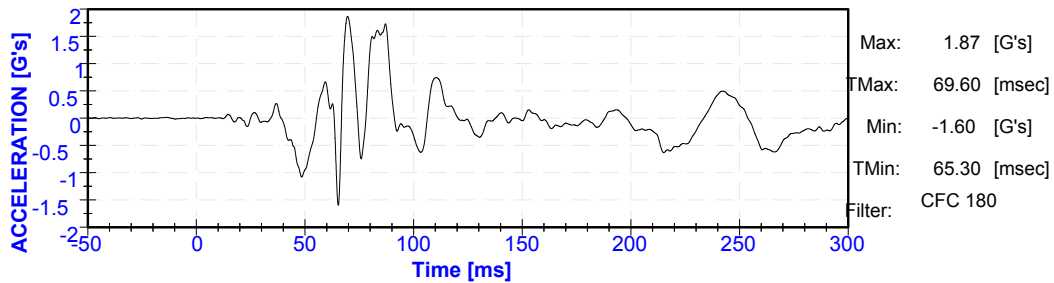
NHTSA FM06-18-113

Test Date: June 14,

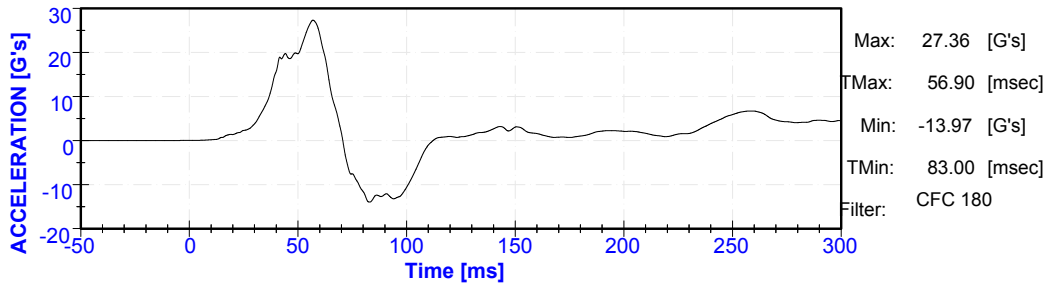
B Bench ATD Chest X Acceleration



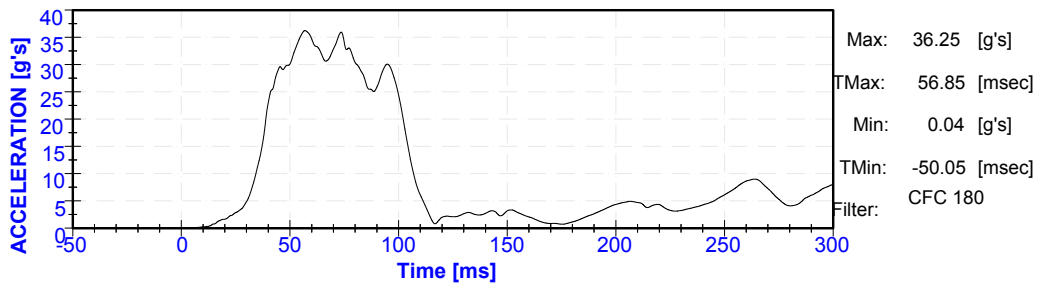
B Bench ATD Chest Y Acceleration



B Bench ATD Chest Z Acceleration



B Bench ATD Chest Resultant Acceleration



DATA SHEET 23
OCCUPANT EXCURSION – TEST 2
(FMVSS 213, S5.1.3, S5.1.4, S5.2.1.1(c))

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-113B
Test Date:	14 June 2018	Item Code	042-1943812-02-12CRN2FR

FORWARD-FACING RESTRAINTS

Section	Requirement	Measurement	Pass / Fail
S5.1.3.1	Torso Retention – CRS shall retain the torso within system		N/A
S5.1.3.1(a)(1)	Head Excursion - ≤ 720 mm (28.4 in.) with tether ≤ 813 mm (32 in.) No tether	N/A	N/A
S5.1.3.1(a)(2)	Knee Excursion - < 91.5 cm (36 in.)	N/A	N/A
S5.2.1.1(c)	Head-Torso Angle - Rearward change ≤ 45 degrees	N/A	N/A


REAR-FACING RESTRAINTS

Section	Requirement	Measurement	Pass / Fail
S5.1.3.2	Torso Retention – 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 vertical ≤ 70 degrees	49	Pass
S5.2.1.1(c)	Head-Torso Angle - Rearward change ≤ 45 degrees	≤ 45°	Pass

Remarks

Excursion camera locations (forward of Z point) are 28.4", Camera speed = 2000fps and focal length of lenses = 12.5mm

Recorded by: _____


 Adam Hardbatt, SLED
 Engineer

Date: June 15, 2018

DATA SHEET 24
OCCUPANT EXCURSION – TEST 2
(FMVSS 213, S5.1.3.3)

CAR BED RESTRAINTS

Section	Requirement	Measurement	Pass / Fail
Head – Torso Retention (FMVSS 213, S5.1.3.3)	Retain within confines of system	N/A	N/A

Remarks

Recorded by: 
Adam Hardbattle, SLED
Engineer

Date: June 15, 2018

DATA SHEET 25
DYNAMIC IMPACT TEST CONDITIONS – TEST 3
(FMVSS 213, S6.1)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-114A
Test Date:	14 June 2018	Item Code	042-1943812-03-3H3FN3FB

Laboratory Ambient Conditions During Testing:

Temperature Degrees C (F)	21.8C (71.2F)
Relative Humidity %	44.5%

Pulse:

Test Configuration (I or II):	I
Velocity (km/h (mph)):	46.9 km/h (29.2 mph)

Dummy:

Dummy Description:	3YO Hybrid II (Part 572R)
Dummy Serial Number:	220

Restraint Installation:

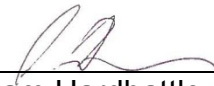
Installed Direction:	Forward Facing
Base Usage:	Other Configuration
Attachment Method:	Lap & Shoulder Belt
Tether Usage:	No, Tether Free
Seat Back Position:	Upright - 6
Internal Shoulder Harness Position:	Headrest-5, Counted from bottom up
Buckle Harness Position:	N/A

Remarks:

Booster Mode

Pre and Post Test Photos are presented in Section 9.

Recorded by: _____


 Adam Hardbattle, SLED
 Engineer

Date: June 15, 2018

**DYNAMIC IMPACT SLED PULSE – TEST 3
(FMVSS 213, S6.1)**

Report No.:	213-CAL-18-042
Test Date:	14 June 2018

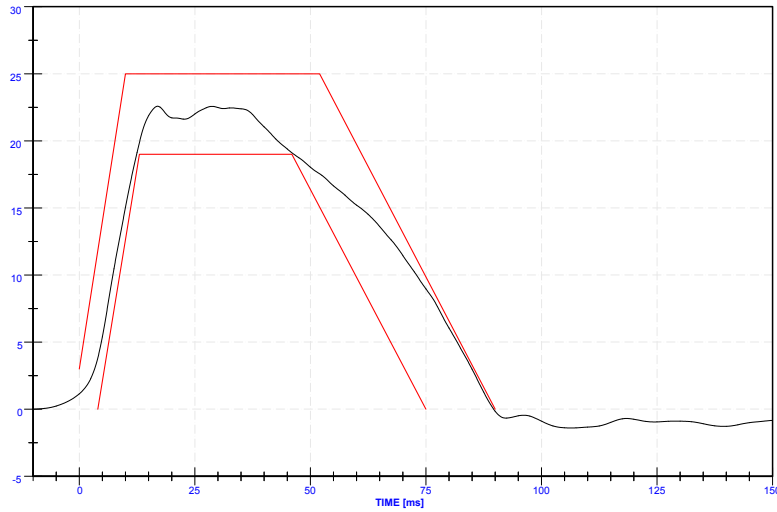
Sled Test No.	FM06-18-114A
Item Code	042-1943812-03-3H3FN3FB



NHTSA FM06-18-114

Test Date: June 14, 2018

SLED Pulse Corridor



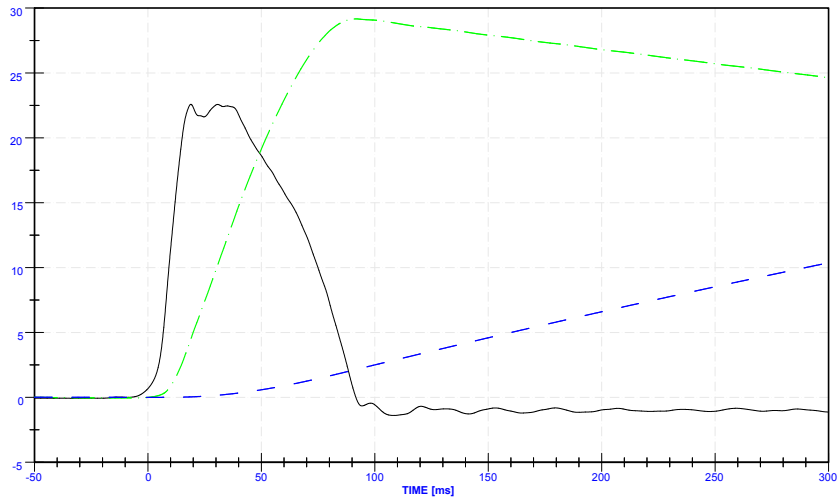
	Maximum	Time (ms)	Filter Class	Legend
SLED Acceleration (G's)	22.58	19.0	CFC 60	S0SLED00000ACXD



NHTSA FM06-18-114

Test Date: June 14, 2018

SLED Pulse



	Maximum	Time (ms)	Filter Class	Legend
SLED Acceleration (G's)	22.58	108.4	CFC 60	S0SLED00000ACXD
SLED Velocity (mph)	29.16	-15.4	CFC 180	S0SLED00000VAXC
SLED Displacement (ft)	10.36	0.5	CFC 180	S0SLED00000DVXC

DATA SHEET 26
BELT RESTRAINT – TEST 3
(FMVSS 213, S5.4.3)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-114A
Test Date:	14 June 2018	Item Code	042-1943812-03-3H3FN3FB

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 manufacturers installation instructions.	N/A

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

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

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 & crotch)	N/A
S5.4.3.3(c)	Prevent Standing	N/A

Remarks

Booster Mode

Recorded by:


 Adam Hardbattle, SLED Engineer

Date:

June 15, 2018

DATA SHEET 27
BUCKLE RELEASE – TEST 3
(FMVSS 213, S5.4.3.5, S6.2)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-114A
Test Date:	14 June 2018	Item Code	042-1943812-03-3H3FN3FB


Section	Requirement	Measurement	Pass / Fail
S5.4.3.5(a)	Pre-Impact Release Force Releases under 40-60 N	N/A	N/A
S5.4.3.5(a)	Post-Impact Release Force* Releases \leq 71 N	N/A	N/A
S5.4.3.5(a)	Minimum Surface Area of Buckle \geq 3.9 cm ² (0.6 in ²)	N/A	N/A
S5.4.3.5(a)	Buckle Integrity Shall not release during testing	N/A	N/A

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

Remarks

Booster Mode

Recorded by: _____


 Adam Hardbattle, SLED
 Engineer

Date: _____ June 15, 2018 _____

DATA SHEET 28
SYSTEM INTEGRITY – TEST 3
(FMVSS 213, S5.1.1)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-114A
Test Date:	14 June 2018	Item Code	042-1943812-03-3H3FN3FB

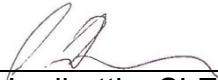
S5.1.1 When dynamically tested, the child restraint shall:

Section	Requirement	Pass / Fail
S5.1.1(a)	Structural Integrity – Exhibit no complete separation of any load bearing structural element	Pass
	Exhibit no partial separation with exposing surfaces with a radius of less than 9.53 mm (3/8 in.)	Pass
	Exhibit no partial separation with exposing surfaces with protrusions greater than 6.35 mm (1/4 in.)	Pass
S5.1.1(b)(1)	Adjustment Position – Remain in the same adjustment position during the test that it was immediately before the test	Pass
S5.1.1(b)(2)(ii)	Exposed Openings – Have no exposed opening larger than 6.35 mm (1/4 in.) before the test becomes smaller during the testing as a result of the movement of the seating service 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 and seating surface to be less than 45 degrees at the completion of the test	Pass

Remarks

None

Recorded by: _____


Adam Hardbatt, SLED
Engineer

Date: June 15, 2018

DATA SHEET 29
INJURY CRITERIA – TEST 3
(FMVSS 213, S5.1.2)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-114A
Test Date:	14 June 2018	Item Code	042-1943812-03-3H3FN3FB

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
523	Pass

Chest Injury Criterion Results

Max Acceleration lasting 3ms (g)	Pass / Fail
40	Pass

Remarks

Recorded by: _____


 Adam Hardbattle, SLED
 Engineer

Date: June 15, 2018

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

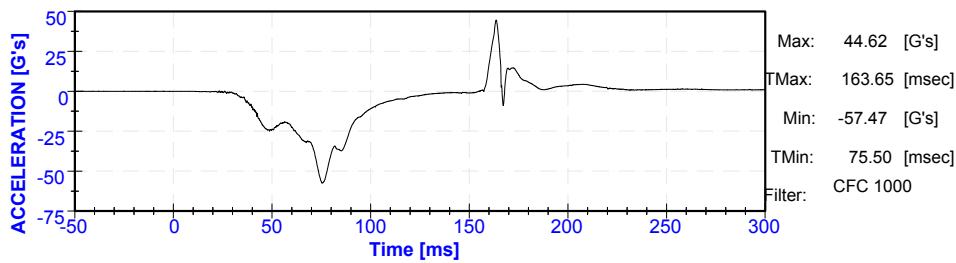
Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-114A
Test Date:	14 June 2018	Item Code	042-1943812-03-3H3FN3FB
HIC 36ms	523	Resultant	60 g's



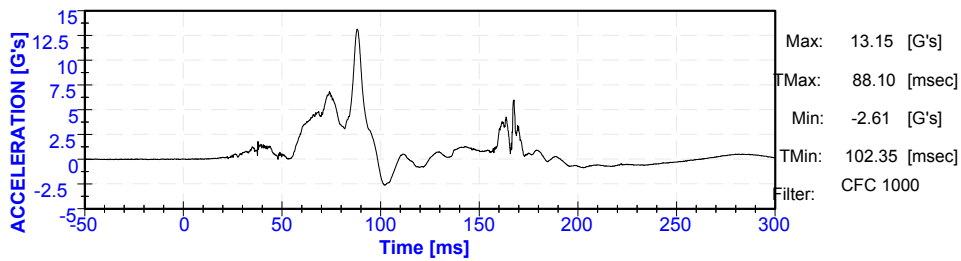
NHTSA FM06-18-114

Test Date: June 14,

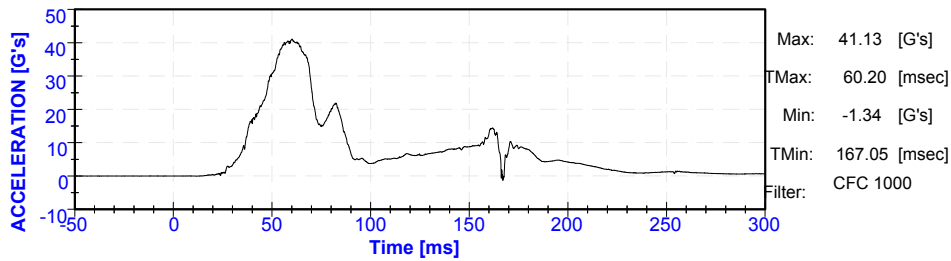
A Bench ATD Head X Acceleration



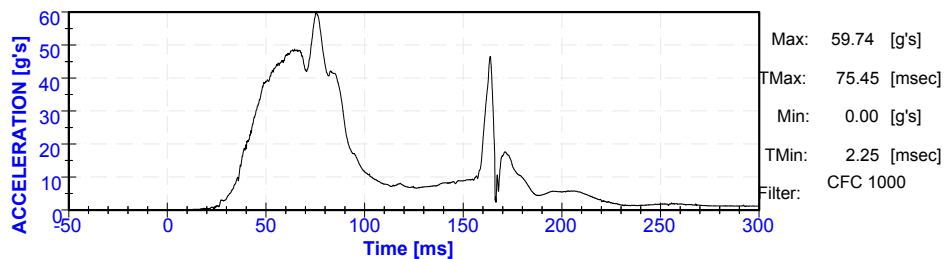
A Bench ATD Head Y Acceleration



A Bench ATD Head Z Acceleration



A Bench ATD Head Resultant Acceleration



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

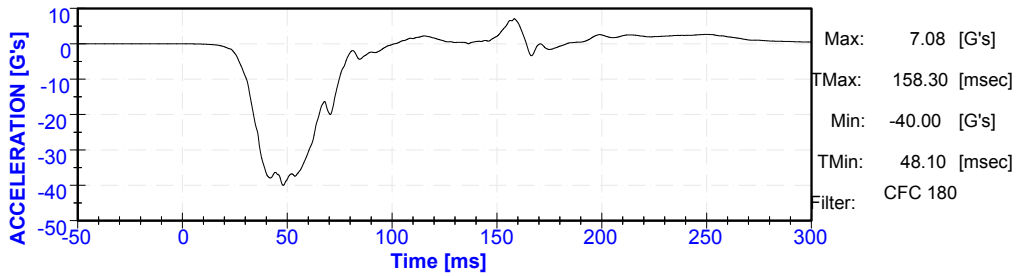
Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-114A
Test Date:	14 June 2018	Item Code	042-1943812-03-3H3FN3FB
3ms Clip	40 g's	Resultant	41 g's



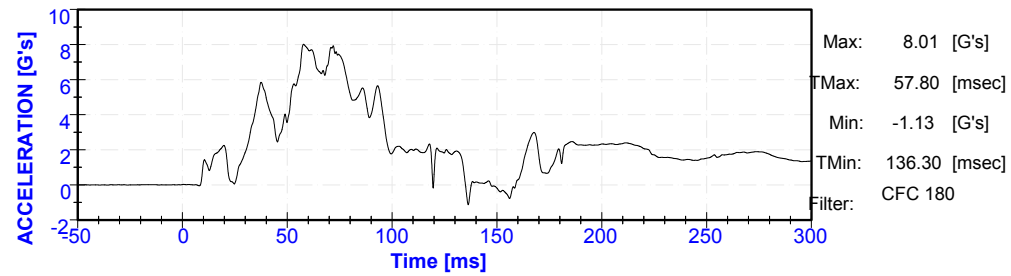
NHTSA FM06-18-114

Test Date: June 14,

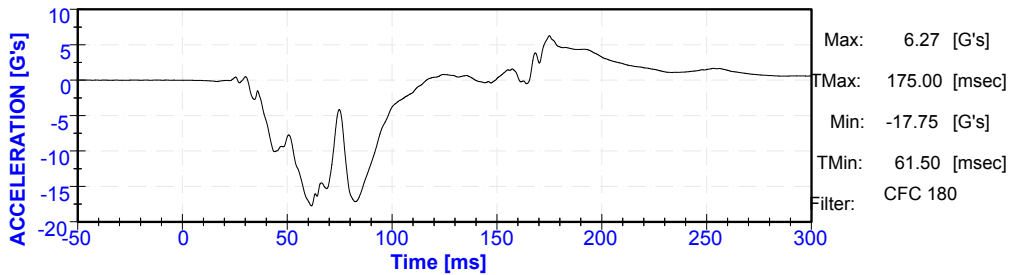
A Bench ATD Chest X Acceleration



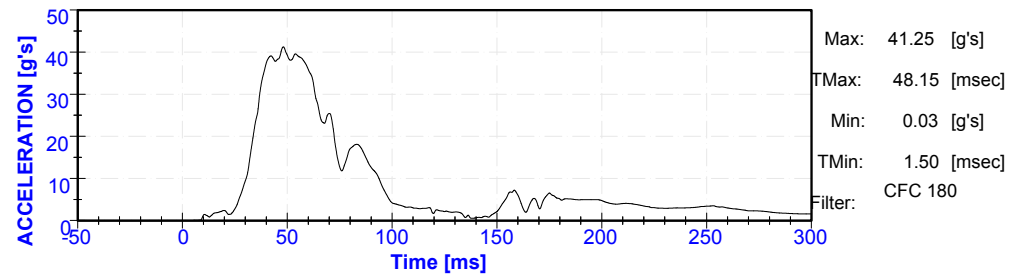
A Bench ATD Chest Y Acceleration



A Bench ATD Chest Z Acceleration



A Bench ATD Chest Resultant Acceleration



DATA SHEET 30
OCCUPANT EXCURSION – TEST 3
(FMVSS 213, S5.1.3, S5.1.4, S5.2.1.1(c))

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-114A
Test Date:	14 June 2018	Item Code	042-1943812-03-3H3FN3FB

FORWARD-FACING RESTRAINTS

Section	Requirement	Measurement	Pass / Fail
S5.1.3.1	Torso Retention – CRS shall retain the torso within system		Pass
S5.1.3.1(a)(1)	Head Excursion - ≤ 720 mm (28.4 in.) with tether ≤ 813 mm (32 in.) No tether	384	Pass
S5.1.3.1(a)(2)	Knee Excursion - ≤ 91.5 cm (36 in.)	599	Pass
S5.2.1.1(c)	Head-Torso Angle - Rearward change ≤ 45 degrees	≤ 45°	Pass


REAR-FACING RESTRAINTS

Section	Requirement	Measurement	Pass / Fail
S5.1.3.2	Torso Retention – 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 vertical ≤ 70 degrees	N/A	N/A
S5.2.1.1(c)	Head-Torso Angle - Rearward change ≤ 45 degrees	N/A	N/A

Remarks

Excursion camera locations (forward of Z point) are 28.4", Camera speed = 2000fps and focal length of lenses = 12.5mm

Recorded by: _____


 Adam Hardbattle, SLED
 Engineer

Date: June 15, 2018

DATA SHEET 31
OCCUPANT EXCURSION – TEST 3
(FMVSS 213, S5.1.3.3)

CAR BED RESTRAINTS

Section	Requirement	Measurement	Pass / Fail
Head – Torso Retention (FMVSS 213, S5.1.3.3)	Retain within confines of system	N/A	N/A

Remarks

Recorded by: _____



Adam Hardbattle, SLED
Engineer

Date: June 15, 2018

DATA SHEET 32
DYNAMIC IMPACT TEST CONDITIONS – TEST 4
(FMVSS 213, S6.1)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-114B
Test Date:	14 June 2018	Item Code	042-1943812-04-12CFNLTU

Laboratory Ambient Conditions During Testing:

Temperature Degrees C (F)	21.8C (71.2F)
Relative Humidity %	44.5%

Pulse:

Test Configuration (I or II):	I
Velocity (km/h (mph)):	46.9 km/h (29.1 mph)

Dummy:

Dummy Description:	CRABI 12 Month Old (Part 572R)
Dummy Serial Number:	085


Restraint Installation:

Installed Direction:	Forward Facing
Base Usage:	Other Configuration
Attachment Method:	Lower Anchors
Tether Usage:	Tether
Seat Back Position:	Upright - 4
Internal Shoulder Harness Position:	6, Counted up from bottom
Buckle Harness Position:	Rear

Remarks:

Pre and Post Test Photos are presented in Section 9.

Recorded by: _____


 Adam Hardbattle, SLED
 Engineer

Date: June 15, 2018

**DYNAMIC IMPACT SLED PULSE – TEST 4
(FMVSS 213, S6.1)**

Report No.:	213-CAL-18-042
Test Date:	14 June 2018

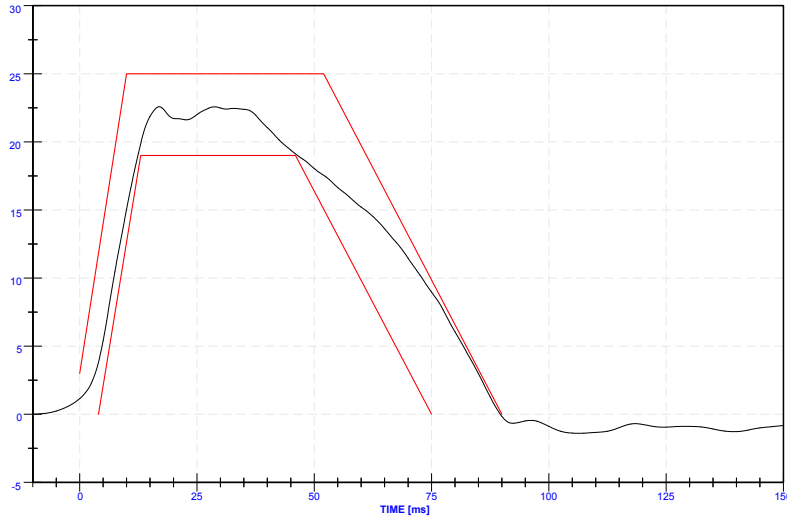
Sled Test No.	FM06-18-114B
Item Code	042-1943812-04-12CFNLTU



NHTSA FM06-18-114

Test Date: June 14, 2018

SLED Pulse Corridor



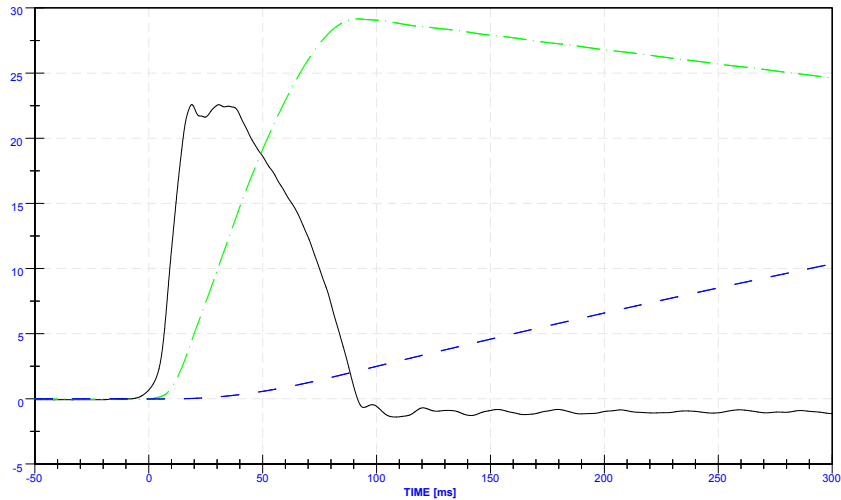
	Maximum	Time (ms)	Filter Class	Legend
SLED Acceleration (G's)	22.58	19.0	CFC 60	S0SLED0000R00ACXD



NHTSA FM06-18-114

Test Date: June 14, 2018

SLED Pulse



	Maximum	Time (ms)	Filter Class	Legend
SLED Acceleration (G's)	22.58	19.0	CFC 60	S0SLED000000ACXD
SLED Velocity (mph)	29.16	-15.4	CFC 180	S0SLED000000VAXC
SLED Displacement (ft)	10.36	0.5	CFC 180	S0SLED000000DVXC

DATA SHEET 33
BELT RESTRAINT – TEST 4
(FMVSS 213, S5.4.3)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-114B
Test Date:	14 June 2018	Item Code	042-1943812-04-12CFNLTU

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 manufacturers installation instructions.	Pass


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

Section	Requirement	Pass / Fail
S5.4.3.3	Seating Systems. Except for harness and infant restraints for children up to 10kg (22lb), 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 & crotch)	N/A
S5.4.3.3(c)	Prevent Standing	N/A

Remarks

Recorded by:


 Adam Hardbattle, SLED Engineer

Date:

June 15, 2018

DATA SHEET 34
BUCKLE RELEASE – TEST 4
(FMVSS 213, S5.4.3.5, S6.2)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-114B
Test Date:	14 June 2018	Item Code	042-1943812-04-12CFNLTU


Section	Requirement	Measurement	Pass / Fail
S5.4.3.5(a)	Pre-Impact Release Force Releases under 40-60 N	49 N	Pass
S5.4.3.5(a)	Post-Impact Release Force* Releases \leq 71 N	52 N	Pass
S5.4.3.5(a)	Minimum Surface Area of Buckle \geq 3.9 cm ² (0.6 in ²)	4 cm ²	Pass
S5.4.3.5(a)	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

None

Recorded by: _____


 Adam Hardbatt, SLED
 Engineer

Date: June 15, 2018

DATA SHEET 35
SYSTEM INTEGRITY – TEST 4
(FMVSS 213, S5.1.1)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-114B
Test Date:	14 June 2018	Item Code	042-1943812-04-12CFNLTU

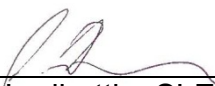
S5.1.1 When dynamically tested, the child restraint shall:

Section	Requirement	Pass / Fail
S5.1.1(a)	Structural Integrity – Exhibit no complete separation of any load bearing structural element	Pass
	Exhibit no partial separation with exposing surfaces with a radius of less than 9.53 mm (3/8 in.)	Pass
	Exhibit no partial separation with exposing surfaces with protrusions greater than 6.35 mm (1/4 in.)	Pass
S5.1.1(b)(1)	Adjustment Position – Remain in the same adjustment position during the test that it was immediately before the test	Pass
S5.1.1(b)(2)(ii)	Exposed Openings – Have no exposed opening larger than 6.35 mm (1/4 in.) before the test becomes smaller during the testing as a result of the movement of the seating service 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 and seating surface to be less than 45 degrees at the completion of the test	Pass

Remarks

None

Recorded by: _____


 Adam Hardbatt, SLED
 Engineer

Date: _____

June 15, 2018

**DATA SHEET 36
INJURY CRITERIA – TEST 4
(FMVSS 213, S5.1.2)**

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-114B
Test Date:	14 June 2018	Item Code	042-1943812-04-12CFNLTU

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
233	Pass

Chest Injury Criterion Results

Max Acceleration lasting 3ms (g)	Pass / Fail
49	Pass

Remarks

Recorded by: 

 Adam Hardbattle, SLED
 Engineer

Date: June 15, 2018

**INJURY CRITERIA – HEAD ACCELERATION PLOTS – TEST 4
(FMVSS 213, S5.1.2)**

Report No.:	213-CAL-18-042
Test Date:	14 June 2018
HIC 36ms	233

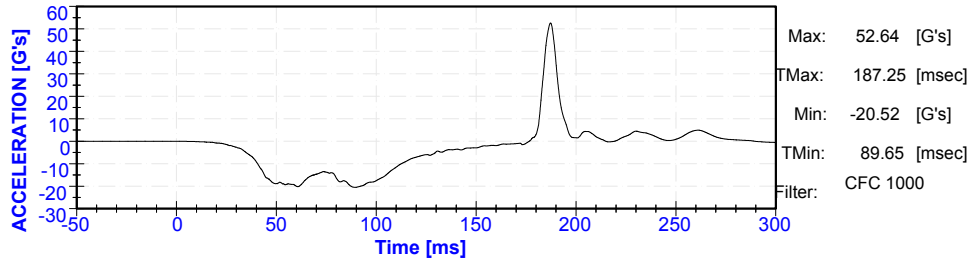
Sled Test No.	FM06-18-114B
Item Code	042-1943812-04-12CFNLTU
Resultant	53 g's



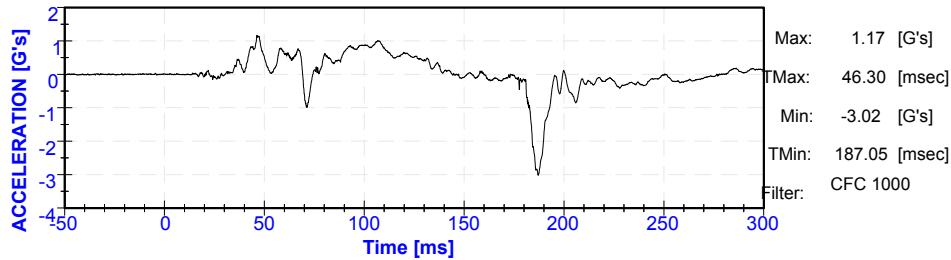
NHTSA FM06-18-114

Test Date: June 14,

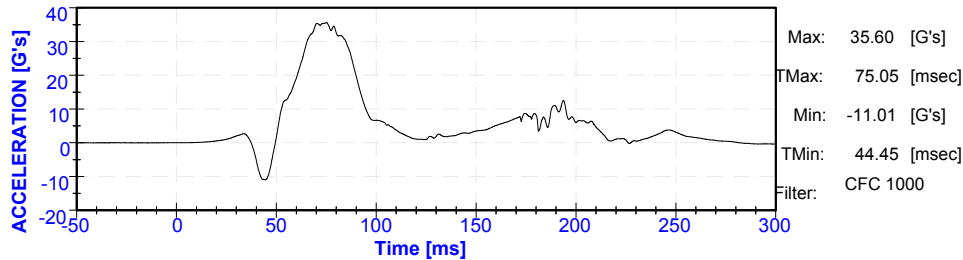
B Bench ATD Head X Acceleration



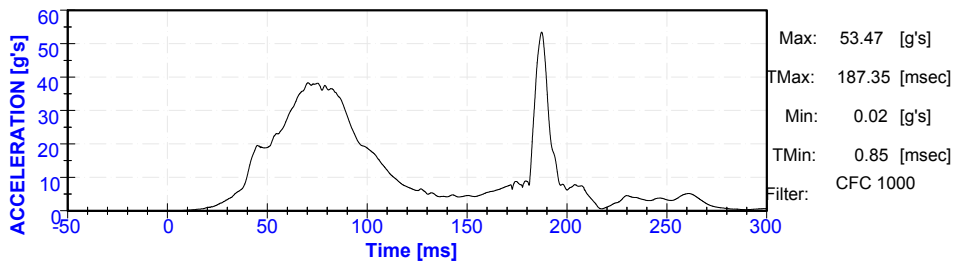
B Bench ATD Head Y Acceleration



B Bench ATD Head Z Acceleration



B Bench ATD Head Resultant Acceleration



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

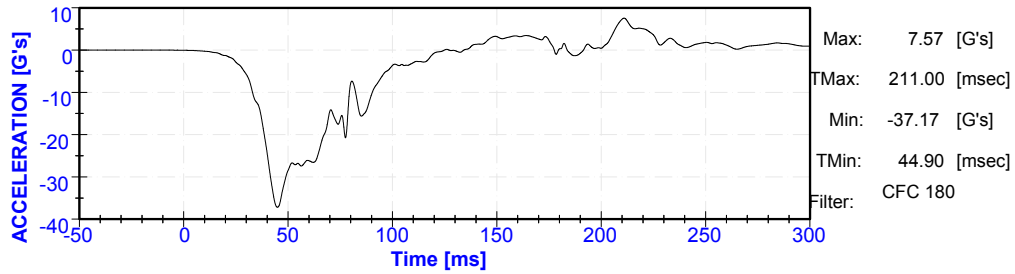
Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-114B
Test Date:	14 June 2018	Item Code	042-1943812-04-12CFNLTU
3ms Clip	49 g's	Resultant	50 g's



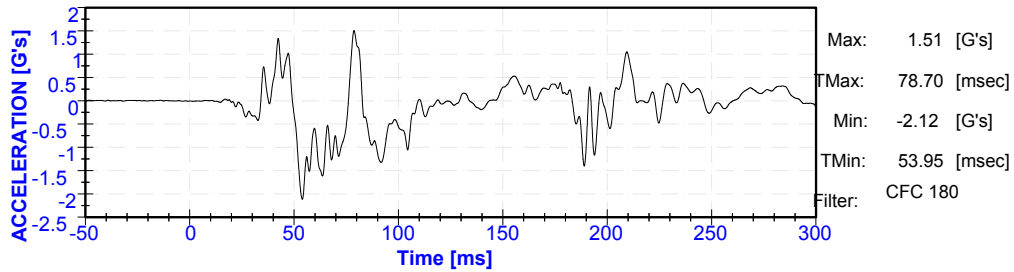
NHTSA FM06-18-114

Test Date: June 14,

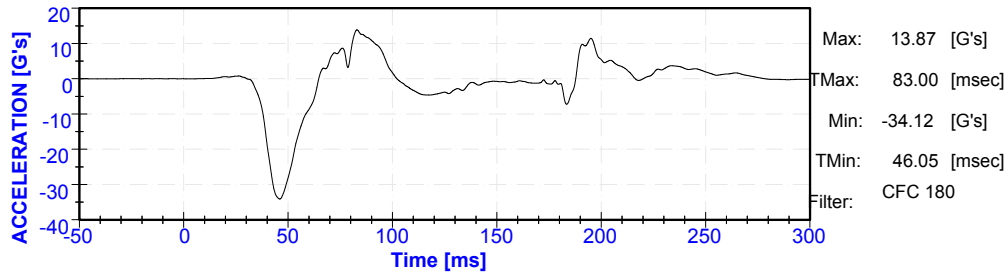
B Bench ATD Chest X Acceleration



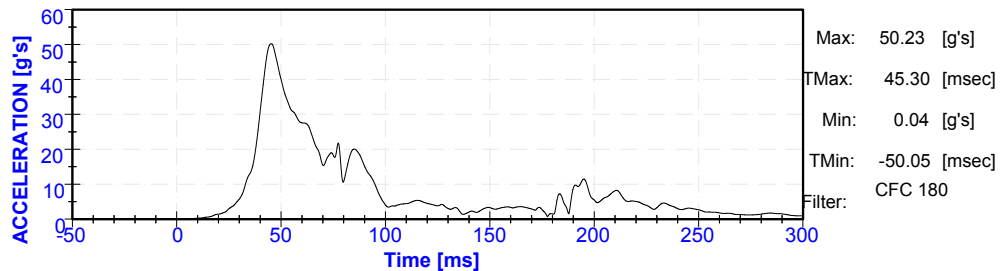
B Bench ATD Chest Y Acceleration



B Bench ATD Chest Z Acceleration



B Bench ATD Chest Resultant Acceleration



DATA SHEET 37
OCCUPANT EXCURSION – TEST 4
(FMVSS 213, S5.1.3, S5.1.4, S5.2.1.1(c))

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-114B
Test Date:	14 June 2018	Item Code	042-1943812-04-12CFNLTU

FORWARD-FACING RESTRAINTS

Section	Requirement	Measurement	Pass / Fail
S5.1.3.1	Torso Retention – CRS shall retain the torso within system		Pass
S5.1.3.1(a)(1)	Head Excursion - ≤ 720 mm (28.4 in.) with tether ≤ 813 mm (32 in.) No tether	518	Pass
S5.1.3.1(a)(2)	Knee Excursion - ≤ 91.5 cm (36 in.)	535	Pass
S5.2.1.1(c)	Head-Torso Angle - Rearward change ≤ 45 degrees	≤ 45°	Pass


REAR-FACING RESTRAINTS

Section	Requirement	Measurement	Pass / Fail
S5.1.3.2	Torso Retention – 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 vertical ≤ 70 degrees	N/A	N/A
S5.2.1.1(c)	Head-Torso Angle - Rearward change ≤ 45 degrees	N/A	N/A

Remarks

Excursion camera locations (forward of Z point) are 28.4", Camera speed = 2000fps and focal length of lenses = 12.5mm

Recorded by: _____


 Adam Hardbattle, SLED
 Engineer

Date: _____ June 15, 2018

DATA SHEET 38
OCCUPANT EXCURSION – TEST 4
(FMVSS 213, S5.1.3.3)

CAR BED RESTRAINTS

Section	Requirement	Measurement	Pass / Fail
Head – Torso Retention (FMVSS 213, S5.1.3.3)	Retain within confines of system	N/A	N/A

Remarks

Recorded by: _____



Adam Hardbattle, SLED
Engineer

Date: June 15, 2018

DATA SHEET 39
DYNAMIC IMPACT TEST CONDITIONS – TEST 5
(FMVSS 213, S6.1)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-115A
Test Date:	14 June 2018	Item Code	042-1943812-05-10H3FN3FN

Laboratory Ambient Conditions During Testing:

Temperature Degrees C (F)	21.7C (71.1 F)
Relative Humidity %	44.7%

Pulse:

Test Configuration (I or II):	I
Velocity (km/h (mph)):	47.9 km/h (29.8 mph)

Dummy:

Dummy Description:	H3 10 Year Old (Part 572R)
Dummy Serial Number:	D023

Restraint Installation:

Installed Direction:	Forward Facing
Base Usage:	Other Configuration
Attachment Method:	Lap and Shoulder belt
Tether Usage:	No, Tether Free
Seat Back Position:	Upright 6
Internal Shoulder Harness Position:	N/A
Buckle Harness Position:	N/A

Remarks:

Backless Booster
 Pre and Post Test Photos are presented in Section 9.

Recorded by: 
 Adam Hardbattle, SLED
 Engineer

Date: June 15, 2018

**DYNAMIC IMPACT SLED PULSE – TEST 5
(FMVSS 213, S6.1)**

Report No.:	213-CAL-18-042
Test Date:	14 June 2018

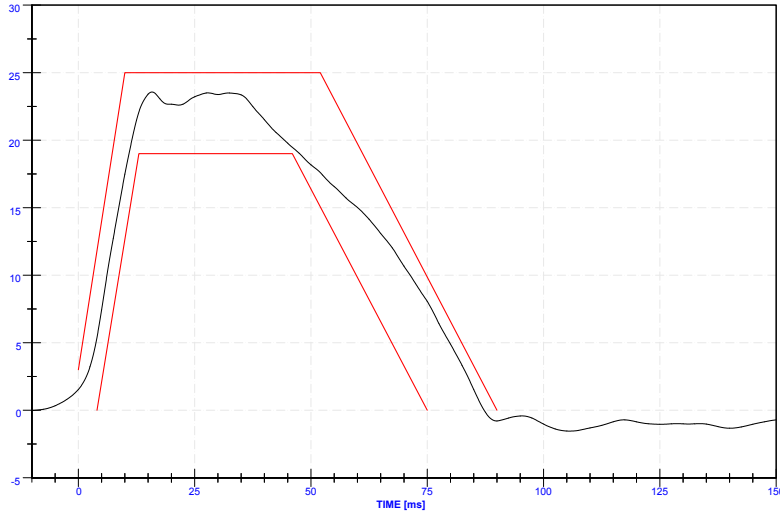
Sled Test No.	FM06-18-115A
Item Code	042-1943812-05-10H3FN3FN



NHTSA FM06-18-115

Test Date: June 14, 2018

SLED Pulse Corridor



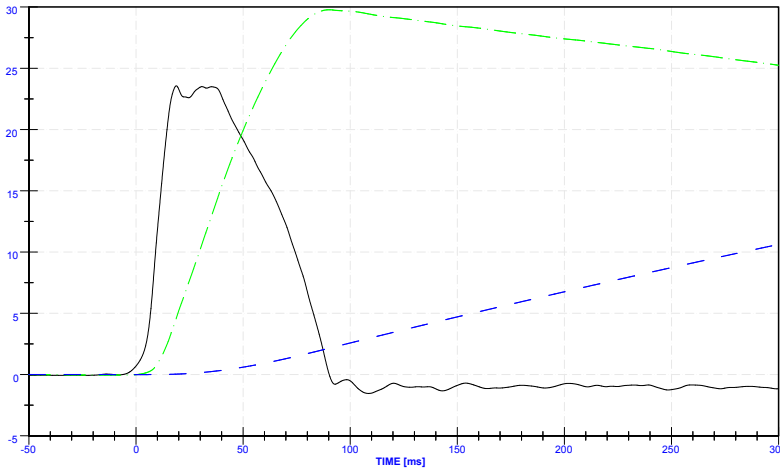
	Maximum	Time (ms)	Filter Class	Legend
SLED Acceleration (G's)	23.56	18.9	CFC 60	SOSLED000000ACXD



NHTSA FM06-18-115

Test Date: June 14, 2018

SLED Pulse



	Maximum	Time (ms)	Filter Class	Legend
SLED Acceleration (G's)	23.56	108.6	CFC 60	SOSLED000000ACXD
SLED Velocity (mph)	29.77	-16.0	CFC 180	SOSLED000000VAXC
SLED Displacement (ft)	10.62	0.5	CFC 180	SOSLED000000DVXC

DATA SHEET 40
BELT RESTRAINT – TEST 5
(FMVSS 213, S5.4.3)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-115A
Test Date:	14 June 2018	Item Code	042-1943812-05-10H3FN3FN

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 manufacturers installation instructions.	N/A

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

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

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 & crotch)	N/A
S5.4.3.3(c)	Prevent Standing	N/A

Remarks

Backless Booster Mode

Recorded by: 
Adam Hardbattle, SLED Engineer

Date: June 15, 2018

DATA SHEET 41
BUCKLE RELEASE – TEST 5
(FMVSS 213, S5.4.3.5, S6.2)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-115A
Test Date:	14 June 2018	Item Code	042-1943812-05-10H3FN3FN


Section	Requirement	Measurement	Pass / Fail
S5.4.3.5(a)	Pre-Impact Release Force Releases under 40-60 N	N/A	N/A
S5.4.3.5(a)	Post-Impact Release Force* Releases \leq 71 N	N/A	N/A
S5.4.3.5(a)	Minimum Surface Area of Buckle \geq 3.9 cm ² (0.6 in ²)	N/A	N/A
S5.4.3.5(a)	Buckle Integrity Shall not release during testing	N/A	N/A

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

Remarks

Booster mode

Recorded by: _____


 Adam Hardbattle, SLED
 Engineer

Date: _____ June 15, 2018

DATA SHEET 42
SYSTEM INTEGRITY – TEST 5
(FMVSS 213, S5.1.1)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-115A
Test Date:	14 June 2018	Item Code	042-1943812-05-10H3FN3FN

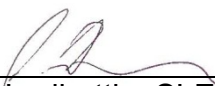
S5.1.1 When dynamically tested, the child restraint shall:

Section	Requirement	Pass / Fail
S5.1.1(a)	Structural Integrity – Exhibit no complete separation of any load bearing structural element	Pass
	Exhibit no partial separation with exposing surfaces with a radius of less than 9.53 mm (3/8 in.)	Pass
	Exhibit no partial separation with exposing surfaces with protrusions greater than 6.35 mm (1/4 in.)	Pass
S5.1.1(b)(1)	Adjustment Position – Remain in the same adjustment position during the test that it was immediately before the test	Pass
S5.1.1(b)(2)(ii)	Exposed Openings – Have no exposed opening larger than 6.35 mm (1/4 in.) before the test becomes smaller during the testing as a result of the movement of the seating service 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 and seating surface to be less than 45 degrees at the completion of the test	N/A

Remarks

Backless Booster

Recorded by: _____


Adam Hardbatt, SLED
Engineer

Date: June 15, 2018

**DATA SHEET 43
INJURY CRITERIA – TEST 5
(FMVSS 213, S5.1.2)**

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-115A
Test Date:	14 June 2018	Item Code	042-1943812-05-10H3FN3FN

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
N/A	N/A


Chest Injury Criterion Results

Max Acceleration lasting 3ms (g)	Pass / Fail
47	Pass

Remarks

H3 10 Year Old: No head injury criteria required

Recorded by: _____


Adam Hardbattle, SLED
Engineer

Date: June 15, 2018

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

Report No.:	213-CAL-18-042
Test Date:	14 June 2018
3ms Clip	47 g's

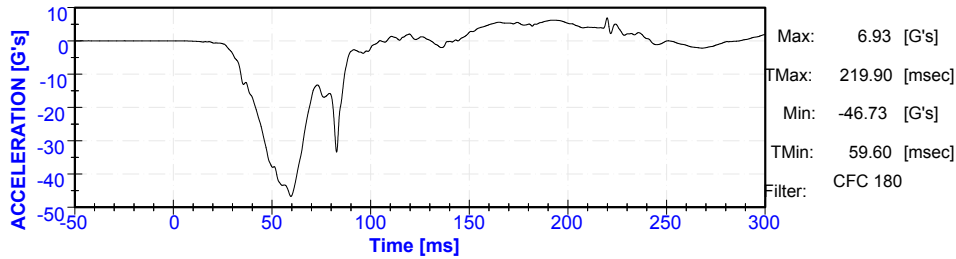
Sled Test No.	FM06-18-115A
Item Code	042-1943812-05-10H3FN3FN
Resultant	49 g's



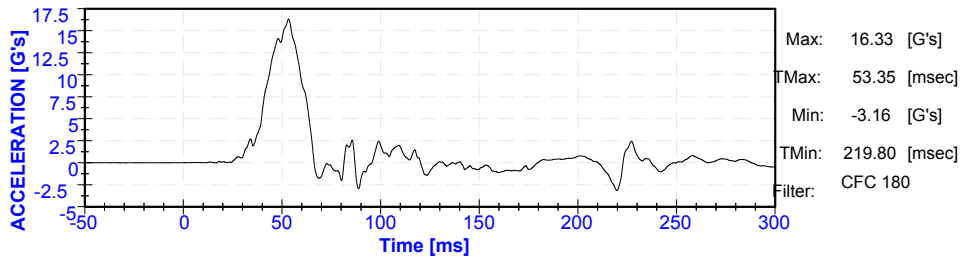
NHTSA FM06-18-115

Test Date: June 14,

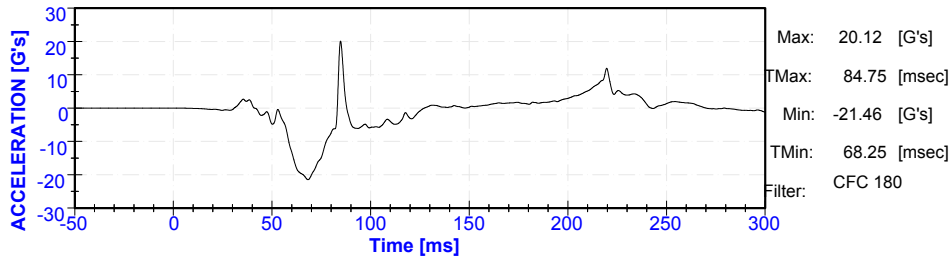
A Bench ATD Chest X Acceleration



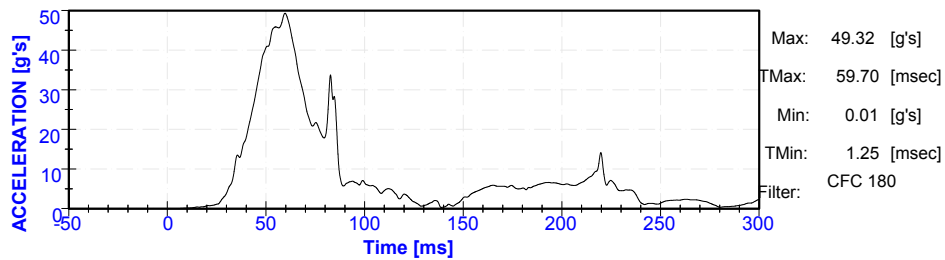
A Bench ATD Chest Y Acceleration



A Bench ATD Chest Z Acceleration



A Bench ATD Chest Resultant Acceleration



DATA SHEET 44
OCCUPANT EXCURSION – TEST 5
(FMVSS 213, S5.1.3, S5.1.4, S5.2.1.1(c))

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-115A
Test Date:	14 June 2018	Item Code	042-1943812-05-10H3FN3FN

FORWARD-FACING RESTRAINTS

Section	Requirement	Measurement	Pass / Fail
S5.1.3.1	Torso Retention – CRS shall retain the torso within system		Pass
S5.1.3.1(a)(1)	Head Excursion - ≤ 720 mm (28.4 in.) with tether ≤ 813 mm (32 in.) No tether	408	Pass
S5.1.3.1(a)(2)	Knee Excursion - < 91.5 cm (36 in.)	650	Pass
S5.2.1.1(c)	Head-Torso Angle - Rearward change ≤ 45 degrees	≤ 45°	Pass


REAR-FACING RESTRAINTS

Section	Requirement	Measurement	Pass / Fail
S5.1.3.2	Torso Retention – 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 vertical ≤ 70 degrees	N/A	N/A
S5.2.1.1(c)	Head-Torso Angle - Rearward change ≤ 45 degrees	N/A	N/A

Remarks

Excursion camera locations (forward of Z point) are 28.4", Camera speed = 2000fps and focal length of lenses = 12.5mm

Recorded by: _____


 Adam Hardbatt, SLED
 Engineer

Date: June 15, 2018

DATA SHEET 45
OCCUPANT EXCURSION – TEST 5
(FMVSS 213, S5.1.3.3)

CAR BED RESTRAINTS

Section	Requirement	Measurement	Pass / Fail
Head – Torso Retention (FMVSS 213, S5.1.3.3)	Retain within confines of system	N/A	N/A

Remarks

Recorded by: 
Adam Hardbattle, SLED
Engineer

Date: June 15, 2018

DATA SHEET 46
DYNAMIC IMPACT TEST CONDITIONS – TEST 6
(FMVSS 213, S6.1)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-115B
Test Date:	14 June 2018	Item Code	042-1943812-06-3H3FNLTU

Laboratory Ambient Conditions During Testing:

Temperature Degrees C (F)	21.7C (71.1 F)
Relative Humidity %	44.7%

Pulse:

Test Configuration (I or II):	I
Velocity (km/h (mph)):	47.9 km/h (29.8 mph)

Dummy:

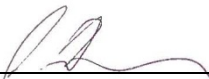
Dummy Description:	H3 3 Year Old (Part 572R)
Dummy Serial Number:	034

Restraint Installation:

Installed Direction:	Forward Facing
Base Usage:	Other Configuration
Attachment Method:	Lower Anchors
Tether Usage:	Top Tether
Seat Back Position:	Upright - 4
Internal Shoulder Harness Position:	Slot 7, Counted from bottom up
Buckle Harness Position:	Front

Remarks:

Pre and Post Test Photos are presented in Section 9.

Recorded by: 
 Adam Hardbattle, SLED
 Engineer

Date: June 15, 2018

**DYNAMIC IMPACT SLED PULSE – TEST 6
(FMVSS 213, S6.1)**

Report No.:	213-CAL-18-042
Test Date:	14 June 2018

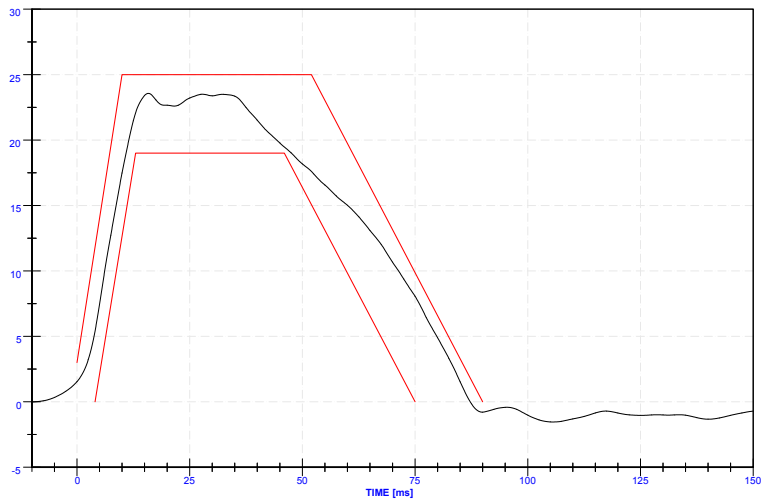
Sled Test No.	FM06-18-115B
Item Code	042-1943812-06-3H3FNLTU



NHTSA FM06-18-115

Test Date: June 14, 2018

SLED Pulse Corridor



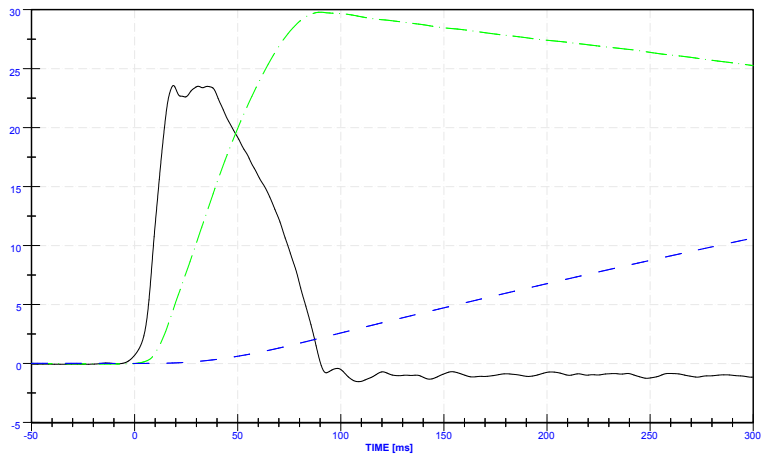
	Maximum	Time (ms)	Filter Class	Legend
SLED Acceleration (Gs)	23.56	18.9	CFC 60	S0SLED0000R000ACXD



NHTSA FM06-18-115

Test Date: June 14, 2018

SLED Pulse



	Maximum	Time (ms)	Filter Class	Legend
SLED Acceleration (G's)	23.56	18.6	CFC 60	S0SLED000000ACXD
SLED Velocity (mph)	29.77	-16.0	CFC 180	S0SLED000000VAXC
SLED Displacement (ft)	10.62	0.5	CFC 180	S0SLED000000DVXC

**DATA SHEET 47
BELT RESTRAINT – TEST 6
(FMVSS 213, S5.4.3)**

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-115B
Test Date:	14 June 2018	Item Code	042-1943812-06-3H3FNLTU

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 manufacturers installation instructions.	Pass

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

Section	Requirement	Pass / Fail
S5.4.3.3	Seating Systems. Except for harness and infant restraints for children up to 10kg (22lb), 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 & crotch)	N/A
S5.4.3.3(c)	Prevent Standing	N/A

Remarks

Recorded by: 
Adam Hardbattle, SLED Engineer

Date: June 15, 2018

DATA SHEET 48
BUCKLE RELEASE – TEST 6
(FMVSS 213, S5.4.3.5, S6.2)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-115B
Test Date:	14 June 2018	Item Code	042-1943812-06-3H3FNLTU


Section	Requirement	Measurement	Pass / Fail
S5.4.3.5(a)	Pre-Impact Release Force Releases under 40-60 N	47 N	Pass
S5.4.3.5(a)	Post-Impact Release Force* Releases \leq 71 N	51 N	Pass
S5.4.3.5(a)	Minimum Surface Area of Buckle \geq 3.9 cm ² (0.6 in ²)	4 cm ²	Pass
S5.4.3.5(a)	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

None

Recorded by:


 Adam Hardbattle, SLED
 Engineer

Date:

June 15, 2018

DATA SHEET 49
SYSTEM INTEGRITY – TEST 6
(FMVSS 213, S5.1.1)

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-115B
Test Date:	14 June 2018	Item Code	042-1943812-06-3H3FNLTU

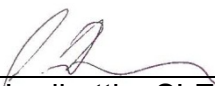
S5.1.1 When dynamically tested, the child restraint shall:

Section	Requirement	Pass / Fail
S5.1.1(a)	Structural Integrity – Exhibit no complete separation of any load bearing structural element	Pass
	Exhibit no partial separation with exposing surfaces with a radius of less than 9.53 mm (3/8 in.)	Pass
	Exhibit no partial separation with exposing surfaces with protrusions greater than 6.35 mm (1/4 in.)	Pass
S5.1.1(b)(1)	Adjustment Position – Remain in the same adjustment position during the test that it was immediately before the test	Pass
S5.1.1(b)(2)(ii)	Exposed Openings – Have no exposed opening larger than 6.35 mm (1/4 in.) before the test becomes smaller during the testing as a result of the movement of the seating service 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 and seating surface to be less than 45 degrees at the completion of the test	Pass

Remarks

None

Recorded by: _____


Adam Hardbatt, SLED
Engineer

Date: June 15, 2018

**DATA SHEET 50
INJURY CRITERIA – TEST 6
(FMVSS 213, S5.1.2)**

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-115B
Test Date:	14 June 2018	Item Code	042-1943812-06-3H3FNLTU

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
261	Pass

Chest Injury Criterion Results

Max Acceleration lasting 3ms (g)	Pass / Fail
39	Pass

Remarks

Recorded by: 
 Adam Hardbattle, SLED
 Engineer

Date: June 15, 2018

**INJURY CRITERIA – HEAD ACCELERATION PLOTS – TEST 6
(FMVSS 213, S5.1.2)**

Report No.:	213-CAL-18-042
Test Date:	14 June 2018
HIC 36ms	261

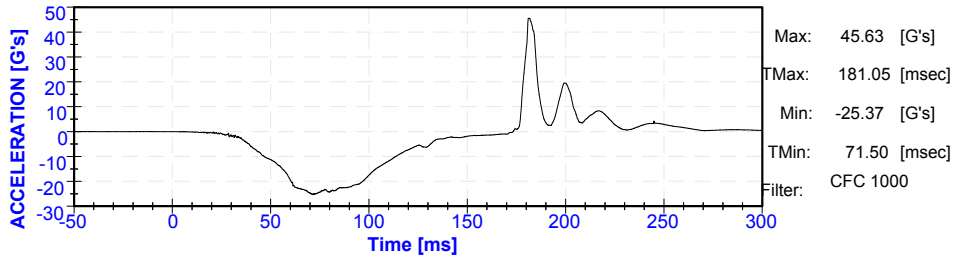
Sled Test No.	FM06-18-115B
Item Code	042-1943812-06-3H3FNLTU
Resultant	46 g's



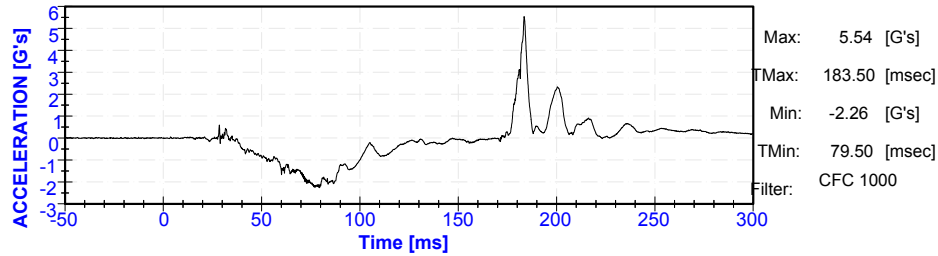
NHTSA FM06-18-115

Test Date: June 14,

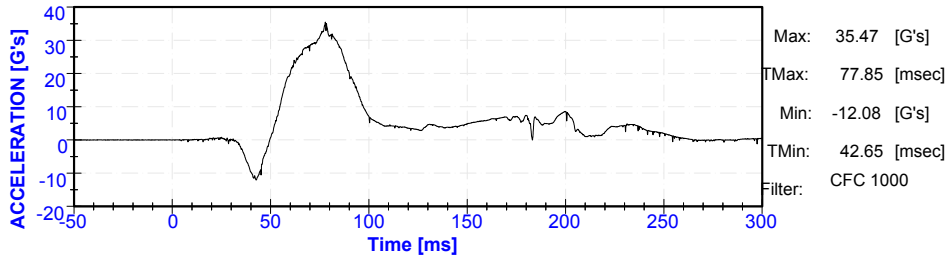
B Bench ATD Head X Acceleration



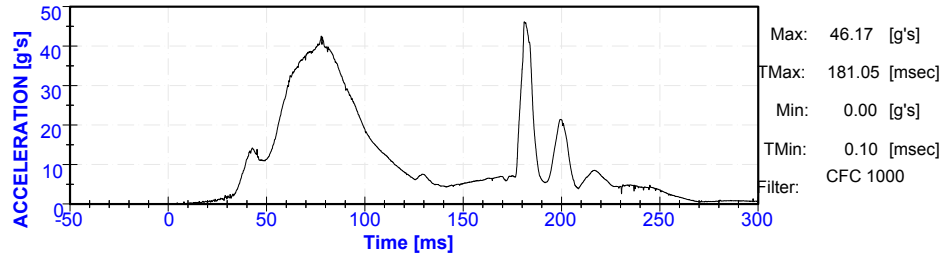
B Bench ATD Head Y Acceleration



B Bench ATD Head Z Acceleration



B Bench ATD Head Resultant Acceleration



**INJURY CRITERIA – CHEST ACCELERATION PLOTS – TEST 6
(FMVSS 213, S5.1.2)**

Report No.:	213-CAL-18-042
Test Date:	14 June 2018
3ms Clip	39 g's

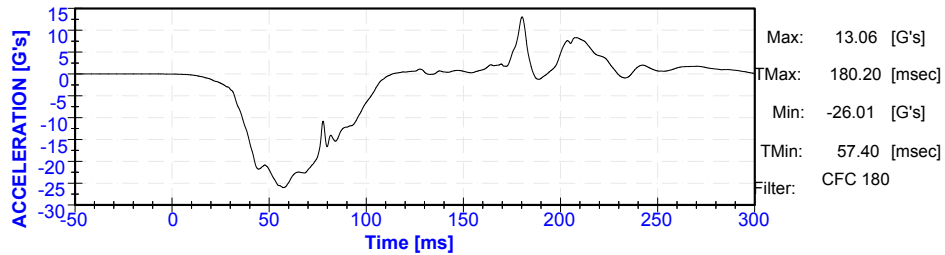
Sled Test No.	FM06-18-115B
Item Code	042-1943812-06-3H3FNLTU
Resultant	39 g's



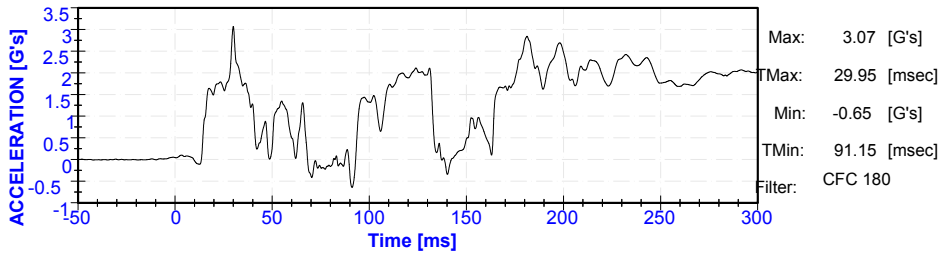
NHTSA FM06-18-115

Test Date: June 14,

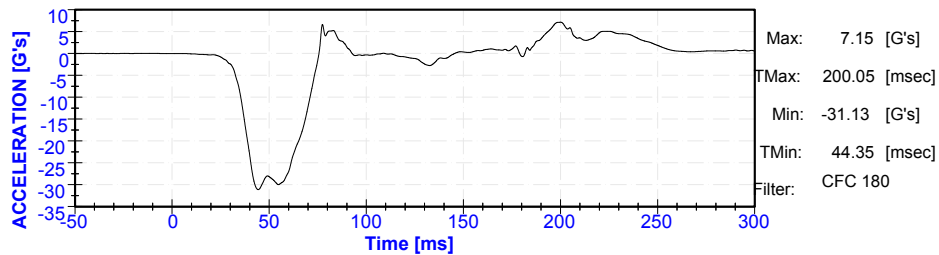
B Bench ATD Chest X Acceleration



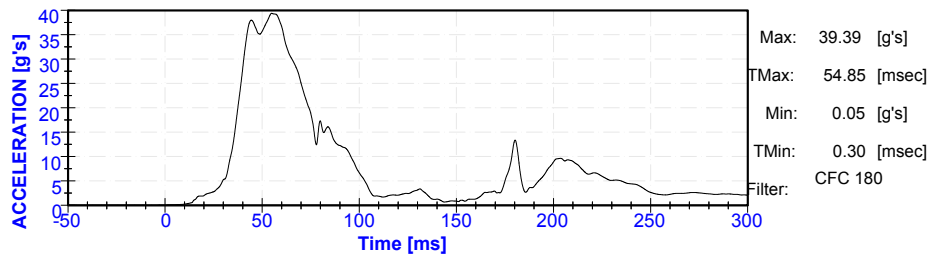
B Bench ATD Chest Y Acceleration



B Bench ATD Chest Z Acceleration



B Bench ATD Chest Resultant Acceleration



DATA SHEET 51
OCCUPANT EXCURSION – TEST 6
(FMVSS 213, S5.1.3, S5.1.4, S5.2.1.1(c))

Report No.:	213-CAL-18-042	Sled Test No.	FM06-18-115B
Test Date:	14 June 2018	Item Code	042-1943812-06-3H3FNLTU

FORWARD-FACING RESTRAINTS

Section	Requirement	Measurement	Pass / Fail
S5.1.3.1	Torso Retention – CRS shall retain the torso within system		Pass
S5.1.3.1(a)(1)	Head Excursion - ≤ 720 mm (28.4 in.) with tether ≤ 813 mm (32 in.) No tether	565	Pass
S5.1.3.1(a)(2)	Knee Excursion - < 91.5 cm (36 in.)	667	Pass
S5.2.1.1(c)	Head-Torso Angle - Rearward change ≤ 45 degrees	≤ 45°	Pass


REAR-FACING RESTRAINTS

Section	Requirement	Measurement	Pass / Fail
S5.1.3.2	Torso Retention – 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 vertical ≤ 70 degrees	N/A	N/A
S5.2.1.1(c)	Head-Torso Angle - Rearward change ≤ 45 degrees	N/A	N/A

Remarks

Excursion camera locations (forward of Z point) are 28.4", Camera speed = 2000fps and focal length of lenses = 12.5mm

Recorded by: _____


 Adam Hardbatt, SLED
 Engineer

Date: June 15, 2018

DATA SHEET 52
OCCUPANT EXCURSION – TEST 6
(FMVSS 213, S5.1.3.3)

CAR BED RESTRAINTS

Section	Requirement	Measurement	Pass / Fail
Head – Torso Retention (FMVSS 213, S5.1.3.3)	Retain within confines of system	N/A	N/A

Remarks

Recorded by: _____



Adam Hardbattle, SLED
Engineer

Date: June 15, 2018

DATA SHEET 53
AIRCRAFT PASSENGER SEAT INVERSION – TEST A
(FMVSS 213, S8.2, S8.2.5, S8.2.6)

Report No.:	213-CAL-18-042	Test No.	FM06-18-117
Test Date:	18 June 2018	Item Code	042-1943812-Inv01-12CRN2FU

Laboratory Ambient Conditions During Testing:

Temperature Degrees C (F)	21.9 C (71.4F)
Relative Humidity %	62.2%

Dummy:

Dummy Description:	CRABI 12 Month Old (Part 572R)
Dummy Serial Number:	085

Restraint Installation:

Installed Direction:	Rearward Facing
Base Usage:	N/A
Attachment Method	Lap belt
Tether Usage	No
Seat Back Position:	Recline #2
Internal Harness Shoulder Strap Position:	Slot 5, Counted from bottom up
Internal Harness Crotch Strap Position:	Rear

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 restrained 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 restrained within the aircraft seat	Pass

Remarks:

None

Recorded by: 

Adam Hardbatt, SLED
Engineer

Date: June 18, 2018

DATA SHEET 54
AIRCRAFT PASSENGER SEAT INVERSION - TEST B
(FMVSS 213, S8.2, S8.2.5, S8.2.6)

Report No.:	213-CAL-18-042	Test No.	FM06-18-116
Test Date:	18 June 2018	Item Code	042-1946243-Inv02-3H3FN2FU

Laboratory Ambient Conditions During Testing:

Temperature Degrees C (F)	21.8 C (71.3F)
Relative Humidity %	61.2%

Dummy:

Dummy Description:	H3 3 Year Old (Part 572R)
Dummy Serial Number:	034

Restraint Installation:

Installed Direction:	Forward Facing
Base Usage:	N/A
Attachment Method	Lap belt
Tether Usage	No
Seat Back Position:	Upright #4
Internal Harness Shoulder Strap Position:	Slot 7, Counted from bottom up
Internal Harness Crotch Strap Position:	Front

Rotation About Y-Axis (Forward):

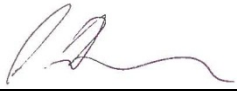
Section	Requirement	Pass/Fail
S8.2.5	The test dummy shall be retained within the CRS	Pass
S8.2.5	The CRS shall be restrained within the aircraft seat	Pass

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 restrained within the aircraft seat	Pass

Remarks:

None

Recorded by: 

Adam Hardbattle, SLED
Engineer

Date: June 18, 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.

Dummy Description	NIN – Newborn Infant
	3H3 – 3 YO, Hybrid III
	12C -12 MO, CRABI
	6H2 – 6YO Hybrid II
	6H3 – 6YO, Hybrid III
	6W3 – 6 YO, Weighted Hybrid III
	10H3 – 10YO, Hybrid III
Installed Direction	R – Rear Facing
	F – Forward Facing
	S- Faces Sideways (applies to carbeds)
Base Usage	B – Optional base used with CRS
	N – All other configurations
Attachment Method	L – Lower anchors
	2 – Lap belt
	3 – Lap & shoulder belt
	M – Seat back mount
Tether Usage	T – Tether
	F – Tether Free
Seat Back Position	U – Upright
	R – Reclined
	N – Not Applicable

**SECTION 8
INSTRUMENTATION CALIBRATION**

Sled and Facility Calibrations

<i>Instrument</i>	<i>Serial Number</i>	<i>Certification Test</i>	<i>Calibration Date</i>	<i>Due Date</i>
KT Minidau Unit #1	ESL 400186	All	5/02/2018	5/01/2019
Temp and Humidity Recorder Onset HOBO	ESL 400632	All	11/14/2017	11/13/2018
Digital Angle Gauge Digi-Pas	ESL 400482	All	9/12/2017	9/11/2018
Bosch/Kent Moore Belt Tension Gauge +/- 1 lb.	ESL 400415	All	1/10/2018	7/9/2018
Bosch/Kent Moore Belt Tension Gauge +/- 1 lb..	ESL 400943	All	1/10/2018	7/9/2018
Imada Force Gauge Model DPSH-440R	ESL 400931	All	3/06/2018	3/05/2019
Imada Force Gauge Model DS2-110	ESL 400368	All	7/25/2017	7/24/2018
Imada Force Gauge Model ZTS-550	ESL 400474	All	8/18/2017	8/17/2018
Proto Torque Wrench	ESL 400460	All	7/11/2017	7/10/2018
Sled Primary x Accelerometer Endevco	AC-10302	All	1/22/2018	7/21/2018
Sled Secondary X Endevco 7264	AC-P69795	All	1/22/2018	7/21/2018
Sled Secondary Y Endevco 7264	AC-P69794	All	1/22/2018	7/21/2018
Sled Secondary Z Endevco 7264	AC-P71301	All	1/22/2018	7/21/2018

ATD Calibrations

<i>Instrument</i>	<i>Serial Number</i>	<i>Certification Test</i>	<i>Calibration Date</i>	<i>Due Date</i>
NewBorn	032	ATD	NA	NA

<i>Instrument</i>	<i>Serial Number</i>	<i>Certification Test</i>	<i>Calibration Date</i>	<i>Due Date</i>
12 Month CRABI	085	ATD	5/28/2018	6/25/2018
<i>Instrument</i>	<i>Serial Number</i>	<i>Certification Test</i>	<i>Calibration Date</i>	<i>Due Date</i>
Head X Accelerometer Endevco 7264	AC-P83422	ATD	4/19/2018	10/18/2018
Head Y Accelerometer Endevco 7264	AC-P84349	ATD	4/19/2018	10/18/2018
Head Z Accelerometer Endevco 7264	AC-P82321	ATD	4/19/2018	10/18/2018
Chest X Accelerometer Endevco 7264	AC-P74971	ATD	4/19/2018	10/18/2018
Chest Y Accelerometer Endevco 7264	AC-P74780	ATD	4/19/2018	10/18/2018
Chest Z Accelerometer Endevco 7264	AC-P52158	ATD	4/19/2018	10/18/2018

<i>Instrument</i>	<i>Serial Number</i>	<i>Certification Test</i>	<i>Calibration Date</i>	<i>Due Date</i>
3 year old Hybrid 3	034	ATD	5/23/2018	7/10/2018
<i>Instrument</i>	<i>Serial Number</i>	<i>Certification Test</i>	<i>Calibration Date</i>	<i>Due Date</i>
Head X Accelerometer Endevco 7264	AC-P51732	ATD	2/12/2018	8/11/2018
Head Y Accelerometer Endevco 7264	AC-P77601	ATD	2/12/2018	8/11/2018
Head Z Accelerometer Endevco 7264	AC-P64084	ATD	2/12/2018	8/11/2018
Chest X Accelerometer Endevco 7264	AC-P51874	ATD	2/12/2018	8/11/2018
Chest Y Accelerometer Endevco 7264	AC-P74969	ATD	2/12/2018	8/11/2018
Chest Z Accelerometer Endevco 7264	AC-P58862	ATD	2/12/2018	8/11/2018

<i>Instrument</i>	<i>Serial Number</i>	<i>Certification Test</i>	<i>Calibration Date</i>	<i>Due Date</i>
6 year old Hybrid 2	220	ATD	1/22/2018	7/10/2018
<i>Instrument</i>	<i>Serial Number</i>	<i>Certification Test</i>	<i>Calibration Date</i>	<i>Due Date</i>
Head X Accelerometer Endevco 7264	AC-P50073	ATD	01/30/2018	7/31/2018
Head Y Accelerometer Endevco 7264	AC-P82751	ATD	01/30/2018	7/31/2018
Head Z Accelerometer Endevco 7264	AC-P72377	ATD	01/30/2018	7/31/2018
Chest X Accelerometer Endevco 7264	AC-P80250	ATD	01/30/2018	7/31/2018
Chest Y Accelerometer Endevco 7264	AC-P52098	ATD	01/30/2018	7/31/2018
Chest Z Accelerometer Endevco 7264	AC-P80269	ATD	01/30/2018	7/31/2018

<i>Instrument</i>	<i>Serial Number</i>	<i>Certification Test</i>	<i>Calibration Date</i>	<i>Due Date</i>
6 year old Hybrid 3	158	ATD	1/11/2018	7/07/2018
<i>Instrument</i>	<i>Serial Number</i>	<i>Certification Test</i>	<i>Calibration Date</i>	<i>Due Date</i>
Head X Accelerometer Endevco 7264	AC-P52128	ATD	2/23/2018	8/22/2018
Head Y Accelerometer Endevco 7264	AC-P83340	ATD	2/23/2018	8/22/2018
Head Z Accelerometer Endevco 7264	AC-P51684	ATD	2/23/2018	8/22/2018
Chest X Accelerometer Endevco 7264	AC-P51878	ATD	2/23/2018	8/22/2018
Chest Y Accelerometer Endevco 7264	AC-P63954	ATD	2/23/2018	8/22/2018
Chest Z Accelerometer Endevco 7264	AC-P74950	ATD	2/23/2018	8/22/2018

<i>Instrument</i>	<i>Serial Number</i>	<i>Certification Test</i>	<i>Calibration Date</i>	<i>Due Date</i>
6 year old Weighted Hybrid 3	163	ATD	1/22/2018	6/30/2018

<i>Instrument</i>	<i>Serial Number</i>	<i>Certification Test</i>	<i>Calibration Date</i>	<i>Due Date</i>
10 year old Hybrid 3	D023	ATD	1/22/2018	7/10/2018
<i>Instrument</i>	<i>Serial Number</i>	<i>Certification Test</i>	<i>Calibration Date</i>	<i>Due Date</i>
Chest X Accelerometer Endevco 7264	AC-P52004	ATD	4/5/2018	10/4/2018
Chest Y Accelerometer Endevco 7264	AC-P68051	ATD	4/5/2018	10/4/2018
Chest Z Accelerometer Endevco 7264	AC-P82749	ATD	4/5/2018	10/4/2018

Bench Foam Calibrations

Test #	Calibration	Bottom 2''	Bottom 4''	Back 2''	Back 4''
FM06-18-113A	Pre	C173-2x20 52.2 lbs	T55-4x20 25.0 lbs	H85-2x24 53.6 lbs	S21-4x24 25.4 lbs
	Post	C173-2x20 54.1 lbs	T55-4x20 25.8 lbs	H85-2x24 54.6 lbs	S21-4x24 26.1 lbs
FM06-18-113B	Pre	C176-2x20 53.2 lbs	T42-4x20 23.7 lbs	H89-2x24 52.4 lbs	S28-4x24 25.1 lbs
	Post	C176-2x20 54.6 lbs	T42-4x20 24.5 lbs	H89-2x24 54.1 lbs	S28-4x24 24.9 lbs
FM06-18-114A	Pre	C153-2x20 51.5 lbs	T40-4x20 24.6 lbs	H86-2x24 52.2 lbs	S31-4x24 24.3 lbs
	Post	C153-2x20 53.3 lbs	T40-4x20 24.2 lbs	H86-2x24 53.6 lbs	S31-4x24 24.5 lbs
FM06-18-114B	Pre	C171-2x20 53.2 lbs	T44-4x20 25.2 lbs	H73-2x24 53.6 lbs	S29-4x24 24.7 lbs
	Post	C171-2x20 52.7 lbs	T44-4x20 25.2 lbs	H73-2x24 53.2 lbs	S29-4x24 26.0 lbs
FM06-18-115A	Pre	C174-2x20 52.1 lbs	T45-4x20 24.5 lbs	H90-2x24 52.6 lbs	S26-4x24 25.1 lbs
	Post	C174-2x20 53.7 lbs	T45-4x20 24.5 lbs	H90-2x24 52.1 lbs	S26-4x24 25.1 lbs
FM06-18-115B	Pre	C172-2x20 52.5 lbs	T58-4x20 25.5 lbs	H88-2x24 50.4 lbs	S27-4x24 24.6 lbs
	Post	C172-2x20 51.6 lbs	T58-4x20 24.9 lbs	H88-2x24 51.6 lbs	S27-4x24 24.7 lbs

Section 9 PHOTOGRAPHS

Sled Photos

Sled Buck – Standard Bench Seat and Configuration

213-CAL-18-042

042-1943812-01-6H3FN3FN

042-1943812-02-12CRN2FR

042-1943812-03-3H3FN3FB

042-1943812-04-12CFNLTU

042-1943812-05-10H3FN3FN

042-1943812-06-3H3FNLTU



Dynamic Test Photos

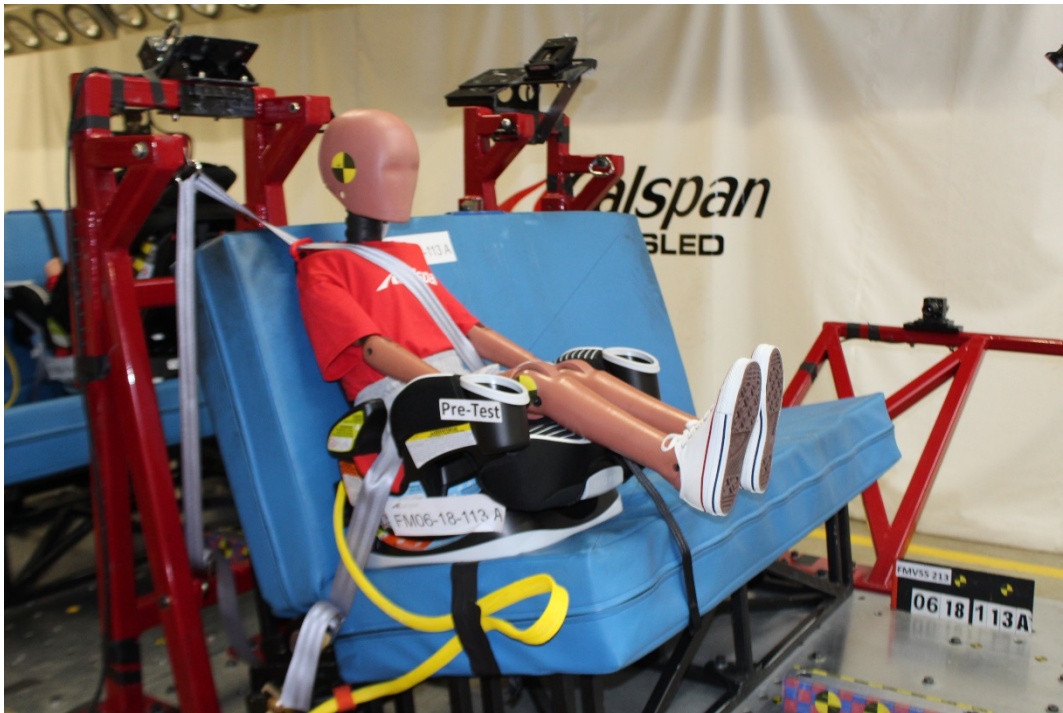
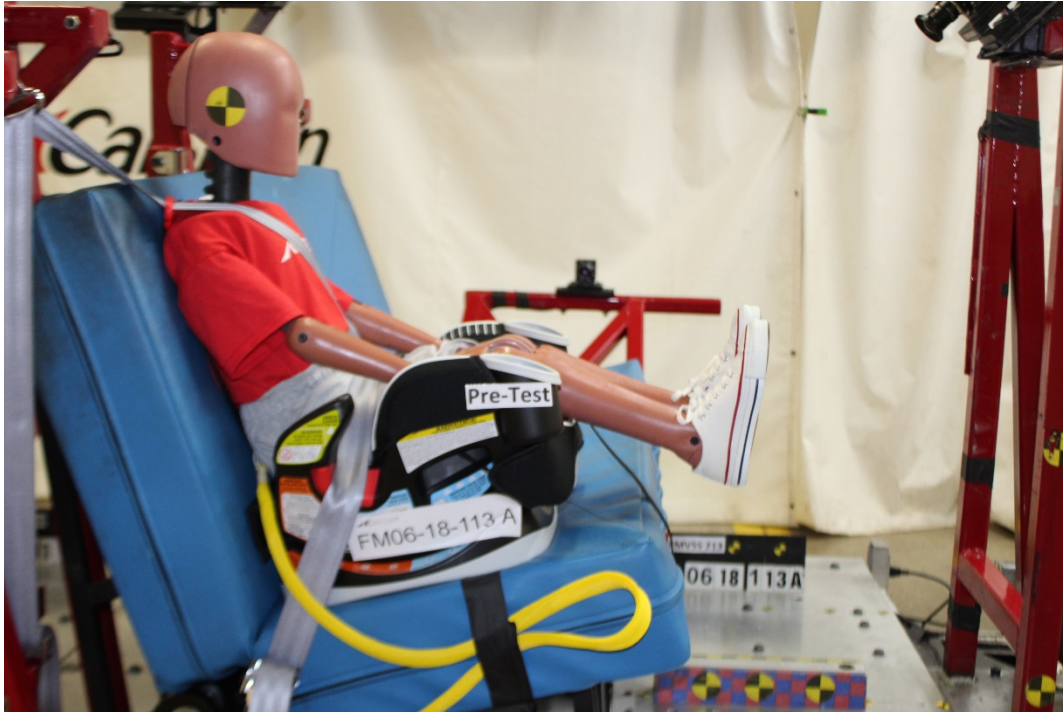
042-1943812-01-6H3FN3FN
Pre Test

213-CAL-18-042
FM06-18-113A



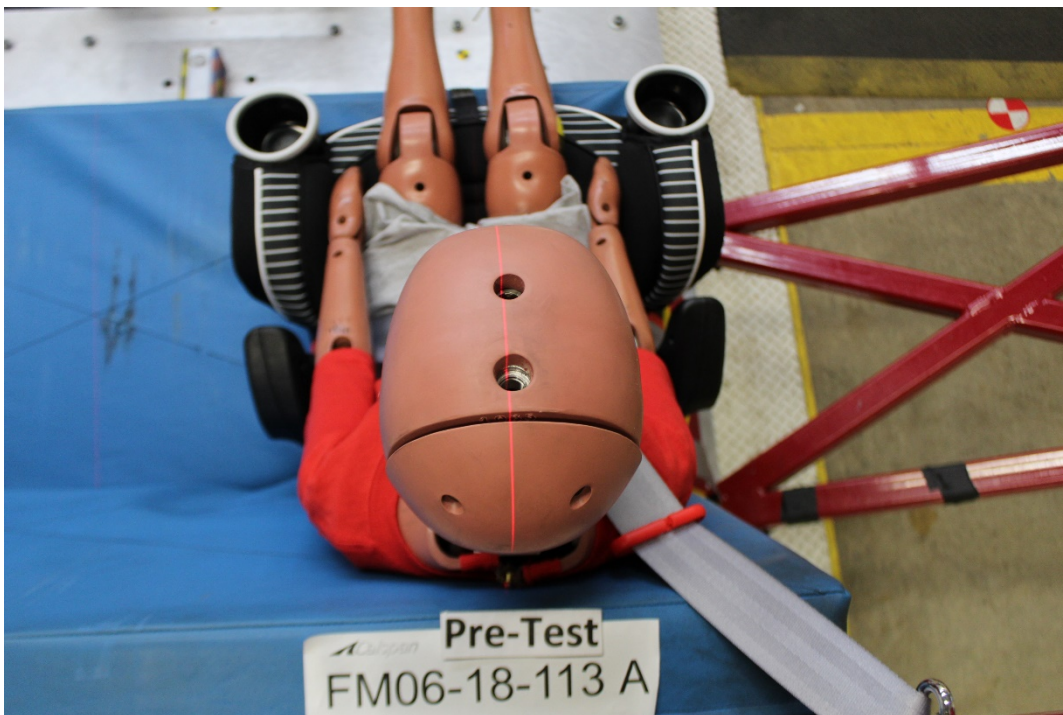
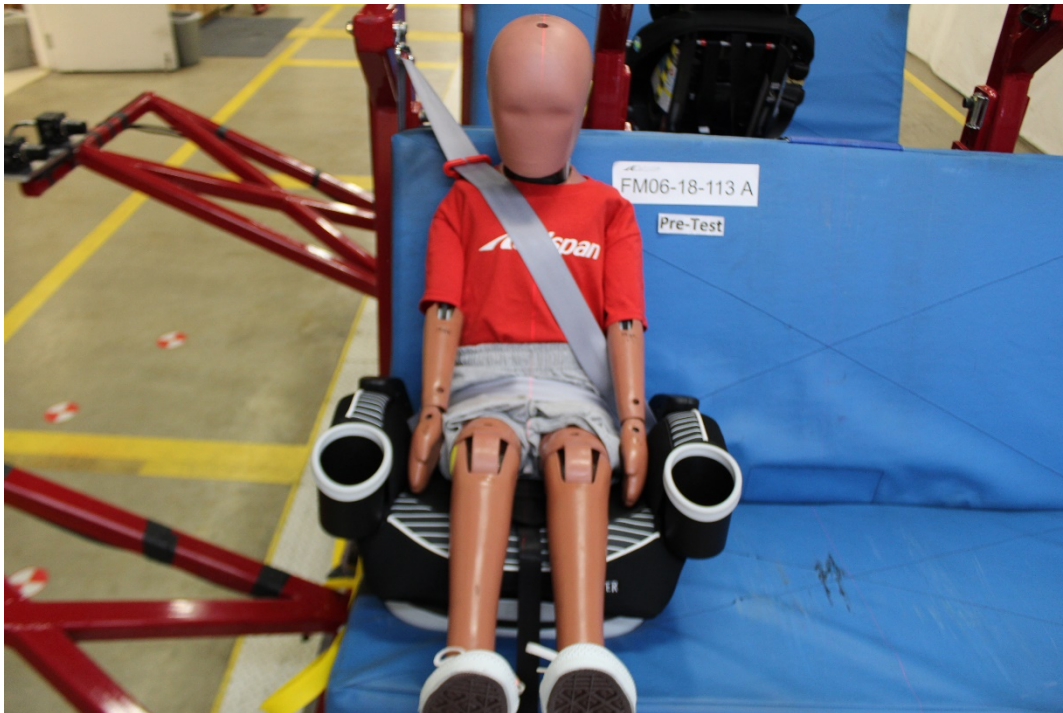
042-1943812-01-6H3FN3FN
Pre Test

213-CAL-18-042
FM06-18-113A



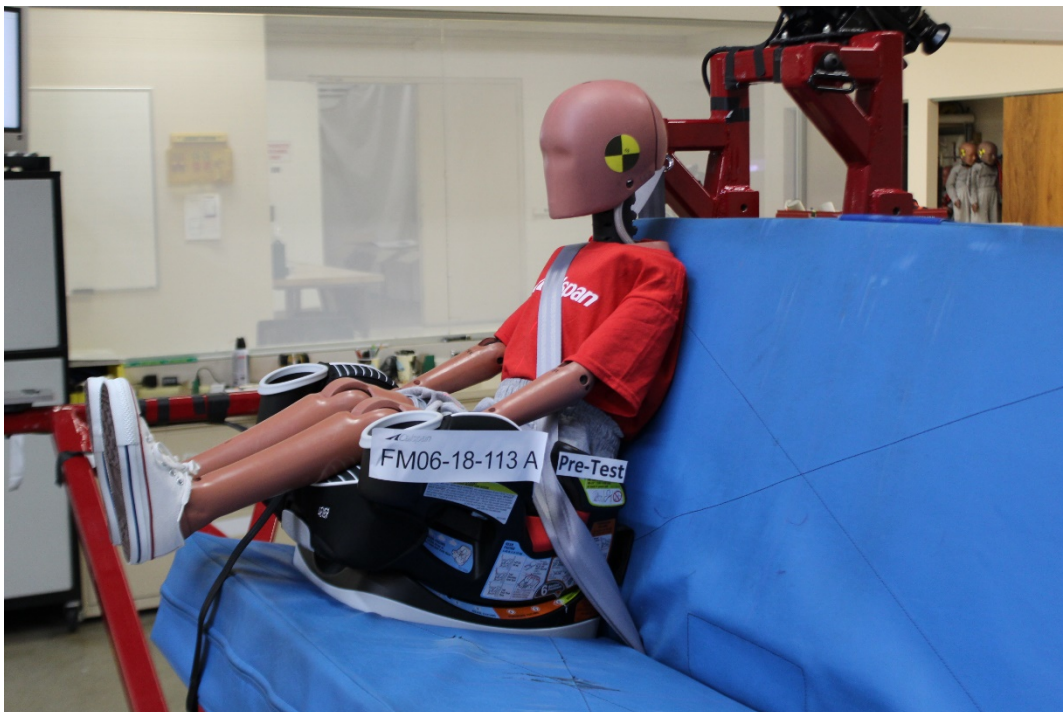
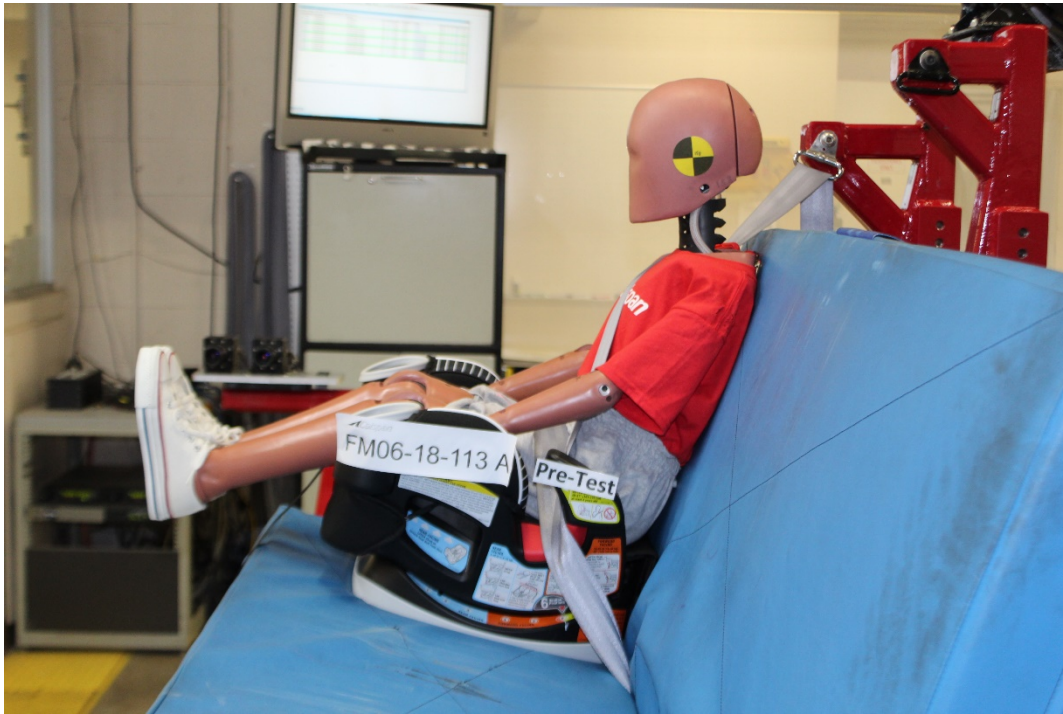
042-1943812-01-6H3FN3FN
Pre Test

213-CAL-18-042
FM06-18-113A



042-1943812-01-6H3FN3FN
Pre Test

213-CAL-18-042
FM06-18-113A



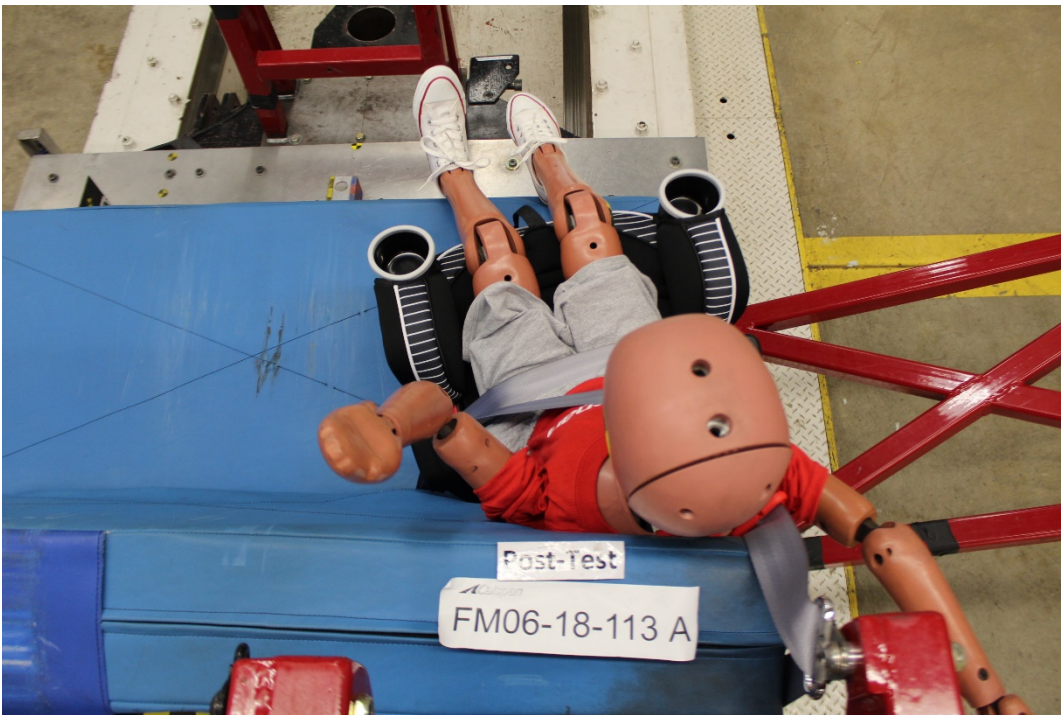
042-1943812-01-6H3FN3FN
Post Test

213-CAL-18-042
FM06-18-113A



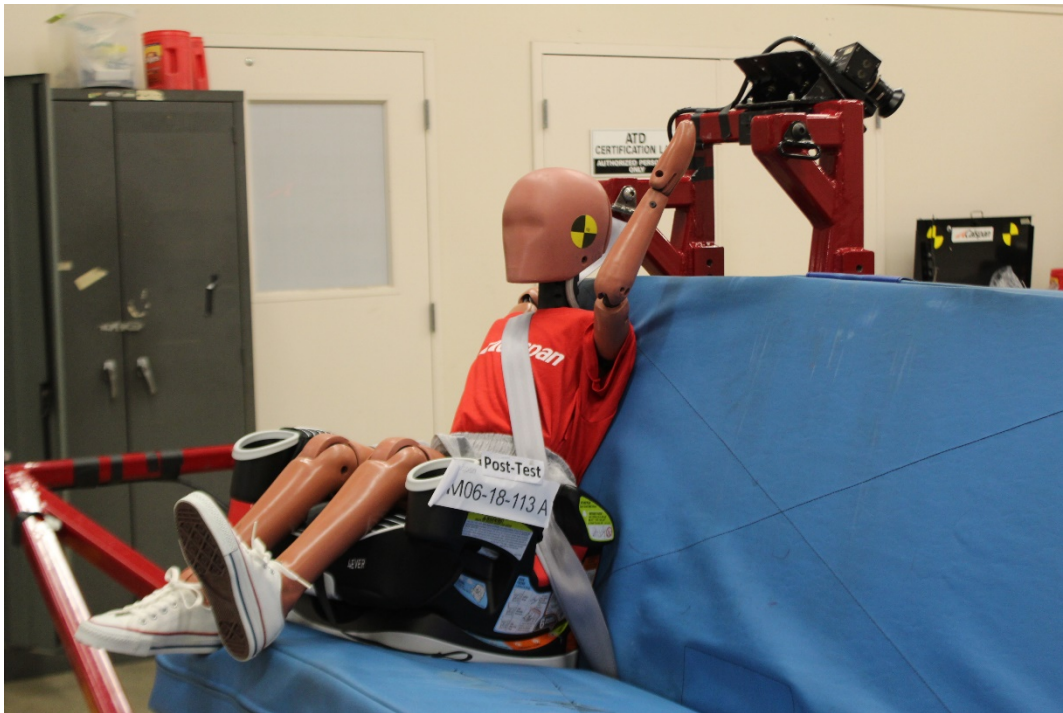
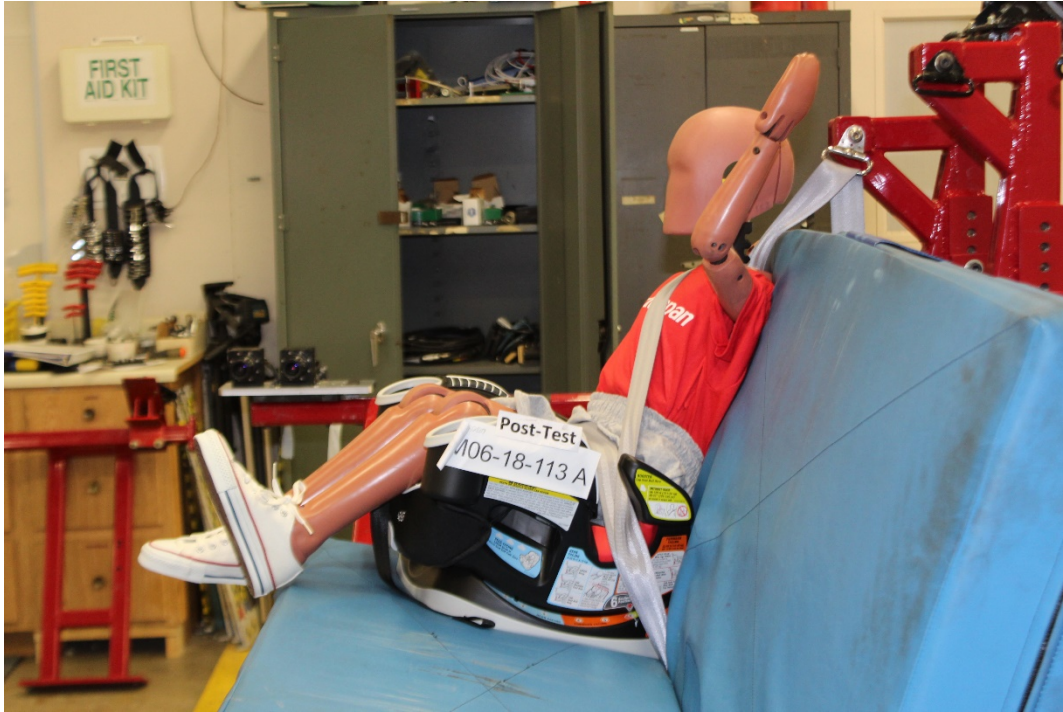
042-1943812-01-6H3FN3FN
Post Test

213-CAL-18-042
FM06-18-113A



042-1943812-01-6H3FN3FN
Post Test

213-CAL-18-042
FM06-18-113A



Dynamic Test Photos

042-1943812-02-12CRN2FR
Pre Test

213-CAL-18-042
FM06-18-113B



042-1943812-02-12CRN2FR
Pre Test

213-CAL-18-042
FM06-18-113B



042-1943812-02-12CRN2FR
Pre Test

213-CAL-18-042
FM06-18-113B



042-1943812-02-12CRN2FR
Pre Test

213-CAL-18-042
FM06-18-113B



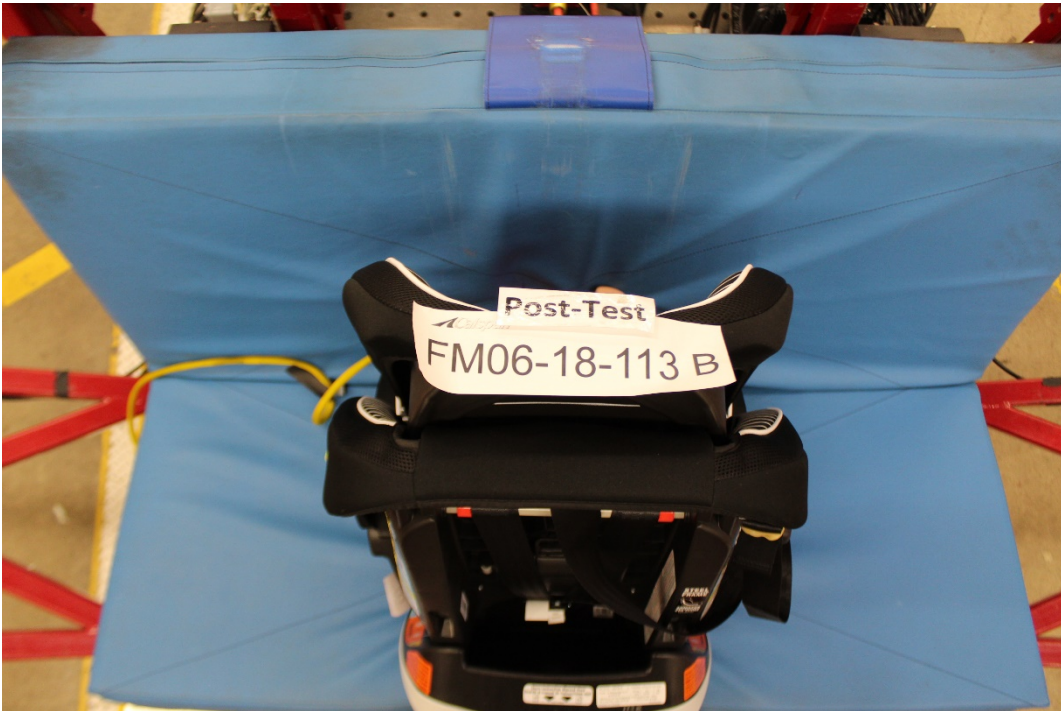
042-1943812-02-12CRN2FR
Post Test

213-CAL-18-042
FM06-18-113B



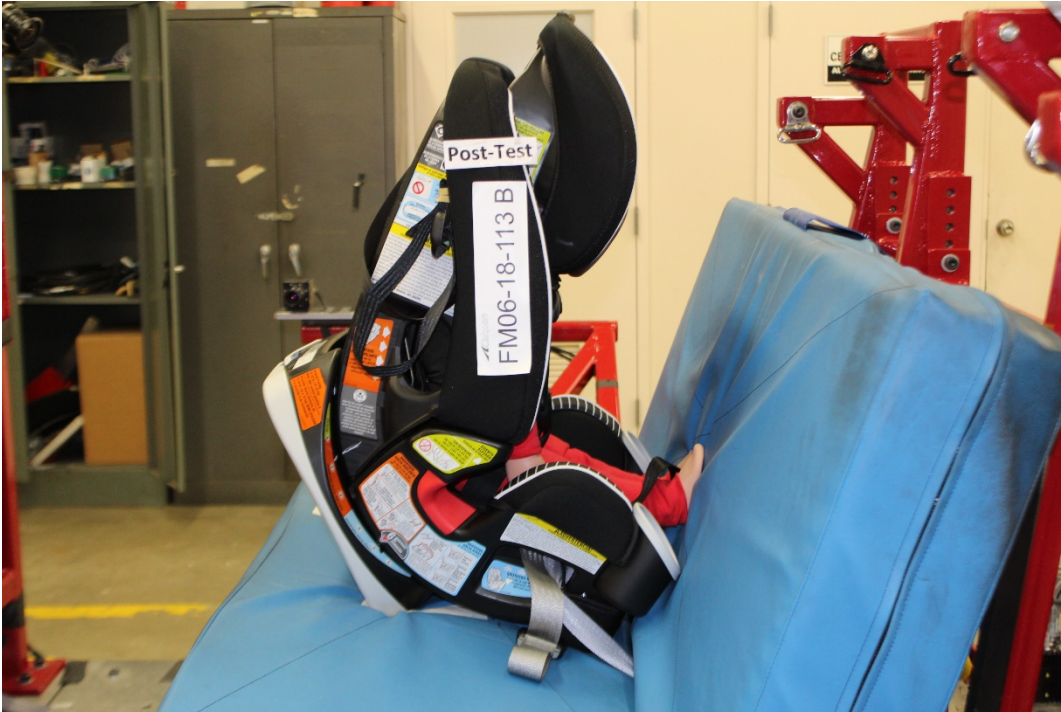
042-1943812-02-12CRN2FR
Post Test

213-CAL-18-042
FM06-18-113B



042-1943812-02-12CRN2FR
Post Test

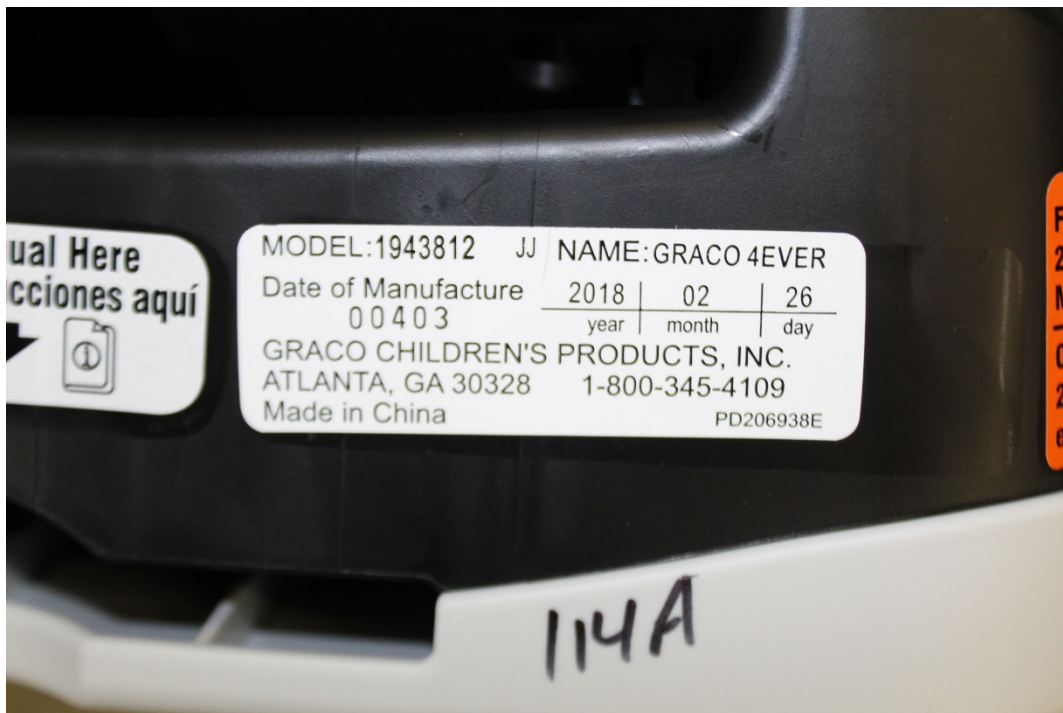
213-CAL-18-042
FM06-18-113B



Dynamic Test Photos

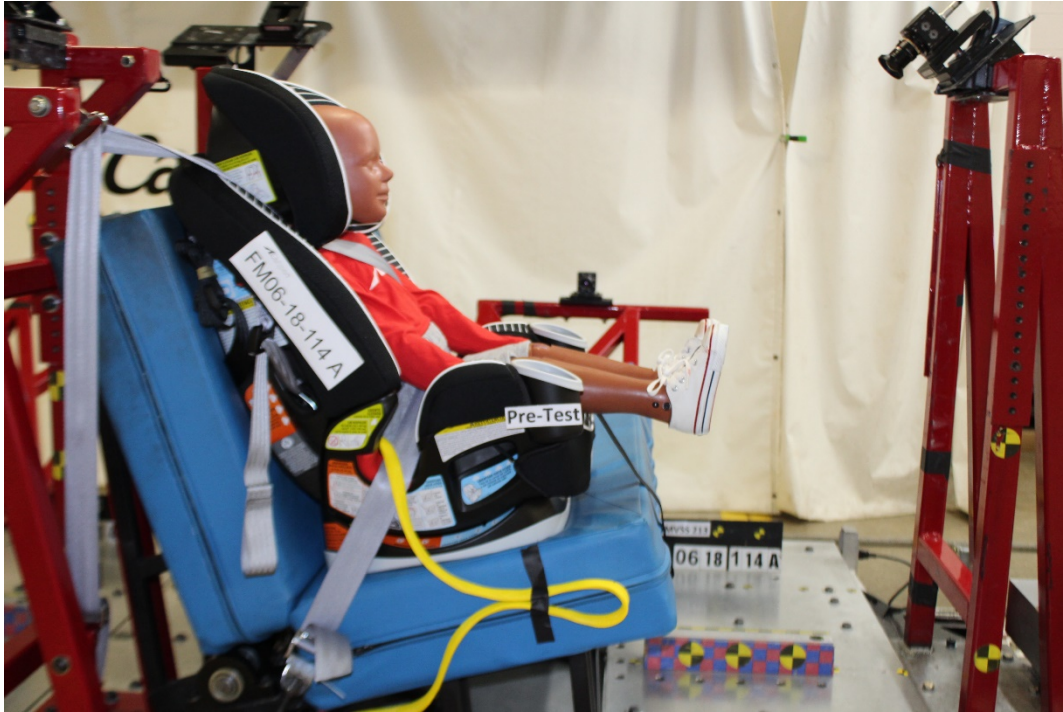
042-1943812-03-3H3FN3FB
Pre Test

213-CAL-18-042
FM06-18-114A



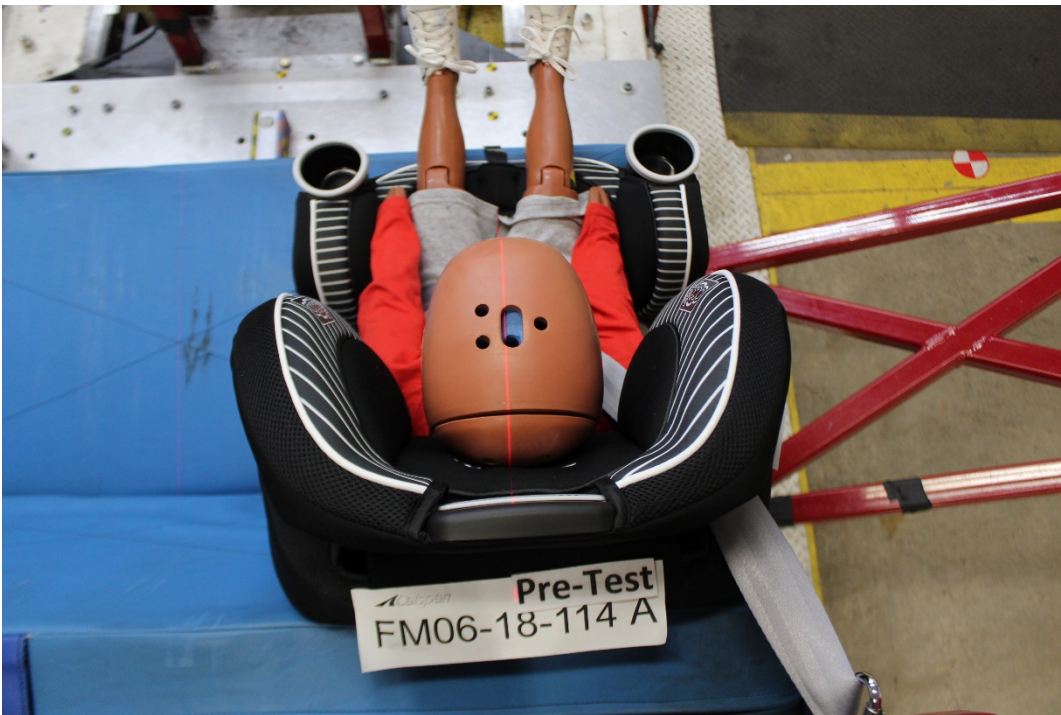
042-1943812-03-3H3FN3FB
Pre Test

213-CAL-18-042
FM06-18-114A



042-1943812-03-3H3FN3FB
Pre Test

213-CAL-18-042
FM06-18-114A



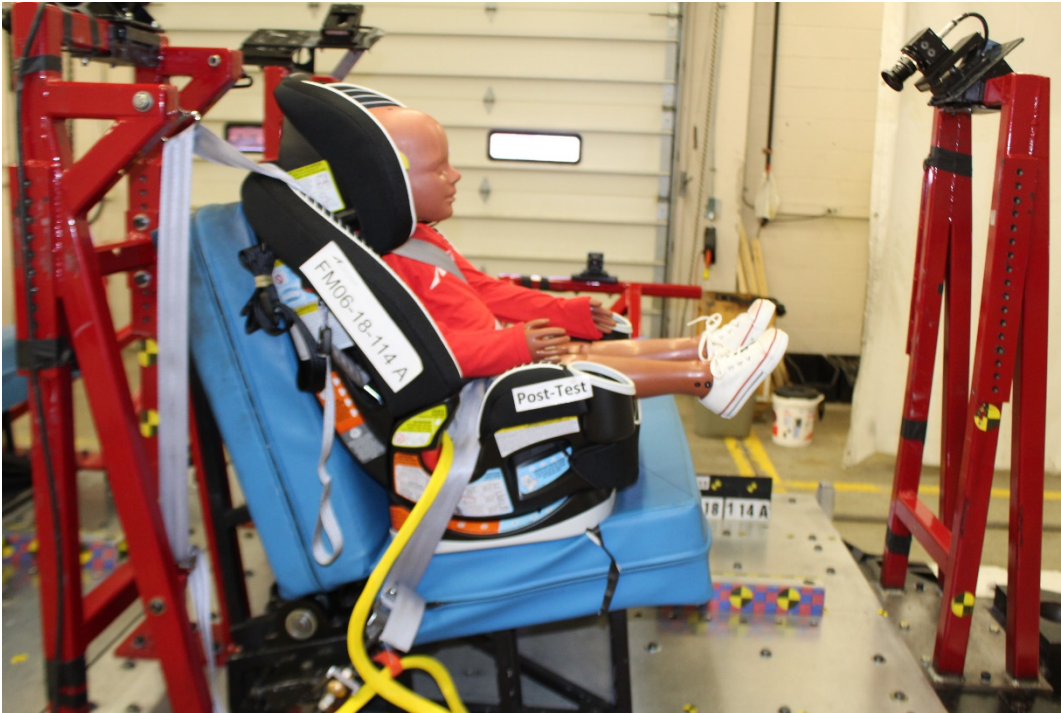
042-1943812-03-3H3FN3FB
Pre Test

213-CAL-18-042
FM06-18-114A



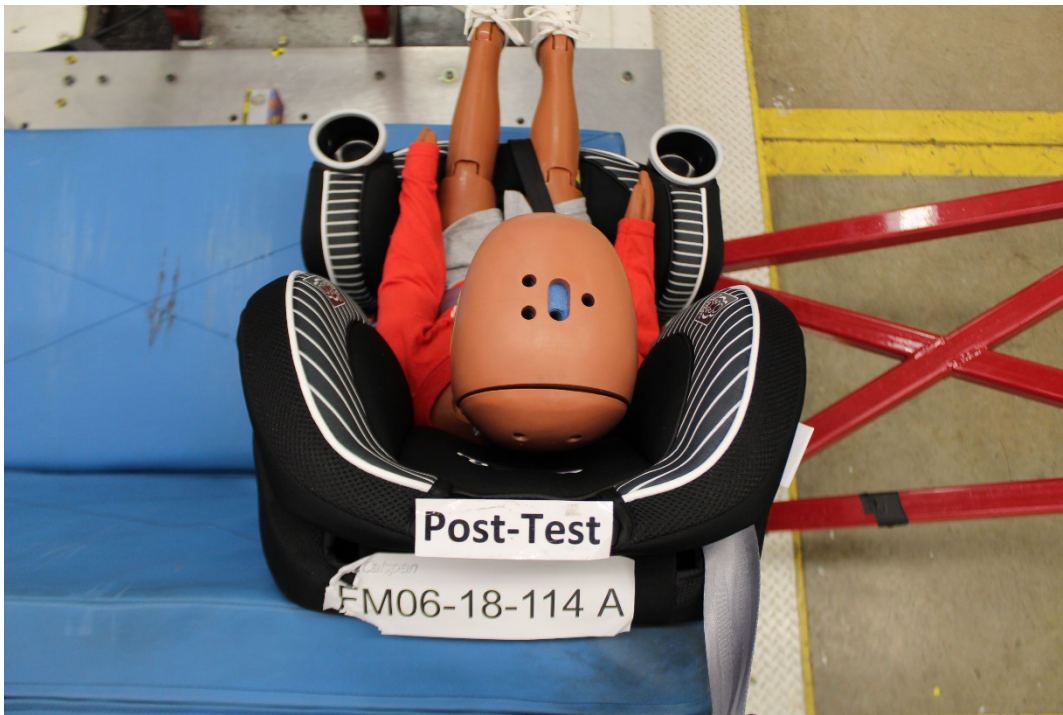
042-1943812-03-3H3FN3FB
Post Test

213-CAL-18-042
FM06-18-114A



042-1943812-03-3H3FN3FB
Post Test

213-CAL-18-042
FM06-18-114A



042-1943812-03-3H3FN3FB
Post Test

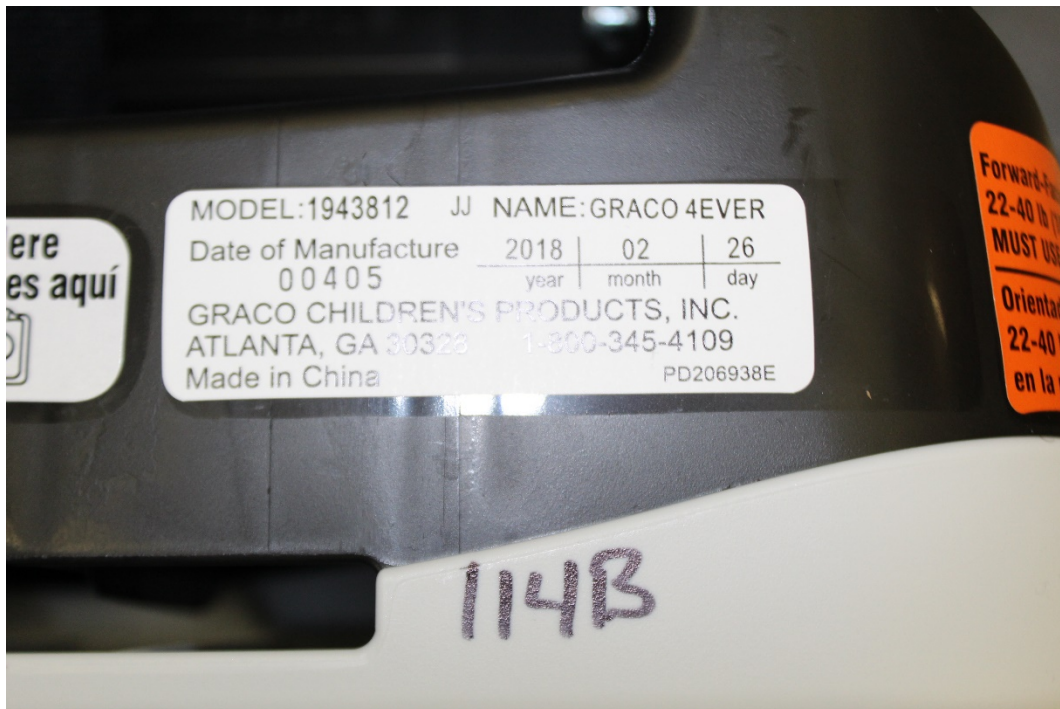
213-CAL-18-042
FM06-18-114A



Dynamic Test Photos

042-1943812-04-12CFNLTU
Pre Test

213-CAL-18-042
FM06-18-114B



042-1943812-04-12CFNLTU
Pre Test

213-CAL-18-042
FM06-18-114B



042-1943812-04-12CFNLTU
Pre Test

213-CAL-18-042
FM06-18-114B



042-1943812-04-12CFNLTU
Pre Test

213-CAL-18-042
FM06-18-114B



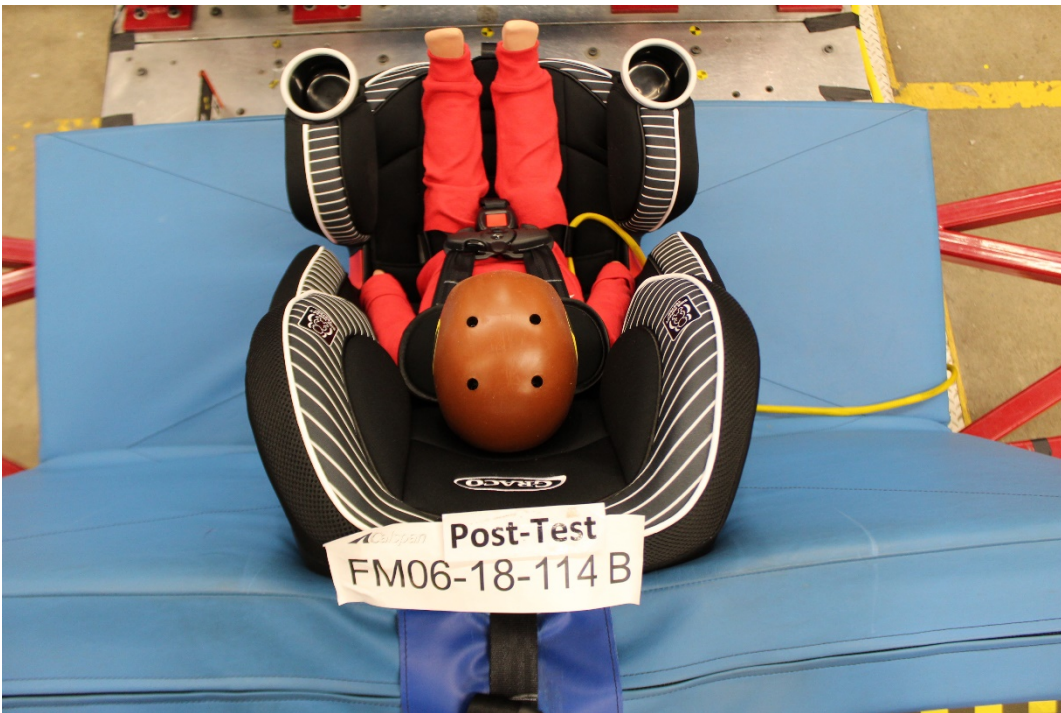
042-1943812-04-12CFNLTU
Post Test

213-CAL-18-042
FM06-18-114B



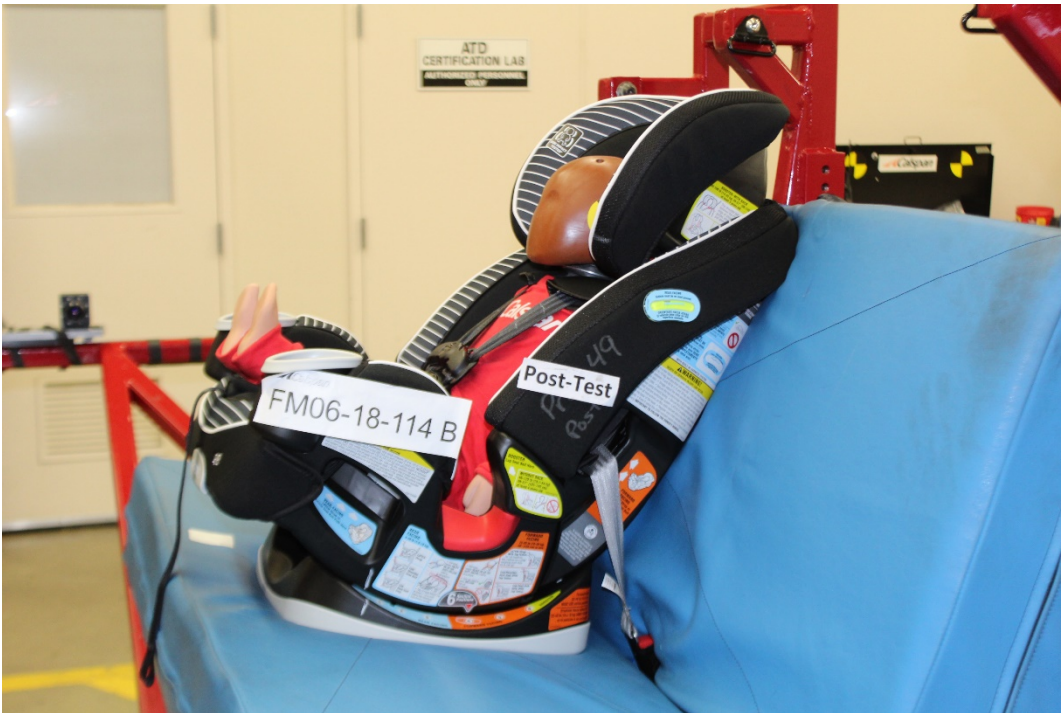
042-1943812-04-12CFNLTU
Post Test

213-CAL-18-042
FM06-18-114B



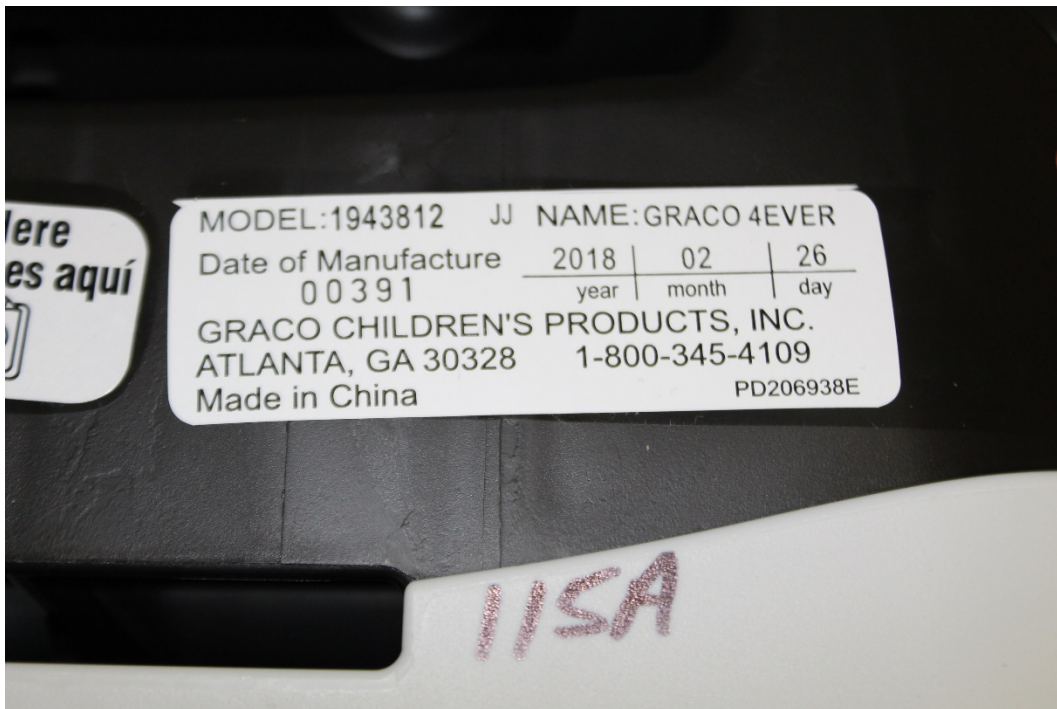
042-1943812-04-12CFNLTU
Post Test

213-CAL-18-042
FM06-18-114B



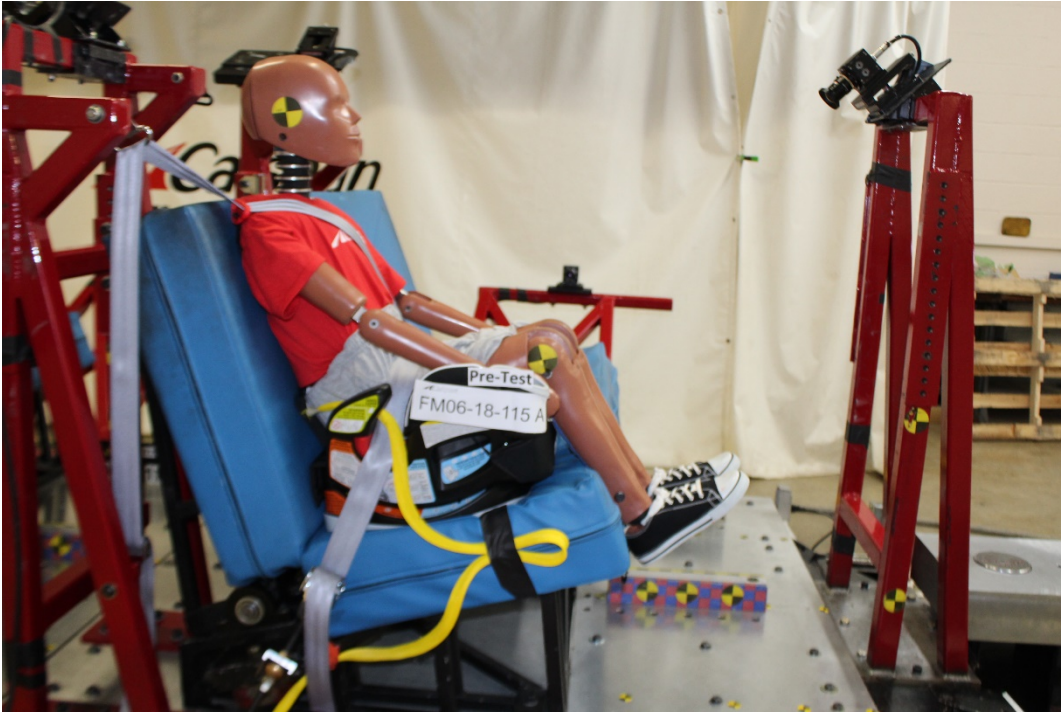
042-1943812-05-10H3FN3FN
Pre Test

213-CAL-18-042
FM06-18-115A



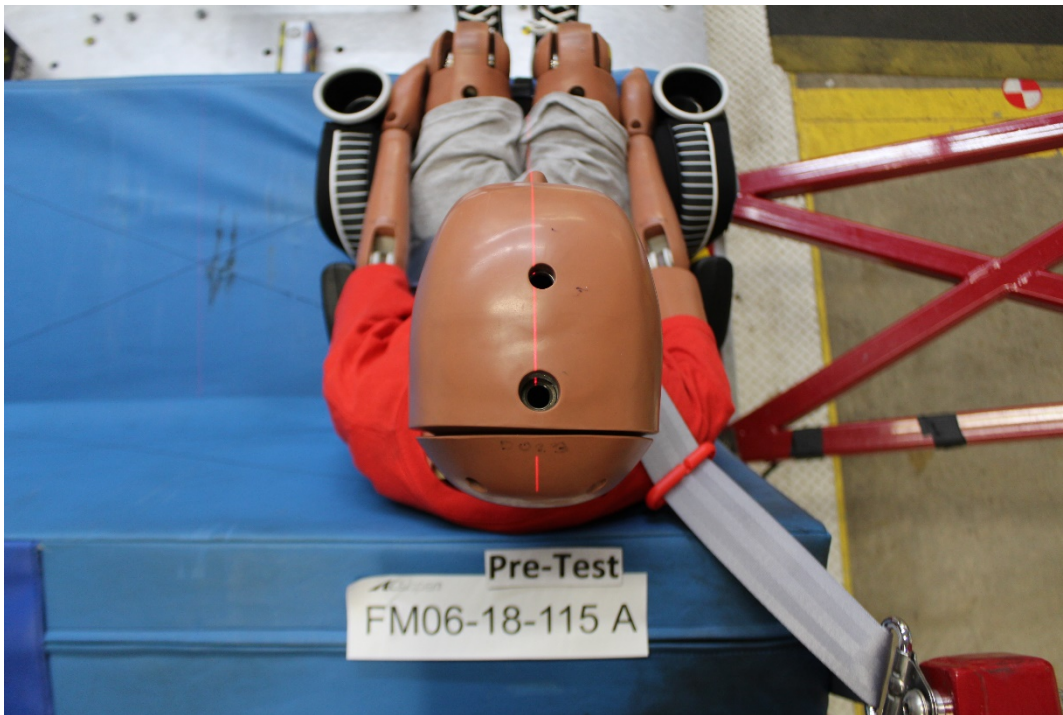
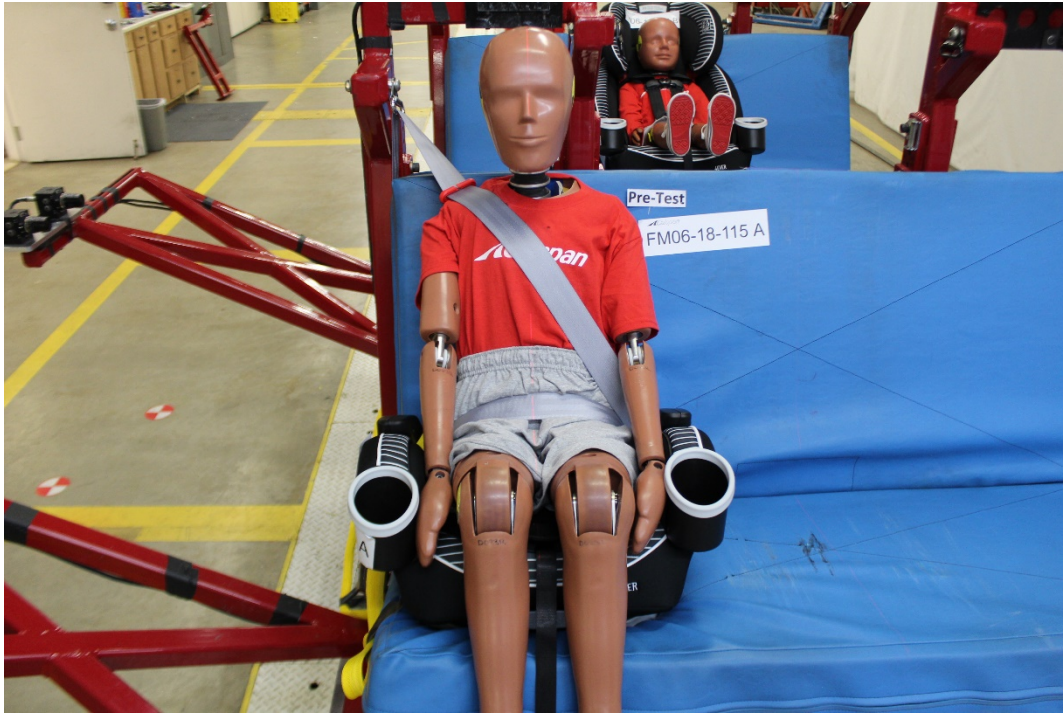
042-1943812-05-10H3FN3FN
Pre Test

213-CAL-18-042
FM06-18-115A



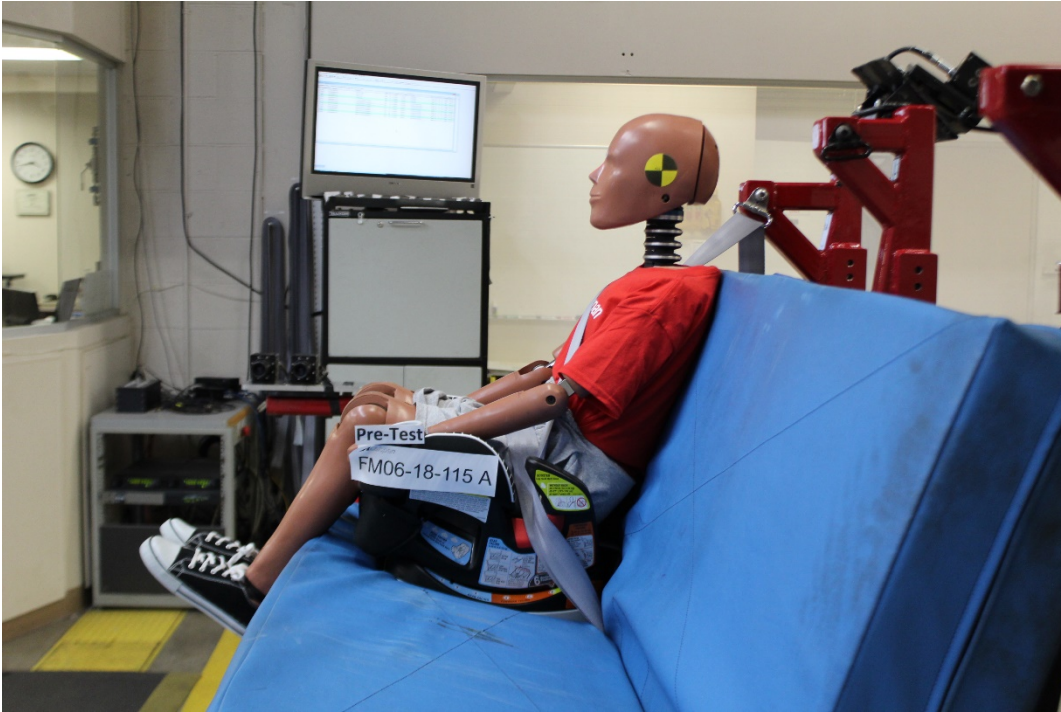
042-1943812-05-10H3FN3FN
Pre Test

213-CAL-18-042
FM06-18-115A



042-1943812-05-10H3FN3FN
Pre Test

213-CAL-18-042
FM06-18-115A



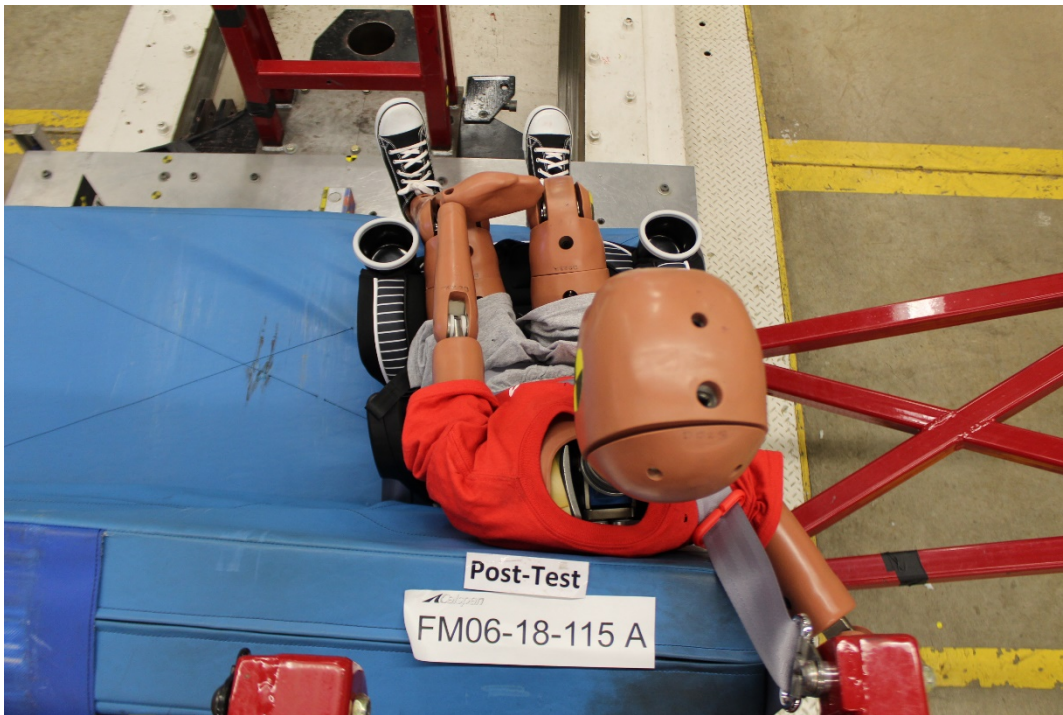
042-1943812-05-10H3FN3FN
Post Test

213-CAL-18-042
FM06-18-115A



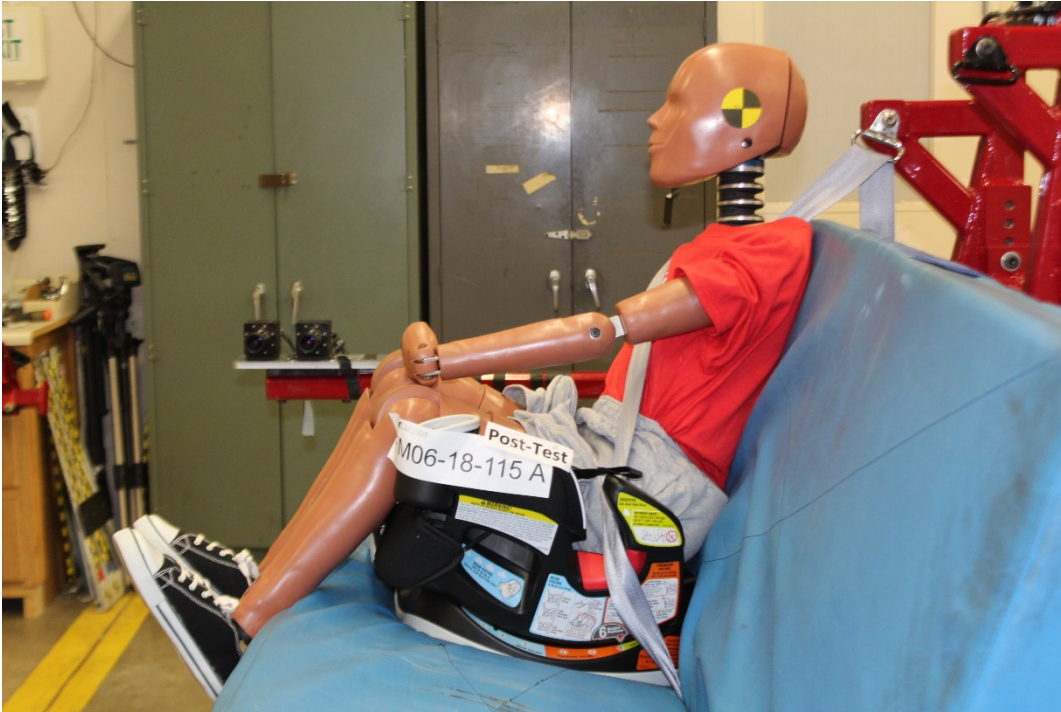
042-1943812-05-10H3FN3FN
Post Test

213-CAL-18-042
FM06-18-115A



042-1943812-05-10H3FN3FN
Post Test

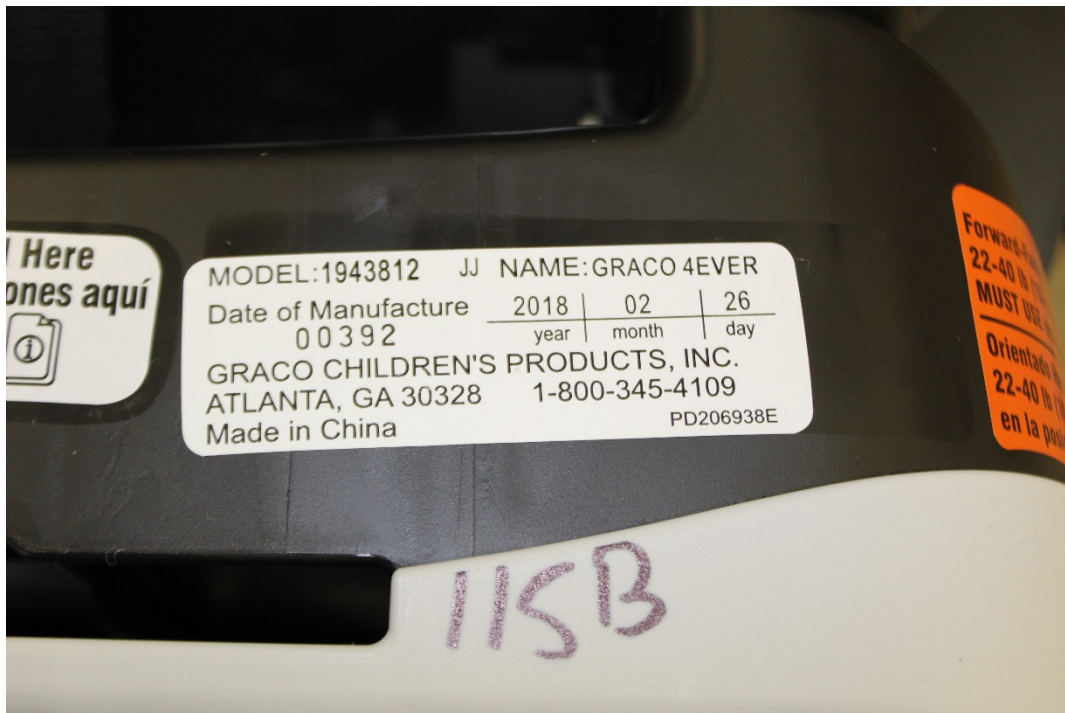
213-CAL-18-042
FM06-18-115A



Dynamic Test Photos

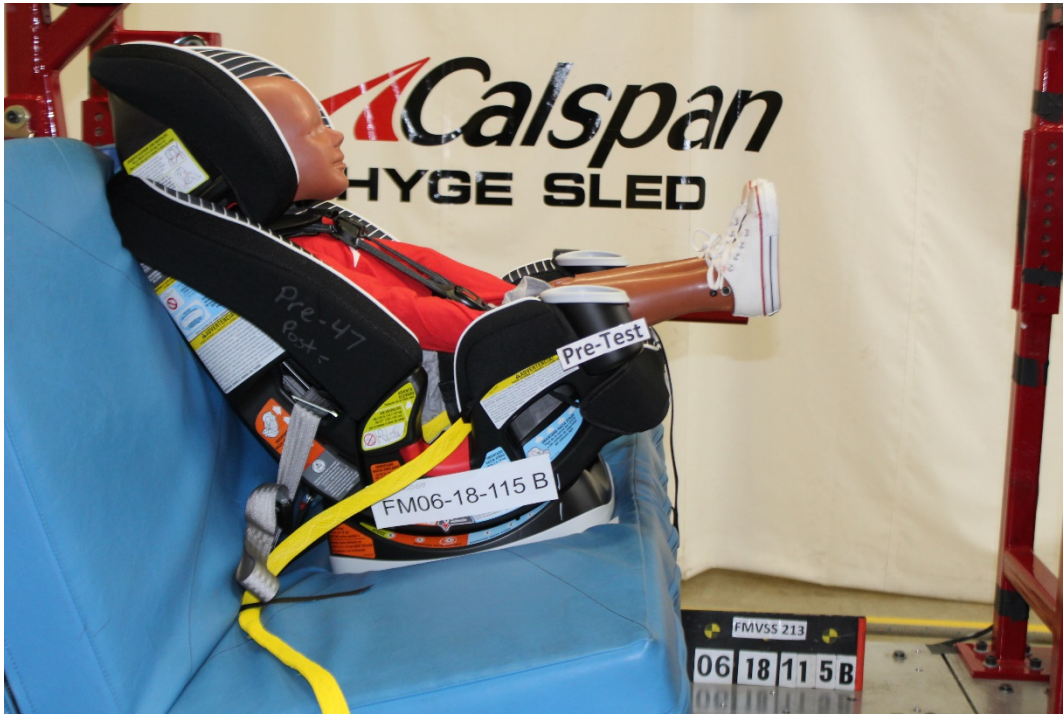
042-1943812-06-3H3FNLTU
Pre Test

213-CAL-18-042
FM06-18-115B



042-1943812-06-3H3FNLTU
Pre Test

213-CAL-18-042
FM06-18-115B



042-1943812-06-3H3FNLTU
Pre Test

213-CAL-18-042
FM06-18-115B



042-1943812-06-3H3FNLTU
Pre Test

213-CAL-18-042
FM06-18-115B



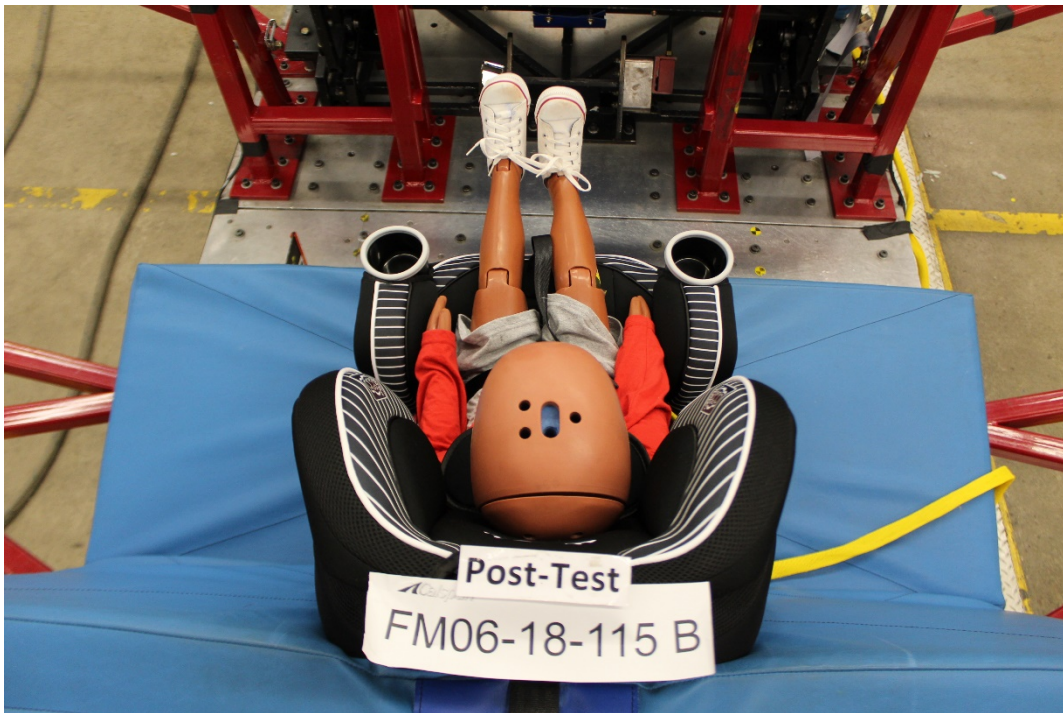
042-1943812-06-3H3FNLTU
Post Test

213-CAL-18-042
FM06-18-115B



042-1943812-06-3H3FNLTU
Post Test

213-CAL-18-042
FM06-18-115B



042-1943812-06-3H3FNLTU
Post Test

213-CAL-18-042
FM06-18-115B



042-1943812-Inv01-12CRN2FR
Pre Test Y-Axis

213-CAL-18-042
FM06-18-117



042-1943812-Inv01-12CRN2FR
Post Test Y-Axis

213-CAL-18-042
FM06-18-117



042-1943812-Inv01-12CRN2FR
Pre Test X-Axis

213-CAL-18-042
FM06-18-117



042-1943812-Inv01-12CRN2FR
Post Test X-Axis

213-CAL-18-042
FM06-18-117



042-1943812-Inv02-3H3FN2FU
Pre Test Y-Axis

213-CAL-18-042
FM06-18-116



042-1943812-Inv02-3H3FN2FU
Post Test Y-Axis

213-CAL-18-042
FM06-18-116



042-1943812-Inv02-3H3FN2FU
Pre Test X-Axis

213-CAL-18-042
FM06-18-116



042-1943812-Inv02-3H3FN2FU
Post Test X-Axis

213-CAL-18-042
FM06-18-116



Inspection Photos

Registration
213-CAL-18-042

042-1943812-01-6H3FN3FN	042-1943812-02-12CRN2FR
042-1943812-03-3H3FN3FB	042-1943812-04-12CFNLTU
042-1943812-05-10H3FN3FN	042-1943812-06-3H3FNLTU

IMPORTANT: En caso de una retirada del mercado, solo podremos contactarle si tenemos su nombre y dirección. Usted DEBE enviarnos por correo la tarjeta adjunta o inscribirse en línea para añadirse a la lista para retiradas.

FOR YOUR CHILD'S CONTINUED SAFETY
Please take a few moments to promptly fill out and return the attached card or register online.

Although child restraint systems undergo testing and evaluation, it is possible that a child restraint could be recalled.

In case of recall, we can reach you only if we have your name and address, so please send in the card or register online to be on our recall list.

Please fill this card out and mail it NOW, or register online at <http://www.gracobaby.com/carseatregistration> while you are thinking about it.

The card is already addressed and we've paid the postage.

Tear off and mail this part

Consumer: Just fill in your name and address. Please print.

Your first name _____

Your last name _____

Your street address _____

City _____

State _____ Zip Code _____

CHILD RESTRAINT REGISTRATION CARD

MODEL: 1943812 JJ NAME: GRACO 4EVER

Date of Manufacture 2018 02 26

0 0 5 2 7 year month day

GRACO CHILDREN'S PRODUCTS, INC.

ATLANTA, GA 30328 1-800-345-4109

Made in China PD209938C

IMPORTANT

In case of a recall, we can reach you only if we have your name and address. You **MUST** send in the attached card or register online to be on our recall list.

We've already paid the postage.

Do it today.

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 66 ELVERSON PA

POSTAGE WILL BE PAID BY ADDRESSEE

GRACO
CHILDREN'S PRODUCTS, INC.
P.O. BOX 169
ELVERSON, PA 19520-9901

The screenshot shows the Graco website's car seat registration page. The browser address bar shows the URL: <https://www.gracobaby.com/ProductRegistration/CarSeatsView?catalogId=65051&langId=-1&storeId=65051>. The page features the Graco logo and a heading for "CAR SEAT REGISTRATION". Below the heading is a safety notice: "FOR YOUR CHILD'S CONTINUED SAFETY. Although child restraint systems undergo testing and evaluation, it is possible that a child restraint could be recalled. In case of a recall, we can reach you only if we have your name and address, so please fill in the registration form to be on our recall list. In order to properly register your child restraint system, you will need to provide the model number, serial number and date of manufacture. This information is printed on the registration card and can also be found on a white label located on the back or bottom of the child restraint system. This registration is only applicable to child restraint systems purchased in the United States." The registration form is divided into two sections: "CUSTOMER INFORMATION" and "PRODUCT INFORMATION".

CUSTOMER INFORMATION		PRODUCT INFORMATION
First Name <input type="text"/>	Last Name <input type="text"/>	Model Number <input type="text"/>
Address <input type="text"/>		Manufacture Date <input type="text"/>
City <input type="text"/>	State <input type="text"/>	Zip Code <input type="text"/>
Email <input type="text"/>		Phone <input type="text"/>
<input type="button" value="Clear"/> <input type="button" value="Submit"/>		

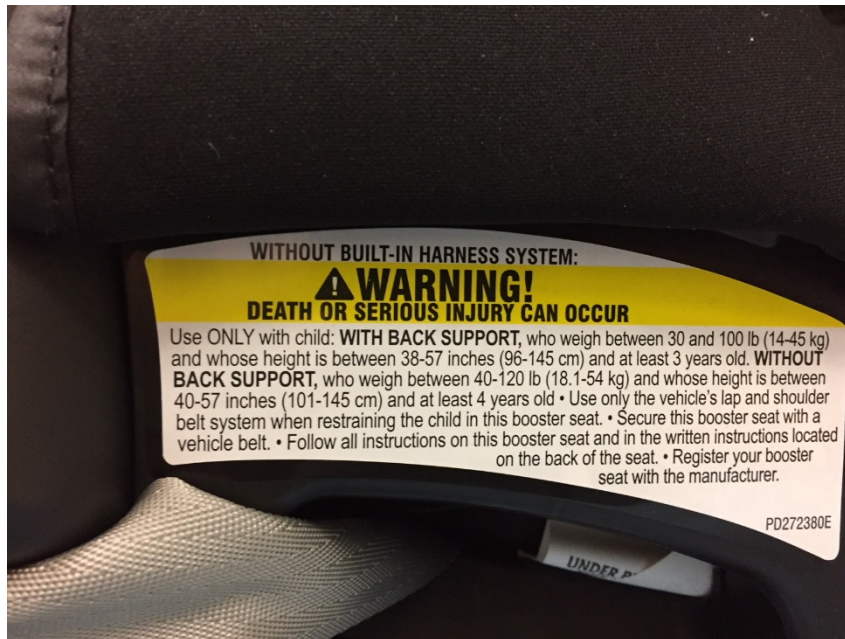
Labels	
213-CAL-18-042	
042-1943812-01-6H3FN3FN	042-1943812-02-12CRN2FR
042-1943812-03-3H3FN3FB	042-1943812-04-12CFNLTU
042-1943812-05-10H3FN3FN	042-1943812-06-3H3FNLTU



Labels	
213-CAL-18-042	
042-1943812-01-6H3FN3FN	042-1943812-02-12CRN2FR
042-1943812-03-3H3FN3FB	042-1943812-04-12CFNLTU
042-1943812-05-10H3FN3FN	042-1943812-06-3H3FNLTU



Labels	
213-CAL-18-042	
042-1943812-01-6H3FN3FN	042-1943812-02-12CRN2FR
042-1943812-03-3H3FN3FB	042-1943812-04-12CFNLTU
042-1943812-05-10H3FN3FN	042-1943812-06-3H3FNLTU



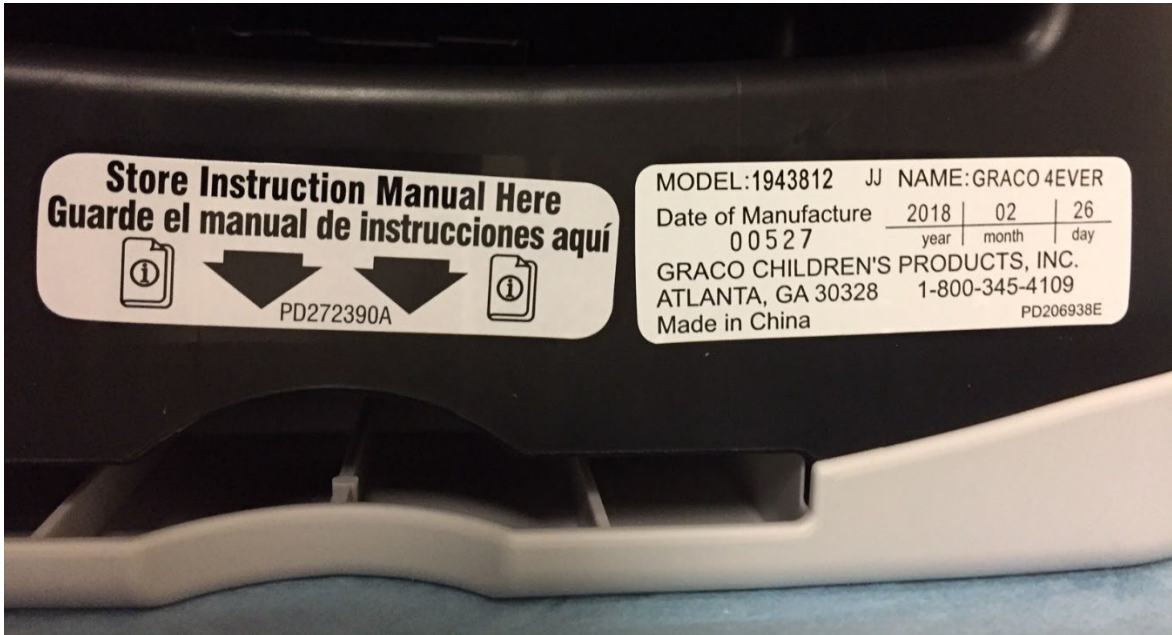
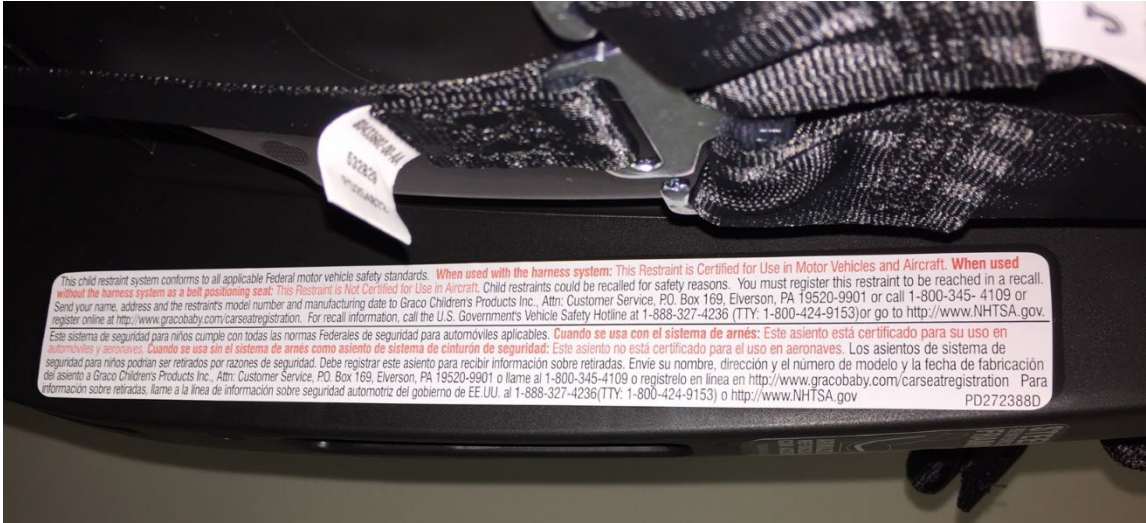
Labels
213-CAL-18-042

042-1943812-01-6H3FN3FN
042-1943812-03-3H3FN3FB
042-1943812-05-10H3FN3FN

042-1943812-02-12CRN2FR
042-1943812-04-12CFNLTU
042-1943812-06-3H3FNLTU



Labels 213-CAL-18-042	
042-1943812-01-6H3FN3FN	042-1943812-02-12CRN2FR
042-1943812-03-3H3FN3FB	042-1943812-04-12CFNLTU
042-1943812-05-10H3FN3FN	042-1943812-06-3H3FNLTU



Labels

213-CAL-18-042

042-1943812-01-6H3FN3FN

042-1943812-02-12CRN2FR

042-1943812-03-3H3FN3FB

042-1943812-04-12CFNLTU

042-1943812-05-10H3FN3FN

042-1943812-06-3H3FNLTU

