REPORT NUMBER: 213-MGA-10-001

SAFETY COMPLIANCE TESTING FOR FMVSS 213
CHILD RESTRAINT SYSTEMS

Orbit Baby, Inc.
Infant Car Seat, Model ORB803000

PREPARED BY:
MGA RESEARCH CORPORATION
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BURLINGTON, WI 53105

Report Date: September 16, 2009

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF VEHICLE SAFETY COMPLIANCE
1200 NEW JERSEY AVENUE, SE (NVS-220)
WASHINGTON, D.C. 20590

This final test report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, in response to Contract Number DTNH22-07-D-00068.

Prepared by: _____ Date: September 16, 2009
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SECTION 1

PURPOSE AND TEST PROCEDURE

PURPOSE

The purpose of this test was to determine if the production child restraint systems supplied by the National Highway Traffic Safety Administration meets the requirements of Federal Motor Vehicle Safety Standard (FMVSS) 213, Child Restraint Systems.

TEST PROCEDURE

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

SECTION 2

INTRODUCTION AND SUMMARY

This report presents FMVSS 213 compliance inspection and test data obtained on the Orbit Baby, Inc., Infant Car Seat, Model ORB803000 child restraint system. The restraint was dynamically tested in the following configurations:

- Twelve month-old dummy, rearward-facing, attached with the child restraint anchorage system (LATCH) and base
- Twelve month-old dummy, rearward-facing, attached with a lap belt and base

Inversion testing was performed in both the forward Y-axis rotation and in the lateral X-axis rotation for the following configurations: Newborn-size infant – rearward facing, reclined; 12 month-old size – forward facing, upright; 3 year-old size – forward-facing, upright.

The results of the inspection and testing of the Orbit Baby, Inc., Infant Car Seat, Model ORB803000 child restraint met or exceeded the requirements of FMVSS No. 213 when tested in accordance with TP-213-09 in the configurations and conditions documented in this report.

Restraint system inspection, dynamic sled testing and inversion testing were performed by MGA Research Corporation in Burlington, Wisconsin. Compliance test data sheets for all tests are found in Sections 3 and 4 of this report.

SECTION 3

INSPECTION AND TEST DATA

Report No. 213-MGA-10-001

CHILD RESTRAINT SYSTEM IDENTIFICATION

Manufacturer:	Orbit Baby, Inc.
Address:	37330 Cedar Blvd. Ste J Newark, CA 94560
Model No.	ORB803000
Group No.	1

1	Item Code	001-OORB803000-01-12CRBLFN
	Date of Manufacture	042009
	Sled Test No.	H09869F
2	Item Code	001-OORB803000-02-12CRBLFN
	Date of Manufacture	042009
	Sled Test No.	H09869R
3	Item Code	001-OORB803000-03-12CRB2FN
	Date of Manufacture	042009
	Sled Test No.	H09870F
4	Item Code	001-OORB803000-04-12CRBLFN
	Date of Manufacture	042009
	Sled Test No.	H09870R
5	Item Code	
	Date of Manufacture	
	Sled Test No.	
6	Item Code	
	Date of Manufacture	
	Sled Test No.	

DATA SHEET NO. 1

LABELING

(FMVSS 213, S5.5)

Report No.:	213-MGA-10-001
Test Date:	9/10/2009

Item Code:	001-OORB803000-01-12CRBLFN
	001-OORB803000-02-12CRBLFN
	001-OORB803000-03-12CRB2FN
	001-OORB803000-04-12CRBLFN

Pass/Fail

S5.5 Any labels or written instructions provided in addition to those required by this section shall not obscure or confuse the meaning of the required information or be otherwise misleading to the consumer. Any labels or written instructions other than in the English language shall be an accurate translation of English labels or written instructions. — Pass

S5.5.1 Each add-on child restraint system shall be permanently labeled with the information specified in S5.5.2 (a) through (m). — Pass

S5.5.2 The information specified in paragraphs (a) through (m) of this section shall be stated in the English language and lettered in letters and numbers that are not smaller than 10 point type. Unless otherwise specified, the information shall be labeled on a white background with black text. Unless written in all capitals, the information shall be stated in sentence capitalization. The following information is included: — Pass

(a) The model name or number of the system. — Pass

(b) The manufacturer's name. A distributor's name may be used instead if the distributor assumes responsibility for all duties and liabilities imposed on the manufacturer with respect to the system by the National Traffic and Motor Vehicle Safety Act, as amended. — Pass

(c) The statement: "Manufactured in _____," inserting the month and year of manufacture. — Pass

(d) The place of manufacture (city and state, or foreign country). However, if the manufacturer uses the name of the distributor, then it shall state the location (city and state, or foreign country) of the principal offices of the distributor. — Pass

(e) The statement: "This child restraint system conforms to all applicable Federal Motor Vehicle Safety Standards." — Pass

Remarks:

DATA SHEET NO. 1…(continued)

LABELING

Pass/Fail

(f) One of the following statements, as appropriate, inserting the manufacturer's recommendations for the maximum mass of children who can safely occupy the system, except that booster seats shall not be recommended for children whose masses are less than 13.6 kg. For seats that can only be used as belt-positioning seats, manufacturers must include the maximum and minimum recommended height, but may delete the reference to weight: Pass

(1) Use only with children who weigh ___ pounds (___ kg) or less and whose height is (*insert values in English and metric units; use of word "mass" in label is optional*) or less; or

(2) Use only with children who weigh between ___ and ___ pounds (*insert appropriate English and metric values: use of the word "mass" is optional*) and whose height is (*insert appropriate values in English and metric* units) or less and who are capable of sitting upright alone; or

(3) Use only with children who weigh between ___ and ___ pounds (*insert appropriate English and metric values: use of the word "mass" is optional*) and whose height is (*insert appropriate English and metric values*) or less; or

(4) Use only with children who weigh between ___ and ___ pounds (*insert appropriate English and metric values: use of the word "mass" is optional*) and whose height is between ___ and ___ (*insert appropriate English and metric values*).

(g) The statements specified in paragraphs (1) and (2):

(1) A heading as specified in S5.5.2(k)(3)(i), with the statement "WARNING! DEATH or SERIOUS INJURY can occur," capitalized as written and followed by bulleted statements in the following order: Pass

(i) As appropriate, the statements required by the following sections will be bulleted and placed after the statement required by 5.5.2(g)(1) in the following order: 5.5.2(k)(1) or 5.5.2(k)(2), 5.5.2(f), 5.5.2(h), 5.5.2(j), and 5.5.2(i). Pass

Remarks:

DATA SHEET NO. 1…(continued)

LABELING

		Pass/Fail
(ii)	Secure this child restraint with the vehicle's child restraint anchorage system if available or with a vehicle belt. [For car beds, harnesses, and belt-positioning boosters, the first part of the statement regarding attachment by the child restraint anchorage system is optional.]	Pass
(iii)	Follow all instructions on this child restraint and in the written instructions located (*insert storage location on the restraint for the manufacturer's installation instruction booklet or sheet*).	Pass
(iv)	Register your child restraint with the manufacturer.	Pass
(2)	At the manufacturer's option, the phrase "DEATH or SERIOUS INJURY can occur" in the heading can be on either a white or yellow background.	Pass
(3)	More than one label may be used for the required bulleted statements. Multiple labels shall be placed one above the other unless that arrangement is precluded by insufficient space or shape of the child restraint. In that case, multiple labels shall be placed side-by-side. When using multiple labels, the mandated warnings must be in the correct order when read from top to bottom. If the labels are side-by-side, then the mandated warnings must appear top to bottom of the leftmost label, then top to bottom of the next label to its right, and so on. There shall be no intervening labels and the required heading shall only appear on the first label in the sequence.	N/A
(h)	In the case of each child restraint system that has belts designed to restrain children using them, and which do not adjust automatically to fit your child; the statement:	
	Snugly adjust the belts provided with this child restraint around your child.	Pass

Remarks:

DATA SHEET NO. 1…(continued)

LABELING

Pass/Fail

(i) (1) For a booster seat which is recommended for use with **either** a vehicle's Type I **or** Type II seat belt assembly, one of the following statements, as appropriate:

(i) Use only the vehicle's lap and shoulder belt system when restraining the child in this booster seat; or, N/A

(ii) Use only the vehicle's lap belt system, or the lap belt part of a lap/shoulder belt system with the shoulder belt placed behind the child, when restraining the child in this seat. N/A

(2)(i) Except as provided in paragraph (i)(2)(ii), for a booster seat which is recommended for use with **both** a vehicle's Type I **and** Type II seat belt assemblies, the following statement:

Use only the vehicle's lap belt system, or the lap belt part of a lap/shoulder belt system with the shoulder belt placed behind the child, when restraining the child with the (*insert description of the restraint element provided to restrain forward movement of the child's torso when used with a lap belt (e.g., shield)*), and only the vehicle's lap and shoulder belt system when using the booster without the (*insert above description*). N/A

(ii) A booster seat which is recommended for use with both a vehicle's Type I and Type II seat belt assemblies is not subject to S5.5.2(i)(2)(i) if, when the booster is used with the shield or similar component, the booster will cause the shoulder belt to be located in a position other than in front of the child when the booster is installed. However, such a booster shall be labeled with a warning to use the booster with the vehicle's lap and shoulder belt system when using the booster without a shield. N/A

Remarks:

DATA SHEET NO. 1…(continued)

LABELING

		Pass/Fail
(j)	In the case of each child restraint system equipped with an anchorage strap, the statement:	
	Secure the top anchorage strap provided with this child restraint.	N/A
(k)	(1) In the case of each rear-facing child restraint system that is designed for infants only, the following statement:	
	Use only in a rear-facing position when using it in a vehicle.	Pass
	(2) In the case of a child restraint system that is designed to be used rearward-facing for infants and forward-facing for older children, the statement:	
	Use only in a rear-facing position when using it with an infant weighing less than (*insert a recommended weight that is not less than 20 pounds*).	N/A

Remarks:

DATA SHEET NO. 1…(continued)

LABELING

Pass/Fail

(3) Except as provided in (k)(4) of this section, each child restraint system that can be used in a rear-facing position shall have a label that conforms in content to Figure 10 and to the requirements of S5.5.2(k)(3)(i) through S5.5.2(k)(3)(iii) of this standard permanently affixed to the outer surface of the cushion or padding in or adjacent to the area where a child's head would rest, so that the label is plainly visible and easily readable. Pass

The text included with Figure 10 reads:

"WARNING. DO NOT place rear-facing child seat on front seat with air bag. DEATH OR SERIOUS INJURY can occur. The back seat is the safest place for children 12 and under."

(i) The heading area shall be yellow with the word "WARNING" and the alert symbol in black. Pass

(ii) The message area shall be white with black text. The message area shall be no less than 30 square cm. Pass

(iii) The pictogram shall be black with a red circle and slash on a white background. The pictogram shall be no less than 30 mm in diameter. Pass

(4) If a child restraint system is equipped with a device that deactivates the passenger-side airbag in a vehicle when and only when the child restraint is installed in the vehicle and provides a signal, for at least 60 seconds after deactivation, that the air bag is deactivated, the label specified in Figure 10 may include the phrase "unless air bag is off" after "on front seat with air bag". N/A

Remarks:

DATA SHEET NO. 1…(continued)

LABELING

		Pass/Fail
(l)	An installation diagram showing the child restraint system installed in:	
	(1) A seating position equipped with a continuous-loop lap/shoulder belt;	Pass
	(2) A seating position equipped with only a lap belt, as specified in the manufacturer's instructions; and	Pass
	(3) A seating position equipped with a child restraint anchorage system.	Pass
(m)	One of the following statements, inserting an address and a U.S. telephone number. If a manufacturer opts to provide a Web site on the registration card as permitted in Figure 9a of this section, the manufacturer must include the statement in part (ii):	
	(i) "Child restraints could be recalled for safety reasons. You must register this restraint to be reached in a recall. Send your name, address, e-mail address if available [preceding four words is optional] and the restraint's model number and manufacturing date to (*insert address*) or call (*insert a U.S. telephone number*). For recall information, call the U.S. Government's Vehicle Safety Hotline at 1–888–327–4236 (TTY: 1–800–424–9153), or go to *http://www.NHTSA.gov.* "	N/A
	(ii) "Child restraints could be recalled for safety reasons. You must register this restraint to be reached in a recall. Send your name, address, e-mail address if available [preceding four words is optional] and the restraint's model number and manufacturing date to (*insert address*) or call (*insert a U.S. telephone number*) or register online at (*insert web site for electronic registration form).* For recall information, call the U.S. Government's Vehicle Safety Hotline at 1–888–327–4236 (TTY: 1–800–424–9153), or go to *http://www.NHTSA.gov.* "	(1)

Remarks:
(1) The label states: "Child restraints could be recalled for safety reasons. You must register this restraint to be reached in a recall. Send the Registration Card with your name, address, e-mail address if available, and the restraint's model number and manufacturing date to Orbit Baby, Inc., 37330 Cedar Boulevard, Suite J, Newark, CA 94560. You may also call 1-877-ORB-BABY or register online at **www.orbitbaby.com/register**. For recall information, call the U.S Government's Vehicle Safety Hotline at 1-888-327-4236 (TTY: 1-800-424-9153), or go to http://www.NHTSA.gov."

DATA SHEET NO. 1…(continued)

LABELING

Pass/Fail

(n) Child restraint systems, other than belt-positioning seats, harnesses, and backless child restraint systems, may be certified as complying with the provisions of section S8 (Aircraft Usage). Child restraints that are so certified shall be labeled with the statement:

"This Restraint is Certified for Use in Motor Vehicles and Aircraft." — Pass

Belt-positioning booster seats, harnesses, and backless child restraint systems shall be labeled with the statement:

"This Restraint is Not Certified for Use in Aircraft." — Pass

The statement required by this paragraph shall be in red lettering, and shall be placed after the certification statement required by paragraph S5.52(e). — N/A

S5.5.3 The information specified in S5.5.2 (f) through (l) shall be located on the add-on child restraint system so that it is visible when the system is installed as specified in S5.6.1, except that for child restraints with a detachable base, the installation diagrams specified in S5.5.2(l) are required to be visible only when the base alone is installed. — Pass

Remarks:
Labels may be seen in photographs presented in Appendix D.

DATA SHEET NO. 2

PRINTED INSTRUCTIONS FOR PROPER USE

(FMVSS 213, S5.6)

Report No.:	213-MGA-10-001
Test Date:	9/10/2009

Item Code:	001-OORB803000-01-12CRBLFN
	001-OORB803000-02-12CRBLFN
	001-OORB803000-03-12CRB2FN
	001-OORB803000-04-12CRBLFN

	Pass/Fail
S5.6 Any labels or written instructions provided in addition to those required by this section shall not obscure or confuse the meaning of the required information or be otherwise misleading to the consumer. Any labels or written instructions other than in the English language shall be an accurate translation of English labels or written instructions. Unless written in all capitals, the information required by S5.6.1 through S5.6.3 shall be stated in sentence capitalization.	Pass
S5.6.1 Each add-on child restraint system is accompanied by printed installation instructions in English that provide a step-by-step procedure, including diagrams, for installing the system in motor vehicles, securing the system in the vehicles, positioning a child in the system, and adjusting the system to fit the child. For each child restraint system that has components for attaching to a tether anchorage or a child restraint anchorage system, the installation instructions shall include a step-by-step procedure, including diagrams, for properly attaching to that anchorage or system.	Pass
S5.6.1.1 In a vehicle with rear designated seating positions, the instructions shall alert vehicle owners that, according to accident statistics, children are safer when properly restrained in the rear seating positions rather than in the front seating positions.	Pass
S5.6.1.2 The instructions specify in general terms the types of vehicles, the types of seating positions, and the types of vehicle safety belts with which the add-on child restraint system can or cannot be used.	Pass

Remarks:

DATA SHEET NO. 2…(continued)

PRINTED INSTRUCTIONS FOR PROPER USE

	Pass/Fail
S5.6.1.3 The instructions shall explain the primary consequences of not following the warnings required to be labeled on the child restraint system in accordance with S5.5.2 (g) through (k).	Pass
S5.6.1.4 The instructions for each car bed shall explain that the car bed should position in such a way that the child's head is near the center of the vehicle.	N/A
S5.6.1.5 The instructions shall state that add-on child restraint systems should be securely belted to the vehicle, even when they are not occupied, since in a crash an unsecured child restraint system may injure other occupants.	Pass
S5.6.1.6 Each add-on child restraint system shall have a location on the restraint for storing the manufacturer's instructions.	Pass
S5.6.1.7 One of the following statements, inserting an address and a U.S. telephone number. If a manufacturer opts to provide a Web site on the registration card as permitted in Figure 9a of this section, the manufacturer must include the statement in part (ii):	
(i) "Child restraints could be recalled for safety reasons. You must register this restraint to be reached in a recall. Send your name, address, e-mail address if available [preceding four words is optional] and the restraint's model number and manufacturing date to (*insert address*) or call (*insert a U.S. telephone number*). For recall information, call the U.S. Government's Vehicle Safety Hotline at 1–888–327–4236 (TTY: 1–800–424–9153), or go to *http://www.NHTSA.gov.* "	N/A

Remarks:

DATA SHEET NO. 2…(continued)

PRINTED INSTRUCTIONS FOR PROPER USE

	Pass/Fail
(ii) "Child restraints could be recalled for safety reasons. You must register this restraint to be reached in a recall. Send your name, address, e-mail address if available [preceding four words is optional] and the restraint's model number and manufacturing date to (*insert address*) or call (*insert telephone number*) or register online at (*insert web site for electronic registration form).* For recall information, call the U.S. Government's Vehicle Safety Hotline at 1–888–327–4236 (TTY: 1–800–424–9153), or go to *http://www.NHTSA.gov*. "	(2)
S5.6.1.8 In the case of each child restraint system that can be used in a position so that it is facing the rear of the vehicle, the instructions shall provide a warning against using rear-facing restraints at seating positions equipped with airbags, and shall explain the reasons for, and consequences of not following the warning. The instructions shall also include a statement that owners of vehicles with front passenger side airbags should refer to their owner's manual for child restraint installation instructions.	Pass
S5.6.1.9 In the case of each rear-facing child restraint system that has a means for repositioning the seating surface of the system that allows the system's occupant to move from a reclined to an upright position during testing, the instructions shall include a warning against impeding the ability of the restraint to change adjustment position.	N/A

Remarks:
(2) The manual states: "Child restraints could be recalled for safety reasons. You must register this restraint to be reached in the event of a product recall. There are several ways to do so. First, find the serial numbers and model information on both your Infant Car Seat and Base.

Then, copy this information onto the prepaid registration card provided and mail it today.

Or send this information, along with your name and address to:
Orbit Baby, Inc.
37330 Cedar Boulevard, Suite J
Newark, CA 94560

Or call: 1-877-ORB-BABY (1-877-672-2229)
Or log onto: www.orbitbaby.com/register

For recall information, call the U.S. Government's Vehicle Safety Hotline at 1-888-327-4236 (TTY: 1-800-424-9153) or go to the National Highway Traffic Safety Administration's website at http://www.NHTSA.gov or contact Orbit Baby directly.

DATA SHEET NO. 2…(continued)

PRINTED INSTRUCTIONS FOR PROPER USE

Pass/Fail

S5.6.1.10

(a) For instructions for a booster seat that is recommended for use with **either** a vehicle's Type I **or** Type II seat belt assembly, one of the following statements, as appropriate, and the reasons for the statement:

(1) Warning! Use only the vehicle's lap and shoulder belt system when restraining the child in this booster seat; or — N/A

(2) Warning! Use only the vehicle's lap belt system, or the lap belt part of a lap/shoulder belt system with the shoulder belt placed behind the child, when restraining the child in this seat. — N/A

(b) (1) Except as provided in S5.6.1.10(b)(2), the instructions for a booster seat that is recommended for use with **both** a vehicle's Type I **and** Type II seat belt assemblies shall include the following statement and the reasons therefore:
Warning! Use only the vehicle's lap belt system, or the lap belt part of a lap/shoulder belt system with the shoulder belt placed behind the child, when restraining the child with the *(insert description of the system element provided to restrain forward movement of the child's torso when used with a lap belt (e.g., shield)*), and only the vehicle's lap and shoulder belt system when using the booster without the (*insert above description*). — N/A

(2) A booster seat which is recommended for use with both a vehicle's Type I and Type II seat belt assemblies is not subject to S5.6.1.10(b)(1) if, when the booster is used with the shield or similar component, the booster will cause the shoulder belt to be located in a position other than in front of the child when booster is installed. However, the instructions for such a booster shall include a warning to use the booster with the vehicle's lap and shoulder belt system when using the booster without a shield. — N/A

(c) The instructions for belt-positioning booster seats shall include the statement:

"This restraint is not certified for aircraft use", and the reasons for this statement. — N/A

Remarks:

DATA SHEET NO. 2…(continued)

PRINTED INSTRUCTIONS FOR PROPER USE

Pass/Fail

S5.6.3 In the case of each child restraint system that has belts designed to restrain children using them and which do not adjust automatically to fit the child, the printed instructions shall include the following statement:

> A snug strap should not allow any slack. It lies in a relatively straight line without sagging. It does not press on the child's flesh or push the child's body into an unnatural position. — Pass

Remarks:

DATA SHEET NO. 3

REGISTRATION FORM

(FMVSS 213, S5.8)

Report No.:	213-MGA-10-001
Test Date:	9/10/2009

Item Code:	001-OORB803000-01-12CRBLFN
	001-OORB803000-02-12CRBLFN
	001-OORB803000-03-12CRB2FN
	001-OORB803000-04-12CRBLFN

Pass/Fail

S5.8 Information requirements – attached registration form and electronic registration form.

S5.8.1 Attached registration form.

(a) Each child restraint system, except a factory-installed built-in restraint system, shall have a registration form attached to any surface of the restraint that contacts the dummy when the dummy is positioned in the system in accordance with S6.1.2 of Standard 213. — Pass

(b) Each attached form shall:

(1) Consist of a postcard that is attached at a perforation to an informational card; — Pass

(2) Conform in size, content and format to Figures 9a and 9b of this section; and — Pass

(3) Have a thickness of at least 0.178 mm (0.007 in.) and not more than 0.241 mm (0.0095 in.). — Pass

(c) Each postcard shall provide the model name or number and date of manufacture (month, year) of the child restraint system to which the form is attached, shall contain space for the purchaser to record his or her name, mailing address, and at the manufacturer's option, e-mail address, shall be addressed to the manufacturer, and shall be postage paid. No other information shall appear on the postcard, except identifying information that distinguishes a particular child restraint system from other systems of that model name or number may be preprinted in the shaded area of the postcard, as shown in figure 9a. — Pass

Remarks:

DATA SHEET NO. 3… (continued)

REGISTRATION FORM

	Pass/Fail
(d) Manufacturers may voluntarily provide a web address on the information card enabling owners to register child restraints online, provided that the Web address is a direct link to the electronic registration form meeting the requirements of S5.8.2 of this section.	Pass
S5.8.2 Electronic Registration Form	
(a) Each electronic registration form must meet the requirements of S5.8.2. Each form shall:	
(1) Contain the following statements at the top of the form:	
(i) 'FOR YOUR CHILD'S CONTINUED SAFETY" (Displayed in bold type face, caps and minimum 12 point type.)	Pass
(ii) "Although child restraint systems undergo testing and evaluation, it is possible that a child restraint could be recalled." (Displayed in bold type face, caps and lower case, and minimum 12 point type.)	Pass
(iii) "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." (Displayed in bold type face, caps and lower case, and minimum 12 point type.)	Pass
(iv) "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 of the child restraint system." (Displayed in bold type face, caps and lower case, and minimum 12 point type.)	Pass
(v) "This registration is only applicable to child restraint systems purchased in the United States." (Displayed in bold type face, caps and lower case, and minimum 12 point type.)	Pass
(2) Provide as required registration fields, space for the purchaser to record the model name or number and date of manufacture (month, year) of the child restraint system, and space for the purchaser to record his or her name and mailing address. At the manufacturer's option, a space is provided for the purchaser to record his or her e-mail address.	Pass

Remarks:

DATA SHEET NO. 3… (continued)

REGISTRATION FORM

		Pass/Fail
(b)	No other information shall appear on the electronic registration form, except for information identifying the manufacturer's home page, a field to confirm submission, and a prompt to indicate any incomplete or invalid fields prior to submission. Accessing the web page that contains the electronic registration shall not cause additional screens or electronic banners to appear.	Pass
(c)	The electronic registration form shall be accessed directly by the web address that the manufacturer printed on the attached registration form. The form must appear on the screen when the consumer has inputted the web address provided by the manufacturer, without any further keystrokes on the keyboard or clicks of the mouse.	Pass

Remarks:

DATA SHEET NO. 4

INSTALLATION

(FMVSS 213, S5.3)

Report No.:	213-MGA-10-001
Test Date:	9/10/2009

Item Code:	001-OORB803000-01-12CRBLFN
	001-OORB803000-02-12CRBLFN
	001-OORB803000-03-12CRB2FN
	001-OORB803000-04-12CRBLFN

Pass/Fail

S5.3.1 No attachment to vehicle seat cushion or seat back, nor insert between them (except for components designed to attach to a child restraint anchorage system). — Pass

S5.3.2 Capable of being installed by means of (check all that apply)

X	Lap belt only,
X	Lap belt and tether,
X	Child restraint anchorage system, or
X	Lap/shoulder combination

Pass

S5.3.3 Lateral installation for car beds. — N/A

Remarks:

DATA SHEET NO. 5

MINIMUM HEAD SUPPORT SURFACE

(FMVSS 213, S5.2.1)

Report No.:	213-MGA-10-001
Test Date:	9/10/2009

Item Code:	001-OORB803000-01-12CRBLFN
	001-OORB803000-02-12CRBLFN
	001-OORB803000-03-12CRB2FN
	001-OORB803000-04-12CRBLFN

S5.2.1.2 The child restraint system is low enough to be exempt from this requirement.

No

S5.2.1.1

Back Support Height

Maximum Child Weight kg (lbs)	Required Minimum Height cm (in.)	Measured Height cm (in.)	Pass/Fail
22.0 kg (100.0 lbs)	50.0 cm (19.7 in.)	51.0 cm (20.1 in.)	Pass

Back Support Width

Required Minimum Width cm (in.)	Measured Width cm (in.)	Side Wing Depth cm (in.)	Pass/Fail
20.3 cm (8.0 in.)	23.0 cm (9.1 in.)	8.0 cm (3.1 in.)	Pass

Remarks:

DATA SHEET NO. 6

TORSO IMPACT PROTECTION

(FMVSS 213, S5.2.2)

Report No.:	213-MGA-10-001
Test Date:	9/10/2009

Item Code:	001-OORB803000-01-12CRBLFN
	001-OORB803000-02-12CRBLFN
	001-OORB803000-03-12CRB2FN
	001-OORB803000-04-12CRBLFN

S5.2.2.1

Test	Compliance Requirement	Test Result	Pass/Fail
Back Support Surface	Flat or concave	Flat	Pass
	Area ≥ 548 sq. cm (85 sq. in)	> 548 sq. cm (> 85 sq. in.)	Pass
Side Support Surface	Flat or concave	Flat	Pass
Max. Weight ≥ 9 kg (20 lbs)	Area ≥ 155 sq. cm (24 sq. in)	> 155 sq. cm (>24 sq. in.)	Pass
Max. Weight < 9 kg (20 lbs)	Area ≥ 310 sq. cm (48 sq. in)	N/A	N/A
Forward Restraining Surface			
Horiz. Cross Section	Flat or concave	N/A	N/A
Vertical Longitudinal Cross Section	Flat or convex	N/A	N/A
	Radius of curvature ≥ 5 cm (2 in)	N/A	N/A

S5.2.2.2 Forward Fixed or Movable Surface

Yes/No	Pass/Deferred
No	Pass

Remarks:

DATA SHEET NO. 7

PROTRUSION LIMITATION

(FMVSS 213, S5.2.4)

Report No.:	213-MGA-10-001
Test Date:	9/10/2009

Item Code:	001-OORB803000-01-12CRBLFN
	001-OORB803000-02-12CRBLFN
	001-OORB803000-03-12CRB2FN
	001-OORB803000-04-12CRBLFN

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

Remarks:

TEST DATA NO. 1

DYNAMIC IMPACT TEST CONDITIONS

(FMVSS 213, S6.1)

Report No.:	213-MGA-10-001	Sled Test No.	H09869F
Test Date:	9/1/2009	Item Code	001-OORB803000-01-12CRBLFN

Laboratory Ambient Conditions During Testing:

Temperature Degrees C (F)	22 (72)
Relative Humidity %	36

Test Configuration (I or II):	I
Nominal Velocity (km/h (mph)):	48 (+0, -3) (30 (+0, -2))
Type of Dummy Used:	12 month old
Serial Number:	082
Child Restraint System	
Installation Mode:	Rear-facing (1) (2)
Adjustment Mode:	Not Applicable
“Misuse” Mode:	N/A
Test Results	
Actual Velocity (km/h (mph)):	47.9 (29.8)
Integrated area of sled acceleration deviation below the lower severity boundary (m/s (ft/s)):	0.0

The acceleration-time history plot is presented on the following page. Pre and post test photographs are presented in Appendix D.

Remarks:
(1) The belts were threaded through the middle slots on the seat back.
(2) The restraint was attached to the test bench with the child restraint anchorage system (LATCH).

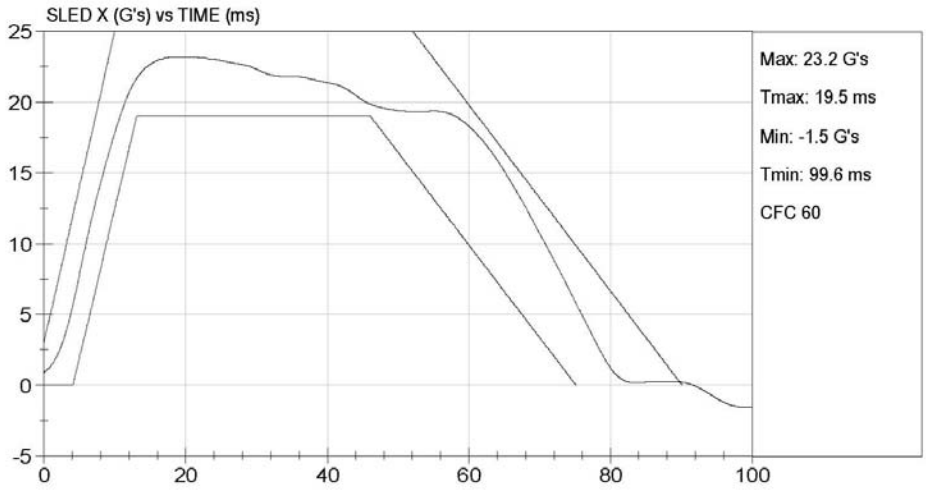
TEST DATA NO. 1…(continued)

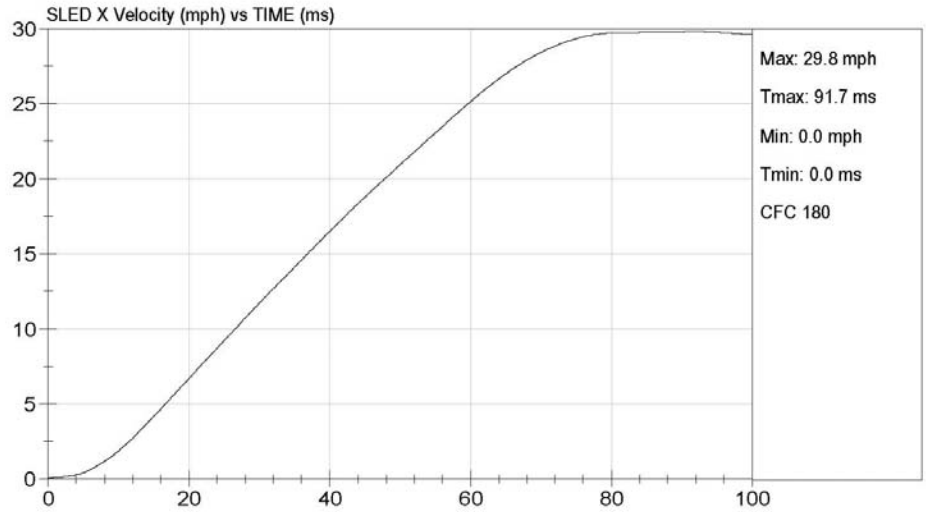
DYNAMIC IMPACT TEST CONDITIONS

(FMVSS 213, S6.1)

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09869F
Item Code	001-OORB803000-01-12CRBLFN





TEST DATA NO. 1…(continued)

BELT RESTRAINT

(FMVSS 213, S6.1)

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09869F
Item Code	001-OORB803000-01-12CRBLFN

	Pass/Fail
S5.4.3.1 Snug Fit of Belts	Pass

Extra Webbing

Dummy	Each Shoulder Belt cm (in)	Each Lap Belt Side cm (in)	Crotch Belt cm (in)
12 month old	15.2 cm (6.0 in.)	(1)	(1)

		Yes/No	Pass/Fail
S5.4.3.2	Direct Restraint Belts		Pass
(1)	Belt/dummy contact for restraint	No	
(2)	Rigid structure behind dummy	Yes	
(3)	Belt/child restraint slip possible	No	
Note:	If all “YES”, and restraint weighs greater than 4.4 kg, restraint fails		
S5.4.3.3	Seating System Belts and/or Shields		N/A
(1)	Upper Torso	N/A	
(2)	Lower Torso	N/A	
(3)	Crotch Restraint	N/A	
S5.4.3.4	Child Harness Belts		Pass
(1)	Upper Torso	Pass	
(2)	Lower Torso	Pass	
(3)	Prevent Standing	Pass	

Remarks:
(1) The shoulder belts are threaded into a splitter plate behind the seat and are part of a continuous system with the lap belts with adjustment at the front of the restraint. The crotch strap is not adjustable.

TEST DATA NO. 1…(continued)

BUCKLE RELEASE

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

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09869F
Item Code	001-OORB803000-01-12CRBLFN

Test	Compliance Requirement	Test Result	Pass/Fail
Buckle Minimum Surface Area	Area $\geq$ 3.9 cm^2 (0.6 in^2)	4.5^2 cm (0.7 in^2)	Pass
Pre-Impact Release Force	Force Range: 40 to 62 N (9 to 14 lbs)	Right: 48.9 N (11.0 lbs) Left: 48.9 N (11.0 lbs) (1)	Pass
Buckle Integrity	Not Release During Test	No release	Pass
Post-Impact Release Force	Force Range: $\leq$ 71 N (16 lbs)	Right: 58.3 N (13.1 lbs) Left: 58.3 N (13.1 lbs) (1)	Pass

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

TEST DATA NO. 1…(continued)

RESTRAINT SYSTEM INTEGRITY

(FMVSS 213, S5.1.1)

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09869F
Item Code	001-OORB803000-01-12CRBLFN

Test	Compliance Requirement	Test Result	Pass/Fail
Structural Integrity	No complete separation	None	Pass
	No partial separation with exposed edge radius < 6.35 mm (1/4 in)	None	Pass
	No partial separation With protrusions > 9.53 mm (3/8 in)	None	Pass
Adjustment Position	No change	No change	Pass
Back Surface/ Seating Surface Angle	Not < 45 degrees	> 45 degrees	Pass

Remarks:

TEST DATA NO. 1…(continued)

INJURY CRITERIA

(FMVSS 213, S5.1.2)

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09869F
Item Code	001-OORB803000-01-12CRBLFN

Test	Compliance Requirement	Test Result	Pass/Fail
Head Injury Criterion	≤ 1000	581	Pass
Chest Injury Criterion	Cumulative Duration Over 60 g ≤ 3 ms	3 msec clip = 49.0 Duration exceeded 60 g = 0.0	Pass

Remarks:

TEST DATA NO. 1…(continued)

OCCUPANT EXCURSION

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

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09869F
Item Code	001-OORB803000-01-12CRBLFN

Forward-Facing Restraints

Test	Compliance Requirement	Test Result	Pass/Fail
Torso Retention (FMVSS 213, S5.1.3.1)	Retain within system	N/A	N/A
Head Excursion (FMVSS 213, S5.1.3.1)	≤ 81.3 cm (32 in)	N/A	N/A
Knee Target Excursion (FMVSS 213, S5.1.3.1)	≤ 91.5 cm (36 in)	N/A	N/A
Head – Torso Angle (FMVSS 213, S5.2.1.1(c))	Rearward change ≤ 45 degrees	N/A	N/A

Rear-Facing Restraints

Test	Compliance Requirement	Test Result	Pass/Fail
Torso Retention (FMVSS 213, S5.1.3.2)	Retain within system	Retained	Pass
Head Target Excursion (FMVSS 213, S5.1.3.2)	Not beyond restraint's top and forward edge	Below	Pass
Back Support Angle (FMVSS 213, S5.1.4)	≤ 70 degrees	60 degrees	Pass
Head – Torso Angle (FMVSS 213, S5.2.1.1(c))	Rearward change ≤ 45 degrees	< 45 degrees	Pass

Car Bed Restraints

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

Remarks:

TEST DATA NO. 2

DYNAMIC IMPACT TEST CONDITIONS

(FMVSS 213, S6.1)

Report No.:	213-MGA-10-001	Sled Test No.	H09869R
Test Date:	9/1/2009	Item Code	001-OORB803000-02-12CRBLFN

Laboratory Ambient Conditions During Testing:

Temperature Degrees C (F)	22 (72)
Relative Humidity %	36

Test Configuration (I or II):	I
Nominal Velocity (km/h (mph)):	48 (+0, -3) (30 (+0, -2))
Type of Dummy Used:	12 month old
Serial Number:	083
Child Restraint System	
Installation Mode:	Rear-facing (1) (2)
Adjustment Mode:	Not Applicable
"Misuse" Mode:	N/A
Test Results	
Actual Velocity (km/h (mph)):	47.9 (29.8)
Integrated area of sled acceleration deviation below the lower severity boundary (m/s (ft/s)):	0.0

The acceleration-time history plot is presented on the following page. Pre and post test photographs are presented in Appendix D.

Remarks:
(1) The belts were threaded through the middle slots on the seat back.
(2) The restraint was attached to the test bench with the child restraint anchorage system (LATCH).

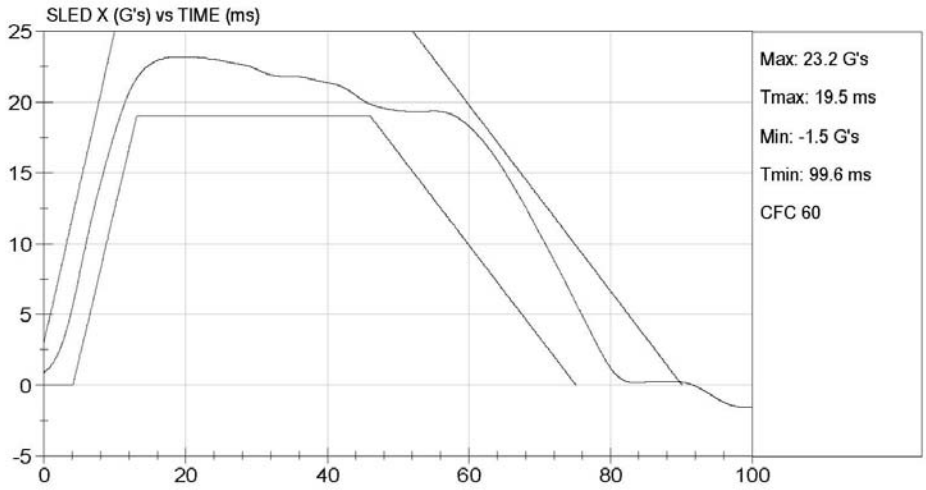
TEST DATA NO. 2…(continued)

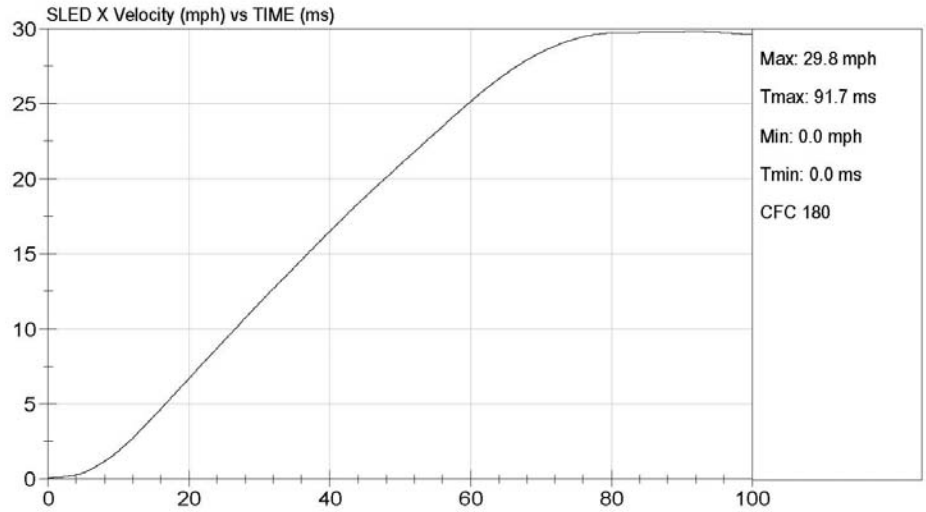
DYNAMIC IMPACT TEST CONDITIONS

(FMVSS 213, S6.1)

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09869R
Item Code	001-OORB803000-02-12CRBLFN





TEST DATA NO. 2…(continued)

BELT RESTRAINT

(FMVSS 213, S6.1)

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09869R
Item Code	001-OORB803000-02-12CRBLFN

	Pass/Fail
S5.4.3.1 Snug Fit of Belts	Pass

Extra Webbing

Dummy	Each Shoulder Belt cm (in)	Each Lap Belt Side cm (in)	Crotch Belt cm (in)
12 month old	15.2 cm (6.0 in.)	(1)	(1)

		Yes/No	Pass/Fail
S5.4.3.2	Direct Restraint Belts		Pass
(1)	Belt/dummy contact for restraint	No	
(2)	Rigid structure behind dummy	Yes	
(3)	Belt/child restraint slip possible	No	
Note:	If all “YES”, and restraint weighs greater than 4.4 kg, restraint fails		
S5.4.3.3	Seating System Belts and/or Shields		N/A
(1)	Upper Torso	N/A	
(2)	Lower Torso	N/A	
(3)	Crotch Restraint	N/A	
S5.4.3.4	Child Harness Belts		Pass
(1)	Upper Torso	Pass	
(2)	Lower Torso	Pass	
(3)	Prevent Standing	Pass	

Remarks:
1) The shoulder belts are threaded into a splitter plate behind the seat and are part of a continuous system with the lap belts with adjustment at the front of the restraint. The crotch strap is not adjustable.

TEST DATA NO. 2…(continued)

BUCKLE RELEASE

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

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09869R
Item Code	001-OORB803000-02-12CRBLFN

Test	Compliance Requirement	Test Result	Pass/Fail
Buckle Minimum Surface Area	Area $\geq$ 3.9 cm^2 (0.6 in^2)	4.5^2 cm (0.7 in^2)	Pass
Pre-Impact Release Force	Force Range: 40 to 62 N (9 to 14 lbs)	Right: 46.3 N (10.4 lbs) Left: 46.3 N (10.4 lbs) (1)	Pass
Buckle Integrity	Not Release During Test	No release	Pass
Post-Impact Release Force	Force Range: $\leq$ 71 N (16 lbs)	Right: 58.7 N (13.2 lbs) Left: 58.7 N (13.2 lbs) (1)	Pass

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

TEST DATA NO. 2…(continued)

RESTRAINT SYSTEM INTEGRITY

(FMVSS 213, S5.1.1)

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09869R
Item Code	001-OORB803000-02-12CRBLFN

Test	Compliance Requirement	Test Result	Pass/Fail
Structural Integrity	No complete separation	None	Pass
	No partial separation with exposed edge radius < 6.35 mm (1/4 in)	None	Pass
	No partial separation With protrusions > 9.53 mm (3/8 in)	None	Pass
Adjustment Position	No change	No change	Pass
Back Surface/ Seating Surface Angle	Not < 45 degrees	> 45 degrees	Pass

Remarks:

TEST DATA NO. 2…(continued)

INJURY CRITERIA

(FMVSS 213, S5.1.2)

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09869R
Item Code	001-OORB803000-02-12CRBLFN

Test	Compliance Requirement	Test Result	Pass/Fail
Head Injury Criterion	≤ 1000	633	Pass
Chest Injury Criterion	Cumulative Duration Over 60 g ≤ 3 ms	3 msec clip = 51.5 Duration exceeded 60 g = 0.0	Pass

Remarks:

TEST DATA NO. 2…(continued)

OCCUPANT EXCURSION

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

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09869R
Item Code	001-OORB803000-02-12CRBLFN

Forward-Facing Restraints

Test	Compliance Requirement	Test Result	Pass/Fail
Torso Retention (FMVSS 213, S5.1.3.1)	Retain within system	N/A	N/A
Head Excursion (FMVSS 213, S5.1.3.1)	≤ 81.3 cm (32 in)	N/A	N/A
Knee Target Excursion (FMVSS 213, S5.1.3.1)	≤ 91.5 cm (36 in)	N/A	N/A
Head – Torso Angle (FMVSS 213, S5.2.1.1(c))	Rearward change ≤ 45 degrees	N/A	N/A

Rear-Facing Restraints

Test	Compliance Requirement	Test Result	Pass/Fail
Torso Retention (FMVSS 213, S5.1.3.2)	Retain within system	Retained	Pass
Head Target Excursion (FMVSS 213, S5.1.3.2)	Not beyond restraint's top and forward edge	Below	Pass
Back Support Angle (FMVSS 213, S5.1.4)	≤ 70 degrees	63 degrees	Pass
Head – Torso Angle (FMVSS 213, S5.2.1.1(c))	Rearward change ≤ 45 degrees	< 45 degrees	Pass

Car Bed Restraints

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

Remarks:

TEST DATA NO. 3

DYNAMIC IMPACT TEST CONDITIONS

(FMVSS 213, S6.1)

Report No.:	213-MGA-10-001	Sled Test No.	H09870F
Test Date:	9/1/2009	Item Code	001-OORB803000-03-12CRB2FN

Laboratory Ambient Conditions During Testing:

Temperature Degrees C (F)	22 (72)
Relative Humidity %	38

Test Configuration (I or II):	I
Nominal Velocity (km/h (mph)):	48 (+0, -3) (30 (+0, -2))
Type of Dummy Used:	12 month old
Serial Number:	082
Child Restraint System	
Installation Mode:	Rear-facing (1) (2)
Adjustment Mode:	Not Applicable
"Misuse" Mode:	N/A
Test Results	
Actual Velocity (km/h (mph)):	47.8 (29.7)
Integrated area of sled acceleration deviation below the lower severity boundary (m/s (ft/s)):	0.0

The acceleration-time history plot is presented on the following page. Pre and post test photographs are presented in Appendix D.

Remarks:
(1) The belts were threaded through the middle slots on the seat back.
(2) The restraint was attached to the test bench with a lap belt.

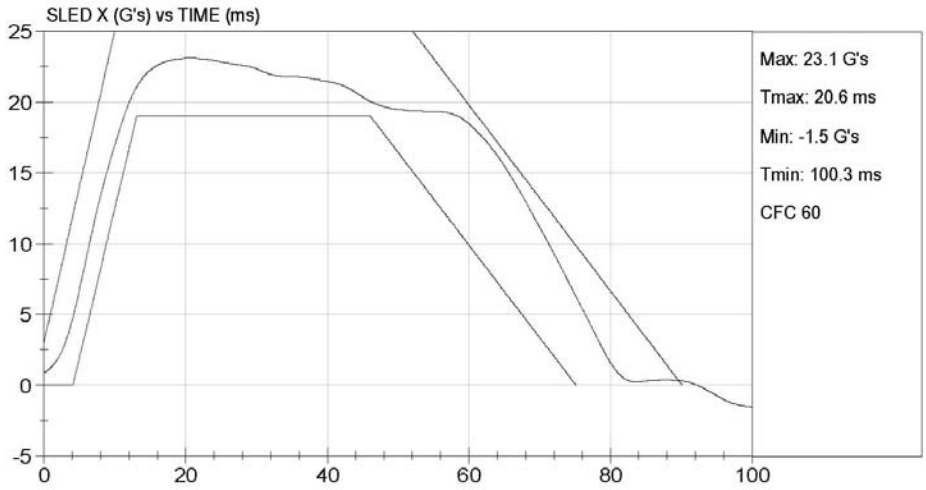
TEST DATA NO. 3…(continued)

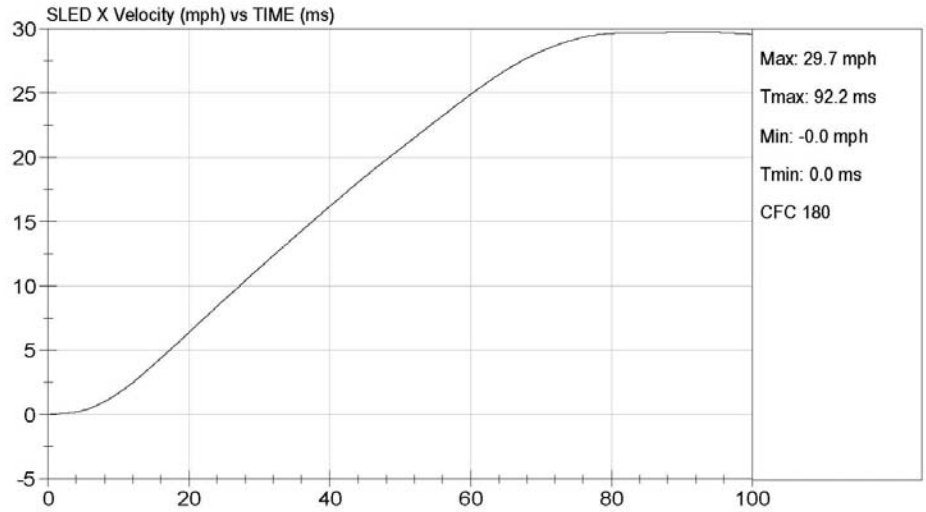
DYNAMIC IMPACT TEST CONDITIONS

(FMVSS 213, S6.1)

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09870F
Item Code	001-OORB803000-03-12CRB2FN





TEST DATA NO. 3…(continued)

BELT RESTRAINT

(FMVSS 213, S6.1)

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09870F
Item Code	001-OORB803000-03-12CRB2FN

	Pass/Fail
S5.4.3.1 Snug Fit of Belts	Pass

Extra Webbing

Dummy	Each Shoulder Belt cm (in)	Each Lap Belt Side cm (in)	Crotch Belt cm (in)
12 month old	15.2 cm (6.0 in.)	(1)	(1)

		Yes/No	Pass/Fail
S5.4.3.2	Direct Restraint Belts		Pass
(1)	Belt/dummy contact for restraint	No	
(2)	Rigid structure behind dummy	Yes	
(3)	Belt/child restraint slip possible	No	
Note:	If all “YES”, and restraint weighs greater than 4.4 kg, restraint fails		
S5.4.3.3	Seating System Belts and/or Shields		N/A
(1)	Upper Torso	N/A	
(2)	Lower Torso	N/A	
(3)	Crotch Restraint	N/A	
S5.4.3.4	Child Harness Belts		Pass
(1)	Upper Torso	Pass	
(2)	Lower Torso	Pass	
(3)	Prevent Standing	Pass	

Remarks:
(1) The shoulder belts are threaded into a splitter plate behind the seat and are part of a continuous system with the lap belts with adjustment at the front of the restraint. The crotch strap is not adjustable.

TEST DATA NO. 3…(continued)

BUCKLE RELEASE

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

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09870F
Item Code	001-OORB803000-03-12CRB2FN

Test	Compliance Requirement	Test Result	Pass/Fail
Buckle Minimum Surface Area	Area $\geq$ 3.9 cm^2 (0.6 in^2)	4.5^2 cm (0.7 in^2)	Pass
Pre-Impact Release Force	Force Range: 40 to 62 N (9 to 14 lbs)	Right: 60.0 N (13.5 lbs) Left: 60.0 N (13.5 lbs) (1)	Pass
Buckle Integrity	Not Release During Test	No release	Pass
Post-Impact Release Force	Force Range: $\leq$ 71 N (16 lbs)	Right: 53.8 N (12.1 lbs) Left: 53.8 N (12.1 lbs) (1)	Pass

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

TEST DATA NO. 3…(continued)

RESTRAINT SYSTEM INTEGRITY

(FMVSS 213, S5.1.1)

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09870F
Item Code	001-OORB803000-03-12CRB2FN

Test	Compliance Requirement	Test Result	Pass/Fail
Structural Integrity	No complete separation	None	Pass
	No partial separation with exposed edge radius < 6.35 mm (1/4 in)	None	Pass
	No partial separation With protrusions > 9.53 mm (3/8 in)	None	Pass
Adjustment Position	No change	No change	Pass
Back Surface/ Seating Surface Angle	Not < 45 degrees	> 45 degrees	Pass

Remarks:

TEST DATA NO. 3…(continued)

INJURY CRITERIA

(FMVSS 213, S5.1.2)

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09870F
Item Code	001-OORB803000-03-12CRB2FN

Test	Compliance Requirement	Test Result	Pass/Fail
Head Injury Criterion	≤ 1000	602	Pass
Chest Injury Criterion	Cumulative Duration Over 60 g ≤ 3 ms	3 msec clip = 46.8 Duration exceeded 60 g = 0.0	Pass

Remarks:

TEST DATA NO. 3…(continued)

OCCUPANT EXCURSION

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

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09870F
Item Code	001-OORB803000-03-12CRB2FN

Forward-Facing Restraints

Test	Compliance Requirement	Test Result	Pass/Fail
Torso Retention (FMVSS 213, S5.1.3.1)	Retain within system	N/A	N/A
Head Excursion (FMVSS 213, S5.1.3.1)	≤ 81.3 cm (32 in)	N/A	N/A
Knee Target Excursion (FMVSS 213, S5.1.3.1)	≤ 91.5 cm (36 in)	N/A	N/A
Head – Torso Angle (FMVSS 213, S5.2.1.1(c))	Rearward change ≤ 45 degrees	N/A	N/A

Rear-Facing Restraints

Test	Compliance Requirement	Test Result	Pass/Fail
Torso Retention (FMVSS 213, S5.1.3.2)	Retain within system	Retained	Pass
Head Target Excursion (FMVSS 213, S5.1.3.2)	Not beyond restraint's top and forward edge	Below	Pass
Back Support Angle (FMVSS 213, S5.1.4)	≤ 70 degrees	64 degrees	Pass
Head – Torso Angle (FMVSS 213, S5.2.1.1(c))	Rearward change ≤ 45 degrees	< 45 degrees	Pass

Car Bed Restraints

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

Remarks:

TEST DATA NO. 4

DYNAMIC IMPACT TEST CONDITIONS

(FMVSS 213, S6.1)

Report No.:	213-MGA-10-001	Sled Test No.	H09870R
Test Date:	9/1/2009	Item Code	001-OORB803000-04-12CRBLFN

Laboratory Ambient Conditions During Testing:

Temperature Degrees C (F)	22 (72)
Relative Humidity %	38

Test Configuration (I or II):	I
Nominal Velocity (km/h (mph)):	48 (+0, -3) (30 (+0, -2))
Type of Dummy Used:	12 month old
Serial Number:	083
Child Restraint System	
Installation Mode:	Rear-facing (1) (2)
Adjustment Mode:	Not Applicable
“Misuse” Mode:	N/A
Test Results	
Actual Velocity (km/h (mph)):	47.8 (29.7)
Integrated area of sled acceleration deviation below the lower severity boundary (m/s (ft/s)):	0.0

The acceleration-time history plot is presented on the following page. Pre and post test photographs are presented in Appendix D.

Remarks:
(1) The belts were threaded through the middle slots on the seat back.
(2) The restraint was attached to the test bench with the child restraint anchorage system (LATCH).

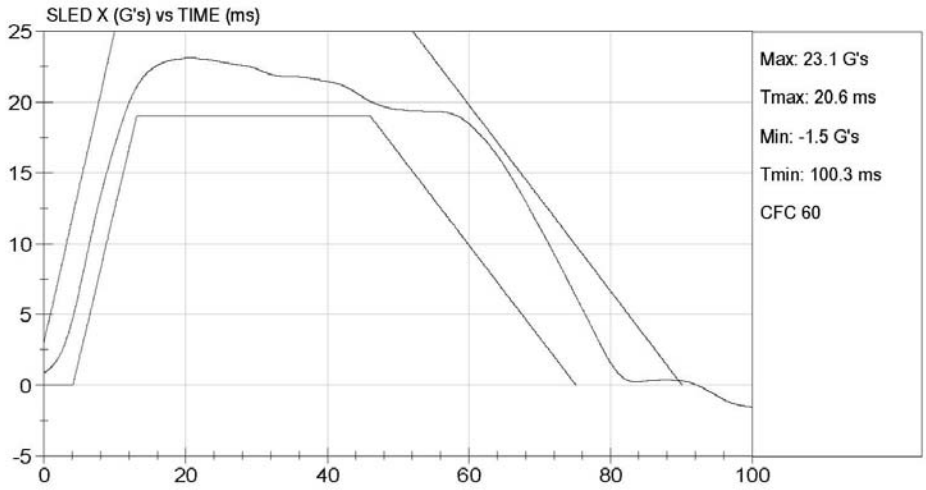
TEST DATA NO. 4…(continued)

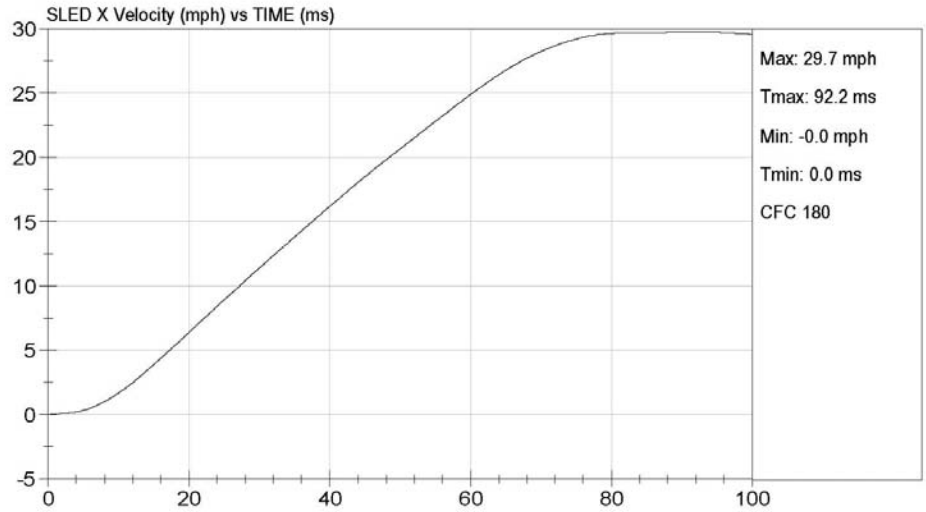
DYNAMIC IMPACT TEST CONDITIONS

(FMVSS 213, S6.1)

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09870R
Item Code	001-OORB803000-04-12CRBLFN





TEST DATA NO. 4…(continued)

BELT RESTRAINT

(FMVSS 213, S6.1)

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09870R
Item Code	001-OORB803000-04-12CRBLFN

	Pass/Fail
S5.4.3.1 Snug Fit of Belts	Pass

Extra Webbing

Dummy	Each Shoulder Belt cm (in)	Each Lap Belt Side cm (in)	Crotch Belt cm (in)
12 month old	15.2 cm (6.0 in.)	(1)	(1)

		Yes/No	Pass/Fail
S5.4.3.2	Direct Restraint Belts		Pass
(1)	Belt/dummy contact for restraint	No	
(2)	Rigid structure behind dummy	Yes	
(3)	Belt/child restraint slip possible	No	
Note:	If all “YES”, and restraint weighs greater than 4.4 kg, restraint fails		
S5.4.3.3	Seating System Belts and/or Shields		N/A
(1)	Upper Torso	N/A	
(2)	Lower Torso	N/A	
(3)	Crotch Restraint	N/A	
S5.4.3.4	Child Harness Belts		Pass
(1)	Upper Torso	Pass	
(2)	Lower Torso	Pass	
(3)	Prevent Standing	Pass	

Remarks:
(1) The shoulder belts are threaded into a splitter plate behind the seat and are part of a continuous system with the lap belts with adjustment at the front of the restraint. The crotch strap is not adjustable.

TEST DATA NO. 4…(continued)

BUCKLE RELEASE

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

Report No.:	213-MGA-10-001	Sled Test No.	H09870R
Test Date:	9/1/2009	Item Code	001-OORB803000-04-12CRBLFN

Test	Compliance Requirement	Test Result	Pass/Fail
Buckle Minimum Surface Area	Area $\geq$ 3.9 cm^2 (0.6 in^2)	4.5^2 cm (0.7 in^2)	Pass
Pre-Impact Release Force	Force Range: 40 to 62 N (9 to 14 lbs)	Right: 53.4 N (12.0 lbs) Left: 53.4 N (12.0 lbs) (1)	Pass
Buckle Integrity	Not Release During Test	No release	Pass
Post-Impact Release Force	Force Range: $\leq$ 71 N (16 lbs)	Right: 52.0 N (11.7 lbs) Left: 52.0 N (11.7 lbs) (1)	Pass

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

TEST DATA NO. 4…(continued)

RESTRAINT SYSTEM INTEGRITY

(FMVSS 213, S5.1.1)

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09870R
Item Code	001-OORB803000-04-12CRBLFN

Test	Compliance Requirement	Test Result	Pass/Fail
Structural Integrity	No complete separation	None	Pass
	No partial separation with exposed edge radius < 6.35 mm (1/4 in)	None	Pass
	No partial separation With protrusions > 9.53 mm (3/8 in)	None	Pass
Adjustment Position	No change	No change	Pass
Back Surface/ Seating Surface Angle	Not < 45 degrees	> 45 degrees	Pass

Remarks:

TEST DATA NO. 4…(continued)

INJURY CRITERIA

(FMVSS 213, S5.1.2)

Report No.:	213-MGA-10-001
Test Date:	9/1/2009

Sled Test No.	H09870R
Item Code	001-OORB803000-04-12CRBLFN

Test	Compliance Requirement	Test Result	Pass/Fail
Head Injury Criterion	≤ 1000	701	Pass
Chest Injury Criterion	Cumulative Duration Over 60 g ≤ 3 ms	3 msec clip = 53.7 Duration exceeded 60 g = 0.0	Pass

Remarks:

TEST DATA NO. 4…(continued)

OCCUPANT EXCURSION

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

Report No.:	213-MGA-10-001	Sled Test No.	H09870R
Test Date:	9/1/2009	Item Code	001-OORB803000-04-12CRBLFN

Forward-Facing Restraints

Test	Compliance Requirement	Test Result	Pass/Fail
Torso Retention (FMVSS 213, S5.1.3.1)	Retain within system	N/A	N/A
Head Excursion (FMVSS 213, S5.1.3.1)	≤ 81.3 cm (32 in)	N/A	N/A
Knee Target Excursion (FMVSS 213, S5.1.3.1)	≤ 91.5 cm (36 in)	N/A	N/A
Head – Torso Angle (FMVSS 213, S5.2.1.1(c))	Rearward change ≤ 45 degrees	N/A	N/A

Rear-Facing Restraints

Test	Compliance Requirement	Test Result	Pass/Fail
Torso Retention (FMVSS 213, S5.1.3.2)	Retain within system	Retained	Pass
Head Target Excursion (FMVSS 213, S5.1.3.2)	Not beyond restraint's top and forward edge	Below	Pass
Back Support Angle (FMVSS 213, S5.1.4)	≤ 70 degrees	61 degrees	Pass
Head – Torso Angle (FMVSS 213, S5.2.1.1(c))	Rearward change ≤ 45 degrees	< 45 degrees	Pass

Car Bed Restraints

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

Remarks:

SECTION 4

AIRCRAFT PASSENGER SEAT INVERSION TEST

CONDITIONS AND RESULTS

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

Report No.:	213-MGA-10-001
Test Date:	12:00:00 AM

Item Code:	001-OORB803000-01-12CRBLFN
	001-OORB803000-02-12CRBLFN
	001-OORB803000-03-12CRB2FN
	001-OORB803000-04-12CRBLFN

Pass/Fail

S8.1 Each child restraint system manufactured for use in aircraft shall be accompanied by printed instructions in English that provide a step-by-step procedure, including diagrams, for installing the system in aircraft passenger seats, securing a child in the system when it is installed in aircraft, and adjusting the system to fit the child. — Pass

Remarks:

SECTION 4…(continued)

AIRCRAFT PASSENGER SEAT INVERSION TEST

CONDITIONS AND RESULTS

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

Report No.:	213-MGA-10-001
Test Date:	12:00:00 AM
Date of Manufacture:	042009

Test No.	001N
Item Code	001-OORB803000

Laboratory Ambient Conditions During Testing:

Temperature Degrees C (F)	21 (70)
Relative Humidity %	10

Inversion Test	
Dummy Used:	Newborn
Serial Number:	004
Child Restraint System	
Installation Mode:	Rear-Facing
Adjustment Mode:	Not Applicable

Rotation About Y-Axis (Forward)

Test	Compliance Requirement	Test Result	Pass/Fail
Dummy Retention (FMVSS 213, S8.2.5)	Retained within system	Retained	Pass
Child Restraint Retention (FMVSS 213, S8.2.5)	Retained within aircraft seat	Retained	Pass

Rotation About X-Axis (Lateral)

Test	Compliance Requirement	Test Result	Pass/Fail
Dummy Retention (FMVSS 213, S8.2.6)	Retained within system	Retained	Pass
Child Restraint Retention (FMVSS 213, S8.2.6)	Retained within aircraft seat	Retained	Pass

Remarks:

SECTION 4…(continued)

AIRCRAFT PASSENGER SEAT INVERSION TEST

CONDITIONS AND RESULTS

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

Report No.:	213-MGA-10-001
Test Date:	12:00:00 AM
Date of Manufacture:	042009

Test No.	00112
Item Code	001-OORB803000-03-12CRB2FN

Laboratory Ambient Conditions During Testing:

Temperature Degrees C (F)	21 (70)
Relative Humidity %	40

Inversion Test	
Dummy Used:	12 month old
Serial Number:	031
Child Restraint System	
Installation Mode:	Rear-Facing
Adjustment Mode:	Not Applicable

Rotation About Y-Axis (Forward)

Test	Compliance Requirement	Test Result	Pass/Fail
Dummy Retention (FMVSS 213, S8.2.5)	Retained within system	Retained	Pass
Child Restraint Retention (FMVSS 213, S8.2.5)	Retained within aircraft seat	Retained	Pass

Rotation About X-Axis (Lateral)

Test	Compliance Requirement	Test Result	Pass/Fail
Dummy Retention (FMVSS 213, S8.2.6)	Retained within system	Retained	Pass
Child Restraint Retention (FMVSS 213, S8.2.6)	Retained within aircraft seat	Retained	Pass

Remarks:

APPENDIX A

INTERPRETATIONS AND/OR DEVIATIONS FROM FMVSS 213

There were no deviations from FMVSS 213.

APPENDIX B

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
Installed Direction	R – Rear Facing
	F – Forward Facing
	S - Sideways
Base Usage	B – Optional base used with infant CRS
	N – All other configurations
Attachment Method	L – LATCH
	2 – Two-point belt
	3 – Three point belt
Tether Usage	T – Tether
	F – Tether Free
Back Angle	U – Upright
	R – Reclined
	N – Not Applicable

APPENDIX C

INSTRUMENTATION CALIBRATION

CERTIFICATION INSTRUMENTATION

Sled Accelerometers	Manufacturer	Model Number	Calibration Date	Due Date
Primary – S/N 611343	Sensotec	JTF/3629-02	4/6/09	10/6/09
Redundant – S/N 403076	Sensotec	JTF/3629-02	4/6/09	10/6/09

Temperature/Humidity Logger	Manufacturer	Model Number	Calibration Date	Due Date
S/N – 07082326 Accuracy 0.5°F, 2% RH	Veriteq	SP-2000-20R	5/28/09	11/28/09

Force Gauges	Manufacturer	Model Number	Calibration Date	Due Date
20 lb, Accuracy $\pm$ 0.5 lb	Wagner	FDK 20-17999	7/16/09	1/30/10
60 lb, Accuracy $\pm$ 1.0 lb	Wagner	FDK 60-18104	7/16/09	1/30/10

Tension Gauges	Manufacturer	Model Number	Calibration Date	Due Date
S/N 49507 ± 3% Accuracy	Kent-Moore	BT3329S	3/5/09	9/5/09
S/N 49508 ± 3% Accuracy	Kent-Moore	BT3329S	3/5/09	9/5/09

DUMMY CALIBRATION LAB INSTRUMENTATION

Neck Pendulum	Manufacturer	Model Number	Calibration Date	Due Date
Neck Pendulum Potentiometer S/N 18 1k, 0.99992% linearity	Spectrol	132-0-0-102	2/25/09	8/25/09
C.G. Head Potentiometer S/N 29 1k, 0.99977% linearity	Spectrol	132-0-0-102	2/25/09	8/25/09
Neck Pendulum Accelerometer S/N C12811	Endevco	7231C-750	2/23/09	8/23/09
Thorax Pendulum S/N P52225	Endevco	7264C-2KTZ-2-420	6/12/09	12/12/09

Lumbar Spine Flexion	Manufacturer	Model Number	Calibration Date	Due Date
S/N 06I27-03 250 Pounds	Entran	ELPM-T3E-250L	7/23/09	1/23/10

Head Drop Accelerometers	Manufacturer	Model Number	Calibration Date	Due Date
S/N P59228	Endevco	7264C-2KTZ-2-360M17	5/19/09	11/19/09
S/N P59229	Endevco	7264C-2KTZ-2-360M17	5/19/09	11/19/09
S/N P59230	Endevco	7264C-2KTZ-2-360M17	5/19/09	11/19/09

TEST DUMMY INSTRUMENTATION

SERIAL NUMBER 082

Head Accelerometers	Manufacturer	Model Number	Calibration Date	Due Date
Head X – S/N P49481	Endevco	7264C-2KTZ-2-420	8/26/09	2/26/10
Head Y – S/N P52134	Endevco	7264C-2KTZ-2-420	8/26/09	2/26/10
Head Z – S/N P52145	Endevco	7264C-2KTZ-2-420	8/26/09	2/26/10

Chest Accelerometers	Manufacturer	Model Number	Calibration Date	Due Date
Chest X – S/N P52261	Endevco	7264C-2KTZ-2-420	8/26/09	2/26/10
Chest Y – S/N P52266	Endevco	7264C-2KTZ-2-420	8/26/09	2/26/10
Chest Z – S/N P52270	Endevco	7264C-2KTZ-2-420	8/26/09	2/26/10

SERIAL NUMBER 083

Head Accelerometers	Manufacturer	Model Number	Calibration Date	Due Date
Head X – S/N P59388	Endevco	7264C-2KTZ-2-360M17	8/11/2009	2/11/10
Head Y – S/N P59397	Endevco	7264C-2KTZ-2-360M17	8/11/2009	2/11/10
Head Z – S/N P59398	Endevco	7264C-2KTZ-2-360M17	8/11/2009	2/11/10

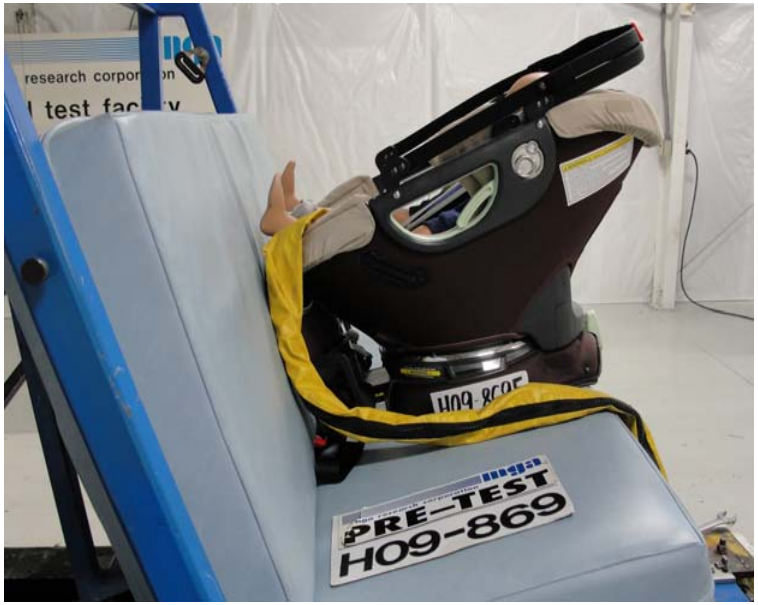
Chest Accelerometers	Manufacturer	Model Number	Calibration Date	Due Date
Chest X – S/N P50052	Endevco	7264C-2KTZ-2-420	3/3/09	9/3/09
Chest Y – S/N P50053	Endevco	7264C-2KTZ-2-420	3/3/09	9/3/09
Chest Z – S/N P50054	Endevco	7264C-2KTZ-2-420	3/3/09	9/3/09

APPENDIX D

PHOTOGRAPHS

SLED BUCK – STANDARD BENCH SEAT
Report No.: 213-MGA-10-001

Item Code: 001-OORB803000-01-12CRBLFN Report No.: 213-MGA-09-001 Sled Test: H09869F Pre-Test



Item Code: 001-OORB803000-01-12CRBLFN Report No.: 213-MGA-09-001 Sled Test: H09869F Pre-Test


POST-TEST
H09-869


H09 869F
POST-TEST
H09-869


H09 869F
POST-TEST
H09-869


H09 869F
POST-TEST
H09-869

Item Code: 001-OORB803000-01-12CRBLFN Report No.: 213-MGA-09-001 Sled Test: H09869F Post-Test


mga
PRE-TEST
H09-869


mga
PRE-TEST
H09-869


mga
mga research corporation
sled test facility
H09 869R
mga
PRE-TEST
H09-869


H09 869R
mga
PRE-TEST
H09-869

Item Code: 001-OORB803000-02-12CRBLFN Report No.: 213-MGA-09-001 Sled Test: H09869R Pre-Test


POST-TEST
H09-869


POST-TEST
H09-869


H09 869R
POST-TEST
H09-869


H09 869R
POST-TEST
H09-869

Item Code: 001-OORB803000-02-12CRBLFN Report No.: 213-MGA-09-001 Sled Test: H09869R Post-Test


H09-870F
PRE-TEST
H09-870


H09-870F
PRE-TEST
H09-870


H09-870F
PRE-TEST
H09-870


EXIT
H09-870F
PRE-TEST
H09-870

Item Code: 001-OORB803000-03-12CRB2FN Report No.: 213-MGA-09-001 Sled Test: H09870F Pre-Test

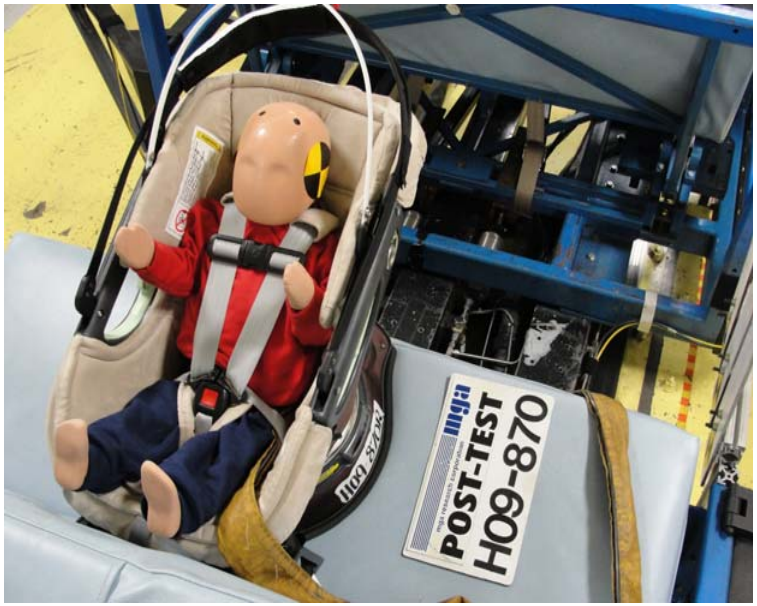
Item Code: 001-OORB803000-03-12CRB2FN Report No.: 213-MGA-09-001 Sled Test: H09870F Post-Test

Item Code: 001-OORB803000-03-12CRB2FN Report No.: 213-MGA-09-001 Sled Test: H09870F Post-Test

Item Code: 001-OORB803000-03-12CRB2FN Report No.: 213-MGA-09-001 Sled Test: H09870F Post-Test

Item Code: 001-OORB803000-04-12CRBLFN Report No.: 213-MGA-09-001 Sled Test: H09870R Pre-Test

Item Code: 001-OORB803000-04-12CRBLFN Report No.: 213-MGA-09-001 Sled Test: H09870R Pre-Test


POST-TEST
H09-870


POST-TEST
H09-870


H09 870R
POST-TEST
H09-870


H09 870R
POST-TEST
H09-870

Item Code: 001-OORB803000-04-12CRBLFN Report No.: 213-MGA-09-001 Sled Test: H09870R Post-Test

Test: 001N Y AXIS FORWARD PRE AND POST-TEST

Test: 001N X AXIS LATERAL PRE AND POST-TEST

Test: 00112 Y AXIS FORWARD PRE AND POST-TEST

Test: 00112 X AXIS LATERAL PRE AND POST-TEST

LABELS

Item Code: 001-OORB803000-01-12CRBLFN

Item Code: 001-OORB803000-02-12CRBLFN

Item Code: 001-OORB803000-03-12CRB2FN

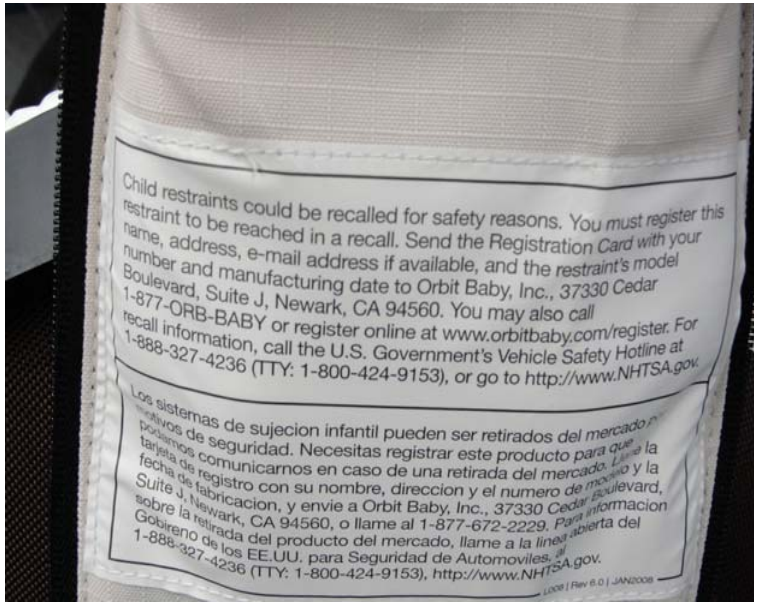
Item Code: 001-OORB803000-01-12CRBLFN

LABELS

Item Code: 001-OORB803000-01-12CRBLFN

Item Code: 001-OORB803000-02-12CRBLFN

Item Code: 001-OORB803000-03-12CRB2FN



Item Code: 001-OORB803000-01-12CRBLFN

LABELS

Item Code: 001-OORB803000-01-12CRBLFN

Item Code: 001-OORB803000-02-12CRBLFN

Item Code: 001-OORB803000-03-12CRB2FN

Item Code: 001-OORB803000-01-12CRBLFN

LABELS

Item Code: 001-OORB803000-01-12CRBLFN
Item Code: 001-OORB803000-03-12CRB2FN

Item Code: 001-OORB803000-02-12CRBLFN
Item Code: 001-OORB803000-01-12CRBLFN

CONFIGURATION

Item Code:	001-OORB803000-01-12CRBLFN	Item Code:	001-OORB803000-02-12CRBLFN
Item Code:	001-OORB803000-03-12CRB2FN	Item Code:	001-OORB803000-01-12CRBLFN