

REPORT NUMBER: SINCAP-KAR-16-013

**NEW CAR ASSESSMENT PROGRAM (NCAP)
MOVING DEFORMABLE BARRIER SIDE IMPACT TEST**

**NISSAN MOTOR CO.
2016 NISSAN VERSA NOTE 5-DOOR HATCHBACK**

NHTSA No: M20165208

**PREPARED BY:
KARCO ENGINEERING, LLC.
9270 HOLLY ROAD
ADELANTO, CA 92301**



JUNE 16, 2016

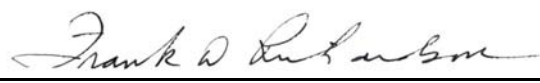
FINAL REPORT

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Prepared By: 
Mr. Javier J. Martinez, Project Engineer
KARCO Engineering, LLC.

Reviewed By: 
Mr. Michael L. Dunlap, Director of Operations
KARCO Engineering, LLC.

Approved By: 
Mr. Frank D. Richardson, Program Manager
KARCO Engineering, LLC.

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FINAL REPORT ACCEPTANCE BY OCWS:


Division Chief, New Car Assessment Program
NHTSA, Office of Crashworthiness Standards

Date: 


COTR, New Car Assessment Program
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7. Authors Mr. Javier J. Martinez, Project Engineer, KARCO Mr. Frank Richardson, Program Manager, KARCO		8. Performing Organization Report No. TR-P35003-07-NC
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16. Abstract

A 55 / 28 km/h 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2016 Nissan Versa Note 5-door hatchback in accordance with the specifications of the Office of Crash Worthiness Standards Test Procedure for the generation of consumer information on vehicle side crash protection. The test was conducted at the KARCO Engineering, LLC. facility in Adelanto, California on June 2, 2016.

The impact velocity of the Moving Deformable Barrier was 61.78 km/h and the outside ambient temperature at the struck (driver's) side of the vehicle was 39° C. The target vehicle's maximum post-test static crush was 246 mm located at level 2. The test vehicle's occupant performance data is as follows:

Measurement Description	Driver ATD (ES-2re)		
	Units	IARV	Result
Head Injury Criteria (HIC ₃₆)		1000	127.3
Maximum Thoracic Rib Deflection	mm	44	28
Total Abdominal Force	N	2500	783
Pubic Symphysis Force	N	6000	2299

Measurement Description	Passenger ATD (SID-IIs)		
	Units	IARV	Result
Head Injury Criteria (HIC ₃₆)		1000	267.8
Resultant Lower Spine Acceleration	g	82	66
Total Pelvic Force (Sum of Acetabular and Iliac Forces)	N	5525	3727
Maximum Thoracic Rib Deflection	mm	38*	37
Maximum Abdominal Rib Deflection	mm	45*	31

The doors on the struck side of the vehicle did not separate from the body at the hinges or latches. The opposite side doors did not open during the side impact event.

* Proposed IARV

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SECTION 1

TEST PURPOSE AND PROCEDURE

This moving deformable barrier side impact test is part of the MY 2016 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract number DTNH22-14-D-00355. The purpose of this test is to generate comparative side impact performance in a 2016 Nissan Versa Note 5-door hatchback. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated October 2015.

SECTION 2

SUMMARY OF TEST RESULTS

A 2016 Nissan Versa Note 5-door hatchback was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 61.78 km/h (38.48 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by KARCO Engineering, LLC. in Adelanto, California, on June 2, 2016. Pre- and post-test photographs of the test vehicle, the MDB and the dummies (ES-2re and SID-IIs) are included in Appendix A of this report.

Dummies were placed in the driver and left rear designated seating positions according to instructions specified in the OCWS Side Impact Laboratory Test Procedure, dated October 2015. The side impact event was documented by 11 cameras. Camera locations are included in Data Sheet No. 5 of this report.

The dummy was instrumented in the following manner:

DRIVER ATD (ES-2re)

Primary and redundant head CG tri-axial accelerometers

Chest upper rib, middle rib and lower rib y-axis displacement potentiometers

Abdomen forward, middle, and rear y-axis load cells

Lower spine (12) tri-axial accelerometers

Pubic symphysis y-axis load cell

PASSENGER ATD (SID-IIs)

Primary and redundant head CG tri-axial accelerometers

Chest upper rib, middle rib and lower rib y-axis displacement potentiometers

Abdomen upper rib and lower rib y-axis displacement potentiometers

Lower spine (12) tri-axial accelerometers

Acetabulum and iliac wing y-axis load cells

Appendix B contains the vehicle and dummy response data. Dummy configuration and performance verification data can be found in Appendix C of this report. Appendix D of this report contains the test equipment and instrumentation calibration data.

Dummy injury readings were recorded as follows:

Measurement Description	Units	Driver ATD (ES-2re)	
		Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	127.3
Maximum Thoracic Rib Deflection	mm	44	28
Combined Abdominal Force	N	2500	783
Pubic Symphysis Force	N	6000	2299

Measurement Description	Units	Passenger ATD (SID-IIs)	
		Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	267.8
Lower Spine (T12) Resultant Acceleration	g	82	66
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3727
Maximum Thoracic Rib Deflection	mm	38*	37
Maximum Abdominal Rib Deflection	mm	45*	31

*Proposed IARV

Supplemental restraint information is given below:

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	Yes	No	
Knee Airbag	No		No	
Side Airbag 1 (Curtain)	Yes	Yes	Yes	Yes
Side Airbag 2 (Torso/Pelvis)	Yes	Yes	No	
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes	Yes	No	
Other	No		No	

GENERAL COMMENTS

The doors on the struck side of the vehicle remained closed and latched. There was no separation at the hinges or latches. The doors on the non-struck side remained closed and latched. There was no ATD value that exceeded its limits.

SECTION 3

OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback NHTSA No. M20165208
Test Program: NCAP MDB Side Impact Test Test Date: 6/2/16

CONVERSION FACTORS

Quantity	Typical Application	Std Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4536
Linear Velocity	Impact Velocity	miles/hr	km/hr	1.609344
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Volume	Small Fluids	oz	mL	29.574
Pressure	Tire Pressures	lbf/in ²	kPa	6.895
Temperature	General Use	°F	°C	$=(T_f - 32)/1.8$
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf-ft	N•m	1.355

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback NHTSA No. M20165208
 Test Program: NCAP MDB Side Impact Test Test Date: 6/2/16

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	M20165208
Model Year	2016
Make	Nissan
Model	Versa Note
Body Style	5-Door Hatchback
VIN	3N1CE2CP9GL365232
Body Color	Gun Metallic
Odometer Reading (km / mi)	156 / 97
Engine Displacement (L)	1.6
Type / No. of Cylinders	Inline 4
Engine Placement	Transverse
Transmission Type	Automatic
Transmission Speeds	CVT
Overdrive	Yes
Final Drive	Front
Roof Rack	No
Sunroof / T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
Anti-Lock Brakes (ABS)	Yes

Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks	No
Power Window Auto-Reverse	No
Other Optional Feature	No
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	No
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Torso/Pelvis Airbag	No
Rear Pass. Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	No
Driver Load Limiter	Yes
Rear Pass. Load Limiter	No
Other Safety Restraint	Yes

Does Owner's Manual provide instructions to turn off automatic door locks?

N/A

DATA FROM CERTIFICATION LABEL

Manufactured By	Nissan Motor Co.
Date of Manufacture	Oct-15
Vehicle Type	Passenger Car

GVWR (kg)	1574
GAWR Front (kg)	847
GAWR Rear (kg)	773

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Designated Seating Capacity	2	3		5
Capacity Weight (VCW) (kg)				385.0
DSC x 68.04 (kg)				340.2
Cargo Weight (RCLW) (kg)				44.8

A

B

A-B

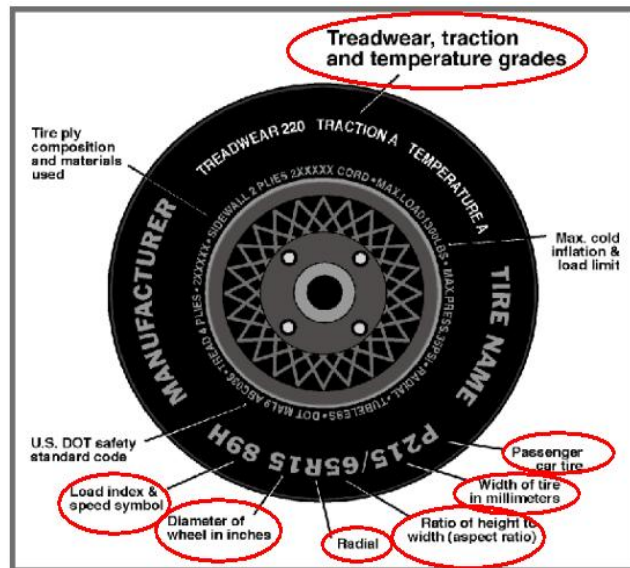
VEHICLE SEAT TYPE

Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						w/ Lever	w/ Knob
Front Seat	Yes					Yes	
Rear or Second Row Seat		Yes			Yes		
Third Row Seat							

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback NHTSA No. M20165208
 Test Program: NCAP MDB Side Impact Test Test Date: 6/2/16



Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	300	300
Cold Pressure (kPa)	230	230
Recommended Tire Size	P185/65R15	P185/65R15
Tire Size on Vehicle	P185/65R15	P185/65R15
Tire Manufacturer	Bridgestone	Bridgestone
Tire Model	Ecopia EP422	Ecopia EP422
Treadware	480	480
Traction Grade	A	A
Temperature Grade	A	A
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 1 Nylon	1 Polyester, 2 Steel, 1 Nylon
Load Index/Speed Symbol	86H	86H
Tire Material	Polyester, Steel, Nylon	Polyester, Steel, Nylon
DOT Safety Code Left	V6FP E28 3415	V6FP E28 3415
DOT Safety Code Right	V6FP E28 3415	V6FP E28 3415

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback NHTSA No. M20165208
 Test Program: NCAP MDB Side Impact Test Test Date: 6/2/16

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	230	230	230	230
Tire Placard	kPa	230	230	230	230
Owner's Manual	kPa	230	230	230	230
As Tested	kPa	230	230	230	230

MDB TIRE SPECIFICATIONS

	Units	Requirement	LF	RF	LR	RR
Tire Size		P205/75R15	P205/75R15	P205/75R15	P205/75R15	P205/75R15
Tire Pressure	kPa	200 ± 21	200	200	200	200

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	343.5	220.0		393.0	299.0		386.0	289.5	
Right	kg	331.5	220.0		322.0	263.0		338.0	271.0	
Ratio	%	60.5%	39.5%	100.0%	56.0%	44.0%	100.0%	56.4%	43.6%	100.0%
Total	kg	675.0	440.0	1115.0	715.0	562.0	1277.0	724.0	560.5	1284.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1115.0	A
Actual Weight of 2 P572 ATDs Used	kg	125.0	B
Rated Cargo/Luggage Wt (RCLW)	kg	44.8	C
Calculated Vehicle Target Wt (TVTW)	kg	1284.8	A+B+C

Does the measured As Tested Vehicle Weight lie within the required weight range (i.e. Calculated Test Vehicle Target Weight -4.5 kg to -9.0 kg)? ☒ Yes ☐ No

TEST VEHICLE ATTITUDE AND CG

Measurement Description	Units	Fully Loaded	As Tested	Meets Requirement***
LF	mm	678	679	Yes
RF	mm	687	684	Yes
LR	mm	659	655	Yes
RR	mm	656	654	Yes
Vehicle CG (Aft of Front Axle)	mm	1135	1145	
Vehicle CG (Left (+)/Right (-) from Longitudinal Centerline)	mm	38	62	

***The "As Tested" vehicle attitude measurements must be equal to or within ±10 mm of the "Fully Loaded" vehicle attitude measurements at each wheel well. Indicate "Yes" or "No" for "Meets Requirement"

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback NHTSA No. M20165208
Test Program: NCAP MDB Side Impact Test Test Date: 6/2/16

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Passenger Side Door Trim	4.5
Spare Tire	13.0
Rear Trunk Trim	3.5
Ballast / Equipment Added	45.7

Test Height Adjustable Setting (If Applicable)	
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DATA SHEET NO. 2**SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA**

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback NHTSA No. M20165208
 Test Program: NCAP MDB Side Impact Test Test Date: 6/2/16

SEAT POSITIONING

The driver's seat, front center seat (if applicable), and right front passenger's seat should be set to the mid-track, lowest, mid-angle position. The struck side rear passenger's seat, rear center seat, and non-struck side rear passenger's seats should be set to the rearmost, lowest, mid-angle position.

SCRL ANGLE RANGE

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	Fixed	Fixed	Fixed
Front Passenger Seat	Fixed	Fixed	Fixed
Front Center Seat			
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCRP Height (mm)	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid Fore/Aft	Forwardmost
Driver Seat	16.1	492	Max			
			Mid	480	492	504
			Min			
Front Passenger Seat	16.3	494	Max			
			Mid	483	494	505
			Min			
Front Center Seat			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed

DATA SHEET NO. 2 ... (CONTINUED)

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback

NHTSA No. M20165208

Test Program: NCAP MDB Side Impact Test

Test Date: 6/2/16

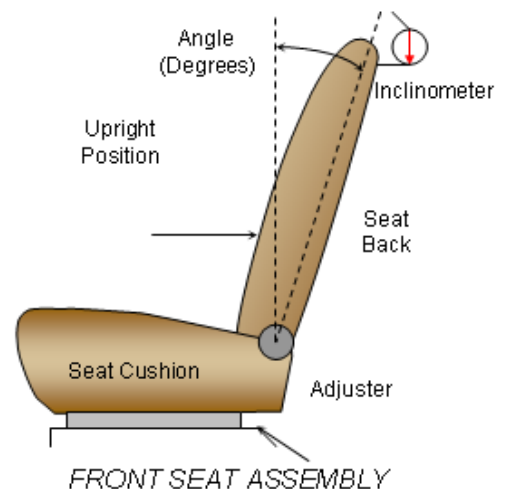
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position From Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	240	25	120	12
Front Passenger Seat	240	25	120	12
Front Center Seat				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

*Detent zero (0) is the forward most detent

SEAT BACK ADJUSTMENT

The driver's seat back is positioned to the manufacturer's designated design angle. The right front passenger's seat back is positioned in a similar manner as the driver's seat back. The struck side rear seat back is positioned such that the dummy's head is level. The rear center and non-struck side rear outboard seat backs are positioned in a similar manner as the struck side rear seat back. Seat back angle is measured at the headrest post.



SEAT BACK POSITION

Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degree	Detent*
Driver Seat w/ Seated Dummy	57.2	29	2.6	5
Front Passenger Seat	57.1	29	2.4	5
Front Center Seat				
Struck Side Rear Seat w/Seated Dummy	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

*Detent zero (0) is the forward most detent

DATA SHEET NO. 2 ... (CONTINUED)**SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA**

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback NHTSA No. M20165208
 Test Program: NCAP MDB Side Impact Test Test Date: 6/2/16

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1. The positions are marked H, M1,..., L from top to bottom.

	Total No. of Positions	Placed in Position
Driver Seat	4	H
Rear Seat	Fixed	Fixed

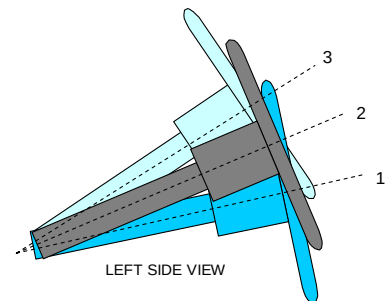
HEAD RESTRAINT ADJUSTMENT

The driver's head restraint is adjusted to the highest and most full forward in-use position. The struck-side rear passenger's head restraint is adjusted to the lowest and most full forward in-use position.

	Total No. of Positions	Placed in Position
Driver Seat	5	Full Up
Rear Seat	Fixed	Fixed

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the center of the geometric locus it describes when it moves through its full range of motion.



STEERING COLUMN ASSEMBLY

	Degrees	Fore-Aft Position (mm)
Lowermost - Position 1	25.0	
Geometric Center - Position 2	27.2	
Uppermost - Position 3	29.4	
Telescoping Steering Wheel Travel		
Test Position	27.2	

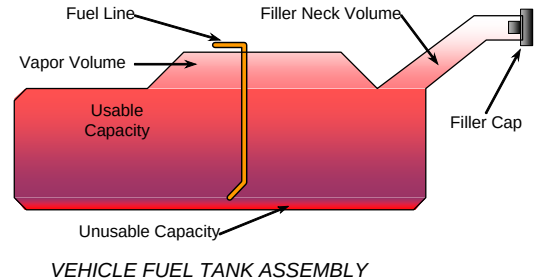
DATA SHEET NO. 2 ... (CONTINUED)

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback NHTSA No. M20165208
 Test Program: NCAP MDB Side Impact Test Test Date: 6/2/16

FUEL PUMP

The vehicle is equipped with an electric fuel pump. The fuel pump only operates when the starter or engine is activated.



FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	40.88
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of "Standard Tank" (see Owner's Manual)	
Usable Capacity of "Optional Tank" (see Owner's Manual)	
93% of Usable Capacity	38.02
Actual amount of Solvent Used in Test	38.02
1/3 of Usable Capacity	13.63

Is the Actual Amount of Solvent Used in the test equal to 93% $\pm$ 1% of the Usable Capacity stated in the Form No. 1? ☒ Yes ☐ No

DATA SHEET NO. 3

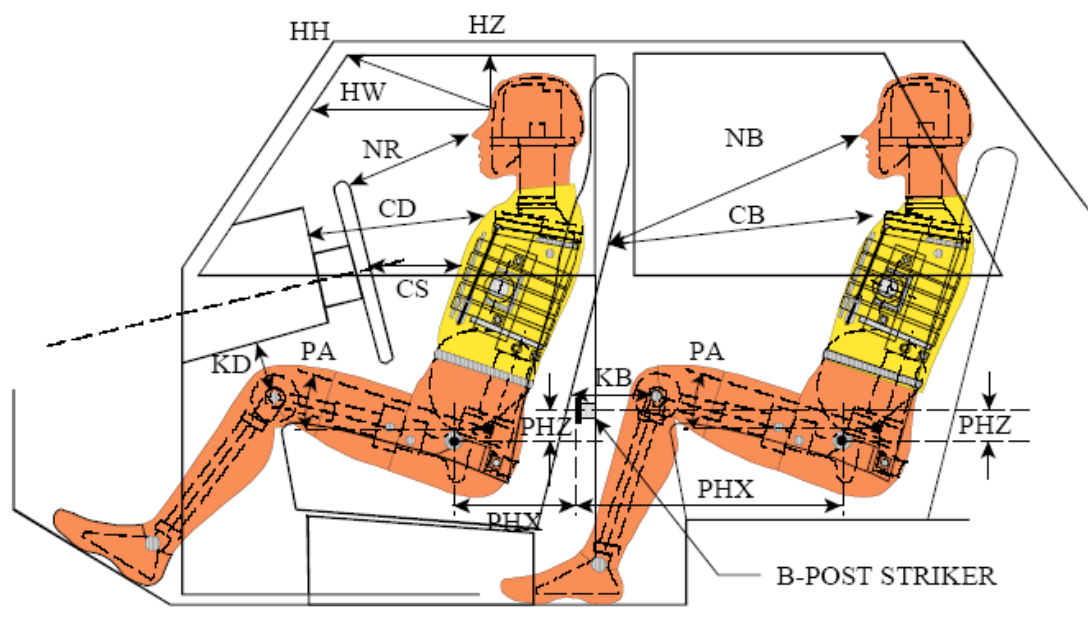
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback

NHTSA No. M20165208

Test Program: NCAP MDB Side Impact Test

Test Date: 6/2/16



LEFT SIDE VIEW

NOTE: 2-DOOR VEHICLE SHOWN.
REAR DUMMY PHX & PHZ
MEASUREMENTS FOR A 4-DOOR
VEHICLE WOULD USE THE C-POST
STRIKER AS A REFERENCE POINT

DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Pass. Code	Description	Driver		Passenger	
			Length (mm)	Angle (°)	Length (mm)	Angle (°)
HH		Head to Header	360			
HW		Head to Windshield	620			
HZ	HZ	Head to Roof	155		269	
NR	NB	Nose to Rim/Seat Back	447		660	
CD	CB	Chest to Dash/Seat Back	550		644	
CS		Chest to Steering Wheel	290			
KD(L)/KDA(L)°	KB(L)/KBA(L)°	Left Knee to Dash/Seat Back	112	26.8	352	16.9
KD(R)/KDA(R)°	KB(R)/KBA(R)°	Right Knee to Dash/Seat Back	108	25.0	346	17.1
PAX°	PAX°	Pelvic Tilt Angle X		14.4		21.7
	PAY°	Pelvic Tilt Angle Y		0.4		0.0
PHX	PHX	Hip Point to Striker (x-axis)	259		164	
PHZ	PHZ	Hip Point to Striker (z-axis)	103		202	

DATA SHEET NO. 4

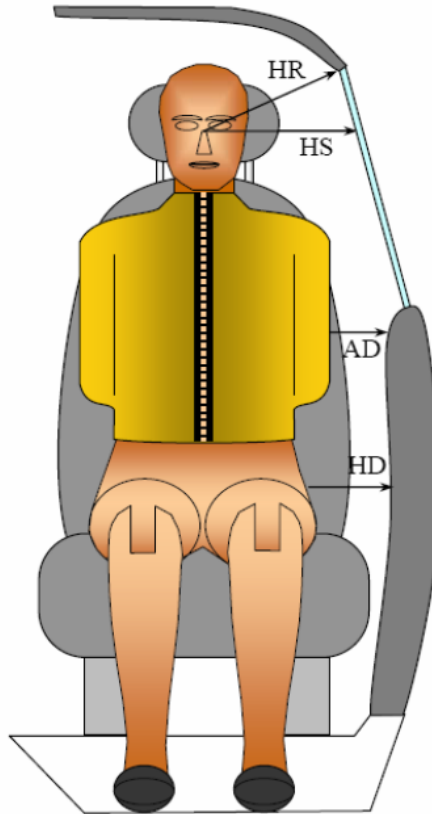
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback

NHTSA No. M20165208

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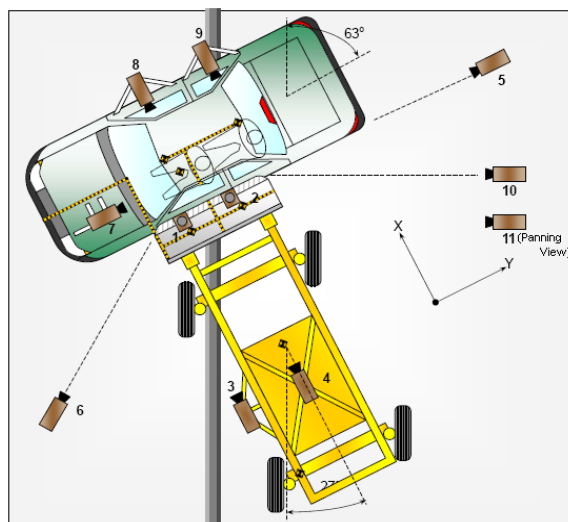
DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver	Passenger
HR	Head to Side Header	mm	205	277
HS	Head to Side Window	mm	325	378
AD	Arm to Door	mm	75	148
HD	H-Point to Door	mm	117	162

DATA SHEET NO. 5

CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback NHTSA No. M20165208
 Test Program: NCAP MDB Side Impact Test Test Date: 6/2/16



CAMERA LOCATIONS AND DATA

		X	Y	Z	(mm)	(fps)
1	Overhead Overall	1220	2287	-5486	14	1000
2	Overhead Close-Up	609	2287	-5102	35	1000
3	Left Impact Point (MDB)	-2134	0	-1143	25	1000
4	Side Overall (MDB)	-3912	838	-1829	12.5	1000
5	Rear	-64	2485	-1348	85	1000
6	Left Front	-2266	-3564	-1475	24	1000
7	Driver Front (On-Board)	680	-728	-749	24	1000
8	Driver Side (On-Board)	1647	779	-579	14	1000
9	Passenger Side (On-Board)	1629	1614	-613	14	1000
10	Real Time Overall				Zoom	30
11	Real Time Inrun				Zoom	30

Reference: Impact Point Projected to Ground; +X = To Front of MDB, +Y = To Right of MDB, +Z = Down

*All measurements accurate to ± 6 mm

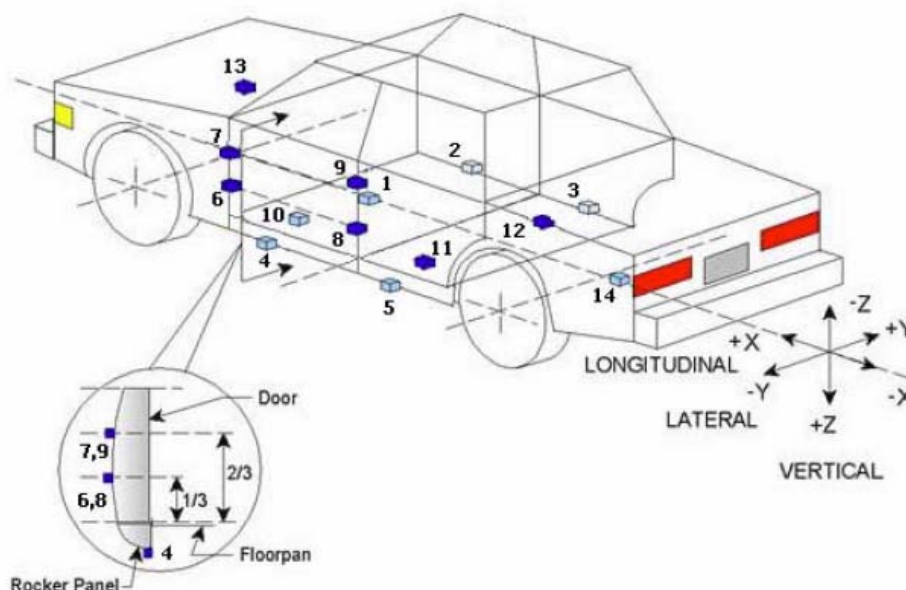
INSTRUMENTATION

Driver Dummy Channels	16
Passenger Dummy Channels	19
Vehicle Structure Accelerometers	20
MDB Accelerometers	5
Total	60

DATA SHEET NO. 6

TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback NHTSA No. M20165208
 Test Program: NCAP MDB Side Impact Test Test Date: 6/2/16



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

Loc. No.	Sensor Description	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	1550	0	-295
2	Right Sill at Front Seat	2470	660	-300
3	Right Sill at Rear Seat	1390	660	-300
4	Left Sill at Front Door	2320	-720	-190
5	Left Sill at Rear Door	1340	-720	-190
6	A-Pillar Lower	2870	-730	-500
7	A-Pillar Middle	2870	-730	-700
8	B-Pillar Lower			
9	B-Pillar Middle			
10	Front Seat Track	1820	-140	-245
11	Rear Seat Structure			
12	Right Rear Occupant Compartment	1570	430	-280
13	Engine Block	3480	370	-750
14	Rear Floorpan Above Axle	790	-40	-500

Reference: X – Rear surface of vehicle (+ forward)
 Y – Vehicle centerline (+ to right)
 Z – Ground plane (+ down)

DATA SHEET NO. 7

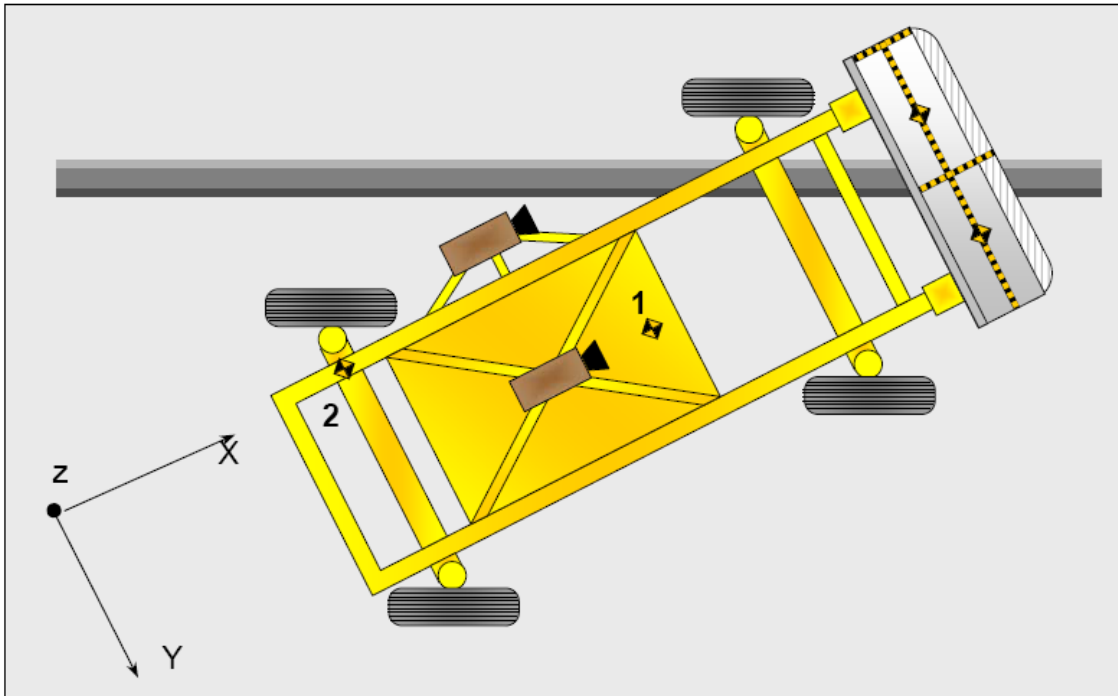
MDB ACCELEROMETER LOCATIONS

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback

NHTSA No. M20165208

Test Program: NCAP MDB Side Impact Test

Test Date: 6/2/16



MDB ACCELEROMETER LOCATIONS

Loc. No.	Accelerometer Location	Measurement		
		X	Y	Z
1	MDB CG	-1195	0	-430
2	MDB Rear	-2642	-593	-608

Reference: X – Face of MDB (+ forward)
Y – MDB centerline (+ to right)
Z – Ground plane (+ down)

DATA SHEET NO. 8
POST-TEST OBSERVATIONS

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback NHTSA No. M20165208
 Test Program: NCAP MDB Side Impact Test Test Date: 6/2/16

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Front Seat Dummy (ES-2re)	Rear Seat Dummy (SID-IIs)
Face	Curtain Airbag	Curtain Airbag
Top of Head	Curtain Airbag, Side Header	Curtain Airbag
Left Side of Head	Curtain Airbag, Side Header	Curtain Airbag
Back of Head	Curtain Airbag, Side Header, Headrest	Curtain Airbag
Left Shoulder	Door Panel, Door Panel	Door Panel, C-Pillar Trim
Upper Torso	Torso/Pelvis Airbag	Door Panel, C-Pillar Trim
Lower Torso	Torso/Pelvis Airbag	Door Panel, C-Pillar Trim
Left Hip	Torso/Pelvis Airbag, Door Panel	Door Panel
Left Knee	Door Panel	Door Panel

POST-TEST DOOR PERFORMANCE

Description	Struck Side		Non-Struck Side		Rear Hatch/Other
	Front	Rear	Front	Rear	
Remained Closed and Operational	No	No	Yes	Yes	Yes
Total Separation from Vehicle at Hinges or Latches	No	No	No	No	No
Latch or Hinge System Pulled Out of Their Anchorages	No	No	No	No	No
Disengaged from Latched Position	No	No	No	No	No
Latch Separated from Striker	No	No	No	No	No
Jammed Shut	Yes	Yes	No	No	No
If Door Opened at Striker, Record Width of Opening at Striker (mm)	N/A	N/A	N/A	N/A	N/A

DATA SHEET NO. 8 ... (CONTINUED)**POST-TEST OBSERVATIONS**

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback NHTSA No. M20165208
Test Program: NCAP MDB Side Impact Test Test Date: 6/2/16

POST-TEST SEAT PERFORMANCE

Description	Struck Side		Non-Struck Side	
	Front	Rear	Front	Rear
Seat Movement Along Seat Track	No	No	No	No
Seat Disengagement from Floor Pan	No	No	No	No
Seat Back Movement from Initial Position	No	No	No	No
Seat Back Collapse	No	No	No	No

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No separation
Sill Separation	No separation
Windshield Damage	Broken
Side Window Damage	Front Driver Window Broken
Other Notable Effects	None

DATA SHEET NO. 8 ... (CONTINUED)**POST-TEST OBSERVATIONS**

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback NHTSA No. M20165208
Test Program: NCAP MDB Side Impact Test Test Date: 6/2/16

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side Driver		Struck Side Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	Yes	No	
Knee Airbag	No		No	
Side Airbag 1 (Curtain)	Yes	Yes	Yes	Yes
Side Airbag 2 (Torso/Pelvis)	Yes	Yes	No	
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes
Other	No		No	

IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vehicle Wheel Base	mm		2601
Vertical Impact Reference Line (Aft of Front Axle)(Intended Impact Point)	mm		362
Actual Impact Point (Aft of Front Axle)	mm		356
Horizontal Offset (+ forward / - rearward)	mm	± 50 of Intended Impact Point	6
Vertical Offset (+ down / - up)	mm	± 20 of Intended Impact Point	11

DATA SHEET NO. 9**MDB SUMMARY OF RESULTS**

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback NHTSA No. M20165208
 Test Program: NCAP MDB Side Impact Test Test Date: 6/2/16

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1251
Overall Length including Honeycomb Face	4023
Wheel Base of Framework Carriage	2595
CG location aft of Front Axle	1118

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	401.8	298.0	699.8
Right	kg	376.9	291.6	668.5
Ratio	%	56.9%	43.1%	100.0%
Totals	kg	778.7	589.6	1368.3

SPEED AND IMPACT DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	61.78
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	61.76
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	91.0
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	63.3
MDB Crabbed Angle to MDB Forward Line of Motion	degrees	26.0 to 28.0	27.7

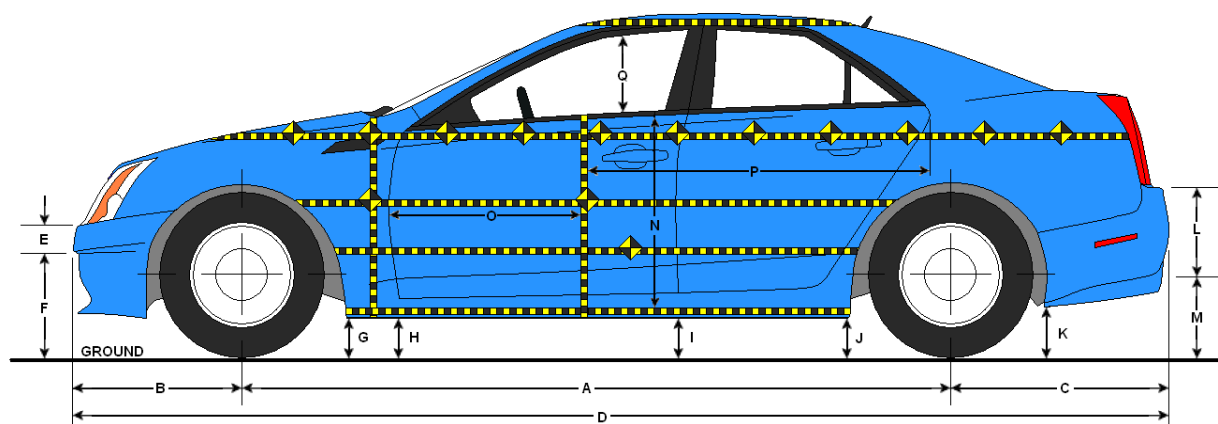
MAXIMUM STATIC CRUSH OF HONEYCOMB FACE

Vertical Location			From Centerline		Max. Crush (mm)
Row	Description	Height (mm)	Distance (mm)	Direction	
A	Center of Bumper	432	800	Right	205
B	Top of Bumper	533	800	Right	127
C	Mid Level	686	800	Left	123
D	Top of Stack	813	800	Left	167

DATA SHEET NO. 10

TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback NHTSA No. M20165208
 Test Program: NCAP MDB Side Impact Test Test Date: 6/2/16



LEFT SIDE VIEW

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2601	2603	2
B	Front Axle to FSOV	820	821	1
C	Rear Axle to RSOV	720	715	-5
D	Total Length at Centerline	4140	4139	-1
E	Front Bumper Thickness	136	139	3
F	Front Bumper Bottom to Ground	412	401	-11
G	Sill Height at Front Wheel Well	223	225	2
H	Sill Height at Front Door Leading Edge	217	219	2
I	Sill Height at B-Pillar	223	288	65
J1	Sill Height at Rear Wheel Well	223	274	51
J2	Pinch Weld Height at Rear Wheel Well	168	196	28
K	Sill Height Aft of Rear Wheel Well	293	304	11
L	Rear Bumper Thickness	159	161	2
M	Rear Bumper Bottom to Ground	423	425	2
N	Sill Height to Bottom of Front Window Sill	657	593	-64
O	Front Door Leading Edge to Impact CL	787	717	-70
P	Rear Door Trailing Edge to Impact CL	1273	1247	-26
Q	Front Window Opening	482	469	-13
R	Right Side Length	2997	3002	5
S	Left Side Length	2999	2971	-28
T	Vehicle Width at B-Pillar	1712	1509	-203

All measurements in mm with tolerance of ± 3 mm

DATA SHEET NO. 11

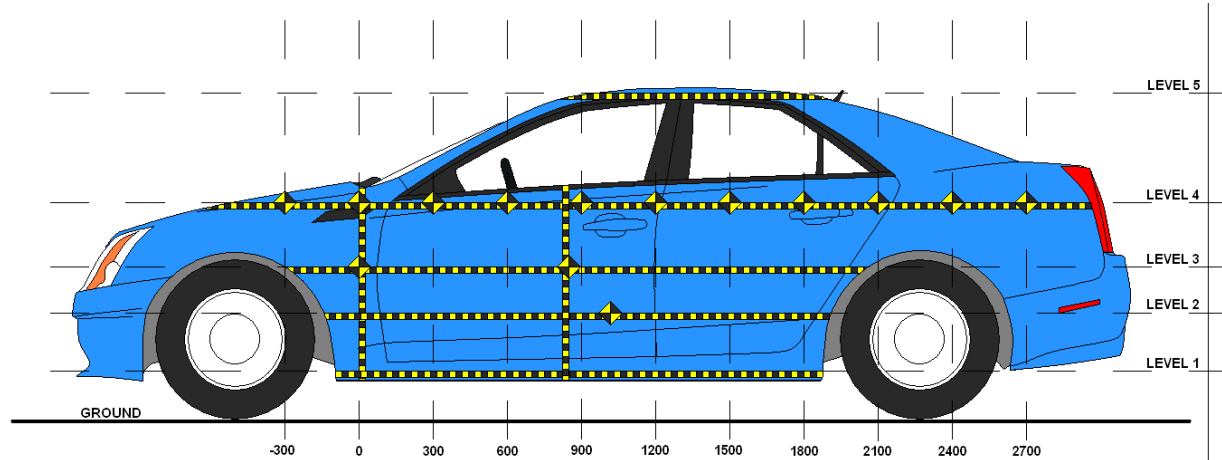
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback

NHTSA No. M20165208

Test Program: NCAP MDB Side Impact Test

Test Date: 6/2/16



LEFT SIDE VIEW

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Description	Height Above Ground (mm)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	279	91	600
2	Occupant H-Point	572	246	450
3	Mid-Door	663	243	900
4	Window Sill	913	184	1500
5	Window Top	1472	24	1200

DATA SHEET NO. 11 ... (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback NHTSA No. M20165208

Test Program: NCAP MDB Side Impact Test Test Date: 6/2/16

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

	Pre-Test (mm)					Post-Test (mm)					Difference (mm)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750															
-600															
-450															
-300															
-150			658	750				669	756				11	6	
0		658	659	745			672	678	765			14	19	20	
150	705	660	659	730		793	855	837	770		88	195	178	40	
300	715	659	655	677		802	893	887	759		87	234	232	82	
450	717	656	654	716		801	902	892	833		84	246	238	117	
600	715	654	654	708		806	876	891	850		91	222	237	142	
750	713	653	653	698	905	803	870	892	858	924	90	217	239	160	19
900	711	651	652	688	905	799	871	895	850	923	88	220	243	162	18
1050	710	651	652	681	909	797	869	887	837	929	87	218	235	156	20
1200	711	653	653	676	907	799	883	891	837	931	88	230	238	161	24
1350	711	654	654	673	909	795	891	876	847	932	84	237	222	174	23
1500	709	655	655	674	912	784	883	870	858	933	75	228	215	184	21
1650	699	657	656	678	915	767	865	839	830	935	68	208	183	152	20
1800	689	654	655	686	918	732	842	800	820	937	43	188	145	134	19
1950		651	649	710	924		744	750	810	940		93	101	100	16
2100			648	705	931			699	773	948			51	68	17
2250			649	719	939			686	742	956			37	23	17
2400				734	949				750	964				16	15
2550															
2700															
2850															

DATA SHEET NO. 11 ... (CONTINUED)

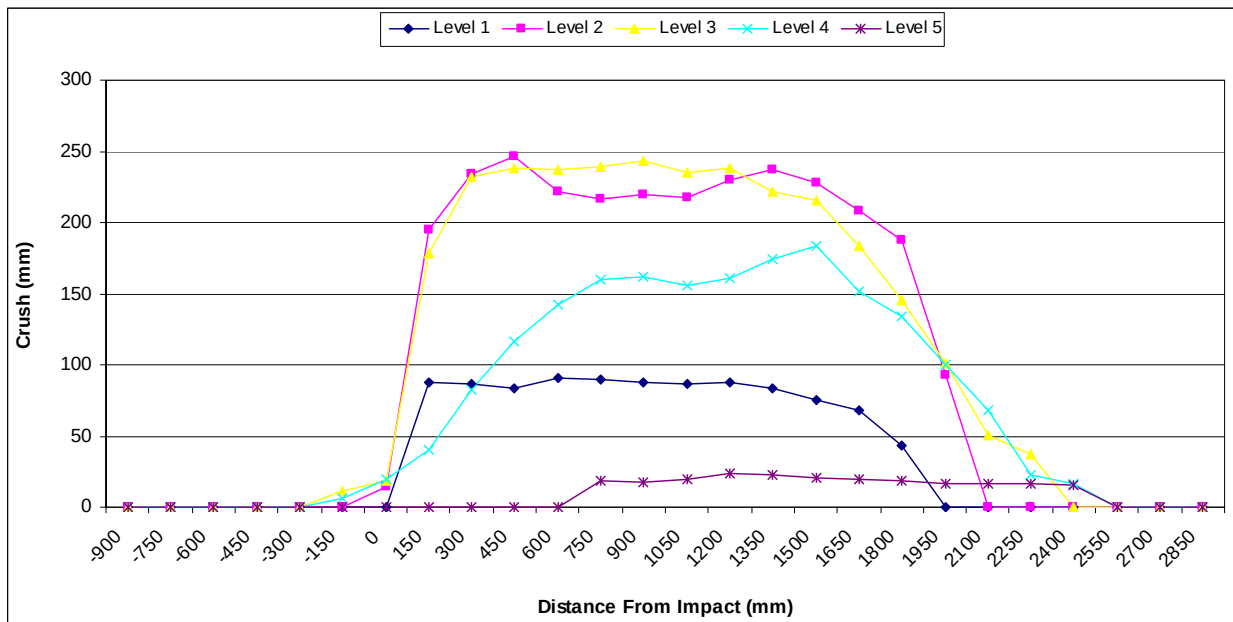
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback

NHTSA No. M20165208

Test Program: NCAP MDB Side Impact Test

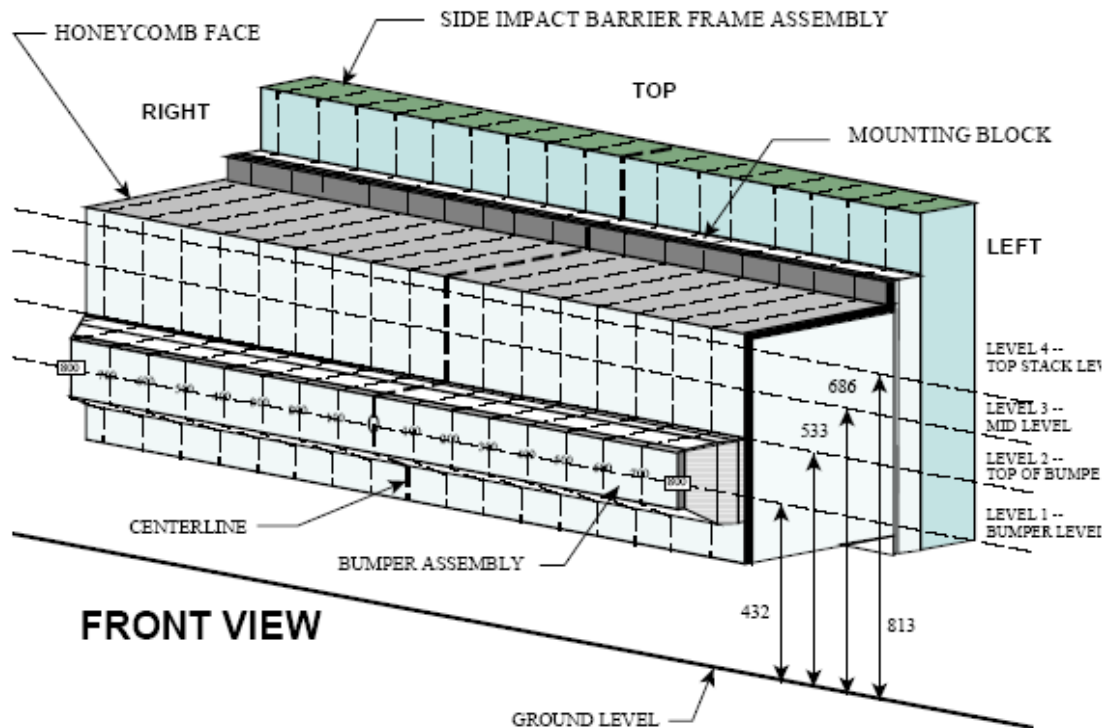
Test Date: 6/2/16



DATA SHEET NO. 12

MDB EXTERIOR STATIC CRUSH MEASUREMENTS

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback NHTSA No. M20165208
 Test Program: NCAP MDB Side Impact Test Test Date: 6/2/16



NOTE: Dimensions are shown in millimeters, mm

DEFORMABLE BARRIER STATIC CRUSH

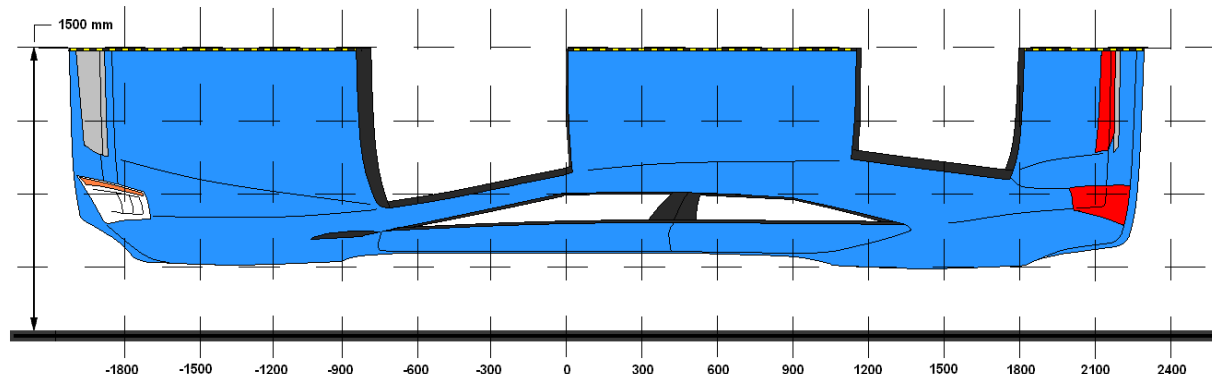
Stack Level	Distance Right of Center								C/L	Distance Left of Center							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
1	205	181	163	161	159	156	150	144	138	129	128	128	122	120	111	112	134
2	127	105	81	79	77	75	80	77	72	67	67	67	67	70	74	77	81
3	114	86	62	47	54	57	83	67	47	37	34	36	36	40	52	69	123
4	78	55	32	31	48	87	103	77	67	52	48	50	50	55	90	130	167

All dimensions in millimeters.

DATA SHEET NO. 13

VEHICLE AND MDB DAMAGE PROFILE DISTANCES

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback NHTSA No. M20165208
 Test Program: NCAP MDB Side Impact Test Test Date: 6/2/16



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Crush (mm)
1	2400	4	734	750	16
2	1950	3	649	750	101
3	1350	2	654	891	237
4	900	3	652	895	243
5	300	3	659	893	234
6	-150	3	658	669	11

MDB DAMAGE PROFILE DISTANCES

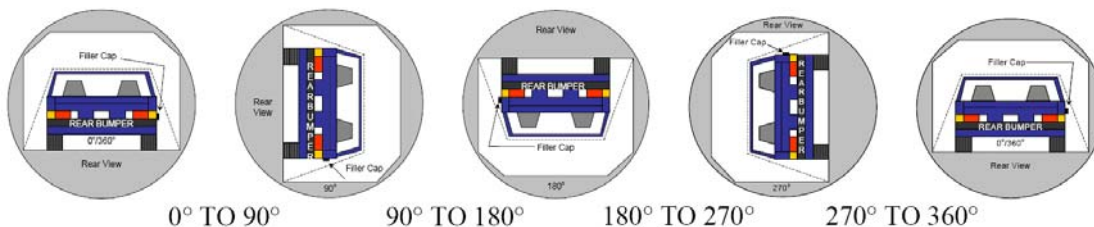
DPD	From MDB Centerline		Level	Crush (mm)
	Distance (mm)	Direction		
1	800	Left	4	167
2	500	Left	1	120
3	200	Left	1	128
4	200	Right	1	150
5	500	Right	1	161
6	800	Right	1	205

DATA SHEET NO. 14

FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback NHTSA No. M20165208
 Test Program: NCAP MDB Side Impact Test Test Date: 6/2/16
 Temperature at Time of Impact: 39 °C Test Time: 12:05 PM

- A. From impact until vehicle motion ceases: 0 oz.
 (Maximum allowable = 1 oz.)
- B. For the 5 minute period after motion ceases: 0 oz.
 (Maximum allowable = 5 oz.)
- C. For the following 25 minutes: 0 oz.
 (Maximum allowable = 1 oz./minute)
- D. Spillage Details: There was no Stoddard solvent spillage.



SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	85	300	385
90° To 180°	81	300	381
180° To 270°	76	300	376
270° To 360°	82	300	382

FMVSS 301 SPILLAGE TABLE

Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0° To 90°	0			
90° To 180°	0			
180° To 270°	0			
270° To 360°	0			

SOLVENT SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0° To 90°	N/A
90° To 180°	N/A
180° To 270°	N/A
270° To 360°	N/A

DATA SHEET NO. 15

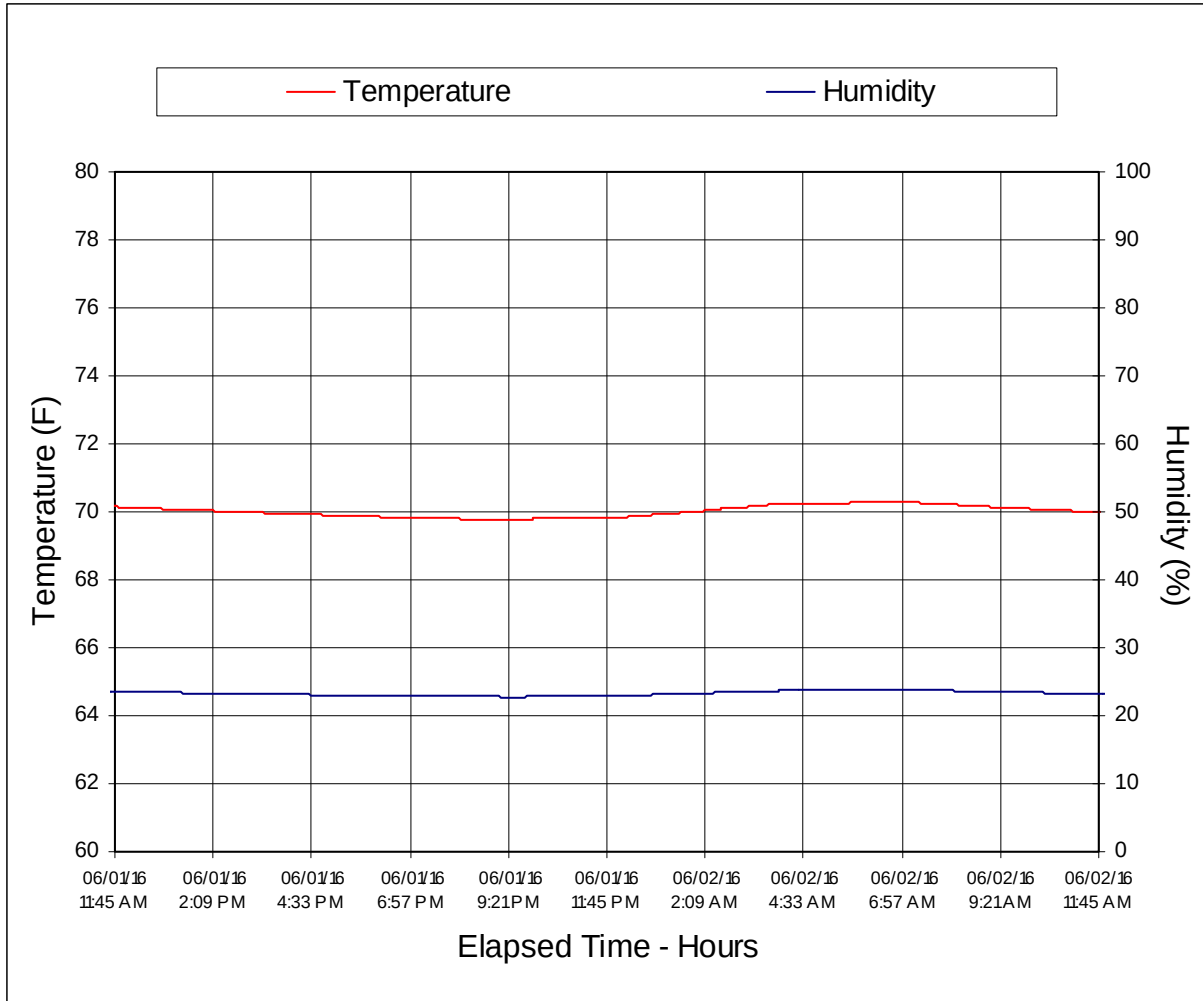
DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback

NHTSA No. M20165208

Test Program: NCAP MDB Side Impact Test

Test Date: 6/2/16



APPENDIX A
PHOTOGRAPHS

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97	FMVSS No. 301 Static Rollover 90 Degrees	A-49
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FIGURE 1. As-Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



FIGURE 2. As-Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle



FIGURE 3. Pre-Test Frontal View of Test Vehicle



FIGURE 4. Post-Test Frontal View of Test Vehicle



FIGURE 5. Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle



FIGURE 6. Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle



FIGURE 7. Pre-Test Left Side View of Test Vehicle



FIGURE 8. Post-Test Left Side View of Test Vehicle



FIGURE 9. Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



FIGURE 10. Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



FIGURE 11. Pre-Test Rear View of Test Vehicle



FIGURE 12. Post-Test Rear View of Test Vehicle



FIGURE 13. Pre-Test Right Side View of Test Vehicle



FIGURE 14. Post-Test Right Side View of Test Vehicle



FIGURE 15. Pre-Test Overhead View of Test Area

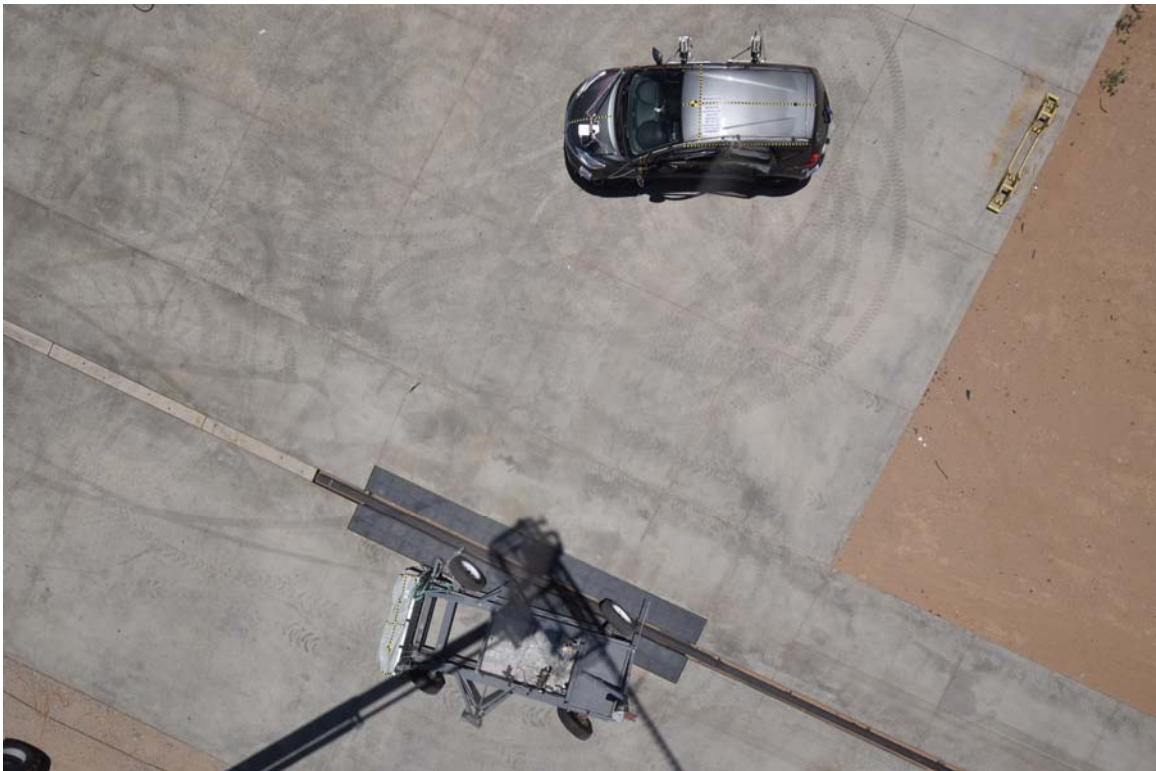


FIGURE 16. Post-Test Overhead View of Test Area



FIGURE 17. Pre-Test Left Side View of MDB Positioned
Against Side of Test Vehicle



FIGURE 18. Pre-Test Right Side View of MDB Positioned
Against Side of Test Vehicle



FIGURE 19. Pre-Test Close-Up View of Impact Point Target

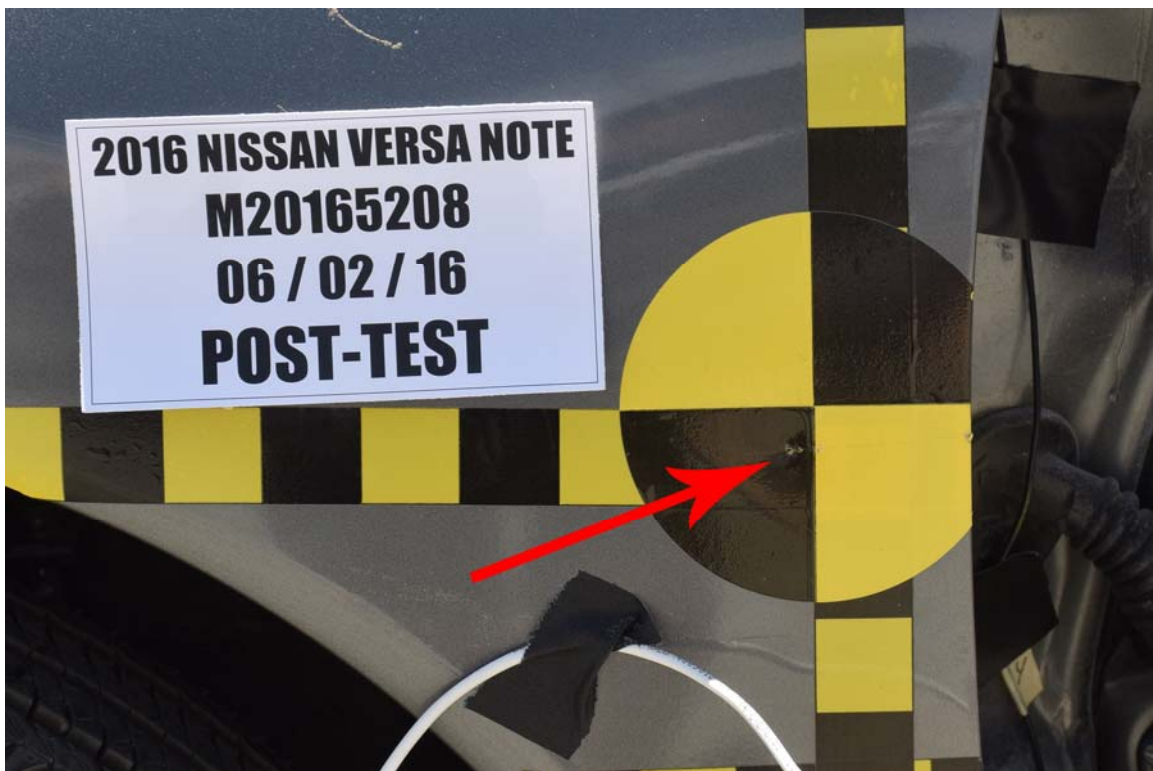


FIGURE 20. Post-Test Close-Up View of Impact Point Target

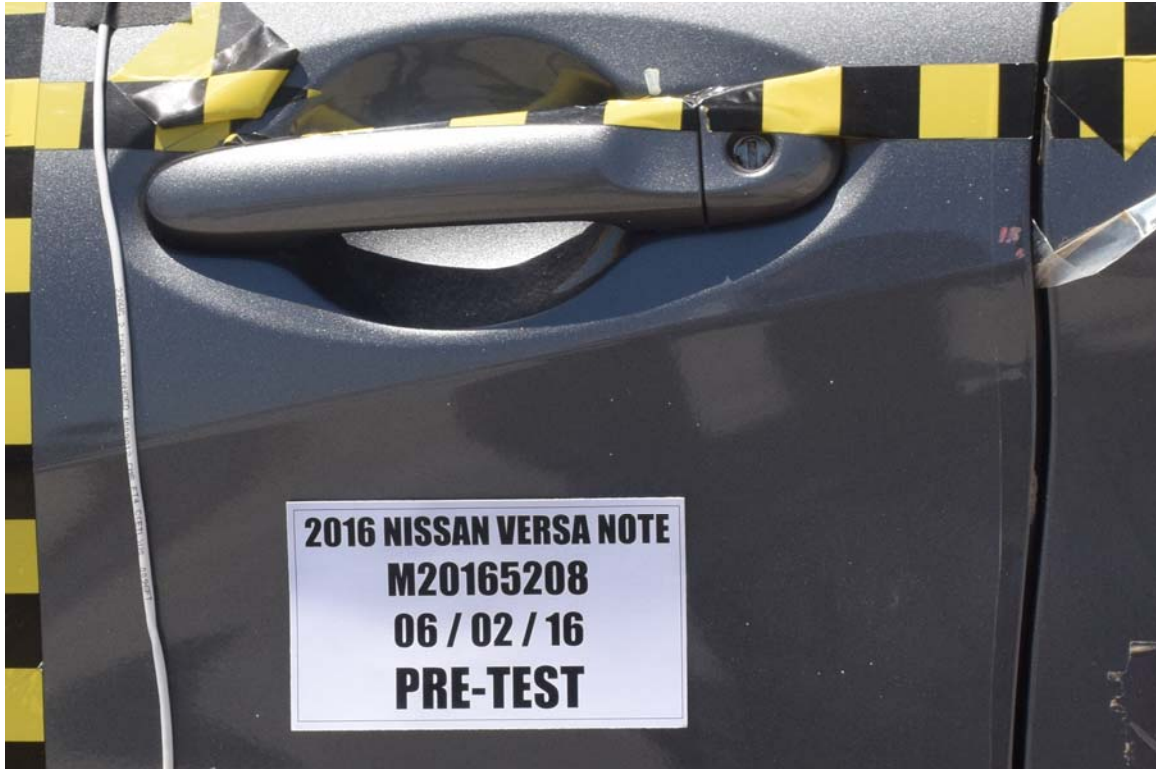


FIGURE 21. Pre-Test Left Front Door Latch Close-Up

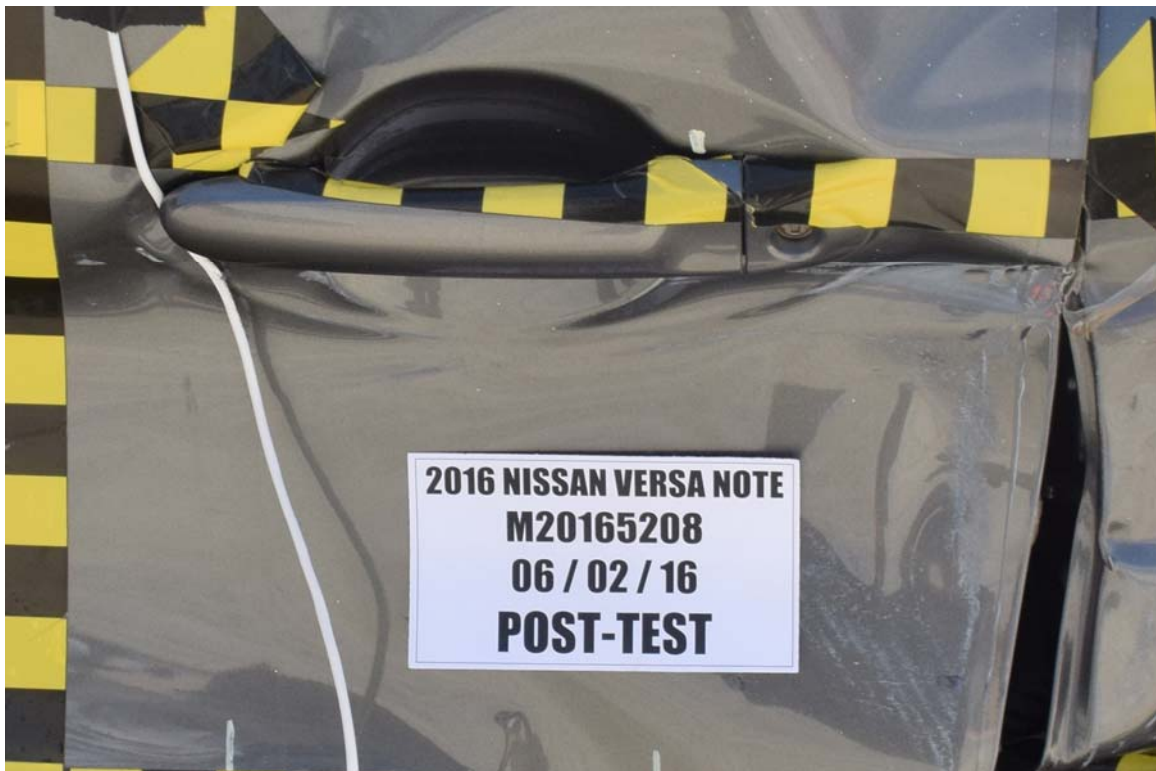


FIGURE 22. Post-Test Left Front Door Latch Close-Up

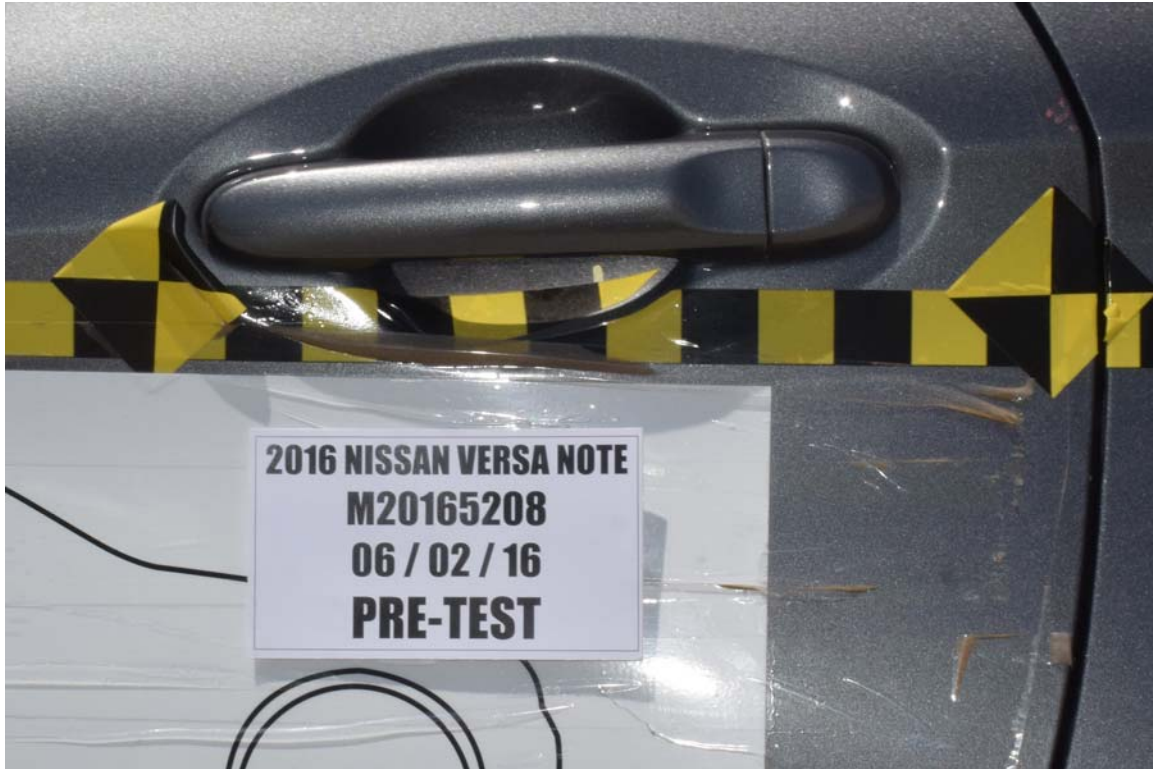


FIGURE 23. Pre-Test Left Rear Door Latch Close-Up

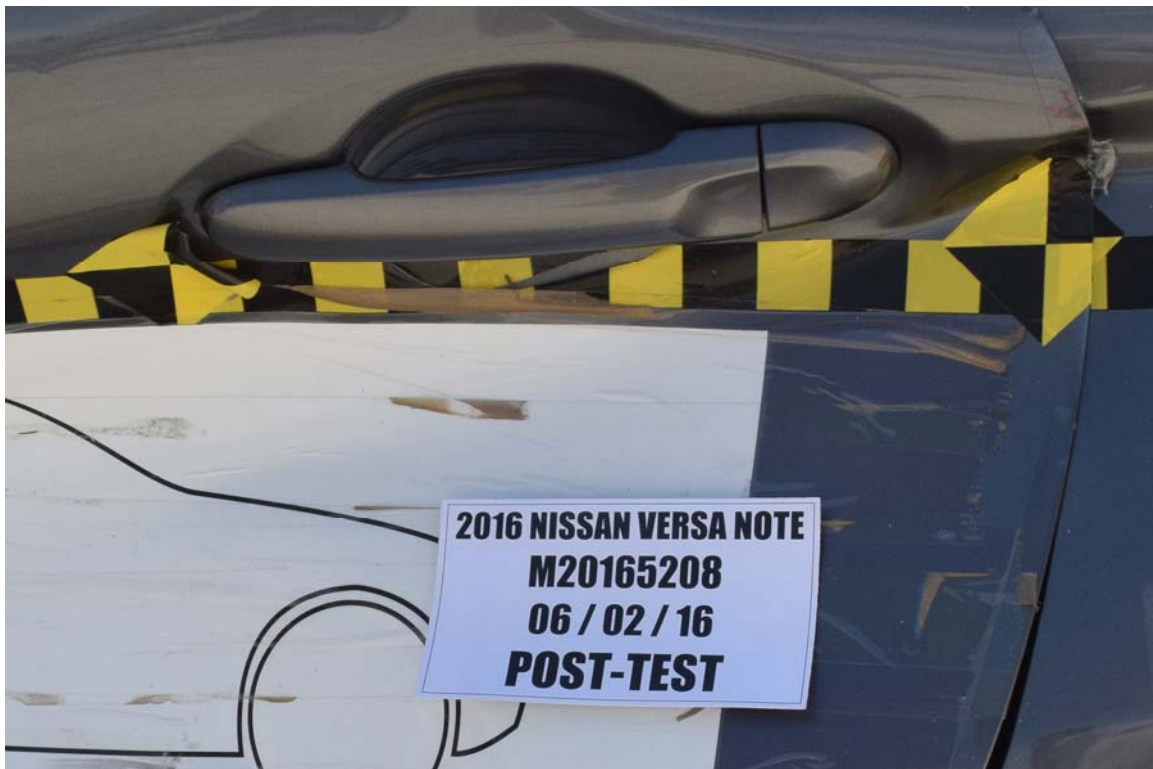


FIGURE 24. Post-Test Left Rear Door Latch Close-Up



FIGURE 25. Pre-Test Front Close-Up View of Driver Dummy



FIGURE 26. Post-Test Front Close-Up View of Driver Dummy



FIGURE 27. Pre-Test Left Side View of Driver Dummy
Showing Belt and Chalking



FIGURE 28. Pre-Test Left Side View of Driver Dummy Shoulder and Door Top View



FIGURE 29. Post-Test Left Side View of Driver Dummy Shoulder and Door Top View



FIGURE 30. Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning



FIGURE 31. Pre-Test Frontal View of Driver Dummy Head and Shoulders in Relation to Head Restraint



FIGURE 32. Pre-Test Overhead View of Driver Seat Pan Prior to Dummy Positioning

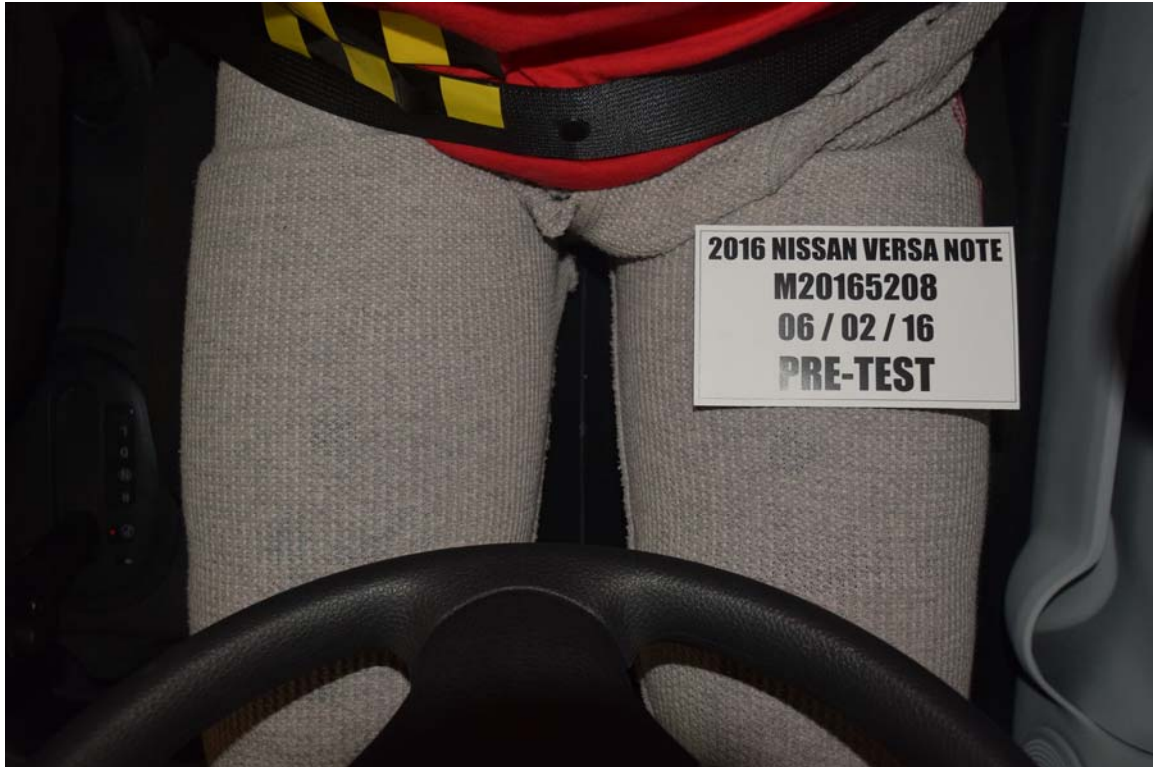


FIGURE 33. Pre-Test Overhead View of Driver Dummy Thighs on Seat Pan



FIGURE 34. Pre-Test Placement of Driver Dummy's Feet



FIGURE 35. Pre-Test View of Belt Anchorage for Driver Dummy



FIGURE 36. Pre-Test Left Side View of Steering Wheel



FIGURE 37. View of Disengaged Parking Brake



FIGURE 38. Pre-Test View of Parking Brake



FIGURE 39. Pre-Test Close-Up Left Side View of Driver Seat Track



FIGURE 40. Pre-Test Close-Up Left Side View of Driver Seat Back



FIGURE 41. Pre-Test Close-Up View of Driver Seat Back or Head Restraint



FIGURE 42. Pre-Test Driver Dummy and Door Clearance View



FIGURE 43. Post-Test Driver Dummy and Door Clearance View



FIGURE 44. Pre-Test Right Side View of Driver Dummy
and Front Seat Occupant Compartment



FIGURE 45. Post-Test Right Side View of Driver Dummy and Front Seat Occupant Compartment



FIGURE 46. Pre-Test Driver Inner Door Panel View



FIGURE 47. Post-Test Driver Inner Door Panel View
Showing Driver Dummy Contact Locations

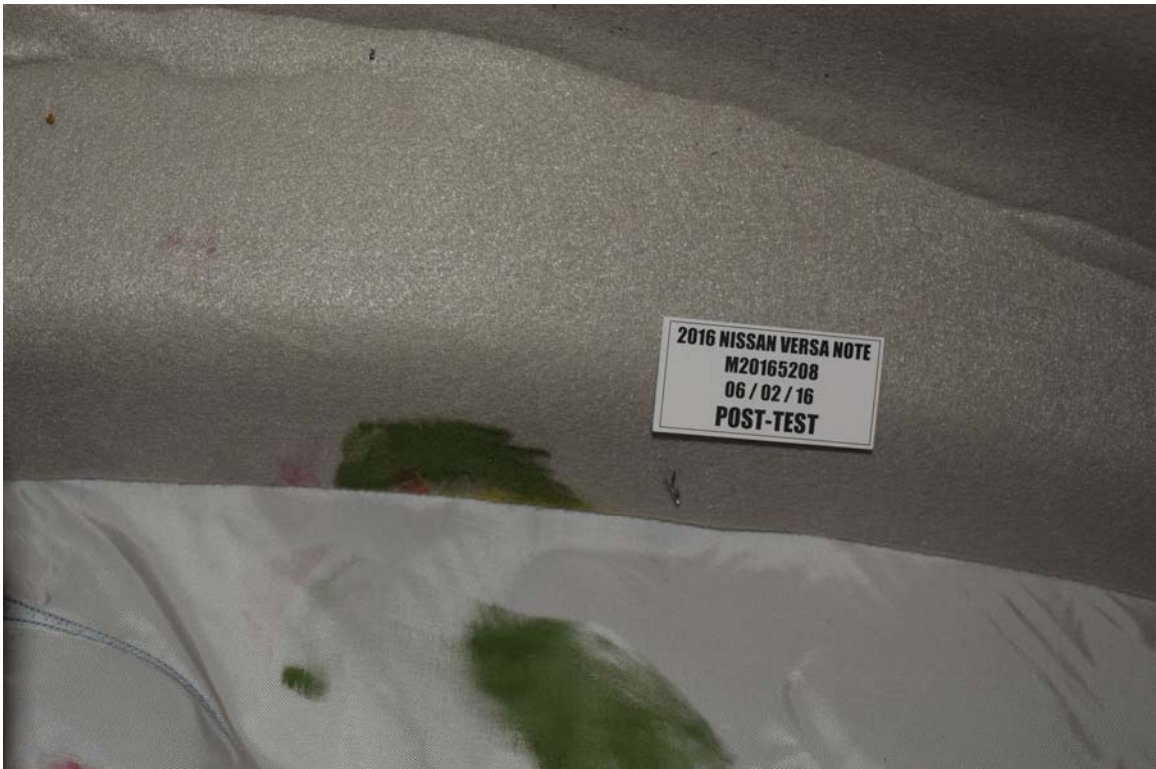


FIGURE 48. Post-Test Driver Dummy Close-Up Head Contact
with Vehicle Interior View



FIGURE 49. Post-Test Driver Dummy Close-Up Head Contact with Side Airbag View



FIGURE 50. Post-Test Driver Dummy Close-Up Torso Contact with Vehicle Interior View



FIGURE 51. Post-Test Driver Dummy Close-Up Torso Contact with Side Airbag View

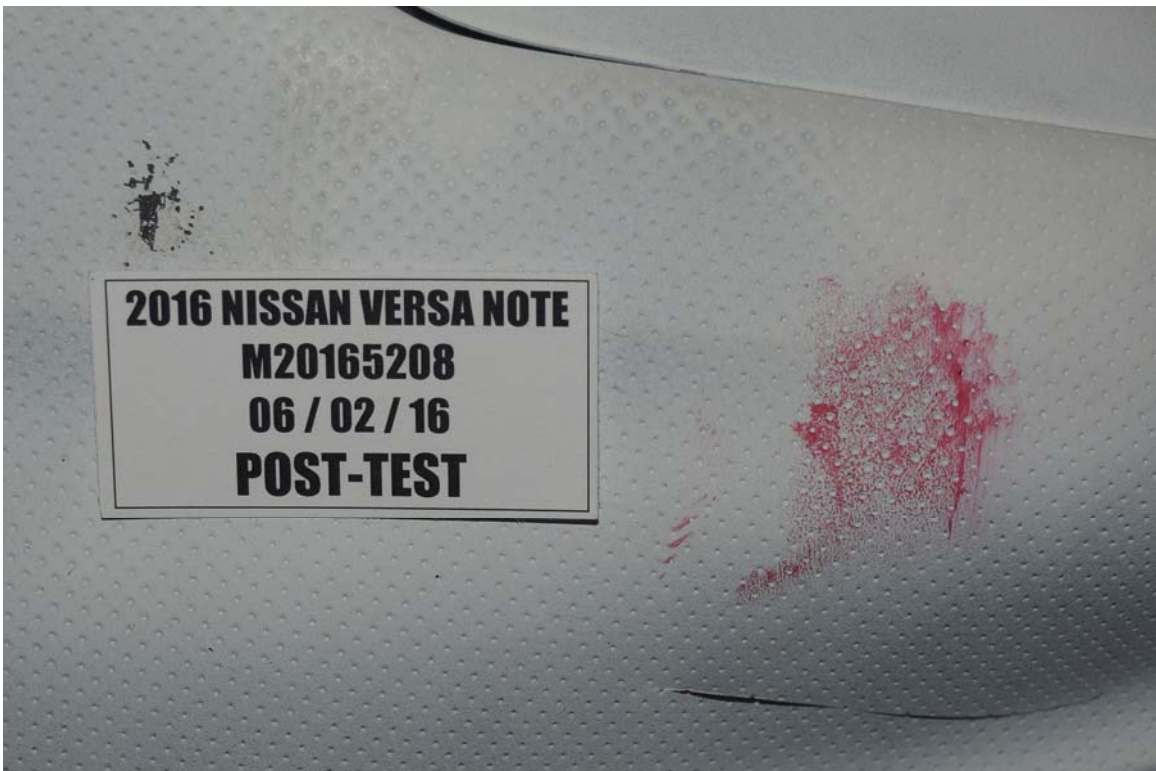


FIGURE 52. Post-Test Driver Dummy Close-Up Pelvis Contact
with Vehicle Interior View

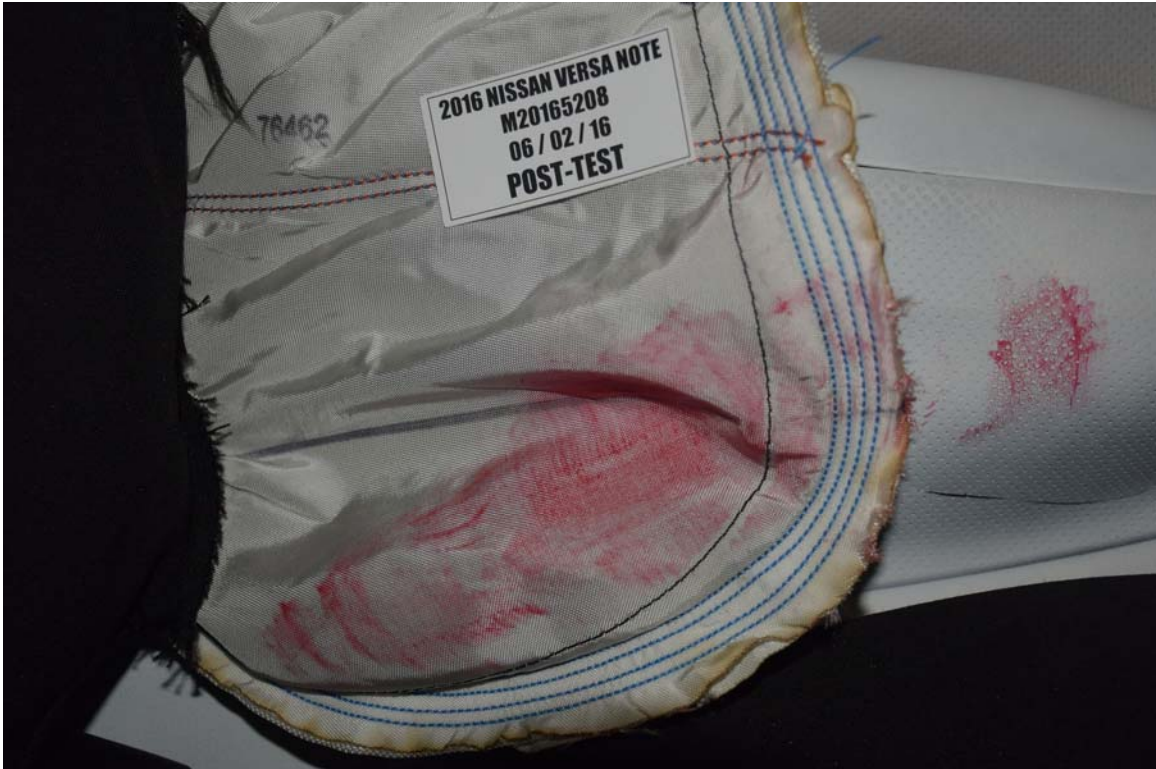


FIGURE 53. Post-Test Driver Dummy Close-Up Pelvis Contact with Side Airbag View



FIGURE 54. Post-Test Driver Dummy Close-Up Knee Contact View



FIGURE 55. Pre-Test Left Side View of Rear Passenger Dummy
Showing Belt and Chalking



FIGURE 56. Pre-Test Left Side View of Rear Passenger Dummy
Shoulder and Door Top View



FIGURE 57. Post-Test Left Side View of Rear Passenger Dummy
Shoulder and Door Top View



FIGURE 58. Pre-Test Frontal View of Rear Passenger Seat Back
Prior to Dummy Positioning



FIGURE 59. Pre-Test Frontal View of Rear Passenger Dummy
Head and Shoulders in Relation to Head Restraint



FIGURE 60. Pre-Test Overhead View of Rear Passenger
Seat Pan Prior to Dummy Positioning



FIGURE 61. Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan



FIGURE 62. Pre-Test View of Rear Passenger Dummy's Neck
Showing Position of Adjustable Neck Bracket



FIGURE 63. Pre-Test View of Rear Passenger Dummy's Head
Showing Dummy's Head is Level



FIGURE 64. Pre-Test Placement of Rear Passenger Dummy's Feet



FIGURE 65. Pre-Test View of Belt Anchorage for Rear Passenger Dummy



FIGURE 66. Pre-Test Close-Up Left Side View of Rear Passenger Seat Track



FIGURE 67. Pre-Test Close-Up Left Side View of Rear Passenger Seat Back



FIGURE 68. Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint



FIGURE 69. Pre-Test Rear Passenger Dummy and Door Clearance View



FIGURE 70. Post-Test Rear Passenger Dummy and Door Clearance View



FIGURE 71. Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



FIGURE 72. Post-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



FIGURE 73. Pre-Test Rear Passenger Inner Door Panel View



FIGURE 74. Post-Test Rear Passenger Inner Door Panel View
Showing Rear Passenger Dummy Contact Locations



FIGURE 75. Post-Test Rear Passenger Dummy Close-Up
Head Contact with Vehicle Interior View



FIGURE 76. Post-Test Rear Passenger Dummy Close-Up
Head Contact with Side Airbag View

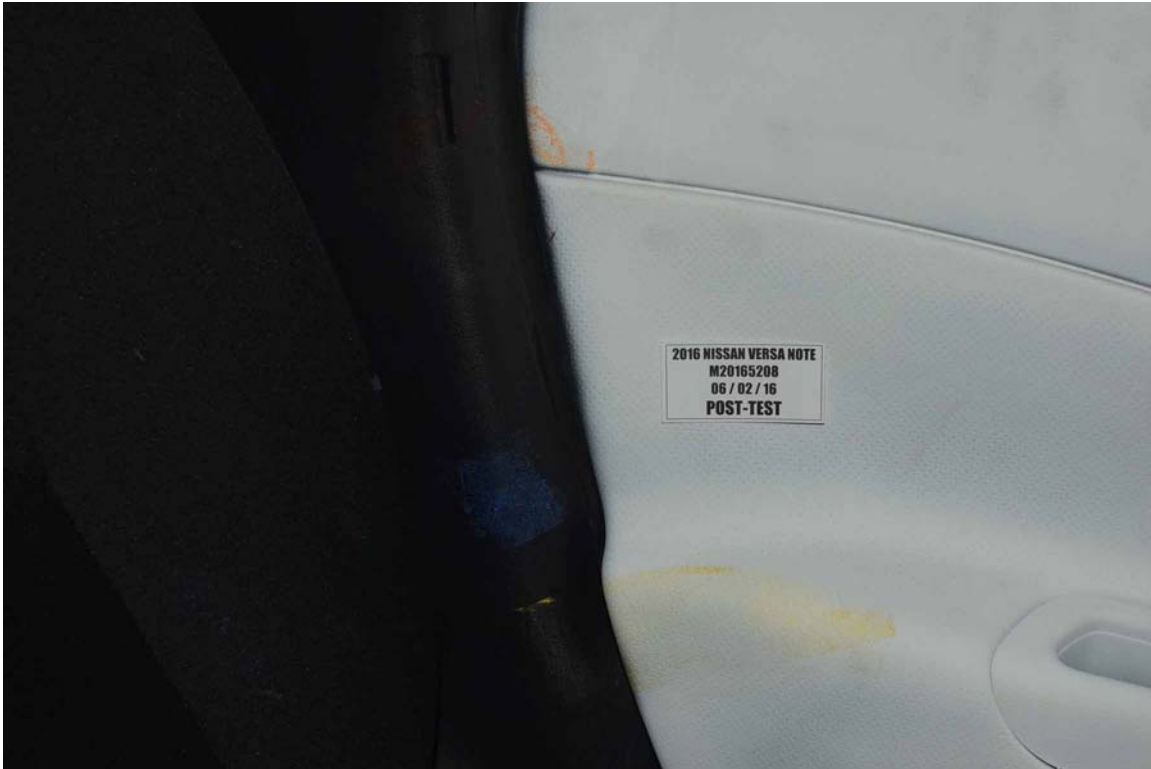


FIGURE 77. Post-Test Rear Passenger Dummy Close-Up
Torso Contact with Vehicle Interior View

Photograph Not Applicable

Vehicle Not Equipped With Rear Side Airbag

FIGURE 78. Post-Test Rear Passenger Dummy Close-Up
Torso Contact with Side Airbag View



FIGURE 79. Post-Test Rear Passenger Dummy Close-Up
Pelvis Contact with Vehicle Interior View

Photograph Not Applicable

Vehicle Not Equipped With Rear Side Airbag

FIGURE 80. Post-Test Rear Passenger Dummy Close-Up
Pelvis Contact with Side Airbag View



FIGURE 81. Post-Test Rear Passenger Dummy Close-Up Knee Contact View



FIGURE 82. Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



FIGURE 83. Post-Test View of Fuel Filler Cap or Fuel Filler Neck



FIGURE 84. Pre-Test Front View of MDB Impactor Face



FIGURE 85. Post-Test Front View of MDB Impactor Face



FIGURE 86. Pre-Test Top View of MDB Impactor Face



FIGURE 87. Post-Test Top View of MDB Impactor Face



FIGURE 88. Pre-Test Left Side View of MDB Impactor Face



FIGURE 89. Post-Test Left Side View of MDB Impactor Face



FIGURE 90. Pre-Test Right Side View of MDB Impactor Face



FIGURE 91. Post-Test Right Side View of MDB Impactor Face

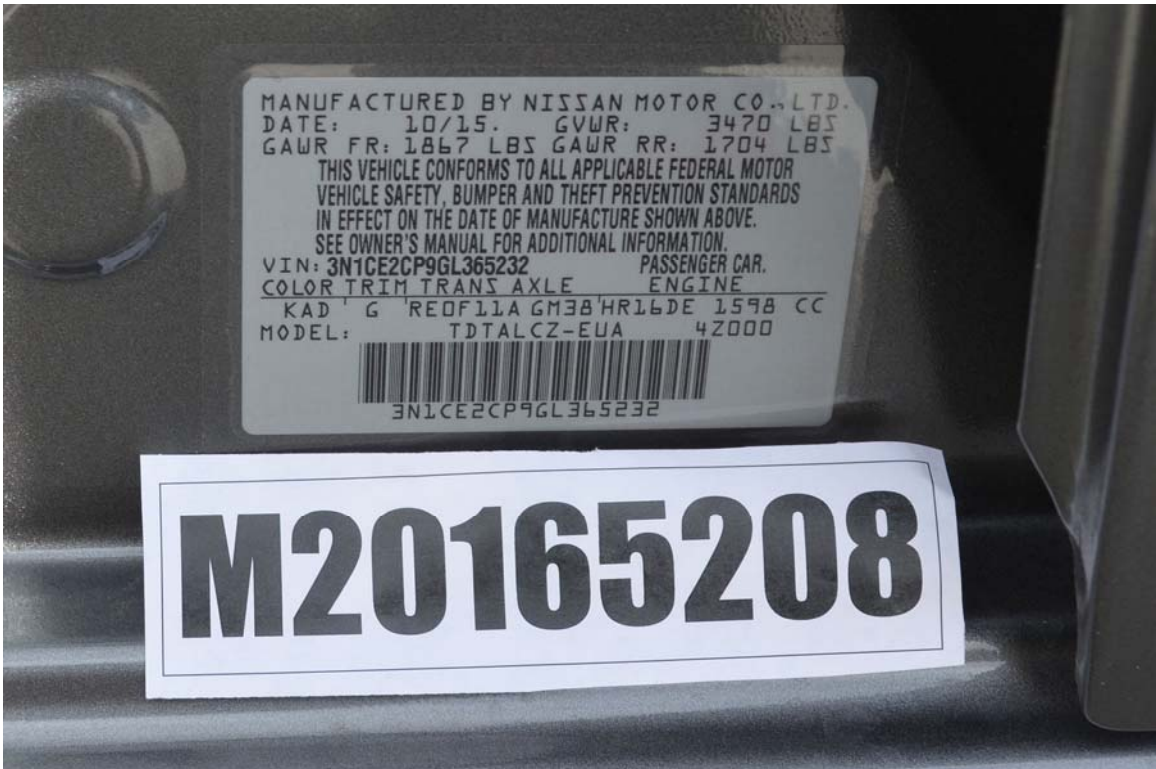


FIGURE 92. Close-Up View of Vehicle's Certification Label

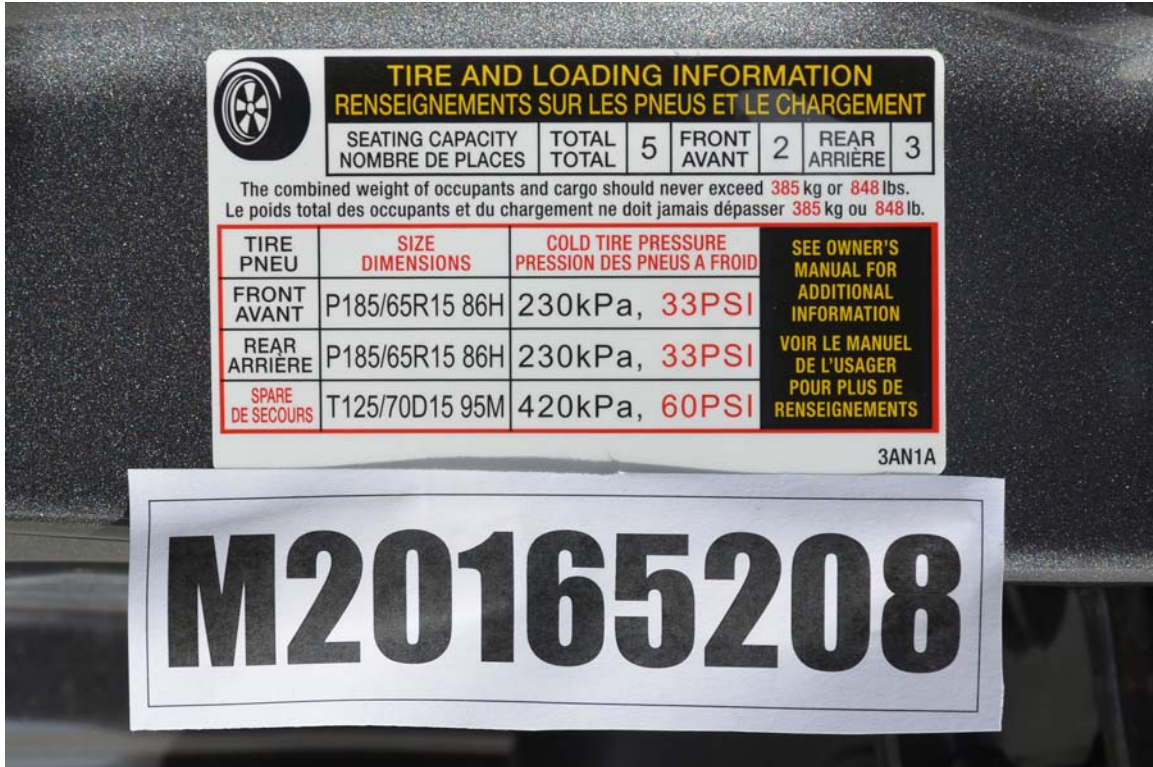


FIGURE 93. Close-Up View of Vehicle's Tire Information Placard or Label

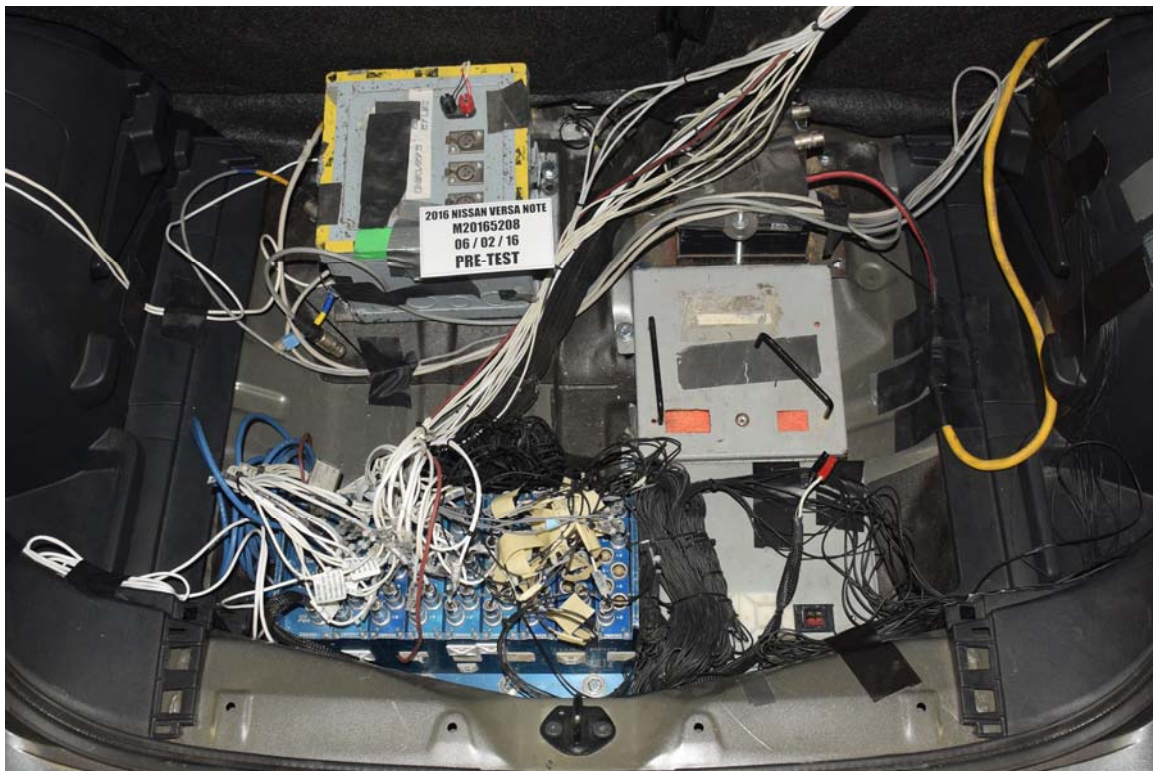


FIGURE 94. Pre-Test Ballast View



FIGURE 95. Post-Test Primary and Redundant Speed Trap Read-Out

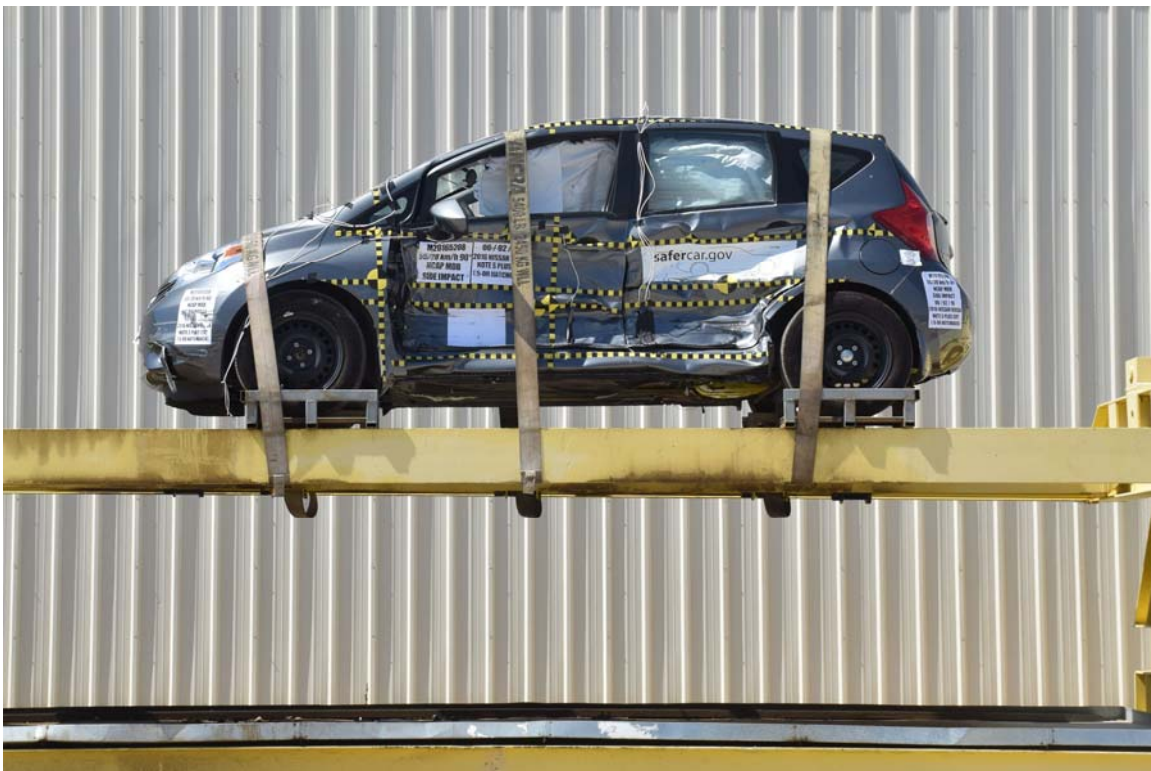


FIGURE 96. FMVSS No. 301 Static Rollover 0 Degrees



FIGURE 97. FMVSS No. 301 Static Rollover 90 Degrees



FIGURE 98. FMVSS No. 301 Static Rollover 180 Degrees



FIGURE 99. FMVSS No. 301 Static Rollover 270 Degrees

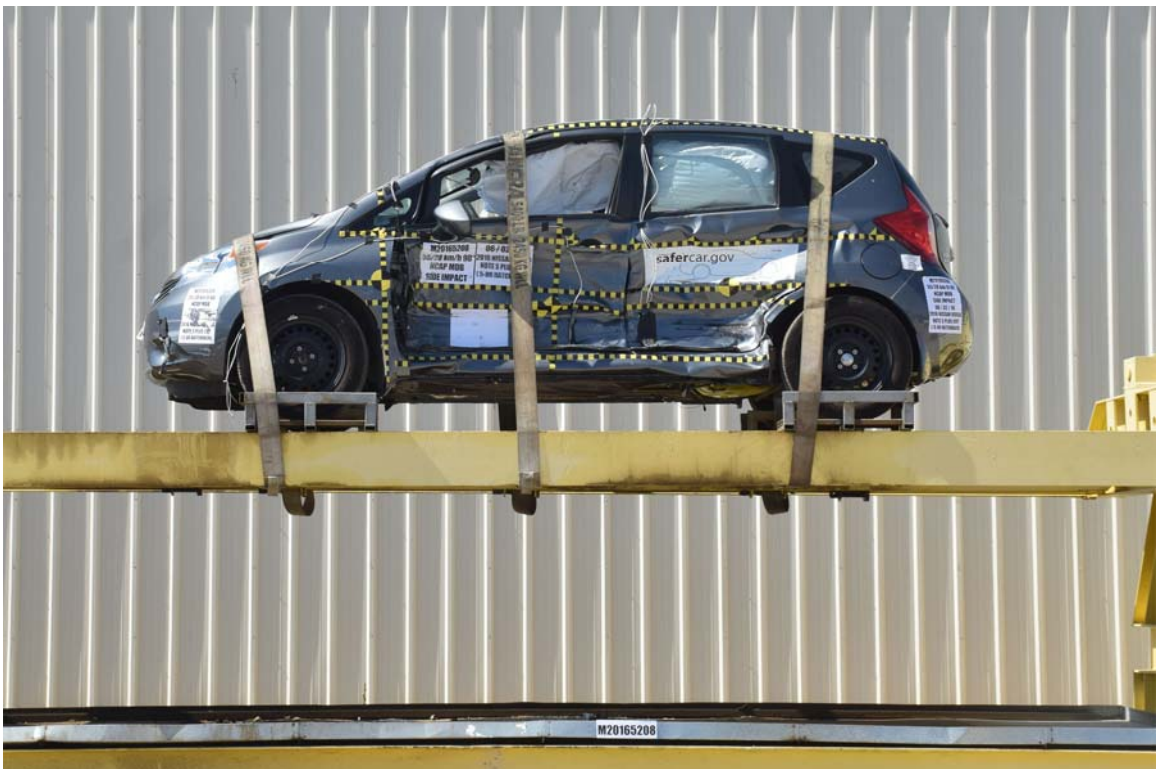


FIGURE 100. FMVSS No. 301 Static Rollover 360 Degrees



FIGURE 101. Impact Event



2016 NISSAN VERSA NOTE S PLUS CVT

YOUR DOOR TO MORE

Standard Equipment Included at No Extra Charge

MECHANICAL & PERFORMANCE
1.6-Liter DCHC 16-Valve 4-Cylinder Engine
Xtronic CVT®
(Continuously Variable Transmission)
Front and Rear Stabilizer Bars
Power-Assisted Variable Front Drive /
Rear Drum Brakes
17" Steel Wheels w/ Full Wheel Covers
Active Grille Shutter

SAFETY & SECURITY
Driver and Front Passenger, Side-Impact,
and Curtain Air Bags
Lower Anchors and Tethers for Children
(LATCH)
Anti-Lock Braking System (ABS)
Traction Control System (TCS)
Vehicle Dynamic Control (VDC)
Electronic Brake Force Distribution (EBD)
and Brake Assist
Tire Pressure Monitoring System (TPMS)

COMFORT & CONVENIENCE
4-Way Adjustable Front Seats
AM/FM/CD/Aux-in Audio System
w/ 4 Speakers
Bluetooth® Hands-free Phone System
Illuminated Steering Wheel-Mounted
Audio & Bluetooth® Controls

EXTERIOR
Chrome-Accented Multi-Reflector
Halogen Headlights
Chrome-Accented Front Grille
Body-Color Power Outside Mirrors

**Manufacturer's Suggested
Retail Base Price:** \$15,430.00

Options Included by Manufacturer
SPLASH GUARDS 190.00
CARPETED FLOOR MATS AND CARGO MAT 180.00

DESTINATION CHARGES 825.00

Total* \$16,625.00



Scan QR code for general
model information & options

Fuel Economy

35 MPG
combined city/highway

2.9 gallons per 100 miles

**You save
\$2,500**
in fuel costs
over 5 years
compared to the
average new vehicle.

**Annual fuel cost
\$1,300**

Fuel Economy & Greenhouse Gas Rating (tailpipe only) Smog Rating (tailpipe only)

1 **8** **10** **1** **5** **10**

This vehicle emits 257 grams CO₂ per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also creates emissions. Learn more at fuelconomy.gov

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 24 MPG and costs \$8,000 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$3.00 per gallon. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

GOVERNMENT 5-STAR SAFETY RATINGS

Overall Vehicle Score Not Rated
Based on the combined ratings of frontal, side and rollover.
Should ONLY be compared to other vehicles of similar size and weight.

Frontal Crash Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.	Driver Passenger	Not Rated
Side Crash Based on the risk of injury in a side impact.	Front seat Rear seat	Not Rated
Rollover Based on the risk of rollover in a single-vehicle crash.		★★★★

Star ratings range from 1 to 5 stars (★★★★) with 5 being the highest.
Source: National Highway Traffic Safety Administration (NHTSA)
www.safercar.gov or 1-888-327-4236

This Vehicle qualifies for Nissan's
Security+Plus Extended Protection Plan
The only service agreement backed by
Nissan Extended Services North America
Ask your dealer for details, or call 1-800-NISSAN-1
for more information

DELIVERY

VEHICLE COLORS:
EXT: GUN METALLIC
INT: CHARCOAL

FINAL ASSEMBLY POINT:
AGUAS (ABV) MEX

TRANSPORT METHOD:
TRUCK

DEALER:
BUENA PARK NISSAN
6501 AUTO CENTER DRIVE
BUENA PARK CA
90621

VIN: 3N1CE2CP9GL365232
EMS: 50 STATE EMISSIONS
MDL: 11516-365232 KAD-G
OPT: D-892C03032

201510122424535RP5093

FIGURE 102. Monroney Label

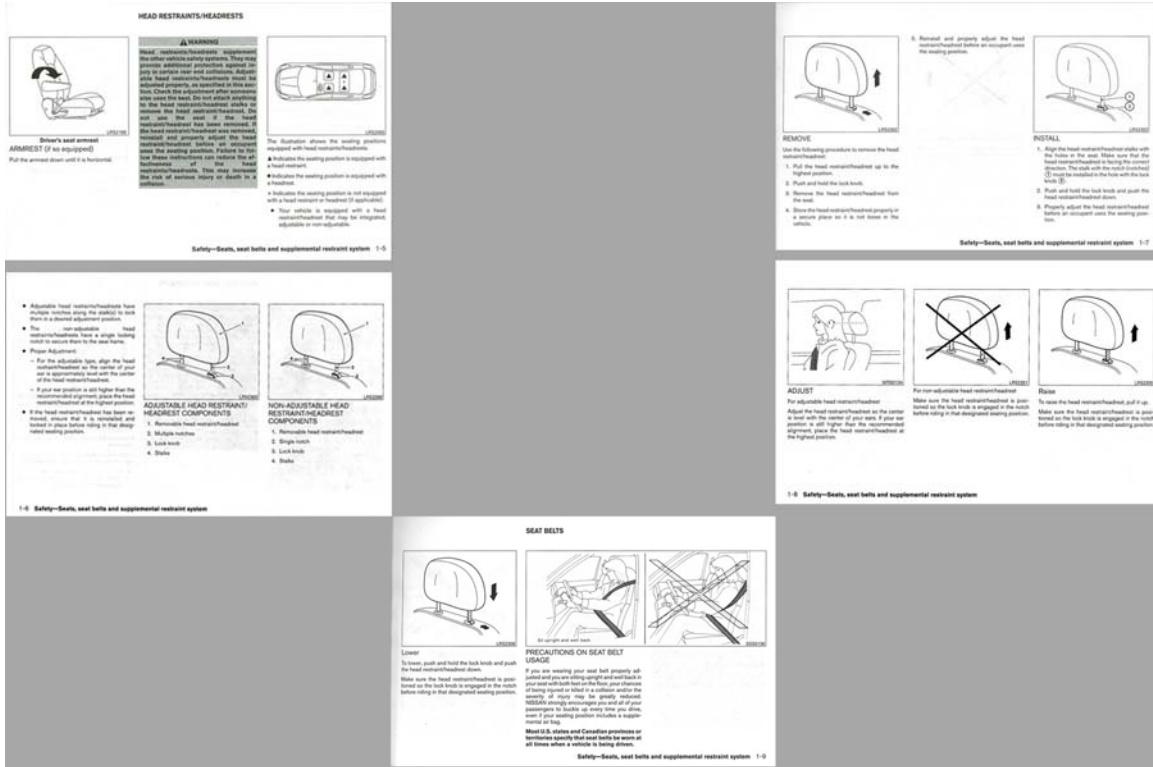


FIGURE 103. Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

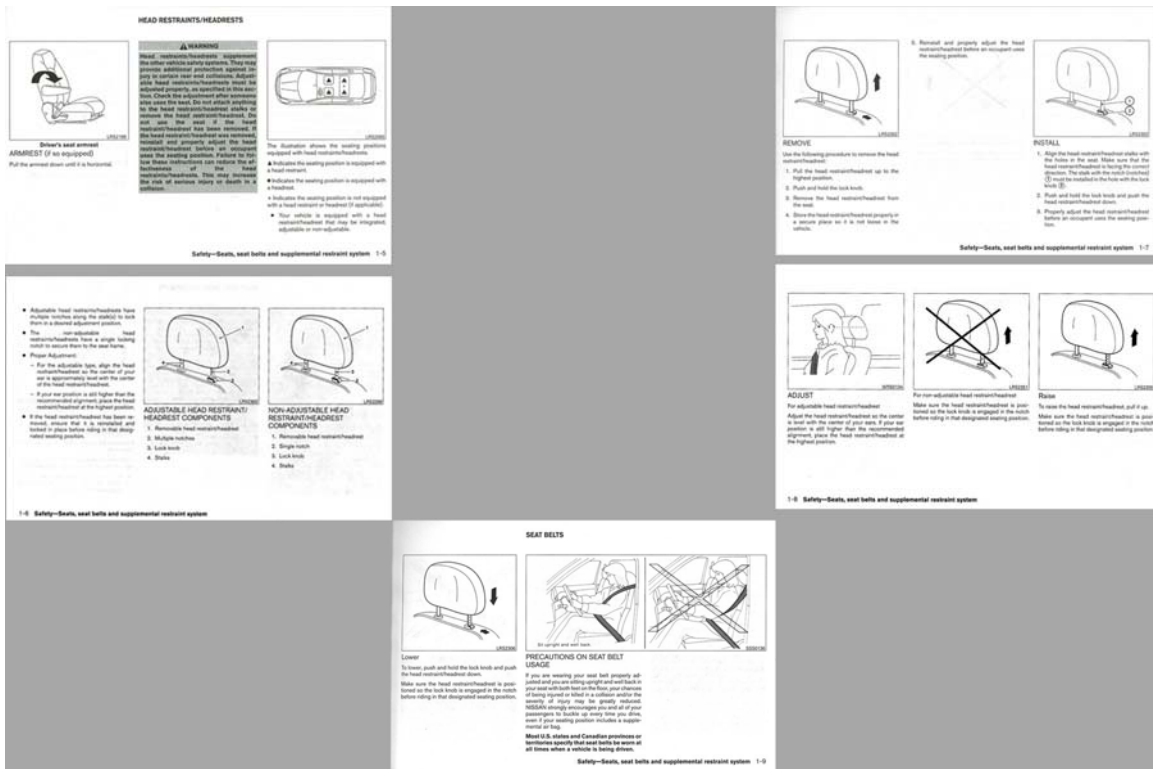


FIGURE 104. Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

APPENDIX B
DUMMY RESPONSE DATA

TABLE OF DATA PLOTS

Plot		Page
1	Driver Head Acceleration (X) Primary	B-1
2	Driver Head Acceleration (Y) Primary	B-1
3	Driver Head Acceleration (Z) Primary	B-1
4	Driver Head Resultant Acceleration Primary	B-1
5	Driver Upper Thorax Rib Deflection (Y)	B-2
6	Driver Middle Thorax Rib Deflection (Y)	B-2
7	Driver Lower Thorax Rib Deflection (Y)	B-2
8	Driver Thorax Rib Deflection Maximum (Y)	B-2
9	Driver Anterior Abdominal Force (Y)	B-3
10	Driver Middle Abdominal Force (Y)	B-3
11	Driver Posterior Abdominal Force (Y)	B-3
12	Driver Total Abdominal Force (Y)	B-3
13	Driver Pubic Symphysis Force (Y)	B-4
14	Passenger Head Acceleration Primary (X)	B-5
15	Passenger Head Acceleration Primary (Y)	B-5
16	Passenger Head Acceleration Primary (Z)	B-5
17	Passenger Head Acceleration Resultant Primary	B-5
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19	Passenger Lower Spine T12 Acceleration (Y)	B-6
20	Passenger Lower Spine T12 Acceleration (Z)	B-6
21	Passenger Lower Spine T12 Acceleration Resultant	B-6
22	Passenger Iliac Force on Impact Side (Y)	B-7
23	Passenger Acetabulum Force on Impact Side (Y)	B-7
24	Passenger Total Pelvic Force on Impact Side (Y)	B-7

The following additional data for this test can be obtained from the Research and Development section of the NHTSA website (www.NHTSA.dot.gov)

Additional Driver & Passenger Dummy Instrumentation Data

Driver Lower Spine T12 Acceleration (X)
Driver Lower Spine T12 Acceleration (Y)
Driver Lower Spine T12 Acceleration (Z)
Passenger Upper Thorax Rib Deflection (Y)
Passenger Middle Thorax Rib Deflection (Y)
Passenger Lower Thorax Rib Deflection (Y)

Passenger Upper Abdomen Rib Deflection (Y)
Passenger Lower Abdomen Rib Deflection (Y)
Driver Head Acceleration Redundant (X)
Driver Head Acceleration Redundant (Y)
Driver Head Acceleration Redundant (Z)
Passenger Head Acceleration Redundant (X)
Passenger Head Acceleration Redundant (Y)
Passenger Head Acceleration Redundant (Z)

Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Right Side Sill at Front Seat Acceleration (X)
Right Side Sill at Front Seat Acceleration (Y)
Right Side Sill at Front Seat Acceleration (Z)
Right Side Sill at Rear Seat Acceleration (X)
Right Side Sill at Rear Seat Acceleration (Y)
Right Side Sill at Rear Seat Acceleration (Z)
Left Side Sill at Front Seat Acceleration (Y)
Left Side Sill at Rear Seat Acceleration (Y)
Lower A-Post Acceleration (Y)
Middle A-Post Acceleration (Y)
Lower B-Post Acceleration (Y)
Middle B-Post Acceleration (Y)
Front Seat Track Acceleration (Y)
Rear Seat Structure Acceleration (Y)
Right Rear Occupant Compartment Acceleration (Y)
Engine Block (X)
Engine Block (Y)
Rear Floorpan Above Axle Acceleration (X)
Rear Floorpan Above Axle Acceleration (Y)
Rear Floorpan Above Axle Acceleration (Z)

MDB Instrumentation Data

MDB Center of Gravity Acceleration (X)

MDB Center of Gravity Acceleration (Y)

MDB Center of Gravity Acceleration (Z)

MDB Rear Acceleration (X)

MDB Rear Acceleration (Y)

Left MDB Contact Switch

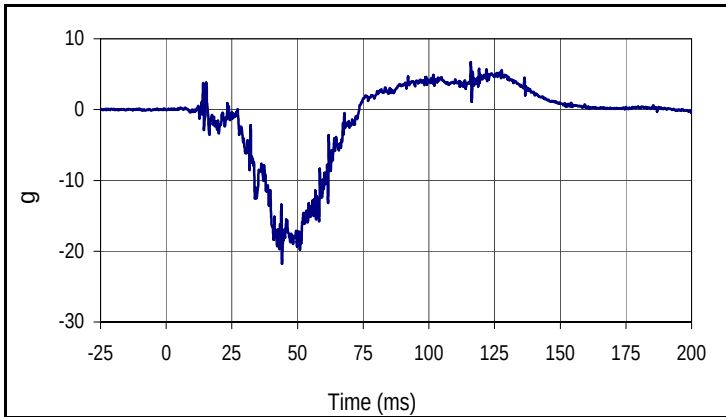
Right MDB Contact Switch

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback

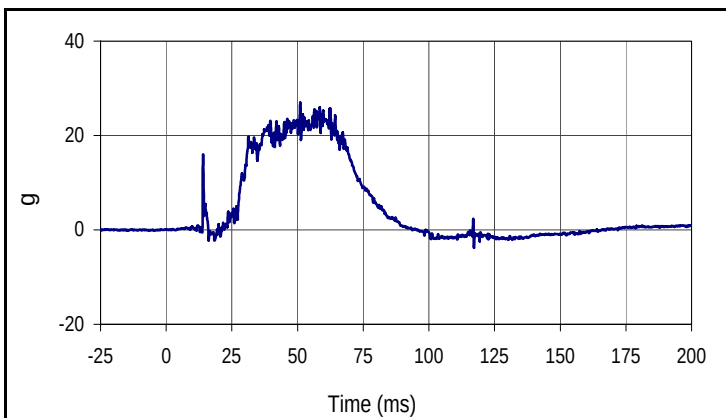
NHTSA No.: M20165208

Test Program: NCAP MDB Side Impact Test

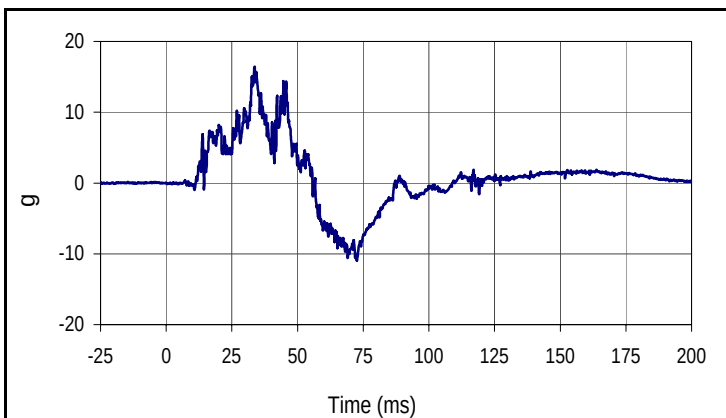
Test Date: 6/2/16



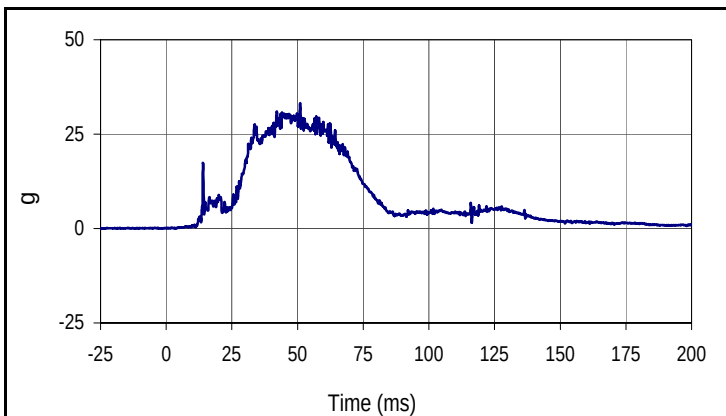
Curve Description			
Driver Head Acceleration X Primary			
Plot No.		SAE Class	Units
001		1000	g
Max	Time	Min	Time
6.7	116.0	-21.7	44.1



Curve Description			
Driver Head Acceleration Y Primary			
Plot No.		SAE Class	Units
002		1000	g
Max	Time	Min	Time
27.0	51.0	-3.8	117.2



Curve Description			
Driver Head Acceleration Z Primary			
Plot No.		SAE Class	Units
003		1000	g
Max	Time	Min	Time
16.4	33.6	-10.9	72.6



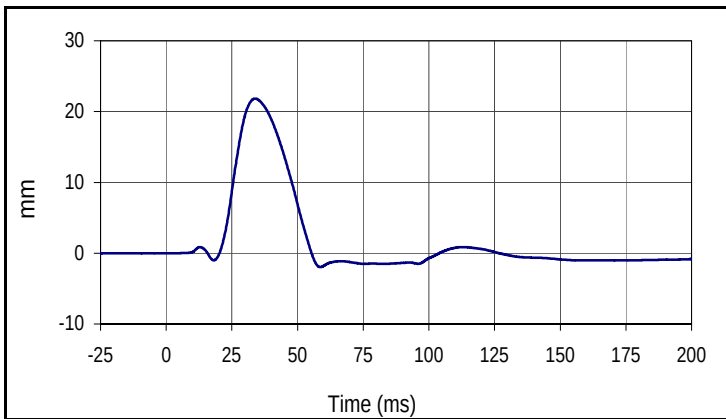
Curve Description			
Driver Head Resultant Acceleration Primary			
Plot No.		SAE Class	Units
004		1000	g
Max	Time	Min	Time
33.3	51.0	0.0	4.0

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback

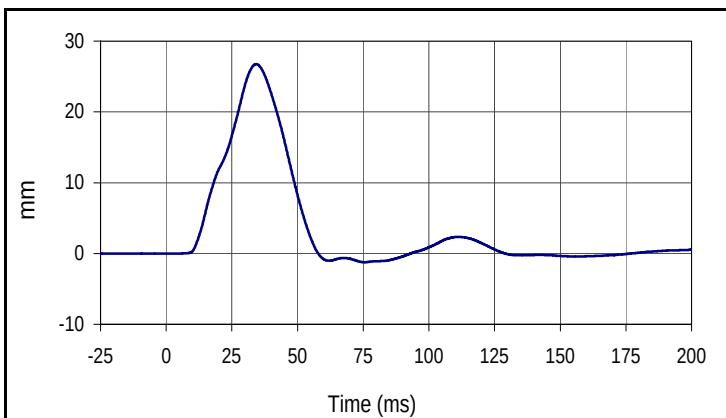
NHTSA No.: M20165208

Test Program: NCAP MDB Side Impact Test

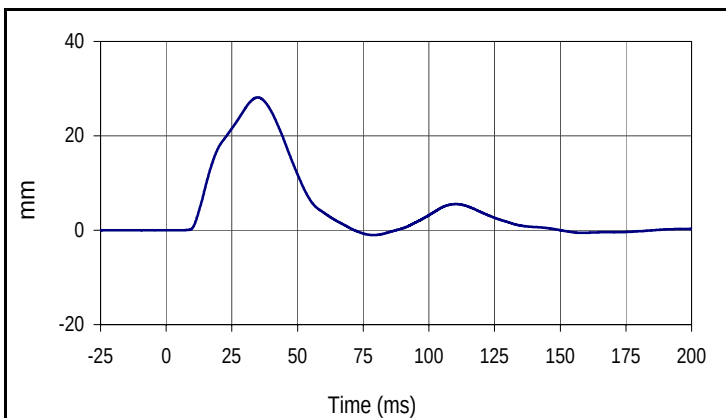
Test Date: 6/2/16



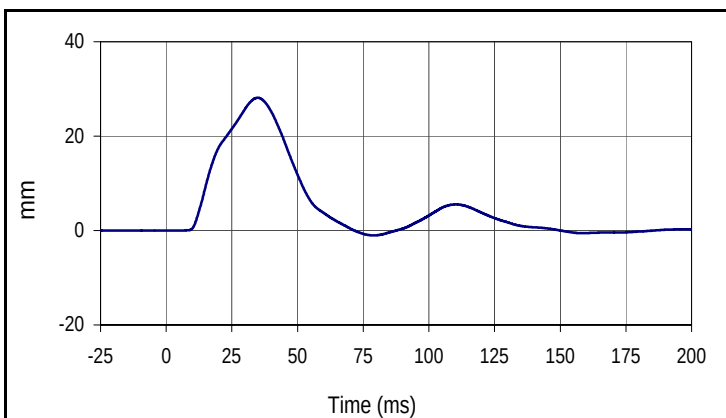
Curve Description			
Driver Upper Thorax Rib Deflection Y			
Plot No.		SAE Class	Units
005		180	mm
Max	Time	Min	Time
21.8	33.8	-2.0	58.7



Curve Description			
Driver Middle Thorax Rib Deflection Y			
Plot No.		SAE Class	Units
006		180	mm
Max	Time	Min	Time
26.8	34.2	-1.2	75.4



Curve Description			
Driver Lower Thorax Rib Deflection Y			
Plot No.		SAE Class	Units
007		180	mm
Max	Time	Min	Time
28.1	34.9	-1.0	79.0



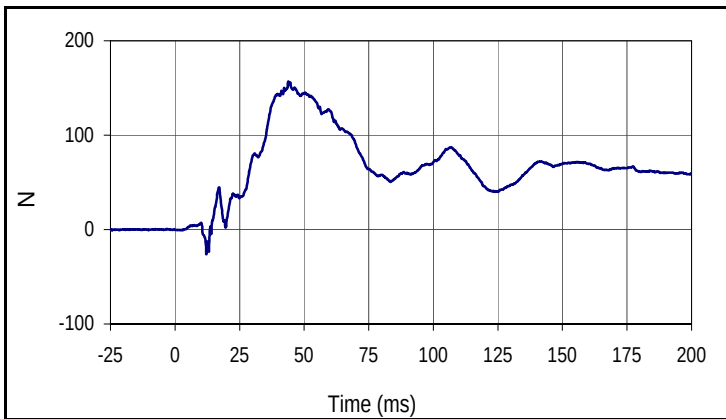
Curve Description			
Driver Thorax Rib Deflection Maximum Y			
Plot No.		SAE Class	Units
008		180	mm
Max	Time	Min	Time
28.1	34.9	-1.0	79.0

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback

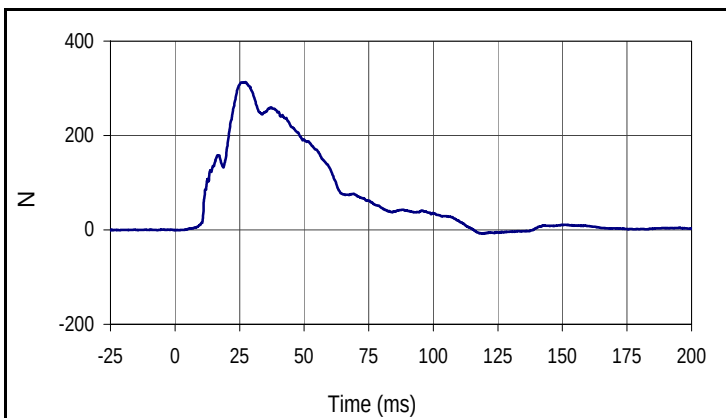
NHTSA No.: M20165208

Test Program: NCAP MDB Side Impact Test

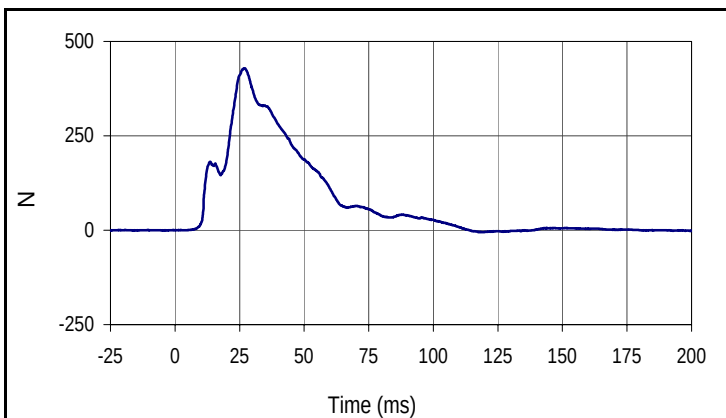
Test Date: 6/2/16



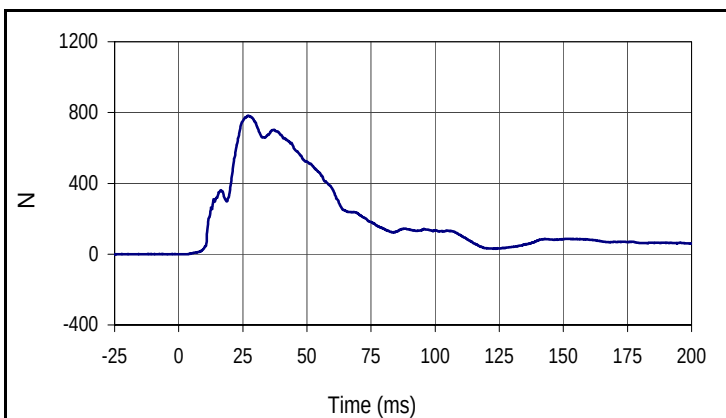
Curve Description			
Driver Anterior Abdominal Force Y			
Plot No.		SAE Class	Units
009		600	N
Max	Time	Min	Time
157.1	43.9	-26.2	12.2



Curve Description			
Driver Middle Abdominal Force Y			
Plot No.		SAE Class	Units
010		600	N
Max	Time	Min	Time
313.0	27.3	-7.9	118.9



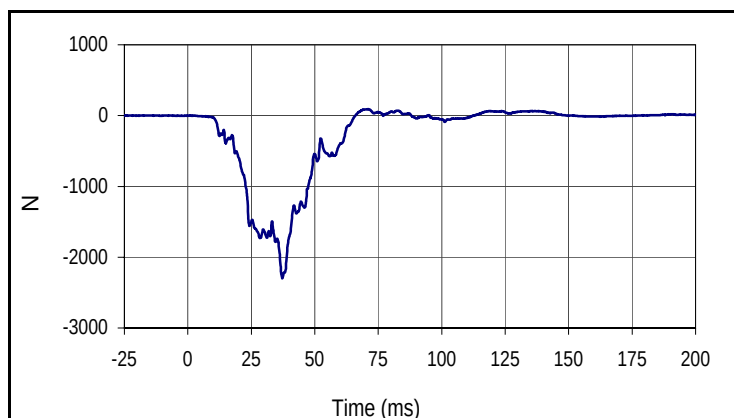
Curve Description			
Driver Posterior Abdominal Force Y			
Plot No.		SAE Class	Units
011		600	N
Max	Time	Min	Time
429.1	26.9	-5.5	118.8



Curve Description			
Driver Total Abdominal Force			
Plot No.		SAE Class	Units
012		600	N
Max	Time	Min	Time
782.7	27.2	-1.3	1.7

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback
 Test Program: NCAP MDB Side Impact Test

NHTSA No.: M20165208
 Test Date: 6/2/16



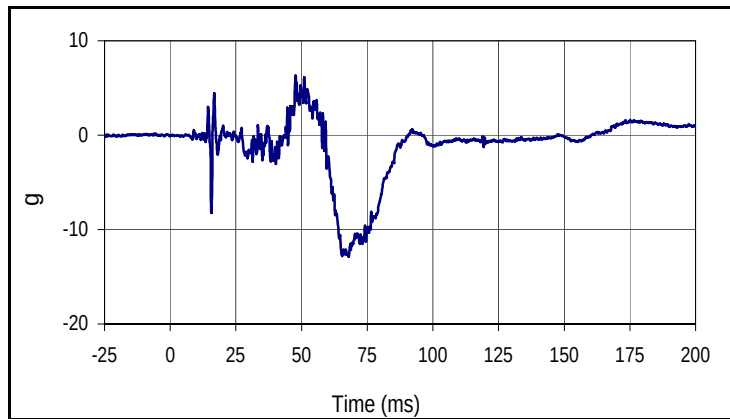
Curve Description			
Driver Pubic Symphysis Force Y			
Plot No.		SAE Class	Units
013		600	N
Max	Time	Min	Time
90.4	71.0	-2299.0	37.2

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback

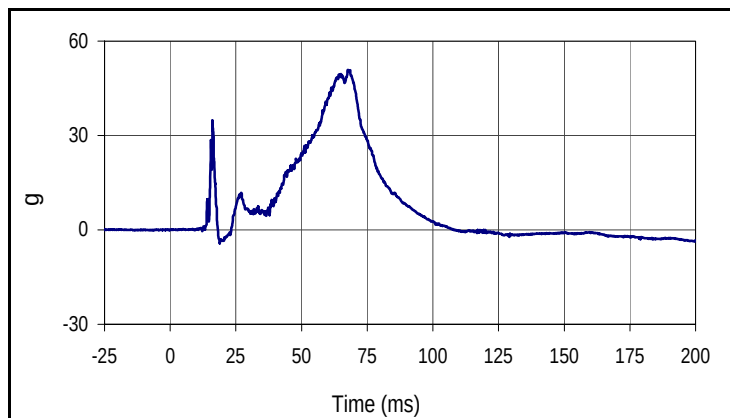
NHTSA No.: M20165208

Test Program: NCAP MDB Side Impact Test

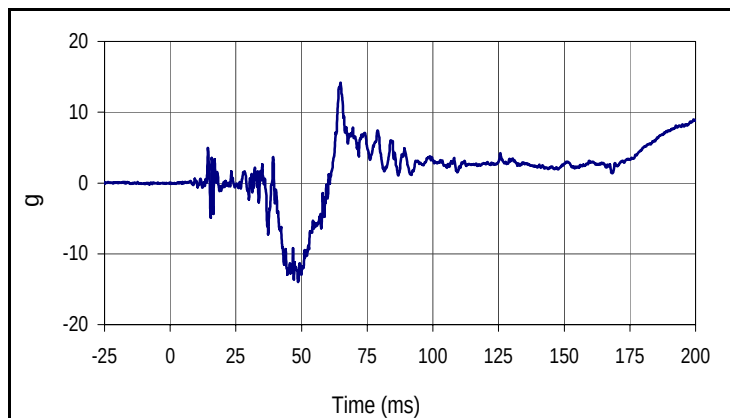
Test Date: 6/2/16



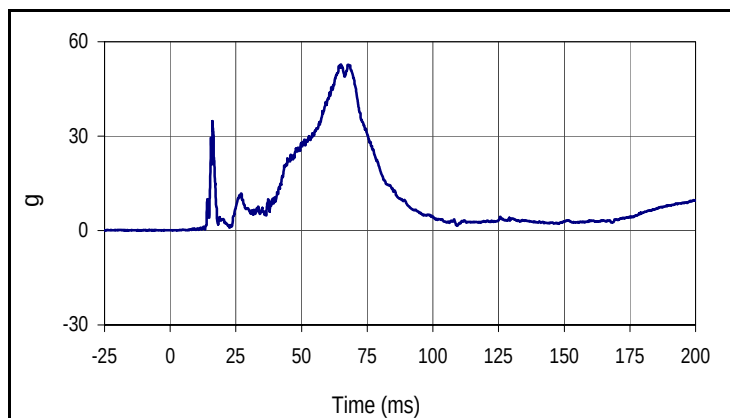
Curve Description			
Passenger Head Acceleration X Primary			
Plot No.		SAE Class	Units
014		1000	g
Max	Time	Min	Time
6.3	47.7	-12.9	68.0



Curve Description			
Passenger Head Acceleration Y Primary			
Plot No.		SAE Class	Units
015		1000	g
Max	Time	Min	Time
50.8	67.7	-4.2	18.9



Curve Description			
Passenger Head Acceleration Z Primary			
Plot No.		SAE Class	Units
016		1000	g
Max	Time	Min	Time
14.2	64.9	-14.0	48.7



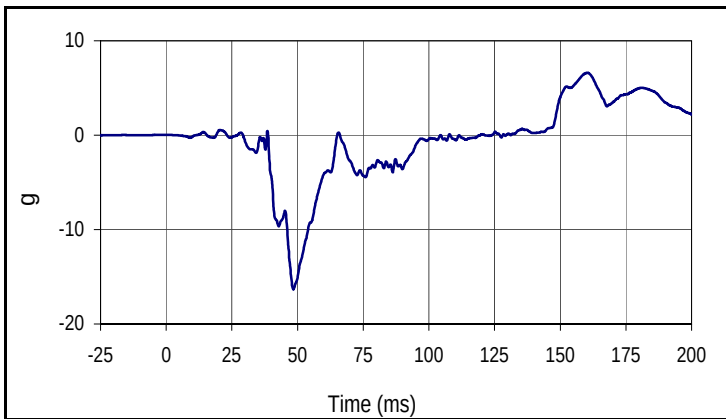
Curve Description			
Passenger Head Acceleration Resultant Primary			
Plot No.		SAE Class	Units
017		1000	g
Max	Time	Min	Time
52.8	65.0	0.0	2.8

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback

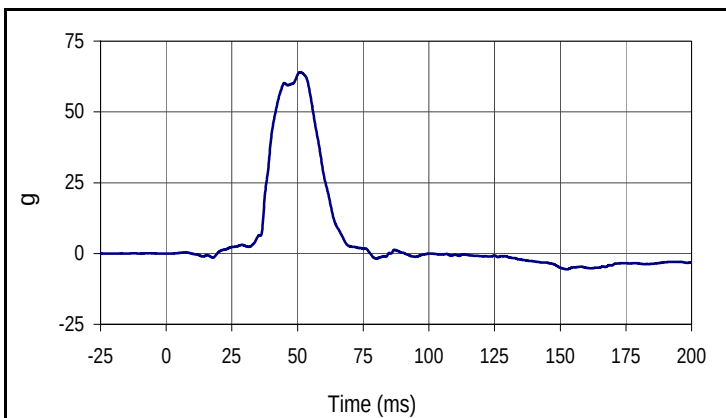
Test Program: NCAP MDB Side Impact Test

NHTSA No.: M20165208

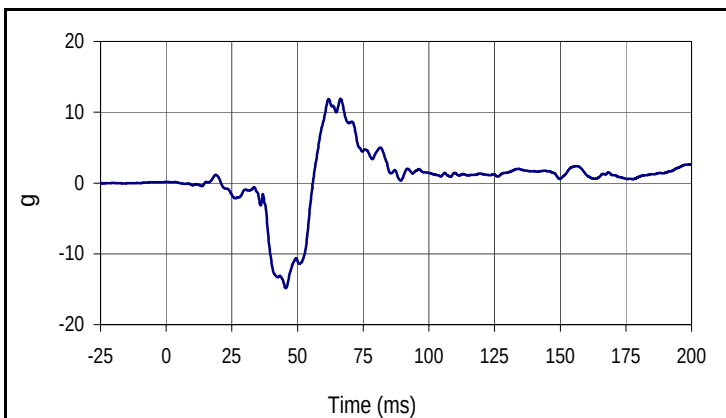
Test Date: 6/2/16



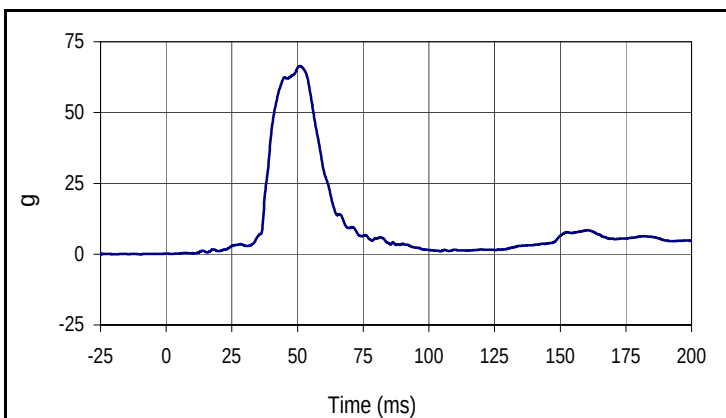
Curve Description			
Passenger Lower Spine T12 Acceleration X			
Plot No.		SAE Class	Units
018		180	g
Max	Time	Min	Time
6.6	160.3	-16.3	48.4



Curve Description			
Passenger Lower Spine T12 Acceleration Y			
Plot No.		SAE Class	Units
019		180	g
Max	Time	Min	Time
64.0	51.1	-5.5	152.5



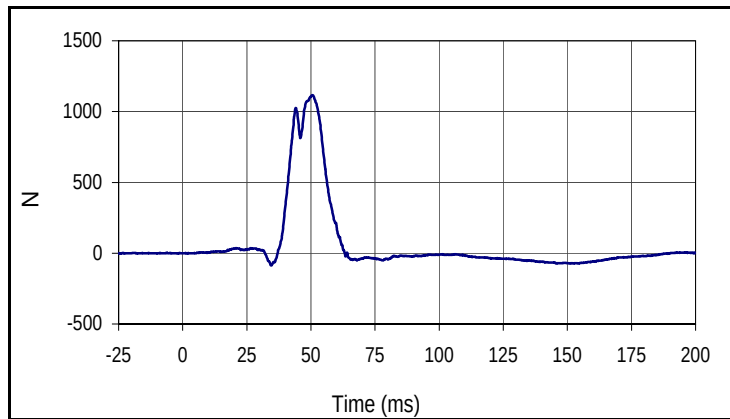
Curve Description			
Passenger Lower Spine T12 Acceleration Z			
Plot No.		SAE Class	Units
020		180	g
Max	Time	Min	Time
11.9	66.4	-14.8	45.5



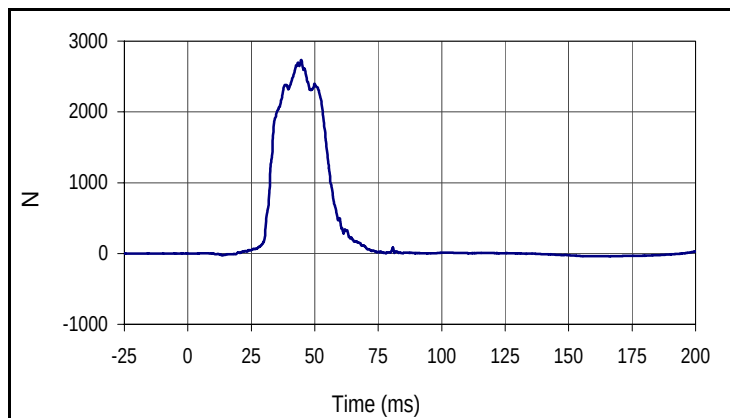
Curve Description			
Passenger Lower Spine T12 Acceleration Res.			
Plot No.		SAE Class	Units
021		180	g
Max	Time	Min	Time
66.4	50.8	0.1	2.3

Test Vehicle: 2016 Nissan Versa Note 5-Door Hatchback
 Test Program: NCAP MDB Side Impact Test

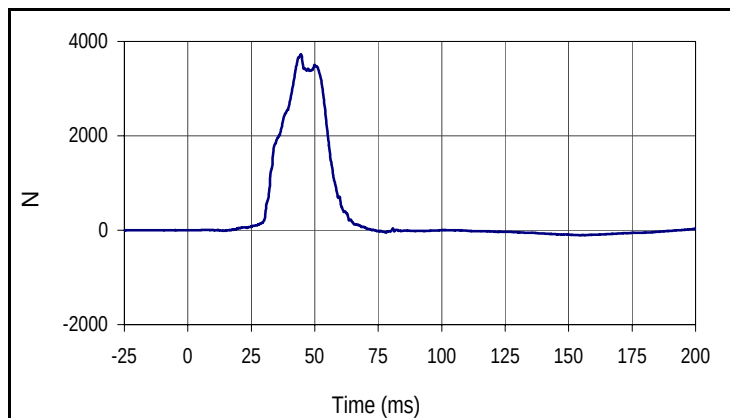
NHTSA No.: M20165208
 Test Date: 6/2/16



Curve Description			
Passenger Iliac Force on Impact Side Y			
Plot No.		SAE Class	Units
022		600	N
Max	Time	Min	Time
1116.5	50.6	-86.5	34.5



Curve Description			
Passenger Acetabulum Force on Impact Side Y			
Plot No.		SAE Class	Units
023		600	N
Max	Time	Min	Time
2734.9	44.7	-40.3	166.1



Curve Description			
Passenger Total Pelvic Force			
Plot No.		SAE Class	Units
024		600	N
Max	Time	Min	Time
3726.8	44.6	-107.6	154.5

APPENDIX C
ATD CONFIGURATION AND PERFORMANCE VERIFICATION DATA

APPENDIX C
PRE-TEST / ATD CONFIGURATION AND PERFORMANCE VERIFICATION DATA

Test Program: ES2re External Measurements
 ATD Serial No.: F037

Test Date: 5/25/16
 Test I.D.: N/A



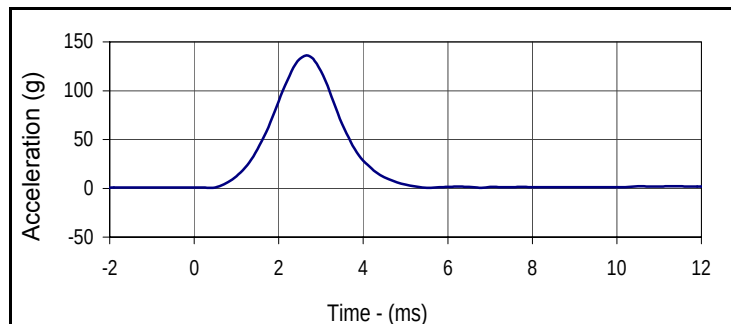
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity		%	10 to 70	30.0	Pass
1	Sitting Height	mm	900 - 918	909	Pass
2	Seat to Shoulder Joint	mm	558 - 572	564	Pass
3	Seat to Lower Face of Thoracic Spine Box	mm	346 - 356	350	Pass
4	Seat to Hip Joint (Center of Bolt)	mm	97 - 103	99	Pass
5	Sole to Seat, Sitting	mm	333 - 451	395	Pass
6	Head Width	mm	152 - 158	156	Pass
7	Shoulder / Arm Width	mm	461 - 479	470	Pass
8	Thorax Width	mm	322 - 332	326	Pass
9	Abdomen Width	mm	273 - 287	280	Pass
10	Pelvis Lap Width	mm	359 - 373	363	Pass
11	Head Depth	mm	196 - 206	201	Pass
12	Thorax Depth	mm	262 - 272	270	Pass
13	Abdomen Width	mm	194 - 204	199	Pass
14	Pelvis Depth	mm	235 - 245	240	Pass
15	Back of Buttocks to Hip Joint (Center of Bolt)	mm	150 - 160	155	Pass
16	Back of Buttocks to Front Knee	mm	597 - 615	608	Pass
Overall Test Results					Pass

Test Program: ES2re Head Drop Test
 ATD Serial No.: F037

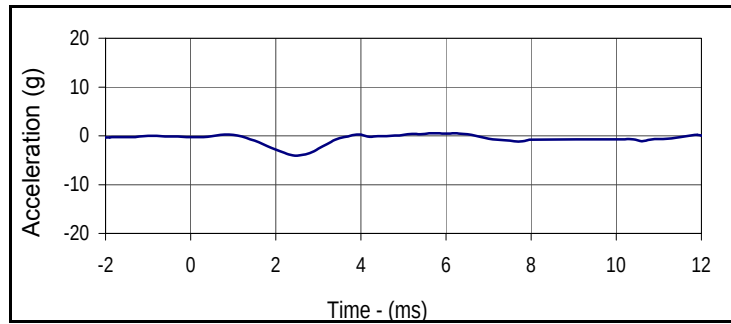
Test Date: 5/25/16
 Test I.D.: F037HD082



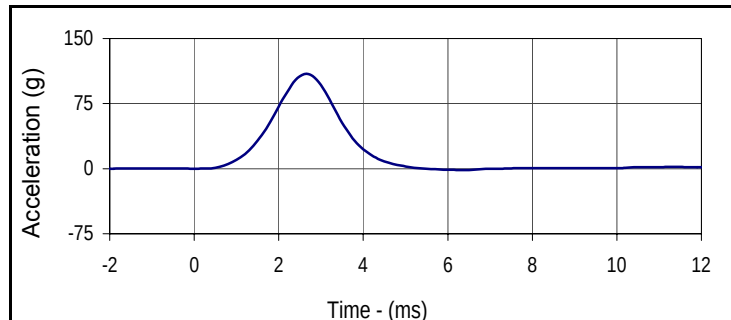
Tested Parameter		Units	Specification	Result	Pass/Fail
Head Assembly Soak Time		Minutes	≥240	265	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.3	Pass
	Min	°C		21.2	Pass
Humidity During Soak	Max	%	10.0 to 70.0	23.8	Pass
	Min	%		23.7	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	23.8	Pass
Peak Head Resultant Acceleration		g	125 to 155	135.8	Pass
Peak Head X Acceleration		g	≤15	4.1	Pass
Is Acceleration Unimodal?		Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse		%	<15	0.7	Pass
Overall Test Results				Pass	



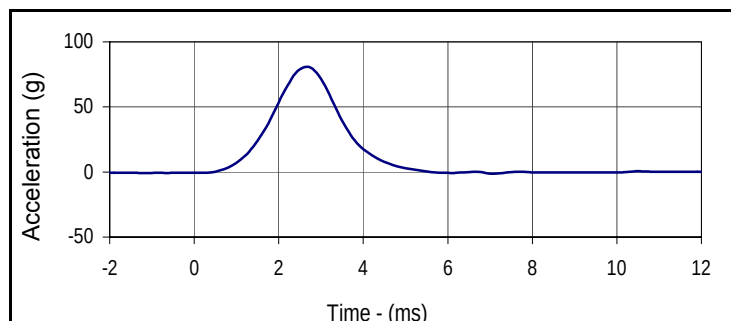
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	g
Max	Time	Min	Time
135.8	2.7	0.4	0.4



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	g
Max	Time	Min	Time
0.5	5.7	-4.1	2.5



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	g
Max	Time	Min	Time
109.1	2.7	-1.6	6.3



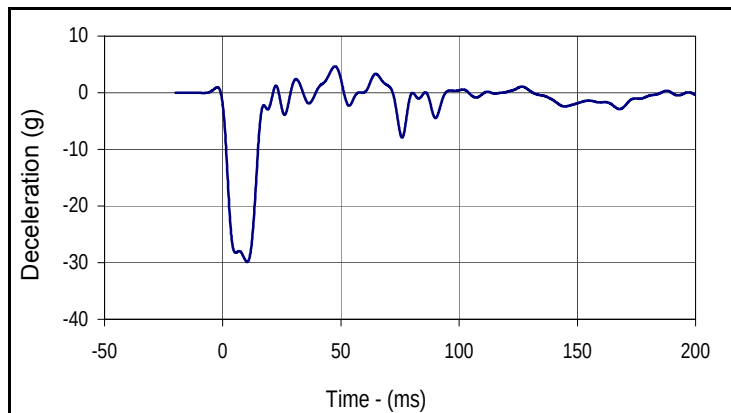
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	g
Max	Time	Min	Time
80.7	2.7	-1.3	7.1

Test Program: ES2re Neck Flexion Test
 ATD Serial No.: F037

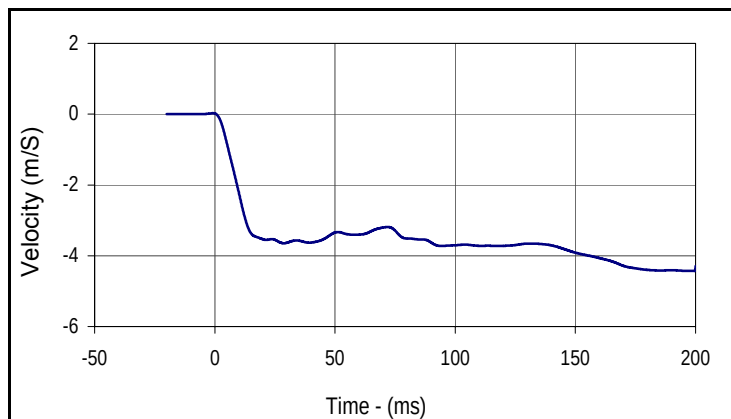
Test Date: 5/25/16
 Test I.D.: F037NB082



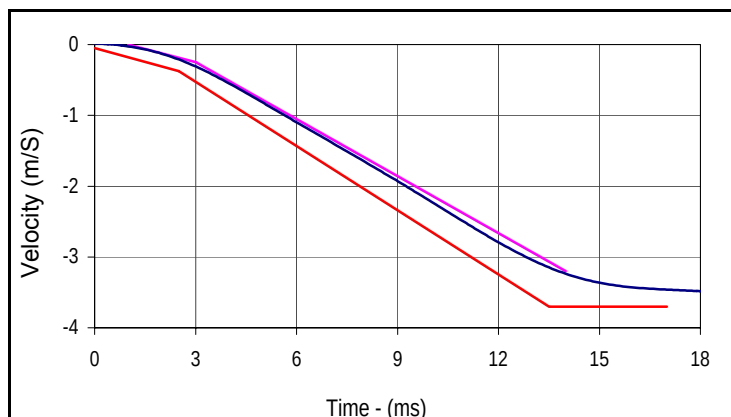
Tested Parameter	Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time	Minutes	≥240	300	Pass
Temperature During Soak	Max	20.6 to 22.2	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	23.8	Pass
	Min		23.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	23.8	Pass
Pendulum Velocity	m/s	3.3 to 3.5	3.41	Pass
Headform Flexion	Max	49 to 59	53.7	Pass
	Time	54 to 66	60.0	Pass
Headform Flexion Decay (Peak to Zero)	ms	53 to 88	61.2	Pass
Overall Test Results				Pass



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	g
Max	Time	Min	Time
4.7	47.5	-29.9	10.3



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-0.8	-4.4	199.9



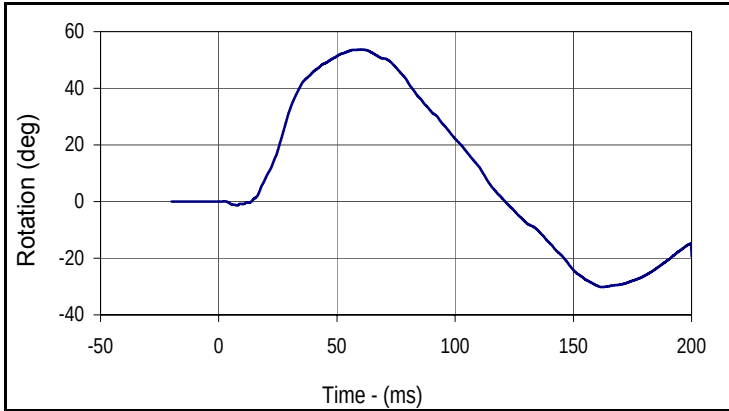
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-0.8	-4.4	199.9

Velocity Corridors

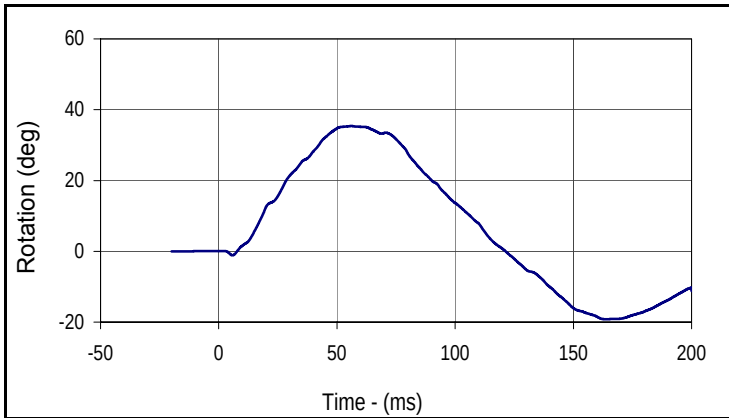
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.0	-0.03	2.5	-0.375
14.0	-3.20	13.5	-3.70
		17.0	-3.70

Test Program: ES2re Neck Flexion Test
 ATD Serial No.: F037

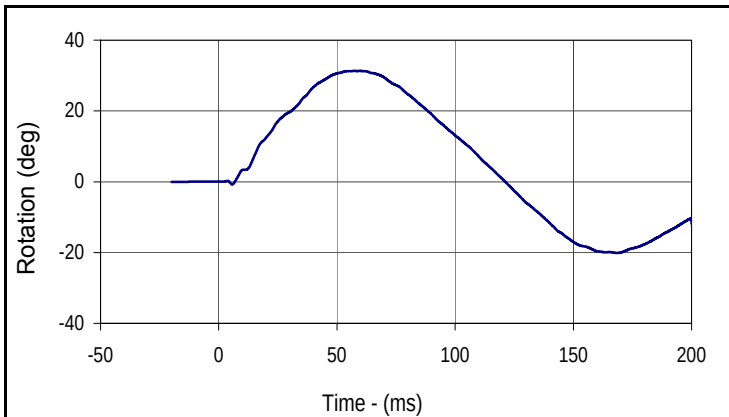
Test Date: 5/25/16
 Test I.D.: F037NB082



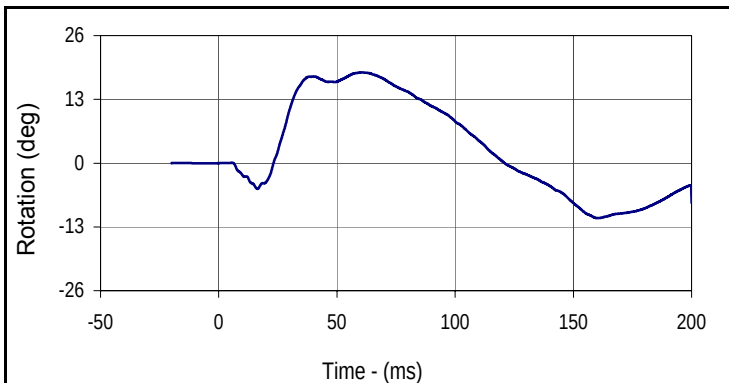
Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	180	deg
Max	Time	Min	Time
53.7	60.0	-30.2	162.1



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
004	FIL	180	deg
Max	Time	Min	Time
35.4	56.1	-19.2	164.1



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
005	FIL	180	deg
Max	Time	Min	Time
31.3	59.7	-20.1	168.6



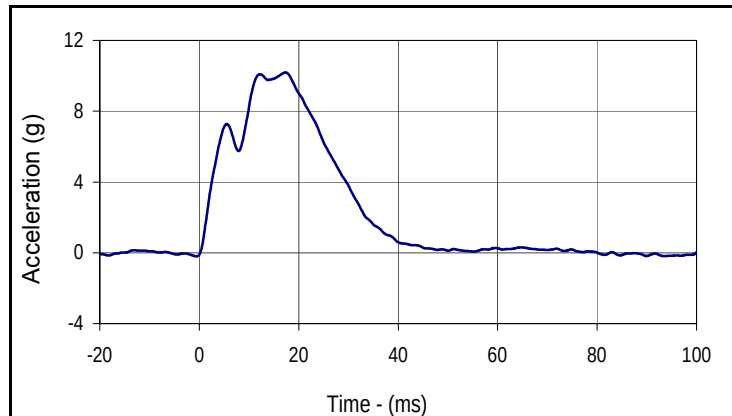
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
006	FIL	180	deg
Max	Time	Min	Time
18.5	60.5	-11.2	160.1

Test Program: ES2re Shoulder Impact Test
 ATD Serial No.: F037

Test Date: 5/25/16
 Test I.D.: F037SH082



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	365	Pass
Temperature During Soak	Max	20.6 to 22.2	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	23.8	Pass
	Min		23.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	23.8	Pass
Pendulum Speed	m/s	4.2 to 4.4	4.27	Pass
Peak Impactor Acceleration	g	7.5 to 10.5	10.2	Pass
Overall Test Results				Pass



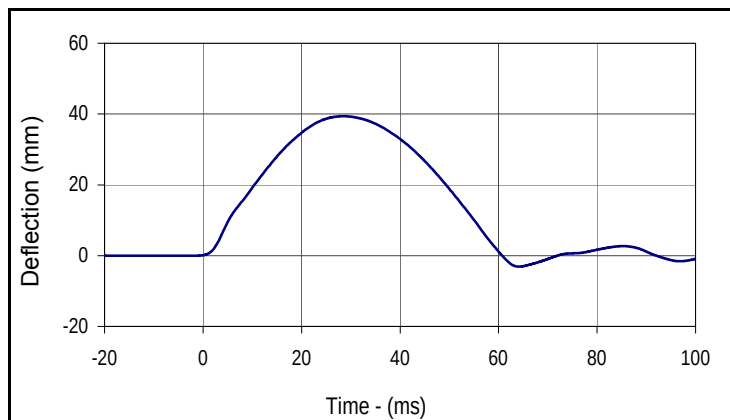
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	g
Max	Time	Min	Time
10.2	17.4	-0.2	-0.5

Test Program: ES2re Thorax - Rib Drop Test
 ATD Serial No.: F037 Rib # 1

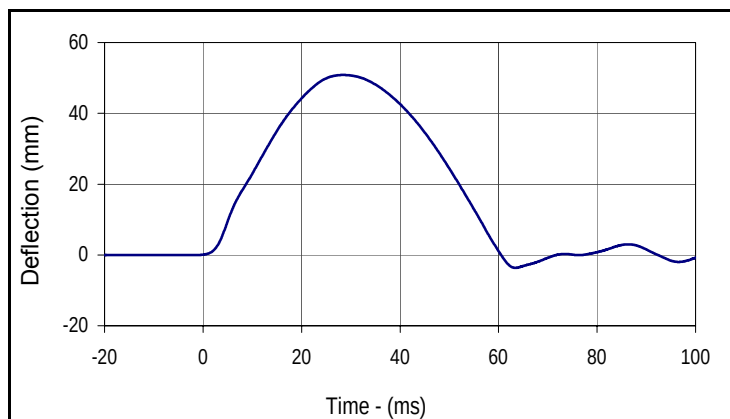
Test Date: 5/25/16
 Test I.D.: F037RB1082



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	420	Pass
Temperature During Soak	Max	20.6 to 22.2	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	23.8	Pass
	Min		23.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	23.7	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	39.4	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	50.8	Pass
Overall Test Results				Pass



Curve Description			
Upper Rib Deflection (459 mm Drop Height)			
Plot No.	Type	SAE Class	Units
001	FIL	180	mm
Max	Time	Min	Time
39.4	28.4	-3.1	64.1



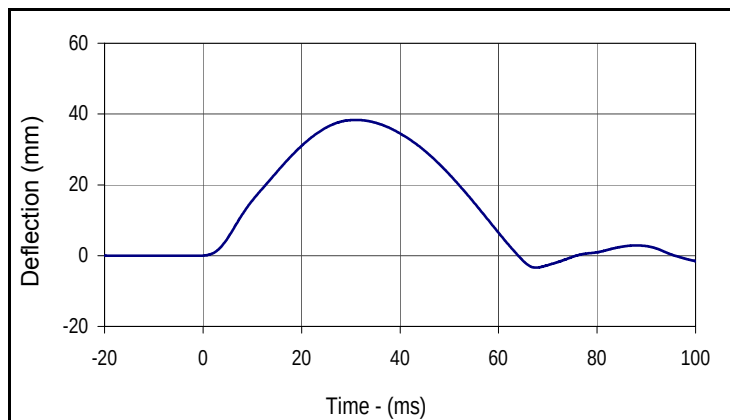
Curve Description			
Upper Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	mm
Max	Time	Min	Time
50.8	28.5	-3.7	63.4

Test Program: ES2re Thorax - Rib Drop Test
 ATD Serial No.: F037 Rib # 2

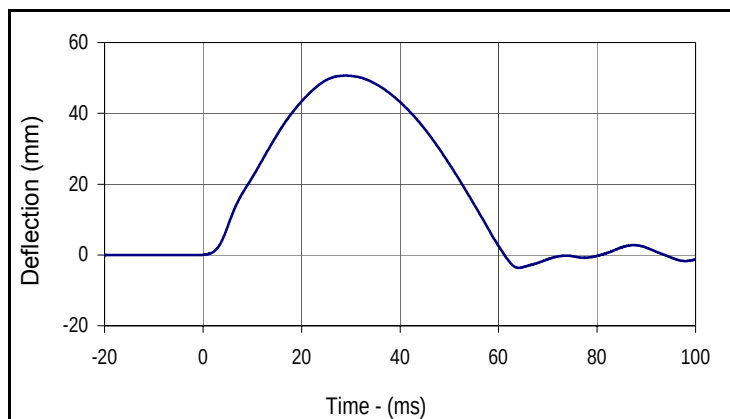
Test Date: 5/25/16
 Test I.D.: F037RB2082



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	465	Pass
Temperature During Soak	Max	20.6 to 22.2	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	23.8	Pass
	Min		23.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	23.7	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	38.3	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	50.7	Pass
Overall Test Results				Pass



Curve Description			
Middle Rib Deflection (459 mm Drop Height)			
Plot No.	Type	SAE Class	Units
001	FIL	180	mm
Max	Time	Min	Time
38.3	31.1	-3.4	67.6



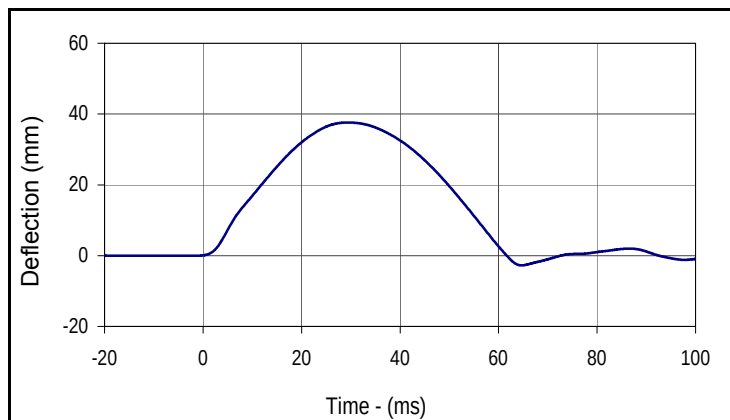
Curve Description			
Middle Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	mm
Max	Time	Min	Time
50.7	29.0	-3.6	64.1

Test Program: ES2re Thorax - Rib Drop Test
 ATD Serial No.: F037 Rib # 3

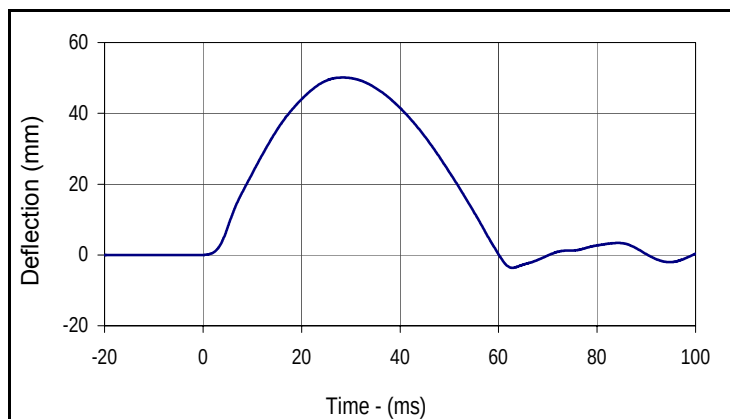
Test Date: 5/25/16
 Test I.D.: F037RB3082



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	510	Pass
Temperature During Soak	Max	20.6 to 22.2	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	23.8	Pass
	Min		23.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	23.7	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	37.6	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	50.1	Pass
Overall Test Results				Pass



Curve Description			
Lower Rib Deflection (459 mm Drop Height)			
Plot No.	Type	SAE Class	Units
001	FIL	180	mm
Max	Time	Min	Time
37.6	29.4	-2.8	64.7



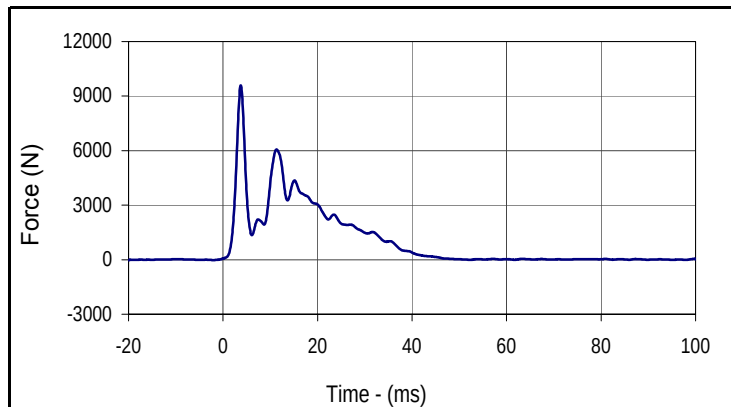
Curve Description			
Lower Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	mm
Max	Time	Min	Time
50.1	28.4	-3.6	62.8

Test Program: ES2re Thorax - Full Body Impact Test
 ATD Serial No.: F037

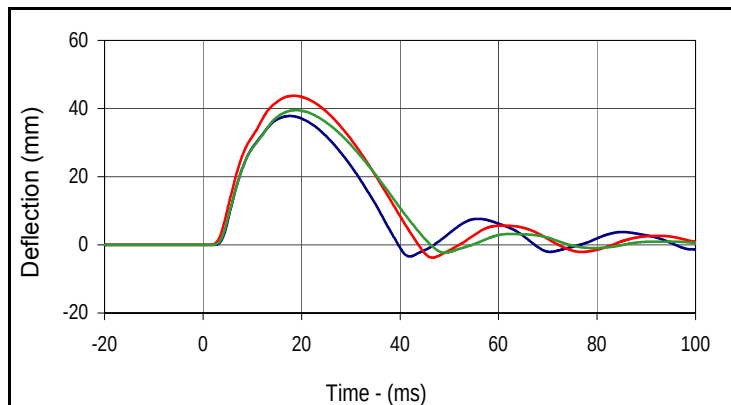
Test Date: 5/25/16
 Test I.D.: F037TH082



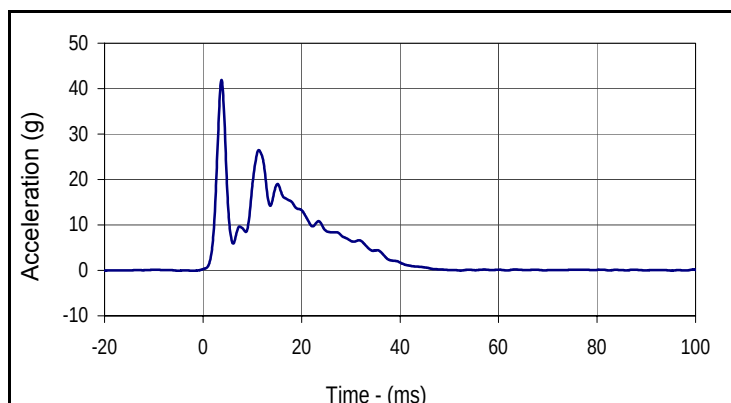
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	555	Pass
Temperature During Soak	Max	20.6 to 22.2	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	23.8	Pass
	Min		23.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	23.7	Pass
Peak Impactor Velocity	m/s	5.4 to 5.6	5.55	Pass
Peak Impactor Force	N	5100 to 6200	6065.8	Pass
	msec	> 6.0 msec	11.3	Pass
Peak Upper Rib Deflection	mm	34 to 41	37.8	Pass
Peak Middle Rib Deflection	mm	37 to 45	43.7	Pass
Peak Lower Rib Deflection	mm	37 to 44	39.5	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	N
Max	Time	Min	Time
9594.8	3.8	-21.0	-2.1



Curve Description			
Upper, Middle, Lower Rib Deflections			
Plot No.	Type	SAE Class	Units
002	FIL	180	mm
Max (Upper)	Time	Min (Upper)	Time
37.8	17.6	-3.4	41.9
Max (Middle)	Time	Min (Middle)	Time
43.7	18.4	-3.7	46.6
Max (Lower)	Time	Min (Lower)	Time
39.5	18.9	-2.3	49.1



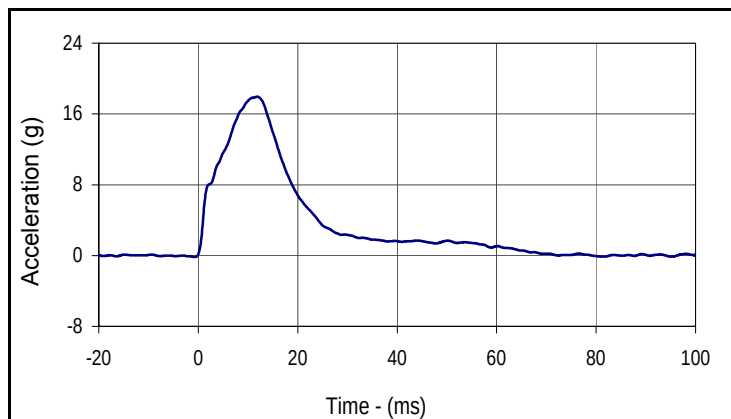
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	g
Max	Time	Min	Time
41.9	3.8	-0.1	-2.1

Test Program: ES2re Abdomen Impact Test
 ATD Serial No.: F037

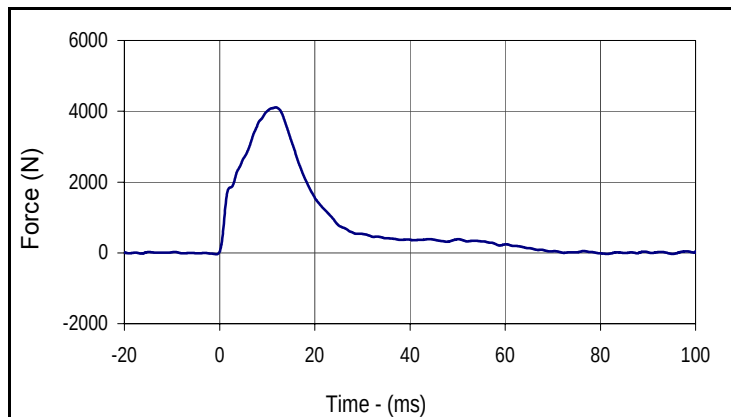
Test Date: 5/25/16
 Test I.D.: F037ABD082



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	625	Pass
Temperature During Soak	Max	20.6 to 22.2	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	23.8	Pass
	Min		23.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	23.7	Pass
Probe Velocity	m/s	3.9 to 4.1	3.94	Pass
Peak Impactor Force	N	4000 to 4800	4110.6	Pass
	msec	10.6 to 13.0	11.9	Pass
Sum of Abdominal Forces	N	2200 to 2700	2370.6	Pass
	msec	10.0 to 12.3	11.3	Pass
Overall Test Results				Pass



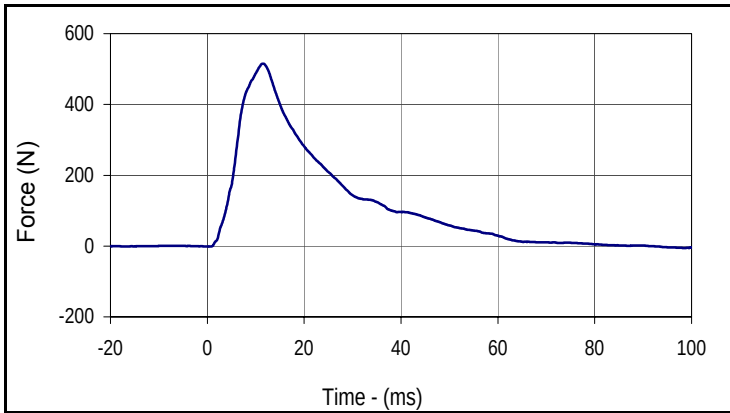
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	g
Max	Time	Min	Time
17.9	11.9	-0.2	-0.7



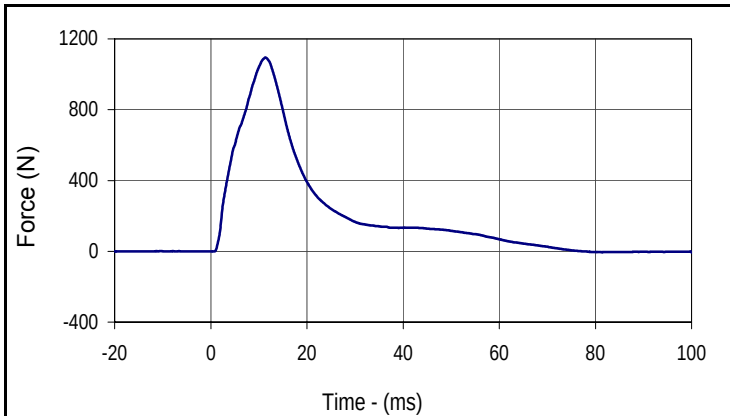
Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
002	FIL	180	N
Max	Time	Min	Time
4110.6	11.9	-38.7	-0.7

Test Program: ES2re Abdomen Impact Test
 ATD Serial No.: F037

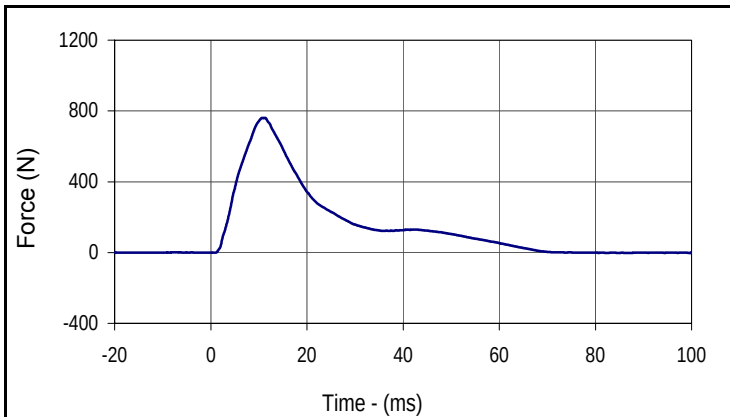
Test Date: 5/25/16
 Test I.D.: F037ABD082



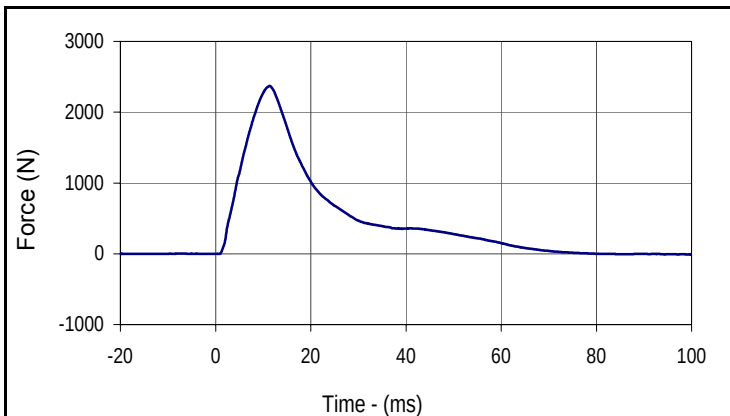
Curve Description			
Front Abdomen Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	N
Max	Time	Min	Time
515.0	11.4	-5.5	98.4



Curve Description			
Middle Abdomen Force			
Plot No.	Type	SAE Class	Units
004	FIL	600	N
Max	Time	Min	Time
1094.7	11.4	-6.7	103.4



Curve Description			
Rear Abdomen Force			
Plot No.	Type	SAE Class	Units
005	FIL	600	N
Max	Time	Min	Time
761.5	11.3	-2.7	87.3



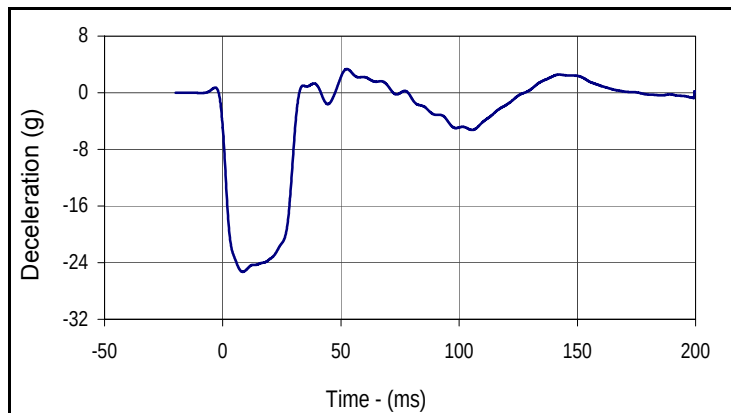
Curve Description			
Abdomen Sum Resultant			
Plot No.	Type	SAE Class	Units
006	RES	600	N
Max	Time	Min	Time
2370.6	11.3	-10.1	101.3

Test Program: ES2re Lumbar Flexion Test
 ATD Serial No.: F037

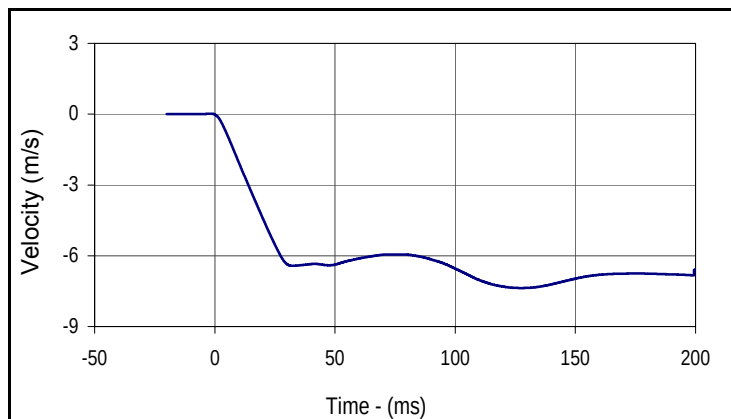
Test Date: 5/25/16
 Test I.D.: F037LB082



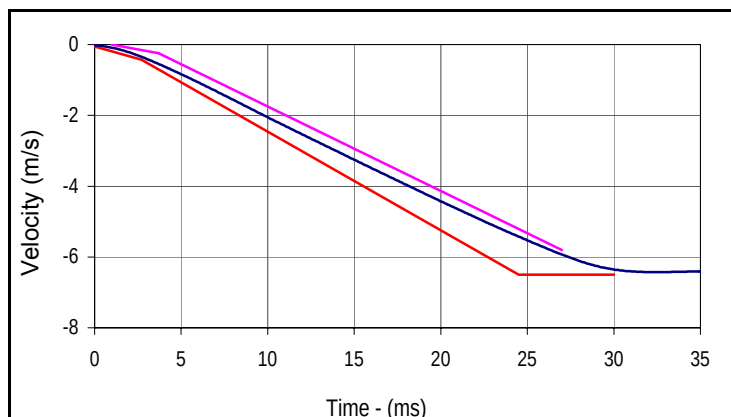
Tested Parameter	Units	Specification	Result	Pass/Fail
Lumbar Spine Assembly Soak Time	Minutes	≥240	700	Pass
Temperature During Soak	Max	20.6 to 22.2	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	23.8	Pass
	Min		23.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	23.7	Pass
Pendulum Velocity	m/s	5.95 to 6.15	5.98	Pass
Headform Rotation	Max	45 to 55	46.1	Pass
	Time	39 to 53	48.2	Pass
Time of Decay to Zero Angle from Peak	ms	37 to 57	38.1	Pass
Overall Test Results				Pass



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	g
Max	Time	Min	Time
3.4	53.1	-25.3	9.0



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.1	-7.4	128.2



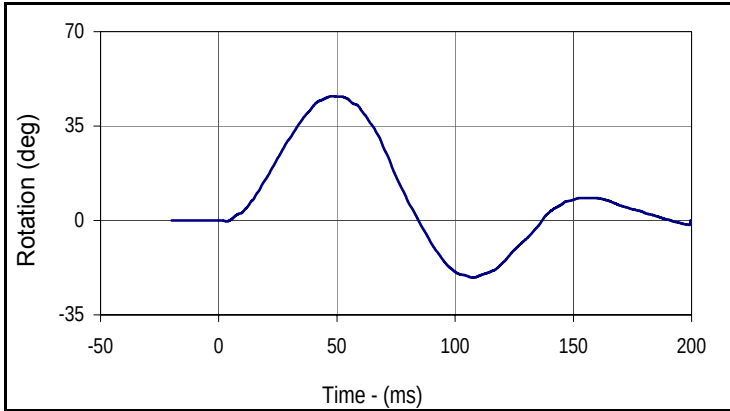
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.1	-7.4	128.2

Velocity Corridors

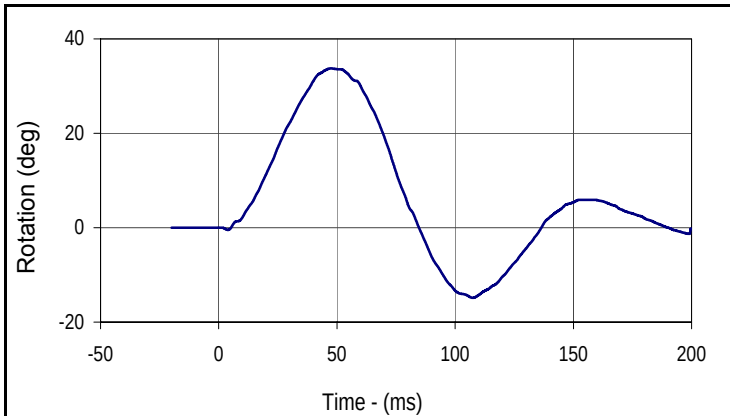
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.7	-0.24	2.7	-0.425
27.0	-5.80	24.5	-6.50
		30.0	-6.50

Test Program: ES2re Lumbar Flexion Test
 ATD Serial No.: F037

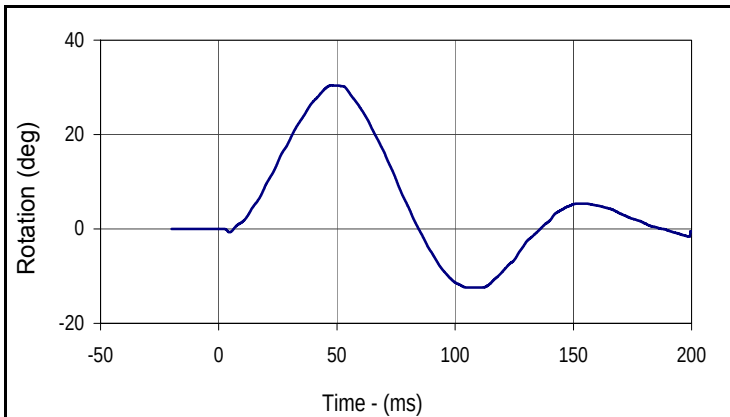
Test Date: 5/25/16
 Test I.D.: F037LB082



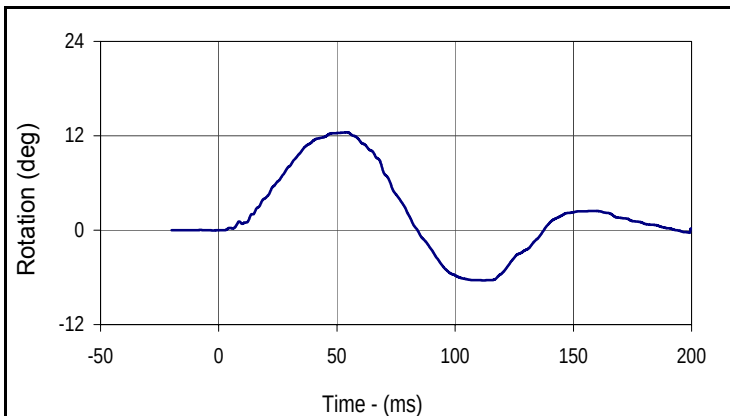
Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	180	deg
Max	Time	Min	Time
46.1	48.2	-21.2	108.2



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
004	FIL	180	deg
Max	Time	Min	Time
33.8	48.0	-14.8	108.1



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
005	FIL	180	deg
Max	Time	Min	Time
30.4	48.3	-12.4	108.9



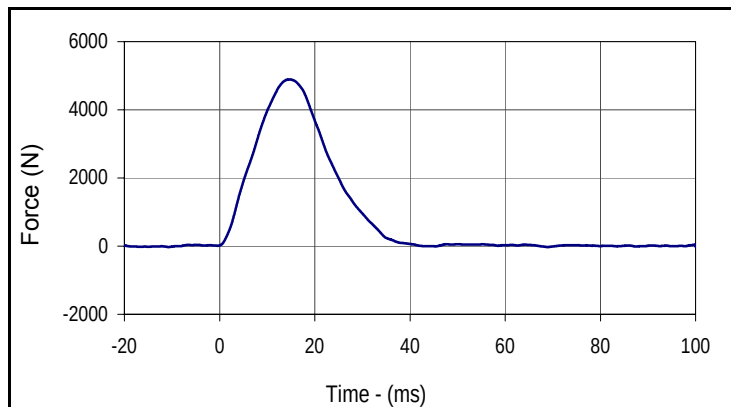
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
006	FIL	180	deg
Max	Time	Min	Time
12.4	54.9	-6.4	112.8

Test Program: ES2re Pelvis Impact Test
 ATD Serial No.: F037

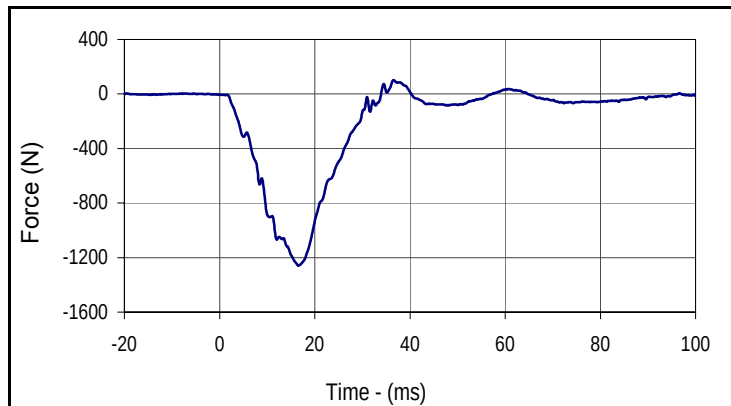
Test Date: 5/25/16
 Test I.D.: F037PL082



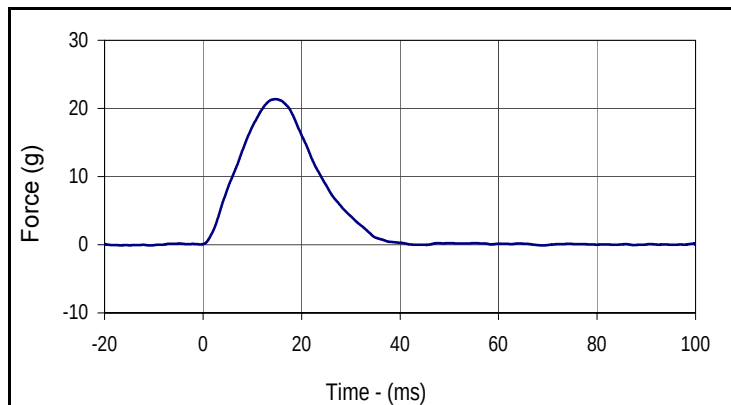
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	755	Pass
Temperature During Soak	Max	20.6 to 22.2	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	23.8	Pass
	Min		23.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	23.7	Pass
Pendulum Velocity	m/s	4.2 to 4.4	4.24	Pass
Peak Impactor Force	N	4700 to 5400	4890.8	Pass
	msec	11.8 to 16.1	14.8	Pass
Peak Pubic Symphysis Load	N	-1230 to -1590	-1258.8	Pass
	msec	12.2 to 17.0	16.6	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	N
Max	Time	Min	Time
4890.8	14.8	-26.1	69.0



Curve Description			
Pubic Symphysis Force Y			
Plot No.	Type	SAE Class	Units
002	FIL	600	N
Max	Time	Min	Time
102.5	36.6	-1258.8	16.6



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	g
Max	Time	Min	Time
21.4	14.8	-0.1	69.0

Test Program: SID IIs External Measurements
 ATD Serial No.: 299

Test Date: 5/27/16
 Test I.D.: N/A



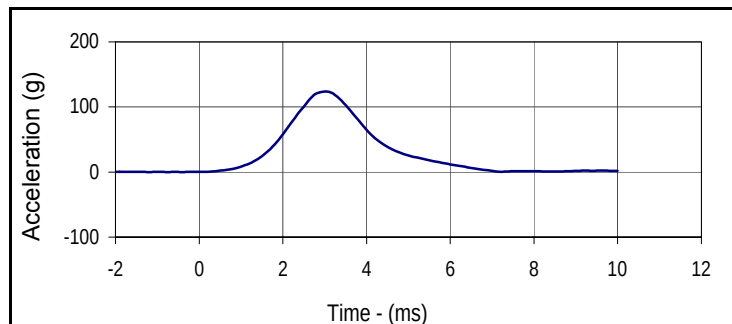
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity		%	10 to 70	23	Pass
A	Sitting Height	mm	772 - 788	780	Pass
B	Shoulder Pivot Height	mm	437 - 453	445	Pass
C	H-Point Height	mm	79 - 89	85	Pass
D	H-Point from Seatback	mm	141 - 151	145	Pass
E	Shoulder Pivot from Backline	mm	97 - 107	102	Pass
F	Thigh Clearance	mm	119 - 135	125	Pass
G	Head Breadth	mm	140 - 148	145	Pass
H	Head Back from Backline	mm	40 - 46	44	Pass
I	Head Depth	mm	178 - 188	184	Pass
J	Head Circumference	mm	541 - 551	545	Pass
K	Buttock to Knee Length	mm	514 - 540	527	Pass
L	Popliteal Height	mm	343 - 369	352	Pass
M	Knee Pivot to Floor Height	mm	392 - 409	401	Pass
N	Buttock Popliteal Length	mm	416 - 442	432	Pass
O	Chest Depth w/o Jacket	mm	195 - 211	202	Pass
P	Foot Length	mm	216 - 232	221	Pass
Q	Hip Breadth with Pelvic Plug	mm	313 - 323	315	Pass
R	Arm Length	mm	249 - 259	252	Pass
S	Knee Joint to Seatback	mm	477 - 493	481	Pass
V	Shoulder Width	mm	341 - 357	352	Pass
W	Foot Width	mm	78 - 94	86	Pass
Y	Chest Circumference with Jacket	mm	851 - 881	872	Pass
Z	Waist Circumference	mm	760 - 791	774	Pass
Overall Test Results					Pass

Test Program: SID IIs Head Drop Test
 ATD Serial No.: 299

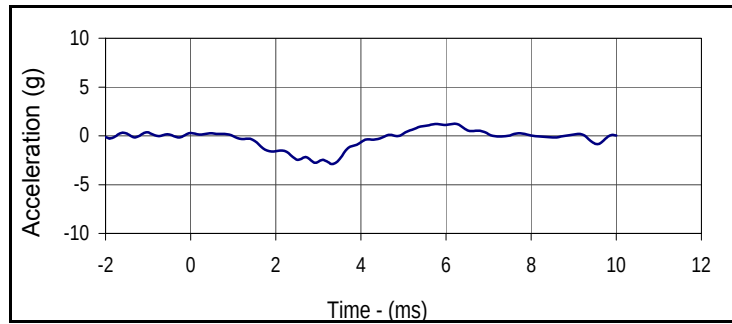
Test Date: 5/27/16
 Test I.D.: 299HD094



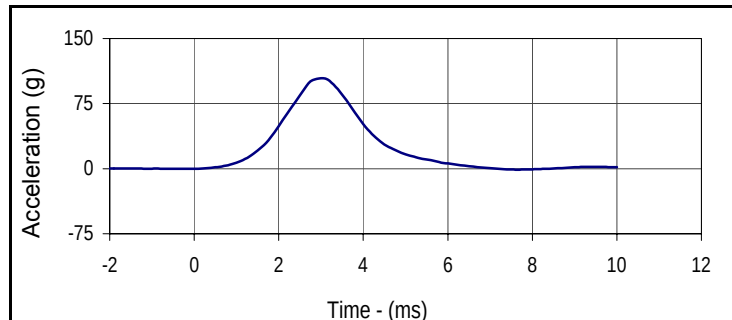
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	302	Pass
Temperature During Soak	Max	18.9 to 25.6	21.6	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	23.0	Pass
	Min		22.4	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.6	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	22.6	Pass
Peak Head Resultant Acceleration	g	115 to 137	123.9	Pass
Peak Head X Acceleration	g	<15	2.9	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	0.5	Pass
Overall Test Results				Pass



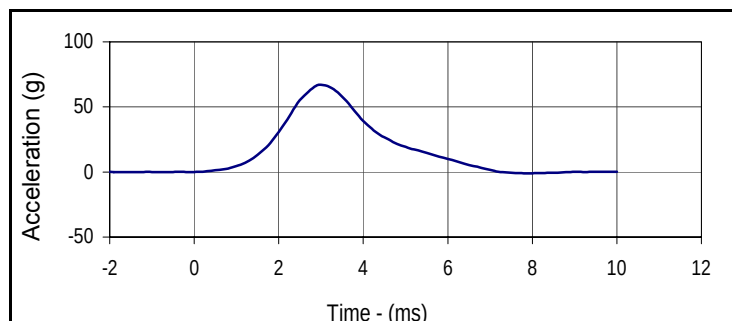
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	g
Max	Time	Min	Time
123.9	3.0	0.0	-0.7



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	g
Max	Time	Min	Time
1.2	6.2	-2.9	3.3



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	g
Max	Time	Min	Time
104.1	3.0	-1.1	7.6



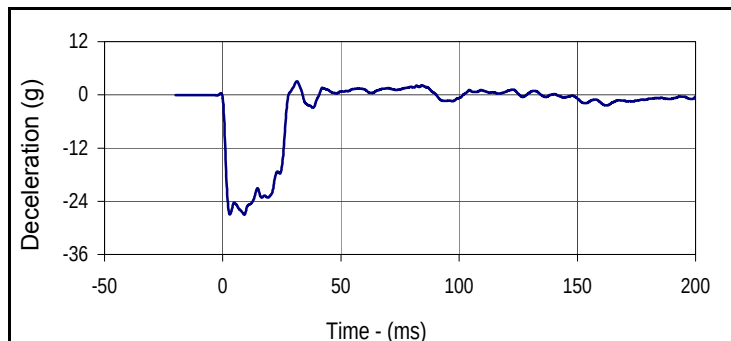
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	g
Max	Time	Min	Time
67.1	3.0	-1.0	7.9

Test Program: SID IIs Neck Flexion Test
 ATD Serial No.: 299

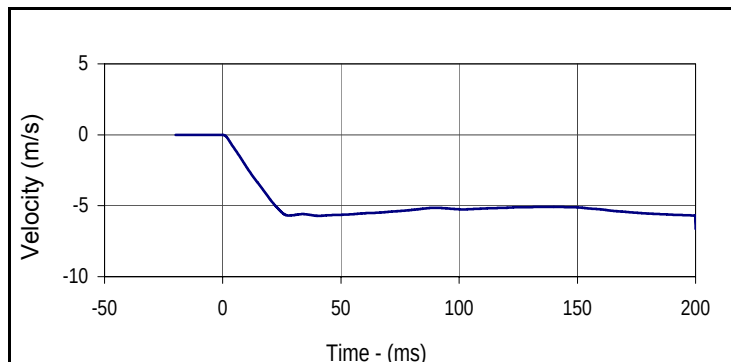
Test Date: 5/27/16
 Test I.D.: 299NB094



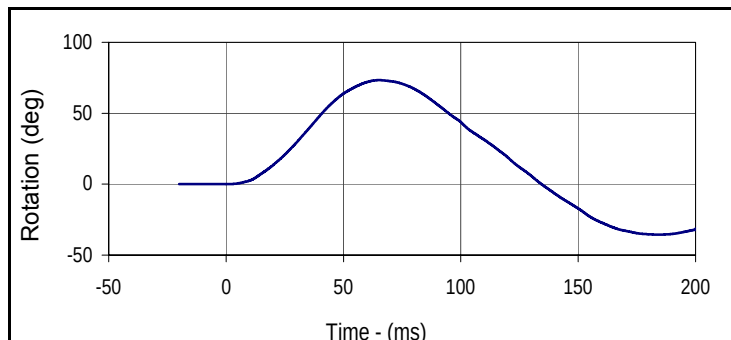
Tested Parameter	Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time	Minutes	≥240	347	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	23.0	Pass
	Min		22.4	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	22.6	Pass
Pendulum Velocity	m/s	5.51 to 5.63	5.59	Pass
Pendulum Deceleration	10 msec	-2.20 to -2.80	-2.26	Pass
	15 msec	-3.30 to -4.10	-3.42	Pass
	20 msec	-4.40 to -5.40	-4.54	Pass
	25 msec	-5.40 to -6.10	-5.47	Pass
	25-100 msec	-5.50 to -6.20	-5.72	Pass
D-Plane Rotation	Max	71 to 81	73.3	Pass
	Time	50 to 70	65.2	Pass
Peak Occipital Condyle Moment	Nm	-36 to -44	-42.3	Pass
Decaying Moment Time to Cross 0 Nm	msec	102 to 126	113.4	Pass
Overall Test Results			Pass	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	g
Max	Time	Min	Time
3.1	0.0	-27.0	0.0



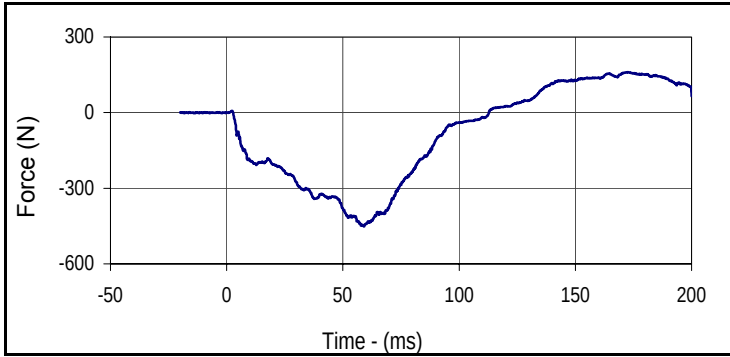
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	180	m/s
Max	Time	Min	Time
0.0	-20.0	-6.6	200.0



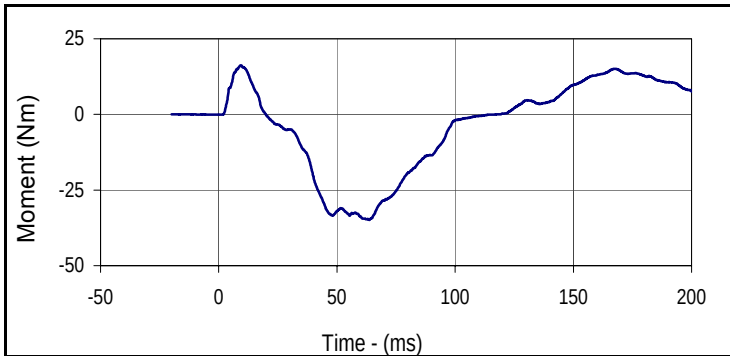
Curve Description			
D-Plane Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	deg
Max	Time	Min	Time
73.3	65.2	-35.5	184.2

Test Program: SID IIs Neck Flexion Test
 ATD Serial No.: 299

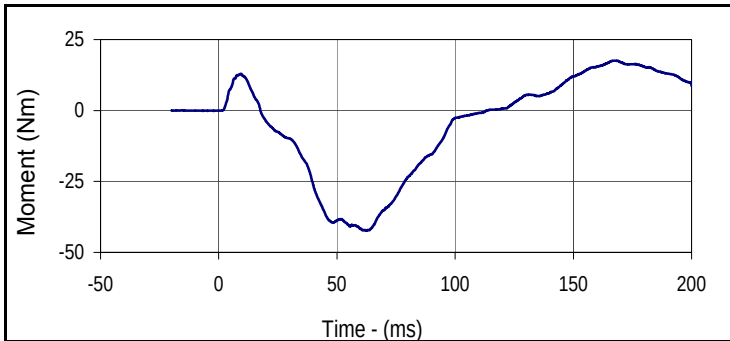
Test Date: 5/27/16
 Test I.D.: 299NB094



Curve Description			
Neck Force Y			
Plot No.	Type	SAE Class	Units
004	FIL	1000	N
Max	Time	Min	Time
160.9	172.7	-451.3	59.1



Curve Description			
Neck Moment X			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
16.2	9.5	-34.9	63.7



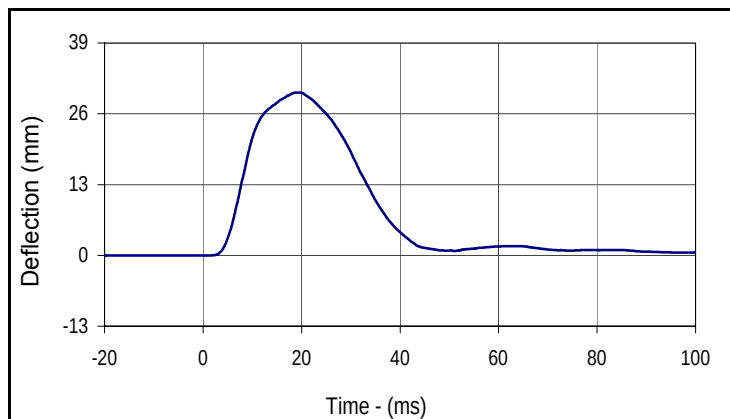
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
006	FIL	600	Nm
Max	Time	Min	Time
17.6	167.3	-42.3	62.5

Test Program: SID IIs Shoulder Impact Test
 ATD Serial No.: 299

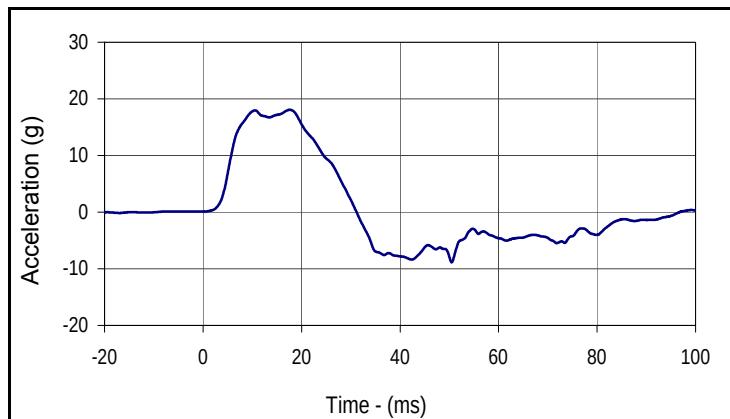
Test Date: 5/27/16
 Test I.D.: 299SH094



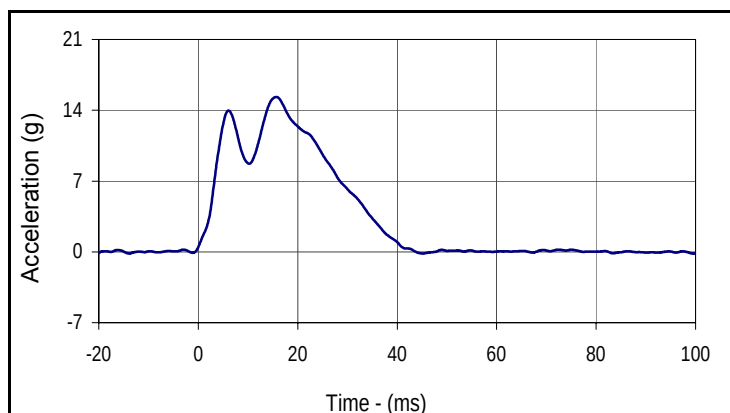
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥180	402	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.6	Pass
	Min	°C		21.1	Pass
Humidity During Soak	Max	%	10.0 to 70.0	23.0	Pass
	Min	%		22.4	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	22.8	Pass
Impactor Velocity		m/s	4.20 to 4.40	4.31	Pass
Peak Shoulder Deflection		mm	28 to 37	29.9	Pass
Peak Lateral Spine Acceleration Y		g	17 to 22	18.1	Pass
Peak Impactor Acceleration		g	13 to 18	15.3	Pass
Overall Test Results				Pass	



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	mm
Max	Time	Min	Time
29.9	19.5	0.0	0.5



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	g
Max	Time	Min	Time
18.1	17.6	-8.8	50.5



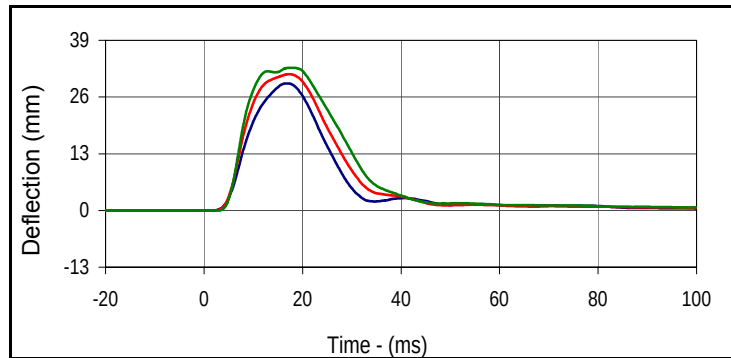
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	g
Max	Time	Min	Time
15.3	15.7	-0.2	-13.9

Test Program: SID IIs Thorax with Arm Impact Test
 ATD Serial No.: 299

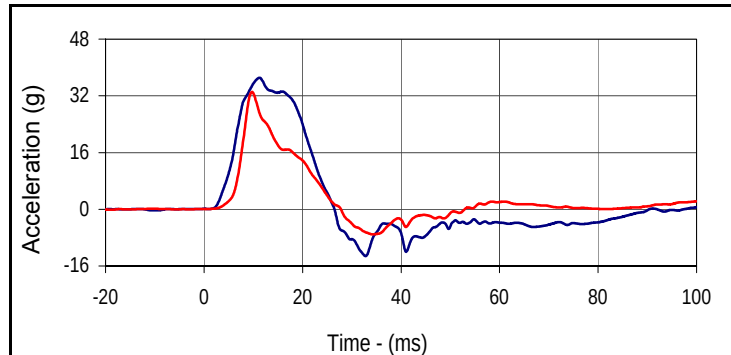
Test Date: 5/27/16
 Test I.D.: 299TWA094



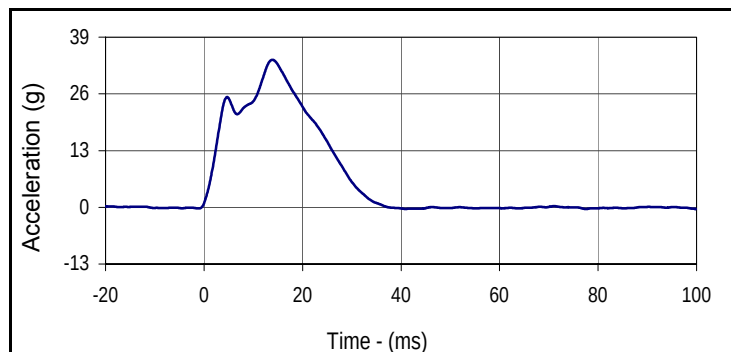
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	447	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	23.0	Pass
	Min		22.4	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	22.8	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.69	Pass
Peak Shoulder Deflection	mm	31 to 40	37.9	Pass
Peak Upper Thorax Rib Deflection	mm	25 to 32	29.1	Pass
Peak Middle Thorax Rib Deflection	mm	30 to 36	31.2	Pass
Peak Lower Thorax Rib Deflection	mm	32 to 38	32.7	Pass
Peak Upper Spine Y Acceleration	g	34 to 43	37.1	Pass
Peak Lower Spine Y Acceleration	g	29 to 37	33.1	Pass
Peak Impactor Acceleration	g	30 to 36	33.8	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	mm
Max	Time	Min	Time
29.1	16.9	0.0	-10.8
Middle Thorax Deflection			
Max	Time	Min	Time
31.2	17.2	0.0	-2.1
Lower Thorax Deflection			
Max	Time	Min	Time
32.7	17.1	0.0	-6.5



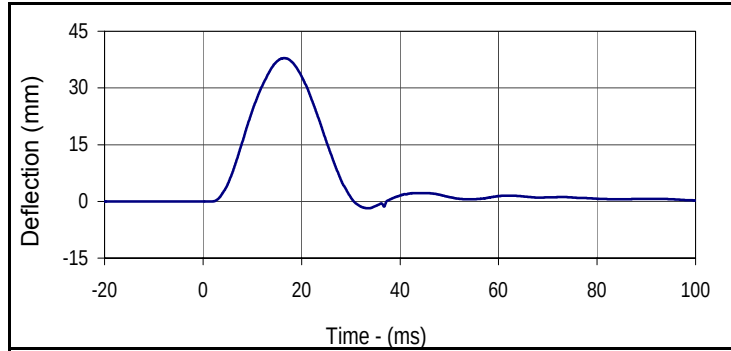
Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	g
Max	Time	Min	Time
37.1	11.3	-13.2	32.8
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	g
Max	Time	Min	Time
33.1	9.7	-7.1	34.3



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	g
Max	Time	Min	Time
33.8	13.9	-0.4	77.5

Test Program: SID IIs Thorax with Arm Impact Test
ATD Serial No.: 299

Test Date: 5/27/16
Test I.D.: 299TWA094



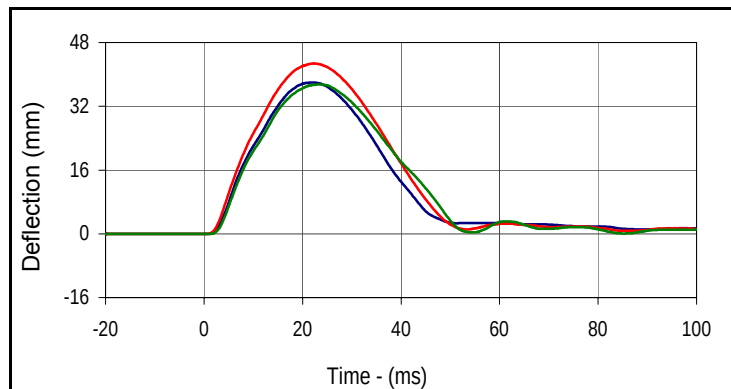
Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
007	FIL	600	mm
Max	Time	Min	Time
37.9	16.5	-1.8	33.7

Test Program: SID IIs Thorax without Arm Impact Test
 ATD Serial No.: 299

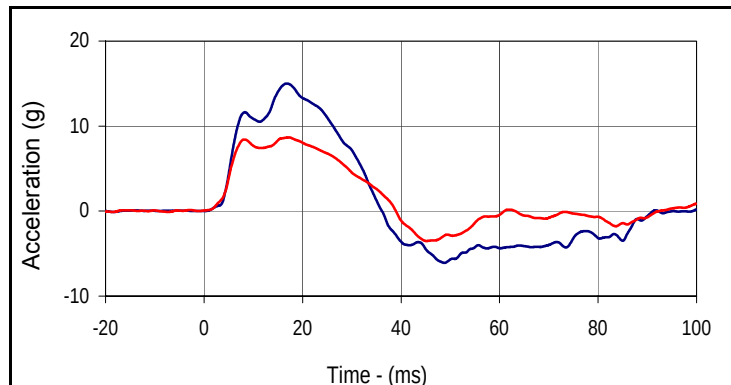
Test Date: 5/27/16
 Test I.D.: 299TWOA094



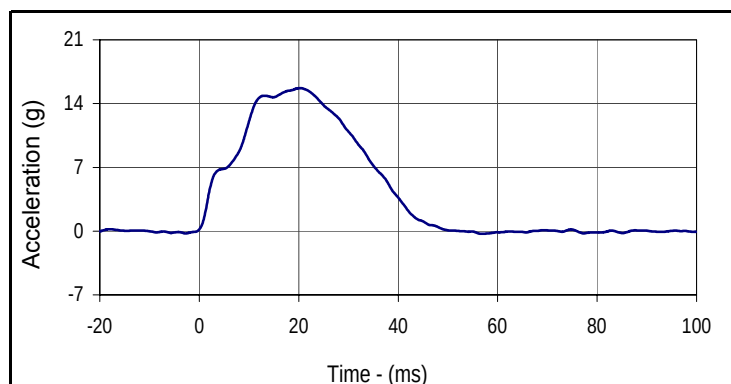
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥180	502	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.6	Pass
	Min	°C		21.1	Pass
Humidity During Soak	Max	%	10.0 to 70.0	23.0	Pass
	Min	%		22.4	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.4	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	22.9	Pass
Impactor Velocity		m/s	4.2 to 4.4	4.30	Pass
Peak Upper Thorax Rib Deflection		mm	32 to 40	38.0	Pass
Peak Middle Thorax Rib Deflection		mm	39 to 45	42.7	Pass
Peak Lower Thorax Rib Deflection		mm	35 to 43	37.5	Pass
Peak Upper Spine Y Acceleration		g	13 to 17	15.0	Pass
Peak Lower Spine Y Acceleration		g	7 to 11	8.7	Pass
Peak Impactor Acceleration		g	14 to 18	15.7	Pass
Overall Test Results				Pass	



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	mm
Max	Time	Min	Time
38.0	22.1	0.0	-16.1
Middle Thorax Deflection			
Max	Time	Min	Time
42.7	22.3	0.0	-3.0
Lower Thorax Deflection			
Max	Time	Min	Time
37.5	23.3	0.0	-4.1



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	g
Max	Time	Min	Time
15.0	16.7	-6.1	48.8
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	g
Max	Time	Min	Time
8.7	17.2	-3.5	45.2



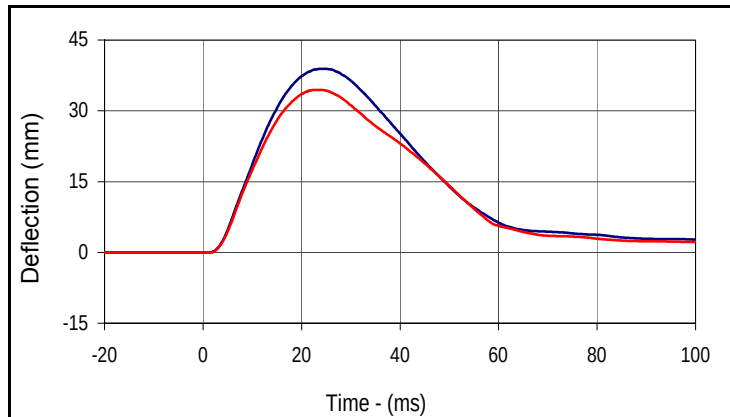
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	g
Max	Time	Min	Time
15.7	20.3	-0.3	0.0

Test Program: SID IIs Abdomen Impact Test
 ATD Serial No.: 299

Test Date: 5/27/16
 Test I.D.: 299ABD094

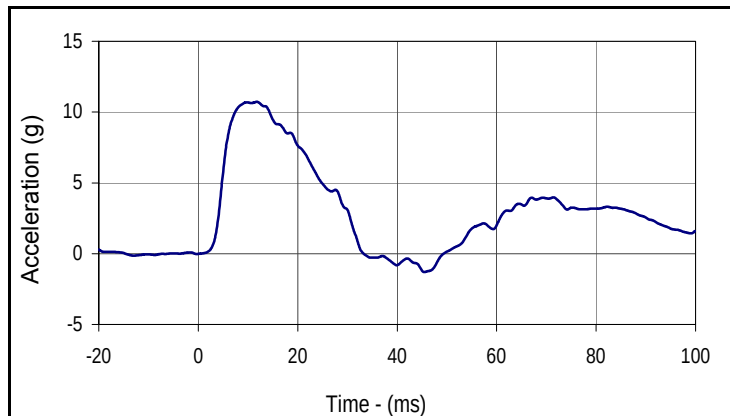


Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	557	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	23.0	Pass
	Min		22.4	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	22.9	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.31	Pass
Peak Upper Abdominal Rib Deflection	mm	36 to 47	38.9	Pass
Peak Lower Abdominal Rib Deflection	mm	33 to 44	34.4	Pass
Peak Lower Spine Y Acceleration	g	9 to 14	10.7	Pass
Peak Impactor Acceleration	g	12 to 16	14.6	Pass
Overall Test Results			Pass	

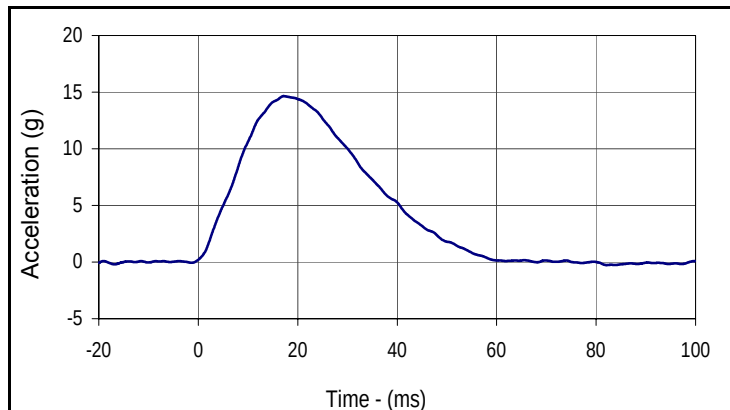


Curve Description			
Upper Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	mm
Max	Time	Min	Time
38.9	24.5	0.0	-17.6

Curve Description			
Lower Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	mm
Max	Time	Min	Time
34.4	23.3	0.0	-1.7

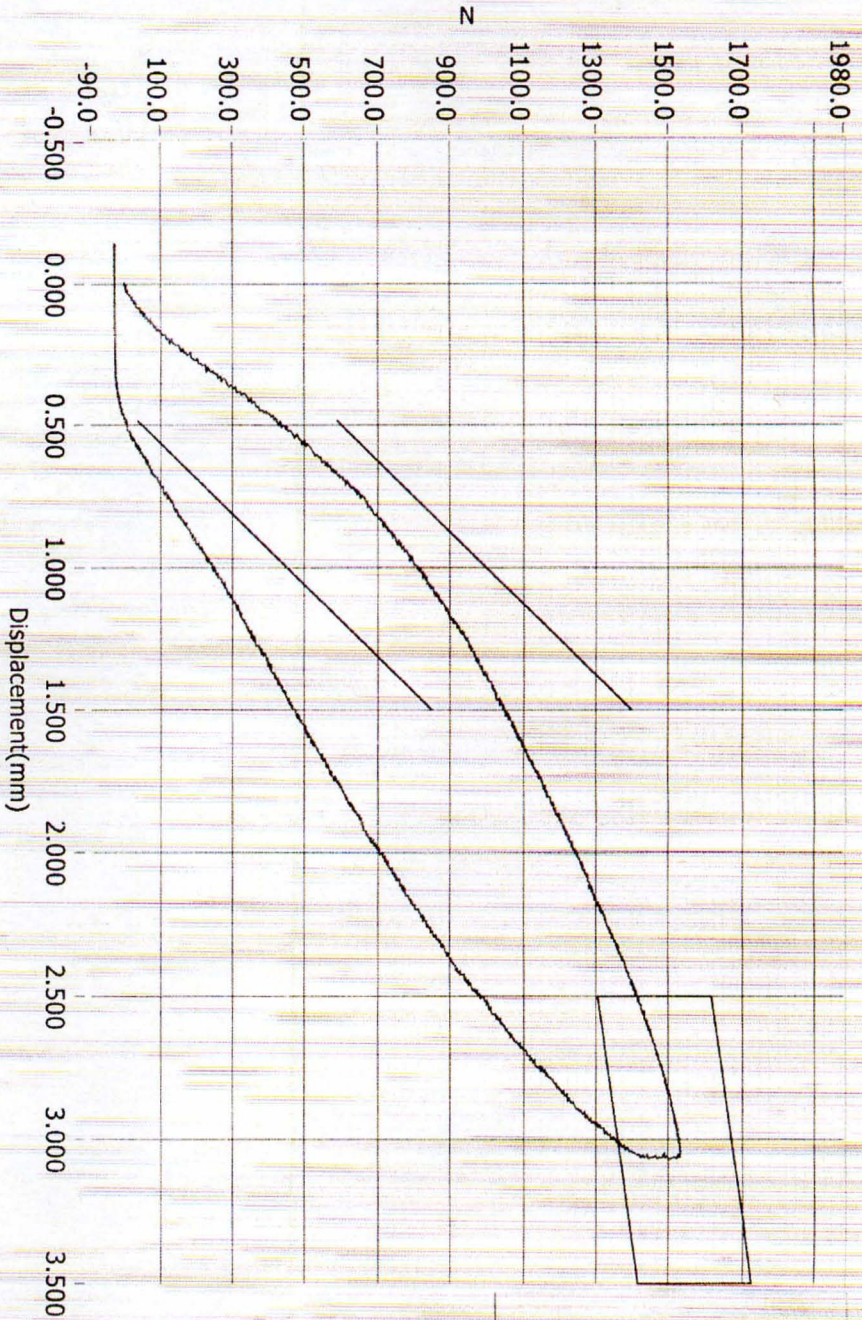


Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	g
Max	Time	Min	Time
10.7	11.8	-1.3	45.5



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	g
Max	Time	Min	Time
14.6	17.2	-0.3	82.1

Resultant Data - SIDIIs Plug Compression



Loading Curve
 Boundary Limit Upper
 Boundary Limit Lower
 Peak Load Upper
 Peak Load Lower
 Peak Defl Upper
 Peak Defl Lower

1527N

ATD Calibration Lab

Current Date : 12/13/2013

Current Time : 16:51:30

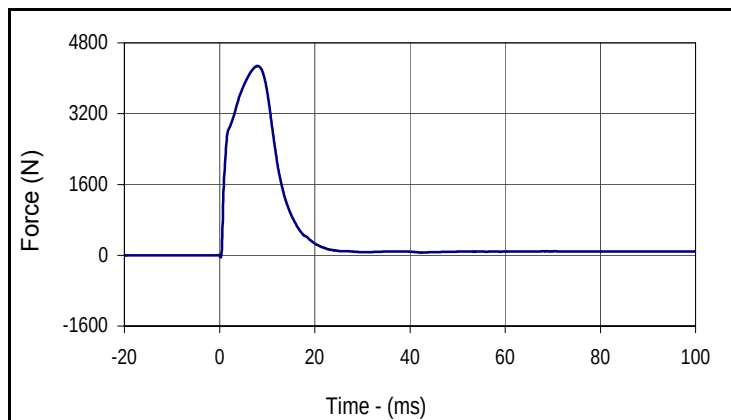
Test ID	Part Serial Number	Test Date	Test Time
Cert ID	70808	12/13/2013	4:50 PM
	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

Test Program: SID IIs Pelvis Acetabulum Impact Test
 ATD Serial No.: 299

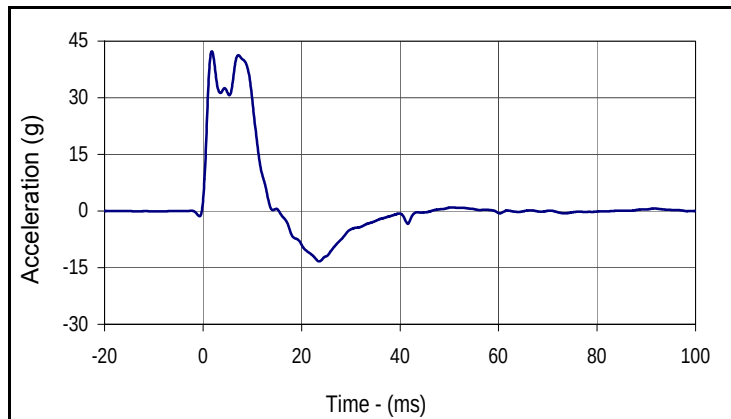
Test Date: 5/27/16
 Test I.D.: 299ACET094



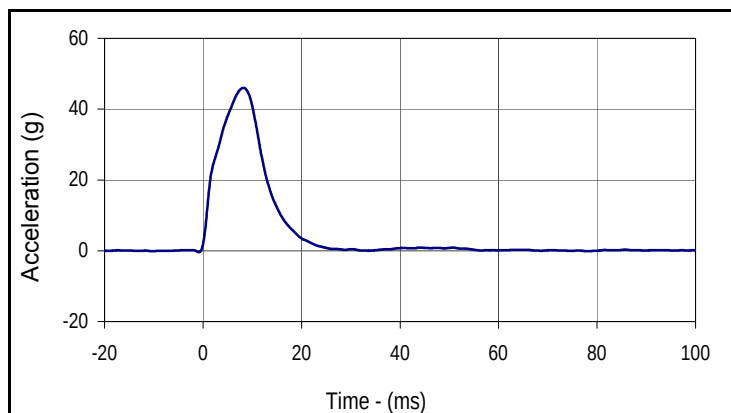
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	607	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	23.0	Pass
	Min		22.4	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	23.0	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.69	Pass
Peak Acetabulum Force Y	N	3600 to 4300	4278.7	Pass
Peak Pelvis Y Acceleration After 6 msec.	g	34 to 42	41.3	Pass
Peak Impactor Acceleration	g	38 to 47	46.0	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Acetabulum Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	N
Max	Time	Min	Time
4278.7	8.0	-48.5	0.2



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	g
Max	Time	Min	Time
42.3	1.8	-13.3	23.6



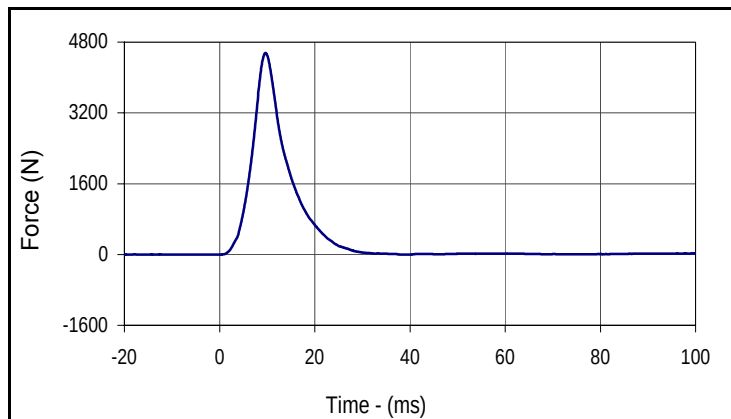
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	g
Max	Time	Min	Time
46.0	8.2	-0.4	-0.8

Test Program: SID IIs Pelvis Iliac Calibration
 ATD Serial No.: 299

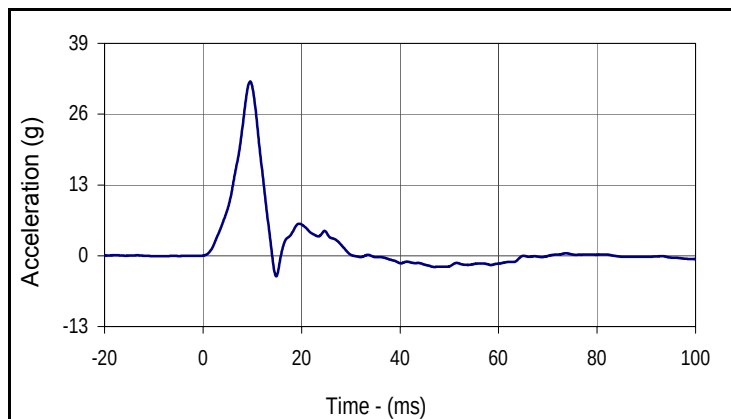
Test Date: 5/27/16
 Test I.D.: 299PL094



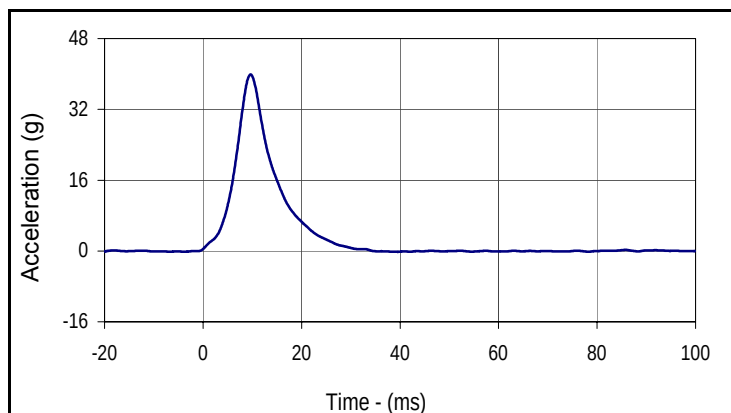
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	662	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	23.0	Pass
	Min		22.4	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	22.4	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.36	Pass
Peak Iliac Force	N	4100 to 5100	4554.7	Pass
Peak Pelvis Y Acceleration	g	28 to 39	32.0	Pass
Peak Impactor Acceleration	g	36 to 45	39.9	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Iliac Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	N
Max	Time	Min	Time
4554.7	9.7	-5.2	39.6



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	g
Max	Time	Min	Time
32.0	9.6	-3.8	14.9



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	g
Max	Time	Min	Time
39.9	9.7	-0.2	39.6

APPENDIX C
POST-TEST / ATD CONFIGURATION AND PERFORMANCE VERIFICATION DATA

Test Program: ES2re External Measurements
 ATD Serial No.: F037

Test Date: 6/8/16
 Test I.D.: N/A



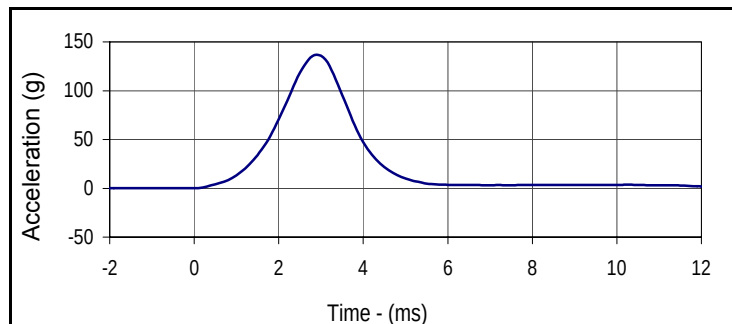
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity		%	10 to 70	30.0	Pass
1	Sitting Height	mm	900 - 918	909	Pass
2	Seat to Shoulder Joint	mm	558 - 572	564	Pass
3	Seat to Lower Face of Thoracic Spine Box	mm	346 - 356	350	Pass
4	Seat to Hip Joint (Center of Bolt)	mm	97 - 103	99	Pass
5	Sole to Seat, Sitting	mm	333 - 451	395	Pass
6	Head Width	mm	152 - 158	156	Pass
7	Shoulder / Arm Width	mm	461 - 479	470	Pass
8	Thorax Width	mm	322 - 332	326	Pass
9	Abdomen Width	mm	273 - 287	280	Pass
10	Pelvis Lap Width	mm	359 - 373	363	Pass
11	Head Depth	mm	196 - 206	201	Pass
12	Thorax Depth	mm	262 - 272	270	Pass
13	Abdomen Width	mm	194 - 204	199	Pass
14	Pelvis Depth	mm	235 - 245	240	Pass
15	Back of Buttocks to Hip Joint (Center of Bolt)	mm	150 - 160	155	Pass
16	Back of Buttocks to Front Knee	mm	597 - 615	608	Pass
Overall Test Results					Pass

Test Program: ES2re Head Drop Test
 ATD Serial No.: F037

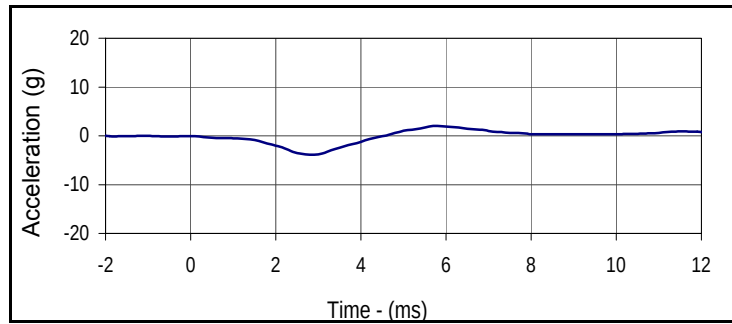
Test Date: 6/8/16
 Test I.D.: F037HD083



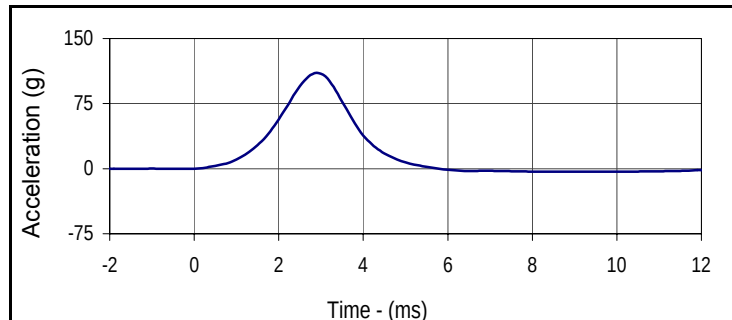
Tested Parameter		Units	Specification	Result	Pass/Fail
Head Assembly Soak Time		Minutes	≥240	355	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.4	Pass
	Min	°C		21.3	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.7	Pass
	Min	%		20.7	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.4	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.7	Pass
Peak Head Resultant Acceleration		g	125 to 155	137.0	Pass
Peak Head X Acceleration		g	≤15	3.9	Pass
Is Acceleration Unimodal?		Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse		%	<15	0.2	Pass
Overall Test Results					Pass



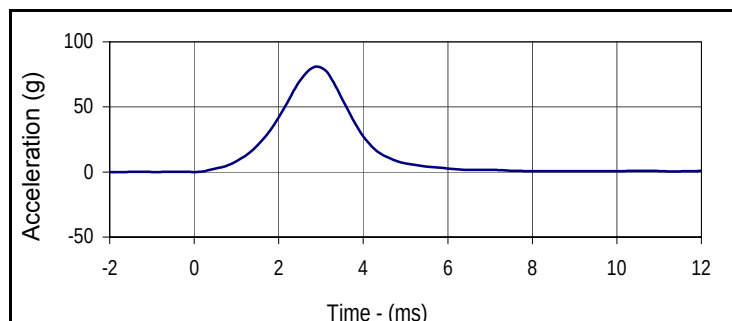
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	g
Max	Time	Min	Time
137.0	2.9	0.0	-4.2



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	g
Max	Time	Min	Time
2.0	5.7	-3.9	2.9



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	g
Max	Time	Min	Time
110.4	2.9	-3.6	10.2



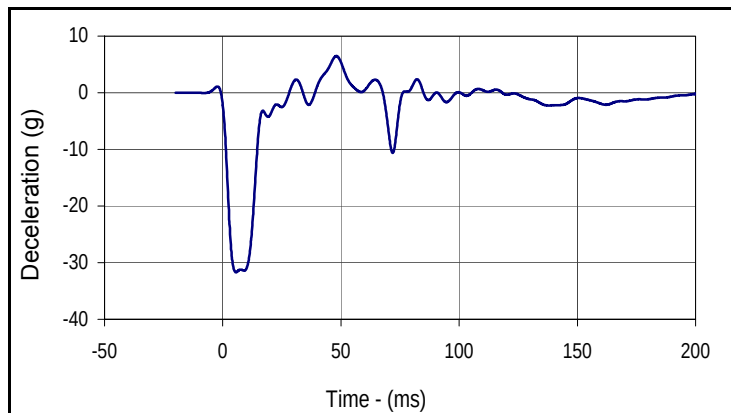
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	g
Max	Time	Min	Time
81.1	2.9	-0.3	-17.2

Test Program: ES2re Neck Flexion Test
 ATD Serial No.: F037

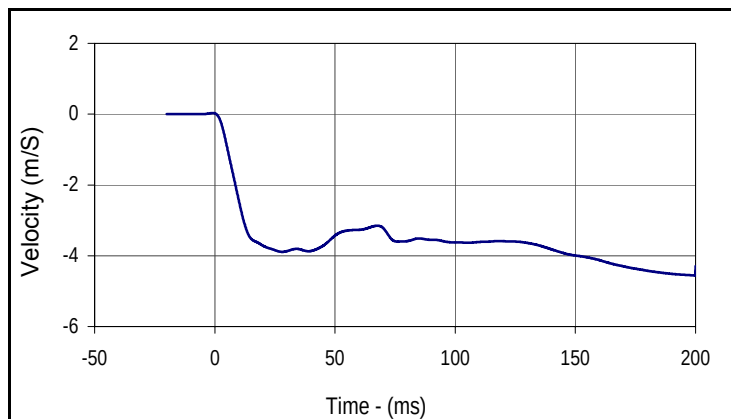
Test Date: 6/8/16
 Test I.D.: F037NB083



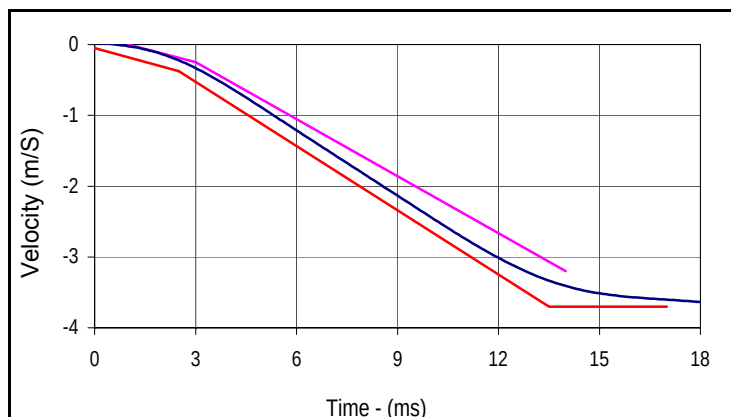
Tested Parameter	Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time	Minutes	≥240	390	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	20.7	Pass
	Min		20.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.7	Pass
Pendulum Velocity	m/s	3.3 to 3.5	3.42	Pass
Headform Flexion	Max	49 to 59	56.5	Pass
	Time	54 to 66	57.0	Pass
Headform Flexion Decay (Peak to Zero)	ms	53 to 88	61.8	Pass
Overall Test Results				Pass



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	g
Max	Time	Min	Time
6.5	48.1	-31.7	5.6



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-0.8	-4.6	199.9



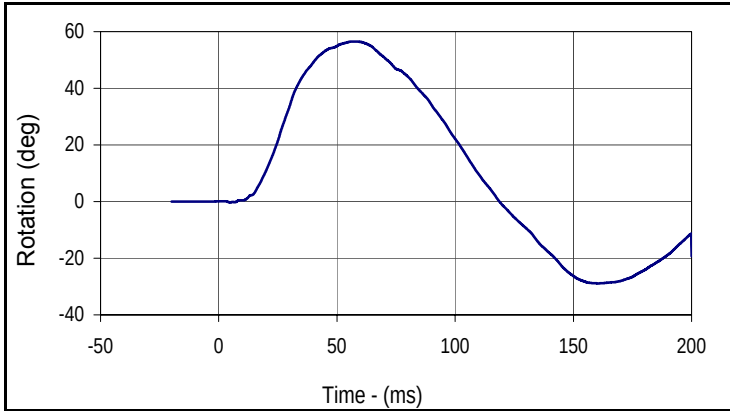
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-0.8	-4.6	199.9

Velocity Corridors

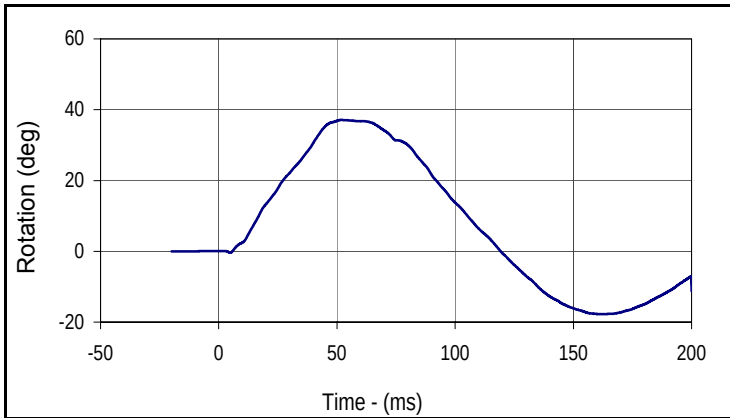
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.0	-0.03	2.5	-0.375
14.0	-3.20	13.5	-3.70
		17.0	-3.70

Test Program: ES2re Neck Flexion Test
 ATD Serial No.: F037

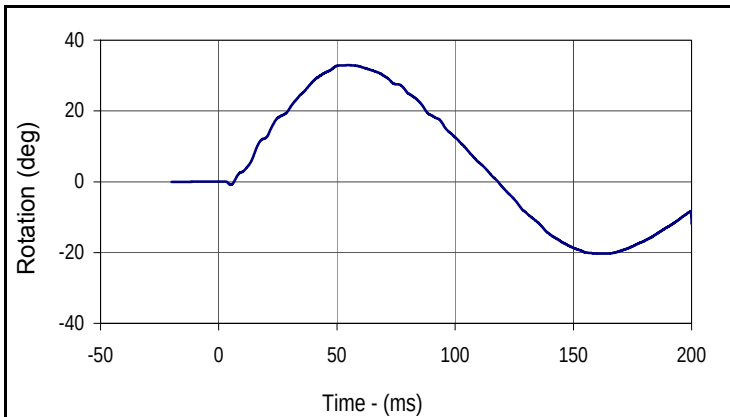
Test Date: 6/8/16
 Test I.D.: F037NB083



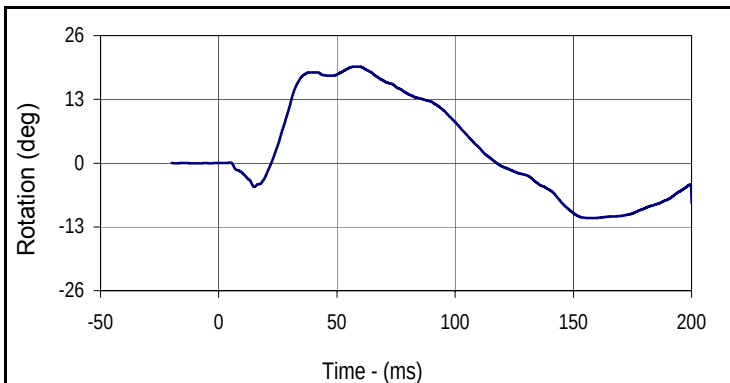
Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	180	deg
Max	Time	Min	Time
56.5	57.0	-28.9	160.4



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
004	FIL	180	deg
Max	Time	Min	Time
37.1	51.9	-17.8	162.1



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
005	FIL	180	deg
Max	Time	Min	Time
32.9	54.8	-20.3	163.6



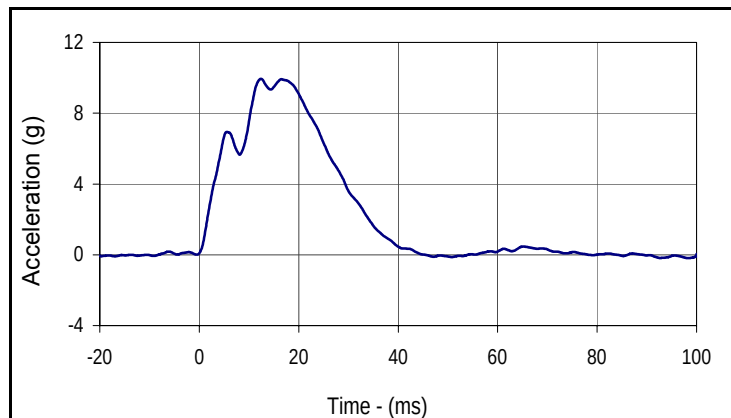
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
006	FIL	180	deg
Max	Time	Min	Time
19.7	59.0	-11.2	158.5

Test Program: ES2re Shoulder Impact Test
 ATD Serial No.: F037

Test Date: 6/8/16
 Test I.D.: F037SH083



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	455	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	20.7	Pass
	Min		20.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.7	Pass
Pendulum Speed	m/s	4.2 to 4.4	4.29	Pass
Peak Impactor Acceleration	g	7.5 to 10.5	9.9	Pass
Overall Test Results				Pass



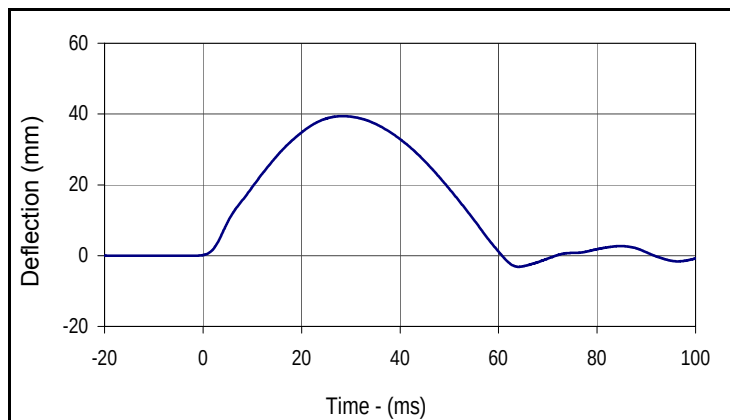
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	g
Max	Time	Min	Time
9.9	12.4	-0.2	98.3

Test Program: ES2re Thorax - Rib Drop Test
 ATD Serial No.: F037 Rib # 1

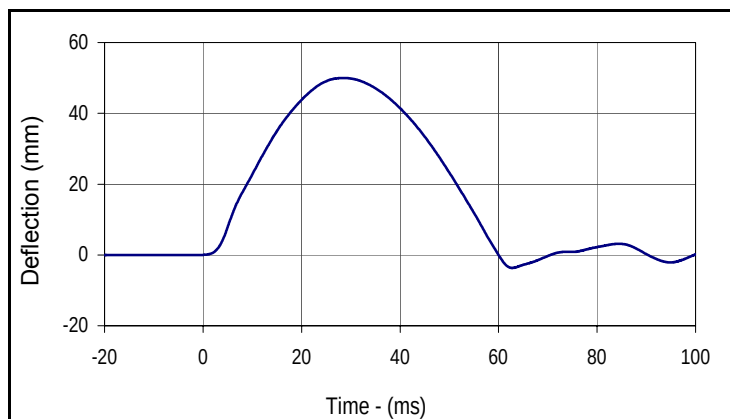
Test Date: 6/8/16
 Test I.D.: F037RB1083



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	510	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	20.7	Pass
	Min		20.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.7	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	39.4	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	50.0	Pass
Overall Test Results				Pass



Curve Description			
Upper Rib Deflection (459 mm Drop Height)			
Plot No.	Type	SAE Class	Units
001	FIL	180	mm
Max	Time	Min	Time
39.4	28.4	-3.2	64.1



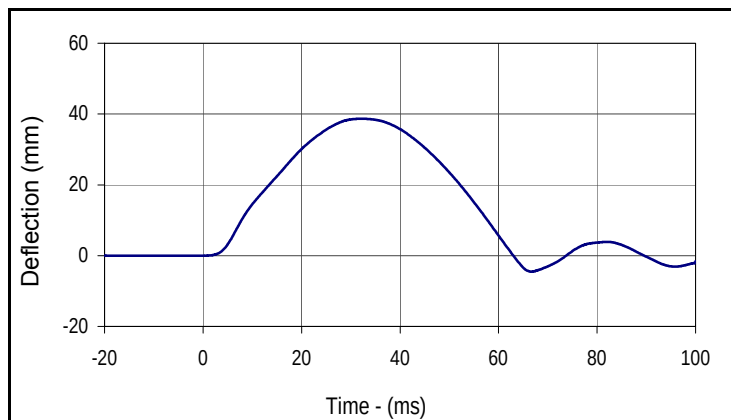
Curve Description			
Upper Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	mm
Max	Time	Min	Time
50.0	28.5	-3.7	62.7

Test Program: ES2re Thorax - Rib Drop Test
 ATD Serial No.: F037 Rib # 2

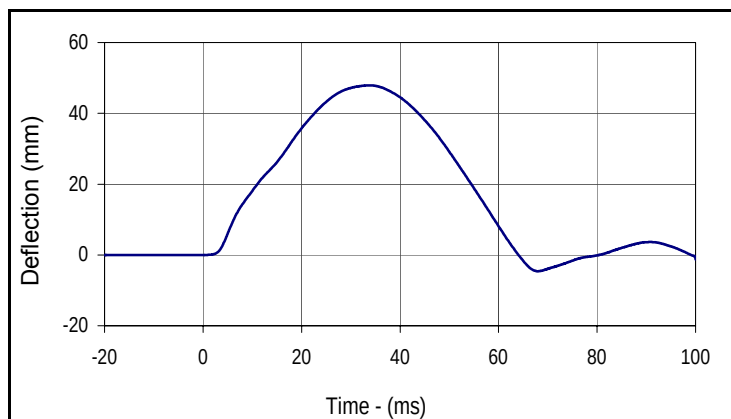
Test Date: 6/8/16
 Test I.D.: F037RB2083



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	555	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	20.7	Pass
	Min		20.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.7	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	38.7	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	47.9	Pass
Overall Test Results				Pass



Curve Description			
Middle Rib Deflection (459 mm Drop Height)			
Plot No.	Type	SAE Class	Units
001	FIL	180	mm
Max	Time	Min	Time
38.7	32.2	-4.5	66.7



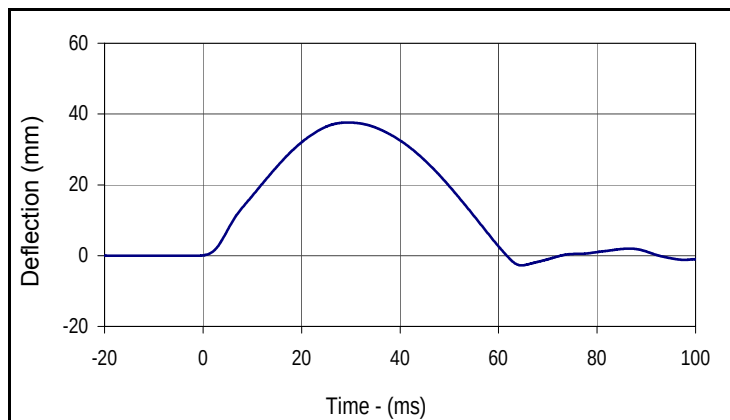
Curve Description			
Middle Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	mm
Max	Time	Min	Time
47.9	33.9	-4.6	68.0

Test Program: ES2re Thorax - Rib Drop Test
 ATD Serial No.: F037 Rib # 3

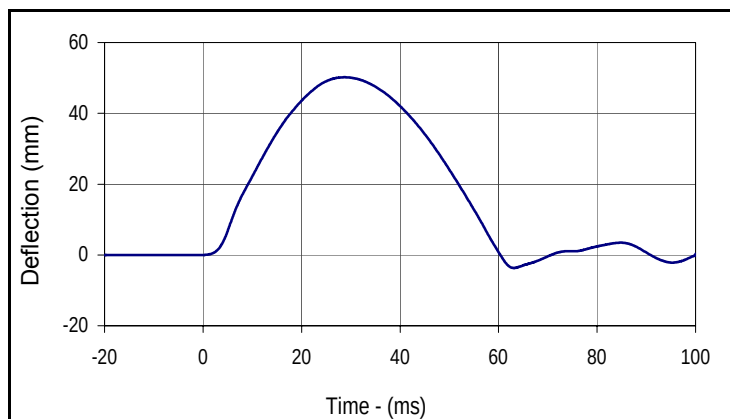
Test Date: 6/8/16
 Test I.D.: F037RB3083



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	600	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	20.7	Pass
	Min		20.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.7	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	37.6	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	50.2	Pass
Overall Test Results				Pass



Curve Description			
Lower Rib Deflection (459 mm Drop Height)			
Plot No.	Type	SAE Class	Units
001	FIL	180	mm
Max	Time	Min	Time
37.6	29.4	-2.8	64.7



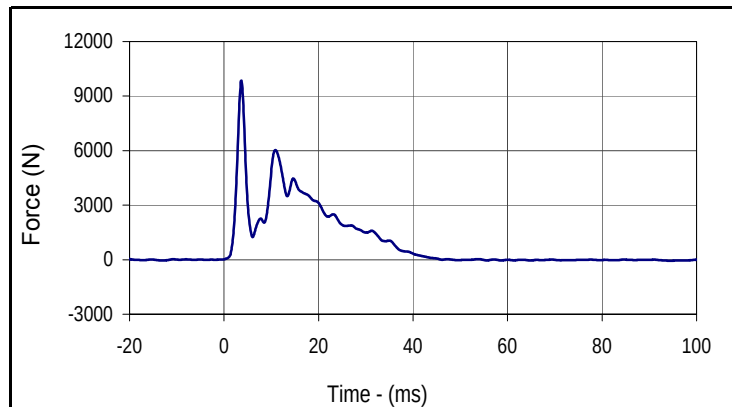
Curve Description			
Lower Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	mm
Max	Time	Min	Time
50.2	28.8	-3.7	63.1

Test Program: ES2re Thorax - Full Body Impact Test
 ATD Serial No.: F037

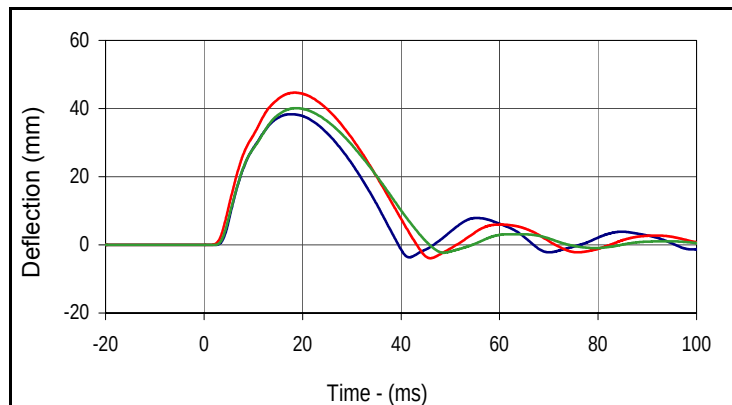
Test Date: 6/8/16
 Test I.D.: F037TH083



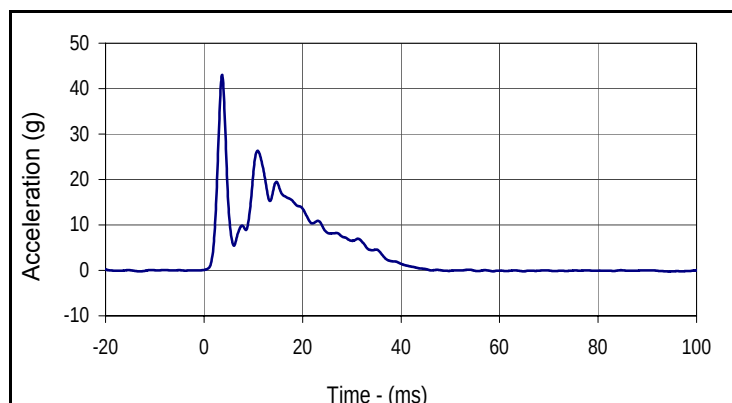
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	645	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	20.7	Pass
	Min		20.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.7	Pass
Peak Impactor Velocity	m/s	5.4 to 5.6	5.52	Pass
Peak Impactor Force	N	5100 to 6200	6026.9	Pass
	msec	> 6.0 msec	10.9	Pass
Peak Upper Rib Deflection	mm	34 to 41	38.3	Pass
Peak Middle Rib Deflection	mm	37 to 45	44.7	Pass
Peak Lower Rib Deflection	mm	37 to 44	40.1	Pass
Overall Test Results			Pass	



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	N
Max	Time	Min	Time
9852.3	3.7	-56.9	94.4



Curve Description			
Upper, Middle, Lower Rib Deflections			
Plot No.	Type	SAE Class	Units
002	FIL	180	mm
Max (Upper)	Time	Min (Upper)	Time
38.3	17.7	-3.7	41.7
Max (Middle)	Time	Min (Middle)	Time
44.7	18.4	-3.9	45.9
Max (Lower)	Time	Min (Lower)	Time
40.1	18.8	-2.3	48.7



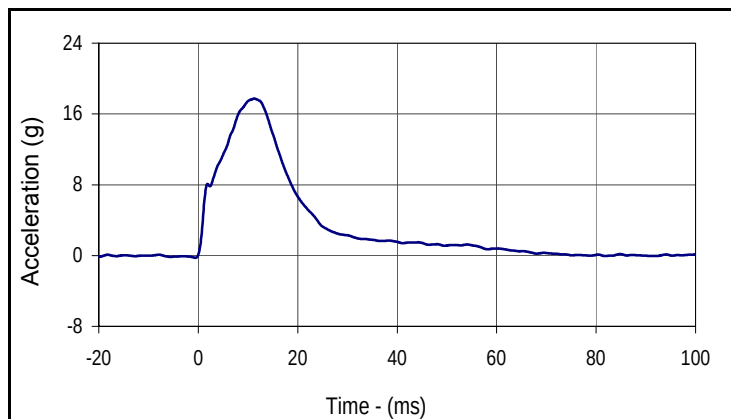
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	g
Max	Time	Min	Time
43.0	3.7	-0.2	94.4

Test Program: ES2re Abdomen Impact Test
 ATD Serial No.: F037

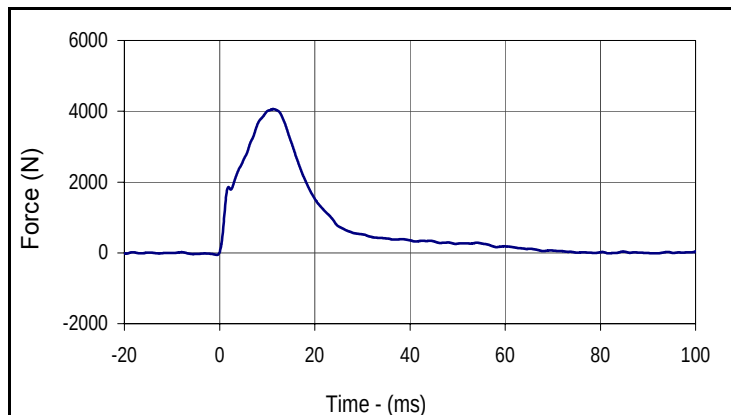
Test Date: 6/8/16
 Test I.D.: F037ABD083



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	715	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	20.7	Pass
	Min		20.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.7	Pass
Probe Velocity	m/s	3.9 to 4.1	3.95	Pass
Peak Impactor Force	N	4000 to 4800	4061.9	Pass
	msec	10.6 to 13.0	11.3	Pass
Sum of Abdominal Forces	N	2200 to 2700	2420.4	Pass
	msec	10.0 to 12.3	10.7	Pass
Overall Test Results				Pass



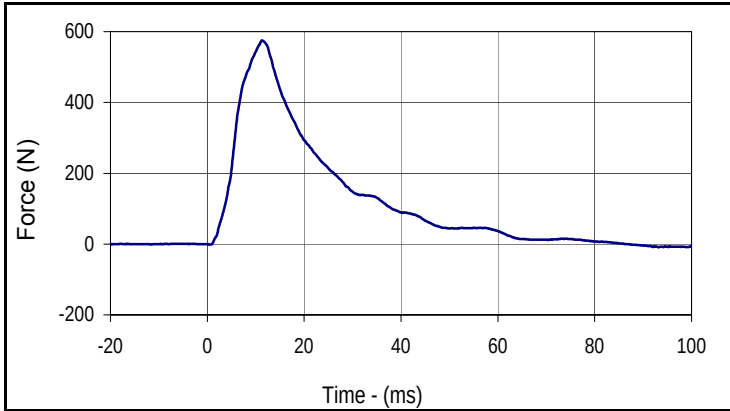
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	g
Max	Time	Min	Time
17.7	11.3	-0.3	-0.6



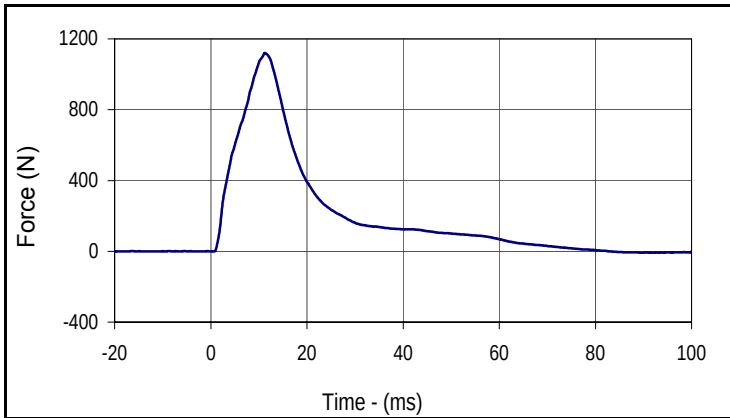
Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
002	FIL	180	N
Max	Time	Min	Time
4061.9	11.3	-59.1	-0.6

Test Program: ES2re Abdomen Impact Test
 ATD Serial No.: F037

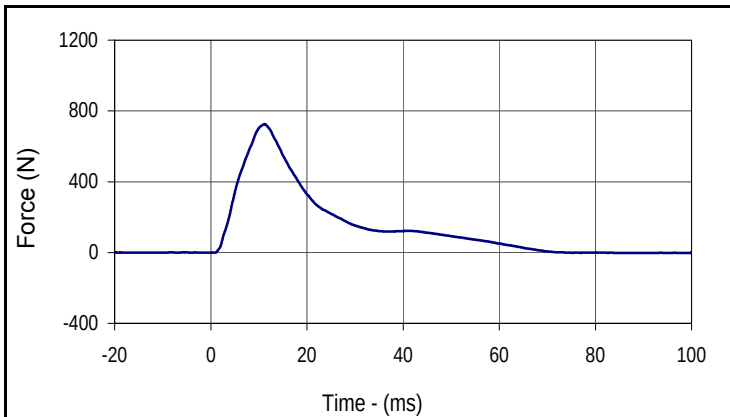
Test Date: 6/8/16
 Test I.D.: F037ABD083



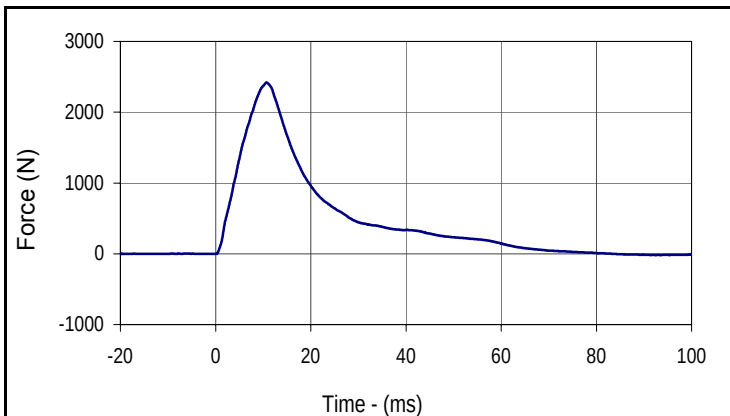
Curve Description			
Front Abdomen Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	N
Max	Time	Min	Time
575.2	11.3	-9.0	93.2



Curve Description			
Middle Abdomen Force			
Plot No.	Type	SAE Class	Units
004	FIL	600	N
Max	Time	Min	Time
1120.0	11.3	-8.0	93.2



Curve Description			
Rear Abdomen Force			
Plot No.	Type	SAE Class	Units
005	FIL	600	N
Max	Time	Min	Time
725.7	11.2	-2.8	87.2



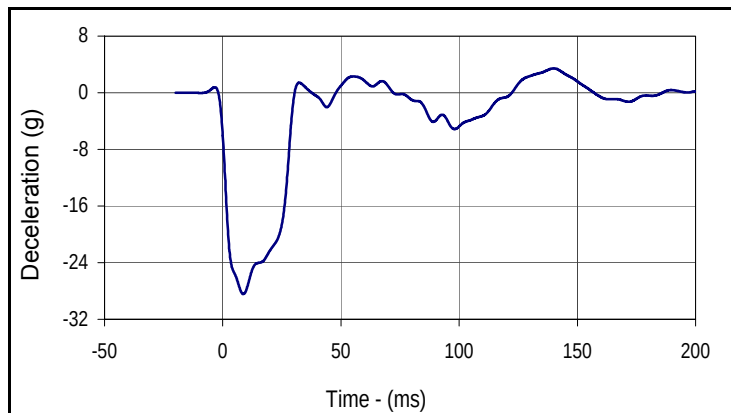
Curve Description			
200			
Plot No.	Type	SAE Class	Units
006	RES	600	N
Max	Time	Min	Time
2420.4	10.7	-19.5	92.5

Test Program: ES2re Lumbar Flexion Test
 ATD Serial No.: F037

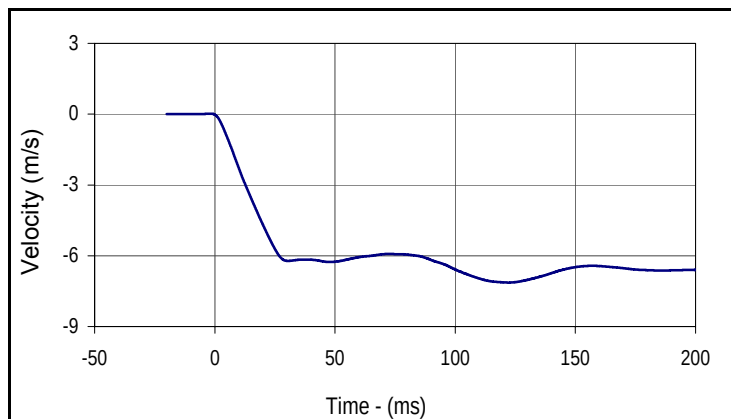
Test Date: 6/8/16
 Test I.D.: F037LB083



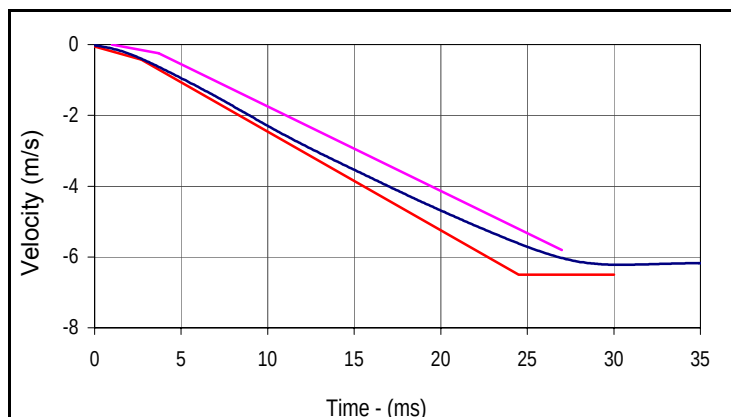
Tested Parameter	Units	Specification	Result	Pass/Fail
Lumbar Spine Assembly Soak Time	Minutes	≥240	790	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	20.7	Pass
	Min		20.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.7	Pass
Pendulum Velocity	m/s	5.95 to 6.15	5.97	Pass
Headform Rotation	Max	45 to 55	51.0	Pass
	Time	39 to 53	44.7	Pass
Time of Decay to Zero Angle from Peak	ms	37 to 57	41.6	Pass
Overall Test Results				Pass



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	g
Max	Time	Min	Time
3.4	140.5	-28.4	9.3



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.3	-7.1	122.9



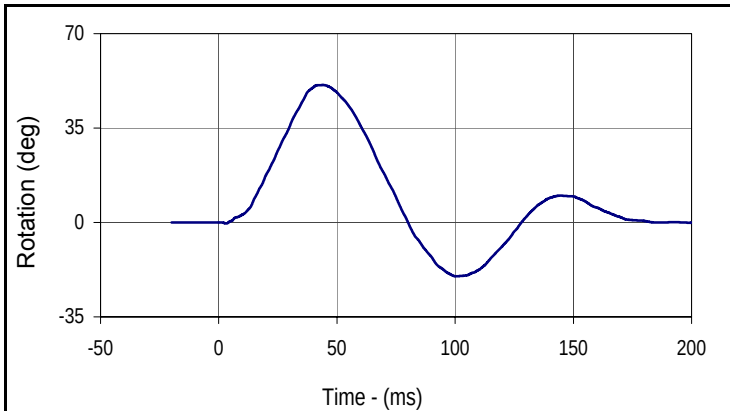
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.3	-7.1	122.9

Velocity Corridors

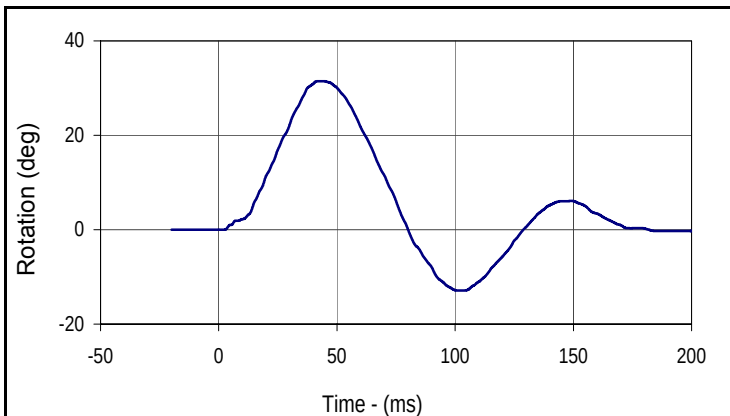
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.7	-0.24	2.7	-0.425
27.0	-5.80	24.5	-6.50
		30.0	-6.50

Test Program: ES2re Lumbar Flexion Test
 ATD Serial No.: F037

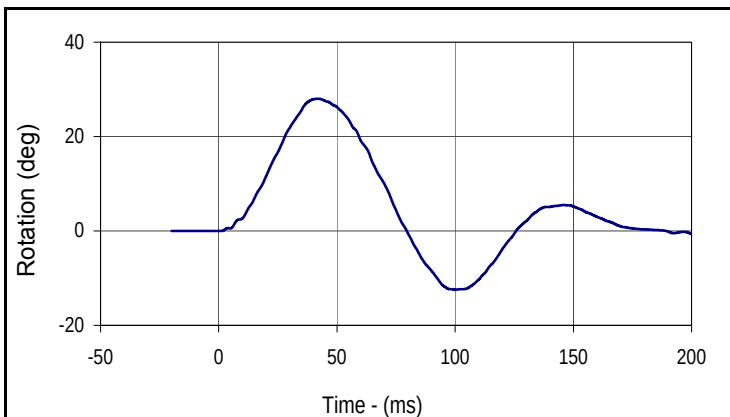
Test Date: 6/8/16
 Test I.D.: F037LB083



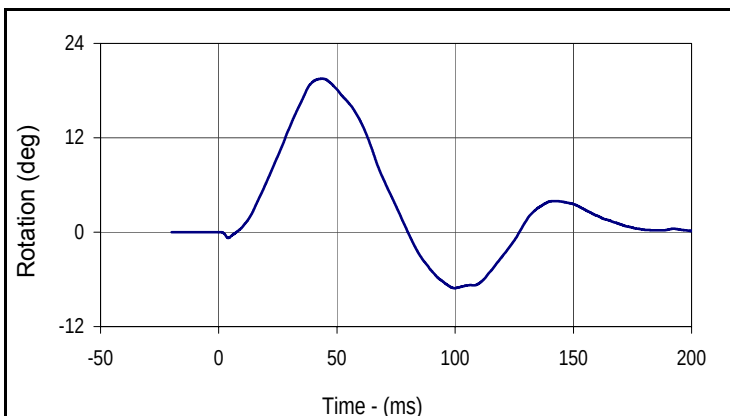
Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	180	deg
Max	Time	Min	Time
51.0	44.7	-20.0	101.0



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
004	FIL	180	deg
Max	Time	Min	Time
31.5	45.0	-12.9	104.3



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
005	FIL	180	deg
Max	Time	Min	Time
28.0	42.8	-12.4	100.6



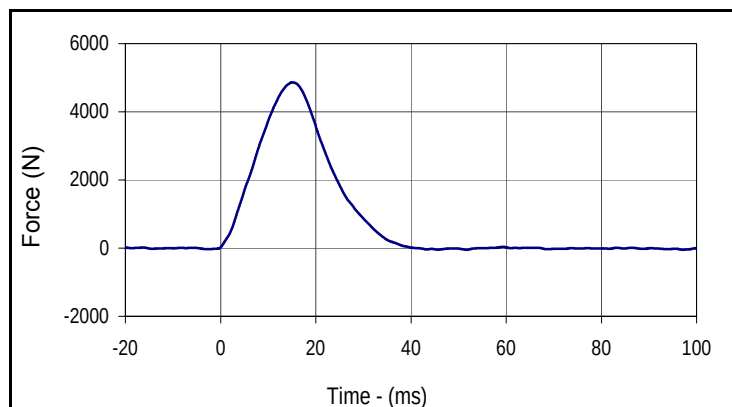
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
006	FIL	180	deg
Max	Time	Min	Time
19.5	44.4	-7.1	100.4

Test Program: ES2re Pelvis Impact Test
 ATD Serial No.: F037

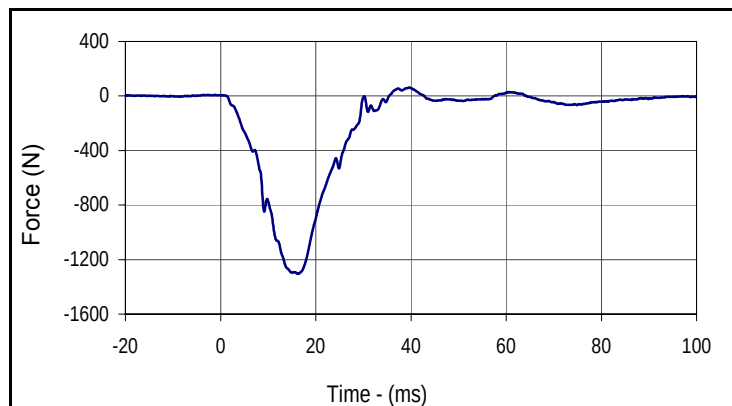
Test Date: 6/8/16
 Test I.D.: F037PL083



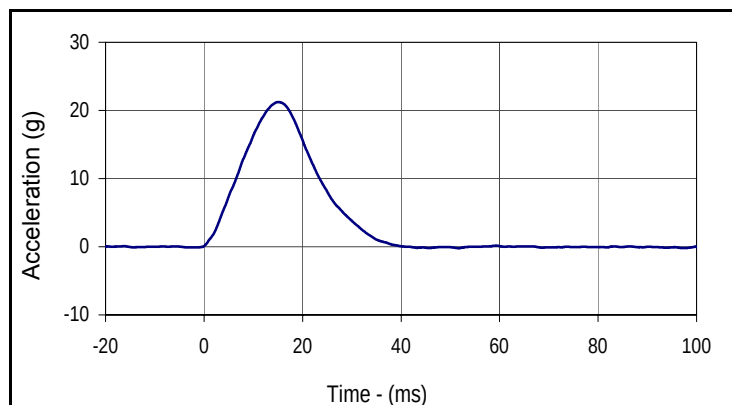
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	845	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	20.7	Pass
	Min		20.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.7	Pass
Pendulum Velocity	m/s	4.2 to 4.4	4.25	Pass
Peak Impactor Force	N	4700 to 5400	4864.4	Pass
	msec	11.8 to 16.1	15.1	Pass
Peak Pubic Symphysis Load	N	-1230 to -1590	-1304.0	Pass
	msec	12.2 to 17.0	16.2	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	N
Max	Time	Min	Time
4864.4	15.1	-49.4	51.7



Curve Description			
Pubic Symphysis Force Y			
Plot No.	Type	SAE Class	Units
002	FIL	600	N
Max	Time	Min	Time
61.5	39.6	-1304.0	16.2



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	g
Max	Time	Min	Time
21.2	15.1	-0.2	51.7

Test Program: SID IIs External Measurements
 ATD Serial No.: 299

Test Date: 6/6/16
 Test I.D.: N/A



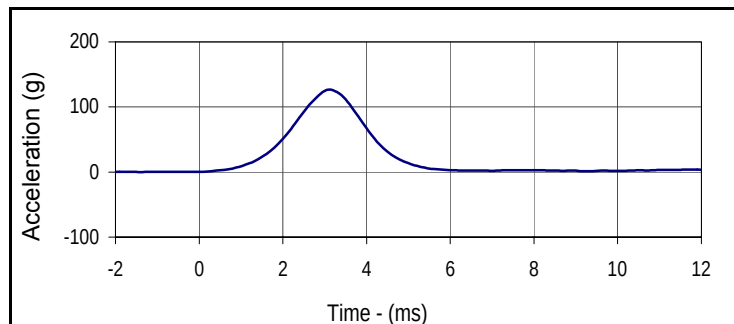
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity		%	10 to 70	21	Pass
A	Sitting Height	mm	772 - 788	780	Pass
B	Shoulder Pivot Height	mm	437 - 453	445	Pass
C	H-Point Height	mm	79 - 89	85	Pass
D	H-Point from Seatback	mm	141 - 151	145	Pass
E	Shoulder Pivot from Backline	mm	97 - 107	102	Pass
F	Thigh Clearance	mm	119 - 135	125	Pass
G	Head Breadth	mm	140 - 148	145	Pass
H	Head Back from Backline	mm	40 - 46	44	Pass
I	Head Depth	mm	178 - 188	184	Pass
J	Head Circumference	mm	541 - 551	545	Pass
K	Buttock to Knee Length	mm	514 - 540	527	Pass
L	Popliteal Height	mm	343 - 369	352	Pass
M	Knee Pivot to Floor Height	mm	392 - 409	401	Pass
N	Buttock Popliteal Length	mm	416 - 442	432	Pass
O	Chest Depth w/o Jacket	mm	195 - 211	202	Pass
P	Foot Length	mm	216 - 232	221	Pass
Q	Hip Breadth with Pelvic Plug	mm	313 - 323	315	Pass
R	Arm Length	mm	249 - 259	252	Pass
S	Knee Joint to Seatback	mm	477 - 493	481	Pass
V	Shoulder Width	mm	341 - 357	352	Pass
W	Foot Width	mm	78 - 94	86	Pass
Y	Chest Circumference with Jacket	mm	851 - 881	872	Pass
Z	Waist Circumference	mm	760 - 791	774	Pass
Overall Test Results					Pass

Test Program: SID IIs Head Drop Test
 ATD Serial No.: 299

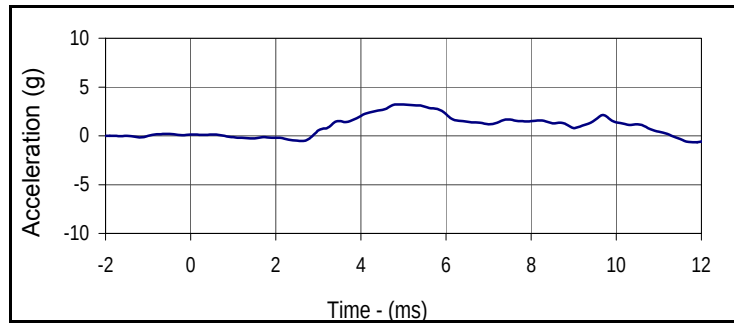
Test Date: 6/6/16
 Test I.D.: 299HD095



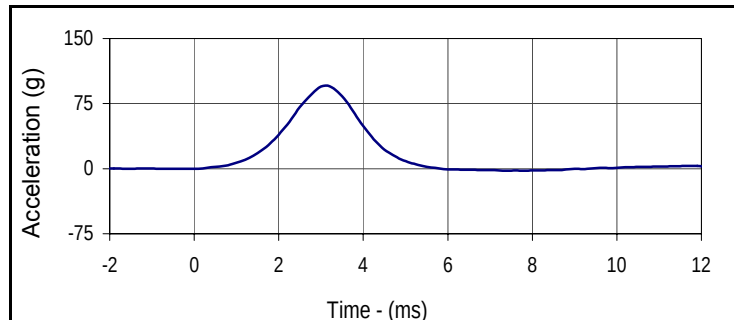
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	425	Pass
Temperature During Soak	Max	18.9 to 25.6	21.2	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	20.6	Pass
	Min		20.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.6	Pass
Peak Head Resultant Acceleration	g	115 to 137	126.6	Pass
Peak Head X Acceleration	g	<15	3.2	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	0.2	Pass
Overall Test Results				Pass



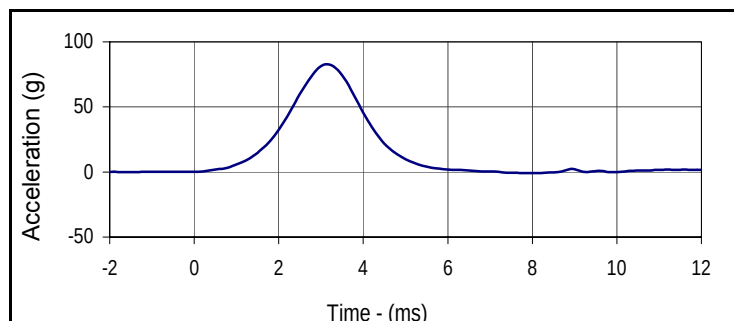
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	g
Max	Time	Min	Time
126.6	3.1	0.0	-19.6



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	g
Max	Time	Min	Time
3.2	4.9	-0.5	2.6



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	g
Max	Time	Min	Time
95.9	3.1	-2.2	7.4



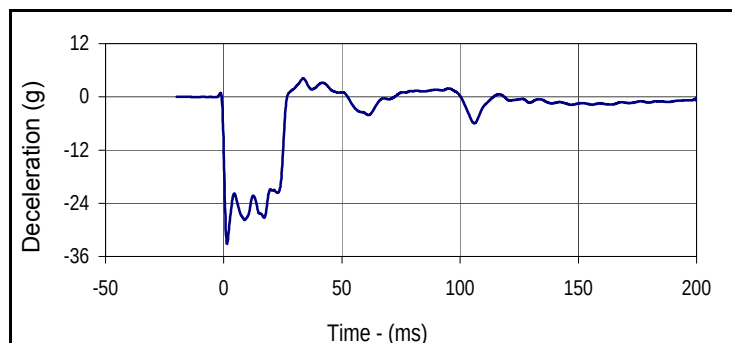
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	g
Max	Time	Min	Time
82.7	3.1	-0.9	7.9

Test Program: SID IIs Neck Flexion Test
 ATD Serial No.: 299

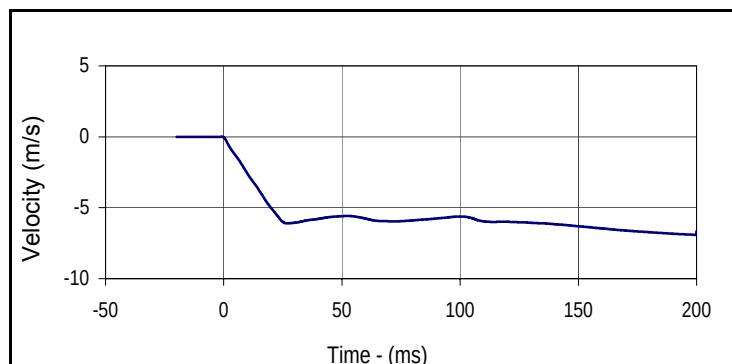
Test Date: 6/6/16
 Test I.D.: 299NB095



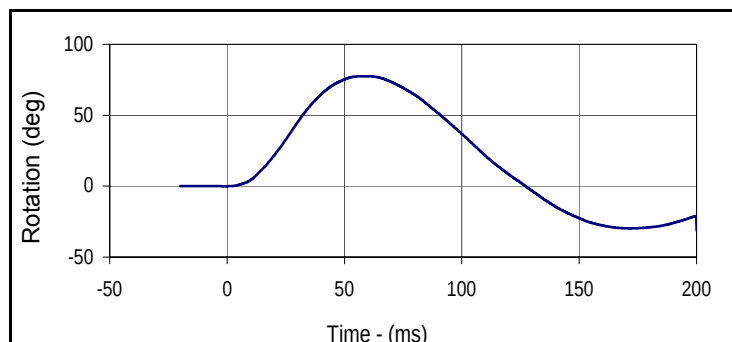
Tested Parameter	Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time	Minutes	≥240	470	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	20.6	Pass
	Min		20.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.6	Pass
Pendulum Velocity	m/s	5.51 to 5.63	5.61	Pass
Pendulum Deceleration	10 msec	-2.20 to -2.80	-2.59	Pass
	15 msec	-3.30 to -4.10	-3.78	Pass
	20 msec	-4.40 to -5.40	-5.01	Pass
	25 msec	-5.40 to -6.10	-6.01	Pass
	25-100 msec	-5.50 to -6.20	-6.10	Pass
D-Plane Rotation	Max	71 to 81	77.5	Pass
	Time	50 to 70	58.8	Pass
Peak Occipital Condyle Moment	Nm	-36 to -44	-42.1	Pass
Decaying Moment Time to Cross 0 Nm	msec	102 to 126	105.3	Pass
Overall Test Results			Pass	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	g
Max	Time	Min	Time
4.2	0.0	-33.2	0.0



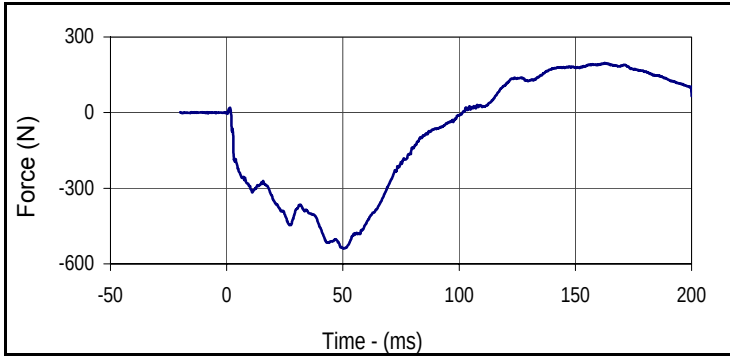
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.9	-6.9	199.9



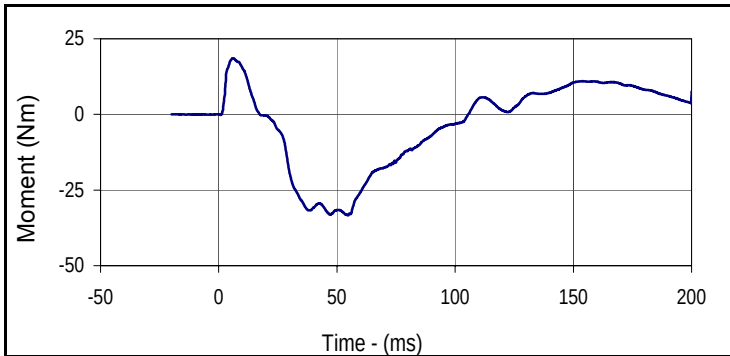
Curve Description			
D-Plane Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	deg
Max	Time	Min	Time
77.5	58.8	-31.2	200.0

Test Program: SID IIs Neck Flexion Test
 ATD Serial No.: 299

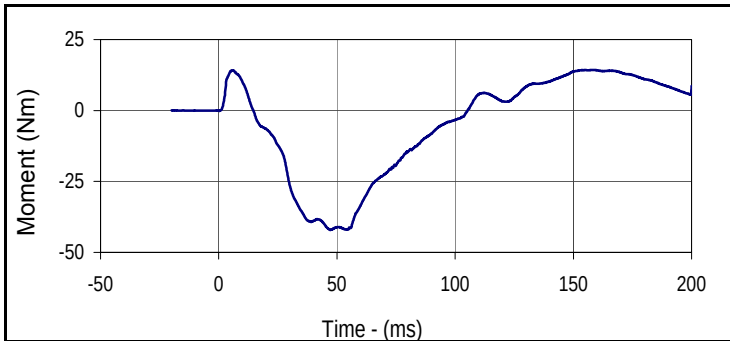
Test Date: 6/6/16
 Test I.D.: 299NB095



Curve Description			
Neck Force Y			
Plot No.	Type	SAE Class	Units
004	FIL	1000	N
Max	Time	Min	Time
197.7	162.6	-538.9	50.4



Curve Description			
Neck Moment X			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
18.6	6.3	-33.3	54.7



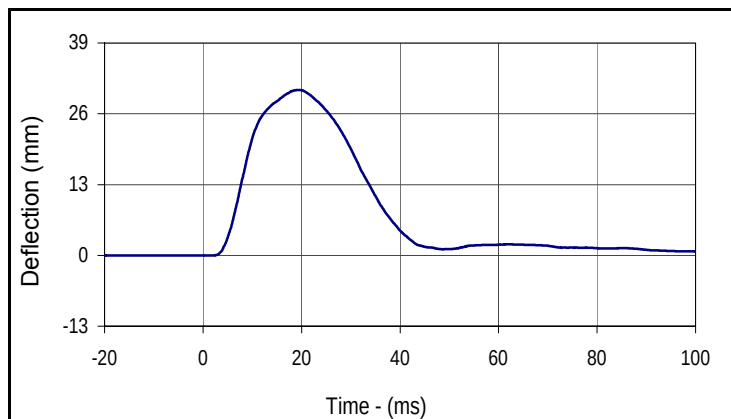
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
006	FIL	600	Nm
Max	Time	Min	Time
14.3	158.2	-42.1	47.2

Test Program: SID IIs Shoulder Impact Test
 ATD Serial No.: 299

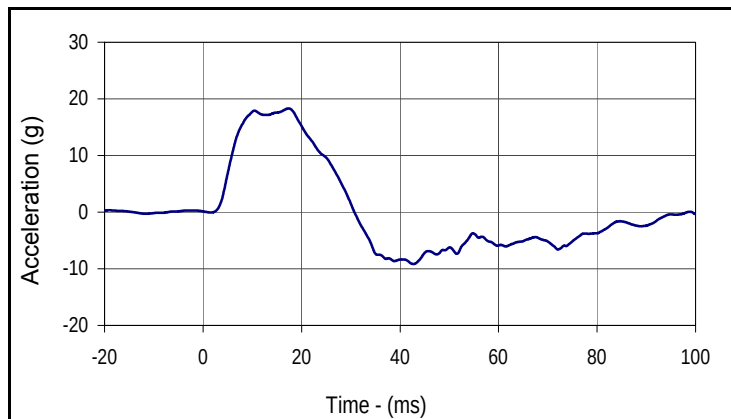
Test Date: 6/6/16
 Test I.D.: 299SH095



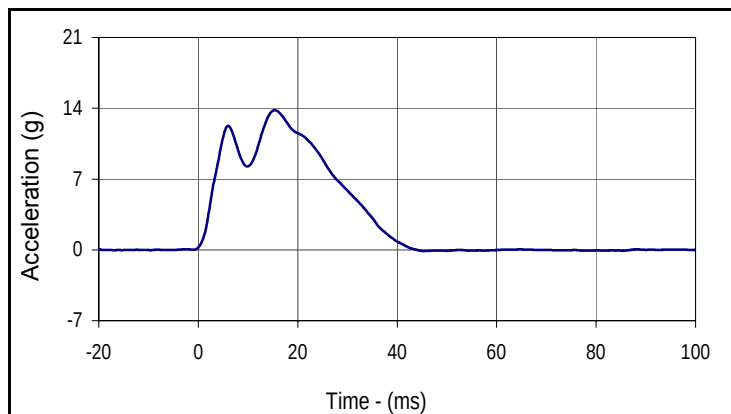
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥180	525	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.2	Pass
	Min	°C		21.2	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.6	Pass
	Min	%		20.6	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.6	Pass
Impactor Velocity		m/s	4.20 to 4.40	4.32	Pass
Peak Shoulder Deflection		mm	28 to 37	30.3	Pass
Peak Lateral Spine Acceleration Y		g	17 to 22	18.3	Pass
Peak Impactor Acceleration		g	13 to 18	13.8	Pass
Overall Test Results				Pass	



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	mm
Max	Time	Min	Time
30.3	19.1	0.0	-2.5



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	g
Max	Time	Min	Time
18.3	17.4	-9.2	42.7



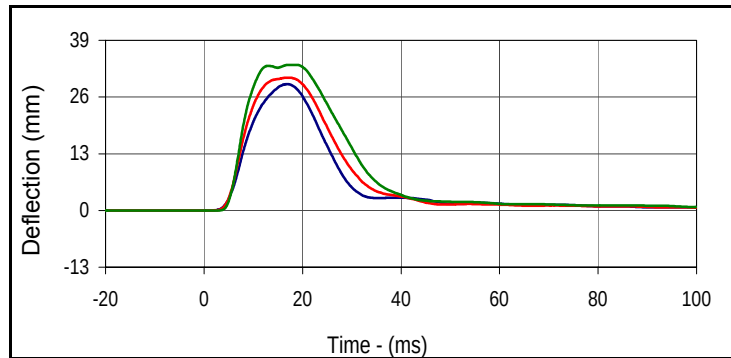
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	g
Max	Time	Min	Time
13.8	15.3	-0.1	45.3

Test Program: SID IIs Thorax with Arm Impact Test
 ATD Serial No.: 299

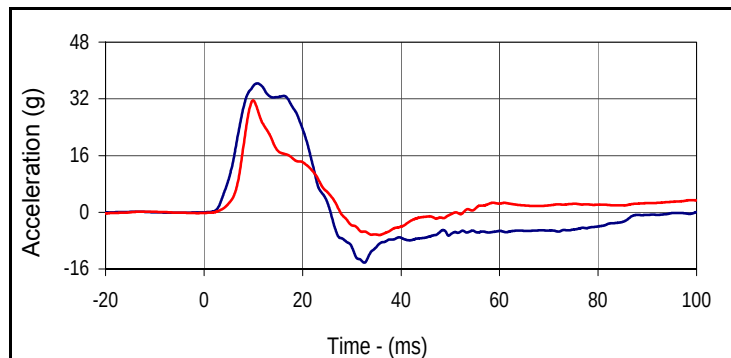
Test Date: 6/6/16
 Test I.D.: 299TWA095



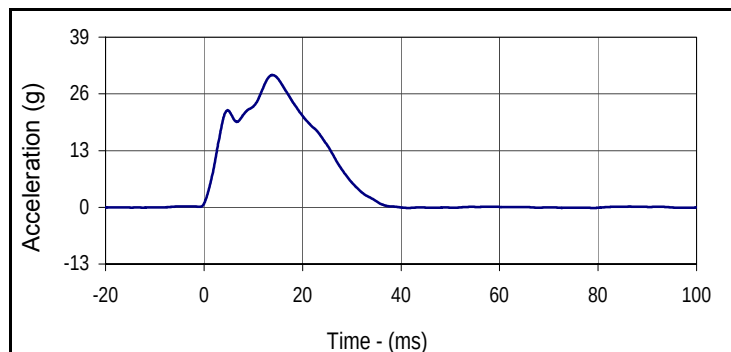
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	570	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	20.6	Pass
	Min		20.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.6	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.72	Pass
Peak Shoulder Deflection	mm	31 to 40	37.6	Pass
Peak Upper Thorax Rib Deflection	mm	25 to 32	28.9	Pass
Peak Middle Thorax Rib Deflection	mm	30 to 36	30.4	Pass
Peak Lower Thorax Rib Deflection	mm	32 to 38	33.4	Pass
Peak Upper Spine Y Acceleration	g	34 to 43	36.4	Pass
Peak Lower Spine Y Acceleration	g	29 to 37	31.6	Pass
Peak Impactor Acceleration	g	30 to 36	30.3	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	mm
Max	Time	Min	Time
28.9	16.9	0.0	-12.3
Middle Thorax Deflection			
Max	Time	Min	Time
30.4	16.8	0.0	-13.8
Lower Thorax Deflection			
Max	Time	Min	Time
33.4	17.2	0.0	-4.5



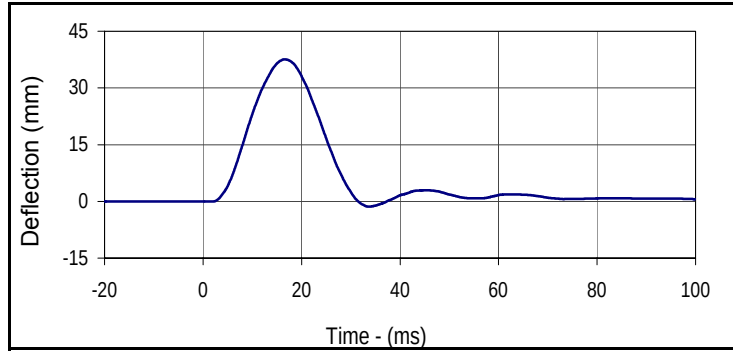
Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	g
Max	Time	Min	Time
36.4	10.8	-14.2	32.6
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	g
Max	Time	Min	Time
31.6	10.0	-6.4	35.6



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	g
Max	Time	Min	Time
30.3	13.9	-0.4	0.0

Test Program: SID IIs Thorax with Arm Impact Test
 ATD Serial No.: 299

Test Date: 6/6/16
 Test I.D.: 299TWA095



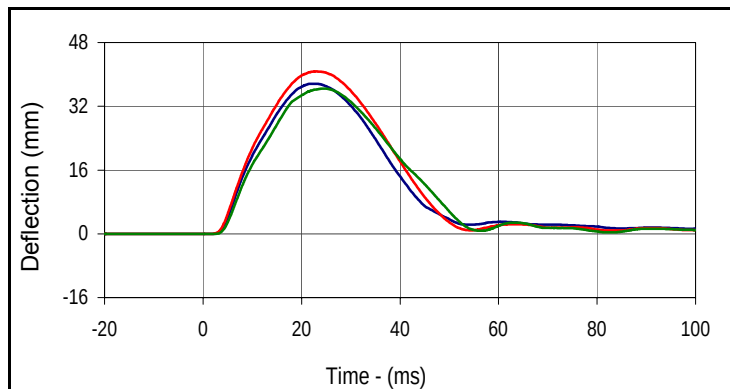
Curve Description			
Shoulder Deflection Y			
Plot No.	Type	SAE Class	Units
007	FIL	600	mm
Max	Time	Min	Time
37.6	16.6	-1.4	33.6

Test Program: SID IIs Thorax without Arm Impact Test
 ATD Serial No.: 299

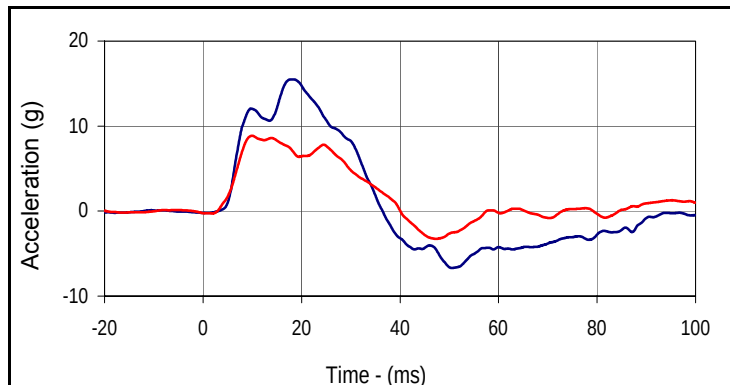
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 Test I.D.: 299TWOA095



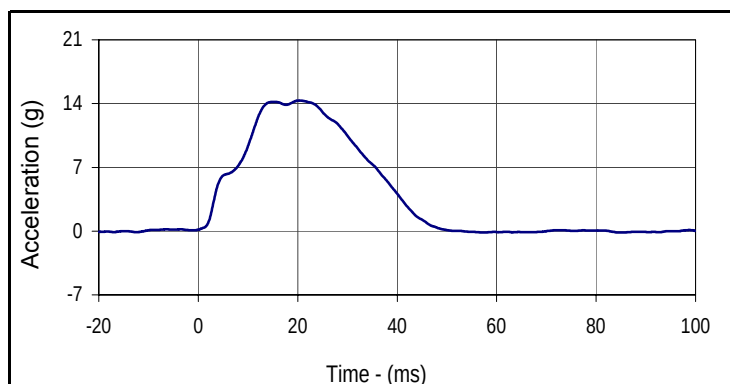
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥180	625	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.2	Pass
	Min	°C		21.2	Pass
Humidity During Soak	Max	%	10.0 to 70.0	20.6	Pass
	Min	%		20.6	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	20.6	Pass
Impactor Velocity		m/s	4.2 to 4.4	4.30	Pass
Peak Upper Thorax Rib Deflection		mm	32 to 40	37.7	Pass
Peak Middle Thorax Rib Deflection		mm	39 to 45	40.7	Pass
Peak Lower Thorax Rib Deflection		mm	35 to 43	36.4	Pass
Peak Upper Spine Y Acceleration		g	13 to 17	15.5	Pass
Peak Lower Spine Y Acceleration		g	7 to 11	8.9	Pass
Peak Impactor Acceleration		g	14 to 18	14.3	Pass
Overall Test Results				Pass	



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	mm
Max	Time	Min	Time
37.7	22.2	0.0	-14.1
Middle Thorax Deflection			
Max	Time	Min	Time
40.7	23.0	0.0	-14.5
Lower Thorax Deflection			
Max	Time	Min	Time
36.4	24.6	0.0	-14.1



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	g
Max	Time	Min	Time
15.5	18.3	-6.7	50.6
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	g
Max	Time	Min	Time
8.9	9.9	-3.3	47.3



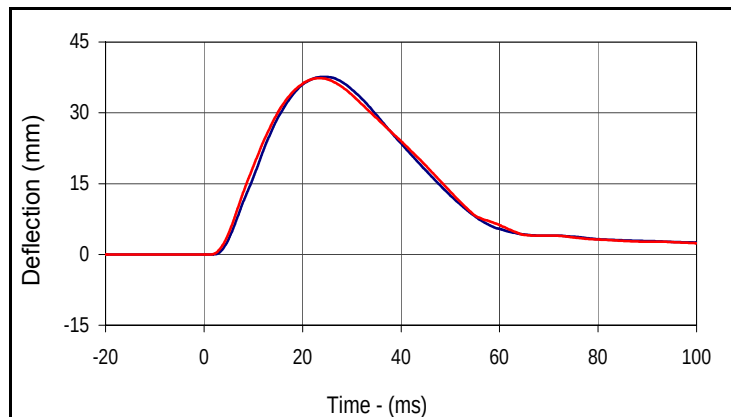
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	g
Max	Time	Min	Time
14.3	20.5	-0.3	0.0

Test Program: SID IIs Abdomen Impact Test
 ATD Serial No.: 299

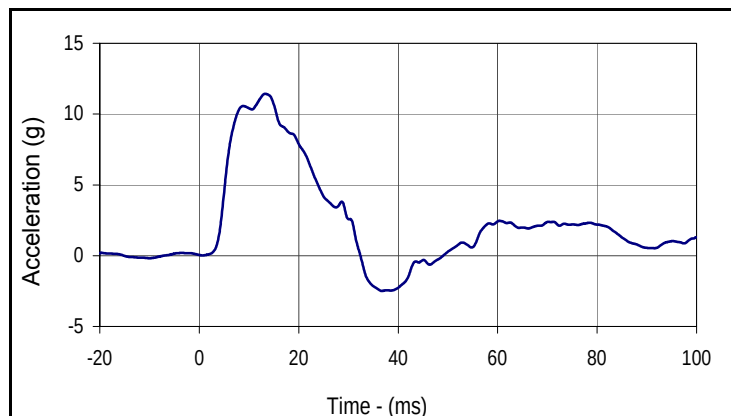
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 Test I.D.: 299ABD095



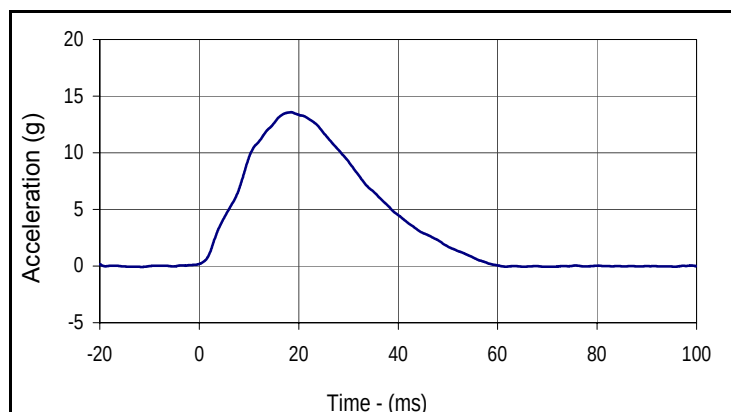
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	680	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	20.6	Pass
	Min		20.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.6	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.31	Pass
Peak Upper Abdominal Rib Deflection	mm	36 to 47	37.6	Pass
Peak Lower Abdominal Rib Deflection	mm	33 to 44	37.3	Pass
Peak Lower Spine Y Acceleration	g	9 to 14	11.4	Pass
Peak Impactor Acceleration	g	12 to 16	13.6	Pass
Overall Test Results			Pass	



Curve Description			
Upper Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	mm
Max	Time	Min	Time
37.6	24.4	0.0	-17.9
Curve Description			
Lower Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	mm
Max	Time	Min	Time
37.3	23.2	0.0	-9.8

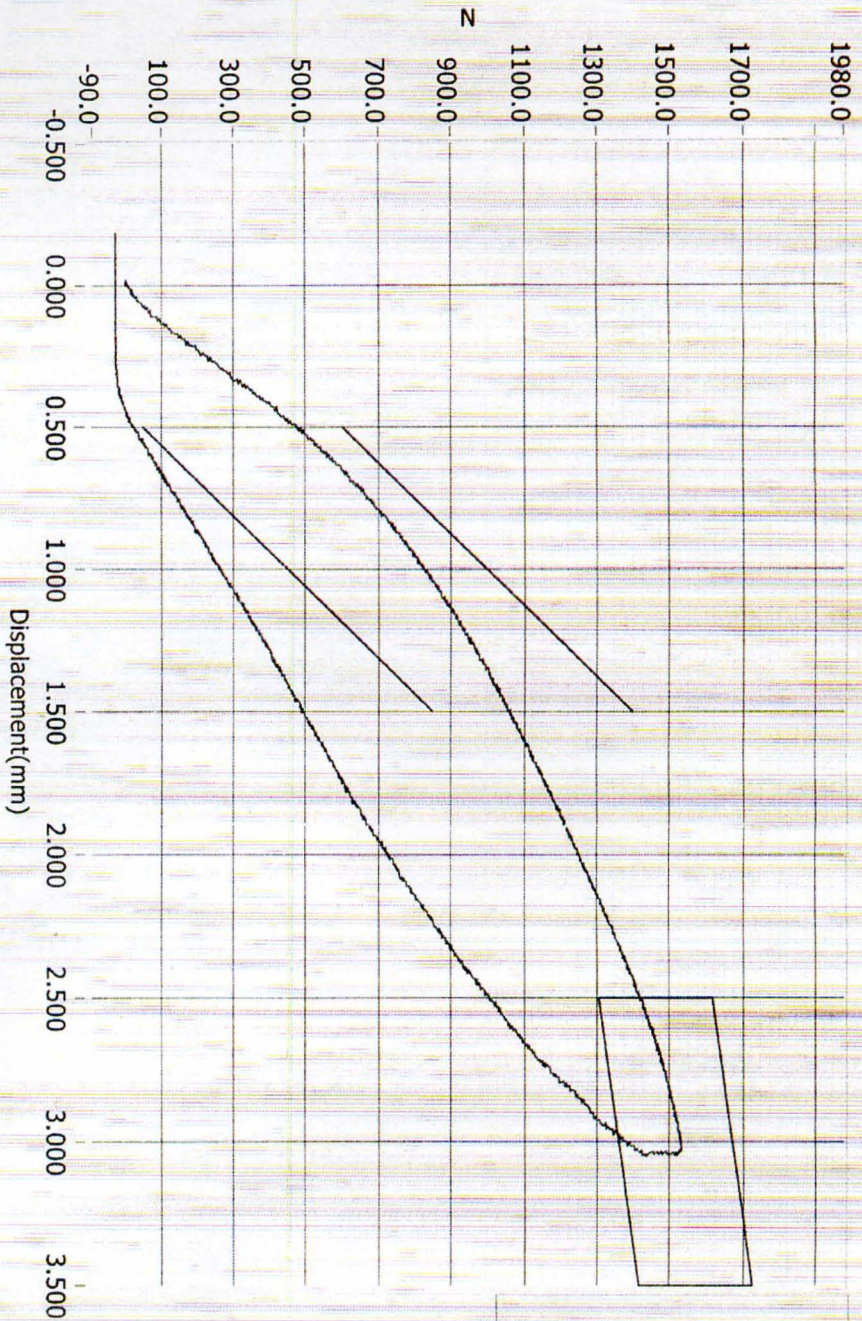


Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	g
Max	Time	Min	Time
11.4	13.2	-2.5	36.7



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	g
Max	Time	Min	Time
13.6	18.5	-0.1	0.0

Resultant Data - SIDIIs Plug Compression



- Loading Curve
- Boundary Limit Upper
- Boundary Limit Lower
- Peak Load Upper
- Peak Load Lower
- Peak Defl Upper
- Peak Defl Lower

1529N

ATD Calibration Lab

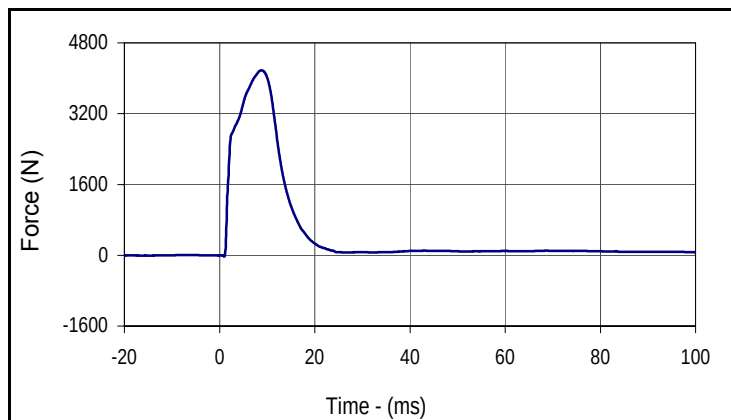
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Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIs	
Current Date : 12/13/2013		Current Time : 16:10:28	

Test Program: SID IIs Pelvis Acetabulum Impact Test
 ATD Serial No.: 299

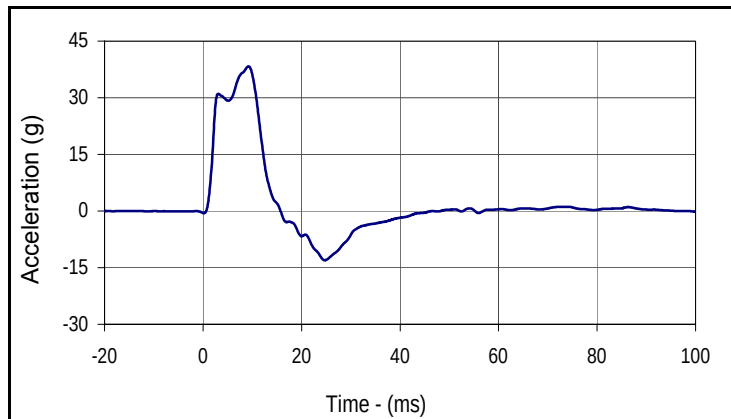
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 Test I.D.: 299ACET095



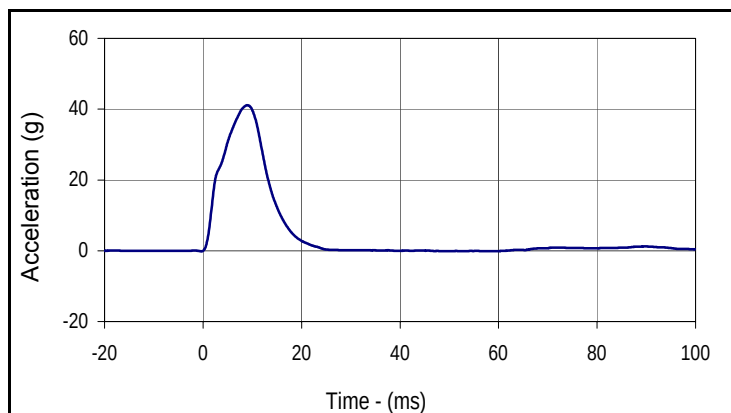
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	730	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	20.6	Pass
	Min		20.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.6	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.62	Pass
Peak Acetabulum Force Y	N	3600 to 4300	4181.2	Pass
Peak Pelvis Y Acceleration After 6 msec.	g	34 to 42	38.3	Pass
Peak Impactor Acceleration	g	38 to 47	41.1	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Acetabulum Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	N
Max	Time	Min	Time
4181.2	8.8	-29.6	1.0



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	g
Max	Time	Min	Time
38.3	9.2	-13.0	24.7



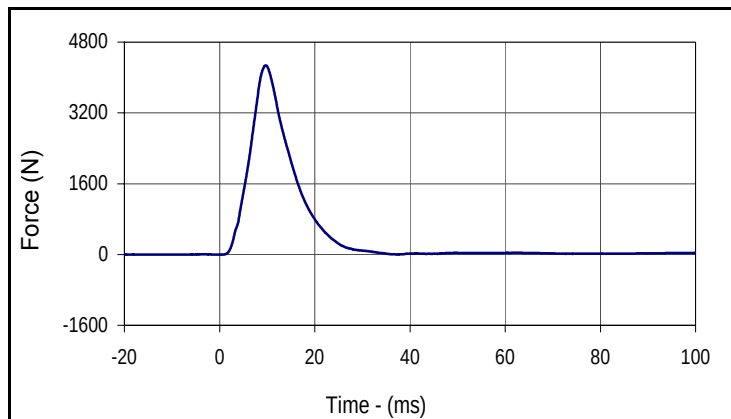
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	g
Max	Time	Min	Time
41.1	9.0	-0.2	-0.4

Test Program: SID IIs Pelvis Iliac Calibration
 ATD Serial No.: 299

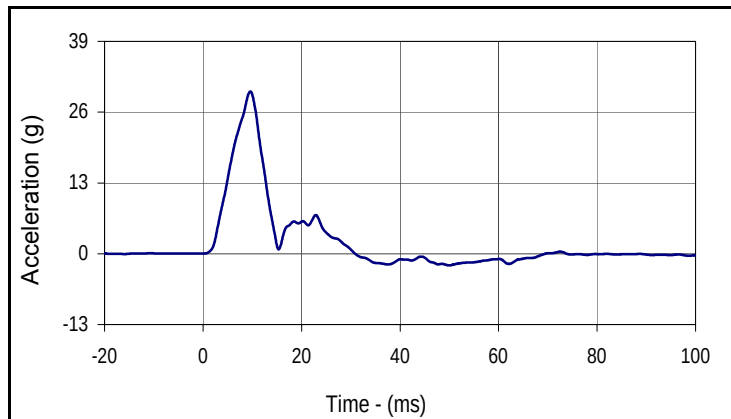
Test Date: 6/6/16
 Test I.D.: 299PL095



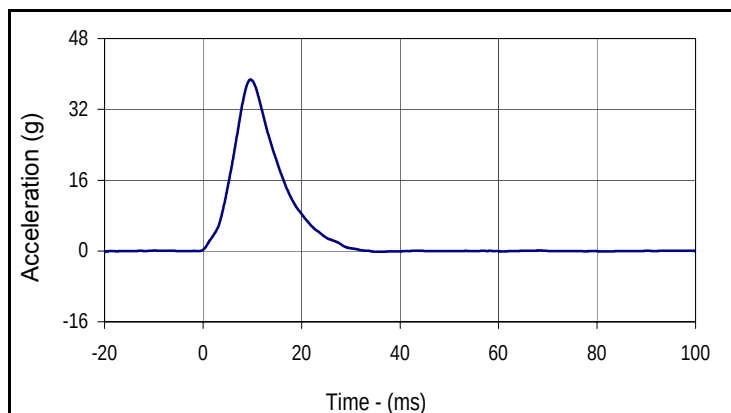
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	785	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	20.6	Pass
	Min		20.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.6	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.32	Pass
Peak Iliac Force	N	4100 to 5100	4273.2	Pass
Peak Pelvis Y Acceleration	g	28 to 39	29.8	Pass
Peak Impactor Acceleration	g	36 to 45	38.7	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Iliac Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	N
Max	Time	Min	Time
4273.2	9.7	-3.4	-12.9



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	g
Max	Time	Min	Time
29.8	9.6	-2.1	50.0



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	g
Max	Time	Min	Time
38.7	9.7	-0.2	35.1

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 – Dummy Instrumentation (ES-2re)

			ES-2re S/N F037		
			Serial Number	Manufacturer	Calibration
Head Accelerometers	Primary	X	P58858	Endevco	2/10/16
		Y	P58865	Endevco	2/10/16
		Z	P58867	Endevco	2/10/16
	Redundant	X	P58859	Endevco	2/10/16
		Y	P58866	Endevco	2/10/16
		Z	P58873	Endevco	2/10/16
Thorax Rib Displacement Potentiometers	Upper	Y	209	FTSS	2/16/16
	Middle	Y	210	FTSS	2/16/16
	Lower	Y	207	FTSS	2/16/16
Abdomen Load Cells	Forward	Y	1504	Denton	7/21/15
	Middle	Y	1505	Denton	7/21/15
	Rear	Y	1506	Denton	7/21/15
Lower Spine Accelerometers (T12)		X	P63856	Endevco	2/10/16
		Y	P50063	Endevco	2/10/16
		Z	P51880	Endevco	2/10/16
Pubic Symphysis Load Cell		Y	DG6784	Denton	7/21/15

TABLE 2 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N 299		
				Serial Number	Manufacturer	Calibration
Head Accelerometers		Primary	X	P51929	Endevco	2/22/16
			Y	P50086	Endevco	2/22/16
			Z	P51931	Endevco	2/22/16
		Redundant	X	P68604	Endevco	2/22/16
			Y	P51934	Endevco	2/22/16
			Z	P58736	Endevco	2/22/16
Displacement Potentiometers	Thoracic Rib	Upper	Y	1143	FTSS	2/23/16
		Middle	Y	1160	FTSS	2/23/16
		Lower	Y	1213	FTSS	2/23/16
	Abdominal Rib	Upper	Y	1218	FTSS	2/23/16
		Lower	Y	1177	FTSS	2/23/16
Lower Spine Accelerometers (T12)			X	04I20-Z04	Endevco	2/24/16
			Y	06A07-R08	Endevco	2/24/16
			Z	P58795	Endevco	2/24/16
Acetabulum Load Cell			Y	272	Denton	5/1/15
Iliac Wing Load Cell			Y	284	Denton	6/23/15
Pelvis Plug (Struck Side)				70855	FTSS	12/13/13
Pelvis Plug (Non-Struck Side)				70969	FTSS	12/12/13

TABLE 3 – Vehicle Instrumentation

Vehicle Instrumentation			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	A148186	MSI	5/2/16
	Vehicle Center of Gravity	Y	A148312	MSI	5/10/16
	Vehicle Center of Gravity	Z	A152835	MSI	5/2/16
2	Right Sill at Front Seat	X	A145977	MSI	5/2/16
	Right Sill at Front Seat	Y	A147391	MSI	5/5/16
	Right Sill at Front Seat	Z	A152876	MSI	5/10/16
3	Right Sill at Rear Seat	X	A148183	MSI	5/5/16
	Right Sill at Rear Seat	Y	A147417	MSI	5/5/16
	Right Sill at Rear Seat	Z	A145922	MSI	5/5/16
4	Left Sill at Front Door	Y	A145903	MSI	5/10/16
5	Left Sill at Rear Door	Y	A146000	MSI	5/10/16
6	Left A-Post Lower	Y	A145447	MSI	5/2/16
7	Left A-Post Middle	Y	A160712	MSI	5/5/16
8	Left B-Post Lower	Y	N/A	N/A	N/A
9	Left B-Post Middle	Y	N/A	N/A	N/A
10	Front Seat Track	Y	A148256	MSI	5/10/16
11	Rear Seat Structure	Y	N/A	N/A	N/A
12	Right Rear Occ. Compartment	Y	A145936	N/A	N/A
13	Engine Block	X	A146543	MSI	5/2/16
	Engine Block	Y	A145442	MSI	5/5/16
14	Rear Floorpan Above Axle	X	A148238	MSI	5/10/16
	Rear Floorpan Above Axle	Y	A148226	MSI	5/10/16
	Rear Floorpan Above Axle	Z	A160694	MSI	5/2/16

TABLE 4 – MDB Instrumentation

		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	A148222	MSI	5/2/16
MDB Center of Gravity	Y	A185610	MSI	5/2/16
MDB Center of Gravity	Z	A185617	MSI	5/5/16
Left Frame at Rear Axle Centerline	X	A185707	MSI	5/10/16
Left Frame at Rear Axle Centerline	Y	A185712	MSI	5/5/16