

**REPORT NUMBER: SINCAP-KAR-14-010**

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

**TOYOTA MOTOR CORPORATION  
2014 TOYOTA PRIUS 5-DOOR HATCHBACK**

**NHTSA No: M20145114**

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



**DECEMBER 19, 2013**

**FINAL REPORT**

**PREPARED FOR:  
U.S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
OFFICE OF CRASHWORTHINESS STANDARDS  
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## TECHNICAL REPORT DOCUMENTATION PAGE

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### 15. Supplementary Notes

### 16. Abstract

A 55/28 km/h 90 deg. Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2014 Toyota Prius 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 December 5, 2013.

The impact velocity of the Moving Deformable Barrier was 61.71 km/h and the outside ambient temperature at the struck (driver's) side of the vehicle was 6.7 deg. C. The target vehicle's maximum post-test static crush was 231 mm located at level 3. The test vehicle's occupant performance data is as follows:

Measurement Description	Driver ATD (ES-2re)		
	Units	IARV	Result
Head Injury Criteria (HIC <sub>36</sub> )		1000	131.5
Maximum Thorax Rib Deflection	mm	44	22
Total Abdominal Force	N	2500	867
Pubic Symphysis Force	N	6000	1946

Measurement Description	Passenger ATD (SID-IIs)		
	Units	IARV	Result
Head Injury Criteria (HIC <sub>36</sub> )		1000	284.1
Resultant Lower Spine Acceleration	g	82	53
Total Pelvic Force (Sum of Acetubular and Iliac Forces)	N	5525	3578
Maximum Thoracic Rib Deflection	mm	38*	28
Maximum Abdominal Rib Deflection	mm	45*	6

The two 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 2014 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract number DTNH22-09-D-00122. The purpose of this test is to generate comparative side impact performance in a 2014 Toyota Prius 5-door hatchback. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated September 2013.

## SECTION 2 SUMMARY OF TEST RESULTS

A 2014 Toyota Prius 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 61.71 km/h (38.34 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 December 5, 2013. 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 September 2013. 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 <sub>36</sub> )		1000	131.5
Maximum Thorax Rib Deflection	mm	44	22
Combined Abdominal Force	N	2500	867
Pubic Symphysis Force	N	6000	1946

Measurement Description	Units	Passenger ATD (SID-IIs)	
		Threshold	Result
Head Injury Criteria (HIC <sub>36</sub> )		1000	284.1
Lower Spine (T12) Resultant Acceleration	g	82	53
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3578
Maximum Thoracic Rib Deflection	mm	38*	28
Maximum Abdominal Rib Deflection	mm	45*	6

\*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	No	No	
Knee Airbag	Yes	No	No	
Side Airbag 1 (Curtain)	Yes	Yes	Yes	Yes
Side Airbag 2 (Torso)	Yes	Yes	No	
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes	Yes	No	
Other	No		No	

### GENERAL COMMENTS

The two 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 were no ATD values that exceeded limits.

### SECTION 3

#### OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114

Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13

#### 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 <sup>2</sup>	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: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114  
 Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13

**TEST VEHICLE INFORMATION AND OPTIONS**

NHTSA Number	M20145114
Model Year	2014
Make	Toyota
Model	Prius
Body Style	5-Door Hatchback
VIN	JTDKN3DUOE1735653
Body Color	Nautical Blue
Odometer Reading (km / mi)	5 / 3
Engine Displacement (L)	1.8
Type / No. of Cylinders	Inline-4
Engine Placement	Transverse
Transmission Type	Automatic
Transmission Speeds	1
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	Yes
Power Window Auto-Reverse	Yes
Other Optional Feature	Yes
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	Yes
Driver Torso/Pelvis Airbag	No
Driver Pelvis Airbag	No
Driver Knee Airbag	Yes
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	No

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

**DATA FROM CERTIFICATION LABEL**

Manufactured By	Toyota Motor Corporation
Date of Manufacture	Oct-13
Vehicle Type	5-Door Hatchback

GVWR (kg)	1819
GAWR Front (kg)	1029
GAWR Rear (kg)	986

**VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION**

Measured Parameter	Front	Rear	Third	Total
Designated Seating Capacity	2	3		5
Capacity Weight (VCW) (kg)				365.0
DSC x 68.04 (kg)				340.2
Cargo Weight (RCLW) (kg)				24.8

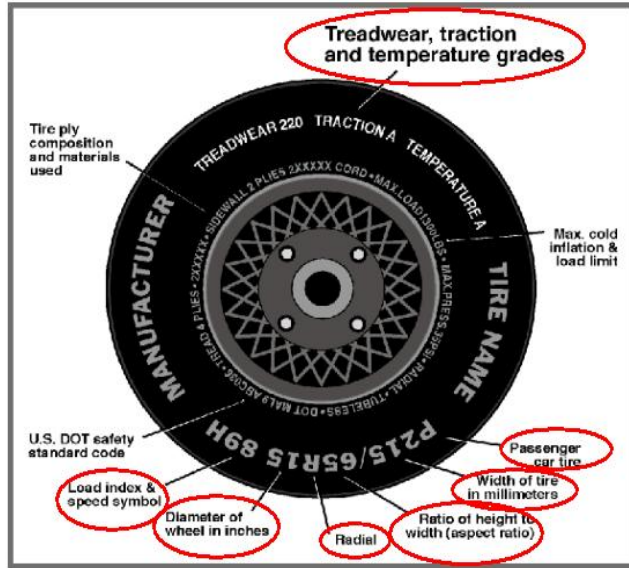
**VEHICLE SEAT TYPE**

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: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114  
 Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13



Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	300	300
Cold Pressure (kPa)	240	230
Recommended Tire Size	P195/65R15	P195/65R15
Tire Size on Vehicle	P195/65R15	P195/65R15
Tire Manufacturer	Goodyear	Goodyear
Tire Model	Assurance	Assurance
Treadware	540	540
Traction Grade	A	A
Temperature Grade	B	B
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	1 Polyester, 2 Steel	1 Polyester, 2 Steel
Load Index/Speed Symbol	89S	89S
Tire Material	Polyester, Steel	Polyester, Steel
DOT Safety Code Left	EU9N 2KNR 3713	EU9N 2KNR 3713
DOT Safety Code Right	EU9N 2KNR 3713	EU9N 2KNR 3713

**DATA SHEET NO. 1 ... (CONTINUED)**

**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114  
 Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13

**TIRE PRESSURES**

	Units	LF	RF	LR	RR
As Delivered	kPa	255	255	250	250
Tire Placard	kPa	240	240	230	230
Owner's Manual	kPa	240	240	230	230
As Tested	kPa	240	240	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	443.5	290.5		485.0	353.0		488.5	351.5	
Right	kg	405.5	269.5		407.5	305.0		411.0	308.5	
Ratio	%	60.3%	39.7%	100.0%	57.6%	42.4%	100.0%	57.7%	42.3%	100.0%
Total	kg	849.0	560.0	1409.0	892.5	658.0	1550.5	899.5	660.0	1559.5

**TARGET TEST WEIGHT CALCULATION**

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1409.0	A
Actual Weight of 2 P572 ATDs Used	kg	125.0	B
Rated Cargo/Luggage Wt (RCLW)	kg	24.8	C
Calculated Vehicle Target Wt (TVTW)	kg	1558.8	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	667	669	Yes
RF	mm	682	678	Yes
LR	mm	668	659	Yes
RR	mm	675	670	Yes
Vehicle CG (Aft of Front Axle)	mm	1143	1146	
Vehicle CG (Left (+)/Right (-) from Longitudinal Centerline)	mm	59	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: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114  
Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13

**WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW**

Component Description	Weight (kg)
Rear Trim	14.0
Spare Tire	12.0
Spare Tire Tools	3.5
Hub Caps	1.0
Ballast / Equipment Added	63.5

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: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114  
 Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13

**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 rear most, lowest, mid-angle position.

**SCRL ANGLE RANGE**

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	7.2	0.0	3.6
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	As Tested SCRP Height	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid Fore/Aft	Forwardmost
Driver Seat	3.6	540	Max	528	540	552
			Mid	528	540	552
			Min	528	540	522
Front Passenger Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
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**

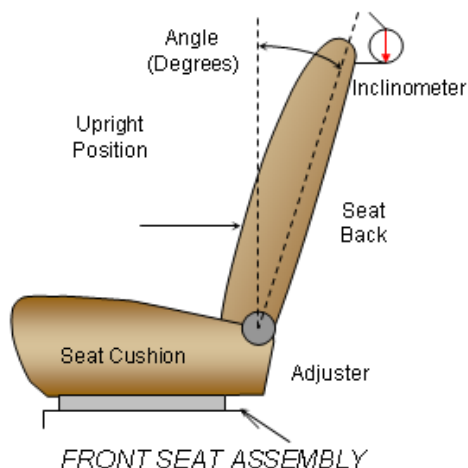
Test Vehicle: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114  
 Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13

**SEAT FORE/AFT POSITION**

Seat	Total Fore/Aft Travel		Test Position From Forwardmost Position	
	mm	Detents	mm	Detent
Driver Seat	260	27	130	13
Front Passenger Seat	260	27	130	13
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

**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	77.6	39	1.0	4
Front Passenger Seat	70.7	37	1.1	
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

## DATA SHEET NO. 2 ... (CONTINUED)

### SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114  
 Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13

#### 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

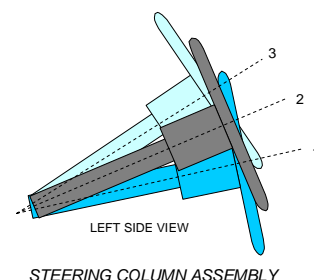
The driver's head restraint is adjusted to the highest and most full forward in-use position. The struck-side rear passenger's head restraint is adjusted to the lowest and most full forward in-use position.

	Total No. of Positions	Placed in Position
Driver Seat	4	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.

	Degrees	Fore-Aft Position (mm)
Lowermost - Position 1	21.5	22
Geometric Center - Position 2	23.0	41
Uppermost - Position 3	24.6	60
Telescoping Steering Wheel Travel		38
Test Position	23.0	41



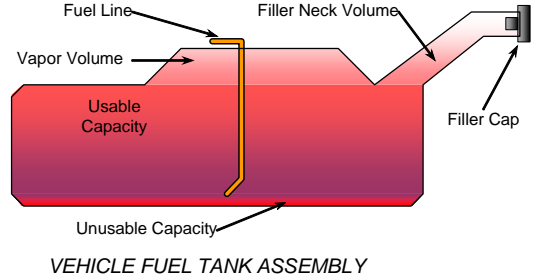
**DATA SHEET NO. 2 ... (CONTINUED)**

**SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA**

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114  
 Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13

**FUEL PUMP**

The vehicle is equipped with an electric fuel pump. The fuel pump is activated when the ignition is turned to the "ON" position.



**FUEL TANK CAPACITY**

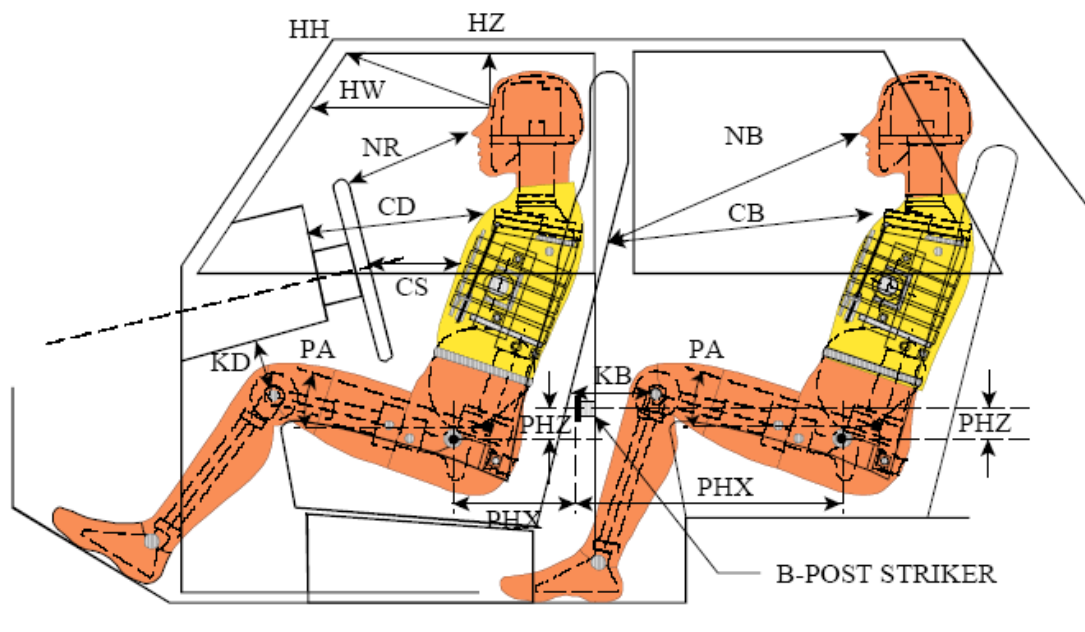
Description	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	45.00
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of "Standard Tank" (see Owner's Manual)	
Usable Capacity of "Optional Tank" (see Owner's Manual)	
93% of Usable Capacity	41.85
Actual amount of Solvent Used in Test	41.85
1/3 of Usable Capacity	15.00

Is the Actual Amount of Solvent Used in the test equal to 93% ± 1% of the Usable Capacity stated in the Form No. 1?       **Yes**       **No**

### DATA SHEET NO. 3

#### DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114  
 Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13



**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

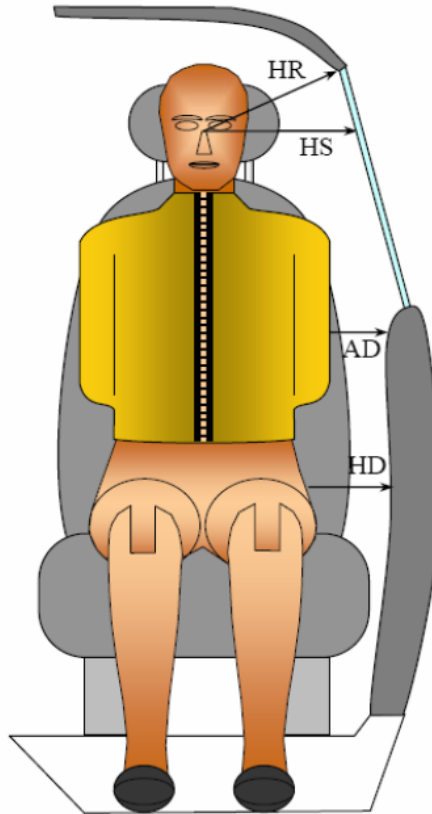
#### DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Pass. Code	Description	Driver		Passenger	
			Length (mm)	Angle (°)	Length (mm)	Angle (°)
HH		Head to Header	330			
HW		Head to Windshield	567			
HZ	HZ	Head to Roof	128		259	
NR	NB	Nose to Rim/Seat Back	450		583	
CD	CB	Chest to Dash/Seat Back	844		585	
CS		Chest to Steering Wheel	302			
KD(L)/KDA(L)°	KB(L)/KBA(L)°	Left Knee to Dash/Seat Back	121	41.3	338	24.1
KD(R)/KDA(R)°	KB(R)/KBA(R)°	Right Knee to Dash/Seat Back	128	47.1	339	16.4
PAX°	PAX°	Pelvic Tilt Angle X		17.3		21.8
	PAY°	Pelvic Tilt Angle Y		0.3		0.2
PHX	PHX	Hip Point to Striker (x-axis)	220		287	
PHZ	PHZ	Hip Point to Striker (z-axis)	158		310	

## DATA SHEET NO. 4

### DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114  
Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13



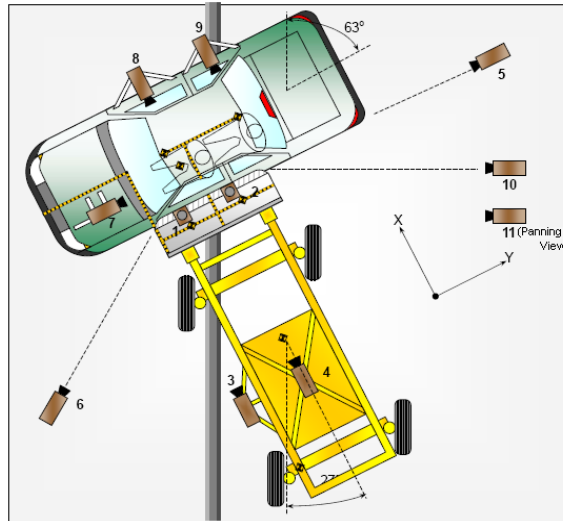
### DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver	Passenger
HR	Head to Side Header	mm	216	273
HS	Head to Side Window	mm	315	372
AD	Arm to Door	mm	79	147
HD	H-Point to Door	mm	151	164

**DATA SHEET NO. 5**

**CAMERA AND INSTRUMENTATION DATA**

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114  
 Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13



**CAMERA LOCATIONS AND DATA**

No.	View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
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)	526	-811	-717	24	1000
8	Driver Side (On-Board)	1654	708	-464	12	1000
9	Passenger Side (On-Board)	1619	1572	-560	12	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	16
Vehicle Structure Accelerometers	22
MDB Accelerometers	5
<b>Total</b>	<b>59</b>

**DATA SHEET NO. 6**

**TEST VEHICLE ACCELEROMETER LOCATIONS**

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114  
 Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13



**VEHICLE ACCELEROMETER PRE-TEST LOCATIONS**

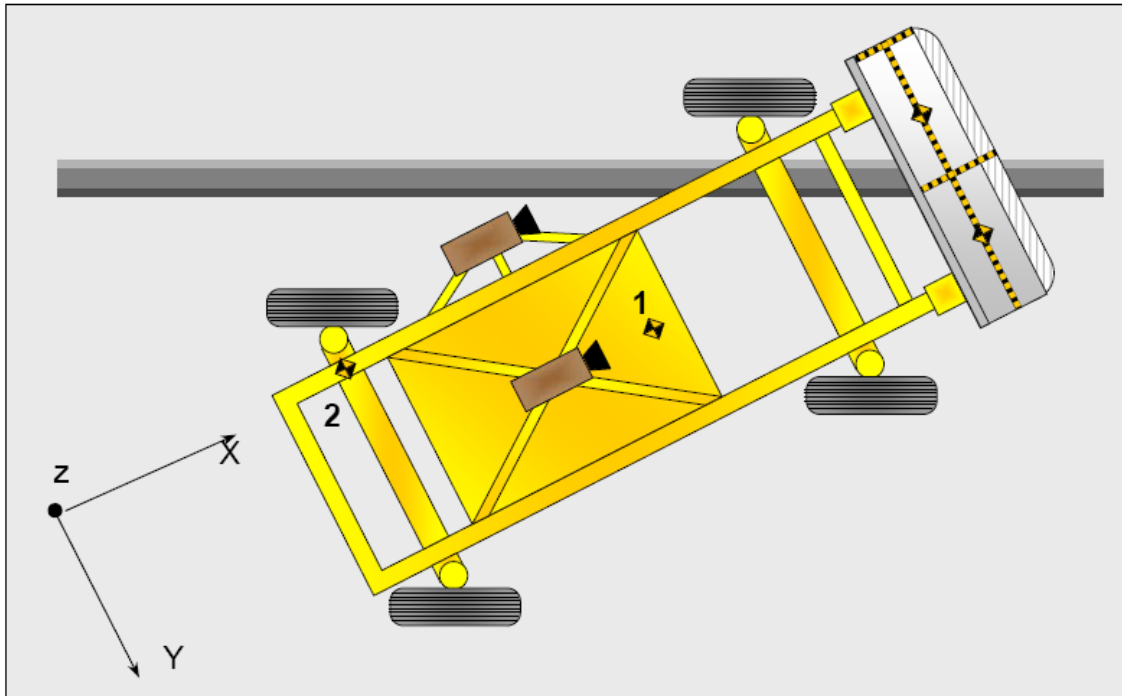
Loc. No.	Sensor Description	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	1680	0	-248
2	Right Sill at Front Seat	2354	708	-297
3	Right Sill at Rear Seat	1451	706	-307
4	Left Sill at Front Door	2158	-770	-193
5	Left Sill at Rear Door	1346	-775	-198
6	A-Pillar Lower	2891	-840	-514
7	A-Pillar Middle	2899	-838	-709
8	B-Pillar Lower	1813	-702	-613
9	B-Pillar Middle	1818	-706	-855
10	Front Seat Track	2224	-607	-327
11	Rear Seat Structure			
12	Right Rear Occupant Compartment	1714	374	-233
13	Engine Block	3545	55	-863
14	Rear Floorpan Above Axle	544	-379	-456

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: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114  
 Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13



**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: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114  
 Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13

**TEST DUMMY INFORMATION AND CONTACT POINTS**

Dummy Body Part	Front Seat Dummy (ES-2re)	Rear Seat Dummy (SID-IIs)
Face	Curtain Airbag, Side Header	Curtain Airbag
Top of Head	Side Header	Curtain Airbag
Left Side of Head	Curtain Airbag, Side Header	Curtain Airbag
Back of Head	Curtain Airbag, Side Header, Headrest	Curtain Airbag, Headrest
Left Shoulder	Curtain Airbag	Door Panel
Upper Torso	Torso Airbag	None
Lower Torso	Torso Airbag	Door Panel
Left Hip	Door Panel, Seat	Door Panel, Seat
Left Knee	Door Panel	Door Panel, Right Knee

**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

**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	Acceptable
Sill Separation	No Separation
Windshield Damage	None
Side Window Damage	Both struck side windows broken
Other Notable Effects	None

**DATA SHEET NO. 8 ... (CONTINUED)**

**POST-TEST OBSERVATIONS**

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114  
 Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13

**SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION**

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

**IMPACT POINT LOCATION DATA**

Measured Parameter	Units	Tolerance	Value
Vehicle Wheel Base	mm		2700
Vertical Impact Reference Line (Aft of Front Axle)(Intended Impact Point)	mm		412
Actual Impact Point (Aft of Front Axle)	mm		397
Horizontal Offset (+ forward / - rearward)	mm	± 50 of Intended Impact Point	15
Vertical Offset (+ down / - up)	mm	± 20 of Intended Impact Point	10

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

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114  
 Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13

**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	61.71
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	61.68
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	89.7
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	62.6
MDB Crabbed Angle to MDB Forward Line of Motion	degrees	26.0 to 28.0	27.1

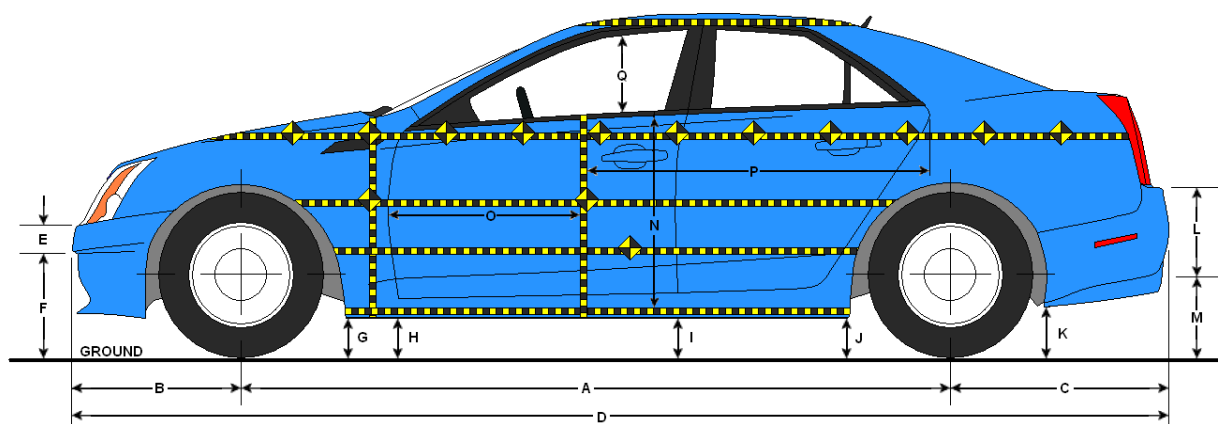
**MAXIMUM STATIC CRUSH OF HONEYCOMB FACE**

Vertical Location			From Centerline		Max. Crush (mm)
Row	Description	Height (mm)	Distance (mm)	Direction	
A	Center of Bumper	432	800	Right	261
B	Top of Bumper	533	800	Left	138
C	Mid Level	686	800	Left	137
D	Top of Stack	813	800	Left	237

## DATA SHEET NO. 10

### TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114  
 Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13



**LEFT SIDE VIEW**

#### VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2700	2694	-6
B	Front Axle to FSOV	921	925	4
C	Rear Axle to RSOV	853	850	-3
D	Total Length at Centerline	4474	4470	-4
E	Front Bumper Thickness	186	186	0
F	Front Bumper Bottom to Ground	393	403	10
G	Sill Height at Front Wheel Well	172	184	12
H	Sill Height at Front Door Leading Edge	169	184	15
I	Sill Height at B-Pillar	173	198	25
J1	Sill Height at Rear Wheel Well	178	193	15
J2	Pinch Weld Height at Rear Wheel Well	156	160	4
K	Sill Height Aft of Rear Wheel Well	228	221	-7
L	Rear Bumper Thickness	212	211	-1
M	Rear Bumper Bottom to Ground	392	383	-9
N	Sill Height to Bottom of Front Window Sill	600	600	0
O	Front Door Leading Edge to Impact CL	806	775	-31
P	Rear Door Trailing Edge to Impact CL	1285	1258	-27
Q	Front Window Opening	463	467	4
R	Right Side Length	3087	3089	2
S	Left Side Length	3086	3074	-12
T	Vehicle Width at B-Pillar	1746	1683	-63

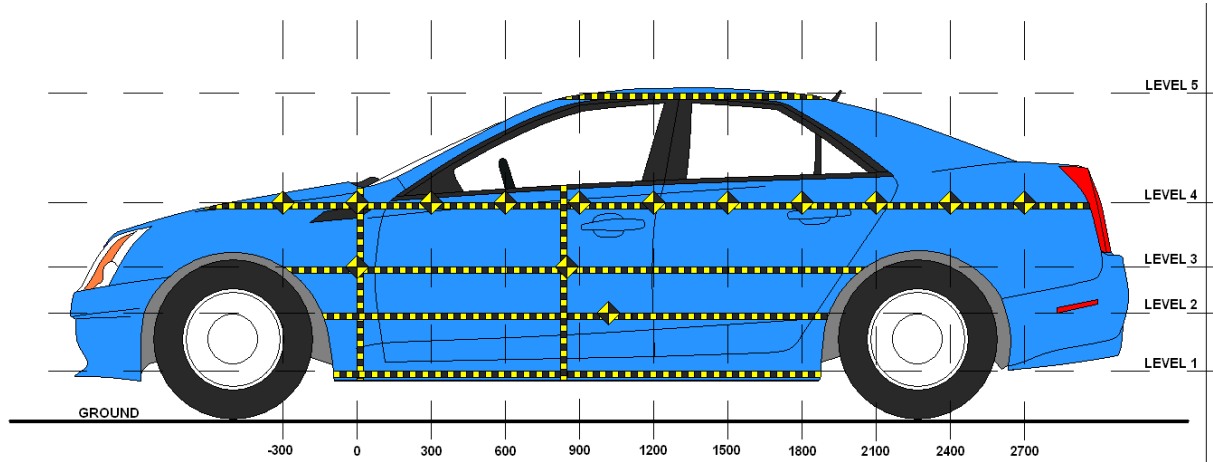
All measurements in mm with tolerance of  $\pm 3$ mm

**DATA SHEET NO. 11**

**TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS**

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114

Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13



**LEFT SIDE VIEW**

**MAXIMUM EXTERIOR CRUSH MEASUREMENTS**

Level	Description	Height Above Ground (mm)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	221	24	150
2	Occupant H-Point	551	221	1350
3	Mid-Door	623	231	1350
4	Window Sill	899	146	1650
5	Window Top	1443	19	1350

**DATA SHEET NO. 11 ... (CONTINUED)**

**TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS**

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114

Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13

**EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL**

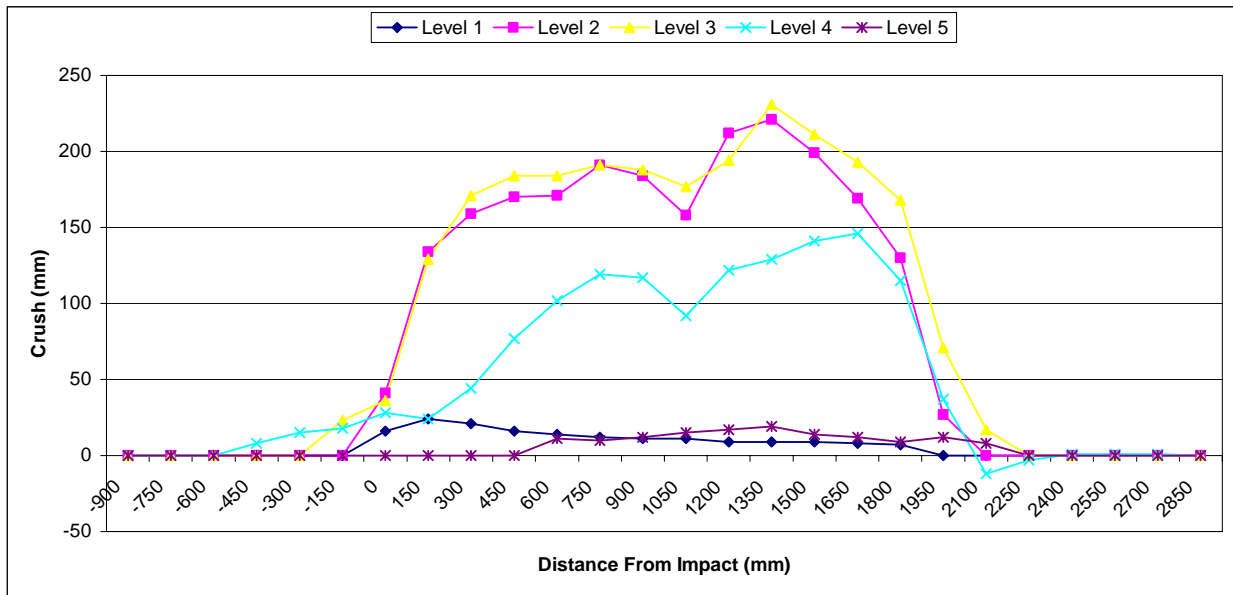
	Pre-Test (mm)					Post-Test (mm)					Difference (mm)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750															
-600															
-450				735					743					8	
-300				721					736					15	
-150			629	714				652	732				23	18	
0	663	631	633	701		679	672	669	729		16	41	36	28	
150	662	632	635	645		686	766	764	669		24	134	129	24	
300	664	632	634	678		685	791	805	722		21	159	171	44	
450	665	632	633	671		681	802	817	748		16	170	184	77	
600	664	631	633	664	892	678	802	817	766	903	14	171	184	102	11
750	663	631	632	660	901	675	822	823	779	911	12	191	191	119	10
900	663	631	632	655	901	674	815	820	772	913	11	184	188	117	12
1050	662	631	633	653	905	673	789	810	745	920	11	158	177	92	15
1200	663	632	633	653	908	672	844	827	775	925	9	212	194	122	17
1350	663	634	635	657	909	672	855	866	786	928	9	221	231	129	19
1500	663	635	637	662	917	672	834	848	803	931	9	199	211	141	14
1650	661	637	639	668	922	669	806	832	814	934	8	169	193	146	12
1800	655	639	641	673	926	662	769	809	788	935	7	130	168	115	9
1950		632	638	666	933		659	709	703	945		27	71	37	12
2100			629	688	942			646	676	950			17	-12	8
2250				697					694					-3	
2400				704					705					1	
2550				714					715					1	
2700				730					731					1	
2850															

DATA SHEET NO. 11 ... (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114

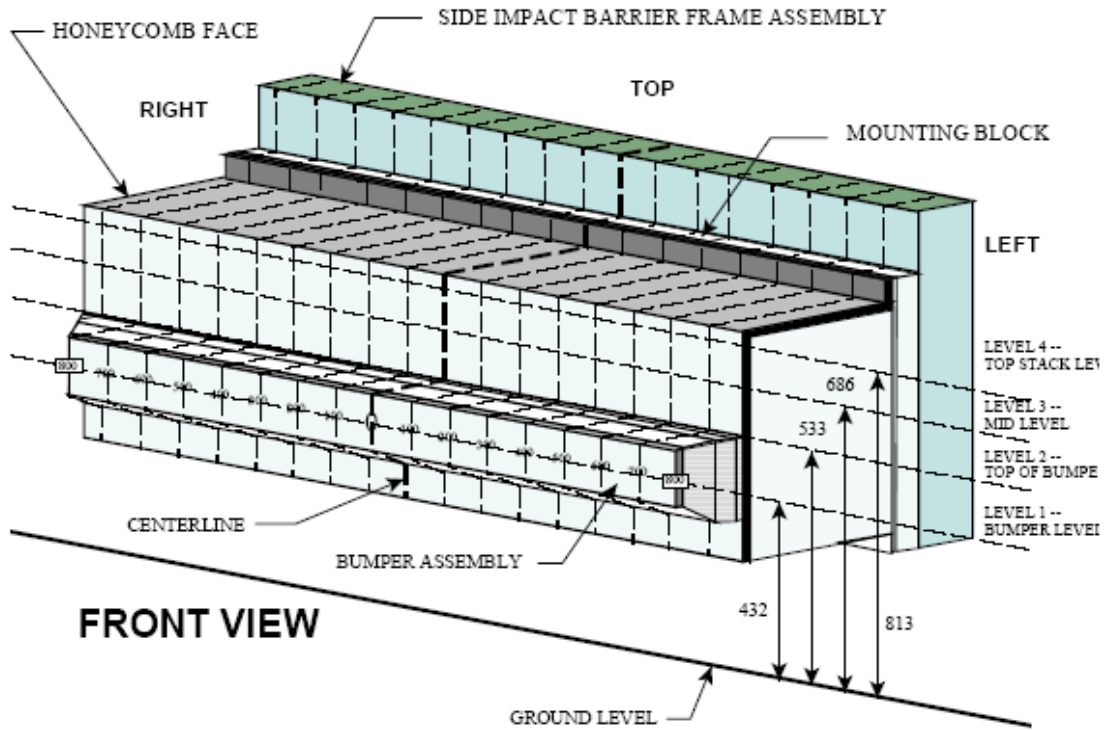
Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13



**DATA SHEET NO. 12**

**MDB EXTERIOR STATIC CRUSH MEASUREMENTS**

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114  
 Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13



NOTE: Dimensions are shown in millimeters, mm

**DEFORMABLE BARRIER STATIC CRUSH**

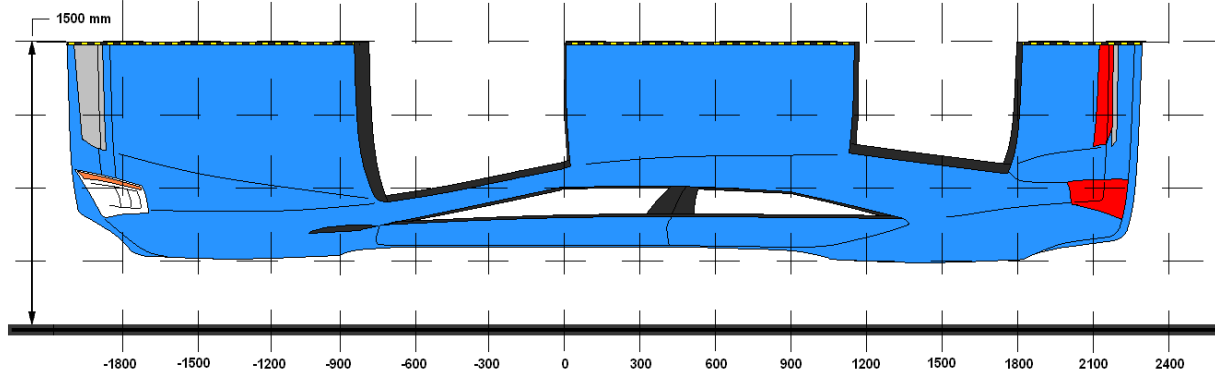
Stack Level	Distance Right of Center								C/L	Distance Left of Center							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
1	261	214	199	189	191	203	199	196	191	184	180	174	179	180	183	200	237
2	121	107	89	82	80	82	98	93	87	83	87	88	94	99	108	118	138
3	79	54	40	40	46	56	69	95	66	49	47	55	53	66	82	99	137
4	86	64	51	45	48	73	121	123	93	83	63	63	70	91	115	139	237

All dimensions in millimeters.

**DATA SHEET NO. 13**

**VEHICLE AND MDB DAMAGE PROFILE DISTANCES**

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114  
 Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13



**VEHICLE DAMAGE PROFILE DISTANCES**

DPD	Distance From Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Crush (mm)
1	2700	4	730	731	1
2	2100	3	629	646	17
3	1500	3	637	848	211
4	750	3	632	823	191
5	150	2	632	766	134
6	-450	4	735	743	8

**MDB DAMAGE PROFILE DISTANCES**

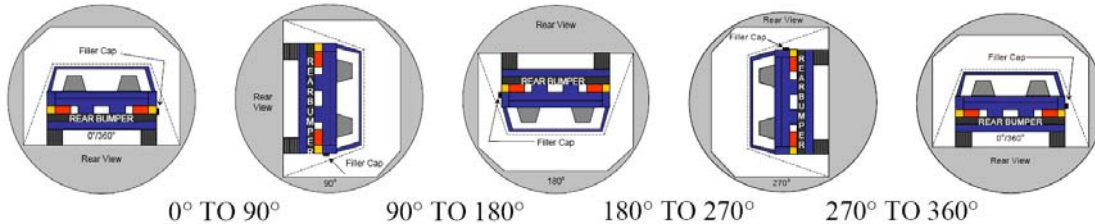
DPD	From MDB Centerline		Level	Crush (mm)
	Distance (mm)	Direction		
1	800	Left	1	237
2	500	Left	1	180
3	200	Left	1	180
4	200	Right	1	199
5	500	Right	1	189
6	800	Right	1	261

**DATA SHEET NO. 14**

**FMVSS NO. 301 STATIC ROLLOVER RESULTS**

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114  
 Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13  
 Temperature at Time of Impact: 6.7° C Test Time: 12:01 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°	84	300	384
90° To 180°	81	300	381
180° To 270°	86	300	386
270° To 360°	83	300	383

**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**

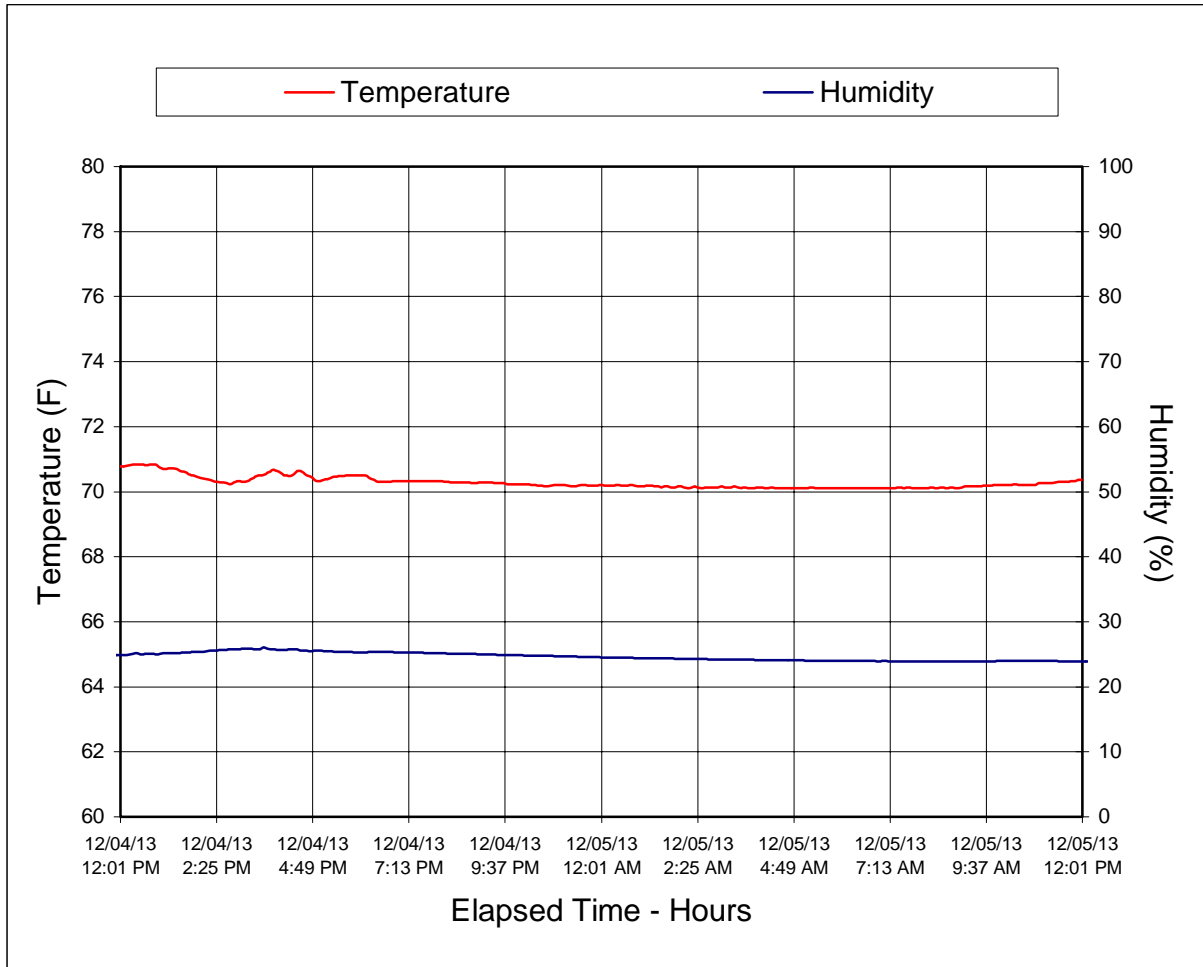
Test Phase	Spillage Location
0° To 90°	N/A
90° To 180°	N/A
180° To 270°	N/A
270° To 360°	N/A

**DATA SHEET NO. 15**

**DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION**

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback NHTSA No. M20145114

Test Program: NCAP MDB Side Impact Test Test Date: 12/05/13



**APPENDIX A  
PHOTOGRAPHS**

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97	FMVSS No. 301 Rollover 90 Degrees	A-49
98	FMVSS No. 301 Rollover 180 Degrees	A-50
99	FMVSS No. 301 Rollover 270 Degrees	A-50
100	FMVSS No. 301 Rollover 360 Degrees	A-51
101	Impact Event	A-51
102	Monroney Label	A-52
103	Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-52
104	Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-53



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

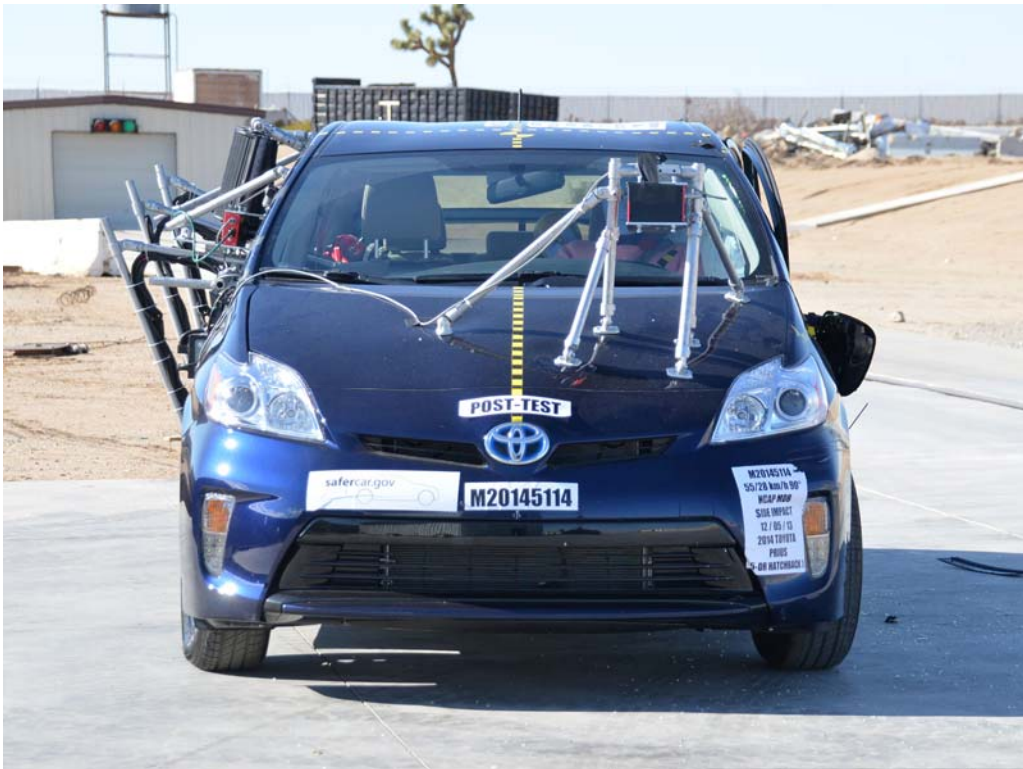


FIGURE 4. Post-Test Frontal View of Test Vehicle



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

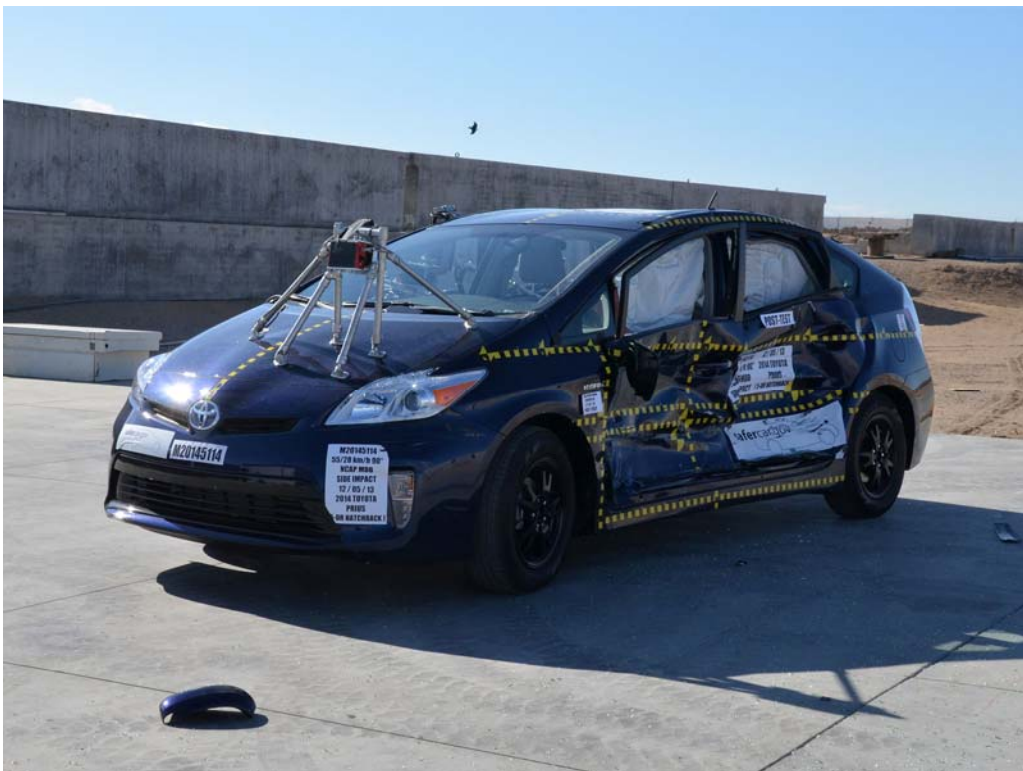


FIGURE 6. Post-Test Left Front  $\frac{3}{4}$  View of Test Vehicle



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

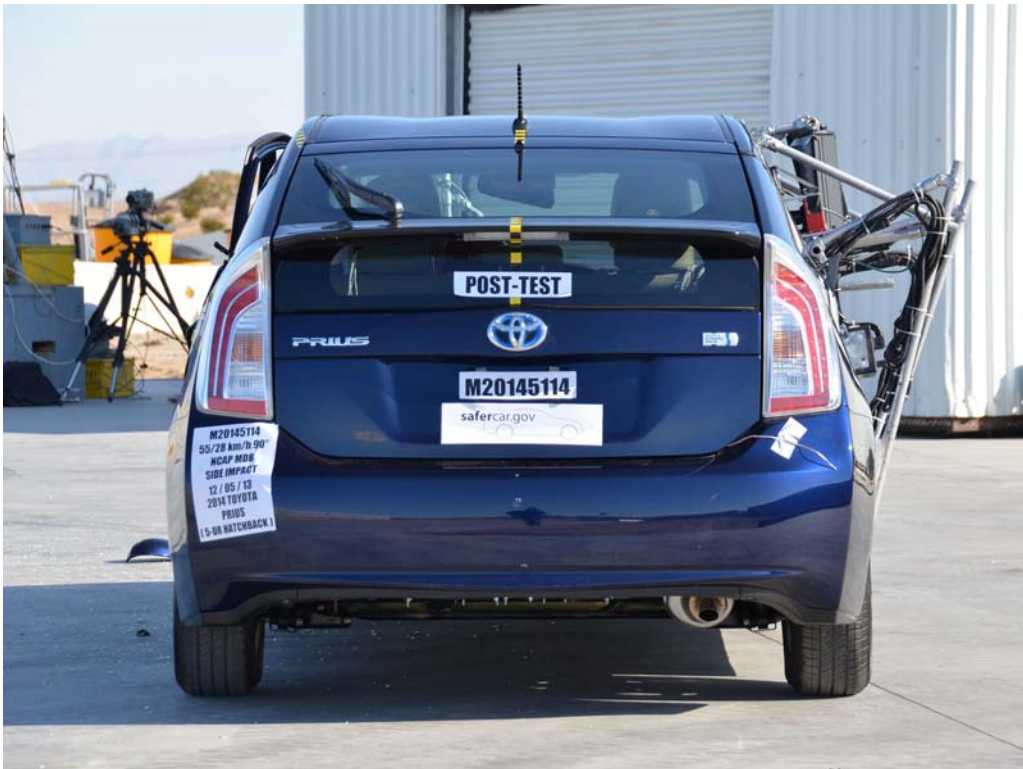


FIGURE 12. Post-Test Rear View of Test Vehicle



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

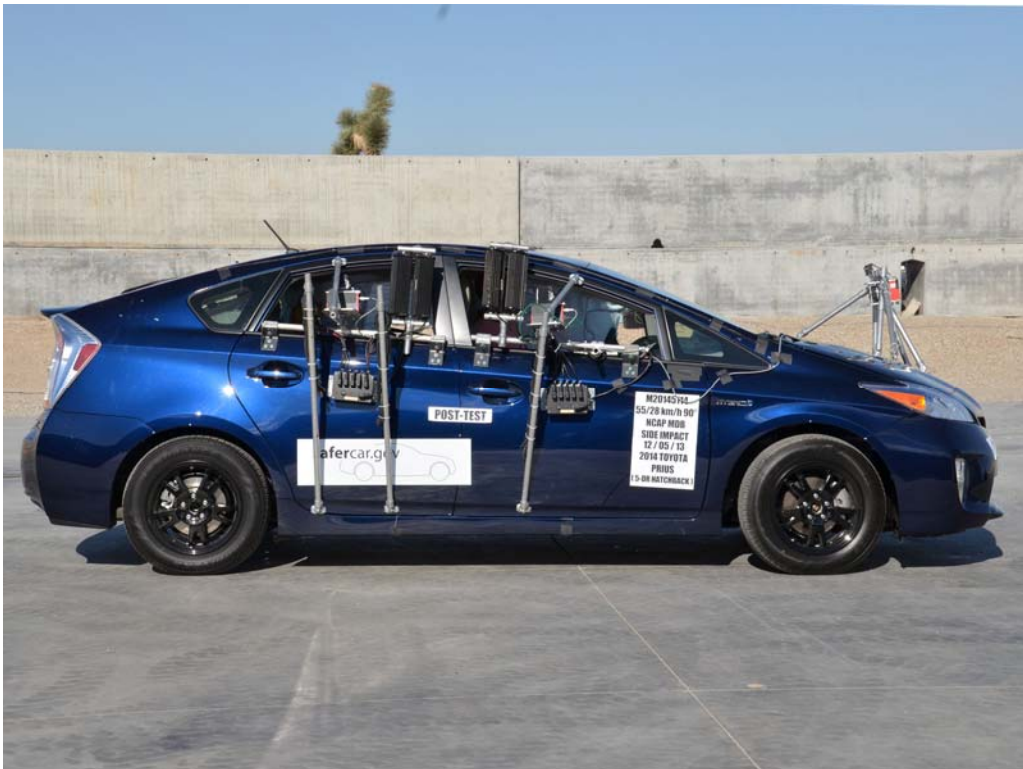


FIGURE 14. Post-Test Right Side View of Test Vehicle



FIGURE 15. Pre-Test Overhead View of Test Area

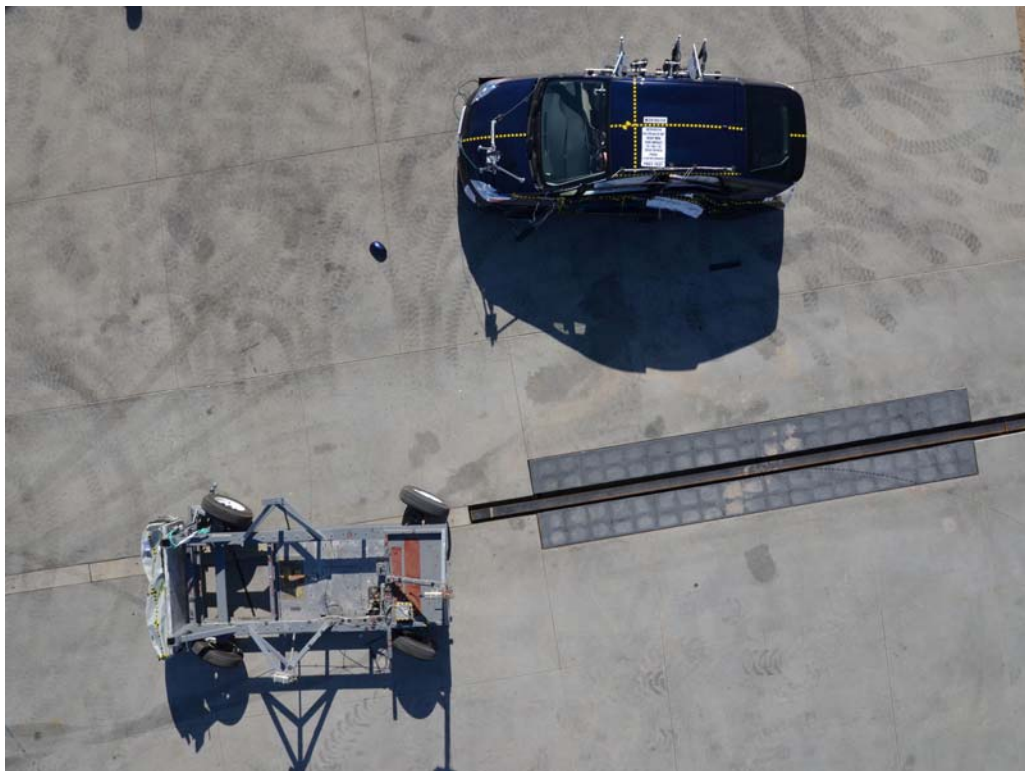


FIGURE 16. Post-Test Overhead View of Test Area



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

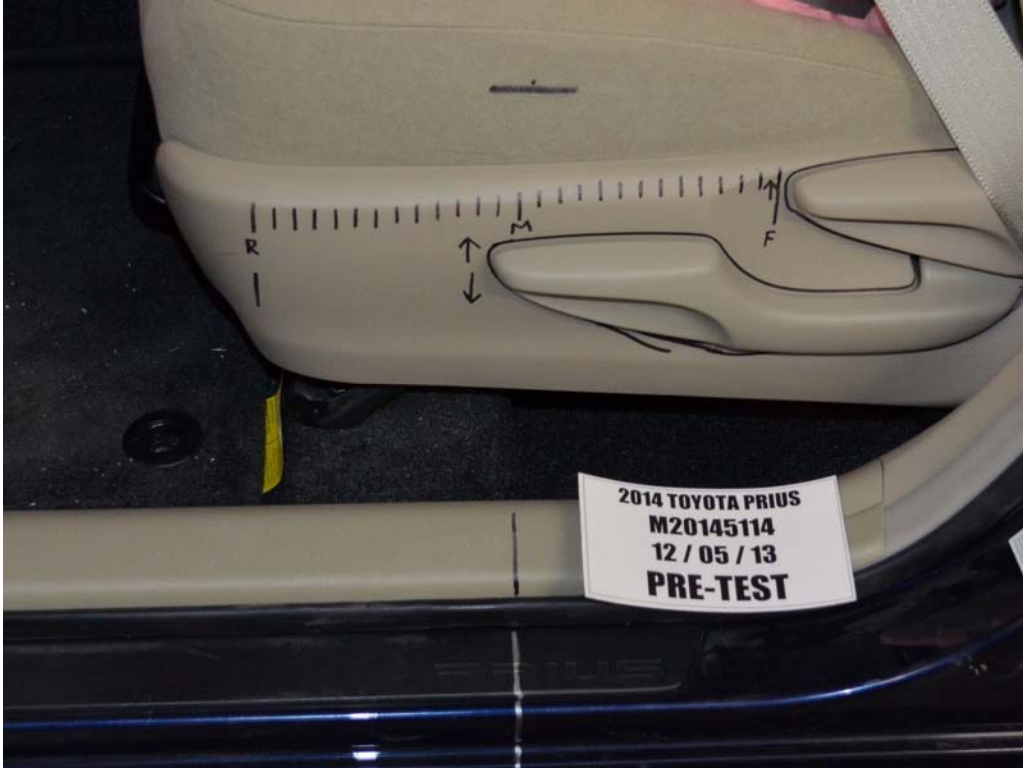


FIGURE 39. Pre-Test Close-Up Left Side View of Driver Seat Track



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

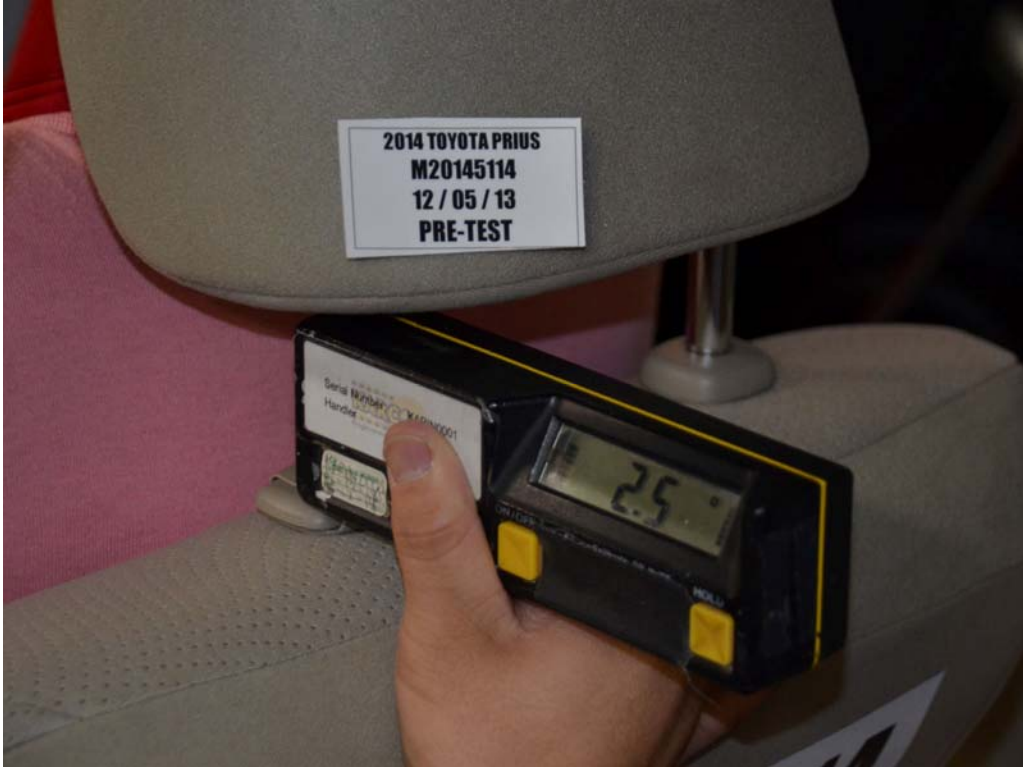


FIGURE 41. Pre-Test Close-Up View of Driver Seat Back or Head Restraint



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

Photograph Not Applicable

No Dummy Pelvis Contact  
with Side Airbag

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

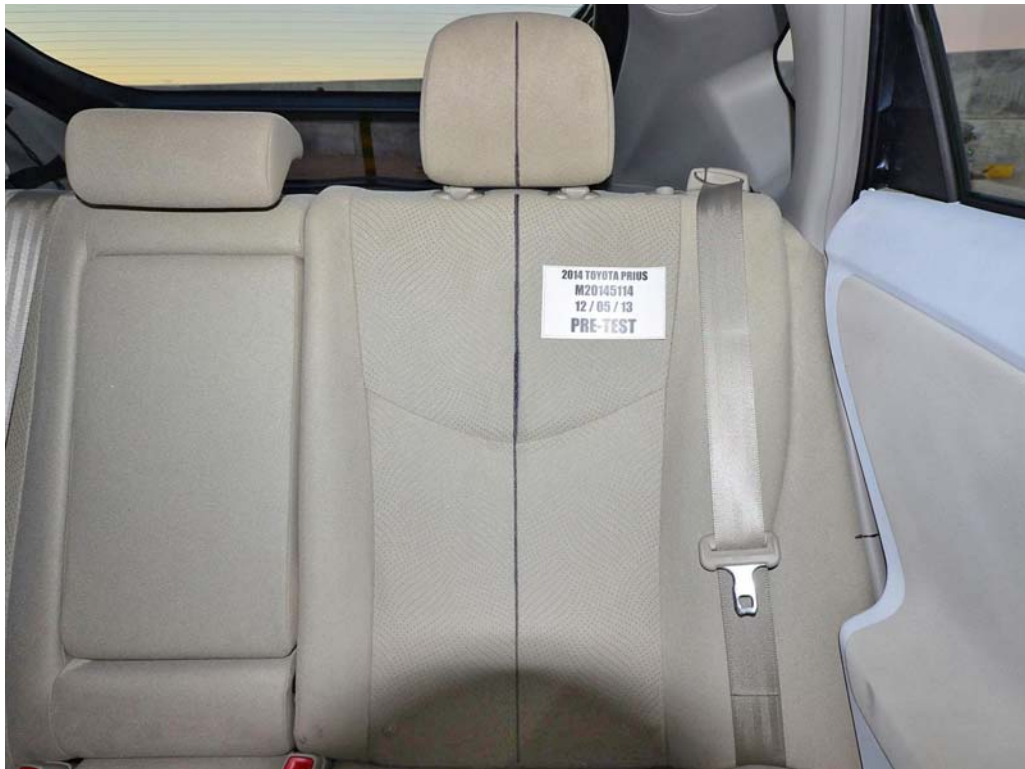


FIGURE 58. Pre-Test Frontal View of Rear Passenger Seat Back  
Prior to Dummy Positioning



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

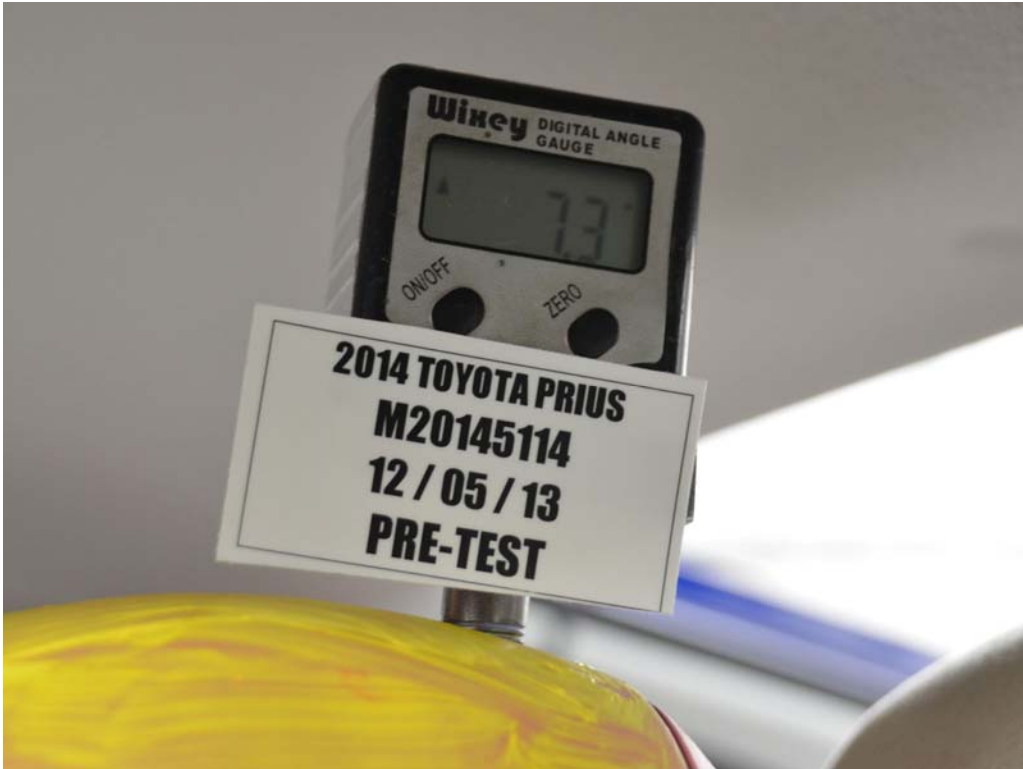


FIGURE 63. Pre-Test View of Rear Passenger Dummy's Head Showing Dummy's Head is Level



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

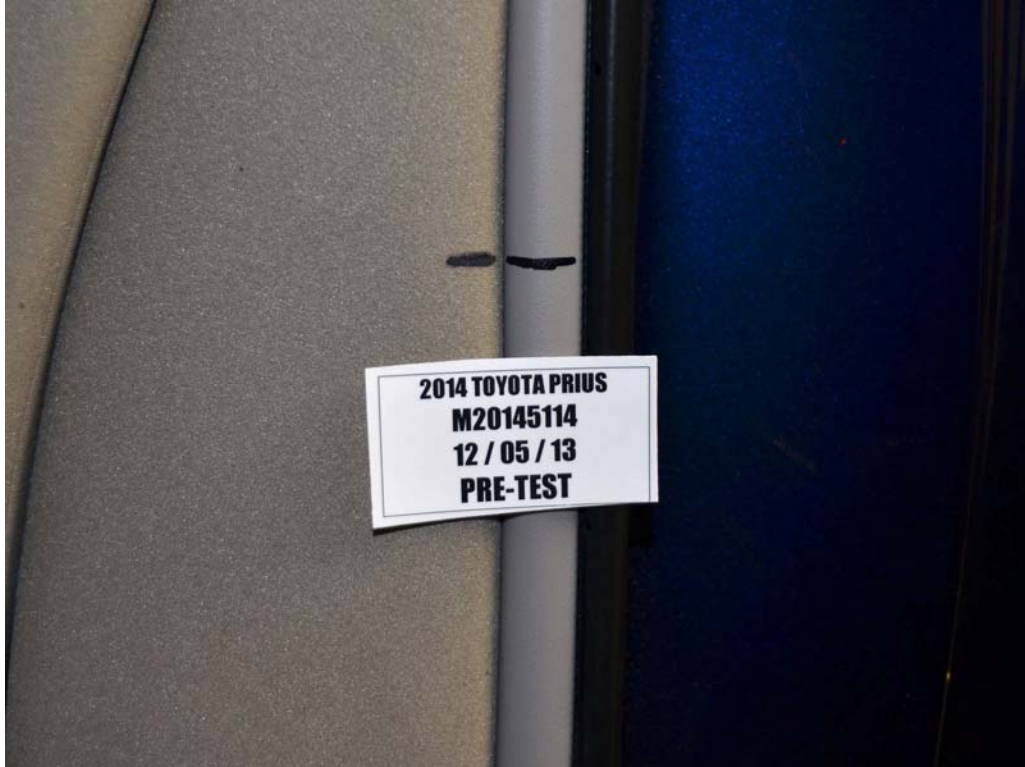


FIGURE 67. Pre-Test Close-Up Left Side View of Rear Passenger Seat Back



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 of Occupant Compartment



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

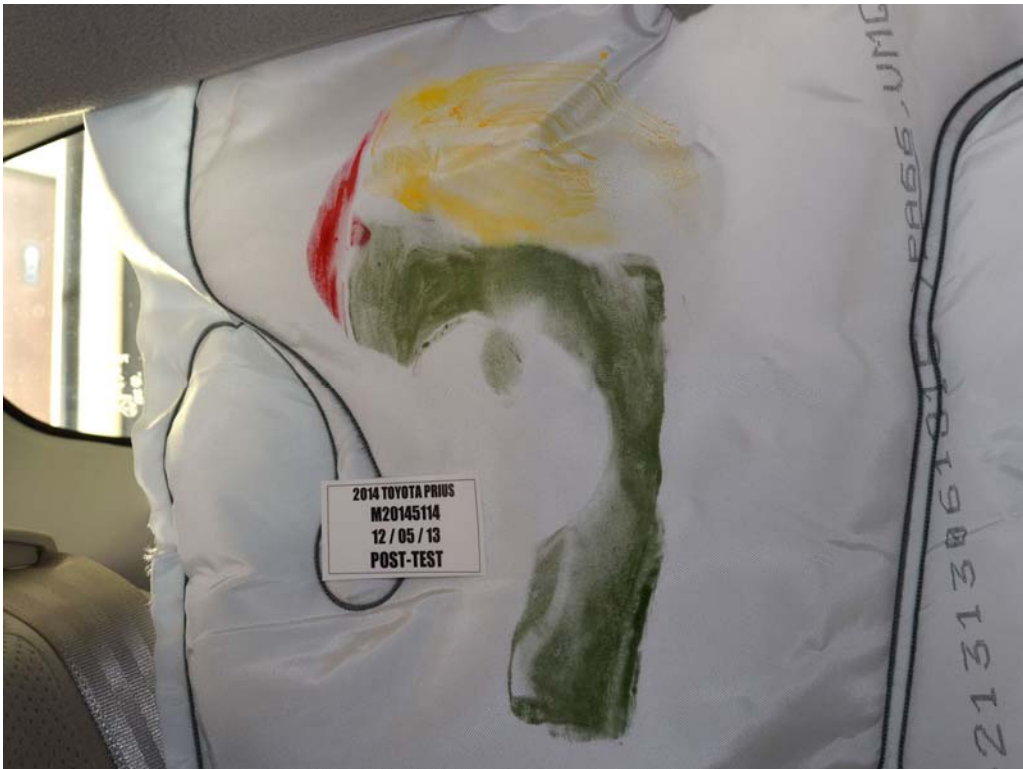


FIGURE 76. Post-Test Rear Passenger Dummy Close-Up  
Head Contact with Side Airbag View



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

**Photograph Not Applicable**

**Vehicle Not Equipped with  
Rear Passenger Side Airbags**

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 Passenger Side Airbags**

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

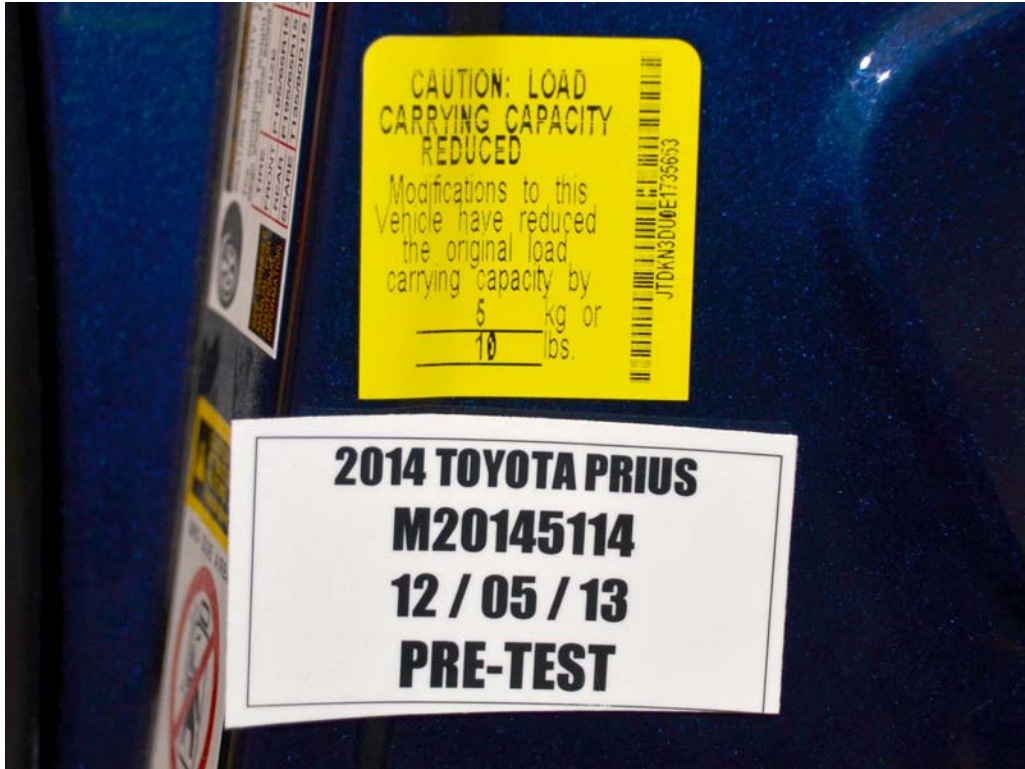


FIGURE 92a. Close-Up View of Vehicle's Reduced Load Carrying Capacity Label

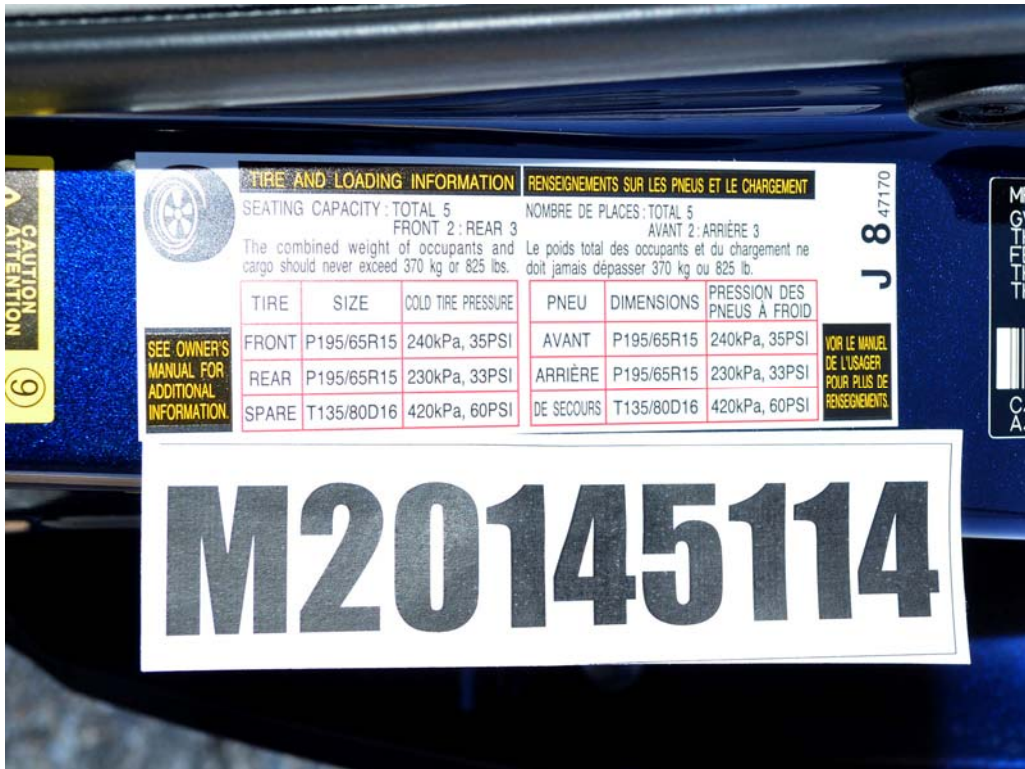


FIGURE 93. Close-Up View of Vehicle's Tire Information Placard or Label



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

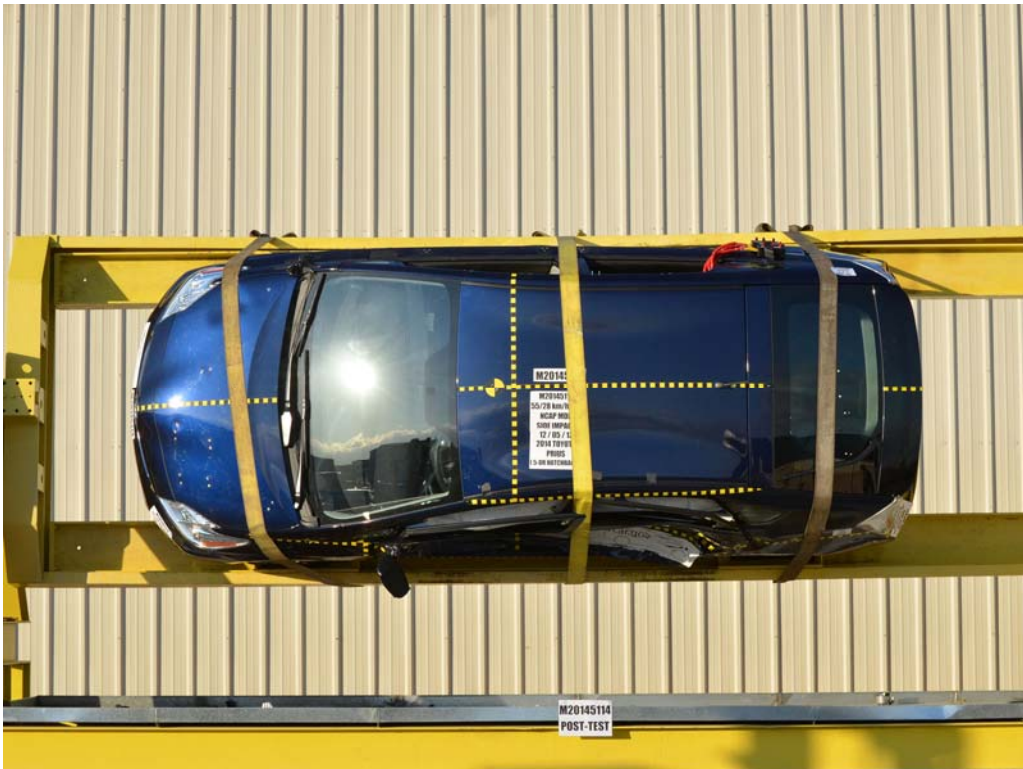


FIGURE 97. FMVSS No. 301 Static Rollover 90 Degrees



FIGURE 98. FMVSS No. 301 Static Rollover 180 Degrees



FIGURE 99. FMVSS No. 301 Static Rollover 270 Degrees



**TOYOTA**  
Let's Go Places

DESC: **PRUIS** Two Model  
VIN: **JTDKN3DU0E1735653**  
YR/MO/L: 2014/12/2A  
CLR: NAUTICAL BLUE M/1940 (0856/40)  
PORT/PLANT: Long Beach, CA RAILHEAD:

**STANDARD EQUIPMENT**  
MECHANICAL & PERFORMANCE  
- Hybrid Synergy Drive System, AT 22V  
- 1.8L D4C 16V VVT-i 4-Cylinder Engine  
- EVX/CPD/PS/MS  
- 15" Alloy Wheels w/Coil-Over, P180/65R15 Tires  
- Electric Power Steering (EPS)  
- 2008 EPA Estimated 48 City / 51 Highway / 50 Combined mpg  
SAFETY & CONVENIENCE  
- SRS Safety System: VSC, TRAC, ABS, EBD, Brake-Servo Distribution, Brake Assist, AIR/BSA & Smart Stop Technology (SST)  
- Dr & Fr Pass Advanced Airbag System  
- Dr & Fr Passenger Airbag w/Retracting  
- Side Curtain Airbags & Dr Knee Airbag  
- LATCH/Child Anchor & ISOFIX for Child Seats  
- Outboard Seat-Back Rest Positions Only  
- Daytime Running Lamps, Tire Pressure Monitor Type

**EXTERIOR**  
- Rear Spoiler, Intermittent Rear Wiper  
- Halogen Headlights w/Auto-On, LED DRLs  
- Heated Power Outside Mirrors

**INTERIOR**  
- Auto Climate Control System  
- 8-Speaker Audio, 8.1" Touch Screen, AM/FM/CD, 8 Speakers, Aux Jack, USB port and Bluetooth  
- Multi-Information Display w/Trip Info  
- 6-Speed MPFS, Touch Tracer Display  
- Fabric-Trimmed 6-Way Adjustable Driver Seat & 4-Way Adjustable Passenger Seat  
- 60/40 Split Fold-Down Rear Bench Seat w/Power-Open Center Armrest  
- Cruise Control  
- Telescopic Steering Wheel/Controls  
- Driver Foot Rest/Key System  
- Push Button Start w/Smart Key, Entry  
- Power Locks & Auto Lock/Unlock Power Windows  
- Center Console w/Armrest and Storage  
- Dual Compartment Door Bin  
- Cargo Tonnage Cover, Under-Floor Storage  
- 2 Front & 2 Rear Child Restraints  
- 2 Front & 2 Rear CD Holders  
- 2 Front & 2 Rear of 12

**OPTIONAL EQUIPMENT**  
FE 50 State Emissions 225.00  
CF Carpet Floor Mats & Cargo Mat 69.00  
EP Rear Bumper Applique

**MANUFACTURER'S SUGGESTED RETAIL PRICE \$24,200.00**

DELIVERY PROCESSING AND HANDLING FEE 810.00

**TOTAL \$25,204.00**

Dealer Name / Address: PUNTE HILLS TOYOTA, 1705 SALE AVENUE, CITY OF INDUSTRY, CA 91748  
Buy to: **Buy to:**

FIGURE 102. Monroney Label

**1-4 Adjustable components (seats, mirrors, steering wheel)**  
**Head restraints**

Head restraints are provided for all seats.

**Front seats**  
1. **Up**  
Pull the head restraints up.  
2. **Down**  
Push and hold the lock-release button when lowering the head restraint.

**Rear center seat**  
1. **Up**  
Pull up or push down the head restraint while pressing the lock-release button.  
2. **Down**  
Push and hold the lock-release button when lowering the head restraint.

**Foldable type rear outside seats**  
1. **Up**  
Pull the head restraint up while pressing the lock-release button.  
2. **Down**  
Push and hold the lock-release button when lowering the head restraint.

**Non-foldable type rear outside seats**  
1. **Up**  
Pull the head restraint up while pressing the lock-release button.

**Installing the head restraints**  
**Front and rear center seats**  
Align the head restraint with the installation holes and push it down to the lock position. Press and hold the lock-release button when lowering the head restraint.

**Rear outside seats**  
Align the head restraint with the installation holes and push it down to the lowest lock position.

**Adjusting the height of the head restraints**  
Make sure that the head restraints are adjusted so that the center of the head restraint is closest to the top of your ears.

**Installing the rear center seat head restraint**  
Press down the head restraint one level from the stored position when using.

**CAUTION**  
**Head restraint precautions**  
Observe the following precautions regarding the head restraints. Failure to do so may result in death or serious injury.  
• Use the head restraints designed for each respective seat.  
• After adjusting the head restraints, push down on them and make sure they are locked in position.  
• Do not drive with the head restraints removed.

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

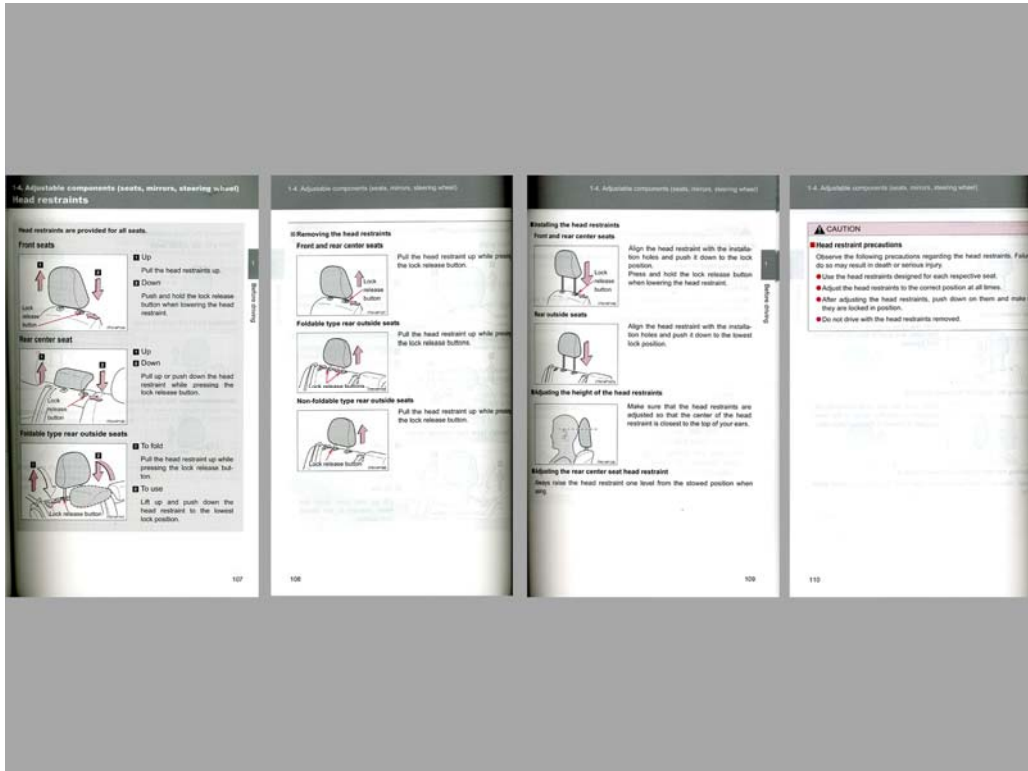


FIGURE 104. Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

**APPENDIX B**  
**DUMMY RESPONSE DATA**

## TABLE OF DATA PLOTS

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

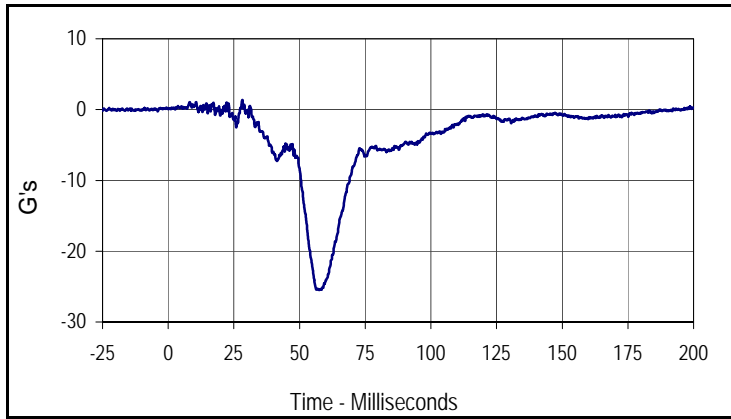
MDB Rear Acceleration (Y)

Left MDB Contact Switch

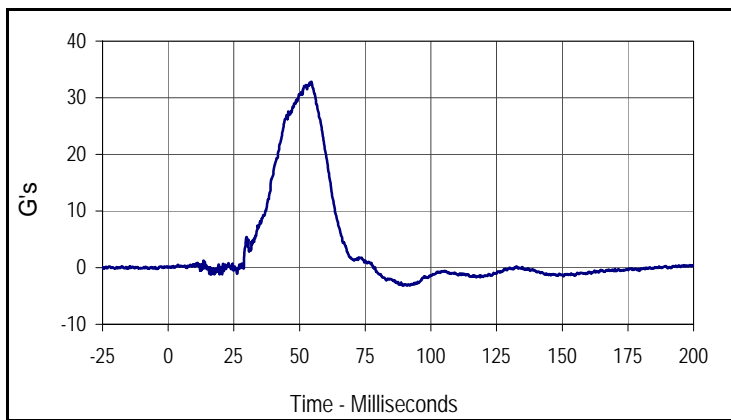
Right MDB Contact Switch

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback  
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

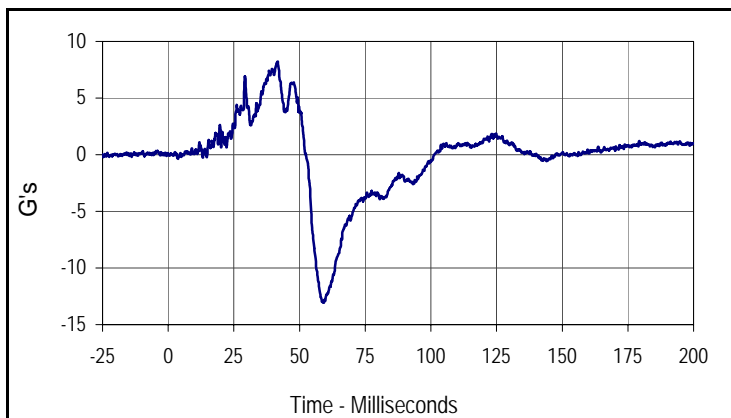
NHTSA No.: M20145114  
 Test Date: 12/5/13



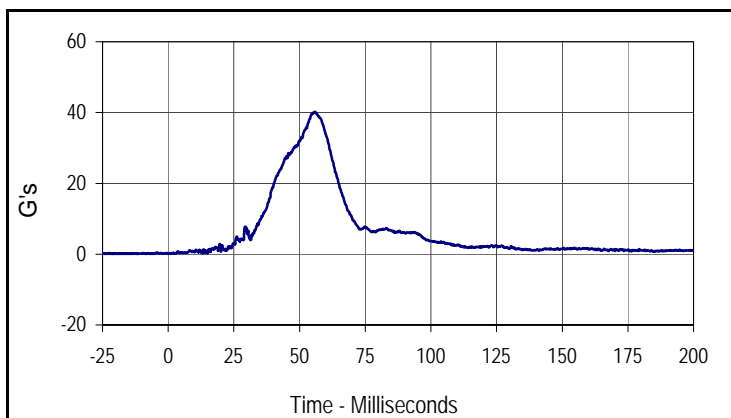
Curve Description			
Driver Head Acceleration X Primary			
Plot No.	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
1.4	28.2	-25.5	57.6



Curve Description			
Driver Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
32.8	54.4	-3.2	89.6



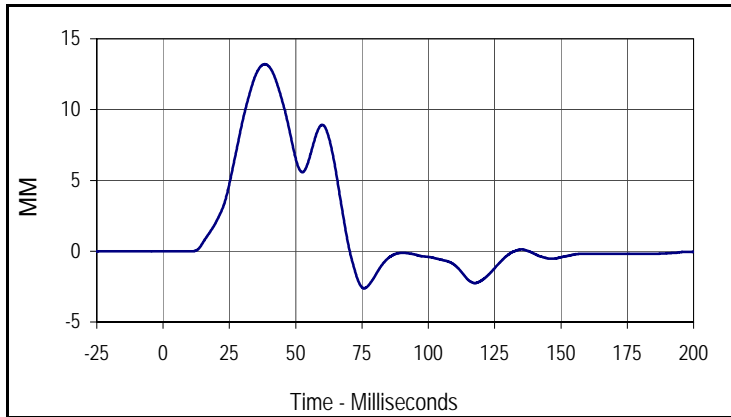
Curve Description			
Driver Head Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
8.2	41.6	-13.1	59.0



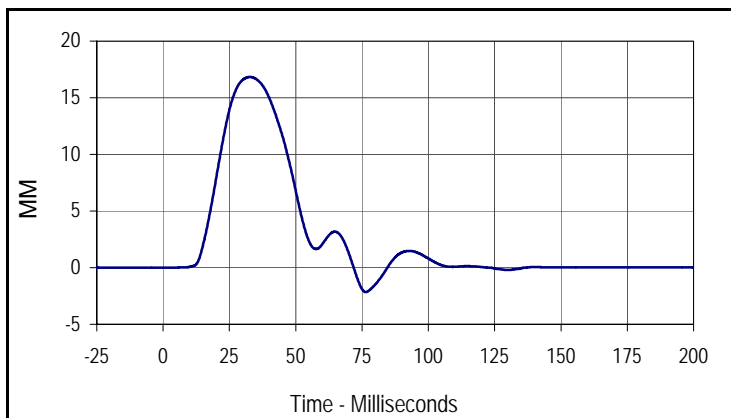
Curve Description			
Driver Head Resultant Acceleration Primary			
Plot No.	Type	SAE Class	Units
004	RES	1000	G's
Max	Time	Min	Time
40.2	55.9	0.1	1.1

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback  
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

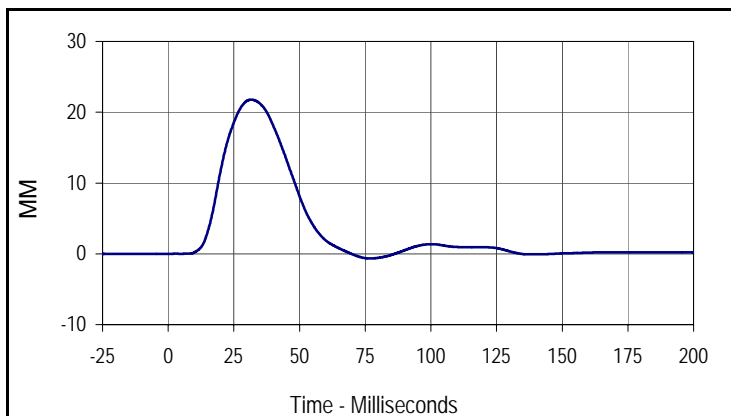
NHTSA No.: M20145114  
 Test Date: 12/5/13



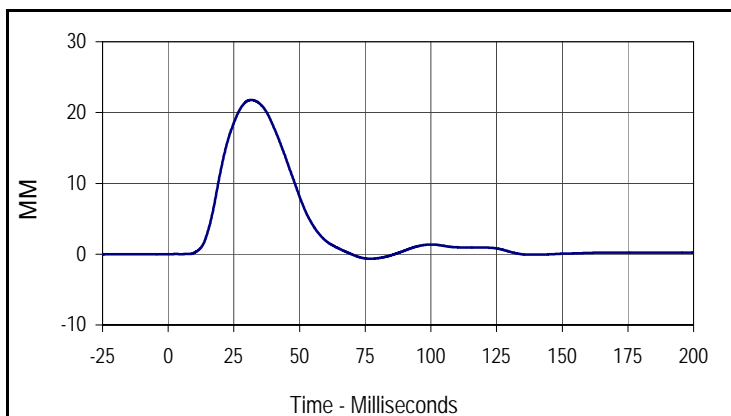
Curve Description			
Driver Upper Thorax Rib Deflection Y			
Plot No.	Type	SAE Class	Units
005	FIL	180	MM
Max	Time	Min	Time
13.2	38.4	-2.6	75.8



Curve Description			
Driver Middle Thorax Rib Deflection Y			
Plot No.	Type	SAE Class	Units
006	FIL	180	MM
Max	Time	Min	Time
16.8	32.7	-2.2	76.4



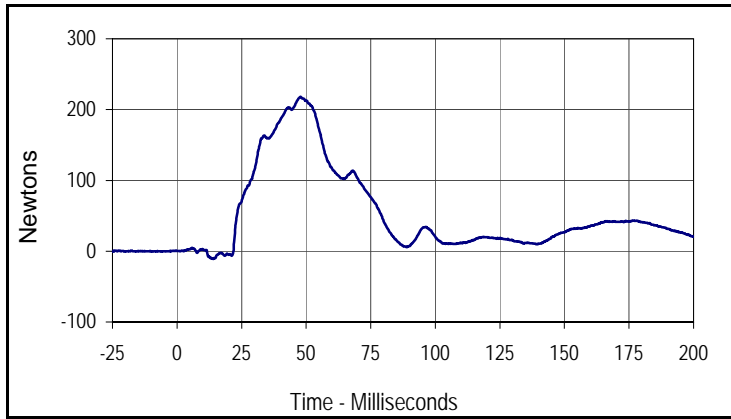
Curve Description			
Driver Lower Thorax Rib Deflection Y			
Plot No.	Type	SAE Class	Units
007	FIL	180	MM
Max	Time	Min	Time
21.8	31.7	-0.7	76.9



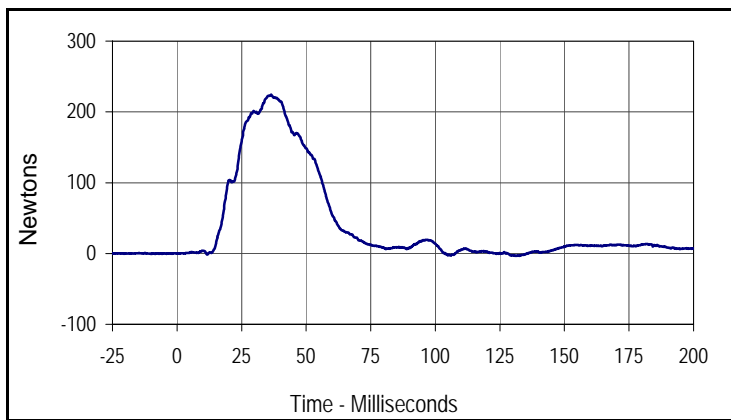
Curve Description			
Driver Thorax Rib Deflection Maximum			
Plot No.	Type	SAE Class	Units
010	FIL	180	MM
Max	Time	Min	Time
21.8	31.7	-0.7	76.9

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback  
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

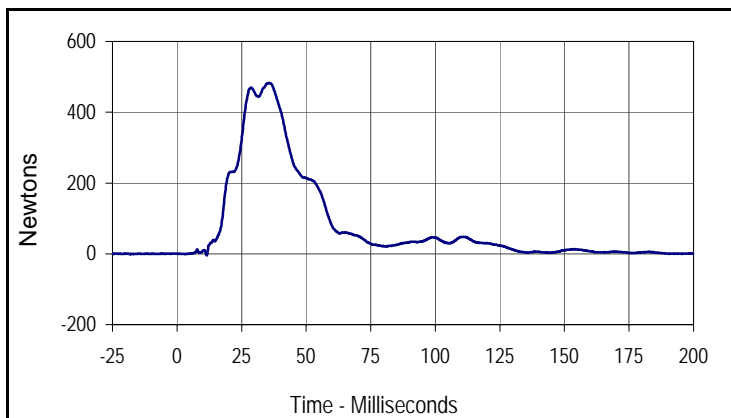
NHTSA No.: M20145114  
 Test Date: 12/5/13



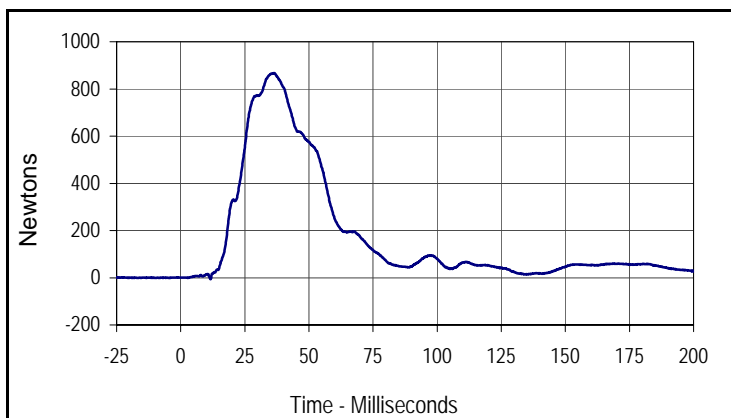
Curve Description			
Driver Anterior Abdominal Force Y			
Plot No.	Type	SAE Class	Units
008	FIL	600	Newtons
Max	Time	Min	Time
218.1	47.8	-10.8	14.0



Curve Description			
Driver Middle Abdominal Force Y			
Plot No.	Type	SAE Class	Units
009	FIL	600	Newtons
Max	Time	Min	Time
224.3	36.4	-3.5	131.3



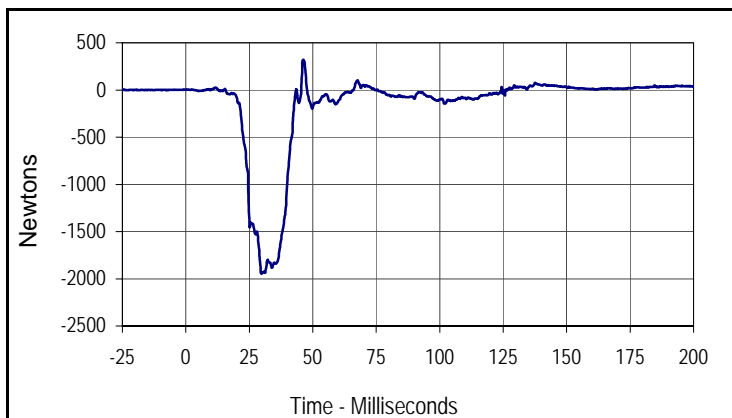
Curve Description			
Driver Posterior Abdominal Force Y			
Plot No.	Type	SAE Class	Units
011	FIL	600	Newtons
Max	Time	Min	Time
482.4	35.7	-4.9	11.5



Curve Description			
Driver Total Abdominal Force			
Plot No.	Type	SAE Class	Units
012	SUM	600	Newtons
Max	Time	Min	Time
867.5	36.4	-6.4	11.6

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback  
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

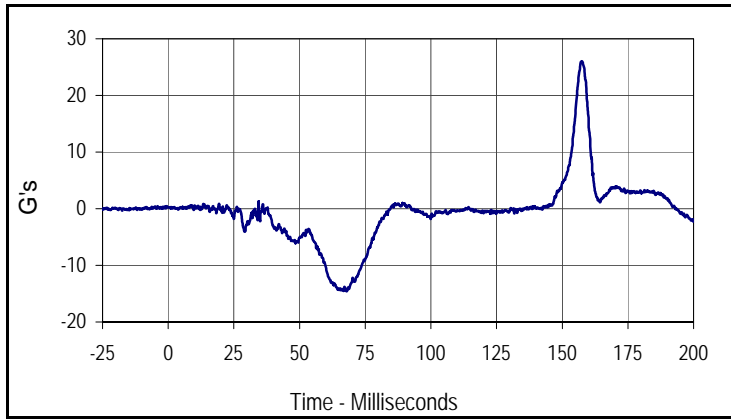
NHTSA No.: M20145114  
 Test Date: 12/5/13



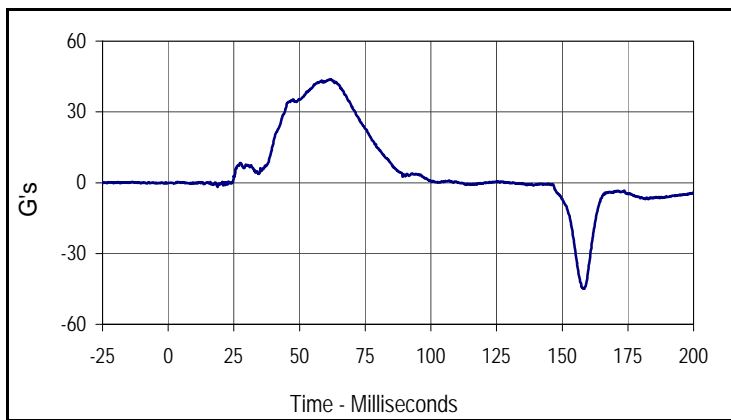
Curve Description			
Driver Pubic Symphysis Force Y			
Plot No.	Type	SAE Class	Units
013	FIL	600	Newtons
Max	Time	Min	Time
319.4	46.2	-1946.2	29.8

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback  
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

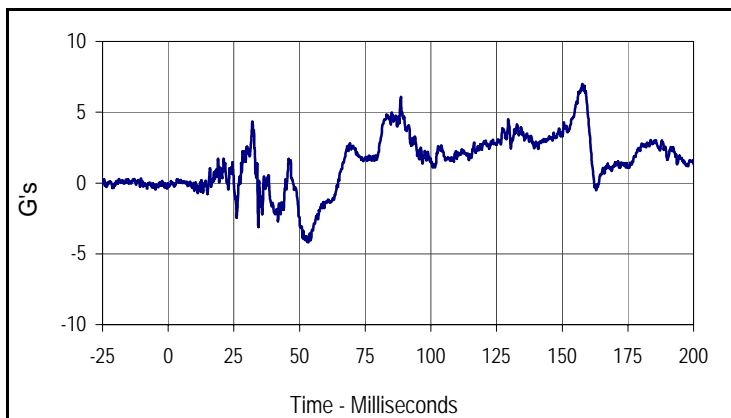
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 Test Date: 12/5/13



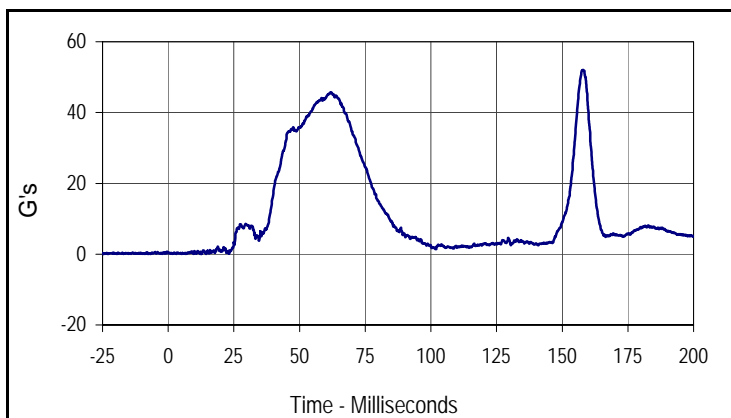
Curve Description			
Passenger Head Acceleration X Primary			
Plot No.	Type	SAE Class	Units
014	FIL	1000	G's
Max	Time	Min	Time
26.0	157.5	-14.6	67.8



Curve Description			
Passenger Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
015	FIL	1000	G's
Max	Time	Min	Time
43.8	61.7	-44.9	158.0



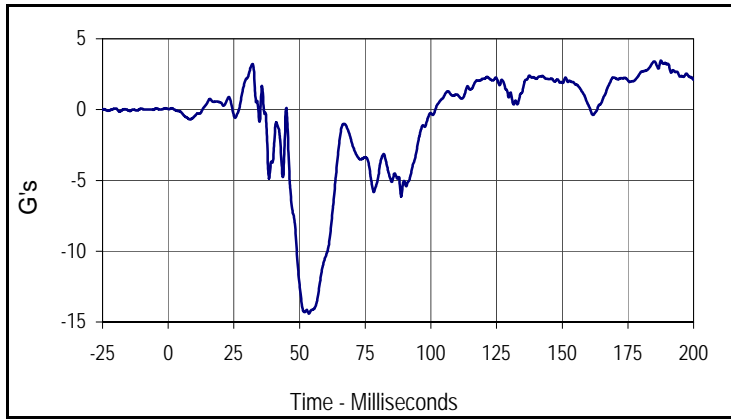
Curve Description			
Passenger Head Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
016	FIL	1000	G's
Max	Time	Min	Time
7.0	157.7	-4.2	53.3



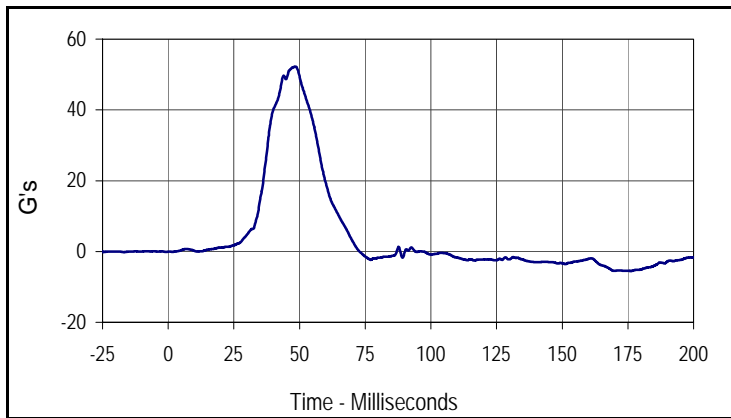
Curve Description			
Passenger Head Acceleration Resultant Primary			
Plot No.	Type	SAE Class	Units
017	RES	1000	G's
Max	Time	Min	Time
52.0	158.0	0.0	3.0

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback  
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

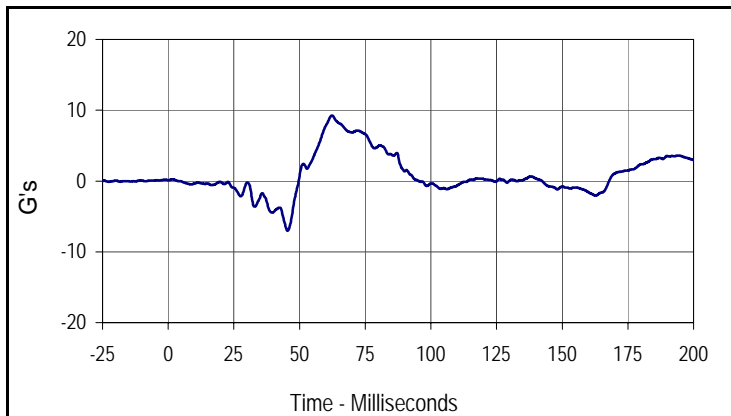
NHTSA No.: M20145114  
 Test Date: 12/5/13



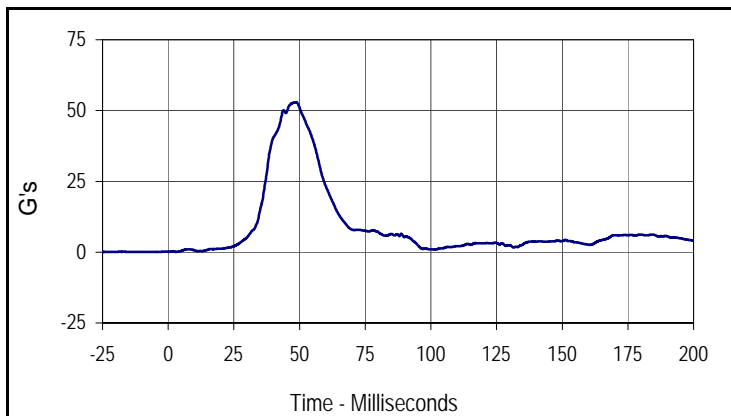
Curve Description			
Passenger Lower Spine T12 Acceleration X			
Plot No.	Type	SAE Class	Units
019	FIL	180	G's
Max	Time	Min	Time
3.5	187.6	-14.4	53.6



Curve Description			
Passenger Lower Spine T12 Acceleration Y			
Plot No.	Type	SAE Class	Units
020	FIL	180	G's
Max	Time	Min	Time
52.2	48.5	-5.5	176.1



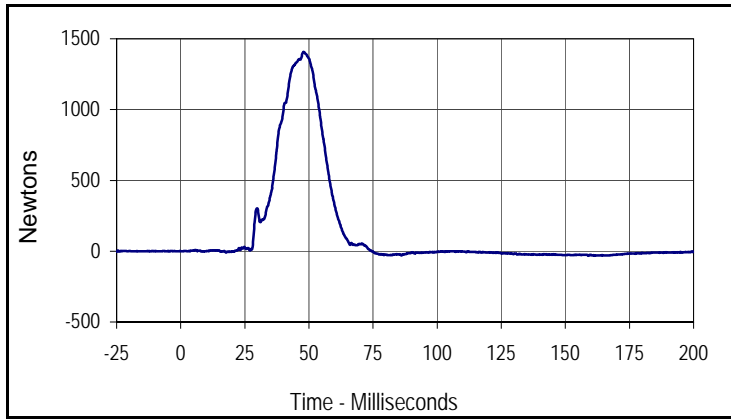
Curve Description			
Passenger Lower Spine T12 Acceleration Z			
Plot No.	Type	SAE Class	Units
021	FIL	180	G's
Max	Time	Min	Time
9.3	62.4	-7.0	45.4



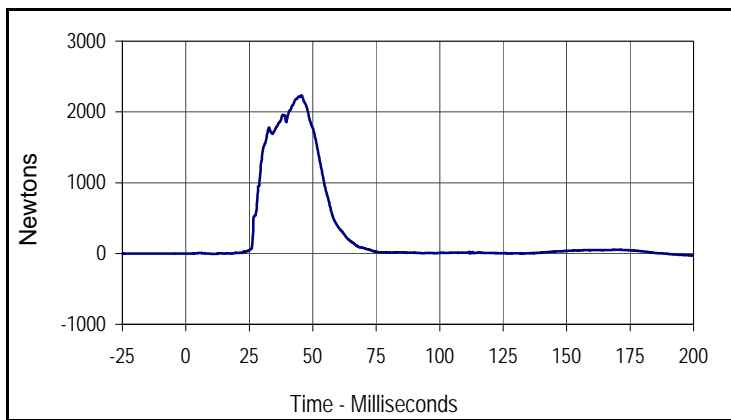
Curve Description			
Passenger Lower Spine T12 Acceleration Resultant			
Plot No.	Type	SAE Class	Units
022	RES	180	G's
Max	Time	Min	Time
53.0	48.7	0.1	3.1

Test Vehicle: 2014 Toyota Prius 5-Door Hatchback  
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

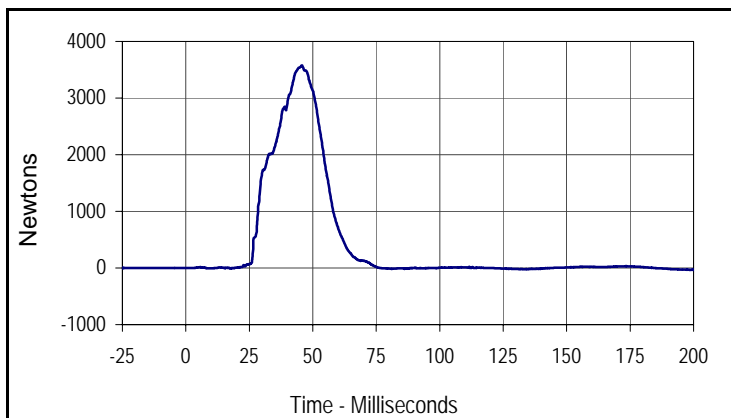
NHTSA No.: M20145114  
 Test Date: 12/5/13



Curve Description			
Passenger Iliac Wing Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
023	FIL	600	Newtons
Max	Time	Min	Time
1406.8	48.0	-31.4	159.1



Curve Description			
Passenger Acetabulum Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
024	FIL	600	Newtons
Max	Time	Min	Time
2231.6	45.6	-27.5	200.0



Curve Description			
Passenger Total Pelvic Force			
Plot No.	Type	SAE Class	Units
018	SUM	600	Newtons
Max	Time	Min	Time
3577.7	45.7	-34.0	198.5

**APPENDIX C**  
**DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA**

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

Test Program: ES2re External Measurements

Test Date: 11/18/13



ATD Serial No.: F035

Test I.D.: N/A

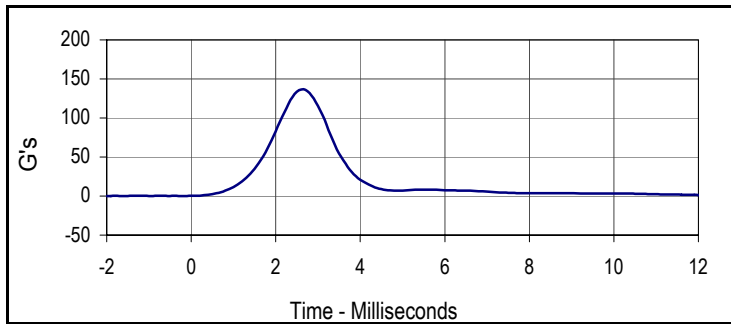
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	30.0	Pass
1 Sitting Height	mm	900 - 918	909	Pass
2 Seat to Shoulder Joint	mm	558 - 572	564	Pass
3 Seat to Lower Face of Thoracic Spine Box	mm	346 - 356	350	Pass
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.: F035

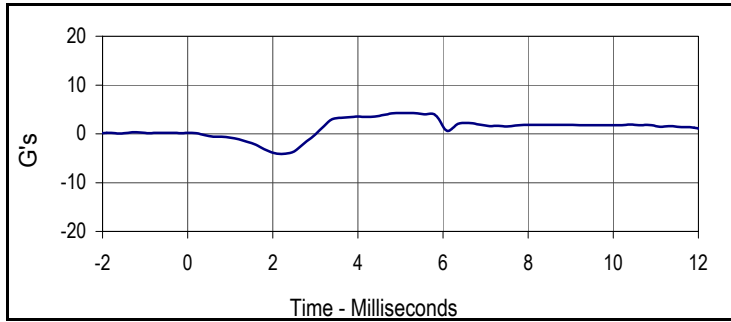
Test Date: 11/18/13  
 Test I.D.: F035HD051



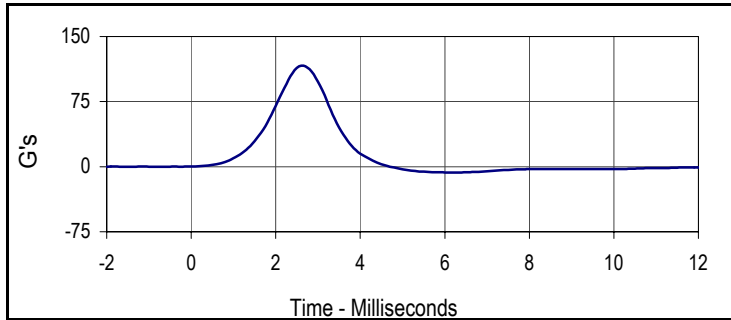
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	300	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.6	Pass
	Min		33.5	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.6	Pass
Peak Head Resultant Acceleration	G's	125 to 155	136.6	Pass
Peak Head X Acceleration	G's	≤15	4.3	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	6.1	Pass
<b>Overall Test Results</b>				<b>Pass</b>



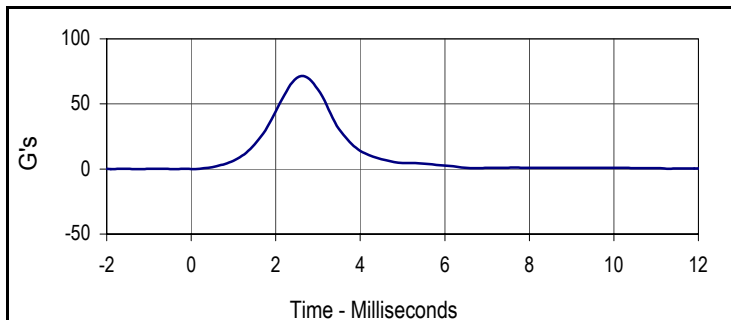
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
136.6	2.6	0.1	-0.1



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
4.3	5.0	-4.1	2.2



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
116.4	2.6	-6.9	6.2



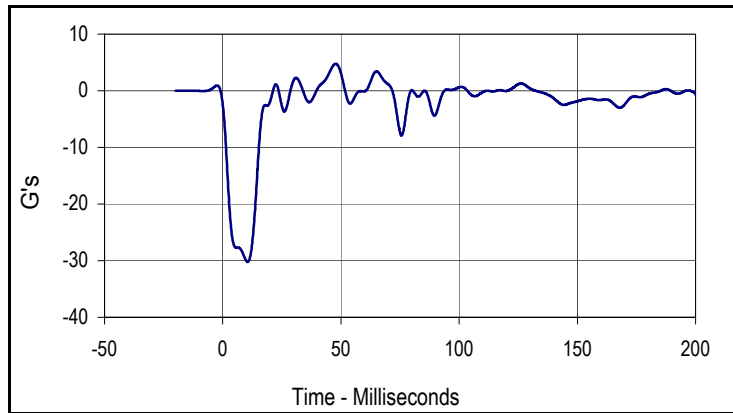
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
71.4	2.6	-0.1	-1.3

Test Program: ES2re Neck Flexion Test  
 ATD Serial No.: F035

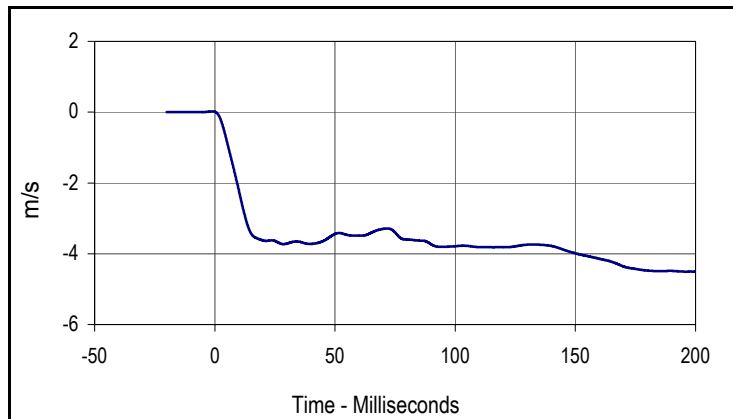
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 Test I.D.: F035NB051



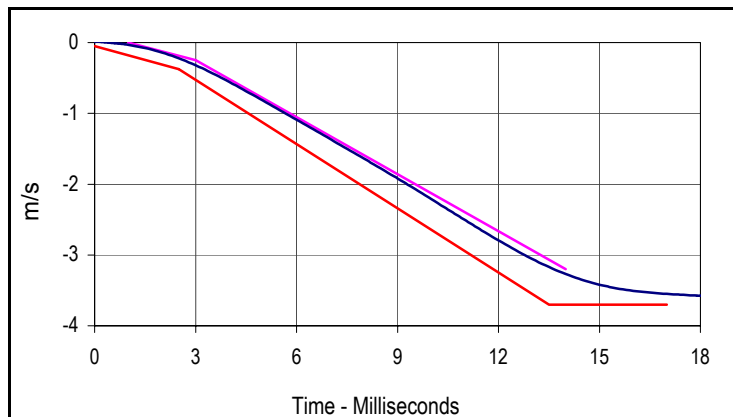
Tested Parameter	Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time	Minutes	≥240	335	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.6	Pass
	Min		33.5	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.6	Pass
Pendulum Velocity	m/s	3.3 to 3.5	3.35	Pass
Headform Flexion	Max	49 to 59	54.6	Pass
	Time	54 to 66	60.4	Pass
Headform Flexion Decay (Peak to Zero)	msec	53 to 88	61.8	Pass
Overall Test Results				Pass



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
4.8	47.8	-30.2	10.5



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.0	-4.5	199.9



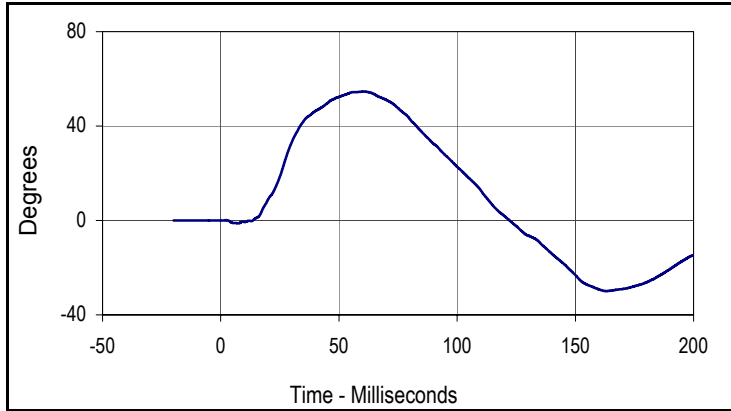
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.0	-4.5	199.9

Velocity Corridors

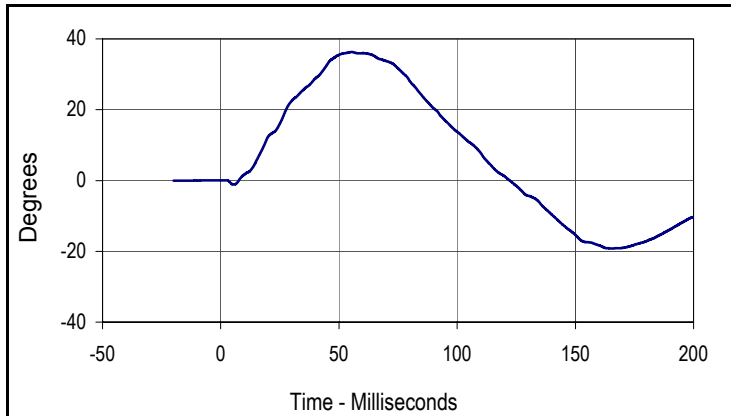
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.0	-0.03	2.5	-0.375
14.0	-3.20	13.5	-3.70
		17.0	-3.70

Test Program: ES2re Neck Flexion Test  
 ATD Serial No.: F035

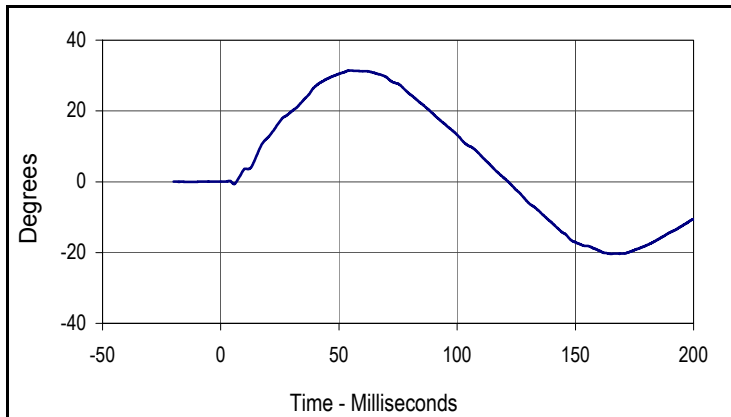
Test Date: 11/18/13  
 Test I.D.: F035NB051



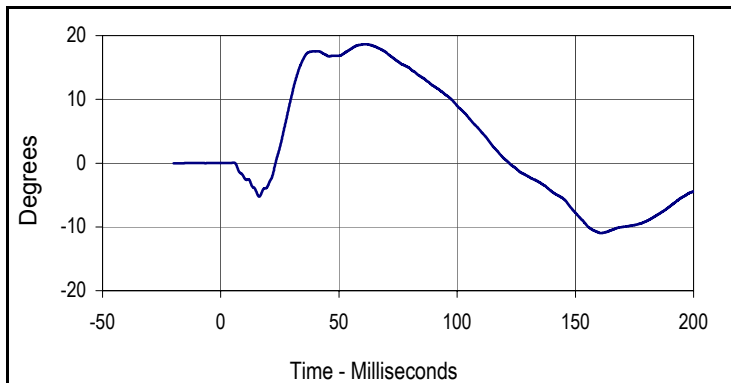
Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	180	Degrees
Max	Time	Min	Time
54.6	60.4	-29.9	163.1



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
004	FIL	180	Degrees
Max	Time	Min	Time
36.3	55.4	-19.2	165.3



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
005	FIL	180	Degrees
Max	Time	Min	Time
31.4	54.8	-20.4	165.0



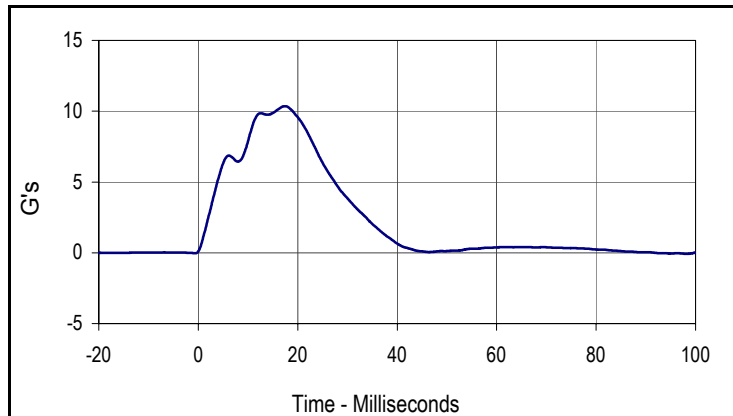
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
006	FIL	180	Degrees
Max	Time	Min	Time
18.7	60.8	-11.0	160.8

Test Program: ES2re Shoulder Impact Test  
 ATD Serial No.: F035

Test Date: 11/18/13  
 Test I.D.: F035SH051



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	400	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.6	Pass
	Min		33.5	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.5	Pass
Pendulum Speed	m/s	4.2 to 4.4	4.37	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	10.4	Pass
Overall Test Results				Pass



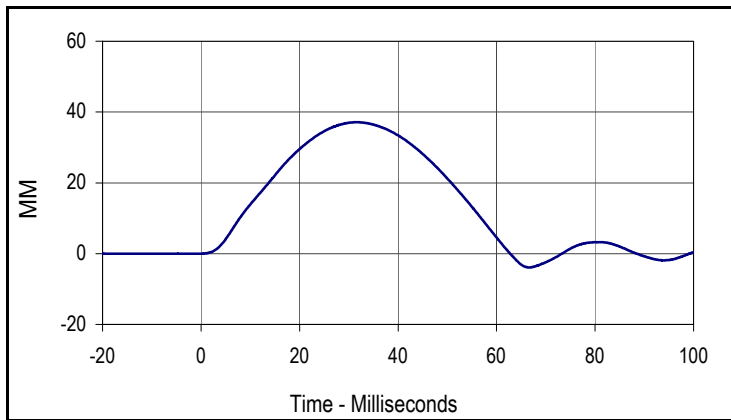
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
10.4	17.4	-0.1	98.2

Test Program: ES2re Thorax - Rib Drop Test  
 ATD Serial No.: F035 Rib # 1

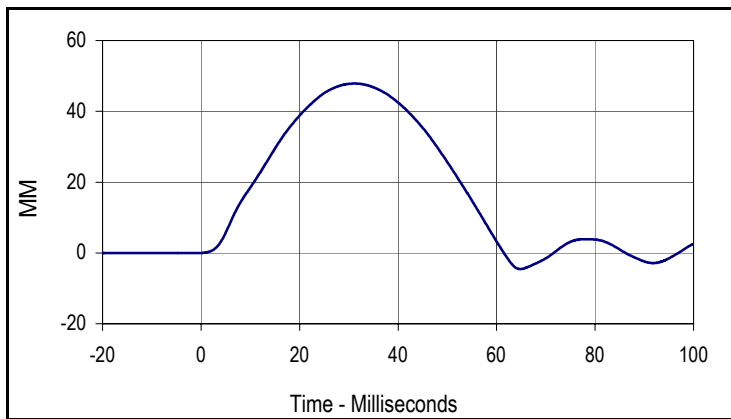
Test Date: 11/18/13  
 Test I.D.: F035RB1051



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	455	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.6	Pass
	Min		33.5	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.5	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	37.1	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	47.9	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
37.1	31.6	-3.9	66.6



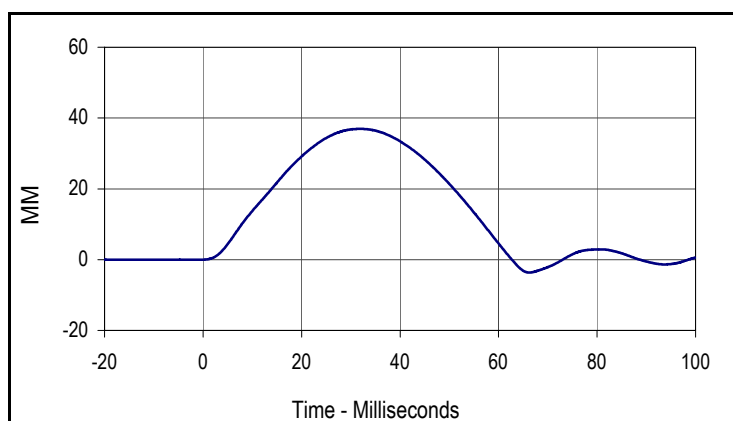
Curve Description			
Upper Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
47.9	31.1	-4.6	64.8

Test Program: ES2re Thorax - Rib Drop Test  
 ATD Serial No.: F035 Rib # 2

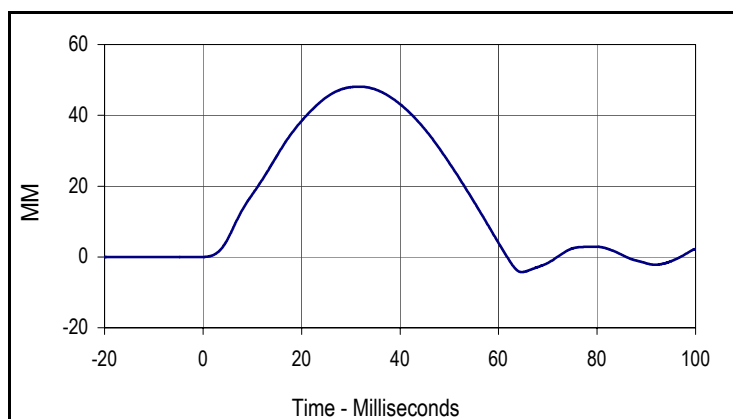
Test Date: 11/18/13  
 Test I.D.: F035RB2051



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	500	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.6	Pass
	Min		33.5	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.5	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	36.9	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	48.1	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
36.9	31.9	-3.7	66.2



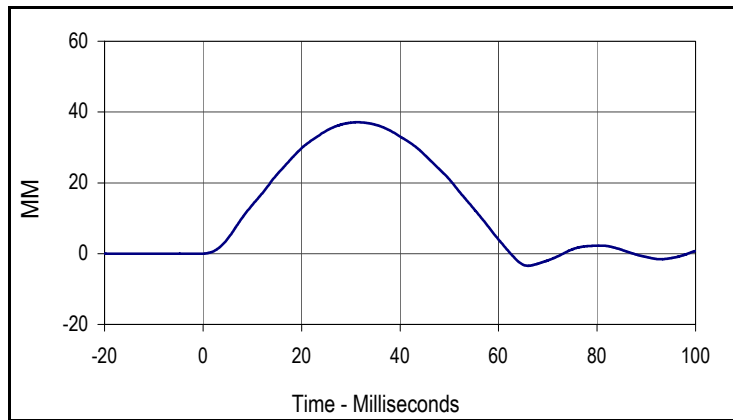
Curve Description			
Middle Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
48.1	31.8	-4.3	64.8

Test Program: ES2re Thorax - Rib Drop Test  
 ATD Serial No.: F035 Rib # 3

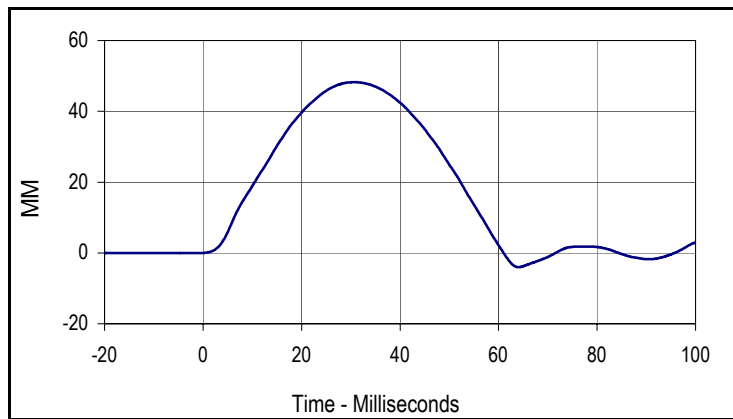
Test Date: 11/18/13  
 Test I.D.: F035RB3051



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	545	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.6	Pass
	Min		33.5	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.5	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	37.1	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	48.2	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
37.1	31.4	-3.4	66.0



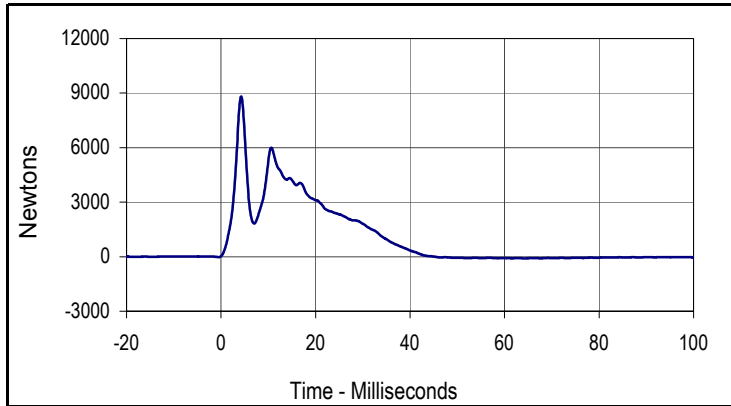
Curve Description			
Lower Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
48.2	30.7	-4.0	64.1

Test Program: ES2re Thorax - Full Body Impact Test  
 ATD Serial No.: F035

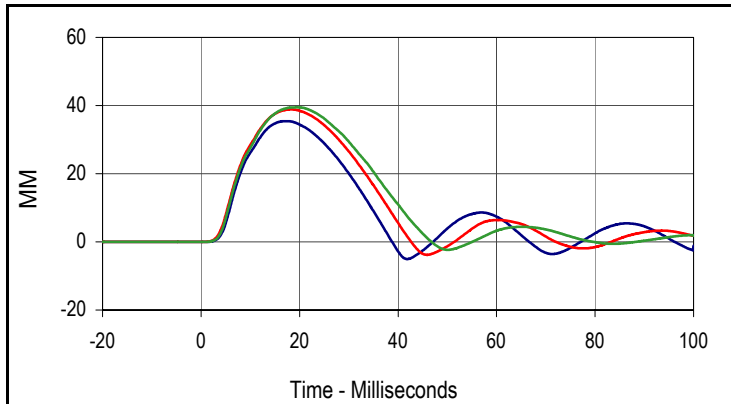
Test Date: 11/18/13  
 Test I.D.: F035TH051



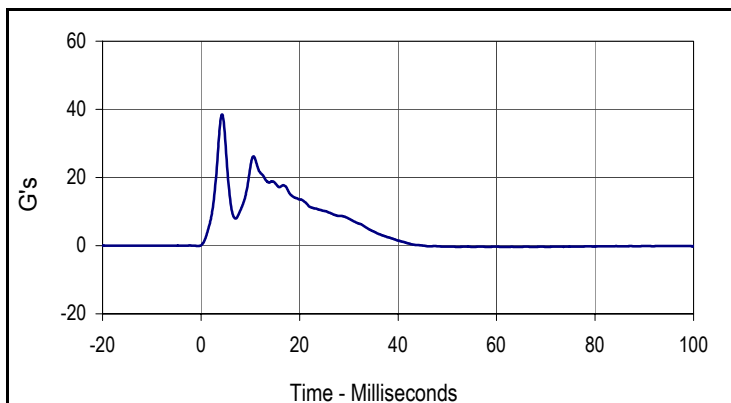
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	590	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.6	Pass
	Min		33.5	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.7	Pass
Peak Impactor Velocity	m/s	5.4 to 5.6	5.57	Pass
Peak Impactor Force	N	5100 to 6200	5999.3	Pass
	msec	> 6.0 msec	10.6	Pass
Peak Upper Rib Deflection	mm	34 to 41	35.4	Pass
Peak Middle Rib Deflection	mm	37 to 45	38.9	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	Newtons
Max	Time	Min	Time
8812.7	4.3	-92.9	64.6



Curve Description			
Upper, Middle, Lower Rib Deflections			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max (Upper)	Time	Min (Upper)	Time
35.4	17.3	-5.0	41.9
Max (Middle)	Time	Min (Middle)	Time
38.9	18.3	-3.8	45.9
Max (Lower)	Time	Min (Lower)	Time
39.5	19.4	-2.3	50.1



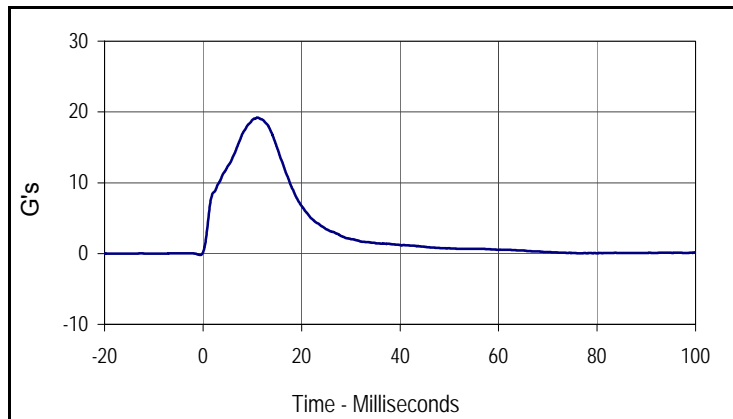
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
38.5	4.3	-0.4	64.6

Test Program: ES2re Abdomen Impact Test  
 ATD Serial No.: F035

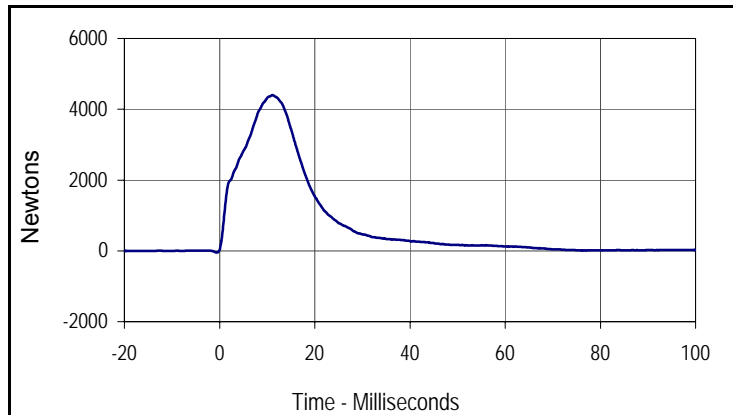
Test Date: 11/18/13  
 Test I.D.: F035ABD051



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	660	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.6	Pass
	Min		33.5	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.6	Pass
Probe Velocity	m/s	3.9 to 4.1	3.98	Pass
Peak Impactor Force	N	4000 to 4800	4399.0	Pass
	msec	10.6 to 13.0	11.1	Pass
Sum of Abdominal Forces	N	2200 to 2700	2491.9	Pass
	msec	10.0 to 12.3	11.1	Pass
Overall Test Results				Pass



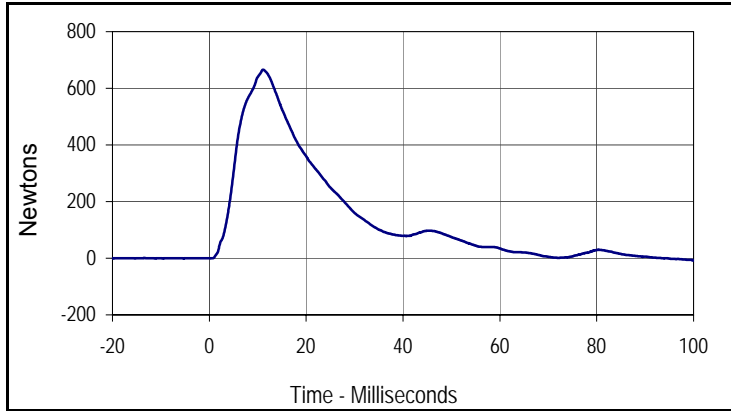
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
19.2	11.1	-0.2	-0.6



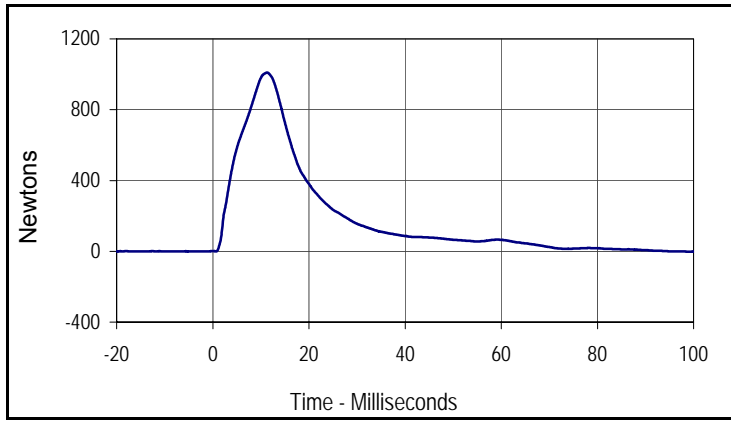
Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
4399.0	11.1	-47.8	-0.6

Test Program: ES2re Abdomen Impact Test  
 ATD Serial No.: F035

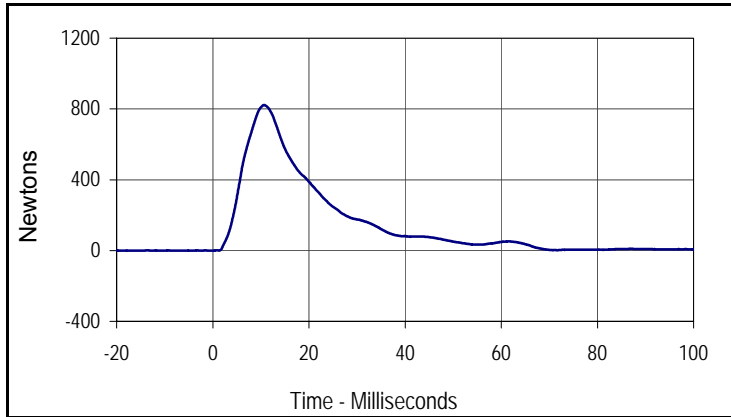
Test Date: 11/18/13  
 Test I.D.: F035ABD051



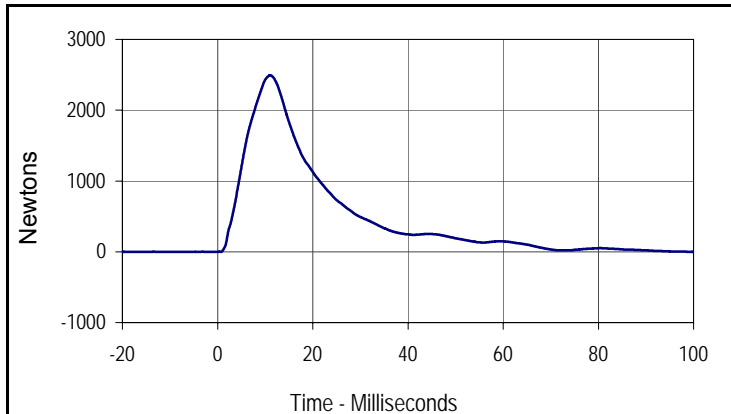
Curve Description			
Front Abdomen Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
665.7	11.1	-8.2	104.1



Curve Description			
Middle Abdomen Force			
Plot No.	Type	SAE Class	Units
004	FIL	600	Newtons
Max	Time	Min	Time
1009.8	11.3	-2.8	102.4



Curve Description			
Rear Abdomen Force			
Plot No.	Type	SAE Class	Units
005	FIL	600	Newtons
Max	Time	Min	Time
822.1	10.7	-2.0	139.1



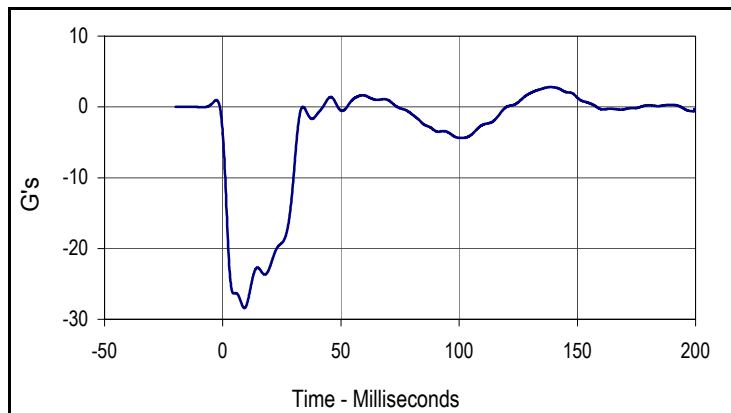
Curve Description			
Abdomen Sum Resultant			
Plot No.	Type	SAE Class	Units
006	RES	600	Newtons
Max	Time	Min	Time
2491.9	11.1	-2.5	101.3

Test Program: ES2re Lumbar Flexion Test  
 ATD Serial No.: F035

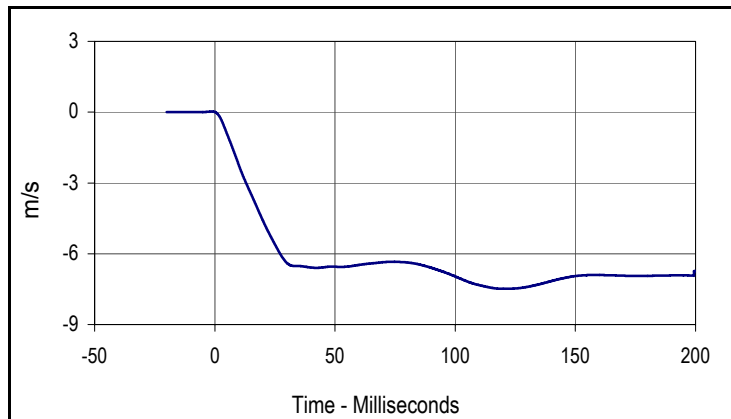
Test Date: 11/18/13  
 Test I.D.: F035LB051



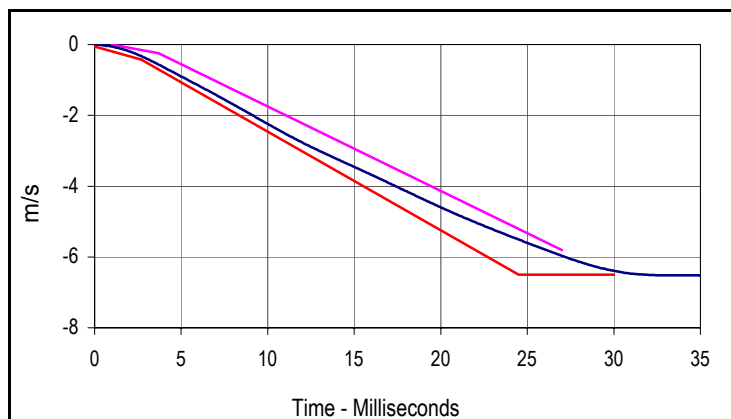
Tested Parameter	Units	Specification	Result	Pass/Fail	
Lumbar Spine Assembly Soak Time	Minutes	≥240	735	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass	
	Min		21.0	Pass	
Humidity During Soak	Max	10.0 to 70.0	34.6	Pass	
	Min		33.5	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	33.6	Pass	
Pendulum Velocity	m/s	5.95 to 6.15	5.99	Pass	
Headform Rotation	Max	Degrees	45 to 55	49.6	Pass
	Time	msec	39 to 53	40.2	Pass
Time of Decay to Zero Angle from Peak	msec	37 to 57	46.1	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
2.8	139.3	-28.4	9.8



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-0.6	-7.5	120.6



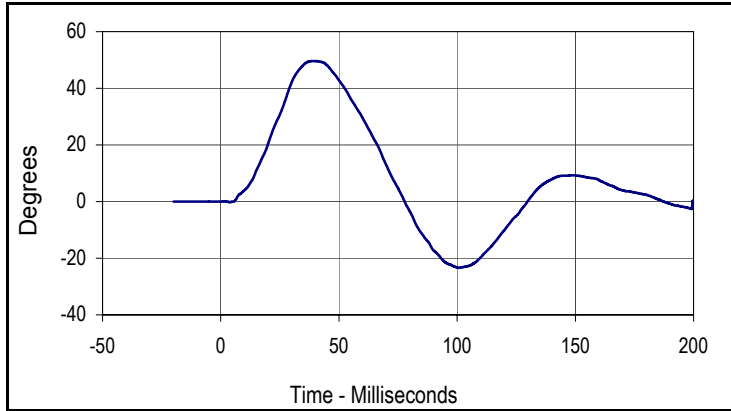
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-0.6	-7.5	120.6

Velocity Corridors

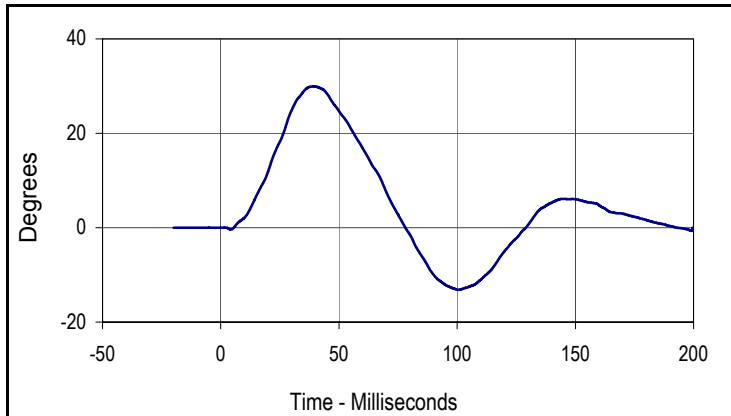
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.7	-0.24	2.7	-0.425
27.0	-5.80	24.5	-6.50
		30.0	-6.50

Test Program: ES2re Lumbar Flexion Test  
 ATD Serial No.: F035

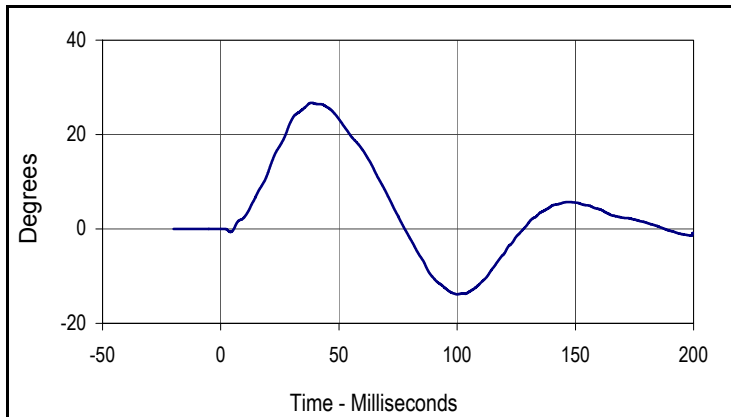
Test Date: 11/18/13  
 Test I.D.: F035LB051



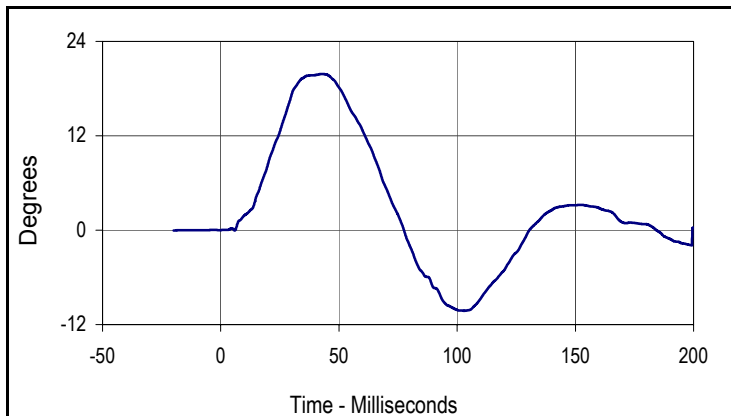
Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	180	Degrees
Max	Time	Min	Time
49.6	40.2	-23.4	101.4



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
004	FIL	180	Degrees
Max	Time	Min	Time
29.9	40.1	-13.1	101.1



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
005	FIL	180	Degrees
Max	Time	Min	Time
26.7	38.9	-13.8	100.6



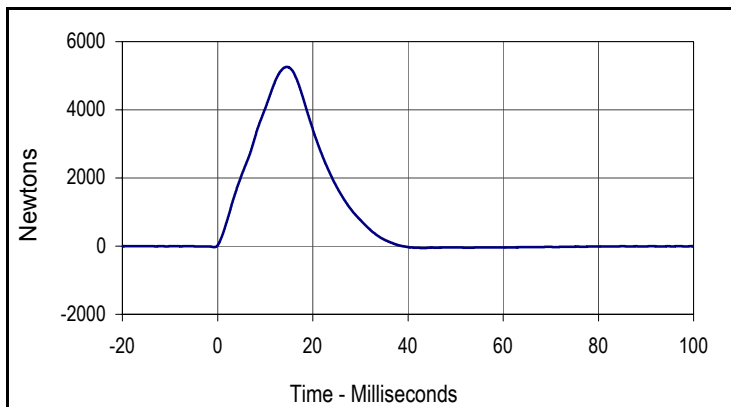
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
006	FIL	180	Degrees
Max	Time	Min	Time
19.9	43.7	-10.2	103.6

Test Program: ES2re Pelvis Impact Test  
 ATD Serial No.: F035

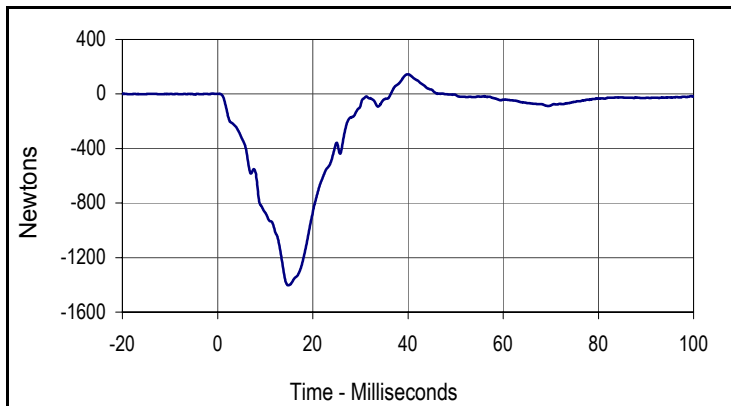
Test Date: 11/18/13  
 Test I.D.: F035PL051



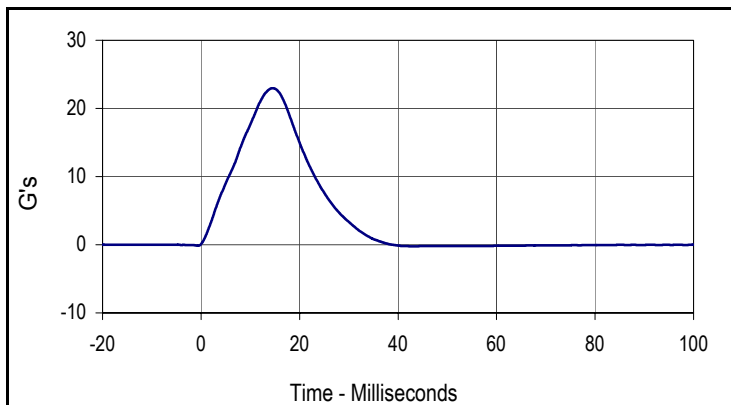
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	790	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.6	Pass
	Min		33.5	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.6	Pass
Pendulum Velocity	m/s	4.2 to 4.4	4.39	Pass
Peak Impactor Force	N	4700 to 5400	5259.8	Pass
	msec	11.8 to 16.1	14.6	Pass
Peak Pubic Symphysis Load	N	-1230 to -1590	-1403.9	Pass
	msec	12.2 to 17.0	14.9	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
5259.8	14.6	-57.6	43.2



Curve Description			
Pubic Symphysis Force Y			
Plot No.	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
144.7	40.0	-1403.9	14.9



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
23.0	14.6	-0.3	43.2

Test Program: SID IIs External Measurements

Test Date: 11/19/13



ATD Serial No.: 307

Test I.D.: N/A

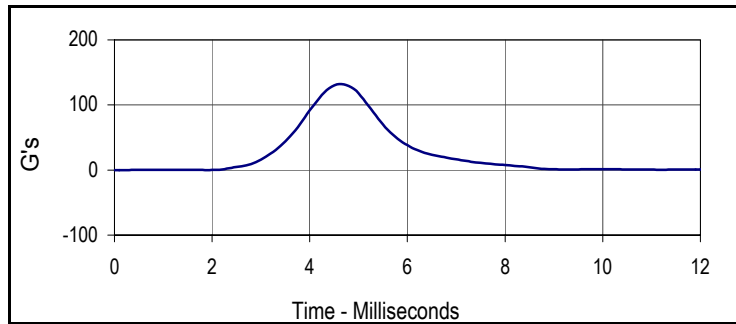
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	35	Pass
A Sitting Height	mm	772 - 788	778	Pass
B Shoulder Pivot Height	mm	437 - 453	443	Pass
C H-Point Height	mm	79 - 89	85	Pass
D H-Point from Seatback	mm	141 - 151	144	Pass
E Shoulder Pivot from Backline	mm	97 - 107	102	Pass
F Thigh Clearance	mm	119 - 135	128	Pass
G Head Breadth	mm	140 - 148	145	Pass
H Head Back from Backline	mm	40 - 46	43	Pass
I Head Depth	mm	178 - 188	185	Pass
J Head Circumference	mm	541 - 551	546	Pass
K Buttock to Knee Length	mm	514 - 540	525	Pass
L Popliteal Height	mm	343 - 369	351	Pass
M Knee Pivot to Floor Height	mm	392 - 409	400	Pass
N Buttock Popliteal Length	mm	416 - 442	432	Pass
O Chest Depth w/o Jacket	mm	195 - 211	205	Pass
P Foot Length	mm	216 - 232	223	Pass
Q Hip Breadth with Pelvic Plug	mm	313 - 323	319	Pass
R Arm Length	mm	249 - 259	254	Pass
S Knee Joint to Seatback	mm	477 - 493	483	Pass
V Shoulder Width	mm	341 - 357	351	Pass
W Foot Width	mm	78 - 94	89	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.: 307

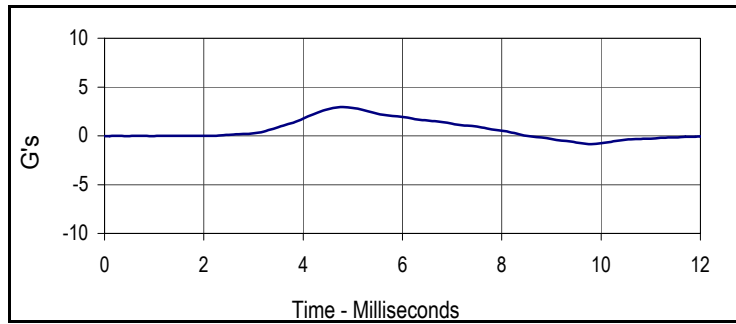
Test Date: 11/19/13  
 Test I.D.: 307HD059



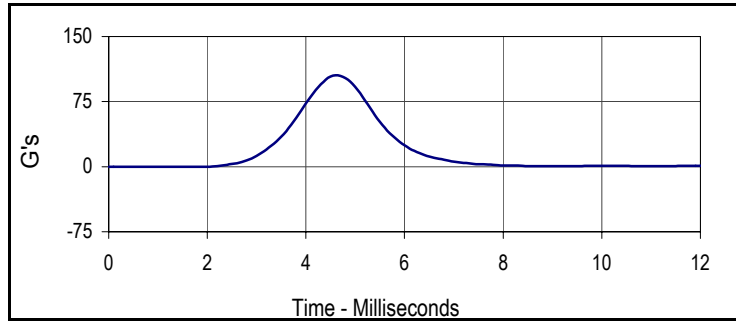
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	325	Pass
Temperature During Soak	Max	18.9 to 25.6	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass
	Min		34.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.7	Pass
Peak Head Resultant Acceleration	G's	115 to 137	132.3	Pass
Peak Head X Acceleration	G's	<15	3.0	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	1.0	Pass
Overall Test Results				Pass



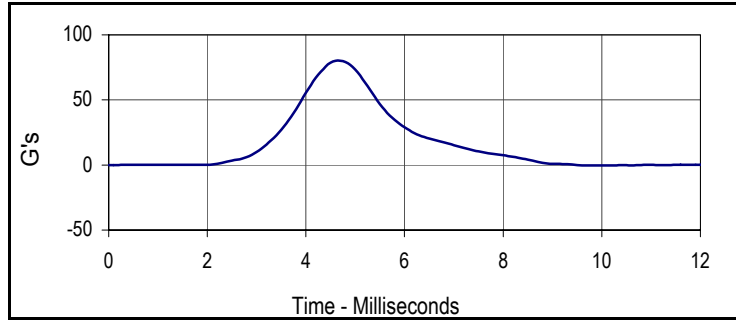
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
132.3	4.6	0.0	0.2



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
3.0	4.8	0.0	0.0



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
105.3	4.6	0.0	2.0



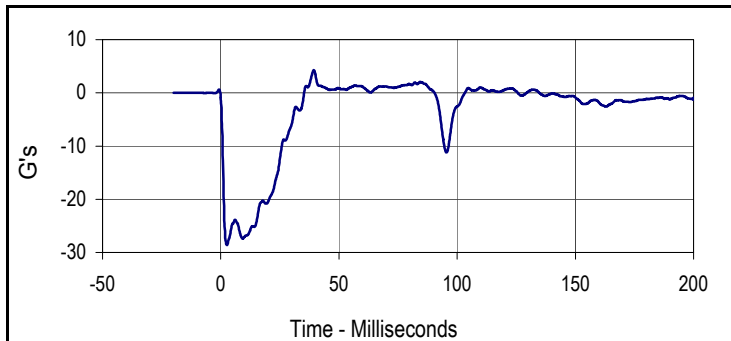
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
80.1	4.7	-0.4	10.1

Test Program: SID IIs Neck Flexion Test  
 ATD Serial No.: 307

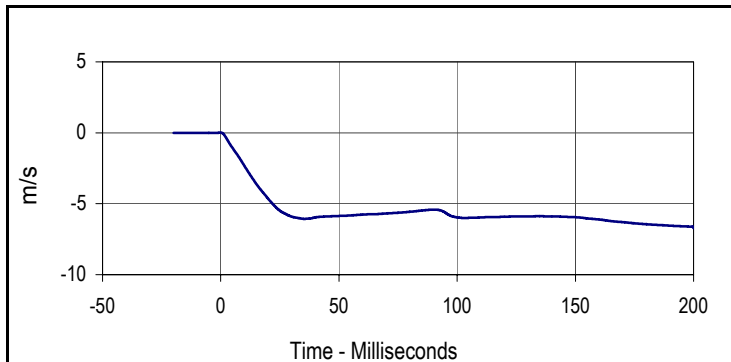
Test Date: 11/19/13  
 Test I.D.: 307NB059



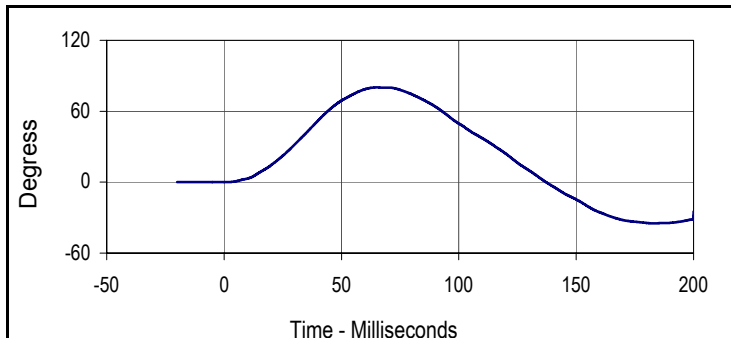
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	400	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass	
	Min		21.0	Pass	
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass	
	Min		34.6	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	34.6	Pass	
Pendulum Velocity	m/s	5.51 to 5.63	5.54	Pass	
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.33	Pass
	15 msec	m/s	-3.30 to -4.10	-3.60	Pass
	20 msec	m/s	-4.40 to -5.40	-4.64	Pass
	25 msec	m/s	-5.40 to -6.10	-5.49	Pass
	25-100 msec	m/s	-5.50 to -6.20	-6.07	Pass
D-Plane Rotation	Max	Degrees	71 to 81	80.1	Pass
	Time	msec	50 to 70	64.9	Pass
Peak Occipital Condyle Moment	Nm	-36 to -44	-41.4	Pass	
Decaying Moment Time to Cross 0 Nm	msec	102 to 126	117.7	Pass	
<b>Overall Test Results</b>				<b>Pass</b>	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
4.3	0.0	-28.6	0.0



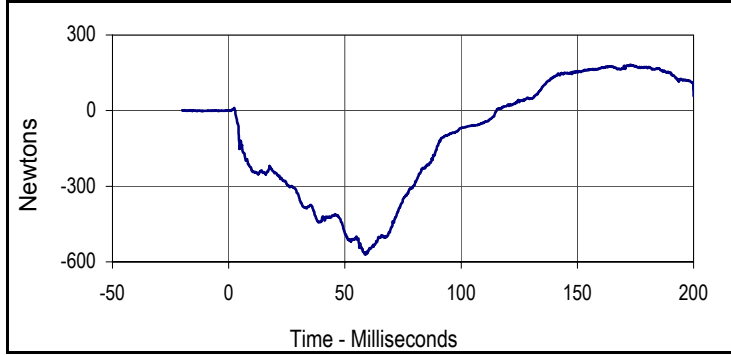
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.2	-6.7	200.0



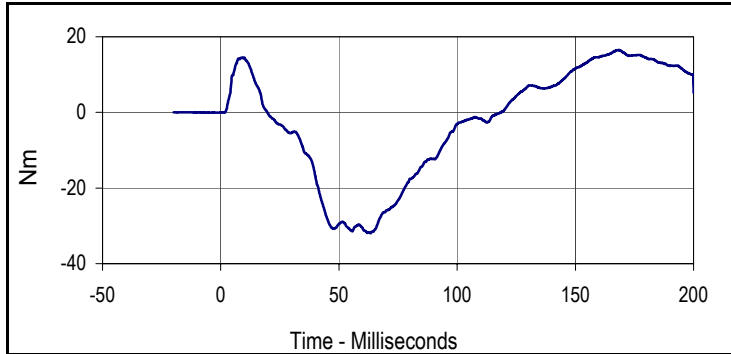
Curve Description			
D-Plane Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	Degress
Max	Time	Min	Time
80.1	64.9	-34.8	182.6

Test Program: SID IIs Neck Flexion Test  
 ATD Serial No.: 307

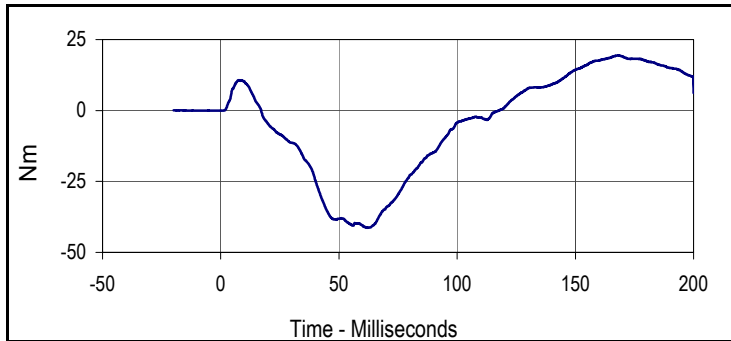
Test Date: 11/19/13  
 Test I.D.: 307NB059



Curve Description			
Neck Force Y			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
182.4	173.0	-570.7	58.6



Curve Description			
Neck Moment X			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
16.5	168.4	-31.9	63.4



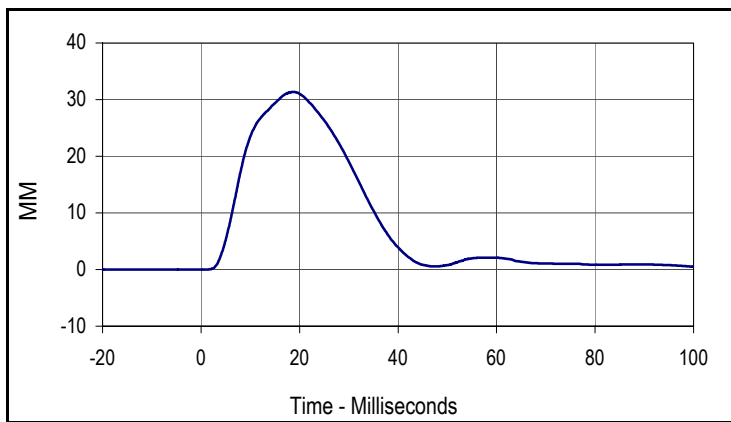
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
006	FIL	600	Nm
Max	Time	Min	Time
19.4	168.3	-41.4	61.9

Test Program: SID IIs Shoulder Impact Test  
 ATD Serial No.: 307

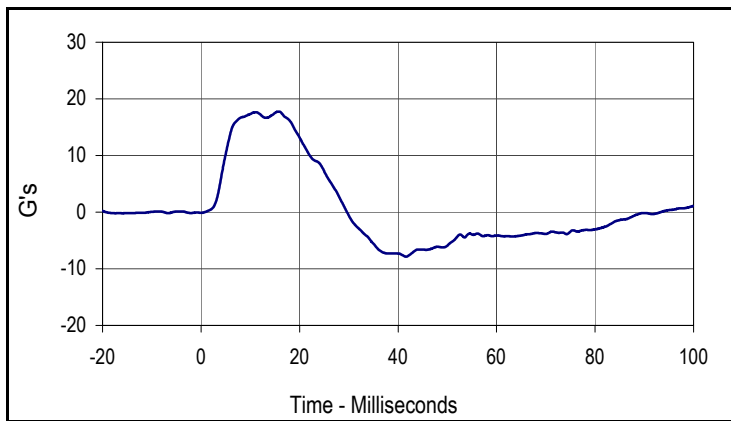
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 Test I.D.: 307SH059



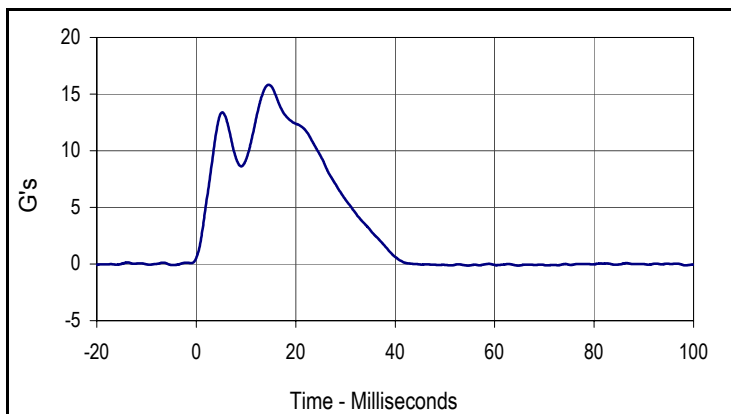
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	455	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass
	Min		34.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.7	Pass
Impactor Velocity	m/s	4.20 to 4.40	4.37	Pass
Peak Shoulder Deflection	mm	28 to 37	31.4	Pass
Peak Lateral Spine Acceleration Y	G's	17 to 22	17.8	Pass
Peak Impactor Acceleration	G's	13 to 18	15.8	Pass
Overall Test Results			Pass	Pass



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
31.4	18.7	0.0	-2.5



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
17.8	15.8	-7.9	41.6



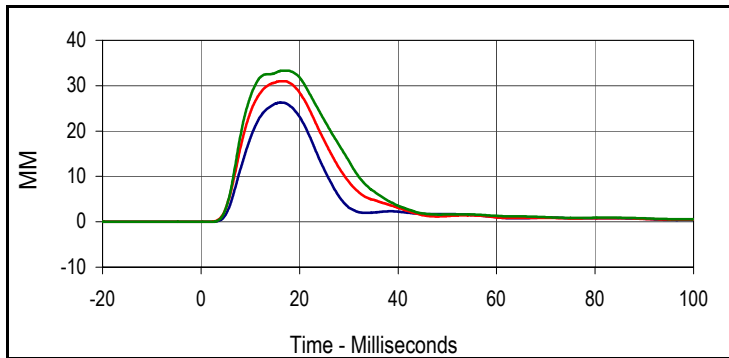
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
15.8	14.6	-0.1	64.8

Test Program: SID IIs Thorax with Arm Impact Test  
 ATD Serial No.: 307

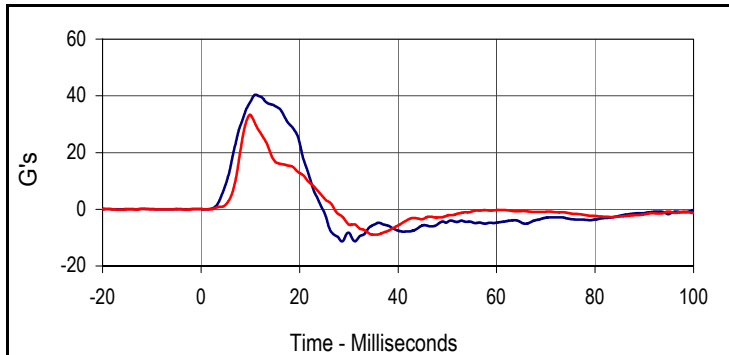
Test Date: 11/19/13  
 Test I.D.: 307TWA059



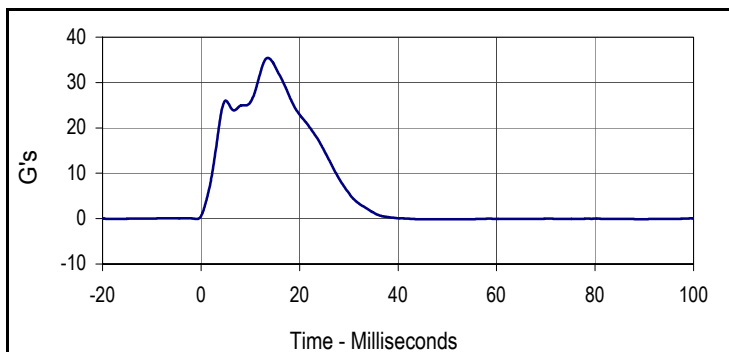
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	500	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass
	Min		34.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.7	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.76	Pass
Peak Shoulder Deflection	mm	31 to 40	34.2	Pass
Peak Upper Thorax Rib Deflection	mm	25 to 32	26.3	Pass
Peak Middle Thorax Rib Deflection	mm	30 to 36	31.0	Pass
Peak Lower Thorax Rib Deflection	mm	32 to 38	33.3	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	40.4	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	33.3	Pass
Peak Impactor Acceleration	G's	30 to 36	35.4	Pass
<b>Overall Test Results</b>				<b>Pass</b>



Curve Description			
<b>Upper Thorax Deflection</b>			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
26.3	16.2	0.0	-12.6
<b>Middle Thorax Deflection</b>			
Max	Time	Min	Time
31.0	16.4	0.0	-10.3
<b>Lower Thorax Deflection</b>			
Max	Time	Min	Time
33.3	16.5	0.0	-13.5



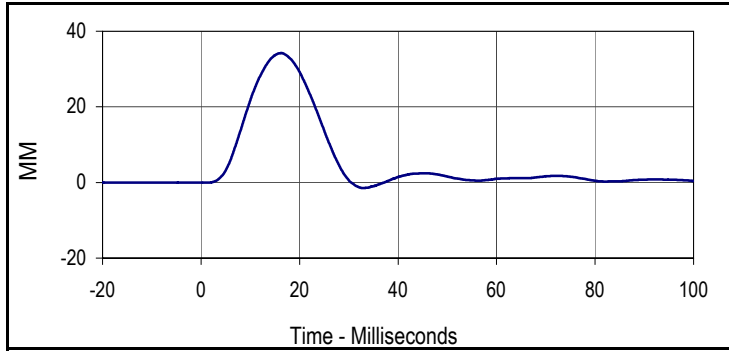
Curve Description			
<b>Upper Spine Y Acceleration</b>			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
40.4	11.0	-11.3	28.6
<b>Lower Spine Y Acceleration</b>			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
33.3	9.9	-9.0	34.9



Curve Description			
<b>Impactor Acceleration</b>			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
35.4	13.6	-0.2	54.2

Test Program: SID IIs Thorax with Arm Impact Test  
 ATD Serial No.: 307

Test Date: 11/19/13  
 Test I.D.: 307TWA059



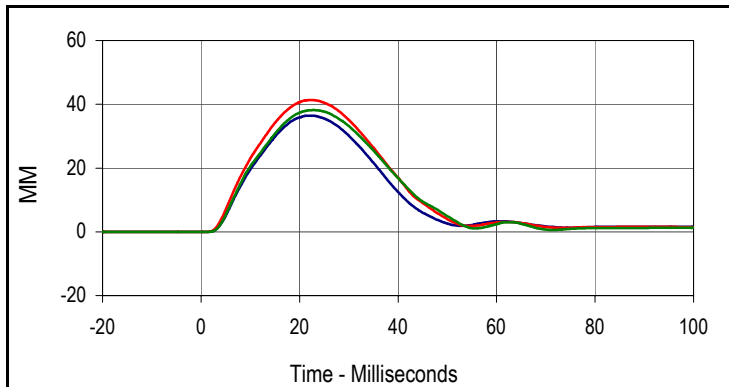
Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
007	FIL	600	MM
Max	Time	Min	Time
34.2	16.3	-1.5	32.9

Test Program: SID IIs Thorax without Arm Impact Test  
 ATD Serial No.: 307

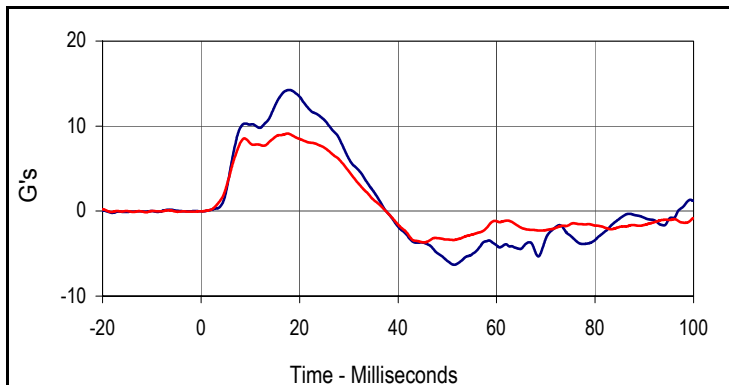
Test Date: 11/19/13  
 Test I.D.: 307TWOA059



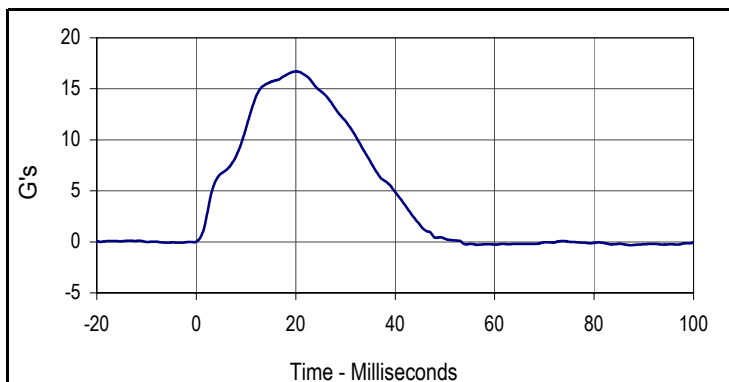
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	550	Pass
Temperature During Soak	Max	18.9 to 25.6	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass
	Min		34.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.6	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.24	Pass
Peak Upper Thorax Rib Deflection	mm	32 to 40	36.5	Pass
Peak Middle Thorax Rib Deflection	mm	39 to 45	41.3	Pass
Peak Lower Thorax Rib Deflection	mm	35 to 43	38.2	Pass
Peak Upper Spine Y Acceleration	G's	13 to 17	14.3	Pass
Peak Lower Spine Y Acceleration	G's	7 to 11	9.1	Pass
Peak Impactor Acceleration	G's	14 to 18	16.7	Pass
Overall Test Results				Pass



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
36.5	22.2	0.0	-2.7
Middle Thorax Deflection			
Max	Time	Min	Time
41.3	22.2	0.0	-5.6
Lower Thorax Deflection			
Max	Time	Min	Time
38.2	22.9	0.0	-9.0



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
14.3	17.9	-6.3	51.4
Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
9.1	17.6	-3.7	45.3



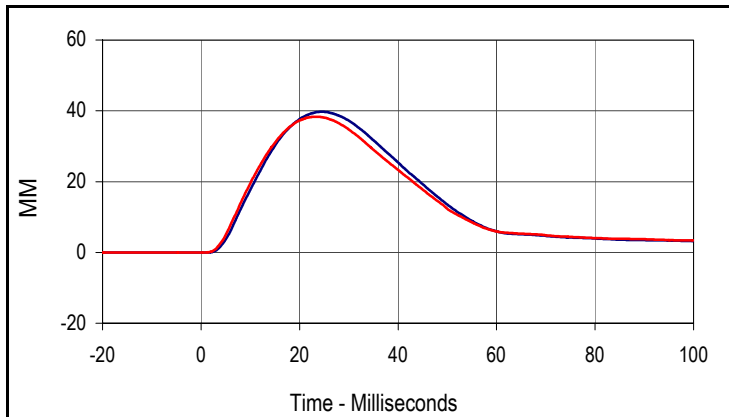
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
16.7	20.1	-0.3	87.4

Test Program: SID IIs Abdomen Impact Test  
 ATD Serial No.: 307

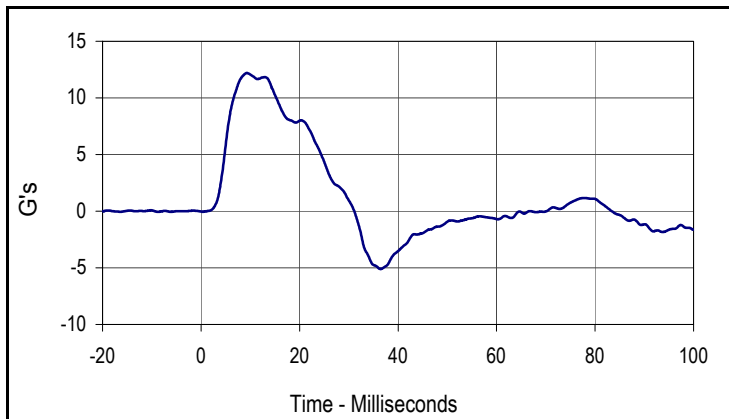
Test Date: 11/19/13  
 Test I.D.: 307ABD059



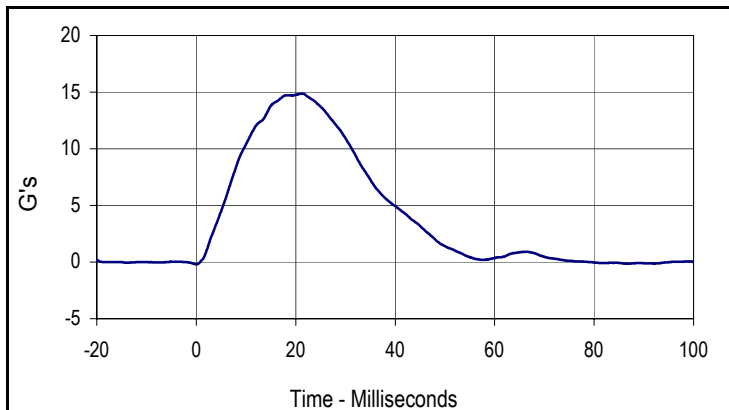
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	585	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass
	Min		34.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.7	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.27	Pass
Peak Upper Abdominal Rib Deflection	mm	36 to 47	39.7	Pass
Peak Lower Abdominal Rib Deflection	mm	33 to 44	38.3	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	12.2	Pass
Peak Impactor Acceleration	G's	12 to 16	14.9	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
39.7	24.6	0.0	-20.0



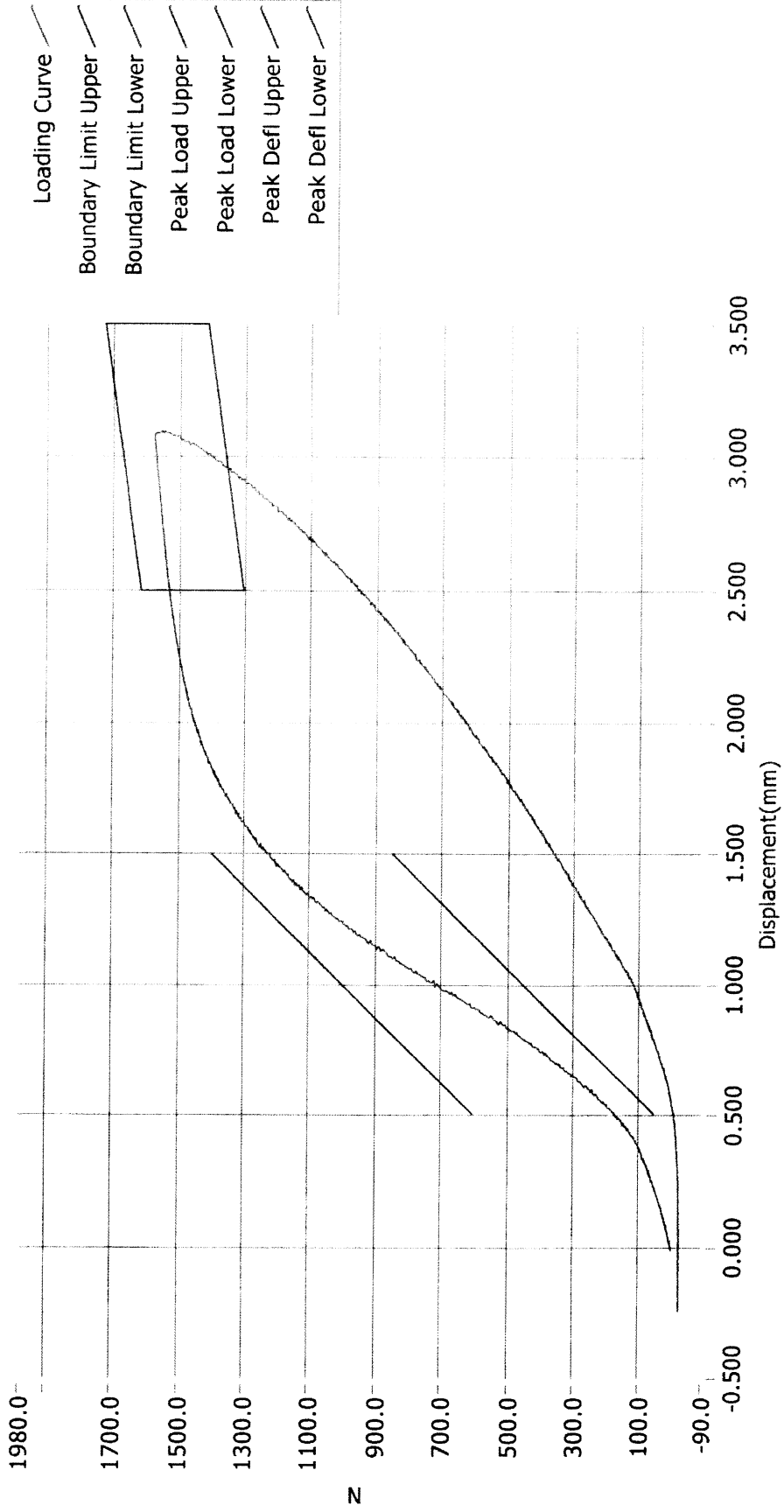
Curve Description			
Lower Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
38.3	23.2	0.0	-19.3



Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
12.2	9.3	-5.1	36.4

Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
14.9	21.1	-0.2	0.0

# Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab		<u>Test ID</u>	<u>Part Serial Number</u>	<u>Test Date</u>	<u>Test Time</u>
			49000	12/6/2011	11:35 PM
<u>Cert ID</u>	<u>ATD Serial Number</u>	<u>ATD Type</u>			
	N/A	SIDIIs			

**M20145114 PRE TEST**

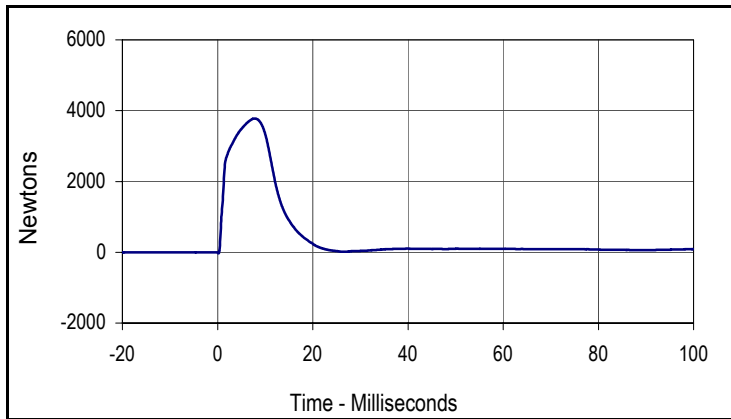
Current Date : 12/6/2011      Current Time : 23:35:37

Test Program: SID IIs Pelvis Acetabulum Impact Test  
 ATD Serial No.: 307

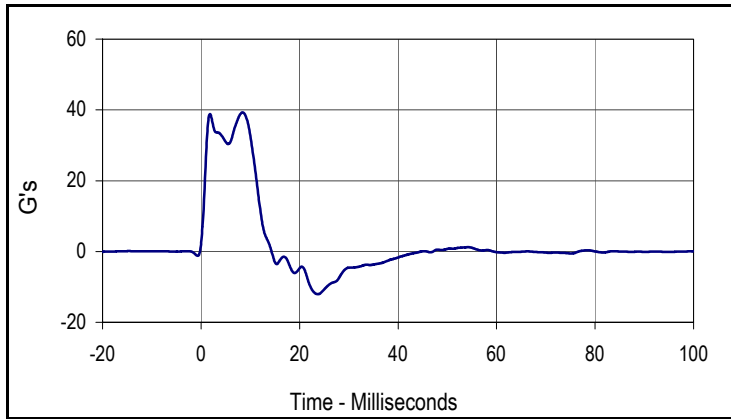
Test Date: 11/19/13  
 Test I.D.: 307ACET059



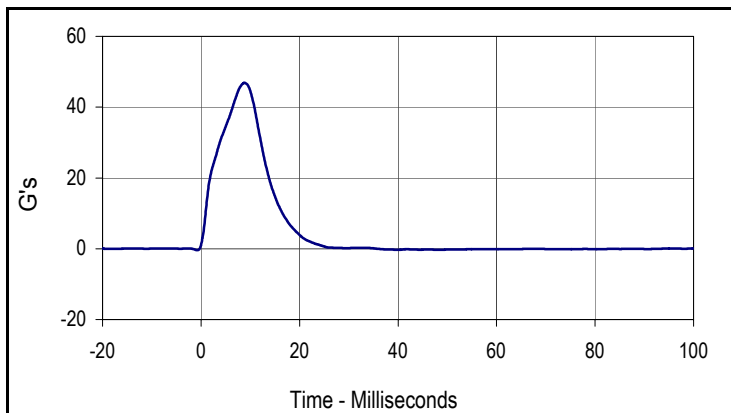
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	630	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass
	Min		34.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.7	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.68	Pass
Peak Acetabulum Force Y	Newtons	3600 to 4300	3777.3	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	39.3	Pass
Peak Impactor Acceleration	G's	38 to 47	46.9	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Acetabulum Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3777.3	7.8	-31.4	0.2



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
39.3	8.4	-12.1	23.7



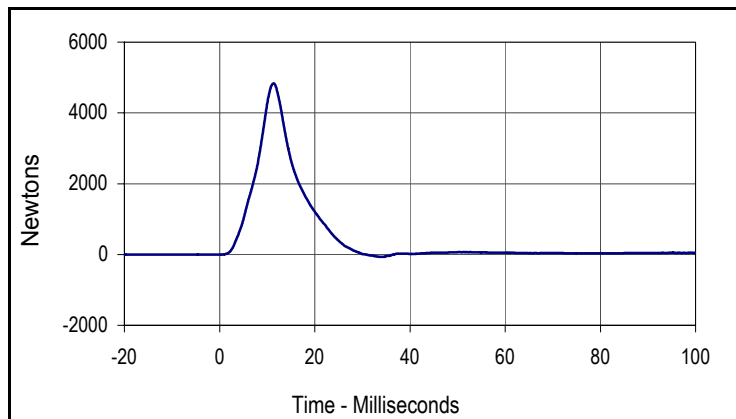
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
46.9	8.8	-0.4	-0.7

Test Program: SID IIs Pelvis Iliac Calibration  
 ATD Serial No.: 307

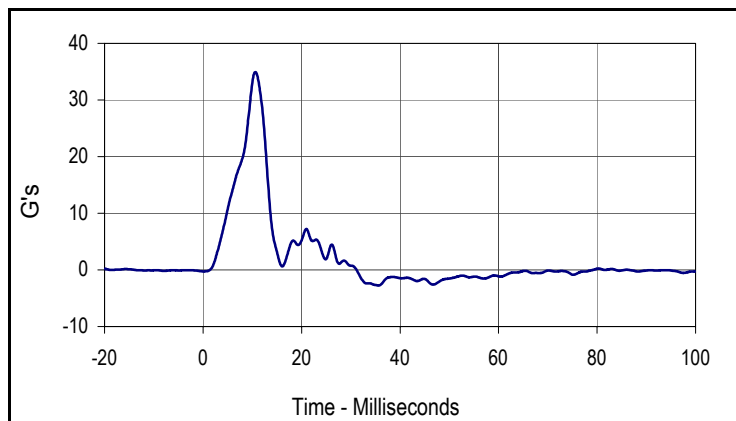
Test Date: 11/19/13  
 Test I.D.: 307PL059



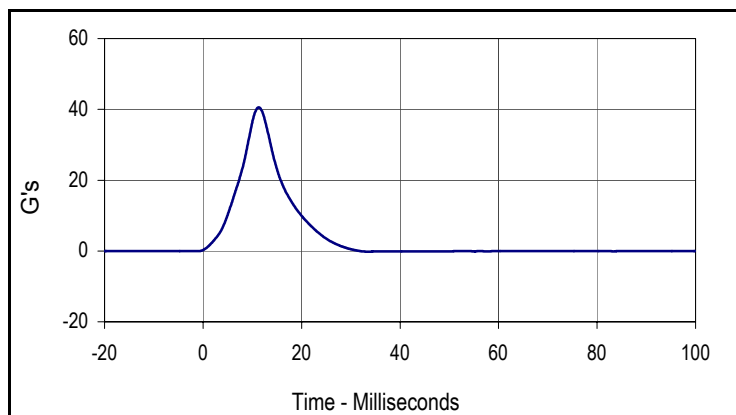
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	700	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass
	Min		34.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.6	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.35	Pass
Peak Iliac Force	Newtons	4100 to 5100	4832.5	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	34.9	Pass
Peak Impactor Acceleration	G's	36 to 45	40.6	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Iliac Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4832.5	11.3	-67.7	34.4



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
34.9	10.6	-2.8	35.6



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
40.6	11.3	-0.2	33.3

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

Test Program: ES2re External Measurements

Test Date: 12/11/13



ATD Serial No.: F035

Test I.D.: N/A

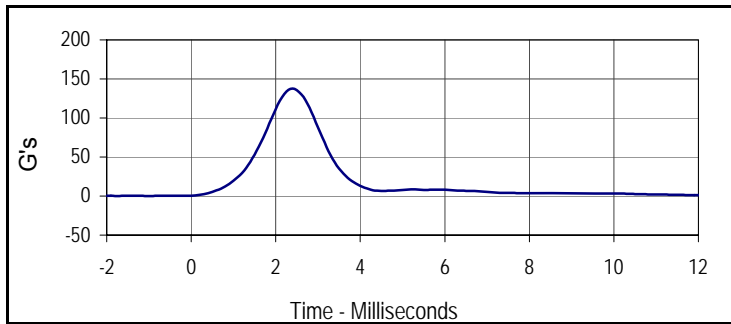
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	30.0	Pass
1 Sitting Height	mm	900 - 918	909	Pass
2 Seat to Shoulder Joint	mm	558 - 572	564	Pass
3 Seat to Lower Face of Thoracic Spine Box	mm	346 - 356	350	Pass
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.: F035

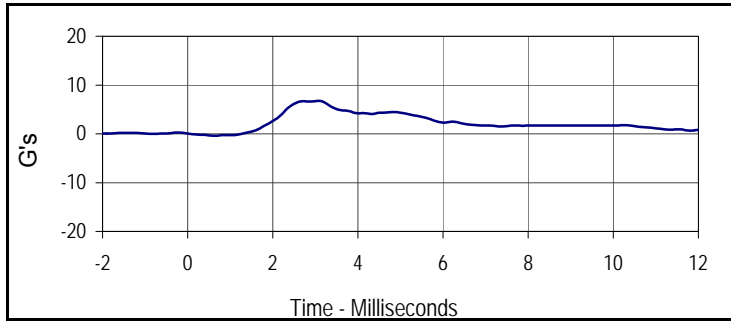
Test Date: 12/11/13  
 Test I.D.: F035HD052



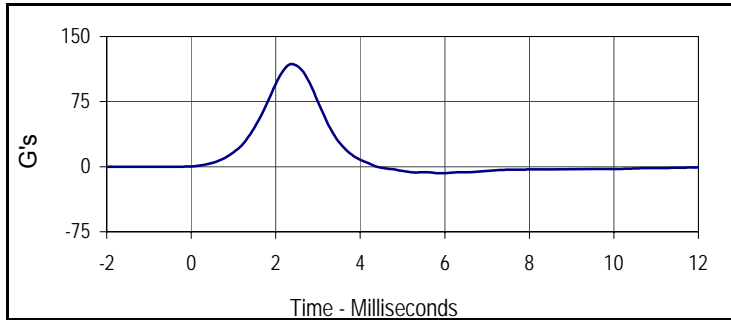
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	295	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	33.4	Pass
	Min		23.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.6	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	31.1	Pass
Peak Head Resultant Acceleration	G's	125 to 155	137.5	Pass
Peak Head X Acceleration	G's	≤15	6.7	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	6.2	Pass
<b>Overall Test Results</b>				<b>Pass</b>



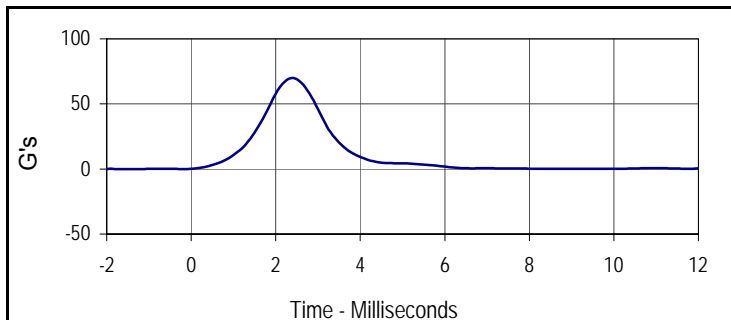
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
137.5	2.4	0.1	-1.8



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
6.7	3.1	-0.4	0.6



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
118.3	2.4	-7.6	5.9



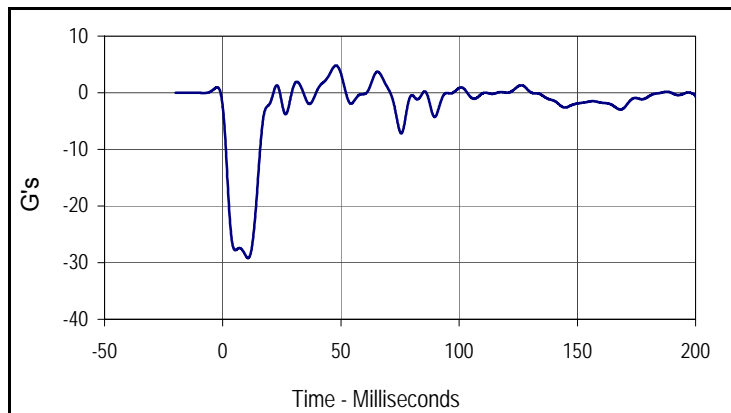
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
69.9	2.4	-0.2	-0.2

Test Program: ES2re Neck Flexion Test  
 ATD Serial No.: F035

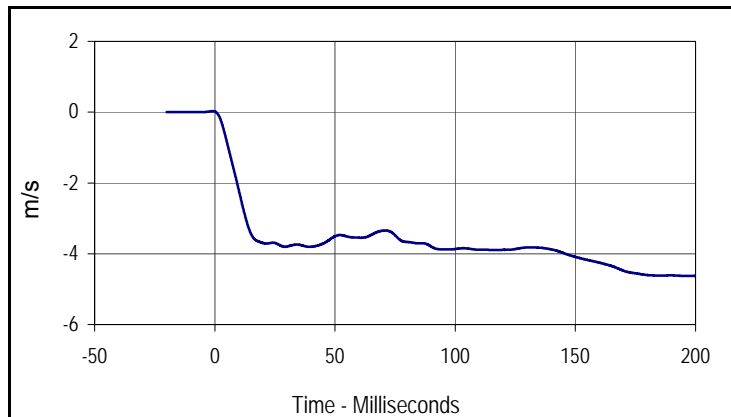
Test Date: 12/11/13  
 Test I.D.: F035NB052



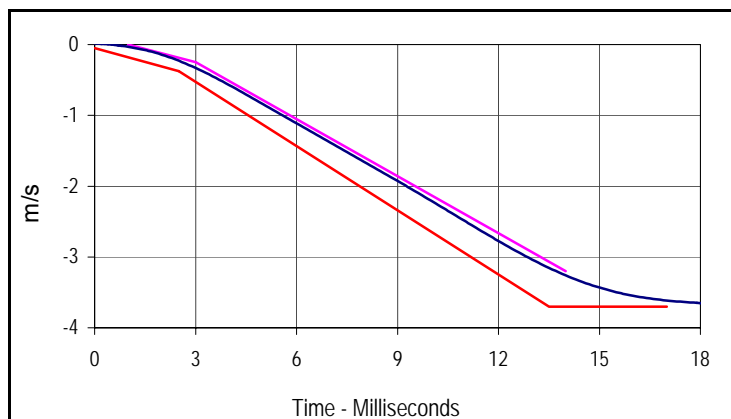
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	330	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass	
	Min		21.2	Pass	
Humidity During Soak	Max	10.0 to 70.0	33.4	Pass	
	Min		23.7	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	31.4	Pass	
Pendulum Velocity	m/s	3.3 to 3.5	3.40	Pass	
Headform Flexion	Max	Degrees	49 to 59	54.3	Pass
	Time	msec	54 to 66	60.3	Pass
Headform Flexion Decay (Peak to Zero)	msec	53 to 88	61.2	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
4.8	47.9	-29.2	10.7



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-0.9	-4.6	199.9



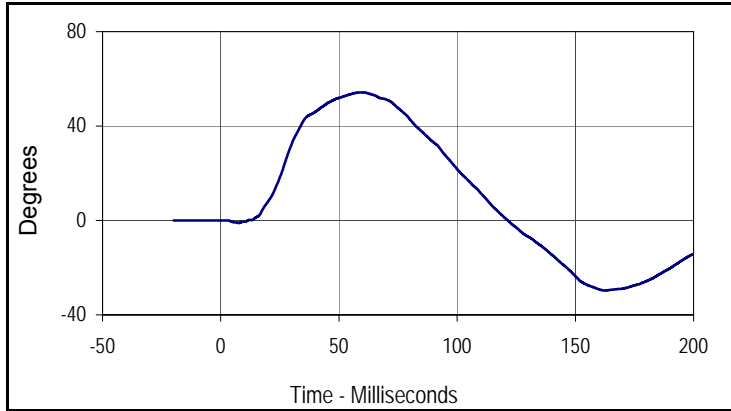
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-0.9	-4.6	199.9

Velocity Corridors

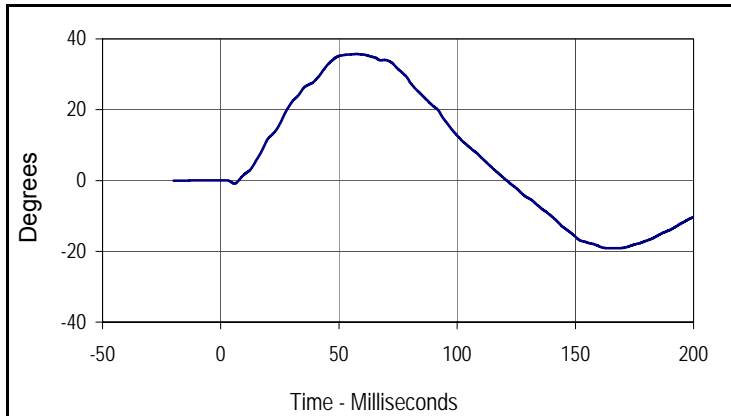
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.0	-0.03	2.5	-0.375
14.0	-3.20	13.5	-3.70
		17.0	-3.70

Test Program: ES2re Neck Flexion Test  
 ATD Serial No.: F035

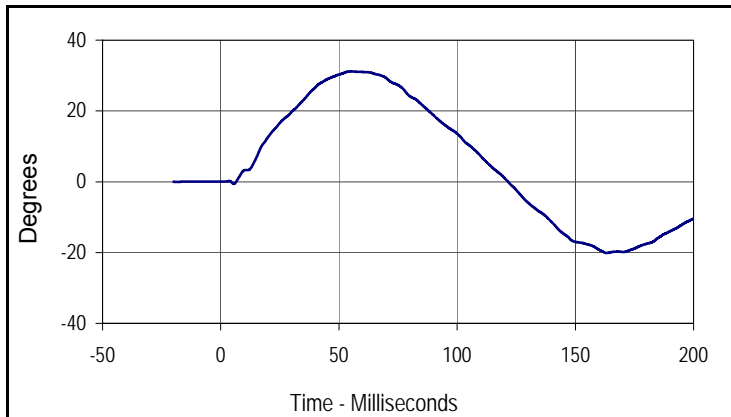
Test Date: 12/11/13  
 Test I.D.: F035NB052



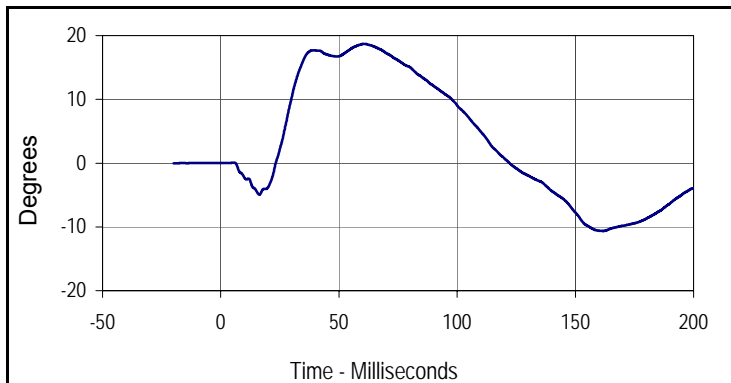
Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	180	Degrees
Max	Time	Min	Time
54.3	60.3	-29.7	162.5



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
004	FIL	180	Degrees
Max	Time	Min	Time
35.7	57.4	-19.1	163.8



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
005	FIL	180	Degrees
Max	Time	Min	Time
31.2	54.8	-20.1	163.4



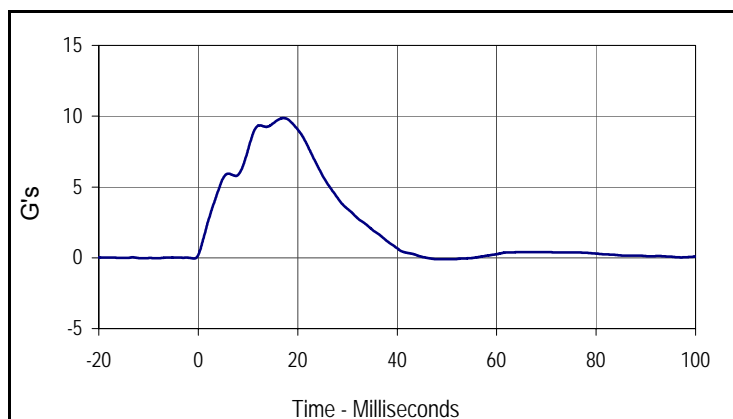
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
006	FIL	180	Degrees
Max	Time	Min	Time
18.7	60.7	-10.6	161.7

Test Program: ES2re Shoulder Impact Test  
 ATD Serial No.: F035

Test Date: 12/11/13  
 Test I.D.: F035SH052



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	395	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	33.4	Pass
	Min		23.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	31.3	Pass
Pendulum Speed	m/s	4.2 to 4.4	4.32	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	9.9	Pass
Overall Test Results				Pass



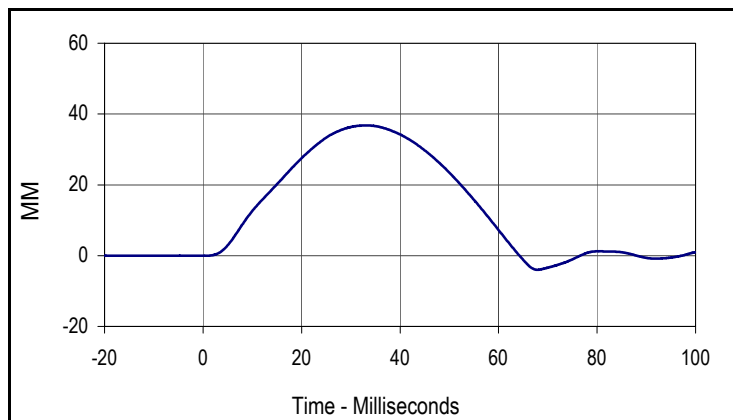
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
9.9	17.1	-0.1	51.3

Test Program: ES2re Thorax - Rib Drop Test  
 ATD Serial No.: F035 Rib # 1

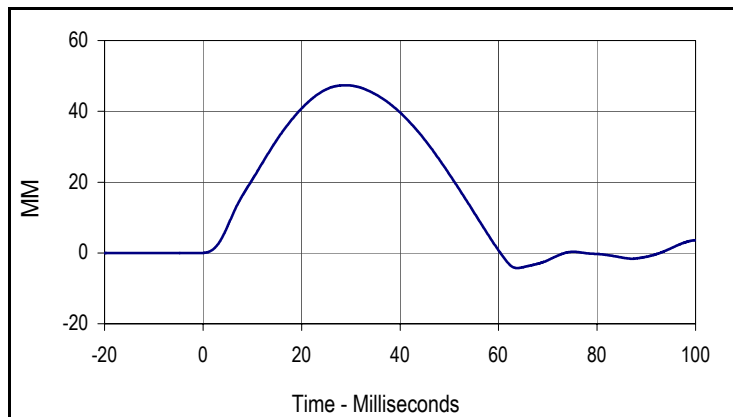
Test Date: 12/11/13  
 Test I.D.: F035RB1052



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	450	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	33.4	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	31.3	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	36.8	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	47.4	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
36.8	33.1	-4.0	67.9



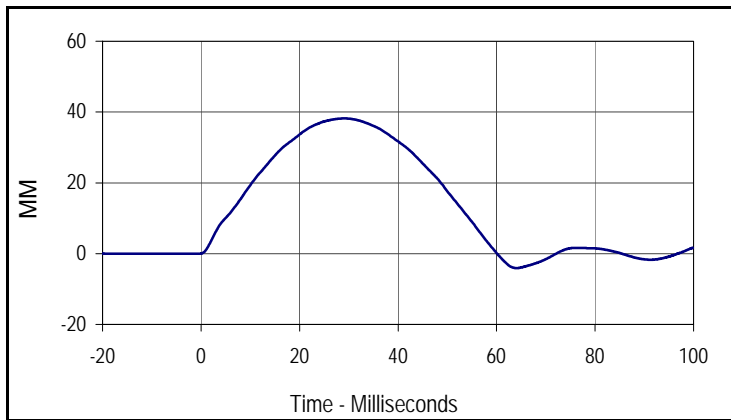
Curve Description			
Upper Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
47.4	28.9	-4.3	63.7

Test Program: ES2re Thorax - Rib Drop Test  
 ATD Serial No.: F035 Rib # 2

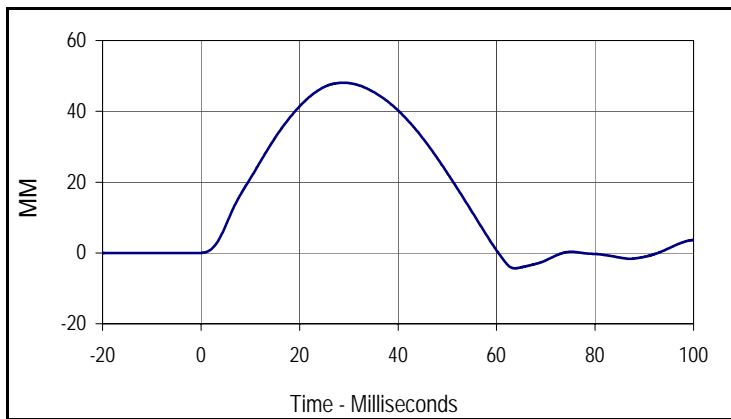
Test Date: 12/11/13  
 Test I.D.: F035RB2052



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	495	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	33.4	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	31.4	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	38.2	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	48.1	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
38.2	29.1	-4.1	64.1



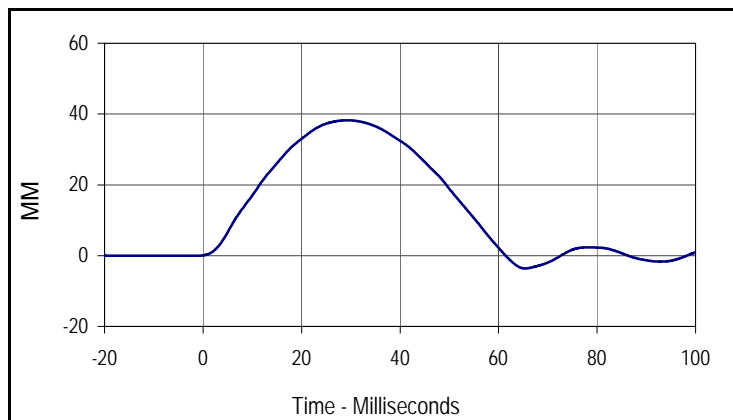
Curve Description			
Middle Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
48.1	28.9	-4.3	63.7

Test Program: ES2re Thorax - Rib Drop Test  
 ATD Serial No.: F035 Rib # 3

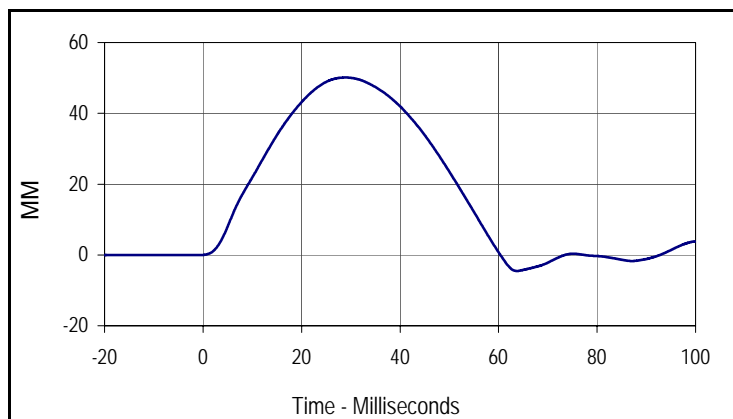
Test Date: 12/11/13  
 Test I.D.: F035RB3052



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	540	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	33.4	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	32.0	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	38.2	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
38.2	29.3	-3.6	65.4



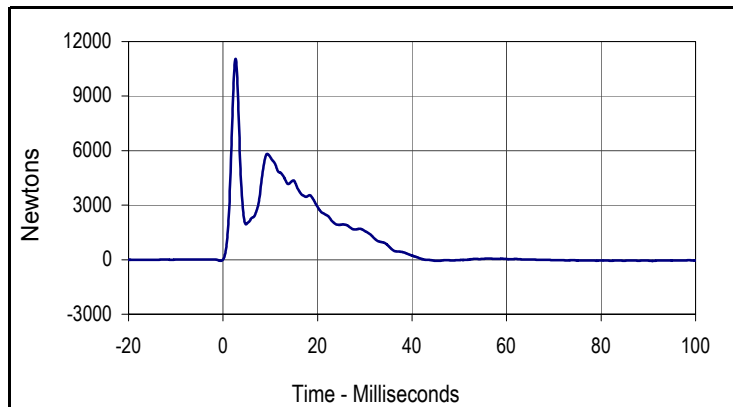
Curve Description			
Lower Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
50.1	28.9	-4.5	63.7

Test Program: ES2re Thorax - Full Body Impact Test  
 ATD Serial No.: F035

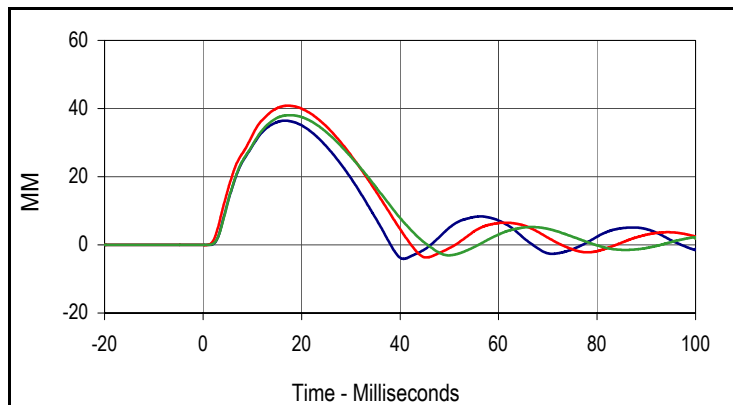
Test Date: 12/11/13  
 Test I.D.: F035TH052



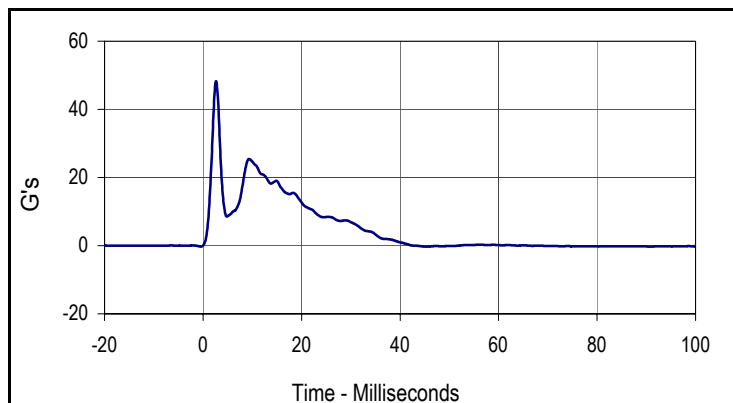
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	585	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	33.4	Pass
	Min		23.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.5	Pass
Peak Impactor Velocity	m/s	5.4 to 5.6	5.55	Pass
Peak Impactor Force	N	5100 to 6200	5818.2	Pass
	msec	> 6.0 msec	9.3	Pass
Peak Upper Rib Deflection	mm	34 to 41	36.4	Pass
Peak Middle Rib Deflection	mm	37 to 45	40.8	Pass
Peak Lower Rib Deflection	mm	37 to 44	38.1	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
11057.9	2.6	-69.4	90.9



Curve Description			
Upper, Middle, Lower Rib Deflections			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max (Upper)	Time	Min (Upper)	Time
36.4	16.6	-4.1	40.7
Max (Middle)	Time	Min (Middle)	Time
40.8	17.2	-3.7	45.3
Max (Lower)	Time	Min (Lower)	Time
38.1	17.7	-3.1	49.9



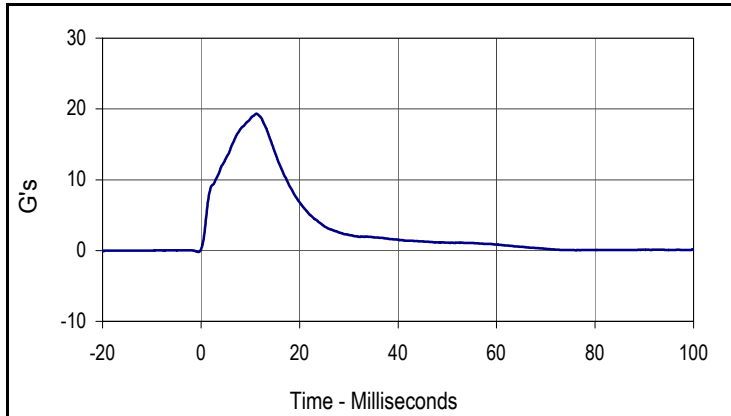
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
48.3	2.6	-0.3	90.9

Test Program: ES2re Abdomen Impact Test  
 ATD Serial No.: F035

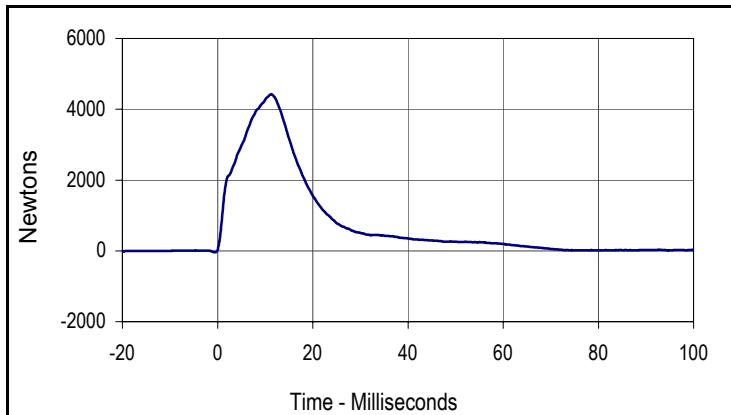
Test Date: 12/11/13  
 Test I.D.: F035ABD052



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	655	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	33.4	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	33.4	Pass
Probe Velocity	m/s	3.9 to 4.1	4.00	Pass
Peak Impactor Force	N	4000 to 4800	4425.7	Pass
	msec	10.6 to 13.0	11.3	Pass
Sum of Abdominal Forces	N	2200 to 2700	2431.7	Pass
	msec	10.0 to 12.3	10.5	Pass
Overall Test Results				Pass



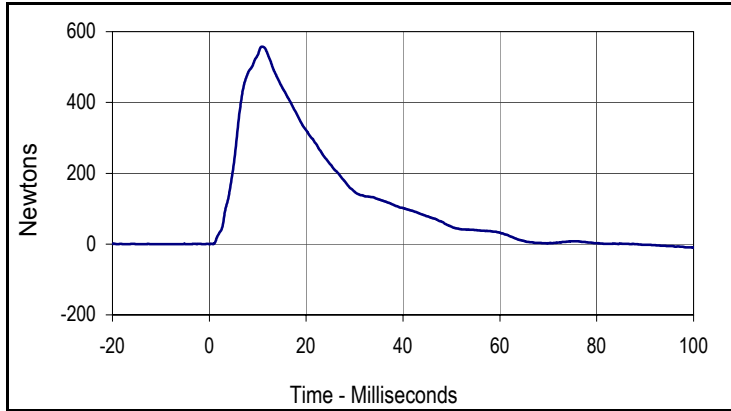
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
19.3	11.3	-0.2	-0.6



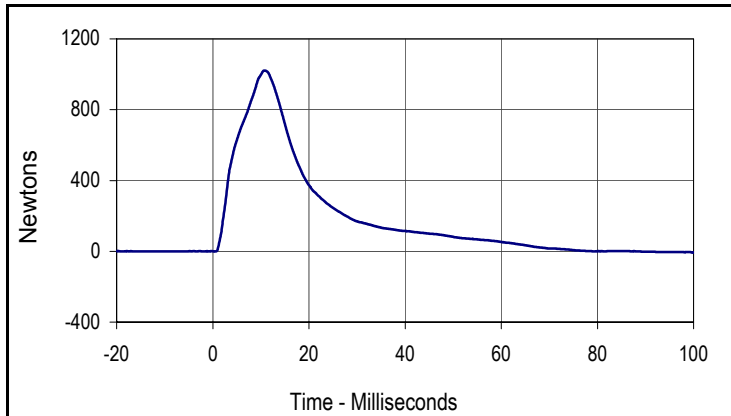
Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
4425.7	11.3	-42.5	-0.6

Test Program: ES2re Abdomen Impact Test  
 ATD Serial No.: F035

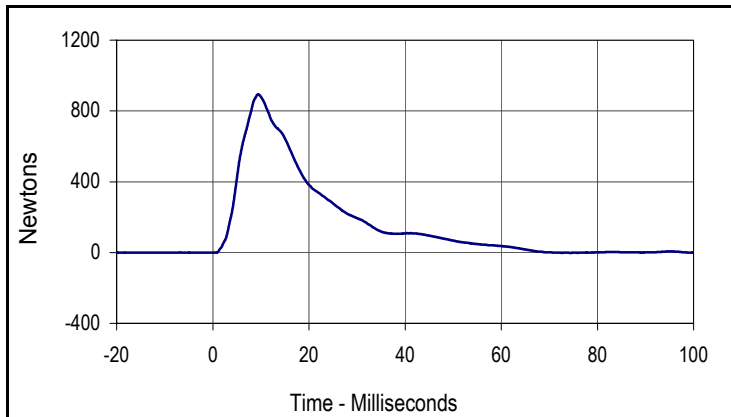
Test Date: 12/11/13  
 Test I.D.: F035ABD052



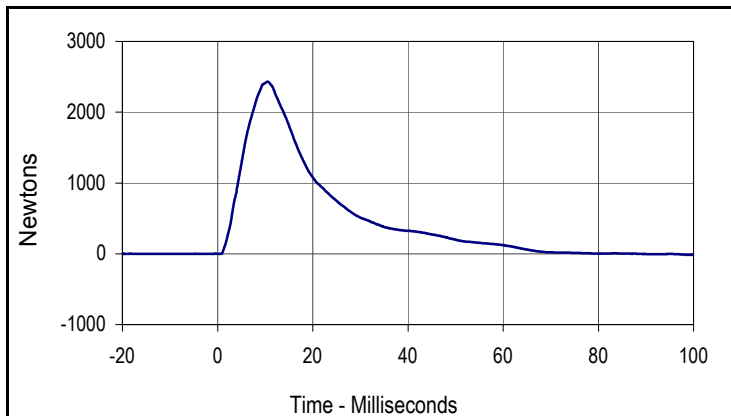
Curve Description			
Front Abdomen Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
557.5	10.8	-10.2	105.8



Curve Description			
Middle Abdomen Force			
Plot No.	Type	SAE Class	Units
004	FIL	600	Newtons
Max	Time	Min	Time
1021.5	10.7	-6.3	104.1



Curve Description			
Rear Abdomen Force			
Plot No.	Type	SAE Class	Units
005	FIL	600	Newtons
Max	Time	Min	Time
894.2	9.4	-5.7	124.3



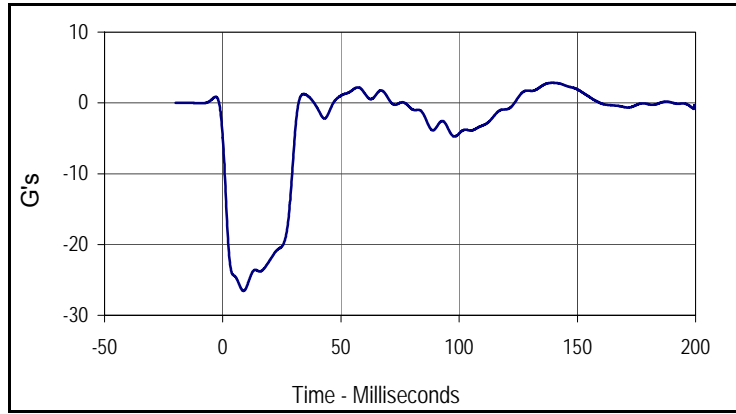
Curve Description			
Abdomen Sum Resultant			
Plot No.	Type	SAE Class	Units
006	RES	600	Newtons
Max	Time	Min	Time
2431.7	10.5	-17.0	100.9

Test Program: ES2re Lumbar Flexion Test  
 ATD Serial No.: F035

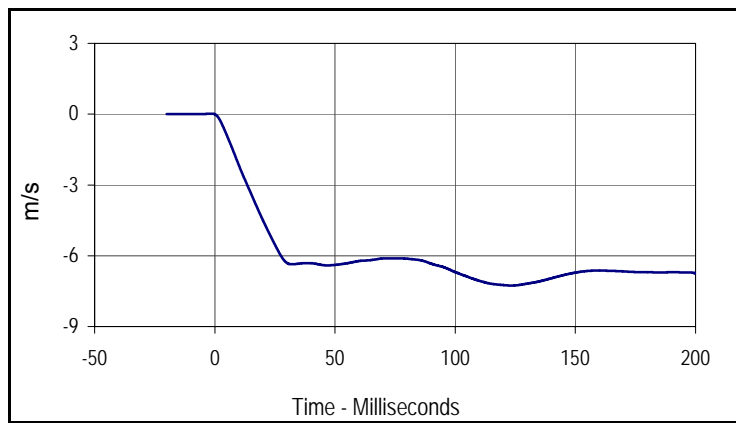
Test Date: 12/11/13  
 Test I.D.: F035LB052



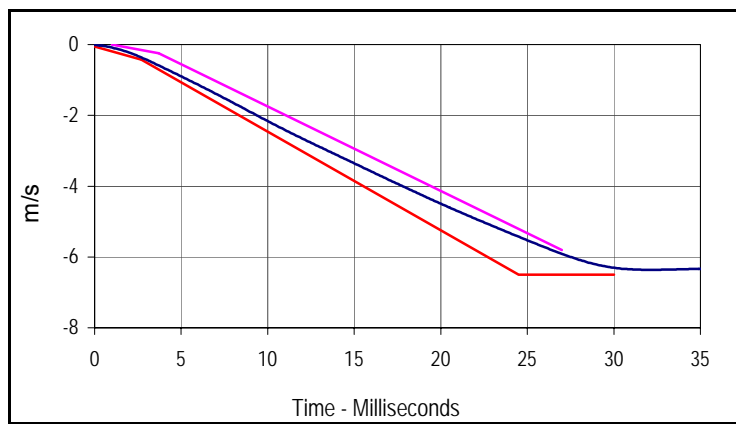
Tested Parameter	Units	Specification	Result	Pass/Fail
Lumbar Spine Assembly Soak Time	Minutes	≥240	730	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	33.4	Pass
	Min		23.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	27.5	Pass
Pendulum Velocity	m/s	5.95 to 6.15	6.05	Pass
Headform Rotation	Max	45 to 55	47.1	Pass
	Time	39 to 53	42.4	Pass
Time of Decay to Zero Angle from Peak	msec	37 to 57	43.9	Pass
Overall Test Results				Pass



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
2.8	140.1	-26.6	9.4



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.0	-7.3	124.0

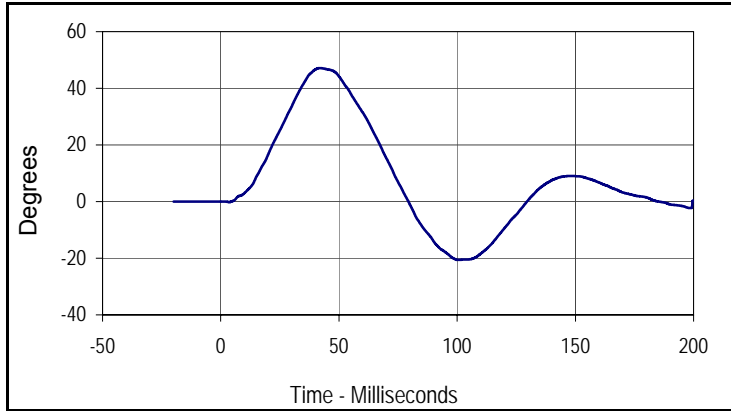


Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.0	-7.3	124.0

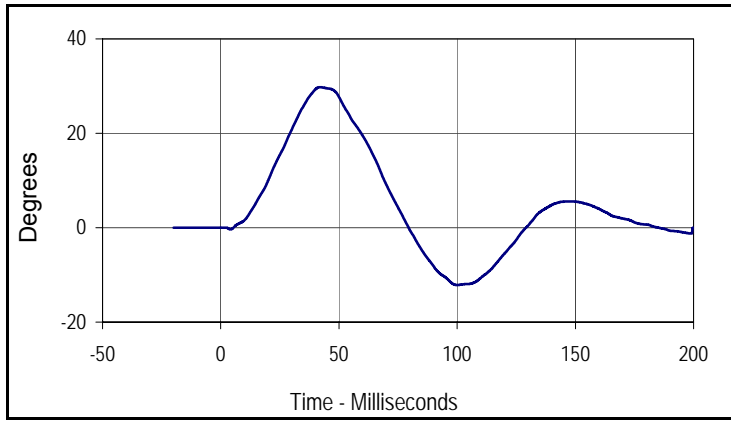
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.7	-0.24	2.7	-0.425
27.0	-5.80	24.5	-6.50
		30.0	-6.50

Test Program: ES2re Lumbar Flexion Test  
 ATD Serial No.: F035

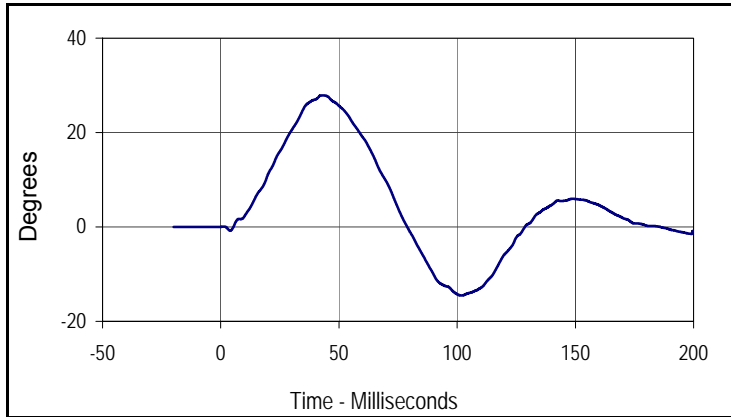
Test Date: 12/11/13  
 Test I.D.: F035LB052



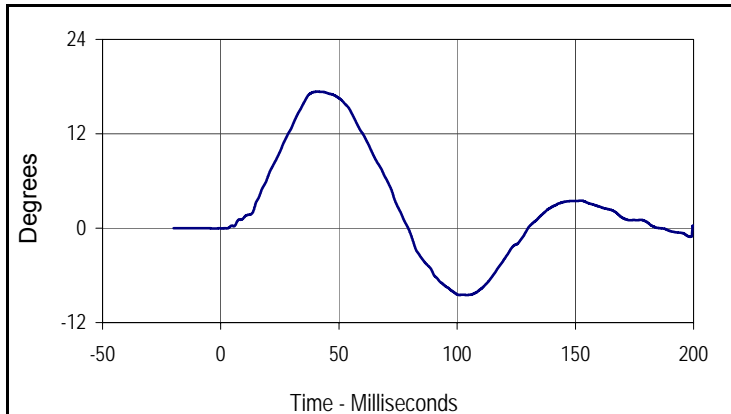
Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	180	Degrees
Max	Time	Min	Time
47.1	42.4	-20.6	101.1



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
004	FIL	180	Degrees
Max	Time	Min	Time
29.8	42.5	-12.2	100.6



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
005	FIL	180	Degrees
Max	Time	Min	Time
27.9	43.6	-14.5	102.4



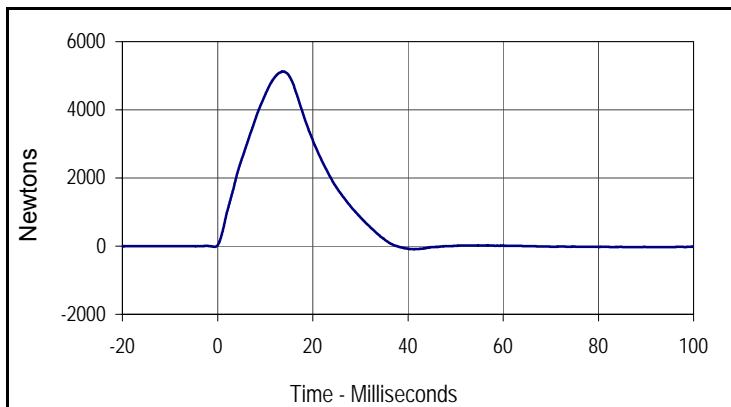
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
006	FIL	180	Degrees
Max	Time	Min	Time
17.4	41.6	-8.5	104.7

Test Program: ES2re Pelvis Impact Test  
 ATD Serial No.: F035

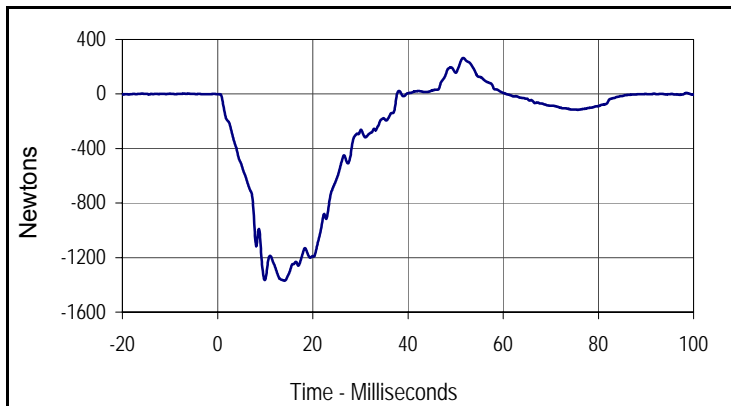
Test Date: 12/11/13  
 Test I.D.: F035PL052



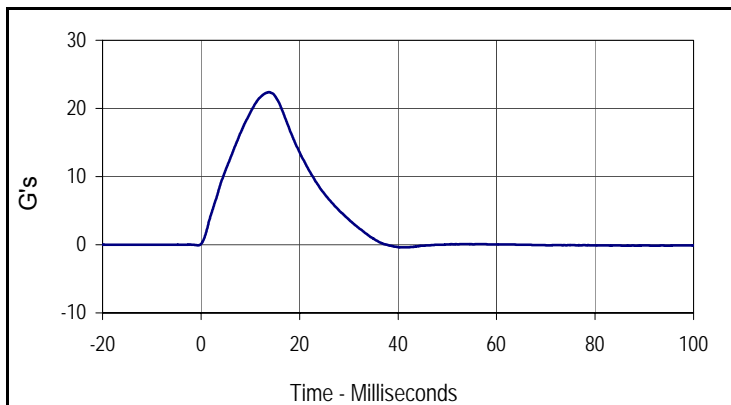
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	785	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	33.4	Pass
	Min		23.7	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	23.7	Pass
Pendulum Velocity	m/s	4.2 to 4.4	4.31	Pass
Peak Impactor Force	N	4700 to 5400	5126.5	Pass
	msec	11.8 to 16.1	13.8	Pass
Peak Pubic Symphysis Load	N	-1230 to -1590	-1369.8	Pass
	msec	12.2 to 17.0	14.1	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
5126.5	13.8	-89.8	41.2



Curve Description			
Pubic Symphysis Force Y			
Plot No.	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
263.8	51.6	-1369.8	14.1



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
22.4	13.8	-0.4	41.2

Test Program: SID IIs External Measurements

Test Date: 12/12/13



ATD Serial No.: 307

Test I.D.: N/A

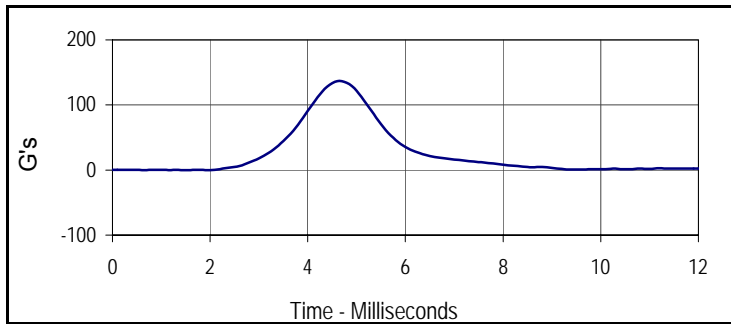
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	23	Pass
A Sitting Height	mm	772 - 788	778	Pass
B Shoulder Pivot Height	mm	437 - 453	443	Pass
C H-Point Height	mm	79 - 89	85	Pass
D H-Point from Seatback	mm	141 - 151	144	Pass
E Shoulder Pivot from Backline	mm	97 - 107	102	Pass
F Thigh Clearance	mm	119 - 135	128	Pass
G Head Breadth	mm	140 - 148	145	Pass
H Head Back from Backline	mm	40 - 46	43	Pass
I Head Depth	mm	178 - 188	185	Pass
J Head Circumference	mm	541 - 551	546	Pass
K Buttock to Knee Length	mm	514 - 540	525	Pass
L Popliteal Height	mm	343 - 369	351	Pass
M Knee Pivot to Floor Height	mm	392 - 409	400	Pass
N Buttock Popliteal Length	mm	416 - 442	432	Pass
O Chest Depth w/o Jacket	mm	195 - 211	205	Pass
P Foot Length	mm	216 - 232	223	Pass
Q Hip Breadth with Pelvic Plug	mm	313 - 323	319	Pass
R Arm Length	mm	249 - 259	254	Pass
S Knee Joint to Seatback	mm	477 - 493	483	Pass
V Shoulder Width	mm	341 - 357	351	Pass
W Foot Width	mm	78 - 94	89	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.: 307

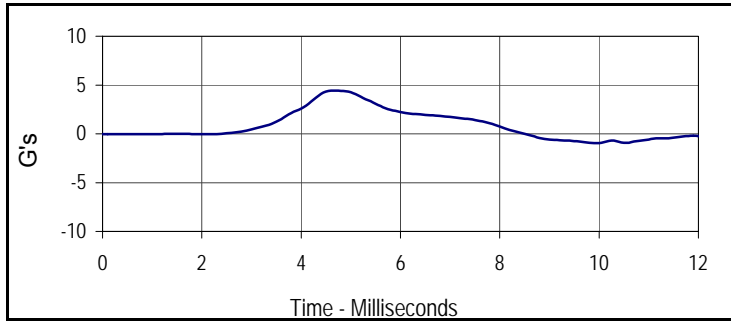
Test Date: 12/12/13  
 Test I.D.: 307HD060



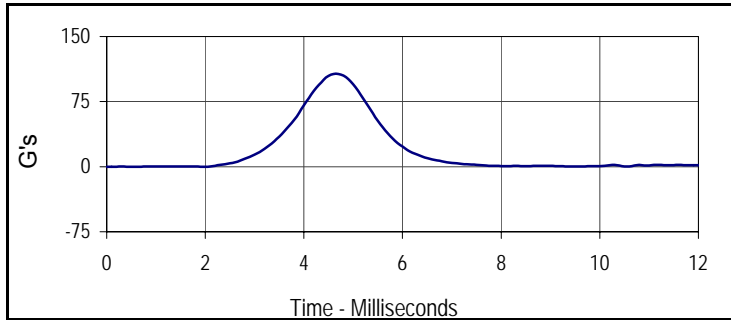
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	300	Pass
Temperature During Soak	Max	18.9 to 25.6	21.5	Pass
	Min		21.4	Pass
Humidity During Soak	Max	10.0 to 70.0	22.6	Pass
	Min		18.9	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	21.5	Pass
Peak Head Resultant Acceleration	G's	115 to 137	136.7	Pass
Peak Head X Acceleration	G's	<15	4.4	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	2.6	Pass
Overall Test Results				Pass



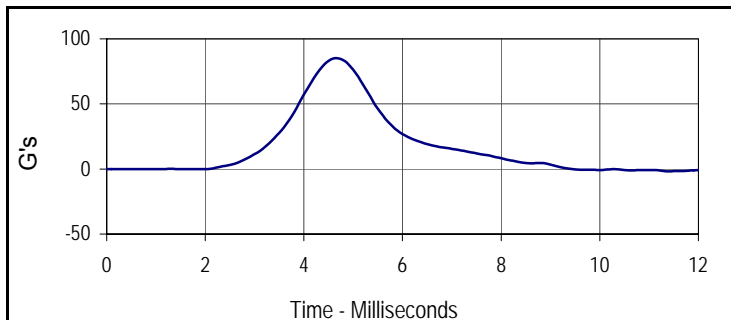
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
136.7	4.7	0.0	2.0



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
4.4	4.6	0.0	0.3



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
107.0	4.7	0.0	2.0



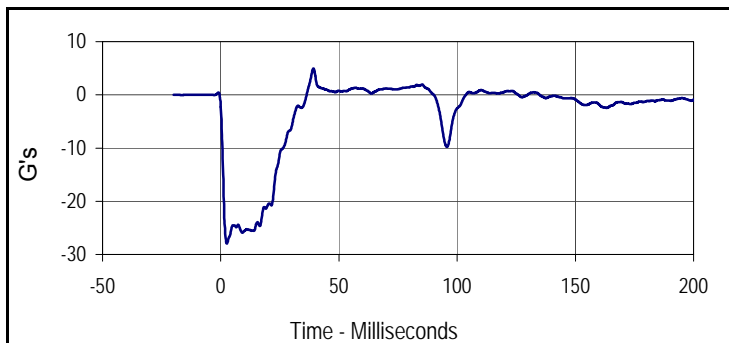
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
84.9	4.7	-1.7	11.4

Test Program: SID IIs Neck Flexion Test  
 ATD Serial No.: 307

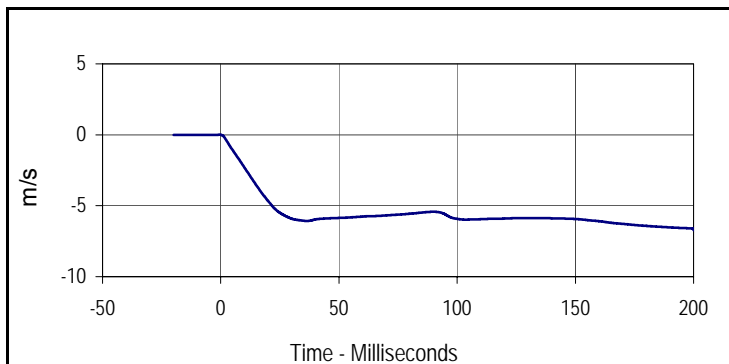
Test Date: 12/12/13  
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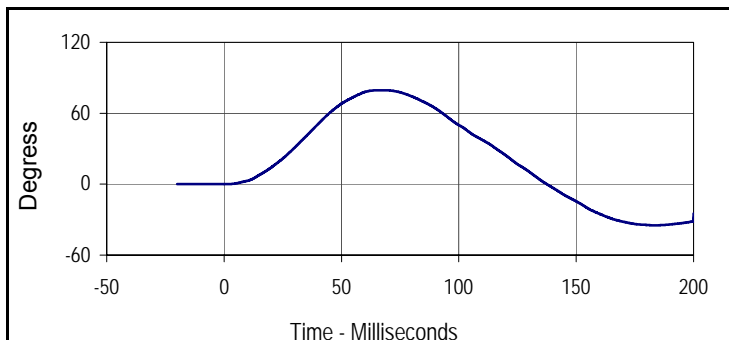
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	375	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.5	Pass	
	Min		21.4	Pass	
Humidity During Soak	Max	10.0 to 70.0	22.6	Pass	
	Min		18.9	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	20.8	Pass	
Pendulum Velocity	m/s	5.51 to 5.63	5.63	Pass	
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.30	Pass
	15 msec	m/s	-3.30 to -4.10	-3.55	Pass
	20 msec	m/s	-4.40 to -5.40	-4.66	Pass
	25 msec	m/s	-5.40 to -6.10	-5.50	Pass
	25-100 msec	m/s	-5.50 to -6.20	-6.07	Pass
D-Plane Rotation	Max	Degrees	71 to 81	79.5	Pass
	Time	msec	50 to 70	66.7	Pass
Peak Occipital Condyle Moment	Nm	-36 to -44	-39.4	Pass	
Decaying Moment Time to Cross 0 Nm	msec	102 to 126	122.6	Pass	
Overall Test Results			Pass	Pass	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
5.0	0.0	-27.9	0.0



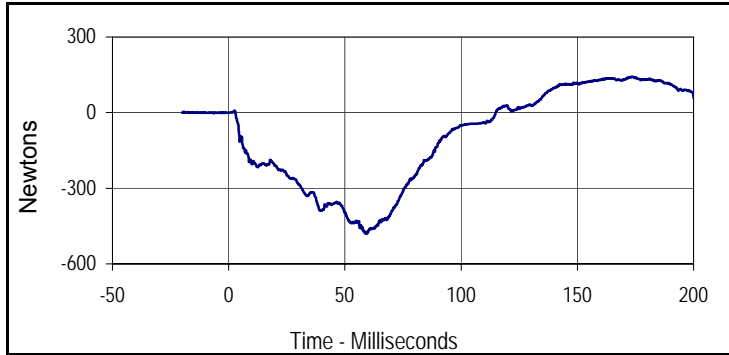
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.5	-6.7	200.0



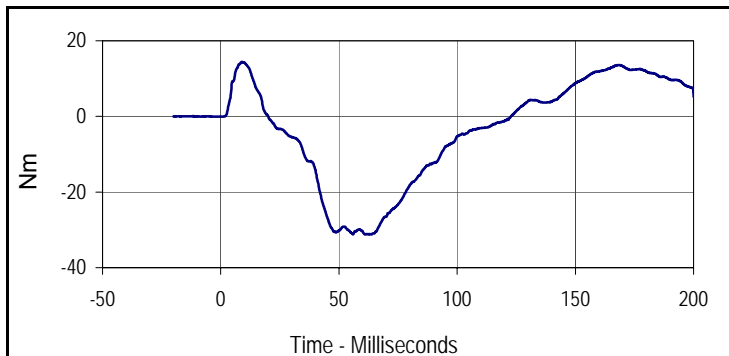
Curve Description			
D-Plane Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	Degress
Max	Time	Min	Time
79.5	66.7	-34.8	183.4

Test Program: SID IIs Neck Flexion Test  
 ATD Serial No.: 307

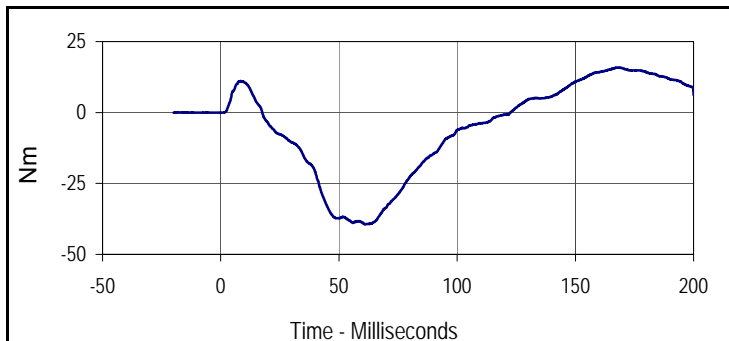
Test Date: 12/12/13  
 Test I.D.: 307NB060



Curve Description			
Neck Force Y			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
143.0	173.8	-479.1	59.0



Curve Description			
Neck Moment X			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
14.4	8.8	-31.2	63.6



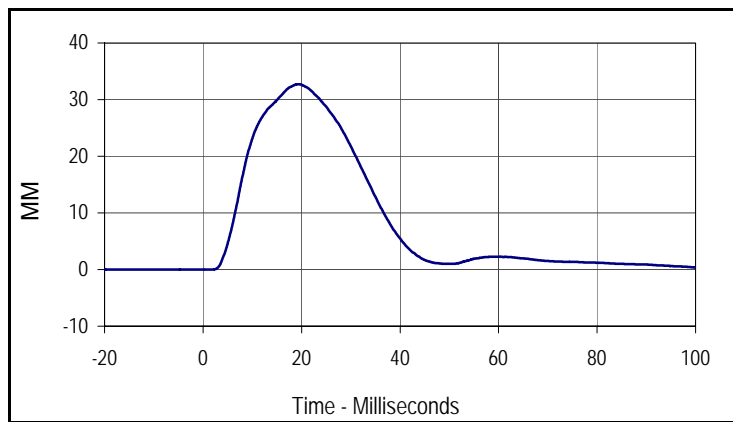
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
006	FIL	600	Nm
Max	Time	Min	Time
15.9	168.0	-39.4	61.1

Test Program: SID IIs Shoulder Impact Test  
 ATD Serial No.: 307

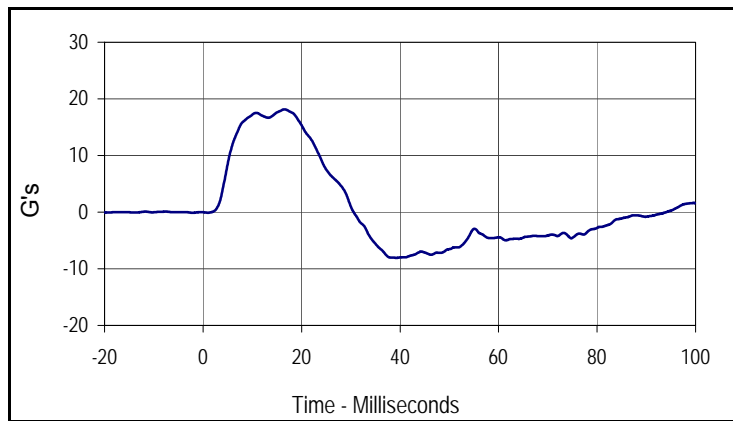
Test Date: 12/12/13  
 Test I.D.: 307SH060



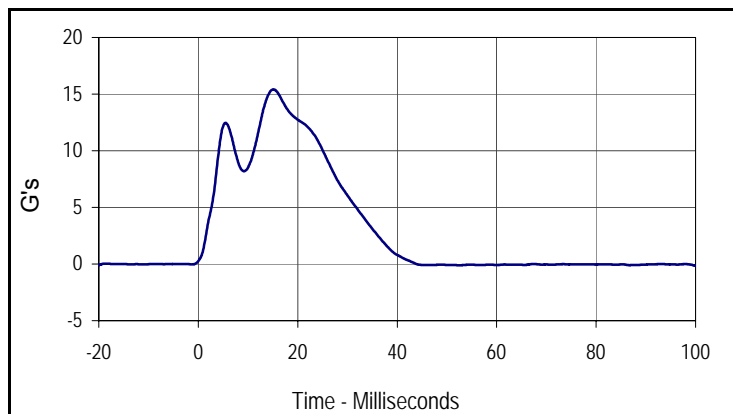
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	430	Pass
Temperature During Soak	Max	20.6 to 22.2	21.5	Pass
	Min		21.4	Pass
Humidity During Soak	Max	10.0 to 70.0	22.6	Pass
	Min		18.9	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.1	Pass
Impactor Velocity	m/s	4.20 to 4.40	4.37	Pass
Peak Shoulder Deflection	mm	28 to 37	32.7	Pass
Peak Lateral Spine Acceleration Y	G's	17 to 22	18.2	Pass
Peak Impactor Acceleration	G's	13 to 18	15.4	Pass
Overall Test Results			Pass	Pass



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
32.7	19.3	0.0	-3.7



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
18.2	16.5	-8.1	39.3



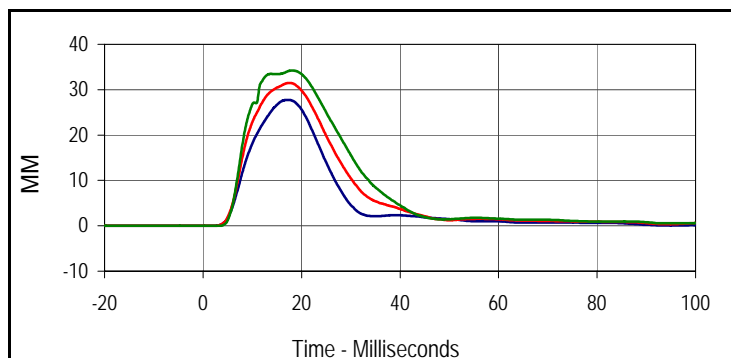
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
15.4	15.1	-0.2	99.9

Test Program: SID IIs Thorax with Arm Impact Test  
 ATD Serial No.: 307

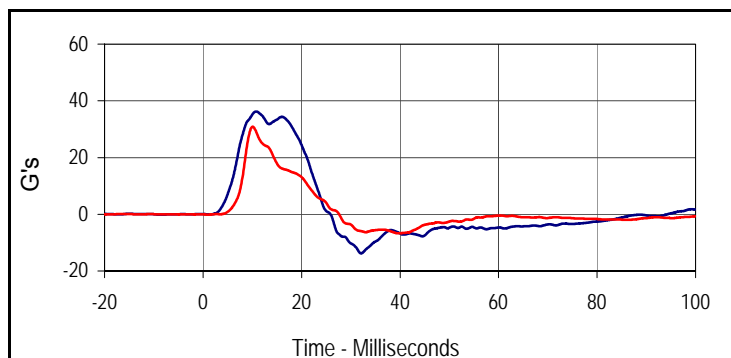
Test Date: 12/12/13  
 Test I.D.: 307TWA060



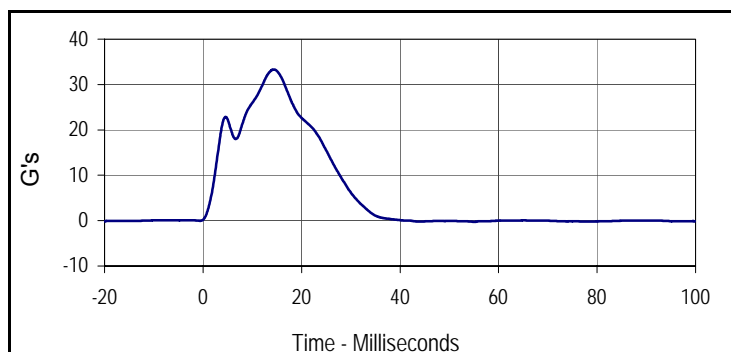
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	475	Pass
Temperature During Soak	Max	20.6 to 22.2	21.5	Pass
	Min		21.4	Pass
Humidity During Soak	Max	10.0 to 70.0	22.6	Pass
	Min		18.9	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	19.9	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.73	Pass
Peak Shoulder Deflection	mm	31 to 40	34.8	Pass
Peak Upper Thorax Rib Deflection	mm	25 to 32	27.8	Pass
Peak Middle Thorax Rib Deflection	mm	30 to 36	31.5	Pass
Peak Lower Thorax Rib Deflection	mm	32 to 38	34.2	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	36.2	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	30.9	Pass
Peak Impactor Acceleration	G's	30 to 36	33.3	Pass
<b>Overall Test Results</b>				<b>Pass</b>



Curve Description			
<b>Upper Thorax Deflection</b>			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
27.8	17.1	0.0	-18.9
<b>Middle Thorax Deflection</b>			
Max	Time	Min	Time
31.5	17.6	0.0	-16.1
<b>Lower Thorax Deflection</b>			
Max	Time	Min	Time
34.2	18.1	0.0	-16.2



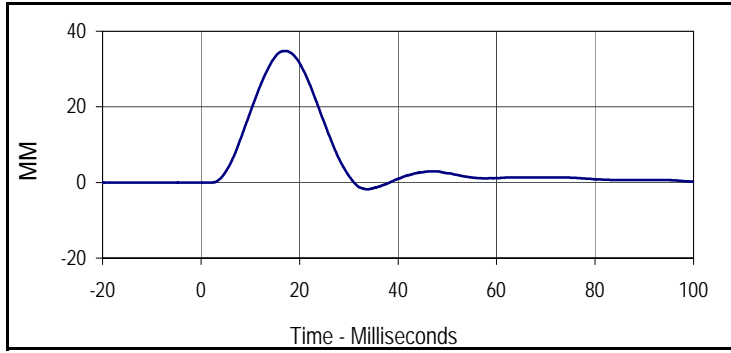
Curve Description			
<b>Upper Spine Y Acceleration</b>			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
36.2	10.8	-13.8	32.1
<b>Lower Spine Y Acceleration</b>			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
30.9	10.1	-6.7	39.7



Curve Description			
<b>Impactor Acceleration</b>			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
33.3	14.4	-0.3	55.1

Test Program: SID IIs Thorax with Arm Impact Test  
 ATD Serial No.: 307

Test Date: 12/12/13  
 Test I.D.: 307TWA060



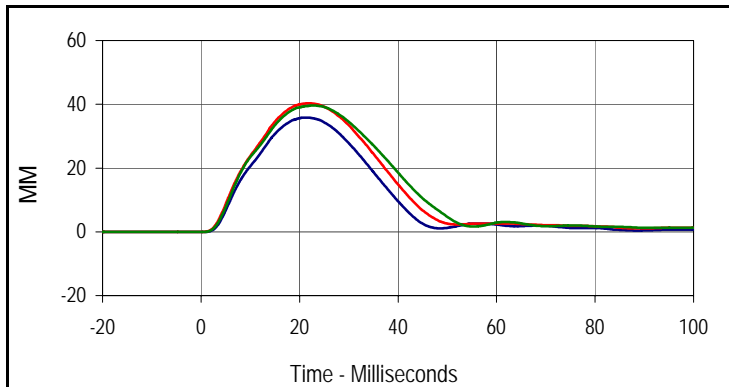
Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
007	FIL	600	MM
Max	Time	Min	Time
34.8	17.1	-1.8	33.8

Test Program: SID IIs Thorax without Arm Impact Test  
 ATD Serial No.: 307

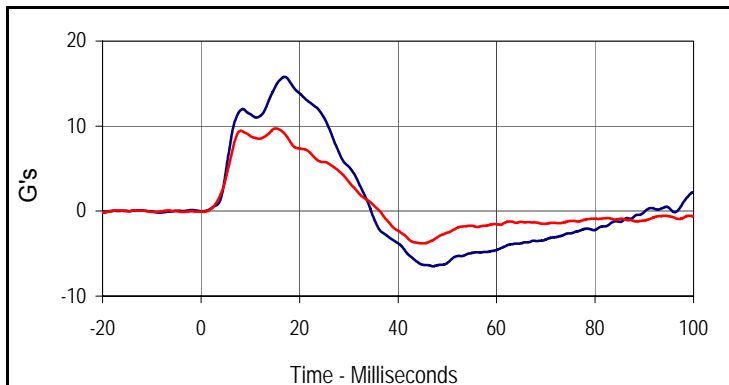
Test Date: 12/12/13  
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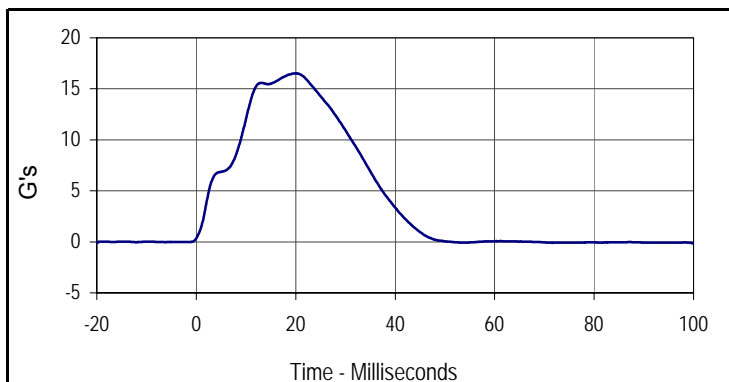
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	525	Pass
Temperature During Soak	Max	18.9 to 25.6	21.5	Pass
	Min		21.4	Pass
Humidity During Soak	Max	10.0 to 70.0	22.6	Pass
	Min		18.9	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	19.5	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.33	Pass
Peak Upper Thorax Rib Deflection	mm	32 to 40	35.8	Pass
Peak Middle Thorax Rib Deflection	mm	39 to 45	40.3	Pass
Peak Lower Thorax Rib Deflection	mm	35 to 43	39.7	Pass
Peak Upper Spine Y Acceleration	G's	13 to 17	15.8	Pass
Peak Lower Spine Y Acceleration	G's	7 to 11	9.7	Pass
Peak Impactor Acceleration	G's	14 to 18	16.5	Pass
Overall Test Results				Pass



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
35.8	21.0	0.0	-5.9
Middle Thorax Deflection			
Max	Time	Min	Time
40.3	22.0	0.0	-5.7
Lower Thorax Deflection			
Max	Time	Min	Time
39.7	22.8	0.0	-5.3



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.8	17.0	-6.5	47.1
Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
9.7	15.1	-3.8	44.8



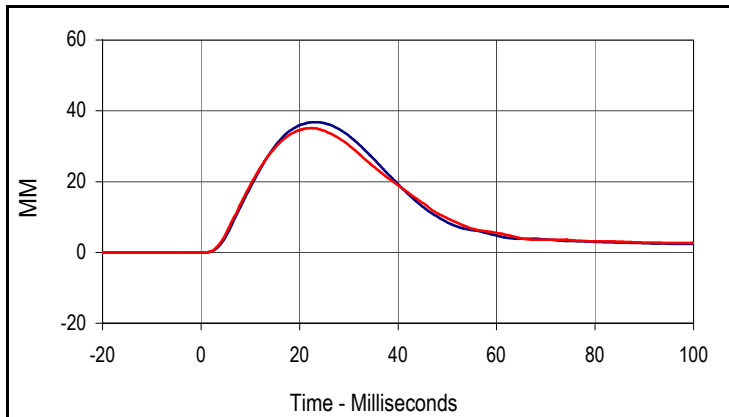
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
16.5	20.1	-0.1	99.9

Test Program: SID IIs Abdomen Impact Test  
 ATD Serial No.: 307

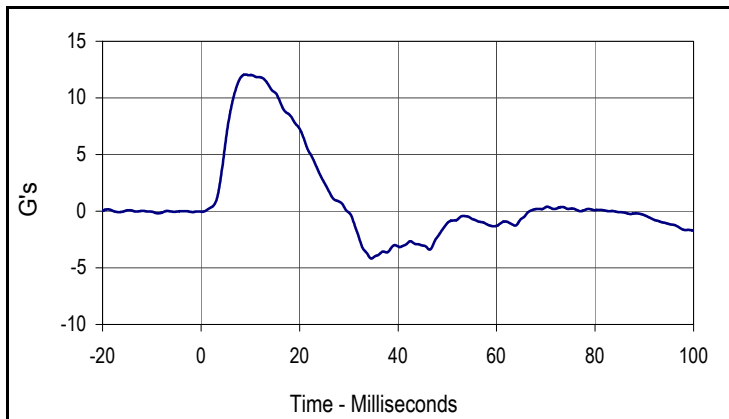
Test Date: 12/12/13  
 Test I.D.: 307ABD060



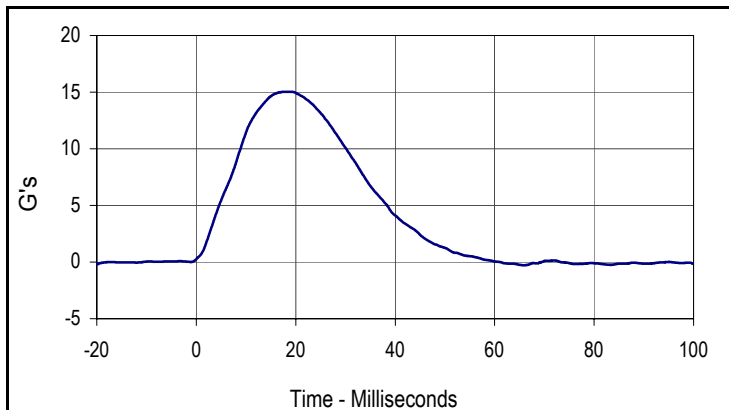
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	560	Pass
Temperature During Soak	Max	20.6 to 22.2	21.5	Pass
	Min		21.4	Pass
Humidity During Soak	Max	10.0 to 70.0	22.6	Pass
	Min		18.9	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	19.4	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.30	Pass
Peak Upper Abdominal Rib Deflection	mm	36 to 47	36.8	Pass
Peak Lower Abdominal Rib Deflection	mm	33 to 44	35.1	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	12.1	Pass
Peak Impactor Acceleration	G's	12 to 16	15.0	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
36.8	23.2	0.0	-11.3



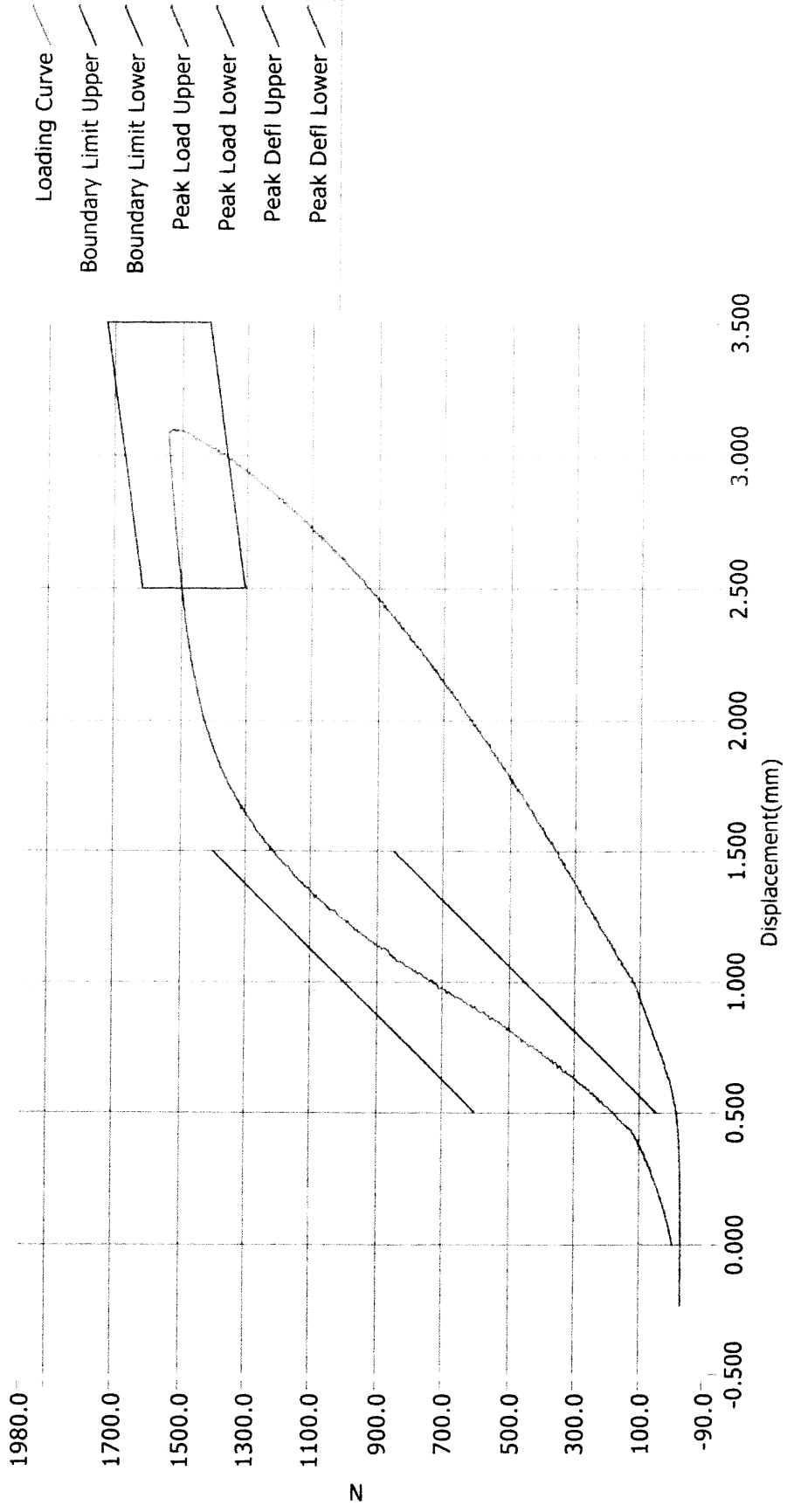
Curve Description			
Lower Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
35.1	22.4	0.0	-11.7



Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
12.1	9.0	-4.2	34.6

Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.0	18.5	-0.3	65.8

# Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

<u>Test ID</u>	<u>Part Serial Number</u>	<u>Test Date</u>	<u>Test Time</u>
	48940	12/6/2011	8:10 PM
<u>Cert ID</u>	<u>ATD Serial Number</u>	<u>ATD Type</u>	
	N/A	SIDIIs	

**M20145114 POST TEST**

Current Date : 12/6/2011

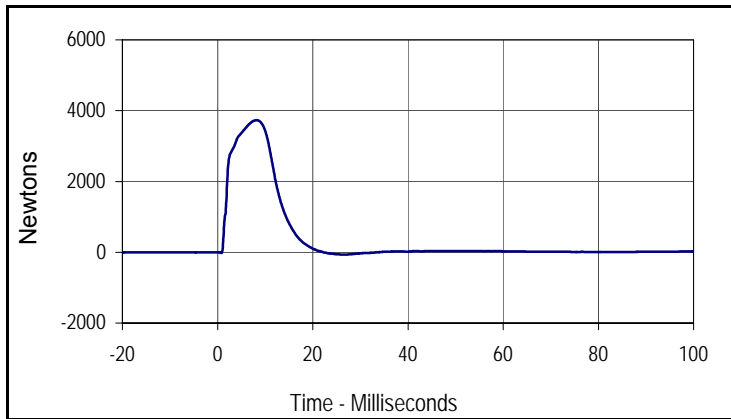
Current Time : 20:11:27

Test Program: SID IIs Pelvis Acetabulum Impact Test  
 ATD Serial No.: 307

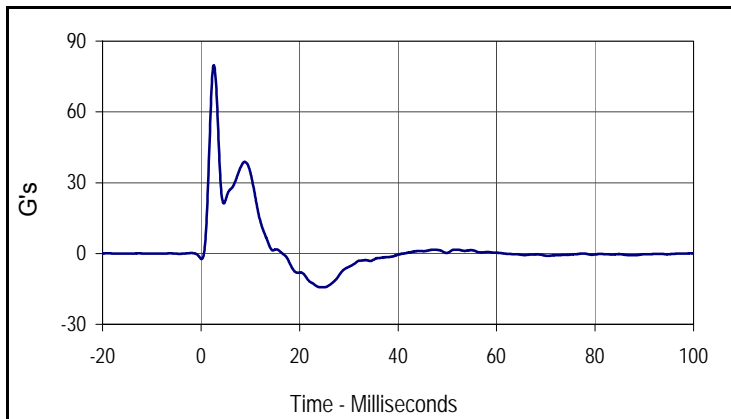
Test Date: 12/12/13  
 Test I.D.: 307ACET060



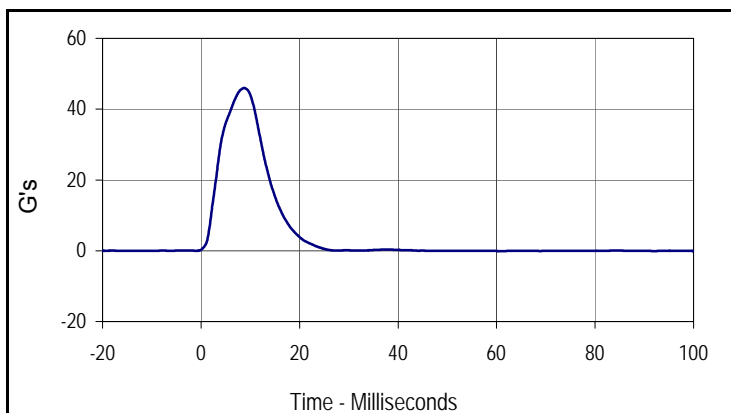
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	605	Pass
Temperature During Soak	Max	20.6 to 22.2	21.5	Pass
	Min		21.4	Pass
Humidity During Soak	Max	10.0 to 70.0	22.6	Pass
	Min		18.9	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	19.2	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.76	Pass
Peak Acetabulum Force Y	Newtons	3600 to 4300	3730.8	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	38.9	Pass
Peak Impactor Acceleration	G's	38 to 47	46.0	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Acetabulum Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3730.8	8.2	-67.8	26.1



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
79.9	2.6	-14.3	25.0



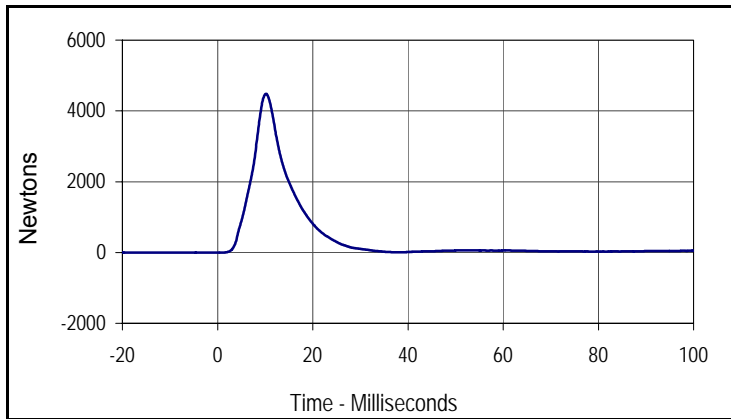
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
46.0	8.8	-0.1	60.8

Test Program: SID IIs Pelvis Iliac Calibration  
 ATD Serial No.: 307

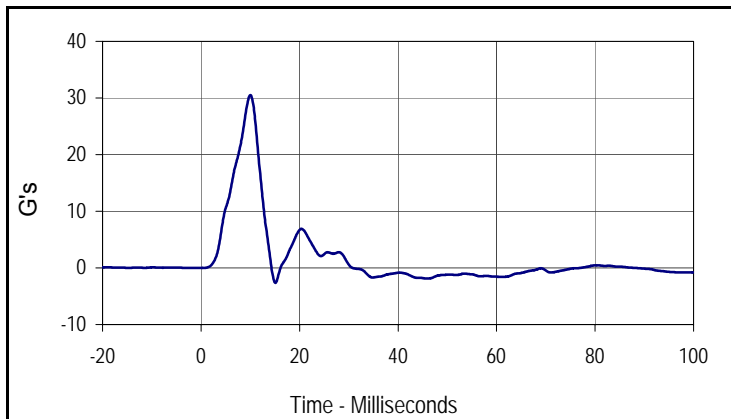
Test Date: 12/12/13  
 Test I.D.: 307PL060



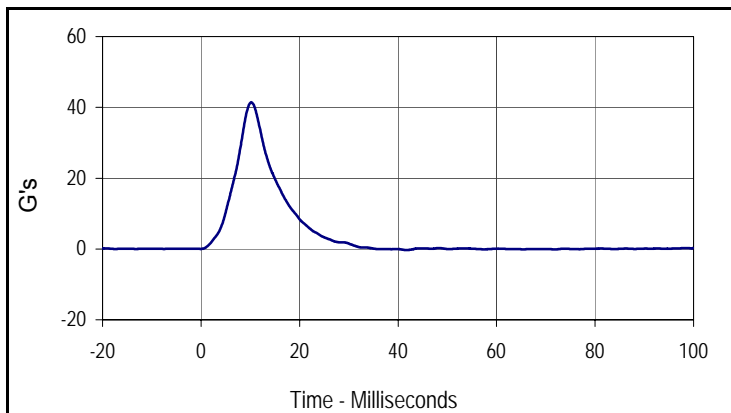
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	675	Pass
Temperature During Soak	Max	20.6 to 22.2	21.5	Pass
	Min		21.4	Pass
Humidity During Soak	Max	10.0 to 70.0	22.6	Pass
	Min		18.9	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	18.9	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.33	Pass
Peak Iliac Force	Newtons	4100 to 5100	4485.0	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	30.5	Pass
Peak Impactor Acceleration	G's	36 to 45	41.4	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Iliac Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4485.0	10.2	-3.2	-3.6



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
30.5	10.0	-2.7	15.1



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
41.4	10.2	-0.3	41.7

**APPENDIX D**  
**TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA**

**APPENDIX D**  
**TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA**

**TABLE 1 – Dummy Instrumentation (ES-2re)**

			ES-2re S/N F035		
			Serial Number	Manufacturer	Calibration
Head Accelerometers	Primary	X	P58760	Endevco	10/4/2013
		Y	P58763	Endevco	10/4/2013
		Z	P52093	Endevco	10/4/2013
	Redundant	X	P52072	Endevco	10/4/2013
		Y	P58768	Endevco	10/4/2013
		Z	P52074	Endevco	10/4/2013
Thorax Rib Displacement Potentiometers	Upper	Y	180	FTSS	10/7/2013
	Middle	Y	177	FTSS	10/7/2013
	Lower	Y	186	FTSS	10/7/2013
Abdomen Load Cells	Forward	Y	1514	Denton	5/9/2013
	Middle	Y	1510	Denton	5/9/2013
	Rear	Y	1515	Denton	5/9/2013
Lower Spine Accelerometers (T12)		X	P49165	Endevco	10/4/2013
		Y	P49212	Endevco	10/4/2013
		Z	00L20-A16	Endevco	10/7/2013
Pubic Symphysis Load Cell		Y	506	Denton	5/9/2013

**TABLE 2 – Dummy Instrumentation (SID-IIs)**

			SID-IIs S/N 307			
			Serial Number	Manufacturer	Calibration	
Head Accelerometers	Primary	X	P58900	Endevco	8/27/2013	
		Y	P58902	Endevco	8/27/2013	
		Z	P58983	Endevco	8/27/2013	
	Redundant	X	P58901	Endevco	8/27/2013	
		Y	P58906	Endevco	8/27/2013	
		Z	P58989	Endevco	8/27/2013	
Displacement Potentiometers	Thoracic Rib	Upper	Y	1249	FTSS	8/28/2013
		Middle	Y	1265	FTSS	8/28/2013
		Lower	Y	1277	FTSS	8/28/2013
	Abdominal Rib	Upper	Y	1286	FTSS	8/28/2013
		Lower	Y	1290	FTSS	8/28/2013
Lower Spine Accelerometers (T12)		X	P59007	Endevco	8/28/2013	
		Y	P59015	Endevco	8/28/2013	
		Z	P58995	Endevco	8/28/2013	
Acetabulum Load Cell		Y	277	Denton	4/19/2013	
Iliac Wing Load Cell		Y	289	Denton	4/19/2013	
Pelvis Plug (Struck Side)			48898	FTSS	12/5/2011	
Pelvis Plug (Non-Struck Side)			48899	FTSS	12/5/2011	

**TABLE 3 – Vehicle Instrumentation**

Vehicle Instrumentation			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	Keva202x	ICSensor	7/2/2013
	Vehicle Center of Gravity	Y	Keva202y	ICSensor	7/2/2013
	Vehicle Center of Gravity	Z	Keva202z	ICSensor	7/1/2013
2	Right Sill at Front Seat	X	13735	Endevco	10/22/2013
	Right Sill at Front Seat	Y	13650	Endevco	9/24/2012
	Right Sill at Front Seat	Z	13701	Endevco	10/22/2013
3	Right Sill at Rear Seat	X	12489	Endevco	6/25/2013
	Right Sill at Rear Seat	Y	13322	Endevco	6/25/2013
	Right Sill at Rear Seat	Z	13501	Endevco	6/26/2013
4	Left Sill at Front Door	Y	13680	Endevco	6/25/2013
5	Left Sill at Rear Door	Y	13663	Endevco	7/1/2013
6	Left A-Post Lower	Y	13723	Endevco	6/18/2013
7	Left A-Post Middle	Y	13496	Endevco	11/15/2013
8	Left B-Post Lower	Y	13649	Endevco	11/4/2013
9	Left B-Post Middle	Y	13736	Endevco	10/22/2013
10	Front Seat Track	Y	13479	Endevco	6/19/2013
11	Rear Seat Structure	Y	N/A	N/A	N/A
12	Right Rear Occ. Compartment	Y	12493	Endevco	7/1/2013
13	Engine Block	X	13645	Endevco	6/24/2013
	Engine Block	Y	13704	Endevco	6/24/2013
14	Rear Floorpan Above Axle	X	13660	Endevco	6/18/2013
	Rear Floorpan Above Axle	Y	13381	Endevco	6/25/2013
	Rear Floorpan Above Axle	Z	13463	Endevco	6/18/2013

**TABLE 4 – MDB Instrumentation**

		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	13682	Endevco	6/24/13
MDB Center of Gravity	Y	13706	Endevco	6/24/13
MDB Center of Gravity	Z	13715	Endevco	6/24/13
Left Frame at Rear Axle Centerline	X	13705	Endevco	6/24/13
Left Frame at Rear Axle Centerline	Y	13711	Endevco	6/24/13