

REPORT NUMBER: SINCAP-KAR-15-002

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

**TOYOTA MOTOR CORPORATION
2015 LEXUS RX 350 5-DOOR MPV**

NHTSA No: M20155301

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



JUNE 20, 2014

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
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16. Abstract

A 55/28 km/h 90 deg. Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2015 Lexus RX 350 5-door MPV in accordance with the specifications of the Office of Crash Worthiness Standards Test Procedure for the generation of consumer information on vehicle side crash protection. The test was conducted at the KARCO Engineering, LLC. facility in Adelanto, California on June 6, 2014.

The impact velocity of the Moving Deformable Barrier was 61.60 km/h and the outside ambient temperature at the struck (driver's) side of the vehicle was 36.7° C. The target vehicle's maximum post-test static crush was 229 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 ₃₆)		1000	91.3
Maximum Thoracic Rib Deflection	mm	44	11
Total Abdominal Force	N	2500	691
Pubic Symphysis Force	N	6000	1191

Measurement Description	Passenger ATD (SID-IIs)		
	Units	IARV	Result
Head Injury Criteria (HIC ₃₆)		1000	87.2
Resultant Lower Spine Acceleration	g	82	37
Total Pelvic Force (Sum of Acetubular and Iliac Forces)	N	5525	1219
Maximum Thoracic Rib Deflection	mm	38*	9
Maximum Abdominal Rib Deflection	mm	45*	20

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 MY2015 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 2015 Lexus RX 350 5-door MPV. 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 2015 Lexus RX 350 5-door MPV 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 61.60 km/h (38.28 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by KARCO Engineering, LLC. in Adelanto, California, on June 6, 2014. 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 ₃₆)		1000	91.3
Maximum Thoracic Rib Deflection	mm	44	11
Combined Abdominal Force	N	2500	691
Pubic Symphysis Force	N	6000	1191

Measurement Description	Units	Passenger ATD (SID-IIs)	
		Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	87.2
Lower Spine (T12) Resultant Acceleration	g	82	37
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	1219
Maximum Thoracic Rib Deflection	mm	38*	9
Maximum Abdominal Rib Deflection	mm	45*	20

*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/Pelvis)	Yes	Yes	No	
Side Airbag 3 (Torso)	No		Yes	Yes
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes	Yes	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: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14

CONVERSION FACTORS

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

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
 Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	M20155301
Model Year	2015
Make	Lexus
Model	RX 350
Body Style	5-Door MPV
VIN	JTJZK1BA1F2420115
Body Color	Satin Cashmere Metal
Odometer Reading (km / mi)	31 / 19
Engine Displacement (L)	3.5
Type / No. of Cylinders	V6
Engine Placement	Transverse
Transmission Type	Automatic
Transmission Speeds	6
Overdrive	Yes
Final Drive	Front
Roof Rack	Yes
Sunroof / T-Top	Yes
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	Yes
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	No
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	Yes
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	Yes
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?

Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Toyota Motor Corporation
Date of Manufacture	Mar-14
Vehicle Type	MPV

GVWR (kg)	2520
GAWR Front (kg)	1360
GAWR Rear (kg)	1385

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Designated Seating Capacity	2	3		5
Capacity Weight (VCW) (kg)				395.0
DSC x 68.04 (kg)				340.2
Cargo Weight (RCLW) (kg)				54.8

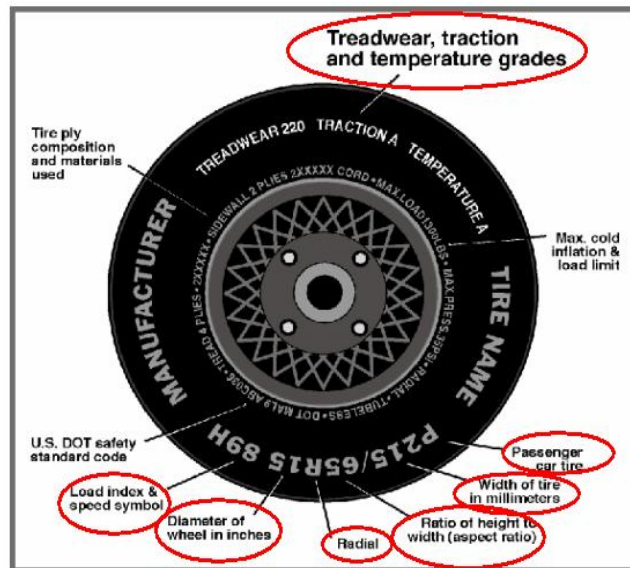
VEHICLE SEAT TYPE

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: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
 Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14



Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	350	350
Cold Pressure (kPa)	220	220
Recommended Tire Size	P235/60R18	P235/60R18
Tire Size on Vehicle	P235/60R18	P235/60R18
Tire Manufacturer	Dunlop	Dunlop
Tire Model	GrandTrek Touring A/S	GrandTrek Touring A/S
Treadware	280	280
Traction Grade	A	A
Temperature Grade	A	A
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Polyester, 2 Steel, 1 Nylon	2 Polyester, 2 Steel, 1 Nylon
Load Index/Speed Symbol	102V	102V
Tire Material	Polyester, Steel, Nylon	Polyester, Steel, Nylon
DOT Safety Code Left	V4DC 4M0R0814	V4DC 4M0R0814
DOT Safety Code Right	V4DC 4M0R0814	V4DC 4M0R0814

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
 Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	265	265	265	265
Tire Placard	kPa	220	220	220	220
Owner's Manual	kPa	220	220	220	220
As Tested	kPa	220	220	220	220

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	562.5	414.0		599.5	489.5		601.0	501.5	
Right	kg	532.5	396.5		545.5	445.5		536.5	447.0	
Ratio	%	57.5%	42.5%	100.0%	55.0%	45.0%	100.0%	54.5%	45.5%	100.0%
Total	kg	1095.0	810.5	1905.5	1145.0	935.0	2080.0	1137.5	948.5	2086.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1905.5	A
Actual Weight of 2 P572 ATDs Used	kg	125.0	B
Rated Cargo/Luggage Wt (RCLW)	kg	54.8	C
Calculated Vehicle Target Wt (TVTW)	kg	2085.3	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	800	803	Yes
RF	mm	817	808	Yes
LR	mm	803	802	Yes
RR	mm	804	802	Yes
Vehicle CG (Aft of Front Axle)	mm	1245	1231	
Vehicle CG (Left (+)/Right (-) from Longitudinal Centerline)	mm	46	38	

***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: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Spare Tire and Tools	26.0
Cargo Area Trim	13.0
Ballast / Equipment Added	94.4

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: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
 Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14

SEAT POSITIONING

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

SCRL ANGLE RANGE

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	7.1	0.0	3.6
Front Passenger Seat	6.7	0.0	3.4
Front Center Seat			
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat	Fixed to RR	Fixed to RR	Fixed to RR

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	682	Max	719	721	724
			Mid	699	702	705
			Min	679	682	686
Front Passenger Seat	3.4	685	Max	722	725	728
			Mid	702	705	708
			Min	682	685	688
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 to RR	Fixed to RR	Max	Fixed to RR	Fixed to RR	Fixed to RR
			Mid	Fixed to RR	Fixed to RR	Fixed to RR
			Min	Fixed to RR	Fixed to RR	Fixed to RR

DATA SHEET NO. 2 ... (CONTINUED)

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

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
 Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14

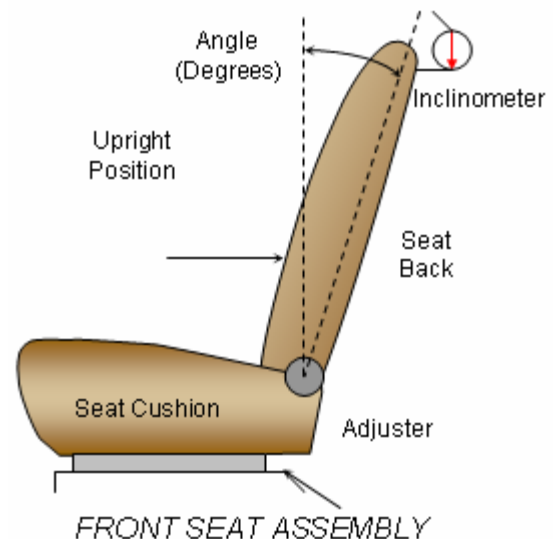
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position From Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	260	N/A	130	N/A
Front Passenger Seat	260	N/A	130	N/A
Front Center Seat				
Struck Side Rear Seat	123	9	123	8
Non-Struck Side Rear Seat	123	9	123	8
Rear Center Seat	Fixed to RR	Fixed to RR	Fixed to RR	Fixed to RR

*Detent zero (0) is the forward most detent

SEAT BACK ADJUSTMENT

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



SEAT BACK POSITION

Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degree	Detent*
Driver Seat w/Seated Dummy	52.2	N/A	0.6	N/A
Front Passenger Seat	52.0	N/A	0.6	N/A
Front Center Seat				
Struck Side Rear Seat w/Seated Dummy	16.3	9	2.4	0
Non-Struck Side Rear Seat	16.2	9	2.4	0
Rear Center Seat	Fixed to RR	Fixed to RR	Fixed to RR	Fixed to RR

*Detent zero (0) is the forward most detent

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

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
 Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14

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

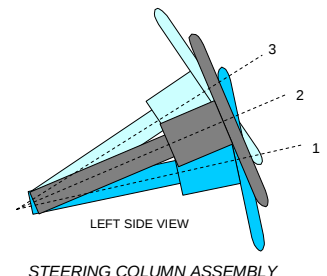
The driver's head restraint is adjusted to the highest and most full forward in-use position. The struck-side rear passenger's head restraint is adjusted to the lowest and most full forward in-use position.

	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.

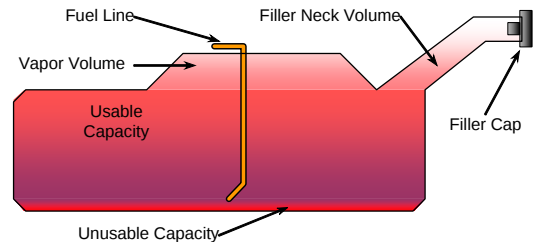
	Degrees	Fore-Aft Position (mm)
Lowermost - Position 1	24.4	97
Geometric Center - Position 2	26.3	118
Uppermost - Position 3	28.2	139
Telescoping Steering Wheel Travel		42
Test Position	26.3	118



DATA SHEET NO. 2 ... (CONTINUED)**SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA**Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14**FUEL PUMP**

The vehicle is equipped with an electric fuel pump.

The fuel pump is activated when the ignition is turned on.



VEHICLE FUEL TANK ASSEMBLY

FUEL TANK CAPACITY

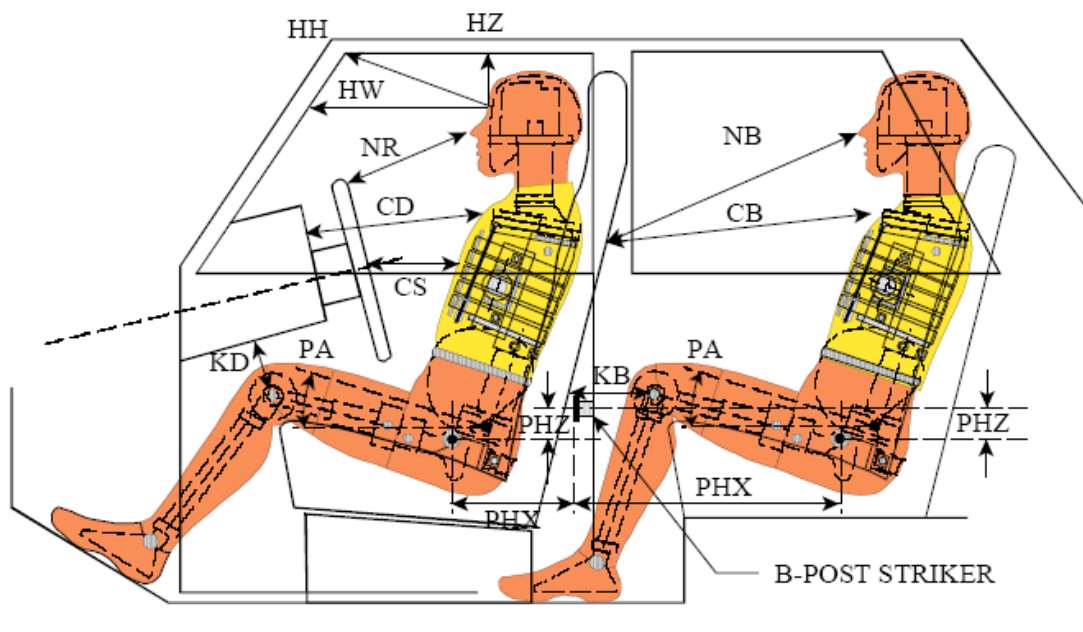
Description	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	72.67
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of "Standard Tank" (see Owner's Manual)	
Usable Capacity of "Optional Tank" (see Owner's Manual)	
93% of Usable Capacity	67.60
Actual amount of Solvent Used in Test	67.60
1/3 of Usable Capacity	24.22

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

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
 Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14



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

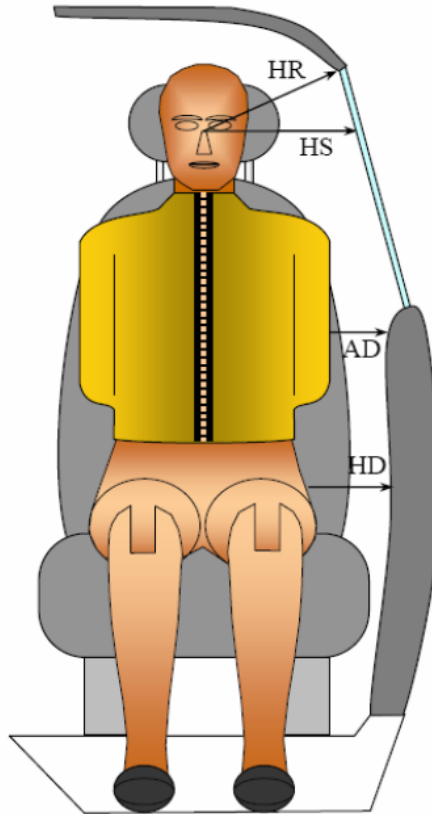
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Pass. Code	Description	Driver		Passenger	
			Length (mm)	Angle (°)	Length (mm)	Angle (°)
HH		Head to Header	406			
HW		Head to Windshield	714			
HZ	HZ	Head to Roof	164		296	
NR	NB	Nose to Rim/Seat Back	449		578	
CD	CB	Chest to Dash/Seat Back	560		551	
CS		Chest to Steering Wheel	305			
KD(L)/KDA(L)°	KB(L)/KBA(L)°	Left Knee to Dash/Seat Back	179	33.6	299	24.8
KD(R)/KDA(R)°	KB(R)/KBA(R)°	Right Knee to Dash/Seat Back	176	38.4	318	25.4
PAX°	PAX°	Pelvic Tilt Angle X		15.9		21.4
	PAY°	Pelvic Tilt Angle Y		0.1		0.1
PHX	PHX	Hip Point to Striker (x-axis)	216		343	
PHZ	PHZ	Hip Point to Striker (z-axis)	164		275	

DATA SHEET NO. 4

DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14



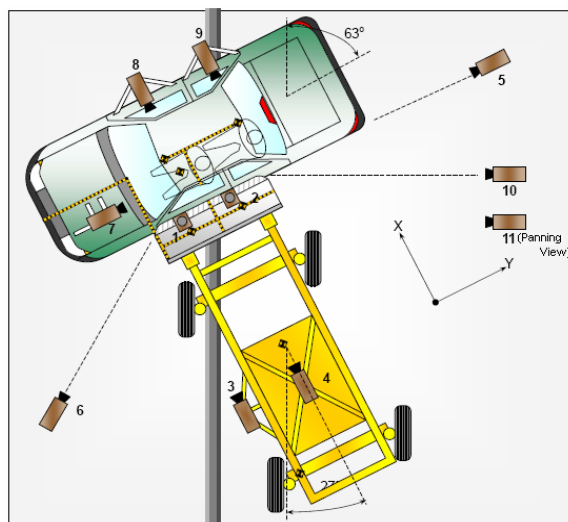
DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver	Passenger
HR	Head to Side Header	mm	200	265
HS	Head to Side Window	mm	324	395
AD	Arm to Door	mm	120	173
HD	H-Point to Door	mm	172	178

DATA SHEET NO. 5

CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
 Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14



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)	626	-920	-927	24	1000
8	Driver Side (On-Board)	1839	729	-571	12	1000
9	Passenger Side (On-Board)	1737	1574	-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

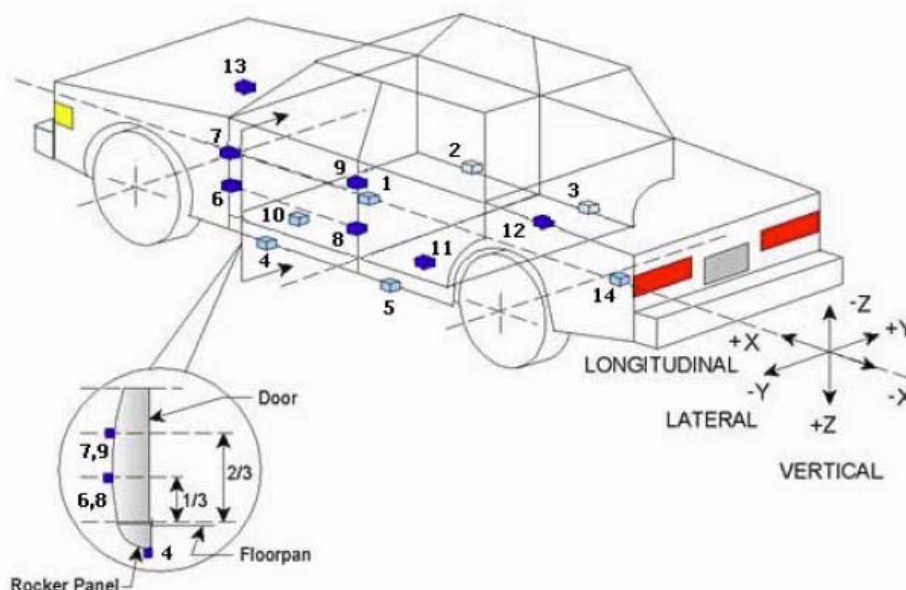
INSTRUMENTATION

Driver Dummy Channels	16
Passenger Dummy Channels	16
Vehicle Structure Accelerometers	23
MDB Accelerometers	5
Total	60

DATA SHEET NO. 6

TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
 Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

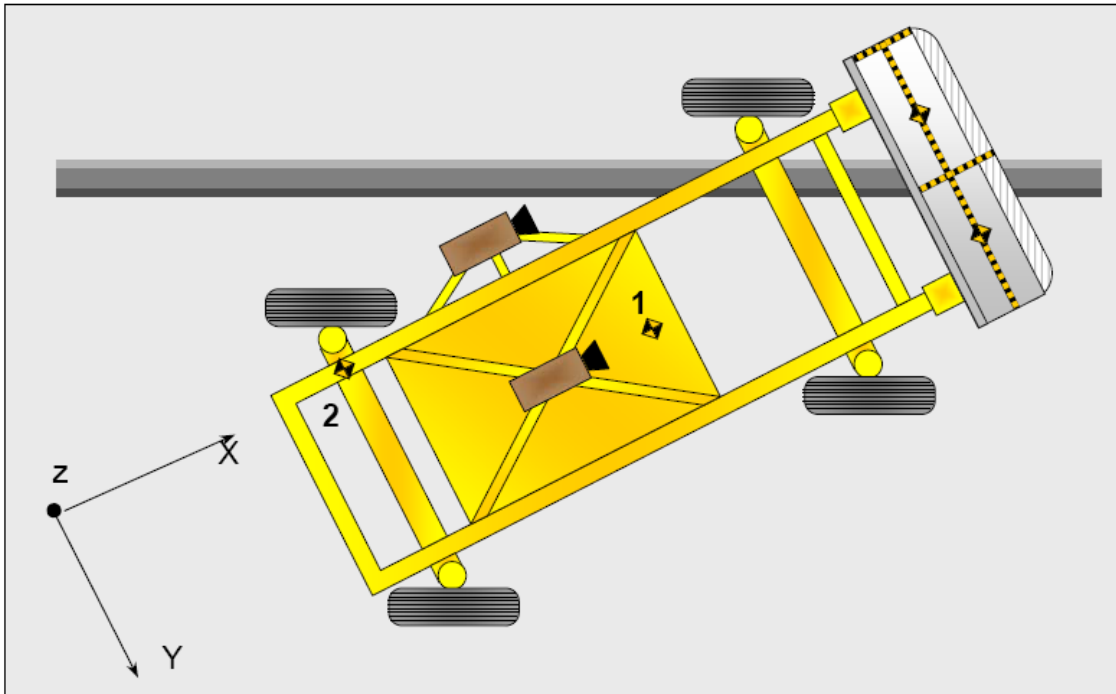
Loc. No.	Sensor Description	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2011	0	-480
2	Right Sill at Front Seat	2812	725	-445
3	Right Sill at Rear Seat	1673	725	-445
4	Left Sill at Front Door	2655	-690	-319
5	Left Sill at Rear Door	1580	-696	-319
6	A-Pillar Lower	3166	-866	-640
7	A-Pillar Middle	3166	-866	-842
8	B-Pillar Lower	2142	-780	-690
9	B-Pillar Middle	2142	-780	-980
10	Front Seat Track	2519	-200	-469
11	Rear Seat Structure	1570	-190	-495
12	Right Rear Occupant Compartment	2011	428	-480
13	Engine Block	4116	365	-808
14	Rear Floorpan Above Axle	978	0	-480

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: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14



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: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
 Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14

TEST DUMMY INFORMATION AND CONTACT POINTS

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

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

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14

POST-TEST SEAT PERFORMANCE

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

POST-TEST STRUCTURAL OBSERVATIONS

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

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

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14

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/Pelvis)	Yes	Yes	No	
Side Airbag 3 (Torso)	No		Yes	Yes
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes	Yes	No	

IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vehicle Wheel Base	mm		2739
Vertical Impact Reference Line (Aft of Front Axle)(Intended Impact Point)	mm		429
Actual Impact Point (Aft of Front Axle)	mm		429
Horizontal Offset (+ forward / - rearward)	mm	± 50 of Intended Impact Point	0
Vertical Offset (+ down / - up)	mm	± 20 of Intended Impact Point	13

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

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
 Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14

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	61.60
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	61.61
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	90.2
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	27.5

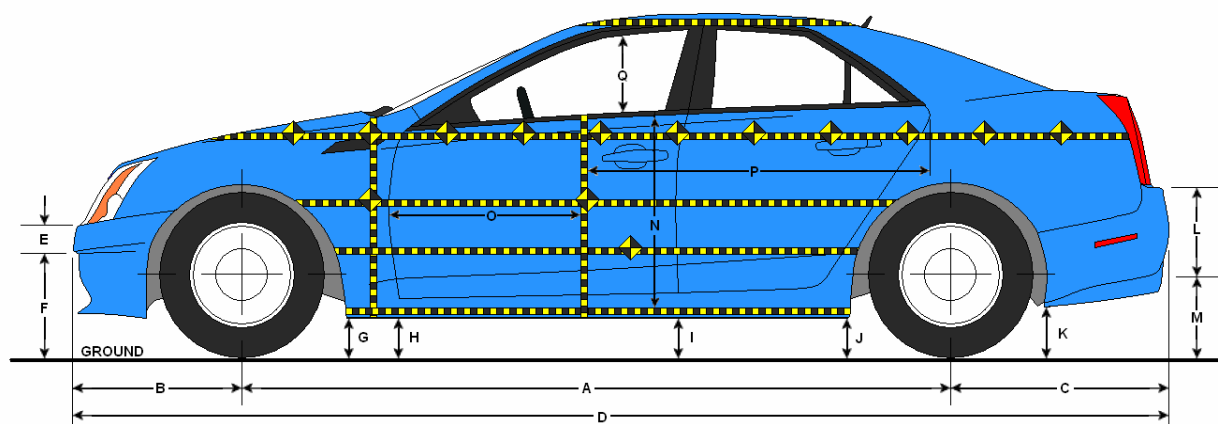
MAXIMUM STATIC CRUSH OF HONEYCOMB FACE

Vertical Location			From Centerline		Max. Crush (mm)
Row	Description	Height (mm)	Distance (mm)	Direction	
A	Center of Bumper	432	800	Right	289
B	Top of Bumper	533	800	Right	222
C	Mid Level	686	800	Right	200
D	Top of Stack	813	800	Right	227

DATA SHEET NO. 10

TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
 Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14



LEFT SIDE VIEW

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

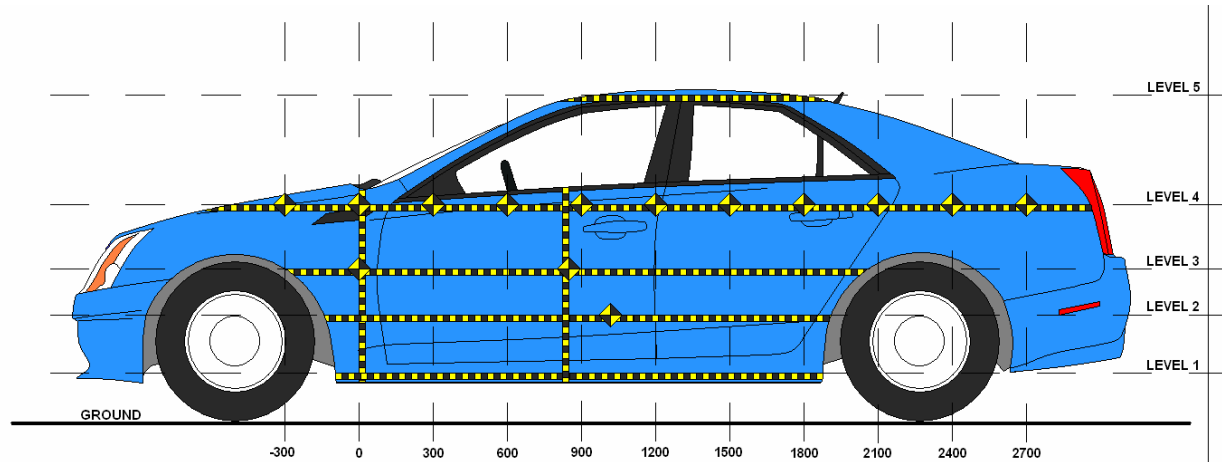
Code	Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2739	2738	-1
B	Front Axle to FSOV	975	976	1
C	Rear Axle to RSOV	1035	1033	-2
D	Total Length at Centerline	4750	4747	-3
E	Front Bumper Thickness	114	114	0
F	Front Bumper Bottom to Ground	563	567	4
G	Sill Height at Front Wheel Well	261	272	11
H	Sill Height at Front Door Leading Edge	261	285	24
I	Sill Height at B-Pillar	275	295	20
J1	Sill Height at Rear Wheel Well	267	302	35
J2	Pinch Weld Height at Rear Wheel Well	269	289	20
K	Sill Height Aft of Rear Wheel Well	300	326	26
L	Rear Bumper Thickness	220	220	0
M	Rear Bumper Bottom to Ground	490	519	29
N	Sill Height to Bottom of Front Window Sill	722	709	-13
O	Front Door Leading Edge to Impact CL	774	746	-28
P	Rear Door Trailing Edge to Impact CL	1397	1377	-20
Q	Front Window Opening	446	463	17
R	Right Side Length	3279	3279	0
S	Left Side Length	3275	3267	-8
T	Vehicle Width at B-Pillar	1854	1784	-70

All measurements in mm with tolerance of ± 3 mm

DATA SHEET NO. 11

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14



LEFT SIDE VIEW

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Description	Height Above Ground (mm)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	376	101	1650
2	Occupant H-Point	674	214	1650
3	Mid-Door	718	229	1650
4	Window Sill	1098	44	1200
5	Window Top	1613	9	900

DATA SHEET NO. 11 ... (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
 Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14

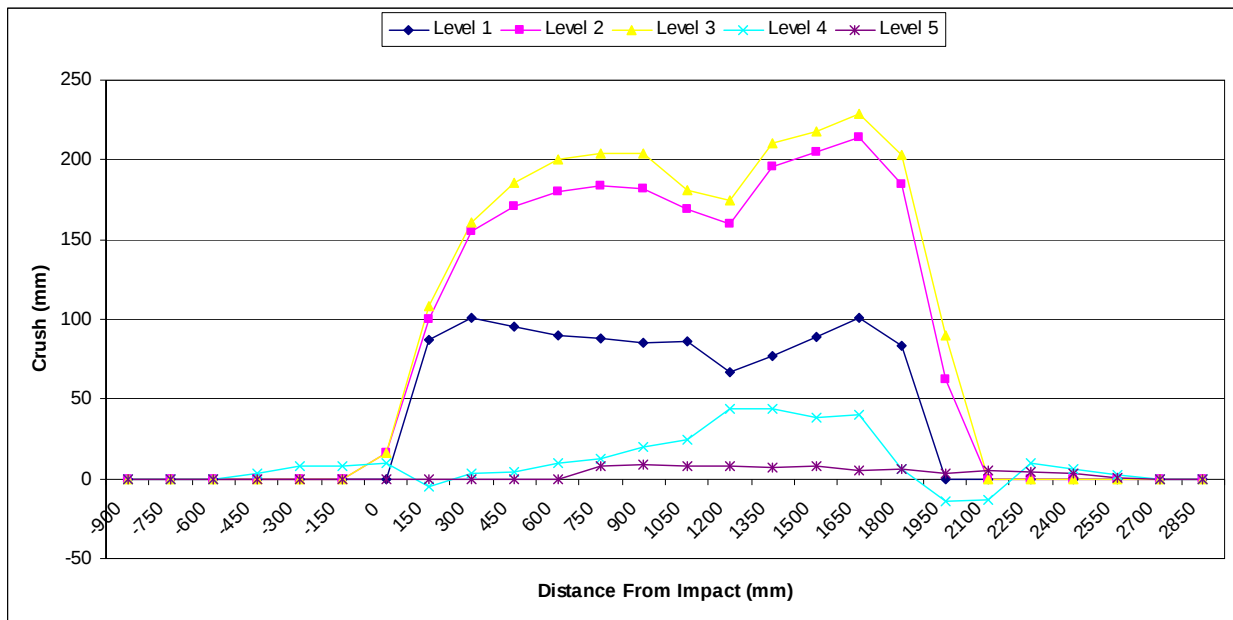
EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

	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				719					722					3	
-300				697					705					8	
-150				685					693					8	
0		556	555	670			572	571	680			16	16	10	
150	578	558	558	620		665	658	666	615		87	100	108	-5	
300	585	560	559	649		686	715	720	652		101	155	161	3	
450	584	561	559	644		679	732	745	648		95	171	186	4	
600	587	562	559	641		677	742	759	651		90	180	200	10	
750	589	562	560	641	887	677	746	764	654	895	88	184	204	13	8
900	591	564	561	641	884	676	746	765	661	893	85	182	204	20	9
1050	591	566	563	642	884	677	735	744	667	892	86	169	181	25	8
1200	593	568	565	641	885	660	728	740	685	893	67	160	175	44	8
1350	593	571	567	642	885	670	767	777	686	892	77	196	210	44	7
1500	593	572	569	642	885	682	777	787	680	893	89	205	218	38	8
1650	594	570	568	643	887	695	784	797	683	892	101	214	229	40	5
1800	584	563	563	643	891	667	748	766	649	897	83	185	203	6	6
1950		560	559	644	898		622	649	630	901		62	90	-14	3
2100				641	904				628	909				-13	5
2250				641	911				651	915				10	4
2400				639	919				645	922				6	3
2550				645	933				647	934				2	1
2700															
2850															

DATA SHEET NO. 11 ... (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

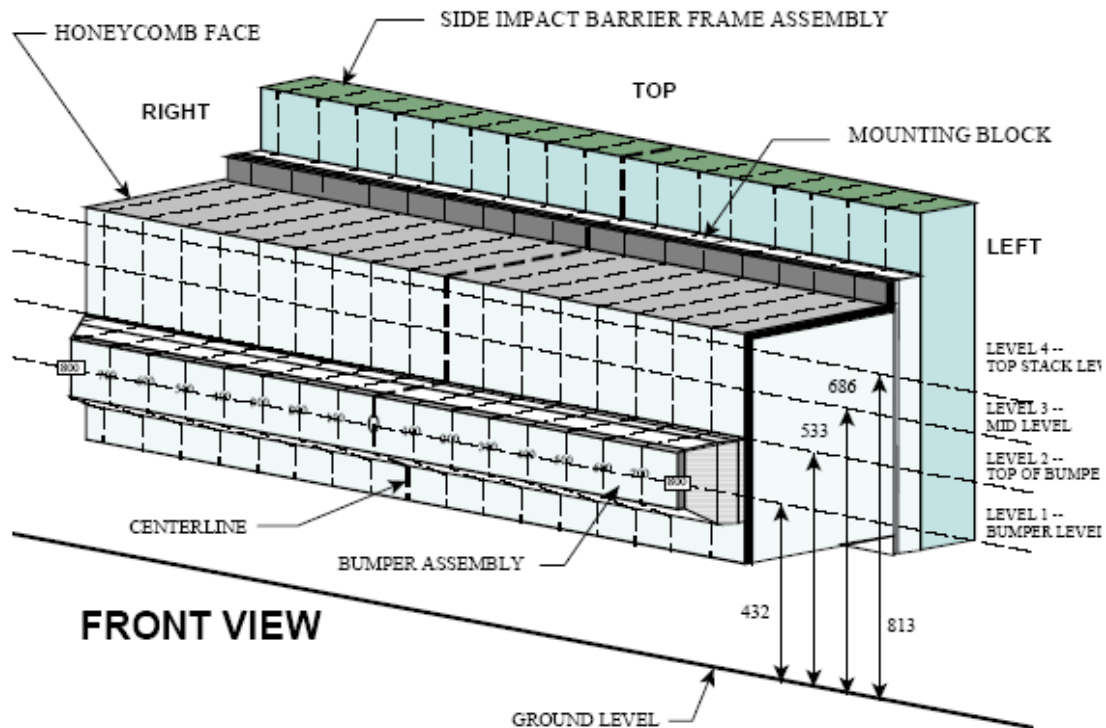
Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
 Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14



DATA SHEET NO. 12

MDB EXTERIOR STATIC CRUSH MEASUREMENTS

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
 Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14



NOTE: Dimensions are shown in millimeters, mm

DEFORMABLE BARRIER STATIC CRUSH

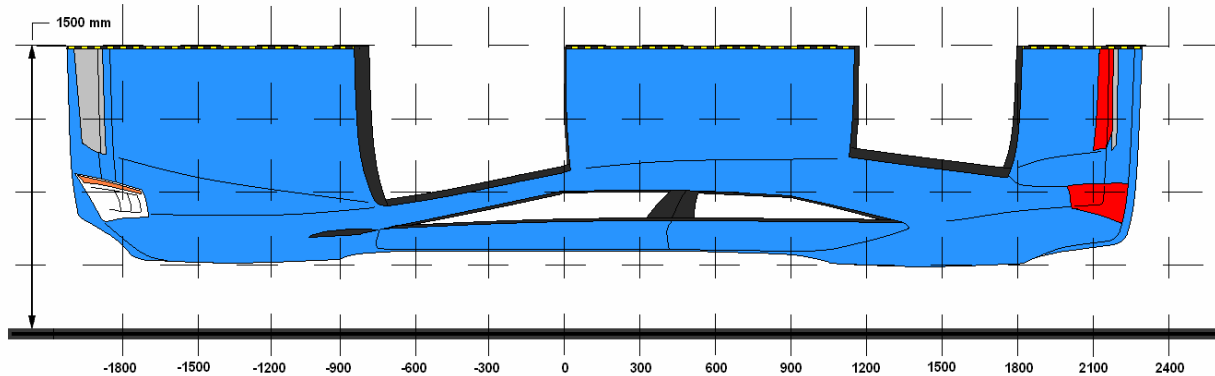
Stack Level	Distance Right of Center								C/L	Distance Left of Center							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
1	289	269	266	264	264	264	259	259	256	259	259	259	259	254	262	259	264
2	222	187	177	172	167	162	152	147	147	147	152	142	140	140	150	147	147
3	200	147	132	117	109	104	107	107	107	137	157	142	112	107	97	92	90
4	227	177	142	122	112	97	97	92	97	112	137	127	97	82	77	72	72

All dimensions in millimeters.

DATA SHEET NO. 13

VEHICLE AND MDB DAMAGE PROFILE DISTANCES

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
 Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Crush (mm)
1	2550	4	645	647	2
2	1950	3	559	649	90
3	1350	3	567	777	210
4	750	3	560	764	204
5	150	3	558	666	108
6	-450	4	719	722	3

MDB DAMAGE PROFILE DISTANCES

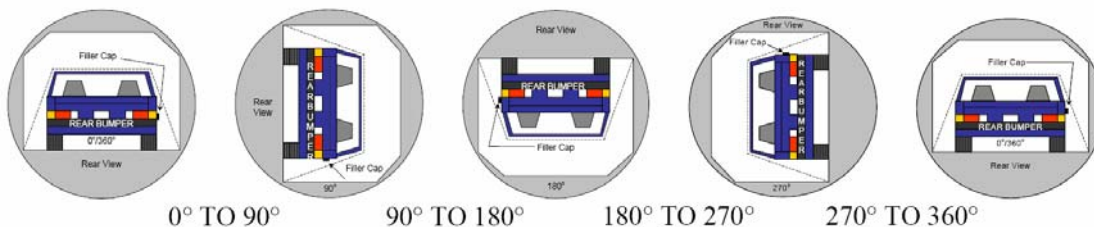
DPD	From MDB Centerline		Level	Crush (mm)
	Distance (mm)	Direction		
1	800	Left	1	264
2	500	Left	1	254
3	200	Left	1	259
4	200	Right	1	259
5	500	Right	1	264
6	800	Right	1	289

DATA SHEET NO. 14

FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
 Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14
 Temperature at Time of Impact: 36.7° C Test Time: 12:03 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°	82	300	382
180° To 270°	78	300	378
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			

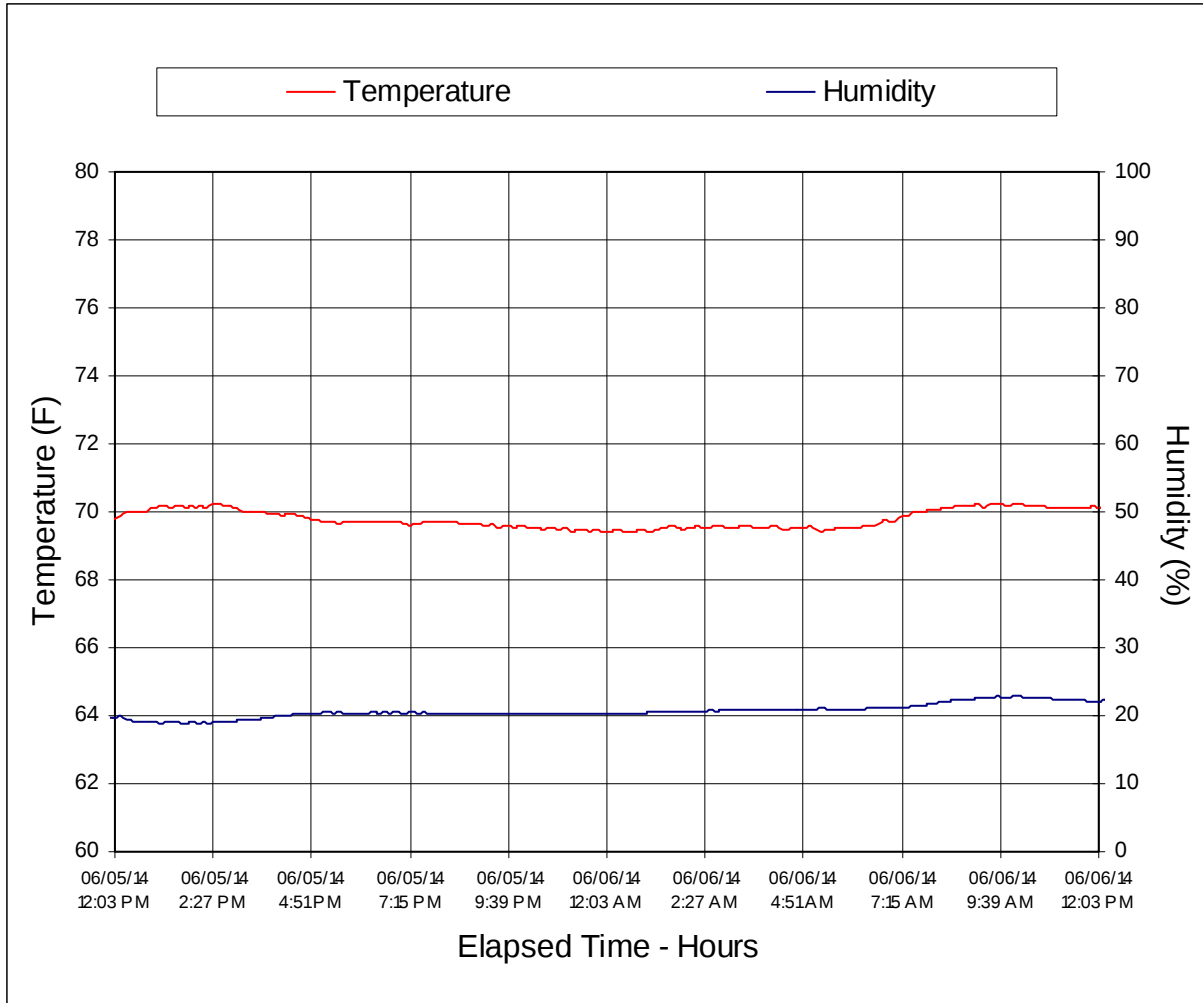
SOLVENT SPILLAGE LOCATION TABLE

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: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155301
Test Program: NCAP MDB Side Impact Test Test Date: 06/06/14



APPENDIX A
PHOTOGRAPHS

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FIGURE 1. As-Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



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



FIGURE 3. Pre-Test Frontal View of Test Vehicle



FIGURE 4. Post-Test Frontal View of Test Vehicle



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



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



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



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



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

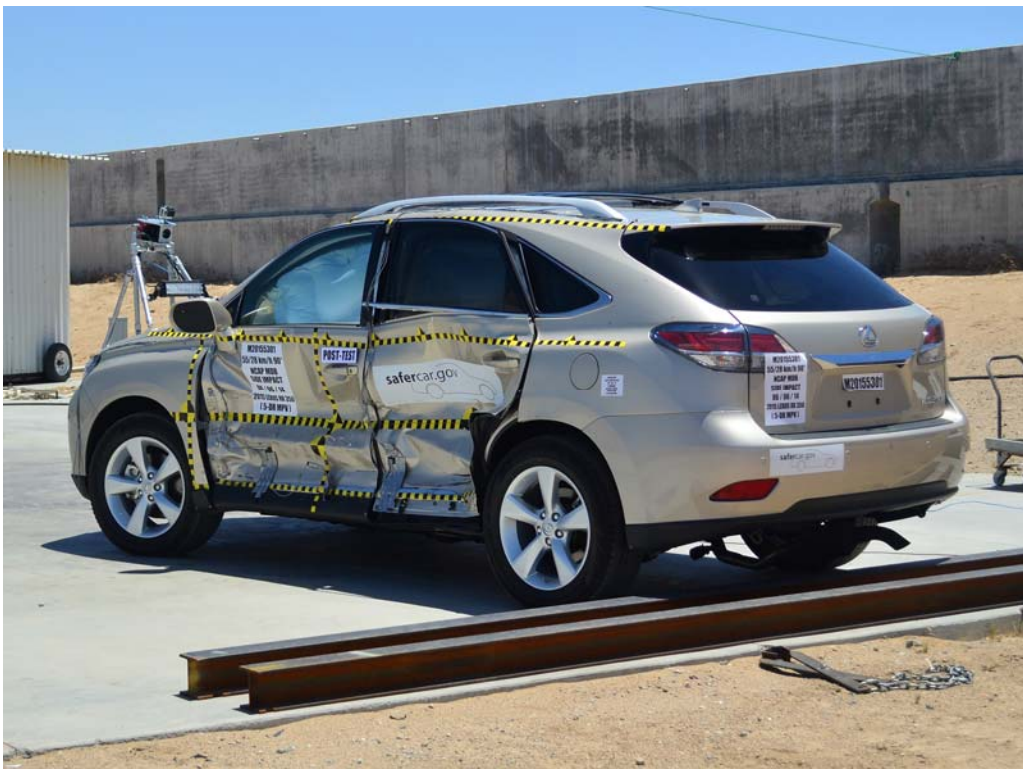


FIGURE 10. Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



FIGURE 11. Pre-Test Rear View of Test Vehicle



FIGURE 12. Post-Test Rear View of Test Vehicle



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



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



FIGURE 15. Pre-Test Overhead View of Test Area

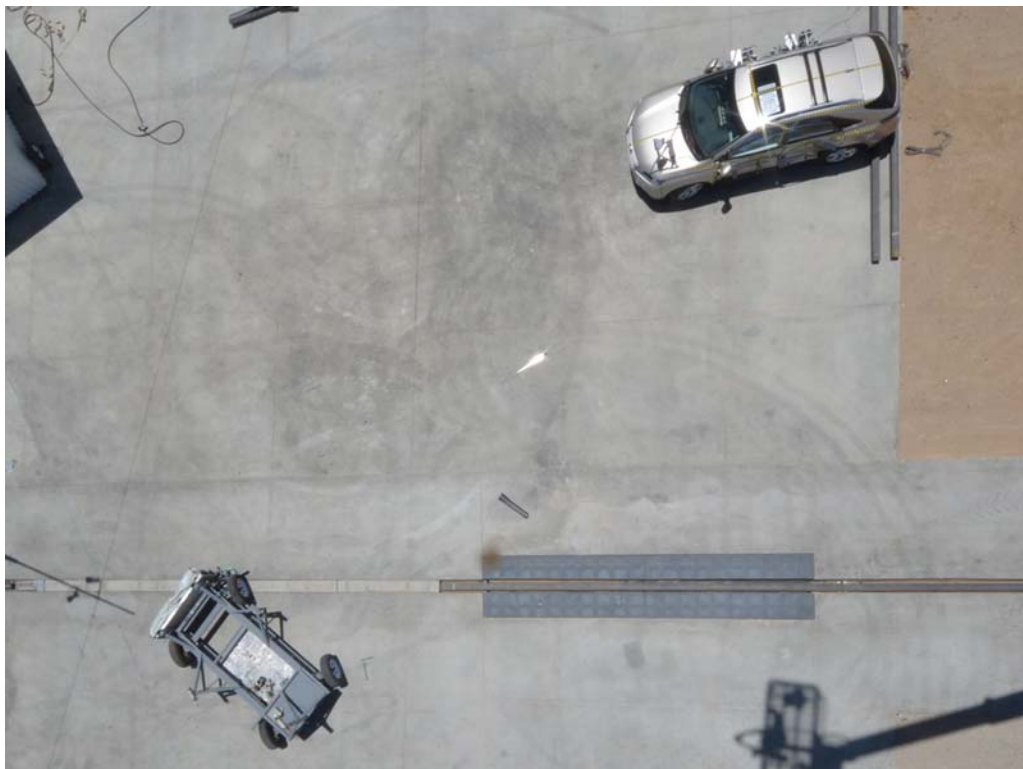


FIGURE 16. Post-Test Overhead View of Test Area



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



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



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



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



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



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



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



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



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



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



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



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



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

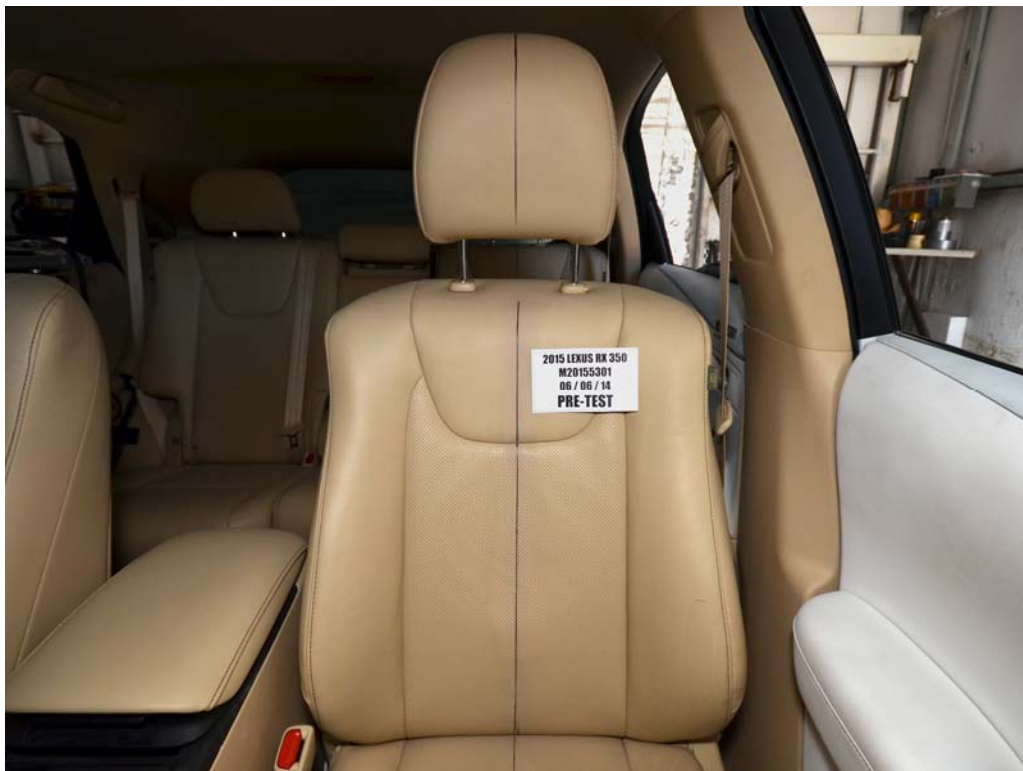


FIGURE 30. Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning



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



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



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



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

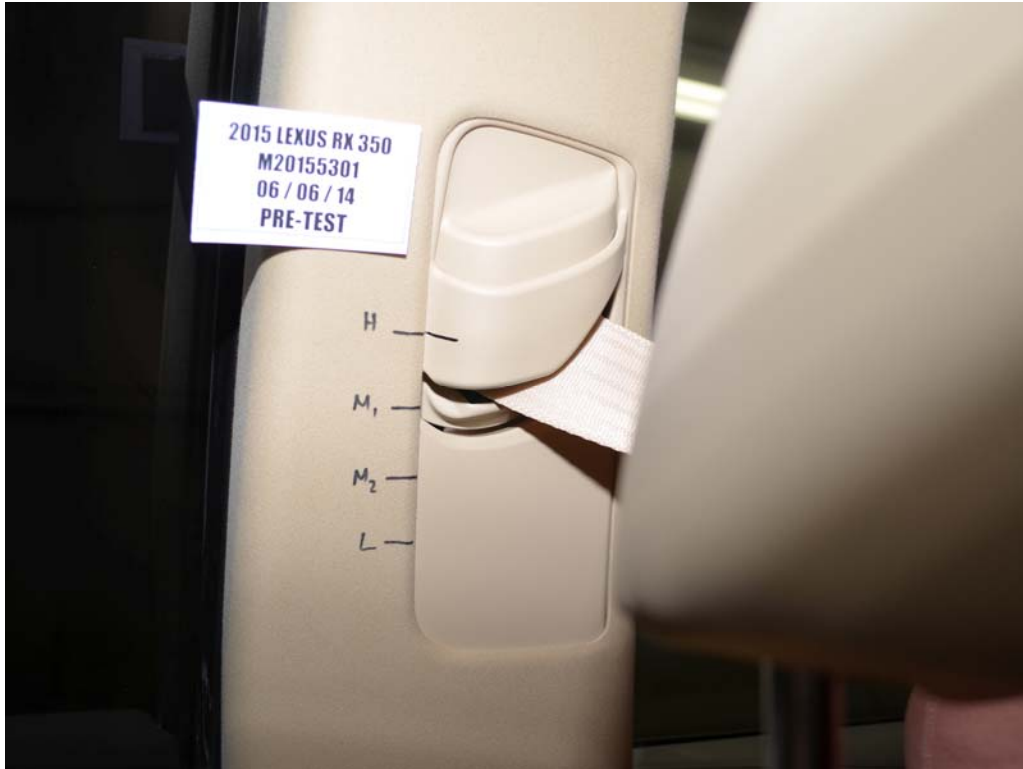


FIGURE 35. Pre-Test View of Belt Anchorage for Driver Dummy



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



FIGURE 37. View of Disengaged Parking Brake

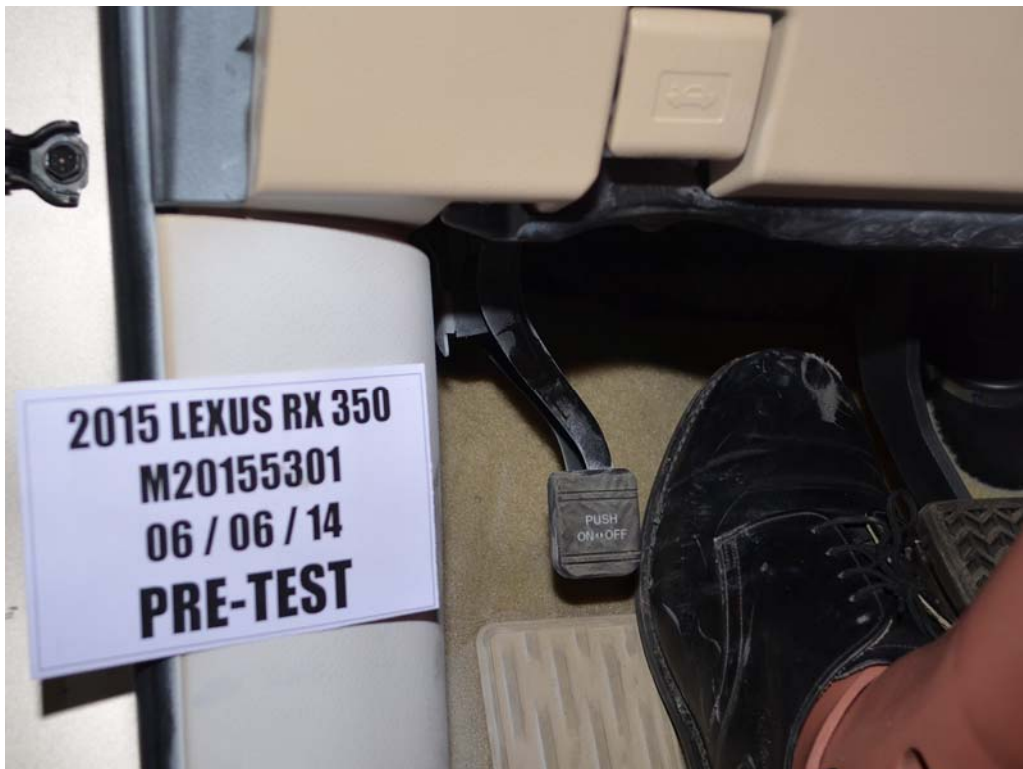


FIGURE 38. Pre-Test View of Parking Brake



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



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



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



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



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



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



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



FIGURE 46. Pre-Test Driver Inner Door Panel View



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

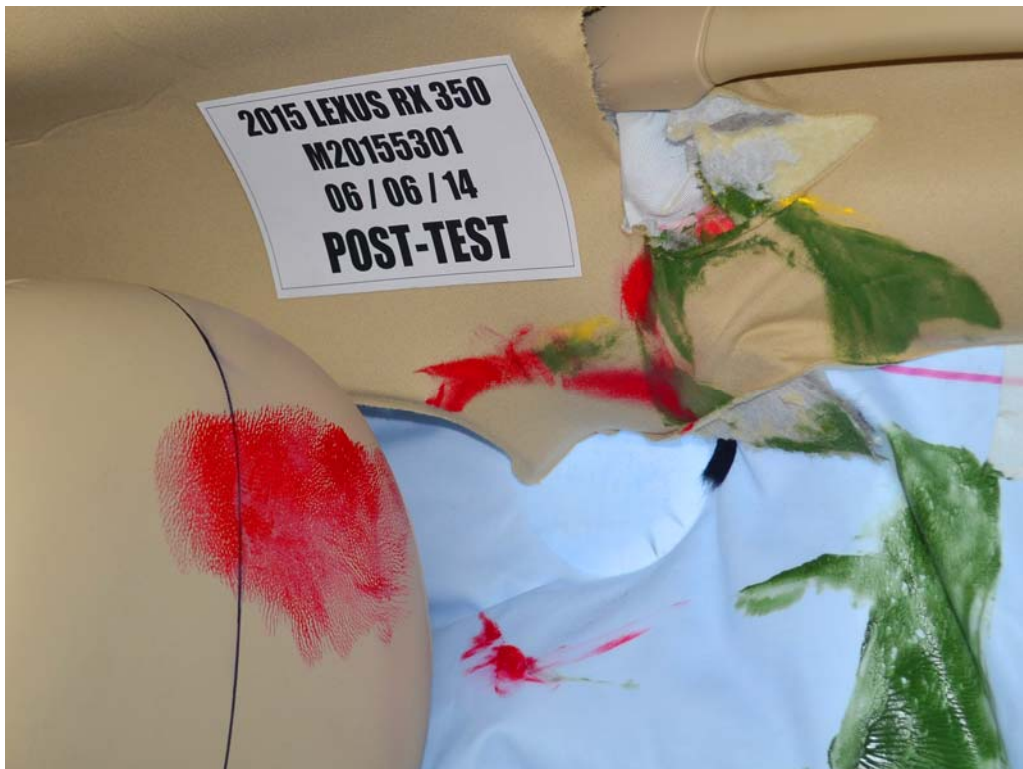


FIGURE 48. Post-Test Driver Dummy Close-Up Head Contact
with Vehicle Interior View

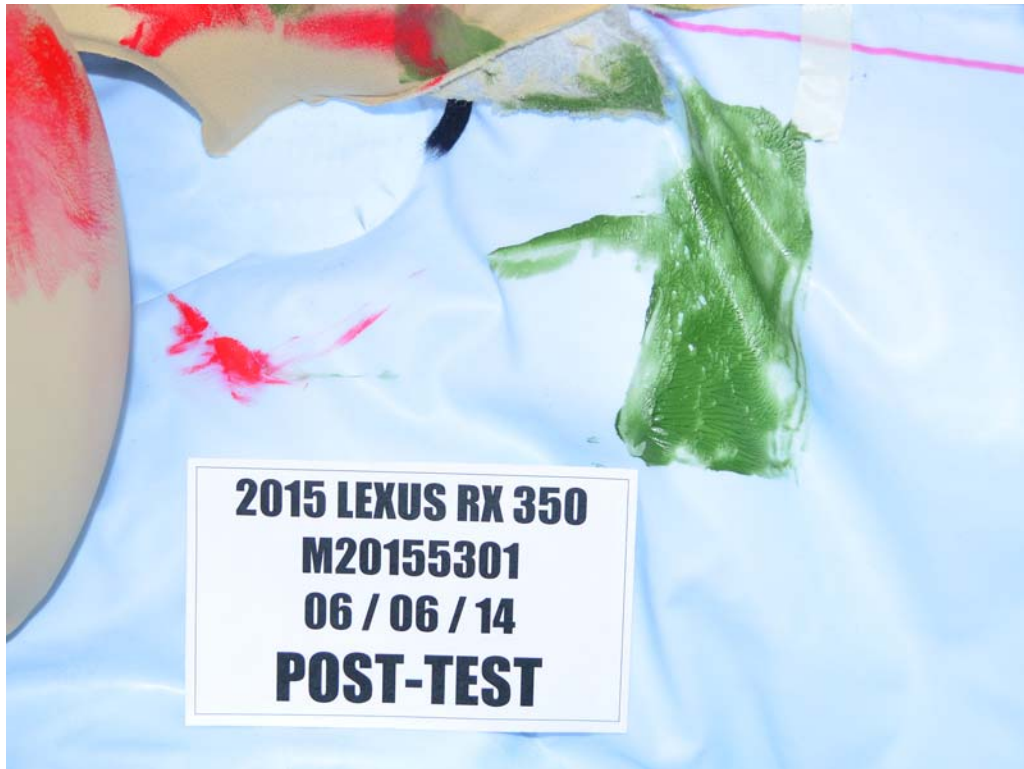


FIGURE 49. Post-Test Driver Dummy Close-Up Head Contact with Side Airbag View



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

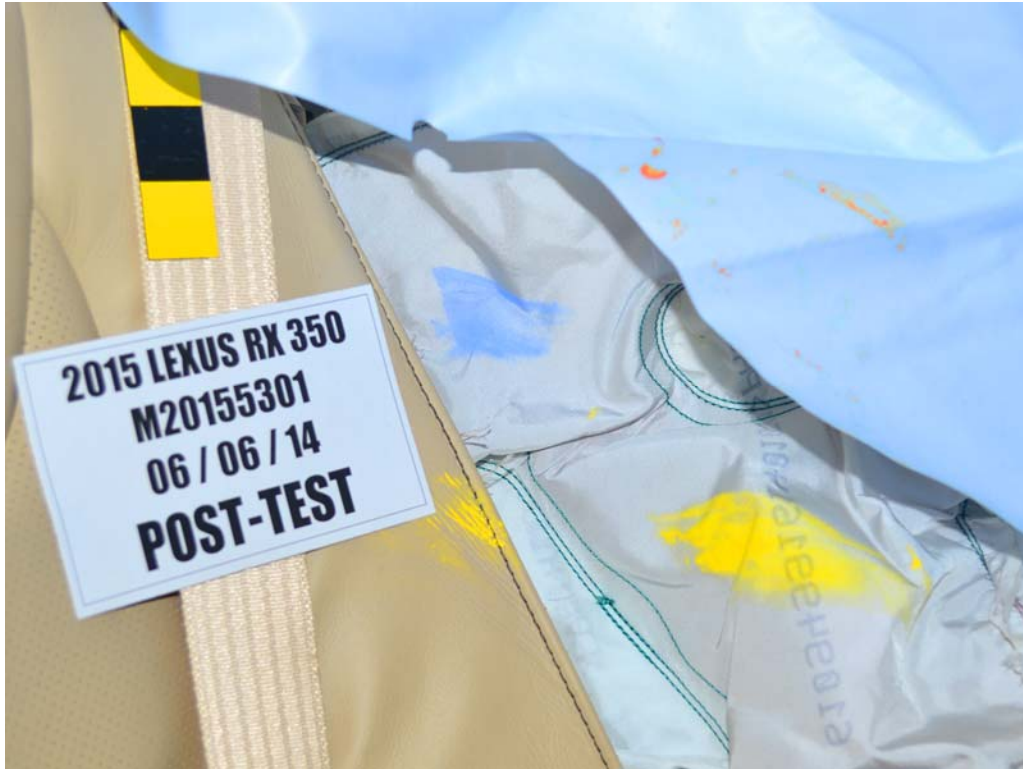


FIGURE 51. Post-Test Driver Dummy Close-Up Torso Contact with Side Airbag View



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



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



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



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



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



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



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



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



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



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

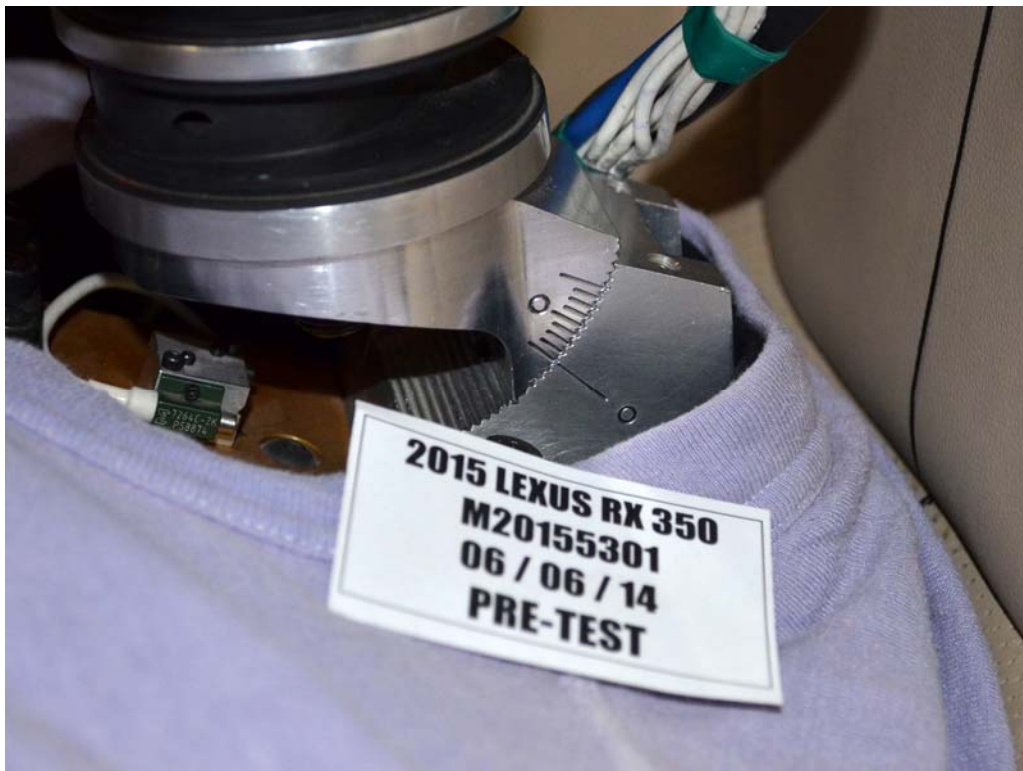


FIGURE 62. Pre-Test View of Rear Passenger Dummy's Neck
Showing Position of Adjustable Neck Bracket



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



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



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



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



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



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



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



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



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

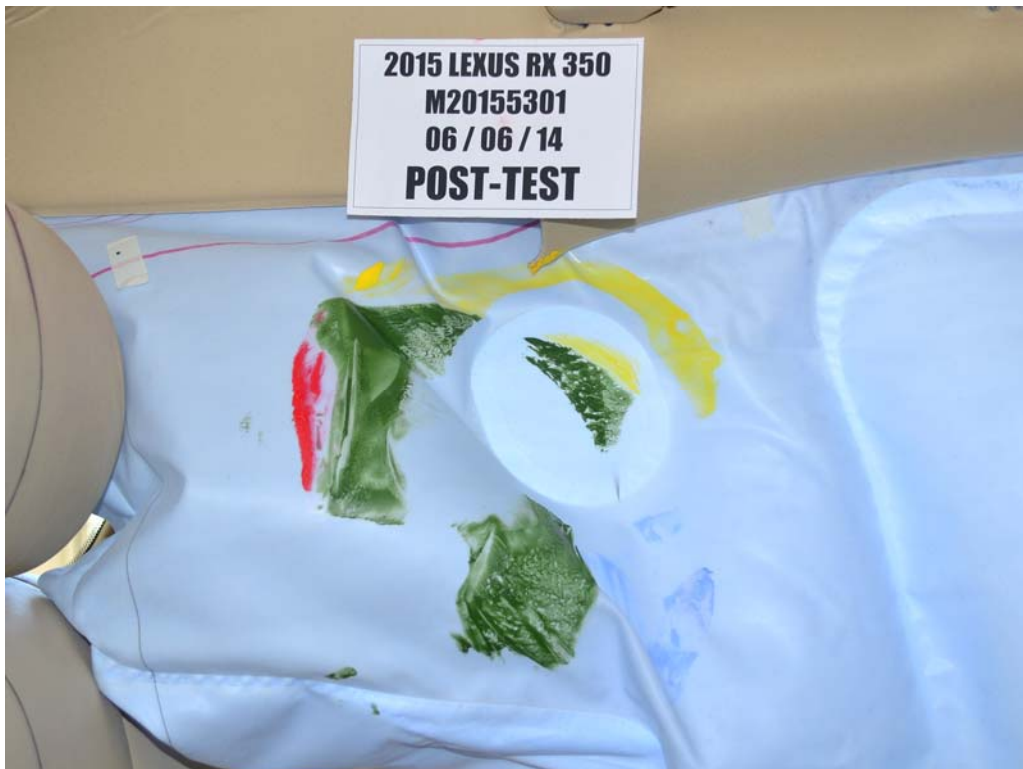


FIGURE 76. Post-Test Rear Passenger Dummy Close-Up
Head Contact with Side Airbag View



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



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

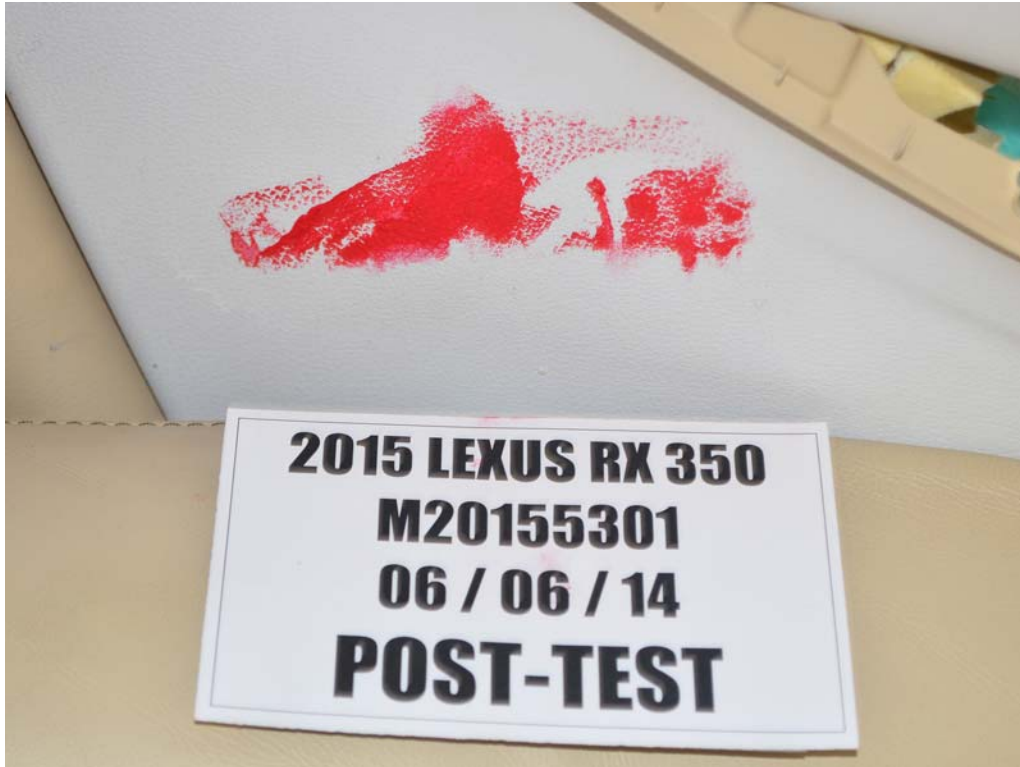


FIGURE 79. Post-Test Rear Passenger Dummy Close-Up
Pelvis Contact with Vehicle Interior View

Photograph Not Applicable

No Rear Passenger Dummy
Pelvis Contact with Side Airbag

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

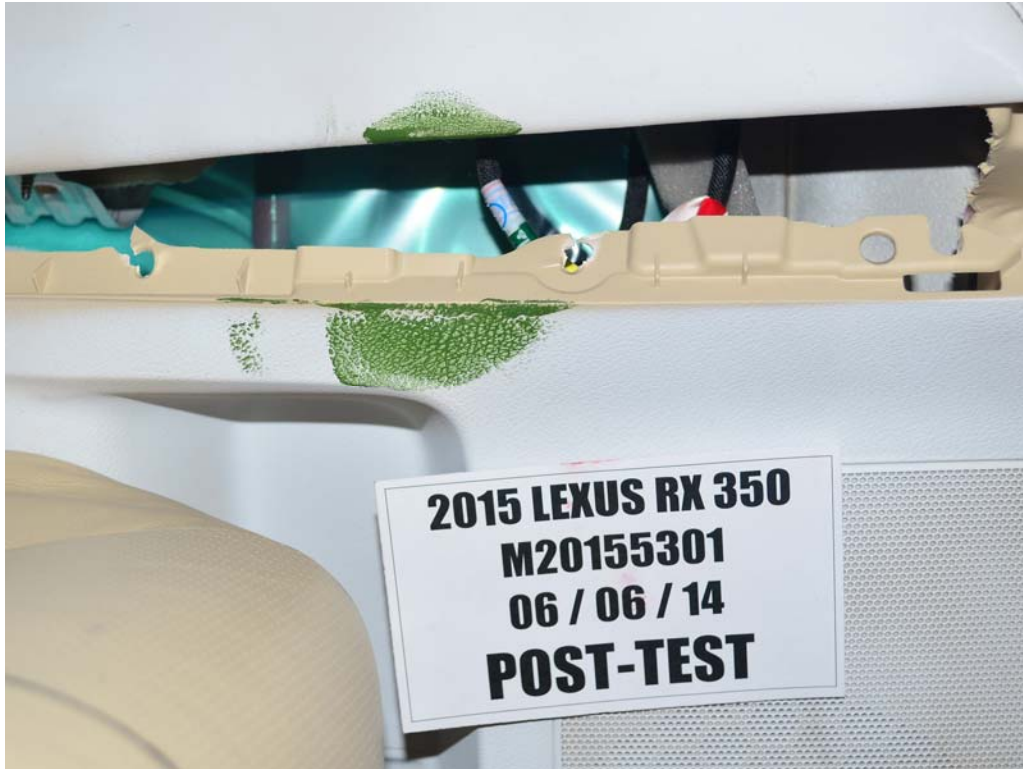


FIGURE 81. Post-Test Rear Passenger Dummy Close-Up Knee Contact View



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



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



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



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



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

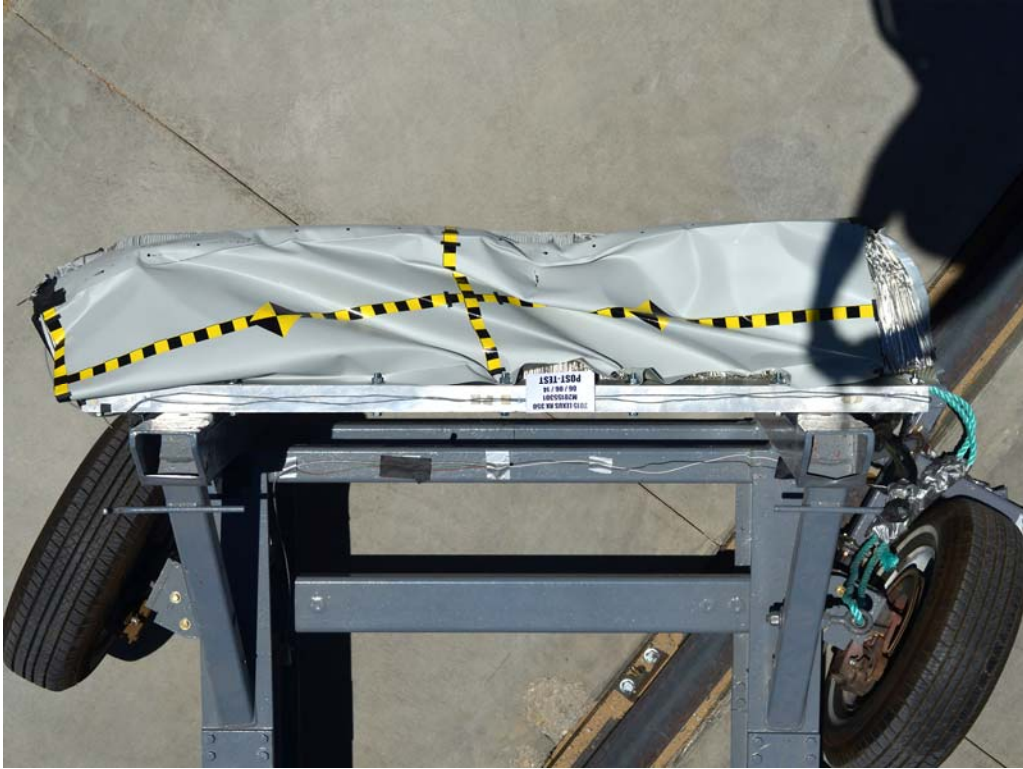


FIGURE 87. Post-Test Top View of MDB Impactor Face



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



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



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



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



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

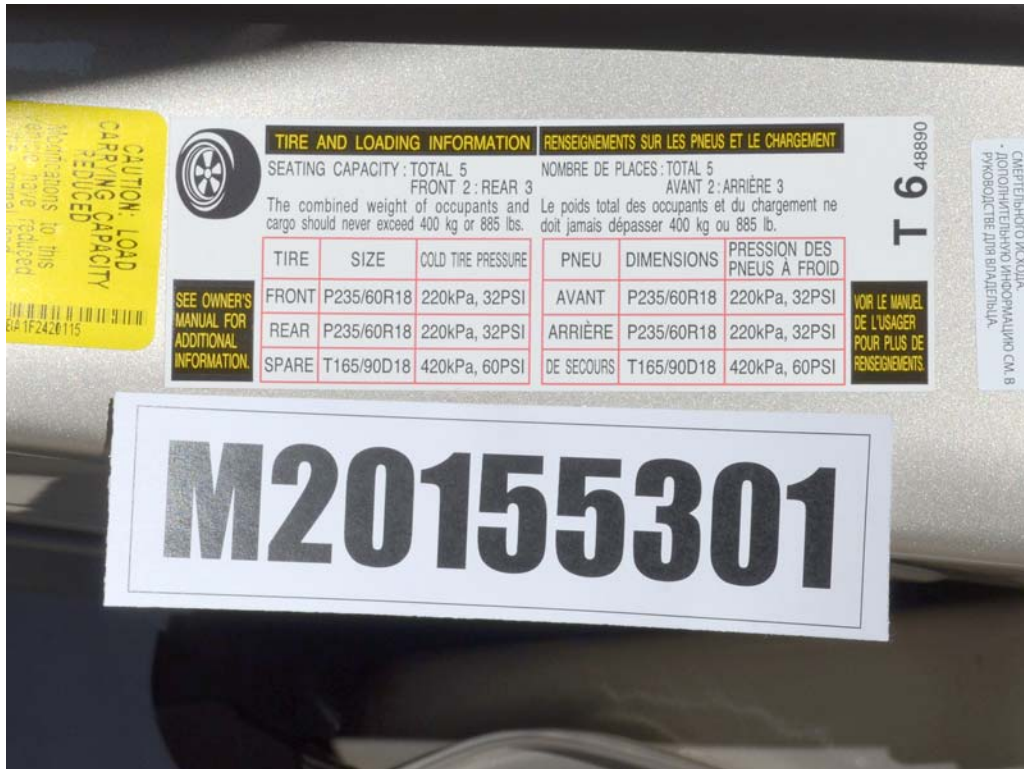


FIGURE 93. Close-Up View of Vehicle's Tire Information Placard or Label



FIGURE 93a. Close-Up View of Vehicle's Reduced Load Carrying Capacity Label

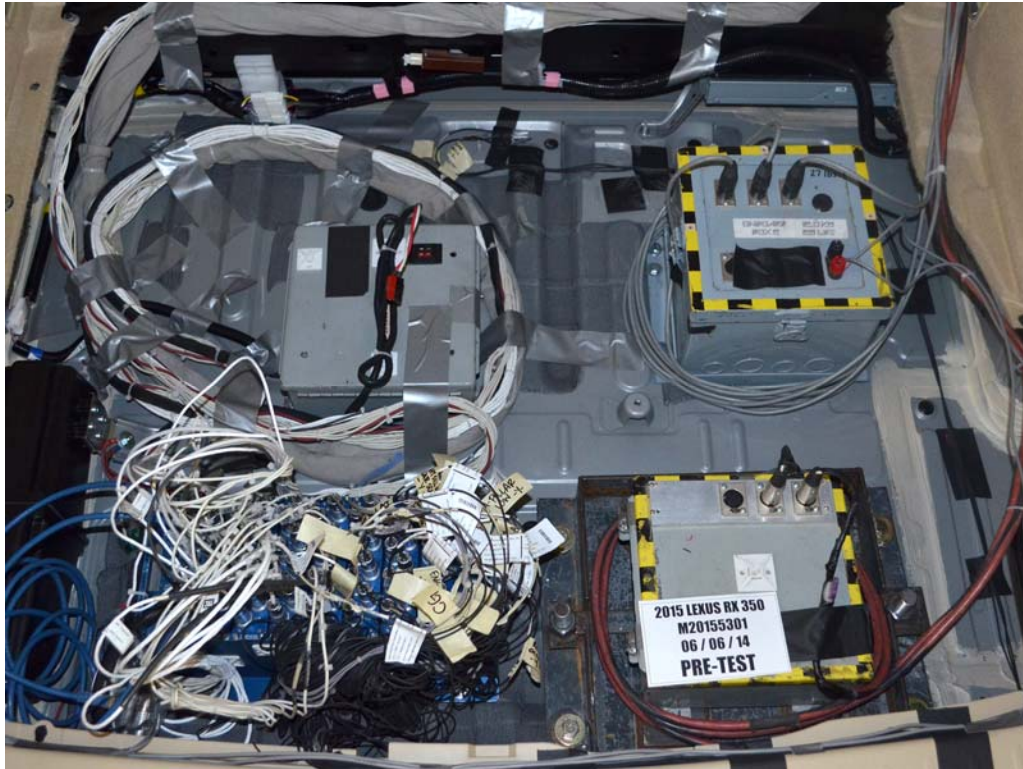


FIGURE 94. Pre-Test Ballast View

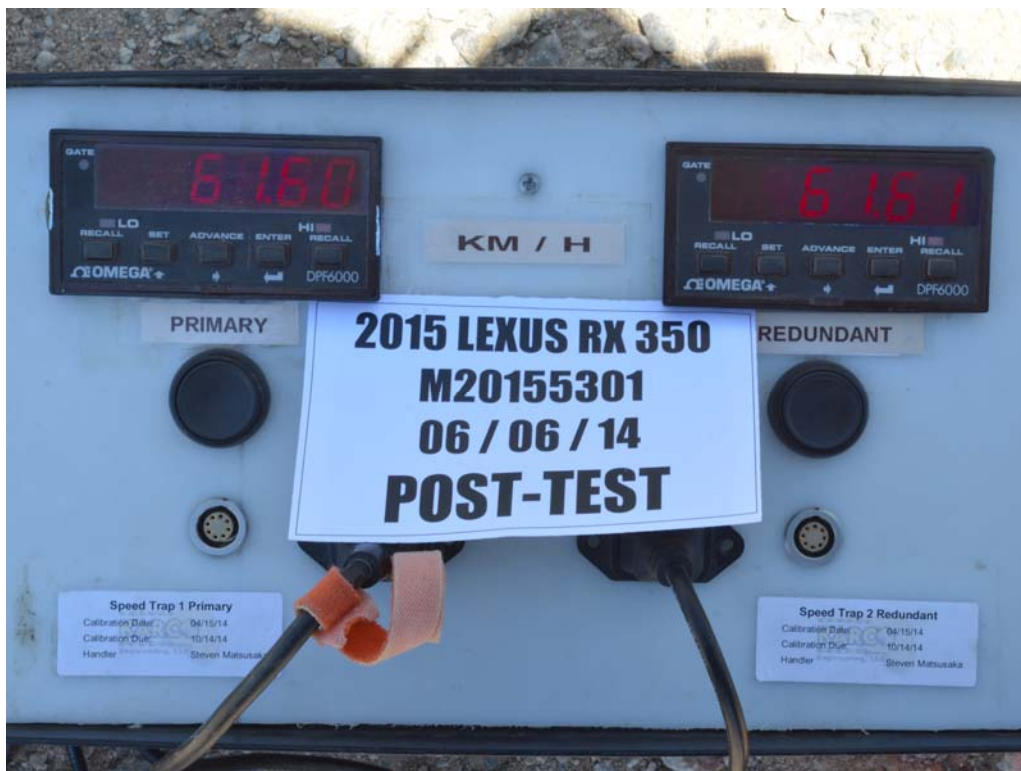


FIGURE 95. Post-Test Primary and Redundant Speed Trap Read-Out

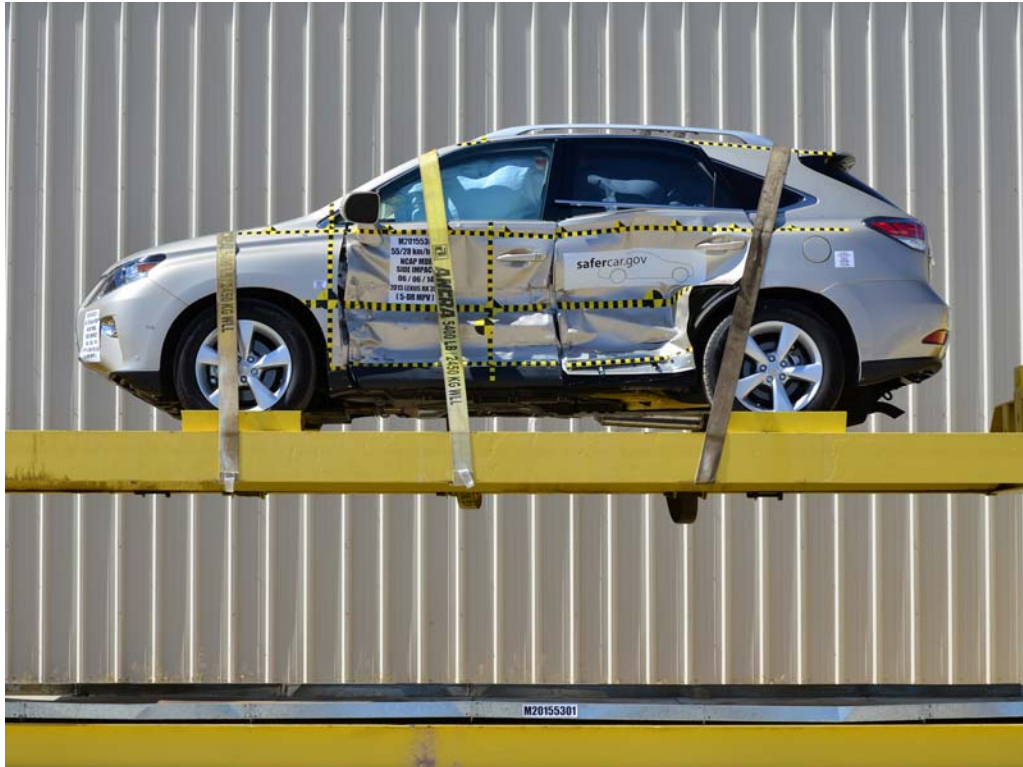


FIGURE 96. FMVSS No. 301 Static Rollover 0 Degrees

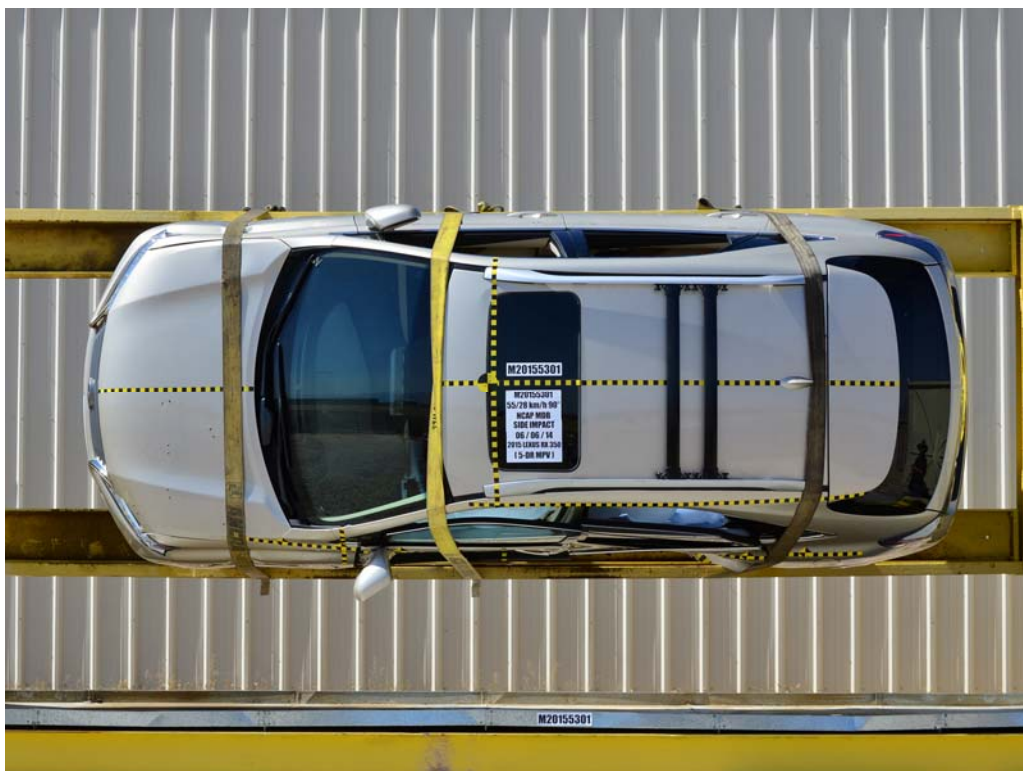


FIGURE 97. FMVSS No. 301 Static Rollover 90 Degrees



FIGURE 98. FMVSS No. 301 Static Rollover 180 Degrees



FIGURE 99. FMVSS No. 301 Static Rollover 270 Degrees

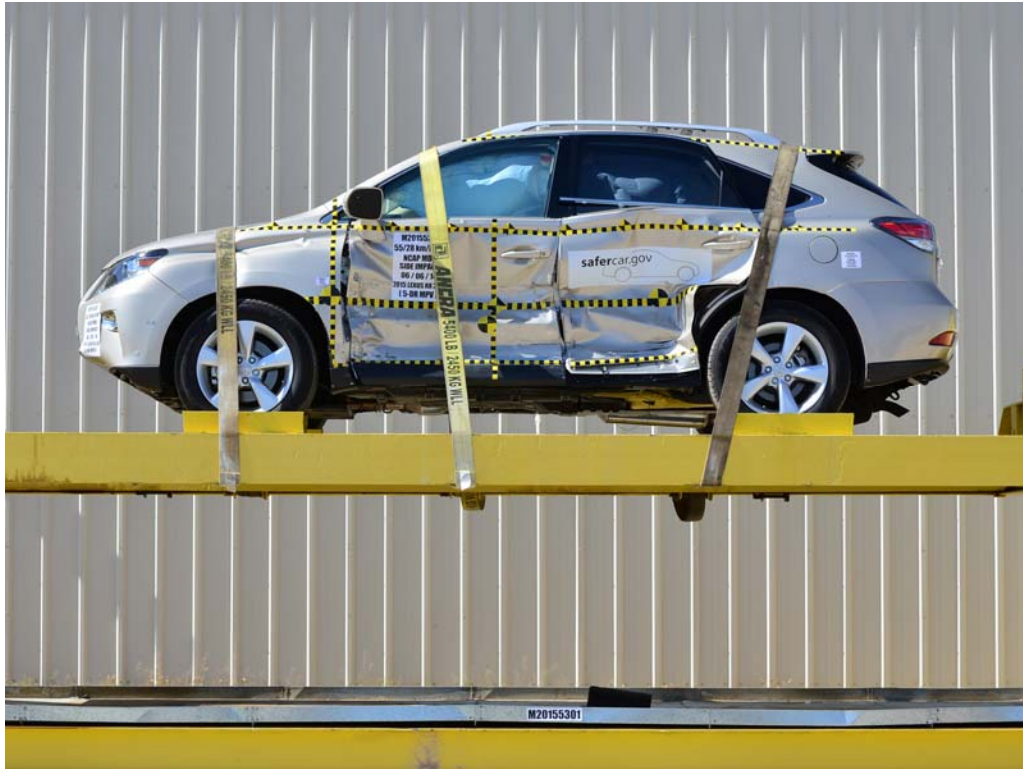


FIGURE 100. FMVSS No. 301 Static Rollover 360 Degrees



FIGURE 101. Impact Event

LEXUS
The Pursuit of Perfection

DESCRIPTION: 2015 / 9420A RX 350 5-DR SUV
COLOR: SATIN CASHMERE METAL
VIN: JTJZK1B1F2420115
PORTLAND: Long Beach, CA

Dealer Name / Address:
LEXUS SAN DIEGO
4970 KEARNY MESA ROAD
SAN DIEGO CA 92111

Ship to (Dealer, unless otherwise indicated)

STANDARD EQUIPMENT & INSTALLED OPTIONS

STANDARD FEATURES

- 3.5 Liter 270HP Four Cam 24-Valve V8 Engine with Variable Valve Timing (VVT-i)
- 6-Sp Automatic Transmission w/ "Snow Mode"
- 18" Aluminum Alloy Wheels
- Tire Pressure Monitoring System
- 10 Airbags: Driver & Front Passenger; Front, Knee & Side (6), Rear Side (2), Side Curtain (2)
- Anti-Lock Braking System (ABS) with Electronic Brakeforce Distribution (EBD) & Brake Assist
- Automatic On/Off Headlamps/Integrated Fog Lamps
- LED Daytime Running Lamps (DRL)
- Vehicle Theft-Deterrent Sys w/Engine Immobilizer
- Safety Connect: Automatic Collision Notification, Stolen Vehicle Location, Emergency Assist Button (SOS), and Enhanced Roadside Assistance (1-year trial subscription included)

MANUFACTURER'S SUGGESTED RETAIL PRICE \$ 40,795.00

- Lexus 12 speaker Premium Display Audio System, HD Radio w/ (Tuner tagging), USB, iPod/iMP3 Control, SiriusXM Satellite Radio (90-day All Access trial subscription included)
- Backup Camera
- Auto Dual Zone Climate Control Sys w/Rear Vents
- 10-Way Power Front Seats
- Power Tilt-and-Telescopic Steering Column
- Reclining/Sliding 40/20/40 Split Rear Seat
- Power Back Door
- Rear View Mirror - Auto Dimming, Homelink Garage Door Opener
- SmartAccess Passive Entry System
- Genuine Wood Interior Trim
- Multi-Information Display with Lexus Personalized Settings, Trip Computer & Outside Temp Display
- Tonneau Cover

MANUFACTURER'S SUGGESTED RETAIL PRICE \$ 40,795.00

- Intuitive Parking Assist 500.00
- Premium Package Includes: Leather Trim Interior, One-Touch Open/Close Moonroof, Power-folding Electrochromic Heated Outside Mirrors, Driver's Seat/Steering/Mirror Memory-3 settings, Roof Rails 330.00
- Wood & Leather Trimmed Steering Wheel & Shift Knob 259.00
- Cross Bars 254.00
- Cargo Mat/Cargo Net/Wheel Lock & Key Glove

Fuel Economy and Environment

Fuel Economy

21 MPG
combined city/hwy

18 25
city highway

4.8 gallons per 100 miles

You spend \$1,500 more in fuel costs over 5 years compared to the average new vehicle.

Annual fuel Cost \$2,500

Fuel Economy & Greenhouse Gas Rating

Smog Rating

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

GOVERNMENT 5-STAR SAFETY RATINGS

This vehicle has not been rated by the government for overall vehicle score, frontal crash, side crash or rollover risk.

APPLICABLE FEDERAL TAXES NOT INCLUDED

Manufacturer's suggested retail price includes manufacturer's recommended pre-delivery service. License and title fees, taxes, and destination charges are not included in the manufacturer's suggested retail price.

LEXUS NEW VEHICLE LIMITED WARRANTY
Limited warranty coverage highlights include:
• 4 yrs / 50,000 miles basic coverage
• 8 yrs / 100,000 miles powertrain coverage
• 10 yrs / Unlimited miles corrosion perforation warranty

See your Warranty and Services Guide for details.

LEXUS IS PLEASED TO OFFER THE FOLLOWING DRIVER SUPPORT PACKAGE WITH EACH NEW LEXUS:
• 24-hour toll-free roadside assistance plan
• Complimentary 1st and 2nd scheduled maintenance services
• Locking for emergency assistance 100 miles from home
An extended service contract may be available for this vehicle. Ask dealer for details.

111B07 672 3007 D0401

FIGURE 102. Monroney Label

1-3. Adjustable components (seats, mirrors, steering wheel)

Head restraints

Head restraints are provided for all seats.

Up
Pull the head restraints up.

Down
Push the head restraint down while pressing the lock release button.

Lock release button

Before driving

Removing the head restraints

Pull the head restraint up while pressing the lock release button.

Lock release button

Installing the head restraints

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.

1-3. Adjustable components (seats, mirrors, steering wheel)

Adjusting the height of the head restraints (front seats)

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

Adjusting the rear seat head restraints

Always raise the head restraints to the uppermost lock position during use.

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.
- Adjust the head restraints to the correct position at all times.
- 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

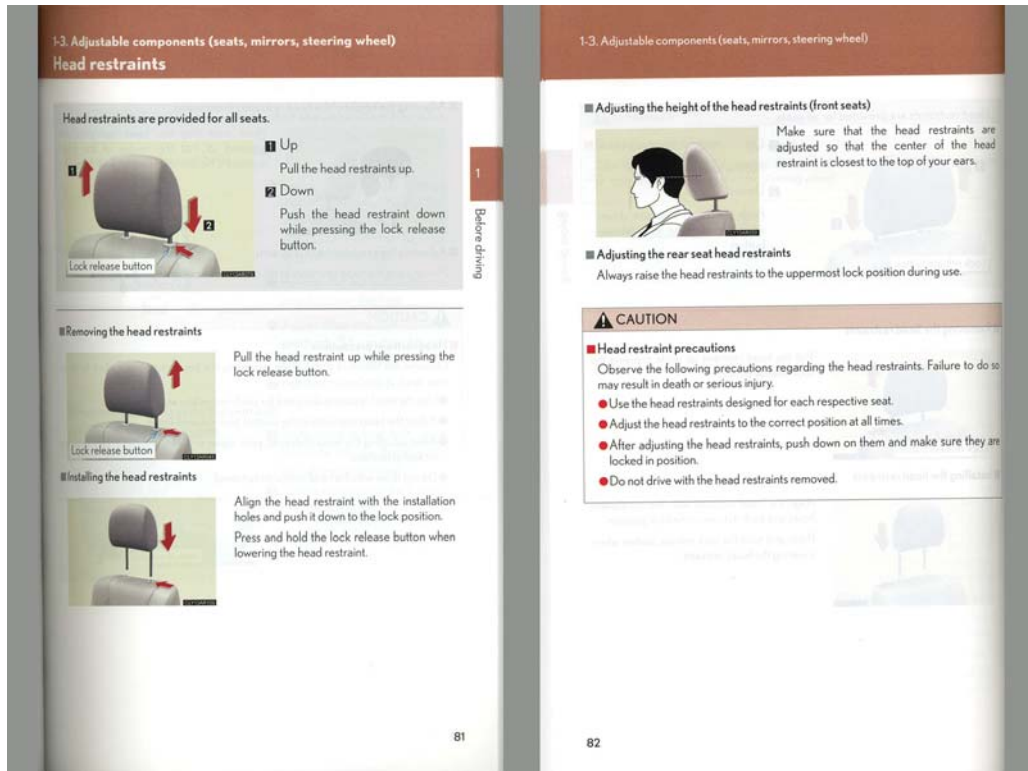


FIGURE 104. Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

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)

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)

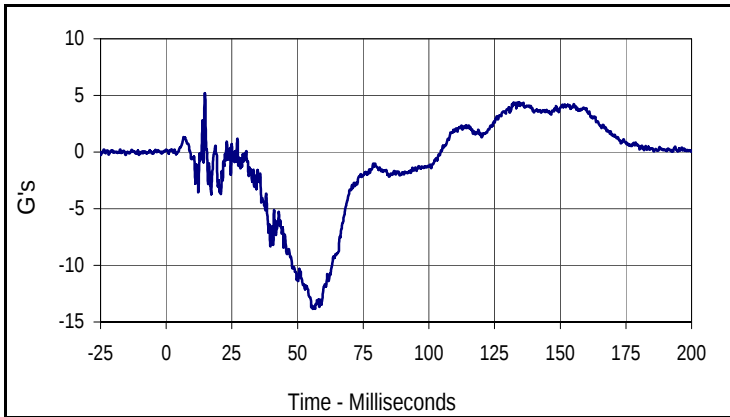
MDB Rear Acceleration (Y)

Left MDB Contact Switch

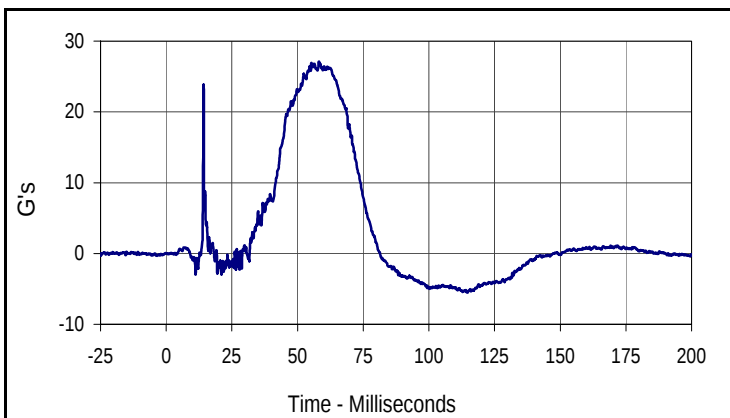
Right MDB Contact Switch

Test Vehicle: 2015 Lexus RX 350 5-Door Hatchback
 Test Program: NCAP MDB Side Impact Test

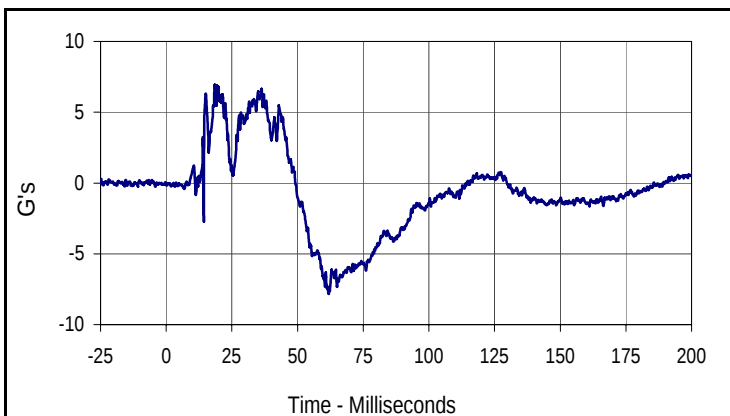
NHTSA No.: M20155301
 Test Date: 6/6/14



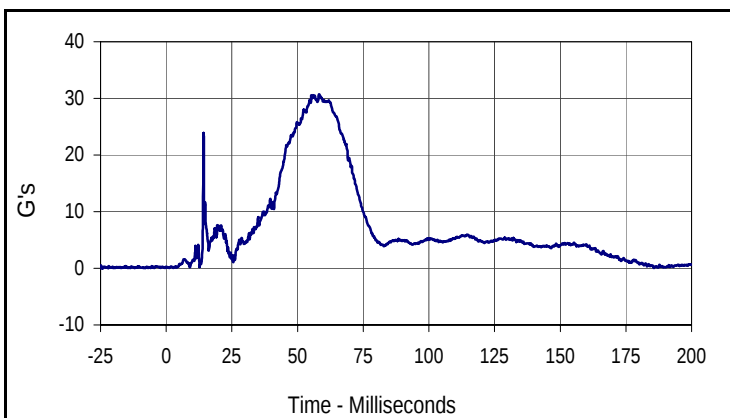
Curve Description			
Driver Head Acceleration X Primary			
Plot No.	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
5.2	14.7	-13.8	55.9



Curve Description			
Driver Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
27.1	58.2	-5.5	114.7



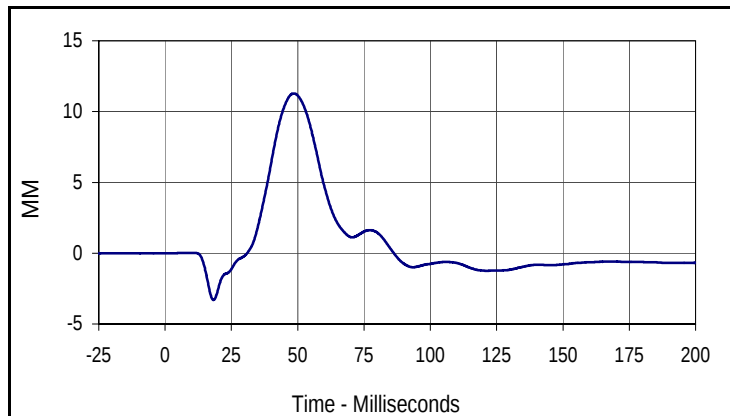
Curve Description			
Driver Head Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
7.0	18.5	-7.8	61.9



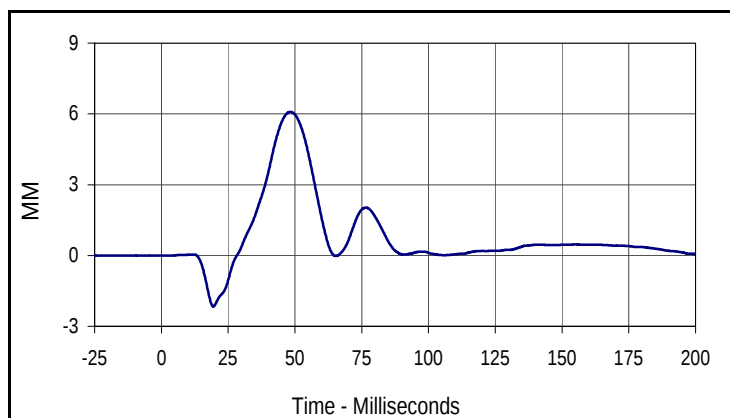
Curve Description			
Driver Head Resultant Acceleration Primary			
Plot No.	Type	SAE Class	Units
004	RES	1000	G's
Max	Time	Min	Time
30.7	58.2	0.1	185.6

Test Vehicle: 2015 Lexus RX 350 5-Door Hatchback
 Test Program: NCAP MDB Side Impact Test

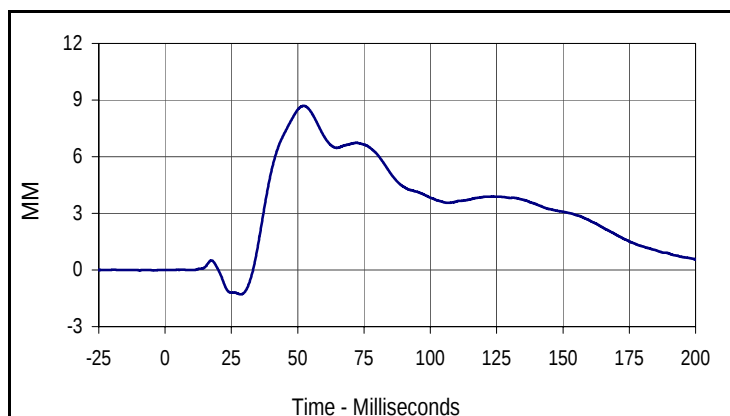
NHTSA No.: M20155301
 Test Date: 6/6/14



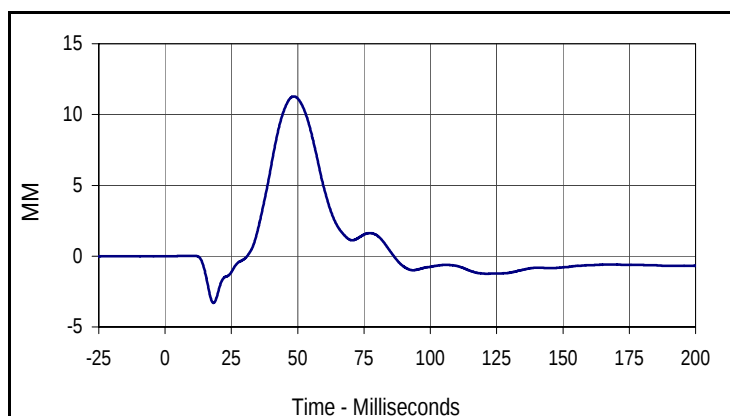
Curve Description			
Driver Upper Thorax Rib Deflection Y			
Plot No.	Type	SAE Class	Units
005	FIL	180	MM
Max	Time	Min	Time
11.3	48.6	-3.3	18.2



Curve Description			
Driver Middle Thorax Rib Deflection Y			
Plot No.	Type	SAE Class	Units
006	FIL	180	MM
Max	Time	Min	Time
6.1	48.3	-2.2	19.4



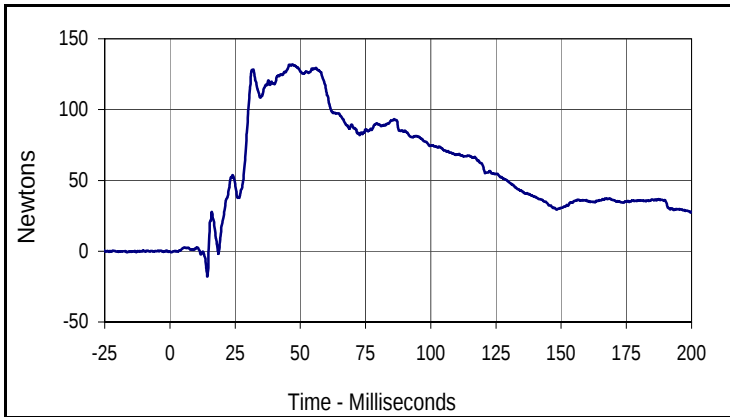
Curve Description			
Driver Lower Thorax Rib Deflection Y			
Plot No.	Type	SAE Class	Units
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Max	Time	Min	Time
8.7	52.3	-1.3	28.6



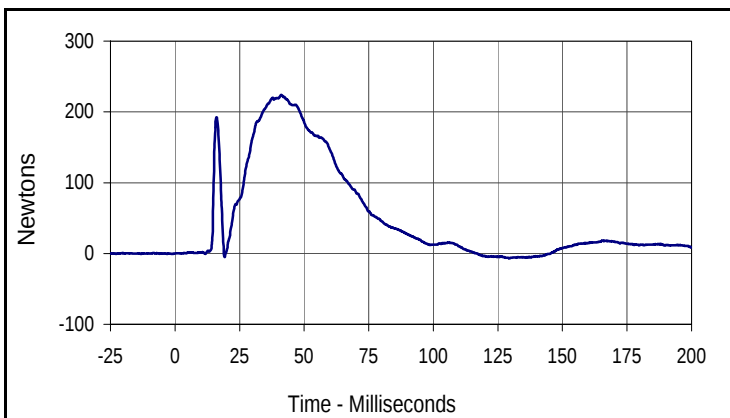
Curve Description			
Driver Thorax Rib Deflection Maximum			
Plot No.	Type	SAE Class	Units
010	FIL	180	MM
Max	Time	Min	Time
11.3	48.6	-3.3	18.2

Test Vehicle: 2015 Lexus RX 350 5-Door Hatchback
 Test Program: NCAP MDB Side Impact Test

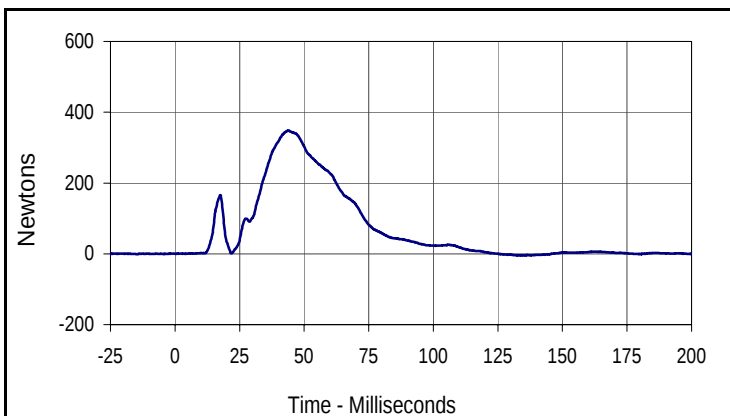
NHTSA No.: M20155301
 Test Date: 6/6/14



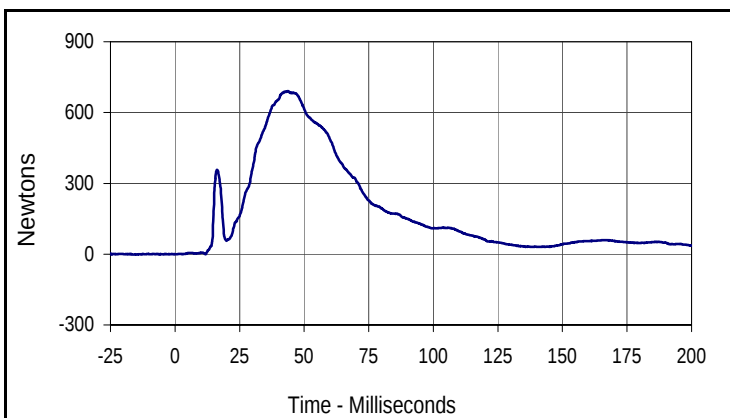
Curve Description			
Driver Anterior Abdominal Force Y			
Plot No.	Type	SAE Class	Units
008	FIL	600	Newtons
Max	Time	Min	Time
131.9	46.9	-17.8	14.4



Curve Description			
Driver Middle Abdominal Force Y			
Plot No.	Type	SAE Class	Units
009	FIL	600	Newtons
Max	Time	Min	Time
223.9	41.0	-7.0	129.5



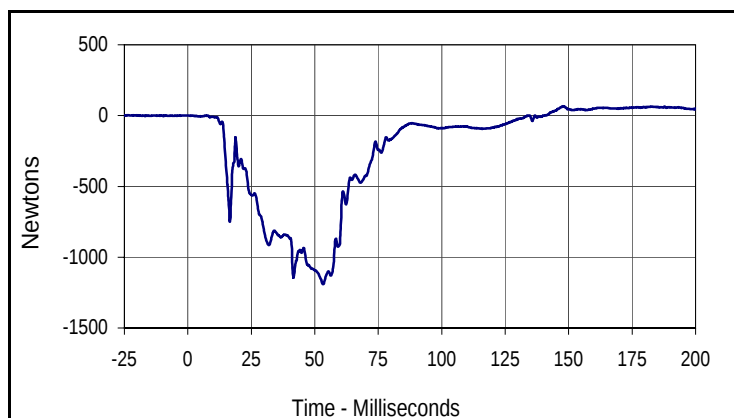
Curve Description			
Driver Posterior Abdominal Force Y			
Plot No.	Type	SAE Class	Units
011	FIL	600	Newtons
Max	Time	Min	Time
348.4	43.9	-4.7	135.1



Curve Description			
Driver Total Abdominal Force			
Plot No.	Type	SAE Class	Units
012	SUM	600	Newtons
Max	Time	Min	Time
690.6	43.8	-0.8	11.8

Test Vehicle: 2015 Lexus RX 350 5-Door Hatchback
Test Program: NCAP MDB Side Impact Test

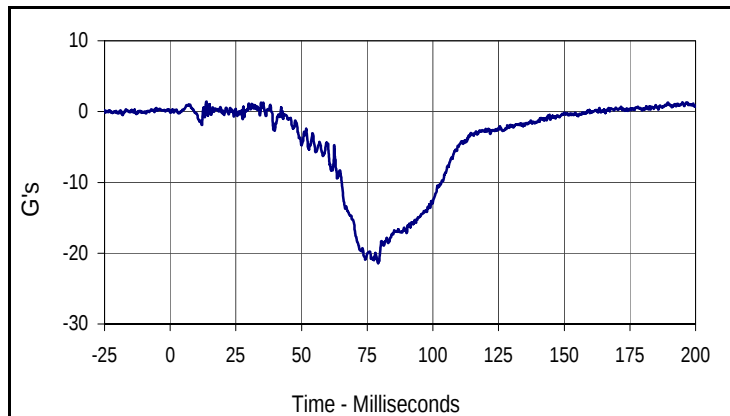
NHTSA No.: M20155301
Test Date: 6/6/14



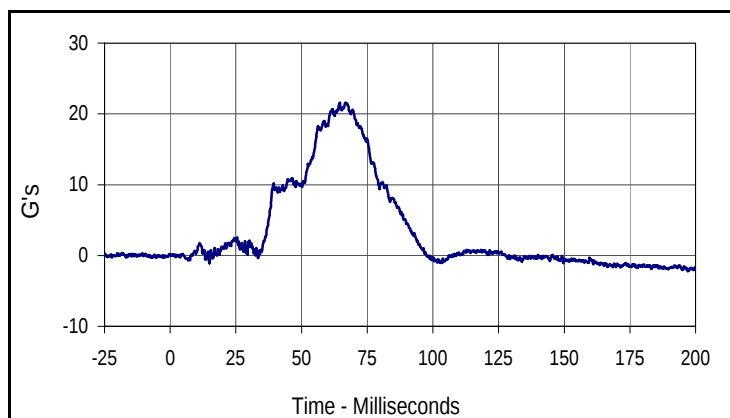
Curve Description			
Driver Pubic Symphysis Force Y			
Plot No.	Type	SAE Class	Units
013	FIL	600	Newtons
Max	Time	Min	Time
65.6	147.7	-1190.9	53.3

Test Vehicle: 2015 Lexus RX 350 5-Door Hatchback
 Test Program: NCAP MDB Side Impact Test

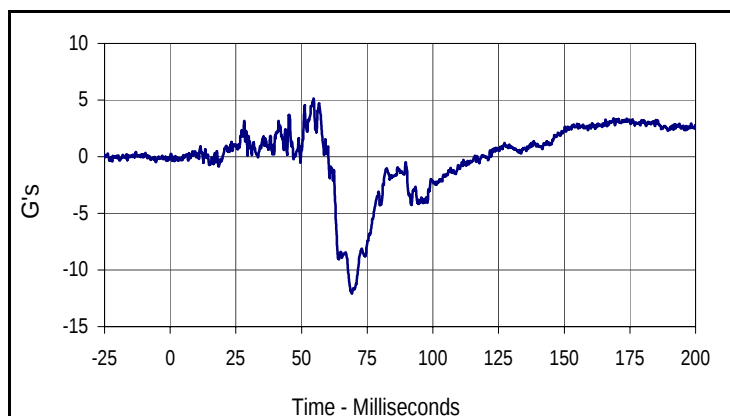
NHTSA No.: M20155301
 Test Date: 6/6/14



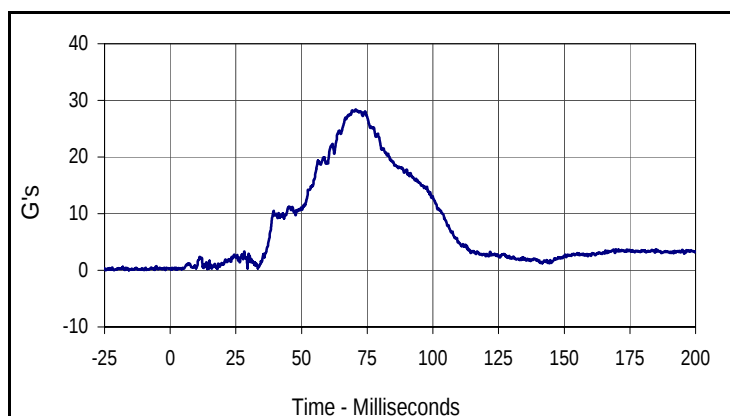
Curve Description			
Passenger Head Acceleration X Primary			
Plot No.	Type	SAE Class	Units
014	FIL	1000	G's
Max	Time	Min	Time
1.4	13.7	-21.4	79.1



Curve Description			
Passenger Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
015	FIL	1000	G's
Max	Time	Min	Time
21.6	66.8	-2.2	197.1



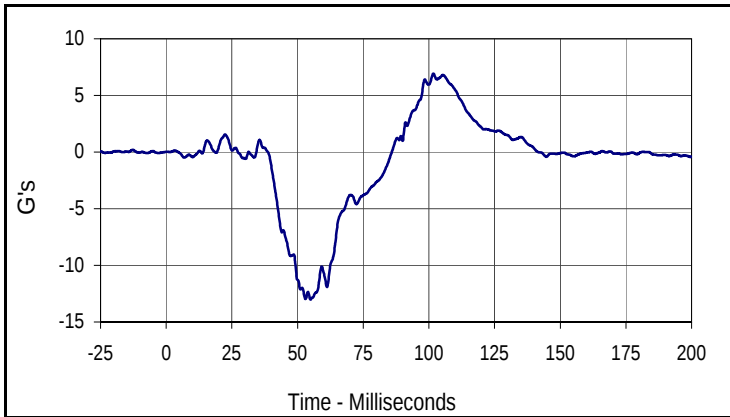
Curve Description			
Passenger Head Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
016	FIL	1000	G's
Max	Time	Min	Time
5.2	54.6	-12.1	69.2



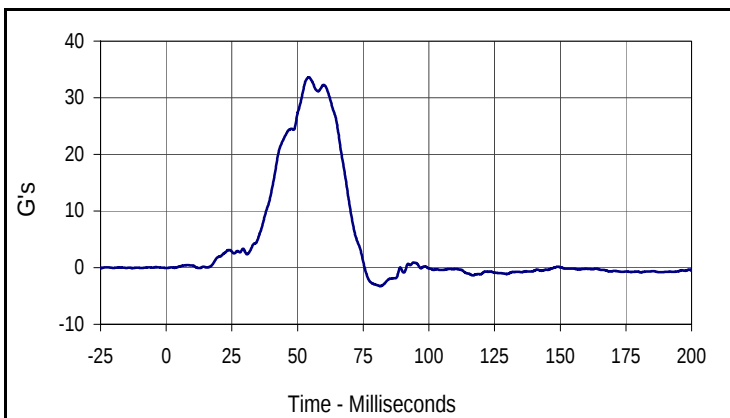
Curve Description			
Passenger Head Acceleration Resultant Primary			
Plot No.	Type	SAE Class	Units
017	RES	1000	G's
Max	Time	Min	Time
28.4	70.6	0.1	0.5

Test Vehicle: 2015 Lexus RX 350 5-Door Hatchback
 Test Program: NCAP MDB Side Impact Test

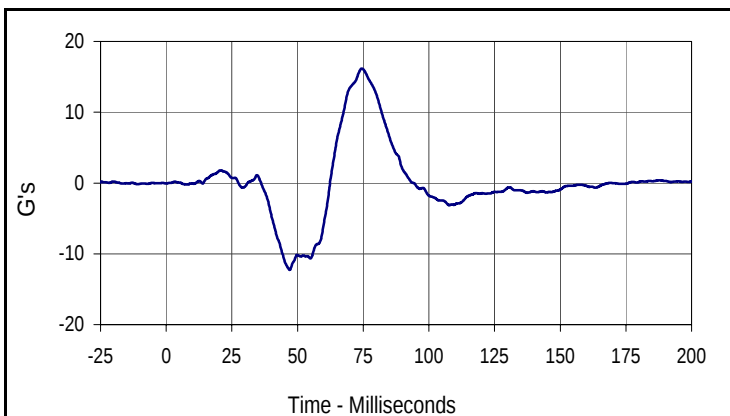
NHTSA No.: M20155301
 Test Date: 6/6/14



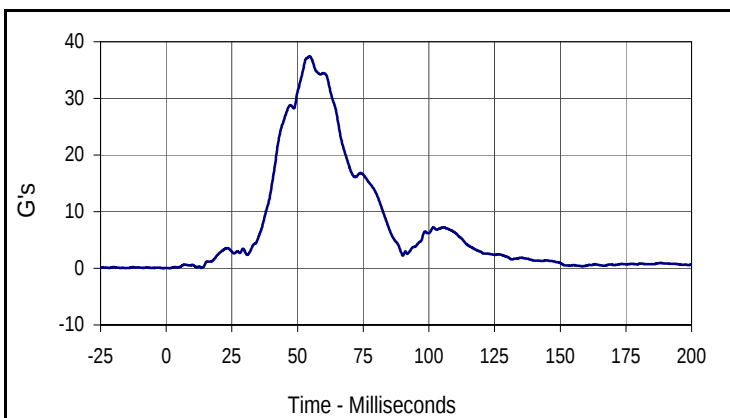
Curve Description			
Passenger Lower Spine T12 Acceleration X			
Plot No.	Type	SAE Class	Units
019	FIL	180	G's
Max	Time	Min	Time
6.9	101.7	-13.0	54.9



Curve Description			
Passenger Lower Spine T12 Acceleration Y			
Plot No.	Type	SAE Class	Units
020	FIL	180	G's
Max	Time	Min	Time
33.6	54.3	-3.3	81.5



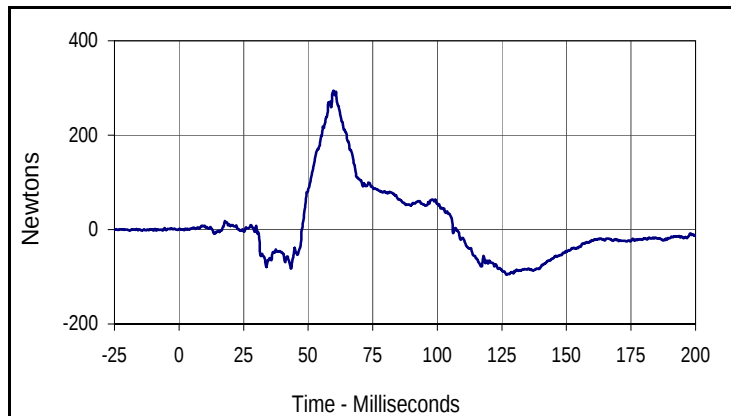
Curve Description			
Passenger Lower Spine T12 Acceleration Z			
Plot No.	Type	SAE Class	Units
021	FIL	180	G's
Max	Time	Min	Time
16.2	74.5	-12.3	47.0



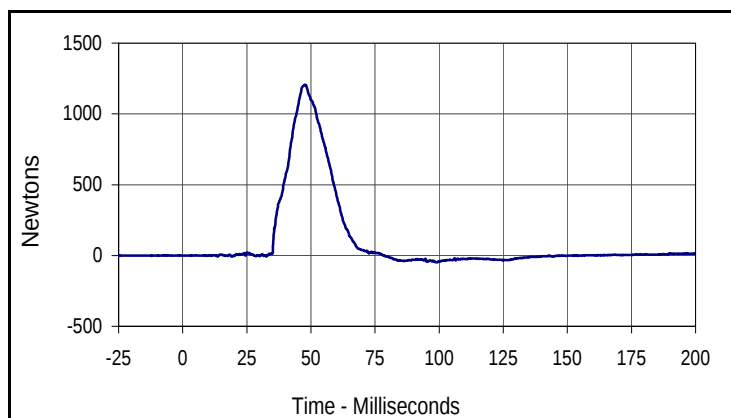
Curve Description			
Passenger Lower Spine T12 Acceleration Resultant			
Plot No.	Type	SAE Class	Units
022	RES	180	G's
Max	Time	Min	Time
37.5	54.6	0.0	1.3

Test Vehicle: 2015 Lexus RX 350 5-Door Hatchback
 Test Program: NCAP MDB Side Impact Test

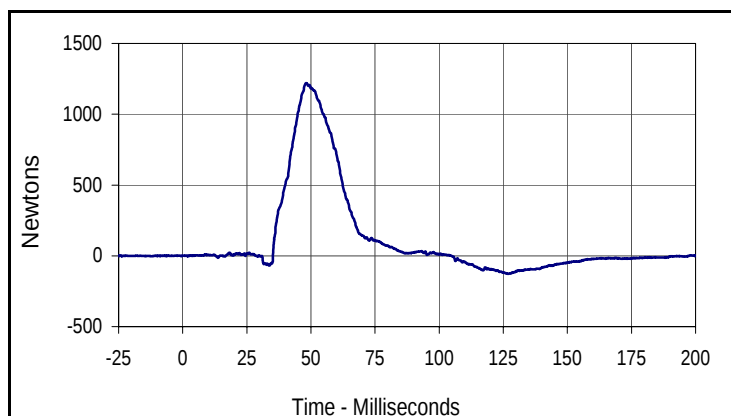
NHTSA No.: M20155301
 Test Date: 6/6/14



Curve Description			
Passenger Iliac Wing Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
023	FIL	600	Newtons
Max	Time	Min	Time
294.5	59.8	-95.7	126.9



Curve Description			
Passenger Acetabulum Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
024	FIL	600	Newtons
Max	Time	Min	Time
1205.2	47.8	-49.0	99.0



Curve Description			
Passenger Total Pelvic Force			
Plot No.	Type	SAE Class	Units
018	SUM	600	Newtons
Max	Time	Min	Time
1218.9	48.1	-127.8	126.8

APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

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

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

Test Date: 6/3/14
 Test I.D.: N/A



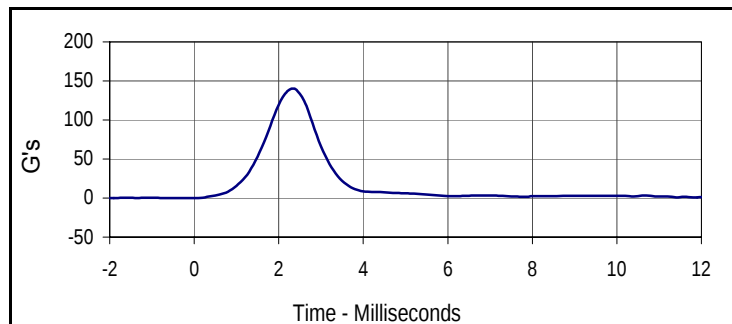
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity		%	10 to 70	30.0	Pass
1	Sitting Height	mm	900 - 918	909	Pass
2	Seat to Shoulder Joint	mm	558 - 572	564	Pass
3	Seat to Lower Face of Thoracic Spine Box	mm	346 - 356	350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

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

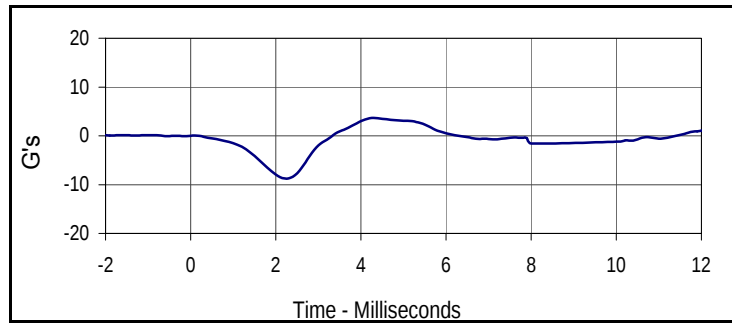
Test Date: 6/3/14
 Test I.D.: F037HD059



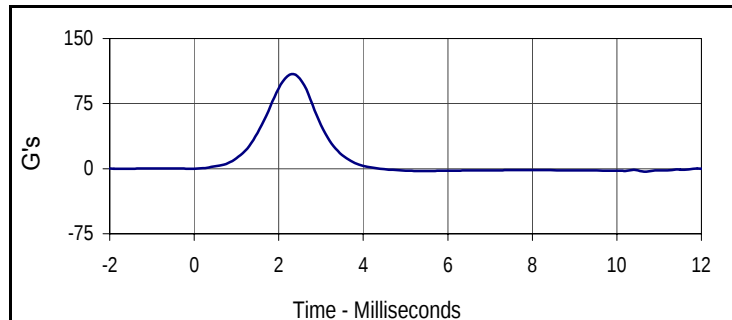
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	300	Pass
Temperature During Soak	Max	20.6 to 22.2	21.5	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	35.1	Pass
	Min		33.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.8	Pass
Peak Head Resultant Acceleration	G's	125 to 155	140.1	Pass
Peak Head X Acceleration	G's	≤15	8.7	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	4.3	Pass
Overall Test Results				Pass



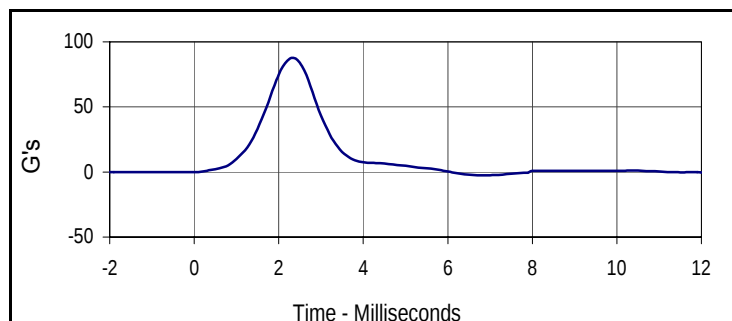
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
140.1	2.3	0.1	0.1



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
3.6	4.3	-8.7	2.3



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
109.0	2.3	-3.3	10.7



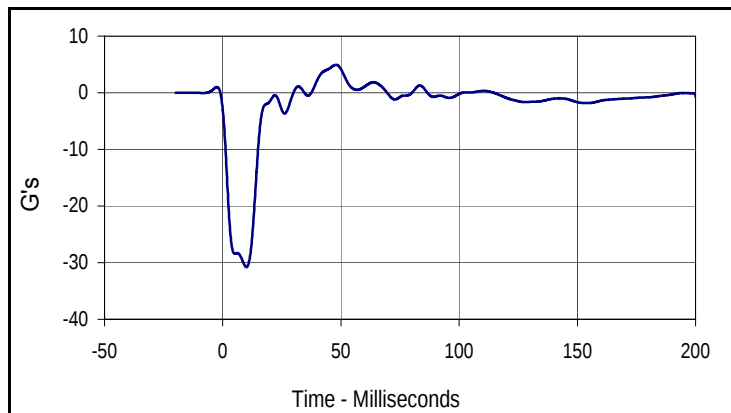
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
87.7	2.3	-2.6	6.9

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

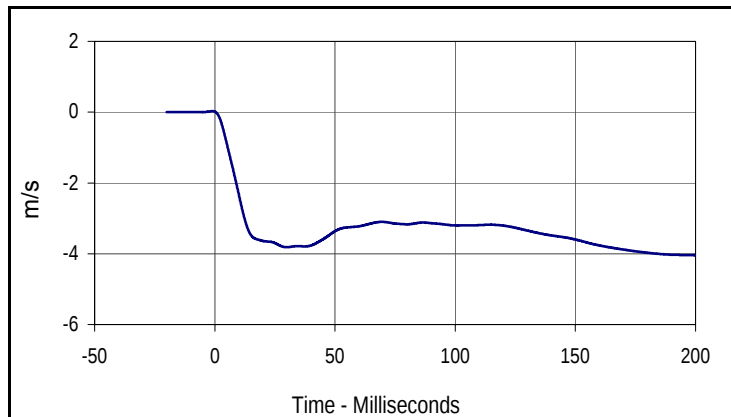
Test Date: 6/3/14
 Test I.D.: F037NB059



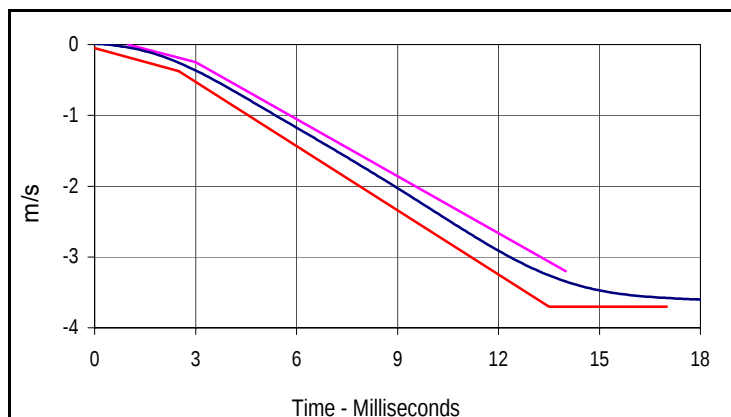
Tested Parameter	Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time	Minutes	≥240	335	Pass
Temperature During Soak	Max	20.6 to 22.2	21.5	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	35.1	Pass
	Min		33.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.1	Pass
Pendulum Velocity	m/s	3.3 to 3.5	3.32	Pass
Headform Flexion	Max	49 to 59	55.0	Pass
	Time	54 to 66	56.4	Pass
Headform Flexion Decay (Peak to Zero)	msec	53 to 88	58.1	Pass
Overall Test Results				Pass



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
4.9	47.9	-30.8	10.0



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.0	-4.0	199.9



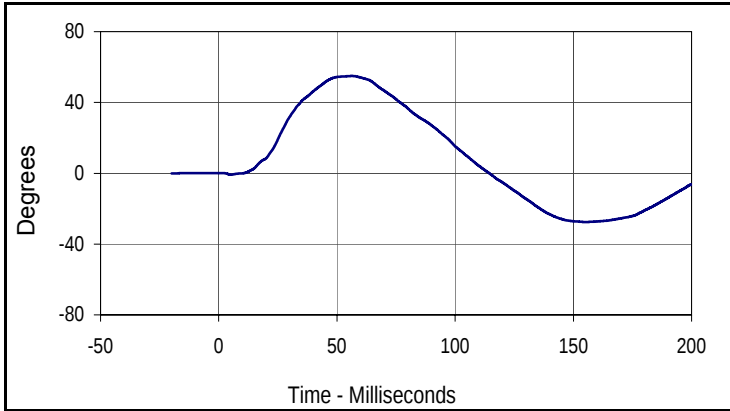
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.0	-4.0	199.9

Velocity Corridors

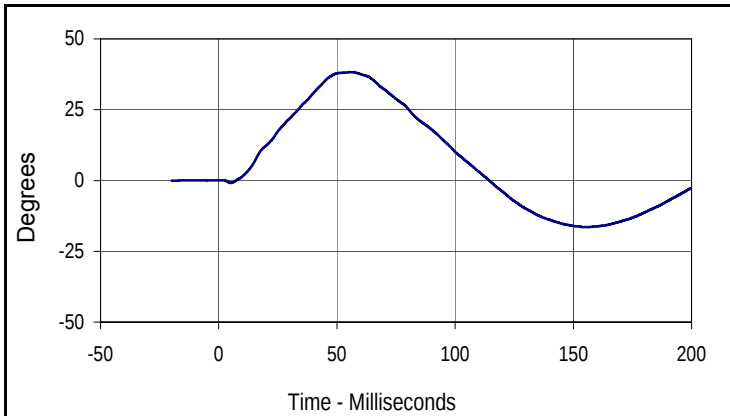
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.0	-0.03	2.5	-0.375
14.0	-3.20	13.5	-3.70
		17.0	-3.70

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

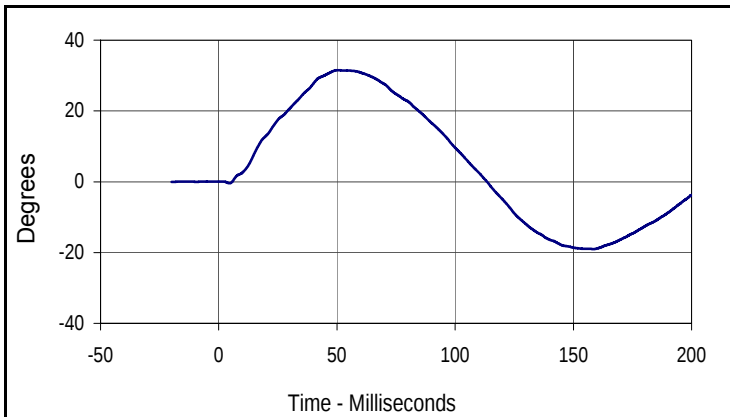
Test Date: 6/3/14
 Test I.D.: F037NB059



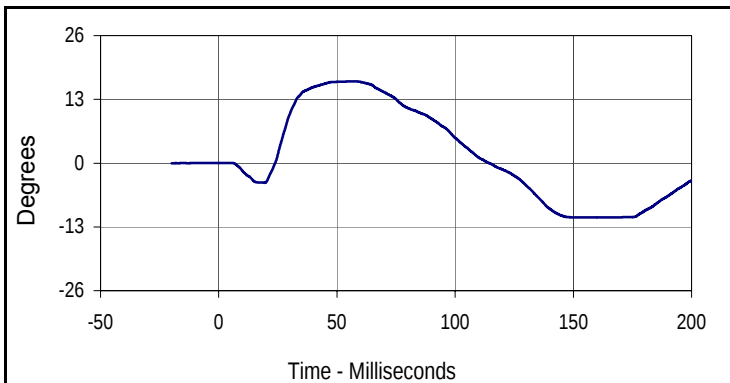
Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	180	Degrees
Max	Time	Min	Time
55.0	56.4	-27.5	155.1



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
004	FIL	180	Degrees
Max	Time	Min	Time
38.3	56.3	-16.5	155.1



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
005	FIL	180	Degrees
Max	Time	Min	Time
31.5	50.2	-19.0	158.5



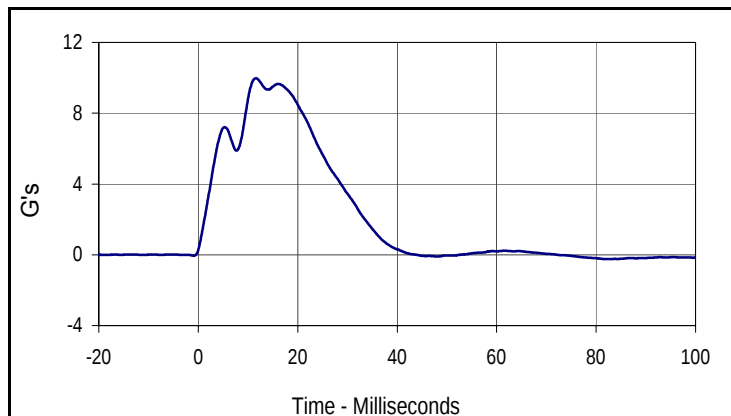
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
006	FIL	180	Degrees
Max	Time	Min	Time
16.7	57.7	-11.1	163.3

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

Test Date: 6/3/14
 Test I.D.: F037SH059



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	400	Pass
Temperature During Soak	Max	20.6 to 22.2	21.5	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	35.1	Pass
	Min		33.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.0	Pass
Pendulum Speed	m/s	4.2 to 4.4	4.36	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	10.0	Pass
Overall Test Results				Pass



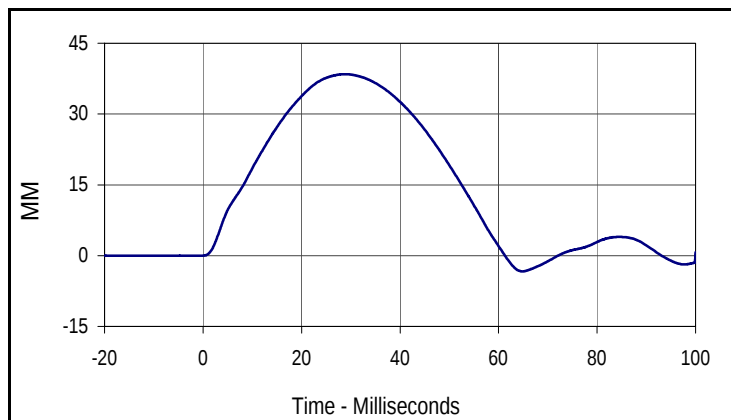
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
10.0	11.6	-0.2	82.0

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

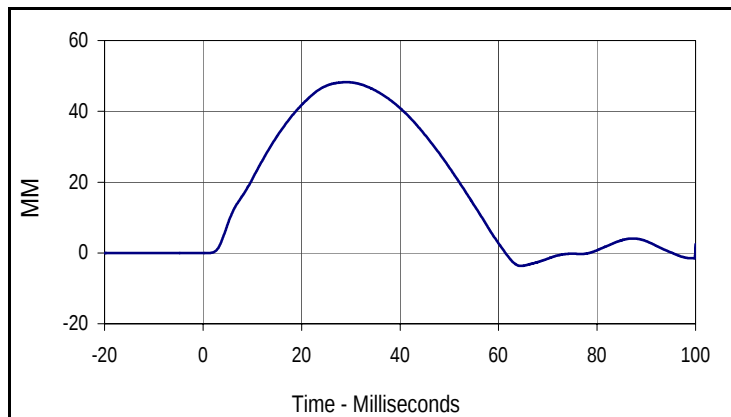
Test Date: 6/3/14
 Test I.D.: F037RB1059



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	455	Pass
Temperature During Soak	Max	20.6 to 22.2	21.5	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	35.1	Pass
	Min		33.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.1	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	38.4	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	48.2	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
38.4	28.8	-3.3	64.8



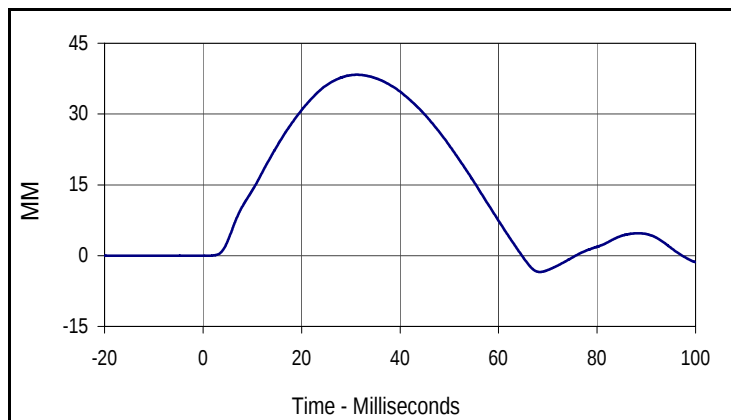
Curve Description			
Upper Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
48.2	29.1	-3.7	64.6

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

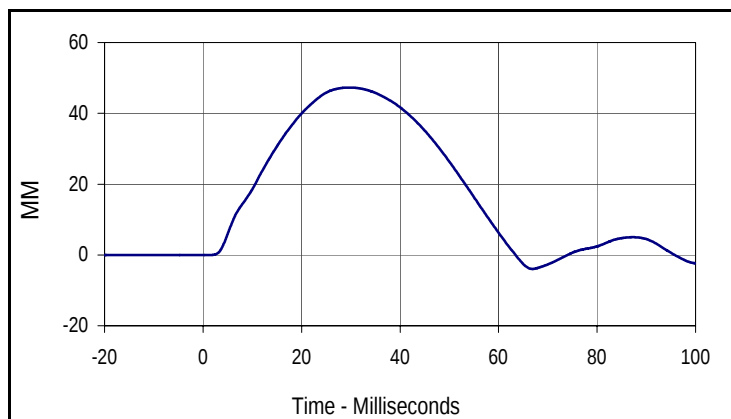
Test Date: 6/3/14
 Test I.D.: F037RB2059



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	500	Pass
Temperature During Soak	Max	20.6 to 22.2	21.5	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	35.1	Pass
	Min		33.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.2	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	38.3	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	47.3	Pass
Overall Test Results			Pass	



Curve Description			
Middle Rib Deflection (459 mm Drop Height)			
Plot No.	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
38.3	31.2	-3.5	68.4



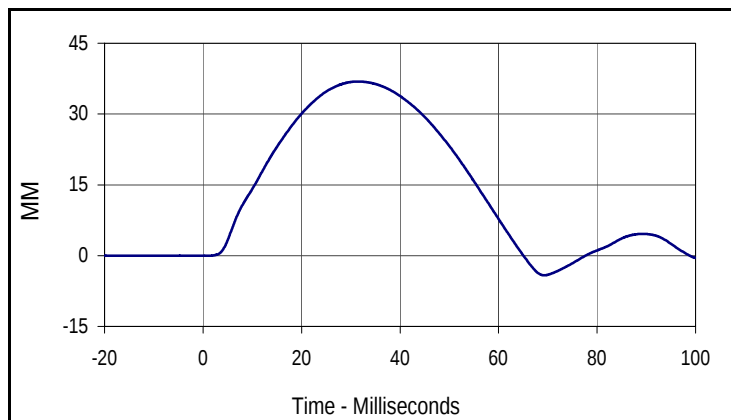
Curve Description			
Middle Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
47.3	29.7	-4.0	66.9

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

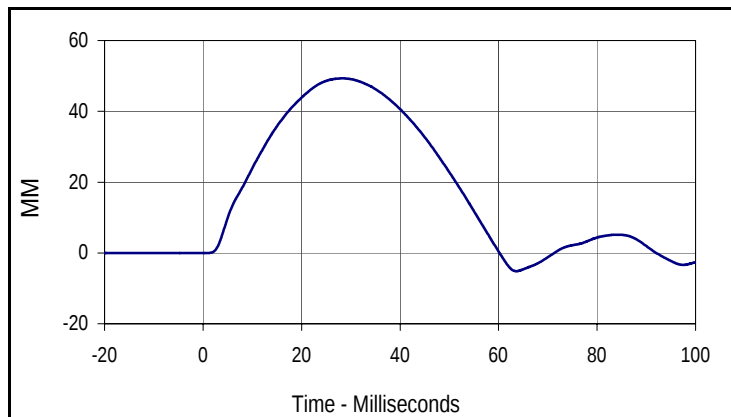
Test Date: 6/3/14
 Test I.D.: F037RB3059



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	545	Pass
Temperature During Soak	Max	20.6 to 22.2	21.5	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	35.1	Pass
	Min		33.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.4	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	49.3	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
36.9	31.5	-4.2	69.3



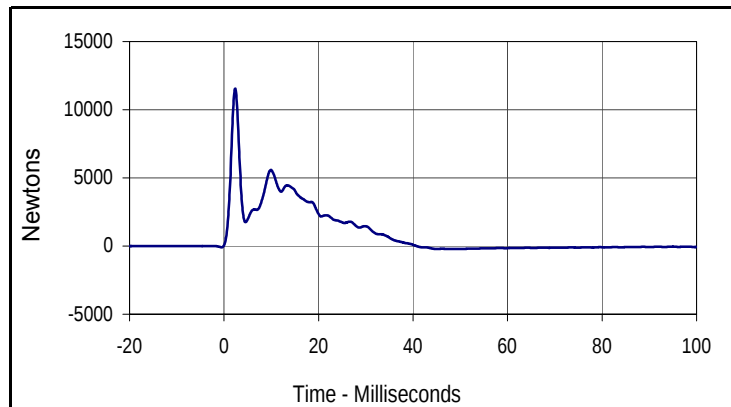
Curve Description			
Lower Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
49.3	28.3	-5.2	63.6

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

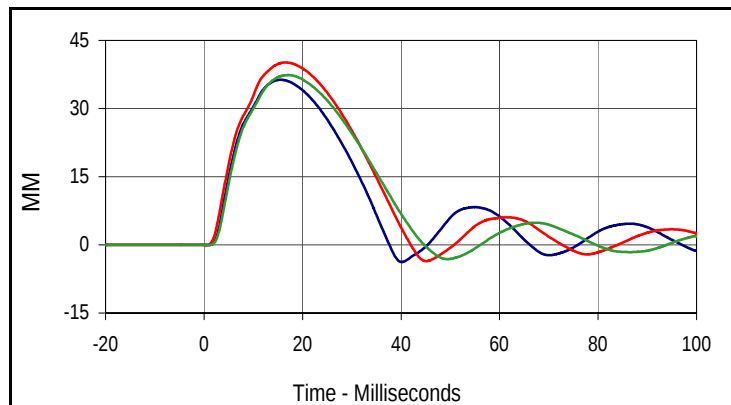
Test Date: 6/3/14
 Test I.D.: F037TH059



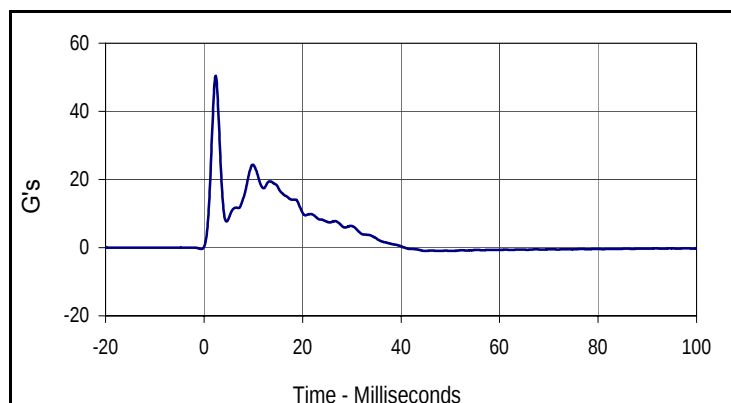
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	590	Pass
Temperature During Soak	Max	20.6 to 22.2	21.5	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	35.1	Pass
	Min		33.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.8	Pass
Peak Impactor Velocity	m/s	5.4 to 5.6	5.56	Pass
Peak Impactor Force	N	5100 to 6200	5581.6	Pass
	msec	> 6.0 msec	9.9	Pass
Peak Upper Rib Deflection	mm	34 to 41	36.3	Pass
Peak Middle Rib Deflection	mm	37 to 45	40.1	Pass
Peak Lower Rib Deflection	mm	37 to 44	37.4	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
11559.4	2.4	-221.4	47.6



Curve Description			
Upper, Middle, Lower Rib Deflections			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max (Upper)	Time	Min (Upper)	Time
36.3	15.5	-3.8	40.1
Max (Middle)	Time	Min (Middle)	Time
40.1	16.5	-3.6	45.1
Max (Lower)	Time	Min (Lower)	Time
37.4	17.1	-3.1	49.4



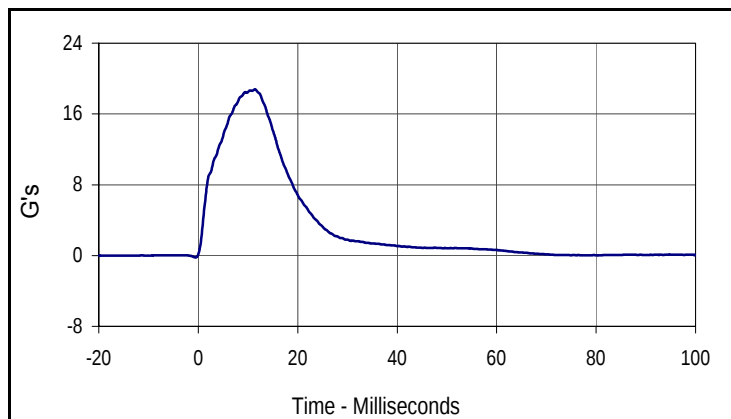
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
50.5	2.4	-1.0	47.6

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

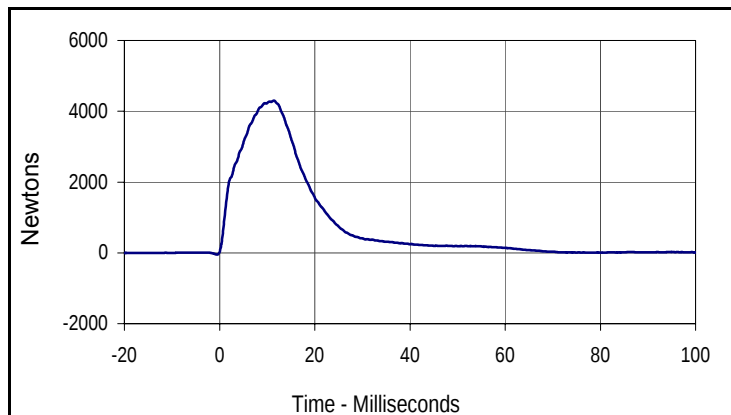
Test Date: 6/3/14
 Test I.D.: F037ABD059



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	660	Pass
Temperature During Soak	Max	20.6 to 22.2	21.5	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	35.1	Pass
	Min		33.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.9	Pass
Probe Velocity	m/s	3.9 to 4.1	4.02	Pass
Peak Impactor Force	N	4000 to 4800	4303.2	Pass
	msec	10.6 to 13.0	11.4	Pass
Sum of Abdominal Forces	N	2200 to 2700	2366.1	Pass
	msec	10.0 to 12.3	10.4	Pass
Overall Test Results				Pass



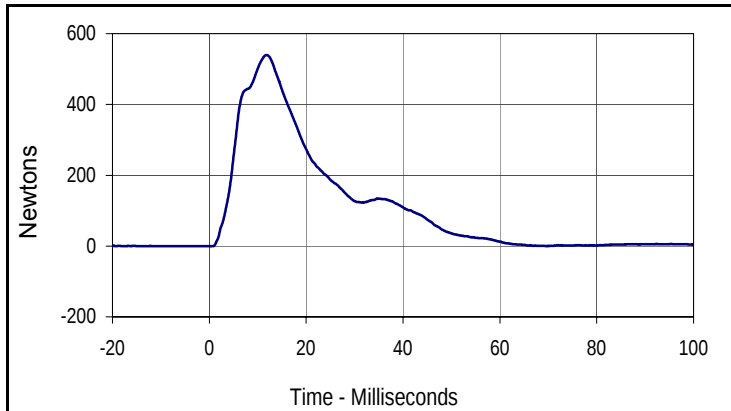
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
18.8	11.4	-0.2	-0.6



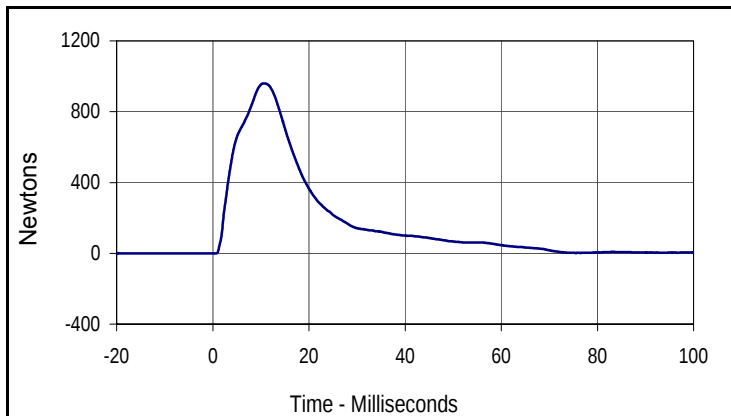
Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
4303.2	11.4	-48.7	-0.6

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

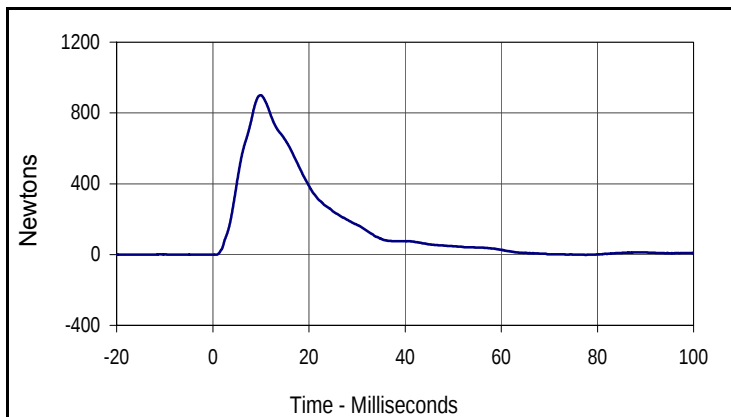
Test Date: 6/3/14
 Test I.D.: F037ABD059



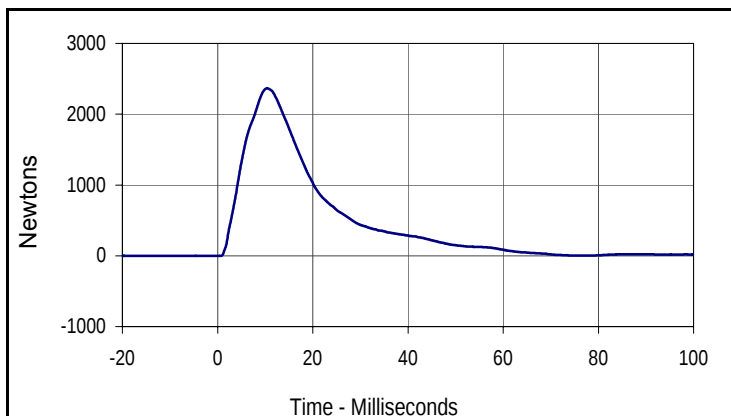
Curve Description			
Front Abdomen Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
539.7	11.8	-0.7	-8.9



Curve Description			
Middle Abdomen Force			
Plot No.	Type	SAE Class	Units
004	FIL	600	Newtons
Max	Time	Min	Time
959.6	10.6	-1.1	0.7



Curve Description			
Rear Abdomen Force			
Plot No.	Type	SAE Class	Units
005	FIL	600	Newtons
Max	Time	Min	Time
900.4	9.9	-1.6	77.6



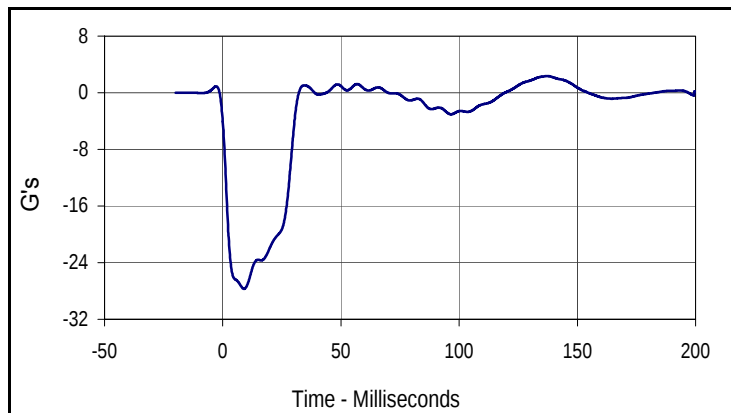
Curve Description			
Abdomen Sum Resultant			
Plot No.	Type	SAE Class	Units
006	RES	600	Newtons
Max	Time	Min	Time
2366.1	10.4	-1.9	-4.2

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

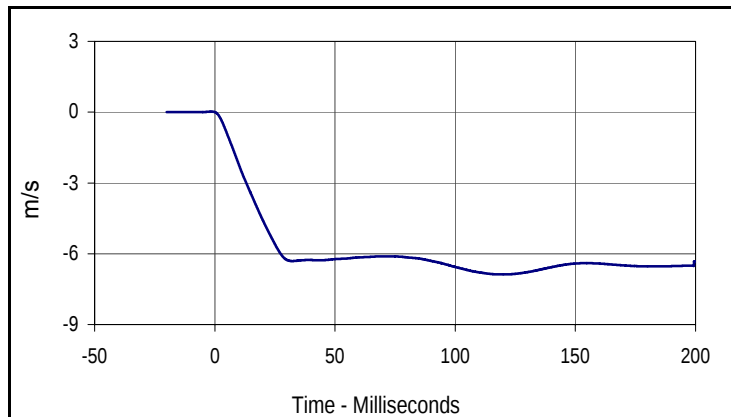
Test Date: 6/3/14
 Test I.D.: F037LB059



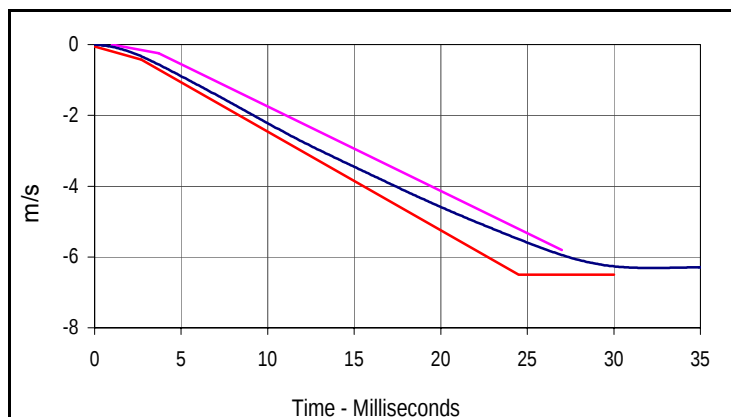
Tested Parameter	Units	Specification	Result	Pass/Fail
Lumbar Spine Assembly Soak Time	Minutes	≥240	735	Pass
Temperature During Soak	Max	20.6 to 22.2	21.5	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	35.1	Pass
	Min		33.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.9	Pass
Pendulum Velocity	m/s	5.95 to 6.15	6.10	Pass
Headform Rotation	Max	45 to 55	51.1	Pass
	Time	39 to 53	40.4	Pass
Time of Decay to Zero Angle from Peak	msec	37 to 57	45.9	Pass
Overall Test Results				Pass



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
2.3	137.8	-27.7	9.6



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-0.8	-6.9	119.9



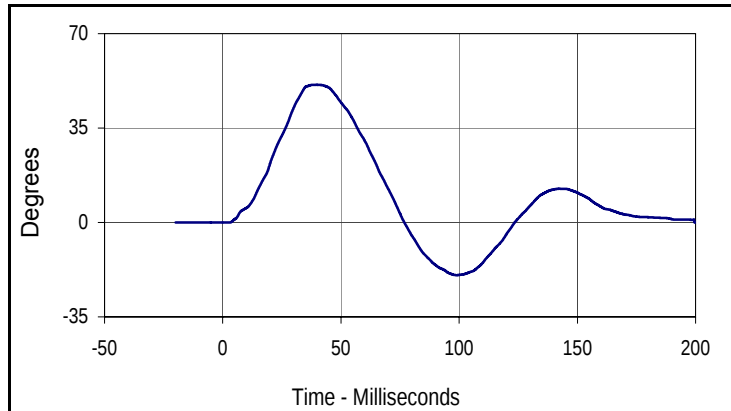
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-0.8	-6.9	119.9

Velocity Corridors

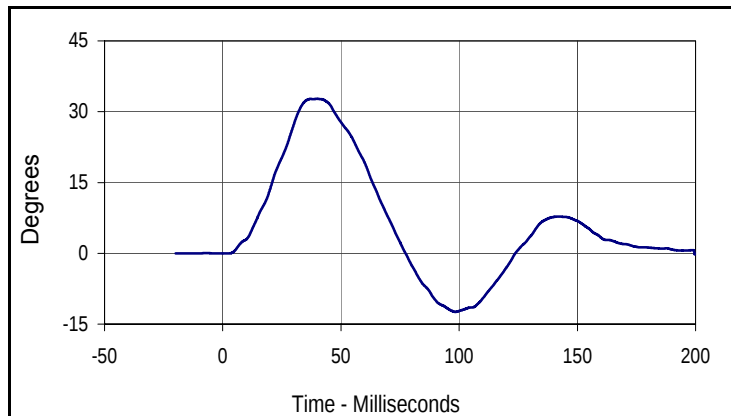
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.7	-0.24	2.7	-0.425
27.0	-5.80	24.5	-6.50
		30.0	-6.50

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

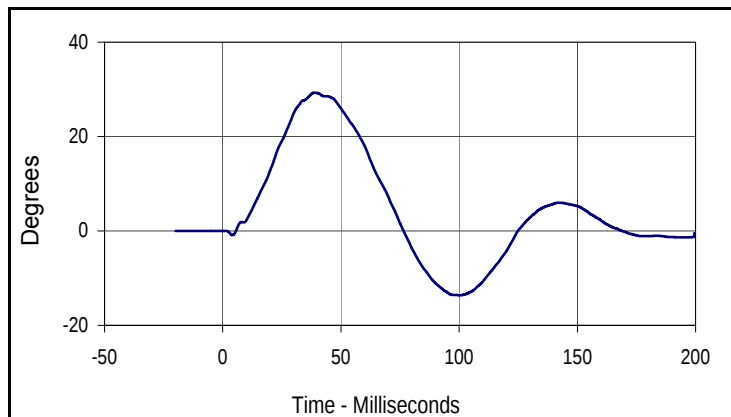
Test Date: 6/3/14
 Test I.D.: F037LB059



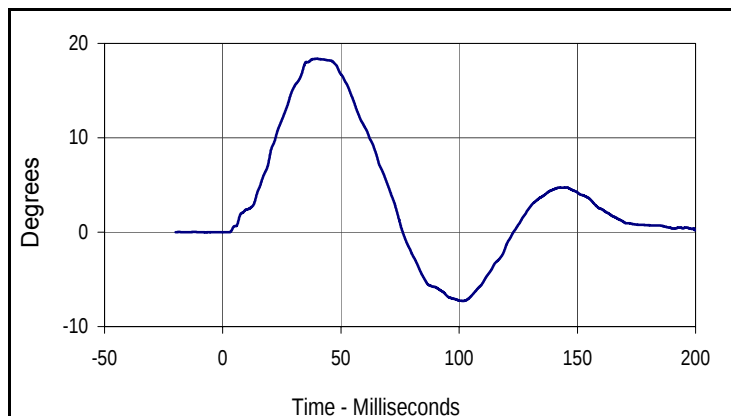
Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	180	Degrees
Max	Time	Min	Time
51.1	40.4	-19.5	99.6



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
004	FIL	180	Degrees
Max	Time	Min	Time
32.7	40.5	-12.4	99.0



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
005	FIL	180	Degrees
Max	Time	Min	Time
29.3	39.4	-13.6	100.8



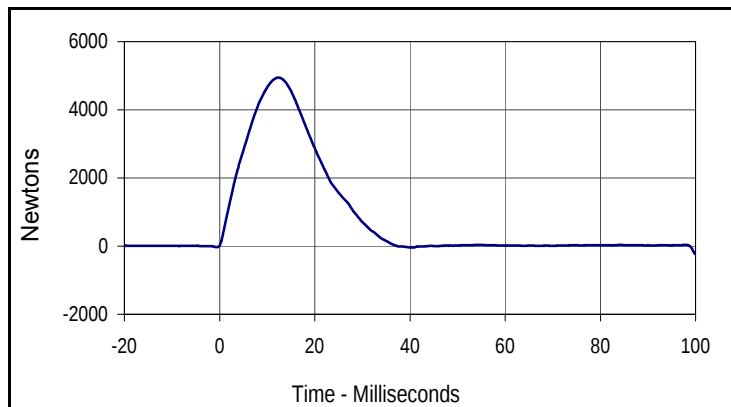
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
006	FIL	180	Degrees
Max	Time	Min	Time
18.4	40.3	-7.3	102.3

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

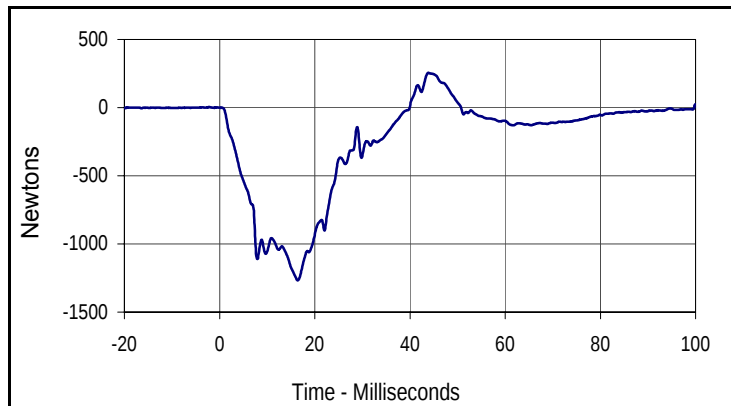
Test Date: 6/3/14
 Test I.D.: F037PL059



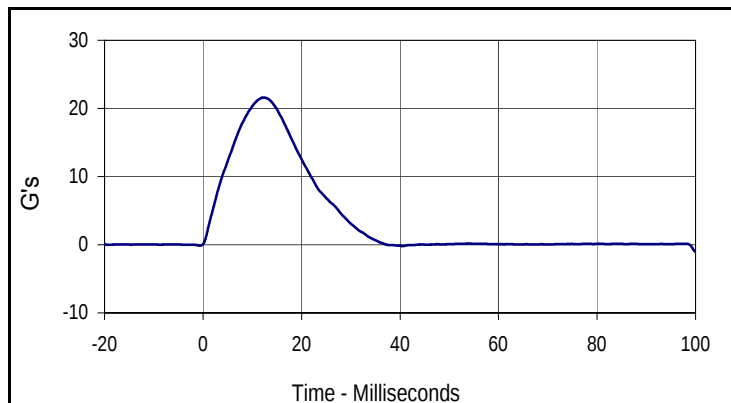
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	790	Pass
Temperature During Soak	Max	20.6 to 22.2	21.5	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	35.1	Pass
	Min		33.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.1	Pass
Pendulum Velocity	m/s	4.2 to 4.4	4.31	Pass
Peak Impactor Force	N	4700 to 5400	4944.9	Pass
	msec	11.8 to 16.1	12.3	Pass
Peak Pubic Symphysis Load	N	-1230 to -1590	-1267.3	Pass
	msec	12.2 to 17.0	16.4	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
4944.9	12.3	-219.6	99.9



Curve Description			
Pubic Symphysis Force Y			
Plot No.	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
255.4	43.8	-1267.3	16.4



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
21.6	12.3	-1.0	99.9

Test Program: SID IIs External Measurements
 ATD Serial No.: 307

Test Date: 6/4/14
 Test I.D.: N/A



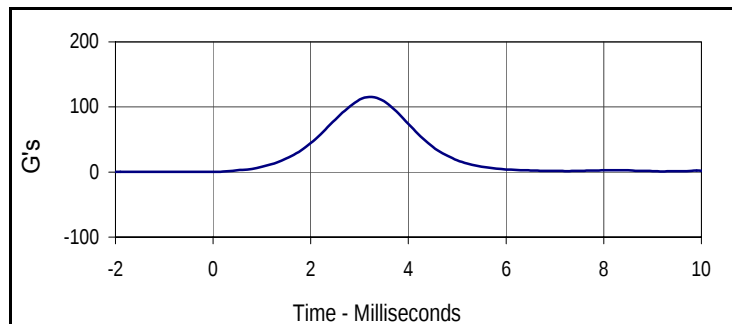
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.0	Pass
Laboratory Relative Humidity		%	10 to 70	37	Pass
A	Sitting Height	mm	772 - 788	778	Pass
B	Shoulder Pivot Height	mm	437 - 453	443	Pass
C	H-Point Height	mm	79 - 89	85	Pass
D	H-Point from Seatback	mm	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

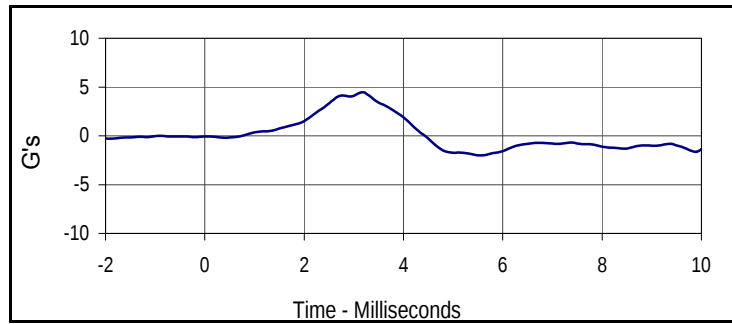
Test Date: 6/4/14
 Test I.D.: 307HD067



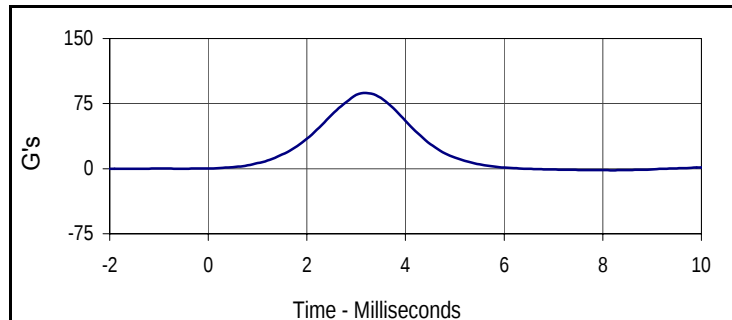
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	330	Pass
Temperature During Soak	Max	18.9 to 25.6	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	37.0	Pass
	Min		36.1	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	36.9	Pass
Peak Head Resultant Acceleration	G's	115 to 137	115.5	Pass
Peak Head X Acceleration	G's	<15	4.5	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	2.5	Pass
Overall Test Results				Pass



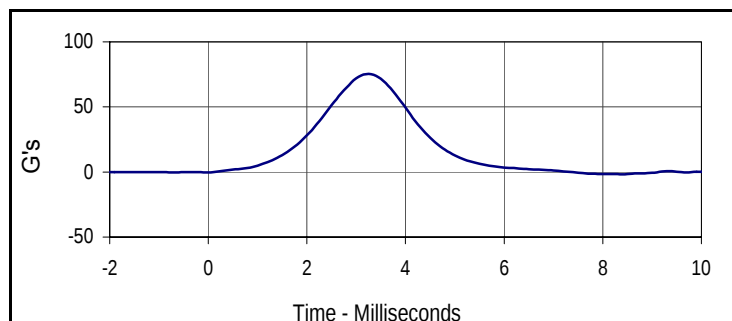
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
115.5	3.2	0.1	-0.4



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
4.5	3.2	-2.0	5.6



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
87.5	3.2	-1.8	8.2



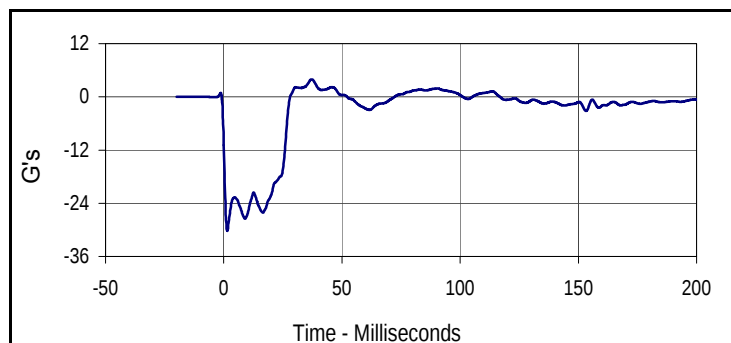
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
75.3	3.2	-1.7	8.4

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

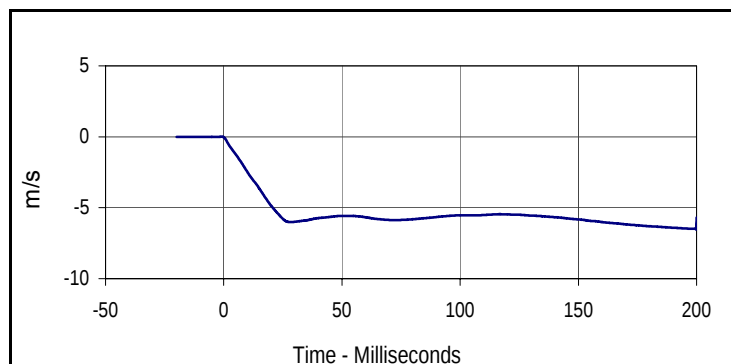
Test Date: 6/4/14
 Test I.D.: 307NB067



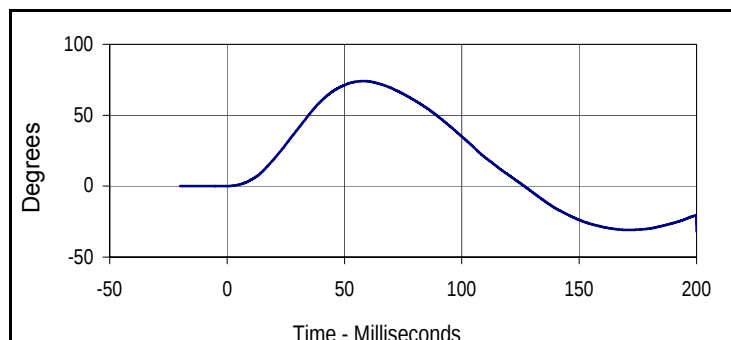
Tested Parameter	Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time	Minutes	≥240	405	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	37.0	Pass
	Min		36.1	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	36.8	Pass
Pendulum Velocity	m/s	5.51 to 5.63	5.56	Pass
Pendulum Deceleration	10 msec	-2.20 to -2.80	-2.48	Pass
	15 msec	-3.30 to -4.10	-3.64	Pass
	20 msec	-4.40 to -5.40	-4.85	Pass
	25 msec	-5.40 to -6.10	-5.78	Pass
	25-100 msec	-5.50 to -6.20	-6.01	Pass
D-Plane Rotation	Max	71 to 81	74.0	Pass
	Time	50 to 70	58.1	Pass
Peak Occipital Condyle Moment	Nm	-36 to -44	-42.8	Pass
Decaying Moment Time to Cross 0 Nm	msec	102 to 126	105.0	Pass
Overall Test Results			Pass	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
4.0	0.0	-30.2	0.0



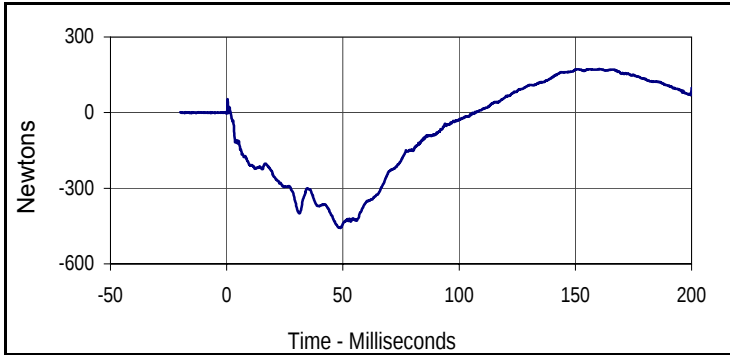
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.9	-6.5	199.9



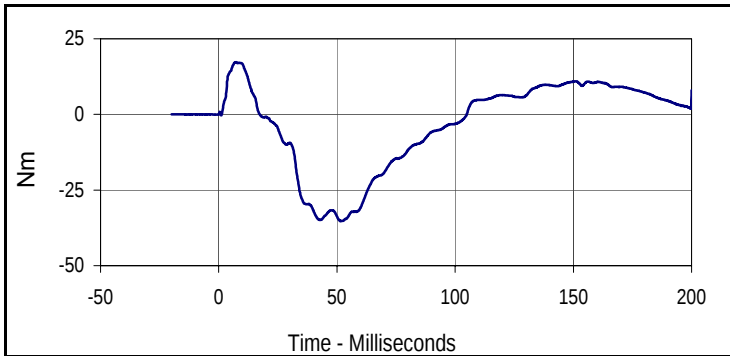
Curve Description			
D-Plane Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
74.0	58.1	-31.9	200.0

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

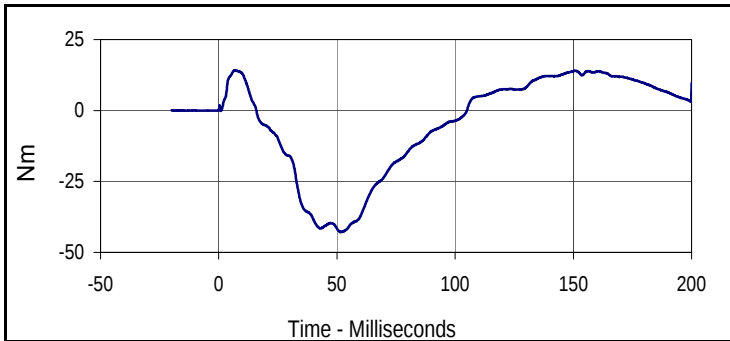
Test Date: 6/4/14
 Test I.D.: 307NB067



Curve Description			
Neck Force Y			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
172.9	160.3	-457.4	48.9



Curve Description			
Neck Moment X			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
17.3	7.3	-35.2	51.5



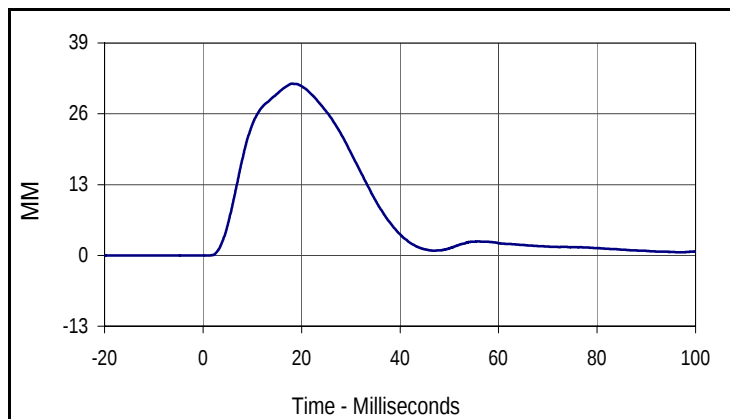
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
006	FIL	600	Nm
Max	Time	Min	Time
14.2	6.8	-42.8	51.5

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

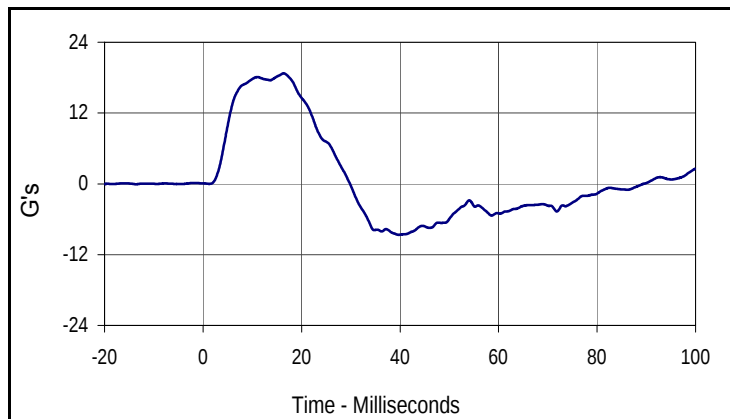
Test Date: 6/4/14
 Test I.D.: 307SH067



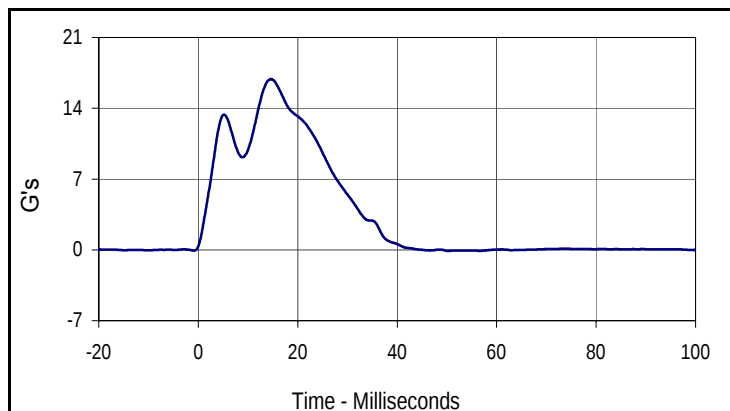
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥180	460	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.2	Pass
	Min	°C		21.0	Pass
Humidity During Soak	Max	%	10.0 to 70.0	37.0	Pass
	Min	%		36.1	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.1	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	36.9	Pass
Impactor Velocity		m/s	4.20 to 4.40	4.31	Pass
Peak Shoulder Deflection		mm	28 to 37	31.5	Pass
Peak Lateral Spine Acceleration Y		G's	17 to 22	18.7	Pass
Peak Impactor Acceleration		G's	13 to 18	16.9	Pass
Overall Test Results				Pass	



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
31.5	18.1	0.0	1.0



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
18.7	16.4	-8.6	39.7



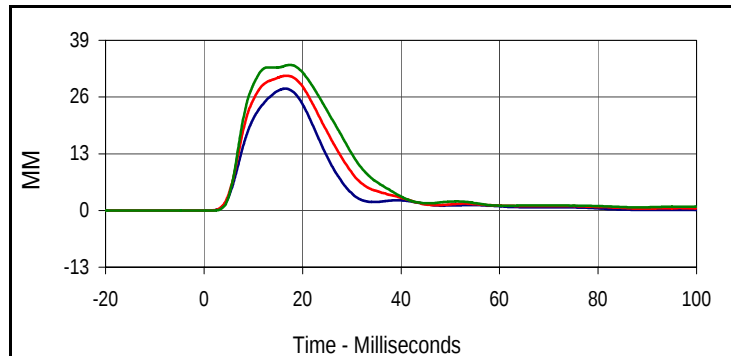
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
16.9	14.6	-0.1	50.2

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

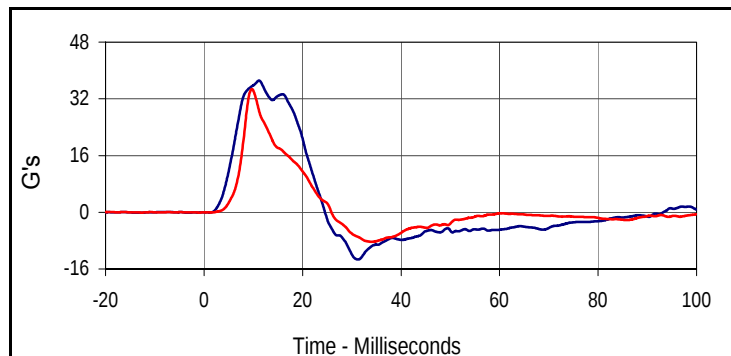
Test Date: 6/4/14
 Test I.D.: 307TWA067



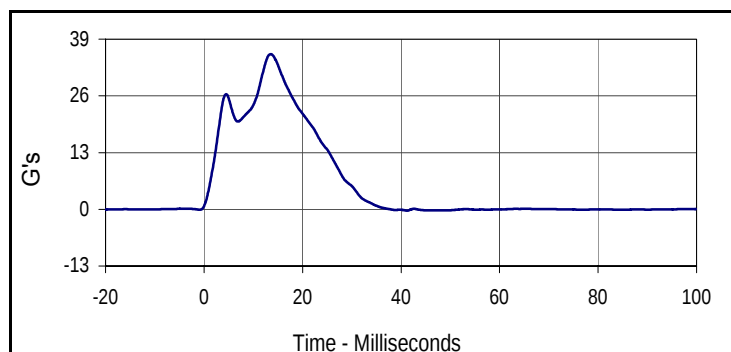
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	505	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	37.0	Pass
	Min		36.1	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	37.0	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.75	Pass
Peak Shoulder Deflection	mm	31 to 40	36.0	Pass
Peak Upper Thorax Rib Deflection	mm	25 to 32	27.9	Pass
Peak Middle Thorax Rib Deflection	mm	30 to 36	30.9	Pass
Peak Lower Thorax Rib Deflection	mm	32 to 38	33.3	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	37.2	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	34.8	Pass
Peak Impactor Acceleration	G's	30 to 36	35.6	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
27.9	16.5	0.0	-8.5
Middle Thorax Deflection			
Max	Time	Min	Time
30.9	16.6	0.0	-20.0
Lower Thorax Deflection			
Max	Time	Min	Time
33.3	17.5	0.0	-9.4



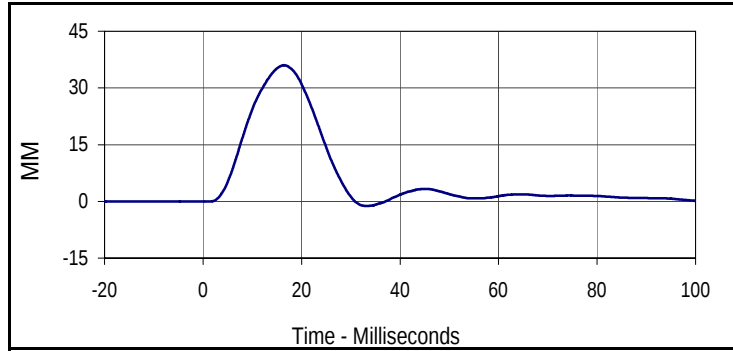
Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
37.2	11.1	-13.3	31.2
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
34.8	9.7	-8.3	34.0



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
35.6	13.5	-0.3	41.2

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

Test Date: 6/4/14
 Test I.D.: 307TWA067



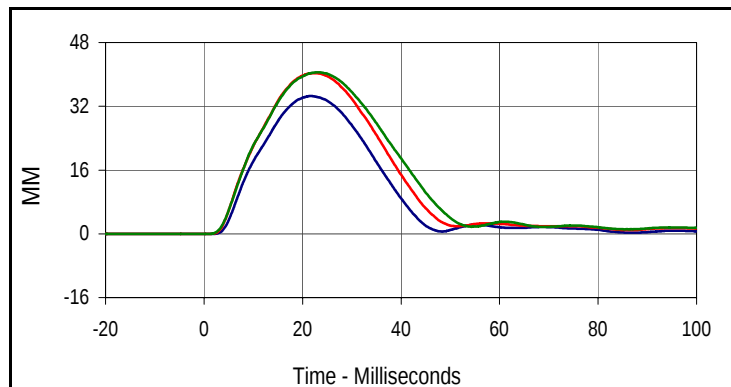
Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
007	FIL	600	MM
Max	Time	Min	Time
36.0	16.4	-1.2	33.2

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

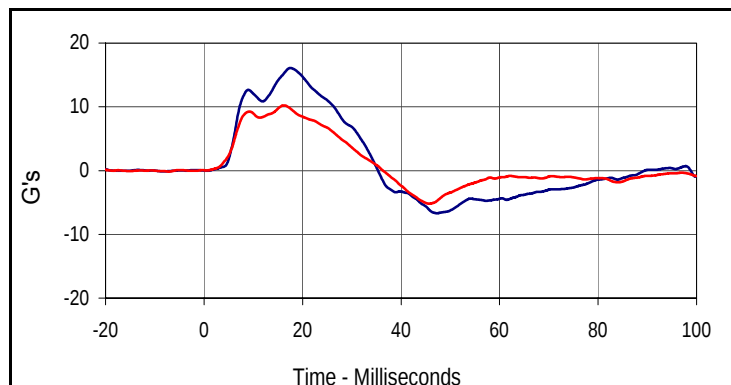
Test Date: 6/4/14
 Test I.D.: 307TWOA067



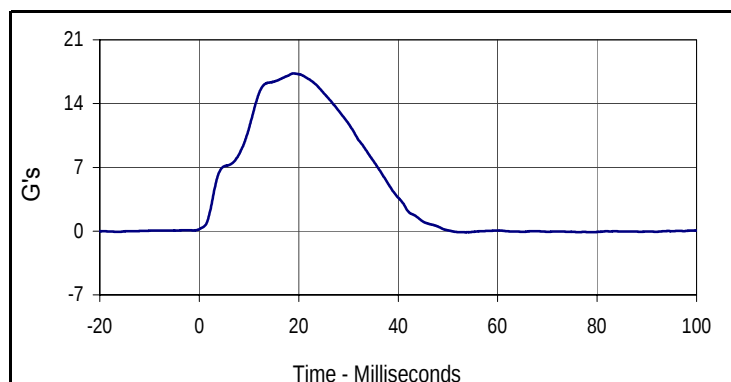
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥180	555	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.2	Pass
	Min	°C		21.0	Pass
Humidity During Soak	Max	%	10.0 to 70.0	37.0	Pass
	Min	%		36.1	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	36.7	Pass
Impactor Velocity		m/s	4.2 to 4.4	4.30	Pass
Peak Upper Thorax Rib Deflection		mm	32 to 40	34.6	Pass
Peak Middle Thorax Rib Deflection		mm	39 to 45	40.3	Pass
Peak Lower Thorax Rib Deflection		mm	35 to 43	40.5	Pass
Peak Upper Spine Y Acceleration		G's	13 to 17	16.1	Pass
Peak Lower Spine Y Acceleration		G's	7 to 11	10.2	Pass
Peak Impactor Acceleration		G's	14 to 18	17.3	Pass
Overall Test Results				Pass	



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
34.6	21.6	0.0	-17.0
Middle Thorax Deflection			
Max	Time	Min	Time
40.3	22.5	0.0	-16.0
Lower Thorax Deflection			
Max	Time	Min	Time
40.5	22.9	0.0	-13.5



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
16.1	17.5	-6.7	47.3
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
10.2	16.2	-5.2	45.8



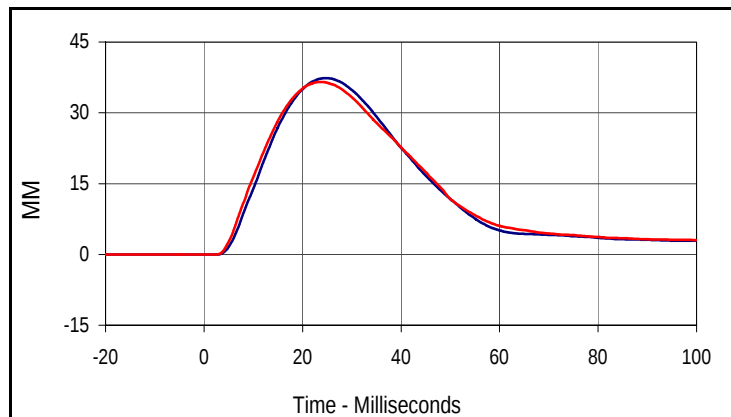
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
17.3	19.0	-0.1	53.5

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

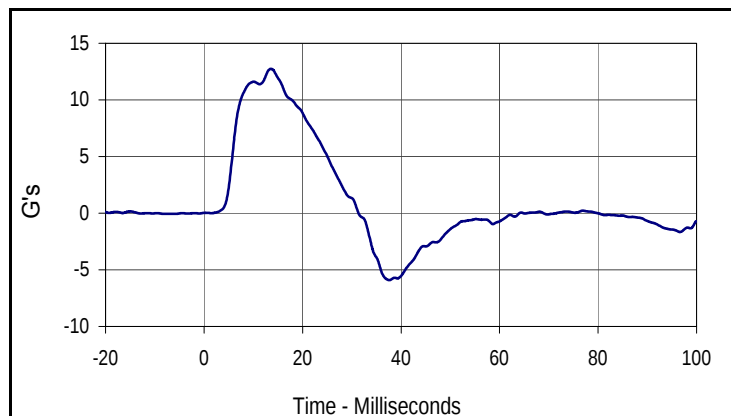
Test Date: 6/4/14
 Test I.D.: 307ABD067



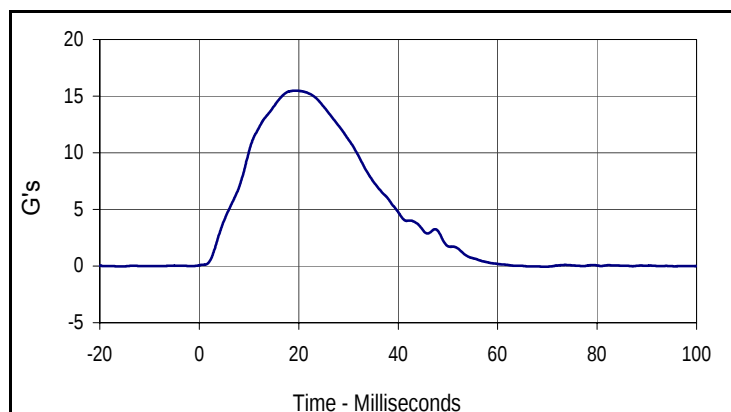
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	590	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	37.0	Pass
	Min		36.1	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	36.5	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.33	Pass
Peak Upper Abdominal Rib Deflection	mm	36 to 47	37.3	Pass
Peak Lower Abdominal Rib Deflection	mm	33 to 44	36.5	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	12.7	Pass
Peak Impactor Acceleration	G's	12 to 16	15.5	Pass
Overall Test Results			Pass	



Curve Description			
Upper Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
37.3	24.6	0.0	-15.3
Curve Description			
Lower Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
36.5	23.6	0.0	-18.4

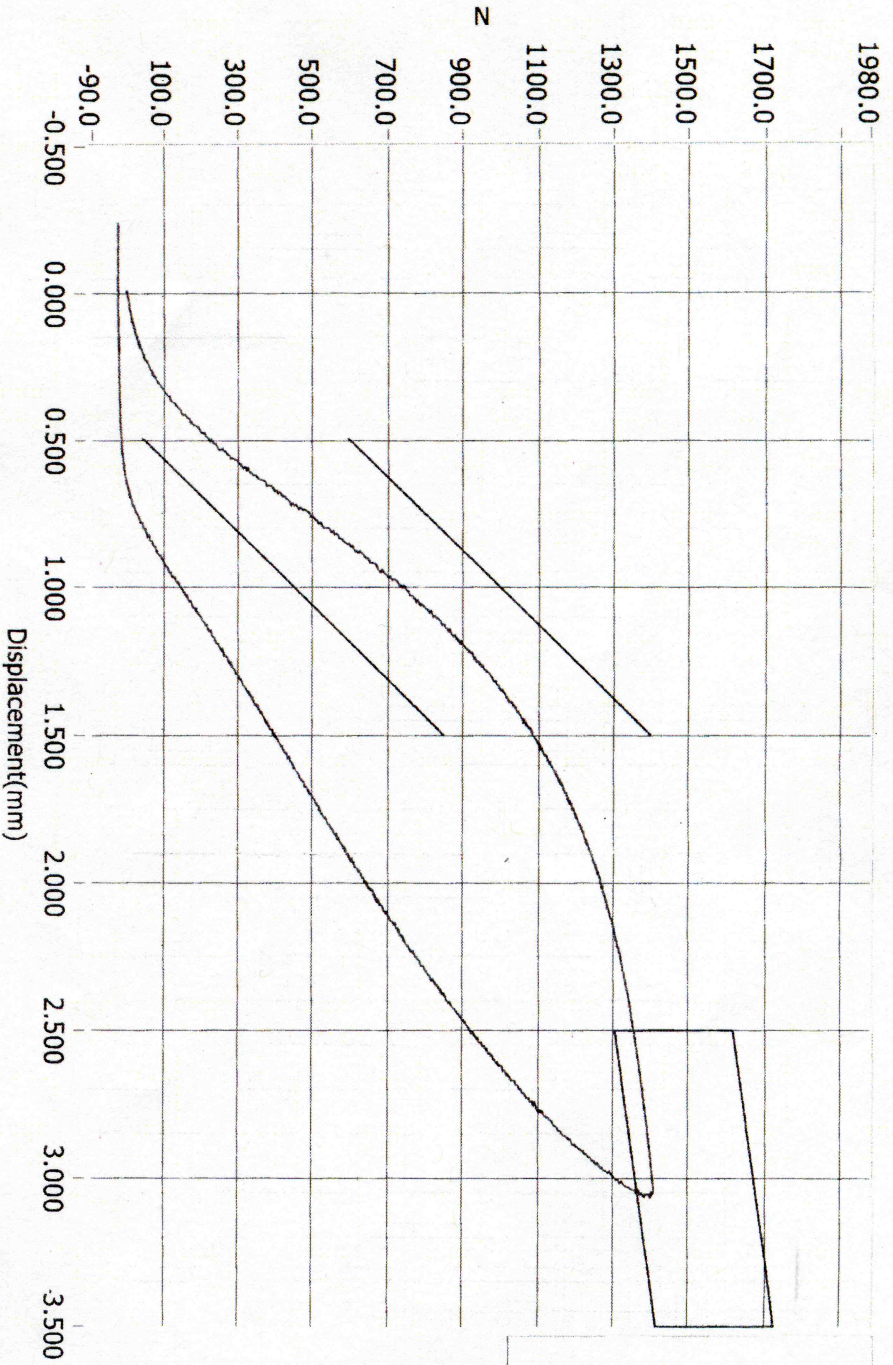


Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
12.7	13.6	-5.9	37.6



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.5	19.4	-0.1	69.5

Resultant Data - SIDIIs Plug Compression



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

ATD Calibration Lab

Test ID

Part Serial Number

Test Date

Test Time

63082

1/21/2013

5:07 PM

Cert ID

ATD Serial Number

ATD Type

N/A

SIDIIs

M20155301 PRE TEST

Current Date : 1/21/2013

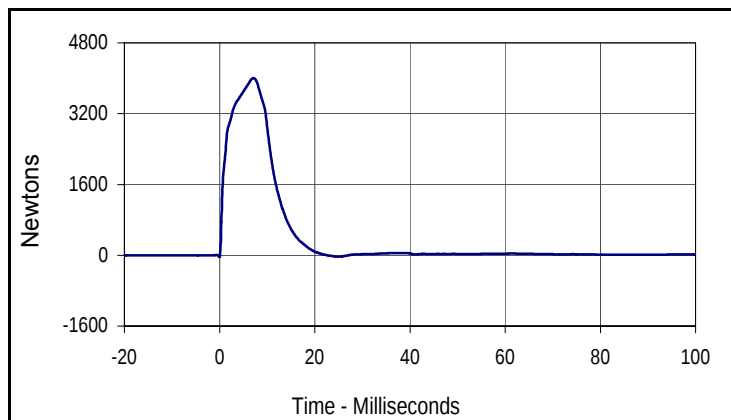
Current Time : 17:08:26

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

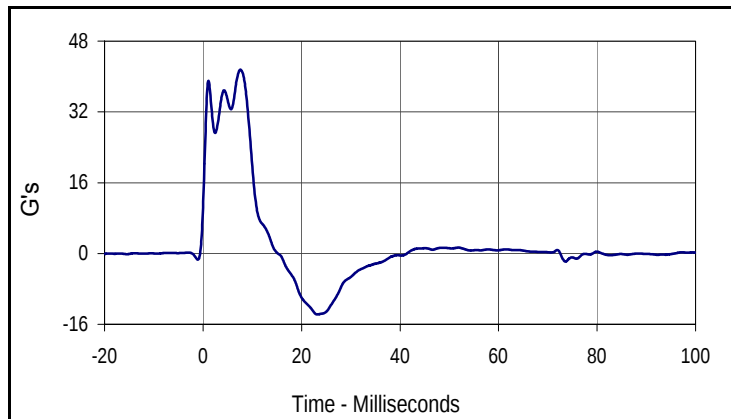
Test Date: 6/4/14
 Test I.D.: 307ACET067



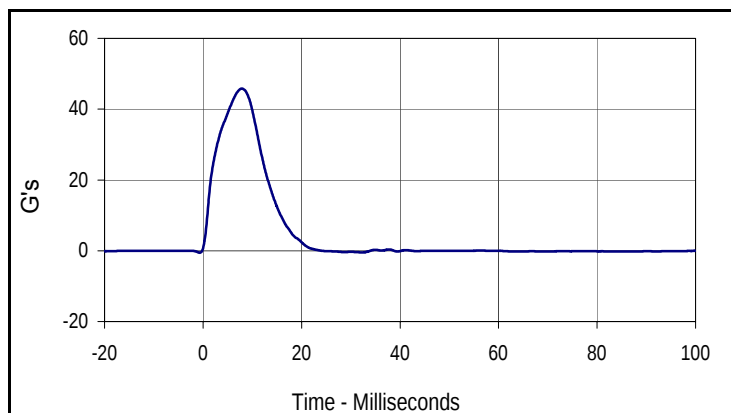
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	635	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	37.0	Pass
	Min		36.1	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	36.7	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.72	Pass
Peak Acetabulum Force Y	Newtons	3600 to 4300	4002.3	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	41.5	Pass
Peak Impactor Acceleration	G's	38 to 47	45.8	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Acetabulum Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4002.3	7.0	-38.9	-0.1



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
41.5	7.6	-13.8	23.2



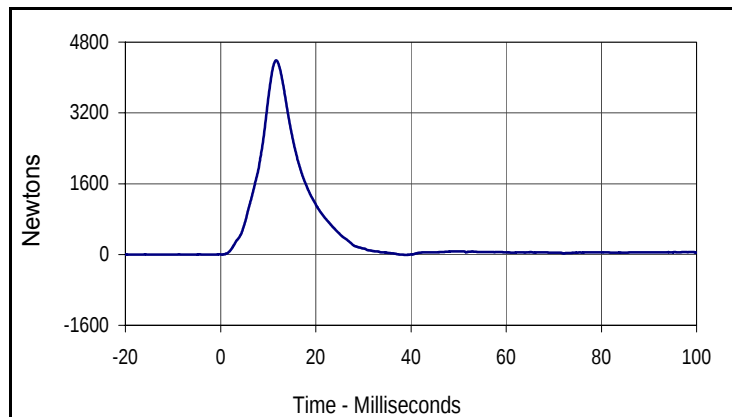
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
45.8	7.9	-0.6	-0.7

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

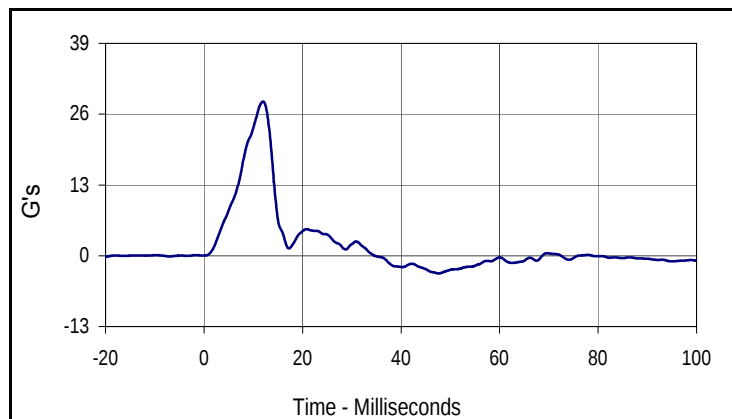
Test Date: 6/4/14
 Test I.D.: 307PL067



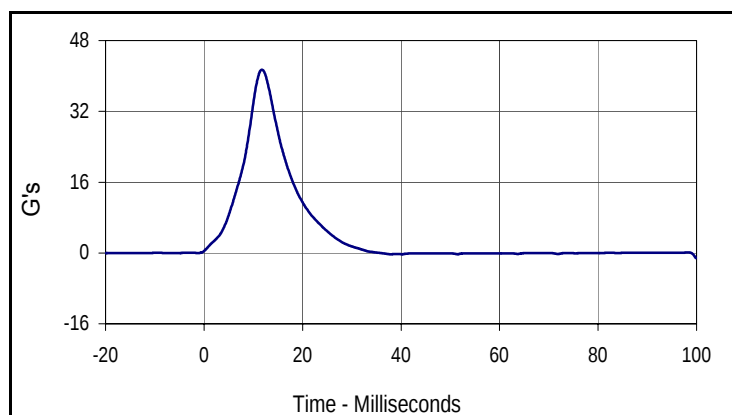
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥180	705	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.2	Pass
	Min	°C		21.0	Pass
Humidity During Soak	Max	%	10.0 to 70.0	37.0	Pass
	Min	%		36.1	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	36.1	Pass
Impactor Velocity		m/s	4.2 to 4.4	4.31	Pass
Peak Iliac Force		Newtons	4100 to 5100	4386.2	Pass
Peak Pelvis Y Acceleration		G's	28 to 39	28.3	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
4386.2	11.7	-6.8	39.2



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
28.3	12.0	-3.3	47.6



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
41.4	11.8	-1.2	99.9

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

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

Test Date: 6/10/14
 Test I.D.: N/A



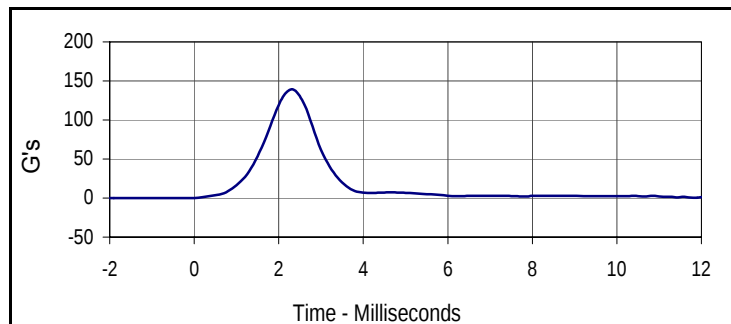
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity		%	10 to 70	30.0	Pass
1	Sitting Height	mm	900 - 918	909	Pass
2	Seat to Shoulder Joint	mm	558 - 572	564	Pass
3	Seat to Lower Face of Thoracic Spine Box	mm	346 - 356	350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

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

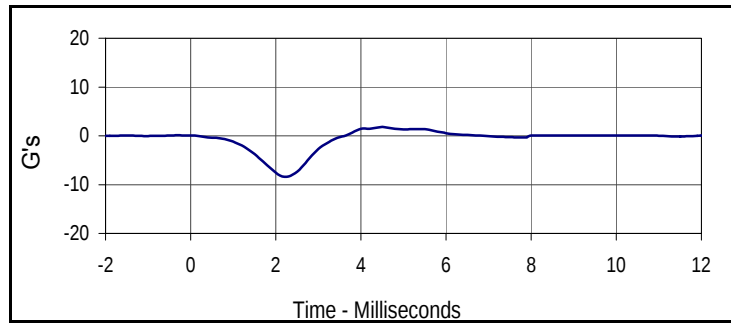
Test Date: 6/10/14
 Test I.D.: F037HD060



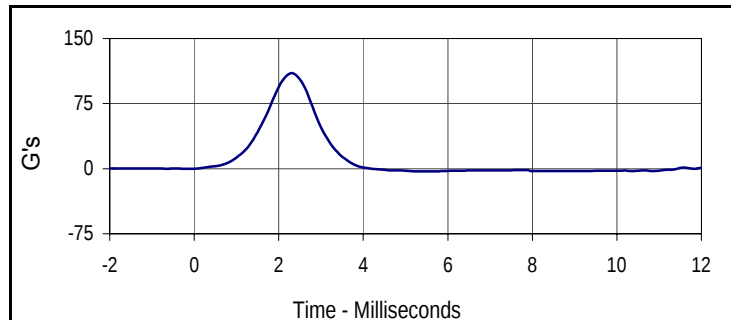
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	400	Pass
Temperature During Soak	Max	20.6 to 22.2	21.1	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	35.8	Pass
	Min		34.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.8	Pass
Peak Head Resultant Acceleration	G's	125 to 155	139.3	Pass
Peak Head X Acceleration	G's	≤15	8.4	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	4.8	Pass
Overall Test Results				Pass



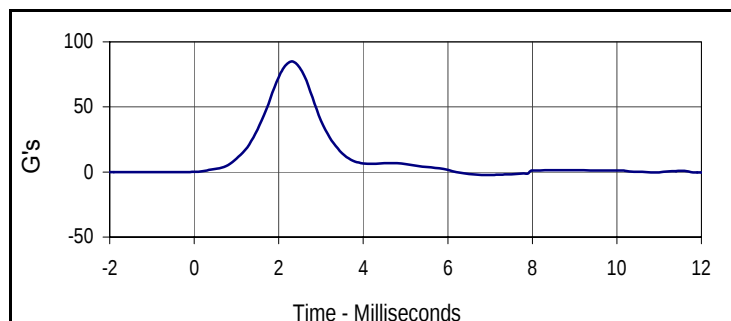
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
139.3	2.3	0.1	-0.8



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
1.8	4.5	-8.4	2.2



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
110.0	2.3	-3.1	5.7



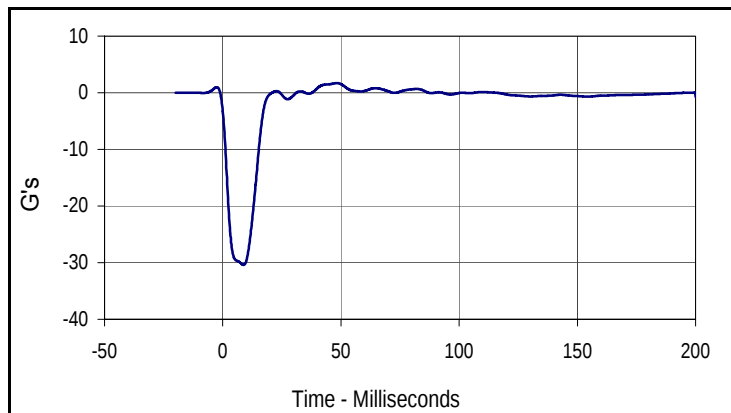
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
85.0	2.3	-2.3	6.9

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

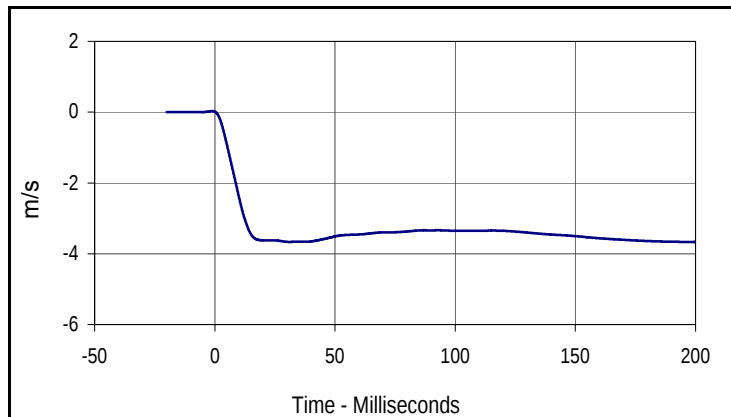
Test Date: 6/10/14
 Test I.D.: F037NB060



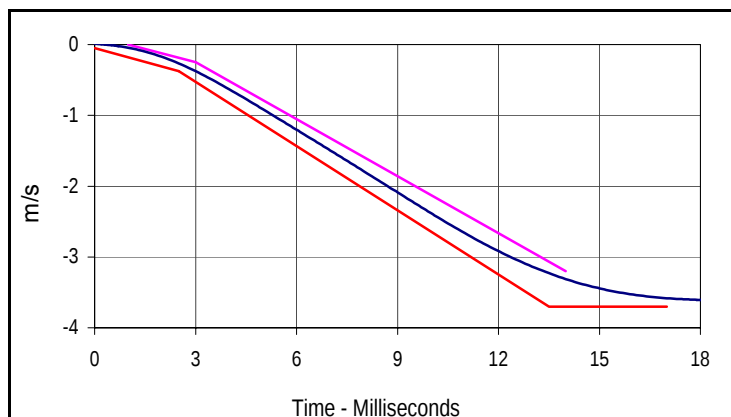
Tested Parameter	Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time	Minutes	≥240	435	Pass
Temperature During Soak	Max	20.6 to 22.2	21.1	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	35.8	Pass
	Min		34.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.7	Pass
Pendulum Velocity	m/s	3.3 to 3.5	3.46	Pass
Headform Flexion	Max	49 to 59	56.8	Pass
	Time	54 to 66	55.7	Pass
Headform Flexion Decay (Peak to Zero)	msec	53 to 88	57.6	Pass
Overall Test Results				Pass



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
1.7	48.3	-30.4	8.8



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.1	-3.7	199.9



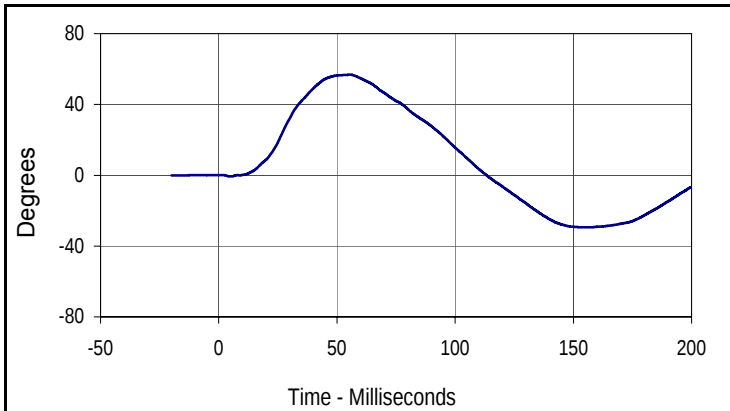
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.1	-3.7	199.9

Velocity Corridors

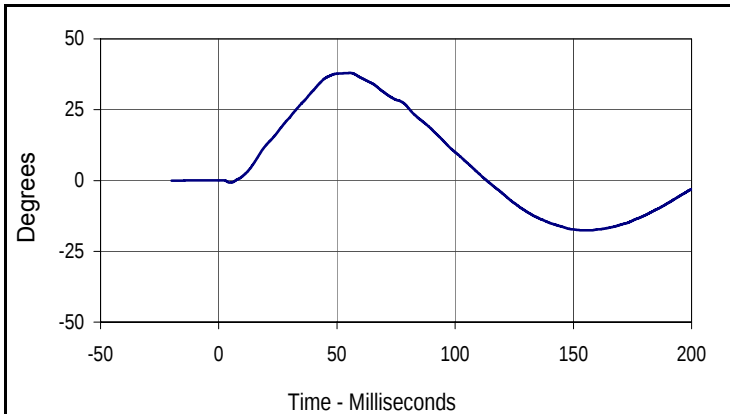
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.0	-0.03	2.5	-0.375
14.0	-3.20	13.5	-3.70
		17.0	-3.70

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

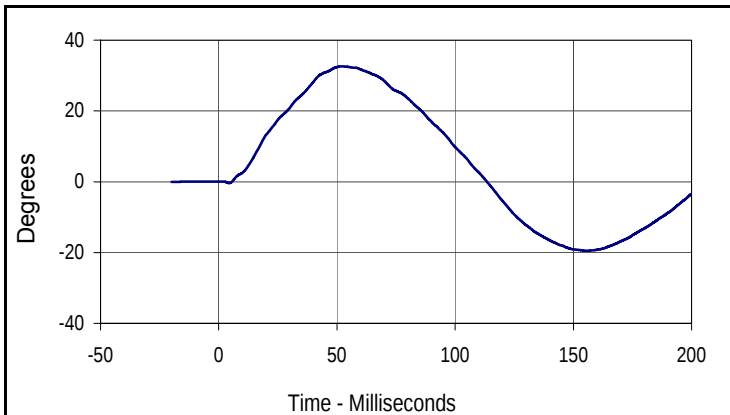
Test Date: 6/10/14
 Test I.D.: F037NB060



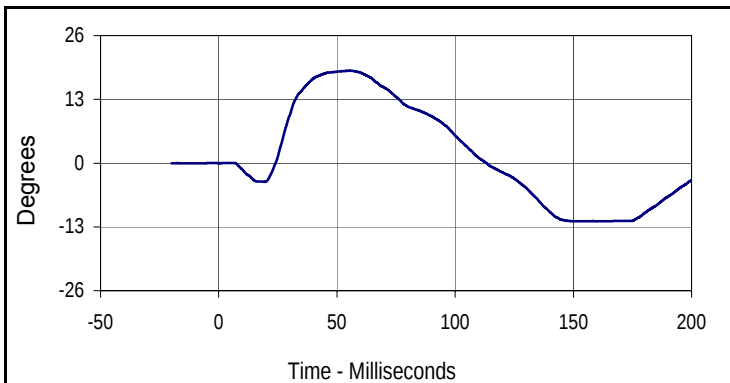
Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	180	Degrees
Max	Time	Min	Time
56.8	55.7	-29.4	154.9



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
004	FIL	180	Degrees
Max	Time	Min	Time
38.0	55.6	-17.6	154.9



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
005	FIL	180	Degrees
Max	Time	Min	Time
32.6	52.0	-19.5	155.6



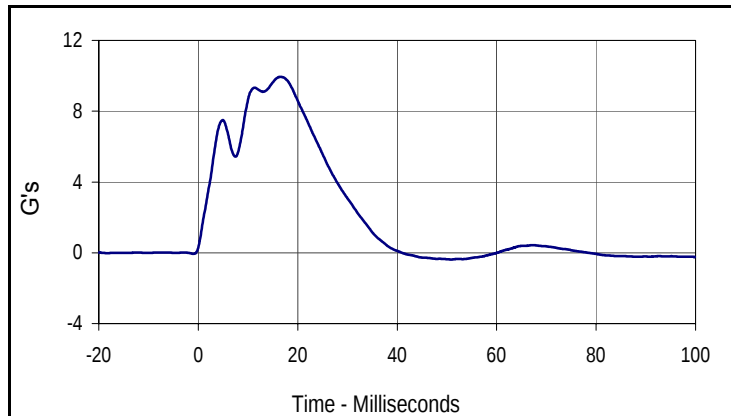
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
006	FIL	180	Degrees
Max	Time	Min	Time
18.9	55.7	-11.8	163.6

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

Test Date: 6/10/14
 Test I.D.: F037SH060



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	500	Pass
Temperature During Soak	Max	20.6 to 22.2	21.1	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	35.8	Pass
	Min		34.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.6	Pass
Pendulum Speed	m/s	4.2 to 4.4	4.30	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	9.9	Pass
Overall Test Results				Pass



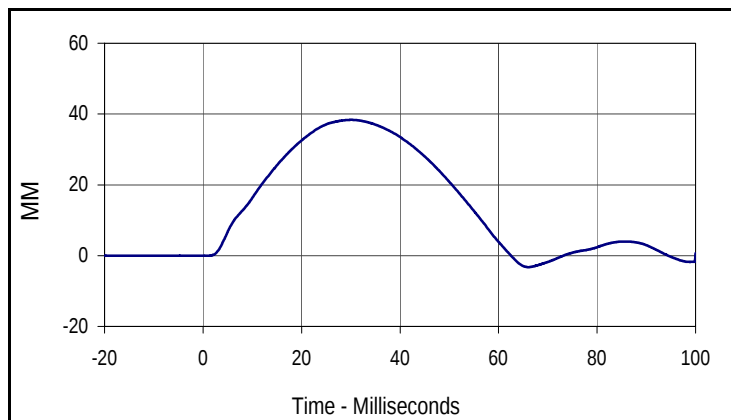
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
9.9	16.5	-0.4	50.9

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

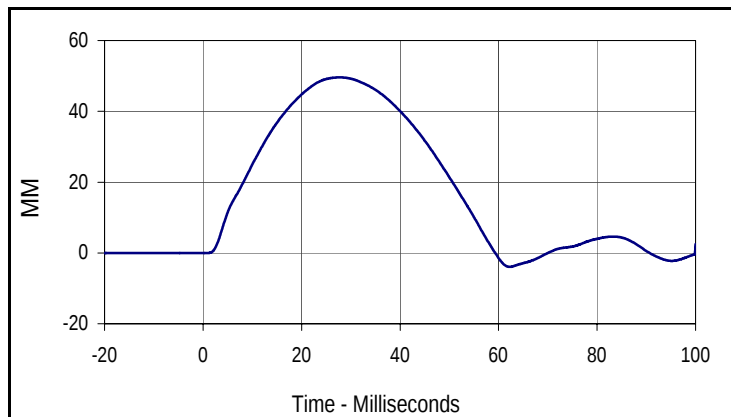
Test Date: 6/10/14
 Test I.D.: F037RB1060



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	555	Pass
Temperature During Soak	Max	20.6 to 22.2	21.1	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	35.8	Pass
	Min		34.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.6	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	38.4	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	49.6	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
38.4	30.1	-3.2	66.0



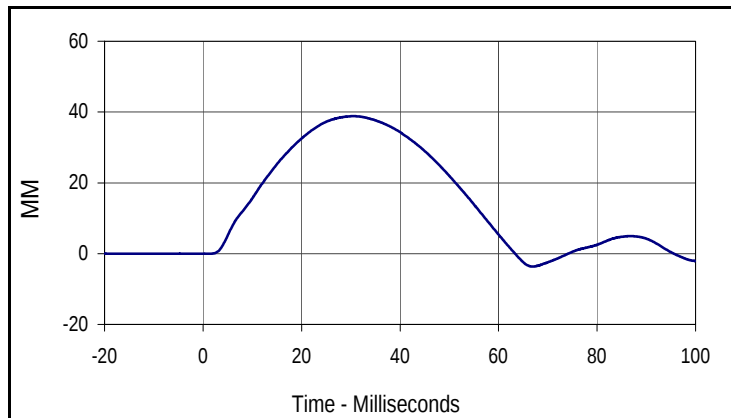
Curve Description			
Upper Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
49.6	27.7	-3.9	62.2

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

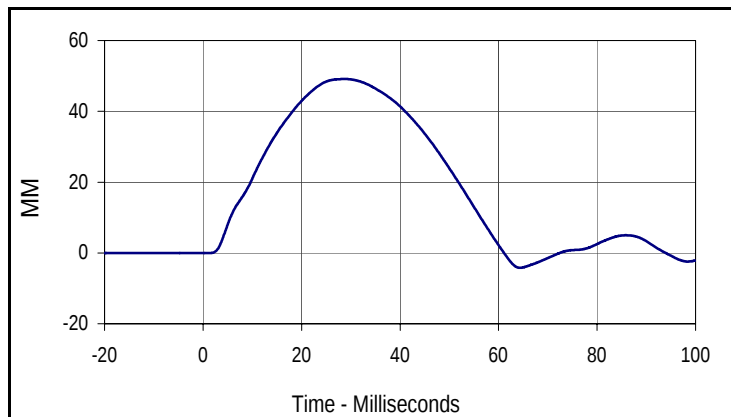
Test Date: 6/10/14
 Test I.D.: F037RB2060



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	600	Pass
Temperature During Soak	Max	20.6 to 22.2	21.1	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	35.8	Pass
	Min		34.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.5	Pass
Peak Rib Deflection at 459 +/- 5 mm Drop Height	mm	36 to 40	38.8	Pass
Peak Rib Deflection at 815 +/- 8 mm Drop Height	mm	46 to 51	49.1	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
38.8	30.5	-3.7	66.9



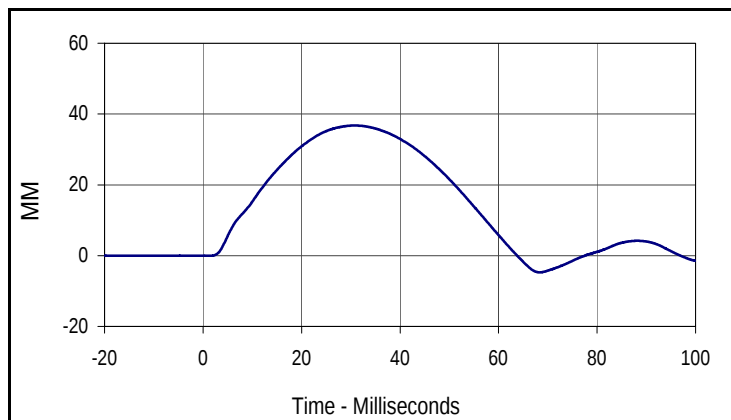
Curve Description			
Middle Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
49.1	28.7	-4.2	64.4

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

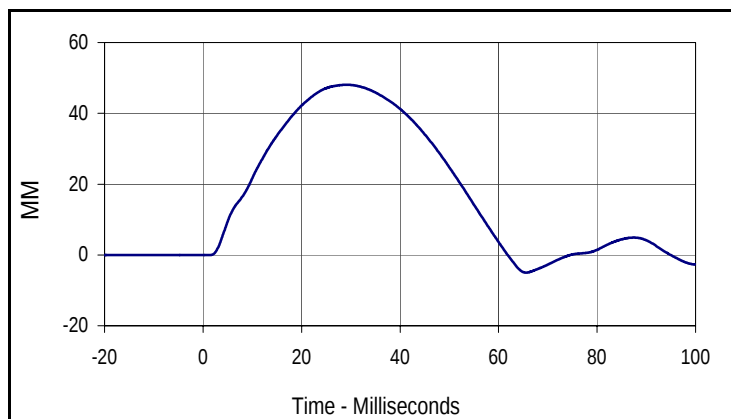
Test Date: 6/10/14
 Test I.D.: F037RB3060



Tested Parameter	Units	Specification	Result	Pass/Fail
Rib Module Soak Time	Minutes	≥240	645	Pass
Temperature During Soak	Max	20.6 to 22.2	21.1	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	35.8	Pass
	Min		34.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.4	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	48.1	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
36.8	30.8	-4.7	68.4



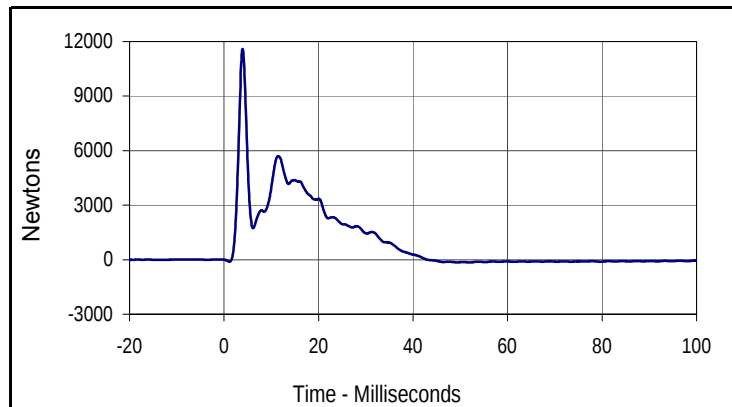
Curve Description			
Lower Rib Deflection (815 mm Drop Height)			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max	Time	Min	Time
48.1	29.1	-5.0	65.6

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

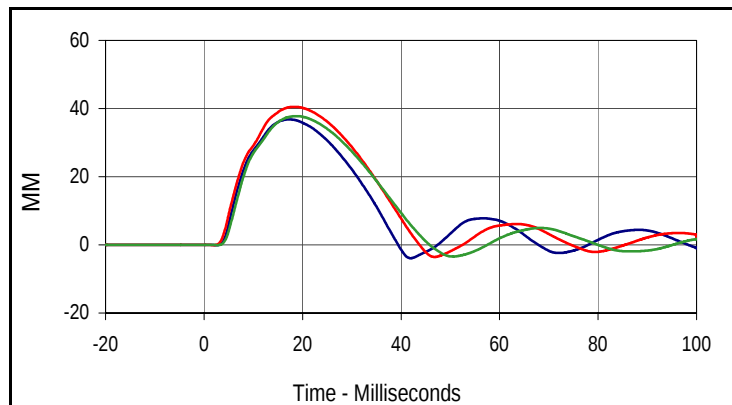
Test Date: 6/10/14
 Test I.D.: F037TH060



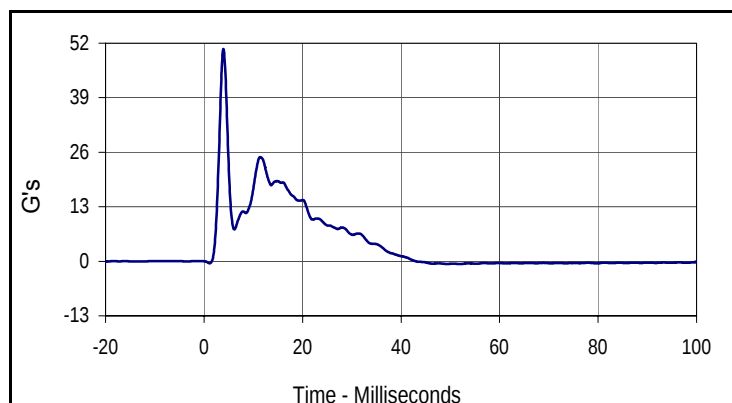
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	690	Pass
Temperature During Soak	Max °C	20.6 to 22.2	21.1	Pass
	Min °C		21.0	Pass
Humidity During Soak	Max %	10.0 to 70.0	35.8	Pass
	Min %		34.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.2	Pass
Peak Impactor Velocity	m/s	5.4 to 5.6	5.52	Pass
Peak Impactor Force	N	5100 to 6200	5696.3	Pass
	msec	> 6.0 msec	11.4	Pass
Peak Upper Rib Deflection	mm	34 to 41	36.8	Pass
Peak Middle Rib Deflection	mm	37 to 45	40.5	Pass
Peak Lower Rib Deflection	mm	37 to 44	37.8	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
11597.9	3.9	-150.0	51.8



Curve Description			
Upper, Middle, Lower Rib Deflections			
Plot No.	Type	SAE Class	Units
002	FIL	180	MM
Max (Upper)	Time	Min (Upper)	Time
36.8	17.2	-3.9	42.0
Max (Middle)	Time	Min (Middle)	Time
40.5	18.3	-3.6	46.8
Max (Lower)	Time	Min (Lower)	Time
37.8	18.8	-3.4	50.5



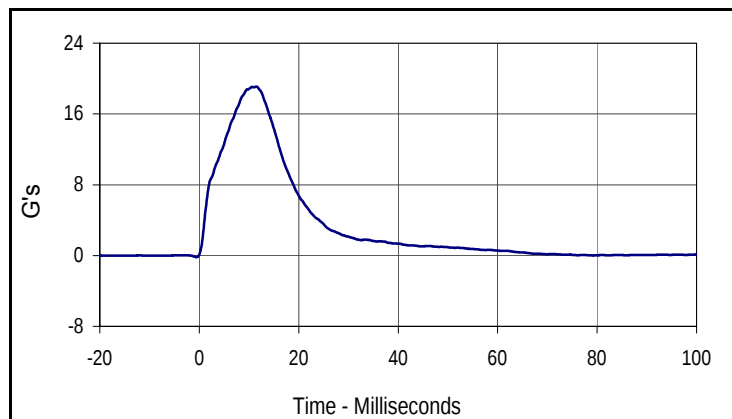
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
50.6	3.9	-0.7	51.8

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

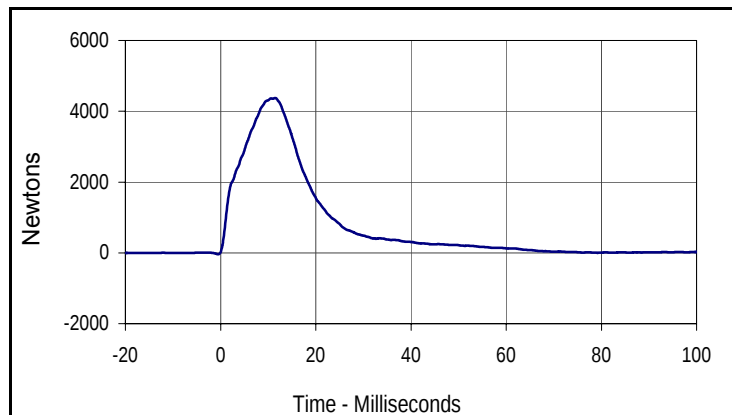
Test Date: 6/10/14
 Test I.D.: F037ABD060



Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	760	Pass
Temperature During Soak	Max	20.6 to 22.2	21.1	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	35.8	Pass
	Min		34.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.1	Pass
Probe Velocity	m/s	3.9 to 4.1	4.03	Pass
Peak Impactor Force	N	4000 to 4800	4374.3	Pass
	msec	10.6 to 13.0	11.5	Pass
Sum of Abdominal Forces	N	2200 to 2700	2418.7	Pass
	msec	10.0 to 12.3	10.9	Pass
Overall Test Results				Pass



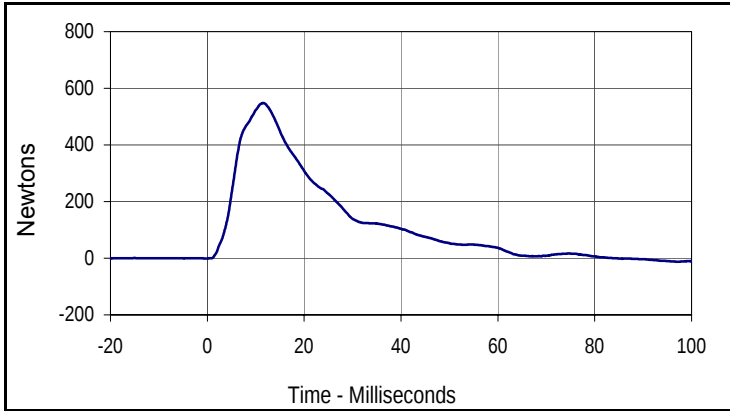
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
19.1	11.5	-0.2	-0.5



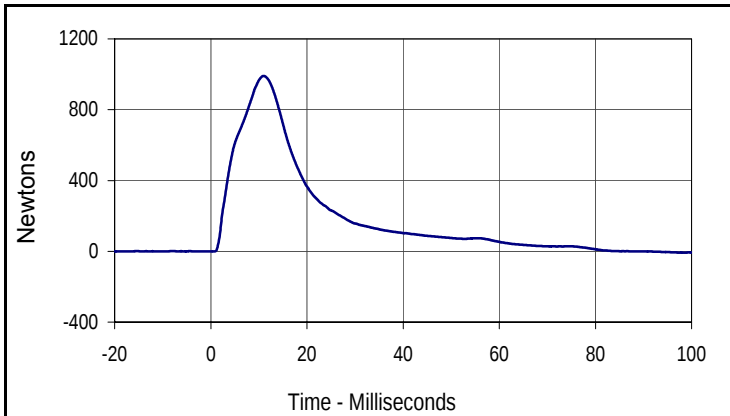
Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
4374.3	11.5	-40.5	-0.5

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

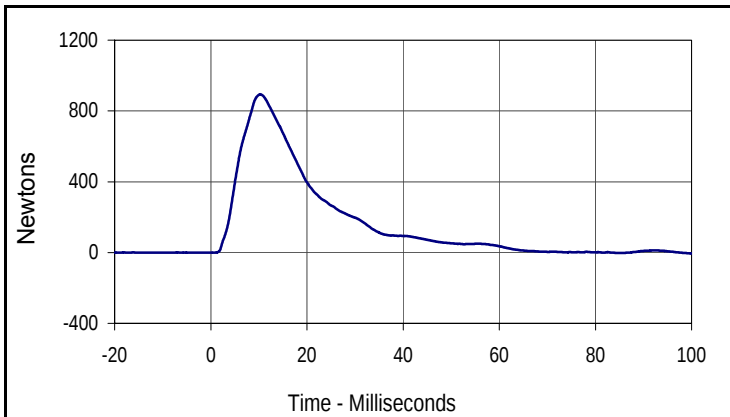
Test Date: 6/10/14
 Test I.D.: F037ABD060



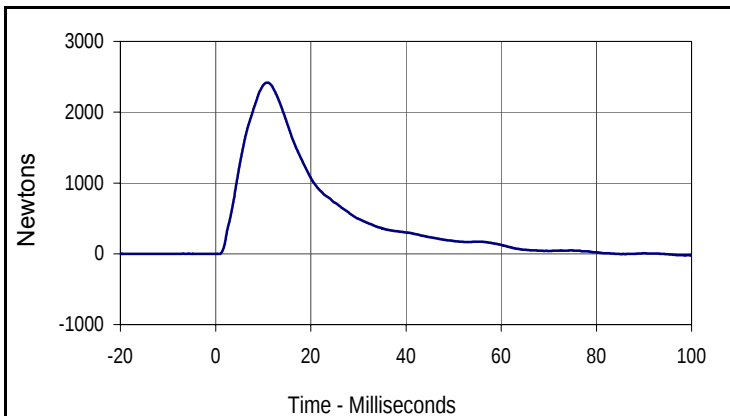
Curve Description			
Front Abdomen Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtontons
Max	Time	Min	Time
548.2	11.6	-12.7	97.1



Curve Description			
Middle Abdomen Force			
Plot No.	Type	SAE Class	Units
004	FIL	600	Newtontons
Max	Time	Min	Time
990.4	11.0	-7.9	98.5



Curve Description			
Rear Abdomen Force			
Plot No.	Type	SAE Class	Units
005	FIL	600	Newtontons
Max	Time	Min	Time
893.7	10.3	-7.1	103.4



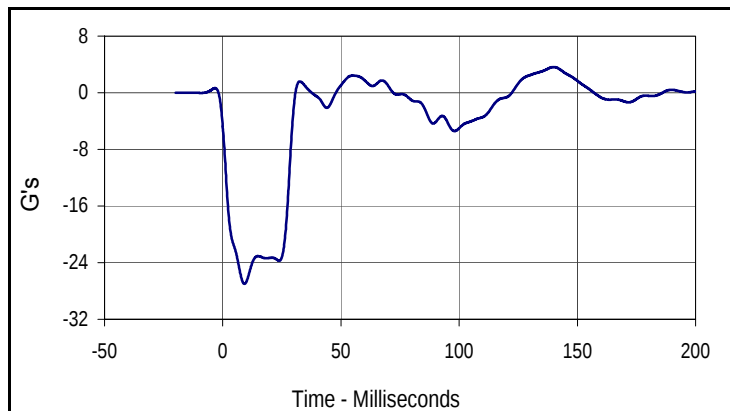
Curve Description			
Abdomen Sum Resultant			
Plot No.	Type	SAE Class	Units
006	RES	600	Newtontons
Max	Time	Min	Time
2418.7	10.9	-22.3	98.5

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

Test Date: 6/10/14
 Test I.D.: F037LB060



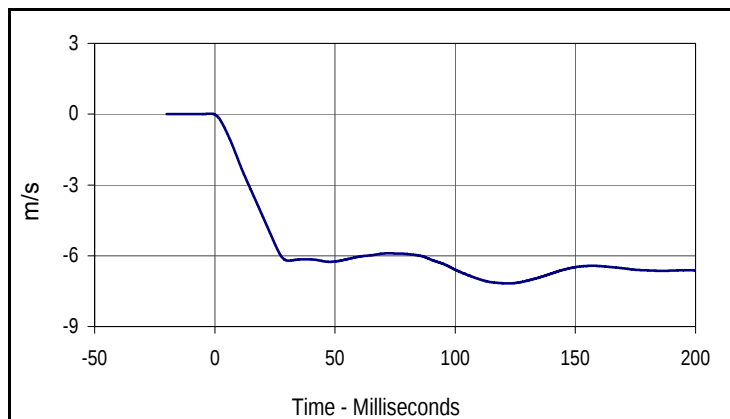
Tested Parameter	Units	Specification	Result	Pass/Fail
Lumbar Spine Assembly Soak Time	Minutes	≥240	835	Pass
Temperature During Soak	Max	20.6 to 22.2	21.1	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	35.8	Pass
	Min		34.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.1	Pass
Pendulum Velocity	m/s	5.95 to 6.15	6.01	Pass
Headform Rotation	Max	45 to 55	49.0	Pass
	Time	39 to 53	44.7	Pass
Time of Decay to Zero Angle from Peak	msec	37 to 57	41.6	Pass
Overall Test Results				Pass



Curve Description

Pendulum Deceleration

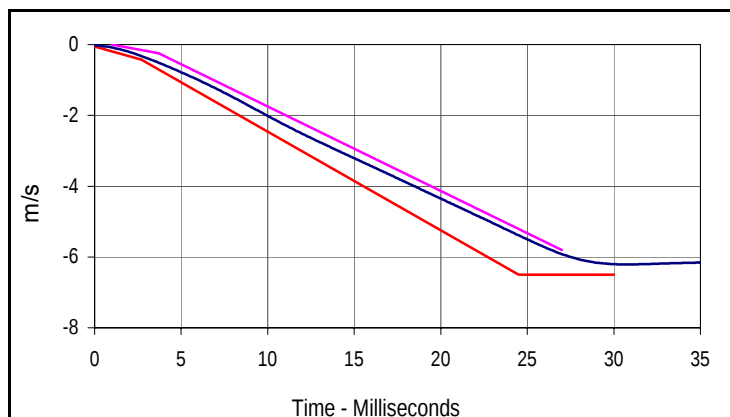
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
3.6	140.5	-27.0	9.8



Curve Description

Pendulum Velocity

Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.2	-7.2	122.9



Curve Description

Pendulum Velocity

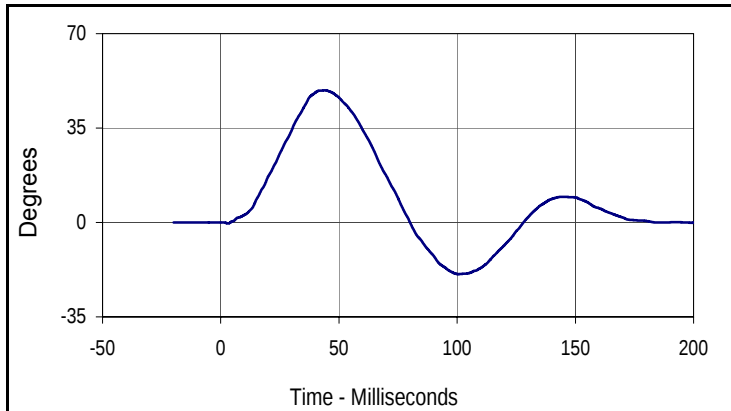
Plot No.	Type	SAE Class	Units
002	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.2	-7.2	122.9

Velocity Corridors

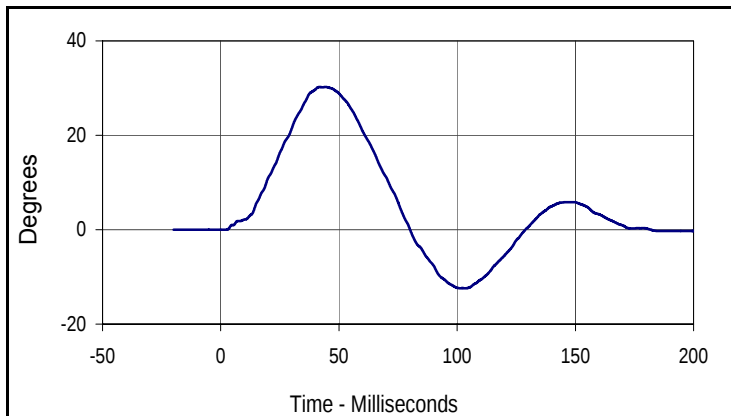
Upper Boundary		Lower Boundary	
Time (msec)	Velocity (m/s)	Time (msec)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.7	-0.24	2.7	-0.425
27.0	-5.80	24.5	-6.50
		30.0	-6.50

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

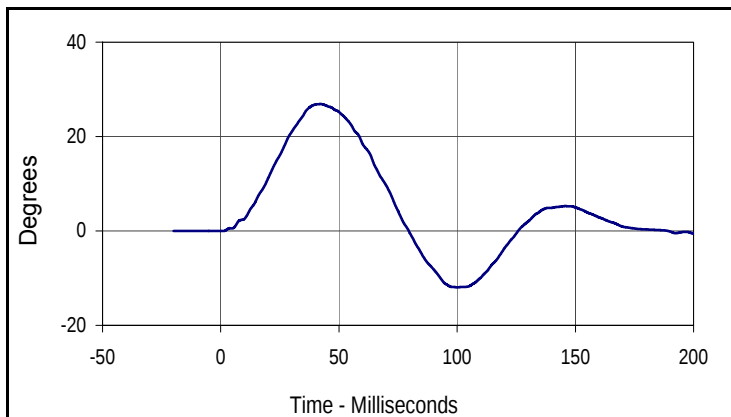
Test Date: 6/10/14
 Test I.D.: F037LB060



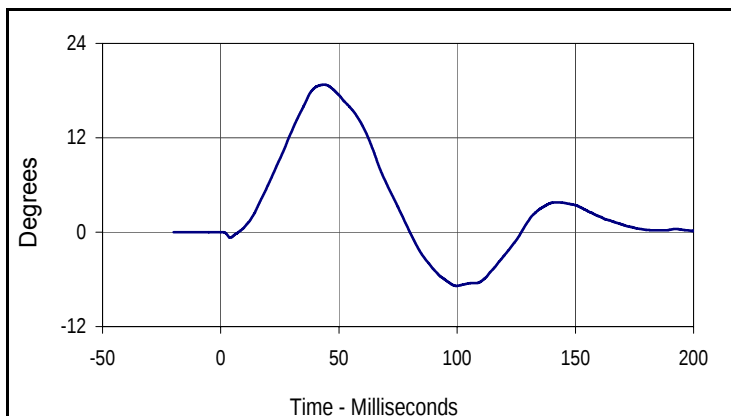
Curve Description			
Headform Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	180	Degrees
Max	Time	Min	Time
49.0	44.7	-19.2	101.1



Curve Description			
Potentiometer A			
Plot No.	Type	SAE Class	Units
004	FIL	180	Degrees
Max	Time	Min	Time
30.2	45.0	-12.4	104.3



Curve Description			
Potentiometer B			
Plot No.	Type	SAE Class	Units
005	FIL	180	Degrees
Max	Time	Min	Time
26.9	42.9	-12.0	100.6



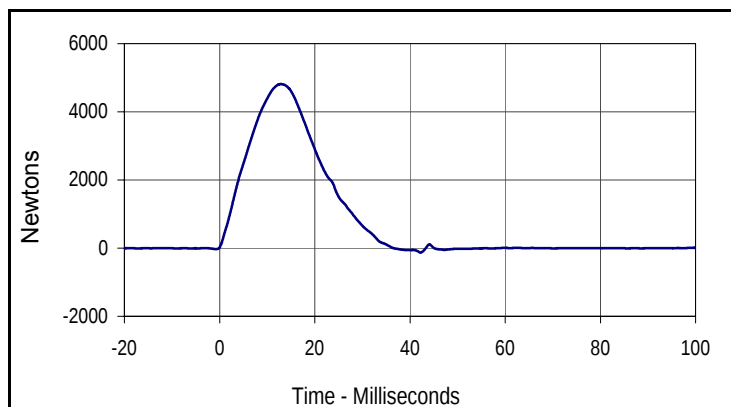
Curve Description			
Potentiometer C			
Plot No.	Type	SAE Class	Units
006	FIL	180	Degrees
Max	Time	Min	Time
18.7	44.4	-6.8	100.4

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

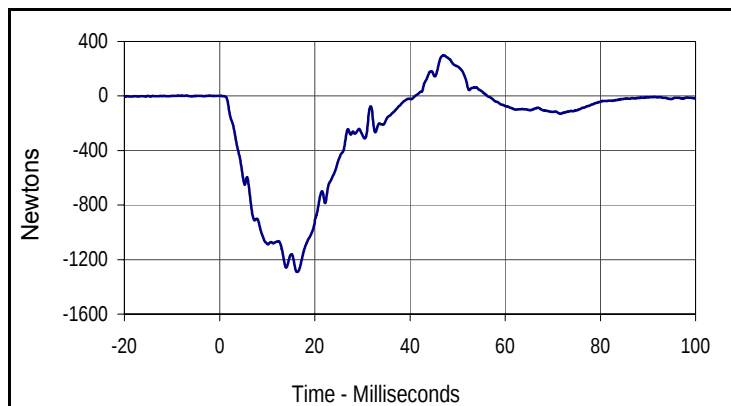
Test Date: 6/10/14
 Test I.D.: F037PL060



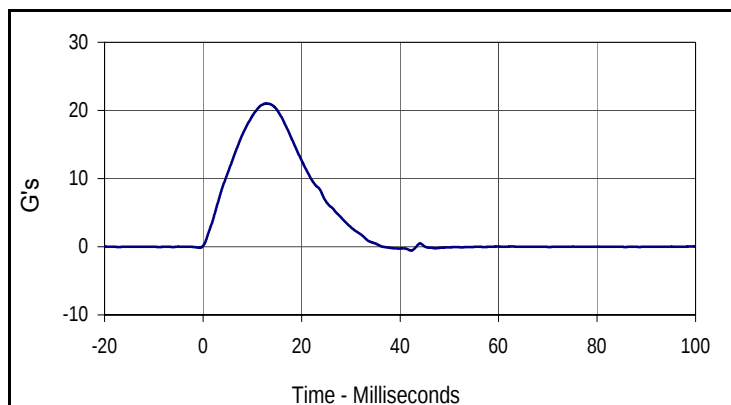
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	890	Pass
Temperature During Soak	Max	20.6 to 22.2	21.1	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	35.8	Pass
	Min		34.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.8	Pass
Pendulum Velocity	m/s	4.2 to 4.4	4.33	Pass
Peak Impactor Force	N	4700 to 5400	4813.3	Pass
	msec	11.8 to 16.1	12.9	Pass
Peak Pubic Symphysis Load	N	-1230 to -1590	-1291.1	Pass
	msec	12.2 to 17.0	16.3	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
Plot No.	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
4813.3	12.9	-130.1	42.2



Curve Description			
Pubic Symphysis Force Y			
Plot No.	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
298.2	47.1	-1291.1	16.3



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
21.0	12.9	-0.6	42.2

Test Program: SID IIs External Measurements
 ATD Serial No.: 307

Test Date: 6/11/14
 Test I.D.: N/A



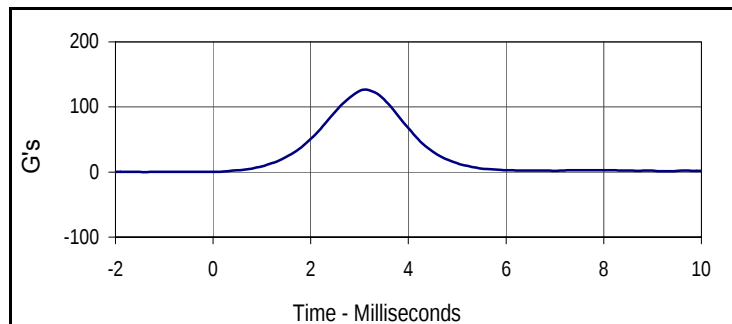
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.0	Pass
Laboratory Relative Humidity		%	10 to 70	35	Pass
A	Sitting Height	mm	772 - 788	778	Pass
B	Shoulder Pivot Height	mm	437 - 453	443	Pass
C	H-Point Height	mm	79 - 89	85	Pass
D	H-Point from Seatback	mm	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

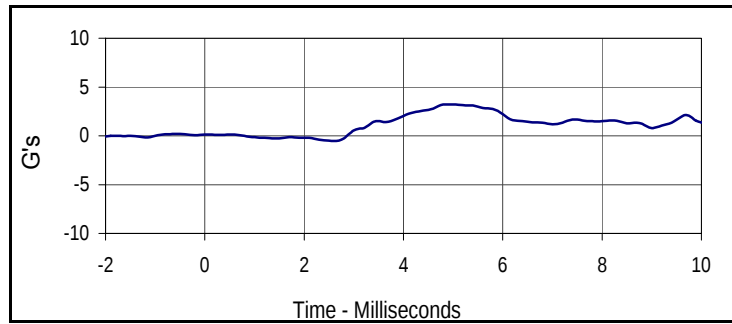
Test Date: 6/11/14
 Test I.D.: 307HD068



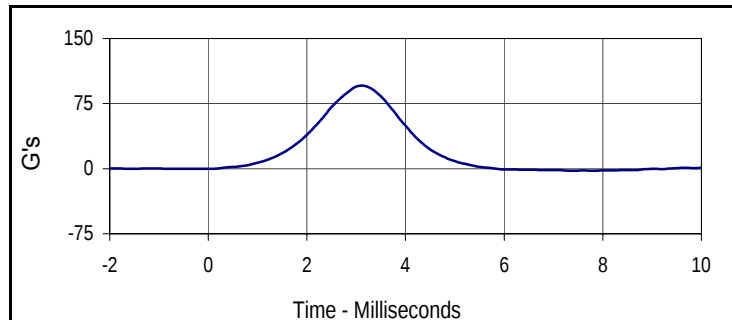
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	450	Pass
Temperature During Soak	Max	18.9 to 25.6	21.1	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass
	Min		33.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.5	Pass
Peak Head Resultant Acceleration	G's	115 to 137	126.6	Pass
Peak Head X Acceleration	G's	<15	3.2	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	2.9	Pass
Overall Test Results				Pass



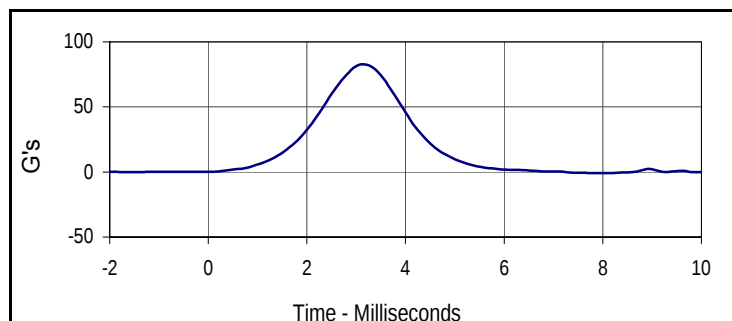
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
126.6	3.1	0.1	-1.4



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



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



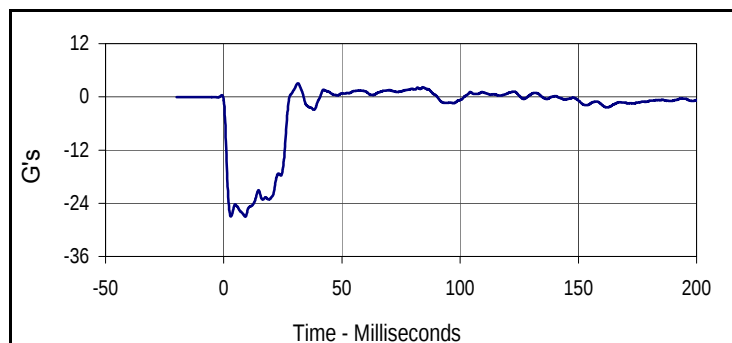
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
82.7	3.1	-0.9	7.9

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

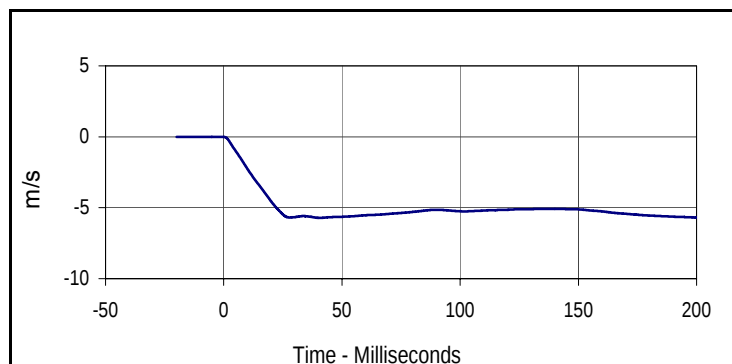
Test Date: 6/11/14
 Test I.D.: 307NB068



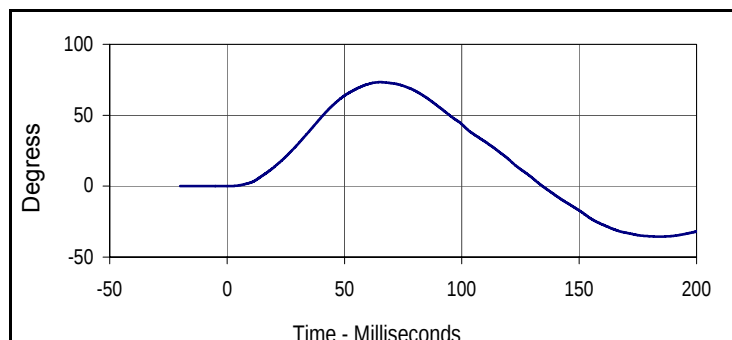
Tested Parameter	Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time	Minutes	≥240	525	Pass
Temperature During Soak	Max	20.6 to 22.2	21.1	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass
	Min		33.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.4	Pass
Pendulum Velocity	m/s	5.51 to 5.63	5.54	Pass
Pendulum Deceleration	10 msec	-2.20 to -2.80	-2.26	Pass
	15 msec	-3.30 to -4.10	-3.42	Pass
	20 msec	-4.40 to -5.40	-4.54	Pass
	25 msec	-5.40 to -6.10	-5.47	Pass
	25-100 msec	-5.50 to -6.20	-5.71	Pass
D-Plane Rotation	Max	71 to 81	73.3	Pass
	Time	50 to 70	65.2	Pass
Peak Occipital Condyle Moment	Nm	-36 to -44	-42.3	Pass
Decaying Moment Time to Cross 0 Nm	msec	102 to 126	113.4	Pass
Overall Test Results			Pass	



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



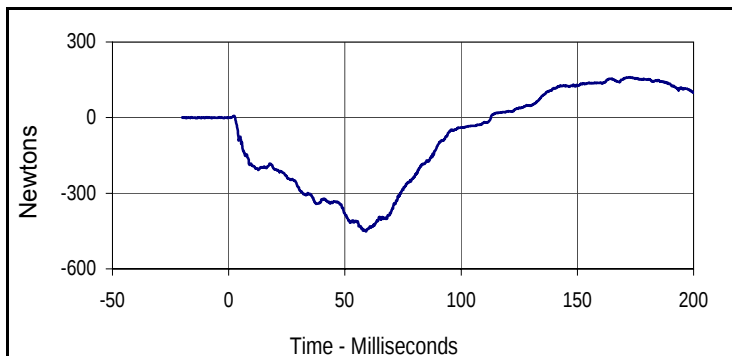
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	180	m/s
Max	Time	Min	Time
0.0	-20.0	-5.7	40.8



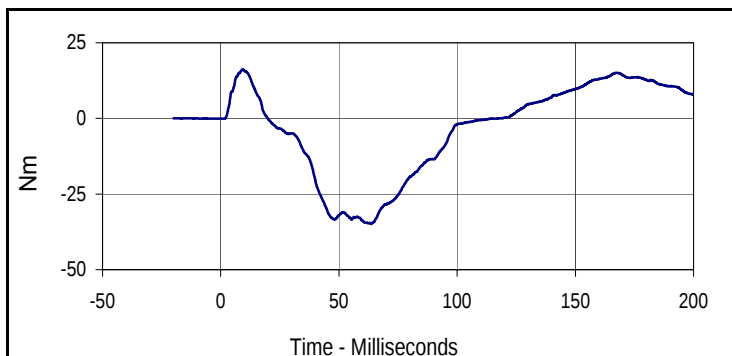
Curve Description			
D-Plane Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	Degress
Max	Time	Min	Time
73.3	65.2	-35.5	184.0

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

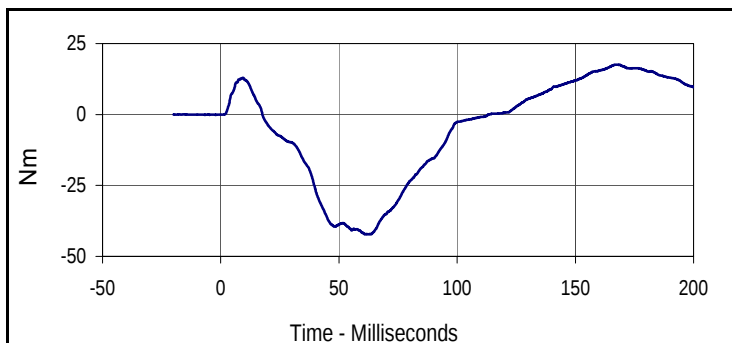
Test Date: 6/11/14
 Test I.D.: 307NB068



Curve Description			
Neck Force Y			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
160.7	172.7	-451.3	59.1



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



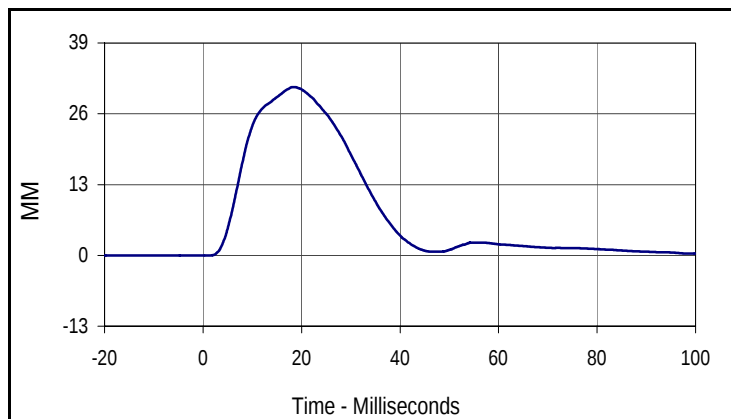
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
006	FIL	600	Nm
Max	Time	Min	Time
17.6	167.3	-42.3	62.5

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

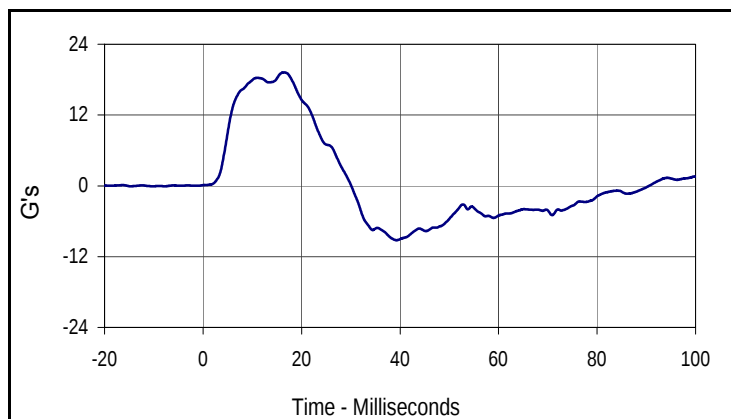
Test Date: 6/11/14
 Test I.D.: 307SH068



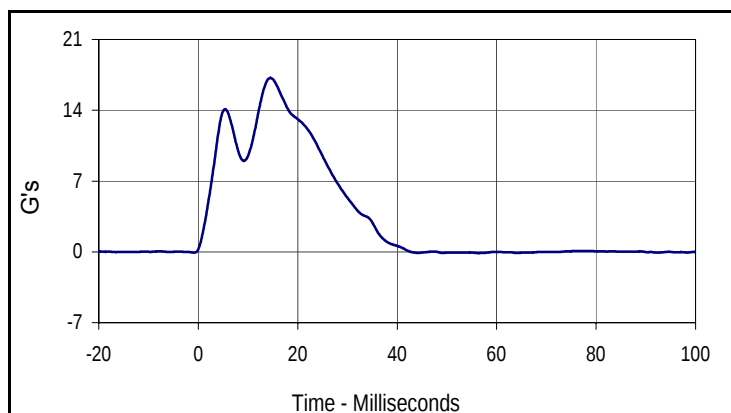
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥180	580	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.1	Pass
	Min	°C		21.0	Pass
Humidity During Soak	Max	%	10.0 to 70.0	34.7	Pass
	Min	%		33.6	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.0	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	34.3	Pass
Impactor Velocity		m/s	4.20 to 4.40	4.32	Pass
Peak Shoulder Deflection		mm	28 to 37	30.9	Pass
Peak Lateral Spine Acceleration Y		G's	17 to 22	19.2	Pass
Peak Impactor Acceleration		G's	13 to 18	17.2	Pass
Overall Test Results				Pass	



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
30.9	18.3	0.0	-2.2



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
19.2	16.4	-9.2	39.3



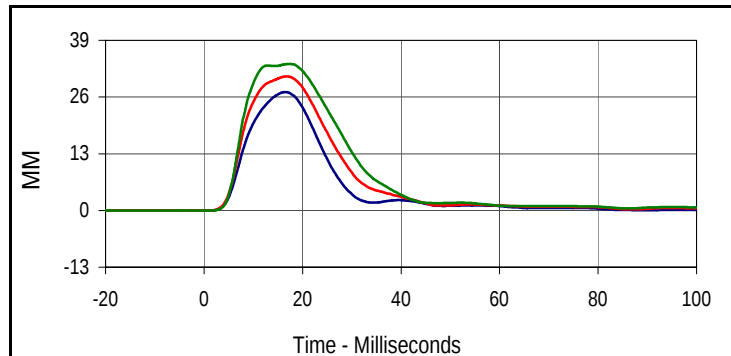
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
17.2	14.5	-0.1	56.3

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

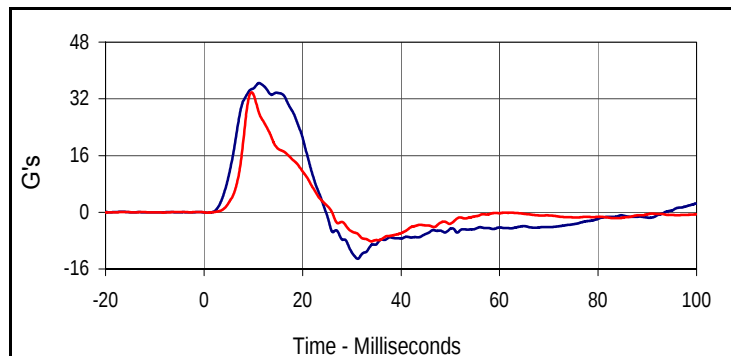
Test Date: 6/11/14
 Test I.D.: 307TWA068



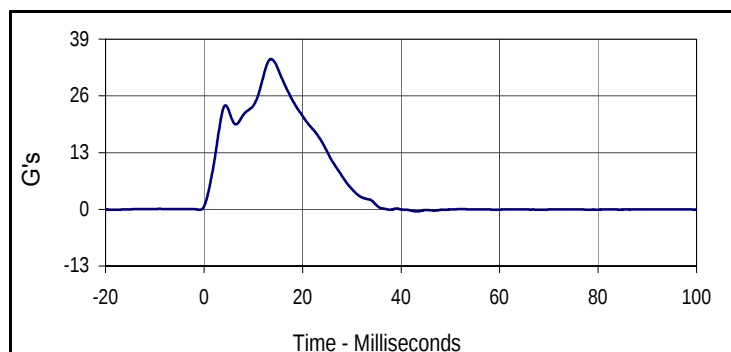
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	625	Pass
Temperature During Soak	Max	20.6 to 22.2	21.1	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass
	Min		33.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.0	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.69	Pass
Peak Shoulder Deflection	mm	31 to 40	34.3	Pass
Peak Upper Thorax Rib Deflection	mm	25 to 32	27.1	Pass
Peak Middle Thorax Rib Deflection	mm	30 to 36	30.7	Pass
Peak Lower Thorax Rib Deflection	mm	32 to 38	33.6	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	36.5	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	33.8	Pass
Peak Impactor Acceleration	G's	30 to 36	34.4	Pass
Overall Test Results				Pass



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
27.1	16.5	0.0	-20.0
Middle Thorax Deflection			
Max	Time	Min	Time
30.7	16.9	0.0	-18.8
Lower Thorax Deflection			
Max	Time	Min	Time
33.6	17.2	0.0	-19.6



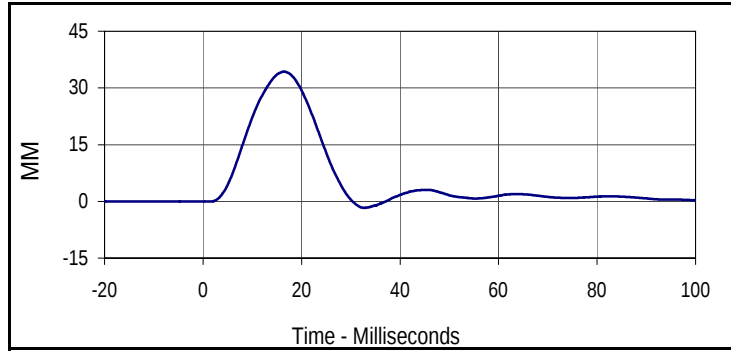
Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
36.5	11.2	-13.1	31.2
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
33.8	9.7	-8.2	34.0



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
34.4	13.6	-0.5	43.3

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

Test Date: 6/11/14
 Test I.D.: 307TWA068



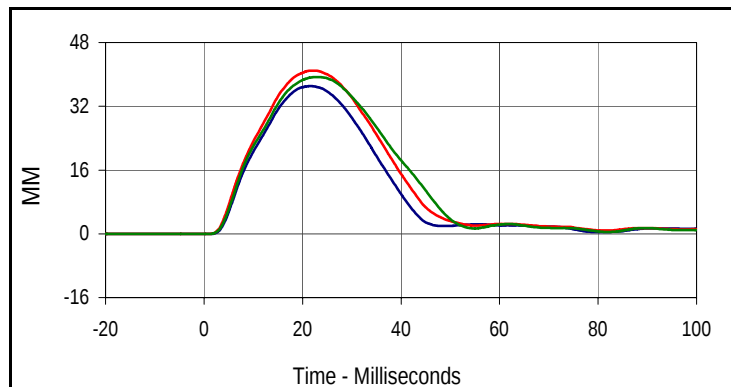
Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
007	FIL	600	MM
Max	Time	Min	Time
34.3	16.4	-1.7	32.8

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

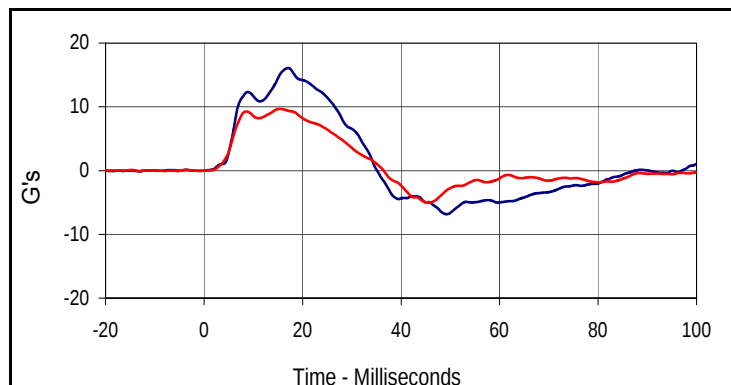
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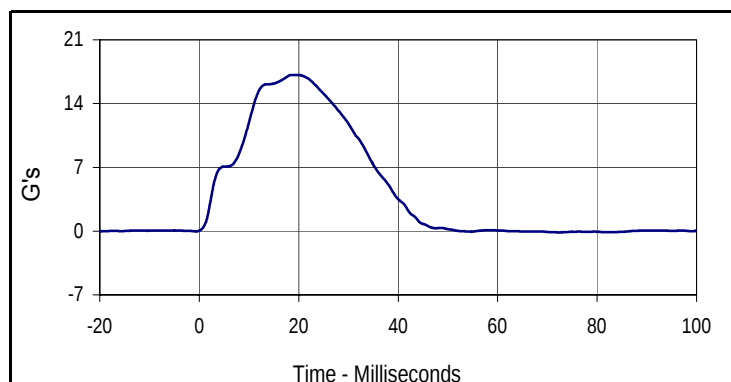
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥180	675	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.1	Pass
	Min	°C		21.0	Pass
Humidity During Soak	Max	%	10.0 to 70.0	34.7	Pass
	Min	%		33.6	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.0	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	33.9	Pass
Impactor Velocity		m/s	4.2 to 4.4	4.30	Pass
Peak Upper Thorax Rib Deflection		mm	32 to 40	37.1	Pass
Peak Middle Thorax Rib Deflection		mm	39 to 45	41.0	Pass
Peak Lower Thorax Rib Deflection		mm	35 to 43	39.3	Pass
Peak Upper Spine Y Acceleration		G's	13 to 17	16.1	Pass
Peak Lower Spine Y Acceleration		G's	7 to 11	9.7	Pass
Peak Impactor Acceleration		G's	14 to 18	17.1	Pass
Overall Test Results				Pass	



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
37.1	21.7	0.0	1.3
Middle Thorax Deflection			
Max	Time	Min	Time
41.0	22.0	0.0	0.2
Lower Thorax Deflection			
Max	Time	Min	Time
39.3	22.8	0.0	1.2



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
16.1	17.1	-6.8	49.3
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
9.7	15.3	-5.1	45.6



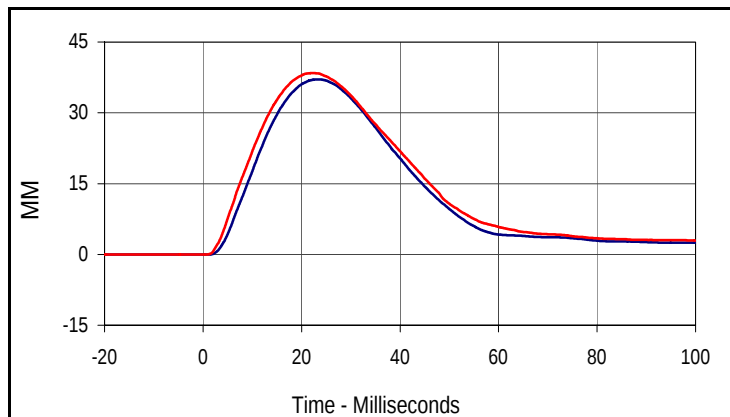
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
17.1	19.9	-0.1	72.5

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

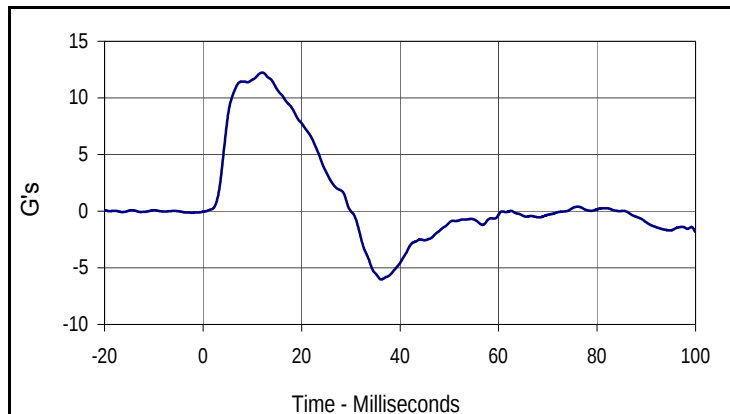
Test Date: 6/11/14
 Test I.D.: 307ABD068



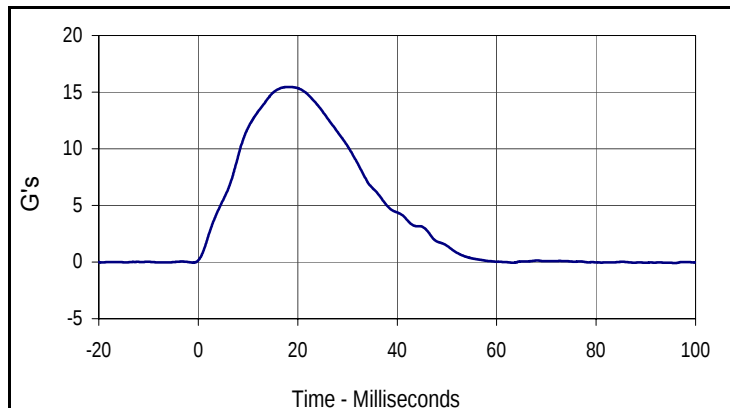
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	710	Pass
Temperature During Soak	Max	20.6 to 22.2	21.1	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass
	Min		33.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.8	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.28	Pass
Peak Upper Abdominal Rib Deflection	mm	36 to 47	37.1	Pass
Peak Lower Abdominal Rib Deflection	mm	33 to 44	38.4	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	12.2	Pass
Peak Impactor Acceleration	G's	12 to 16	15.5	Pass
Overall Test Results			Pass	



Curve Description			
Upper Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
37.1	23.1	0.0	-12.5
Curve Description			
Lower Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
38.4	22.2	0.0	-17.0

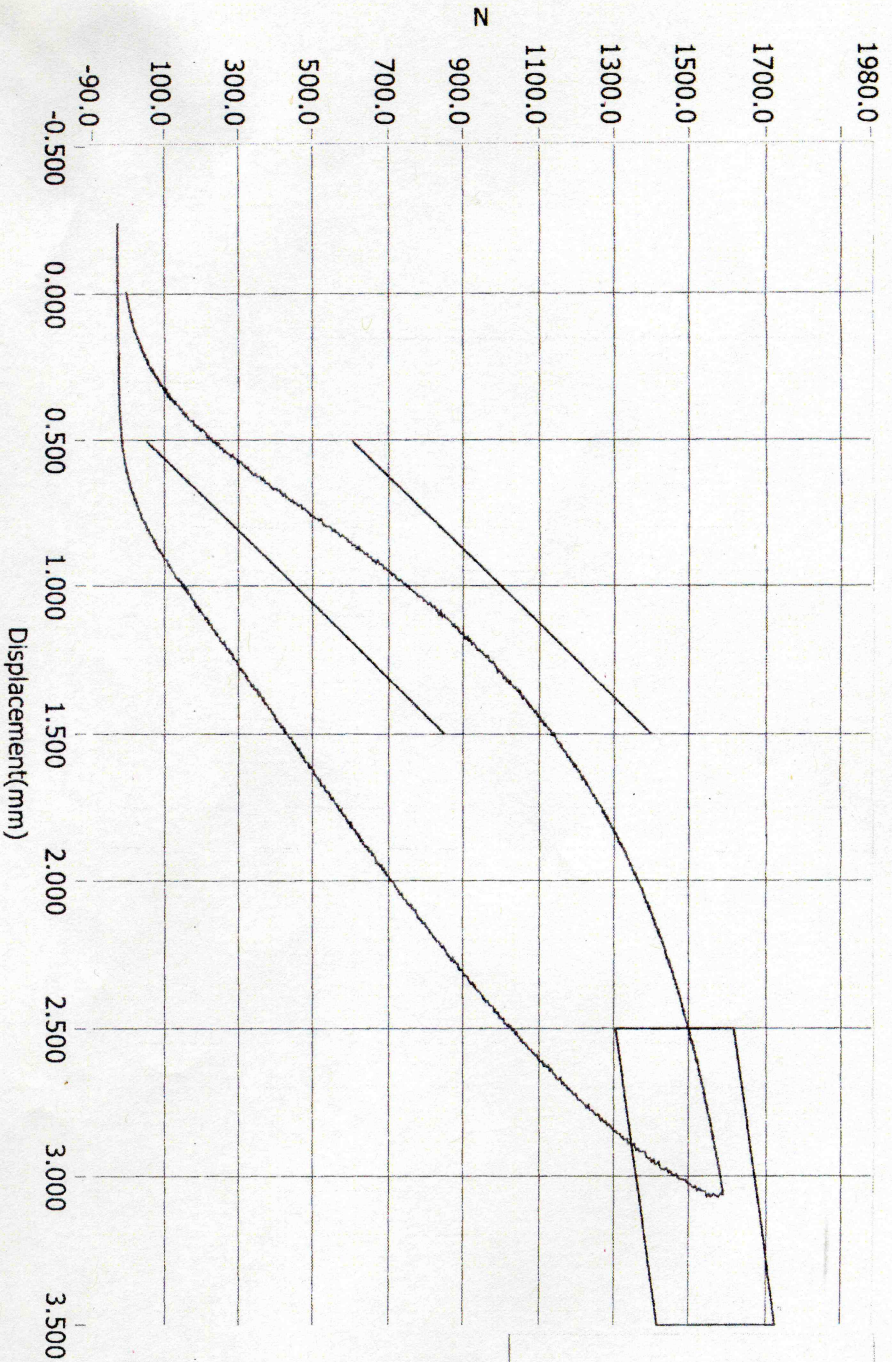


Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
12.2	12.0	-6.0	36.2



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.5	18.0	-0.1	95.9

Resultant Data - SIDIIs Plug Compression



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

1582N

ATD Calibration Lab

Test ID

Part Serial Number

Test Date

Test Time

63198

1/23/2013

8:19 PM

Cert ID

ATD Serial Number

ATD Type

N/A

SIDIIs

M20155301 POST TEST

Current Date : 1/23/2013

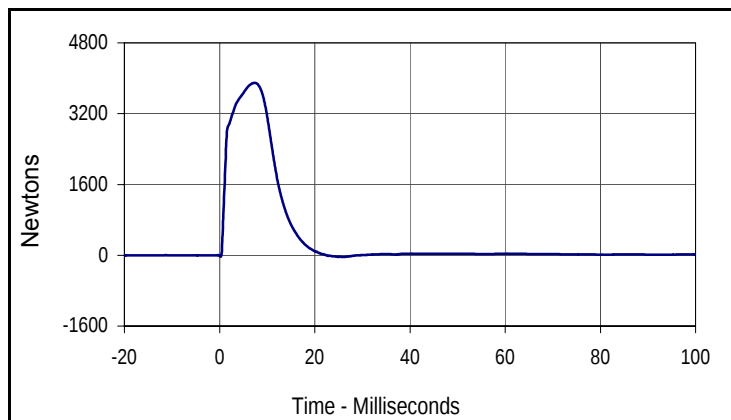
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Test Program: SID IIs Pelvis Acetabulum Impact Test
 ATD Serial No.: 307

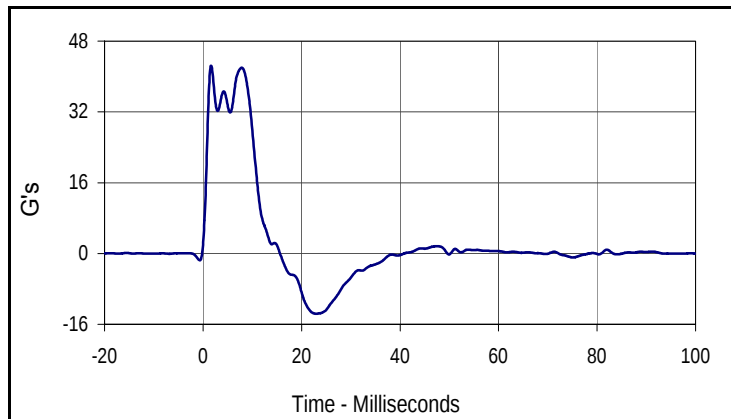
Test Date: 6/11/14
 Test I.D.: 307ACET068



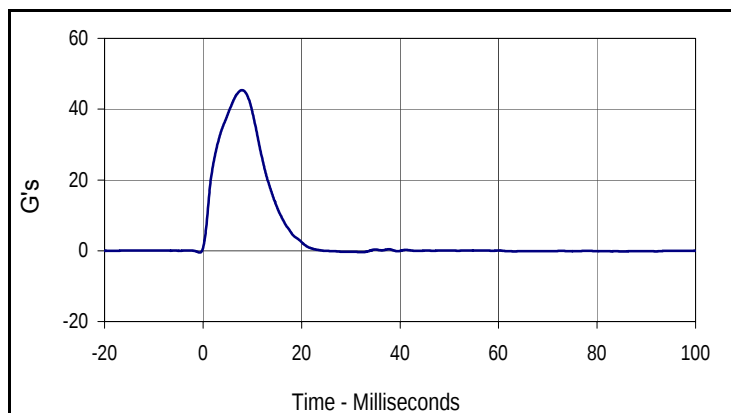
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	755	Pass
Temperature During Soak	Max	20.6 to 22.2	21.1	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass
	Min		33.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.7	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.74	Pass
Peak Acetabulum Force Y	Newtons	3600 to 4300	3894.2	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	42.0	Pass
Peak Impactor Acceleration	G's	38 to 47	45.4	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Acetabulum Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3894.2	7.4	-39.5	26.0



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
42.4	1.6	-13.6	22.9



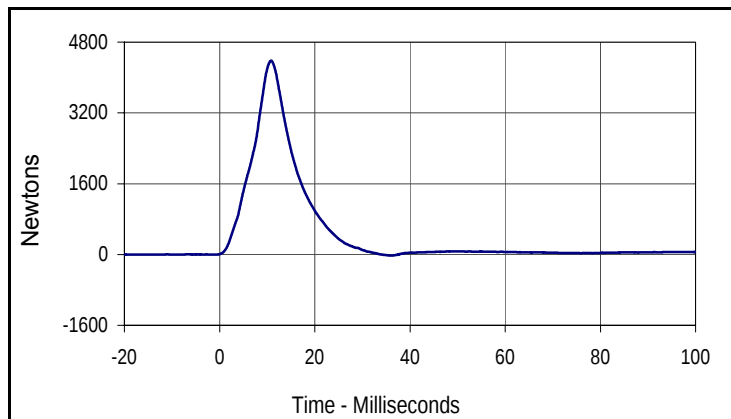
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
45.4	7.9	-0.5	-0.7

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

Test Date: 6/11/14
 Test I.D.: 307PL068



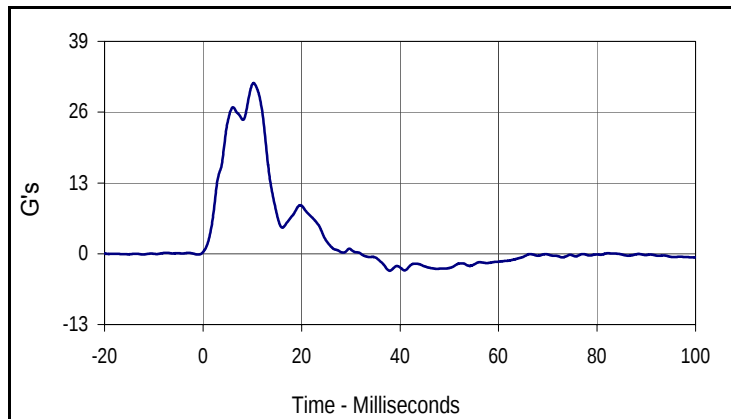
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	825	Pass
Temperature During Soak	Max	20.6 to 22.2	21.1	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.7	Pass
	Min		33.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.6	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.32	Pass
Peak Iliac Force	Newtons	4100 to 5100	4381.2	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	31.3	Pass
Peak Impactor Acceleration	G's	36 to 45	42.3	Pass
Overall Test Results			Pass	



Curve Description

Pelvis Iliac Force

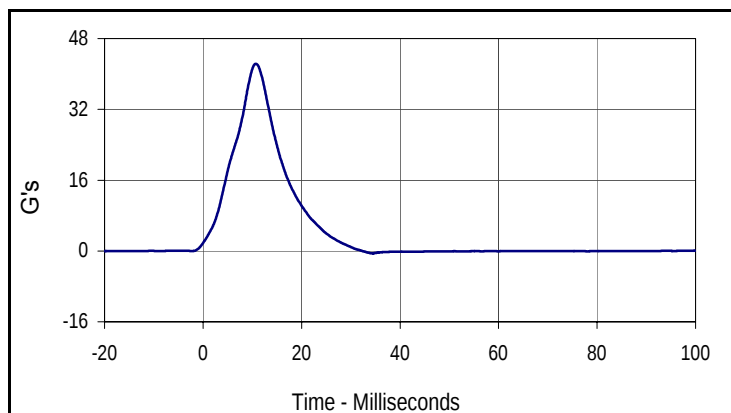
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4381.2	10.8	-25.1	36.1



Curve Description

Pelvis Y Acceleration

Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
31.3	10.3	-3.1	37.9



Curve Description

Impactor Acceleration

Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
42.3	10.7	-0.5	34.4

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 – Dummy Instrumentation (ES-2re)

			ES-2re S/N F037		
			Serial Number	Manufacturer	Calibration
Head Accelerometers	Primary	X	P58858	Endevco	4/9/14
		Y	P58865	Endevco	4/9/14
		Z	P58867	Endevco	4/9/14
	Redundant	X	P58859	Endevco	4/9/14
		Y	P58866	Endevco	4/9/14
		Z	P58873	Endevco	4/9/14
Thorax Rib Displacement Potentiometers	Upper	Y	209	FTSS	4/10/14
	Middle	Y	210	FTSS	4/10/14
	Lower	Y	207	FTSS	4/10/14
Abdomen Load Cells	Forward	Y	1504	Denton	5/1/14
	Middle	Y	1505	Denton	5/1/14
	Rear	Y	1506	Denton	5/1/14
Lower Spine Accelerometers (T12)		X	P16336	Endevco	4/9/14
		Y	P58876	Endevco	4/10/14
		Z	P58877	Endevco	4/10/14
Pubic Symphysis Load Cell		Y	DG6834	Denton	5/3/14

TABLE 2 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N 307		
				Serial Number	Manufacturer	Calibration
Head Accelerometers		Primary	X	P58900	Endevco	2/18/14
			Y	P58902	Endevco	2/18/14
			Z	P58983	Endevco	2/18/14
		Redundant	X	P58901	Endevco	2/18/14
			Y	P58906	Endevco	2/18/14
			Z	P58989	Endevco	2/18/14
Displacement Potentiometers	Thoracic Rib	Upper	Y	1249	FTSS	2/19/14
		Middle	Y	1265	FTSS	2/19/14
		Lower	Y	1277	FTSS	2/19/14
	Abdominal Rib	Upper	Y	1286	FTSS	2/19/14
		Lower	Y	1290	FTSS	2/19/14
Lower Spine Accelerometers (T12)			X	P59007	Endevco	2/19/14
			Y	P59015	Endevco	2/19/14
			Z	P58995	Endevco	2/19/14
Acetabulum Load Cell			Y	260	Denton	5/8/14
Iliac Wing Load Cell			Y	272	Denton	4/4/14
Pelvis Plug (Struck Side)				63395	FTSS	1/28/14
Pelvis Plug (Non-Struck Side)				63079	FTSS	1/23/14

TABLE 3 – Vehicle Instrumentation

Vehicle Instrumentation			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	Ketx12a	ICSensor	4/4/14
	Vehicle Center of Gravity	Y	Ketx12y	ICSensor	4/4/14
	Vehicle Center of Gravity	Z	Ketx12z	ICSensor	4/7/14
2	Right Sill at Front Seat	X	A136688	MSI	3/20/14
	Right Sill at Front Seat	Y	A136734	MSI	3/20/14
	Right Sill at Front Seat	Z	A136676	MSI	3/20/14
3	Right Sill at Rear Seat	X	A136691	MSI	3/20/14
	Right Sill at Rear Seat	Y	A136695	MSI	3/20/14
	Right Sill at Rear Seat	Z	A136709	MSI	3/22/14
4	Left Sill at Front Door	Y	A136699	MSI	3/20/14
5	Left Sill at Rear Door	Y	A136707	MSI	3/20/14
6	Left A-Post Lower	Y	A136712	MSI	3/20/14
7	Left A-Post Middle	Y	A136706	MSI	3/20/14
8	Left B-Post Lower	Y	A136703	MSI	3/20/14
9	Left B-Post Middle	Y	A136719	MSI	3/20/14
10	Front Seat Track	Y	A136684	MSI	3/20/14
11	Rear Seat Structure	Y	13728	Endevco	2/22/14
12	Right Rear Occ. Compartment	Y	A136711	MSI	3/20/14
13	Engine Block	X	13703	MSI	2/6/14
	Engine Block	Y	13722	MSI	2/19/14
14	Rear Floorpan Above Axle	X	A136732	MSI	3/20/14
	Rear Floorpan Above Axle	Y	A136694	MSI	3/20/14
	Rear Floorpan Above Axle	Z	A136715	MSI	3/20/14

TABLE 4 – MDB Instrumentation

		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	A124098	MSI	3/20/14
MDB Center of Gravity	Y	A128039	MSI	3/20/14
MDB Center of Gravity	Z	A124104	MSI	3/20/14
Left Frame at Rear Axle Centerline	X	A128036	MSI	3/20/14
Left Frame at Rear Axle Centerline	Y	A127957	MSI	3/20/14