

REPORT NUMBER: SNCAP-KAR-11-053

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

**TOYOTA MOTOR MANUFACTURING, TEXAS, INC.
2011 TOYOTA TUNDRA 4X2 DOUBLE CAB 4-DOOR TRUCK**

NHTSA No: MB5125

**PREPARED BY:
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9270 HOLLY ROAD
ADELANTO, CA 92301**



FEBRUARY 1, 2011

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
1200 NEW JERSEY AVE, SE
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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 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck 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 KARCO Engineering, LLC in Adelanto, CA, on February 1, 2011.

The impact velocity of the Moving Deformable Barrier was 62.31 km/h and the outside ambient temperature at the struck (driver's) side of the vehicle was 13.3 deg. C. The target vehicle's maximum post-test static crush was 205 mm located at level 3. The test vehicle's occupant performance data is as follows:

Measurement Description	Driver ATD (ES-2re)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	23.8
Maximum Thorax Rib Deflection	mm	44	10.3
Total Abdominal Force	N	2500	152
Pubic Symphysis Force	N	6000	582

Measurement Description	Passenger ATD (SID-IIs)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	21.5
Lower Spine Resultant Acceleration	g	82	22
Total Pelvic Force (Sum of Acetubular and Iliac Forces)	N	5525	1706

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

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SECTION 1

PURPOSE AND SUMMARY OF TEST

PURPOSE

This moving deformable barrier side impact test is part of the MY 2011 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 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated January 2010.

SUMMARY

A 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck 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 62.31 km/h (38.72 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 February 1, 2011. 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 January 2010. The side impact event was documented by 11 cameras. Camera locations are included in Data Sheet No. 5 of this report.

The dummies were instrumented in the following manner:

DRIVER ATD (ES-2re)

Head Accelerometers

Thorax Rib 1 to Rib 3 Potentiometers

Abdomen Forward, Middle, and Rear Load Cells

Lower Spine Accelerometers

Pubic Load Cell

PASSENGER ATD (SID-IIs)

Head Accelerometers

Thorax Upper, Middle and Lower Rib Potentiometers

Abdomen Upper and Lower Rib Potentiometers

Lower Spine Accelerometers

Iliac Load Cell

Acetabulum Load Cell

Dummy injury values were recorded as follows:

Measurement Description	Units	Driver ATD (ES-2re)	
		Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	23.8
Maximum Thorax Rib Deflection	mm	44	10.3
Combined Abdominal Force	N	2500	152
Pubic Symphysis Force	N	6000	582

Measurement Description	Units	Passenger ATD (SID-IIs)	
		Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	21.5
Lower Spine (T12) Resultant Acceleration	g	82	22
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	1706

Supplemental restraint information is given below:

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

GENERAL COMMENTS

Both the front and rear doors on the struck side of the vehicle remained closed and latched. There was no separation at the hinges or latches. Both doors on the non-struck side remained closed and latched. There were no ATD values that exceeded limits.

SECTION 2

OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck

NHTSA No. MB5125

Test Program: MDB Side Impact Test

Test Date: 02/01/11

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	29.573
Pressure	Tire Pressures	lbf/in ²	kPa	7.0
Volume	Liquid	gal	liter	3.785
Temperature	General Use	°F	°C	$=(t_f - 32)/1.8$
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf/ft	Nm	1.355

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck

NHTSA No. MB5125

Test Program: MDB Side Impact Test

Test Date: 02/01/11

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	MB5125
Model Year	2011
Make	Toyota
Model	Tundra 4x2 Double Cab
Body Style	4-Door Truck
VIN	5TFRY5F18BX100547
Body Color	Magnetic Gray Metallic
Delivery Date	1/14/2011
Odometer Reading (km / mi)	119/74
Dealer	Crown Toyota
Transmission	6-Speed Automatic
Final Drive	Rear
Type / No. of Cylinders	V-8
Engine Displacement (L)	5.7
Engine Placement	Longitudinal
Roof Rack	No
Sunroof / T-Top	No
Tinted Glass	Yes
Traction Control	Yes
Power Brakes	Yes
Front Disc	Yes
Rear Disc	Yes

Anti-Lock Brakes	Yes
All Wheel Drive	No
Power Steering	Yes
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	Yes
Driver Torso/Pelvis Airbag	No
Driver Pelvis Airbag	No
Driver Knee Airbag	Yes
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Torso/Pelvis Airbag	No
Rear Pass. Pelvis Airbag	No
Pretensioners	Yes
Load Limiters	Yes
Automatic Door Locks	Yes
Bucket Seats	Yes
Tilt Steering	Yes
Other	
Other	

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

No

DATA FROM CERTIFICATION LABEL

Manufactured By	Toyota Motor Manufacturing, Texas, INC.
Date of Manufacture	Sep-11

GVWR (kg)	3125
GAWR Front (kg)	1765
GAWR Rear (kg)	1855

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Designated Seating Capacity	3	3		6
Capacity Weight (VCW) (kg)				641.0
DSC x 68.04 (kg)				408.2
Cargo Weight (RCLW) (kg)				136.0

A

B

A-B

VEHICLE SEAT TYPE

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

DATA SHEET NO. 1 ... (CONTINUED)

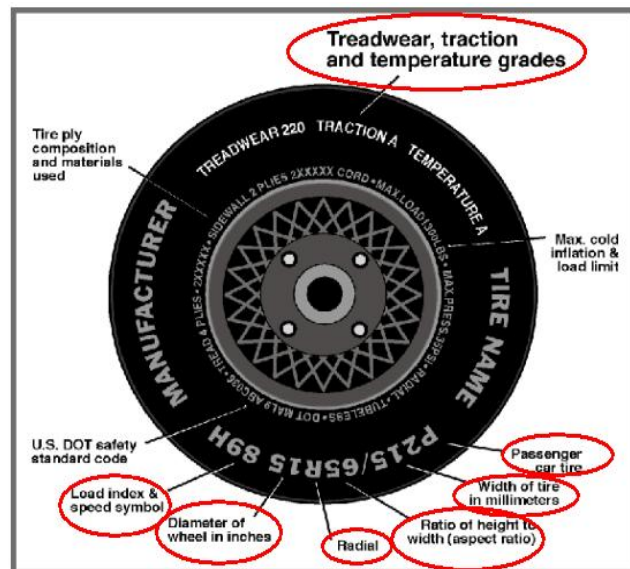
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck

NHTSA No. MB5125

Test Program: MDB Side Impact Test

Test Date: 02/01/11



VEHICLE TIRE INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	300	300
Cold Pressure (kpa)	210	230
Recommended Tire Size	P255/70R18	P255/70R19
Tire Size on Vehicle	P255/70R18	P255/70R19
Tire Model	LTS A/S	LTS A/S
Tire Manufacturer	Michelin	Michelin
Treadwear	420	421
Traction	A	A
Temperature Grades	B	B
Tire Plies Sidewall	2 Polyester	3 Polyester
Tire Plies Body	2 Polyester, 2 Steel, 1 Polyamide	3 Polyester, 2 Steel, 1 Polyamide
Load Index/Speed Symbol	112T	112T
Tire Material	Polyester, Steel, Polyamide	Polyester, Steel, Polyamide
DOT Safety Code Right	M3YU R9MX 3110	M3YU R9MX 3110
DOT Safety Code Left	M3YU R9MX 3111	M3YU R9MX 3111

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck

NHTSA No. MB5125

Test Program: MDB Side Impact Test

Test Date: 02/01/11

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	718.0	538.0		775.0	638.0		758.0	632.5	
Right	kg	653.5	508.0		666.0	594.0		687.5	600.5	
Ratio	%	56.7%	43.3%	100.0%	53.9%	46.1%	100.0%	54.0%	46.0%	100.0%
Total	kg	1371.5	1046.0	2417.5	1441.0	1232.0	2673.0	1445.5	1233.0	2678.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	2417.5	A
Actual Weight of 2 P572 ATDs Used	kg	125.0	B
Rated Cargo/Luggage Wt (RCLW)	kg	136.0	C
Calculated Vehicle Target Wt (TVTWT)	kg	2678.5	A+B+C

TEST VEHICLE ATTITUDES

Condition	Units	LF	RF	LR	RR	CG (Aft of Front Axle)
Fully Loaded	mm	920	924	983	995	1707
As Tested	mm	915	928	983	995	1709

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheelbase	mm	3708
Total Vehicle Length at Left Side	mm	4946
Total Vehicle Length at Centerline	mm	5828
Total Vehicle Length at Right Side	mm	4946
Weight of Ballast in Cargo Area	kg	196.5
Weight of Vehicle Components Removed	kg	15.0
Amount of Stoddard Solvent in Fuel Tank	L	92.92

Vehicle components removed to make Target Vehicle Test Weight:

Non-struck side door panels (8.5 kg), Spare tire jack and tools (4.0 kg), kg), Non-struck side mirror (1.5 kg)

TEST VEHICLE VERTICAL IMPACT LINE DATA

Measurement Description	Units	Value
Target Impact Point Aft of Front Axle	mm	507
Actual Impact Point Aft of Front Axle	mm	509

DATA SHEET NO. 2

SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck

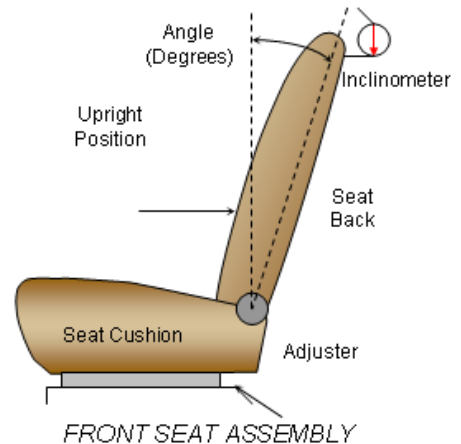
NHTSA No. MB5125

Test Program: MDB Side Impact Test

Test Date: 02/01/11

NOMINAL DESIGN RIDING POSITION

The driver's seat back is set to the manufacturer's designated seat back angle. The passenger's seat back is set to level the passenger ATD's head transverse instrumentation platform as close as possible. Seat back angles are measured at the headrest posts using a digital inclinometer.



SEAT BACK ANGLES

	Degrees (°)
Driver w/Seated Dummy	1.6
Passenger w/Seated Dummy	4.7

SEAT FORE/AFT POSITION

Seat travel is measured from the forward most possible position to the rear most possible position with the seat set at mid angle and lowest height. The driver's seat is set to the middle of the fore-aft travel. The passenger's seat is fixed.

SEAT FORE/AFT POSITIONS

Seating Position	Total Fore/Aft Travel	Placed in Position
Driver Seat	212 mm	106 mm
Rear Seat	Fixed	Fixed

SEAT BELT UPPER ANCHORAGE

The seat belt upper anchorage is positioned to the manufacturer's design position, the driver for a 50th percentile adult male ATD, the left rear passenger for a 5th percentile adult female ATD. Position zero (0) is the uppermost position.

SEAT BELT UPPER ANCHORAGES

Seating Position	Total No. of Positions	Placed in Position
Driver Seat	4	1
Rear Seat	Fixed	Fixed

DATA SHEET NO. 2 ... (CONTINUED)

SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck

NHTSA No. MB5125

Test Program: MDB Side Impact Test

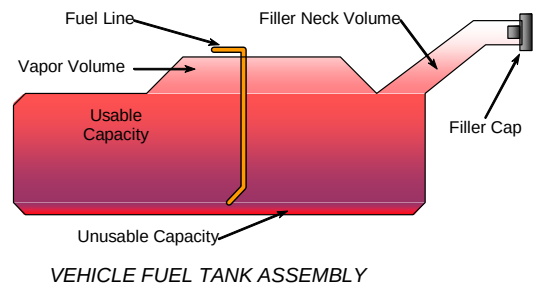
Test Date: 02/01/11

FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank"	99.92
Usable Capacity of "Optional Tank"	
Usable Capacity Used for FMVSS 301	99.92
Actual Amount of Stoddard Solvent Used	92.92

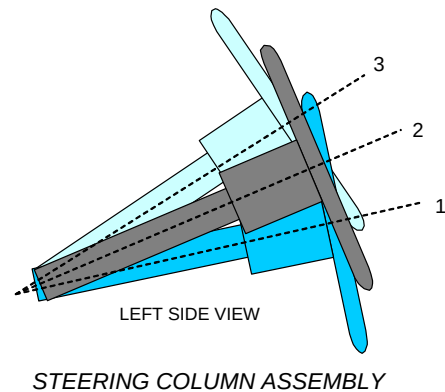
FUEL PUMP

The test vehicle is equipped with an electric fuel pump. The fuel pump will operate when the ignition is turned to the "ON" position. The fuel filler door is located on the left rear fender. The standard fuel tank occupies the area under the bed.



STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when moved through its full range of motion. A digital inclinometer is used to measure a plate which is placed across the rim of the steering wheel for angular measurements. A tape measure is used with a reference mark on the steering column to measure telescoping travel.



STEERING COLUMN POSITIONING

	Degrees	Fore-Aft Position (mm)
Lowermost Position, No. 1	24.7	Fixed
Geometric Center Position, No. 2	27.8	Fixed
Uppermost Position, No. 3	30.8	Fixed
Telescoping Steering Wheel Travel		Fixed
Test Position	27.8	Fixed

DATA SHEET NO. 3

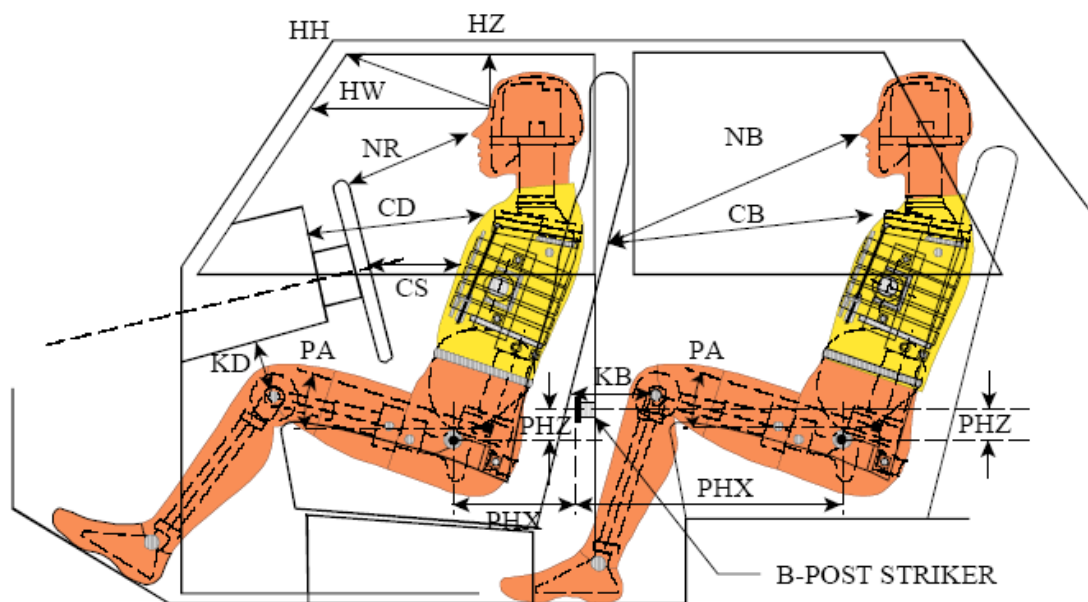
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck

NHTSA No. MB5125

Test Program: MDB Side Impact Test

Test Date: 02/01/11



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	431	13.5		
HW		Head to Windshield	644	0.0		
HZ	HZ	Head to Roof	181	90.0	299	90.0
NR	NB	Nose to Rim/Seat Back	486	17.2	493	13.4
CD	CB	Chest to Dash/Seat Back	580	2.9	501	9.3
CS		Chest to Steering Wheel	373	18.4		
KDL	KBL	Left Knee to Dash/Seat Back	146	33.9	263	18.9
KDR	KBR	Right Knee to Dash/Seat Back	144	16.7	261	16.8
PA	PA	Pelvic Angle		13.4		19.6
PHX	PHX	H-Point to Striker (x-axis)	253	0.0	245	0.0
PHZ	PHZ	H-Point to Striker (z-axis)	133	90.0	119	90.0
SA	SA	Seat Back Angle		1.6		4.7

DATA SHEET NO. 4

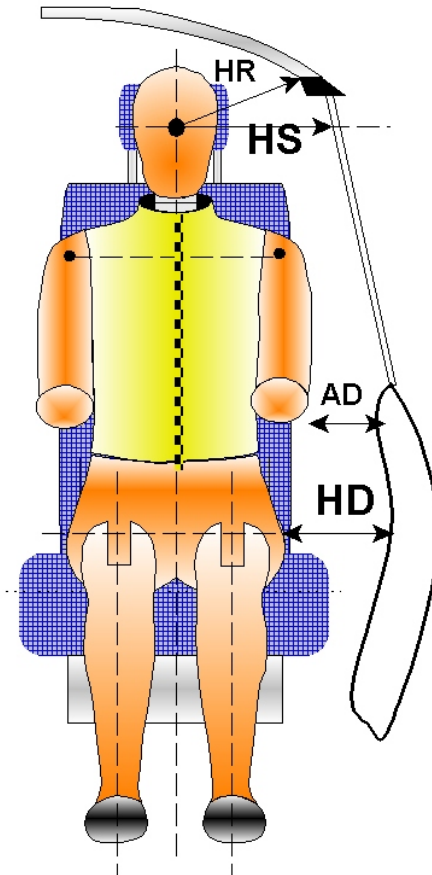
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck

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DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver	Passenger
HR	Head to Side Header	mm	215	294
HS	Head to Side Window	mm	354	354
AD	Arm to Door	mm	123	185
HD	H-Point to Door	mm	169	203

DATA SHEET NO. 5

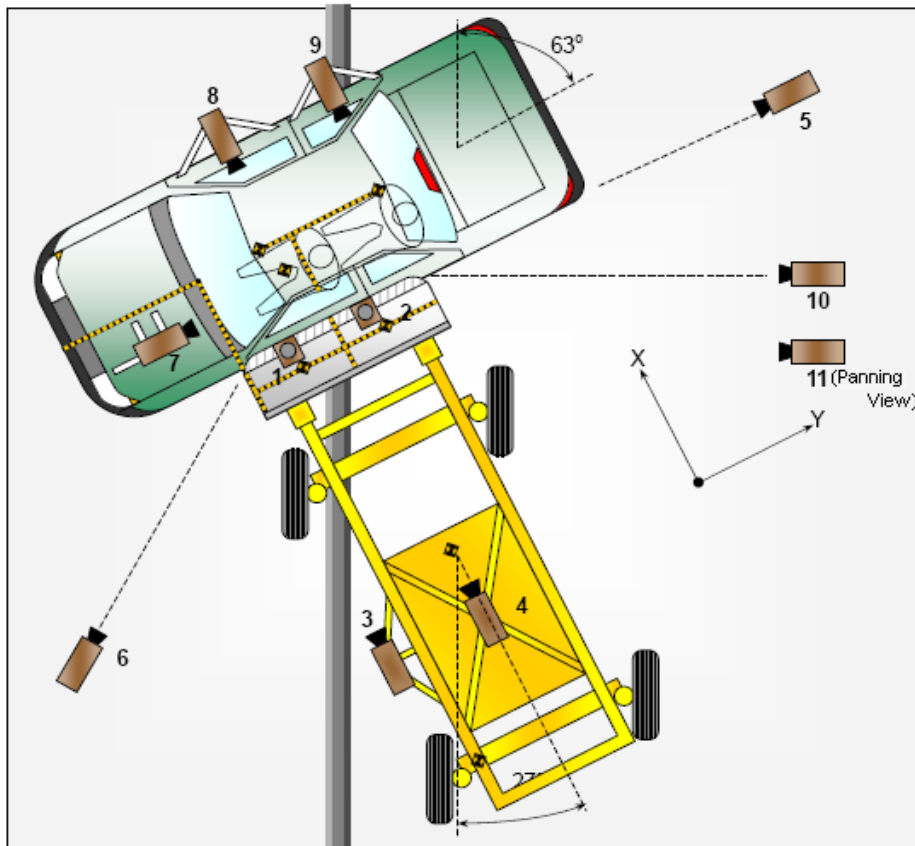
CAMERA LOCATIONS AND DATA

Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck

NHTSA No. MB5125

Test Program: MDB Side Impact Test

Test Date: 02/01/11



CAMERA LOCATIONS AND DATA

Camera No.	View	Coordinates (mm)			Angle (°)	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
1	Overhead Overall	1220	2287	-5486	90	14	1000
2	Overhead Close-Up	609	2287	-5102	90	Zoom	1000
3	Left Impact Point (MDB)	-2134	0	-1143	7.5	25	1000
4	Side Overall (MDB)	-3912	838	-1829	11.9	12	1000
5	Rear	-64	2485	-1348	0	105	1000
6	Left Front	-2266	-3564	-1475	0	24	1000
7	Driver Front (On-Board)	424	-915	-754	4.6	35	1000
8	Driver Side (On-Board)	1751	651	-542	7.7	14	1000
9	Passenger Side (On-Board)	1789	1503	-625	8.4	14	1000
10	Real Time Overall					Zoom	30
11	Real Time Inrun					Zoom	30

Reference: Impact Point Projected to Ground

+X = To Front of MDB, +Y = To Right of MDB, +Z = Down

*All measurements accurate to ± 6 mm

DATA SHEET NO. 6

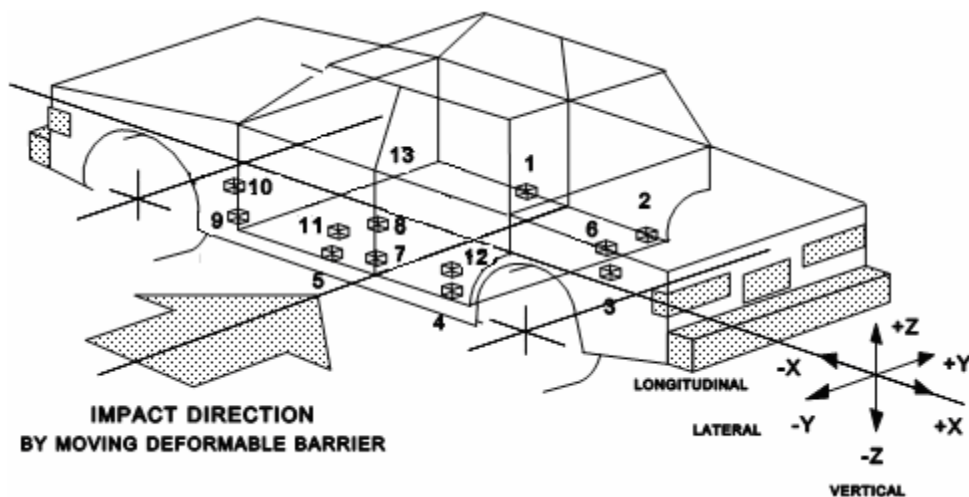
VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck

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VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

Loc. No.	Sensor Description	Coordinates (mm)		
		X	Y	Z
1	Right Sill at Front Seat	3956	772	-535
2	Right Sill at Rear Seat	2895	785	-552
3	Rear Floorpan Above Axle	1209	574	-819
4	Left Sill at Rear Door	2782	-675	-320
5	Left Sill at Front Door	3430	-675	-320
6	Right Rear Occupant Compartment	3024	431	-624
7	B-Pillar Lower	3208	-824	-839
8	B-Pillar Mid	3208	-324	-1172
9	A-Pillar Lower	4327	-948	-825
10	A-Pillar Mid	4327	-948	-1077
11	Front Seat Track	3455	-673	-665
12	Rear Seat Structure			
13	Vehicle CG	3010	0	-678

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

DATA SHEET NO. 7

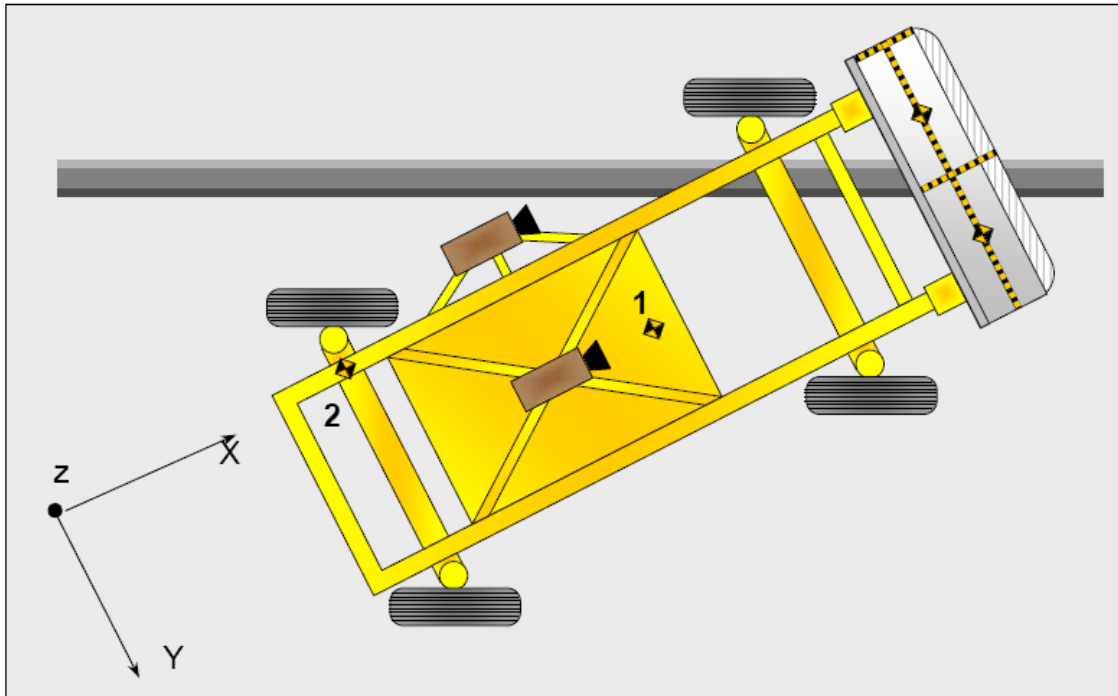
MDB ACCELEROMETER LOCATIONS

Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck

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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**TEST VEHICLE SUMMARY OF RESULTS**Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door TruckNHTSA No. MB5125Test Program: MDB Side Impact TestTest Date: 02/01/11**MAXIMUM EXTERIOR CRUSH**

Level	Description	Units	Maximum Crush	Above Ground
1	Sill Top Height	mm	1	471
2	Occupant H-Point Height	mm	199	936
3	Mid-Door Height	mm	205	876
4	Window Sill Height	mm	68	1265
5	Window Top Height	mm	51	1856
	Maximum Penetration	mm	205	

INSTRUMENTATION

Driver Dummy Channels	16
Passenger Dummy Channels	16
Airbag Timing Sensors	4
Vehicle Structure Accelerometers	21
MDB Accelerometers	5
Total No. of Contact Switches	8
Total	70

CAMERA COVERAGE

High-Speed Vehicle On-Board	3
High-Speed Vehicle Off-Board	4
High-Speed MDB On-Board	2
Real Time	2
Total	11

DATA SHEET NO. 9**MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS**Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door TruckNHTSA No. MB5125Test Program: MDB Side Impact TestTest Date: 02/01/11**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	402	298	
Right	kg	377	292	
Ratio	%	56.9%	43.1%	
Totals	kg	779	590	1368

SPEED AND IMPACT DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	62.31
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.03
MDB CL to Target Vehicle CL	degrees	88.5-91.5	89.6

MAXIMUM STATIC CRUSH OF HONEYCOMB FACE

Vertical Location			From Centerline		Max. Crush (mm)
Row	Description	Height (mm)	Distance (mm)	Direction	
1	Center of Bumper	432	800	Right	238
2	Top of Bumper	533	800	Right	114
3	Mid Level	686	600	Left	159
4	Top of Stack	813	800	Left	145

MDB INSTRUMENTATION AND CAMERAS

Accelerometers	5
Contact Switches	2

DATA SHEET NO. 10
POST-TEST OBSERVATIONS

Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck

NHTSA No. MB5125

Test Program: MDB Side Impact Test

Test Date: 02/01/11

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat Dummy (ES-2re)	Rear Seat Dummy (SID-IIs)
Dummy Type/Serial No.	ES-2re, S/N: F035	SID-IIs, S/N: 307
Head Contact	Curtain Airbag, Side Header, Head Restraint	Curtain Airbag, Side Header, Head Restraint
Upper Torso Contact	Torso Airbag	Door Panel
Lower Torso Contact	None	None
Left Knee Contact	Knee Airbag	Door Panel, Right Knee
Right Knee Contact	None	Left Knee

POST-TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Left Side Door Opening	Jammed shut	Jammed shut
Right Side Door Opening	Remained closed and operational	Remained closed and operational
Hatch and Other Doors	Remained closed and operational	Remained closed and operational
Seat Movement	None	None
Seatback Failure	No	No

POST-TEST STRUCTURAL OBSERVATIONS

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

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

MDB LEFT EDGE IMPACT POINT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	+2 (Right)
Vertical Offset	mm	+/- 20	+4 (Up)

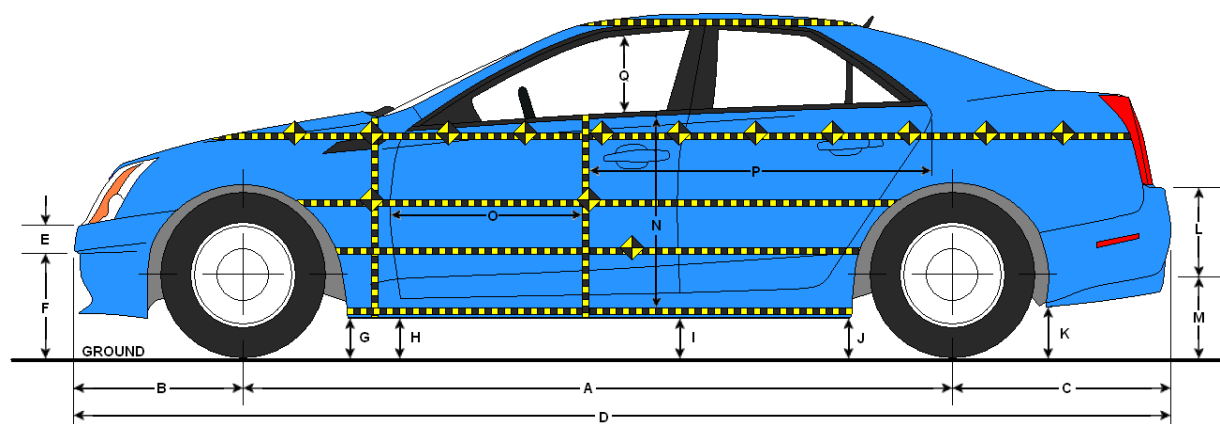
DATA SHEET NO. 11
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck

NHTSA No. MB5125

Test Program: MDB Side Impact Test

Test Date: 02/01/11



LEFT SIDE VIEW

VEHICLE PRE AND POST-TEST MEASUREMENT INFORMATION

Code	Dimension	Measurement (mm)		
		Pre	Post	Difference
A	Wheelbase	3708	3708	0
B	Front Axle to FSOV	893	909	16
C	Rear Axle to RSOV	1227	1207	-20
D	Total Length at Centerline	5828	5824	-4
E	Front Bumper Thickness	287	287	0
F	Front Bumper Bottom to Ground	384	388	4
G	Sill Height at Front Wheel Well	378	372	-6
H	Sill Height at Front Door Leading Edge	394	362	-32
I	Sill Height at B-Pillar	424	422	-2
J1	Sill Height at Rear Wheel Well	408	403	-5
J2	Pinch Weld Height at Rear Wheel Well	415	411	-4
K	Sill Height Aft of Rear Wheel Well	442	453	11
L	Rear Bumper Thickness	234	235	1
M	Bottom of Rear Bumper to Ground	525	518	-7
N	Sill Height to Window Bottom Sill	766	852	86
O	Front Door Leading Edge to Impact CL	803	805	2
P	Rear Door Trailing Edge to Impact CL	1229	1205	-24
Q	Front Window Opening	492	506	14
R	Right Side Length	4946	4943	-3
S	Left Side Length	4946	4932	-14
T	Vehicle Width at B-Pillar	2032	1943	-89

All measurements in mm with tolerance of ± 3 mm

DATA SHEET NO. 12

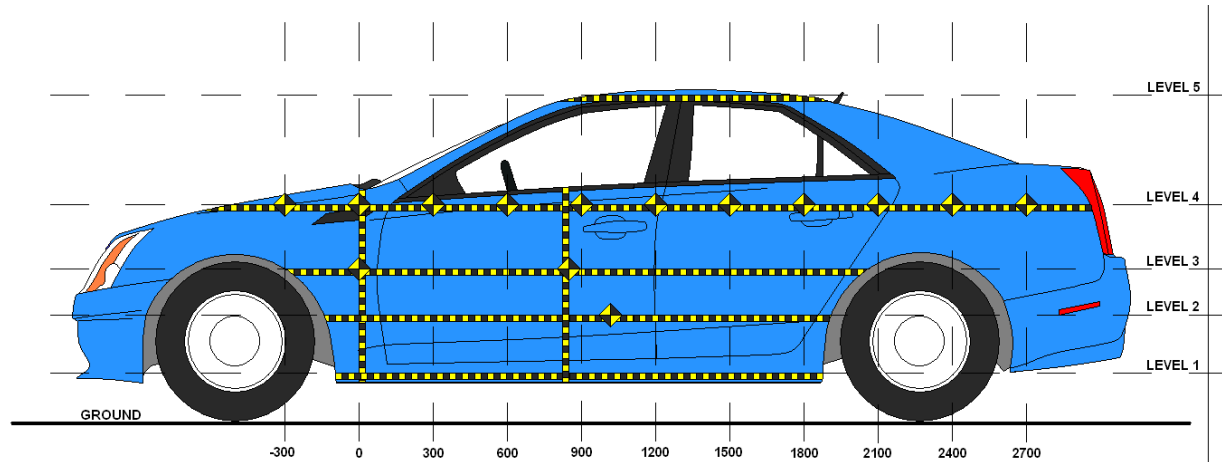
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck

NHTSA No. MB5125

Test Program: MDB Side Impact Test

Test Date: 02/01/11



LEFT SIDE VIEW

Level	Description	Height Above Ground (mm)
1	Sill Top Height	471
2	Occupant H-Point Height	936
3	Mid-Door Height	876
4	Window Sill Height	1265
5	Window Top Height	1856

DATA SHEET NO. 12 ... (CONTINUED)

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck

NHTSA No. MB5125

Test Program: MDB Side Impact Test

Test Date: 02/01/11

	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				641					653					12	
-300		481		616			516		638			35		22	
-150		481	481	597			508	497	620			27	16	23	
0	516	484	481	580		546	518	517	603		30	34	36	23	
150	530	489	489	570		646	561	567	592		116	72	78	22	
300	551	489	495	562		667	620	633	587		116	131	138	25	
450	550	487	493	556		678	612	634	585		128	125	141	29	
600	550	486	492	550	798	684	610	637	585	828	134	124	145	35	30
750	549	484	491	546	791	690	610	638	587	822	141	126	147	41	31
900	549	483	490	541	789	695	606	635	590	820	146	123	145	49	31
1050	549	482	489	537	789	699	606	634	595	822	150	124	145	58	33
1200	551	482	489	534	789	715	629	652	602	826	164	147	163	68	37
1350	551	483	489	533	790	738	641	663	601	830	187	158	174	68	40
1500	552	483	490	531	790	745	666	687	589	828	193	183	197	58	38
1650	554	484	491	529	790	755	683	696	586	831	201	199	205	57	41
1800	559	485	492	528	791	734	642	660	567	836	175	157	168	39	45
1950	563	487	494	528	795	644	600	620	561	846	81	113	126	33	51
2100	569	490	497	530		625	569	583	581		56	79	86	51	
2250	574	500	507	541		581	509	517	550		7	9	10	9	
2400	560	497	503	539		569	506	513	549		9	9	10	10	
2550	536	491	492	538		546	500	502	548		10	9	10	10	
2700		483	484	536			493	493	546			10	9	10	
2850		483		535			493		546			10		11	

MAXIMUM CRUSH DATA

	Level 1	Level 2	Level 3	Level 4	Level 5
Maximum Crush (mm)	201	199	205	68	51
Distance from Impact (mm)	1650	1650	1650	1350	1950

DATA SHEET NO. 12 ... (CONTINUED)

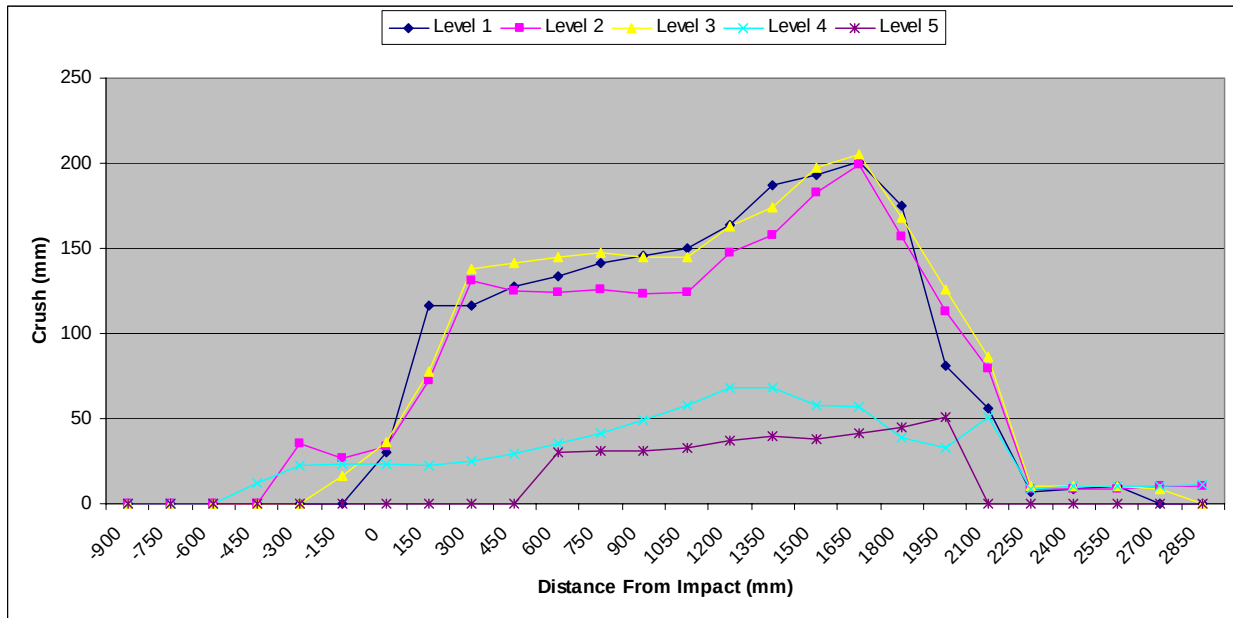
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck

NHTSA No. MB5125

Test Program: MDB Side Impact Test

Test Date: 02/01/11



DATA SHEET NO. 13

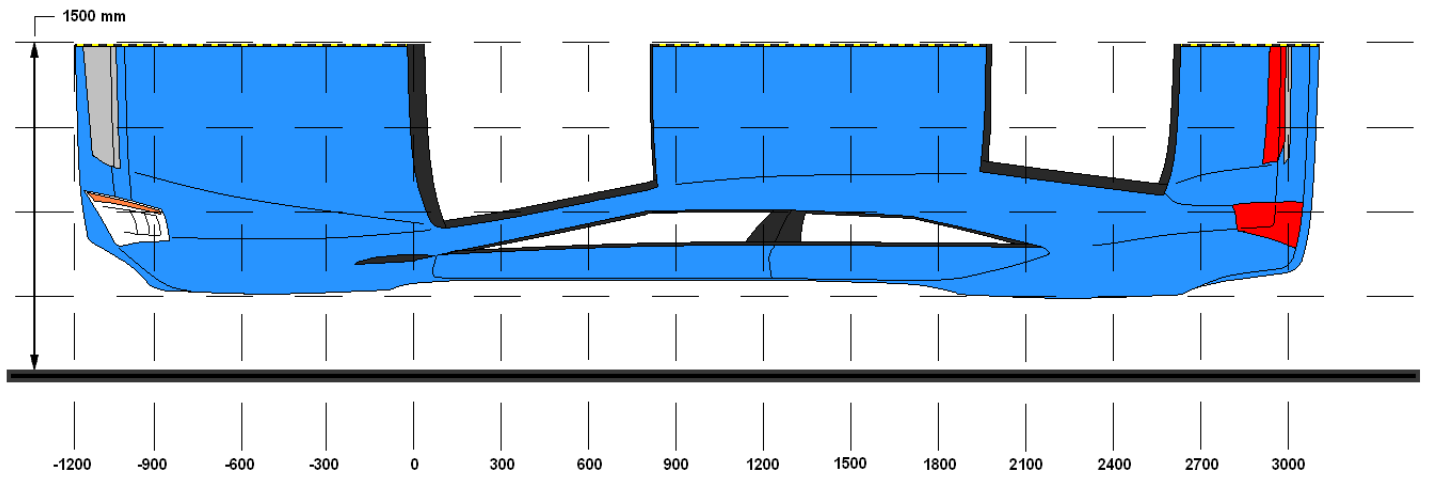
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck

NHTSA No. MB5125

Test Program: MDB Side Impact Test

Test Date: 02/01/11



TOP VIEW

DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max. Static Crush (mm)
1	2850	4	535	546	11
2	2250	3	507	517	10
3	1650	3	491	696	205
4	1050	1	549	634	85
5	450	1	549	699	150
6	-150	2	481	508	27

DATA SHEET NO. 14

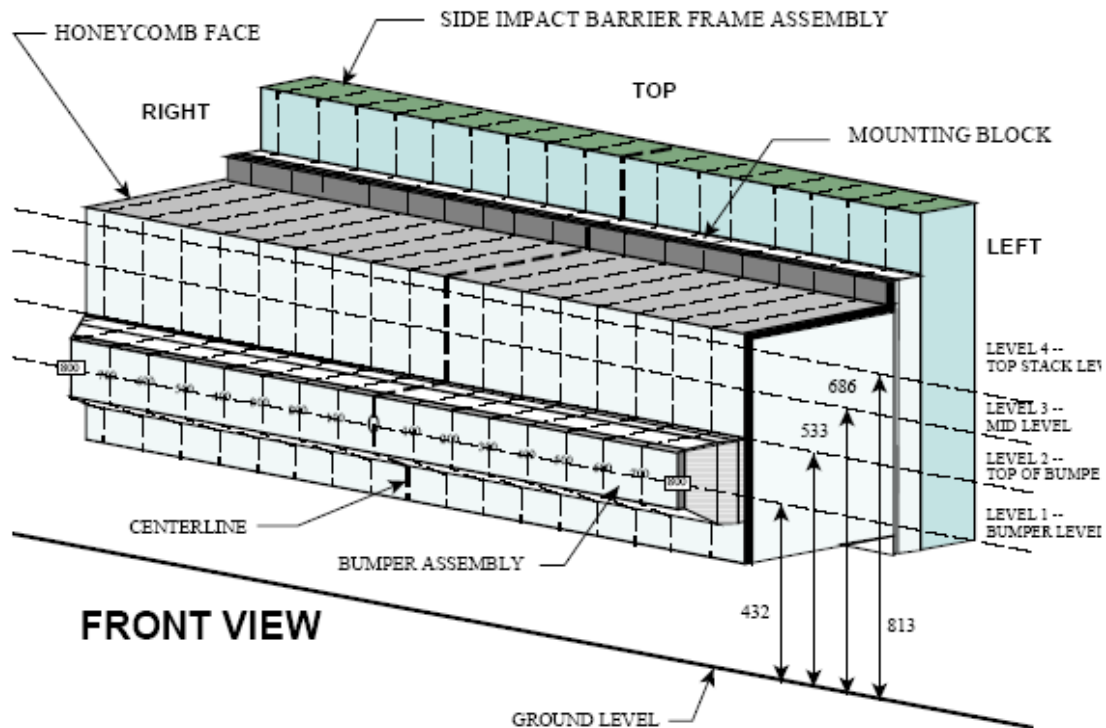
EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck

NHTSA No. MB5125

Test Program: MDB Side Impact Test

Test Date: 02/01/11



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	193	181	183	188	186	191	190	195	194	195	194	199	229	201	203	208	222
2	176	183	183	181	177	168	164	183	181	183	187	190	193	192	192	197	182
3	172	152	135	124	127	131	143	144	134	127	128	127	134	140	143	159	188
4	194	167	147	139	135	141	164	147	135	131	128	127	130	136	159	184	214

All dimensions in millimeters.

DATA SHEET NO. 15

FMVSS NO. 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck

NHTSA No. MB5125

Test Program: MDB Side Impact Test

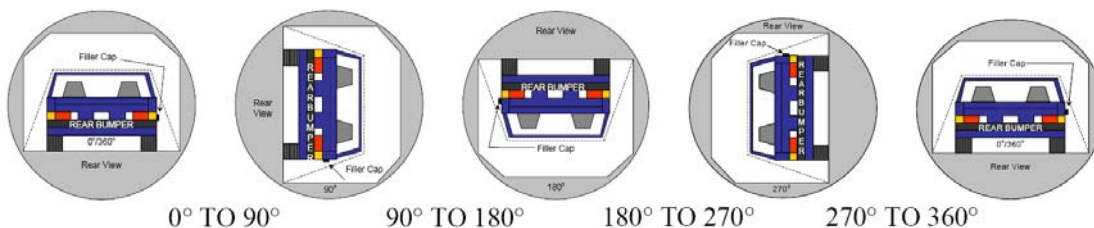
Test Date: 02/01/11

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 13.3° C

Test Time: 1:30 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: No spillage occurred



SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	82	300	382
90° To 180°	85	300	385
180° To 270°	79	300	379
270° To 360°	79	300	379

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°	None
90° To 180°	None
180° To 270°	None
270° To 360°	None

DATA SHEET NO. 16

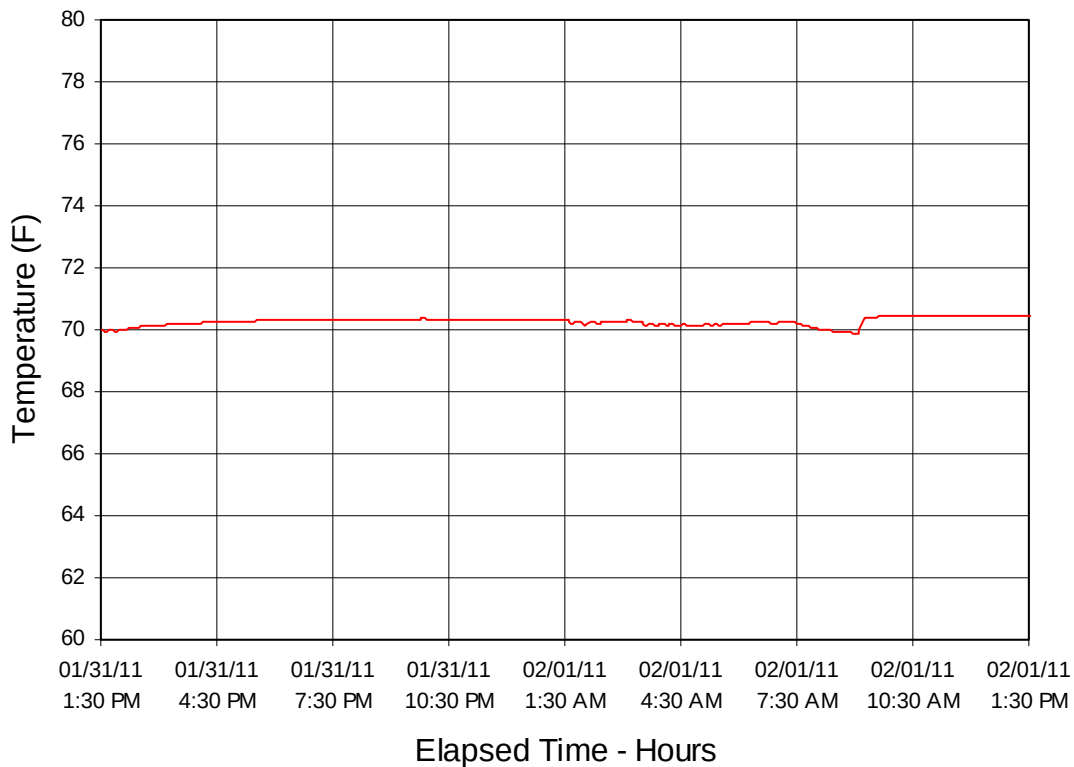
DUMMY / VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 2011 Toyota Tundra 4x2 Double Cab 4-Door Truck

NHTSA No. MB5125

Test Program: MDB Side Impact Test

Test Date: 02/01/11



APPENDIX A
PHOTOGRAPHS

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FIGURE 1. As-Delivered Right Front Three-Quarter View of Test Vehicle



FIGURE 2. As-Delivered Left Rear Three-Quarter 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 Three-Quarter View of the Test Vehicle



FIGURE 6. Post-Test Left Front Three-Quarter View of the 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 Three-Quarter View of Test Vehicle



FIGURE 10. Post-Test Left Rear Three-Quarter View of Impact Zone



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 Vehicle
with MDB Positioned Against Side of Test Vehicle



FIGURE 16. Post-Test Overhead View of Test Vehicle and MDB



FIGURE 17. Pre-Test Left Side View of MDB Positioned
Against Side of Test Vehicle at Ideal Impact Point



FIGURE 18. Pre-Test Right Side View of MDB Positioned
Against Side of Test Vehicle at Ideal Impact Point

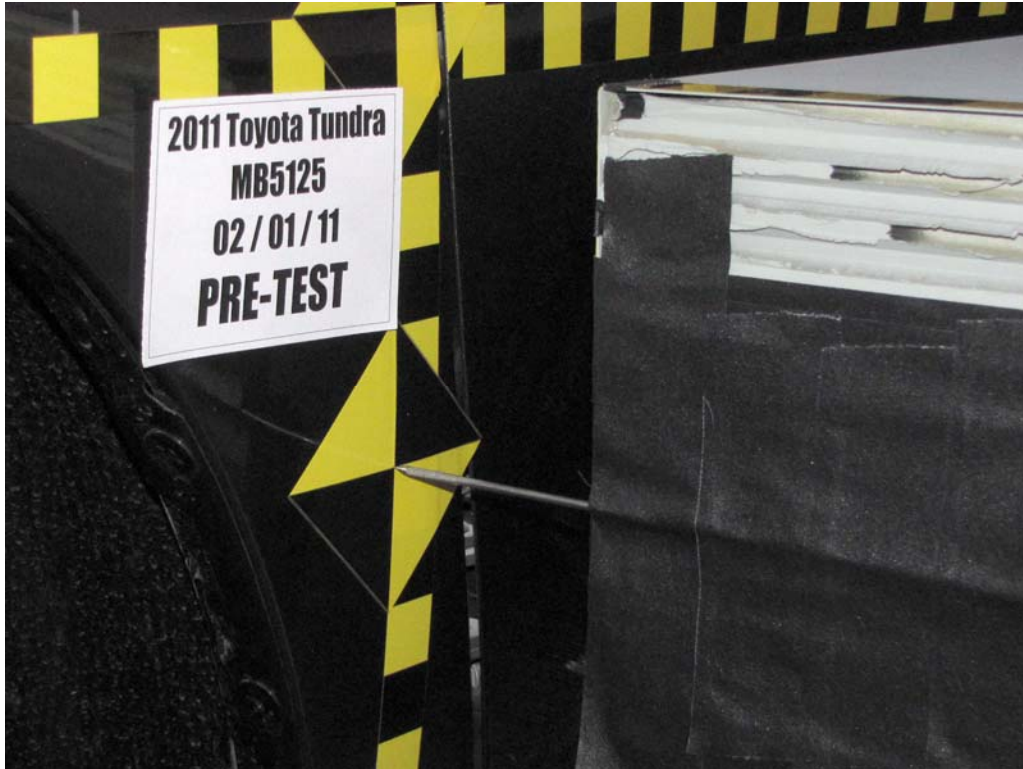


FIGURE 19. Pre-Test Close-Up View of Impact Point Target



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



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

Photograph Not Available

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



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



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 Frontal 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. Pre-Test View of Parking Brake



FIGURE 38. Pre-Test Close-Up Left Side View of Driver Seat Track



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



FIGURE 40. Pre-Test Close-Up View of Driver Seat Back or Head Restraint



FIGURE 41. Pre-Test Driver Dummy and Door Clearance View



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



FIGURE 43. Pre-Test Right Side View of Driver Dummy
and Front Seat Occupant Compartment



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



FIGURE 45. Pre-Test Driver Inner Door Panel View



FIGURE 46. Post-Test Driver Dummy Inner Door Panel View
Showing Driver Dummy Contact Locations



FIGURE 47. Post-Test Driver Dummy Close-Up Head Contact with Vehicle Interior View



FIGURE 48. Post-Test Driver Dummy Close-Up Head Contact with Side Airbag View

Photograph Not Applicable

No Dummy Torso Contact With Vehicle Interior

FIGURE 49. Post-Test Driver Dummy Close-Up Torso Contact with Vehicle Interior View



FIGURE 50. Post-Test Driver Dummy Close-Up Torso Contact with Side Airbag View

Photograph Not Applicable

No Dummy Pelvis Contact
With Vehicle Interior

FIGURE 51. Post-Test Driver Dummy Close-Up Pelvis Contact with Vehicle Interior View

Photograph Not Applicable

No Dummy Pelvis Contact
With Side Airbag

FIGURE 52. Post-Test Driver Dummy Close-Up Pelvis Contact with Side Airbag View



FIGURE 53. Pre-Test Left Side View of Rear Passenger Dummy
Showing Belt, Chalking, and Contact Switches



FIGURE 54. Pre-Test Left Side View of Rear Passenger Dummy
Shoulder and Door Top View



FIGURE 55. Post-Test Left Side View of Rear Passenger Dummy
Shoulder and Door Top View



FIGURE 56. Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning



FIGURE 57. Pre-Test Frontal View of Rear Passenger Dummy
Head and Shoulders in Relation to Head Restraint



FIGURE 58. Pre-Test Overhead View of Rear Passenger
Seat Pan Prior to Dummy Positioning

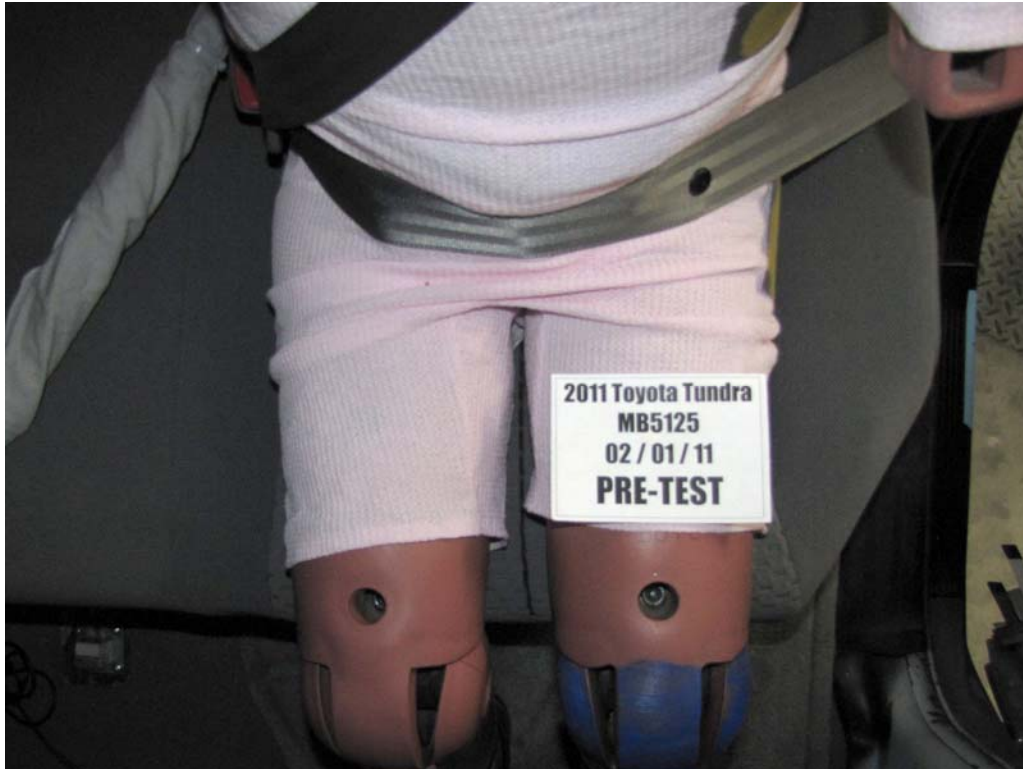


FIGURE 59. Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan



FIGURE 60. Pre-Test View of Rear Passenger Dummy's Neck
Showing Position of Adjustable Neck Bracket



FIGURE 61. Pre-Test View of Rear Passenger Dummy's Head
Showing Dummy's Head is Level

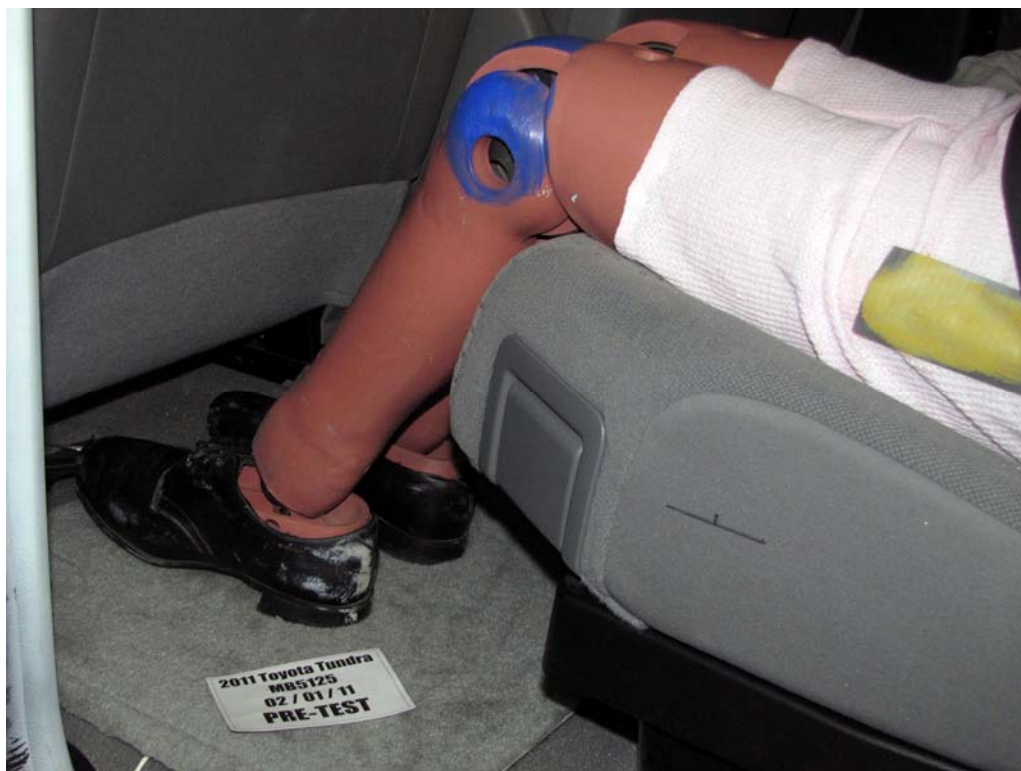


FIGURE 62. Pre-Test Placement of Rear Passenger Dummy's Feet



FIGURE 63. Pre-Test View of Belt Anchorage for Rear Passenger Dummy



FIGURE 64. Pre-Test Close-Up Left Side View of Rear Passenger Seat Track



FIGURE 65. Pre-Test Close-Up Left Side View of Rear Passenger Seat Back



FIGURE 66. Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint



FIGURE 67. Pre-Test Rear Passenger Dummy and Door Clearance View



FIGURE 68. Post-Test Rear Passenger Dummy and Door Clearance View



FIGURE 69. Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



FIGURE 70. Post-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



FIGURE 71. Pre-Test Rear Passenger Inner Door Panel View

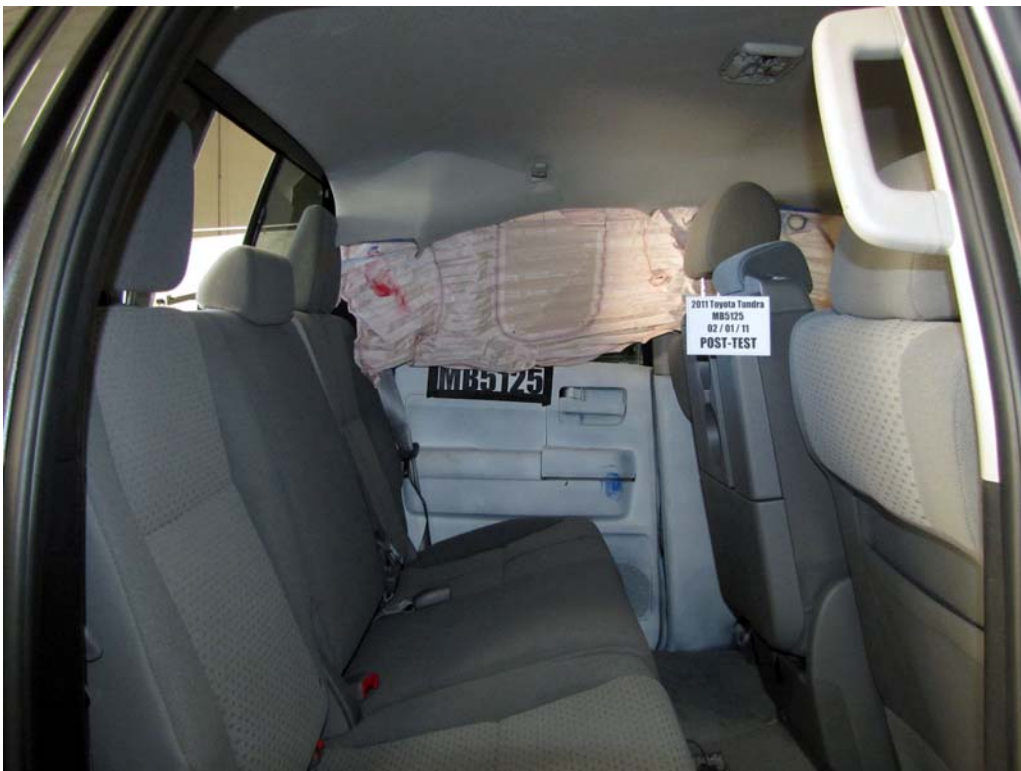


FIGURE 72. Post-Test Rear Passenger Inner Door Panel View
Showing Rear Passenger Dummy Contact Locations



FIGURE 73. Post-Test Rear Passenger Dummy Close-Up
Head Contact with Vehicle Interior View



FIGURE 74. Post-Test Rear Passenger Dummy Close-Up
Head Contact with Side Airbag View



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

Photograph Not Applicable

Vehicle Not Equipped With
Rear Passenger Side Airbag

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



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

Photograph Not Applicable

Vehicle Not Equipped With
Rear Passenger Side Airbag

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



FIGURE 79. Pre-Test View of Fuel Filler Cap



FIGURE 80. Post-Test View of Fuel Filler Cap



FIGURE 81. Pre-Test Front View of MDB Impactor Face



FIGURE 82. Post-Test Front View of MDB Impactor Face



FIGURE 83. Pre-Test Top View of MDB Impactor Face



FIGURE 84. Post-Test Top View of MDB Impactor Face



FIGURE 85. Pre-Test Left Side View of MDB Impactor Face



FIGURE 86. Post-Test Left Side View of MDB Impactor Face

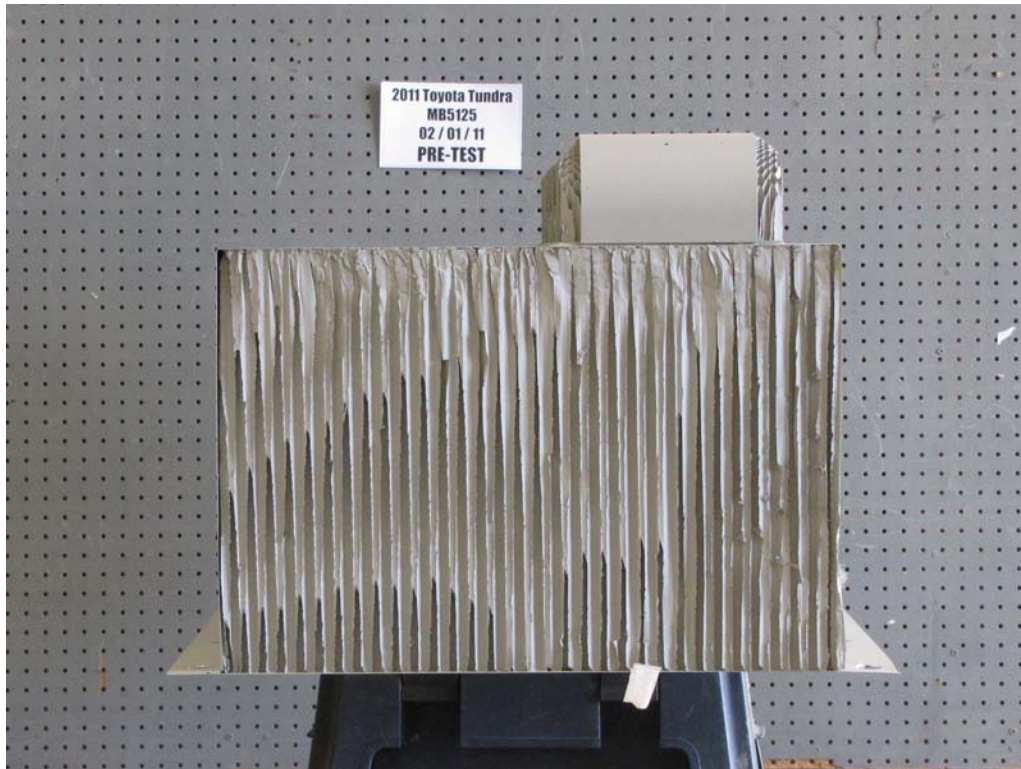


FIGURE 87. Pre-Test Right Side View of MDB Impactor Face



FIGURE 88. Post-Test Right Side View of MDB Impactor Face



FIGURE 89. Close-Up View of Vehicle's Certification Label

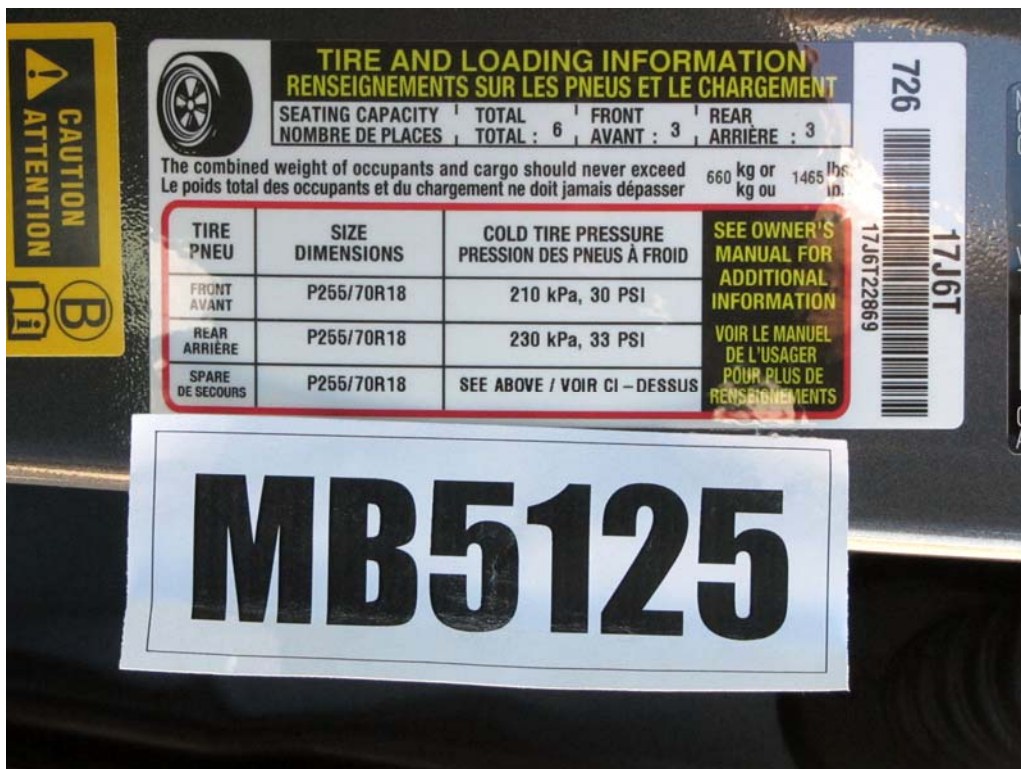


FIGURE 90. Close-Up View of Vehicle's Tire Information Placard

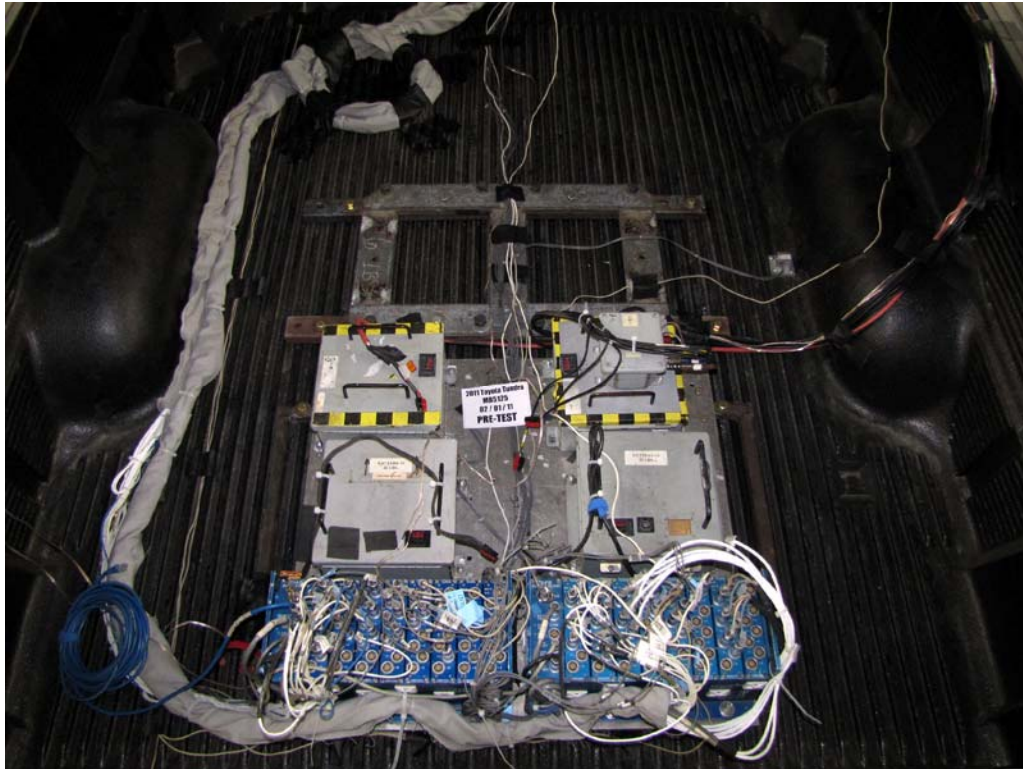


FIGURE 91. Pre-Test Ballast View



FIGURE 92. Post-Test Primary and Redundant Speed Trap Read-Out



FIGURE 93. FMVSS No. 301/305 Rollover 0 Degrees



FIGURE 94. FMVSS No. 301/305 Rollover 90 Degrees



FIGURE 95. FMVSS No. 301/305 Rollover 180 Degrees

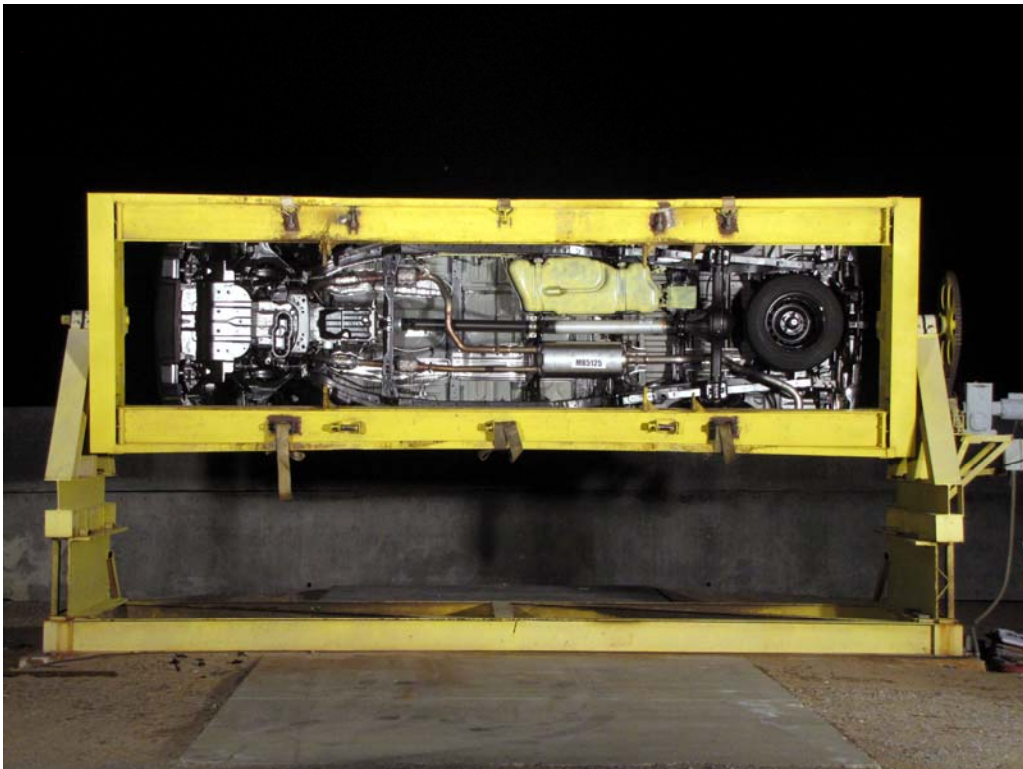


FIGURE 96. FMVSS No. 301/305 Rollover 270 Degrees



FIGURE 97. FMVSS No. 301/305 Rollover 360 Degrees



FIGURE 98. Impact Event

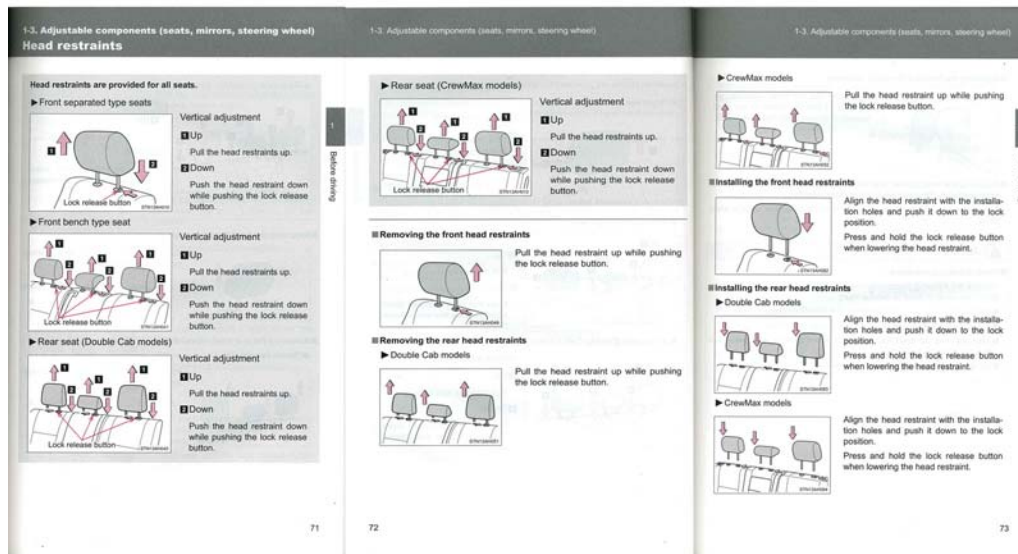


FIGURE 101. Left Rear Passenger Head Restraint Use and Adjustment
Information from Vehicle Manual

APPENDIX B
DUMMY RESPONSE DATA

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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
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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
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21	Passenger Lower Spine T12 Resultant Acceleration vs. Time	B-6
22	Passenger Iliac Force on Impact Side (Y) vs. Time	B-7
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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. The website can be found at

www.NHTSA.dot.gov

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)
Driver Shoulder Contact Switch
Driver Torso Contact Switch
Driver Pelvis Contact Switch
Passenger Head Acceleration Redundant (X)
Passenger Head Acceleration Redundant (Y)
Passenger Head Acceleration Redundant (Z)
Passenger Shoulder Contact Switch
Passenger Torso Contact Switch
Passenger Pelvis Contact Switch

Vehicle Instrumentation Data

Driver Side Airbag Timing
Driver Side Curtain Airbag Timing
Passenger Side Airbag Timing (if applicable)
Passenger Side Curtain Airbag Timing (if different from Driver)
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)
Rear Floorpan Above Axle Acceleration (X)
Rear Floorpan Above Axle Acceleration (Y)
Rear Floorpan Above Axle Acceleration (Z)
Left Side Sill at Front Seat Acceleration (Y)
Left Side Sill at Rear Seat Acceleration (Y)
Right Rear Occupant Compartment Acceleration (Y)
Lower A-Post Acceleration (Y)
Upper A-Post Acceleration (Y)
Lower B-Post Acceleration (Y)
Upper B-Post Acceleration (Y)

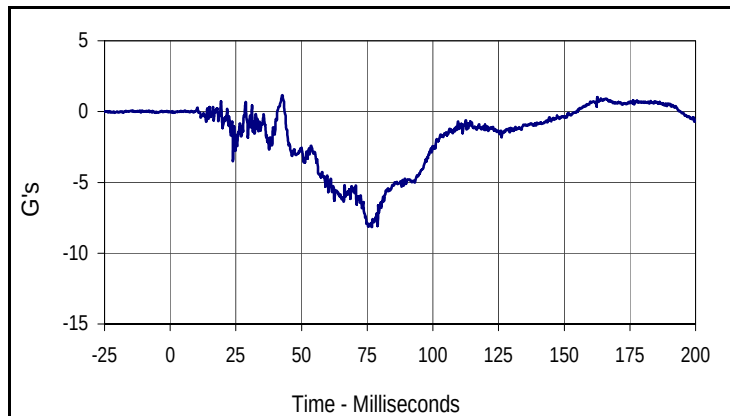
Front Seat Track Acceleration (Y)
Rear Seat Track Acceleration (Y)
Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)

MDB Instrumentation Data

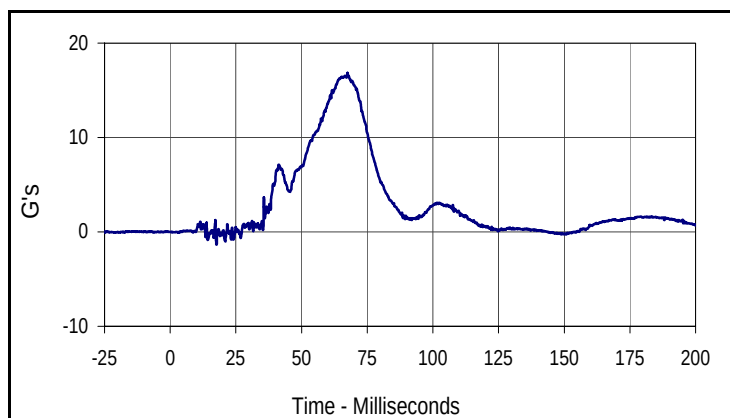
MDB Center of Gravity Acceleration (X)
MDB Center of Gravity Acceleration (Y)
MDB Center of Gravity Acceleration (Z)
MDB Rear Acceleration (X)
MDB Rear Acceleration (Y)
Left MDB Contact Switch
Right MDB Contact Switch

Test Vehicle: 2011 Toyota Tundra Double Cab 4-Door Truck
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

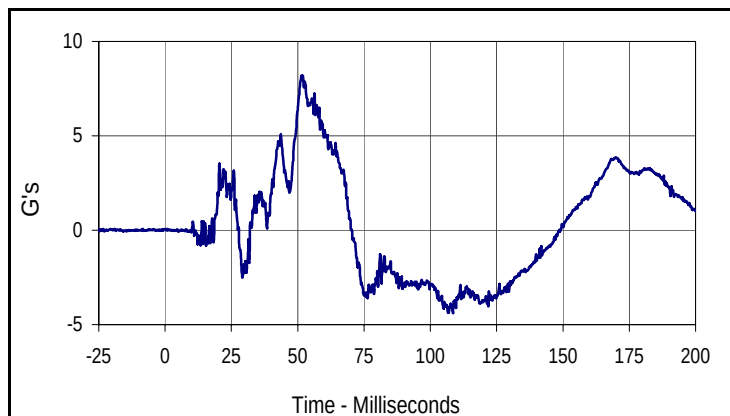
Test Date: 2/1/11
 NHTSA No.: MB5125



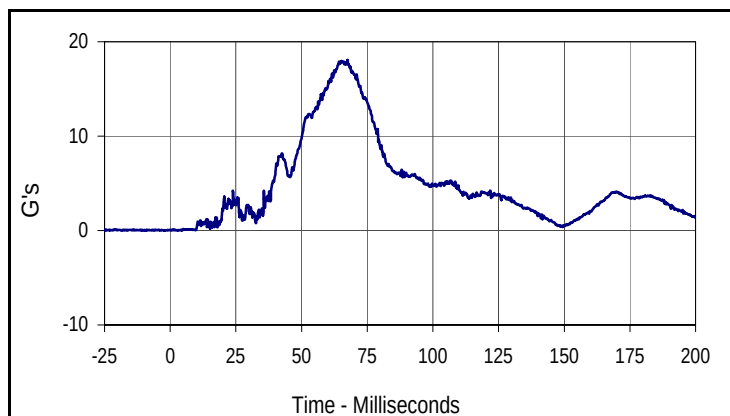
Curve Description			
Driver Head Acceleration X Primary			
CURNO	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
1.2	42.7	-8.2	76.7



Curve Description			
Driver Head Acceleration Y Primary			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
16.8	67.5	-1.4	17.6



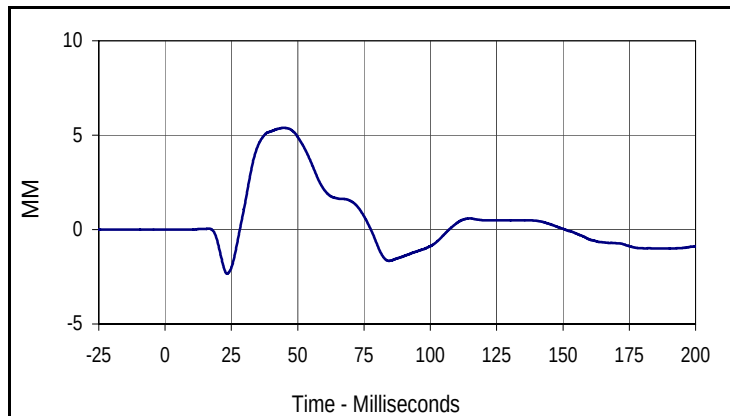
Curve Description			
Driver Head Acceleration Z Primary			
CURNO	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
8.2	51.5	-4.4	108.5



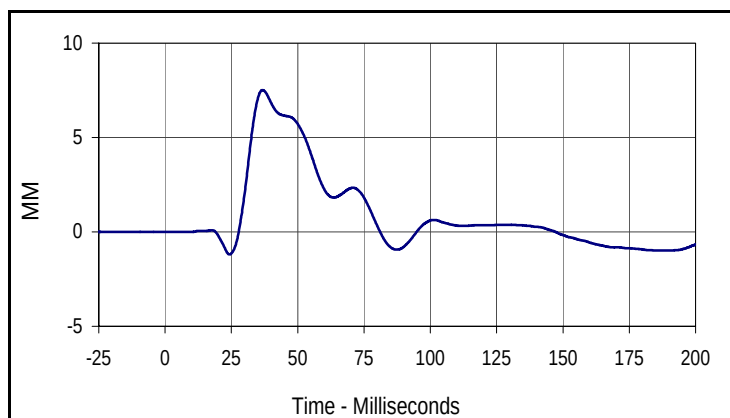
Curve Description			
Driver Head Resultant Acceleration Primary			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
18.1	67.5	0.0	2.6

Test Vehicle: 2011 Toyota Tundra Double Cab 4-Door Truck
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

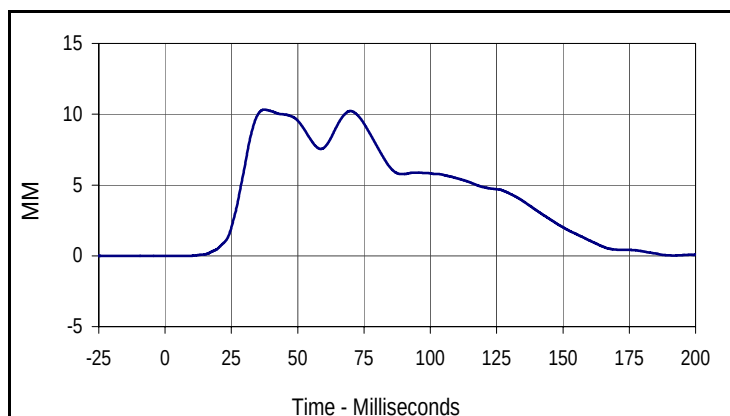
Test Date: 2/1/11
 NHTSA No.: MB5125



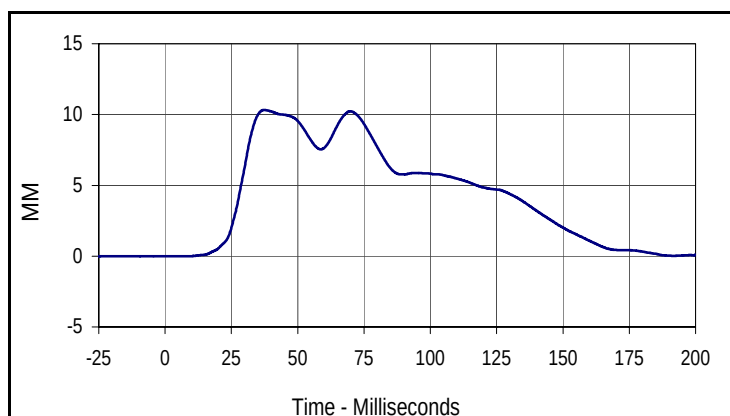
Curve Description			
Driver Upper Thorax Rib Deflection Y			
CURNO	Type	SAE Class	Units
007	FIL	180	MM
Max	Time	Min	Time
5.4	44.6	-2.3	23.4



Curve Description			
Driver Middle Thorax Rib Deflection Y			
CURNO	Type	SAE Class	Units
008	FIL	180	MM
Max	Time	Min	Time
7.5	36.8	-1.2	24.3



Curve Description			
Driver Lower Thorax Rib Deflection Y			
CURNO	Type	SAE Class	Units
009	FIL	180	MM
Max	Time	Min	Time
10.3	37.4	0.0	3.1



Curve Description			
Driver Thorax Rib Deflection Maximum			
CURNO	Type	SAE Class	Units
010	FIL	180	MM
Max	Time	Min	Time
10.3	37.4	0.0	3.1

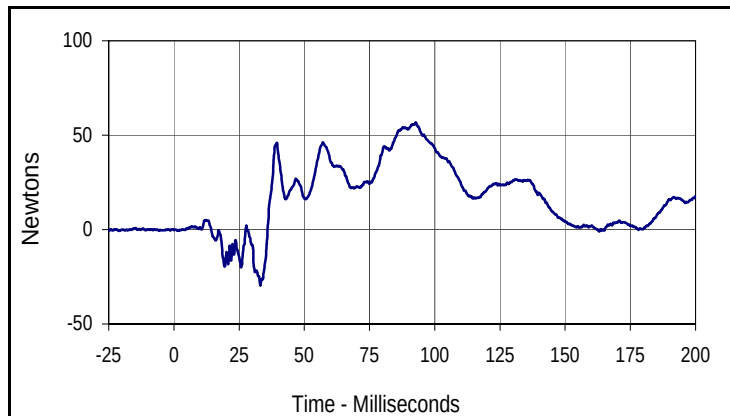
Test Vehicle: 2011 Toyota Tundra Double Cab 4-Door Truck

Test Date: 2/1/11

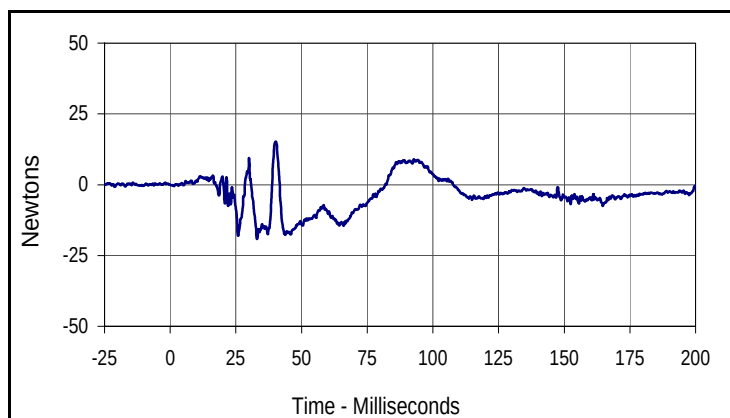


Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

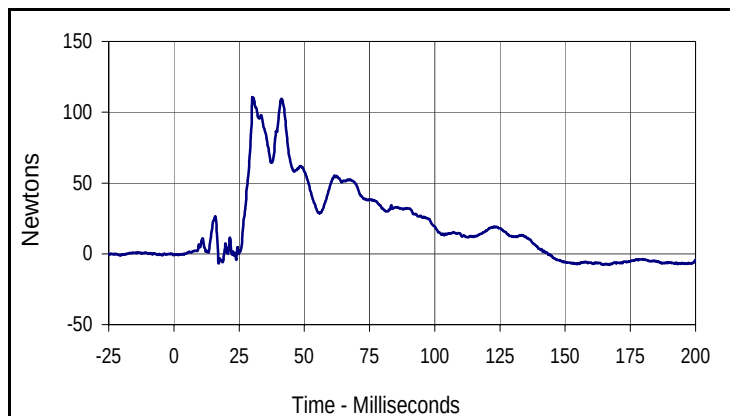
NHTSA No.: MB5125



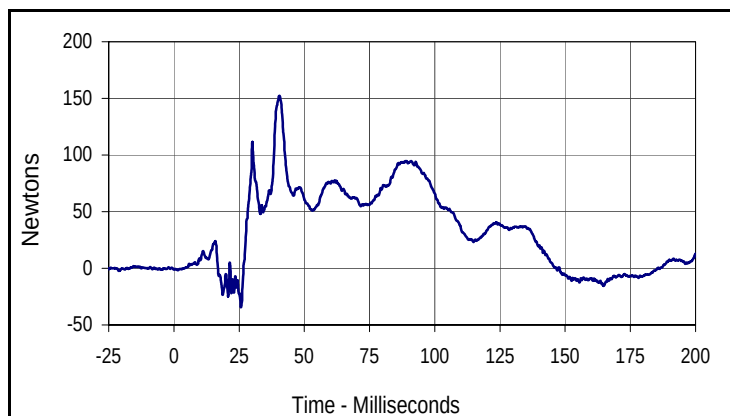
Curve Description			
Driver Anterior Abdominal Force Y			
CURNO	Type	SAE Class	Units
013	FIL	600	Newtons
Max	Time	Min	Time
56.9	92.7	-29.5	33.2



Curve Description			
Driver Middle Abdominal Force Y			
CURNO	Type	SAE Class	Units
014	FIL	600	Newtons
Max	Time	Min	Time
15.2	40.2	-19.1	33.1



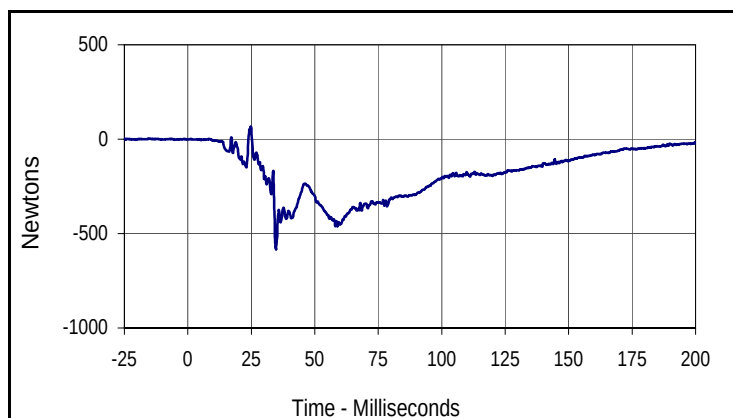
Curve Description			
Driver Posterior Abdominal Force Y			
CURNO	Type	SAE Class	Units
015	FIL	600	Newtons
Max	Time	Min	Time
110.6	30.1	-7.7	164.9



Curve Description			
Driver Total Abdominal Force			
CURNO	Type	SAE Class	Units
013	RES	600	Newtons
Max	Time	Min	Time
152.2	40.5	-34.3	25.7

Test Vehicle: 2011 Toyota Tundra Double Cab 4-Door Truck
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

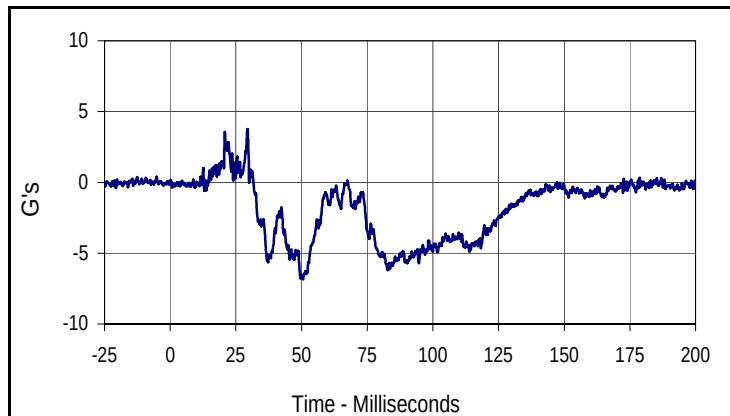
Test Date: 2/1/11
 NHTSA No.: MB5125



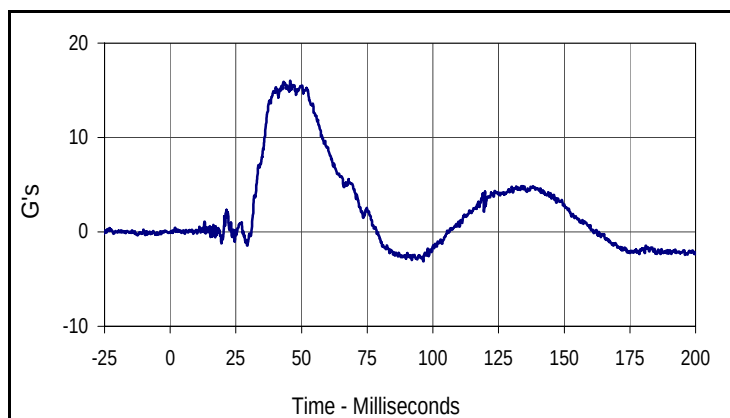
Curve Description			
Driver Pubic Symphysis Force Y			
CURNO	Type	SAE Class	Units
016	FIL	600	Newtons
Max	Time	Min	Time
68.0	24.8	-582.3	34.7

Test Vehicle: 2011 Toyota Tundra Double Cab 4-Door Truck
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

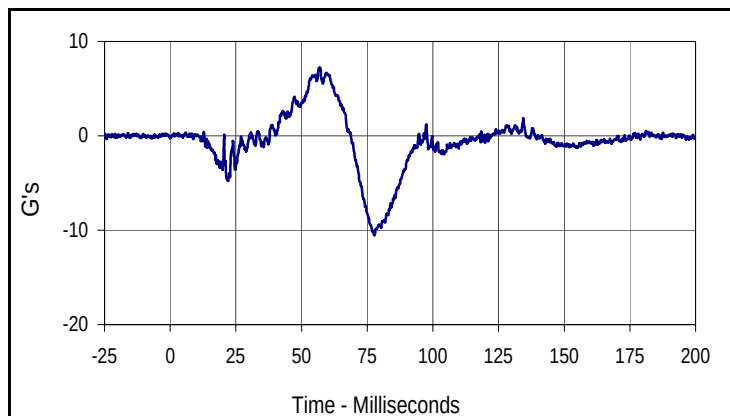
Test Date: 2/1/11
 NHTSA No.: MB5125



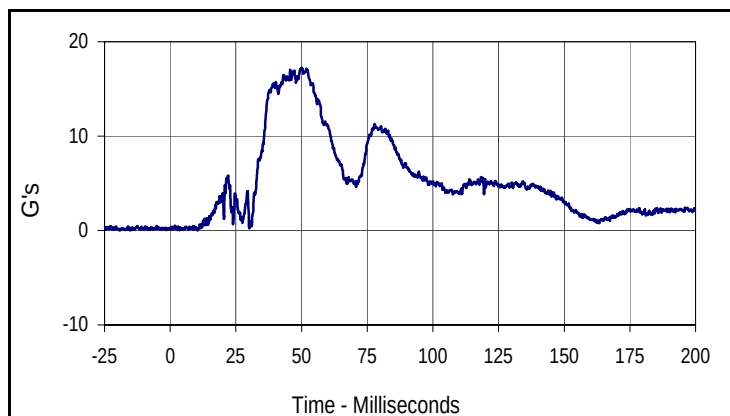
Curve Description			
Passenger Head Acceleration X Primary			
CURNO	Type	SAE Class	Units
021	FIL	1000	G's
Max	Time	Min	Time
3.8	29.4	-6.9	50.6



Curve Description			
Passenger Head Acceleration Y Primary			
CURNO	Type	SAE Class	Units
022	FIL	1000	G's
Max	Time	Min	Time
16.0	45.6	-3.1	96.3



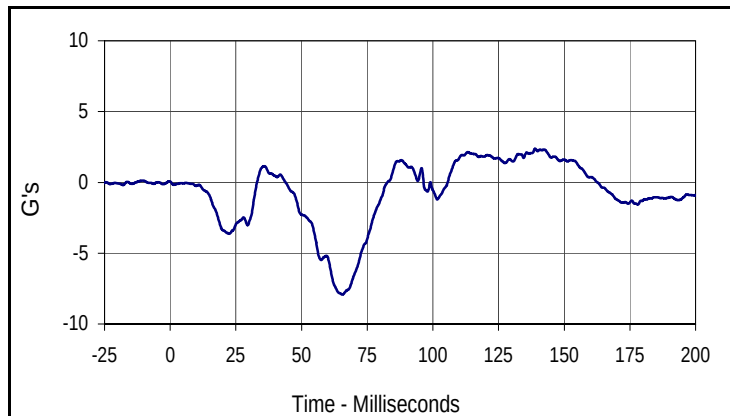
Curve Description			
Passenger Head Acceleration Z Primary			
CURNO	Type	SAE Class	Units
023	FIL	1000	G's
Max	Time	Min	Time
7.2	57.1	-10.6	77.8



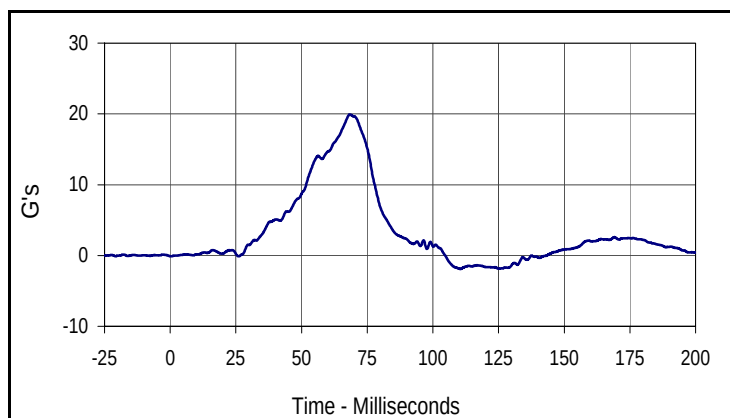
Curve Description			
Passenger Head Acceleration Resultant Primary			
CURNO	Type	SAE Class	Units
021	RES	1000	G's
Max	Time	Min	Time
17.2	50.3	0.0	10.5

Test Vehicle: 2011 Toyota Tundra Double Cab 4-Door Truck
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

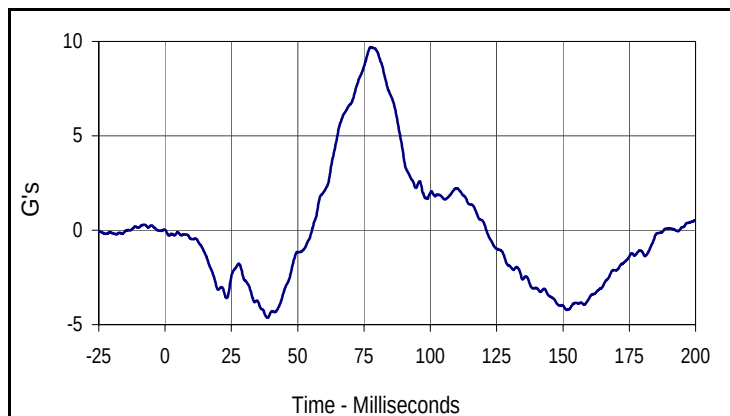
Test Date: 2/1/11
 NHTSA No.: MB5125



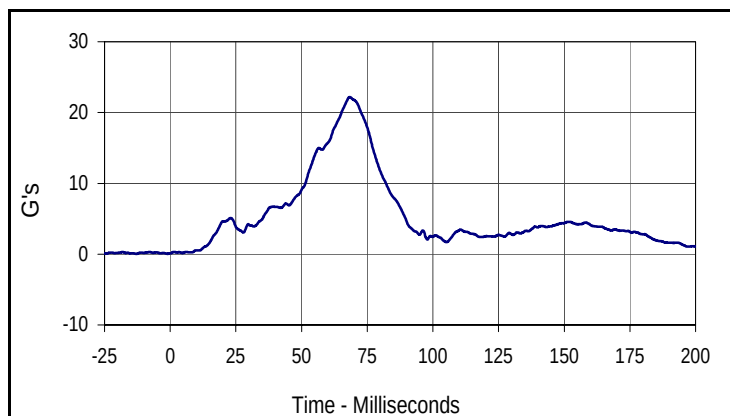
Curve Description			
Passenger Lower Spine T12 Acceleration X			
CURNO	Type	SAE Class	Units
037	FIL	180	G's
Max	Time	Min	Time
2.4	138.9	-7.9	65.6



Curve Description			
Passenger Lower Spine T12 Acceleration Y			
CURNO	Type	SAE Class	Units
038	FIL	180	G's
Max	Time	Min	Time
19.9	68.4	-1.9	110.4



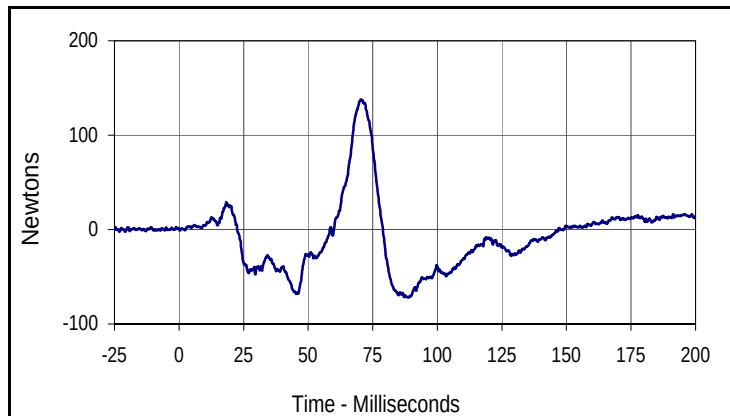
Curve Description			
Passenger Lower Spine T12 Acceleration Z			
CURNO	Type	SAE Class	Units
039	FIL	180	G's
Max	Time	Min	Time
9.7	77.5	-4.6	38.6



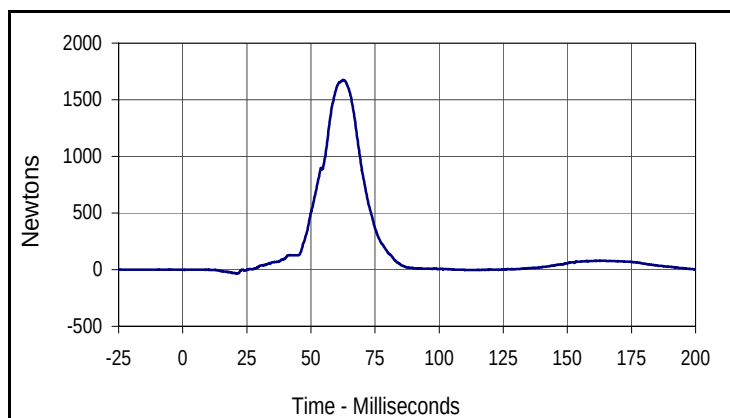
Curve Description			
Passenger Lower Spine T12 Acceleration Resultant			
CURNO	Type	SAE Class	Units
037	RES	180	G's
Max	Time	Min	Time
22.2	68.3	0.1	0.3

Test Vehicle: 2011 Toyota Tundra Double Cab 4-Door Truck
 Test Program: 61 km/h (38 mph) Side Impact NCAP 27° Moving Deformable Barrier Test

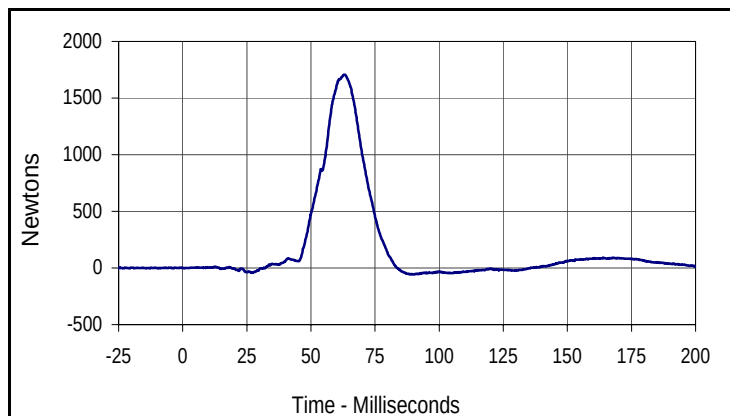
Test Date: 2/1/11
 NHTSA No.: MB5125



Curve Description			
Passenger Iliac Wing Force on Impact Side Y			
CURNO	Type	SAE Class	Units
043	FIL	600	Newtons
Max	Time	Min	Time
138.1	70.4	-72.1	88.8



Curve Description			
Passenger Acetabulum Force on Impact Side Y			
CURNO	Type	SAE Class	Units
042	FIL	600	Newtons
Max	Time	Min	Time
1674.3	62.6	-32.8	21.2



Curve Description			
Passenger Total Pelvic Force			
CURNO	Type	SAE Class	Units
042	SUM	600	Newtons
Max	Time	Min	Time
1705.7	63.2	-56.6	90.1

APPENDIX C
DUMMY CALIBRATION DATA

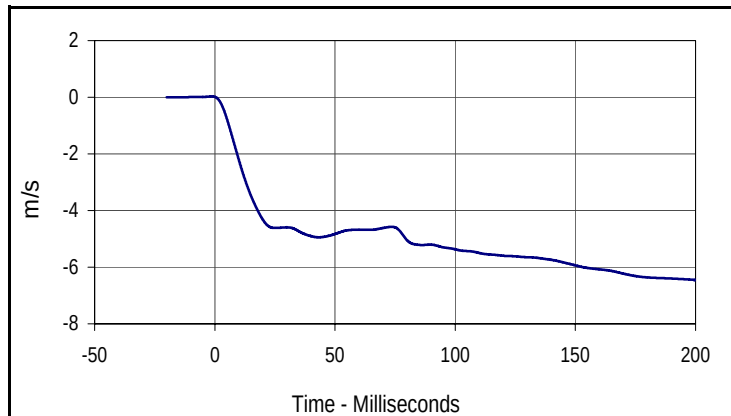
APPENDIX C
PRE-TEST / HIII CONFIGURATION AND PERFORMANCE VERIFICATION DATA

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

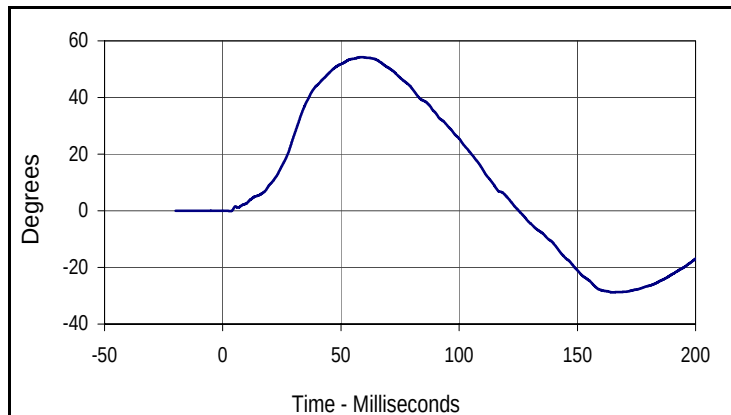
Test Date: 1/30/11
 Test I.D.: NBM02A



Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.15	Pass
Laboratory Relative Humidity		%	10 to 70	22.43	Pass
Pendulum Velocity		m/s	3.30 to 3.50	3.41	Pass
Pendulum Deceleration	1 msec	m/s	0.0 to -.050	-0.034	Pass
	3 msec	m/s	-.250 to -.375	-0.294	Pass
	14 msec	m/s	-3.20 to -3.70	-3.26	Pass
Headform Rotation	Max	Degrees	49.0 to 58.0	54.3	Pass
	Time	msec	54.0 to 66.0	59.0	Pass
Maximum Rotation To Time Zero Crossing		msec	53.0 to 88.0	66.3	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.3	-6.5	200.0



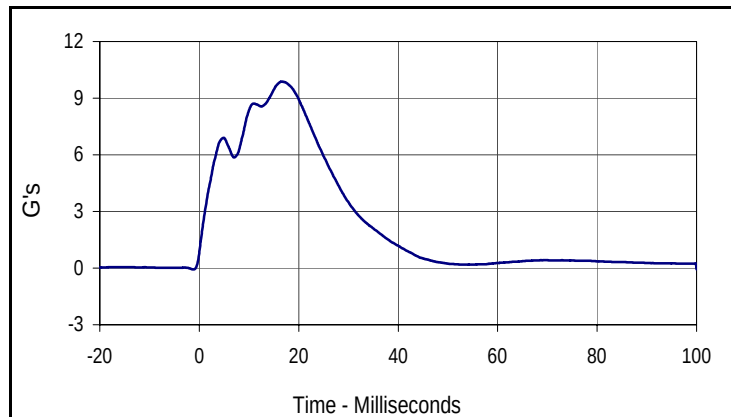
Curve Description			
Headform Rotation			
CURNO	Type	SAE Class	Units
002	FIL	180	Degrees
Max	Time	Min	Time
54.3	59.0	-28.8	164.8

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

Test Date: 1/30/11
 Test I.D.: SHM02A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.15	Pass
Laboratory Relative Humidity	%	10 to 70	22.39	Pass
Probe Velocity	m/s	4.20 to 4.40	4.22	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	9.88	Pass
Overall Test Results			Pass	



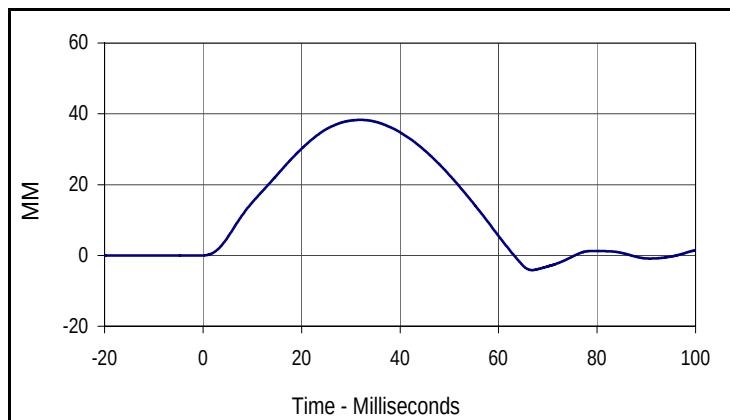
Curve Description			
Probe Accel			
CURNO	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
9.9	16.6	-0.1	-1.2

Test Program: ES2re Rib Module Calibration
 ATD Serial No.: F035 Rib #1

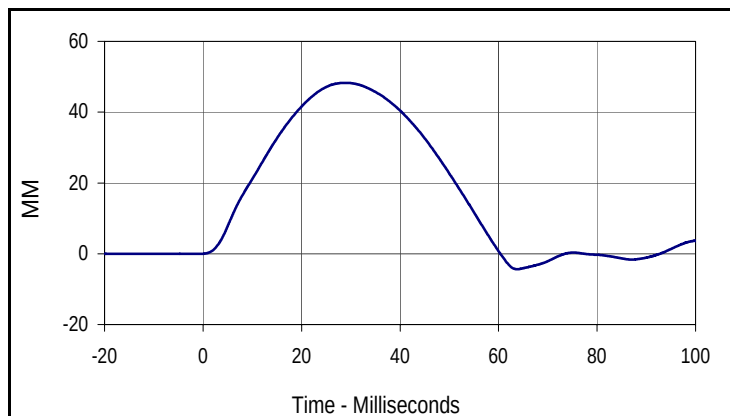
Test Date: 1/30/11
 Test I.D.: RIB102A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.15	Pass
Laboratory Relative Humidity	%	10 to 70	22.34	Pass
Peak Rib Deflection at 459 MM Drop Height	MM	36 to 40	38.3	Pass
Peak Rib Deflection at 815 MM Drop Height	MM	46 to 51	48.3	Pass
Overall Test Results			Pass	



Curve Description			
Upper Rib Deflection (459 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
38.3	32.0	-4.1	66.8



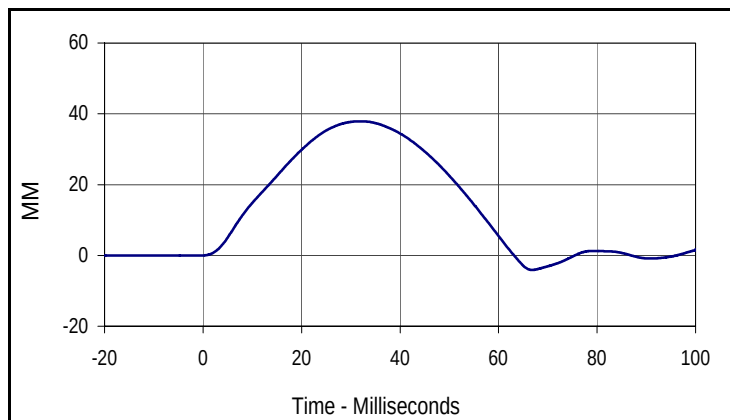
Curve Description			
Upper Rib Deflection (815 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
48.3	28.9	-4.4	63.7

Test Program: ES2re Rib Module Calibration
 ATD Serial No.: F035 Rib #2

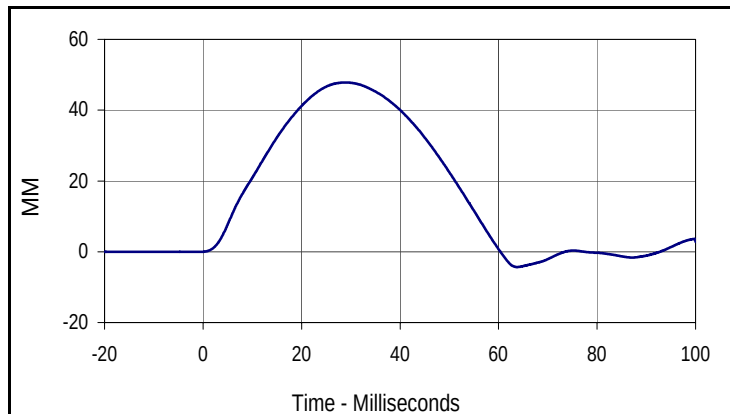
Test Date: 1/30/11
 Test I.D.: RIB202A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.21	Pass
Laboratory Relative Humidity	%	10 to 70	22.29	Pass
Peak Rib Deflection at 459 MM Drop Height	MM	36 to 40	37.9	Pass
Peak Rib Deflection at 815 MM Drop Height	MM	46 to 51	47.8	Pass
Overall Test Results			Pass	



Curve Description			
Middle Rib Deflection (459 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
37.9	32.0	-4.1	66.8



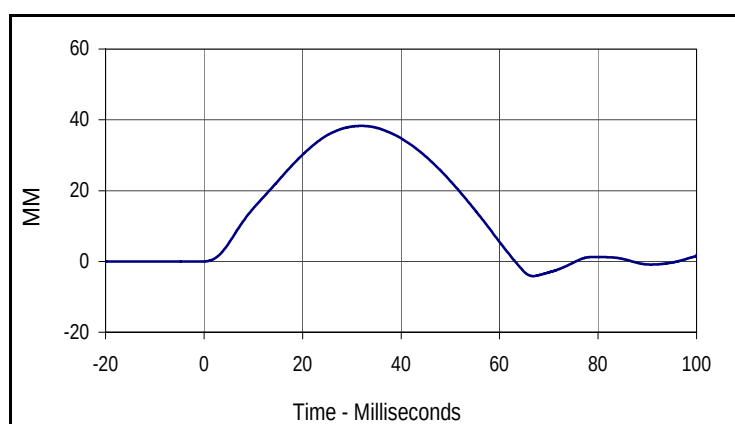
Curve Description			
Middle Rib Deflection (815 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
47.8	28.9	-4.3	63.7

Test Program: ES2re Rib Module Calibration
 ATD Serial No.: F035 Rib #3

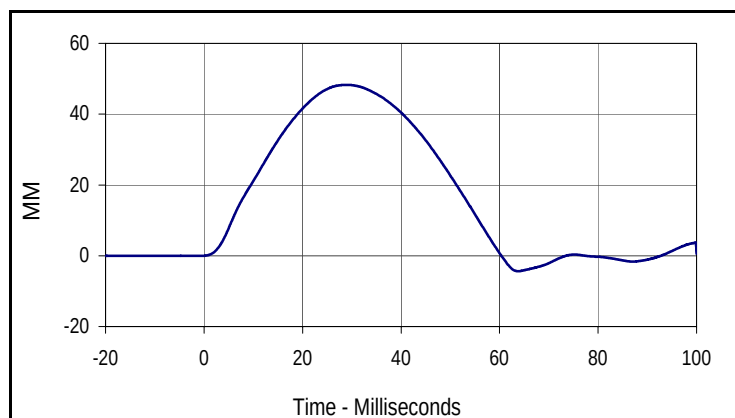
Test Date: 1/30/11
 Test I.D.: RIB302A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.21	Pass
Laboratory Relative Humidity	%	10 to 70	22.34	Pass
Peak Rib Deflection at 459 MM Drop Height	MM	36 to 40	38.3	Pass
Peak Rib Deflection at 815 MM Drop Height	MM	46 to 51	48.3	Pass
Overall Test Results			Pass	



Curve Description			
Lower Rib Deflection (459 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
38.3	32.0	-4.1	66.8



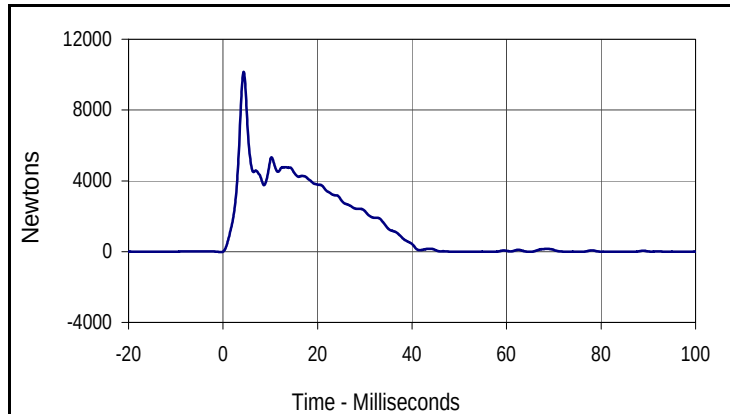
Curve Description			
Lower Rib Deflection (815 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
48.3	28.9	-4.4	63.7

Test Program: ES2re Thorax Calibration
 ATD Serial No.: F035

Test Date: 1/30/11
 Test I.D.: THM02A



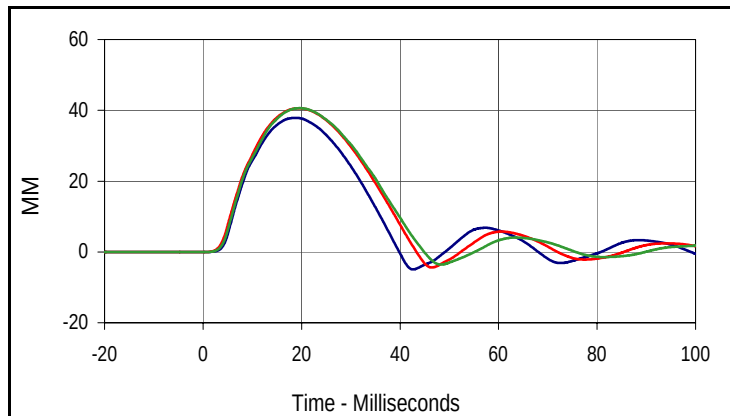
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.21	Pass
Laboratory Relative Humidity	%	10 to 70	22.24	Pass
Probe Velocity	m/s	5.40 to 5.60	5.46	Pass
Impactor Force	N	5100 to 6200	5326.9	Pass
	msec	> 6.0 msec	10.3	Pass
Upper Rib Deflection	MM	34 to 41	37.9	Pass
Middle Rib Deflection	MM	37 to 45	40.6	Pass
Lower Rib Deflection	MM	37 to 44	40.6	Pass
Overall Test Results			Pass	



Curve Description

Impactor Force

CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
10149.9	4.4	-30.5	-0.4



Curve Description

Upper, Middle, Lower Rib Deflections

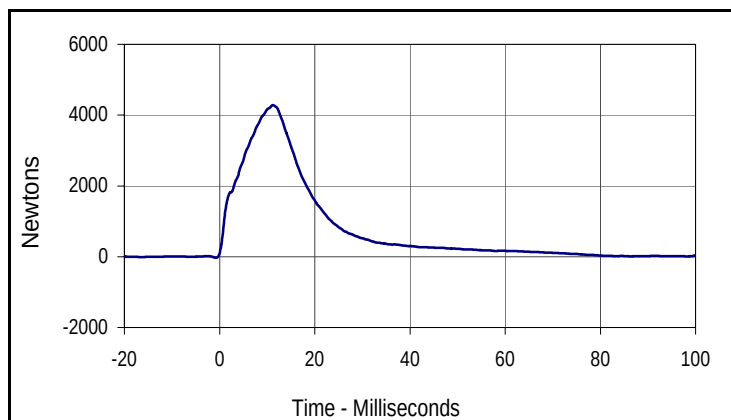
CURNO(s)	Type	SAE Class	Units
002-003-004	FIL	180	MM
Max (Upper)	Time	Min (Upper)	Time
37.9	18.8	-4.9	42.6
Max (Middle)	Time	Min (Middle)	Time
40.6	19.5	-4.4	46.5
Max (Lower)	Time	Min (Lower)	Time
40.6	19.6	-3.6	48.3

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

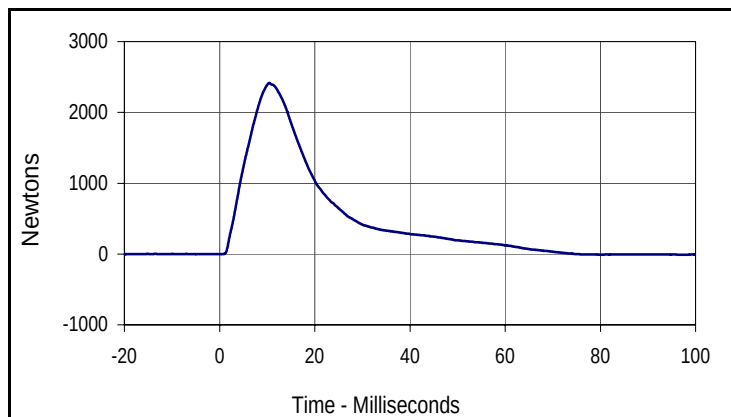
Test Date: 1/30/11
 Test I.D.: ABDM02A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.21	Pass
Laboratory Relative Humidity	%	10 to 70	22.24	Pass
Probe Velocity	m/s	3.90 to 4.10	4.02	Pass
Impactor Force	N	4000 to 4800	4279.3	Pass
	msec	10.6 to 13.0	11.2	Pass
Abdominal Force	N	2200 to 2700	2415.8	Pass
	msec	10.0 to 12.3	10.4	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
4279.3	11.2	-30.4	-0.8



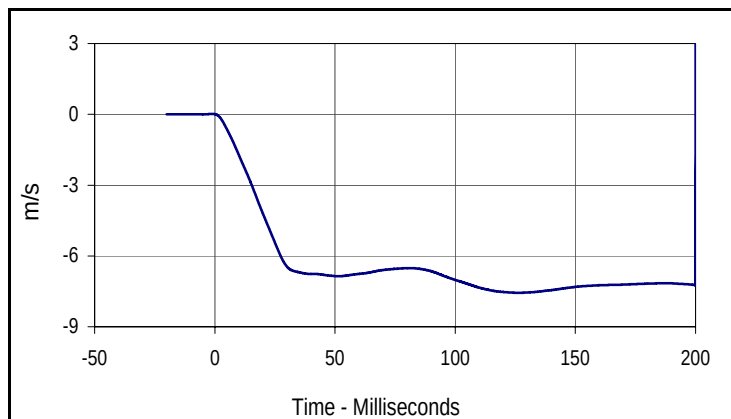
Curve Description			
Abdomen Sum Resultant			
CURNO	Type	SAE Class	Units
002	RES	600	Newtons
Max	Time	Min	Time
2415.8	10.4	-9.1	80.5

Test Program: ES2re Lumbar Spine Calibration
 ATD Serial No.: F035

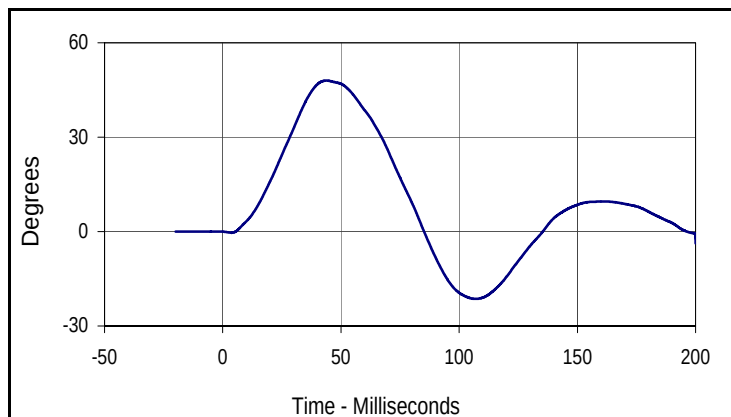
Test Date: 1/30/11
 Test I.D.: SPM02A



Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.21	Pass
Laboratory Relative Humidity		%	10 to 70	22.20	Pass
Pendulum Velocity		m/s	5.95 to 6.15	5.99	Pass
Pendulum Deceleration	1 msec	m/s	0.0 to -.050	-0.028	Pass
	3.7 msec	m/s	-.240 to -.425	-0.377	Pass
	27 msec	m/s	-5.80 to -6.50	-5.91	Pass
	30 msec	m/s	< -6.50	-6.45	Pass
Headform Rotation	Max	Degrees	45.0 to 55.0	48.0	Pass
	Time	msec	39.0 to 53.0	43.9	Pass
Maximum Rotation To Time Zero Crossing		msec	37.0 to 57.0	41.3	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
3.7	200.0	-7.6	126.3



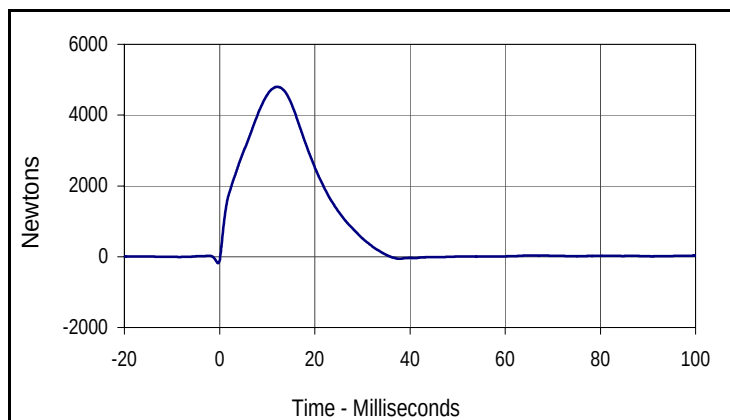
Curve Description			
Headform Rotation			
CURNO	Type	SAE Class	Units
002	FIL	180	Degrees
Max	Time	Min	Time
48.0	43.9	-21.4	107.0

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

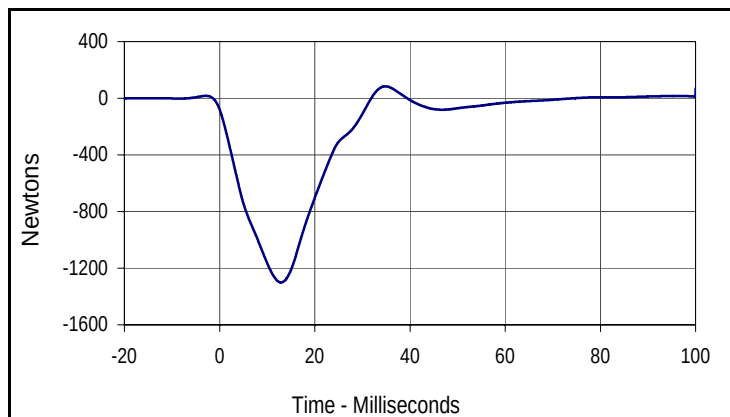
Test Date: 1/30/11
 Test I.D.: PLM02A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.26	Pass
Laboratory Relative Humidity	%	10 to 70	22.19	Pass
Probe Velocity	m/s	4.20 to 4.40	4.22	Pass
Impactor Force	N	4700 to 5400	4798.6	Pass
	msec	11.8 to 16.1	12	Pass
Pubic Symphysis Load	N	-1230 to -1590	-1300.6	Pass
	msec	12.2 to 17.0	12.9	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
4798.6	12.0	-178.9	-0.3



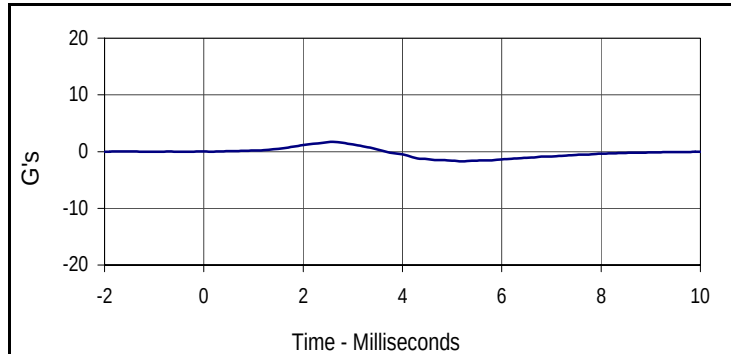
Curve Description			
Pubic FY			
CURNO	Type	SAE Class	Units
002	FIL	60	Newtons
Max	Time	Min	Time
84.2	34.8	-1300.6	12.9

Test Program: ES2re Lateral Head Drop Calibration
 ATD Serial No.: F035

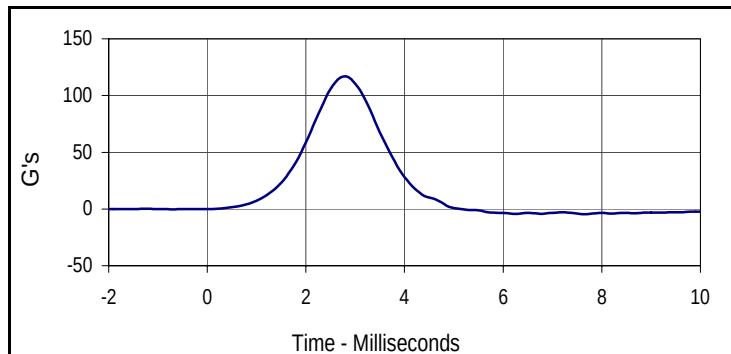
Test Date: 1/30/11
 Test I.D.: HDM02A



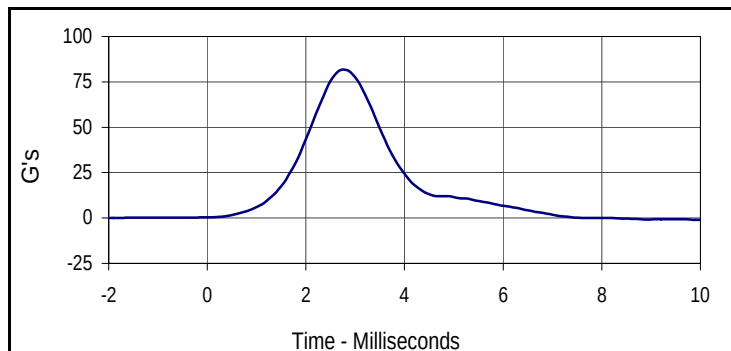
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.26	Pass
Laboratory Relative Humidity	%	10 to 70	22.24	Pass
Peak Resultant Acceleration	G's	125 to 155	142.7	Pass
Peak Longitudinal Acceleration	G's	≤15	1.7	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	8.1	Pass
Overall Test Results			Pass	



Curve Description			
Head X			
CURNO	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
1.7	2.6	-1.7	5.2



Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
117.0	2.8	-4.5	7.7



Curve Description			
Head Z			
CURNO	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
81.7	2.8	-1.0	10.0



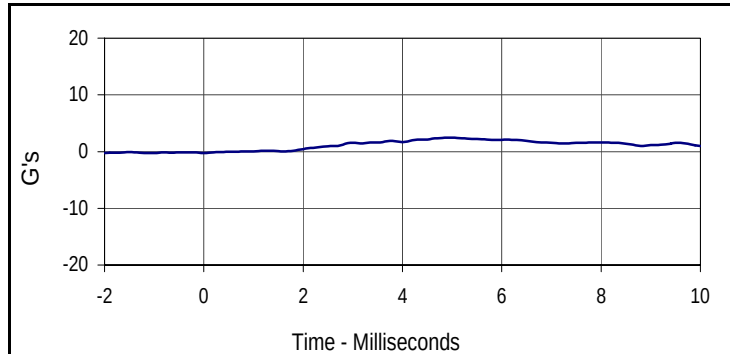
Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
142.7	2.8	0.0	-2.0

Test Program: SID IIs Lateral Head Drop Calibration
 ATD Serial No.: 307

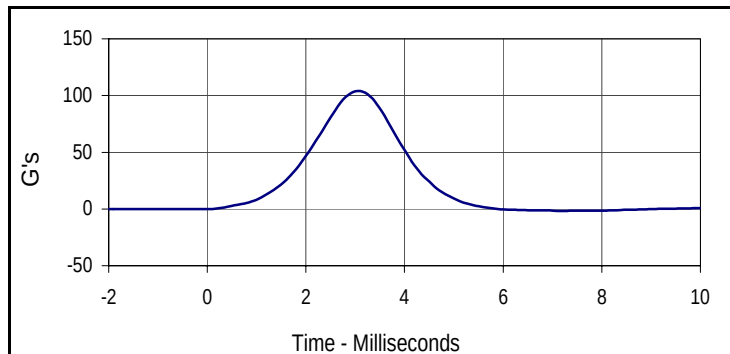
Test Date: 1/30/11
 Test I.D.: HDF02A



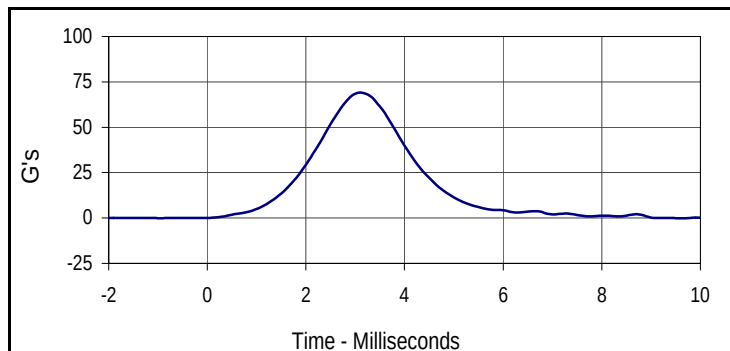
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.31	Pass
Laboratory Relative Humidity	%	10 to 70	22.10	Pass
Peak Resultant Acceleration	G's	115 to 137	125.0	Pass
Peak Longitudinal Acceleration	G's	≤15	2.5	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	11.8	Pass
Overall Test Results			Pass	



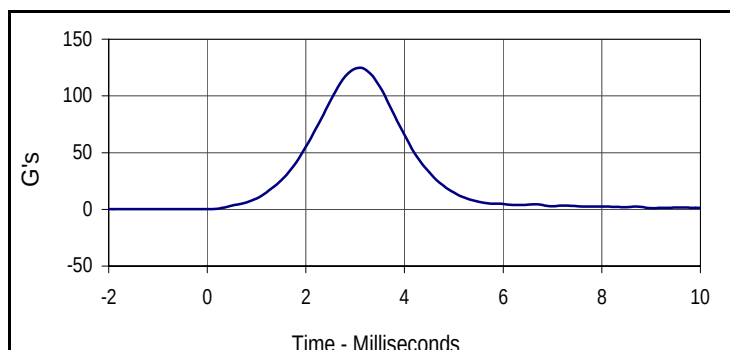
Curve Description			
Head X			
CURNO	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
2.5	5.0	-0.3	-1.1



Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
104.1	3.1	-1.8	7.2



Curve Description			
Head Z			
CURNO	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
69.1	3.1	-0.2	9.6



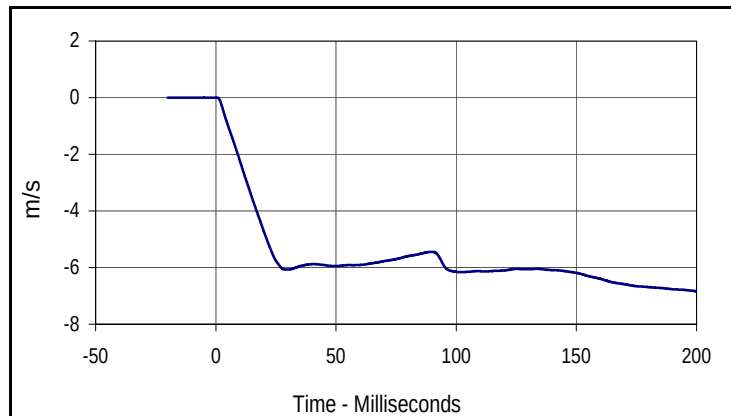
Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
125.0	3.1	0.1	-1.5

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

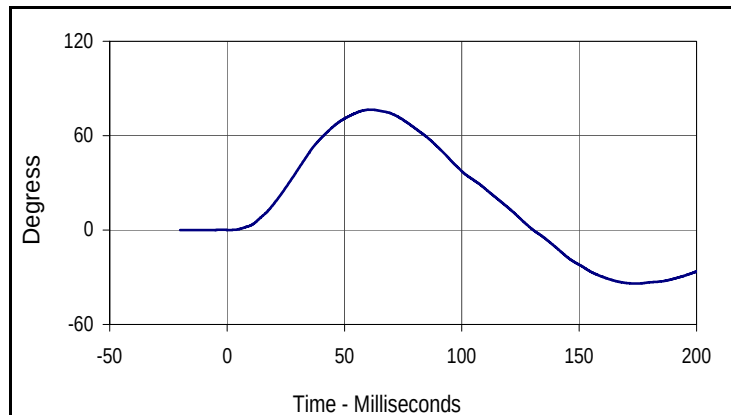
Test Date: 1/30/11
 Test I.D.: NBF02A



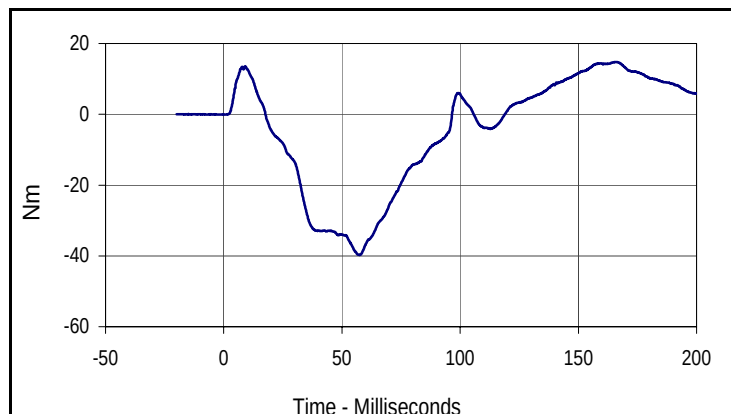
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.31	Pass
Laboratory Relative Humidity		%	10 to 70	21.96	Pass
Pendulum Velocity		m/s	5.51 to 5.63	5.52	Pass
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.2	Pass
	15 msec	m/s	-3.30 to -4.10	-3.5	Pass
	20 msec	m/s	-4.40 to -5.40	-4.7	Pass
	25 msec	m/s	-5.40 to -6.10	-5.8	Pass
	25-100 msec	m/s	-5.50 to -6.20	-6.2	Pass
Translation-Rotation	Max	Degrees	71.0 to 81.0	76.6	Pass
	Time	msec	50.0 to 70.0	61.1	Pass
Peak Occipital Condyle Moment		Nm	-36.0 to -44.0	-39.7	Pass
Decaying Moment Time to Cross 0 Nm		msec	102.0 to 126.0	118.9	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
0.0	0.2	-6.8	200.0



Curve Description			
Maximum Translation Rotation			
CURNO	Type	SAE Class	Units
002	FIL	60	Degress
Max	Time	Min	Time
76.6	61.1	-34.0	174.2



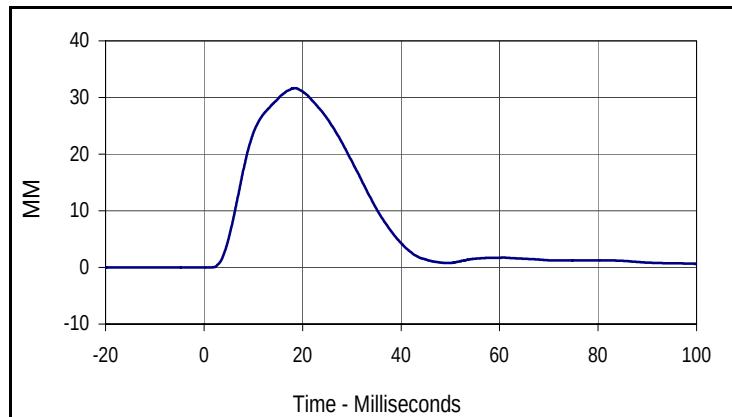
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
14.8	166.3	-39.7	57.4

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

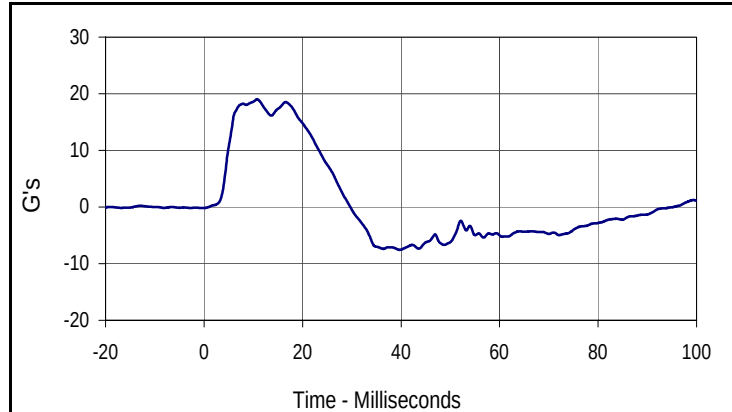
Test Date: 1/30/11
 Test I.D.: SHF02A



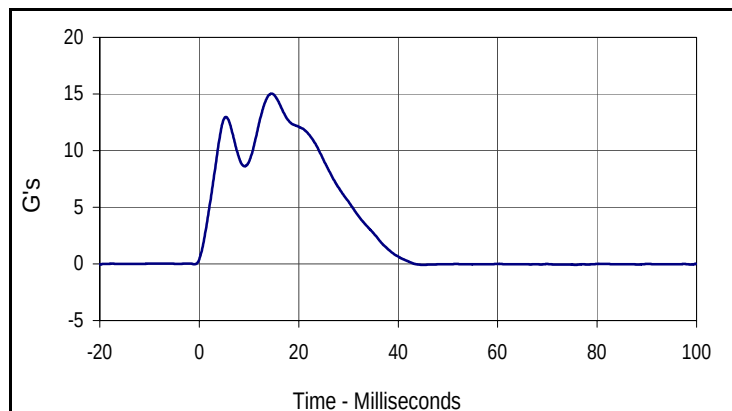
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.31	Pass
Laboratory Relative Humidity	%	10 to 70	21.96	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.28	Pass
Shoulder Deflection	MM	28 to 37	31.7	Pass
Peak Upper Spine Y Acceleration	G's	17 to 22	19.0	Pass
Peak Impactor Acceleration	G's	13 to 18	15.0	Pass
Overall Test Results			Pass	



Curve Description			
Shoulder Acceleration			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
31.7	18.5	0.0	-12.9



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
19.0	10.8	-7.6	39.7



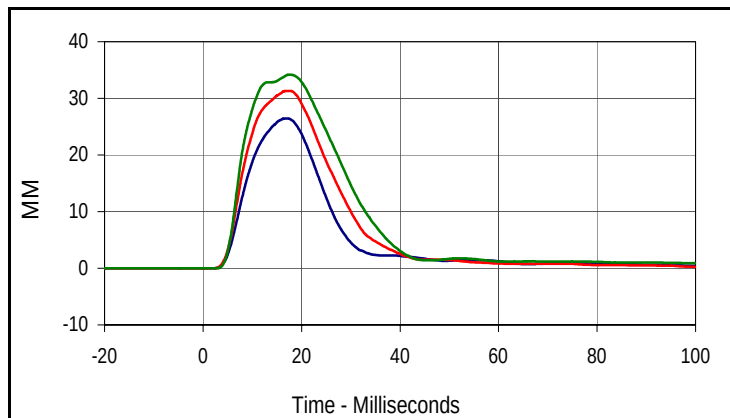
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
15.0	14.5	-0.1	44.9

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

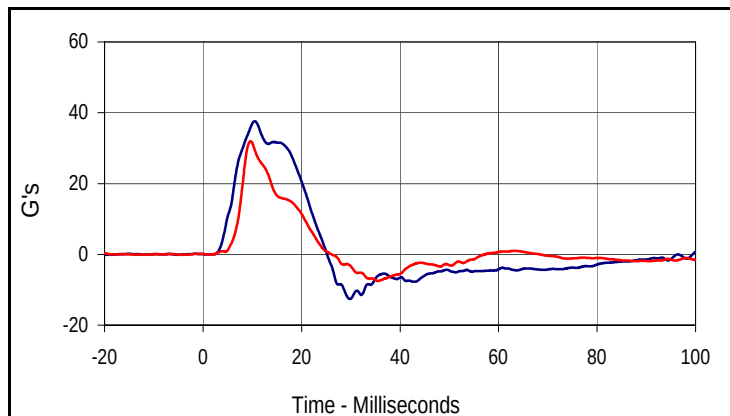
Test Date: 1/30/11
 Test I.D.: THF02A



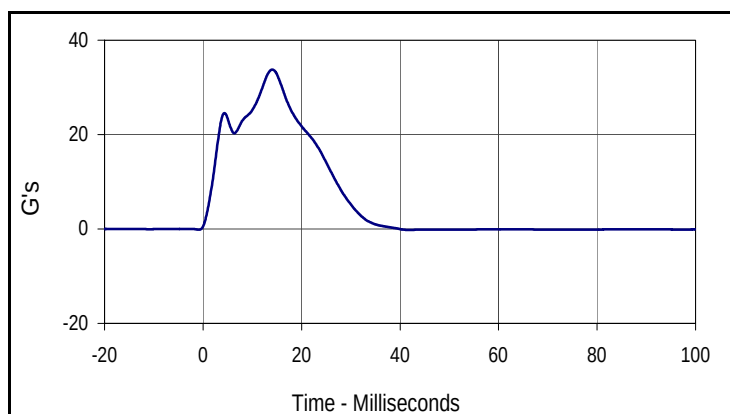
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.31	Pass
Laboratory Relative Humidity	%	10 to 70	21.81	Pass
Pendulum Velocity	m/s	6.60 to 6.80	6.66	Pass
Shoulder Deflection	MM	31 to 40	34.6	Pass
Upper Thorax Rib Deflection	MM	25 to 32	26.5	Pass
Middle Thorax Rib Deflection	MM	30 to 36	31.3	Pass
Lower Thorax Rib Deflection	MM	32 to 38	34.2	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	37.6	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	32.0	Pass
Peak Impactor Acceleration After 5 msec.	G's	30 to 36	33.8	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
26.5	16.9	0.0	-6.1
Middle Thorax Deflection			
Max	Time	Min	Time
31.3	17.1	0.0	-6.7
Lower Thorax Deflection			
Max	Time	Min	Time
34.2	17.5	0.0	-12.8



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
37.6	10.5	-12.6	29.8
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
32.0	9.6	-7.5	35.5



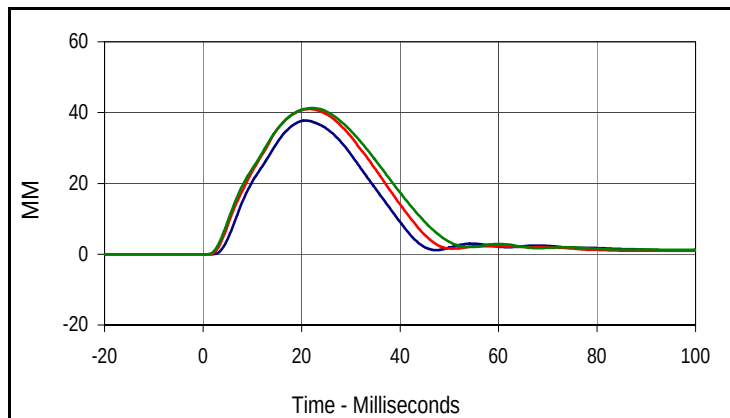
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
33.8	14.0	-0.2	41.6

Test Program: SID IIs Thorax w/o Arm Calibration
 ATD Serial No.: 307

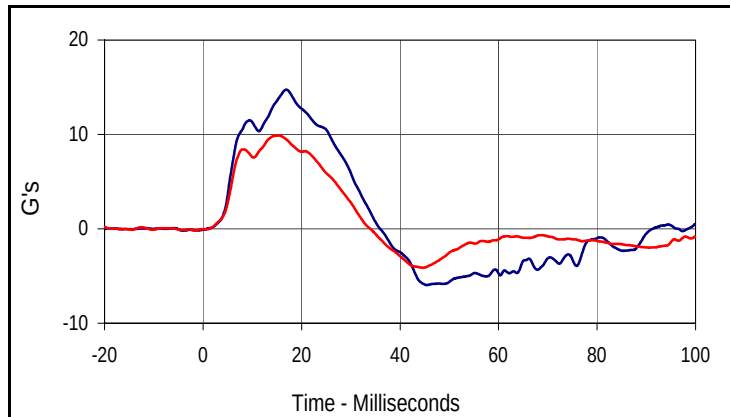
Test Date: 1/30/11
 Test I.D.: TOA02A



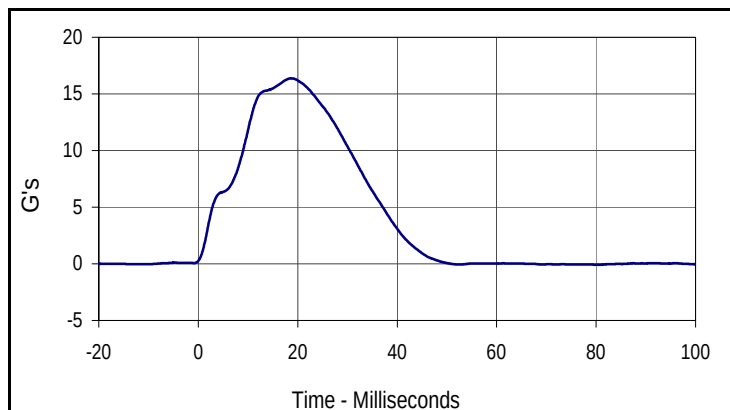
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.26	Pass
Laboratory Relative Humidity	%	10 to 70	21.72	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.30	Pass
Upper Thorax Rib Deflection	MM	32 to 40	37.7	Pass
Middle Thorax Rib Deflection	MM	39 to 45	41.0	Pass
Lower Thorax Rib Deflection	MM	35 to 43	41.3	Pass
Peak Upper Spine Y Acceleration	G's	13 to 17	14.7	Pass
Peak Lower Spine Y Acceleration	G's	7 to 11	9.9	Pass
Peak Impactor Acceleration	G's	14 to 18	16.4	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
37.7	20.8	0.0	-18.5
Middle Thorax Deflection			
Max	Time	Min	Time
41.0	21.5	0.0	-11.3
Lower Thorax Deflection			
Max	Time	Min	Time
41.3	22.2	0.0	-12.5



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
14.7	16.9	-6.0	45.4
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
9.9	15.3	-4.1	44.7



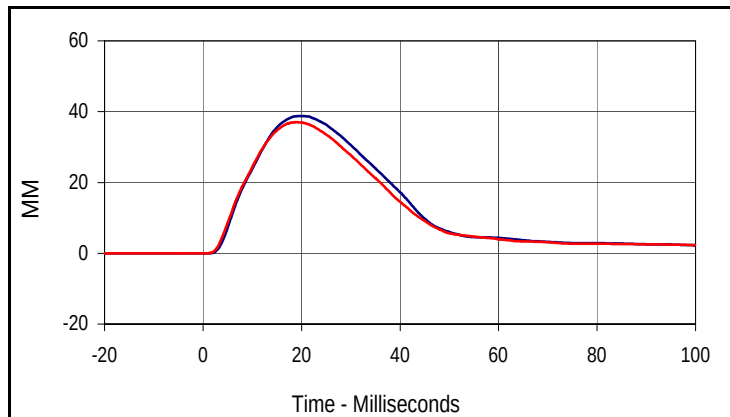
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
16.4	18.6	-0.1	80.0

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

Test Date: 1/30/11
 Test I.D.: ABDF02A

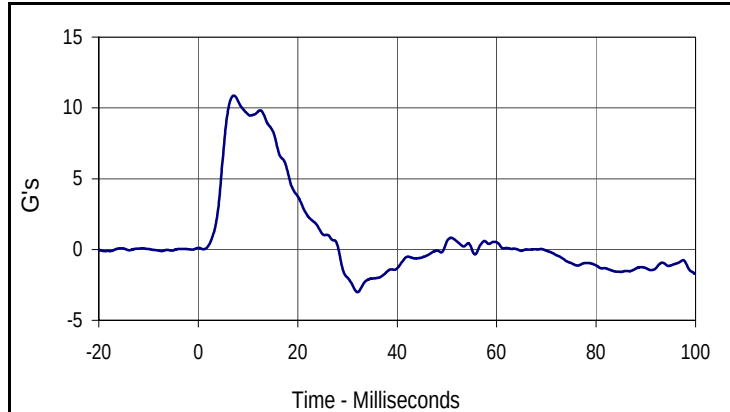


Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	22	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.35	Pass
Upper Abdominal Rib Deflection	MM	36 to 47	38.8	Pass
Lower Abdominal Rib Deflection	MM	33 to 44	37.0	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	10.9	Pass
Peak Impactor Acceleration	G's	12 to 16	14.0	Pass
Overall Test Results			Pass	

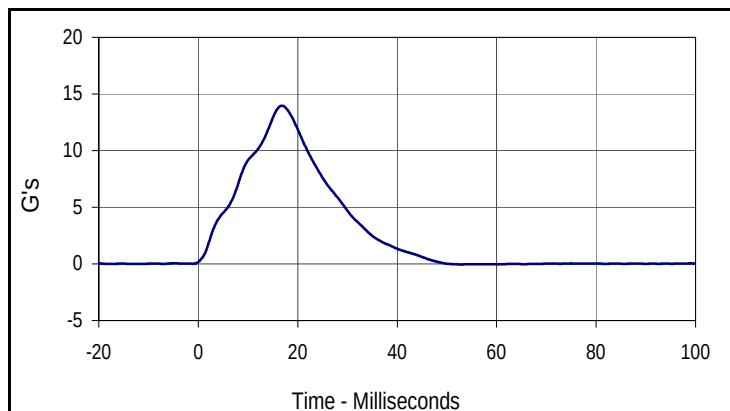


Curve Description			
Upper Abdominal Rib Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
38.8	19.8	0.0	-14.9

Curve Description			
Lower Abdominal Rib Deflection			
CURNO	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
37.0	18.9	0.0	-11.6



Curve Description			
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
10.9	7.1	-3.0	32.0



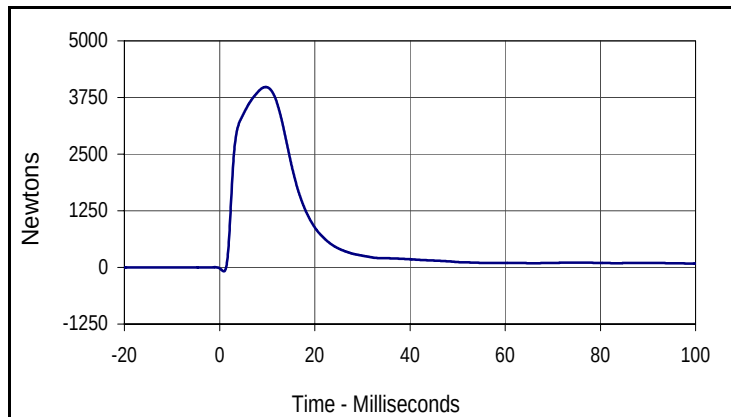
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
14.0	16.8	0.0	52.9

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

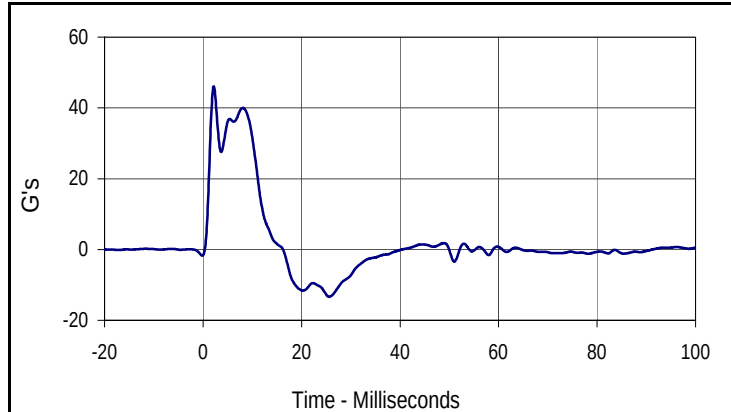
Test Date: 1/30/11
 Test I.D.: ACET02A



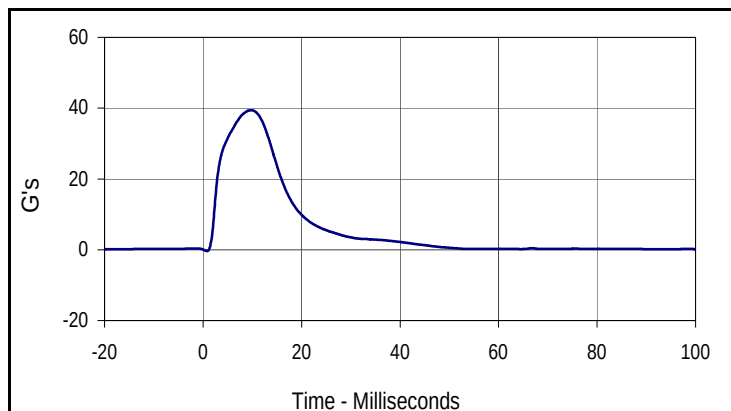
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.26	Pass
Laboratory Relative Humidity	%	10 to 70	21.86	Pass
Pendulum Velocity	m/s	6.60 to 6.80	6.62	Pass
Peak Acetabulum Force	Newtons	3600 to 4300	3981.0	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	40.0	Pass
Peak Impactor Acceleration	G's	38 to 47	39.4	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Acetabulum Force			
CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
3981.0	9.7	-86.3	0.9



Curve Description			
Pelvis Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
46.1	2.2	-13.4	25.6



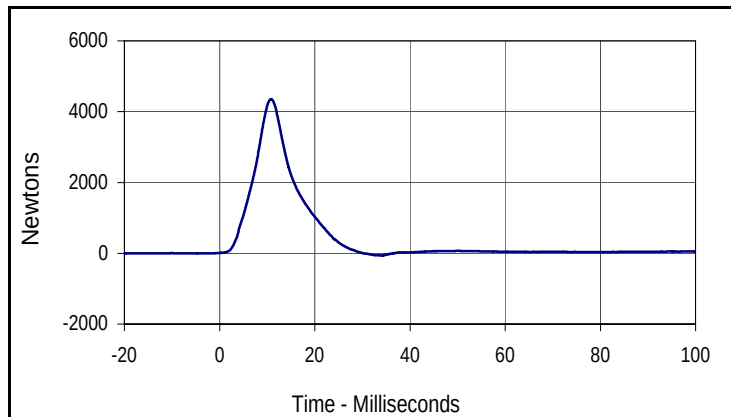
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
39.4	9.7	-0.4	0.8

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

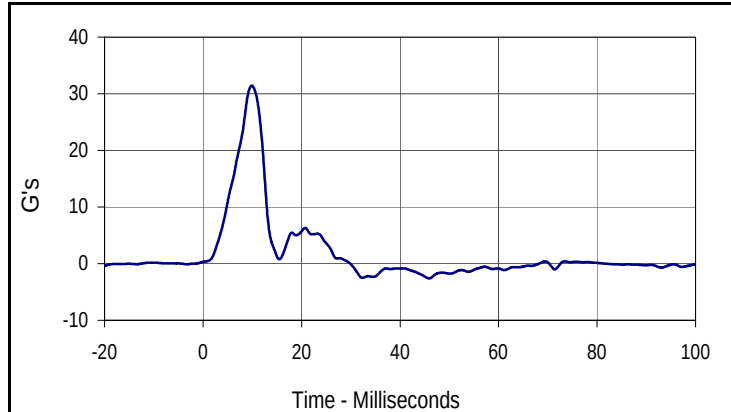
Test Date: 1/30/11
 Test I.D.: PLF02A



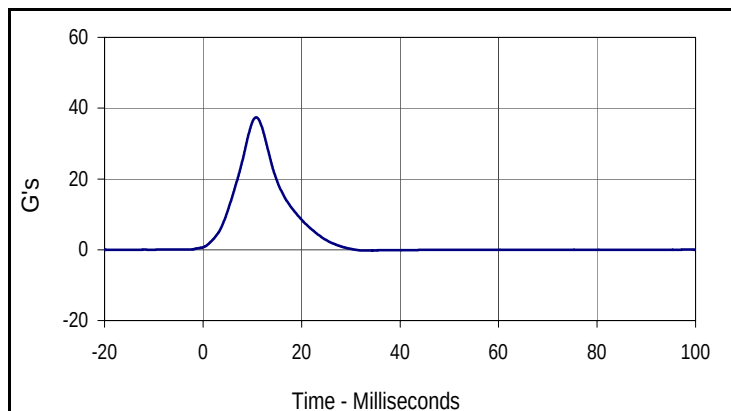
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.21	Pass
Laboratory Relative Humidity	%	10 to 70	21.82	Pass
Pendulum Velocity	m/s	4.2 to 4.4	4.32	Pass
Peak Iliac Force	Newtons	4100 to 5100	4354.5	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	31.4	Pass
Peak Impactor Acceleration	G's	36 to 45	37.4	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Iliac Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4354.5	10.8	-62.1	34.1



Curve Description			
Pelvis Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
31.4	9.9	-2.6	45.9



Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
37.4	10.8	-0.2	32.6

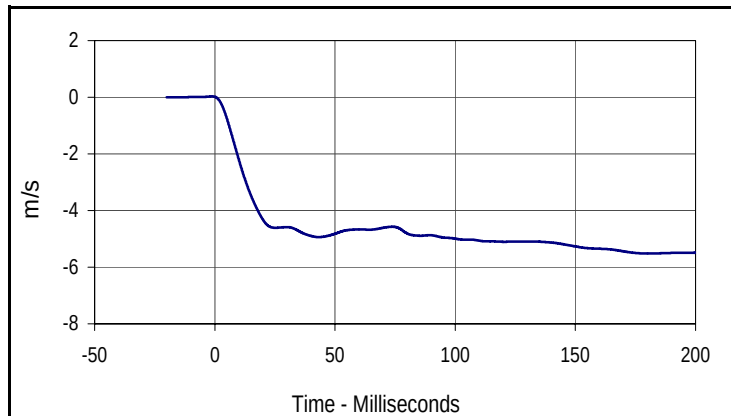
APPENDIX C
POST-TEST / HIII CONFIGURATION AND PERFORMANCE VERIFICATION DATA

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

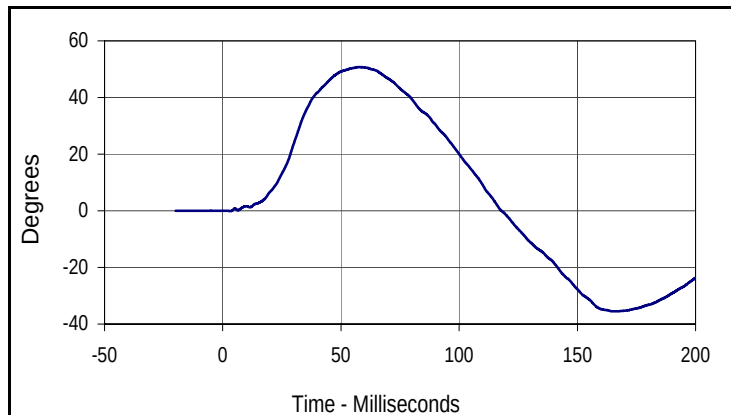
Test Date: 2/2/11
 Test I.D.: NBM02B



Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.15	Pass
Laboratory Relative Humidity		%	10 to 70	22.43	Pass
Pendulum Velocity		m/s	3.30 to 3.50	3.40	Pass
Pendulum Deceleration	1 msec	m/s	0.0 to -.050	-0.031	Pass
	3 msec	m/s	-.250 to -.375	-0.288	Pass
	14 msec	m/s	-3.20 to -3.70	-3.25	Pass
Headform Rotation	Max	Degrees	49.0 to 58.0	50.8	Pass
	Time	msec	54.0 to 66.0	57.3	Pass
Maximum Rotation To Time Zero Crossing		msec	53.0 to 88.0	60.7	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.2	-5.5	180.2



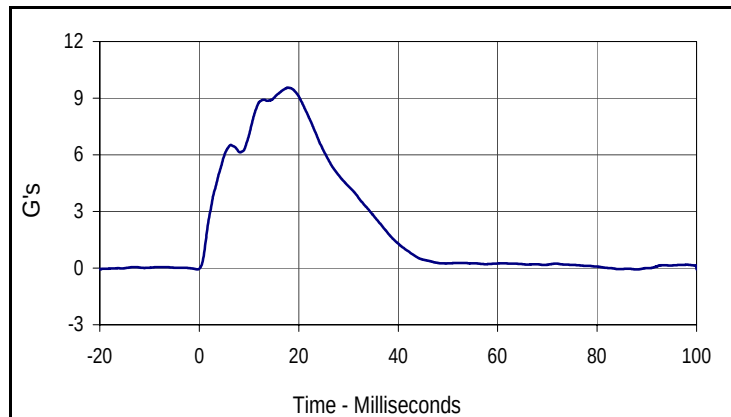
Curve Description			
Headform Rotation			
CURNO	Type	SAE Class	Units
002	FIL	180	Degrees
Max	Time	Min	Time
50.8	57.3	-35.5	164.8

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

Test Date: 2/2/11
 Test I.D.: SHM02B



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.15	Pass
Laboratory Relative Humidity	%	10 to 70	22.43	Pass
Probe Velocity	m/s	4.20 to 4.40	4.22	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	9.55	Pass
Overall Test Results			Pass	



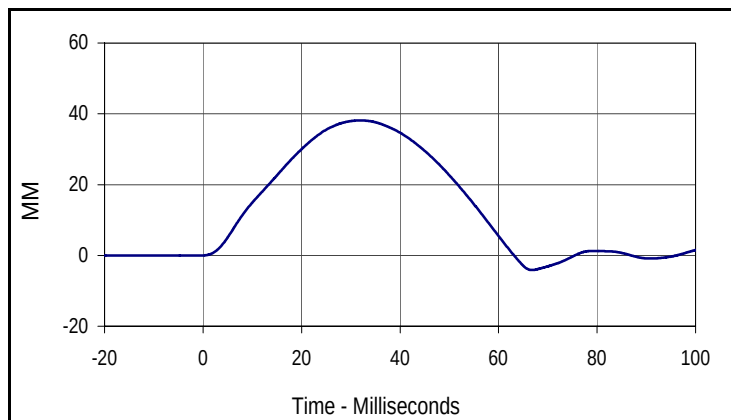
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
9.6	17.9	-0.1	88.0

Test Program: ES2re Rib Module Calibration
 ATD Serial No.: F035 Rib #1

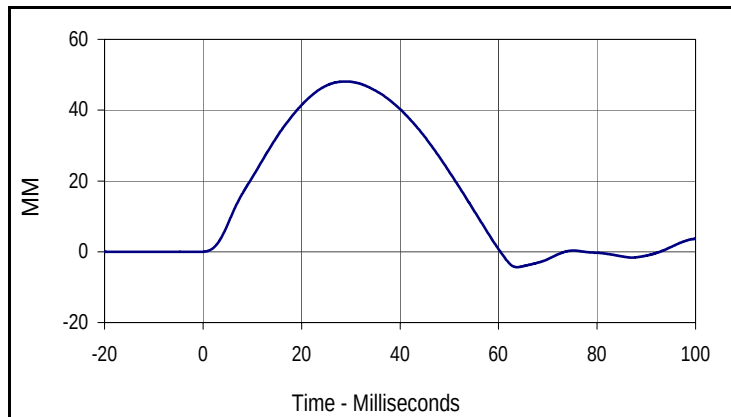
Test Date: 2/2/11
 Test I.D.: RIB102B



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.15	Pass
Laboratory Relative Humidity	%	10 to 70	22.34	Pass
Peak Rib Deflection at 459 MM Drop Height	MM	36 to 40	38.1	Pass
Peak Rib Deflection at 815 MM Drop Height	MM	46 to 51	48.1	Pass
Overall Test Results			Pass	



Curve Description			
Upper Rib Deflection (459 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
38.1	32.0	-4.1	66.8



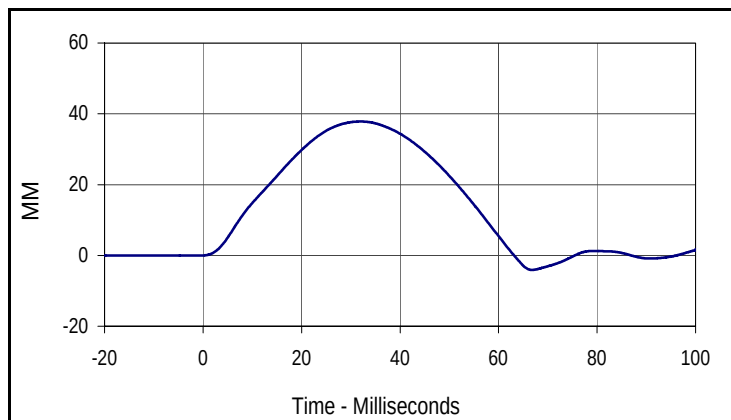
Curve Description			
Upper Rib Deflection (815 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
48.1	28.9	-4.3	63.7

Test Program: ES2re Rib Module Calibration
 ATD Serial No.: F035 Rib #2

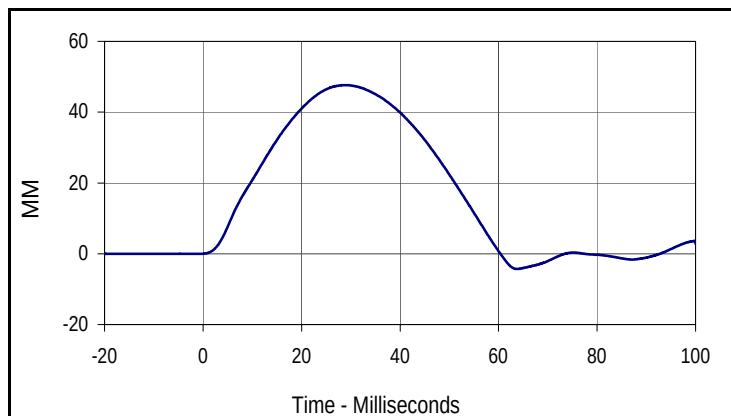
Test Date: 2/2/11
 Test I.D.: RIB202B



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.21	Pass
Laboratory Relative Humidity	%	10 to 70	22.29	Pass
Peak Rib Deflection at 459 MM Drop Height	MM	36 to 40	37.8	Pass
Peak Rib Deflection at 815 MM Drop Height	MM	46 to 51	47.6	Pass
Overall Test Results			Pass	



Curve Description			
Middle Rib Deflection (459 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
37.8	32.0	-4.1	66.8



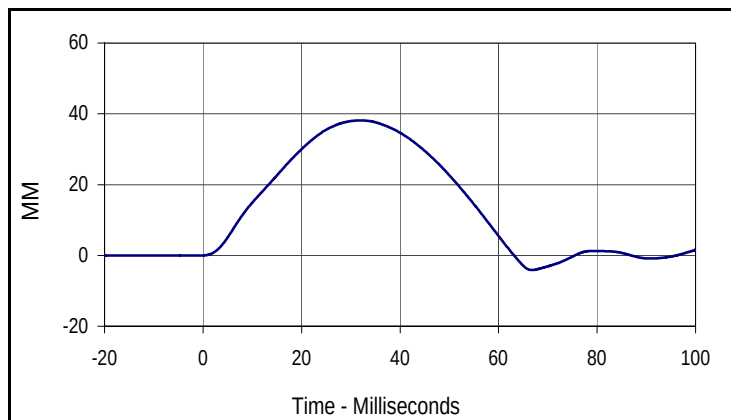
Curve Description			
Middle Rib Deflection (815 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
47.6	28.9	-4.3	63.7

Test Program: ES2re Rib Module Calibration
 ATD Serial No.: F035 Rib #3

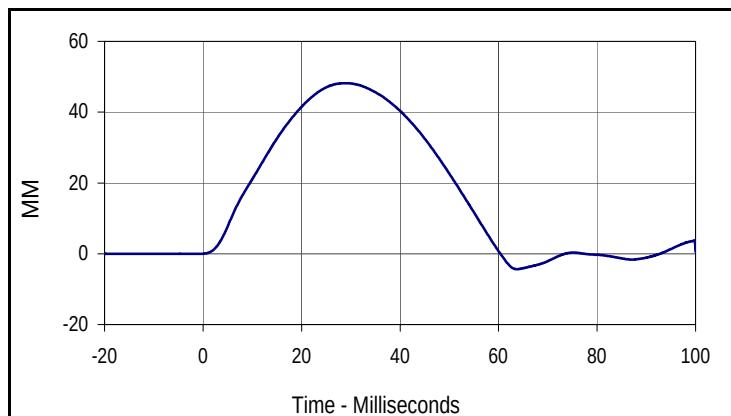
Test Date: 2/2/11
 Test I.D.: RIB302B



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.21	Pass
Laboratory Relative Humidity	%	10 to 70	22.34	Pass
Peak Rib Deflection at 459 MM Drop Height	MM	36 to 40	38.1	Pass
Peak Rib Deflection at 815 MM Drop Height	MM	46 to 51	48.2	Pass
Overall Test Results			Pass	



Curve Description			
Lower Rib Deflection (459 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
38.1	32.0	-4.1	66.8



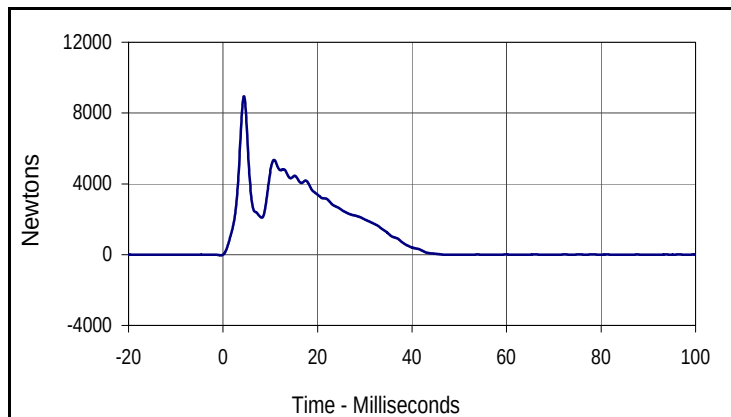
Curve Description			
Lower Rib Deflection (815 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
48.2	28.9	-4.4	63.7

Test Program: ES2re Thorax Calibration
 ATD Serial No.: F035

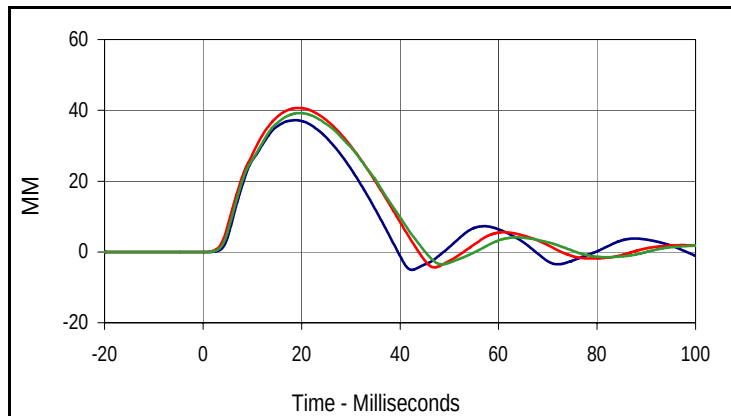
Test Date: 2/2/11
 Test I.D.: THM02B



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.21	Pass
Laboratory Relative Humidity	%	10 to 70	22.24	Pass
Probe Velocity	m/s	5.40 to 5.60	5.44	Pass
Impactor Force	N	5100 to 6200	5351.8	Pass
	msec	> 6.0 msec	10.8	Pass
Upper Rib Deflection	MM	34 to 41	37.2	Pass
Middle Rib Deflection	MM	37 to 45	40.7	Pass
Lower Rib Deflection	MM	37 to 44	39.2	Pass
Overall Test Results			Pass	



Curve Description			
Impactor Force			
CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
8944.0	4.4	-36.1	-0.5



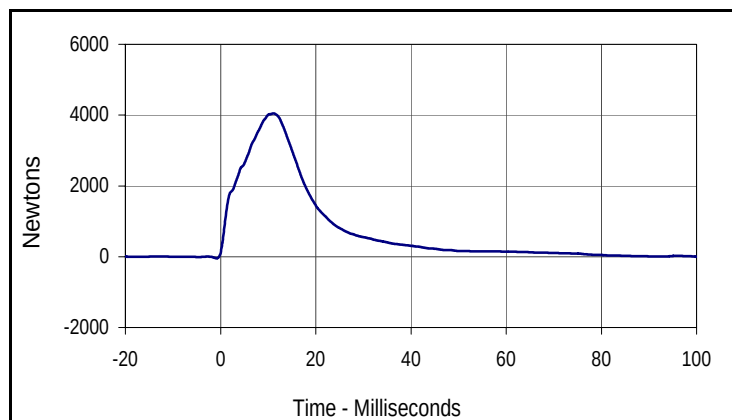
Curve Description			
Upper, Middle, Lower Rib Deflections			
CURNO(s)	Type	SAE Class	Units
002-003-004	FIL	180	MM
Max (Upper)	Time	Min (Upper)	Time
37.2	18.8	-5.1	42.4
Max (Middle)	Time	Min (Middle)	Time
40.7	19.5	-4.4	47.0
Max (Lower)	Time	Min (Lower)	Time
39.2	19.6	-3.5	48.6

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

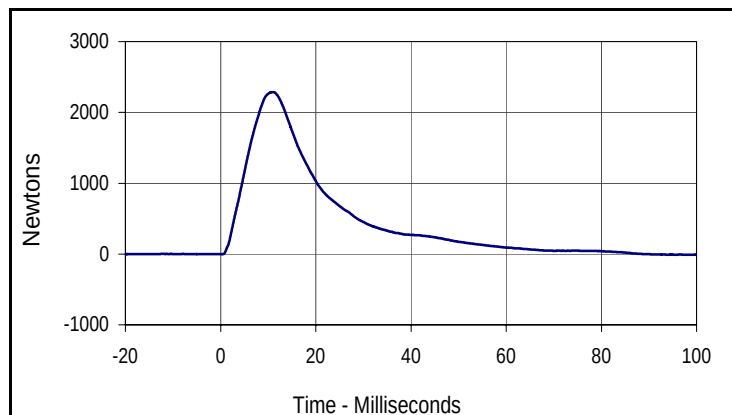
Test Date: 2/2/11
 Test I.D.: ABDM02B



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.21	Pass
Laboratory Relative Humidity	%	10 to 70	22.24	Pass
Probe Velocity	m/s	3.90 to 4.10	4.01	Pass
Impactor Force	N	4000 to 4800	4050.3	Pass
	msec	10.6 to 13.0	11.1	Pass
Abdominal Force	N	2200 to 2700	2286.6	Pass
	msec	10.0 to 12.3	11.1	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
4050.3	11.1	-43.6	-0.8



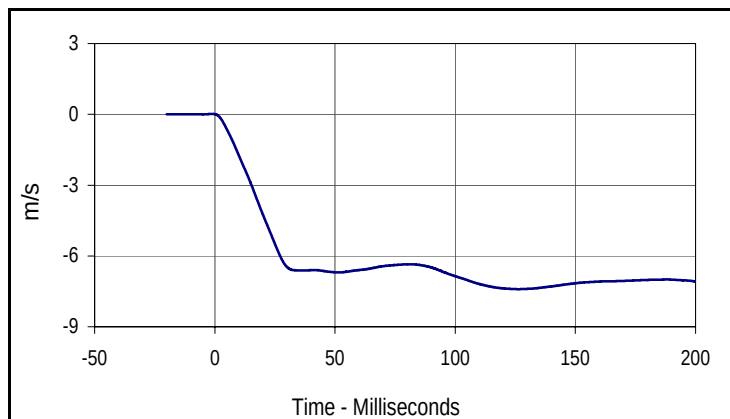
Curve Description			
Abdomen Sum Resultant			
CURNO	Type	SAE Class	Units
002	RES	600	Newtons
Max	Time	Min	Time
2286.6	11.1	-9.6	97.8

Test Program: ES2re Lumbar Spine Calibration
 ATD Serial No.: F035

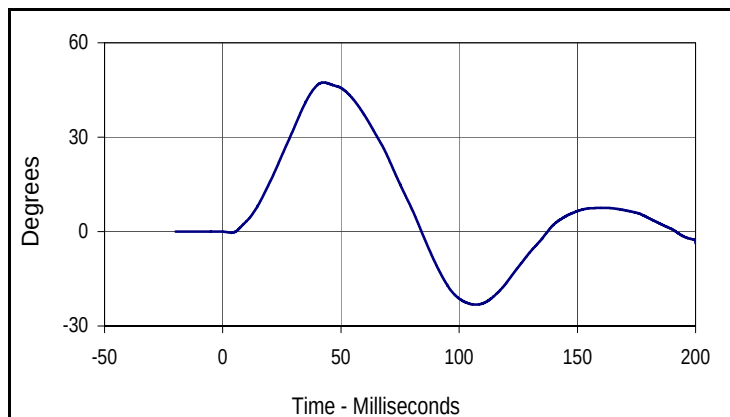
Test Date: 2/2/11
 Test I.D.: SPM02B



Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.21	Pass
Laboratory Relative Humidity		%	10 to 70	22.20	Pass
Pendulum Velocity		m/s	5.95 to 6.15	5.97	Pass
Pendulum Deceleration	1 msec	m/s	0.0 to -.050	-0.029	Pass
	3.7 msec	m/s	-.240 to -.425	-0.380	Pass
	27 msec	m/s	-5.80 to -6.50	-5.96	Pass
	30 msec	m/s	< -6.50	-6.47	Pass
Headform Rotation	Max	Degrees	45.0 to 55.0	47.4	Pass
	Time	msec	39.0 to 53.0	42.6	Pass
Maximum Rotation To Time Zero Crossing		msec	37.0 to 57.0	41.5	Pass
			Overall Test Results		Pass



Curve Description			
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.0	-7.4	126.3



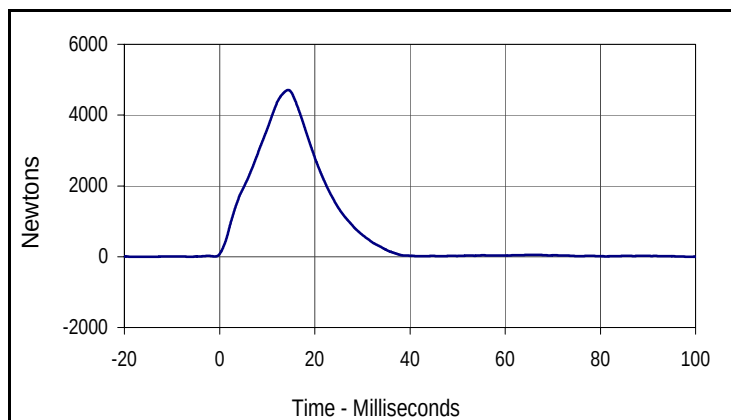
Curve Description			
Headform Rotation			
CURNO	Type	SAE Class	Units
002	FIL	180	Degrees
Max	Time	Min	Time
47.4	42.6	-23.2	107.0

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

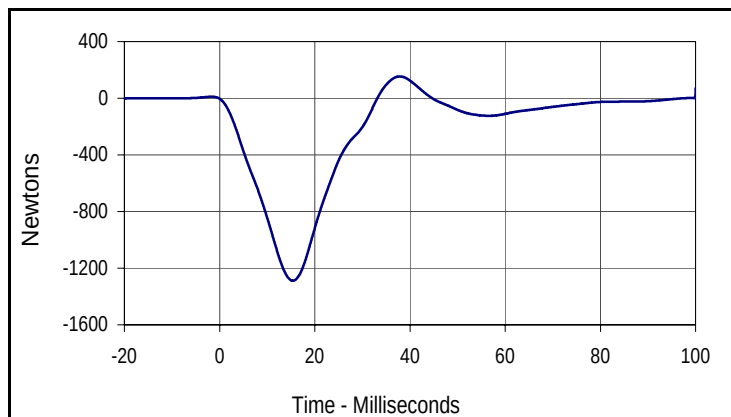
Test Date: 2/2/11
 Test I.D.: PLM02B



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.26	Pass
Laboratory Relative Humidity	%	10 to 70	22.19	Pass
Probe Velocity	m/s	4.20 to 4.40	4.28	Pass
Impactor Force	N	4700 to 5400	4709.1	Pass
	msec	11.8 to 16.1	14.4	Pass
Pubic Symphysis Load	N	-1230 to -1590	-1288.1	Pass
	msec	12.2 to 17.0	15.4	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
4709.1	14.4	-3.3	-17.5



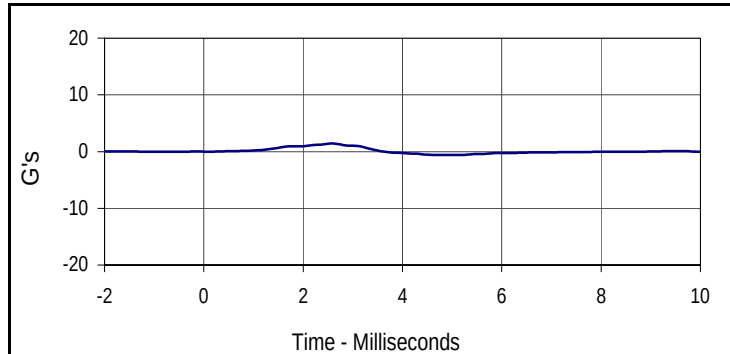
Curve Description			
Pubic FY			
CURNO	Type	SAE Class	Units
002	FIL	60	Newtons
Max	Time	Min	Time
154.0	37.9	-1288.1	15.4

Test Program: ES2re Lateral Head Drop Calibration
 ATD Serial No.: F035

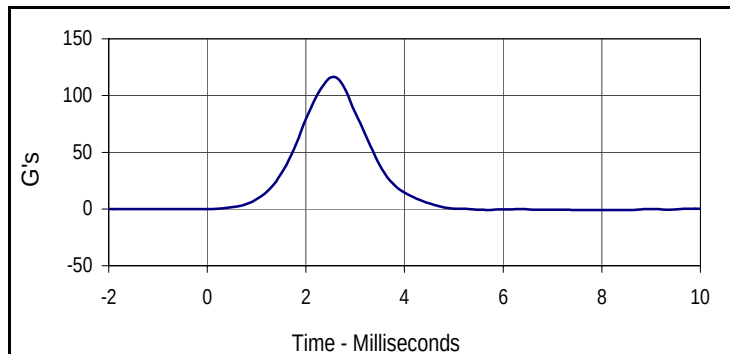
Test Date: 2/2/11
 Test I.D.: HDM02B



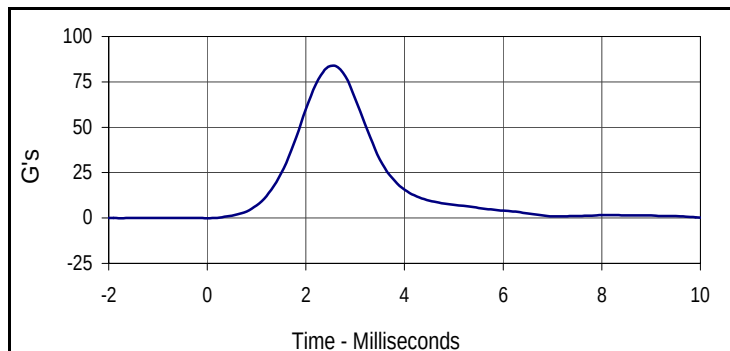
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.26	Pass
Laboratory Relative Humidity	%	10 to 70	22.24	Pass
Peak Resultant Acceleration	G's	125 to 155	143.3	Pass
Peak Longitudinal Acceleration	G's	≤15	1.4	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	5.1	Pass
Overall Test Results			Pass	



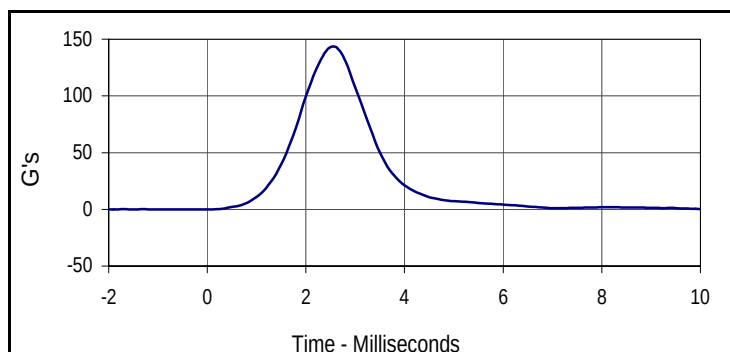
Curve Description			
Head X			
CURNO	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
1.4	2.6	-0.6	5.1



Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
116.2	2.6	-1.0	7.7



Curve Description			
Head Z			
CURNO	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
83.9	2.5	-0.1	-1.7



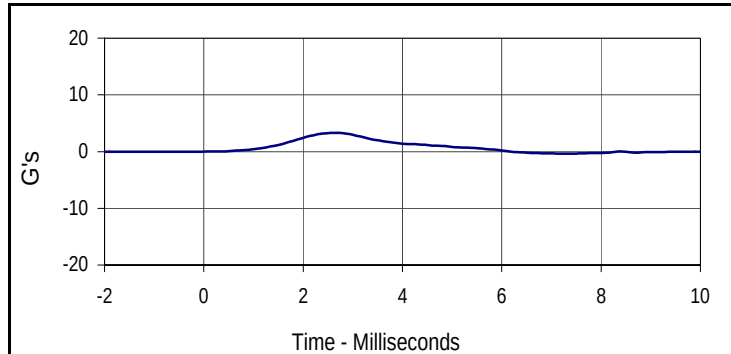
Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
143.3	2.6	0.0	-0.2

Test Program: SID IIs Lateral Head Drop Calibration
 ATD Serial No.: 307

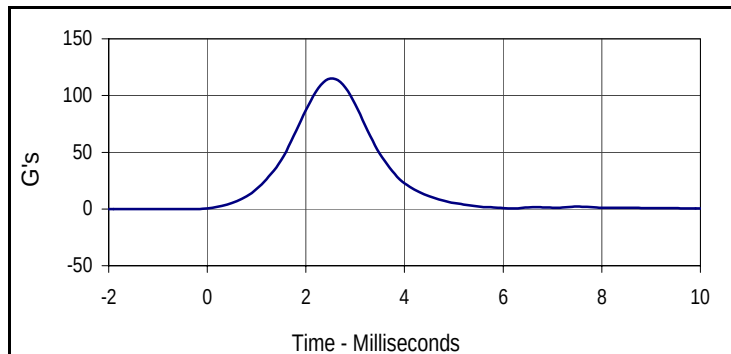
Test Date: 2/3/11
 Test I.D.: HDF02B



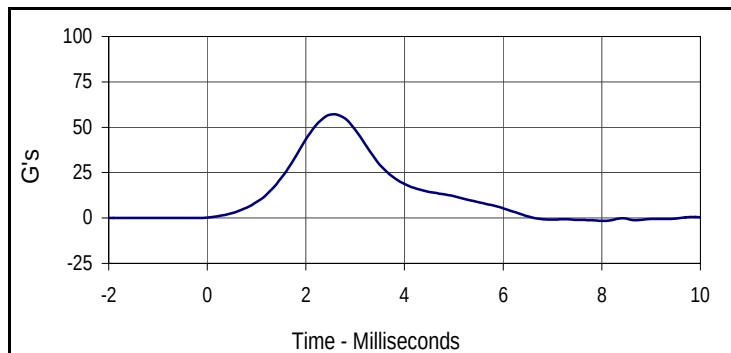
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.31	Pass
Laboratory Relative Humidity	%	10 to 70	22.10	Pass
Peak Resultant Acceleration	G's	115 to 137	128.4	Pass
Peak Longitudinal Acceleration	G's	≤15	3.3	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	10.3	Pass
Overall Test Results			Pass	



Curve Description			
Head X			
CURNO	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
3.3	2.6	-0.4	7.3



Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
115.0	2.5	0.0	-0.2



Curve Description			
Head Z			
CURNO	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
57.1	2.6	-1.5	8.0



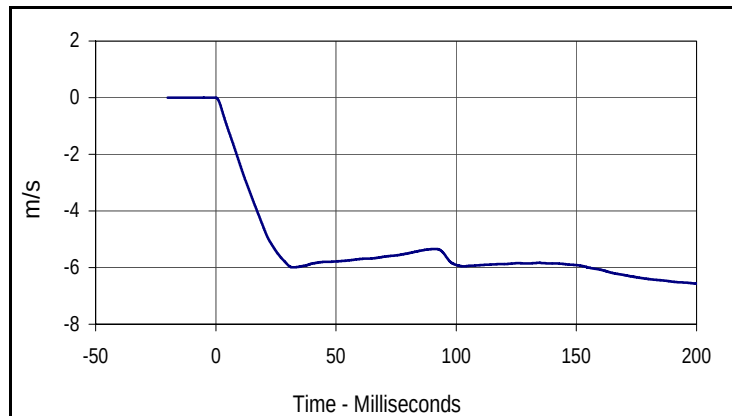
Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
128.4	2.5	0.0	-1.6

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

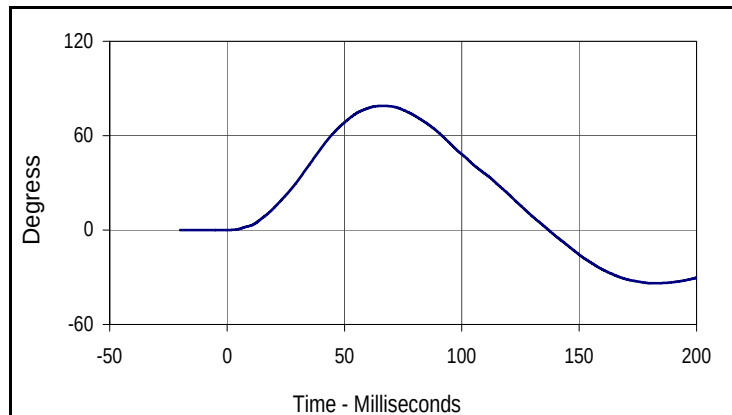
Test Date: 2/3/11
 Test I.D.: NBF02B



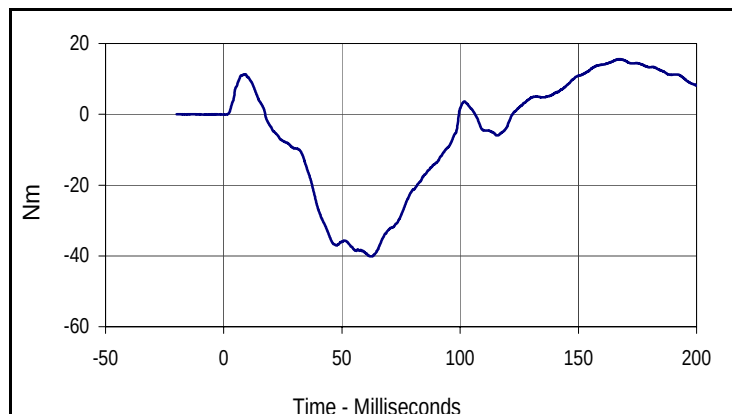
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity		%	10 to 70	22	Pass
Pendulum Velocity		m/s	5.51 to 5.63	5.53	Pass
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.3	Pass
	15 msec	m/s	-3.30 to -4.10	-3.5	Pass
	20 msec	m/s	-4.40 to -5.40	-4.6	Pass
	25 msec	m/s	-5.40 to -6.10	-5.4	Pass
	25-100 msec	m/s	-5.50 to -6.20	-6.0	Pass
Translation-Rotation	Max	Degrees	71.0 to 81.0	78.8	Pass
	Time	msec	50.0 to 70.0	67.6	Pass
Peak Occipital Condyle Moment		Nm	-36.0 to -44.0	-40.1	Pass
Decaying Moment Time to Cross 0 Nm		msec	102.0 to 126.0	122.2	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.4	-6.6	200.0



Curve Description			
Maximum Translation Rotation			
CURNO	Type	SAE Class	Units
002	FIL	60	Degress
Max	Time	Min	Time
78.8	67.6	-33.8	181.4



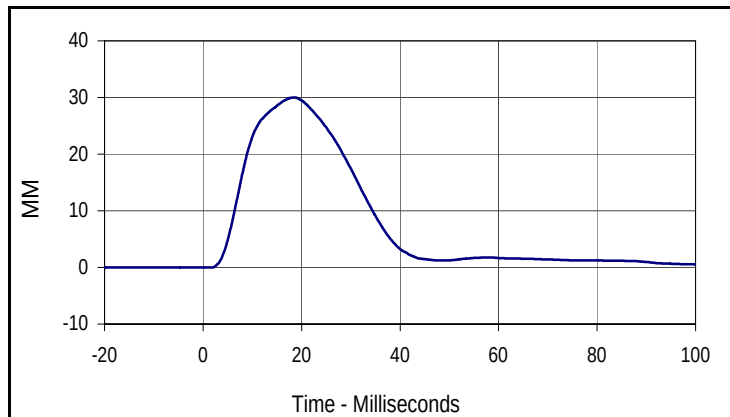
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
15.6	167.6	-40.1	62.0

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

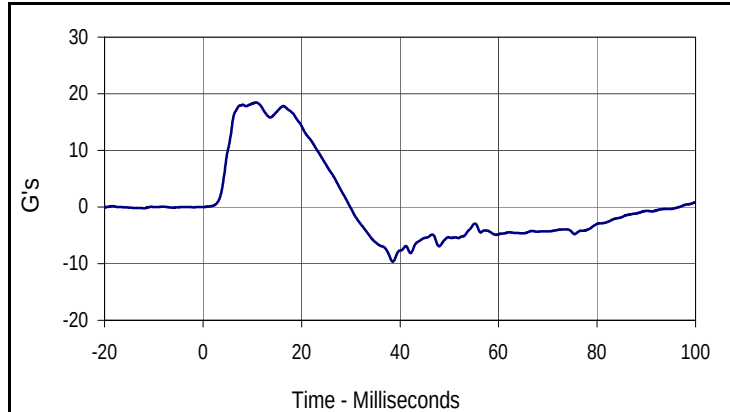
Test Date: 2/3/11
 Test I.D.: SHF02B



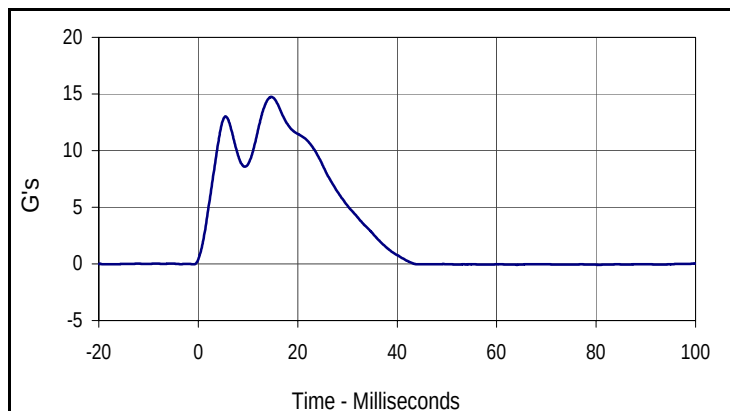
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.31	Pass
Laboratory Relative Humidity	%	10 to 70	21.96	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.29	Pass
Shoulder Deflection	MM	28 to 37	30.0	Pass
Peak Upper Spine Y Acceleration	G's	17 to 22	18.5	Pass
Peak Impactor Acceleration	G's	13 to 18	14.7	Pass
Overall Test Results			Pass	



Curve Description			
Shoulder Acceleration			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
30.0	18.6	0.0	0.3



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
18.5	10.8	-9.6	38.5



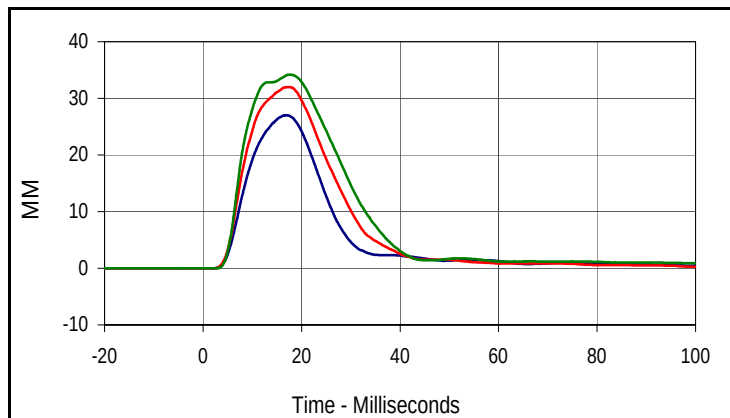
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
14.7	14.7	-0.1	80.6

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

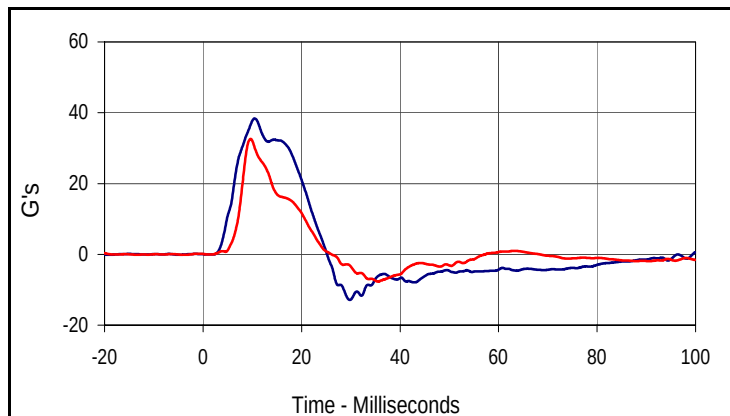
Test Date: 2/3/11
 Test I.D.: THF02B



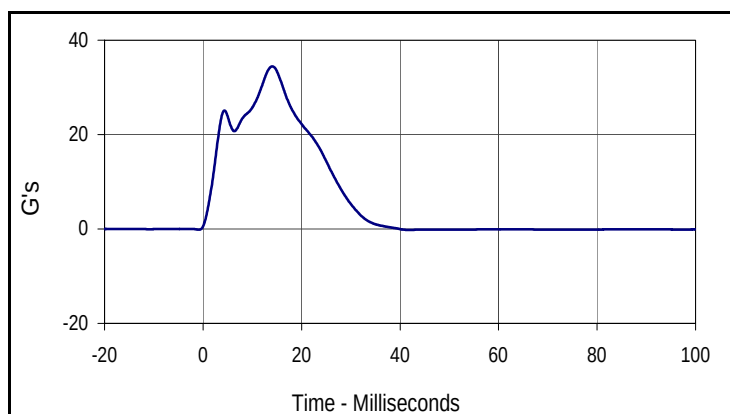
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.31	Pass
Laboratory Relative Humidity	%	10 to 70	21.81	Pass
Pendulum Velocity	m/s	6.60 to 6.80	6.67	Pass
Shoulder Deflection	MM	31 to 40	35.3	Pass
Upper Thorax Rib Deflection	MM	25 to 32	27.0	Pass
Middle Thorax Rib Deflection	MM	30 to 36	32.0	Pass
Lower Thorax Rib Deflection	MM	32 to 38	34.2	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	38.4	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	32.6	Pass
Peak Impactor Acceleration After 5 msec.	G's	30 to 36	34.5	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
27.0	16.9	0.0	-6.1
Middle Thorax Deflection			
Max	Time	Min	Time
32.0	17.1	0.0	-6.7
Lower Thorax Deflection			
Max	Time	Min	Time
34.2	17.5	0.0	-12.8



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
38.4	10.5	-12.9	29.8
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
32.6	9.6	-7.7	35.5



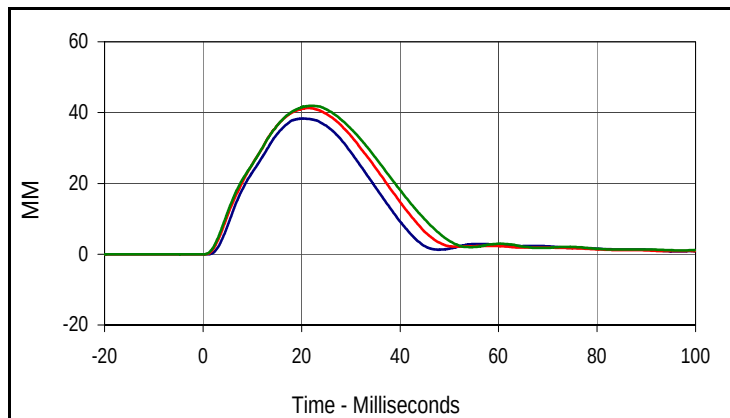
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
34.5	14.0	-0.2	41.6

Test Program: SID IIs Thorax w/o Arm Calibration
 ATD Serial No.: 307

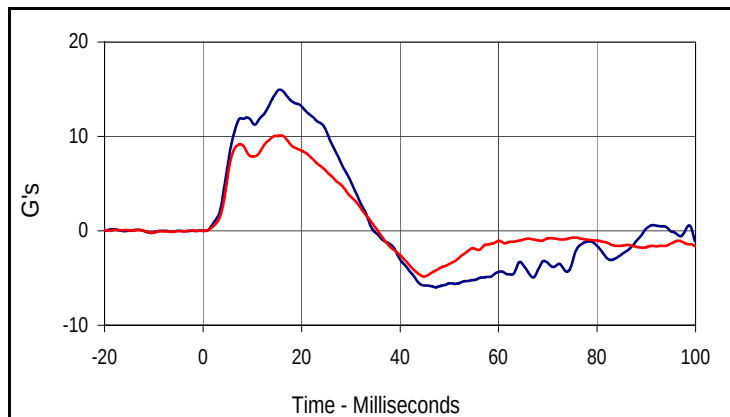
Test Date: 2/3/11
 Test I.D.: TOA02B



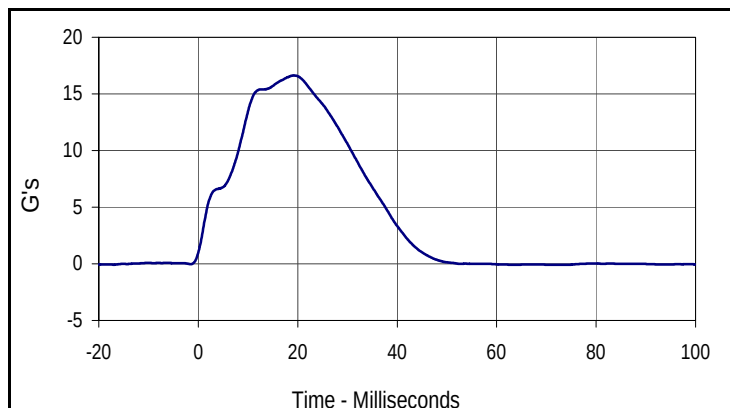
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.26	Pass
Laboratory Relative Humidity	%	10 to 70	21.72	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.31	Pass
Upper Thorax Rib Deflection	MM	32 to 40	38.3	Pass
Middle Thorax Rib Deflection	MM	39 to 45	41.3	Pass
Lower Thorax Rib Deflection	MM	35 to 43	41.9	Pass
Peak Upper Spine Y Acceleration	G's	13 to 17	15.0	Pass
Peak Lower Spine Y Acceleration	G's	7 to 11	10.1	Pass
Peak Impactor Acceleration	G's	14 to 18	16.6	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
38.3	20.2	0.0	-16.8
Middle Thorax Deflection			
Max	Time	Min	Time
41.3	21.3	0.0	-17.6
Lower Thorax Deflection			
Max	Time	Min	Time
41.9	22.1	0.0	0.1



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.0	15.6	-6.0	47.2
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
10.1	15.9	-4.8	44.9



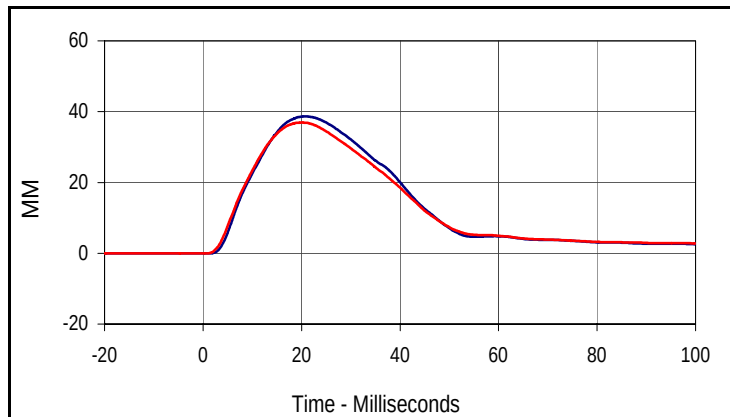
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
16.6	19.2	-0.1	74.1

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

Test Date: 2/3/11
 Test I.D.: ABDF02B

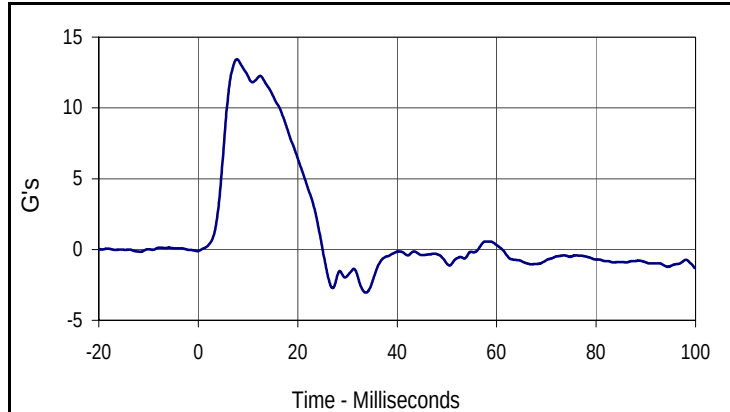


Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.26	Pass
Laboratory Relative Humidity	%	10 to 70	21.77	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.36	Pass
Upper Abdominal Rib Deflection	MM	36 to 47	38.7	Pass
Lower Abdominal Rib Deflection	MM	33 to 44	36.9	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	13.4	Pass
Peak Impactor Acceleration	G's	12 to 16	14.3	Pass
Overall Test Results			Pass	

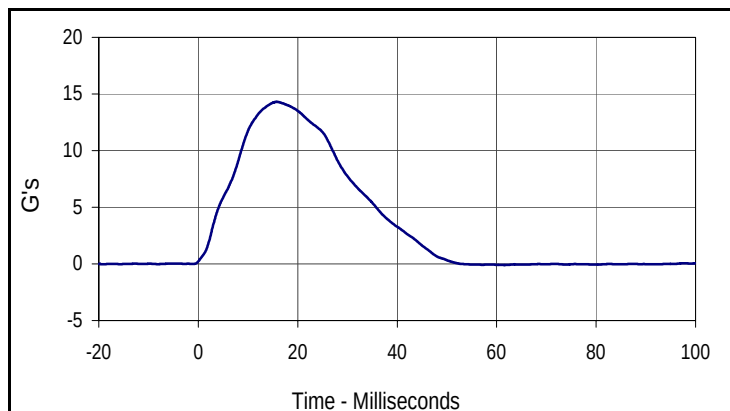


Curve Description			
Upper Abdominal Rib Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
38.7	20.6	0.0	-5.6

Curve Description			
Lower Abdominal Rib Deflection			
CURNO	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
36.9	20.0	0.0	0.7



Curve Description			
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
13.4	7.8	-3.0	33.7



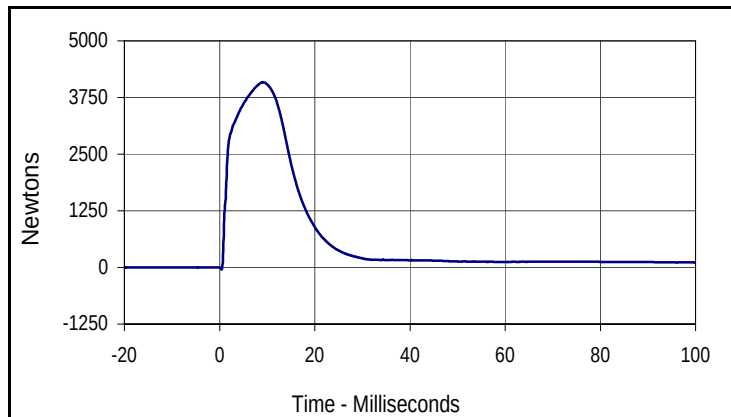
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
14.3	15.8	-0.1	61.6

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

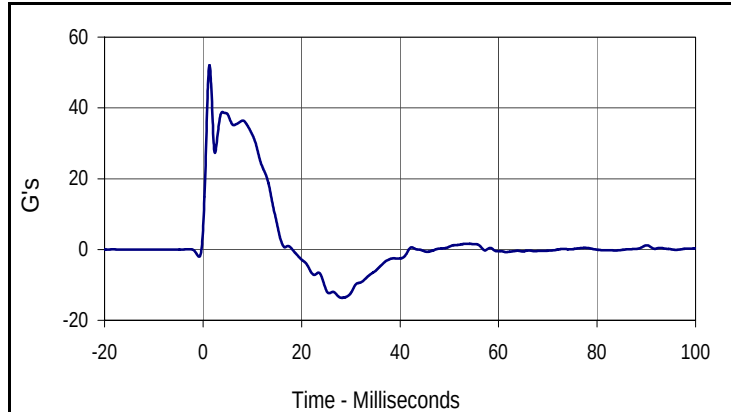
Test Date: 2/3/11
 Test I.D.: ACET02B



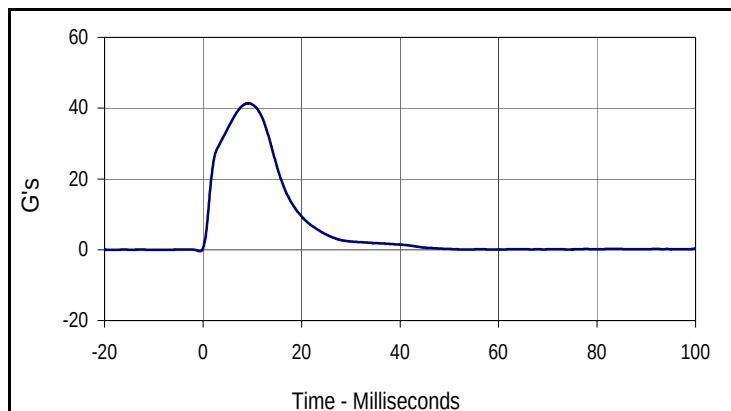
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.26	Pass
Laboratory Relative Humidity	%	10 to 70	21.86	Pass
Pendulum Velocity	m/s	6.60 to 6.80	6.61	Pass
Peak Acetabulum Force	Newtons	3600 to 4300	4086.8	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	36.4	Pass
Peak Impactor Acceleration	G's	38 to 47	41.3	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Acetabulum Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4086.8	9.0	-44.0	0.4



Curve Description			
Pelvis Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
52.0	1.3	-13.6	28.2



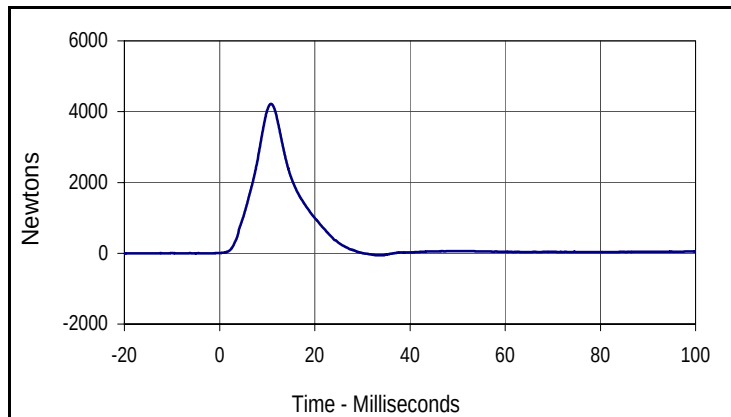
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
41.3	9.3	-0.4	-0.6

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

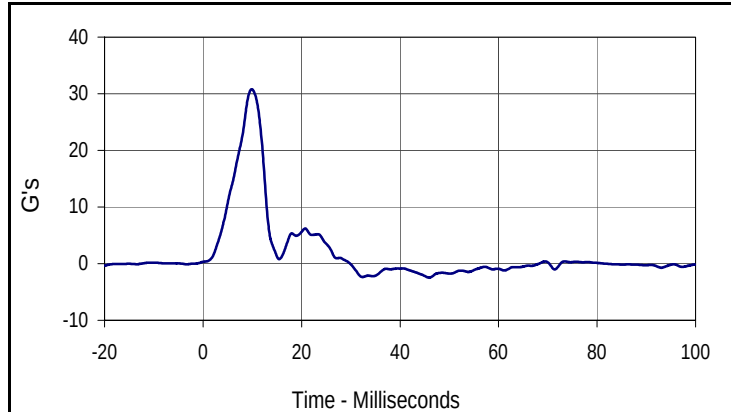
Test Date: 2/3/11
 Test I.D.: PLF02B



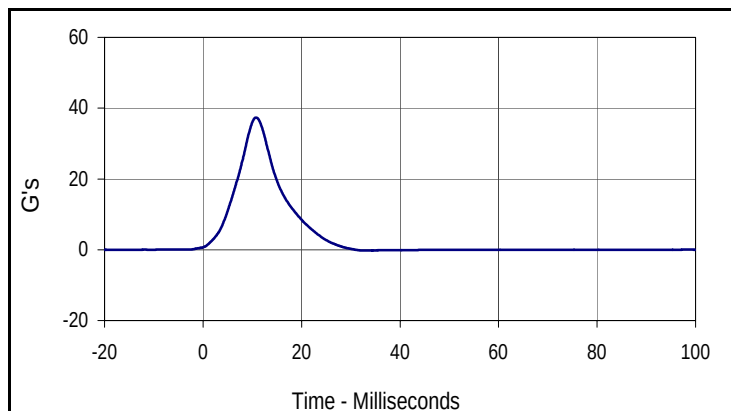
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.21	Pass
Laboratory Relative Humidity	%	10 to 70	21.82	Pass
Pendulum Velocity	m/s	4.2 to 4.4	4.31	Pass
Peak Iliac Force	Newtons	4100 to 5100	4220.0	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	30.8	Pass
Peak Impactor Acceleration	G's	36 to 45	37.3	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Iliac Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4220.0	10.8	-60.0	34.1



Curve Description			
Pelvis Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
30.8	9.9	-2.5	45.9



Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
37.3	10.8	-0.2	32.6