REPORT NUMBER: SPNCAP-CAL-11-021

NEW CAR ASSESSMENT PROGRAM (NCAP)
SIDE IMPACT POLE TEST

Ford Motor Company
2011 Ford Fusion
Four Door Sedan

NHTSA NUMBER: MB0215

PREPARED BY:
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January 7, 2011

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
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1200 NEW JERSEY AVE SE, ROOM W43-410
WASHINGTON, D.C. 20590

This final test report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, in response to Contract Number DTNH22-09-D-00126.

Prepared by: _____ Date: _____
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Approved by: _____ Date: _____
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FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

_____
COTR, New Car Assessment Program
NHTSA, Office of Crashworthiness Standards

Date: _____

Technical Report Documentation Page

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7. Author(s) Bethany Koetje, Project Engineer		*8. Performing Organization Report No.* TR2500
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12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards Mail Code: NVS-111 1200 New Jersey Ave., SE, Room W43-410 Washington, D.C. 20590		*13. Type of Report and Period Covered:* Final Report, 1/7/2011 *14. Sponsoring Agency Code* NVS-111
15. *Supplementary Notes*		

16. Abstract

A 32.2 km/h (20 mph), 75^{o} oblique impact Side NCAP Test was conducted on the subject 2011 Ford Fusion Four Door Sedan in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. This test was conducted at the Calspan Corporation Crash Test Facility in Buffalo, New York, on 10/26/2010.

The impact velocity was 32.2 km/h, and the ambient temperature at the struck (driver's) side of the vehicle was 22°C. The test vehicle post-test maximum crush was 451 mm at level 3. The test vehicle's occupant performance is as follows:

	Driver ATD (SID-IIs)		
Measurement Description	**Units**	**Threshold**	**Result**
Head Injury Criteria (HIC_{38})	N/A	1000	392.7
Resultant Lower Spine Acceleration	Gs	82	51.0
Combined Acetabular and Iliac Pelvic Force	N	5525	4126.5

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.

17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs	*18. Distribution Statement* Copies of this report are available from: National Highway Traffic Safety Adm. Technical Ref. Division, 1200 New Jersey Ave. SE Washington, D.C. 20590

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Form DOT F1700.7 (8-72)

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SECTION 1
PURPOSE AND TEST PROCEDURE

PURPOSE

This side impact test was conducted as part of the MY 2011 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-09-D-00126. The purpose of this test is to generate comparative side impact performance in a 2011 Ford Fusion Four Door Sedan manufactured by Ford Motor Company. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated January 2010.

SECTION 2
SUMMARY OF NCAP SIDE IMPACT TEST

A rigid pole side test was conducted on a 2011 Ford Fusion Four Door Sedan. The subject vehicle was towed into the rigid pole at an angle of 75^{o} and a velocity of 32.2 km/h. The test was conducted by Calspan Corporation Transportation Research Group on 10/26/2010. Pre-test and post test photographs of the test vehicle and side impact dummy (SID-IIs) are included in Appendix A of this report.

One Part 572V (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side NCAP Pole Laboratory Test Procedure, dated January 2010. Camera locations and other pertinent camera information are included in this report.

The Part 572V (SID-IIs) Dummy was instrumented accordingly:

Head CG Triaxial Accelerometers
Thorax Upper, Middle, and Lower Rib Displacement Potentiometers
Abdomen Upper and Lower Rib Displacement Potentiometers
Lower Spine Triaxial Accelerometers
Illiac Load Cell
Acetabulum Load Cell

Appendix B contains the dummy response data. Dummy configuration and performance verification data can be found in Appendix C of this report.

The following table summarizes the results of the test:

Dummy	HIC (36ms)	Resultant Lower Spine Acceleration	Pelvic Force (N)
SID-IIs 5th percentile female	392.7	51.0	Iliac Wing = 1316.2
			Acetabular = 2849.6
			Sum = 4126.5

SUPPLEMENTAL RESTRAINT INFORMATION

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

GENERAL COMMENTS:

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO.1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle:	2011 Ford Fusion	NHTSA No:	MB0215
Test Program:	Side Pole NCAP	Test Date	10/26/2010

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	MB0215	Anti-Lock Brakes	Yes
Model Year	2011	All-Wheel Drive	No
Make	Ford	Power Steering	Yes
Model	Fusion	Driver Front Airbag	Yes
Body Style	Four Door Sedan	Driver Curtain Airbag	Yes
VIN	3FAHP0GAXBR120233	Driver Head/Torso Airbag	No
Body Color	Red	Driver Torso Airbag	No
Delivery Date	9/22/2010	Driver Torso/Pelvis Airbag	Yes
Odometer Reading (km/mi)	27 / 17	Driver Pelvis Airbag	No
Dealer	West-Herr Ford	Driver Knee Airbag	No
Transmission	6-Speed Automatic	Rear Pass. Curtain Airbag	Yes
Final Drive	Front Wheel Drive	Rear Pass. Head/Torso Airbag	No
Type/No. Cylinders	Inline 4	Rear Pass. Torso Airbag	No
Engine Displacement (L)	2.5	Rear Pass. Torso/Pelvis Airbag	No
Engine Placement	Transverse	Rear Pass. Pelvis Airbag	No
Roof Rack	No	Pretensioners	Yes
Sunroof/T-Top	No	Load Limiters	Yes
Tinted Glass	No	Automatic Door Locks	Yes
Traction Control	Yes	Bucket Seats	Yes
Power Brakes	Yes	Tilt Steering	Yes
Front Disc	Yes	Other	--
Rear Disc	Yes	Other	

Does owner's manual provide instructions to turn off automatic door locks?	Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Company	GVWR (kg)	1991
Date of Manufacture	8/10	GAWR Front (kg)	1063
		GAWR Rear (kg)	928

VEHICLE SEATING AND WEIGHT CAPACITY DATA

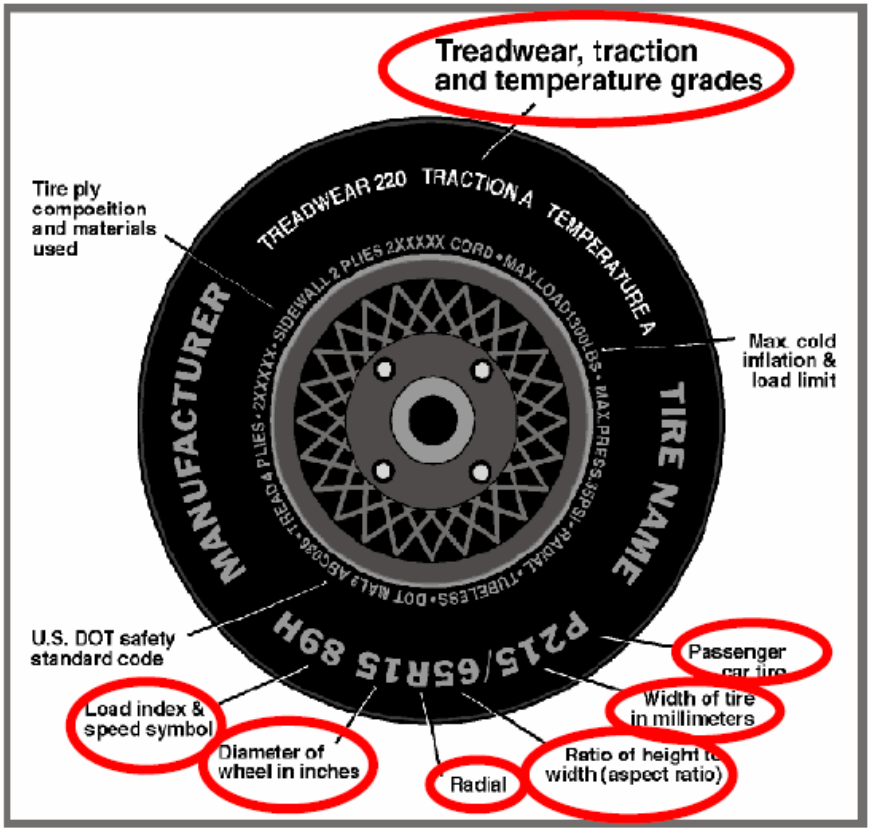
	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3		5	
Vehicle Capacity Weight (VCW) (kg)				385	(A)
DSC X 68.04 kg				340	(B)
Rated Cargo and Luggage Weight (RCLW) (kg)				45	(A-B)

VEHICLE SEAT TYPE

	Type of Seat Pan				Type of Seat Back		
						Adjustable	
Seating Location	Bucket	Bench	Split Bench	Contoured	Fixed	W/ Lever	W/ Knob
Front Seat	X					X	
Rear or Second Row Seat		X		X	X		
Third row seat							

DATA SHEET NO. 1 (CONTINUED)
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle:	2011 Ford Fusion	NHTSA No:	MB0215
Test Program:	Side Pole NCAP	Test Date	10/26/2010



Measured Parameter	Front	Rear
Maximum Tire Pressure	350	350
Cold Pressure (kPa)	235	235
Recommended Tire Size	P205/60R16	P205/60R16
Tire Size on Vehicle	P205/60R16	P205/60R16
Tire Model	Assurance	Assurance
Tire Manufacturer	Goodyear	Goodyear
Treadwear	580	580
Traction	a	a
Temperature Grades	a	a
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 1 Nylon	1 Polyester, 2 Steel, 1 Nylon
Load Index/Speed Symbol	91h	91h
Tire Material	Rubber	Rubber
DOT Safety Code Right	4BXVJA2R2310	4BXVJA2R2310
DOT Safety Code Left	4BXVJA2R2310	4BXVJA2R2310

DATA SHEET NO.1 (CONTINUED)
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle:	2011 Ford Fusion	NHTSA No:	MB0215
Test Program:	Side Pole NCAP	Test Date	10/26/2010

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	458	298	756	467	337	808	476	343	819
Right	kg	448	293	741	459	314	778	453	326	779
Ratio	%	61	39		58	42		58	42	
Totals	kg	906	591	1497	926	651	1577	929	669	1598

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1497	(A)
Actual Weight of 1 P572V ATD (SID-IIs) Dummy Used	kg	44.0	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	44.8	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1586	(A+B+C)

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded
Driver Door Sill Angle (front-to-rear)*	Deg.	-0.6	-	-0.4
Front Passenger Sill Angle (front-to-rear)*	Deg.	0.4	-	0.2
Front Bumper Angle (left-to-right)**	Deg.	0.0	-	-0.1
Rear Bumper Angle (left-to-right)**	Deg.	0.1	-	0.1
Vehicle CG (Aft of Front Axle)	mm	1079	1156	1144
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	9	17	22

* Front up is positive ** Left up is positive

GENERAL VEHICLE TEST DATA

Measurement Description	Units	Value
Weight of Ballast in Cargo Area	kg	11
Weight of Vehicle Components Removed	kg	0

Vehicle parts removed to make Target Vehicle Test Weight:
None

TEST VEHICLE IMPACT POINT DATA

Measured Parameter	Units	Value
Vertical Impact Reference Line (Aft of Front Axle)	mm	1107
Actual Impact Point (Aft of Front Axle)	mm	1107
Impact Point Difference (- forward / + rearward)	mm	0

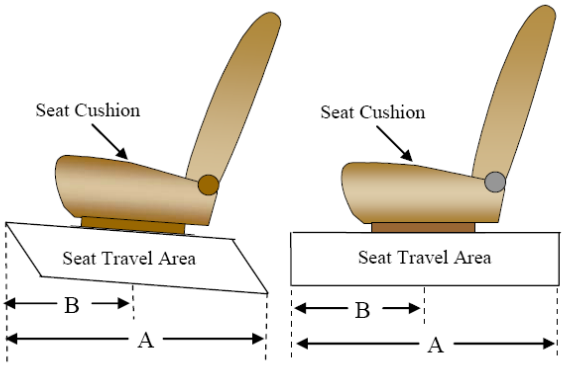
DATA SHEET NO. 2
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

Test Vehicle:	2011 Ford Fusion	NHTSA No:	MB0215
Test Program:	Side Pole NCAP	Test Date	10/26/2010

SEAT FORE/AFT POSITIONS

The seat was placed in the forward most travel position

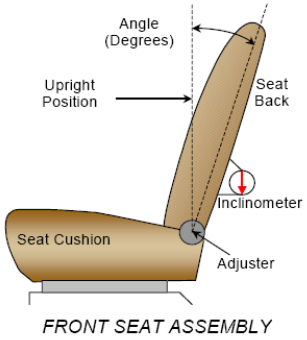
SEAT FORE/AFT POSITIONING



	Total Fore/Aft Travel (mm)	Placed in Detent # or Position (mm)
Driver Seat	239	0

SEAT BACK ANGLE POSITION

The seat back was placed at a position that provided a 0 degree head angle For the driver dummy



FRONT SEAT ASSEMBLY

SEAT BACK ANGLE

	Degrees	Detent
Driver Seat Back Angle with Seated Dummy	9.2	NA

SEAT BELT UPPER ANCHORAGES

The Driver seat belt anchorage was placed in the uppermost position (0)

SEAT BELT UPPER ANCHORAGE POSITIONING

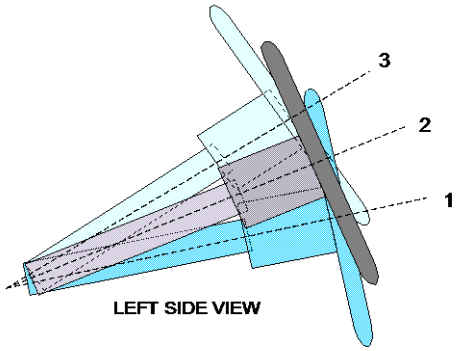
	Total # of Positions	Placed in Position #
Driver Seat	4	0

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

Test Vehicle:	2011 Ford Fusion	NHTSA No:	MB0215
Test Program:	Side Pole NCAP	Test Date	10/26/2010

STEERING COLUMN ADJUSTMENT

The steering column center angle was 66.7 degrees as listed in Form 1. The Telescoping range of travel was 30mm and was placed at the midpoint of travel.



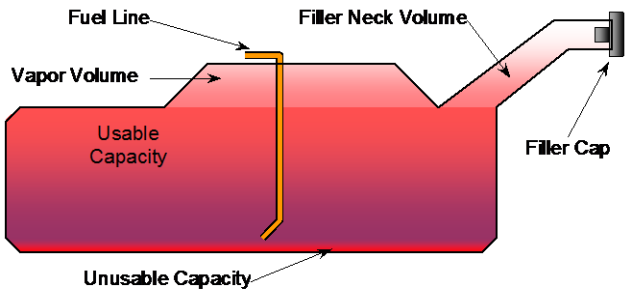
STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITIONING

	Degrees	Fore/Aft Position (mm)
Lowermost, Position No. 1	-	
Geometric Center, Position No. 2	67	
Uppermost, Position No. 3	-	
Telescoping Steering Wheel Travel		30
Test Position	67	15

FUEL PUMP

The fuel was evacuated according to manufacturer supplied information on FORM 1.



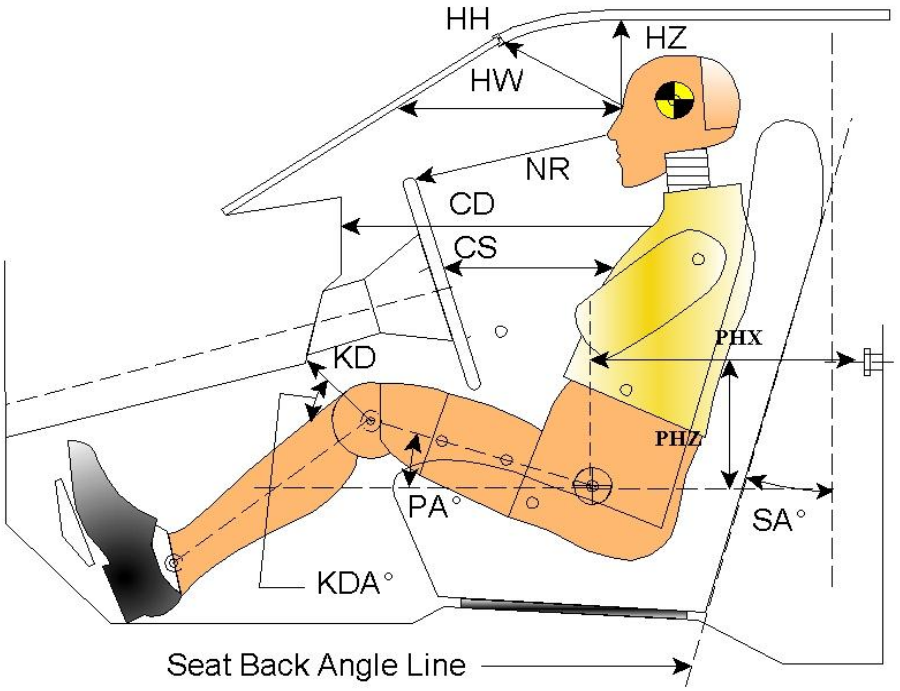
VEHICLE FUEL TANK ASSEMBLY

FUEL TANK CAPACITY DATA

	Liters
Usable Capacity of "Standard Tank"	66.2
Usable Capacity of "Optional Tank"	NA
Usable Capacity of Standard Tank as Specified in Owner's Manual	66.2
Usable Capacity of Optional Tank as Specified in Owner's Manual	NA
92-94% of Usable Capacity	60.9 - 62.3
Actual Amount of Solvent Used in Test	60.9
1/3 of Usable Capacity	20.2

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle:	2011 Ford Fusion	NHTSA No:	MB0215
Test Program:	Side Pole NCAP	Test Date	10/26/2010



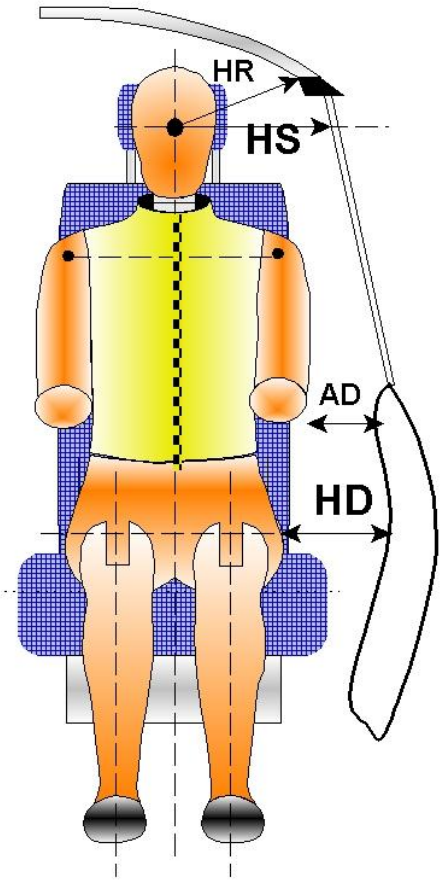
DUMMY ID# 300

Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	222	
HW	Head to Windshield	555	
HZ	Head to Roof	181	
NR	Nose to Rim	250	
CD	Chest to Dash	429	
CS	Chest to Steering Wheel	193	
KDL/KDAL°	Left Knee to Dash	102	20.0
KDR/KDAR°	Right Knee to Dash	100	20.0
PA◦	Pelvic Angle		20.3
PHX	H-Point to Striker (X-Axis)	316	
PHZ	H-Point to Striker (Z-Axis)	91	
SA◦	Seat Back Angle		9.2

* Measured from Head-restraint post

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle:	2011 Ford Fusion	NHTSA No:	MB0215
Test Program:	Side Pole NCAP	Test Date	10/26/2010

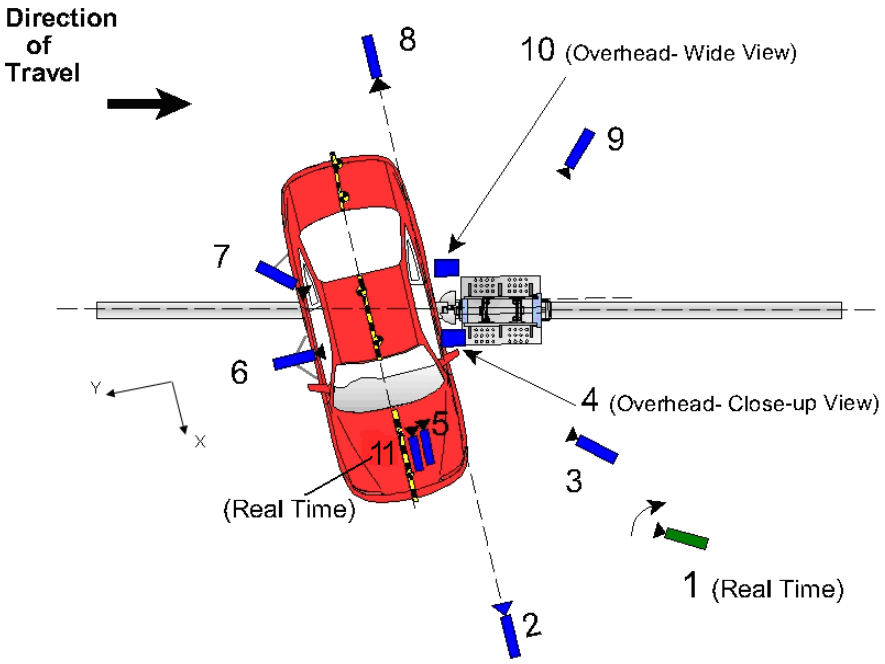


DUMMY ID# _____

Code	Measurement Description	Length (mm)
HR	Head To Side Header	232
HS	Head to Side Window	381
AD	Arm to Door	171
HD	H-Point to Door	161

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle:	2011 Ford Fusion	NHTSA No:	MB0215
Test Program:	Side Pole NCAP	Test Date	10/26/2010



Camera No.	View	Coordinates (mm)			Lens (mm)	Film Speed (fps)
		X*	Y*	Z*		
1	Real time (24-30 fps) pan view of impact	-	-	-	-	24
2	Front ground level - impact view	6213	1920	1005	24	1000
3	Impact side 45° - forward pole view	1215	1930	2180	24	1000
4	Overhead Close-up view of impact	-40	210	4375	28	1000
5	Onboard – dummy front view				25	500
6	Onboard – dummy side view				12.5	500
7	Onboard – dummy rear oblique view				12.5	500
8	Rear ground level – impact view	-6256	2115	1085	28	1000
9	Impact side 45º - rearward pole view	-3160	2967	1467	24	1000
10	Overhead wide-view of impact	310	160	4375	14	1000
11	Real-time (24-30 fps) – dummy front view	-	-	-	-	24

NOTE: Vehicle was at a 15° angle to the rigid pole.
REFERENCE (from Point of Impact for X and Y; from Ground for Z):
+ X = Forward of vehicle, + Y = Right of vehicle, + Z = Down All measurements accurate to ± 6 mm.

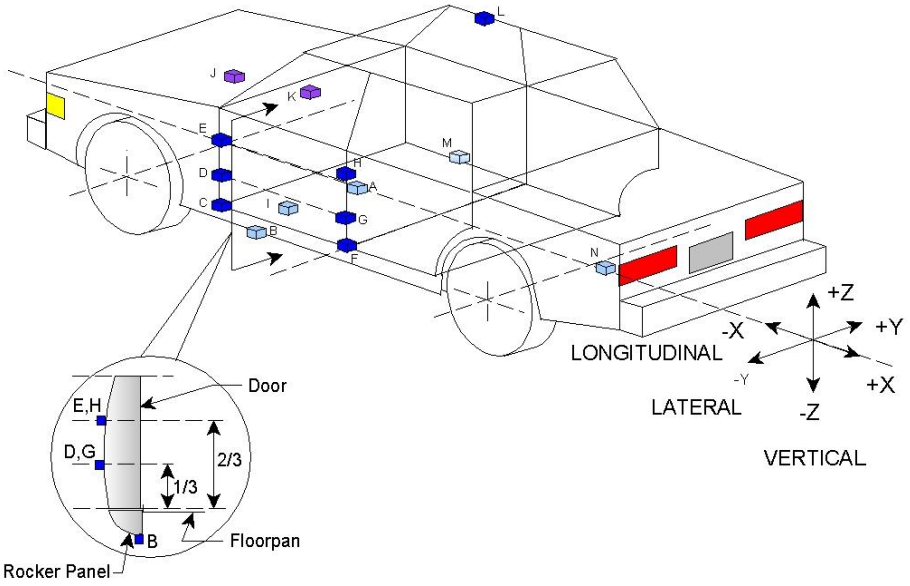
INSTRUMENTATION

	Number of Channels
Driver Dummy	16
Vehicle Structure	18
Pole Load Cells	6
Contact Switches	0
Total No. of Data Channels	40

***** * Vehicle manufacturer requested that contact switches not be installed on ATD.

DATA SHEET NO. 6
VEHICLE ACCELEROMETER DATA

Test Vehicle:	2011 Ford Fusion	NHTSA No:	MB0215
Test Program:	Side Pole NCAP	Test Date	10/26/2010



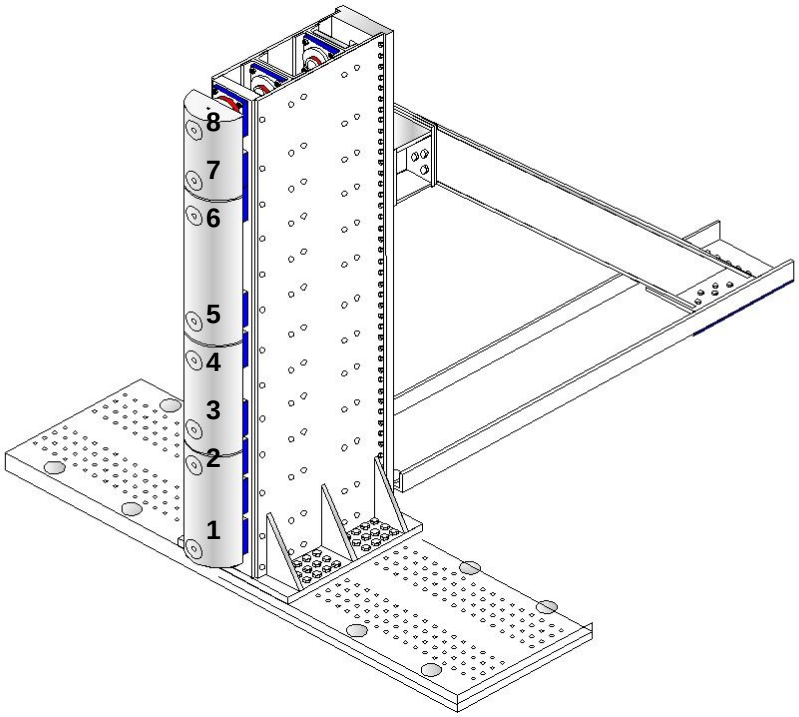
Reference:
+ X = Forward of vehicle, + Y = Right of vehicle, + Z = Down

	Accelerometer/Sensor Location			
	ID	Coordinates (mm)		
		X	Y	Z
	Vehicle CG Accel.	2713	-13	544
A	Vehicle CG Sensor	2713	-13	544
B	Left Floor Sill	3014	-691	347
C	A Pillar Sill	3248	-678	359
D	A Pillar Low	3325	-647	476
E	A Pillar Mid	3227	-660	993
F	B Pillar Sill	2333	-685	346
G	B Pillar Low	2303	-691	652
H	B Pillar Mid	2273	-667	947
I	Driver Seat	2398	-557	305
L	Engine Top	3979	68	825
J	Firewall	3699	7	876
K	Right Roof	2309	591	1392
M	Right Floor Sill	2449	685	392
N	Rear Floorpan	1156	-109	580

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle:	2011 Ford Fusion	NHTSA No:	MB0215
Test Program:	Side Pole NCAP	Test Date	10/26/2010

FOIL 300K RIGID POLE



Load Cell Locations	
ID	**Height From Ground (mm)**
1	200
2	590
3	750
4	1075
5	1260
6	1740
7	1920
8	2300

DATA SHEET NO. 8
POST-TEST OBSERVATIONS

Test Vehicle:	2011 Ford Fusion	NHTSA No:	MB0215
Test Program:	Side Pole NCAP	Test Date	10/26/2010

TEST DUMMY INFORMATION AND CONTACT

Description	Driver Dummy
Dummy Type/Serial No.	SID-IIs / 300
Head Contact	curtain airbag
Upper Torso Contact	side torso/pelvis airbag
Lower Torso Contact	side torso/pelvis airbag
Left Knee Contact	door trim panel
Right Knee Contact	left knee

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Left Side Doors	Jammed Shut	Closed & Operational
Right Side Doors	Closed & Operational	Closed & Operational
Hatch and Other Doors	Closed & Operational	Closed & Operational
Seat Movement	No	No
Seat Back Failure	No	No

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	b-pillar intact but intrusion occurred due to side impact
Sill Separation	none
Windshield Damage	glazing separated upper left corner of windshield
Window Damage	broken
Other Notable Effects	

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

VEHICLE SPEED AND IMPACT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset from Vertical Impact Reference Line	mm	+/- 38	0
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.22
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.33

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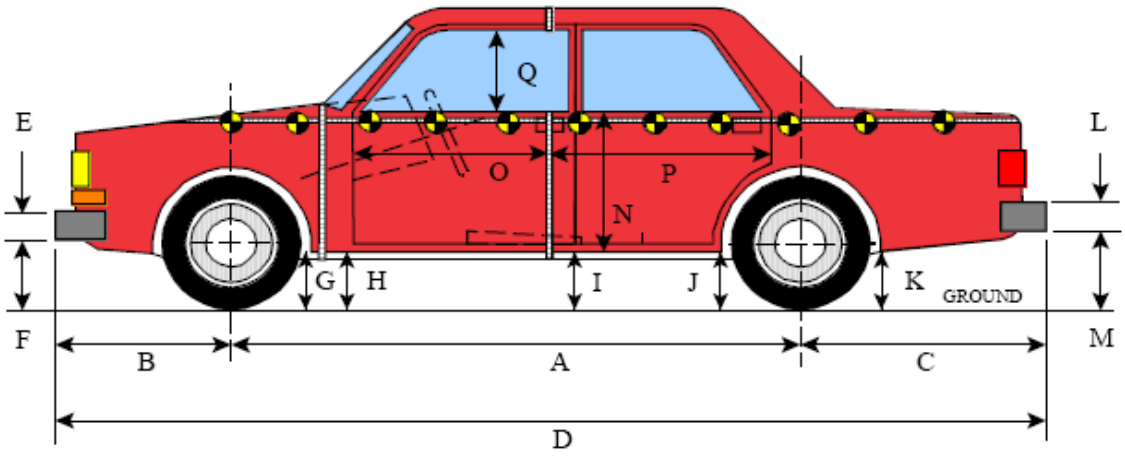
DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS

Test Vehicle:	2011 Ford Fusion	NHTSA No:	MB0215
Test Program:	Side Pole NCAP	Test Date	10/26/2010



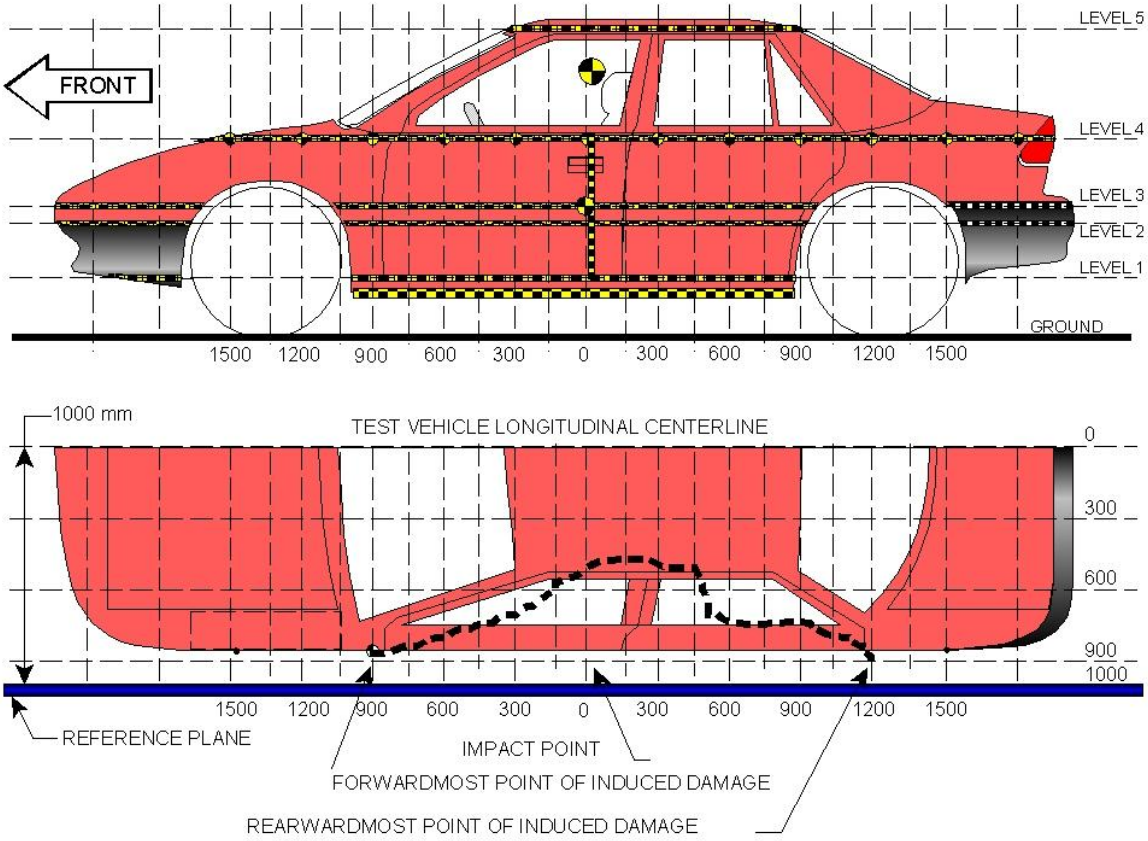
LEFT SIDE VIEW
All MEASUREMENTS IN (mm) WITH TOLERANCE OF ± 3mm

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Difference
A	Vehicle Wheelbase	2730	2603	-127
B	Front Axle to FSOV	1011	1075	64
C	Rear Axle to RSOV	1106	1101	-6
D1	Total Vehicle Length at Left Side	4764	4675	-89
D2	Total Vehicle Length at Centerline	4843	4778	-65
D3	Total Vehicle Length at Right Side	4764	4741	-23
E	Front Bumper Thickness	285	285	0
F	Front Bumper Bottom to Ground	215	235	20
G	Sill Height at Front Wheel Well	154	176	22
H	Sill Height at Front Door Leading Edge	155	185	30
I	Sill Height at B Pillar	163	221	58
J1	Sill Height at Rear Wheel Well	203	217	14
J2	Pinch Weld Height at Rear Wheel Well	170	190	20
K	Sill Height Aft of Rear Wheel Well	218	227	9
L	Rear Bumper Thickness	354	354	0
M	Rear Bumper Bottom to Ground	296	285	-11
N	Sill Height to Window Bottom Sill	695	694	-1
O	Front Door Leading Edge to Impact CL	689	688	-1
P	Rear Door Trailing Edge to Impact CL	1304	1248	-56
Q	Front Window Opening	431	417	-14
R	Right Side Length	4764	4741	-23
S	Left Side Length	4764	4675	-89
T	Vehicle Width at B Post	1819	1631	-188

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle:	2011 Ford Fusion	NHTSA No:	MB0215
Test Program:	Side Pole NCAP	Test Date	10/26/2010



Level	Measurement Description	Height Above Ground (mm)
1	Sill Top	320
2	Occupant H-Point	518
3	Mid-Door	644
4	Window Sill	893
5	Window Top	1393

NOTE: The above measurements should be taken along the vertical impact reference line. Vehicle measurements forward of the vertical impact reference line are negative.

DATA SHEET NO. 10 (CONTINUED)
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle:	2011 Ford Fusion	NHTSA No:	MB0215
Test Program:	Side Pole NCAP	Test Date	10/26/2010

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
-1350	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
-1200	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
-1050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
-900	--	--	909	819	--	--	--	900	843	--	--	--	9	-24	--
-750	--	904	902	833	--	--	882	886	838	--	--	22	16	-5	--
-600	885	895	900	843	--	805	830	844	825	--	80	65	56	18	--
-450	885	896	902	851	--	726	745	754	749	--	159	151	148	102	--
-300	885	896	904	859	--	644	656	660	657	--	241	240	244	202	--
-150	884	896	905	864	--	548	554	556	557	--	336	342	349	307	--
0	883	897	906	870	--	455	453	455	457	--	428	444	451	413	--
150	882	897	906	875	576	510	492	483	484	460	372	405	423	391	116
300	881	897	907	880	589	609	607	607	613	500	272	290	300	267	89
450	879	896	906	881	594	666	700	719	721	529	213	196	187	160	65
600	877	893	904	884	595	715	736	749	753	556	162	157	155	131	39
750	872	891	902	884	595	764	772	771	785	570	108	119	131	99	25
900	868	889	899	884	593	810	803	796	816	577	58	86	103	68	16
1050	863	885	896	883	584	852	828	823	845	577	11	57	73	38	7
1200	--	891	894	896	--	--	894	864	886	--	--	-3	30	10	--
1350	--	--	900	894	--	--	--	890	914	--	--	--	10	-20	--
1500	--	--	--	868	--	--	--	--	862	--	--	--	--	6	--

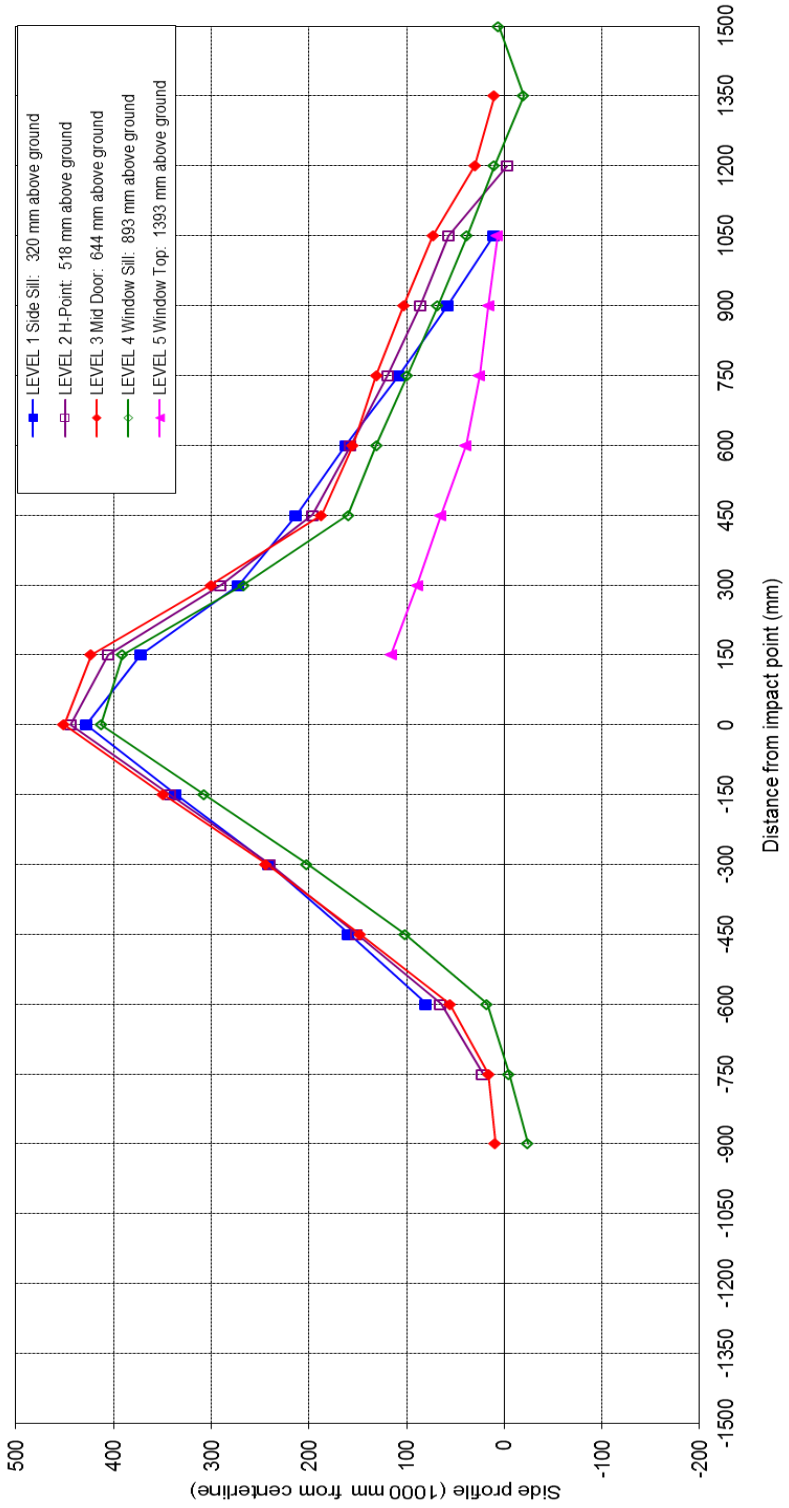
MAXIMUM CRUSH DATA

	Level 1	Level 2	Level 3	Level 4	Level 5
Maximum Crush (mm)	428	444	451	413	116
Distance From Impact (mm)	0	0	0	0	150

NOTE: Pre-test measurements are taken when the vehicle is in the “As Tested” weight condition. Vehicle measurements forward of the vertical impact reference line are negative. The crush profile grid is established prior to test based on an estimated impact point. The final distance to impact is determined after the final dummy positioning and the pole is aligned with the center of gravity of the dummy’s head.

DATA SHEET NO. 10 (CONTINUED)
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle:	2011 Ford Fusion	NHTSA No:	MB0215
Test Program:	Side Pole NCAP	Test Date	10/26/2010



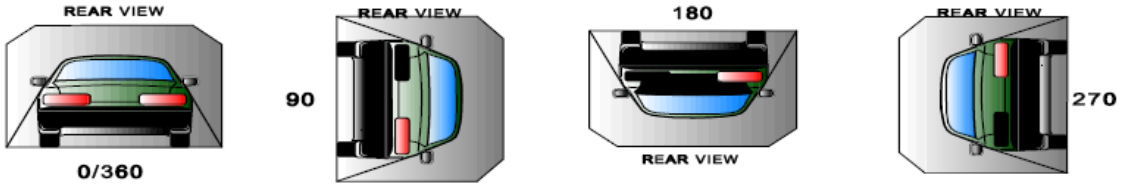
DATA SHEET NO. 11
FMVSS NO. 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

Test Vehicle:	2011 Ford Fusion	NHTSA No:	MB0215
Test Program:	Side Pole NCAP	Test Date	10/26/2010

Test Time: 3:30pm **Temperature:** 18 ^{o} C

A.	From impact until vehicle motion ceases: (Maximum allowable is 1 oz.)	0	oz.
B.	For the 5-minute period after motion ceases: (Maximum allowable is 5 oz.)	0	oz.
C.	For the following 25 minutes: (Maximum allowable is 1 oz./minute)	0	oz.
D.	Spillage Details:	None	

FMVSS 301 STATIC ROLLOVER DATA



ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0 to 90	1:12	5:00	6:12
90 to 180	1:09	5:00	6:09
180 to 270	1:12	5:00	6:12
270 to 360	1:10	5:00	6:10

FMVSS NO. 301 ROLLOVER SPILLAGE TABLE

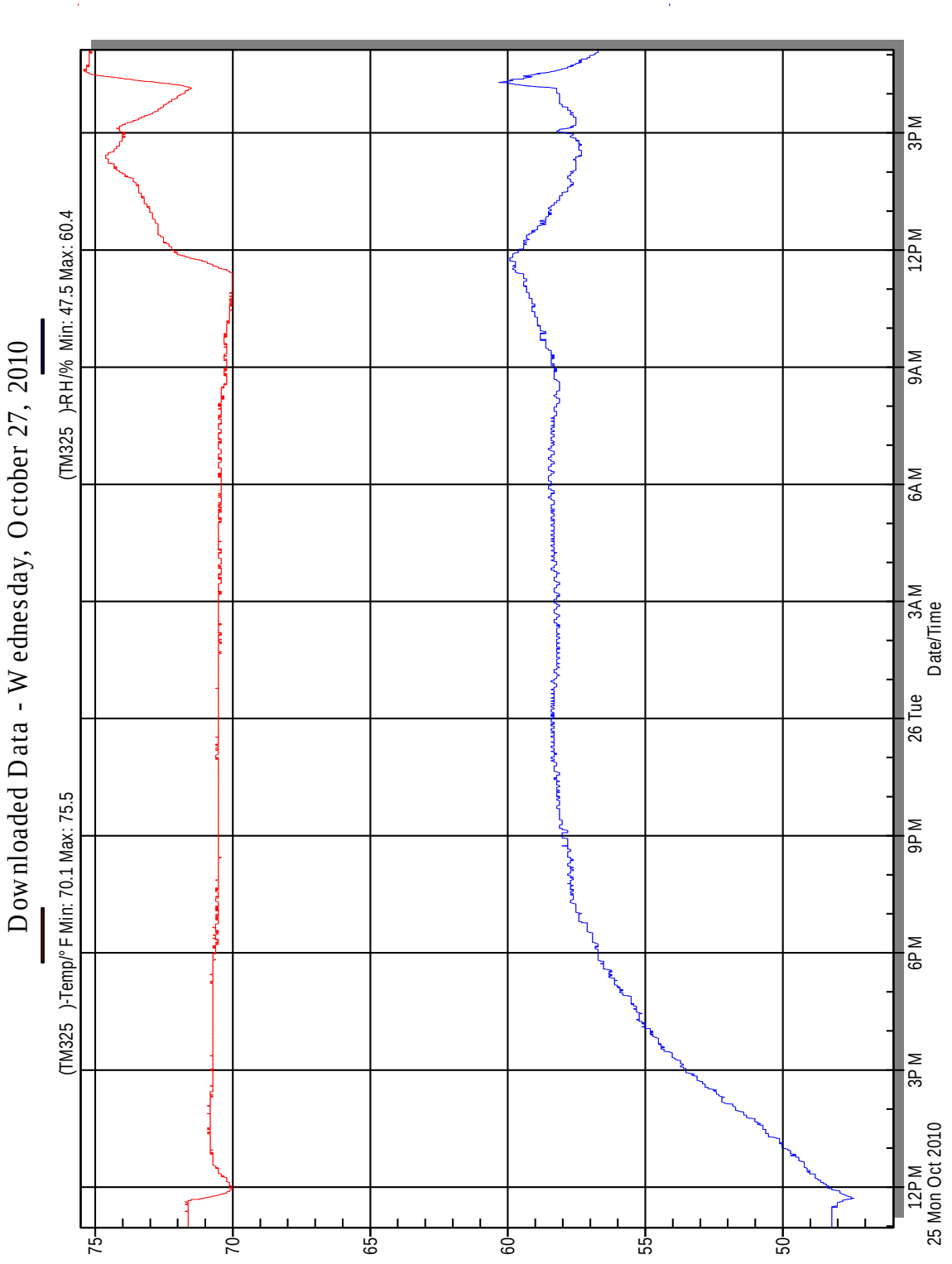
Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0 to 90	0	NA	NA	NA
90 to 180	0	NA	NA	NA
180 to 270	0	NA	NA	NA
270 to 360	0	NA	NA	NA

ROLLOVER 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. 12
DUMMY/VEHICLE TEMPERATURE STABILIZATION DATA

Test Vehicle:	2011 Ford Fusion	NHTSA No:	MB0215
Test Program:	Side Pole NCAP	Test Date	10/26/2010



APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

Figure A-1: As Delivered Right Front 3/4 View of Test Vehicle

Figure A-2: As Delivered Left Rear 3/4 View of Test Vehicle

Figure A-3: Pre-Test Frontal View of Test Vehicle

Figure A-4: Post-Test Frontal View of Test Vehicle

Figure A-5: Pre-Test Left ¾ Front View of Test Vehicle

Figure A-6: Post-Test Left ¾ Front View Test Vehicle

Figure A-7: Pre-Test Left Side View of Test Vehicle

Figure A-8: Post-Test Left Side View of Test Vehicle

Figure A-9: Pre-Test Left ¾ Rear View of Test Vehicle

Photo Not Available

Figure A-10: Post-Test Left Rear ¾ View of Test Vehicle

Figure A-11: Pre-Test Rear View of Test Vehicle

Figure A-12: Post-Test Rear View of Test Vehicle

Figure A-13: Pre-Test Right Side View of Test Vehicle

Figure A-14: Post-Test Right Side View of Test Vehicle

Figure A-15: Pre-Test Overhead View of Test Vehicle and Pole

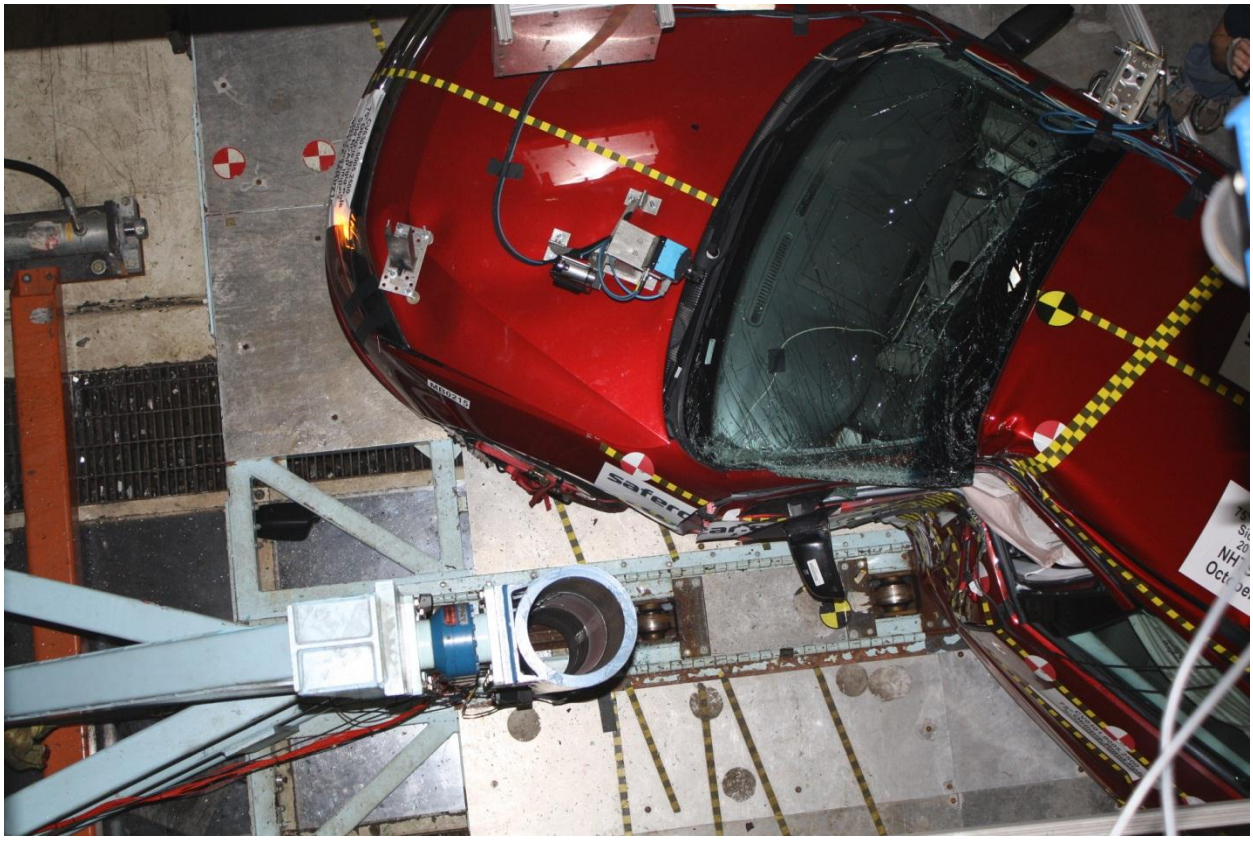


Figure A-16: Post-Test Overhead View of Test Vehicle and Pole

Figure A-17: Pre-Test Left Side View of Pole Positioned Against Side of Vehicle at Ideal Impact Point

Figure A-18: Pre-Test Right Side View of Pole Positioned Against Side of Vehicle at Ideal Impact Point

Photo Not Available

Figure A-19: Pre-Test Close-Up View of Impact Point Target

Figure A-20: Post-Test Close-Up View of Impact Point Target Showing Impact Location

Figure A-21: Pre-Test Front Close-Up View of Dummy

Figure A-22: Post-Test Front Close-Up View of Dummy

Figure A-23. Pre-Test Left Side View of Dummy Showing Belt, Chalking, and Contact Switches

Figure A-24: Pre-Test Left Side View of Dummy Shoulder and Door Top View

Figure A-25: Post-Test Left Side View of Dummy Shoulder and Door Top View

Figure A-26: Pre-Test Frontal View of Seat Back Prior to Dummy Positioning

Figure A-27: Pre-Test Frontal View of Dummy Head and Shoulders in Relation to Head Restraint

Figure A-28: Pre-Test Frontal View of Seat Pan Prior to Dummy Positioning

Figure A-29: Pre-Test Overhead View of Dummy Thighs on Seat Pan

Photo Not Available

Figure A-30: Pre-Test View of Dummy's Neck Showing Position of Adjustable Neck Bracket

Figure A-31: Pre-Test View of Dummy's Head Showing Dummy's Head is Level

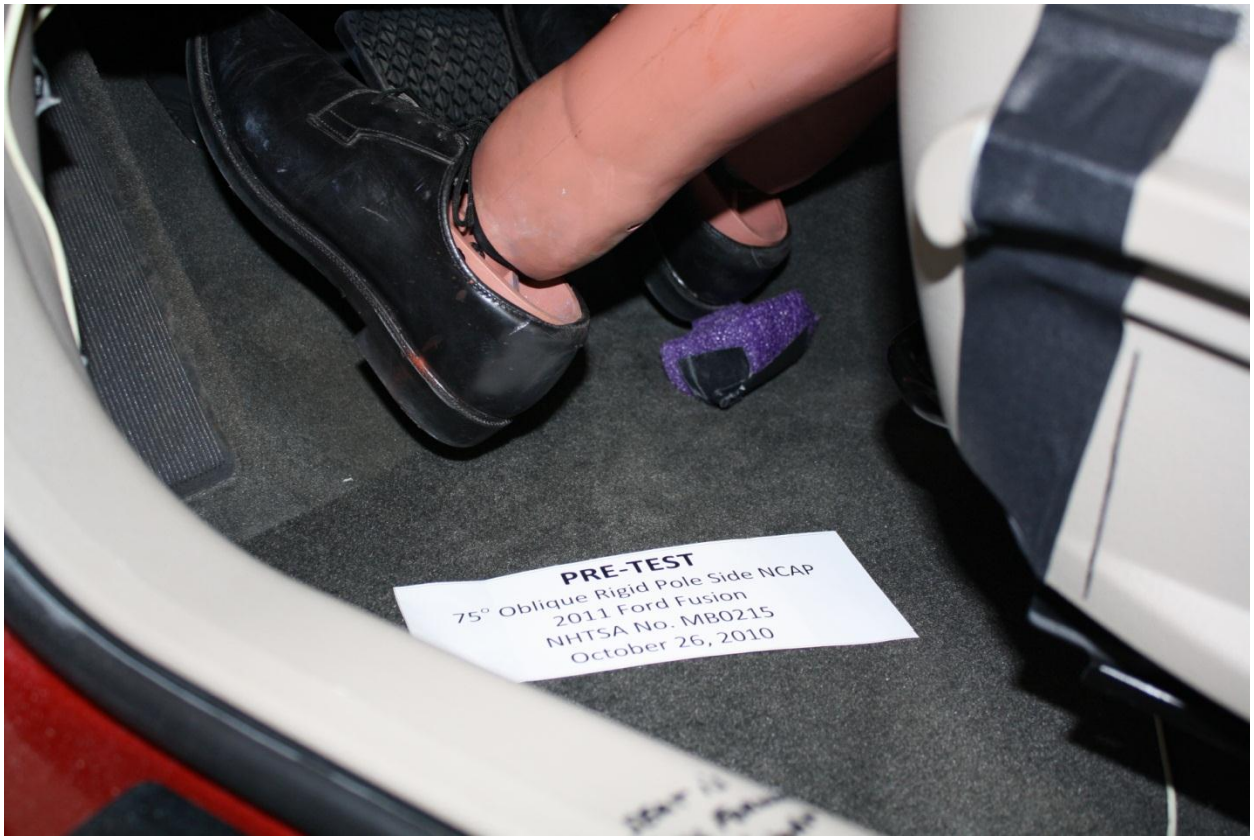


Figure A-32: Pre-Test Placement of Dummy's Feet

Figure A-33: Pre-Test View of Belt Anchorage for Dummy to Show Position

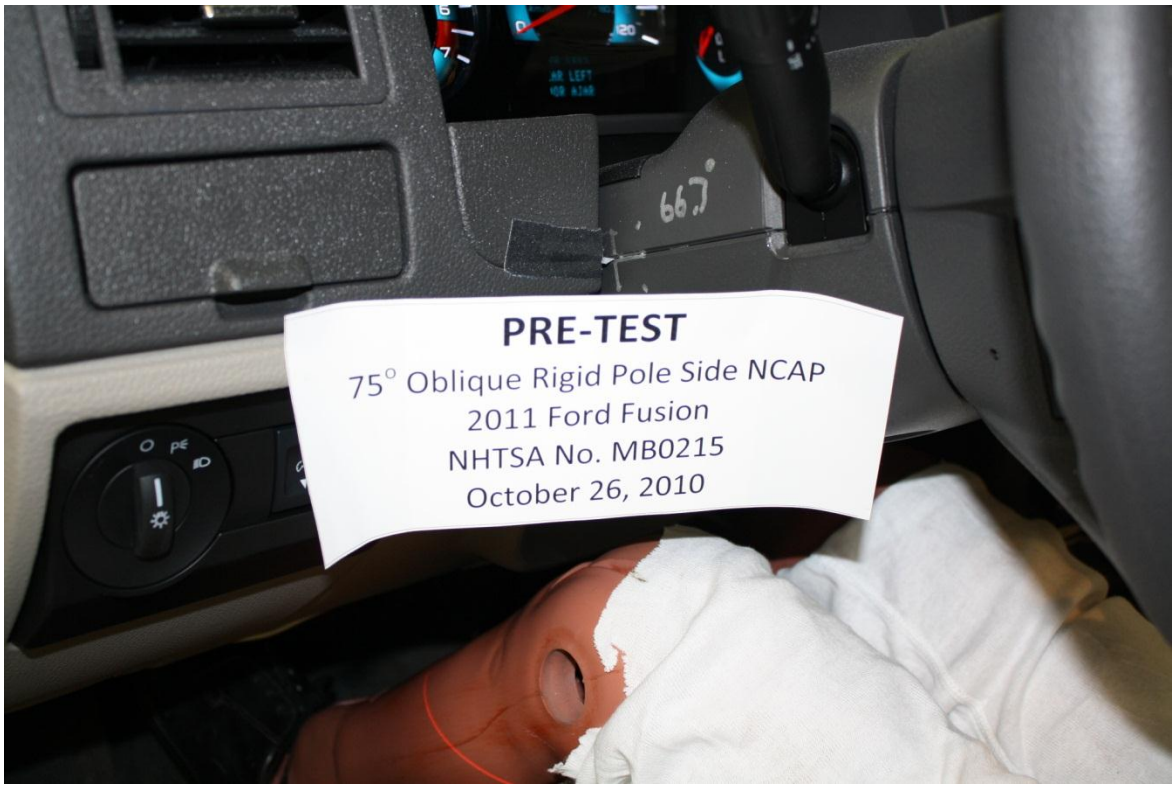


Figure A-34: Pre-Test Left Side View of Steering Wheel to Show Position

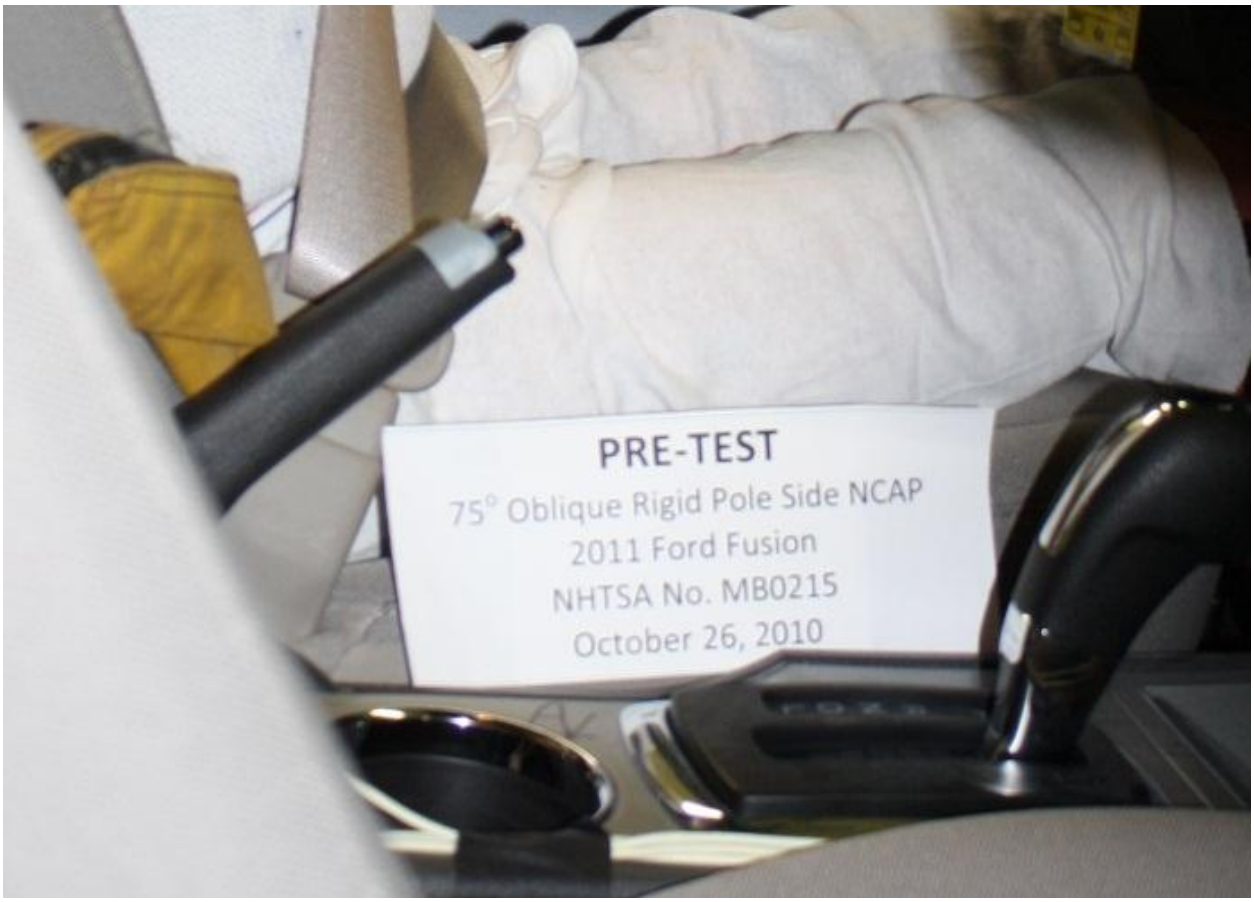


Figure A-35: Pre-Test View of Parking Brake

Figure A-36: Pre-Test Close-Up Left Side View of Driver Seat Track Showing Test Position

Figure A-37: Pre-Test Close-Up Left Side View of Driver Seat Back Showing Test Position

Figure A-38: Pre-Test Close-Up View of Driver Seat Back or Head Restraint Showing Seat Back Test Position

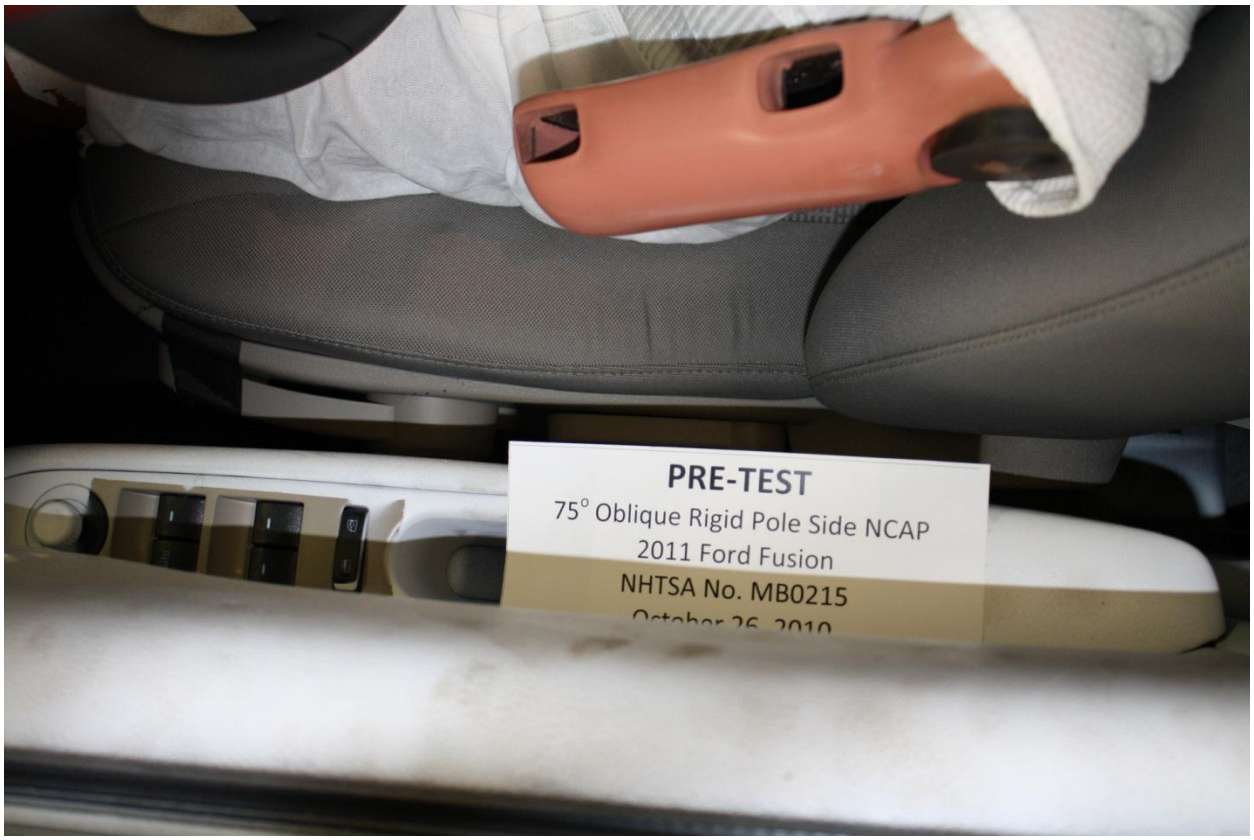


Figure A-39: Pre-Test Dummy and Door Clearance View

Figure A-40: Post-Test Dummy and Door Clearance View

Figure A-41: Pre-Test Right Side View of Dummy and Front Seat Occupant Compartment

Figure A-42: Post-Test Right Side View of Dummy and Front Seat Occupant

Figure A-43: Pre-Test Inner Door Panel View

Figure A-44: Post-Test Inner Door Panel View Showing Dummy Contact Location

Photo Not Applicable

Figure A-45: Post-Test Dummy Close-Up Head Contact with Vehicle View

Figure A-46: Post-Test Dummy Close-Up Head Contact with Side Airbag View

Photo Not Applicable

Figure A-47: Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View

Figure A-48: Post-Test Dummy Close-Up Torso Contact with Side Airbag View

Photo Not Applicable

Figure A-49: Post-Test Dummy Close-Up Pelvis Contact View

Figure A-50: Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View

Figure A-51: Pre-Test View of Fuel Filler Cap or Fuel Filler Neck

Figure A-52: Post-Test View of Fuel Filler Cap or Fuel Filler Neck

Figure A-53: Close-Up View of Vehicle's Certification Label

Figure A-54: Close-Up View of Vehicle's Tire Information Placard or Label

Photo Not Available

Figure A-55: Pre Test Pole Barrier Front View

Figure A-56: Post Test Pole Barrier Front View

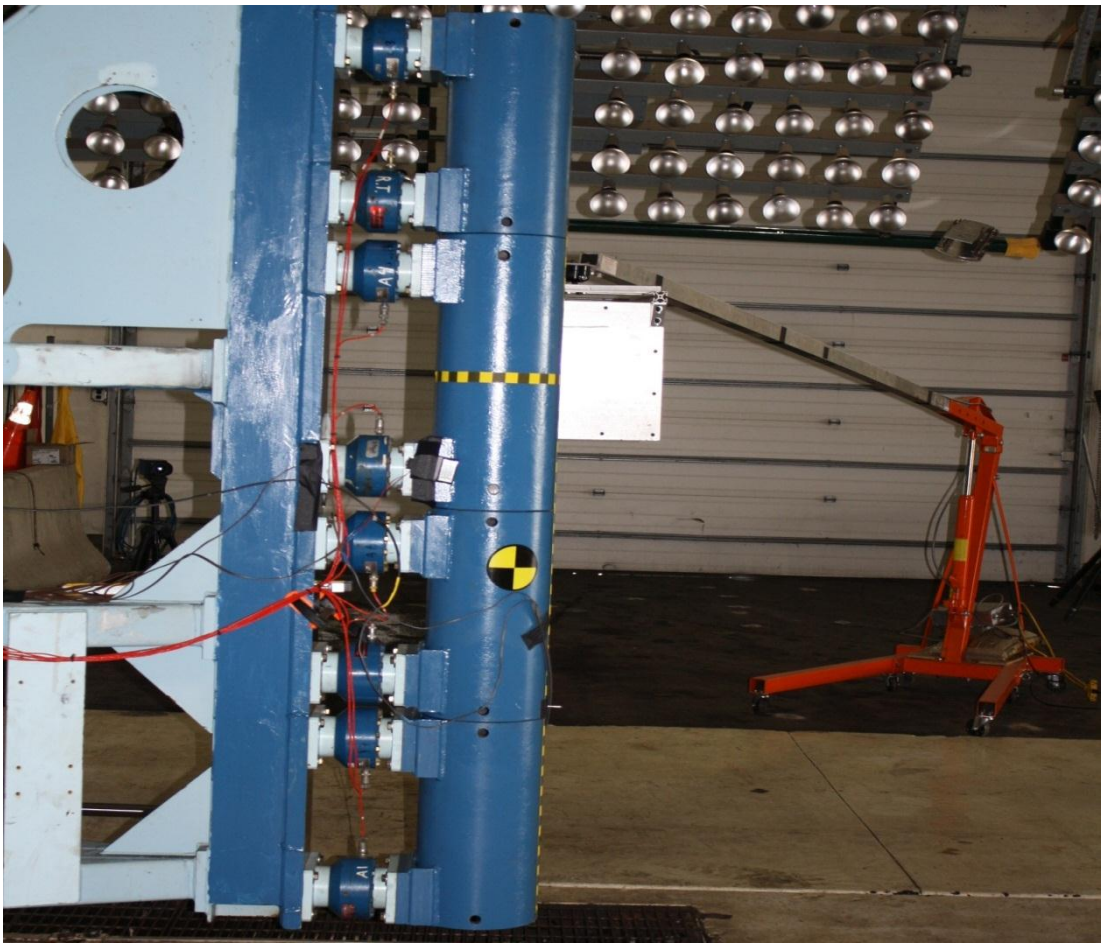


Figure A-57: Pre-Test Pole Barrier Side View

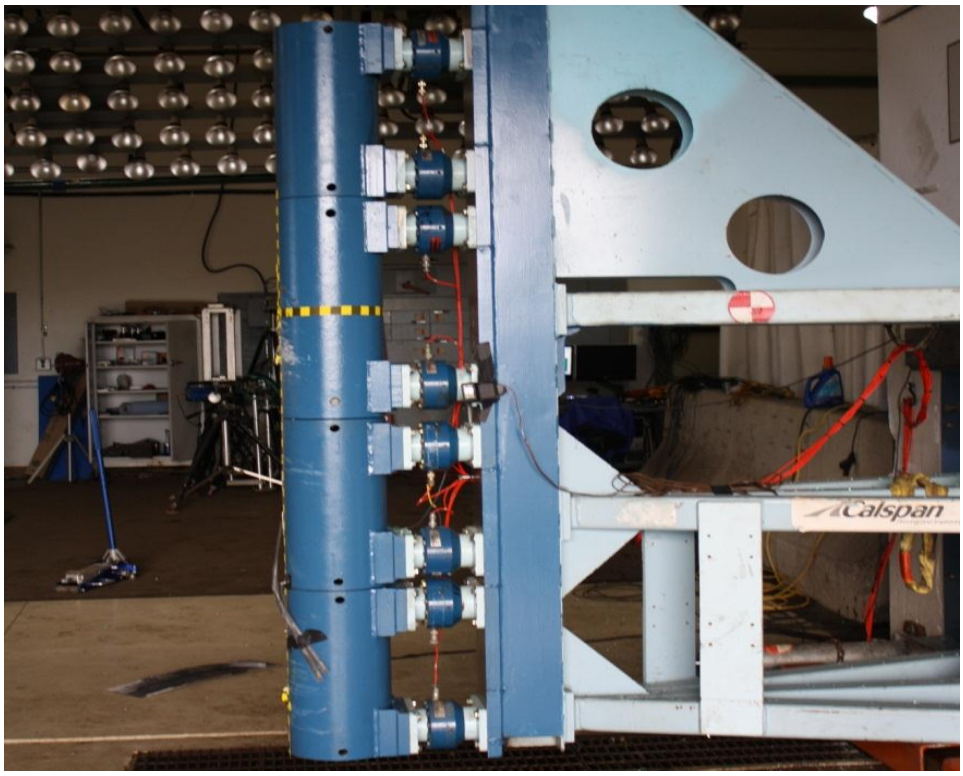


Figure A-58: Post-Test Pole Barrier Side View

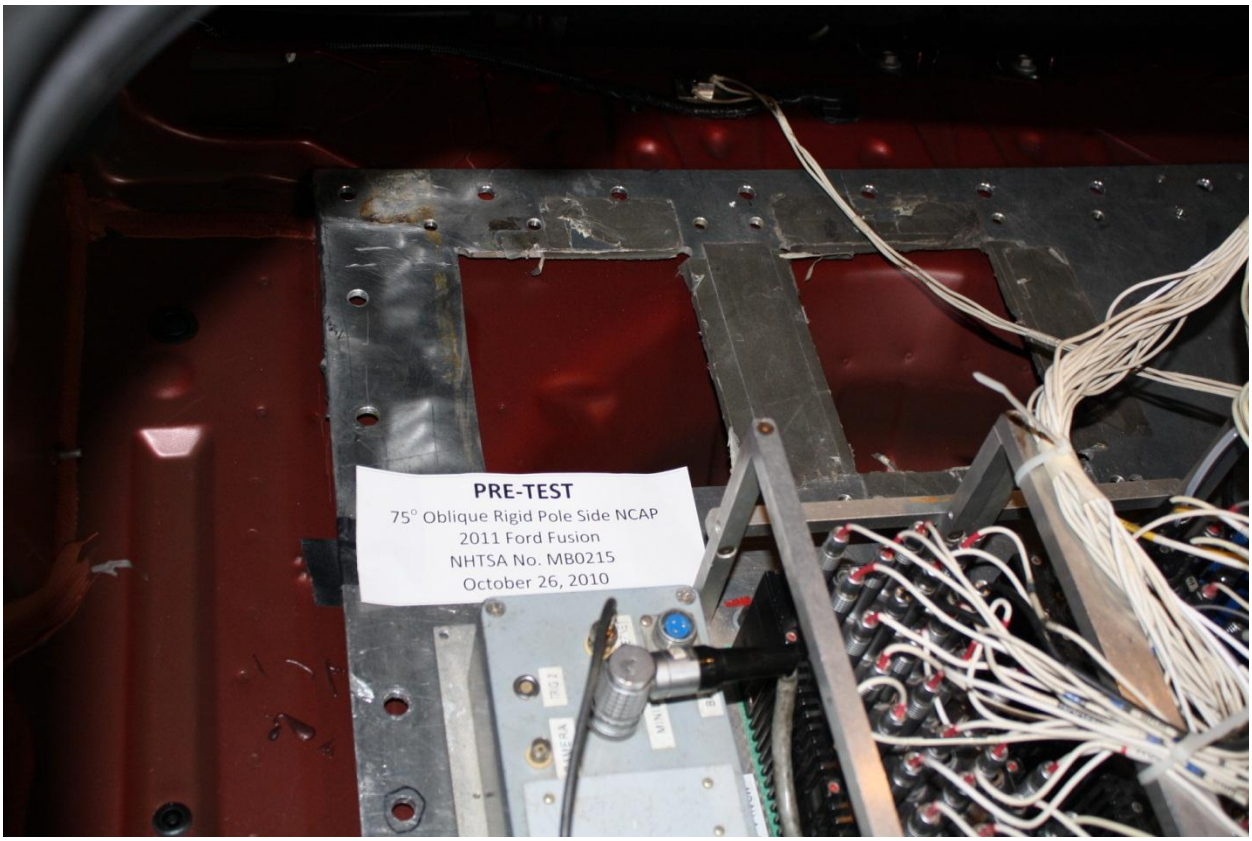


Figure A-59: Pre-Test Ballast View

Figure A-60: Post-Test Primary and Redundant Speed Trap Read-Out

Figure A-61: FMVSS No. 301 Rollover 0°

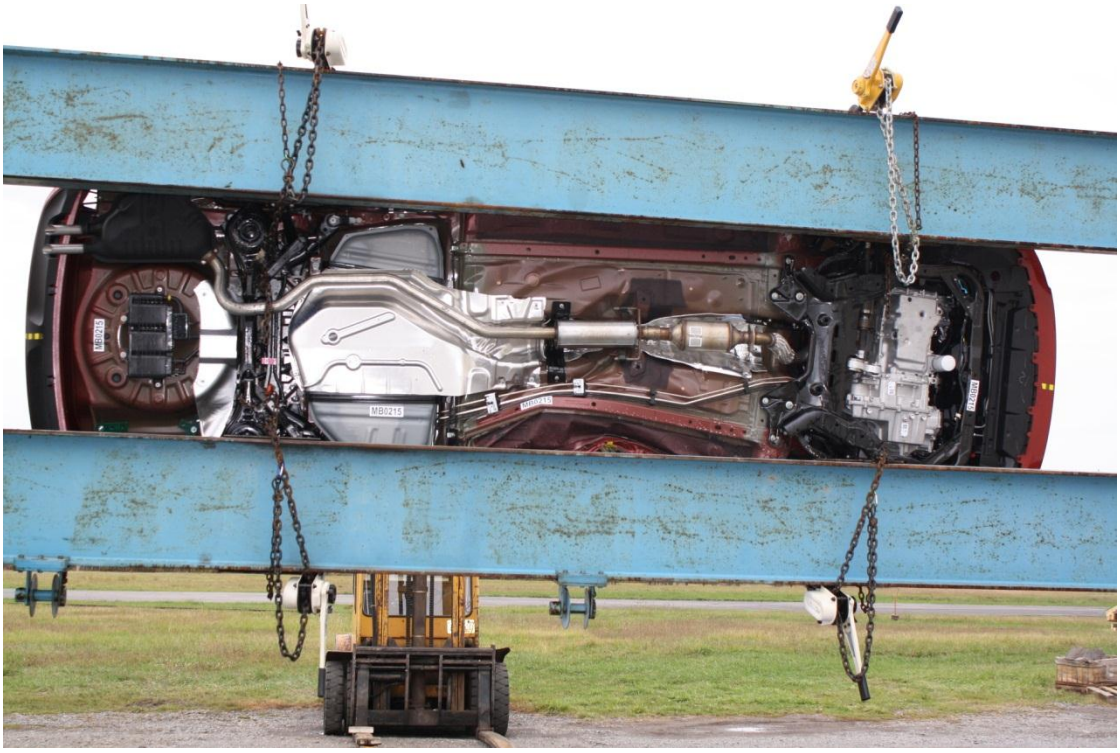


Figure A-62: FMVSS No. 301 Rollover 90°

Figure A-63: FMVSS No. 301 Rollover 180°

Figure A-64: FMVSS No. 301 Rollover 270°

Figure A-65: FMVSS No. 301 Rollover 360°

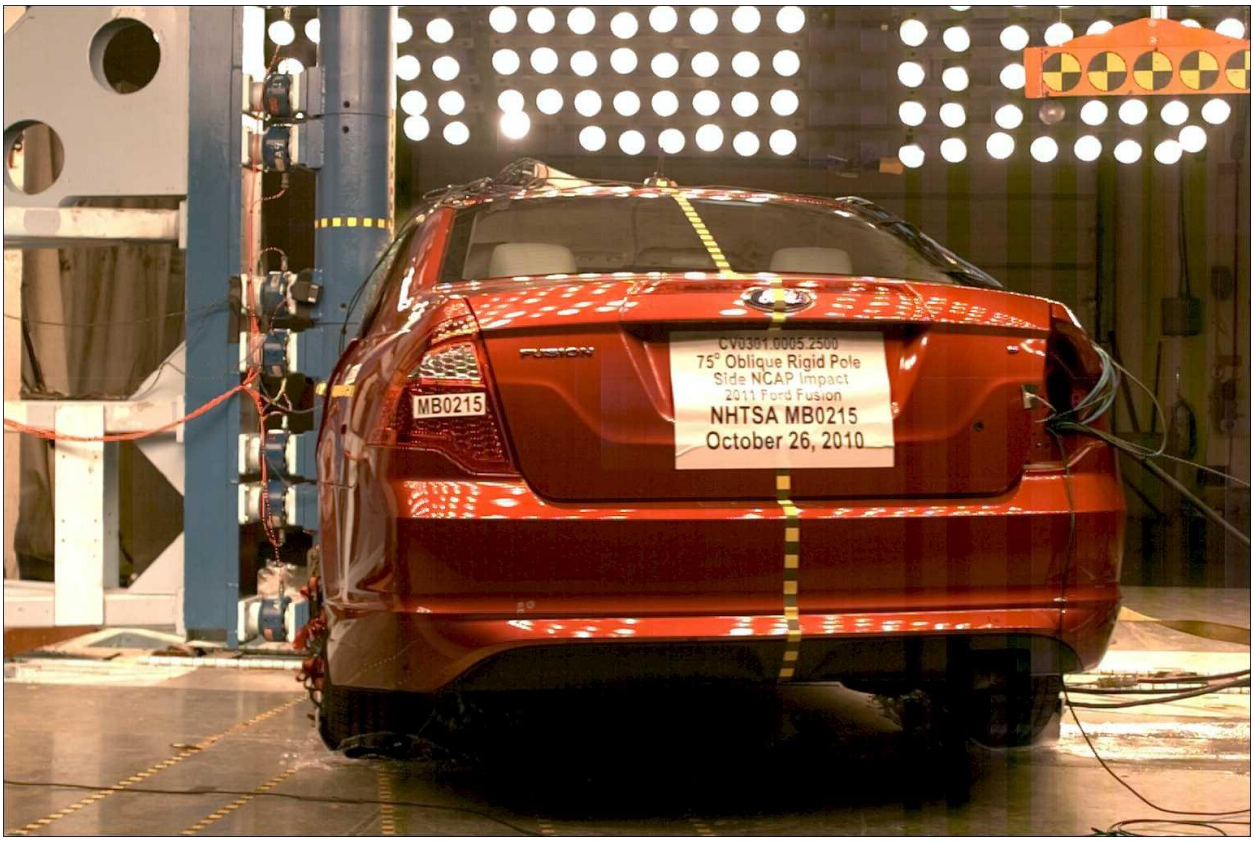


Figure A-66: Impact Event

Figure A-67: Monroney Label

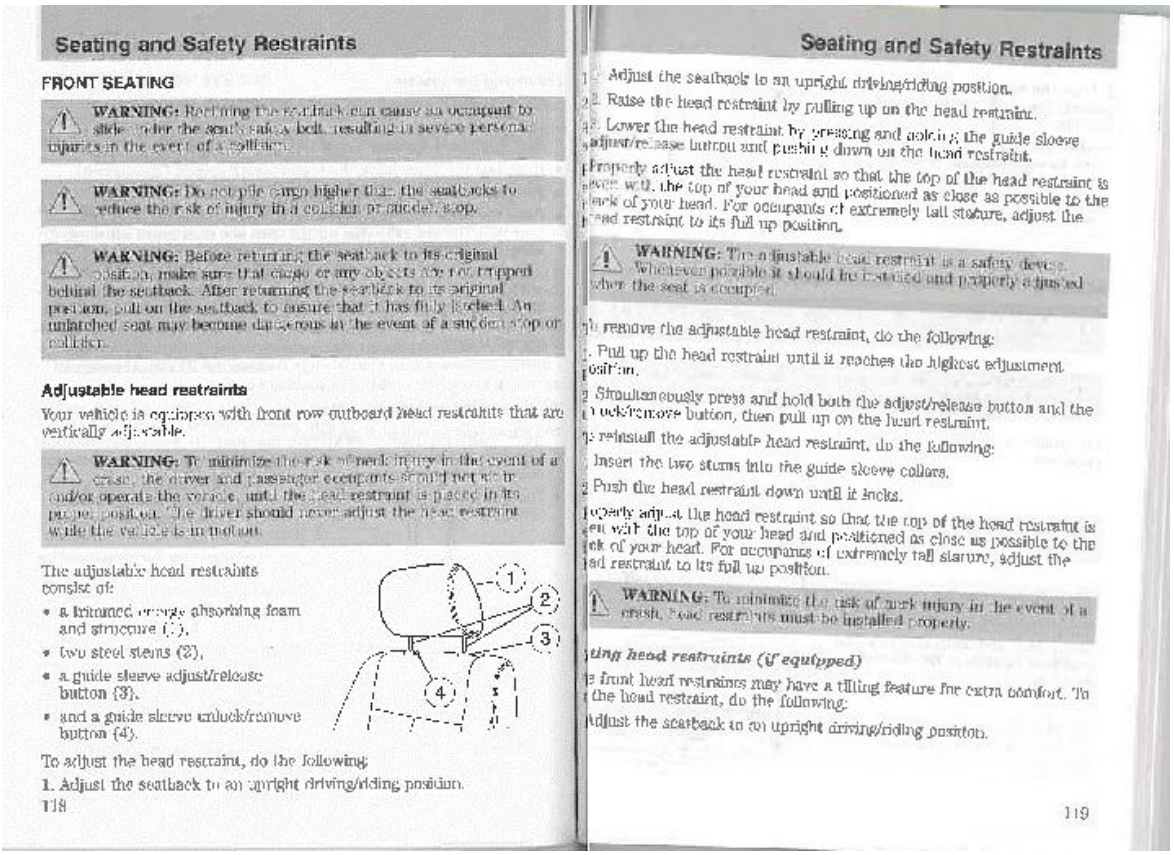


Figure A-68: Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

APPENDIX B

VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

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.

Additional Driver Dummy Instrumentation Data

Driver Head Acceleration (X) Redundant
Driver Head Acceleration (Y) Redundant
Driver Head Acceleration (Z) Redundant
Driver Upper Thorax Rib Deflection (Y)
Driver Middle Thorax Rib Deflection (Y)
Driver Lower Thorax Rib Deflection (Y)
Driver Upper Abdomen Rib Deflection (Y)
Driver Lower Abdomen Rib Deflection (Y)
Driver Shoulder Contact Switch
Driver Torso Contact Switch
Driver Pelvis Contact Switch

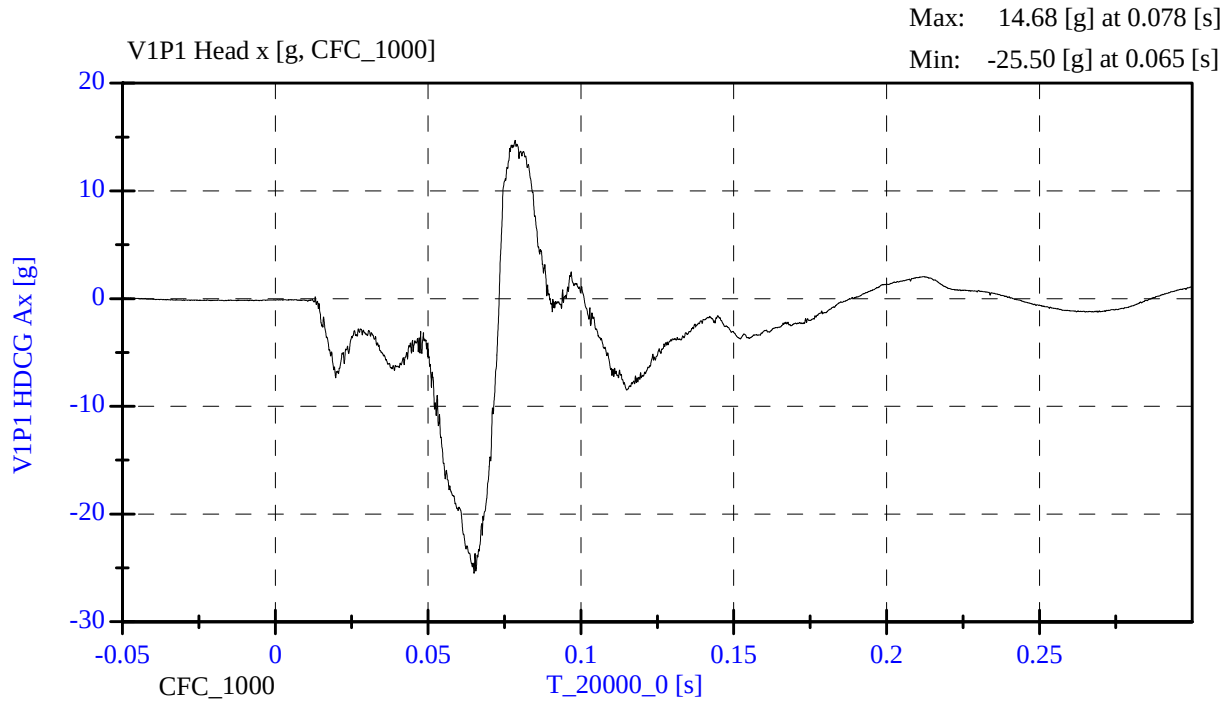
Vehicle Instrumentation Data

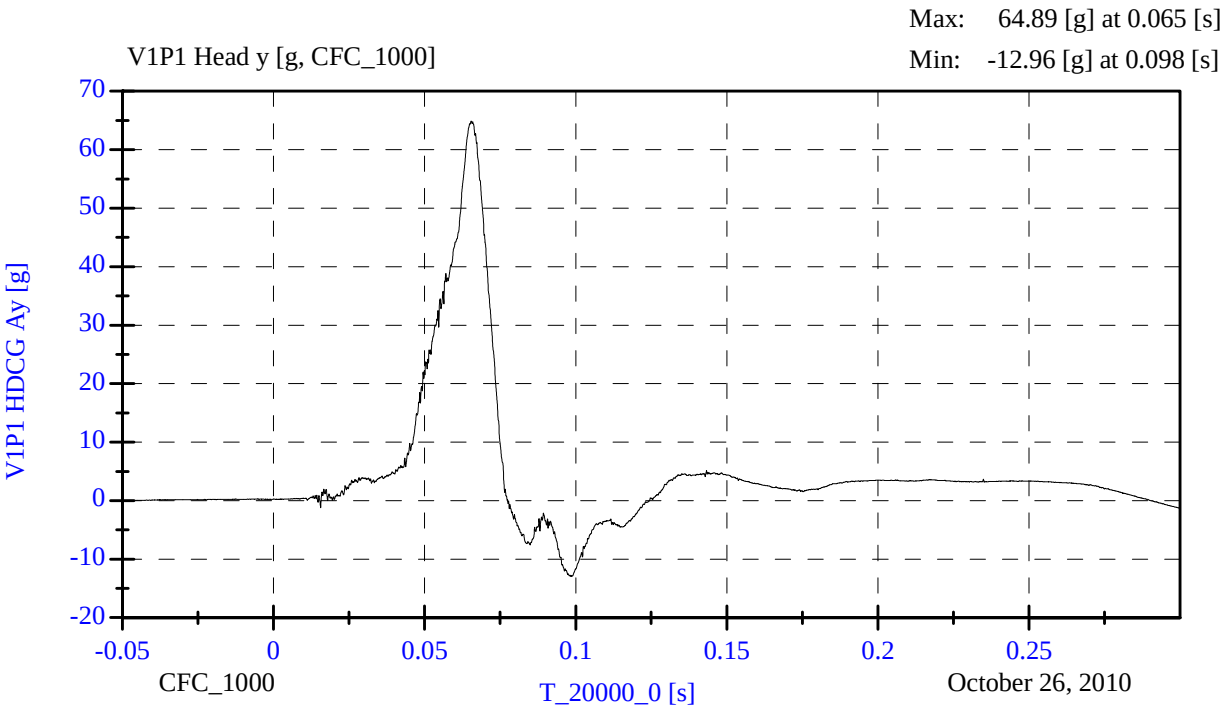
Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Vehicle Center of Gravity Angular Rate About X (Roll)
Vehicle Center of Gravity Angular Rate About Y (Pitch)
Vehicle Center of Gravity Angular Rate About Z (Yaw)
Left Floor Sill Acceleration (Y)
Left A-Pillar Sill Acceleration (Y)
Left Lower A-Pillar Acceleration (Y)
Left Mid A-Pillar Acceleration (Y)
Left B-Pillar Sill Acceleration (Y)
Left Lower B-Pillar Acceleration (Y)
Left Mid B-Pillar Acceleration (Y)
Driver Seat Track at Dummy H-Point Acceleration (Y)
Engine Top Acceleration (X)
Engine Top Acceleration (Y)
Firewall Center Acceleration (Y)
Right Roof at Vertical Impact Reference Line Acceleration (Y)
Right Sill at Vertical Impact Reference Line Acceleration (Y)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (X)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (Y)
Driver Side Airbag Timing
Driver Side Curtain Airbag Timing

Pole Instrumentation Data

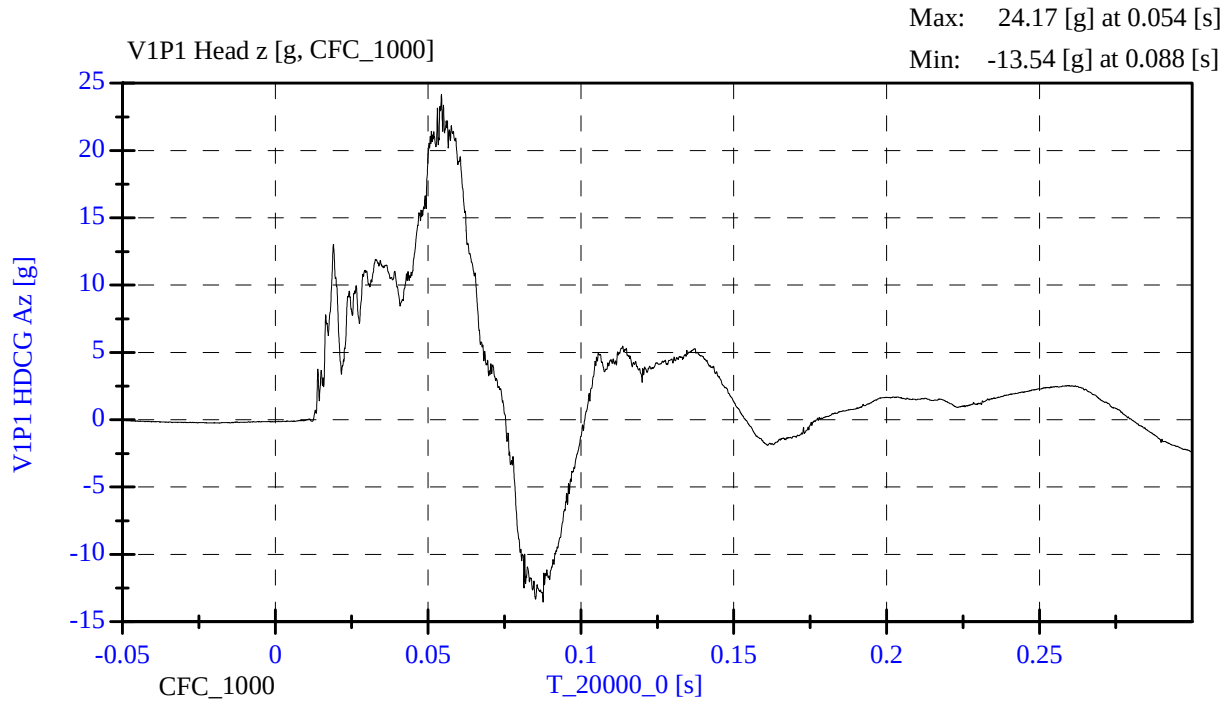
Load Cell Pole Barrier #1 Force (Y)
Load Cell Pole Barrier #2 Force (Y)
Load Cell Pole Barrier #3 Force (Y)
Load Cell Pole Barrier #4 Force (Y)
Load Cell Pole Barrier #5 Force (Y)
Load Cell Pole Barrier #6 Force (Y)
Load Cell Pole Barrier #7 Force (Y)
Load Cell Pole Barrier #8 Force (Y)

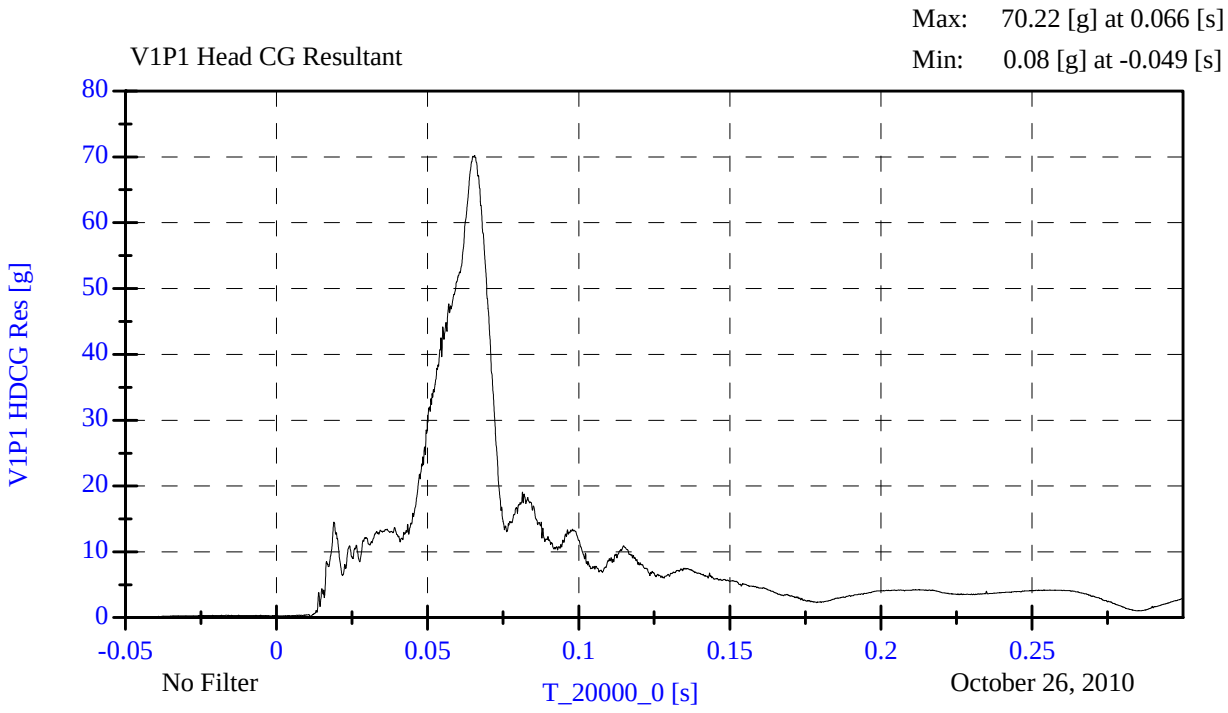
MB0215 SPNCAP 2011 Ford Fusion





MB0215 SPNCAP 2011 Ford Fusion





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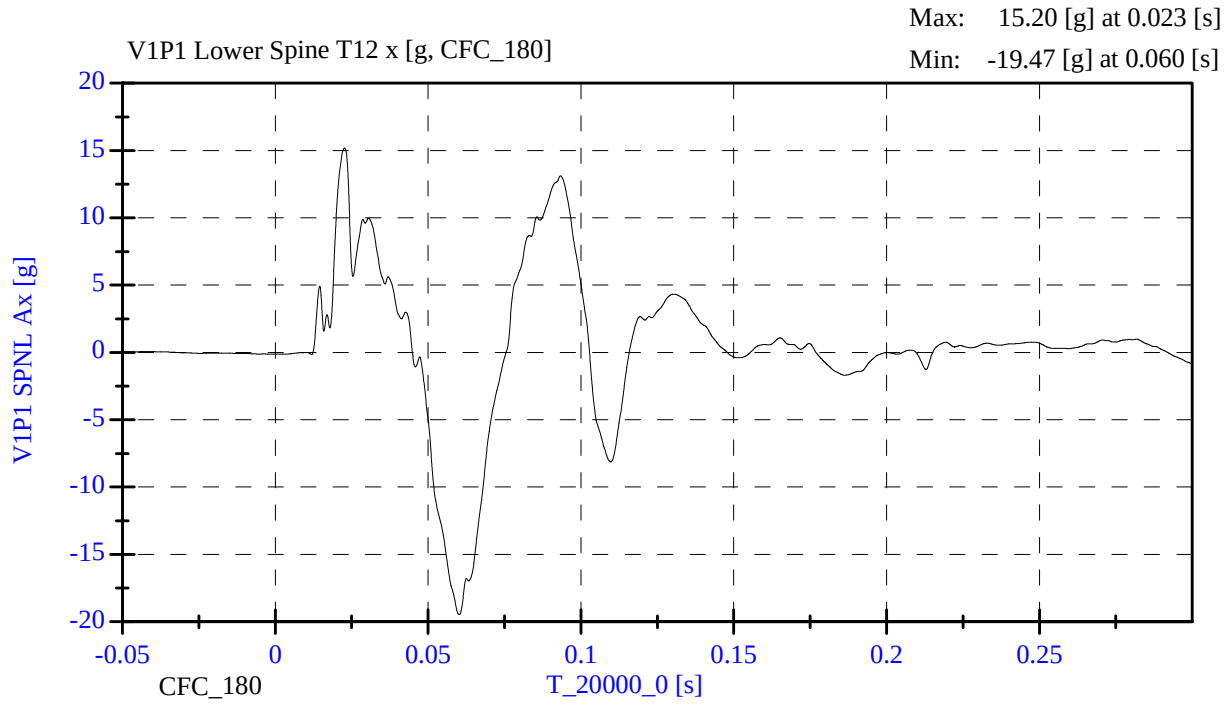

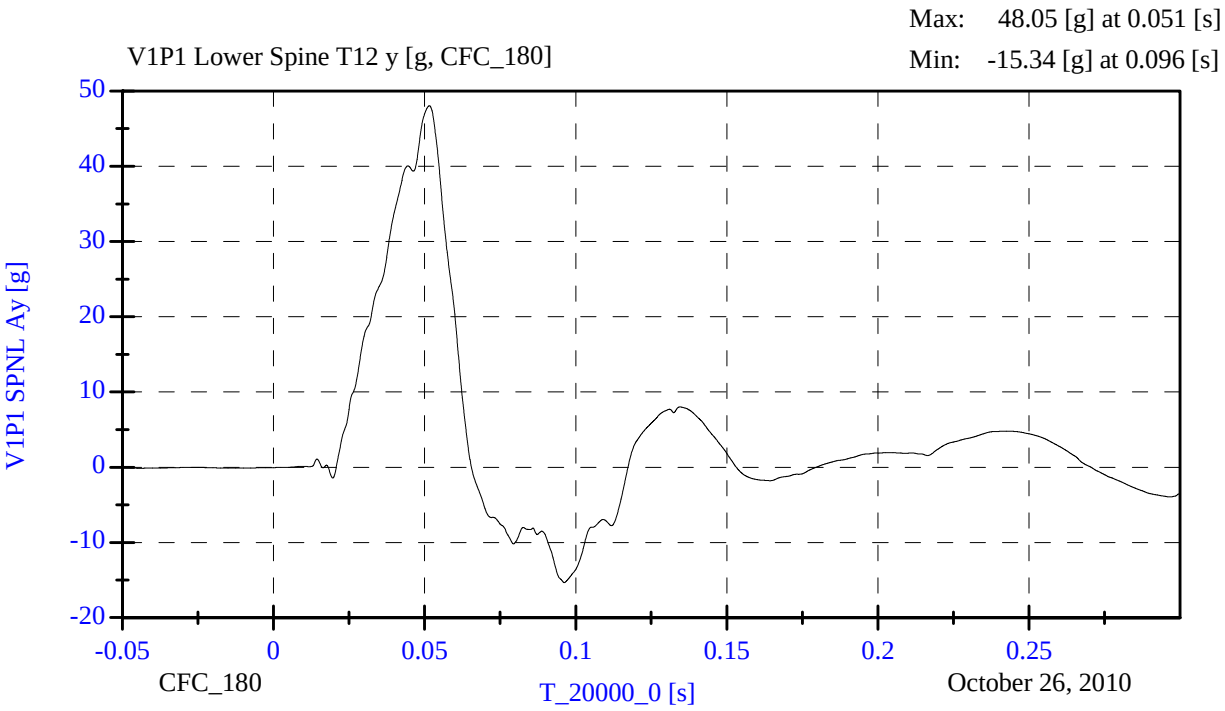

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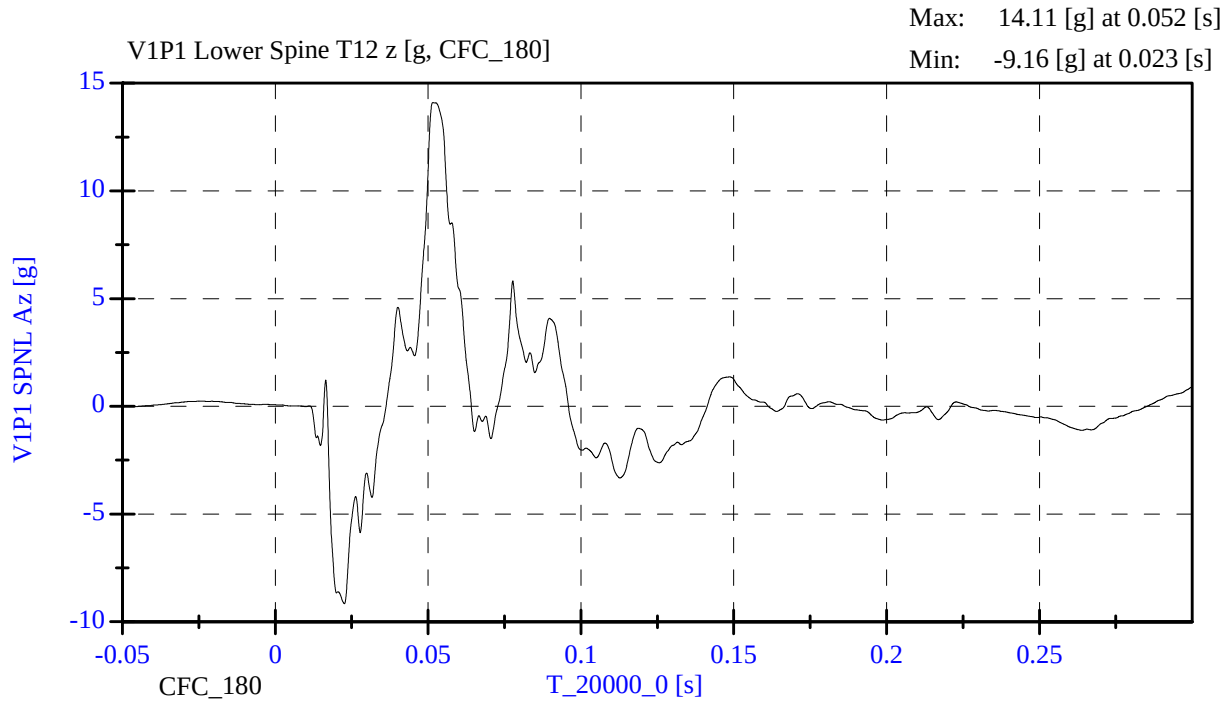
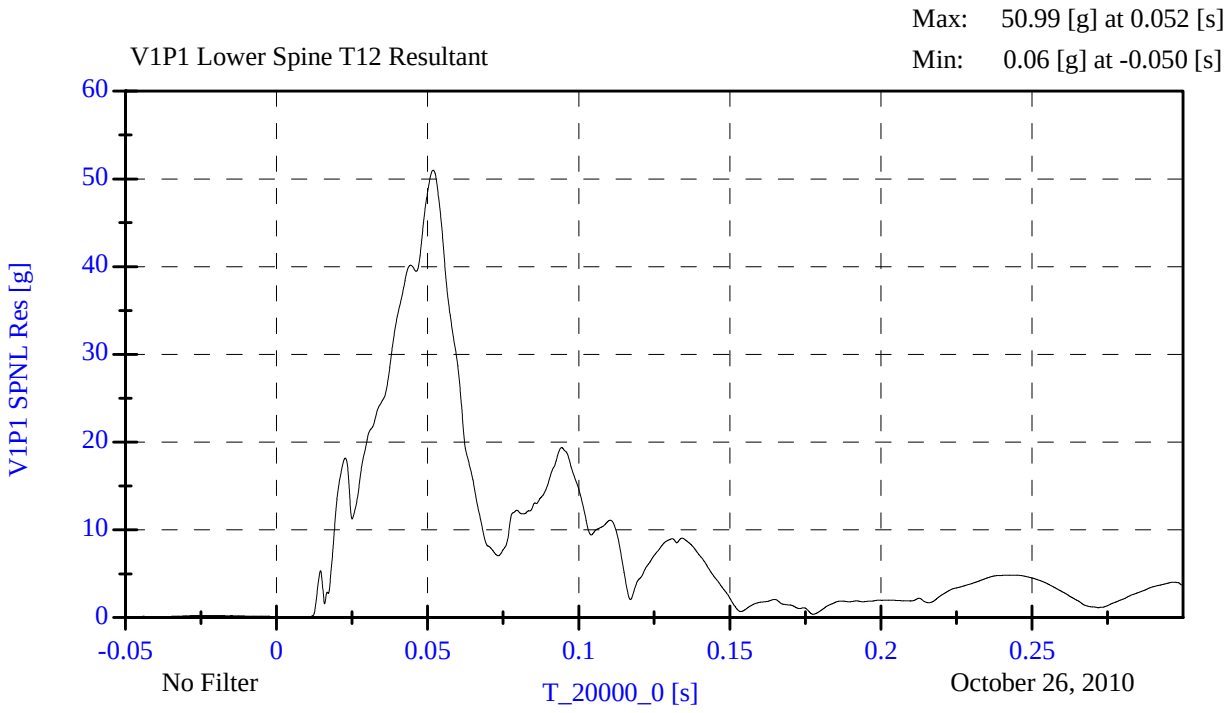
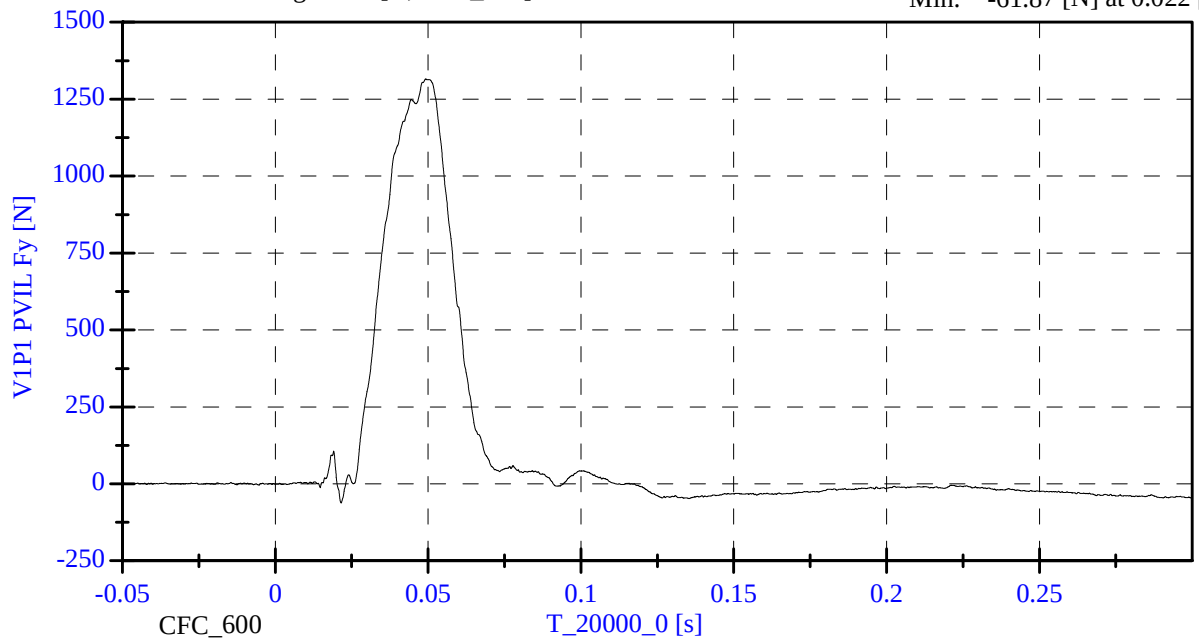




MB0215 SPNCAP 2011 Ford Fusion

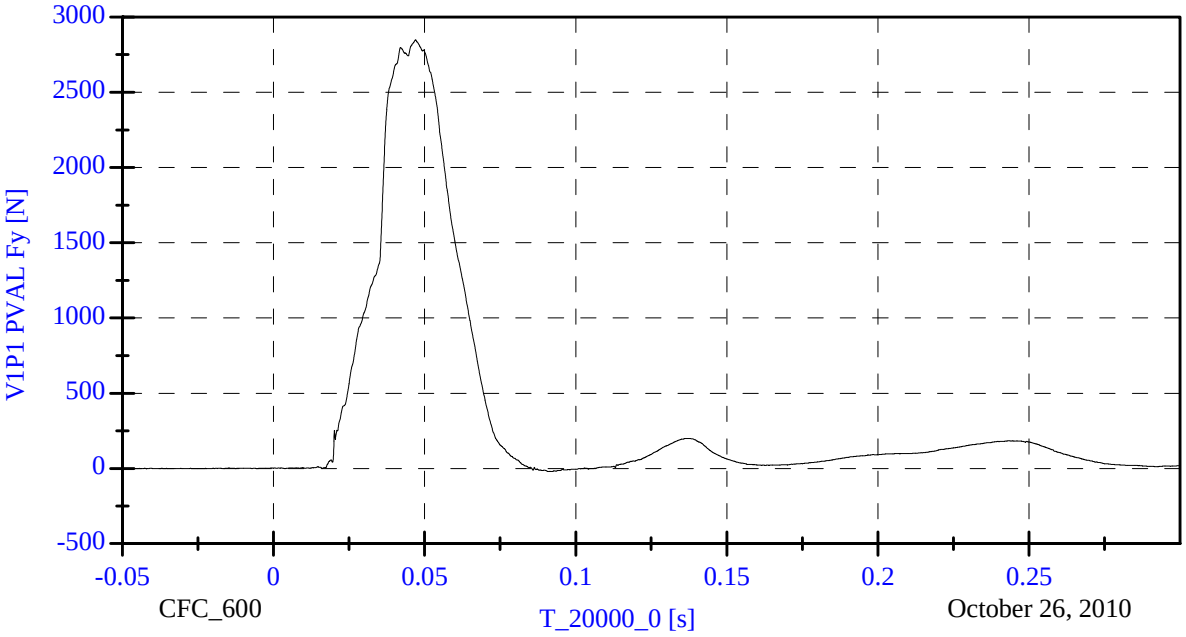
Max: 1316.16 [N] at 0.049 [s]
Min: -61.87 [N] at 0.022 [s]

V1P1 Iliac Wing Force [N, CFC_600]

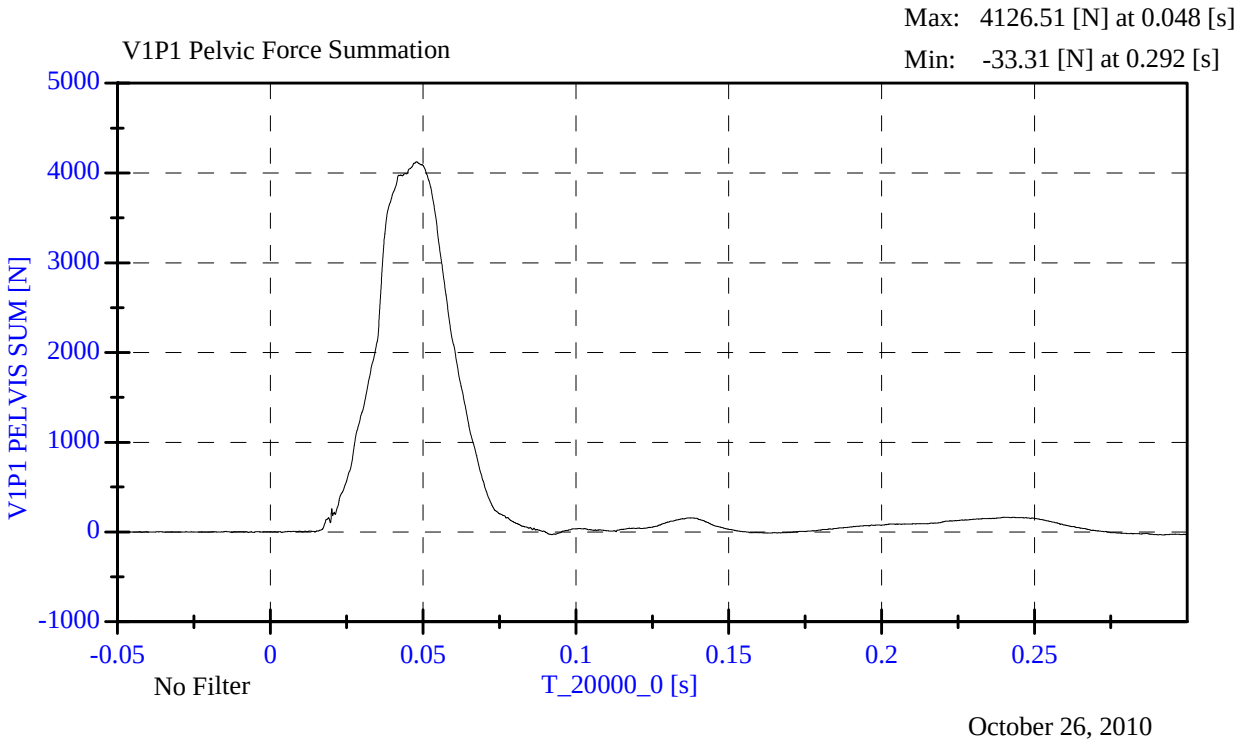


Max: 2849.60 [N] at 0.047 [s]
Min: -20.80 [N] at 0.091 [s]

V1P1 Acetabulum Force [N, CFC_600]



MB0215 SPNCAP 2011 Ford Fusion



October 26, 2010

APPENDIX C

DUMMY CALIBRATION DATA

CALIBRATION TEST RESULTS

PRE-TEST

SID-IIs No: 300

CONFIGURED FOR LEFT SIDE IMPACT

Calspan - Transportation Research Group
www.calspan.com
4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

SID-IIsD External Measurements

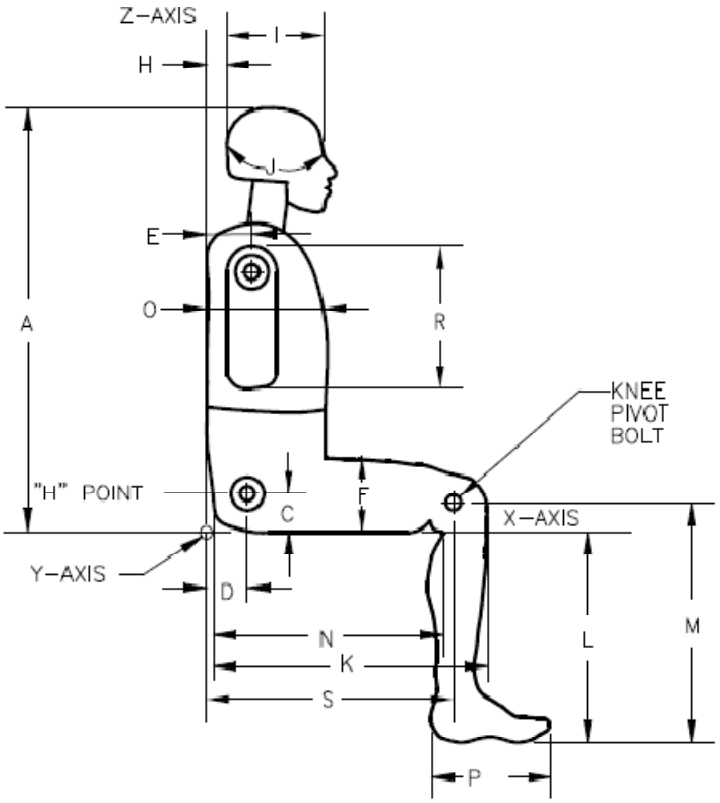
NHTSA ATD S/N 300

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	785	Yes
B	Shoulder Pivot Height	437.0 - 453.0	450	Yes
C	H-Point Height	79.0 - 89.0	87	Yes
D	H-Point from Seat Back	141.0 - 151.0	145	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	98	Yes
F	Thigh Clearance	119.0 - 135.0	125	Yes
G	Head Breadth	140.0 - 148.0	143	Yes
H	Head Back from Backline	40.0 - 46.0	42	Yes
I	Head Depth	178.0 - 188.0	181	Yes
J	Head Circumference	541.0 - 551.0	545	Yes
K	Buttock to Knee Length	514.0 - 540.0	523	Yes
L	Popliteal Height	343.0 - 369.0	365	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	395	Yes
N	Buttock Popliteal Length	416.0 - 442.0	430	Yes
O	Chest Depth without Jacket	195.0 - 211.0	205	Yes
P	Foot Length (right)	216.0 - 232.0	220	Yes
P	Foot Length (left)	216.0 - 232.0	220	Yes
Q	Hip Breadth	313.0 - 323.0	315	Yes
R	Arm Length	249.0 - 259.0	253	Yes
S	Knee Joint to Seat back	478.0 - 493.0	475	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	353	Yes
W	Foot Width (right)	78.0 - 94.0	85	Yes
W	Foot Width (left)	78.0 - 94.0	85	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	870	Yes
Z	Waist Circumference	761.0 - 791.0	773	Yes

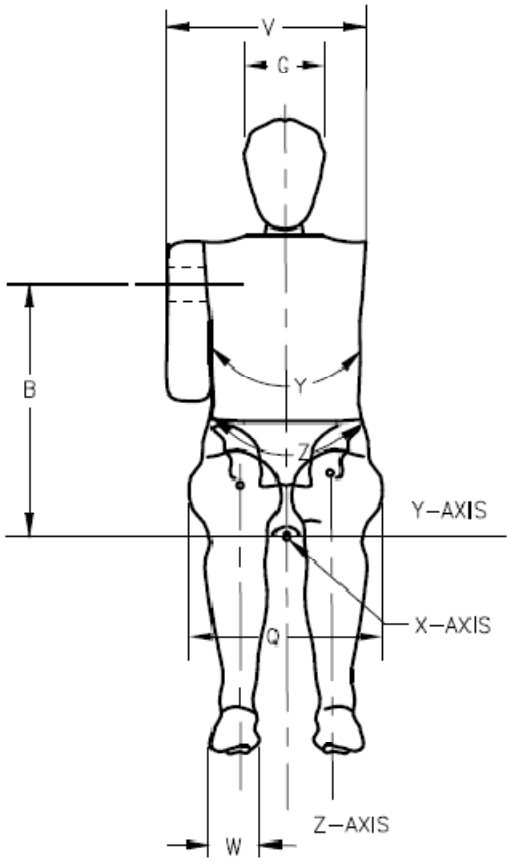
Technician: AR

Date: 10/4/2010

SID-IIsD External Dimension Reference Diagram



SIDE VIEW



FRONT VIEW

Calspan - Transportation Research Group
www.calspan.com
4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

Test Name:	**Head Drop**	Revision:	**12/14/2006**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Head Drop**	Test Date:	**9/28/2010**
Test Number:	**1**	Test Time:	**4:26:36 PM**

Component Part Number	Component Serial Number
Head Skin - 180-1002	**1355**

Test Parameters	Test Specifications			Test Results		
Temperature	20.6	--	22.2	**22.2**	deg C	P
Humidity	10	--	70	**60**	%RH	P
Resultant Acceleration	115.0	--	137.0	**132.0**	g	P
Oscillation	0.0	--	15.0	**2.5**	%	P
Fore-Aft Acceleration	-15.0	--	15.0	**7.5**	g	P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____

Supervisor: **D. Travale** Signature: _____

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
Endevco	**7264-2000**	**P51685**	**4/7/2010**
Endevco	**7264-2000**	**P51682**	**4/7/2010**
Endevco	**7264-2000**	**P51699**	**4/7/2010**

Test ID: **Head Drop** Test Time: **4:26:36 PM** Test Date: **9/28/2010**

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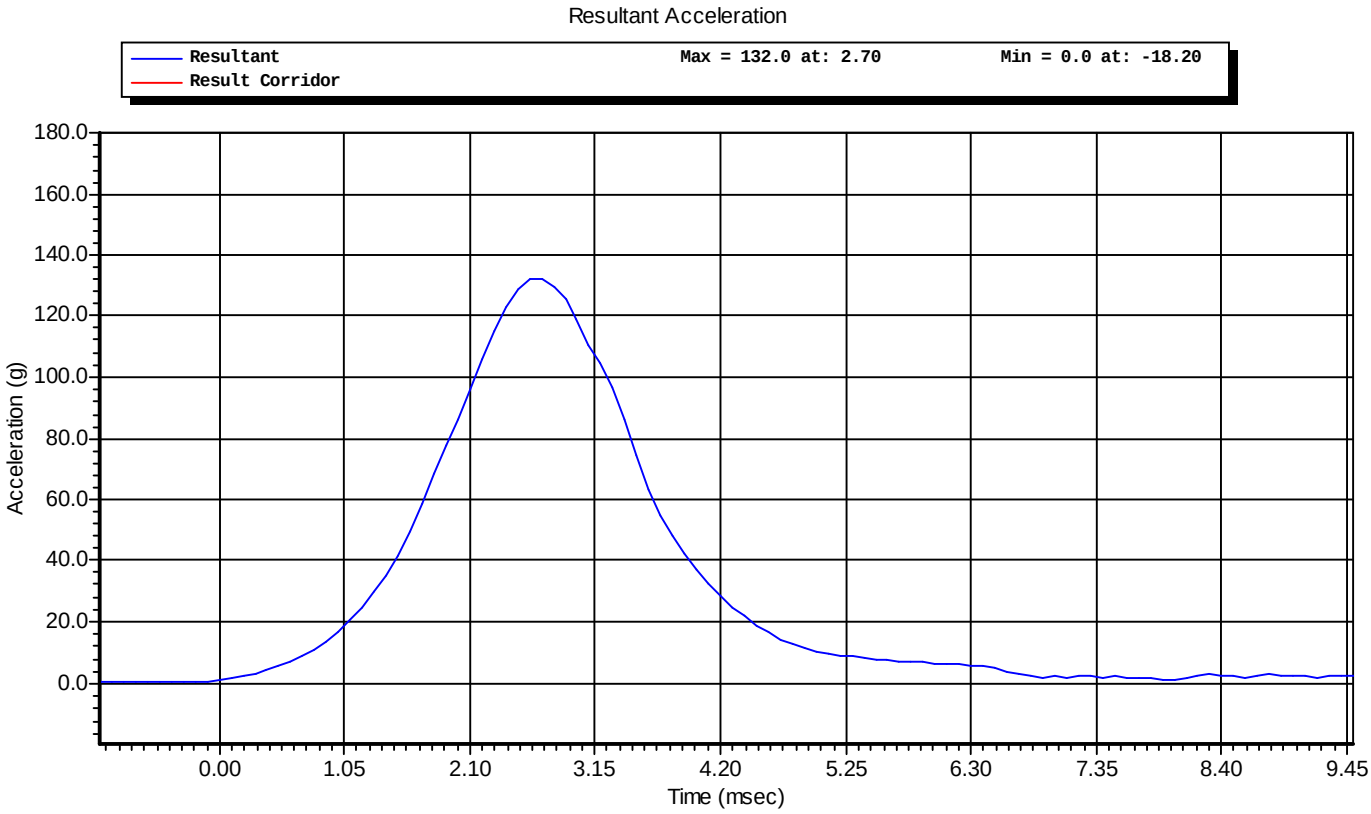
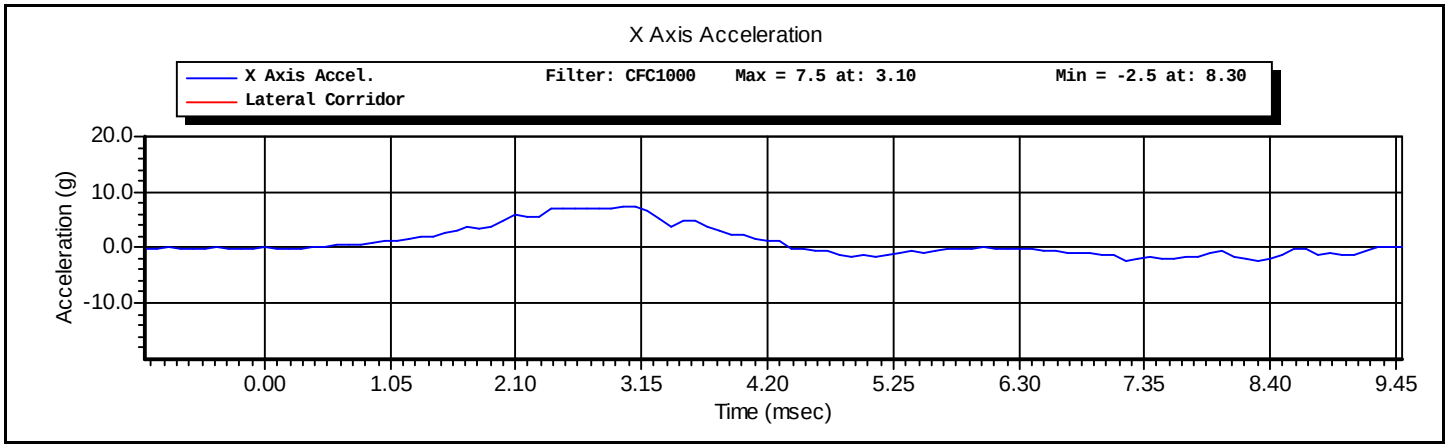
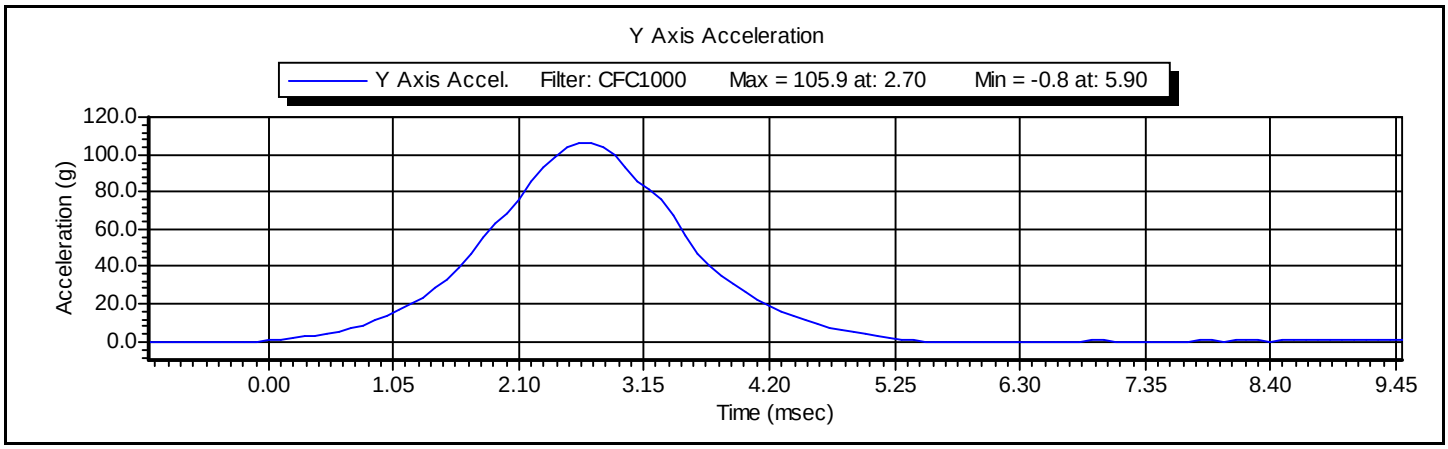
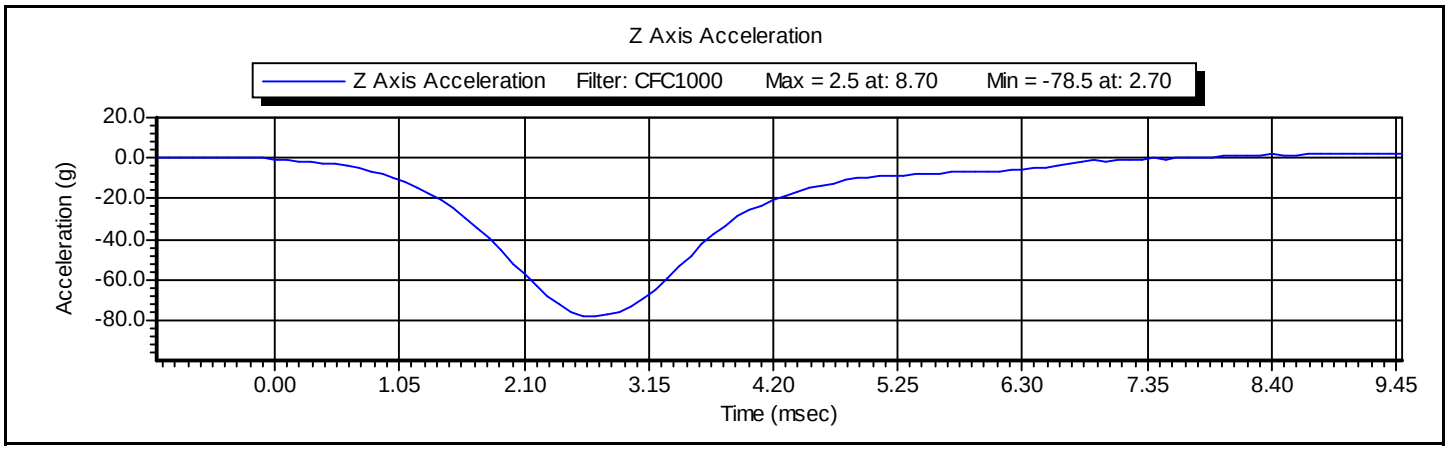
Test Name:	**Head Drop**	Revision:	**12/14/2006**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Head Drop**	Test Date:	**9/28/2010**
Test Number:	**1**	Test Time:	**4:26:36 PM**









Test ID: **Head Drop** Test Time: **4:26:36 PM** Test Date: **9/28/2010**

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VERIFICATION REPORT

Test Name:	**Neck Pendulum**	Revision:	**8/24/2009**
Sub Test Name:	**Left Side**	Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Neck Flexion**	Test Date:	**9/28/2010**
Test Number:	**1**	Test Time:	**3:21:13 PM**

Component Part Number	Component Serial Number
Neck - 180-2000	**787**

Test Parameters	Test Specifications	Test Results	
Temperature	20.6 -- 22.2	**22.2** deg C	P
Humidity	10 -- 70	**60** %RH	P
Velocity	5.51 -- 5.63	**5.55** m/s	P
Pendulum Impulse at 10 ms	2.20 -- 2.80	**2.57** m/s	P
Pendulum Impulse at 15 ms	3.30 -- 4.10	**3.80** m/s	P
Pendulum Impulse at 20 ms	4.40 -- 5.40	**5.24** m/s	P
Pendulum Impulse at 25 ms	5.40 -- 6.10	**5.86** m/s	P
Pendulum Impulse between 25 and 100 ms	5.50 -- 6.20	**5.90** m/s	P
Max D Plane Rotation	71.0 -- 81.0	**74.2** degrees	P
Time at Max Rotation	50.0 -- 70.0	**60.3** ms	P
Moment about OC	-44.0 -- -36.0	**-43.5** Nm	P
Moment Decay to Zero	102.0 -- 126.0	**114.5** ms	P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____

Supervisor: **D. Travale** Signature: _____

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
DentonATD	**Velocity Trap**	**1**	**1/11/2010**
Endevco	**7231CT**	**C16510**	**5/10/2010**
Denton	**1716A**	**LC-576 Fy**	**2/15/2010**
Denton	**1716A**	**LC-576 Mx**	**2/15/2010**
DentonATD	**78051-342**	**184**	**4/30/2010**
DentonATD	**78051-342**	**174**	**4/30/2010**
DentonATD	**78051-342**	**185**	**4/30/2010**

Test ID: **Neck Flexion** Test Time: **3:21:13 PM** Test Date: **9/28/2010**

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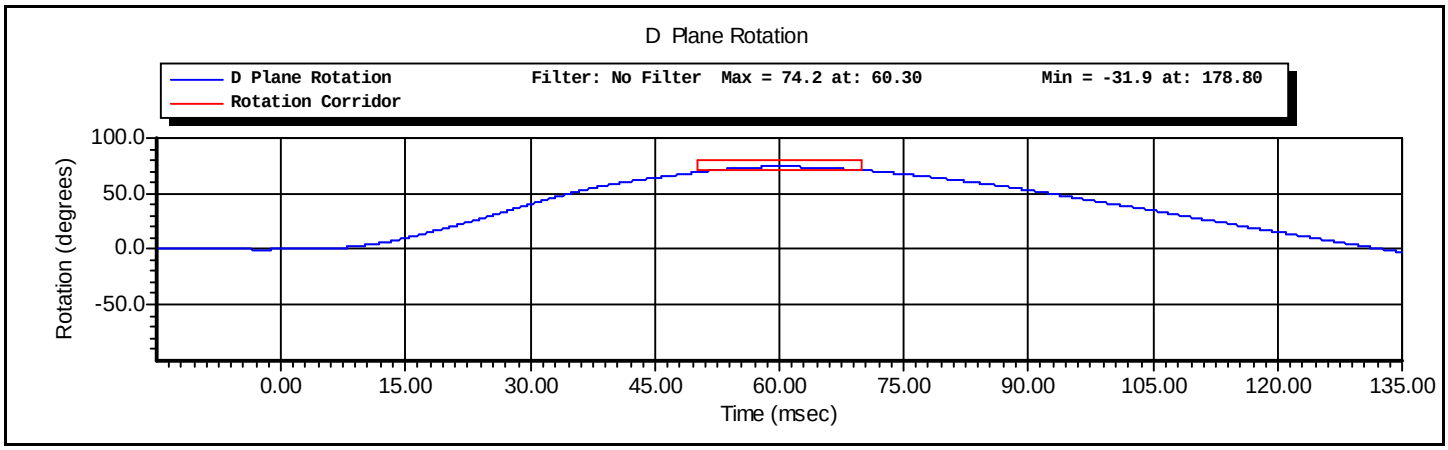
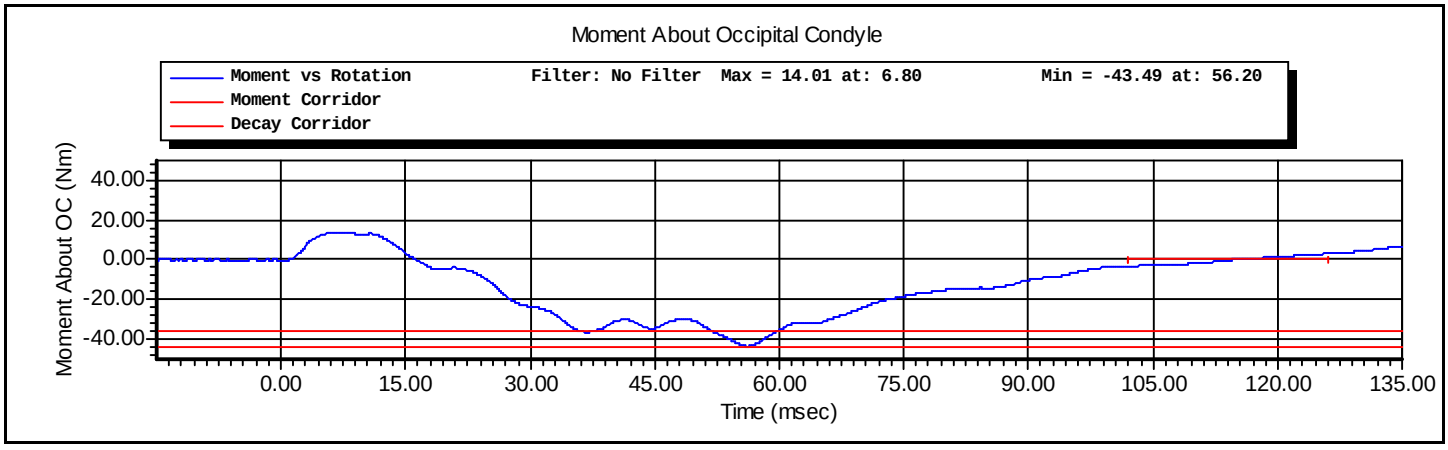
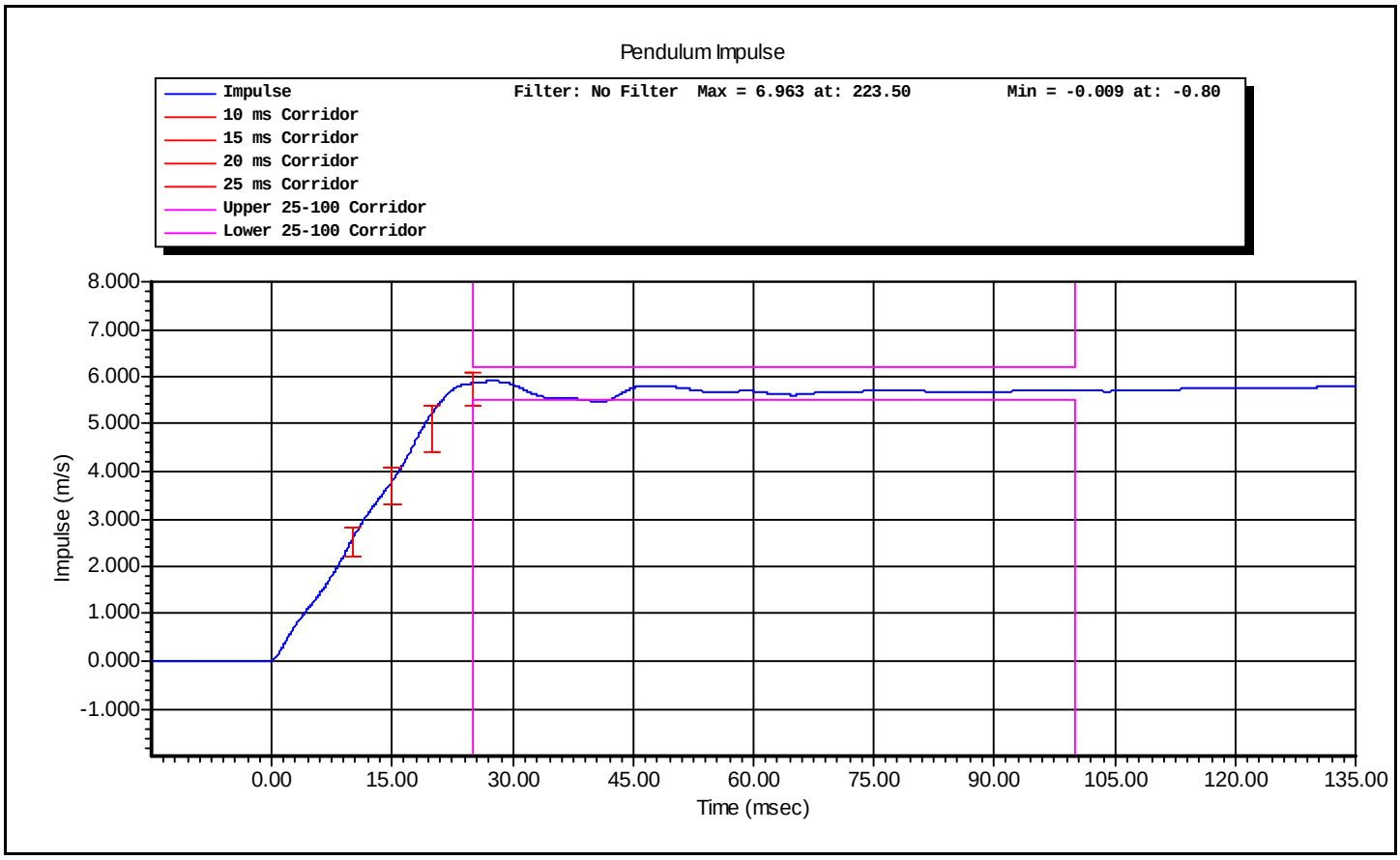
Test Name:	**Neck Pendulum**	Revision:	**8/24/2009**
Sub Test Name:	**Left Side**	Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Neck Flexion**	Test Date:	**9/28/2010**
Test Number:	**1**	Test Time:	**3:21:13 PM**







Test ID: **Neck Flexion** Test Time: **3:21:13 PM** Test Date: **9/28/2010**

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VERIFICATION REPORT

Test Name:	**Shoulder Impact**	Revision:	**8/24/2009**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Shoulder**	Test Date:	**10/4/2010**
Test Number:	**1**	Test Time:	**2:13:19 PM**

Test Parameters	Test Specifications			Test Results		
Temperature	20.6	--	22.2	**22.20**	deg C	P
Humidity	10.0	--	70.0	**41.0**	%RH	P
Velocity	4.20	--	4.40	**4.33**	m/s	P
Probe Acceleration	13.0	--	18.0	**16.4**	g	P
Shoulder Deflection	28.0	--	37.0	**31.8**	mm	P
T1 Acceleration	17.0	--	22.0	**20.1**	g	P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____

Supervisor: **D. Travale** Signature: _____

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
DentonATD	**Velocity Trap**	**1**	**1/11/2010**
Endevco	**7264-2000**	**P66927**	**4/20/2010**
Servo	**180-3885**	**DS-1063**	**4/7/2010**
Endevco	**7264-2000**	**P26269**	**10/1/2010**

Test ID: **Shoulder** Test Time: **2:13:19 PM** Test Date: **10/4/2010**

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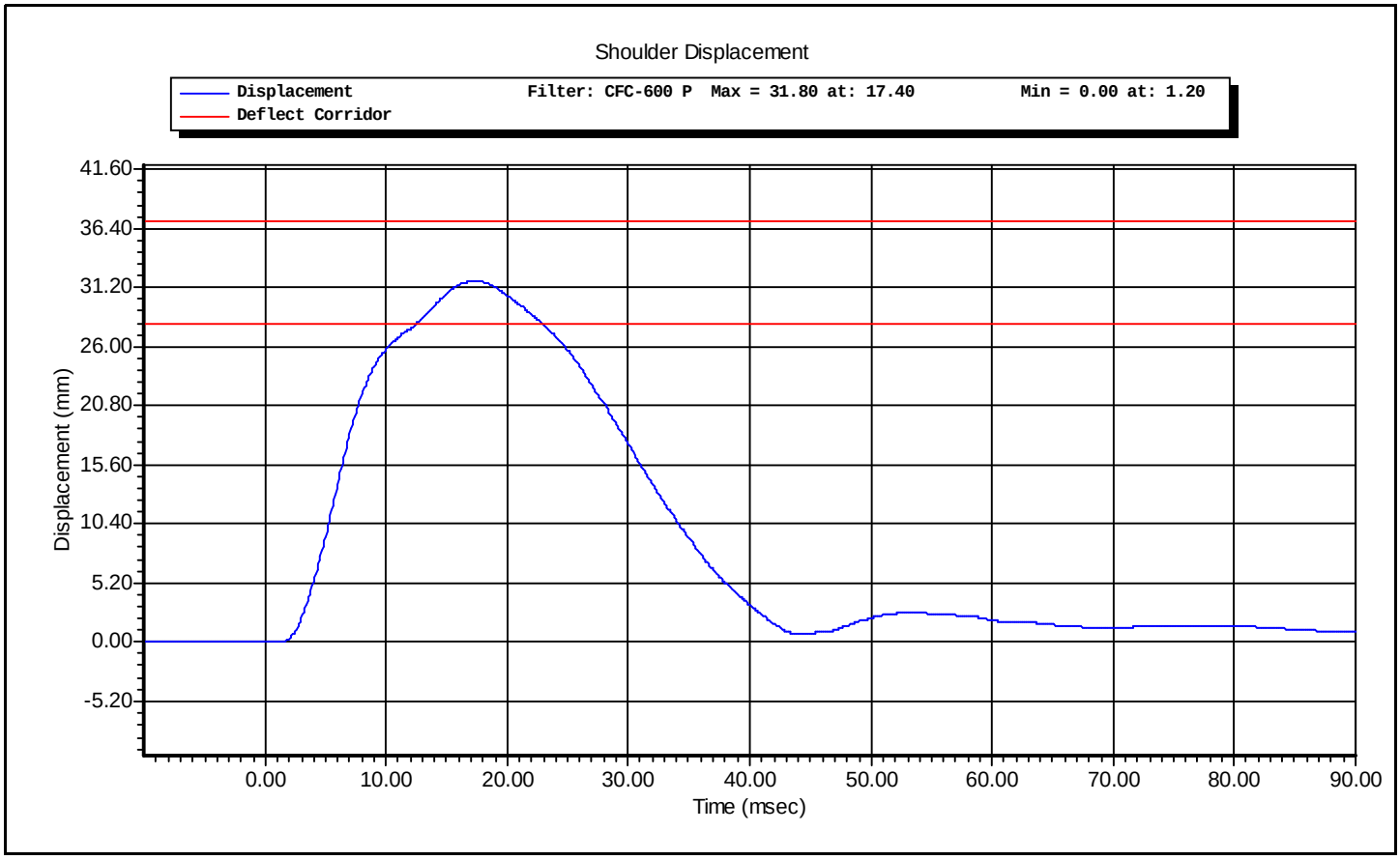
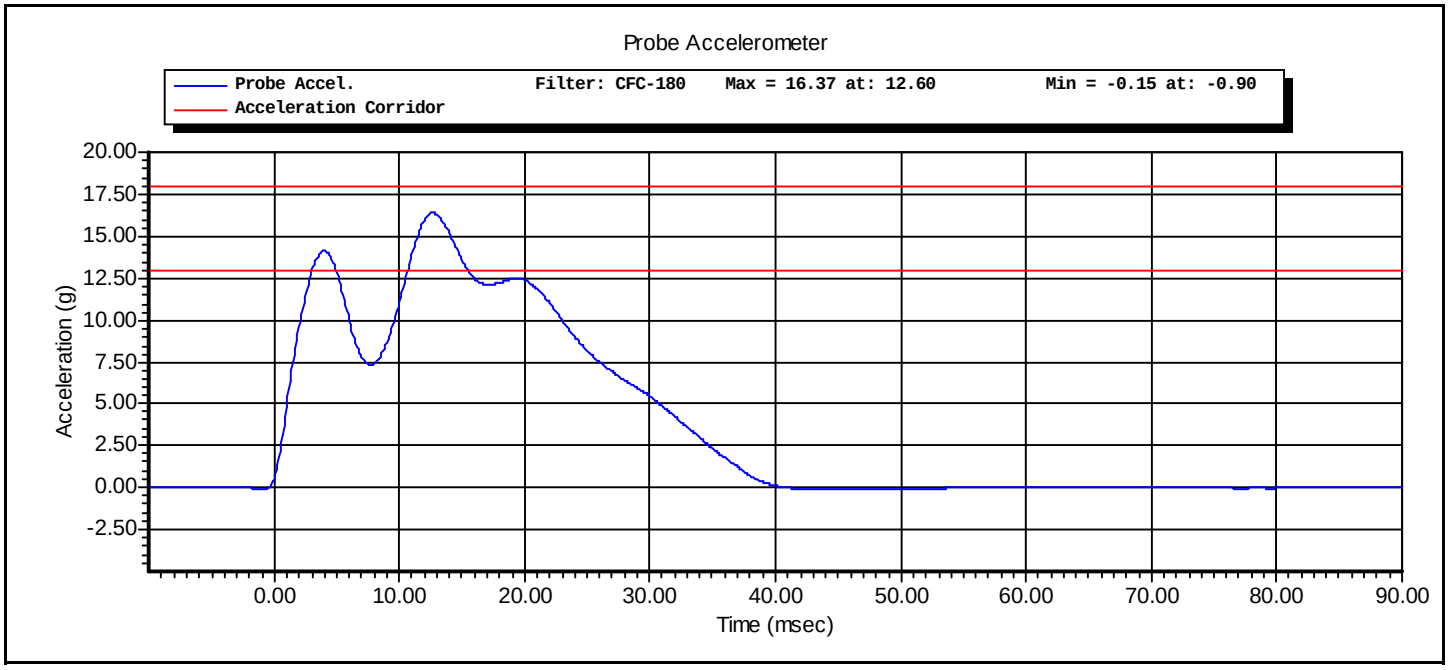
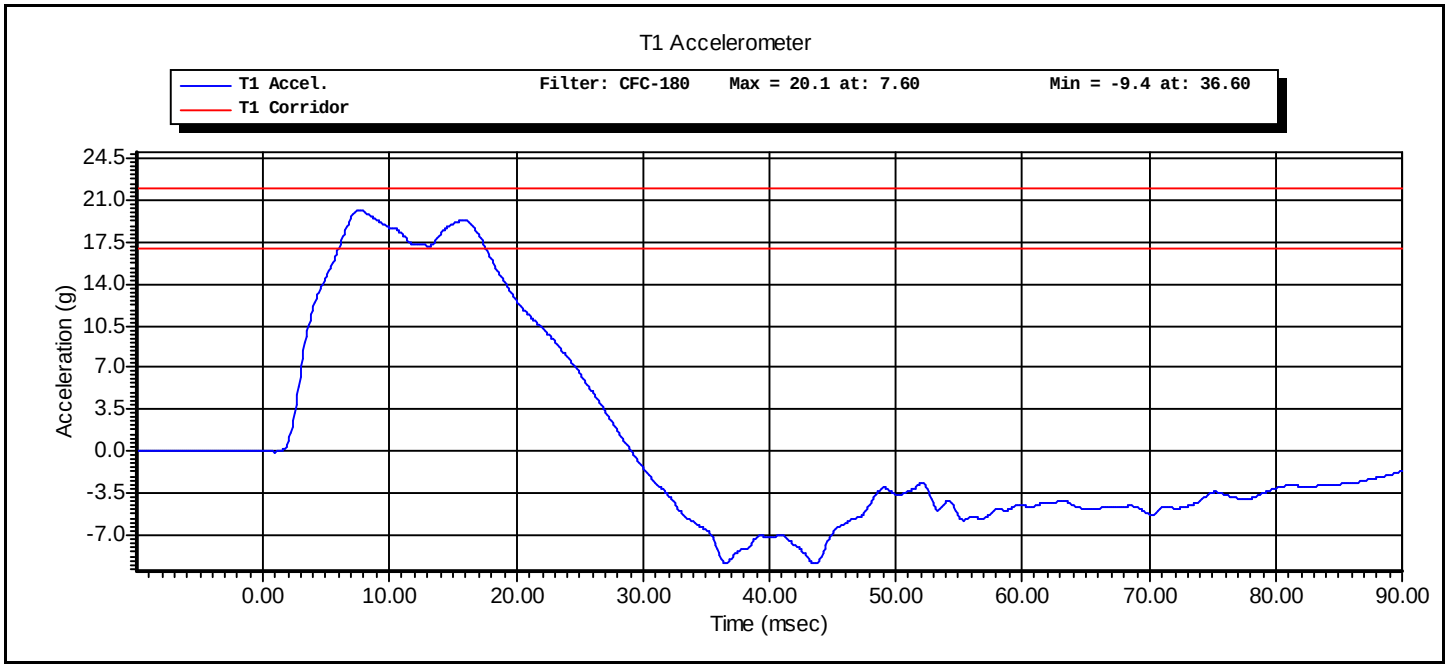
Test Name:	**Shoulder Impact**	Revision:	**8/24/2009**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Shoulder**	Test Date:	**10/4/2010**
Test Number:	**1**	Test Time:	**2:13:19 PM**







Test ID: **Shoulder** Test Time: **2:13:19 PM** Test Date: **10/4/2010**

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VERIFICATION REPORT

Test Name:	**Thorax Impact with Arm**	Revision:	**8/24/2009**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Thorax With Arm**	Test Date:	**10/4/2010**
Test Number:	**1**	Test Time:	**2:56:40 PM**

Test Parameters	Test Specifications			Test Results		
Temperature	20.6	--	22.2	**22.2**	deg C	P
Humidity	10	--	70	**41**	%RH	P
Velocity	6.60	--	6.80	**6.70**	m/s	P
Probe Acceleration after 5ms	30.0	--	36.0	**34.0**	g	P
Upper Thorax Rib Deflection	25.0	--	32.0	**26.7**	mm	P
Mid Thorax Rib Deflection	30.0	--	36.0	**31.3**	mm	P
Lower Thorax Rib Deflection	32.0	--	38.0	**36.5**	mm	P
Upper Spine Acceleration ("y")	34.0	--	43.0	**40.6**	g	P
Lower Spine Acceleration ("y")	29.0	--	37.0	**35.6**	g	P
Shoulder Deflection	31.0	--	40.0	**36.7**	mm	P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____

Supervisor: **D. Travale** Signature: _____

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
DentonATD	**Velocity Trap**	**1**	**1/11/2010**
Endevco	**7264-2000**	**P66927**	**4/20/2010**
Servo	**180-3885**	**DS-1121**	**4/7/2010**
Servo	**180-3885**	**DS-1151**	**4/7/2010**
Servo	**180-3885**	**DS-1156**	**4/7/2010**
Endevco	**7264-2000**	**P26269**	**10/1/2010**
Endevco	**7264-2000**	**P64147**	**9/20/2010**
Servo	**180-3885**	**DS-1063**	**4/7/2010**

Test ID: **Thorax With Arm** Test Time: **2:56:40 PM** Test Date: **10/4/2010**

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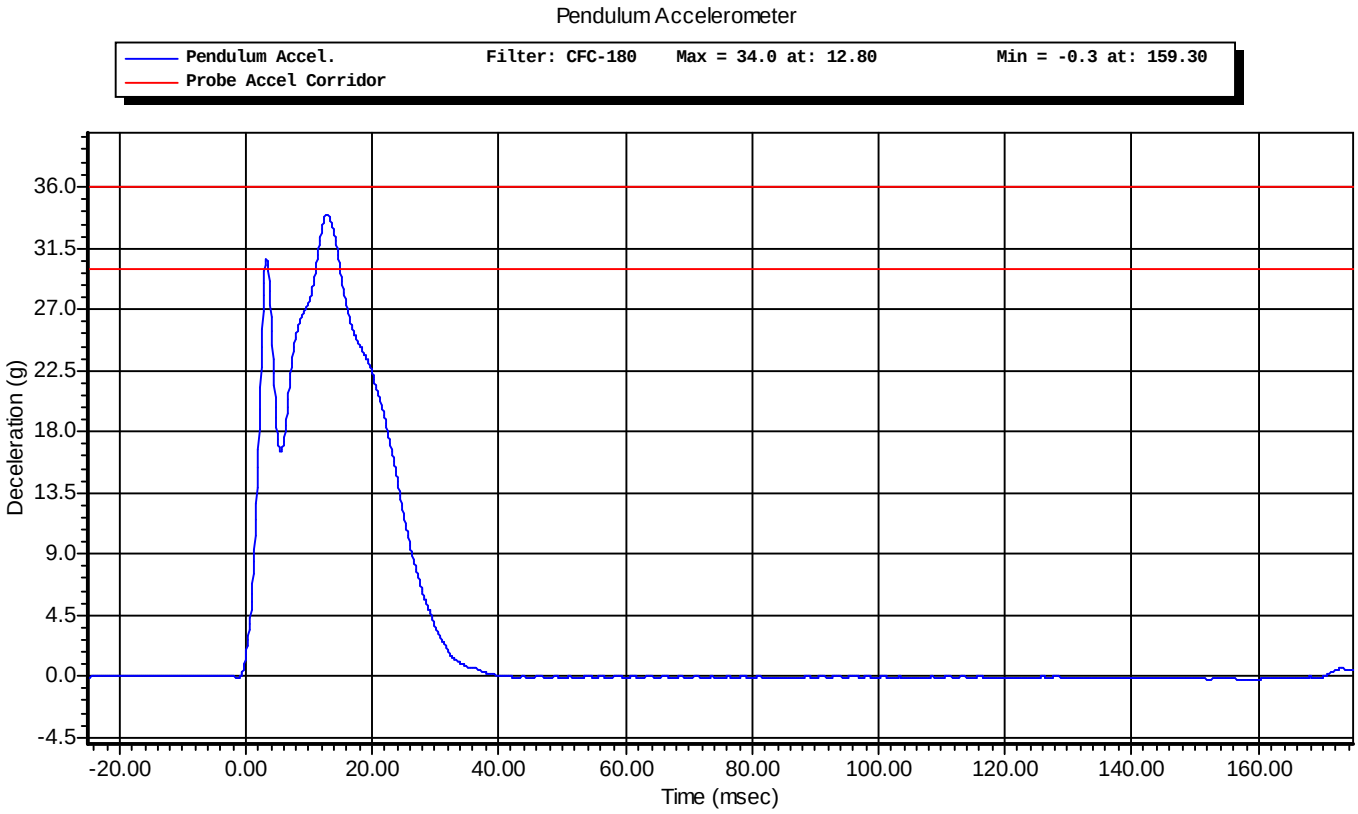
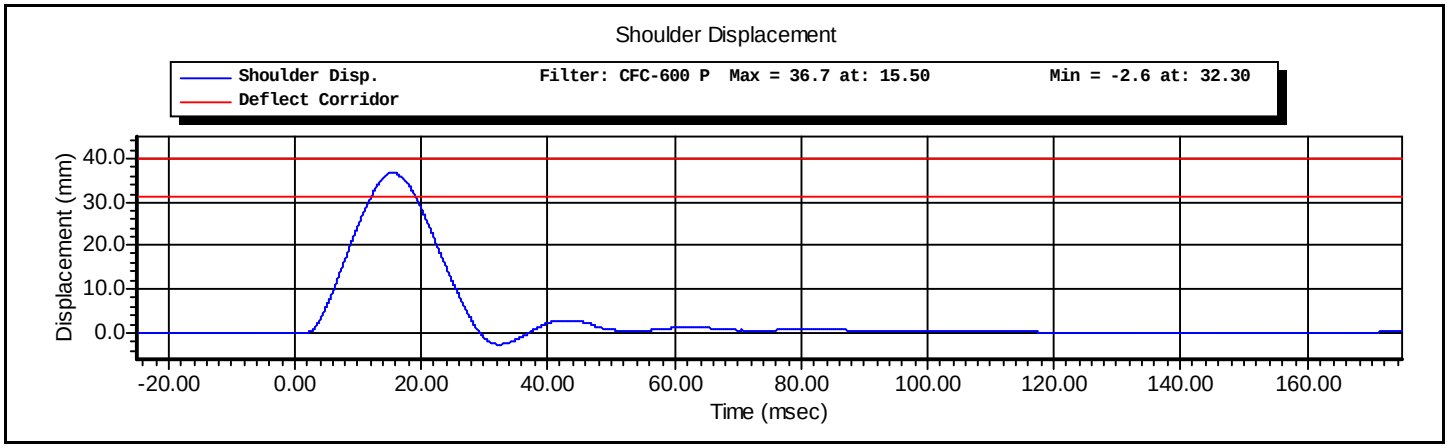
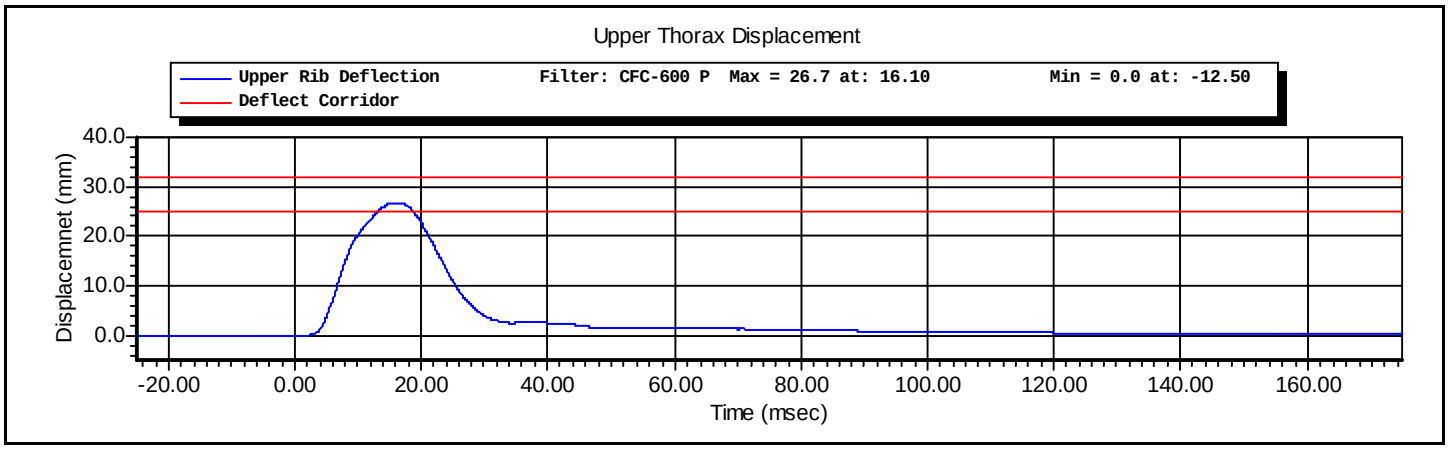
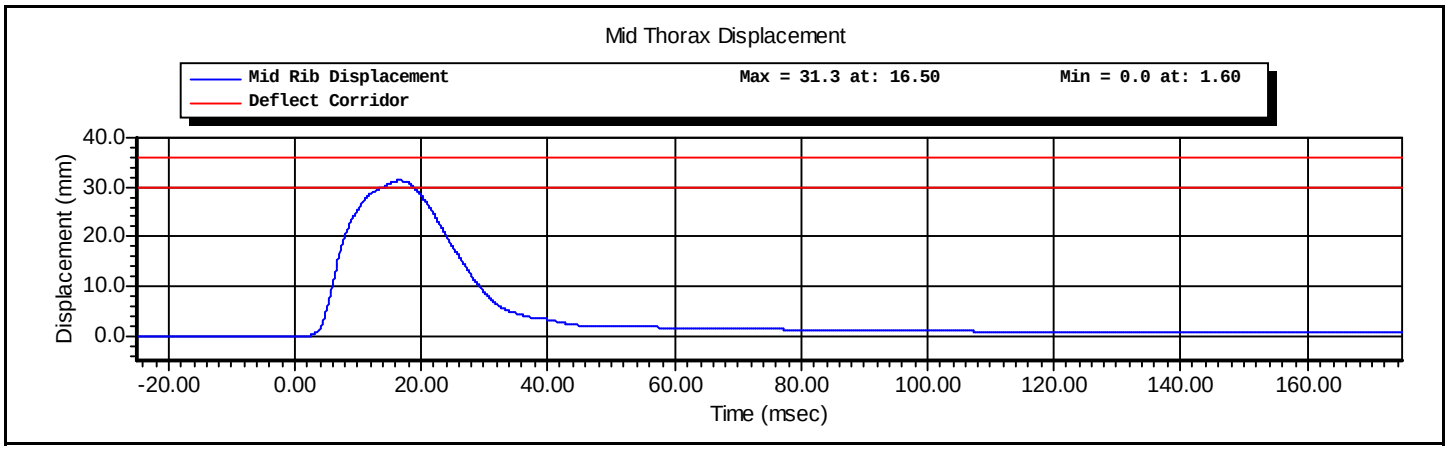
Test Name:	**Thorax Impact with Arm**	Revision:	**8/24/2009**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Thorax With Arm**	Test Date:	**10/4/2010**
Test Number:	**1**	Test Time:	**2:56:40 PM**

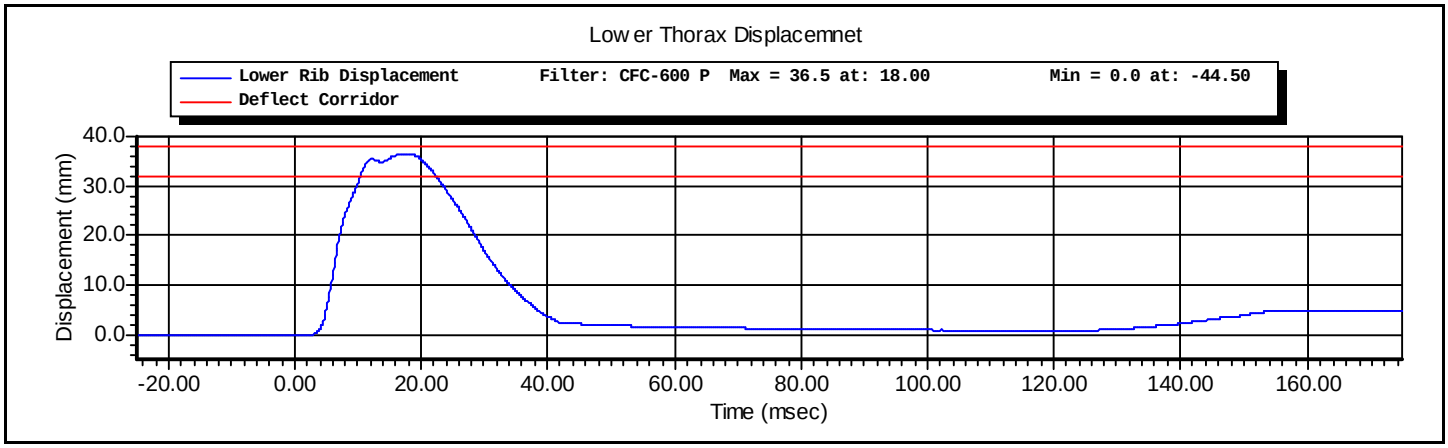


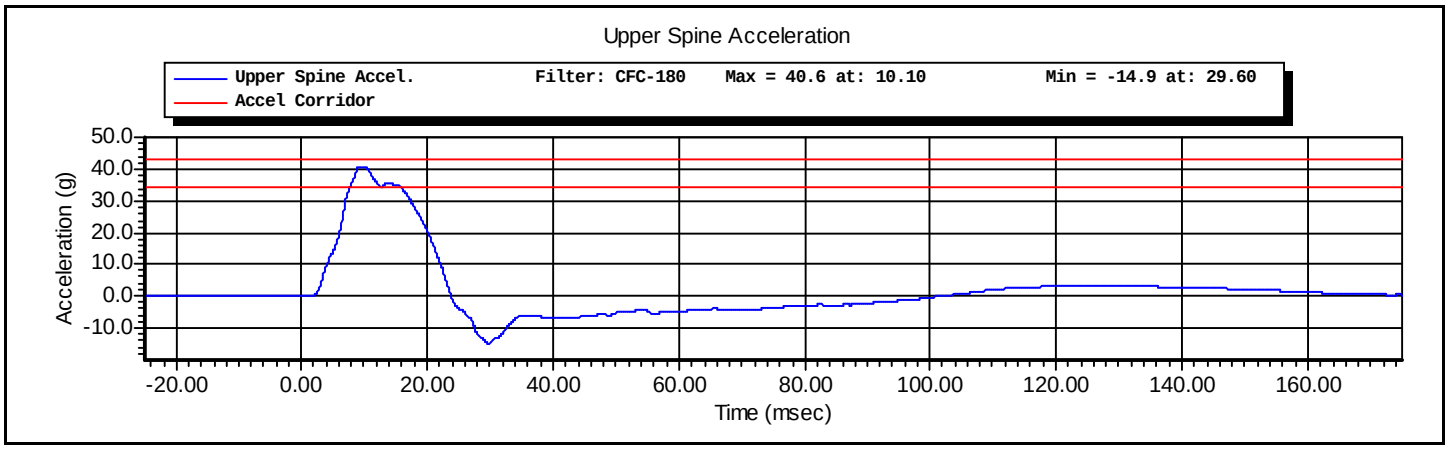


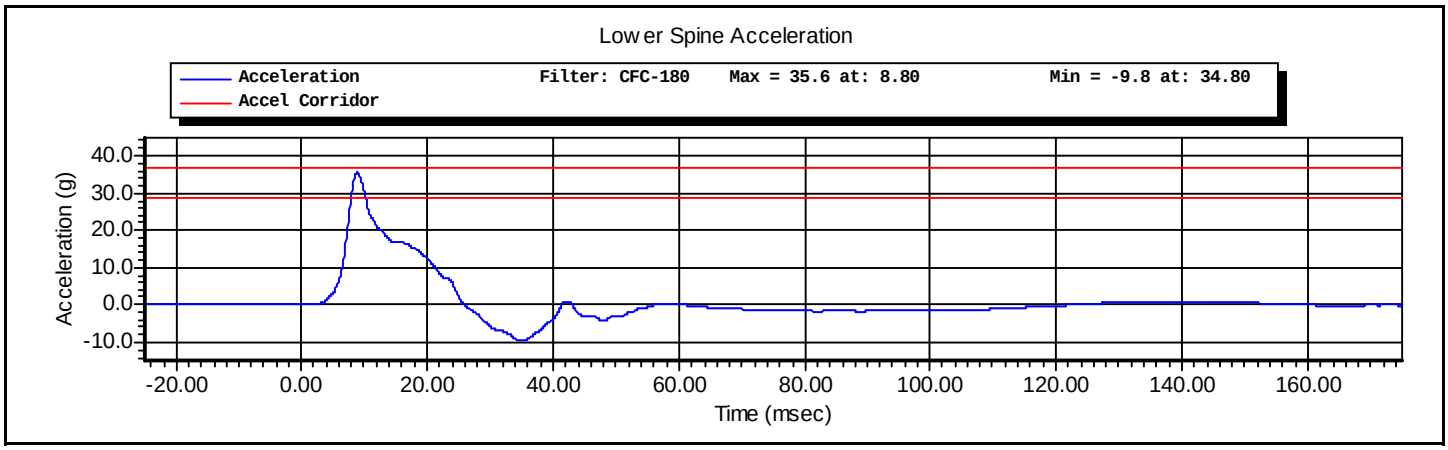




Test ID: **Thorax With Arm** Test Time: **2:56:40 PM** Test Date: **10/4/2010**







Test ID: **Thorax With Arm** Test Time: **2:56:40 PM** Test Date: **10/4/2010**

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VERIFICATION REPORT

Test Name:	**Thorax Impact without Arm**	Revision:	**8/24/2009**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Thorax Without Arm**	Test Date:	**10/4/2010**
Test Number:	**1**	Test Time:	**2:01:13 PM**

Test Parameters	Test Specifications			Test Results		
Temperature	20.6	--	22.2	**22.2**	deg C	P
Humidity	10	--	70	**40**	%RH	P
Velocity	4.20	--	4.40	**4.35**	m/s	P
Probe Acceleration	14.0	--	18.0	**16.0**	g	P
Upper Thorax Rib Deflection	32.0	--	40.0	**35.8**	mm	P
Mid Thorax Rib Deflection	39.0	--	45.0	**41.2**	mm	P
Lower Thorax Rib Deflection	35.0	--	43.0	**40.9**	mm	P
Upper Spine Acceleration T1	13.0	--	17.0	**16.1**	g	P
Lower Spine Acceleration T12	7.0	--	11.0	**10.3**	g	P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____

Supervisor: **D. Travale** Signature: _____

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
DentonATD	**Velocity Trap**	**1**	**1/11/2010**
Endevco	**7264-2000**	**P66927**	**4/20/2010**
Servo	**180-3885**	**DS-1121**	**4/7/2010**
Servo	**180-3885**	**DS-1151**	**4/7/2010**
Servo	**180-3885**	**DS-1156**	**4/7/2010**
Endevco	**7264-2000**	**P26269**	**10/1/2010**
Endevco	**7264-2000**	**P64147**	**9/20/2010**

Test ID: **Thorax Without Arm** Test Time: **2:01:13 PM** Test Date: **10/4/2010**

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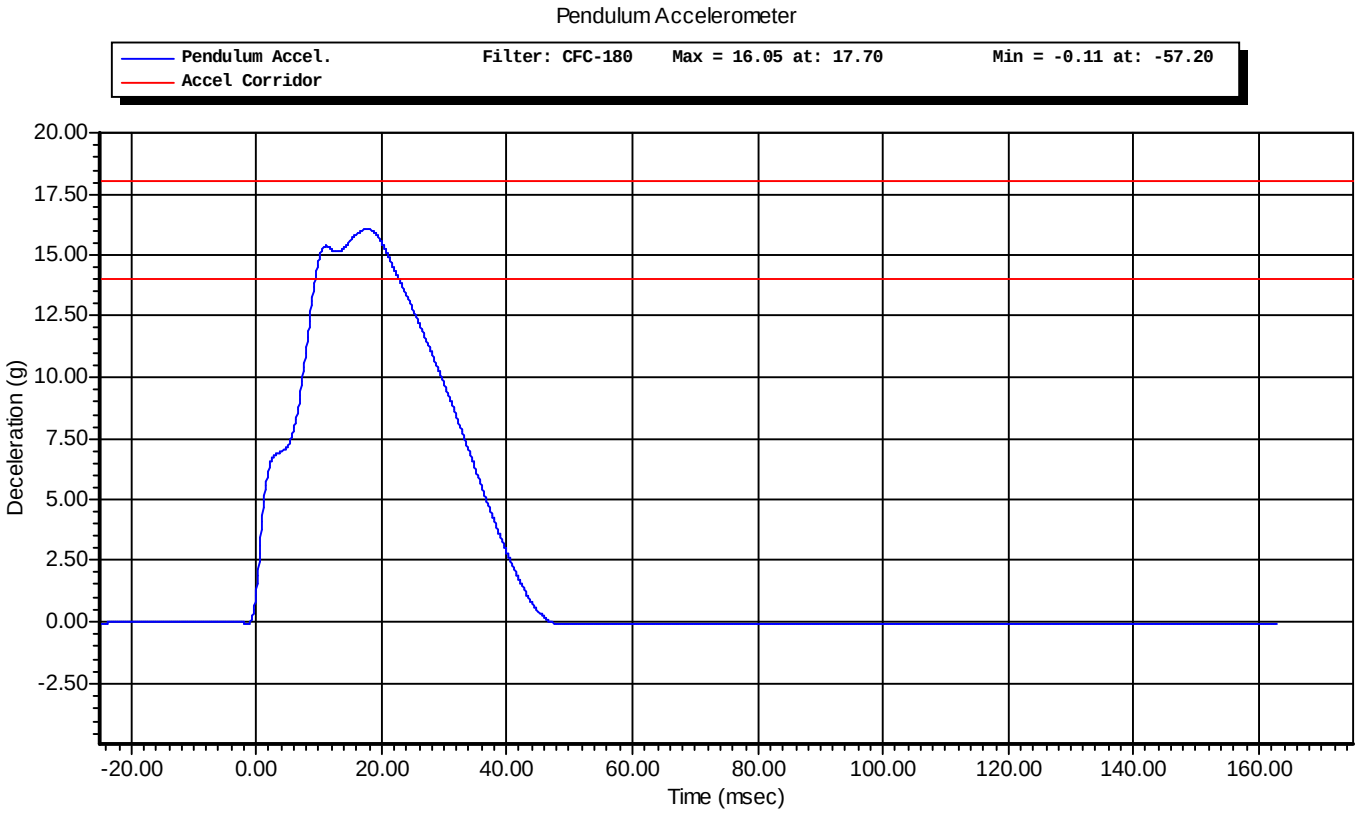
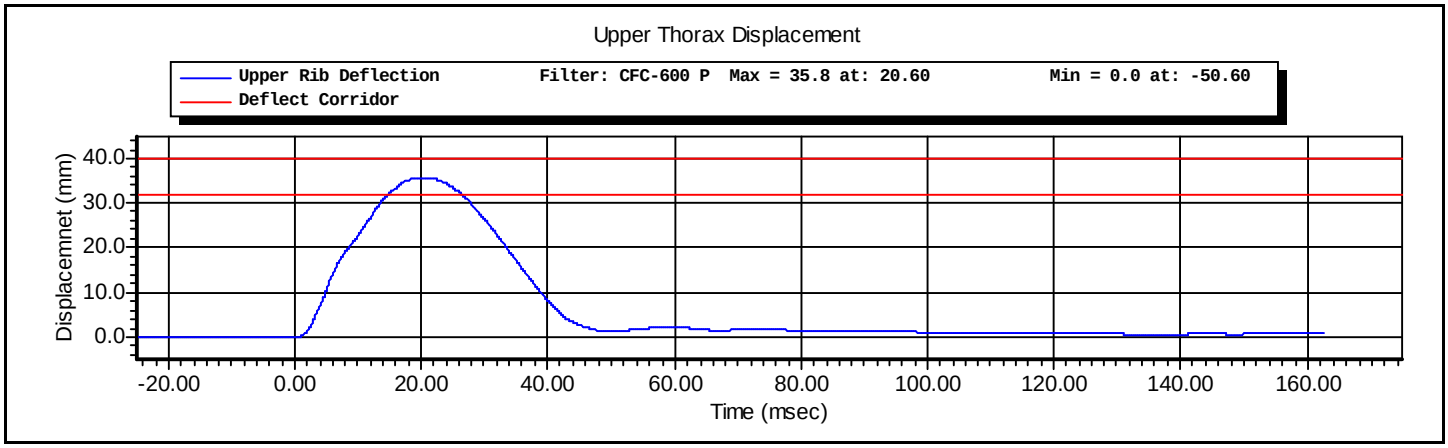
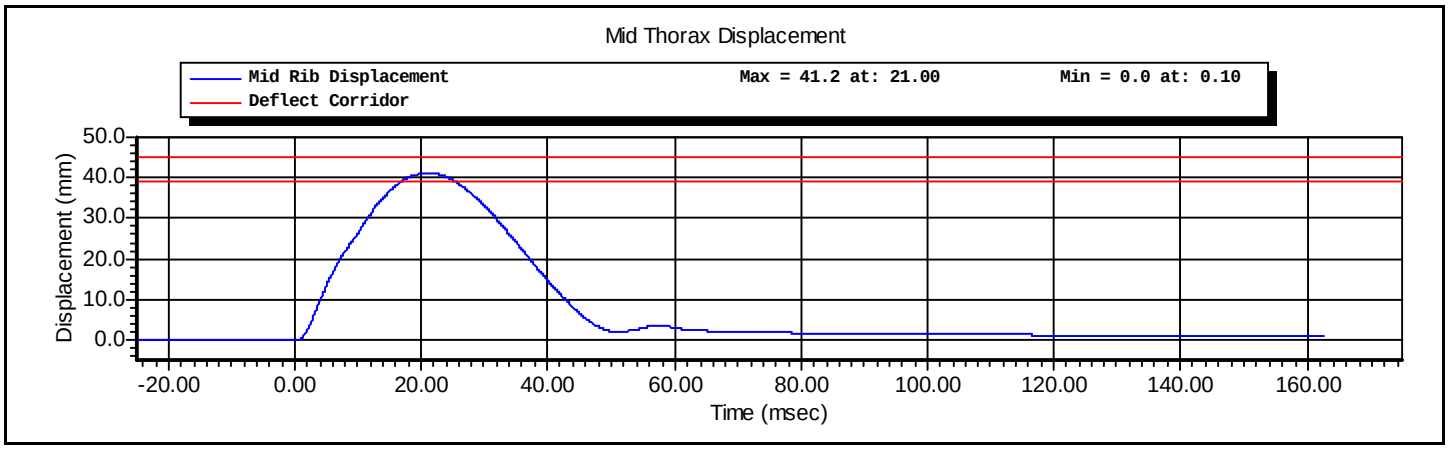
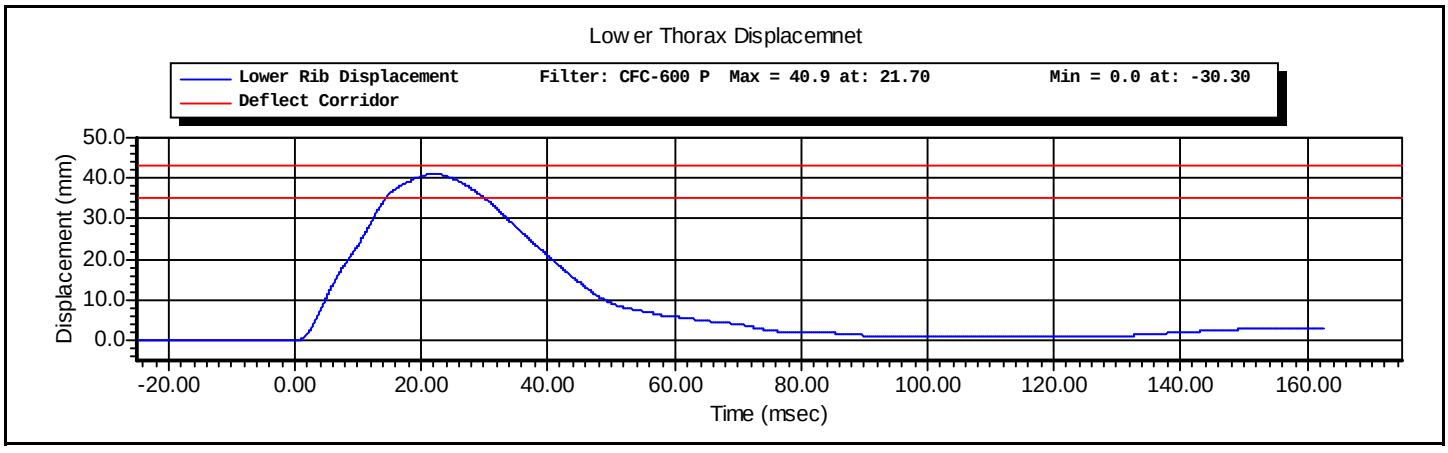
Test Name:	**Thorax Impact without Arm**	Revision:	**8/24/2009**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Thorax Without Arm**	Test Date:	**10/4/2010**
Test Number:	**1**	Test Time:	**2:01:13 PM**

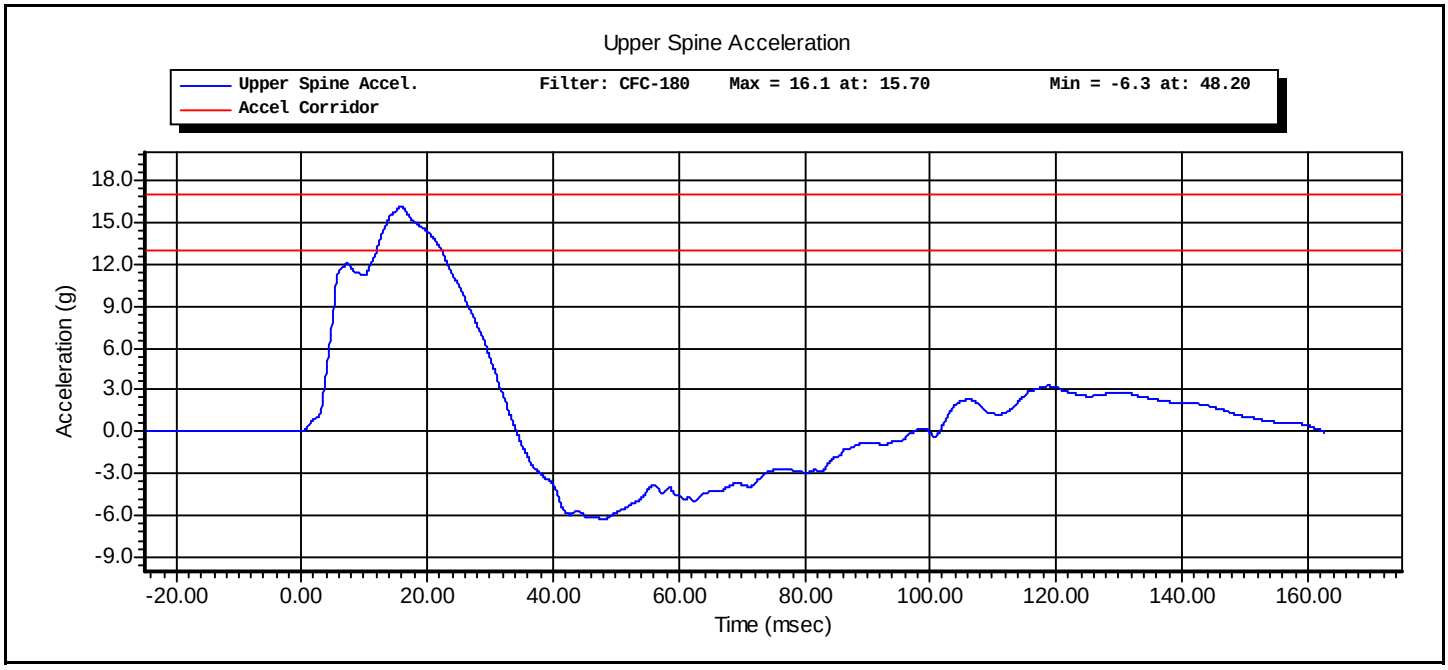


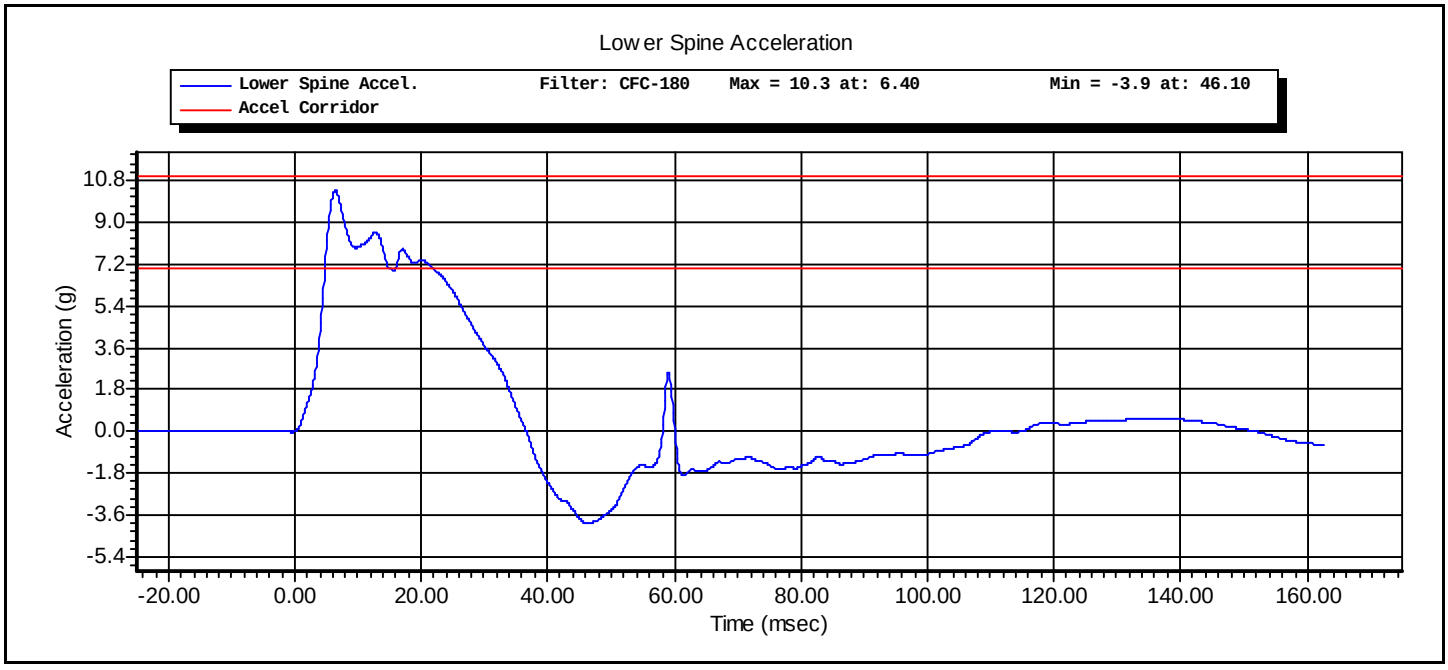






Test ID: **Thorax Without Arm** Test Time: **2:01:13 PM** Test Date: **10/4/2010**





Test ID: **Thorax Without Arm** Test Time: **2:01:13 PM** Test Date: **10/4/2010**

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VERIFICATION REPORT

Test Name:	**Abdominal Impact**	Revision:	**8/24/2009**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Abdomen**	Test Date:	**10/4/2010**
Test Number:	**1**	Test Time:	**2:37:39 PM**

Test Parameters	Test Specifications			Test Results		
Temperature	20.6	--	22.2	**22.2**	deg C	P
Humidity	10	--	70	**42**	%RH	P
Velocity	4.20	--	4.40	**4.35**	m/s	P
Probe Acceleration	12.0	--	16.0	**15.5**	g	P
Upper Abdominal Rib Deflection	36.0	--	47.0	**39.6**	mm	P
Lower Abdominal Rib Deflection	33.0	--	44.0	**34.4**	mm	P
Lower Spine Acceleration - T12	9.0	--	14.0	**12.7**	g	P

All test parameters are within specifications

Technician: **A Rudniski** Signature: _____

Supervisor: **D. Travale** Signature: _____

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
DentonATD	**Velocity Trap**	**1**	**1/11/2010**
Endevco	**7264-2000**	**P66927**	**4/20/2010**
Servo	**180-3885**	**DS-1162**	**4/7/2010**
Servo	**180-3885**	**DS-1232**	**4/7/2010**
Endevco	**7264-2000**	**P64147**	**9/20/2010**

Test ID: **Abdomen** Test Time: **2:37:39 PM** Test Date: **10/4/2010**

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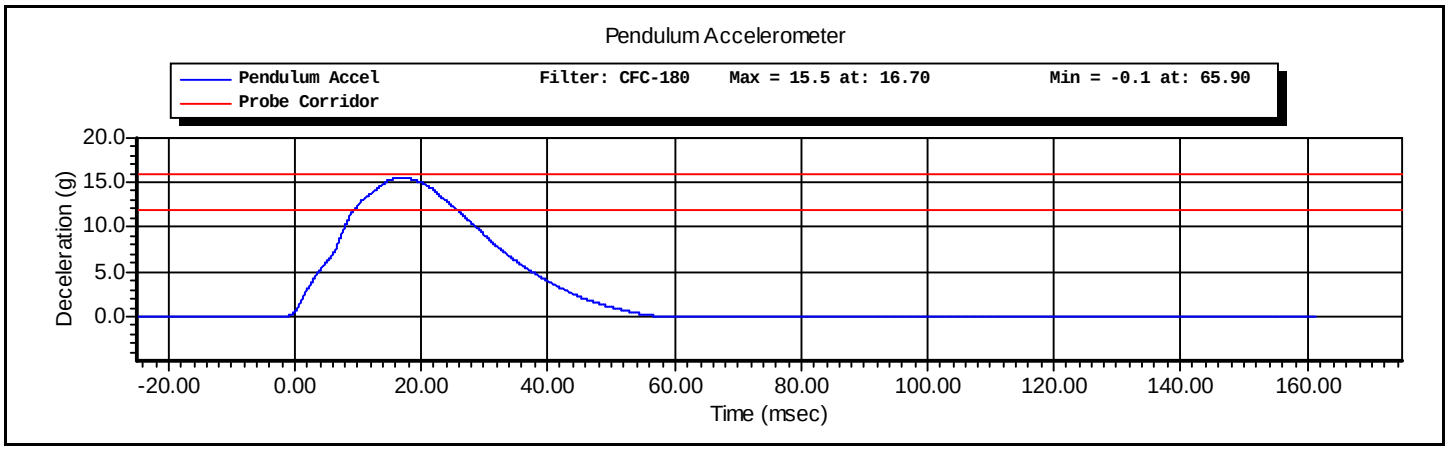
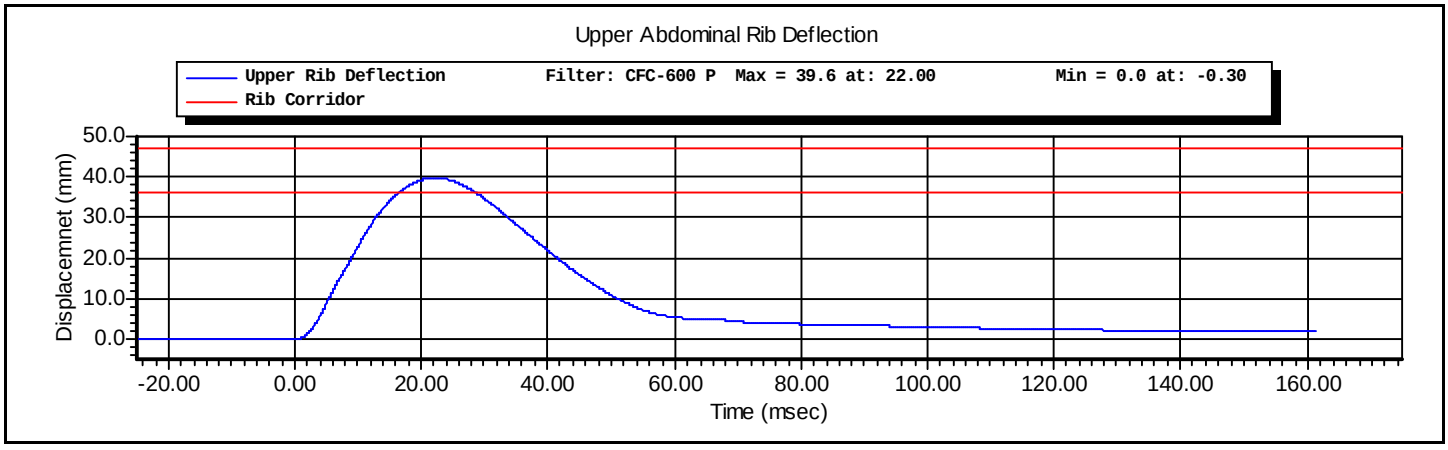
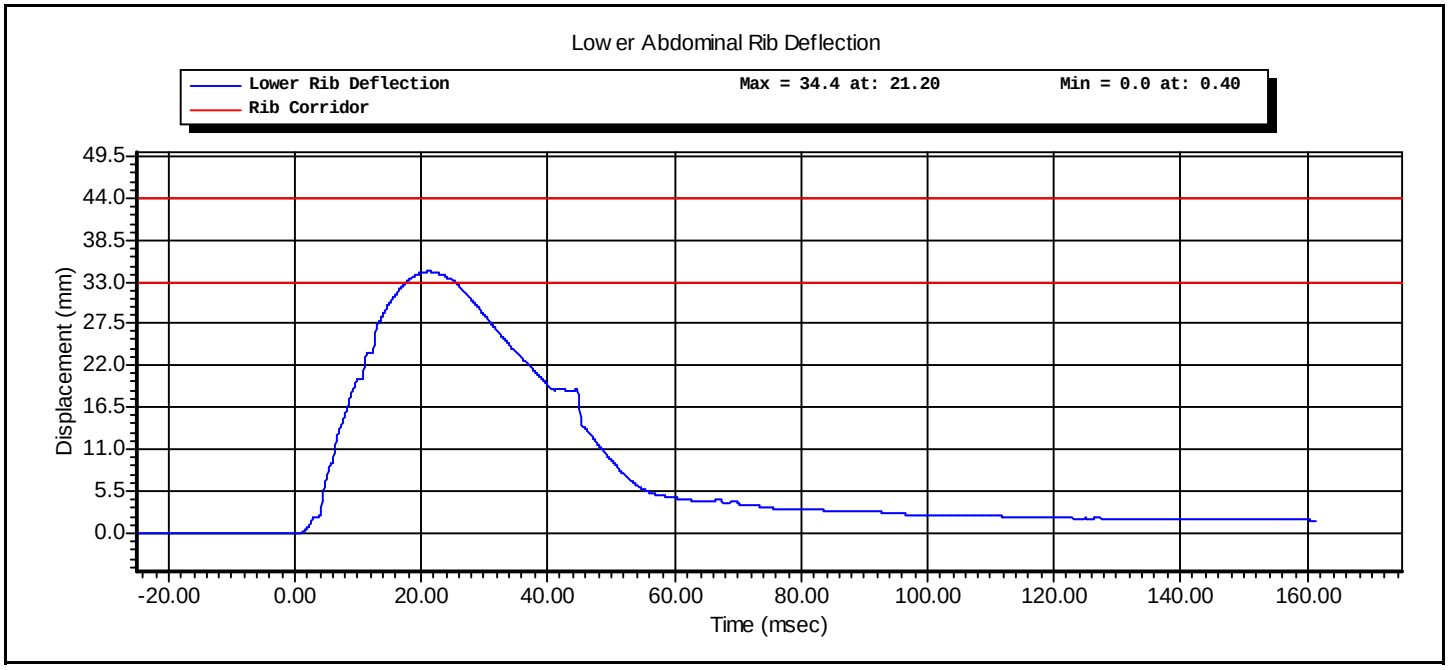
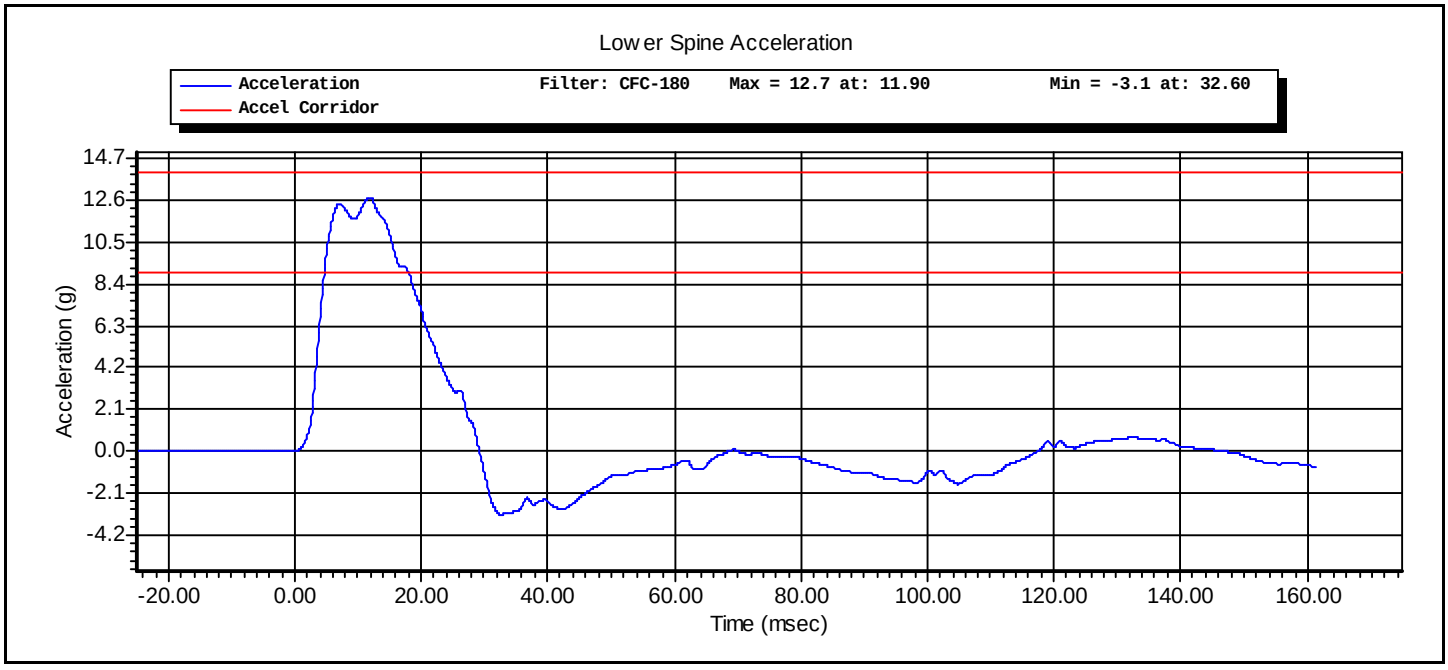
Test Name:	**Abdominal Impact**	Revision:	**8/24/2009**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Abdomen**	Test Date:	**10/4/2010**
Test Number:	**1**	Test Time:	**2:37:39 PM**



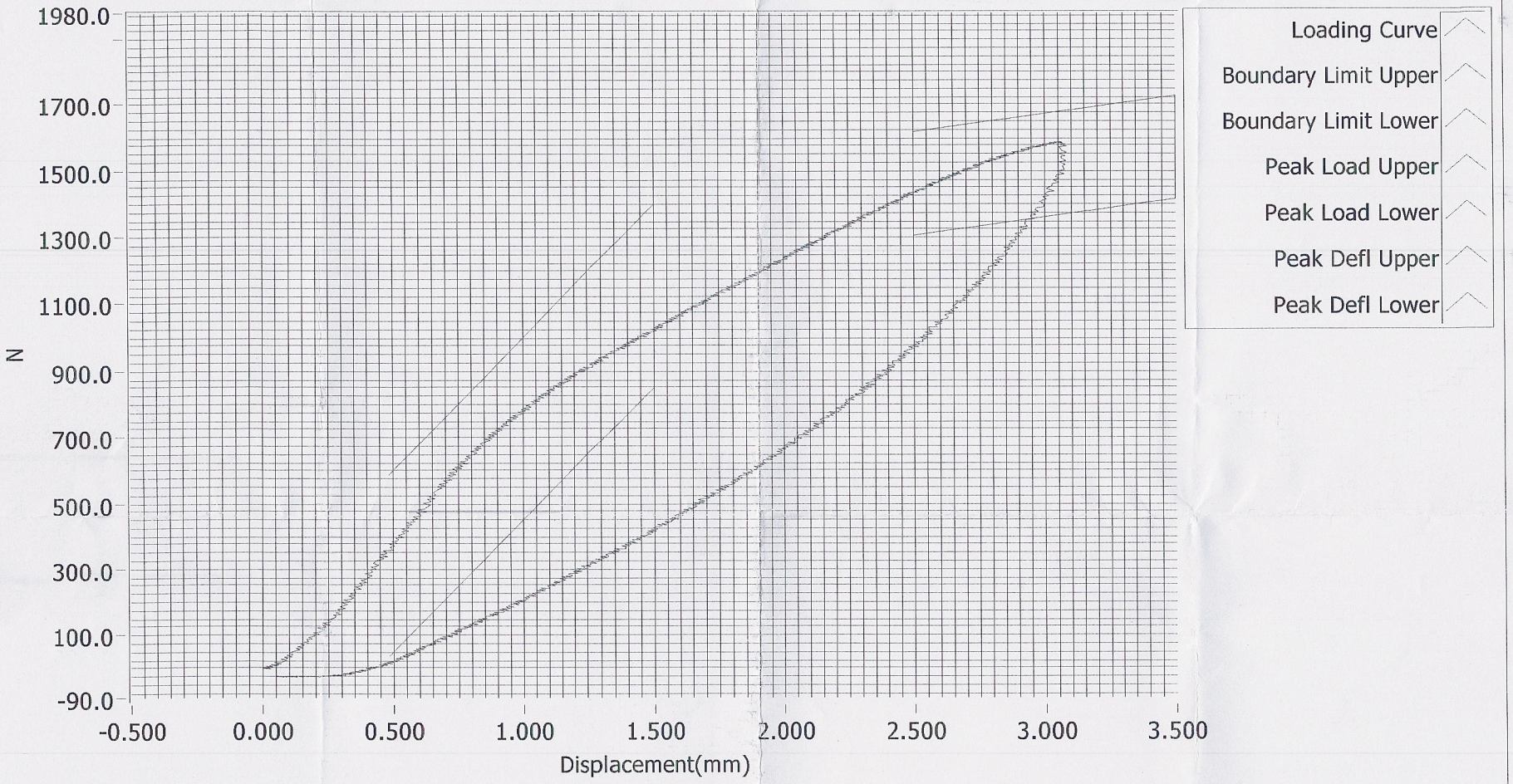






Test ID: **Abdomen** Test Time: **2:37:39 PM** Test Date: **10/4/2010**

Resultant Data - SIDIIs Plug Compression

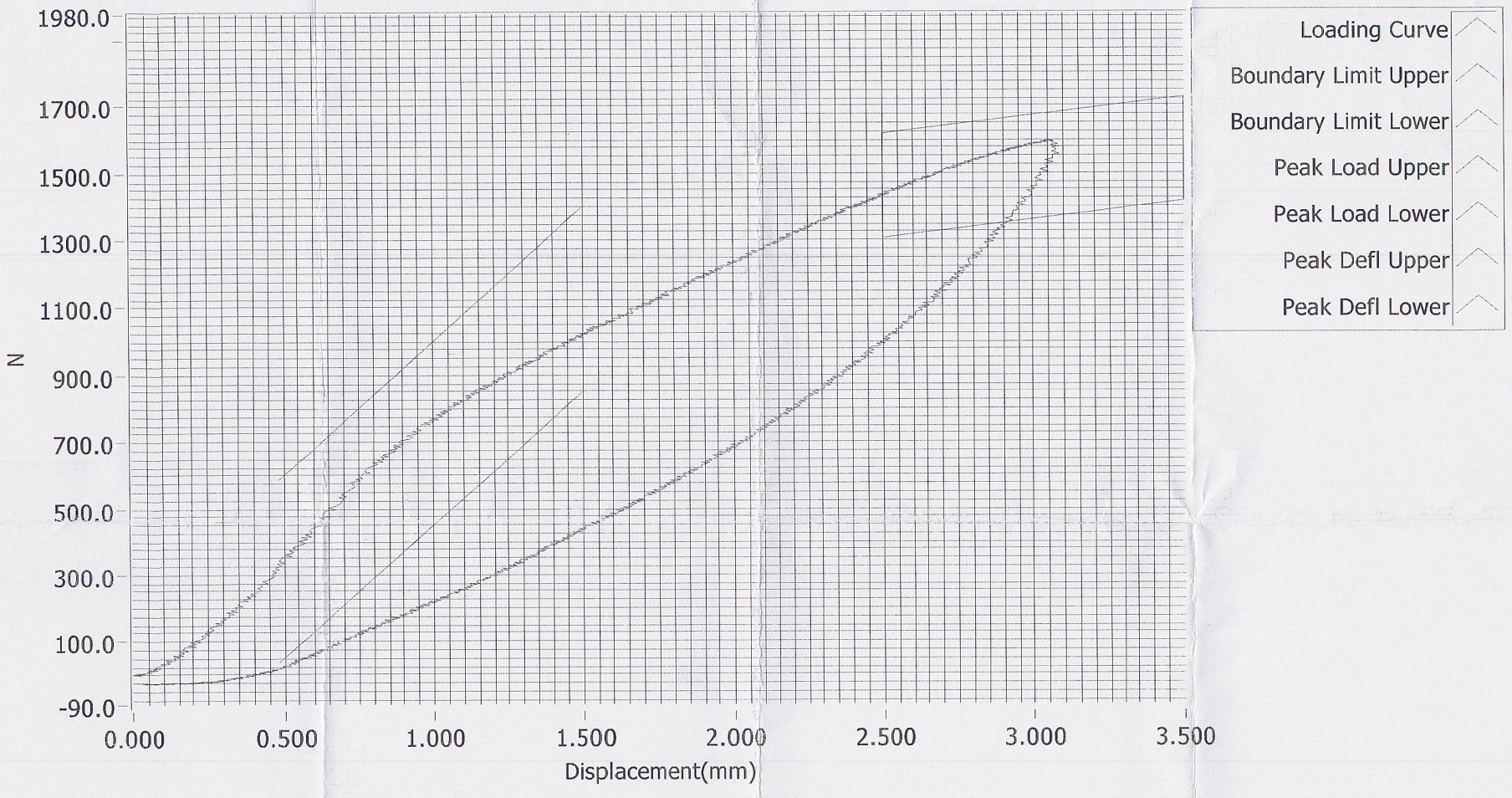


ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
		6/26/2007	4:14 PM
Cert ID	ATD Serial Number	ATD Type	
	11997	SIDIIs	

Current Date : 6/26/2007 Current Time : 16:15:40

Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
		6/22/2007	1:51 PM

Cert ID	ATD Serial Number	ATD Type
	11858	SIDIIs

Current Date : 6/22/2007 Current Time : 13:51:58

FS

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VERIFICATION REPORT

Test Name:	**Pelvis**	Revision:	**8/24/2009**
Sub Test Name:	**Acetabulum Impact**	Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Acetabulum**	Test Date:	**10/4/2010**
Test Number:	**1**	Test Time:	**11:44:25 AM**

Test Parameters	Test Specifications			Test Results		
Temperature	20.6	--	22.2	**22.2**	deg C	P
Humidity	10	--	70	**39**	%RH	P
Velocity	6.60	--	6.80	**6.62**	m/s	P
Peak Probe Acceleration	38.0	--	47.0	**45.7**	g	P
Peak Pelvis Acceleration	34.0	--	42.0	**41.4**	g	P
Peak Acetabulum Force	3.60	--	4.30	**4.22**	kN	P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____

Supervisor: **D. Travale** Signature: _____

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
DentonATD	**Velocity Trap**	**1**	**1/11/2010**
Endevco	**7264-2000**	**P66927**	**4/20/2010**
Endevco	**7264-2000**	**P51671**	**4/12/2010**
DentonATD	**3249J**	**LC-275a**	**4/12/2010**

Test ID: **Acetabulum** Test Time: **11:44:25 AM** Test Date: **10/4/2010**

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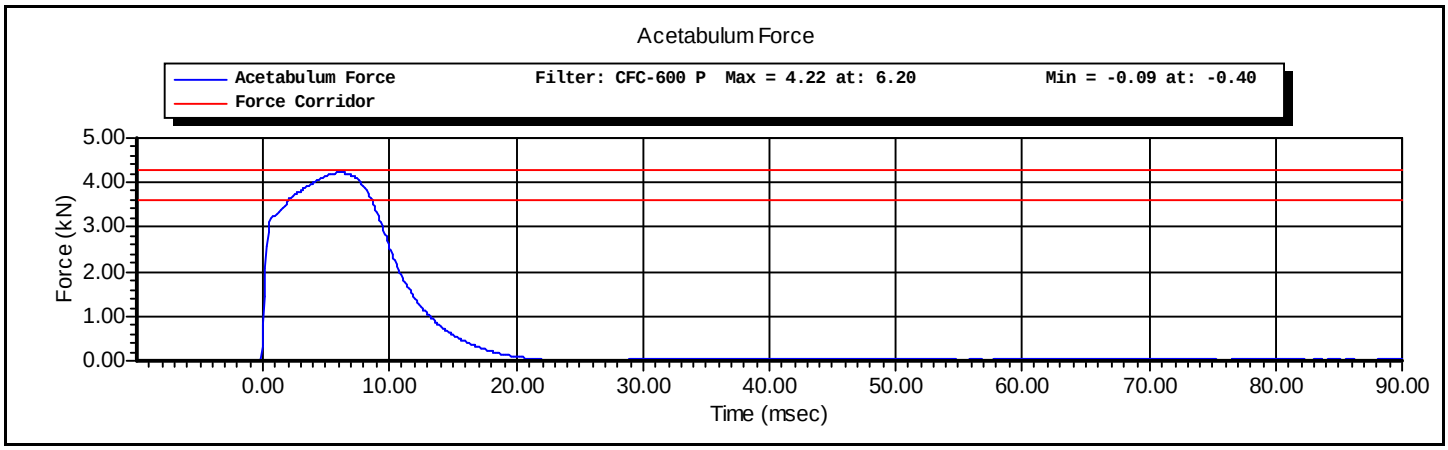
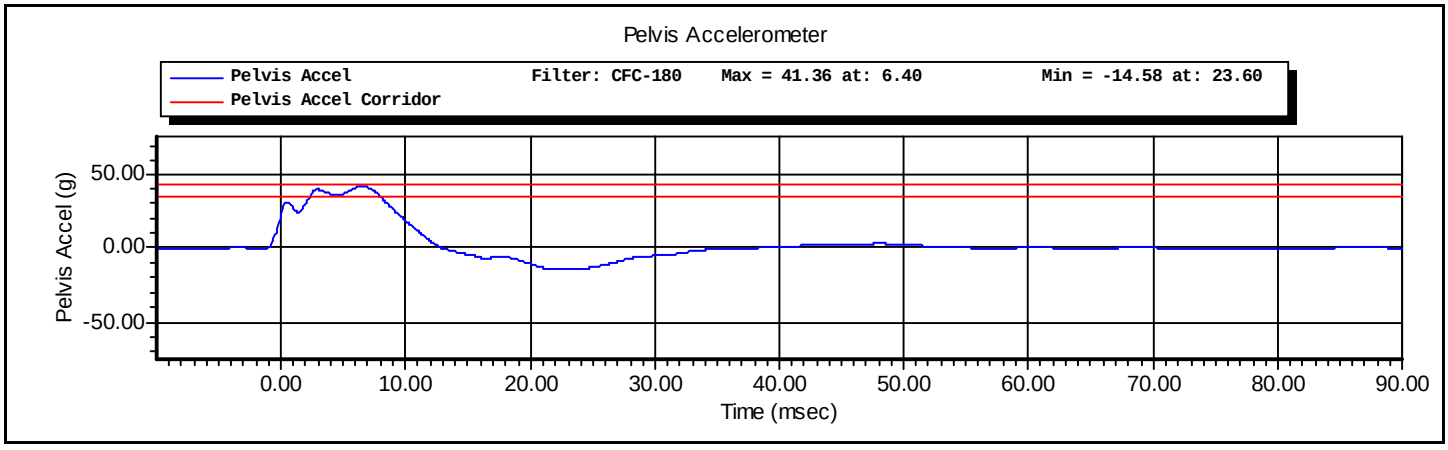
Test Name:	**Pelvis**	Revision:	**8/24/2009**
Sub Test Name:	**Acetabulum Impact**	Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Acetabulum**	Test Date:	**10/4/2010**
Test Number:	**1**	Test Time:	**11:44:25 AM**





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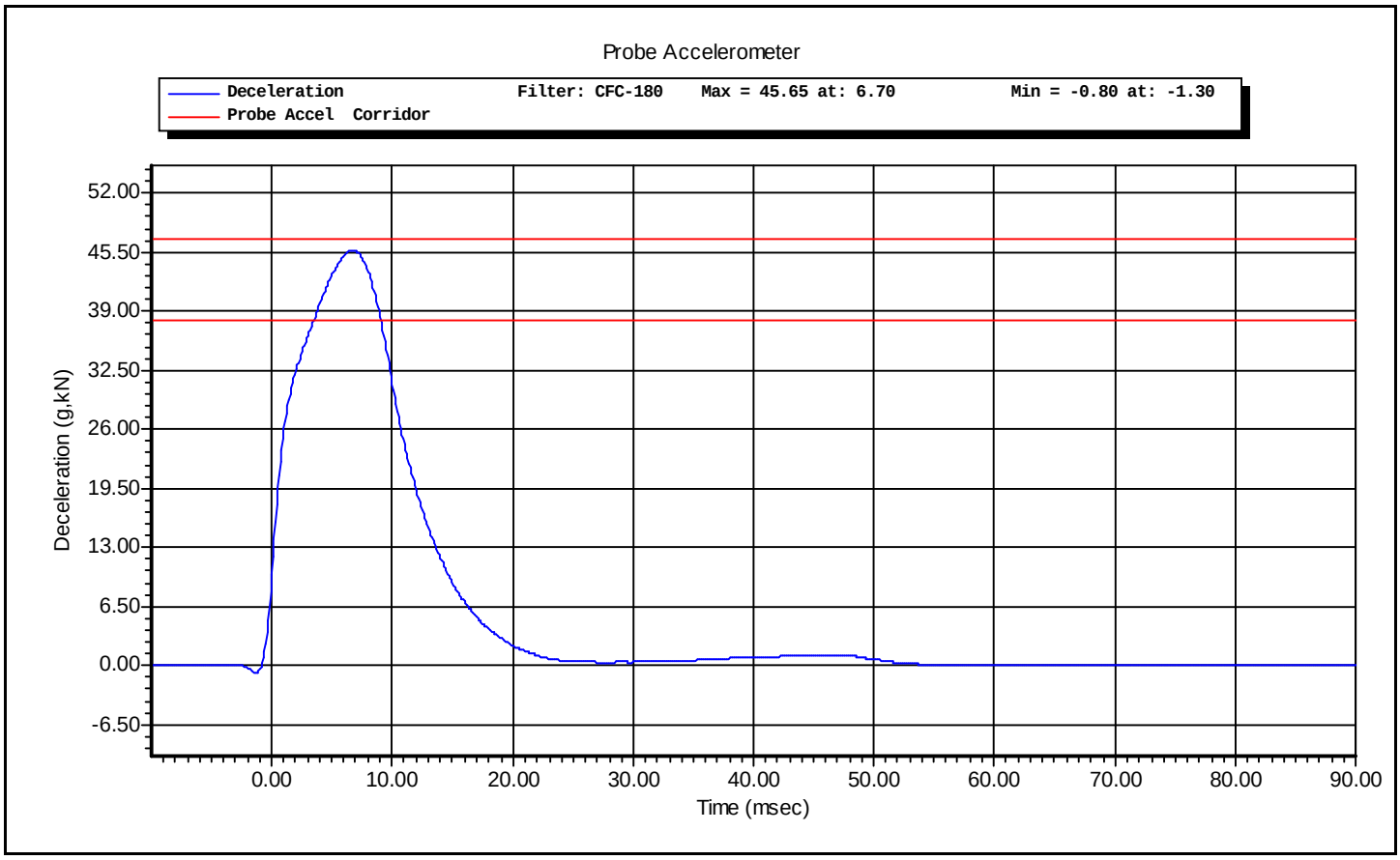

Test ID: **Acetabulum** Test Time: **11:44:25 AM** Test Date: **10/4/2010**

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VERIFICATION REPORT

Test Name:	**Pelvis**	Revision:	**8/24/2009**
Sub Test Name:	**Iliac Impact**	Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID-300**		
Test ID:	**Pelvis Illiac**	Test Date:	**10/4/2010**
Test Number:	**2**	Test Time:	**11:12:17 AM**

Test Parameters	Test Specifications			Test Results		
Temperature	20.6	--	22.2	**22.2**	deg C	P
Humidity	10	--	70	**39**	%RH	P
Velocity	4.20	--	4.40	**4.27**	m/s	P
Peak Probe Acceleration	36.0	--	45.0	**42.1**	g	P
Peak Pelvis Acceleration	28.0	--	39.0	**38.2**	g	P
Peak Iliac Force	4.10	--	5.10	**4.81**	kN	P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____

Supervisor: **D. Travale** Signature: _____

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
DentonATD	**Velocity Trap**	**1**	**1/11/2010**
Endevco	**7264-2000**	**P66927**	**4/20/2010**
Endevco	**7264-2000**	**P51671**	**4/12/2010**
DentonATD	**3228J**	**LC-279 Fy**	**4/12/2010**

Test ID: **Pelvis Illiac** Test Time: **11:12:17 AM** Test Date: **10/4/2010**

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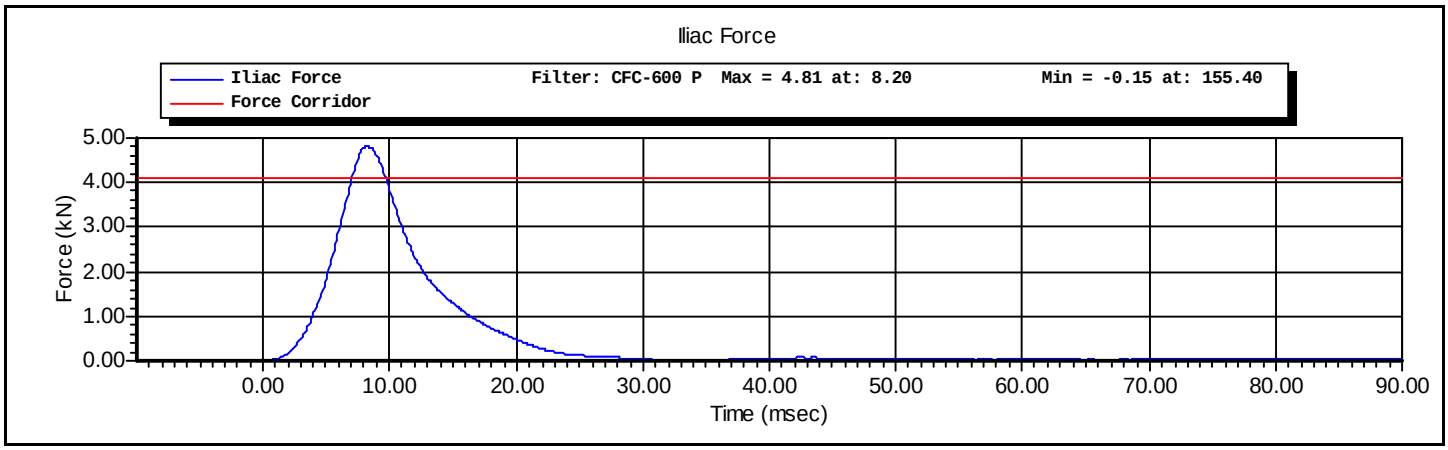
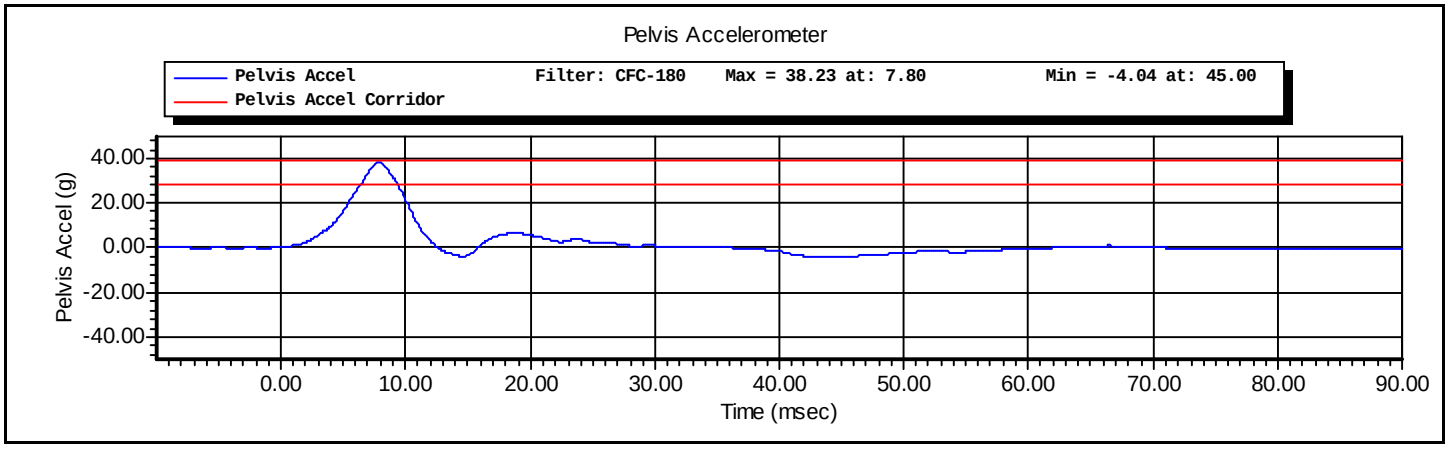
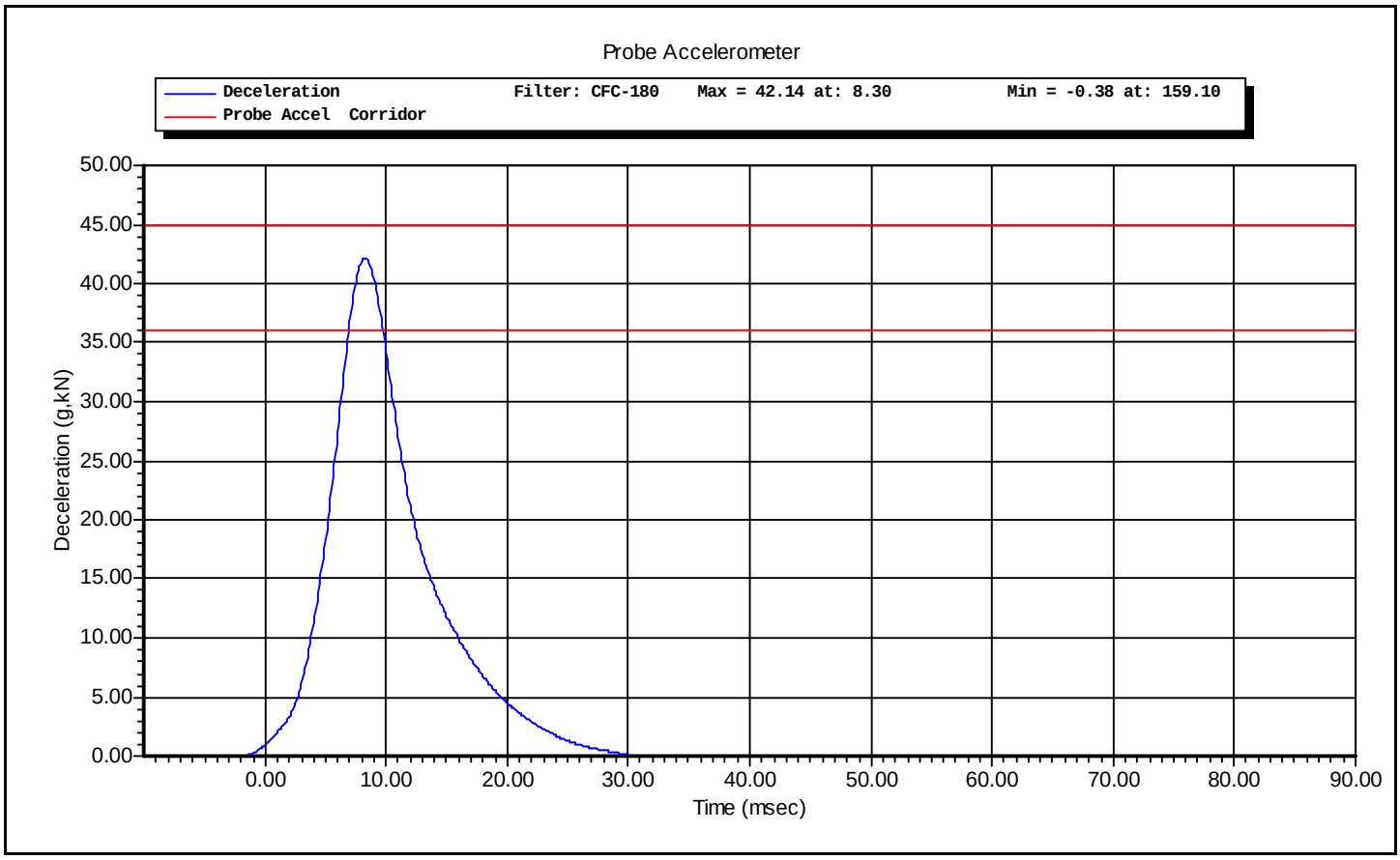
Test Name:	**Pelvis**	Revision:	**8/24/2009**
Sub Test Name:	**Iliac Impact**	Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID-300**		
Test ID:	**Pelvis Illiac**	Test Date:	**10/4/2010**
Test Number:	**2**	Test Time:	**11:12:17 AM**







Test ID: **Pelvis Illiac** Test Time: **11:12:17 AM** Test Date: **10/4/2010**

CALIBRATION TEST RESULTS

POST-TEST

SID-IIs No: 300

CONFIGURED FOR LEFT SIDE IMPACT

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SID-IIsD External Measurements

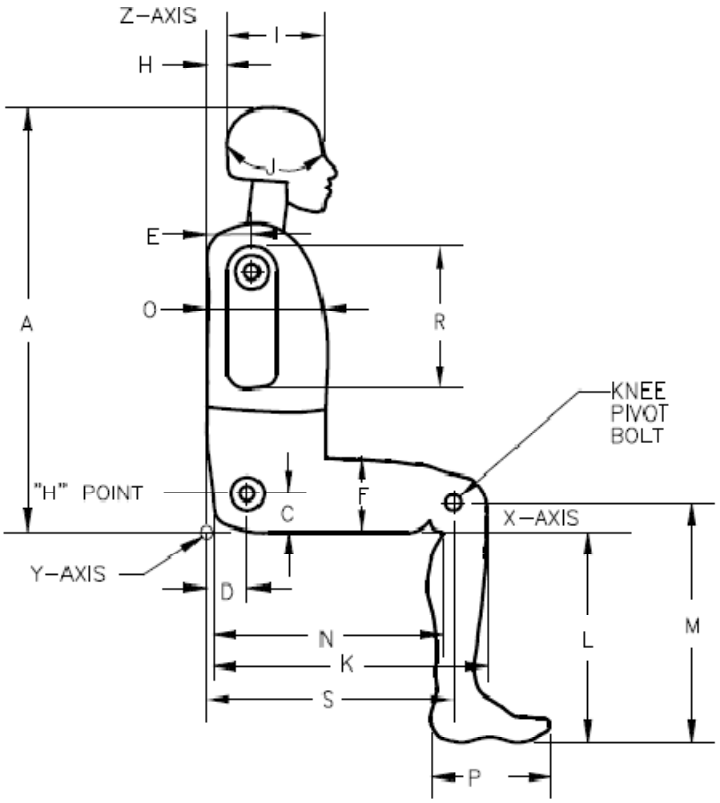
NHTSA ATD S/N 300

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	785	Yes
B	Shoulder Pivot Height	437.0 - 453.0	450	Yes
C	H-Point Height	79.0 - 89.0	87	Yes
D	H-Point from Seat Back	141.0 - 151.0	145	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	98	Yes
F	Thigh Clearance	119.0 - 135.0	125	Yes
G	Head Breadth	140.0 - 148.0	143	Yes
H	Head Back from Backline	40.0 - 46.0	42	Yes
I	Head Depth	178.0 - 188.0	181	Yes
J	Head Circumference	541.0 - 551.0	545	Yes
K	Buttock to Knee Length	514.0 - 540.0	523	Yes
L	Popliteal Height	343.0 - 369.0	365	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	395	Yes
N	Buttock Popliteal Length	416.0 - 442.0	430	Yes
O	Chest Depth without Jacket	195.0 - 211.0	205	Yes
P	Foot Length (right)	216.0 - 232.0	220	Yes
P	Foot Length (left)	216.0 - 232.0	220	Yes
Q	Hip Breadth	313.0 - 323.0	315	Yes
R	Arm Length	249.0 - 259.0	253	Yes
S	Knee Joint to Seat back	478.0 - 493.0	475	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	353	Yes
W	Foot Width (right)	78.0 - 94.0	85	Yes
W	Foot Width (left)	78.0 - 94.0	85	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	870	Yes
Z	Waist Circumference	761.0 - 791.0	773	Yes

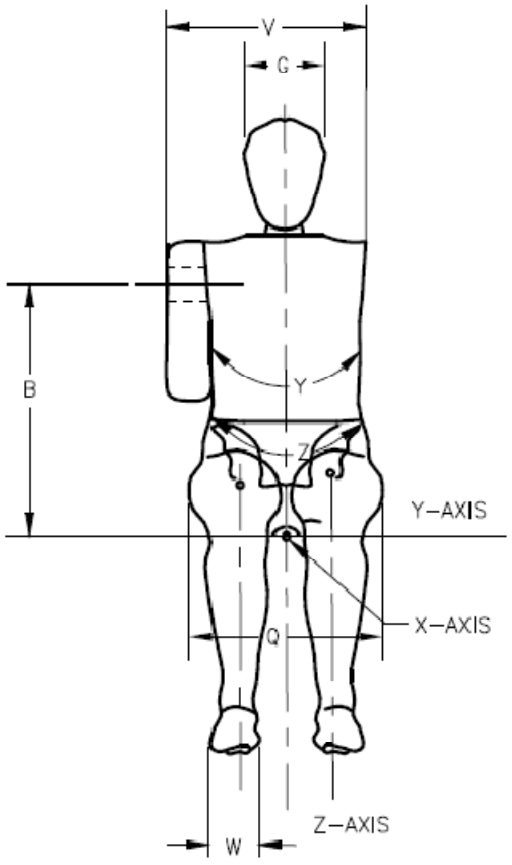
Technician: SZ

Date: 11/5/2010

SID-IIsD External Dimension Reference Diagram



SIDE VIEW



FRONT VIEW

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VERIFICATION REPORT

Test Name:	**Head Drop**	Revision:	**12/14/2006**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Head Drop**	Test Date:	**11/4/2010**
Test Number:	**2**	Test Time:	**1:08:42 PM**

Component Part Number	Component Serial Number
Head Skin - 180-1002	**1355**

Test Parameters	Test Specifications			Test Results		
Temperature	20.6	--	22.2	**21.1**	deg C	P
Humidity	10	--	70	**36**	%RH	P
Resultant Acceleration	115.0	--	137.0	**136.4**	g	P
Oscillation	0.0	--	15.0	**3.1**	%	P
Fore-Aft Acceleration	-15.0	--	15.0	**5.1**	g	P

All test parameters are within specifications

Technician: **S. Zito III** Signature: _____

Supervisor: **D. Travale** Signature: _____

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
Endevco	**7264-2000**	**P17462**	**11/2/2010**
Endevco	**7264-2000**	**P16658**	**11/2/2010**
Endevco	**7264-2000**	**P16596**	**11/2/2010**

Test ID: **Head Drop** Test Time: **1:08:42 PM** Test Date: **11/4/2010**

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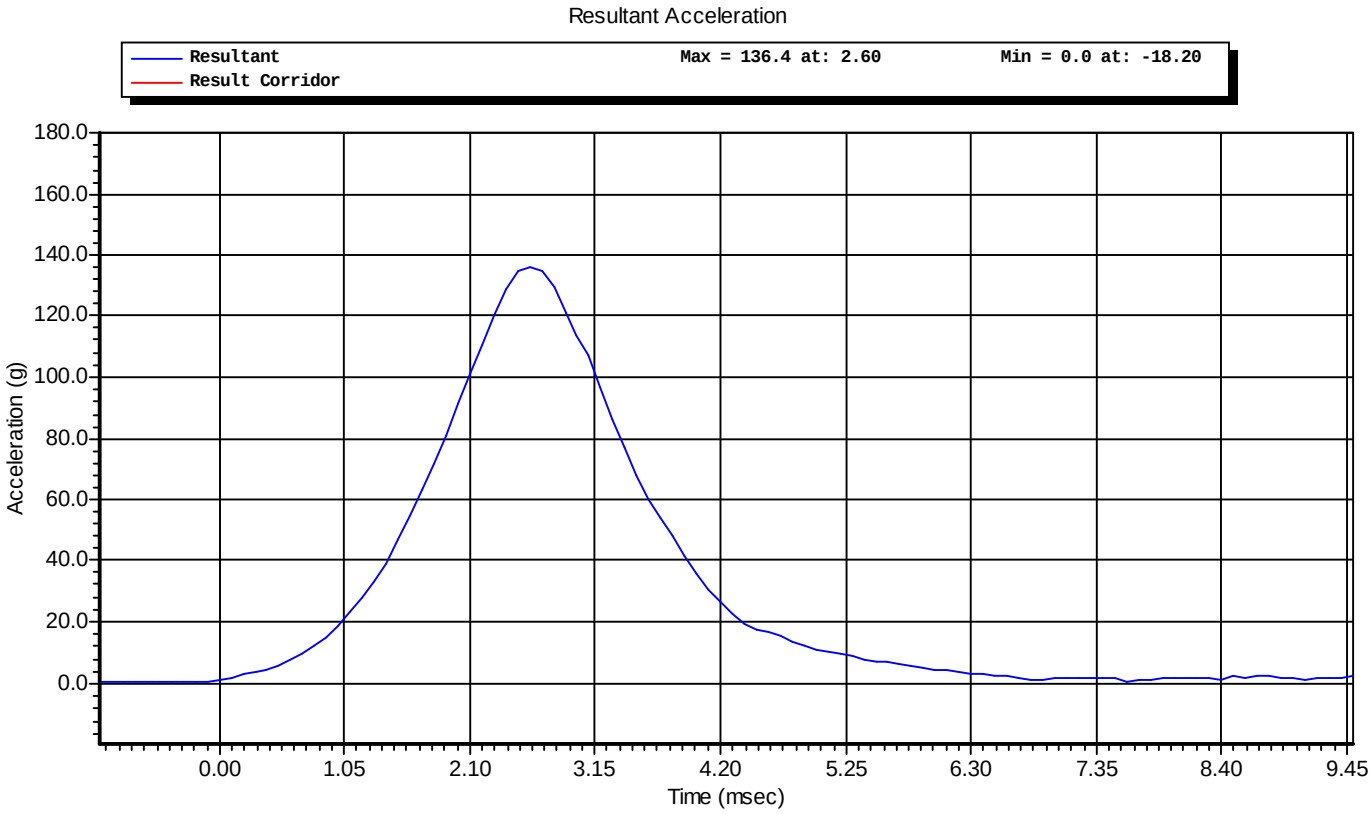
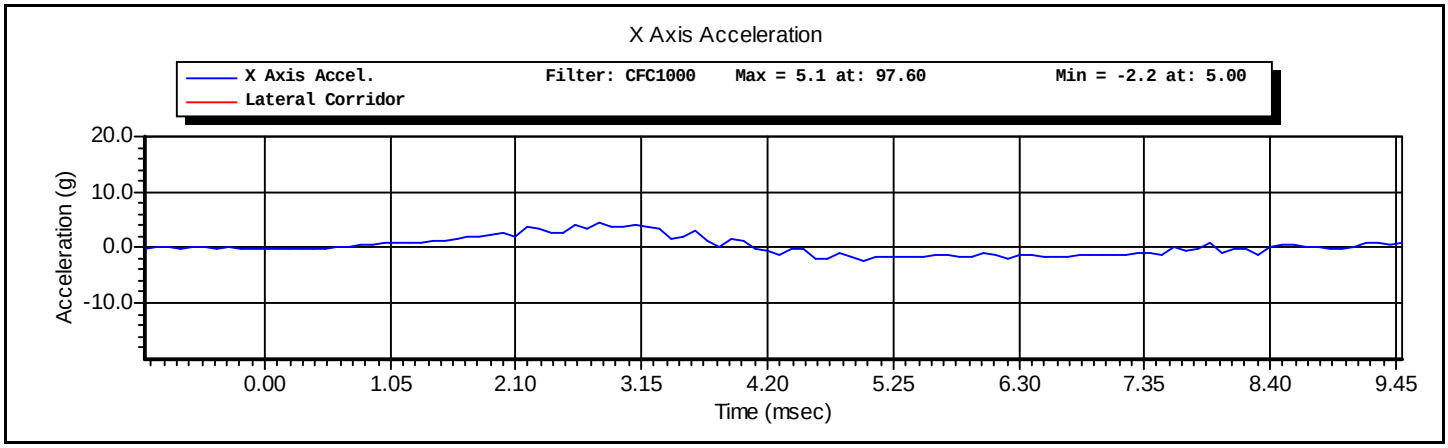
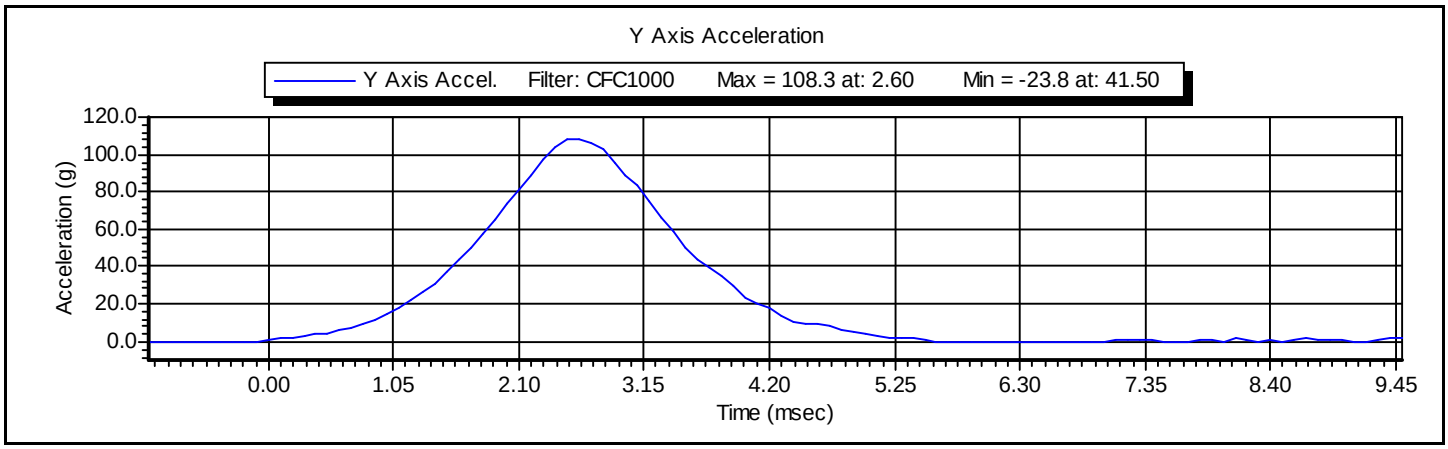
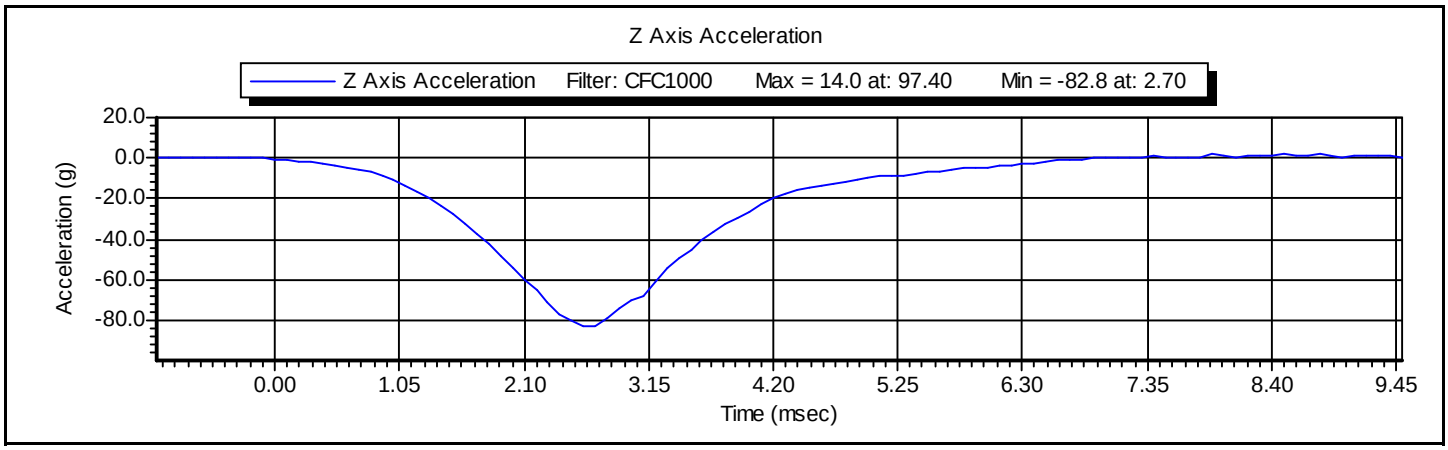
Test Name:	**Head Drop**	Revision:	**12/14/2006**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Head Drop**	Test Date:	**11/4/2010**
Test Number:	**2**	Test Time:	**1:08:42 PM**









Test ID: **Head Drop** Test Time: **1:08:42 PM** Test Date: **11/4/2010**

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VERIFICATION REPORT

Test Name:	**Neck Pendulum**	Revision:	**8/24/2009**
Sub Test Name:	**Left Side**	Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Neck Flexion**	Test Date:	**11/4/2010**
Test Number:	**1**	Test Time:	**12:12:32 PM**

Component Part Number	Component Serial Number
Neck - 180-2000	**787**

Test Parameters	Test Specifications	Test Results	
Temperature	20.6 -- 22.2	**21.0** deg C	P
Humidity	10 -- 70	**36** %RH	P
Velocity	5.51 -- 5.63	**5.56** m/s	P
Pendulum Impulse at 10 ms	2.20 -- 2.80	**2.43** m/s	P
Pendulum Impulse at 15 ms	3.30 -- 4.10	**3.53** m/s	P
Pendulum Impulse at 20 ms	4.40 -- 5.40	**4.80** m/s	P
Pendulum Impulse at 25 ms	5.40 -- 6.10	**5.73** m/s	P
Pendulum Impulse between 25 and 100 ms	5.50 -- 6.20	**5.84** m/s	P
Max D Plane Rotation	71.0 -- 81.0	**72.4** degrees	P
Time at Max Rotation	50.0 -- 70.0	**61.2** ms	P
Moment about OC	-44.0 -- -36.0	**-41.4** Nm	P
Moment Decay to Zero	102.0 -- 126.0	**113.6** ms	P

All test parameters are within specifications

Technician: **S. Zito III** Signature: _____

Supervisor: **D. Travale** Signature: _____

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
DentonATD	**Velocity Trap**	**1**	**1/11/2010**
Endevco	**7231CT**	**C16510**	**5/10/2010**
Denton	**1716A**	**LC-576 Fy**	**2/15/2010**
Denton	**1716A**	**LC-576 Mx**	**2/15/2010**
DentonATD	**78051-342**	**184**	**4/30/2010**
DentonATD	**78051-342**	**174**	**4/30/2010**
DentonATD	**78051-342**	**185**	**4/30/2010**

Test ID: **Neck Flexion** Test Time: **12:12:32 PM** Test Date: **11/4/2010**

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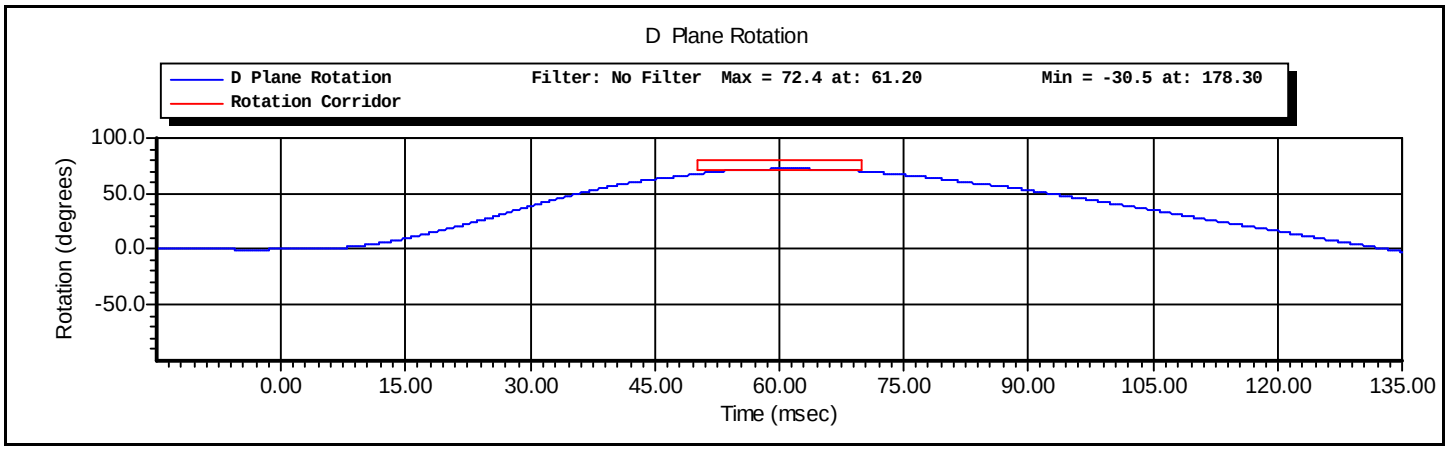
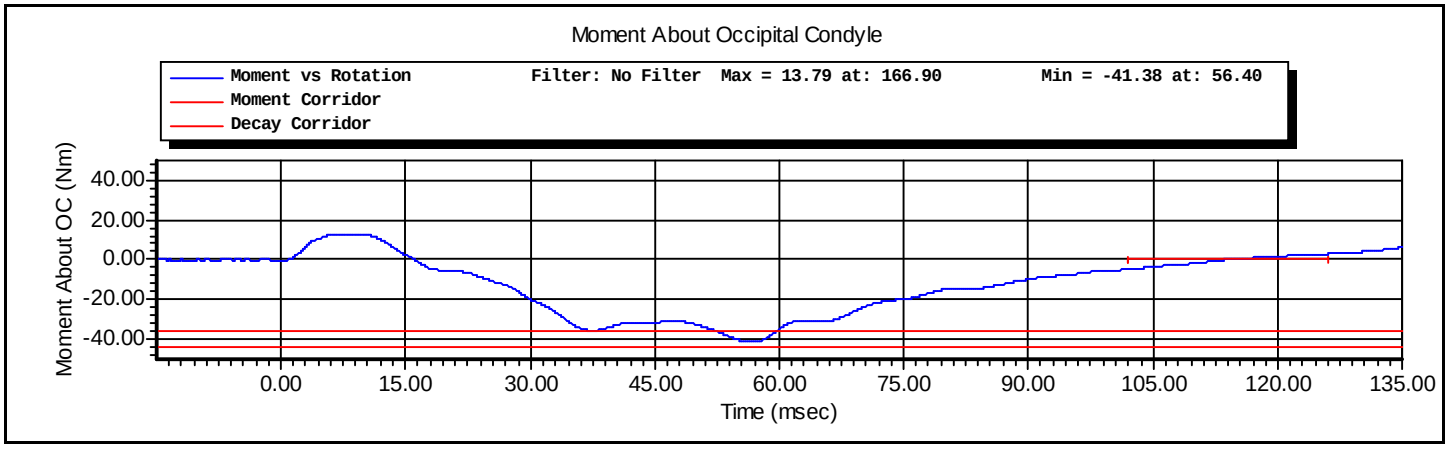
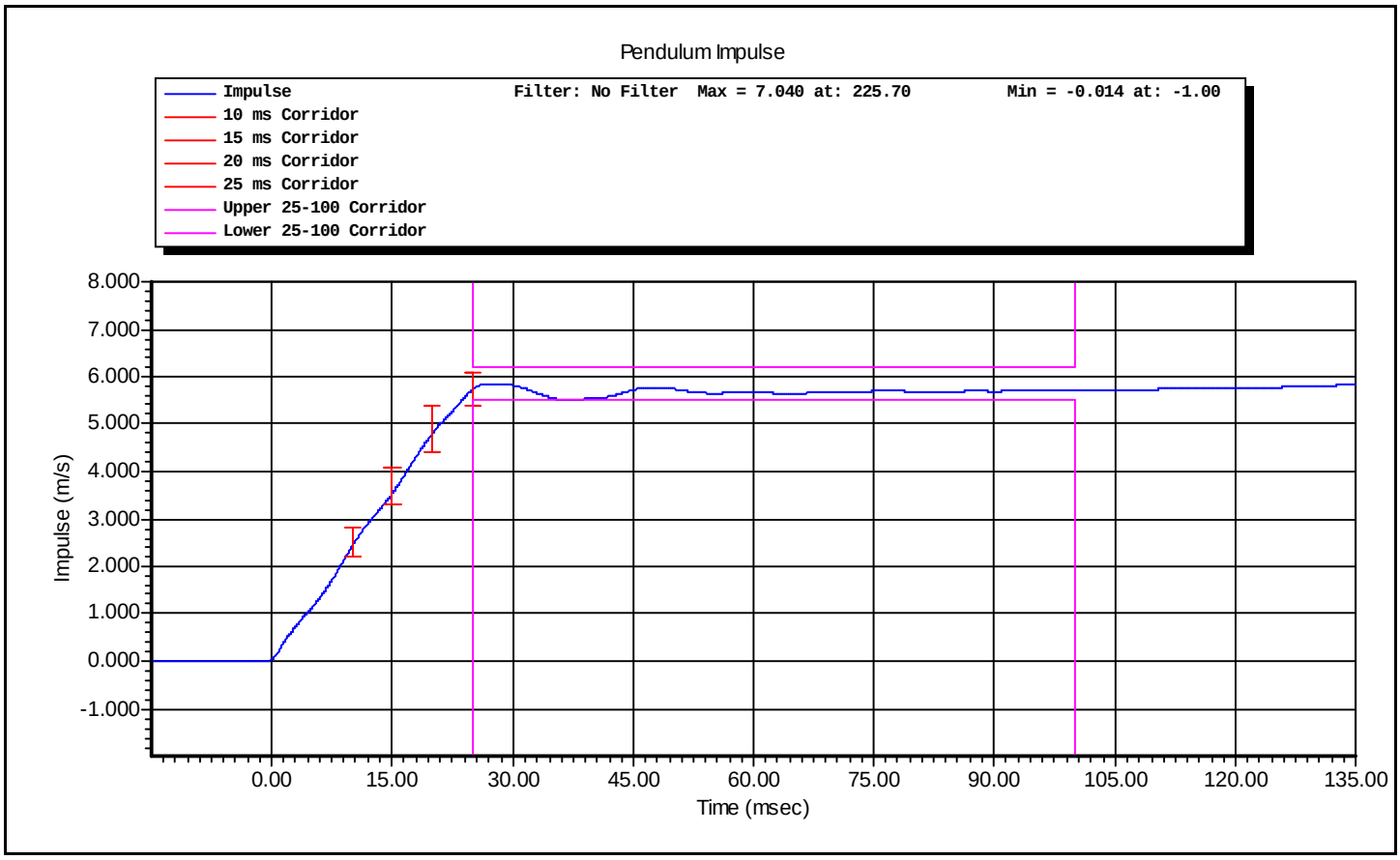
Test Name:	**Neck Pendulum**	Revision:	**8/24/2009**
Sub Test Name:	**Left Side**	Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Neck Flexion**	Test Date:	**11/4/2010**
Test Number:	**1**	Test Time:	**12:12:32 PM**







Test ID: **Neck Flexion** Test Time: **12:12:32 PM** Test Date: **11/4/2010**

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VERIFICATION REPORT

Test Name:	**Shoulder Impact**	Revision:	**8/24/2009**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Shoulder Impact**	Test Date:	**11/5/2010**
Test Number:	**2**	Test Time:	**10:34:14 AM**

Test Parameters	Test Specifications			Test Results		
Temperature	20.6	--	22.2	**20.80**	deg C	P
Humidity	10.0	--	70.0	**36.0**	%RH	P
Velocity	4.20	--	4.40	**4.33**	m/s	P
Probe Acceleration	13.0	--	18.0	**17.0**	g	P
Shoulder Deflection	28.0	--	37.0	**31.1**	mm	P
T1 Acceleration	17.0	--	22.0	**20.7**	g	P

All test parameters are within specifications

Technician: **S. Zito III** Signature: _____

Supervisor: **D. Travale** Signature: _____

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
DentonATD	**Velocity Trap**	**1**	**1/11/2010**
Endevco	**7264-2000**	**P66930**	**10/5/2010**
Servo	**180-3885**	**DS-1063**	**4/7/2010**
Endevco	**7264-2000**	**P51927**	**10/8/2010**

Test ID: **Shoulder Impact** Test Time: **10:34:14 AM** Test Date: **11/5/2010**

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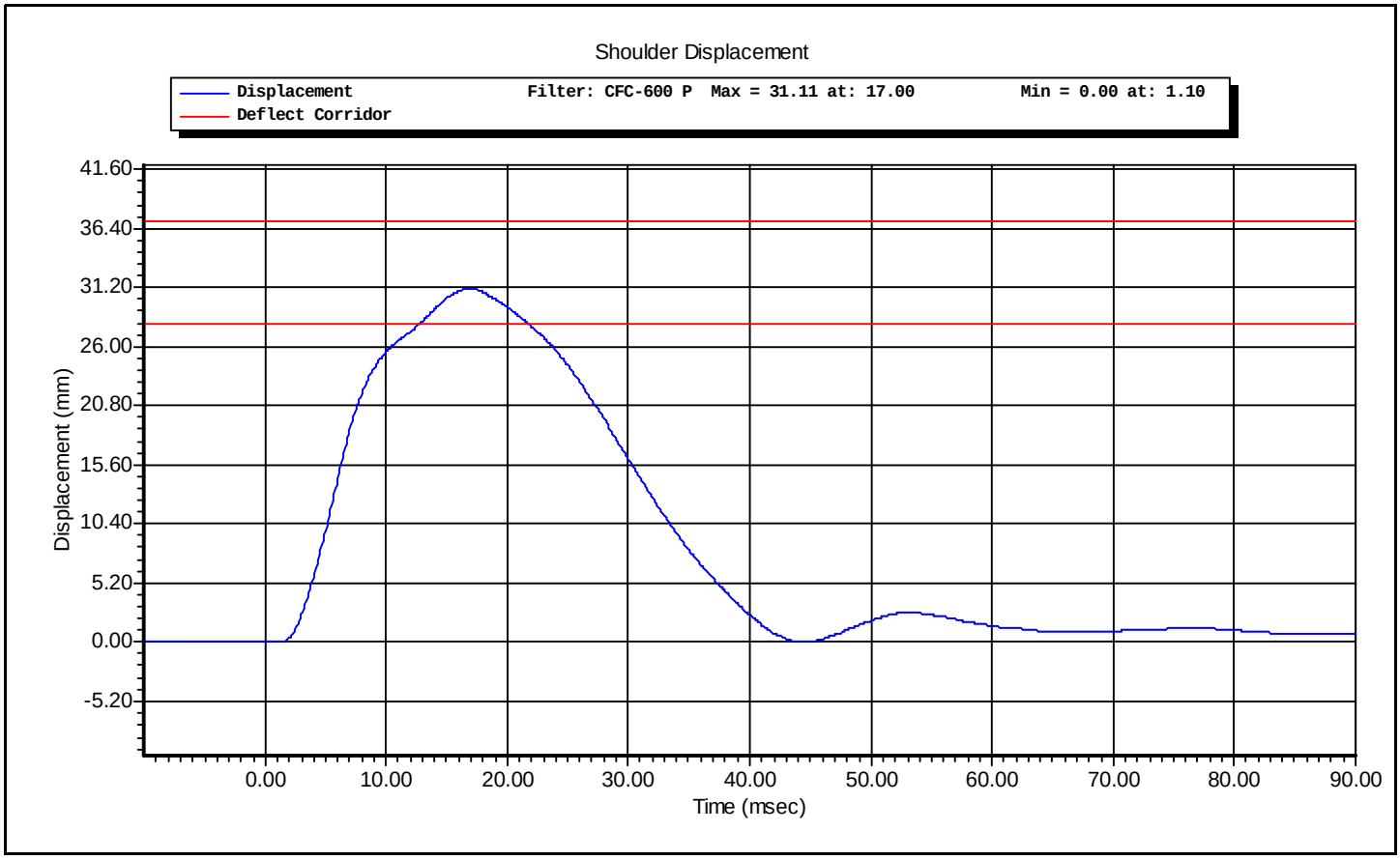
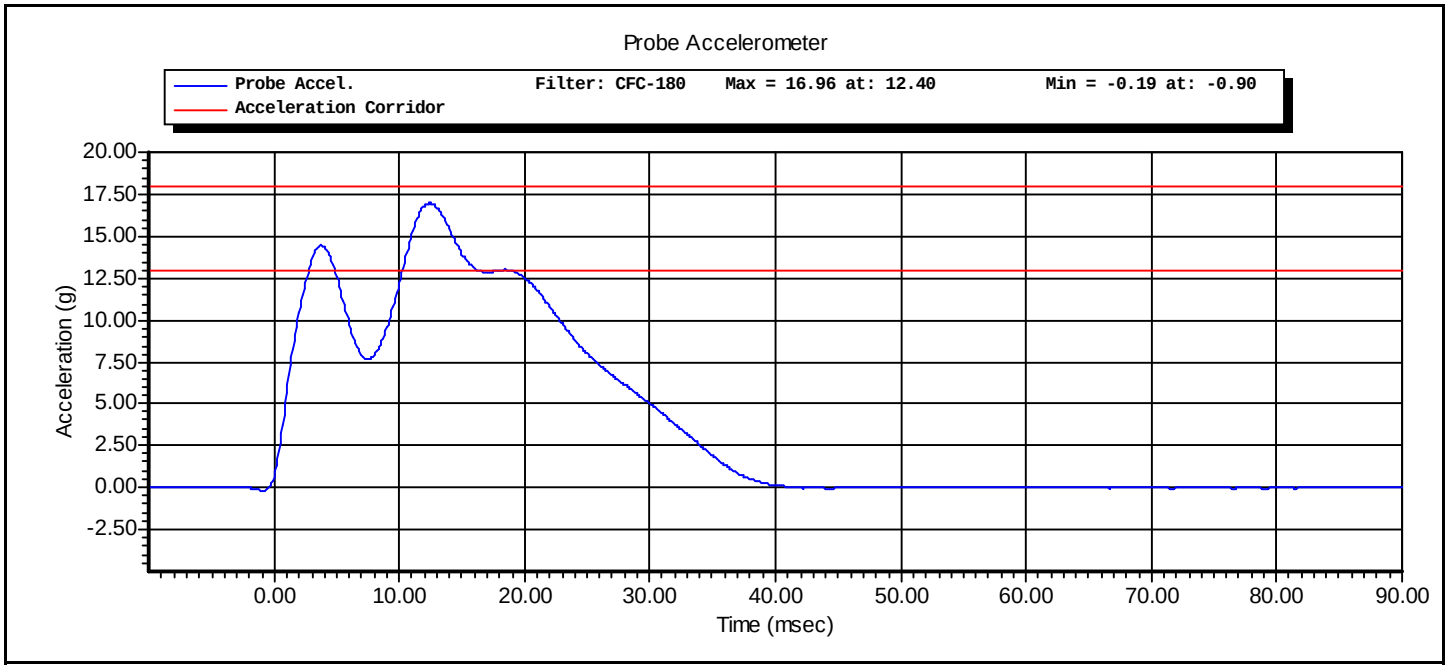
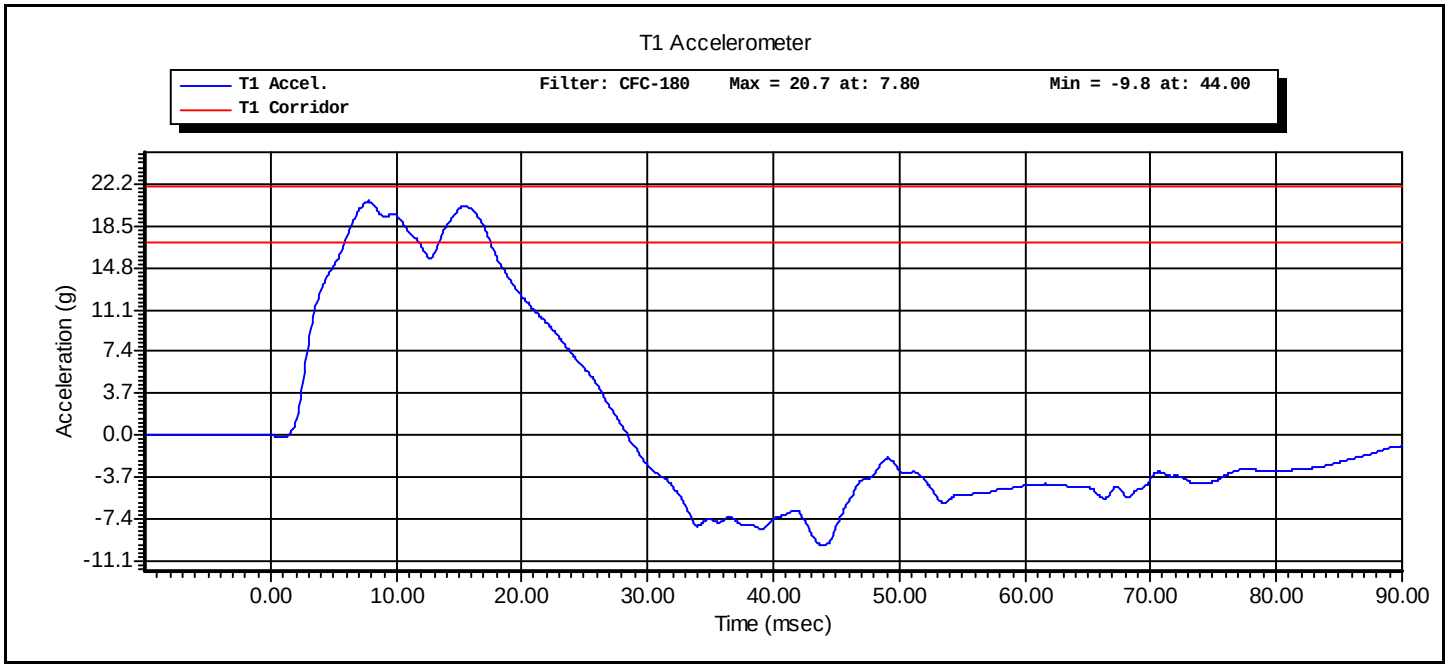
Test Name:	**Shoulder Impact**	Revision:	**8/24/2009**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Shoulder Impact**	Test Date:	**11/5/2010**
Test Number:	**2**	Test Time:	**10:34:14 AM**







Test ID: **Shoulder Impact** Test Time: **10:34:14 AM** Test Date: **11/5/2010**

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VERIFICATION REPORT

Test Name:	**Thorax Impact without Arm**	Revision:	**8/24/2009**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Thorax Without Arm**	Test Date:	**11/4/2010**
Test Number:	**1**	Test Time:	**3:14:37 PM**

Test Parameters	Test Specifications			Test Results		
Temperature	20.6	--	22.2	**21.4**	deg C	P
Humidity	10	--	70	**36**	%RH	P
Velocity	4.20	--	4.40	**4.35**	m/s	P
Probe Acceleration	14.0	--	18.0	**16.4**	g	P
Upper Thorax Rib Deflection	32.0	--	40.0	**35.3**	mm	P
Mid Thorax Rib Deflection	39.0	--	45.0	**41.5**	mm	P
Lower Thorax Rib Deflection	35.0	--	43.0	**41.9**	mm	P
Upper Spine Acceleration T1	13.0	--	17.0	**15.3**	g	P
Lower Spine Acceleration T12	7.0	--	11.0	**10.2**	g	P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____

Supervisor: **D. Travale** Signature: _____

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
DentonATD	**Velocity Trap**	**1**	**1/11/2010**
Endevco	**7264-2000**	**P66930**	**10/5/2010**
Servo	**180-3885**	**DS-1121**	**4/7/2010**
Servo	**180-3885**	**DS-1151**	**4/7/2010**
Servo	**180-3885**	**DS-1156**	**4/7/2010**
Endevco	**7264-2000**	**P51927**	**10/8/2010**
Endevco	**7264-2000**	**P64147**	**9/20/2010**

Test ID: **Thorax Without Arm** Test Time: **3:14:37 PM** Test Date: **11/4/2010**

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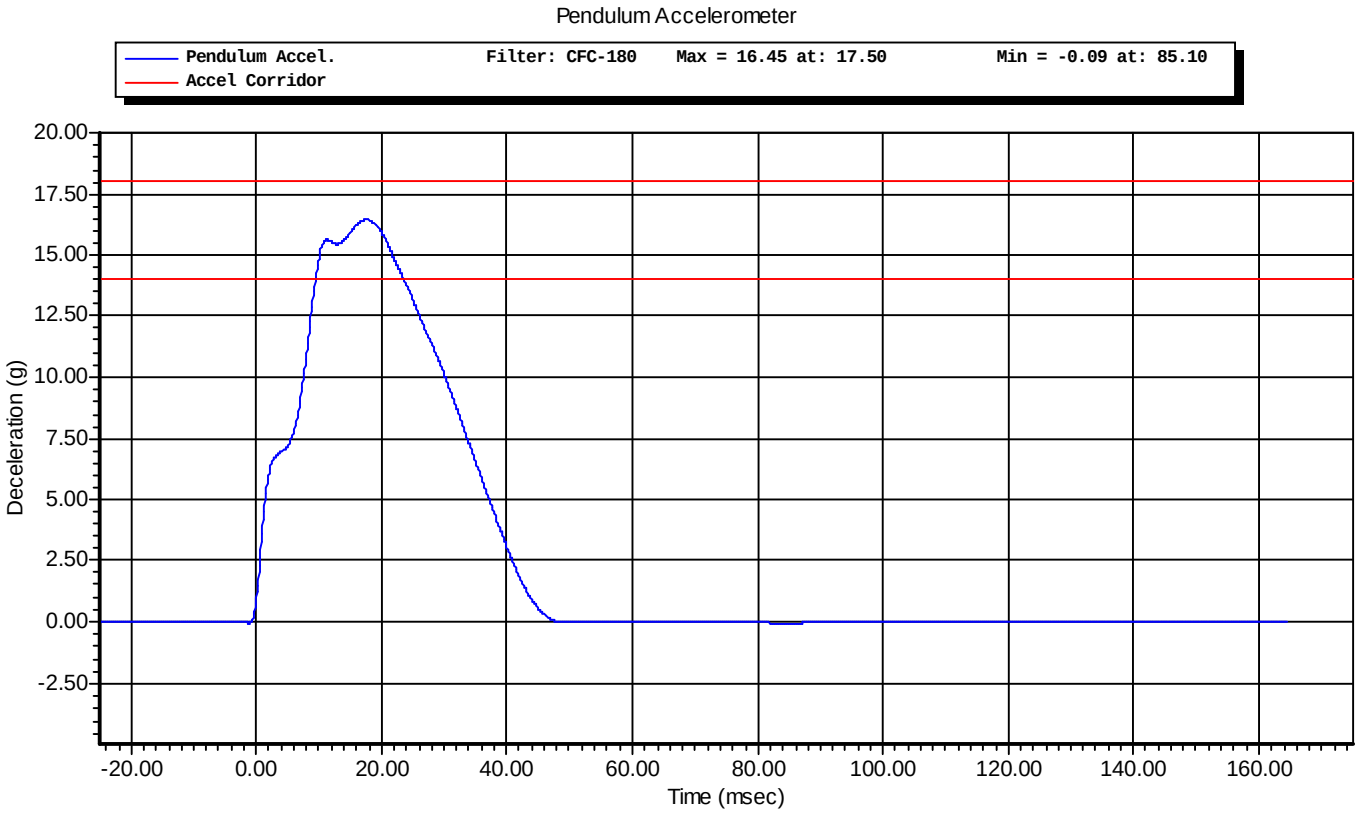
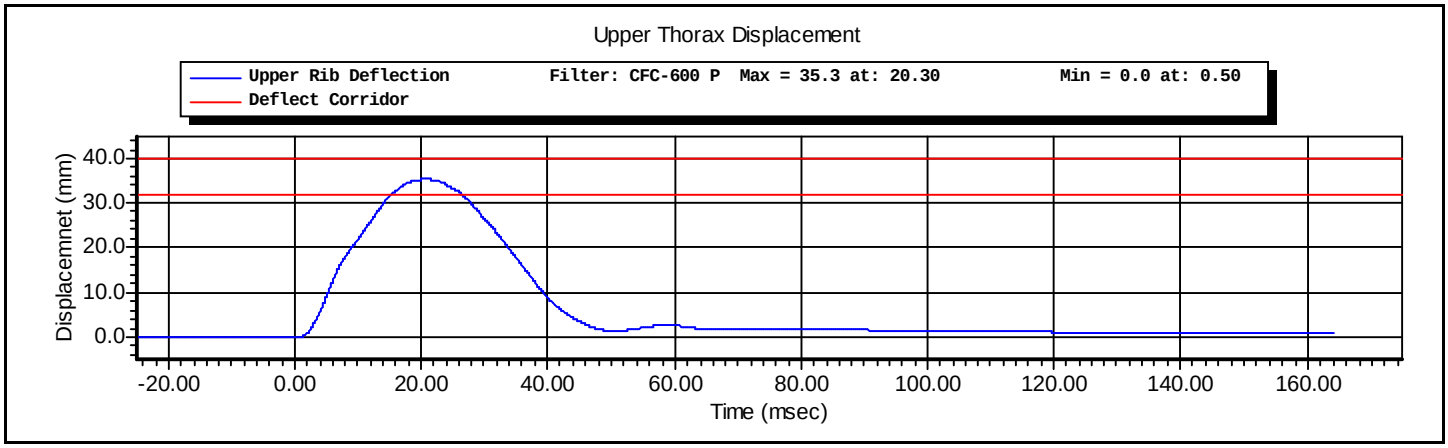
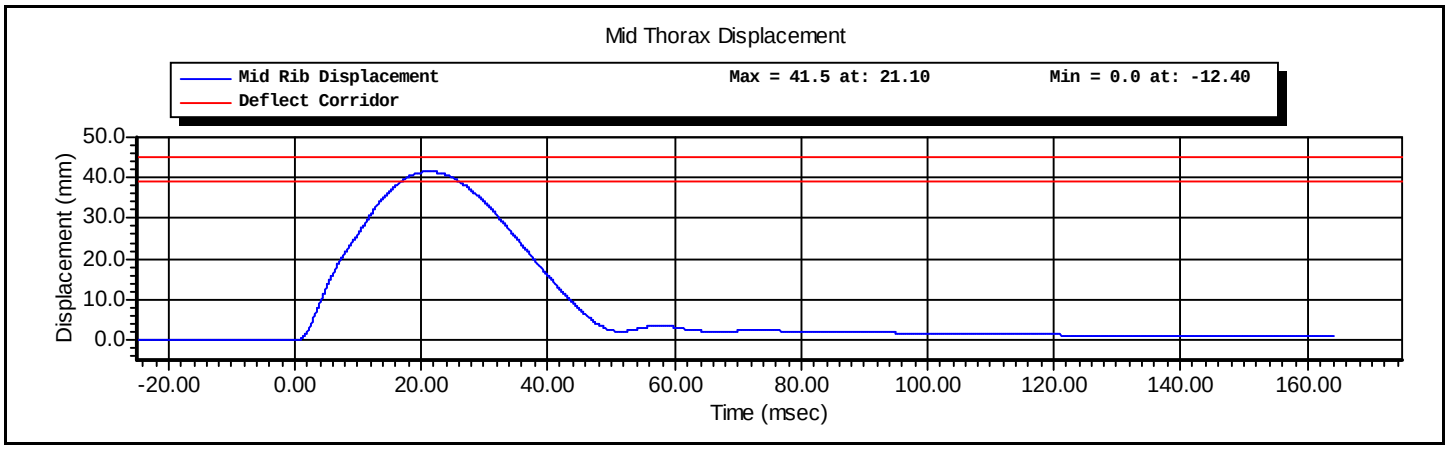
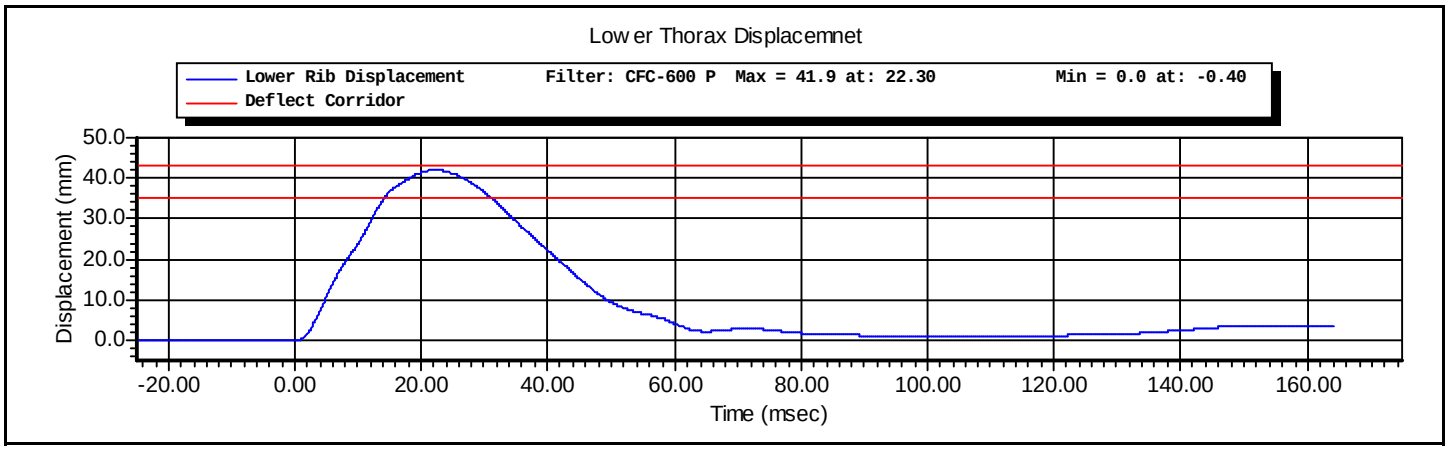
Test Name:	**Thorax Impact without Arm**	Revision:	**8/24/2009**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Thorax Without Arm**	Test Date:	**11/4/2010**
Test Number:	**1**	Test Time:	**3:14:37 PM**

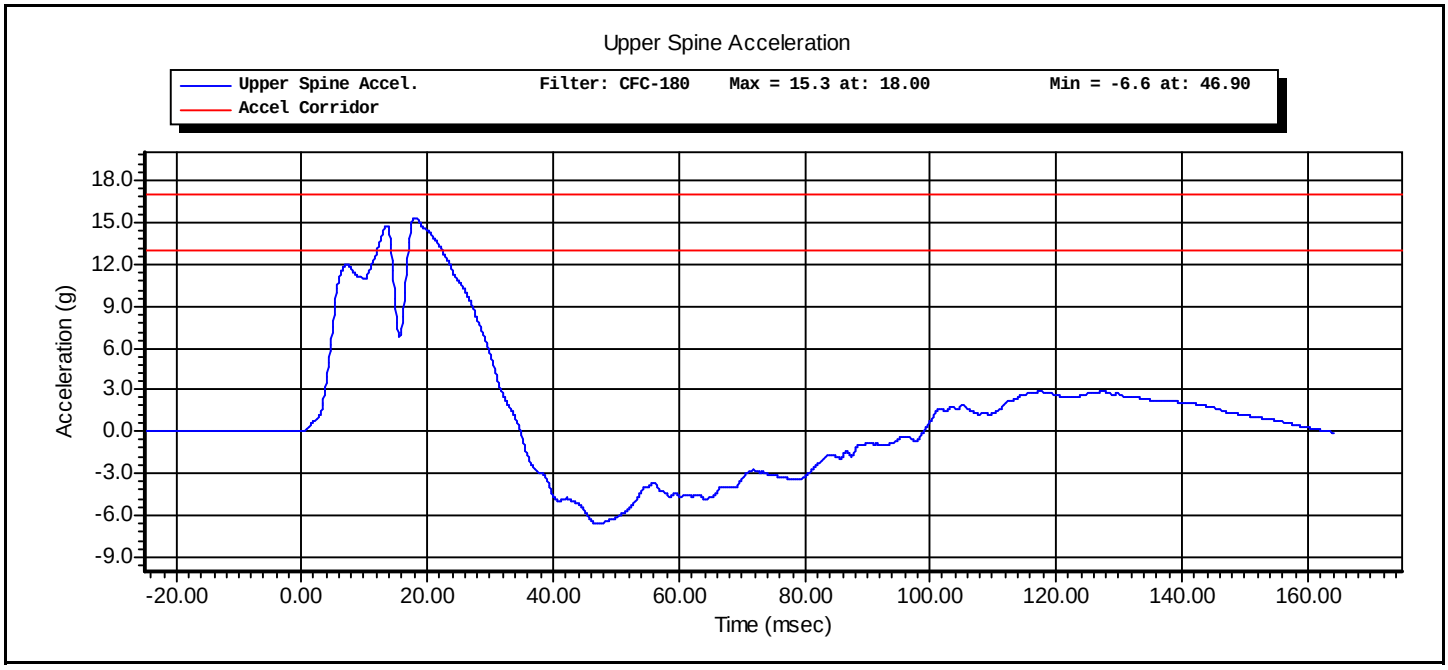


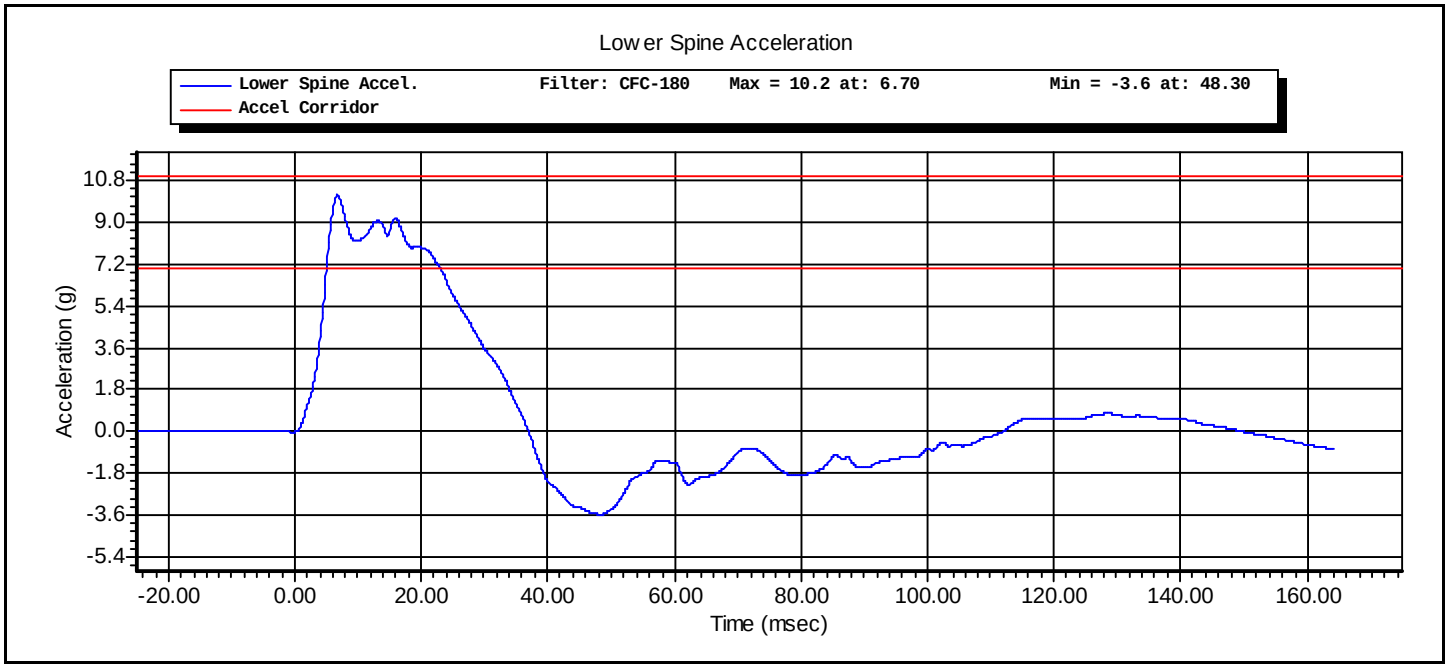






Test ID: **Thorax Without Arm** Test Time: **3:14:37 PM** Test Date: **11/4/2010**





Test ID: **Thorax Without Arm** Test Time: **3:14:37 PM** Test Date: **11/4/2010**

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VERIFICATION REPORT

Test Name:	**Thorax Impact with Arm**	Revision:	**8/24/2009**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Thorax With Arm**	Test Date:	**11/4/2010**
Test Number:	**1**	Test Time:	**3:54:20 PM**

Test Parameters	Test Specifications			Test Results		
Temperature	20.6	--	22.2	**21.4**	deg C	P
Humidity	10	--	70	**35**	%RH	P
Velocity	6.60	--	6.80	**6.70**	m/s	P
Probe Acceleration after 5ms	30.0	--	36.0	**35.1**	g	P
Upper Thorax Rib Deflection	25.0	--	32.0	**26.6**	mm	P
Mid Thorax Rib Deflection	30.0	--	36.0	**31.5**	mm	P
Lower Thorax Rib Deflection	32.0	--	38.0	**36.7**	mm	P
Upper Spine Acceleration ("y")	34.0	--	43.0	**39.5**	g	P
Lower Spine Acceleration ("y")	29.0	--	37.0	**36.8**	g	P
Shoulder Deflection	31.0	--	40.0	**36.7**	mm	P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____

Supervisor: **D. Travale** Signature: _____

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
DentonATD	**Velocity Trap**	**1**	**1/11/2010**
Endevco	**7264-2000**	**P66930**	**10/5/2010**
Servo	**180-3885**	**DS-1121**	**4/7/2010**
Servo	**180-3885**	**DS-1151**	**4/7/2010**
Servo	**180-3885**	**DS-1156**	**4/7/2010**
Endevco	**7264-2000**	**P51927**	**10/8/2010**
Endevco	**7264-2000**	**P64147**	**9/20/2010**
Servo	**180-3885**	**DS-1063**	**4/7/2010**

Test ID: **Thorax With Arm** Test Time: **3:54:20 PM** Test Date: **11/4/2010**

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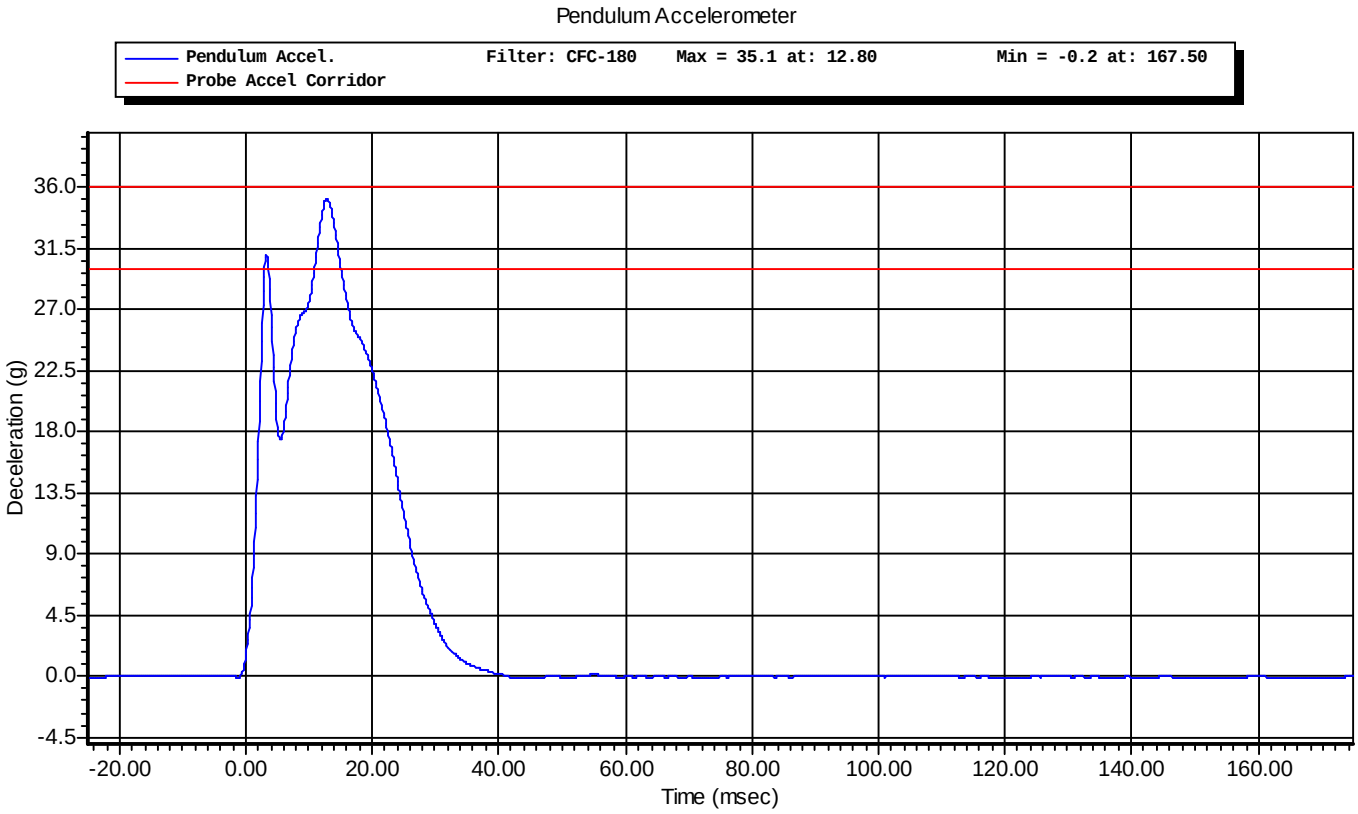
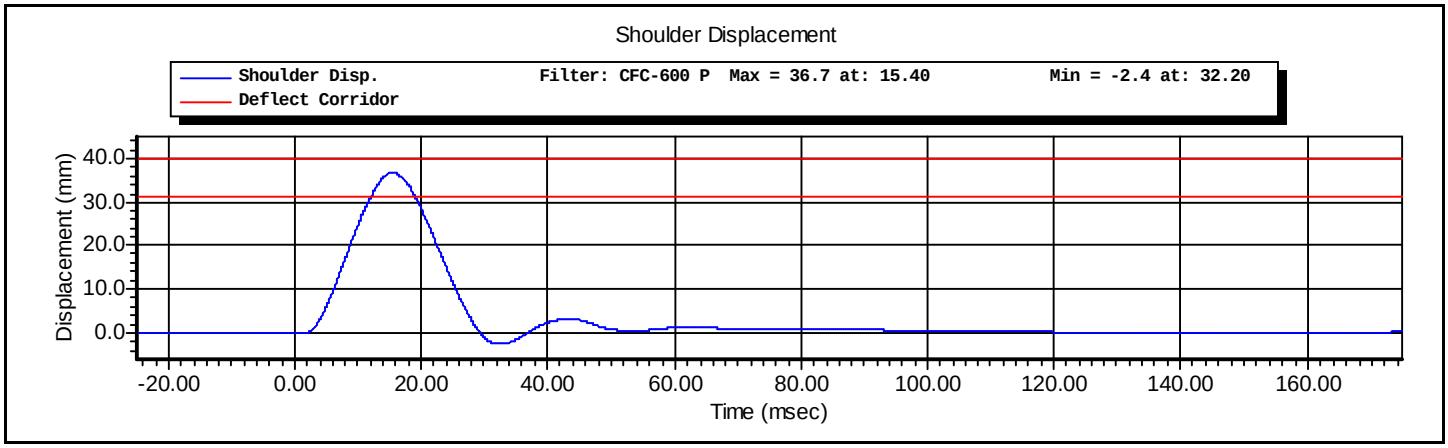
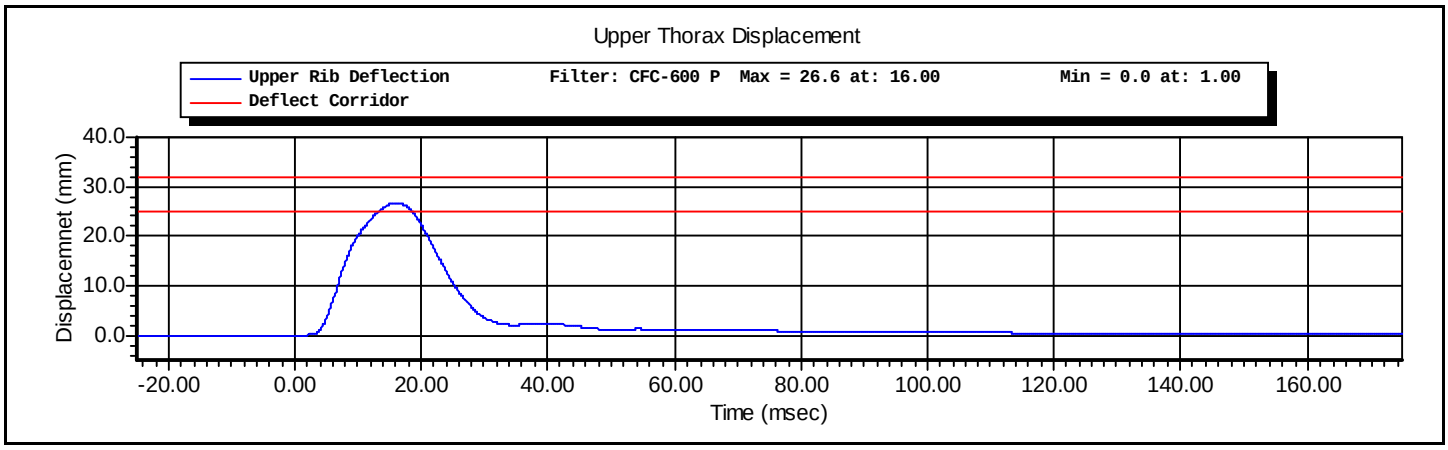
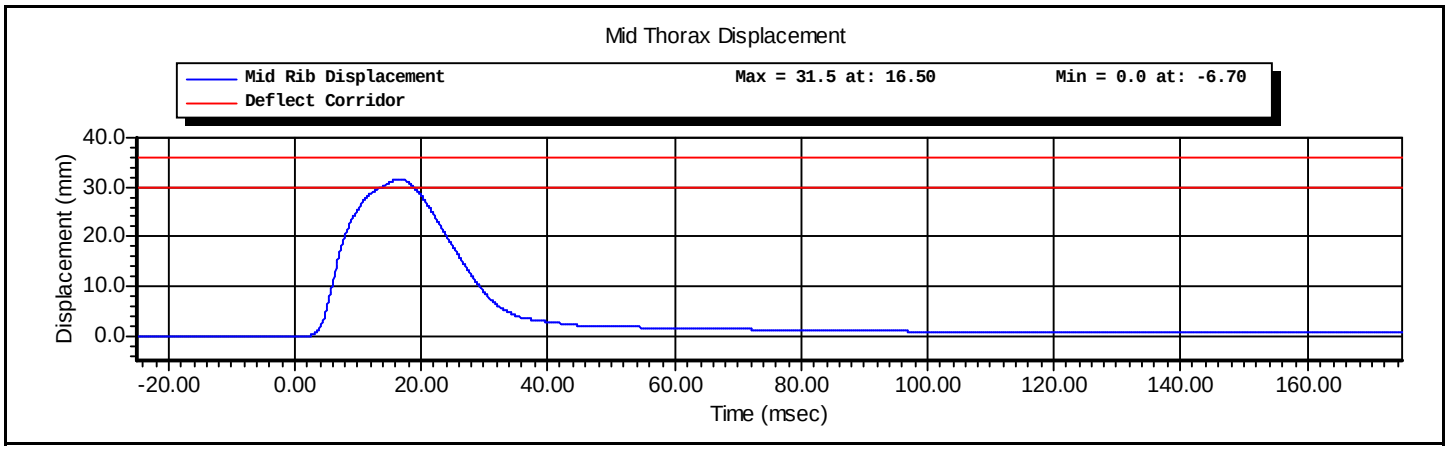
Test Name:	**Thorax Impact with Arm**	Revision:	**8/24/2009**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Thorax With Arm**	Test Date:	**11/4/2010**
Test Number:	**1**	Test Time:	**3:54:20 PM**

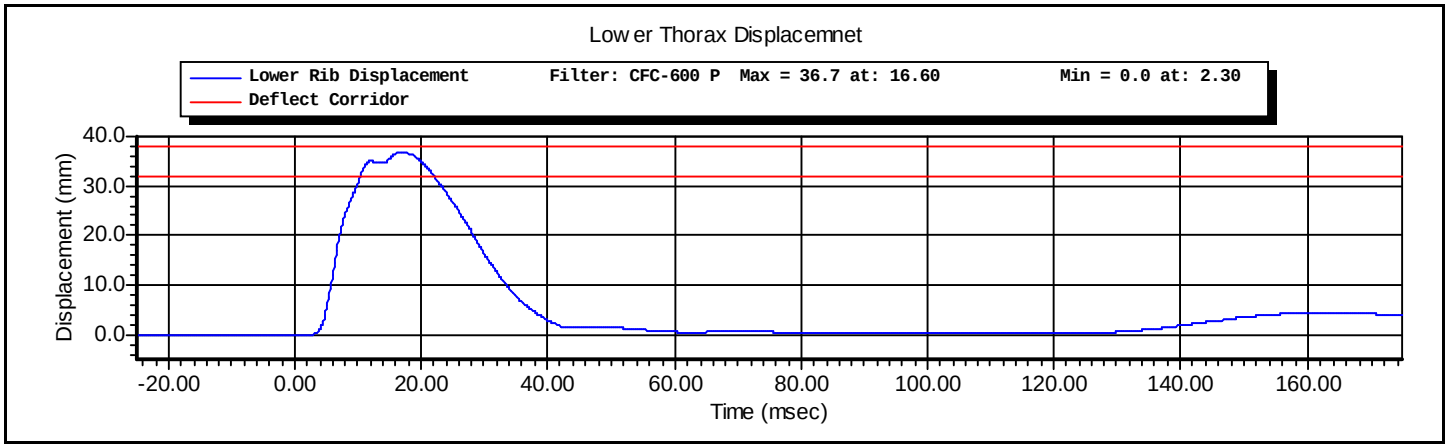


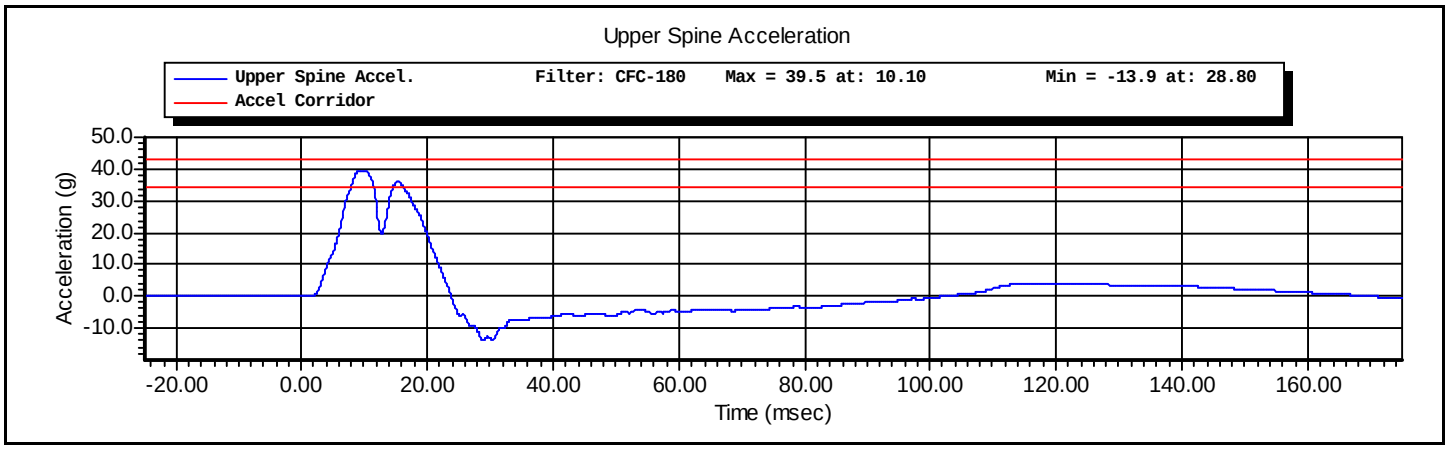


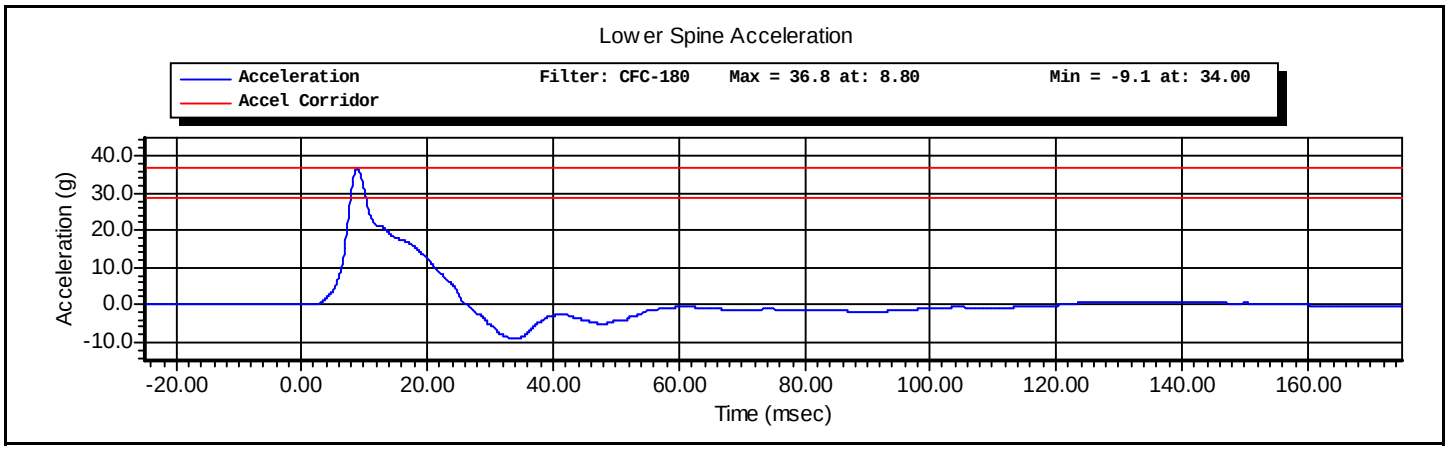




Test ID: **Thorax With Arm** Test Time: **3:54:20 PM** Test Date: **11/4/2010**







Test ID: **Thorax With Arm** Test Time: **3:54:20 PM** Test Date: **11/4/2010**

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VERIFICATION REPORT

Test Name:	**Abdominal Impact**	Revision:	**8/24/2009**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Abdomen**	Test Date:	**11/4/2010**
Test Number:	**1**	Test Time:	**2:53:45 PM**

Test Parameters	Test Specifications			Test Results		
Temperature	20.6	--	22.2	**21.4**	deg C	P
Humidity	10	--	70	**35**	%RH	P
Velocity	4.20	--	4.40	**4.32**	m/s	P
Probe Acceleration	12.0	--	16.0	**15.9**	g	P
Upper Abdominal Rib Deflection	36.0	--	47.0	**38.8**	mm	P
Lower Abdominal Rib Deflection	33.0	--	44.0	**34.8**	mm	P
Lower Spine Acceleration - T12	9.0	--	14.0	**12.3**	g	P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____

Supervisor: **D. Travale** Signature: _____

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
DentonATD	**Velocity Trap**	**1**	**1/11/2010**
Endevco	**7264-2000**	**P66930**	**10/5/2010**
Servo	**180-3885**	**DS-1162**	**4/7/2010**
Servo	**180-3885**	**DS-1232**	**4/7/2010**
Endevco	**7264-2000**	**P64147**	**9/20/2010**

Test ID: **Abdomen** Test Time: **2:53:45 PM** Test Date: **11/4/2010**

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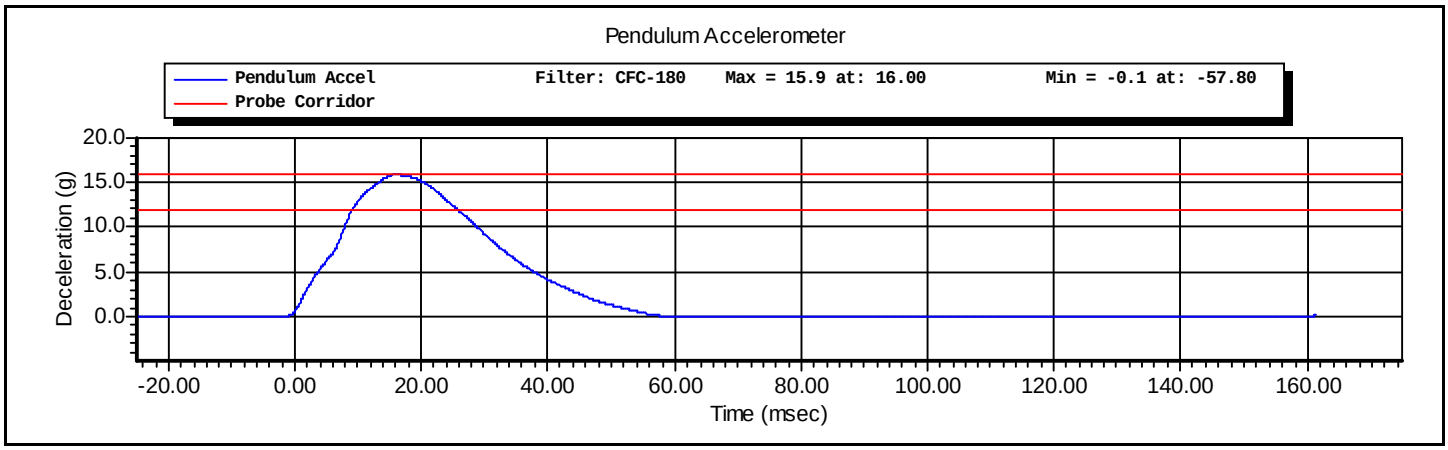
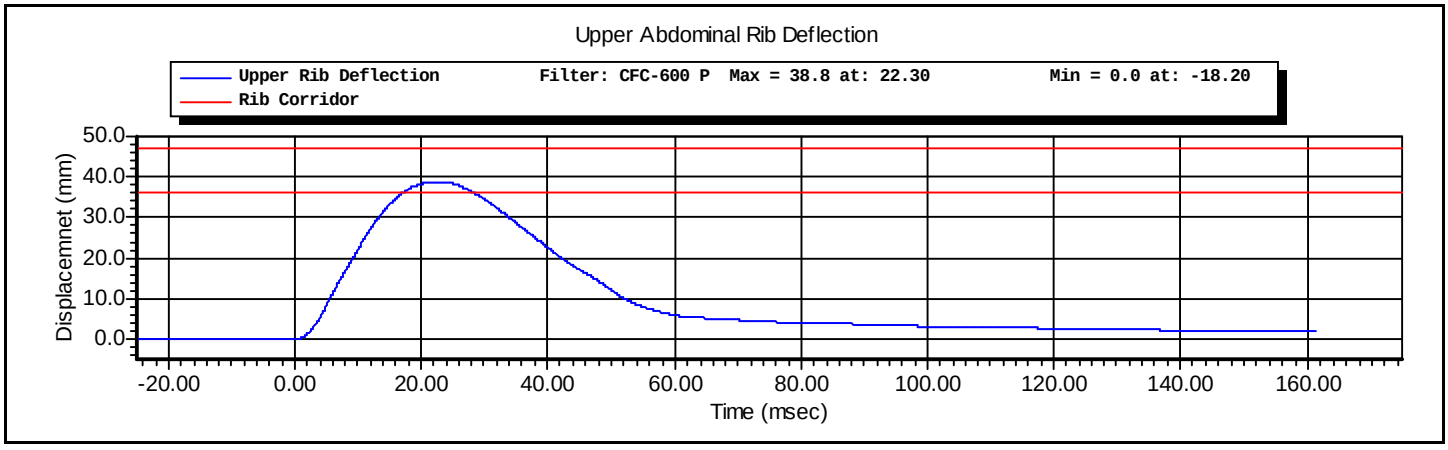
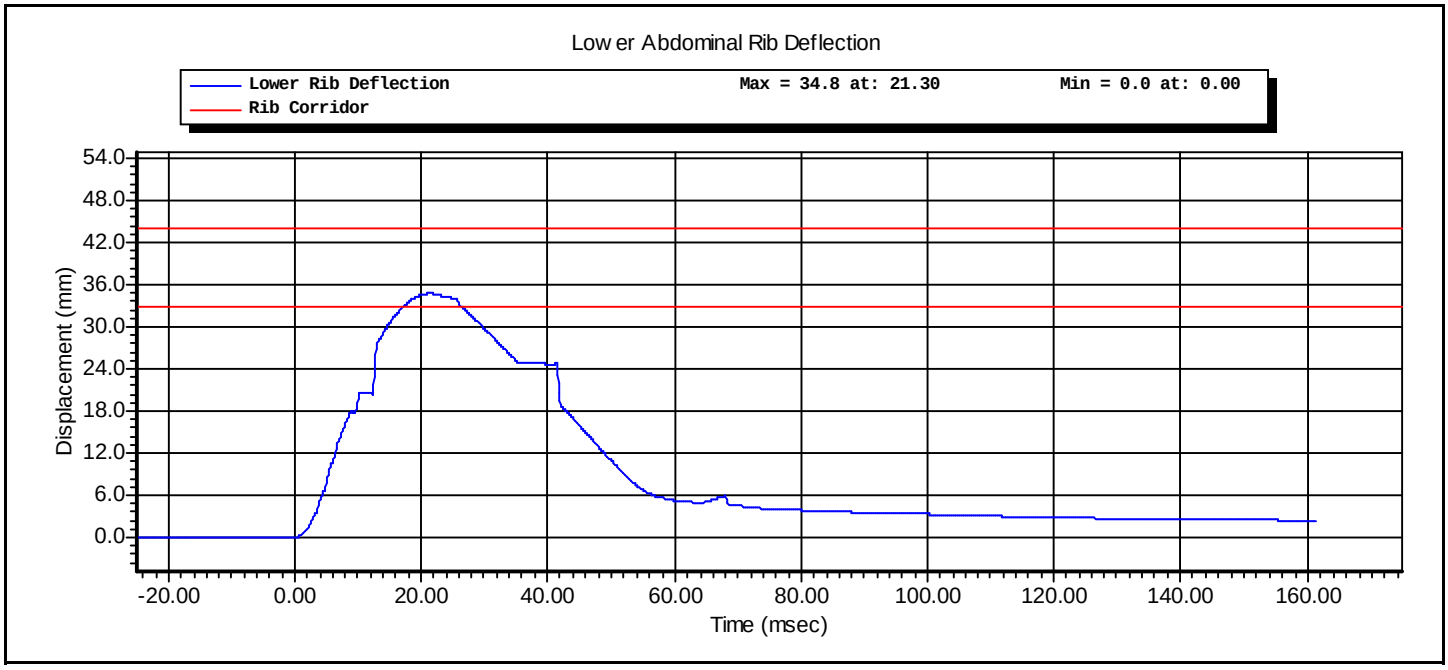
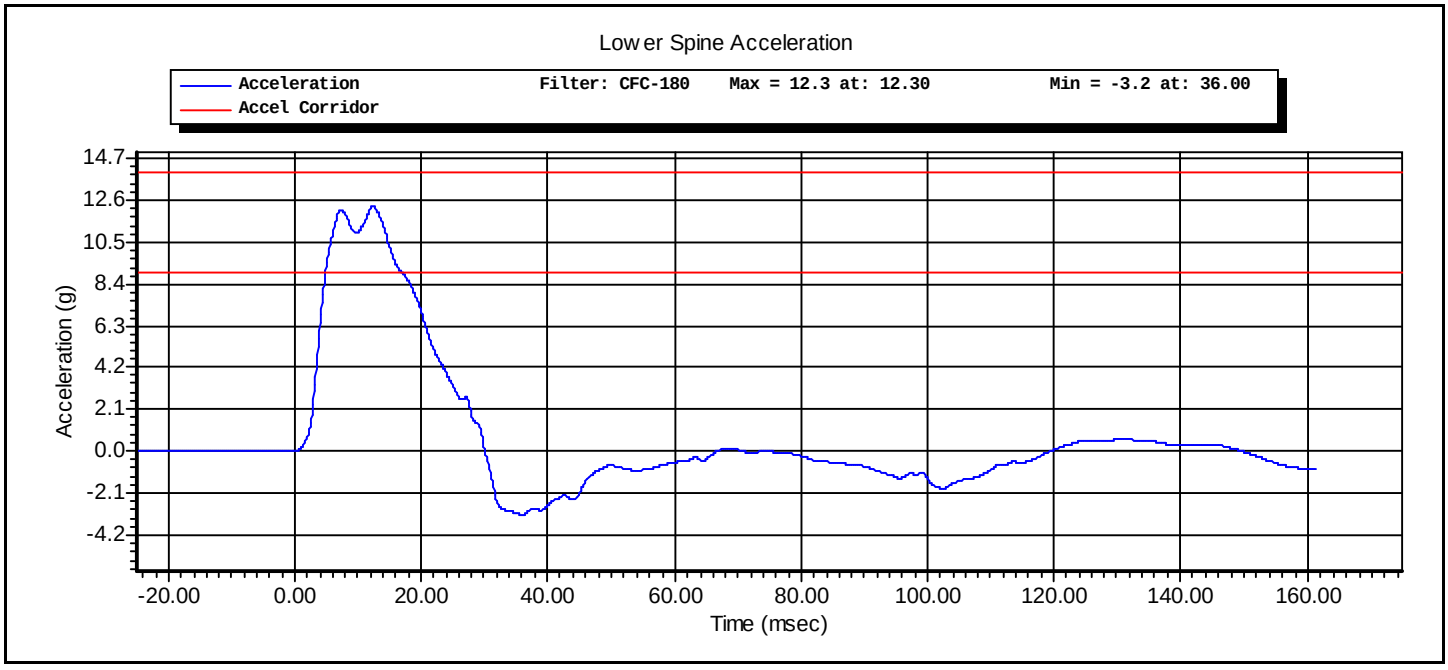
Test Name:	**Abdominal Impact**	Revision:	**8/24/2009**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Abdomen**	Test Date:	**11/4/2010**
Test Number:	**1**	Test Time:	**2:53:45 PM**









Test ID: **Abdomen** Test Time: **2:53:45 PM** Test Date: **11/4/2010**

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VERIFICATION REPORT

Test Name:	**Pelvis**	Revision:	**8/24/2009**
Sub Test Name:	**Iliac Impact**	Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Iliac Pelvis**	Test Date:	**11/5/2010**
Test Number:	**1**	Test Time:	**10:55:27 AM**

Test Parameters	Test Specifications			Test Results		
Temperature	20.6	--	22.2	**20.9**	deg C	P
Humidity	10	--	70	**35**	%RH	P
Velocity	4.20	--	4.40	**4.30**	m/s	P
Peak Probe Acceleration	36.0	--	45.0	**43.0**	g	P
Peak Pelvis Acceleration	28.0	--	39.0	**37.7**	g	P
Peak Iliac Force	4.10	--	5.10	**4.78**	kN	P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____

Supervisor: **D. Travale** Signature: _____

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
DentonATD	**Velocity Trap**	**1**	**1/11/2010**
Endevco	**7264-2000**	**P66930**	**10/5/2010**
Endevco	**7264-2000**	**P51671**	**10/12/2010**
DentonATD	**3228J**	**LC-279 Fy**	**4/12/2010**

Test ID: **Iliac Pelvis** Test Time: **10:55:27 AM** Test Date: **11/5/2010**

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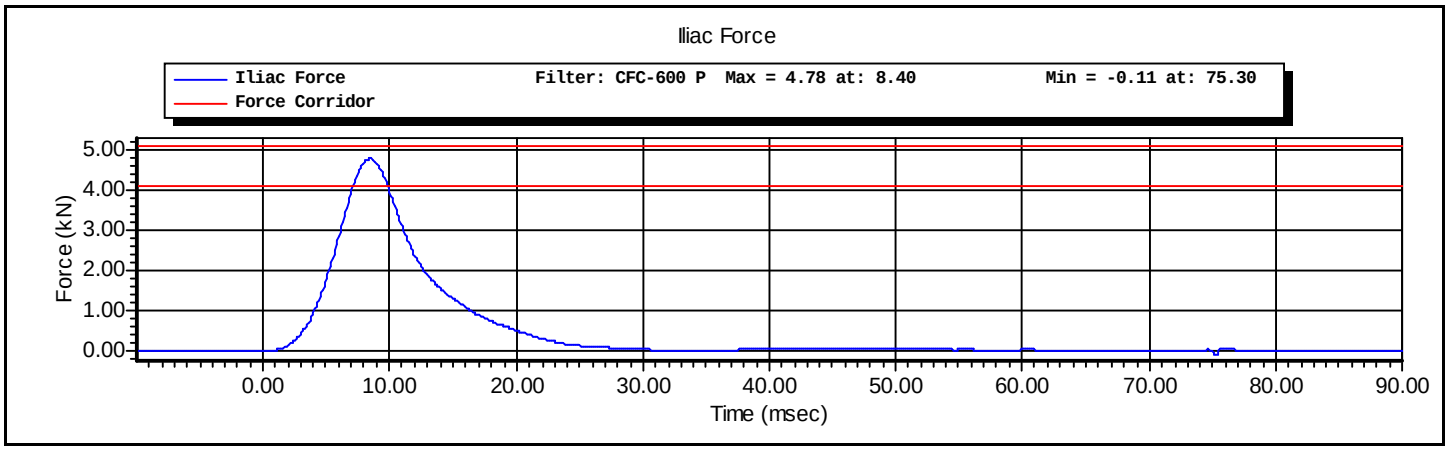
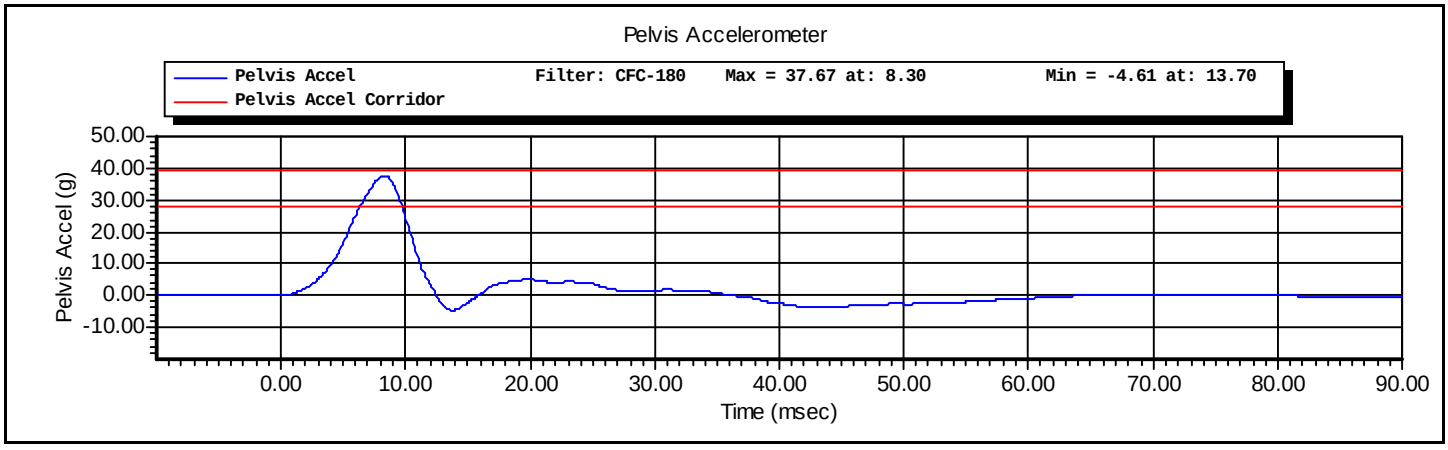
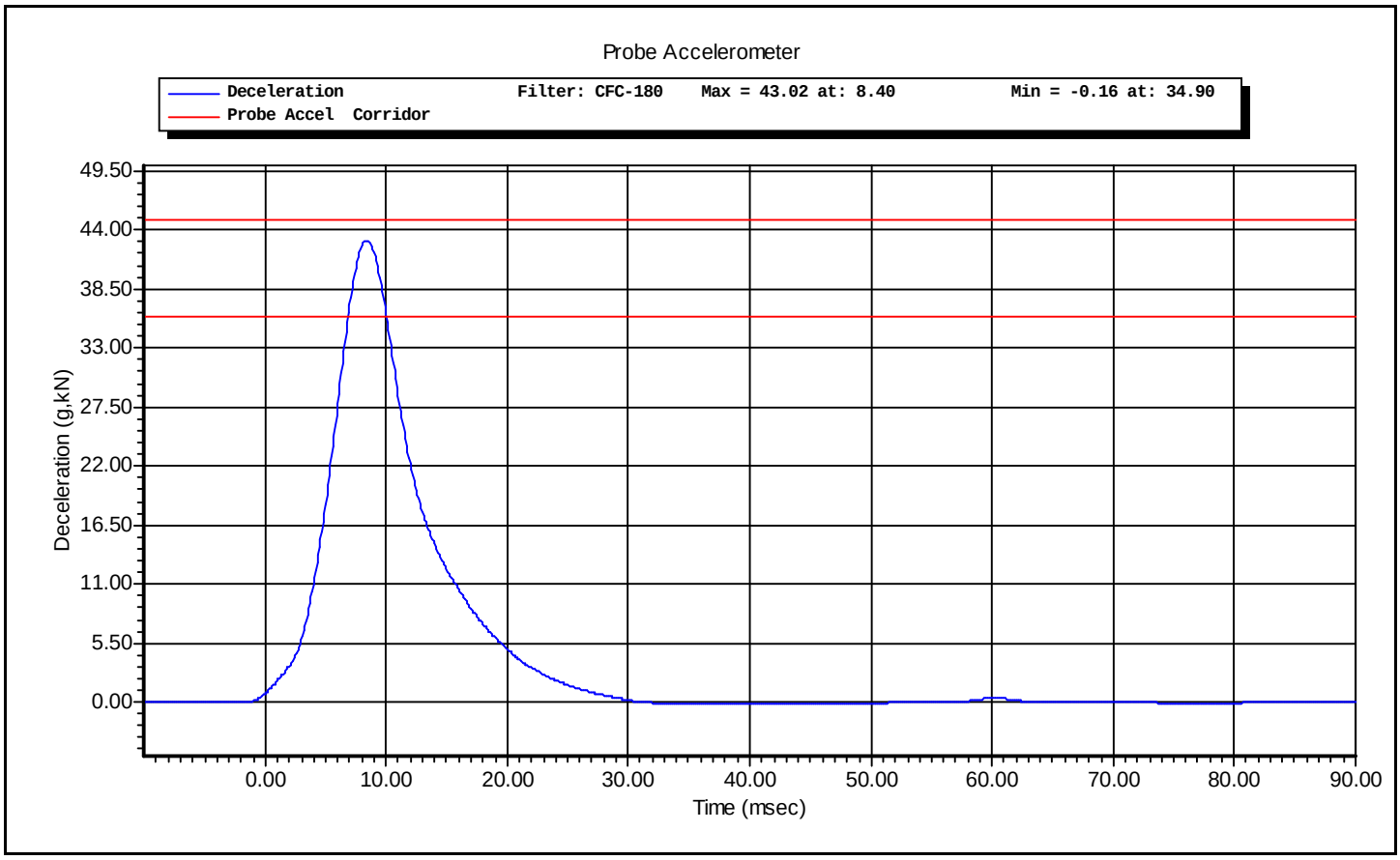
Test Name:	**Pelvis**	Revision:	**8/24/2009**
Sub Test Name:	**Iliac Impact**	Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Iliac Pelvis**	Test Date:	**11/5/2010**
Test Number:	**1**	Test Time:	**10:55:27 AM**







Test ID: **Iliac Pelvis** Test Time: **10:55:27 AM** Test Date: **11/5/2010**

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VERIFICATION REPORT

Test Name:	**Pelvis**	Revision:	**8/24/2009**
Sub Test Name:	**Acetabulum Impact**	Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Pelvis Acetabulum**	Test Date:	**11/4/2010**
Test Number:	**1**	Test Time:	**2:17:09 PM**

Comments:

Pelvis Plug Used for Certification:
FTSS S/N 12783
Force @ 3mm = 1494N

Pelvis Plug Used for Full Scale Test:
FTSS S/N 12742
Force @ 3mm = 1499N

Test Parameters	Test Specifications			Test Results		
Temperature	20.6	--	22.2	**21.1**	deg C	P
Humidity	10	--	70	**36**	%RH	P
Velocity	6.60	--	6.80	**6.62**	m/s	P
Peak Probe Acceleration	38.0	--	47.0	**45.3**	g	P
Peak Pelvis Acceleration	34.0	--	42.0	**40.1**	g	P
Peak Acetabulum Force	3.60	--	4.30	**3.98**	kN	P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____

Supervisor: **D. Travale** Signature: _____

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
DentonATD	**Velocity Trap**	**1**	**1/11/2010**
Endevco	**7264-2000**	**P66930**	**10/5/2010**
Endevco	**7264-2000**	**P51671**	**10/12/2010**
DentonATD	**3249J**	**LC-275a**	**4/12/2010**

Test ID: **Pelvis Acetabulum** Test Time: **2:17:09 PM** Test Date: **11/4/2010**

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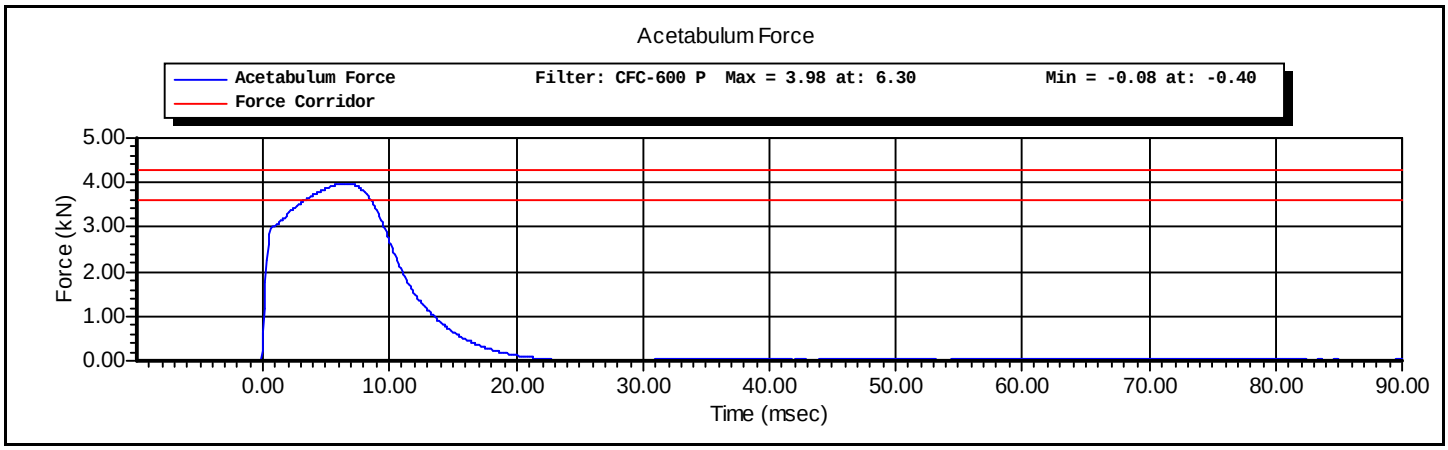
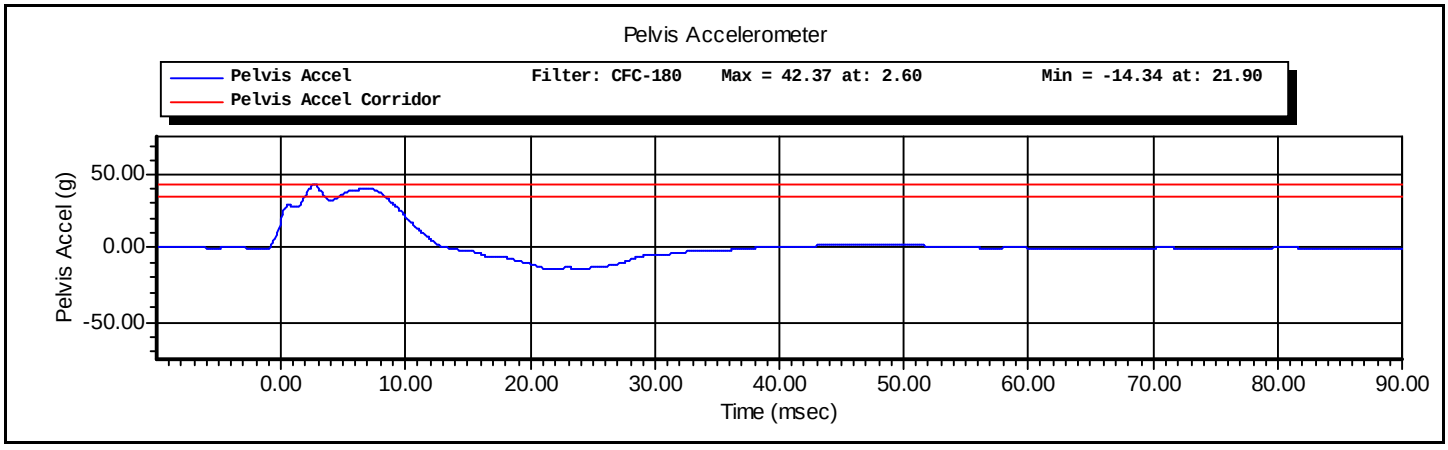
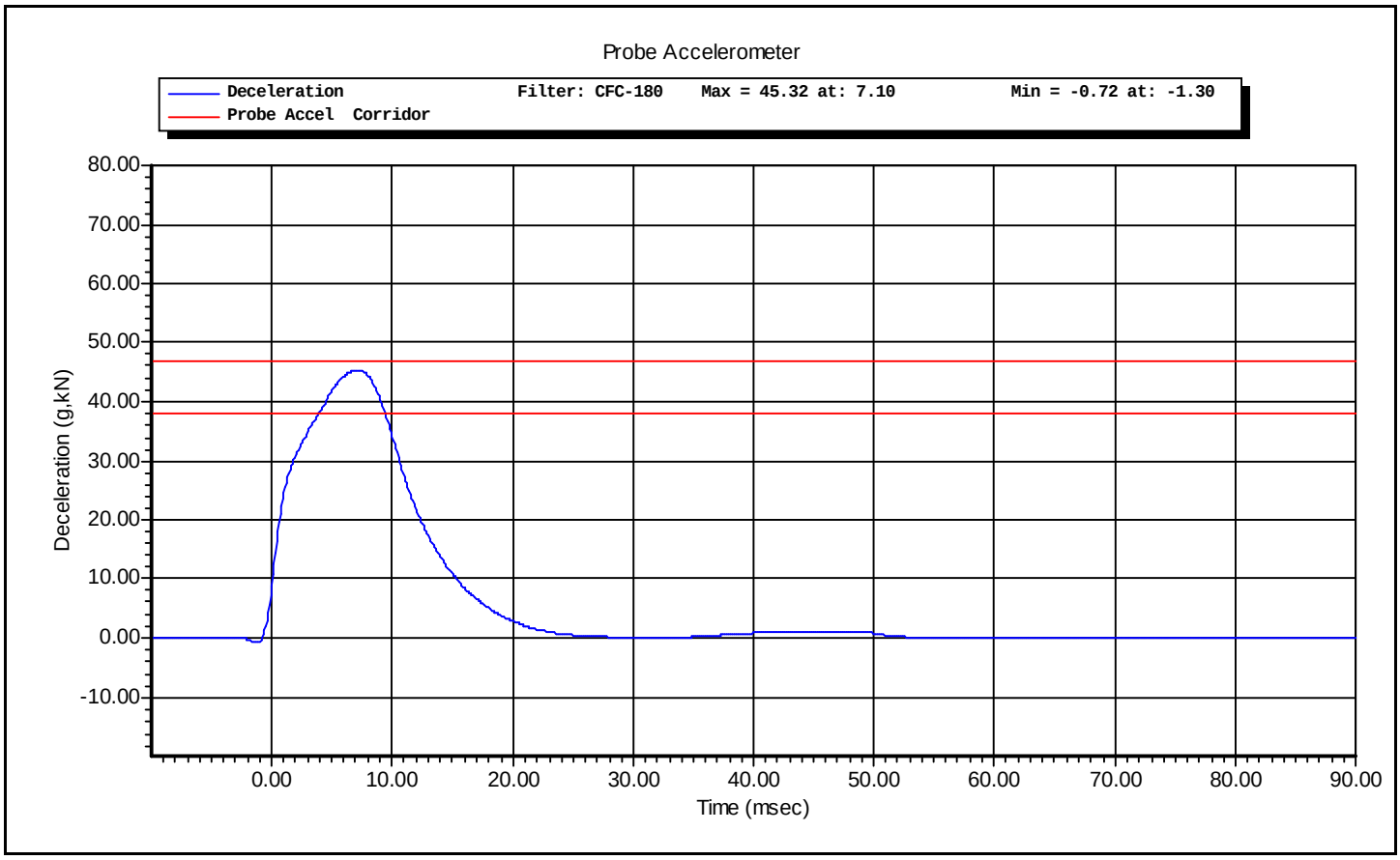
Test Name:	**Pelvis**	Revision:	**8/24/2009**
Sub Test Name:	**Acetabulum Impact**	Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Pelvis Acetabulum**	Test Date:	**11/4/2010**
Test Number:	**1**	Test Time:	**2:17:09 PM**

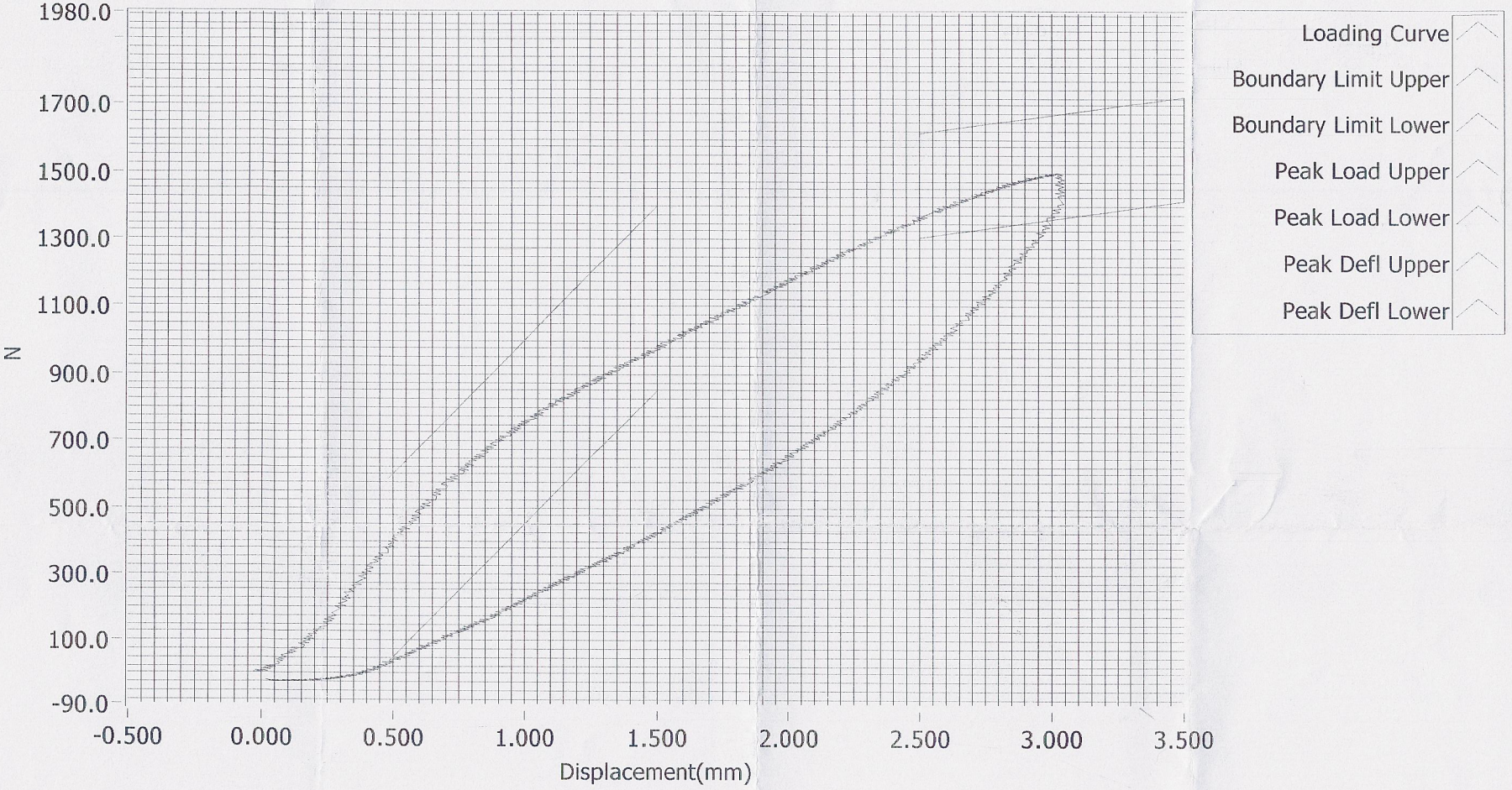






Test ID: **Pelvis Acetabulum** Test Time: **2:17:09 PM** Test Date: **11/4/2010**

Resultant Data - SIDIIs Plug Compression



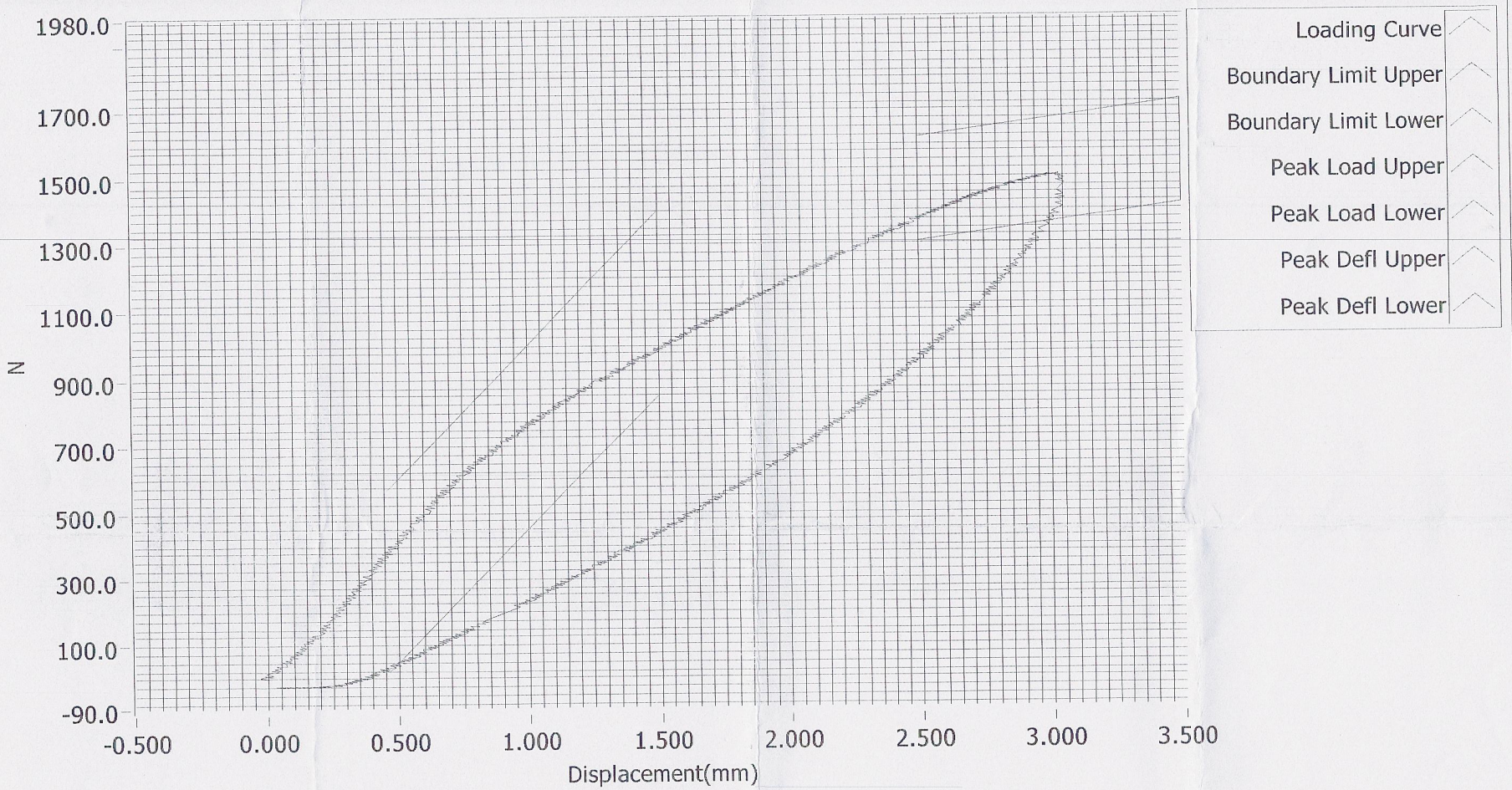
ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
		7/16/2007	3:31 PM
Cert ID	ATD Serial Number	ATD Type	
	12783	SIDIIs	

Current Date : 7/16/2007 Current Time : 15:32:18

C

Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
		7/16/2007	1:37 PM

Cert ID	ATD Serial Number	ATD Type
	12742	SIDIIs

Current Date : 7/16/2007 Current Time : 13:38:26

FS