

REPORT NUMBER: NCAPSIDE-MGA-2004-004

**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

**General Motors Corporation
2004 Cadillac SRX
NHTSA NUMBER: M40112**

**PREPARED BY:
MGA RESEARCH CORPORATION
5000 WARREN ROAD
BURLINGTON, WI 53105**



Test Date: February 18, 2004

Report Date: March 22, 2004

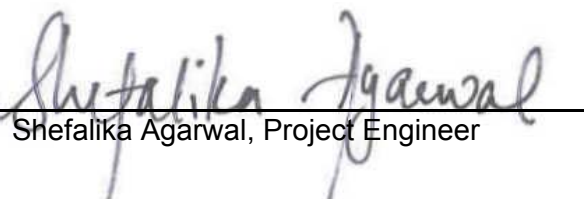
FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
RULEMAKING
OFFICE OF CRASHWORTHINESS STANDARDS
400 SEVENTH STREET, SW, ROOM 5311
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 DTNH22-03-D-12005.

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Date of Acceptance

Technical Report Documentation Page

1. Report No. NCAPSIDE-MGA-2004-004	2. Government Accession No. 	3. Recipient's Catalog No. 																						
4. Title and Subtitle Final Report of New Car Assessment Program Side Impact Testing of 2004 Cadillac SRX 4 Door NHTSA No.: M40112		5. Report Date March 22, 2004																						
		6. Performing Organization Code MGA																						
7. Author(s) Shefalika Agarwal, Project Engineer		8. Performing Organization Report No. NCAPSIDE-MGA-2004-004																						
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105		10. Work Unit No. 																						
		11. Contract or Grant No. DTNH22-03-D-12005																						
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Rulemaking, Office of Crashworthiness Standards 400 Seventh Street, SW, Room 5311 Washington, D.C. 20590		13. Type of Report and Period Covered: <i>Final Report</i> 2/18/04 to 3/22/04																						
		14. Sponsoring Agency Code NVS-111																						
15. Supplementary Notes 																								
16. Abstract A 55/28 km/h 90° Moving Deformable Barrier NCAP side impact was conducted on the subject 2004 Cadillac SRX 4 Door to obtain new car assessment and research data indicant of FMVSS No. 214D performance. The test was conducted at MGA Research Corporation, in Burlington, Wisconsin, on February 18, 2004. The impact velocity of the Moving Deformable Barrier (MDB) was 62.0km/h, and the ambient temperature at the struck side (driver's) of the vehicle was 21°C. The target vehicle's maximum post test static crush was 345 mm at level 1. The test vehicle's occupant performance is as follows: <table style="margin-left: auto; margin-right: auto; border: none;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>DRIVER</u></th> <th style="text-align: center;"><u>PASS.</u></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR) Accel., g</td> <td style="text-align: center;">41</td> <td style="text-align: center;">33</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td style="text-align: center;">42</td> <td style="text-align: center;">37</td> </tr> <tr> <td>Lower Spine (T₁₂) Accel., g</td> <td style="text-align: center;">48</td> <td style="text-align: center;">30</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td style="text-align: center;">45</td> <td style="text-align: center;">34</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td style="text-align: center;">53</td> <td style="text-align: center;">48</td> </tr> <tr> <td>HIC</td> <td style="text-align: center;">63</td> <td style="text-align: center;">121</td> </tr> </tbody> </table> The 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.					<u>DRIVER</u>	<u>PASS.</u>	Left Upper Rib (LUR) Accel., g	41	33	Left Lower Rib (LLR) Accel., g	42	37	Lower Spine (T ₁₂) Accel., g	48	30	Thoracic Trauma Index (TTI)	45	34	Pelvis (PEV) Accel., g	53	48	HIC	63	121
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HIC	63	121																						
17. Key Words New Car Assessment Program (NCAP) Side Impact Side Impact Hybrid III Dummy (SID/HIII) Occupant Side Impact Protection		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Adm. Technical Ref. Division, Room 5108 (NPO-230) 400 Seventh Street, S.W. Washington, D.C. 20590																						
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 228	22. Price 																					

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SECTION 1

PURPOSE AND TEST PROCEDURE

1.1 PURPOSE

This side impact test was conducted as part of the FY' 2004 test program sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-03-D-12005. The purpose of this test was to evaluate side impact protection in a 2004 Cadillac SRX 4 Door manufactured by General Motors Corporation.

1.2 TEST PROCEDURE

The side impact test was conducted in accordance with the Laboratory Test Procedure for New Car Assessment Program Side Impact Testing dated November 2002 and the corresponding MGA Research Corporation Test Procedure MGA-NHTSA5. The procedures for receiving, inspection, testing, and reporting of test results are described in the test procedures and are not repeated in this report.

MGA does not endorse or certify products. The manufacturer's name appears solely for identification purposes.

SECTION 2

SUMMARY OF NCAP SIDE IMPACT TEST

2.1 SUMMARY OF SIDE IMPACT TEST

A model year 2004 Cadillac SRX 4 Door 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 62.0 km/h. The specified impact velocity range is from 61.1 to 62.7 km/h. The test (target) vehicle was stationary and positioned 63° to the line of forward motion. The weight of the vehicle as tested was 2314.8 kg and the test weight of the MDB was 1361.2 kg. The test was conducted at MGA Research Corporation in Burlington, Wisconsin, on February 18, 2004.

One (1) real-time motion picture camera and nine (9) high-speed motion picture cameras were used to document the impact event. The pre-test and post-test conditions were recorded by one (1) real-time motion picture camera. Camera locations and pertinent camera information are documented in the data sheets. Pre- and post-test photographs of the vehicle and Side Impact Dummies (SID/HIILs) can be found in Appendix A. Two 50th percentile adult male SID/HIIL's were placed in the driver and left rear passenger designated seating positions according to instructions specified in the Laboratory Test Procedure for New Car Assessment Program Side Impact Testing dated November 2002. Each SID/HIIL was instrumented in the following locations:

- Left Upper Rib (LUR) uni-axial accelerometer (Y-axis primary and redundant)
- Left Lower Rib (LLR) uni-axial accelerometer (Y-axis primary and redundant)
- Lower Thoracic Spine (T12) uni-axial accelerometer (Y-axis primary and redundant)
- Pelvic (PEV) section uni-axial accelerometer (Y-axis primary and redundant)
- Head Center of Gravity (CG) tri-axial accelerometers (X, Y and Z axes primary and redundant)
- Upper Neck load cell (Fx, Fy, Fz, Mx, My, Mz)

The test vehicle was instrumented with twenty-five (25) structural accelerometers and the MDB was instrumented with six (6) accelerometers and two (2) contact switches on the bumper to compare left side to right side bumper impact timing. All data channels were recorded with a fully self contained on-board EME Data Acquisition System. The data was digitally sampled at 10,000 samples per second and processed per Appendix V of the Test Procedure.

2.2 GENERAL COMMENTS

The test vehicle sustained a maximum static crush of 345 mm at level 1, 1350 mm rearward of the left vertical impact point. The driver and passenger SID/HIIL's, Serial Nos. 271 and 904 respectively, were calibrated just prior to this test. The SID/HIIL's injury criteria are summarized as follows:

Measurements	Units	Driver	Passenger
Thoracic Trauma Index (TTI)	G's	45	34
Peak Pelvic G's (PEV)	G's	53	48
Head Injury Criteria (HIC)	none	63	121

Test summaries and post-test observations are presented in Section 3. The vehicle, camera, and occupant measurements are presented in Section 4. Appendix A contains the still photograph prints. Appendix B contains the driver and passenger SID/HIIL's, vehicle, and MDB response data traces. Appendix C contains the SID/HIIL's configuration and performance verification data. Appendix D contains the test equipment information.

TEST NOTES

There was no valid data collected for the following channel:

Left Front Sill Y

There was questionable data collected for the following channel:

Left Mid B-Post Y – No valid data after 15 msec.

Floorpan @ Rear Axle Z – No valid data after 57 msec.

SECTION 3

SIDE IMPACT HYBRID III DUMMY (SID/HIII) AND VEHICLE TEST DATA

Test Vehicle: 2004 Cadillac SRX 4 Door
Test Program: NCAP Side Impact

NHTSA No. M40112
Test Date: 02/18/04

CONVERSION FACTORS USED IN THIS REPORT*

Quantity	Typical Application	English Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4536
Linear Velocity	Impact Velocity	mile/h	km/h	1.609
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Volume	Small Fluids	oz	mL	29.573
Pressure	Tire Pressure	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

*Based on the Recommended Practice in SAE J916, May 85

DATA SHEET NO. 1**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2004 Cadillac SRX 4 Door
 Test Program: NCAP Side Impact

NHTSA No. M40112
 Test Date: 02/18/04

TEST VEHICLE INFORMATION

Make	Cadillac
Model	SRX 4 Door
Body Style	MPV
NHTSA No.	M40112
VIN	1GYDE637X40125747
Color	Cashmere
Delivery Date	2/04/04
Odometer Reading (mile)	225
Dealer	John Amato Cadillac
Transmission	Automatic
Final Drive	Overdrive
Number of Cylinders	6
Engine Displacement (L)	3.6
Engine Placement	Longitudinal
Automatic Door Locks (ADL)	Yes
Owner's Manual Details Instructions on Disabling ADLs	No

TEST VEHICLE OPTIONS

Front Airbag	Yes
Side Airbags	Yes
Power Windows	Yes
Power Steering	Yes
Power Door Locks	Yes
Tilt Wheel	Yes
Air Conditioning	Yes
Power Brakes	Yes
Disc Brakes, Front	Yes
Disc Brakes, Rear	Yes
Anti-lock Brakes	Yes
AM/FM/Clock	Yes
Anti-theft System	Yes
Cruise Control	Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	General Motors Corporation	GVWR (kg)	2675
Date of Manufacture	10/03	GAWR Front (kg)	1185
		GAWR Rear (kg)	1540

DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold / Test Pressure (kPa)	220	220
Recommended Tire Size	P235/65R17	P255/60R17
Tire Size on Vehicle	P235/65R17	P255/60R17
Tire Manufacturer	Good Year	Good Year

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench	N/A	
Number Of Occupants	2	3	0	5
Capacity Wt. (VCW) (kg)				477
Cargo Wt. (RCLW) (kg)				137

DATA SHEET NO. 1... (continued)**GENERAL TEST AND VEHICLE PARAMETER DATA**Test Vehicle: 2004 Cadillac SRX 4 DoorNHTSA No. M40112Test Program: NCAP Side ImpactTest Date: 02/18/04**TEST VEHICLE WEIGHTS**

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	510.3	493.5		555.7	628.7	
Right	kg	530.7	490.8		537.1	593.3	
Ratio	%	51.4	48.6		47.2	52.8	
Totals	kg	1041.0	984.3	2025.3	1092.8	1222.0	2314.8

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	2025.3
Weight of 2 P572E ATDs	kg	161.5
Rated Cargo/Luggage Weight (RCLW)	kg	136.1
Calculated Vehicle Target Weight (TVTW)	kg	2322.9

* Actual As Tested Weight (ATW) will be TVTW -5/-10 kg

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG(aft of front axle)
As Delivered	mm	811	812	825	826	1439
As Tested	mm	804	804	791	782	1563
Fully Loaded	mm	804	803	791	780	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2961
Total Vehicle Length at Left Side	mm	4170
Total Vehicle Length at Centerline	mm	4946
Total Vehicle Length at Right Side	mm	4170
Total Vehicle Width	mm	1880
Weight of Ballast in Cargo Area	kg	111.1
Amount of Stoddard Solvent in Fuel Tank	liters	71.7

TEST VEHICLE VERTICAL IMPACT LINE DATA

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2961
Target Impact Point Aft of Front Axle	mm	508
Actual Impact Point Aft of Front Axle	mm	512

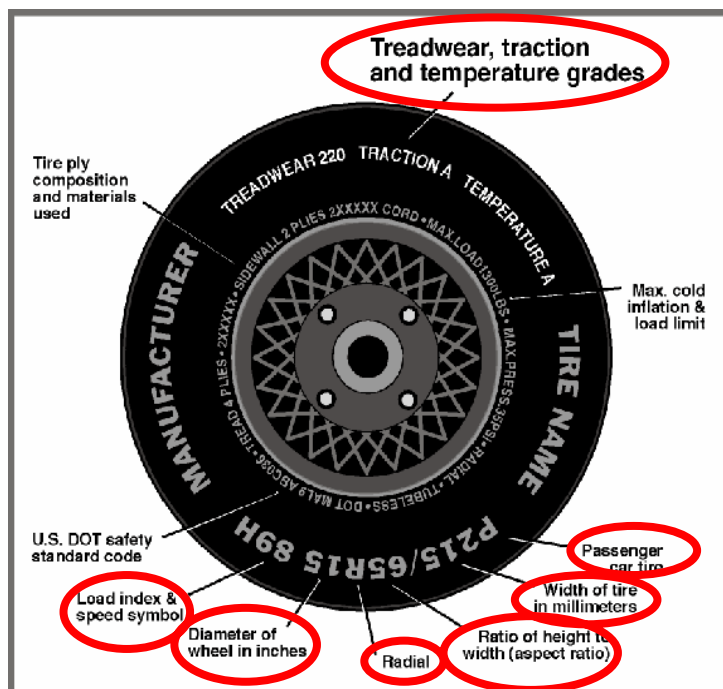
DATA SHEET NO. 2

TEST VEHICLE TIRE INFORMATION

Test Vehicle: 2004 Cadillac SRX 4 Door
Test Program: NCAP Side Impact

NHTSA No.: M40112
Test Date: 02/18/04

Vehicle Year	2004	Vehicle Make	Cadillac
VIN	1GYDE637X40125747	Vehicle Model	SRX 4 Door



	Front	Rear
Tire Manufacturer	Good Year	Good Year
Tire Name	Eagle	Eagle
Tire Type	Touring	Touring
Tire Width (mm)	235	255
Ratio of Height to Width (aspect ratio)	65	60
Radial	R	R
Wheel Diameter	17	17
Load Index & Speed Symbol	103H	103H
Treadwear	264	264
Traction Grade	A	A
Temperature Grade	A	A

DATA SHEET NO. 3

TEST VEHICLE INFORMATION

Test Vehicle: 2004 Cadillac SRX 4 Door
Test Program: NCAP Side Impact

NHTSA No. M40112
Test Date: 02/18/04

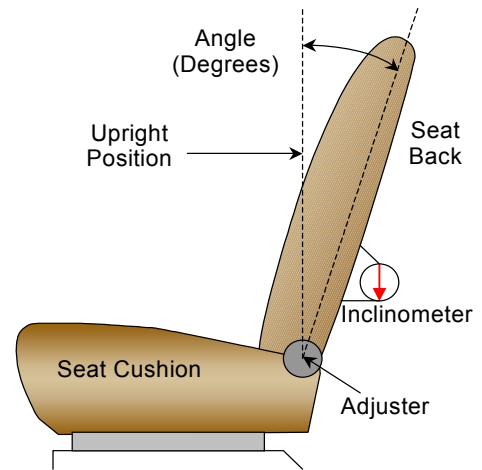
NORMAL DESIGN RIDING POSITION

The driver and passenger seat back is positioned to the manufacturer's designated angle. The procedure is as follows:

Set frame at Belt tower at 19 degrees.

Driver seat back angle: 19.2° on headrest post

Left Rear Passenger seat back angle: Non-adjustable



FRONT SEAT ASSEMBLY

SEAT FORE/AFT POSITIONS

Position of the driver's seat:

Fore/aft position – Mid; Vertical Position – Full down

Driver seat fore/aft total travel: 230 mm

Left Rear Passenger seat fore/aft total travel: 100 mm

Driver seat fore/aft position: 115 of 230 mm

Left Rear Passenger seat fore/aft position: 50 of 100 mm

DATA SHEET NO. 3... (continued)

TEST VEHICLE INFORMATION

Test Vehicle: 2004 Cadillac SRX 4 Door
Test Program: NCAP Side Impact

NHTSA No. M40112
Test Date: 02/18/04

FUEL TANK CAPACITY DATA

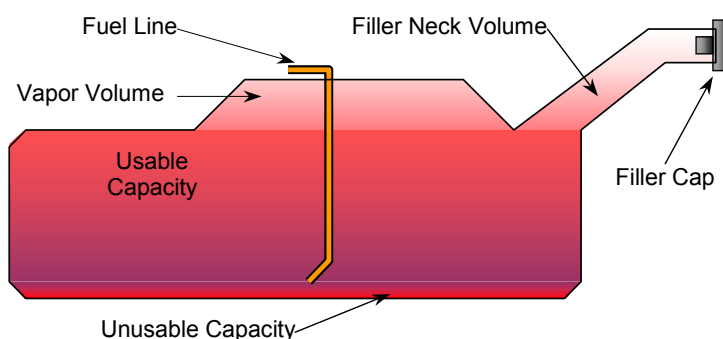
The "Usable Capacity" of the standard equipment fuel tank is: 75.2 liters

The "Usable Capacity" of any optional equipment fuel tank is: N/A liters

The "Usable Capacity" used for certification to FMVSS 301 requirements: 71.7 liters

Actual amount of Stoddard solvent added to vehicle for certification test: 71.7 liters

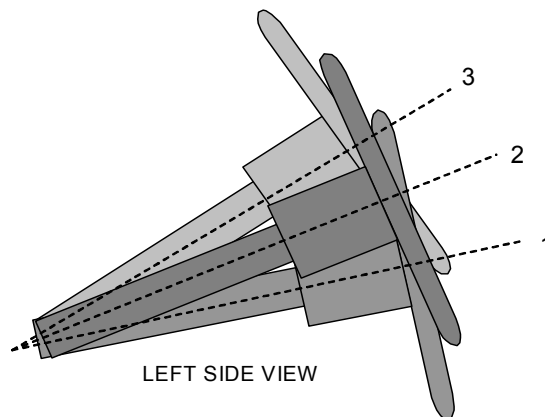
The fuel door is located on the right hand side of the car.



VEHICLE FUEL TANK ASSEMBLY

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 it is moved through its full range of driving positions.



LEFT SIDE VIEW

STEERING COLUMN ASSEMBLY

To establish test position set it to full up first and then three notches to locate the mid position

Lowermost, position 1: 10.1°

Geometric center, position 2: 25.3°

Uppermost. Position 3: 35.6°

DATA SHEET NO. 4
TEST VEHICLE SUMMARY OF RESULTS

Test Vehicle: 2004 Cadillac SRX 4 Door
 Test Program: NCAP Side Impact

NHTSA No. M40112
 Test Date: 02/18/04

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	510.3	493.5		555.7	628.7	
Right	kg	530.7	490.8		537.1	593.3	
Weight Ratio	%	51.4	48.6		47.2	52.8	
Totals	kg	1041.0	984.3	2025.3	1092.8	1222.0	2314.8

MAXIMUM EXTERIOR STATIC CRUSH

Level	Measured Parameter	Units	Maximum Crush	Above Ground
Level 1	Sill Top Height	mm	345	359
Level 2	Occupant H-Point	mm	306	612
Level 3	Mid Door	mm	291	715
Level 4	Window Sill	mm	176	1045
Level 5	Window Top	mm	28	1526
N/A	Maximum Penetration	mm	345	359

INSTRUMENTATION

Driver SID/HII Instrumentation	22
Passenger SID/HII Instrumentation	22
Vehicle Structure Accelerometers	25
MDB Accelerometers	6
Total	75

DATA SHEET NO. 5**MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS**

Test Vehicle: 2004 Cadillac SRX 4 Door
 Test Program: NCAP Side Impact

NHTSA No. M40112
 Test Date: 02/18/04

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1252
Overall Length Including Honeycomb Face	4115
Wheel base of Framework Carriage	2587
C.G. Location aft of Front Axle	1103

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	449.4	239.9	
Right	kg	331.3	340.6	
Ratio	%	57.4	42.6	
Totals	kg	780.7	580.5	1361.2

SPEED AND IMPACT ANGLE DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	62.0
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.0
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	89.8

MAXIMUM STATIC CRUSH OF HONEYCOMB FACE

Vertical Location			From Centerline		Max. Crush
Level	Description	Height	Distance	Direction	
1	Center of Bumper (mm)	432	800	Left	176
2	Top of Bumper (mm)	533	800	Left	151
3	Mid Level (mm)	686	800	Left	142
4	Top of Stack (mm)	813	800	Left	163

MDB INSTRUMENTATION AND CAMERAS

Accelerometers	6
Contact Switches	2
High Speed Cameras	2

DATA SHEET NO. 6
POST TEST OBSERVATIONS

Test Vehicle: 2004 Cadillac SRX 4 Door
Test Program: NCAP Side Impact

NHTSA No. M40112
Test Date: 02/18/04

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat SID/HIII	Rear Seat SID/HIII
Dummy Type / Serial No.	SID/HIII / 271	SID/HIII / 904
Head Contact	Curtain Airbag, Headrest	Curtain Airbag, Headrest, C-Pillar
Upper Torso Contact	Side Airbag	Door Panel
Lower Torso Contact	Side Airbag	Door Panel
Left Knee Contact	Door Panel	Door Panel
Right Knee Contact	Left Knee	Left Knee

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Locked/Unlocked Doors	Doors were locked	Doors were locked
Left Side Door Opening	Door remained closed and latched	Door remained closed and latched
Right Side Door Opening	Door remained closed and latched; Door opened without tools	Door remained closed and latched; Door opened without tools
Seat Movement	0	0
Seat Back Failure	None	None

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No Separation
Sill Separation	None
Windshield Damage	None
Window Damage	Left Rear
Other Notable Effects	The MDB cart bumper came off. There were top door openings seen on the struck side.

AIRBAG DEPLOYMENT

	Driver	Front Passenger	Rear Passenger
Front	No	No	N/A
Side (Torso Bag)	Yes	No	N/A
Curtain	Yes	No	Yes

MDB LEFT EDGE IMPACT POINT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	4 mm rear
Vertical Offset	mm	+/-20	13 mm up

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 7

SID/HIII INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2004 Cadillac SRX 4 Door
Test Program: NCAP Side Impact

NHTSA No. M40112
Test Date: 02/18/04

THORAX AND PELVIS PEAK ACCELERATIONS (FIR 100 Filtered)

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Upper Rib (LUR)	Y	G's	40.5	34	-5.9	101	33.3	54	-1.9	170
Upper Rib (LUR) (R)	Y	G's	39.5	34	-5.7	101	34.3	55	-2.3	141
Lower Rib (LLR)	Y	G's	42.1	34	-7.4	89	37.4	57	-5.6	121
Lower Rib (LLR) (R)	Y	G's	42.4	34	-7.3	90	38.4	56	-6.1	121
Lower Spine (T ₁₂)	Y	G's	48.3	31	-10.6	69	30.1	54	-7.7	88
Lower Spine (T ₁₂) (R)	Y	G's	47.4	31	-10.5	69	28.8	54	-8.0	88
Pelvis (PEV)	Y	G's	53.0	30	-8.4	57	48.1	41	-8.4	110
Pelvis (PEV) (R)	Y	G's	52.3	30	-7.2	80	48.6	41	-9.1	105

THORACIC TRAUMA INDEX (TTI) AND PELVIC ACCELERATION (FIR 100 Filtered)

Location	Driver				Passenger			
	LLR	T ₁₂	TTI(g)	PEV(g)	LLR	T ₁₂	TTI(g)	PEV(g)
Rib, Spine, and Pelvis	42.1	48.3	45.2	53.0	37.4	30.1	33.8	48.1
Rib, Spine, and Pelvis (R)	42.4	47.4	44.9	52.3	38.4	28.8	33.6	48.6

HEAD CG PEAK ACCELERATIONS (SAE CLASS 1000 Filtered)

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	9.3	20	-14.5	66	4.1	37	-17.0	83
Head CG	Y	G's	24.1	62	-8.3	23	41.7	78	-5.3	48
Head CG	Z	G's	12.2	59	-7.4	22	6.7	45	-5.6	66
Head CG Resultant		G's	28.9	62			43.7	78		

HEAD INJURY CRITERIA (SAE CLASS 1000 Filtered)

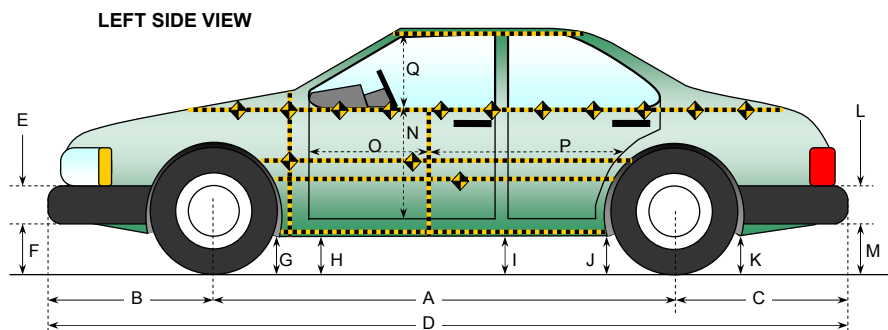
Location	Driver				Passenger			
	HIC	T ¹	T ²	Avg G's	HIC	T ¹	T ²	Avg G's
Head CG	62.6	46.1	80.2	20.2	120.5	69.3	88.8	32.8

Positive Acceleration Polarities: Longitudinal (X) = Forward
(Conforms to SAE J211) Lateral (Y) = Right
Vertical (Z) = Down

DATA SHEET NO. 8
VEHICLE PRE-TEST AND POST-TEST MEASUREMENTS

Test Vehicle: 2004 Cadillac SRX 4 Door
 Test Program: NCAP Side Impact

NHTSA No. M40112
 Test Date: 02/18/04



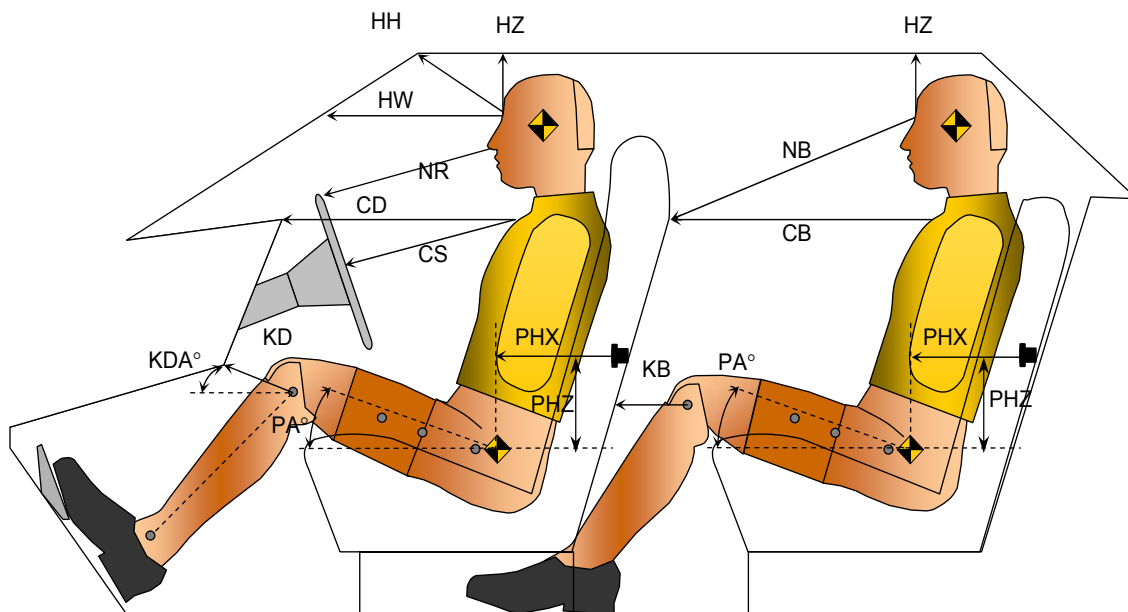
All Measurements in mm

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2961	2911	50
B	Front Axle to FSOV	875	890	-15
C	Rear Axle to RSOV	1110	1118	-8
D	Total Length at Centerline	4946	4919	27
E	Front Bumper Thickness	133	133	0
F	Front Bumper Bottom to Ground	484	501	-17
G	Sill Height at Front Wheel Well	269	283	-14
H	Sill Height at Front Door Leading Edge	267	246	21
I	Sill Height at "B" Pillar	247	222	25
J1	Sill Height at Rear Wheel Well	243	229	14
J2	Pinch Weld Height at Rear Wheel Well	245	243	2
K	Sill Height Aft of Rear Wheel Well	306	322	-16
L	Rear Bumper Thickness	221	221	0
M	Rear Bumper Bottom to Ground	408	412	-4
N	Sill Height to Window Bottom Sill	711	665	46
O	Front Door Leading Edge to Impact CL	751	712	39
P	Rear Door Trailing Edge to Impact CL	1311	1243	68
Q	Front Window Opening	460	478	-18
R	Right Side Length	4170	4171	-1
S	Left Side Length	4170	4110	60
T	Vehicle Width at "B" Post	1880	1532	348

DATA SHEET NO. 9
SID/HII LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2004 Cadillac SRX 4 Door
 Test Program: NCAP Side Impact

NHTSA No. M40112
 Test Date: 02/18/04

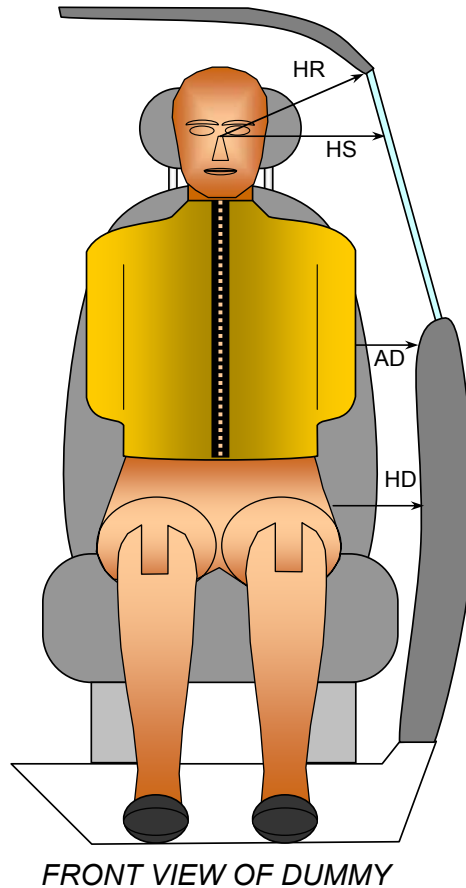


Driver Code	Pass. Code	Measurement Description	Driver 271		Passenger 904	
			Length(mm)	Angle(°)	Length(mm)	Angle(°)
HH		Head to Header	399			
HW		Head to Windshield	642			
HZ	HZ	Head to Roof	188		133	
NR	NB	Nose to Rim/Nose to Seatback	456		627	
CD	CB	Chest to Dash or Seatback	502		538	
CS		Chest to Steering Wheel	337			
KDL	KBL	Left Knee to Dash or Seatback	150	45.0	192	9.3
KDR	KBR	Right Knee to Dash or Seatback	151	44.1	202	15.5
PA	PA	Pelvic Angle		24.2		23.2
PHX	PHX	H-Point to Striker (X-Axis)	177		375	
PHZ	PHZ	H-Point to Striker (Z-Axis)	59		277	

DATA SHEET NO. 10
SID/IIII LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2004 Cadillac SRX 4 Door
 Test Program: NCAP Side Impact

NHTSA No. M40112
 Test Date: 02/18/04

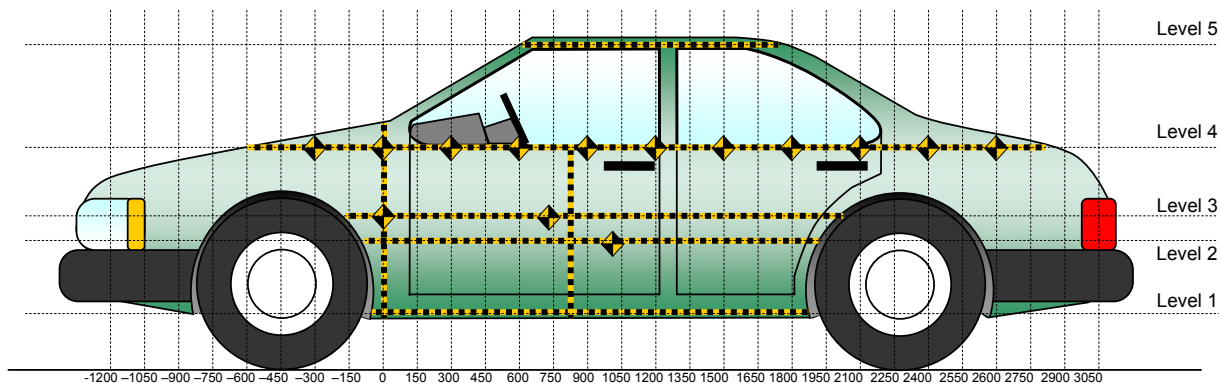


Code	Measurement Description	Units	Driver S/N 271	Passenger S/N 904
HR	Head to Side Header	mm	199	148
HS	Head to Side Window	mm	334	292
AD	Arm to Door	mm	122	86
HD	H-Point to Door	mm	138	101

DATA SHEET NO. 11 **VEHICLE SIDE MEASUREMENTS**

Test Vehicle: 2004 Cadillac SRX 4 Door
 Test Program: NCAP Side Impact

NHTSA No. M40112
 Test Date: 02/18/04



All Measurements Shown in mm

LEFT SIDE VIEW

Measurements are taken with vehicle in the as tested condition.
 Measurements along the vertical 800 mm.
 All measurements below in mm.

Level	Measurement Description	Height Above Ground
5	Window	1592
4	Window Sill	1045
3	Mid Door	715
2	Occupant H-Point	612
1	Sill Top	359

DATA SHEET NO. 12
VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2004 Cadillac SRX 4 Door
Test Program: NCAP Side Impact

NHTSA No. M40112
Test Date: 02/18/04

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900				301					279					-22	
-750				288					263					-25	
-600				275					267					-8	
-450				266					268					2	
-300				258					266					8	
-150			177	251				223	268				46	17	
0	186	185	187	246		274	247	242	276		88	62	55	30	
150	201	185	186	242		363	353	332	278		162	168	146	36	
300	199	184	184	239		403	398	394	293		204	214	210	54	
450	197	182	182	236		435	410	418	292		238	228	236	56	
600	196	181	180	233		459	425	432	292		263	244	252	59	
750	196	181	179	230		480	442	446	293		284	261	267	63	
900	196	181	178	228	481	493	455	456	298	364	297	274	278	70	-117
1050	196	181	179	228	481	513	471	470	308	366	317	290	291	80	-115
1200	197	182	179	226	483	527	475	457	323	371	330	293	278	97	-112
1350	198	185	181	227	485	543	491	469	403	376	345	306	288	176	-109
1500	198	186	184	228	485	523	491	474	389	470	325	305	290	161	-15
1650	199	189	185	231	488	493	486	469	378	453	294	297	284	147	-35
1800	202	192	188	236	491	430	459	437	347	428	228	267	249	111	-63
1950	195	191	191	240	494	307	360	377	303	405	112	169	186	63	-89
2100		178	181	245	498		267	284	280	526		89	103	35	28
2250				250	504				262	528				12	24
2400				255	508				289	529				34	21
2550				262	514				294	537				32	23
2700			179	270	521			206	304	540			27	34	19
2850			214	281	531			226	310	548			12	29	17
3000			239	295	544			249	309	558			10	14	14
3150			260	314				268	317				8	3	
3300			286					290					4		

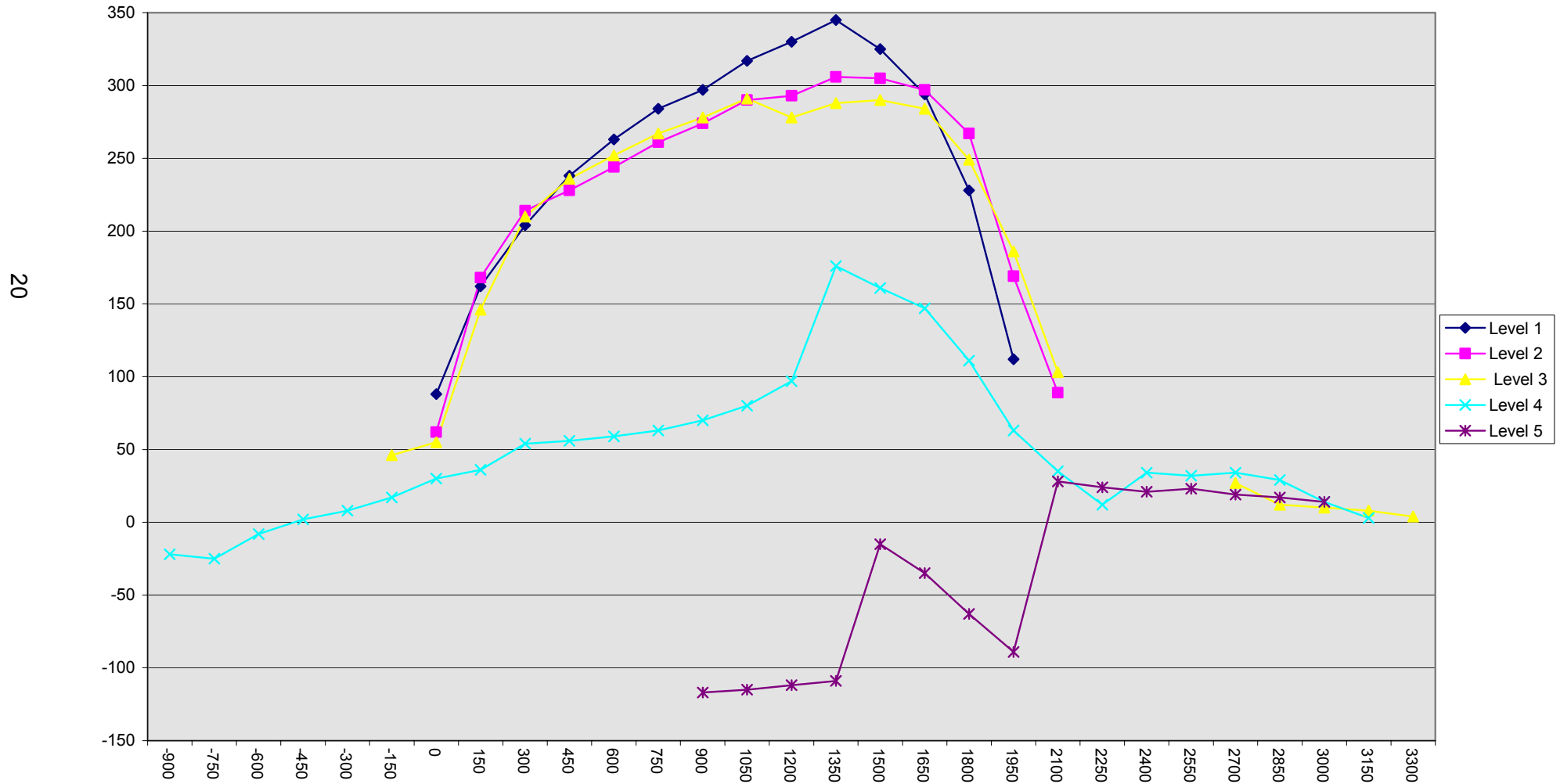
Reference plane is parallel to test vehicle longitudinal centerline.

Given dimensions = Reference plane to car body

DATA SHEET NO. 12...(continued)
VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2004 Cadillac SRX 4 Door
Test Program: NCAP Side Impact

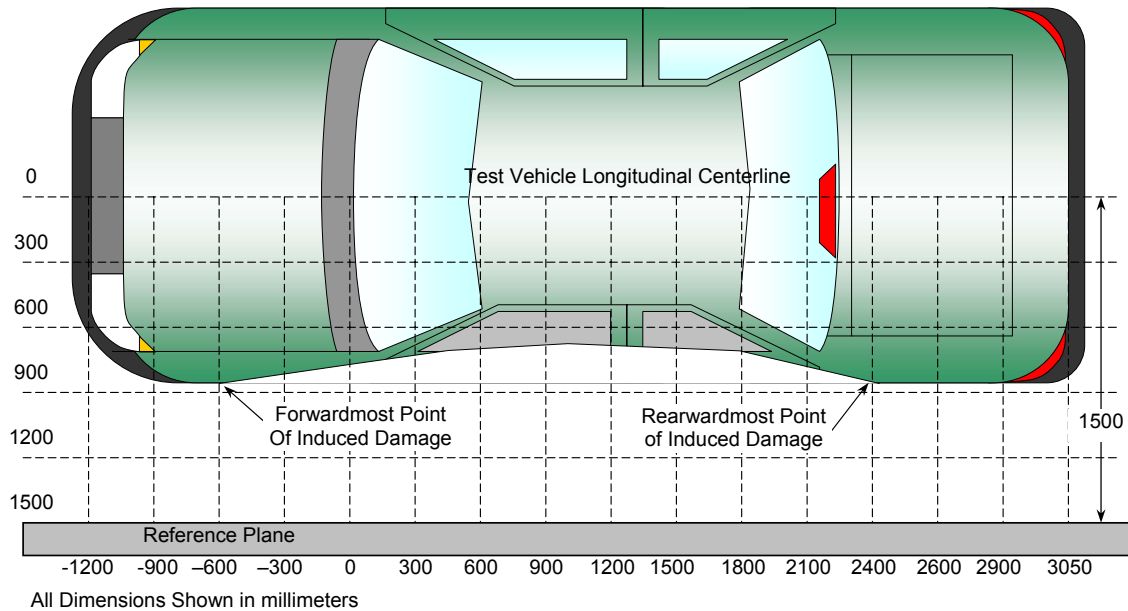
NHTSA No. M40112
Test Date: 02/18/04



DATA SHEET NO. 13 **VEHICLE DAMAGE PROFILE DISTANCES**

Test Vehicle: 2004 Cadillac SRX 4 Door
 Test Program: NCAP Side Impact

NHTSA No. M40112
 Test Date: 02/18/04



TOP VIEW

DAMAGE PROFILE DISTANCES

DPD	Distance from Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max Static Crush (mm)
1	3150 mm	4	314	317	3
2	2450 mm	4	257	299	42
3	1685 mm	2	190	486	296
4	965 mm	1	196	504	308
5	255 mm	2	184	400	216
6	-450 mm	4	266	268	2

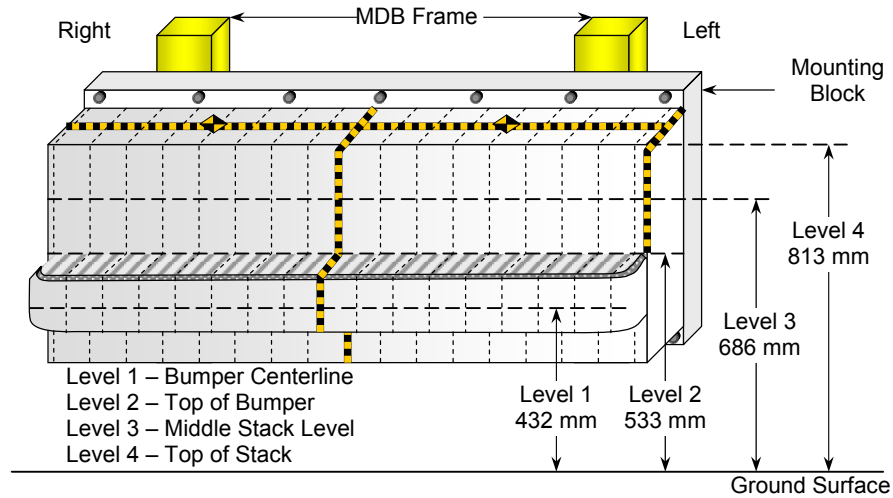
Reference plane is parallel to test vehicle longitudinal centerline.
 Given dimensions = Reference plane to car body.

DATA SHEET NO. 14

DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 2004 Cadillac SRX 4 Door
 Test Program: NCAP Side Impact

NHTSA No. M40112
 Test Date: 02/18/04



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	118	76	55	45	51	74	47	31	30	39	47	59	71	84	96	118	176
2	97	53	29	20	20	32	28	13	16	19	22	28	38	53	75	97	151
3	87	54	67	55	46	48	49	55	69	72	80	87	92	100	107	123	142
4	152	131	96	71	59	53	55	61	68	76	83	90	100	113	130	148	163

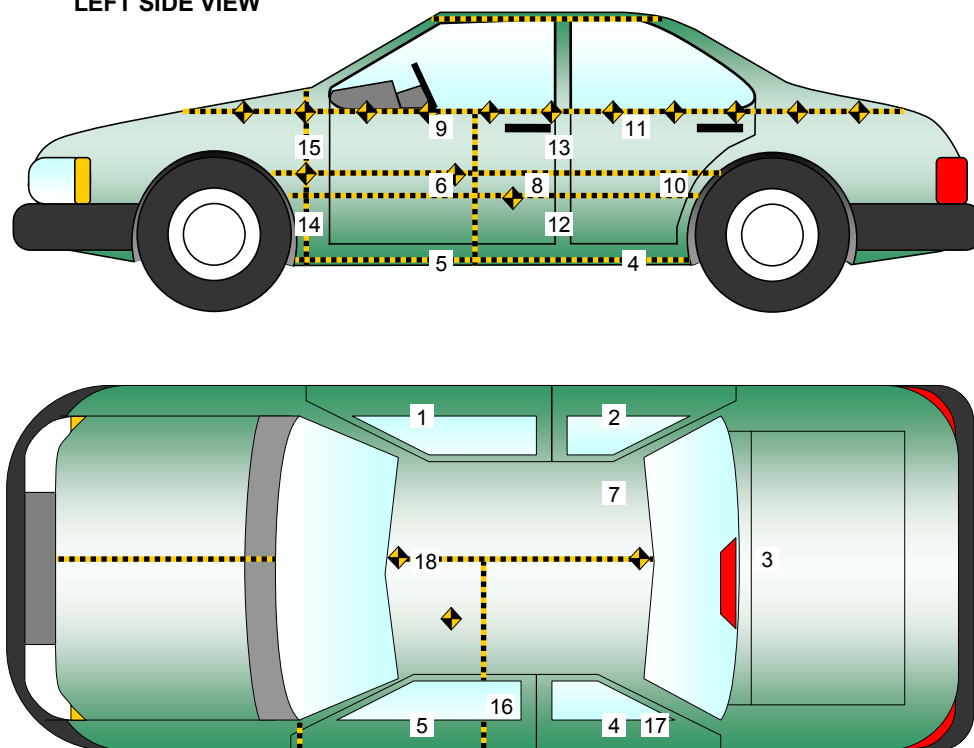
All Dimensions in mm

DATA SHEET NO. 15
VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Test Vehicle: 2004 Cadillac SRX 4 Door
 Test Program: NCAP Side Impact

NHTSA No. M40112
 Test Date: 02/18/04

LEFT SIDE VIEW



No.	Location
1	Right Sill at Front Seat
2	Right Sill at Rear Seat
3	Rear Floorpan Above Axle
4	Left Sill at Rear Door
5	Left Sill at Front Door
6	Left Front Door Centerline
7	Right Rear Occupant Compartment
8	Left Front Door Mid-Rear
9	Left Front Door Upper Centerline

No.	Location
10	Left Rear Door Mid-Rear
11	Left Rear Door Upper Centerline
12	Left Lower B-Post
13	Left Middle B-Post
14	Left Lower A-Post
15	Left Middle A-Post
16	Front Seat Track
17	Rear Seat Track or Structure
18	Vehicle CG

DATA SHEET NO. 15...(continued)

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2004 Cadillac SRX 4 Door
Test Program: NCAP Side Impact

NHTSA No. M40112
Test Date: 02/18/04

VEHICLE ACCELEROMETER PEAK DATA AND PRE-TEST LOCATIONS

Loc. No.	Accelerometer Location	Measurements (mm)			Peak Values (G's)				
		X	Y	Z	Axis	Max	Time	Min	Time
1	Right Sill at Front Seat	3395	720	295	X	1.9	6	-5.1	12
					Y	21.6	21	-2.0	99
					Z	5.4	68	-5.7	8
					RES	22.1	21		
2	Right Sill at Rear Seat	1763	720	305	X	1.2	73	-6.1	13
					Y	21.7	32	-2.0	100
					Z	4.8	100	-6.5	26
					RES	22.1	32		
3	Rear Floorpan Above Axle	1145	0	655	X	21.4	59	-23.5	43
					Y	26.8	43	-7.4	59
					Z	***	***	***	***
					RES	38.8	61		
4	Left Sill at Rear Door	1745	-752	307	Y	50.1	24	-23.0	29
5	Left Sill at Front Door	344	-760	297	Y	*	*	*	*
6	Left Front Door C/L	2793	-752	542	Y	160.9	5	-62.8	28
7	Rear Occupant Compartment	1942	377	445	Y	20.1	11	-4.8	61
8	Left Front Door Mid-Rear	2428	-745	782	Y	194.7	6	-98.2	13
9	Left Front Door Upper C/L	2821	-772	1058	Y	83.1	17	-36.1	38
10	Left Rear Door Mid-Rear	1663	-756	702	Y	143.7	4	-91.3	8
11	Left Rear Door Upper C/L	1825	-756	698	Y	189.2	15	-246.1	20
12	Left Lower B-Post	2232	-743	670	Y	231.8	4	-58.0	13
13	Left Middle B-Post	2232	-743	875	Y	**	**	**	**
14	Left Lower A-Post	3236	-770	585	Y	113.5	4	-18.3	13
15	Left Middle A-Post	3351	-815	970	Y	21.0	6	-6.7	41
16	Front Seat Track	15	615	450	Y	109.2	11	-53.5	28
17	Rear Seat Track or Structure				Y				
18	Vehicle CG	2520	20	550	X	6.9	24	-9.6	15
					Y	59.0	20	-15.4	29
					Z	20.5	24	-10.8	9
					RES	59.1	20		

* No Valid Data Collected

** No Valid Data collected after 15 msec.

See reference points on the following page. *** - No Valid Data collected after 57 msec

DATA SHEET NO. 15...(continued)

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2004 Cadillac SRX 4 Door
Test Program: NCAP Side Impact

NHTSA No. M40112
Test Date: 02/18/04

Reference Points X - Test Vehicle Rear Bumper (+ forward)
Y - Test Vehicle Centerline (+ to right)
Z - Ground Plane (+ down)

DATA SHEET NO. 16

MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY

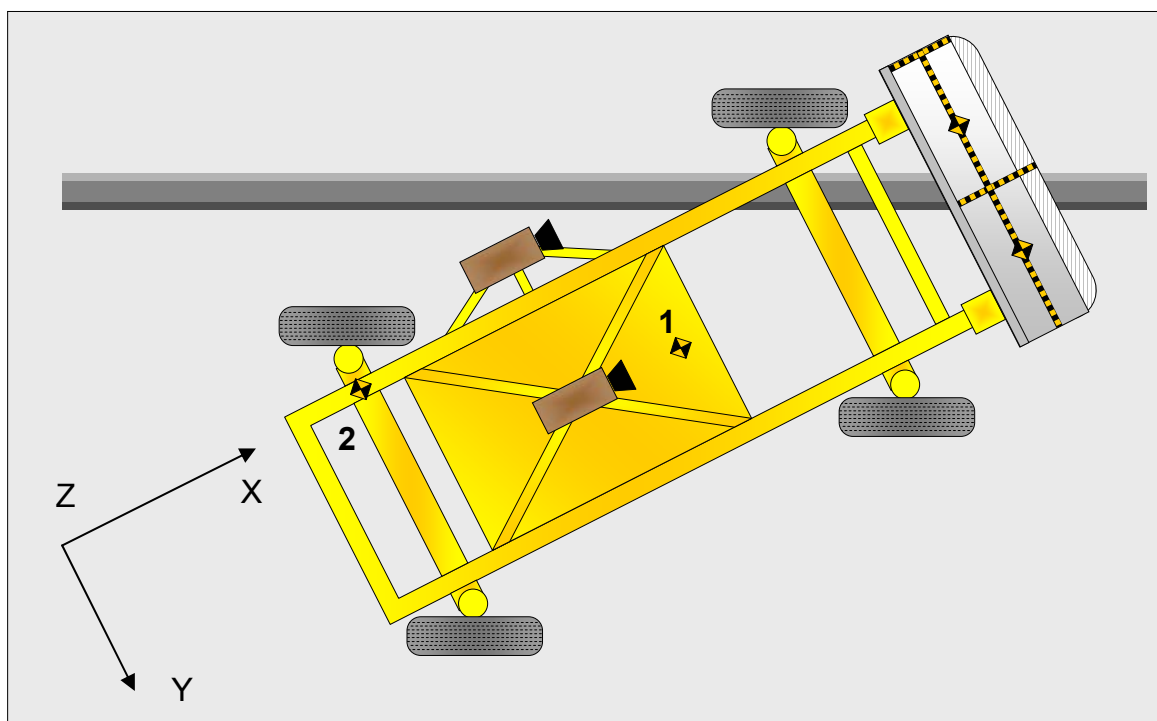
Test Vehicle: 2004 Cadillac SRX 4 Door
 Test Program: NCAP Side Impact

NHTSA No. M40112
 Test Date: 02/18/04

MDB ACCELEROMETER PEAK DATA AND LOCATIONS

Loc. No.	Accelerometer Location	Measurement (mm)			Peak Values (G's)				
		X	Y	Z	Axis	Max	Time	Min	Time
1	MDB CG	-1092	0	-483	X	1.5	134	-20.3	44
					Y	0.7	60	-6.4	40
					Z	17.0	12	-21.0	26
					RES	27.6	26		
2	MDB Rear	-2591	-625	-622	X	1.6	139	-23.6	42
					Y	5.4	26	-1.8	66
					Z	3.2	6	-4.3	10
					RES	24.1	42		

Reference Points X - MDB Front Axle (+ forward)
 Y - MDB Centerline (+ to right)
 Z - Ground Plane (+ down)



DATA SHEET NO. 17
VEHICLE STRUCTURAL MEASUREMENTS

Test Vehicle: 2004 Cadillac SRX 4 Door
Test Program: NCAP Side Impact

NHTSA No. M40112
Test Date: 02/18/04

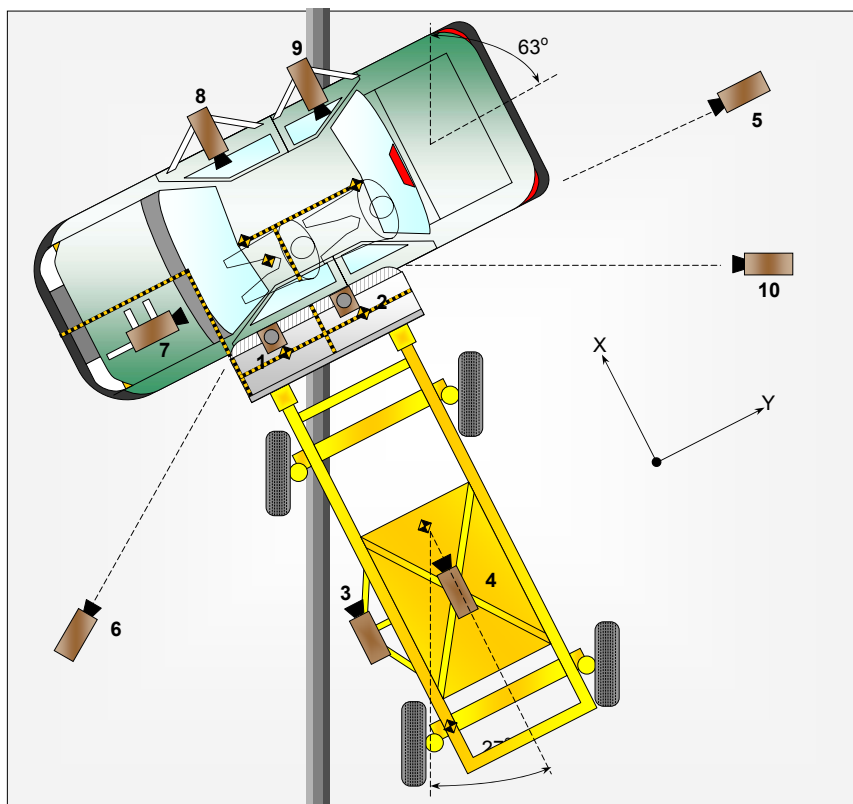
	Elements	Pre-Test (mm)
1	Total Length	4946
2	Total Width	1880
3	Bumper Top Height	620
4	Bumper Bottom Height	490
5	Longitudinal Member Top Height	340
6	Distance between Longitudinal Members	530
7	Longitudinal Member Width	85
8	Engine Top Height	978
9	Engine Bottom Height	220
10	Engine and gearbox width	655
11	Front bumper-engine distance	545
12	Front shock absorber fixing height	905
13	Bonnet leading edge height	860
14	Front shock absorber fixing width	915
15	Front bumper – front axle distance	875
16	Front axle – a pillar distance	705
17	A-pillar – B-pillar distance	1052
18	B-Pillar – rear axle distance	715
19	B-pillar – C-pillar distance	1195
20	Roof sill bottom height	1578
21	Roof sill top height	1620
22	Floor sill bottom height	338
23	Floor sill top height	388

DATA SHEET NO. 18

HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2004 Cadillac SRX 4 Door
 Test Program: NCAP Side Impact

NHTSA No. M40112
 Test Date: 02/18/04



No.	Camera View	Location (mm)			Lens (mm)	Film Speed (fps)
		X	Y	Z		
1	Overhead Overall	0	0	5000	8	*
2	Overhead Close-up	640	290	5000	13	1093
3	MDB Onboard, Impact Point Close-up				35	1005
4	MDB Onboard, Centerline of Impact				13	1031
5	Right Side, Ground Level, Overall	440	9703	1971	25	1026
6	Left Side, Ground Level, Overall	1845	-3406	1580	13	1026
7	Vehicle Onboard Front SID/HIII, Front				13	524
8	Vehicle Onboard Front SID/HIII, Side				10	515
9	Vehicle Onboard Rear SID/HIII, Side				13	513
10	Real Time Coverage				13	24

Reference Points X - Impact Line
 Y - MDB Left Edge Impact Point
 Z - Ground Plane

* no timing marks

DATA SHEET NO. 19
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Test Vehicle: 2004 Cadillac SRX 4 Door
Test Program: NCAP Side Impact

NHTSA No. M40112
Test Date: 02/18/04

Test Time: 1:10 pm

Temperature at Time of Impact: 21°C

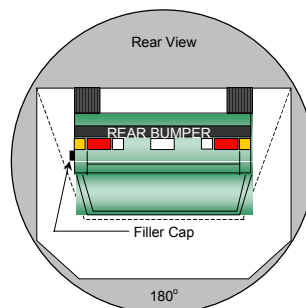
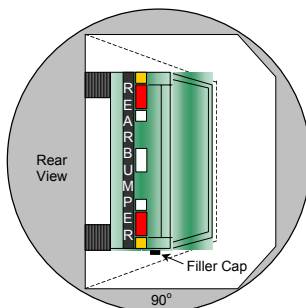
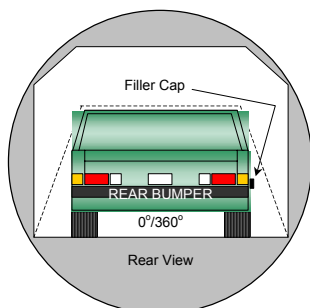
STODDARD SOLVENT SPILLAGE MEASUREMENTS

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

DATA SHEET NO. 20
FMVSS 301 STATIC ROLLOVER DATA SHEET

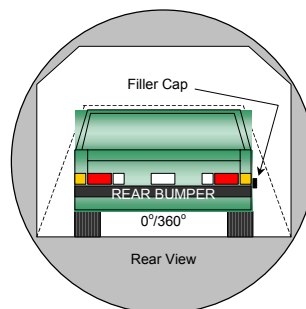
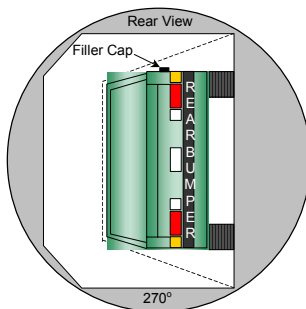
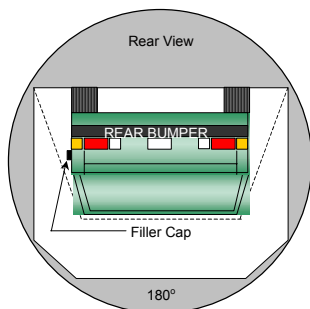
Test Vehicle: 2004 Cadillac SRX 4 Door
 Test Program: NCAP Side Impact

NHTSA No. M40112
 Test Date: 02/18/04



0° to 90°

90° to 180°



180° to 270°

270° to 360°

1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard Solvent Spillage locations: None

Rollover Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (oz.)
0° to 90°	164	300	0
90° to 180°	153	300	0
180° to 270°	140	300	0
270° to 360°	162	300	0

APPENDIX A
PHOTOGRAPHS

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A-1.



Left Front of Vehicle As Received

A-2.



Right Rear of Vehicle As Received



MFD BY GENERAL MOTORS CORP

10/03

GVWR	GAWR FRT	GAWR RR
2675KG(5897LB)	1185KG(2612LB)	1540KG(3395LB)

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR
VEHICLE SAFETY AND THEFT PREVENTION STANDARDS IN EFFECT ON
THE DATE OF MANUFACTURE SHOWN ABOVE.

1GYDE637X40125747 TYPE: M.P.V.

MODEL: EB26

EPAC	TIRE SIZE	SPEED RTG	RIM	COLD TIRE PRESSURE
FRT	P235/65R17	H	17X7.5J	220KPA(32PSI)
RR	P255/60R17	H	17X7.5J	220KPA(32PSI)
SPA	T145/70R17	M	17X4T	420KPA(60PSI)

SEE OWNER'S MANUAL  FOR MORE INFORMATION.



TIRE AND LOADING INFORMATION

SEATING CAPACITY | TOTAL 5 | FRONT 2 | CENTER 0 | REAR 3

The combined weight of occupants and cargo should never exceed 477 kg or 1052 lbs.

ORIGINAL TIRE SIZE	COLD TIRE INFLATION PRESSURE	
P235/65R17	FRONT	220 kPa, 32 PSI
P255/60R17	REAR	220 kPa, 32 PSI
T145/70R17	SPARE	420 kPa, 60 PSI

**SEE OWNER'S
MANUAL FOR
ADDITIONAL
INFORMATION**

Tire Placard



Pre-Test Front View of Test Vehicle



Post-Test Front View of Test Vehicle



Pre-Test Left Side View of Test Vehicle



Post-Test Left Side View of Test Vehicle

A-9.



Pre-Test Right Side View of Test Vehicle



Post-Test Right Side View of Test Vehicle



Pre-Test Rear View of Test Vehicle



Post-Test Rear View of Test Vehicle



Pre-Test MDB (left side) Positioned Against Vehicle



Pre-Test MDB (right side) Positioned Against Vehicle



Pre-Test MDB Positioned Against Vehicle Overhead View



Post-Test MDB and Vehicle (Left Front View)



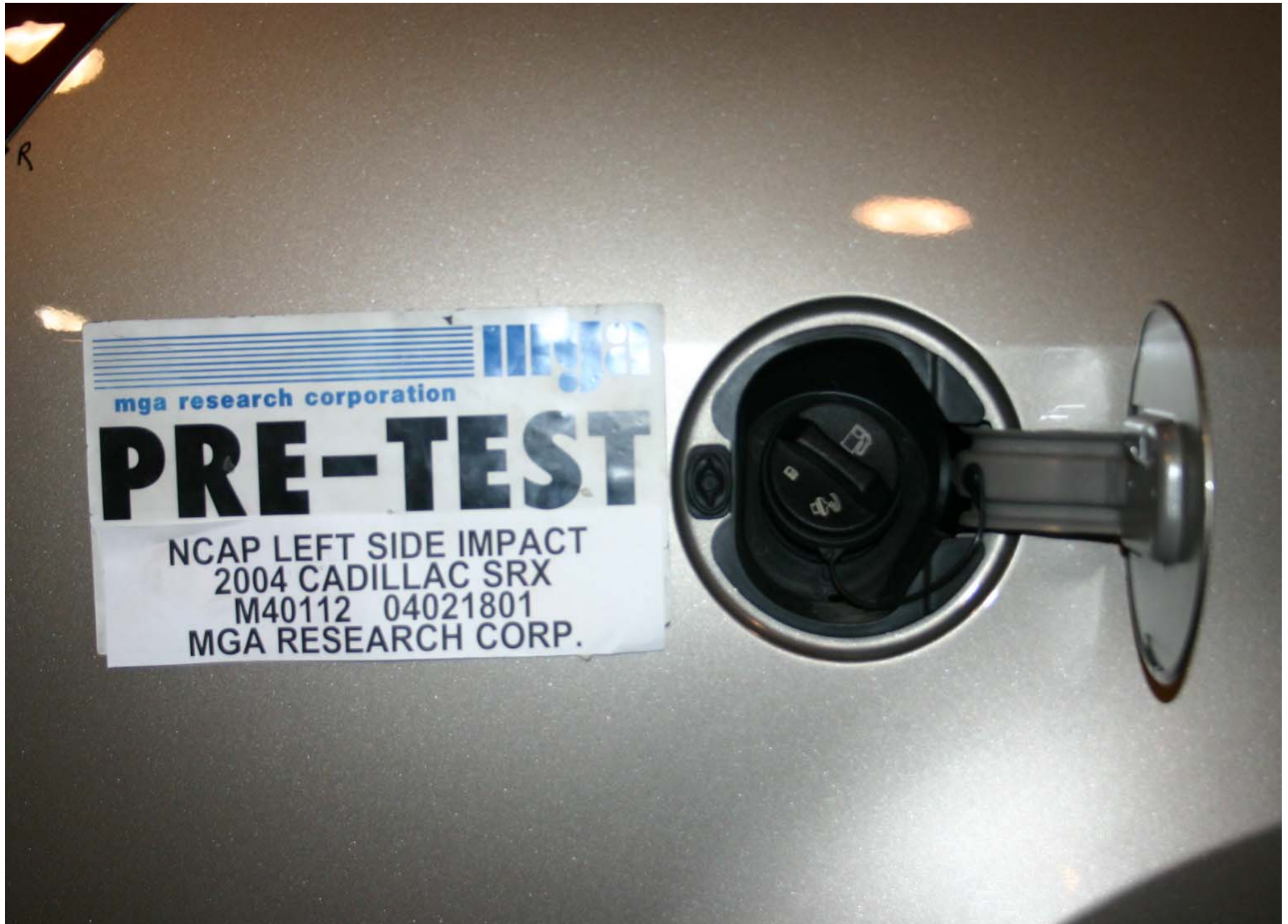
Post-Test MDB and Vehicle (Left Rear View)



Pre-Test Impact Point on Vehicle



Post-Test Impact Point on Vehicle



Pre-Test Fuel Filler Cap View



Post-Test Fuel Filler Cap View



Pre-Test Rear $\frac{3}{4}$ View of Right Front Door of Test Vehicle



Pre-Test Rear $\frac{3}{4}$ View of Right Rear Door of Test Vehicle



Pre-Test Rear $\frac{3}{4}$ View of Left Front Door of Test Vehicle



Pre-Test Rear $\frac{3}{4}$ View of Left Rear Door of Test Vehicle



Post-Test Rear $\frac{3}{4}$ View of Left Doors of Test Vehicle



Pre-Test Driver Dummy Left Side View (Door Open)



Pre-Test Driver Dummy Left Side View



Post-Test Driver Dummy Left Side View



Pre-Test Driver Dummy Shoulder and Door Top View



Post-Test Driver Dummy Shoulder and Door Top View



Pre-Test Driver Dummy Right Side View



Post-Test Driver Dummy Right Side View



Post-Test Driver Dummy Contact



Post-Test Driver Dummy Head Contact



Pre-Test Passenger Dummy Left Side View (Door Open)



Pre-Test Passenger Dummy Left Side View



Post-Test Passenger Dummy Left Side View



Pre-Test Passenger Dummy Shoulder and Door Top View



Post-Test Passenger Dummy Shoulder and Door Top View



Pre-Test Passenger Dummy Right Side View



Post-Test Passenger Dummy Right Side View



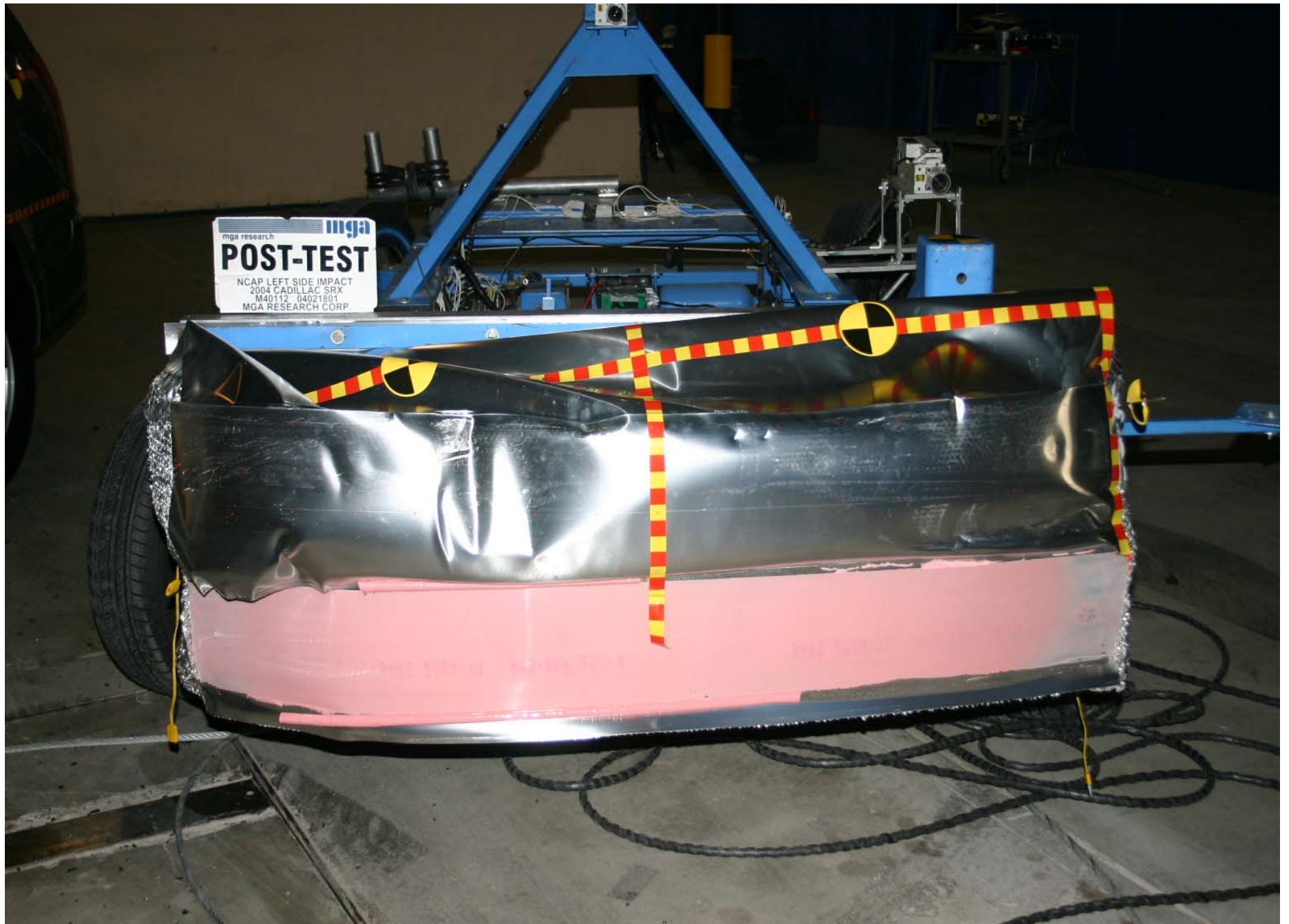
Post-Test Passenger Dummy Contact

A-44.



Post-Test Passenger Dummy Head Contact

A large, rectangular, metallic crash test dummy is positioned on a blue metal frame in a laboratory setting. The dummy is wrapped in a yellow and red striped safety tape. A white label on the dummy reads "PRE-TEST" and "NHTSA LEFT SIDE IMPACT". The dummy is connected to a blue metal frame, which is part of a larger testing apparatus. The background shows a concrete floor and a yellow pillar.



Post-Test MDB Front View



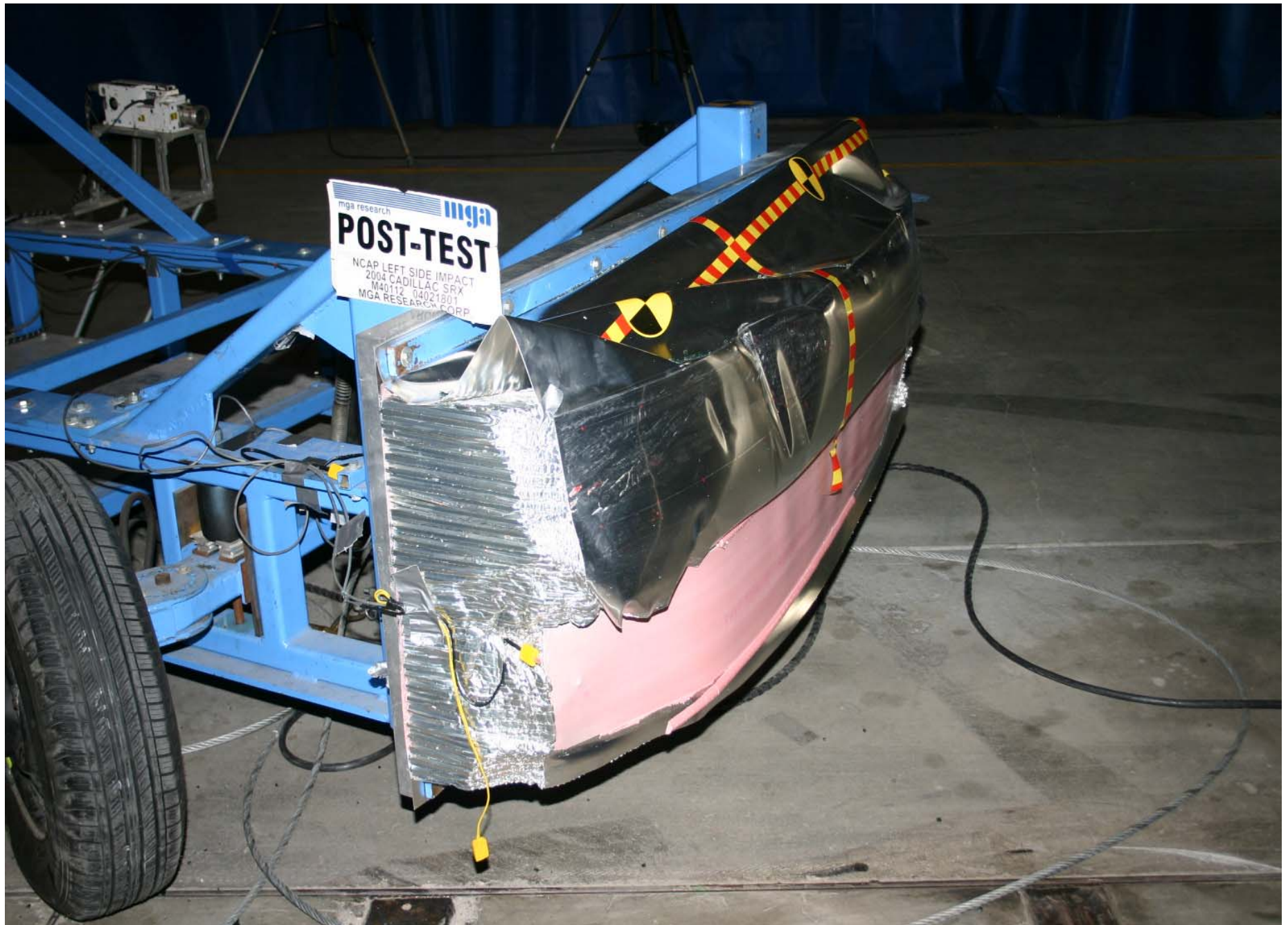
Pre-Test MDB Top View



Post-Test MDB Top View



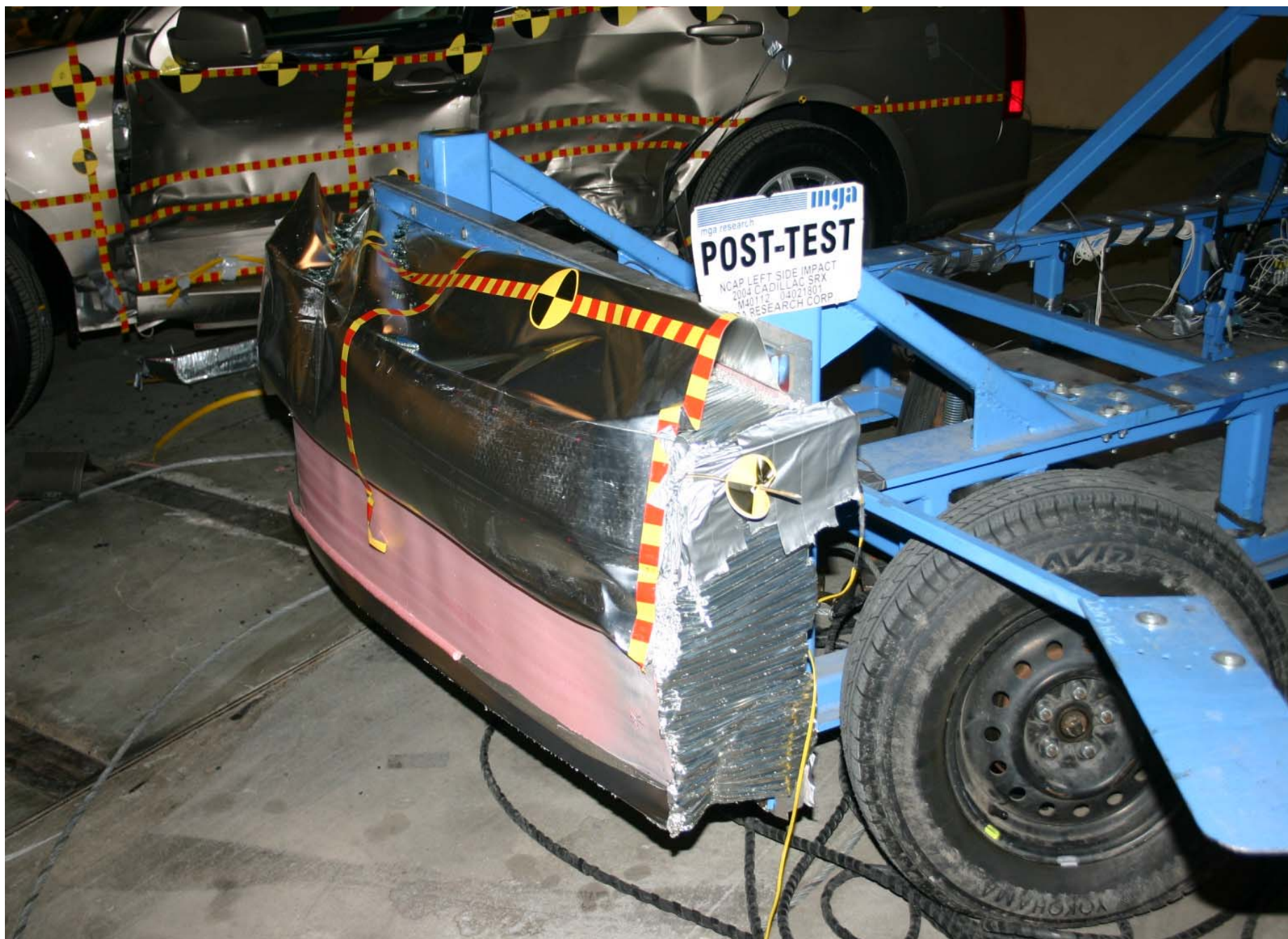
Pre-Test MDB Right Side View



Post-Test MDB Right Side View



Pre-Test MDB Left Side View



Post-Test MDB Left Side View



Rollover 90 Degrees

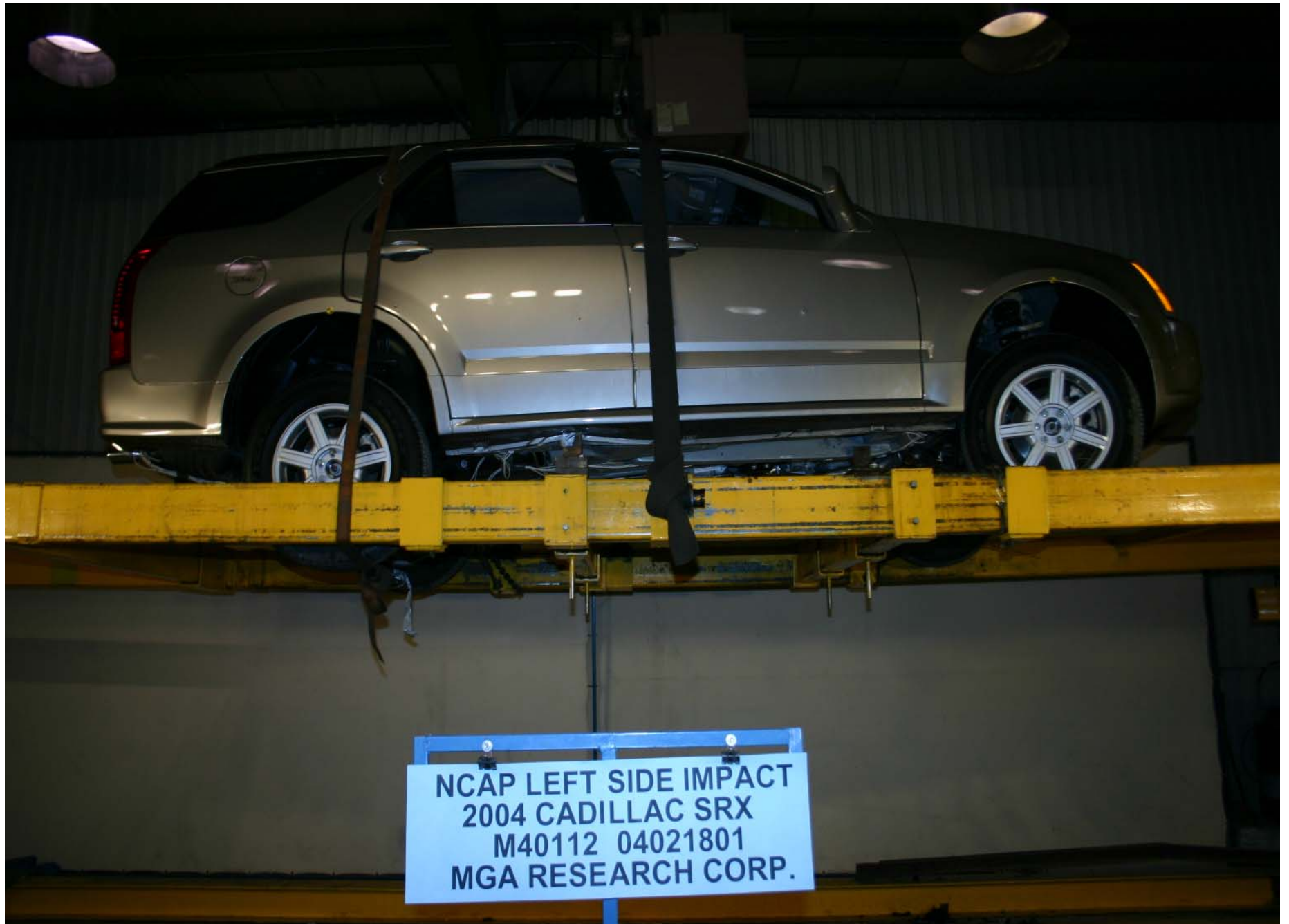


Rollover 180 Degrees

A-55.



Rollover 270 Degrees



Rollover 360 Degrees



Vehicle Impact



Post-Test Left Rear View of Left Side Doors



Post-Test Left Front View of Left Side Doors



Post-Test $\frac{3}{4}$ Rear View of Left Side Doors



Post-Test MDB with Bumper Missing



Post-Test MDB Bumper

APPENDIX B

SID/HIII, VEHICLE, AND MDB RESPONSE DATA

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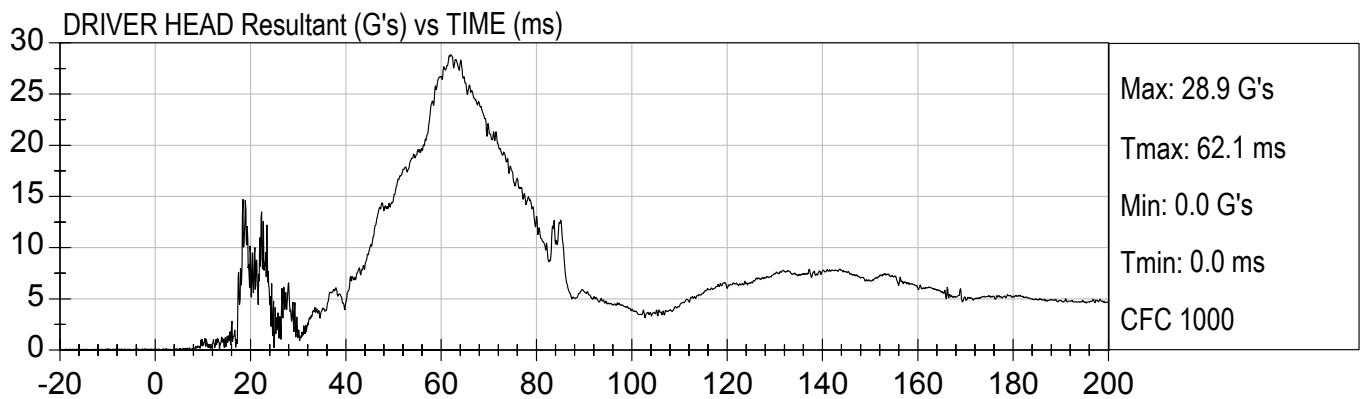
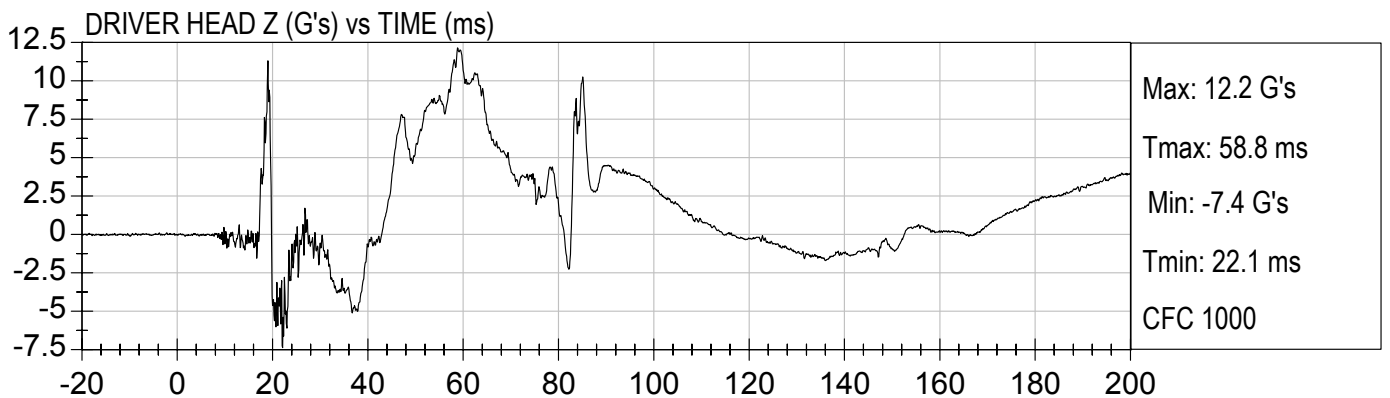
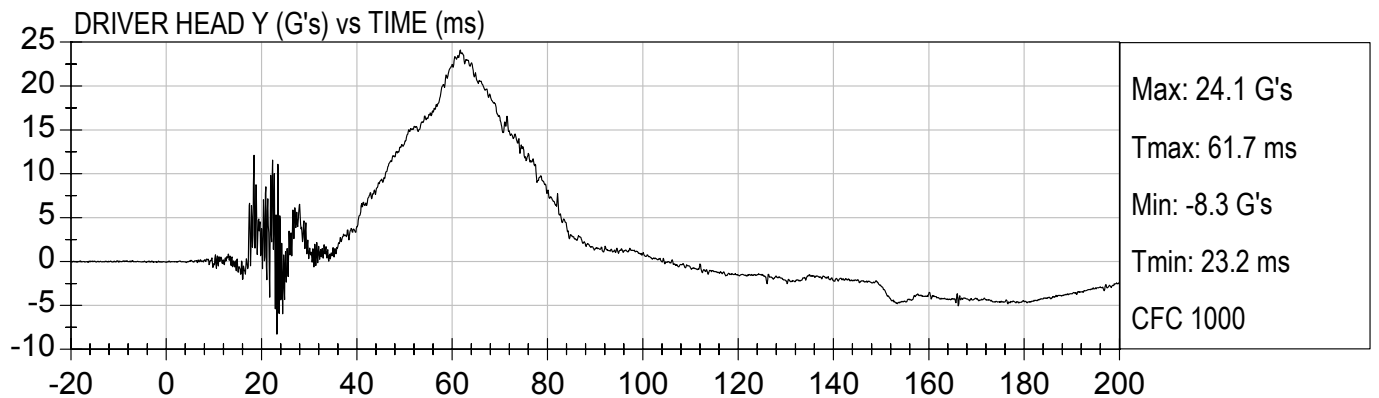
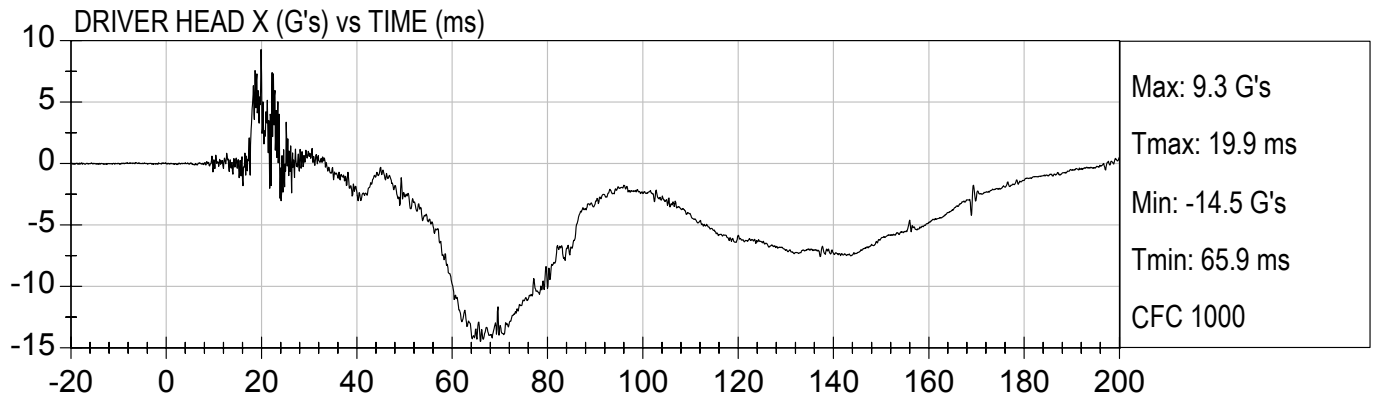
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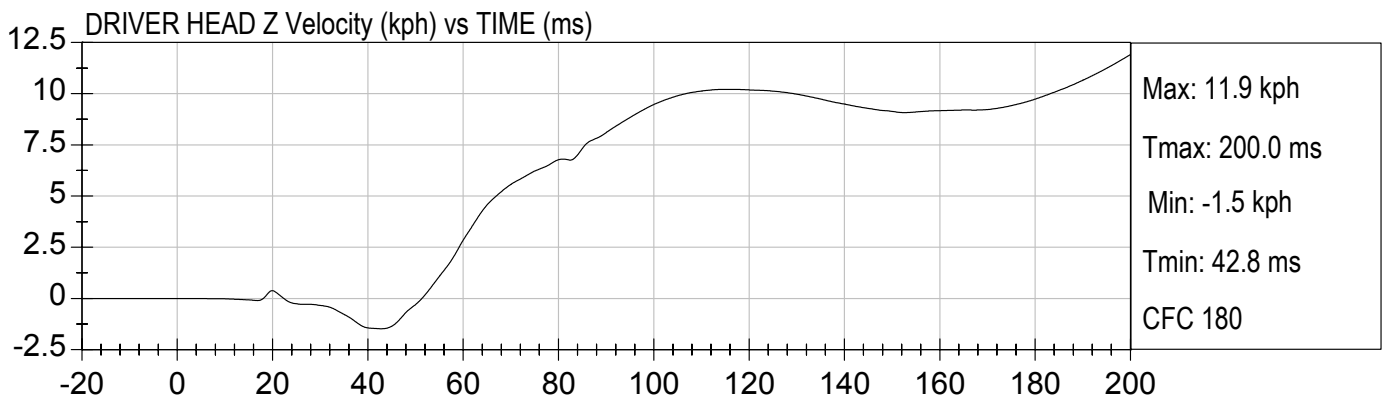
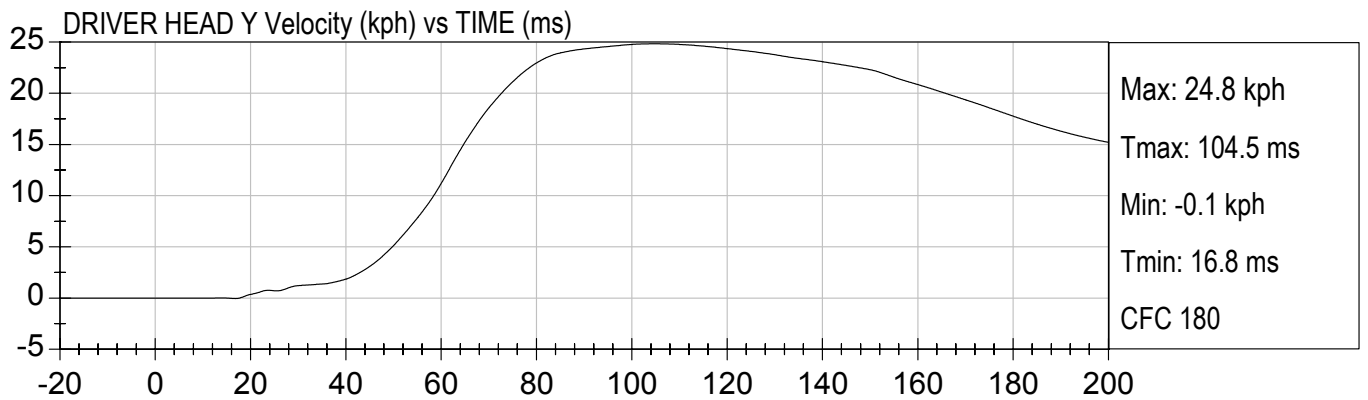
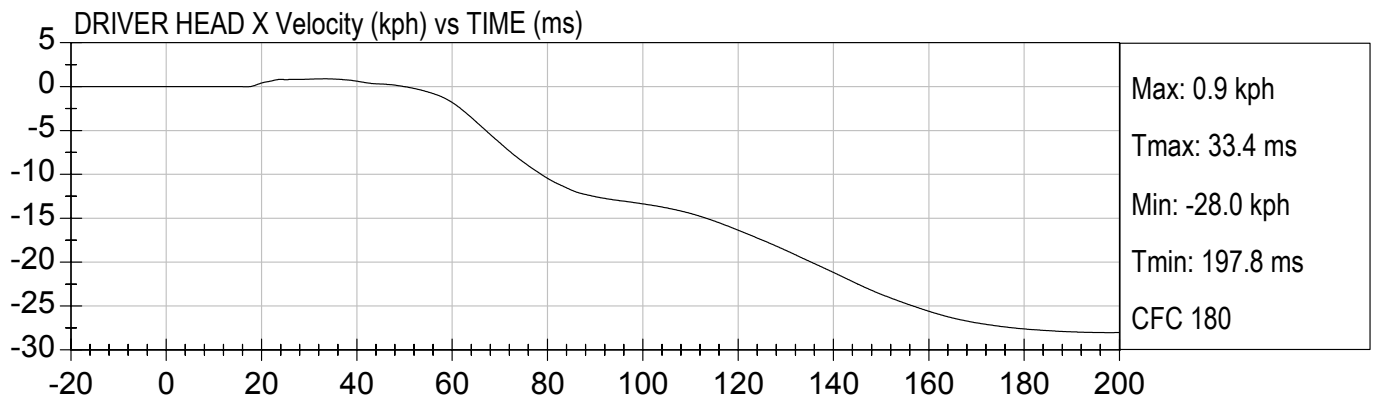
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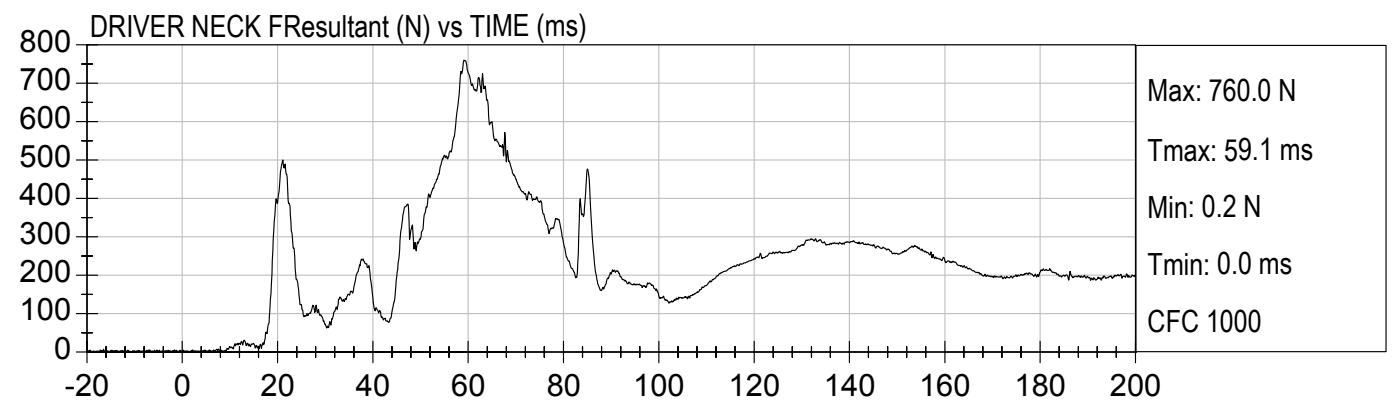
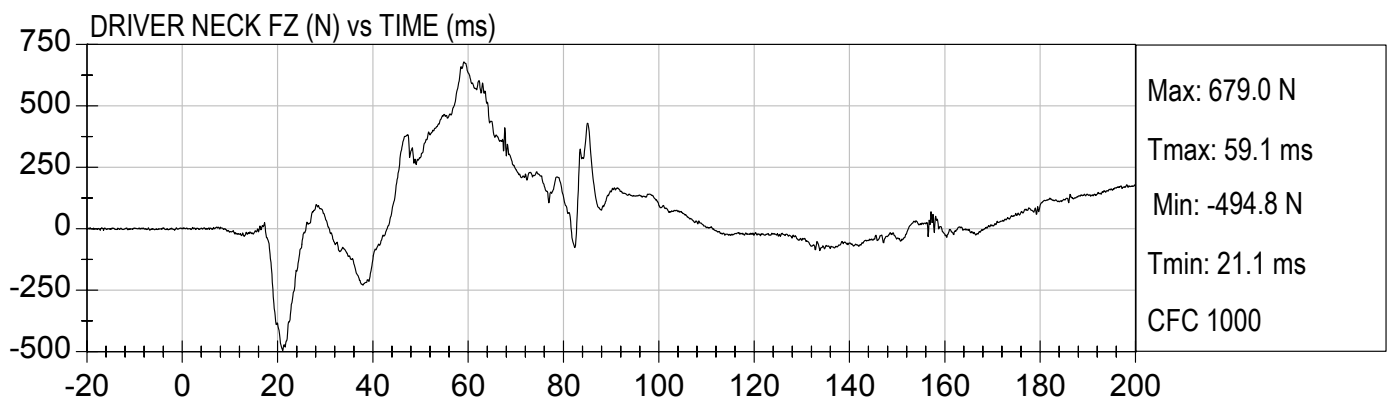
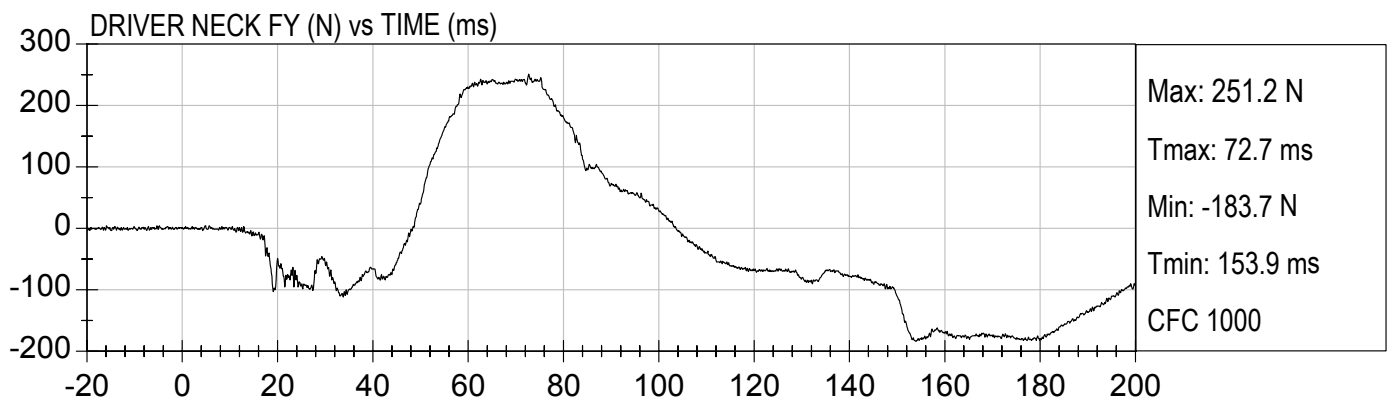
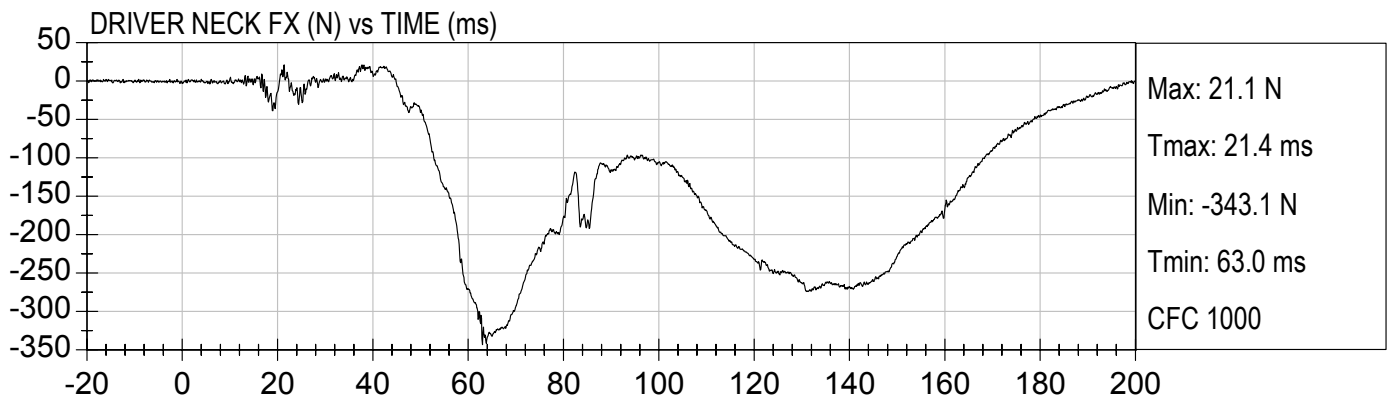
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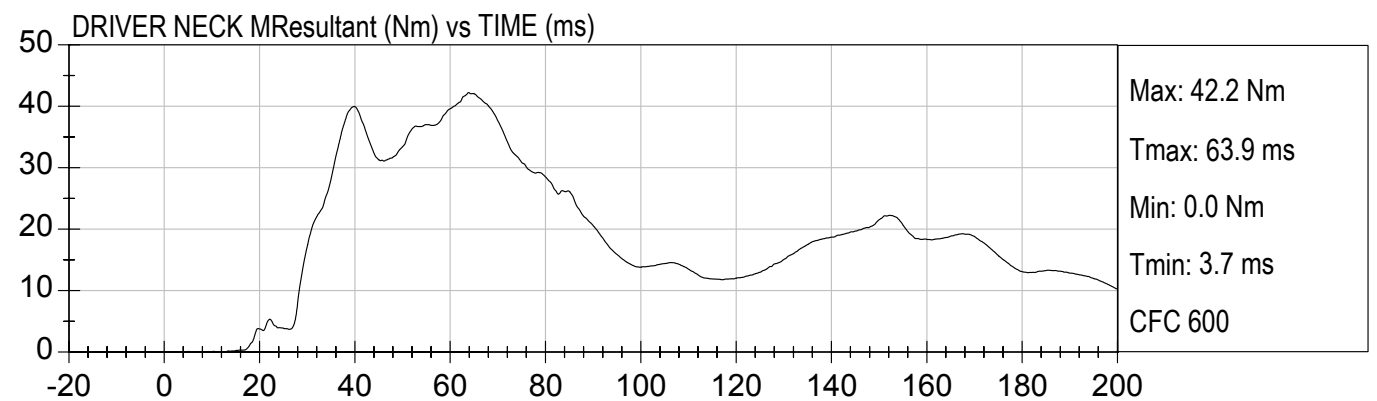
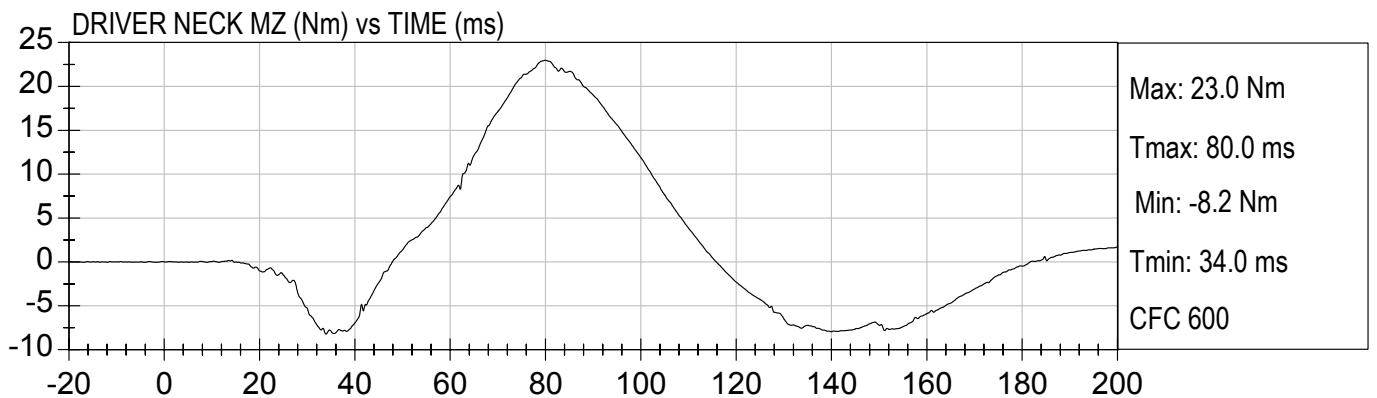
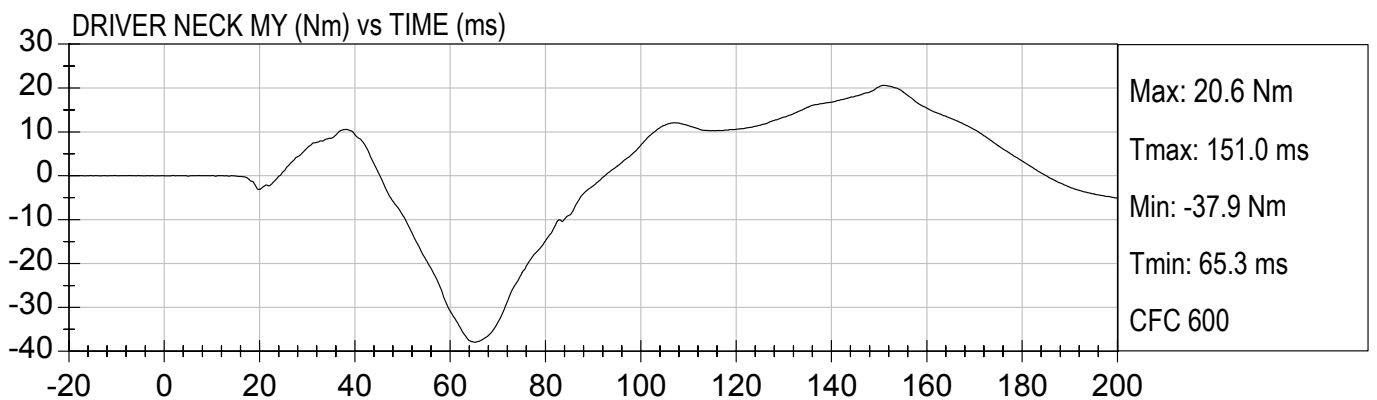
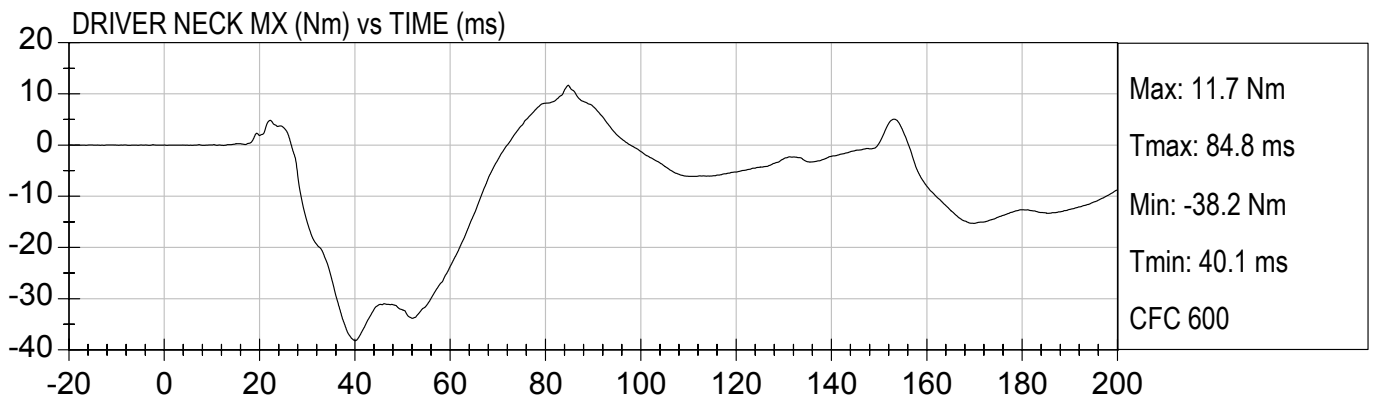
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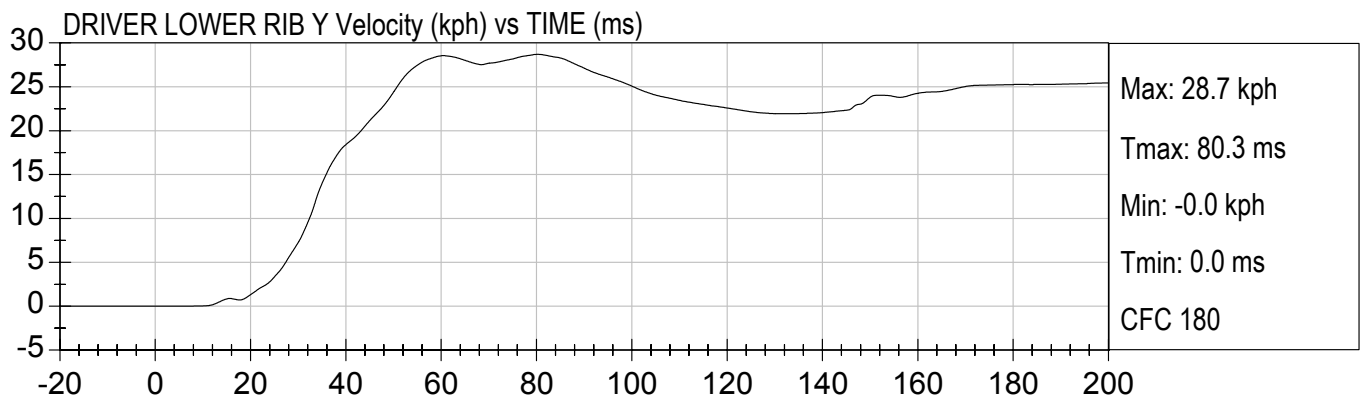
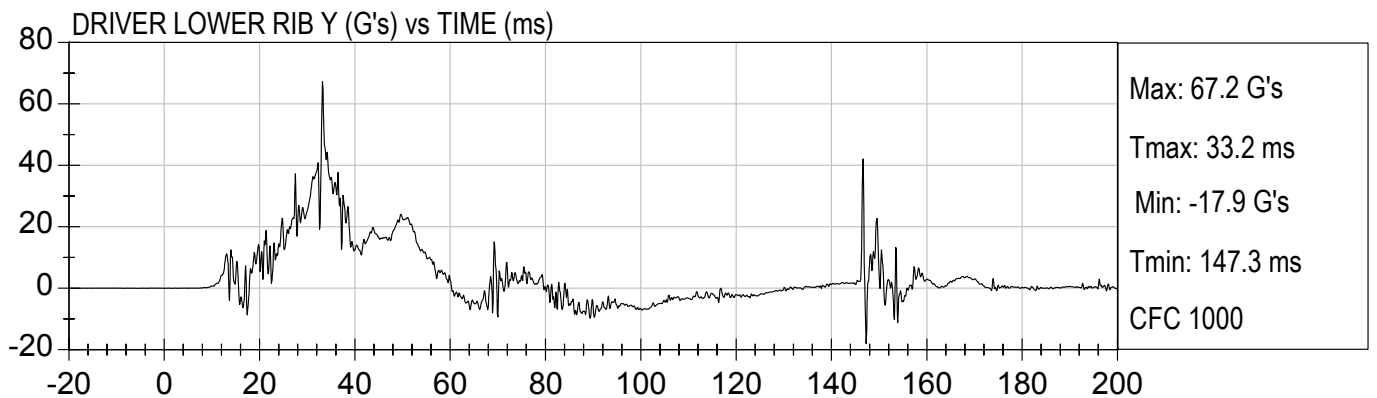
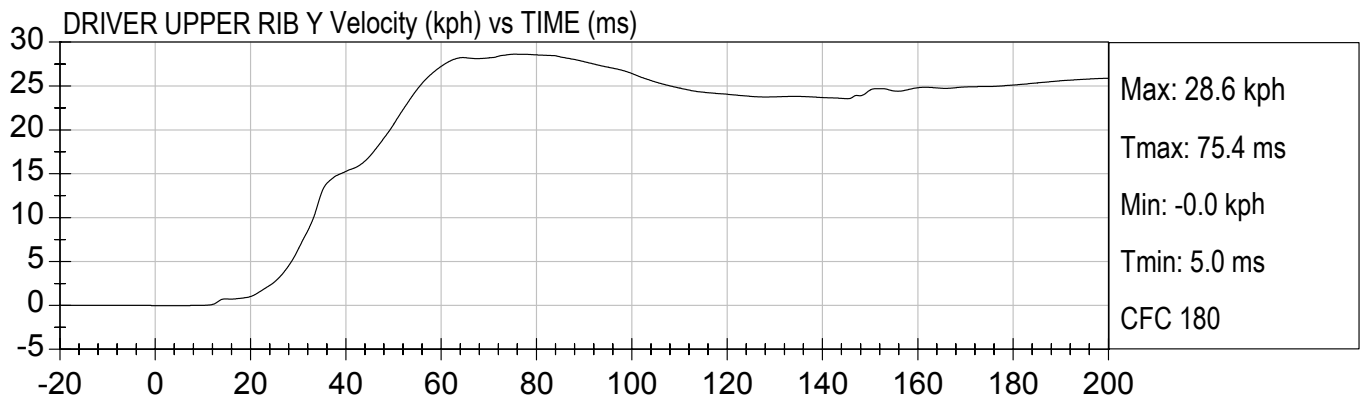
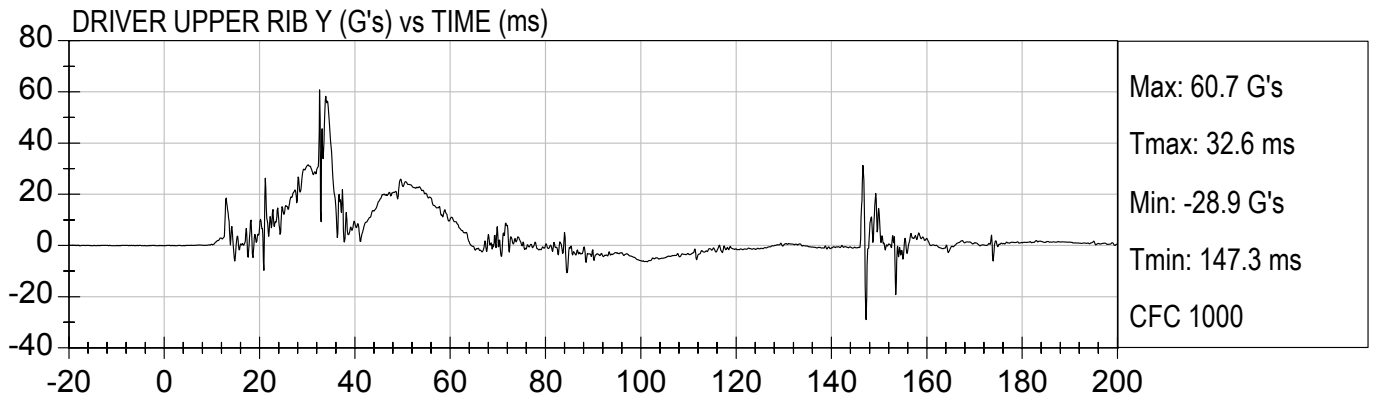
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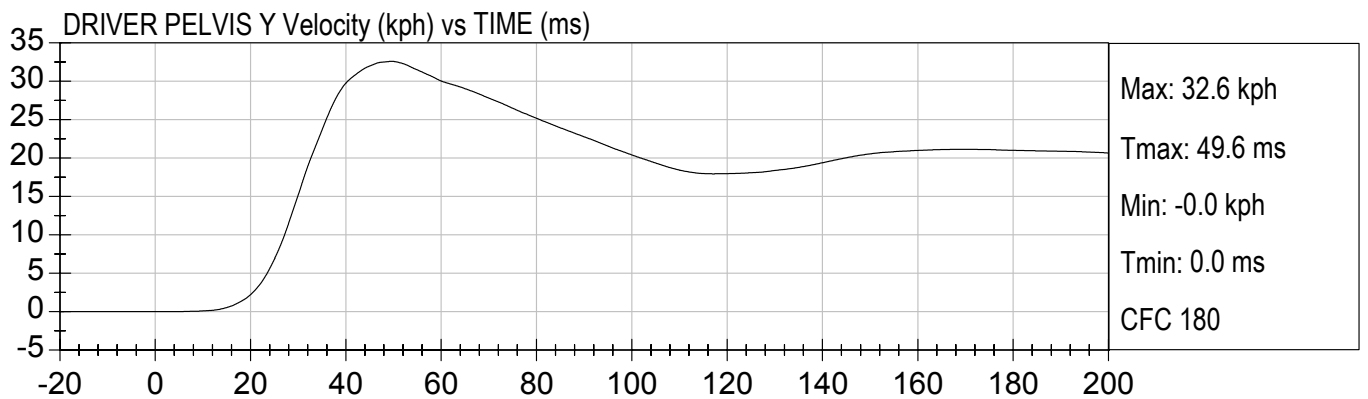
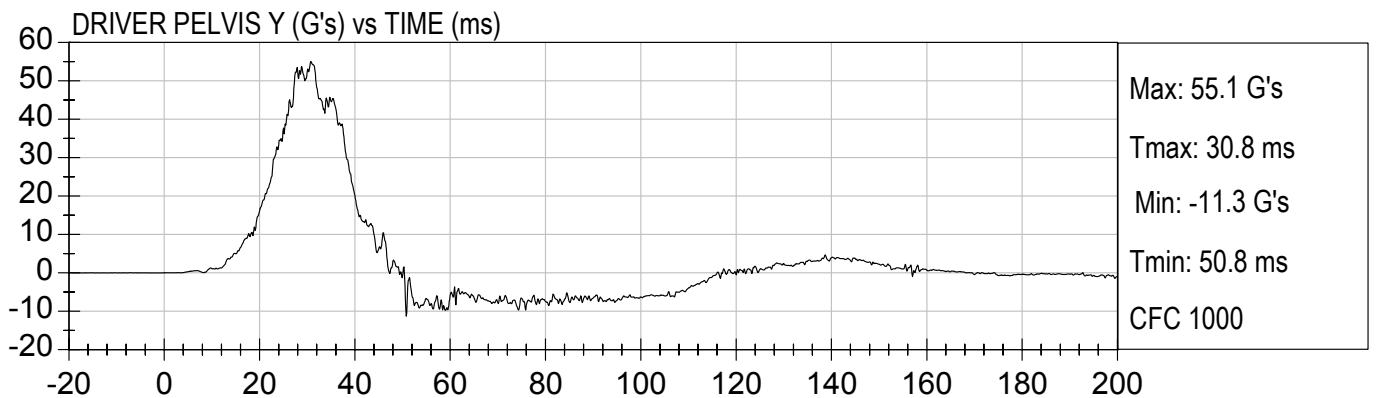
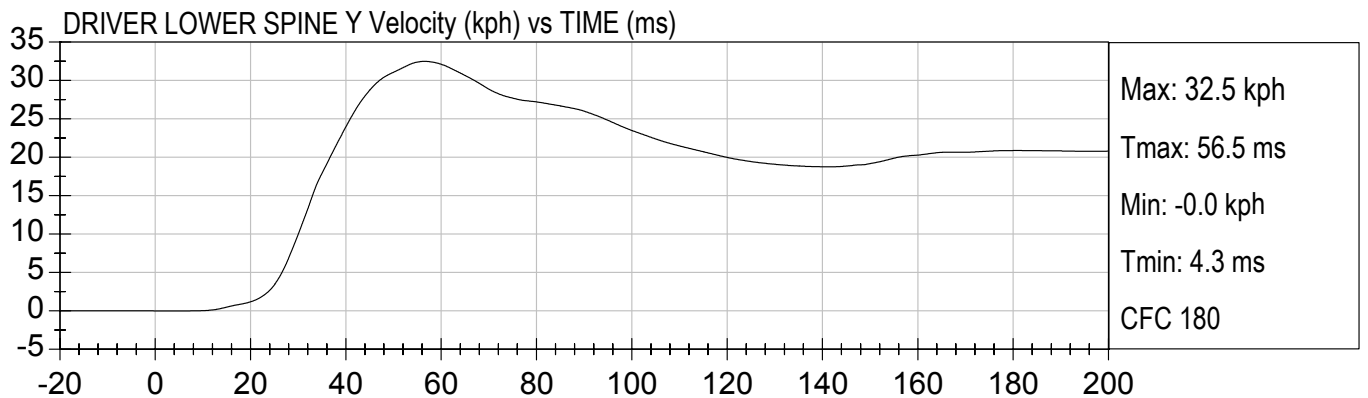
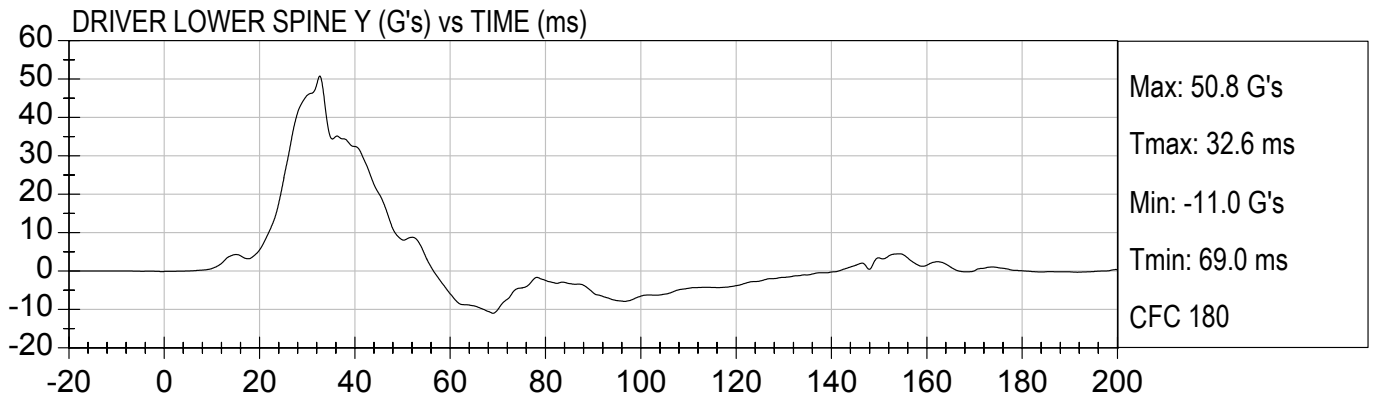


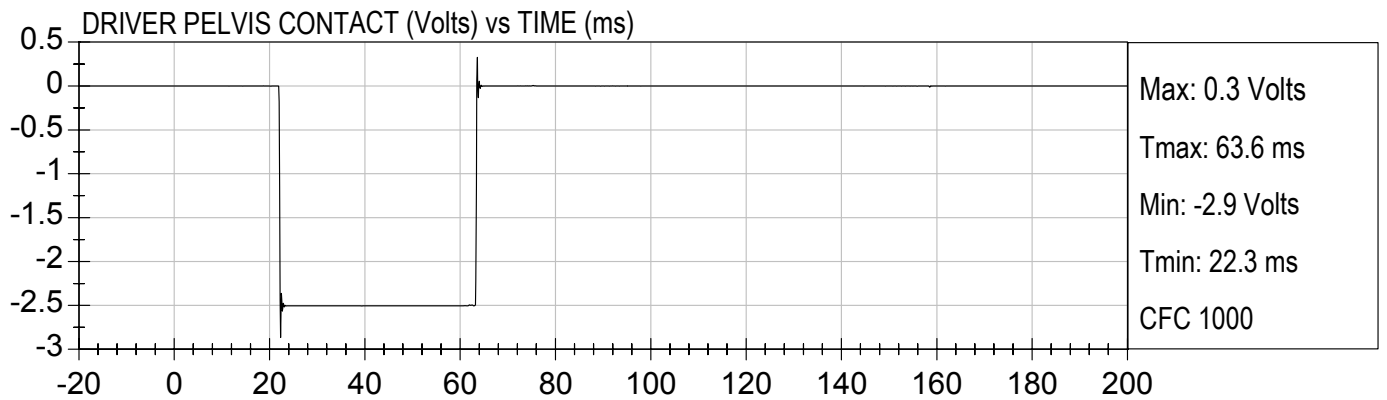
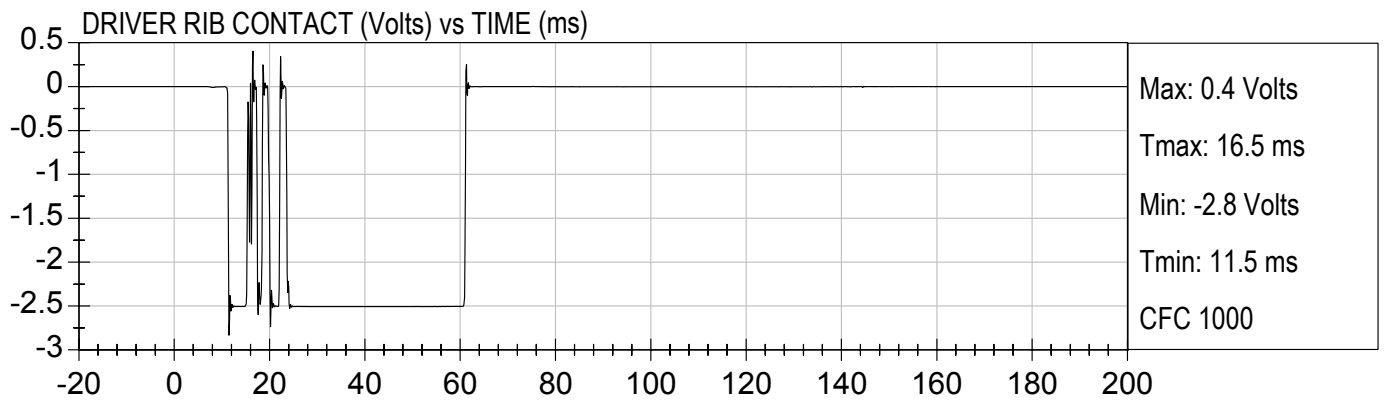


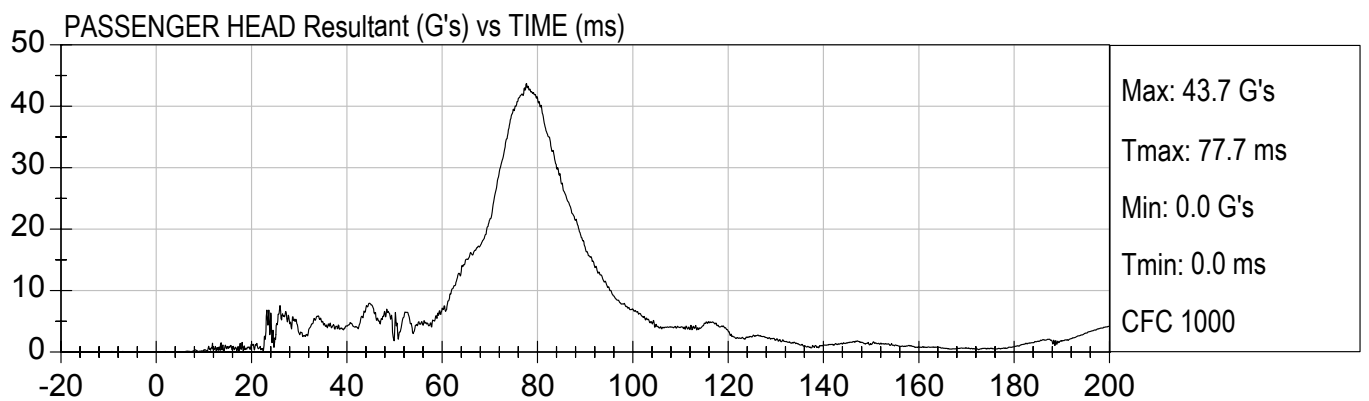
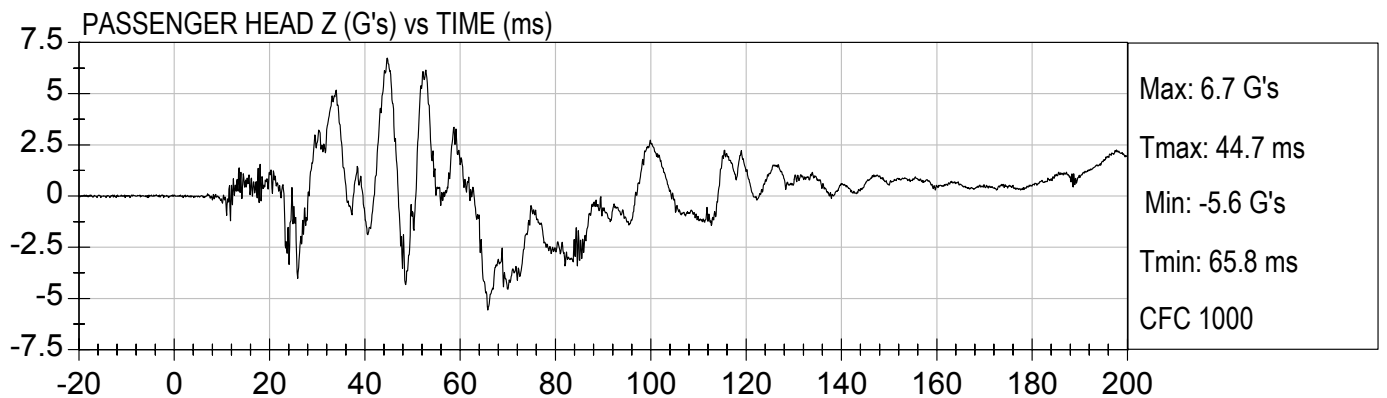
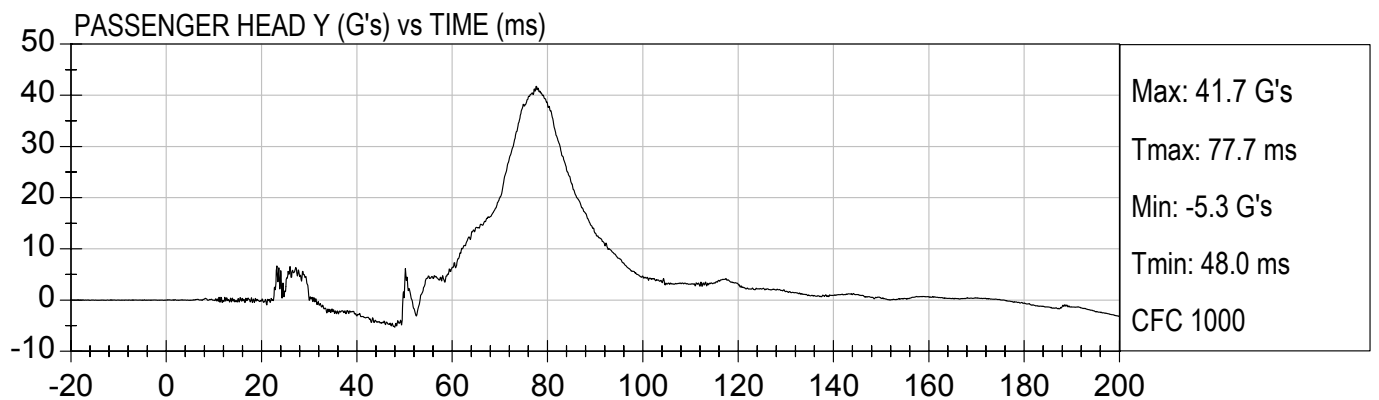
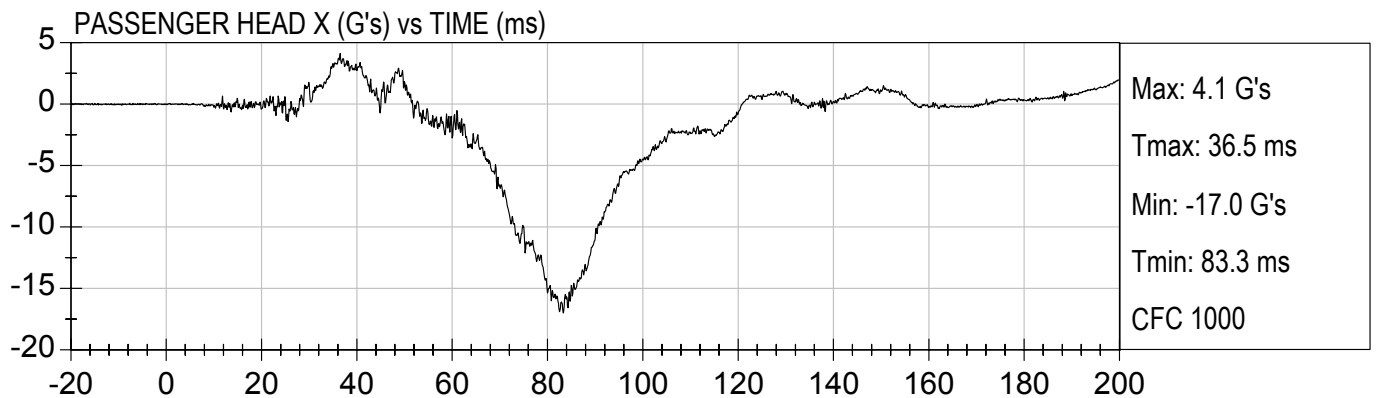


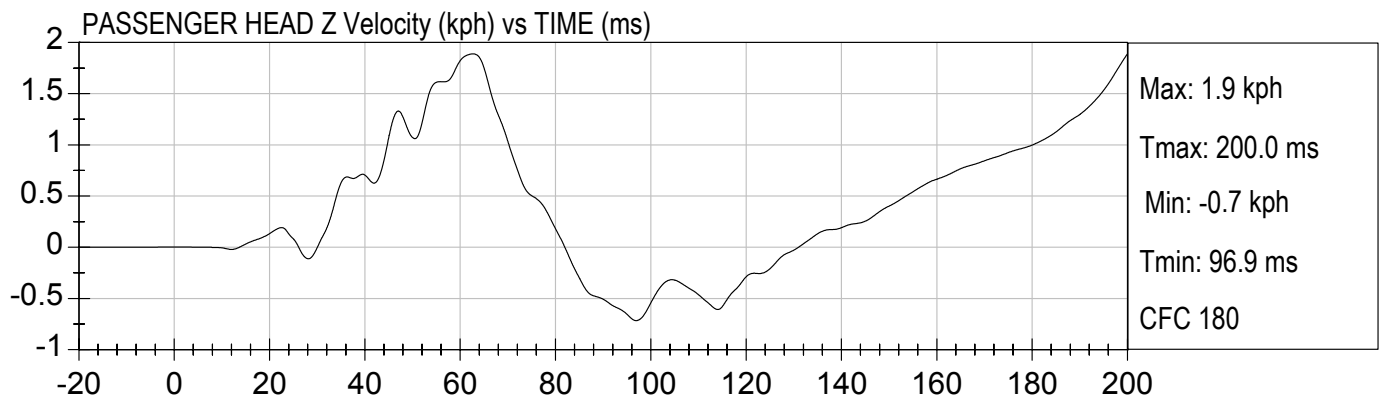
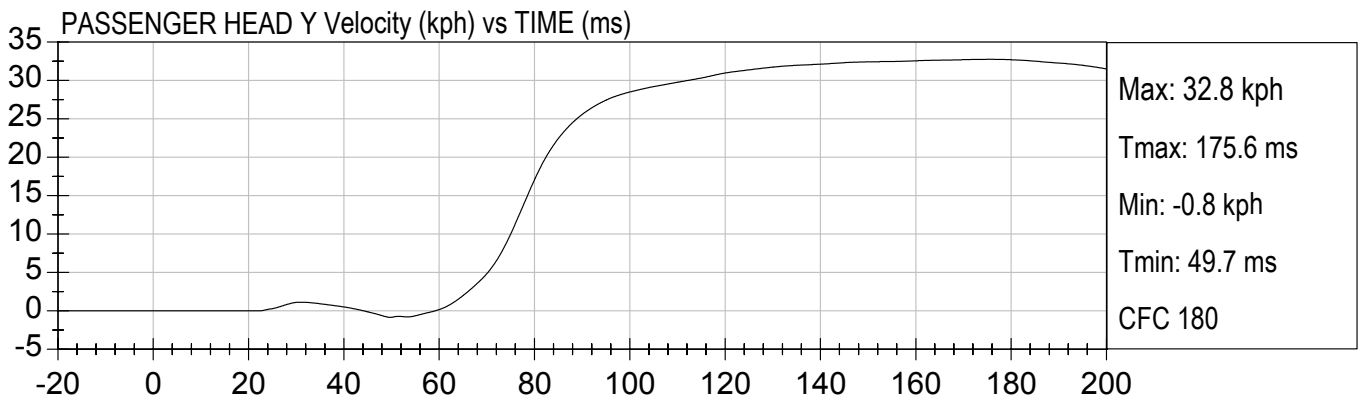
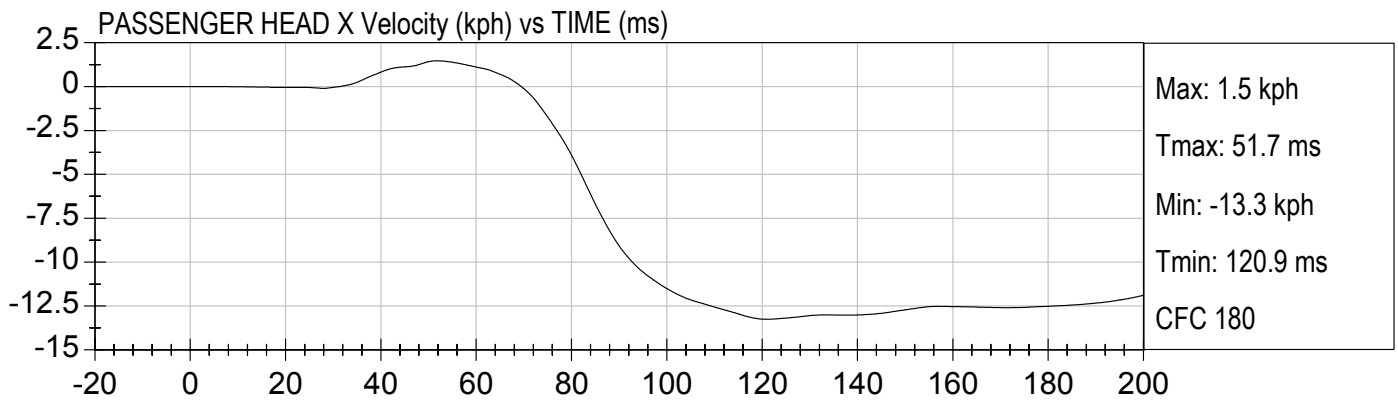


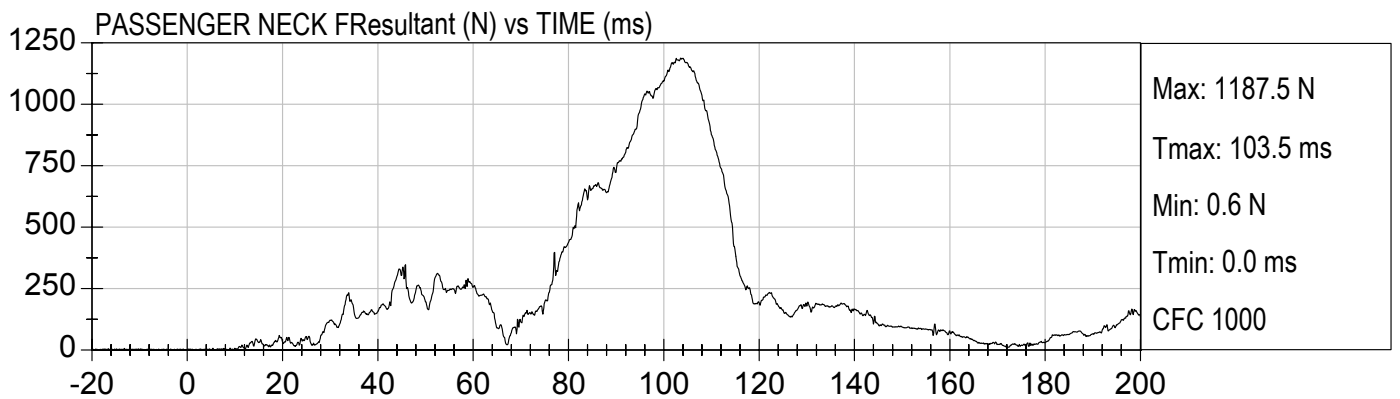
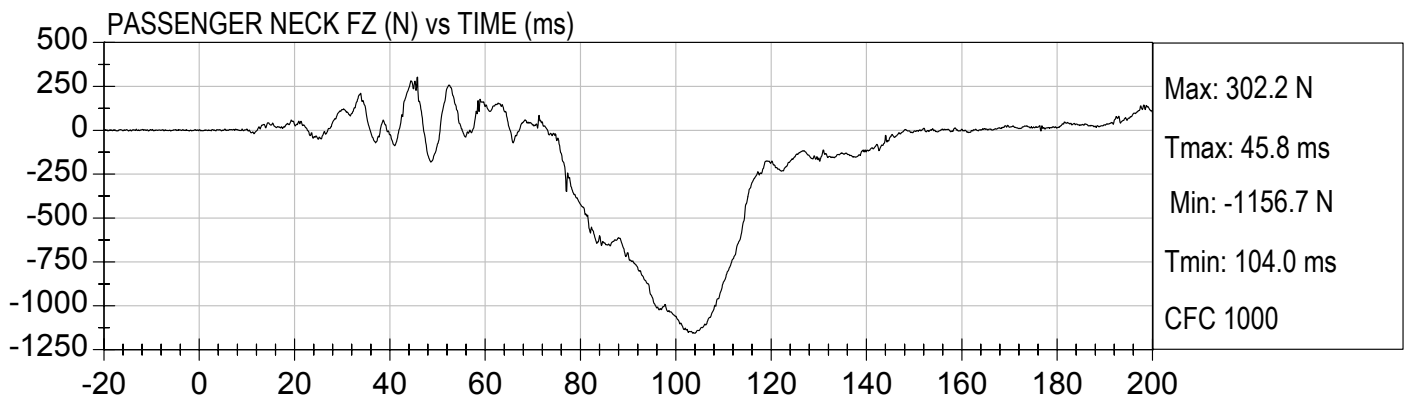
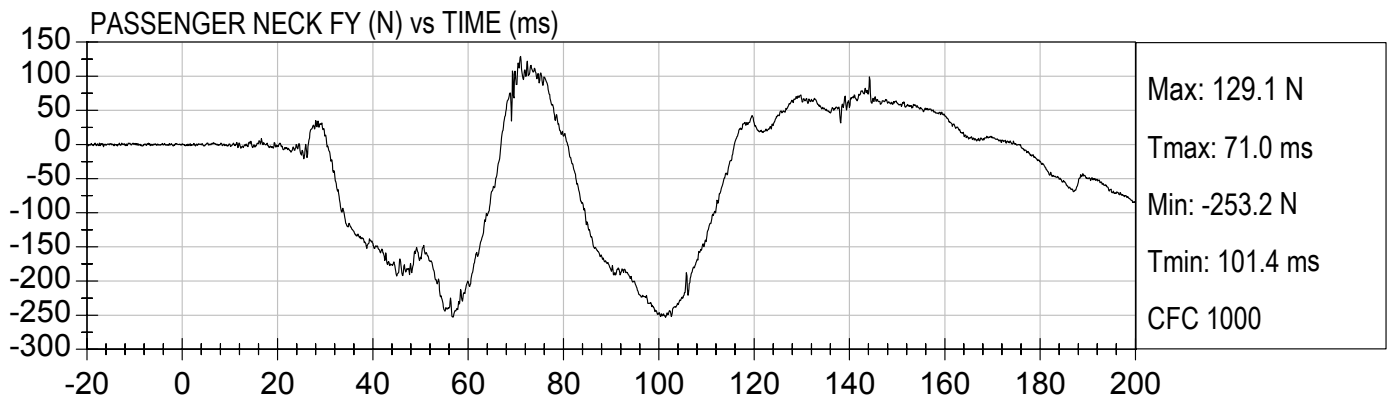
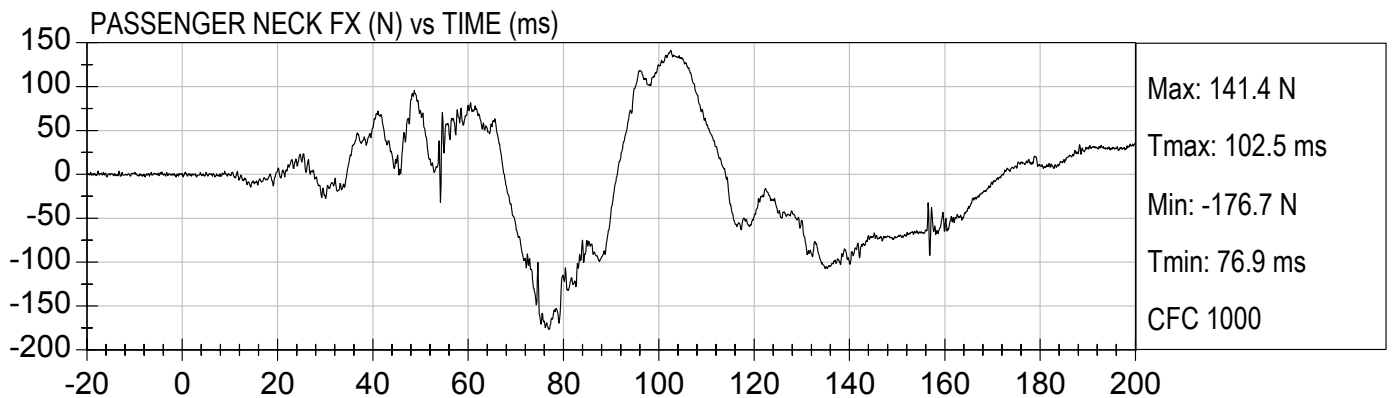


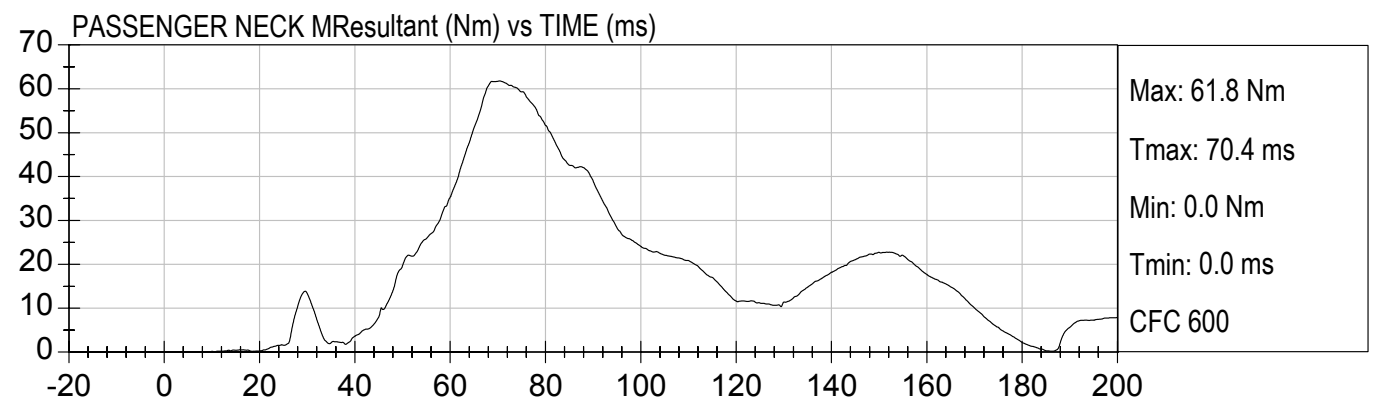
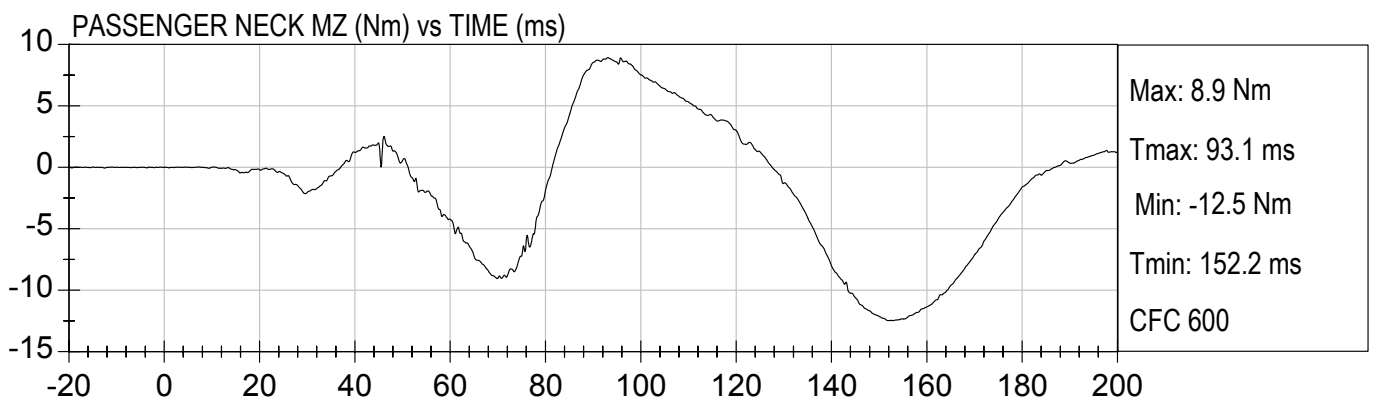
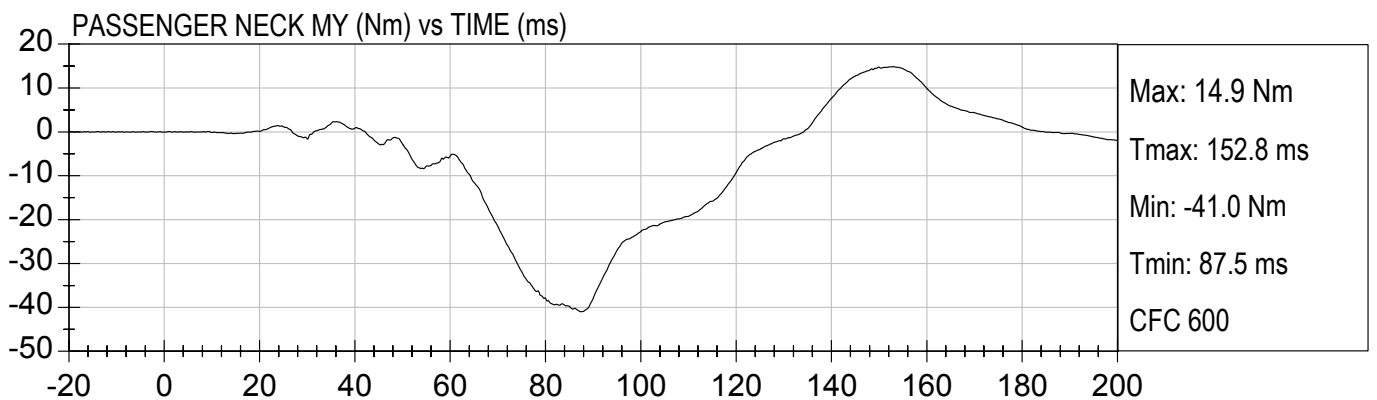
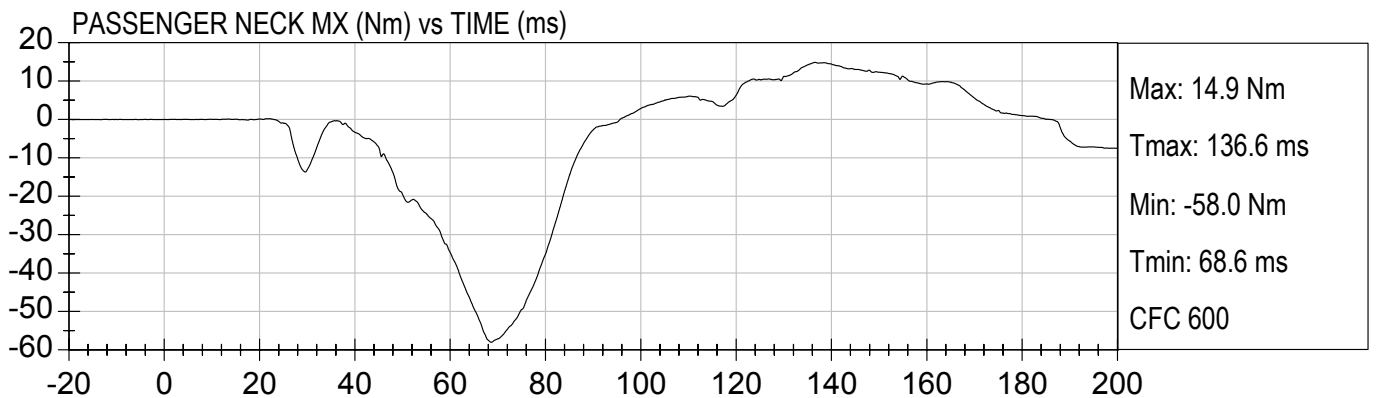


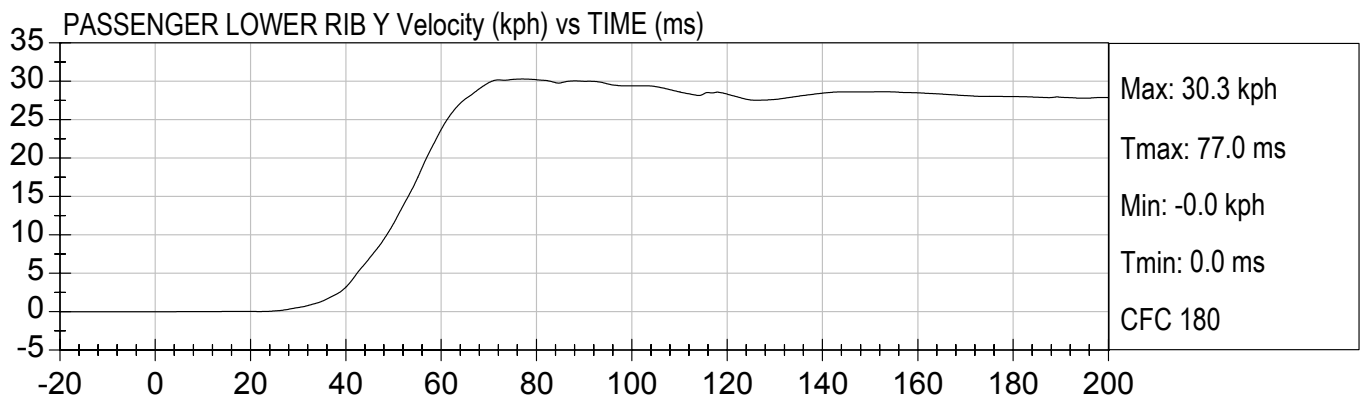
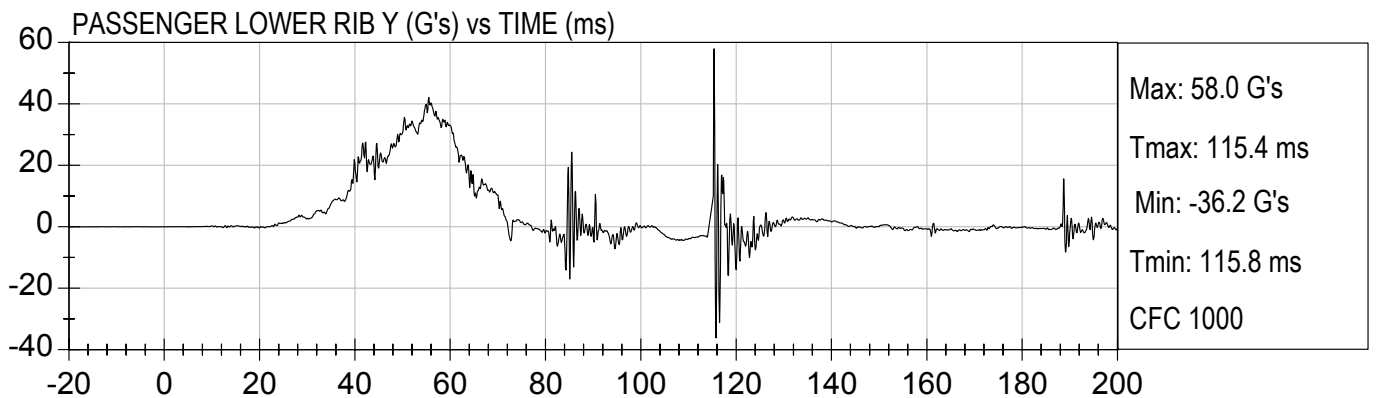
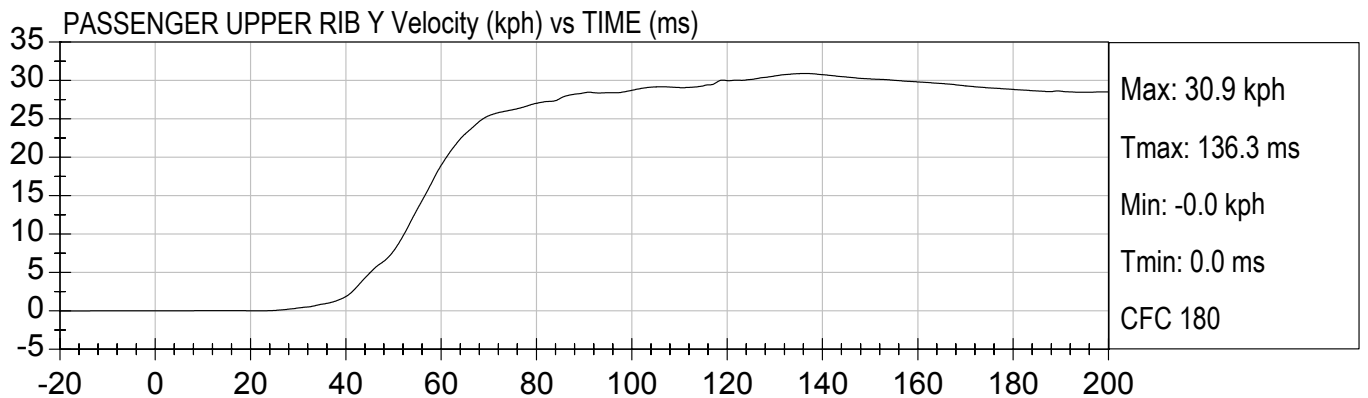
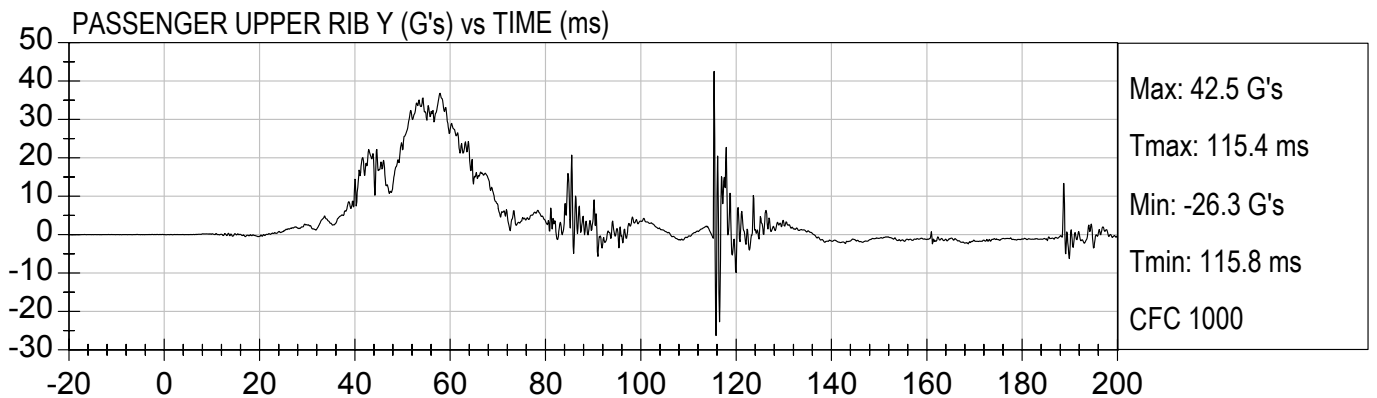


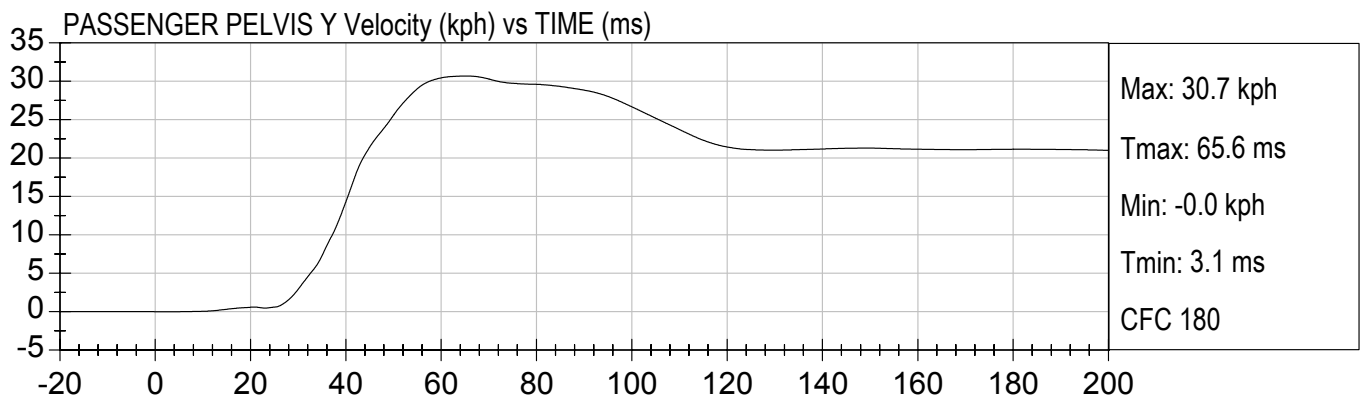
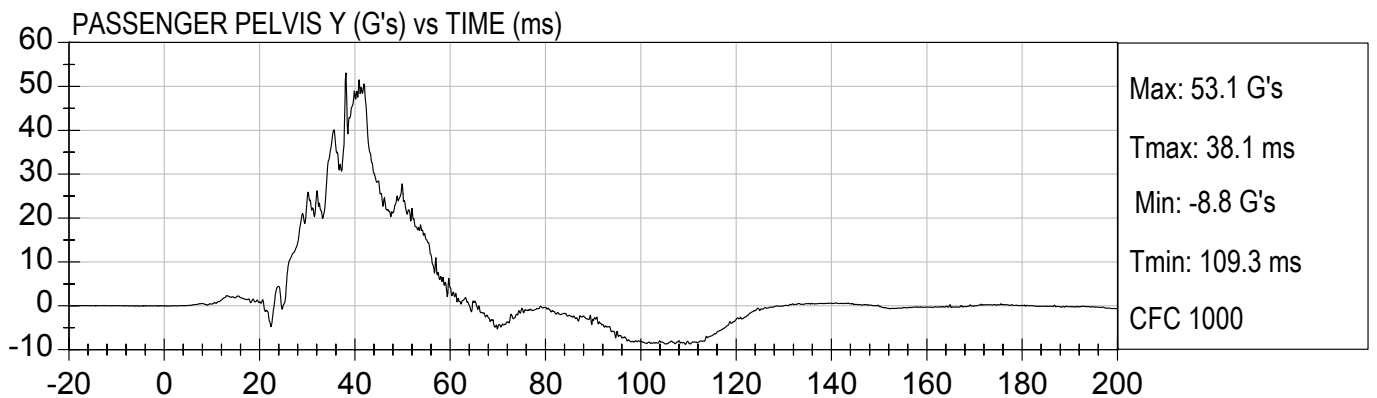
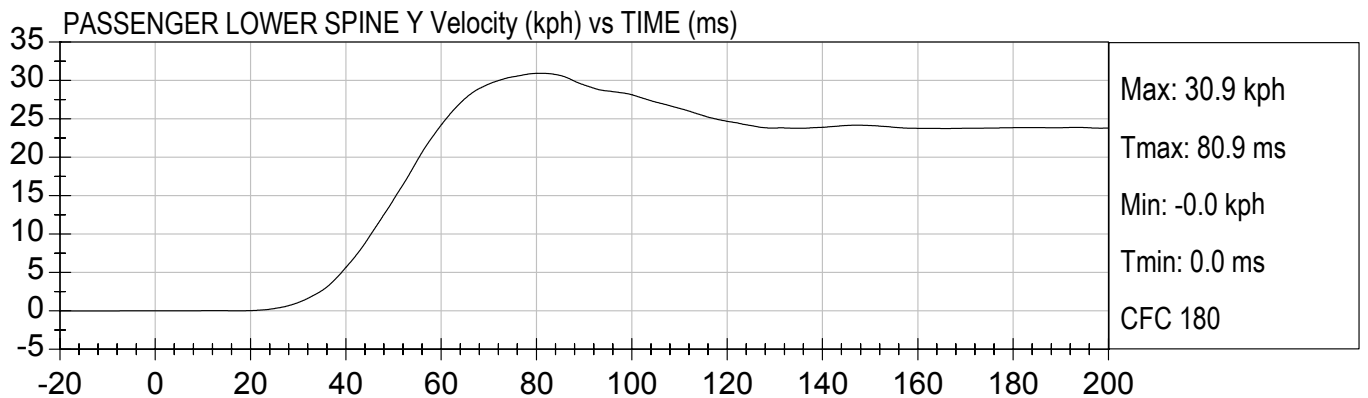
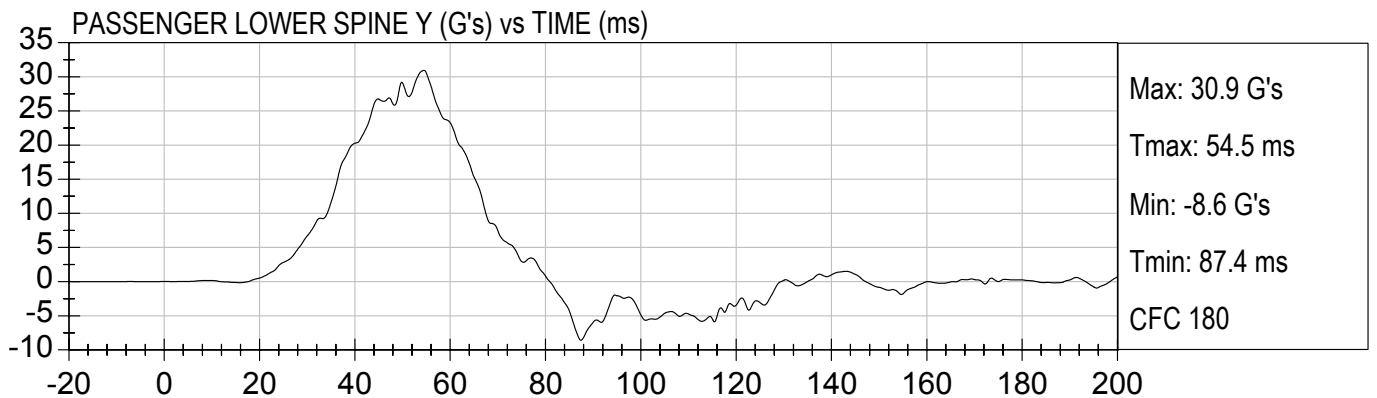


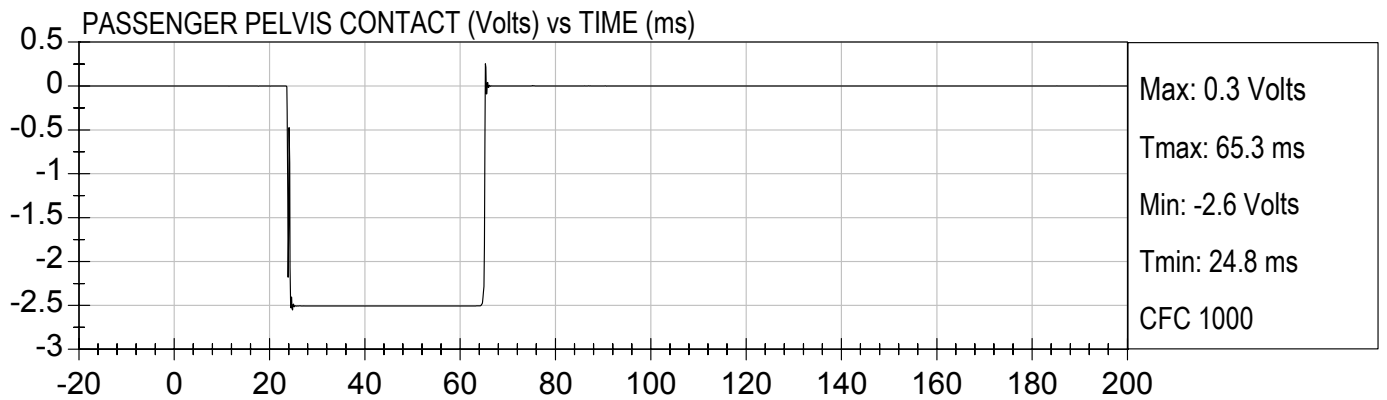
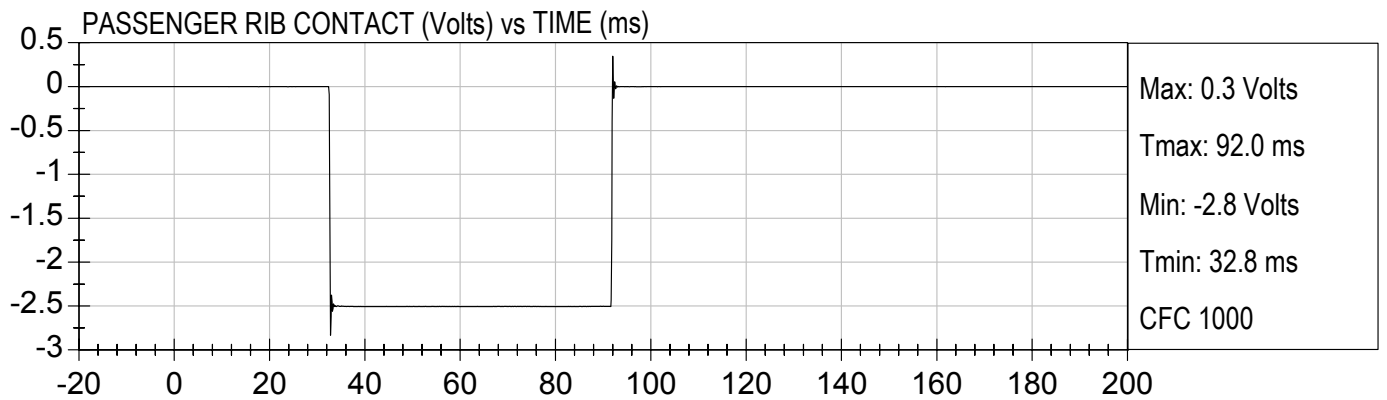






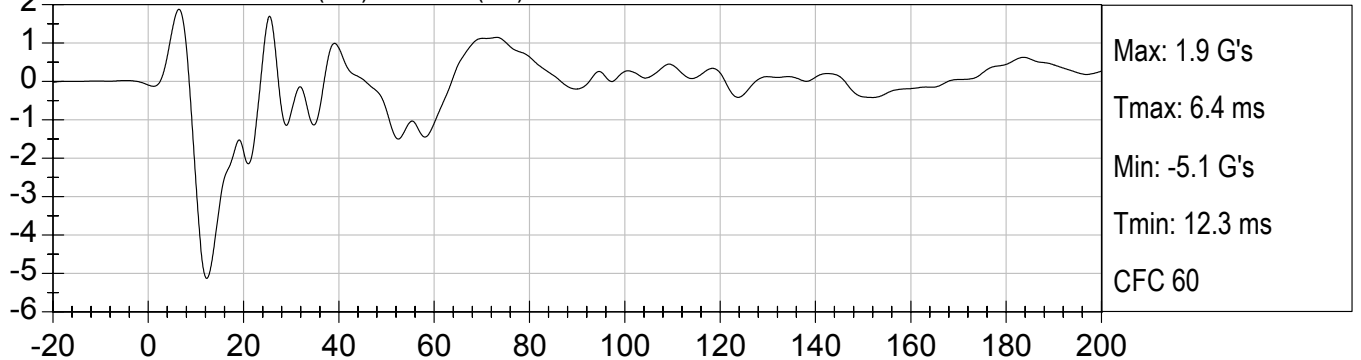




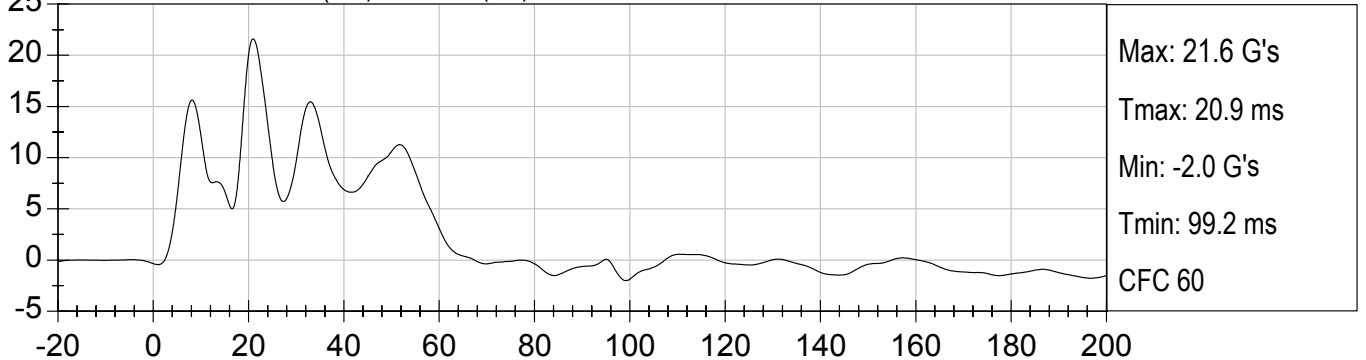




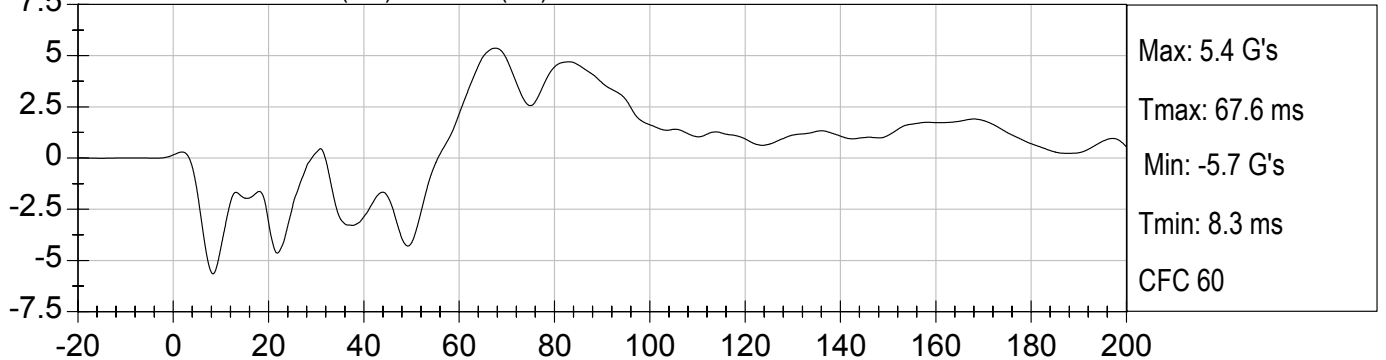
RIGHT FRONT SILL X (G's) vs TIME (ms)



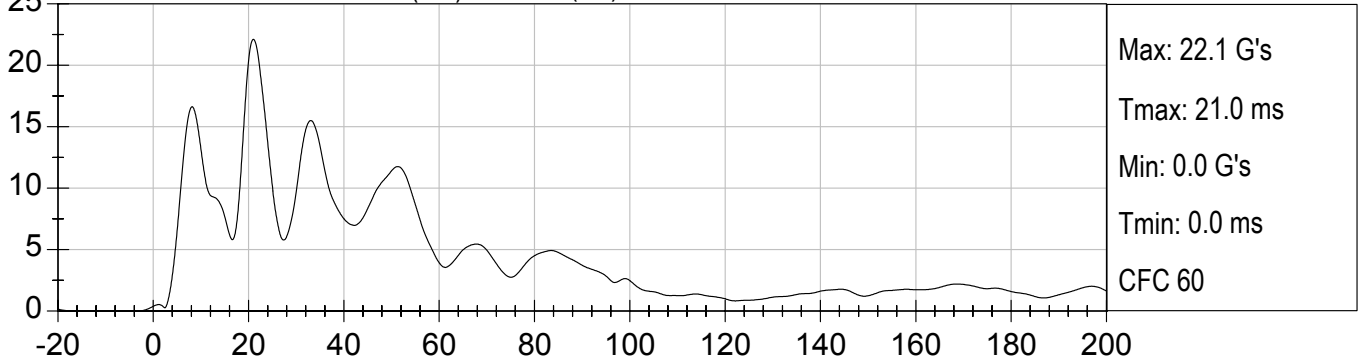
RIGHT FRONT SILL Y (G's) vs TIME (ms)

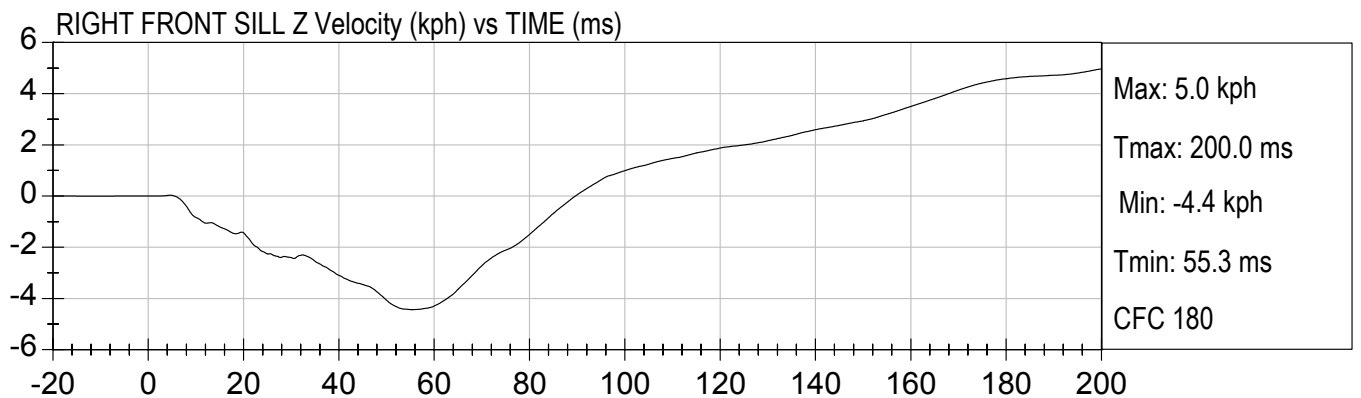
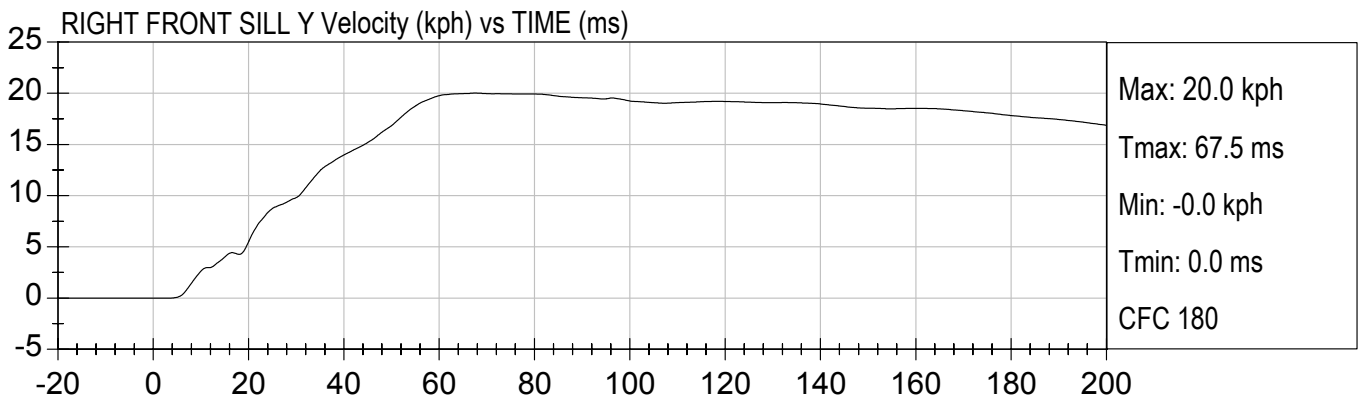
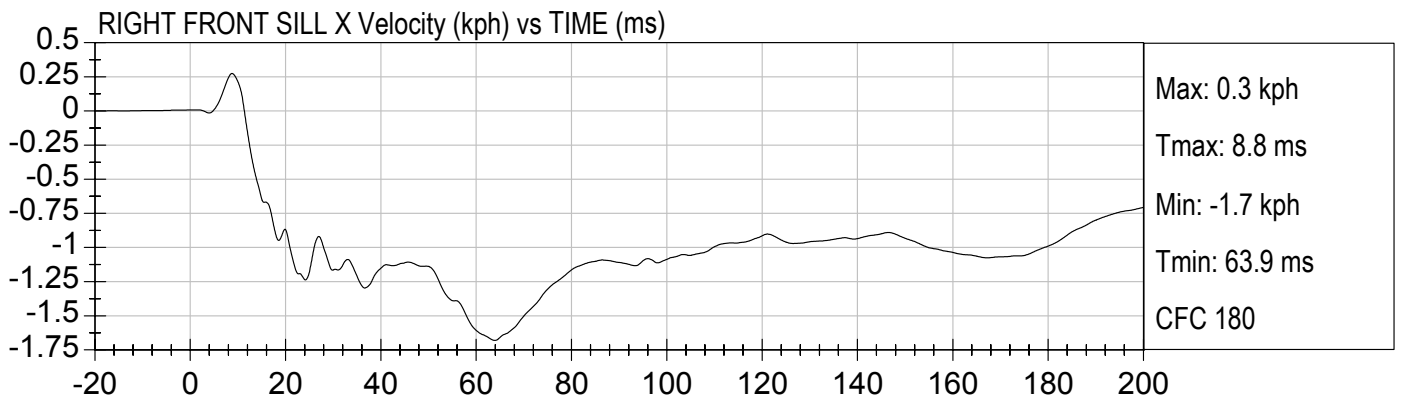


RIGHT FRONT SILL Z (G's) vs TIME (ms)



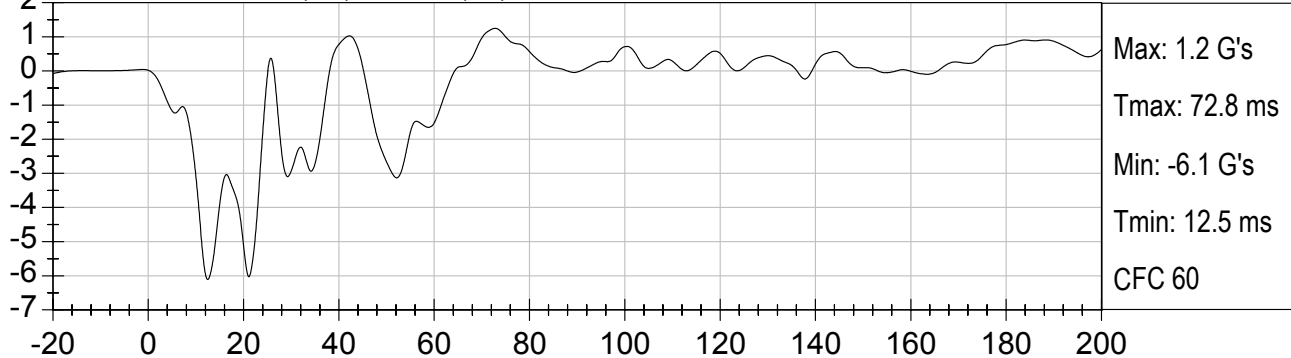
RIGHT FRONT SILL Resultant (G's) vs TIME (ms)



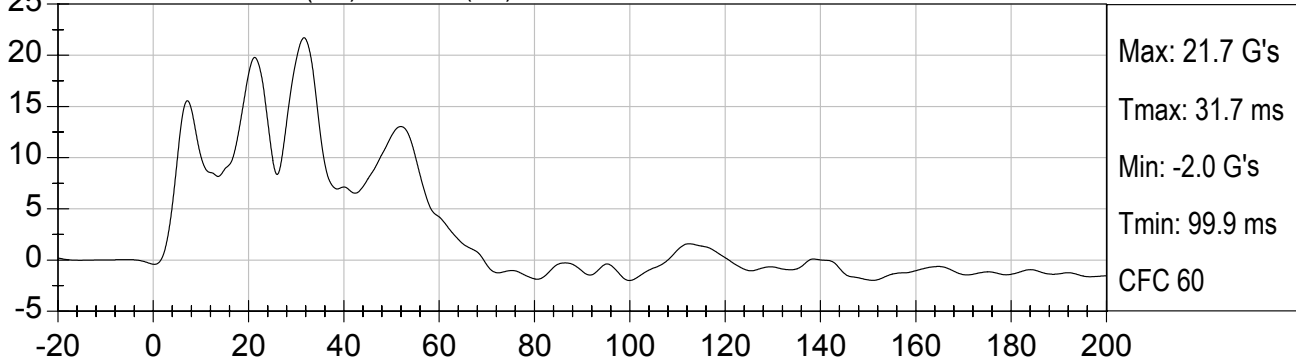




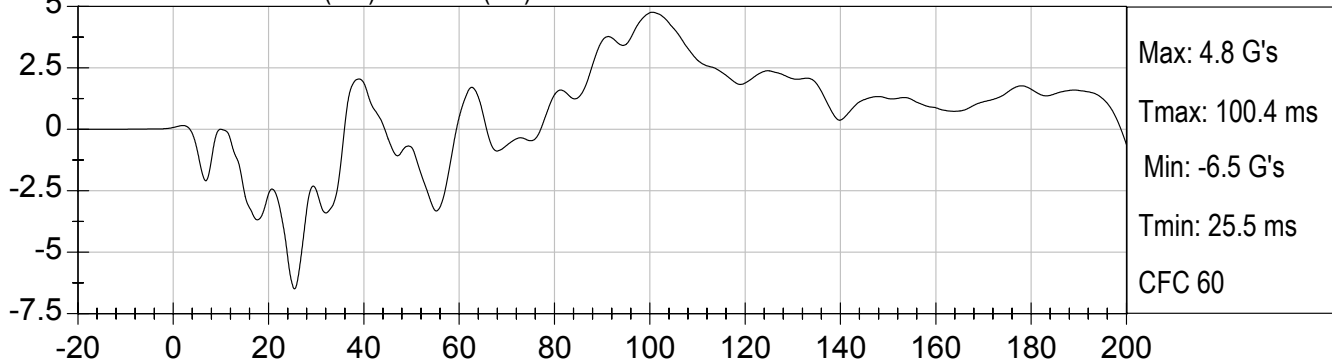
RIGHT REAR SILL X (G's) vs TIME (ms)



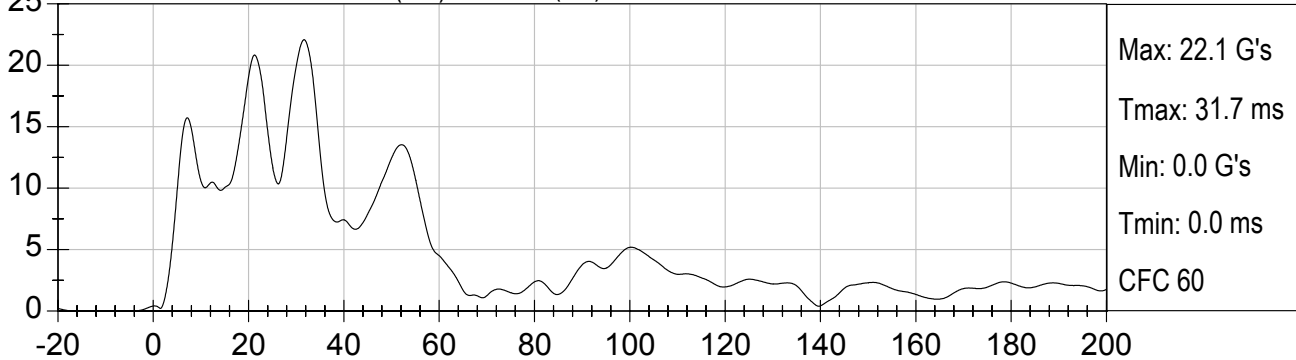
RIGHT REAR SILL Y (G's) vs TIME (ms)



RIGHT REAR SILL Z (G's) vs TIME (ms)

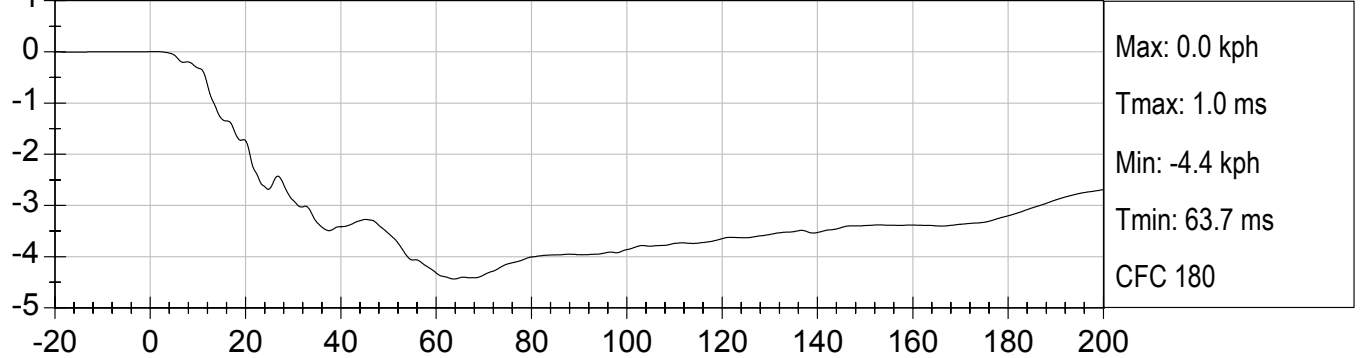


RIGHT REAR SILL Resultant (G's) vs TIME (ms)

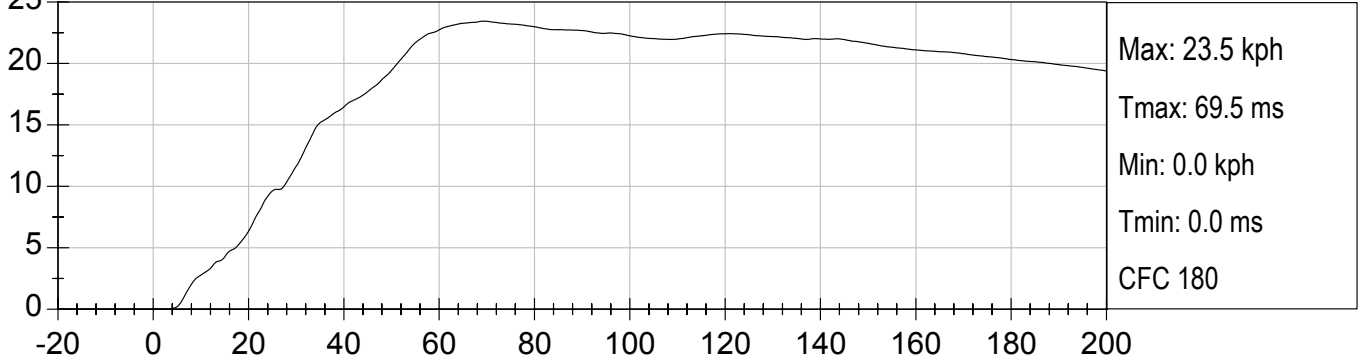




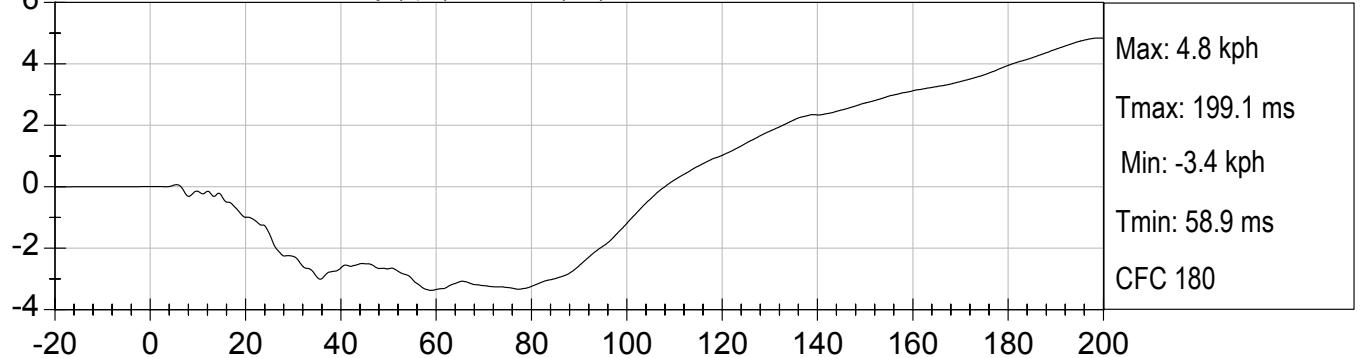
1 RIGHT REAR SILL X Velocity (kph) vs TIME (ms)

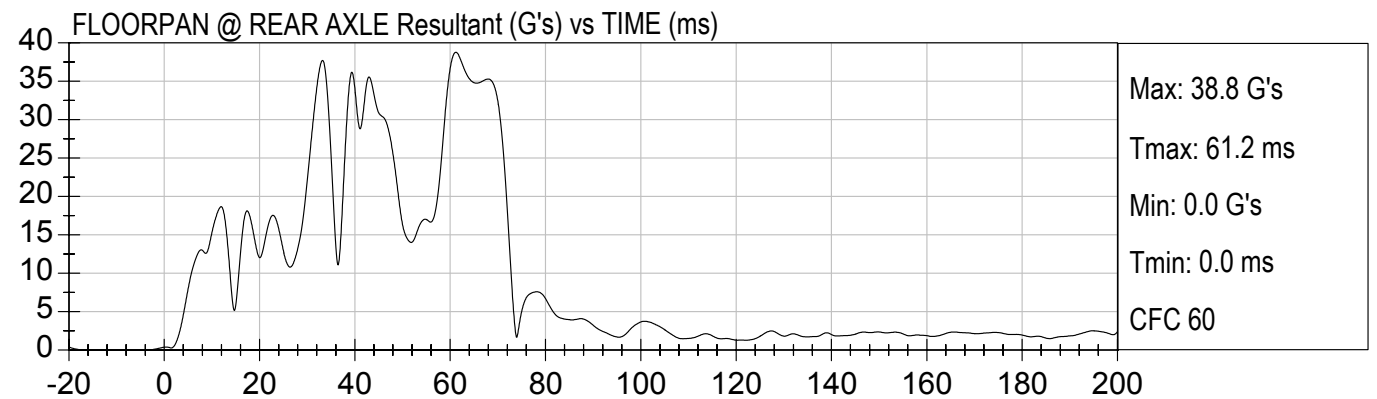
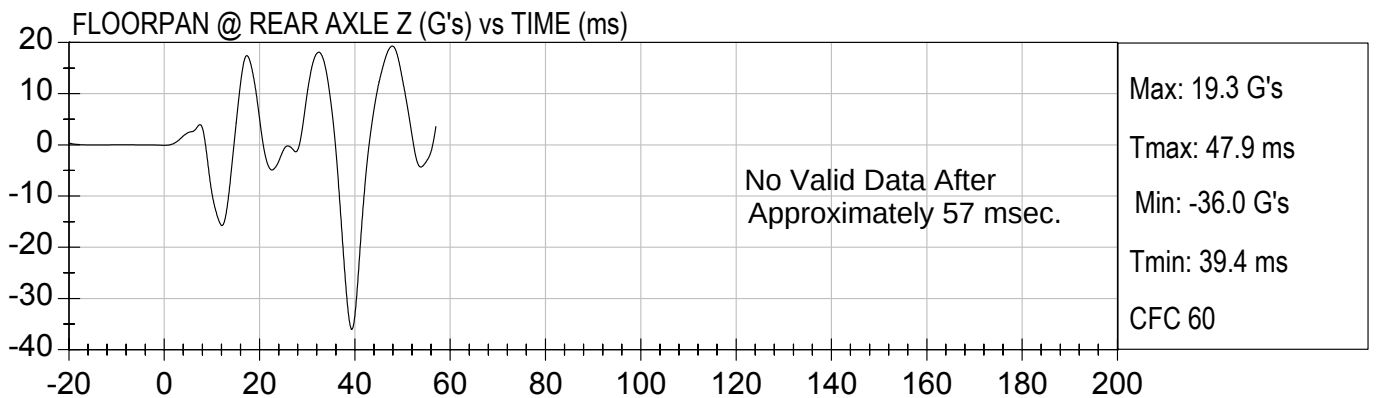
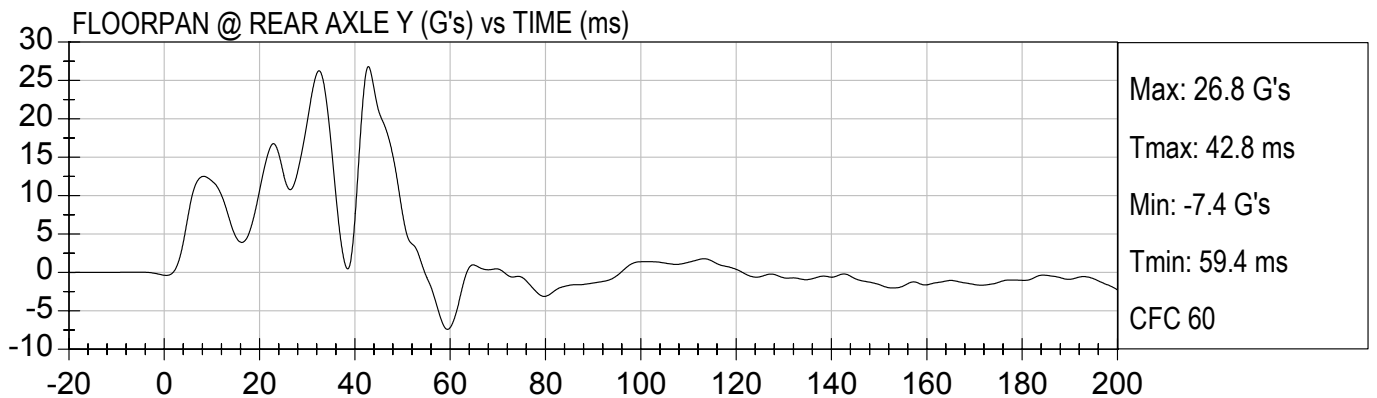
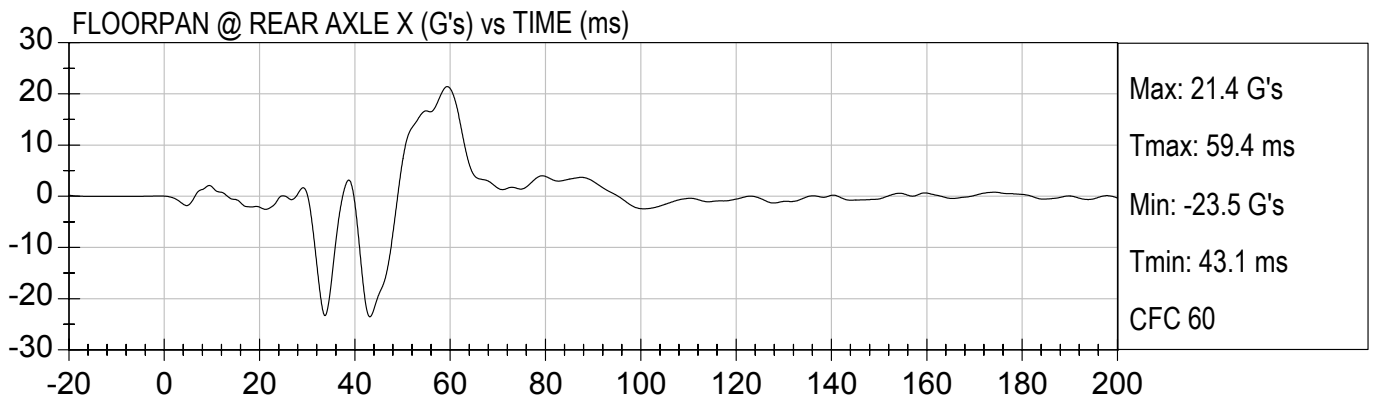


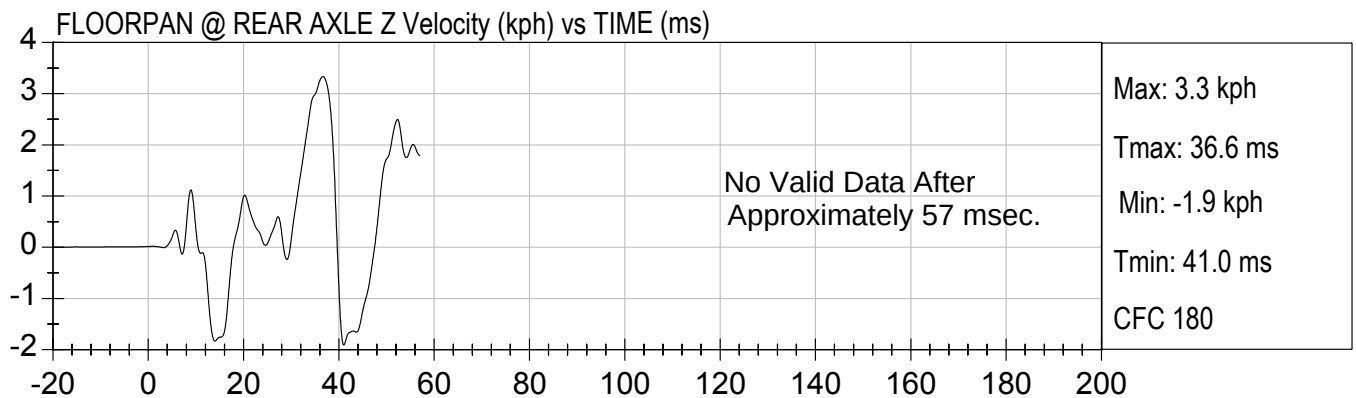
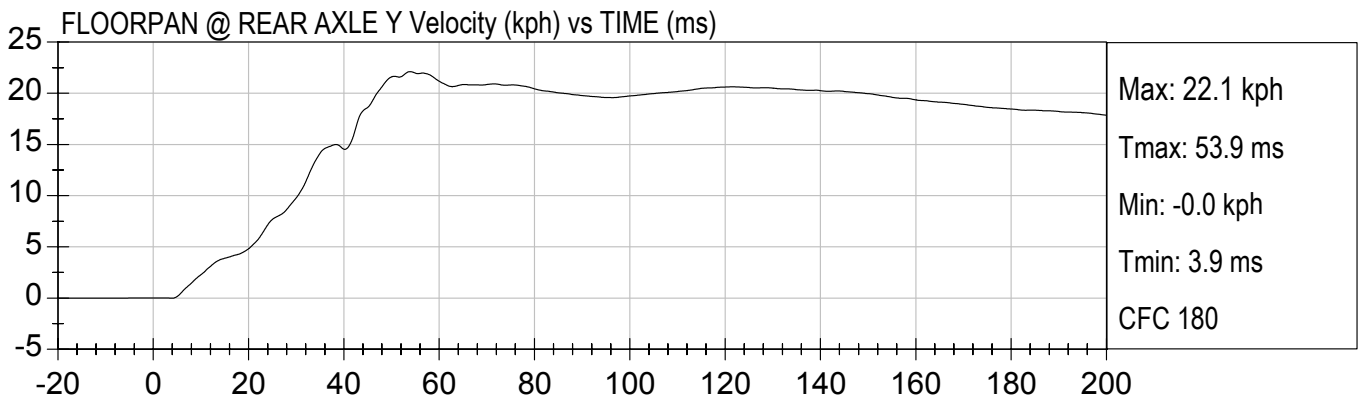
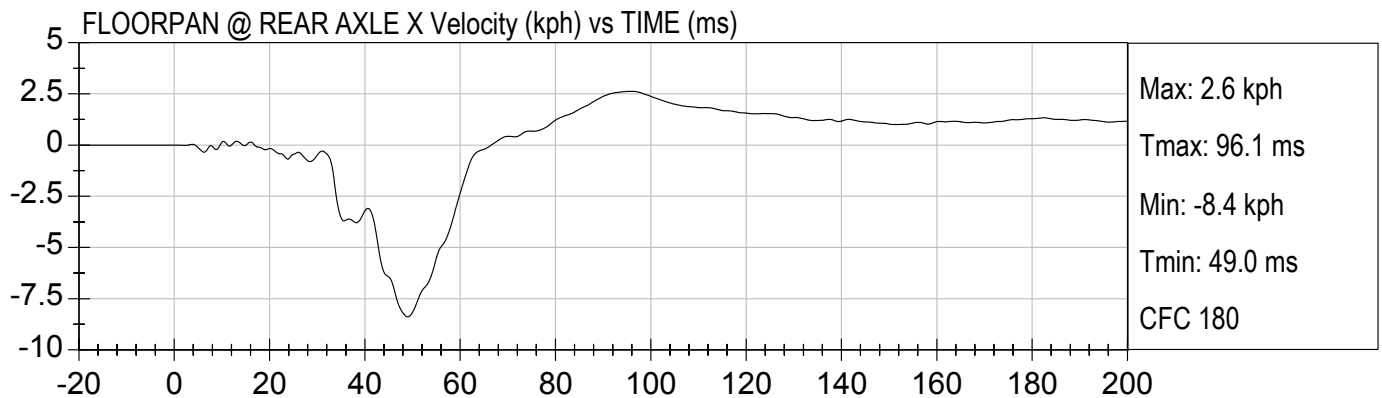
25 RIGHT REAR SILL Y Velocity (kph) vs TIME (ms)



6 RIGHT REAR SILL Z Velocity (kph) vs TIME (ms)

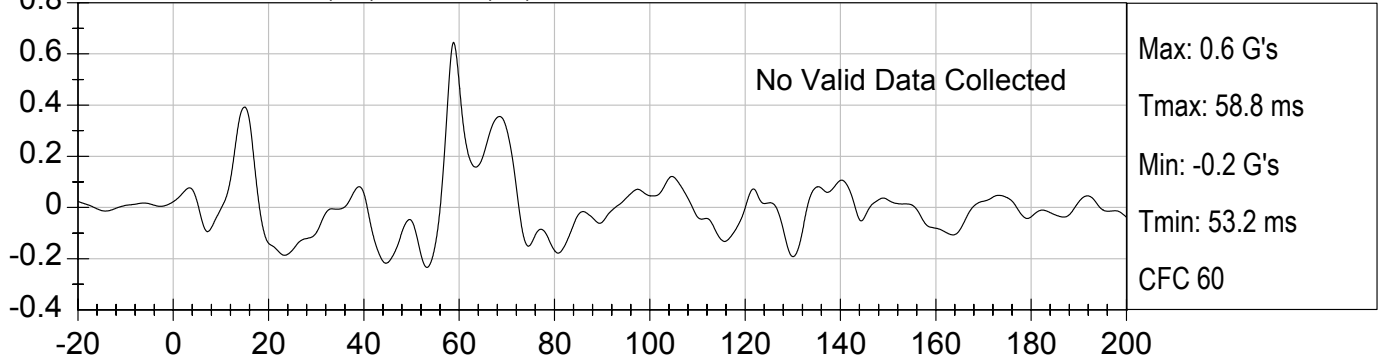




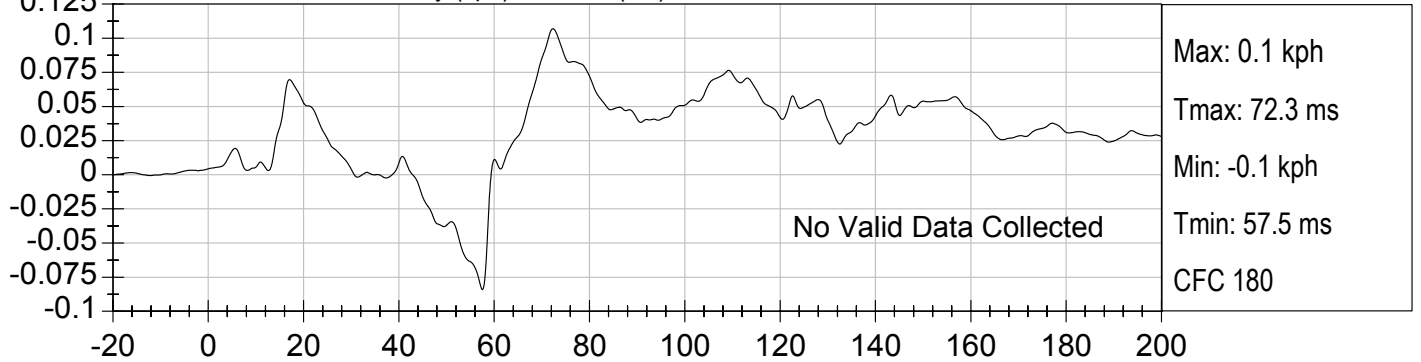




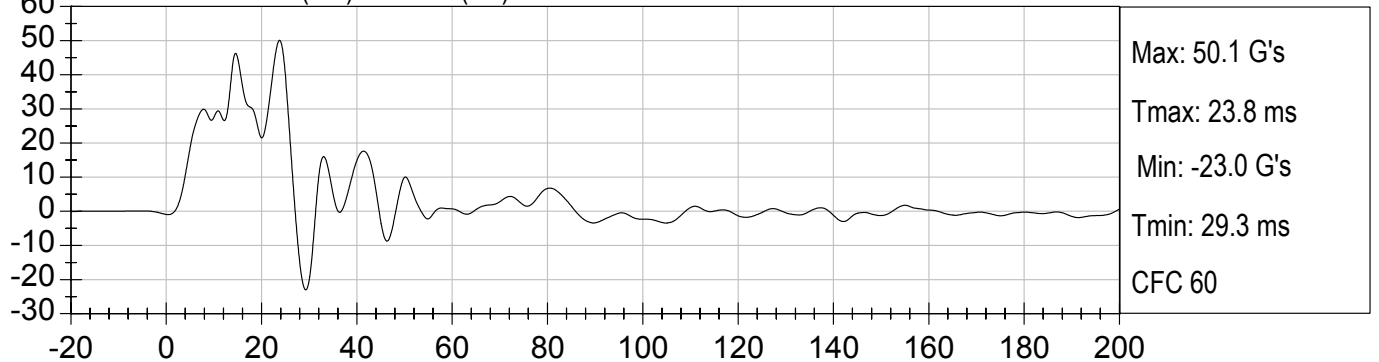
LEFT FRONT SILL Y (G's) vs TIME (ms)



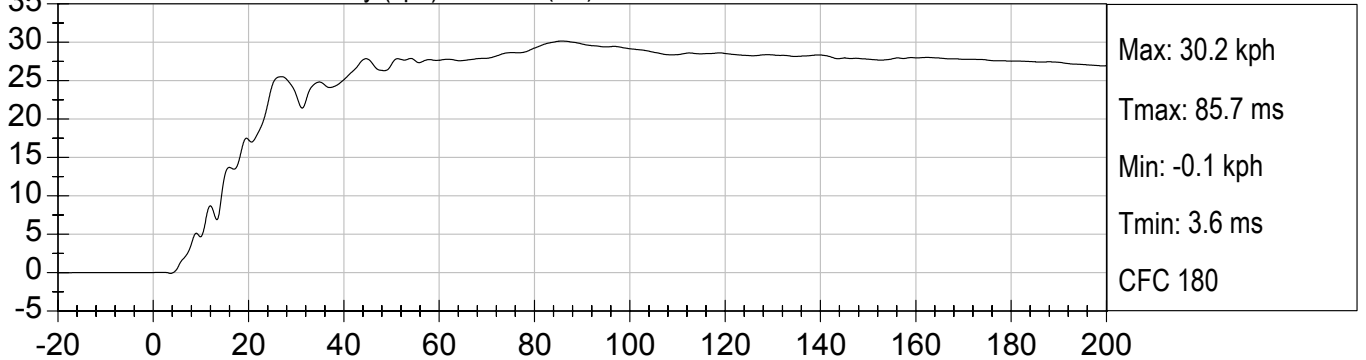
LEFT FRONT SILL Y Velocity (kph) vs TIME (ms)



LEFT REAR SILL Y (G's) vs TIME (ms)

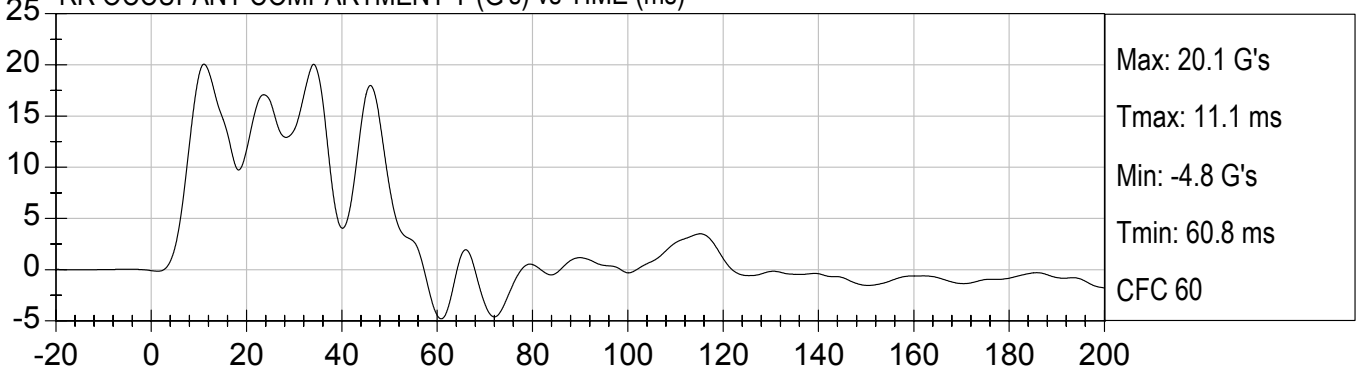


LEFT REAR SILL Y Velocity (kph) vs TIME (ms)

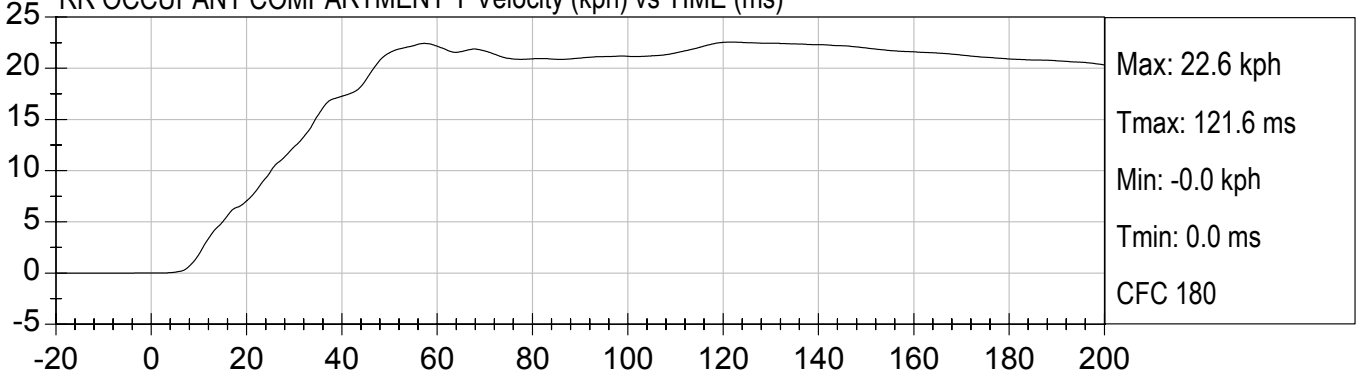




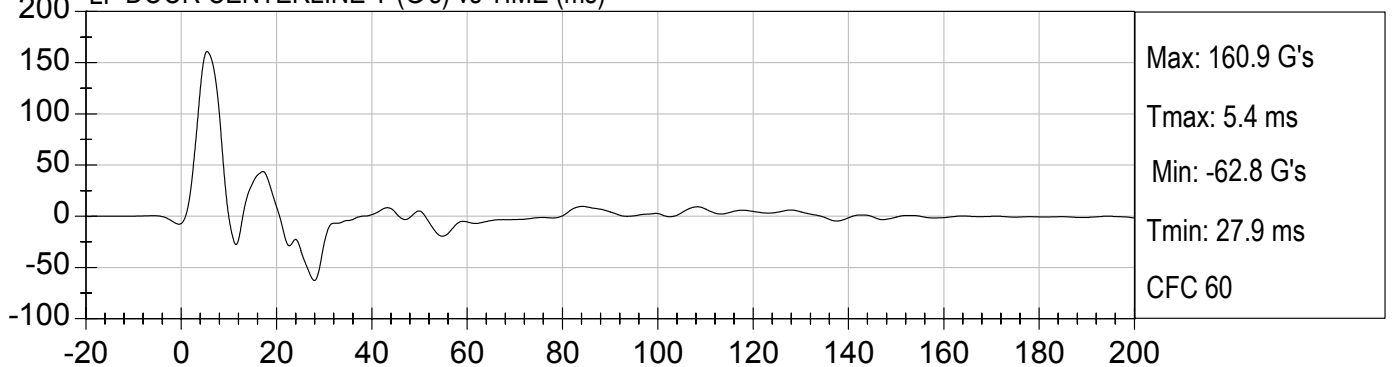
RR OCCUPANT COMPARTMENT Y (G's) vs TIME (ms)



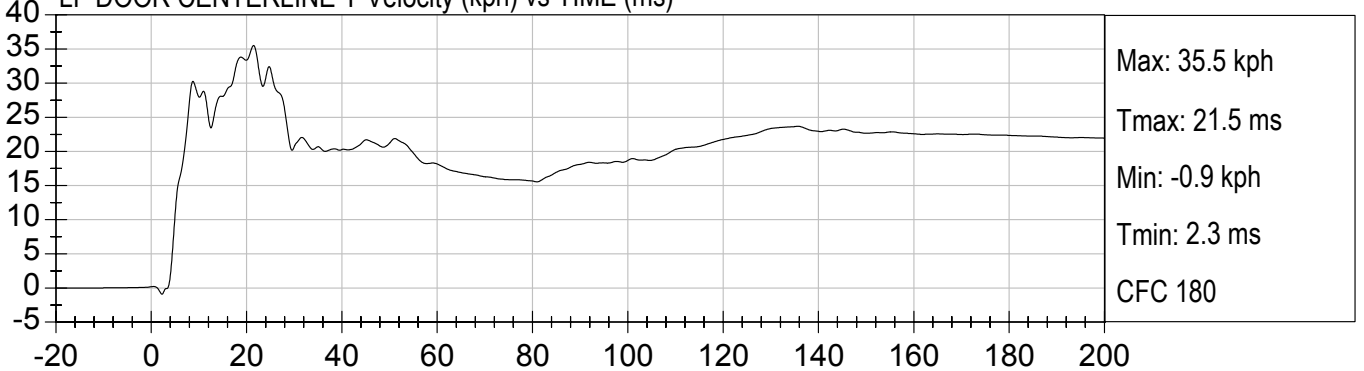
RR OCCUPANT COMPARTMENT Y Velocity (kph) vs TIME (ms)

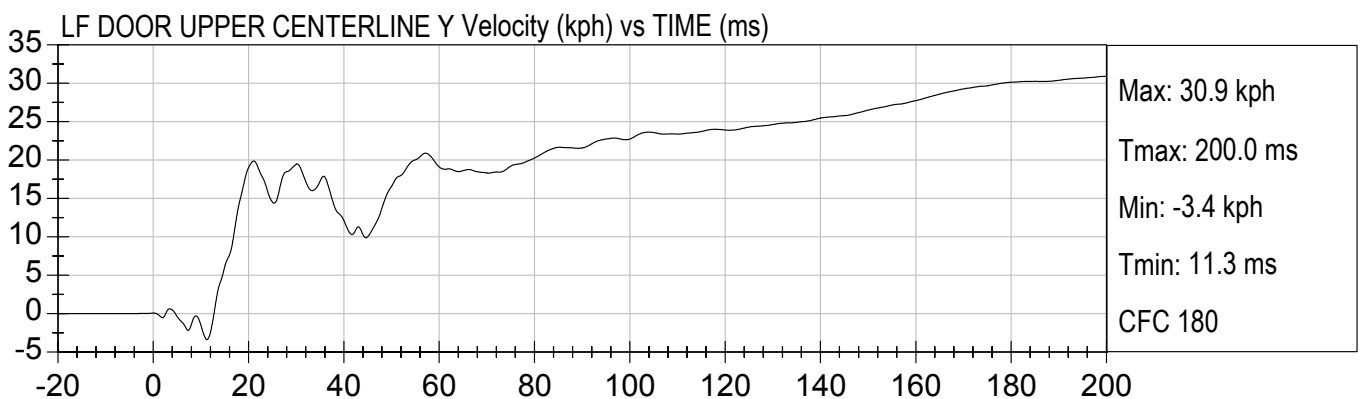
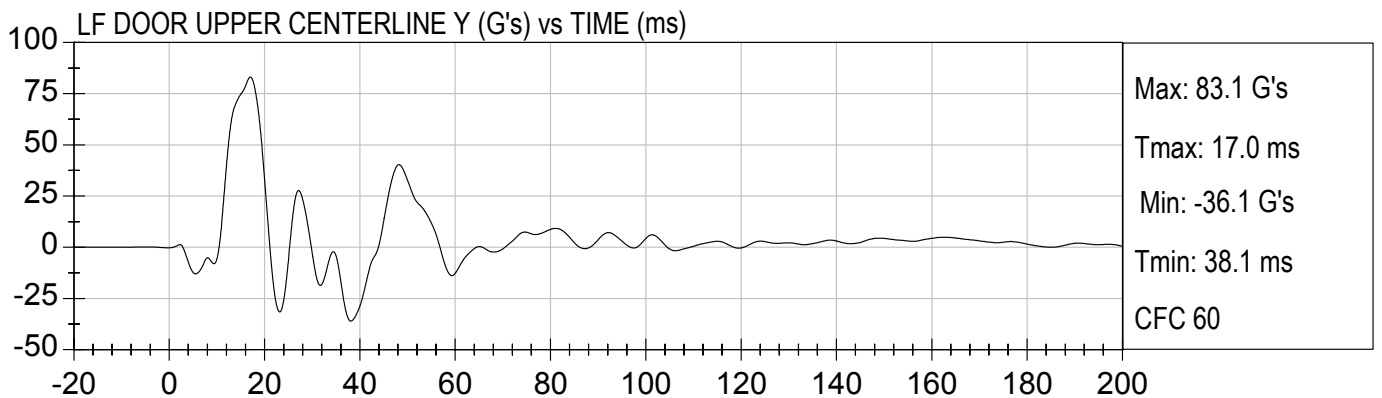
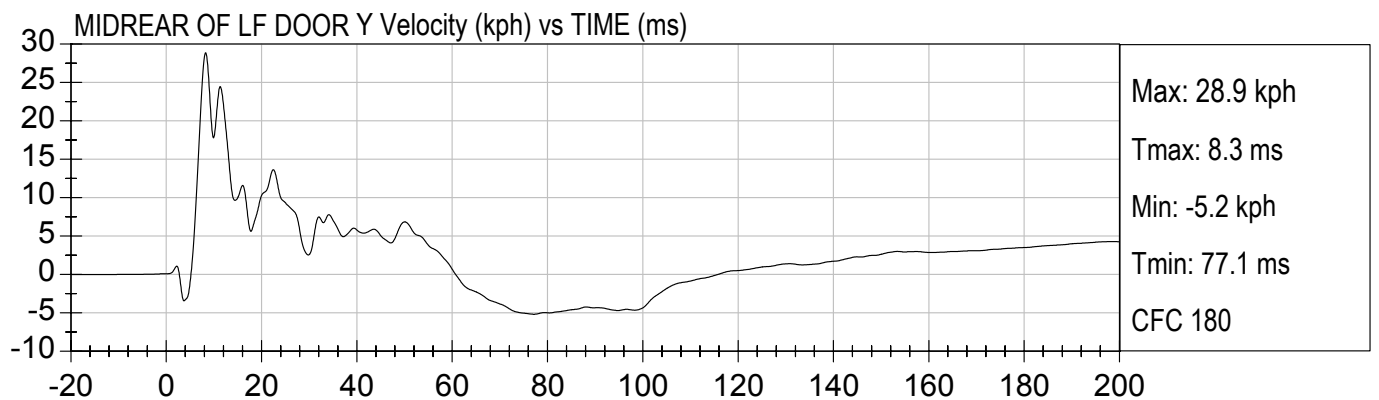
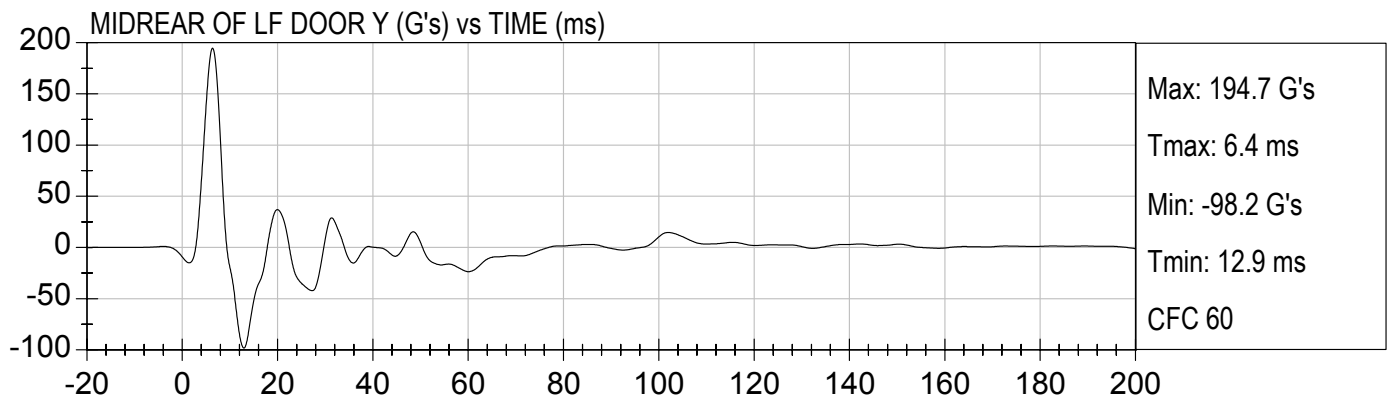


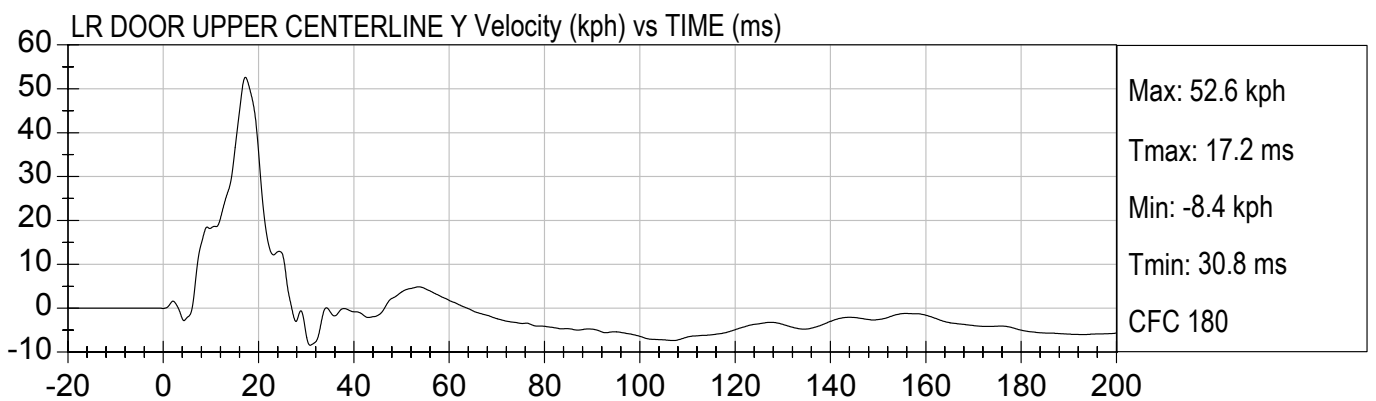
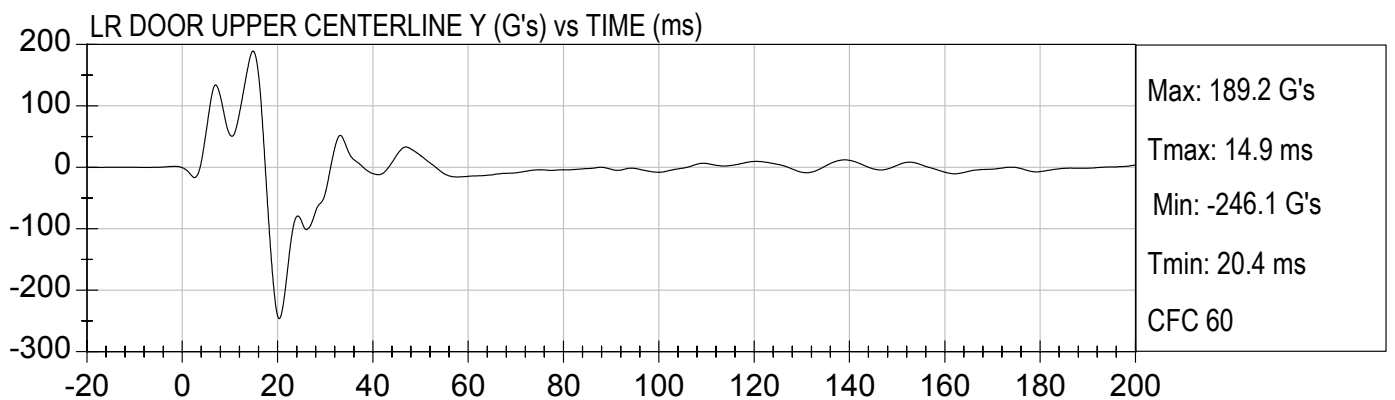
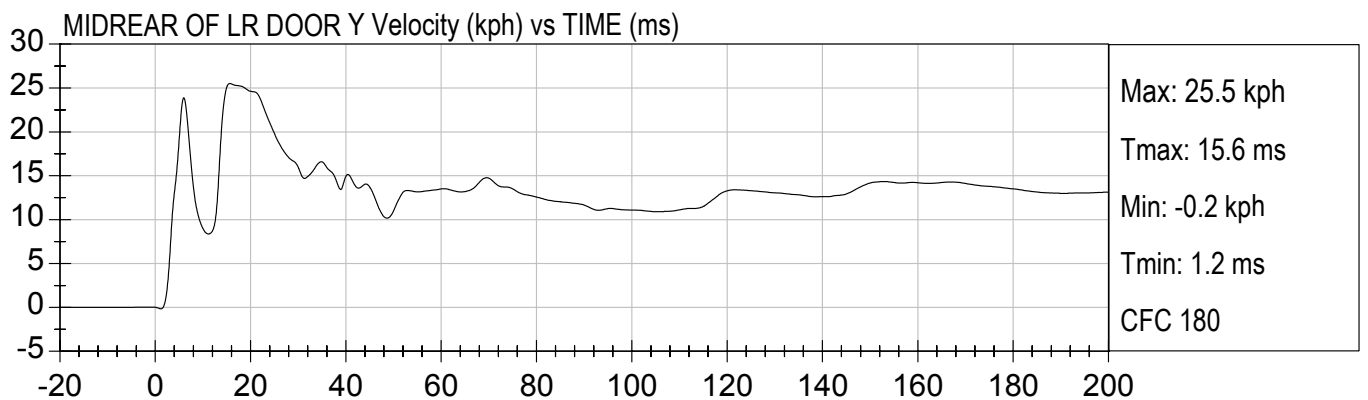
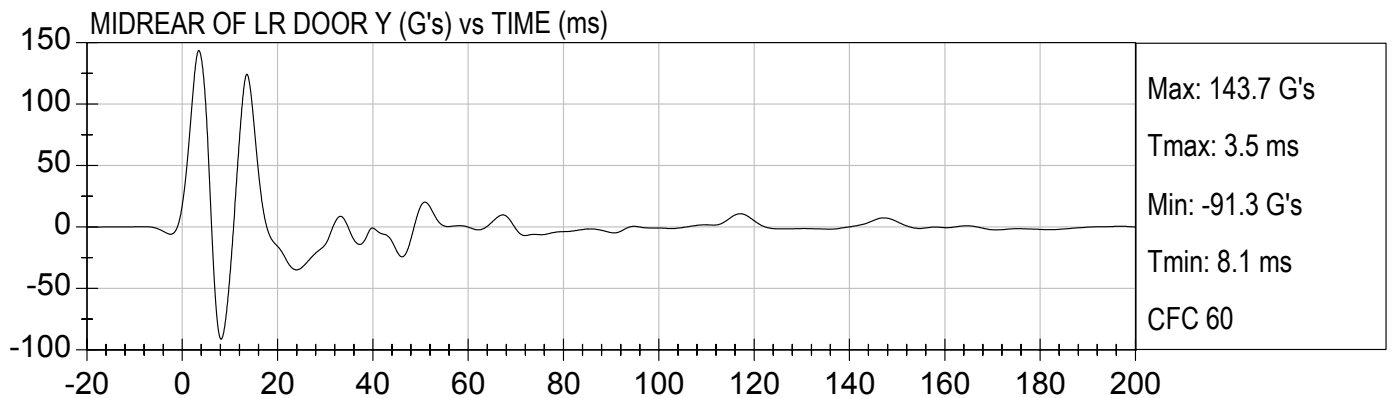
LF DOOR CENTERLINE Y (G's) vs TIME (ms)

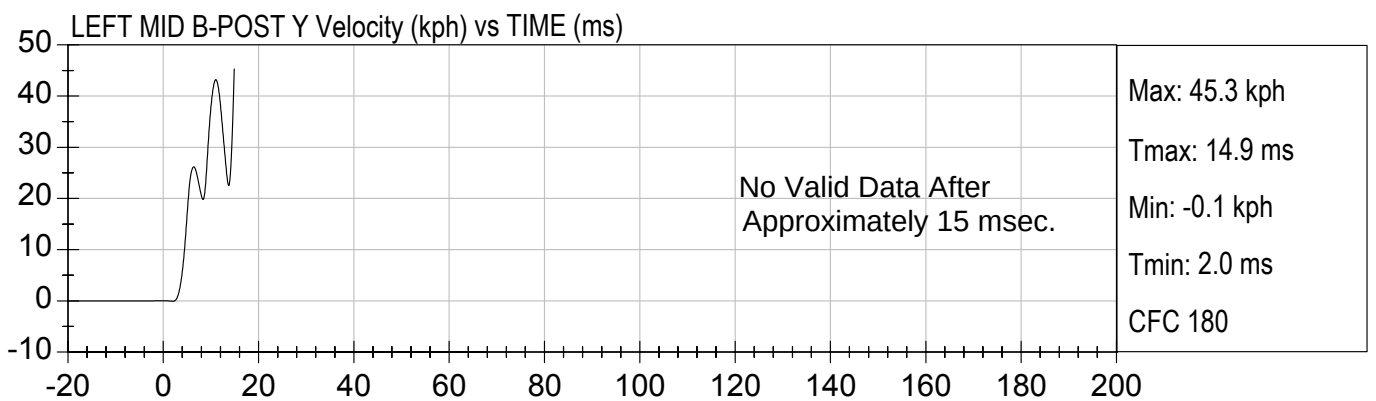
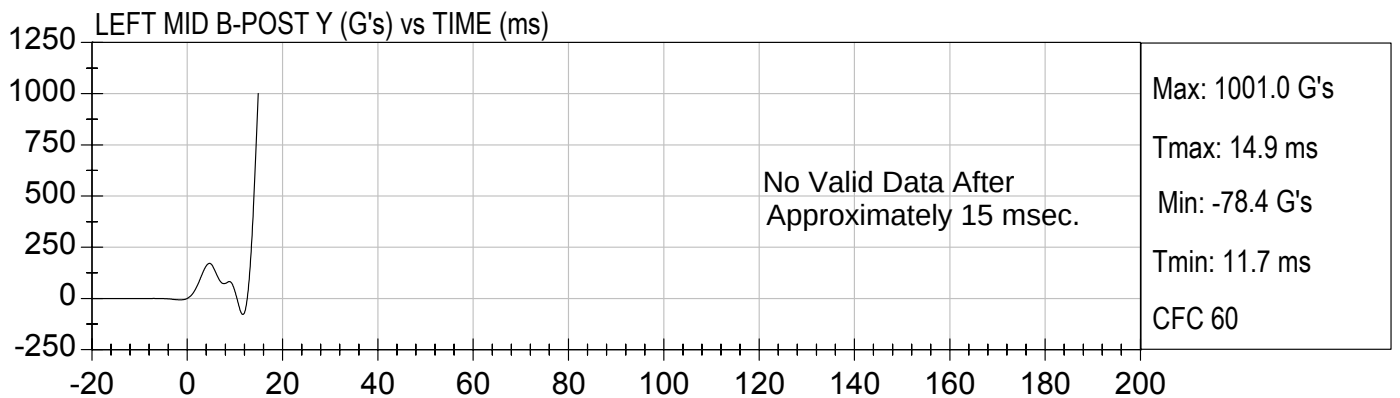
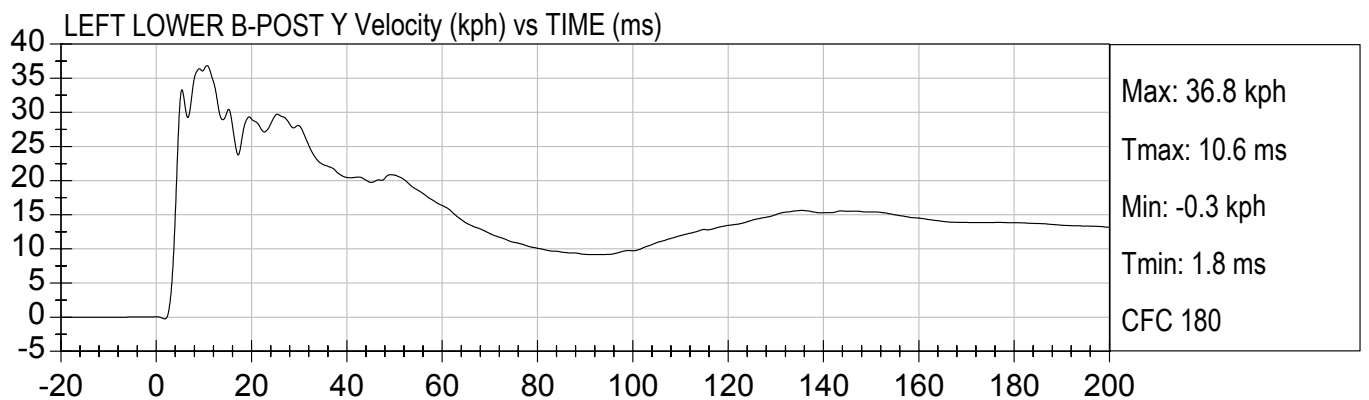
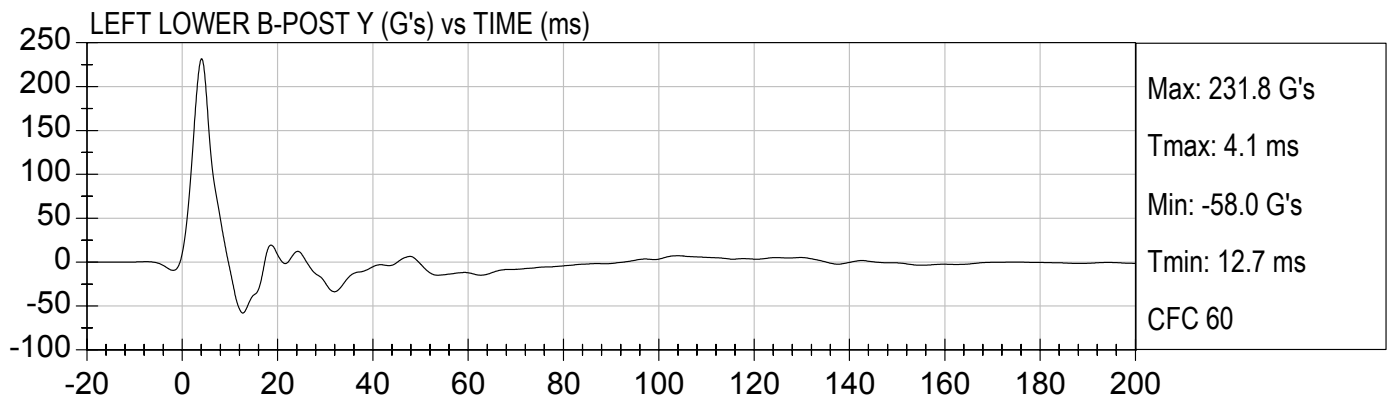


LF DOOR CENTERLINE Y Velocity (kph) vs TIME (ms)



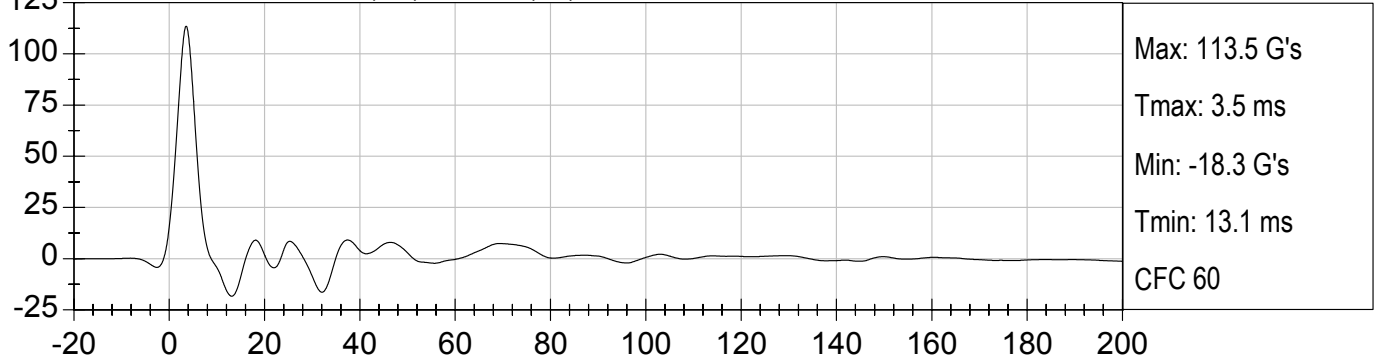




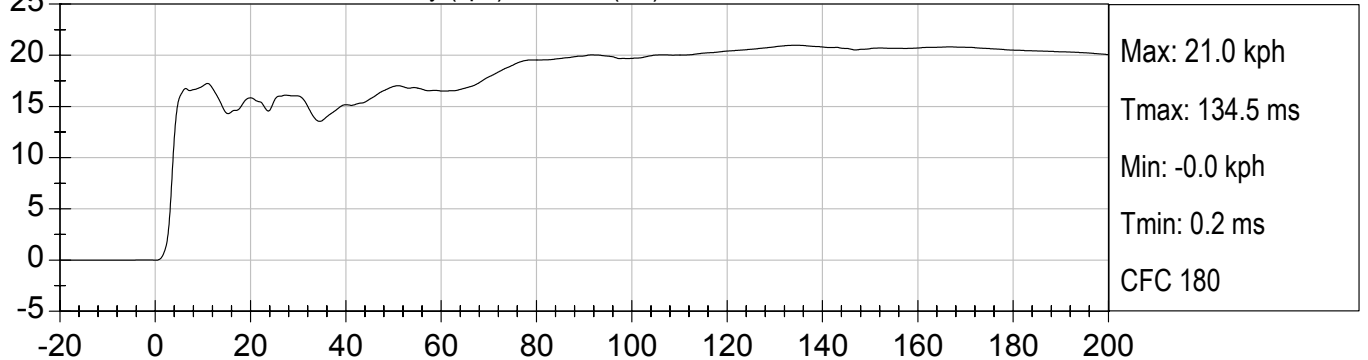




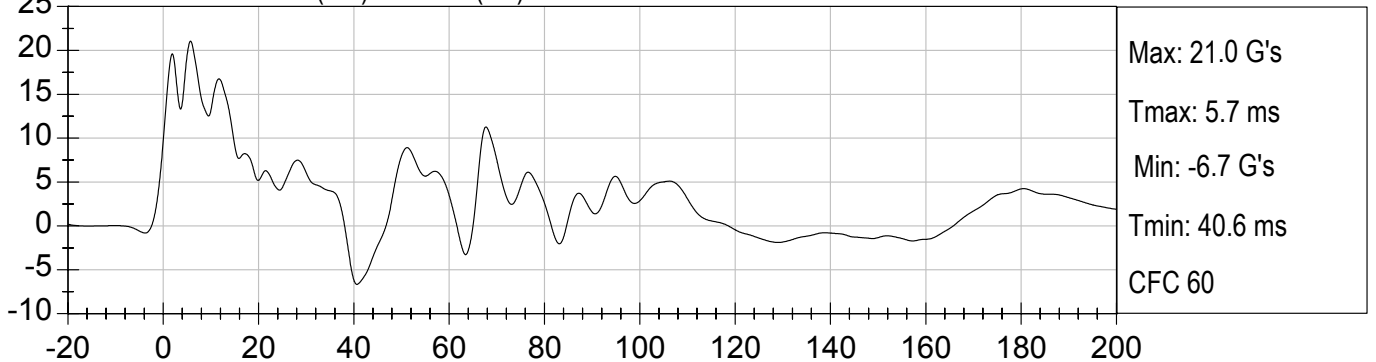
LEFT LOWER A-POST Y (G's) vs TIME (ms)



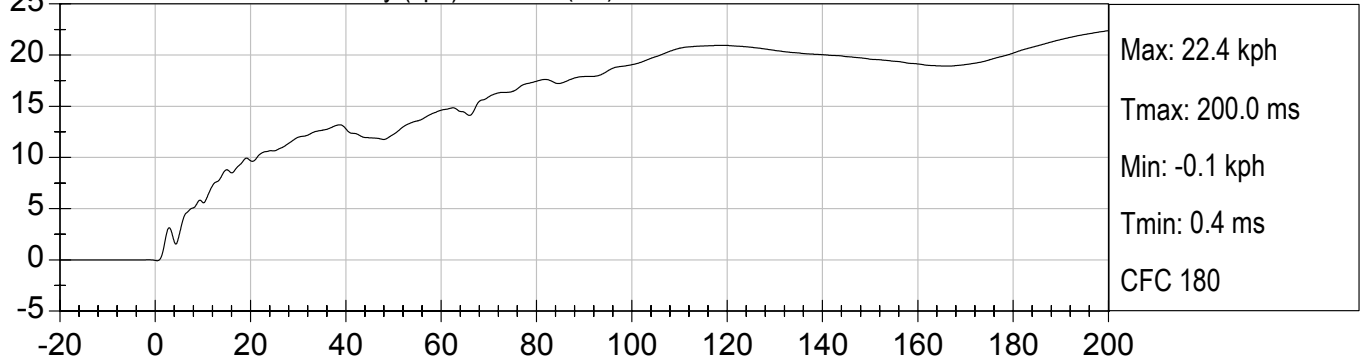
LEFT LOWER A-POST Y Velocity (kph) vs TIME (ms)



LEFT MID A-POST Y (G's) vs TIME (ms)

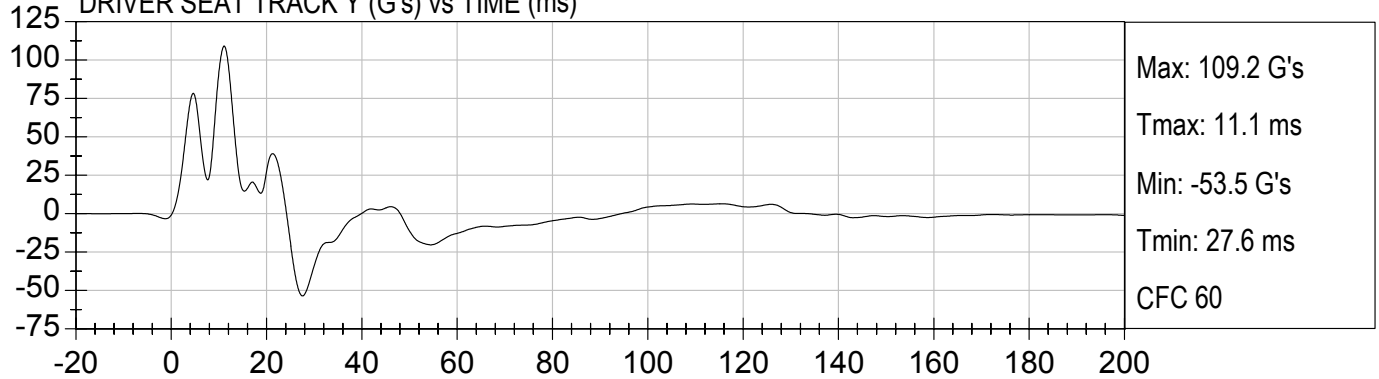


LEFT MID A-POST Y Velocity (kph) vs TIME (ms)

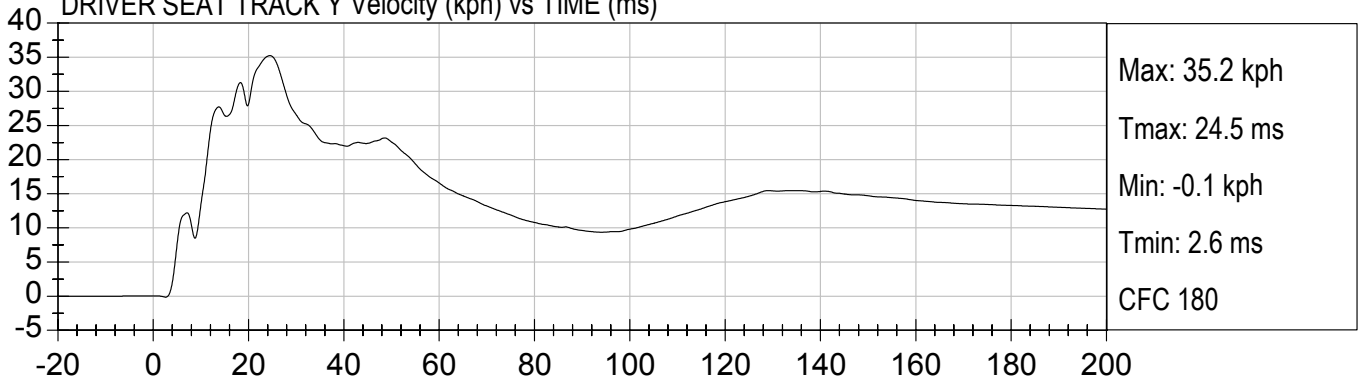




DRIVER SEAT TRACK Y (G's) vs TIME (ms)

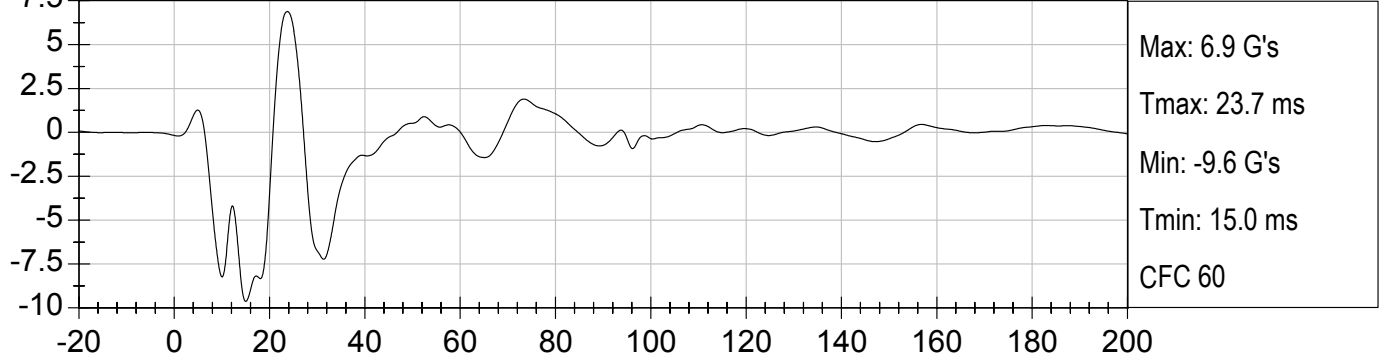


DRIVER SEAT TRACK Y Velocity (kph) vs TIME (ms)

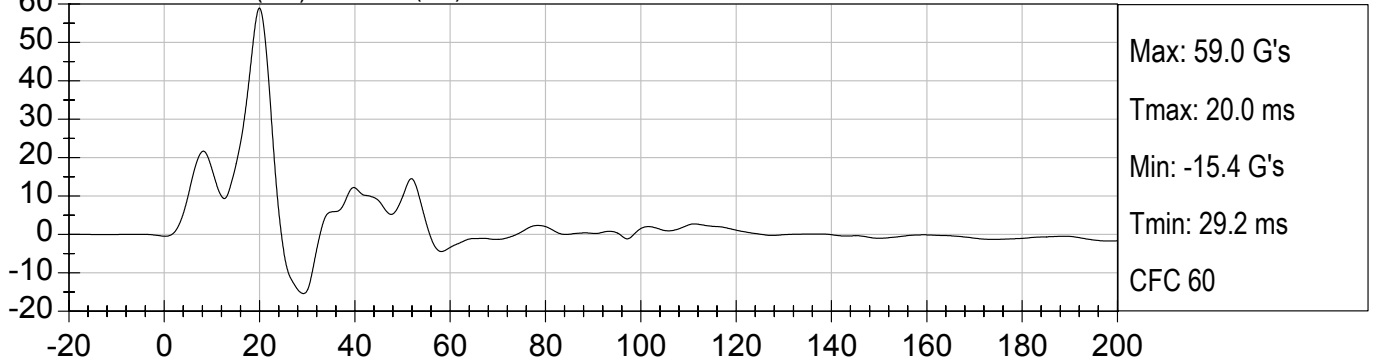




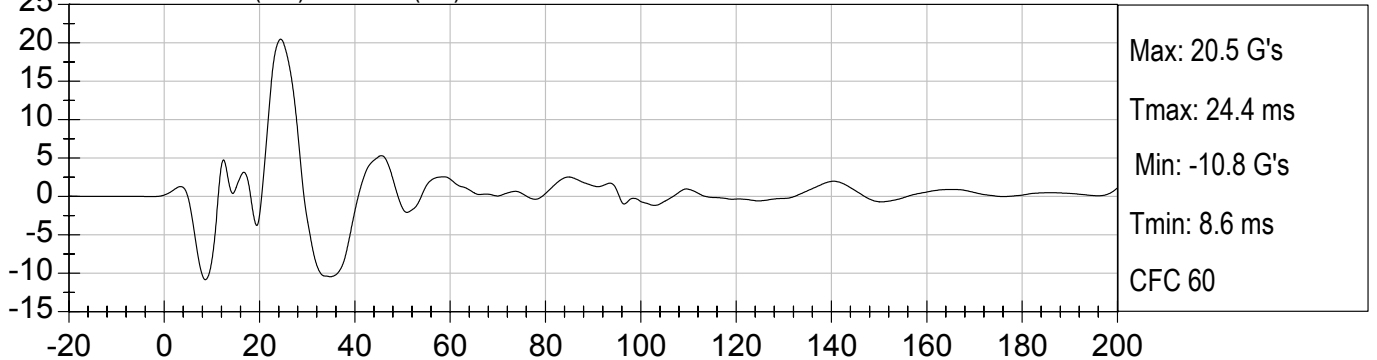
VEHICLE CG X (G's) vs TIME (ms)



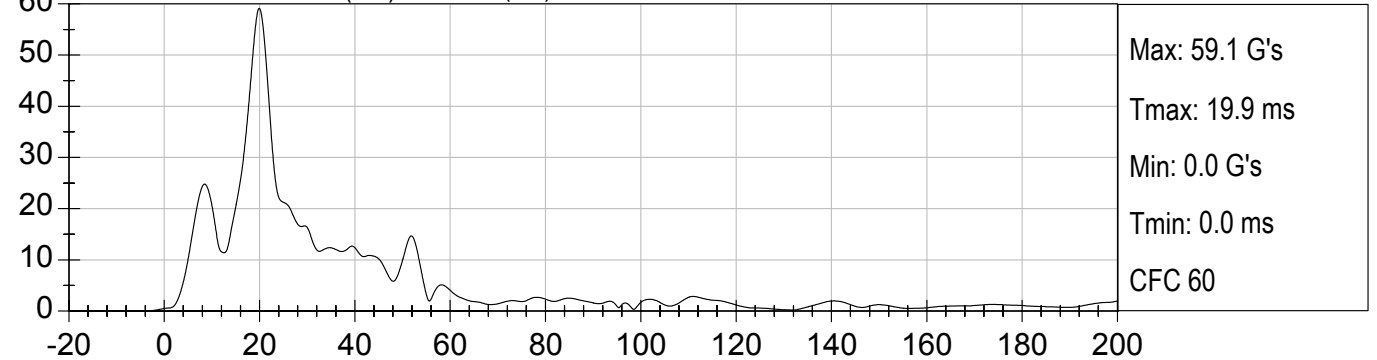
VEHICLE CG Y (G's) vs TIME (ms)



VEHICLE CG Z (G's) vs TIME (ms)

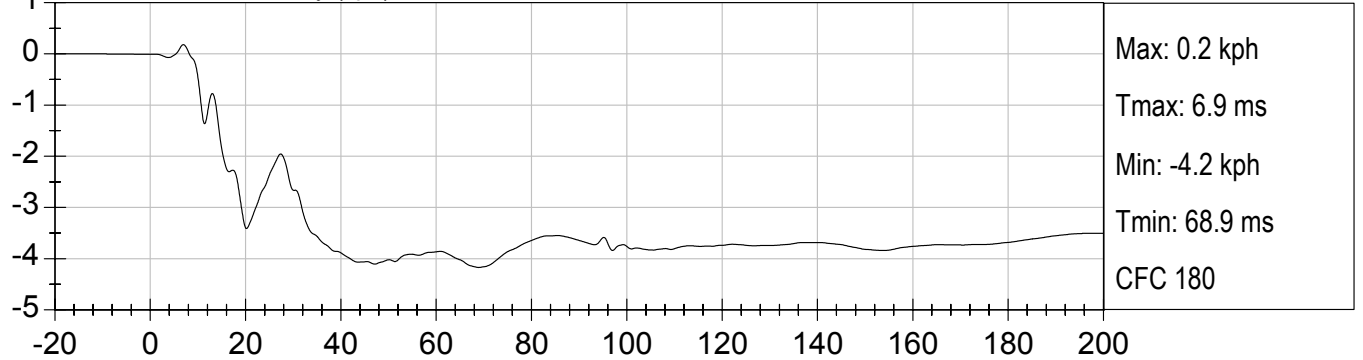


VEHICLE CG Resultant (G's) vs TIME (ms)

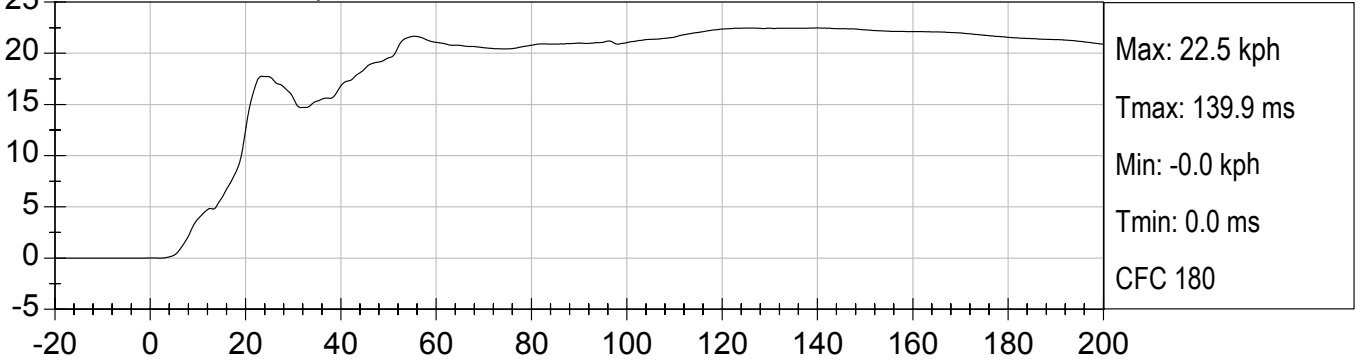




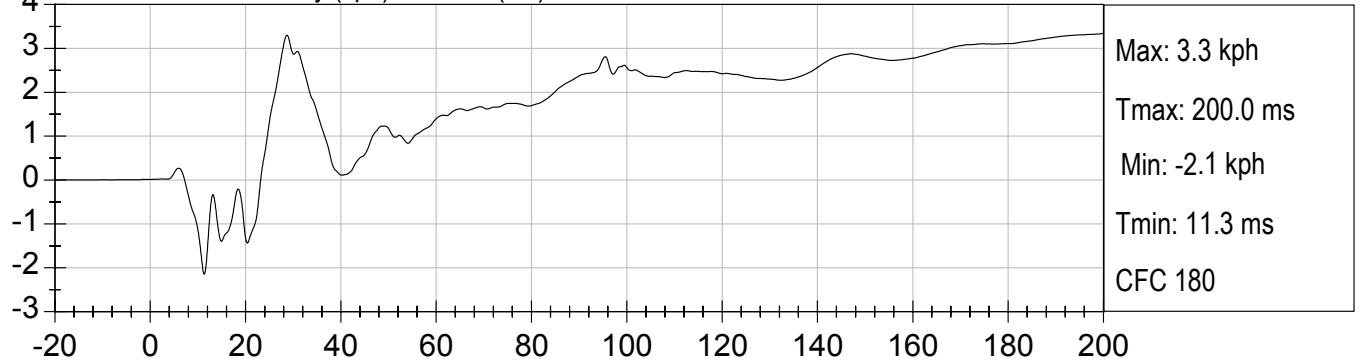
1 VEHICLE CG X Velocity (kph) vs TIME (ms)

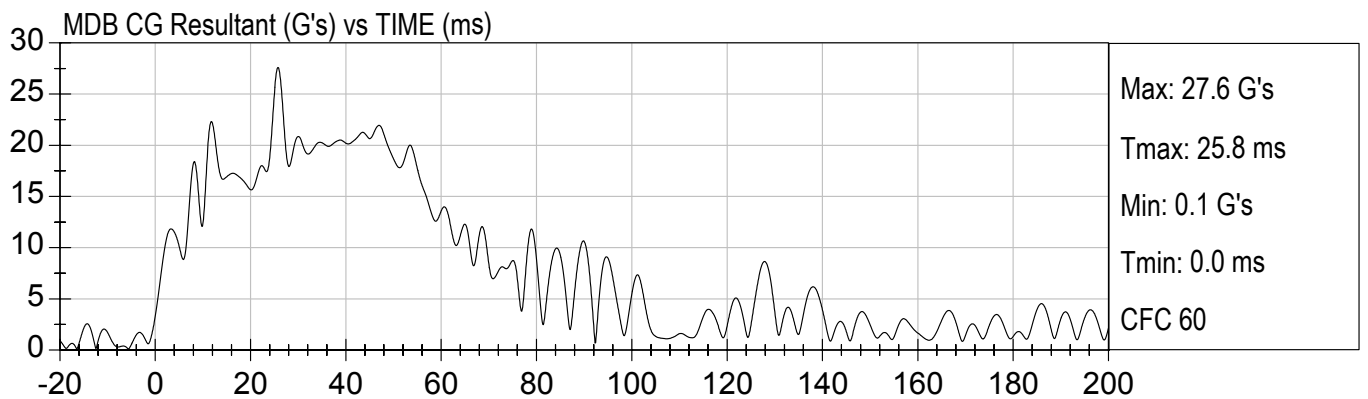
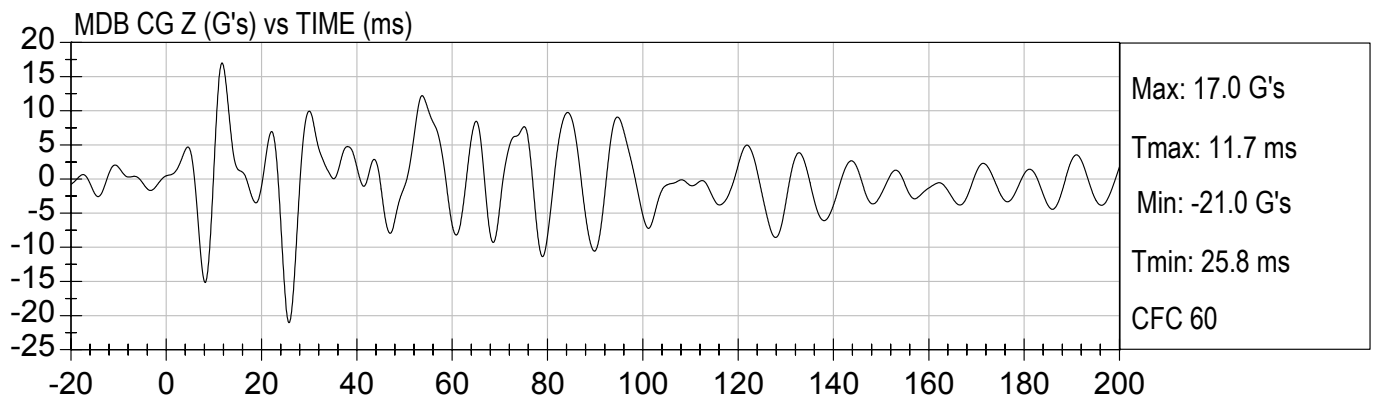
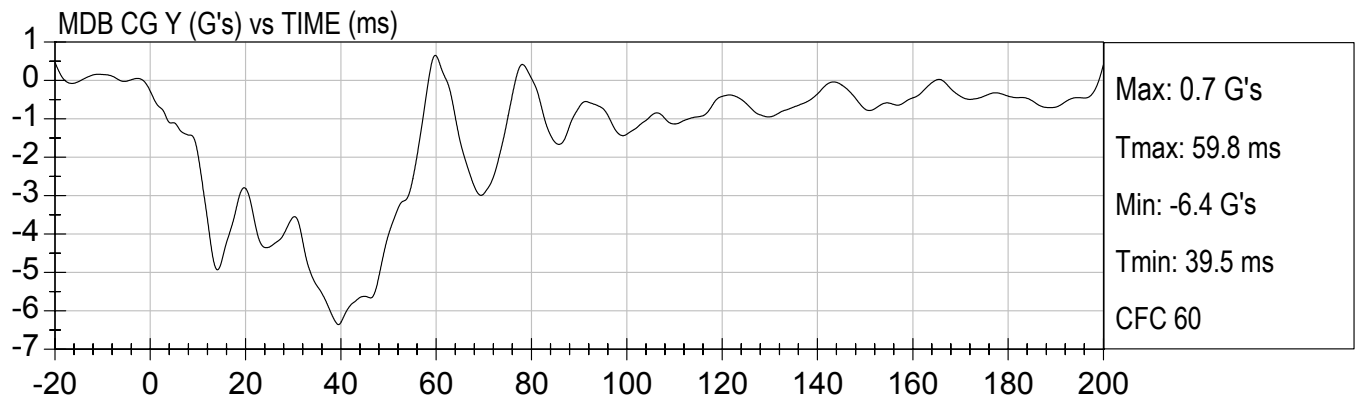
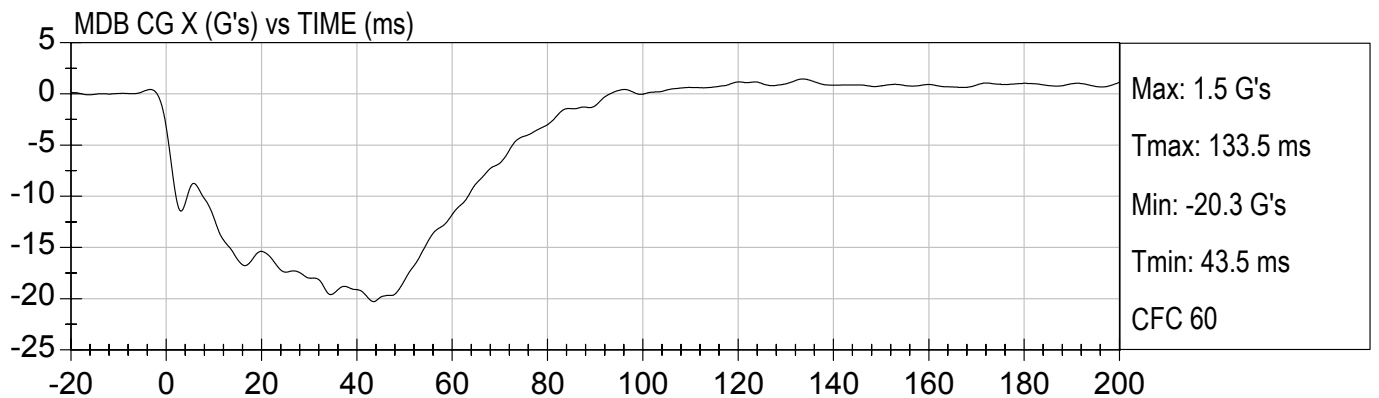


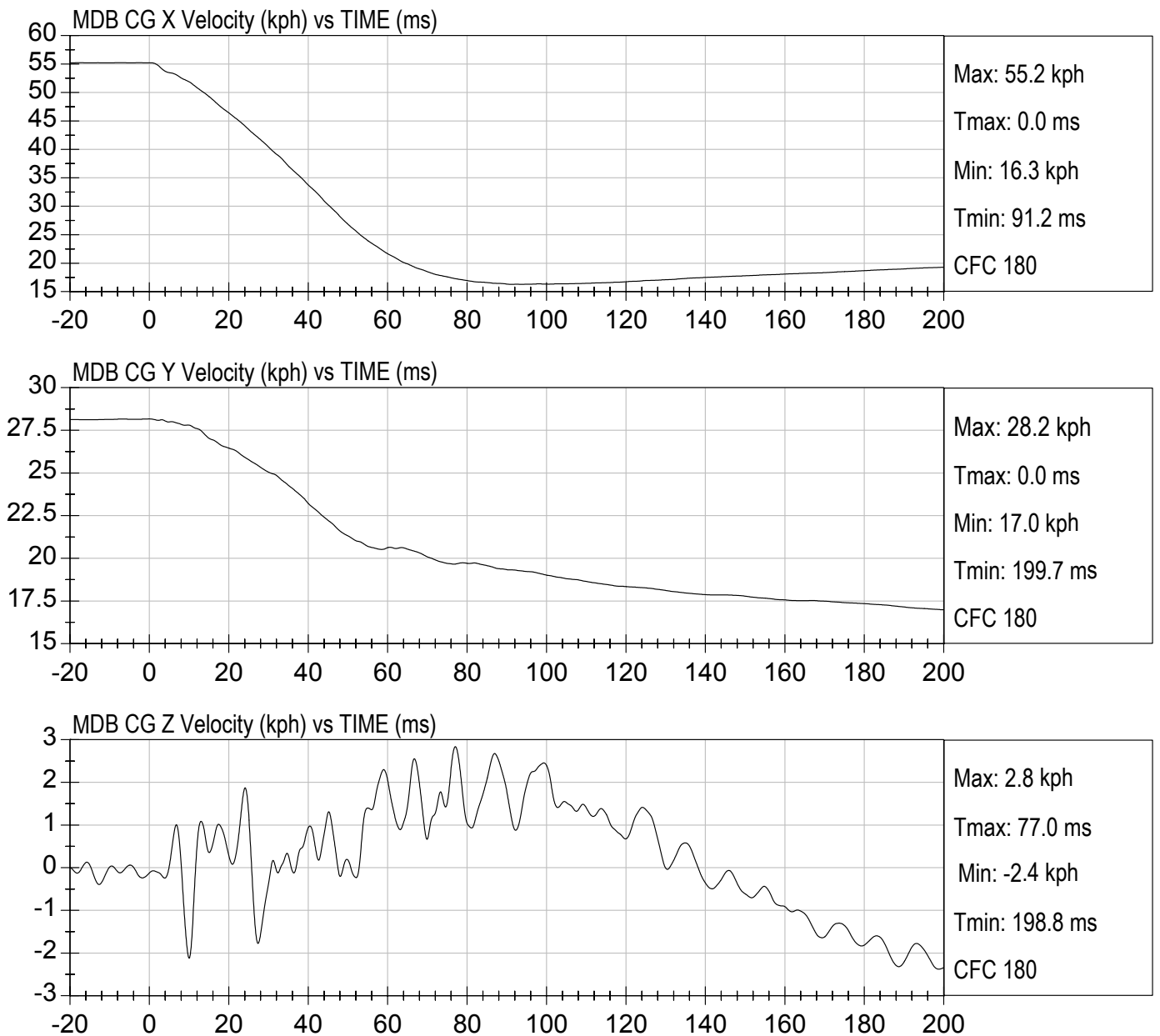
25 VEHICLE CG Y Velocity (kph) vs TIME (ms)

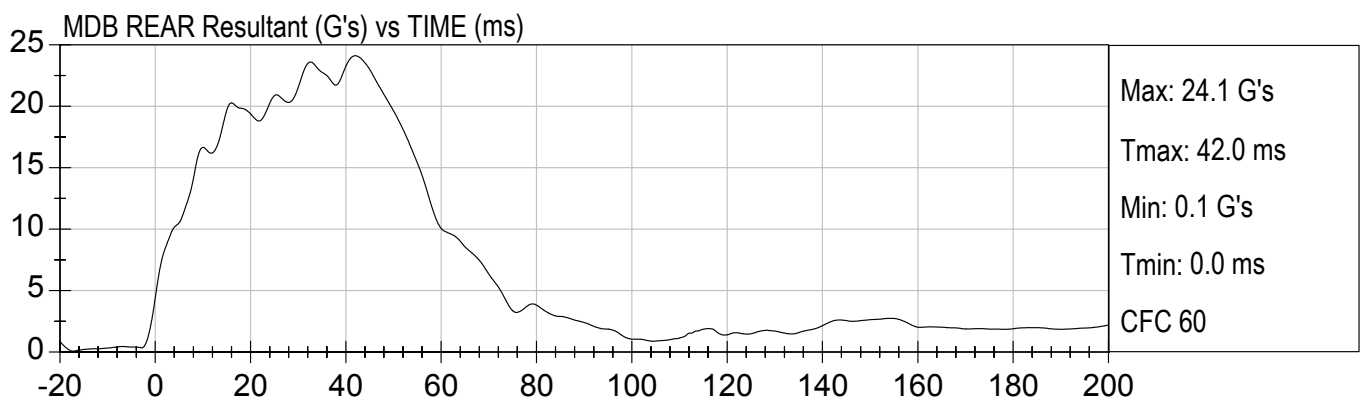
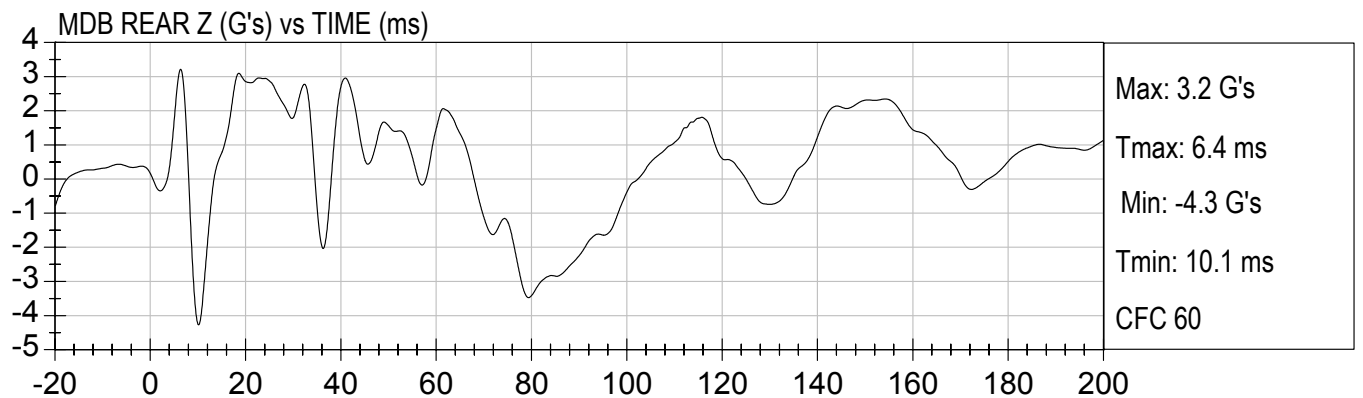
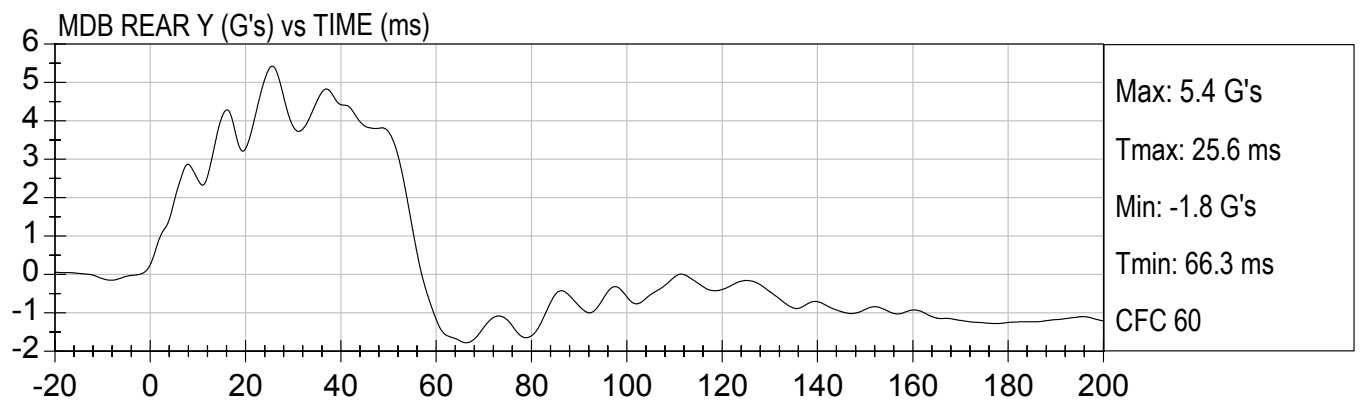
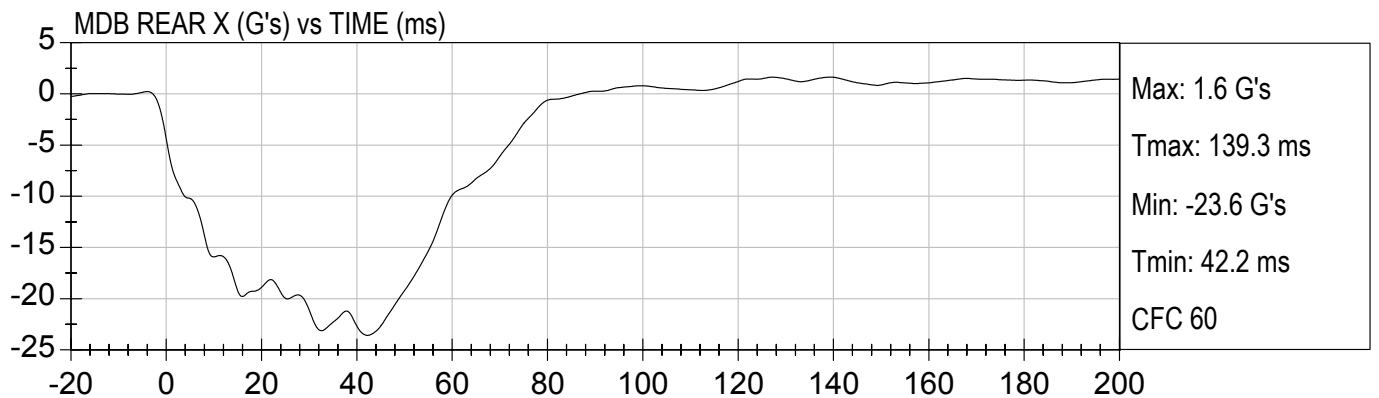


4 VEHICLE CG Z Velocity (kph) vs TIME (ms)



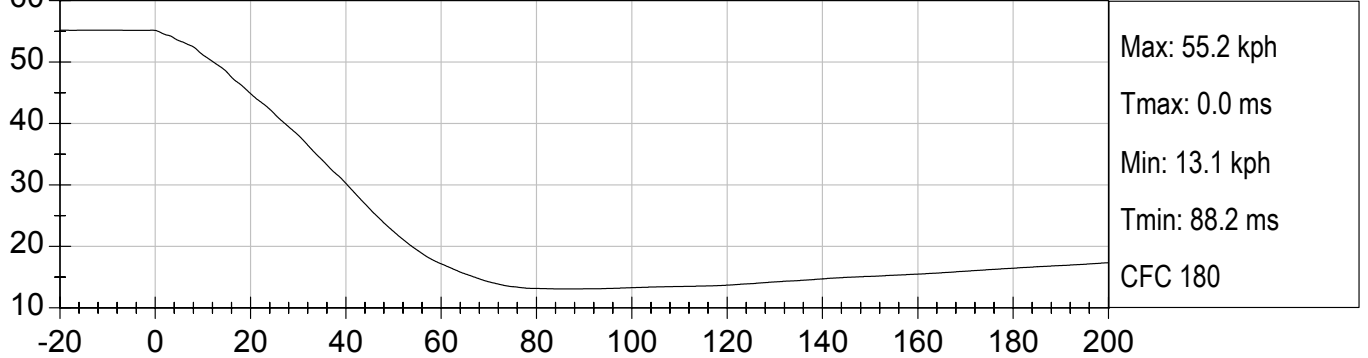




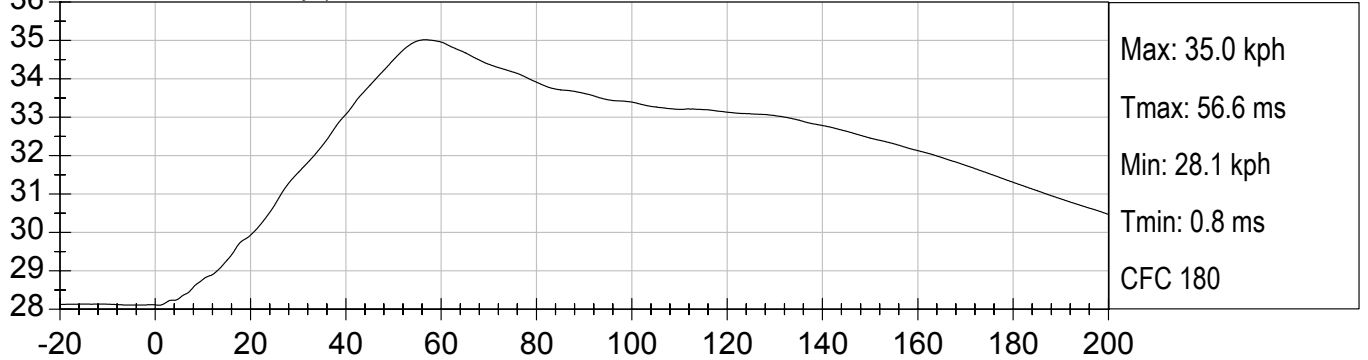




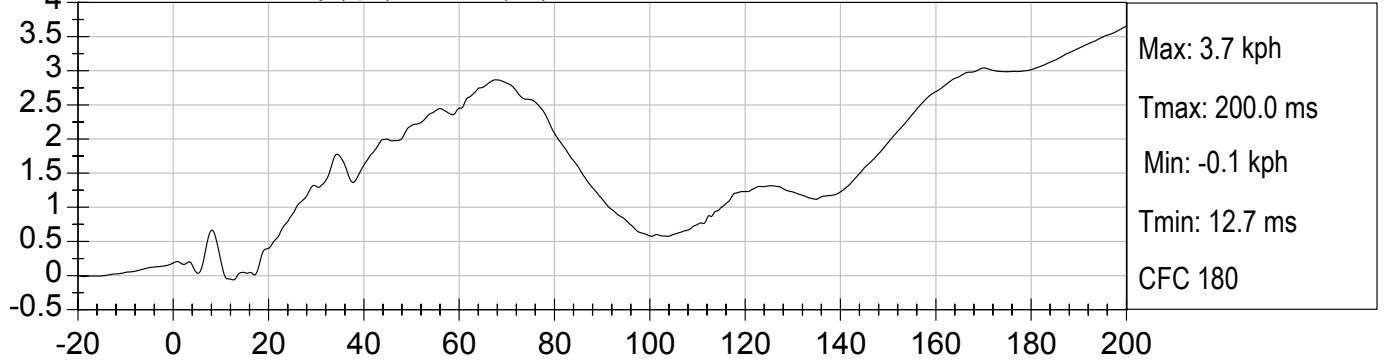
MDB REAR X Velocity (kph) vs TIME (ms)

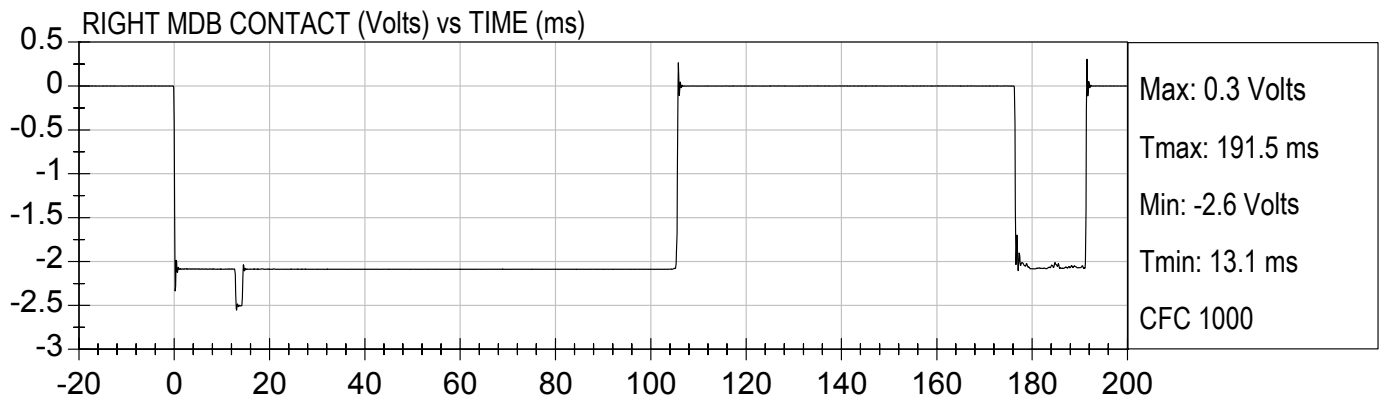
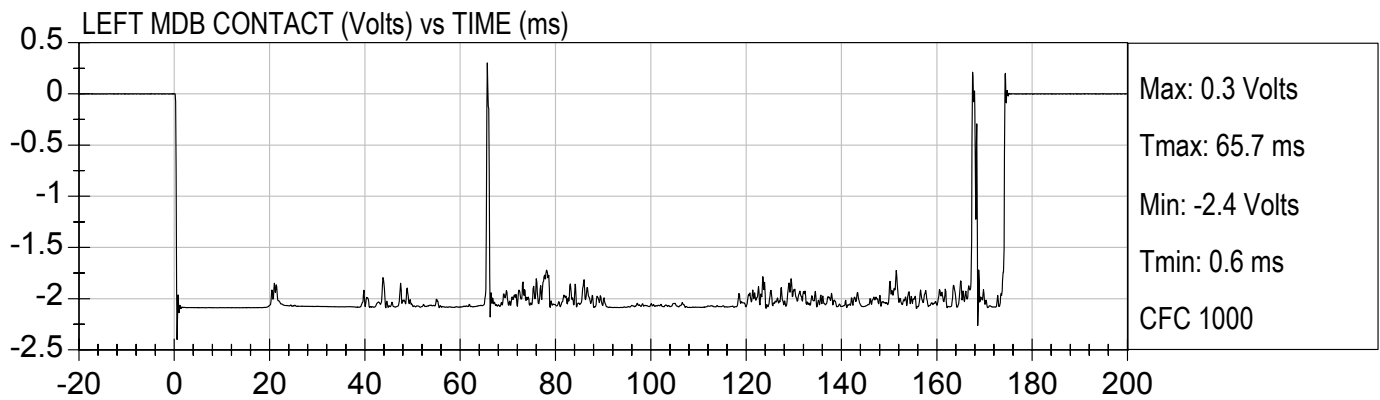


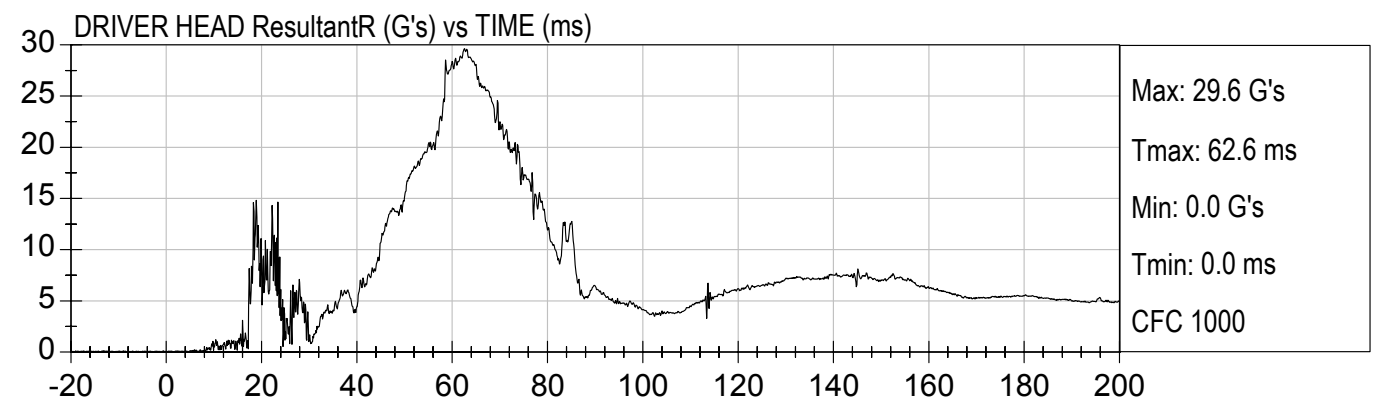
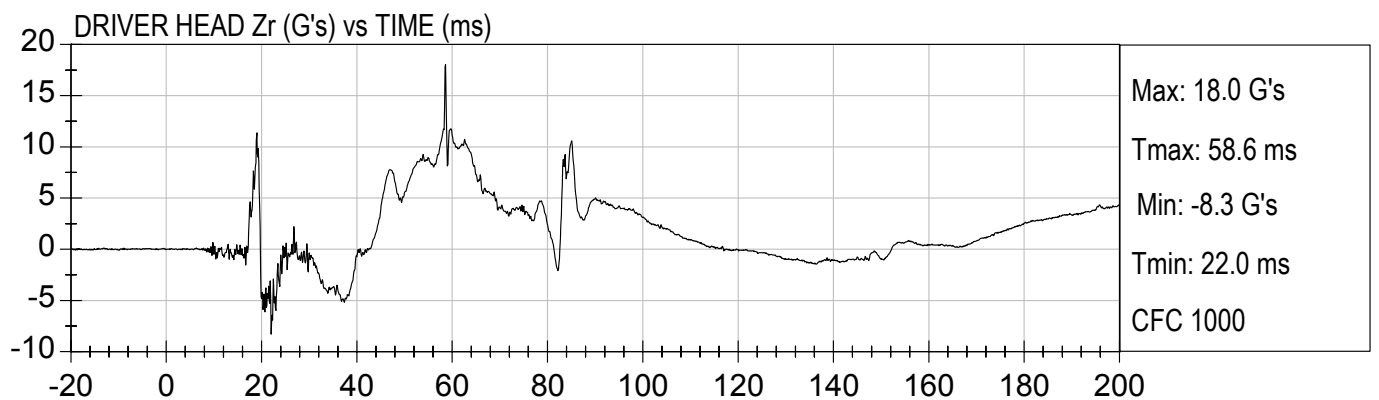
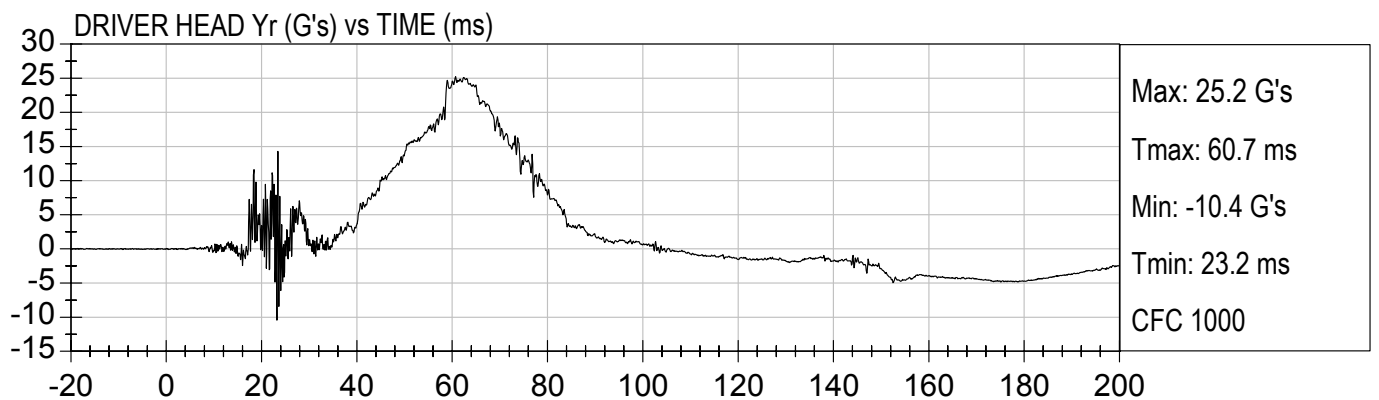
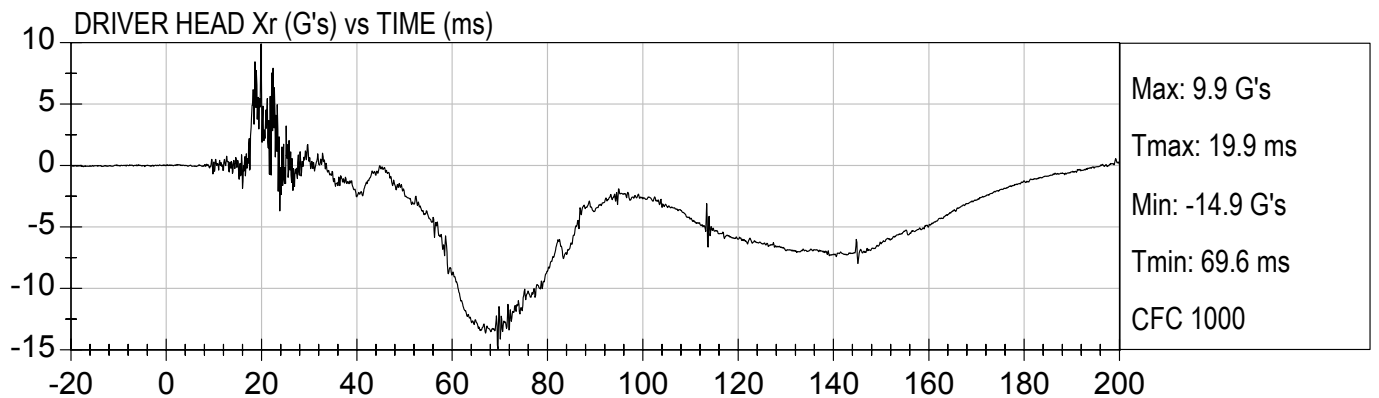
MDB REAR Y Velocity (kph) vs TIME (ms)

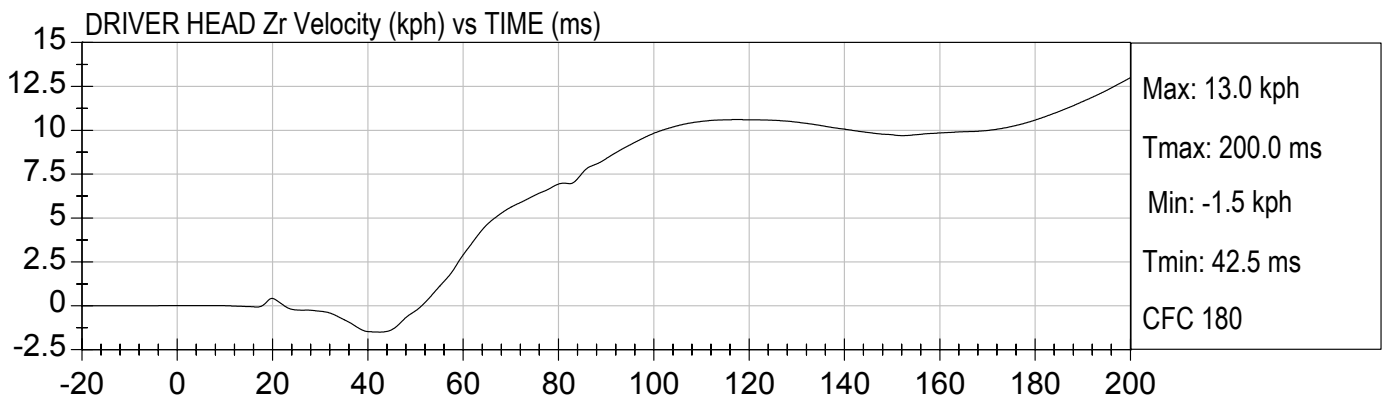
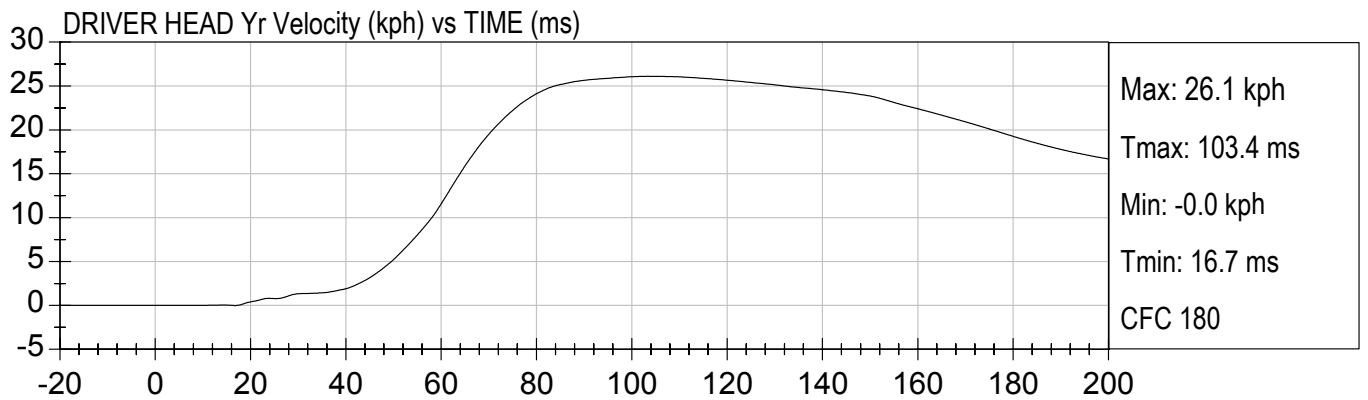
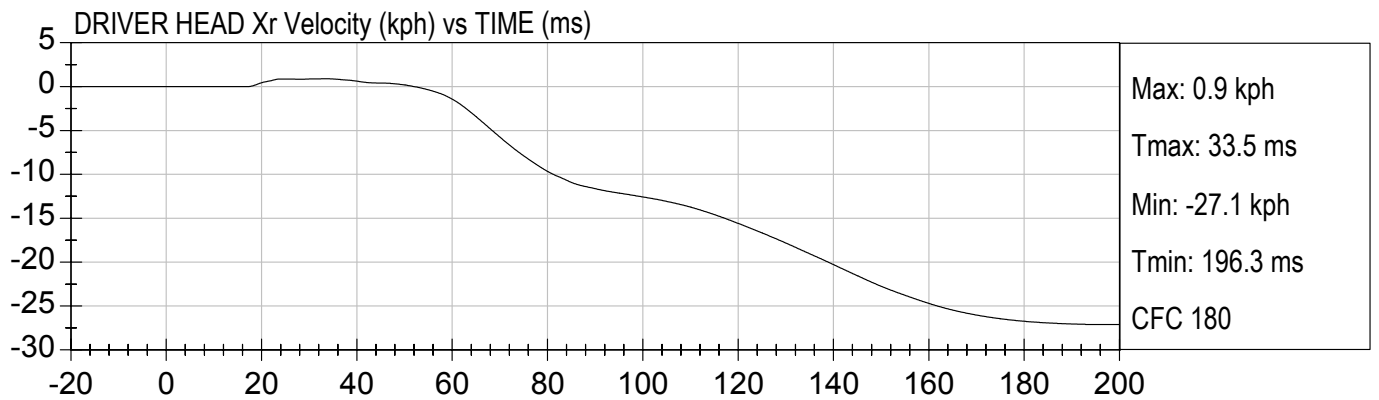


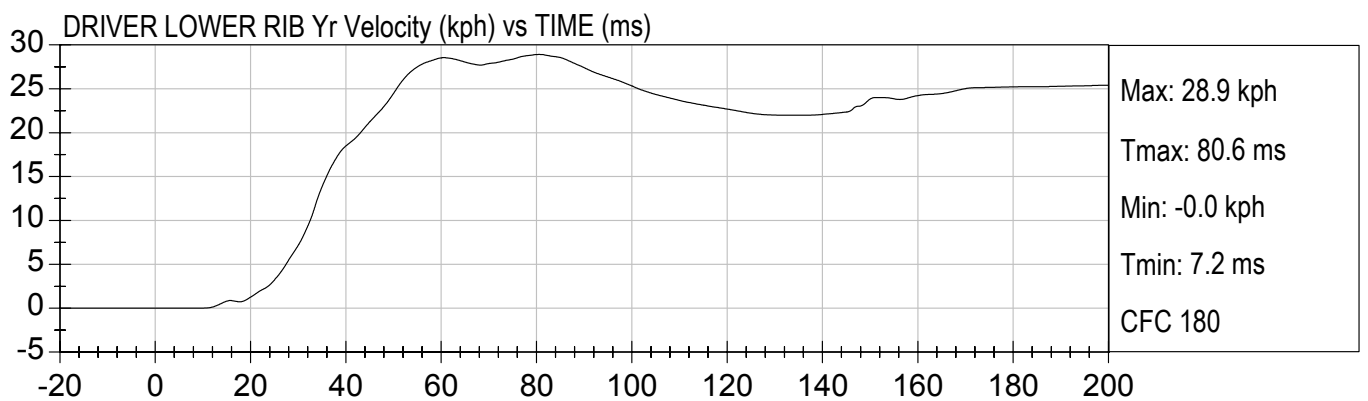
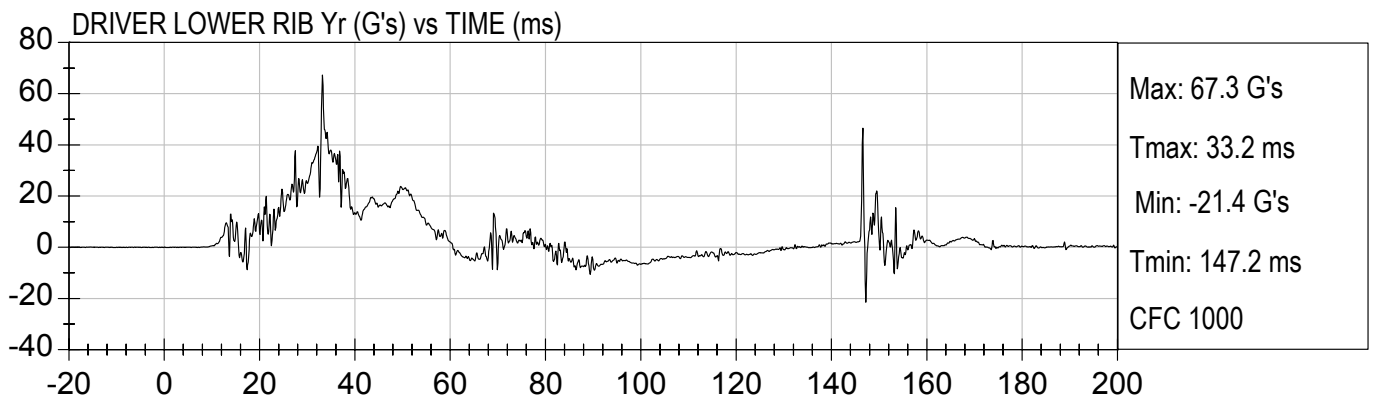
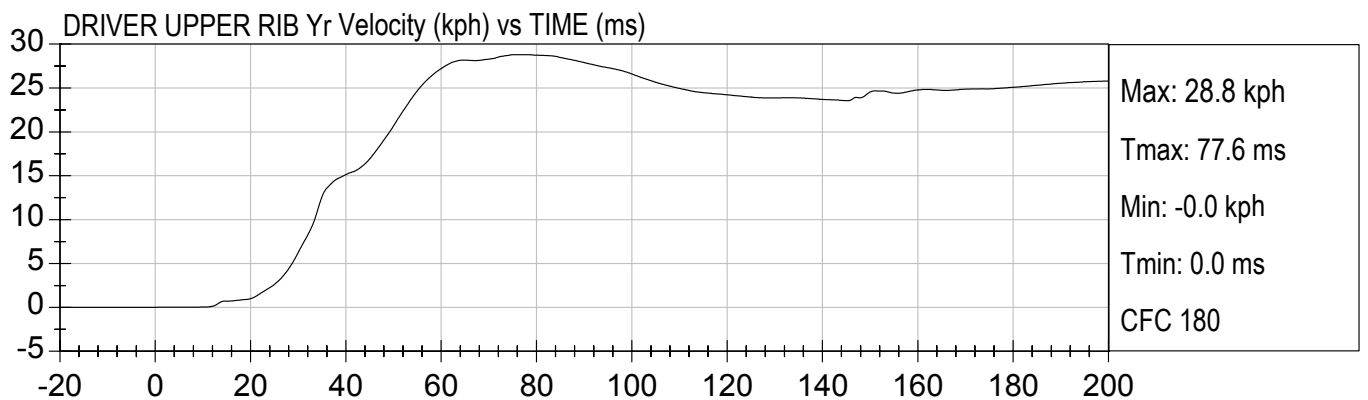
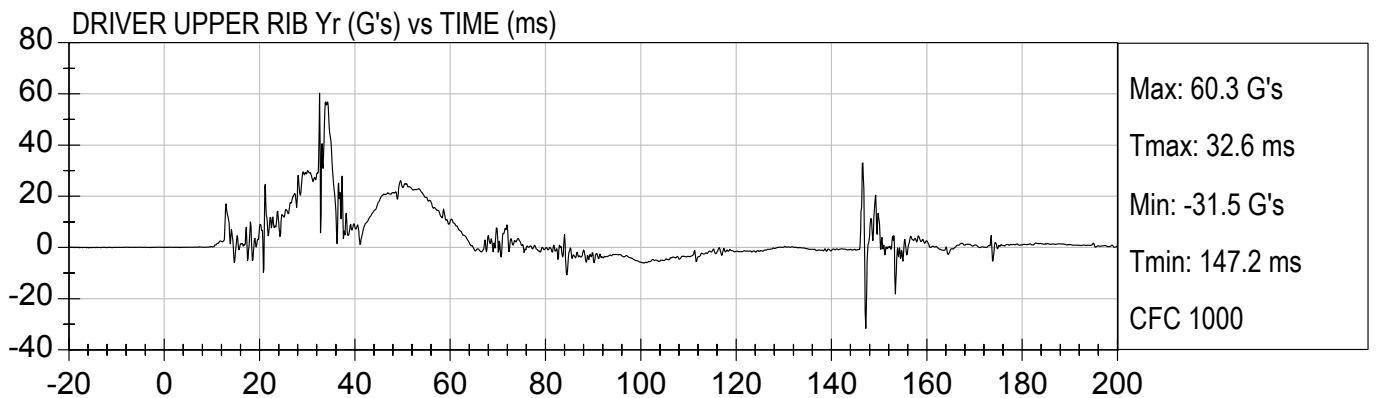
MDB REAR Z Velocity (kph) vs TIME (ms)

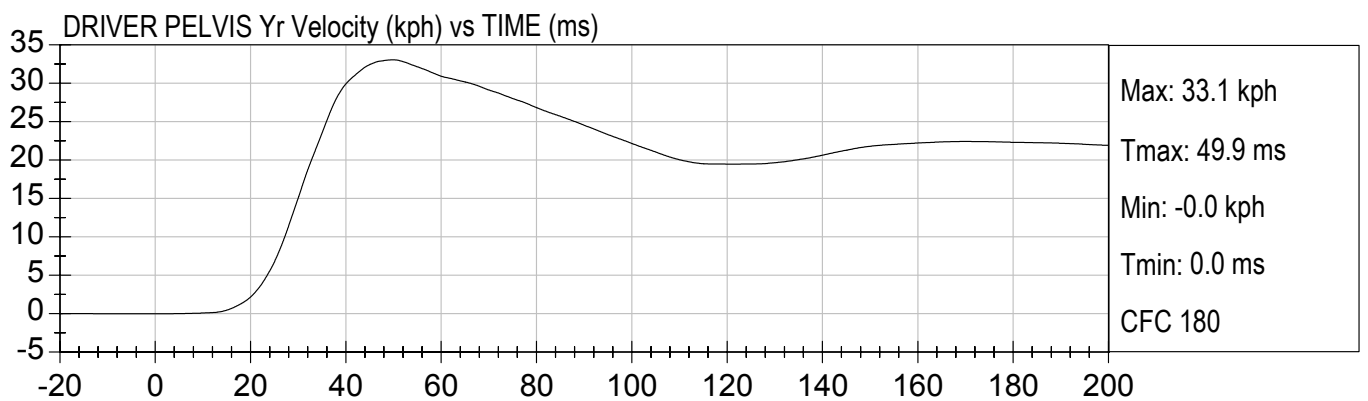
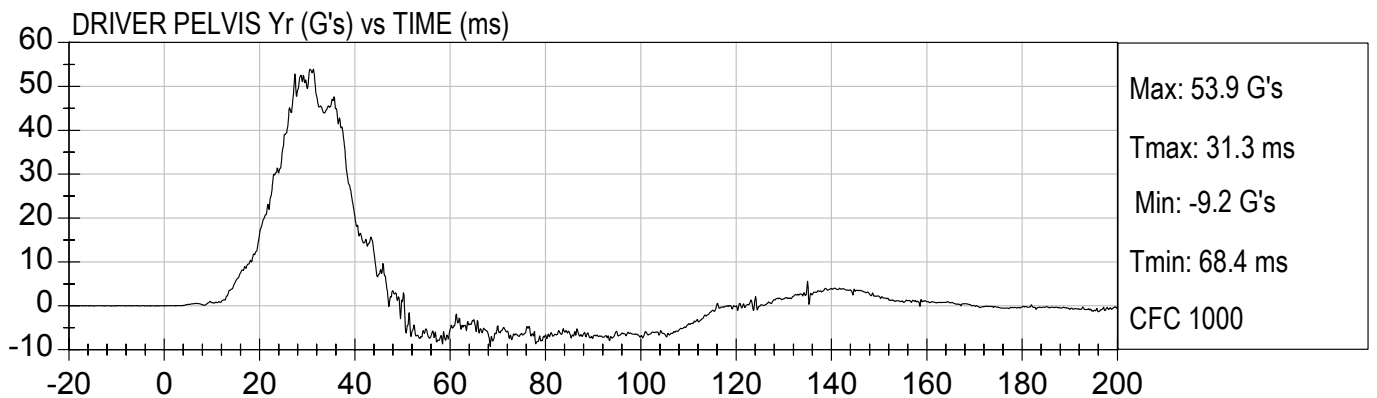
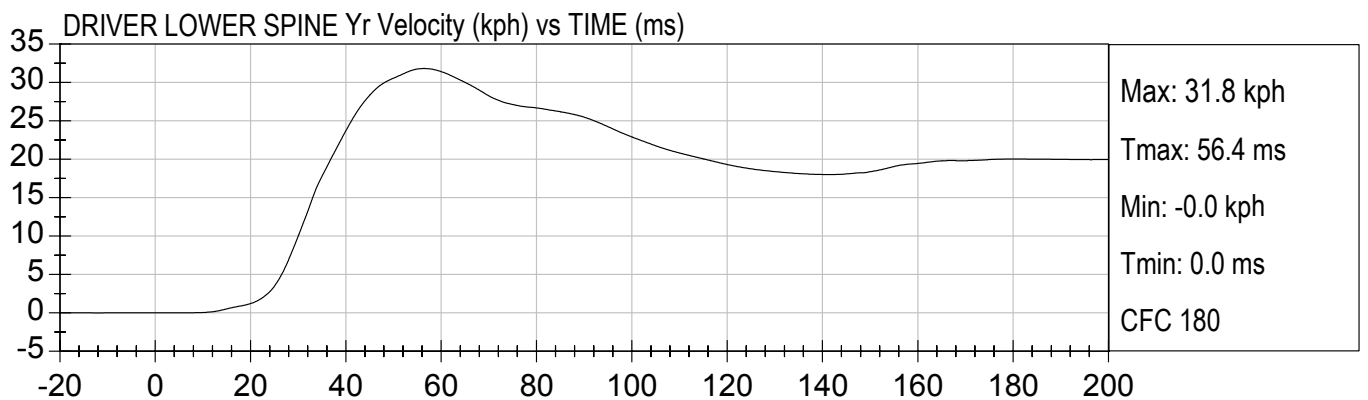
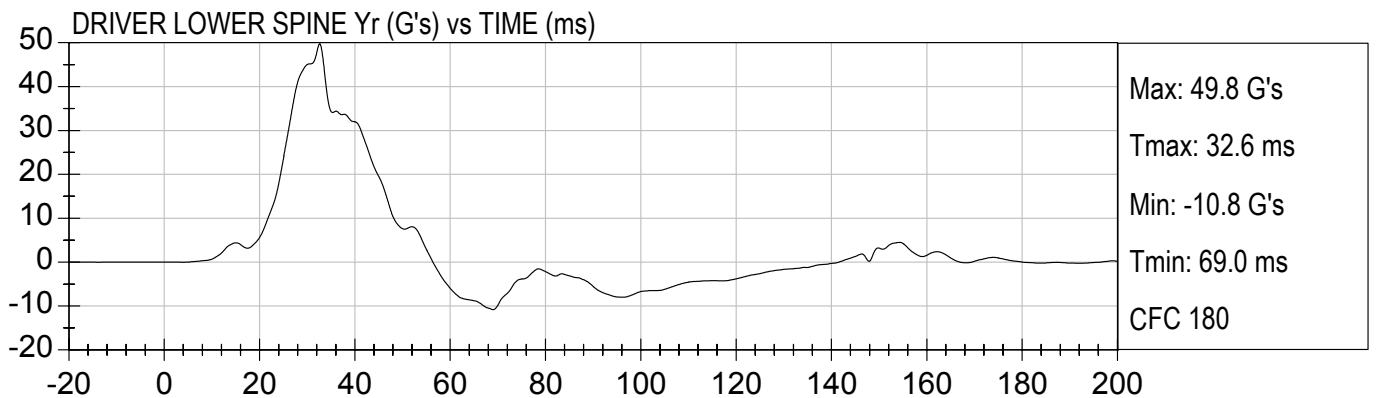


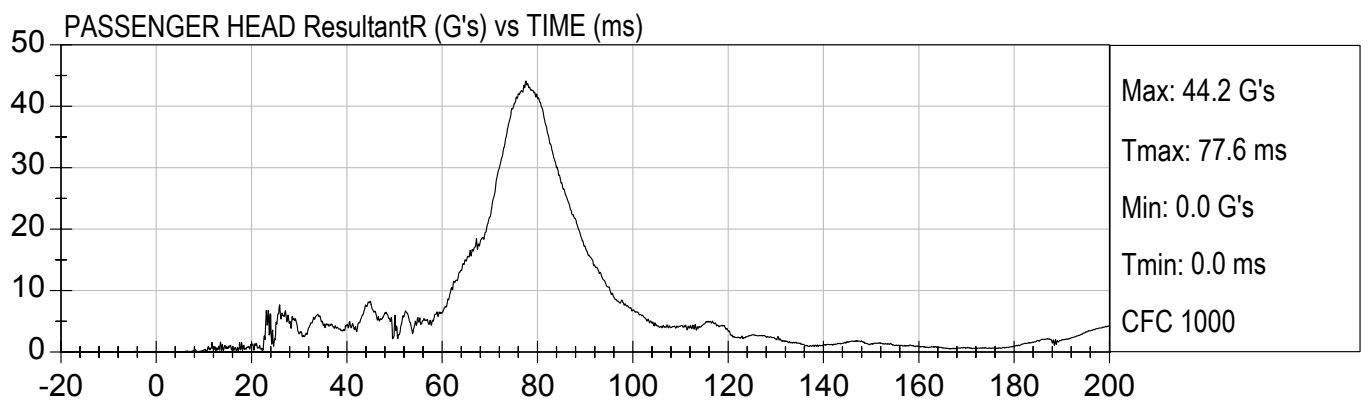
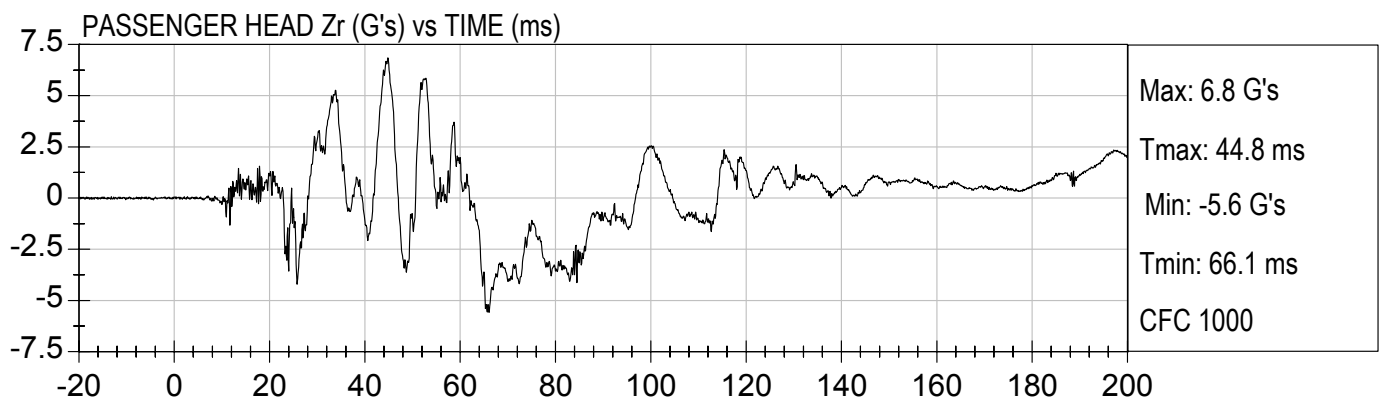
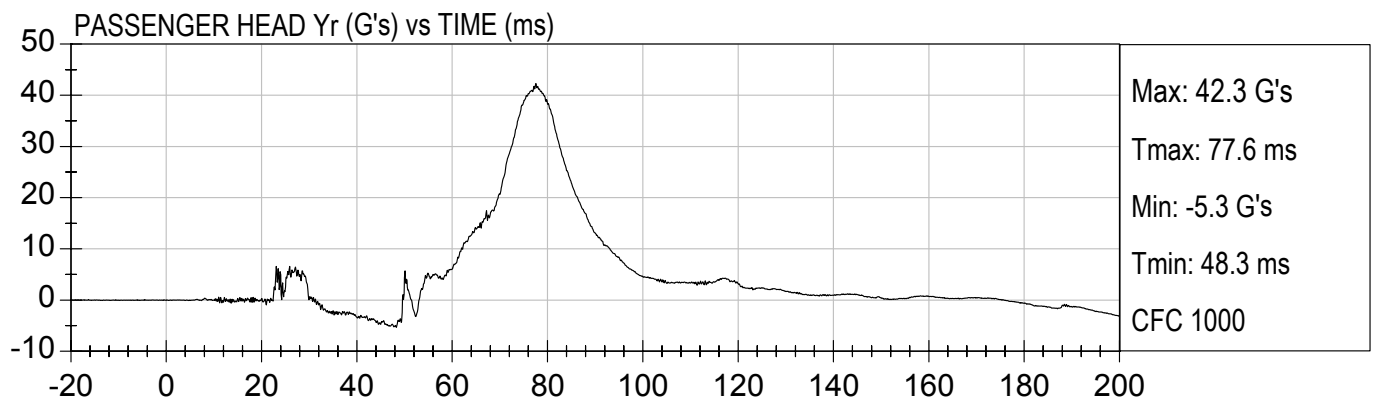
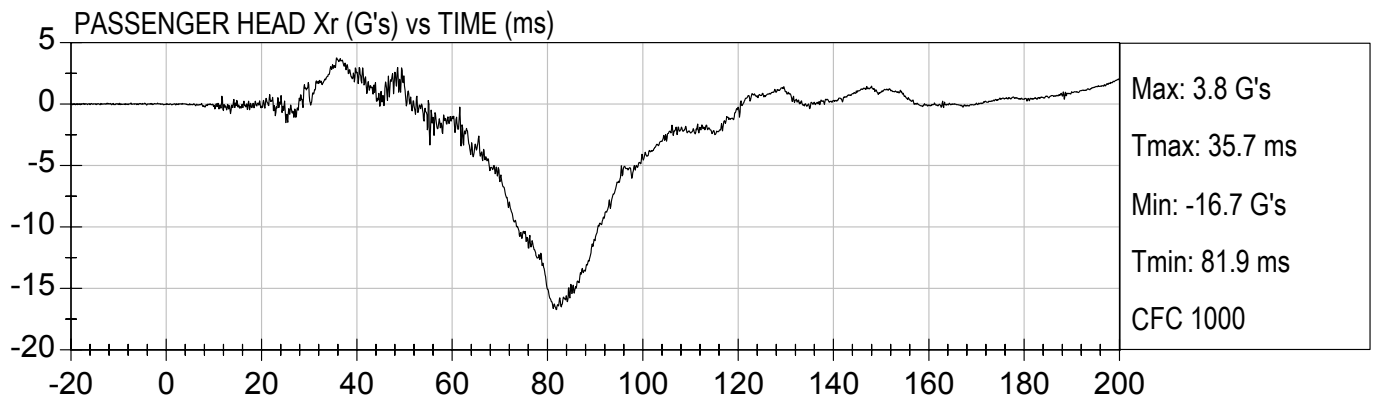


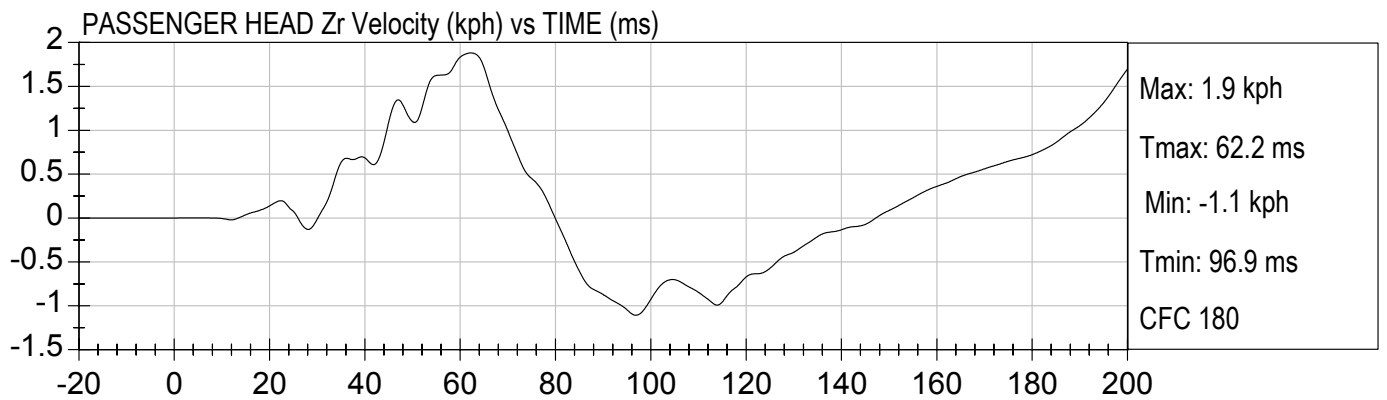
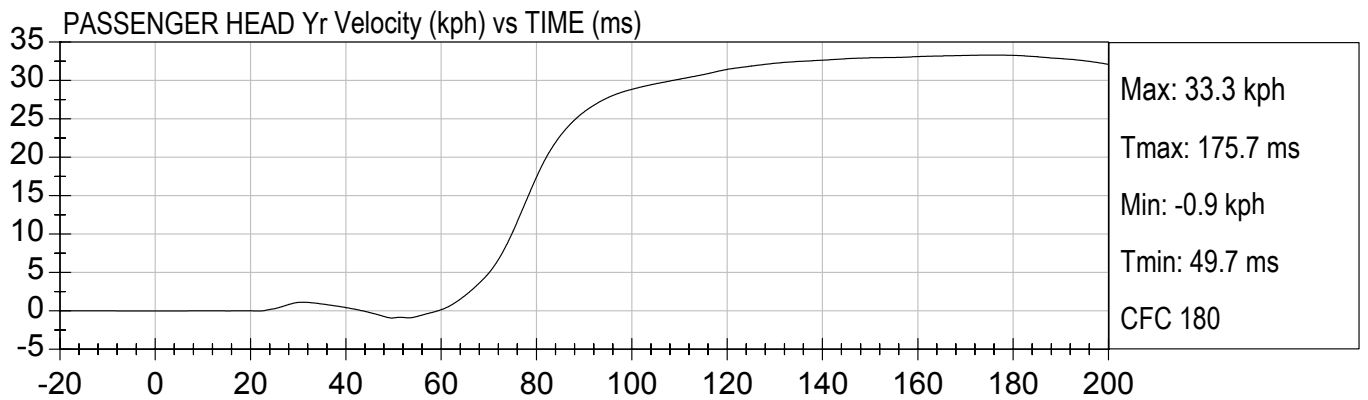
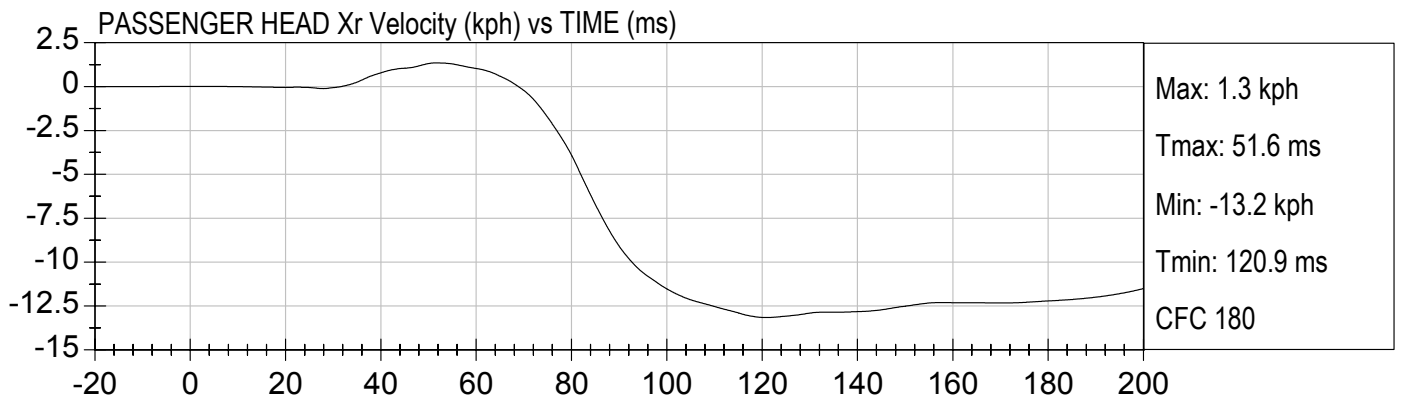


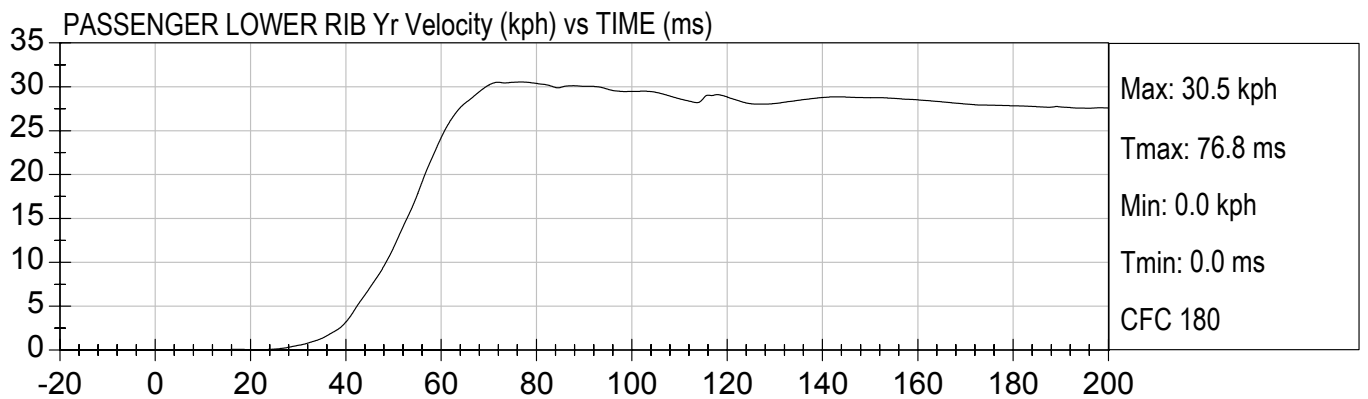
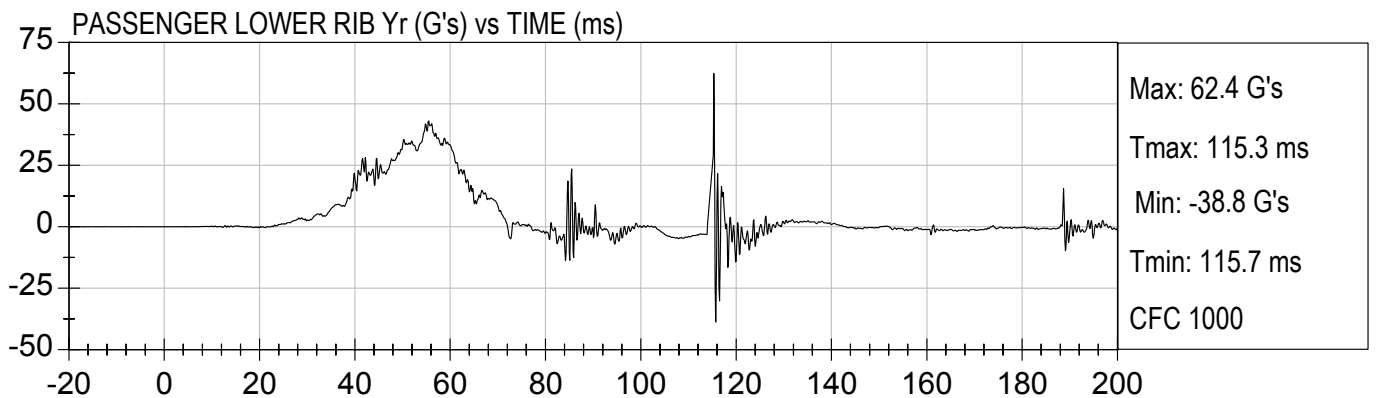
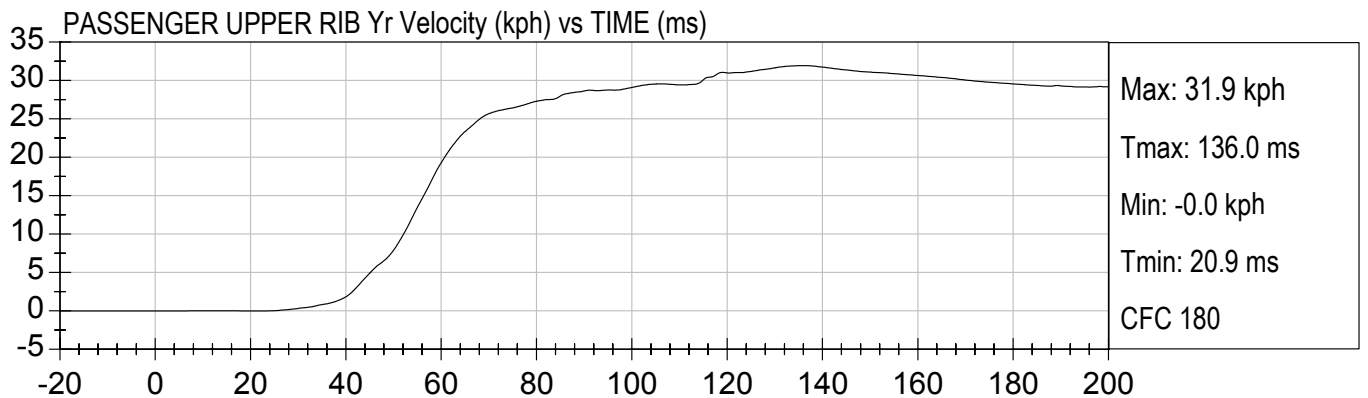
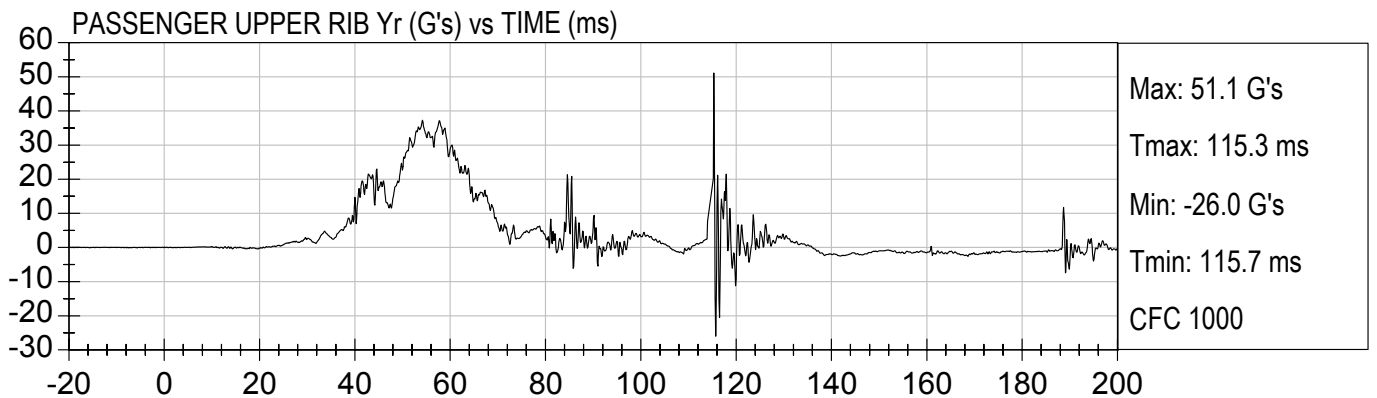


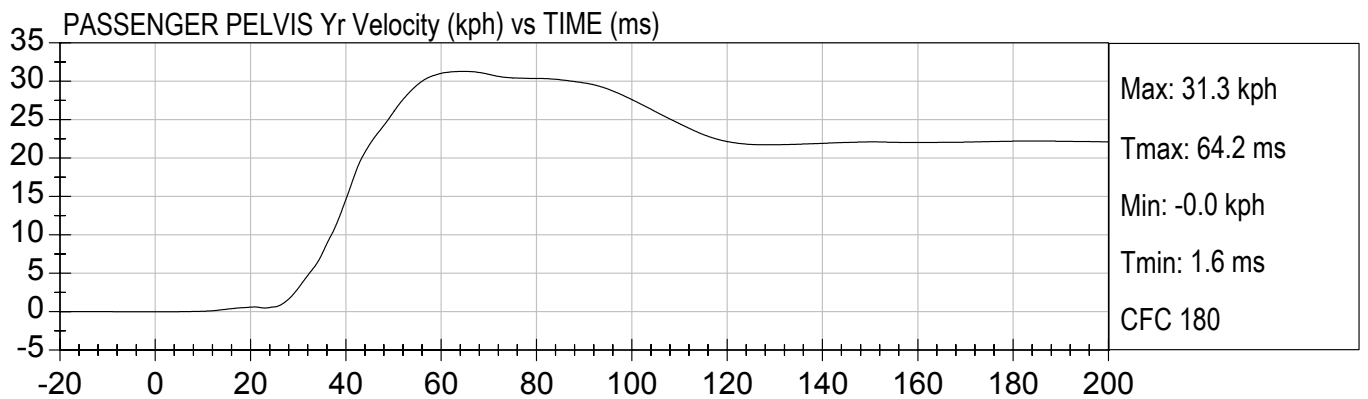
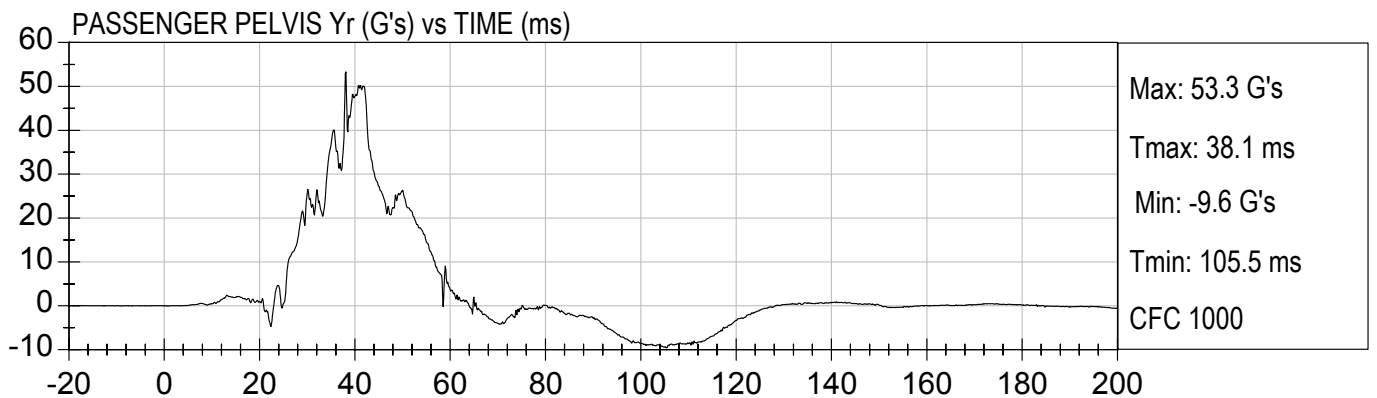
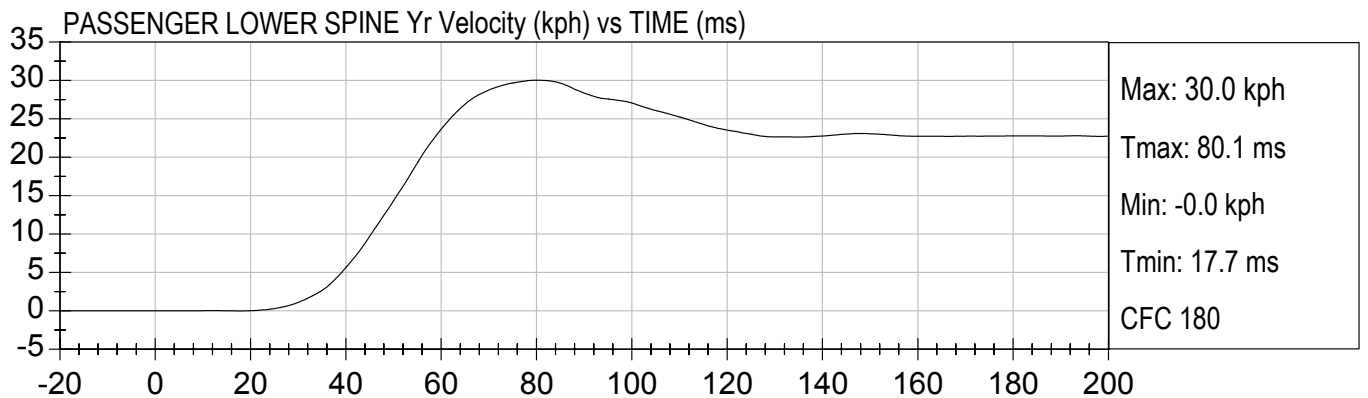
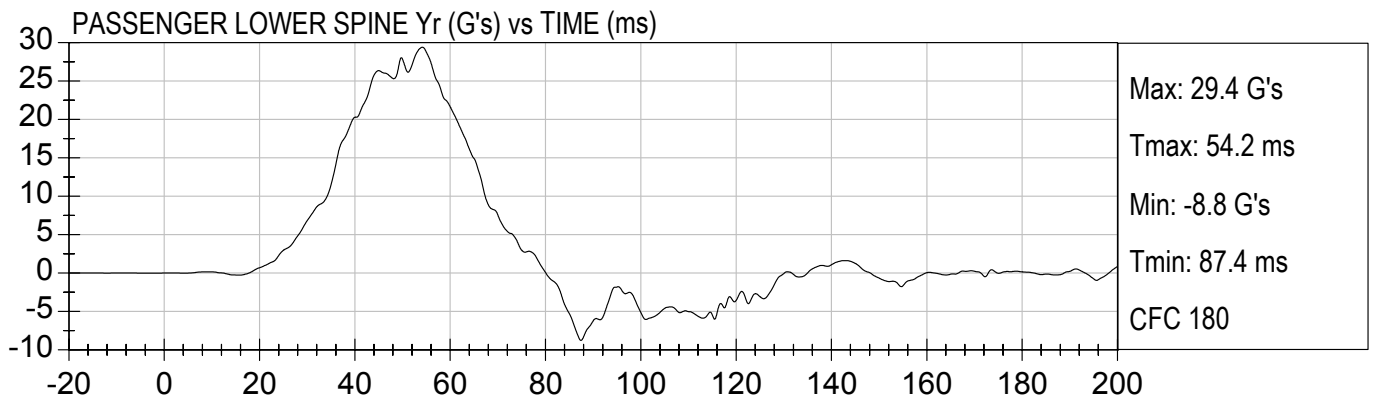


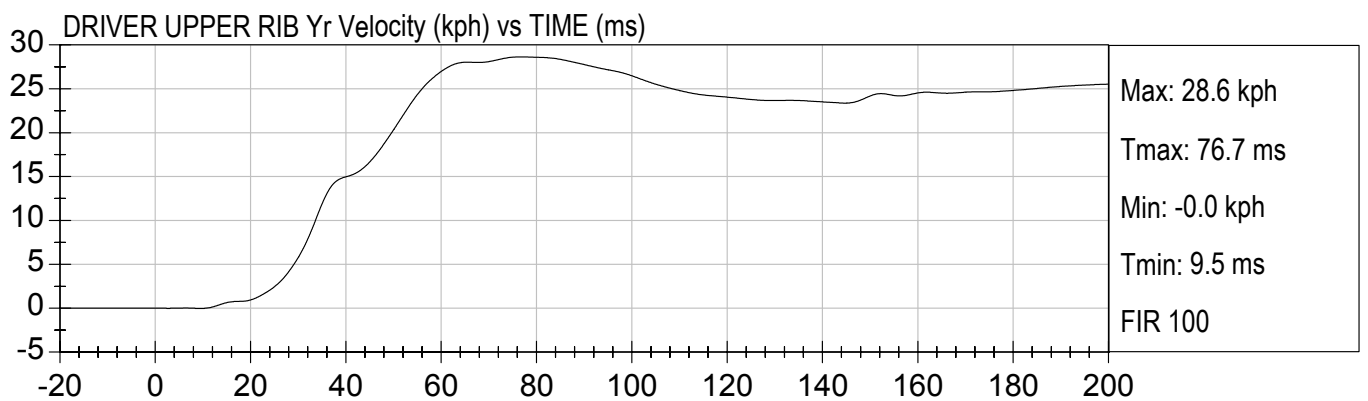
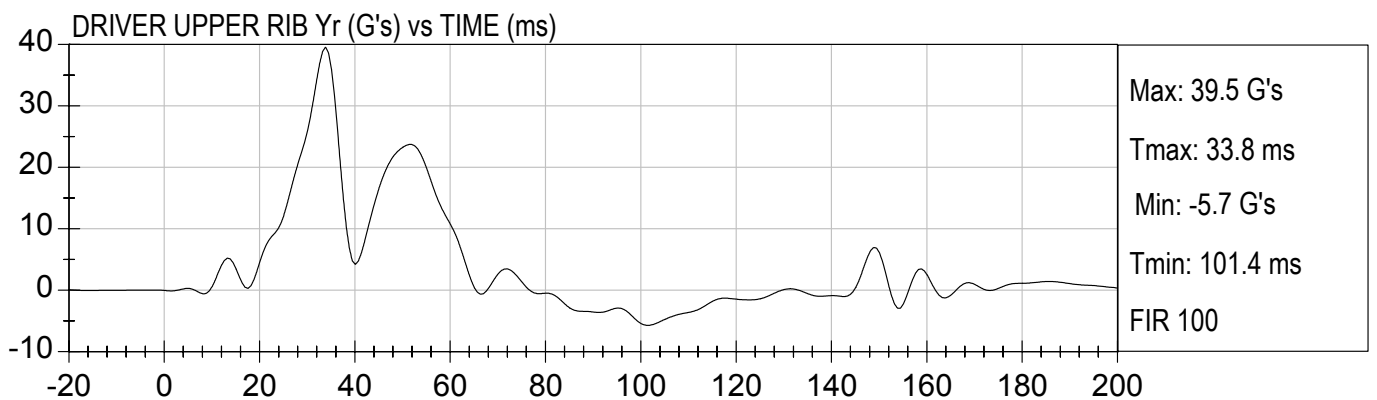
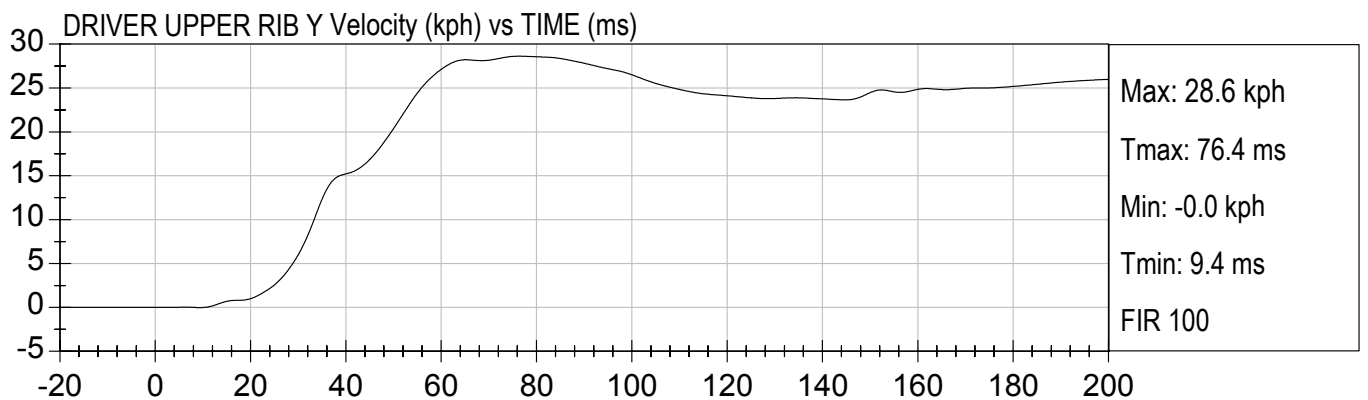
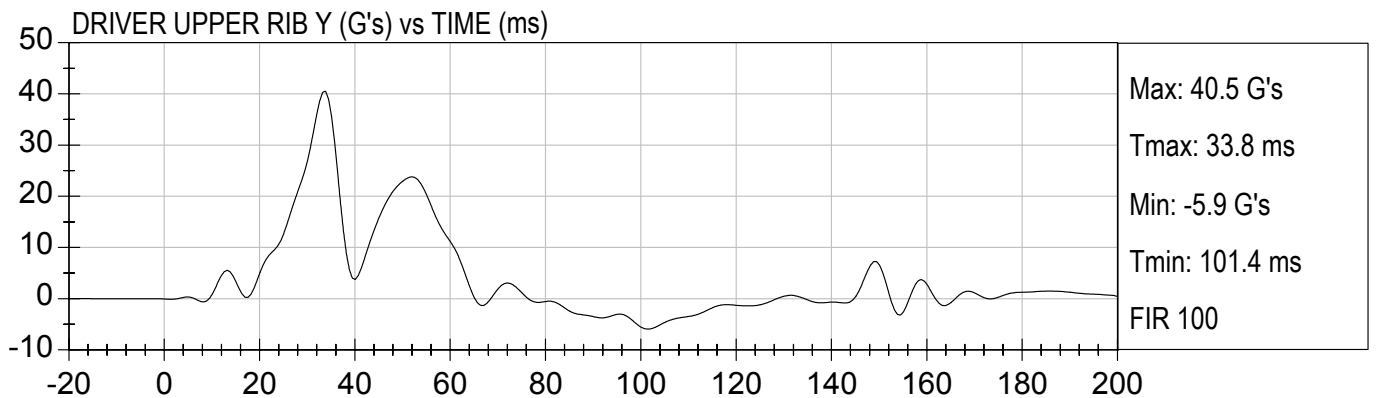


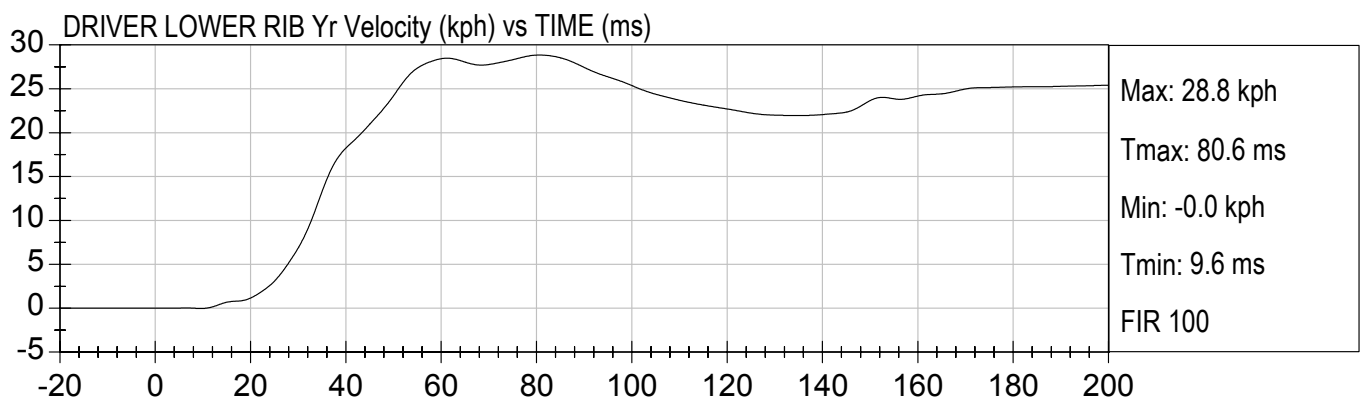
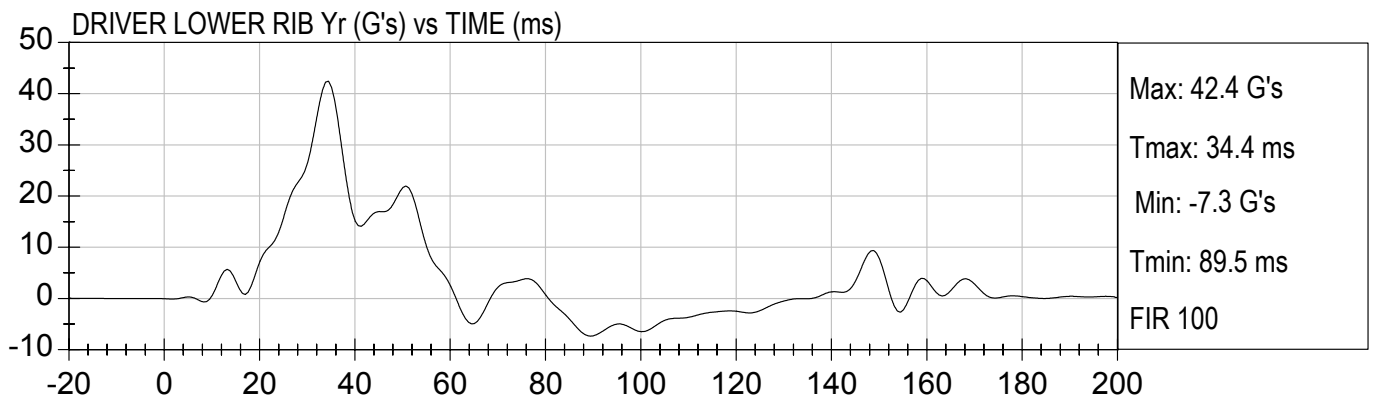
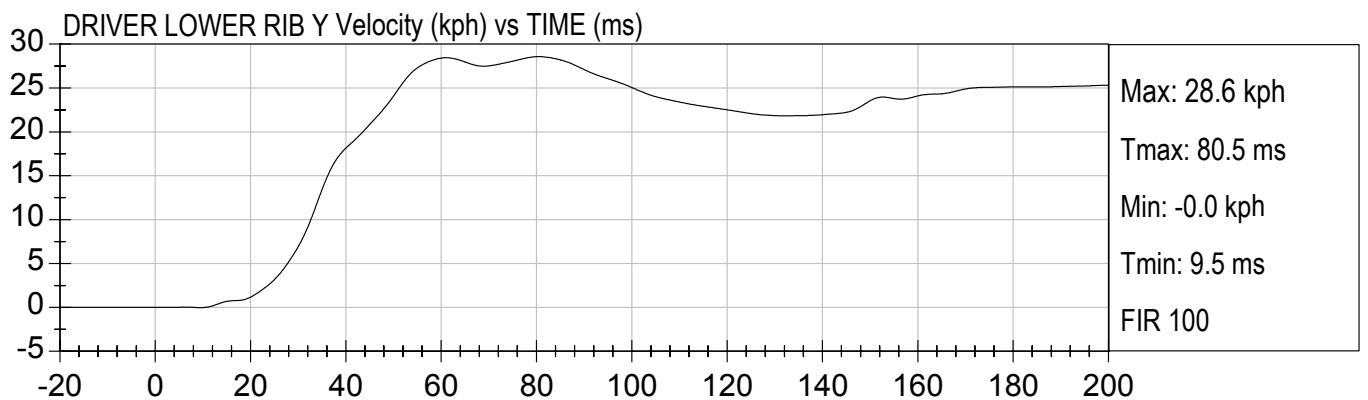
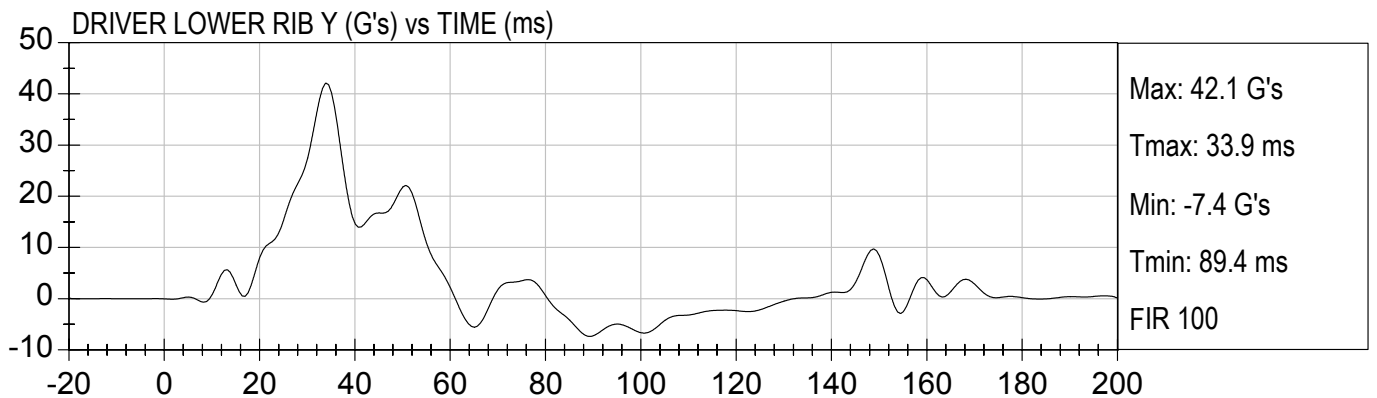


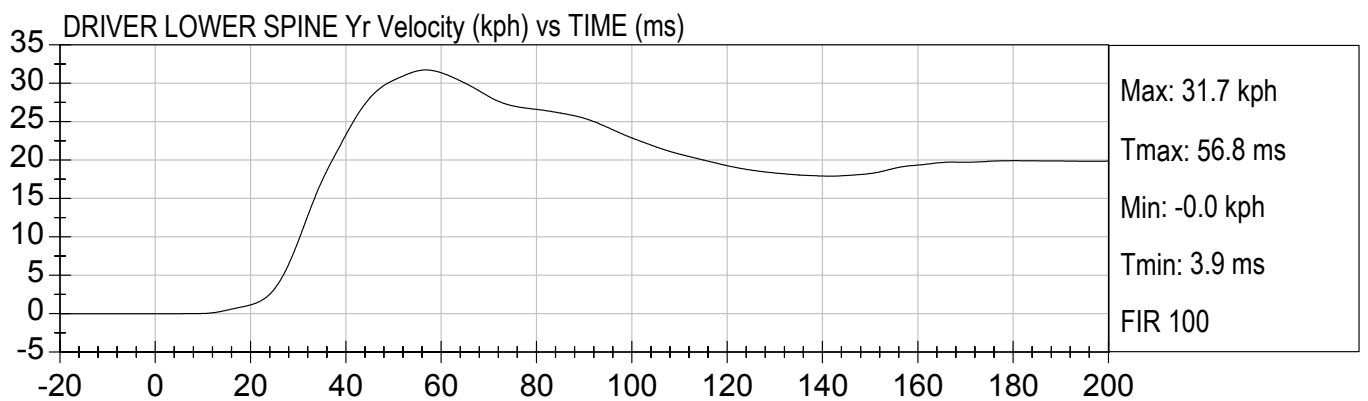
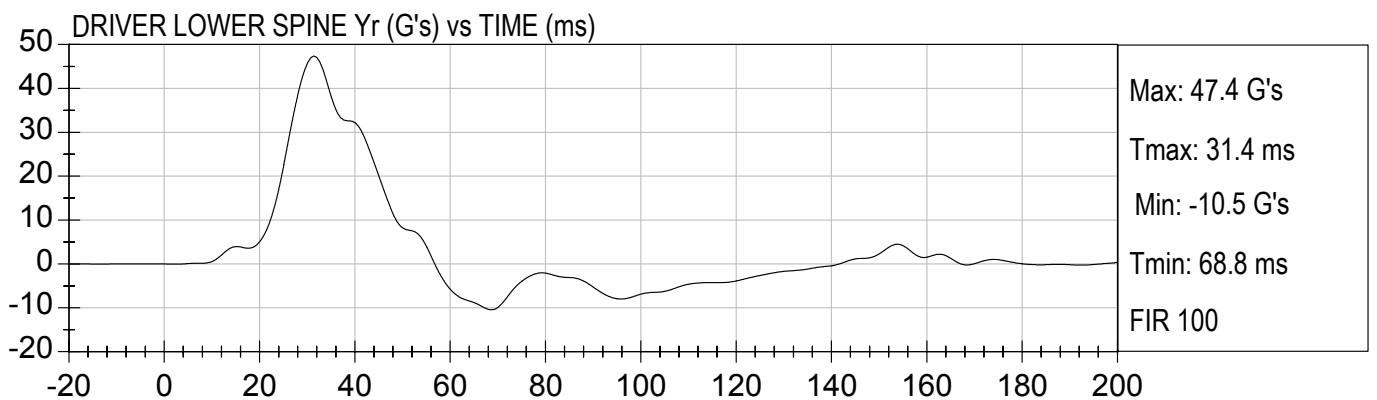
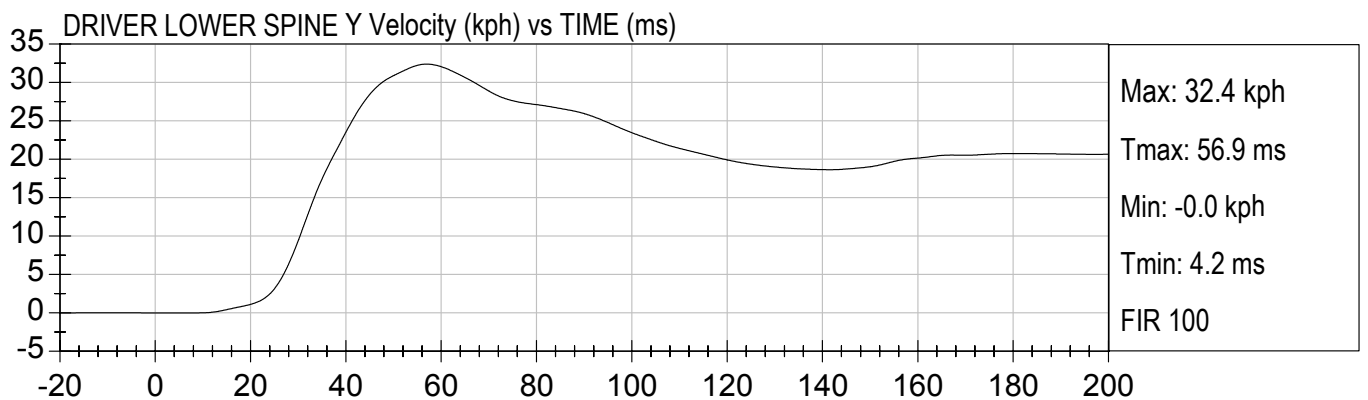
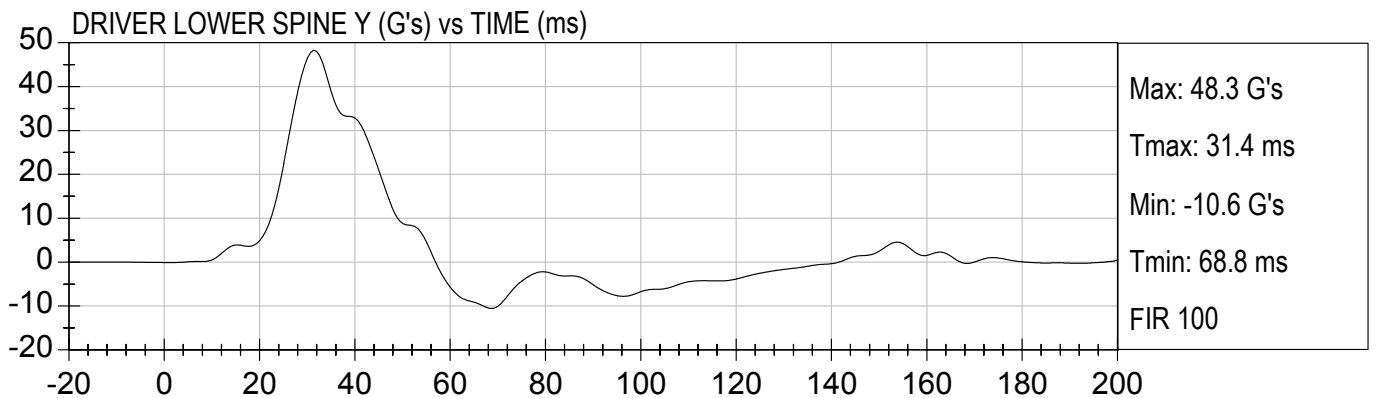


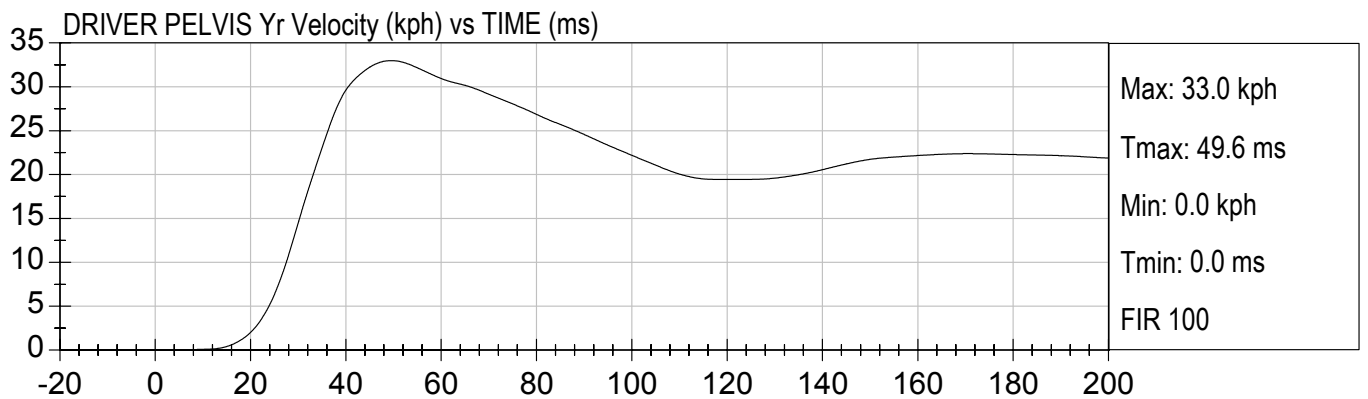
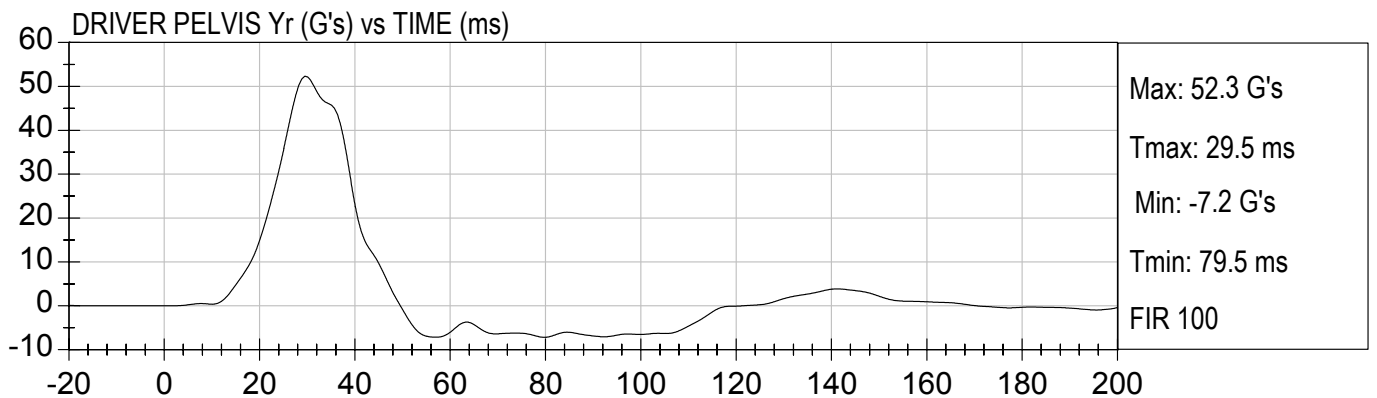
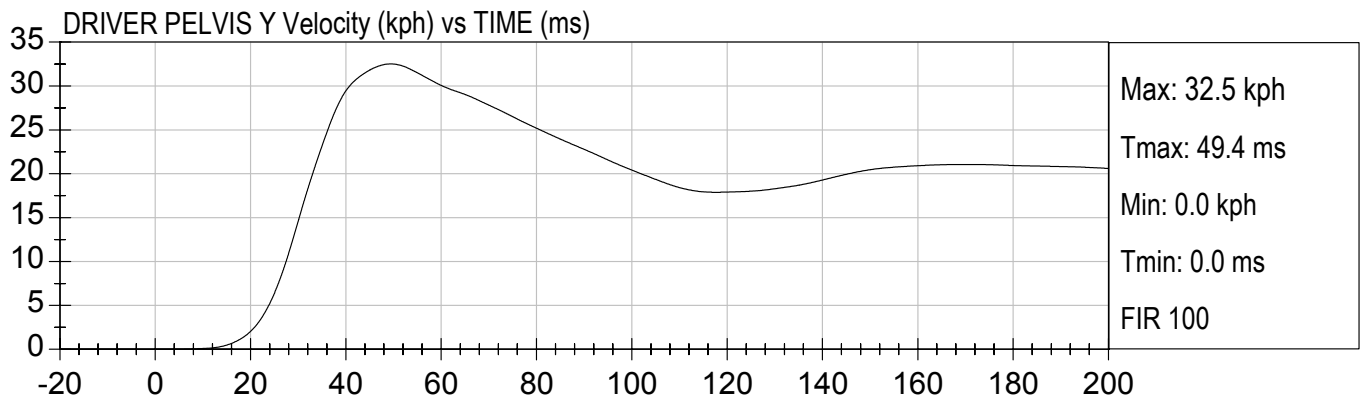
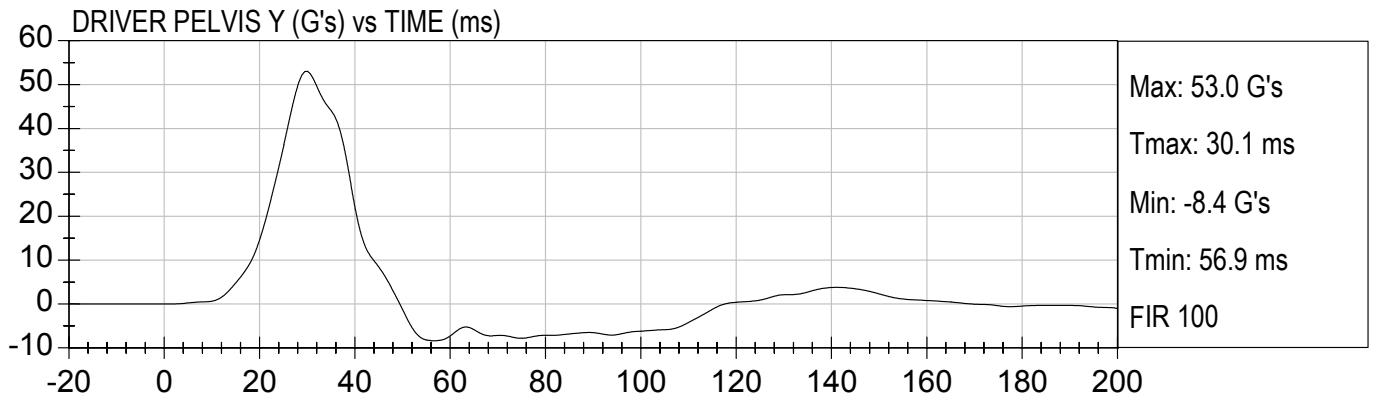






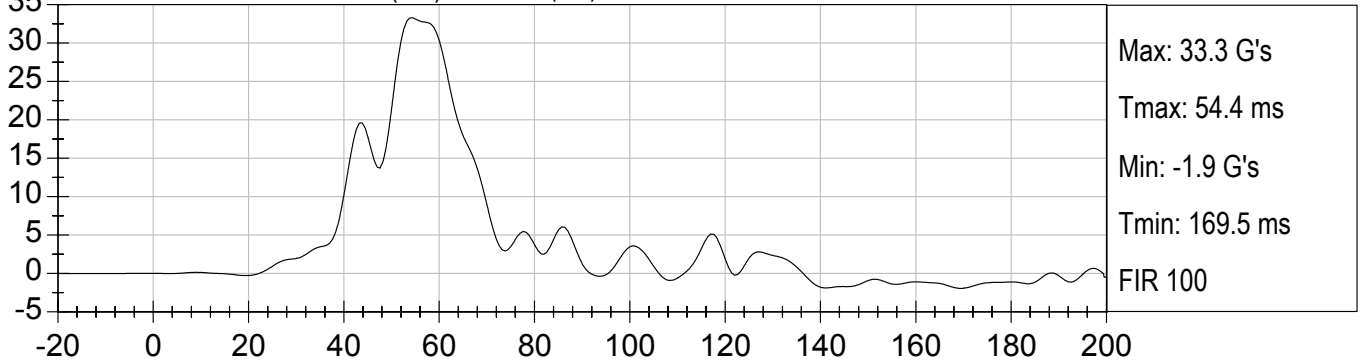




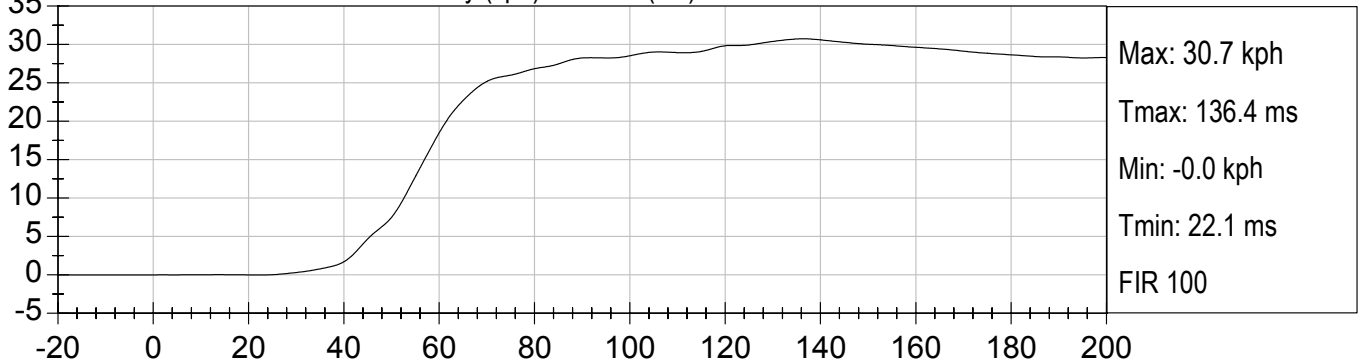




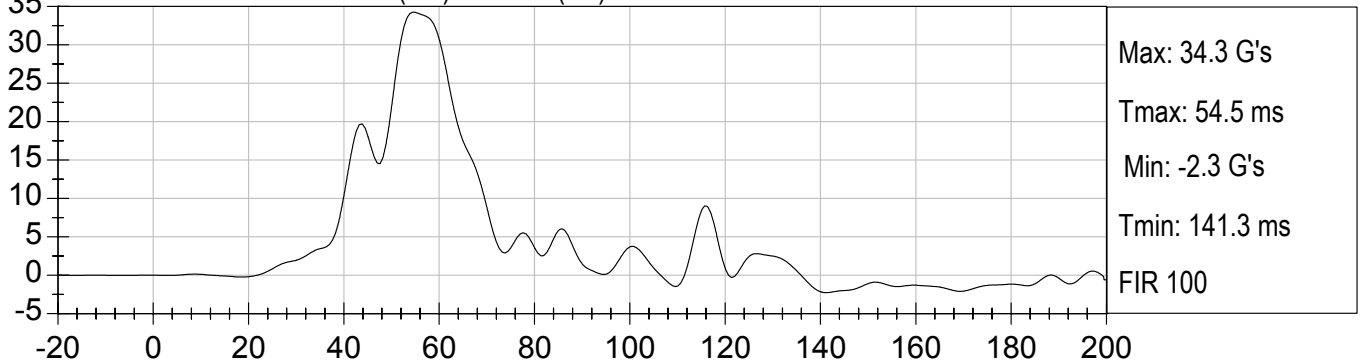
PASSENGER UPPER RIB Y (G's) vs TIME (ms)



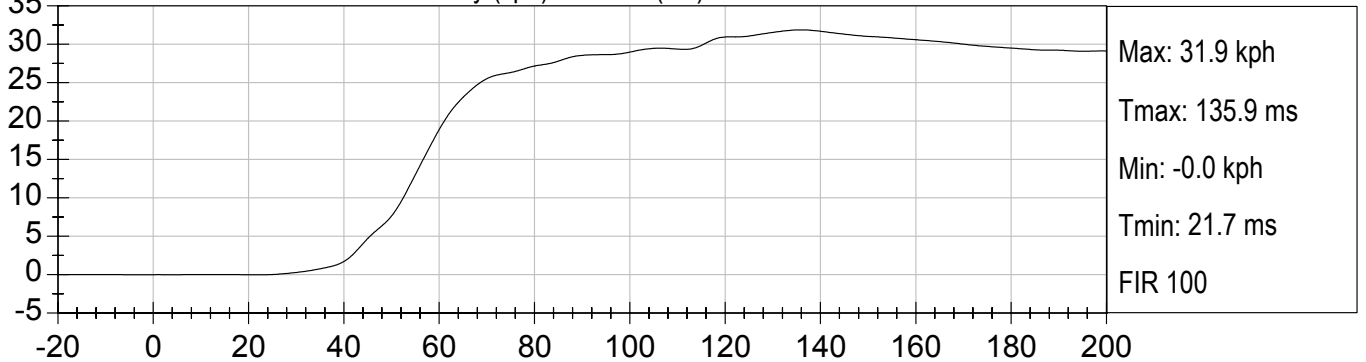
PASSENGER UPPER RIB Y Velocity (kph) vs TIME (ms)

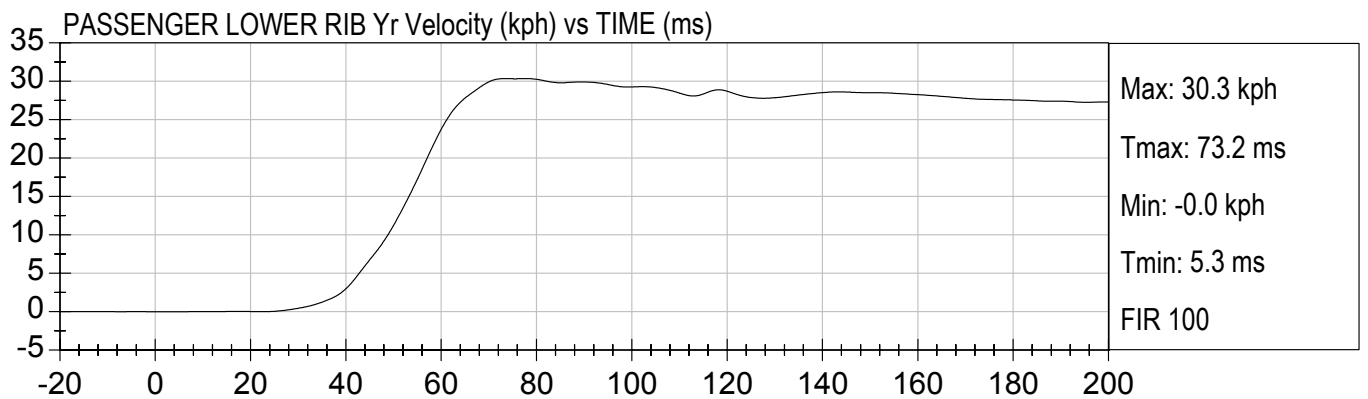
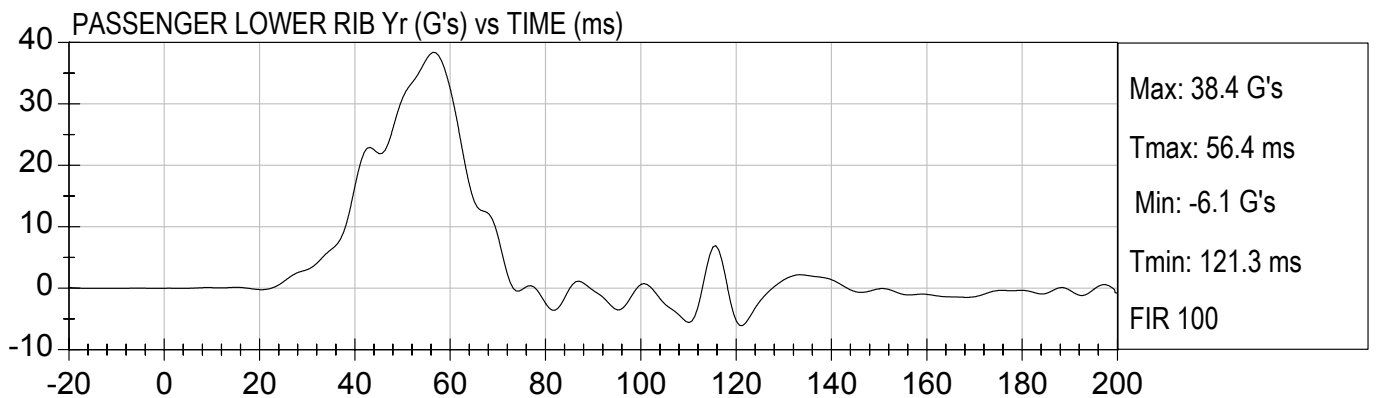
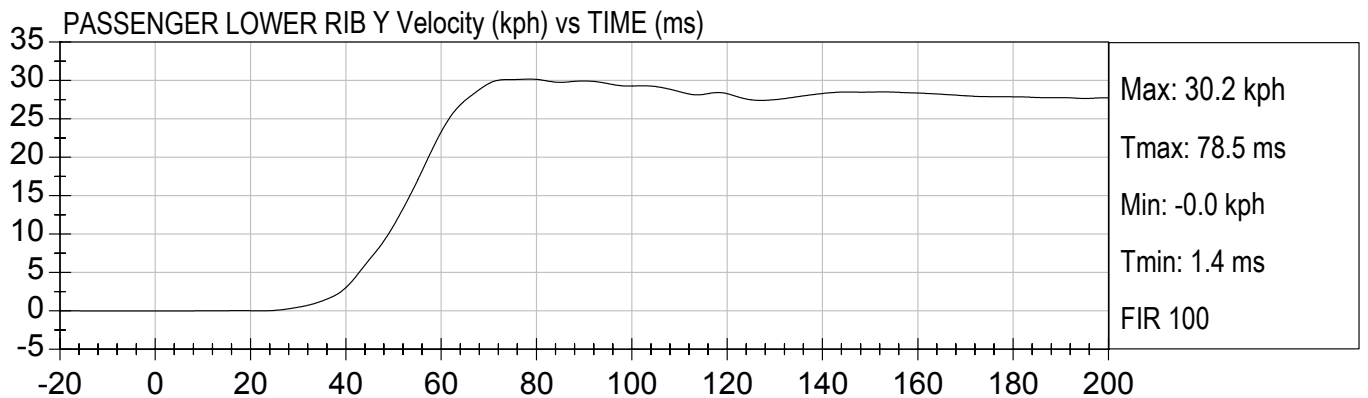
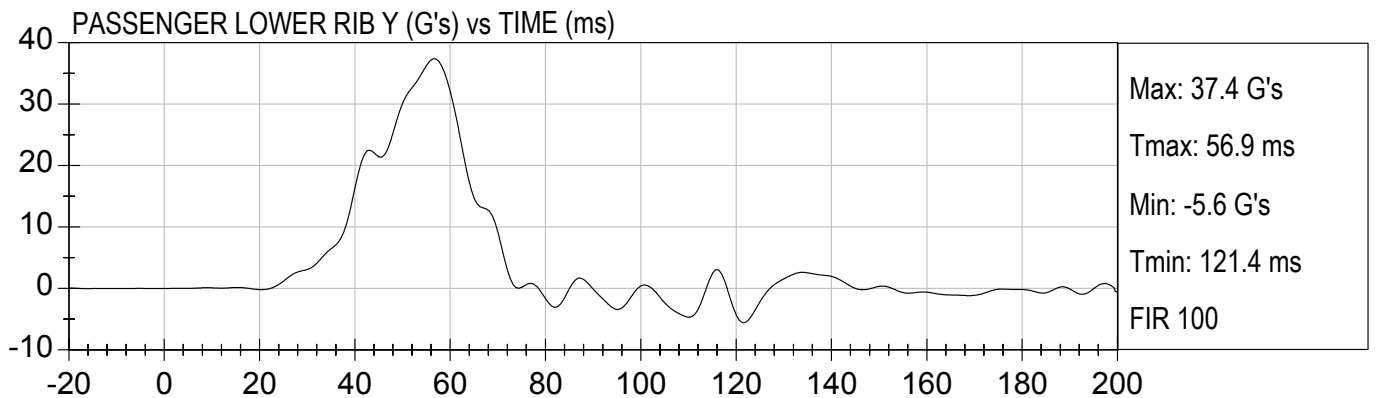


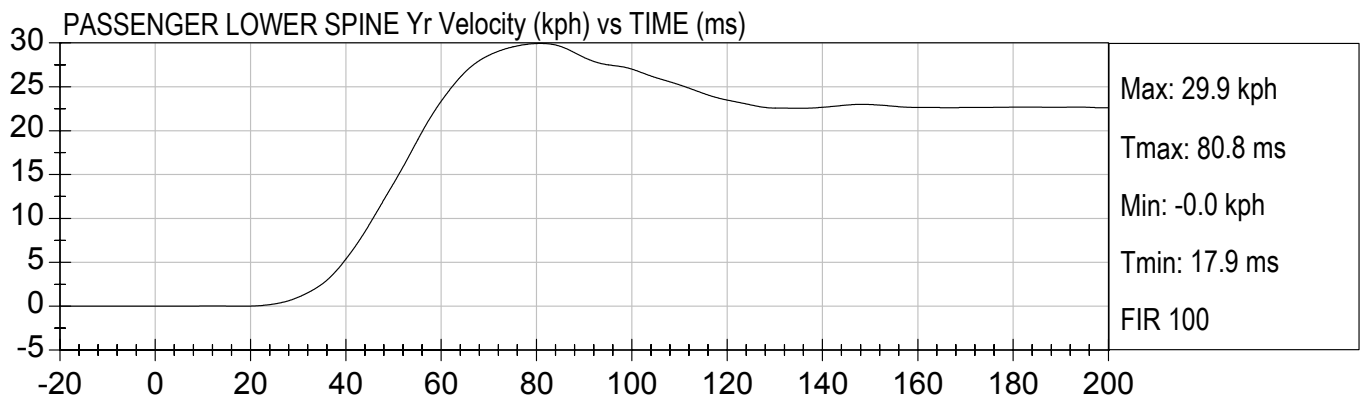
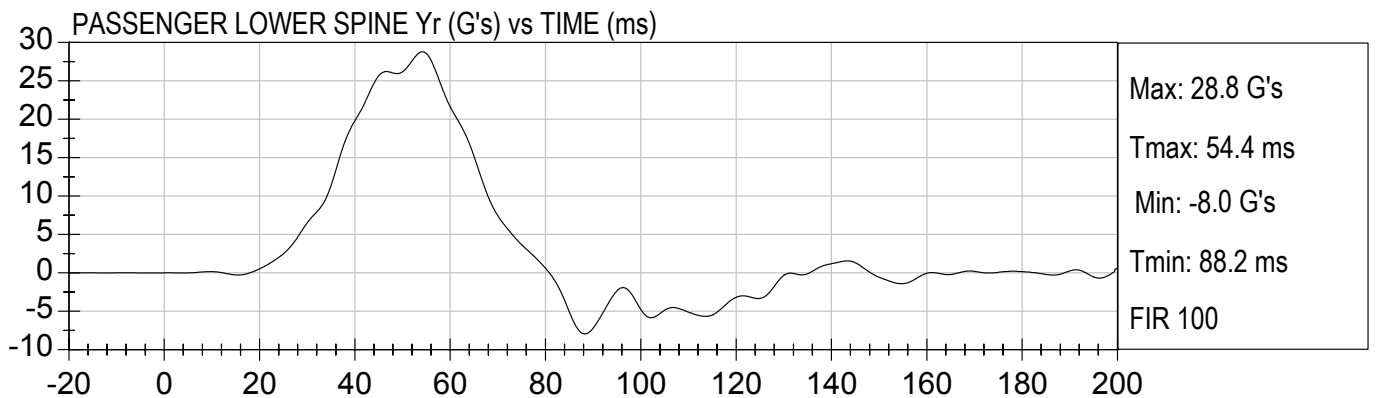
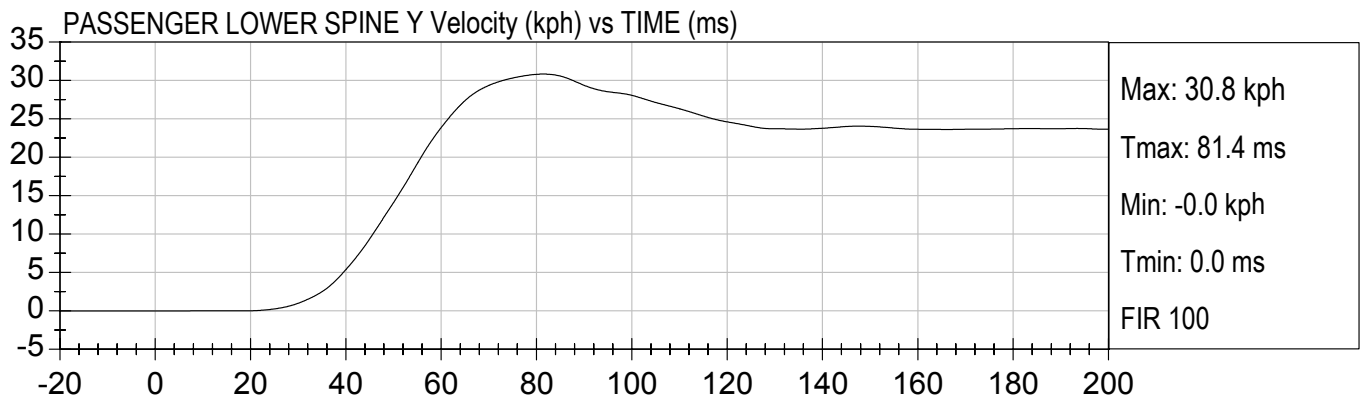
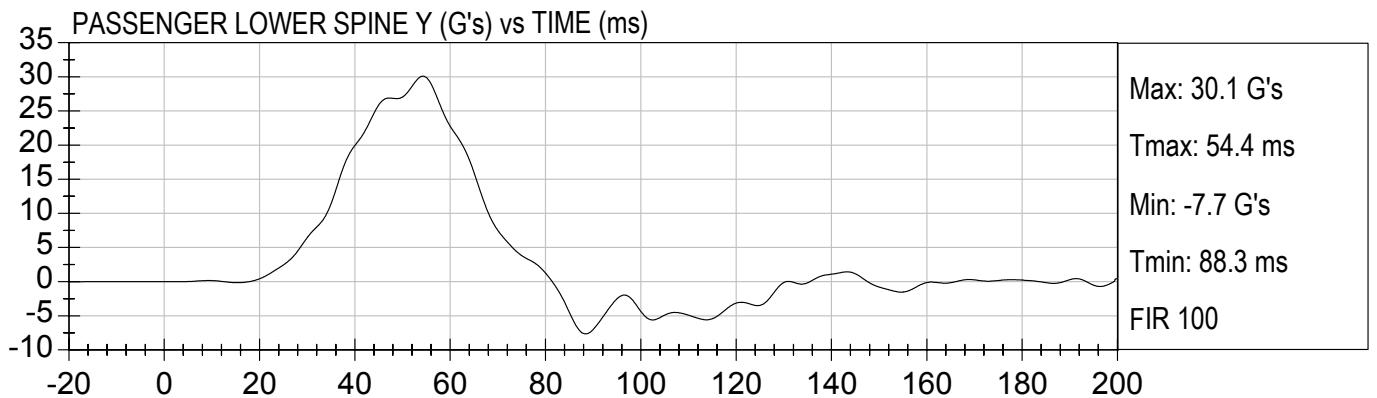
PASSENGER UPPER RIB Yr (G's) vs TIME (ms)

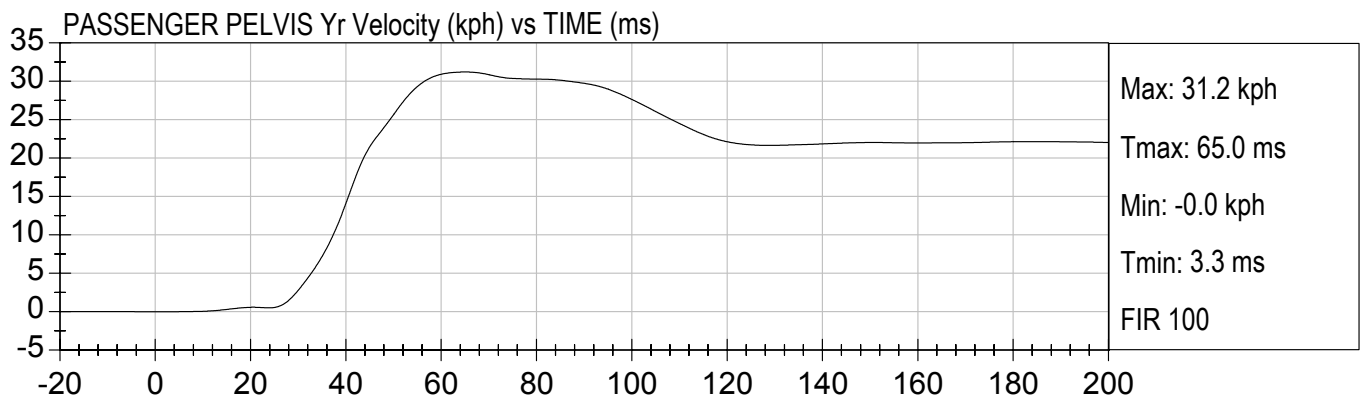
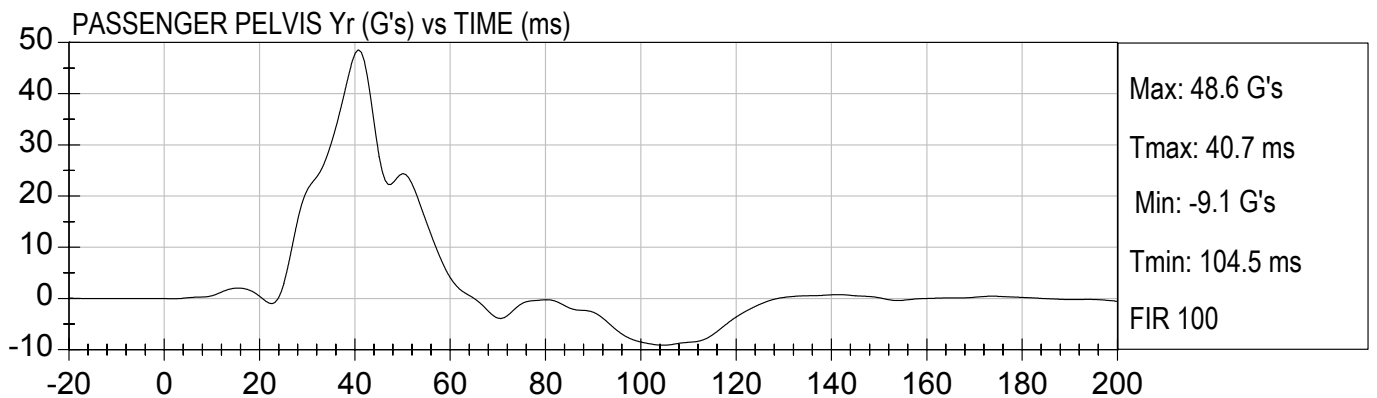
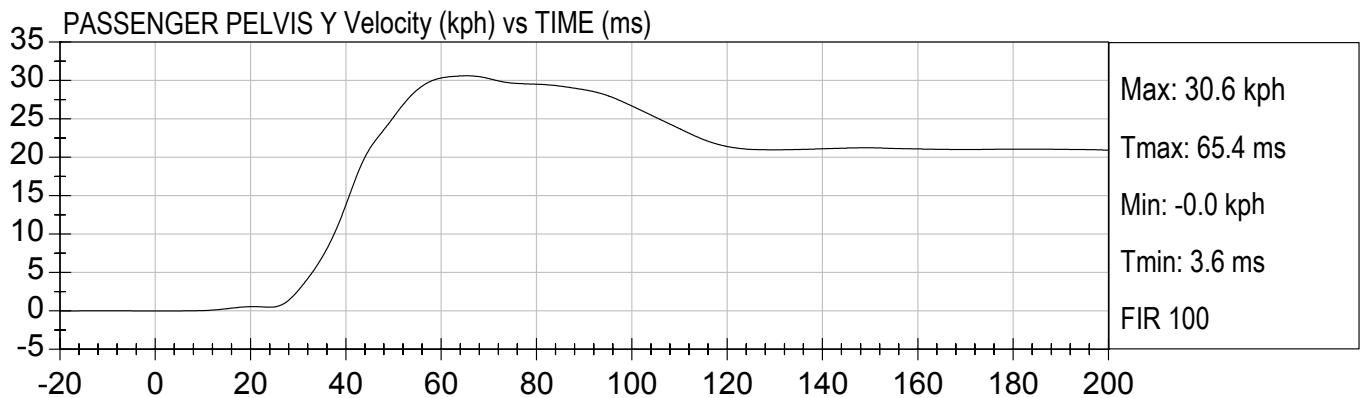
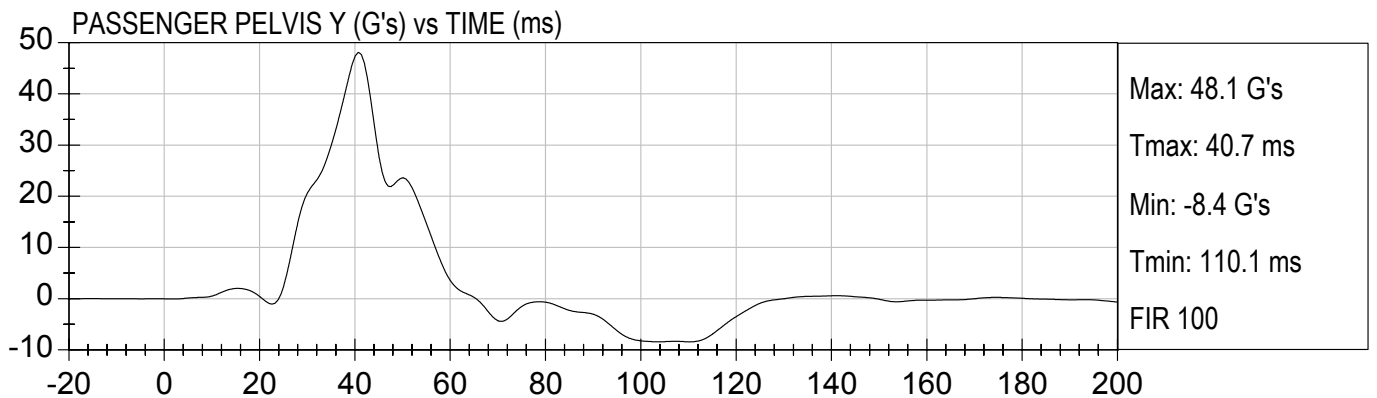


PASSENGER UPPER RIB Yr Velocity (kph) vs TIME (ms)









APPENDIX C

SID/HIII CONFIGURATION AND PERFORMANCE VERIFICATION DATA

CERTIFICATION DATA

Dummy Serial Number: 271

Calibration Test Results Summary

Dummy Serial Number: 271

Pre-Test Calibration

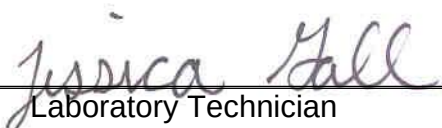
External Dimensions:	The dummy passed all external dimension requirements.
Head Drop Test:	The head passed all drop test requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion Test:	The lumbar passed all flexion test requirements.

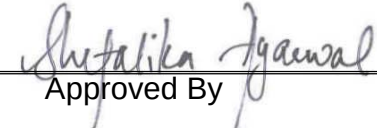
SID Calibration Data Sheet
Side Impact Dummy
External Measurements

ATD Serial No: 271

Test I.D: D03204

Tested Parameter	Units	Specification	Result	Pass/Fail
SH - Seated Height	mm	889 - 909	905	Pass
RH - Rib Height	mm	501 - 521	502	Pass
HP - Hip Pivot Height	mm	99 ref.	99	Pass
RD - Rib from Back Line	mm	229 - 241	239	Pass
KV - Knee Pivot to Back Line	mm	511 - 526	526	Pass
SW - Knee Pivot to Floor	mm	490 - 505	497	Pass
HW - Hip Width	mm	356 - 391	371	Pass
Overall Test Results			Pass	


 Laboratory Technician


 Approved By

11/12/2003
 Test Date

SID Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration (Lateral)

ATD Serial No: 271

Test I.D: D04091

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	20.7	Pass
Laboratory Relative Humidity	%	10 to 70	21	Pass
Peak Resultant Acceleration	G's	120 to 150	138	Pass
Is Resultant Curve Unimodal?	Yes/No	15% of peak	Yes	Pass
Peak Longitudnal Acceleration	G's	+/- 15	-11	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

Shitalika Gaural
Approved By

01/20/2004
Test Date



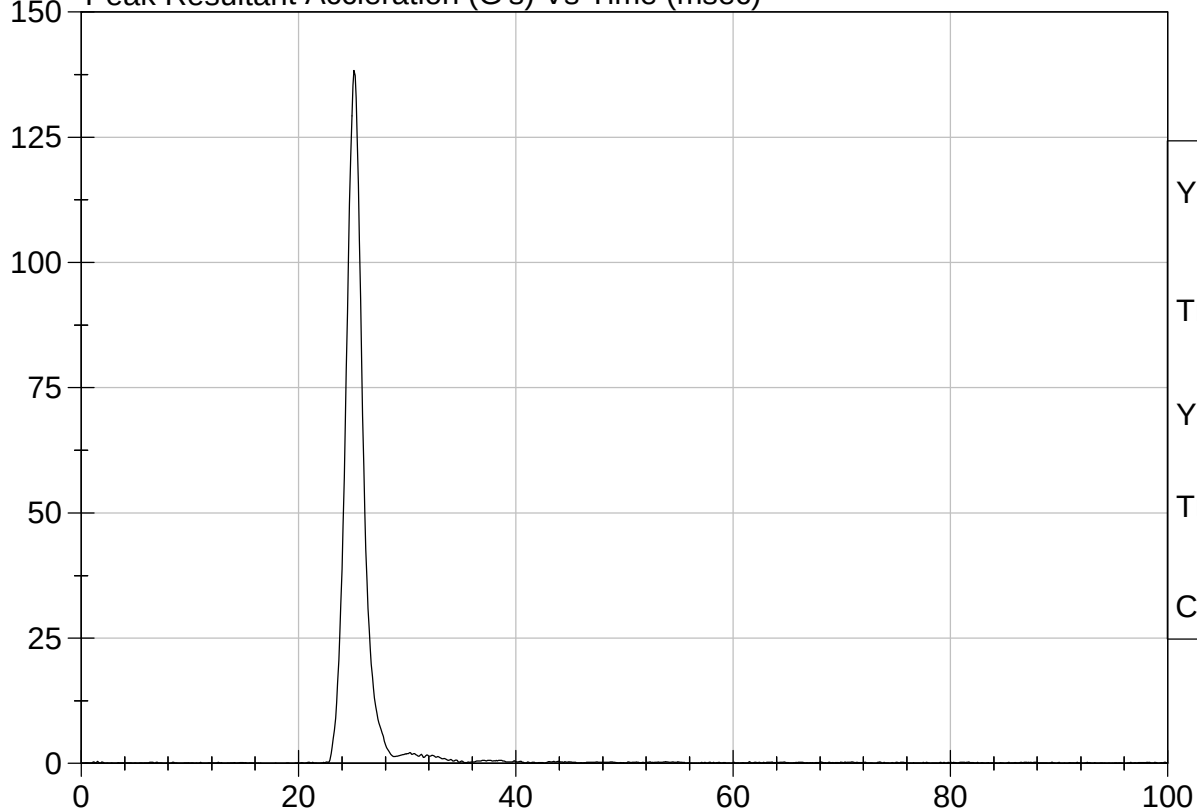
Test Description: Head Drop

Test Date: 01/20/2004

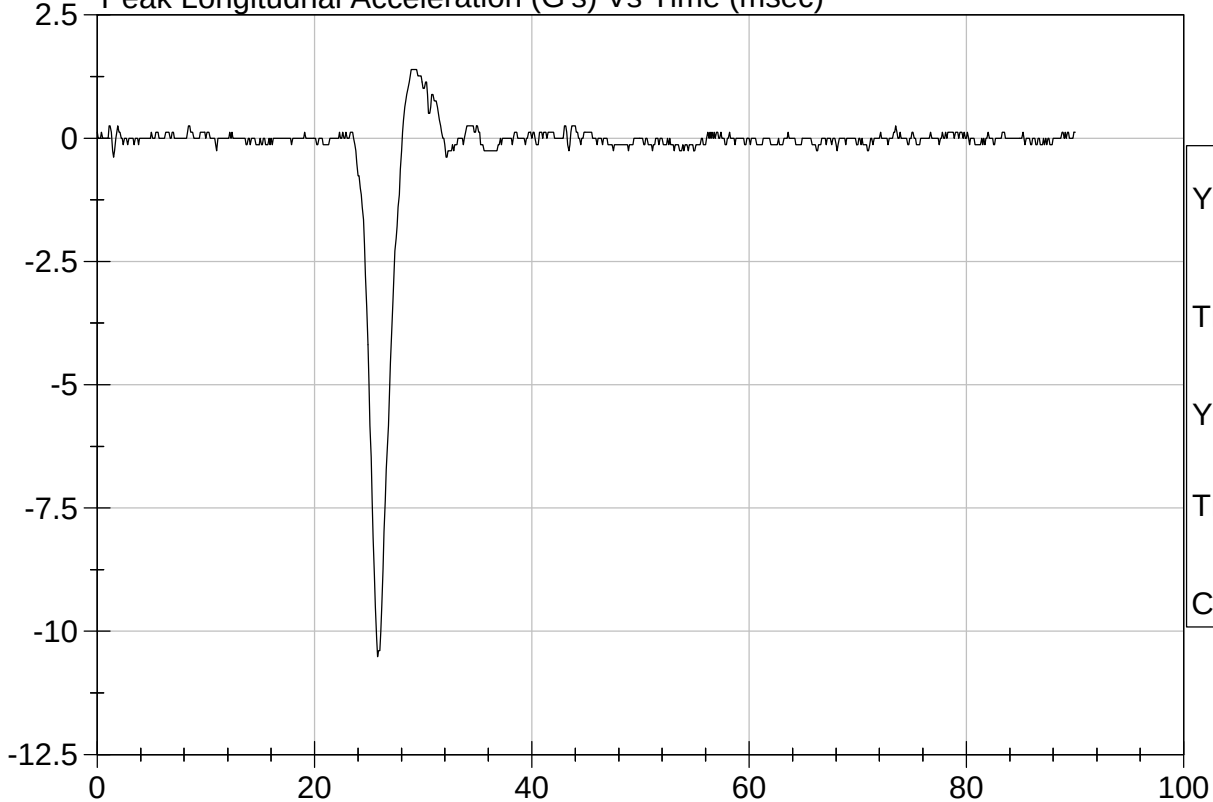
Component: D04091

Speed: 0 ft/s, 0.00 m/s

Peak Resultant Acceleration (G's) Vs Time (msec)



Peak Longitudnal Acceleration (G's) Vs Time (msec)

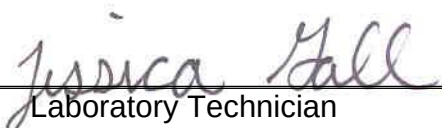


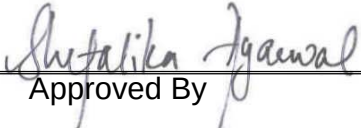
SID Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 271

Test I.D: D04092

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	20.8	Pass
Laboratory Relative Humidity	%	10 to 70	22	Pass
Probe Velocity	m/s	4.27 - 4.33	4.27	Pass
Upper Rib	G's	37 - 46	45	Pass
Lower Rib	G's	37 - 46	46	Pass
Lower Spine	G's	15 - 22	21	Pass
Overall Test Results				Pass


 Laboratory Technician

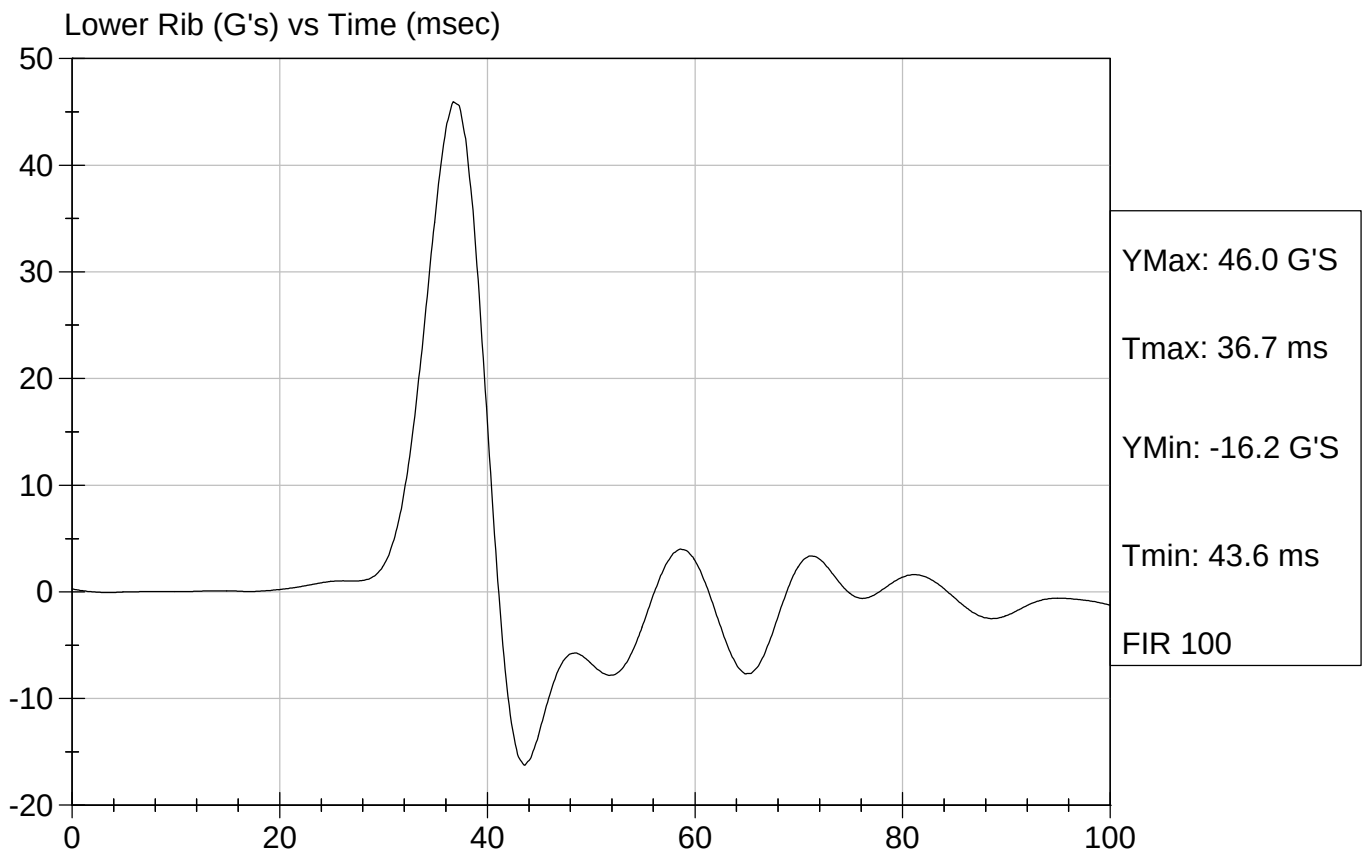
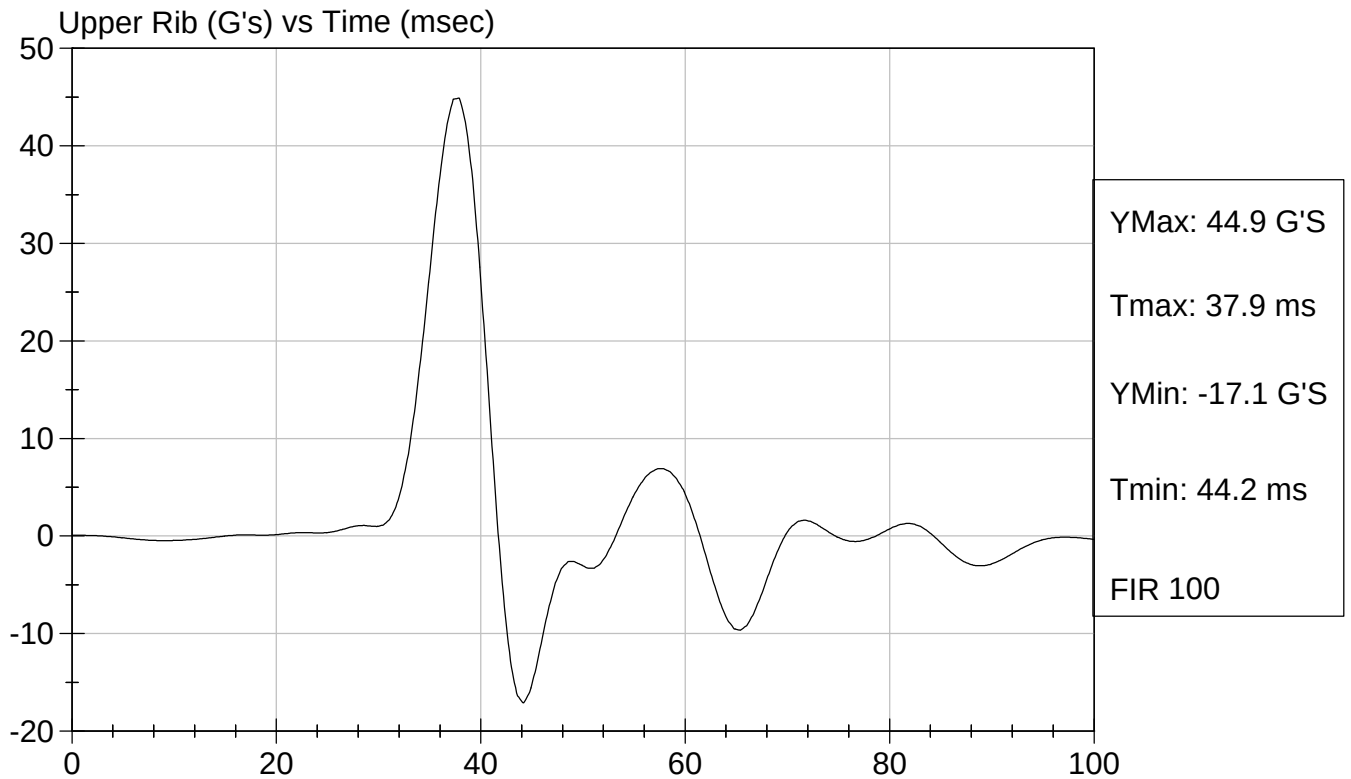

 Approved By

01/20/2004
 Test Date



Test Desc: Thorax Impact
Component ID: D04092

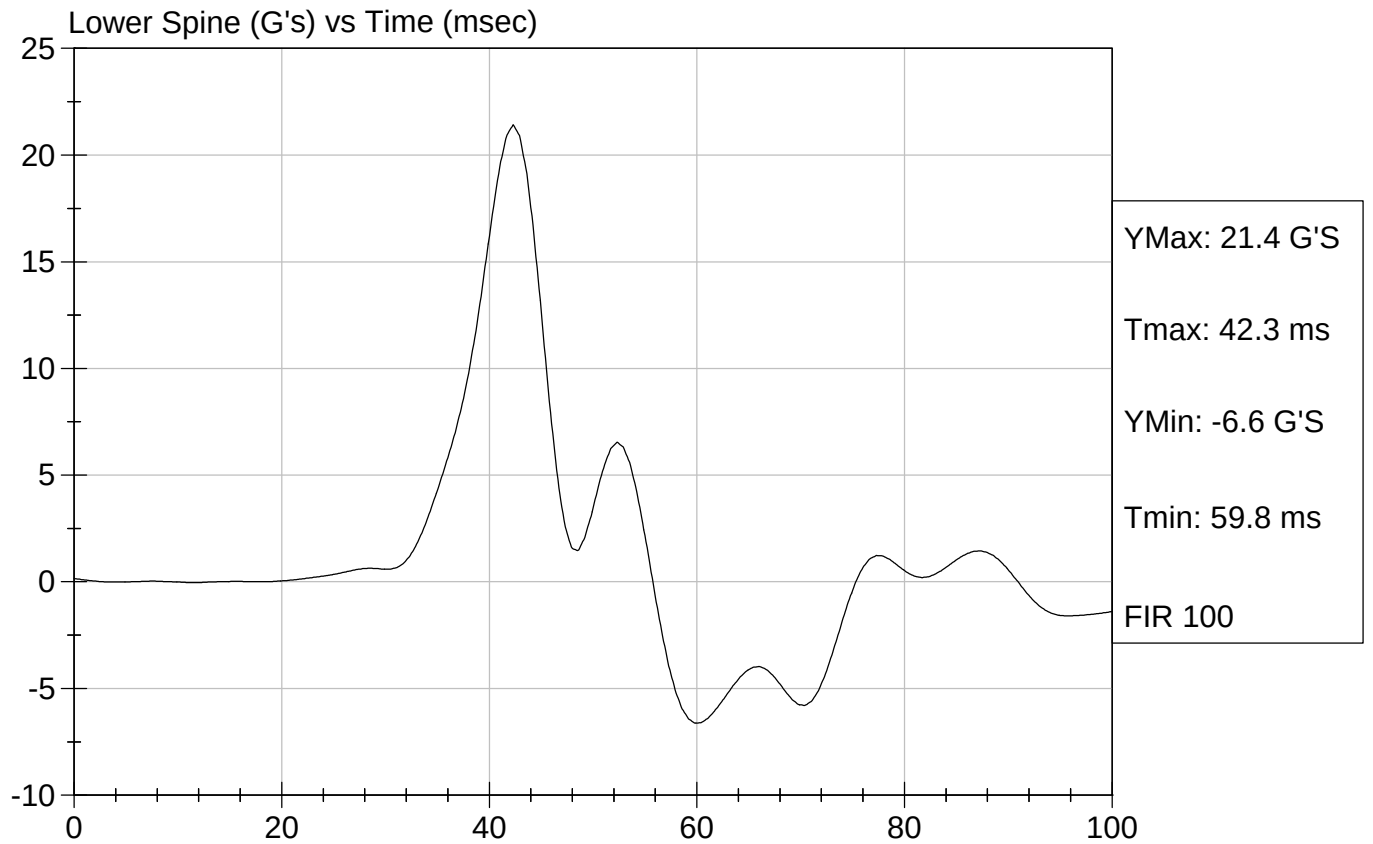
Test Date: 01/20/2004
Speed: 14.02 ft/sec, 4.27 m/sec





Test Desc: Thorax Impact
Component ID: D04092

Test Date: 01/20/2004
Speed: 14.02 ft/sec, 4.27m/sec

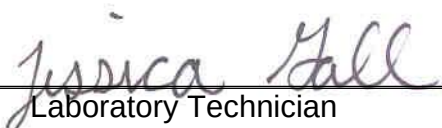


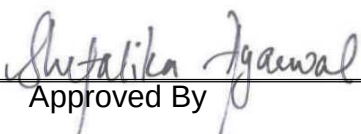
SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 271

Test I.D: D04093

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	20.8	Pass
Laboratory Relative Humidity	%	10 to 70	22	Pass
Probe Velocity	m/s	4.27 - 4.33	4.33	Pass
Pelvis Acceleration	G's	40 - 60	49	Pass
Overall Test Results				Pass


Laboratory Technician

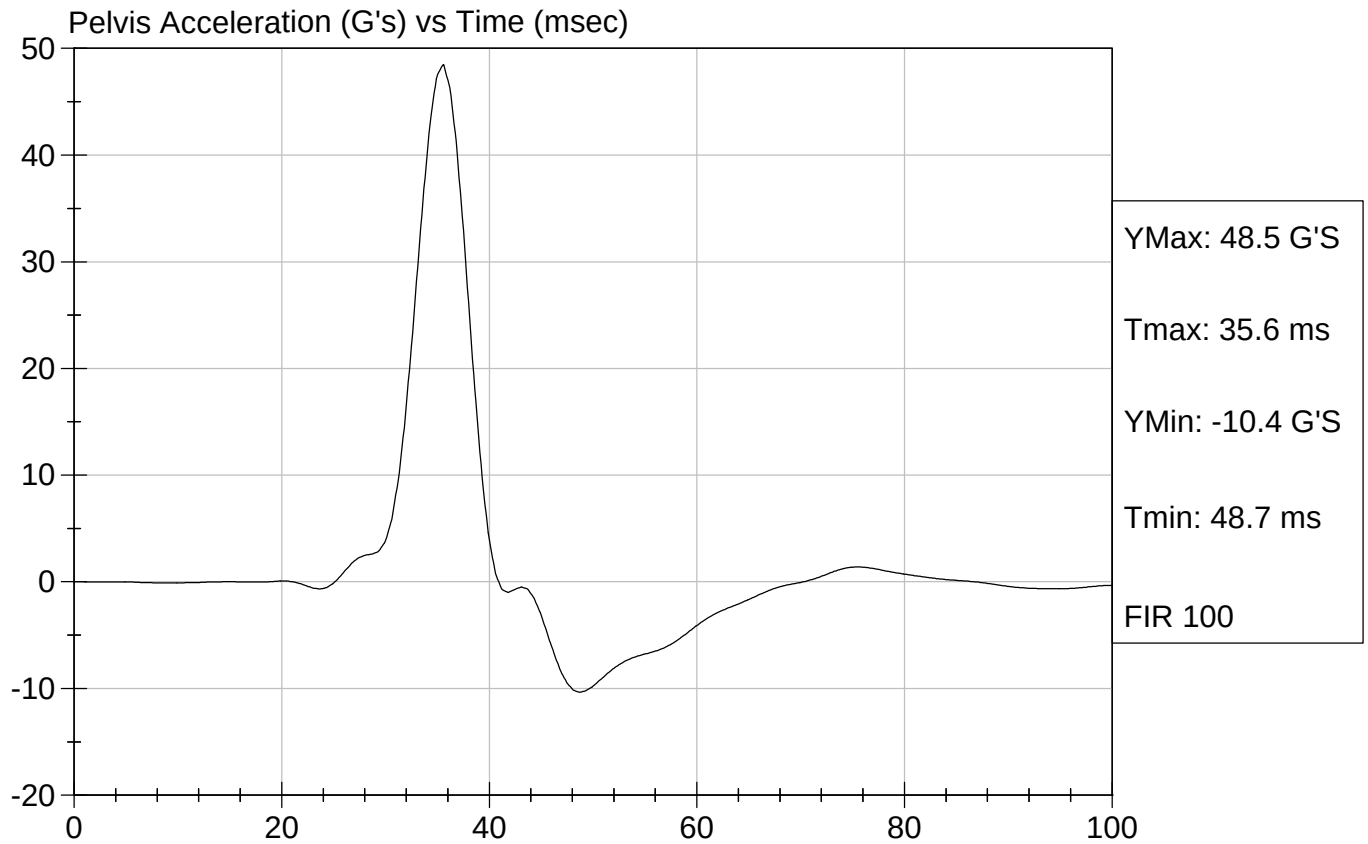

Approved By

01/20/2004
Test Date



Test Desc: Pelvis Impact
Component ID: D04093

Test Date: 01/20/2004
Speed: 14.21 ft/sec, 4.33 m/sec

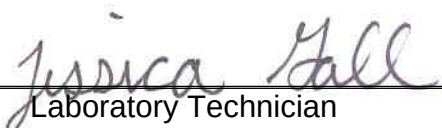


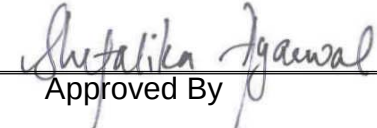
SID Calibration Data Sheet
Side Impact Dummy
Abdominal Compression Calibration (Pre-Load = 10 lbs)

ATD Serial No: 271

Test I.D: D04094

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	19	Pass
Force At 12.7 mm	N	104 -162	142	Pass
Force At 19 mm	N	163 - 222	197	Pass
Force At 25.4 mm	N	222 - 280	261	Pass
Force At 33 mm	N	325 - 391	363	Pass
Overall Test Results				Pass


 Laboratory Technician


 Approved By

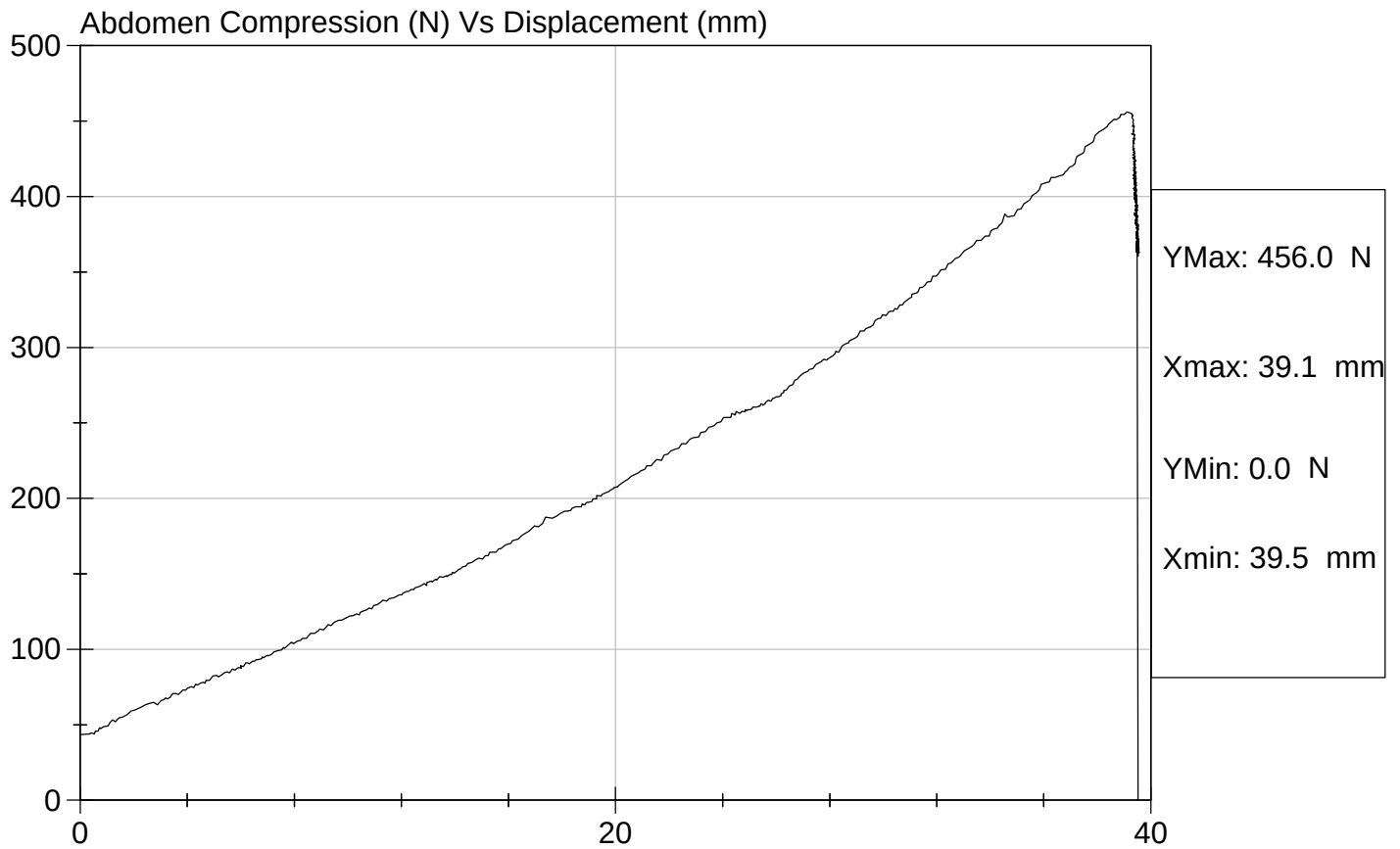
01/20/2004
 Test Date



Test Description: Abdomen Compression Test Date: 01/20/2004

Component: D04094

Speed: 0 ft/sec, 0 m/sec

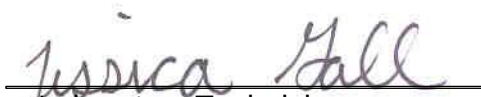


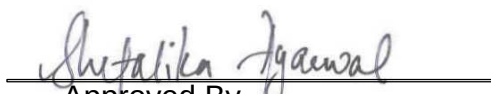
SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 271

Test I.D: D04095

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	22	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	138.6	Pass
Force At 30 deg	N	151.2 - 204.6	195.1	Pass
Force At 40 deg	N	204.6 - 258.0	251.6	Pass
Return Angle	Deg	12 Maximum	2	Pass
Overall Test Results				Pass


 Laboratory Technician


 Approved By

01/20/2004

Test Date

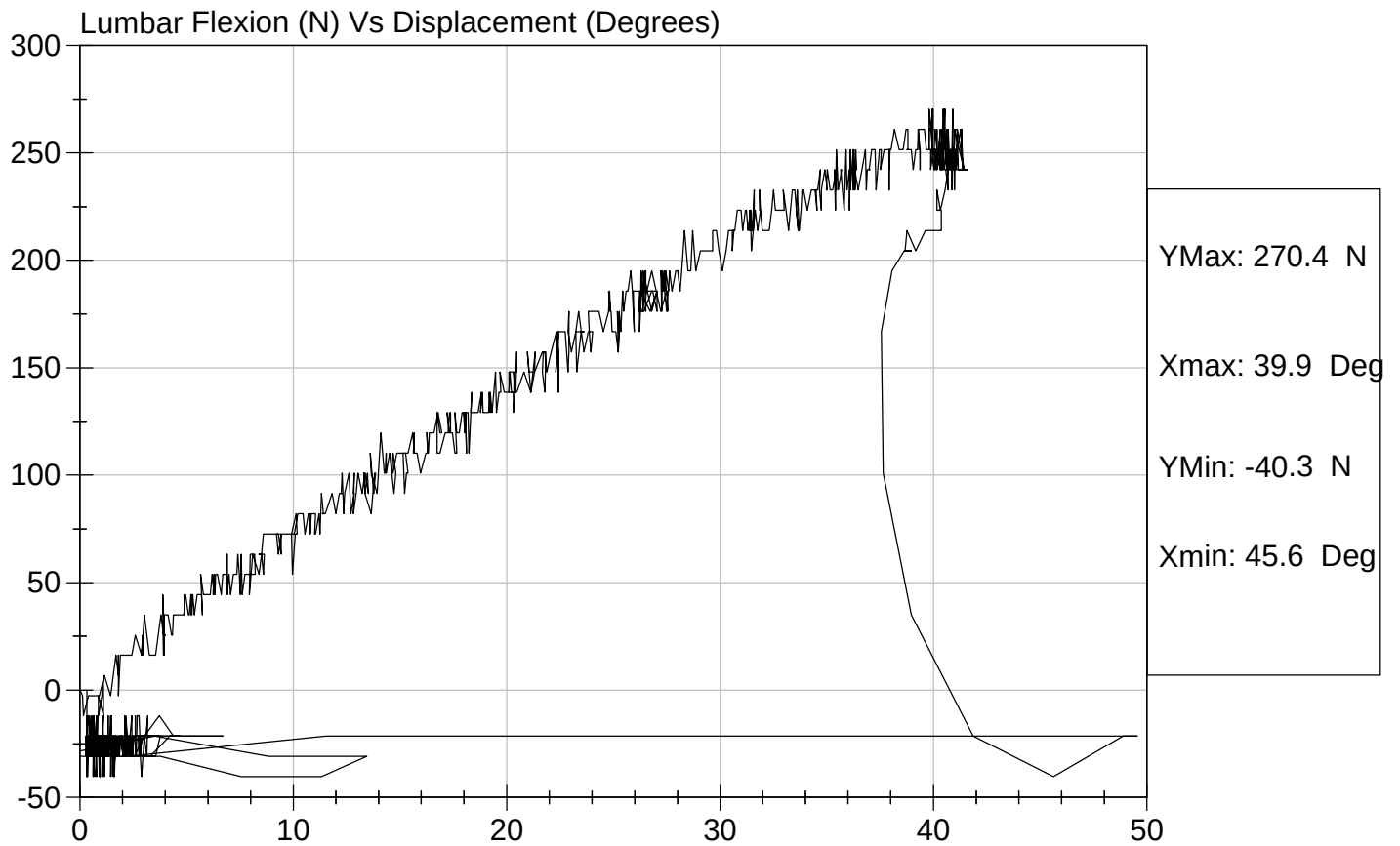


Test Description: Lumbar Flexion

Test Date: 01/20/2004

Component: D04095

Speed: 0 ft/sec, 0 m/sec

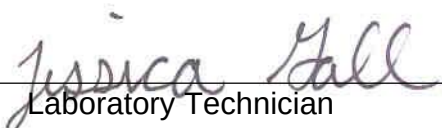


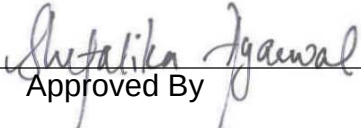
SID Calibration Data Sheet
Side Impact Dummy (SID)
Neck Pendulum Test

ATD Serial No: 271

Test I.D: D04099

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity		%	10 to 70	22	Pass
Impact Velocity		m/s	6.89 to 7.13	6.93	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.14	Pass
	20 msec	m/s	4.12 to 5.10	4.26	Pass
	30 msec	m/s	5.73 to 7.01	5.97	Pass
	40 to 70 msec	m/s	6.27 to 7.64	6.94	Pass
Midsagittal Plane Max Rotation		deg	66 to 82	74	Pass
Head Rotation Peak to Zero - Decay Time		msec	58 to 67	61	Pass
Max. Mx at Occipital Condyles		Nm	73 to 88	75	Pass
Mx Peak To Zero - Decay Time		msec	49 to 64	59	Pass
Mx Peak to Max. Head Rotation		msec	2 to 16	13	Pass


 Laboratory Technician


 Approved By

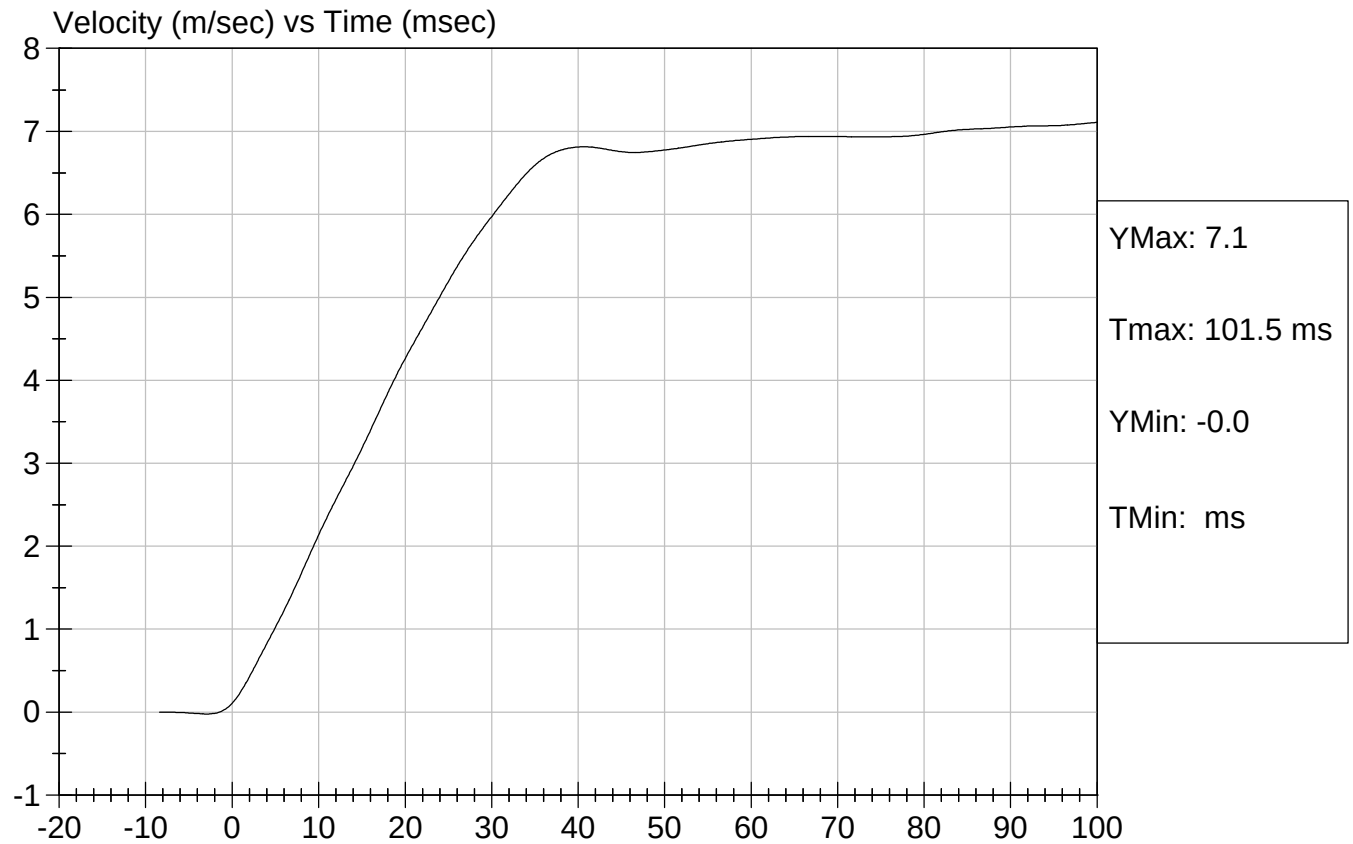
01/20/2004

Test Date



Test Desc: Neck Bending
Component ID: D04099

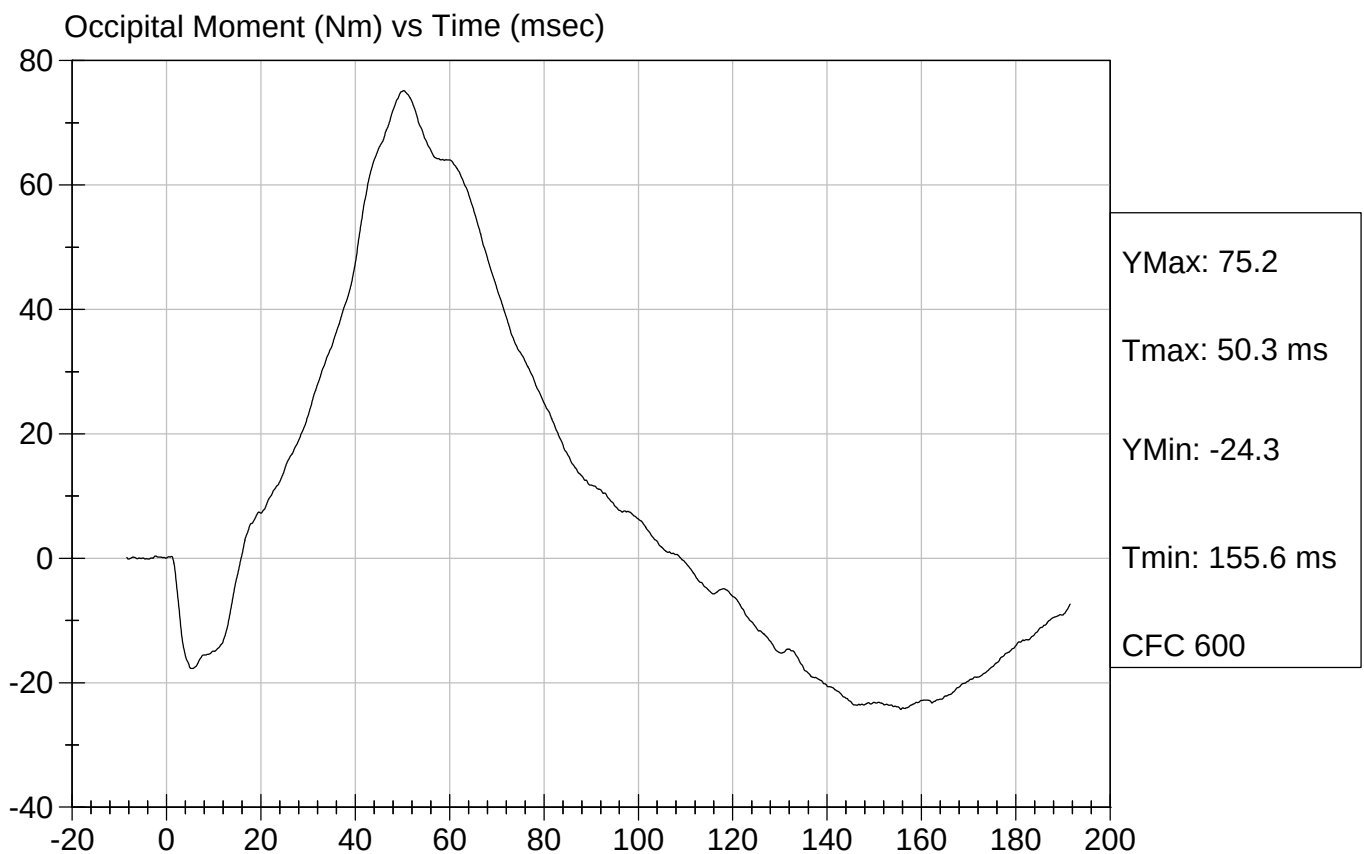
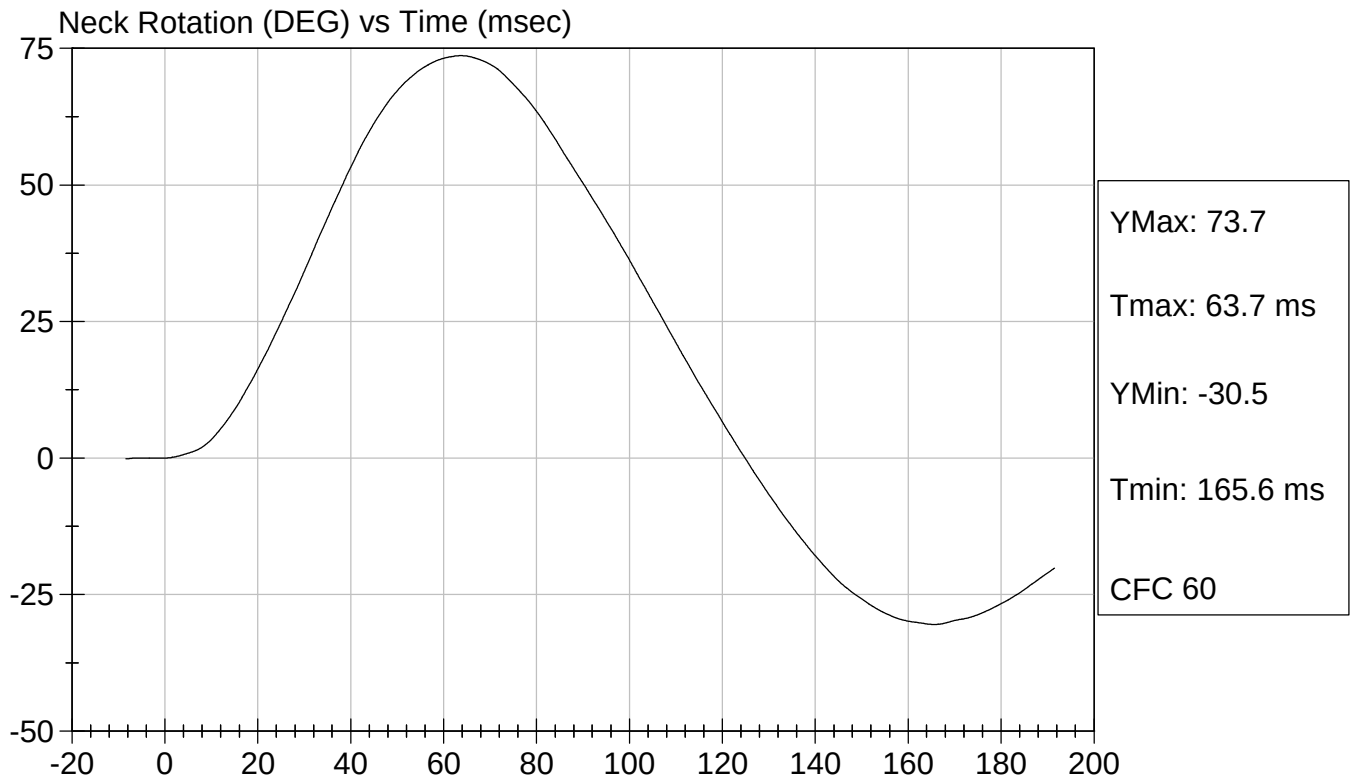
Test Date: 01/20/2004
Speed: 22.73 ft/sec, 6.93 m/sec





Test Desc: Neck Bending
Component ID: D04099

Test Date: 01/20/2004
Speed: 22.73 ft/sec, 6.93 m/sec



Calibration Test Results Summary

Dummy Serial Number: 271

Post-Test Calibration

External Dimensions:	The dummy passed all external dimension requirements.
Head Drop Test:	The head passed all drop test requirements.
Neck Pendulum Test:	The neck passed all pendulum test requirements.
Thorax Impact Test*:	The thorax did NOT* pass all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion Test:	The lumbar passed all flexion test requirements.

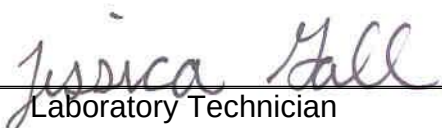
* The Thorax Impact Test did not pass Post-Test calibration. The lumbar spine was replaced and the problem was resolved.

SID Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration (Lateral)

ATD Serial No: 271

Test I.D: D04371

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	22.0	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Peak Resultant Acceleration	G's	120 to 150	136	Pass
Is Resultant Curve Unimodal?	Yes/No	15% of peak	Yes	Pass
Peak Longitudnal Acceleration	G's	+/- 15	-8	Pass
Overall Test Results				Pass


 Laboratory Technician


 Approved By

02/20/2004
 Test Date



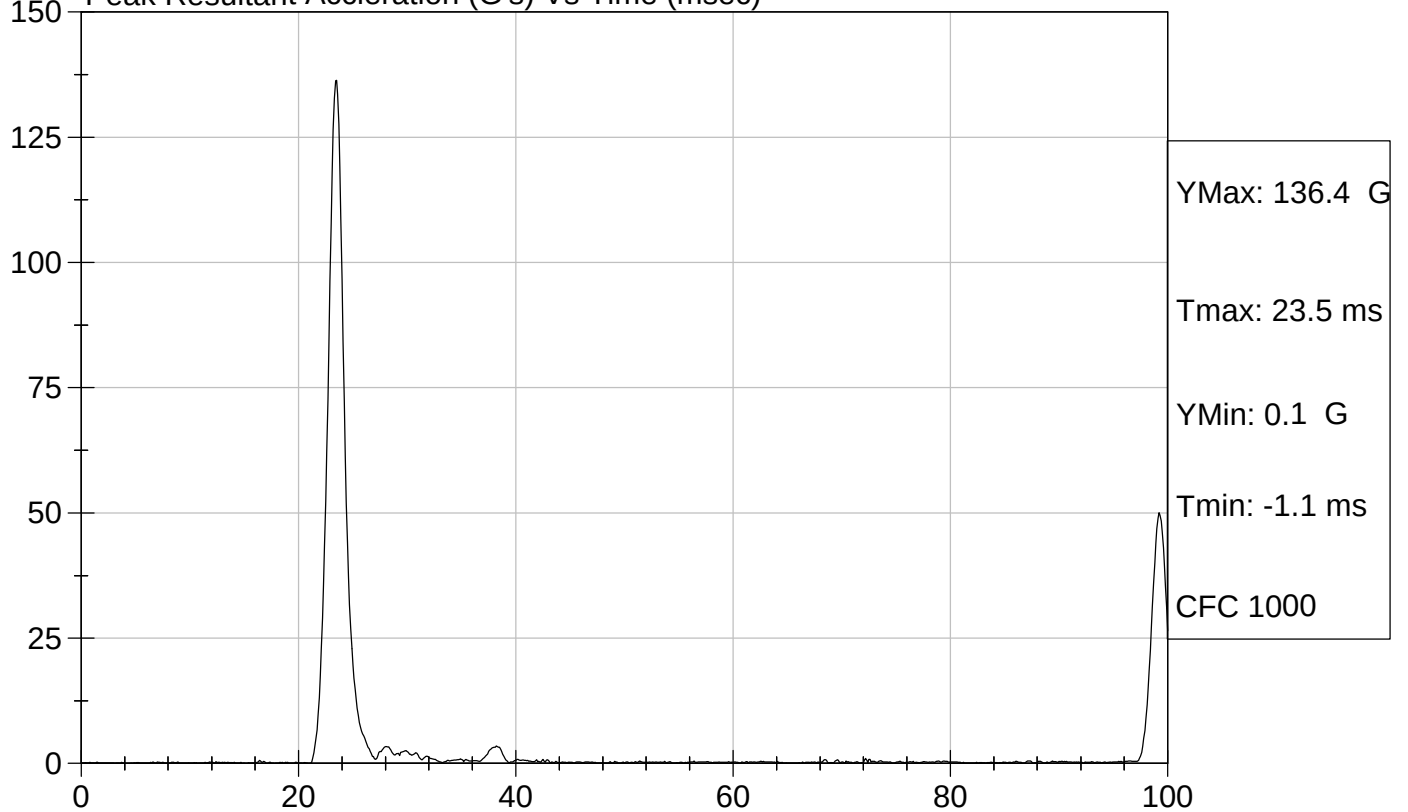
Test Description: Head Drop

Test Date: 02/20/2004

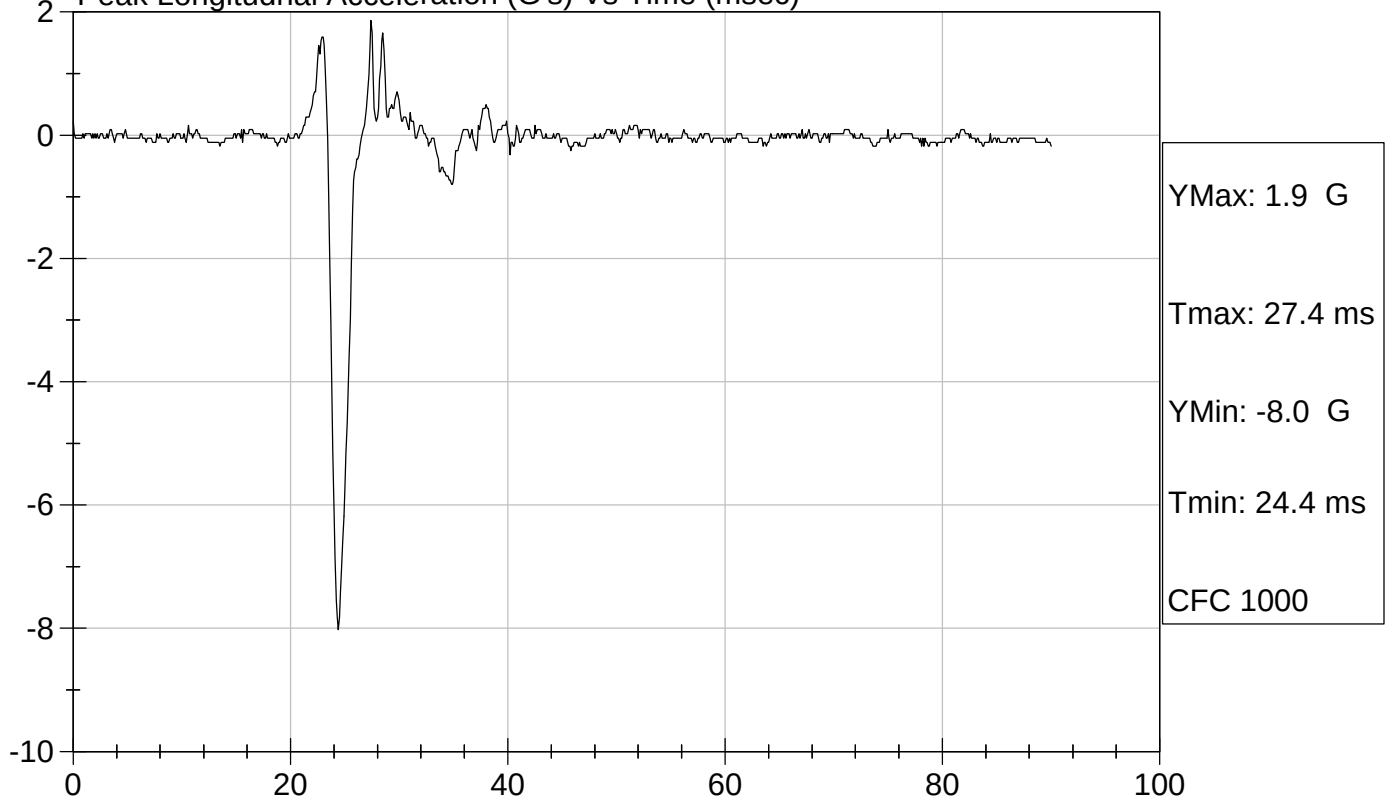
Component: D04371

Speed: 0 ft/s, 0.00 m/s

Peak Resultant Acceleration (G's) Vs Time (msec)



Peak Longitudinal Acceleration (G's) Vs Time (msec)

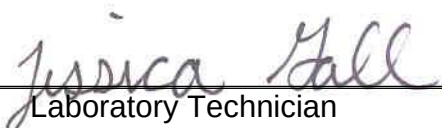


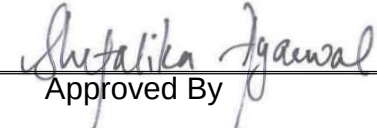
SID Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 271

Test I.D: D04372

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	22.0	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Probe Velocity	m/s	4.27 - 4.33	4.27	Pass
Upper Rib	G's	37 - 46	49	Fail
Lower Rib	G's	37 - 46	49	Fail
Lower Spine	G's	15 - 22	24	Fail
Overall Test Results				Fail


 Laboratory Technician

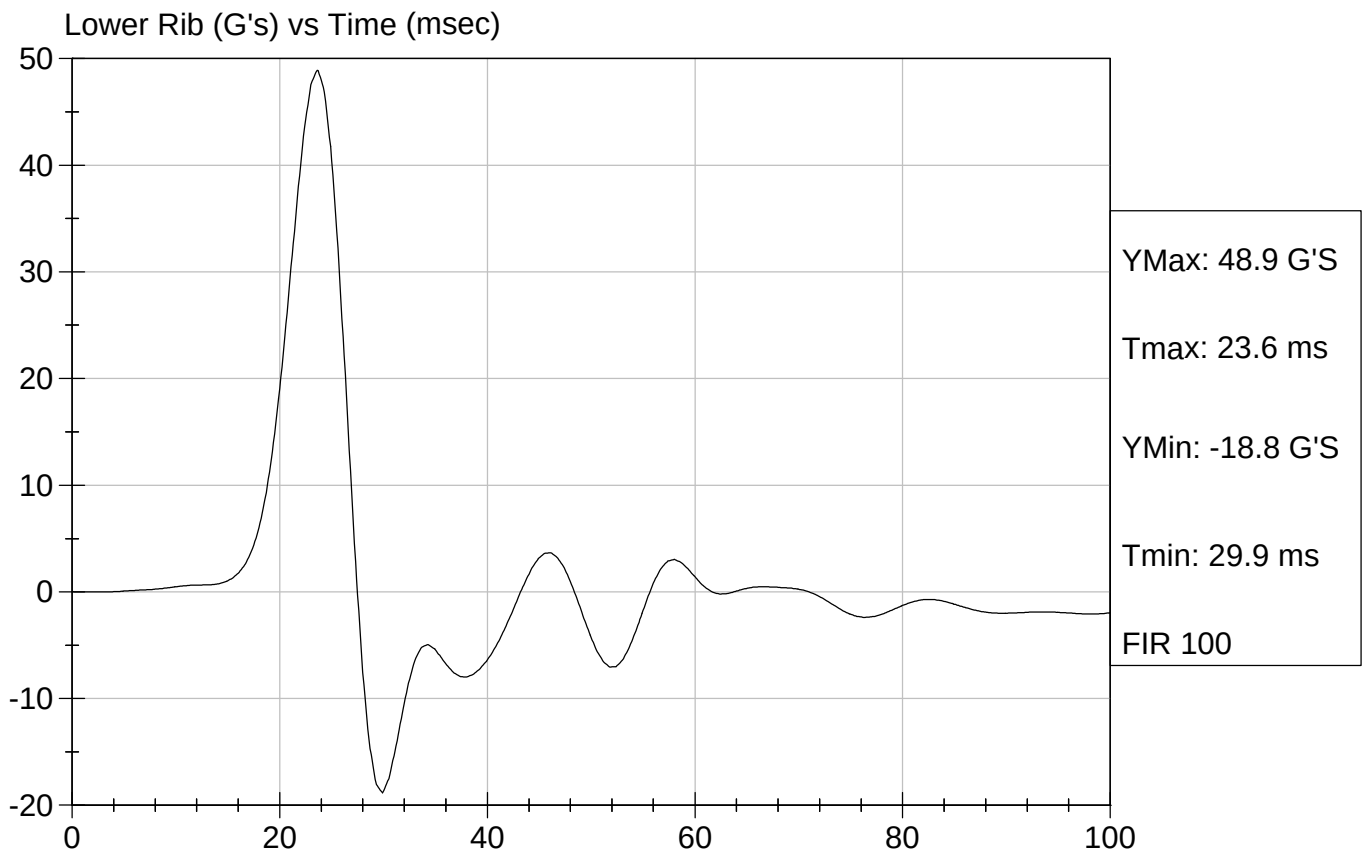
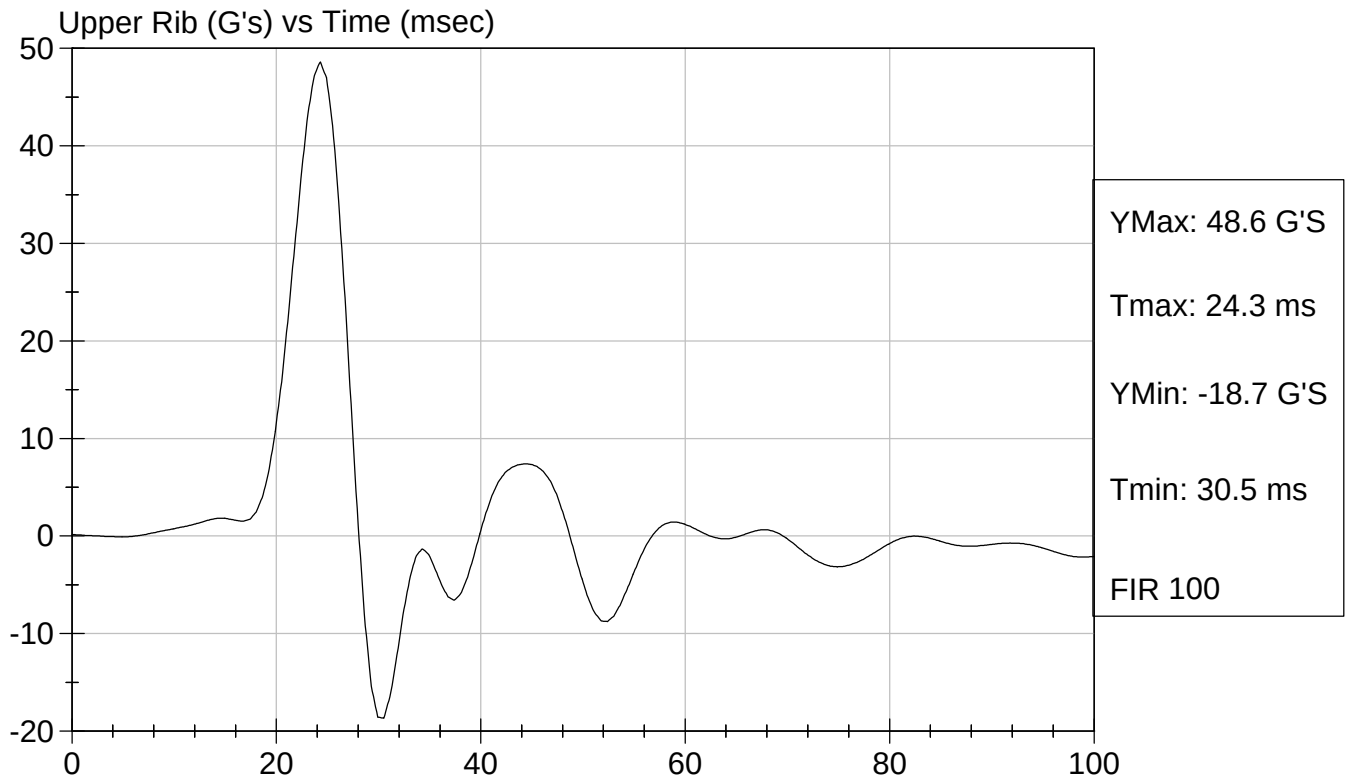

 Approved By

02/20/2004
 Test Date



Test Desc: Thorax Impact
Component ID: D04372

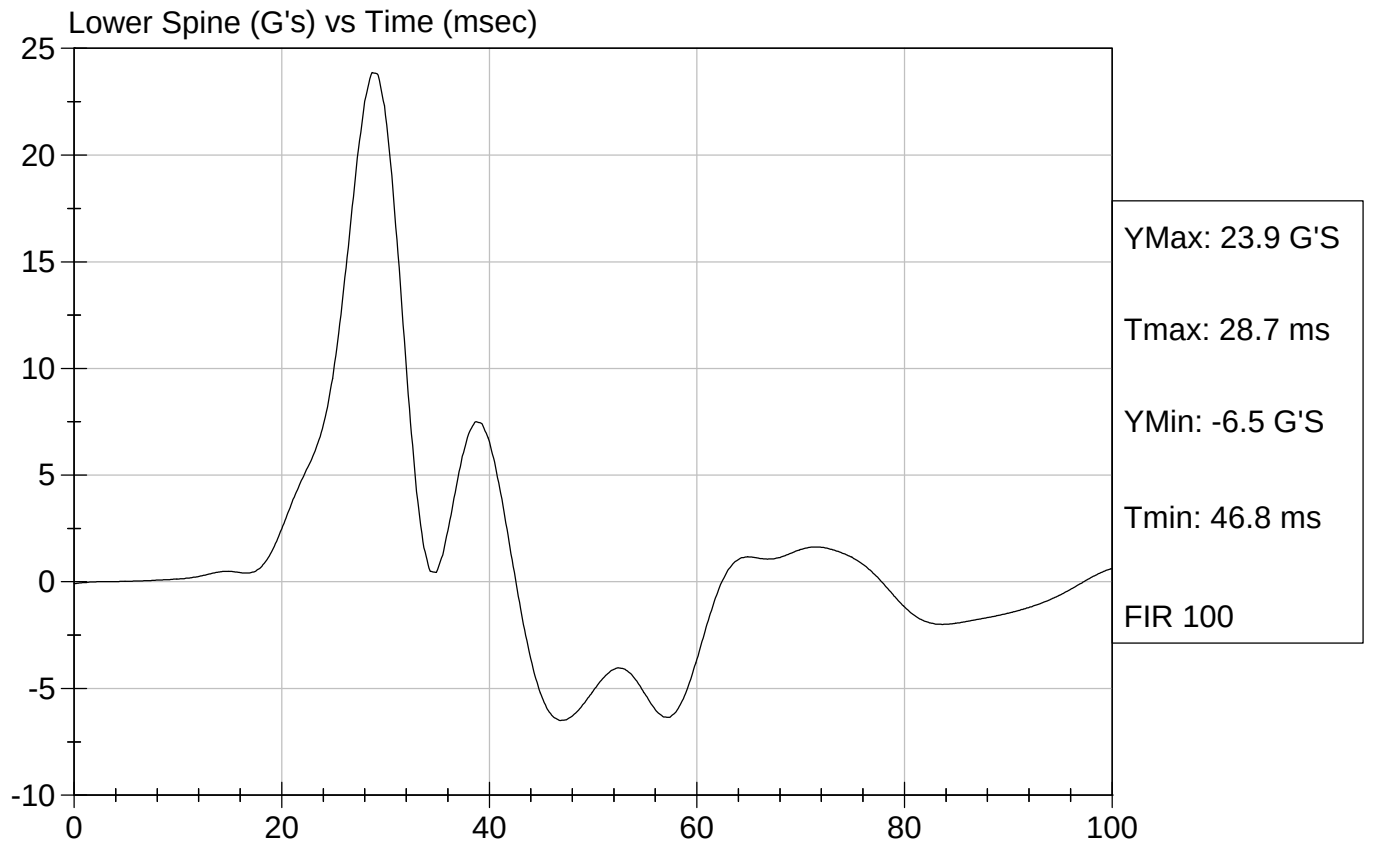
Test Date: 02/20/2004
Speed: 14 ft/sec, 4.27 m/sec





Test Desc: Thorax Impact
Component ID: D04372

Test Date: 02/20/2004
Speed: 14 ft/sec, 4.27 m/sec

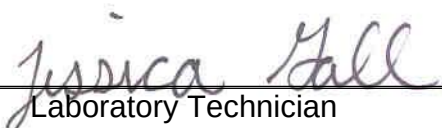


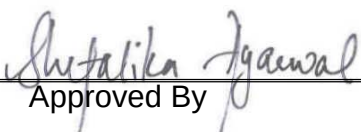
SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 271

Test I.D: D04373

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	26	Pass
Probe Velocity	m/s	4.27 - 4.33	4.30	Pass
Pelvis Acceleration	G's	40 - 60	50	Pass
Overall Test Results				Pass


Laboratory Technician

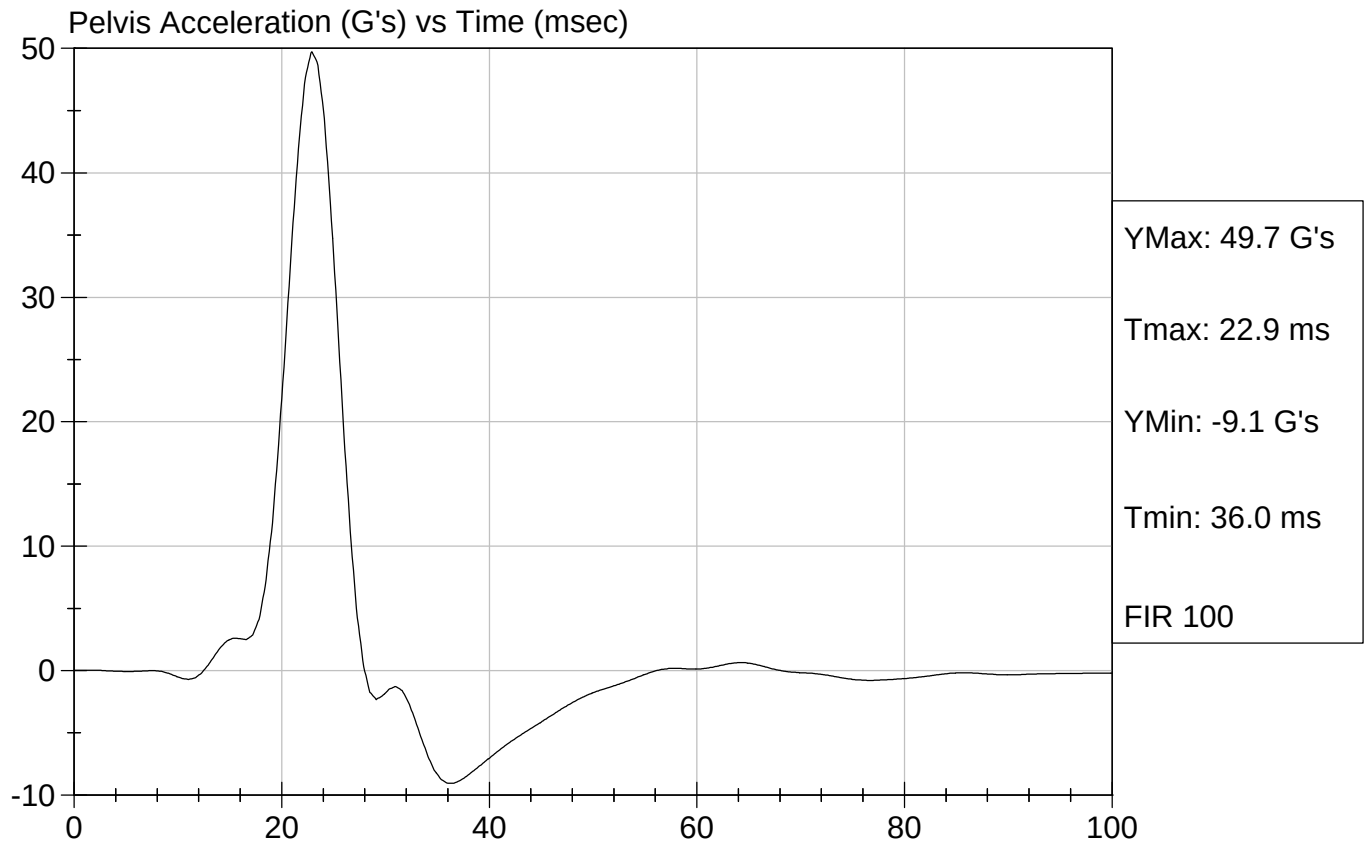

Approved By

02/19/2004
Test Date



Test Desc: Pelvis Impact
Component ID: D04373

Test Date: 02/19/2004
Speed: 14.11 ft/sec, 4.30 m/sec

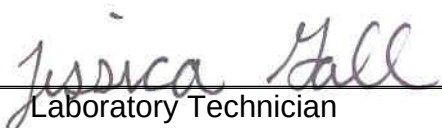


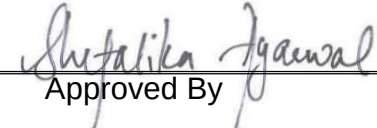
SID Calibration Data Sheet
Side Impact Dummy
Abdominal Compression Calibration (Pre-Load = 10 lbs)

ATD Serial No: 271

Test I.D: D04374

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	22.0	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Force At 12.7 mm	N	104 -162	146	Pass
Force At 19 mm	N	163 - 222	200	Pass
Force At 25.4 mm	N	222 - 280	266	Pass
Force At 33 mm	N	325 - 391	357	Pass
Overall Test Results				Pass


 Laboratory Technician


 Approved By

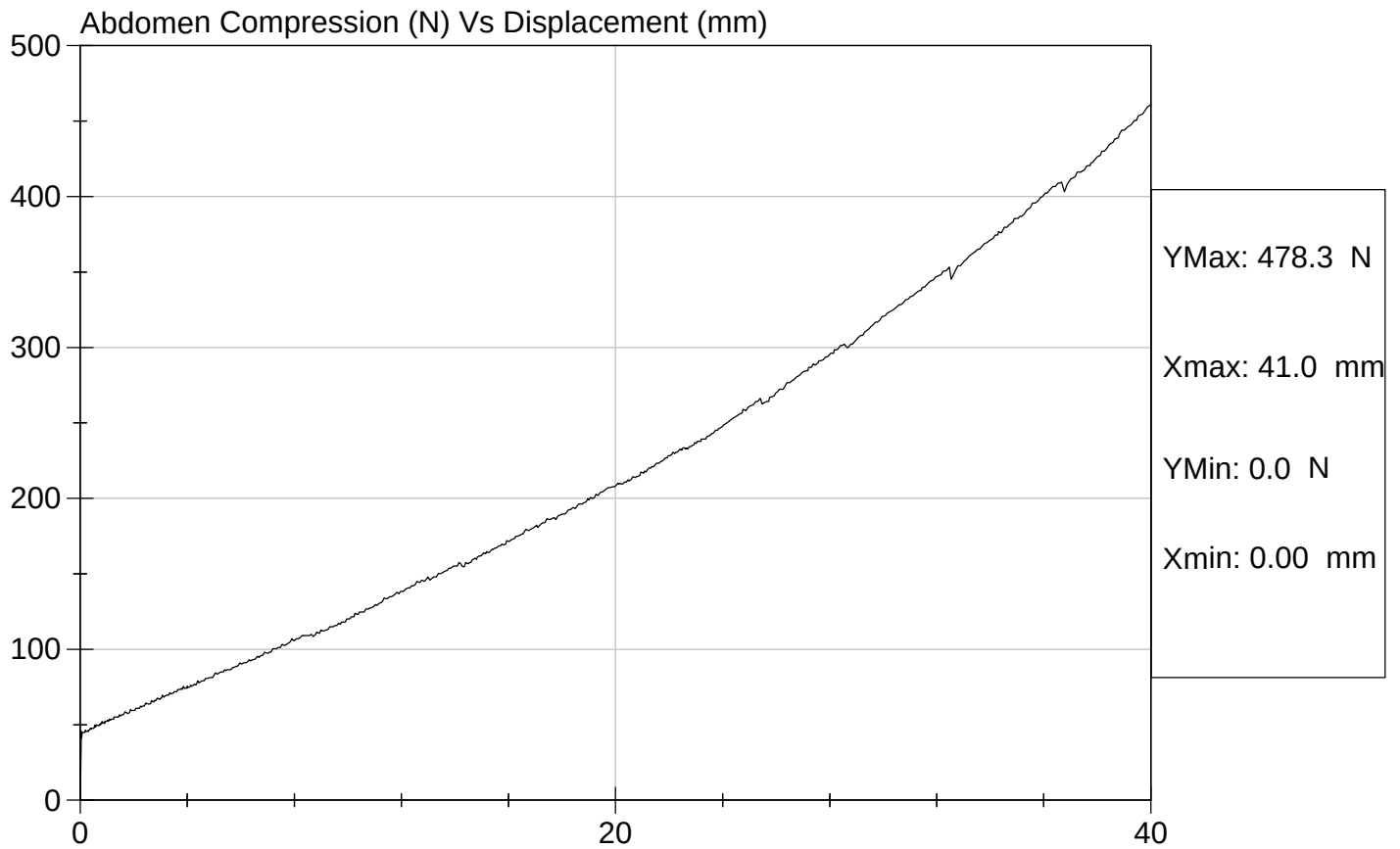
02/20/2004
 Test Date



Test Description: Abdomen Compression Test Date: 02/20/2004

Component: D04374

Speed: 0 ft/sec, 0 m/sec

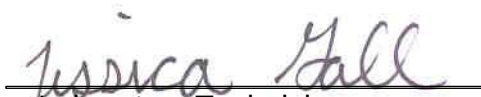


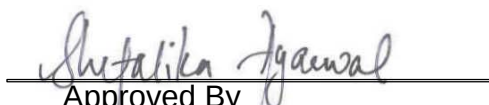
SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 271

Test I.D: D04375

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	22.0	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	114.9	Pass
Force At 30 deg	N	151.2 - 204.6	171.5	Pass
Force At 40 deg	N	204.6 - 258.0	247.1	Pass
Return Angle	Deg	12 Maximum	4	Pass
			Overall Test Results	Pass


 Laboratory Technician


 Approved By

02/20/2004

Test Date

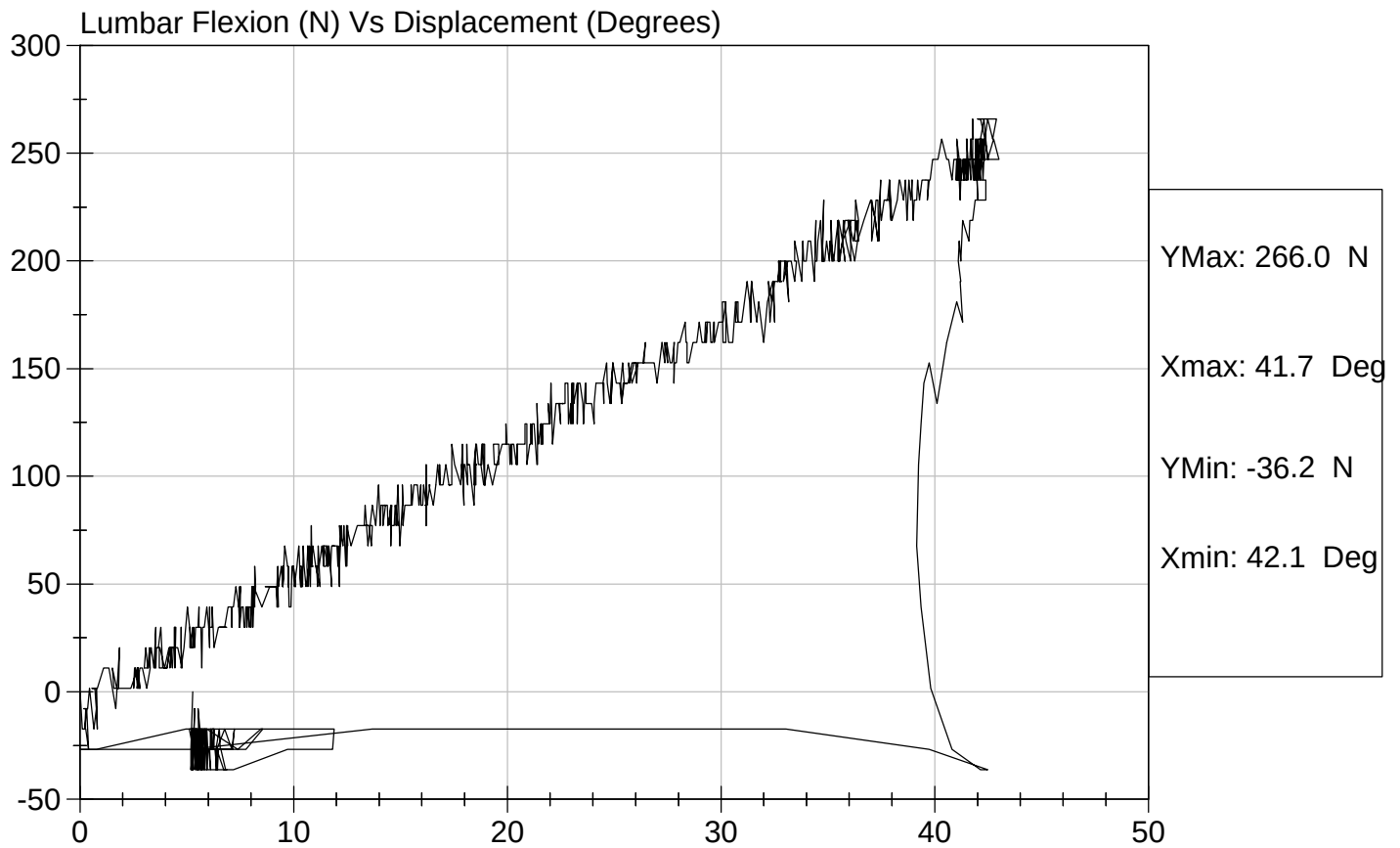


Test Description: Lumbar Flexion

Test Date: 02/20/2004

Component: D04375

Speed: 0 ft/sec, 0 m/sec

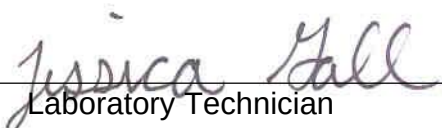


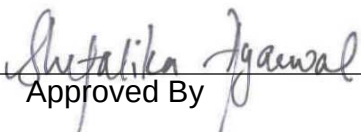
SID Calibration Data Sheet
Side Impact Dummy (SID)
Neck Pendulum Test

ATD Serial No: 271

Test I.D: D04379

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.8	Pass
Laboratory Relative Humidity		%	10 to 70	26	Pass
Impact Velocity		m/s	6.89 to 7.13	7.04	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.28	Pass
	20 msec	m/s	4.12 to 5.10	4.52	Pass
	30 msec	m/s	5.73 to 7.01	6.35	Pass
	40 to 70 msec	m/s	6.27 to 7.64	7.01	Pass
Midsagittal Plane Max Rotation		deg	66 to 82	72	Pass
Head Rotation Peak to Zero - Decay Time		msec	58 to 67	60	Pass
Max. Mx at Occipital Condyles		Nm	73 to 88	77	Pass
Mx Peak To Zero - Decay Time		msec	49 to 64	57	Pass
Mx Peak to Max. Head Rotation		msec	2 to 16	11	Pass


 Laboratory Technician


 Approved By

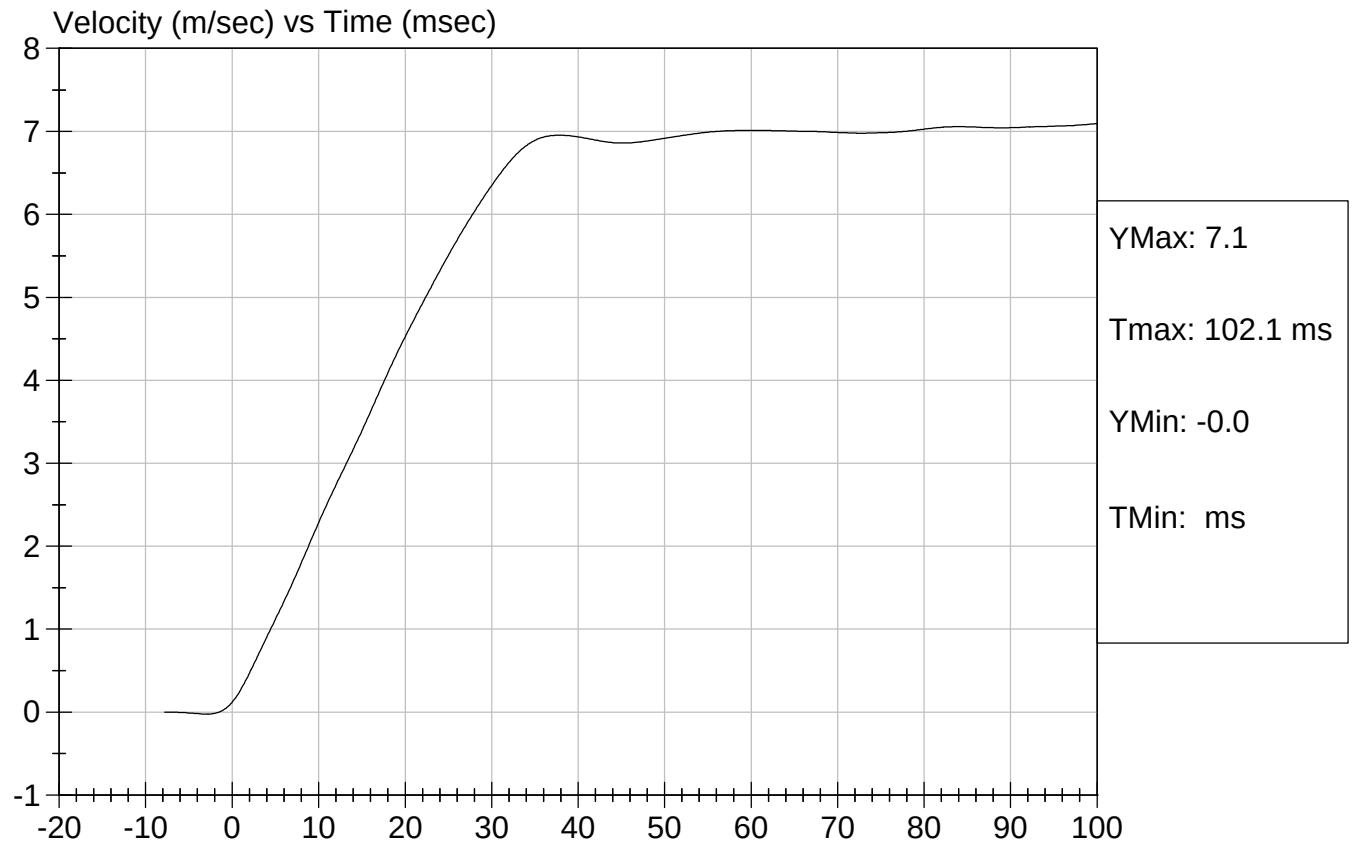
02/19/2004

Test Date



Test Desc: Neck Bending
Component ID: D04379

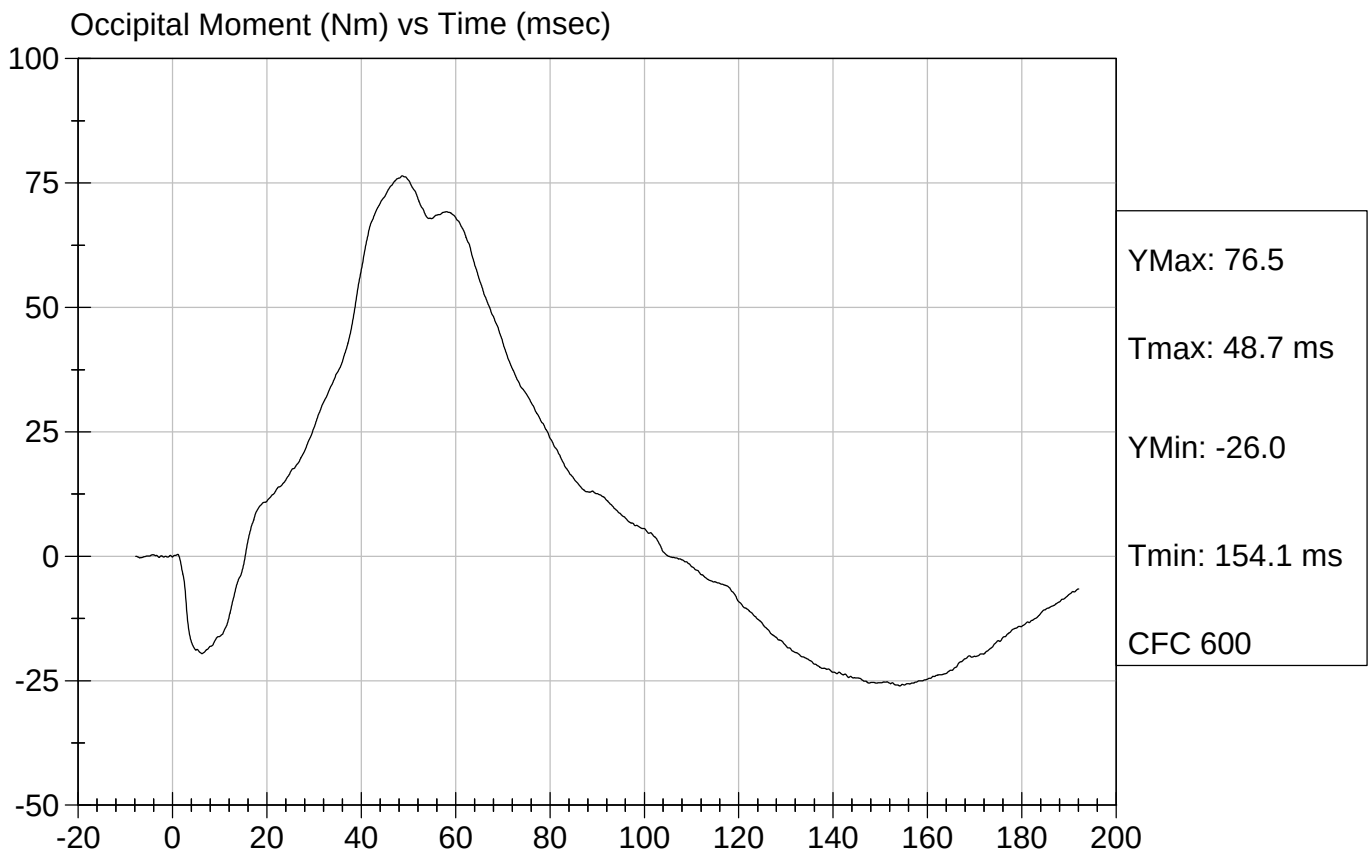
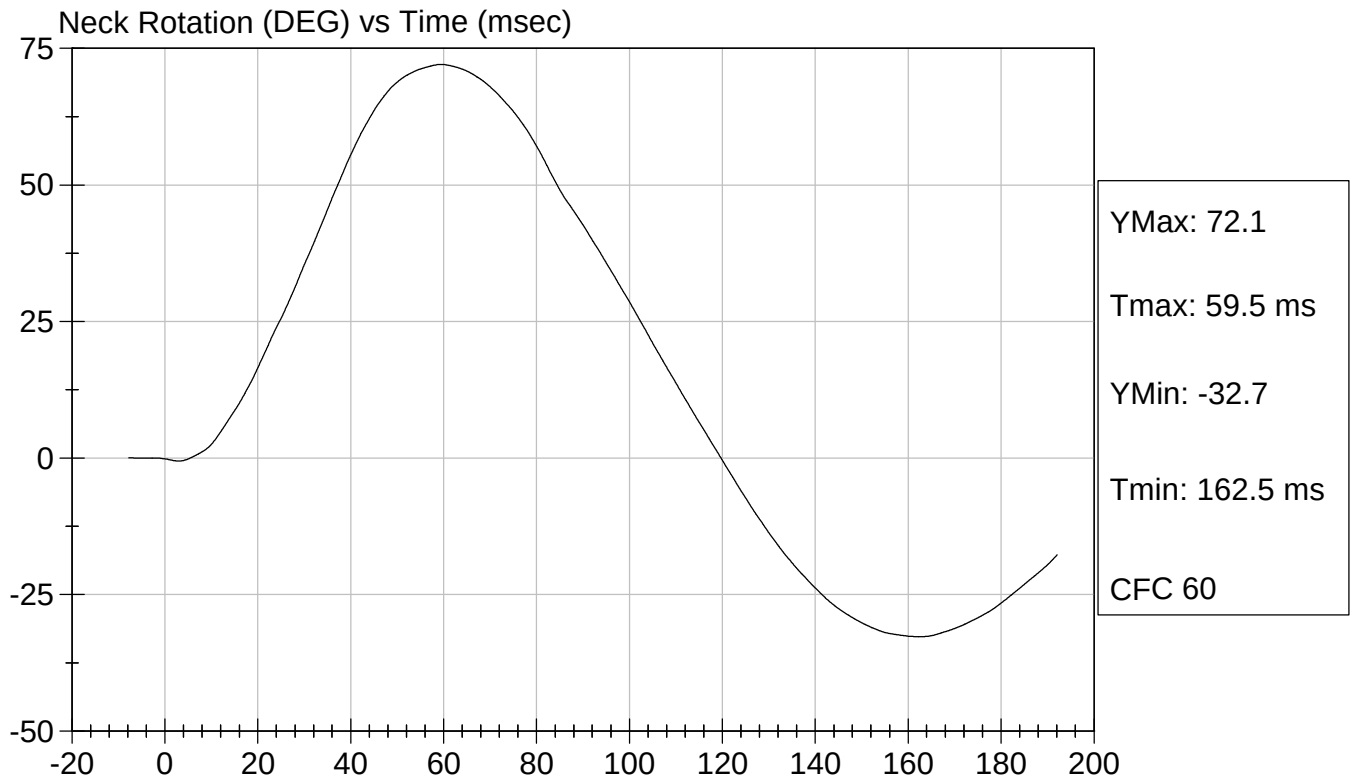
Test Date: 02/19/2004
Speed: 23.09 ft/sec, 7.04 m/sec





Test Desc: Neck Bending
Component ID: D04379

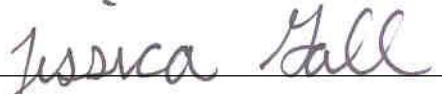
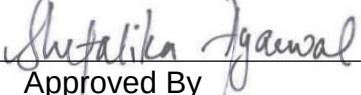
Test Date: 02/19/2004
Speed: 23.09 ft/sec, 7.04 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Inspection Checklist

ATD Serial No: 271

Test Part	Items Checked	Result
Skin	Visual inspection	Pass
Head	Visual, ballast, accelerometer mount	Pass
Neck	Visual	Pass
Spine Box	Visual, ballast, accelerometer mount	Pass
Rib Cage	Visual, measure	Pass
Sternum	Visual	Pass
Lumbar Spine	Visual	Pass
Abdomen	Visual	Pass
Pelvis	Visual, palpate, accelerometer mount	Pass
Upper Legs	Visual	Pass
Knees	Visual	Pass
Lower Legs	Visual, range of motion	Pass
Ankles	Visual, range of motion	Pass
Feet	Visual, range of motion	Pass
Joints	1 to 2 g range	Pass
Other		Pass


 Laboratory Technician

 Approved By

02/20/2004
 Test Date

CERTIFICATION DATA

Dummy Serial Number: 904

Calibration Test Results Summary

Dummy Serial Number: 904

Pre-Test Calibration

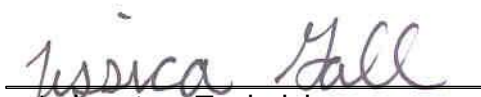
External Dimensions:	The dummy passed all external dimension requirements.
Head Drop Test:	The head passed all drop test requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion Test:	The lumbar passed all flexion test requirements.

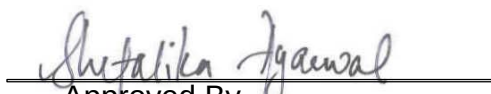
SID Calibration Data Sheet
Side Impact Dummy
External Measurements

ATD Serial No: 904

Test I.D: D0410

Tested Parameter	Units	Specification	Result	Pass/Fail
SH - Seated Height	mm	889 - 909	903	Pass
RH - Rib Height	mm	501 - 521	509	Pass
HP - Hip Pivot Height	mm	99 ref.	99	Pass
RD - Rib from Back Line	mm	229 - 241	240	Pass
KV - Knee Pivot to Back Line	mm	511 - 526	525	Pass
SW - Knee Pivot to Floor	mm	490 - 505	500	Pass
HW - Hip Width	mm	356 - 391	368	Pass
			Overall Test Results	Pass


 Laboratory Technician


 Approved By

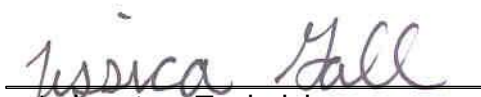
11/12/2003
 Test Date

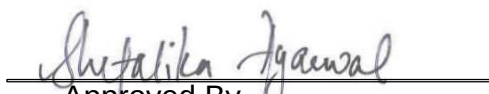
SID Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration (Lateral)

ATD Serial No: 904

Test I.D: D04101

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	20.7	Pass
Laboratory Relative Humidity	%	10 to 70	21	Pass
Peak Resultant Acceleration	G's	120 to 150	150	Pass
Is Resultant Curve Unimodal?	Yes/No	15% of peak	Yes	Pass
Peak Longitudnal Acceleration	G's	+/- 15	-8	Pass
Overall Test Results				Pass


Laboratory Technician


Approved By

01/20/2004
Test Date



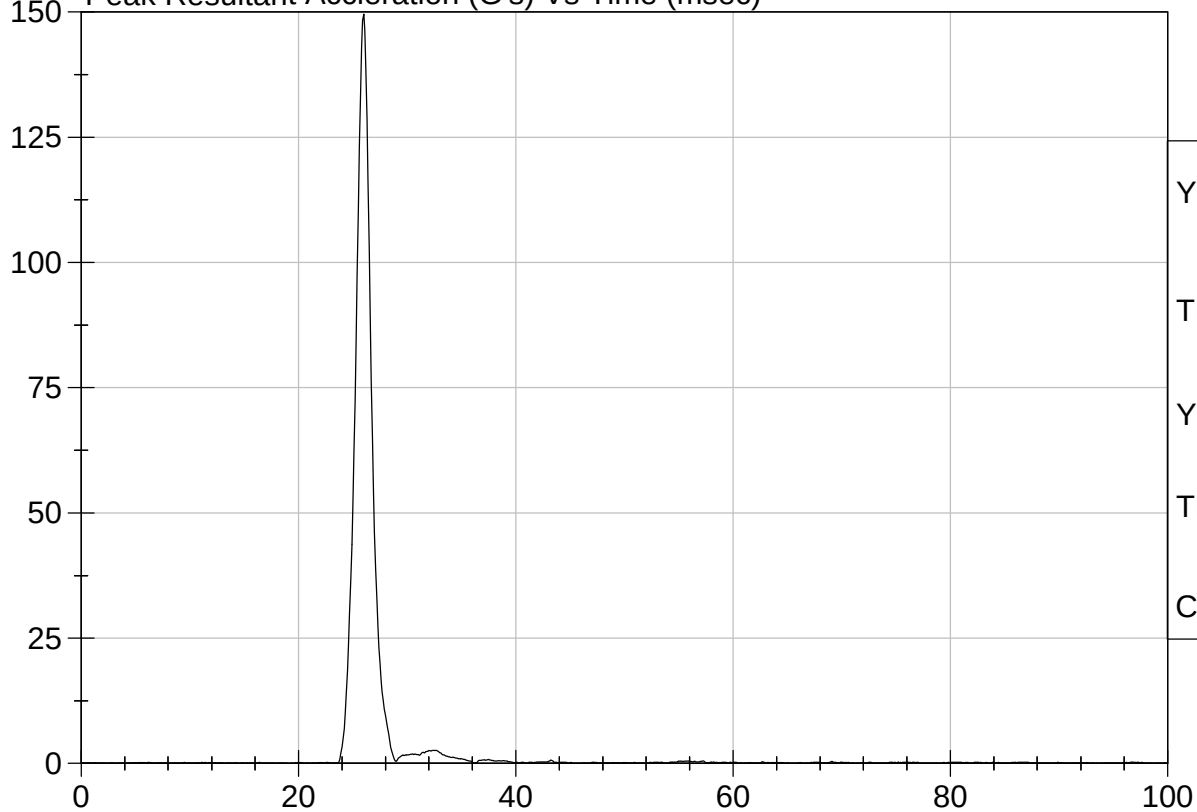
Test Description: Head Drop

Test Date: 01/20/2004

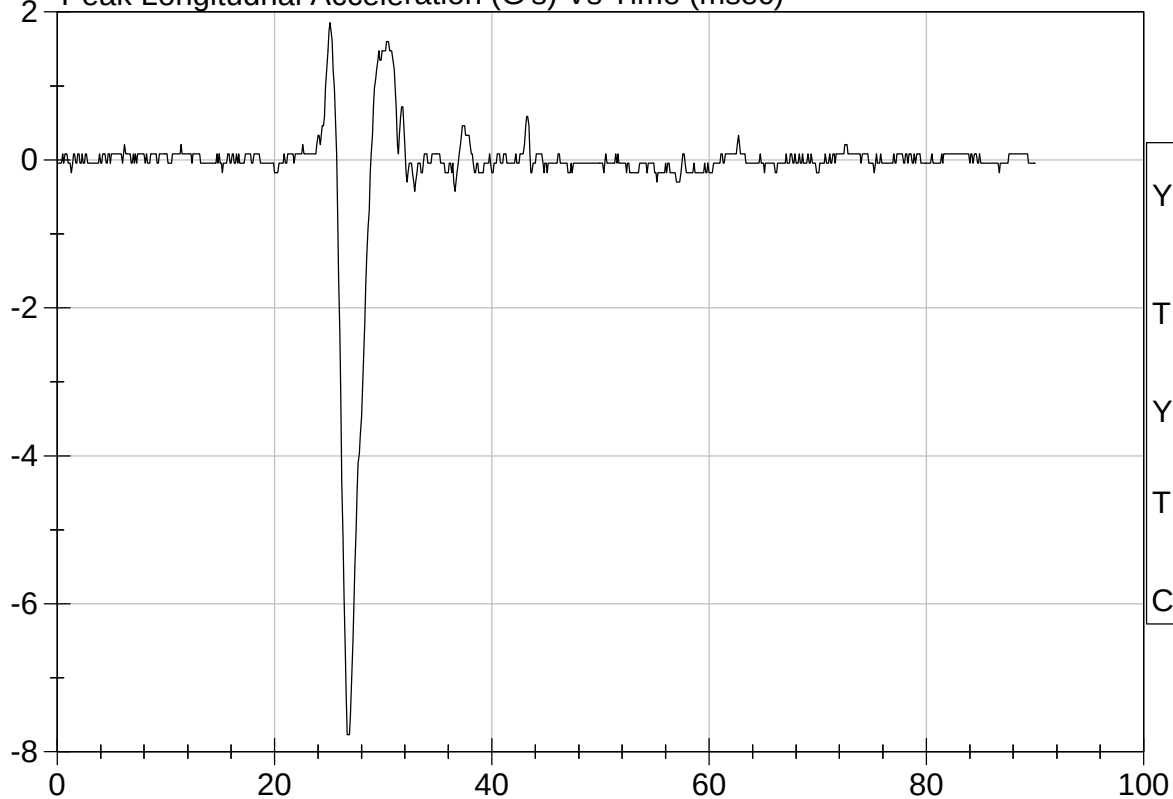
Component: D04101

Speed: 0 ft/s, 0.00 m/s

Peak Resultant Acceleration (G's) Vs Time (msec)



Peak Longitudnal Acceleration (G's) Vs Time (msec)

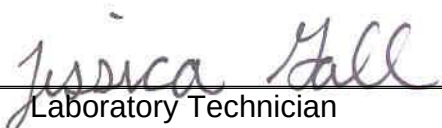


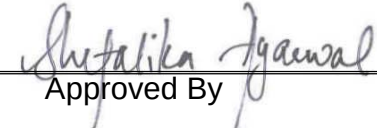
SID Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 904

Test I.D: D04102

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	20.8	Pass
Laboratory Relative Humidity	%	10 to 70	21	Pass
Probe Velocity	m/s	4.27 - 4.33	4.29	Pass
Upper Rib	G's	37 - 46	41	Pass
Lower Rib	G's	37 - 46	41	Pass
Lower Spine	G's	15 - 22	19	Pass
Overall Test Results				Pass


 Laboratory Technician

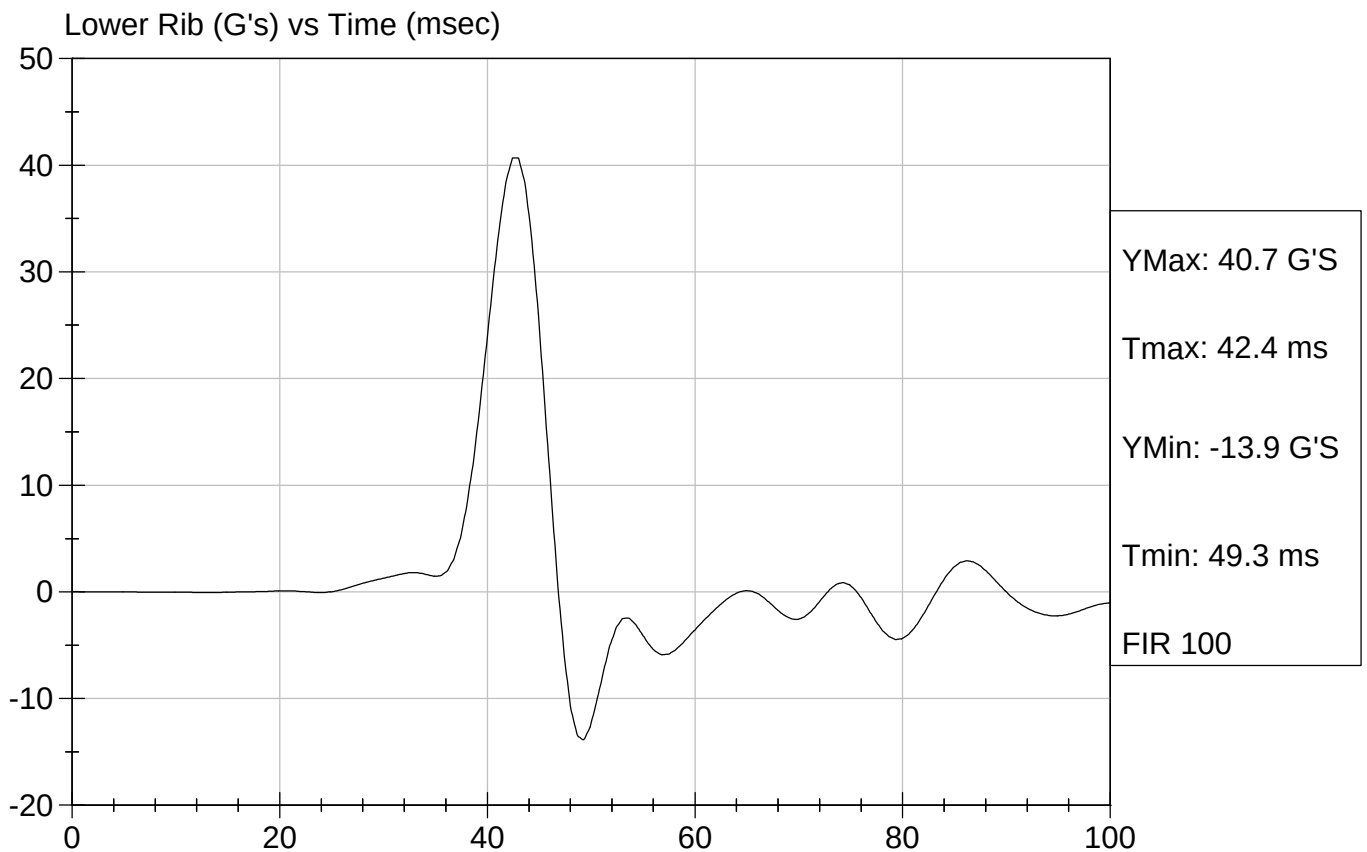
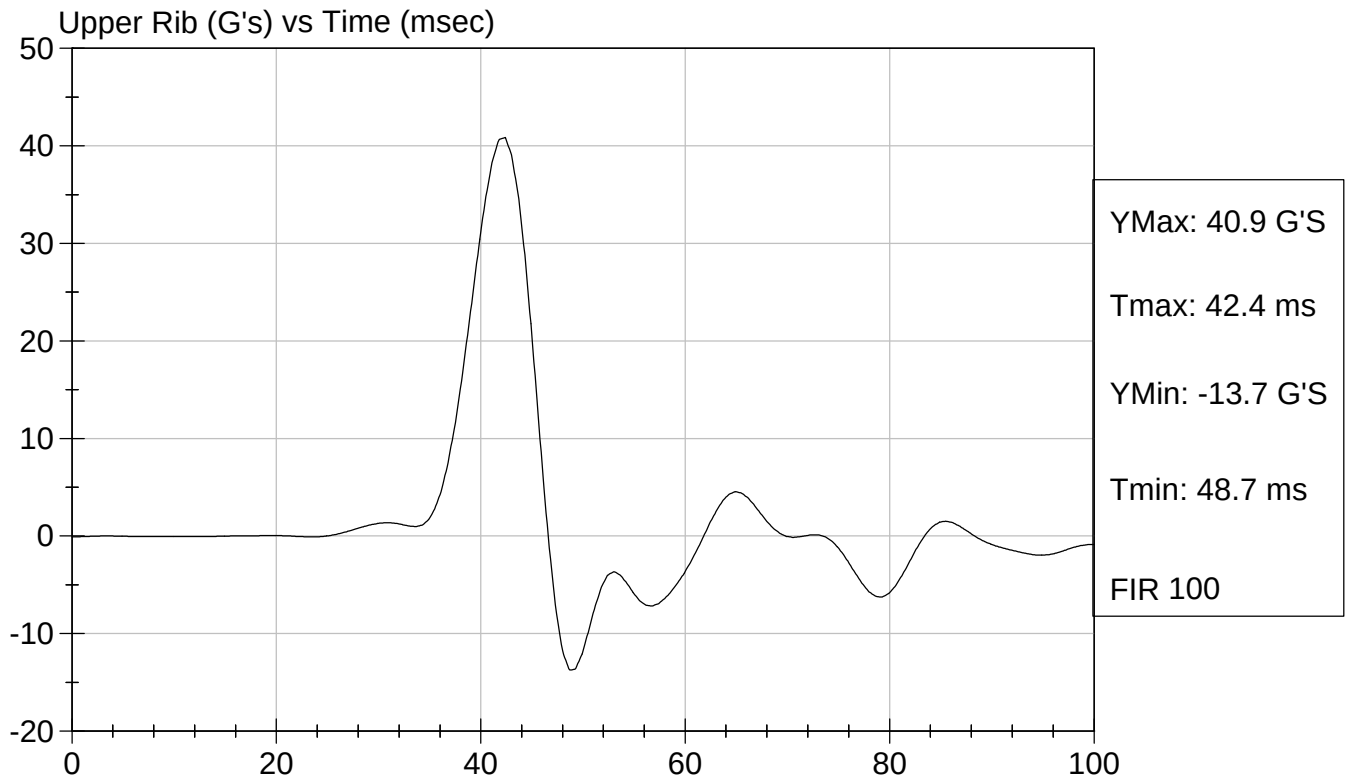

 Approved By

01/20/2004
 Test Date



Test Desc: Thorax Impact
Component ID: D04102

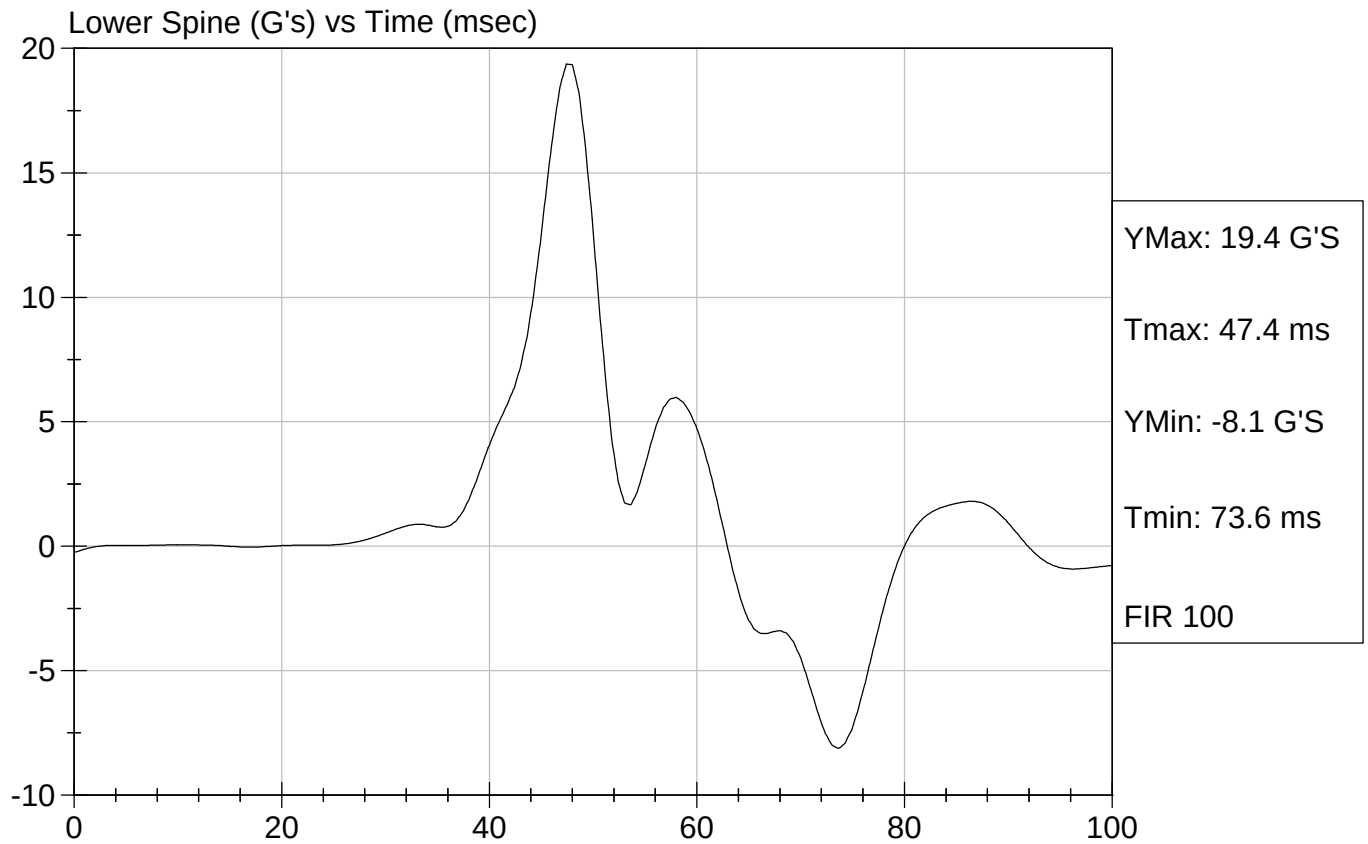
Test Date: 01/20/2004
Speed: 14.08 ft/sec, 4.29 m/sec





Test Desc: Thorax Impact
Component ID: D04102

Test Date: 01/20/2004
Speed: 14.08 ft/sec, 4.29m/sec

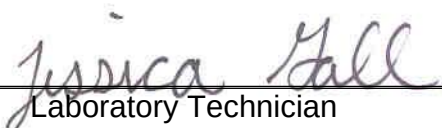


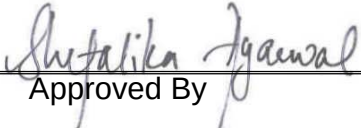
SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 904

Test I.D: D04103

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	20.8	Pass
Laboratory Relative Humidity	%	10 to 70	21	Pass
Probe Velocity	m/s	4.27 - 4.33	4.29	Pass
Pelvis Acceleration	G's	40 - 60	45	Pass
Overall Test Results				Pass


Laboratory Technician


Approved By

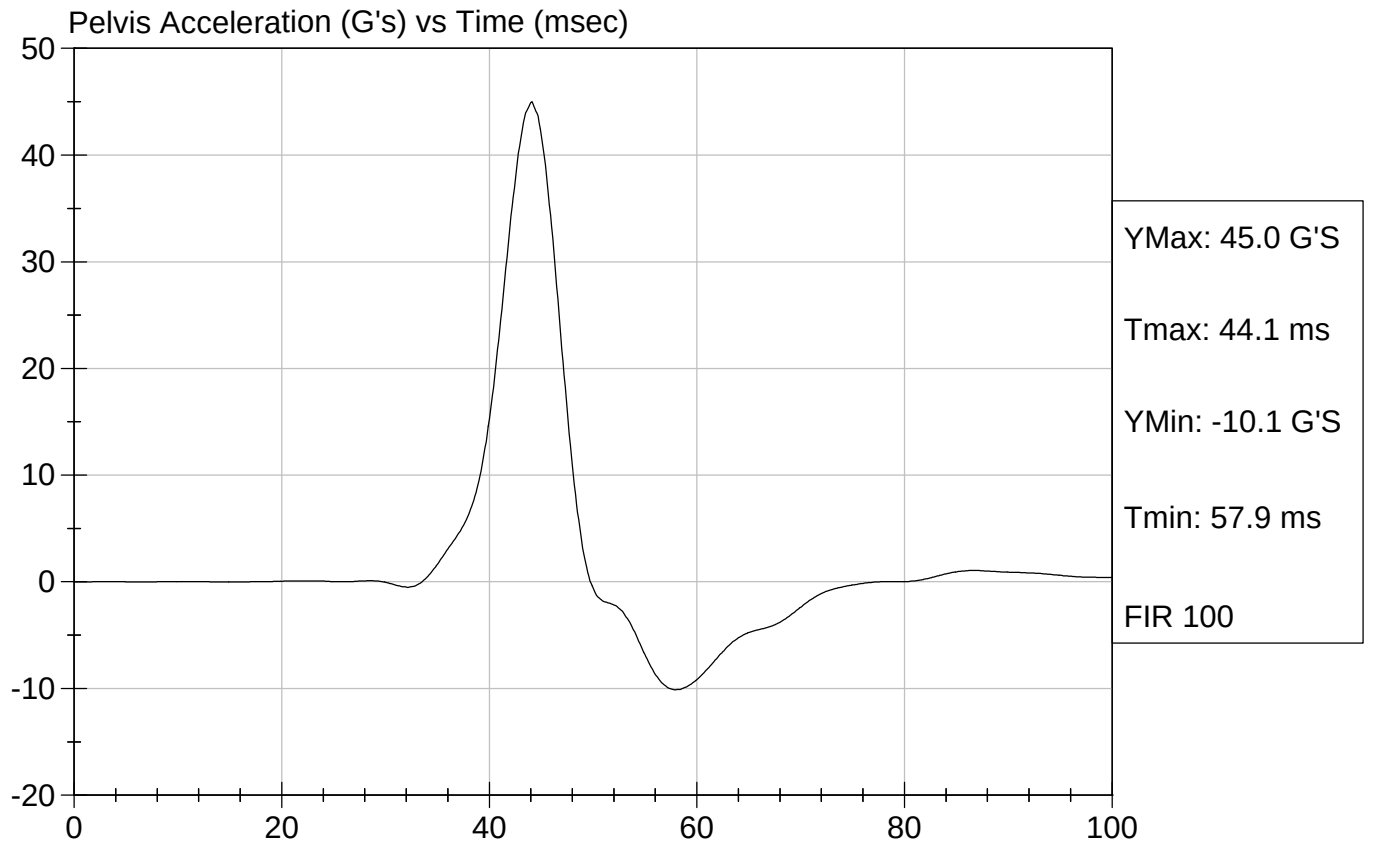
01/20/2004

Test Date



Test Desc: Pelvis Impact
Component ID: D04103

Test Date: 01/20/2004
Speed: 14.06 ft/sec, 4.29 m/sec

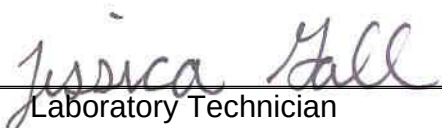


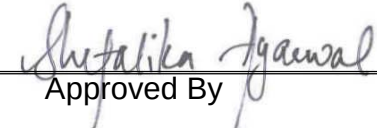
SID Calibration Data Sheet
Side Impact Dummy
Abdominal Compression Calibration (Pre-Load = 10 lbs)

ATD Serial No: 904

Test I.D: D04104

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	19	Pass
Force At 12.7 mm	N	104 -162	151	Pass
Force At 19 mm	N	163 - 222	207	Pass
Force At 25.4 mm	N	222 - 280	278	Pass
Force At 33 mm	N	325 - 391	379	Pass
Overall Test Results				Pass


 Laboratory Technician


 Approved By

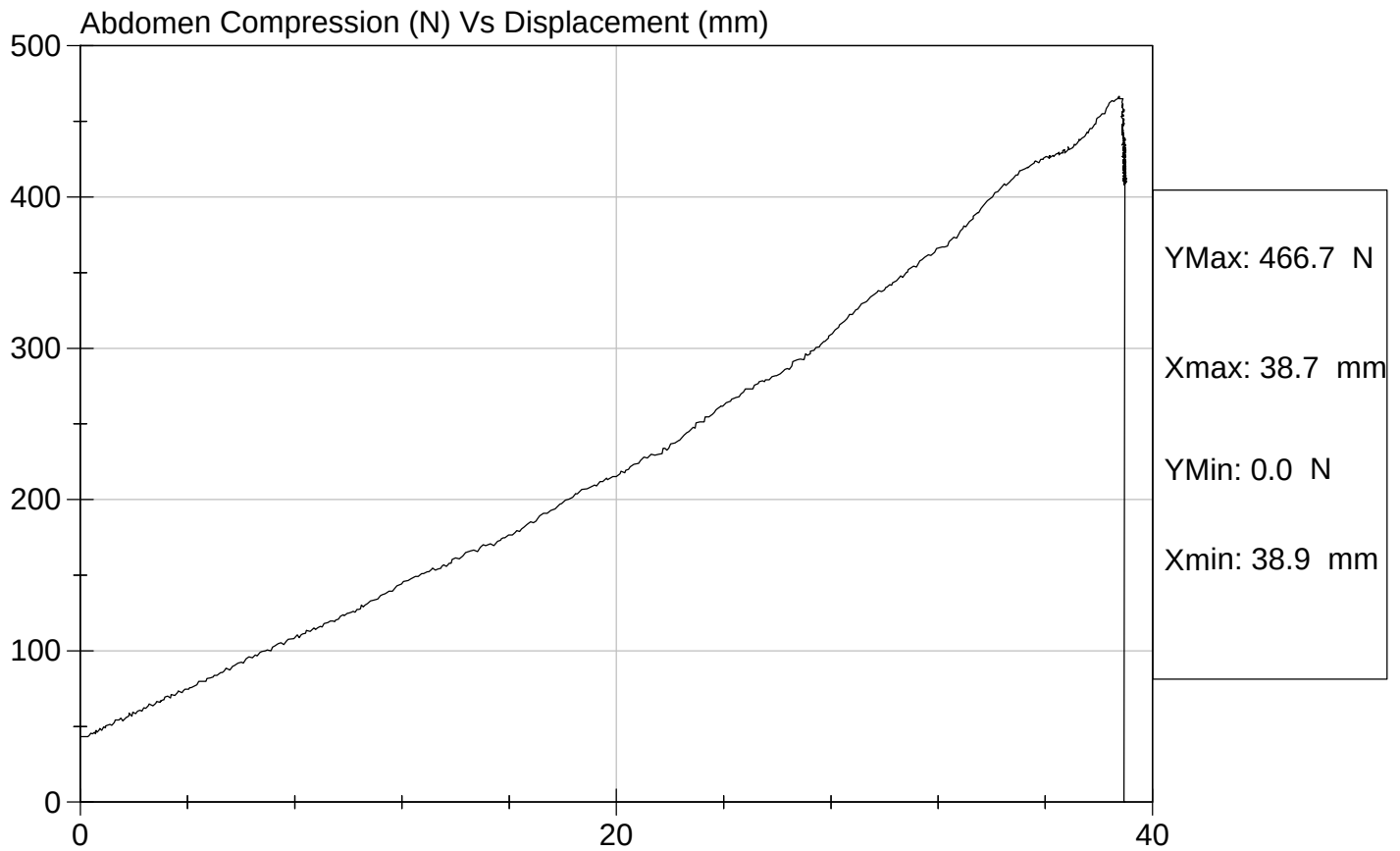
01/20/2004
 Test Date



Test Description: Abdomen Compression Test Date: 01/20/2004

Component: D04104

Speed: 0 ft/sec, 0 m/sec

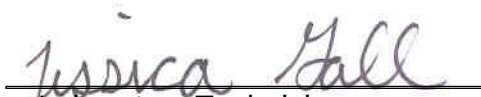


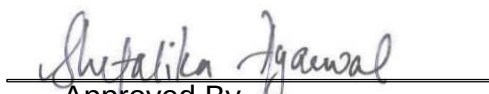
SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 904

Test I.D: D04105

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	22	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	109.2	Pass
Force At 30 deg	N	151.2 - 204.6	156.2	Pass
Force At 40 deg	N	204.6 - 258.0	250.4	Pass
Return Angle	Deg	12 Maximum	4	Pass
Overall Test Results			Pass	


 Laboratory Technician


 Approved By

01/20/2004
 Test Date

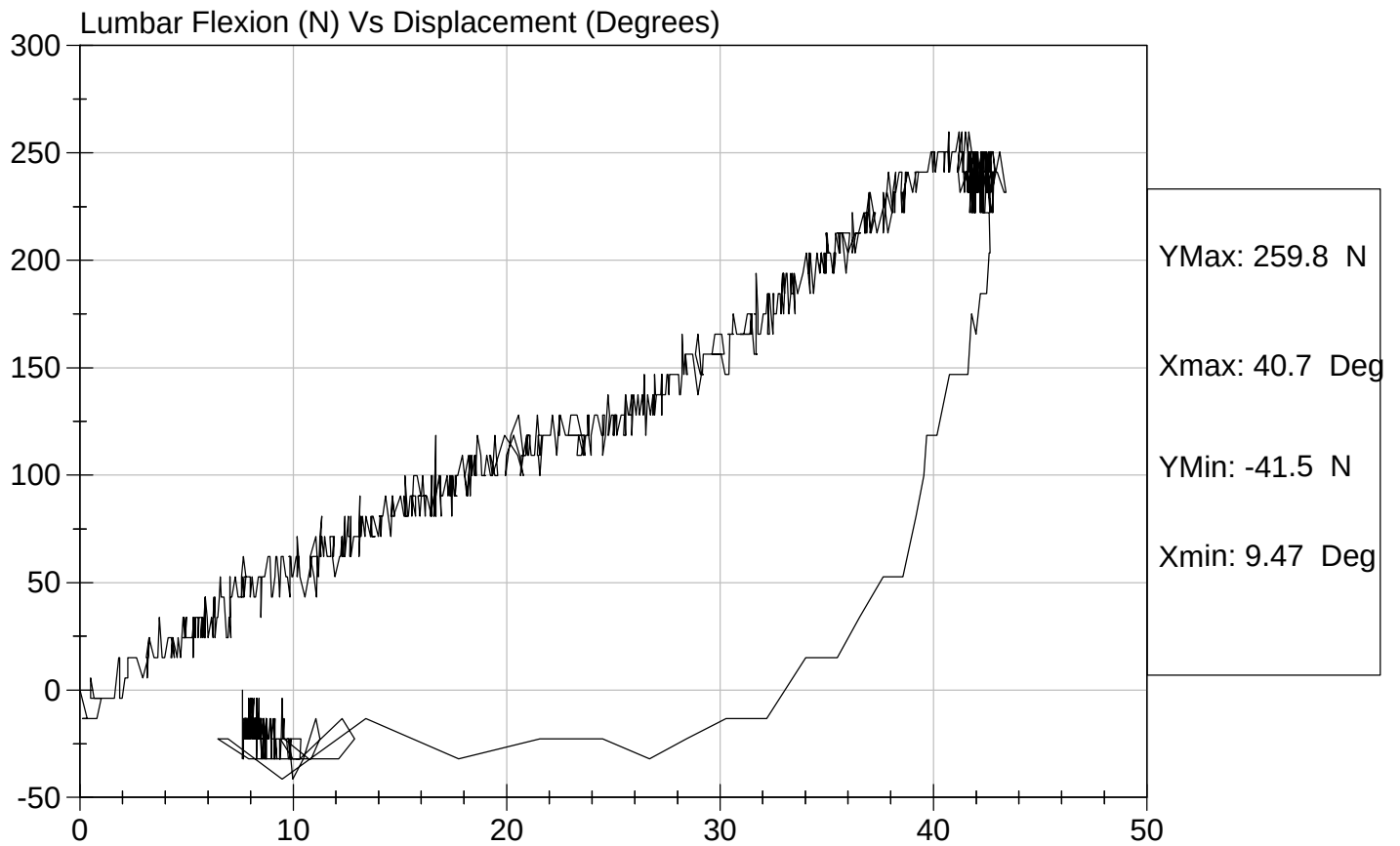


Test Description: Lumbar Flexion

Test Date: 01/20/2004

Component: D04105

Speed: 0 ft/sec, 0 m/sec

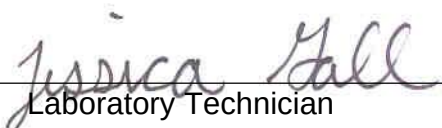


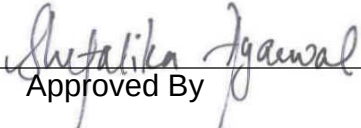
SID Calibration Data Sheet
Side Impact Dummy (SID)
Neck Pendulum Test

ATD Serial No: 904

Test I.D: D04109

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	20.7	Pass
Laboratory Relative Humidity		%	10 to 70	21	Pass
Impact Velocity		m/s	6.89 to 7.13	6.99	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.14	Pass
	20 msec	m/s	4.12 to 5.10	4.26	Pass
	30 msec	m/s	5.73 to 7.01	6.06	Pass
	40 to 70 msec	m/s	6.27 to 7.64	6.78	Pass
Midsagittal Plane Max Rotation		deg	66 to 82	67	Pass
Head Rotation Peak to Zero - Decay Time		msec	58 to 67	59	Pass
Max. Mx at Occipital Condyles		Nm	73 to 88	81	Pass
Mx Peak To Zero - Decay Time		msec	49 to 64	53	Pass
Mx Peak to Max. Head Rotation		msec	2 to 16	8	Pass


 Laboratory Technician


 Approved By

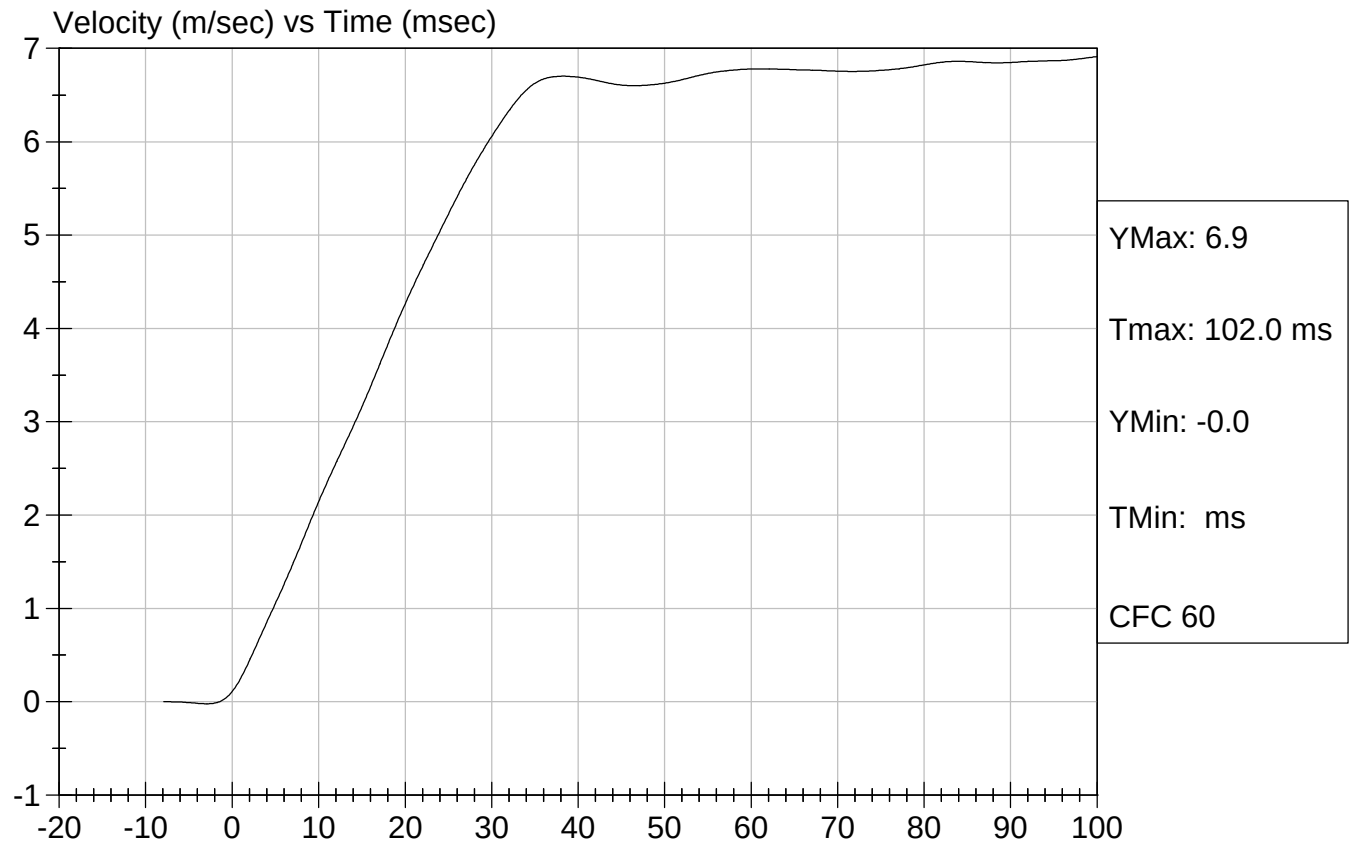
01/20/2004

Test Date



Test Desc: Neck Bending
Component ID: D04109

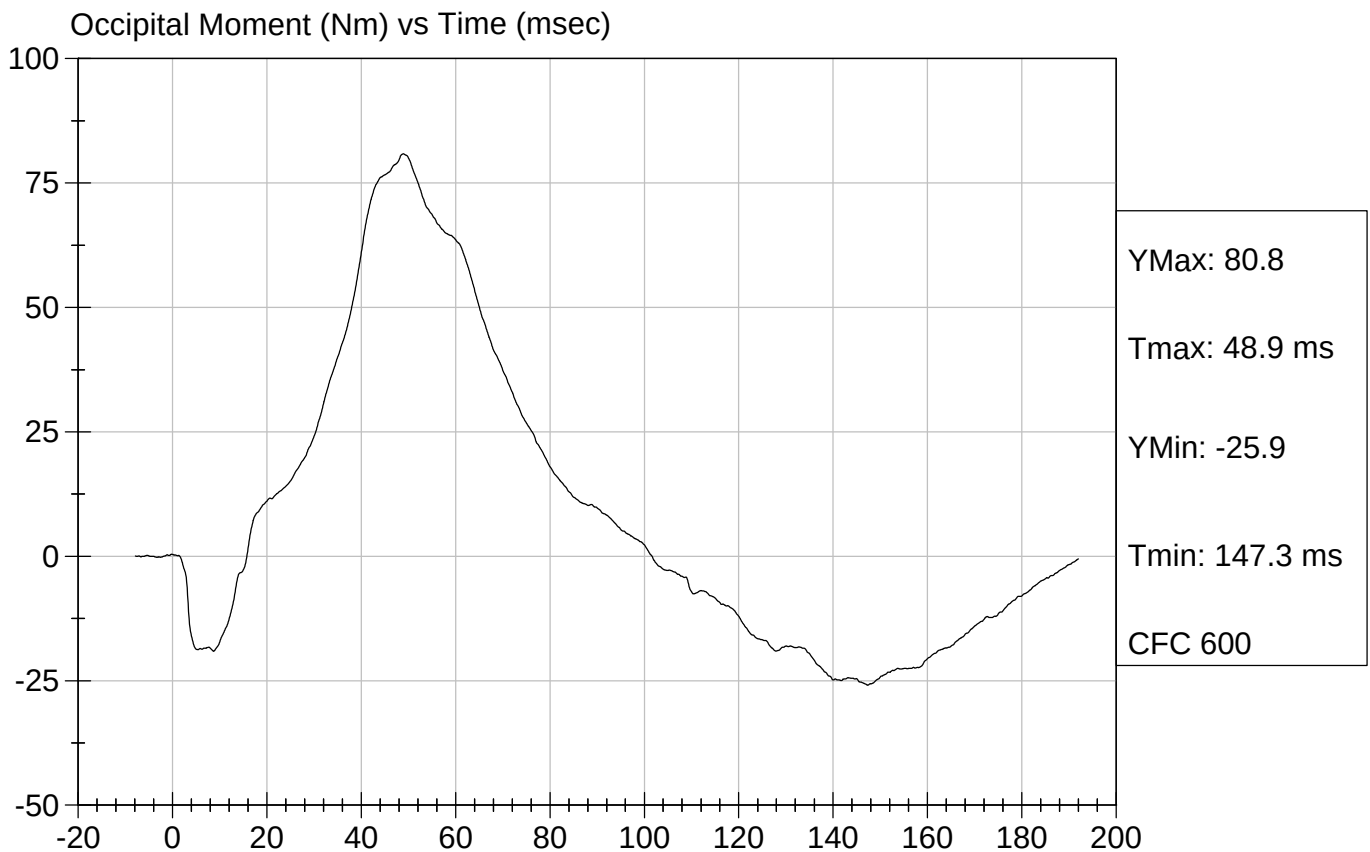
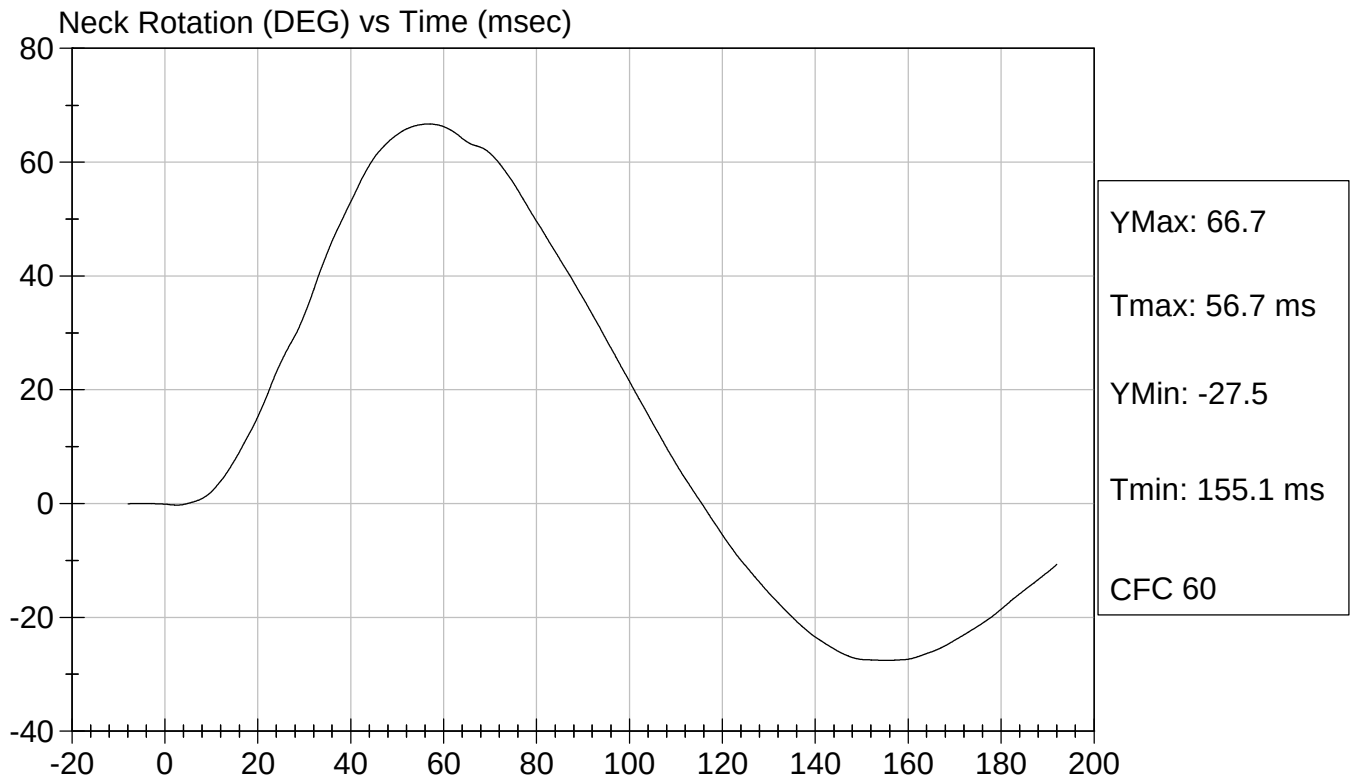
Test Date: 01/20/2004
Speed: 22.92 ft/sec, 6.99 m/sec





Test Desc: Neck Bending
Component ID: D04109

Test Date: 01/20/2004
Speed: 22.92 ft/sec, 6.99 m/sec



Calibration Test Results Summary

Dummy Serial Number: 904

Post-Test Calibration

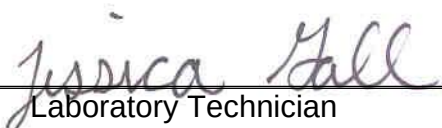
External Dimensions:	The dummy passed all external dimension requirements.
Head Drop Test:	The head passed all drop test requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion Test:	The lumbar passed all flexion test requirements.

SID Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration (Lateral)

ATD Serial No: 904

Test I.D: D04361

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	22.0	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Peak Resultant Acceleration	G's	120 to 150	146	Pass
Is Resultant Curve Unimodal?	Yes/No	15% of peak	Yes	Pass
Peak Longitudnal Acceleration	G's	+/- 15	-8	Pass
Overall Test Results				Pass


 Laboratory Technician


 Approved By

02/20/2004
 Test Date



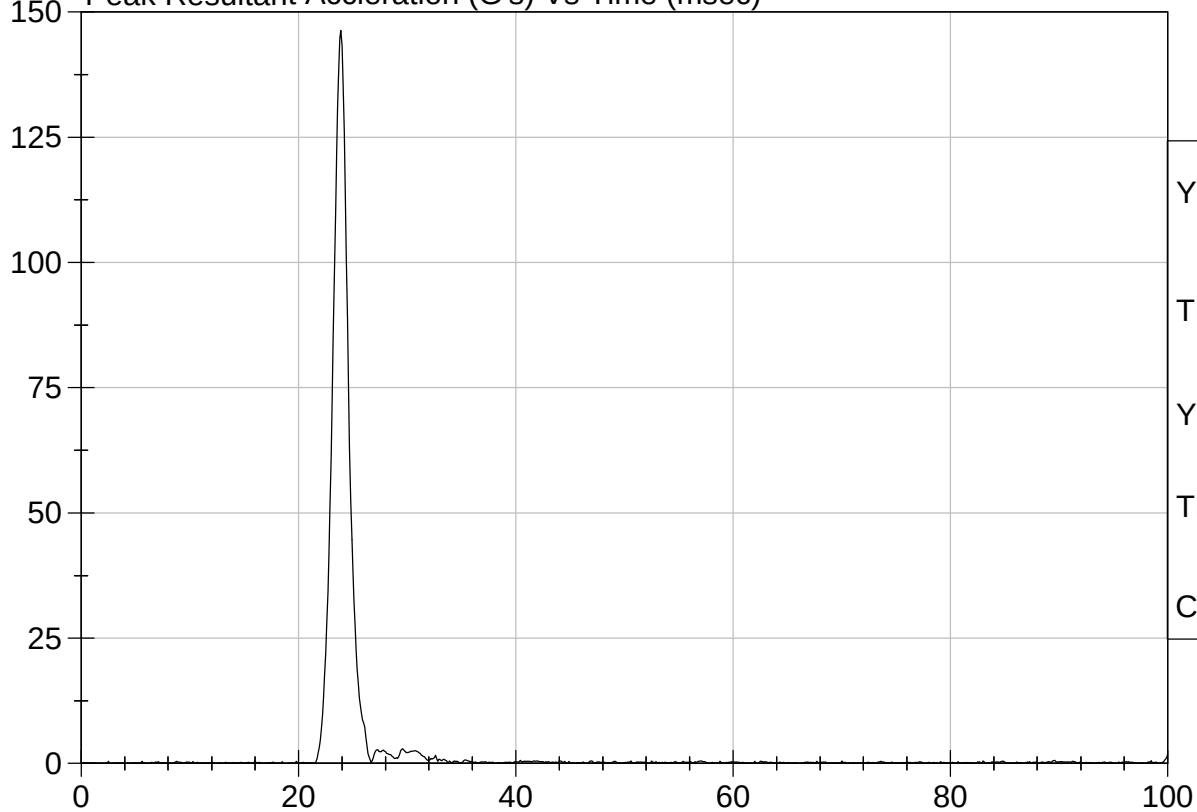
Test Description: Head Impact

Test Date: 02/20/2004

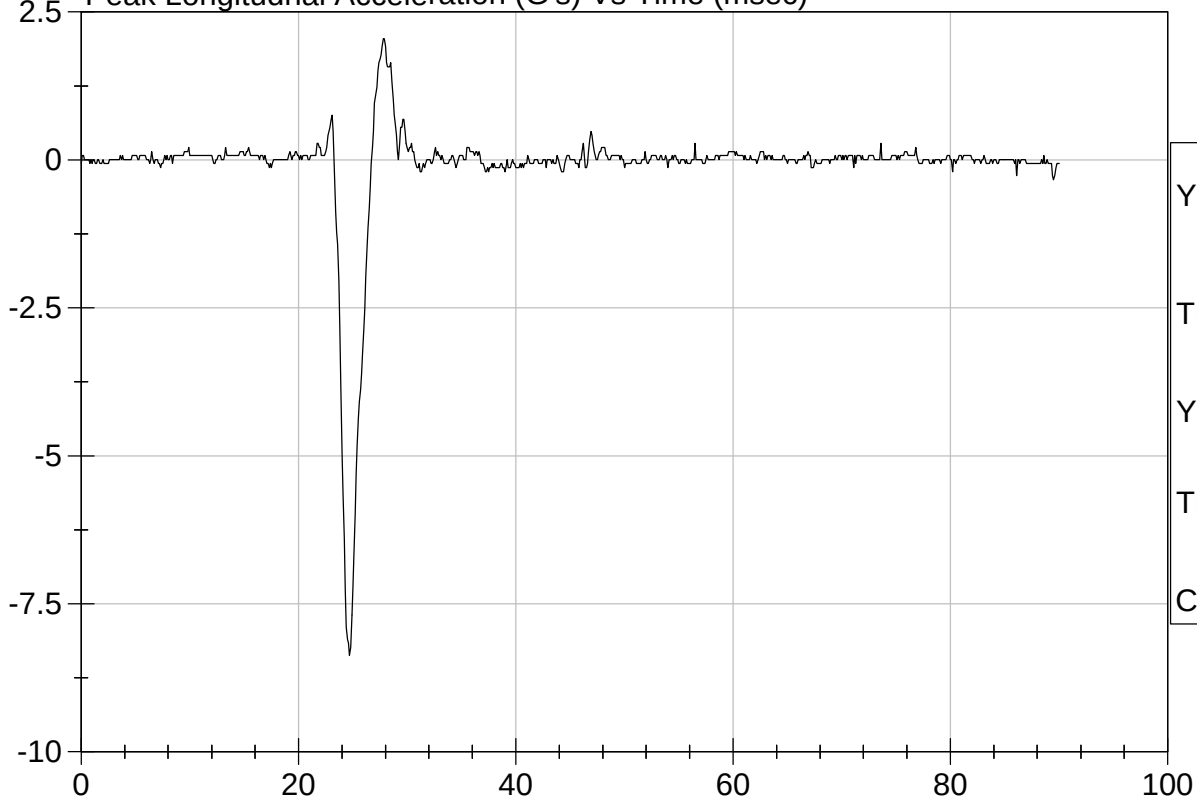
Component: D04361

Speed: 0 ft/s, 0.00 m/s

Peak Resultant Acceleration (G's) Vs Time (msec)



Peak Longitudnal Acceleration (G's) Vs Time (msec)

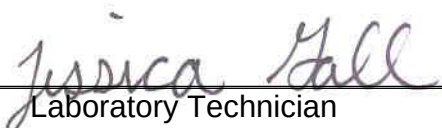


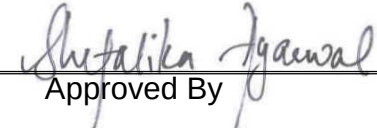
SID Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 904

Test I.D: D04362

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	32	Pass
Probe Velocity	m/s	4.27 - 4.33	4.29	Pass
Upper Rib	G's	37 - 46	43	Pass
Lower Rib	G's	37 - 46	42	Pass
Lower Spine	G's	15 - 22	22	Pass
Overall Test Results				Pass


Laboratory Technician

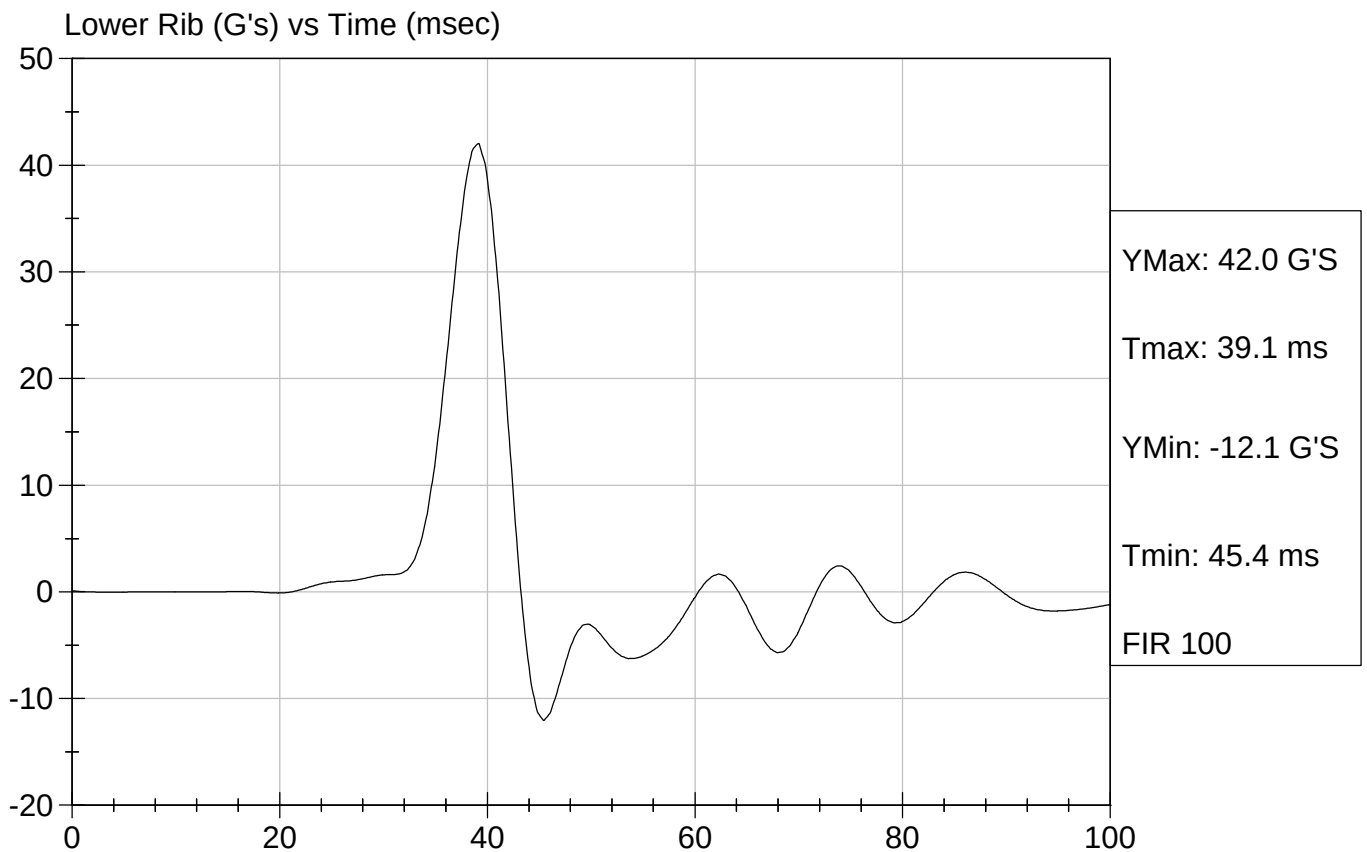
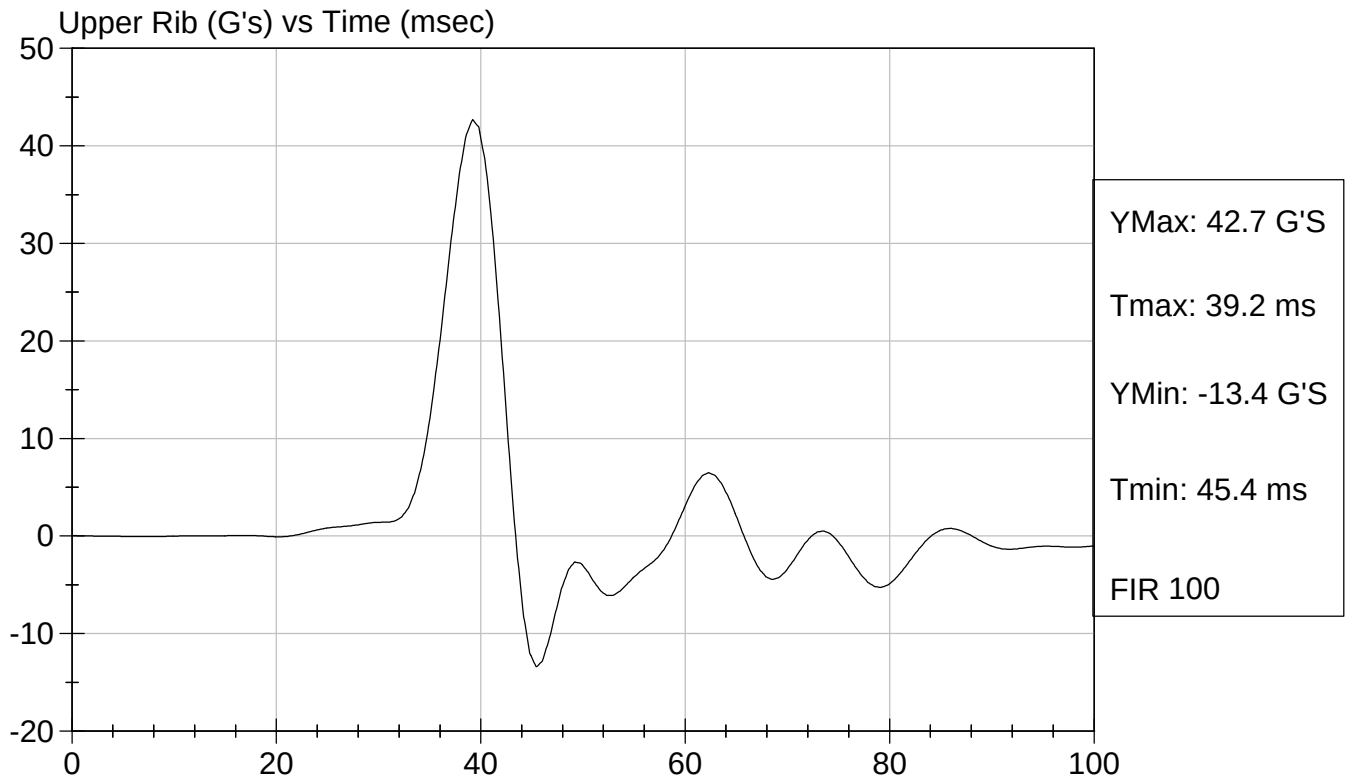

Approved By

02/20/2004
Test Date



Test Desc: Thorax Impact
Component ID: D04362

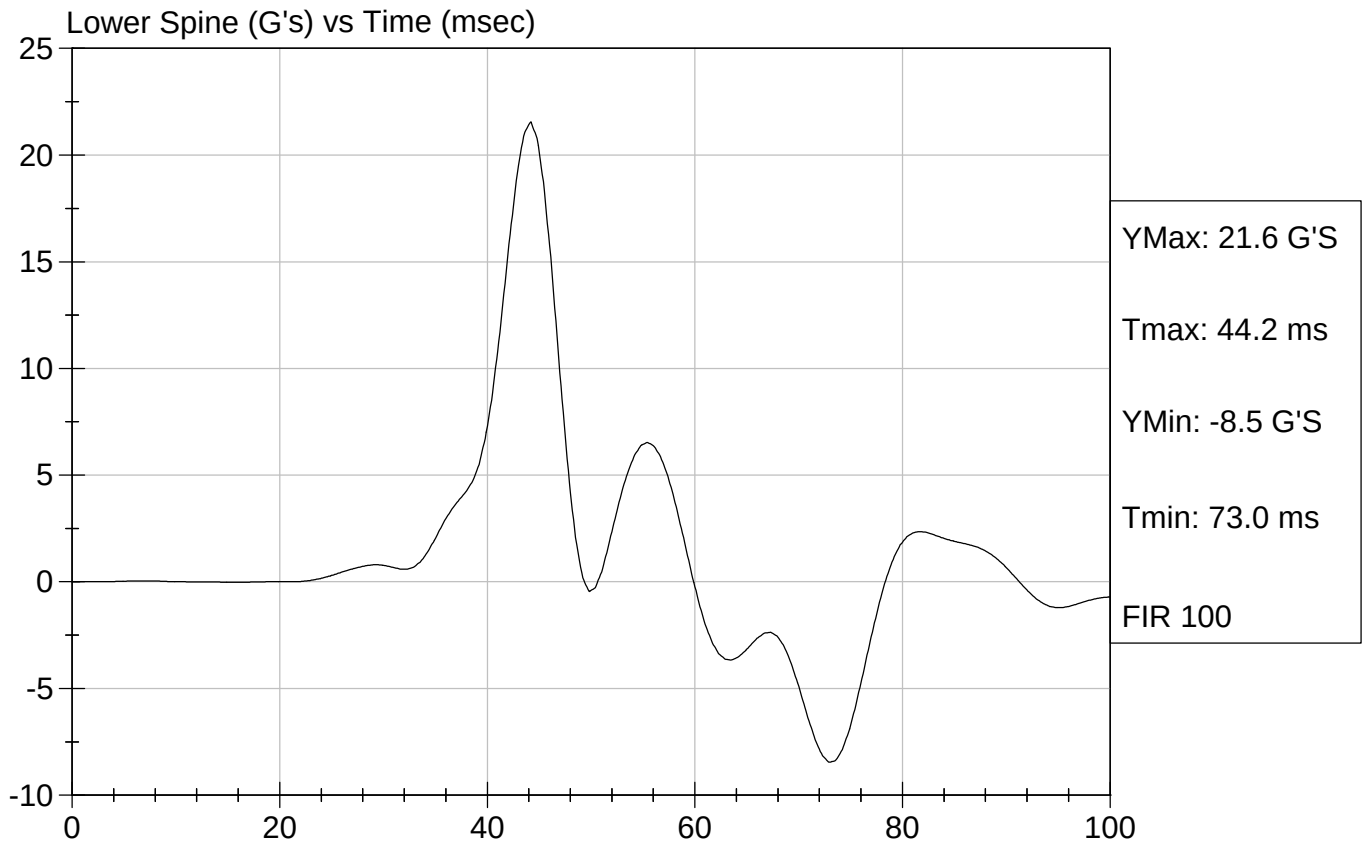
Test Date: 02/20/2004
Speed: 14.08 ft/sec, 4.29 m/sec





Test Desc: Thorax Impact
Component ID: D04362

Test Date: 02/20/2004
Speed: 14.08 ft/sec, 4.29 m/sec

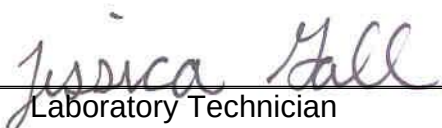


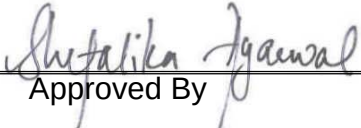
SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 904

Test I.D: D04363

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	32	Pass
Probe Velocity	m/s	4.27 - 4.33	4.29	Pass
Pelvis Acceleration	G's	40 - 60	44	Pass
Overall Test Results				Pass


Laboratory Technician

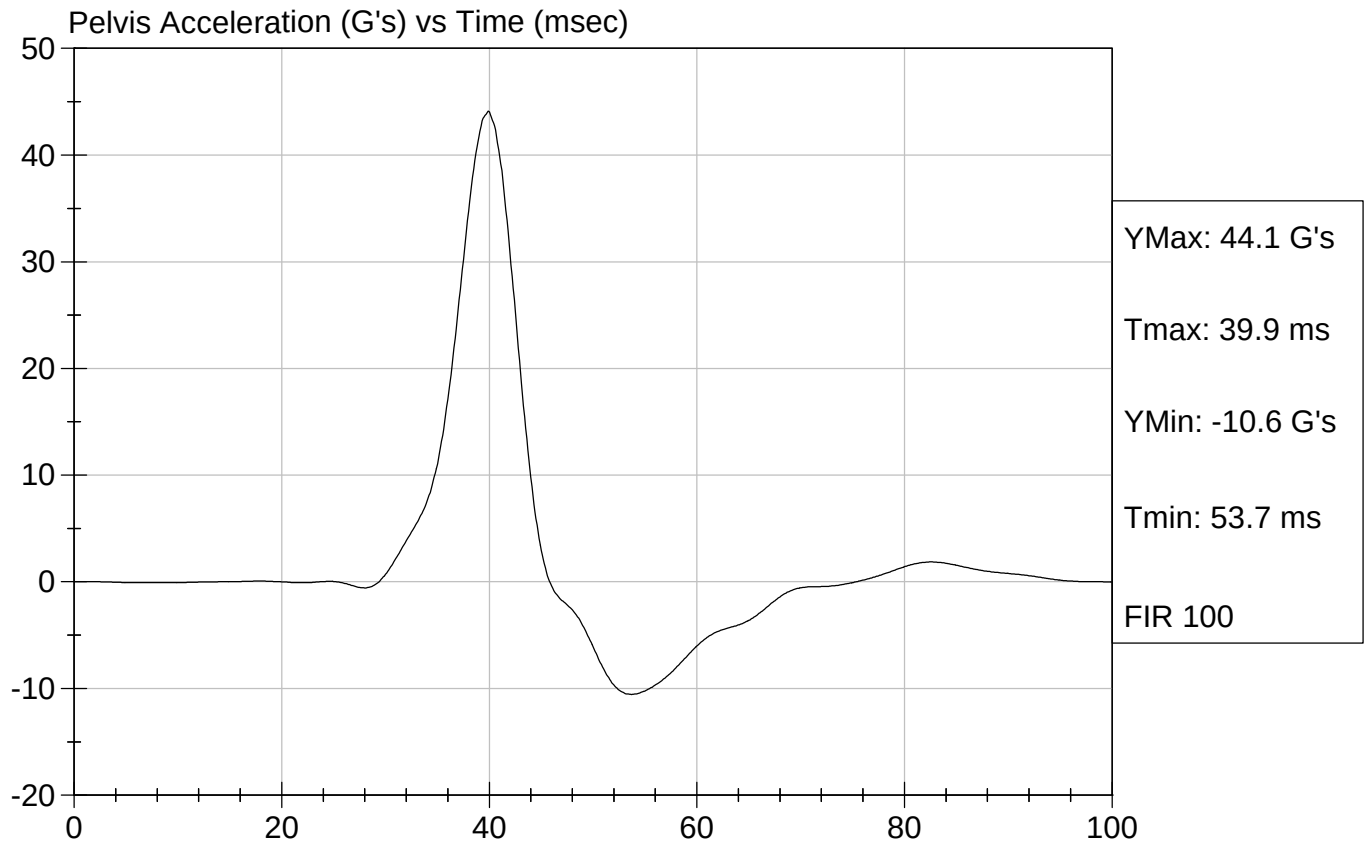

Approved By

02/20/2004
Test Date



Test Desc: Pelvis Impact
Component ID: D04363

Test Date: 02/20/2004
Speed: 14.07 ft/sec, 4.29 m/sec

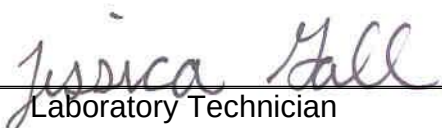


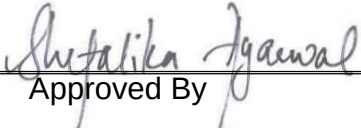
SID Calibration Data Sheet
Side Impact Dummy
Abdominal Compression Calibration (Pre-Load = 10 lbs)

ATD Serial No: 904

Test I.D: D04364

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	22.0	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Force At 12.7 mm	N	104 -162	148	Pass
Force At 19 mm	N	163 - 222	205	Pass
Force At 25.4 mm	N	222 - 280	271	Pass
Force At 33 mm	N	325 - 391	379	Pass
Overall Test Results				Pass


Laboratory Technician


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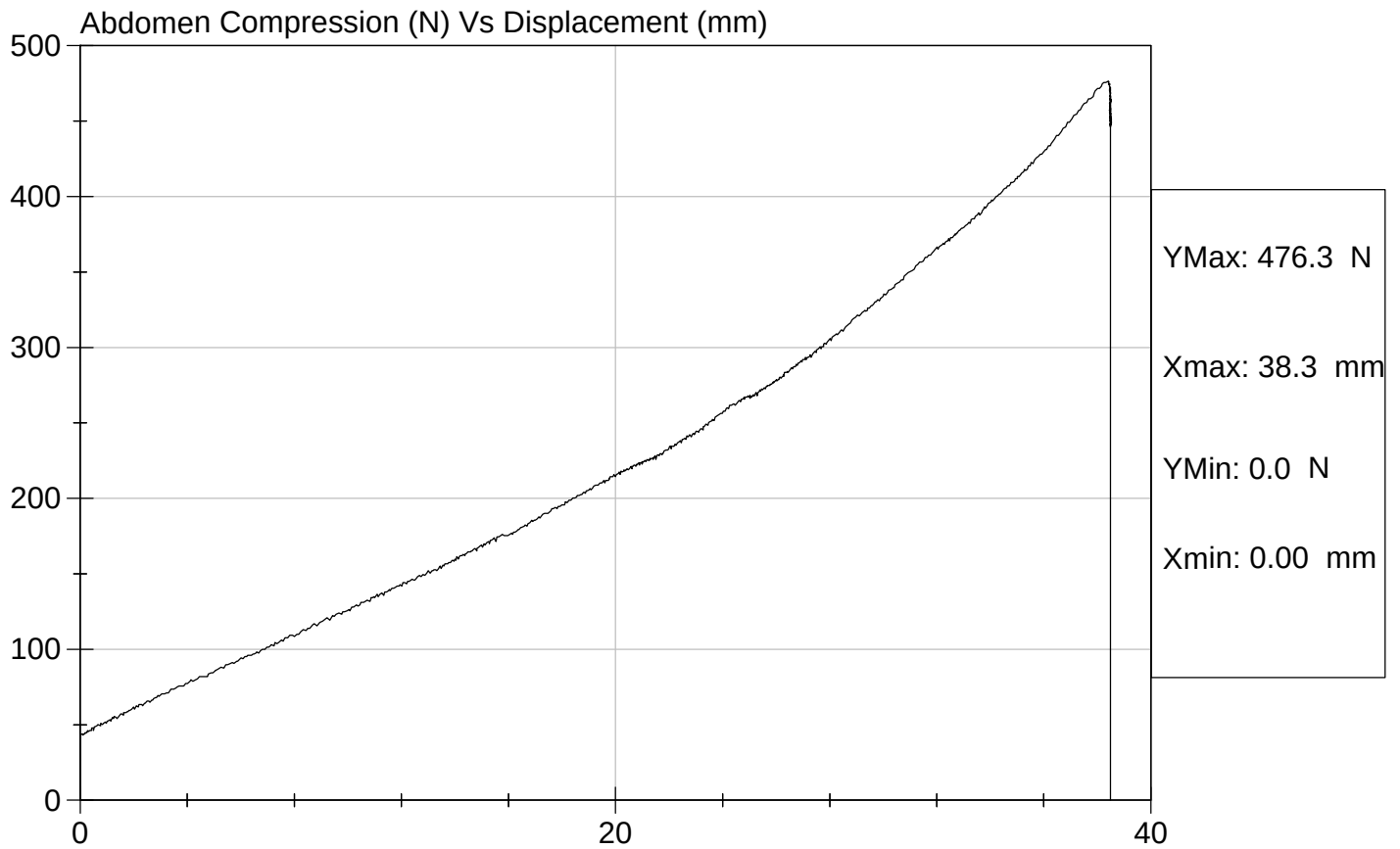
02/20/2004
Test Date



Test Description: Abdomen Compression Test Date: 02/20/2004

Component: D04364

Speed: 0 ft/sec, 0 m/sec

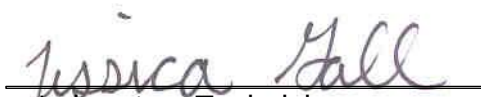


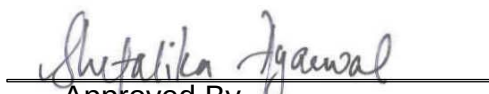
SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 904

Test I.D: D04365

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	22.0	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	108.7	Pass
Force At 30 deg	N	151.2 - 204.6	165.4	Pass
Force At 40 deg	N	204.6 - 258.0	240.9	Pass
Return Angle	Deg	12 Maximum	4	Pass
Overall Test Results			Pass	


Laboratory Technician


Approved By

02/20/2004
Test Date

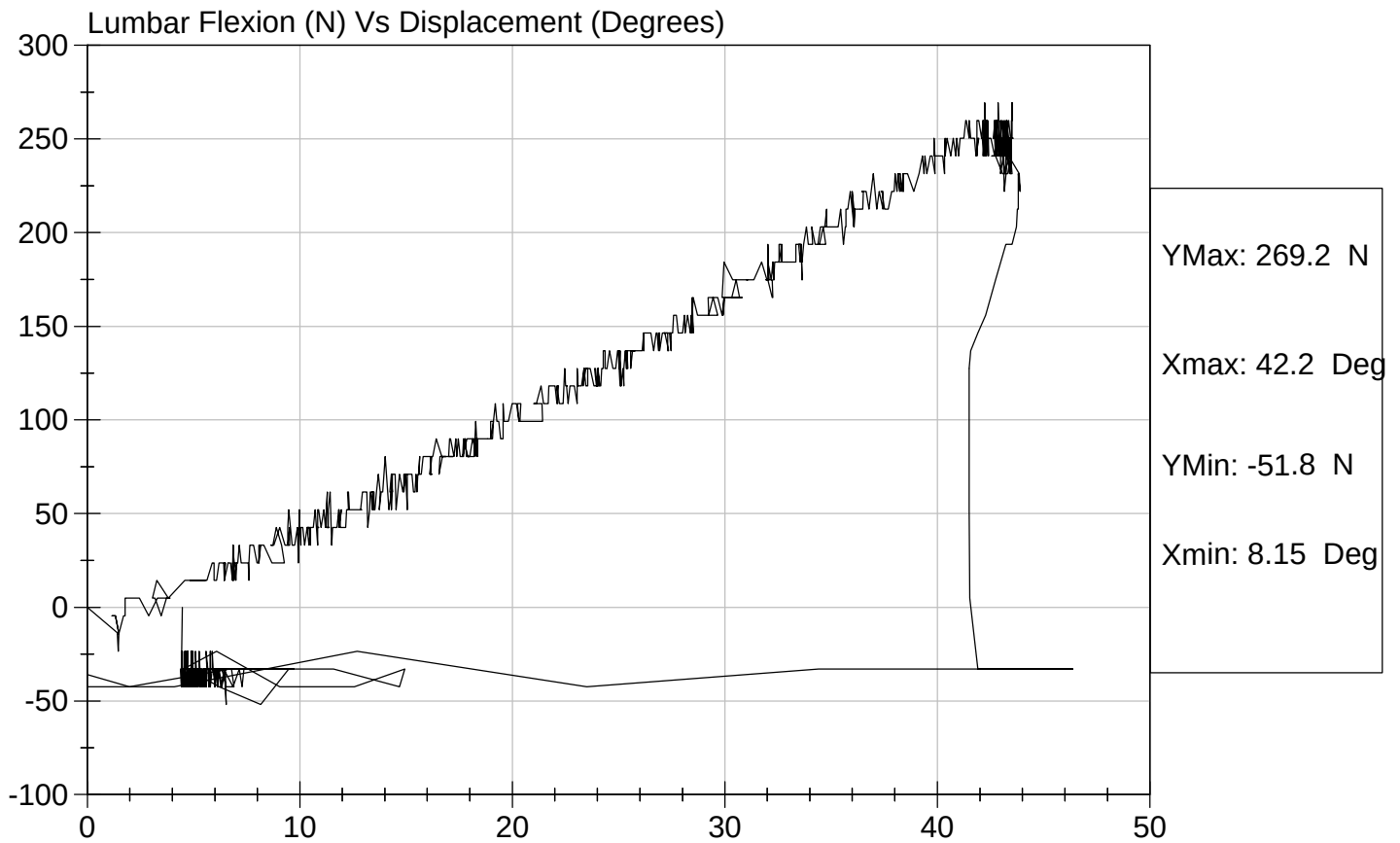


Test Description: Lumbar Flexion

Test Date: 02/20/2004

Component: D04365

Speed: 0 ft/sec, 0 m/sec

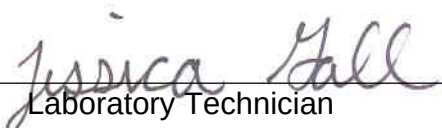


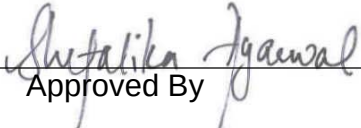
SID Calibration Data Sheet
Side Impact Dummy (SID)
Neck Pendulum Test

ATD Serial No: 904

Test I.D: D04369

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.8	Pass
Laboratory Relative Humidity		%	10 to 70	26	Pass
Impact Velocity		m/s	6.89 to 7.13	7.06	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.22	Pass
	20 msec	m/s	4.12 to 5.10	4.46	Pass
	30 msec	m/s	5.73 to 7.01	6.25	Pass
	40 to 70 msec	m/s	6.27 to 7.64	6.92	Pass
Midsagittal Plane Max Rotation		deg	66 to 82	74	Pass
Head Rotation Peak to Zero - Decay Time		msec	58 to 67	59	Pass
Max. Mx at Occipital Condyles		Nm	73 to 88	82	Pass
Mx Peak To Zero - Decay Time		msec	49 to 64	54	Pass
Mx Peak to Max. Head Rotation		msec	2 to 16	11	Pass


 Laboratory Technician


 Approved By

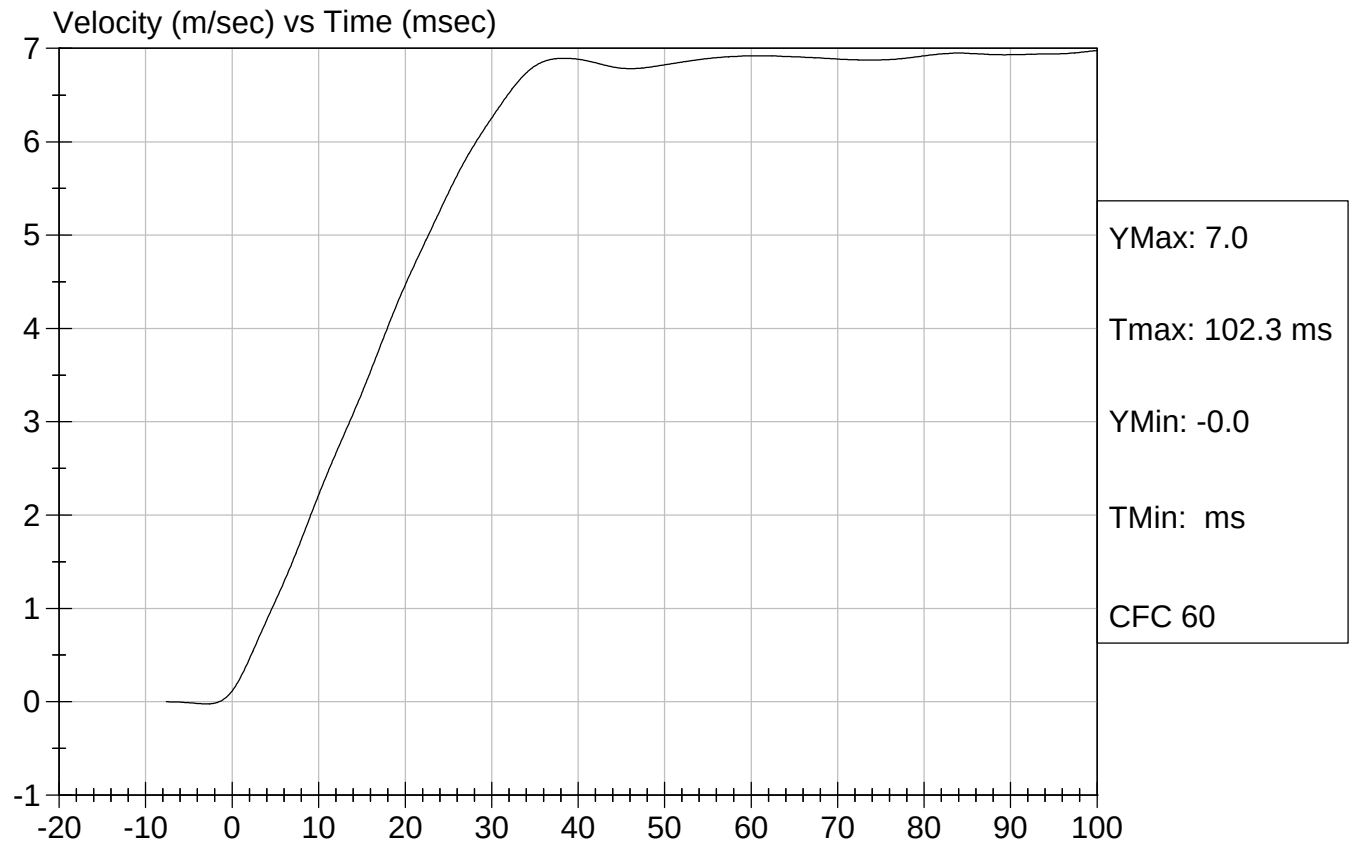
02/19/2004

Test Date



Test Desc: Neck Bending
Component ID: D04369

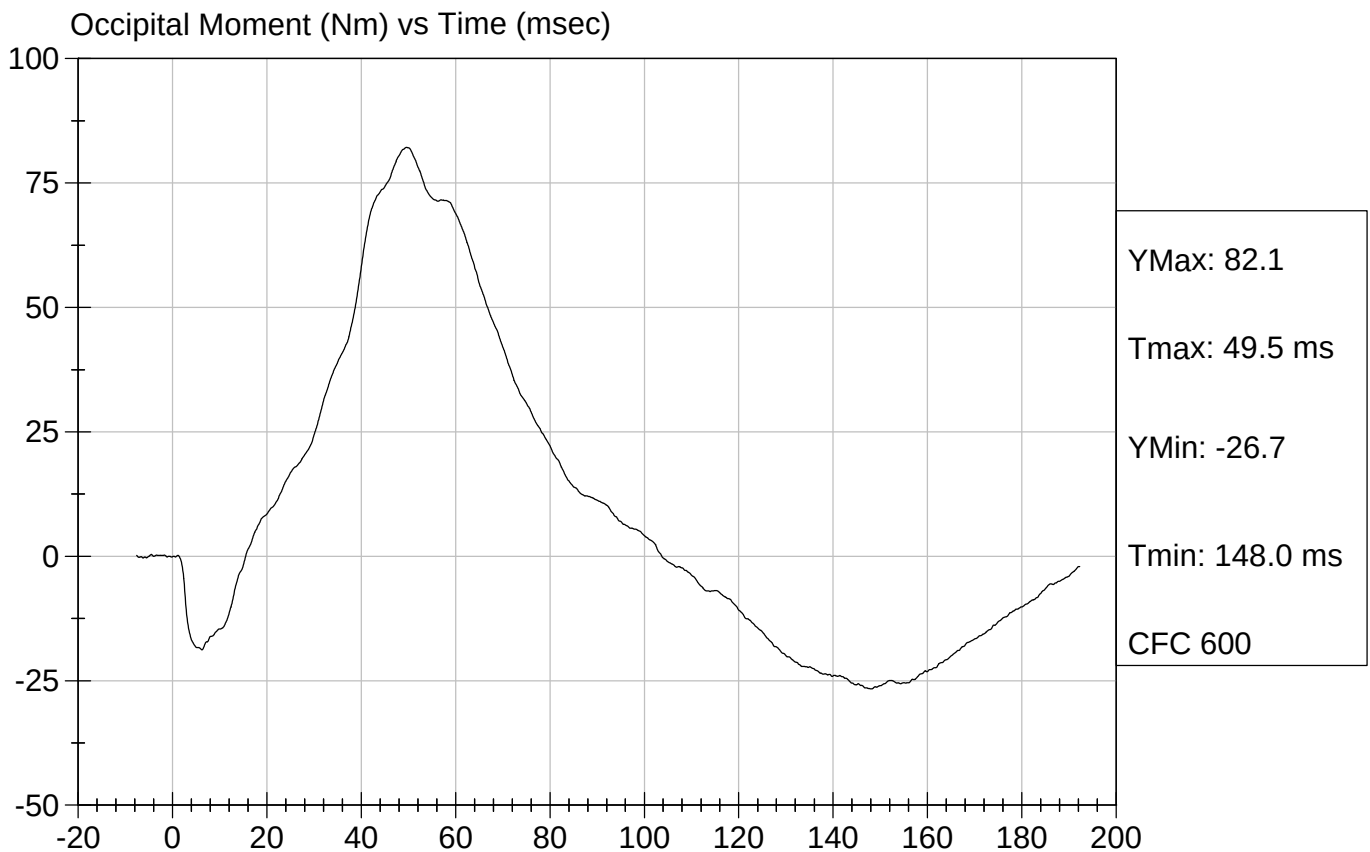
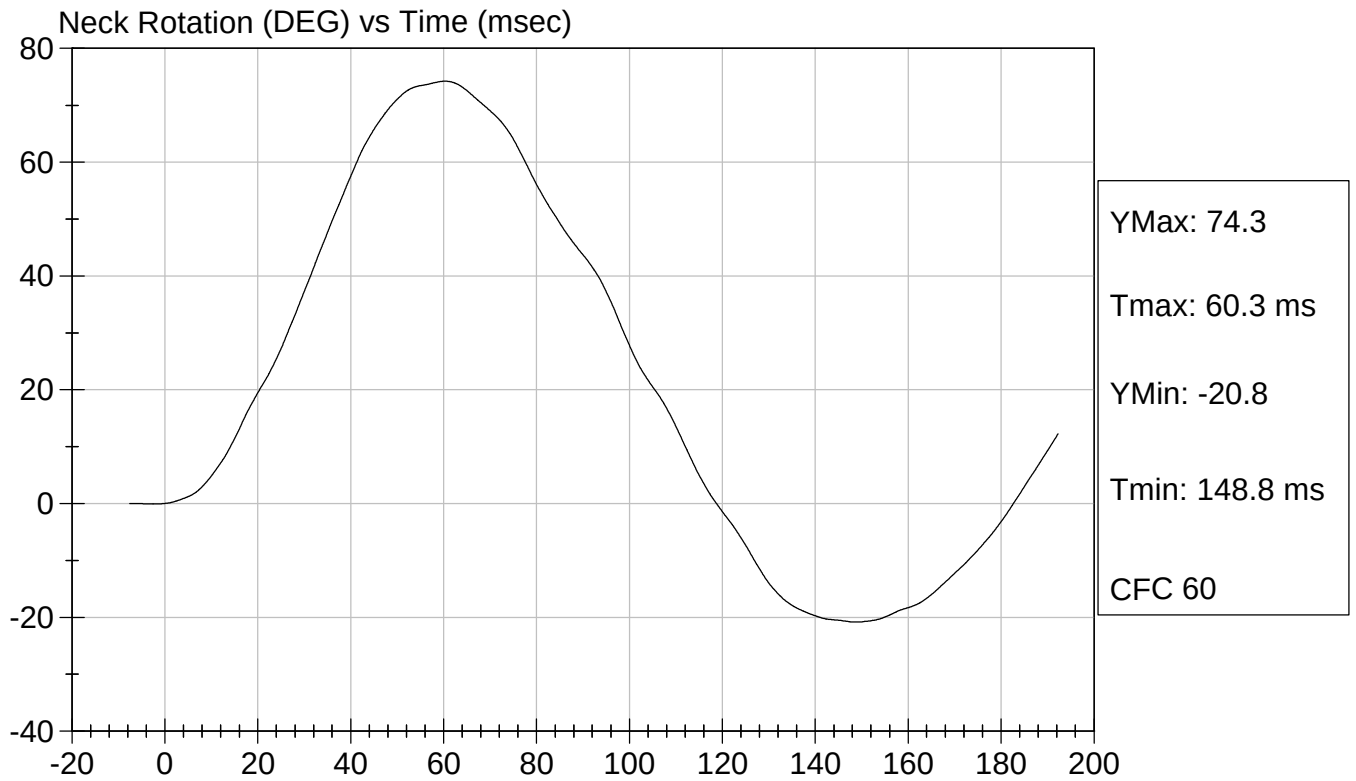
Test Date: 02/19/2004
Speed: 23.16 ft/sec, 7.06 m/sec





Test Desc: Neck Bending
Component ID: D04369

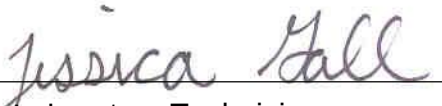
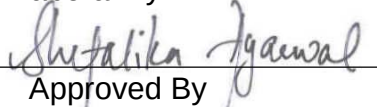
Test Date: 02/19/2004
Speed: 23.16 ft/sec, 7.06 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Inspection Checklist

ATD Serial No: 904

Test Part	Items Checked	Result
Skin	Visual inspection	Pass
Head	Visual, ballast, accelerometer mount	Pass
Neck	Visual	Pass
Spine Box	Visual, ballast, accelerometer mount	Pass
Rib Cage	Visual, measure	Pass
Sternum	Visual	Pass
Lumbar Spine	Visual	Pass
Abdomen	Visual	Pass
Pelvis	Visual, palpate, accelerometer mount	Pass
Upper Legs	Visual	Pass
Knees	Visual	Pass
Lower Legs	Visual, range of motion	Pass
Ankles	Visual, range of motion	Pass
Feet	Visual, range of motion	Pass
Joints	1 to 2 g range	Pass
Other		Pass


 Laboratory Technician

 Approved By

02/20/2004
 Test Date

APPENDIX D

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION

	INSTRUMENTS FOR DRIVER DUMMY NO. 271		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	J11625	Endevco	11/10/03
Lower Rib Y	AN8M6	Endevco	11/10/03
Lower Spine Y	AGP28	Endevco	11/10/03
Pelvis Y	AJ420	Endevco	11/10/03
Upper Rib Redundant Y	J10730	Endevco	11/10/03
Lower Rib Redundant Y	AN8P9	Endevco	11/10/03
Lower Spine Redundant Y	AJ9A7	Endevco	11/10/03
Pelvis Redundant Y	AMTA3	Endevco	11/10/03
Head X	J22107	Endevco	11/13/03
Head Y	J22055	Endevco	11/13/03
Head Z	AMTB8	Endevco	11/13/03
Head Redundant X	AGTY4	Endevco	11/13/03
Head Redundant Y	AK956	Endevco	11/13/03
Head Redundant Z	AHRP5	Endevco	11/13/03
Neck Load Cell	253	Denton	10/17/03

DUMMY AND VEHICLE CALIBRATION DATA

	INSTRUMENTS FOR PASSENGER DUMMY NO. 904		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	J12450	Endevco	11/09/03
Lower Rib Y	J10420	Endevco	11/09/03
Lower Spine Y	AJ9F3	Endevco	11/09/03
Pelvis Y	AJ4K2	Endevco	11/09/03
Upper Rib Redundant Y	J12461	Endevco	11/09/03
Lower Rib Redundant Y	AJ820	Endevco	11/09/03
Lower Spine Redundant Y	AJ621	Endevco	11/09/03
Pelvis Redundant Y	P26988	Endevco	1/14/04
Head X	P22084	Endevco	12/05/03
Head Y	P22694	Endevco	12/05/03
Head Z	P22203	Endevco	12/05/03
Head Redundant X	P22695	Endevco	12/05/03
Head Redundant Y	P24216	Endevco	12/05/03
Head Redundant Z	P24226	Endevco	12/05/03
Neck Load Cell	1562	Denton	2/07/04

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Left Front Door Centerline Y	L17-D27	Entran	1/29/04
Midrear of Left Rear Door Y	L17-D31	Entran	1/29/04
Left Front Door Upper Centerline Y	L20-B12	Entran	1/29/04
Midrear of Left Rear Door Y	K18-D16	Entran	12/15/03
Left Rear Door Upper Centerline Y	K07-R26	Entran	1/21/04
Left Mid A-Post Y	L17-D10	Entran	1/23/04
Left Lower A-Post Y	A27-R14	Entran	10/09/03
Left Mid B-Post Y	99F15A	Entran	2/03/04
Left Lower B-Post Y	A08-A11	Entran	2/03/04
Floorpan @ Rear Axle X	G10-F07	Entran	10/17/03
Floorpan @ Rear Axle Y	C12-M03	Entran	10/01/03
Floorpan @ Rear Axle Z	G01-N23	Entran	9/11/03
Driver Seat Track Y	L19-K05	Entran	1/23/04
Right Front Sill X	H20-R04	Entran	10/09/03
Right Front Sill Y	A08-A13	Entran	9/11/03
Right Front Sill Z	C25-A25	Entran	11/07/03
Right Rear Sill X	A27-R15	Entran	10/09/03
Right Rear Sill Y	H01-N12	Entran	9/11/03
Right Rear Sill Z	K21-N01	Entran	12/10/03
Left Front Sill Y	F20-G10	Entran	10/08/03
Left Rear Sill Y	H20-R07	Entran	10/09/03
Right Rear Occupant Compartment Y	H14-N08	Entran	10/09/03
Vehicle CG X	K18-D22	Entran	12/15/03
Vehicle CG Y	K07-R22	Entran	12/15/03
Vehicle CG Z	K18-J08	Entran	1/21/04

Note: All Endevco accelerometers are Model No. 7264-2000
All Entran accelerometers are Model No. EGE-72