REPORT NUMBER: 201-MGA-2007-001

SAFETY COMPLIANCE TESTING FOR FMVSS 201
RIGID POLE SIDE IMPACT TEST

MAZDA MOTOR CORPORATION
2006 Mazda 3 4-Door
NHTSA NUMBER: C65402

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

TEST DATE: OCTOBER 30, 2006

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, SW, ROOM 6111 (NVS-220)
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 DTNH22-06-C-00030.

Prepared by:  Date: December 15, 2006

Ben Fischer, Project Engineer

Reviewed by:  Date: December 15, 2006

David Winkelbauer, Director of Operations

FINAL REPORT ACCEPTED BY:

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COTR, Side Impact

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Date of Acceptance

Technical Report Documentation Page

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15. Supplementary Notes			
16. Abstract A rigid pole side impact test was conducted on a 2006 Mazda 3 4-Door in accordance with FMVSS 201, "Occupant Protection in Interior Impact", S6.2(b)(3) and the Office of Vehicle Safety Compliance Test Procedure No. TP-201P-02 "Rigid Pole Side Impact Test". The test was conducted at MGA Research Corporation in Burlington, Wisconsin on October 30, 2006. The impact velocity of the vehicle was 28.3 kph, and the ambient temperature at the struck side (driver's) of the target vehicle at the time of impact was 21°C. The post-test maximum crush was 390 mm at level 3. The test vehicle's occupant performance is as follows: HIC: REQUIREMENT ≤ 1000; DRIVER 396 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.			
17. Key Words Compliance Testing Rigid Pole Side Impact Test FMVSS 201		*18. Distribution Statement* Copies of this report are available from: National Highway Traffic Safety Adm. Technical Ref. Division, (NPO-230) 400 Seventh Street, S.W. Washington, D.C. 20590	
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SECTION 1
PURPOSE AND TEST PROCEDURE

1.1 PURPOSE

This rigid pole side impact test is conducted as part of the FY' 2007 test program sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract No. DTNH22-06-C-000030. The purpose of this test was to evaluate occupant protection in interior impact in a 2006 Mazda 3 4-Door manufactured by Mazda Motor Corporation.

1.2 TEST PROCEDURE

The rigid pole side impact test was conducted in accordance with the current National Highway Traffic Safety Administration (NHTSA), Office of Vehicle Safety Compliance (OVSC), laboratory test procedure TP-201P-02, dated October 21, 2001 and the corresponding MGA Research Corporation Test Procedure MGA-NHTSA8. 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 RIGID POLE SIDE IMPACT TEST

2.1 SUMMARY OF RIGID POLE SIDE IMPACT TEST

A rigid pole side impact test was performed on a 2006 Mazda 3 4-Door. The subject vehicle was towed into a rigid pole at a velocity of 28.3 km/h. The specified impact velocity range is from 27.2 to 28.8 km/h. The test vehicle was positioned 90° to the line of forward motion. The weight of the vehicle as tested was 1389.8 kg. The test was conducted at MGA Research Corporation in Burlington, Wisconsin, on October 30, 2006.

One (1) real-time motion picture camera and eleven (11) high-speed motion picture cameras were used to document the impact event. Camera locations and pertinent camera information are documented in the data sheets. Pre- and post-test photographs of the vehicle and SID/HIII can be found in Appendix A. One SID/HIII was placed in the left front outboard designated seating position according to instructions specified in the TP-201P-02 dated October 21, 2001. The SID/HIII was instrumented in the following locations:

- Head Center of Gravity (CG) tri-axial accelerometers (X, Y, and Z axis)
- Upper Neck 6 channel load cell (X, Y, Z force and moment)
- 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)

The test vehicle was instrumented with eighteen (18) structural accelerometers. All data channels were recorded with a fully self contained on-board DTS TDAS Pro. The data was digitally sampled at 10,000 samples per second and processed per Section 12.2 of the Test Procedure.

2.2 GENERAL COMMENTS

The test vehicle sustained a maximum static crush of 390 mm at level 3, at the vertical impact line. The driver SID/HIII, Serial No. 036, was calibrated just prior to this test. The SID/HIII's injury criteria are summarized as follows:

Measurements	Units	Driver
HIC		396
TTI*	G's	41.2
Pelvis*	G's	49.9
Neck Force X*	N	-264
Neck Force Y*	N	463
Neck Force Z*	N	510
Neck Moment X*	Nm	-47.9
Neck Moment Y*	Nm	-15.7
Neck Moment Z*	Nm	13.0

* For Information Purposes Only

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 SID/HIII and vehicle data traces. Appendix C contains the SID/HIII's configuration and performance verification data. Appendix D contains the calibration information data.

TEST NOTES

The following channels were not used in test:

A Pillar Upper Y
B Pillar Upper Y
Left Roof Y
Right Roof Y
LF Door Accel #2
LF Door Accel #3

SECTION 3
SIDE IMPACT DUMMY (SID/HIII) AND VEHICLE TEST DATA

Test Vehicle: 2006 Mazda 3 4-Door NHTSA No. C65402
Test Program: FMVSS 201P Test Date: October 30, 2006

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	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	=(tf -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: 2006 Mazda 3 4-Door
Test Program: FMVSS 201P
NHTSA No. C65402
Test Date: October 30, 2006

TEST VEHICLE INFORMATION

Make	Mazda
Model	3
Body Style	Sedan
NHTSA No.	C65402
VIN	JM1BK32F461544056
Color	Sunlight Silver Met
Delivery Date	9/11/06
Odometer Reading (mile)	116
Dealer	Concours Motors
Transmission	5 Speed Manual
Final Drive	Front
Number of Cylinders	4
Engine Displacement (L)	2.0
Engine Placement	Lateral

TEST VEHICLE OPTIONS

Front Airbag	Yes
Side Airbags	Side and Curtain
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/CD	Yes
Anti-theft System	Yes
Cruise Control	Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Mazda Motor Corporation
Date of Manufacture	05/06

GVWR (kg)	1719
GAWR Front (kg)	919
GAWR Rear (kg)	800

DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	220	220
Recommended Tire Size	P205/55R16	P205/55R16
Tire Size on Vehicle	P205/55R16	P205/55R16
Tire Manufacturer	Toyo	Toyo

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Buckets	Bench		
Number Of Occupants	2	3		5
Capacity Wt. (VCW) (kg)				385
Cargo Wt. (RCLW) (kg)				45

DATA SHEET NO. 1... (continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2006 Mazda 3 4-Door NHTSA No. C65402
Test Program: FMVSS 201P Test Date: October 30, 2006

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	384.2	246.7		413.2	288.9	
Right	kg	391.0	248.6		407.8	279.9	
Ratio	%	61.0	39.0		59.1	40.9	
Totals	kg	775.2	495.3	1270.5	821.0	568.8	1389.8

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1270.5
Weight of SID/HIII Side Impact Dummy	kg	80.7
Rated Cargo/Luggage Weight (RCLW)	kg	45
Calculated Vehicle Target Weight (TVTW)	kg	1396.2

TEST VEHICLE ATTITUDES

	Units	As Delivered	Fully Loaded	Ready For Test
Right Front	mm	689	681	747
Left Front	mm	691	678	751
Right Rear	mm	689	674	752
Left Rear	mm	693	673	758
Right Door Sill Angle	deg	0.6 ND	0.3 ND	0.4 ND
Left Door Sill Angle	deg	0.5 ND	0.3 ND	0.3 ND
Front Bumper Angle	deg	0.2 RD	0.1 LD	0.0
Rear Bumper Angle	deg	0.2 RD	0.0	0.0

ND = NOSE DOWN, BD = BACK DOWN, LD = LEFT DOWN, RD = RIGHT DOWN, RU = RIGHT UP

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2638
Total Vehicle Length at Left Side	mm	3686
Total Vehicle Length at Centerline	mm	4532
Total Vehicle Length at Right Side	mm	3686
Total Vehicle Width at B-Post	mm	1750
Weight of Ballast in Cargo Area	kg	0
Amount of Stoddard Solvent in Fuel Tank	liters	51.7

DATA SHEET NO. 1… (Continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2006 Mazda 3 4-Door NHTSA No. C65402
Test Program: FMVSS 201P Test Date: October 30, 2006

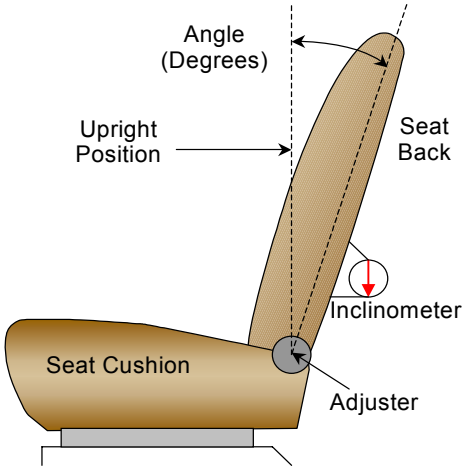
TEST VEHICLE VERTICAL IMPACT LINE DATA

Measurement Description	Units	Value
Target Impact Point Aft of Front Axle	mm	1425
Actual Impact Point Aft of Front Axle	mm	1412

NORMAL DESIGN RIDING POSITION

The driver's seat back is positioned to the manufacturer's designated angle. The procedure for the seat is as follows: Test detent (with the forward-most detent defined as 0) is 7.

Initial driver seat back angle: 7th detent (1st as 0)
Final driver seat back angle: 6th detent (1st as 0)



FRONT SEAT ASSEMBLY

SEAT FORE/AFT POSITIONS

Manufacturer: Manual adjustable, 26 total detents
Seat position: The fore/aft was set to 10th position from the full forward locking position as 0.

SEAT BELT UPPER ANCHORAGE

The test vehicle is equipped with adjustable "D" ring anchorage for the driver's seat position. The total number of detents is 4. The driver's "D" ring anchorage was placed at the upper-most detent.

DATA SHEET NO. 1… (continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2006 Mazda 3 4-Door NHTSA No. C65402
Test Program: FMVSS 201P Test Date: October 30, 2006

FUEL TANK CAPACITY DATA

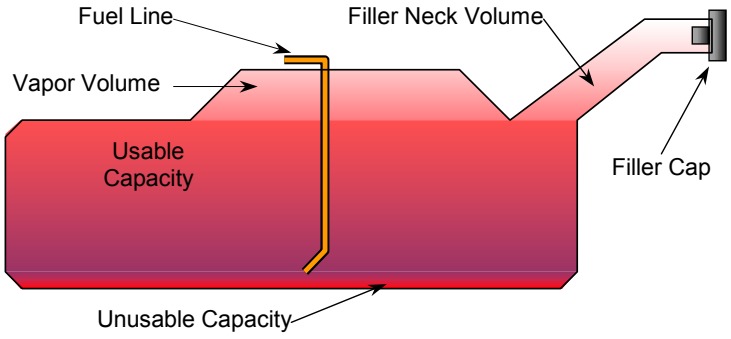
The "Usable Capacity" of the standard equipment fuel tank is: 55.0 liters

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

92-94% of "Usable Capacity" for certification to FMVSS 301 requirements: 50.6 – 51.7 liters

Actual amount of Stoddard solvent added to vehicle for certification test 51.7 liters

The vehicle is equipped with electric fuel pump. The fuel pump will pump fuel when starter or engine is activated.

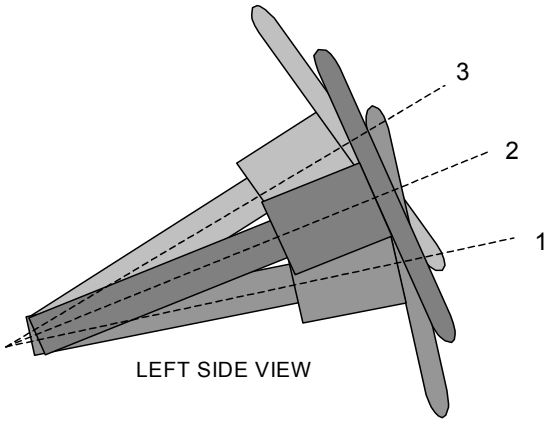


VEHICLE FUEL TANK ASSEMBLY

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 motion.

The steering column was placed at 23.0 degrees.



STEERING COLUMN ASSEMBLY

DATA SHEET NO. 2

TEST VEHICLE SUMMARY OF RESULTS

Test Vehicle: 2006 Mazda 3 4-Door NHTSA No. C65402
Test Program: FMVSS 201P Test Date: October 30, 2006

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	384.2	246.7		413.2	288.9	
Right	kg	391.0	248.6		407.8	279.9	
Weight Ratio	%	61.0	39.0		59.1	40.9	
Totals	kg	775.2	495.3	1270.5	821.0	568.8	1389.8

MAXIMUM EXTERIOR STATIC CRUSH

Level	Measured Parameter	Units	Maximum Crush	Above Ground
Level 1	Sill Top Height	mm	335	238
Level 2	Occupant H-Point	mm	375	610
Level 3	Mid Door	mm	390	722
Level 4	Window Sill	mm	316	1059
Level 5	Window Top	mm	176	1487
N/A	Maximum Penetration	mm	390	722

INSTRUMENTATION

SID/HIII Instrumentation	17
Vehicle Structure Accelerometers	18
Total	35

CAMERAS

Onboard Vehicle	3
Offboard Vehicle	8
Total	11

IMPACT POINT DATA

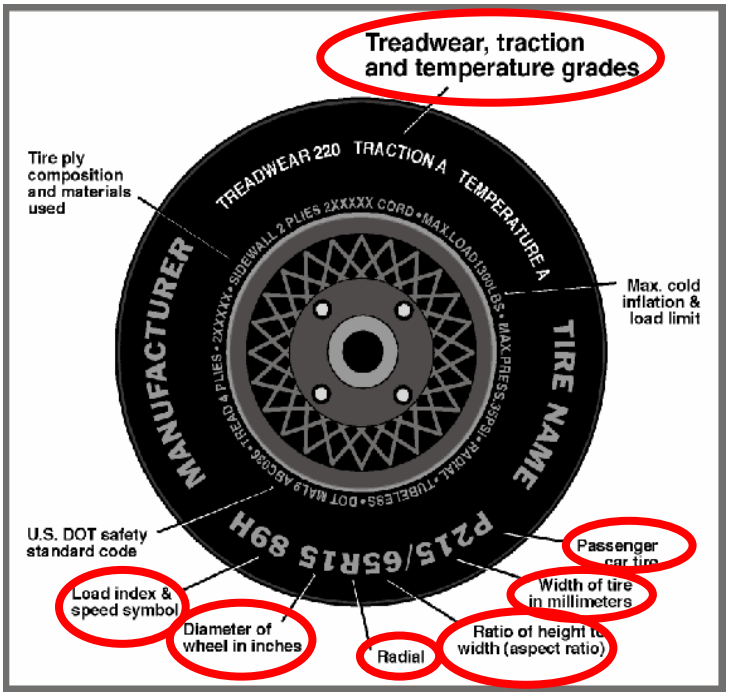
Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 38	13 forward

DATA SHEET NO. 3

TEST VEHICLE TIRE INFORMATION

Test Vehicle: 2006 Mazda 3 4-Door NHTSA No. C65402
Test Program: FMVSS 201P Test Date: October 30, 2006

Vehicle Year	2006	Vehicle Make	Mazda
VIN	JM1BK32F461544056	Vehicle Model	3



	Front	Rear
Tire Manufacturer	Toyo	Toyo
Tire Name	Proxes A05	Proxes A05
Tire Type	M+S	M+S
Tire Width (mm)	205	205
Ratio of Height to Width (aspect ratio)	55	55
Radial	R	R
Wheel Diameter	16	16
Load Index & Speed Symbol	89H	89H
Treadwear	300	300
Traction Grade	A	A
Temperature Grade	A	A

DATA SHEET NO. 4

POST TEST OBSERVATIONS

Test Vehicle: 2006 Mazda 3 4-Door NHTSA No. C65402
Test Program: FMVSS 201P Test Date: October 30, 2006

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Left Front Seating Position
Dummy Type / Serial No.	SID/HIII / 036
Head Contact	Curtain Airbag, Headrest, Side Header
Upper Torso Contact	Side Airbag
Lower Torso Contact	Side Airbag
Left Knee Contact	Door Panel
Right Knee Contact	Left Knee

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Left Side Door Opening	Door remained closed and latched	Door remained closed and latched
Right Side Door Opening	Door remained closed and latched	Door remained closed and latched
Seat Movement	0	0
Seat Back Failure	None	None

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No failures
Sill Separation	None
Windshield Damage	Cracked
Window Damage	Left side windows down for test
Other Notable Effects	None

AIRBAG DEPLOYMENT

	Driver
Front	No
Side	Yes
Curtain	Yes

ARMREST LOCATION AND SEAT CRUSH

	Driver
Front Armrest (from bottom of window)	241
Front Seat Back Crush	61
Front Seat Cushion Crush	119

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 5

SID/HIII INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2006 Mazda 3 4-Door NHTSA No. C65402
Test Program: FMVSS 201P Test Date: October 30, 2006

THORAX AND PELVIS PEAK ACCELERATIONS (FIR 100 Filtered)

Location	Axis	Units	Driver			
			Max	Time	Min	Time
Upper Rib (LUR)	Y	G's	33.7	21	-5.1	100
Upper Rib (LUR) (R)	Y	G's	34.2	21	-4.9	100
Lower Rib (LLR)	Y	G's	35.2	45	-7.1	98
Lower Rib (LLR) (R)	Y	G's	34.1	45	-7.2	98
Lower Spine (T_{12})	Y	G's	47.2	47	-6.6	88
Lower Spine (T_{12}) (R)	Y	G's	47.2	47	-7.0	88
Pelvis (PEV)	Y	G's	49.9	45	-9.3	79
Pelvis (PEV) (R)	Y	G's	50.1	45	-9.3	79

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

Location	Driver			
	LLR	T_{12}	TTI(g)	PEV(g)
Rib, Spine, and Pelvis	35.2	47.2	41.2	49.9
Rib, Spine, and Pelvis (R)	34.2	47.2	40.7	50.1

UPPER NECK FORCES AND MOMENTS (SAE CLASS 1000/600 Filtered)

Location	Axis	Units	Driver			
			Max	Time	Min	Time
Neck Force	X	N	172	180	-264	76
Neck Force	Y	N	463	46	-336	171
Neck Force	Z	N	510	50	-297	64
Neck Moment	X	Nm	11.8	107	-47.9	57
Neck Moment	Y	Nm	15.1	92	-15.7	171
Neck Moment	Z	Nm	13.0	54	-7.4	118

HEAD CG PEAK ACCELERATIONS (SAE CLASS 1000 Filtered)

Location	Axis	Units	Driver			
			Max	Time	Min	Time
Head CG	X	G's	4.8	140	-12.1	54
Head CG	Y	G's	59.3	55	-8.8	171
Head CG	Z	G's	0.5	35	-16.4	51
Head CG Resultant		G's	61.8	54		

HEAD INJURY CRITERIA (SAE CLASS 1000 Filtered)

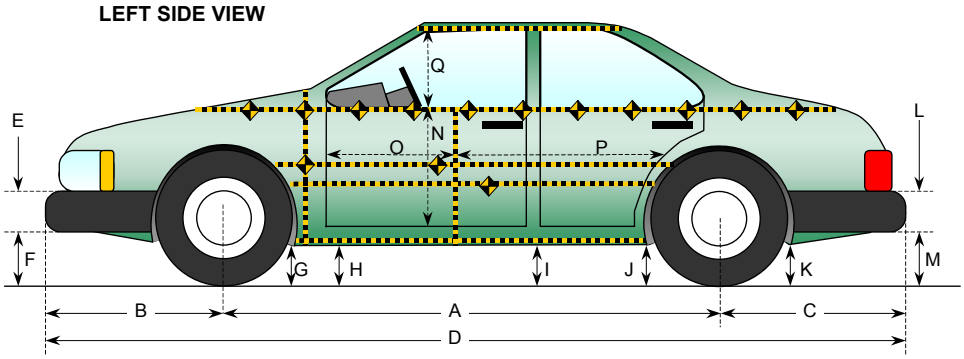
Location	Driver		
	HIC	T1	T2
Head CG Resultant	396	44.5	68.1

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

DATA SHEET NO. 6

VEHICLE PRE-TEST AND POST-TEST MEASUREMENTS

Test Vehicle: 2006 Mazda 3 4-Door NHTSA No. C65402
Test Program: FMVSS 201P Test Date: October 30, 2006



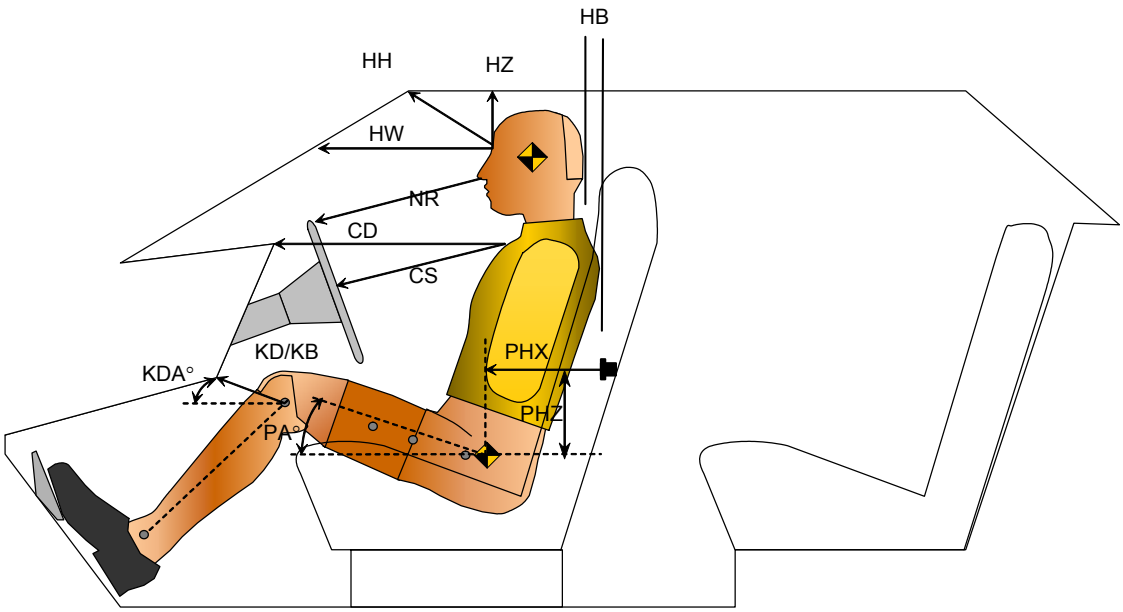
All Measurements in mm

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2638	2519	119
B	Front Axle to FSOV	934	924	10
C	Rear Axle to RSOV	960	961	-1
D	Total Length at Centerline	4532	4404	128
E	Front Bumper Thickness	130	130	0
F	Front Bumper Bottom to Ground	466	467	-1
G	Sill Height at Front Wheel Well	253	244	9
H	Sill Height at Front Door Leading Edge	251	234	17
I	Sill Height at "B" Pillar	253	265	-12
J1	Sill Height at Rear Wheel Well	237	273	-36
J2	Pinch Weld Height at Rear Wheel Well	234	278	-44
K	Sill Height Aft of Rear Wheel Well	522	522	0
L	Rear Bumper Thickness	235	235	0
M	Rear Bumper Bottom to Ground	466	466	0
N	Sill Height to Window Bottom Sill	746	736	10
O	Front Door Leading Edge to Impact CL	984	982	2
P	Rear Door Trailing Edge to Impact CL	930	954	-24
Q	Front Window Opening	407	378	29
R	Right Side Length	3686	3696	-10
S	Left Side Length	3686	3568	118
T	Vehicle Width at "B" Post	1750	1591	159

DATA SHEET NO. 7

SID/HIII LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2006 Mazda 3 4-Door NHTSA No. C65402
Test Program: FMVSS 201P Test Date: October 30, 2006

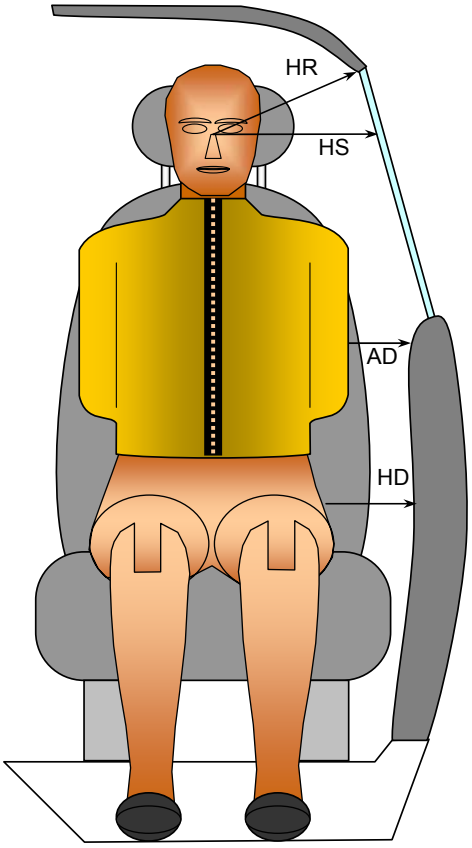


Driver Code	Measurement Description	Driver	
		Length(mm)	Angle(°)
HH	Head to Header	386	
HW	Head to Windshield	646	
HZ	Head to Roof	171	
NR	Nose to Rim	437	
CD	Chest to Dash	551	
CS	Chest to Steering Wheel	329	
KDL	Left Knee to Dash	147	38.5
KDR	Right Knee to Dash	120	39.9
PA	Pelvic Angle		24.1
PHX	H-Point to Striker (X-Axis)	233	
PHZ	H-Point to Striker (Z-Axis)	178	
HB	Head to Seatback Clearance	53	

DATA SHEET NO. 8

SID/HIII LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2006 Mazda 3 4-Door
Test Program: FMVSS 201P
NHTSA No. C65402
Test Date: October 30, 2006



FRONT VIEW OF DUMMY

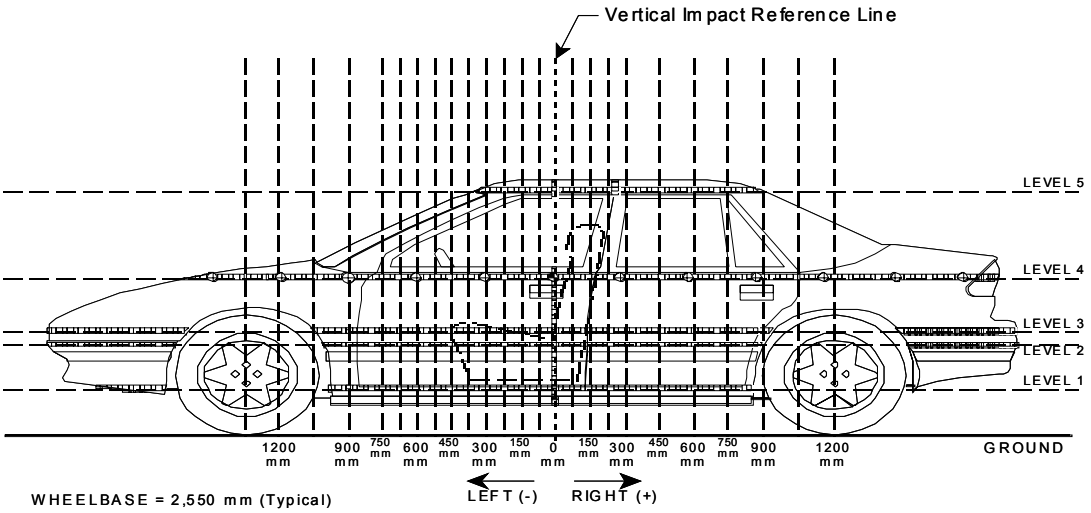
Code	Measurement Description	Units	Driver
HR	Head to Side Header	mm	182
HS	Head to Side Window	mm	244
AD	Arm to Door	mm	111
HD	H-Point to Door	mm	153

DATA SHEET NO. 9

VEHICLE SIDE MEASUREMENTS

Test Vehicle: 2006 Mazda 3 4-Door NHTSA No. C65402
Test Program: FMVSS 201P Test Date: October 30, 2006

PRETEST AND POST TEST EXTERIOR PROFILE MEASUREMENTS



LEFT SIDE VIEW

Measurements are taken with vehicle in the as tested condition.
Measurements along the vertical 0 mm.

Level	Measurement Description	Units	Height Above Ground
5	Window	mm	1487
4	Window Sill	mm	1059
3	Mid Door	mm	722
2	Occupant H-Point	mm	610
1	Sill Top	mm	238

DATA SHEET NO. 10

VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2006 Mazda 3 4-Door NHTSA No. C65402
Test Program: FMVSS 201P Test Date: October 30, 2006

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1500				315					321					6	
-1350				310					321					11	
-1200			226	310				242	341				16	31	
-1050		230	232	312			253	251	336			23	19	24	
-900	285	240	234	313		315	265	261	331		30	25	27	18	
-825	286	239	235	312		339	284	281	339		53	45	46	27	
-750	284	239	235	312		355	303	301	346		71	64	66	34	
-675	284	239	234	312		372	322	321	351		88	83	87	39	
-600	284	238	234	310		388	340	340	379		104	102	106	69	
-525	284	238	233	310		410	360	361	415		126	122	128	105	
-450	284	238	233	310		433	383	396	446		149	145	163	136	
-375	284	237	233	309	506	456	428	441	475	587	172	191	208	166	81
-300	284	236	232	309	500	485	475	484	506	592	201	239	252	197	92
-225	284	236	231	309	496	521	519	530	544	606	237	283	299	235	110
-150	285	236	231	309	495	576	567	572	581	626	291	331	341	272	131
-75	285	236	231	309	493	614	608	609	617	653	329	372	378	308	160
0	284	236	230	310	493	619	611	620	626	655	335	375	390	316	162
75	283	236	230	310	493	572	573	573	590	661	289	337	343	280	168
150	284	236	230	312	492	513	489	493	563	668	229	253	263	251	176
225	284	236	231	312	494	471	450	449	531	669	187	214	218	219	175
300	284	236	231	312	495	433	421	417	509	651	149	185	186	197	156
375	285	236	230	313	496	397	385	386	489	630	112	149	156	176	134
450	286	236	230	317	498	375	354	365	475	609	89	118	135	158	111
525	285	236	231	319	501	346	326	338	454	591	61	90	107	135	90
600	285	236	231	322	506	318	306	315	432	570	33	70	84	110	64
675	286	236	232	325	508	292	288	298	411	553	6	52	66	86	45
750	288	236	233	328	514	276	267	277	394	542	-12	31	44	66	28
900		234	232	333	529		255	225	359	535		21	-7	26	6

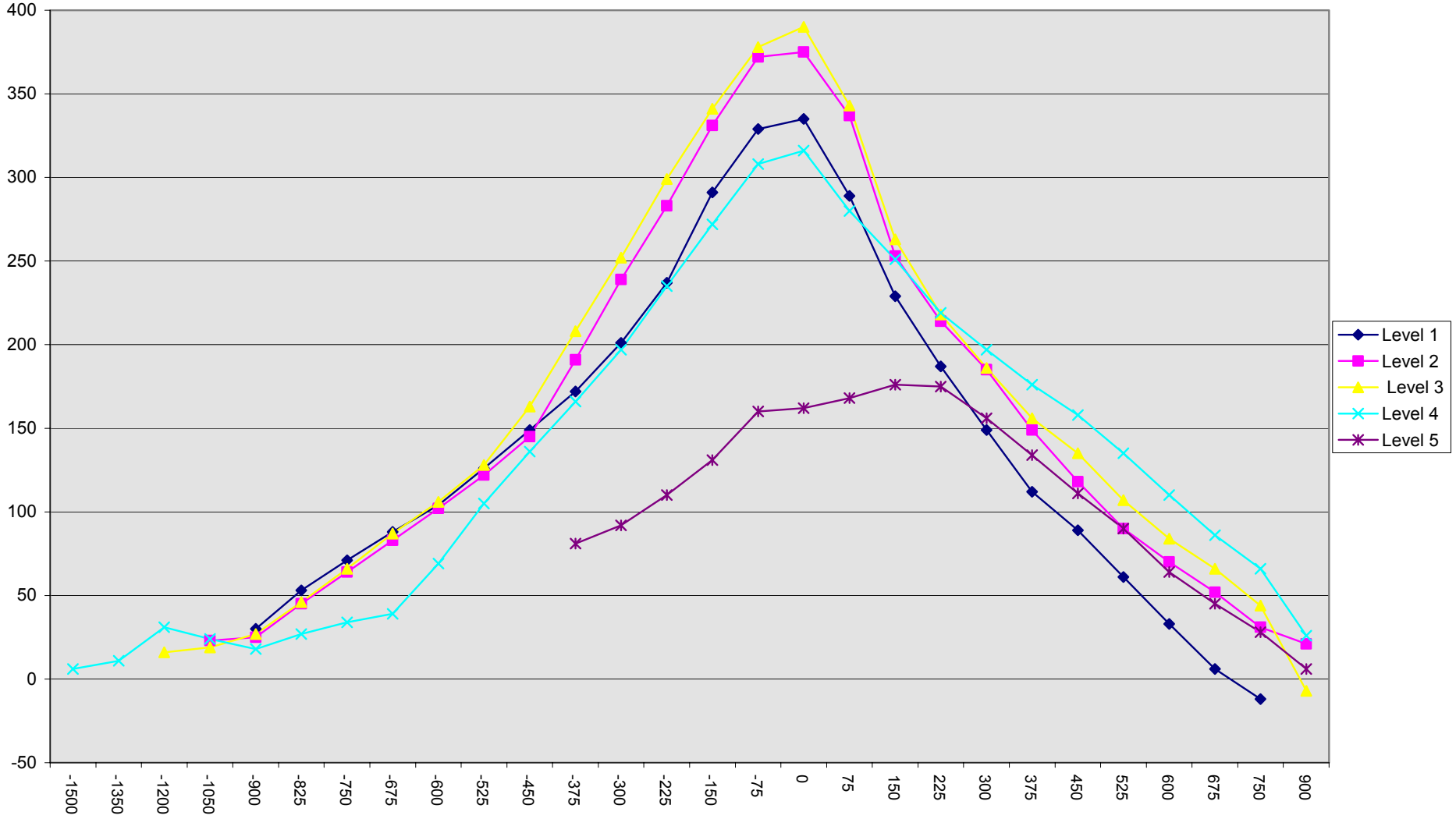
Reference plane is parallel to test vehicle longitudinal centerline Units = mm

Given dimensions = Reference plane to car body

DATA SHEET NO. 10... (continued)

VEHICLE EXTERIOR CRUSH PROFILES

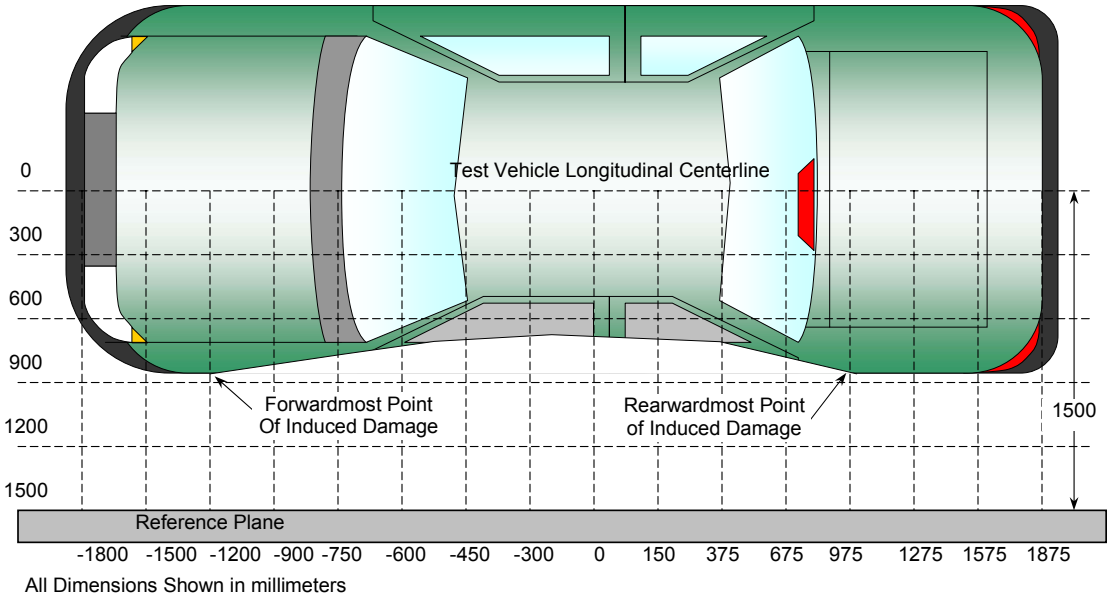
Test Vehicle: 2006 Mazda 3 4-Door NHTSA No. C65402
Test Program: FMVSS 201P Test Date: October 30, 2006



DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2006 Mazda 3 4-Door NHTSA No. C65402
Test Program: FMVSS 201P Test Date: October 30, 2006



TOP VIEW

Damage Profile Distances

DPD	Distance from Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max Static Crush (mm)
1	900 mm	4	333	359	26
2	422 mm	4	315	480	165
3	-63 mm	3	230	612	382
4	-539 mm	3	233	366	133
5	-1020 mm	4	312	334	22
6	-1500 mm	4	315	321	6

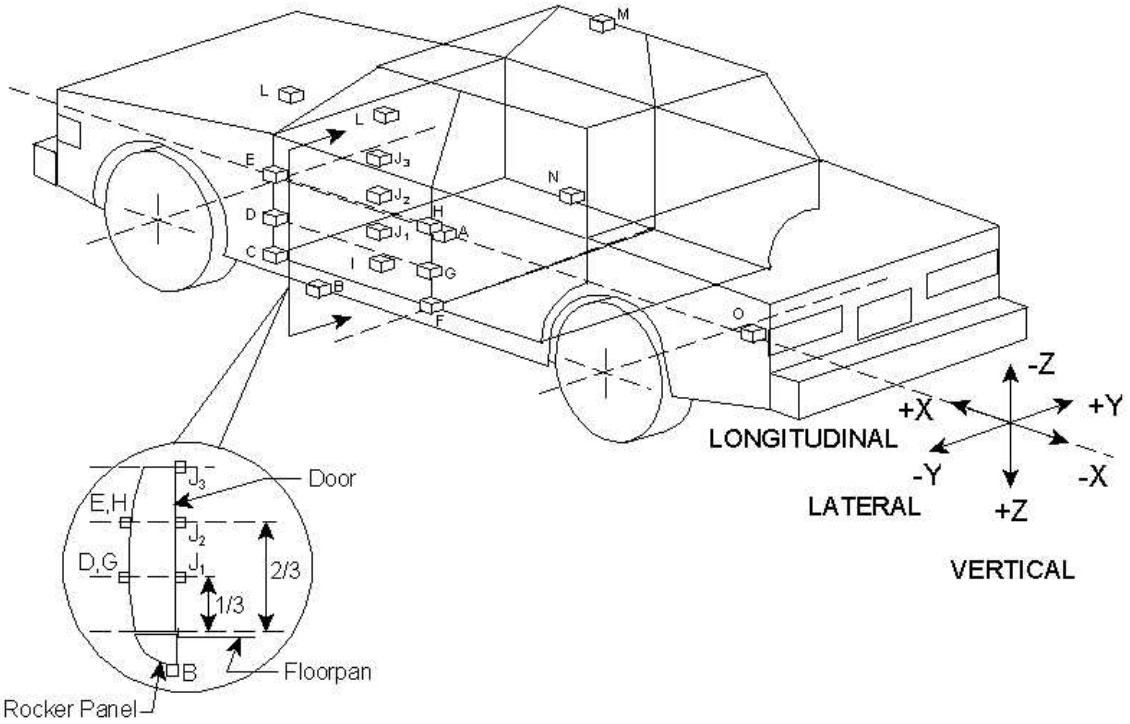
Reference plane is parallel to test vehicle longitudinal centerline

Given dimensions = Reference plane to car body

DATA SHEET NO. 12

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Test Vehicle: 2006 Mazda 3 4-Door NHTSA No. C65402
Test Program: FMVSS 201P Test Date: October 30, 2006



No.	Location
A	Vehicle CG
B	Left Floor Sill
C	A Pillar Sill
D	A Pillar Low
E	A Pillar Mid
G	B Pillar Sill
H	B Pillar Low
I	B Pillar Mid

No.	Location
L	Driver Seat
M1	Driver Door Rib
M2	Driver Door Pelvis
M3	Driver Door Knee
N	Engine
O	Firewall
Q	Right Floor Sill
R	Rear Deck

DATA SHEET NO. 12... (continued)

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2006 Mazda 3 4-Door NHTSA No. C65402
Test Program: FMVSS 201P Test Date: October 30, 2006

VEHICLE ACCELEROMETER PEAK DATA AND PRE-TEST LOCATIONS

Loc. No.	Accelerometer Location	Peak Values (G's)				
		Axis	Max	Time	Min	Time
A	Vehicle CG	X	5.6	53	-2.6	15
		Y	16.9	53	-1.5	66
		Z	5.3	39	-5.0	12
		RES	17.8	53		
B	Left Floor	Y	18.2	10	-1.8	0
C	A Pillar Sill	Y	12.1	37	-0.7	174
D	A Pillar Low	Y	10.7	55	-0.8	0
E	A Pillar Mid	Y	10.6	62	-3.4	4
G	B Pillar Sill	Y	42.1	19	-16.0	24
H	B Pillar Low	Y	76.6	11	-17.6	22
I	B Pillar Mid	Y	78.1	12	-25.4	22
L	Driver Seat	Y	112.2	15	-5.6	69
M1	Driver Door Upper	Y	57.7	27	-98.7	22
M2	Driver Door Mid	Y				
M3	Driver Door Lower	Y				
N	Engine	X	4.8	111	-4.1	43
		Y	11.7	68	-1.5	211
O	Firewall	Y	9.9	54	-0.9	6
Q	Right Floor Sill	Y	12.4	41	-1.2	171
R	Rear Deck	X	4.5	28	-2.3	38
		Y	14.5	59	-1.7	188

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

DATA SHEET NO. 12... (continued)

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2006 Mazda 3 4-Door NHTSA No. C65402
Test Program: FMVSS 201P Test Date: October 30, 2006

VEHICLE ACCELEROMETER PEAK DATA AND PRE-TEST LOCATIONS

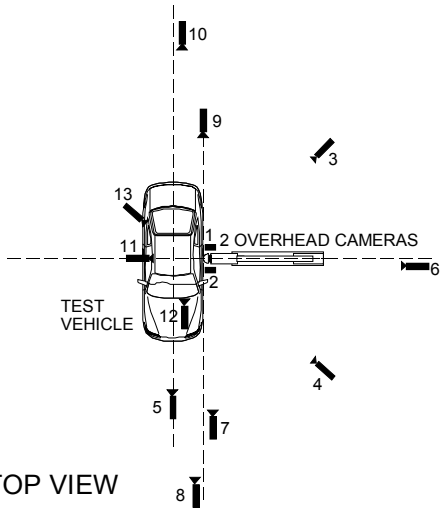
Loc. No.	Accelerometer Location	Measurements (mm)			
		Axis	Pre-Test	Post-Test	Difference
A	Vehicle CG	X	2473	2432	-41
		Y	0	90	90
		Z	359	368	-9
B	Left Floor Sill	X	2713	2624	-89
		Y	698	576	122
		Z	170	194	-24
C	A Pillar Sill	X	3066	2962	-104
		Y	698	639	59
		Z	168	197	-29
D	A Pillar Low	X	2088	2965	877
		Y	818	736	82
		Z	506	526	-20
E	A Pillar Mid	X	3088	2985	-103
		Y	765	741	24
		Z	819	851	-32
G	B Pillar Sill	X	1925	1919	-6
		Y	698	527	171
		Z	176	220	-44
H	B Pillar Low	X	1985	1966	-19
		Y	688	451	237
		Z	467	474	-7
I	B Pillar Mid	X	1935	1910	-25
		Y	688	428	260
		Z	744	747	-3
L	Driver Seat	X	2093	2119	26
		Y	551	308	243
		Z	335	340	-5
M1	Driver Door Rib	X	2635	2574	-61
		Y	715	577	138
		Z	915	943	-28
M2	Driver Door Pelvis	X			
		Y			
		Z			
M3	Driver Door Knee	X			
		Y			
		Z			
N	Engine	X	3655	3609	-46
		Y	60	69	9
		Z	784	793	-9
O	Firewall	X	3405	3364	-41
		Y	35	60	-25
		Z	828	839	-11
Q	Right Floor Sill	X	2346	2358	12
		Y	698	761	63
		Z	172	197	-25
R	Rear Deck	X	831	824	-7
		Y	0	0	0
		Z	351	356	-5

Ref. Points: X-Rear of Vehicle (+ forward); Y-Vehicle Centerline (+ to right); Z-Ground Plane (+ down)

DATA SHEET NO. 13

HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2006 Mazda 3 4-Door NHTSA No. C65402
Test Program: FMVSS 201P Test Date: October 30, 2006



TOP VIEW

No.	Camera View	Location (mm)			Lens (mm)	Film Speed (fps)
		X	Y	Z		
1	Overhead Overall	200	375	5050	14	1000
2	Overhead Close-Up	40	-45	5670	19	1000
3	Left Side 45° Rearward Pole View	-2085	-3205	1205	24	1000
4	Right Side 45° Forward Pole View	-2070	3275	1210	24	1000
5	Real Time				13	24
6*	Left Side Rear Pole View					
7	Front Ground Level Vehicle/Pole Impact	-75	6385	1250	35	1000
8	Front Ground Level Vehicle Roof Targets and Vehicle/Pole Impact	300	6115	1235	24	1000
9	Rear Ground Level Vehicle/Pole Impact	15	-6145	1235	35	1000
10	Rear Ground Level	430	-5880	1120	24	1000
11	Test Vehicle Onboard Driver Side View				8	1000
12	Test Vehicle Onboard Driver Front View				12.5	1000
13	Test Vehicle Onboard Driver ¾ Rear View				8	1000

Reference Points X - + Forward of Impact
Y - + Right of Impact
Z - + Ground Plane Down

* Camera 6 was not used for this test.

DATA SHEET NO. 14

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Test Vehicle:	2006 Mazda 3 4-Door	NHTSA No.	C65402
Test Program:	FMVSS 201P	Test Date:	October 30, 2006

Test Time: 11:38 AM Temperature at Time of Impact: 21°C

Stoddard Solvent Spillage Measurements

A. From impact until vehicle motion ceases: 0
(Maximum Allowable = 1 ounce)

B. For the 5 minute period after motion ceases: 0
(Maximum allowable = 5 ounces)

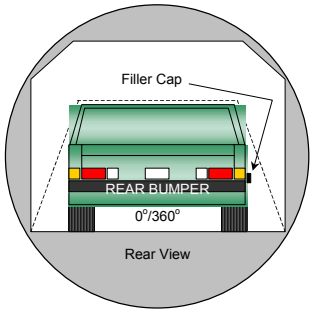
C. For the following 25 minutes: 0
(Maximum allowable = 1 oz./minute)

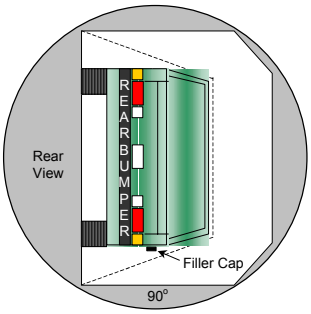
D. Spillage Details: None

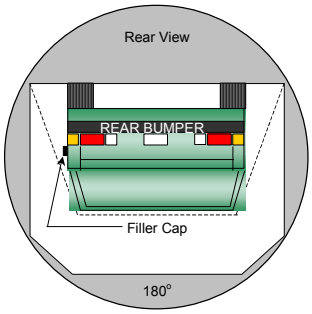
DATA SHEET NO. 15

FMVSS 301 STATIC ROLLOVER DATA SHEET

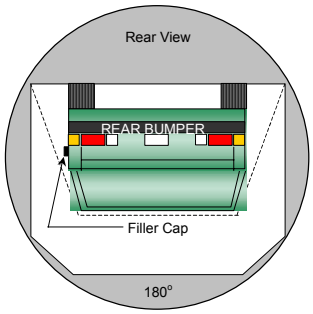
Test Vehicle: 2006 Mazda 3 4-Door NHTSA No. C65402
Test Program: FMVSS 201P Test Date: October 30, 2006

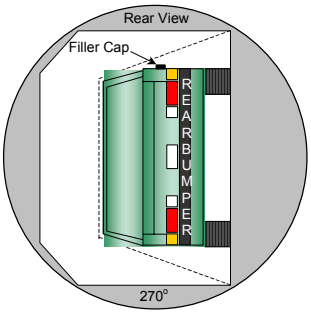


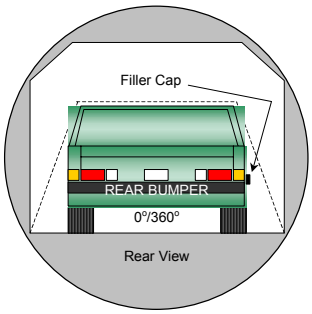




0° to 90° 90° to 180°







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°	120	300	0
90° to 180°	118	300	0
180° to 270°	114	300	0
270° to 360°	116	300	0

APPENDIX A

PHOTOGRAPHS

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Pre-Test Front View of Test Vehicle

Post-Test Front View of Test Vehicle

Pre-Test Rear View of Test Vehicle

Post-Test Rear View of Test Vehicle

Pre-Test Left Side View of Test Vehicle

Post-Test Left Side View of Test Vehicle

Pre-Test Right Side View of Test Vehicle

Post-Test Right Side View of Test Vehicle

Pre-Test Left Rear Three-Quarter View

Post-Test Left Rear Three-Quarter View

Pre-Test Left Front Three-Quarter View

Post-Test Left Front Three-Quarter View

Pre-Test Right Rear Three-Quarter View

Post-Test Right Rear Three-Quarter View

Pre-Test Right Front Three-Quarter View

Post-Test Right Front Three-Quarter View

Pre-Test Overhead View of Test Vehicle

Post-Test Overhead View of Test Vehicle

Pre-Test Overhead View of Test Vehicle (Closeup)

Post-Test Overhead View of Test Vehicle (Closeup)

Pre-Test Driver Dummy Right Side View

Post-Test Driver Dummy Right Side View

Pre-Test Driver Dummy Left Side View

Post-Test Driver Dummy Left Side View

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

Pre-Test Driver Dummy Shoulder and Door Top View

Post-Test Driver Dummy Shoulder and Door Top View

Post-Test Driver Dummy Head Contact (side header, CAB)

Post-Test Driver Dummy Head Contact (headrest)

Post-Test Driver Dummy Thorax Contact

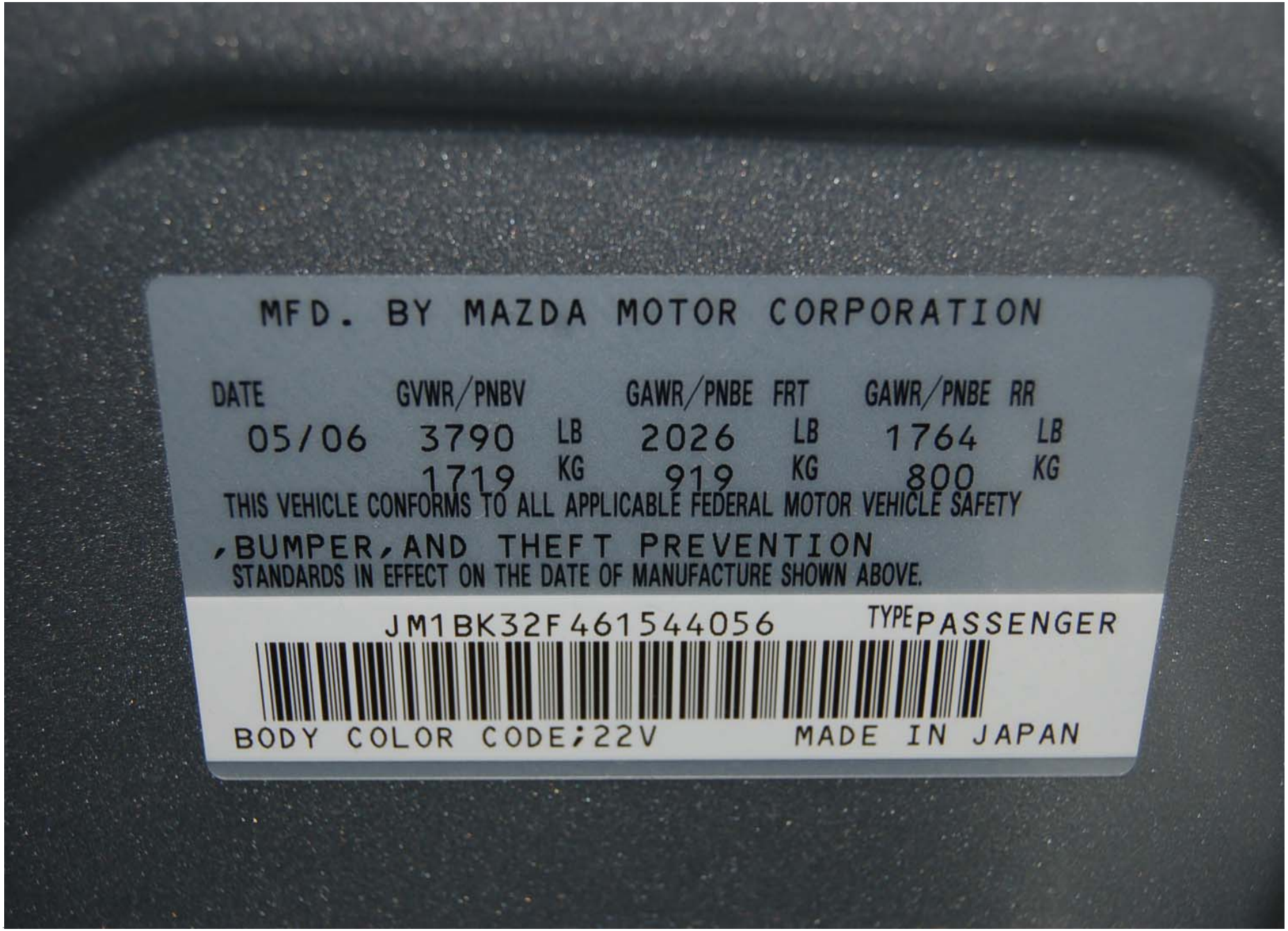
Post-Test Driver Dummy Contact

Post-Test Impact Point on Vehicle

Pre-Test Impact Zone Close-up View

Post-Test Impact Zone Close-up View

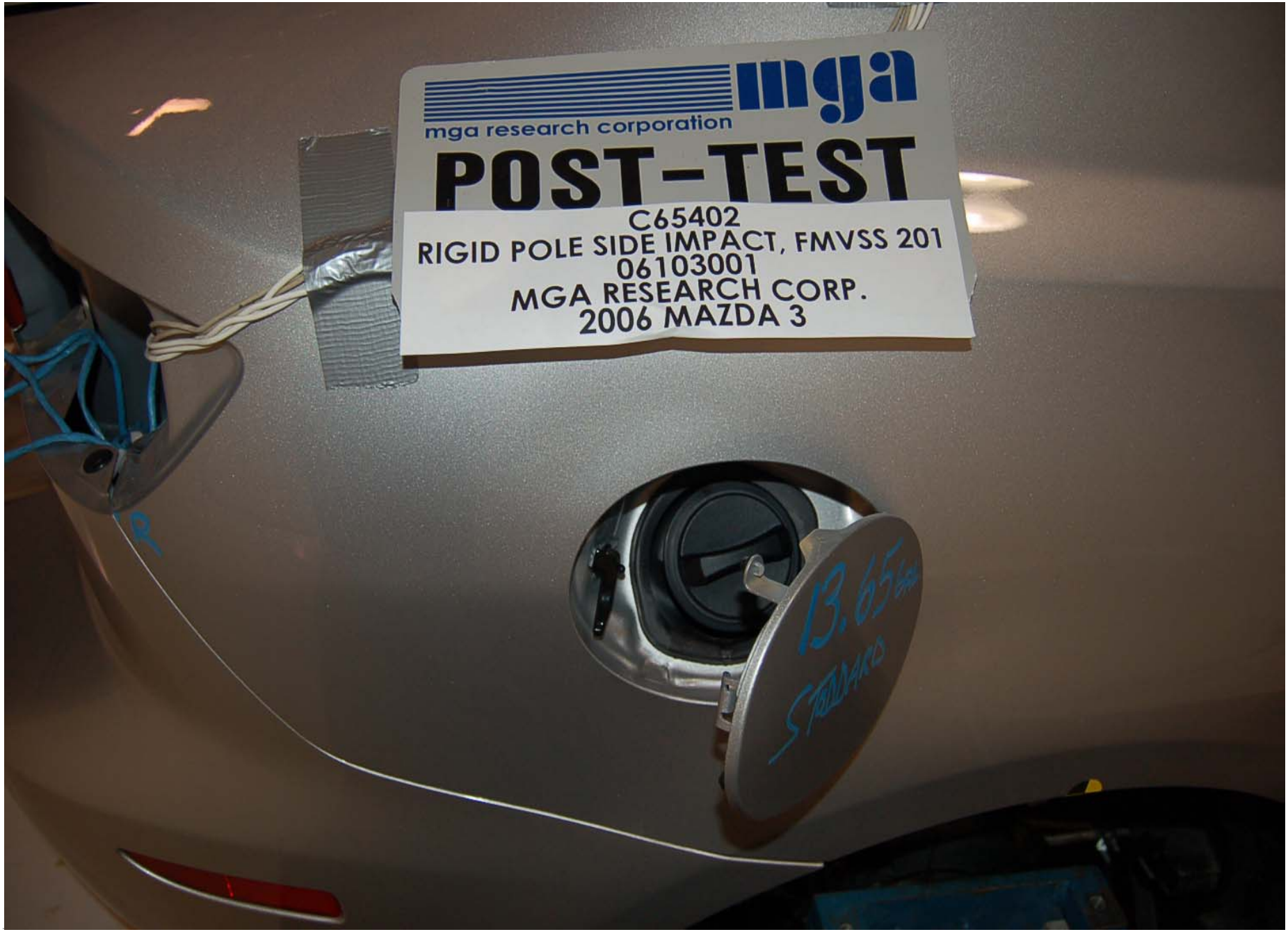
Vehicle Impact



Vehicle Certification Label

Tire Placard

Pre-Test Fuel Filler Cap



Post-Test Fuel Filler Cap

Pre-Test Left Front Wheel Dolly

Pre-Test Right Front Wheel Dolly

Pre-Test Left Rear Wheel Dolly

Pre-Test Right Rear Wheel Dolly

Rollover 90 Degrees

Rollover 180 Degrees

Rollover 270 Degrees

Rollover 360 Degrees

APPENDIX B

SID/HIII AND VEHICLE RESPONSE DATA

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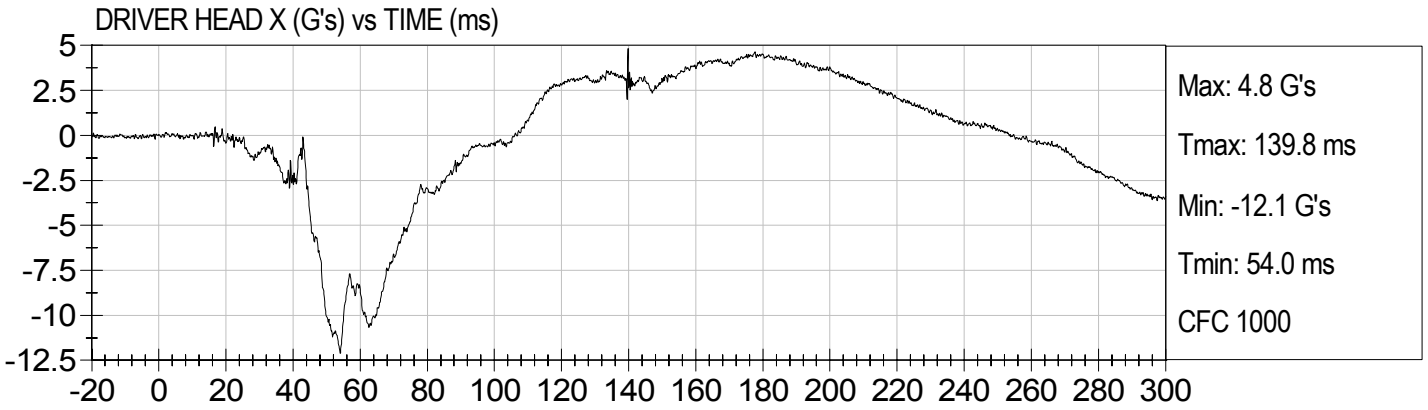
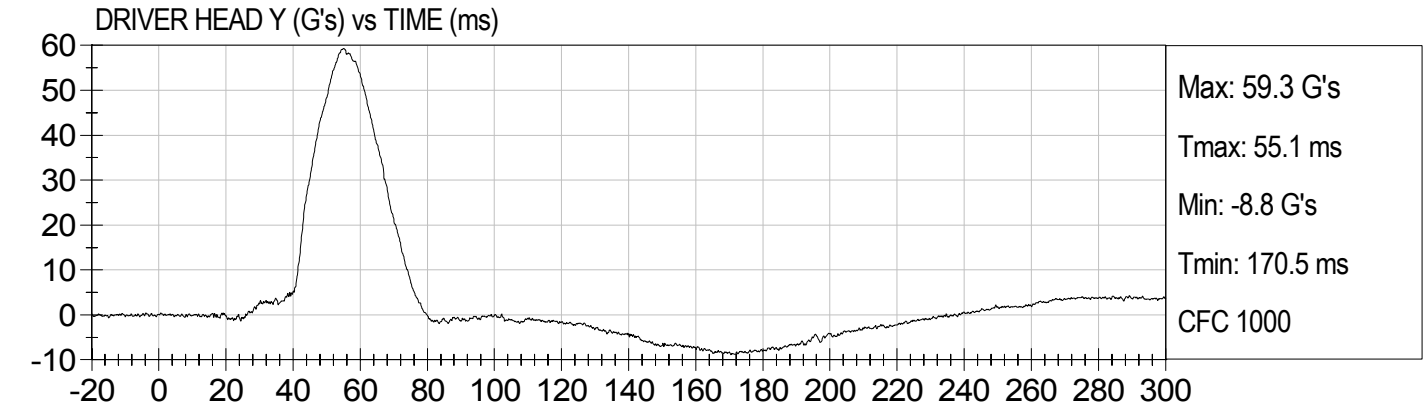
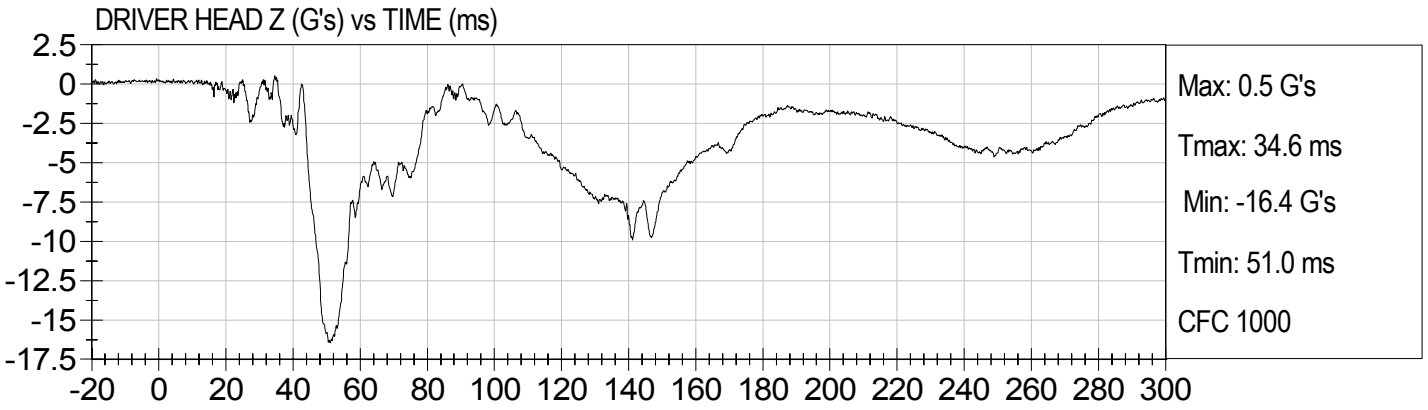
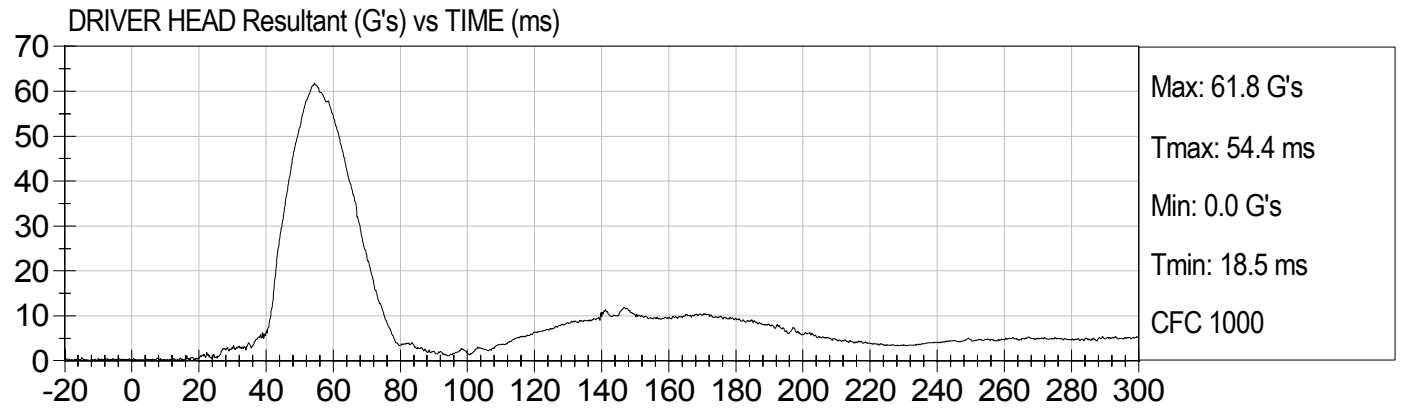
RIGID POLE SIDE IMPACT - FMVSS 201
2006 MAZDA 3 C65402

Test Date: 10/30/2006
Speed: 17.6 mph (28.3 km/h)



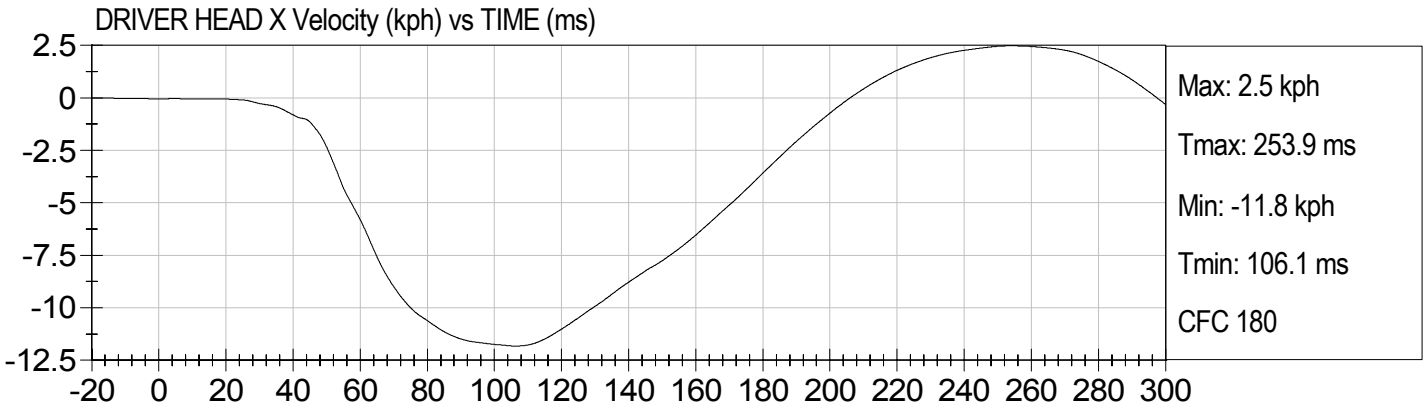


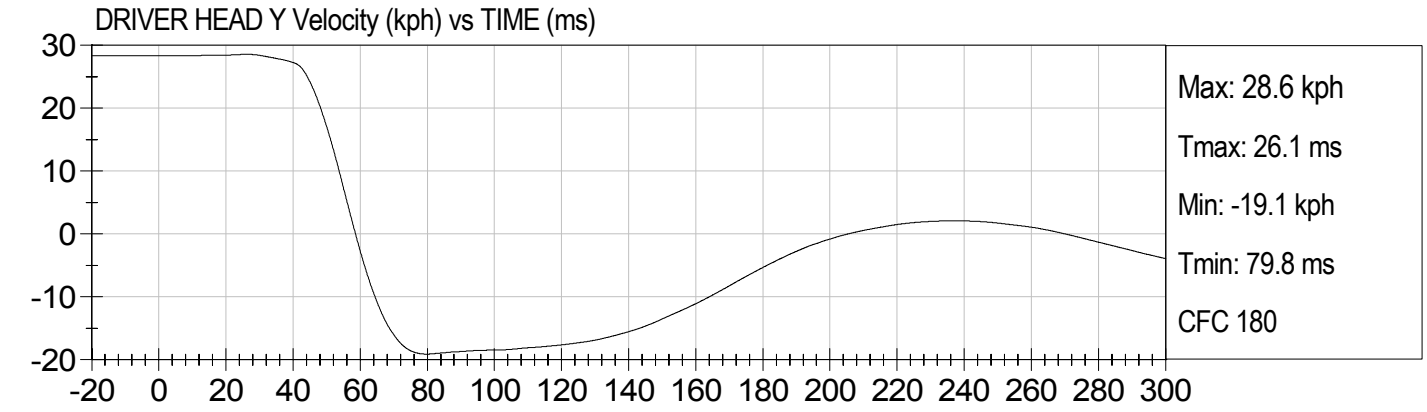


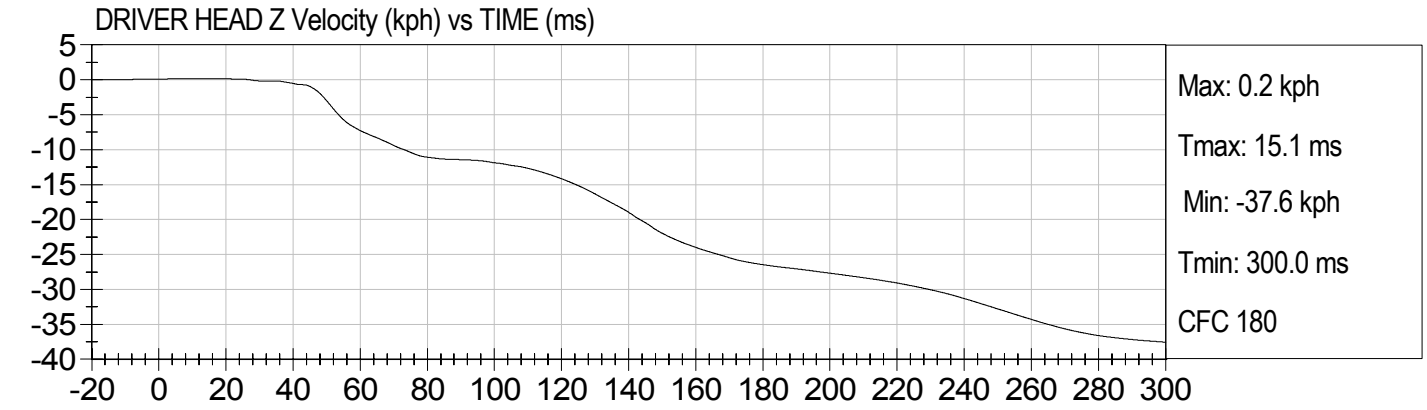


RIGID POLE SIDE IMPACT - FMVSS 201
2006 MAZDA 3 C65402

Test Date: 10/30/2006
Speed: 17.6 mph (28.3 km/h)



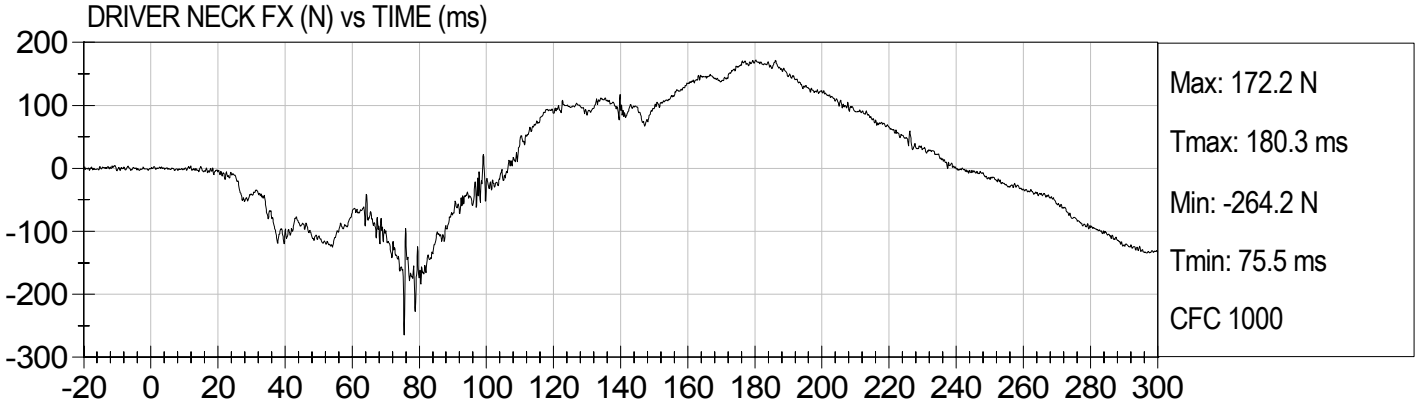




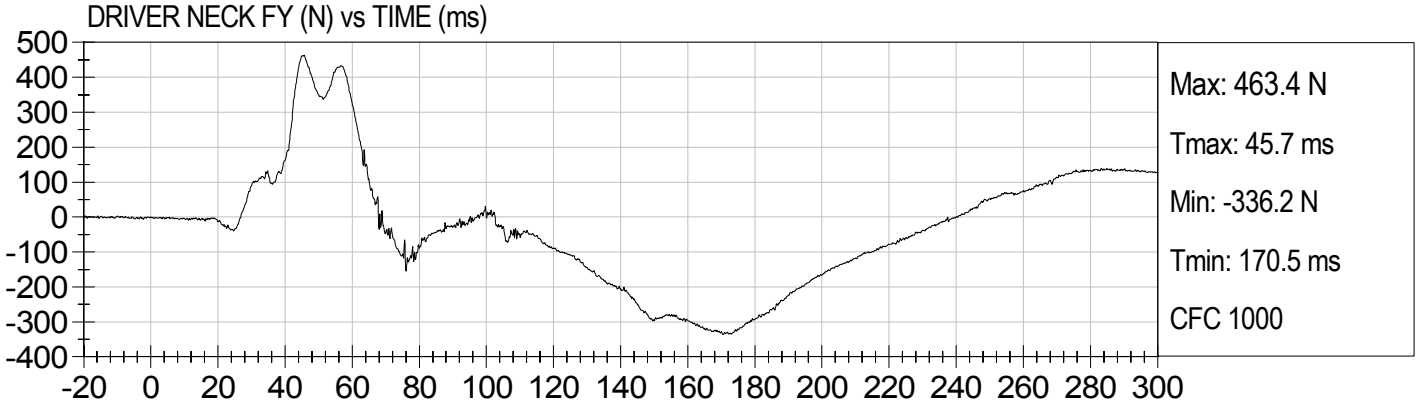
RIGID POLE SIDE IMPACT - FMVSS 201
2006 MAZDA 3 C65402

Test Date: 10/30/2006
Speed: 17.6 mph (28.3 km/h)

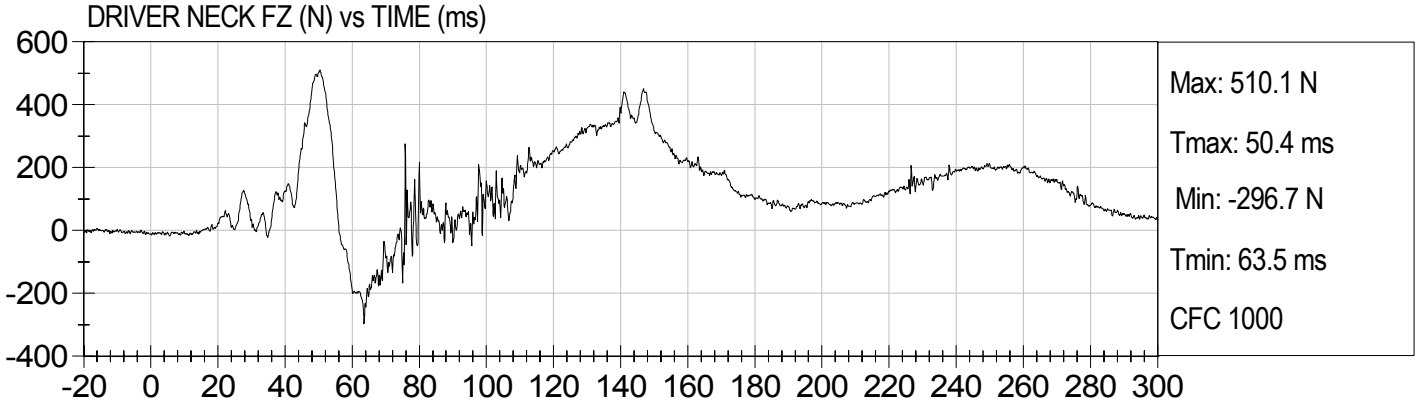
DRIVER NECK FX (N) vs TIME (ms)



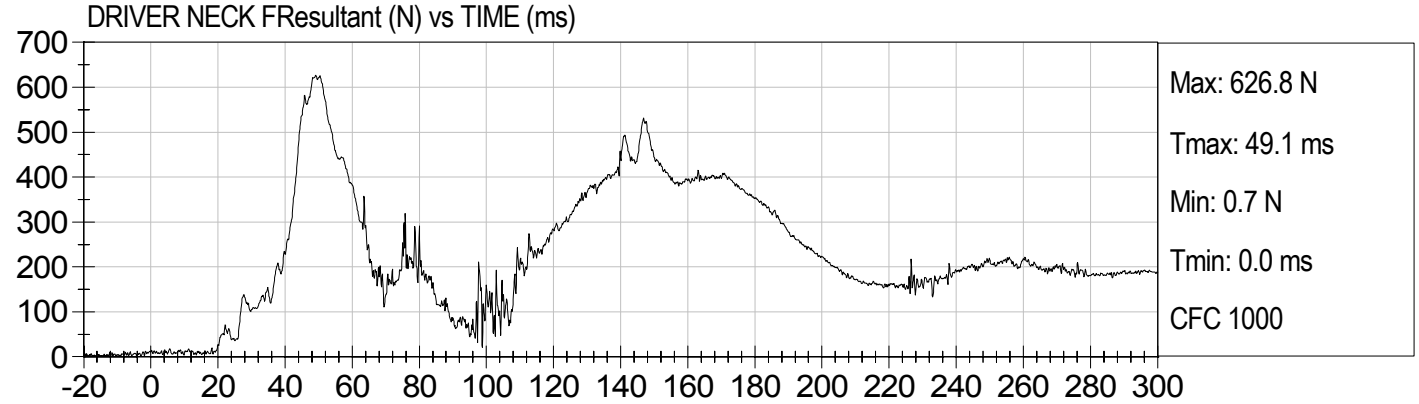
DRIVER NECK FY (N) vs TIME (ms)



DRIVER NECK FZ (N) vs TIME (ms)



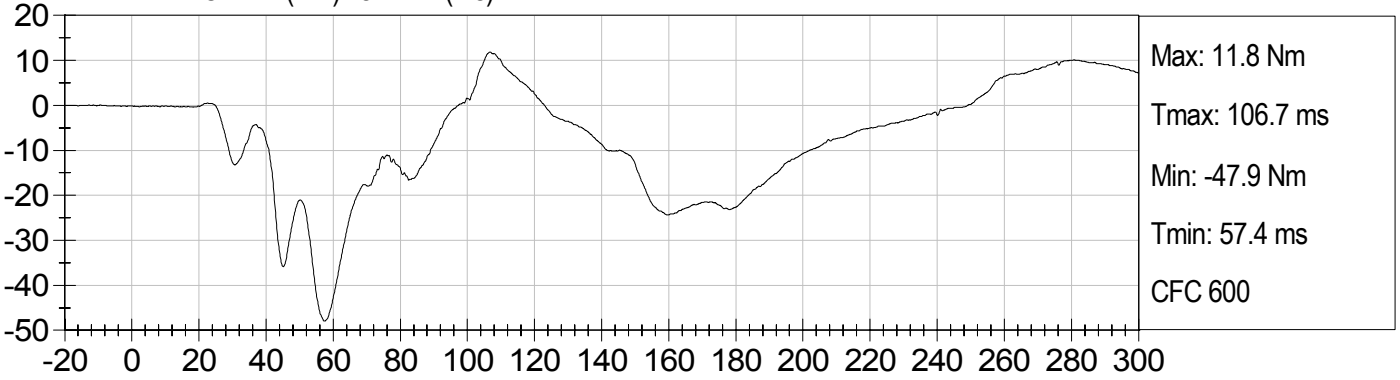
DRIVER NECK FResultant (N) vs TIME (ms)



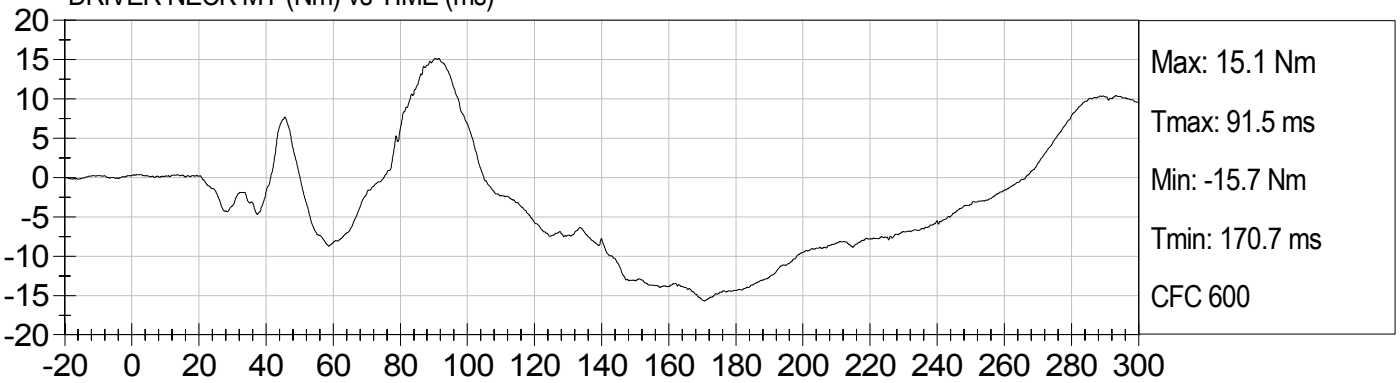
RIGID POLE SIDE IMPACT - FMVSS 201
2006 MAZDA 3 C65402

Test Date: 10/30/2006
Speed: 17.6 mph (28.3 km/h)

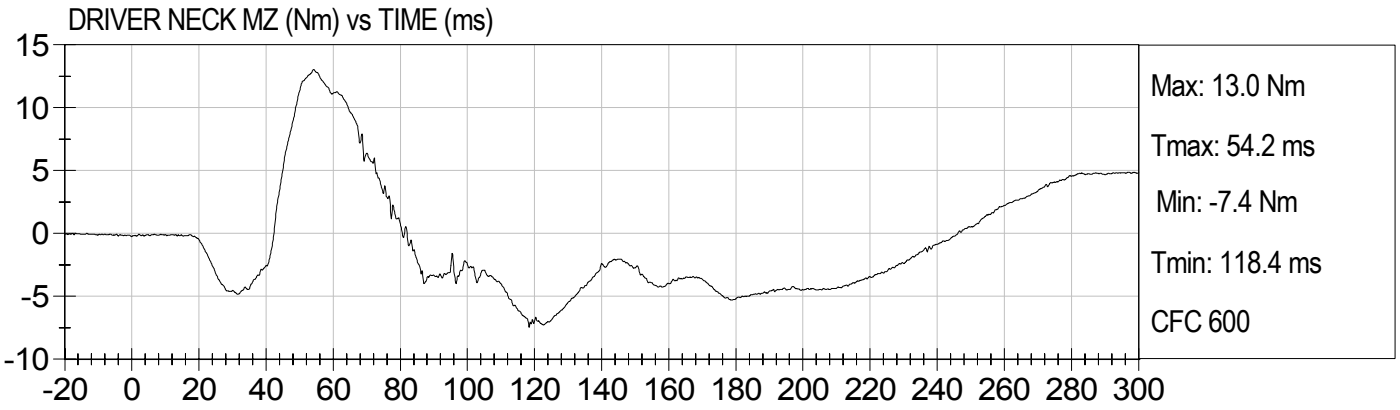
DRIVER NECK MX (Nm) vs TIME (ms)



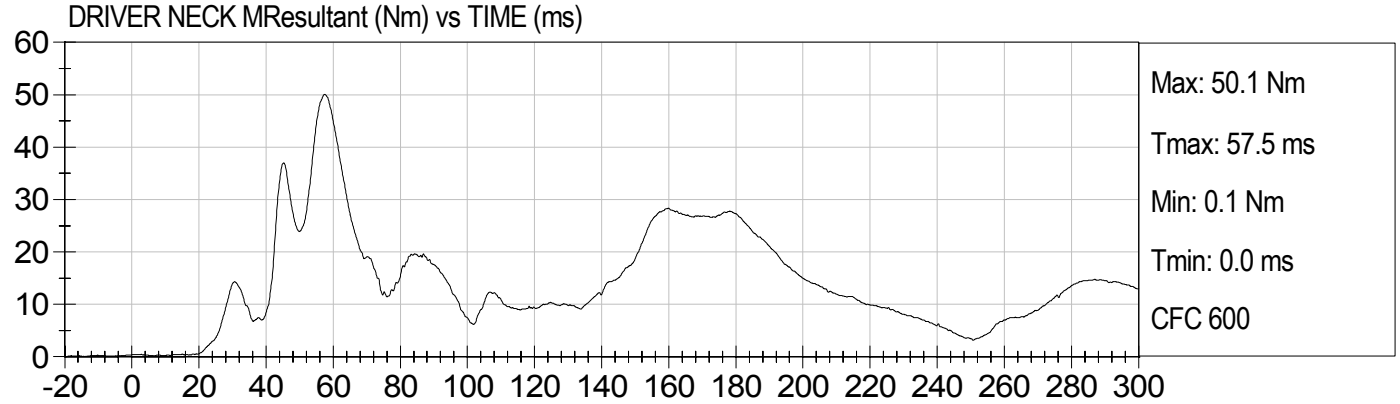
DRIVER NECK MY (Nm) vs TIME (ms)



DRIVER NECK MZ (Nm) vs TIME (ms)



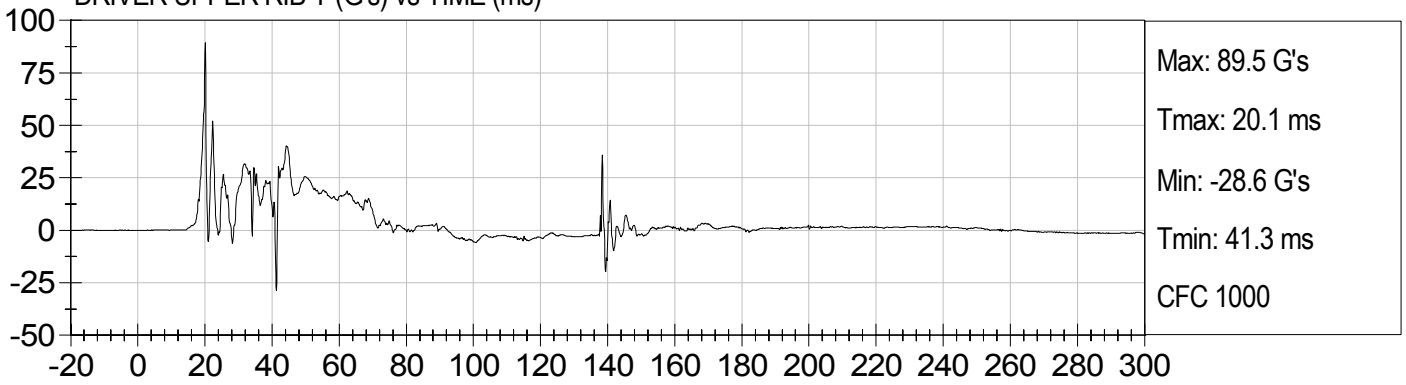
DRIVER NECK MResultant (Nm) vs TIME (ms)



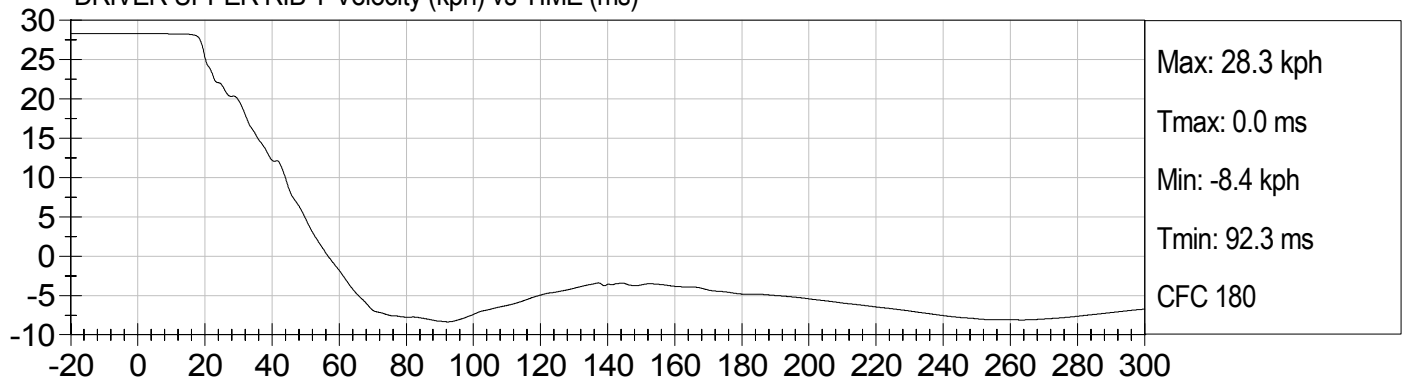
RIGID POLE SIDE IMPACT - FMVSS 201
2006 MAZDA 3 C65402

Test Date: 10/30/2006
Speed: 17.6 mph (28.3 km/h)

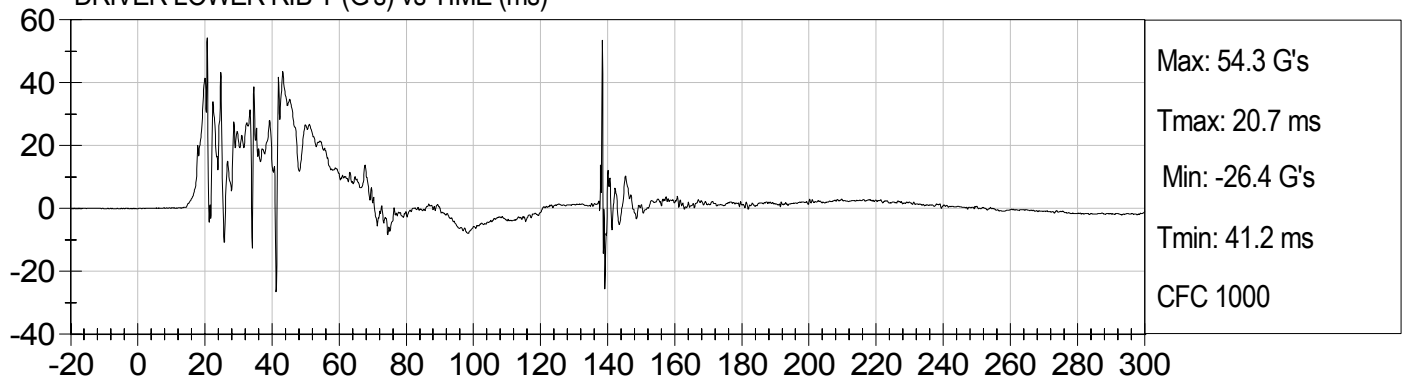
DRIVER UPPER RIB Y (G's) vs TIME (ms)



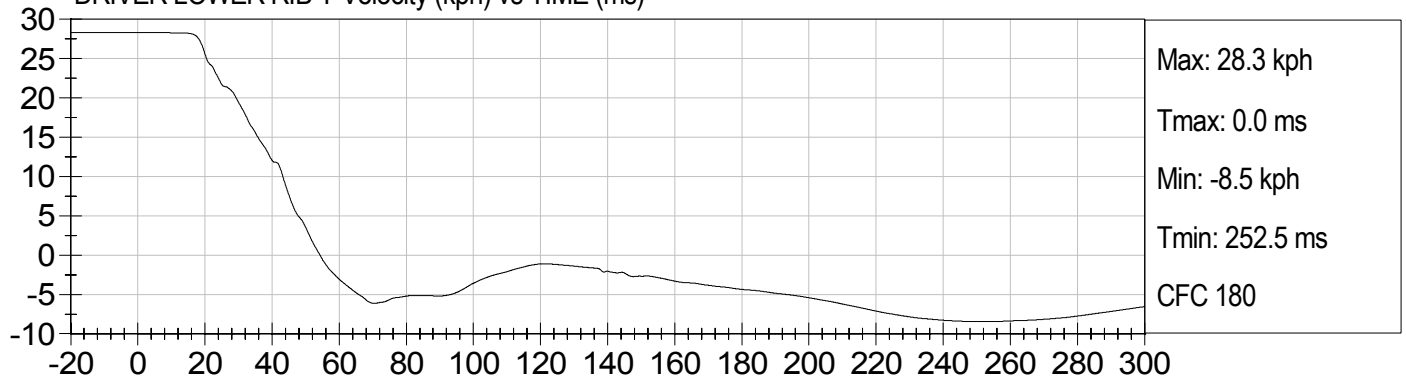
DRIVER UPPER RIB Y Velocity (kph) vs TIME (ms)



DRIVER LOWER RIB Y (G's) vs TIME (ms)



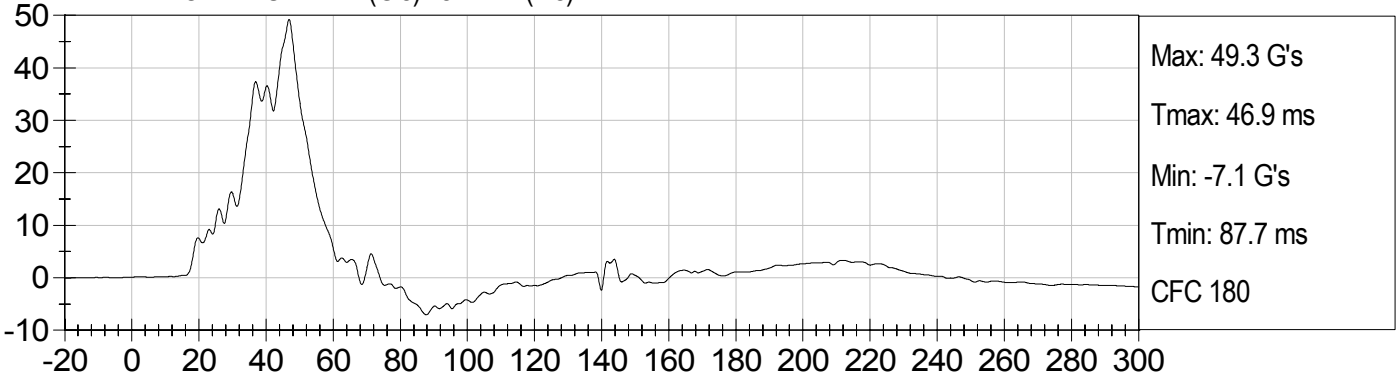
DRIVER LOWER RIB Y Velocity (kph) vs TIME (ms)



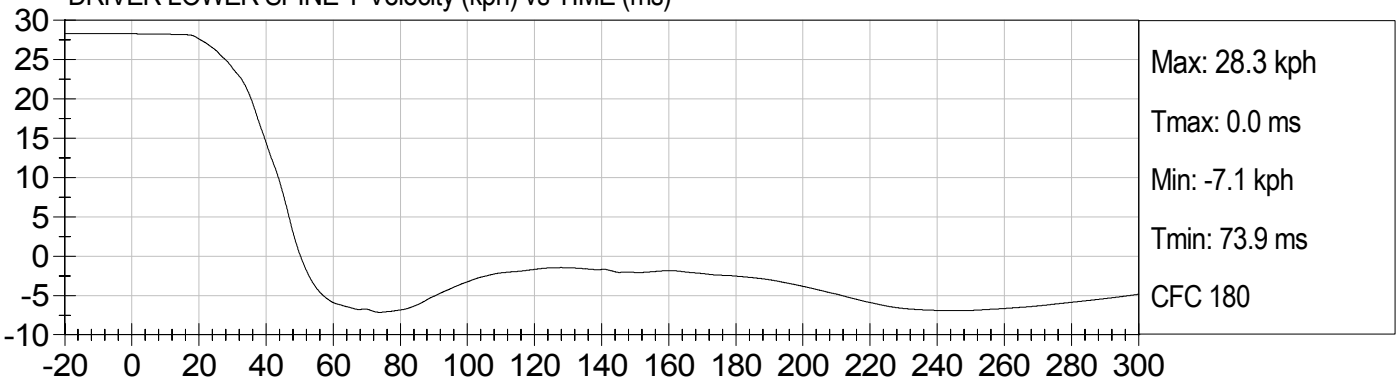
RIGID POLE SIDE IMPACT - FMVSS 201
2006 MAZDA 3 C65402

Test Date: 10/30/2006
Speed: 17.6 mph (28.3 km/h)

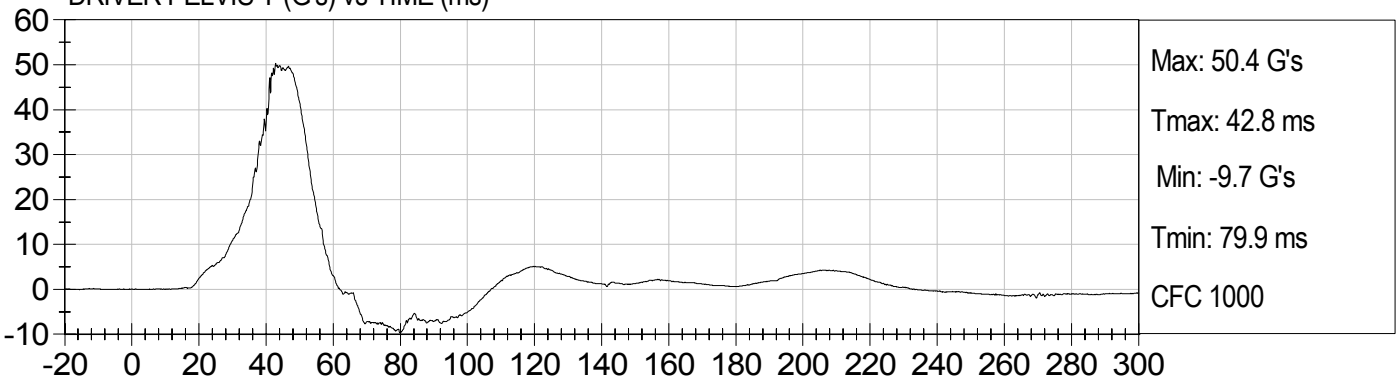
DRIVER LOWER SPINE Y (G's) vs TIME (ms)



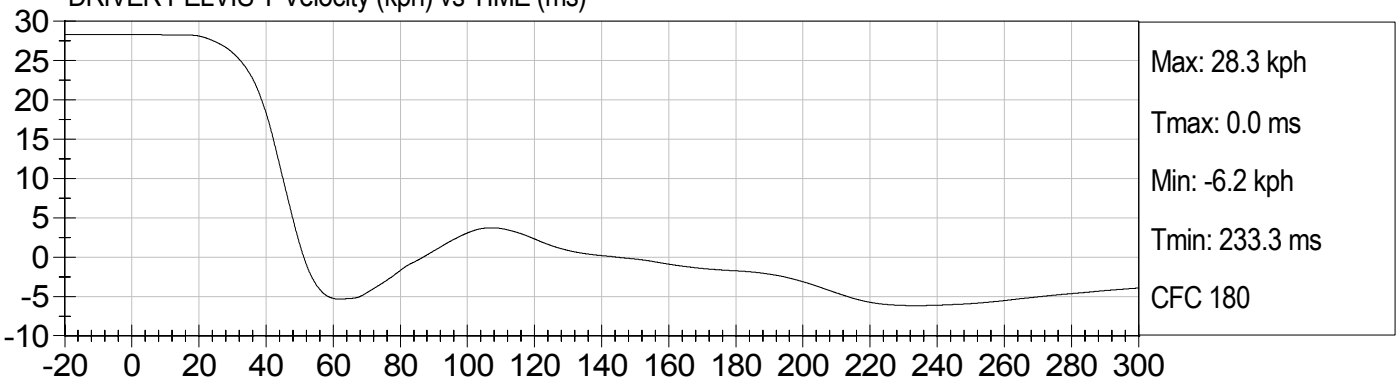
DRIVER LOWER SPINE Y Velocity (kph) vs TIME (ms)



DRIVER PELVIS Y (G's) vs TIME (ms)



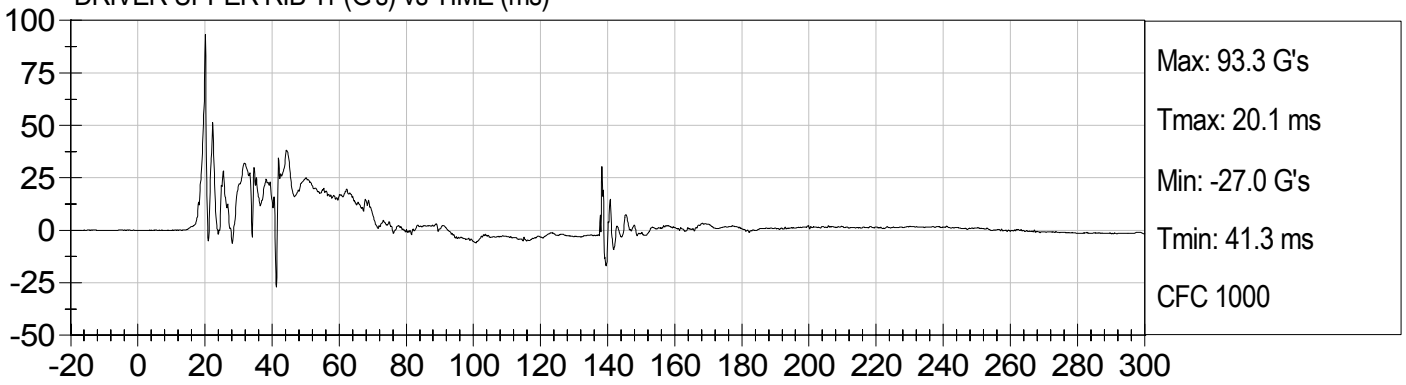
DRIVER PELVIS Y Velocity (kph) vs TIME (ms)



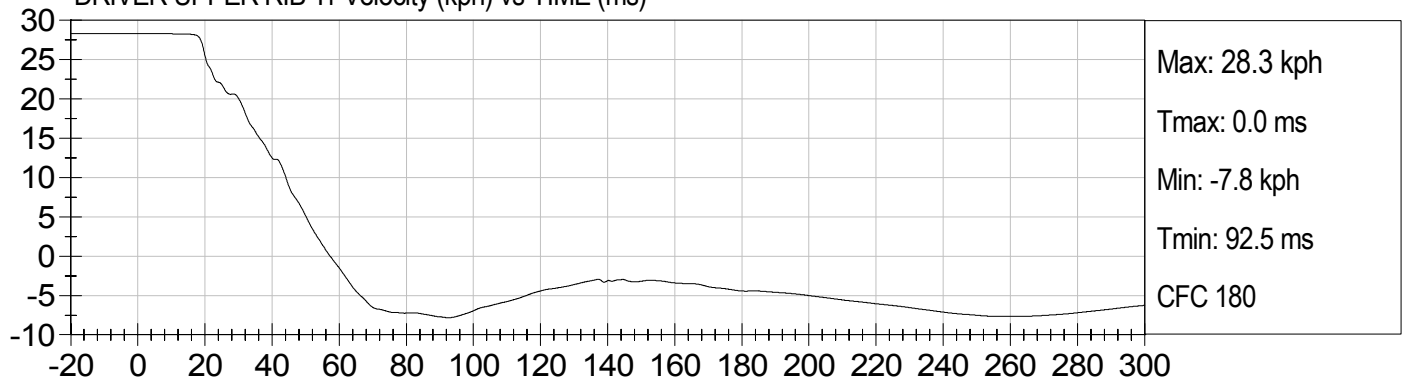
RIGID POLE SIDE IMPACT - FMVSS 201
2006 MAZDA 3 C65402

Test Date: 10/30/2006
Speed: 17.6 mph (28.3 km/h)

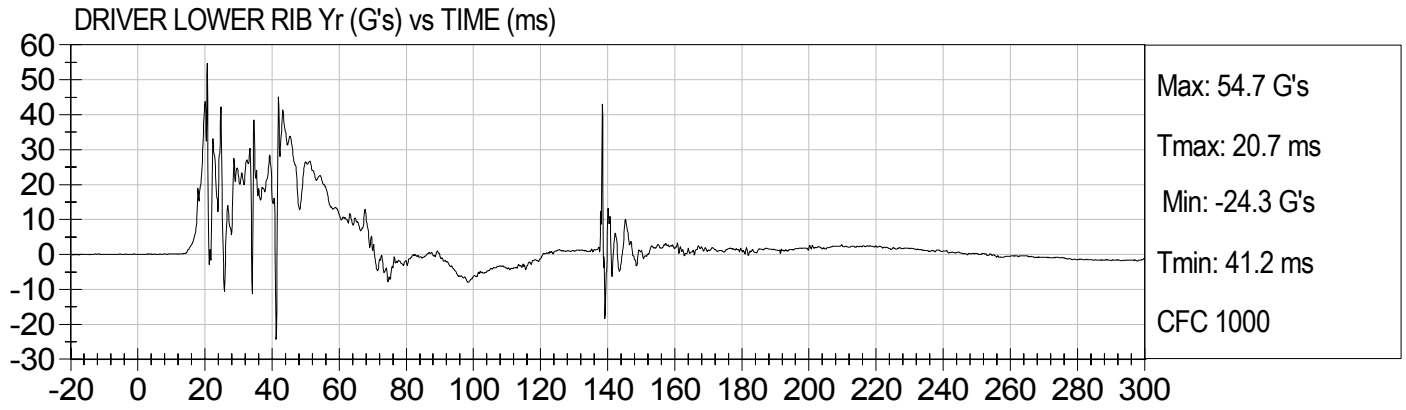
DRIVER UPPER RIB Yr (G's) vs TIME (ms)



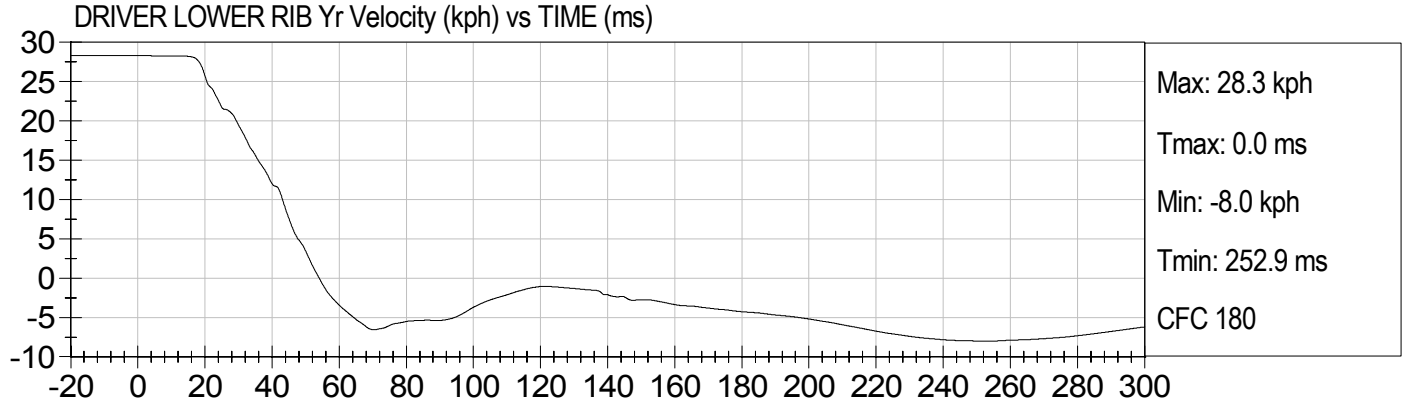
DRIVER UPPER RIB Yr Velocity (kph) vs TIME (ms)



DRIVER LOWER RIB Yr (G's) vs TIME (ms)



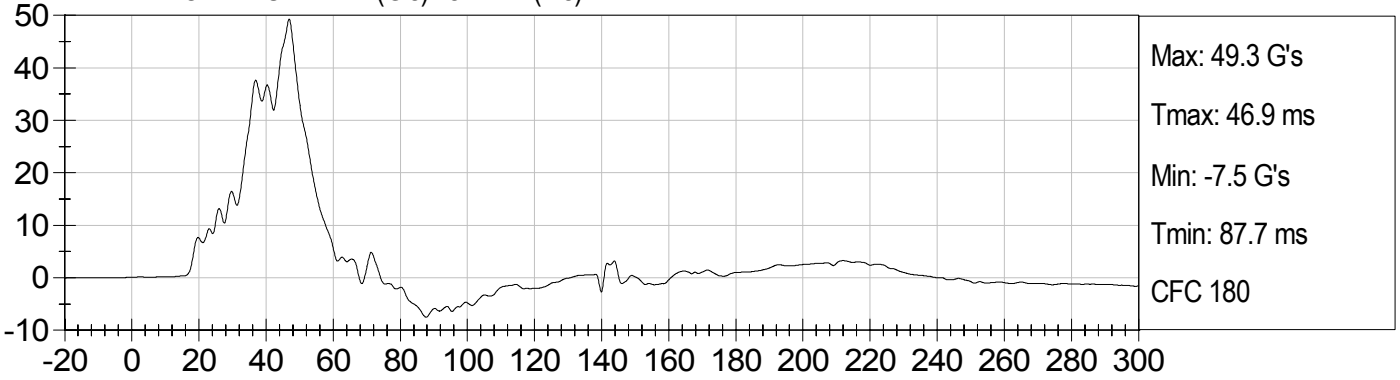
DRIVER LOWER RIB Yr Velocity (kph) vs TIME (ms)



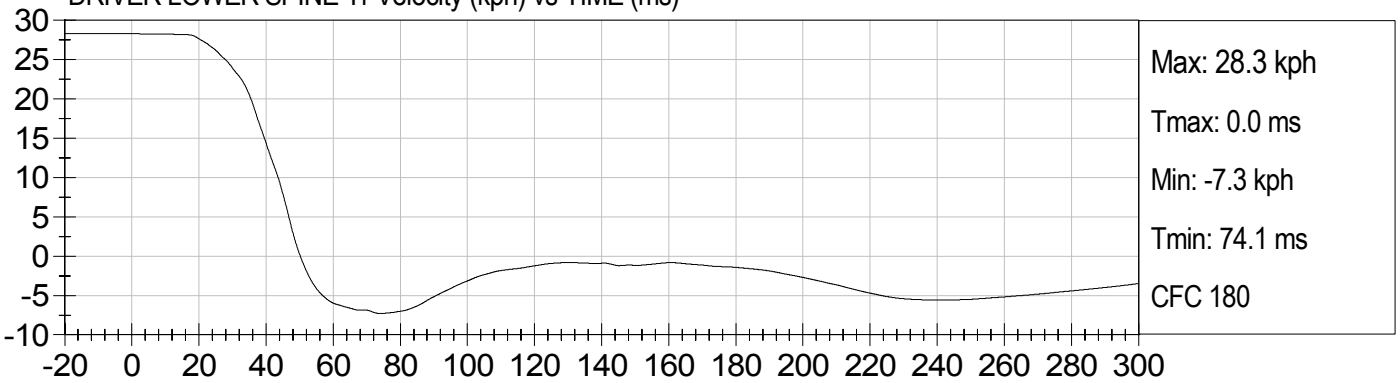
RIGID POLE SIDE IMPACT - FMVSS 201
2006 MAZDA 3 C65402

Test Date: 10/30/2006
Speed: 17.6 mph (28.3 km/h)

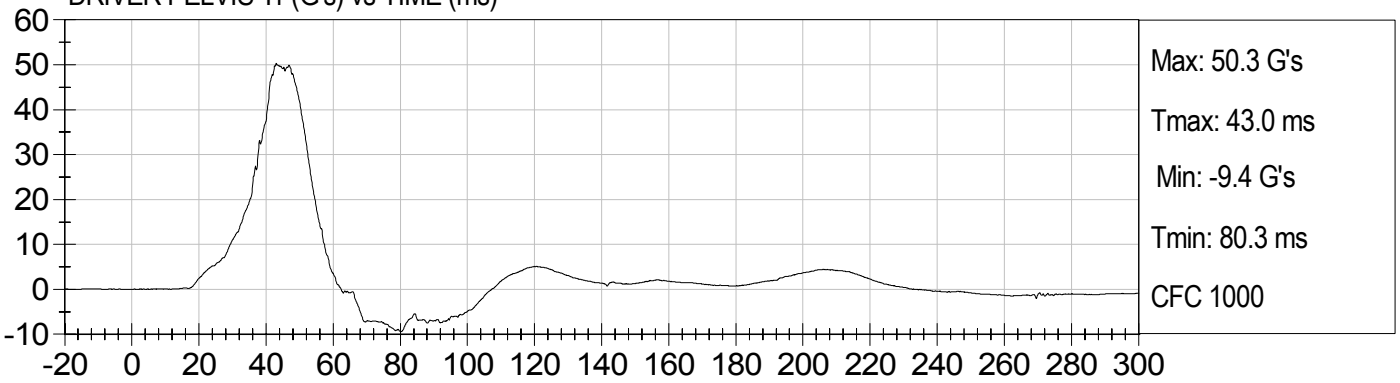
DRIVER LOWER SPINE Yr (G's) vs TIME (ms)



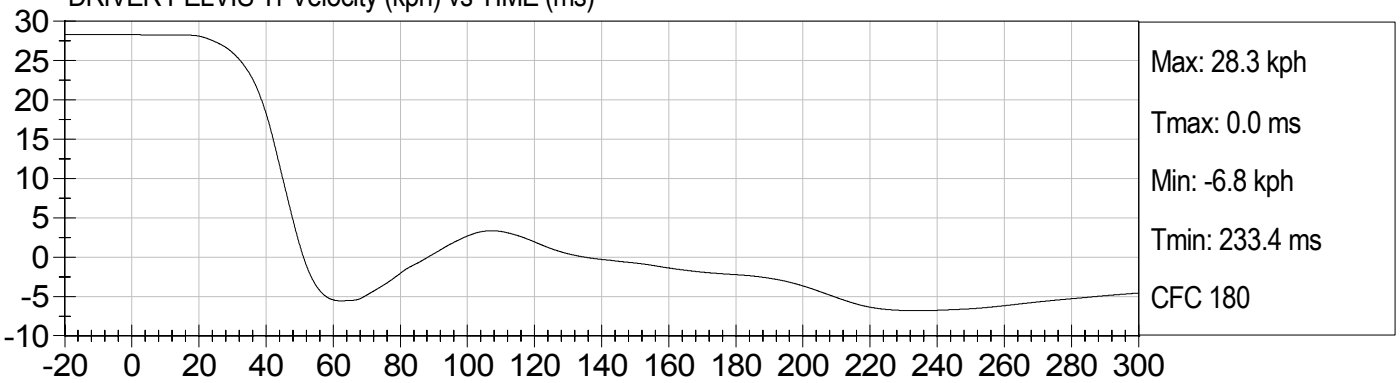
DRIVER LOWER SPINE Yr Velocity (kph) vs TIME (ms)



DRIVER PELVIS Yr (G's) vs TIME (ms)



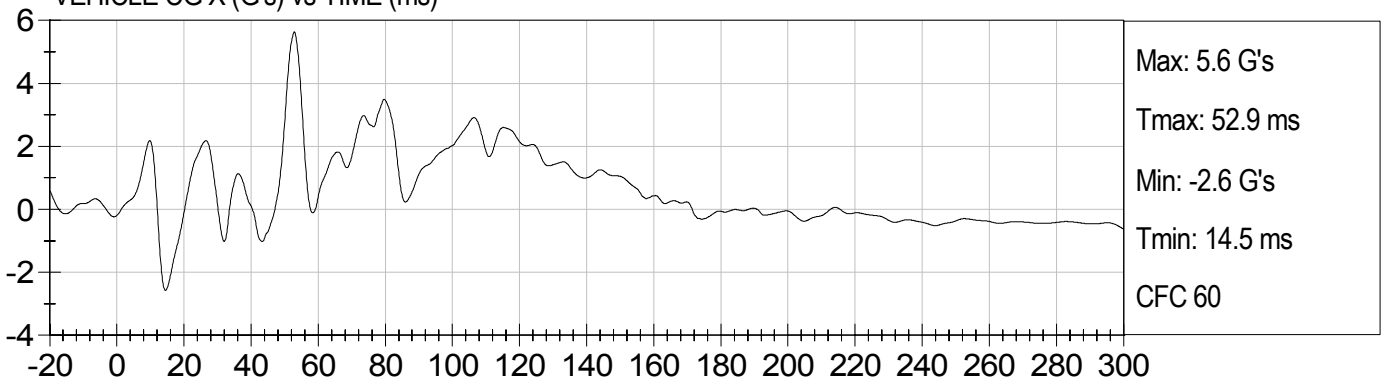
DRIVER PELVIS Yr Velocity (kph) vs TIME (ms)



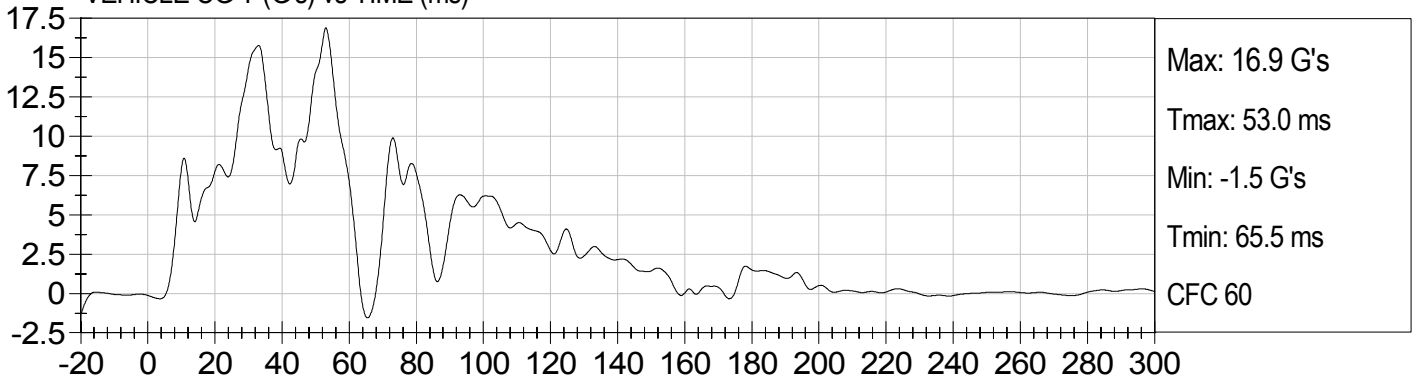
RIGID POLE SIDE IMPACT - FMVSS 201
2006 MAZDA 3 C65402

Test Date: 10/30/2006
Speed: 17.6 mph (28.3 km/h)

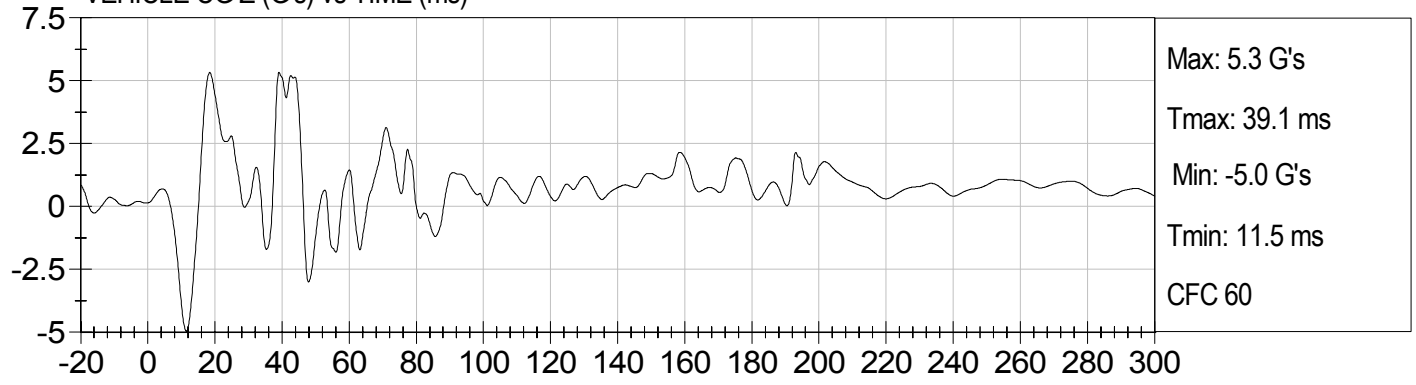
VEHICLE CG X (G's) vs TIME (ms)



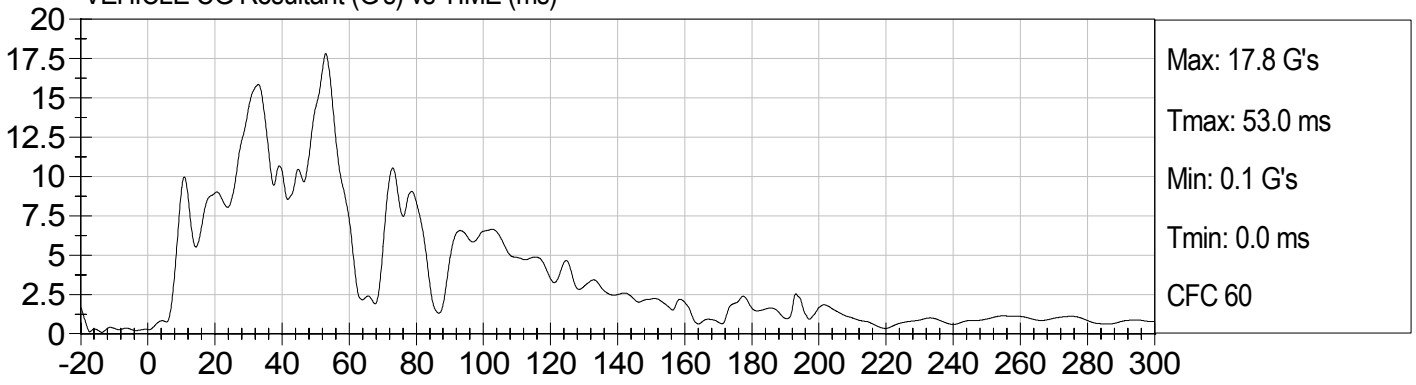
VEHICLE CG Y (G's) vs TIME (ms)

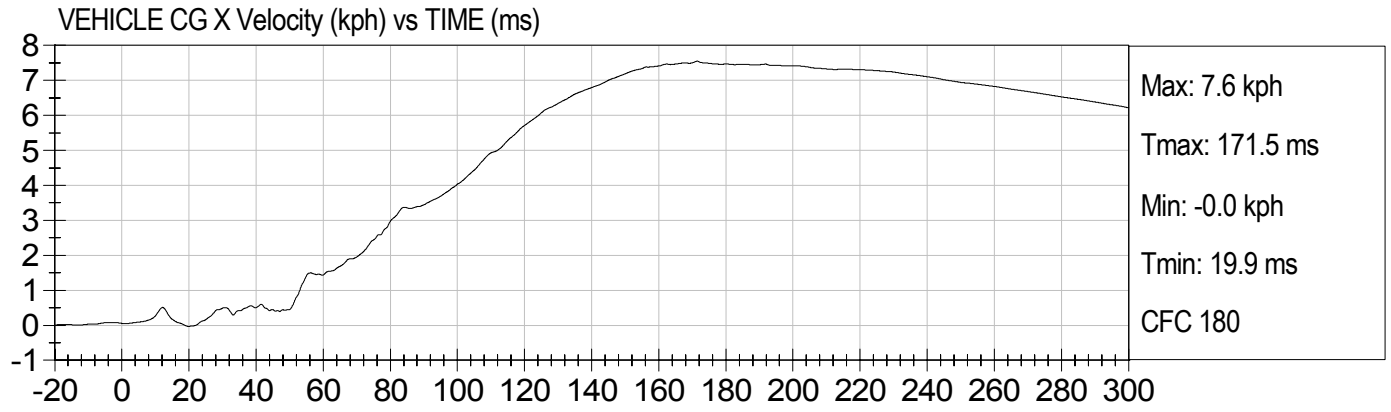


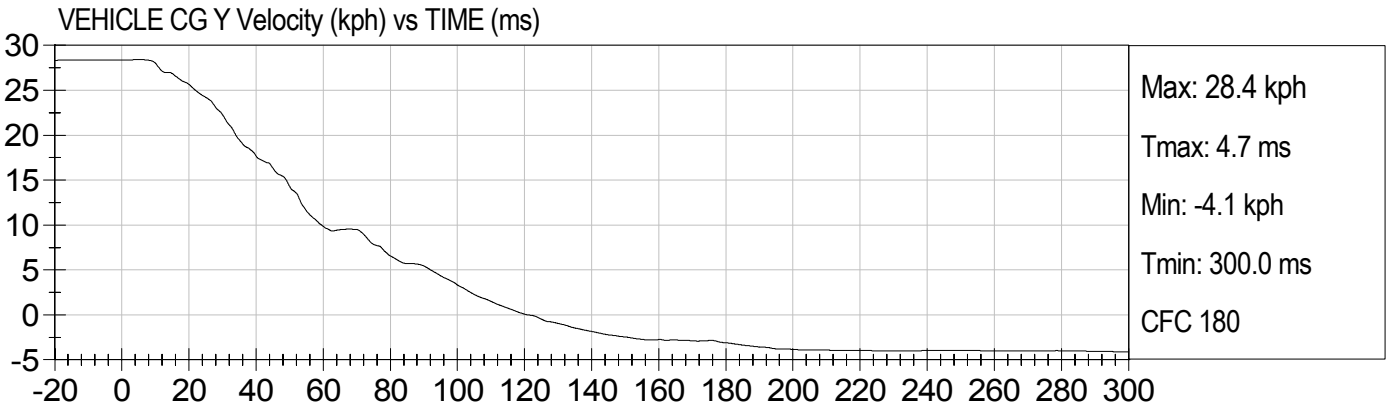
VEHICLE CG Z (G's) vs TIME (ms)

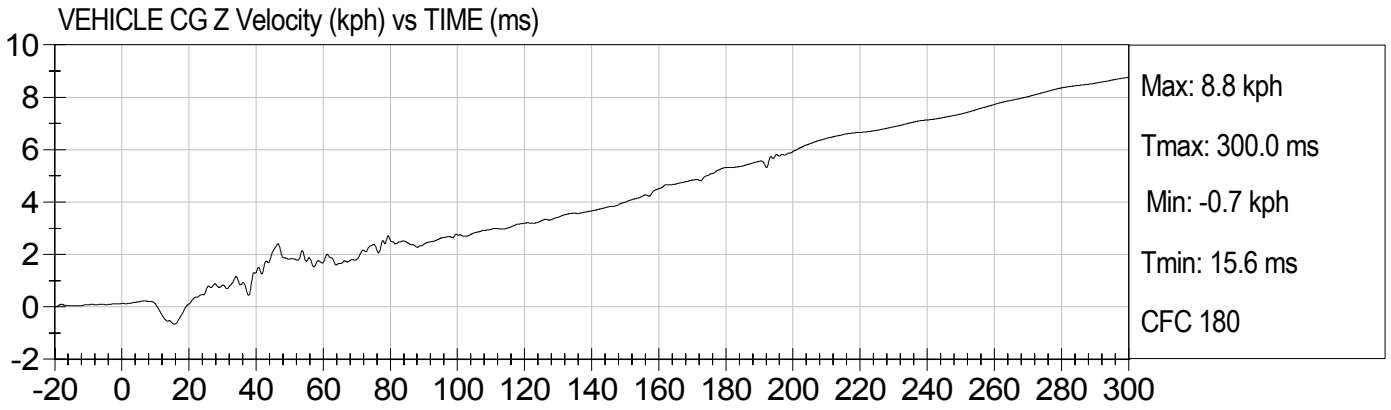


VEHICLE CG Resultant (G's) vs TIME (ms)




VEHICLE CG X Velocity (kph) vs TIME (ms)
Max: 7.6 kph
Tmax: 171.5 ms
Min: -0.0 kph
Tmin: 19.9 ms
CFC 180

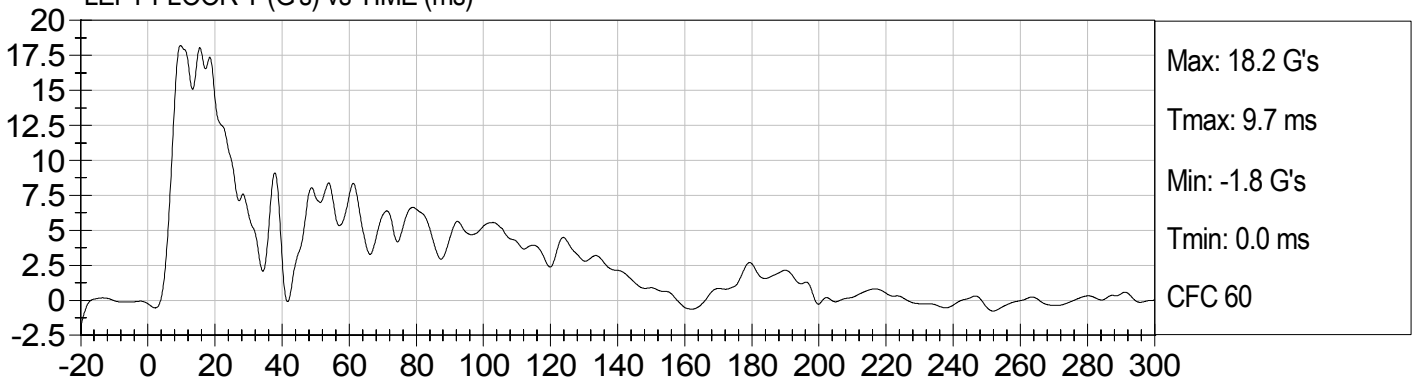

VEHICLE CG Y Velocity (kph) vs TIME (ms)
Max: 28.4 kph
Tmax: 4.7 ms
Min: -4.1 kph
Tmin: 300.0 ms
CFC 180


VEHICLE CG Z Velocity (kph) vs TIME (ms)
Max: 8.8 kph
Tmax: 300.0 ms
Min: -0.7 kph
Tmin: 15.6 ms
CFC 180

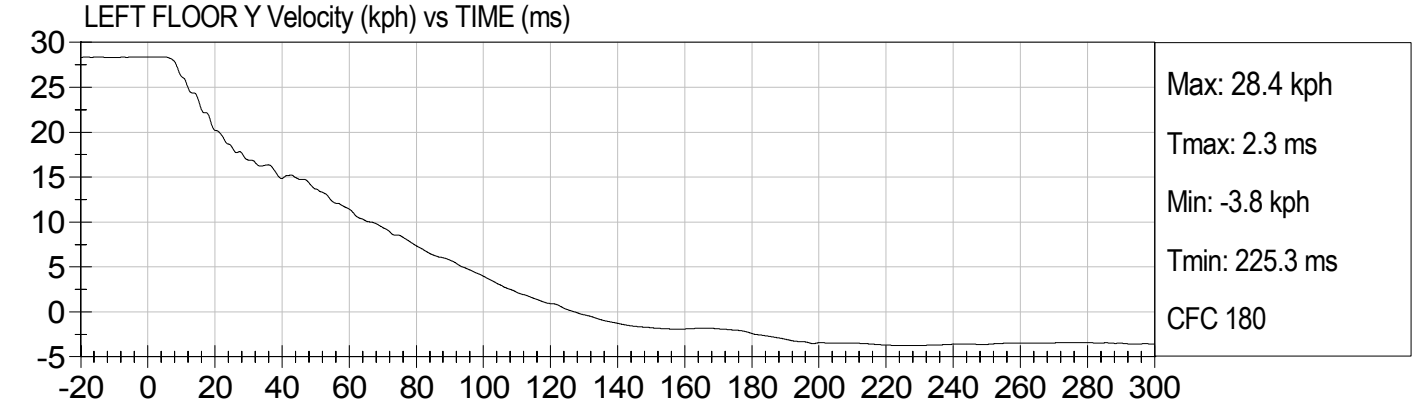
RIGID POLE SIDE IMPACT - FMVSS 201
2006 MAZDA 3 C65402

Test Date: 10/30/2006
Speed: 17.6 mph (28.3 km/h)

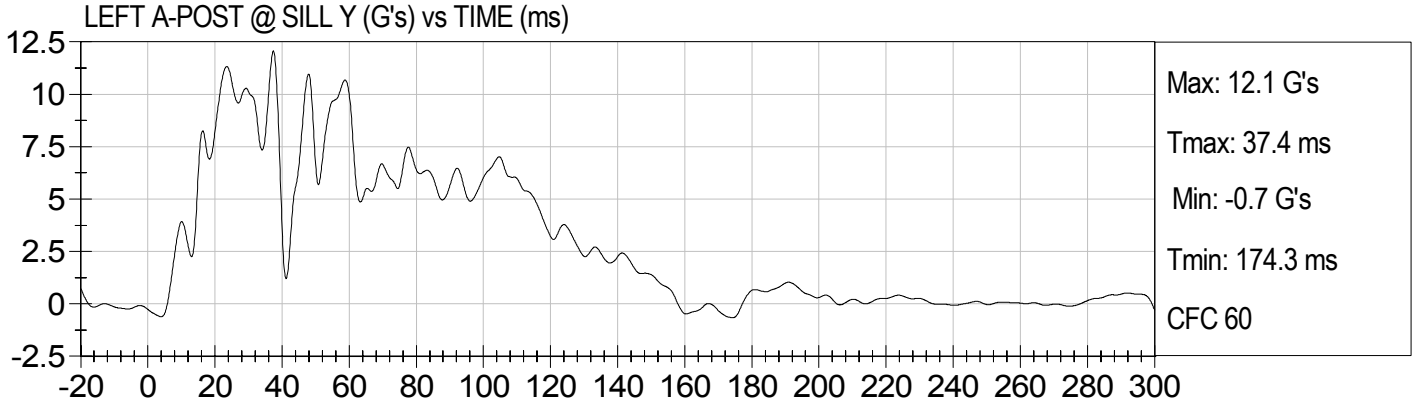
LEFT FLOOR Y (G's) vs TIME (ms)



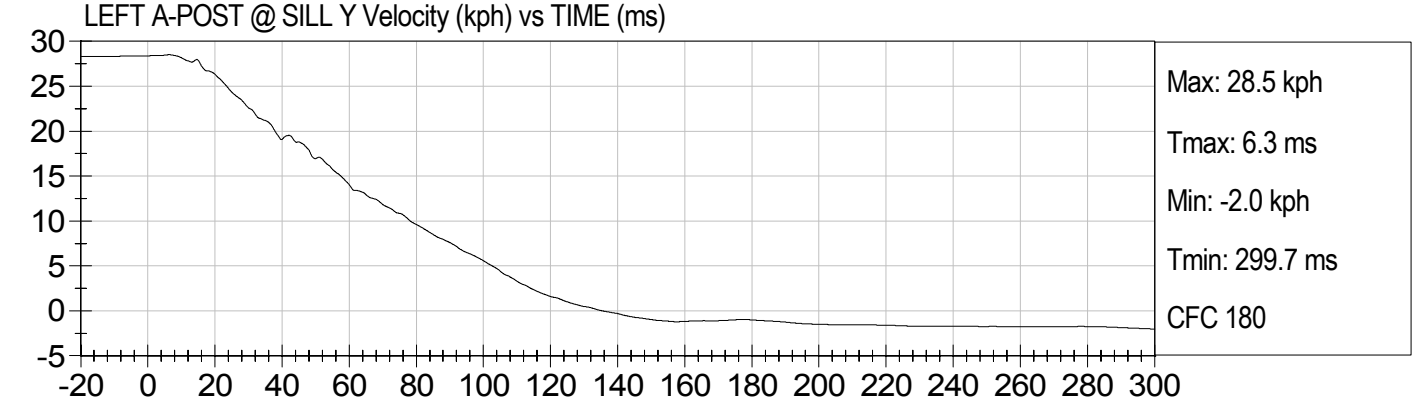
LEFT FLOOR Y Velocity (kph) vs TIME (ms)



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



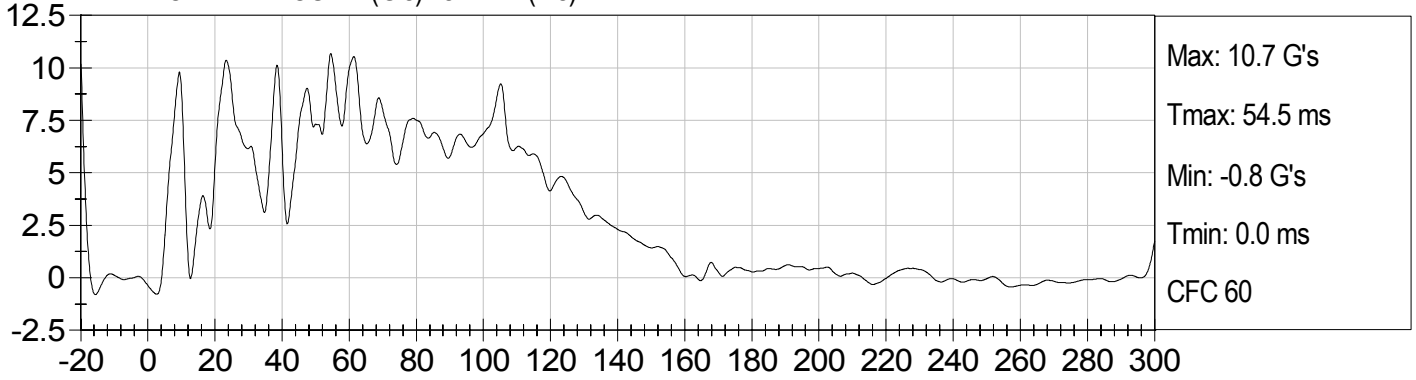
LEFT A-POST @ SILL Y Velocity (kph) vs TIME (ms)



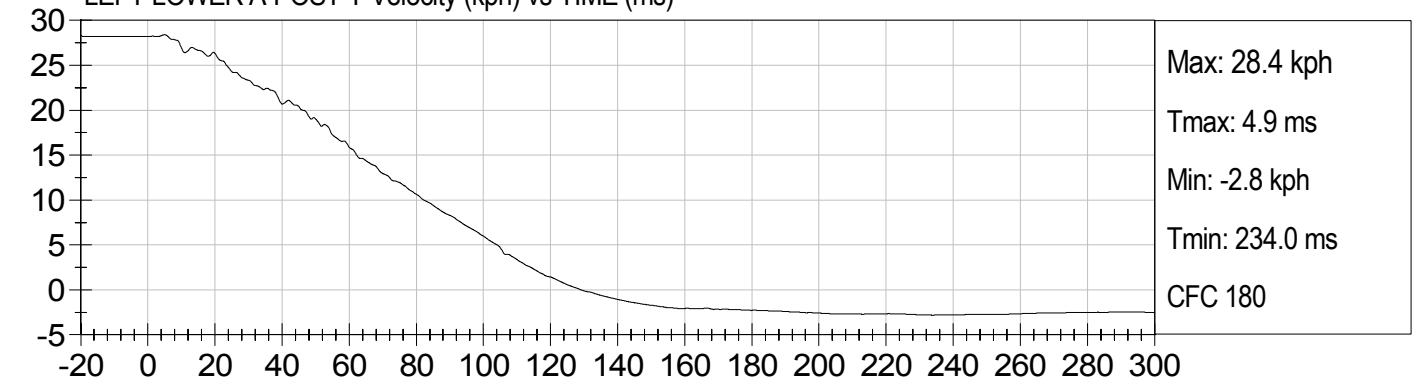
RIGID POLE SIDE IMPACT - FMVSS 201
2006 MAZDA 3 C65402

Test Date: 10/30/2006
Speed: 17.6 mph (28.3 km/h)

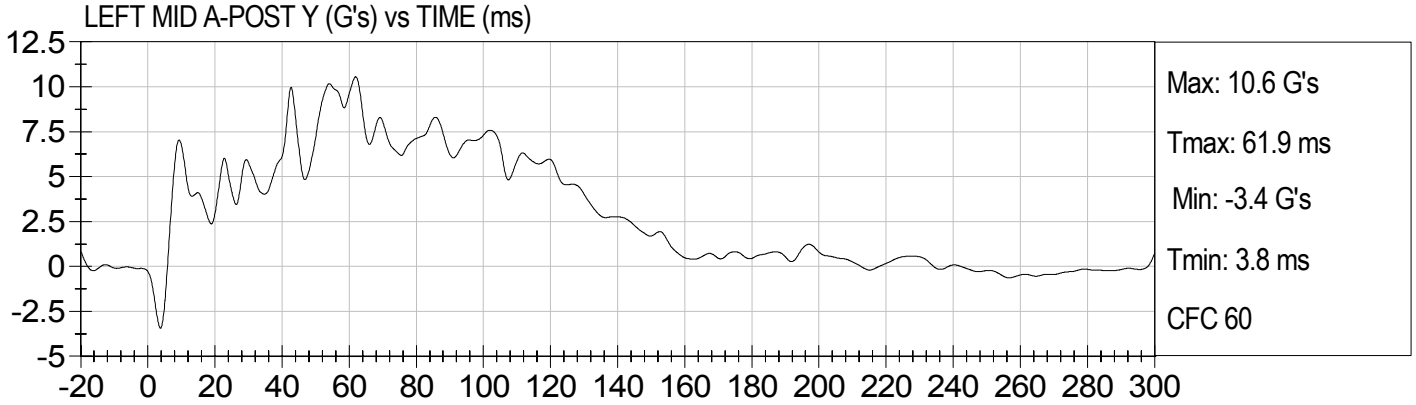
LEFT LOWER A-POST Y (G's) vs TIME (ms)



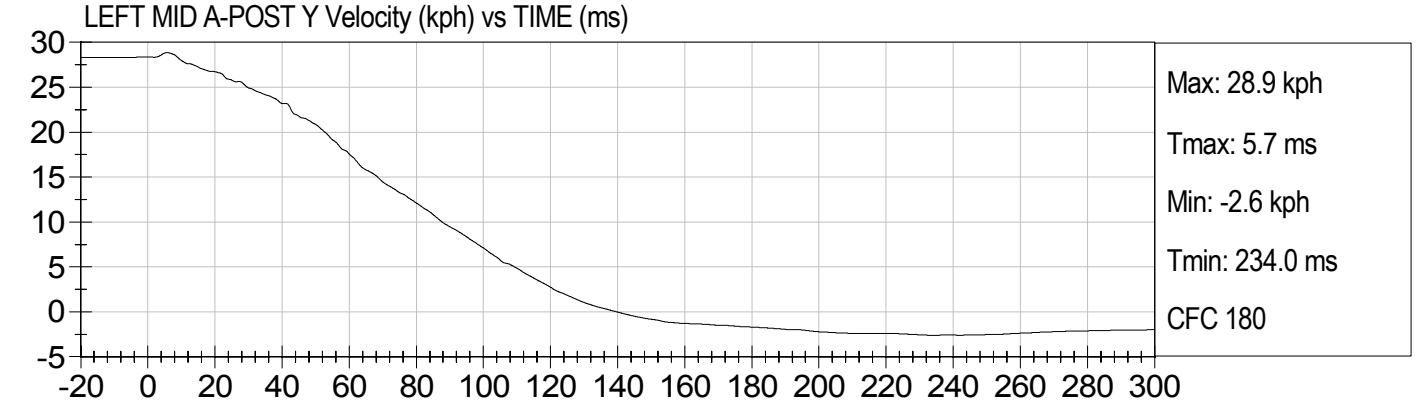
LEFT LOWER A-POST Y Velocity (kph) vs TIME (ms)



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



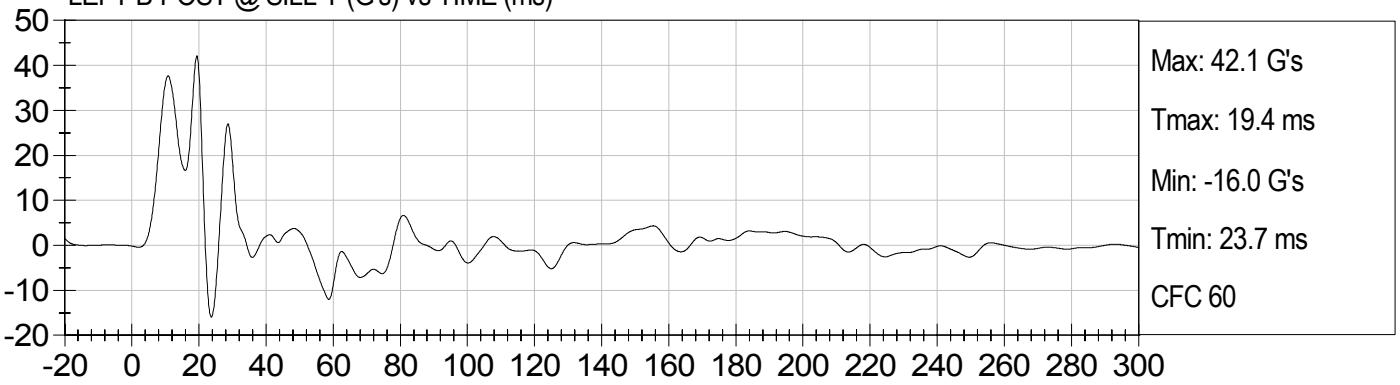
LEFT MID A-POST Y Velocity (kph) vs TIME (ms)



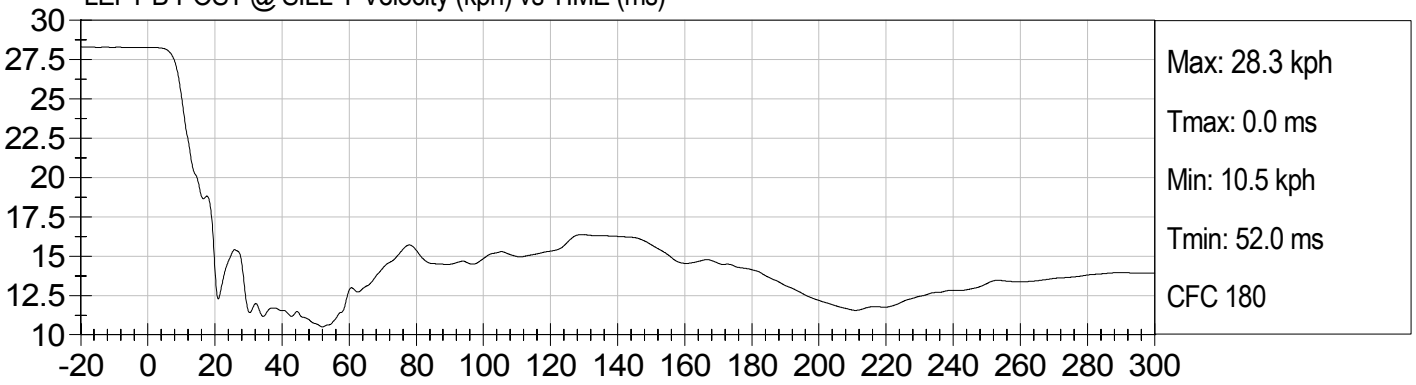
RIGID POLE SIDE IMPACT - FMVSS 201
2006 MAZDA 3 C65402

Test Date: 10/30/2006
Speed: 17.6 mph (28.3 km/h)

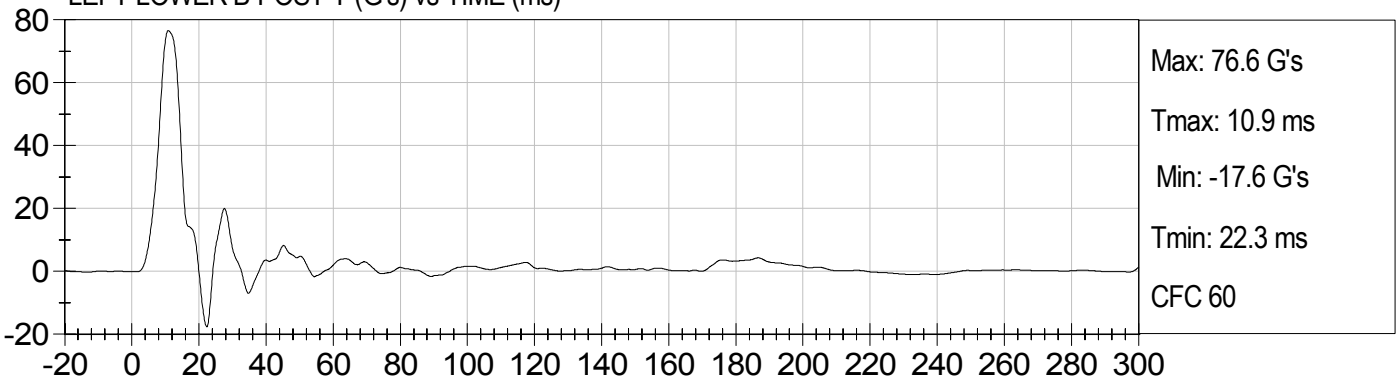
LEFT B-POST @ SILL Y (G's) vs TIME (ms)



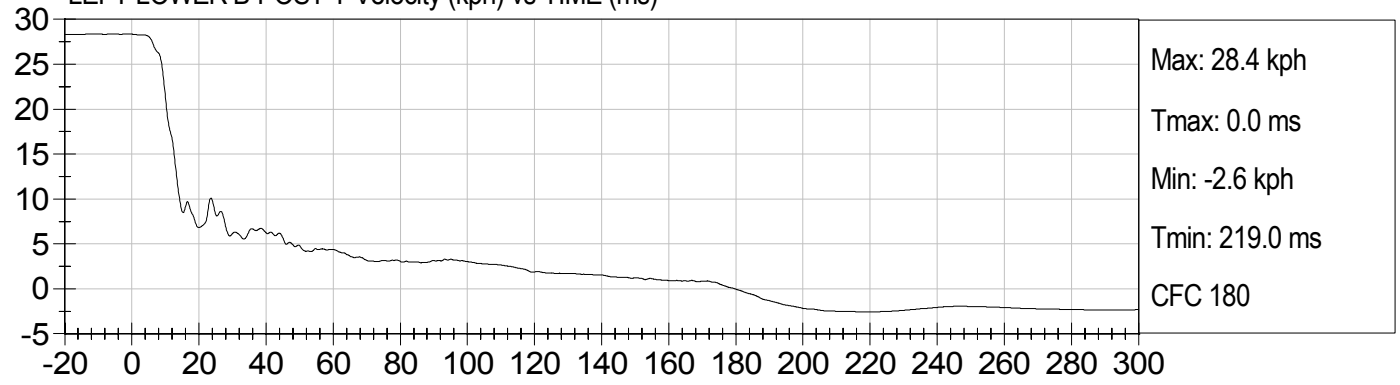
LEFT B-POST @ SILL Y Velocity (kph) vs TIME (ms)



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



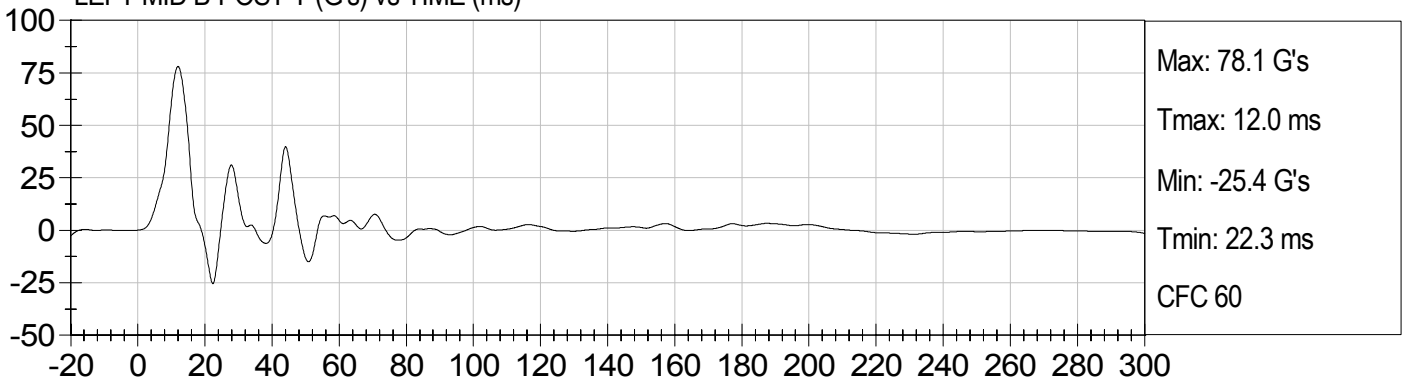
LEFT LOWER B-POST Y Velocity (kph) vs TIME (ms)



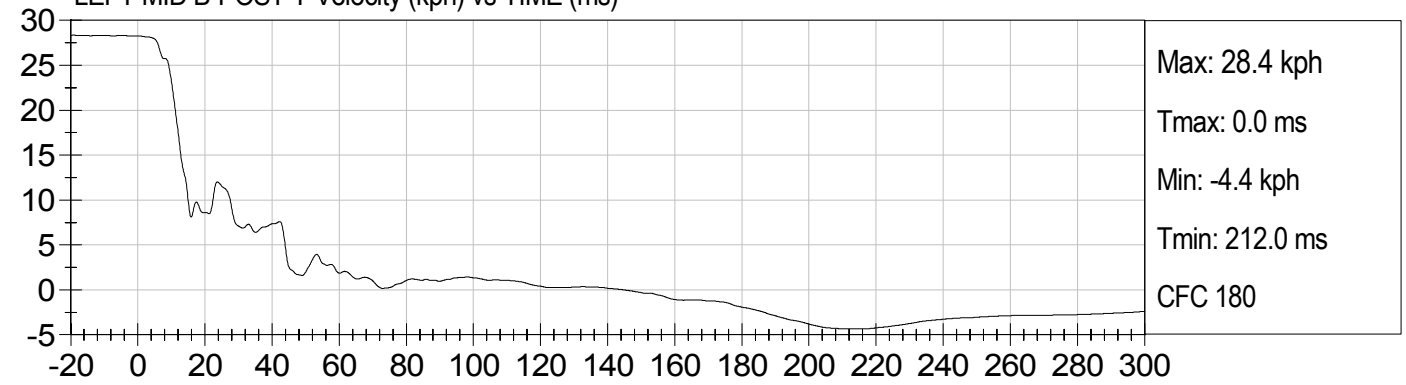
RIGID POLE SIDE IMPACT - FMVSS 201
2006 MAZDA 3 C65402

Test Date: 10/30/2006
Speed: 17.6 mph (28.3 km/h)

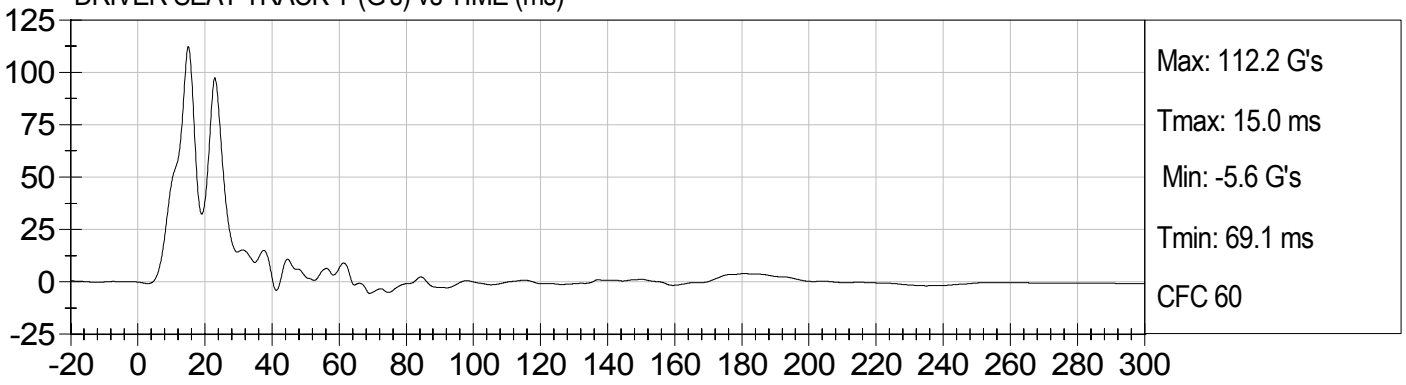
LEFT MID B-POST Y (G's) vs TIME (ms)



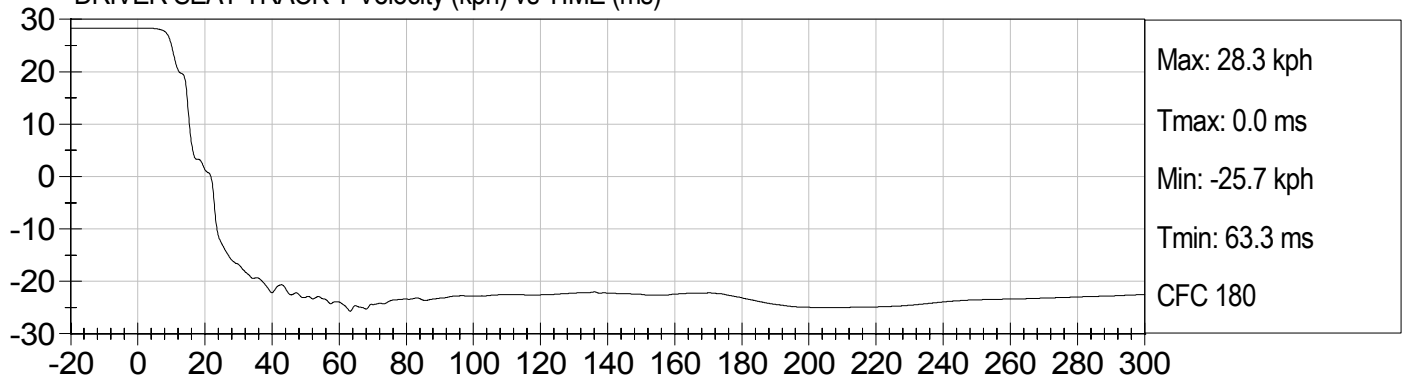
LEFT MID B-POST Y Velocity (kph) vs TIME (ms)



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

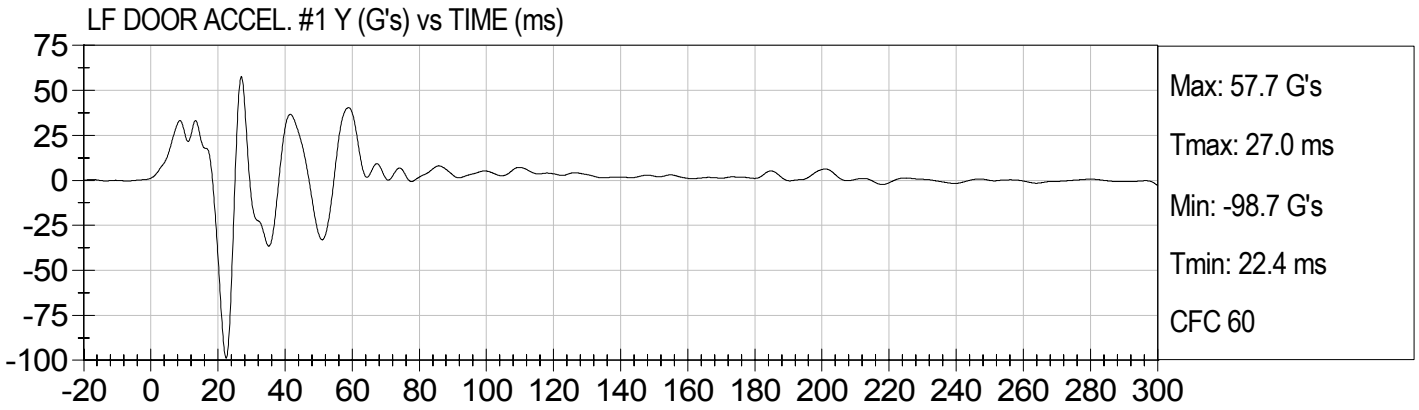


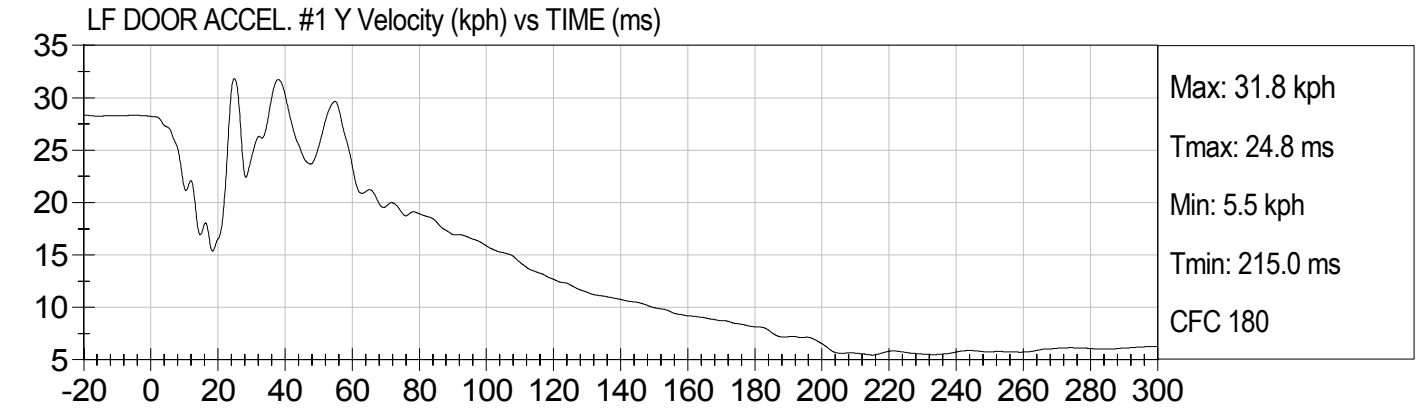
DRIVER SEAT TRACK Y Velocity (kph) vs TIME (ms)



RIGID POLE SIDE IMPACT - FMVSS 201
2006 MAZDA 3 C65402

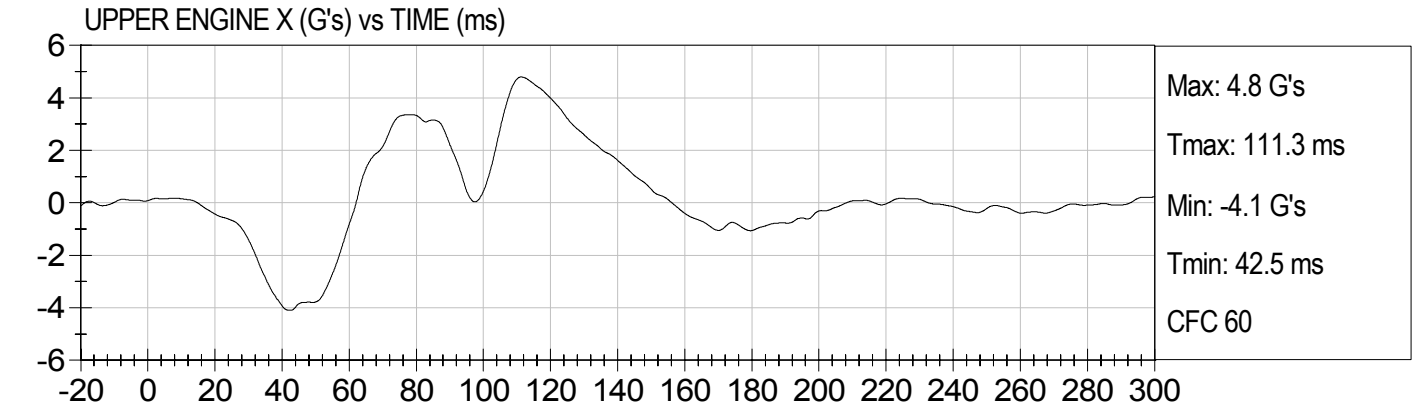
Test Date: 10/30/2006
Speed: 17.6 mph (28.3 km/h)

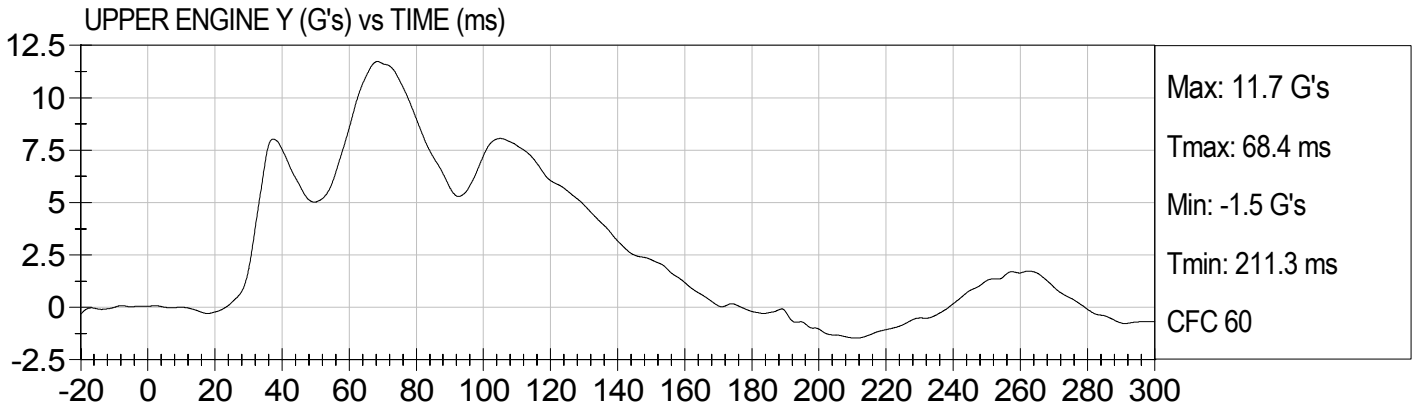


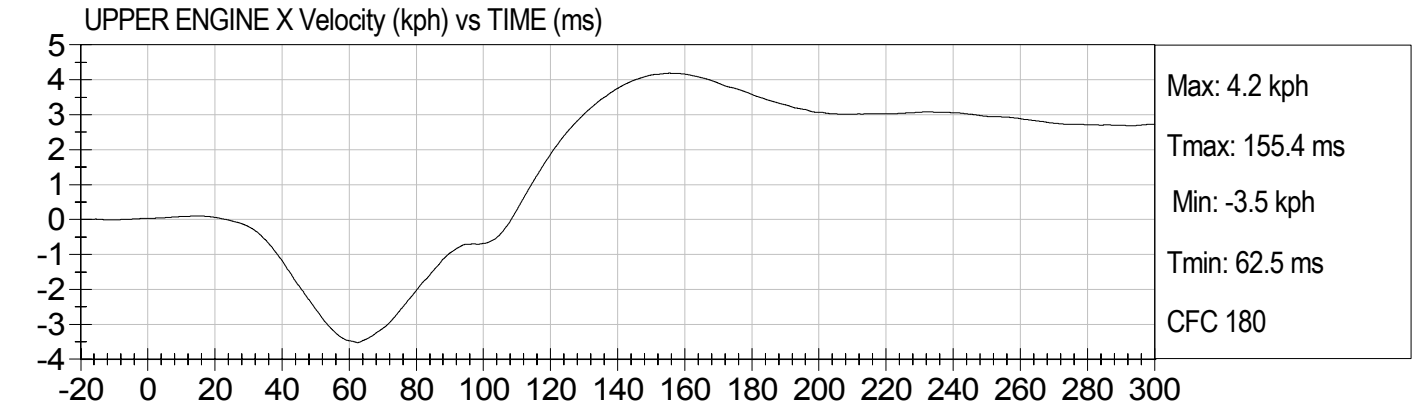


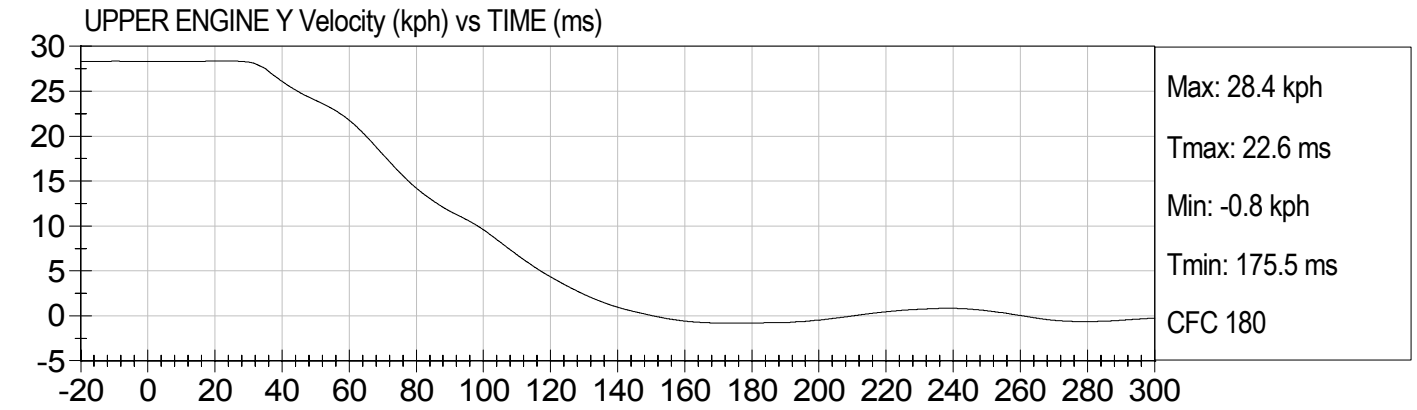
RIGID POLE SIDE IMPACT - FMVSS 201
2006 MAZDA 3 C65402

Test Date: 10/30/2006
Speed: 17.6 mph (28.3 km/h)





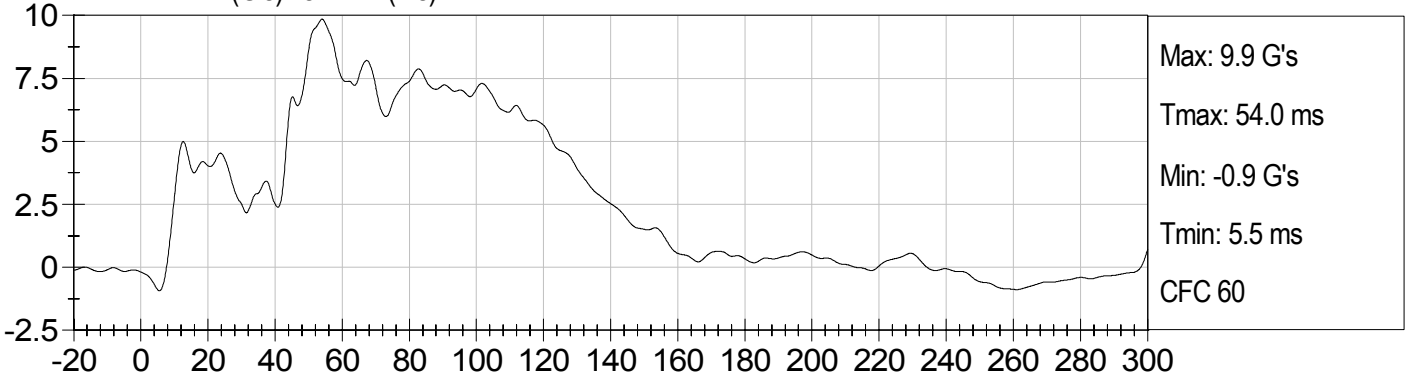




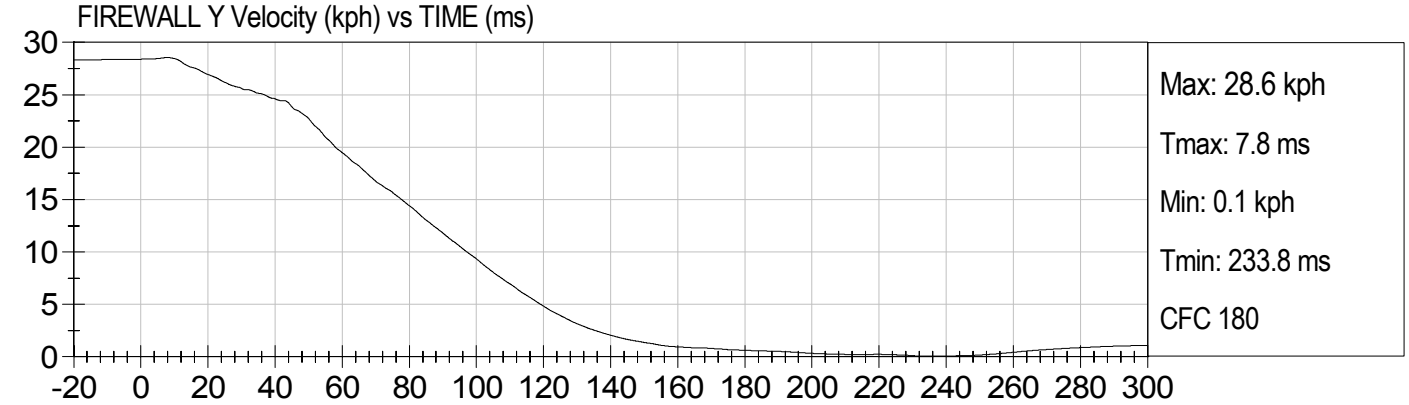
RIGID POLE SIDE IMPACT - FMVSS 201
2006 MAZDA 3 C65402

Test Date: 10/30/2006
Speed: 17.6 mph (28.3 km/h)

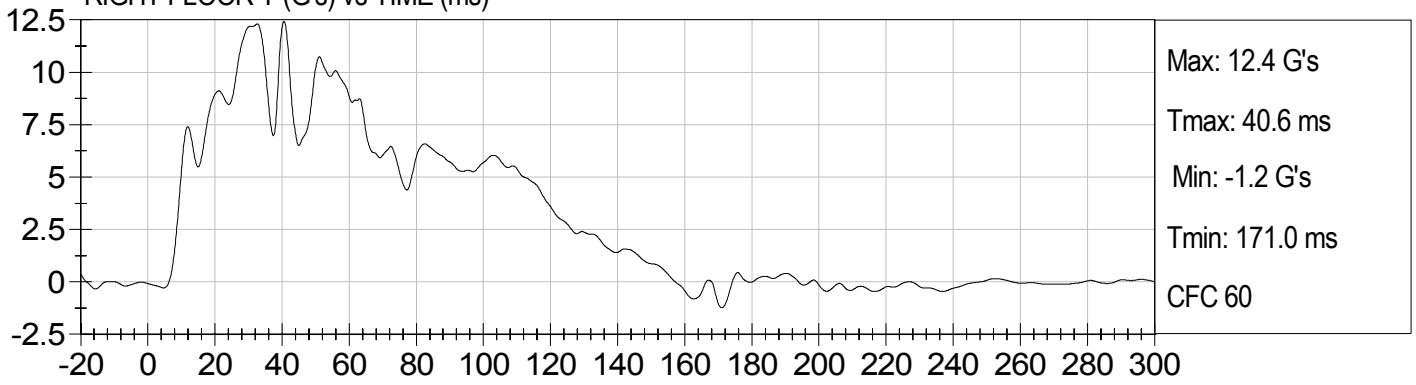
FIREWALL Y (G's) vs TIME (ms)



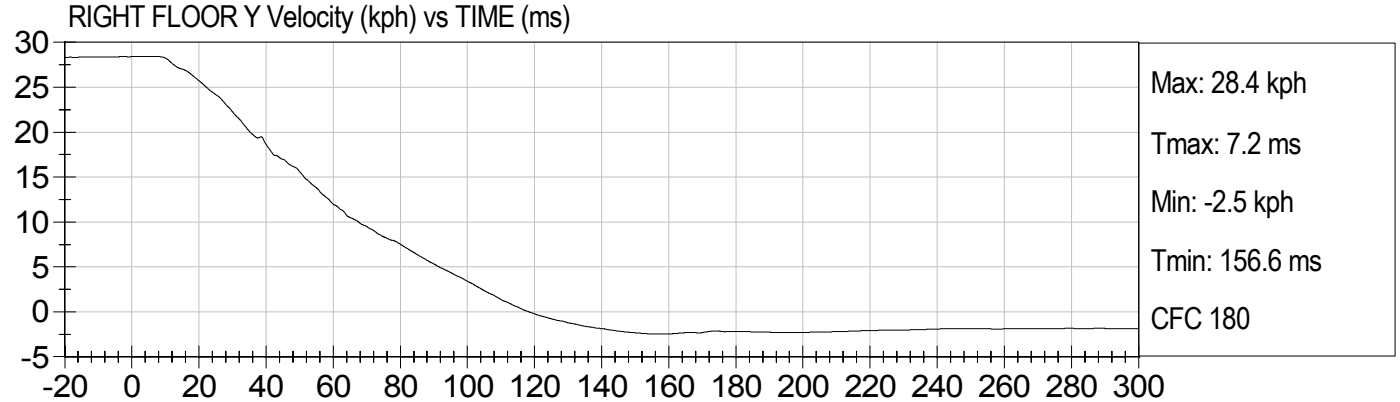
FIREWALL Y Velocity (kph) vs TIME (ms)



RIGHT FLOOR Y (G's) vs TIME (ms)



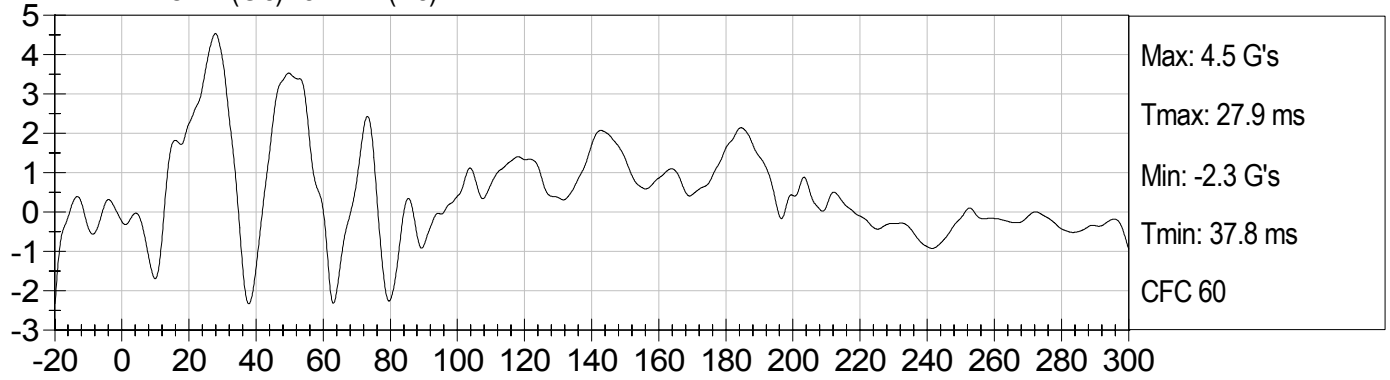
RIGHT FLOOR Y Velocity (kph) vs TIME (ms)



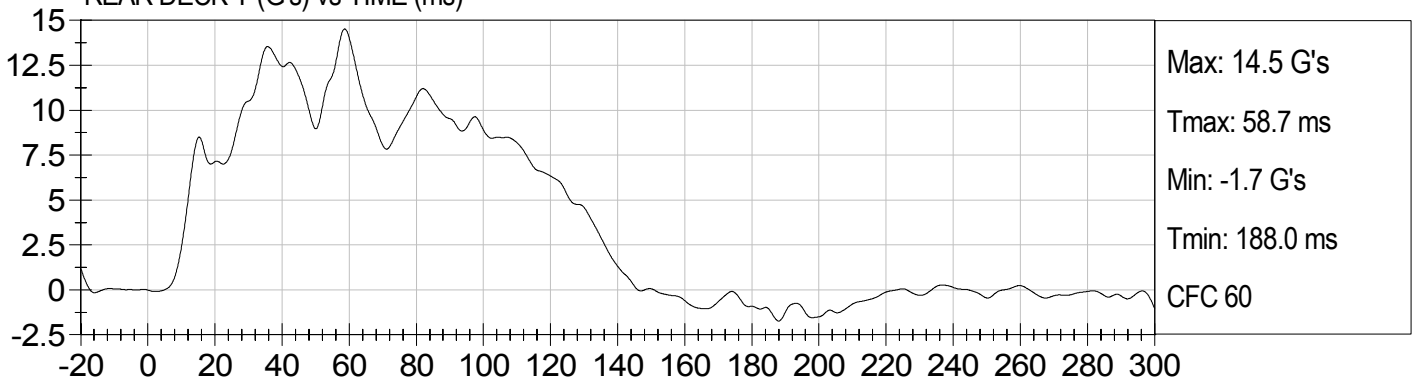
RIGID POLE SIDE IMPACT - FMVSS 201
2006 MAZDA 3 C65402

Test Date: 10/30/2006
Speed: 17.6 mph (28.3 km/h)

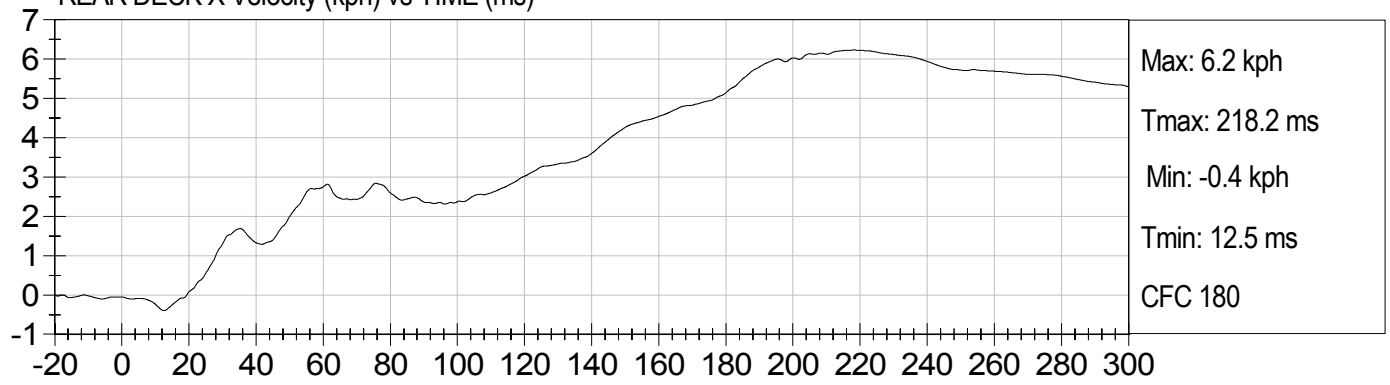
REAR DECK X (G's) vs TIME (ms)



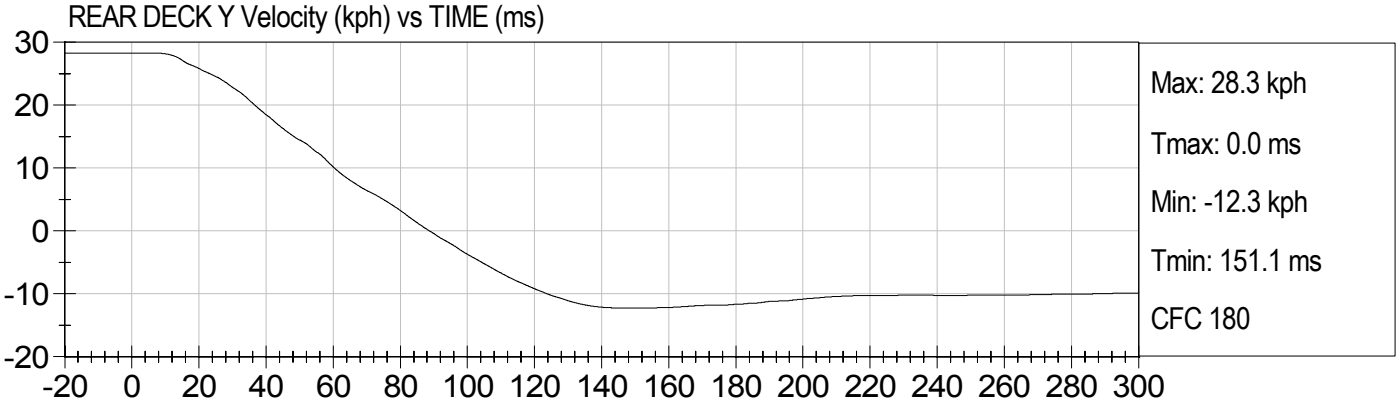
REAR DECK Y (G's) vs TIME (ms)



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



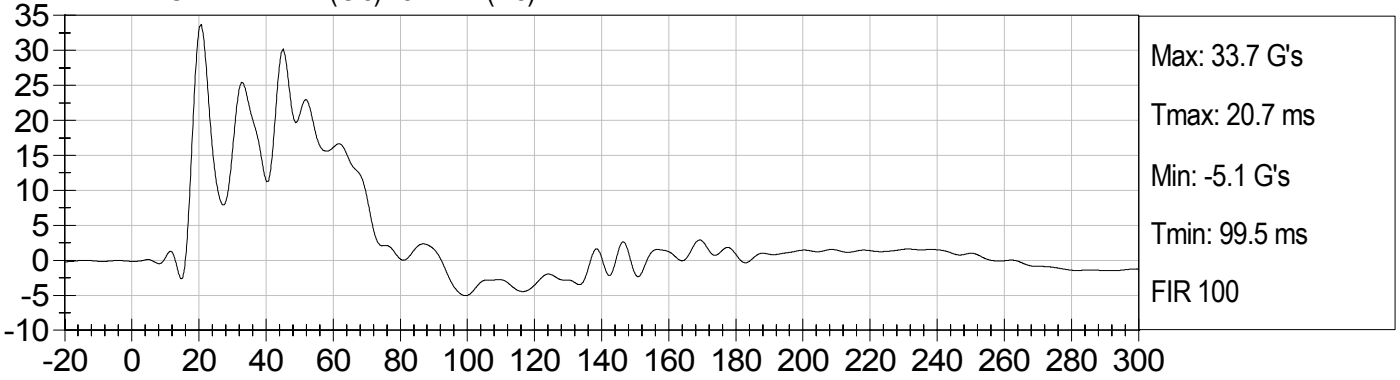
REAR DECK Y Velocity (kph) vs TIME (ms)



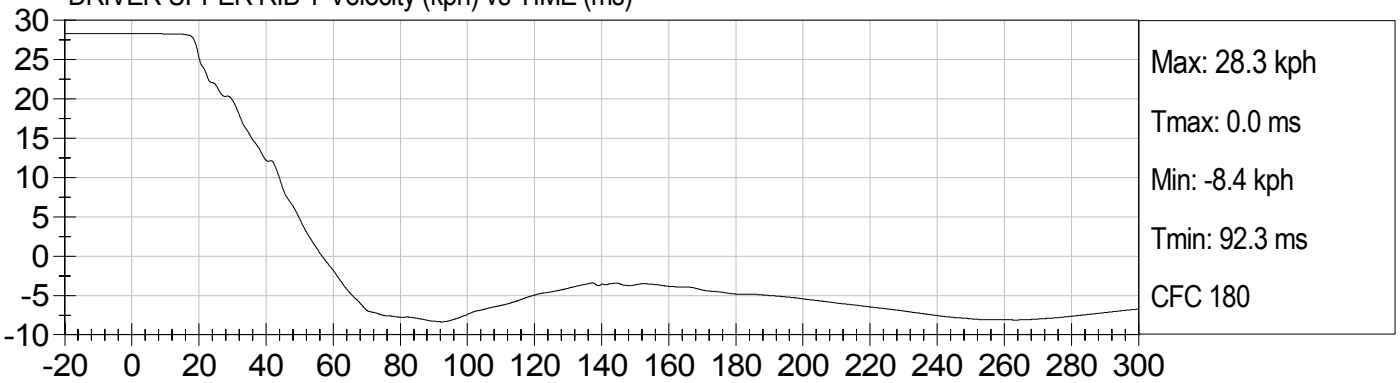
RIGID POLE SIDE IMPACT - FMVSS 201
2006 MAZDA 3 C65402

Test Date: 10/30/2006
Speed: 17.6 mph (28.3 km/h)

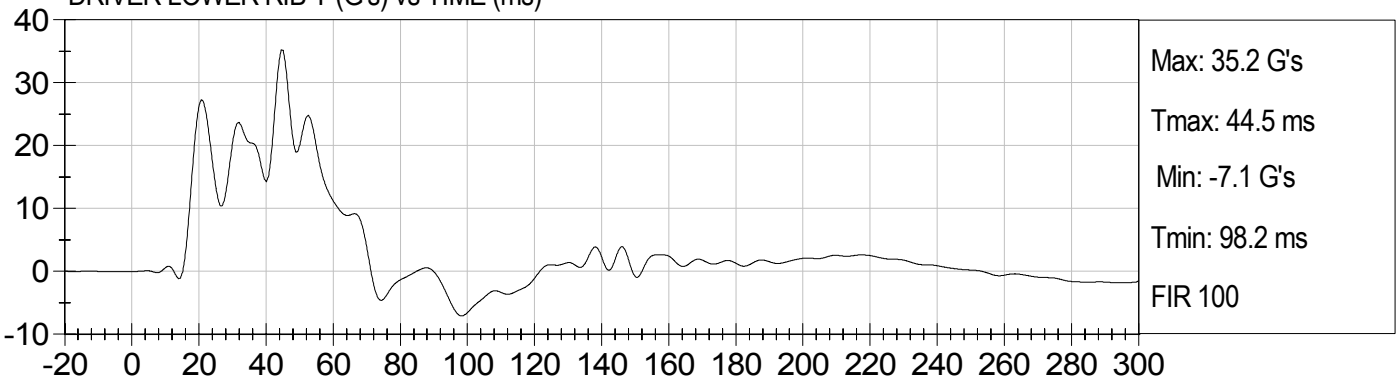
DRIVER UPPER RIB Y (G's) vs TIME (ms)



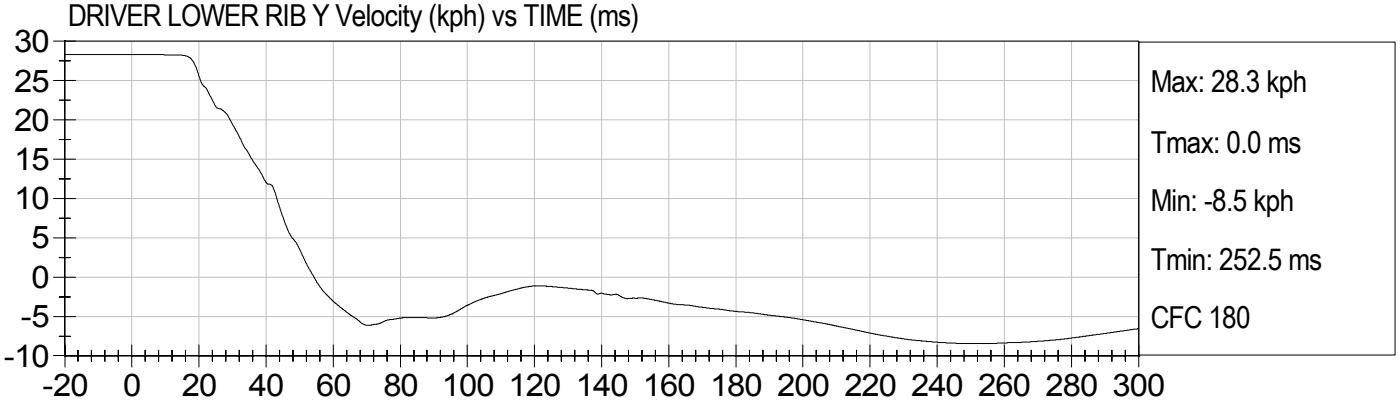
DRIVER UPPER RIB Y Velocity (kph) vs TIME (ms)



DRIVER LOWER RIB Y (G's) vs TIME (ms)



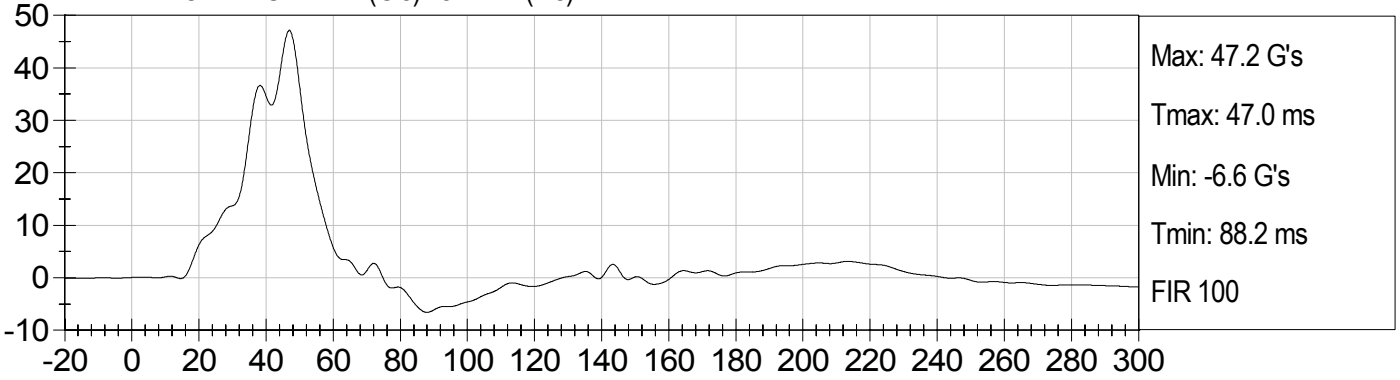
DRIVER LOWER RIB Y Velocity (kph) vs TIME (ms)



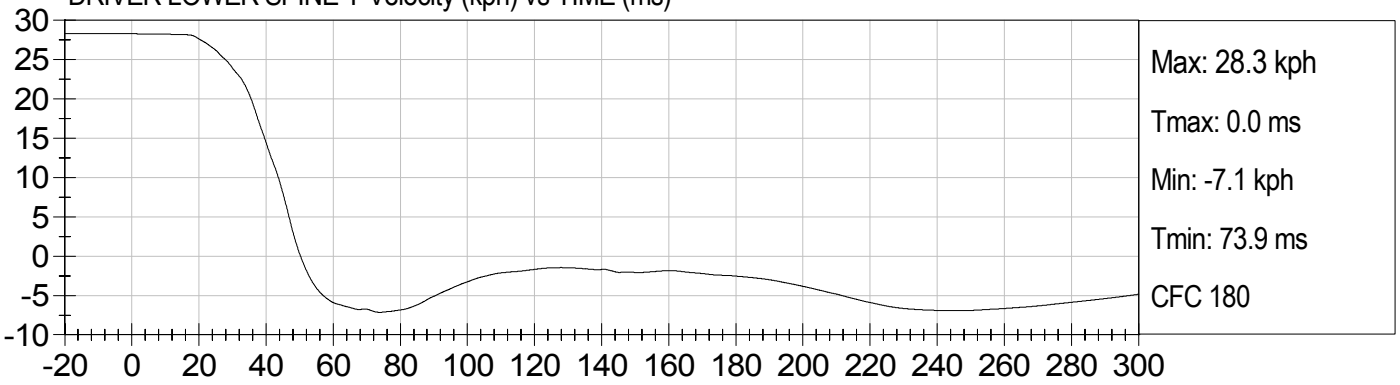
RIGID POLE SIDE IMPACT - FMVSS 201
2006 MAZDA 3 C65402

Test Date: 10/30/2006
Speed: 17.6 mph (28.3 km/h)

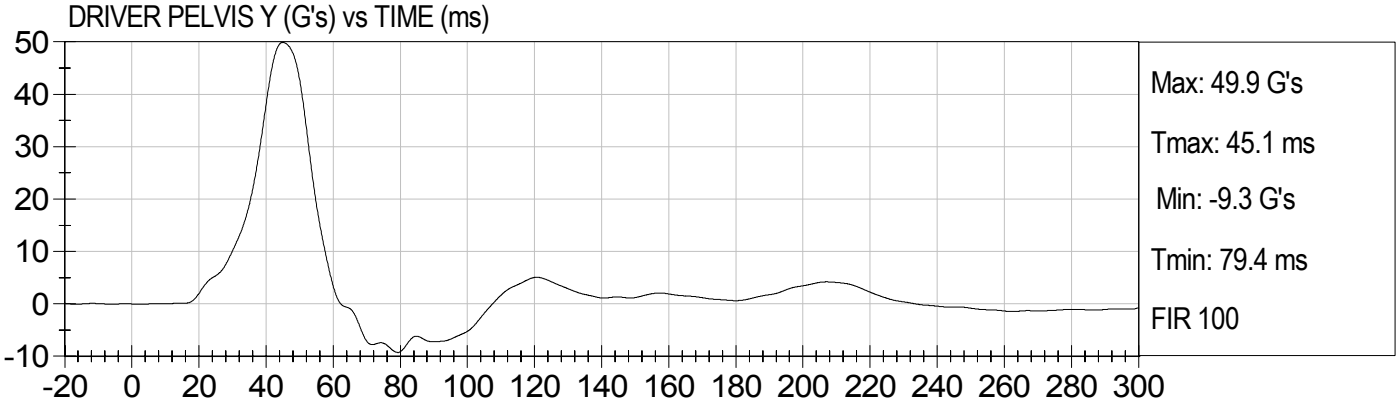
DRIVER LOWER SPINE Y (G's) vs TIME (ms)



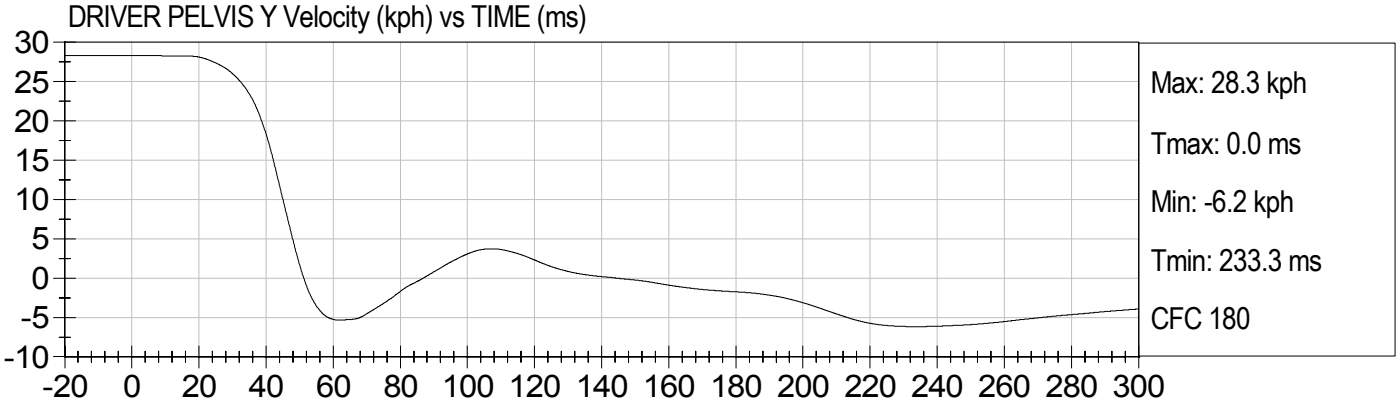
DRIVER LOWER SPINE Y Velocity (kph) vs TIME (ms)



DRIVER PELVIS Y (G's) vs TIME (ms)



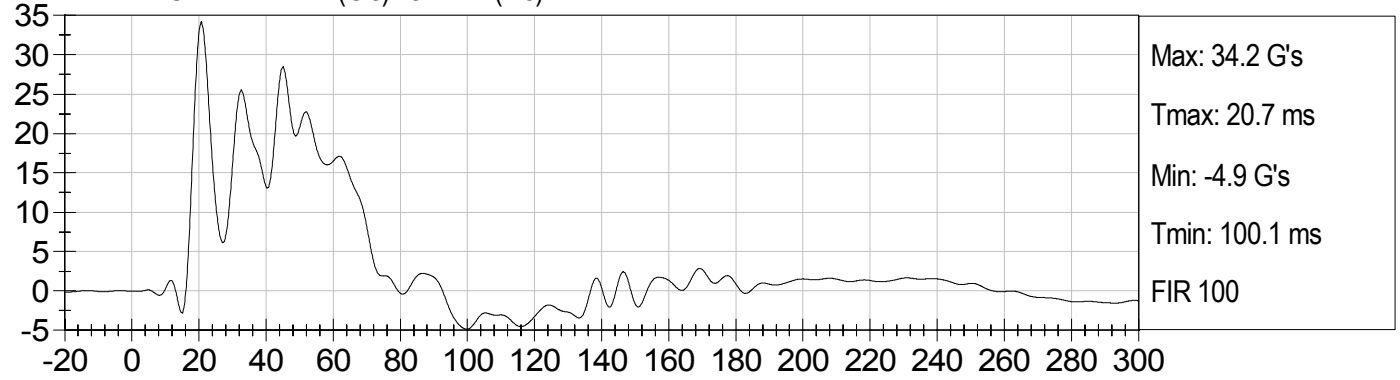
DRIVER PELVIS Y Velocity (kph) vs TIME (ms)



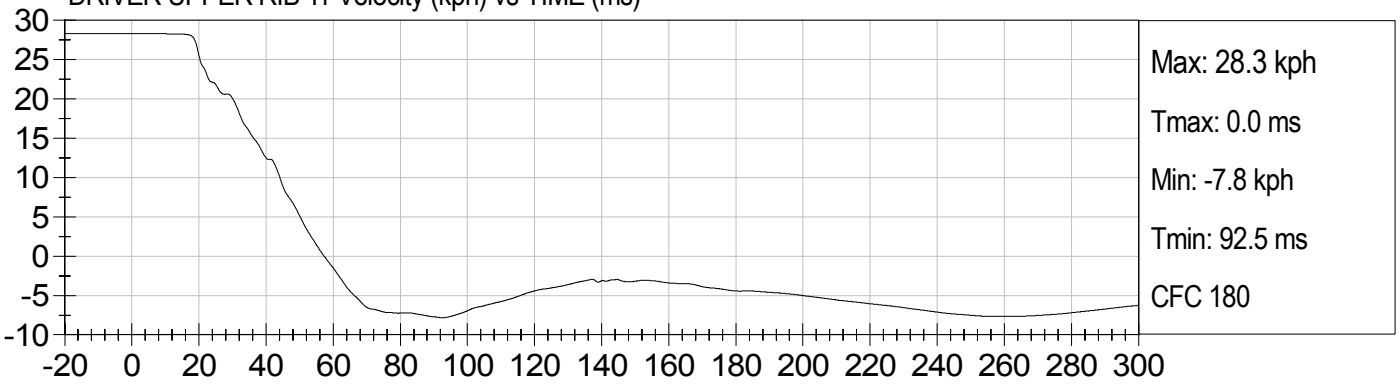
RIGID POLE SIDE IMPACT - FMVSS 201
2006 MAZDA 3 C65402

Test Date: 10/30/2006
Speed: 17.6 mph (28.3 km/h)

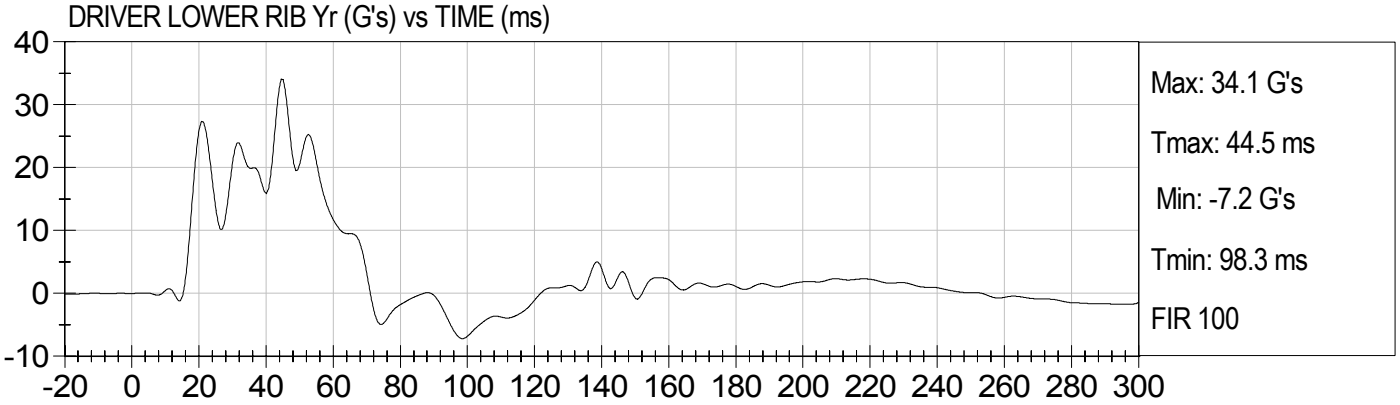
DRIVER UPPER RIB Yr (G's) vs TIME (ms)



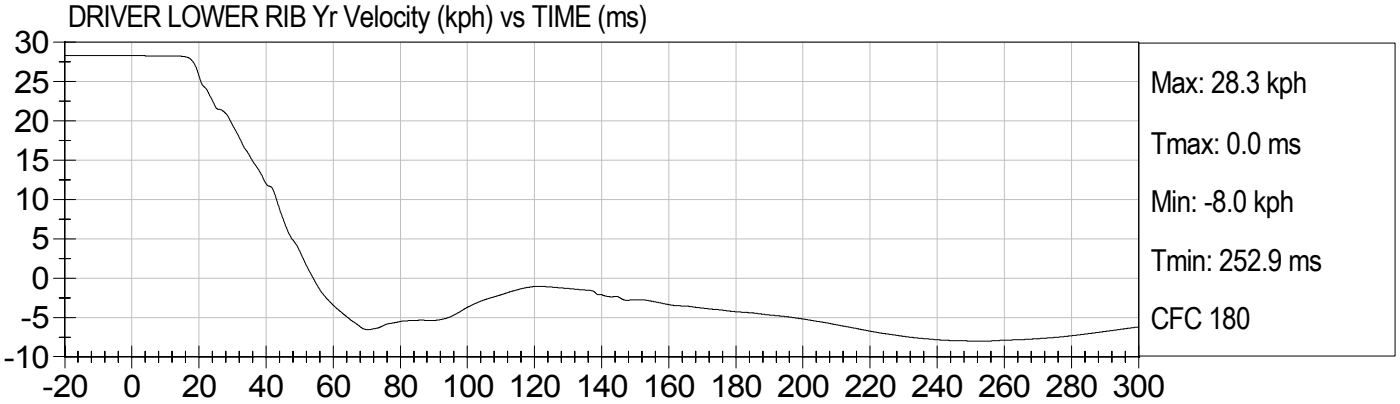
DRIVER UPPER RIB Yr Velocity (kph) vs TIME (ms)



DRIVER LOWER RIB Yr (G's) vs TIME (ms)



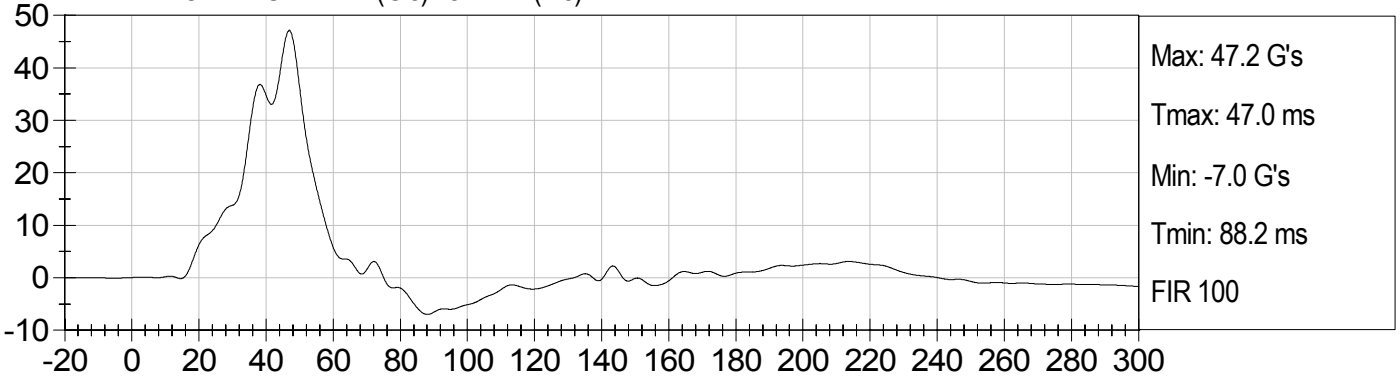
DRIVER LOWER RIB Yr Velocity (kph) vs TIME (ms)



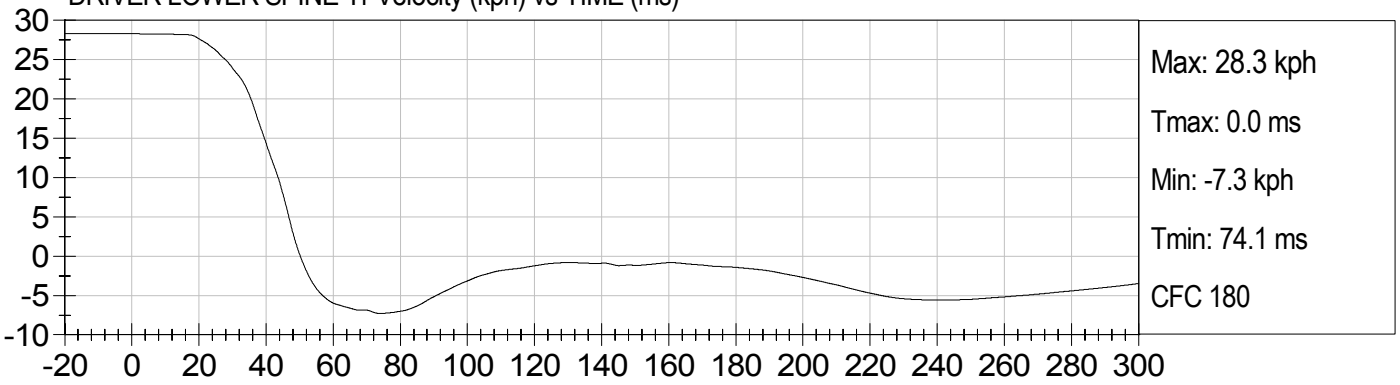
RIGID POLE SIDE IMPACT - FMVSS 201
2006 MAZDA 3 C65402

Test Date: 10/30/2006
Speed: 17.6 mph (28.3 km/h)

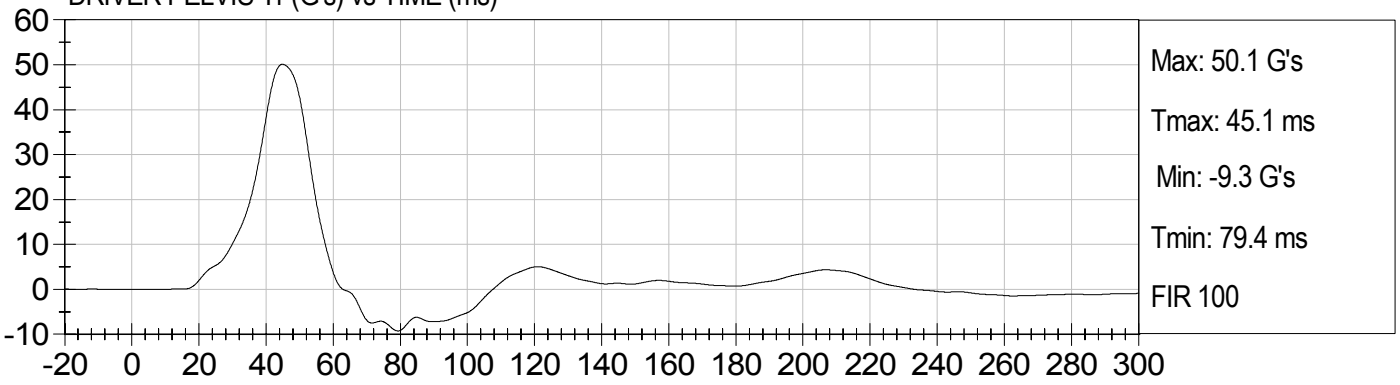
DRIVER LOWER SPINE Yr (G's) vs TIME (ms)



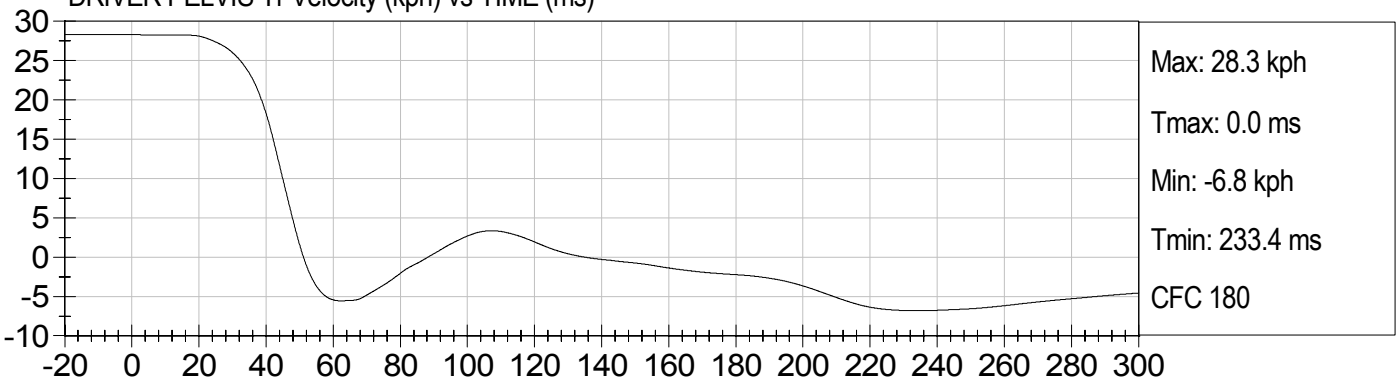
DRIVER LOWER SPINE Yr Velocity (kph) vs TIME (ms)



DRIVER PELVIS Yr (G's) vs TIME (ms)



DRIVER PELVIS Yr Velocity (kph) vs TIME (ms)

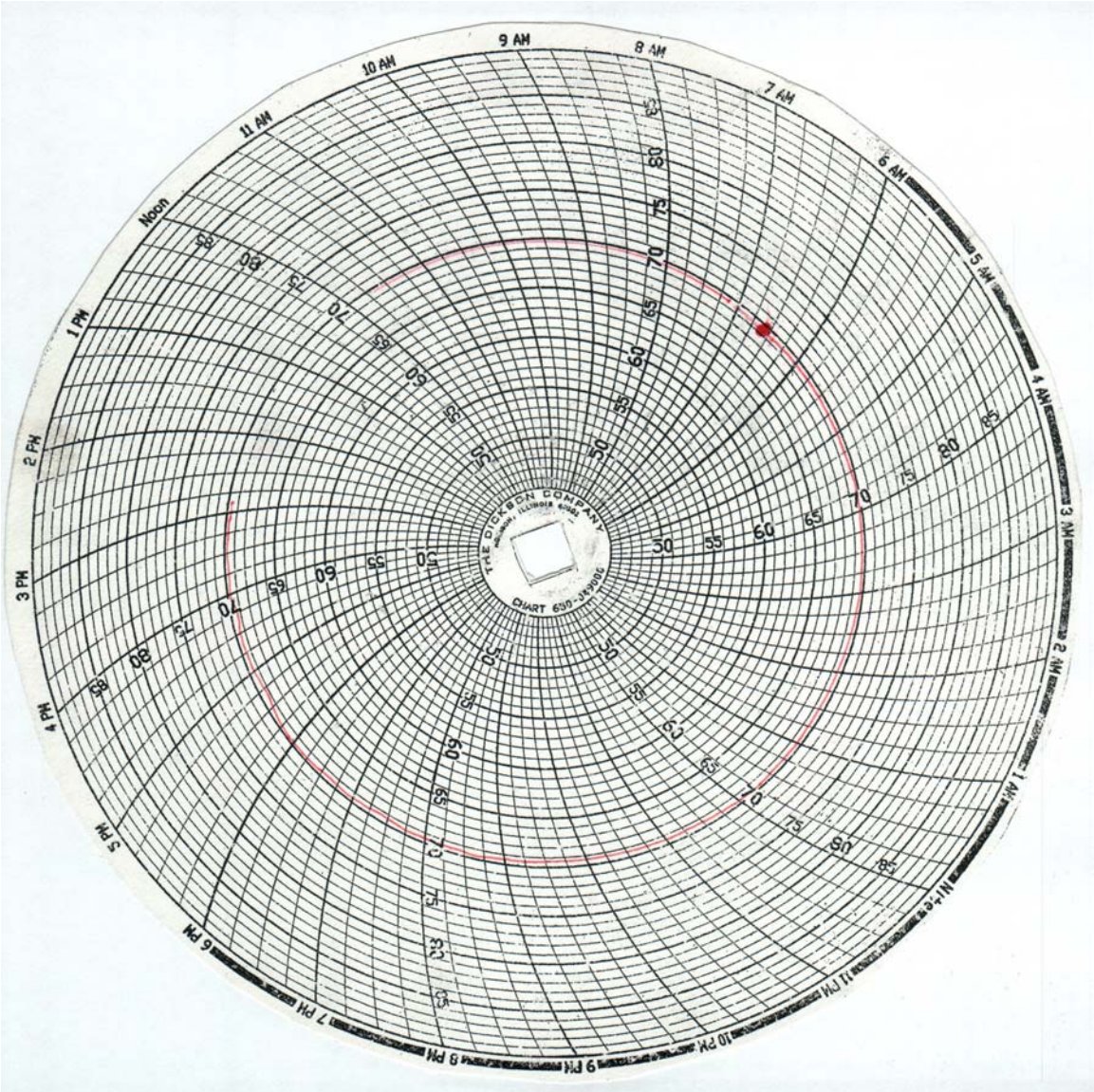


APPENDIX C

SID/HIII CONFIGURATION AND PERFORMANCE VERIFICATION DATA

Vehicle and Dummy Temperature

Test Vehicle:	2006 Mazda 3	NHTSA No.	C65402
Test Program:	FMVSS 201P	Test Date:	October 30, 2006



SID/HIII Calibration Data Sheet

Side Impact Dummy

Head Drop Calibration (Lateral)

ATD Serial No: 036 **Test I.D:** D062801

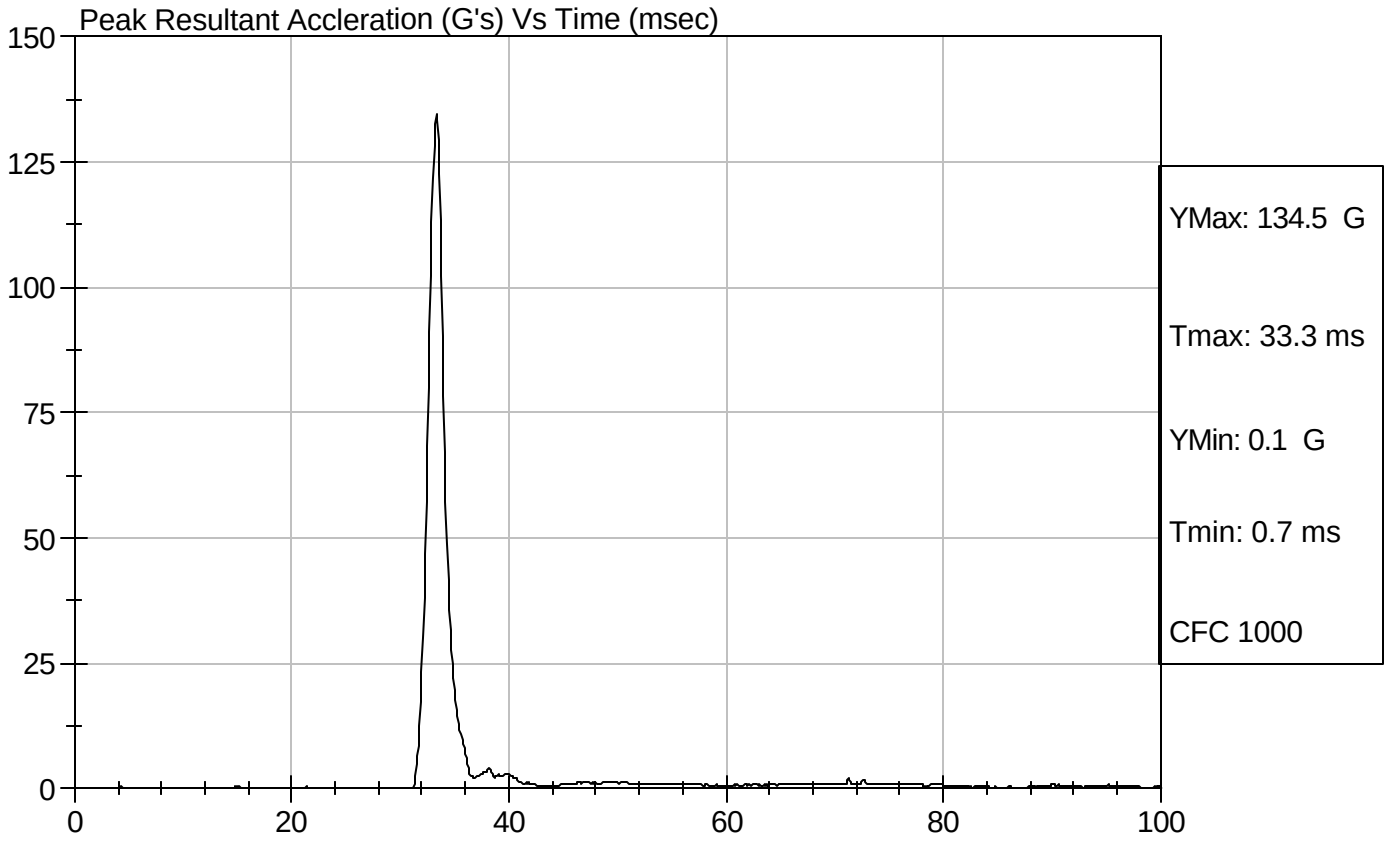
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	20.9	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Peak Resultant Acceleration	G's	120 to 150	135	Pass
Is Resultant Curve Unimodal?	Yes/No	15% of peak	Yes	Pass
Peak Longitudnal Acceleration	G's	+/- 15	-5.1	Pass
		Overall Test Results		Pass

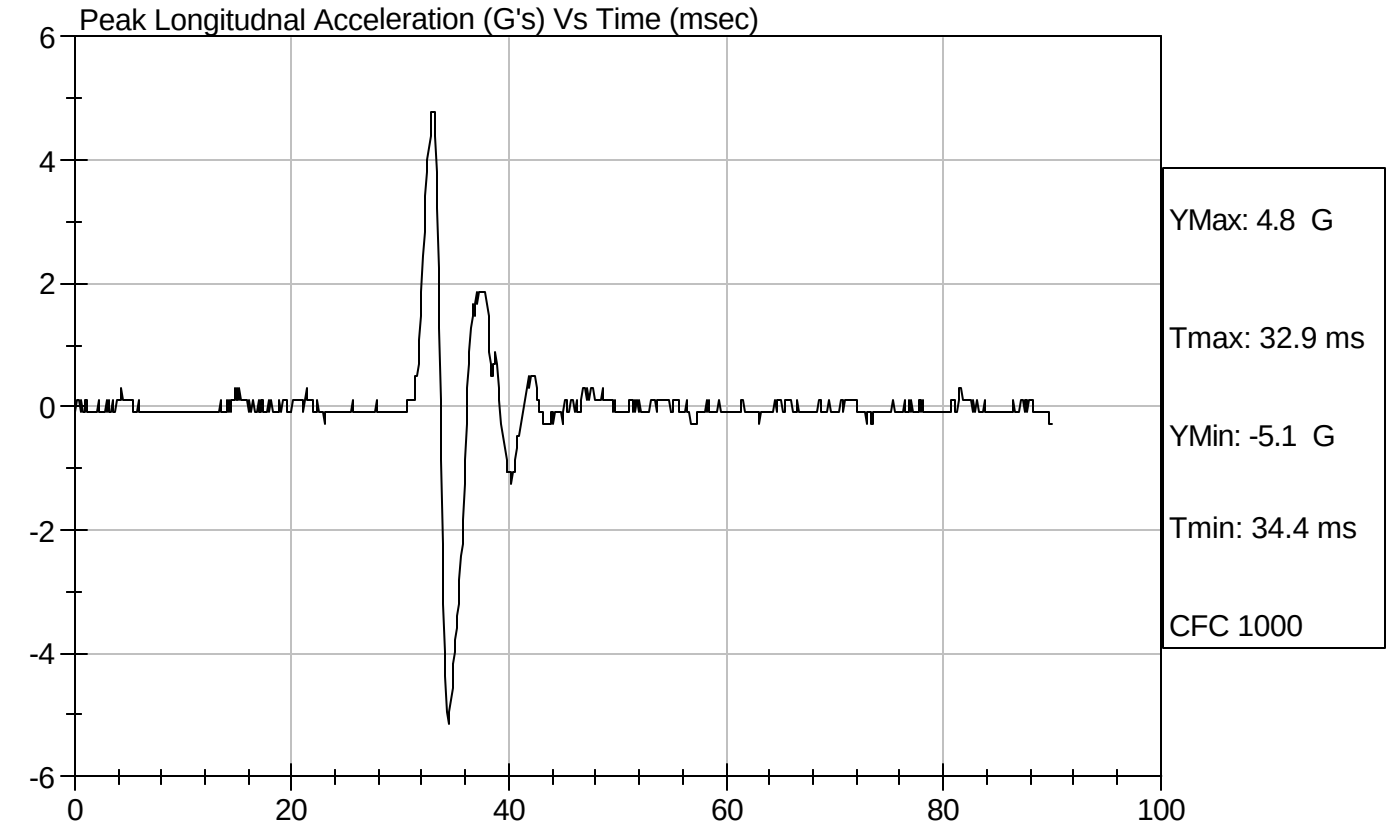
Jessica Hall
Laboratory Technician

09/14/2006
Test Date

David Winkelbauer
Approved By

	Test Description: Head Drop	Test Date: 09/14/2006
	Component: D062801	Speed: 0 ft/s, 0.00 m/s





SID/HIII Calibration Data Sheet

Side Impact Dummy

Thorax Impact Test

ATD Serial No: 036 **Test I.D:** D062802

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	49	Pass
Probe Velocity	m/s	4.27 - 4.33	4.30	Pass
Upper Rib	G's	37 - 46	44	Pass
Lower Rib	G's	37 - 46	44	Pass
Lower Spine	G's	15 - 22	18	Pass
		Overall Test Results		Pass

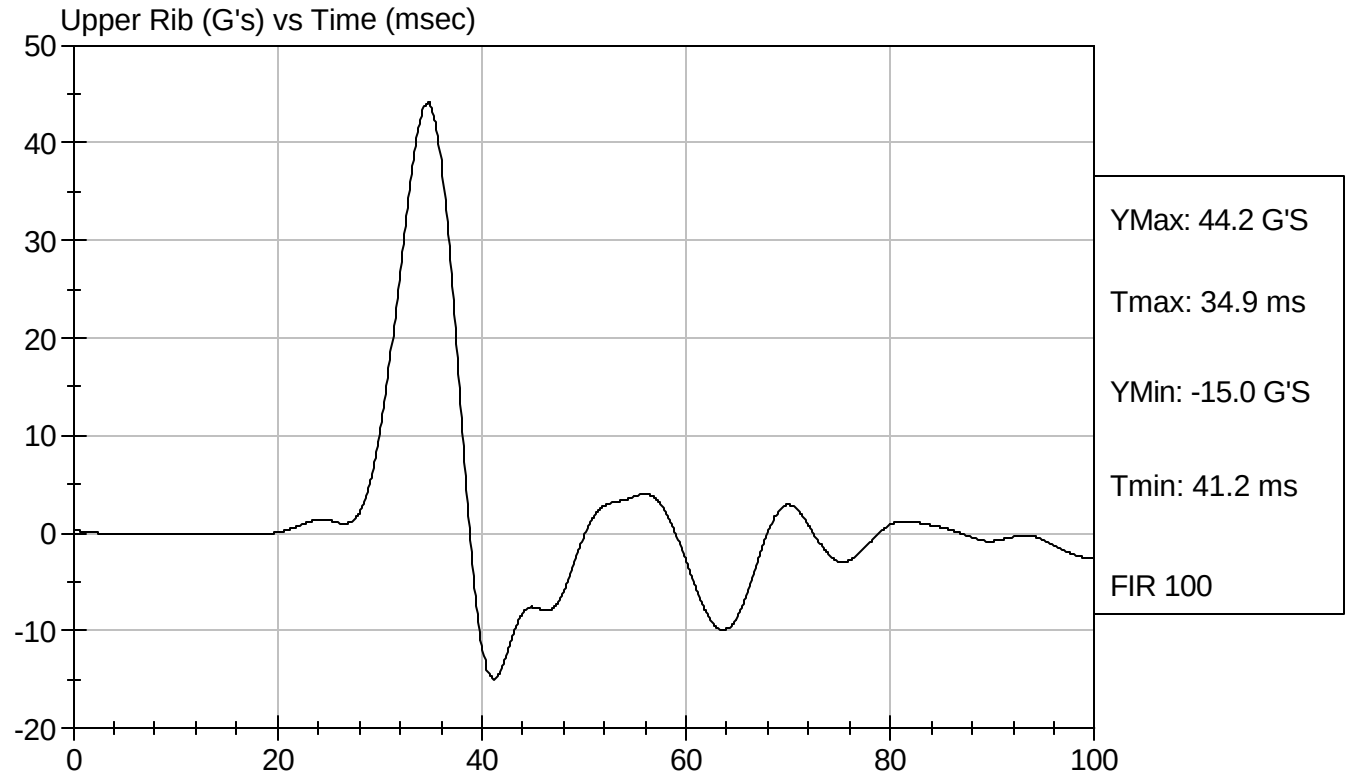
Jessica Hall
Laboratory Technician

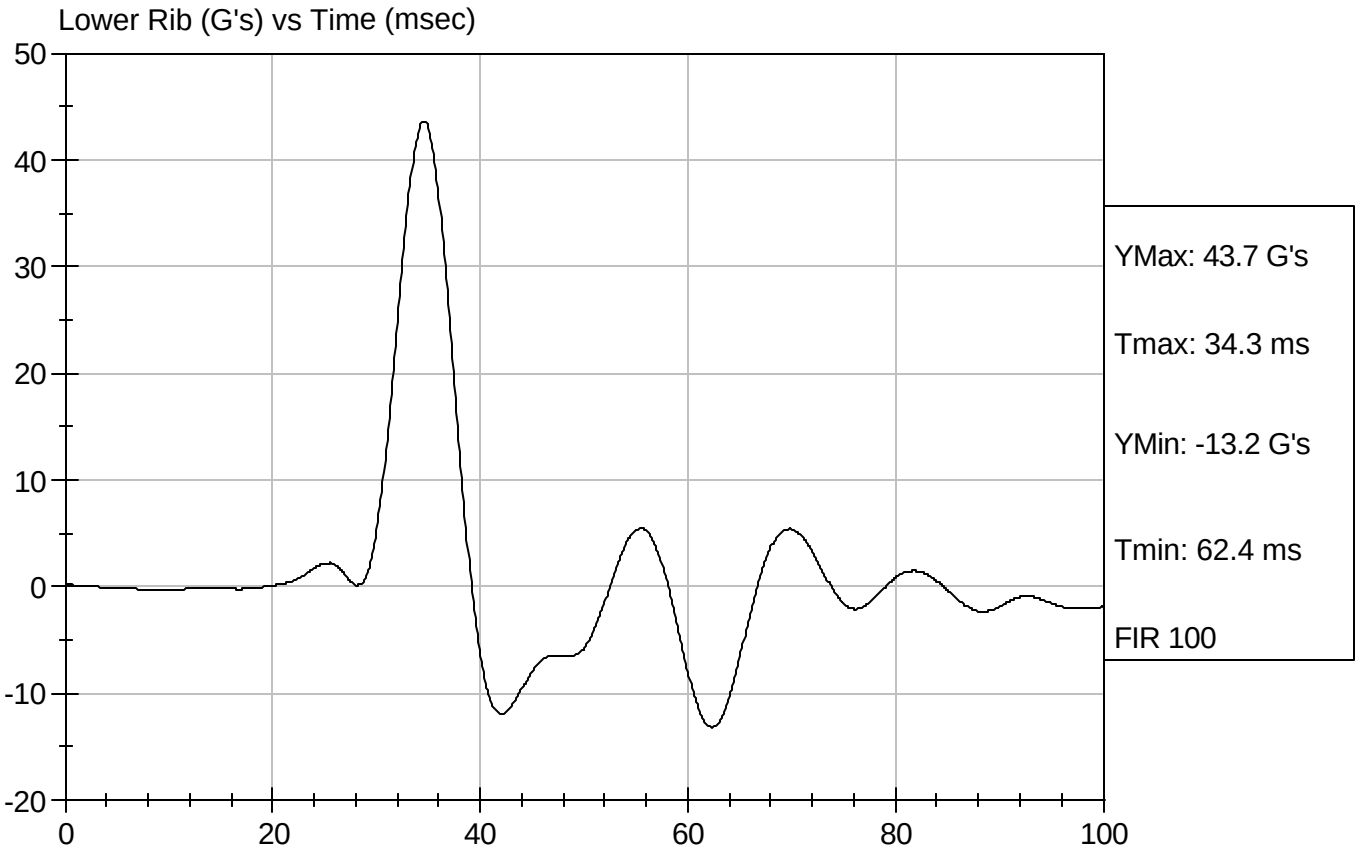
09/15/2006
Test Date

David Winkelbauer
Approved By

Test Desc: Thorax Impact
Component ID: D062802

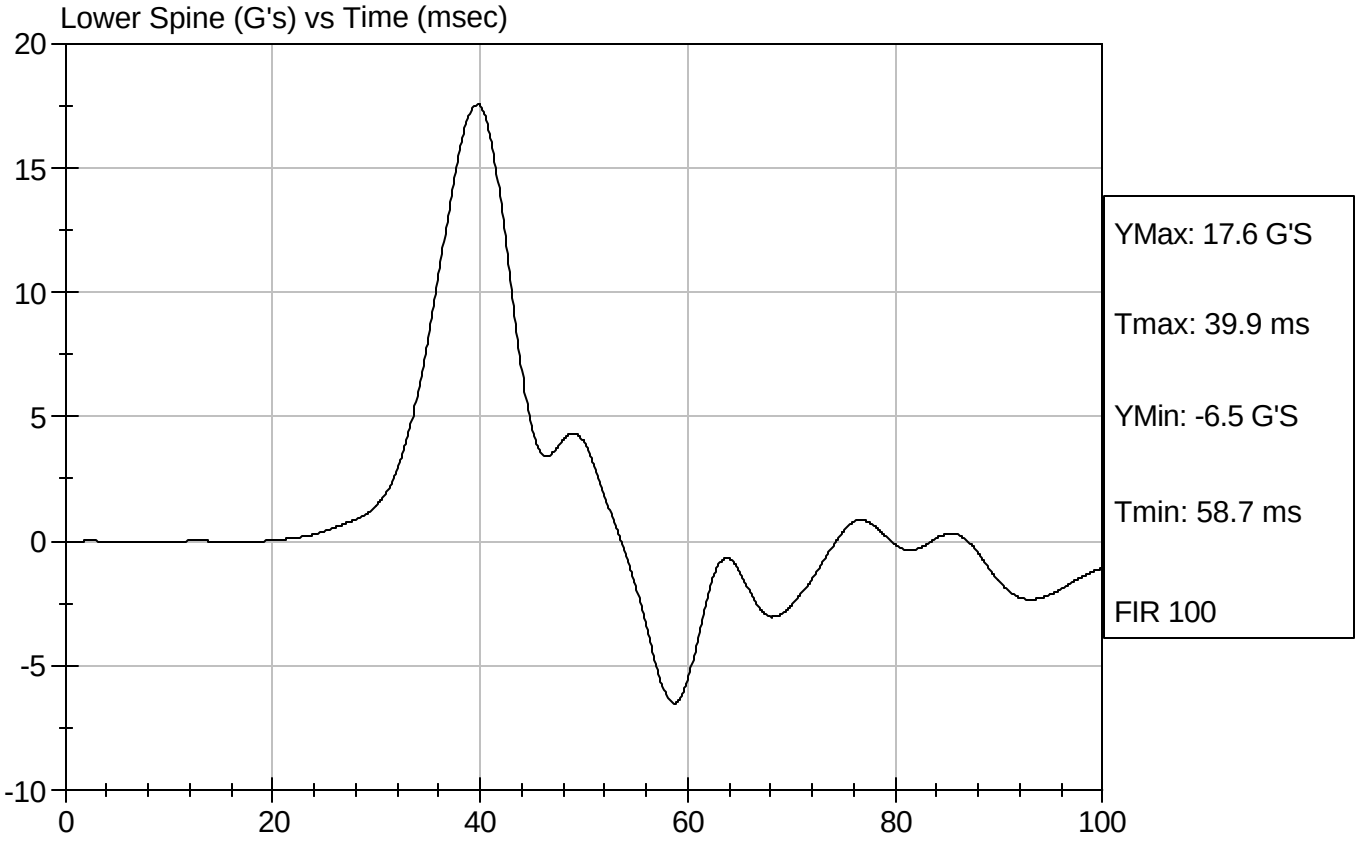
Test Date: 09/15/2006
Speed: 14.10 ft/sec, 4.30 m/sec





Test Desc: Thorax Impact
Component ID: D062802

Test Date: 09/15/2006
Speed: 14.10 ft/sec, 4.30 m/sec



SID/HIII Calibration Data Sheet

Side Impact Dummy

Pelvis Impact Test

ATD Serial No: 036 **Test I.D:** D062803

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	49	Pass
Probe Velocity	m/s	4.27 - 4.33	4.29	Pass
Pelvis Acceleration	G's	40 - 60	46	Pass
		Overall Test Results		Pass

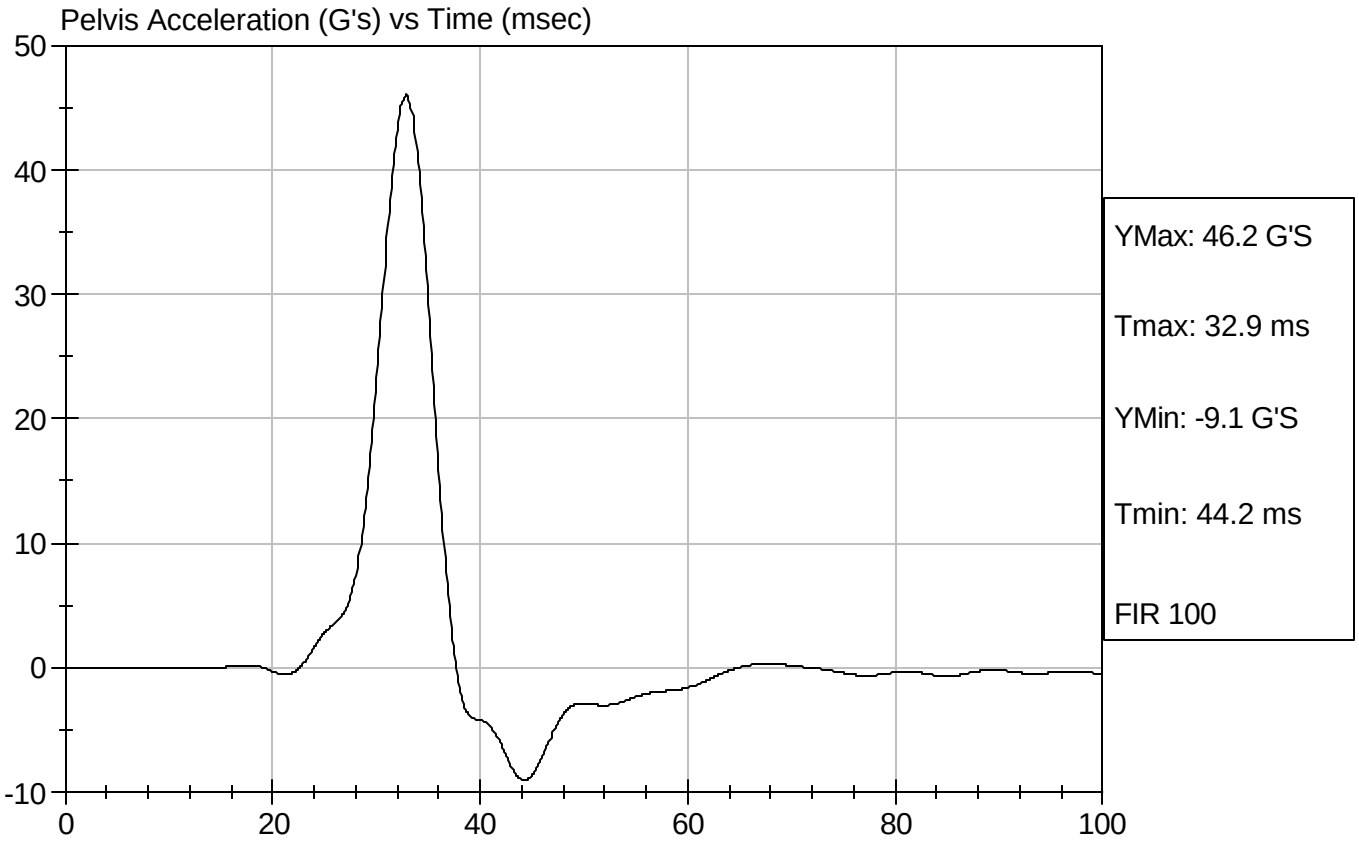
Jessica Hall
Laboratory Technician

09/15/2006
Test Date

David Winkelbauer
Approved By

Test Desc: Pelvis Impact
Component ID: D062803

Test Date: 09/15/2006
Speed: 14.08 ft/sec, 4.29 m/sec



SID/HIII Calibration Data Sheet

Side Impact Dummy

Abdominal Compression Calibration (Pre-Load = 10 lbs)

ATD Serial No: 036 **Test I.D:** D062804

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	20.6	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Force At 12.7 mm	N	104 -162	149	Pass
Force At 19 mm	N	163 - 222	200	Pass
Force At 25.4 mm	N	222 - 280	264	Pass
Force At 33 mm	N	325 - 391	364	Pass
		Overall Test Results		Pass

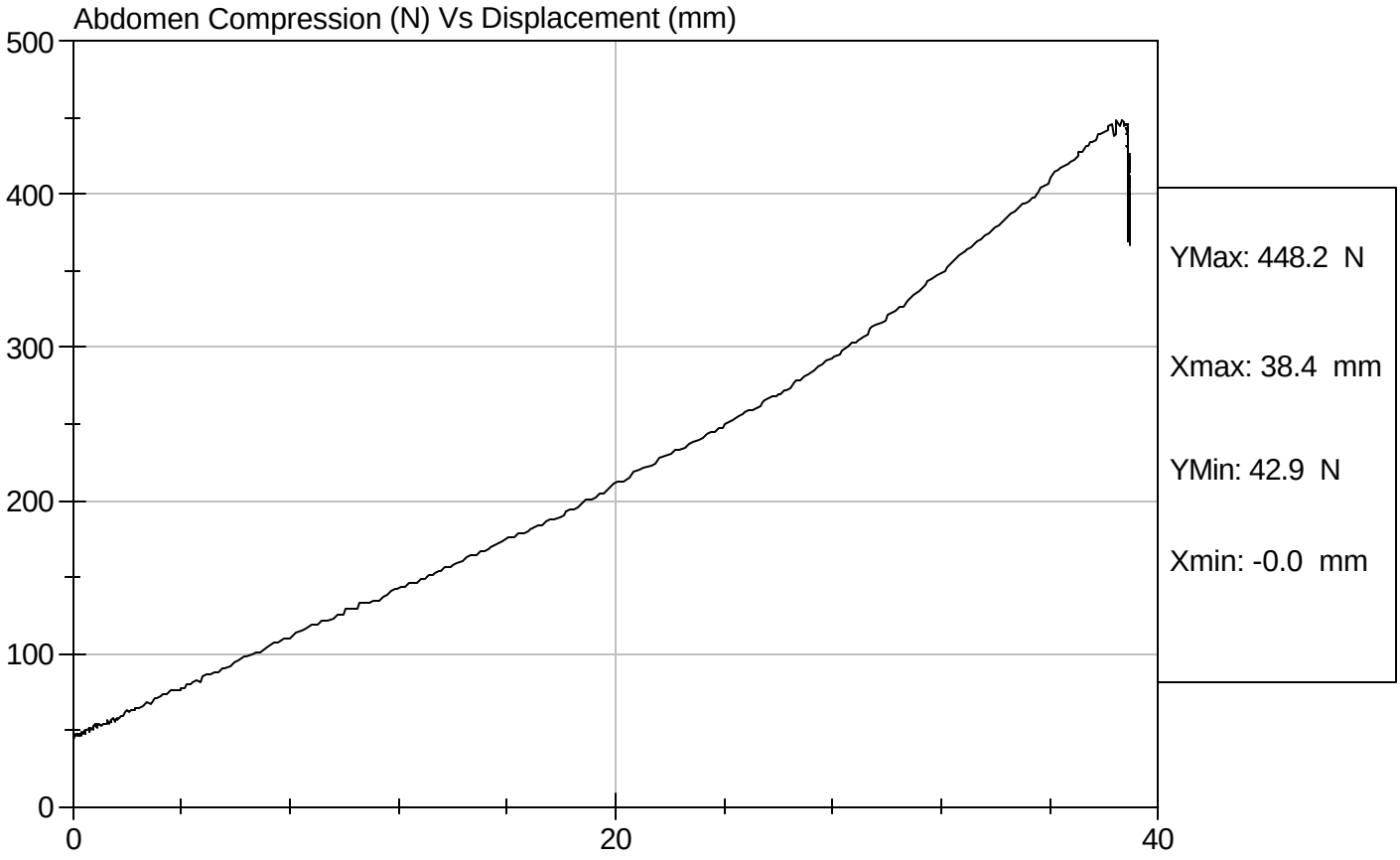
Jessica Hall
Laboratory Technician

09/15/2006
Test Date

David Winkelbauer
Approved By

Test Description: Abdomen Compression Test Date: 09/15/2006

Component: D062804 Speed: 0 ft/sec, 0 m/sec



SID/HIII Calibration Data Sheet

Side Impact Dummy

Lumbar Flexion Calibration

ATD Serial No: 036 **Test I.D:** D062805

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	20.6	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	118.0	Pass
Force At 30 deg	N	151.2 - 204.6	182.1	Pass
Force At 40 deg	N	204.6 - 258.0	230.1	Pass
Return Angle	Deg	12 Maximum	5	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

09/14/2006
Test Date

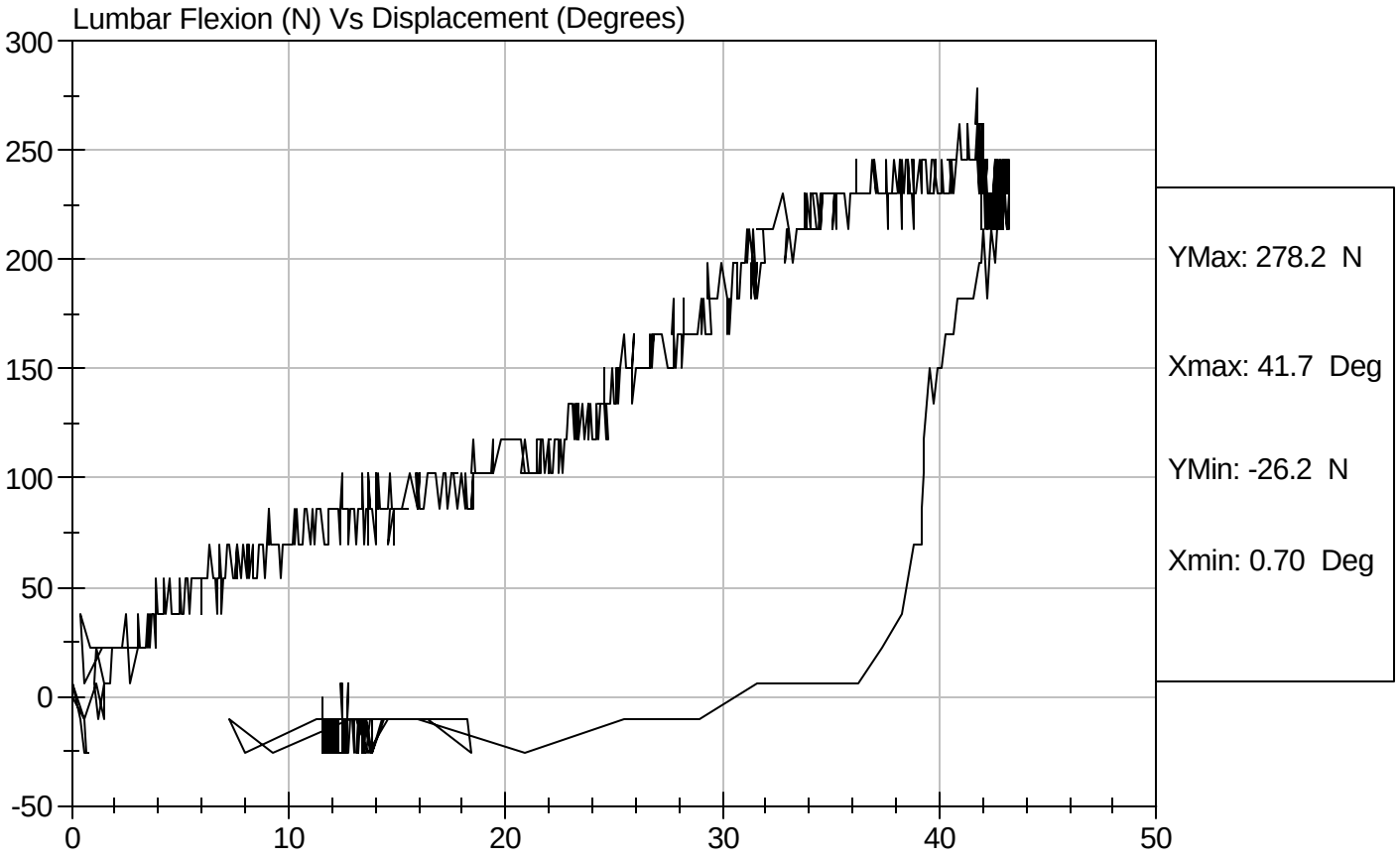
David Winkelbauer
Approved By

Test Description: Lumbar Flexion

Test Date: 09/14/2006

Component: D062805

Speed: 0 ft/sec, 0 m/sec



SID/HIII Calibration Data Sheet

Side Impact Dummy (SID)

Neck Pendulum Test

ATD Serial No: 036 **Test I.D:** D062809

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	20.8	Pass
Laboratory Relative Humidity		%	10 to 70	44	Pass
Impact Velocity		m/s	6.89 to 7.13	6.91	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.28	Pass
	20 msec	m/s	4.12 to 5.10	4.47	Pass
	30 msec	m/s	5.73 to 7.01	6.24	Pass
	40 to 70 msec	m/s	6.27 to 7.64	7.14	Pass
Midsaggital Plane Max Rotation		deg	66 to 82	69	Pass
Head Rotation Peak to Zero - Decay Time		msec	58 to 67	58	Pass
Max. Mx at Occipital Condyles		Nm	73 to 88	74	Pass
Mx Peak To Zero - Decay Time		msec	49 to 64	55	Pass
Mx Peak to Max. Head Rotation		msec	2 to 16	11	Pass

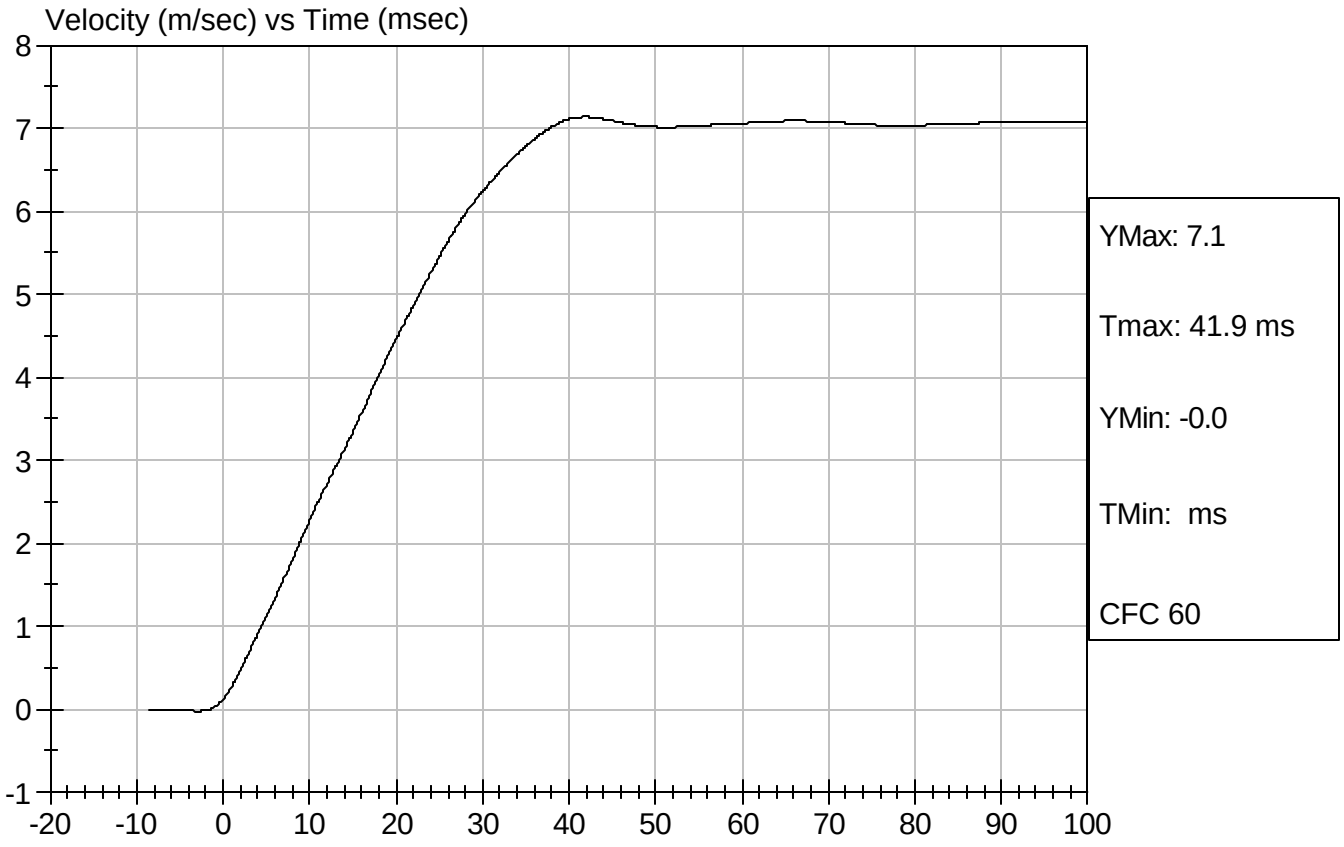
Jessica Hall
Laboratory Technician

09/14/2006
Test Date

David Winkelbauer
Approved By

Test Desc: Neck Bending
Component ID: D062809

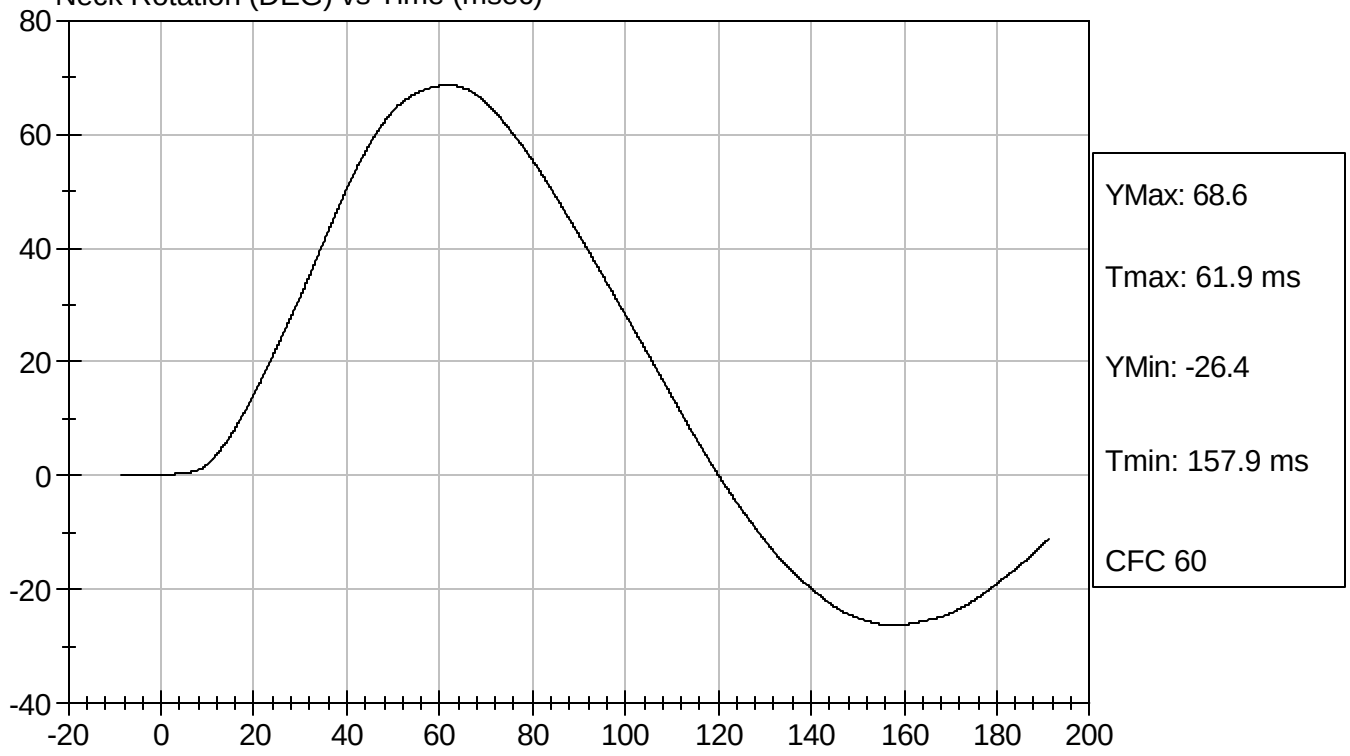
Test Date: 09/14/2006
Speed: 22.68 ft/sec, 6.91 m/sec



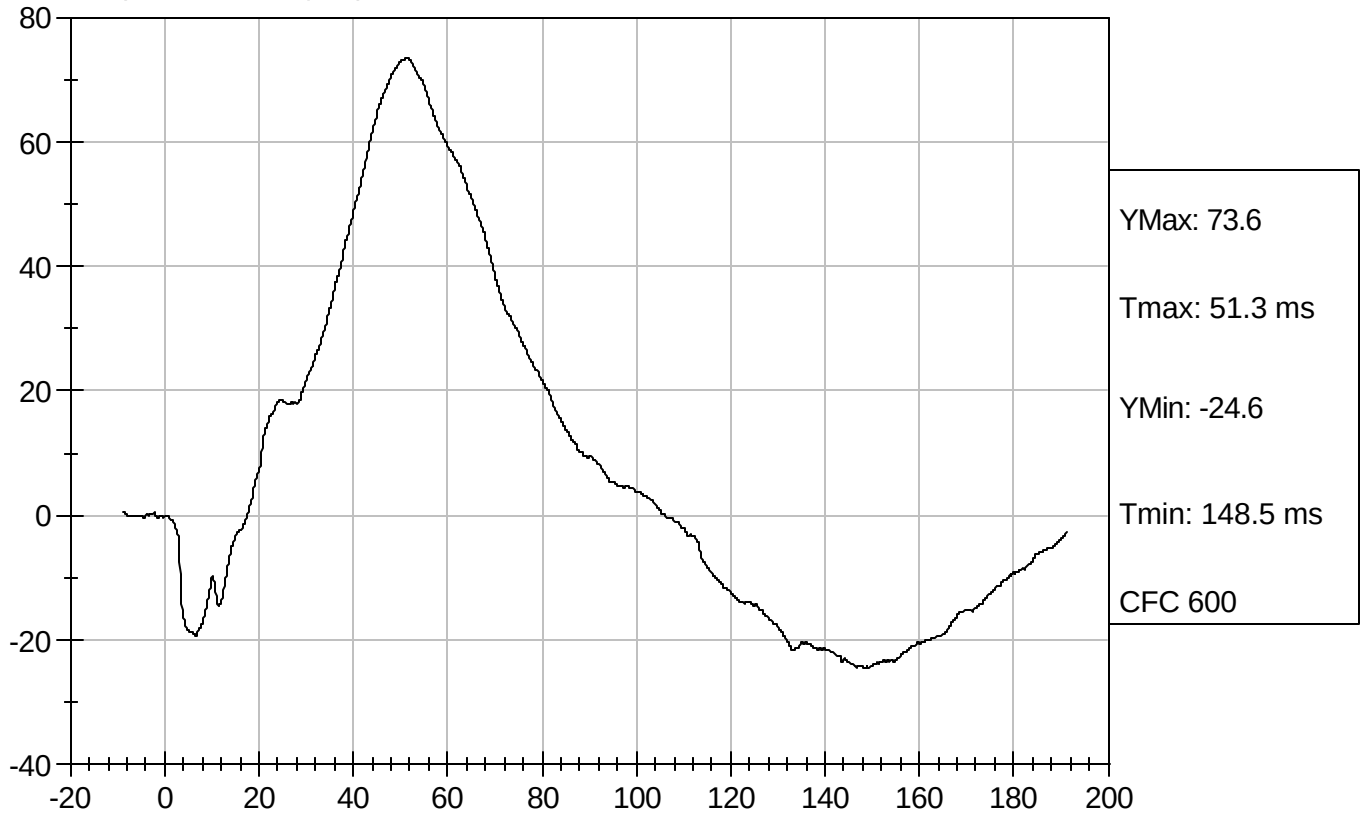
Test Desc: Neck Bending
Component ID: D062809

Test Date: 09/14/2006
Speed: 22.68 ft/sec, 6.91 m/sec

Neck Rotation (DEG) vs Time (msec)



Occipital Moment (Nm) vs Time (msec)



SID/HIII Calibration Data Sheet

Side Impact Dummy

Head Drop Calibration (Lateral)

ATD Serial No: 036 **Test I.D:** D063101

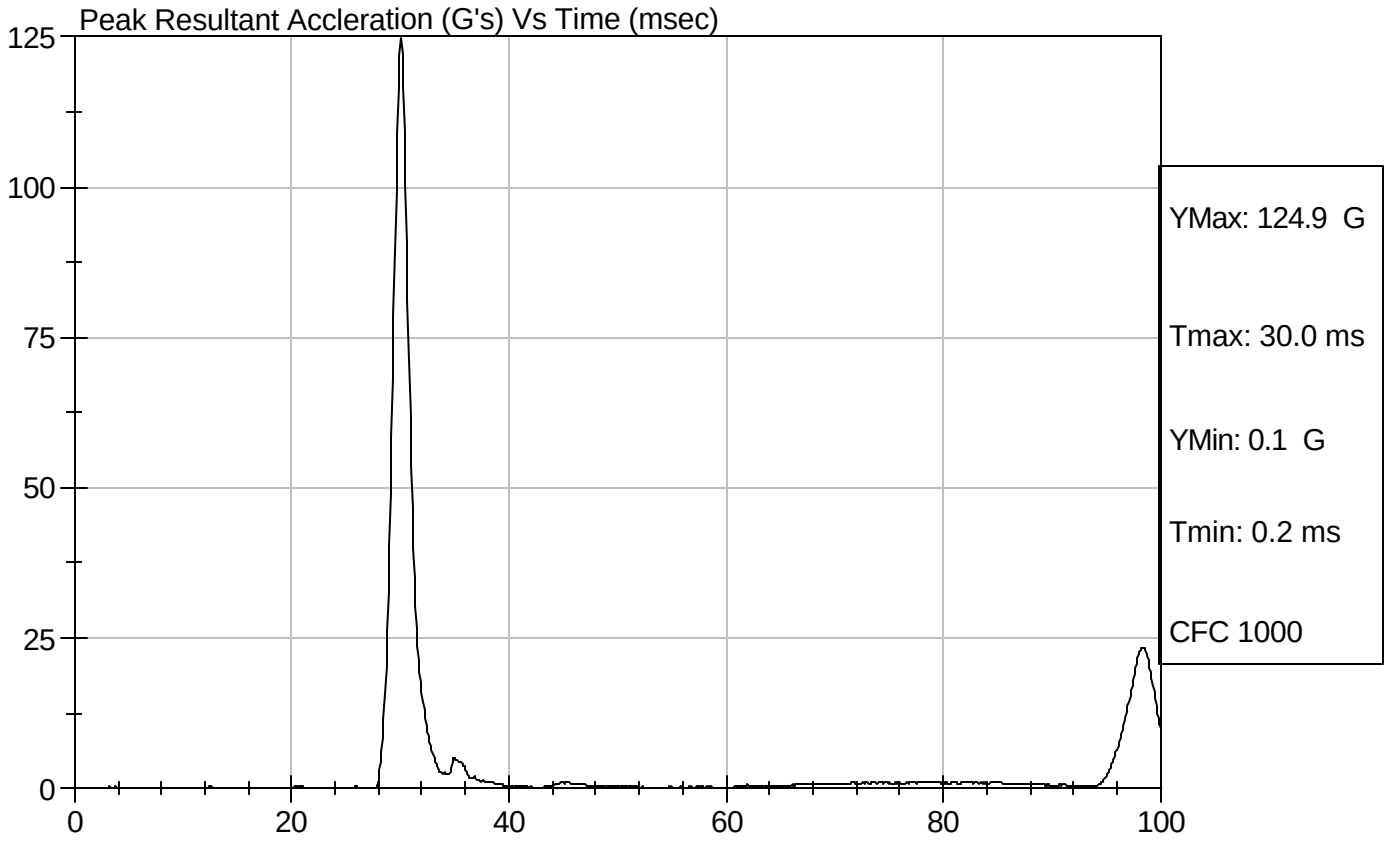
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	18	Pass
Peak Resultant Acceleration	G's	120 to 150	125	Pass
Is Resultant Curve Unimodal?	Yes/No	15% of peak	Yes	Pass
Peak Longitudnal Acceleration	G's	+/- 15	-7.7	Pass
		Overall Test Results		Pass

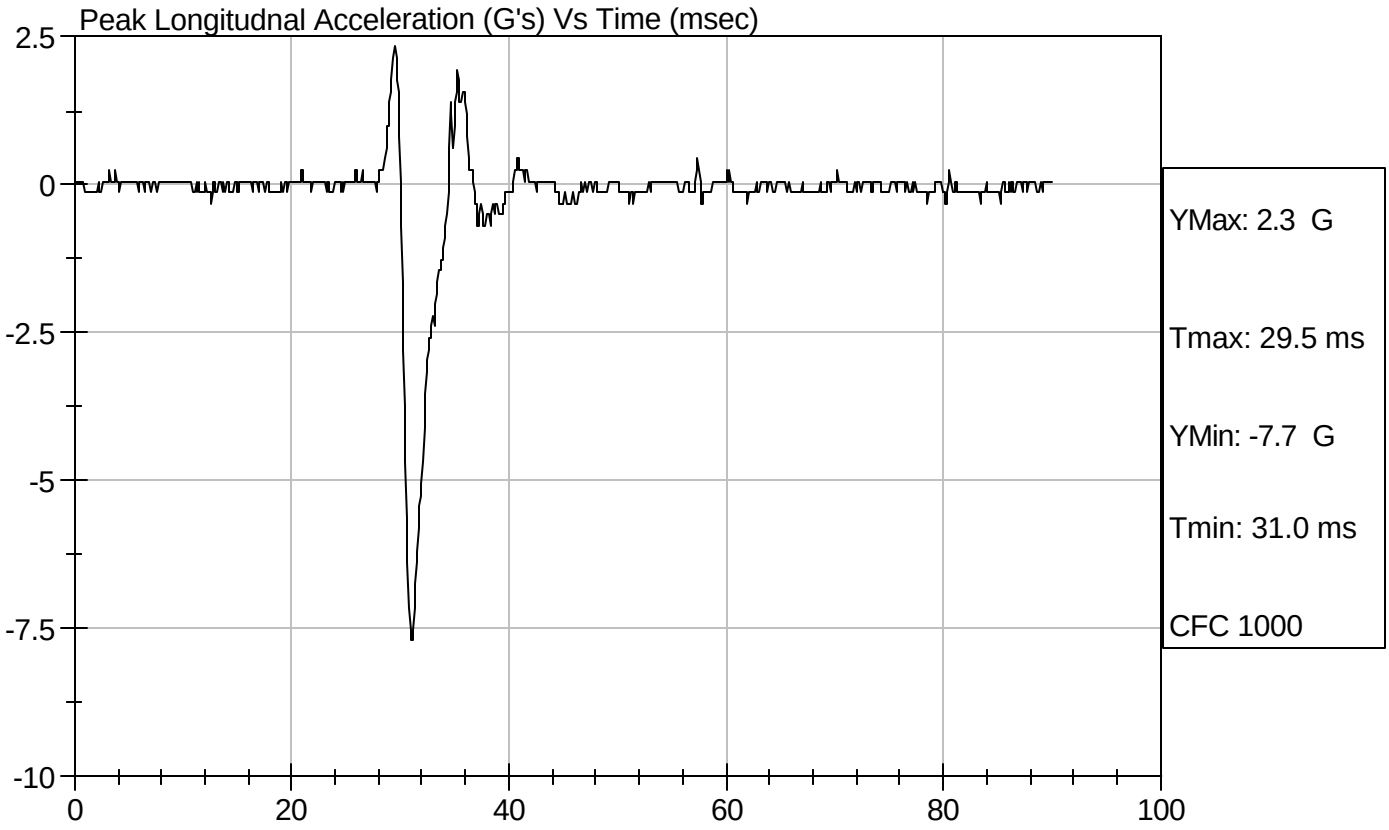
Jessica Hall
Laboratory Technician

11/01/2006
Test Date

David Winkelbauer
Approved By

	Test Description: Head Drop	Test Date: 11/01/2006
	Component: D063101	Speed: 0 ft/s, 0.00 m/s





SID/HIII Calibration Data Sheet

Side Impact Dummy

Thorax Impact Test

ATD Serial No: 036 **Test I.D:** D063102

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	22.0	Pass
Laboratory Relative Humidity	%	10 to 70	21	Pass
Probe Velocity	m/s	4.27 - 4.33	4.30	Pass
Upper Rib	G's	37 - 46	41	Pass
Lower Rib	G's	37 - 46	40	Pass
Lower Spine	G's	15 - 22	18	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

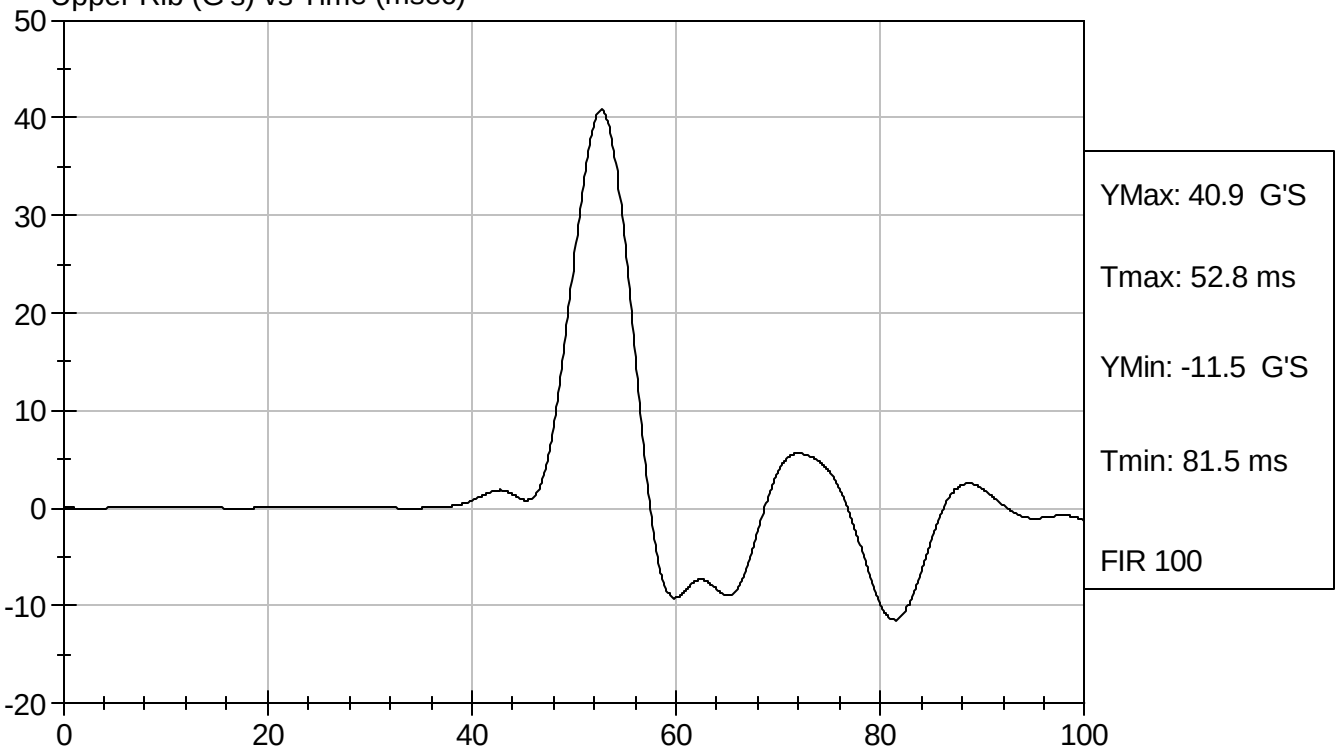
10/31/2006
Test Date

David Winkelbauer
Approved By

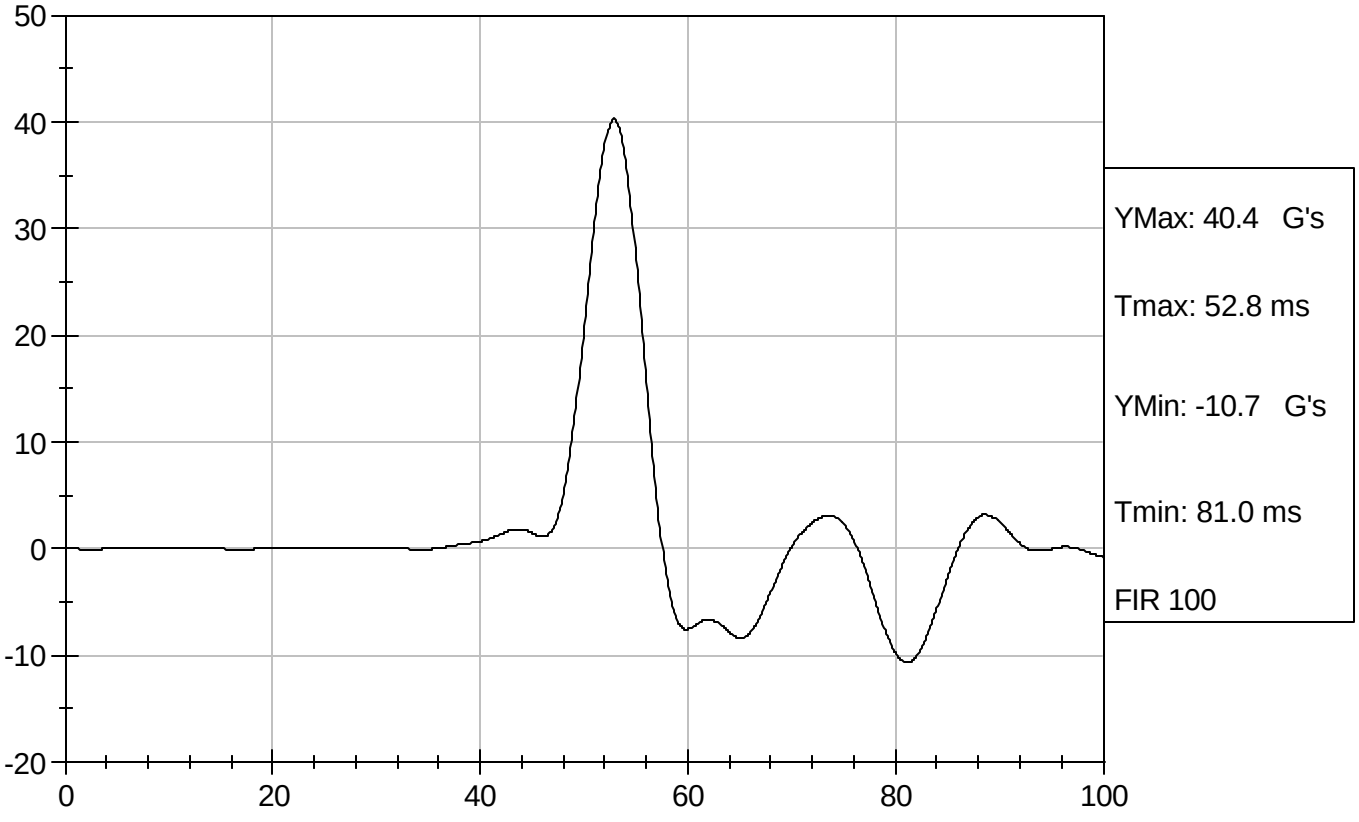
Test Desc: Thorax Impact
Component ID: D063102

Test Date: 10/31/2006
Speed: 14.1 ft/sec, 4.30 m/sec

Upper Rib (G's) vs Time (msec)

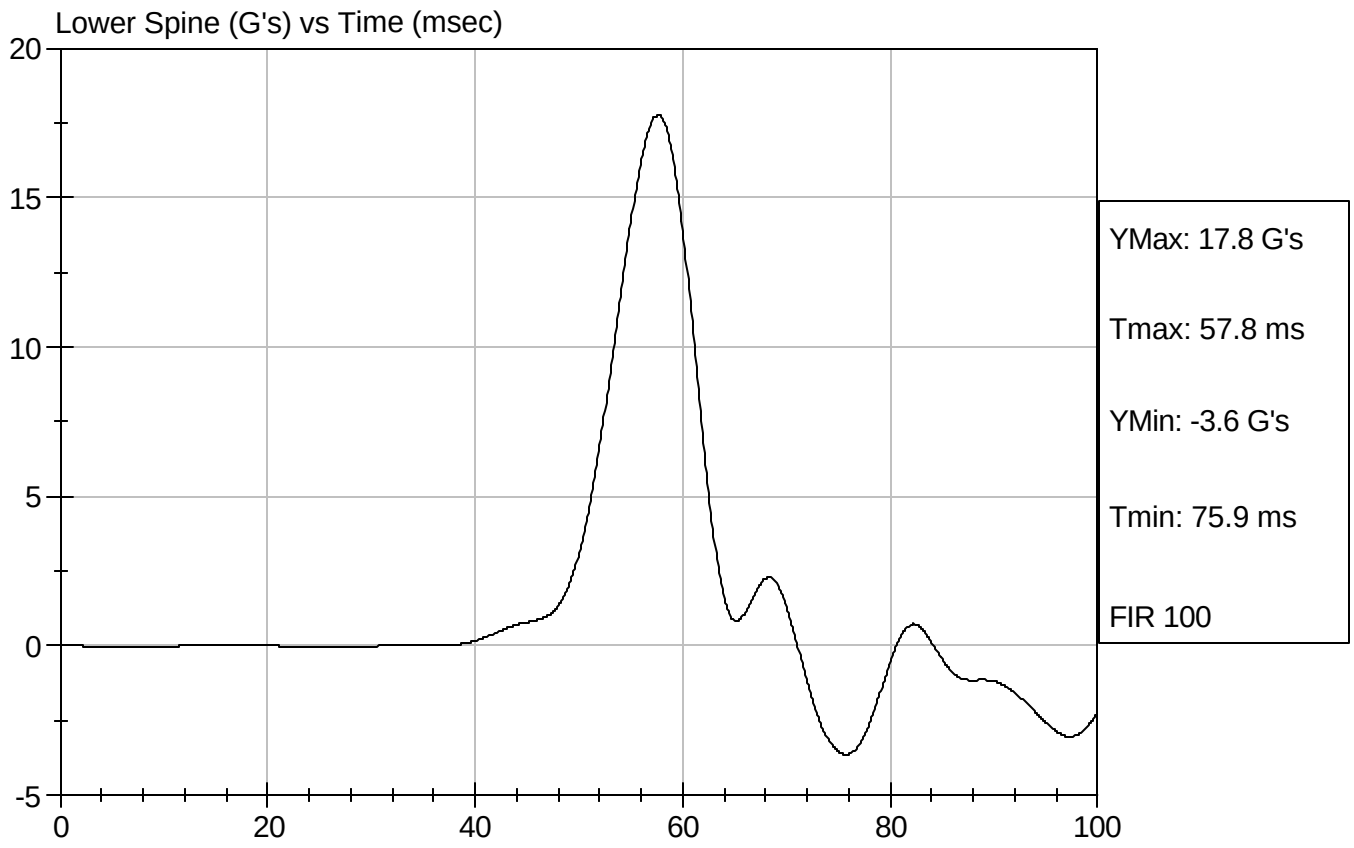


Lower Rib (G's) vs Time (msec)



Test Desc: Thorax Impact
Component ID: D063102

Test Date: 10/31/2006
Speed: 14.1 ft/sec, 4.30 m/sec



SID/HIII Calibration Data Sheet

Side Impact Dummy

Pelvis Impact Test

ATD Serial No: 036 **Test I.D:** D063103

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	21	Pass
Probe Velocity	m/s	4.27 - 4.33	4.30	Pass
Pelvis Acceleration	G's	40 - 60	46	Pass
		Overall Test Results		Pass

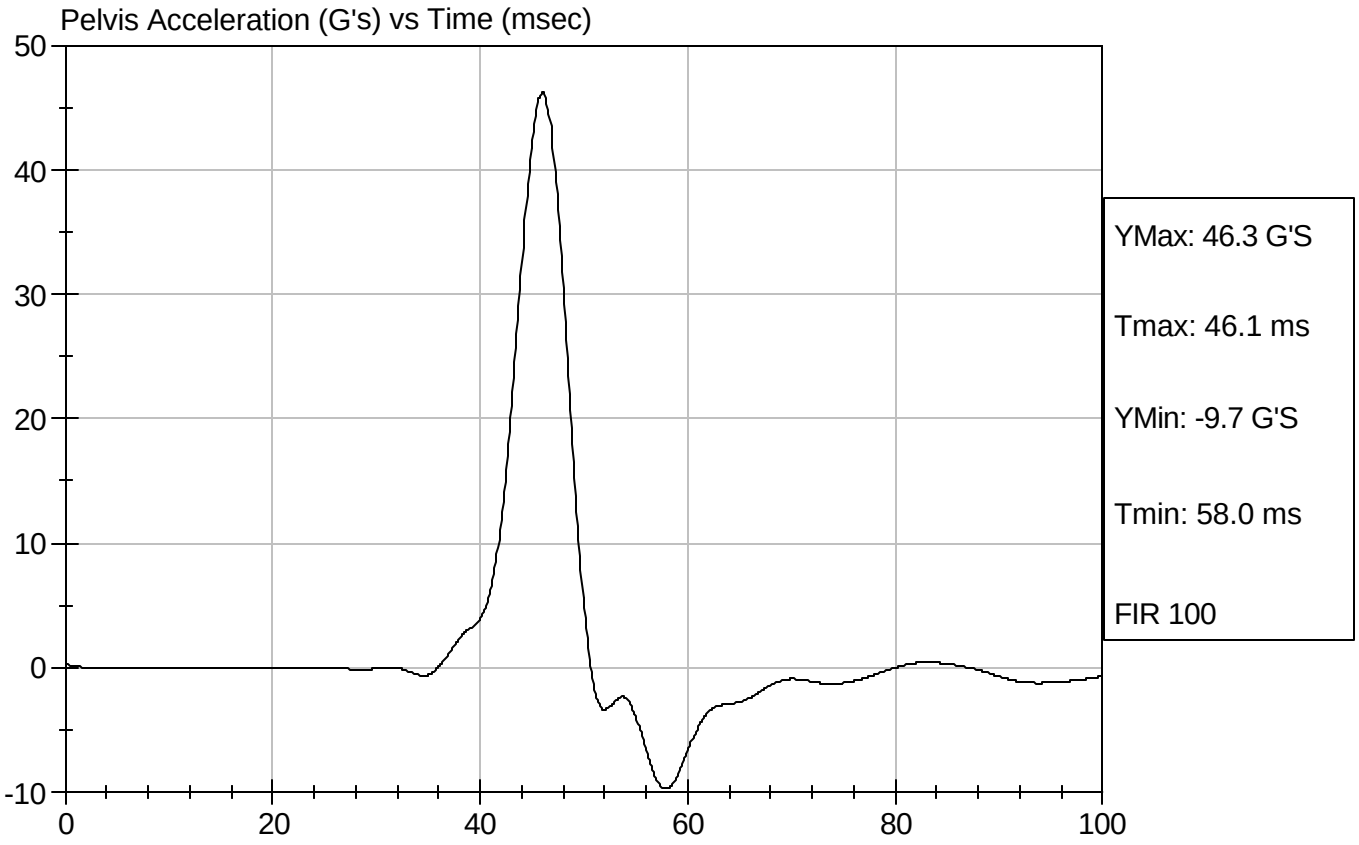
Jessica Gall
Laboratory Technician

10/31/2006
Test Date

David Winkelbauer
Approved By

Test Desc: Pelvis Impact
Component ID: D063103

Test Date: 10/31/2006
Speed: 14.11 ft/sec, 4.30 m/sec



SID/HIII Calibration Data Sheet

Side Impact Dummy

Abdominal Compression Calibration (Pre-Load = 10 lbs)

ATD Serial No: 036 **Test I.D:** D063104

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	23	Pass
Force At 12.7 mm	N	104 -162	147	Pass
Force At 19 mm	N	163 - 222	199	Pass
Force At 25.4 mm	N	222 - 280	265	Pass
Force At 33 mm	N	325 - 391	357	Pass
		Overall Test Results		Pass

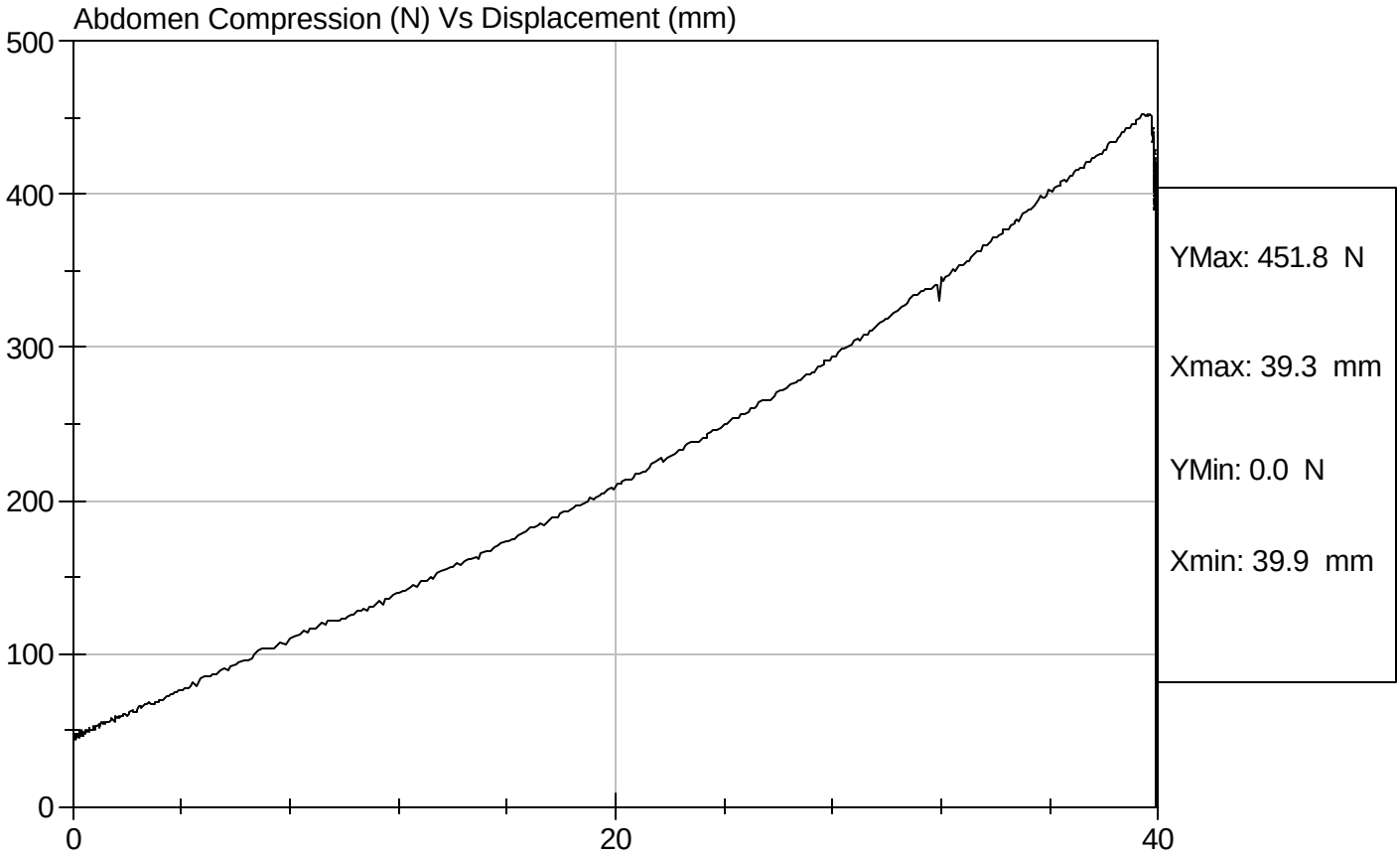
Jessica Gall
Laboratory Technician

11/01/2006
Test Date

David Winkelbauer
Approved By

Test Description: Abdomen Compression Test Date: 11/01/2006

Component: D063104 Speed: 0 ft/sec, 0 m/sec



SID/HIII Calibration Data Sheet

Side Impact Dummy

Lumbar Flexion Calibration

ATD Serial No: 036 **Test I.D:** D063105

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	18	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	139.8	Pass
Force At 30 deg	N	151.2 - 204.6	161.6	Pass
Force At 40 deg	N	204.6 - 258.0	248.7	Pass
Return Angle	Deg	12 Maximum	2	Pass
		Overall Test Results		Pass

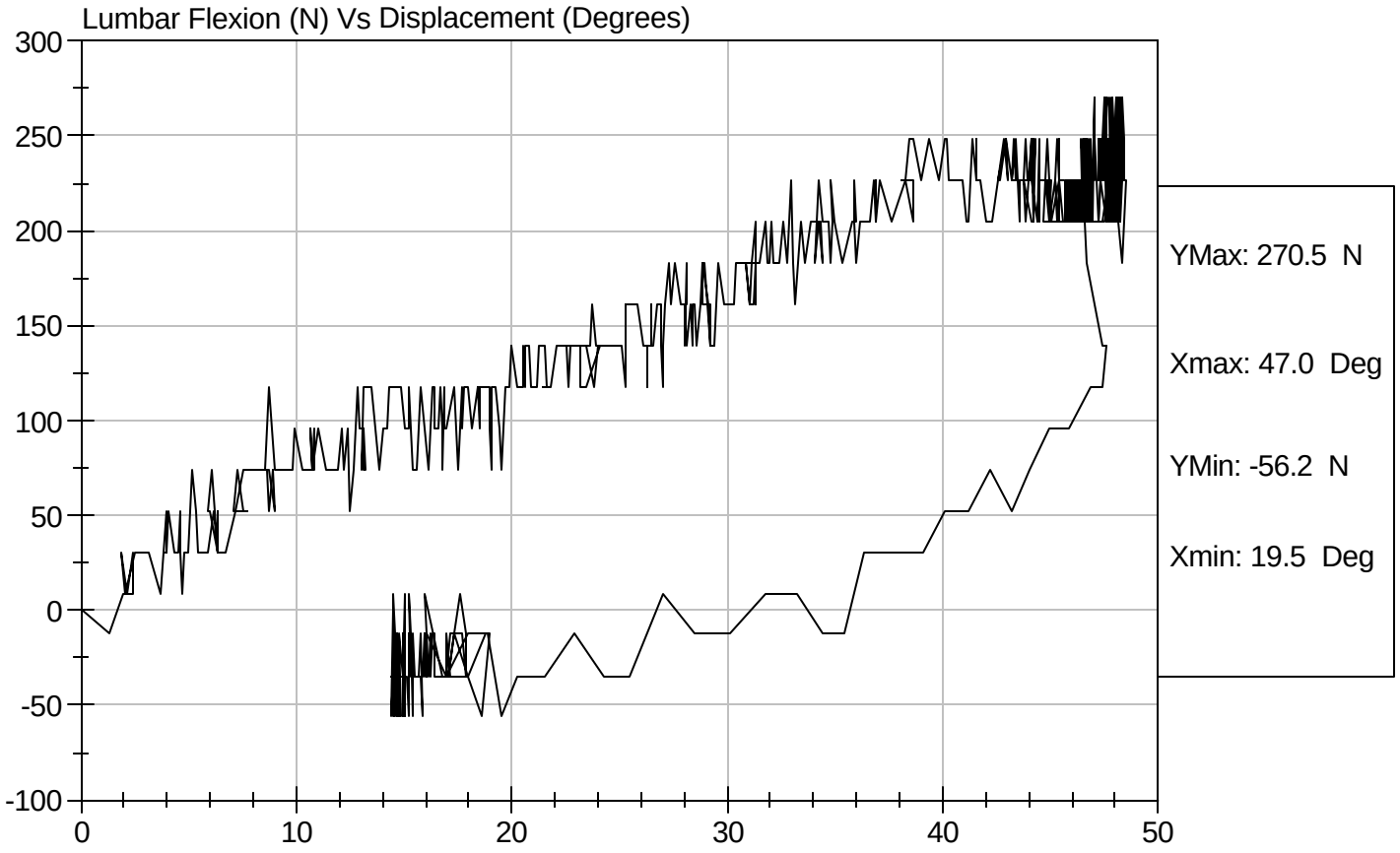
Jessica Gall
Laboratory Technician

11/01/2006
Test Date

David Winkelbauer
Approved By

Test Description: Lumbar Flexion | Test Date: 11/01/2006

Component: D063105 | Speed: 0 ft/sec, 0 m/sec



SID/HIII Calibration Data Sheet

Side Impact Dummy (SID)

Neck Pendulum Test

ATD Serial No: 036 **Test I.D:** D063109

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	18	Pass
Impact Velocity		m/s	6.89 to 7.13	7.01	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.28	Pass
	20 msec	m/s	4.12 to 5.10	4.44	Pass
	30 msec	m/s	5.73 to 7.01	6.16	Pass
	40 to 70 msec	m/s	6.27 to 7.64	7.06	Pass
Midsaggital Plane Max Rotation		deg	66 to 82	68	Pass
Head Rotation Peak to Zero - Decay Time		msec	58 to 67	59	Pass
Max. Mx at Occipital Condyles		Nm	73 to 88	79	Pass
Mx Peak To Zero - Decay Time		msec	49 to 64	55	Pass
Mx Peak to Max. Head Rotation		msec	2 to 16	11	Pass

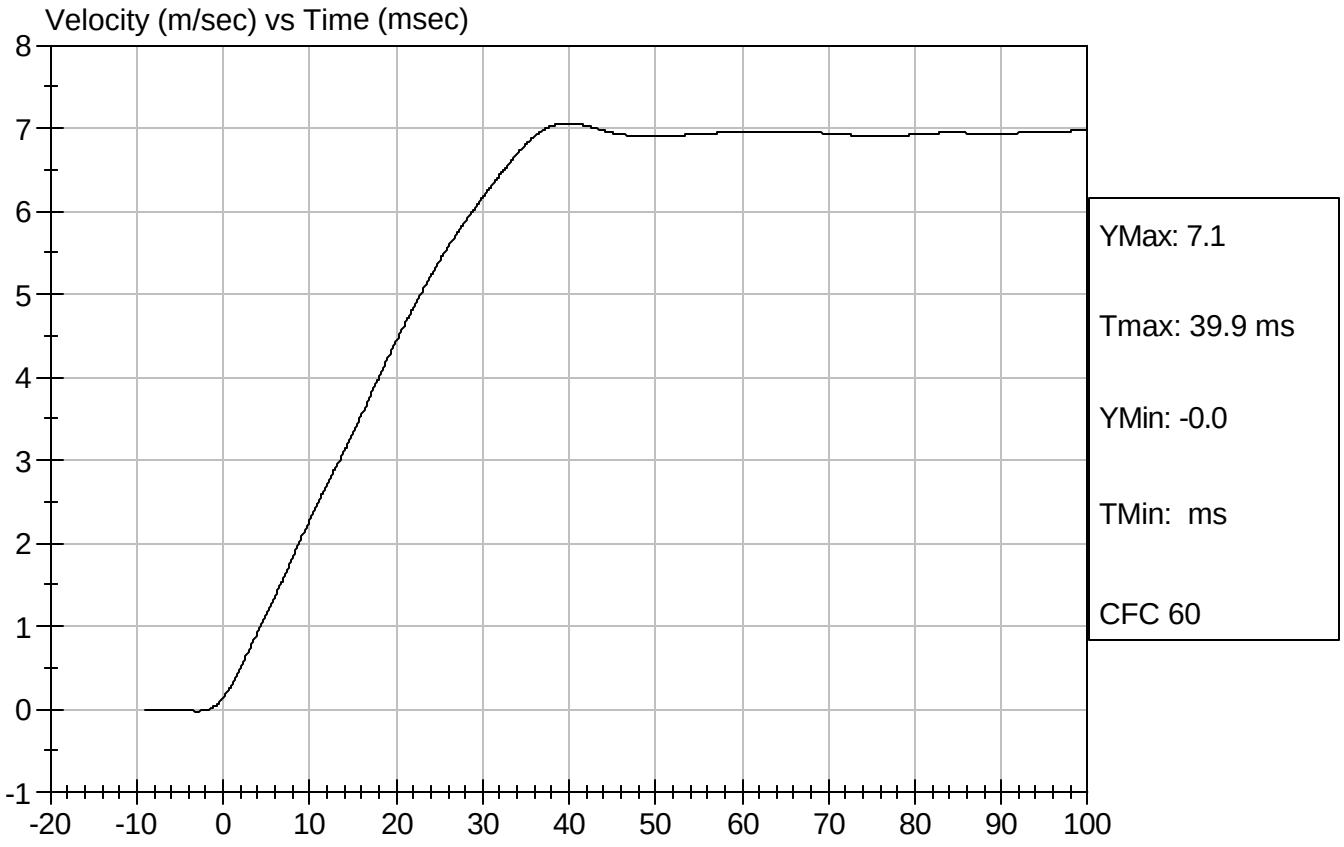
Jessica Hall
Laboratory Technician

11/01/2006
Test Date

David Winkelbauer
Approved By

Test Desc: Neck Bending
Component ID: D063109

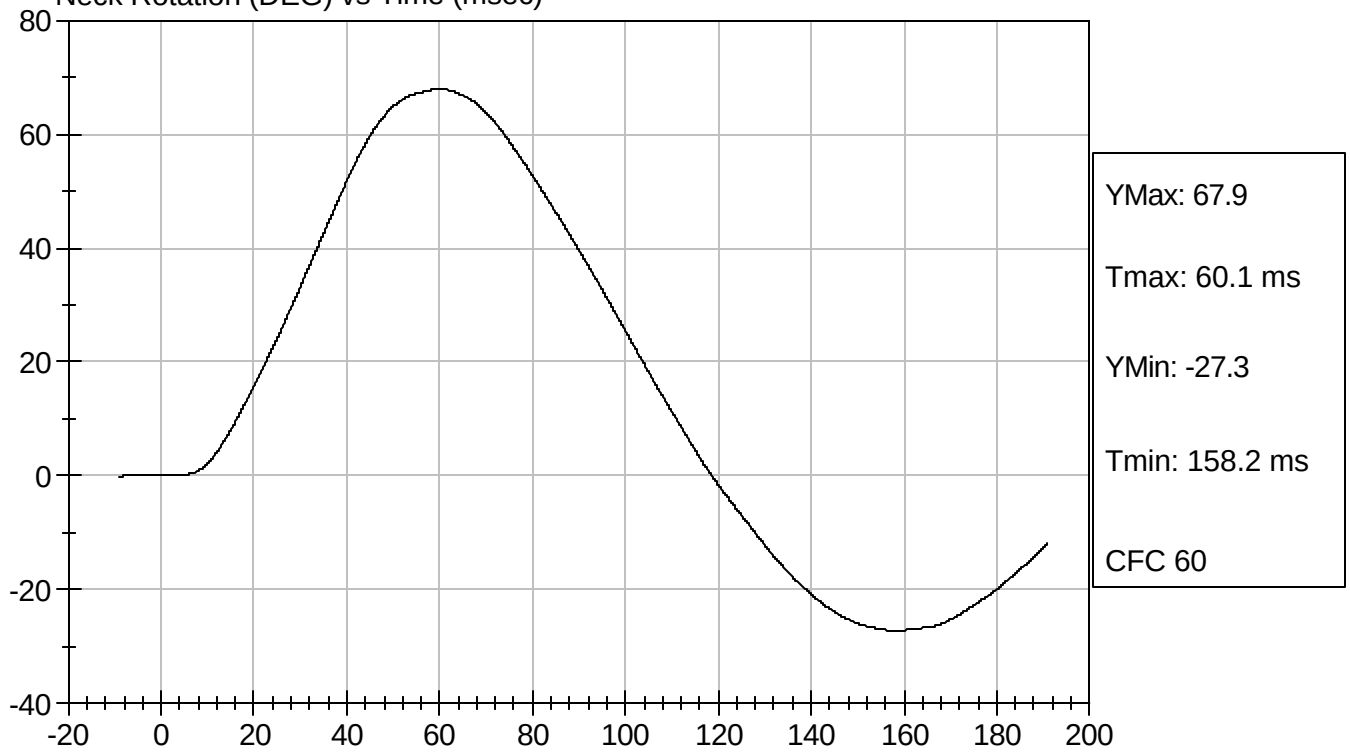
Test Date: 11/01/2006
Speed: 23 ft/sec, 7.01 m/sec



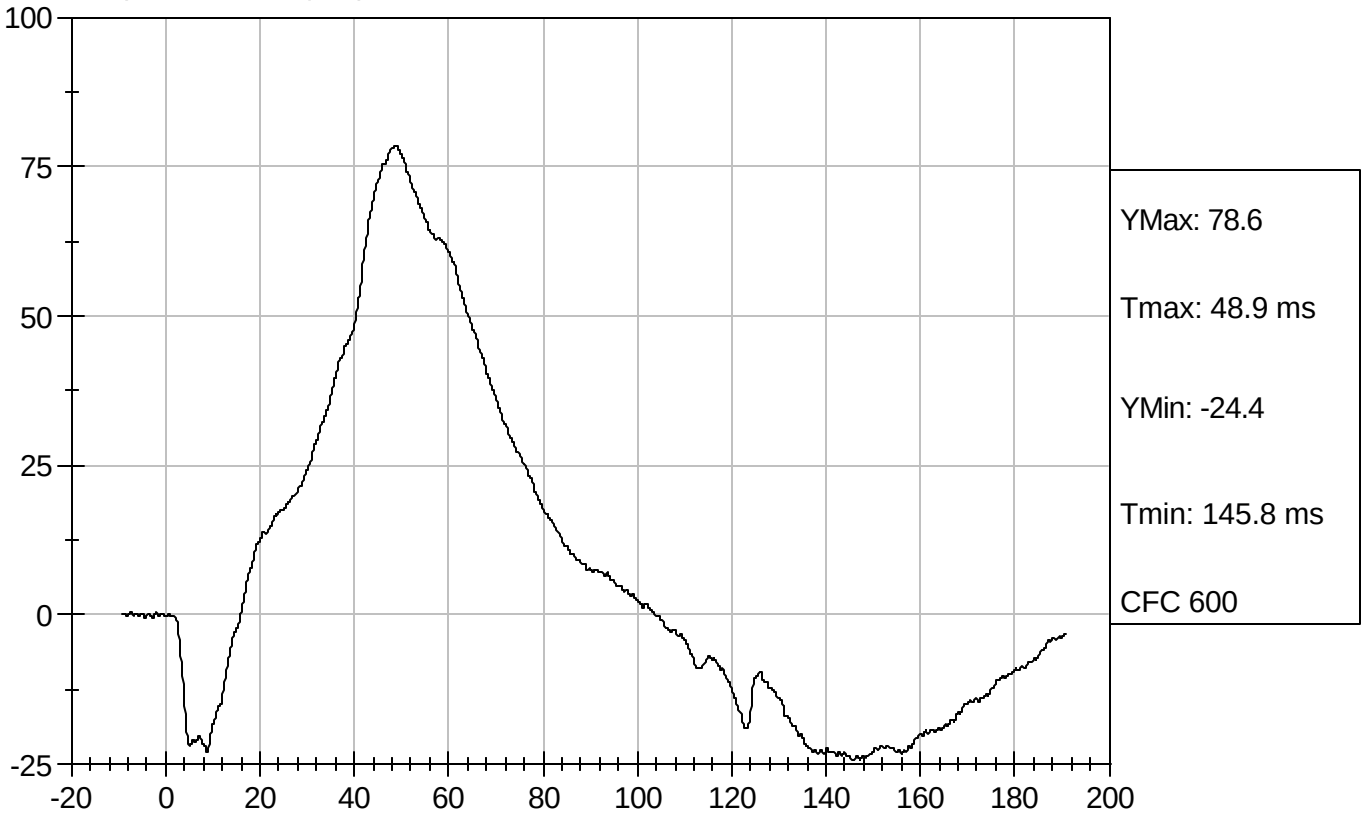
Test Desc: Neck Bending
Component ID: D063109

Test Date: 11/01/2006
Speed: 23 ft/sec, 7.01 m/sec

Neck Rotation (DEG) vs Time (msec)



Occipital Moment (Nm) vs Time (msec)



APPENDIX D

CALIBRATION INFORMATION DATA

DUMMY AND VEHICLE CALIBRATION DATA

	INSTRUMENTS FOR DRIVER S/N 036		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head CG X	C10770	Endevco	10/25/06
Head CG Y	C12863	Endevco	10/25/06
Head CG Z	AH5E5	Endevco	10/25/06
Neck Load Cell	376	Denton	05/17/06
Upper Rib Y	P49454	Endevco	06/07/06
Lower Rib Y	P49499	Endevco	06/07/06
Lower Spine Y	A27-Z24	Entran	08/23/06
Pelvis Y	P22694	Endevco	05/31/06
Upper Rib Redundant Y	P49453	Endevco	06/07/06
Lower Rib Redundant Y	C23-Y08	Entran	05/31/06
Lower Spine Redundant Y	A27-Z23	Entran	08/23/06
Pelvis Redundant Y	A07-R09	Entran	06/07/06

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Vehicle CG X	H06-L06	Entran	06/21/06
Vehicle CG Y	L02-Z38	Entran	08/03/06
Vehicle CG Z	J26-H03	Entran	08/03/06
Left Floor Y	J23808	Endevco	07/18/06
Left A-Post @ Sill Y	AP1T8	Endevco	05/15/06
Left Lower A-Post Y	ANAT6	Endevco	05/15/06
Left Mid A-Post Y	J12471	Endevco	09/15/06
Left B-Post @ Sill Y	J20392	Endevco	08/03/06
Left Lower B-Post Y	AGTY4	Endevco	08/03/06
Left Mid B-Post Y	J12462	Endevco	05/15/06
Driver Seat Track Y	AH0A2	Endevco	10/13/06
LF Door Accel. #1 Y	AMP95	Endevco	08/03/06
Upper Engine X	H06-L31	Entran	06/21/06
Upper Engine Y	E25-Z18	Entran	07/13/06
Firewall Y	L02-Z44	Entran	08/03/06
Right Floor Sill Y	J13630	Endevco	10/13/06
Rear Deck X	F29-X18	Entran	09/15/06
Rear Deck Y	F04-R22	Entran	09/15/06