REPORT NUMBER: T8001-MGA-2008-004

VEHICLE TO DEFORMABLE BARRIER CRASH TESTS IN SUPPORT OF NHTSA OFFSET FRONTAL PROGRAM

LEFT 50% OFFSET DEFORMABLE BARRIER IMPACT
PDB BARRIER
TEST DATE: FEBRUARY 14, 2008
ORDER NUMBER: DTRTV-T8001

2008 FORD ESCAPE XLS (R80201)

PREPARED BY:
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PREPARED FOR:
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VOLPE NATIONAL TRANSPORTATION SYSTEM CENTER
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Technical Report Documentation Page

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16. Abstract A 50% frontal offset barrier impact was conducted on a 2008 Ford Escape XLS, NHTSA No. R80201, at MGA Research Corporation on February 14, 2008. This test was conducted in accordance with Volpe Order No. DTRTV-T8001 for the evaluation of vehicle and occupant responses. The impact velocity was 59.9 km/h. The ambient temperature at the barrier face at the time of impact was 21 degrees Celsius. The vehicle's maximum static crush was 488 mm located to the left of the vehicle's centerline. The driver's 15 millisecond Head Injury Criteria (HIC) was 235. The driver's chest maximum resultant acceleration with three milliseconds minimum duration was 31.2 g. The driver's maximum chest deflection was -20 millimeters. The driver's left and right femur maximum axial compressive forces were -4352 N and -981 N, respectively. The right front passenger's 15 millisecond Head Injury Criteria (HIC) was 128. The right front passenger's chest maximum resultant acceleration with three milliseconds minimum duration was 30.1 g. The right front passenger's maximum chest deflection was -15 millimeters. The right front passenger's left and right femur maximum axial compressive forces were -3607 N and -952 N, respectively. The left rear passenger's 15 millisecond Head Injury Criteria (HIC) was 1514 The left rear passenger's chest maximum resultant acceleration with three milliseconds minimum duration was 53.9 g.			
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SECTION 1

PURPOSE AND TEST PROCEDURE

PURPOSE

This 60.0 km/h (target speed) Left 50% Offset Deformable Barrier test was conducted for the Volpe National Transportation Systems Center (VNTSC) / RITA by MGA Research Corporation.

The purpose of this testing was to evaluate and compare vehicle and occupant responses during 50% frontal offset vehicle to deformable barrier crash tests. For this test, the subject vehicle was a 2008 Ford Escape XLS with two (2) 50th percentile dummies in the front seating positions and one 10-year-old dummy in the left rear seating position. The deformable barrier used for this test was the PDB barrier.

TEST PROCEDURE

This test was conducted in accordance with VNTSC's instructions for a 50% offset vehicle to deformable barrier crash test. Data was obtained relative to FMVSS 208, "Occupant Crash Protection" performance, FMVSS 212, "Windshield Retention"; FMVSS 219, "Windshield Zone Intrusion"; and FMVSS 301, "Fuel System Integrity," performance.

The test vehicle, a 2008 Ford Escape XLS, was instrumented with twelve (12) accelerometers to measure longitudinal axis accelerations, four (4) accelerometers to measure lateral axis accelerations, and six (6) accelerometers to measure vertical axis accelerations. The driver and passenger's primary and secondary airbag signals were monitored with inductive pickups. The vehicle impacted a 50% left offset deformable barrier. The vehicle's specified impact velocity range was 59.2 to 60.8 km/h.

The test vehicle contained two (2) Part 572E 50th percentile adult male Hybrid III anthropomorphic test devices (dummies) with Thor-Lx legs in the driver and right front passenger positions. A Hybrid III 10-Year-Old dummy was placed in the left rear seating position. The 50th percentile dummies were positioned in the front outboard designated seating positions according to a procedure provided by the COTR. The seating procedure is included as Appendix D. The driver dummy was restrained with a 3-point seat belt and a front airbag. The right front passenger dummy was restrained with a 3-point seat belt and a front airbag. The left rear passenger dummy was in the Graco Highback Turbobooster child seat and restrained with the Type II seat belt.

Each Hybrid III 50th dummy was instrumented with an array of twelve (12) accelerometers in the head, and six (6) accelerometers in the chest, oriented to measure longitudinal, lateral, and vertical accelerations. Each dummy was also instrumented with 6-channel upper and lower neck moment and force load cells, left and right femur load cells to measure axial forces, a chest deflection potentiometer, and knee displacement potentiometers. Each dummy was equipped with Thor-Lx legs, which included upper and lower tibia load cells to measure forces and moments, longitudinal and lateral tibia accelerometers, three (3) foot accelerometers on each foot to measure accelerations in three (3) axes and three (3) rotary potentiometers at each ankle to measure foot rotations about three (3) axes.

TEST PROCEDURE (CONTINUED)

The Hybrid III 10-Year-Old child dummy was instrumented with tri-axial accelerometers in the head, chest, and pelvis oriented to measure longitudinal, lateral, and vertical accelerations. The dummy was also instrumented with 6-channel upper and lower neck moment and force load cells, left and right shoulder load cells, upper and lower sternum X accelerometers, upper and lower spine X accelerometers, 6-channel lumbar moment and force load cells, right/left upper and right/left lower asis load cells.

The vehicle impacted a deformable barrier instrumented with 90 load cells to measure longitudinal forces.

The 313 data channels were digitally sampled and recorded at 10,000 samples per second and processed per SAE J211 March 1995.

The crash event was recorded by one (1) real-time panning motion picture camera and seventeen (17) high-speed digital motion picture cameras. The pre-test and post-test conditions were recorded by one (1) real-time motion picture camera.

The left 50% offset deformable barrier crash test summary data and all occupant, camera, vehicle, and deformable barrier face measurements are presented in Section 2.0. Appendix A contains the still photographs. Appendix B contains the dummy, vehicle, and barrier data plots. Appendix C contains the dummy verification data. Appendix D contains customer provided seating procedure. Appendix E contains the barrier certification. Appendix F contains an INSIA report that was the basis for the Structural Measurements presented in Data Sheet 10 (page 30) of this report.

SECTION 2

LEFT 50% OFFSET DEFORMABLE BARRIER IMPACT SUMMARY

This 60.0 km/h (target speed) left 50% offset deformable barrier crash test was conducted by MGA Research Corporation on February 14, 2008.

The test vehicle, a 2008 Ford Escape XLS, NHTSA Number R80201, was equipped with a 2.3 L, 4-cylinder lateral engine, manual transmission with overdrive, power steering, power brakes, and front airbags. The vehicle's test weight was 1780.8 kg. The vehicle's impact speed was 59.9 km/h. The vehicle sustained 488 mm of static crush during the impact.

The occupant injury assessment values are summarized on the following page.

TEST NOTES

There was no valid data collected for:
Instrument Panel X after 70 msec.
Gas Pedal Z after 220 msec.

CMM Reference: Rear Bumper Top @ Center
+X Forward
+Y Left
+Z Up

SECTION 2 (CONTINUED)

LEFT 50% OFFSET DEFORMABLE BARRIER IMPACT SUMMARY

OCCUPANT INJURY ASSESSMENT VALUES

Injury Criteria		Limit	Driver	Right Front Passenger
HIC 36		1000	235	246
	T1 (msec)		274.3	94.3
	T2 (msec)		278.0	130.3
HIC 15		700	235	128
	T1 (msec)		274.3	100.0
	T2 (msec)		278.0	115.0
Upper Neck Tension (N)		4170	1187	1215
Upper Neck Compression (N)		4000	-2264	-57
Neck Injury (NIJ) N_{te}		1.0	0.2	0.3
Neck Injury (NIJ) N_{tf}		1.0	0.3	0.2
Neck Injury (NIJ) N_{ce}		1.0	0.5	0.0
Neck Injury (NIJ) N_{cf}		1.0	0.4	0.2
Clip (g)		60	31	30
Chest Displacement (mm)		63	-20	-15
Left Femur (N)		9,040	-4352	-3607
Right Femur (N)		9,040	-981	-952
Left Upper Tibia Index		0.91	0.43	0.51
Right Upper Tibia Index		0.91	0.57	0.58
Left Lower Tibia Index		0.91	0.48	0.20
Right Lower Tibia Index		0.91	0.84	0.20
Left Upper Tibia Force (N)		-5600	-1010	-887
Right Upper Tibia Force (N)		-5600	-2546	-1214
Left Lower Tibia Force (N)		-5200	-2140	-713
Right Lower Tibia Force (N)		-5200	-3379	-1215
Left Inversion (degrees)		-35	-14.7	-22.2
Left Eversion (degrees)		35	27.0	7.8
Left Plantarflexion (degrees)			-22.8	-20.6
Left Dorsiflexion (degrees)		35	27.3	N/A
Left External Rotation (degrees)			-6.3	-8.8
Left Internal Rotation (degrees)			12.2	2.8
Right Inversion (degrees)		35	32.1	2.3
Right Eversion (degrees)		-35	-16.5	-22.4
Right Plantarflexion (degrees)			-17.8	-20.2
Right Dorsiflexion (degrees)		35	4.9	0.8
Right External Rotation (degrees)			17.0	8.3
Right Internal Rotation (degrees)			-10.3	-9.7
Left Knee Shear (mm)		-15	-3.0	-3.5
Right Knee Shear (mm)		-15	-2.1	-3.0

SECTION 2 (CONTINUED)

LEFT 50% OFFSET DEFORMABLE BARRIER IMPACT SUMMARY

OCCUPANT INJURY ASSESSMENT VALUES (CONTINUED)

Injury Criteria		Left Rear Passenger
HIC 36		1514
	T1 (msec)	232.7
	T2 (msec)	235.3
HIC 15		1514
	T1 (msec)	232.7
	T2 (msec)	235.3
Upper Neck Tension (N)		2837
Upper Neck Compression (N)		-1786
Clip (g)		54

DATA SHEET 1

CRASH VEHICLE SUMMARY

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

Description	Value
Test Time	12:35 p.m.
Temperature	21°C
Vehicle Year/ Make / Model / Body Style	2008 Ford Escape XLS
Vehicle Test Weight	1780.8 kg
Vehicle / Barrier Impact Angle	0°
Vehicle / Barrier Impact Accuracy	5 mm down / 4 mm right
Impact Velocity	59.9 km/h
Maximum Static Crush	488 mm to the left of the vehicle's C/L
Deformable Barrier	PDB
Number of Data Channels	313
Number of Real-Time Cameras	1
Number of High-Speed Cameras	17

Dummies	Driver	Right Front Passenger	Left Rear Passenger
Type/Serial No.	HIII / 202	HIII / 206	HIII 10YO / D001
Type Lower Legs	Thor-Lx	Thor-Lx	
Serial Numbers of Legs	37R / 36L	45R / 46L	
Restraint System	3-Point Seatbelt Front Airbag	3-Point Seatbelt Front Airbag	Type II Belts Graco Highback Turbobooster

DATA SHEET 2

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

TEST VEHICLE INFORMATION

Manufacturer	Ford
Model	Escape
Body Style	MPV
NHTSA No.	R80201
VIN	1FMCU02Z78KA67820
Color	Redfire Clearcoat Met.
Delivery Date	12/19/07
Odometer Reading (mile)	218
Dealer	Boucher Fleet Group
Transmission	Manual
Final Drive	Front
Number of Cylinders	4
Engine Displacement (L)	2.3
Engine Placement	Lateral
Automatic Door Lock (ADL)	Yes
Owners Manual Details Instructions on Disabling ADLs	Yes
Bucket Seats	Yes

TEST VEHICLE OPTIONS

Front Airbag	Yes
Driver Side Curtain Airbag	Yes
Driver Side Torso Airbag	Yes
Rear Passenger Side Curtain Airbag	Yes
Rear Passenger Side Torso Airbag	No
Force Limiter	Yes
Pretensioner	Yes
Power Steering	Yes
Power Door Locks	Yes
Tilt Wheel	Yes
Air Conditioning	Yes
Anti-lock Brakes	Yes
Traction Control	No
All Wheel Drive	No
Power Seats	No

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Company
Date of Manufacture	05/07

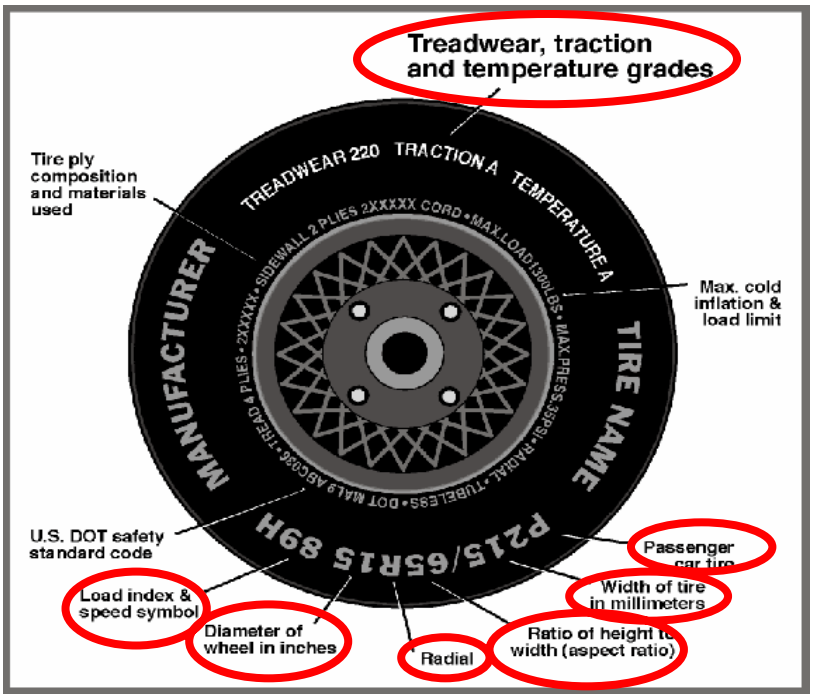
GVWR (kg)	1950
GAWR Front (kg)	1016
GAWR Rear (kg)	993

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench		
Number of Occupants	2	3		5
Capacity Wt. (VCW) (kg)				459
Cargo Wt. (RCLW) (kg)				119

DATA SHEET 2 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	220	220
Recommended Tire Size	P235/70R16	P235/70R16
Tire Size on Vehicle	P235/70R16	P235/70R16
Tire Manufacturer	Continental	Continental
Tire Name	Contitrac	CONTRITRAC
Tire Type	Passenger	Passenger
Tire Width (mm)	235	235
Ratio of Height to Width (aspect ratio)	70	70
Radial	R	R
Wheel Diameter	16	16
Load Index & Speed Symbol	104T	104T
Treadwear	520	520
Traction Grade	A	A
Temperature Grade	B	B

DATA SHEET 2 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	440.0	312.5		470.8	433.6	
Right	kg	411.4	310.7		453.6	422.8	
Ratio	%	57.7	42.3		51.9	48.1	
Totals	kg	851.4	623.2	1474.6	924.4	856.4	1780.8

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1474.6
Weight of 2 P572E ATDs & 1 10-Year-Old	kg	191.4
Rated Cargo/Luggage Weight (RCLW)	kg	119
Calculated Vehicle Target Weight (TVTW)	kg	1785.0

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	816	823	852	859	1110
As Tested	mm	789	798	808	820	1263
Post Test	mm	910	798	815	808	

Vehicle Wheelbase (mm): 2627

Weight of Ballast secured in cargo area (kg): 0

Vehicle Components Removed: Spare tire, jack, trunk carpet, two rear headrests, and tail lights.

Ballast weight does not include instrumentation and data acquisition system.

DATA SHEET 2 (CONTINUED)

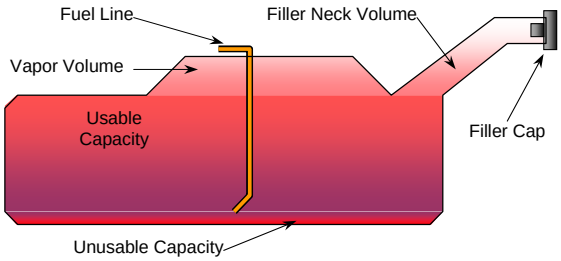
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	62.4
Usable Capacity of "Optional" Tank	
92-94% of Usable Capacity	57.4 – 58.7
Actual Amount of Solvent used	57.9
1/3 of Usable Capacity	20.8

The test vehicle is equipped with an electric fuel pump. The electric fuel pump operates for 2 seconds to pressurize the fuel system following the actuation of the ignition. If no attempt has been made to start the engine within 2 seconds following ignition actuation, the fuel pump will shut off. The fuel pump operates continuously while the engine is running. If the engine stalls, the fuel pump is deactivated. Also, a fuel pump shut-off switch is provided, designed to stop fuel flow to the engine if the vehicle sustains an impact above a certain magnitude.



VEHICLE FUEL TANK ASSEMBLY

BELT LENGTH DATA

Measurement Description	Units	Driver	Right Front Passenger	Left Rear Passenger
Shoulder belt length as measured on ATD	mm	743	760	950
Lap belt length as measured on ATD	mm	805	795	885
Remainder of belt on reel	mm	1526	1445	1215
Total belt length for continuous webbing systems	mm	3074	3000	3050

SEAT TRACK INFORMATION

Description	Driver	Right Front Passenger	Left Rear Passenger
Seat Track Shift (mm)	0	0	0
Seat Back Failure	None	None	None

DATA SHEET 3

POST IMPACT DATA

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

DOOR OPENING AND GLAZING DAMAGE

Description	Left Side	Right Side
Locked/Unlocked Doors	Doors were unlocked	Doors were unlocked
Front Door Opening	Door remained closed and latched; Door opened without tools	Door remained closed and latched; Door opened without tools
Rear Door Opening	Door remained closed and latched; Door opened without tools	Door remained closed and latched; Door opened without tools
Glazing Damage	The windshield cracked.	

DUMMY CONTACT POINTS

Description	Driver	Right Front Passenger	Left Rear Passenger
Head Contact	Airbag, B-pillar, headrest, header	Airbag	Child seat, C-pillar, door
Chest Contact	Airbag	Airbag	Chin to chest
Abdomen Contact	None	None	None
Left Knee Contact	Knee bolster	Airbag, Glovebox	Feet to driver seatback
Right Knee Contact	Knee bolster, steering wheel	Airbag, Glovebox	Feet to driver seatback

LEFT REAR (P4) CRS POST-TEST INSPECTION

Location	Damage	Remarks
Cracks on CRS	None	
Fabric Tears on CRS	None	
Vehicle Seat Structure	None	
Vehicle Seat Fabric Tears	None	
Child Dummy	None	10-Year-Old

DATA SHEET 4

TEST VEHICLE INFORMATION

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

NORMAL DESIGN RIDING POSITION

Driver seat back angle: 3.9° at headrest post

Right Front Passenger seat back angle: 3.9° at headrest post

Left Rear Passenger seat back angle: Fixed

SEAT FORE/AFT POSITIONING

	Total Fore/Aft Travel	Placed in Position #
Left Front Seat	24 detents	6th detent (1st as 0)
Right Front Seat	24 detents	12th detent (1st as 0)
Left Rear Seat	Fixed	Fixed

ADJUSTABLE D-RING POSITION

The driver and passenger D-rings were set at the lower-most detent.

STEERING COLUMN POSITION

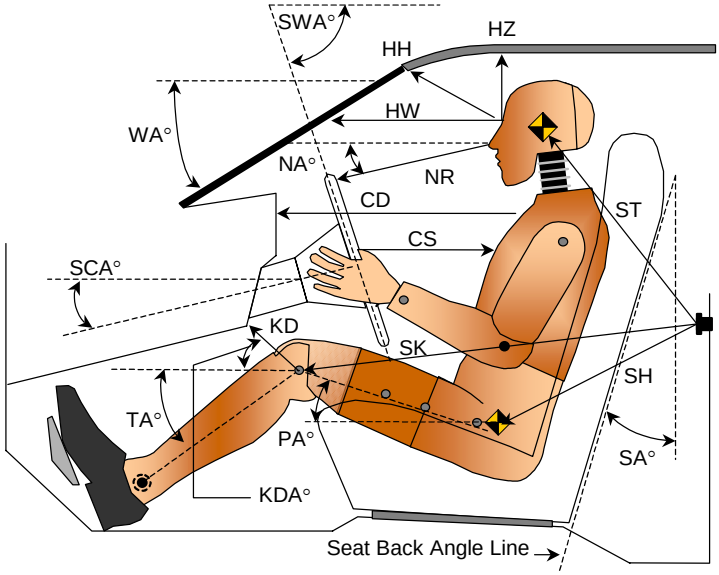
	Fore/Aft Position (mm)	Degrees
Lowermost position No. 1		21.3
Geometric center position No. 2		23.8
Uppermost position No. 3		26.3

DATA SHEET 5

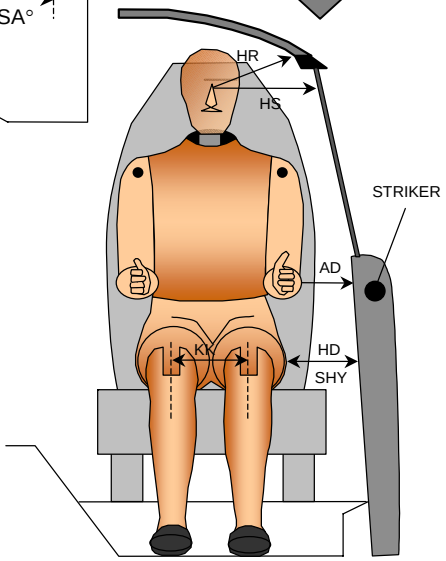
DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

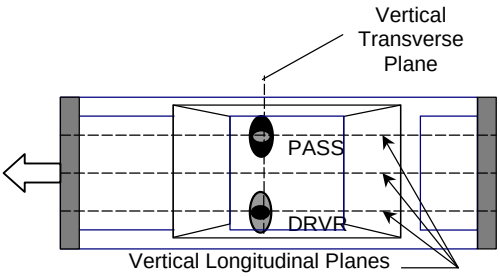
DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS



AD	Arm to Door
HD	H-Point to Door
HR	Head to Side Header
HS	Head to Side Window
KK	Knee to Knee
SHY	Striker to H-Point (Y Axis)



CD	Chest to Dash
CS	Chest to Steering Wheel Hub
HH	Head to Header
HW	Head to Windshield
HZ	Head to Roof
KDA	Knee to Dash Angle
KDL	Left Knee to Dash
KDR	Right Knee to Dash
NA	Nose to Rim Angle
NR	Nose to Rim
PA	Pelvic Angle
RA	Rim to Abdomen
SA	Seat Back Angle
SCA	Steering Column Angle
SH	Striker to H-Point
SK	Striker to Knee
ST	Striker to Head
SWA	Steering Wheel Angle
TA	Tibial Angle
WA	Windshield Angle



DATA SHEET 5 (CONTINUED)

DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

TEST DUMMY POSITION MEASUREMENTS

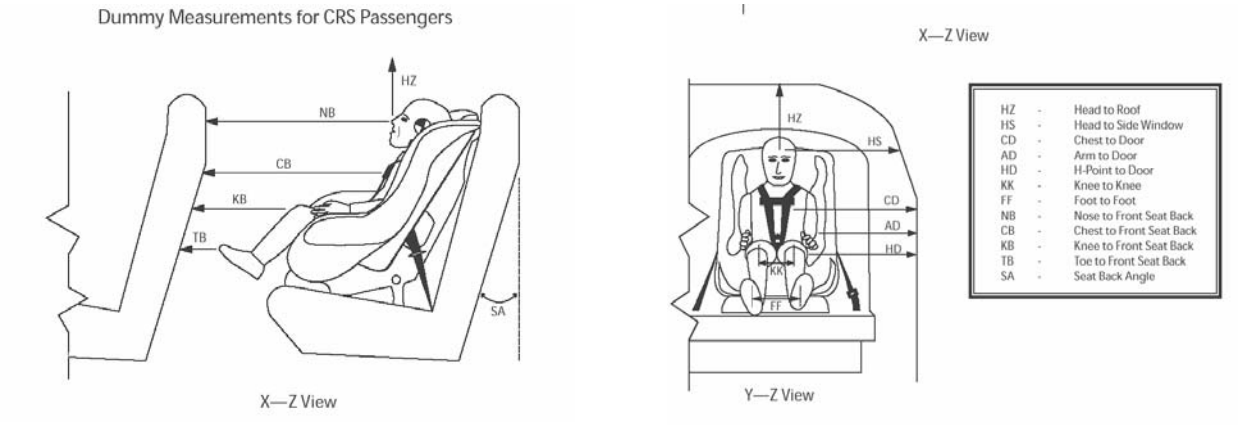
Code	Measurement Description	Driver		Right Front Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		36.0		
SWA	Steering Wheel Angle		66.2		
SCA	Steering Column Angle		25.8		
SA	Seat Back Angle (headrest post)		3.9		3.9
HZ	Head to Roof (Z)	231	90	213	90
HH	Head to Header	438	16.7	382	19.6
HW	Head to Windshield	654	0	583	0
HR	Head to Side Header (Y)	204		205	
NR	Nose to Rim	481	12.0		
CD	Chest to Dash	596		561	
CS	Chest to Steering Hub	388	5.0		
RA	Rim to Abdomen	260	0		
KDL	Left Knee to Dash	202	10.2	128	
KDR	Right Knee to Dash	180		129	15.8
PA	Pelvic Angle		22.6		21.8
TA	Tibia Angle		44.3		44.3
KK	Knee to Knee (Y)	323		269	
SAN	Striker to Ankle	862		935	
SK	Striker to Knee	525		604	
ST	Striker to Head	545		559	
SH	Striker to H-Point	168		230	
SHY	Striker to H-Point (Y)	212		209	
HS	Head to Side Window	310		304	
HD	H-Point to Door (Y)	134		135	
AD	Arm to Door (Y)	116		102	
AA	Ankle to Ankle	310		252	

DATA SHEET 5 (CONTINUED)

DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

Child Restraint System (Position 4)	Graco Highback Turbobooster (Forward Facing)
Dummy Type / Serial Number	Hybrid III 10-Year-Old / D001



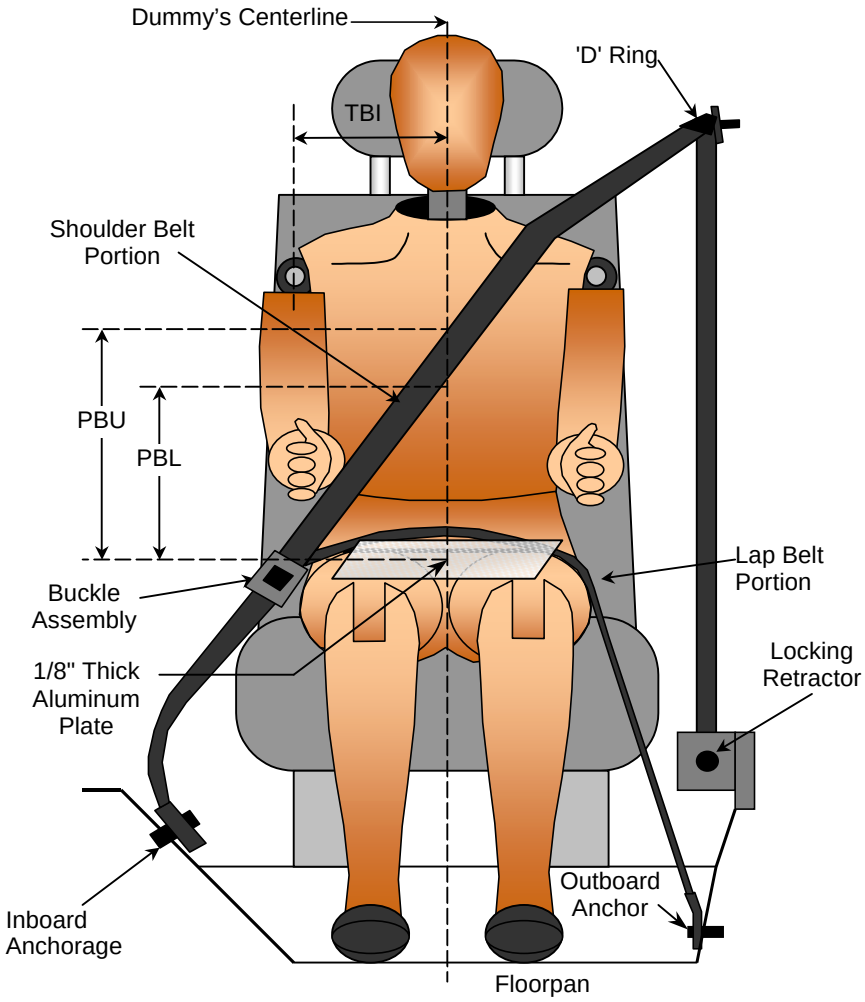
Measurement	Pre-Test (mm)	Post-Test (mm)
	P4 CRS	P4 CRS
SA (deg)	66.5	66.5
HS	353	371
CD	392	363
AD	214	227
HD	178	195
HZ	275	281
NB	502	634
CB	514	575
KK	165	119
FF	183	87
KB - LEFT	243	284
KB – RIGHT	240	364
TB - LEFT	27	197
TB - RIGHT	26	344
Seat Top to Door	128	86
Seat Bottom to Door	135	204

All dimensions in mm (unless noted)
P4 – 2nd Row Left Rear Passenger (Forward Facing)

DATA SHEET 5 (CONTINUED)

DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
PBU - Top surface of reference to belt upper edge	mm	315	315
PBL - Top surface of reference to belt lower edge	mm	235	235

DATA SHEET 5 (CONTINUED)

DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

	Driver			Right Front Passenger			Left Rear Passenger		
	X	Y	Z	X	Y	Z	X	Y	Z
Head CG	2080	-471	-756	2156	457	-763	1217	-402	-736
Striker	2093	-755	-211	2091	763	-208	1130	-751	-406
Left Knee	2618	-546	-189	2685	308	-204	1655	-442	-318
Right Knee	2634	-287	-214	2695	518	-201			
Tip of Nose	2194	-384	-723	2266	370	-739	1335	-329	-707
H-Point	2223	-543	-105	2301	554	-115	1382	-467	-244
Left Ankle	2945	-562	79	3012	298	64			
Right Ankle	2947	-241	68	3015	547	63			
Left Heel	2938	-545	205	3000	263	201			
Right Heel	2946	-202	196	3028	519	191			
Right Toe	3135	-193	-52				1972	-261	-60
Left Toe							1970	-428	-55
Seat Back							1838	-379	-523
Left Shoulder Bolt							1199	-424	-553
Right Shoulder Bolt							1192	-235	-545
Seat Back Pivot Point							1185	-547	-63
Left Child Seat Bolt							1342	-543	-162
Right Child Seat Bolt							1335	-131	-154

DATA SHEET 6

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

Accelerometer Location	Measurements (mm)		
	X	Y	Z
Left Rear Seat Crossmember X	1730	-373	442
Left Rear Seat Crossmember Y			
Right Rear Seat Crossmember X	1731	366	442
Right Rear Seat Crossmember Y			
Vehicle Center of Gravity X	2270	0	408
Vehicle Center of Gravity Y			
Vehicle Center of Gravity Z			
Top of Engine Block X	3777	0	844
Bottom of Engine Block X	3724	0	278
Left Disc Brake Caliper X	3661	-693	312
Right Disc Brake Caliper X	3661	693	322
Instrument Panel X	2805	0	1142
Left Side Driver Mid Seat Track X	2024	-561	579
Accelerator Pedal X (at midfoot)	3122	-205	583
Accelerator Pedal Y (at midfoot)			
Accelerator Pedal Z (at midfoot)			
Brake Pedal X (at midfoot)	3242	-380	5118
Brake Pedal Y (at midfoot)			
Brake Pedal Z (at midfoot)			
Footrest X	3130	-606	489
Footrest Y			
Footrest Z			

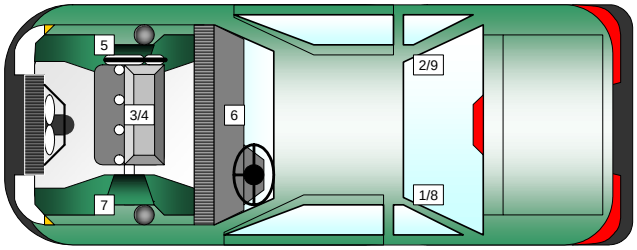
Reference is on the following page.

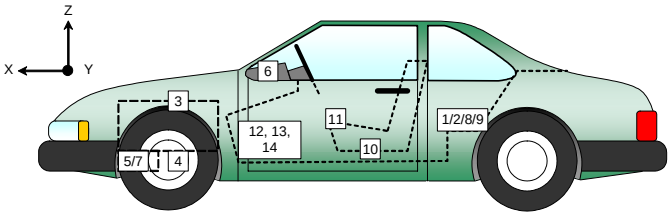
DATA SHEET 6 (CONTINUED)

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

Reference Points: X - Rear Surface of Vehicle (+ forward)
Y - Vehicle Centerline (+ to right)
Z - Ground Plane (+ up)





DATA SHEET 6 (CONTINUED)

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

Location Number	Description	Maximum Values (g's)			
		Positive	Time, ms	Negative	Time, ms
1	Left Rear Seat Cross Member X	2.4	196.3	-25.5	81.9
2	Right Rear Seat Cross Member X	1.5	0.0	-23.7	91.1
3	Top of Engine Block X	10.3	111.9	-60.0	56.0
4	Bottom of Engine Block X	2.2	229.5	-80.1	25.3
5	Disc Brake Caliper @ Right Side X	6.2	0.0	-38.6	82.1
6	Instrument Panel X	(1)	(1)	(1)	(1)
7	Disc Brake Caliper @ Left Side X	21.1	59.6	-114.4	44.4
8	Left Rear Seat Cross Member Y	8.2	45.6	-1.0	17.1
9	Right Rear Seat Cross Member Y	9.2	46.1	-1.1	16.2
10	Left Side Driver Mid Seat Track X	3.7	166.9	-28.2	87.1
11	Vehicle Center of Gravity X	1.3	174.9	-28.2	81.6
	Vehicle Center of Gravity Y	10.0	45.4	-2.8	17.1
	Vehicle Center of Gravity Z	16.9	83.0	-14.3	120.4
	Vehicle Center of Gravity Resultant	32.1	82.5		
12	Accel Pedal Heel Location X	47.5	55.6	-80.0	65.4
	Accel Pedal Heel Location Y	36.4	51.8	-26.0	67.2
	Accel Pedal Heel Location Z	(2)	(2)	(2)	(2)
	Accel Pedal Heel Location Resultant	(2)	(2)		
13	Brake Pedal Heel Location X	20.4	64.5	-52.9	57.9
	Brake Pedal Heel Location Y	24.4	63.9	-10.4	91.2
	Brake Pedal Heel Location Z	35.4	65.8	-12.4	110.3
	Brake Pedal Heel Location Resultant	54.7	57.8		
14	Outside Footrest X	3.1	162.9	-35.2	79.6
	Outside Footrest Y	26.1	63.0	-6.3	92.5
	Outside Footrest Z	13.2	72.5	-14.8	106.2
	Outside Footrest Resultant	40.9	62.6		

(1) No valid data after 70 msec.
(2) No valid data after 220 msec.

DATA SHEET 7
DUMMY INJURY CRITERIA VALUES

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

		Maximum Value							
		Driver				Right Front Passenger			
Description	Unit	Positive	Time, ms	Negative	Time, ms	Positive	Time, ms	Negative	Time, ms
Head X	G	95.5	276.4	-31.9	98.3	3.7	286.5	-30.1	106.8
Head Y	G	19.5	145.9	-11.7	275.5	4.3	122.5	-3.4	108.5
Head Z	G	49.1	276.1	-4.3	291.8	27.9	104.6	-0.8	171.8
Head Resultant	G	107.0	276.4			40.2	103.3		
Head (FT) Y	G	18.0	145.8	-17.8	272.1	6.8	120.2	-5.8	88.5
Head (FT) Z	G	65.8	275.9	-10.3	280.2	33.5	103.3	-5.6	172.7
Head (LT) X	G	100.2	276.4	-29.5	97.8	3.7	286.5	-30.2	103.6
Head (LT) Z	G	54.3	276.1	-4.4	281.0	31.7	103.6	-1.1	167.6
Head (TP) X	G	118.1	275.9	-39.8	99.3	6.6	291.7	-35.4	115.3
Head (TP) Y	G	26.9	154.5	-18.5	276.7	7.7	130.0	-5.4	102.4
Head Redundant X	G	95.4	276.4	-32.1	99.2	3.6	290.6	-31.7	106.8
Head Redundant Y	G	18.2	146.7	-11.8	275.5	3.8	134.6	-3.8	108.6
Head Redundant Z	G	49.3	276.2	-4.2	292.2	28.5	103.6	-0.6	173.5
Head Resultant Redundant	G	107.0	276.4			41.8	106.9		
Upper Neck Fx	N	604.0	273.4	-311.9	163.3	127.5	287.4	-577.3	166.5
Upper Neck Fy	N	620.6	157.1	-54.3	276.1	152.8	144.9	-79.0	190.2
Upper Neck Fz	N	1187.0	101.3	-2263.8	277.7	1215.0	105.8	-57.2	169.2
Upper Neck F Resultant	N	2302.4	278.3			1276.4	105.8		
Upper Neck Mx	N-m	44.9	156.9	-22.8	289.5	10.7	85.3	-6.7	206.1
Upper Neck My	N-m	40.6	92.6	-37.5	289.4	39.8	165.7	-20.6	102.6
Upper Neck Mz	N-m	8.9	184.5	-16.2	135.7	5.7	111.8	-2.8	153.1
Upper Neck M Resultant	N-m	48.8	156.1			40.2	165.7		
Lower Neck Fx	N	485.2	265.5	-645.5	280.5	330.5	275.7	-822.4	100.0
Lower Neck Fy	N	859.5	138.4	-52.9	262.3	86.8	72.8	-228.2	94.2
Lower Neck Fz	N	1898.9	101.2	-1805.9	278.6	1879.9	105.5	-320.2	171.1
Lower Neck F Resultant	N	1935.8	101.2			2003.9	104.1		
Lower Neck Mx	N-m	149.0	157.1	-14.5	261.5	33.6	136.9	-24.2	194.7
Lower Neck My	N-m	109.9	159.0	-126.0	107.1	159.2	163.3	-69.7	271.7
Lower Neck Mz	N-m	26.2	138.0	-0.4	24.1	1.7	23.4	-16.1	141.2
Lower Neck M Resultant	N-m	185.2	157.2			159.5	163.3		
Chest X	G	5.3	288.5	-28.6	101.6	0.8	187.7	-30.2	99.2
Chest Y	G	12.1	118.8	-3.9	27.9	8.1	98.8	-1.2	178.6
Chest Z	G	10.8	106.4	-5.9	134.4	12.3	113.8	-4.4	72.5
Chest Resultant	G	32.1	101.4			31.2	99.2		
Chest Redundant X	G	5.2	279.5	-28.5	101.3	0.7	192.6	-30.3	98.9
Chest Redundant Y	G	12.0	118.8	-4.0	27.8	8.2	99.2	-1.3	180.4
Chest Redundant Z	G	10.4	107.4	-6.1	134.3	11.7	114.2	-4.5	72.7
Chest Resultant Redundant	G	32.0	101.2			31.4	99.0		
Chest Displacement	mm			-20.1	101.9			-14.6	125.1

DATA SHEET 7 (CONTINUED)

DUMMY INJURY CRITERIA VALUES

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

		Maximum Value							
		Driver				Right Front Passenger			
Description	Unit	Positive	Time, ms	Negative	Time, ms	Positive	Time, ms	Negative	Time, ms
Pelvis X	G	2.3	267.2	-37.6	91.3	2.4	152.4	-32.4	73.0
Pelvis Y	G	16.7	94.8	-3.7	29.1	6.1	72.8	-1.8	135.3
Pelvis Z	G	8.4	278.1	-15.1	82.1	2.7	270.0	-17.9	84.4
Pelvis Resultant	G	41.9	91.4			35.5	73.0		
Right Femur	N	1016.2	61.7	-981.4	90.5	504.7	35.9	-951.8	72.4
Left Femur	N	668.3	68.5	-4352.1	98.6	505.2	51.3	-3607.3	105.6
Right Knee Shear	mm	0.8	67.2	-2.1	93.9	0.3	248.0	-3.0	95.1
Left Knee Shear	mm	0.9	75.6	-3.0	107.8	0.4	246.3	-3.5	108.4
Right Upper Tibia Fx	N	496.5	71.3	-210.0	78.2	97.5	34.3	-670.0	72.0
Right Upper Tibia Fy	N	143.7	80.3	-371.0	70.0	421.2	105.0	-78.0	130.3
Right Upper Tibia Fz	N	336.6	42.3	-2546.3	70.7	239.3	34.4	-1213.6	105.4
Right Upper Tibia F Resultant	N	2612.0	70.7			1408.5	105.4		
Right Upper Tibia Mx	N-m	32.1	123.0	-66.2	76.2	40.7	104.5	-16.4	177.1
Right Upper Tibia My	N-m	41.4	116.2	-69.5	71.7	73.3	107.1	-22.9	46.5
Right Lower Tibia Fx	N	156.7	78.2	-549.4	71.4	343.7	101.6	-133.7	44.6
Right Lower Tibia Fy	N	413.3	70.5	-128.1	63.5	113.7	175.6	-309.8	105.4
Right Lower Tibia Fz	N	153.8	242.8	-3379.1	70.6	132.8	175.4	-1214.6	111.9
Right Lower Tibia F Resultant	N	3444.2	70.6			1265.7	111.8		
Right Lower Tibia Mx	N-m	48.6	116.7	-63.0	70.3	35.8	105.7	-9.0	71.9
Right Lower Tibia My	N-m	28.6	76.3	-96.4	70.5	42.7	102.2	-21.7	53.4
Right Tibia Mid Shaft X	G	17.3	78.0	-93.5	70.5	8.7	145.4	-45.2	53.7
Right Tibia Mid Shaft Y	G	55.8	66.5	-9.4	122.5	11.3	79.2	-9.2	102.2
Rt Dorsi/Plantar Flexion	Deg	4.9	114.2	-17.8	245.5	0.8	105.6	-20.2	250.4
Rt Inversion/Eversion	Deg	32.1	119.7	-16.5	295.2	2.3	248.4	-22.4	75.0
Rt Internal/External	Deg	17.0	276.0	-10.3	137.6	8.3	255.6	-9.7	157.9
Right Foot X – Front	G	34.6	24.9	-147.5	68.3	10.5	125.1	-67.1	51.7
Right Foot Y – Front	G	78.9	64.9	-41.2	80.5	18.6	65.8	-9.7	97.6
Right Foot Z – Front	G	35.9	23.6	-92.1	22.9	18.9	51.9	-26.7	56.7
Right Foot - Front Resultant	G	162.5	67.4			69.2	51.7		
Left Upper Tibia Fx	N	399.6	65.7	-286.7	115.6	204.3	51.9	-536.7	72.8
Left Upper Tibia Fy	N	163.8	73.6	-247.0	93.8	55.7	121.1	-93.9	79.5
Left Upper Tibia Fz	N	335.6	36.3	-1009.9	65.7	67.6	39.4	-886.5	70.4
Left Upper Tibia F Resultant	N	1088.6	65.7			1022.1	70.5		
Left Upper Tibia Mx	N-m	51.3	103.3	-30.4	59.9	27.0	87.3	-0.4	0.0
Left Upper Tibia My	N-m	62.5	110.4	-64.9	66.2	97.8	109.4	-31.0	49.1
Left Lower Tibia Fx	N	60.8	210.8	-613.7	66.8	304.1	109.2	-254.5	52.2
Left Lower Tibia Fy	N	265.5	59.8	-135.3	103.9	17.7	176.0	-94.9	122.4
Left Lower Tibia Fz	N	163.0	36.1	-2139.7	66.2	93.0	87.6	-712.6	124.2
Left Lower Tibia F Resultant	N	2228.5	66.2			735.8	124.1		

DATA SHEET 7 (CONTINUED)

DUMMY INJURY CRITERIA VALUES

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

		Maximum Value							
		Driver				Right Front Passenger			
Description	Unit	Positive	Time, ms	Negative	Time, ms	Positive	Time, ms	Negative	Time, ms
Left Lower Tibia Mx	N-m	27.1	106.0	-24.3	59.0	5.8	120.0	-7.1	77.4
Left Lower Tibia My	N-m	42.2	115.8	-58.9	65.2	30.7	107.8	-29.8	51.7
Left Tibia Mid Shaft X	G	6.8	115.6	-50.7	66.6	8.8	126.3	-29.9	63.6
Left Tibia Mid Shaft Y	G	20.5	59.4	-10.0	74.6	16.0	77.4	-10.0	109.2
Lt Dorsi/Plantar Flexion	Deg	27.3	124.2	-22.8	299.7	-3.1	104.2	-20.6	44.6
Lt Inversion/Eversion	Deg	27.0	71.0	-14.7	266.7	7.8	275.5	-22.2	80.5
Lt Internal/External	Deg	12.2	231.1	-6.3	155.6	2.8	236.1	-8.8	108.1
Left Foot X – Front	G	14.2	96.7	-80.5	64.0	9.3	121.4	-50.4	71.7
Left Foot Y – Front	G	16.5	65.2	-27.6	73.1	25.1	71.9	-12.5	70.9
Left Foot Z – Front	G	5.7	73.5	-54.5	61.3	9.4	71.2	-24.2	76.5
Left Foot – Front Resultant	G	91.1	64.1			57.0	71.7		
Lap Belt Load	N	4825.3	77.2			3810.7	67.3		
Shoulder Belt Load	N	3774.7	59.9			3488.8	120.4		

		Maximum Value			
		Left Rear Passenger			
Description	Unit	Positive	Time, ms	Negative	Time, ms
Head X	G	210.5	233.8	-54.2	133.8
Head Y	G	34.7	149.9	-27.5	234.2
Head Z	G	127.7	233.8	-10.5	240.5
Head Resultant	G	247.7	233.8		
Upper Neck Fx	N	74.2	261.6	-1205.1	133.7
Upper Neck Fy	N	201.5	158.3	-334.2	130.6
Upper Neck Fz	N	2837.3	132.9	-1785.8	237.2
Upper Neck F Resultant	N	3096.4	132.9		
Upper Neck Mx	N-m	12.4	235.3	-22.1	154.2
Upper Neck My	N-m	31.0	262.9	-61.6	243.5
Upper Neck Mz	N-m	11.6	132.9	-4.6	244.0
Upper Neck M Resultant	N-m	64.6	243.5		
Lower Neck Fx	N	82.6	262.9	-2925.5	133.3
Lower Neck Fy	N	158.0	153.3	-1152.7	114.8
Lower Neck Fz	N	2865.7	101.4	-1612.3	237.2
Lower Neck F Resultant	N	3486.1	101.5		
Lower Neck Mx	N-m	8.6	153.1	-71.8	124.6
Lower Neck My	N-m	283.8	132.9	-7.8	232.1
Lower Neck Mz	N-m	34.2	135.6	-7.8	101.4
Lower Neck M Resultant	N-m	289.5	132.9		

DATA SHEET 7 (CONTINUED)

DUMMY INJURY CRITERIA VALUES

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

		Maximum Value			
		Left Rear Passenger			
Description	Unit	Positive	Time, ms	Negative	Time, ms
Right Shoulder Fx	N	270.4	102.3	-61.1	245.1
Right Shoulder Fz	N	294.3	121.7	-85.3	80.7
Left Shoulder Fx	N	86.9	239.2	-3953.4	101.3
Left Shoulder Fz	N	1521.1	96.2	-31.6	179.5
Chest X	G	16.0	243.0	-54.9	93.7
Chest Y	G	12.2	87.2	-3.9	156.9
Chest Z	G	21.4	235.3	-13.8	242.9
Chest Resultant	G	56.6	90.2		
Chest Displacement	mm			-30.4	106.8
Upper Sternum X	G	40.8	245.6	-73.7	92.5
Lower Sternum X	G	33.0	246.2	-99.6	92.0
Upper Spine X	G	20.2	242.9	-53.0	100.7
Lower Spine X	G	15.4	243.1	-61.4	90.7
Lumbar Fx	N	2175.7	135.3	-1094.1	87.9
Lumbar Fy	N	35.7	55.1	-932.0	134.3
Lumbar Fz	N	979.0	110.5	-502.4	50.5
Lumbar F Resultant	N	2518.6	134.8		
Lumbar Mx	N-m	17.0	217.8	-108.8	103.1
Lumbar My	N-m	69.8	89.5	-47.6	134.8
Lumbar Mz	N-m	43.5	144.4	-6.8	73.4
Lumbar M Resultant	N-m	125.2	92.1		
Pelvis X	G	10.1	97.0	-52.1	83.5
Pelvis Y	G	14.5	123.1	-8.0	80.6
Pelvis Z	G	13.7	235.6	-22.6	89.3
Pelvis Resultant	G	56.0	83.5		
Right Upper Asis Fx	N	584.9	89.2	-358.4	122.4
Right Lower Asis Fx	N	964.6	89.4	-29.2	236.9
Left Upper Asis Fx	N	166.7	84.1	-106.2	179.7
Left Lower Asis Fx	N	677.5	87.8	-2.8	14.4
Shoulder Belt Load	N	6384.9	96.4		
Lap Belt Load	N	5570.1	87.7		

DATA SHEET 8

SUMMARY OF FMVSS 212/ 219 (PARTIAL) DATA

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

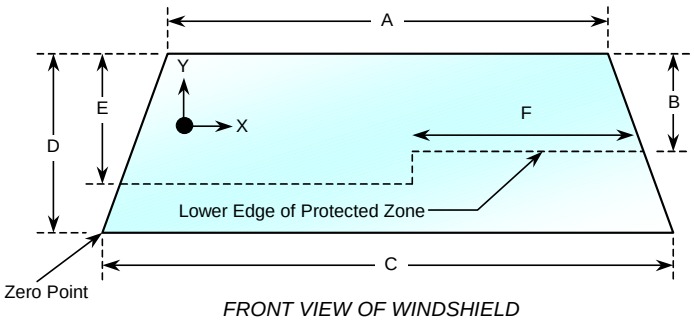
Windshield Mounting Details:
Windshield glass is secured to the vehicle frame with a rubber trim and glue.

The standard requires that the post-test retention measurement be a minimum of 75 percent of the pretest total periphery measurement for vehicles not equipped with occupant passive restraints and 50 percent for each side of the windshield for vehicles, which are equipped with occupant passive restraints.

Temperature of windshield molding during test: 21°C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% of Retention
Left Side	2006	2006	100
Right Side	2006	2006	100
Total	4012	4012	100



FRONT VIEW OF WINDSHIELD

Item	Units	Value
A	mm	1155
B	mm	561
C	mm	1475
D	mm	691
E	mm	490
F	mm	485

AREA OF PROTECTED ZONE FAILURES - NONE

A. Provide coordinates of the area that the protected zone was penetrated more than 0.25 inches by a vehicle component other than one that is normally in contact with the windshield. **None**

X	Y

B. Provide coordinates of the area beneath the protected zone that the inner surface of the windshield was penetrated by a vehicle component. **None**

X	Y

DATA SHEET 9

FMVSS 301 FUEL SYSTEM INTEGRITY DATA

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

Temperature at Time of Impact: 21° C Test Time: 12:35 pm

Stoddard Solvent Spillage Measurements

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

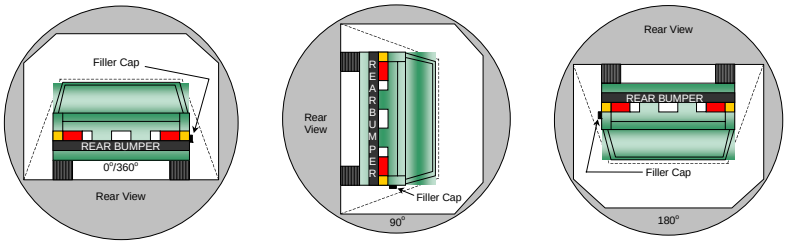
B. For the 5 minute period after motion ceases: 0 oz.
(Maximum Allowable = 5 ounces)

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

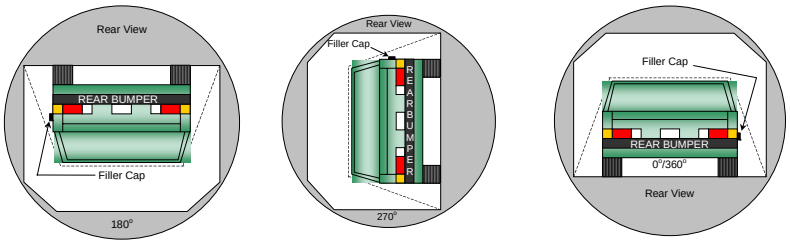
D. Spillage: None

FMVSS 301 STATIC ROLLOVER DATA

NOT PERFORMED



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).

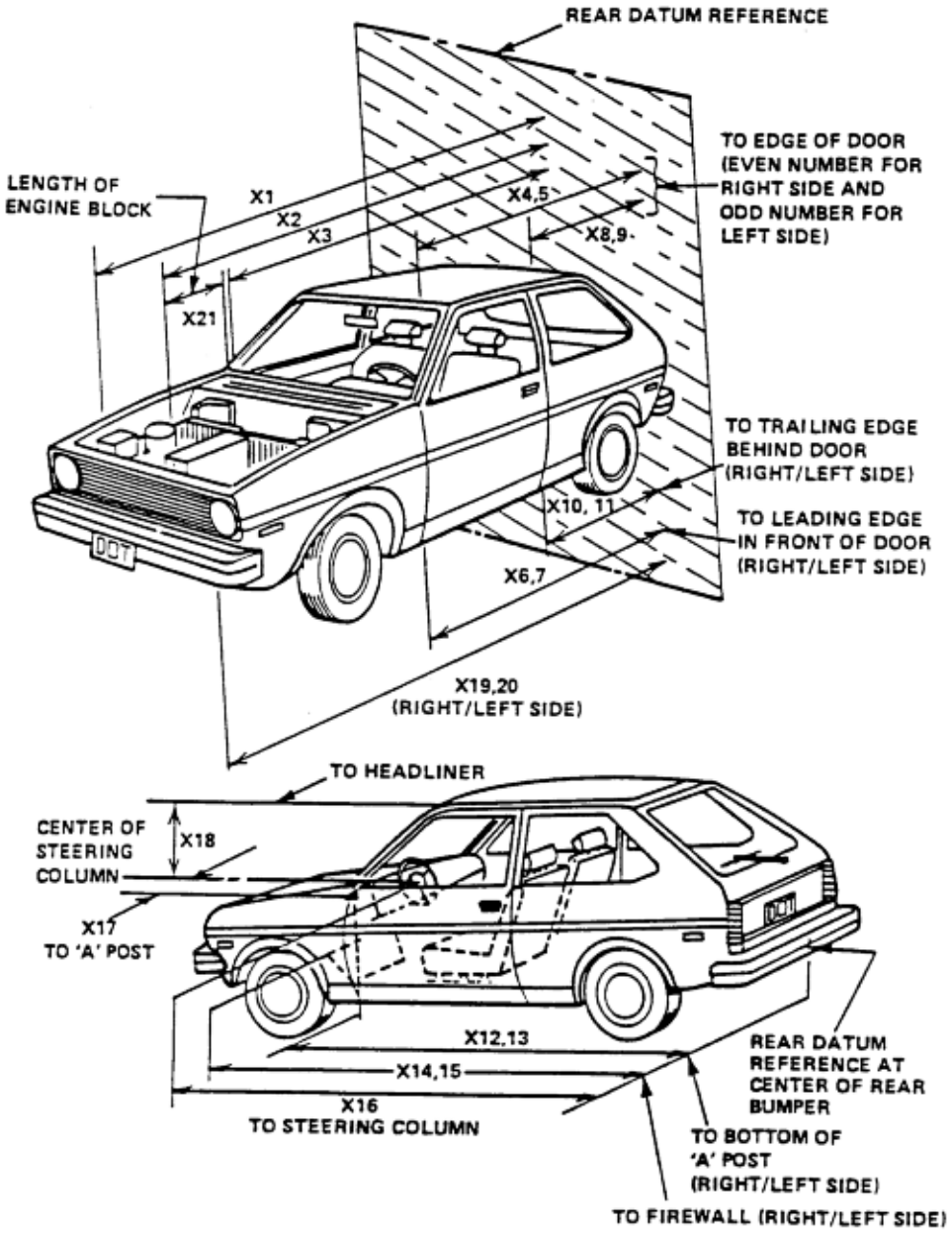
3. Details of Stoddard Solvent spillage locations:

Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (oz.)
0° to 90°	N/A		
90° to 180°	N/A		
180° to 270°	N/A		
270° to 360°	N/A		

DATA SHEET 10

TEST VEHICLE MEASUREMENTS

Test Vehicle:	2008 Ford Escape XLS	NHTSA No.:	R80201
Test Program:	Left 50% Offset Deformable Barrier	Test Date:	2/14/2008



DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

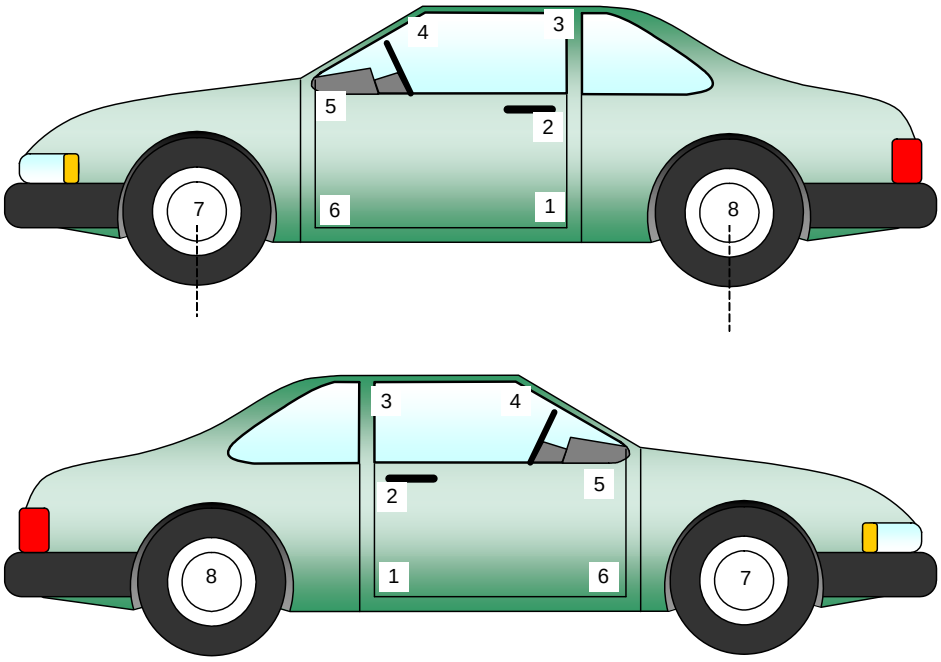
Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

No.	Measurement Description	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
1	Total length of vehicle at centerline	4375	3910	465
2	RSOV to front of engine	3953	3835	118
3	RSOV to firewall centerline	3415	3366	49
4	RSOV to leading edge of right door	3014	3015	-1
5	RSOV to leading edge of left door	3011	3010	1
6	RSOV to lower leading edge of right door	2997	2987	10
7	RSOV to lower leading edge of left door	2992	2979	13
8	RSOV to upper leading edge of right door	1978	1975	3
9	RSOV to upper leading edge of left door	1976	1976	0
10	RSOV to lower trailing edge of right door	2005	1983	22
11	RSOV to lower trailing edge of left door	2002	1982	20
12	RSOV to bottom of right 'A' pillar	3011	2998	13
13	RSOV to bottom of left 'A' pillar	2996	2984	12
14	RSOV to firewall on right side	3464	3454	10
15	RSOV to firewall on left side	3451	3272	179
16	RSOV to steering column	2580	2554	26
17	Center of steering column to left 'A' pillar	372	455	-83
18	Center of steering column to headlining	460	532	-72
19	RSOV to right side of front bumper	4311	4314	-3
20	RSOV to left side of front bumper	4312	3988	324
21	Length of engine block	180	180	0
RD	RSOV to right side of dash panel	2882	2886	-4
CD	RSOV to center of dash panel	2825	2796	29
LD	RSOV to left side of dash panel	2846	2818	28

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008



LEFT FRONT

Point Location	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2177	-724	88	2173	-718	101	-4	-6	-13
2	2042	-736	-509	2044	-728	-497	2	-8	-12
3	1988	-611	-925	1994	-601	-911	6	-10	-14
4	2527	-619	-880	2538	-616	-902	11	-3	22
5	2933	-726	-551	2901	-736	-543	-32	10	-8
6	2954	-727	99	2951	-707	120	-3	-20	-21
7	3581	-818	277	3447	-813	272	-134	-5	5
8	961	-790	328	955	-786	322	-6	-4	6

RIGHT FRONT

Point Location	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2173	727	86	2173	728	88	0	-1	-2
2	2041	741	-506	2041	743	-504	0	-2	-2
3	2000	609	-920	2000	612	-920	0	-3	0
4	2533	623	-872	2533	627	-871	0	-4	-1
5	2931	733	-551	2929	738	-548	-2	-5	-3
6	2948	727	93	2948	731	97	0	-4	-4
7	3578	828	285	3655	777	287	77	51	-2
8	959	789	326	959	790	342	0	-1	-16

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

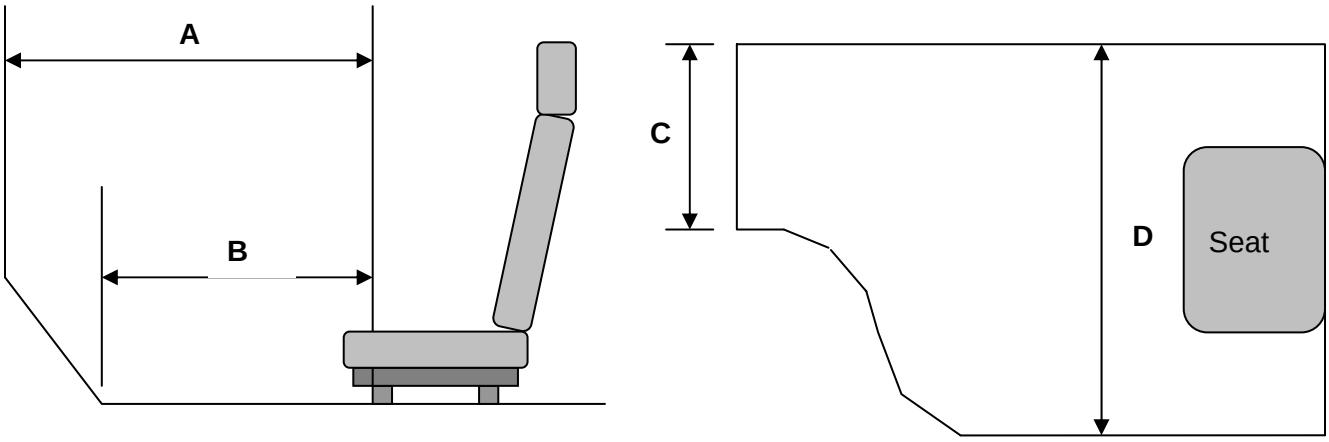
Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

	Elements	Pre-Test (mm)
1	Total Length	4375
2	Total Width	1800
3	Bumper Top Height	623
4	Bumper Bottom Height	558
5	Longitudinal Member Top Height	639
6	Distance between Longitudinal Members	1130
7	Longitudinal Member Width	95
8	Engine Top Height	885
9	Engine Bottom Height	263
10	Engine and gearbox width	843
11	Front bumper-engine distance	330
12	Front shock absorber fixing height	1013
13	Bonnet leading edge height	943
14	Front shock absorber fixing width	1166
15	Front bumper – front axle distance	835
16	Front axle – a pillar distance	499
17	A-pillar – B-pillar distance	1030
18	B-Pillar – rear axle distance	1079
19	B-pillar – C-pillar distance	970
20	Roof sill bottom height	1544
21	Roof sill top height	1620
22	Floor sill bottom height	349
23	Floor sill top height	492

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008



DRIVER

Measurements	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
A	673	610	63
B	440	440	0
C	405	376	29
D	564	563	1

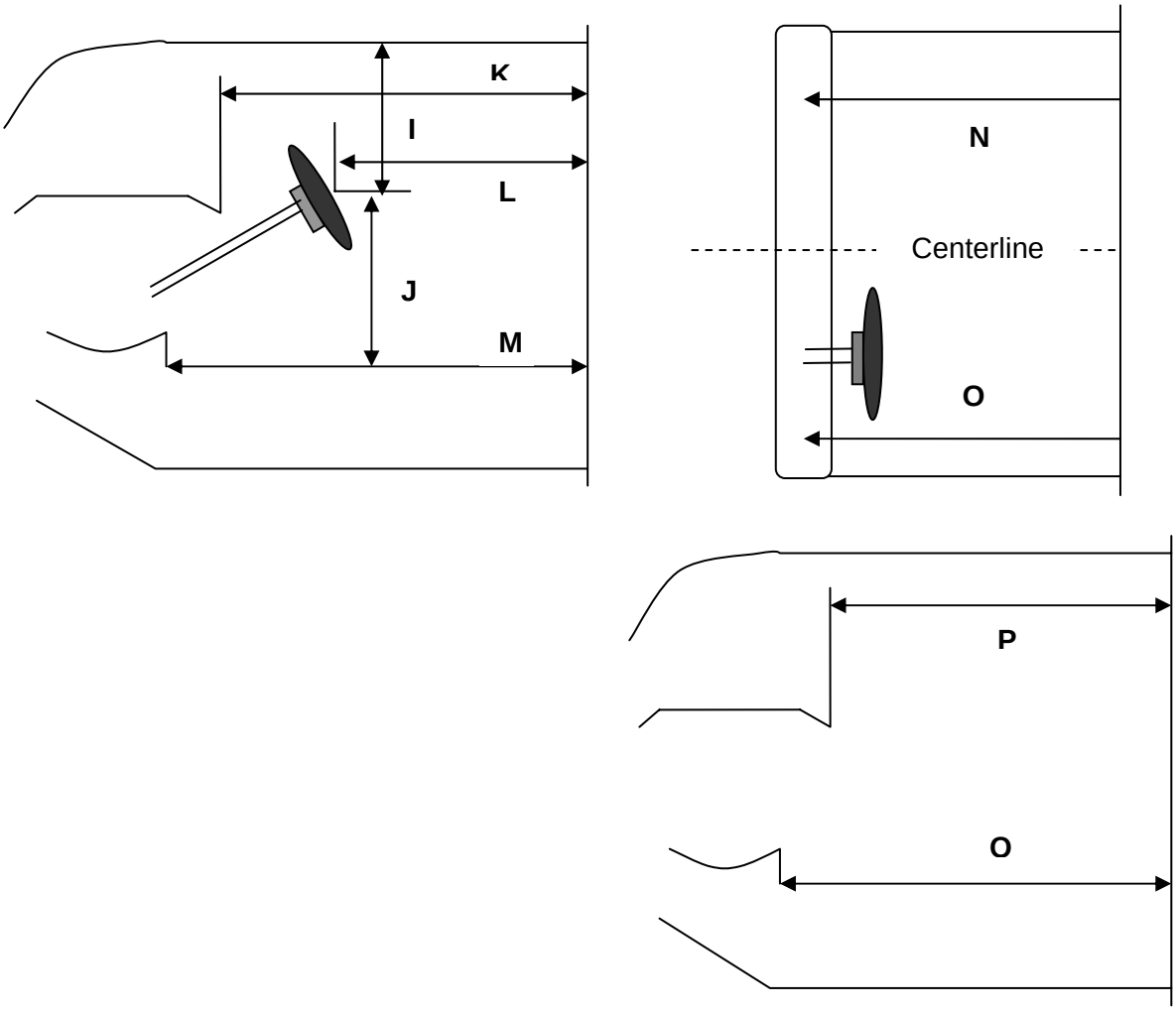
LEFT FRONT PASSENGER

Measurements	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
A	681	649	32
B	475	475	0
C	348	343	5
D	528	526	2

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008



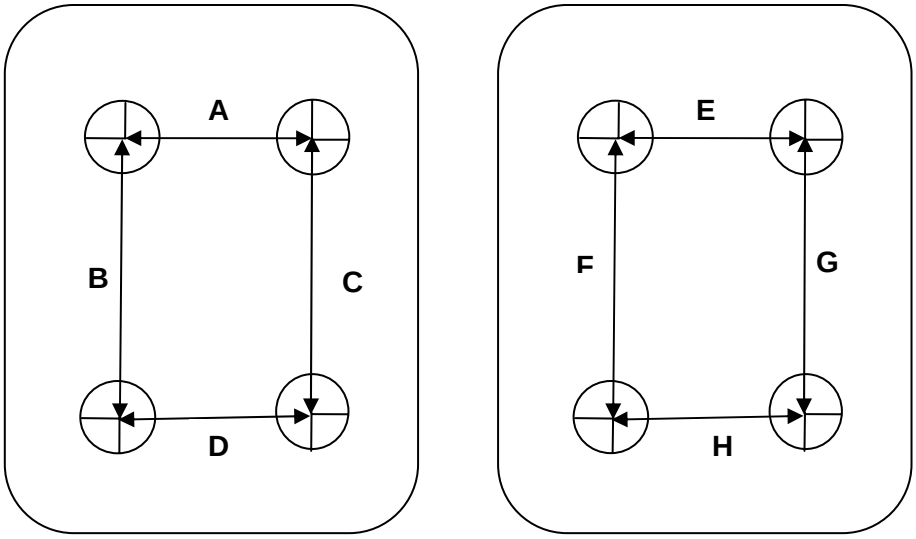
Measurements	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
I	460	535	-75
J	728	686	42
K	1517	1455	62
L	1343	1270	73
M	1516	1458	58
N	1811	1805	6
O	1818	1756	62
P= K (PASS)	1584	1571	13
Q= M (PASS)	1516	1519	-3

Measurements from C-Pillar Belt Anchorage

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008



Driver Passenger

UNDERBODY FLOORBOARD DEFORMATION

Measurement	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
A	3332	317	15
B	255	245	10
C	265	259	6
D	298	291	7
E	142	141	1
F	280	280	0
G	279	279	0
H	148	146	2

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

	Points	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
		X	Y	Z	X	Y	Z	X	Y	Z
Lower Bumper Beam	1	4340	-569	54	4008	-568	-69	-332	-1	123
	2	4384	-338	55	3922	-383	-74	-462	45	129
	3	4399	-111	54	3918	-156	-50	-481	45	104
	4	4399	114	55	4031	-24	-61	-368	138	116
	5	4383	342	55	4195	135	-80	-188	207	135
	6	4336	571	57	4340	317	-90	4	254	147
Upper Bumper Beam	1	4336	-569	-7	4022	-563	-132	-314	-6	125
	2	4383	-342	-6	3912	-380	-135	-471	38	129
	3	4398	-112	-6	3900	-152	-110	-498	40	104
	4	4398	111	-7	4015	-19	-121	-383	130	114
	5	4382	343	-5	4182	141	-140	-200	202	135
	6	4339	571	-5	4330	321	-152	-9	250	147
Upper Radiator Support	1	4073	-662	-340	3675	-635	-435	-398	-27	95
	2	4146	-361	-328	3695	-350	-393	-451	-11	65
	3	4119	-134	-333	3783	-140	-426	-336	6	93
	4	4129	132	-331	3897	100	-428	-232	32	97
	5	4138	364	-331	3992	312	-427	-146	52	96
	6	4069	667	-343	4041	614	-380	-28	53	37
Front of Hood	1	4144	-704	-354	3845	-724	-494	-299	20	140
	2	4294	-428	-356	4014	-476	-446	-280	48	90
	3	4322	-144	-358	4059	-196	-431	-263	52	73
	4	4322	146	-358	4109	89	-438	-213	57	80
	5	4291	426	-357	4155	361	-463	-136	65	106
	6	4140	705	-355	4020	648	-478	-120	57	123

Reference Photos on the Following Page

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle:	2008 Ford Escape XLS	NHTSA No.:	R80201
Test Program:	Left 50% Offset Deformable Barrier	Test Date:	2/14/2008



Lower Bumper Beam / Upper Bumper Beam / Front of Hood



Upper Radiator Support

DATA SHEET 10 (CONTINUED)

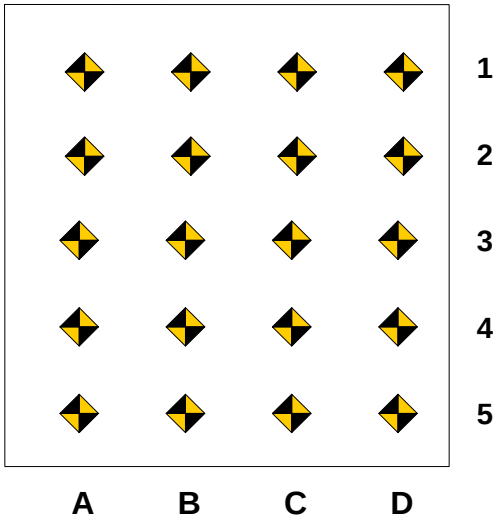
TEST VEHICLE MEASUREMENTS

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

Columns A through D are evenly spaced.

Rows 1 and 2 are on the toe kick portion of the floor pan. Rows 3, 4, and 5 are located on the most level portion of the floor pan.

Row 3 will be at the intersection of the toe kick and the level sections of the floor pan.



DRIVER'S SIDE TOE PAN FLOOR BOARD

Intrusion Location	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	3185	-582	119	3147	-553	121	-38	-29	-2
B1	3239	-453	119	3102	-415	104	-137	-38	15
C1	3244	-324	120	3119	-292	123	-125	-32	-3
D1	3278	-192	121	3174	-181	114	-104	-11	7
A2	3143	-581	167	3116	-561	177	-27	-20	-10
B2	3204	-458	171	3122	-428	167	-82	-30	4
C2	3201	-322	166	3106	-300	179	-95	-22	-13
D2	3203	-194	166	3110	-176	166	-93	-18	0
A3	3119	-583	207	3109	-564	222	-10	-19	-15
B3	3117	-450	215	3105	-430	246	-12	-20	-31
C3	3133	-323	209	3097	-302	240	-36	-21	-31
D3	3124	-193	211	3109	-181	237	-15	-12	-26
A4	3011	-583	219	3004	-566	238	-7	-17	-19
B4	3013	-452	215	3004	-434	239	-9	-18	-24
C4	3011	-324	216	3000	-308	247	-11	-16	-31
D4	3012	-187	218	3002	-173	249	-10	-14	-31
A5	2896	-578	215	2889	-563	233	-7	-15	-18
B5	2895	-455	215	2886	-440	238	-9	-15	-23
C5	2897	-325	215	2887	-310	247	-10	-15	-32
D5	2899	-191	215	2893	-185	227	-6	-6	-12
Brake Pedal	3070	-323	22	2982	-346	34	-88	-23	-12
IP Left	2805	-517	-310	2758	-501	-296	-47	-16	-14
IP Right	2795	-217	-311	2758	-202	-295	-37	-15	-16
Steering Column	2614	-367	-480	2572	-336	-419	-42	-31	-61
Front Outboard Bolt	2536	-566	189	2533	-562	215	-3	-4	-26

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

Driver's Side Toe Pan Floor Board
Additional Measurements

Points	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
1	3204	-584	49	3147	-555	48	-57	-29	1
2	3236	-520	63	3119	-490	59	-117	-30	4
3	3268	-485	61	3128	-449	49	-140	-36	12
4	3294	-445	48	3150	-408	31	-144	-37	17
5	3303	-388	52	3163	-346	46	-140	-42	6
6	3301	-332	60	3151	-296	53	-150	-36	7
7	3309	-297	92	3177	-280	91	-132	-17	1
8	3315	-260	109	3197	-253	110	-118	-7	-1
9	3310	-216	115	3204	-208	118	-106	-8	-3
10	3304	-167	93	3208	-160	93	-96	-7	0
11	3287	-134	79	3200	-127	75	-87	-7	4
12	3200	-525	157	3138	-502	168	-62	-23	-11
13	3227	-376	140	3102	-345	146	-125	-31	-6
14	3224	-266	146	3109	-240	151	-115	-26	-5
15	3145	-538	206	3118	-515	211	-27	-23	-5
16	3158	-375	197	3086	-356	224	-72	-19	-27
17	3155	-252	196	3085	-248	225	-70	-4	-29
18	3061	-520	217	3054	-502	233	-7	-18	-16
19	3064	-391	214	3054	-373	249	-10	-18	-35
20	3069	-251	217	3059	-238	241	-10	-13	-24
21	2950	-519	218	2943	-502	239	-7	-17	-21
22	2953	-391	216	2945	-376	248	-8	-15	-32
23	2954	-252	216	2944	-237	254	-10	-15	-38
24	2784	-583	216	2778	-570	235	-6	-13	-19
25	2780	-453	216	2772	-440	240	-8	-13	-24
26	2783	-321	216	2774	-307	250	-9	-14	-34
27	2784	-192	216	2783	-190	238	-1	-2	-22
28	2671	-582	217	2665	-570	236	-6	-12	-19
29	2668	-453	215	2661	-440	239	-7	-13	-24
30	2668	-322	216	2674	-300	256	6	-22	-40
31	2669	-194	215	2669	-192	239	0	-2	-24
32	2554	-579	236	2548	-570	263	-6	-9	-27
33	2554	-455	237	2548	-446	259	-6	-9	-22
34	2552	-326	234	2545	-318	250	-7	-8	-16
35	2553	-198	234	2552	-195	260	-1	-3	-26
36	3118	-98	184	3107	-91	194	-11	-7	-10
37	3008	-109	196	2998	-106	205	-10	-3	-9
38	2907	-112	197	2897	-105	208	-10	-7	-11
39	2794	-120	198	2794	-113	228	0	-7	-30
40	2670	-125	195	2672	-122	222	2	-3	-27

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

Driver's Side Toe Pan Floor Board
Additional Measurements (Continued)

Points	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
41	3013	-672	155	3007	-650	168	-6	-22	-13
42	2896	-672	159	2891	-653	175	-5	-19	-16
43	2781	-671	167	2776	-655	182	-5	-16	-15
44	2686	-671	166	2682	-658	182	-4	-13	-16
45	3136	-456	-58	3044	-447	-54	-92	-9	-4
46	3084	-452	-2	2997	-443	-6	-87	-9	4
47	3049	-454	54	2965	-446	52	-84	-8	2
48	3132	-368	-64	3045	-382	-55	-87	14	-9
49	3095	-322	1	3005	-344	12	-90	22	-11
50	3055	-324	54	2968	-351	65	-87	27	-11
51	3257	-141	-39	3192	-130	-21	-65	-11	-18
52	3160	-190	13	3102	-177	43	-58	-13	-30
53	3091	-189	87	3046	-174	129	-45	-15	-42

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle:	2008 Ford Escape XLS	NHTSA No.:	R80201
Test Program:	Left 50% Offset Deformable Barrier	Test Date:	2/14/2008

Driver's Side Toe Pan Floor Board

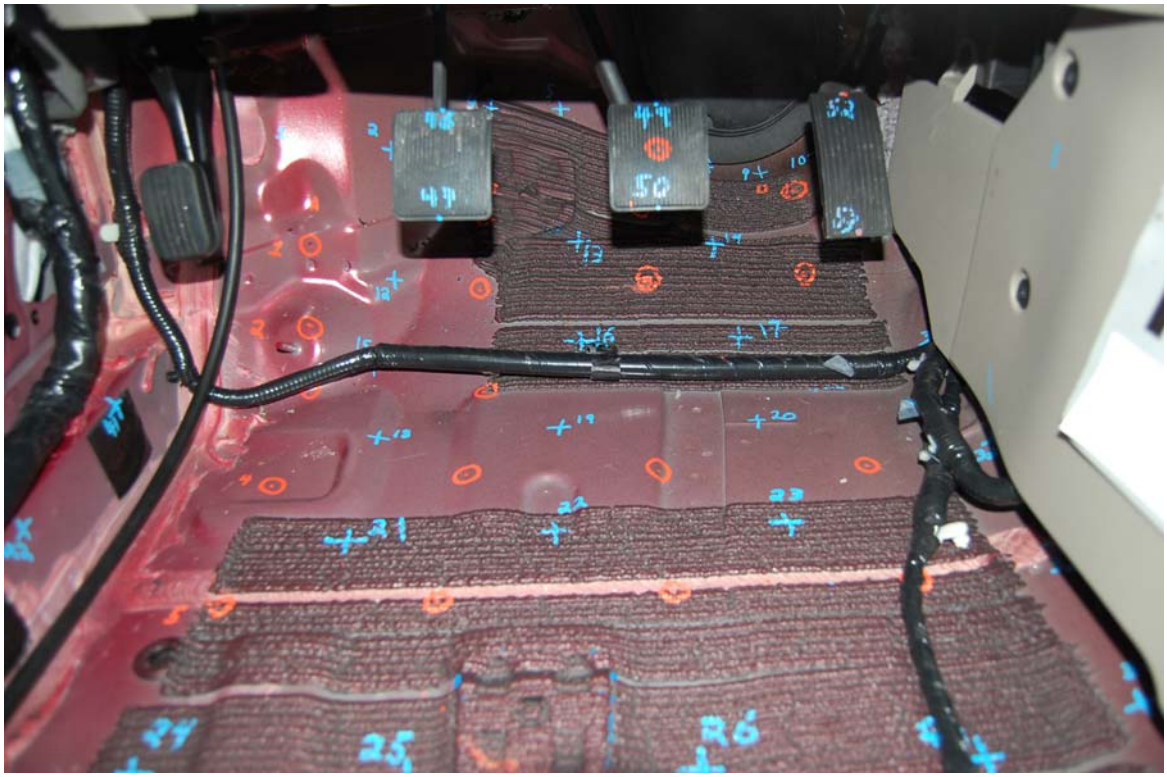


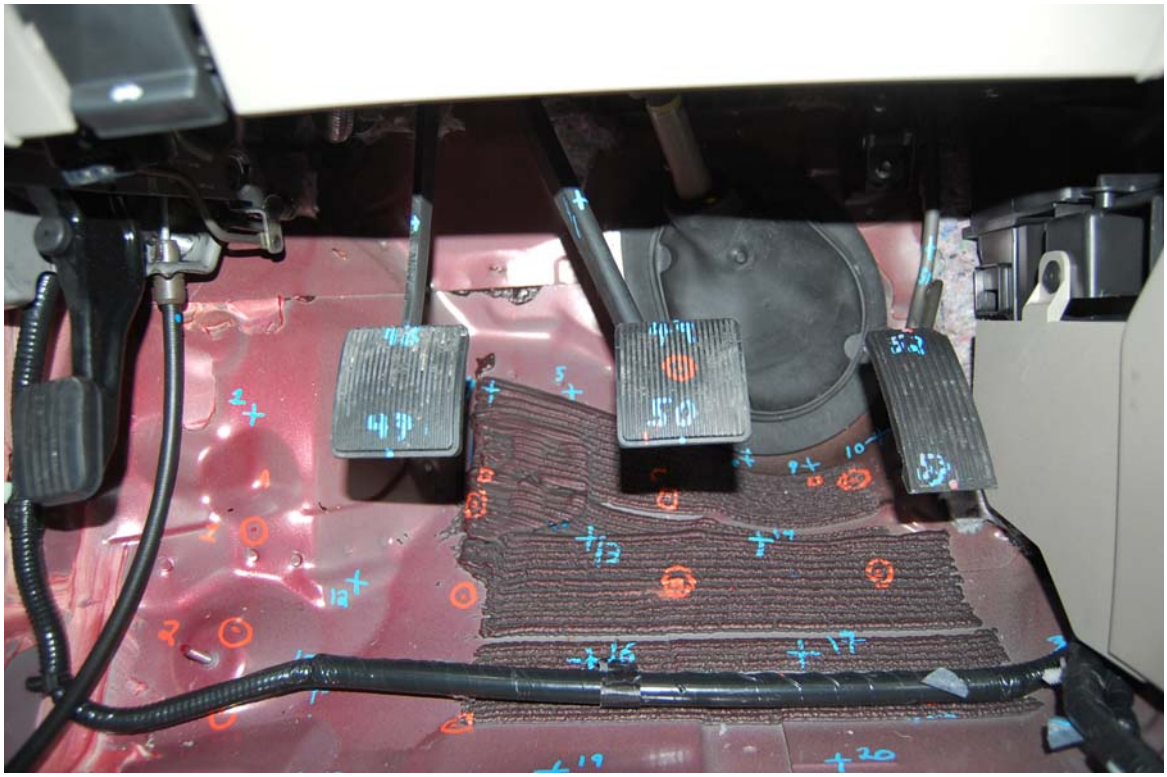
DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle:	2008 Ford Escape XLS	NHTSA No.:	R80201
Test Program:	Left 50% Offset Deformable Barrier	Test Date:	2/14/2008

Driver's Side Toe Pan Floor Board





DATA SHEET 10 (CONTINUED)

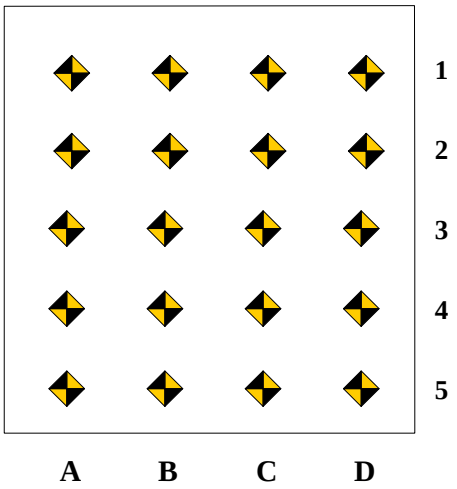
TEST VEHICLE MEASUREMENTS

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

Columns A through D are evenly spaced.

Rows 1 and 2 are on the toe kick portion of the floor pan. Rows 3, 4, and 5 are located on the most level portion of the floor pan.

Row 3 will be at the intersection of the toe kick and the level sections of the floor pan.



PASSENGER'S SIDE TOE PAN FLOOR BOARD

Intrusion Location	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	3269	188	119	3231	185	123	-38	3	-4
B1	3245	320	121	3229	322	128	-16	-2	-7
C1	3234	451	119	3220	444	125	-14	7	-6
D1	3186	584	115	3183	582	119	-3	2	-4
A2	3214	197	165	3192	198	178	-22	-1	-13
B2	3210	323	165	3211	320	184	1	3	-19
C2	3197	456	174	3194	454	183	-3	2	-9
D2	3170	581	166	3167	578	169	-3	3	-3
A3	3139	195	213	3135	196	228	-4	-1	-15
B3	3134	326	209	3134	326	231	0	0	-22
C3	3135	451	208	3134	449	222	-1	2	-14
D3	3114	584	215	3113	583	220	-1	1	-5
A4	3008	189	225	3008	190	248	0	-1	-23
B4	3009	322	222	3009	323	243	0	-1	-21
C4	3012	452	216	3012	452	228	0	0	-12
D4	3008	584	216	3007	583	220	-1	1	-4
A5	2895	191	219	2894	192	245	-1	-1	-26
B5	2899	323	221	2899	324	243	0	-1	-22
C5	2899	455	220	2899	455	231	0	0	-11
D5	2895	581	220	2895	581	226	0	0	-6
Front Outboard Bolt	2533	573	194	2533	572	201	0	1	-7
IP Left	2796	219	-311	2775	232	-302	-21	-13	-9
IP Right	2805	519	-310	2796	531	-304	-9	-12	-6

DATA SHEET 11

PHOTOGRAPHIC DATA

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

No.	Camera View	Location (mm) *			Lens (mm)	Angle (deg)	Shutter (µs)	Speed (fps)
		X	Y	Z				
1	Left Front Half	345	-5200	1170	24	5.0	325	1000
2	Left Closeup	1055	-6705	1490	35	1.7	265	1000
3	Left SWC Bottom	685	-6910	1185	50	4.8	275	1000
4	Left Angle 1	3495	-5200	1550	25	2.4	300	1000
5	Left Angle 2	5415	-5215	2060	50	7.7	175	1000
6	Left Overall	1675	-7140	1180	19	3.8	1000	1000
7	Right Front Half	415	5080	1195	24	4.7	300	1000
8	Right Closeup	935	6180	1595	35	2.3	280	1000
9	Right Angle 1	3470	5340	1585	25	1.4	260	1000
10	Right Angle 2	5385	4800	1915	50	5.6	200	1000
11	Windshield	-2530	0	2770	12.5	36	280	1000
12	Overhead Closeup	-20	0	4440	50	90	700	1000
13	Overhead Overall	725	0	4630	14	90	750	1000
14	Pit Front	5	0	-3150	24	90	750	1000
15	Pit Rear	2165	0	-3150	24	90	750	1000
16	Onboard Passenger				8	11.8	1000	1000
17	Onboard Driver Footwell				6.5	0.8	1000	1000
18	Real-Time Camera				13			24

*COORDINATES:

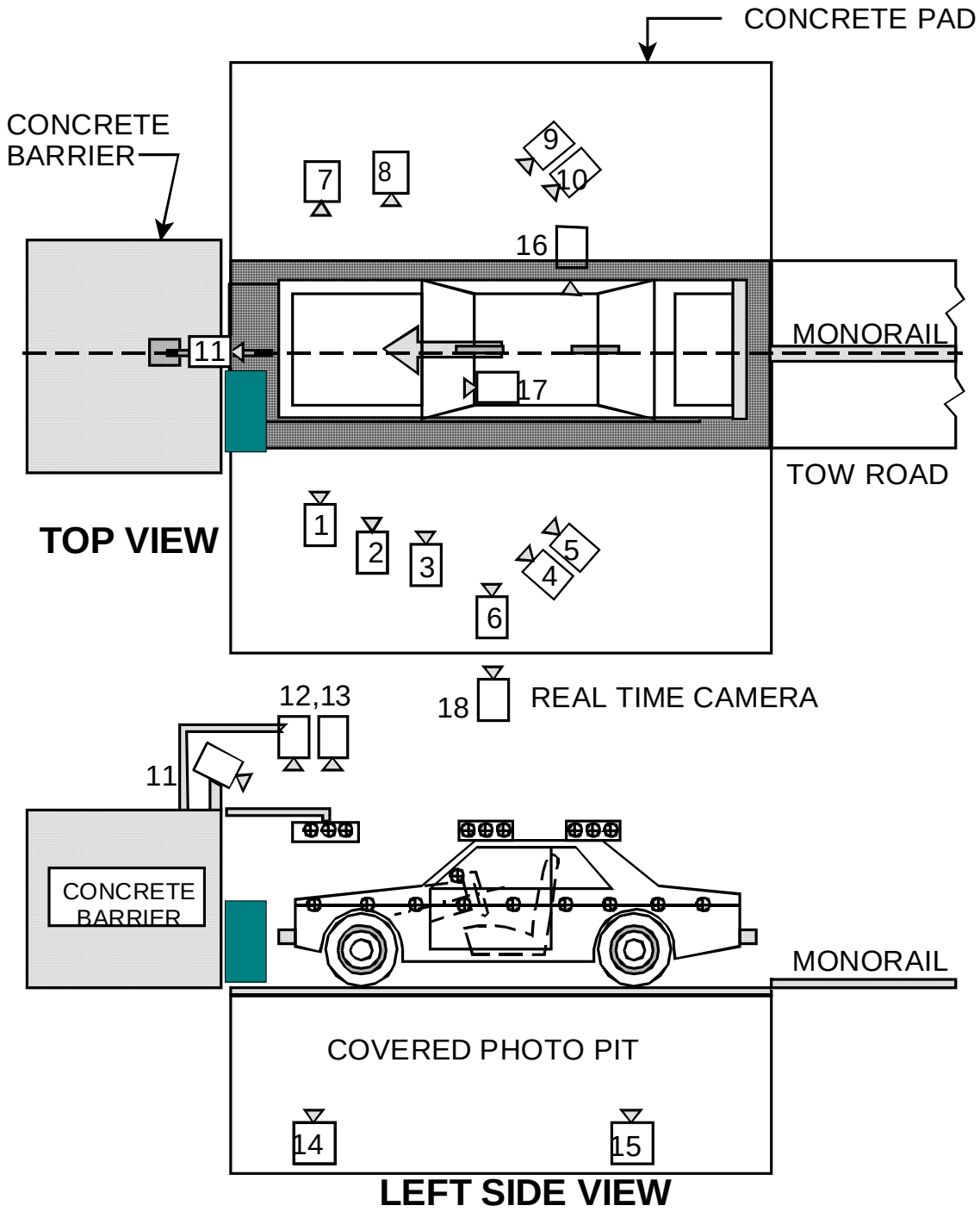
+X = forward of impact plane
+Y = right of monorail centerline
+Z = above ground level

DATA SHEET 11 (CONTINUED)

PHOTOGRAPHIC DATA

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

CAMERA POSITIONS FOR FRONTAL IMPACTS



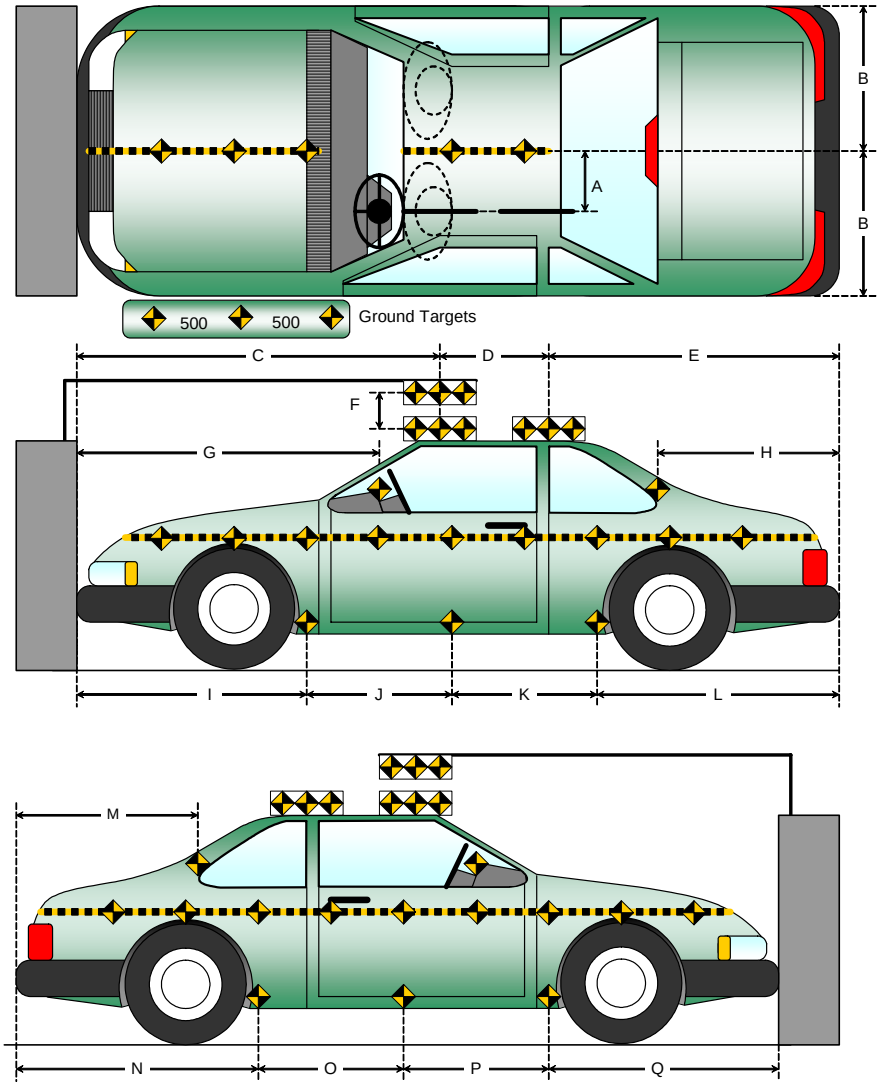
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VEHICLE REFERENCE PHOTO TARGET LOCATIONS

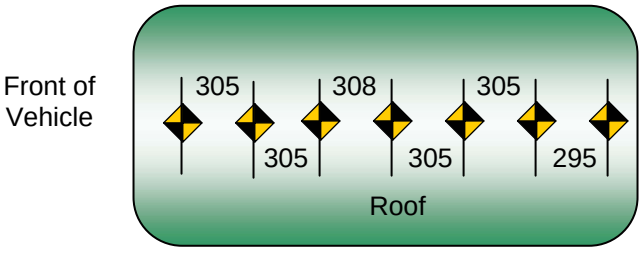
Test Vehicle: 2008 Ford Escape XLS
Test Program: Left 50% Offset Deformable Barrier
NHTSA No.: R80201
Test Date: 2/14/2008

Measurement from roof to overhead cameras: 2960 mm

Item	Value
A	382
B	900
C	2279
D	915
E	1181
F	
G	
H	1058
I	1313
J	827
K	830
L	1405
M	1038
N	1411
O	825
P	834
Q	819



Distance between left rear door targets: 200 mm
Overhead camera to ground: 4630 mm
Measurement of roof targets:



DATA SHEET 13

POST TEST AIR BAG DATA

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

Air Bag Data	Driver	Right Front Passenger
Number of Vent Holes	2	2
Size of Vent Holes	25 mm diameter	60 mm diameter
Shape of Vent Holes	Round	Rectangle
Total Vent Area	981 mm^2	5652 mm^2
Length of Deflated Airbag (if square)		580 mm
Width of Deflated Airbag (if square)		380 mm
Diameter of Deflated Airbag (if round)	480 mm	
Is Airbag Tethered?	Yes	No
Length of Tethers	200 mm	

Driver Airbag Part Numbers: 607930300CC02
Ford U377
FWPU3WOHGVC
Inflator: F2PU4J3FGAG
F3771NU4SATO

Passenger Airbag Part Numbers: P608454800BB03
FJUU34SEAPD
Inflator: F2VU4C2LFFM
Case: FA3U4J4KBTZ
Supplier Code: F9C9E
Part # 8L84780 44A74-AS36T7

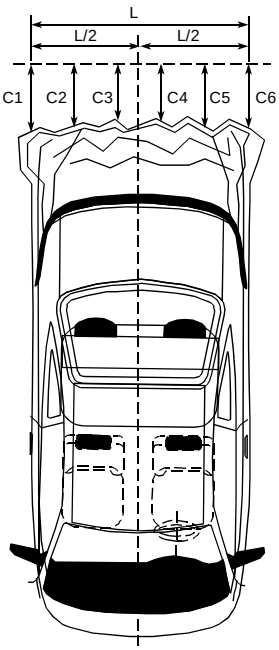
DATA SHEET 14

ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

CRUSH DEPTH DIMENSIONS

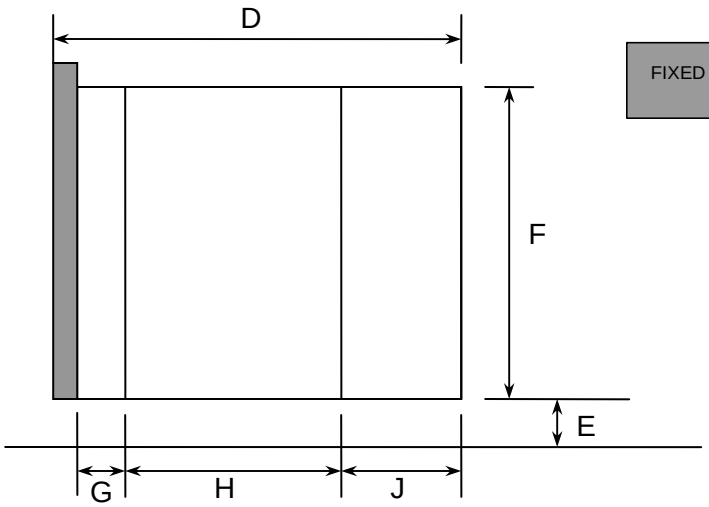
No.	Measurement Description	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
C1	Crush zone 1 at left side	4312	3988	324
C2	Crush zone 2 at left side	4354	3889	465
C3	Crush zone 3 at left side	4370	3882	488
C4	Crush zone 4 at right side	4370	4051	319
C5	Crush zone 5 at right side	4354	4192	162
C6	Crush zone 6 at right side	4311	4314	-3
L	C1 TO C6	1160	946	214

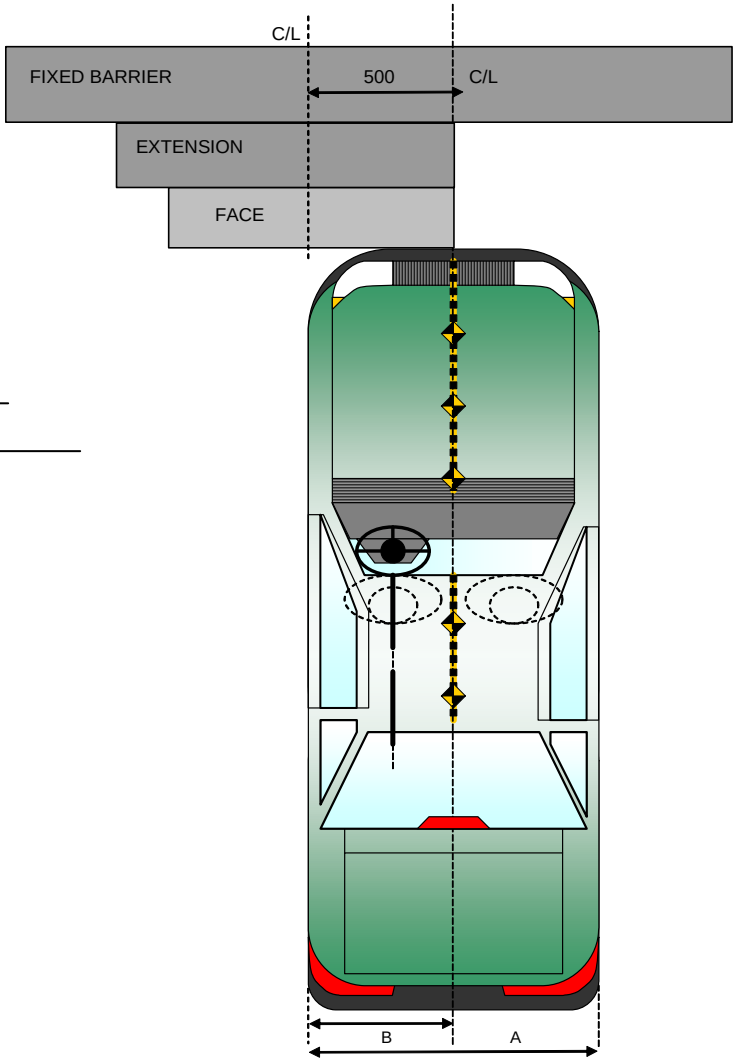


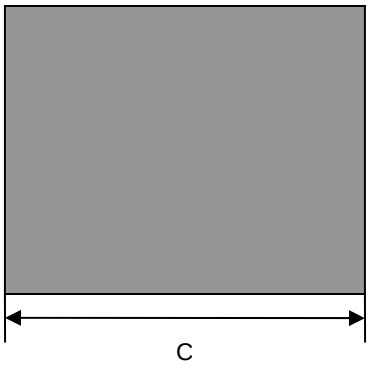
DATA SHEET 15

OFFSET BARRIER AND VEHICLE ORIENTATION

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008





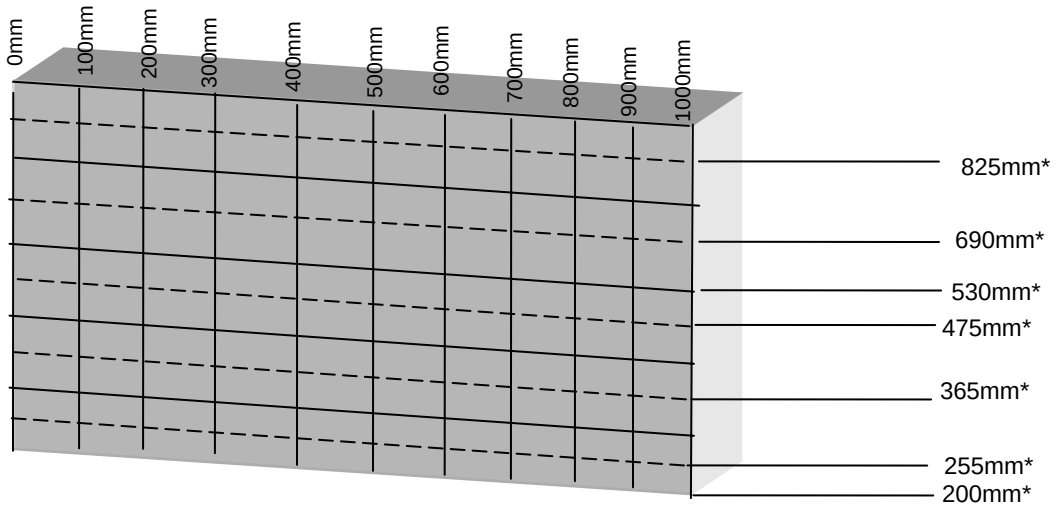


Location	Description	Measurement (mm)
A	Total Vehicle Width	1800
B	50% Overlap Distance	900
C	Deformable Face Width	1000
D	Single Stage Honeycomb Depth	800
E	Lower Edge Height From Ground	199
F	Deformable Barrier Honeycomb Height	700
G	Constant Rear Deformable Core	90
H	Progressive Rear Deformable Core	450
J	Constant Front Deformable Core	250

DATA SHEET 16

DEFORMABLE BARRIER HONEYCOMB CRUSH

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008



*Measurement to Ground

	Points (mm)	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
255 mm	0	800	759	41
	100	801	698	103
	200	801	673	128
	300	801	668	133
	400	801	729	72
	500	801	744	57
	600	801	746	55
	700	801	736	65
	800	801	340	461
	900	801	284	517
	1000	801	233	568
365 mm	0	800	775	25
	100	801	720	81
	200	802	692	110
	300	801	676	125
	400	802	717	85
	500	802	414	388
	600	802	446	356
	700	802	436	366
	800	802	371	431
	900	802	299	503
	1000	801	246	555

DATA SHEET 16 (CONTINUED)

DEFORMABLE BARRIER HONEYCOMB CRUSH

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

	Points (mm)	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
475 mm	0	801	780	21
	100	801	748	53
	200	802	719	83
	300	802	694	108
	400	802	696	106
	500	802	360	442
	600	802	403	399
	700	802	404	398
	800	802	398	404
	900	802	372	430
	1000	801	301	500
530 mm	0	799	780	19
	100	801	761	40
	200	802	736	66
	300	802	710	92
	400	802	692	110
	500	802	324	478
	600	802	391	411
	700	802	387	415
	800	802	380	422
	900	801	377	424
	1000	802	298	504
690 mm	0	801	775	26
	100	802	766	36
	200	802	740	62
	300	802	700	102
	400	802	662	140
	500	802	476	326
	600	802	506	296
	700	802	496	306
	800	802	178	624
	900	802	404	398
	1000	801	323	478
825 mm	0	801	734	67
	100	801	735	66
	200	802	707	95
	300	802	675	127
	400	802	660	142
	500	802	627	175
	600	802	573	229
	700	802	548	254
	800	802	507	295
	900	802	445	357
	1000	800	355	445

DATA SHEET 17

DEFORMABLE BARRIER LOAD CELL LOCATIONS

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80201
Test Program: Left 50% Offset Deformable Barrier Test Date: 2/14/2008

Row One	1	11	21	31	41	51	61	71	81
	2	12	22	32	42	52	62	72	82
	3	13	23	33	43	53	63	73	83
	4	14	24	34	44	54	64	74	84
	5	15	25	35	45	55	65	75	85
	6	16	26	36	46	56	66	76	86
	7	17	27	37	47	57	67	77	87
	8	18	28	38	48	58	68	78	88
	9	19	29	39	49	59	69	79	89
Row Ten	10	20	30	40	50	60	70	80	90

Track C/L

90 Load Cells
10 Rows
9 Columns

Front View

Load Cells measure 123 mm square and have a 1.5 mm gap.
Distance from LCB to ground measures 125 mm

APPENDIX A

PHOTOGRAPHS

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Manufacturer's Label



Tire Placard



Left Front ¾ View, As Received



Right Rear ¾ View, As Received



Pre-Test Front View



Post-Test Front View



Pre-Test Left Side View



Post-Test Left Side View



Pre-Test Right Side View



Post-Test Right Side View



Pre-Test Right Front ¾ View



Post-Test Right Front ¾ View



Pre-Test Left Front ¾ View



Post-Test Left Front ¾ View



Pre-Test Left Rear ¾ View



Post-Test Left Rear ¾ View



Pre-Test Left Side ¾ View of Doors



Post-Test Left Side ¾ View of Doors After Impact



Pre-Test Right Side ¾ View of Doors



Post-Test Right Side ¾ View of Doors After Impact



Pre-Test Windshield View



Post-Test Windshield View



Pre-Test Engine Compartment View



Post-Test Engine Compartment View



Pre-Test Fuel Cap View



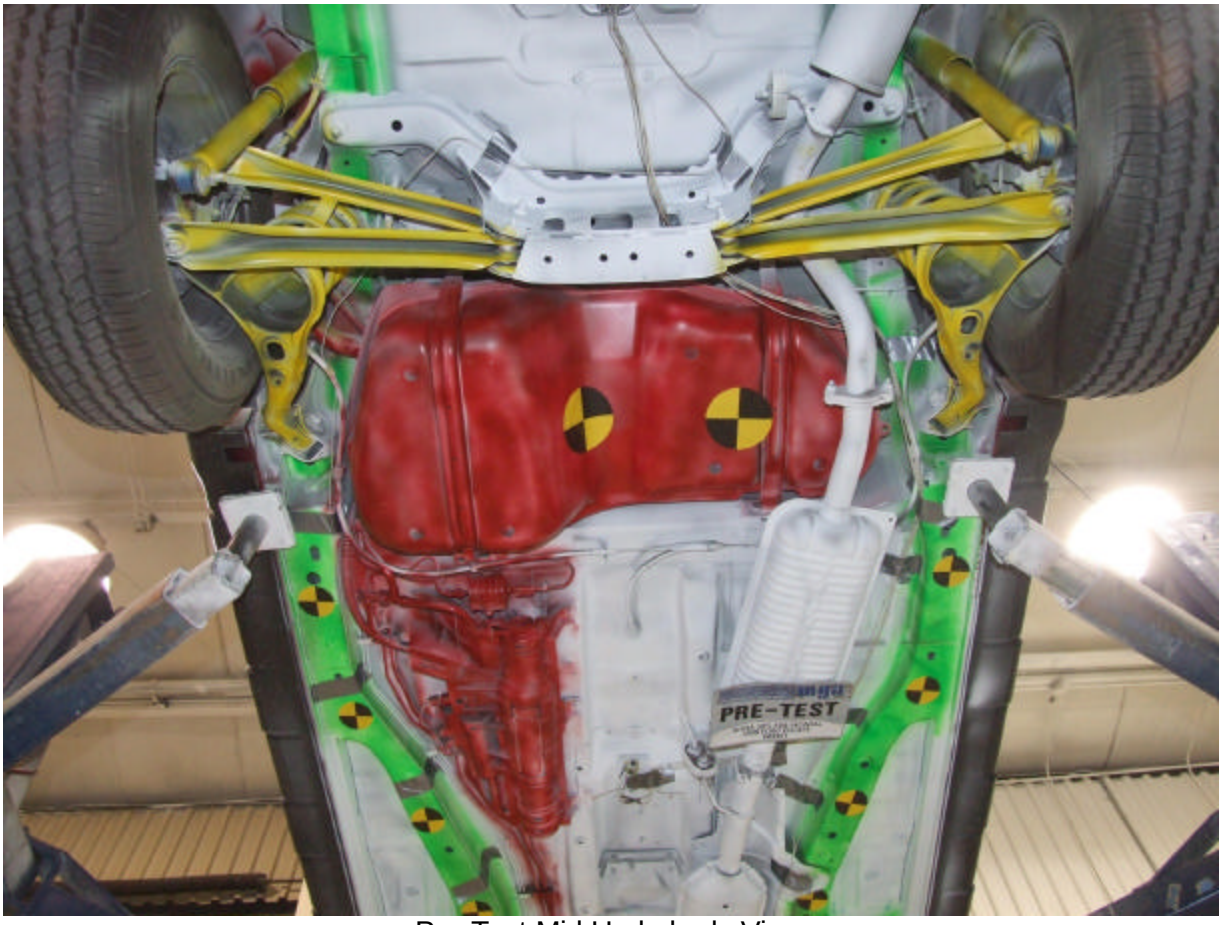
Post-Test Fuel Cap View



Pre-Test Front Underbody View



Post-Test Front Underbody View



Pre-Test Mid Underbody View


Post-Test Mid Underbody View



Pre-Test Rear Underbody View



Post-Test Rear Underbody View



Pre-Test Driver Dummy Front View (Head Position)


Post-Test Driver Dummy Front View (Head Position)



Pre-Test Driver Dummy (Through Window)



Post-Test Driver Dummy (Through Window)



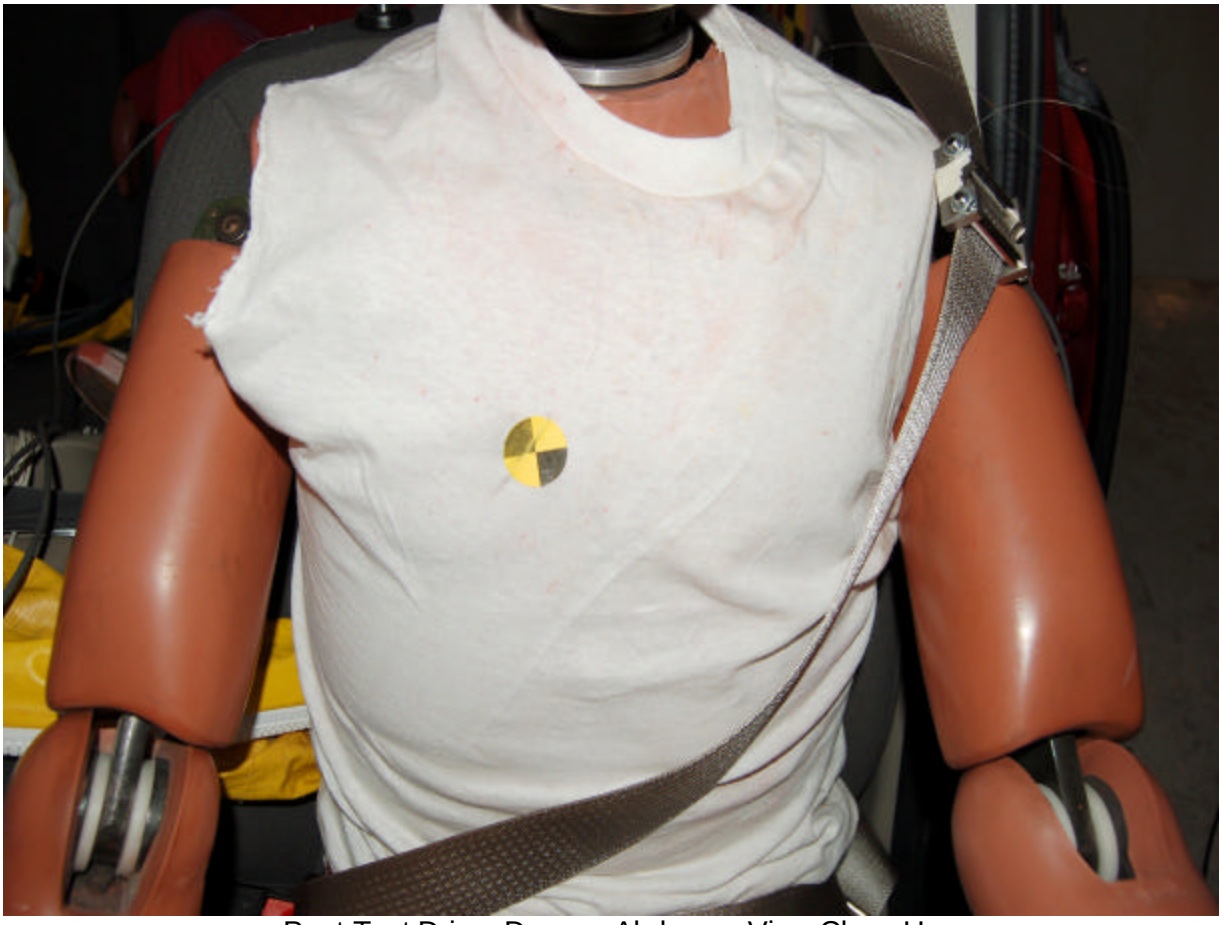
Pre-Test Driver Dummy (Door Open)



Post-Test Driver Dummy (Door Open)



Pre-Test Driver Dummy Abdomen View Close-Up



Post-Test Driver Dummy Abdomen View Close-Up



Pre-Test Driver Dummy Feet



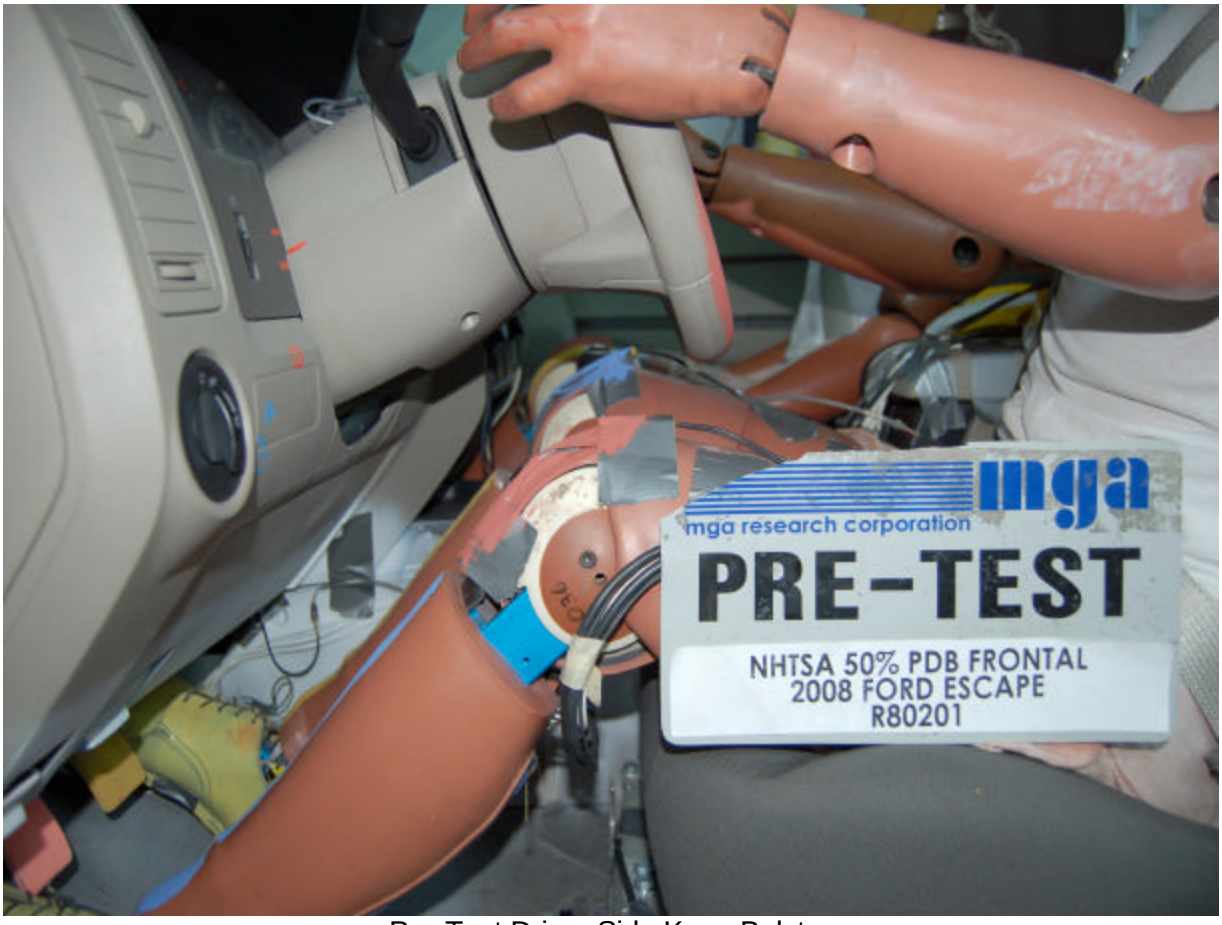
Post-Test Driver Dummy Feet



Pre-Test Driver Dummy Foot/Leg Close-Up



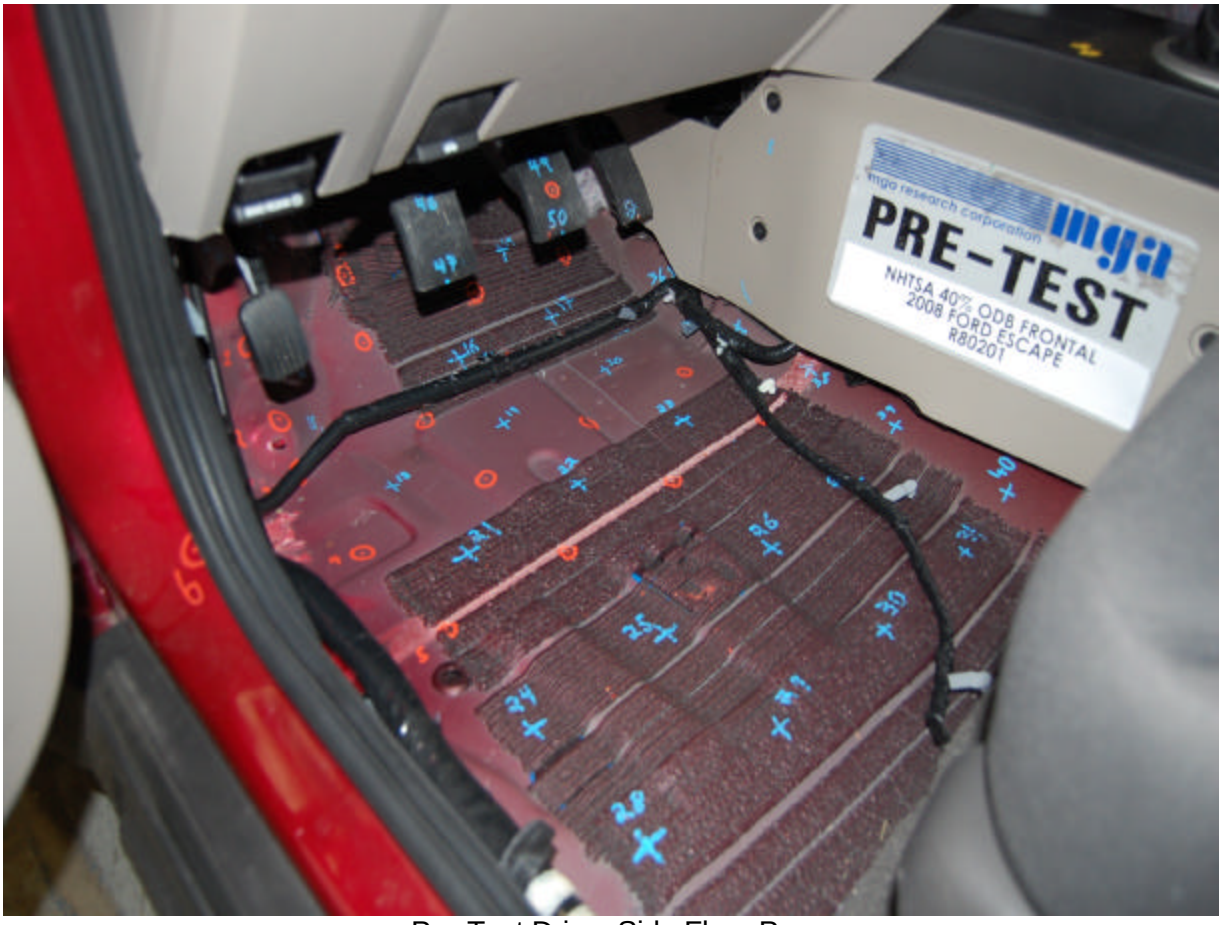
Post-Test Driver Dummy Foot/Leg Close-Up



Pre-Test Driver Side Knee Bolster



Post-Test Driver Side Knee Bolster



Pre-Test Driver Side Floor Pan



Post-Test Driver Dummy Head Contact (B-pillar, headrest, header)



Post-Test Driver Dummy Head Contact (B-pillar)



Post-Test Driver Dummy Knee Contact



Post-Test Driver Dummy Airbag Contact



Pre-Test Passenger Dummy Front View (Head Position)



Post-Test Passenger Dummy Front View (Head Position)



Pre-Test Passenger Dummy (Through Window)



Post-Test Passenger Dummy (Through Window)



Pre-Test Passenger Dummy (Door Open)



Post-Test Passenger Dummy (Door Open)



Pre-Test Passenger Dummy Feet



Post-Test Passenger Dummy Feet



Pre-Test Passenger Dummy Foot/Leg Close-Up

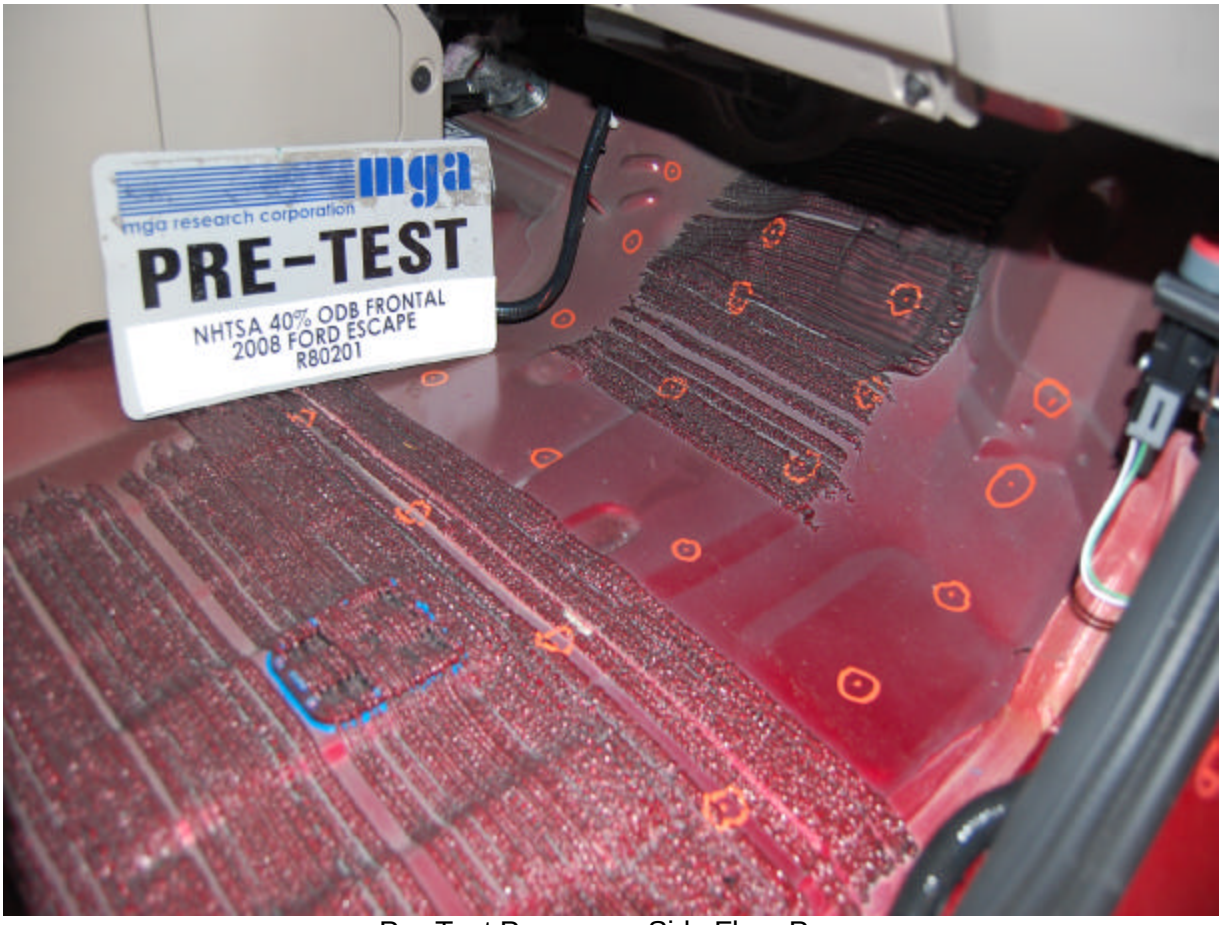

Post-Test Passenger Dummy Foot/Leg Close-Up



Pre-Test Passenger Side Glove Box



Post-Test Passenger Side Glove Box



Pre-Test Passenger Side Floor Pan


Post-Test Passenger Dummy Knee Contact



Post-Test Passenger Dummy Airbag Contact



Post-Test Passenger Dummy Airbag Contact (Knee Contact)



Pre-Test Left Rear Passenger Dummy (Through Window)



Post-Test Left Rear Passenger Dummy (Through Window)



Pre-Test Left Rear Passenger Dummy (Door Open)



Post-Test Left Rear Passenger Dummy (Door Open)



Pre-Test Left Rear Passenger Dummy Leg Position View



Post-Test Left Rear Passenger Dummy Leg Position View



Pre-Test Left Rear Passenger Dummy Feet Position View



Post-Test Left Rear Passenger Dummy Feet Position View



Pre-Test Left Rear Passenger Dummy Right Side View



Post-Test Left Rear Passenger Dummy Right Side View



Post-Test Left Rear Passenger Dummy Head Contact View



Post-Test Left Rear Passenger Dummy Foot Contact View



Pre-Test Offset Deformable Barrier Front View



Post-Test Offset Deformable Barrier Front View



Pre-Test Offset Deformable Barrier Left Side View



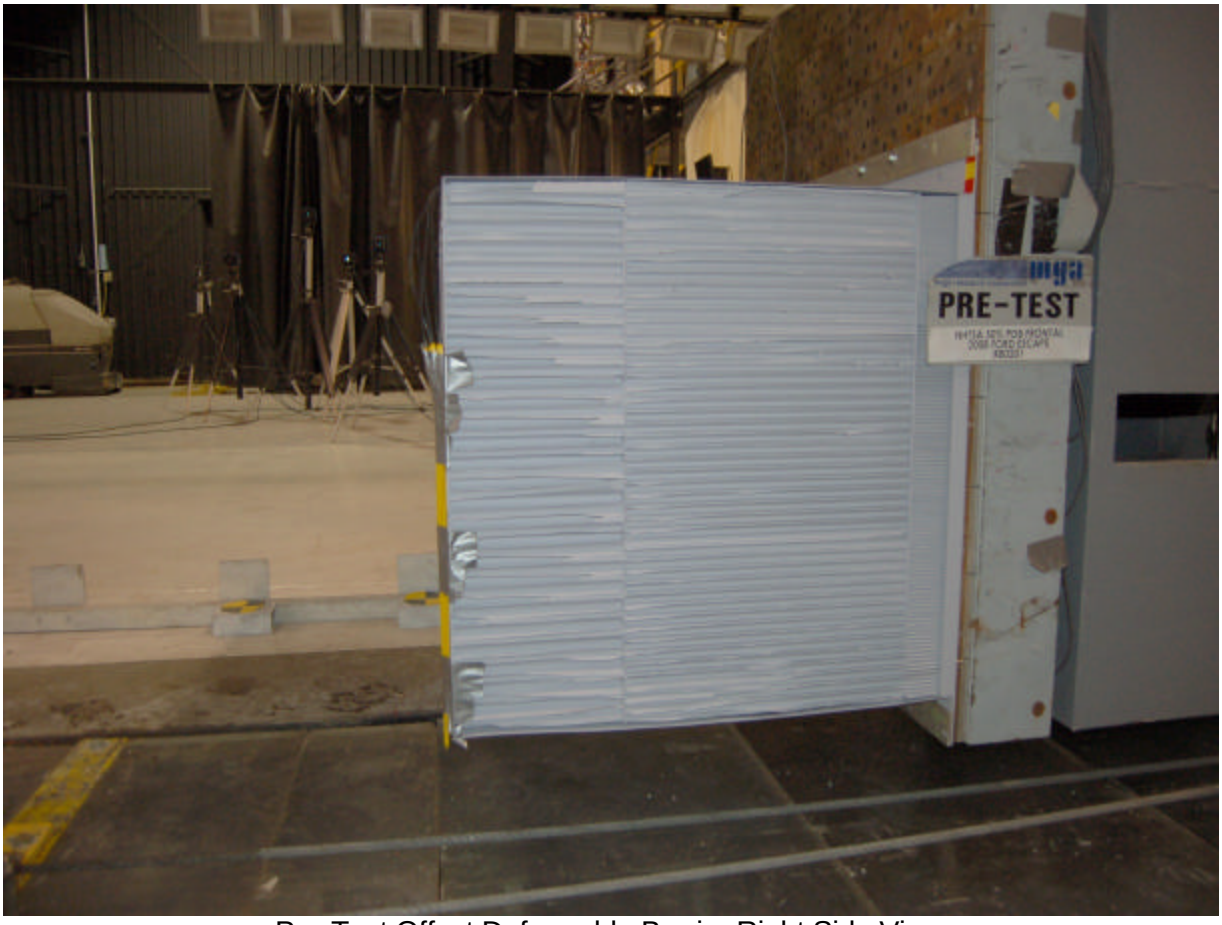
Post-Test Offset Deformable Barrier Left Side View



Pre-Test Offset Deformable Barrier Left Side ¾ View



Post-Test Offset Deformable Barrier Left Side ¾ View



Pre-Test Offset Deformable Barrier Right Side View



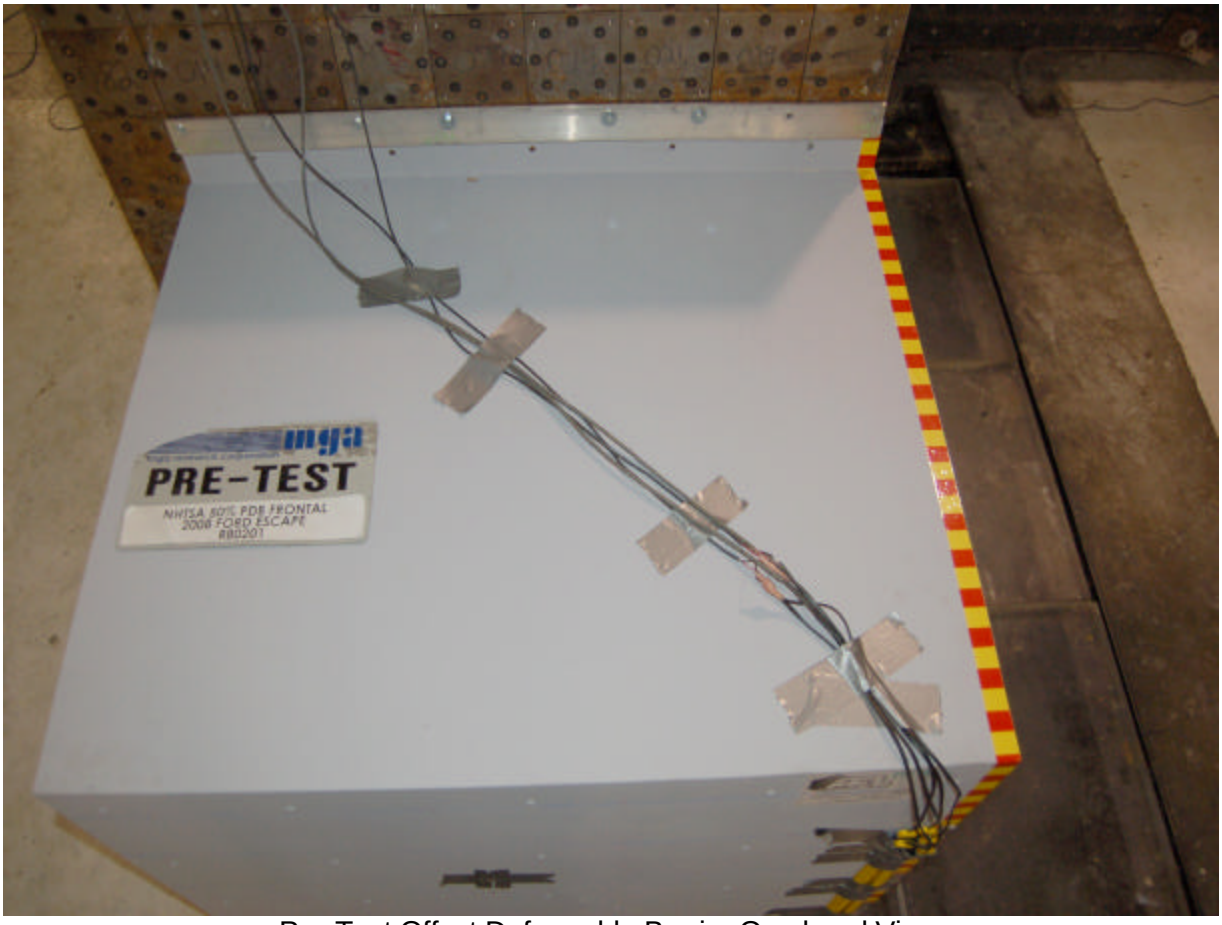
Post-Test Offset Deformable Barrier Right Side View



Pre-Test Offset Deformable Barrier Right Side ¾ View



Post-Test Offset Deformable Barrier Right Side ¾ View



Pre-Test Offset Deformable Barrier Overhead View



Post-Test Offset Deformable Barrier Overhead View



Vehicle Impact



Pre-Test Left Side A Pillar (Frontal View)



Post-Test Left Side A Pillar (Frontal View)



Pre-Test Left Side A Pillar (¾ Frontal View)



Post-Test Left Side A Pillar (¾ Frontal View)



Pre-Test Left Side A Pillar



Post-Test Left Side A Pillar



Pre-Test Left Side B Pillar (Side View)



Pre-Test Left Side B Pillar



Post-Test Left Side B Pillar



Pre-Test Left Side C Pillar



Post-Test Left Side C Pillar



Pre-Test Left Side Sill Front Half View



Post-Test Left Side Sill Front Half View



Pre-Test Left Side Sill Rear Half View



Post-Test Left Side Sill Rear Half View



Pre-Test Right Side A Pillar



Post-Test Right Side A Pillar



Pre-Test Right Side B Pillar



Post-Test Right Side B Pillar



Pre-Test Right Side C Pillar



Post-Test Right Side C Pillar



Pre-Test Right Side Sill Front Half View



Post-Test Right Side Sill Front Half View



Pre-Test Right Side Sill Rear Half View



Post-Test Right Side Sill Rear Half View



Pre-Test Left Side Rocker View 1



Post-Test Left Side Rocker View 1



Pre-Test Left Side Rocker View 2



Pre-Test Left Front Wheel Well



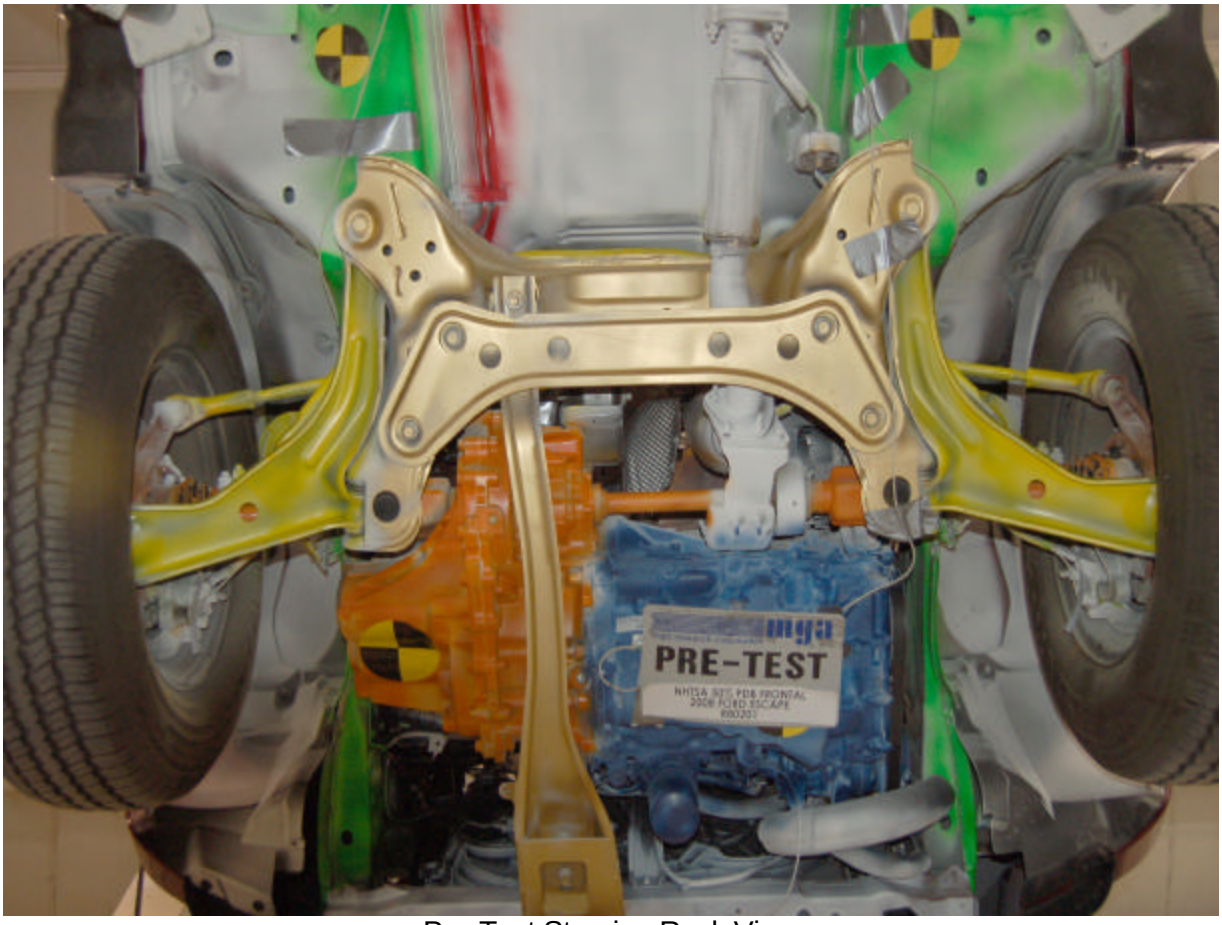
Post-Test Left Front Wheel Well



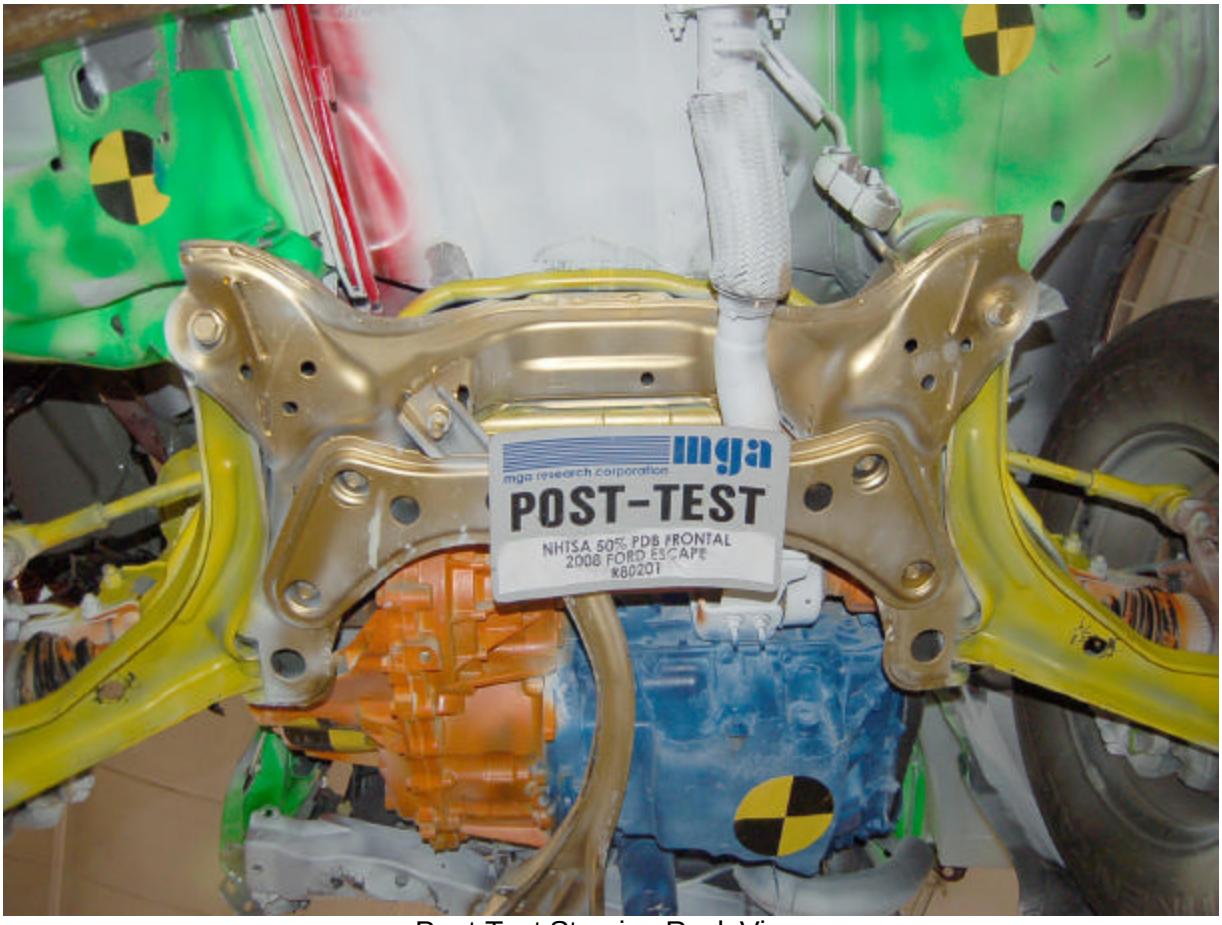
Pre-Test Left Front Shotgun



Post-Test Left Front Shotgun



Pre-Test Steering Rack View



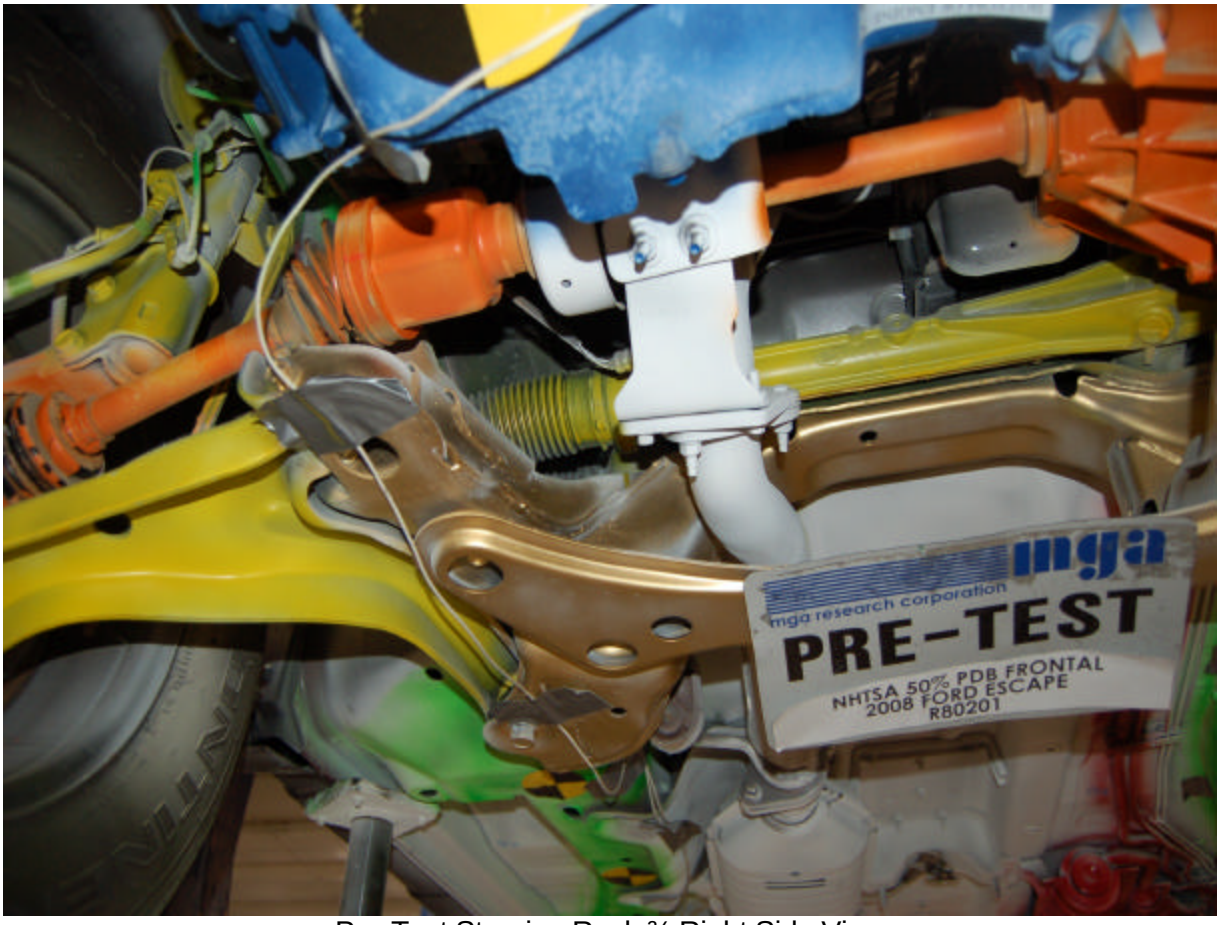
Post-Test Steering Rack View



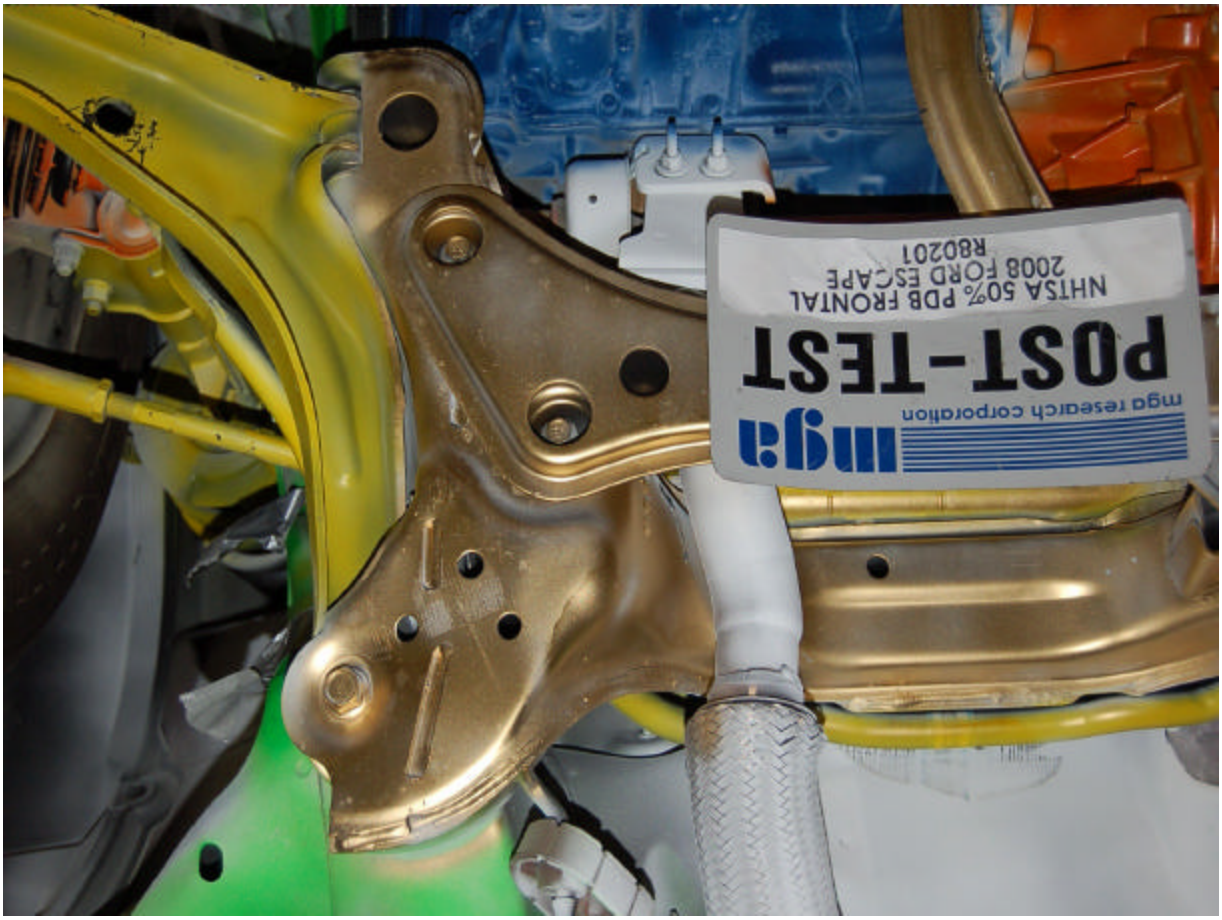
Pre-Test Steering Rack ¾ Left Side View



Post-Test Steering Rack ¾ Left Side View



Pre-Test Steering Rack ¾ Right Side View



Post-Test Steering Rack ¾ Right Side View



Pre-Test Sway Bar View



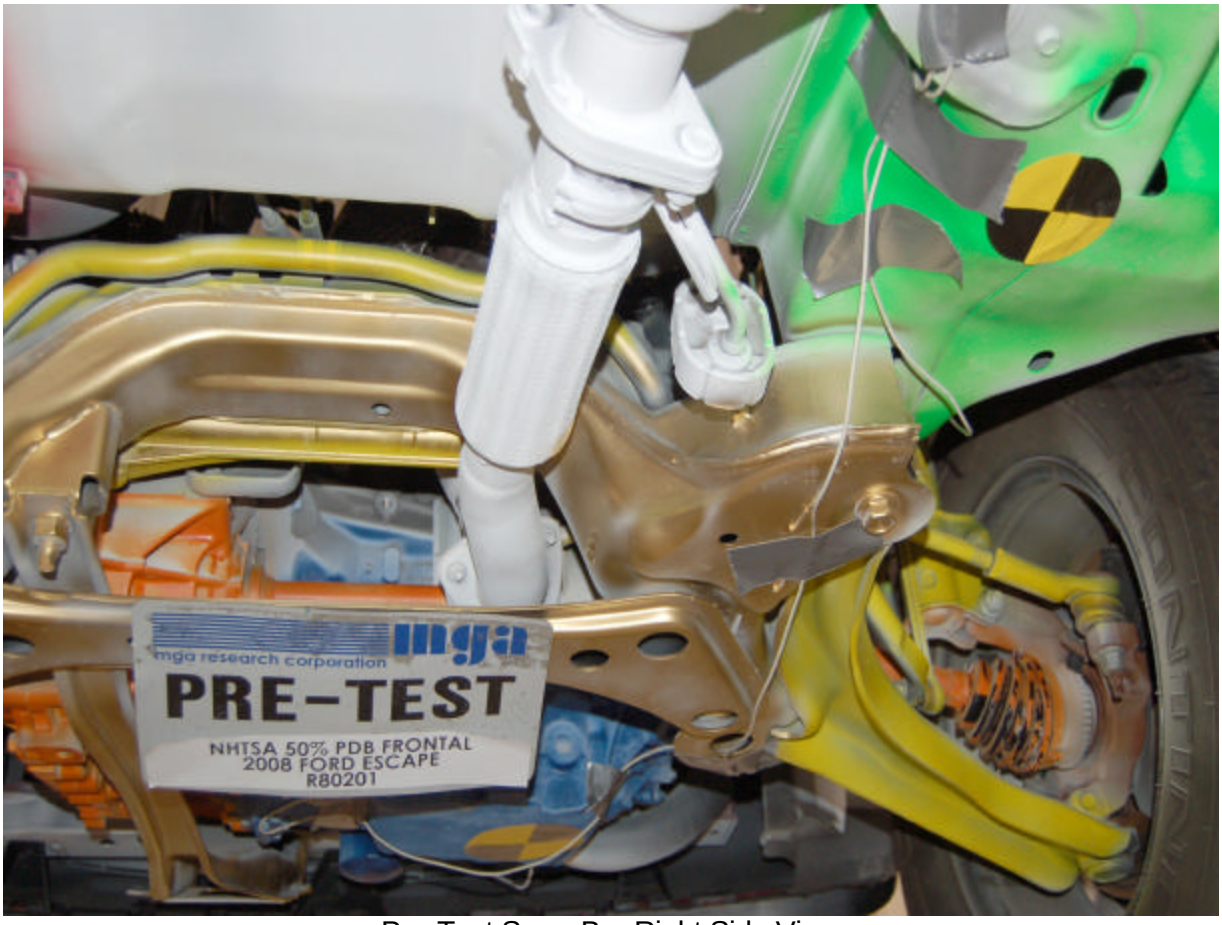
Post-Test Sway Bar View



Pre-Test Sway Bar Left Side View



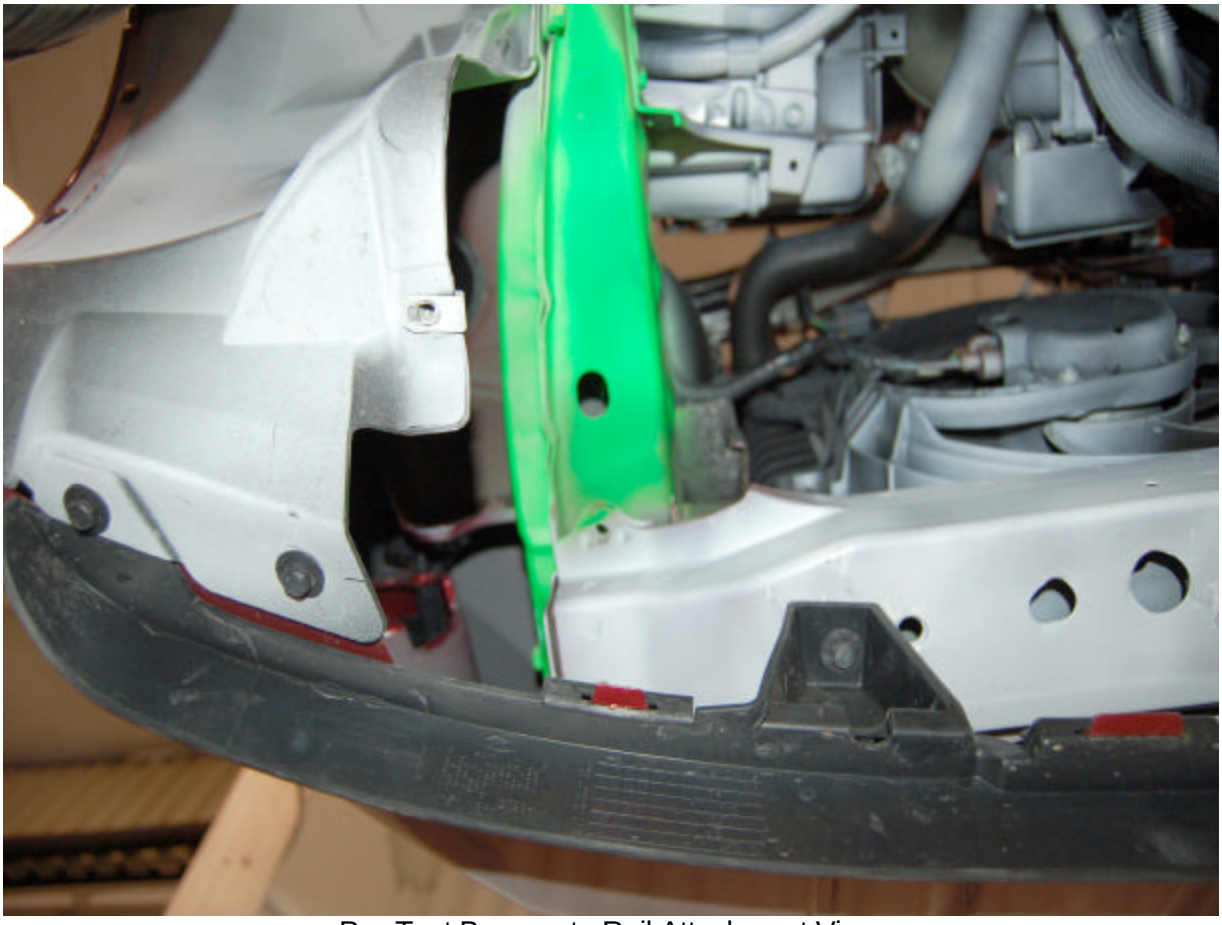
Post-Test Sway Bar Left Side View



Pre-Test Sway Bar Right Side View



Post-Test Sway Bar Right Side View



Pre-Test Bumper to Rail Attachment View



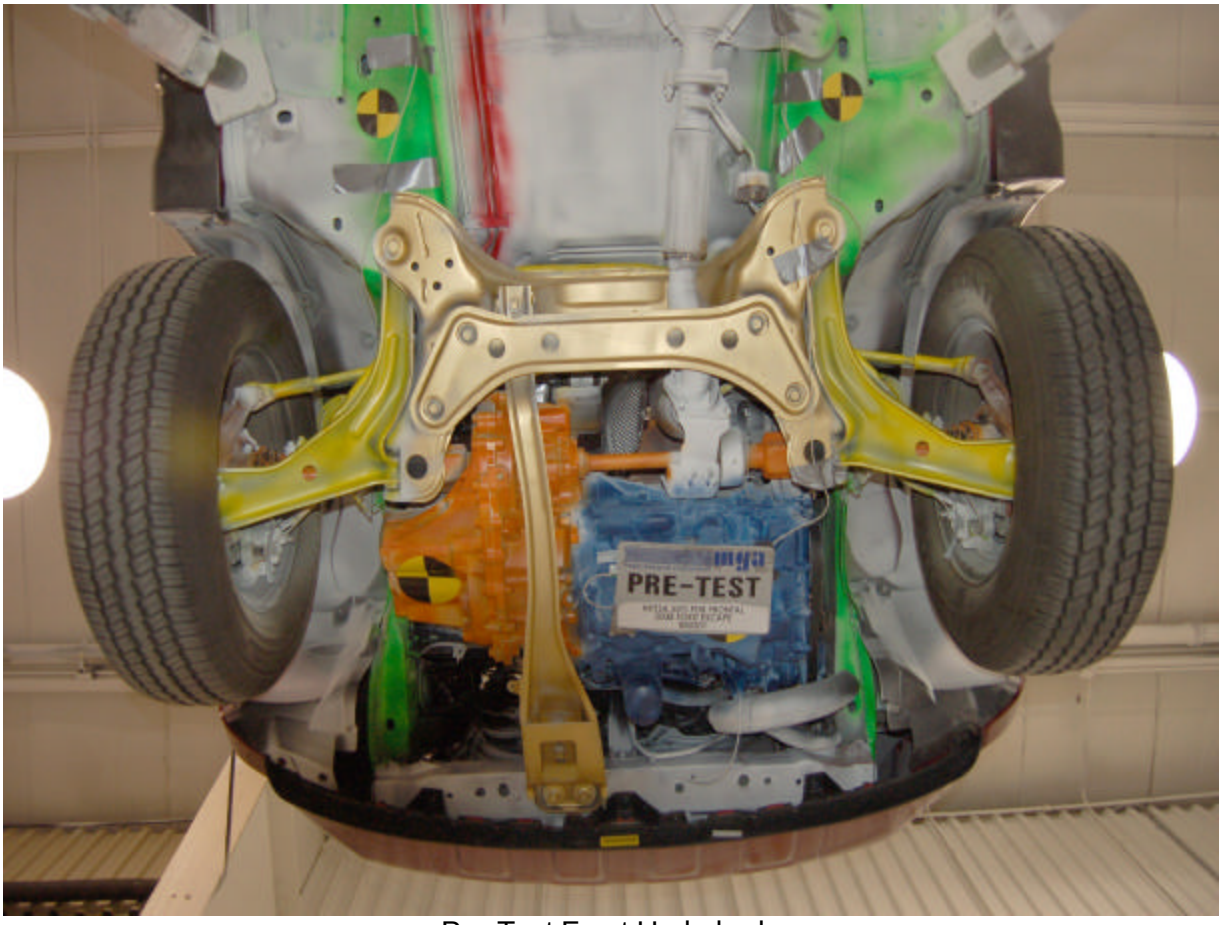
Post-Test Bumper to Rail Attachment View



Pre-Test Bumper to Rail Attachment ¾ View



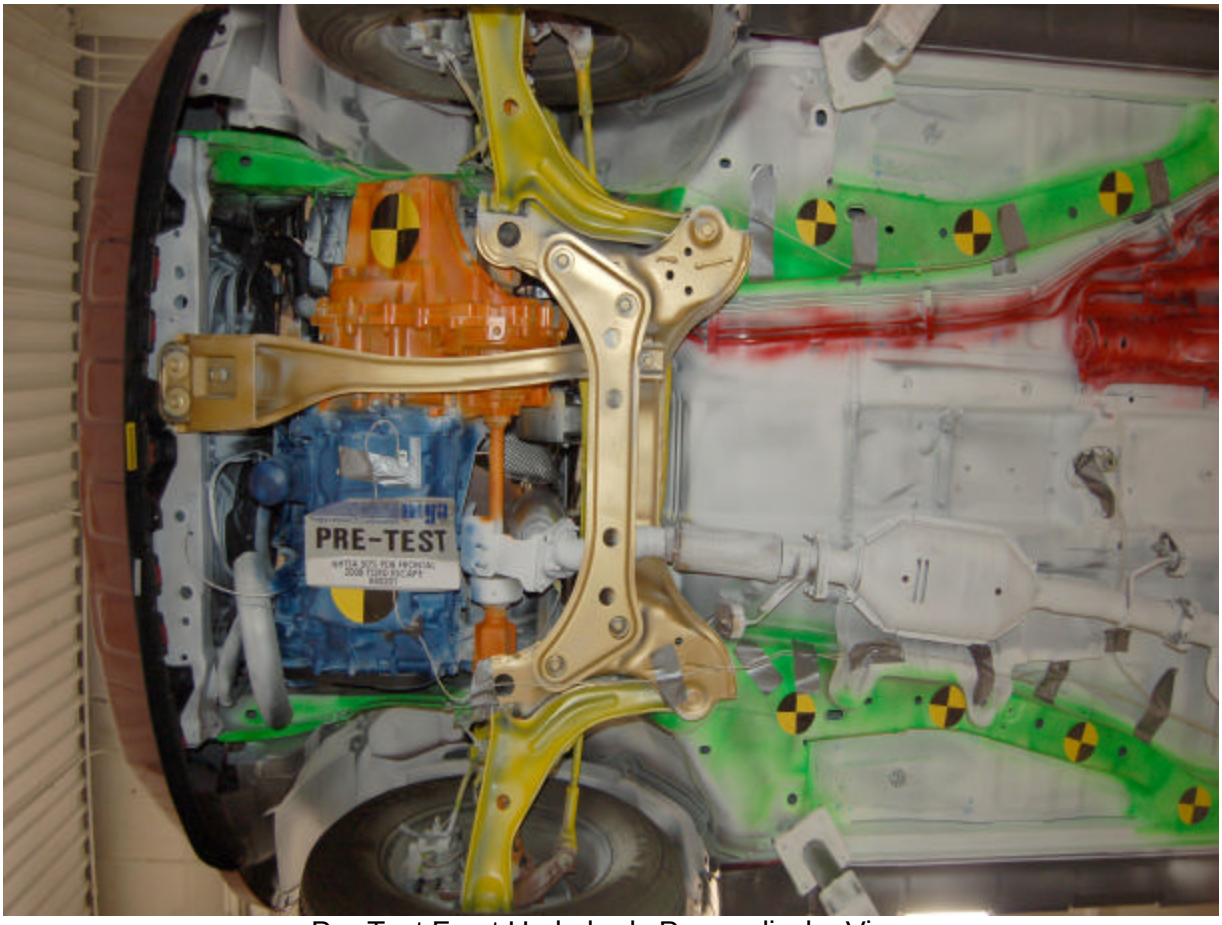
Post-Test Bumper to Rail Attachment ¾ View



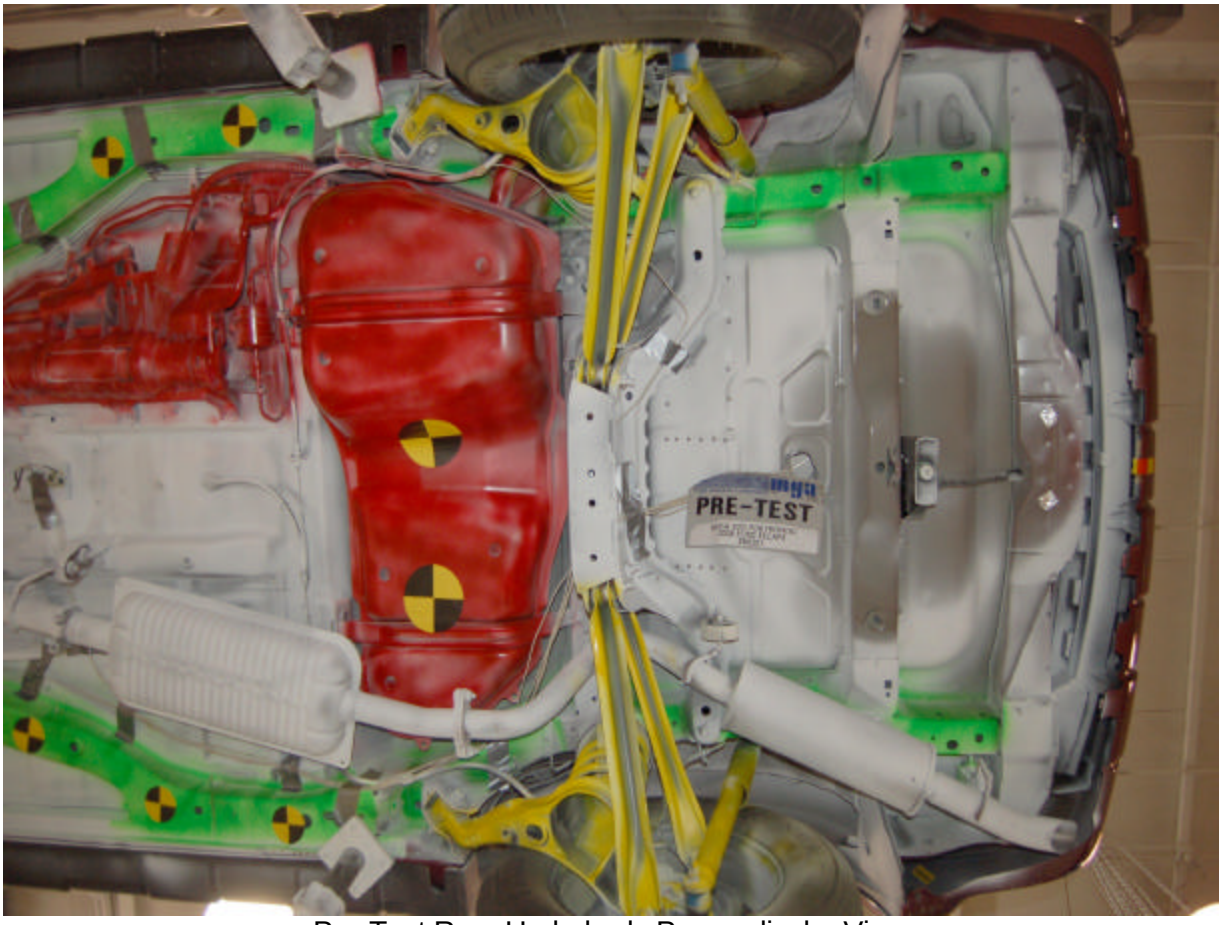
Pre-Test Front Underbody



Post-Test Front Underbody



Pre-Test Front Underbody Perpendicular View



Pre-Test Rear Underbody Perpendicular View



Pre-Test Left Front Wheel Contact View



Post-Test Left Front Wheel Contact View



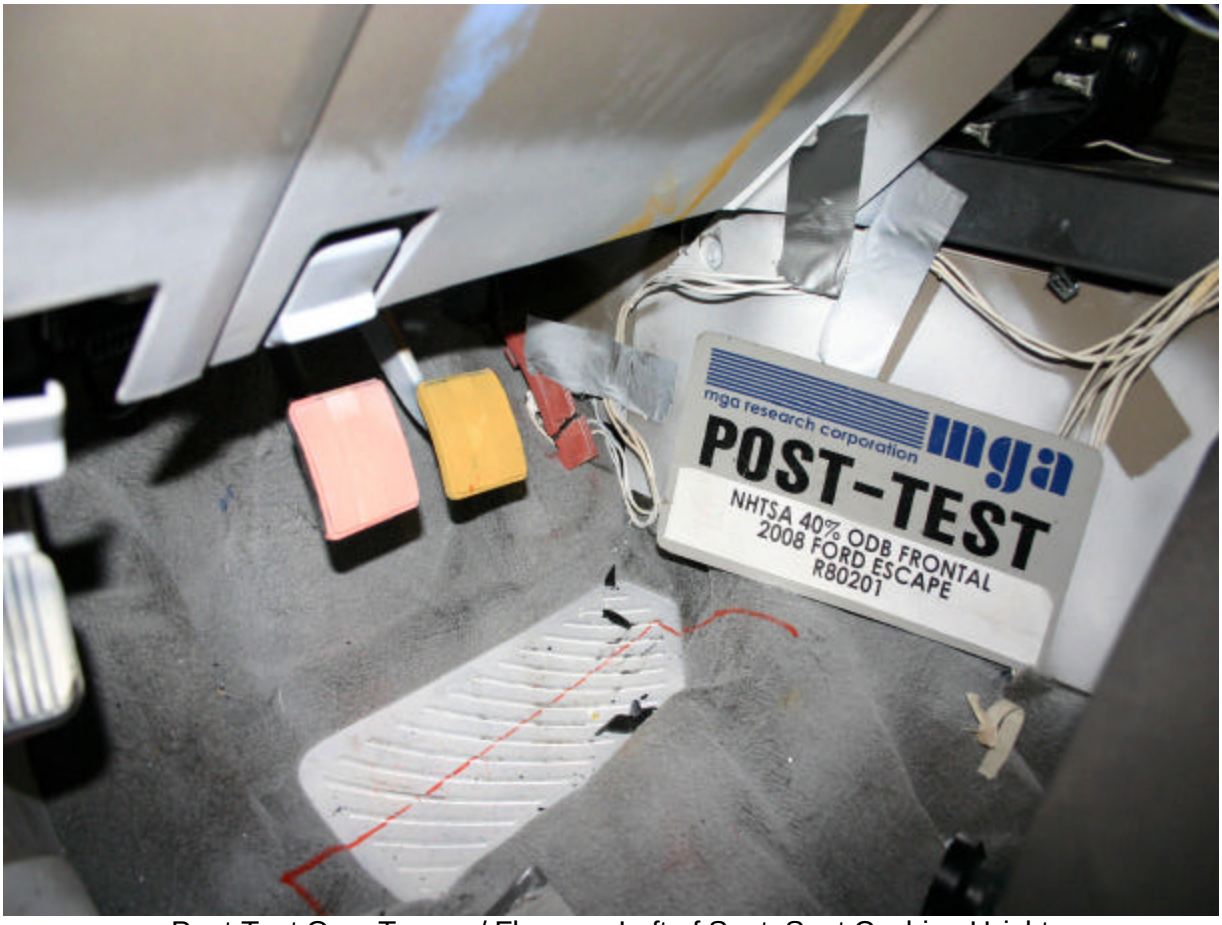
Pre-Test Left Front Wheel Contact Close Up View



Post-Test Left Front Wheel Contact Close Up View



Pre-Test Over Toepan/ Floorpan Left of Seat, Seat Cushion Height



Post-Test Over Toepan/ Floorpan Left of Seat, Seat Cushion Height



Pre-Test Over Toepan/ Floorpan Left of Seat, Sill Height



Post-Test Over Toepan/ Floorpan Left of Seat, Sill Height



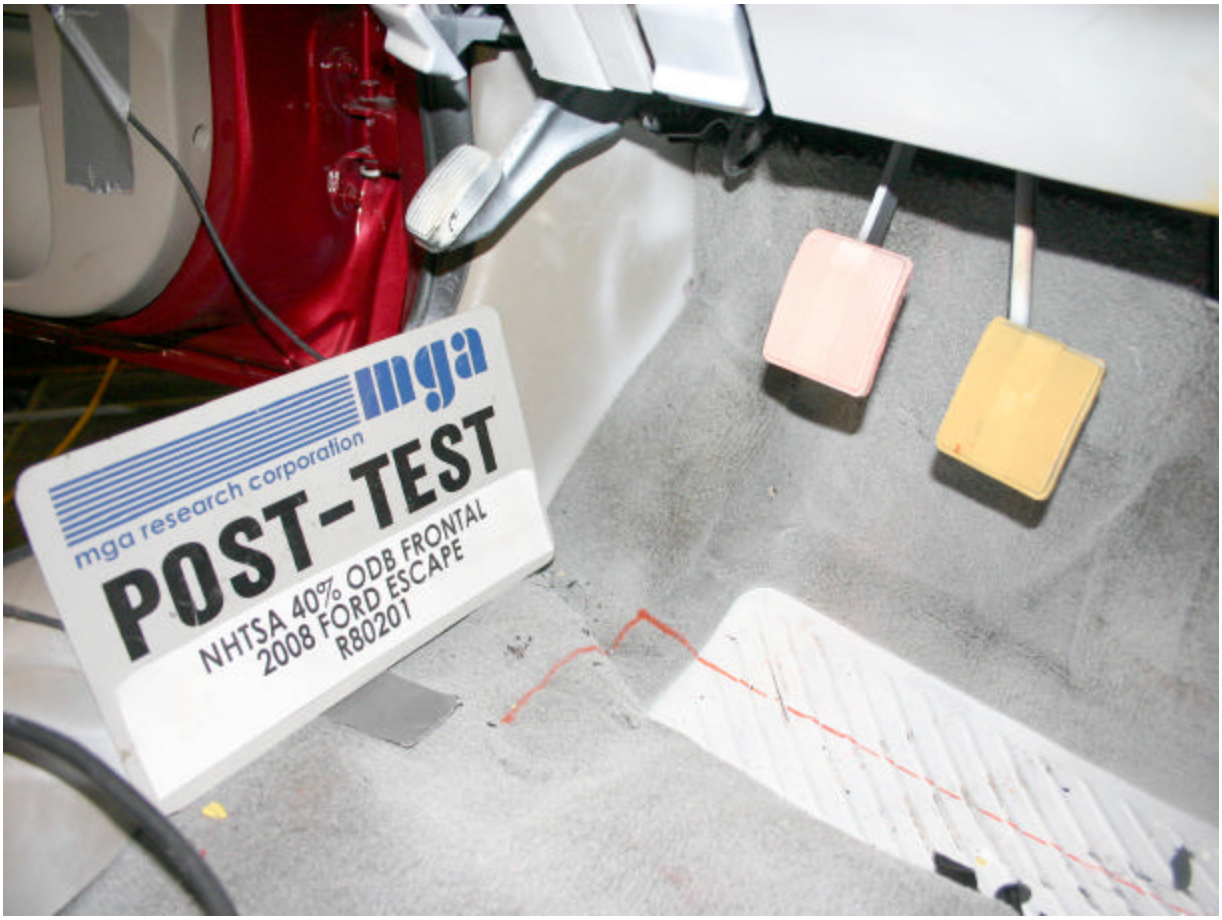
Pre-Test Over Toepan/ Floorpan Center of Seat, Seat Cushion Height



Post-Test Over Toepan/ Floorpan Center of Seat, Seat Cushion Height



Pre-Test Over Toepan/ Floorpan Right of Seat, Seat Cushion Height



Post-Test Over Toepan/ Floorpan Right of Seat, Seat Cushion Height



Pre-Test Footrest Seat Cushion Height



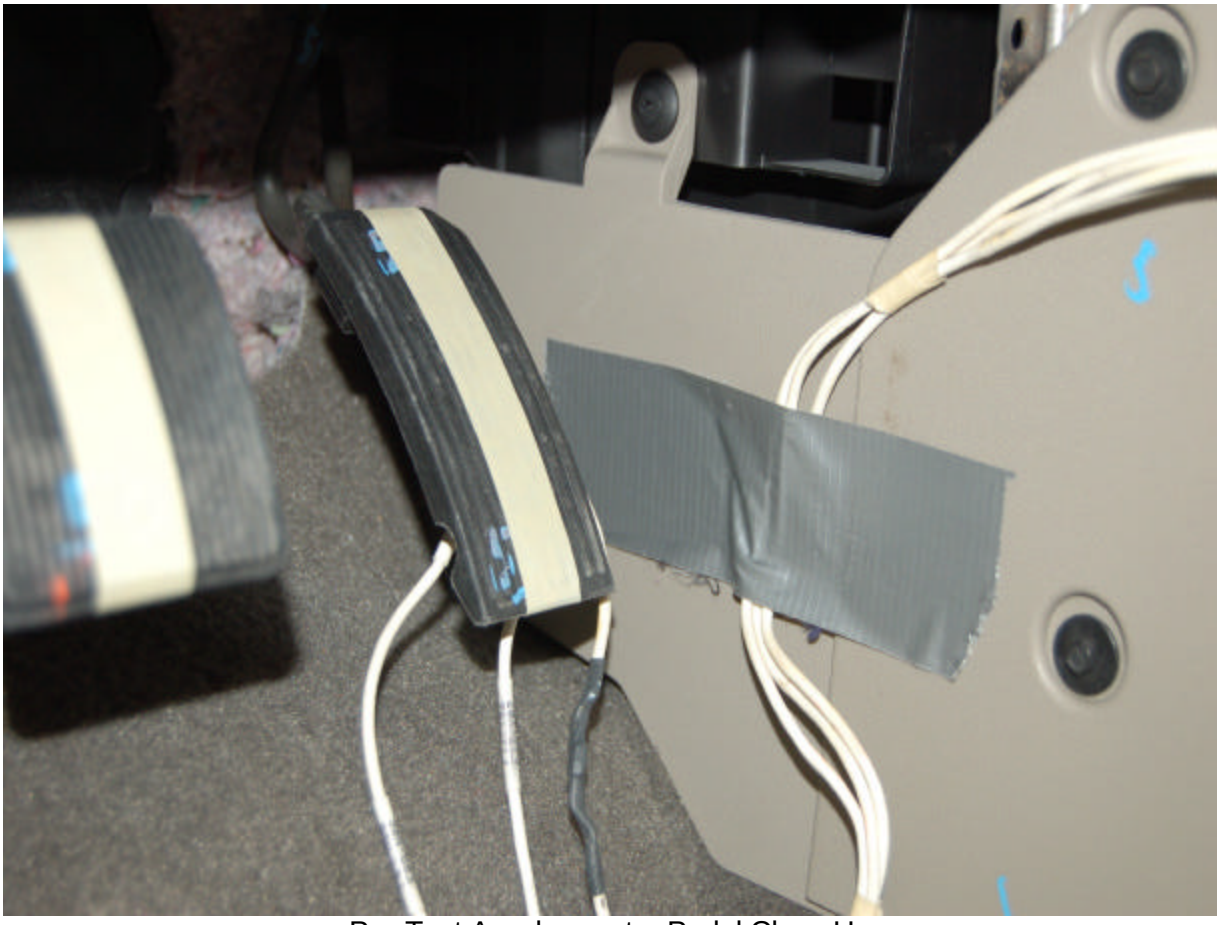
Post-Test Footrest Seat Cushion Height



Pre-Test Footrest Seat Sill Height



Post-Test Footrest Seat Sill Height



Pre-Test Accelerometer Pedal Close Up



Post-Test Accelerometer Pedal Close Up



Pre-Test Accelerometer Pedal Left Side View



Pre-Test Right Side Floorplan, Right of Seat, Seat Cushion Height



Post-Test Right Side Floorplan, Right of Seat, Seat Cushion Height



Pre-Test Right Side Floorplan, Right of Seat, Sill Cushion Height



Post-Test Right Side Floorplan, Right of Seat, Sill Cushion Height



Pre-Test Right Side Floorplan, Center of Seat, Seat Cushion Height



Post-Test Right Side Floorplan, Center of Seat, Seat Cushion Height



Post-Test Left Side A-Pillar Close Up View



Post-Test Left Side A-Pillar Close Up ¾ View



Pre-Test Front View of CRS



Pre-Test Rear View of CRS



Pre-Test Left Side View of CRS



Pre-Test Right Side View of CRS

APPENDIX B

DUMMY, VEHICLE AND BARRIER DATA PLOTS

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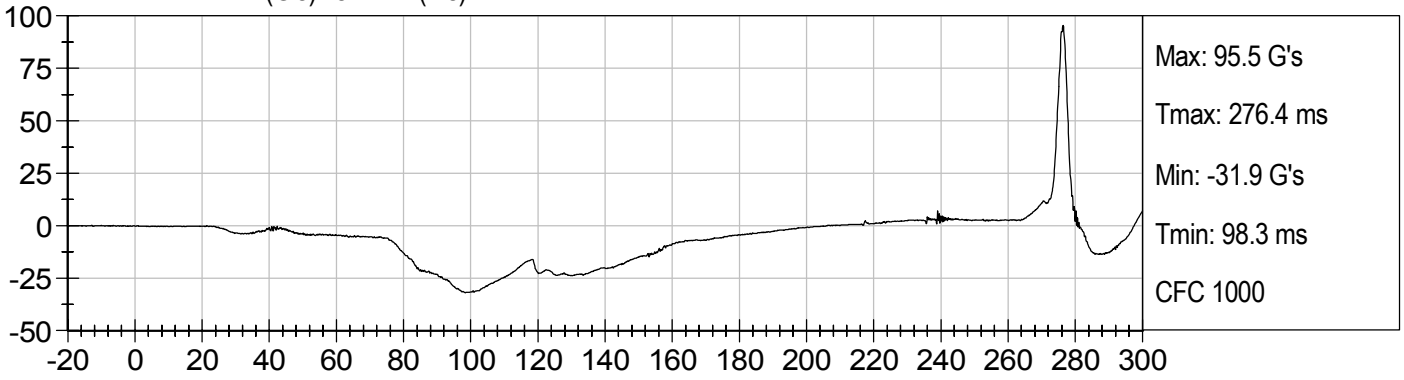
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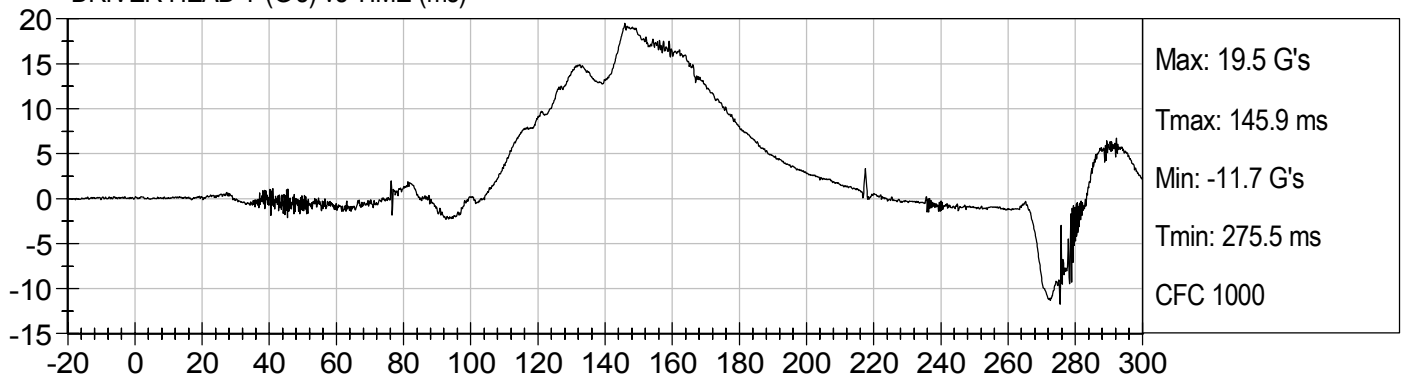
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

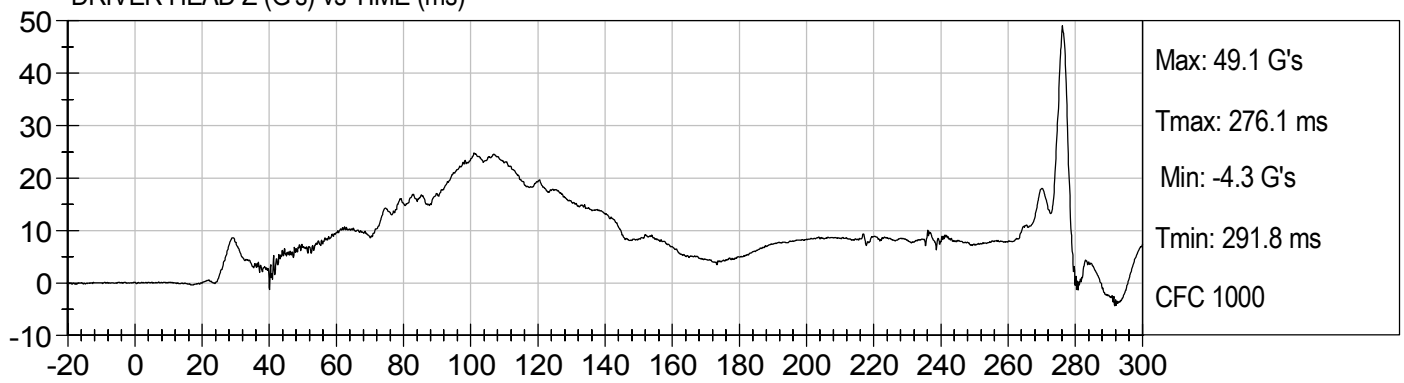
DRIVER HEAD X (G's) vs TIME (ms)



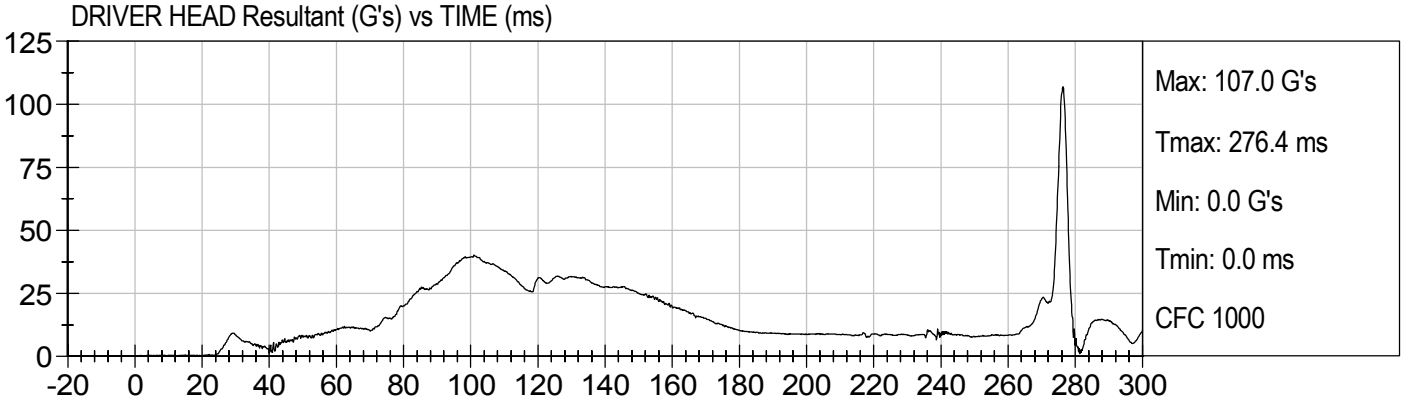
DRIVER HEAD Y (G's) vs TIME (ms)



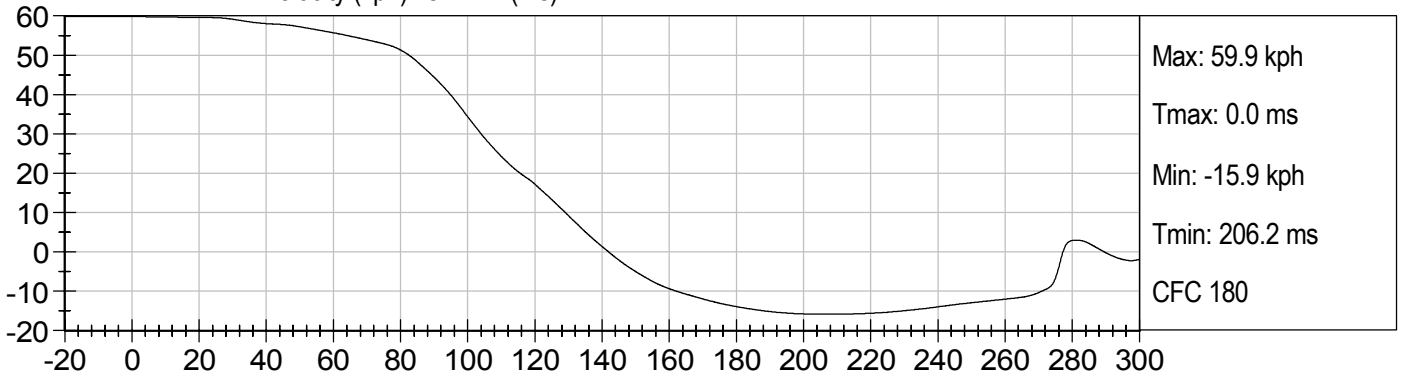
DRIVER HEAD Z (G's) vs TIME (ms)



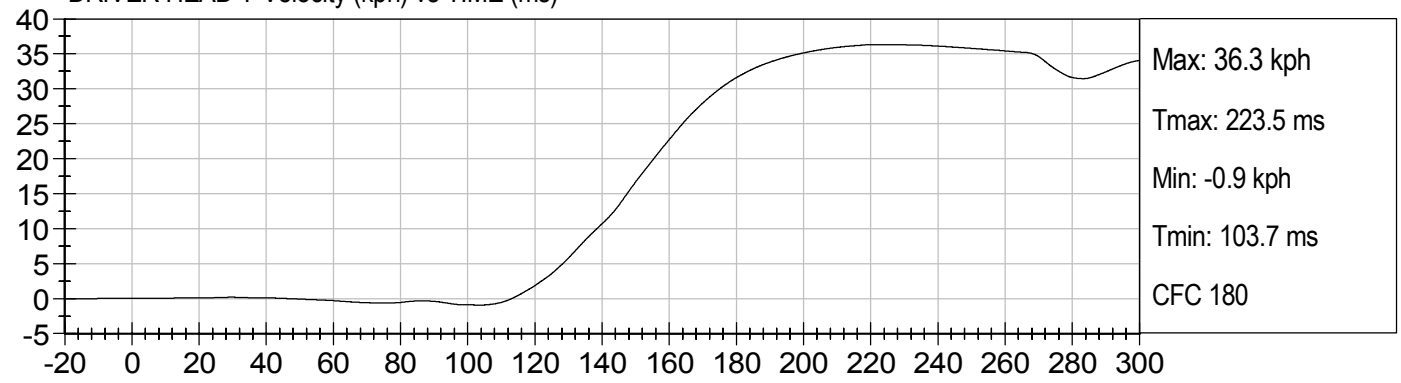
DRIVER HEAD Resultant (G's) vs TIME (ms)



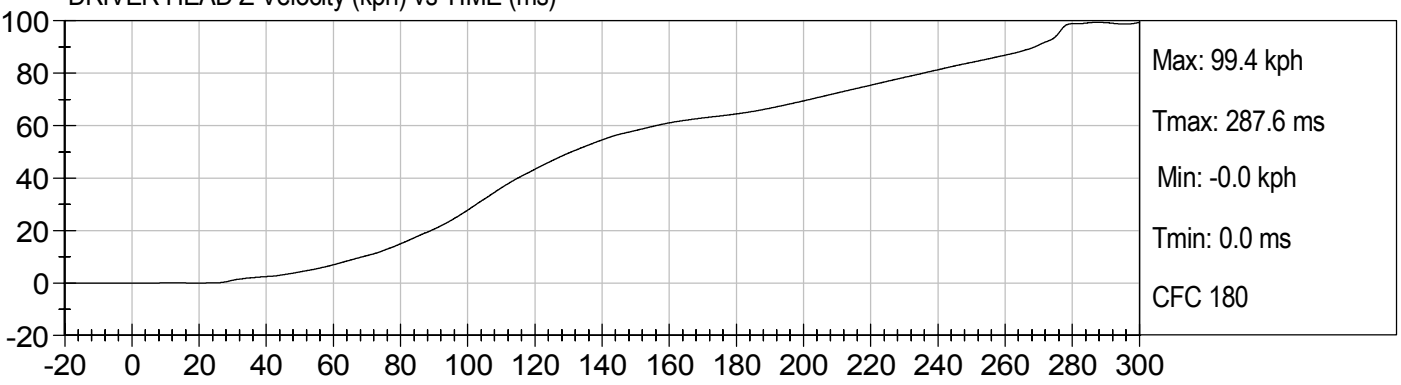
DRIVER HEAD X Velocity (kph) vs TIME (ms)



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



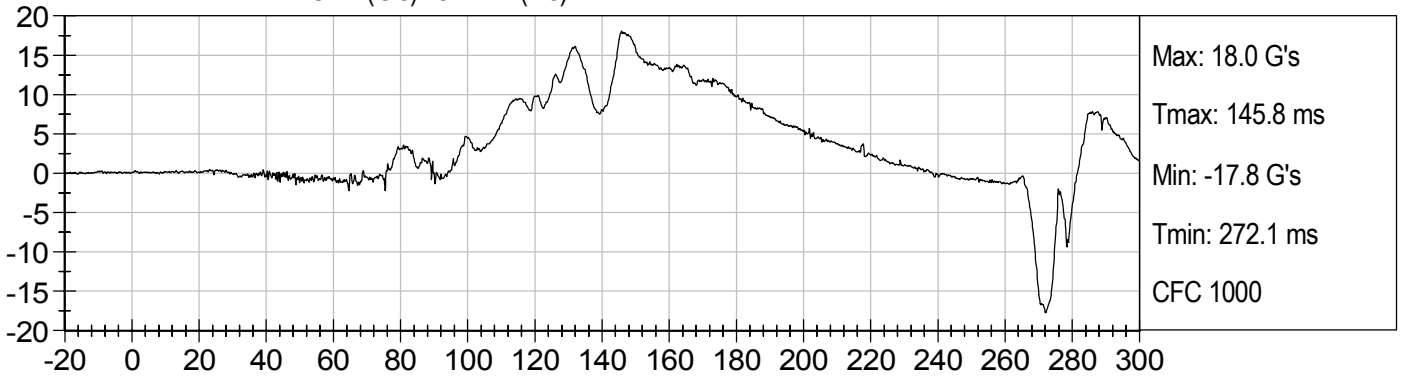
DRIVER HEAD Z Velocity (kph) vs TIME (ms)



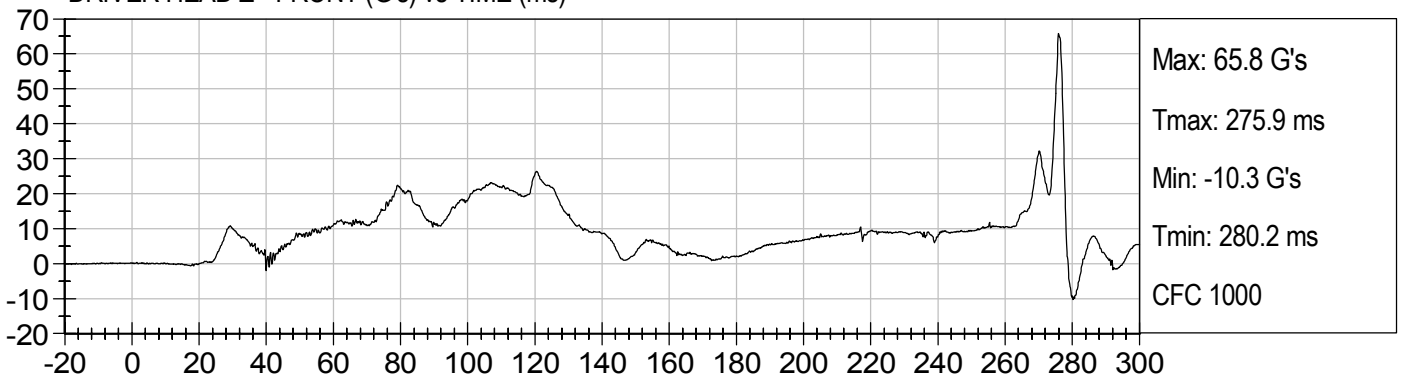
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

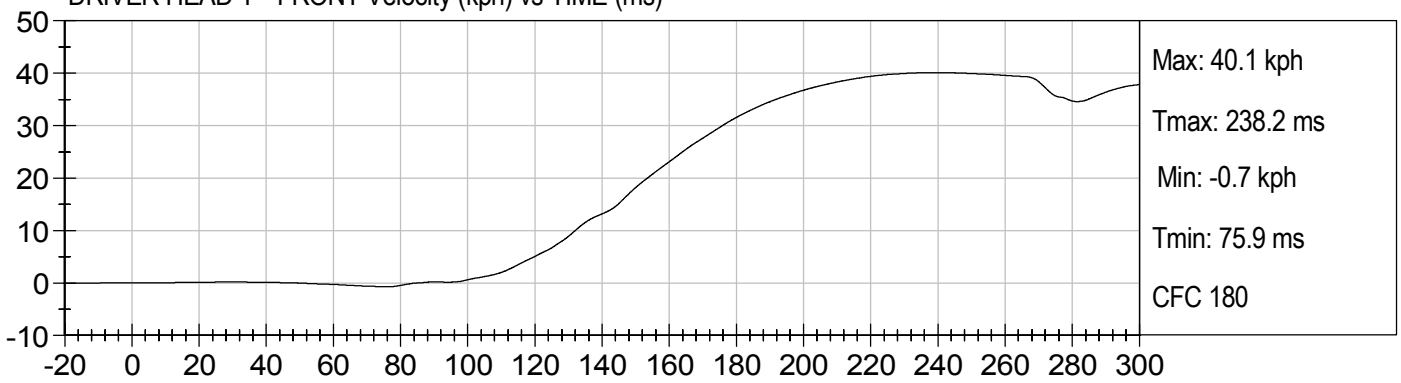
DRIVER HEAD Y - FRONT (G's) vs TIME (ms)



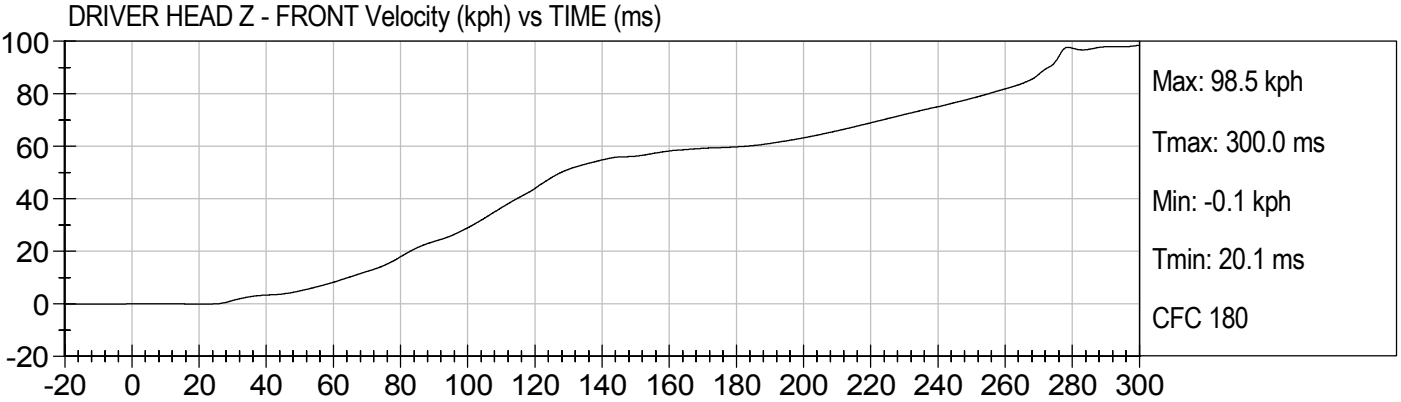
DRIVER HEAD Z - FRONT (G's) vs TIME (ms)



DRIVER HEAD Y - FRONT Velocity (kph) vs TIME (ms)



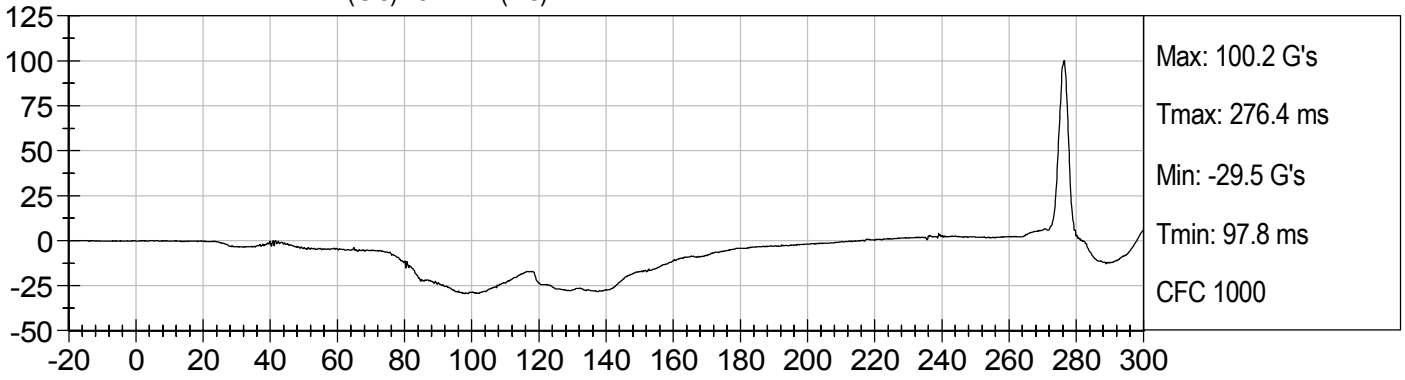
DRIVER HEAD Z - FRONT Velocity (kph) vs TIME (ms)



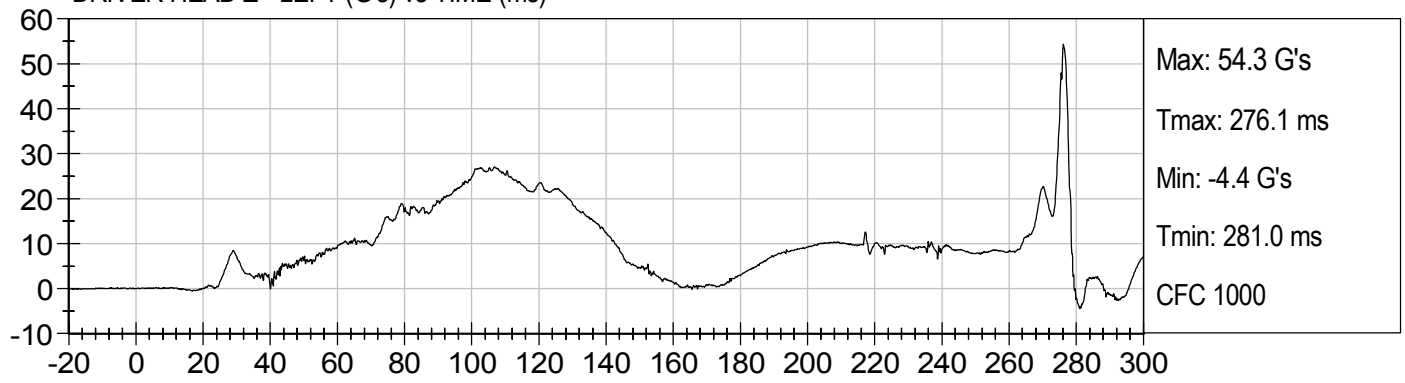
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

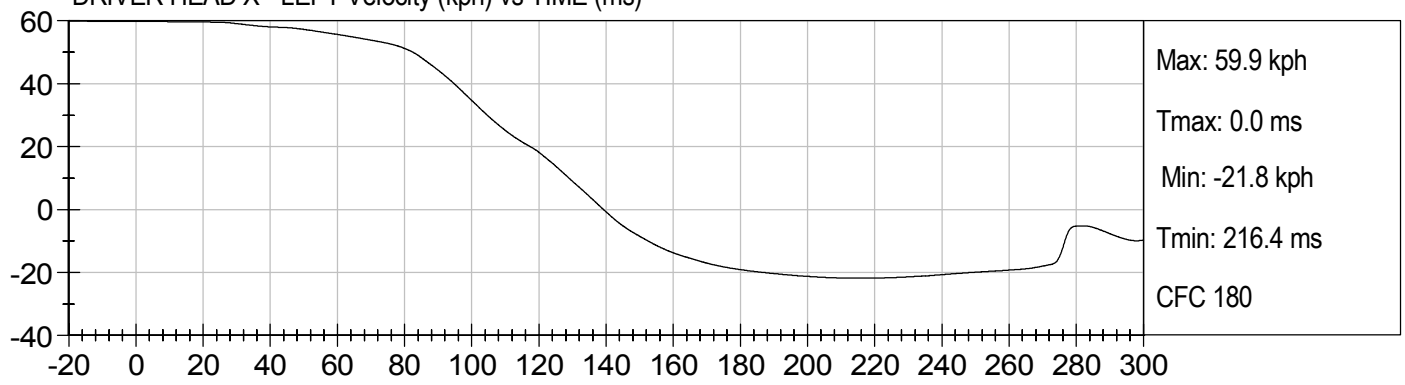
DRIVER HEAD X - LEFT (G's) vs TIME (ms)



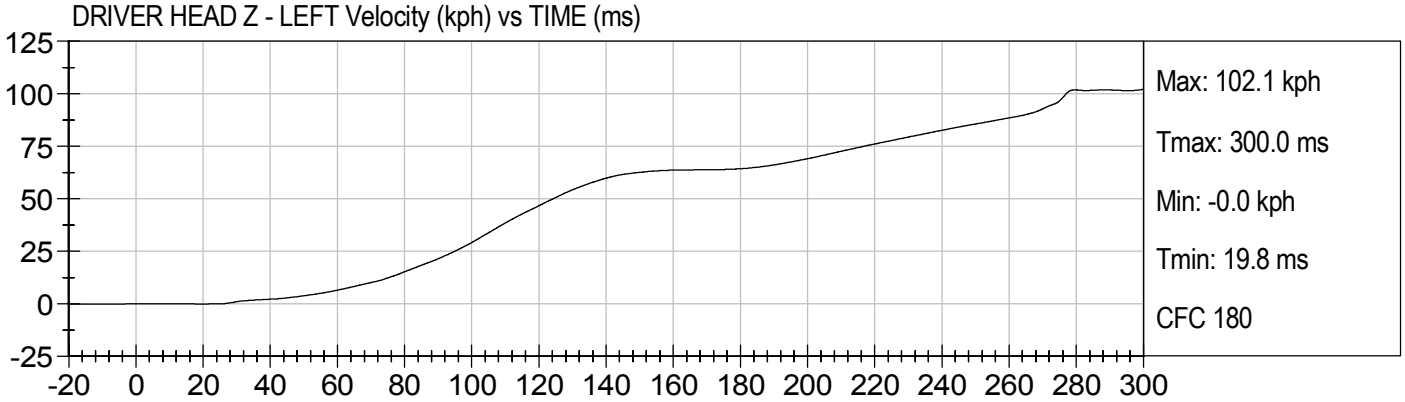
DRIVER HEAD Z - LEFT (G's) vs TIME (ms)



DRIVER HEAD X - LEFT Velocity (kph) vs TIME (ms)



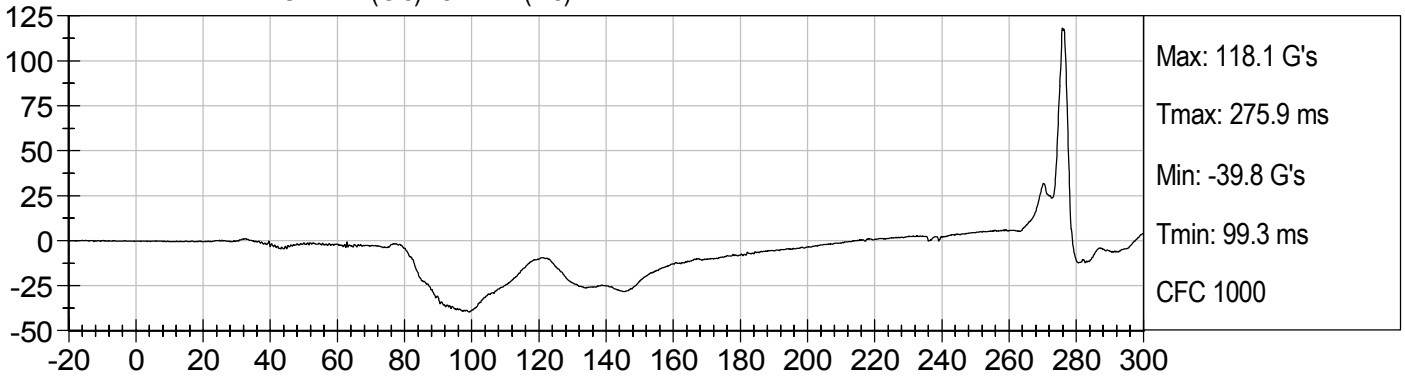
DRIVER HEAD Z - LEFT Velocity (kph) vs TIME (ms)



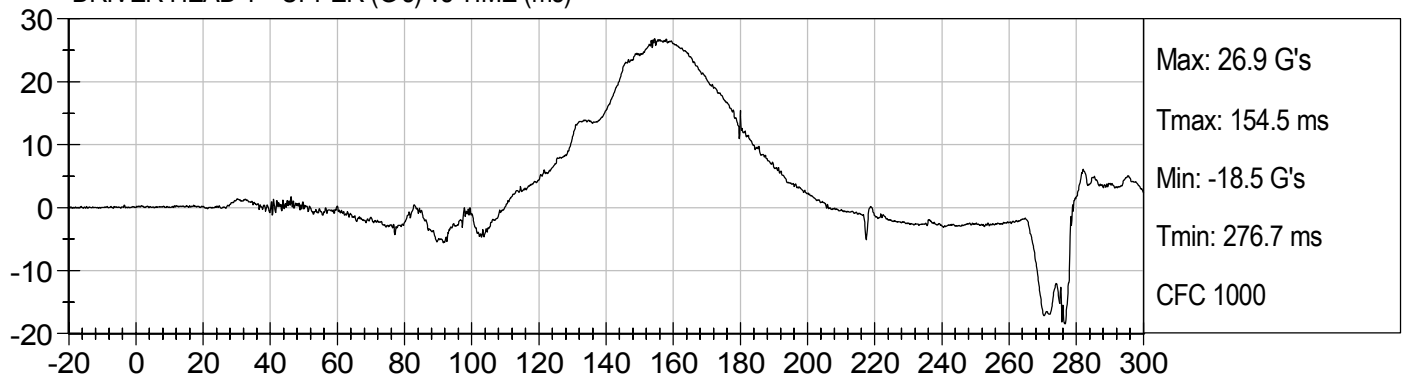
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

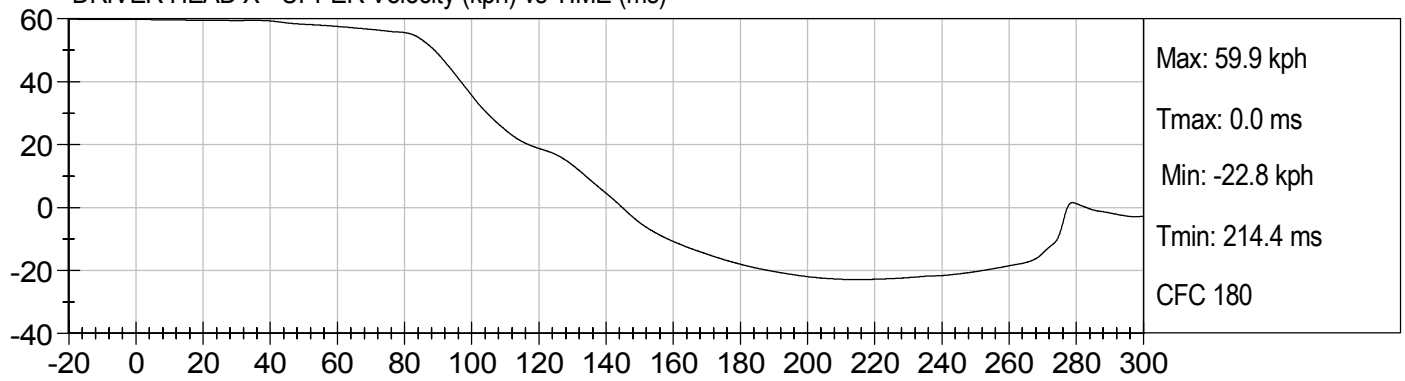
DRIVER HEAD X - UPPER (G's) vs TIME (ms)



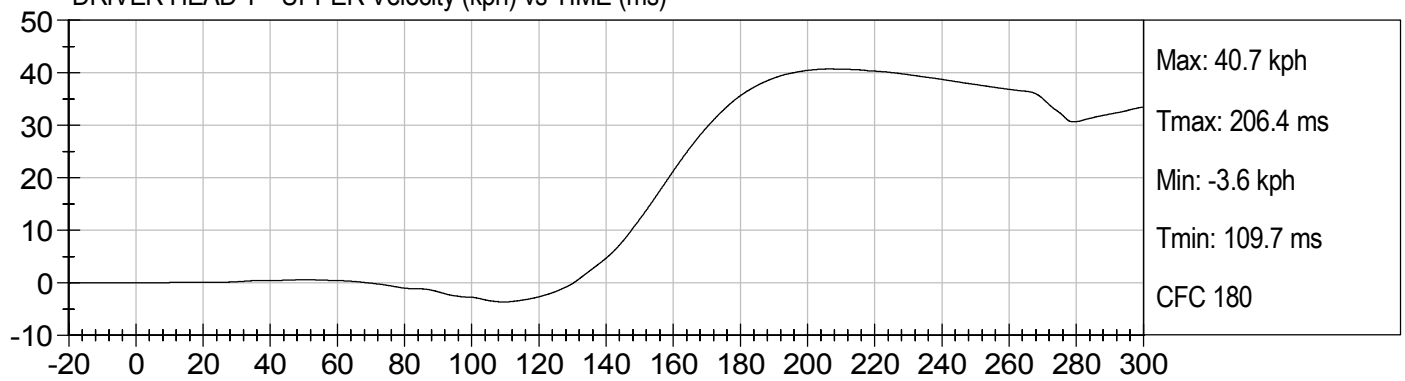
DRIVER HEAD Y - UPPER (G's) vs TIME (ms)



DRIVER HEAD X - UPPER Velocity (kph) vs TIME (ms)



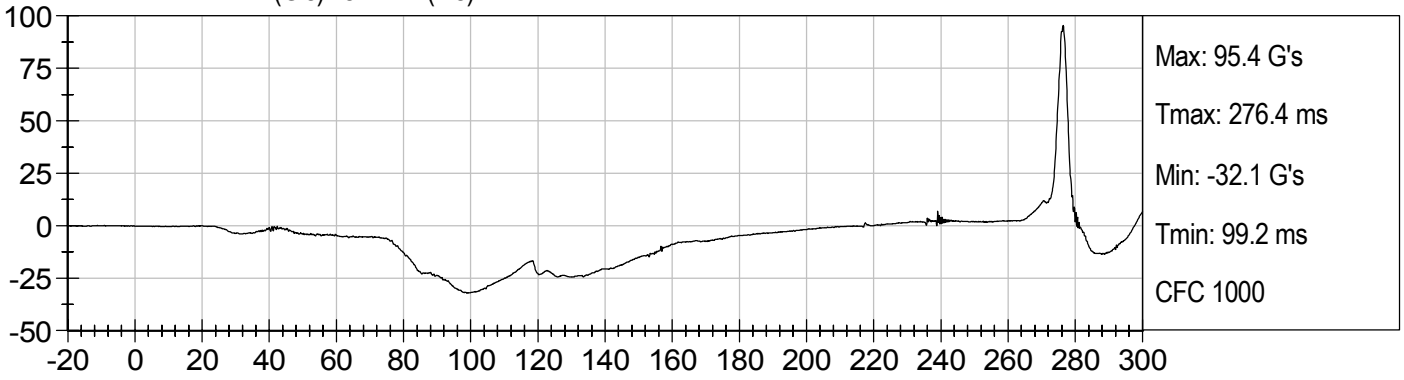
DRIVER HEAD Y - UPPER Velocity (kph) vs TIME (ms)



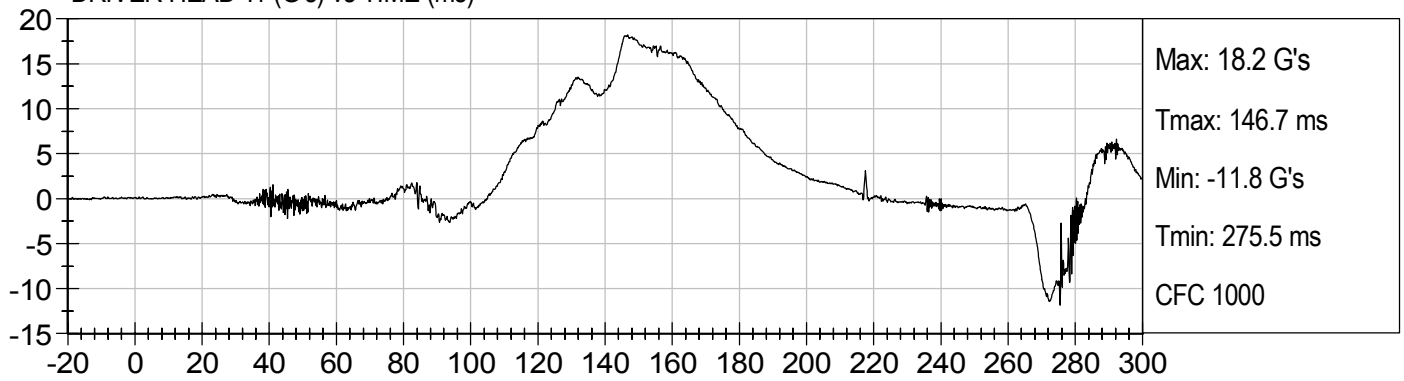
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

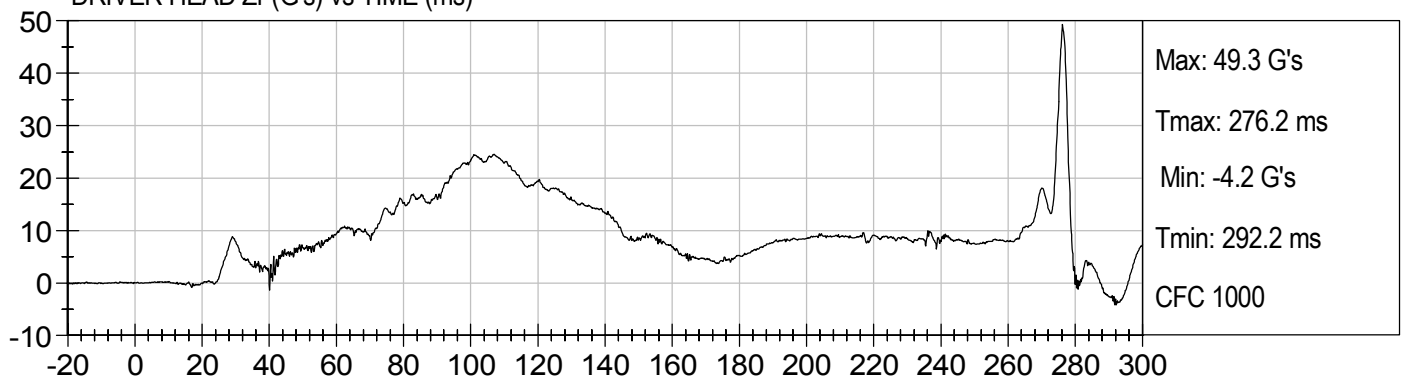
DRIVER HEAD Xr (G's) vs TIME (ms)



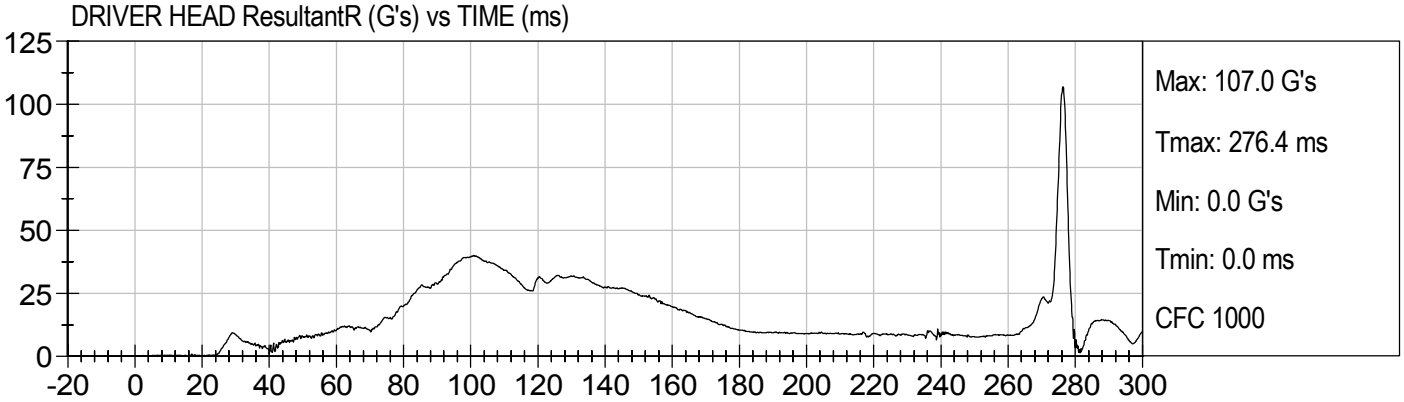
DRIVER HEAD Yr (G's) vs TIME (ms)



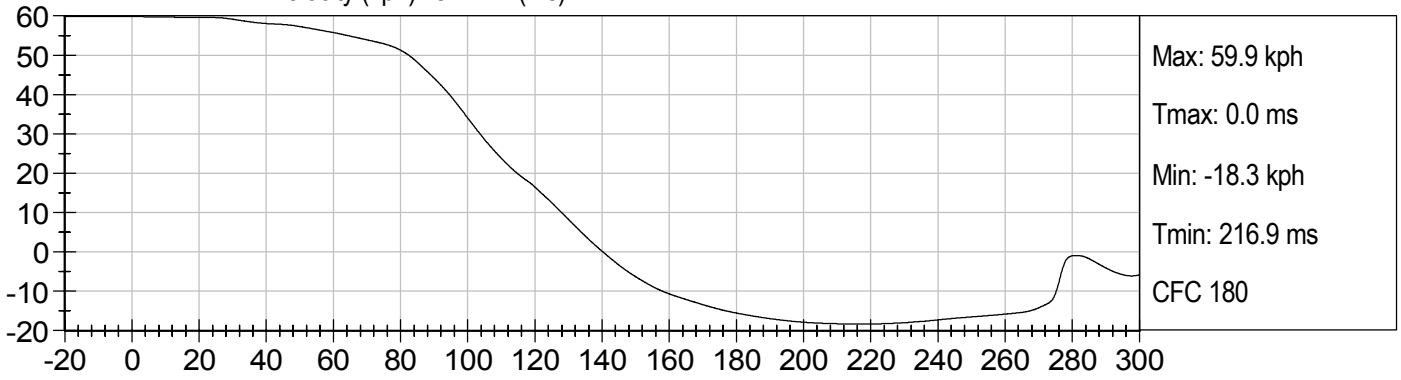
DRIVER HEAD Zr (G's) vs TIME (ms)



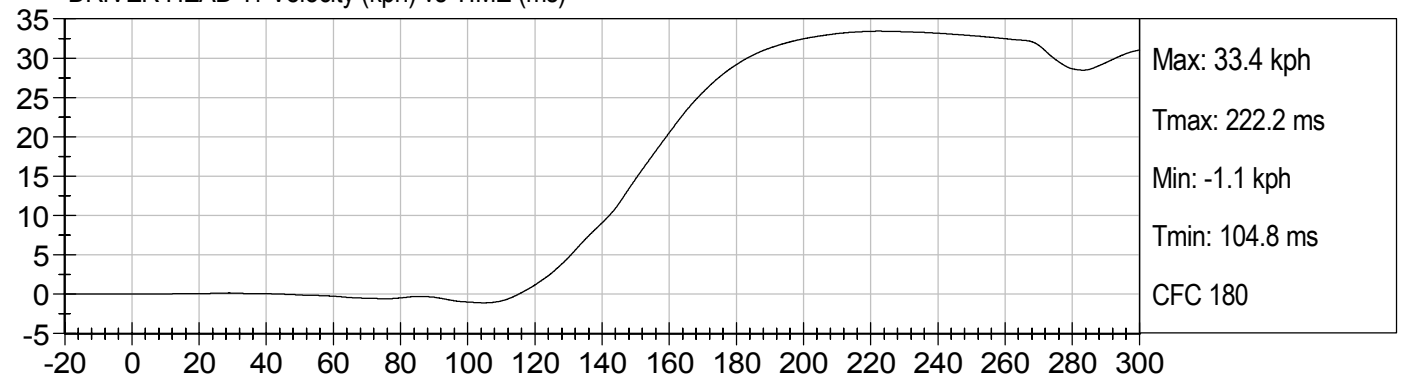
DRIVER HEAD ResultantR (G's) vs TIME (ms)



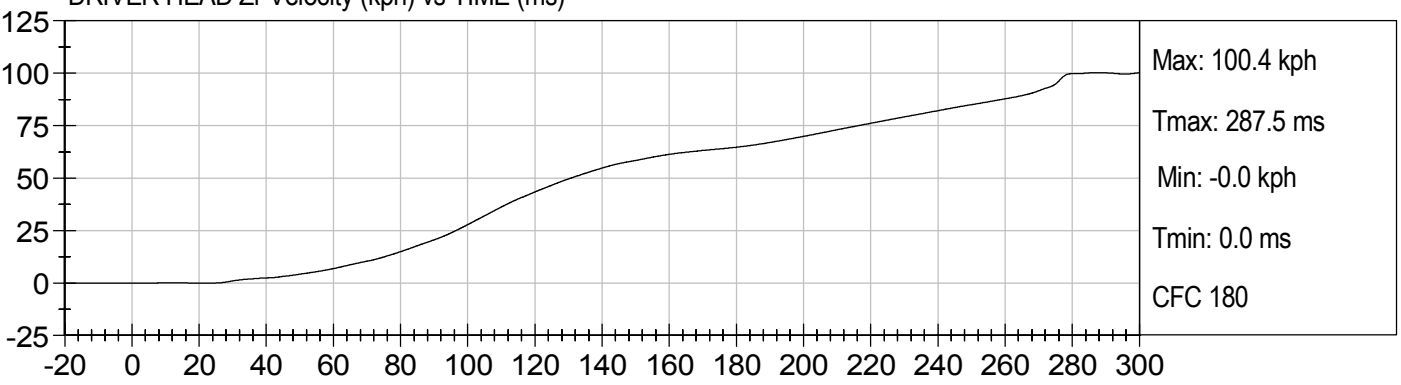
DRIVER HEAD Xr Velocity (kph) vs TIME (ms)



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



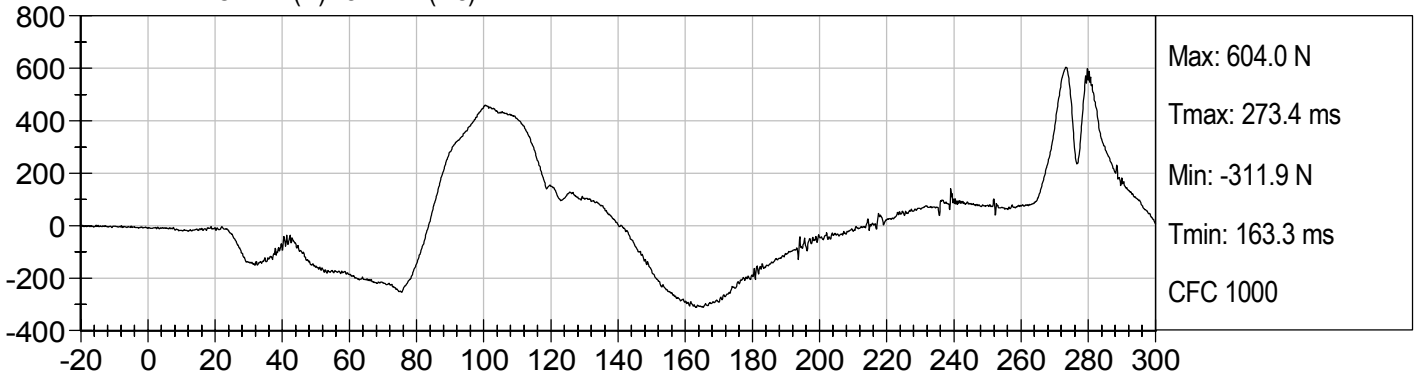
DRIVER HEAD Zr Velocity (kph) vs TIME (ms)



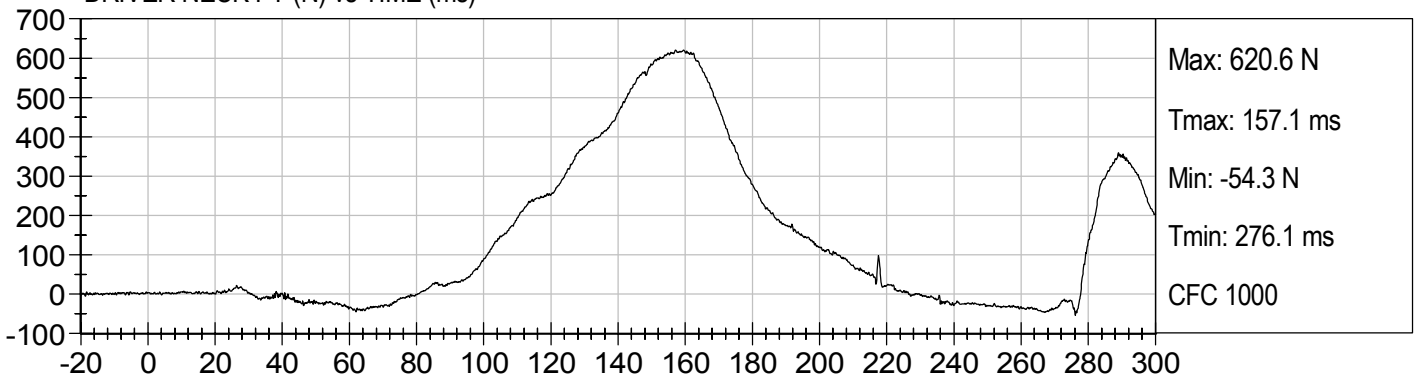
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

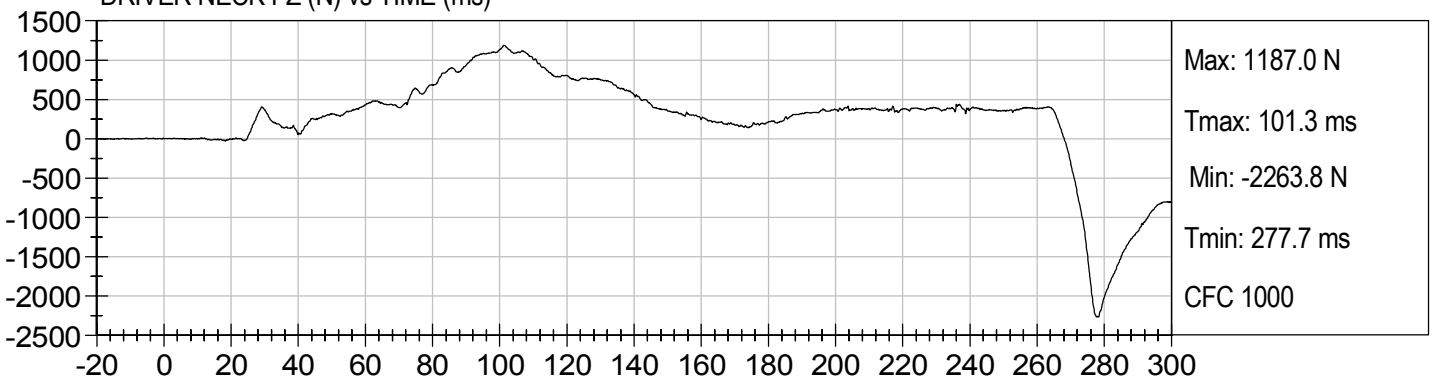
DRIVER NECK FX (N) vs TIME (ms)



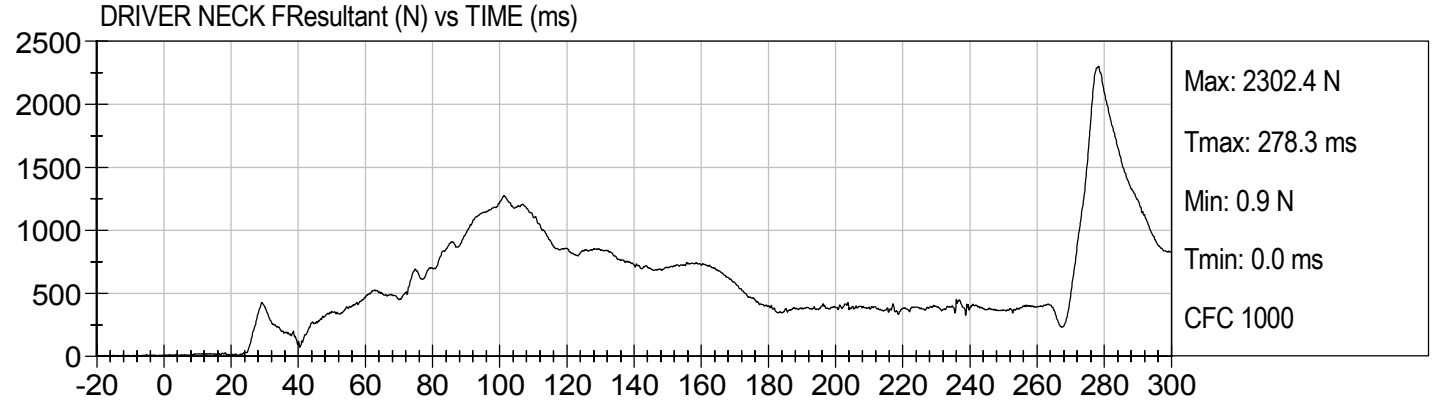
DRIVER NECK FY (N) vs TIME (ms)



DRIVER NECK FZ (N) vs TIME (ms)



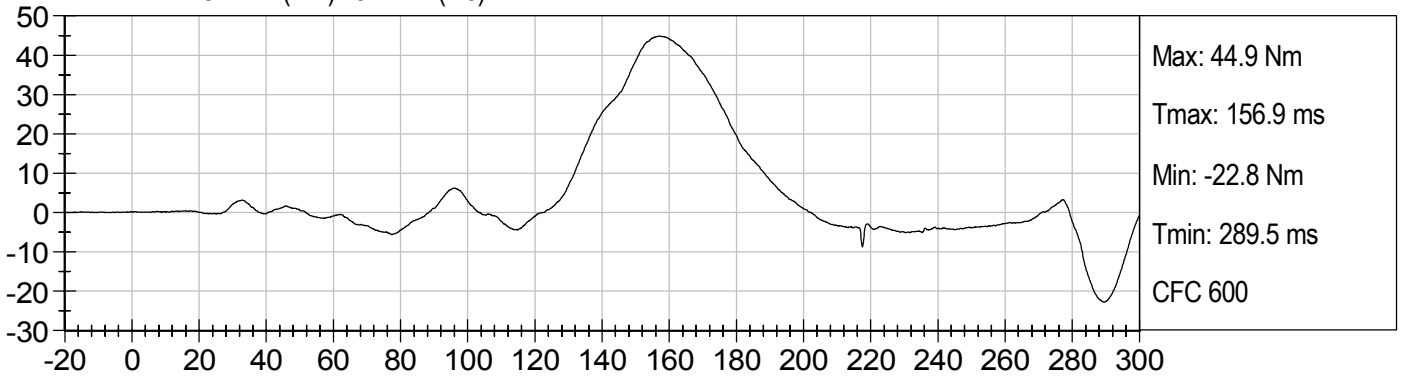
DRIVER NECK FResultant (N) vs TIME (ms)



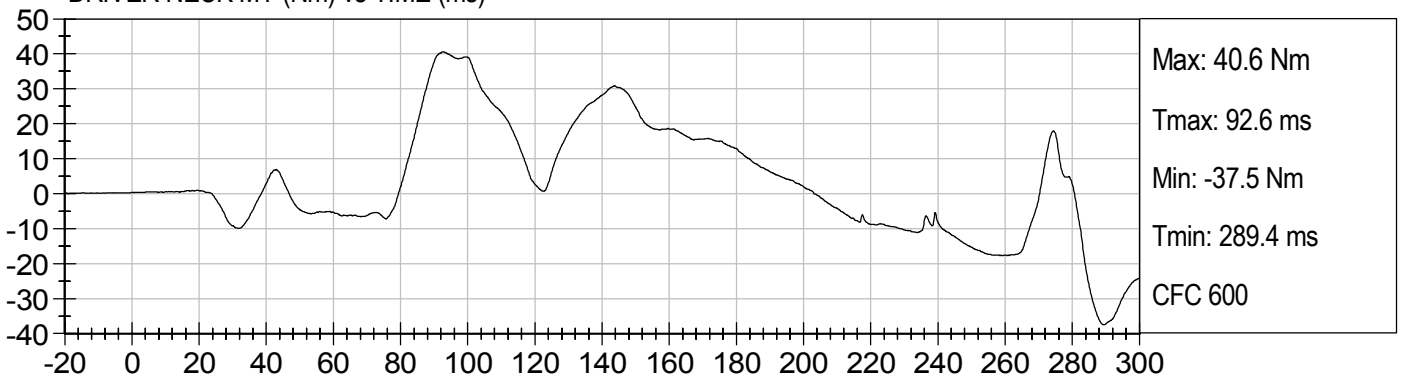
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

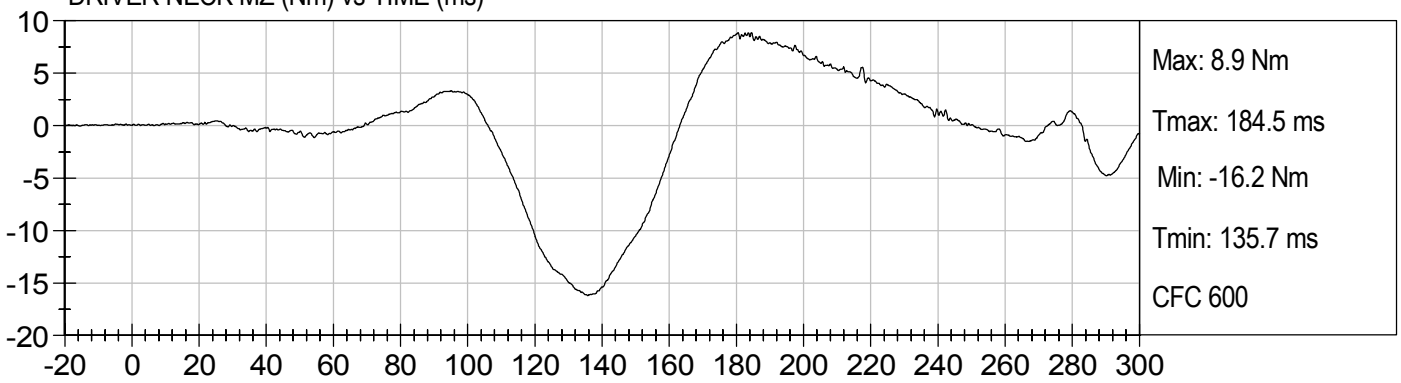
DRIVER NECK MX (Nm) vs TIME (ms)



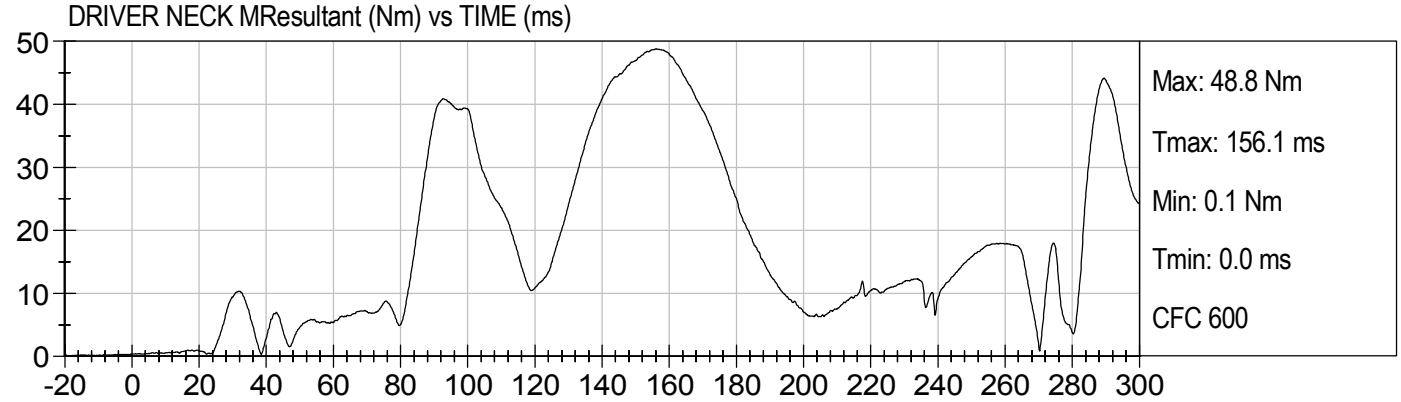
DRIVER NECK MY (Nm) vs TIME (ms)



DRIVER NECK MZ (Nm) vs TIME (ms)



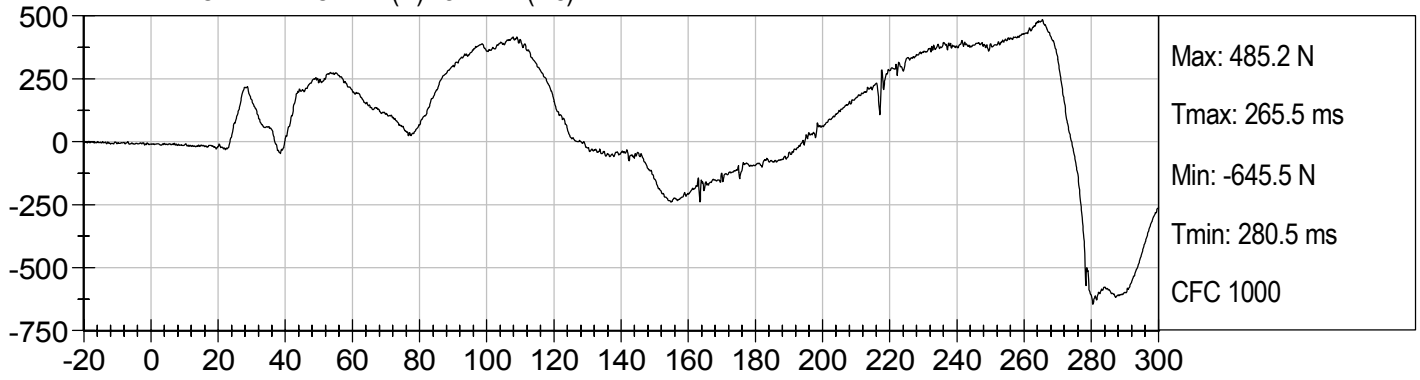
DRIVER NECK MResultant (Nm) vs TIME (ms)



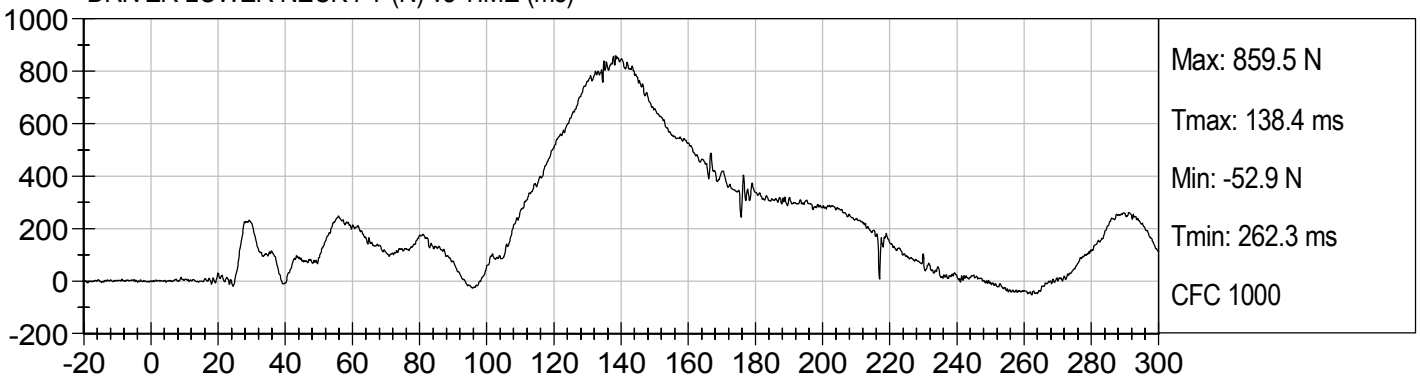
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

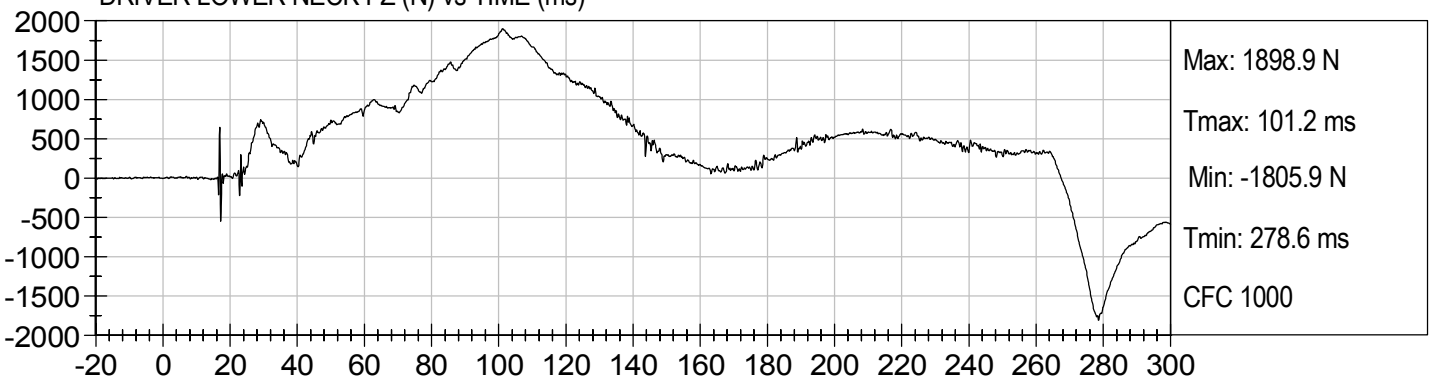
DRIVER LOWER NECK FX (N) vs TIME (ms)



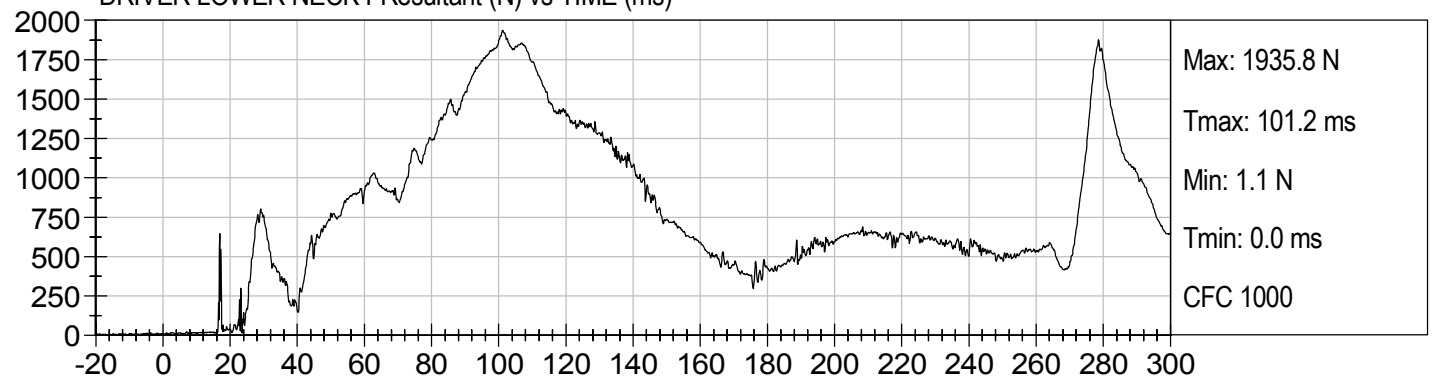
DRIVER LOWER NECK FY (N) vs TIME (ms)



DRIVER LOWER NECK FZ (N) vs TIME (ms)



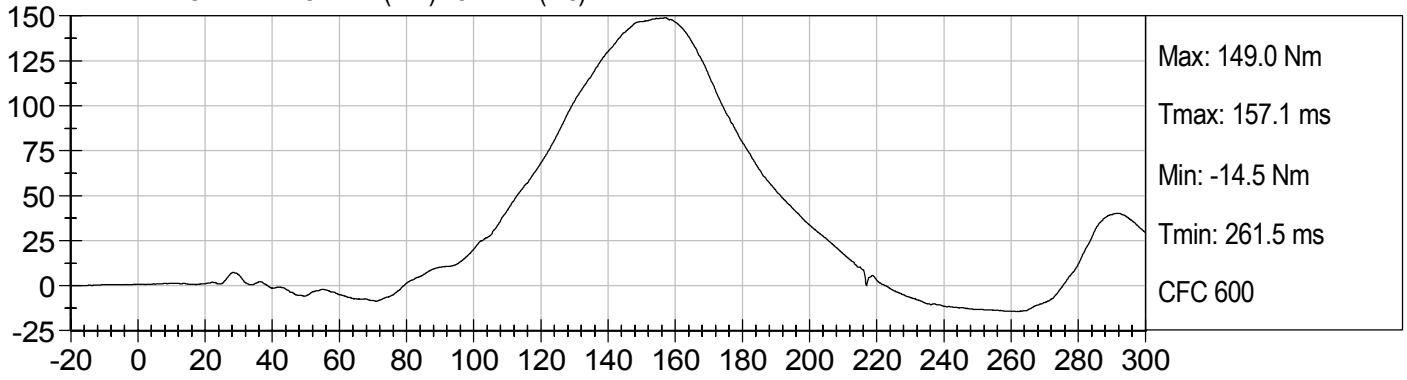
DRIVER LOWER NECK FResultant (N) vs TIME (ms)



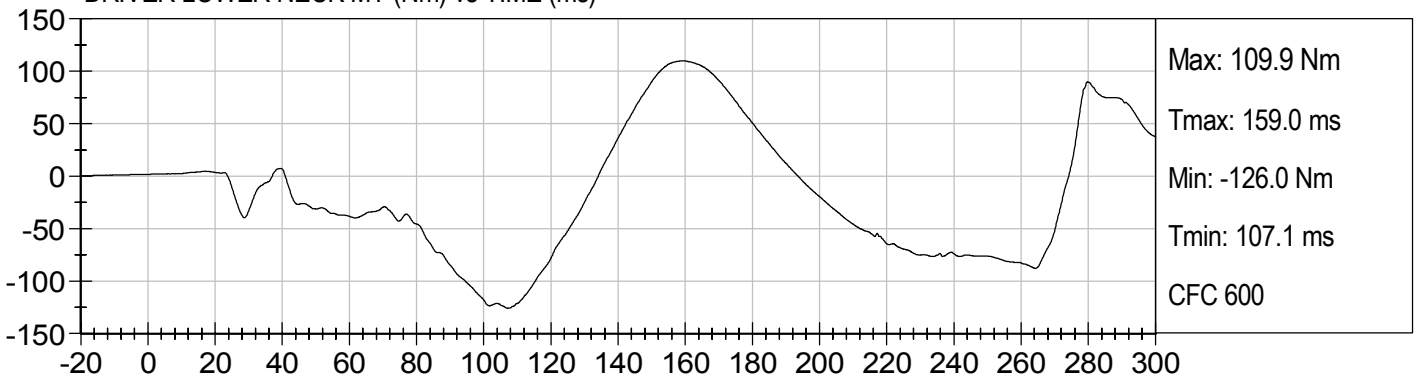
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

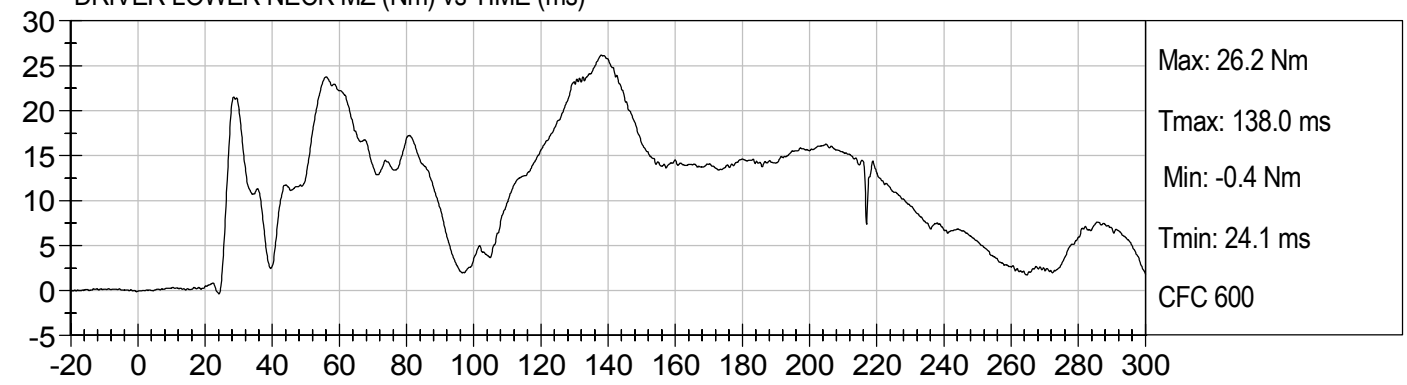
DRIVER LOWER NECK MX (Nm) vs TIME (ms)



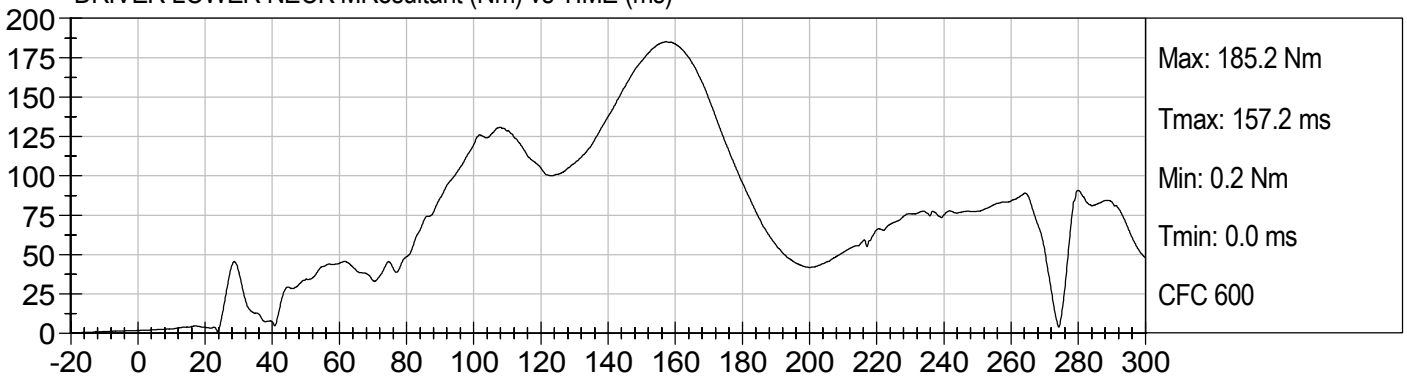
DRIVER LOWER NECK MY (Nm) vs TIME (ms)



DRIVER LOWER NECK MZ (Nm) vs TIME (ms)



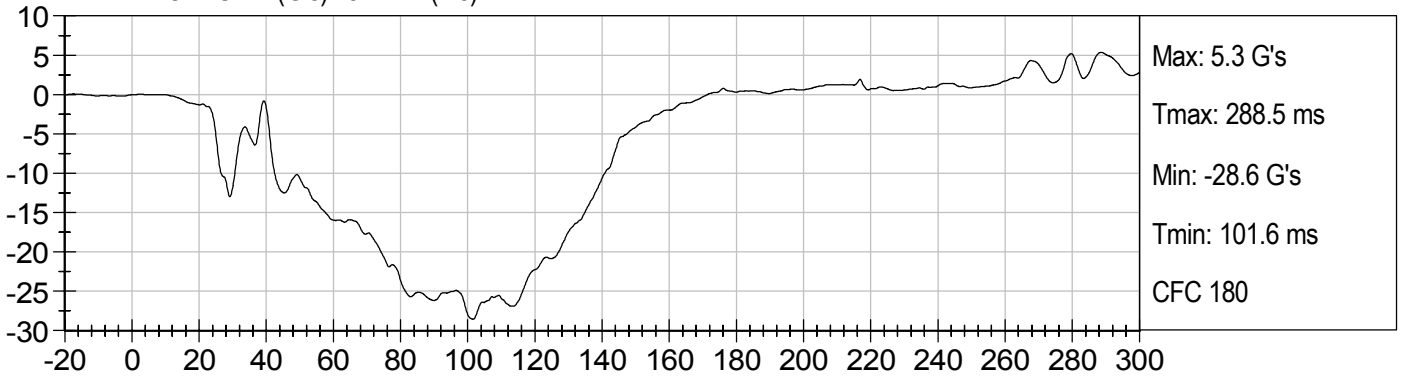
DRIVER LOWER NECK MResultant (Nm) vs TIME (ms)



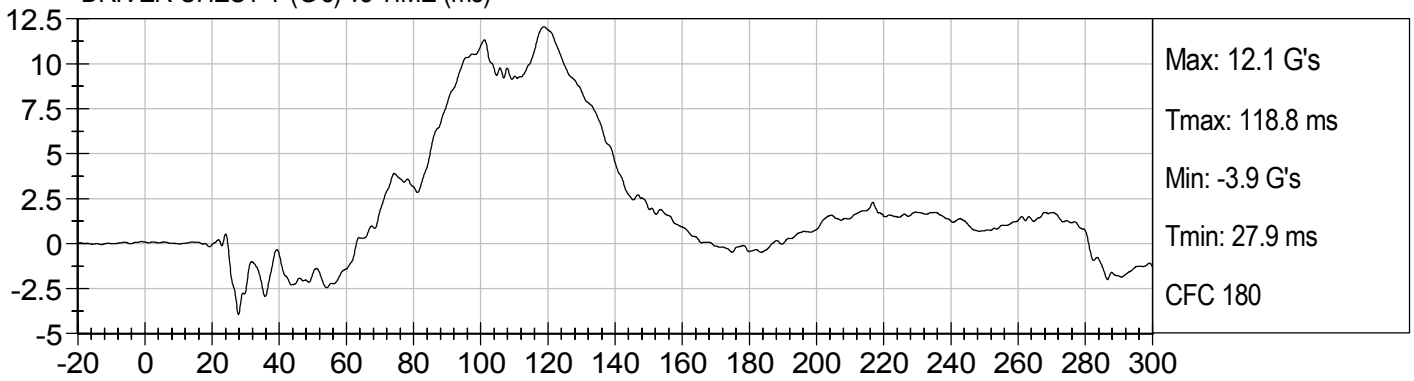
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

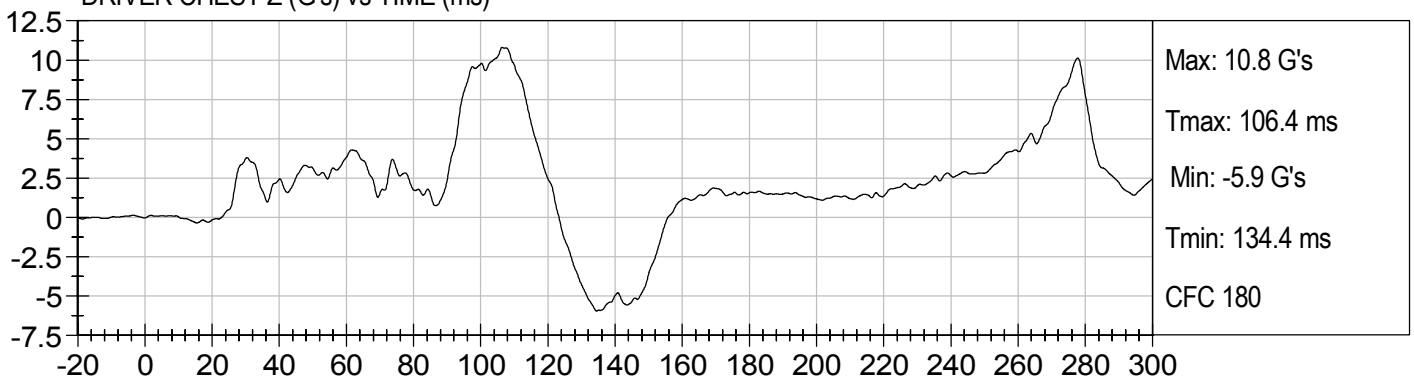
DRIVER CHEST X (G's) vs TIME (ms)



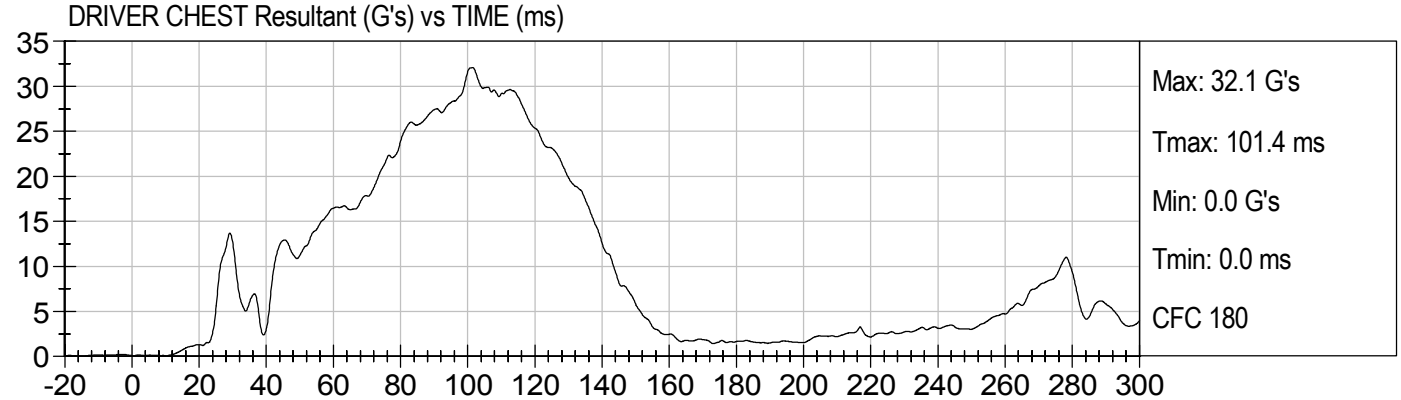
DRIVER CHEST Y (G's) vs TIME (ms)



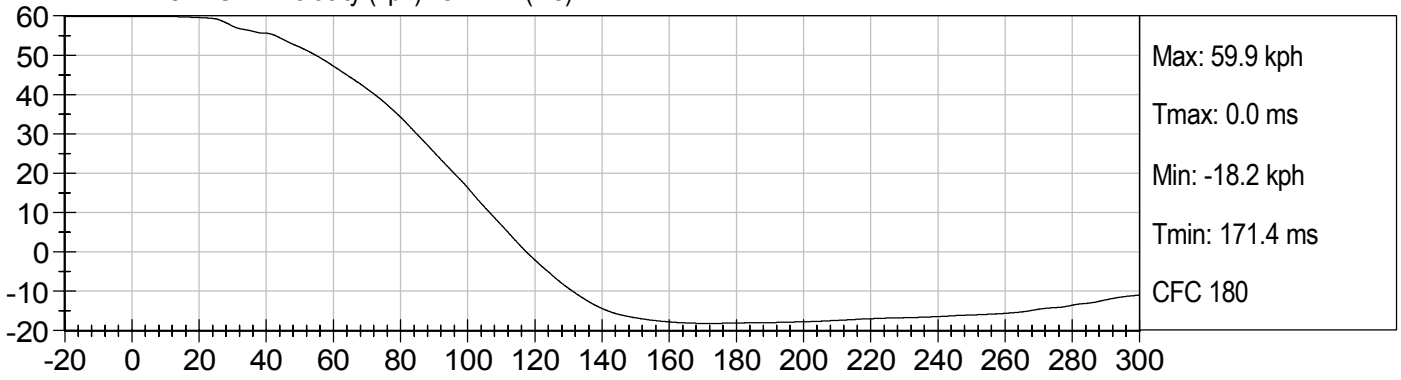
DRIVER CHEST Z (G's) vs TIME (ms)



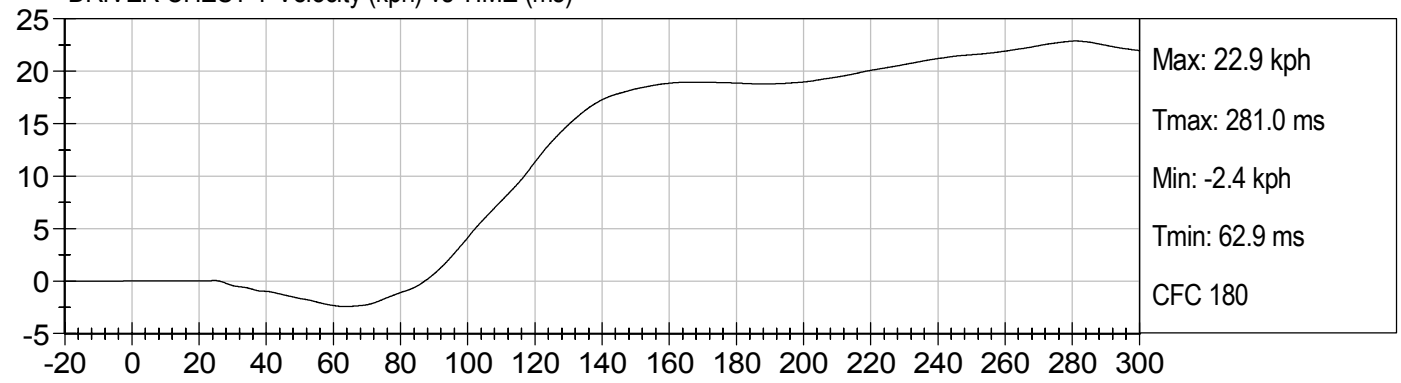
DRIVER CHEST Resultant (G's) vs TIME (ms)



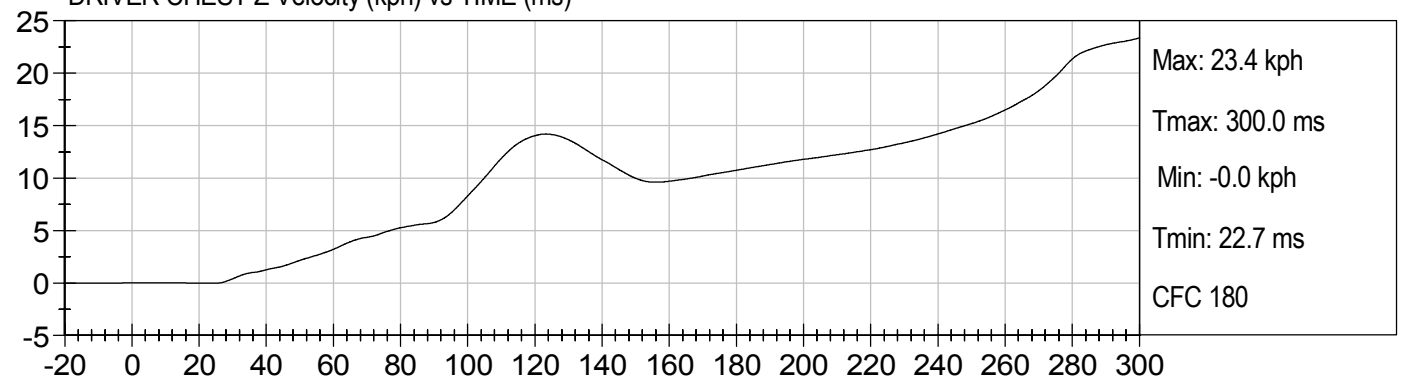
DRIVER CHEST X Velocity (kph) vs TIME (ms)



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



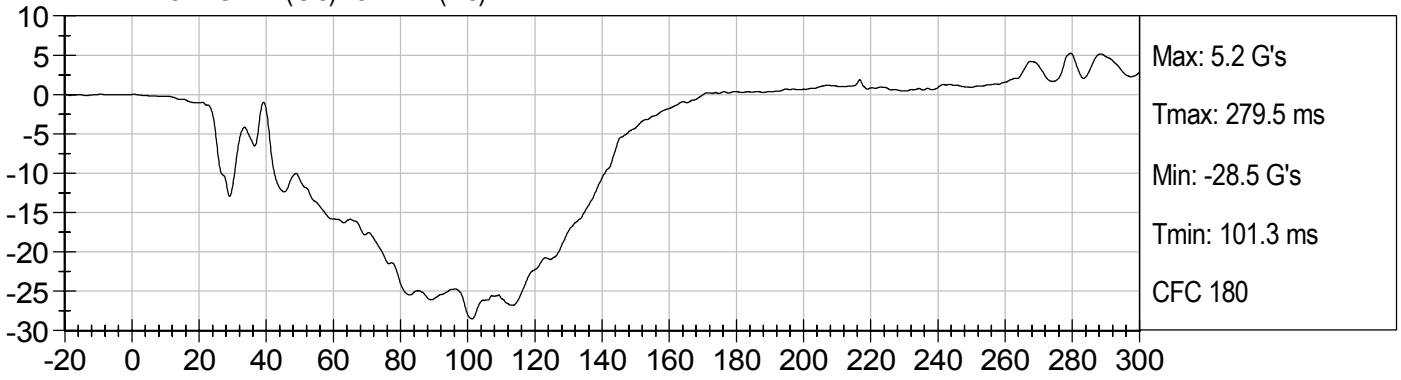
DRIVER CHEST Z Velocity (kph) vs TIME (ms)



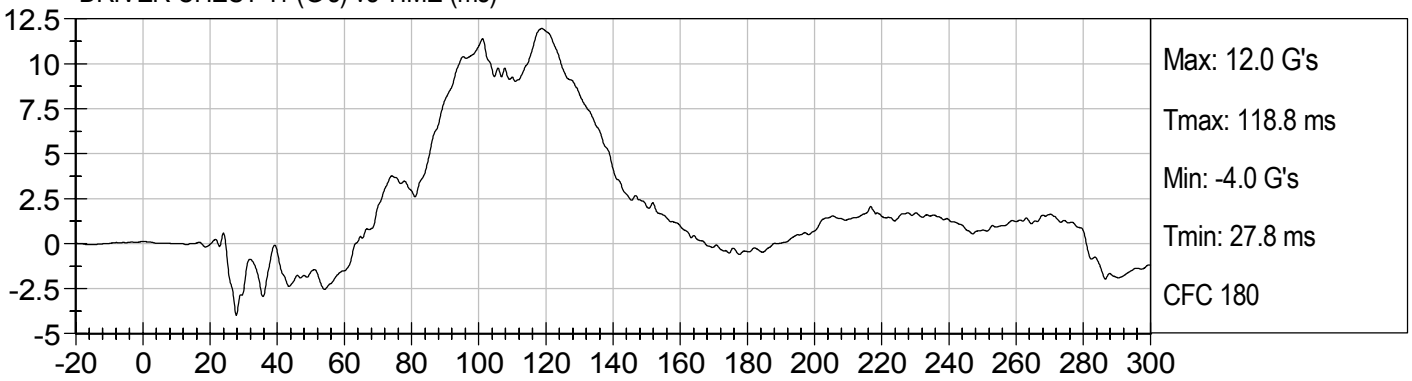
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

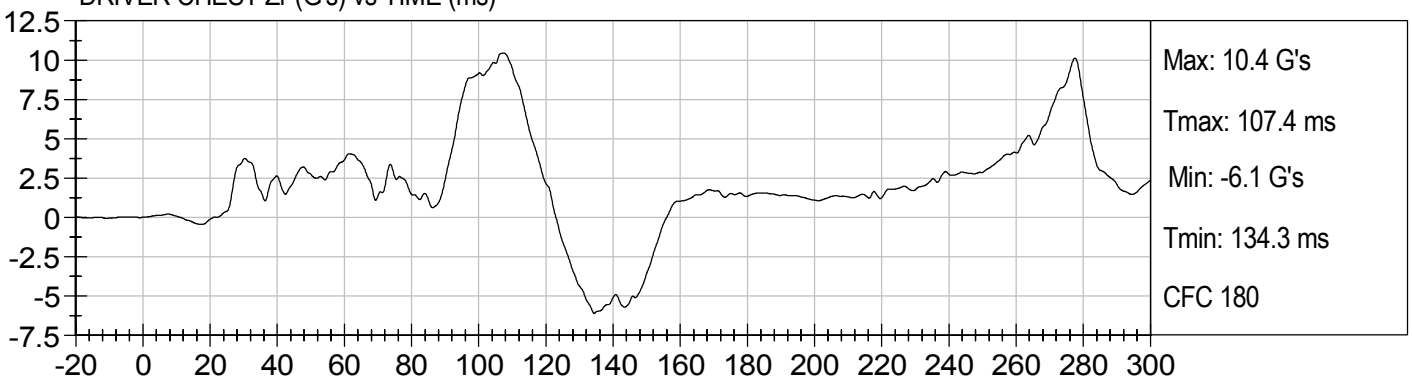
DRIVER CHEST Xr (G's) vs TIME (ms)



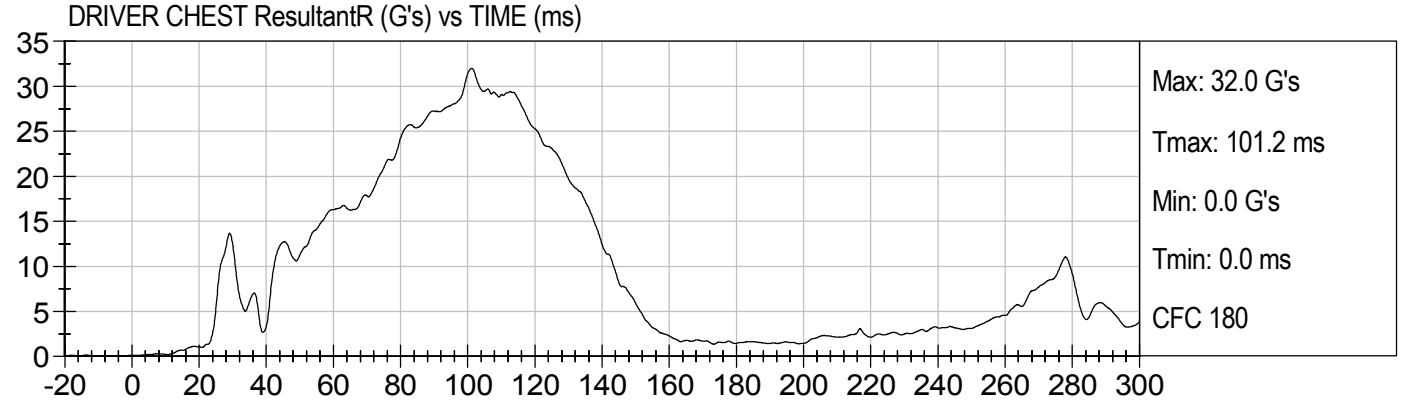
DRIVER CHEST Yr (G's) vs TIME (ms)



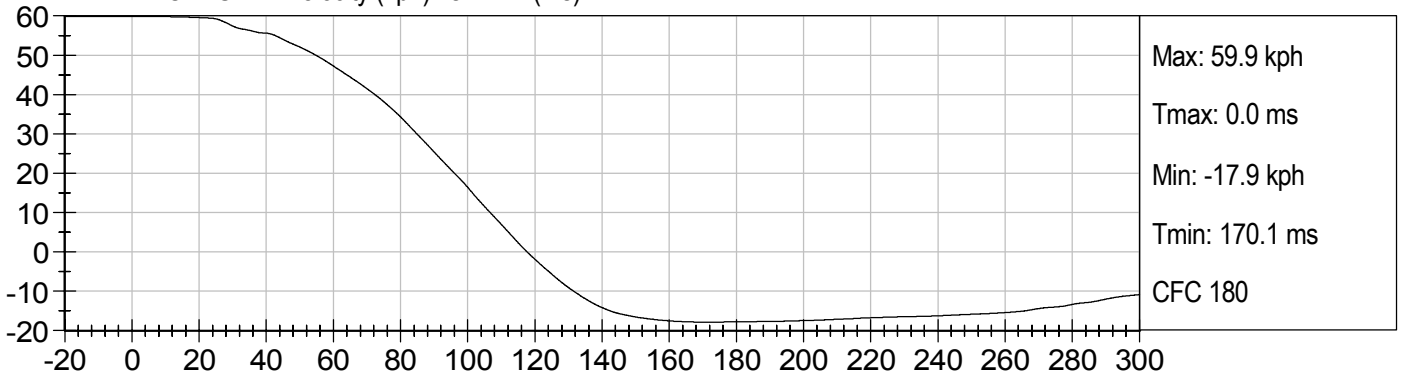
DRIVER CHEST Zr (G's) vs TIME (ms)



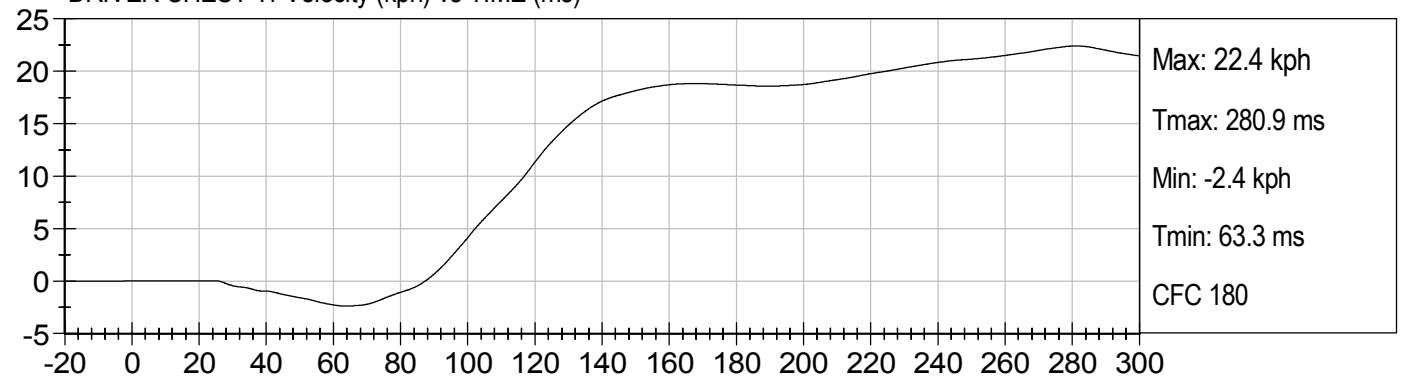
DRIVER CHEST ResultantR (G's) vs TIME (ms)



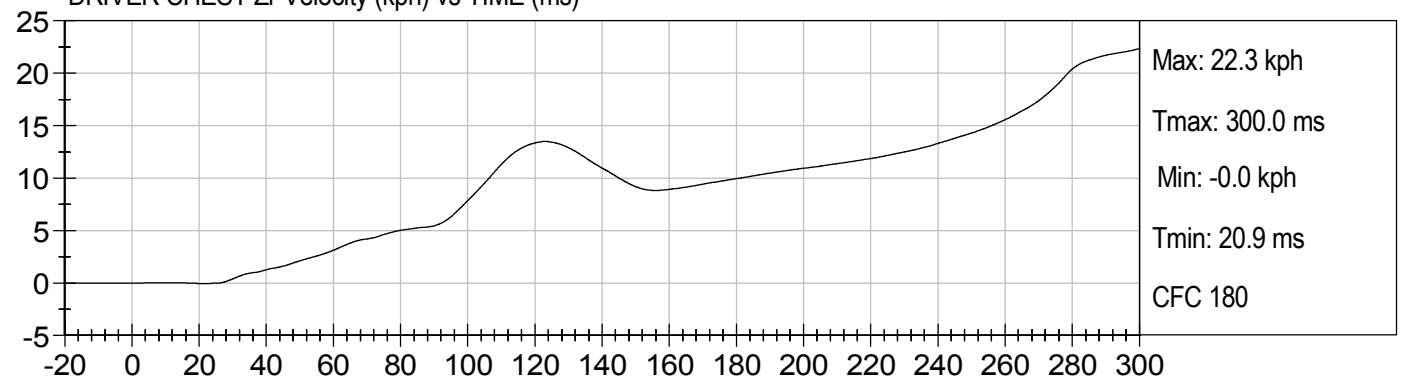
DRIVER CHEST Xr Velocity (kph) vs TIME (ms)



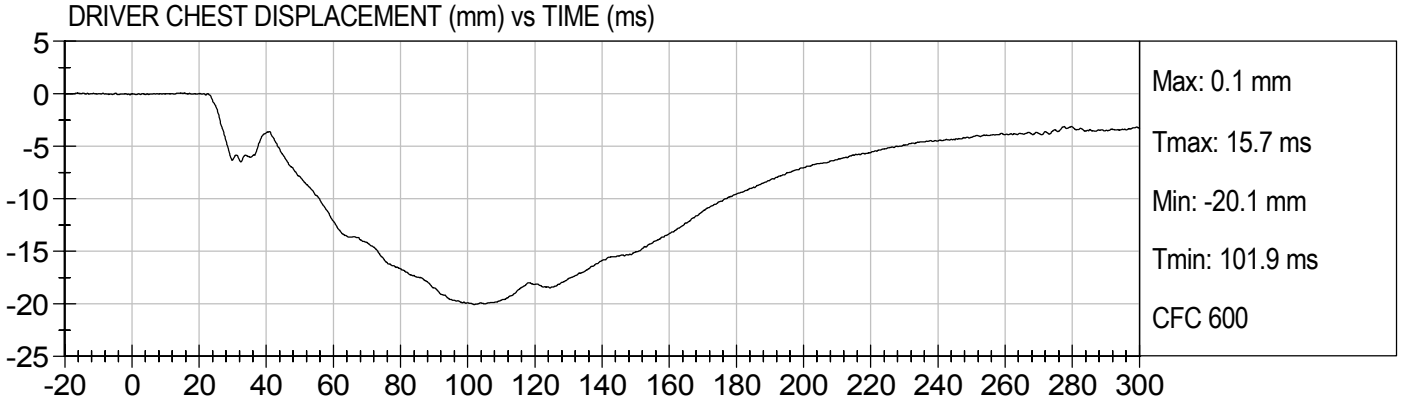
DRIVER CHEST Yr Velocity (kph) vs TIME (ms)



DRIVER CHEST Zr Velocity (kph) vs TIME (ms)



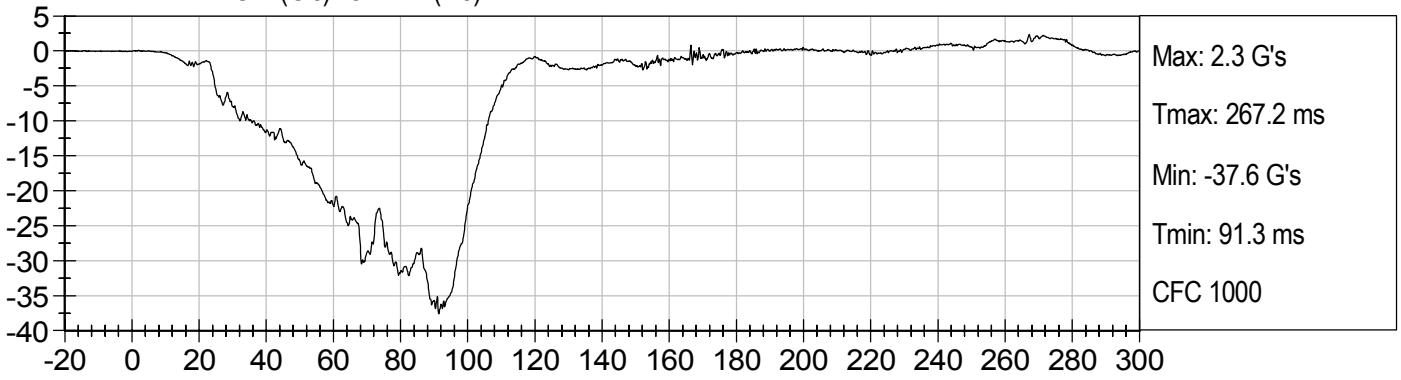
DRIVER CHEST DISPLACEMENT (mm) vs TIME (ms)



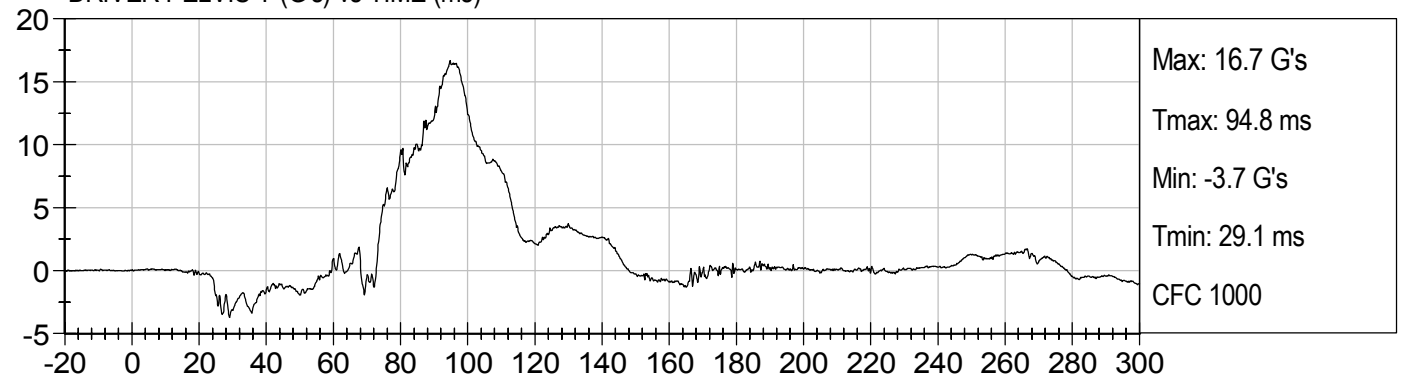
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

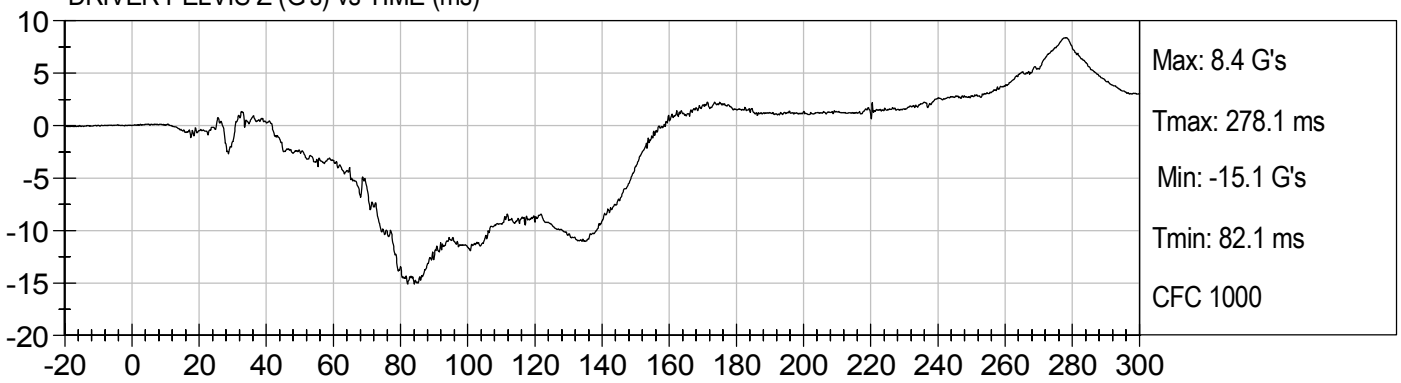
DRIVER PELVIS X (G's) vs TIME (ms)



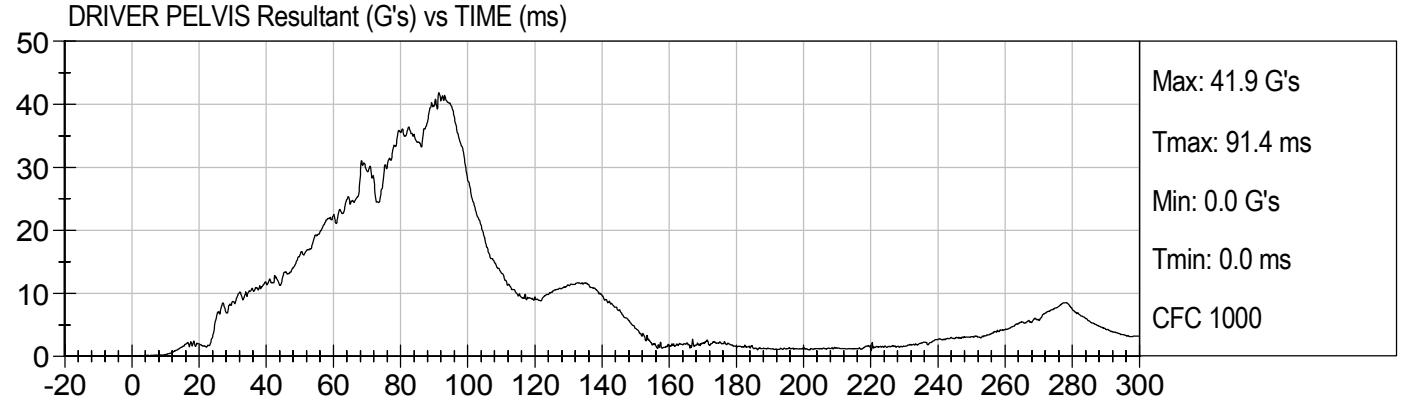
DRIVER PELVIS Y (G's) vs TIME (ms)



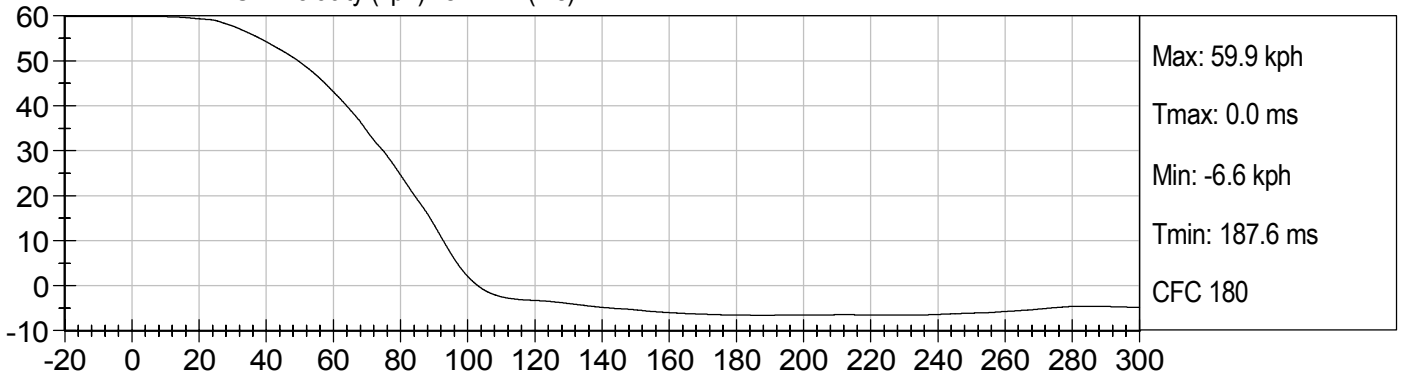
DRIVER PELVIS Z (G's) vs TIME (ms)



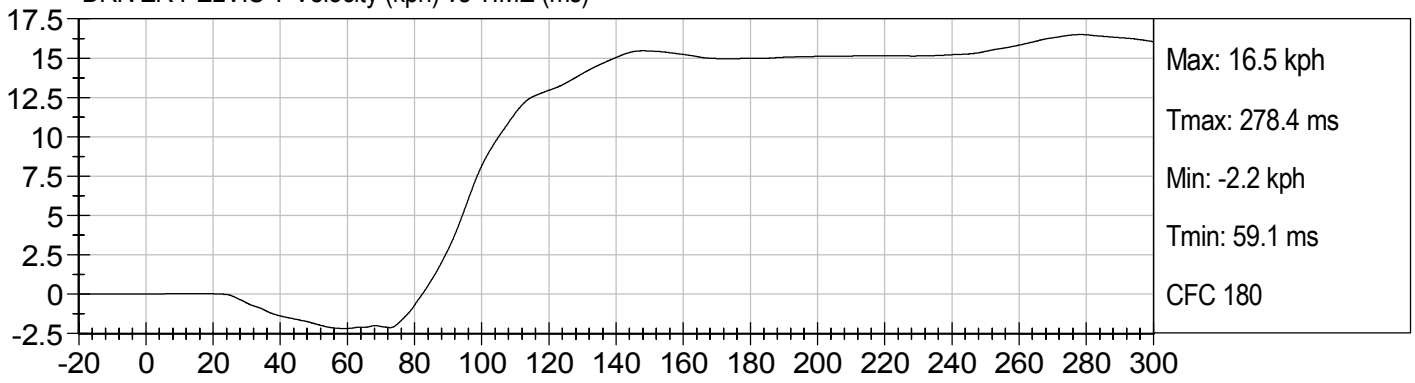
DRIVER PELVIS Resultant (G's) vs TIME (ms)



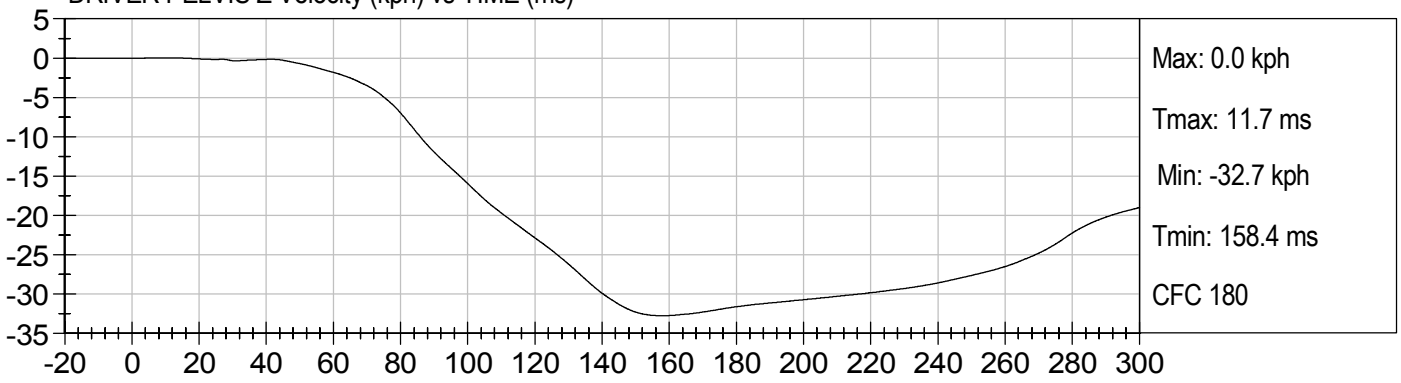
DRIVER PELVIS X Velocity (kph) vs TIME (ms)



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



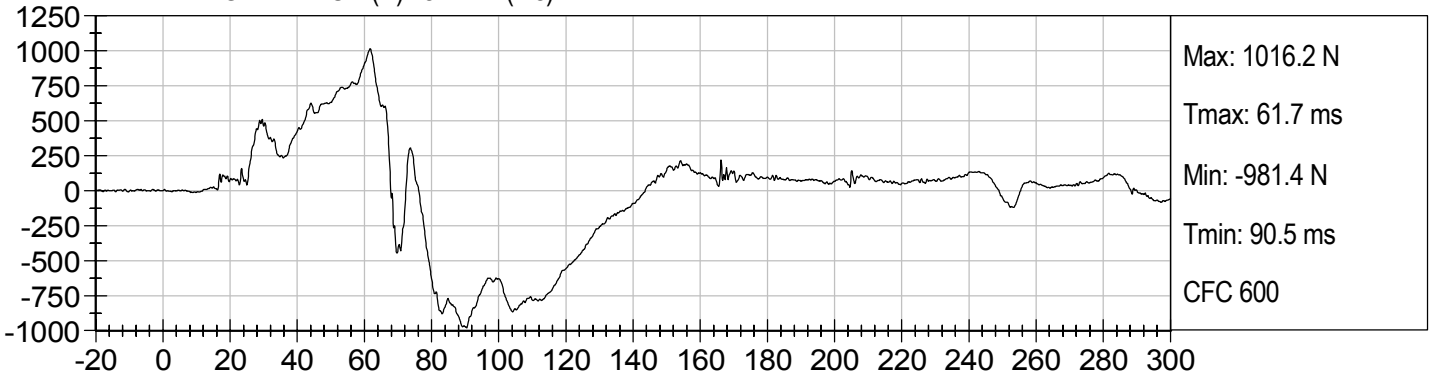
DRIVER PELVIS Z Velocity (kph) vs TIME (ms)



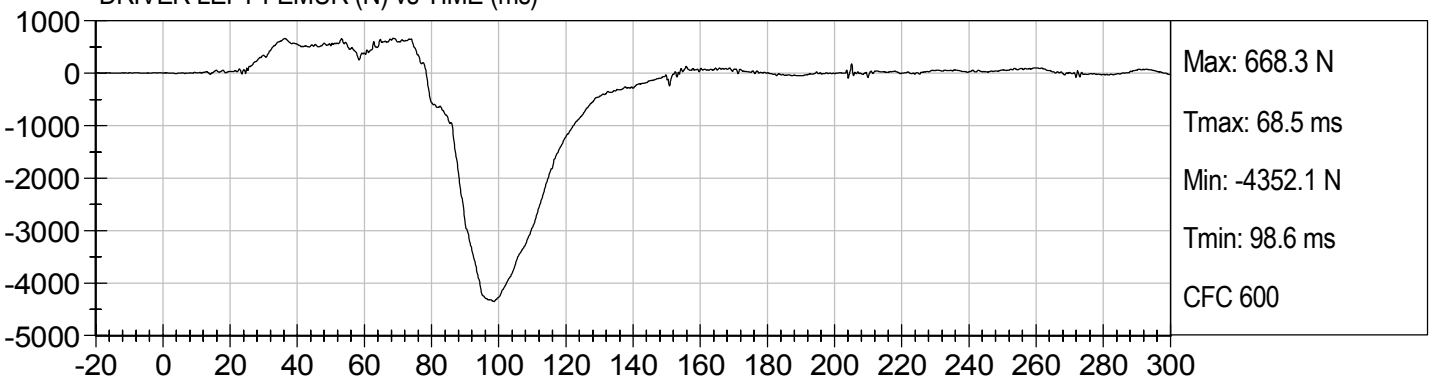
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

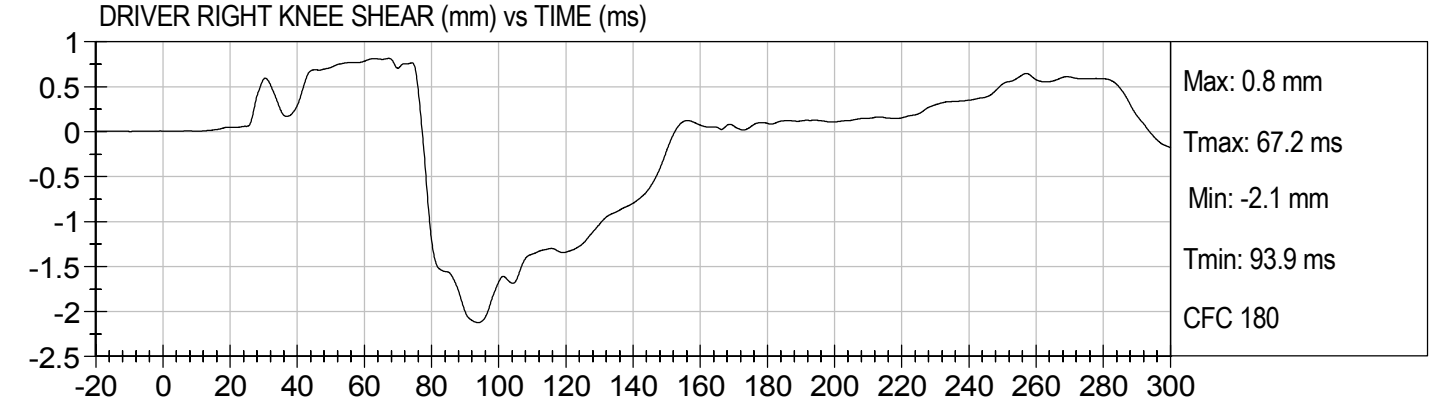
DRIVER RIGHT FEMUR (N) vs TIME (ms)



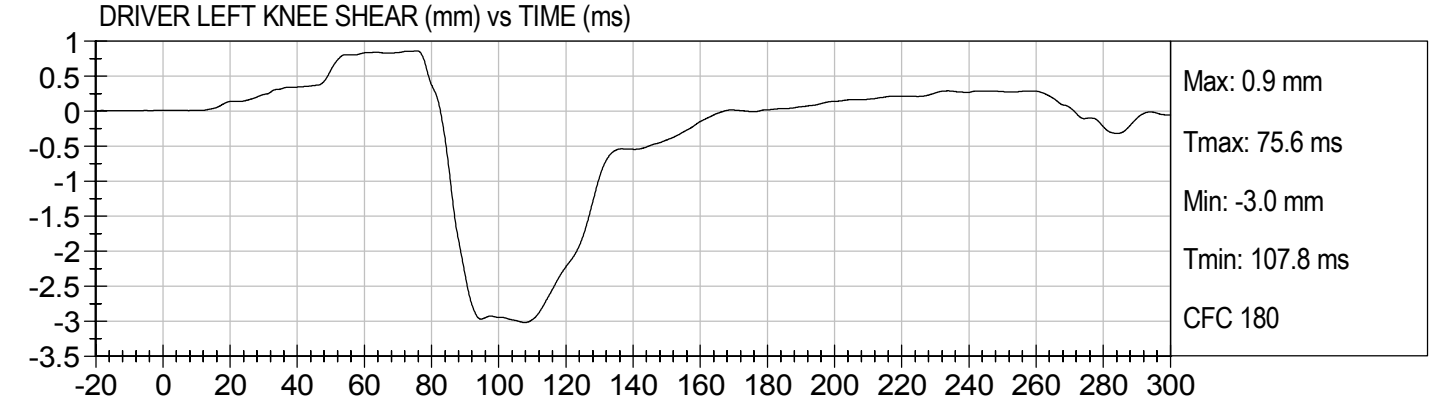
DRIVER LEFT FEMUR (N) vs TIME (ms)



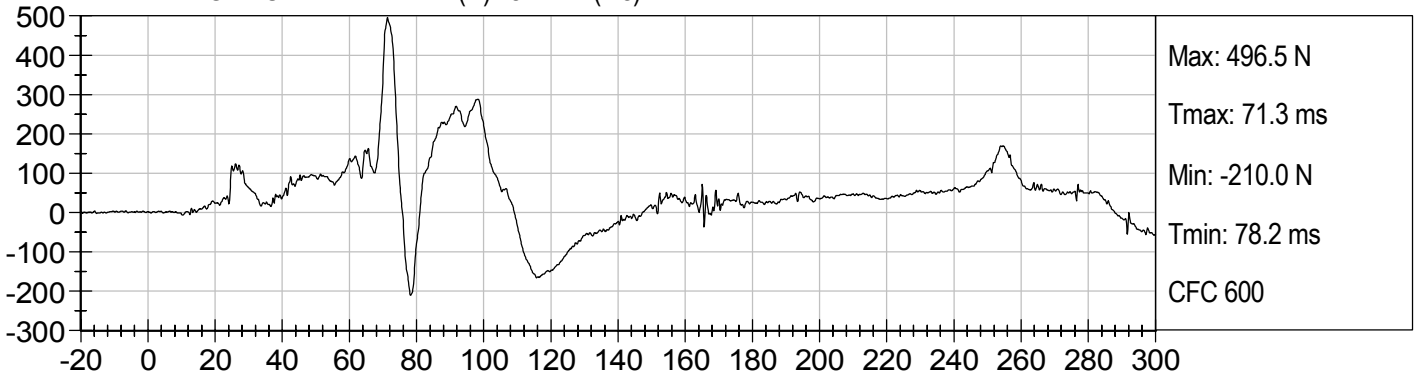
DRIVER RIGHT KNEE SHEAR (mm) vs TIME (ms)



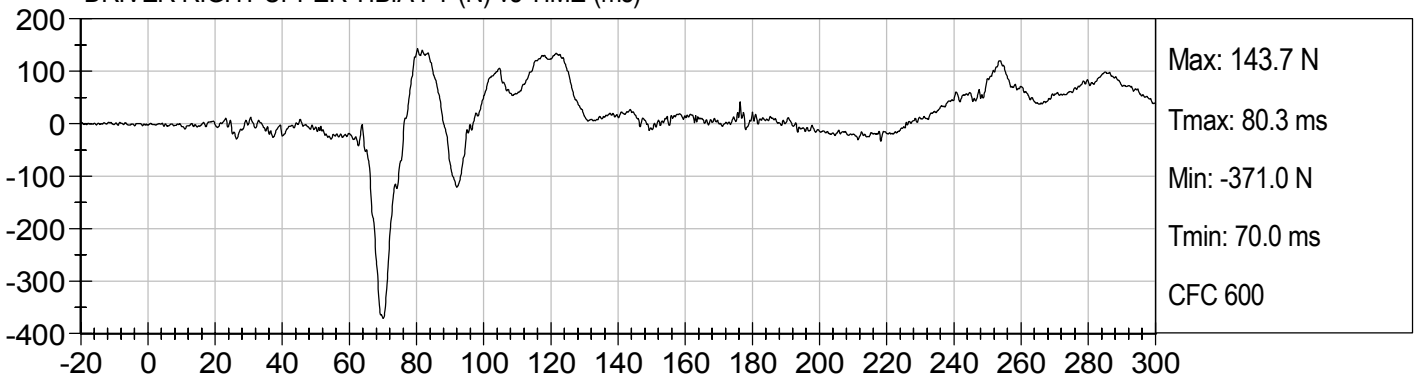
DRIVER LEFT KNEE SHEAR (mm) vs TIME (ms)



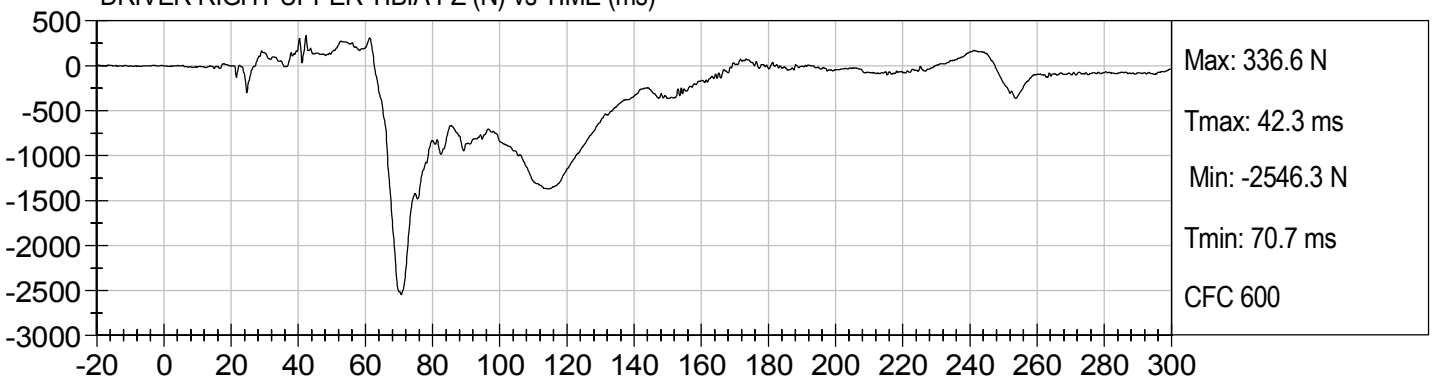
DRIVER RIGHT UPPER TIBIA FX (N) vs TIME (ms)



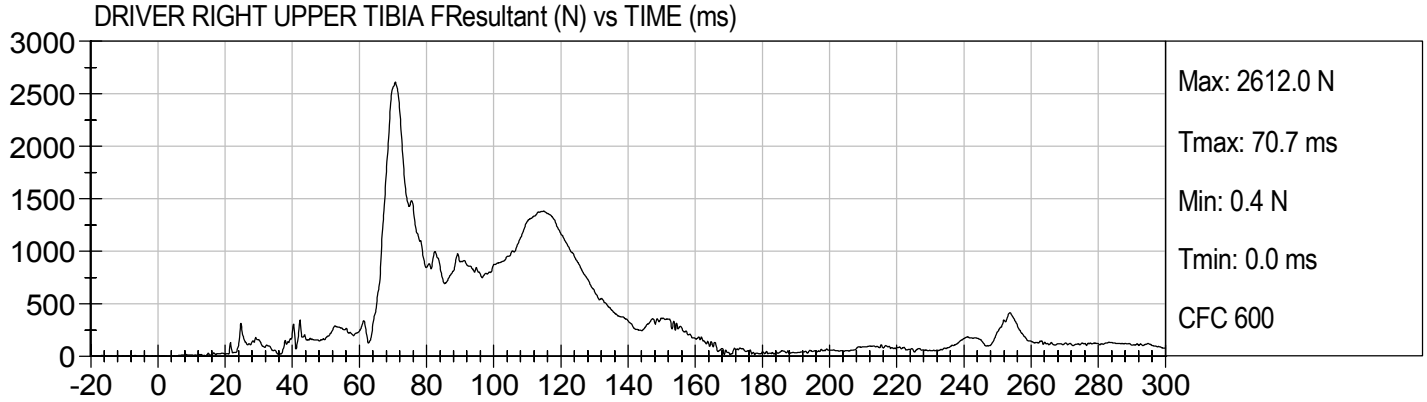
DRIVER RIGHT UPPER TIBIA FY (N) vs TIME (ms)



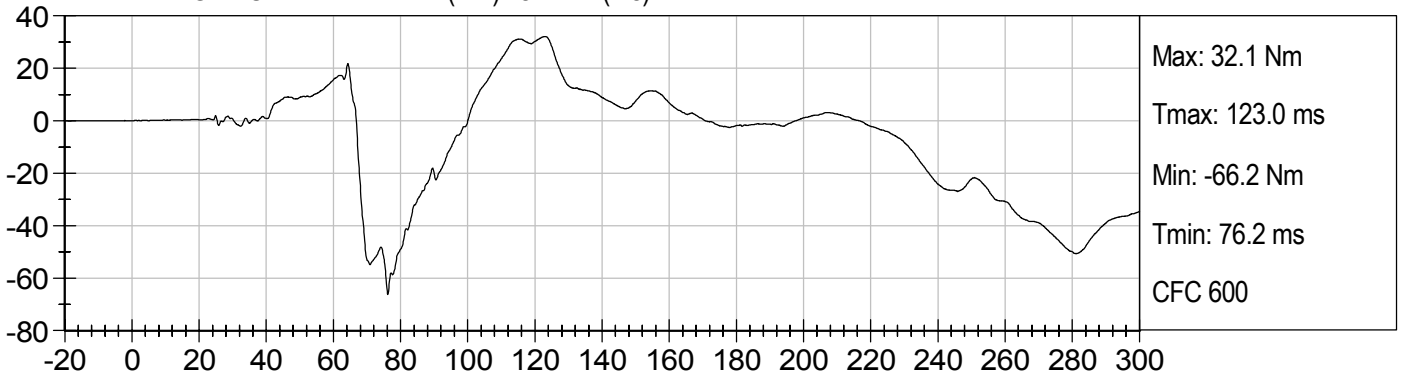
DRIVER RIGHT UPPER TIBIA FZ (N) vs TIME (ms)



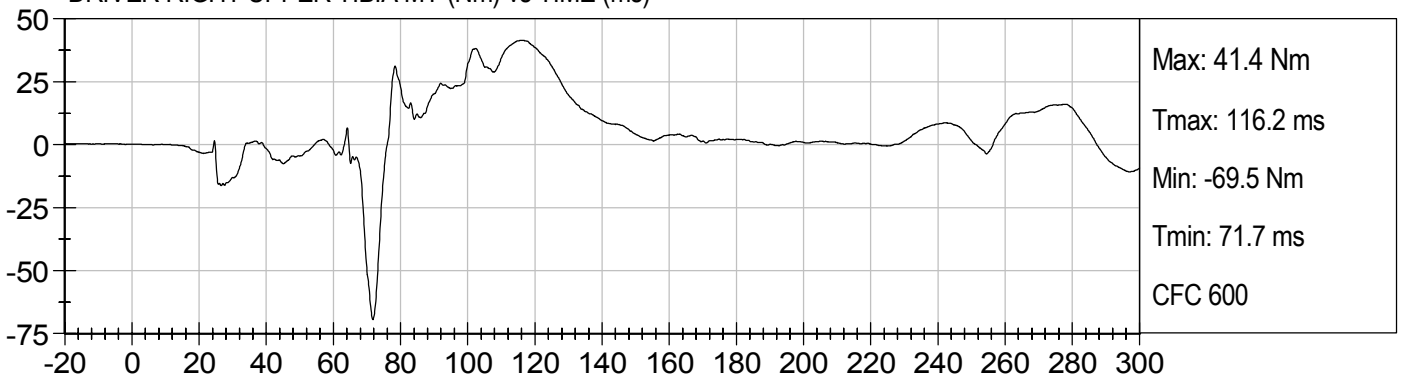
DRIVER RIGHT UPPER TIBIA FResultant (N) vs TIME (ms)



DRIVER RIGHT UPPER TIBIA MX (Nm) vs TIME (ms)



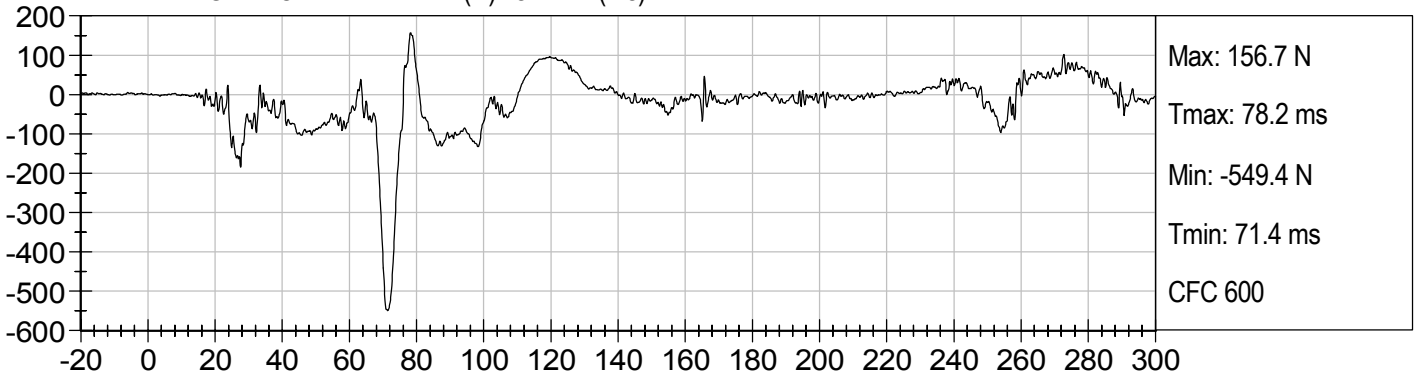
DRIVER RIGHT UPPER TIBIA MY (Nm) vs TIME (ms)



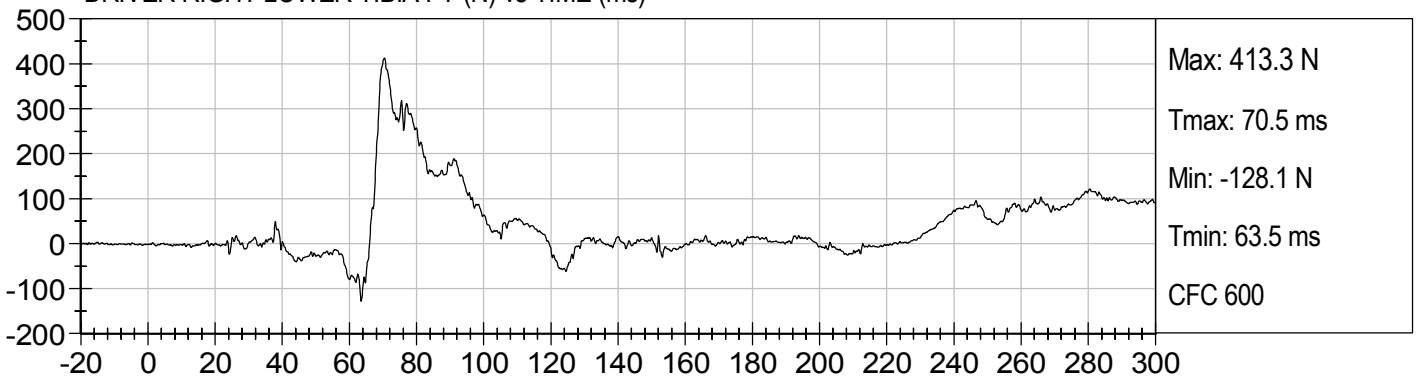
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

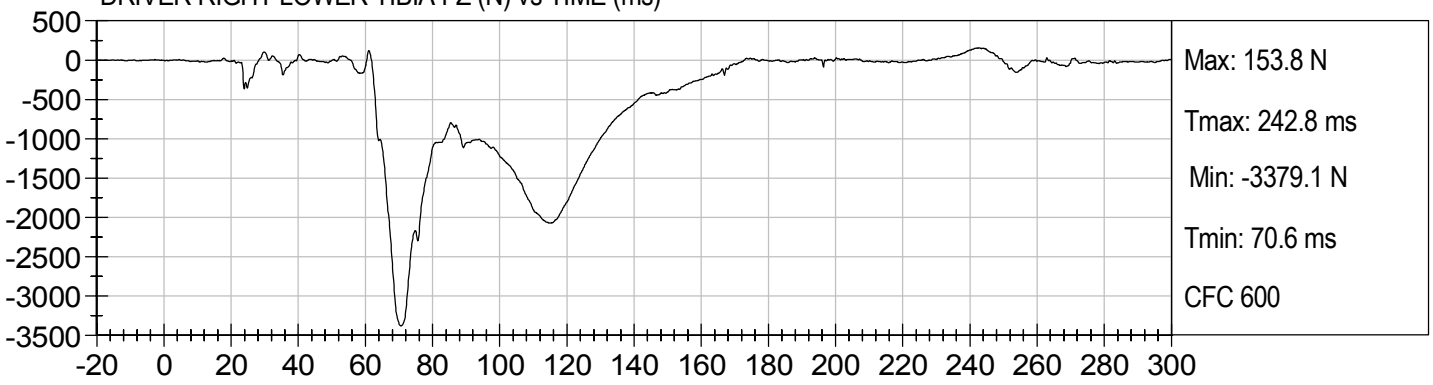
DRIVER RIGHT LOWER TIBIA FX (N) vs TIME (ms)



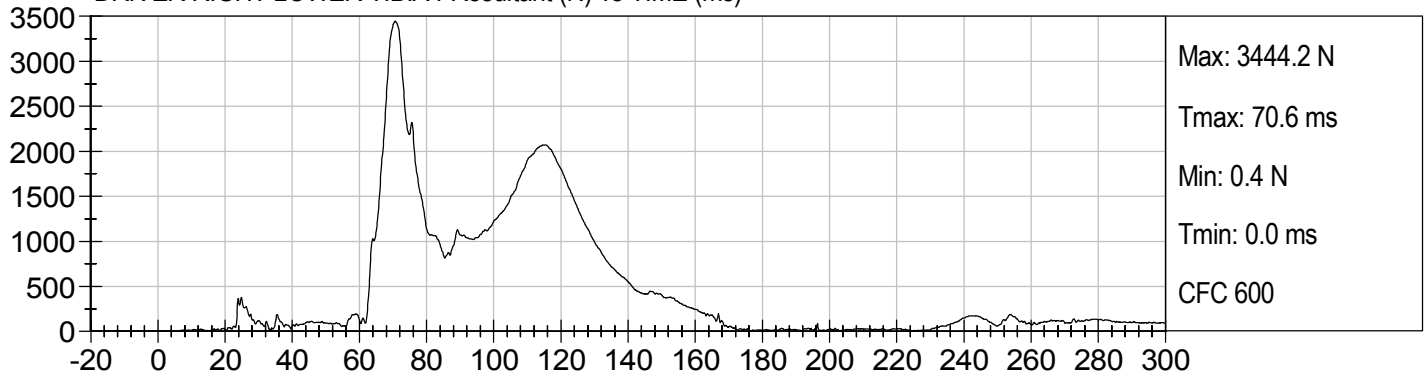
DRIVER RIGHT LOWER TIBIA FY (N) vs TIME (ms)



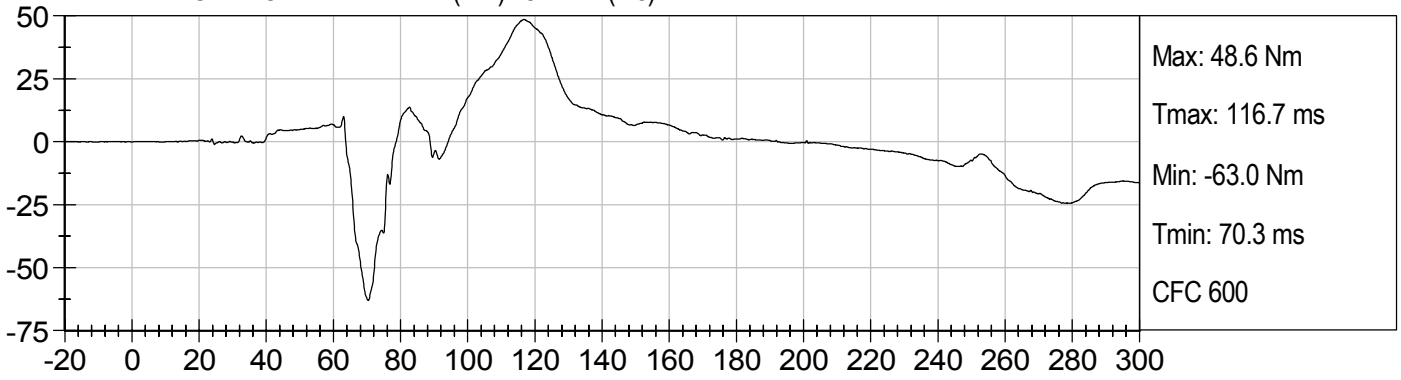
DRIVER RIGHT LOWER TIBIA FZ (N) vs TIME (ms)



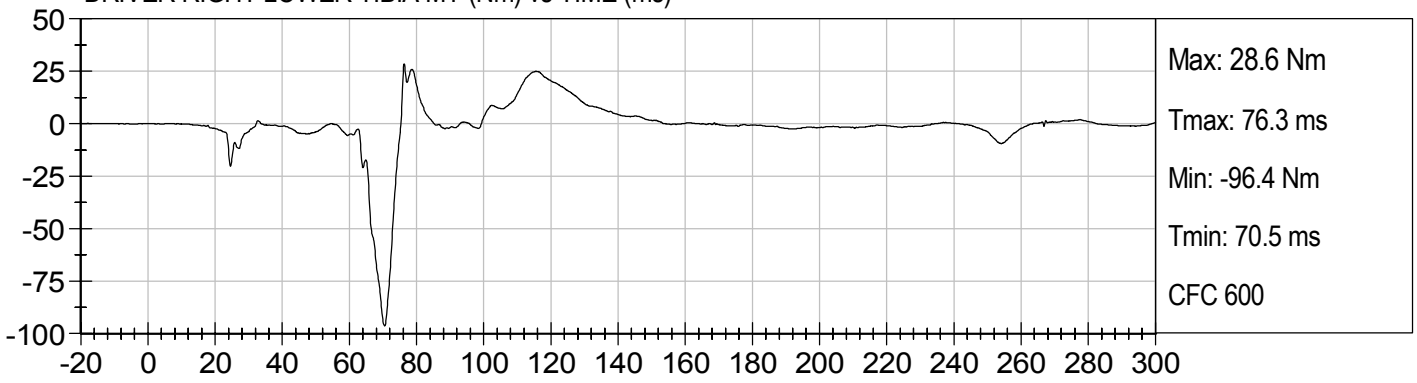
DRIVER RIGHT LOWER TIBIA FResultant (N) vs TIME (ms)



DRIVER RIGHT LOWER TIBIA MX (Nm) vs TIME (ms)



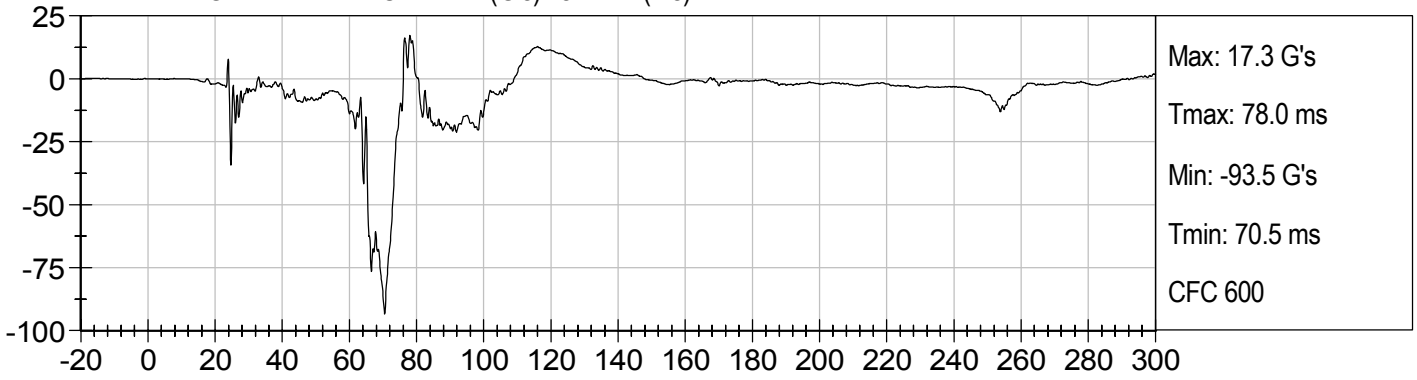
DRIVER RIGHT LOWER TIBIA MY (Nm) vs TIME (ms)



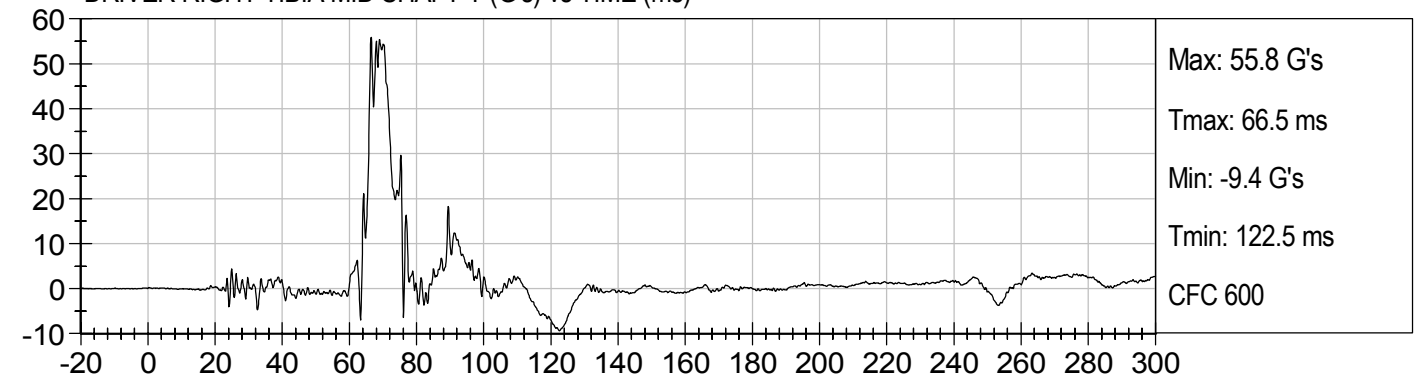
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

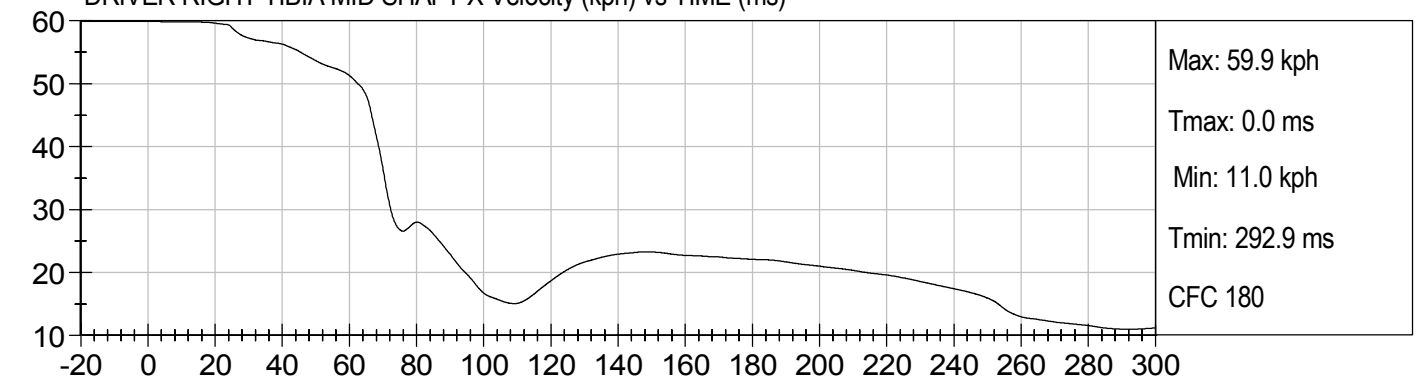
DRIVER RIGHT TIBIA MID SHAFT X (G's) vs TIME (ms)



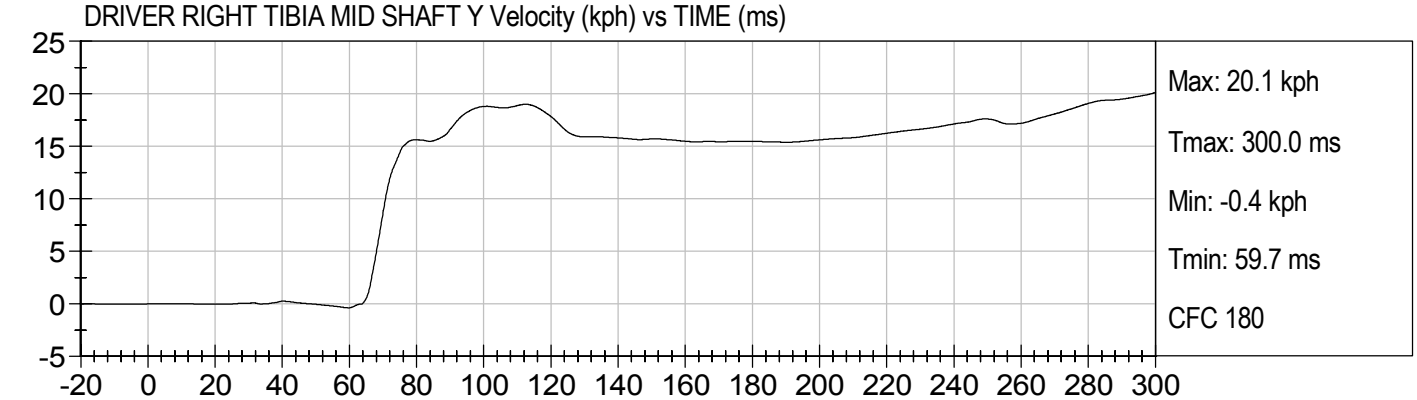
DRIVER RIGHT TIBIA MID SHAFT Y (G's) vs TIME (ms)



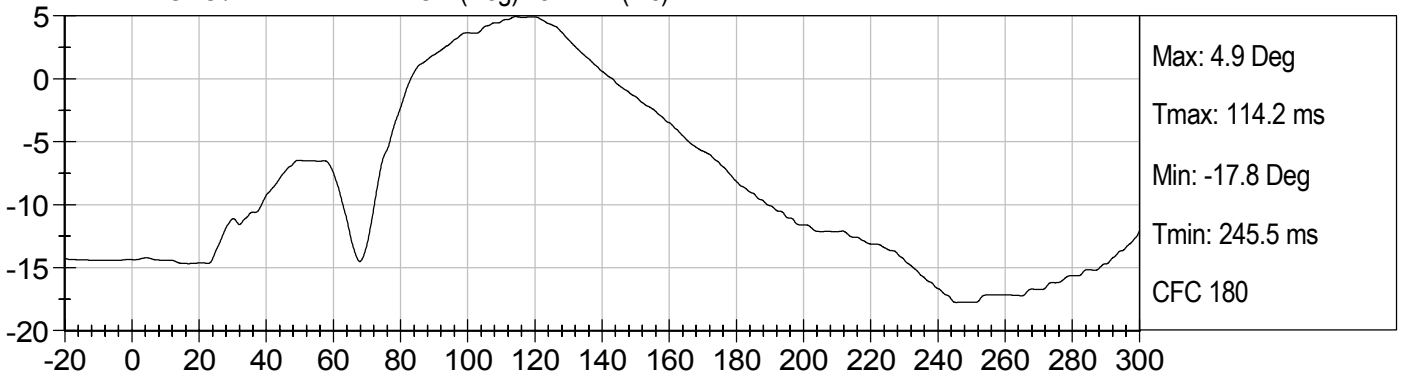
DRIVER RIGHT TIBIA MID SHAFT X Velocity (kph) vs TIME (ms)



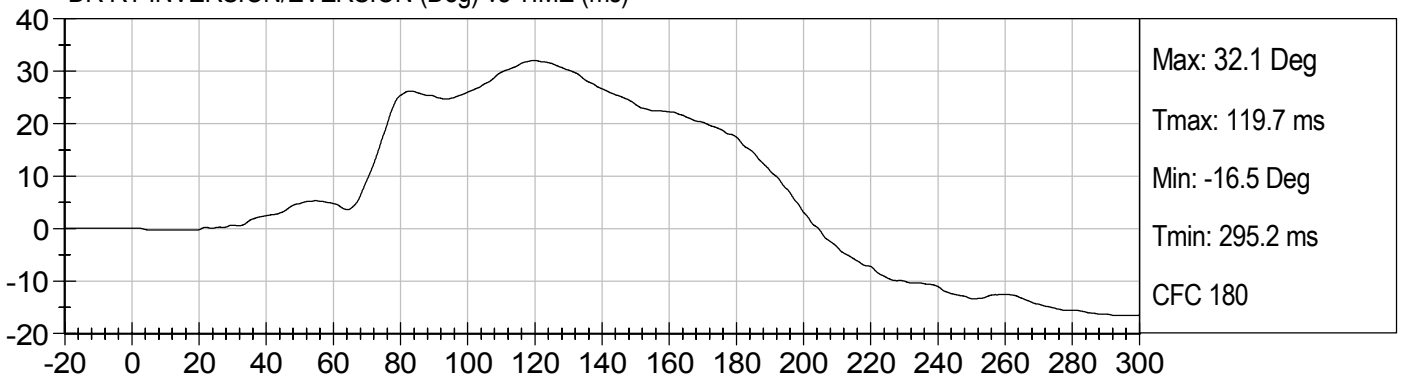
DRIVER RIGHT TIBIA MID SHAFT Y Velocity (kph) vs TIME (ms)



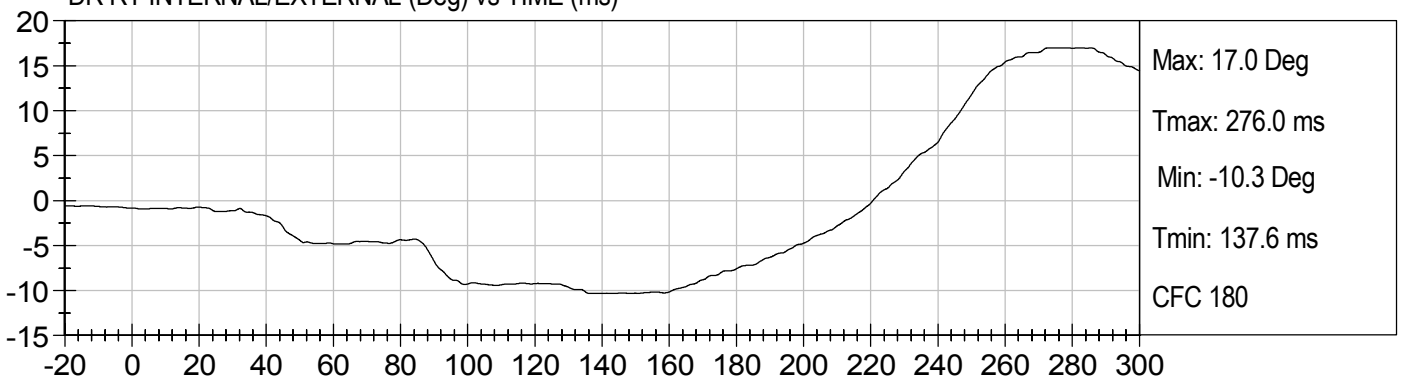
DR RT DORSI/PLANTAR FLEXION (Deg) vs TIME (ms)



DR RT INVERSION/EVERSION (Deg) vs TIME (ms)



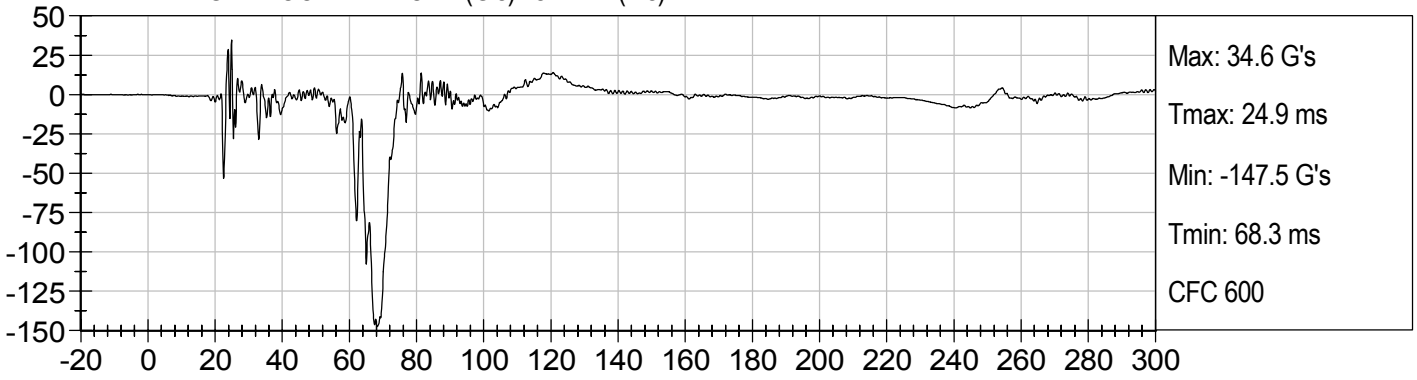
DR RT INTERNAL/EXTERNAL (Deg) vs TIME (ms)



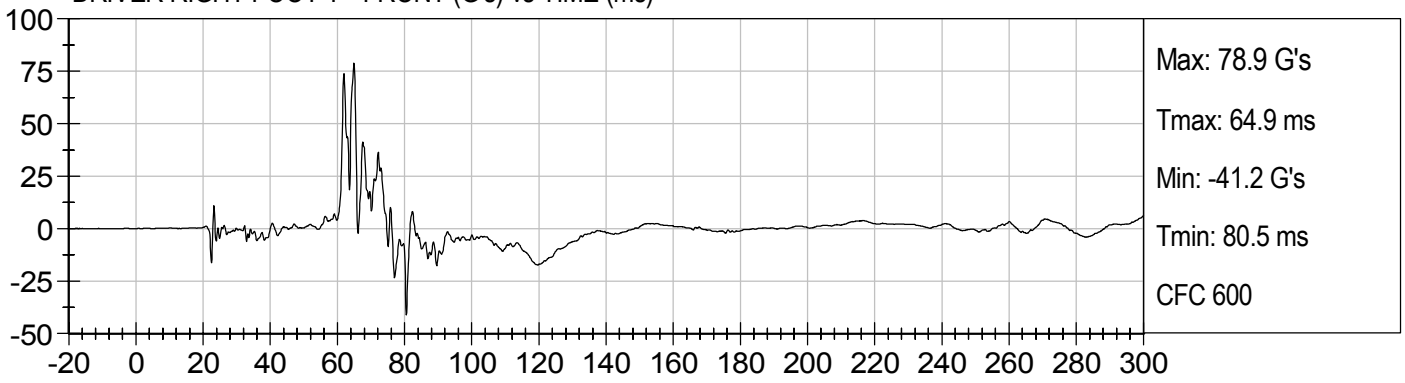
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

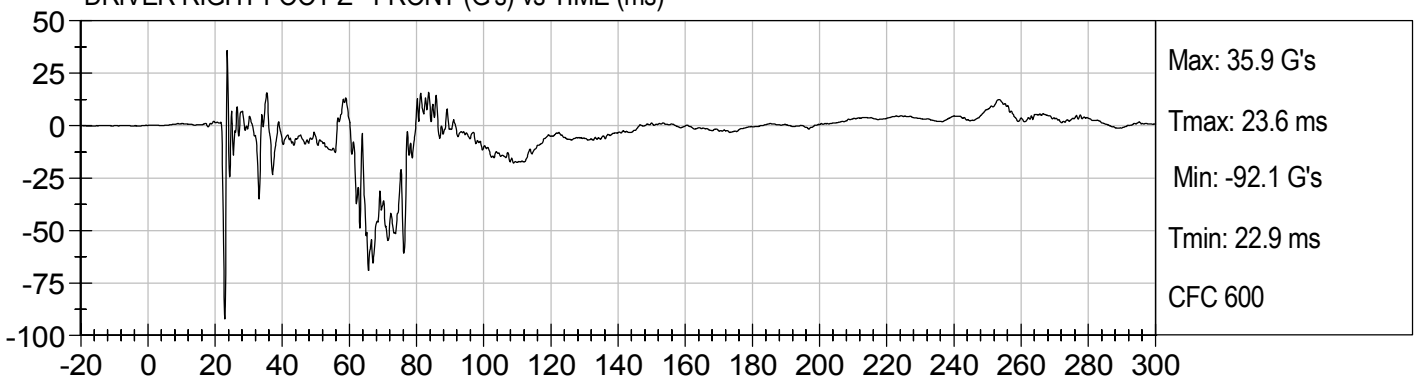
DRIVER RIGHT FOOT X - FRONT (G's) vs TIME (ms)



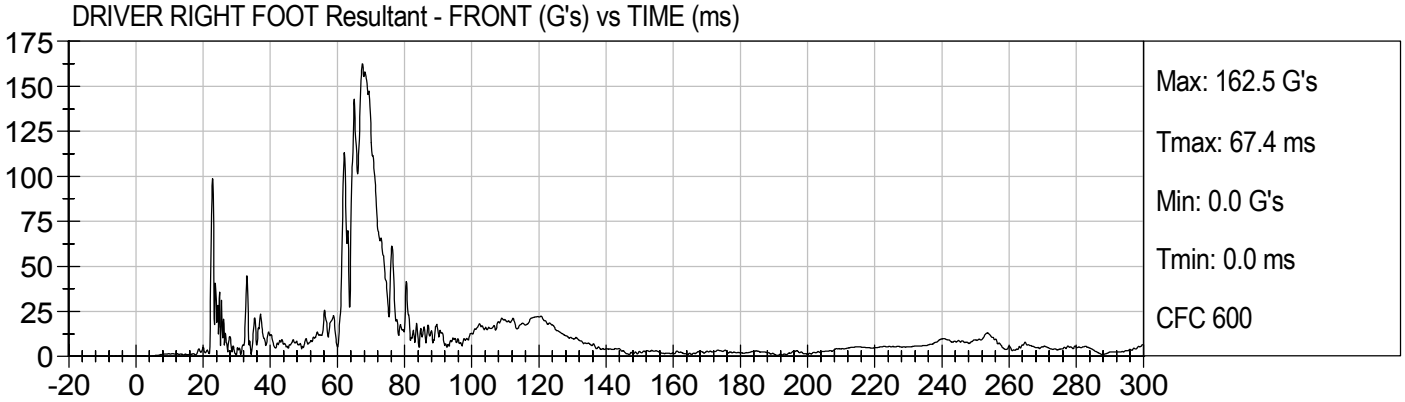
DRIVER RIGHT FOOT Y - FRONT (G's) vs TIME (ms)



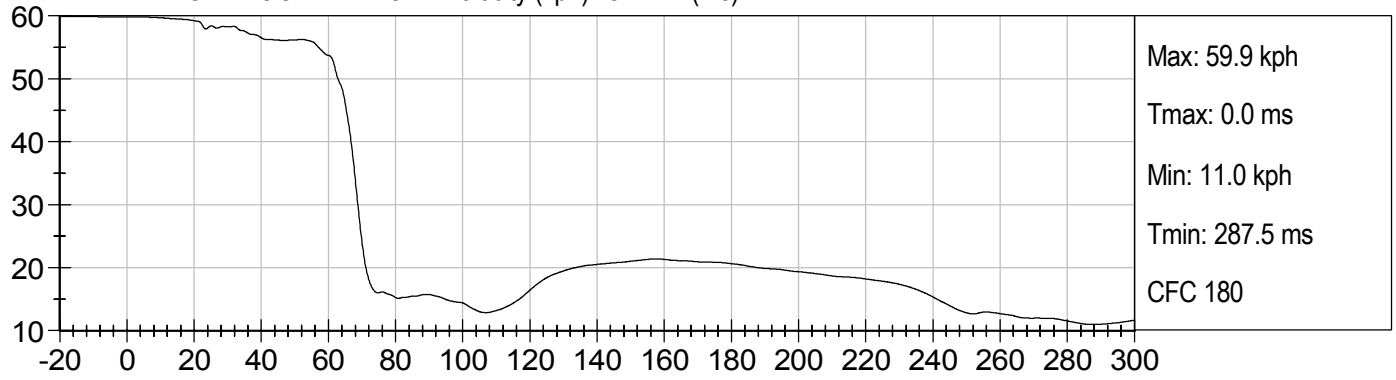
DRIVER RIGHT FOOT Z - FRONT (G's) vs TIME (ms)



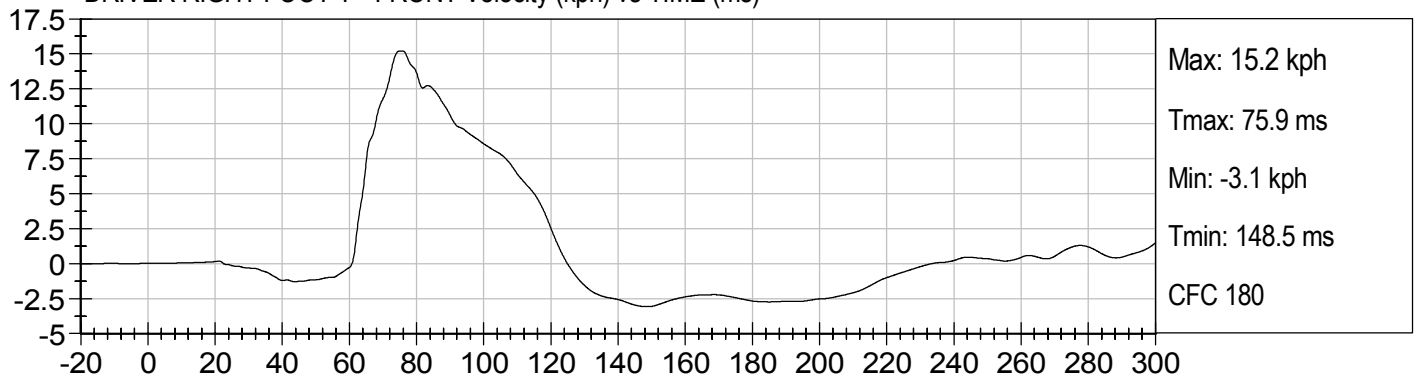
DRIVER RIGHT FOOT Resultant - FRONT (G's) vs TIME (ms)



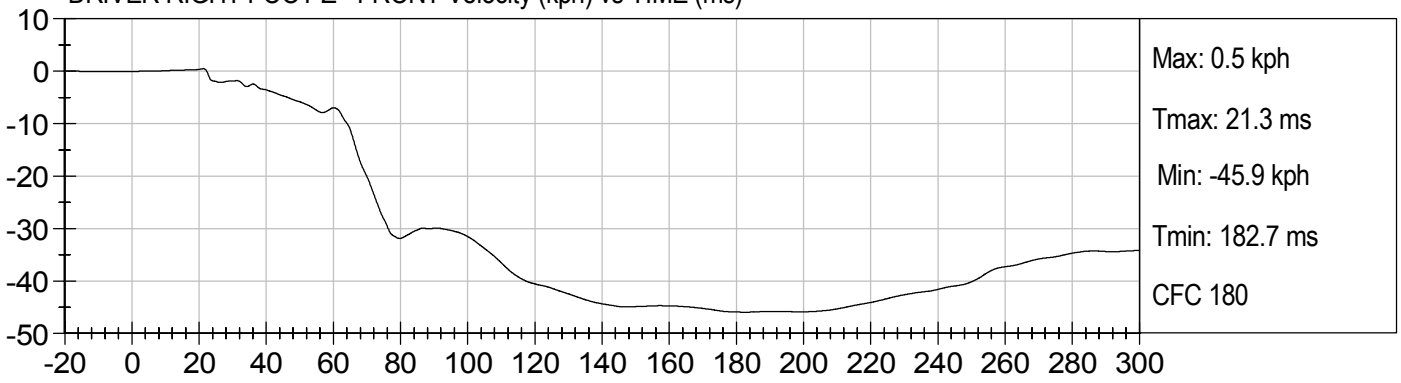
DRIVER RIGHT FOOT X - FRONT Velocity (kph) vs TIME (ms)



DRIVER RIGHT FOOT Y - FRONT Velocity (kph) vs TIME (ms)



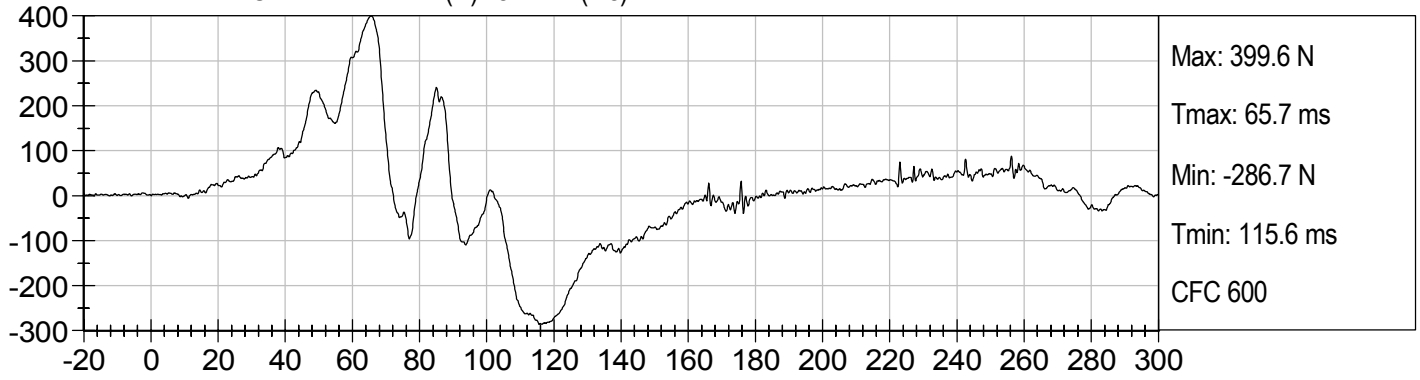
DRIVER RIGHT FOOT Z - FRONT Velocity (kph) vs TIME (ms)



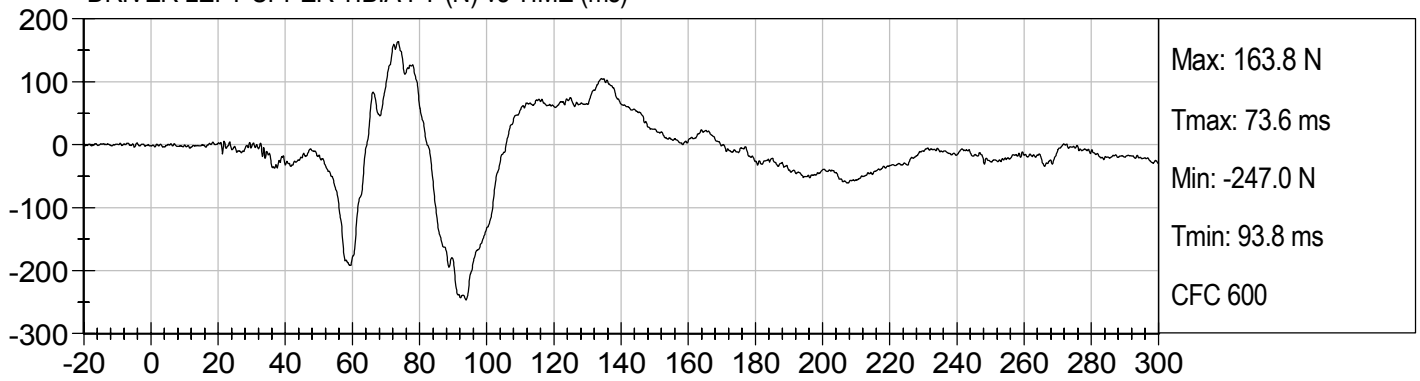
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

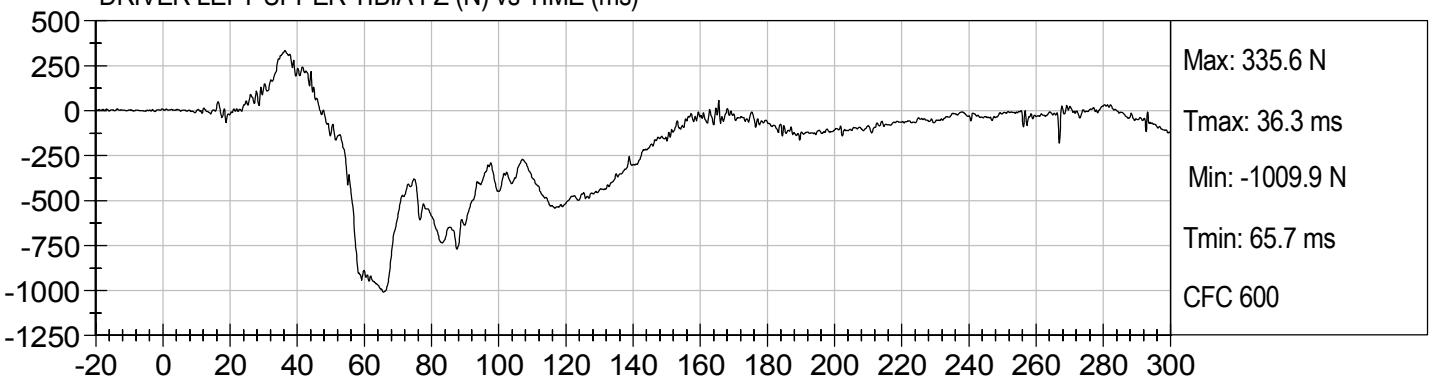
DRIVER LEFT UPPER TIBIA FX (N) vs TIME (ms)



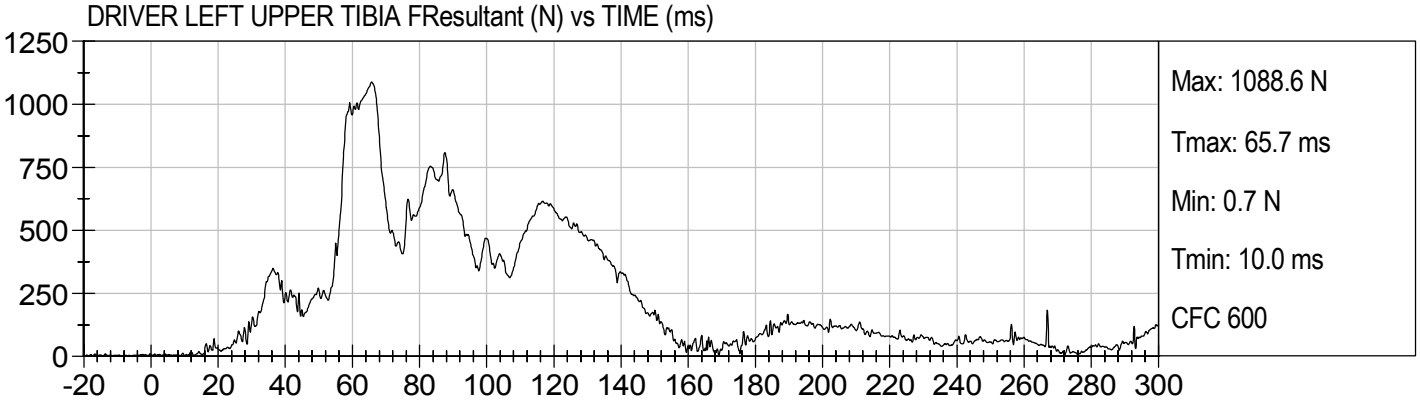
DRIVER LEFT UPPER TIBIA FY (N) vs TIME (ms)



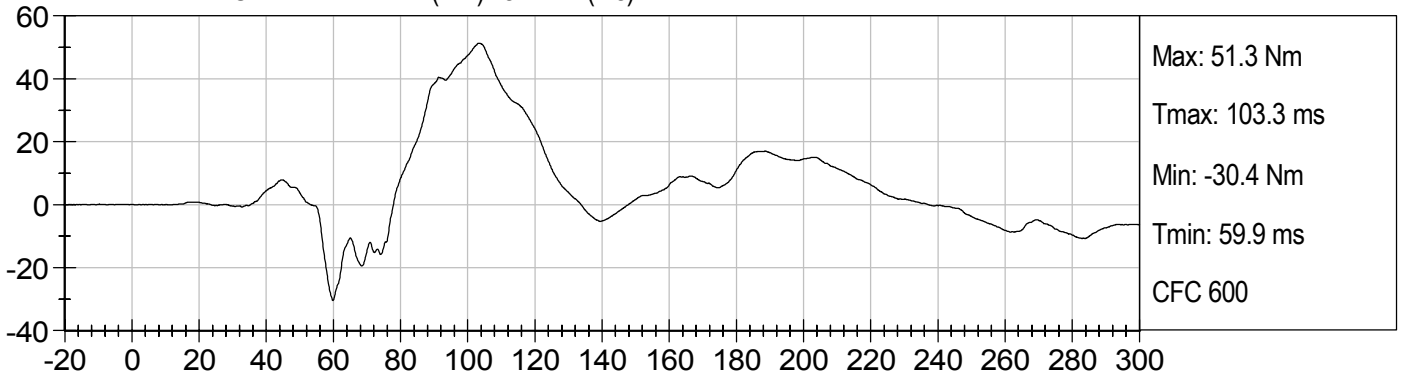
DRIVER LEFT UPPER TIBIA FZ (N) vs TIME (ms)



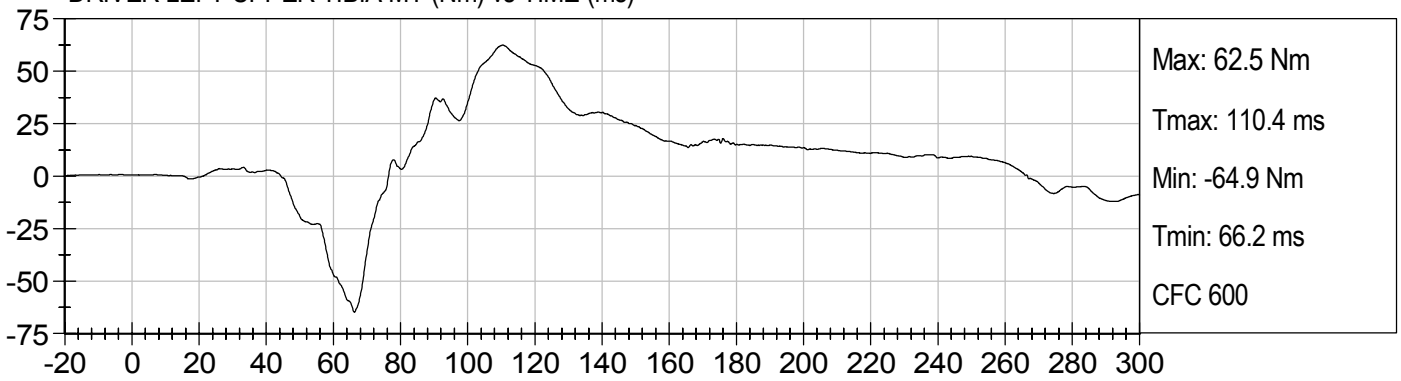
DRIVER LEFT UPPER TIBIA FResultant (N) vs TIME (ms)



DRIVER LEFT UPPER TIBIA MX (Nm) vs TIME (ms)



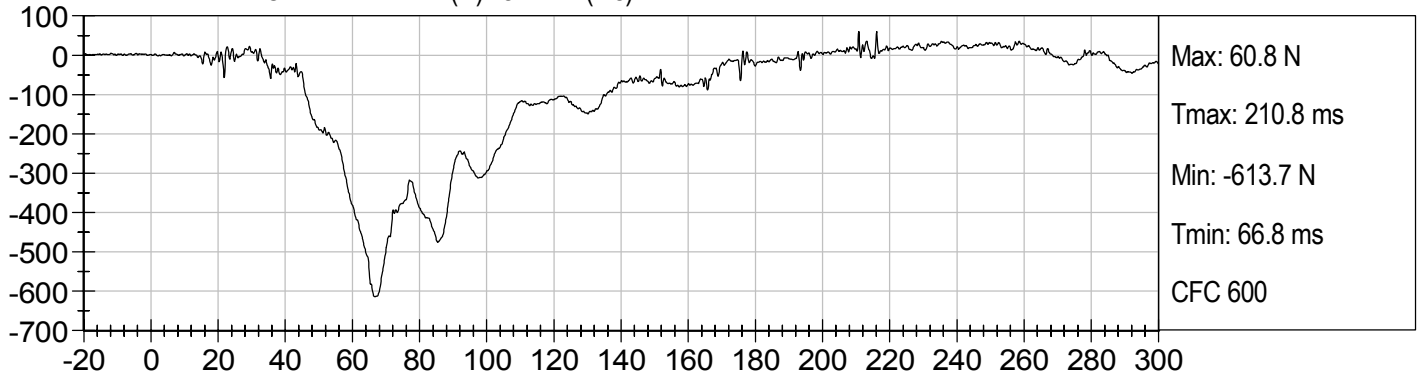
DRIVER LEFT UPPER TIBIA MY (Nm) vs TIME (ms)



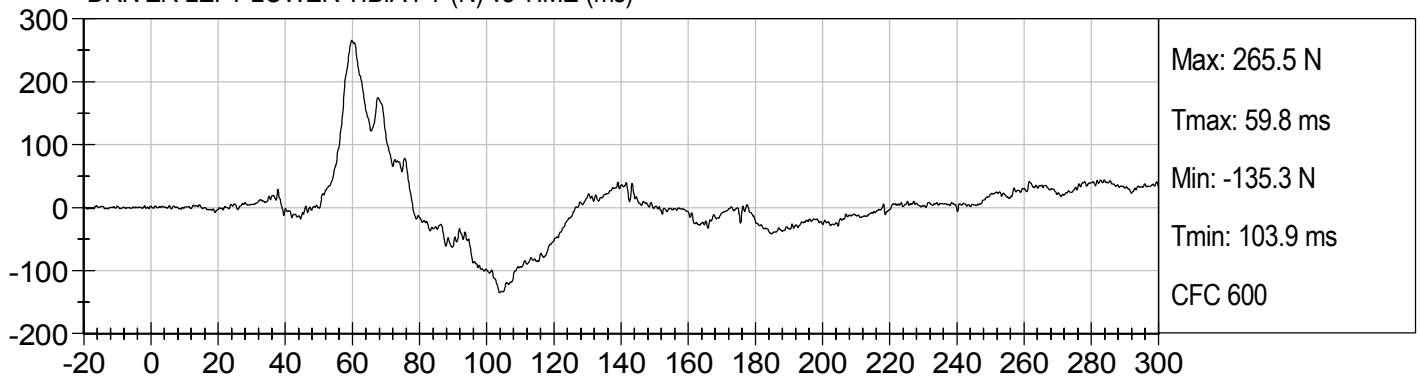
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

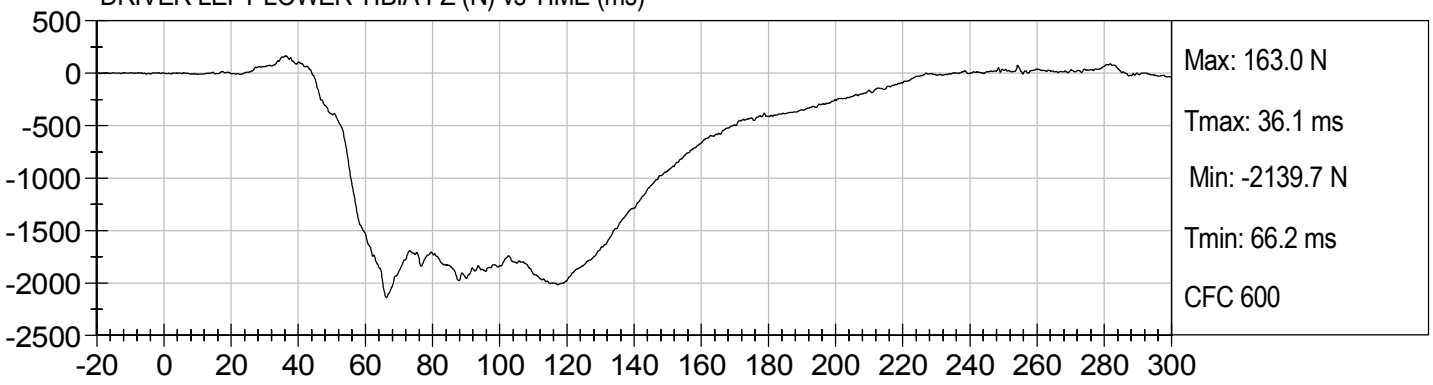
DRIVER LEFT LOWER TIBIA FX (N) vs TIME (ms)



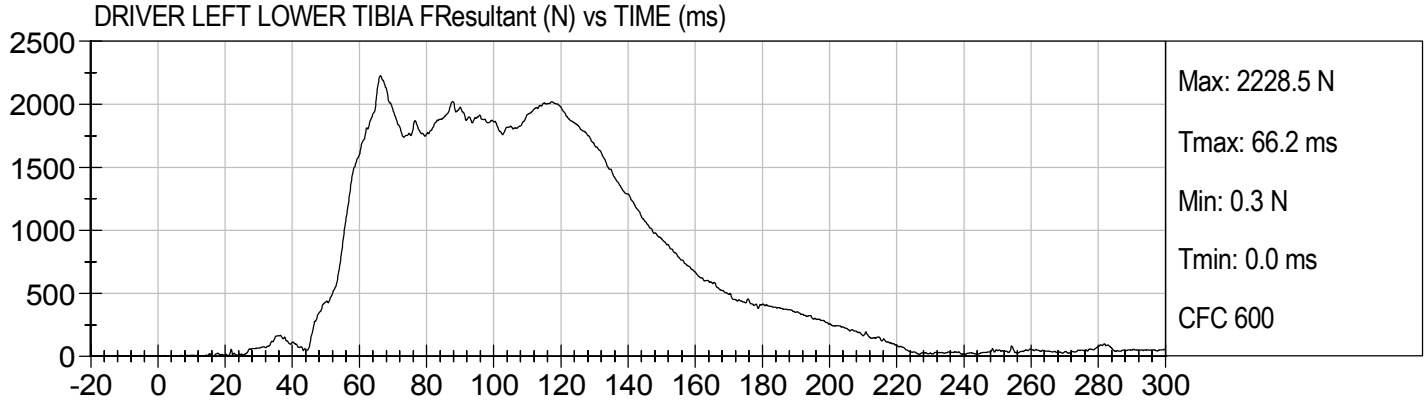
DRIVER LEFT LOWER TIBIA FY (N) vs TIME (ms)



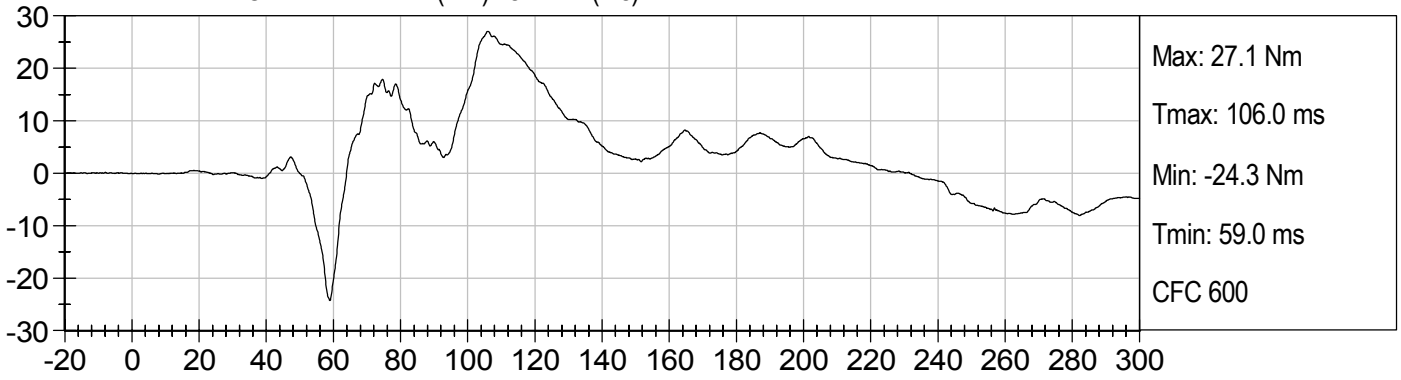
DRIVER LEFT LOWER TIBIA FZ (N) vs TIME (ms)



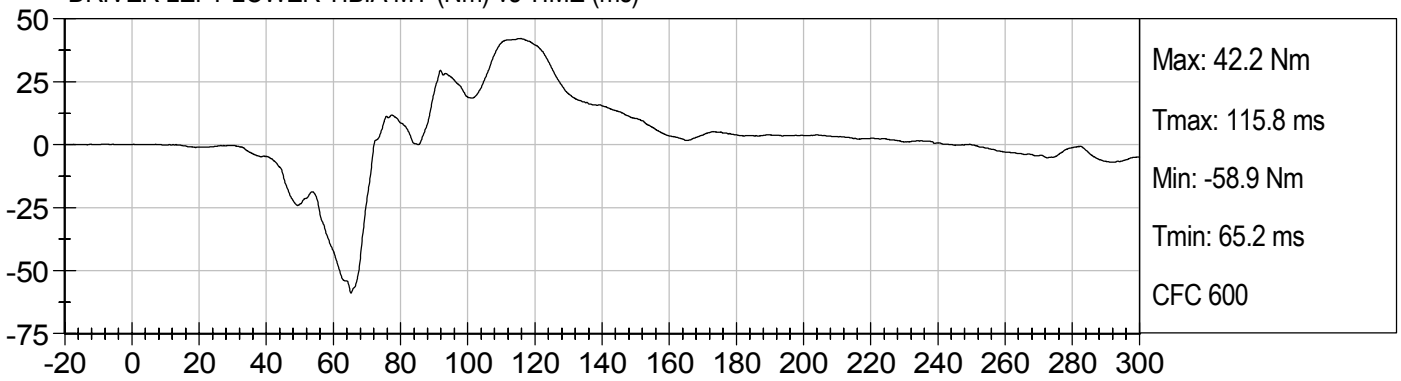
DRIVER LEFT LOWER TIBIA FResultant (N) vs TIME (ms)



DRIVER LEFT LOWER TIBIA MX (Nm) vs TIME (ms)



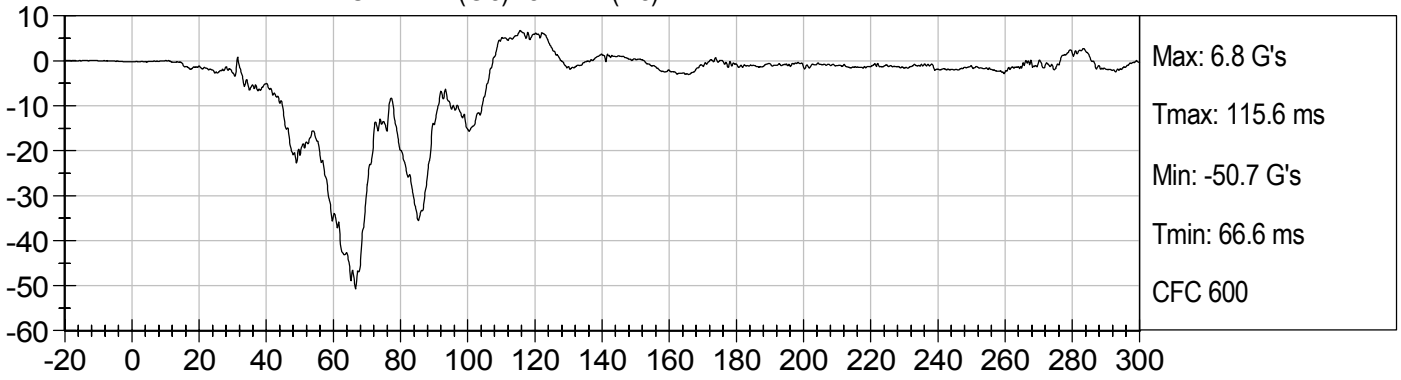
DRIVER LEFT LOWER TIBIA MY (Nm) vs TIME (ms)



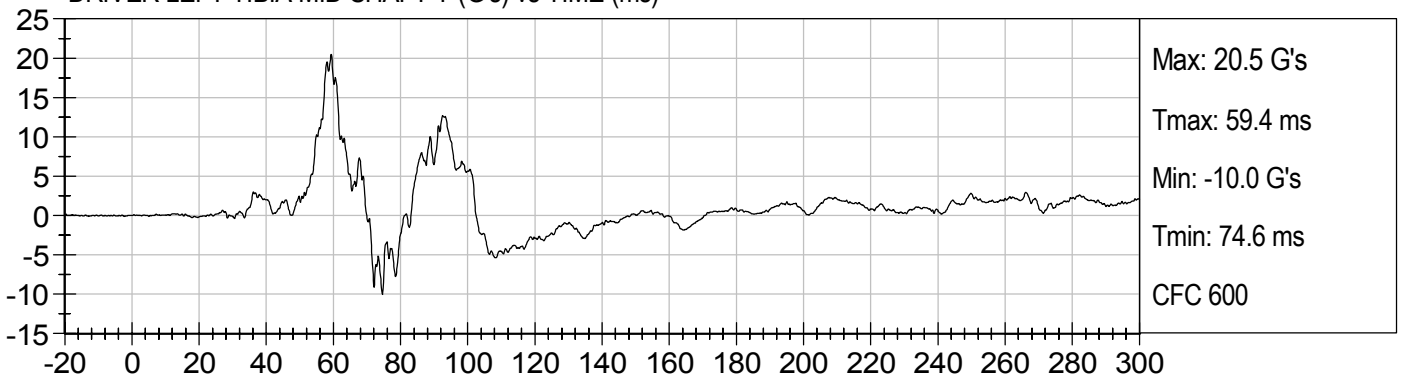
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

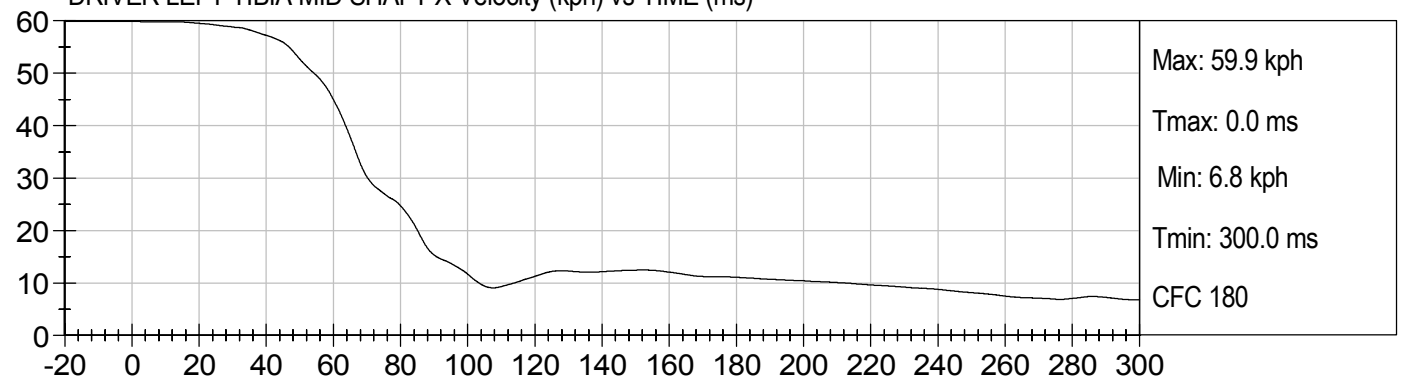
DRIVER LEFT TIBIA MID SHAFT X (G's) vs TIME (ms)



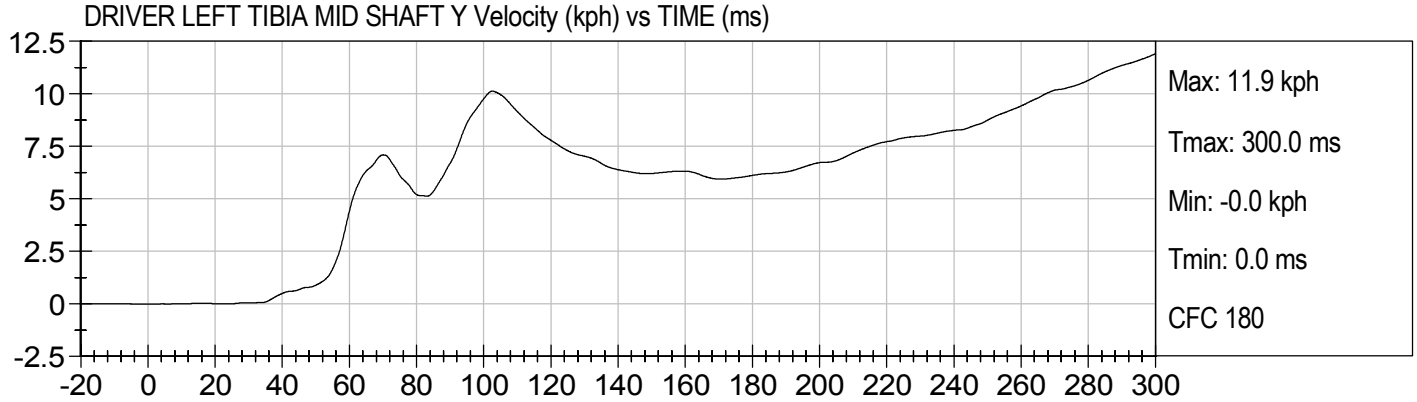
DRIVER LEFT TIBIA MID SHAFT Y (G's) vs TIME (ms)



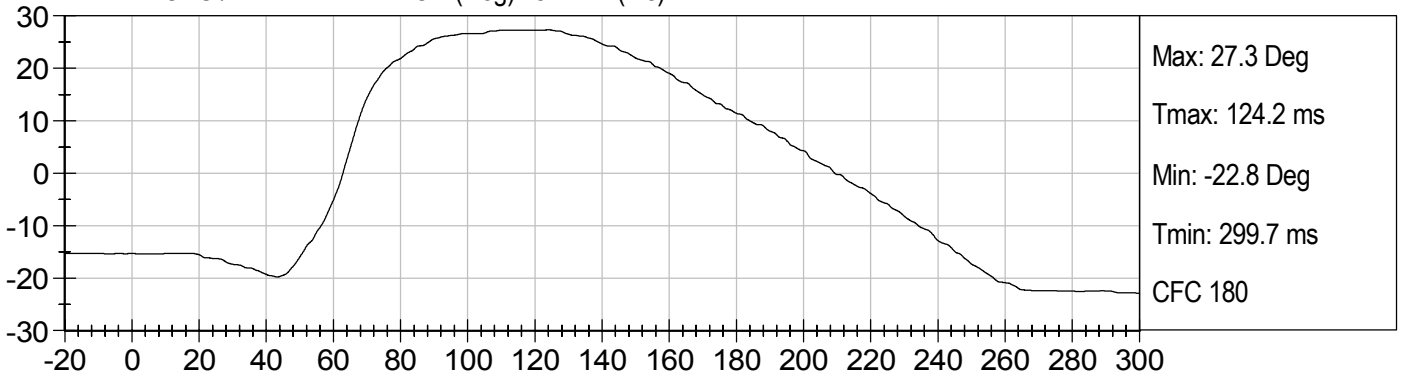
DRIVER LEFT TIBIA MID SHAFT X Velocity (kph) vs TIME (ms)



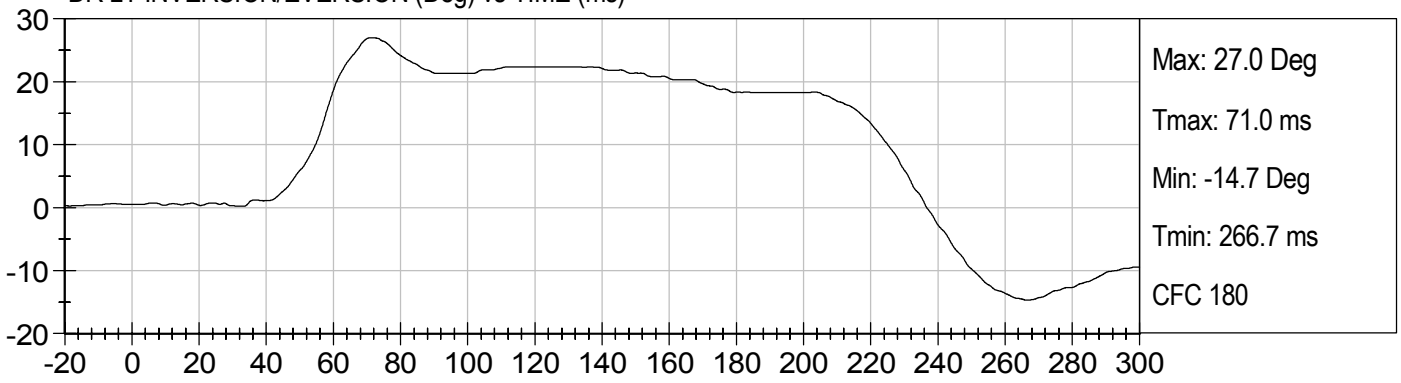
DRIVER LEFT TIBIA MID SHAFT Y Velocity (kph) vs TIME (ms)



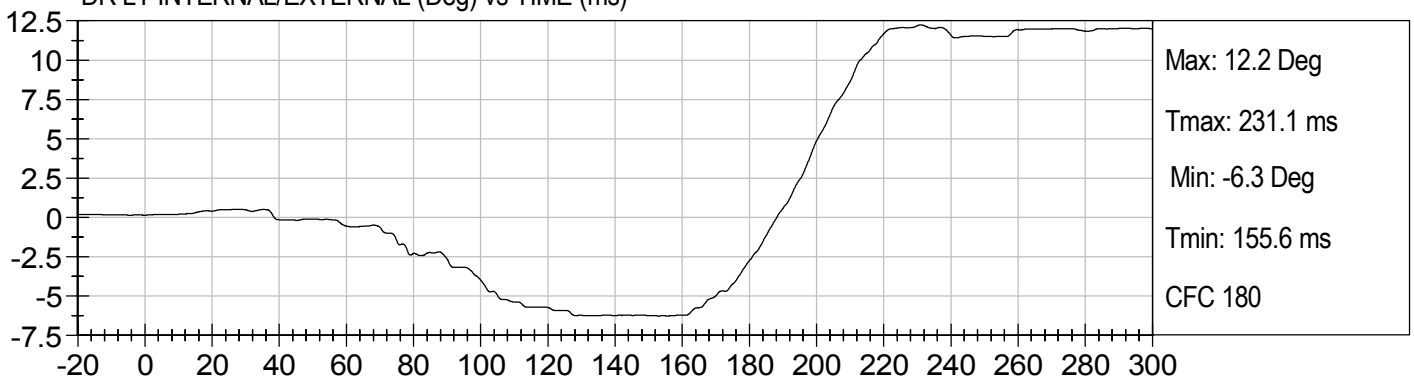
DR LT DORSI/PLANTAR FLEXION (Deg) vs TIME (ms)



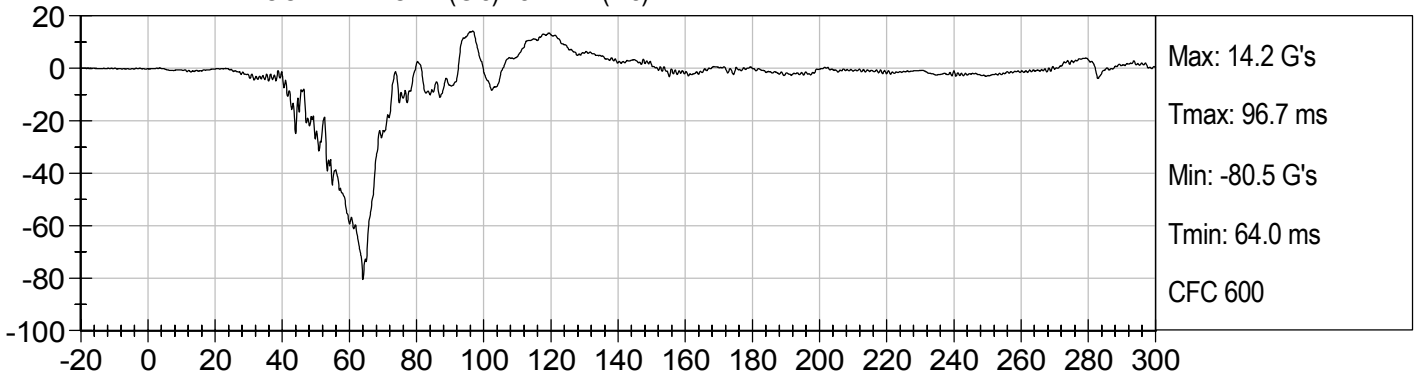
DR LT INVERSION/EVERSION (Deg) vs TIME (ms)



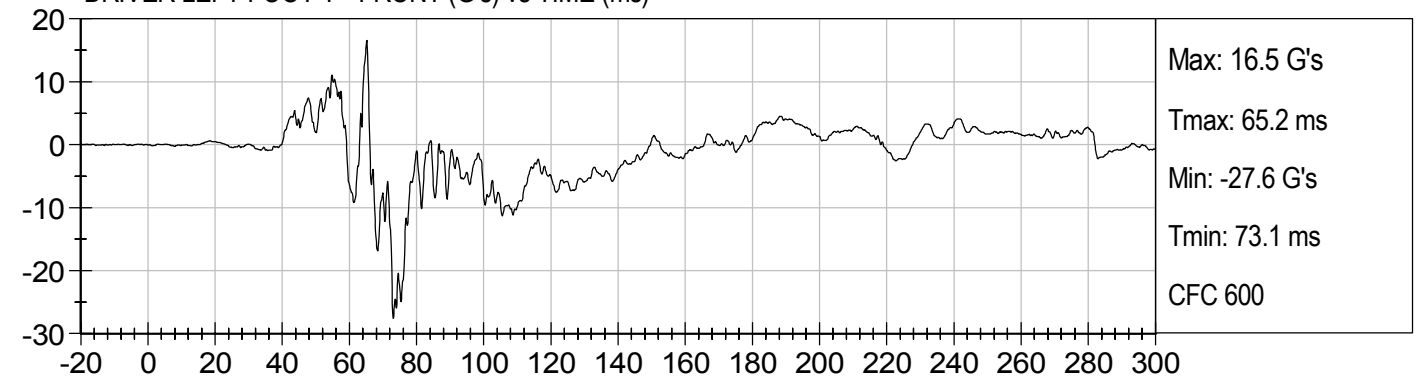
DR LT INTERNAL/EXTERNAL (Deg) vs TIME (ms)



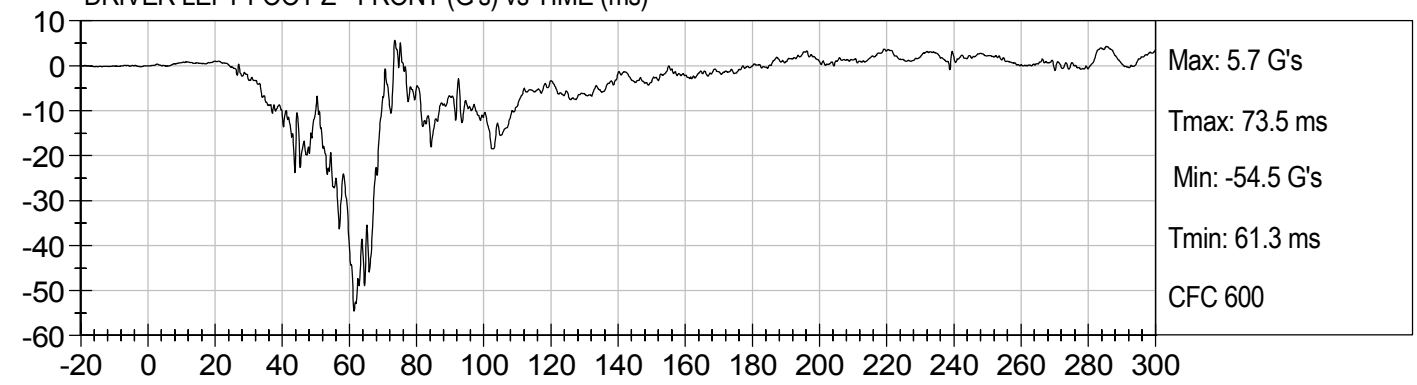
DRIVER LEFT FOOT X - FRONT (G's) vs TIME (ms)



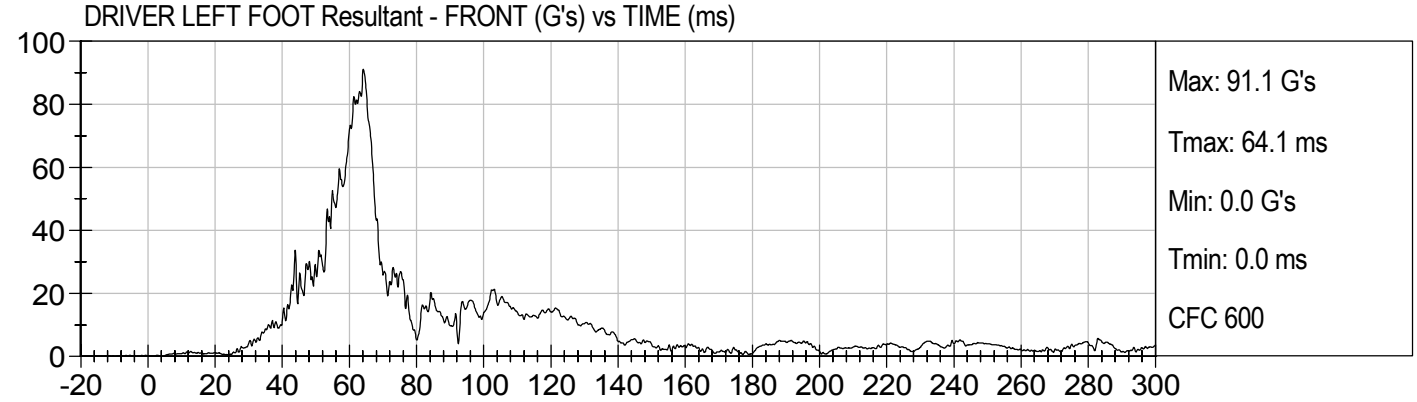
DRIVER LEFT FOOT Y - FRONT (G's) vs TIME (ms)



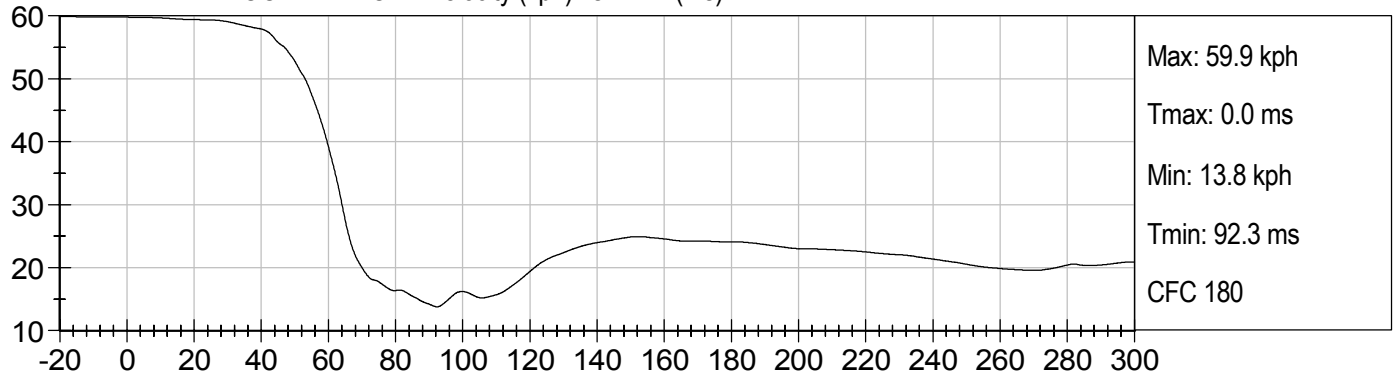
DRIVER LEFT FOOT Z - FRONT (G's) vs TIME (ms)



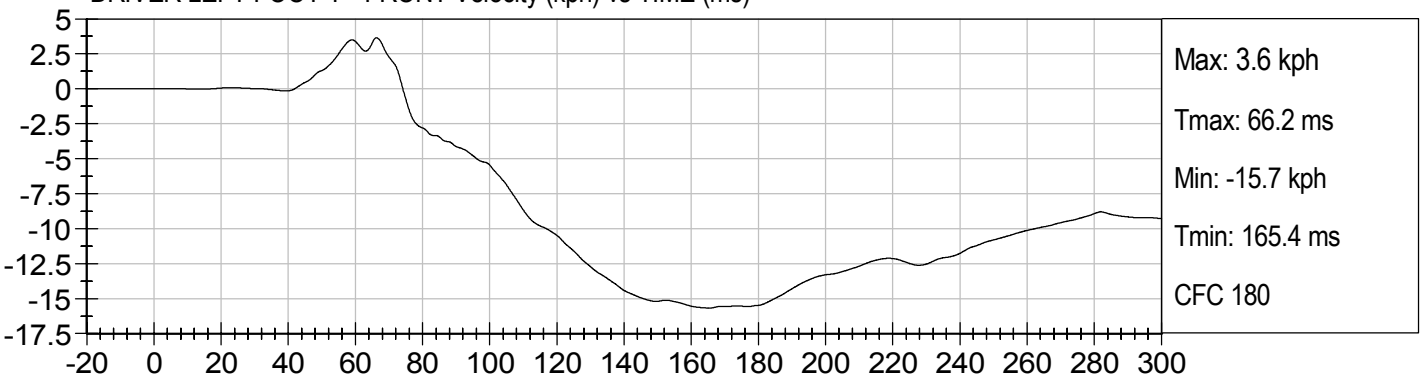
DRIVER LEFT FOOT Resultant - FRONT (G's) vs TIME (ms)



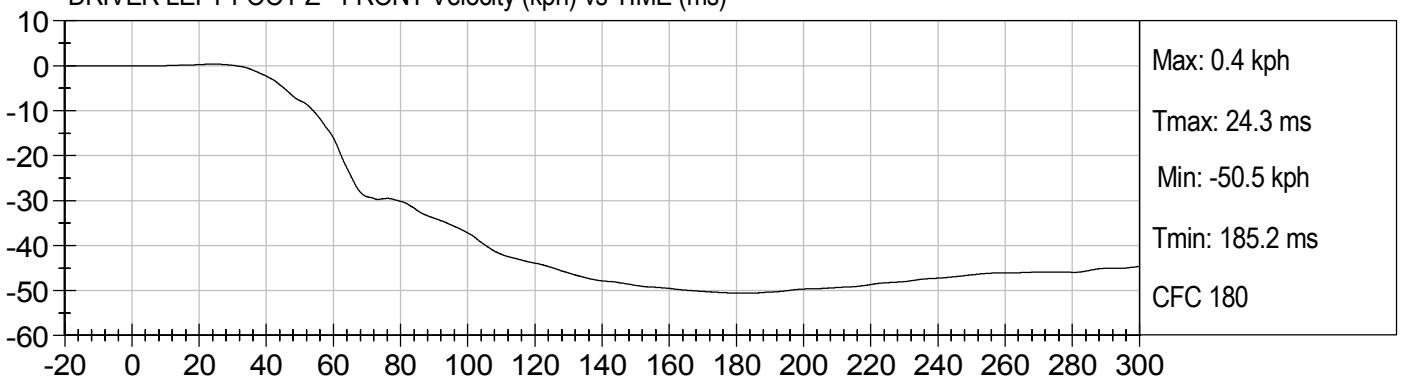
DRIVER LEFT FOOT X - FRONT Velocity (kph) vs TIME (ms)



DRIVER LEFT FOOT Y - FRONT Velocity (kph) vs TIME (ms)



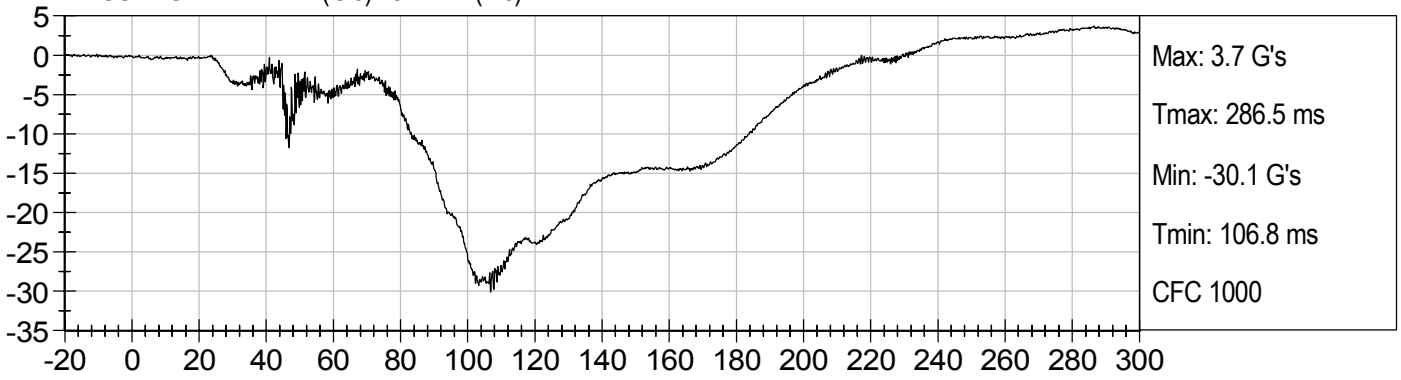
DRIVER LEFT FOOT Z - FRONT Velocity (kph) vs TIME (ms)



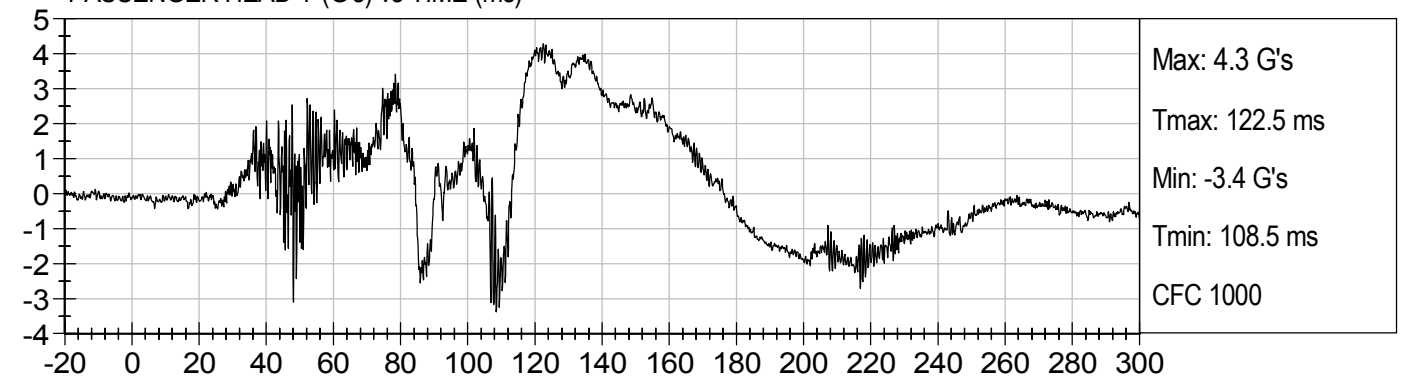
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

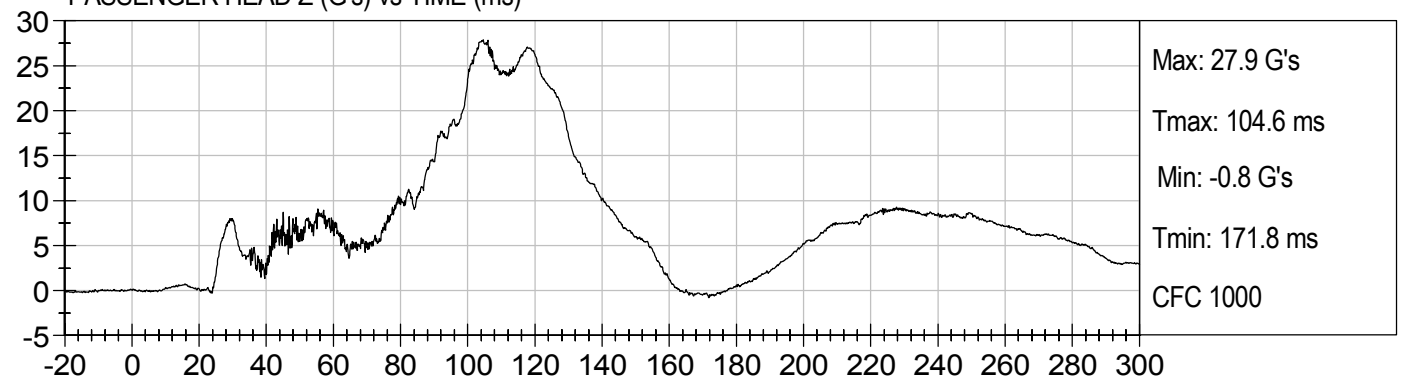
PASSENGER HEAD X (G's) vs TIME (ms)



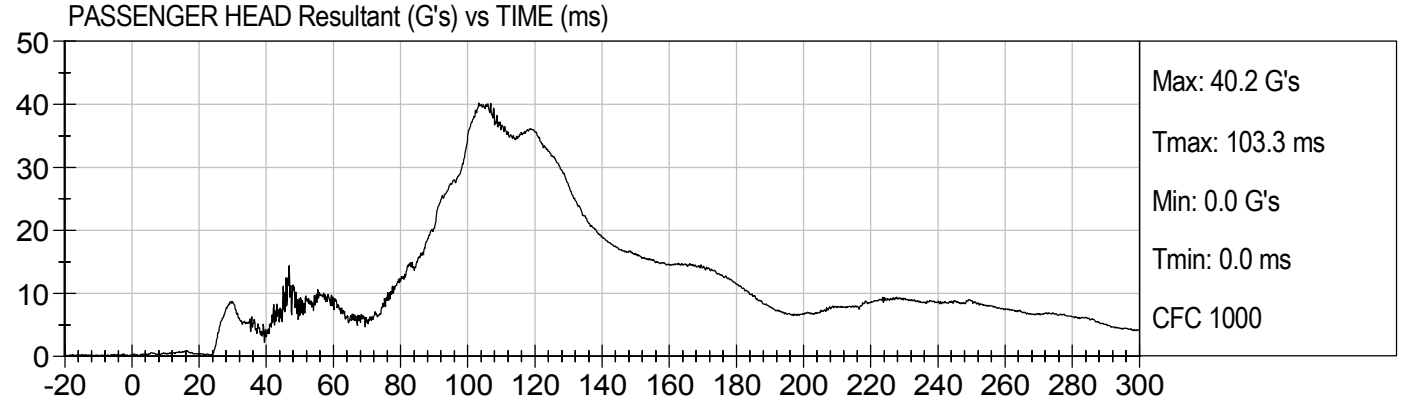
PASSENGER HEAD Y (G's) vs TIME (ms)



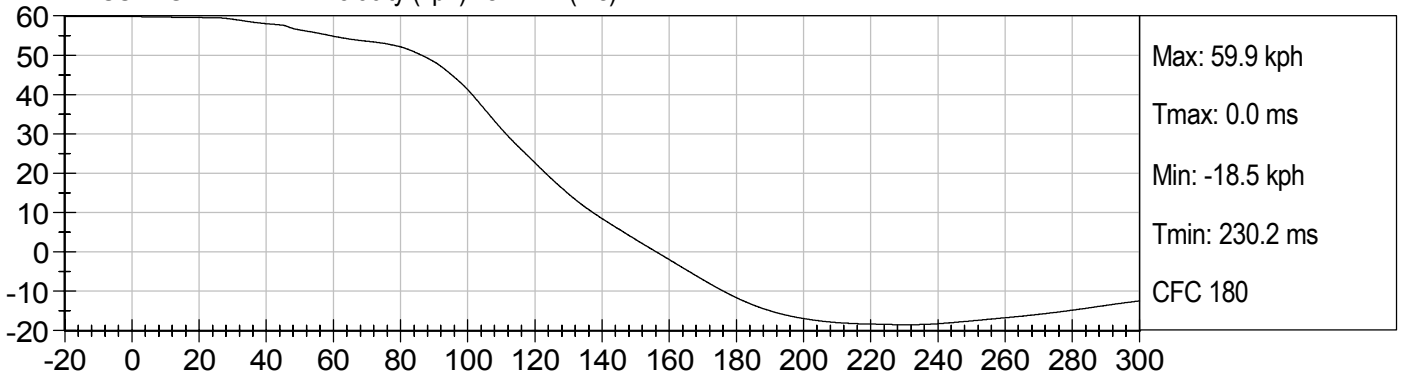
PASSENGER HEAD Z (G's) vs TIME (ms)



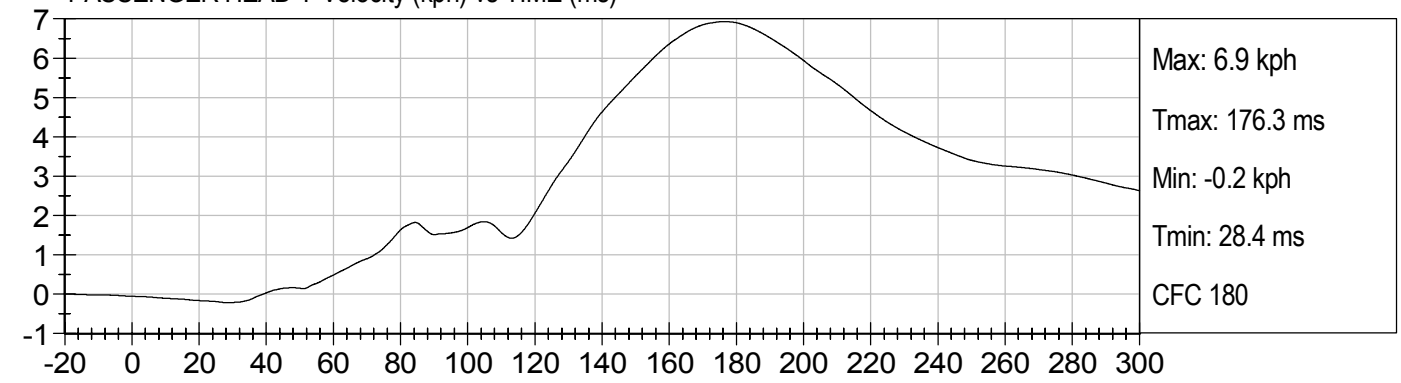
PASSENGER HEAD Resultant (G's) vs TIME (ms)



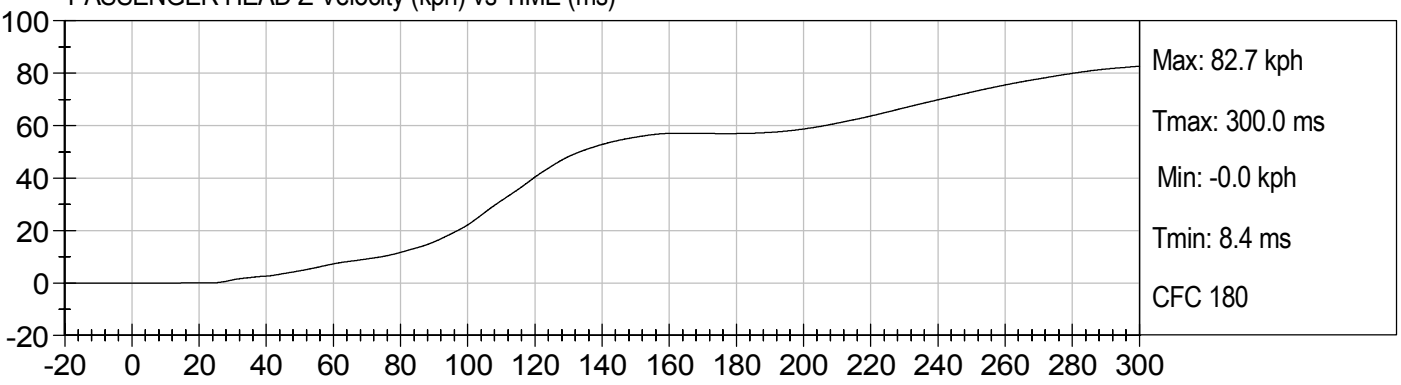
PASSENGER HEAD X Velocity (kph) vs TIME (ms)



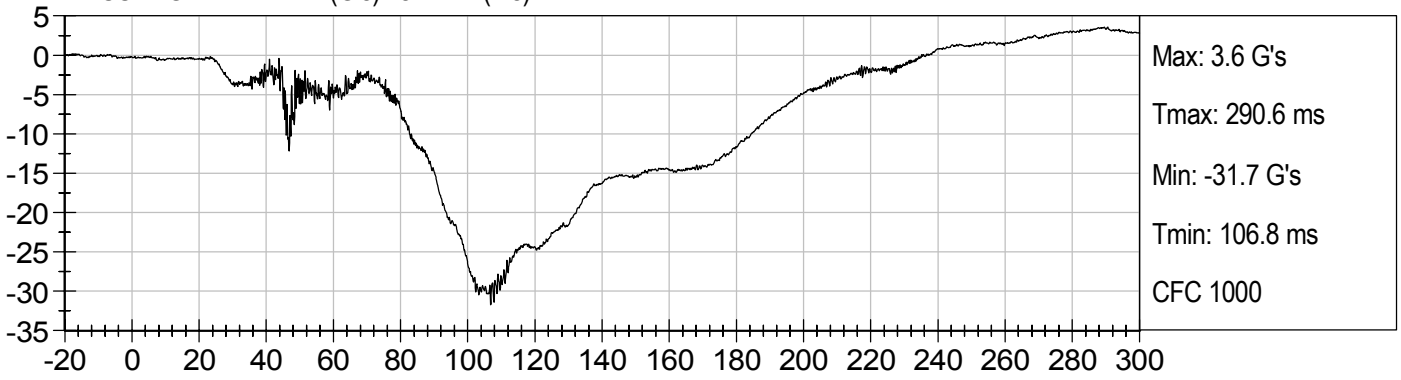
PASSENGER HEAD Y Velocity (kph) vs TIME (ms)



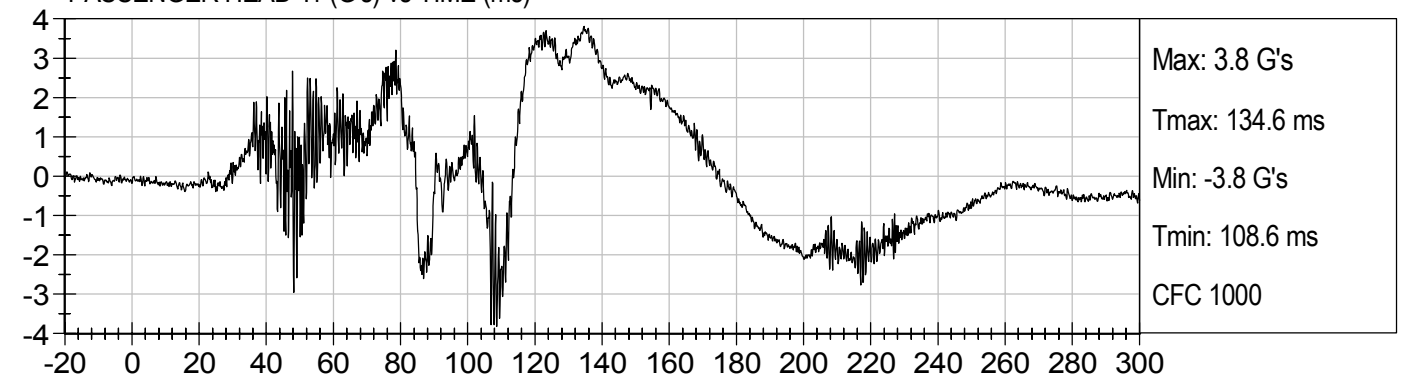
PASSENGER HEAD Z Velocity (kph) vs TIME (ms)



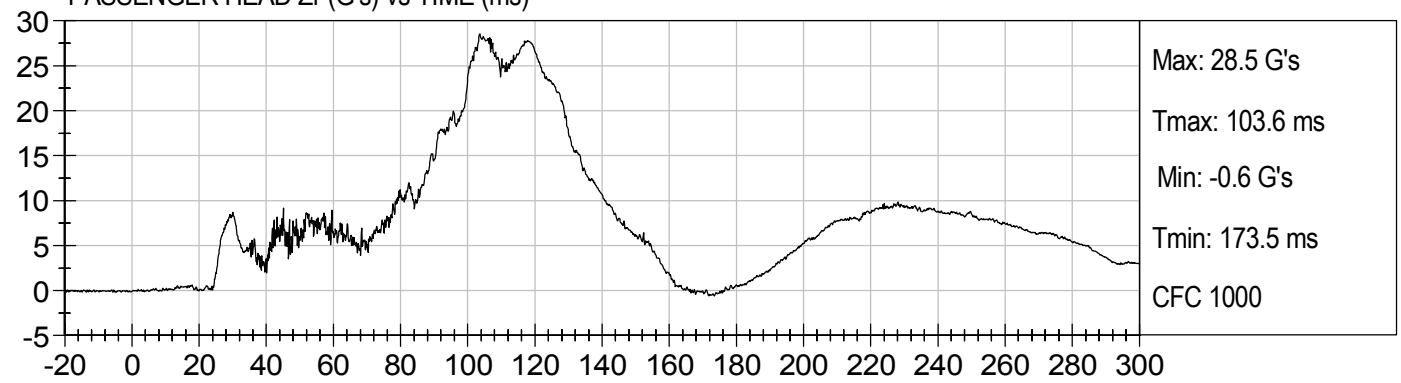
PASSENGER HEAD Xr (G's) vs TIME (ms)



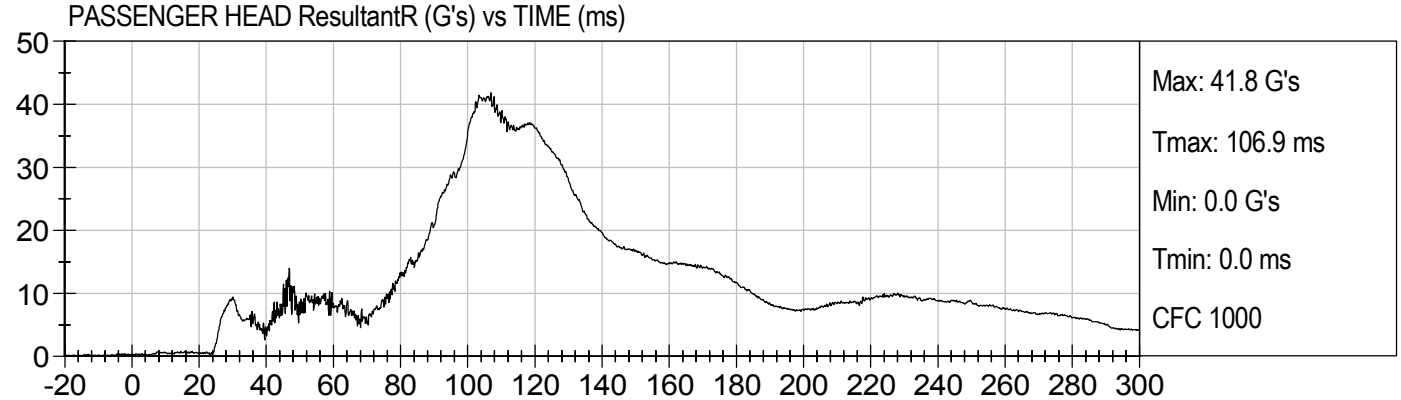
PASSENGER HEAD Yr (G's) vs TIME (ms)



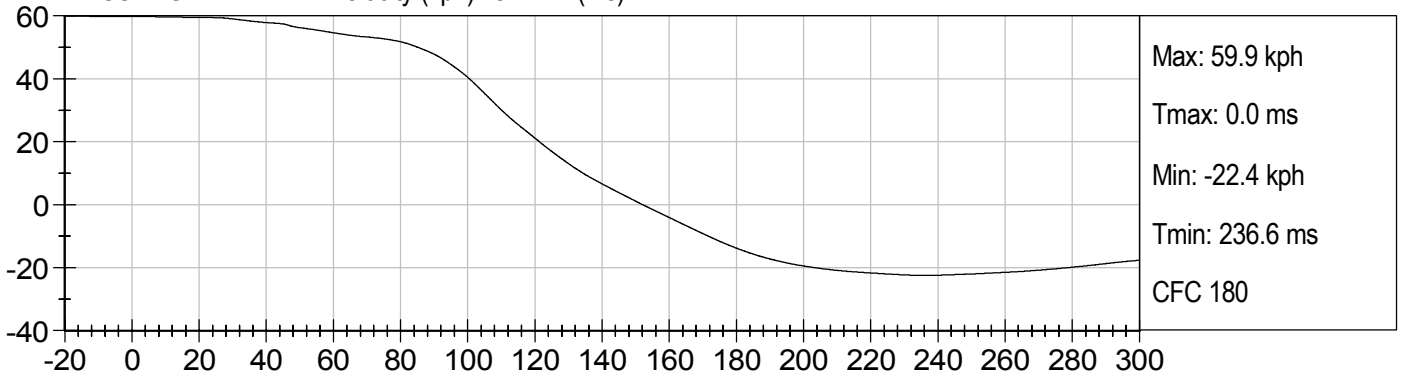
PASSENGER HEAD Zr (G's) vs TIME (ms)



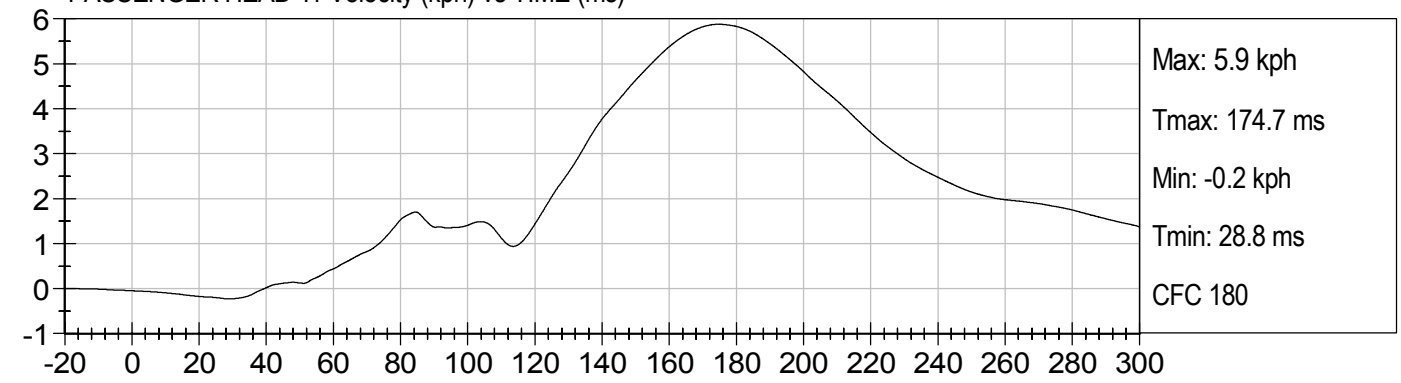
PASSENGER HEAD ResultantR (G's) vs TIME (ms)



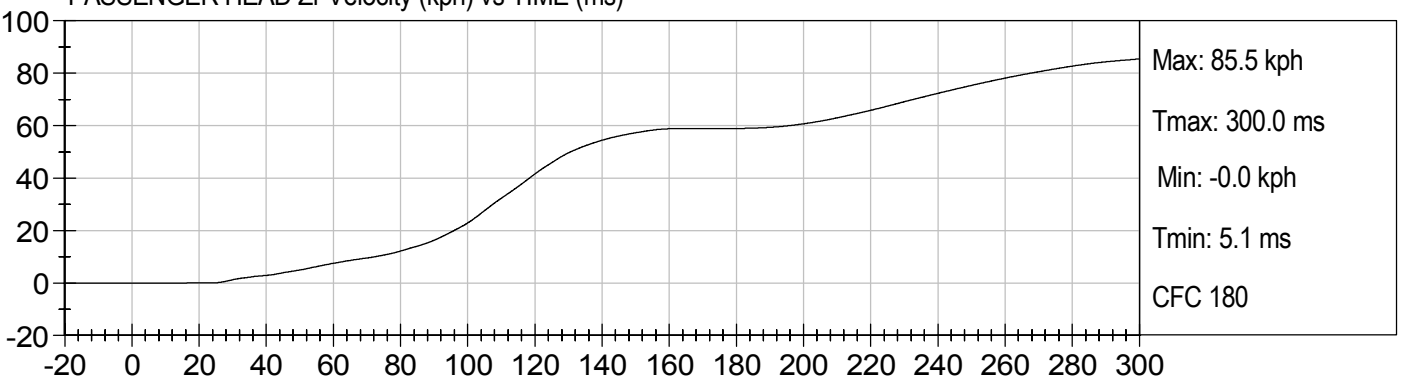
PASSENGER HEAD Xr Velocity (kph) vs TIME (ms)



PASSENGER HEAD Yr Velocity (kph) vs TIME (ms)



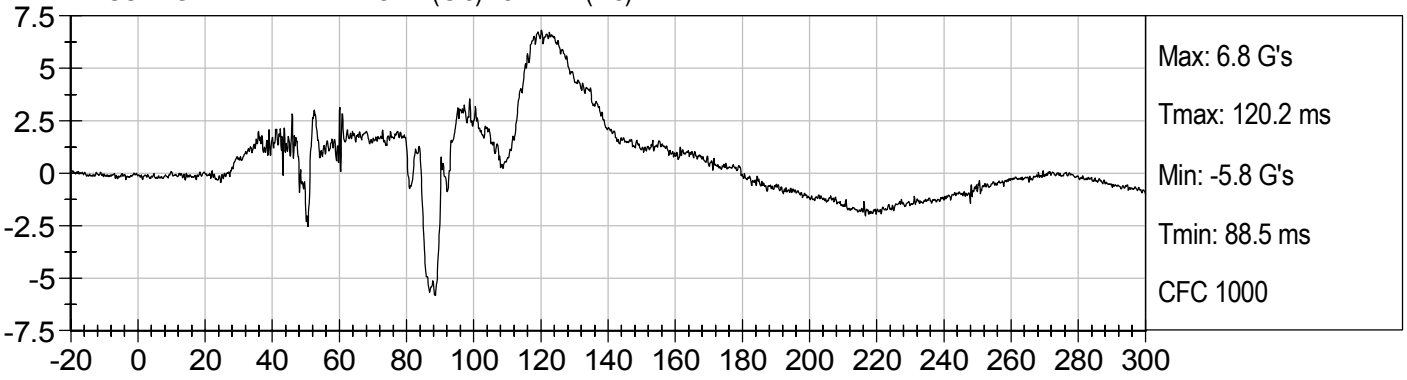
PASSENGER HEAD Zr Velocity (kph) vs TIME (ms)



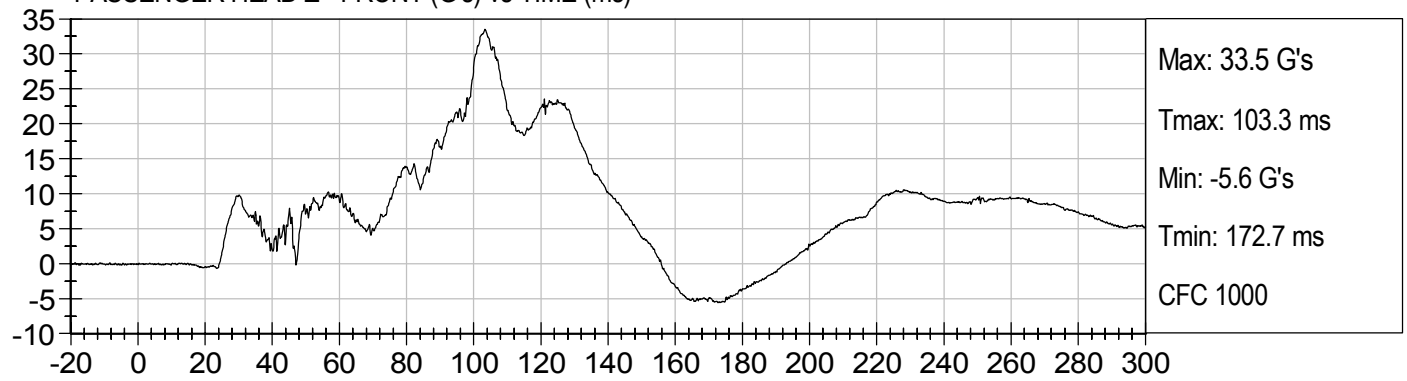
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

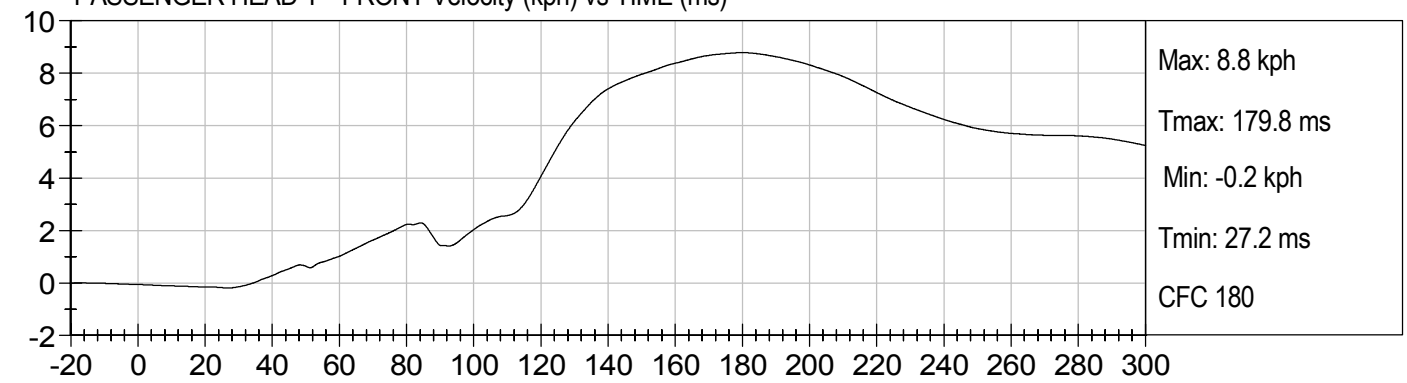
PASSENGER HEAD Y - FRONT (G's) vs TIME (ms)



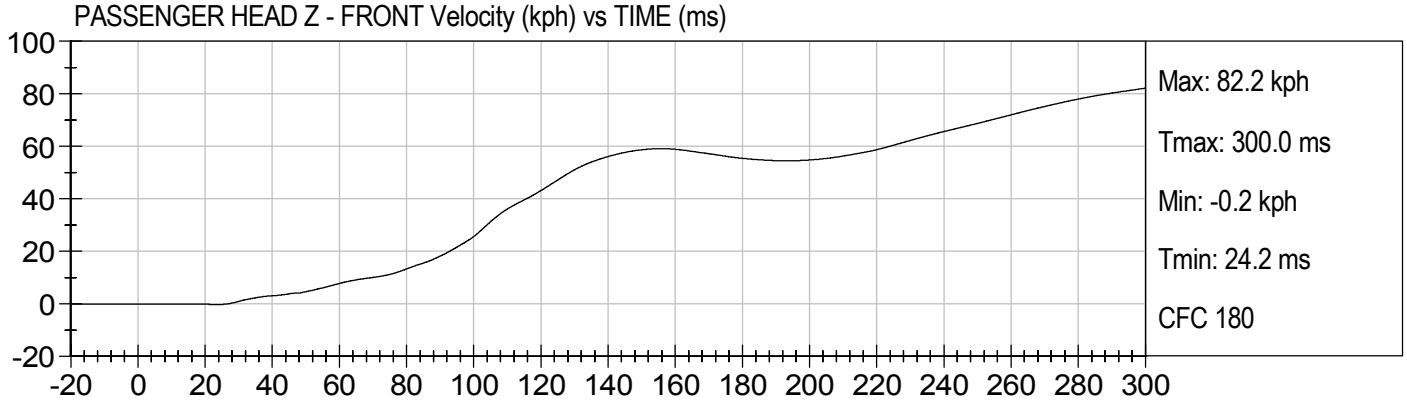
PASSENGER HEAD Z - FRONT (G's) vs TIME (ms)



PASSENGER HEAD Y - FRONT Velocity (kph) vs TIME (ms)



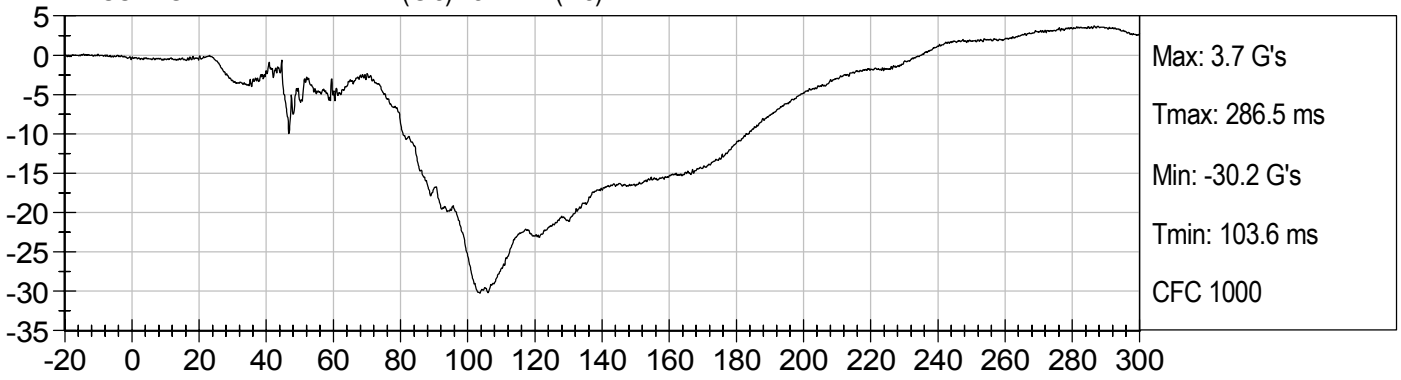
PASSENGER HEAD Z - FRONT Velocity (kph) vs TIME (ms)



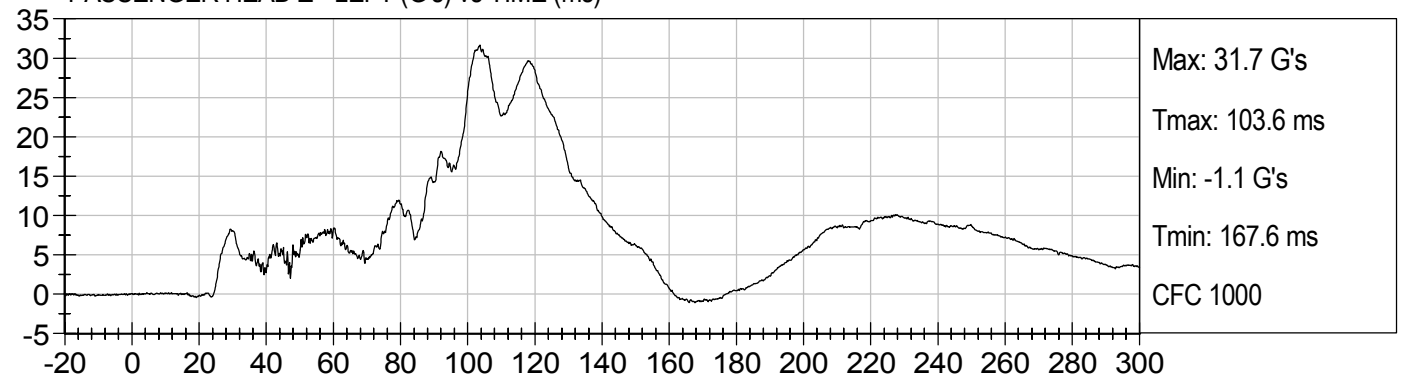
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

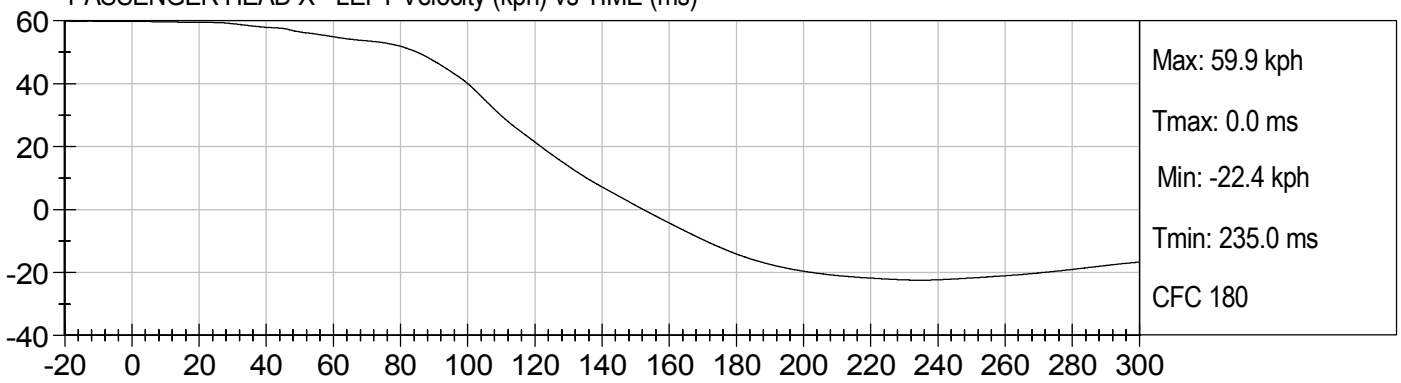
PASSENGER HEAD X - LEFT (G's) vs TIME (ms)



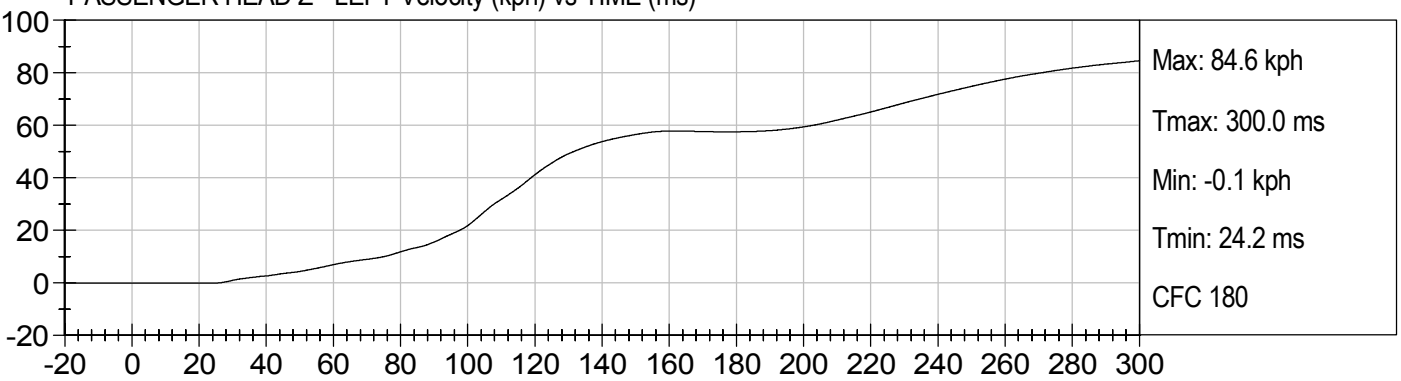
PASSENGER HEAD Z - LEFT (G's) vs TIME (ms)



PASSENGER HEAD X - LEFT Velocity (kph) vs TIME (ms)



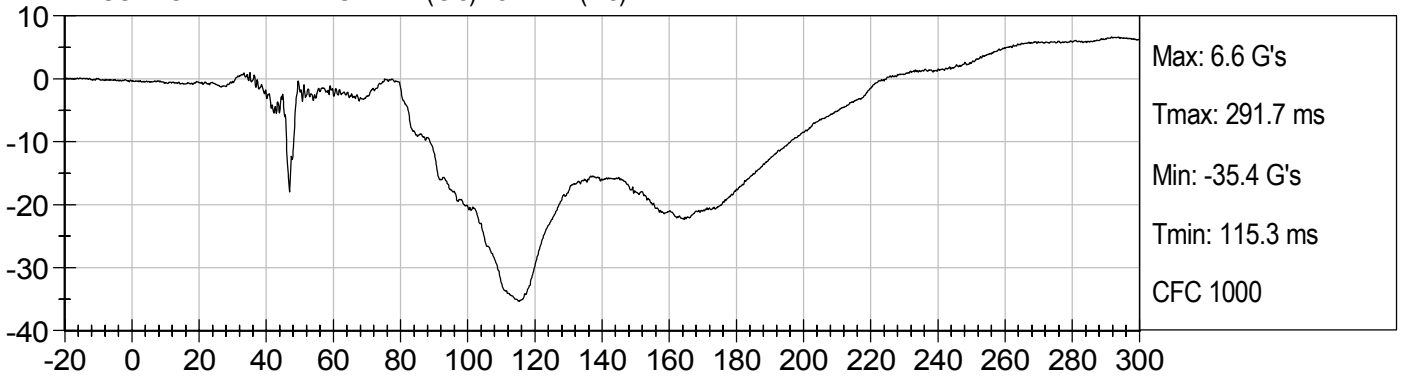
PASSENGER HEAD Z - LEFT Velocity (kph) vs TIME (ms)



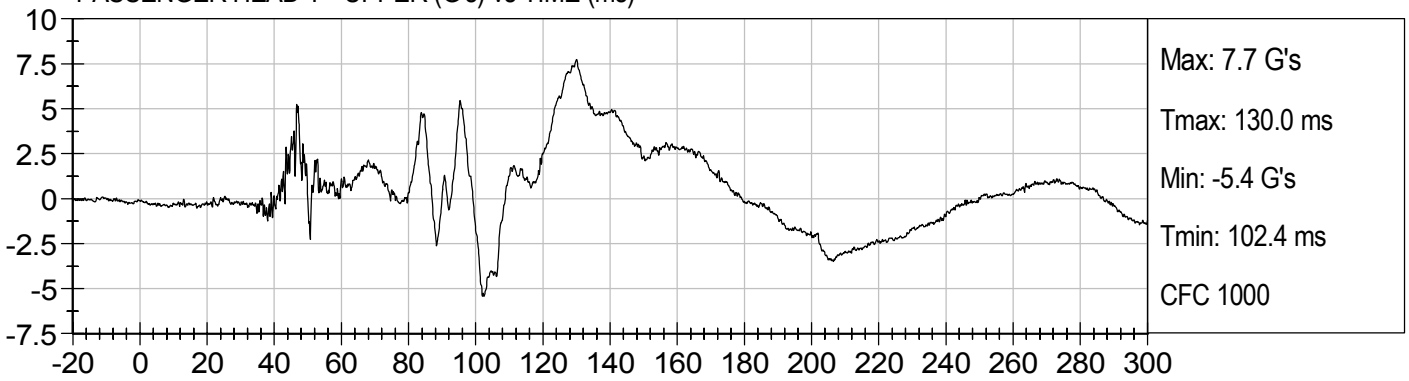
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

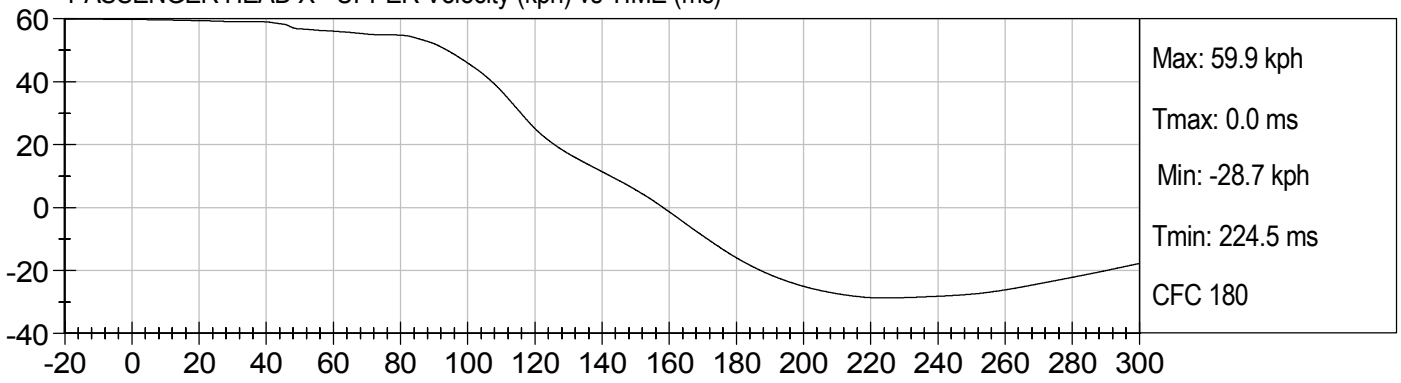
PASSENGER HEAD X - UPPER (G's) vs TIME (ms)



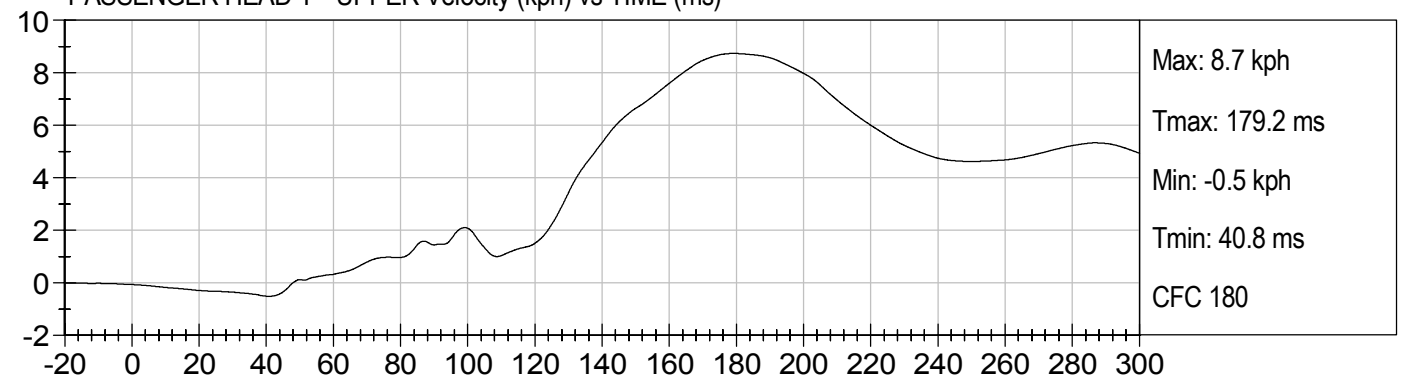
PASSENGER HEAD Y - UPPER (G's) vs TIME (ms)



PASSENGER HEAD X - UPPER Velocity (kph) vs TIME (ms)



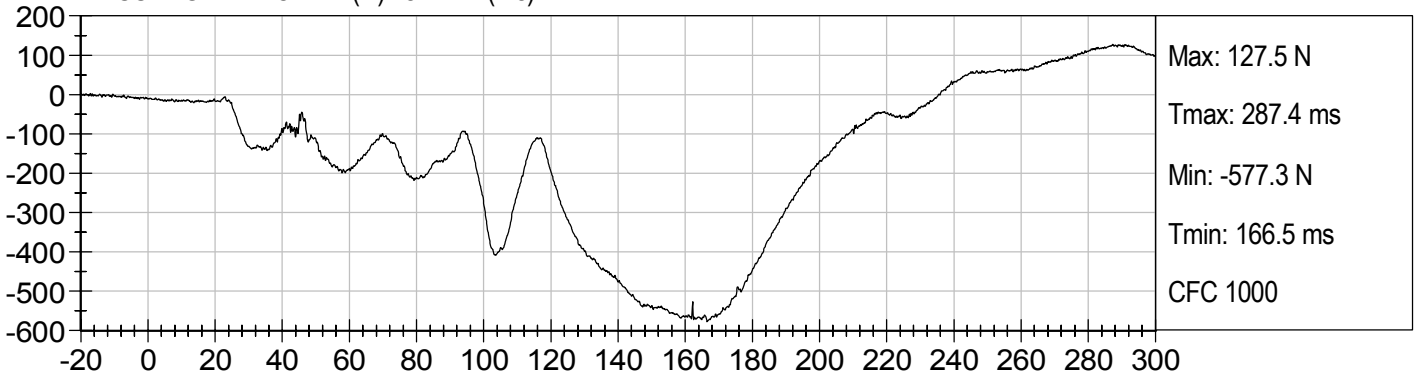
PASSENGER HEAD Y - UPPER Velocity (kph) vs TIME (ms)



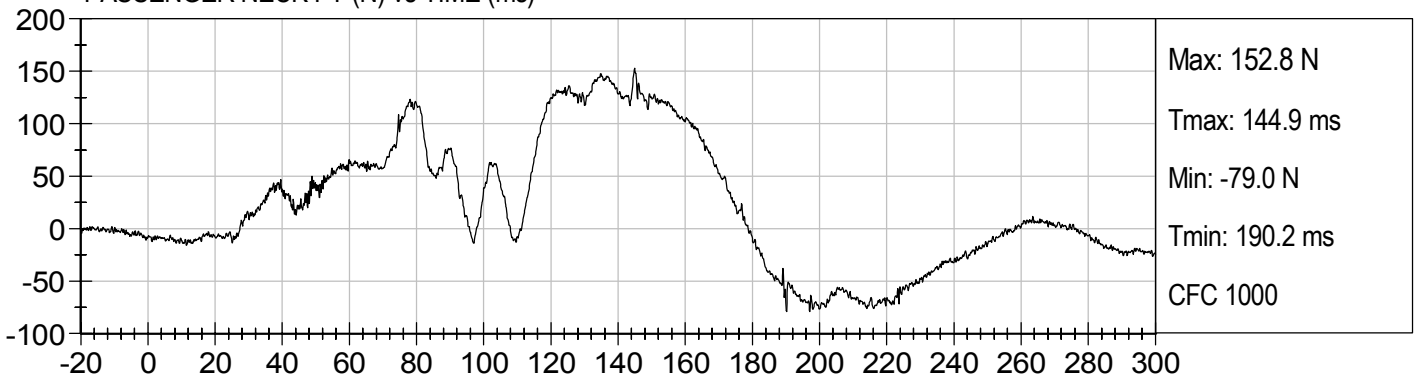
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

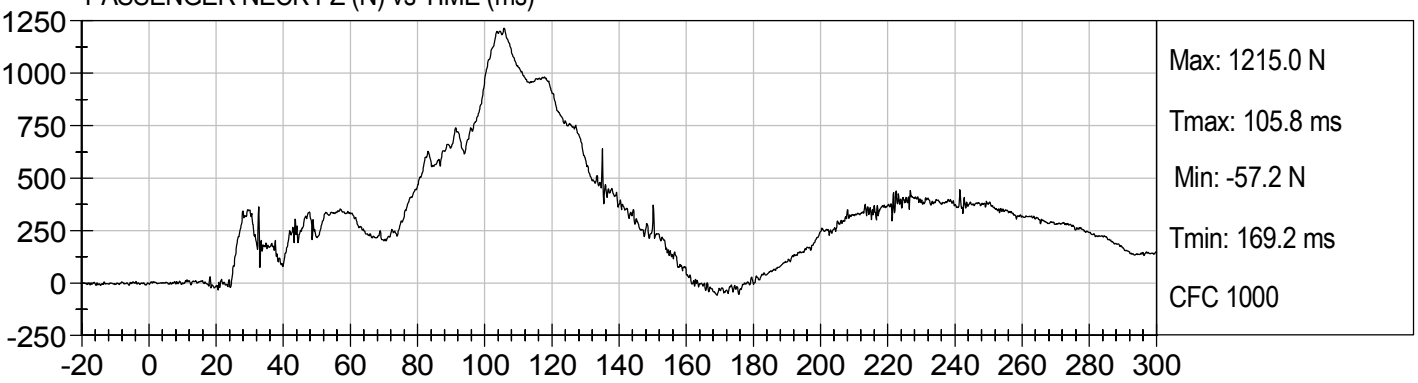
PASSENGER NECK FX (N) vs TIME (ms)



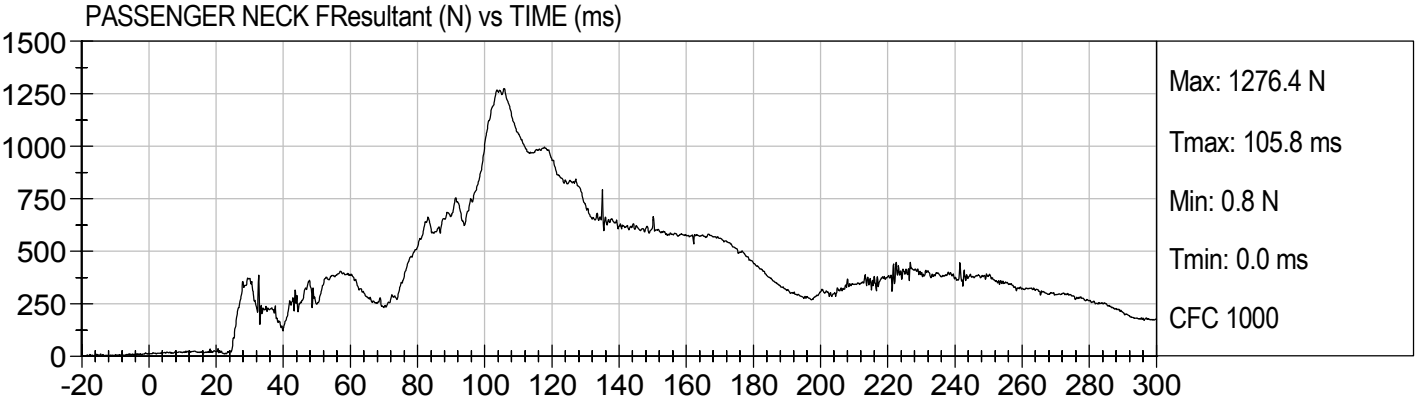
PASSENGER NECK FY (N) vs TIME (ms)



PASSENGER NECK FZ (N) vs TIME (ms)



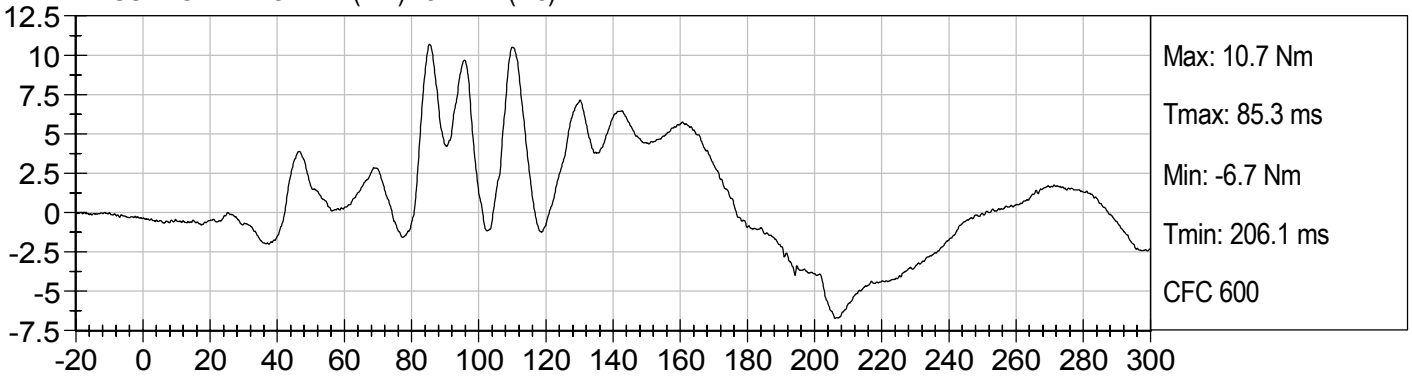
PASSENGER NECK FResultant (N) vs TIME (ms)



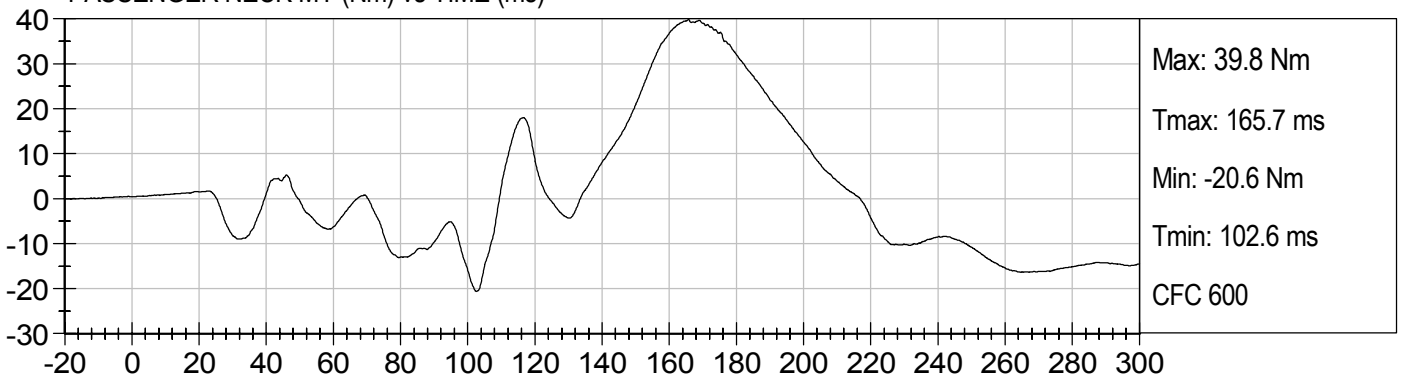
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

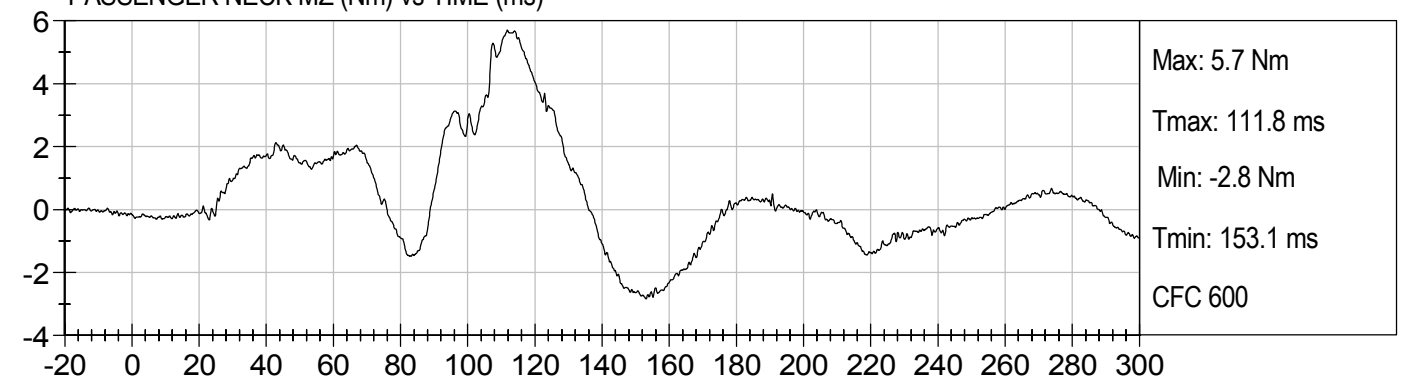
PASSENGER NECK MX (Nm) vs TIME (ms)



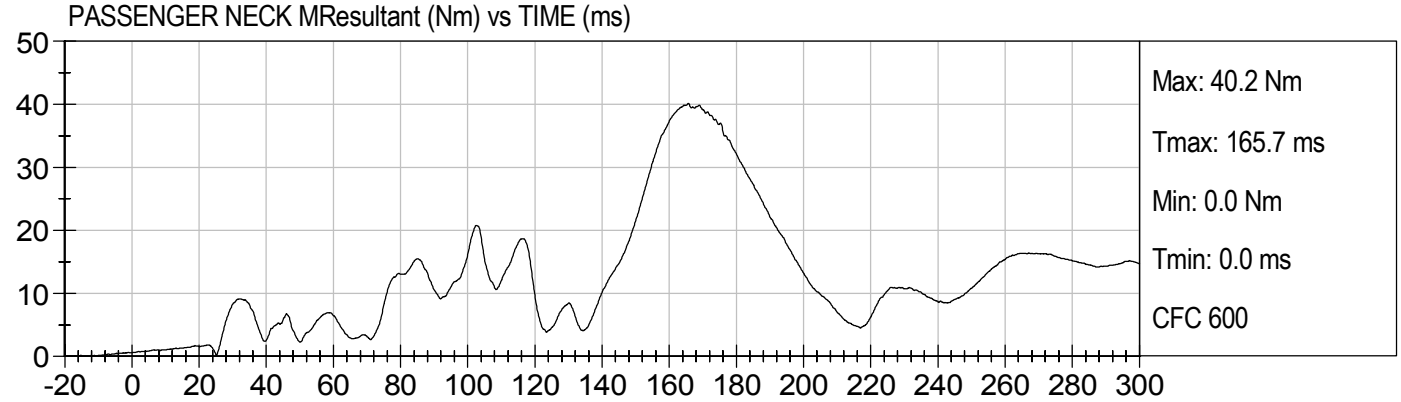
PASSENGER NECK MY (Nm) vs TIME (ms)



PASSENGER NECK MZ (Nm) vs TIME (ms)



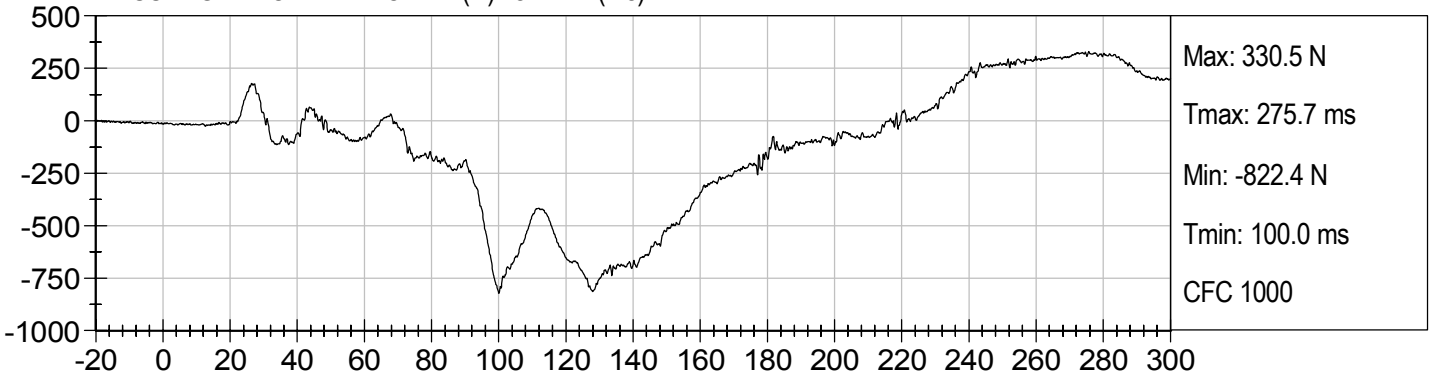
PASSENGER NECK MResultant (Nm) vs TIME (ms)



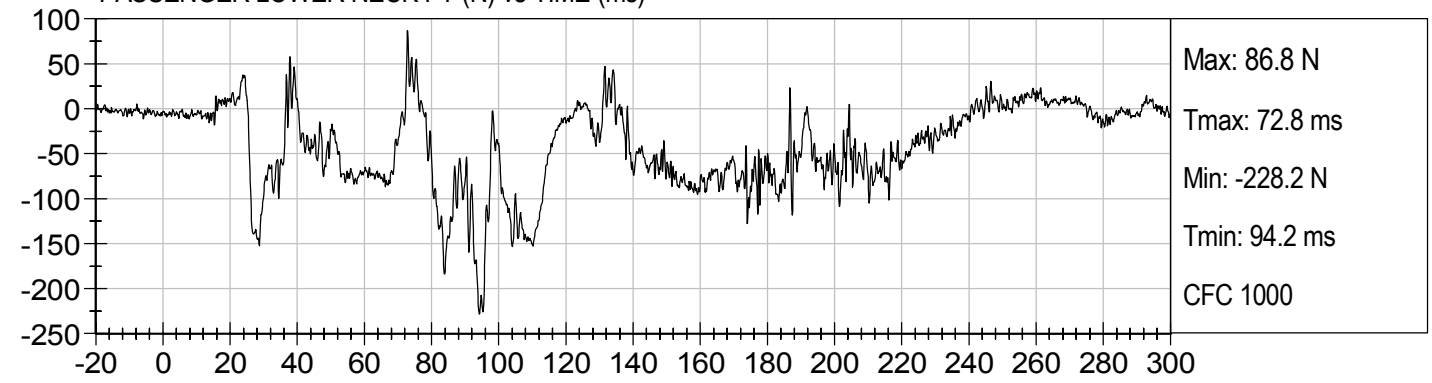
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

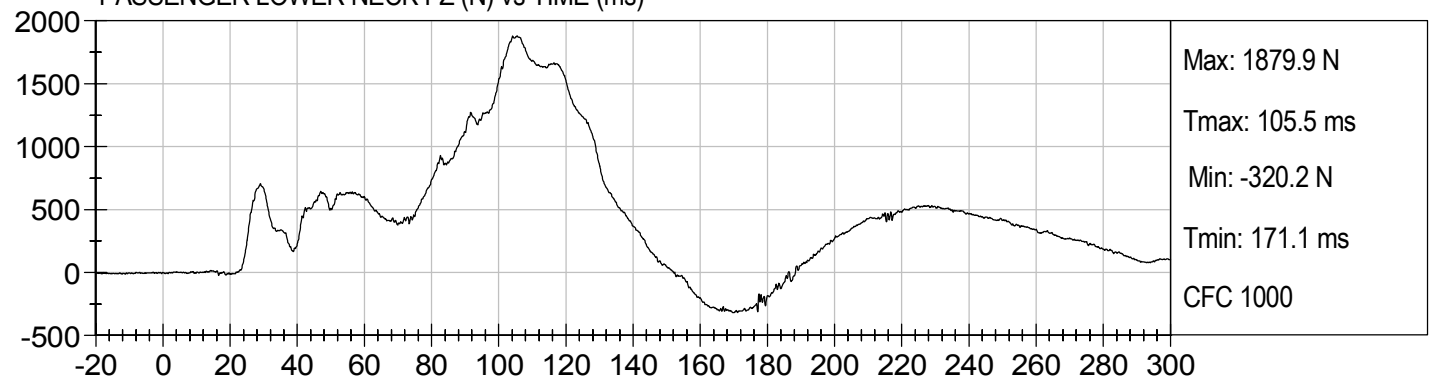
PASSENGER LOWER NECK FX (N) vs TIME (ms)



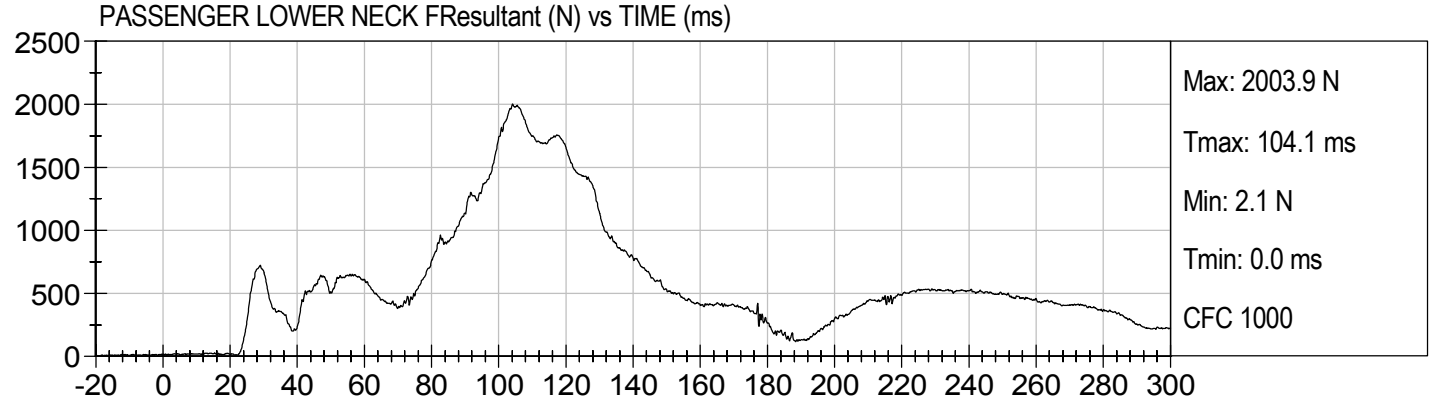
PASSENGER LOWER NECK FY (N) vs TIME (ms)



PASSENGER LOWER NECK FZ (N) vs TIME (ms)



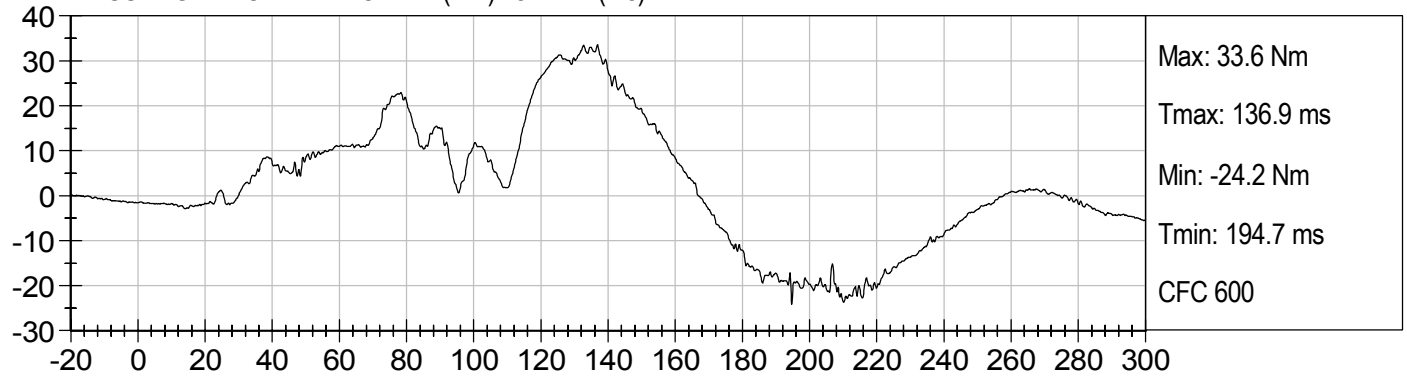
PASSENGER LOWER NECK FResultant (N) vs TIME (ms)



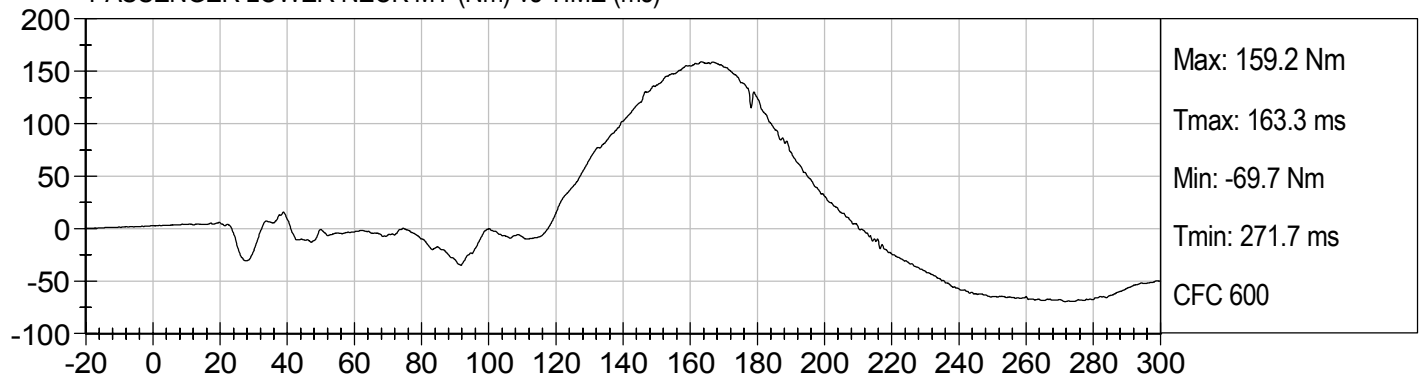
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

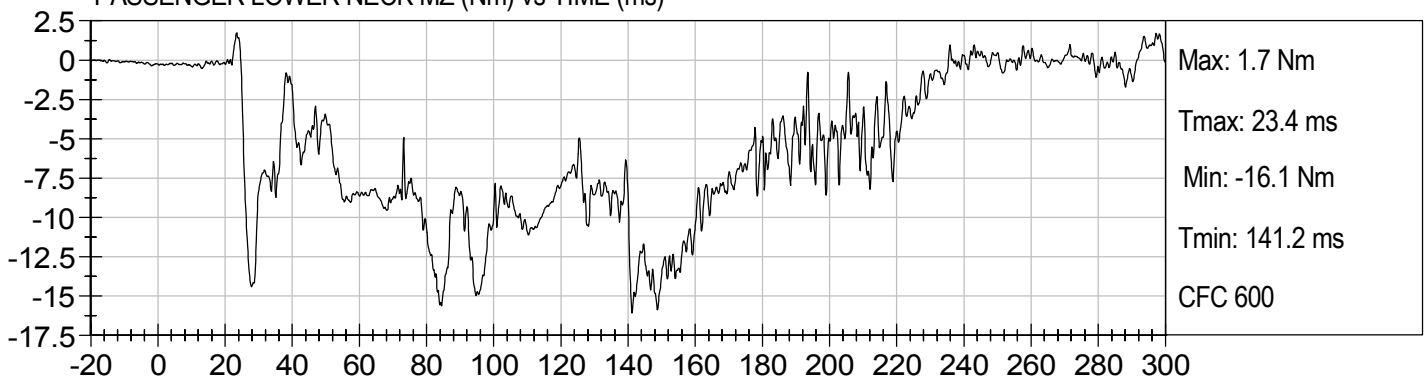
PASSENGER LOWER NECK MX (Nm) vs TIME (ms)



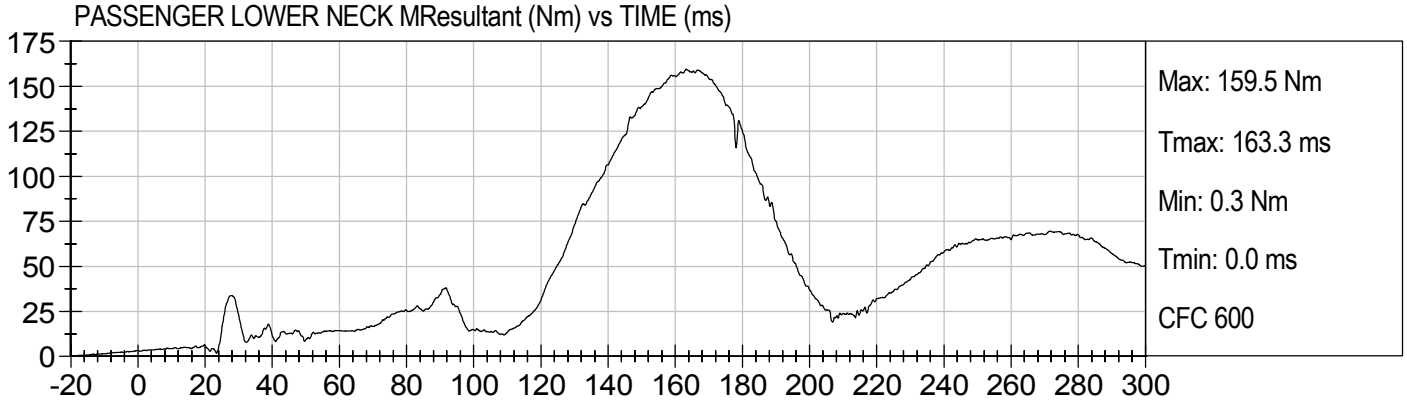
PASSENGER LOWER NECK MY (Nm) vs TIME (ms)



PASSENGER LOWER NECK MZ (Nm) vs TIME (ms)



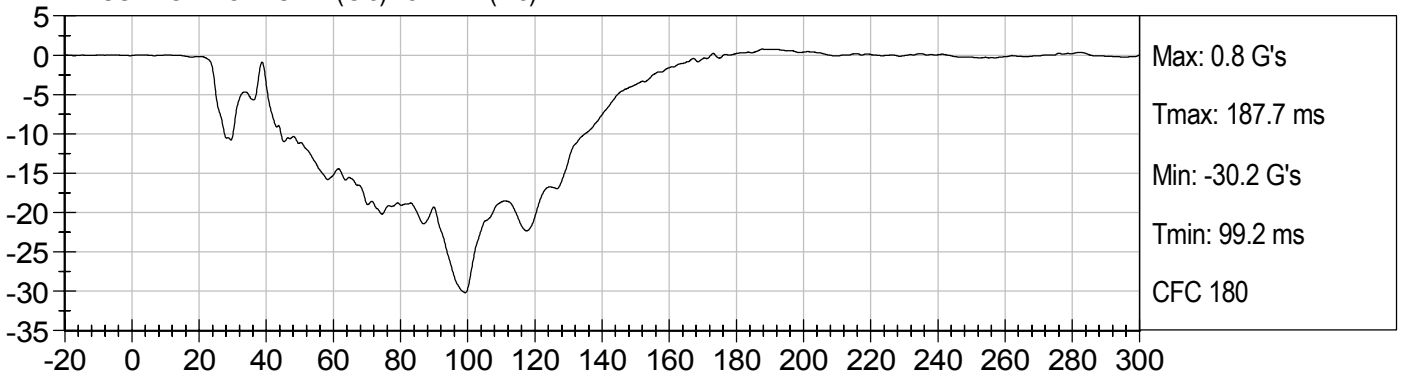
PASSENGER LOWER NECK MResultant (Nm) vs TIME (ms)



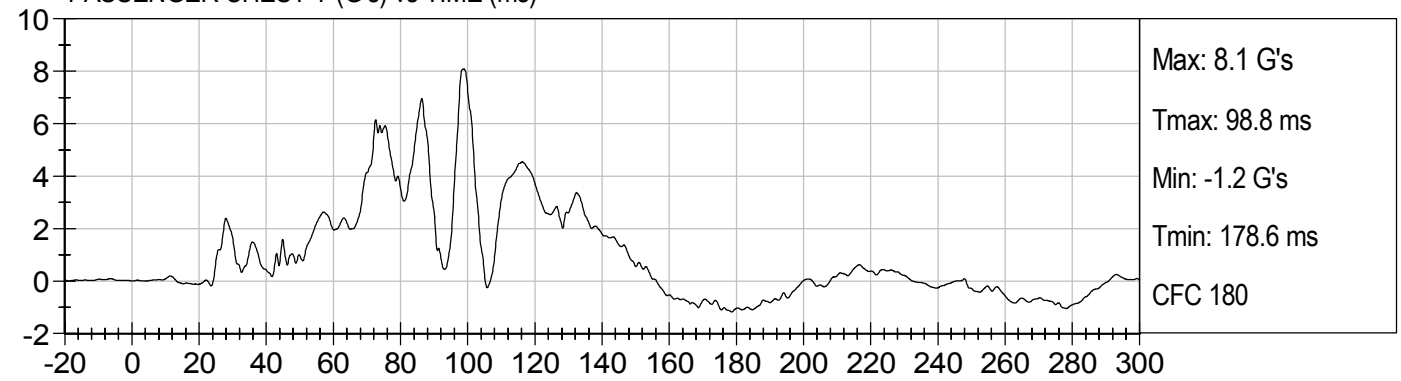
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

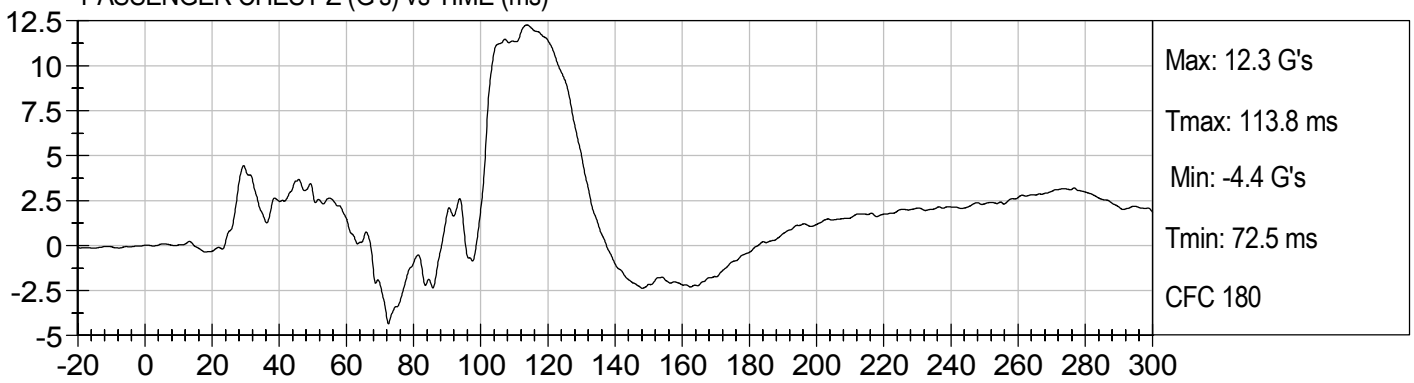
PASSENGER CHEST X (G's) vs TIME (ms)



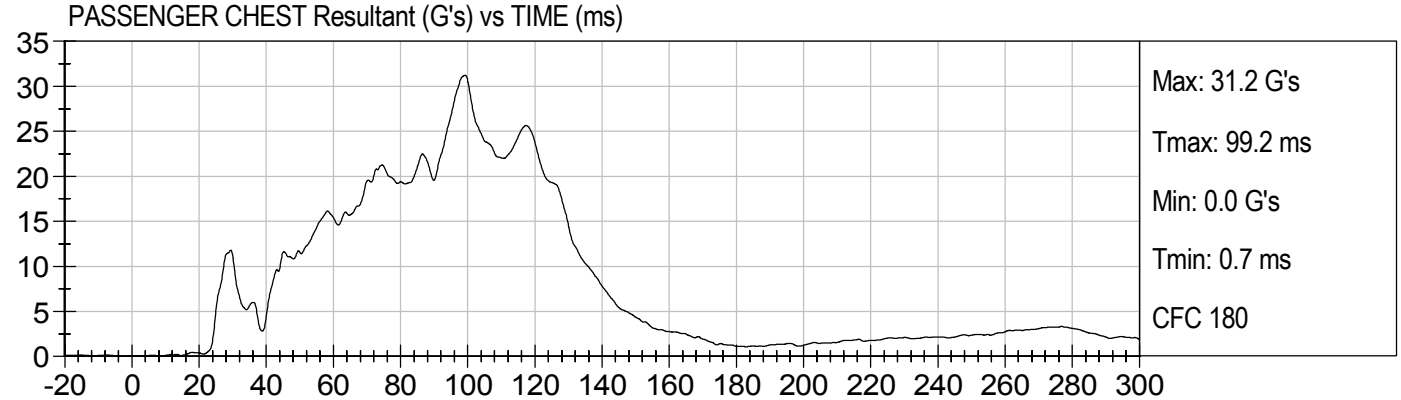
PASSENGER CHEST Y (G's) vs TIME (ms)



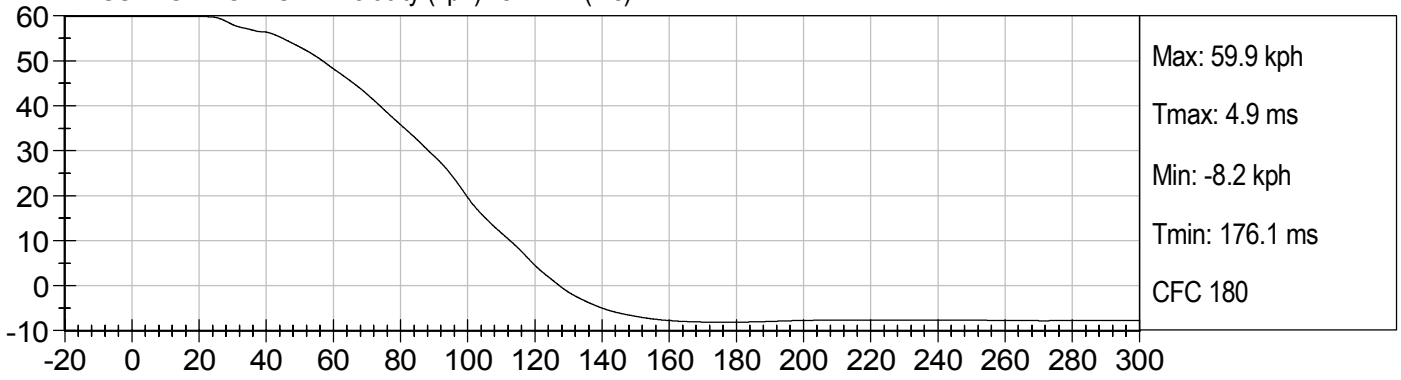
PASSENGER CHEST Z (G's) vs TIME (ms)



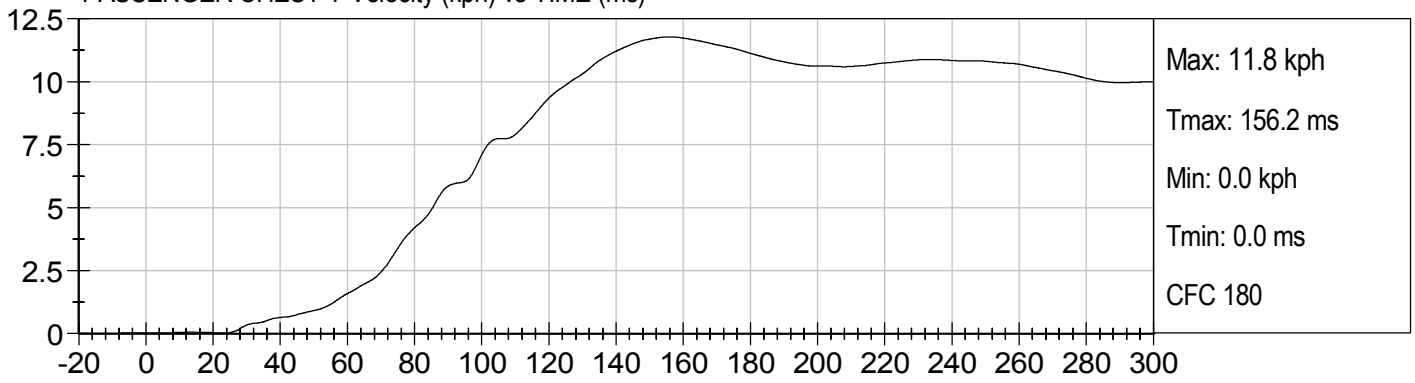
PASSENGER CHEST Resultant (G's) vs TIME (ms)



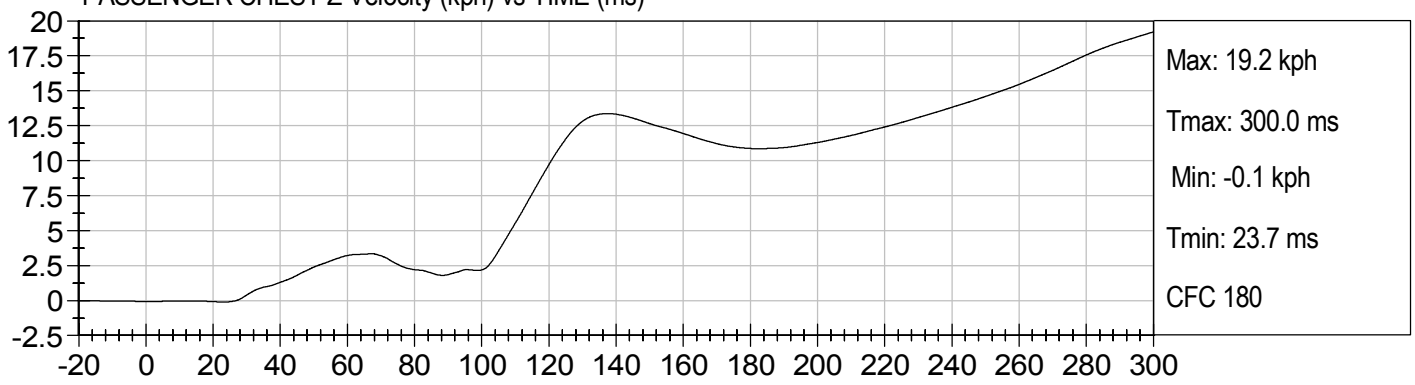
PASSENGER CHEST X Velocity (kph) vs TIME (ms)



PASSENGER CHEST Y Velocity (kph) vs TIME (ms)



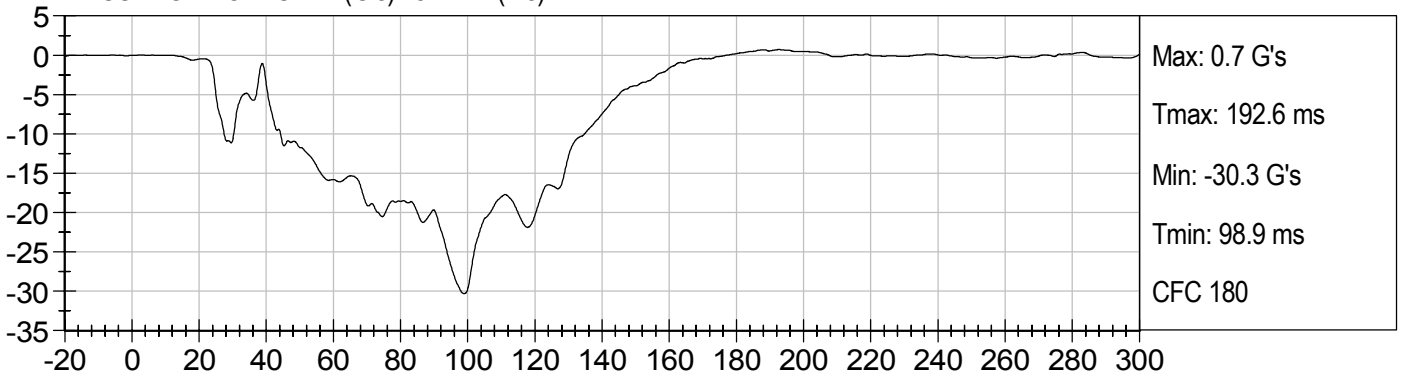
PASSENGER CHEST Z Velocity (kph) vs TIME (ms)



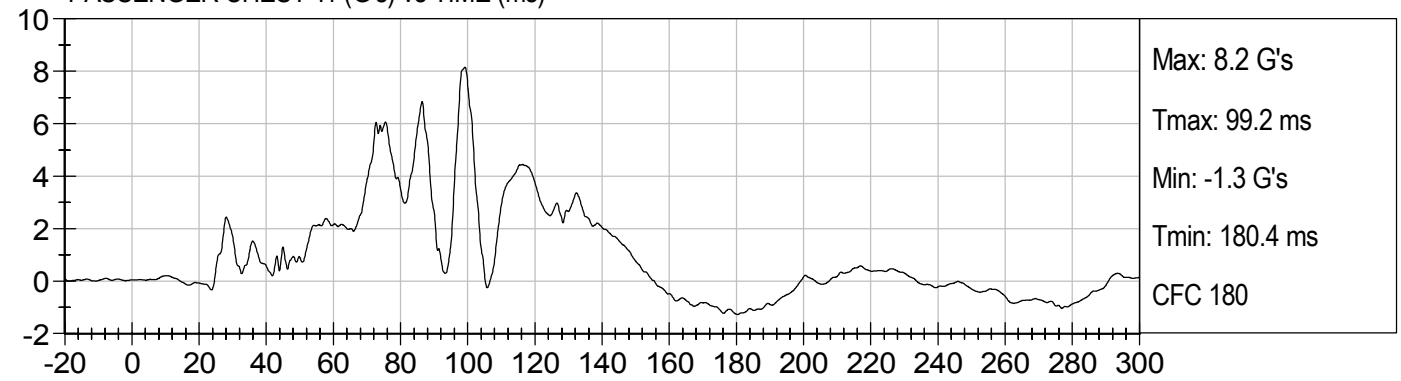
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

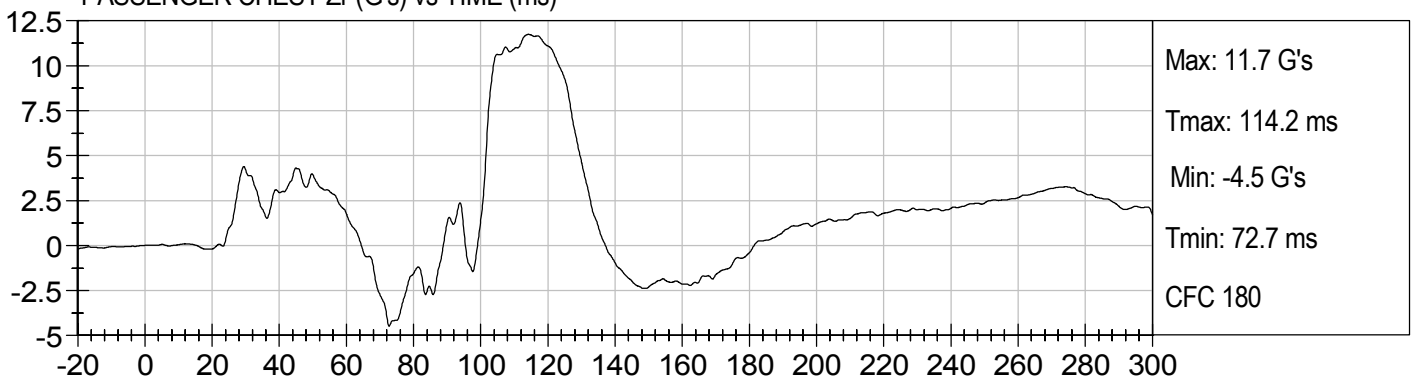
PASSENGER CHEST Xr (G's) vs TIME (ms)



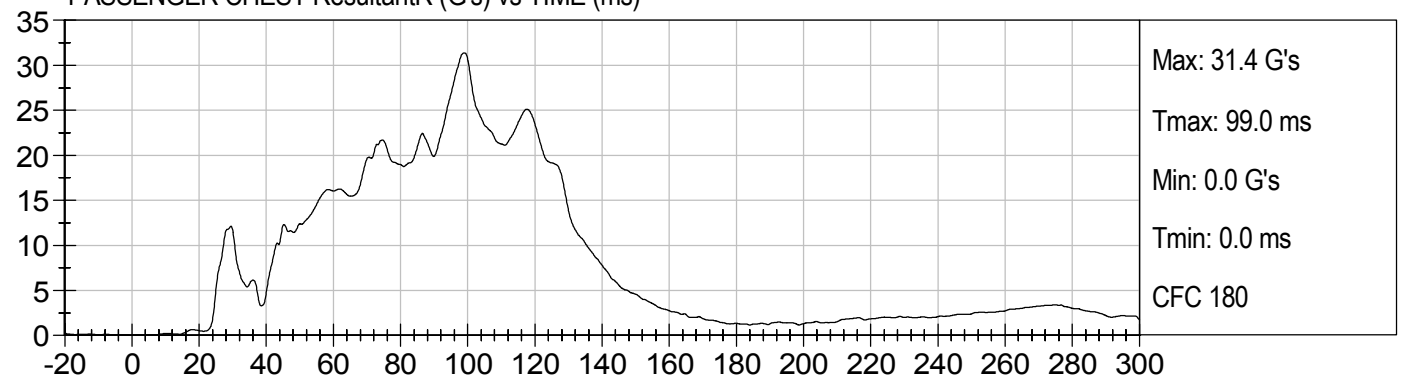
PASSENGER CHEST Yr (G's) vs TIME (ms)



PASSENGER CHEST Zr (G's) vs TIME (ms)



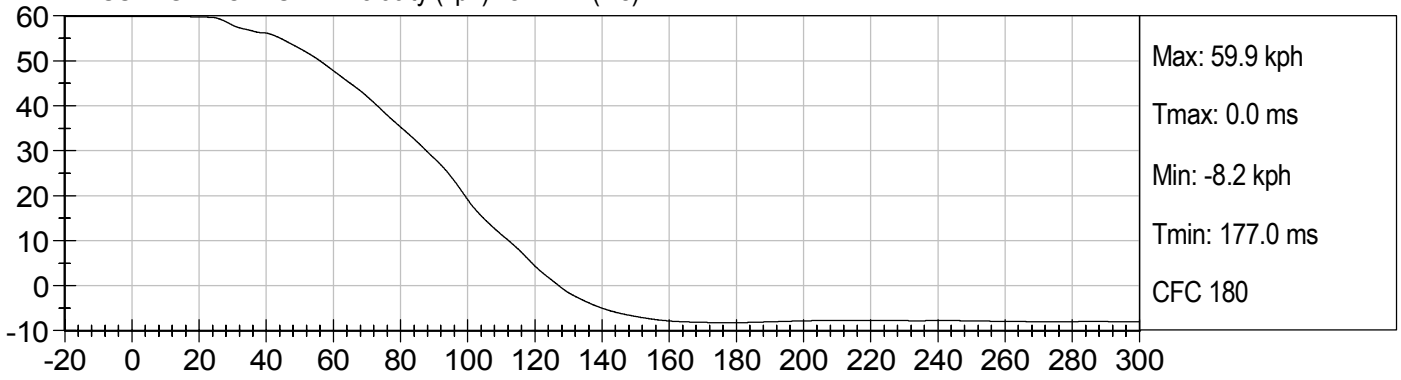
PASSENGER CHEST ResultantR (G's) vs TIME (ms)



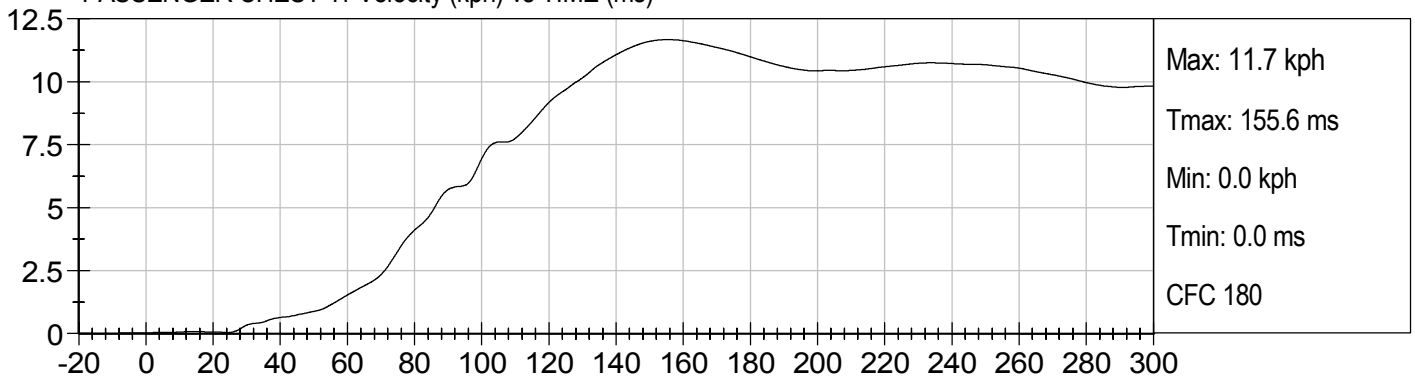
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

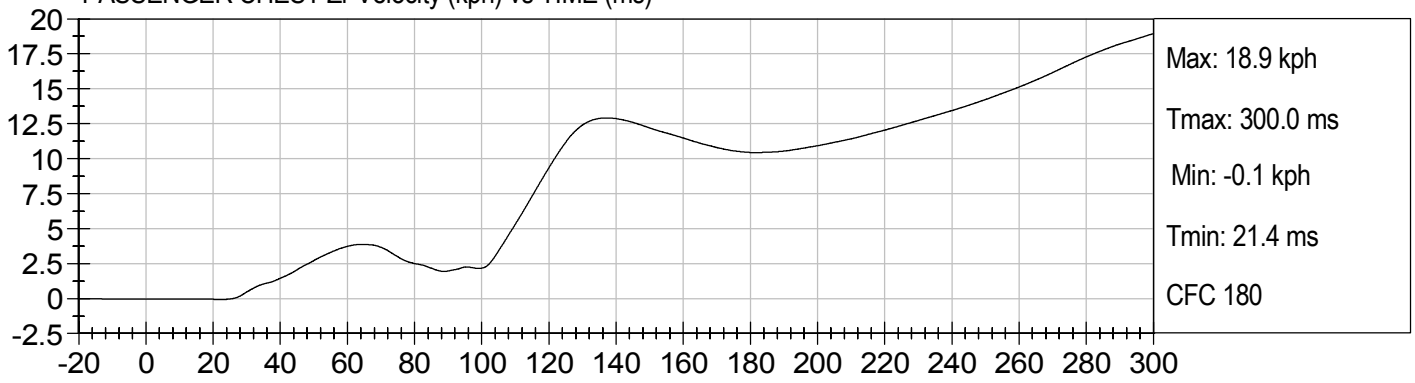
PASSENGER CHEST Xr Velocity (kph) vs TIME (ms)



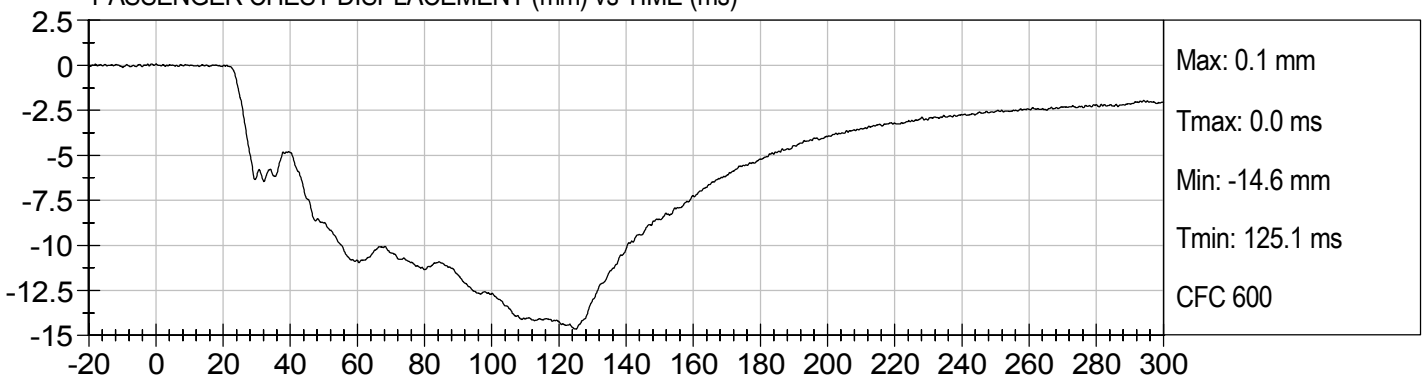
PASSENGER CHEST Yr Velocity (kph) vs TIME (ms)



PASSENGER CHEST Zr Velocity (kph) vs TIME (ms)



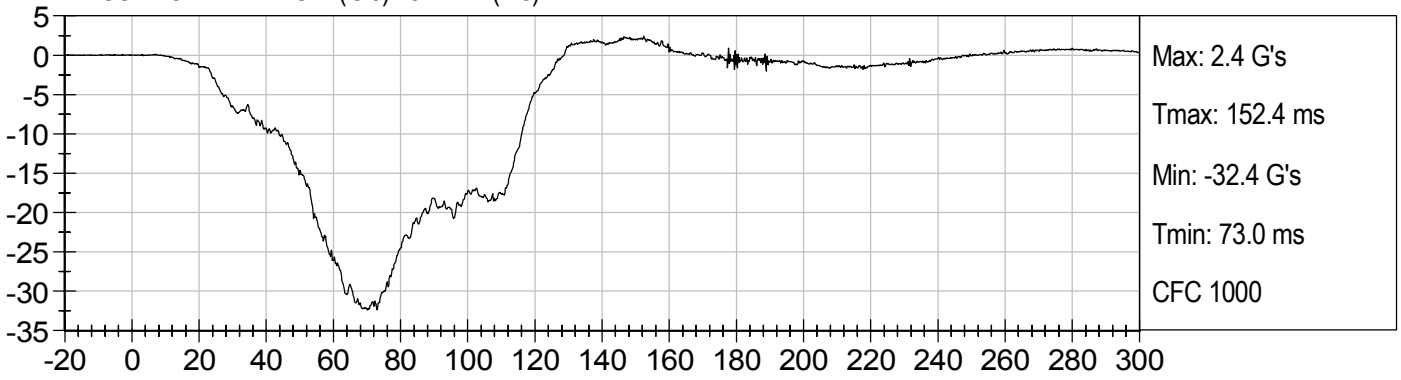
PASSENGER CHEST DISPLACEMENT (mm) vs TIME (ms)



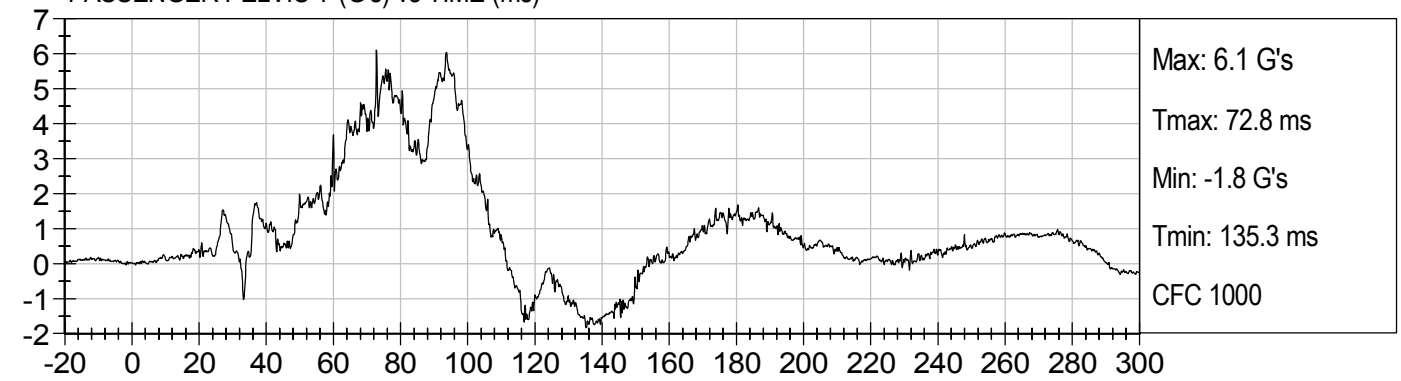
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

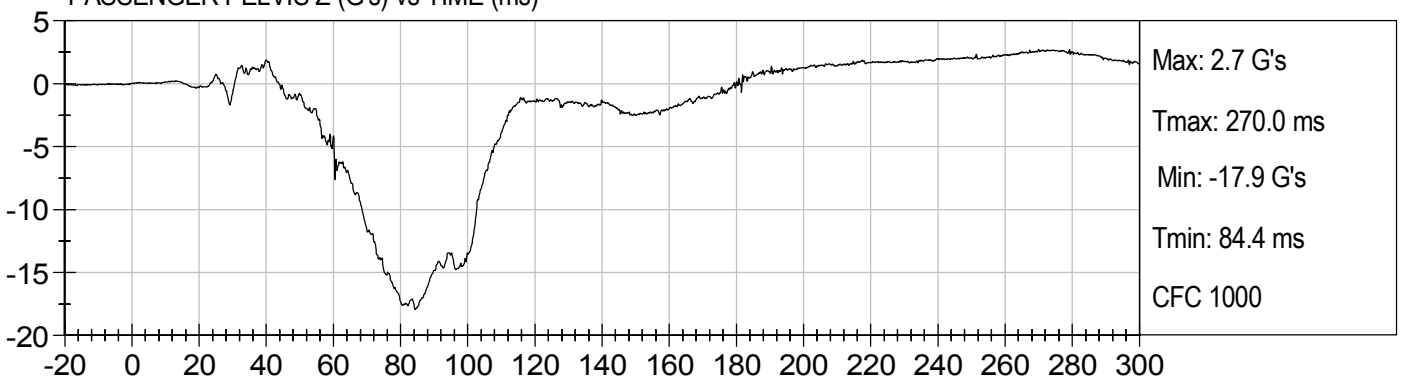
PASSENGER PELVIS X (G's) vs TIME (ms)



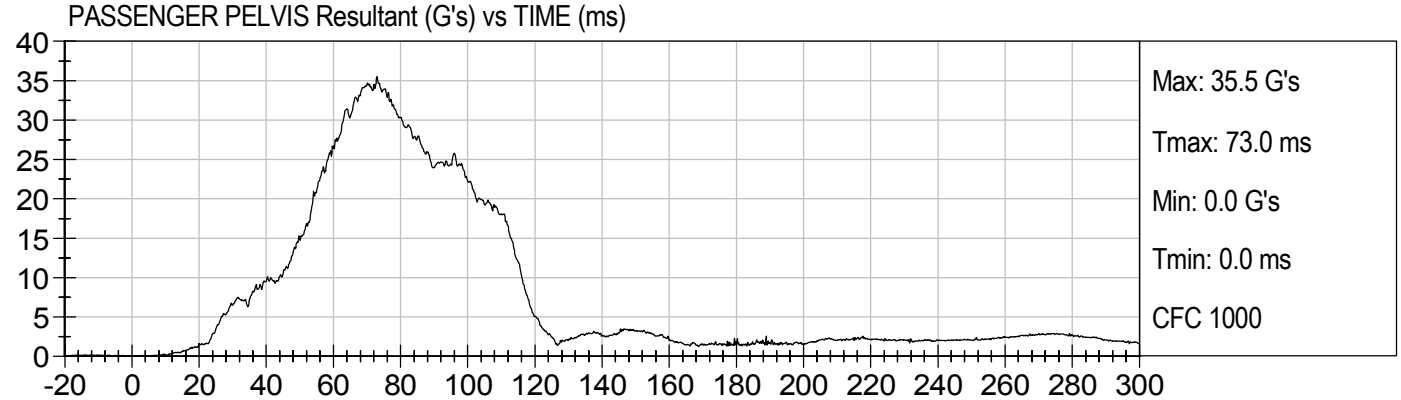
PASSENGER PELVIS Y (G's) vs TIME (ms)



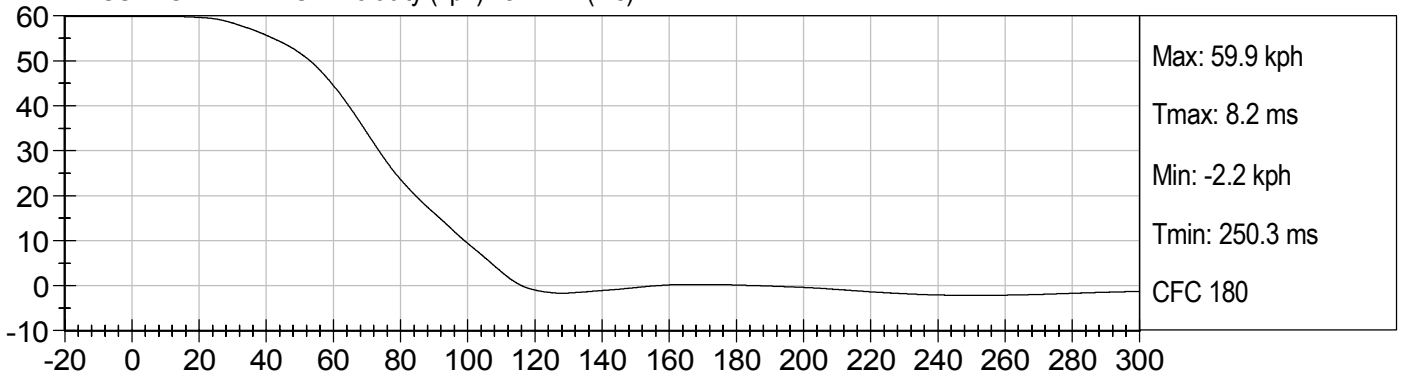
PASSENGER PELVIS Z (G's) vs TIME (ms)



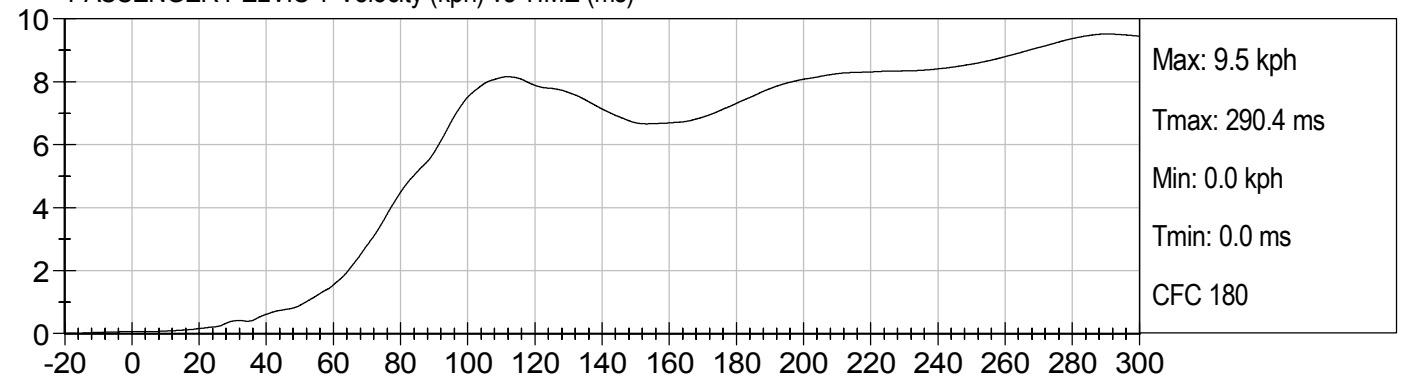
PASSENGER PELVIS Resultant (G's) vs TIME (ms)



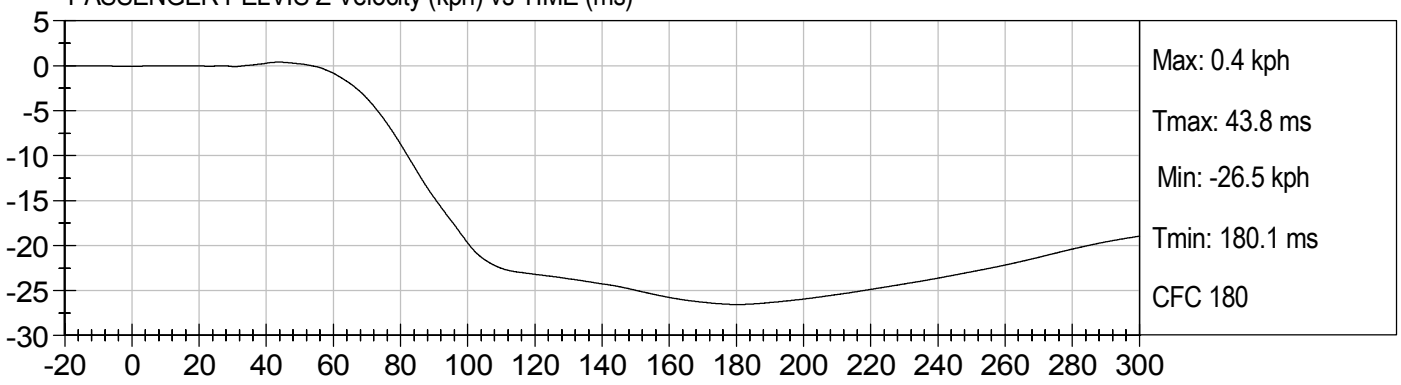
PASSENGER PELVIS X Velocity (kph) vs TIME (ms)



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



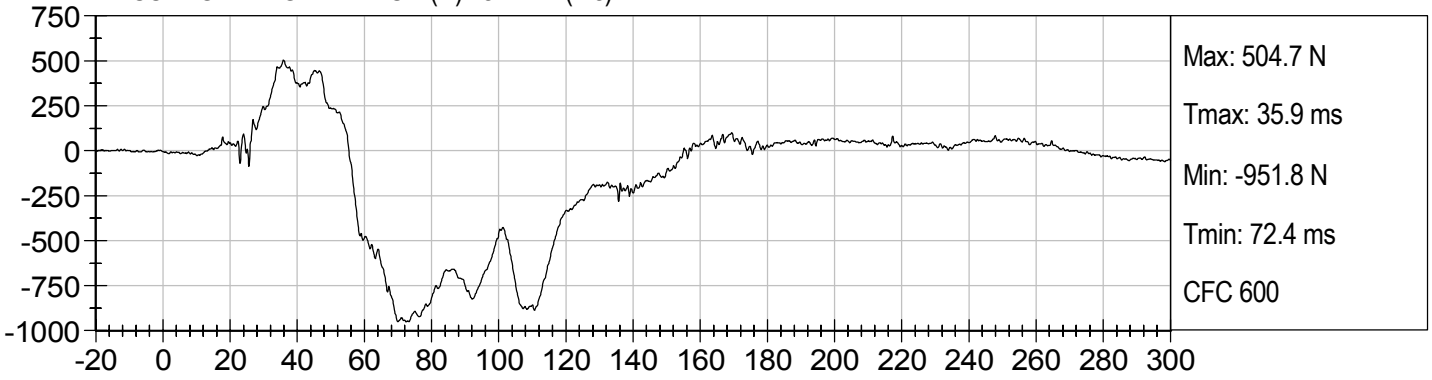
PASSENGER PELVIS Z Velocity (kph) vs TIME (ms)



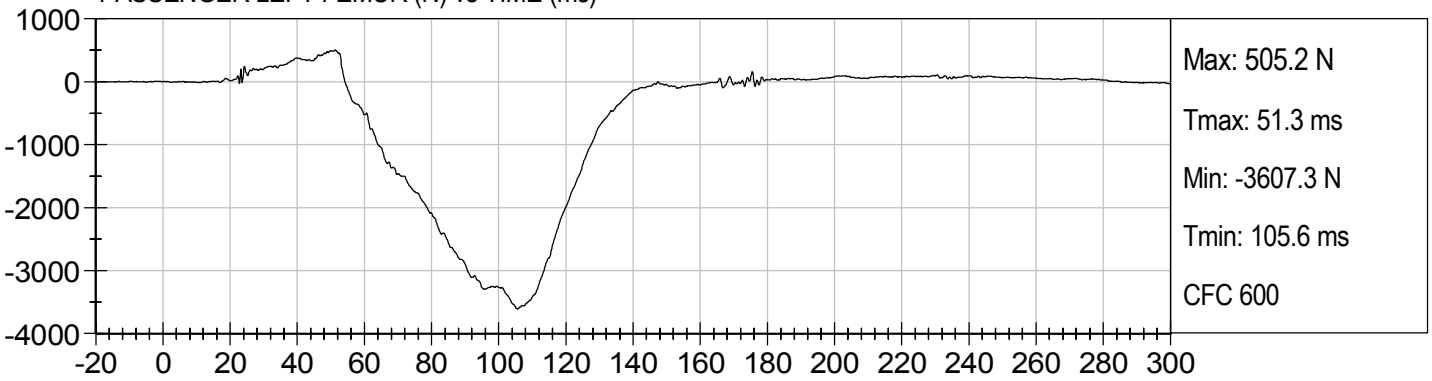
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

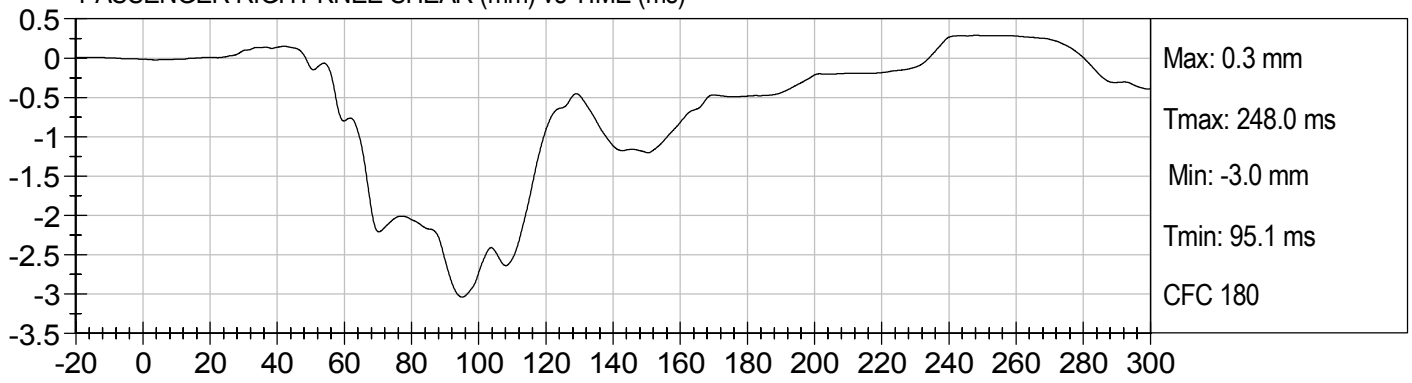
PASSENGER RIGHT FEMUR (N) vs TIME (ms)



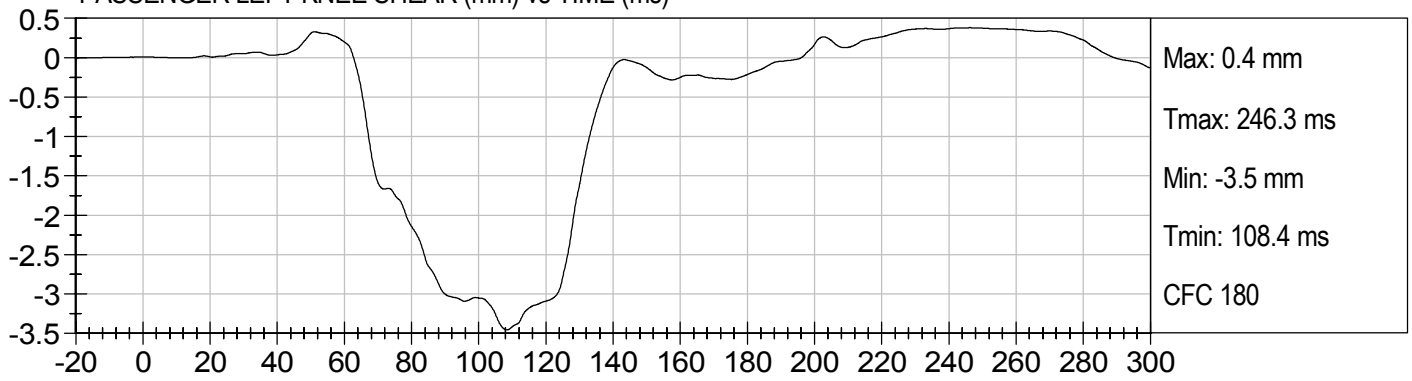
PASSENGER LEFT FEMUR (N) vs TIME (ms)



PASSENGER RIGHT KNEE SHEAR (mm) vs TIME (ms)



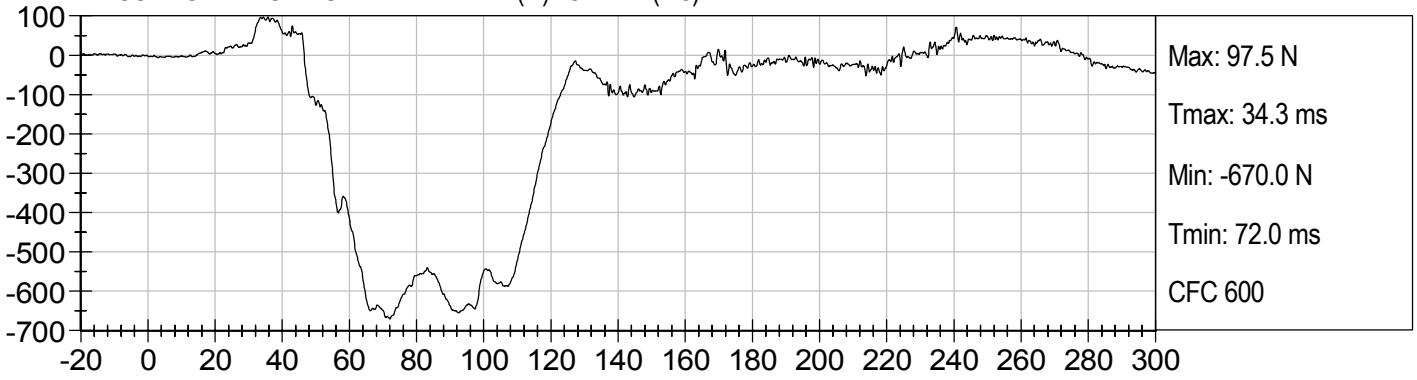
PASSENGER LEFT KNEE SHEAR (mm) vs TIME (ms)



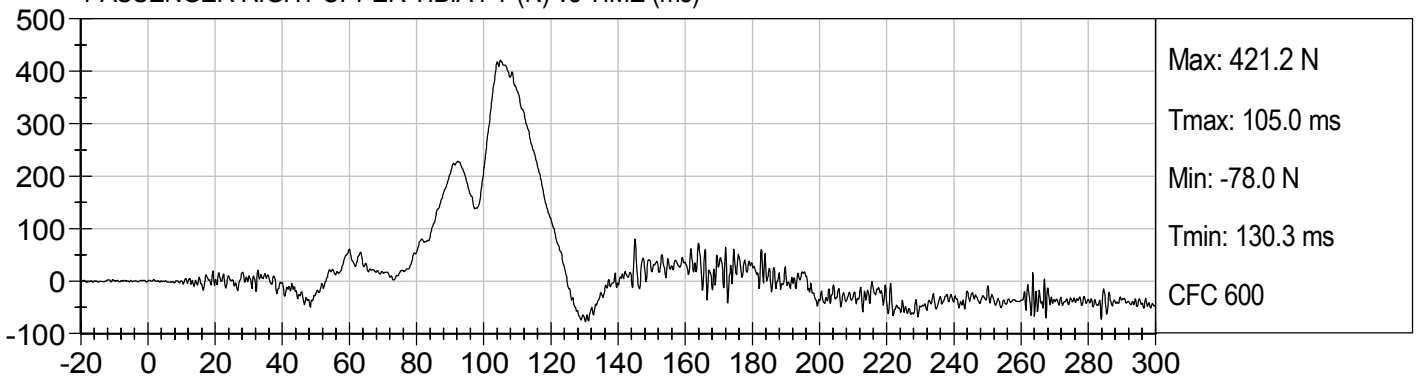
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

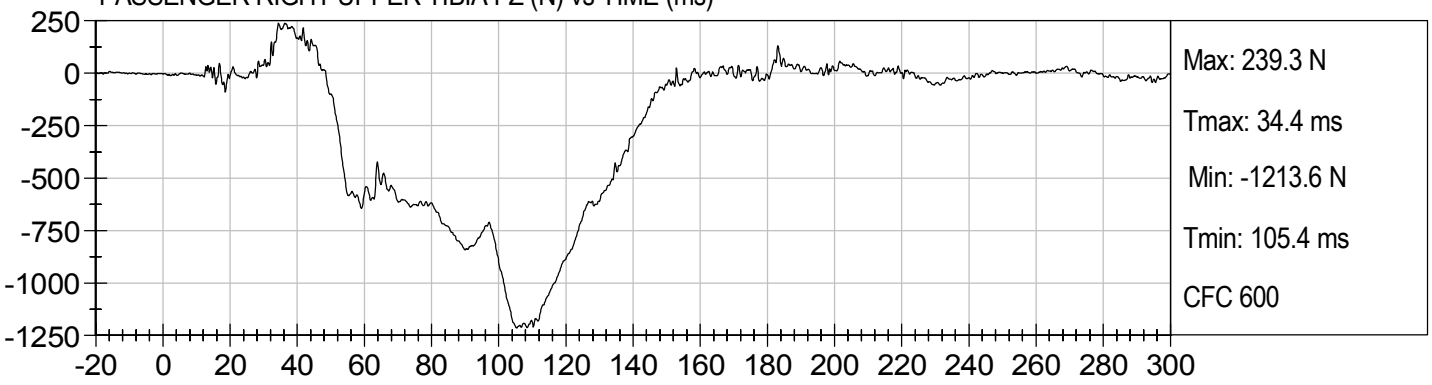
PASSENGER RIGHT UPPER TIBIA FX (N) vs TIME (ms)



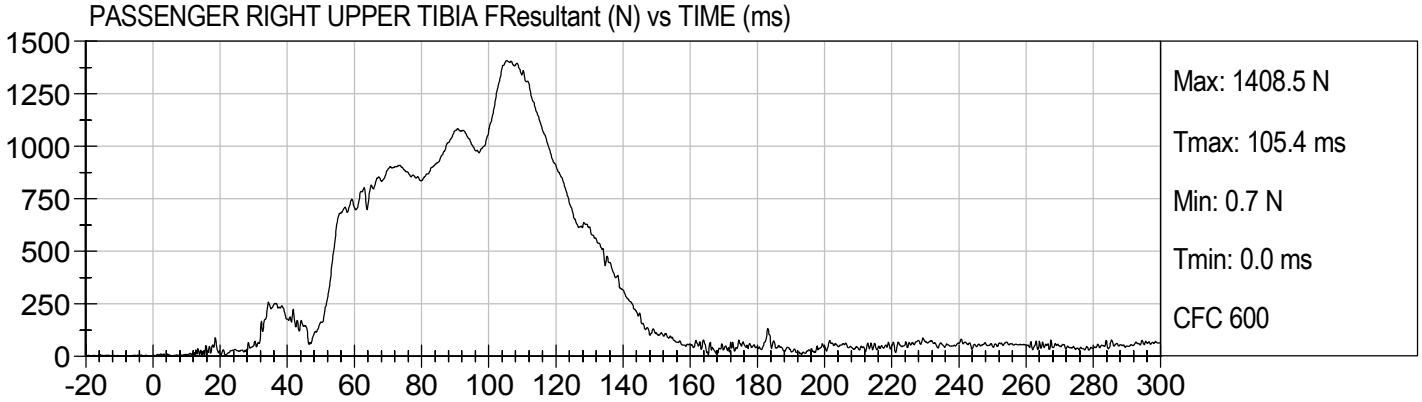
PASSENGER RIGHT UPPER TIBIA FY (N) vs TIME (ms)



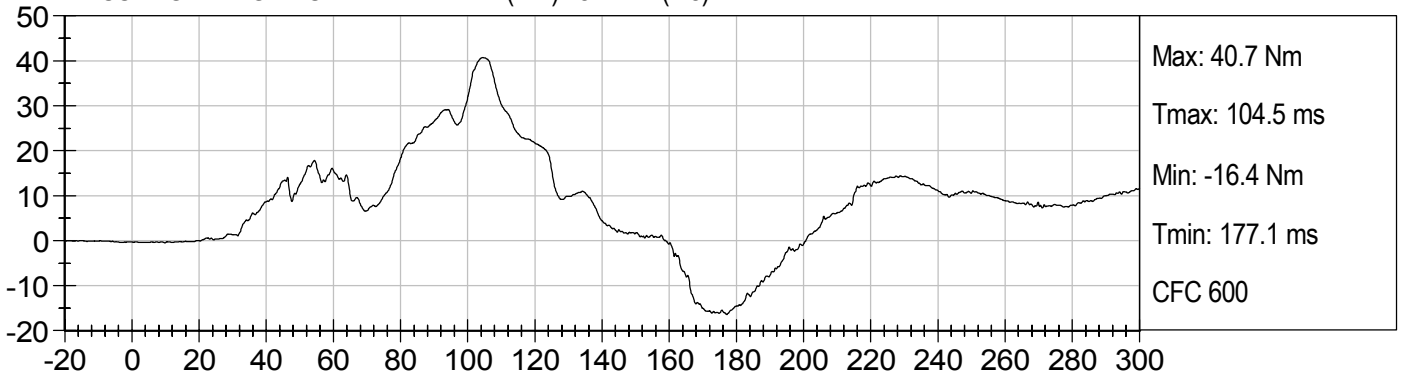
PASSENGER RIGHT UPPER TIBIA FZ (N) vs TIME (ms)



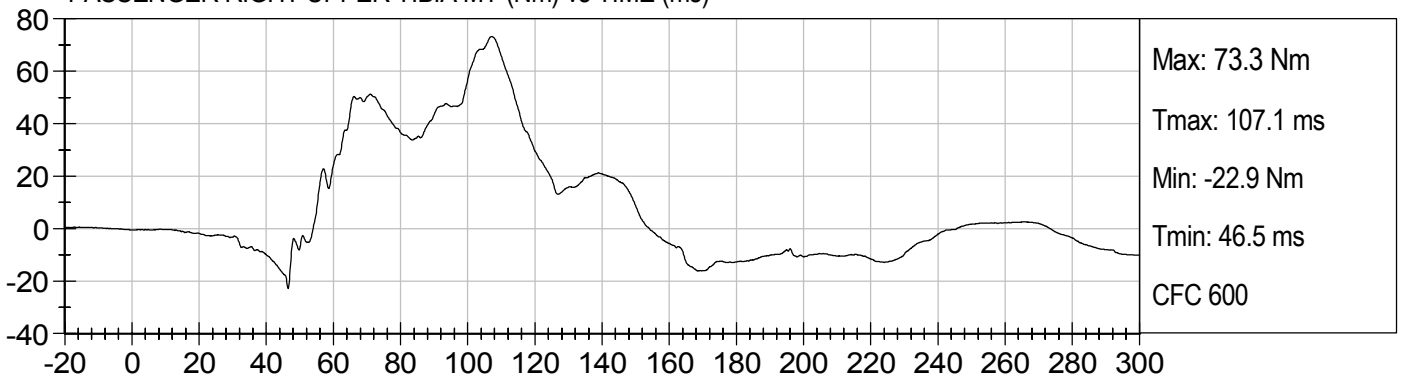
PASSENGER RIGHT UPPER TIBIA FResultant (N) vs TIME (ms)



PASSENGER RIGHT UPPER TIBIA MX (Nm) vs TIME (ms)



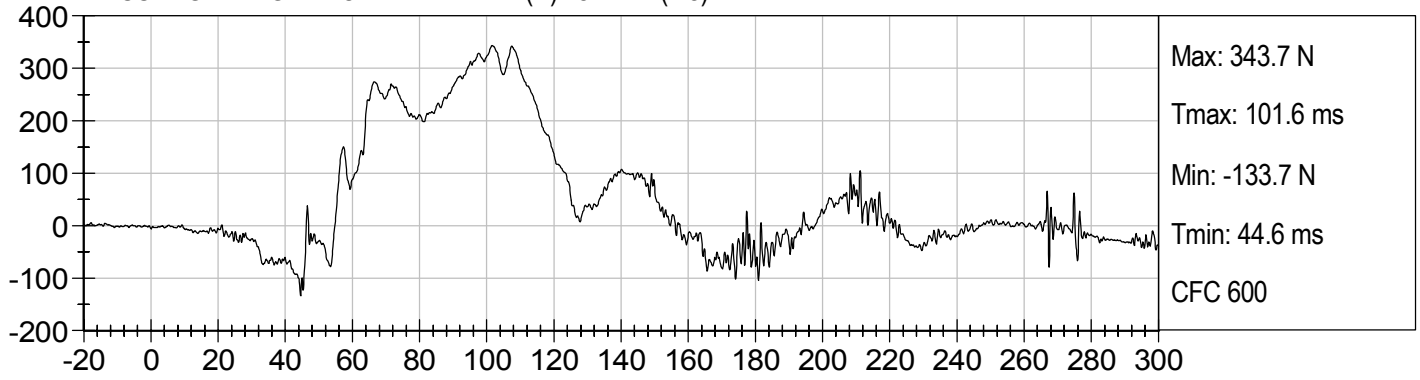
PASSENGER RIGHT UPPER TIBIA MY (Nm) vs TIME (ms)



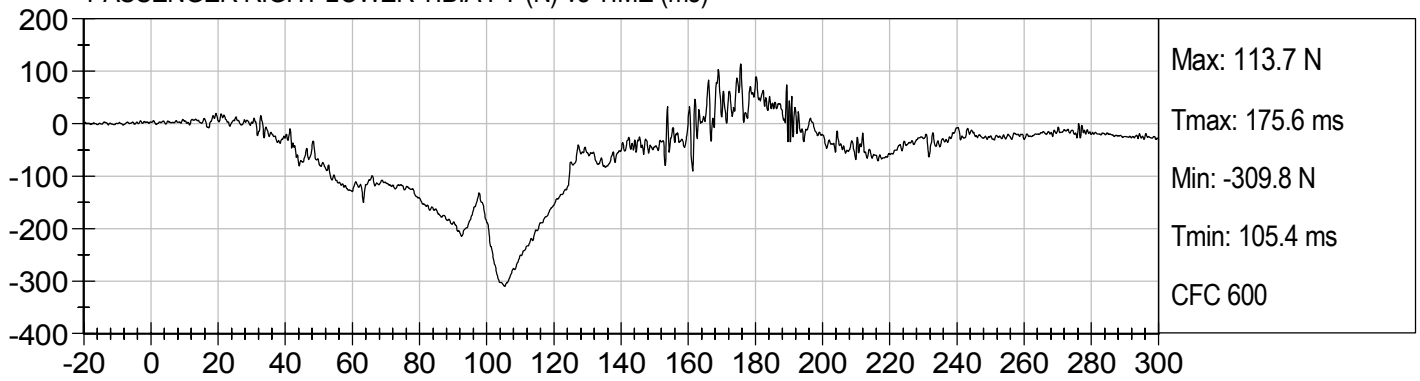
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

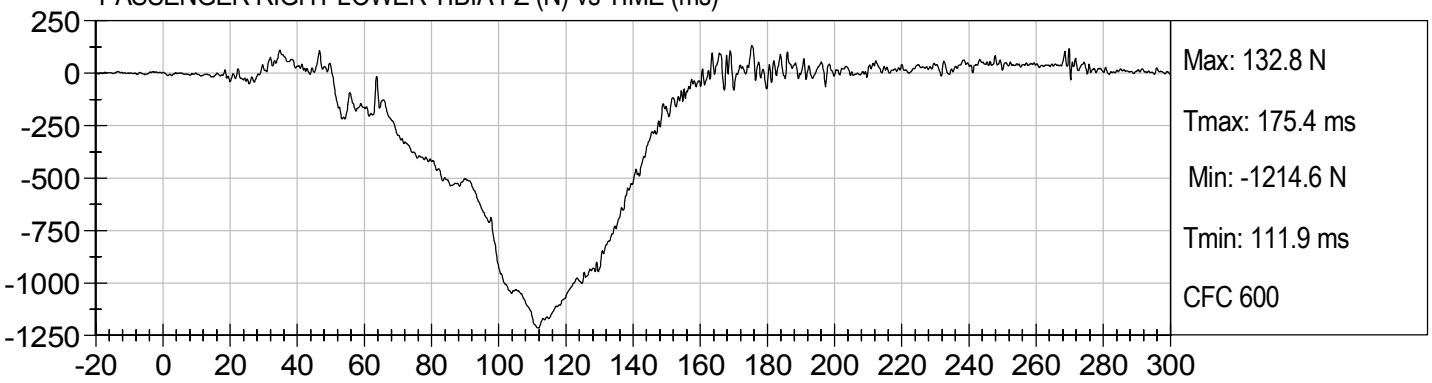
PASSENGER RIGHT LOWER TIBIA FX (N) vs TIME (ms)



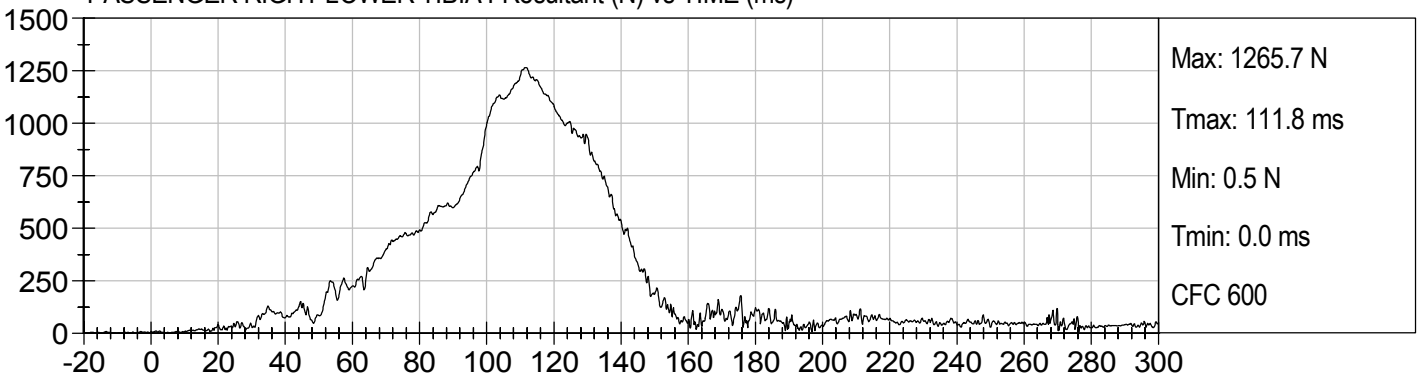
PASSENGER RIGHT LOWER TIBIA FY (N) vs TIME (ms)



PASSENGER RIGHT LOWER TIBIA FZ (N) vs TIME (ms)



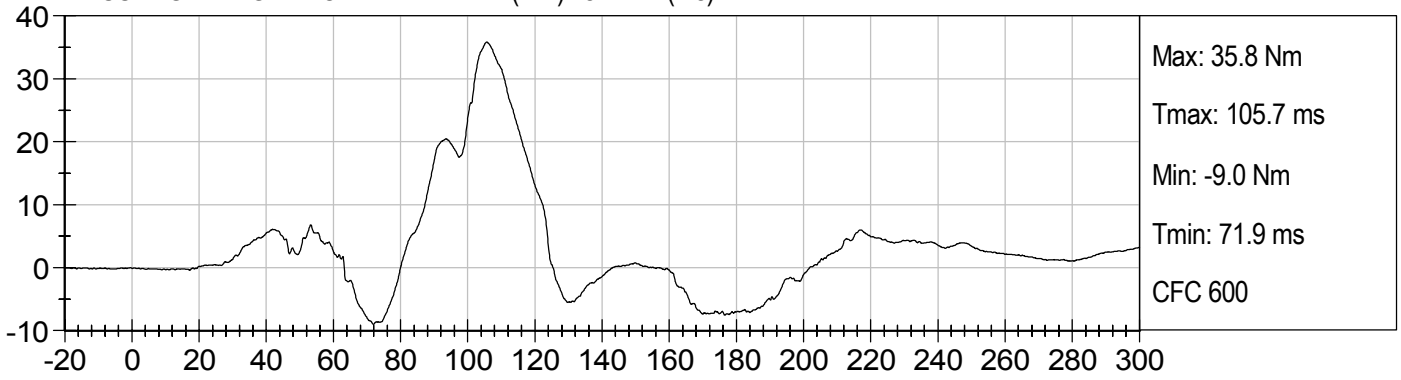
PASSENGER RIGHT LOWER TIBIA FResultant (N) vs TIME (ms)



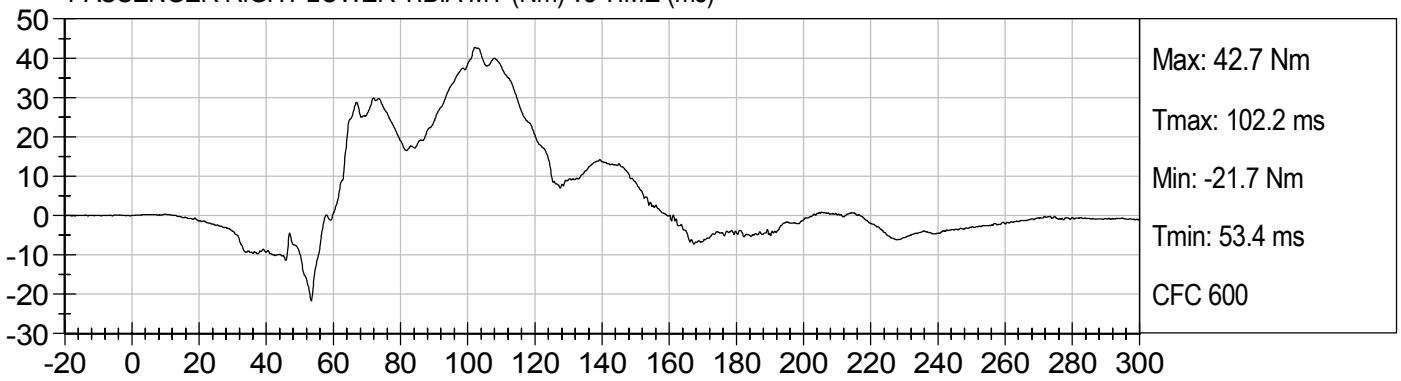
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

PASSENGER RIGHT LOWER TIBIA MX (Nm) vs TIME (ms)



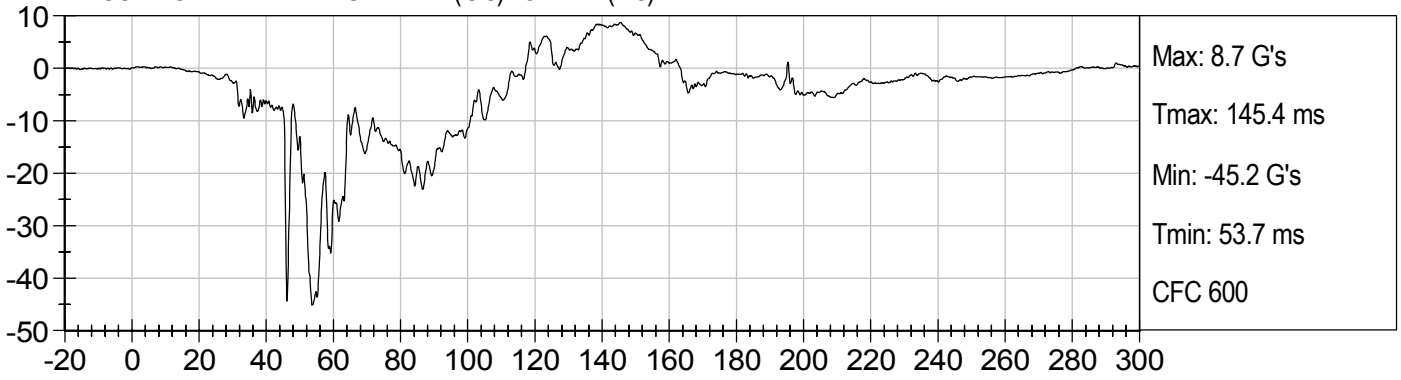
PASSENGER RIGHT LOWER TIBIA MY (Nm) vs TIME (ms)



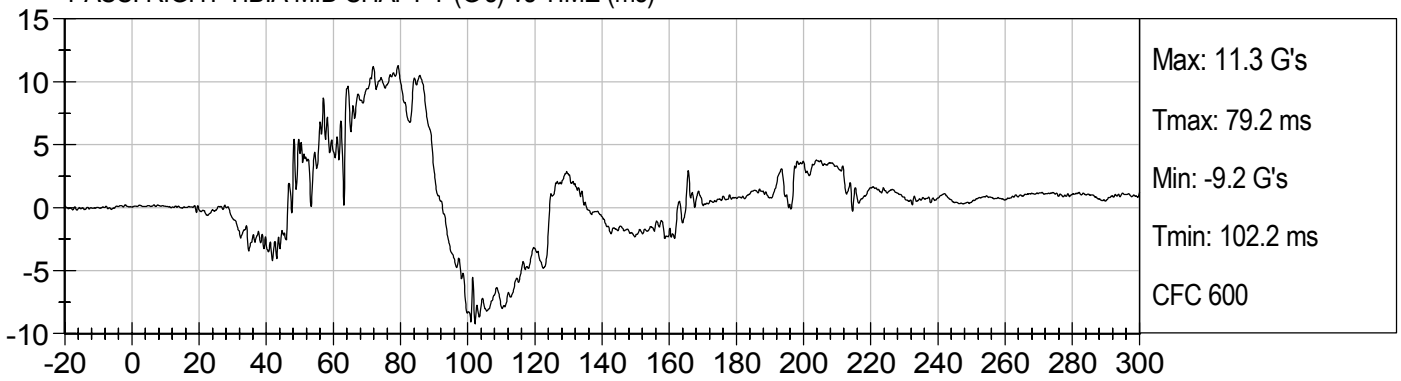
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

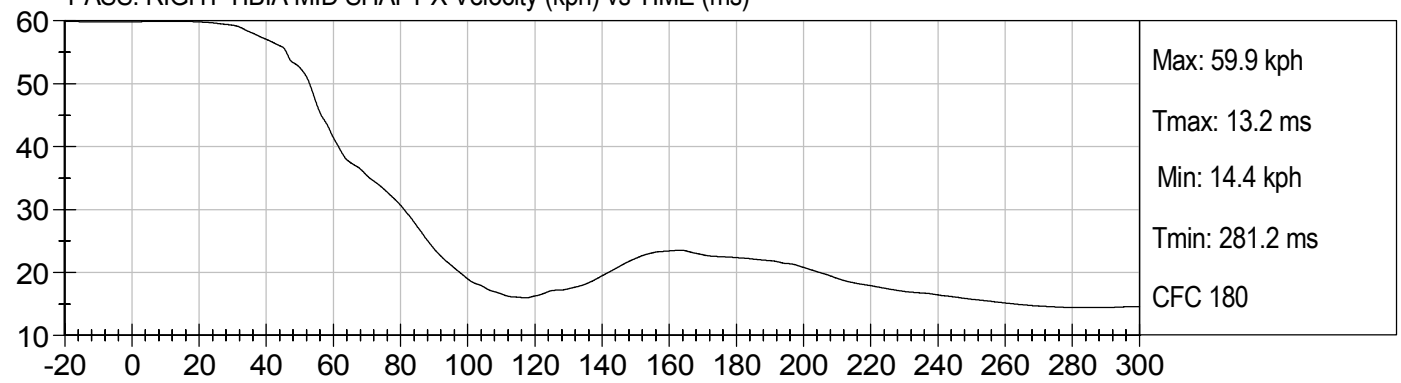
PASS. RIGHT TIBIA MID SHAFT X (G's) vs TIME (ms)



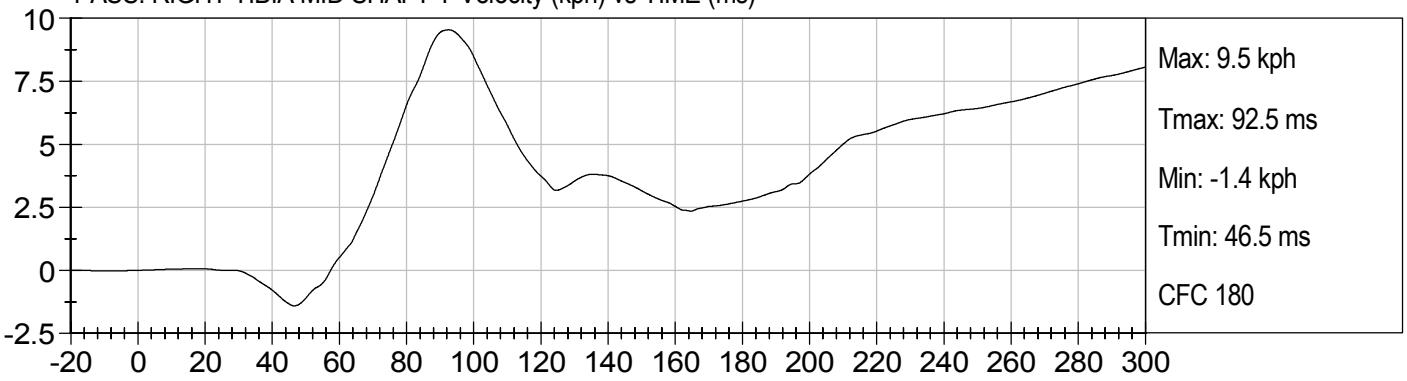
PASS. RIGHT TIBIA MID SHAFT Y (G's) vs TIME (ms)



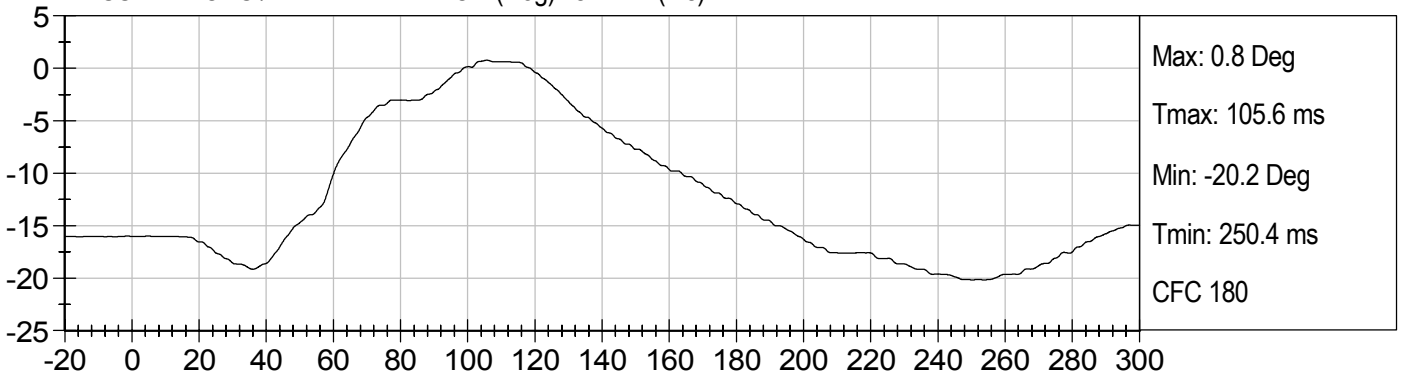
PASS. RIGHT TIBIA MID SHAFT X Velocity (kph) vs TIME (ms)



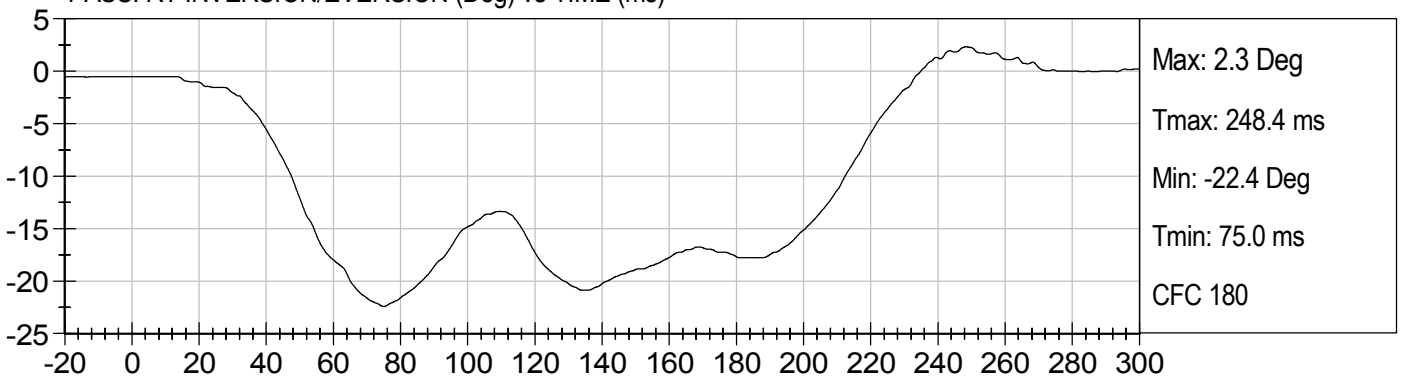
PASS. RIGHT TIBIA MID SHAFT Y Velocity (kph) vs TIME (ms)



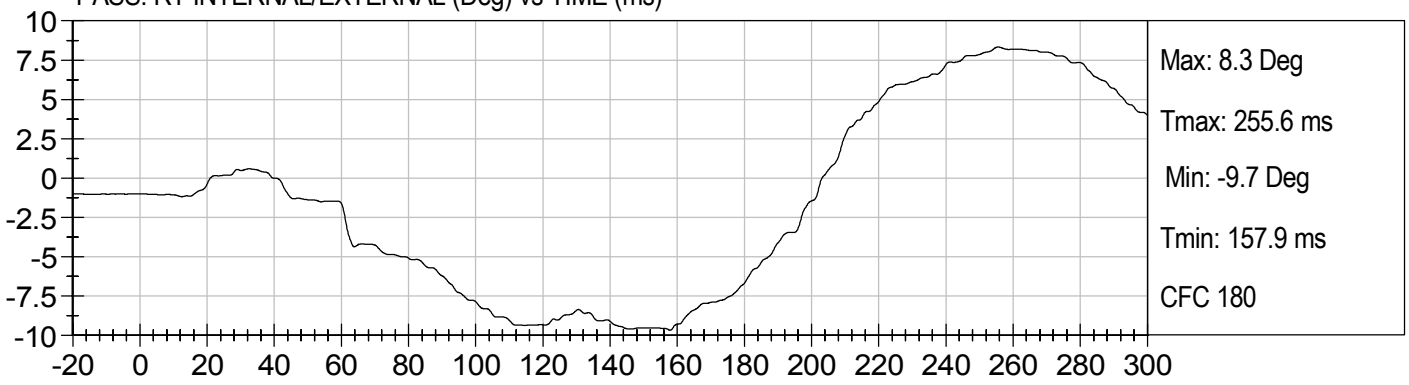
PASS. RT DORSI/PLANTAR FLEXION (Deg) vs TIME (ms)



PASS. RT INVERSION/EVERSION (Deg) vs TIME (ms)



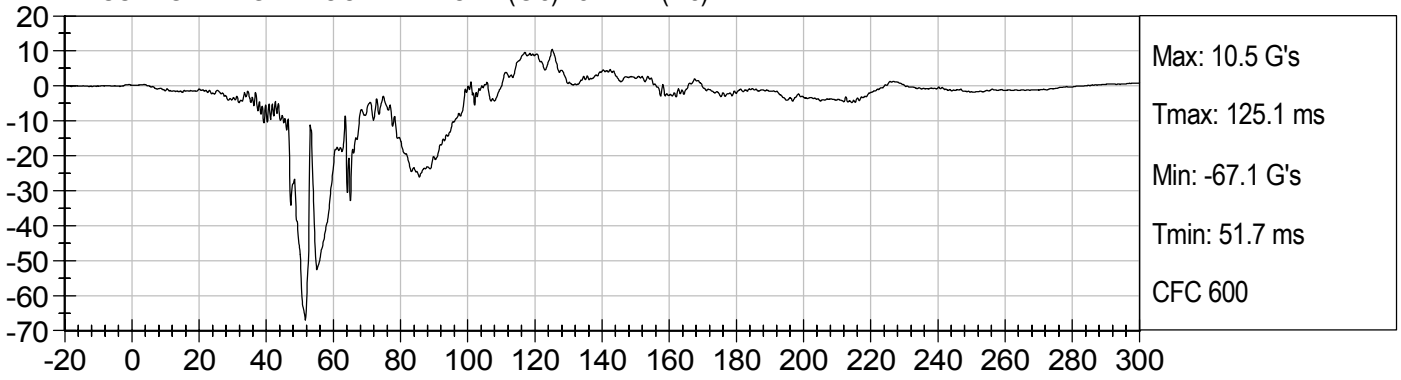
PASS. RT INTERNAL/EXTERNAL (Deg) vs TIME (ms)



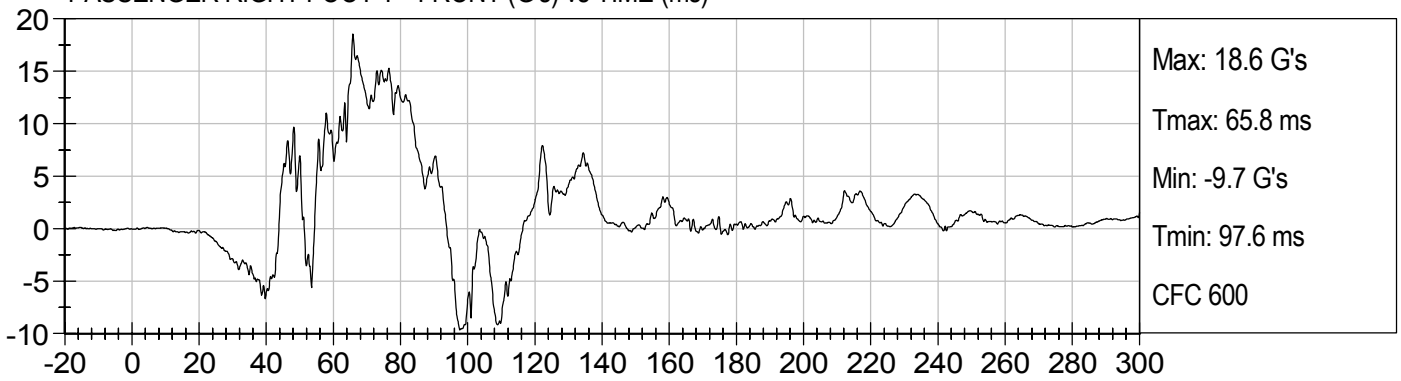
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

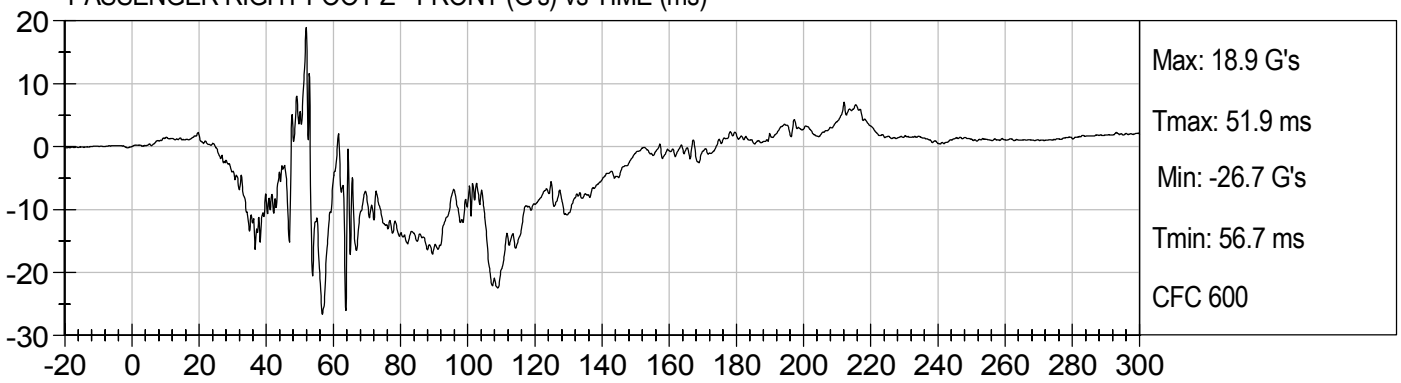
PASSENGER RIGHT FOOT X - FRONT (G's) vs TIME (ms)



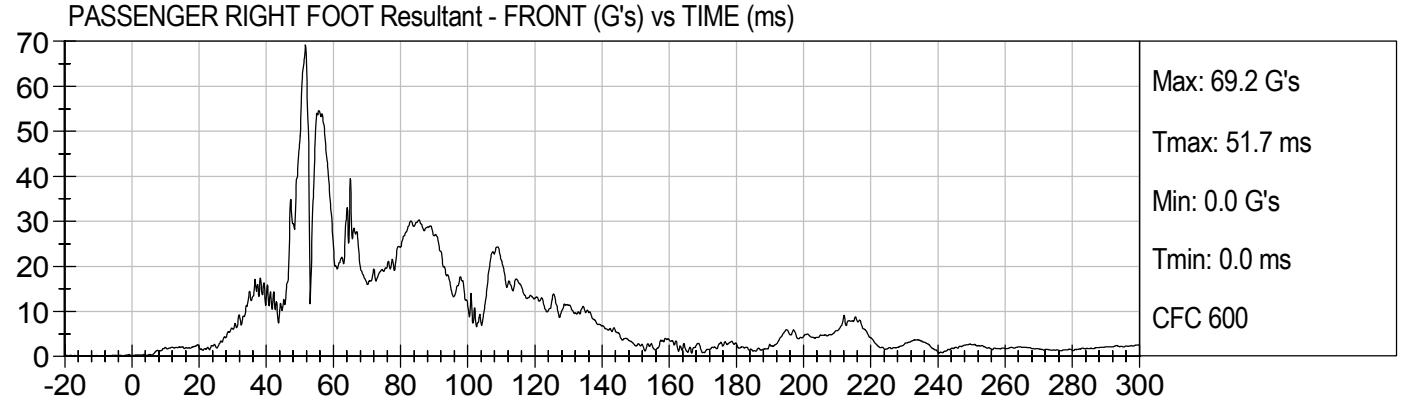
PASSENGER RIGHT FOOT Y - FRONT (G's) vs TIME (ms)



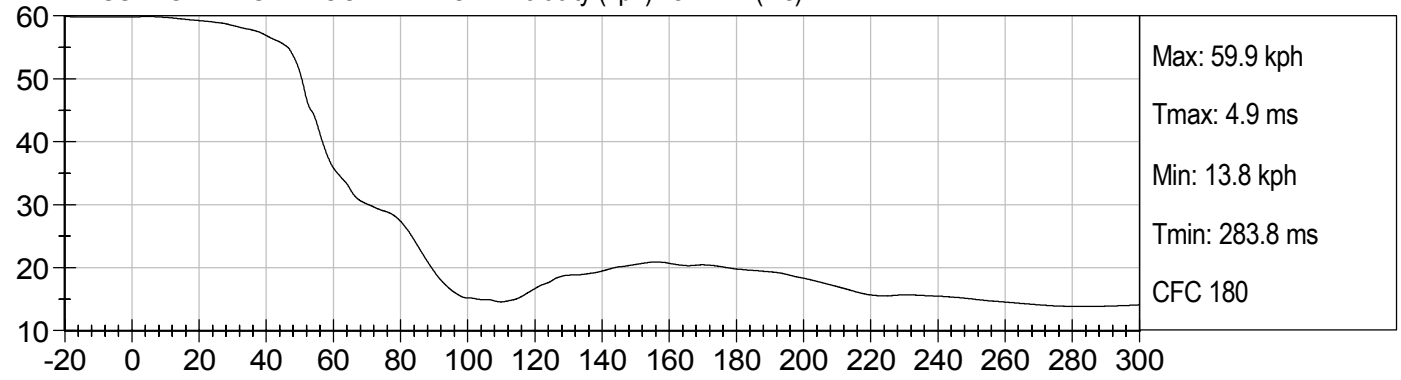
PASSENGER RIGHT FOOT Z - FRONT (G's) vs TIME (ms)



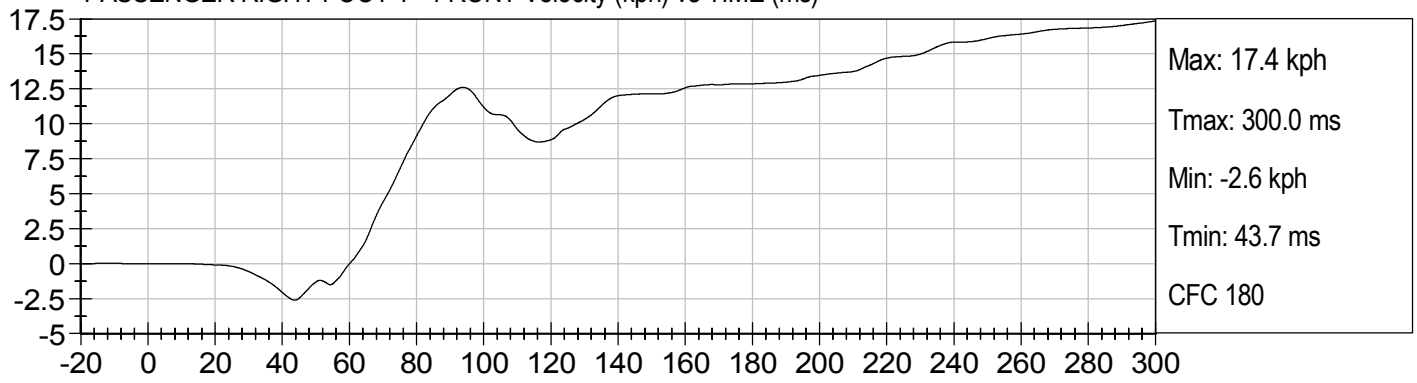
PASSENGER RIGHT FOOT Resultant - FRONT (G's) vs TIME (ms)



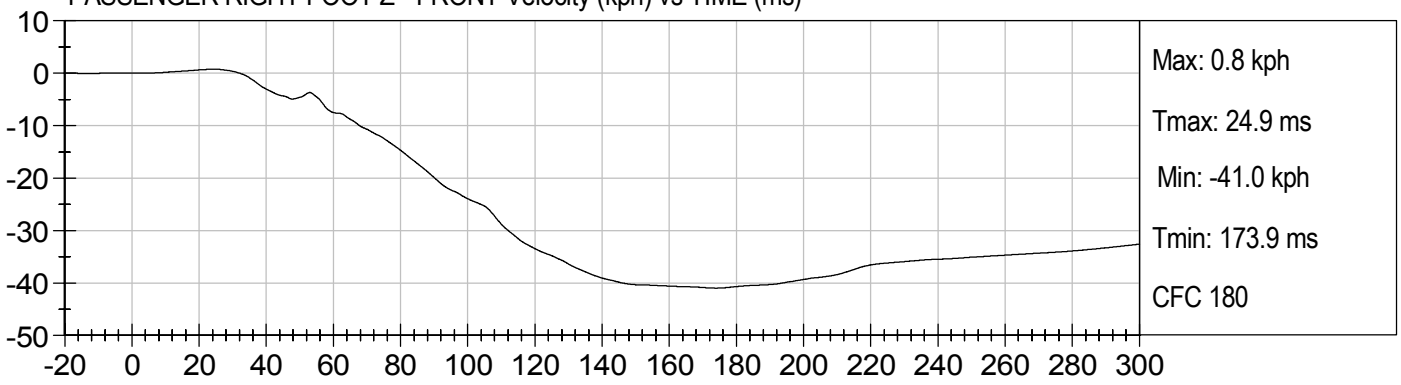
PASSENGER RIGHT FOOT X - FRONT Velocity (kph) vs TIME (ms)



PASSENGER RIGHT FOOT Y - FRONT Velocity (kph) vs TIME (ms)



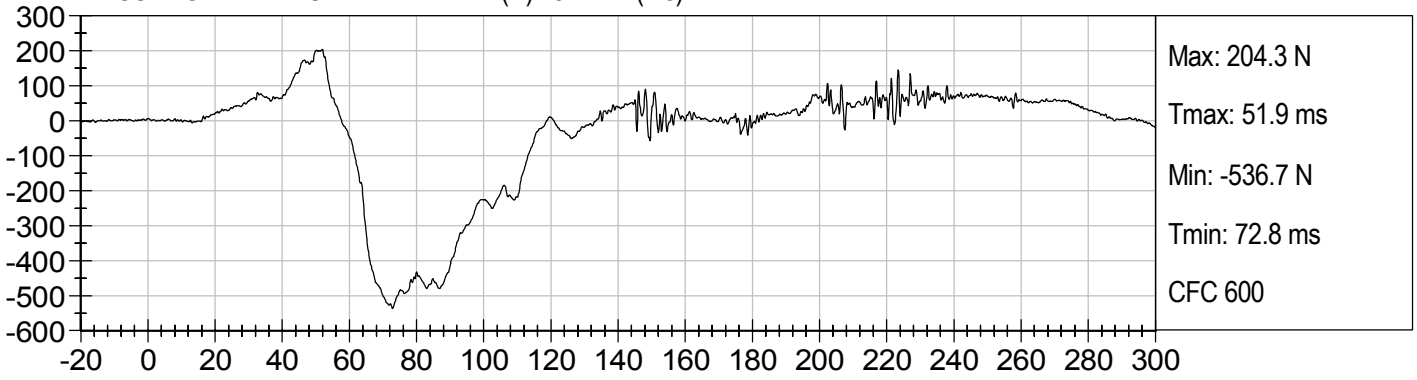
PASSENGER RIGHT FOOT Z - FRONT Velocity (kph) vs TIME (ms)



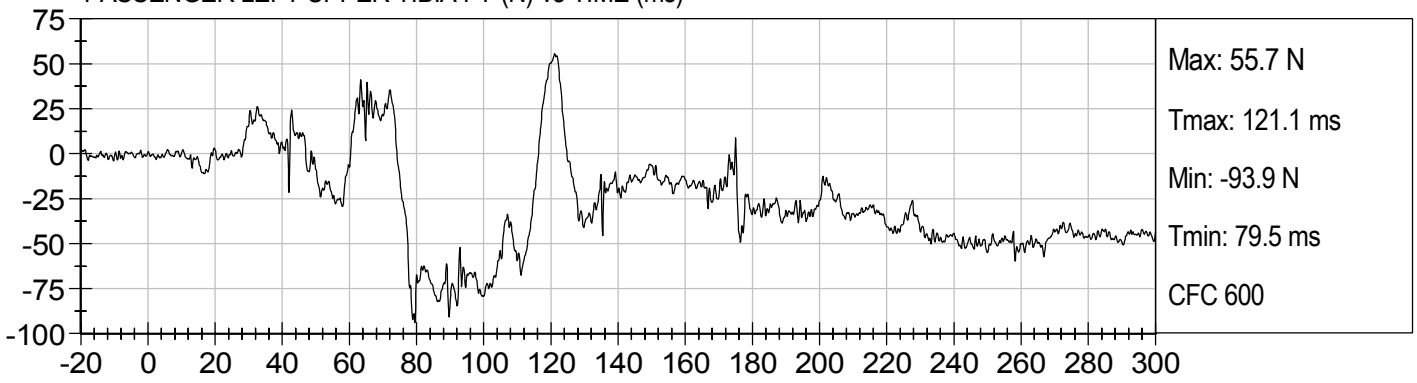
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

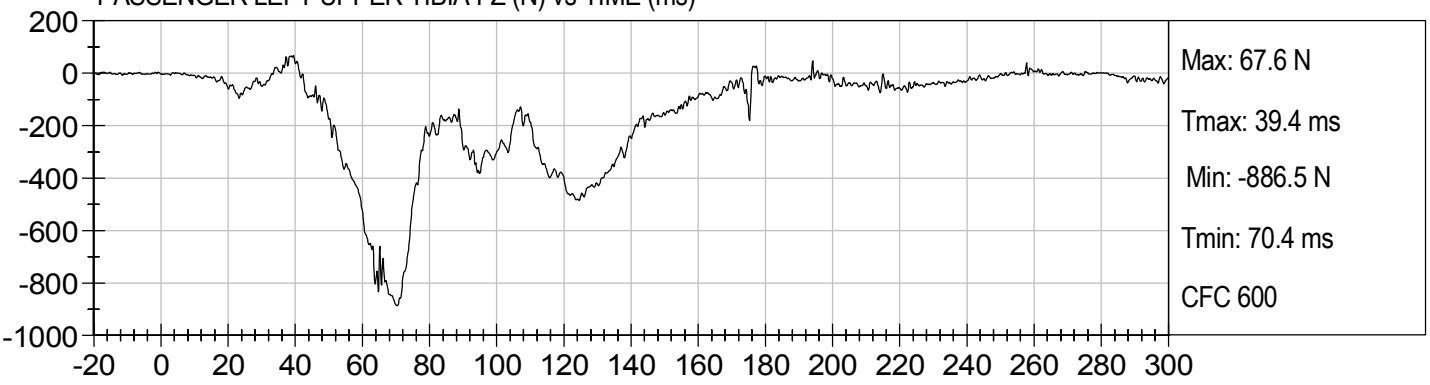
PASSENGER LEFT UPPER TIBIA FX (N) vs TIME (ms)



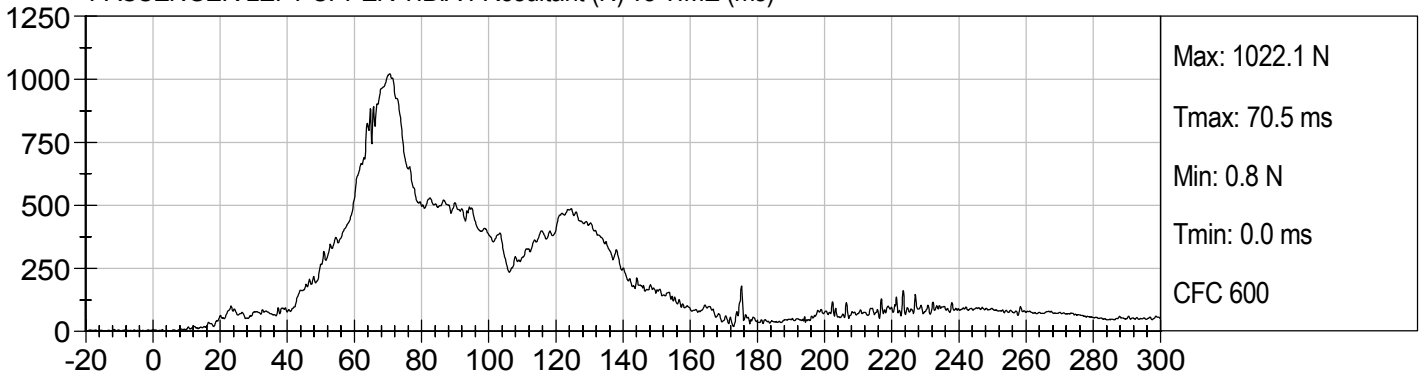
PASSENGER LEFT UPPER TIBIA FY (N) vs TIME (ms)



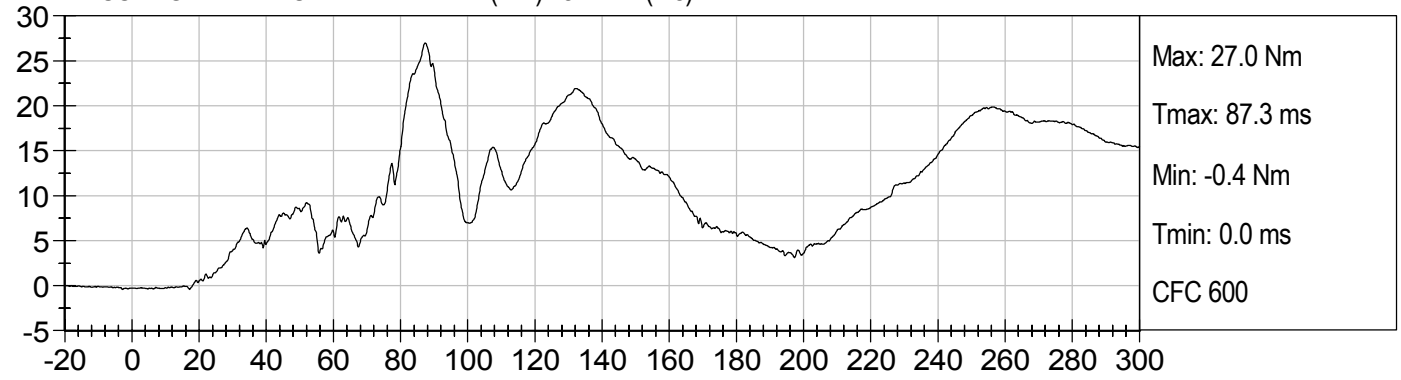
PASSENGER LEFT UPPER TIBIA FZ (N) vs TIME (ms)



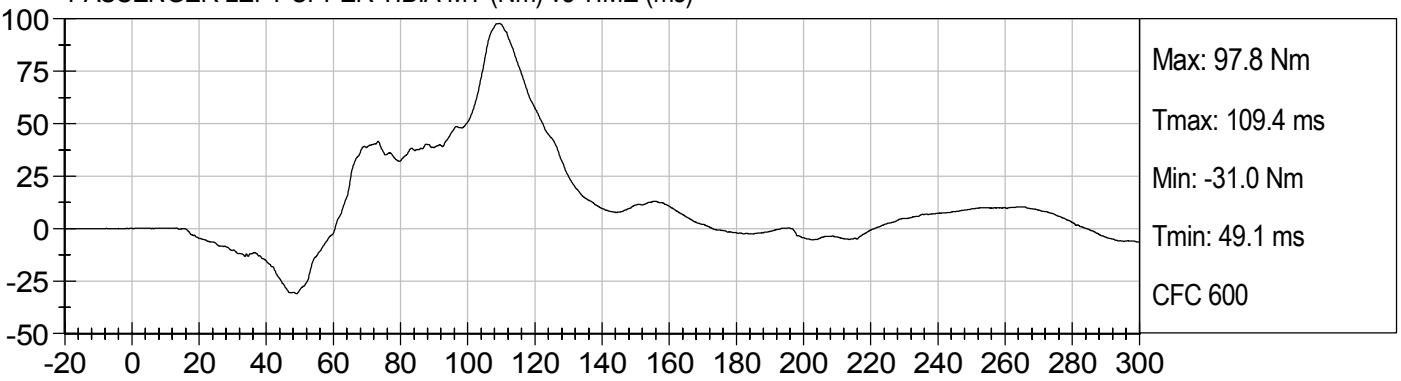
PASSENGER LEFT UPPER TIBIA FResultant (N) vs TIME (ms)



PASSENGER LEFT UPPER TIBIA MX (Nm) vs TIME (ms)



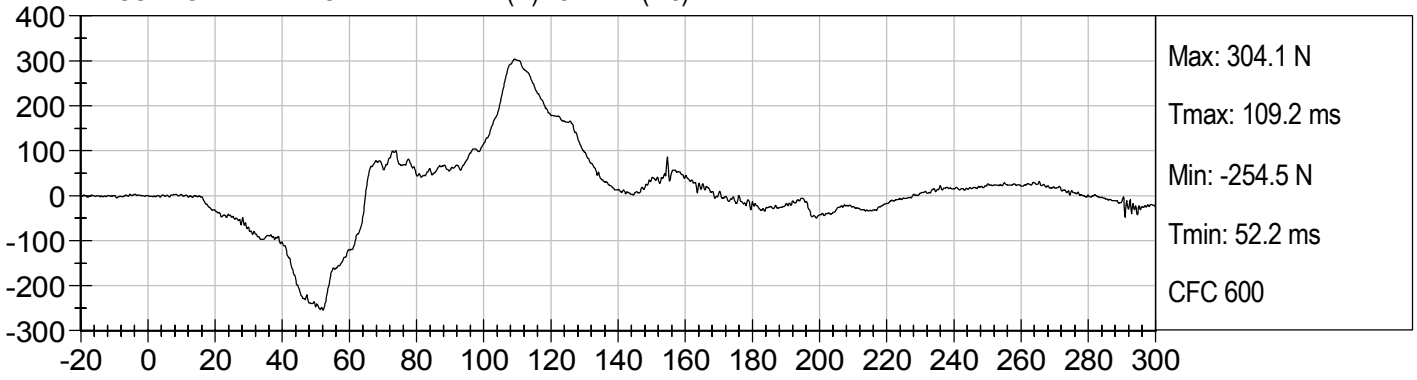
PASSENGER LEFT UPPER TIBIA MY (Nm) vs TIME (ms)



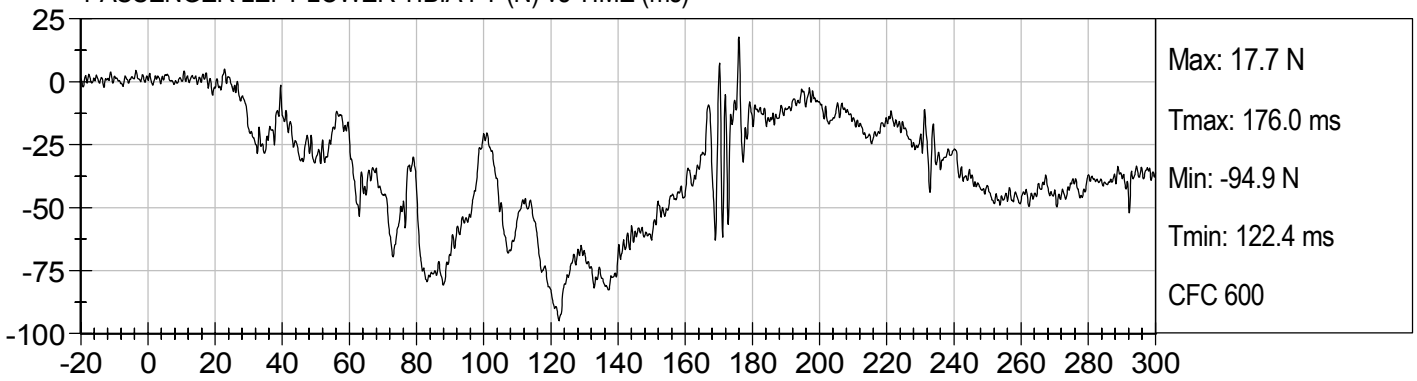
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

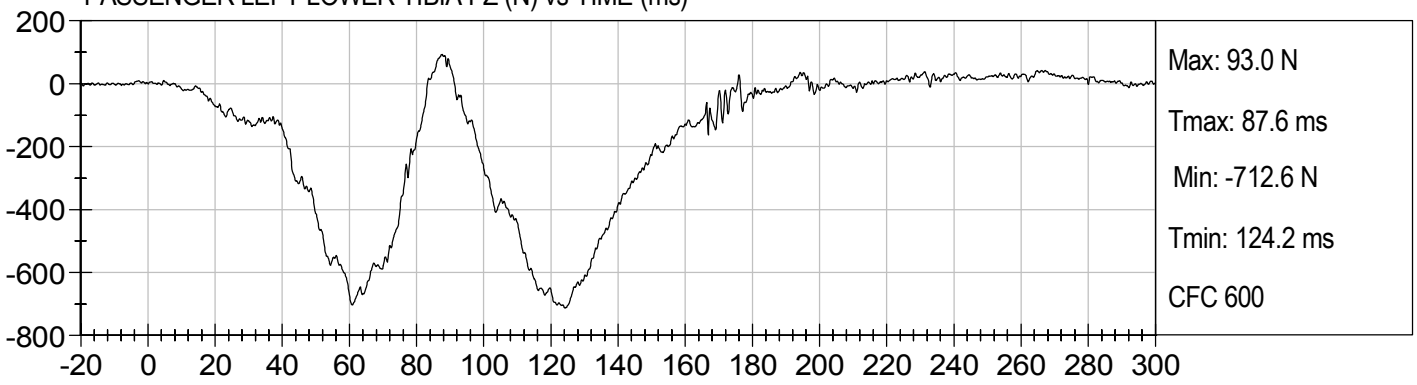
PASSENGER LEFT LOWER TIBIA FX (N) vs TIME (ms)



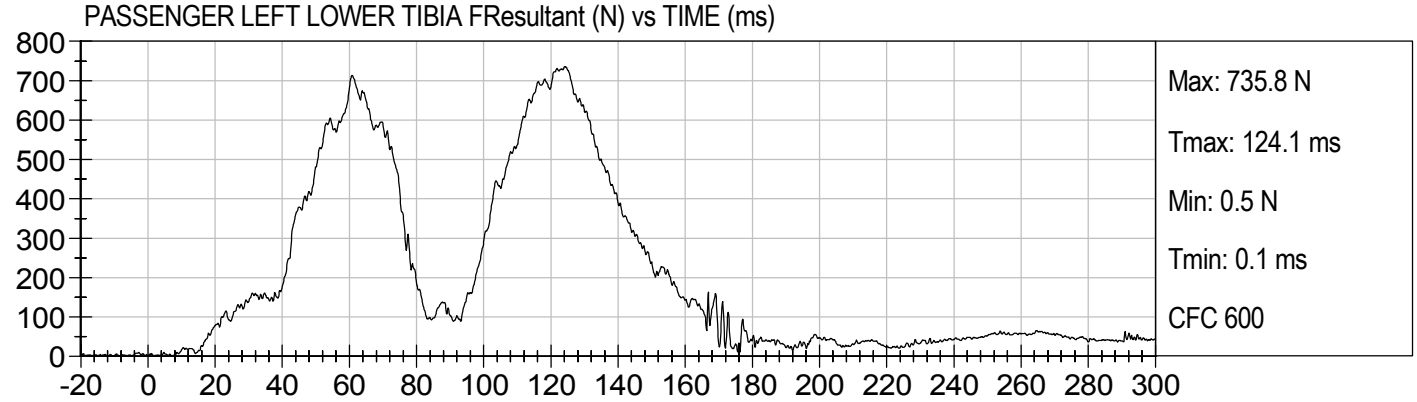
PASSENGER LEFT LOWER TIBIA FY (N) vs TIME (ms)



PASSENGER LEFT LOWER TIBIA FZ (N) vs TIME (ms)



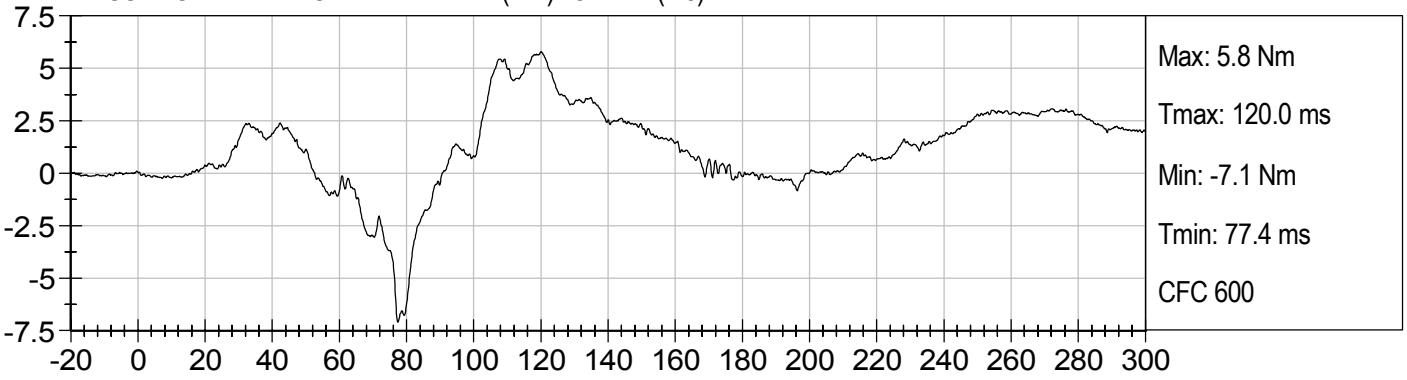
PASSENGER LEFT LOWER TIBIA FResultant (N) vs TIME (ms)



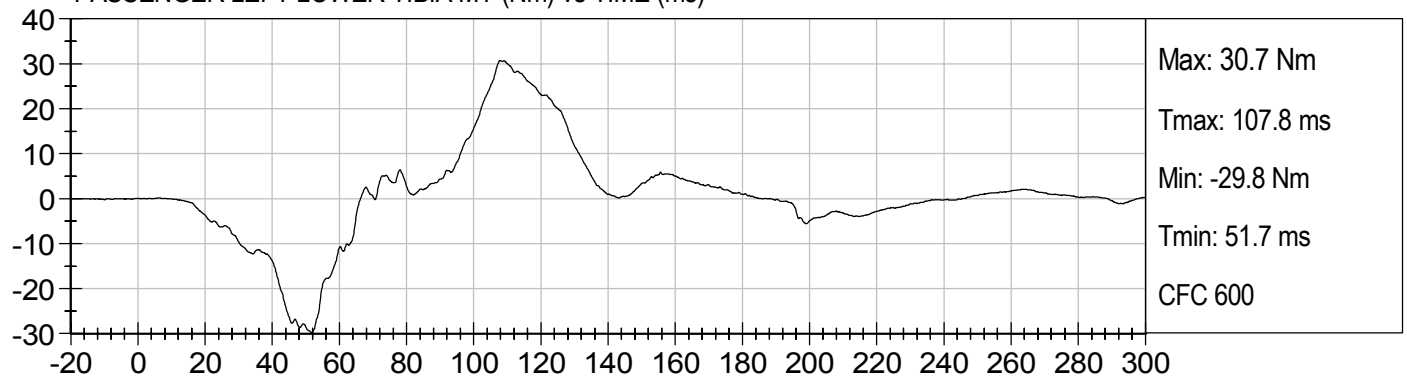
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

PASSENGER LEFT LOWER TIBIA MX (Nm) vs TIME (ms)



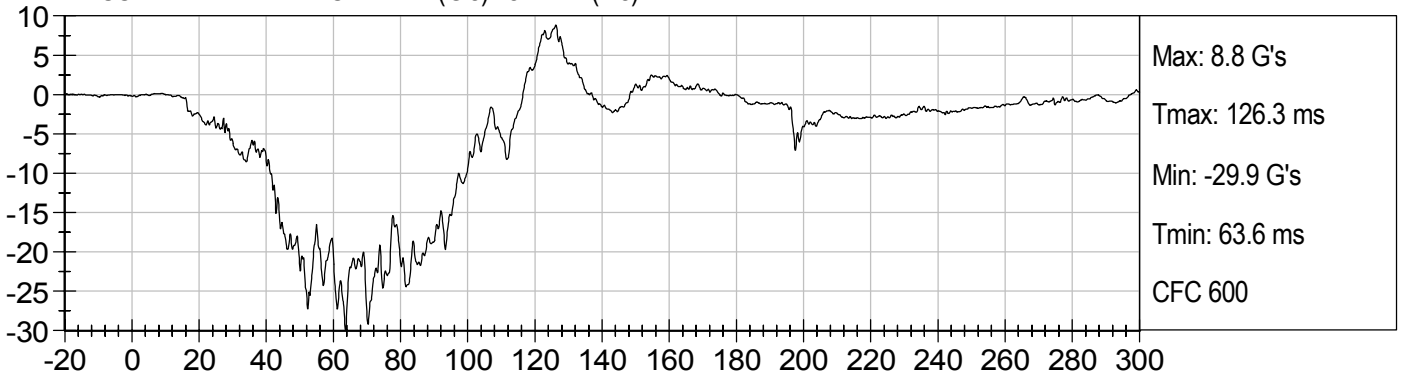
PASSENGER LEFT LOWER TIBIA MY (Nm) vs TIME (ms)



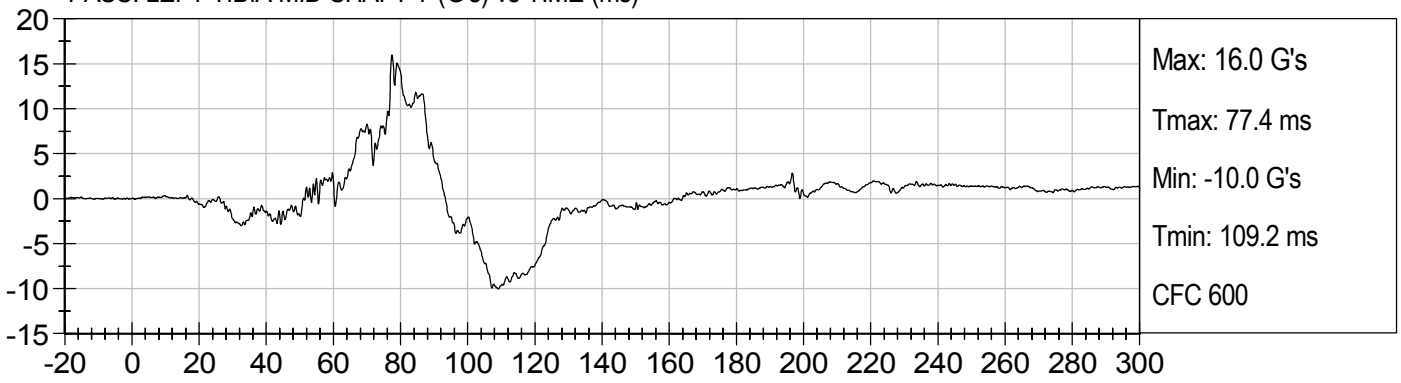
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

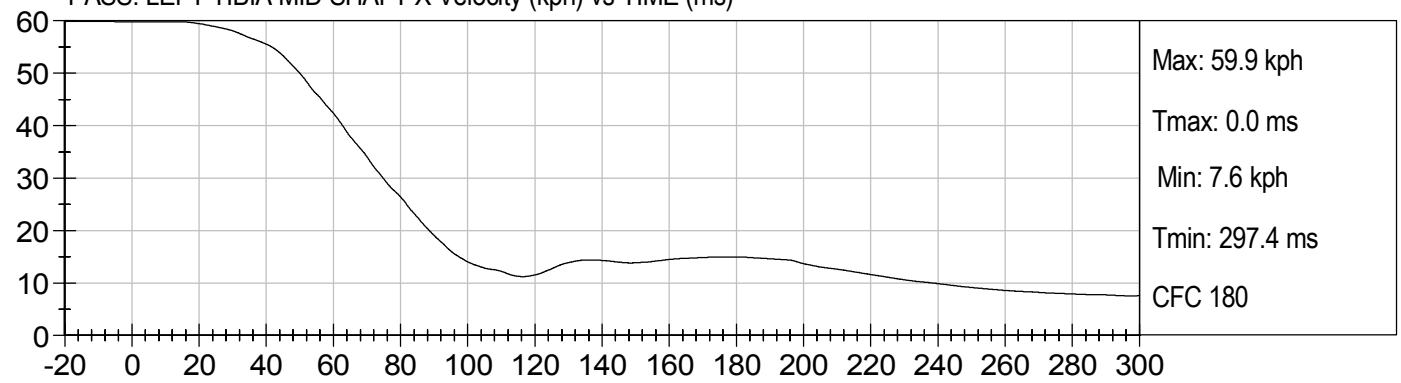
PASS. LEFT TIBIA MID SHAFT X (G's) vs TIME (ms)



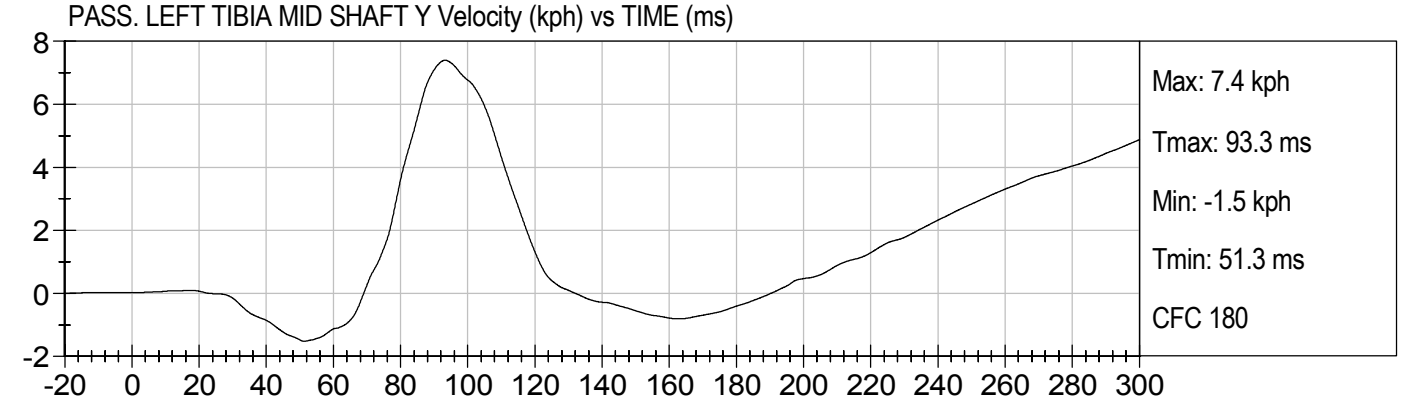
PASS. LEFT TIBIA MID SHAFT Y (G's) vs TIME (ms)



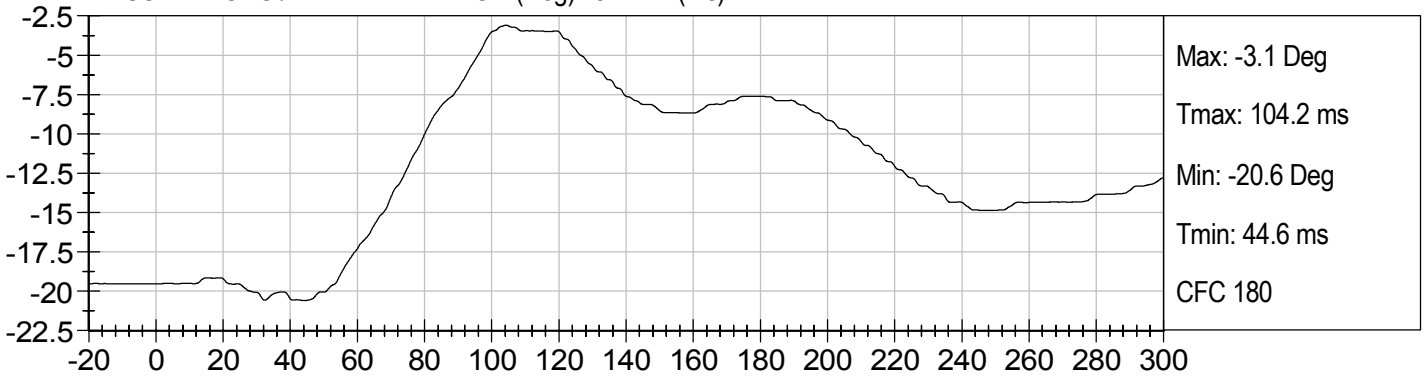
PASS. LEFT TIBIA MID SHAFT X Velocity (kph) vs TIME (ms)



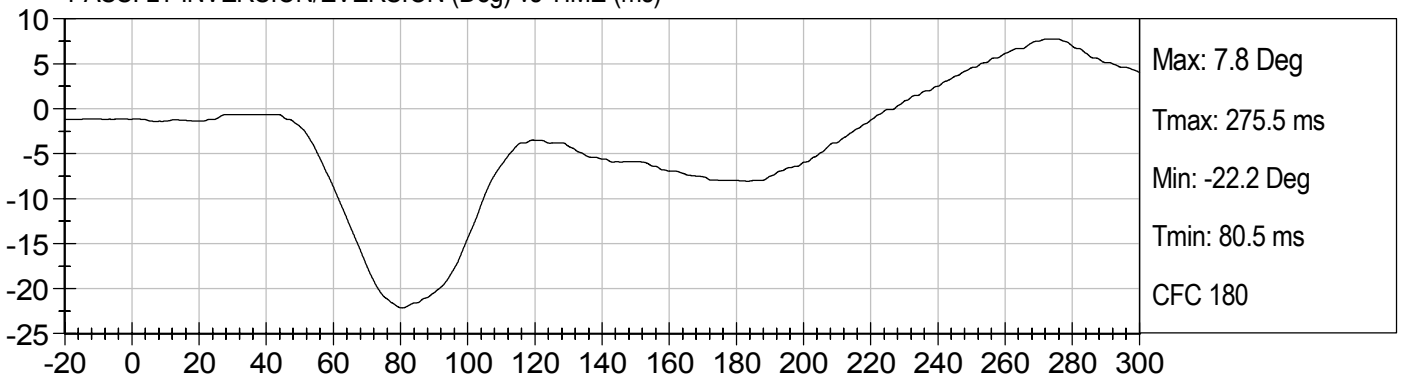
PASS. LEFT TIBIA MID SHAFT Y Velocity (kph) vs TIME (ms)



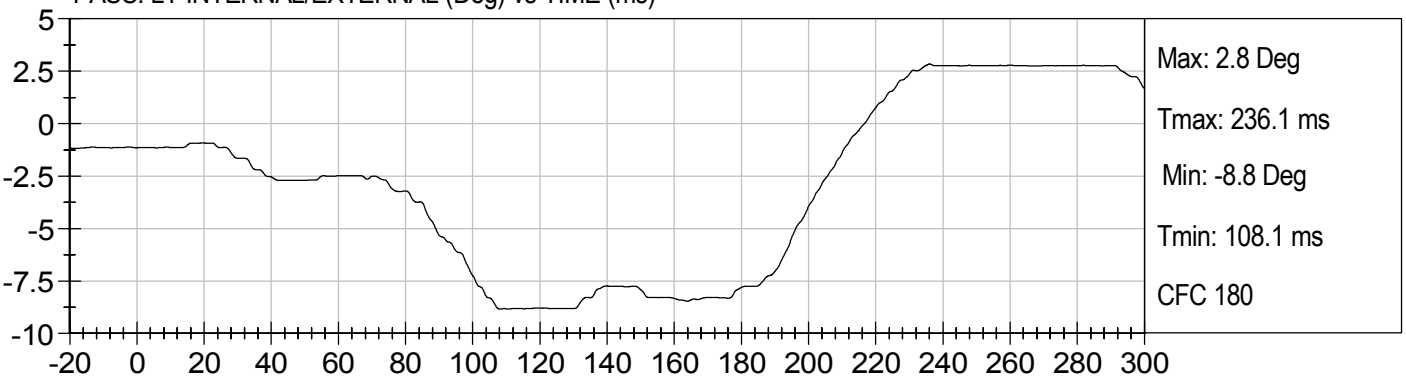
PASS. LT DORSI/PLANTAR FLEXION (Deg) vs TIME (ms)



PASS. LT INVERSION/EVERSION (Deg) vs TIME (ms)



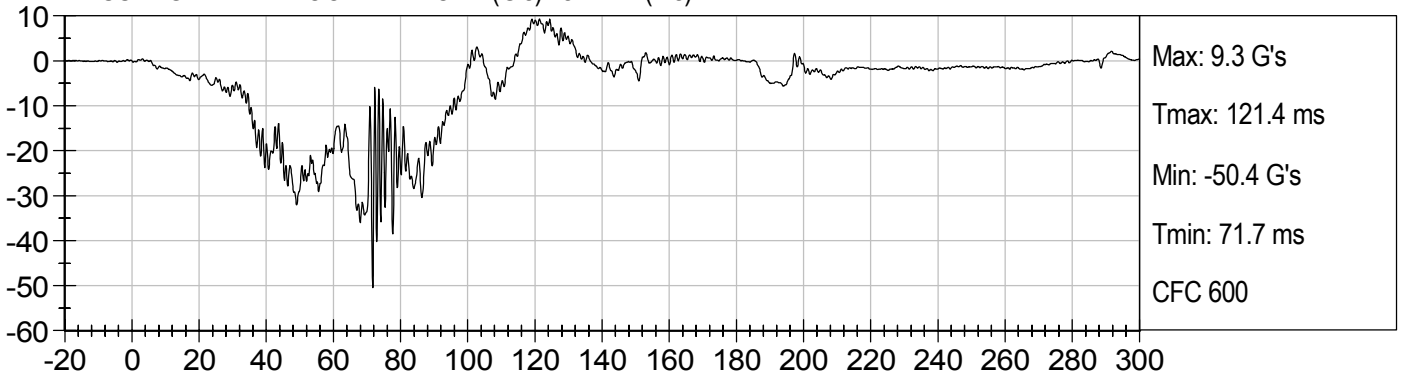
PASS. LT INTERNAL/EXTERNAL (Deg) vs TIME (ms)



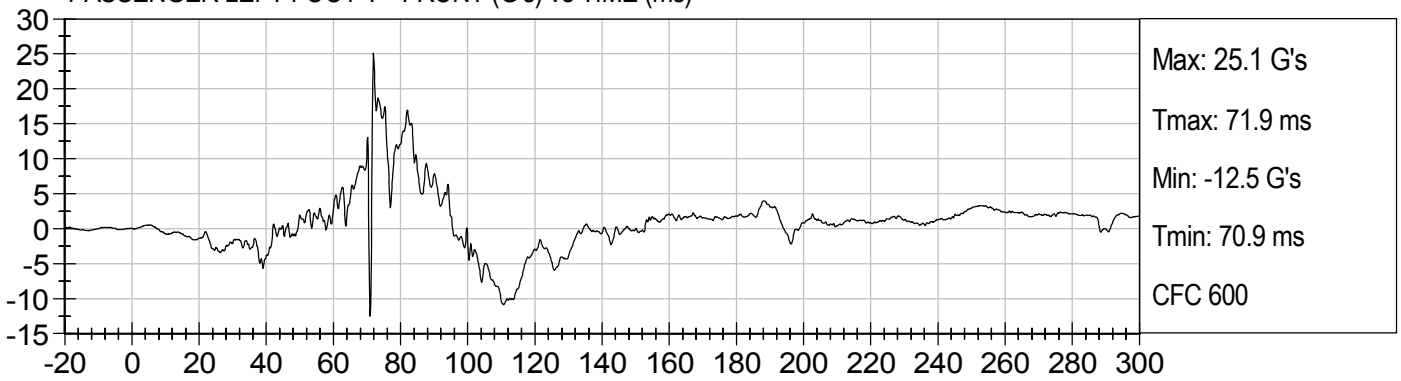
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

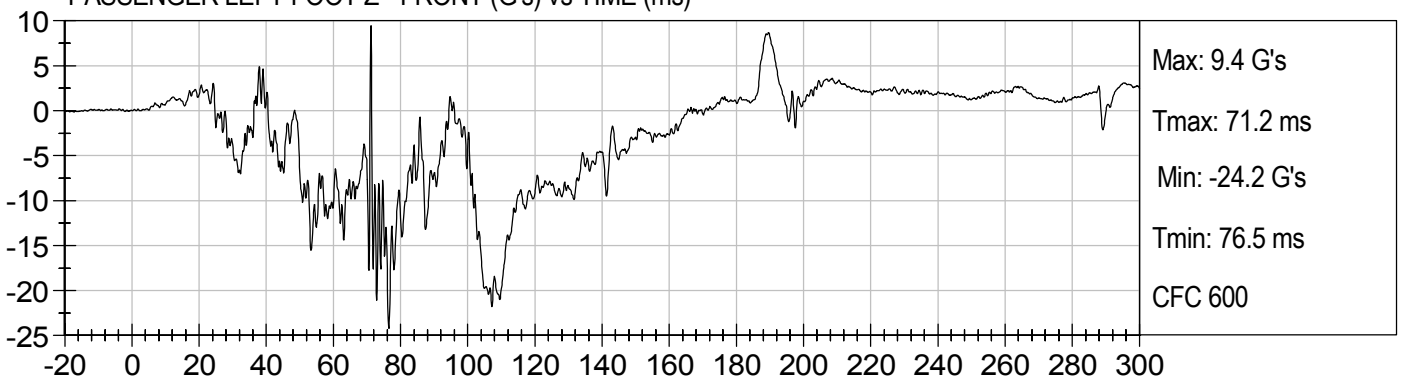
PASSENGER LEFT FOOT X - FRONT (G's) vs TIME (ms)



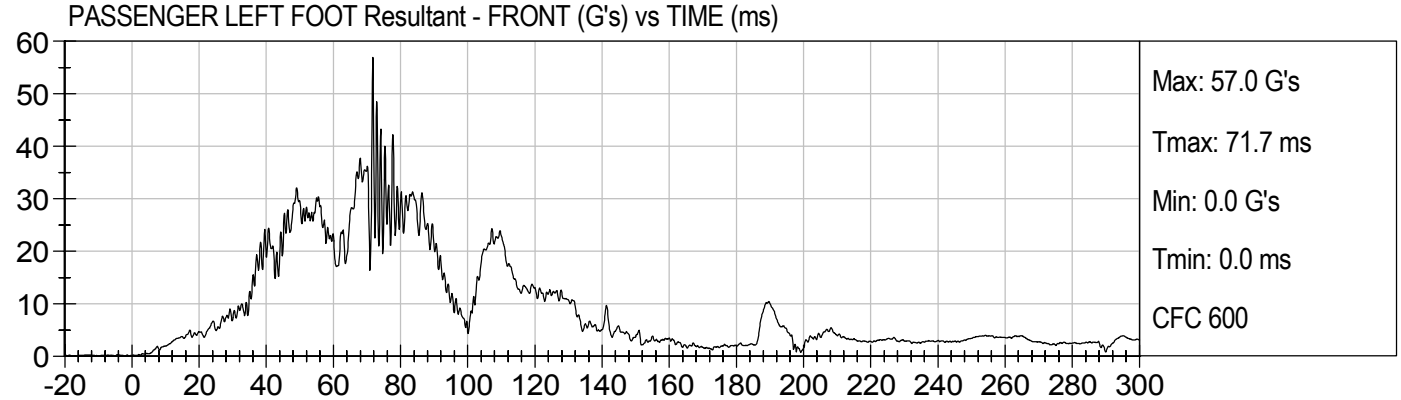
PASSENGER LEFT FOOT Y - FRONT (G's) vs TIME (ms)



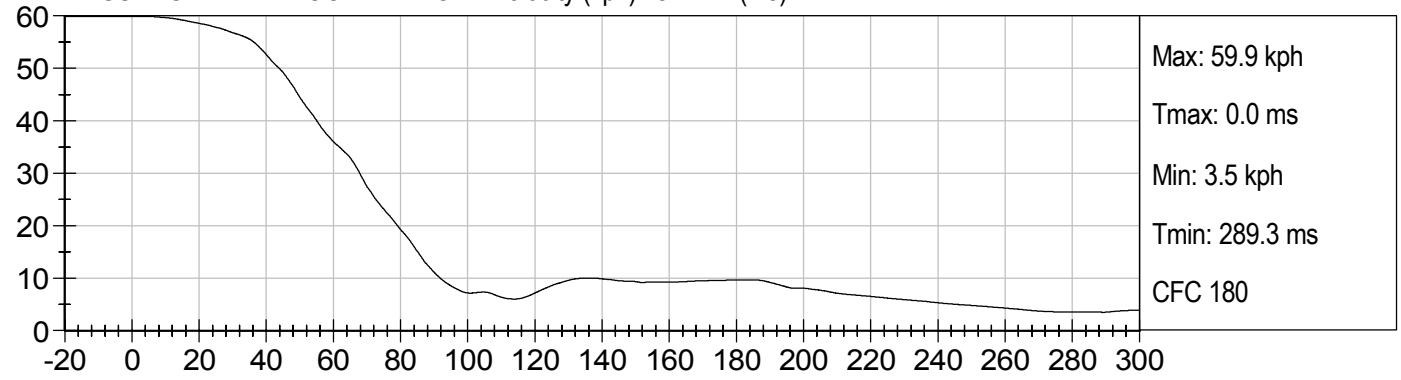
PASSENGER LEFT FOOT Z - FRONT (G's) vs TIME (ms)



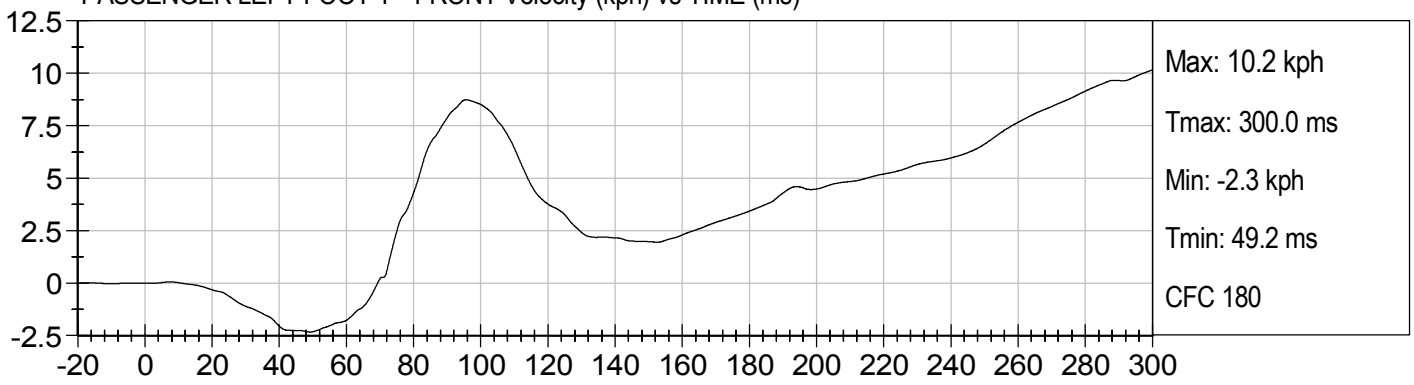
PASSENGER LEFT FOOT Resultant - FRONT (G's) vs TIME (ms)



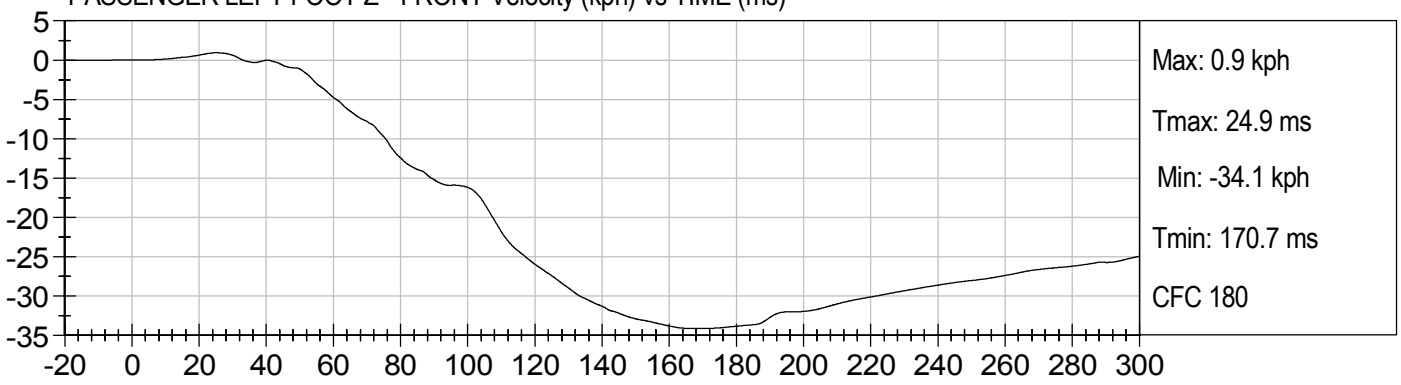
PASSENGER LEFT FOOT X - FRONT Velocity (kph) vs TIME (ms)



PASSENGER LEFT FOOT Y - FRONT Velocity (kph) vs TIME (ms)



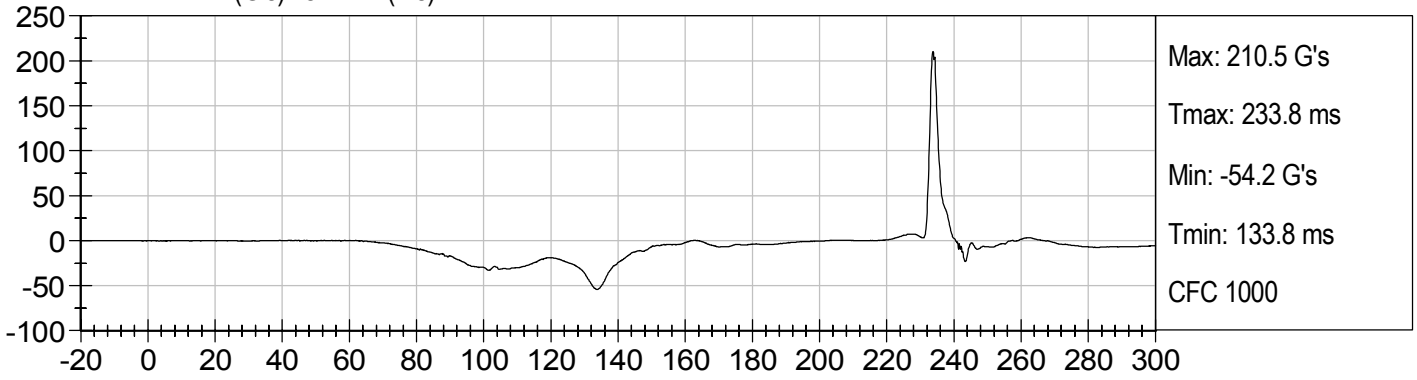
PASSENGER LEFT FOOT Z - FRONT Velocity (kph) vs TIME (ms)



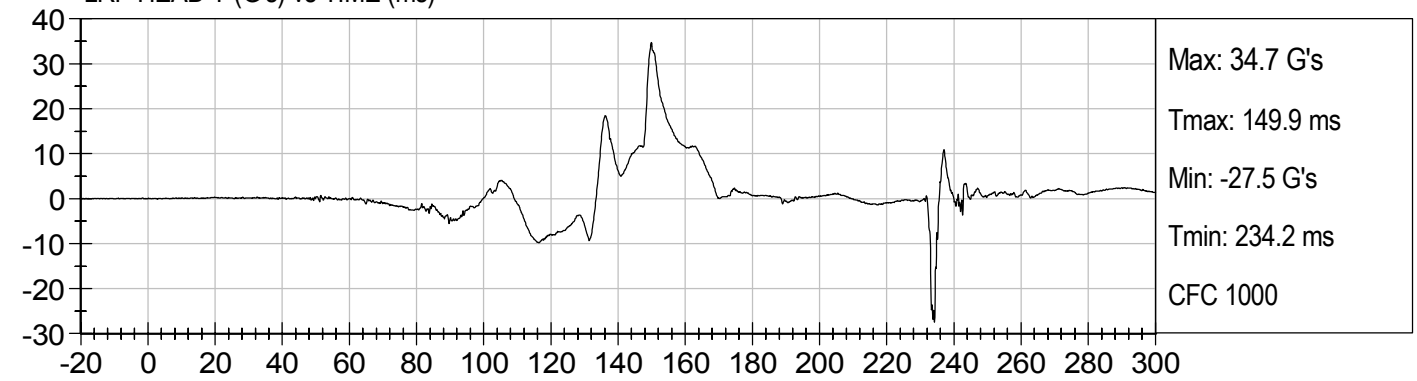
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

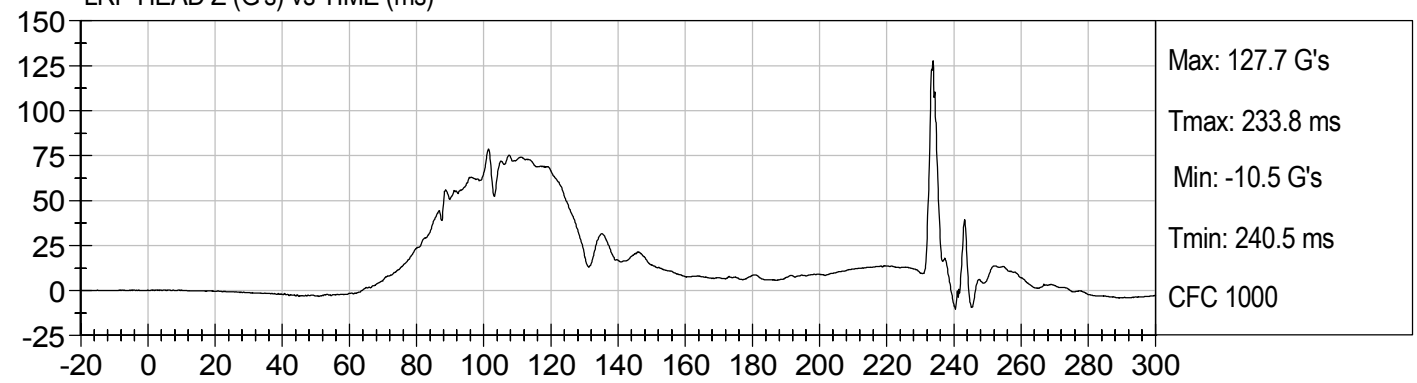
LRP HEAD X (G's) vs TIME (ms)



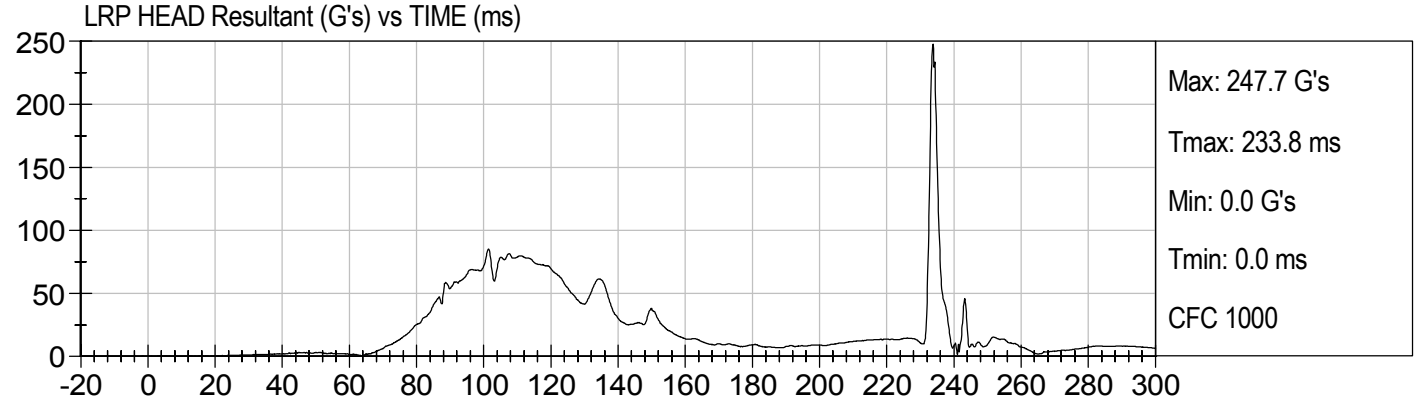
LRP HEAD Y (G's) vs TIME (ms)



LRP HEAD Z (G's) vs TIME (ms)

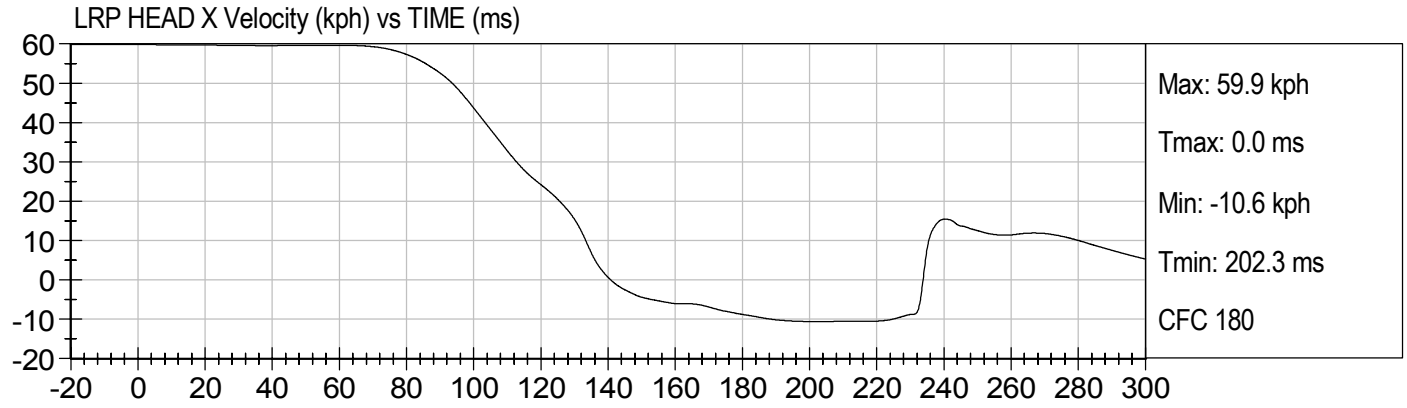


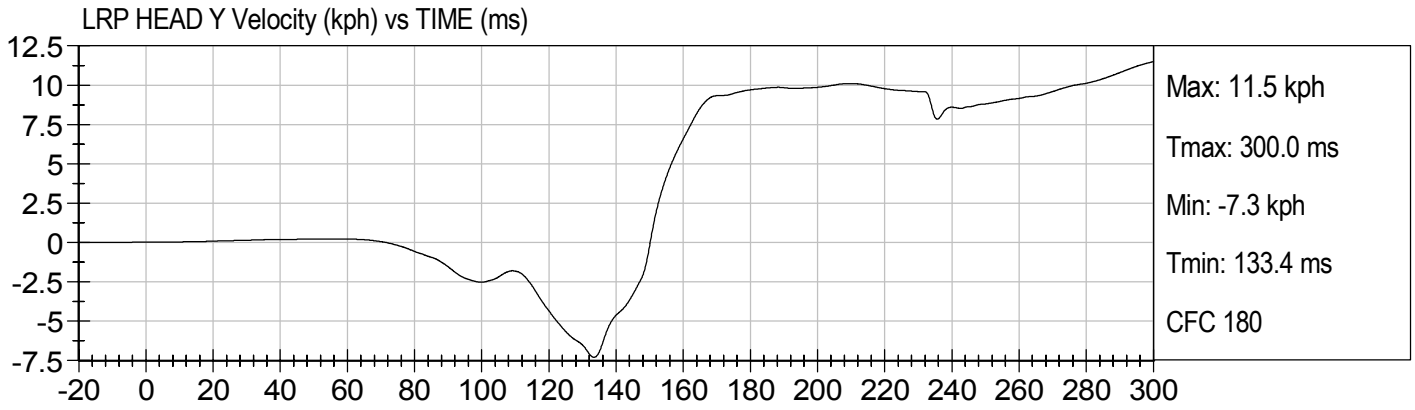
LRP HEAD Resultant (G's) vs TIME (ms)

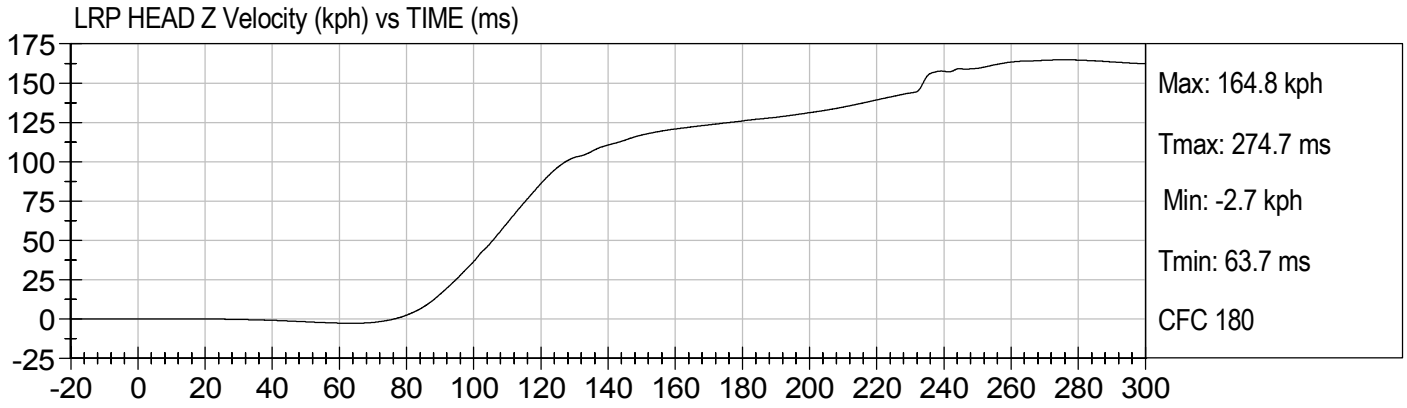


NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

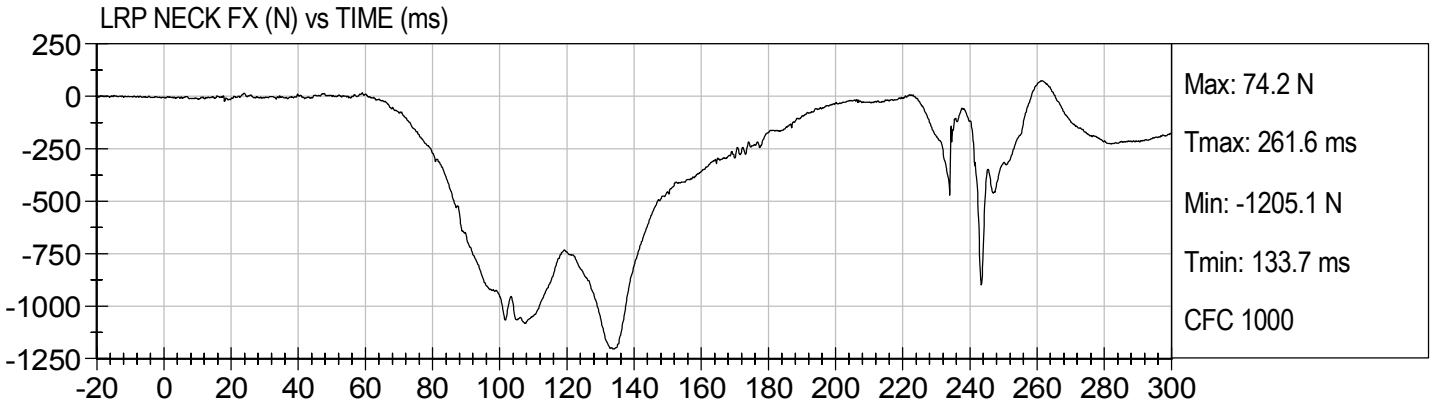


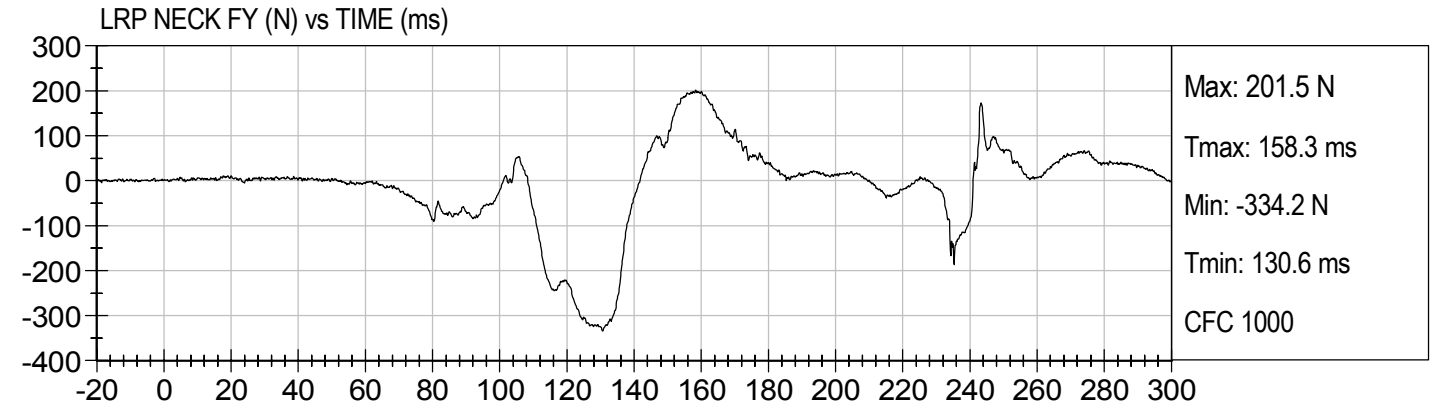


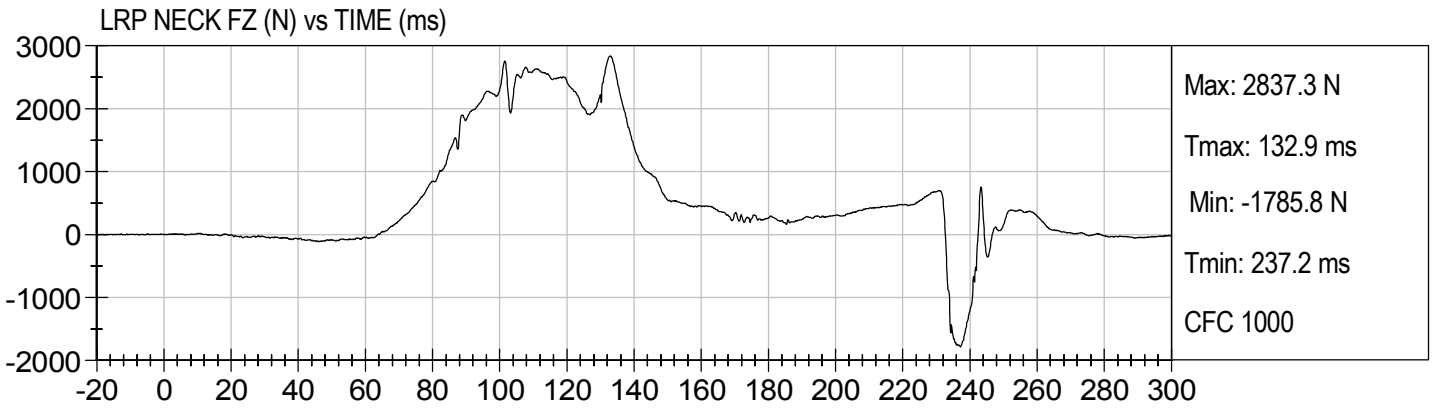


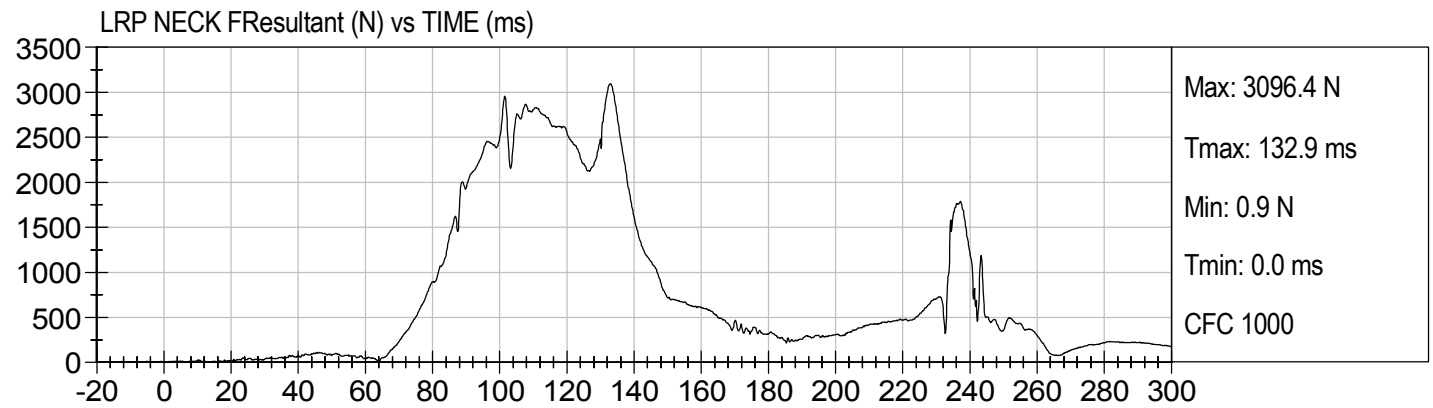
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)



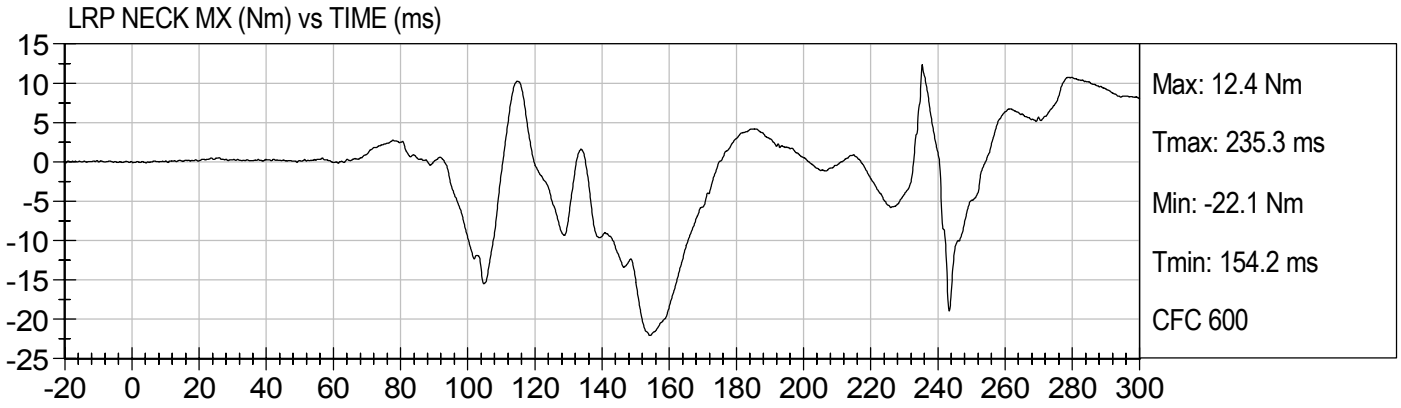


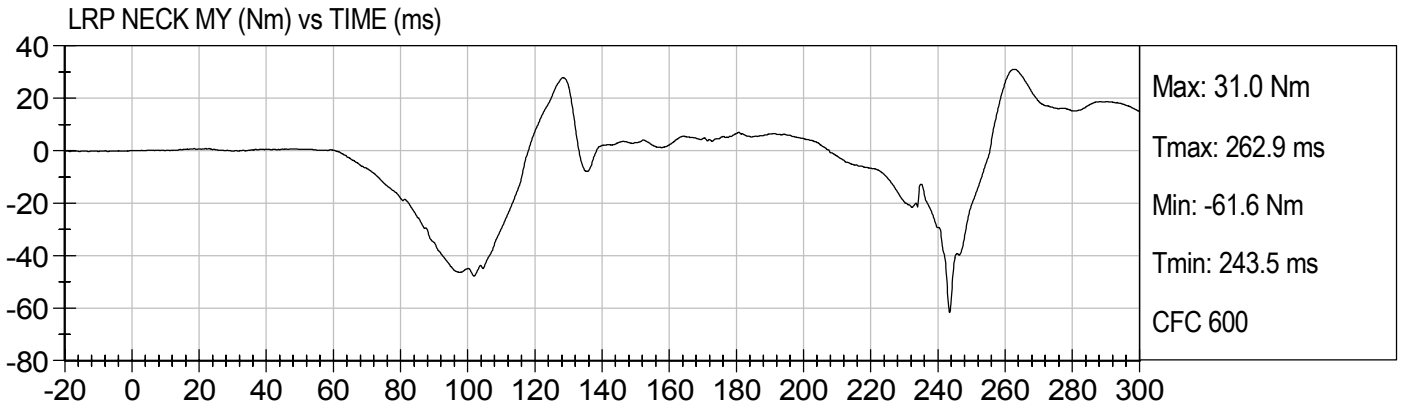


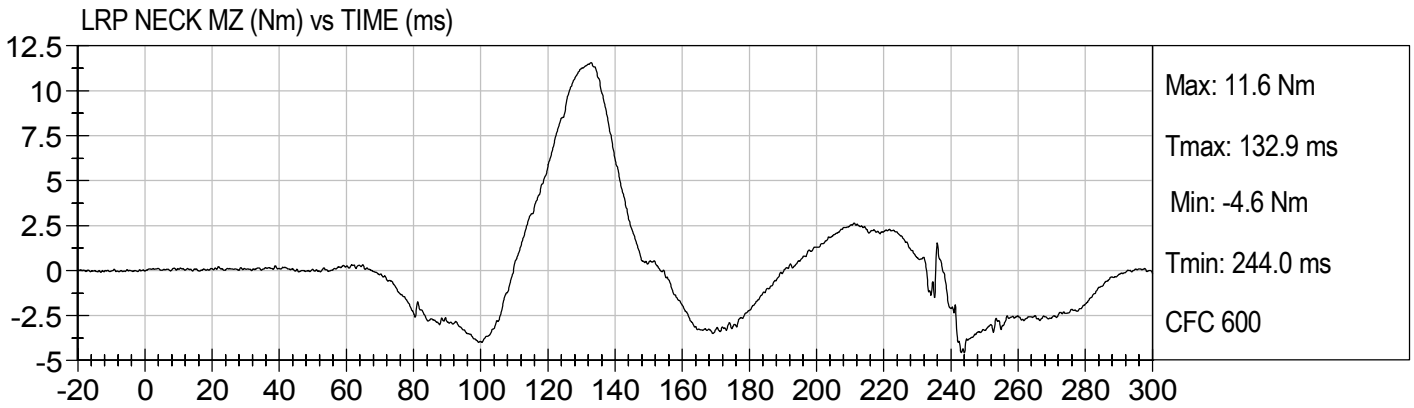


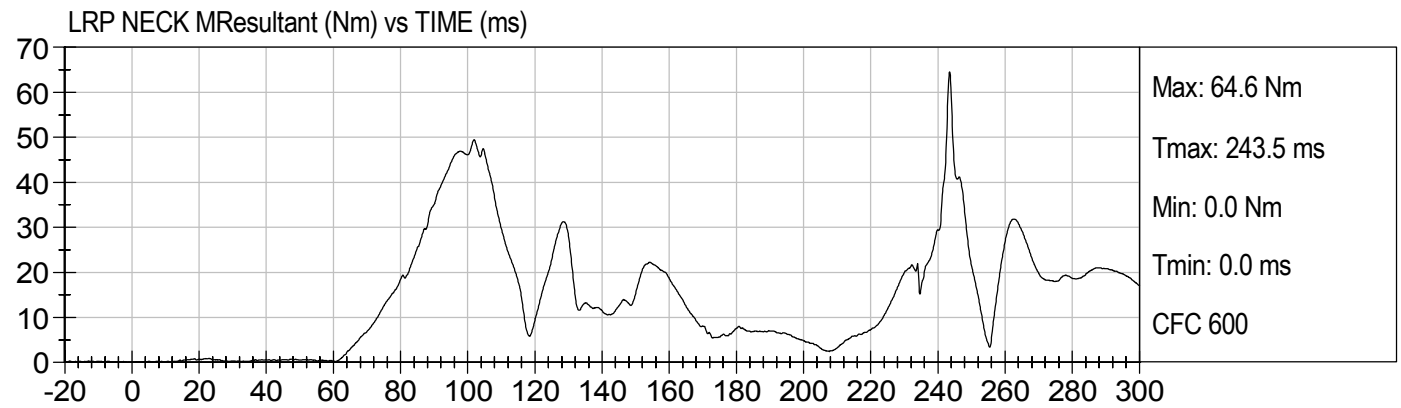
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)





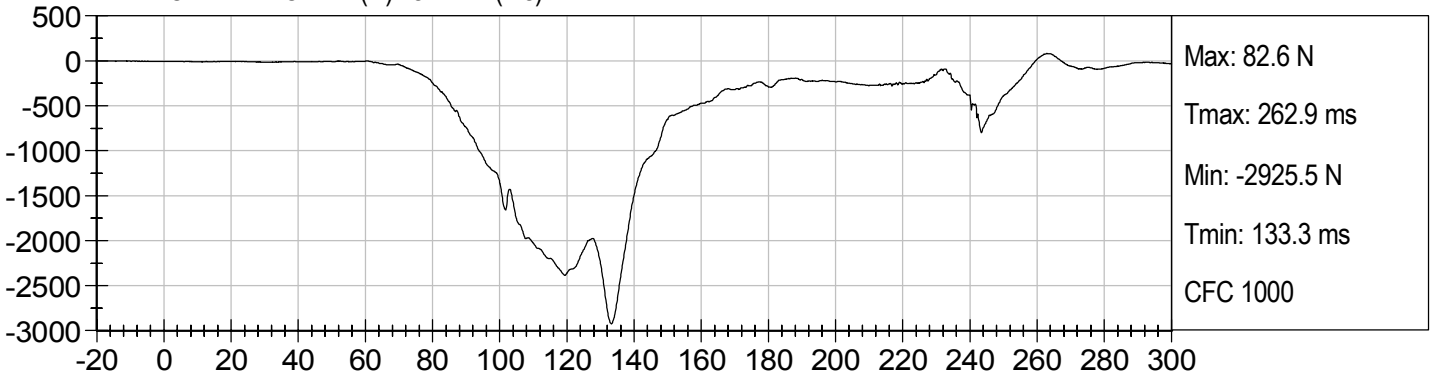




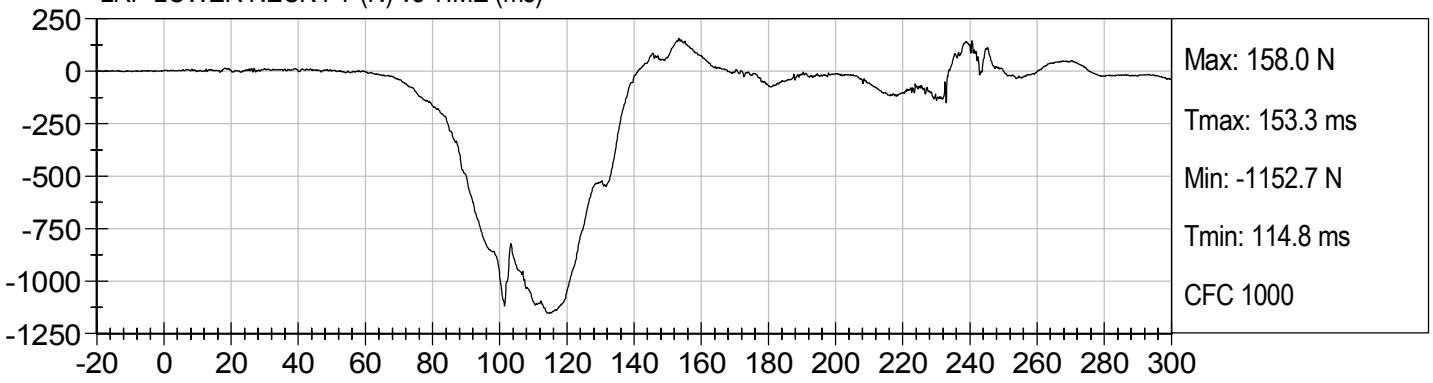
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

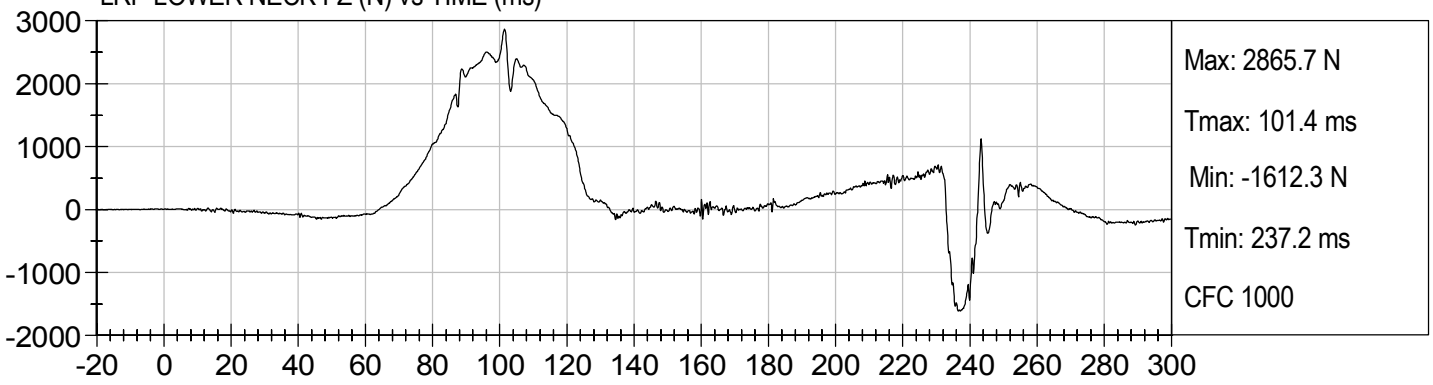
LRP LOWER NECK FX (N) vs TIME (ms)



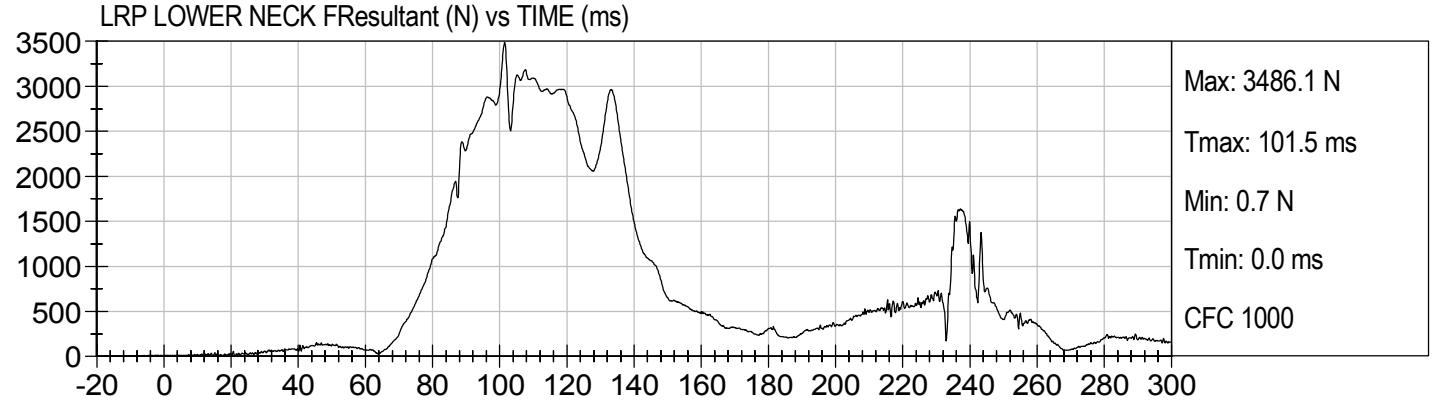
LRP LOWER NECK FY (N) vs TIME (ms)



LRP LOWER NECK FZ (N) vs TIME (ms)



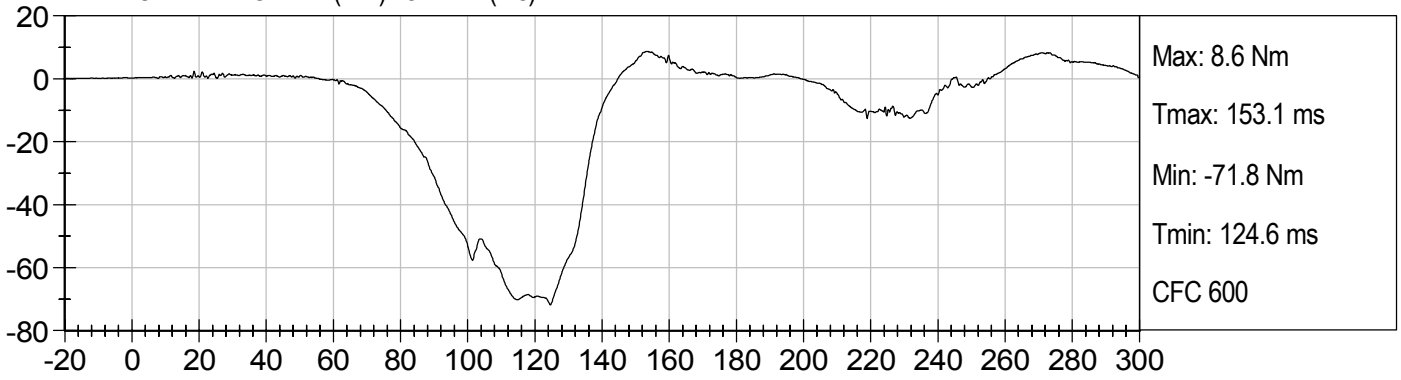
LRP LOWER NECK FResultant (N) vs TIME (ms)



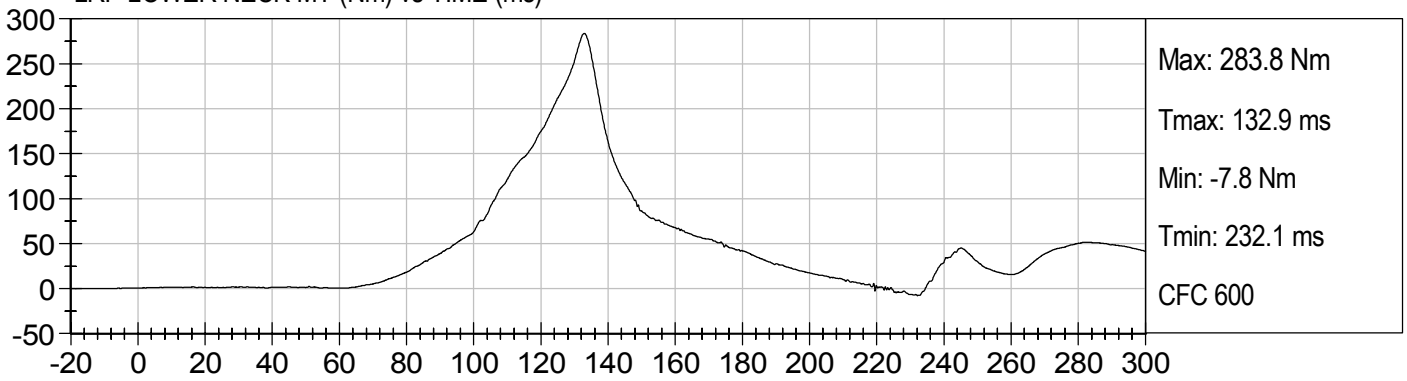
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

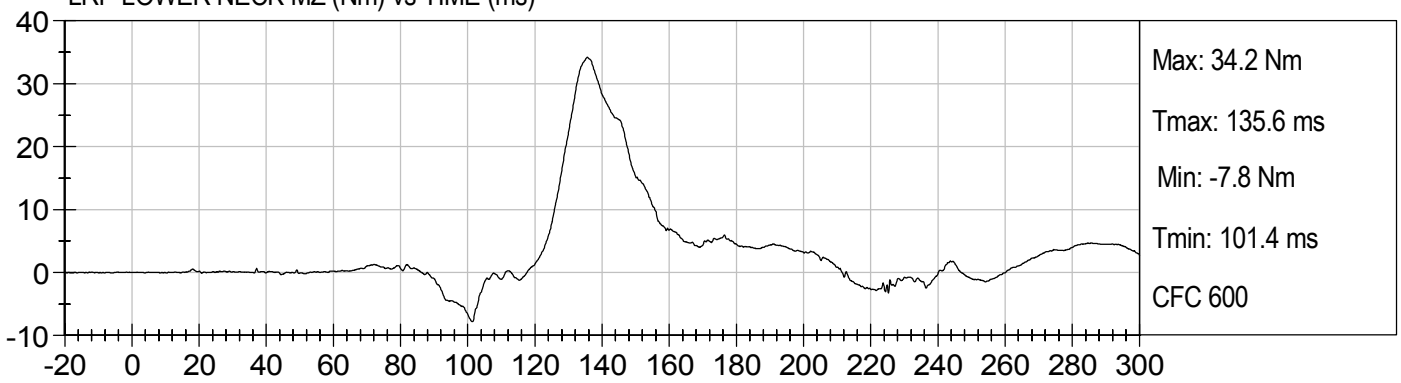
LRP LOWER NECK MX (Nm) vs TIME (ms)



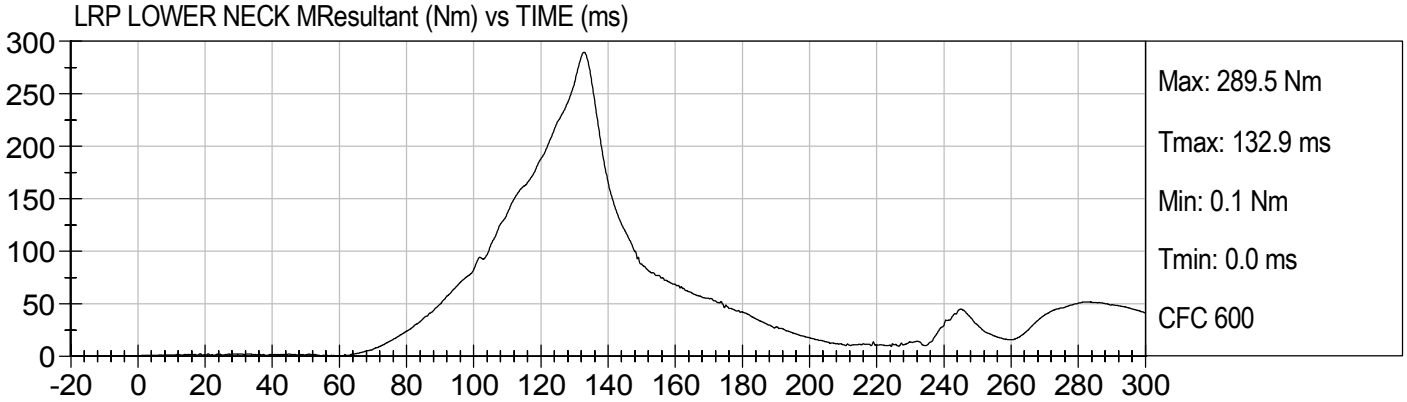
LRP LOWER NECK MY (Nm) vs TIME (ms)



LRP LOWER NECK MZ (Nm) vs TIME (ms)



LRP LOWER NECK MResultant (Nm) vs TIME (ms)



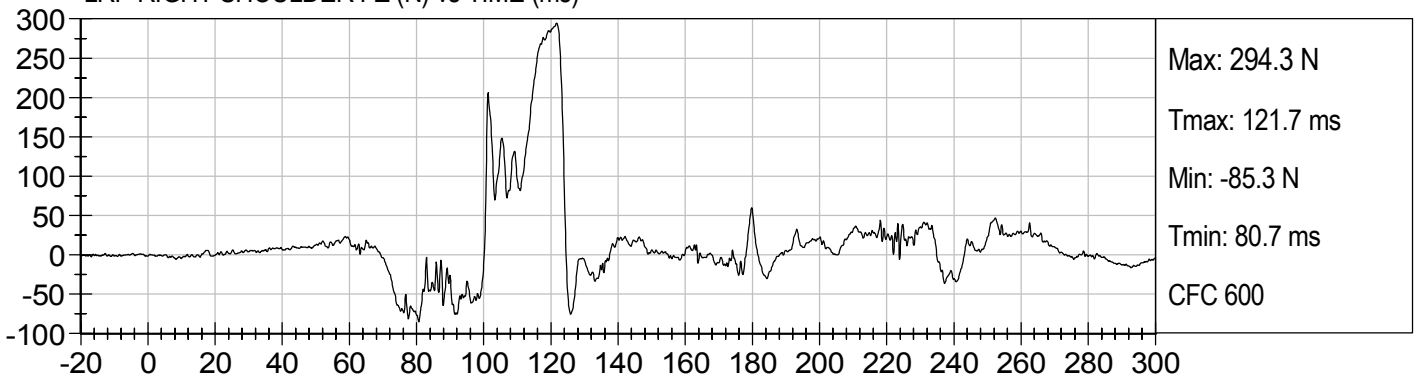
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

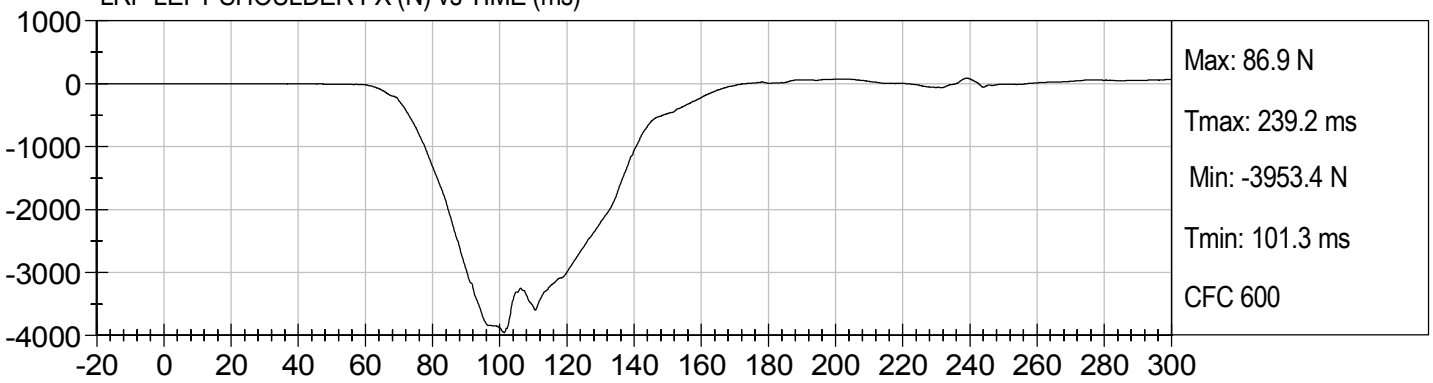
LRP RIGHT SHOULDER FX (N) vs TIME (ms)



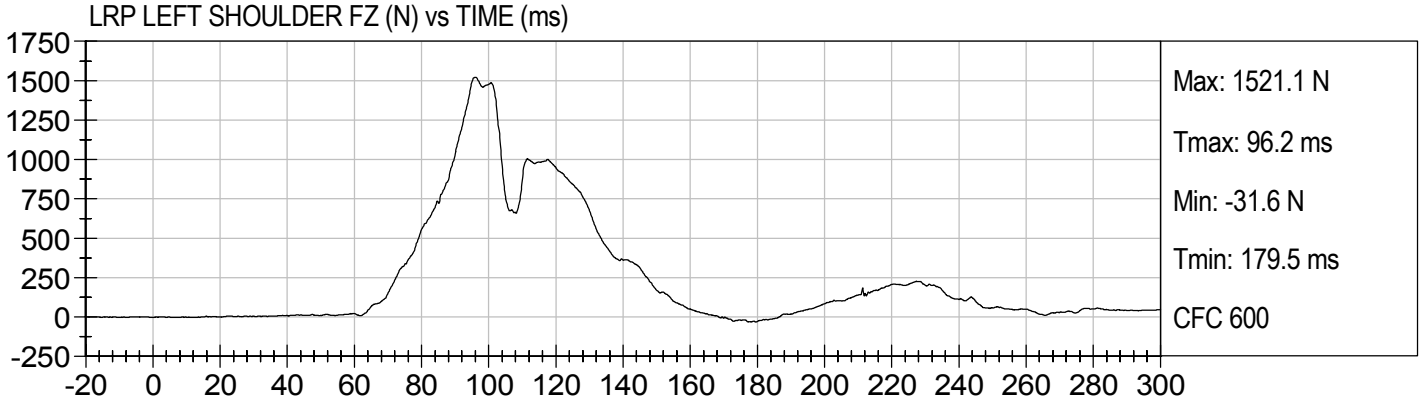
LRP RIGHT SHOULDER FZ (N) vs TIME (ms)



LRP LEFT SHOULDER FX (N) vs TIME (ms)

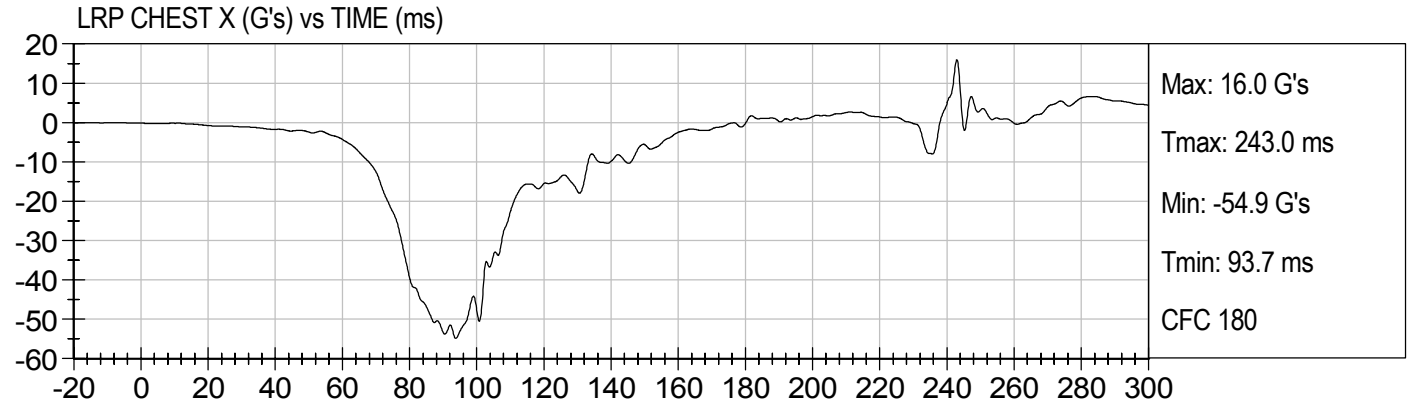


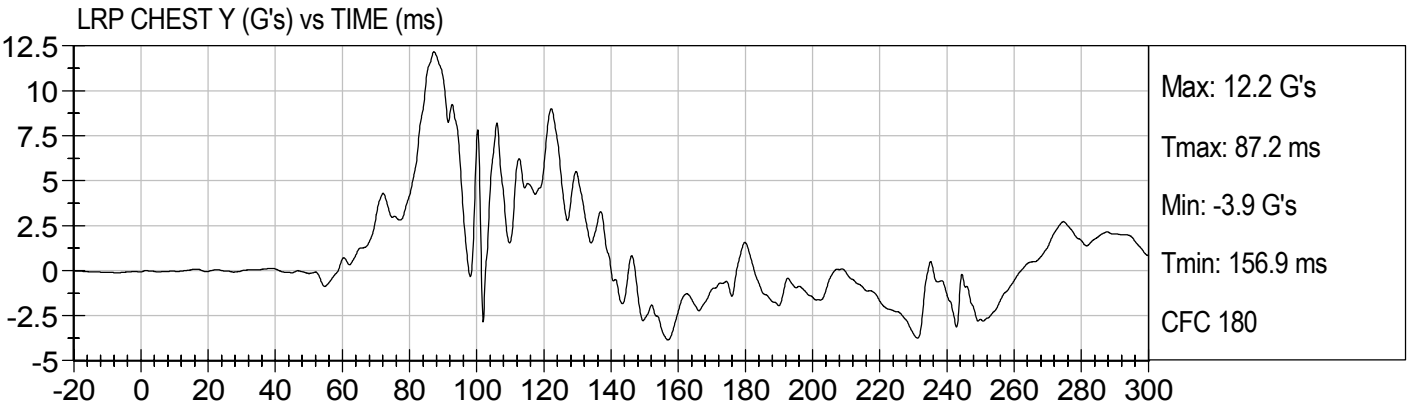
LRP LEFT SHOULDER FZ (N) vs TIME (ms)

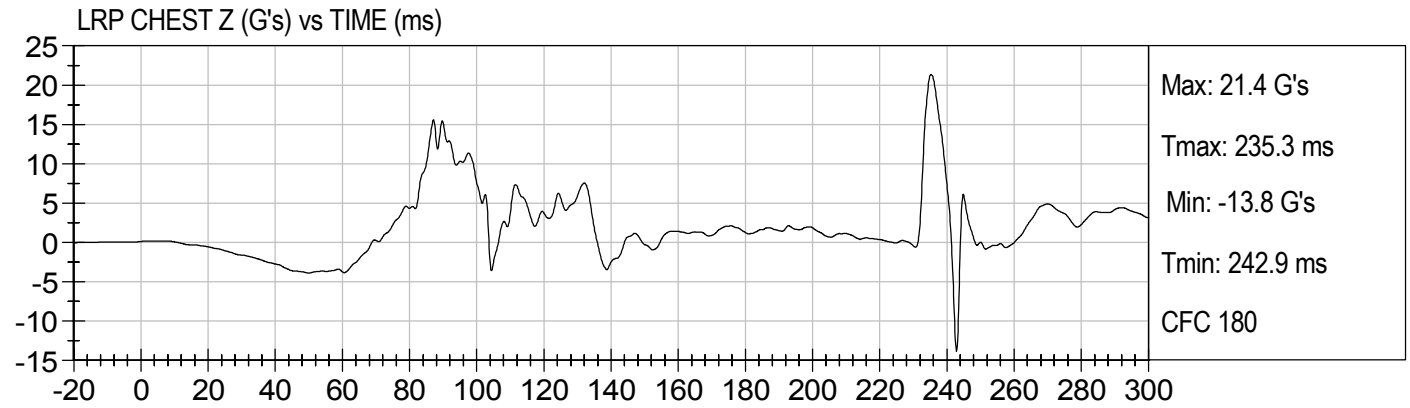


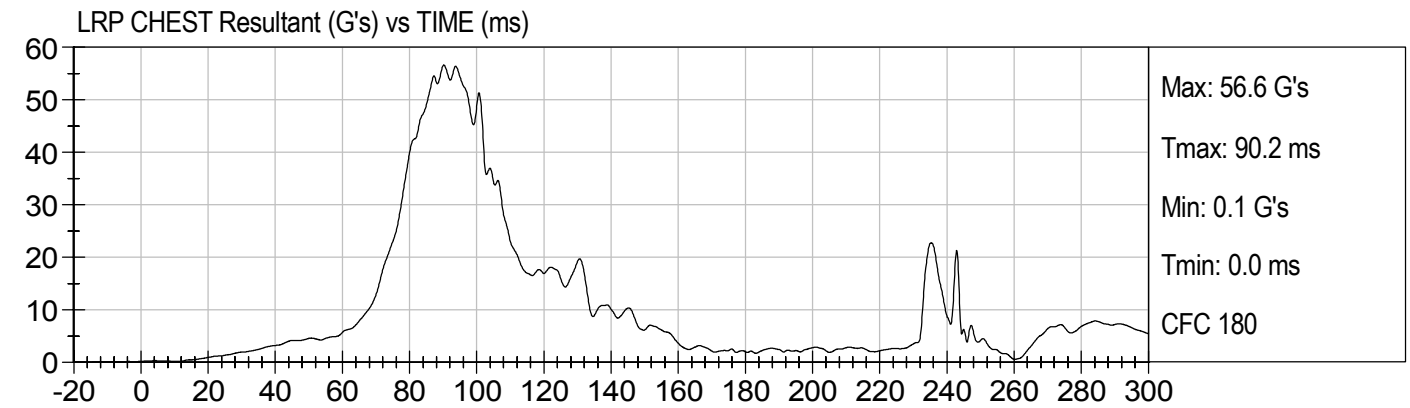
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)





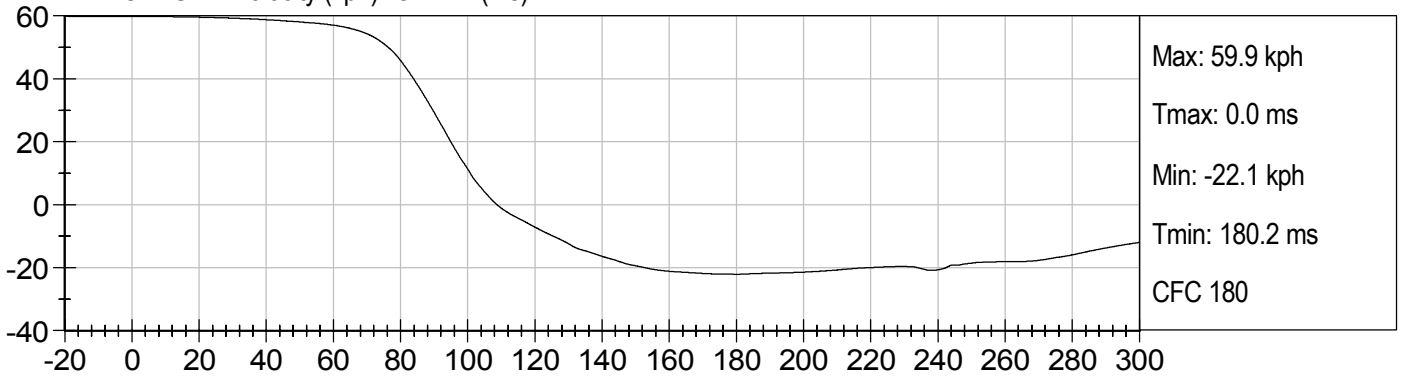




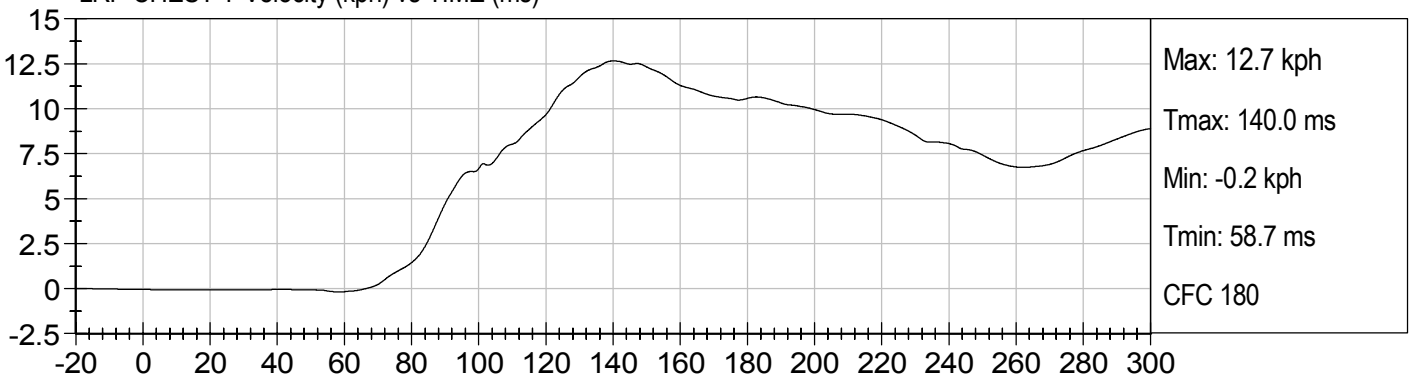
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

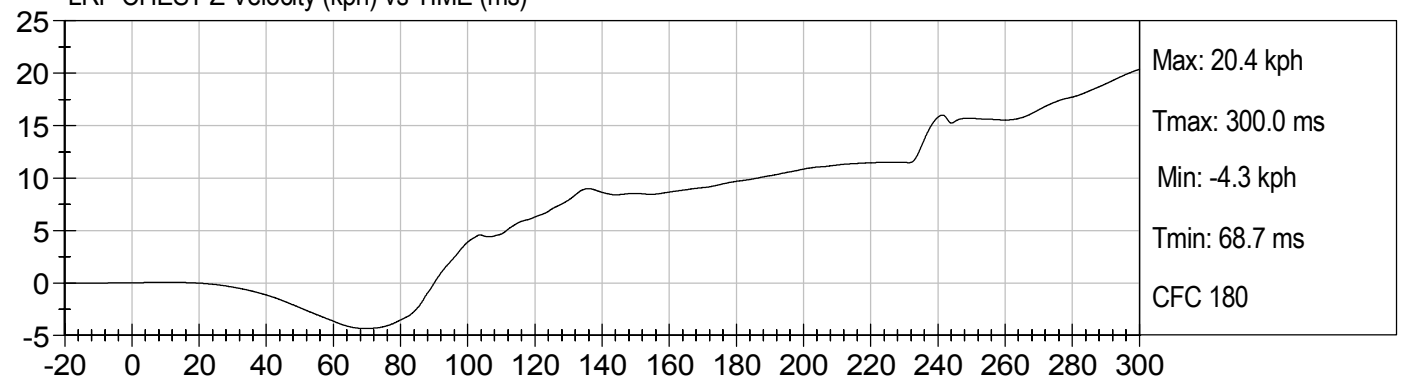
LRP CHEST X Velocity (kph) vs TIME (ms)



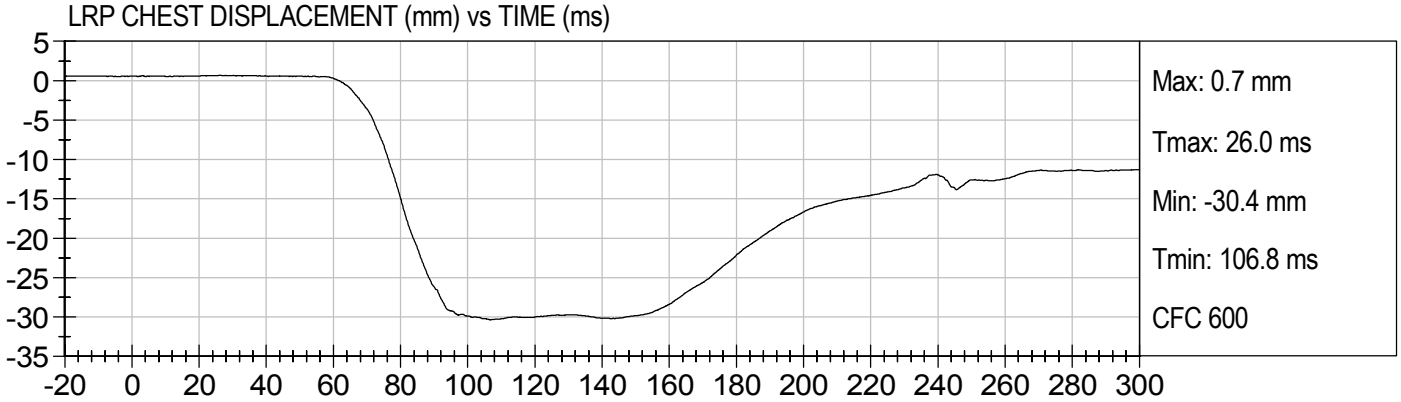
LRP CHEST Y Velocity (kph) vs TIME (ms)



LRP CHEST Z Velocity (kph) vs TIME (ms)



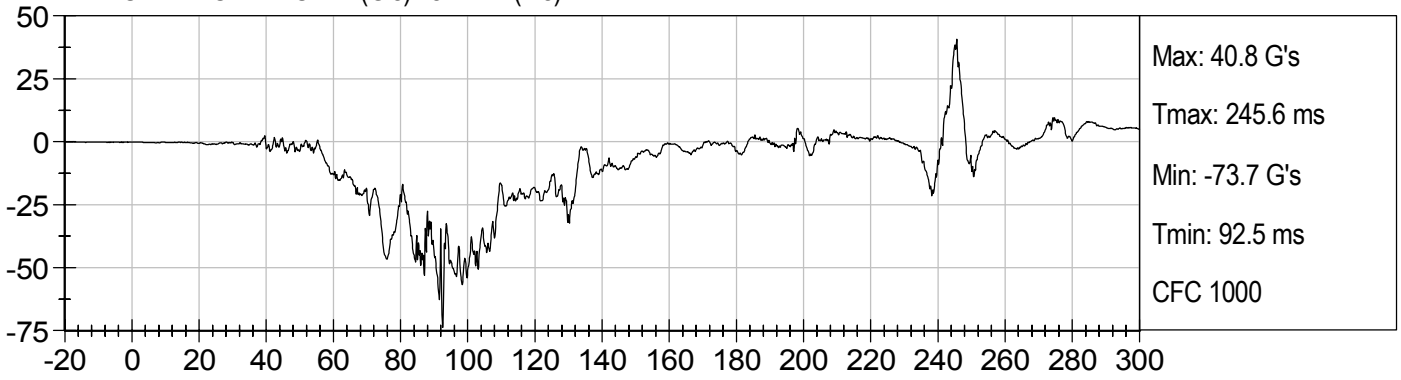
LRP CHEST DISPLACEMENT (mm) vs TIME (ms)



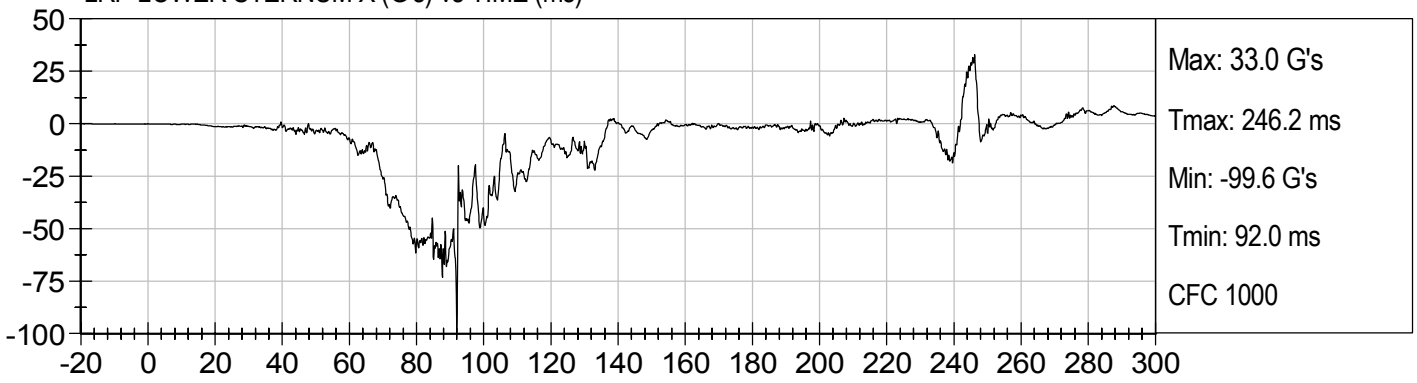
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

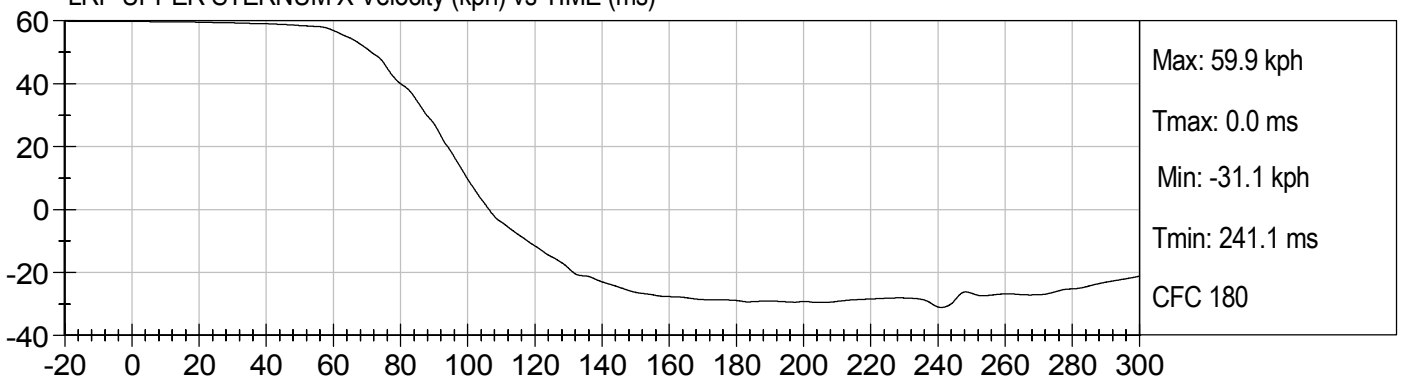
LRP UPPER STERNUM X (G's) vs TIME (ms)



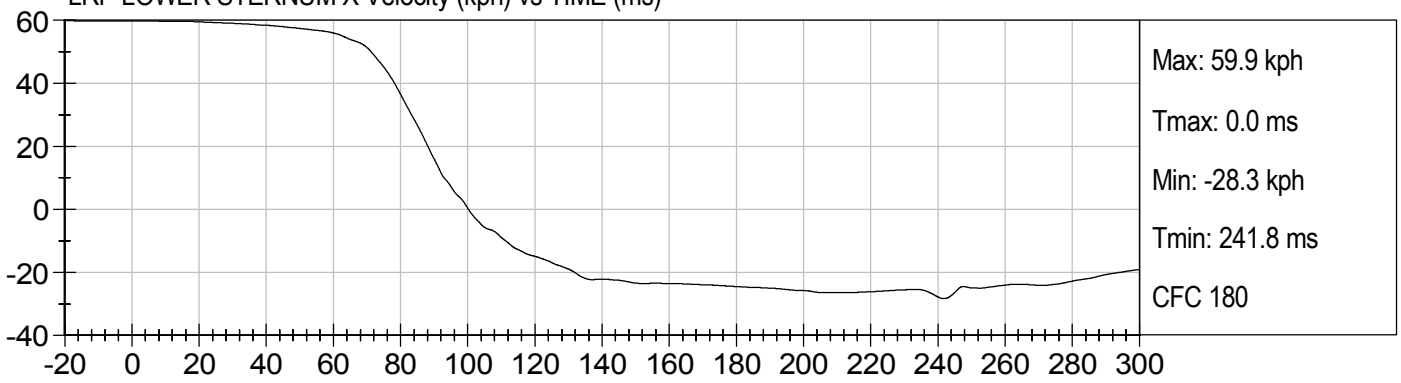
LRP LOWER STERNUM X (G's) vs TIME (ms)



LRP UPPER STERNUM X Velocity (kph) vs TIME (ms)



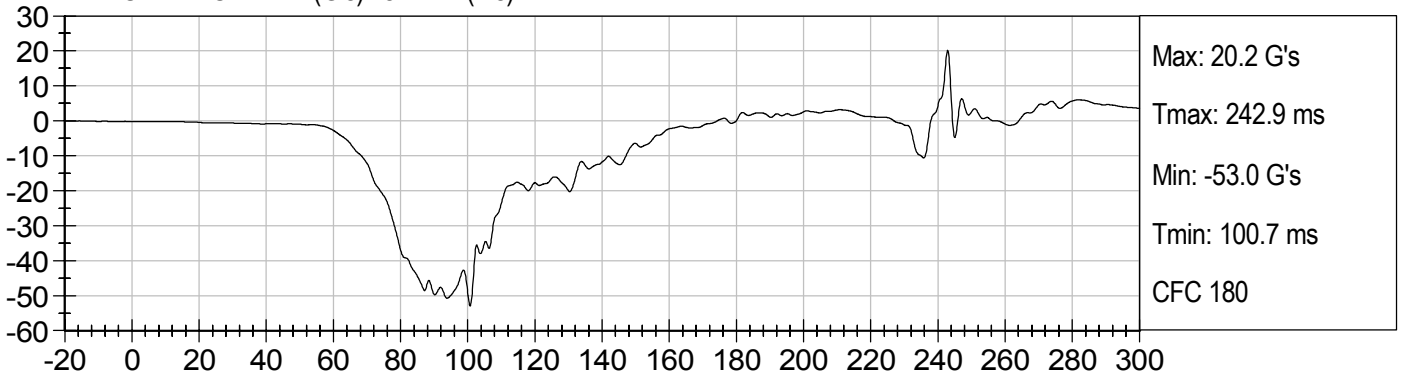
LRP LOWER STERNUM X Velocity (kph) vs TIME (ms)



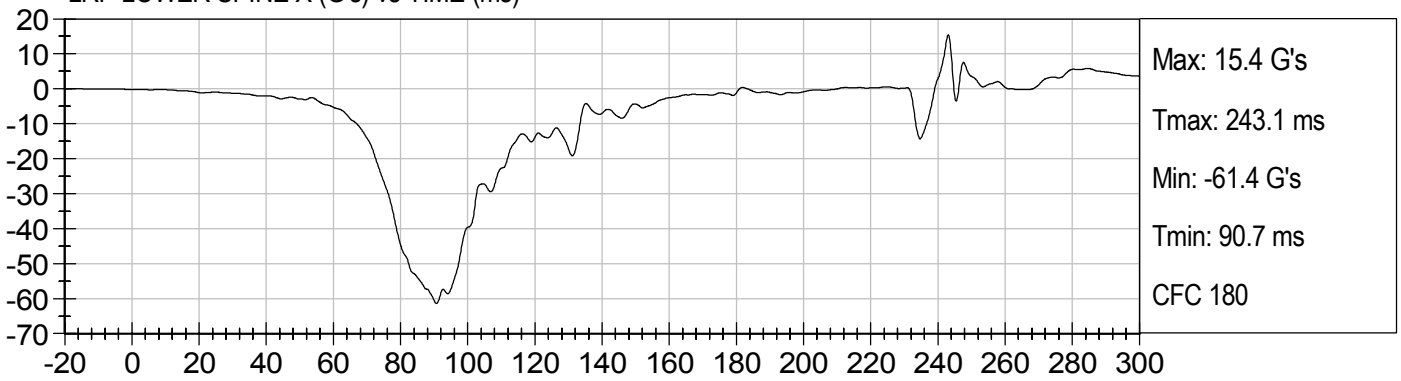
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

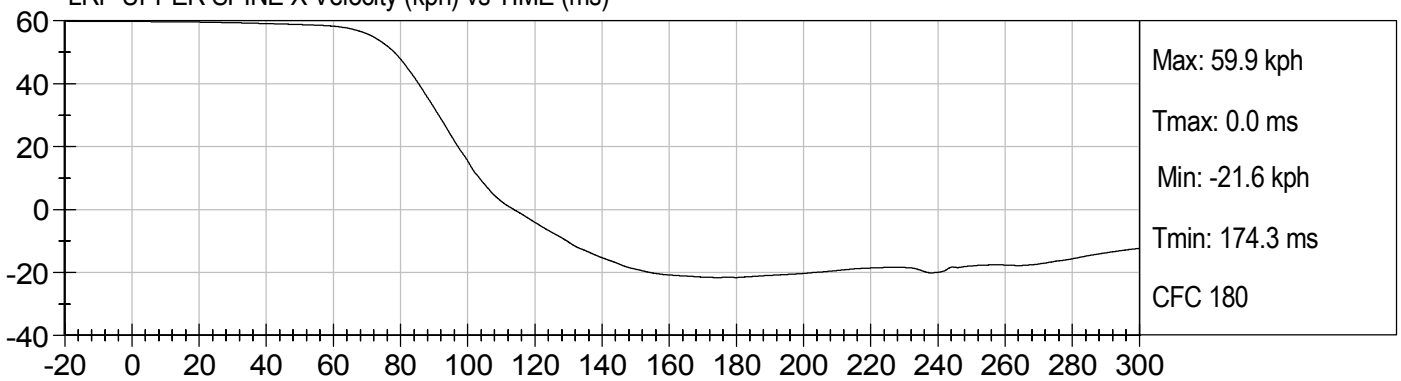
LRP UPPER SPINE X (G's) vs TIME (ms)



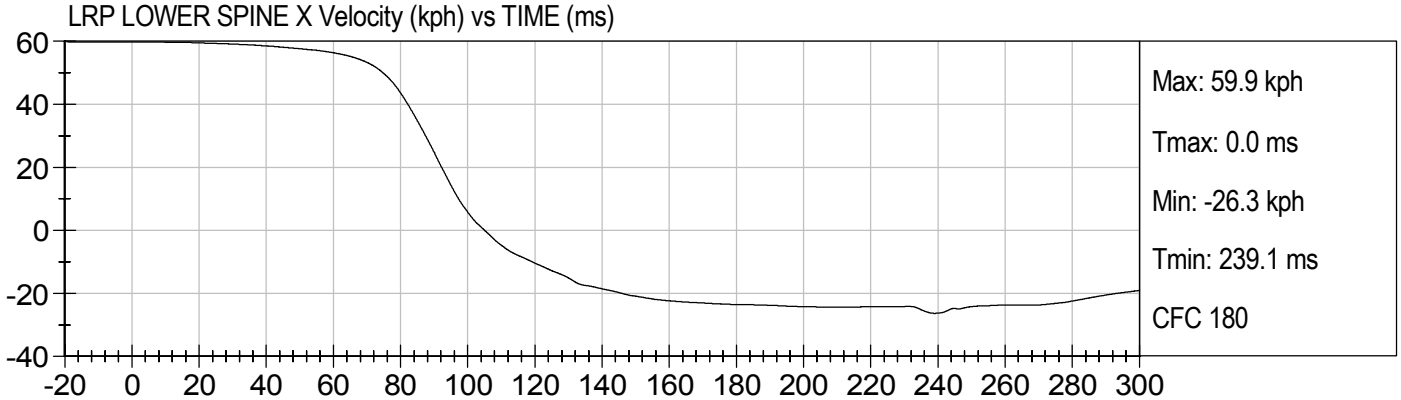
LRP LOWER SPINE X (G's) vs TIME (ms)



LRP UPPER SPINE X Velocity (kph) vs TIME (ms)



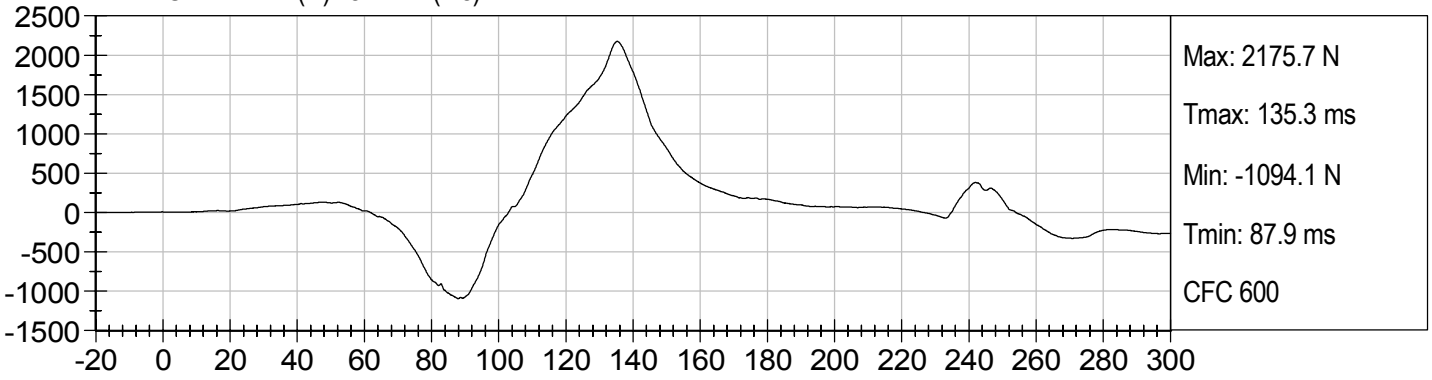
LRP LOWER SPINE X Velocity (kph) vs TIME (ms)



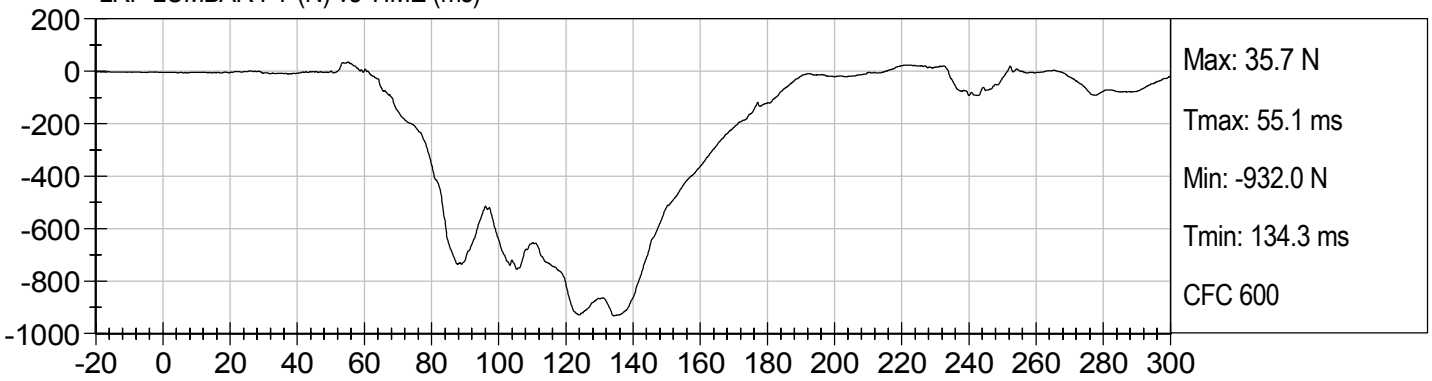
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

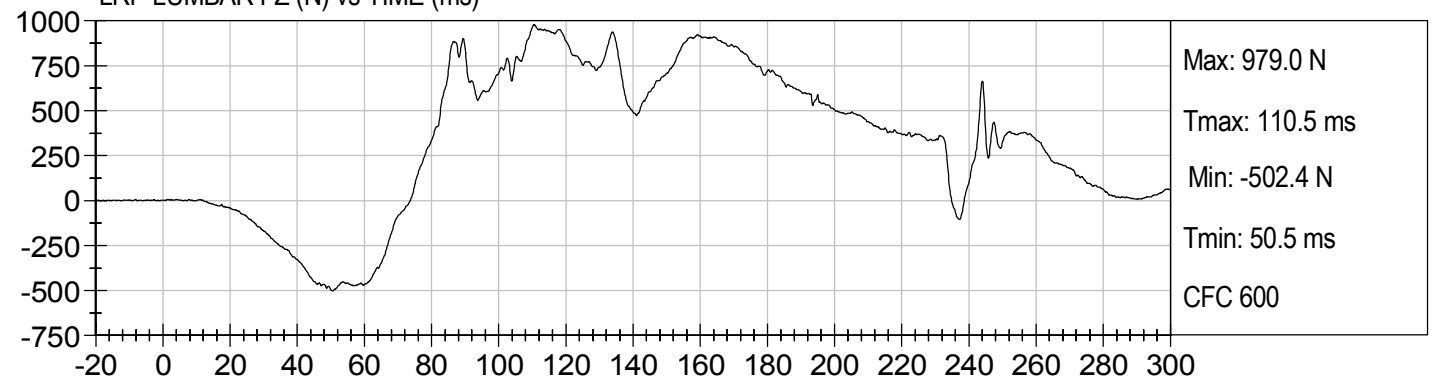
LRP LUMBAR FX (N) vs TIME (ms)



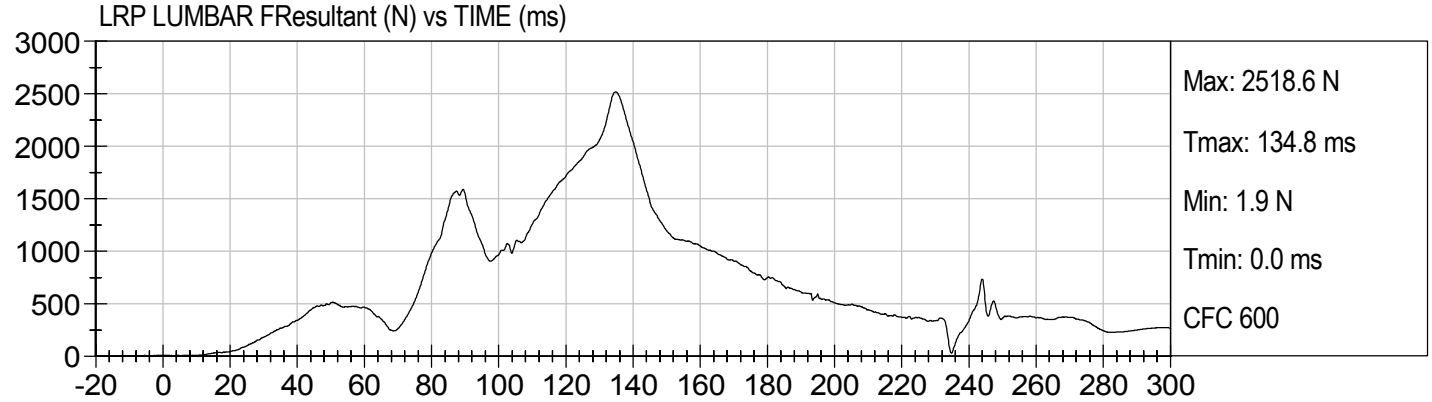
LRP LUMBAR FY (N) vs TIME (ms)



LRP LUMBAR FZ (N) vs TIME (ms)



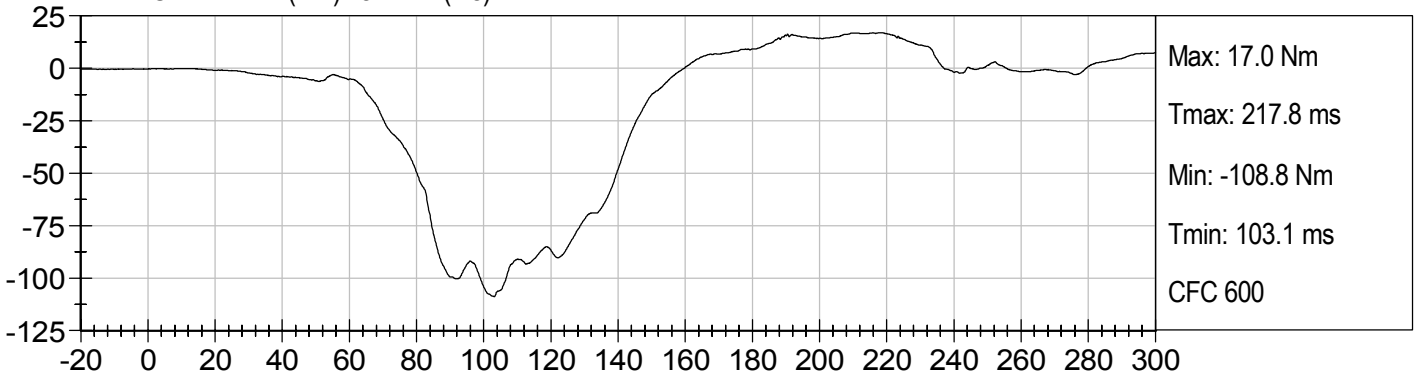
LRP LUMBAR FResultant (N) vs TIME (ms)



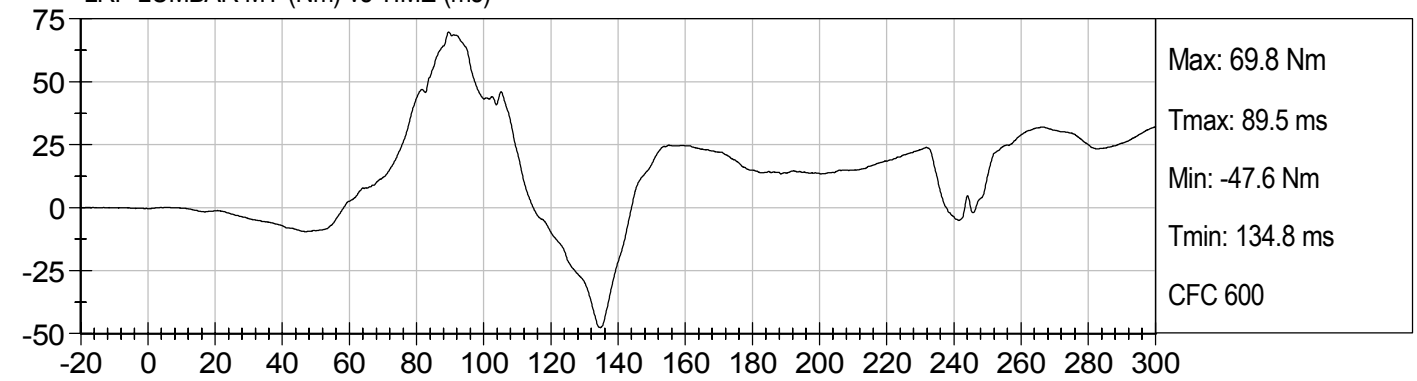
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

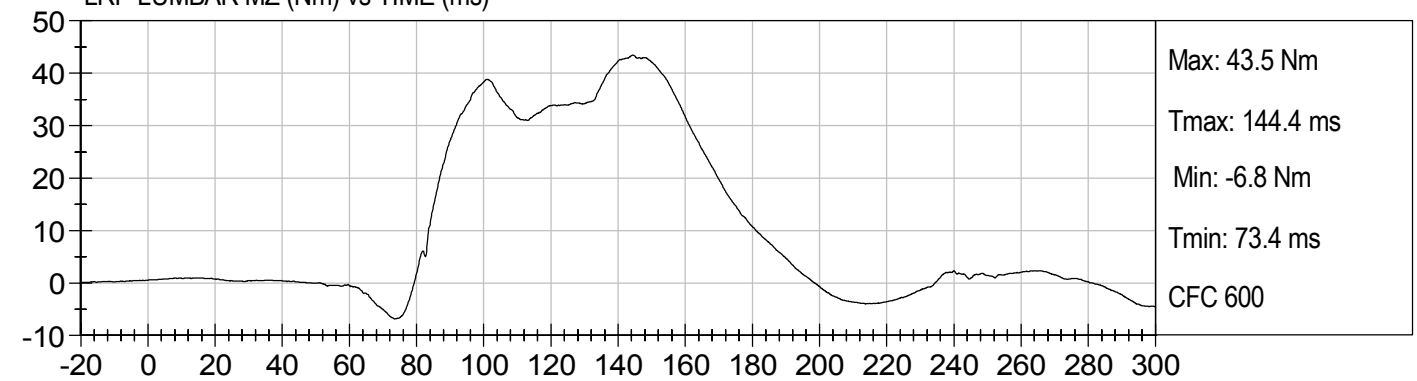
LRP LUMBAR MX (Nm) vs TIME (ms)



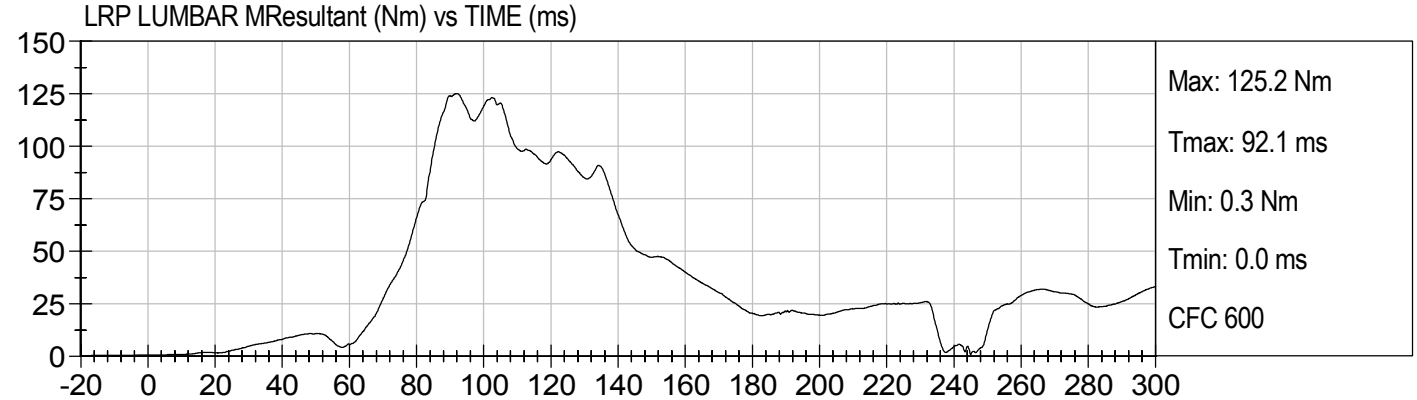
LRP LUMBAR MY (Nm) vs TIME (ms)



LRP LUMBAR MZ (Nm) vs TIME (ms)



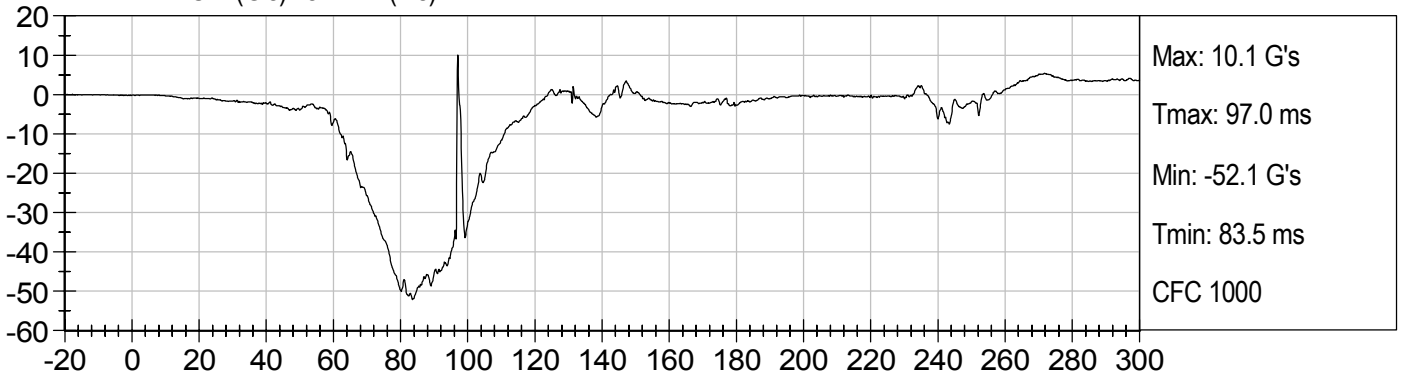
LRP LUMBAR MResultant (Nm) vs TIME (ms)



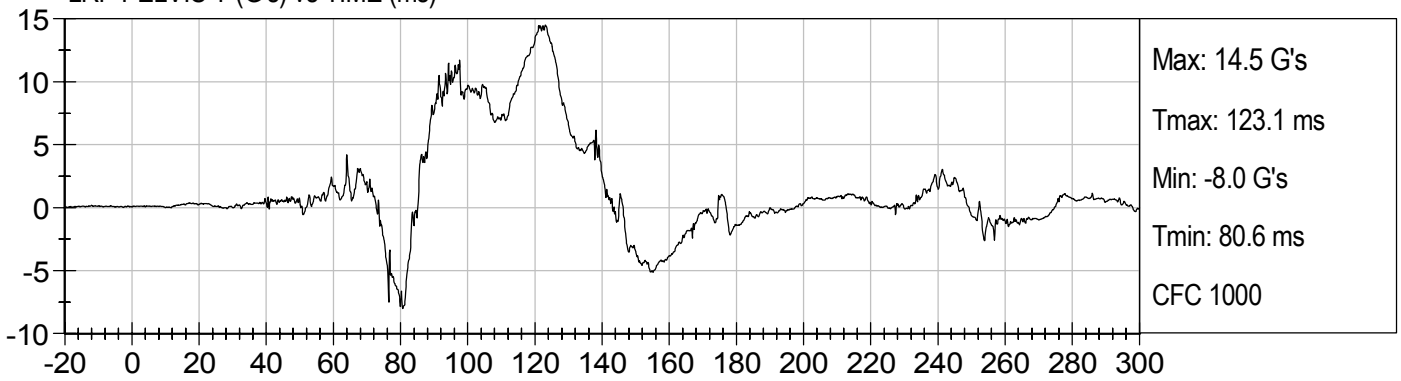
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

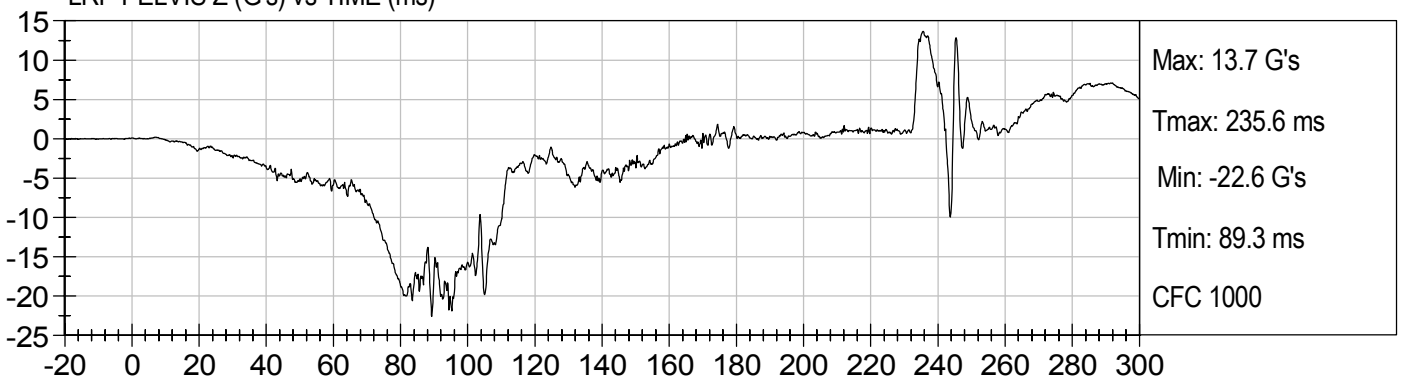
LRP PELVIS X (G's) vs TIME (ms)



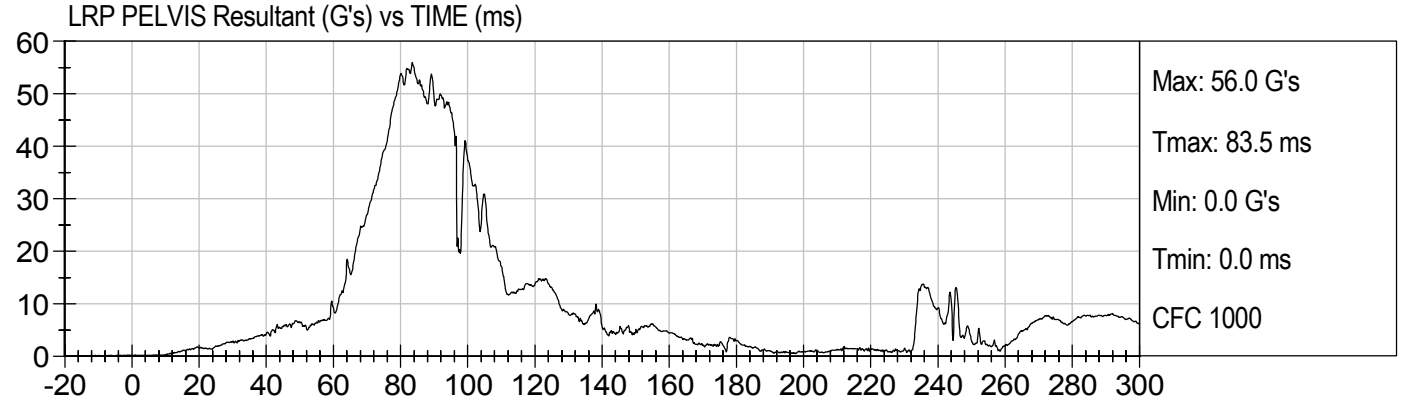
LRP PELVIS Y (G's) vs TIME (ms)



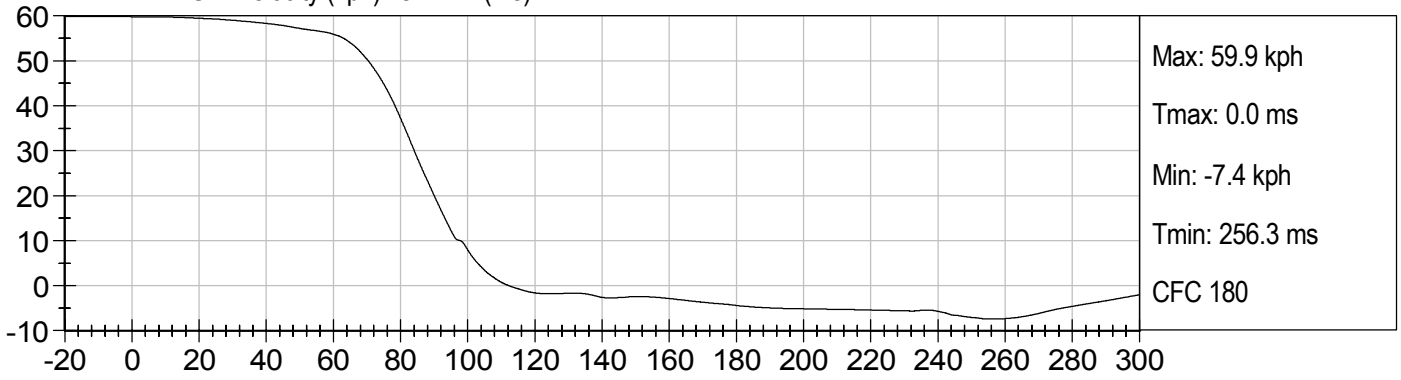
LRP PELVIS Z (G's) vs TIME (ms)



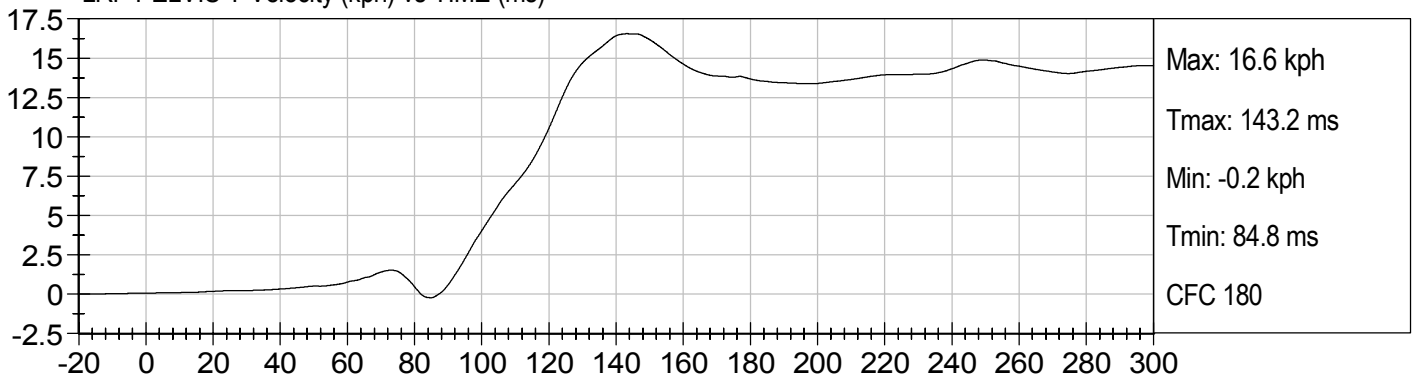
LRP PELVIS Resultant (G's) vs TIME (ms)



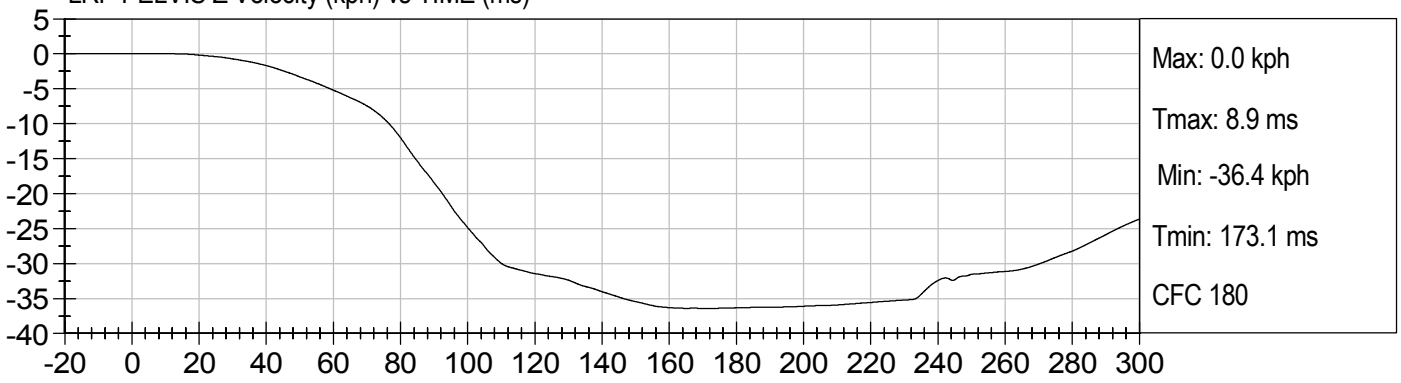
LRP PELVIS X Velocity (kph) vs TIME (ms)



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



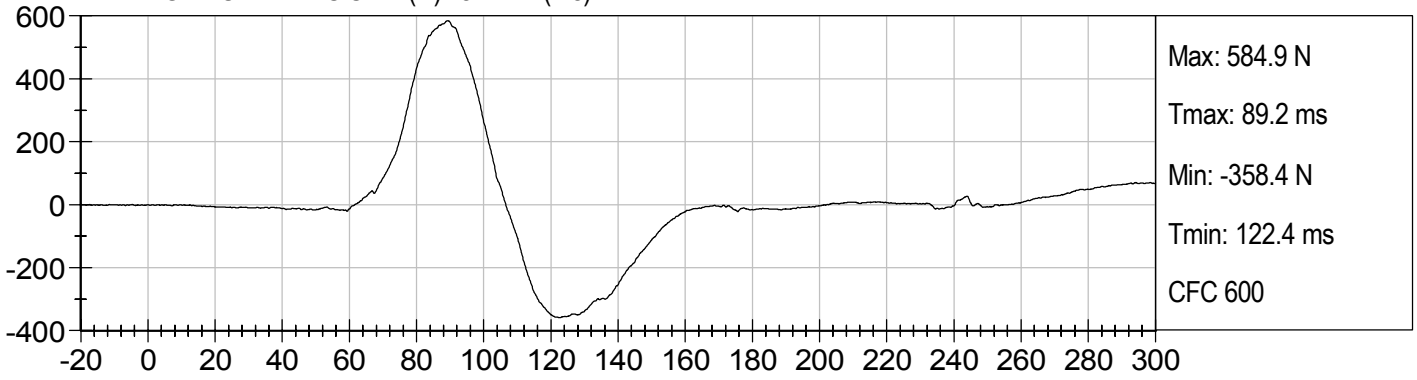
LRP PELVIS Z Velocity (kph) vs TIME (ms)



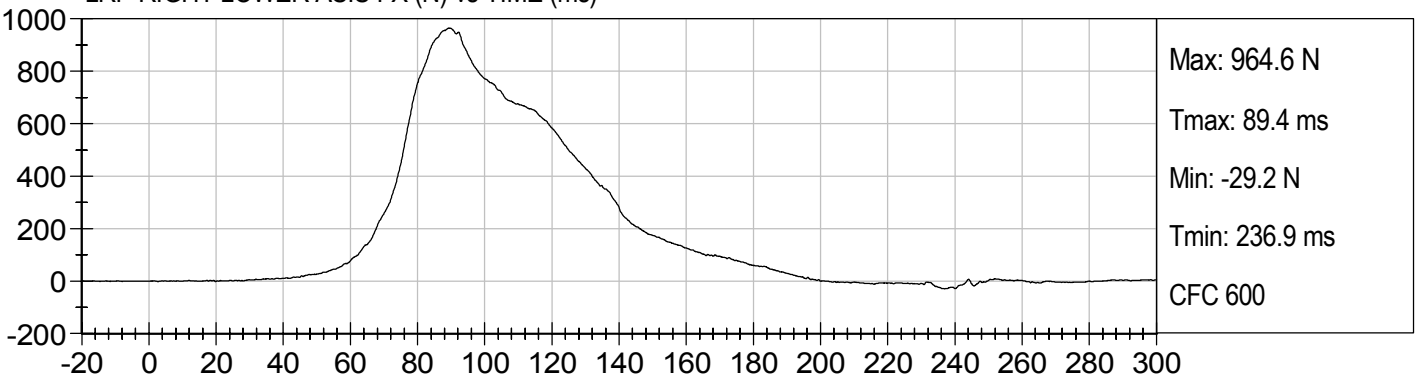
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

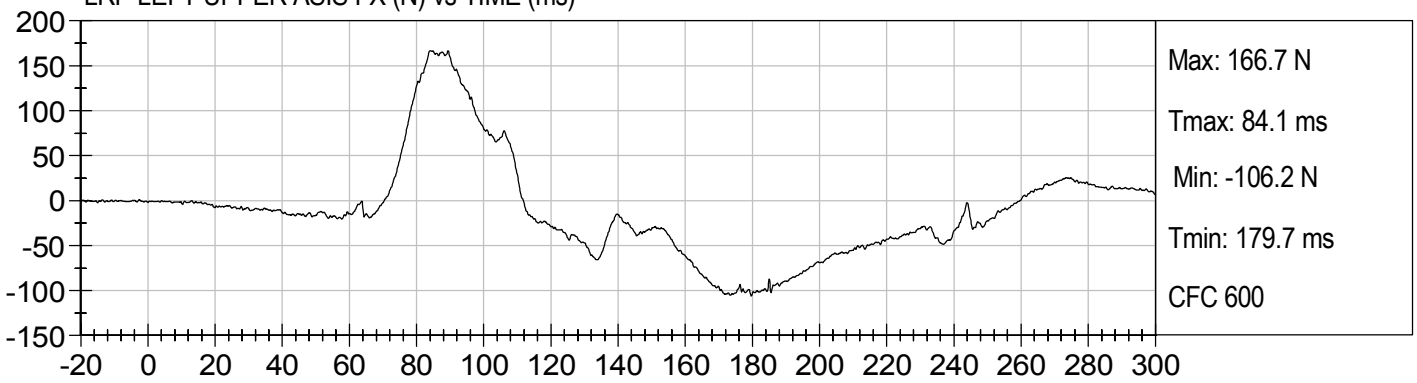
LRP RIGHT UPPER ASIS FX (N) vs TIME (ms)



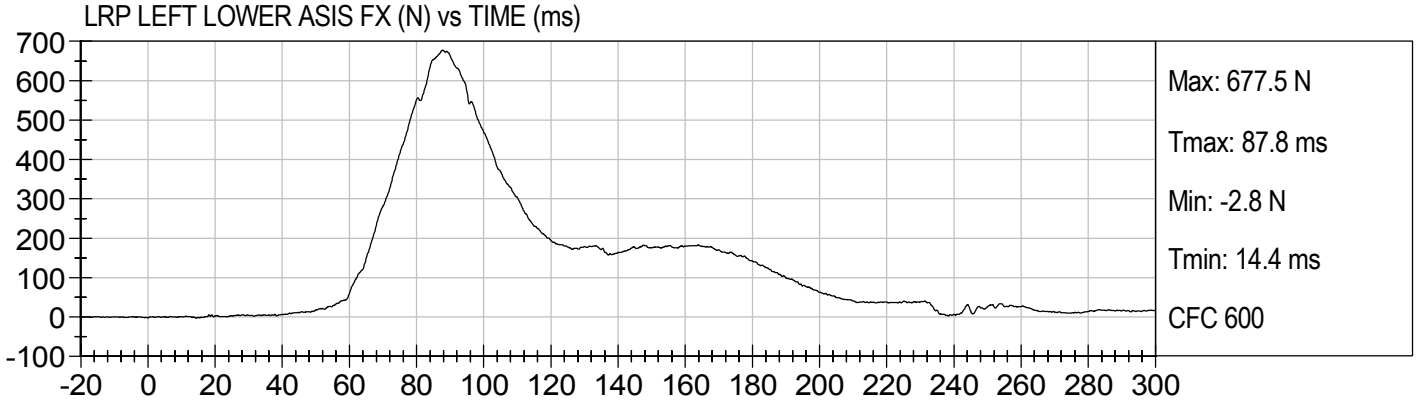
LRP RIGHT LOWER ASIS FX (N) vs TIME (ms)



LRP LEFT UPPER ASIS FX (N) vs TIME (ms)



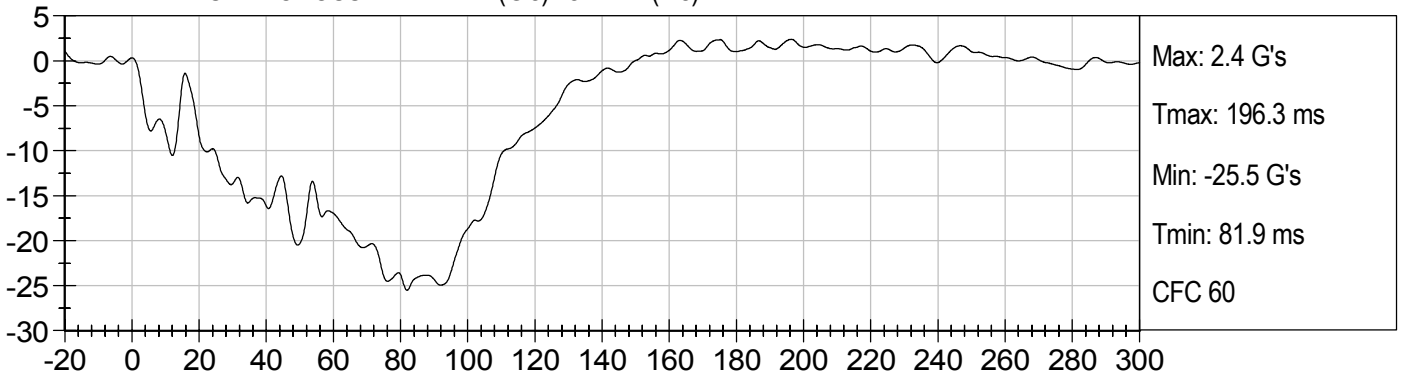
LRP LEFT LOWER ASIS FX (N) vs TIME (ms)



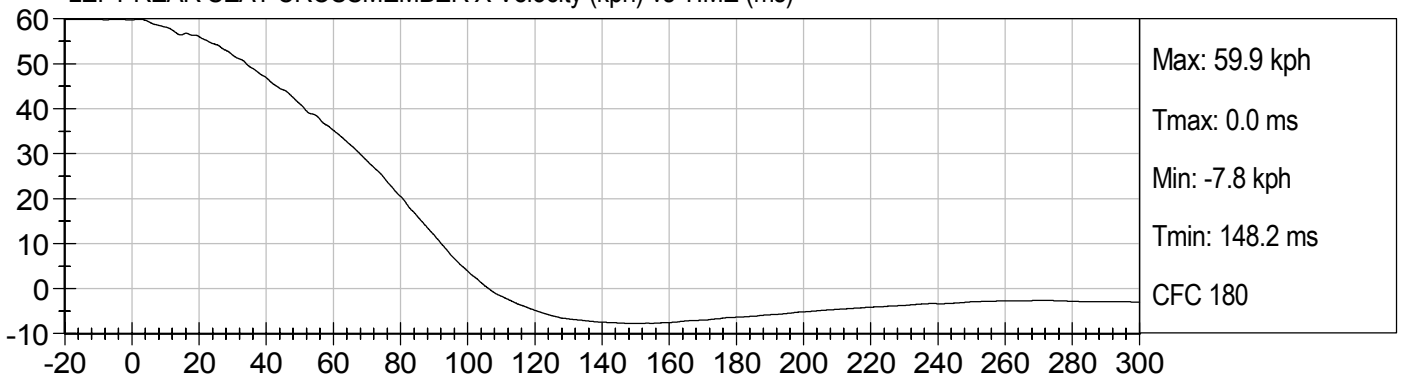
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

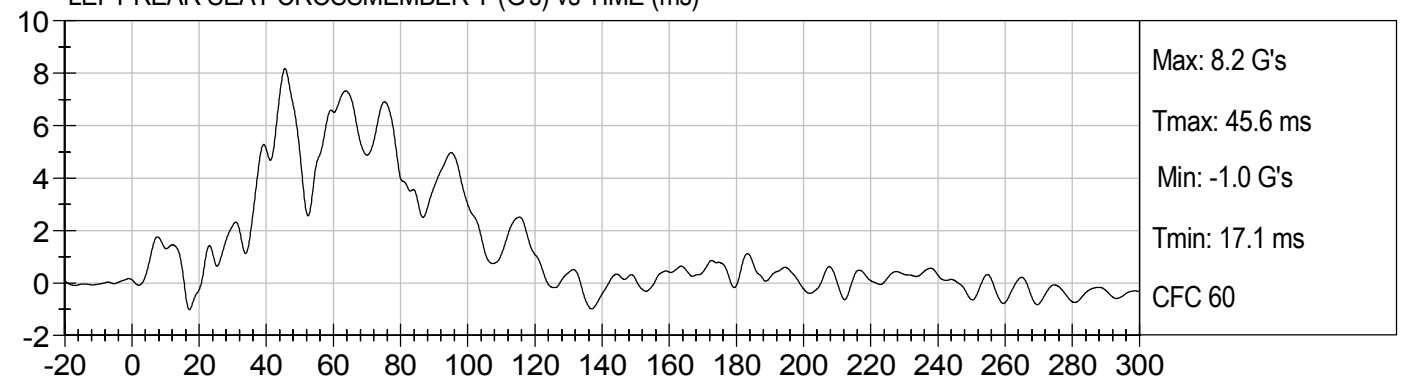
LEFT REAR SEAT CROSSMEMBER X (G's) vs TIME (ms)



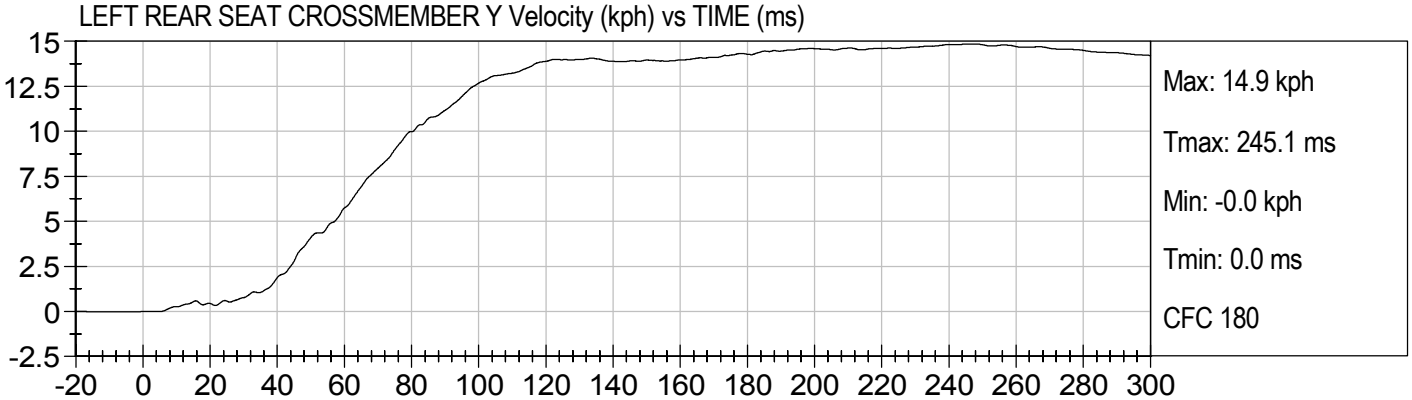
LEFT REAR SEAT CROSSMEMBER X Velocity (kph) vs TIME (ms)



LEFT REAR SEAT CROSSMEMBER Y (G's) vs TIME (ms)



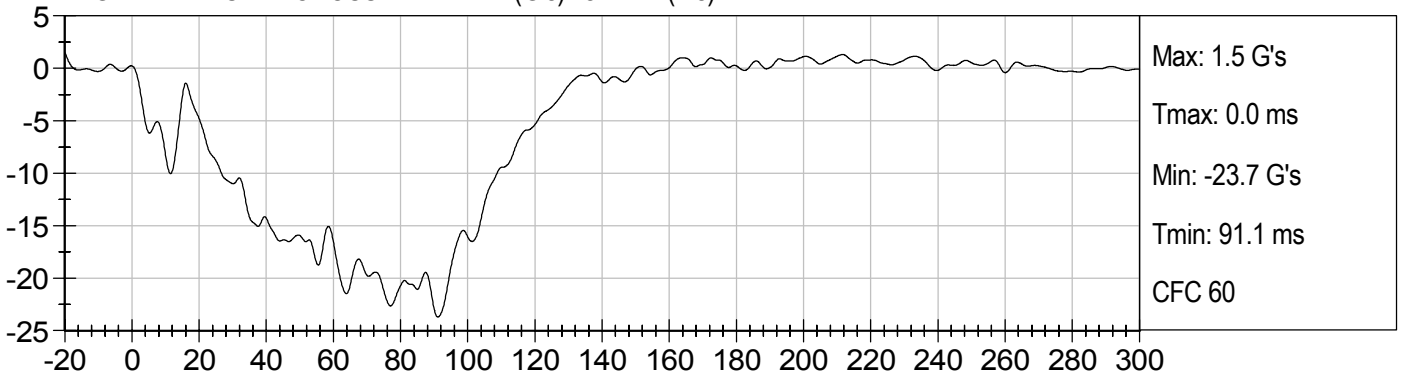
LEFT REAR SEAT CROSSMEMBER Y Velocity (kph) vs TIME (ms)



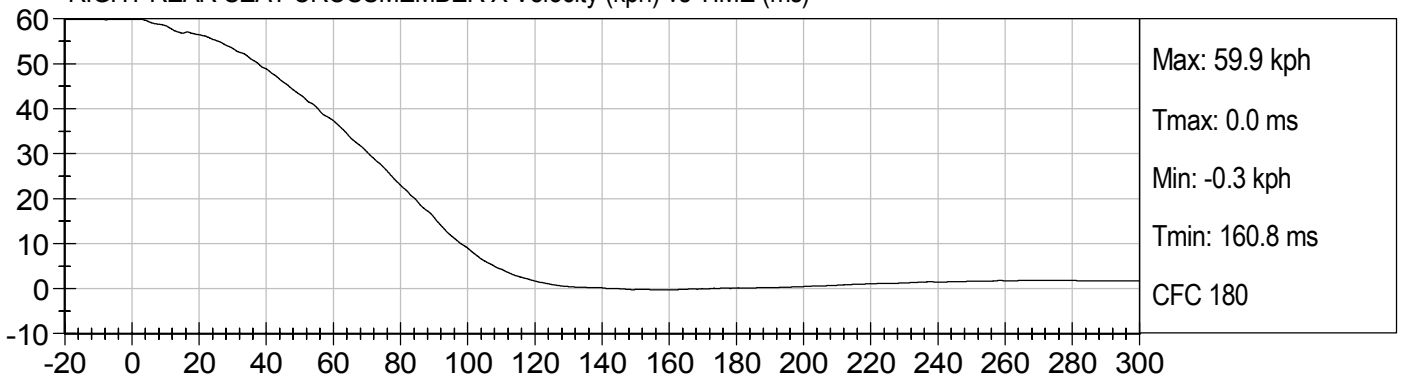
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

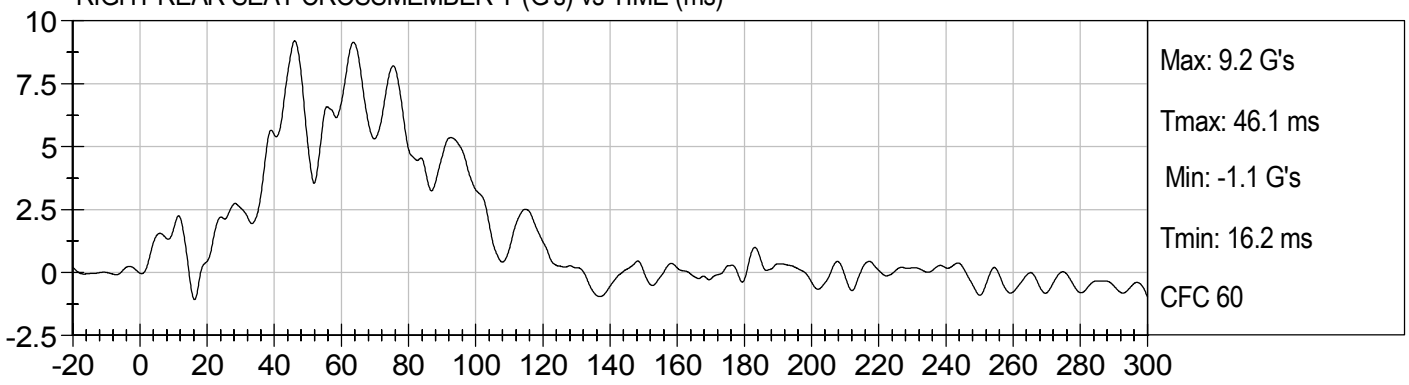
RIGHT REAR SEAT CROSSMEMBER X (G's) vs TIME (ms)



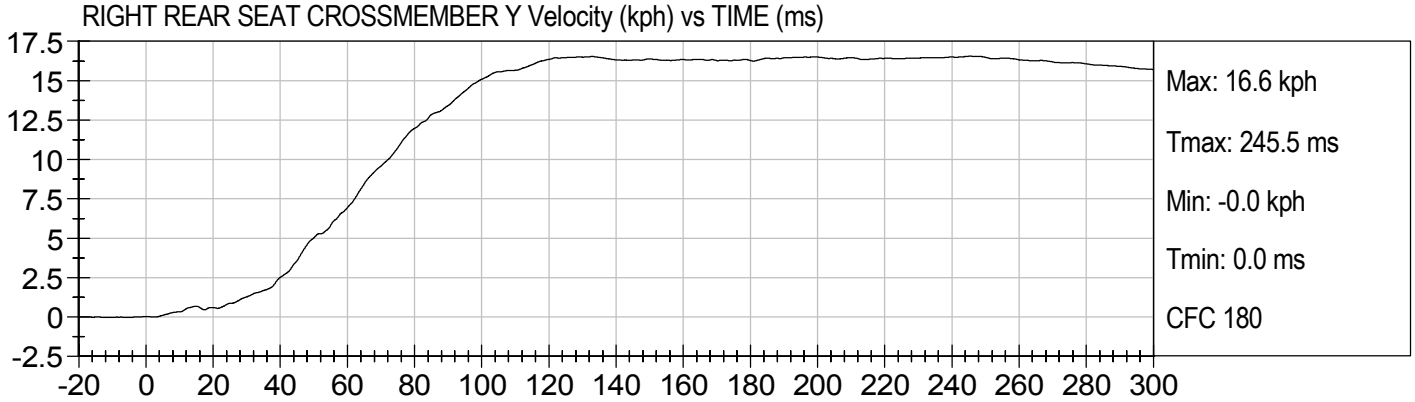
RIGHT REAR SEAT CROSSMEMBER X Velocity (kph) vs TIME (ms)



RIGHT REAR SEAT CROSSMEMBER Y (G's) vs TIME (ms)

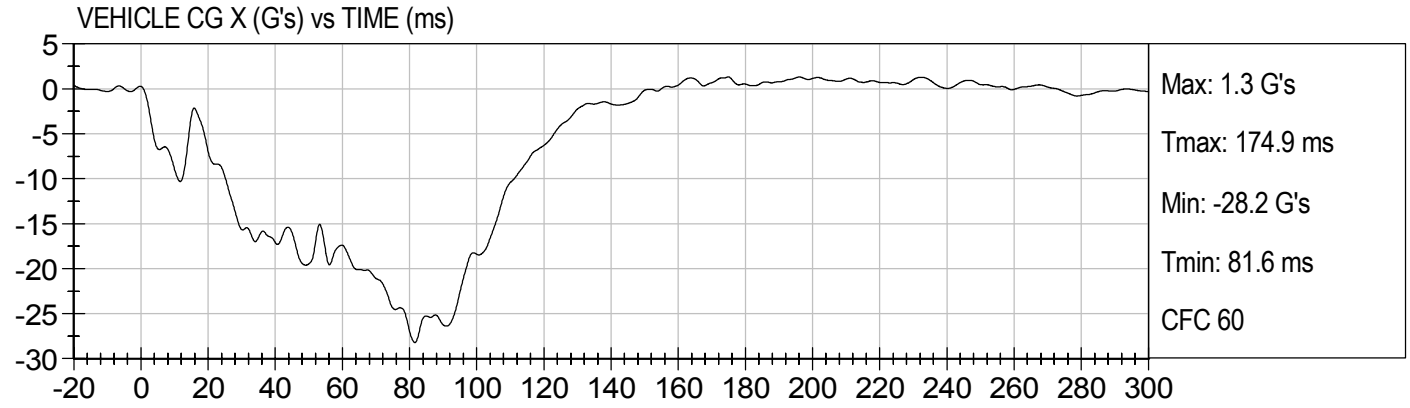


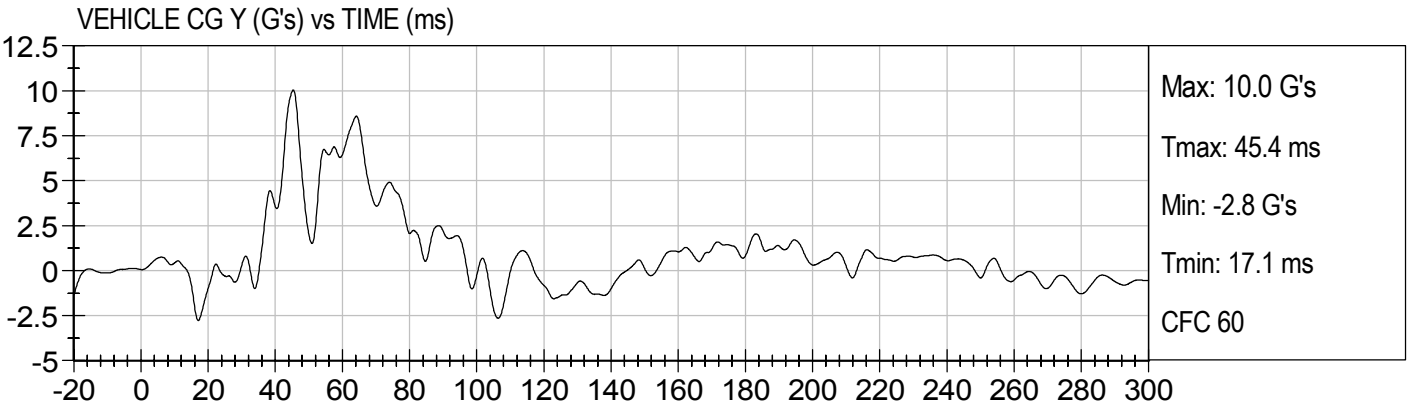
RIGHT REAR SEAT CROSSMEMBER Y Velocity (kph) vs TIME (ms)

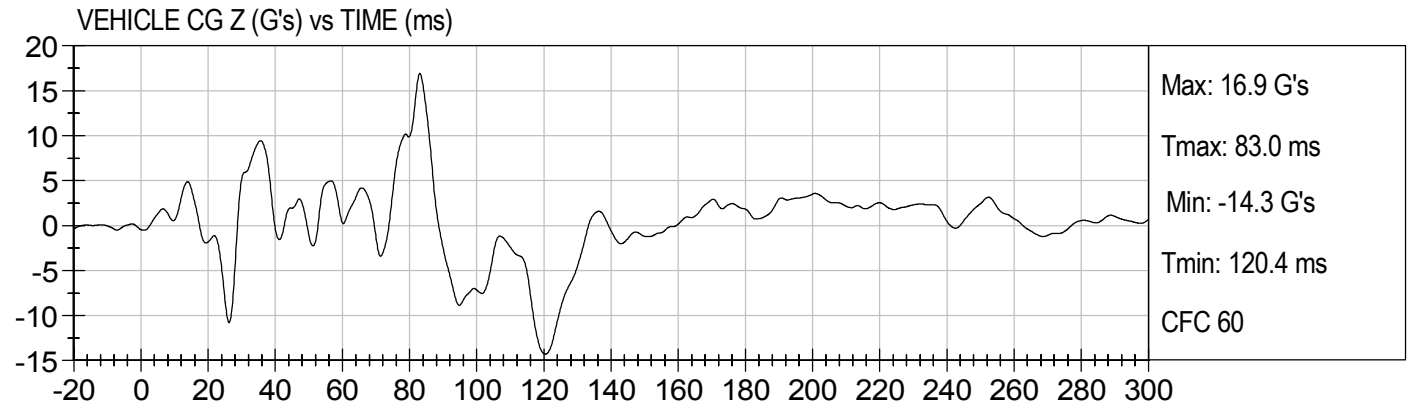


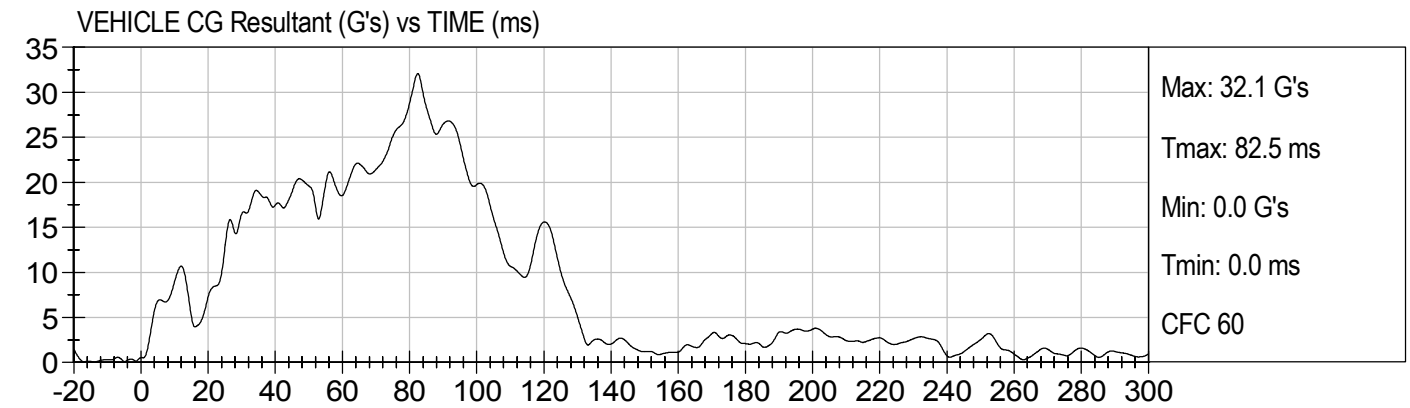
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)



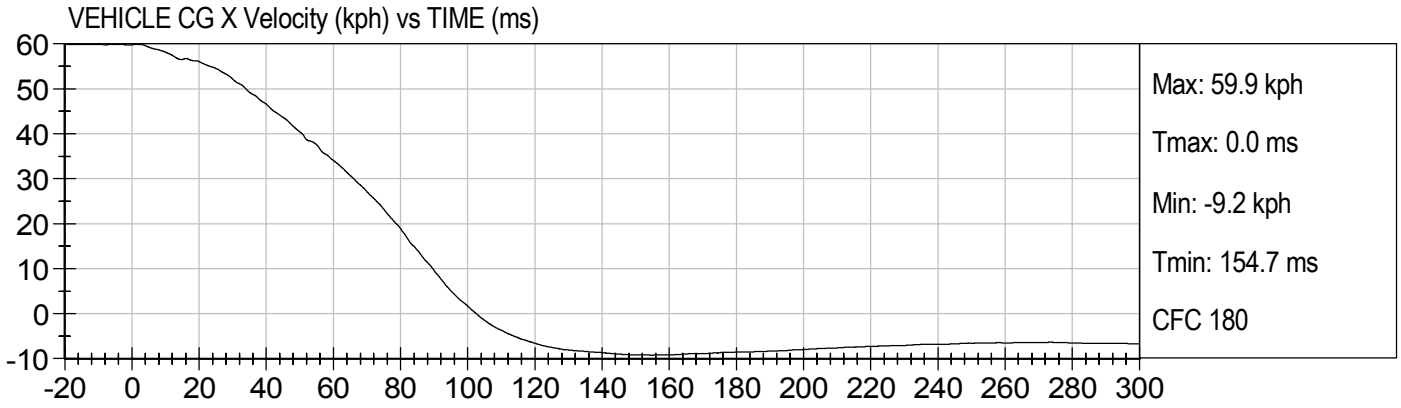


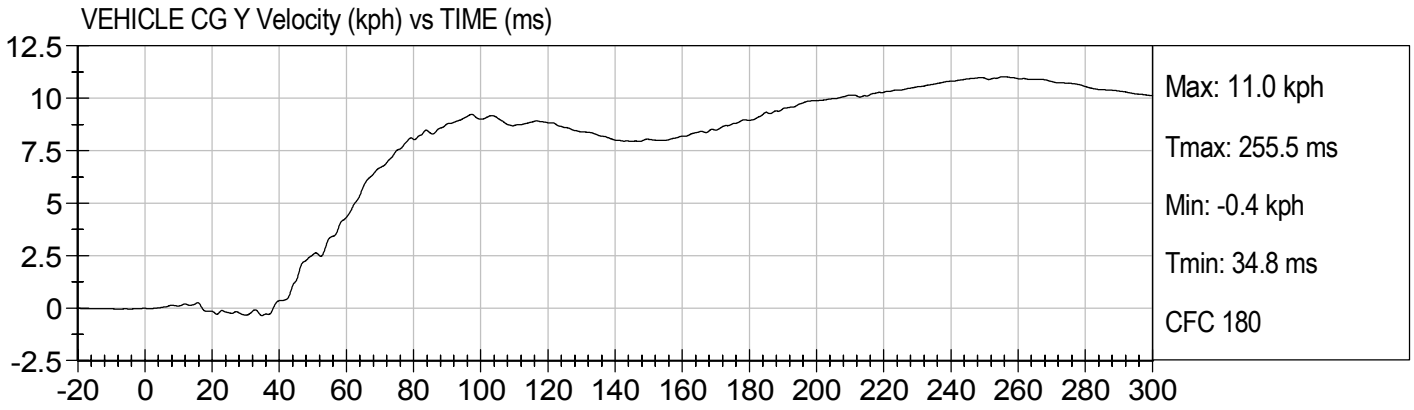


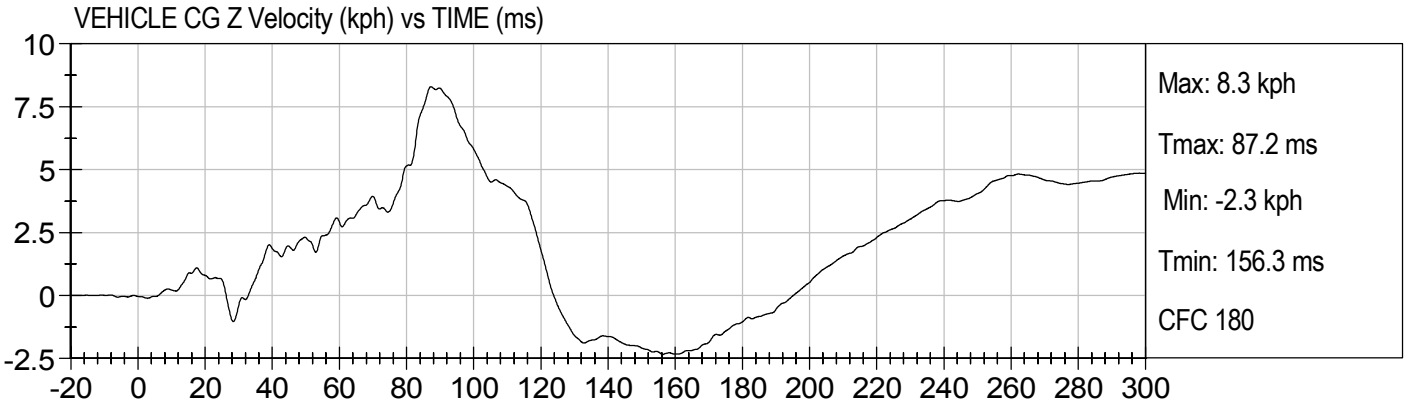


NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)



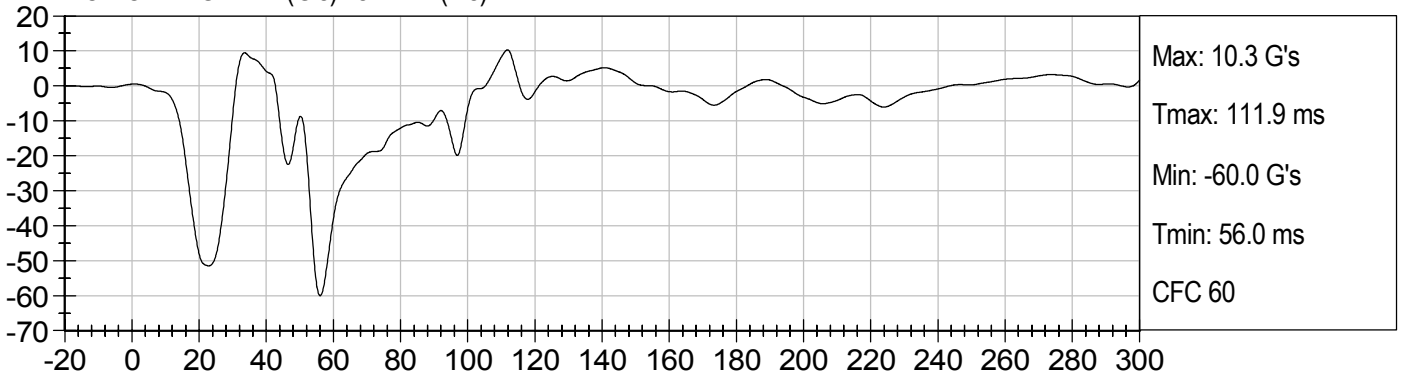




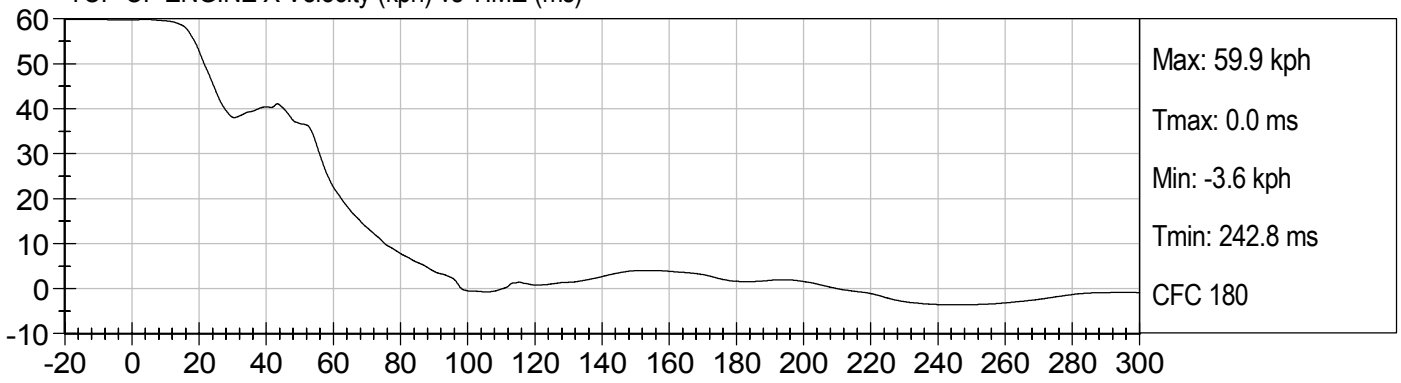
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

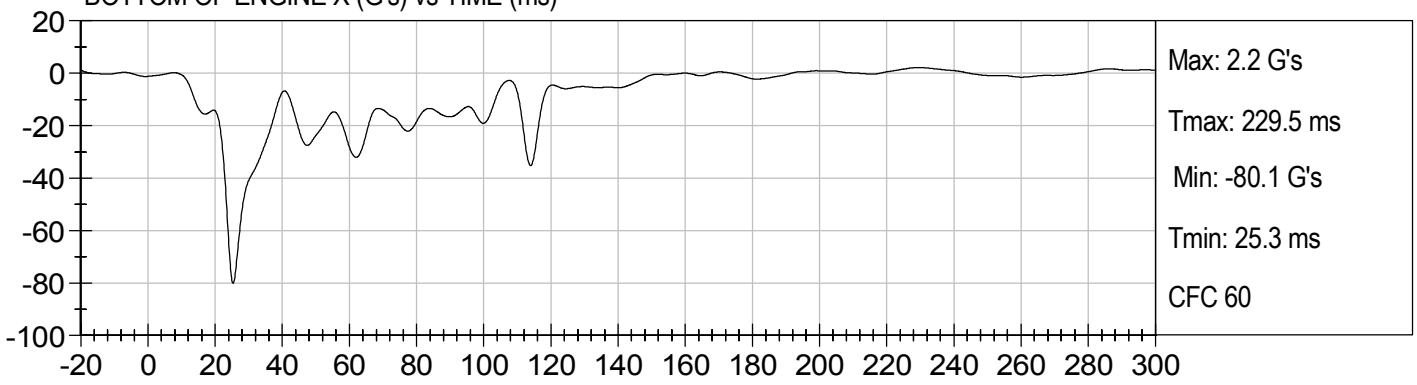
TOP OF ENGINE X (G's) vs TIME (ms)



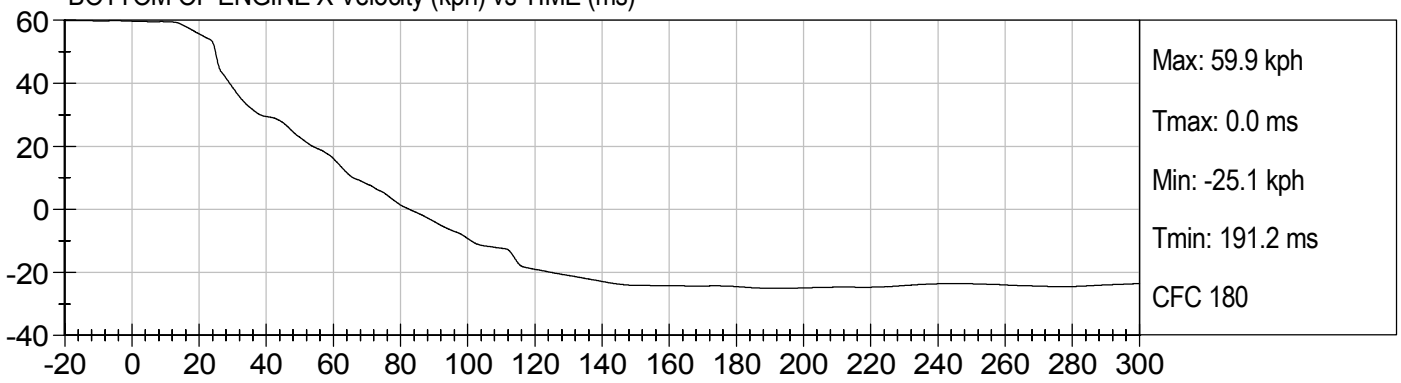
TOP OF ENGINE X Velocity (kph) vs TIME (ms)



BOTTOM OF ENGINE X (G's) vs TIME (ms)



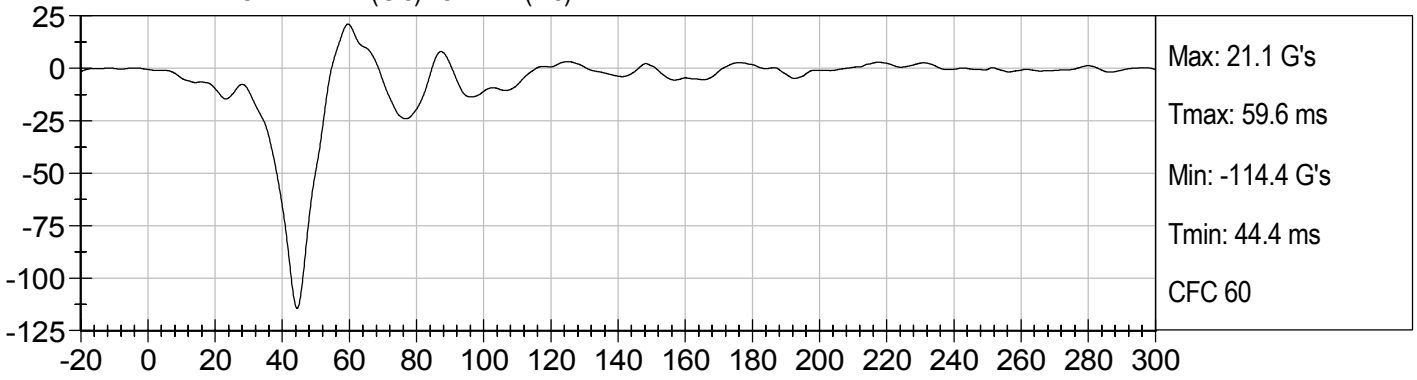
BOTTOM OF ENGINE X Velocity (kph) vs TIME (ms)



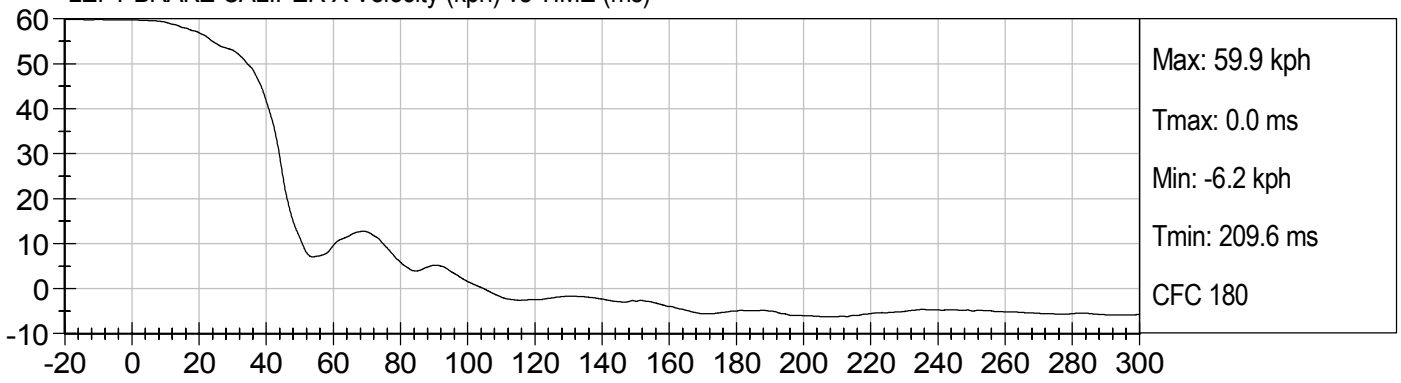
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

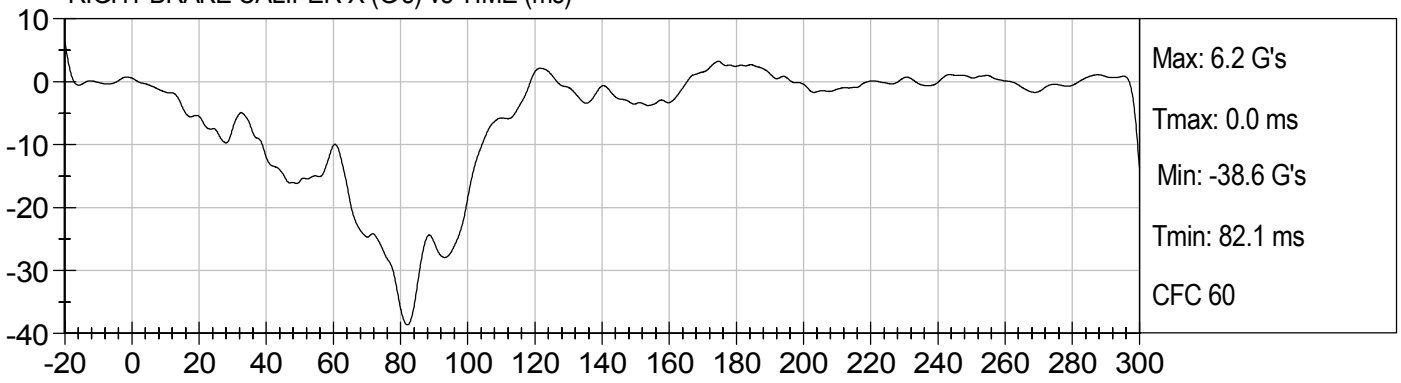
LEFT BRAKE CALIPER X (G's) vs TIME (ms)



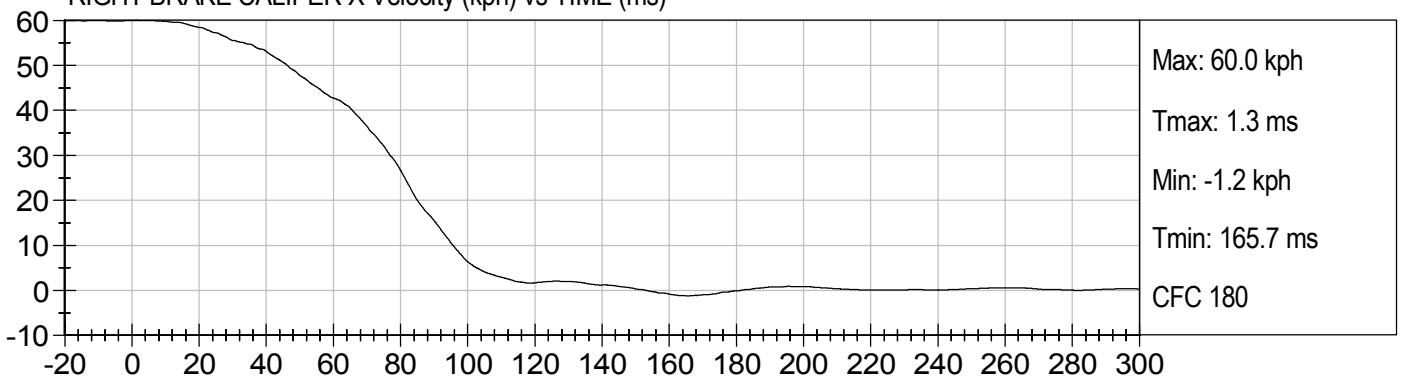
LEFT BRAKE CALIPER X Velocity (kph) vs TIME (ms)



RIGHT BRAKE CALIPER X (G's) vs TIME (ms)



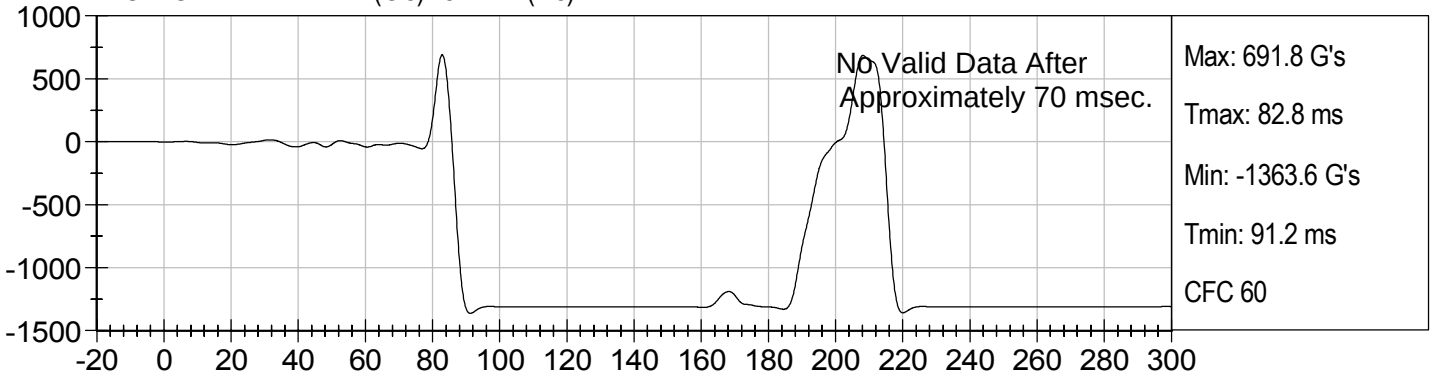
RIGHT BRAKE CALIPER X Velocity (kph) vs TIME (ms)



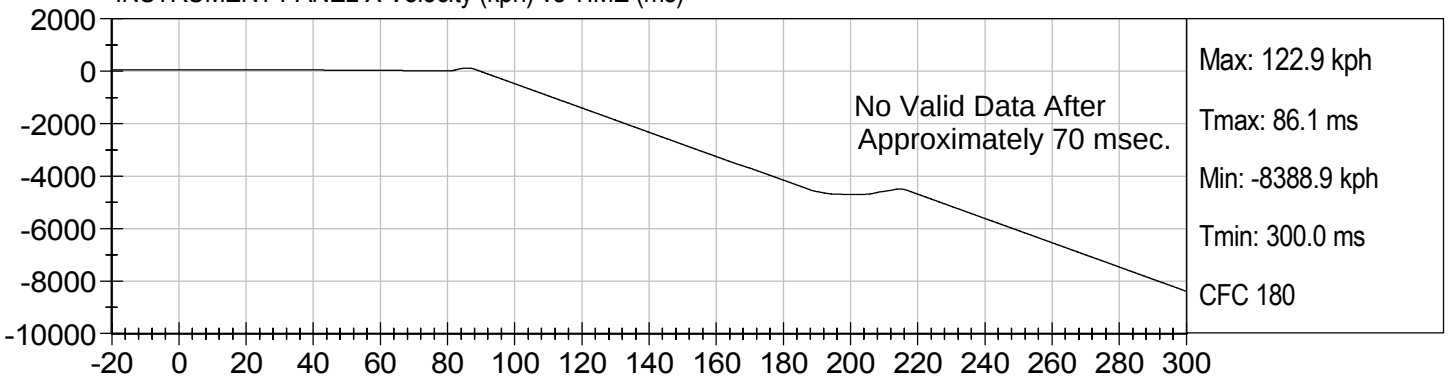
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

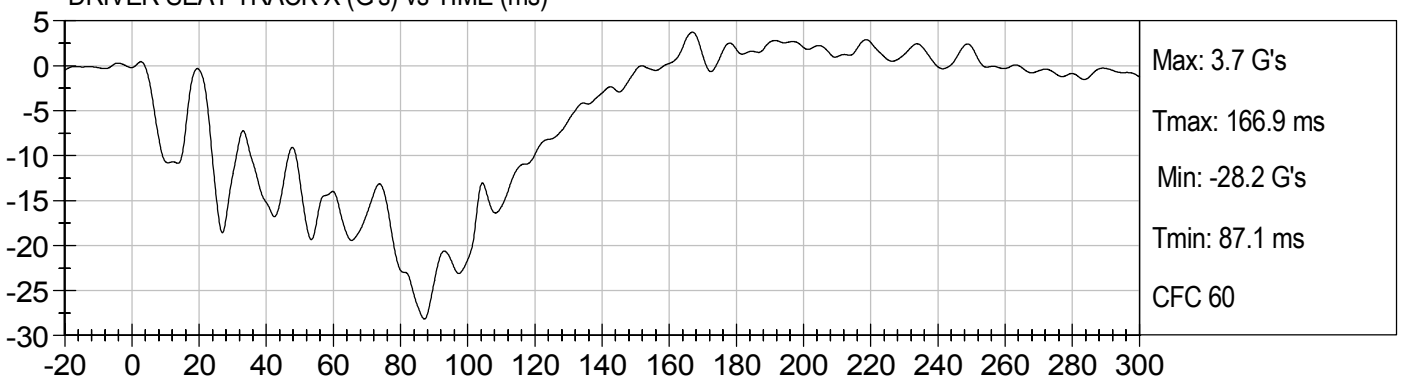
INSTRUMENT PANEL X (G's) vs TIME (ms)



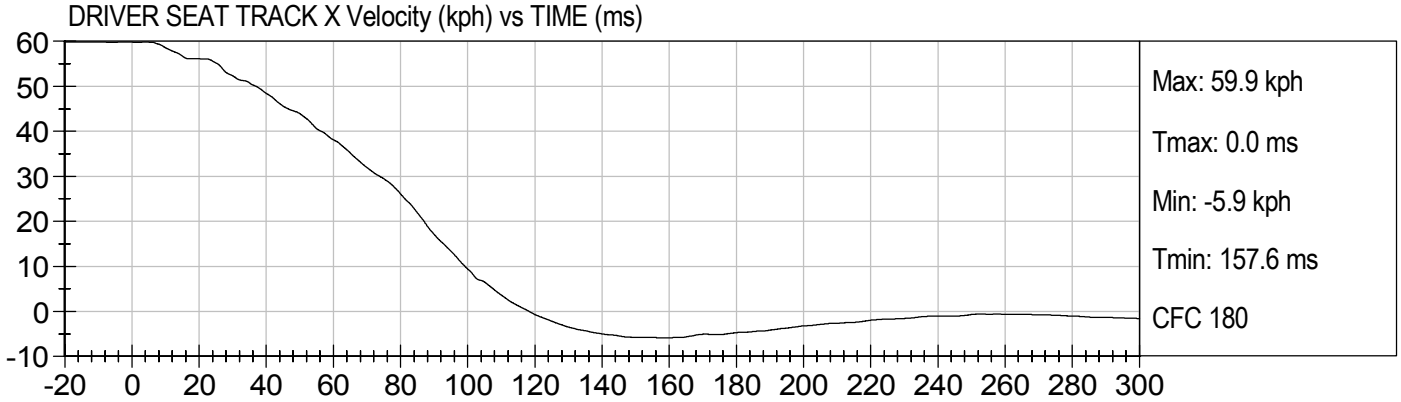
INSTRUMENT PANEL X Velocity (kph) vs TIME (ms)



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



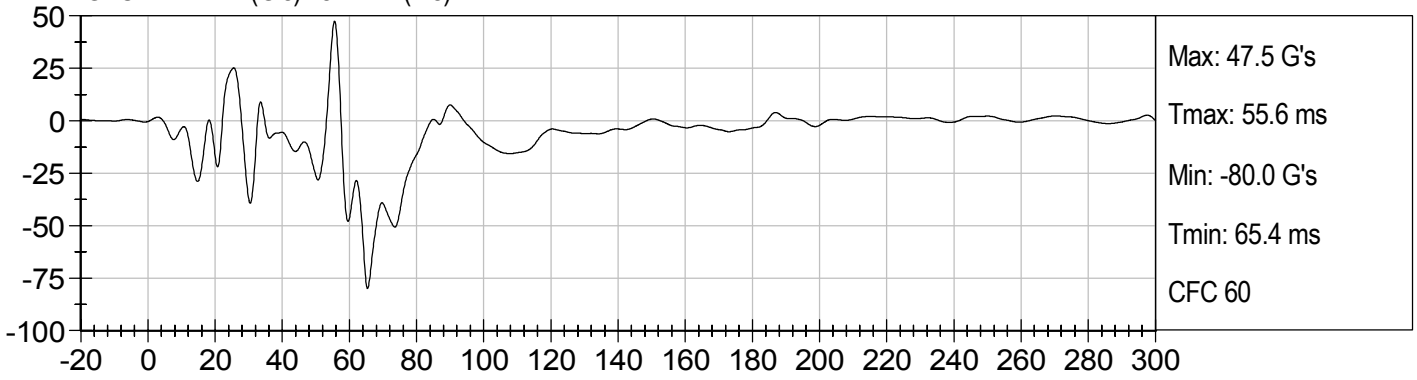
DRIVER SEAT TRACK X Velocity (kph) vs TIME (ms)



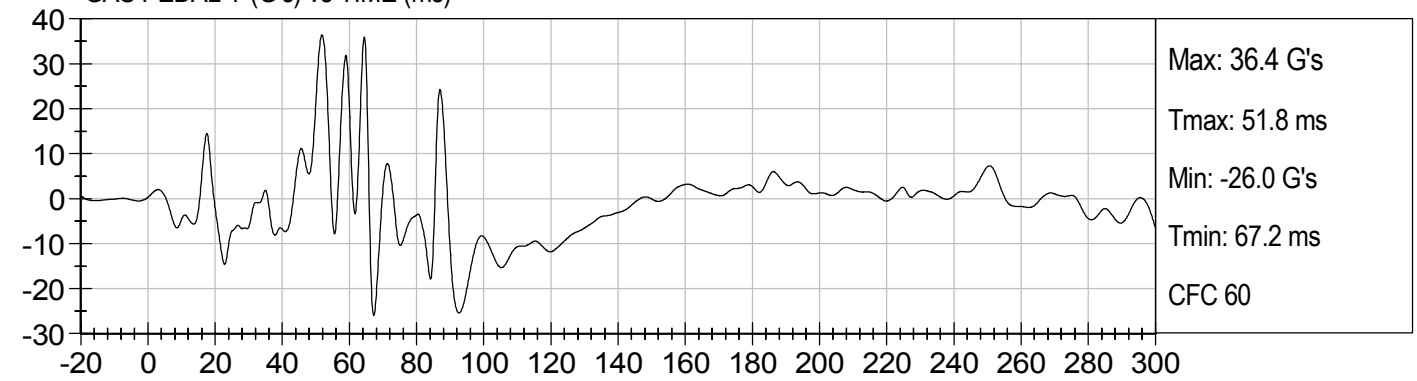
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

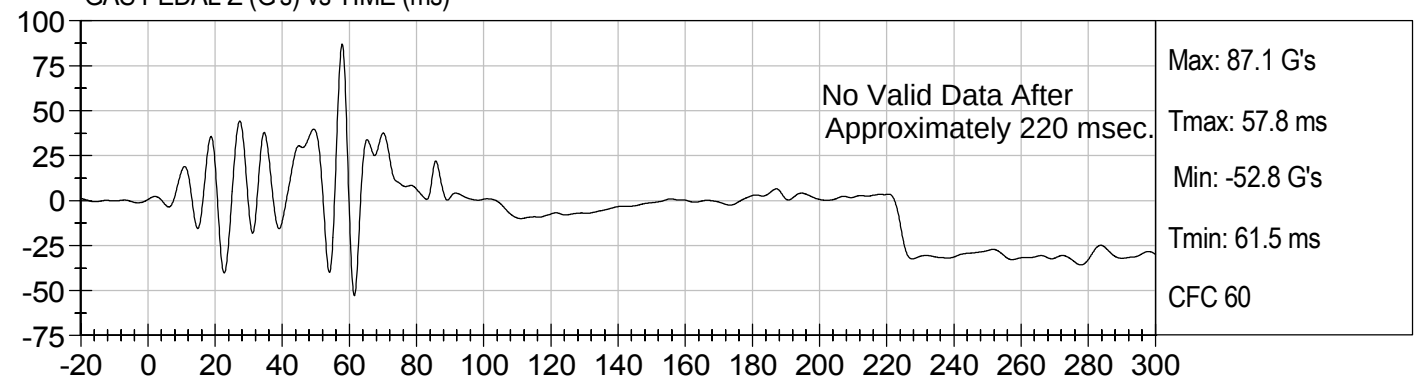
GAS PEDAL X (G's) vs TIME (ms)



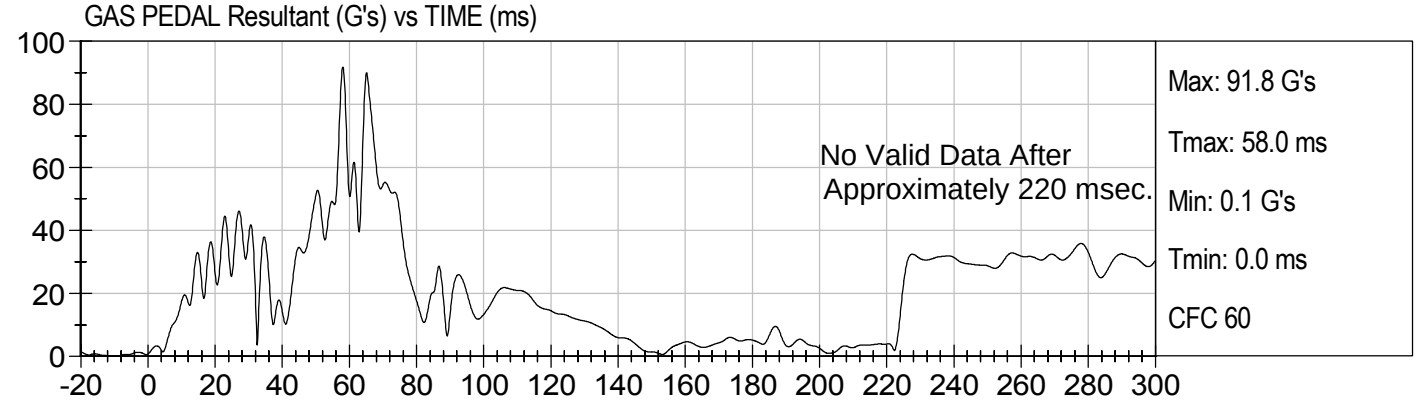
GAS PEDAL Y (G's) vs TIME (ms)



GAS PEDAL Z (G's) vs TIME (ms)

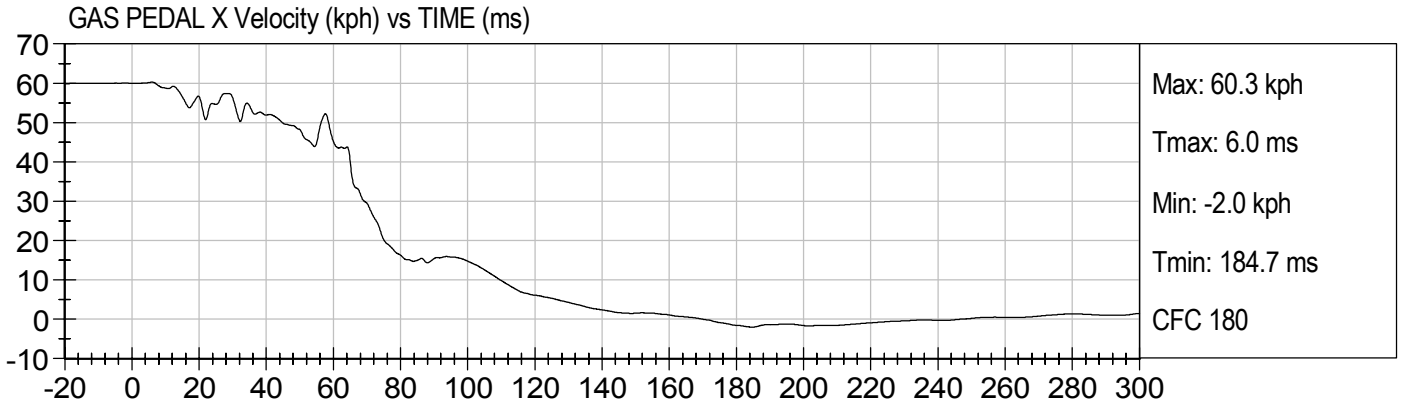


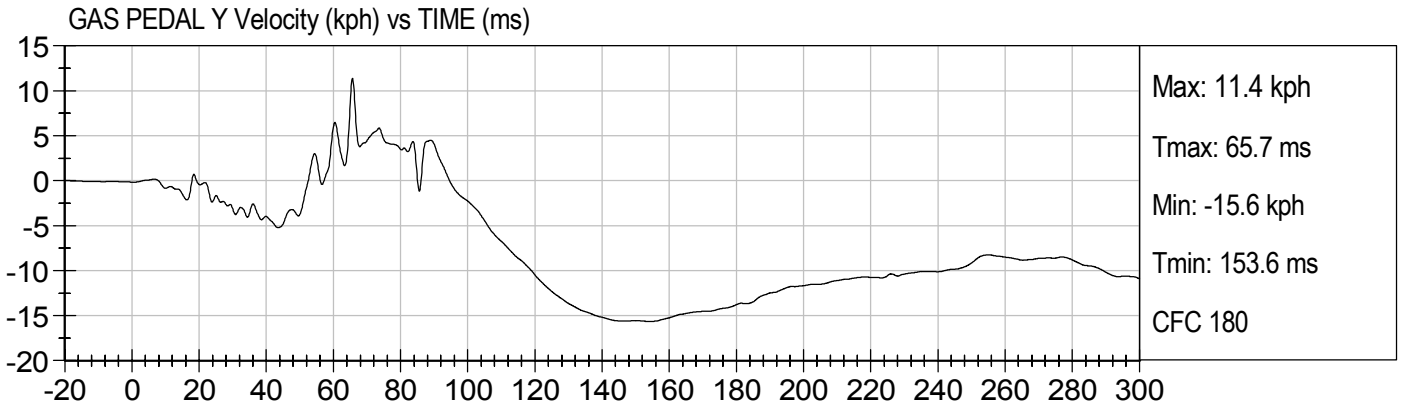
GAS PEDAL Resultant (G's) vs TIME (ms)

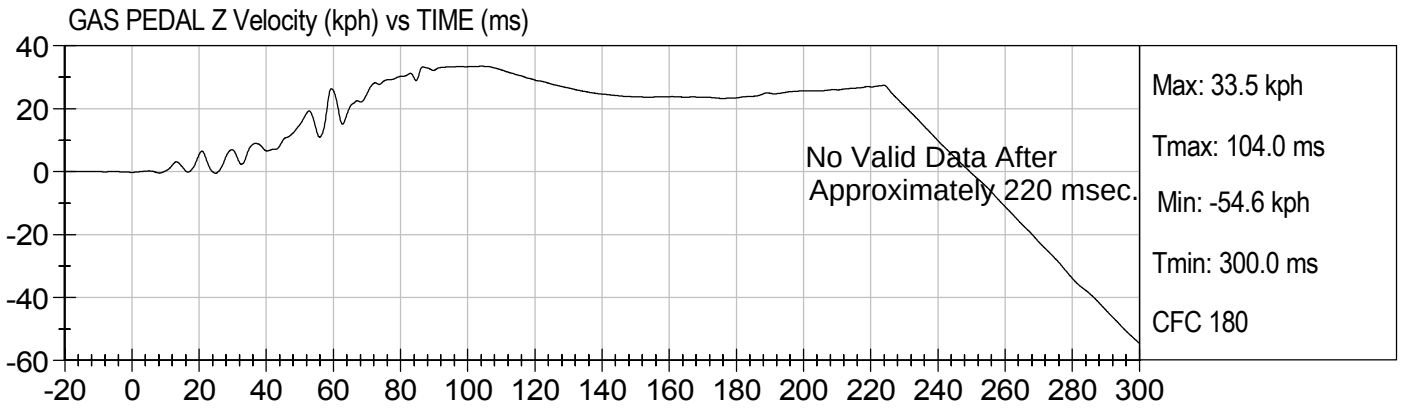


NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)



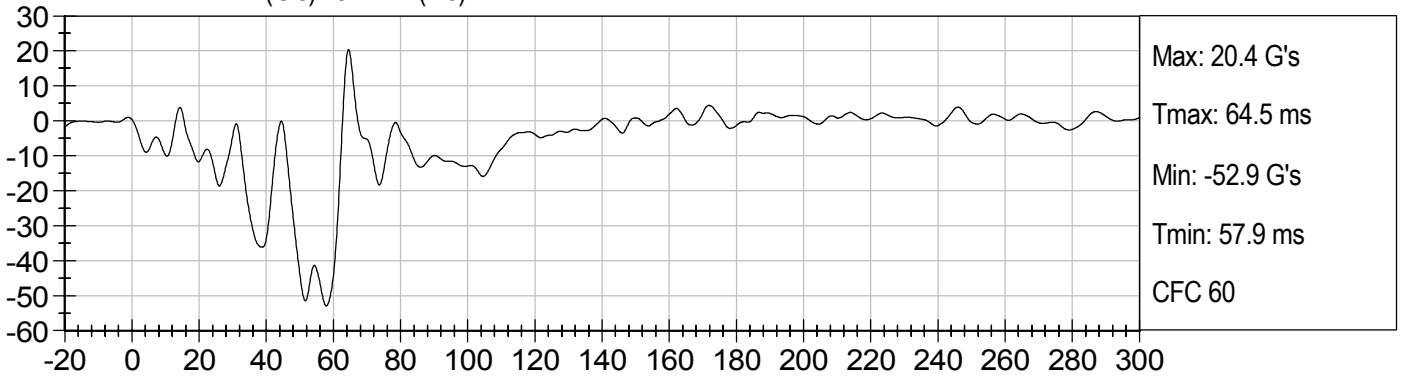




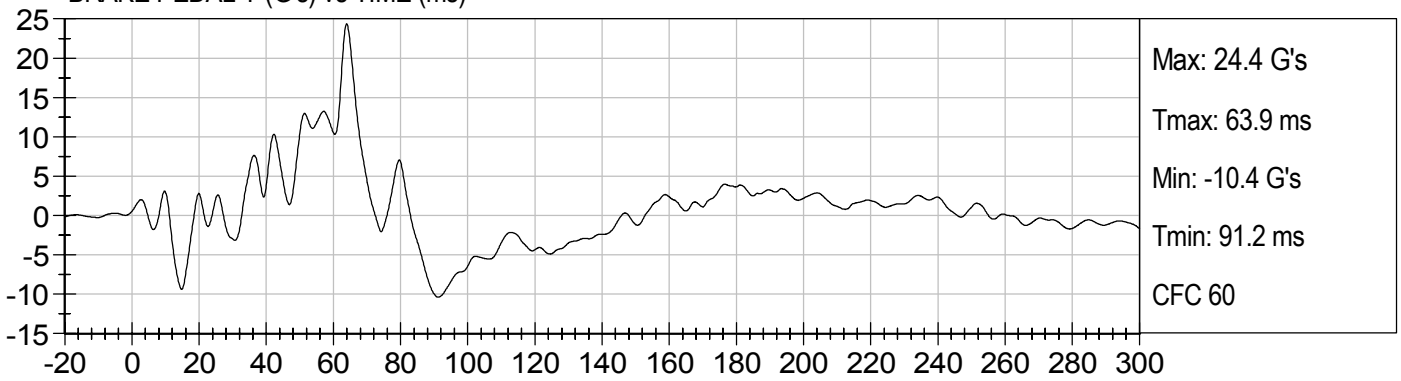
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

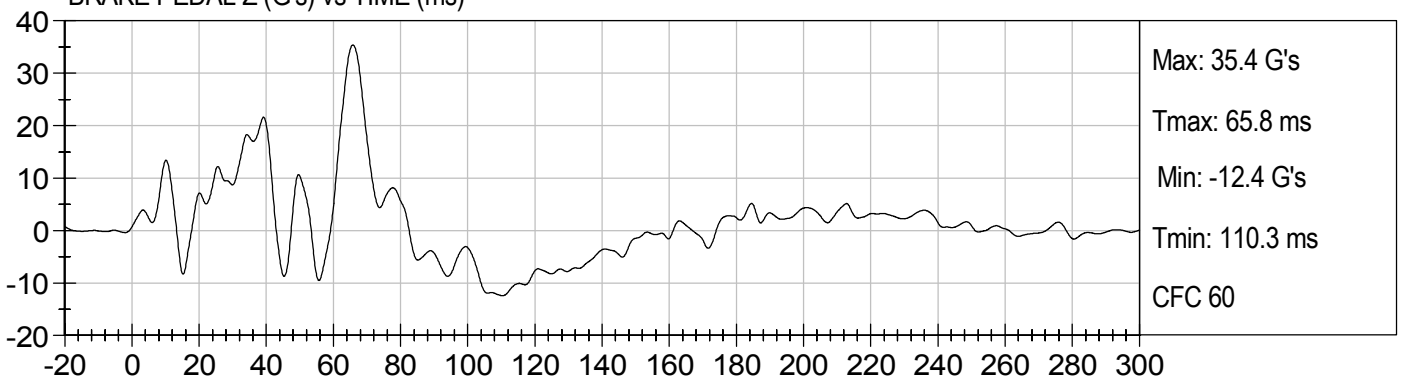
BRAKE PEDAL X (G's) vs TIME (ms)



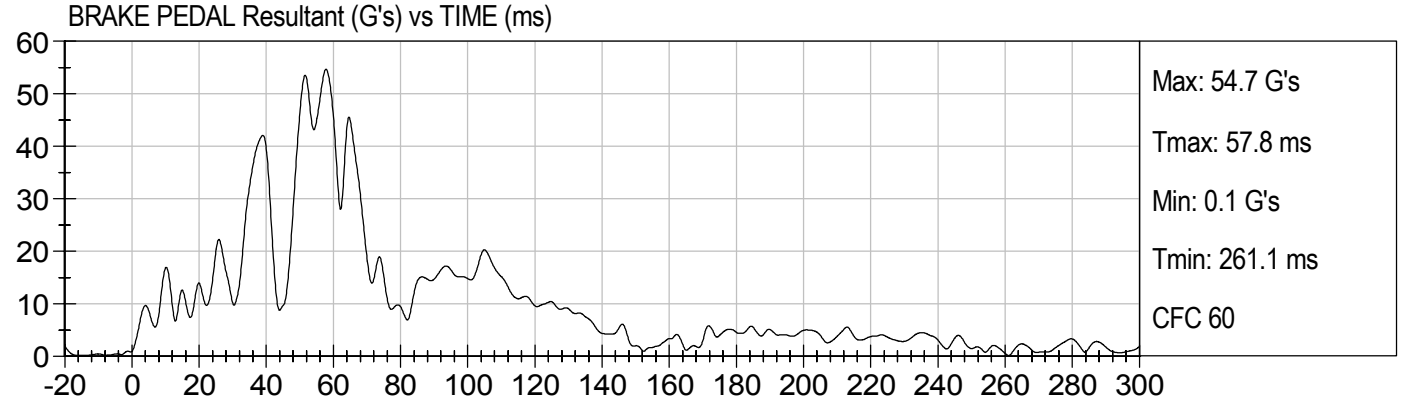
BRAKE PEDAL Y (G's) vs TIME (ms)



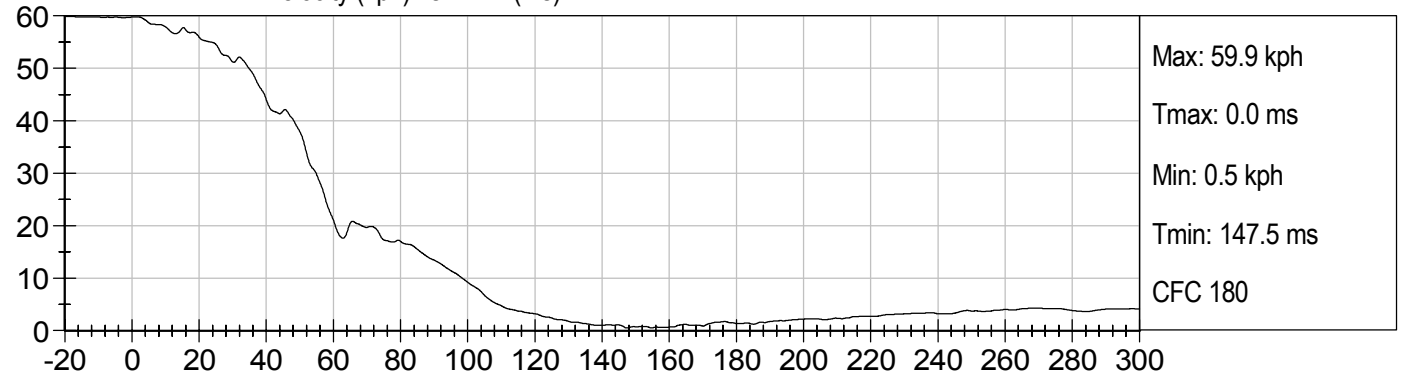
BRAKE PEDAL Z (G's) vs TIME (ms)



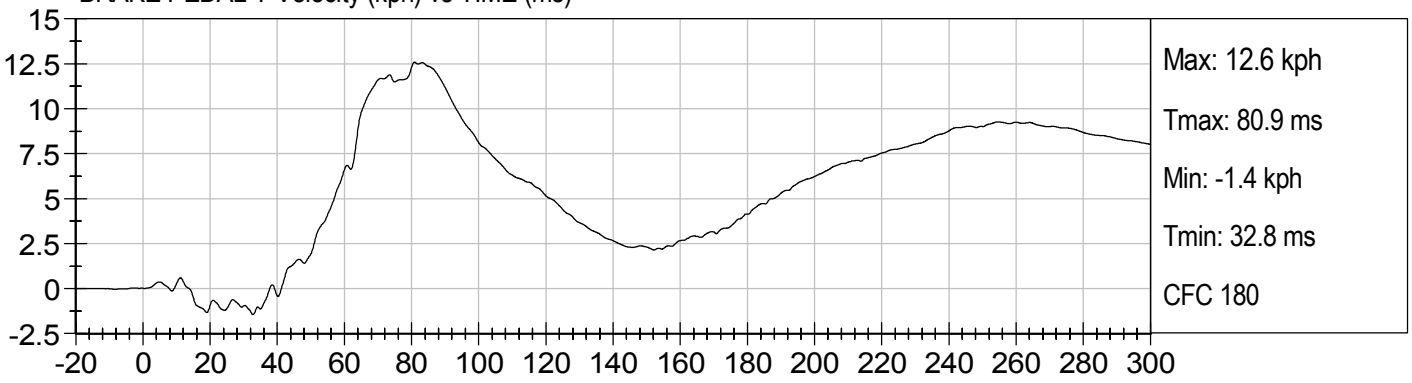
BRAKE PEDAL Resultant (G's) vs TIME (ms)



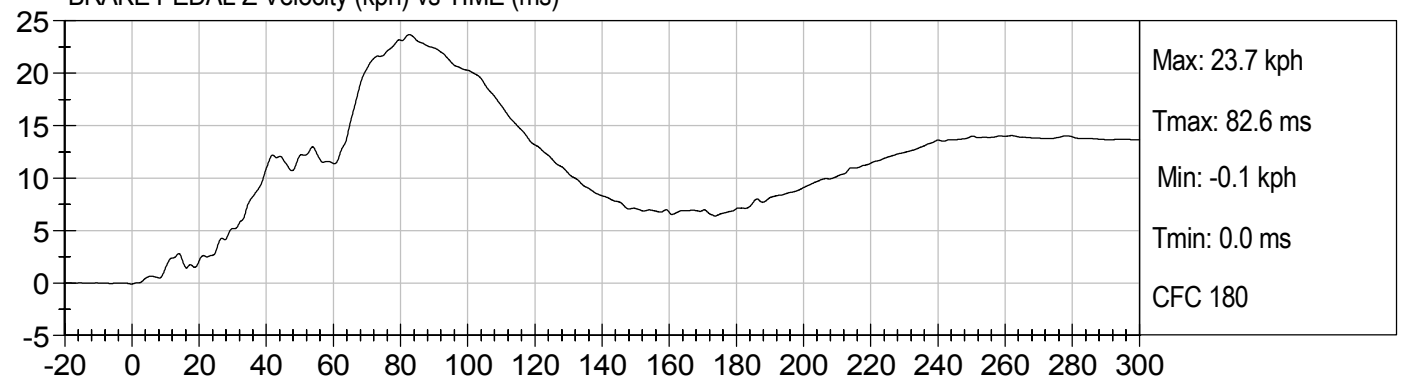
BRAKE PEDAL X Velocity (kph) vs TIME (ms)



BRAKE PEDAL Y Velocity (kph) vs TIME (ms)



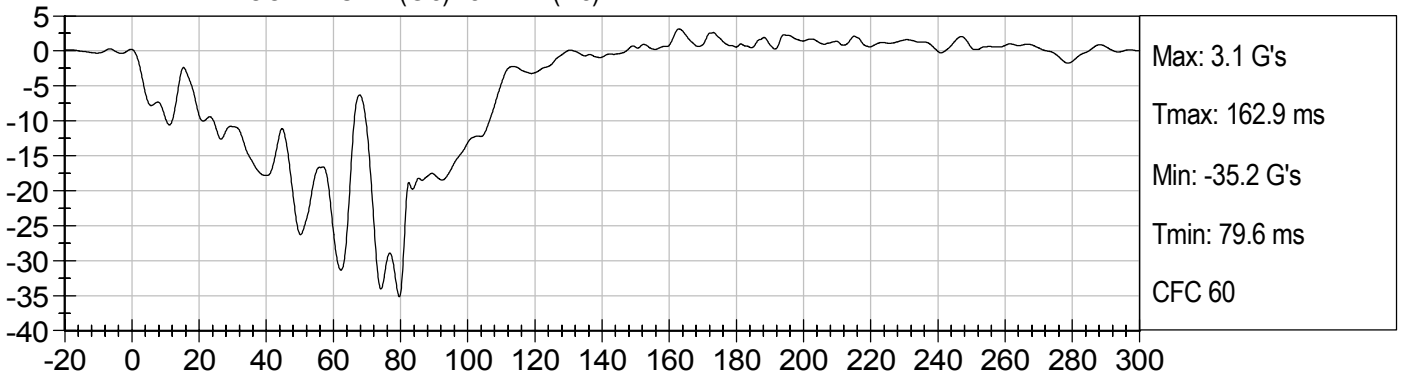
BRAKE PEDAL Z Velocity (kph) vs TIME (ms)



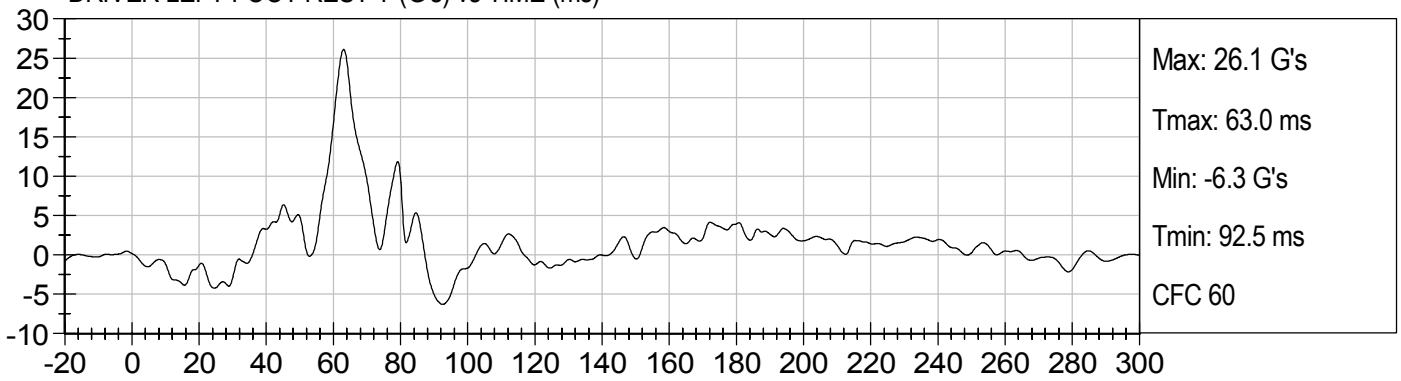
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

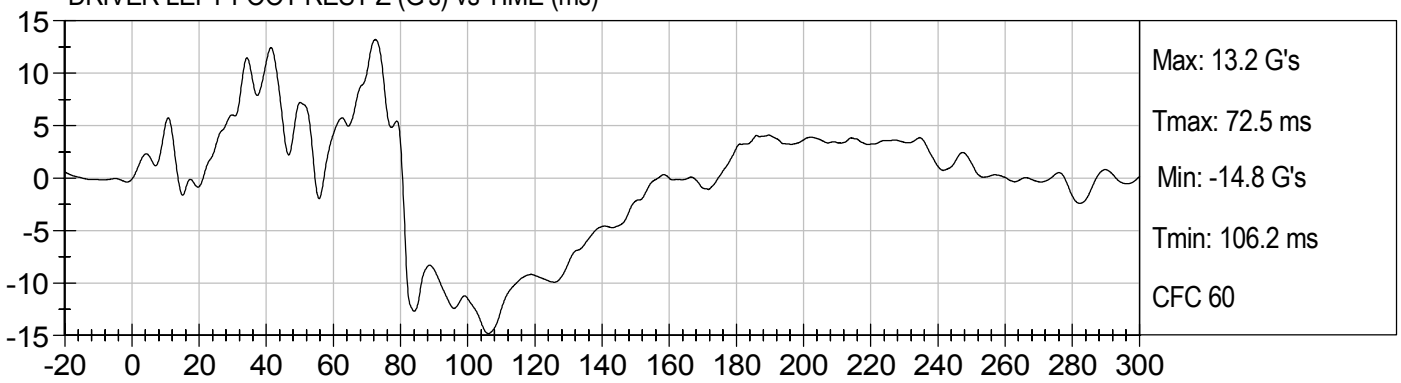
DRIVER LEFT FOOT REST X (G's) vs TIME (ms)



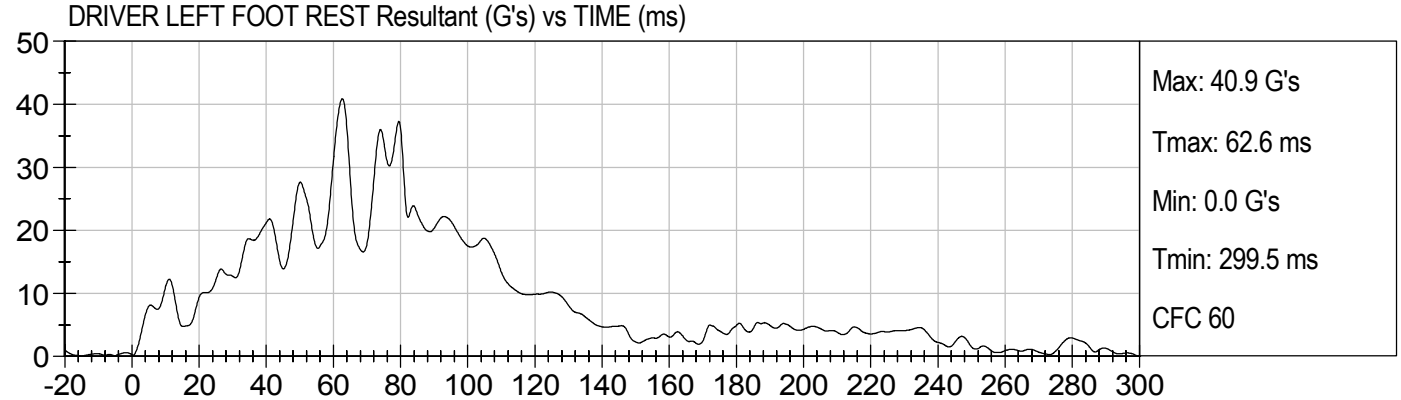
DRIVER LEFT FOOT REST Y (G's) vs TIME (ms)



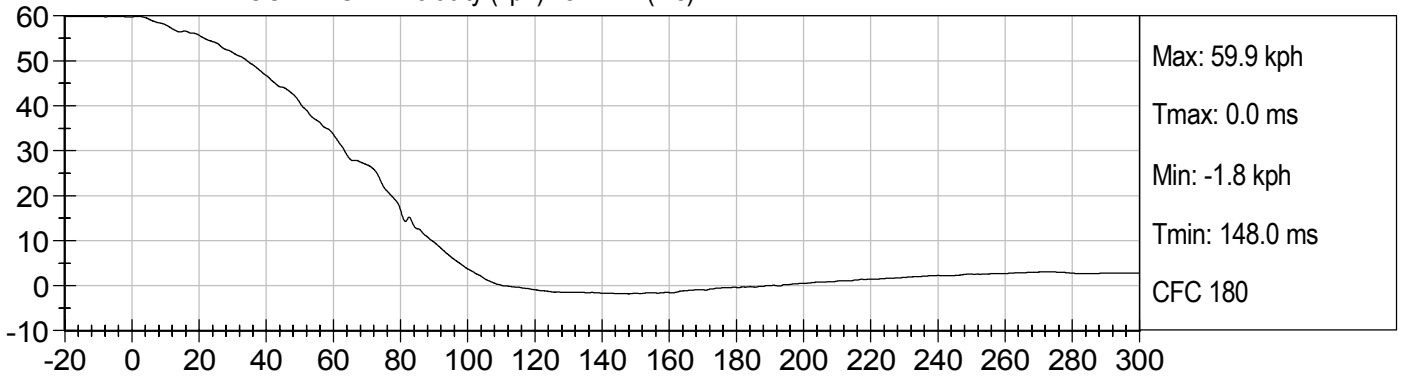
DRIVER LEFT FOOT REST Z (G's) vs TIME (ms)



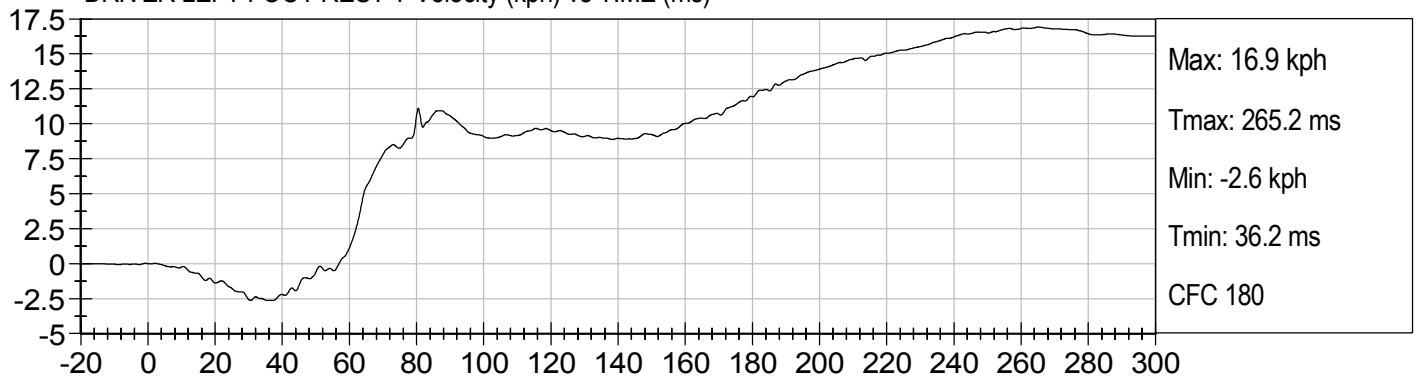
DRIVER LEFT FOOT REST Resultant (G's) vs TIME (ms)



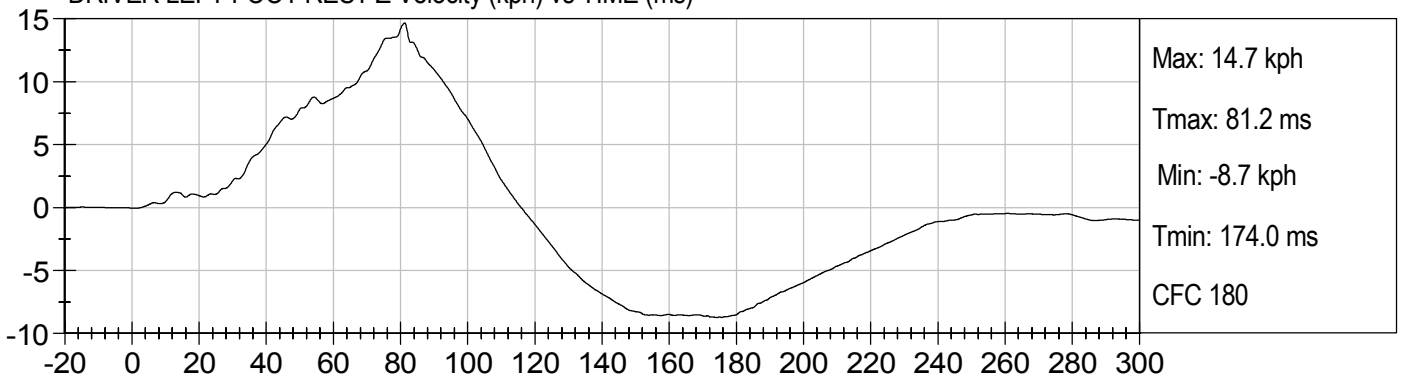
DRIVER LEFT FOOT REST X Velocity (kph) vs TIME (ms)



DRIVER LEFT FOOT REST Y Velocity (kph) vs TIME (ms)



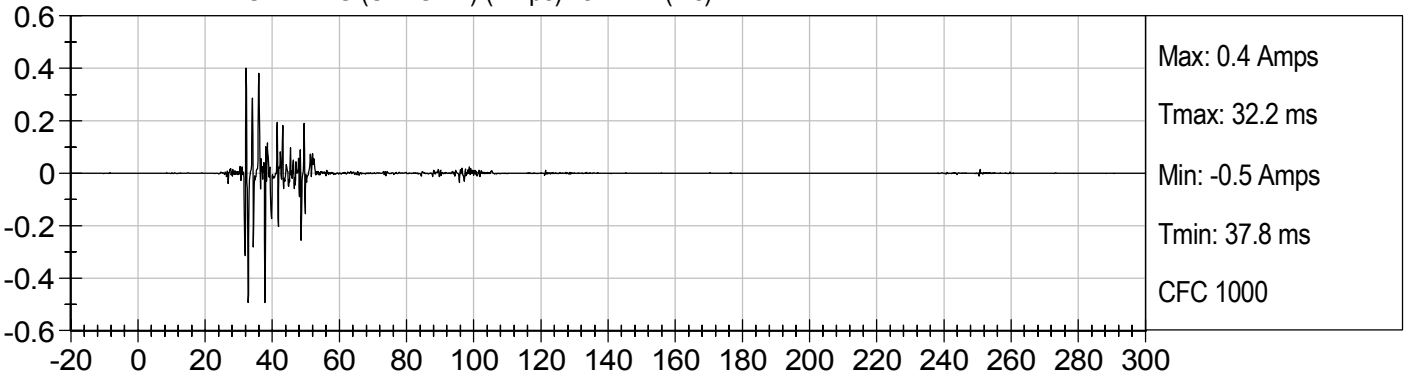
DRIVER LEFT FOOT REST Z Velocity (kph) vs TIME (ms)



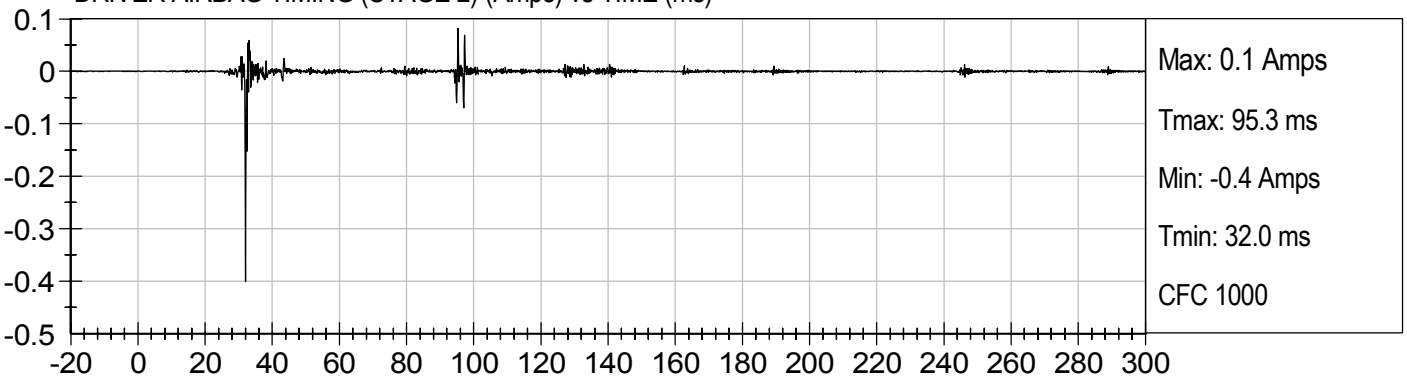
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

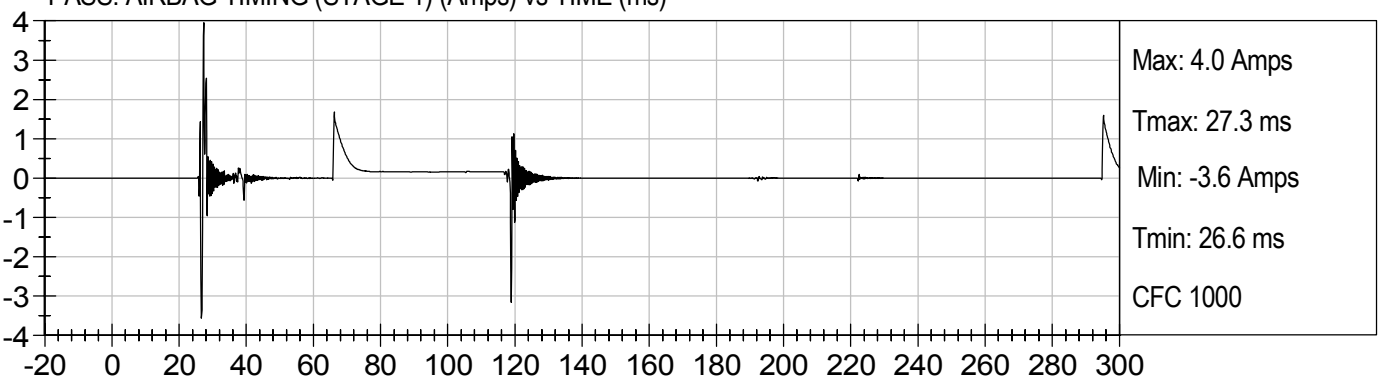
DRIVER AIRBAG TIMING (STAGE 1) (Amps) vs TIME (ms)



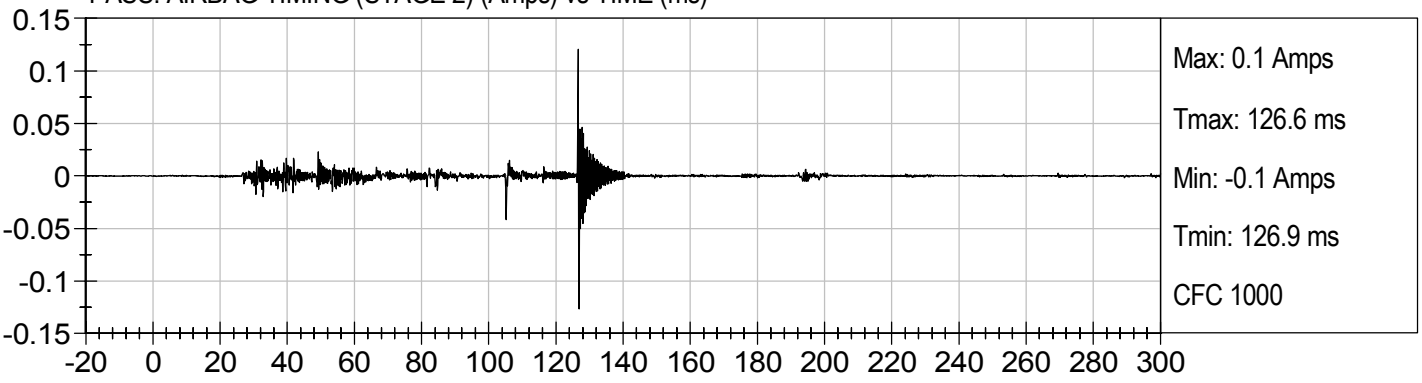
DRIVER AIRBAG TIMING (STAGE 2) (Amps) vs TIME (ms)



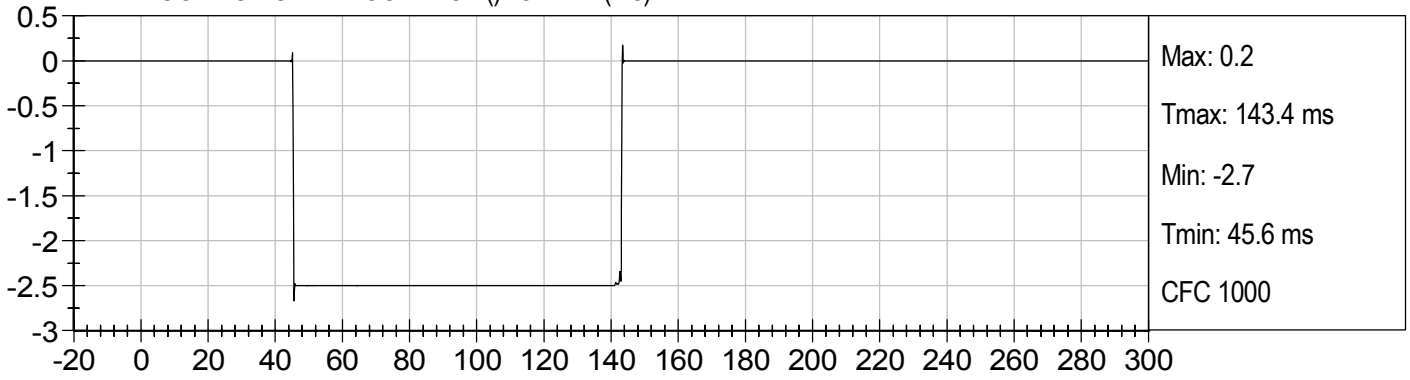
PASS. AIRBAG TIMING (STAGE 1) (Amps) vs TIME (ms)



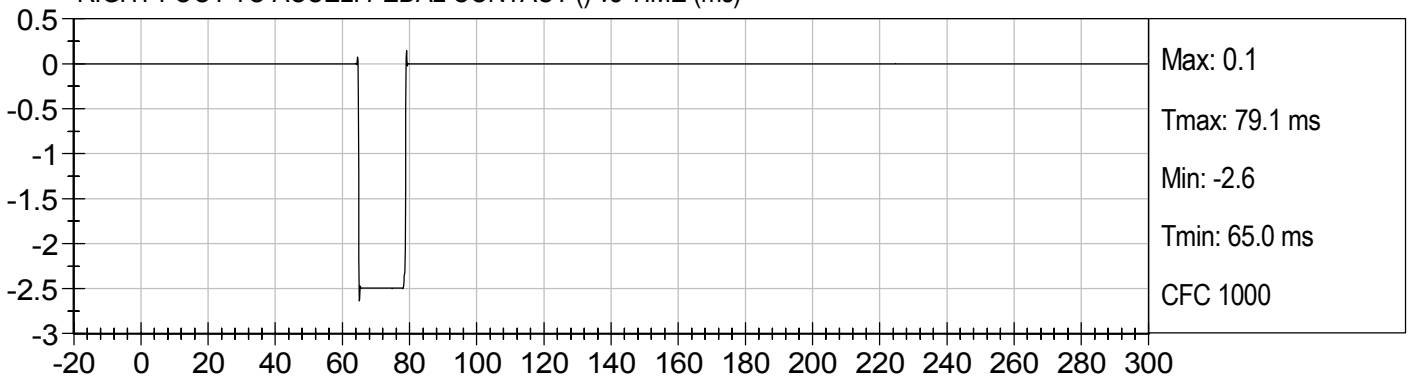
PASS. AIRBAG TIMING (STAGE 2) (Amps) vs TIME (ms)



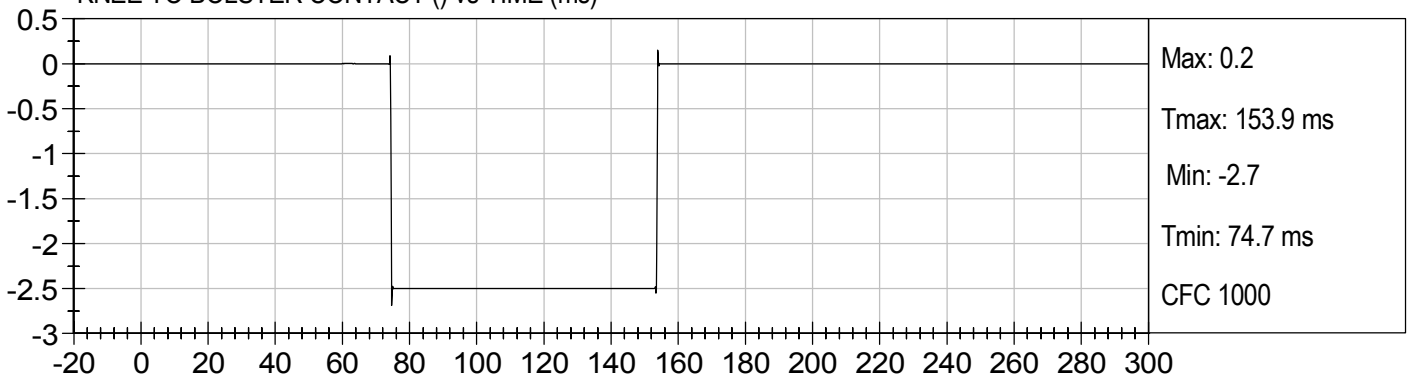
LEFT FOOT TO TOEPAN CONTACT () vs TIME (ms)



RIGHT FOOT TO ACCEL. PEDAL CONTACT () vs TIME (ms)



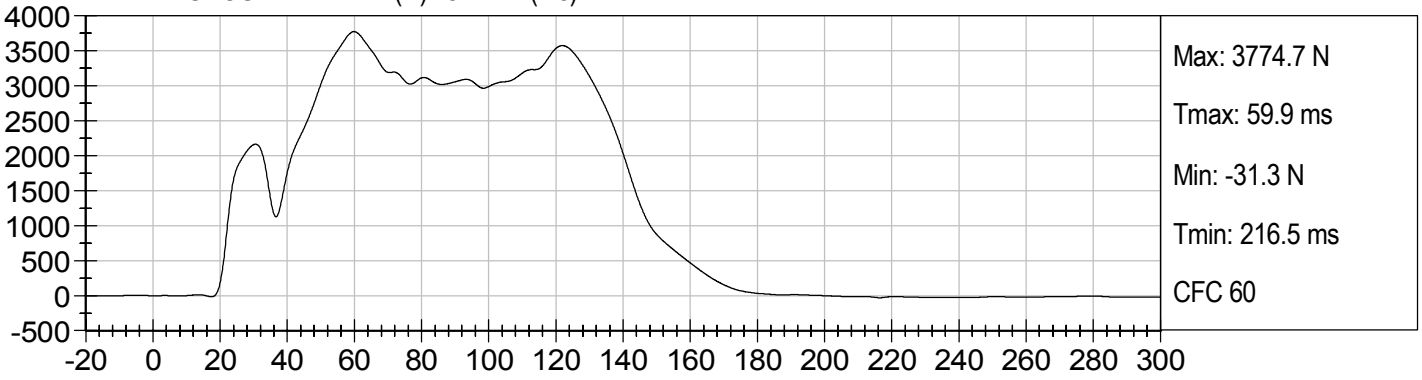
KNEE TO BOLSTER CONTACT () vs TIME (ms)



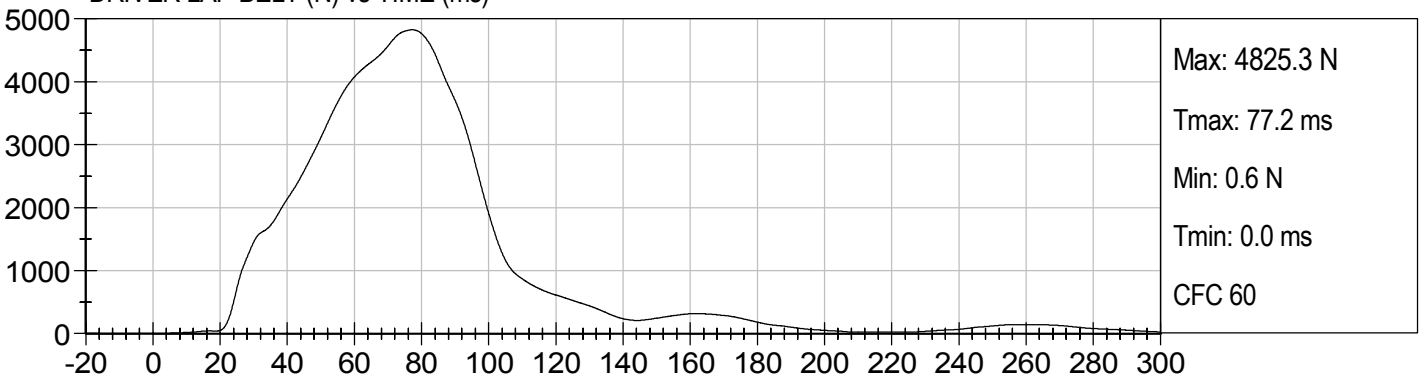
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

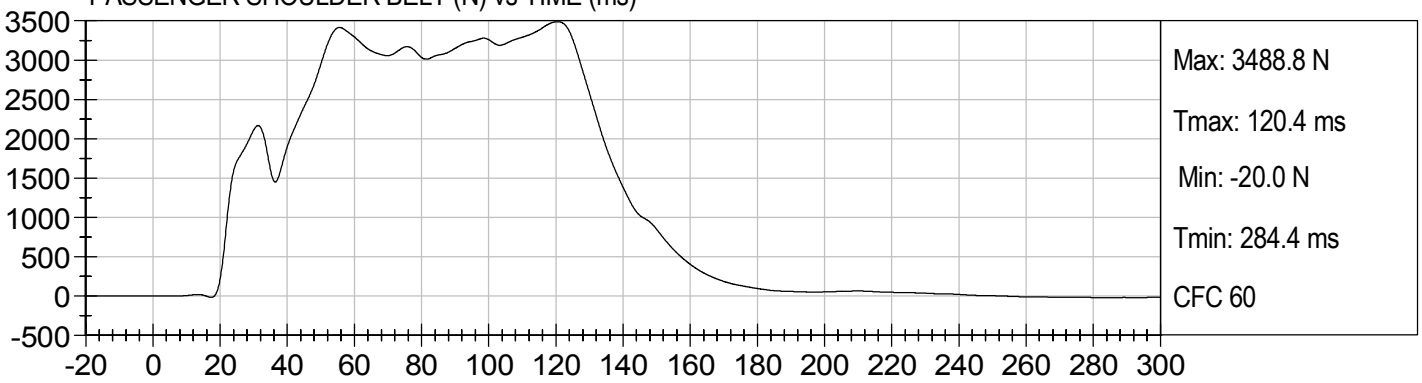
DRIVER SHOULDER BELT (N) vs TIME (ms)



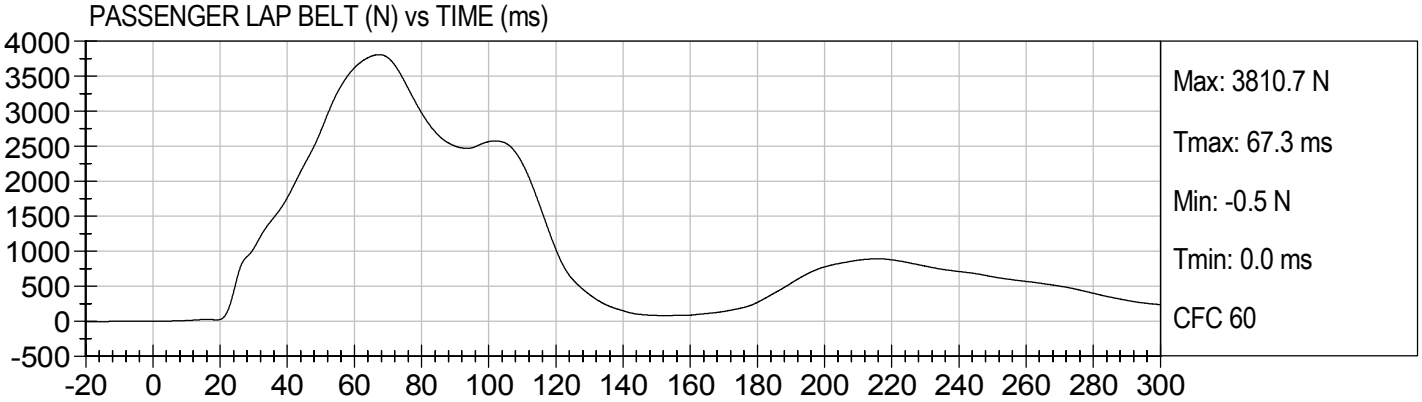
DRIVER LAP BELT (N) vs TIME (ms)



PASSENGER SHOULDER BELT (N) vs TIME (ms)



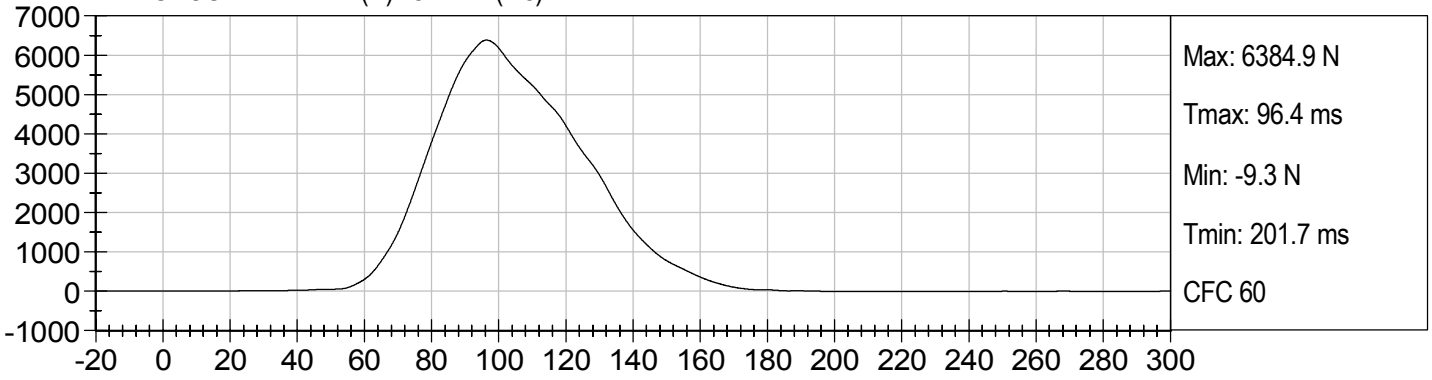
PASSENGER LAP BELT (N) vs TIME (ms)



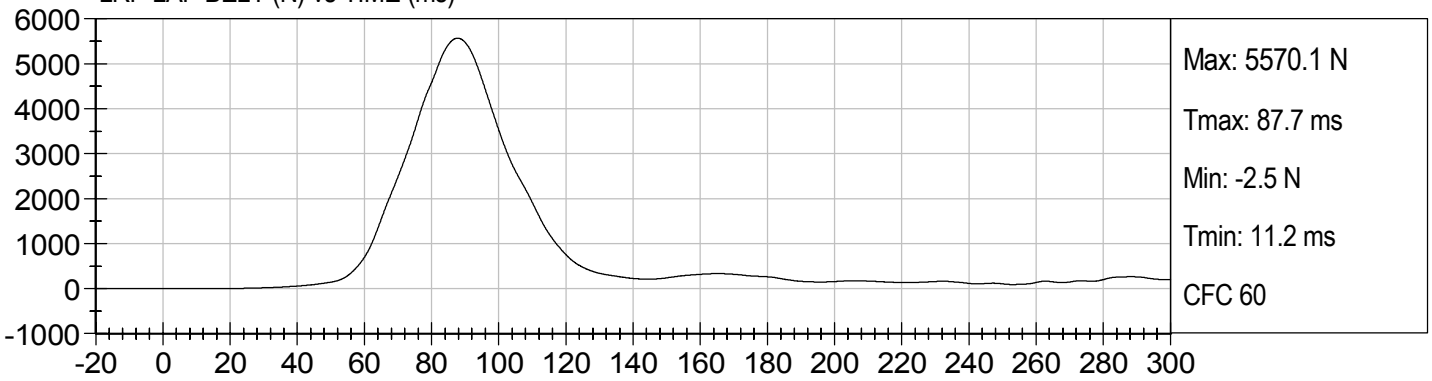
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

LRP SHOULDER BELT (N) vs TIME (ms)

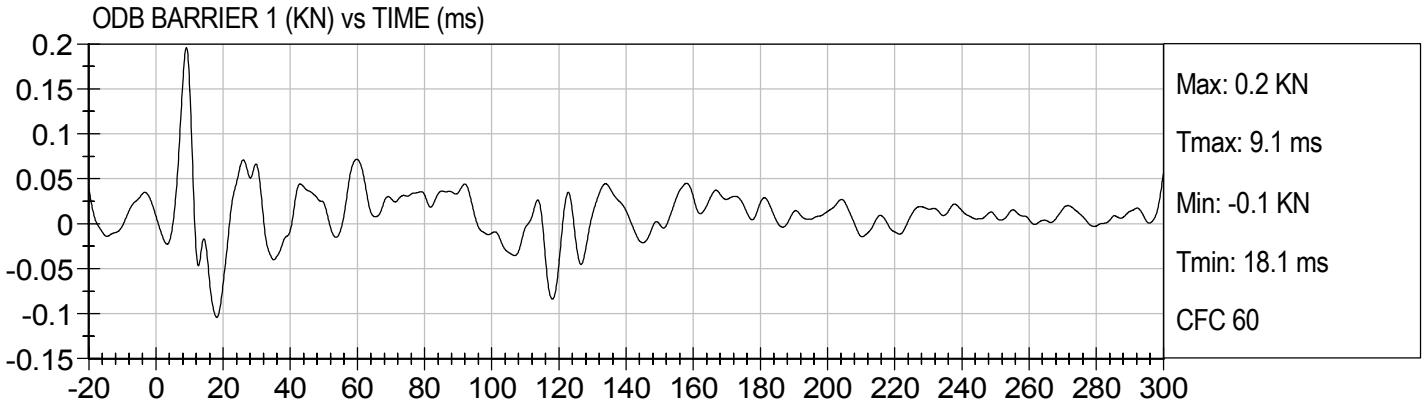


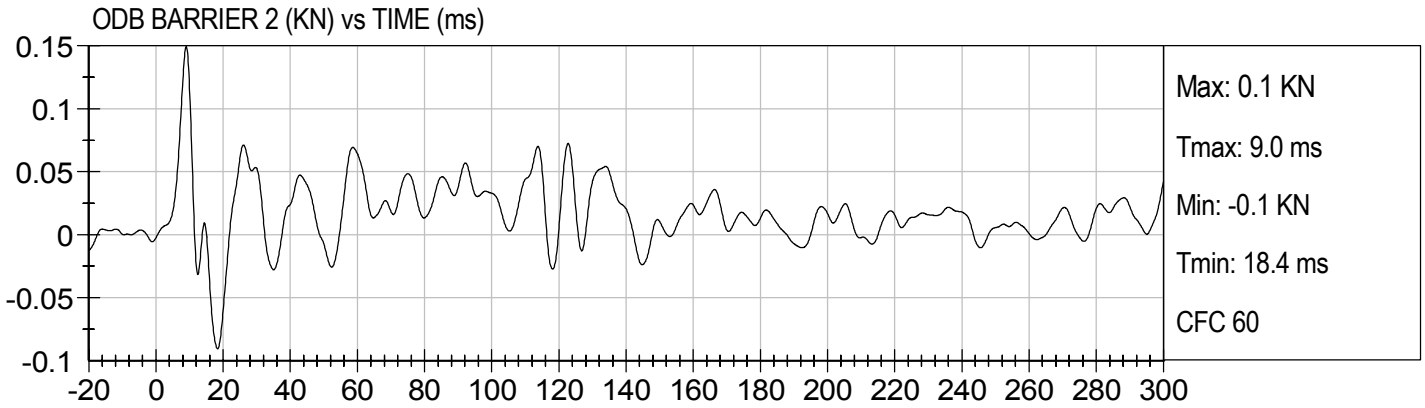
LRP LAP BELT (N) vs TIME (ms)

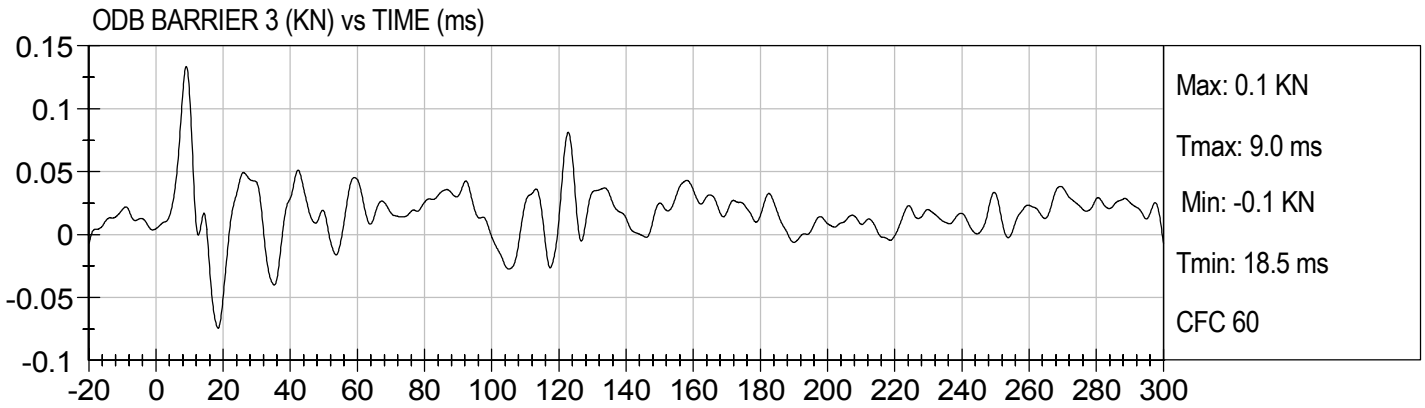


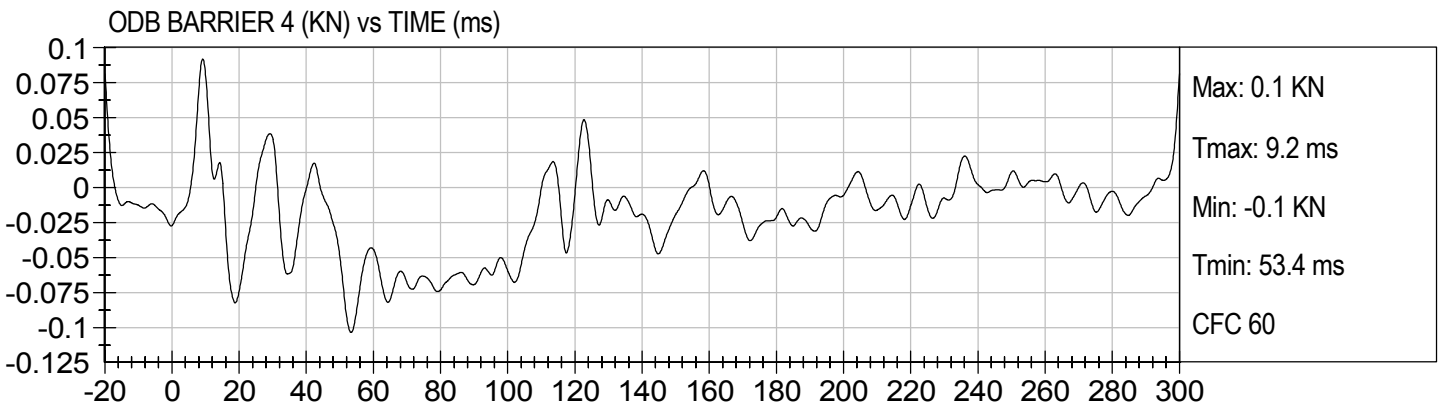
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)



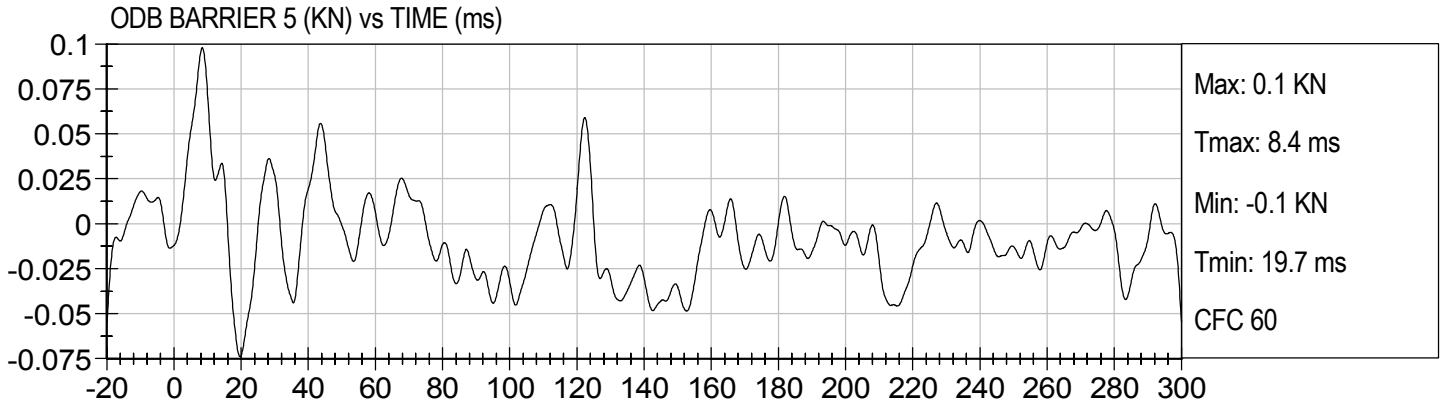


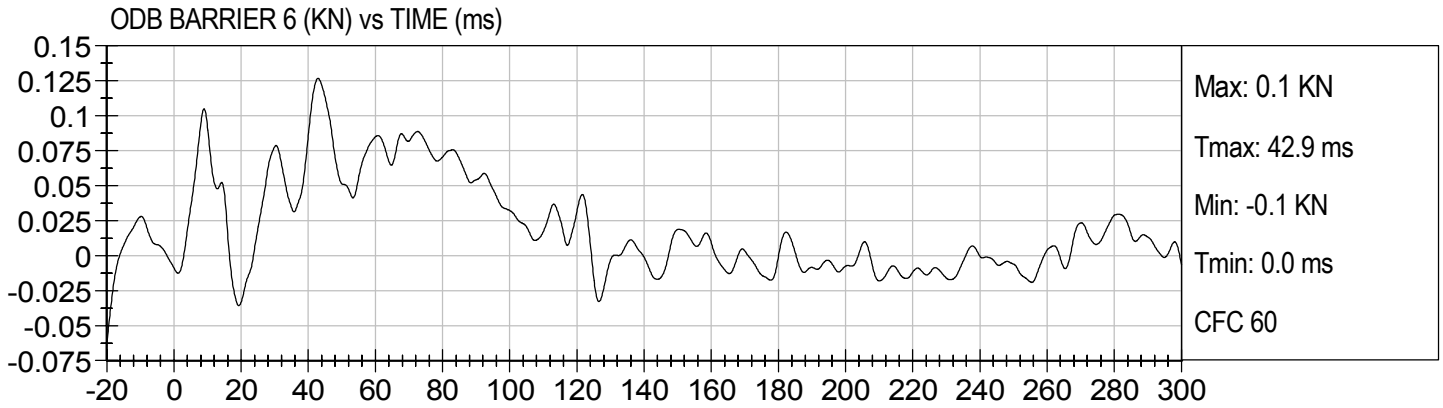


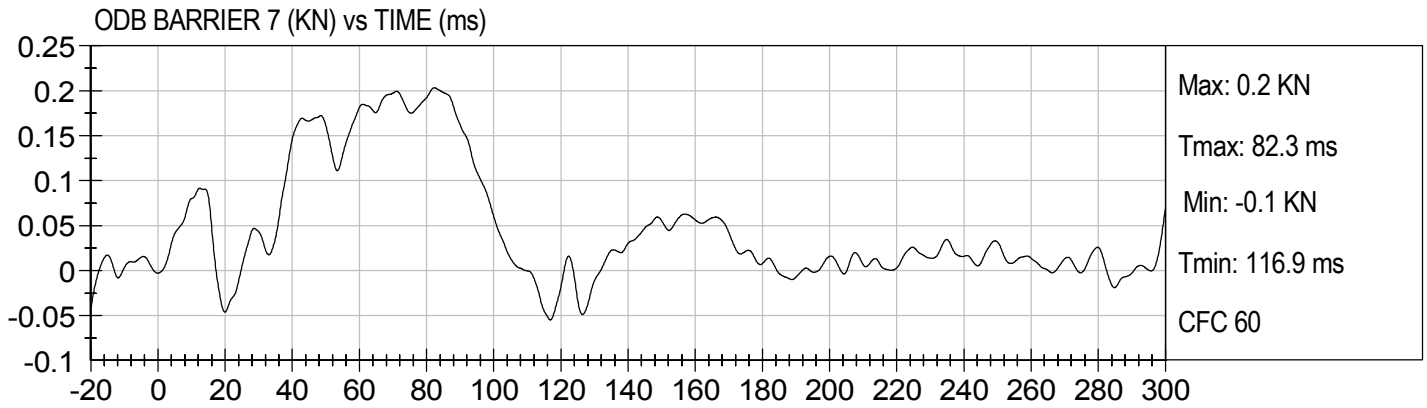


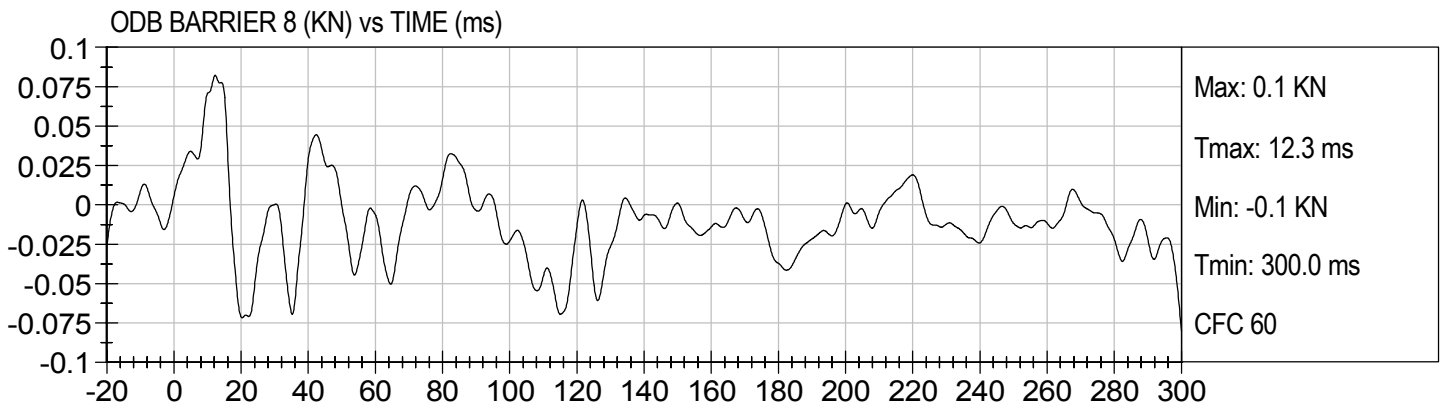
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)



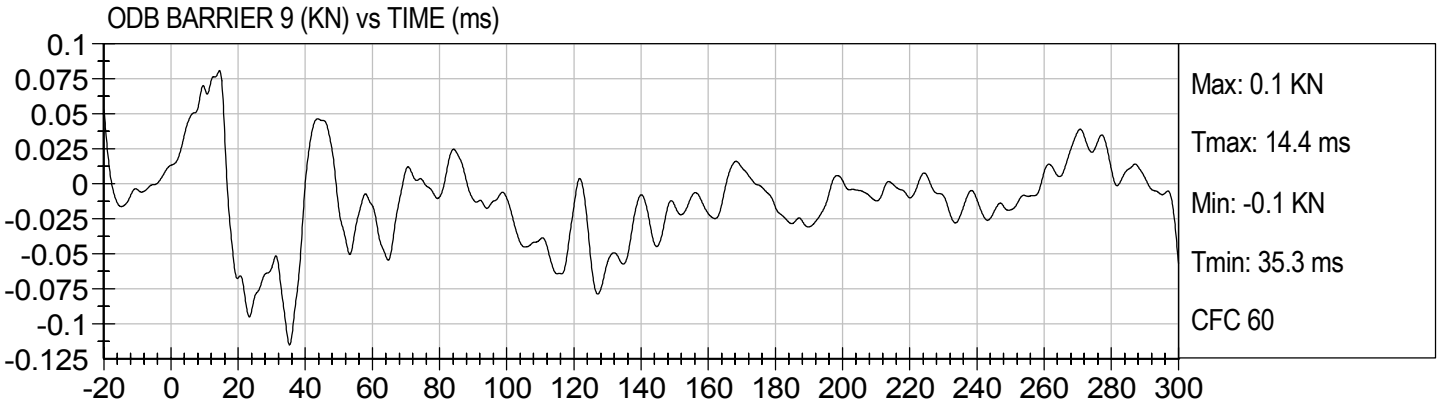


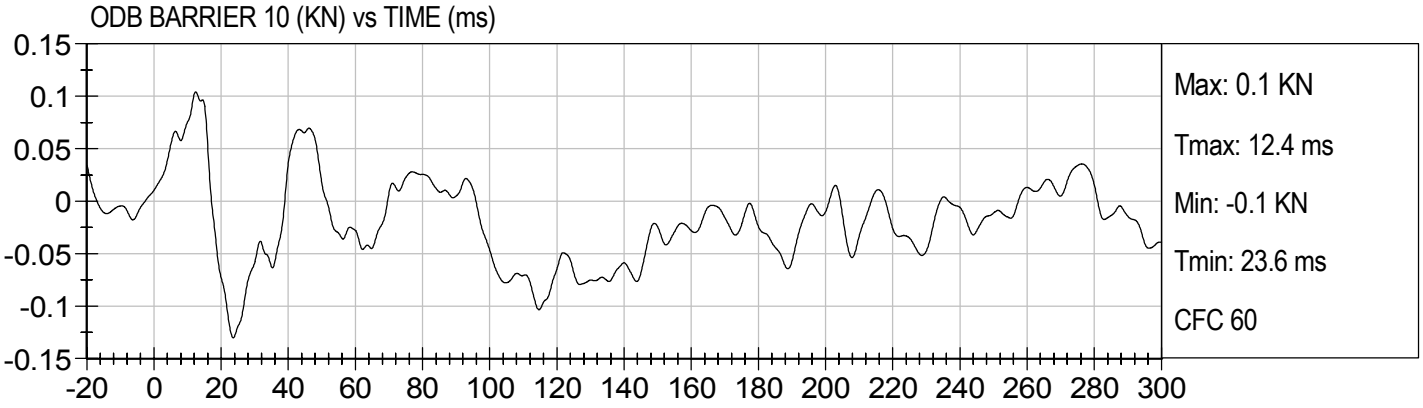


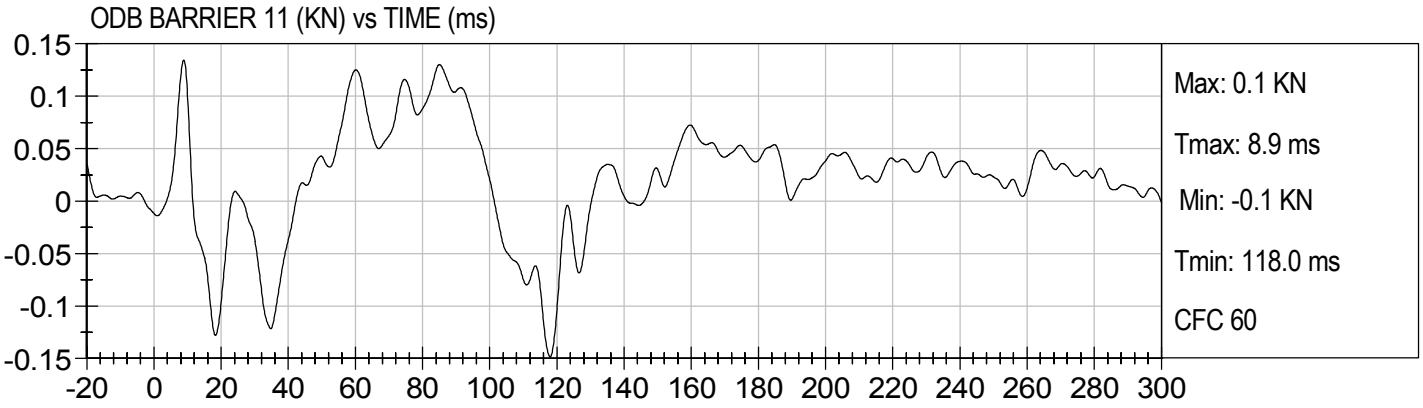


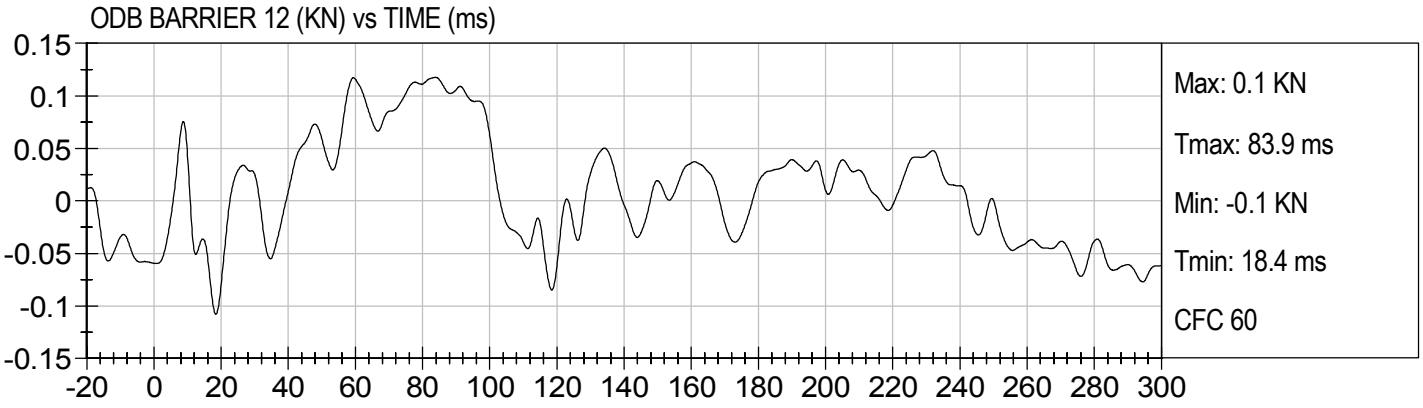
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)



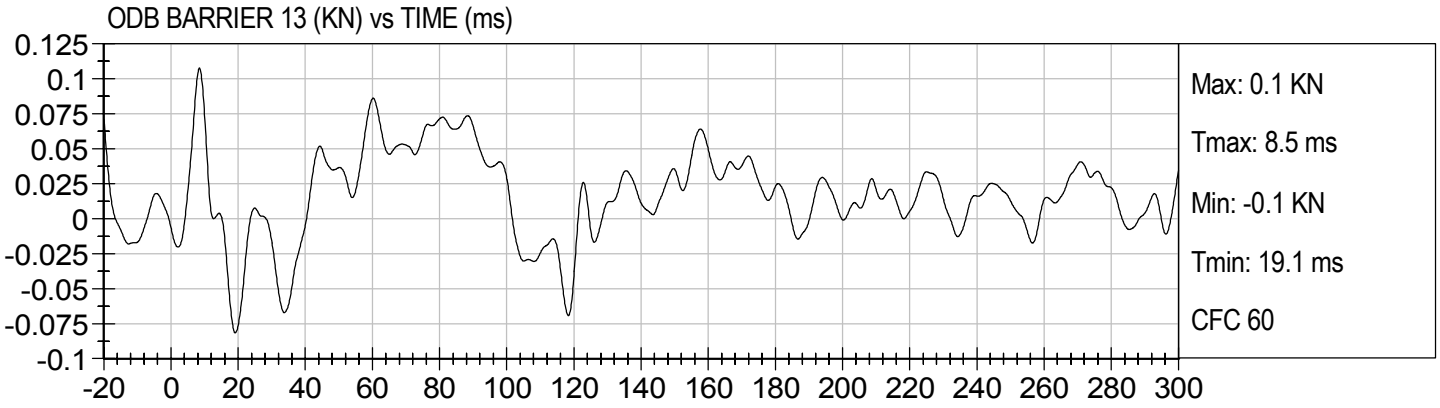


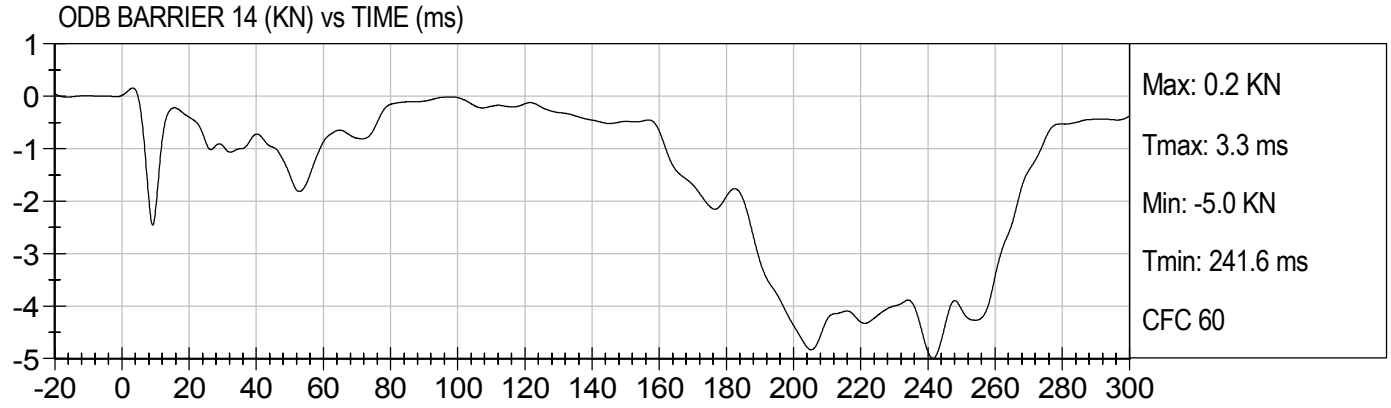


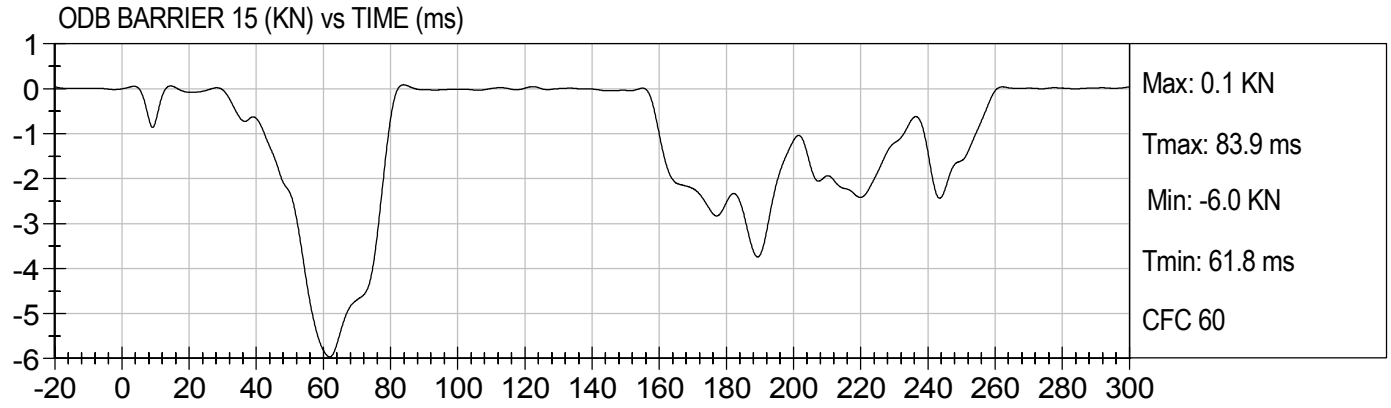


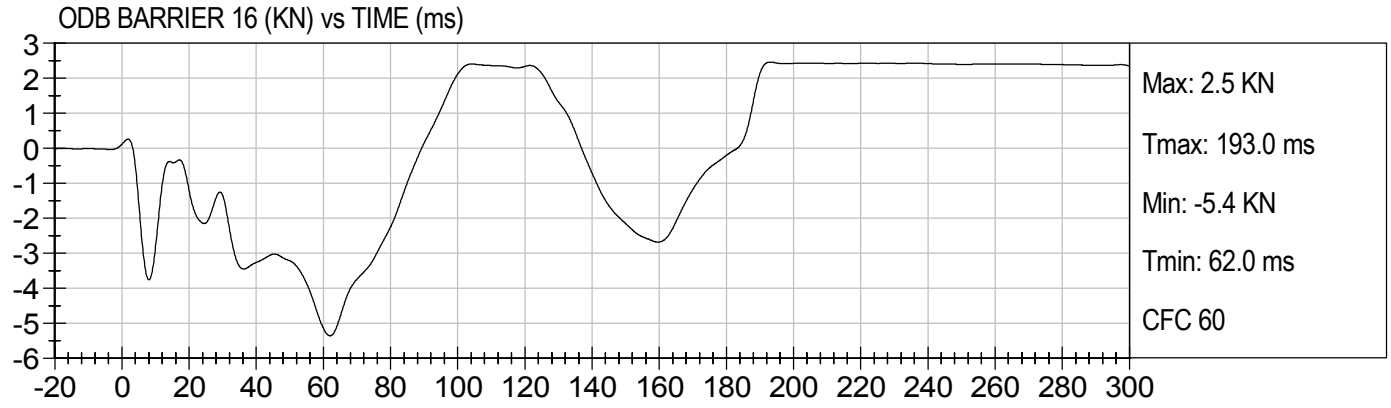
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)





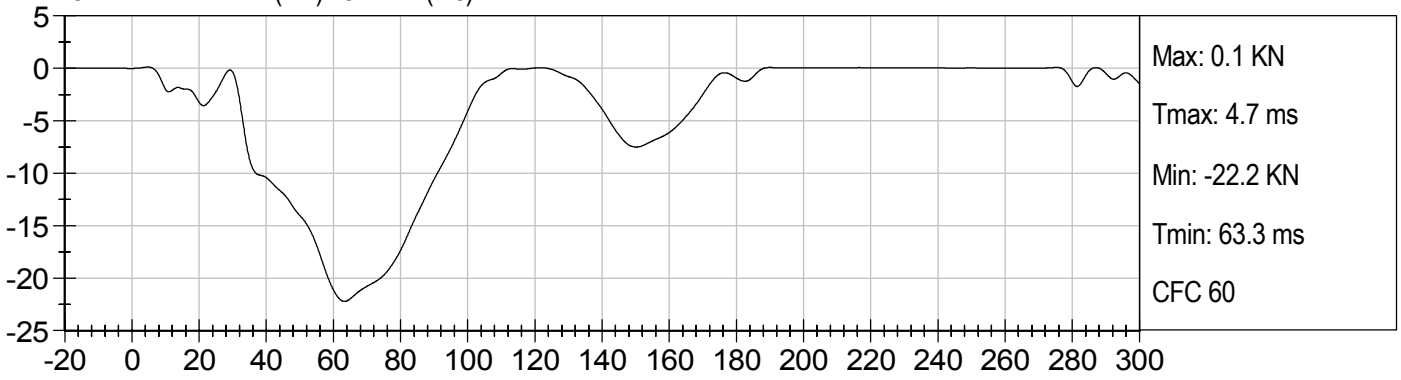




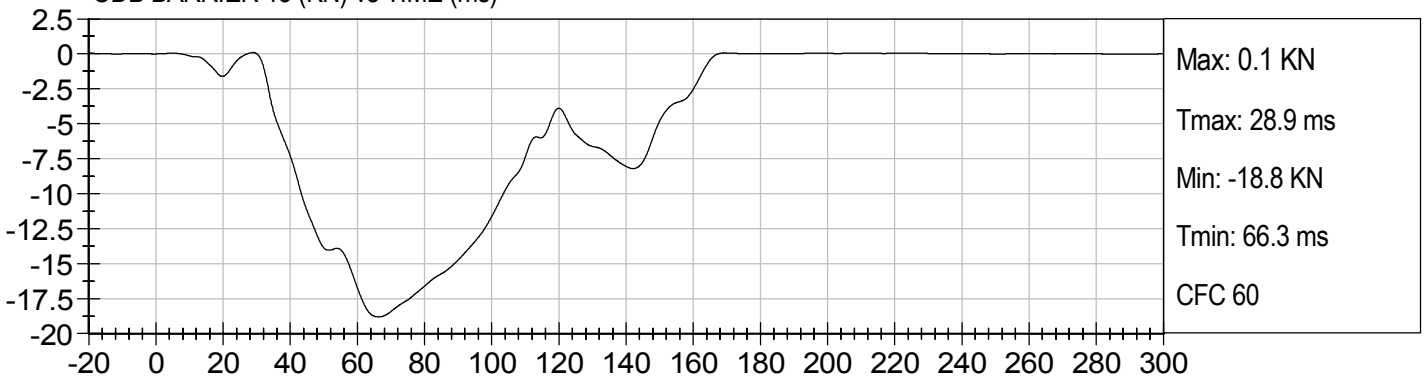
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

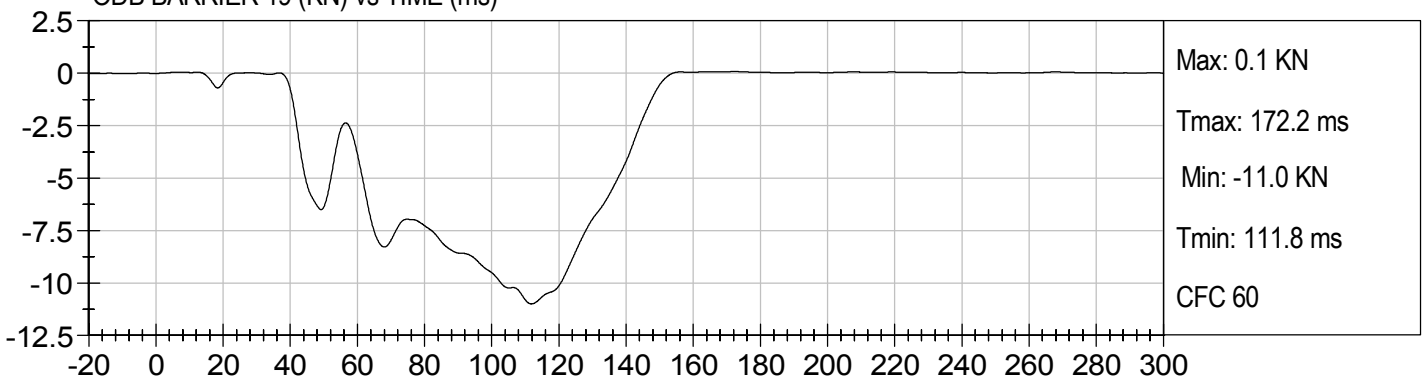
ODB BARRIER 17 (KN) vs TIME (ms)



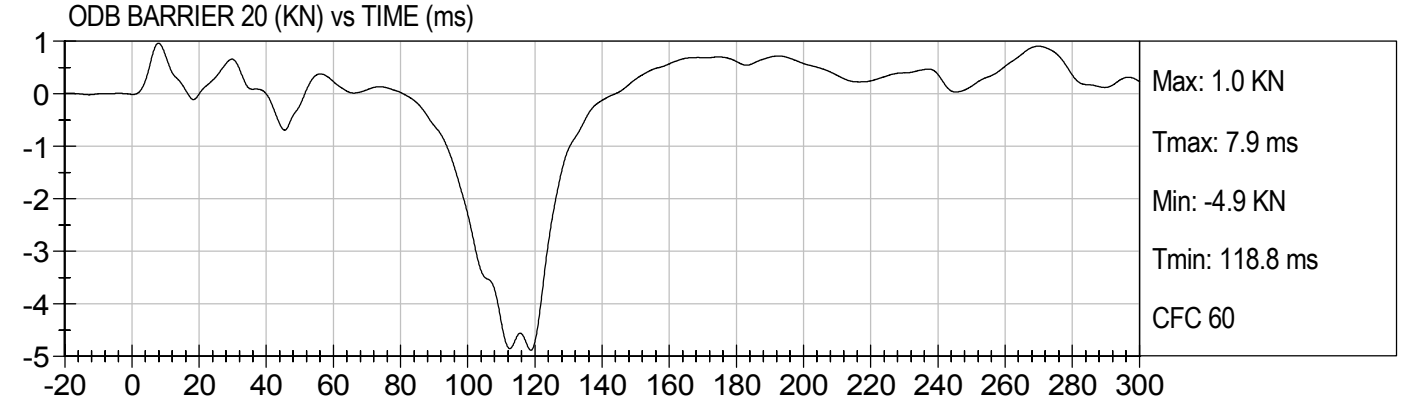
ODB BARRIER 18 (KN) vs TIME (ms)



ODB BARRIER 19 (KN) vs TIME (ms)



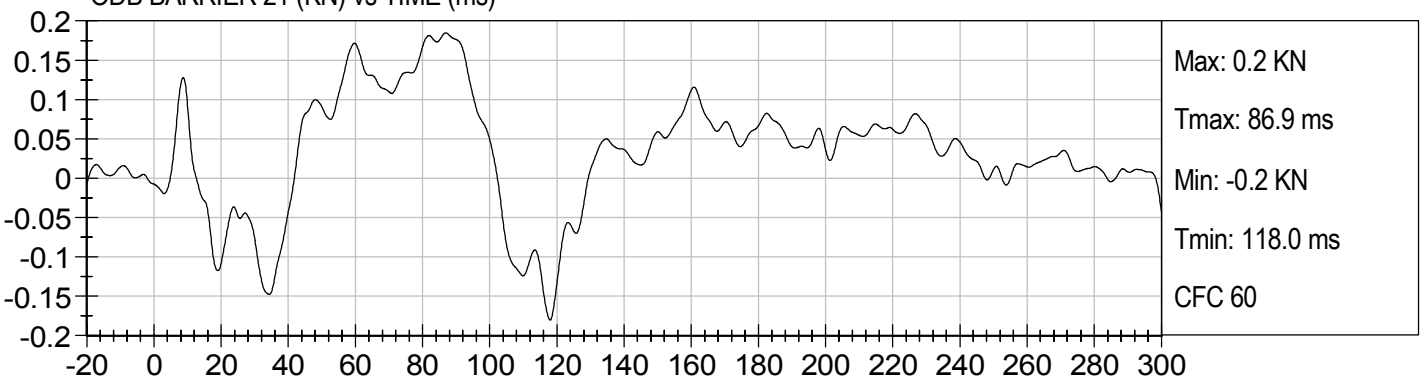
ODB BARRIER 20 (KN) vs TIME (ms)



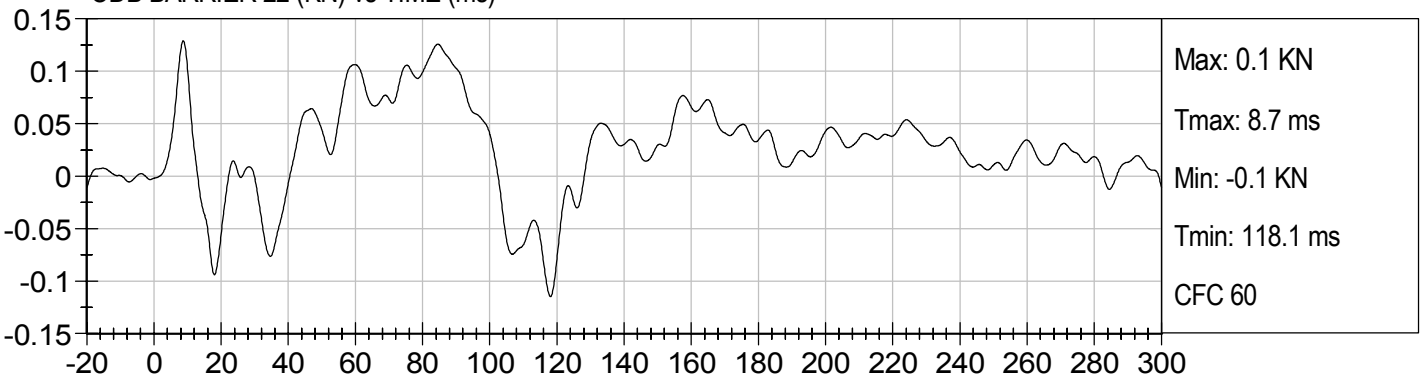
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

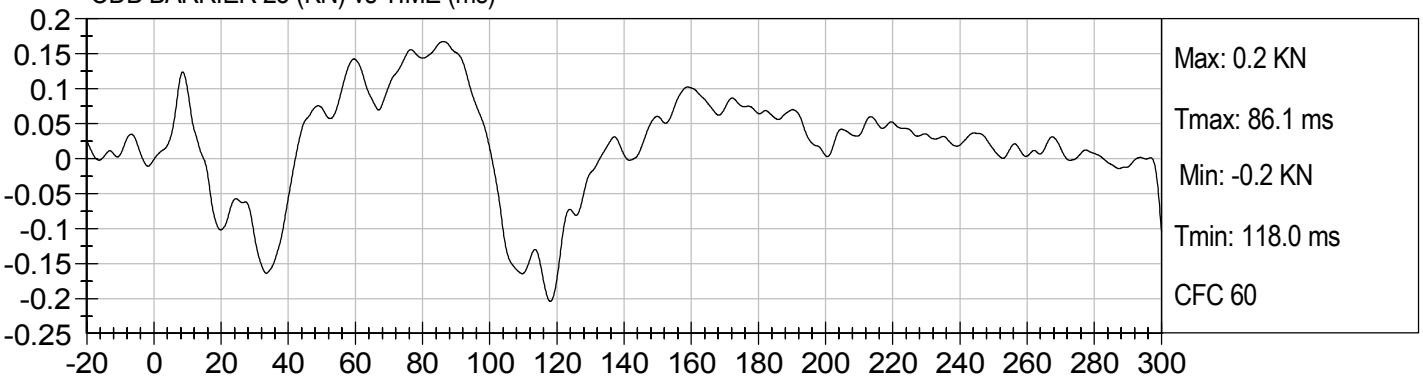
ODB BARRIER 21 (KN) vs TIME (ms)



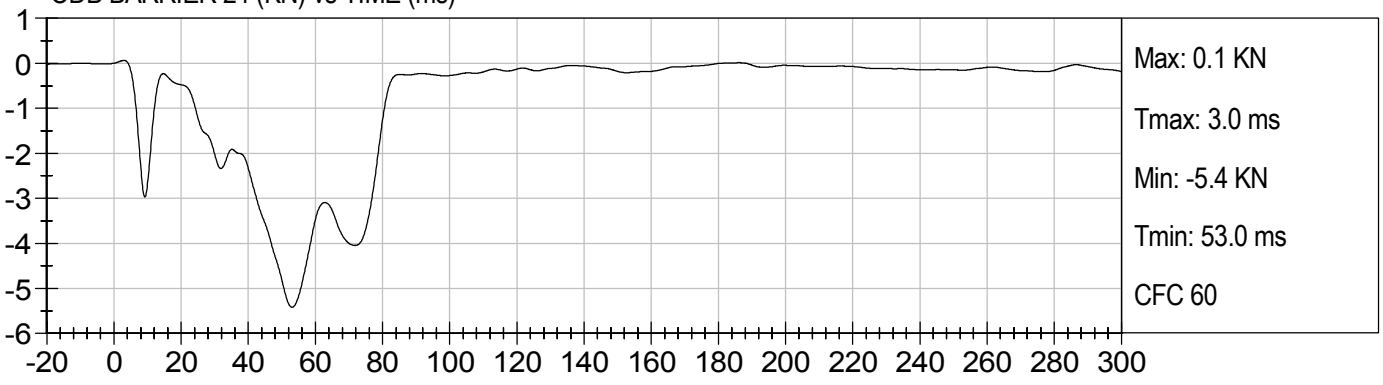
ODB BARRIER 22 (KN) vs TIME (ms)



ODB BARRIER 23 (KN) vs TIME (ms)



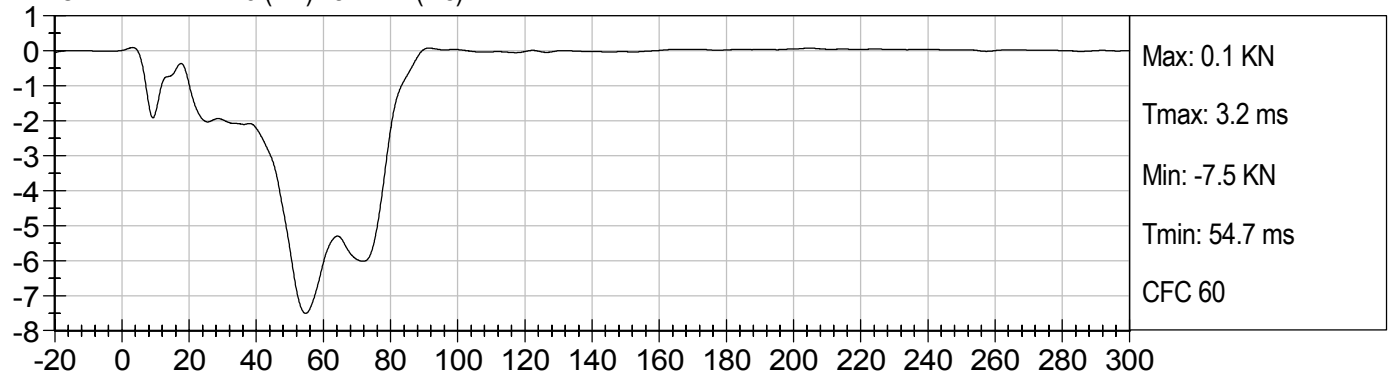
ODB BARRIER 24 (KN) vs TIME (ms)



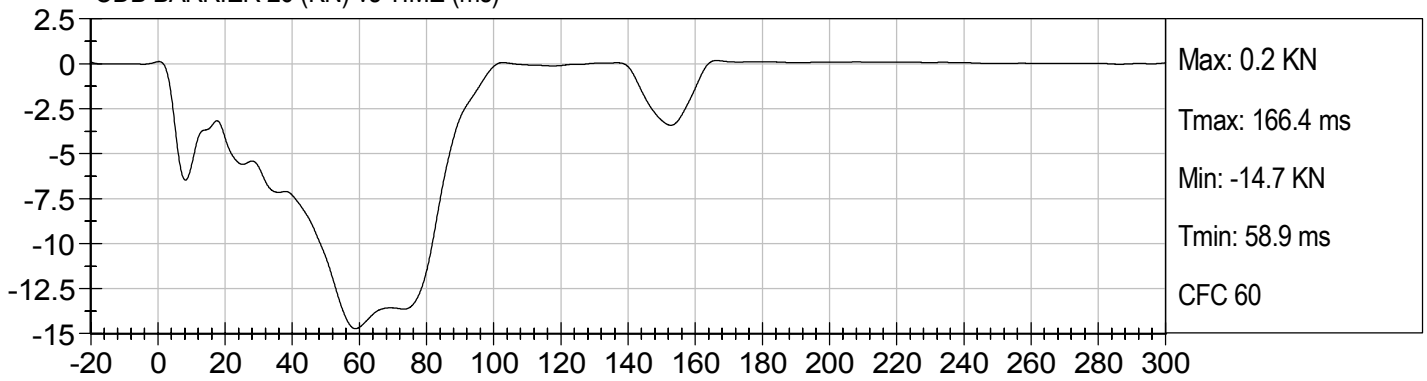
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

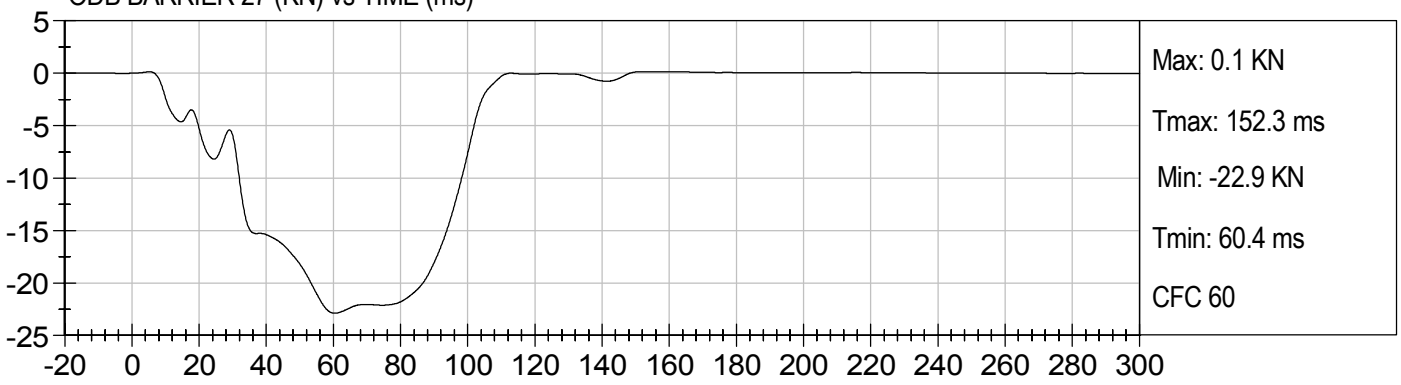
ODB BARRIER 25 (KN) vs TIME (ms)



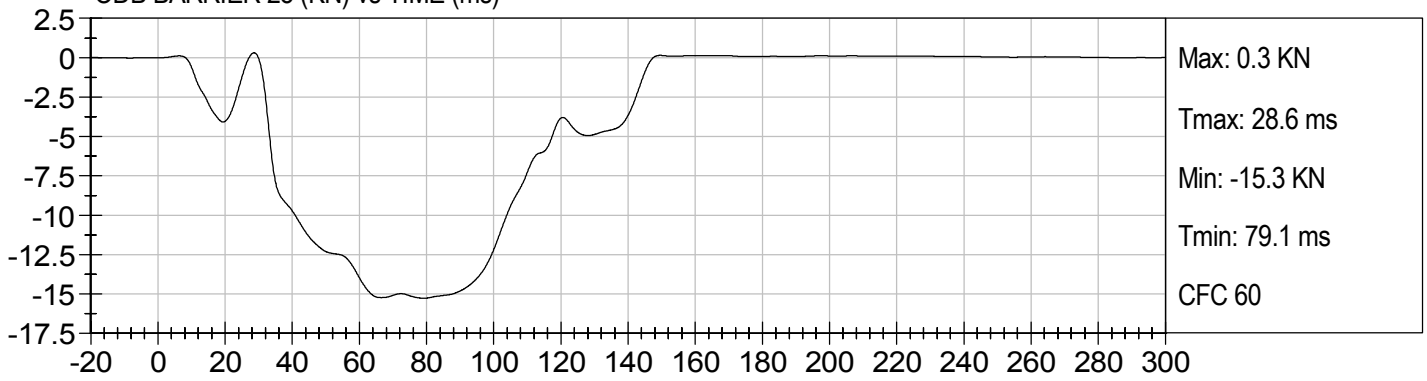
ODB BARRIER 26 (KN) vs TIME (ms)



ODB BARRIER 27 (KN) vs TIME (ms)

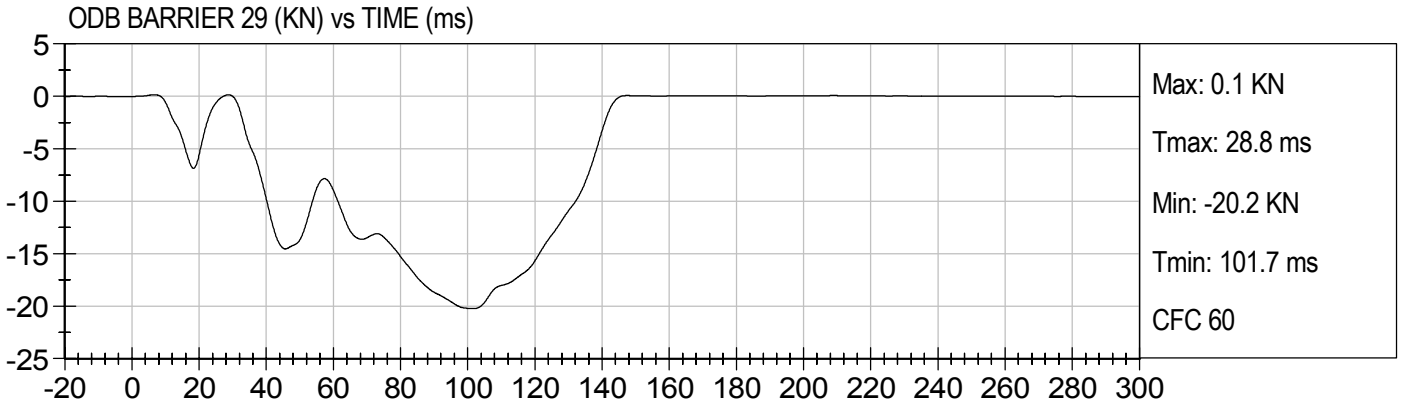


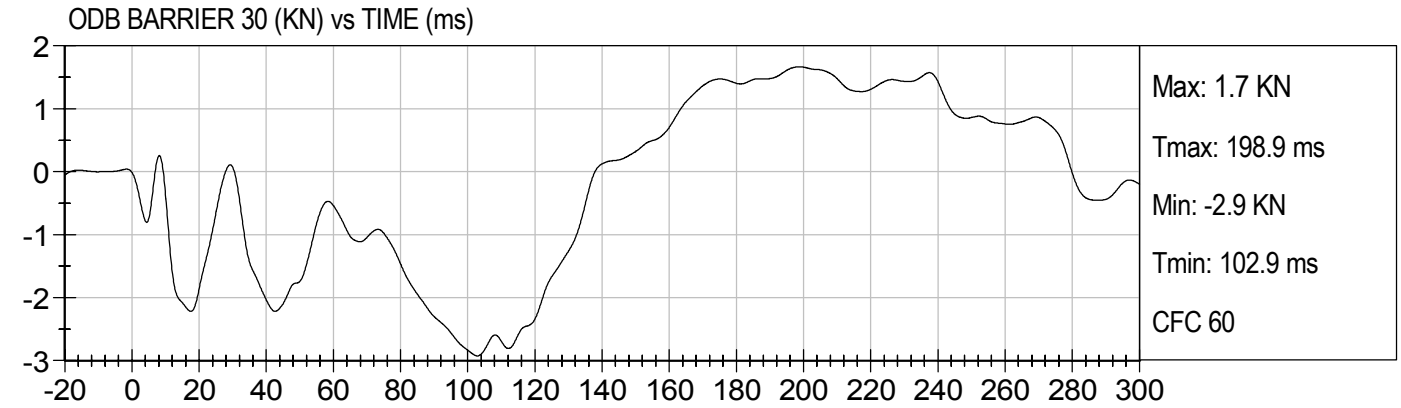
ODB BARRIER 28 (KN) vs TIME (ms)

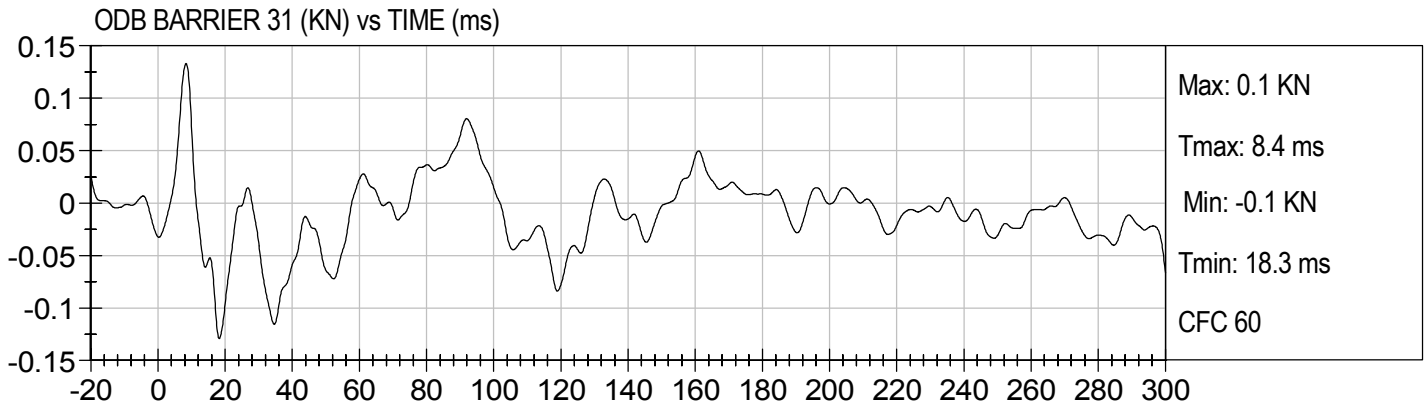


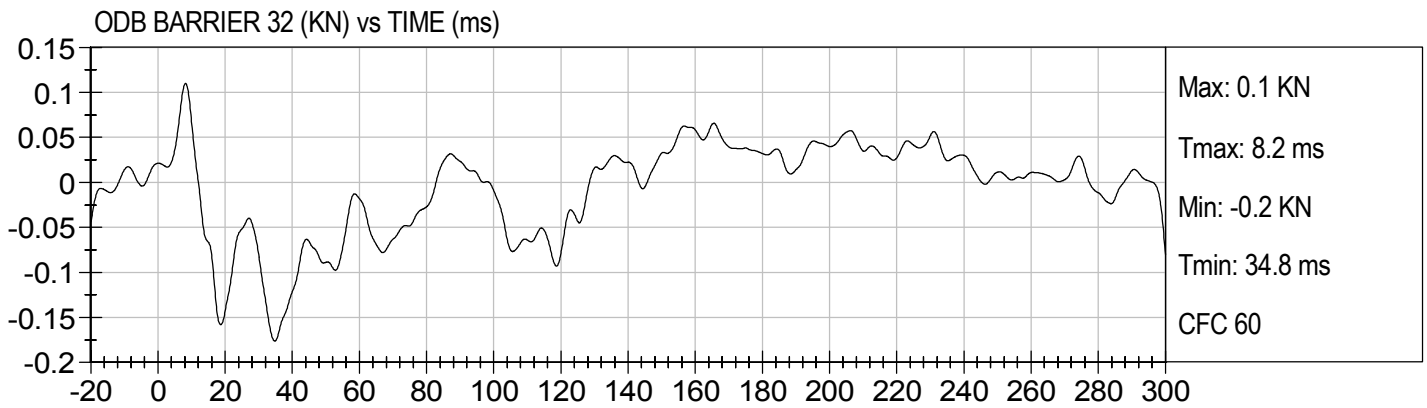
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)



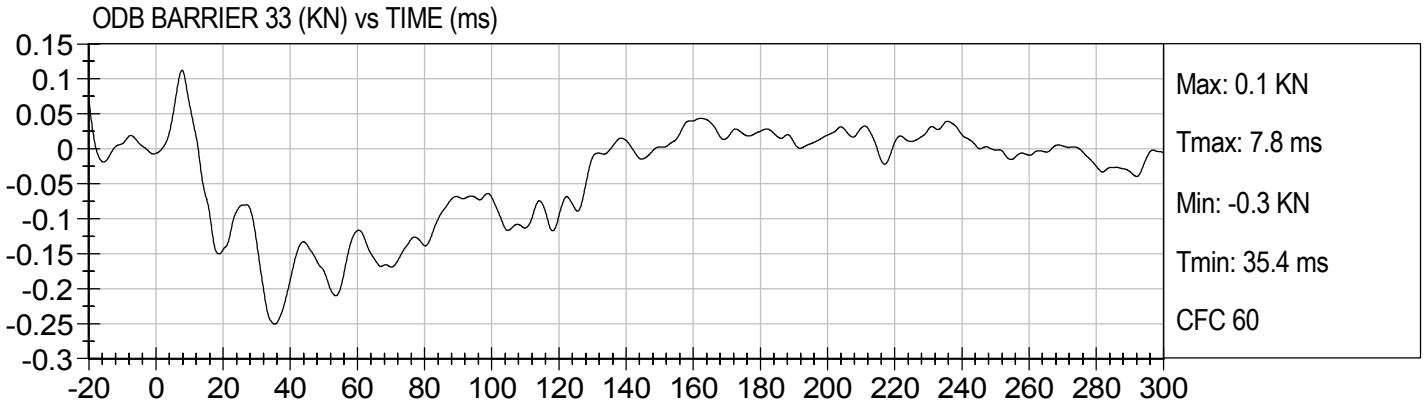


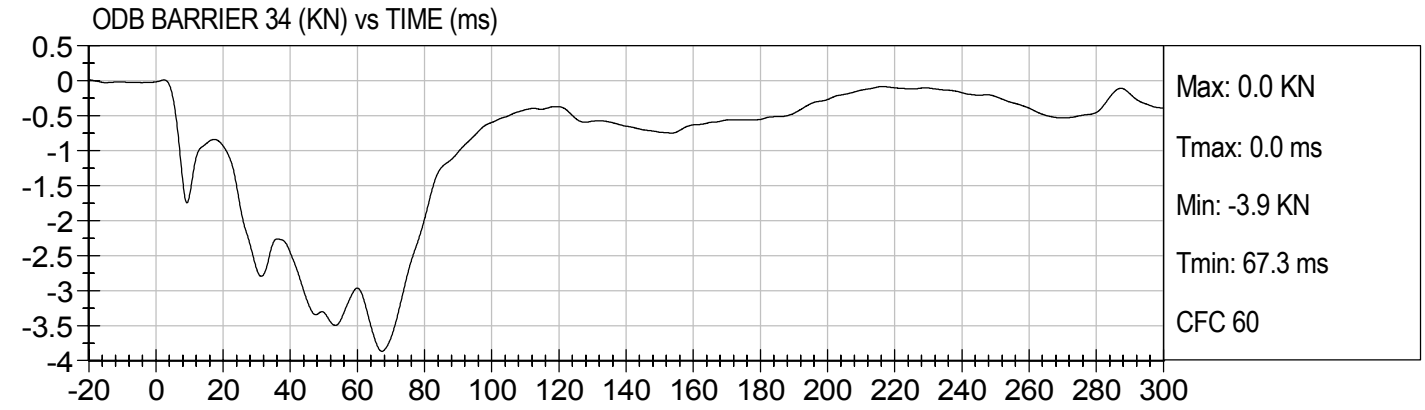


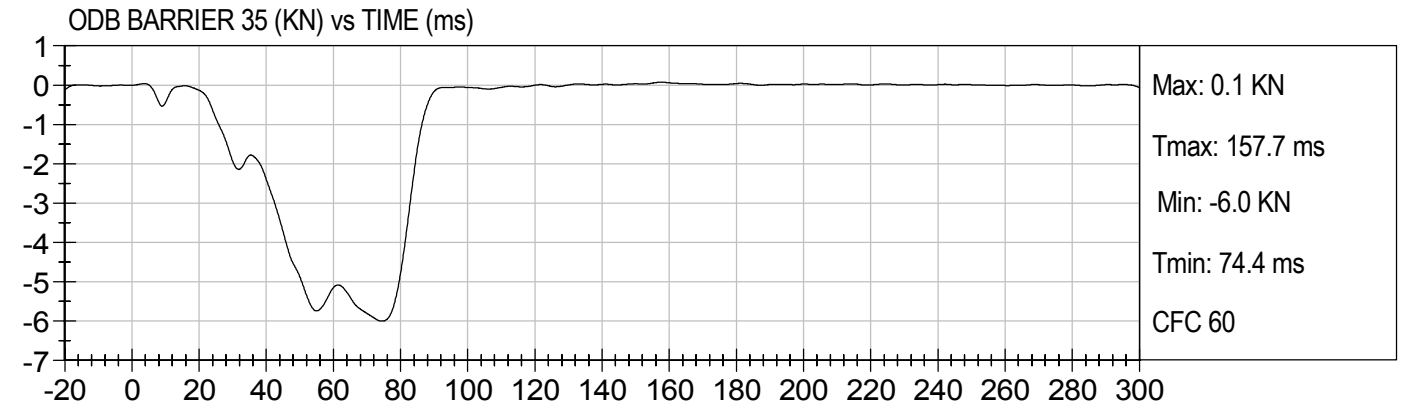


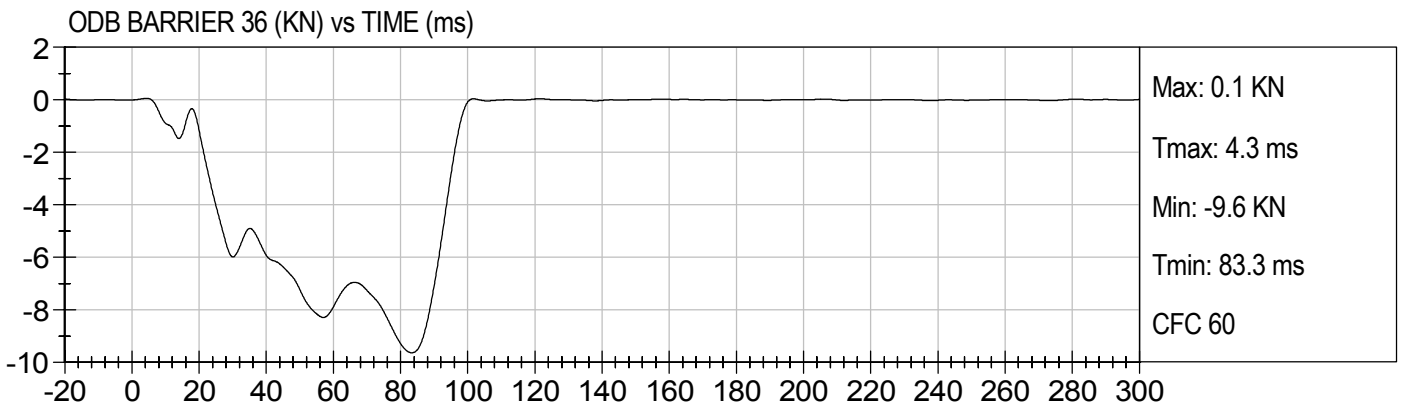
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)





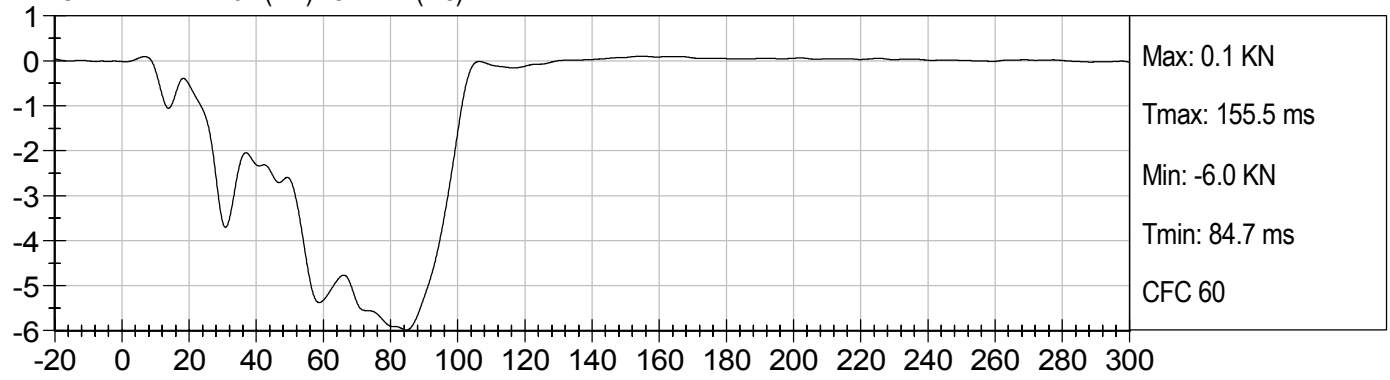




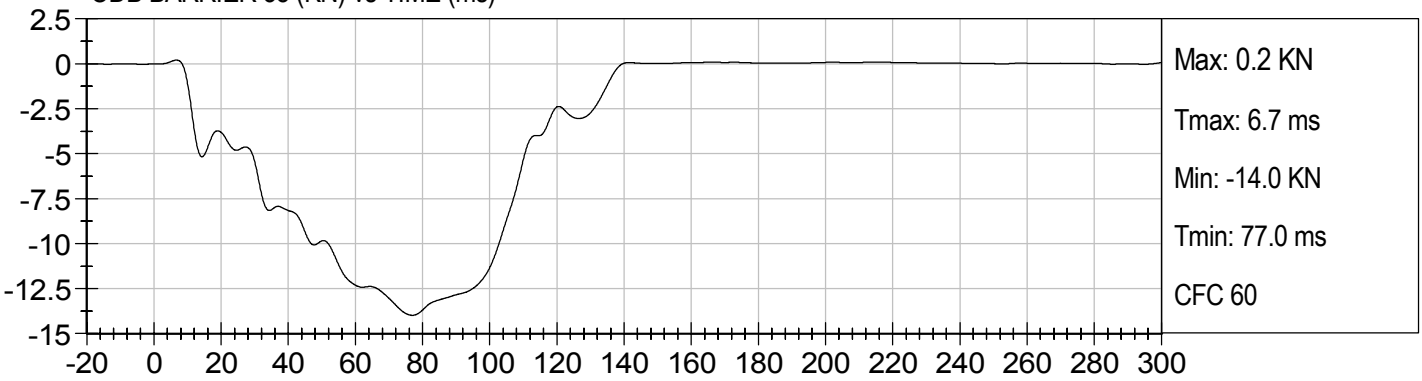
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

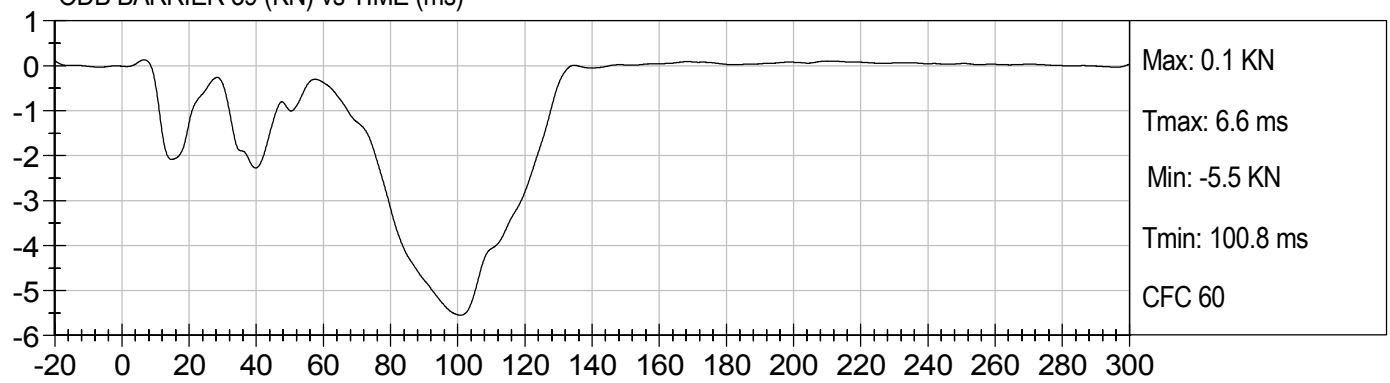
ODB BARRIER 37 (KN) vs TIME (ms)



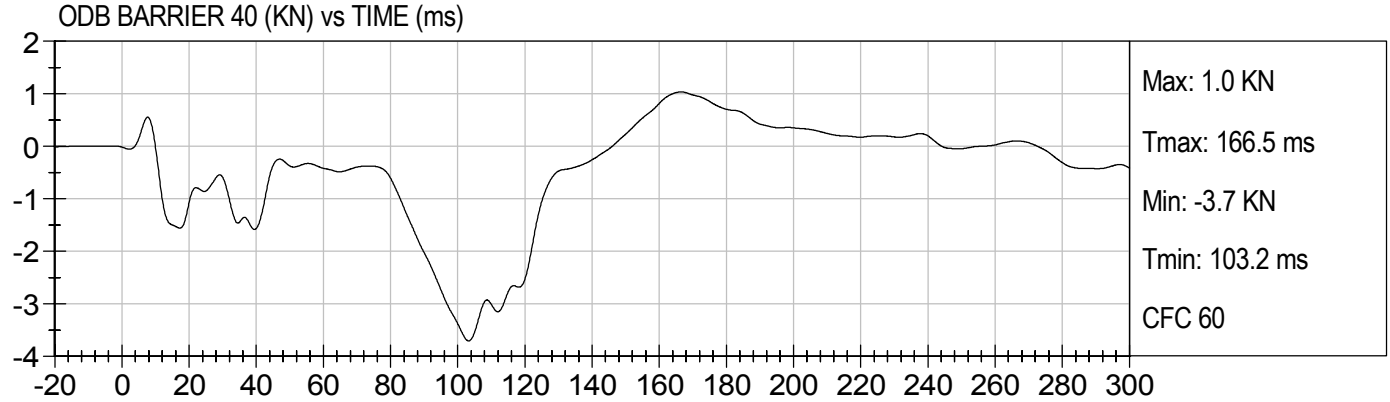
ODB BARRIER 38 (KN) vs TIME (ms)



ODB BARRIER 39 (KN) vs TIME (ms)



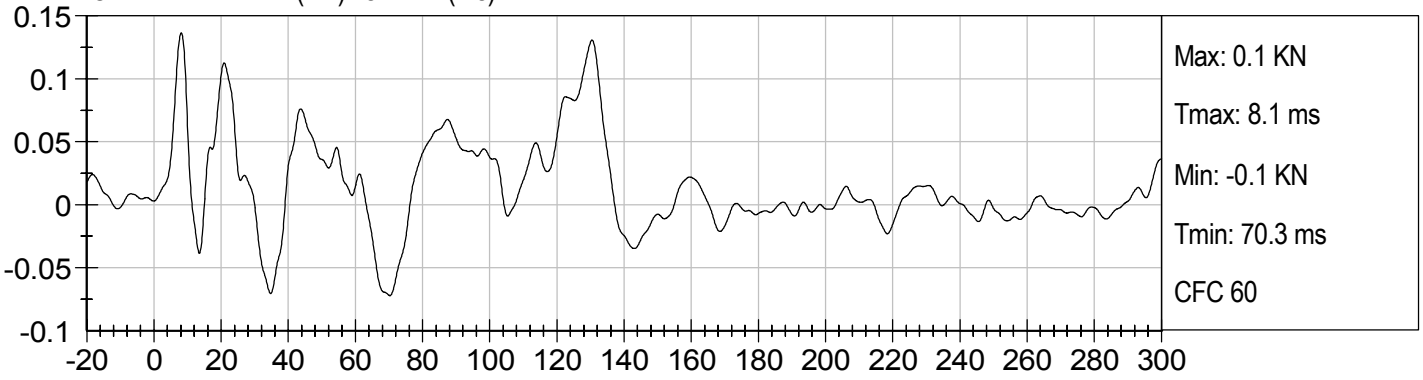
ODB BARRIER 40 (KN) vs TIME (ms)



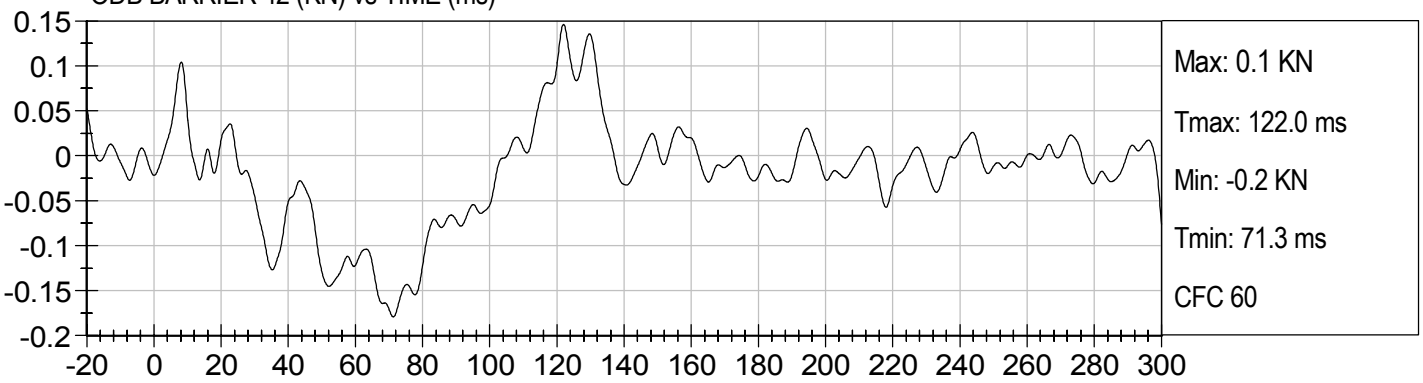
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

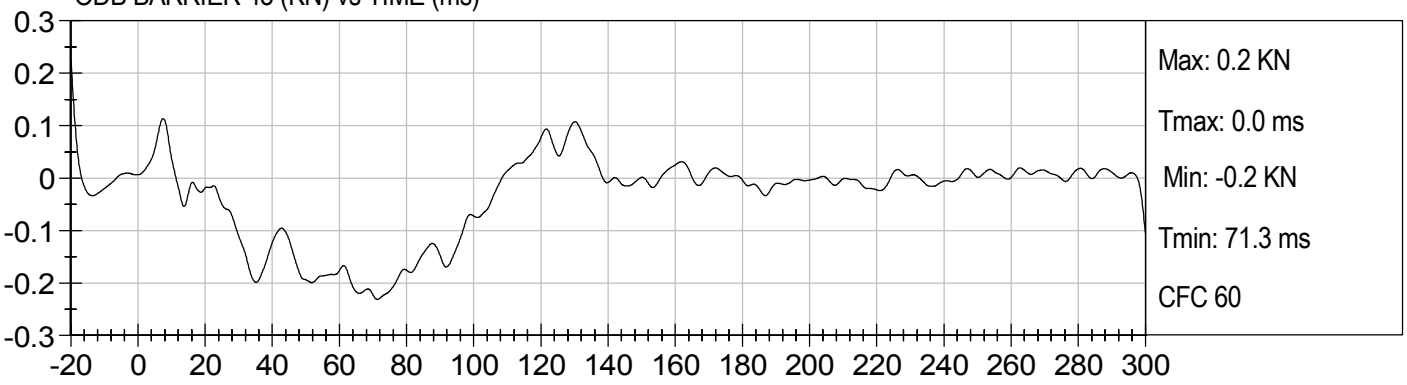
ODB BARRIER 41 (KN) vs TIME (ms)



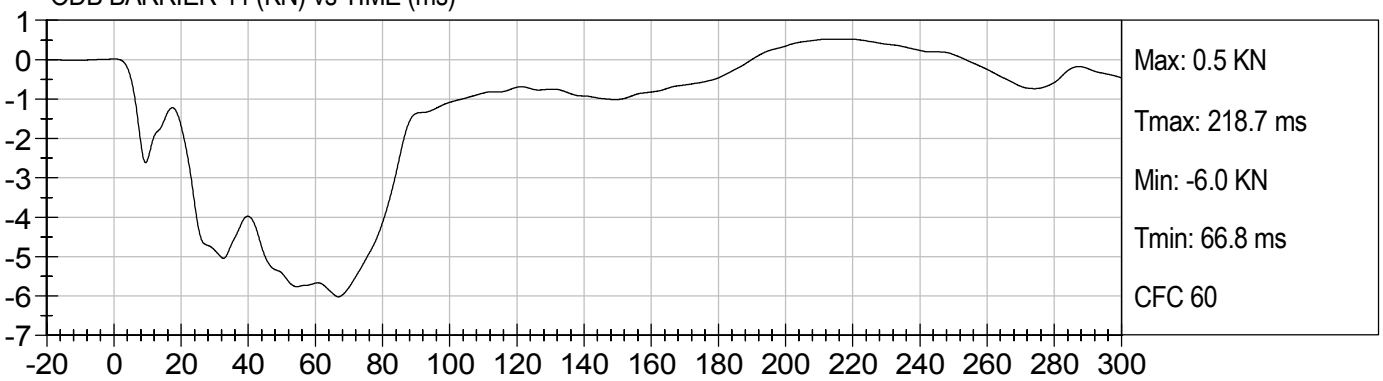
ODB BARRIER 42 (KN) vs TIME (ms)



ODB BARRIER 43 (KN) vs TIME (ms)

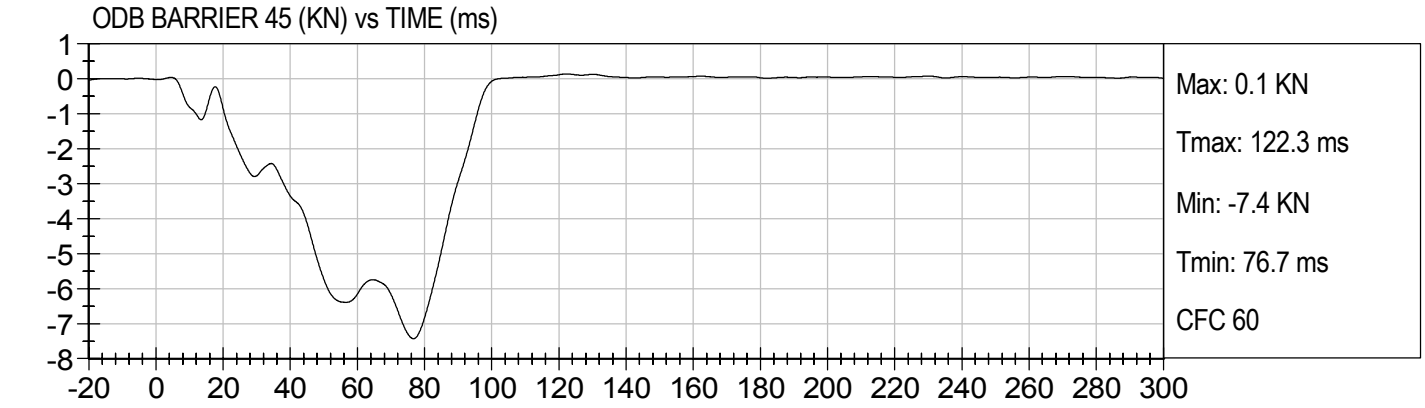


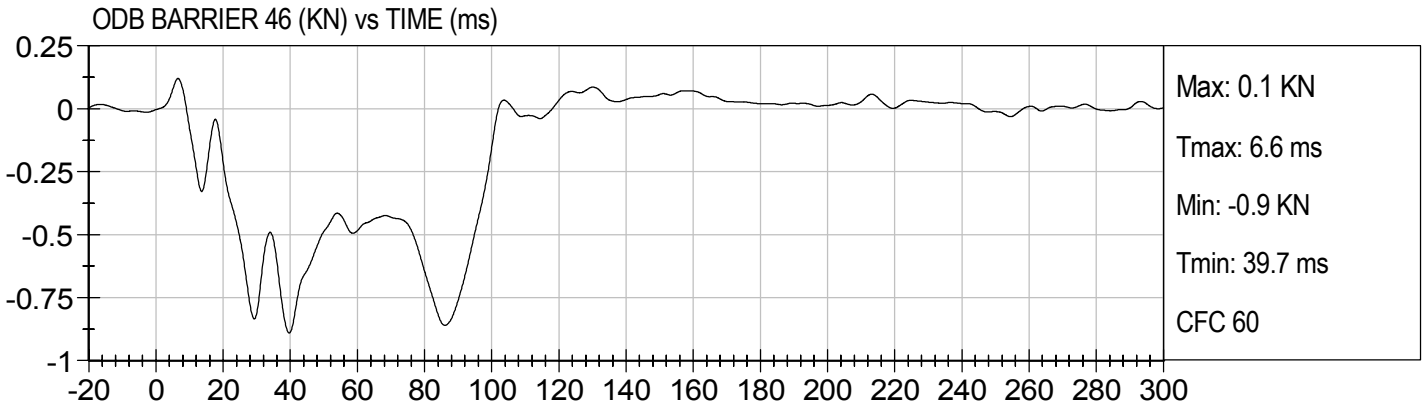
ODB BARRIER 44 (KN) vs TIME (ms)

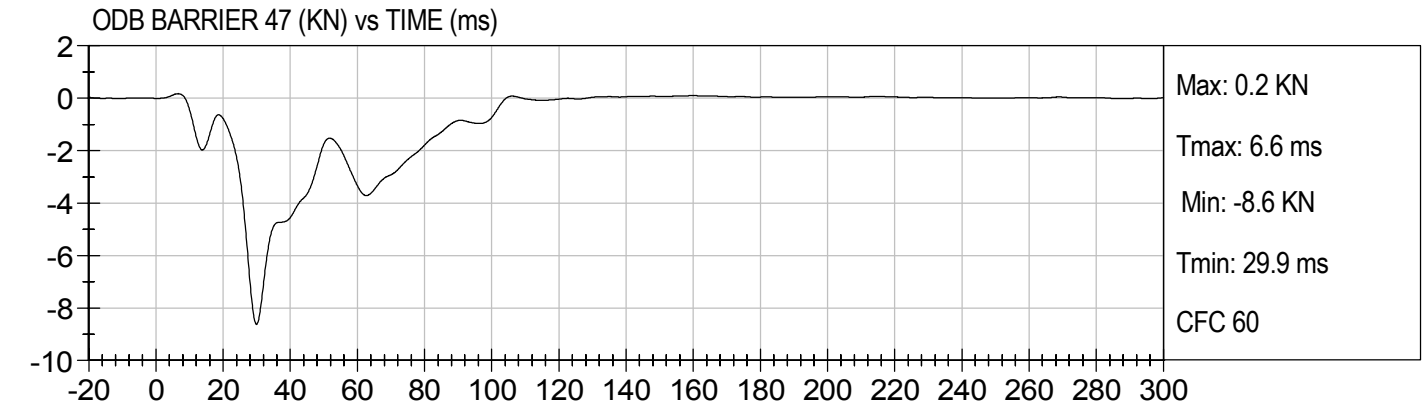


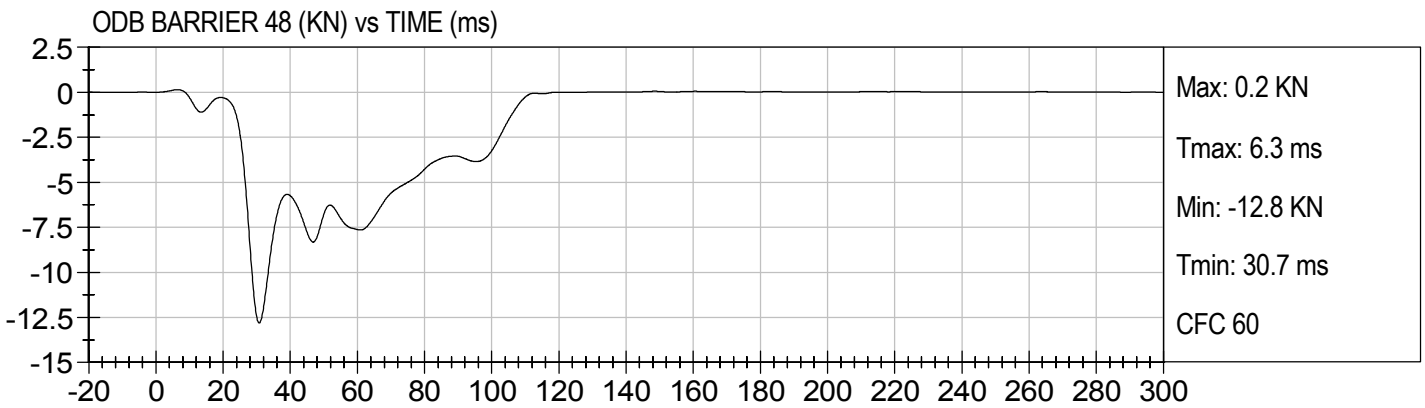
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)



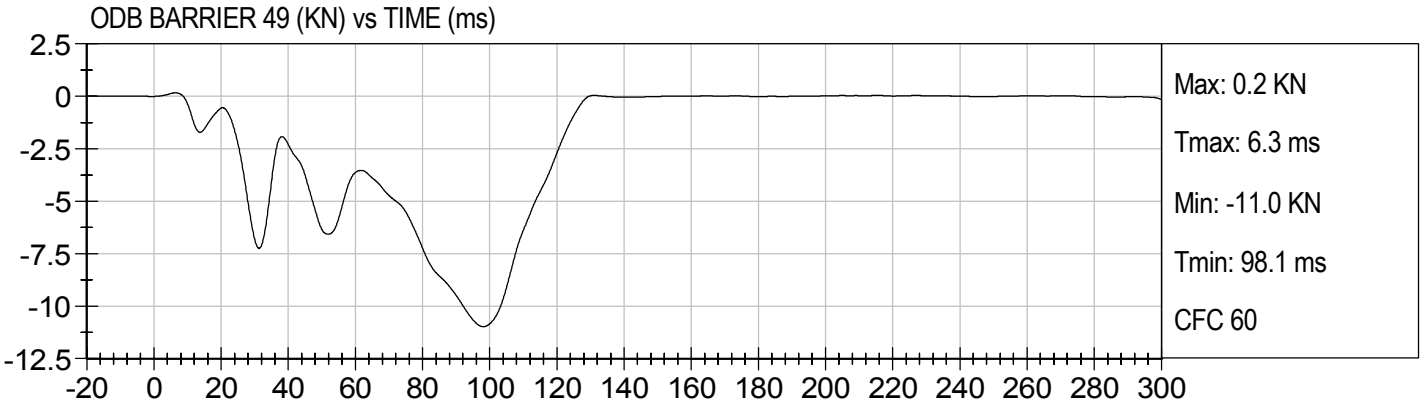


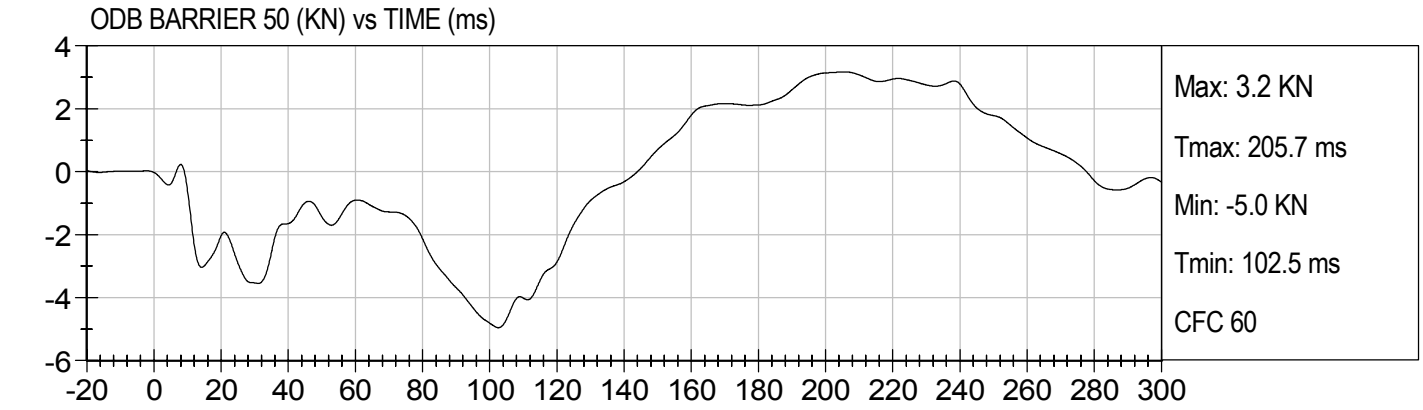


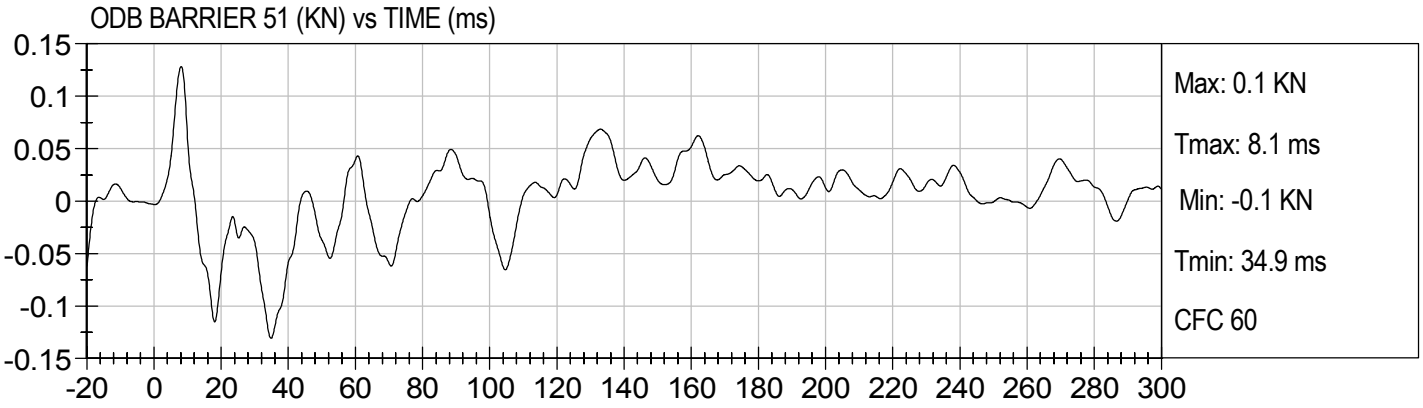


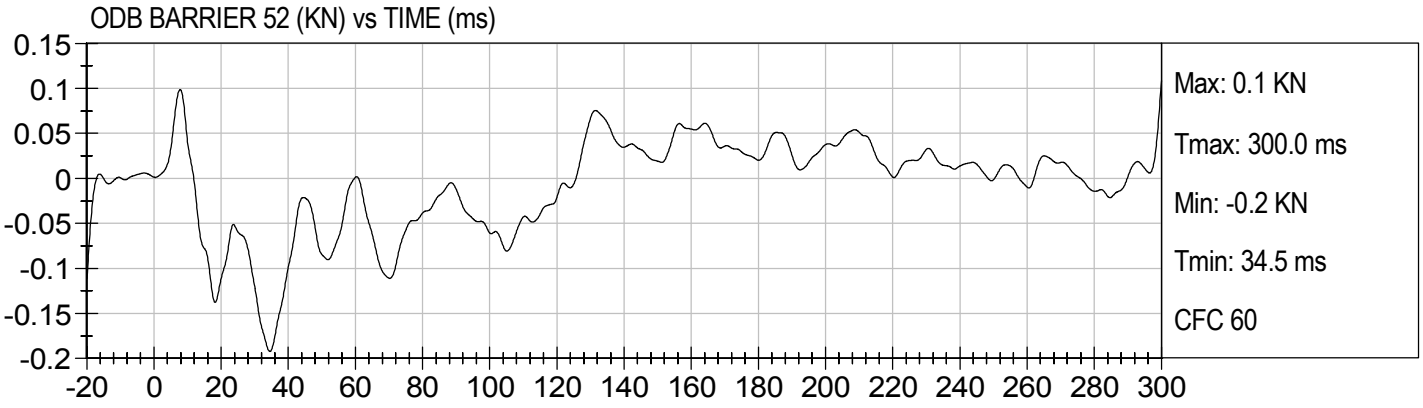
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)



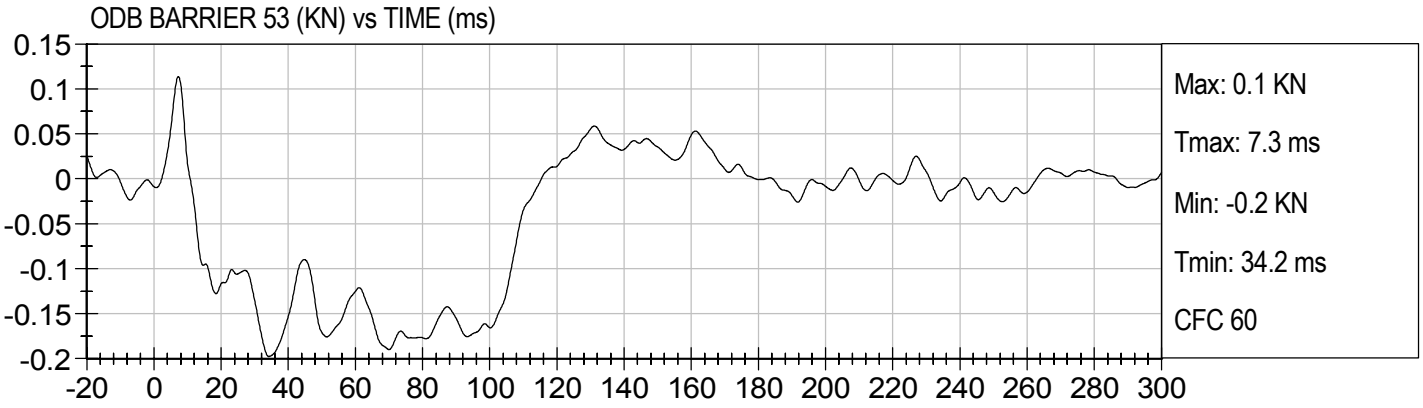


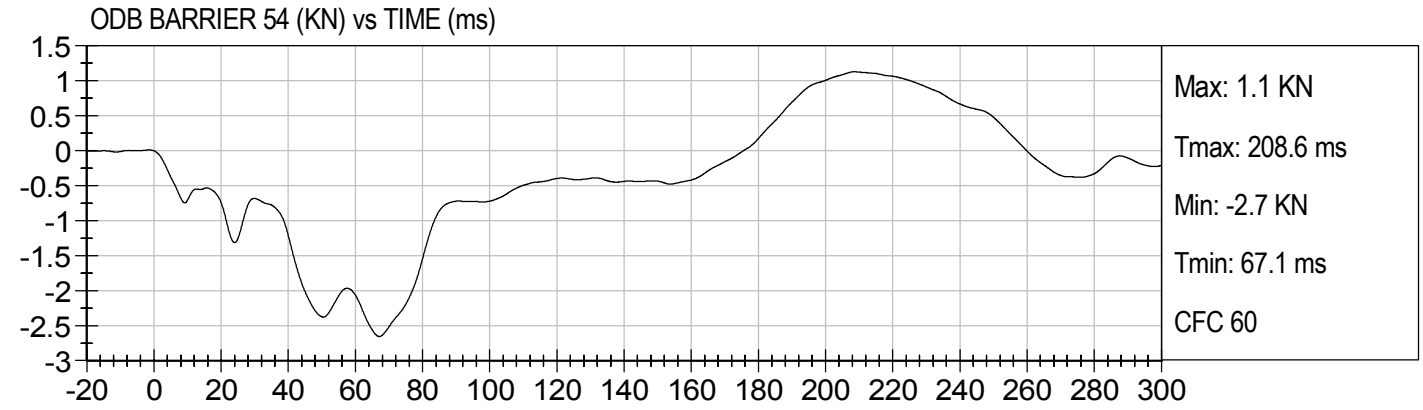


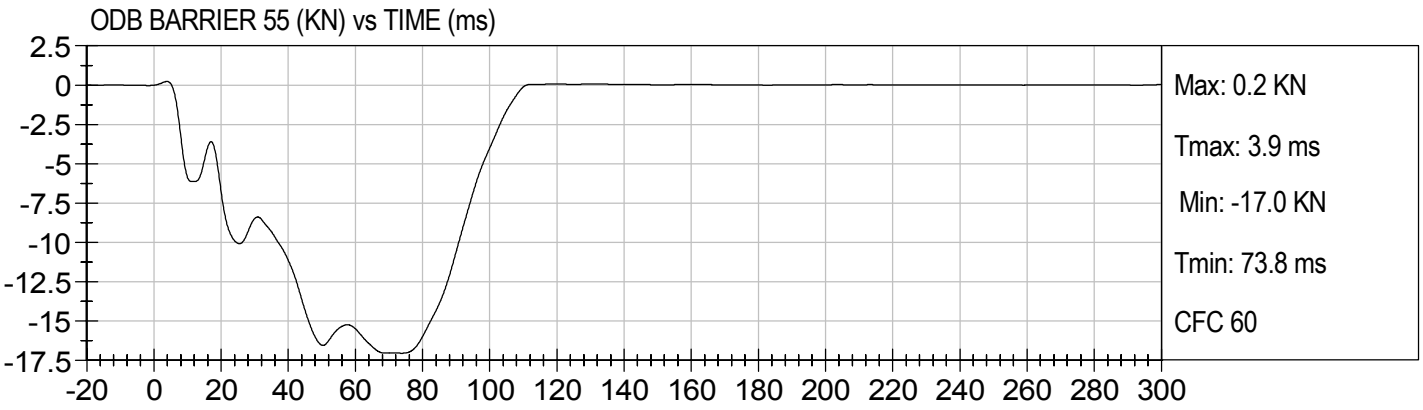


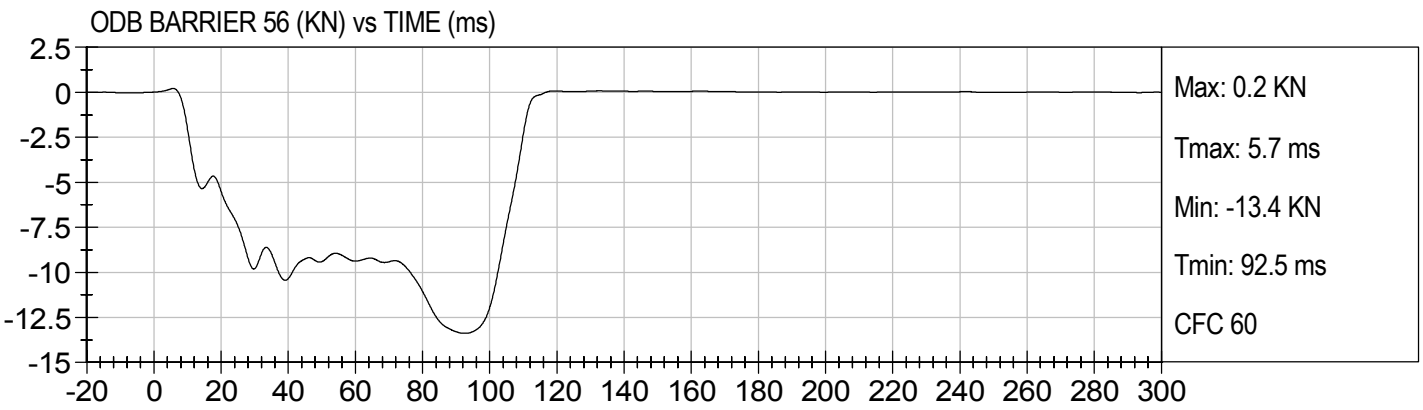
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)



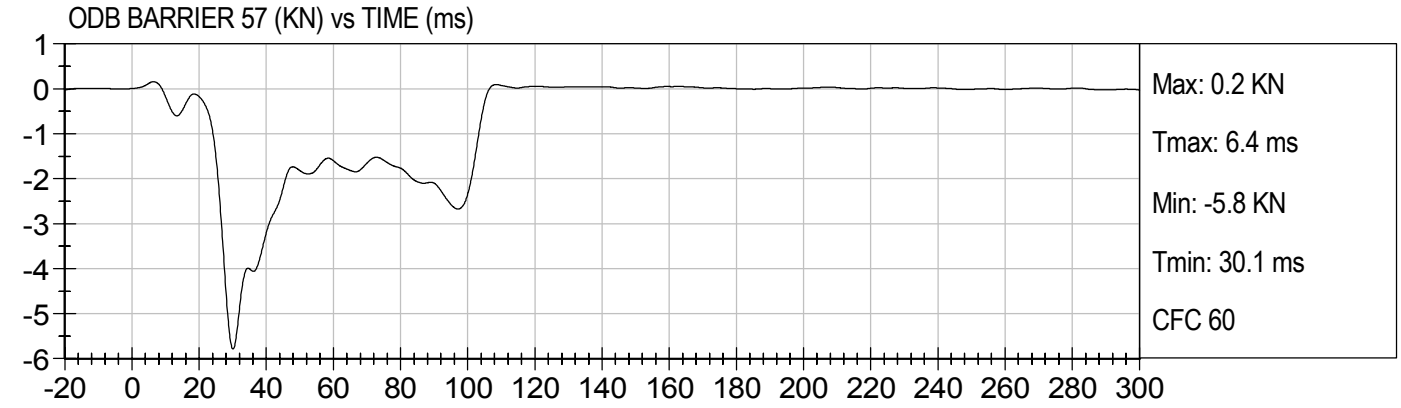


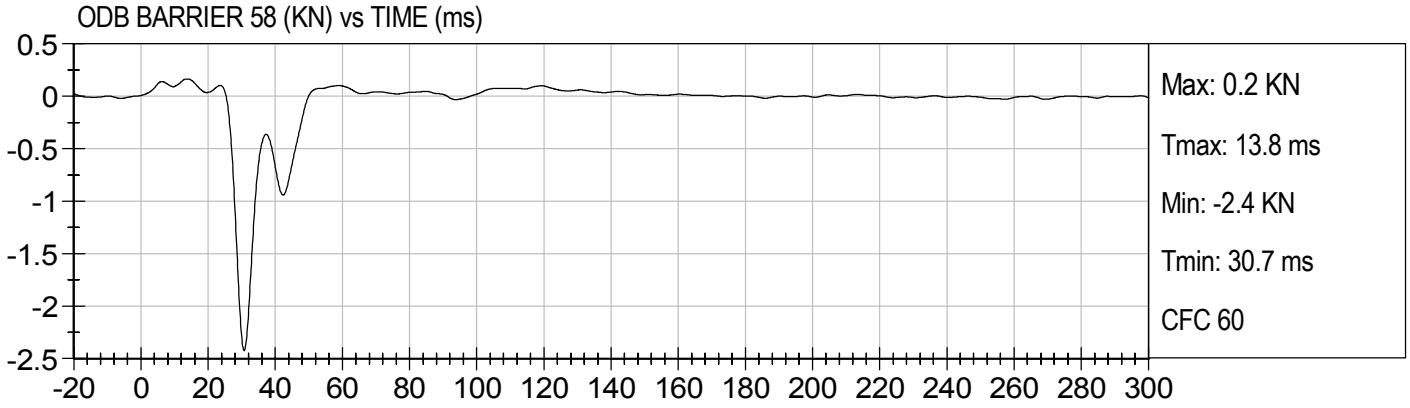


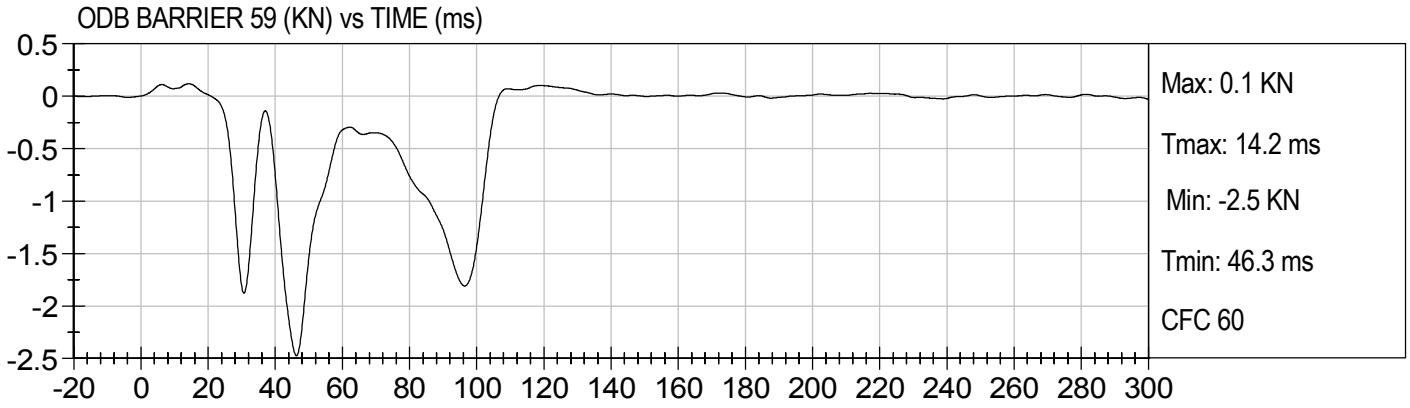


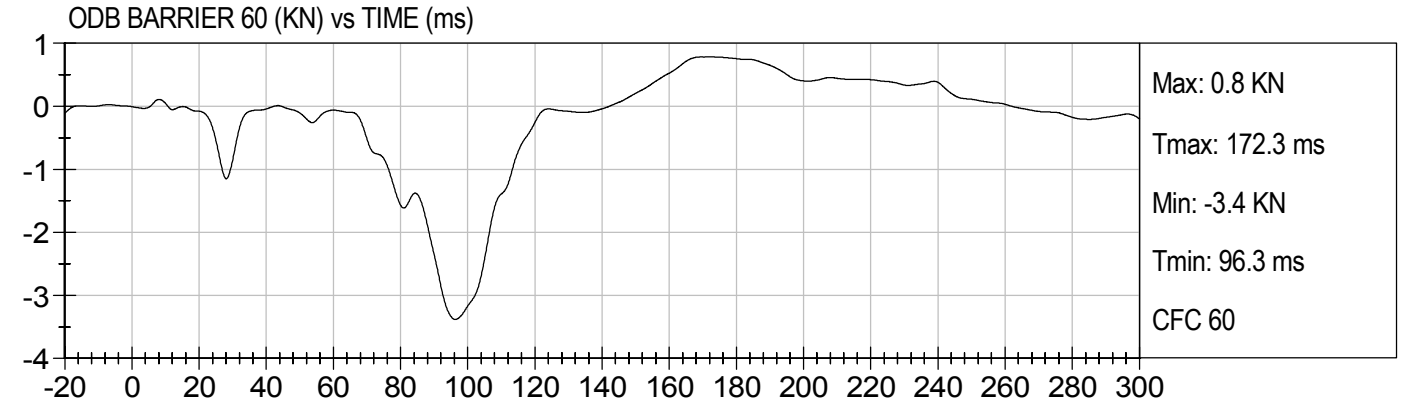
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)





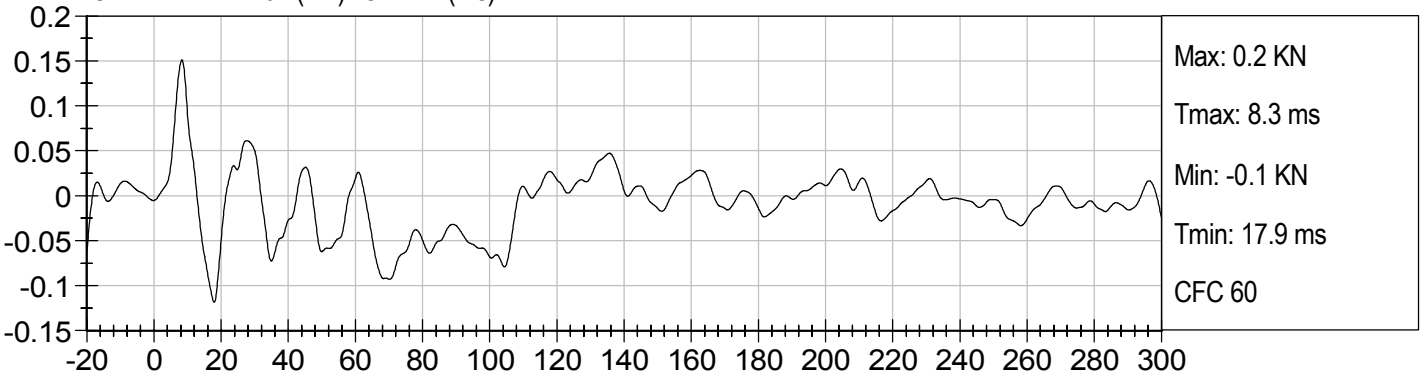




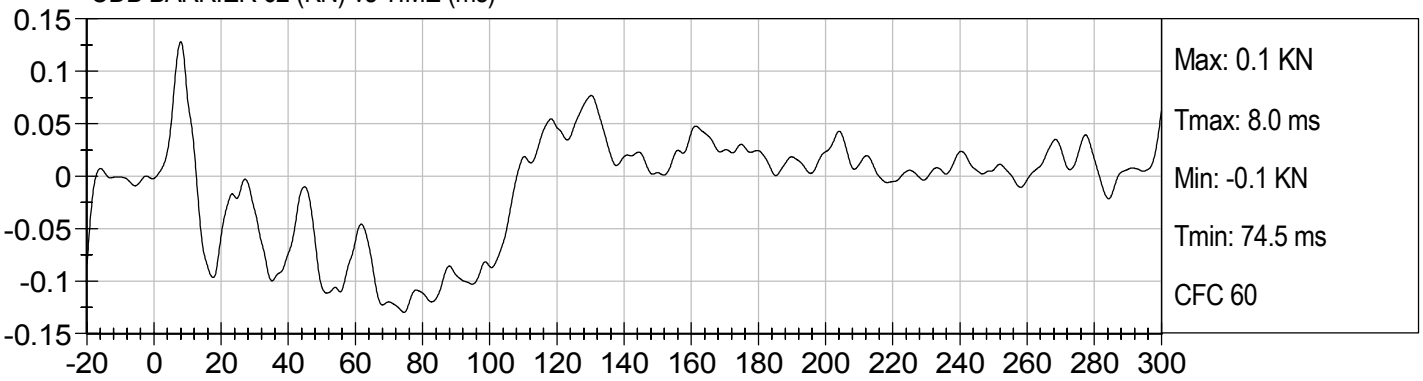
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)

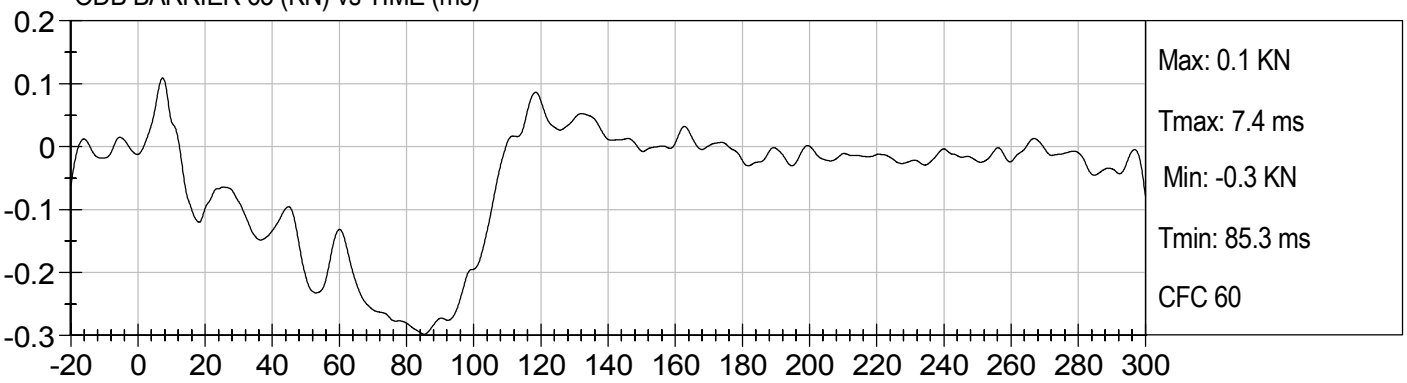
ODB BARRIER 61 (KN) vs TIME (ms)



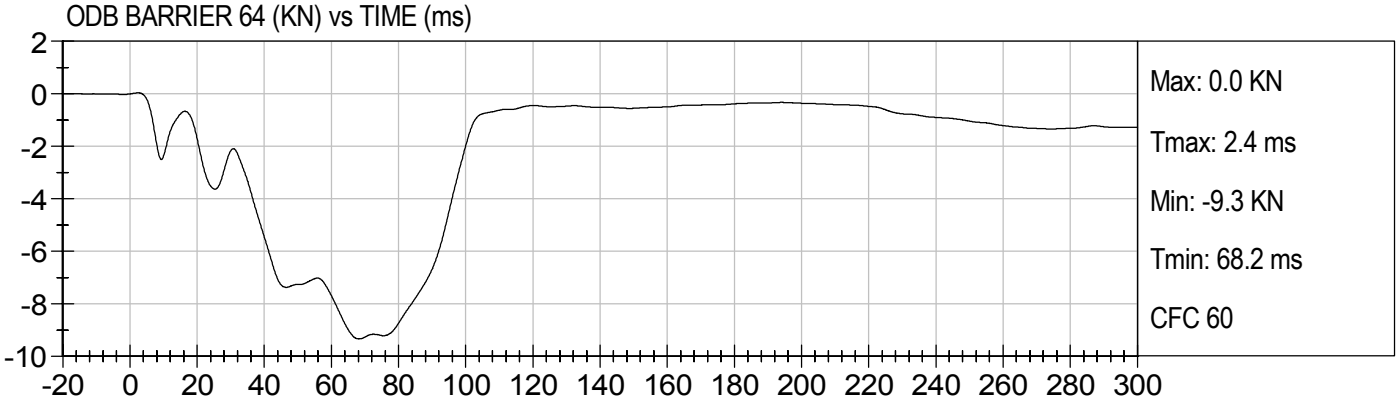
ODB BARRIER 62 (KN) vs TIME (ms)



ODB BARRIER 63 (KN) vs TIME (ms)

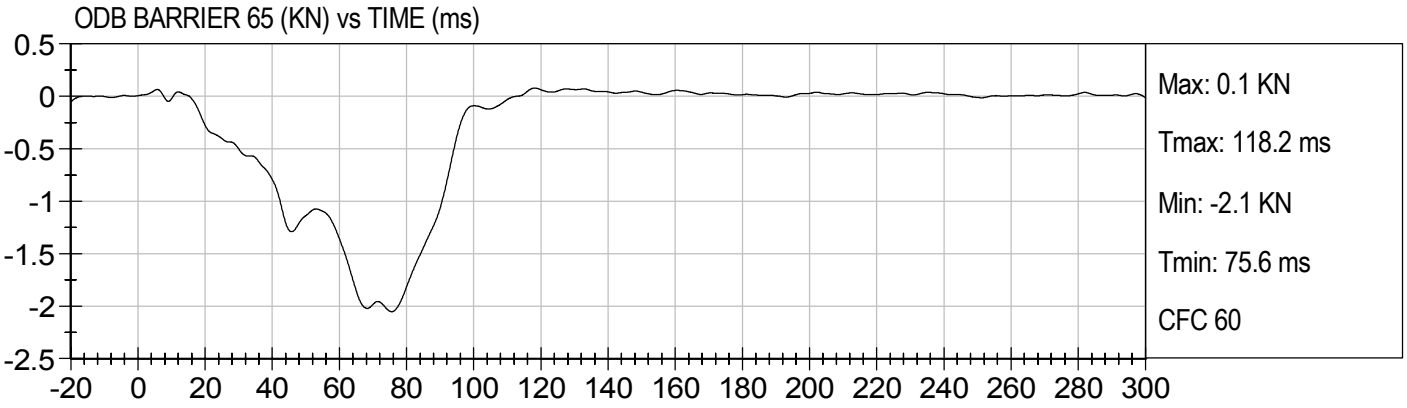


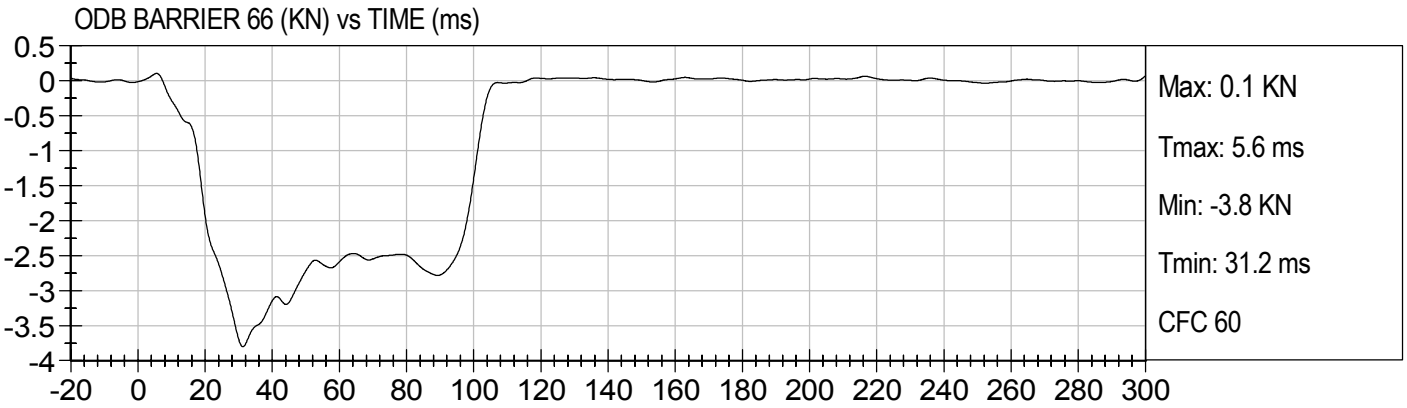
ODB BARRIER 64 (KN) vs TIME (ms)

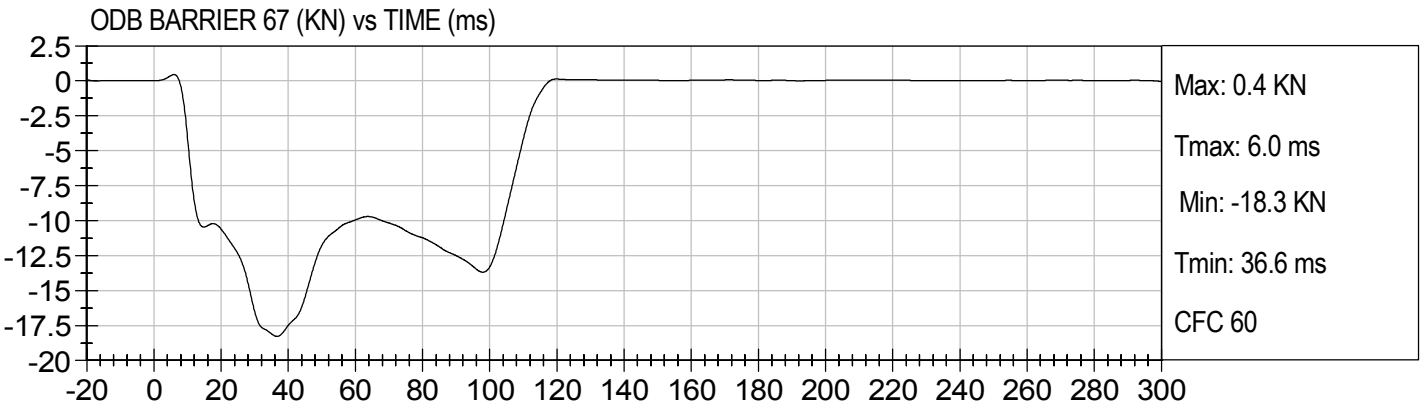


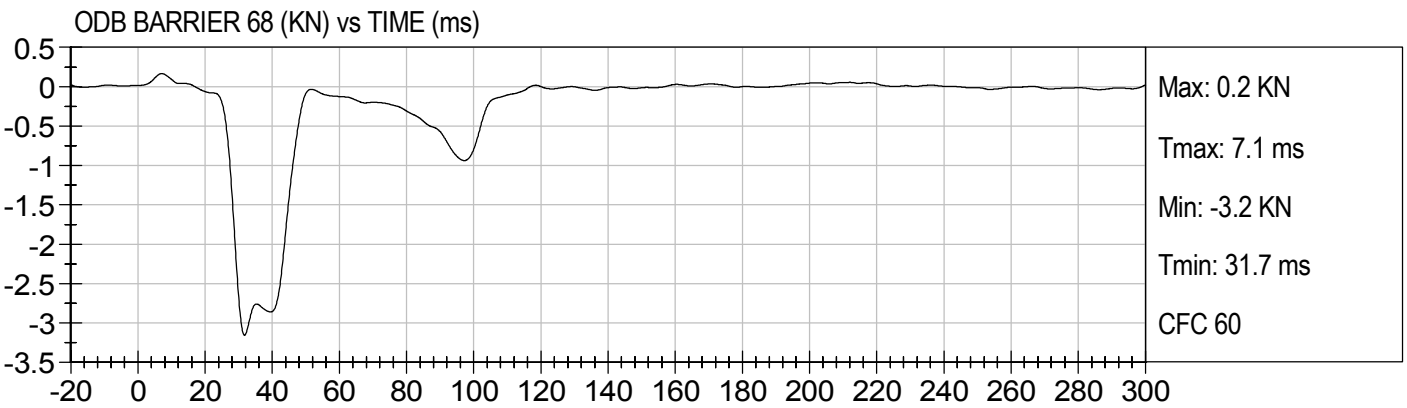
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)



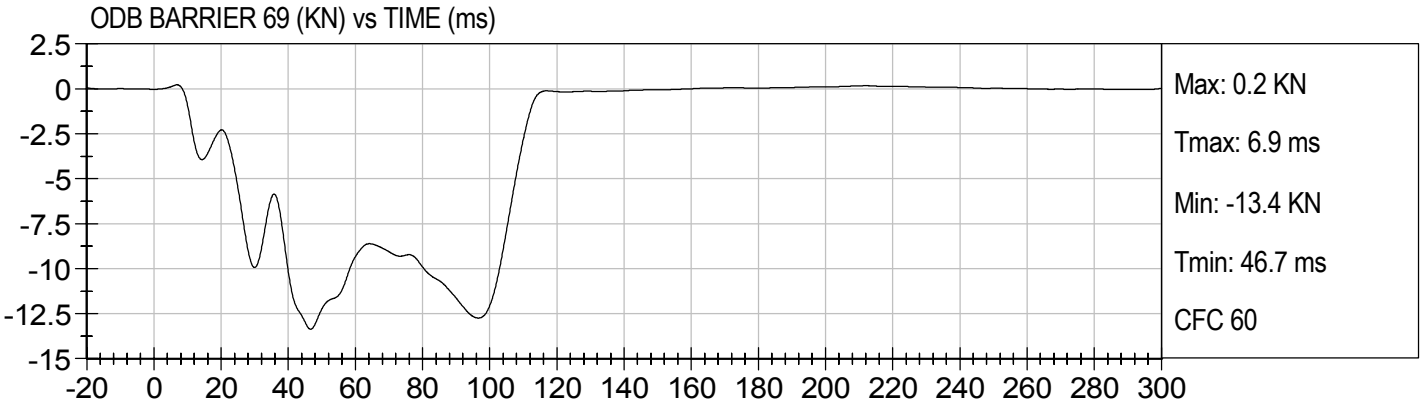


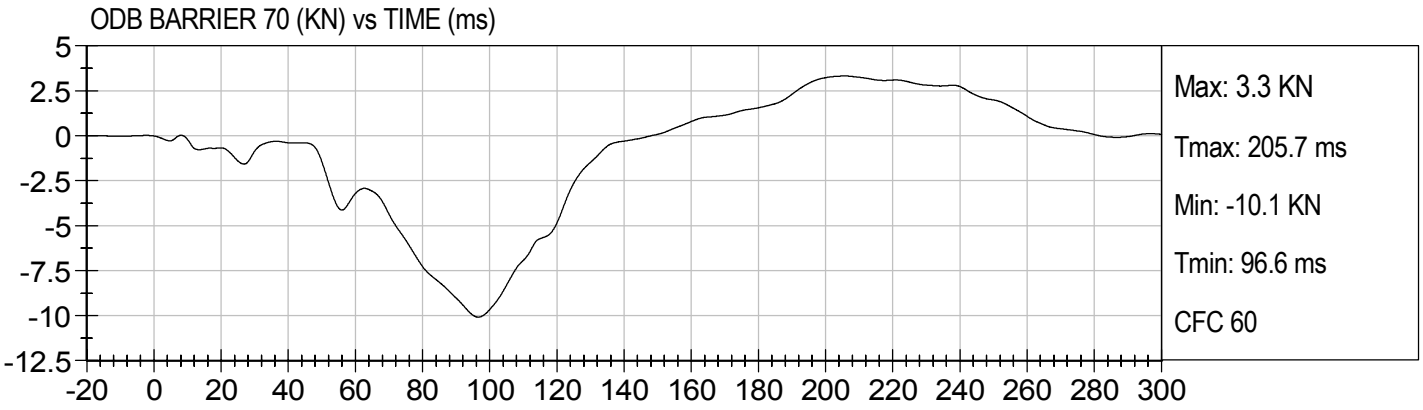


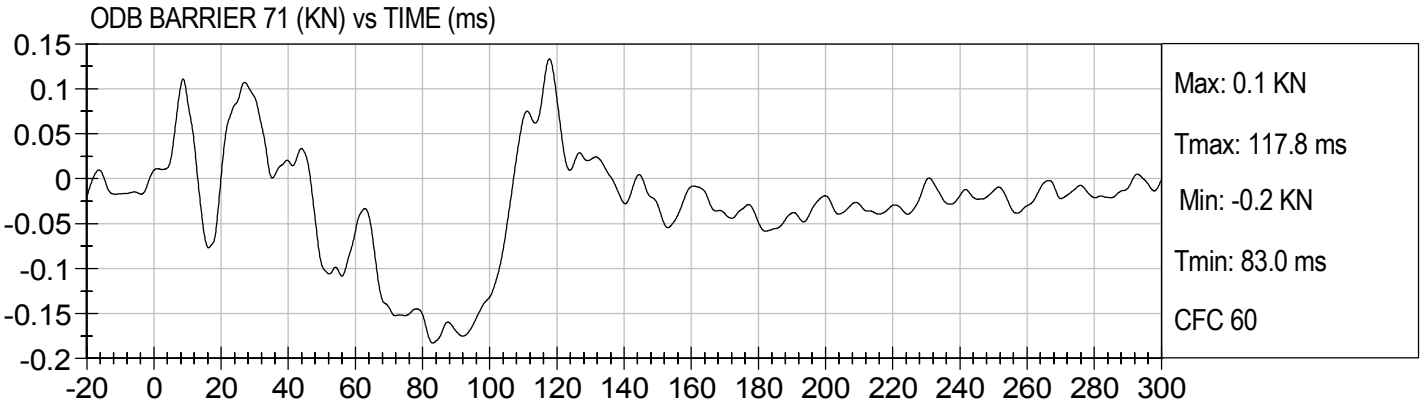


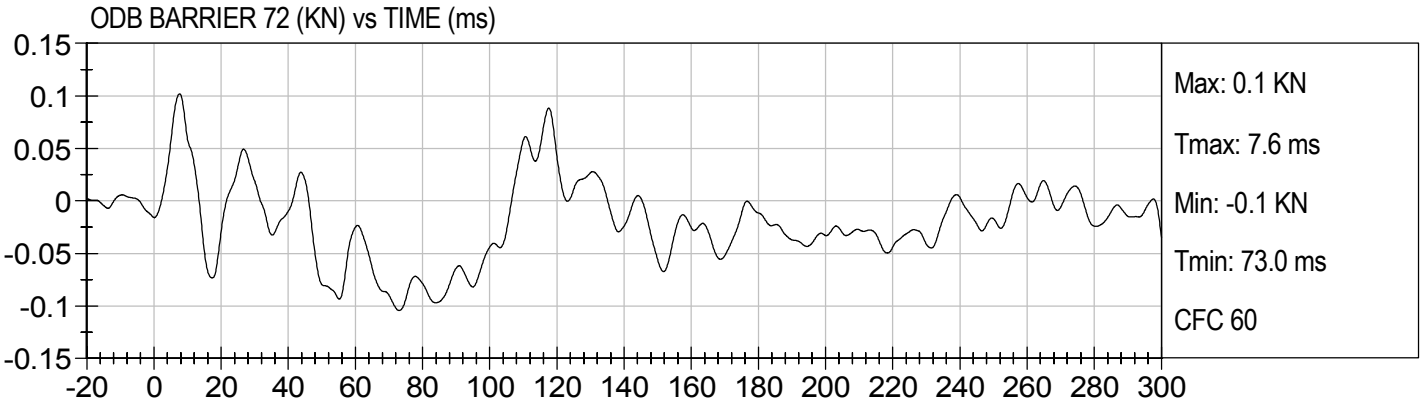
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)



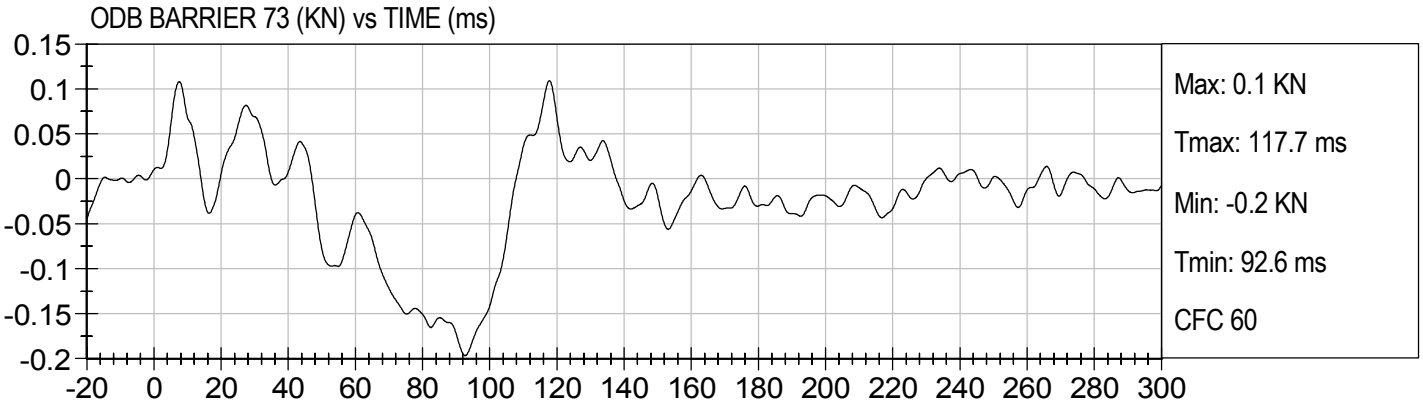


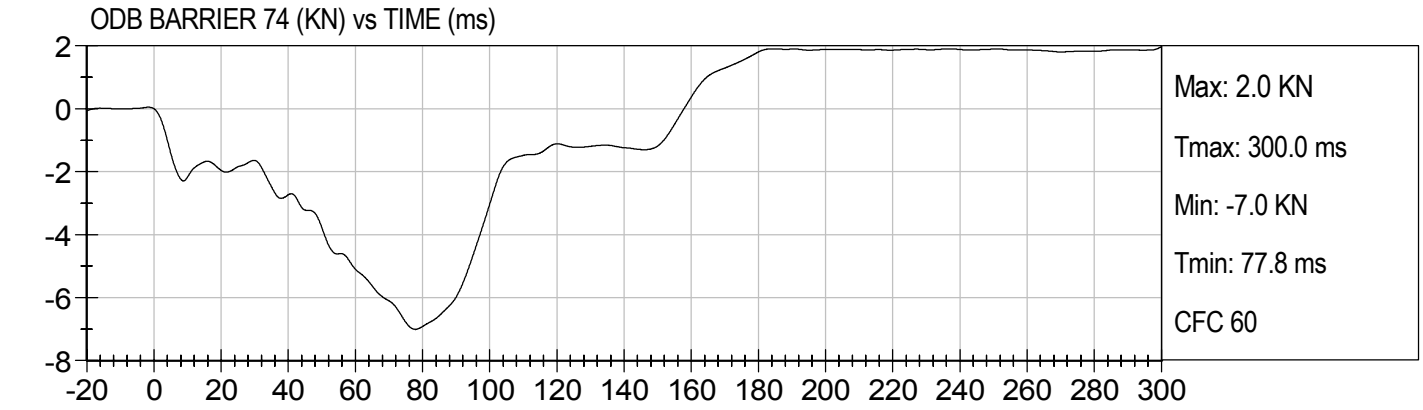


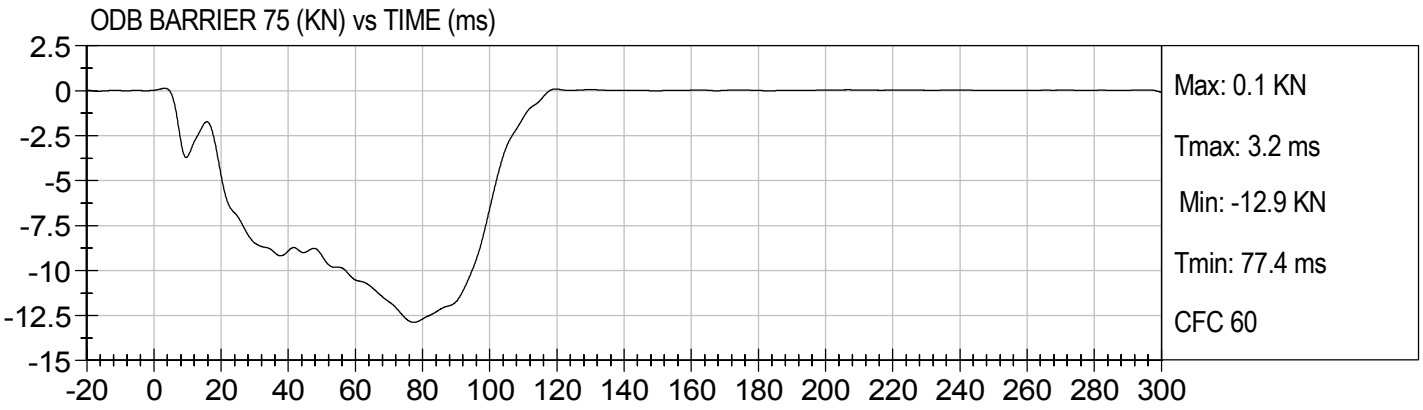


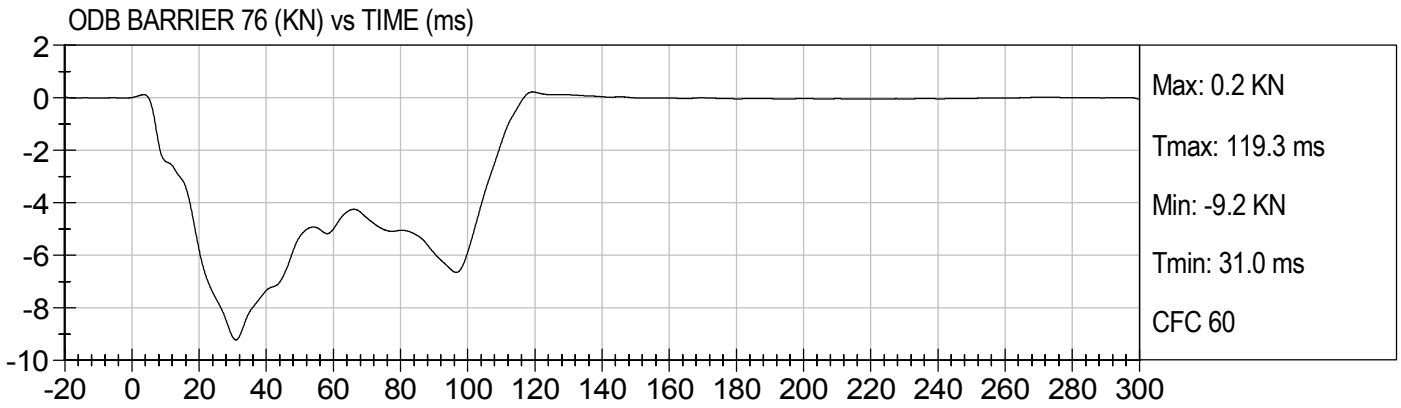
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)



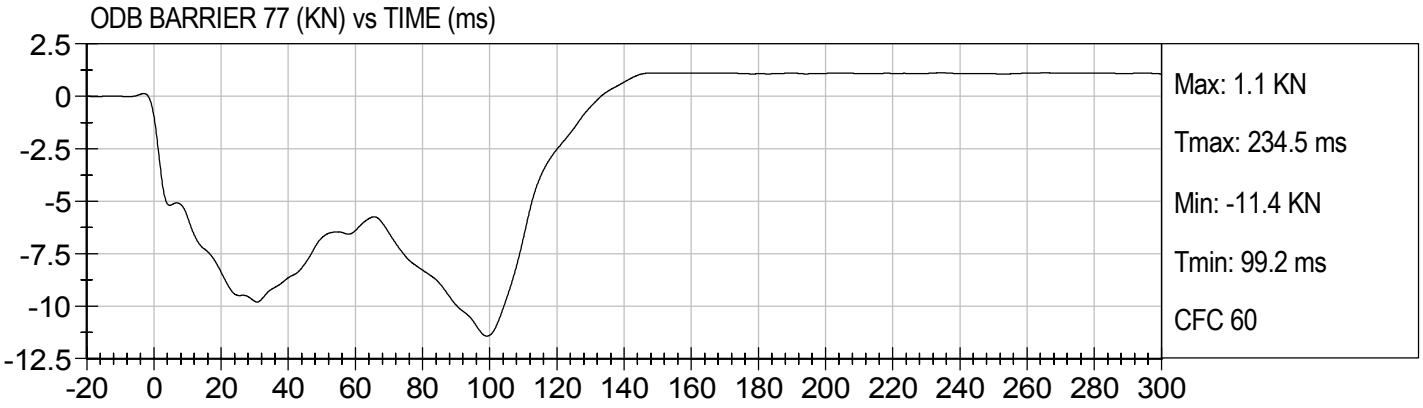


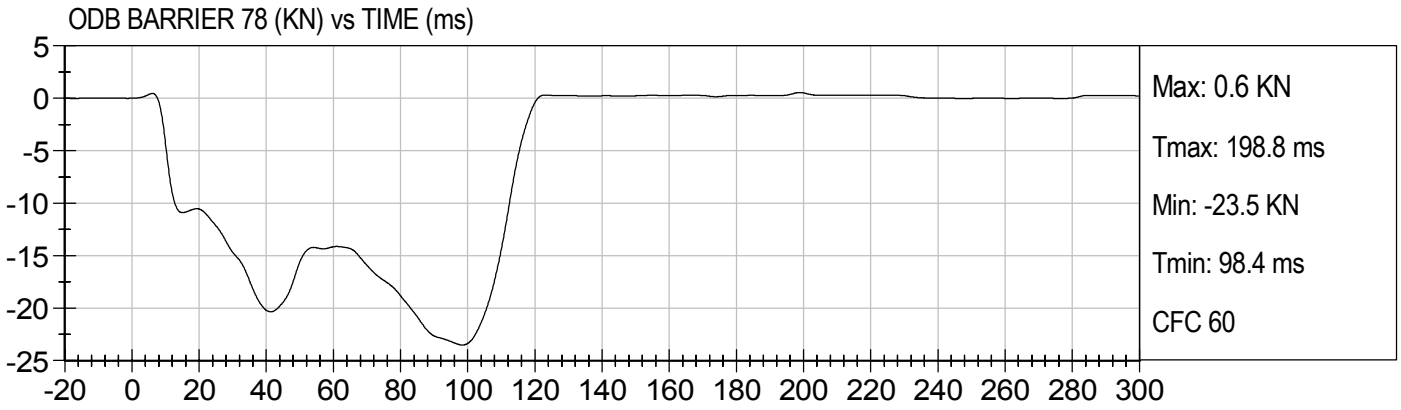


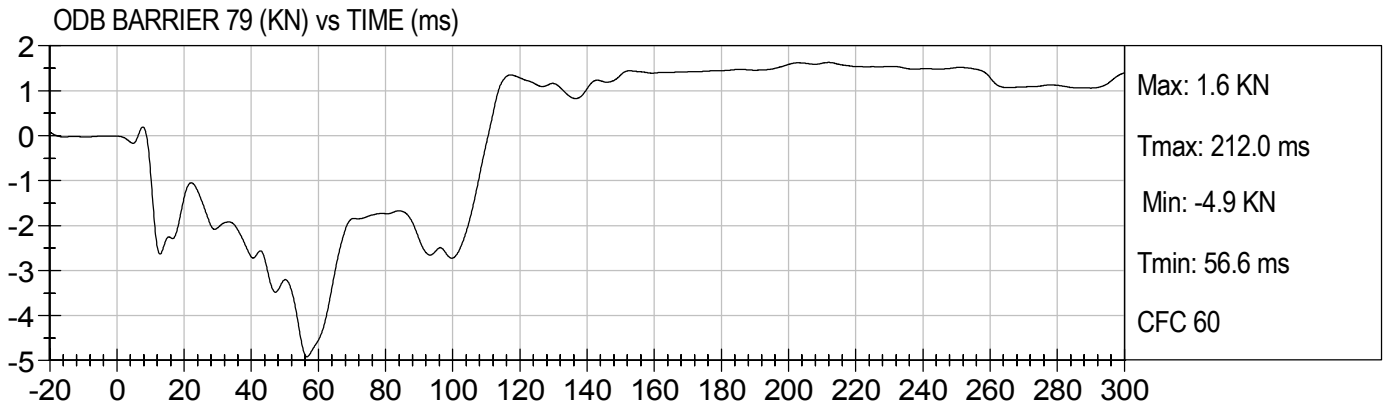


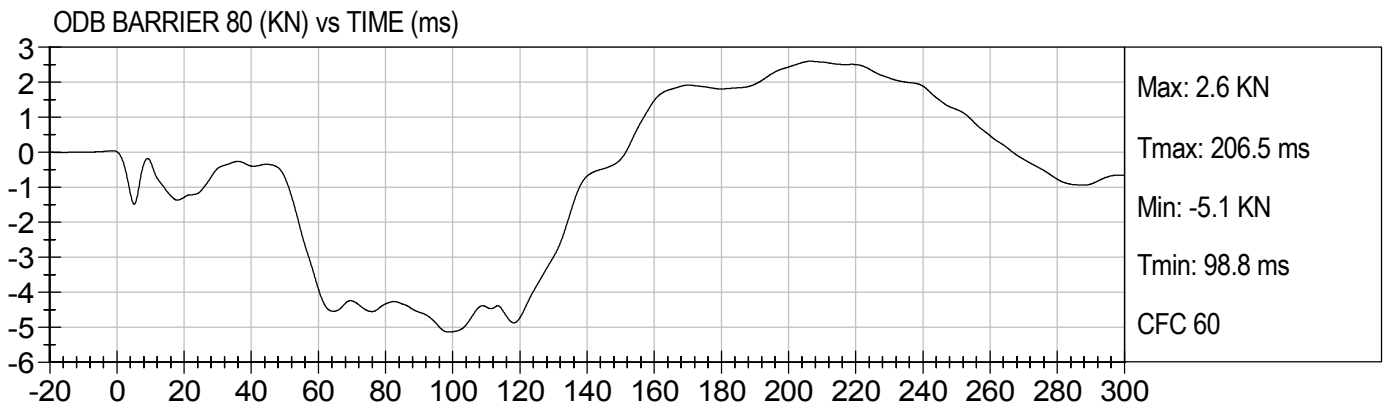
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)



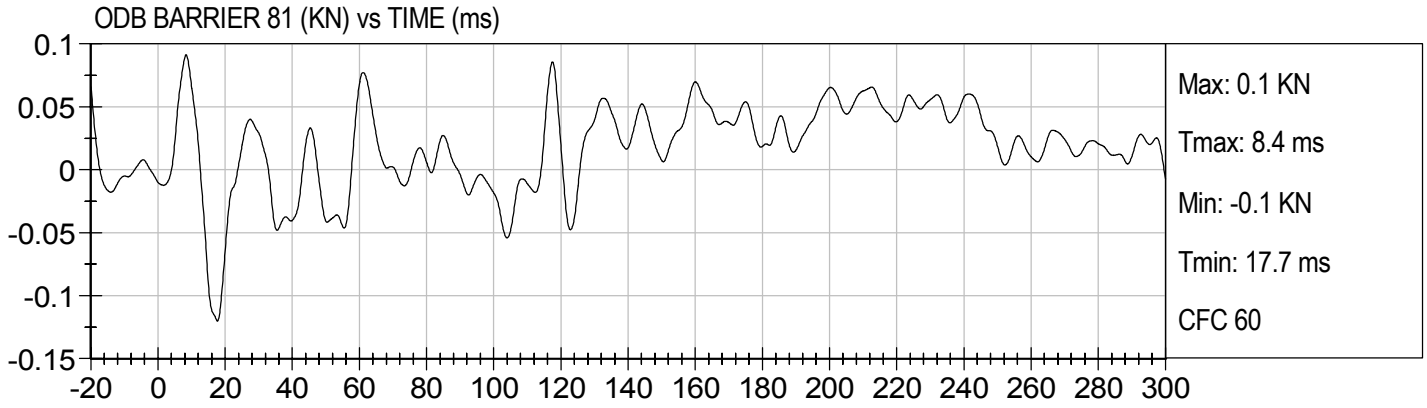


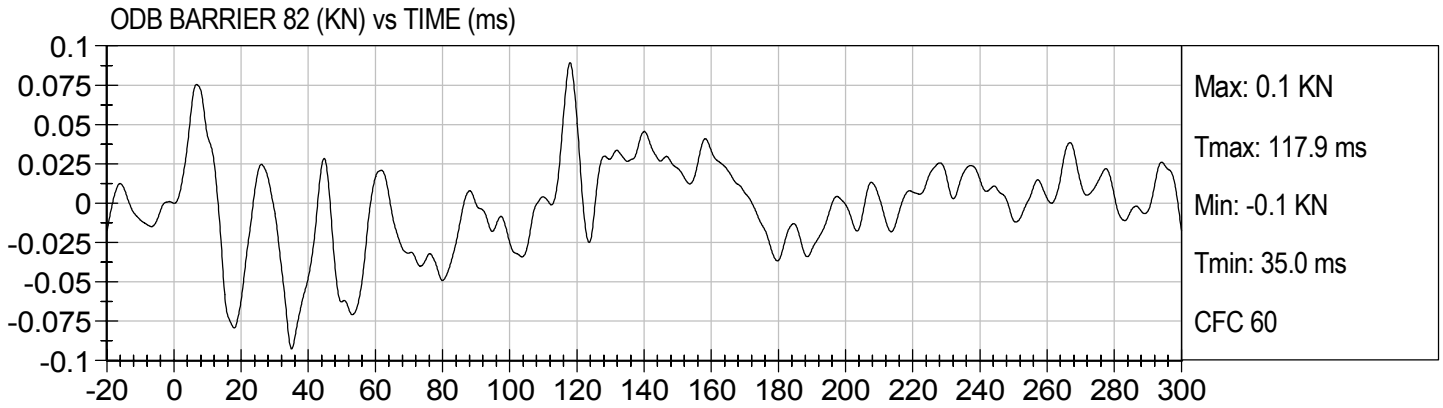


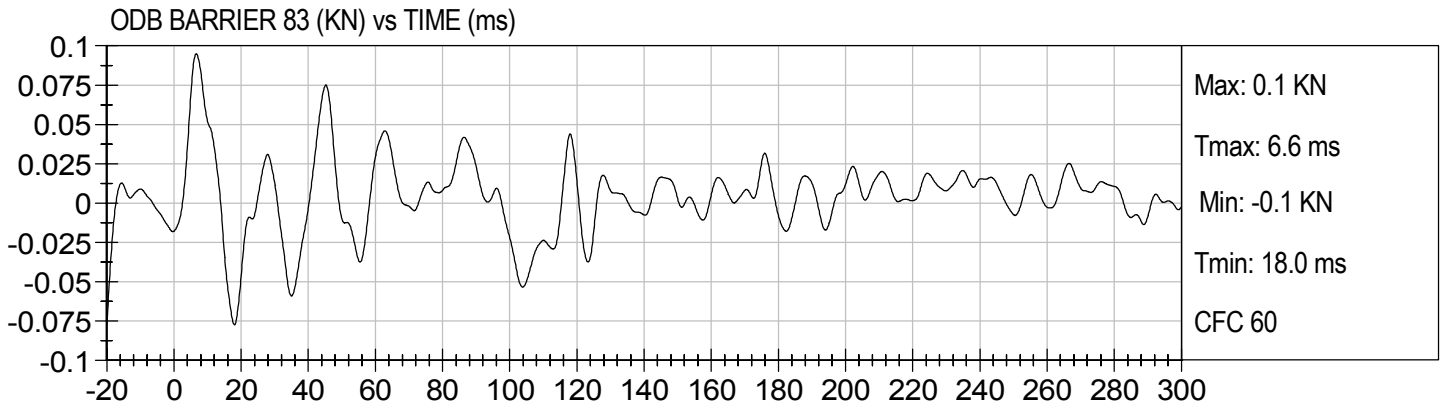


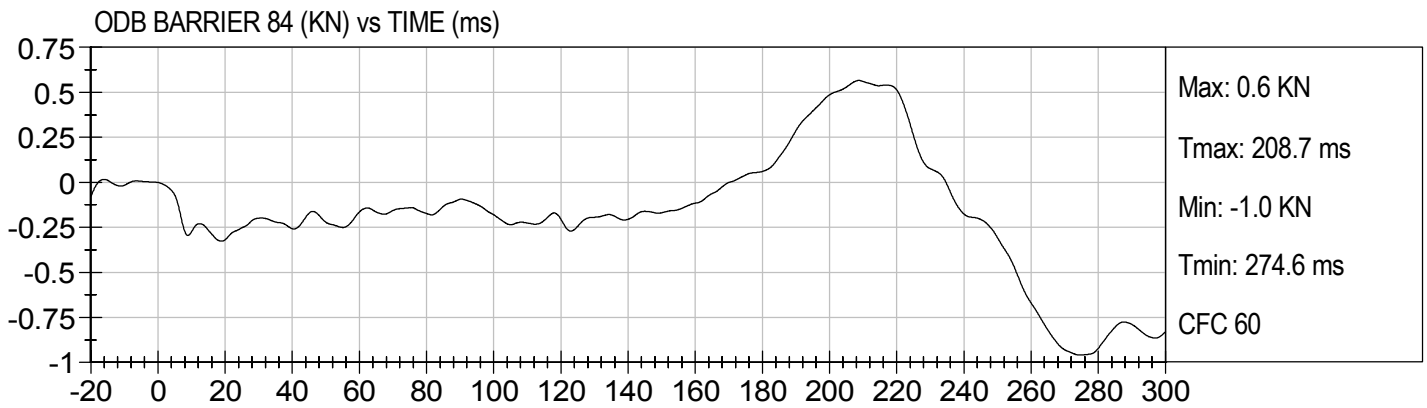
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)



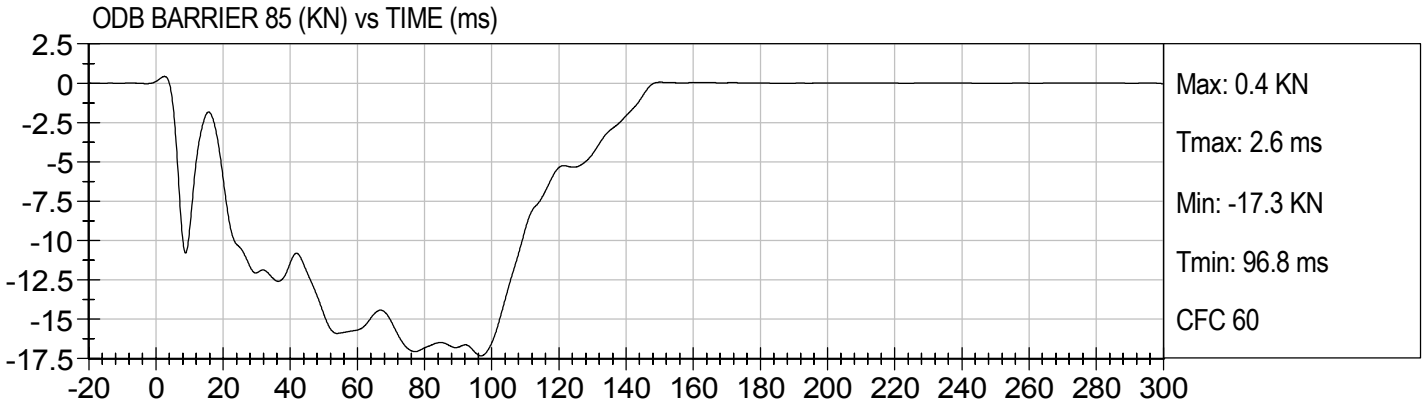


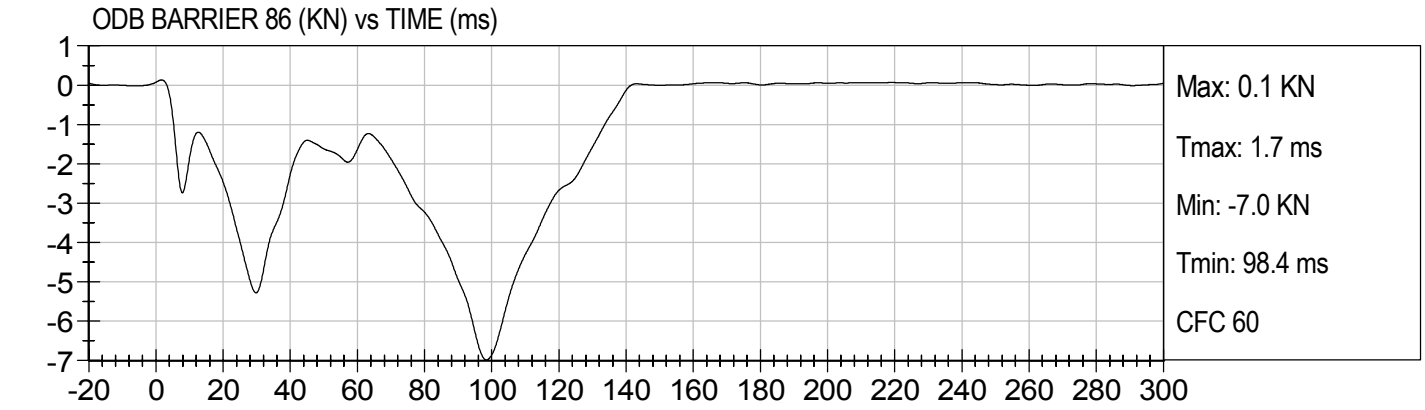


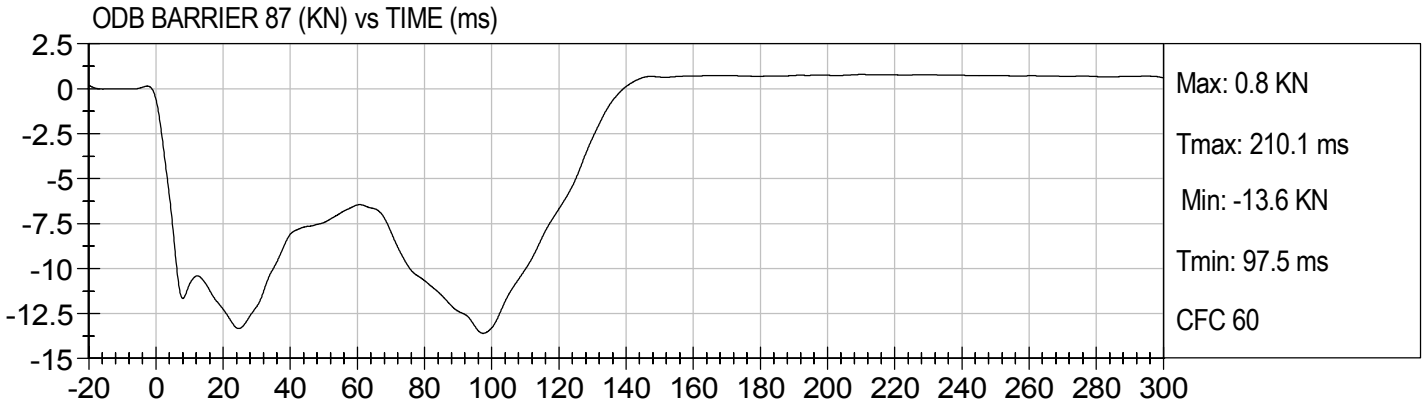


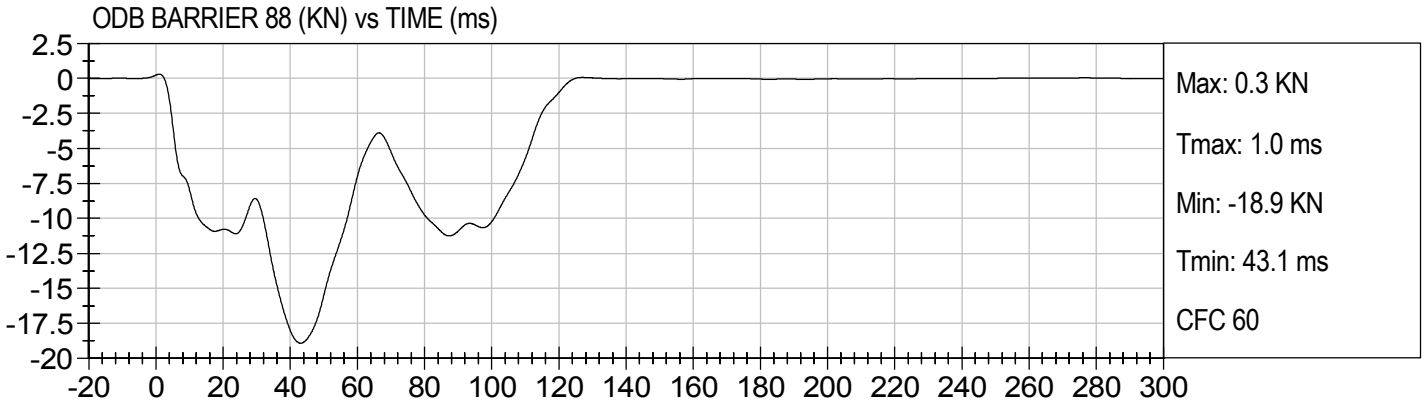
NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)



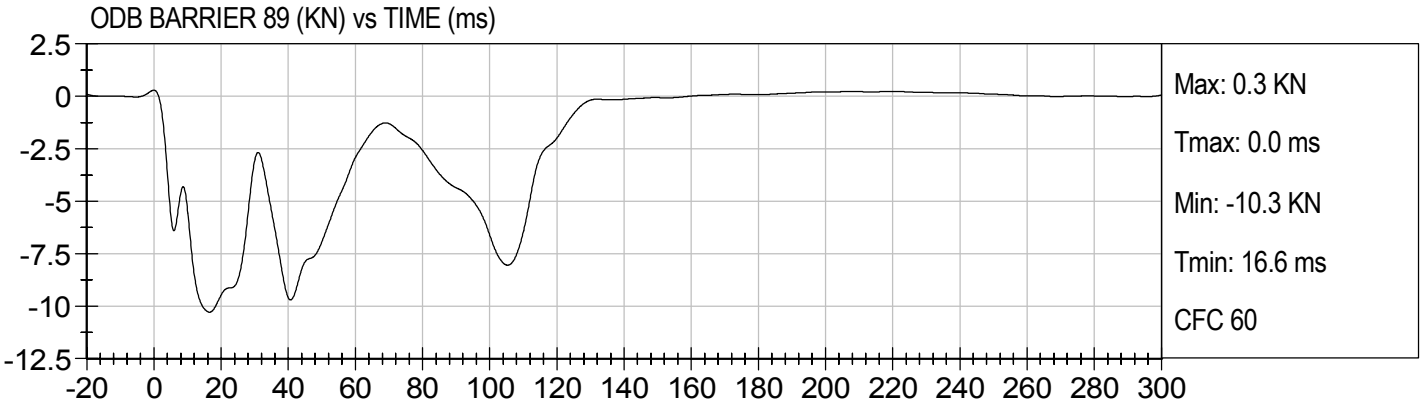


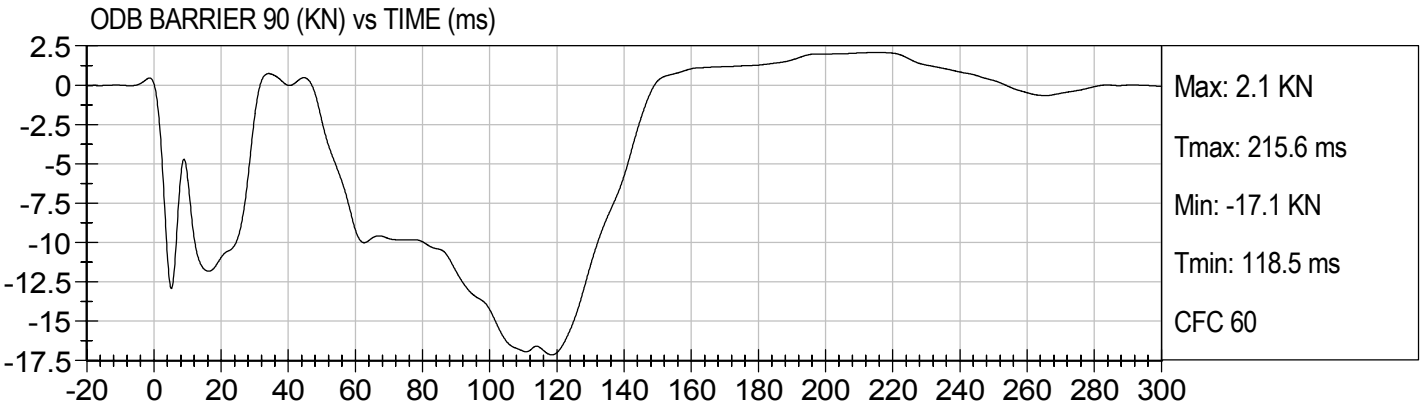




NHTSA 50% OFFSET PDB FRONTAL
2008 FORD ESCAPE R80201

Test Date: 02/14/2008
Speed: 37.2 mph (59.9 km/h)





APPENDIX C

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

MGA RESEARCH CORPORATION

HEAD DROP TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 202 **Test ID:** D08001

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.6	20.8	Pass
Laboratory Relative Humidity	%	10 to 70	19	Pass
Peak Resultant Acceleration	G's	225 - 275	248	Pass
Peak Lateral Acceleration	G's	<= +/- 15.0	-5.0	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 10% of peak	Yes	Pass
		Overall Test Results		Pass

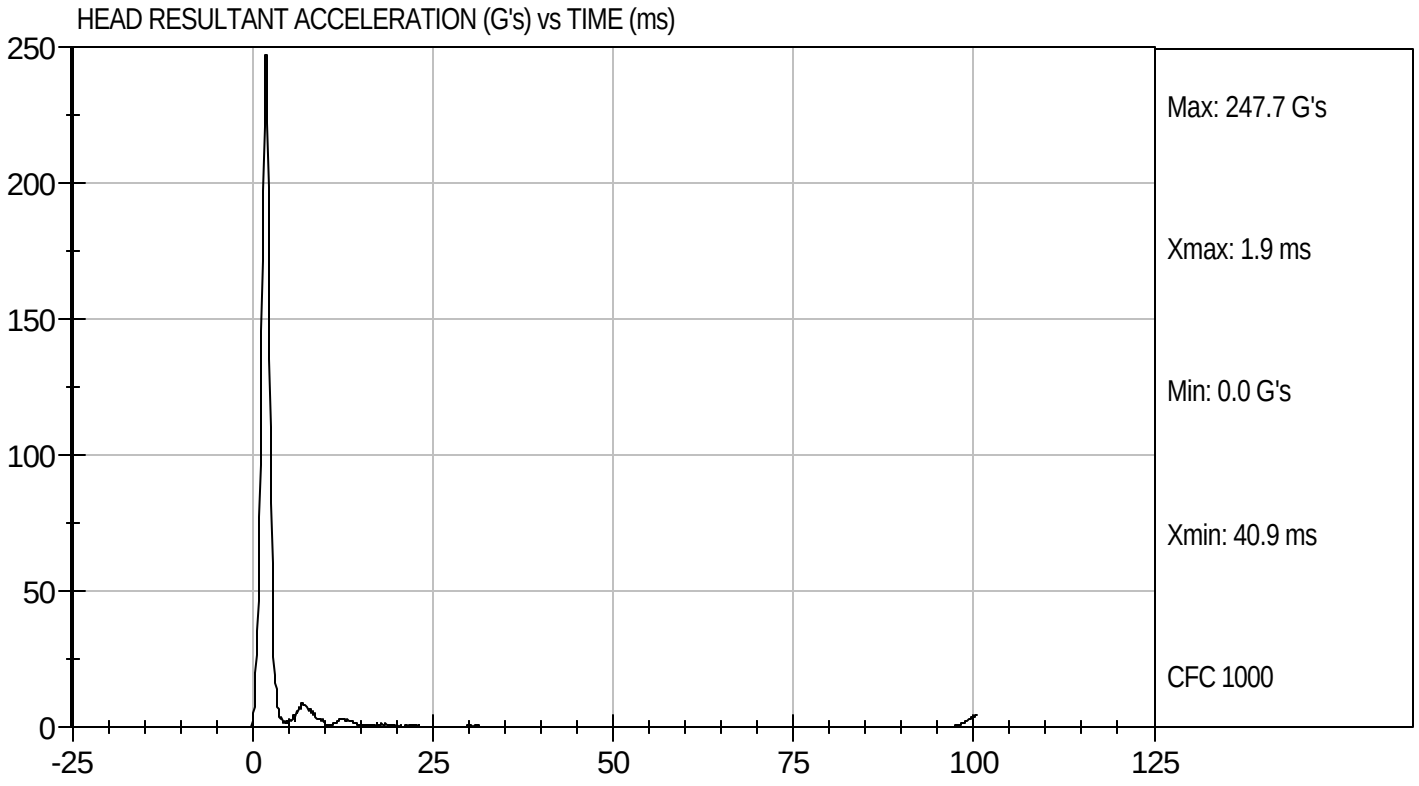
Laboratory Technician

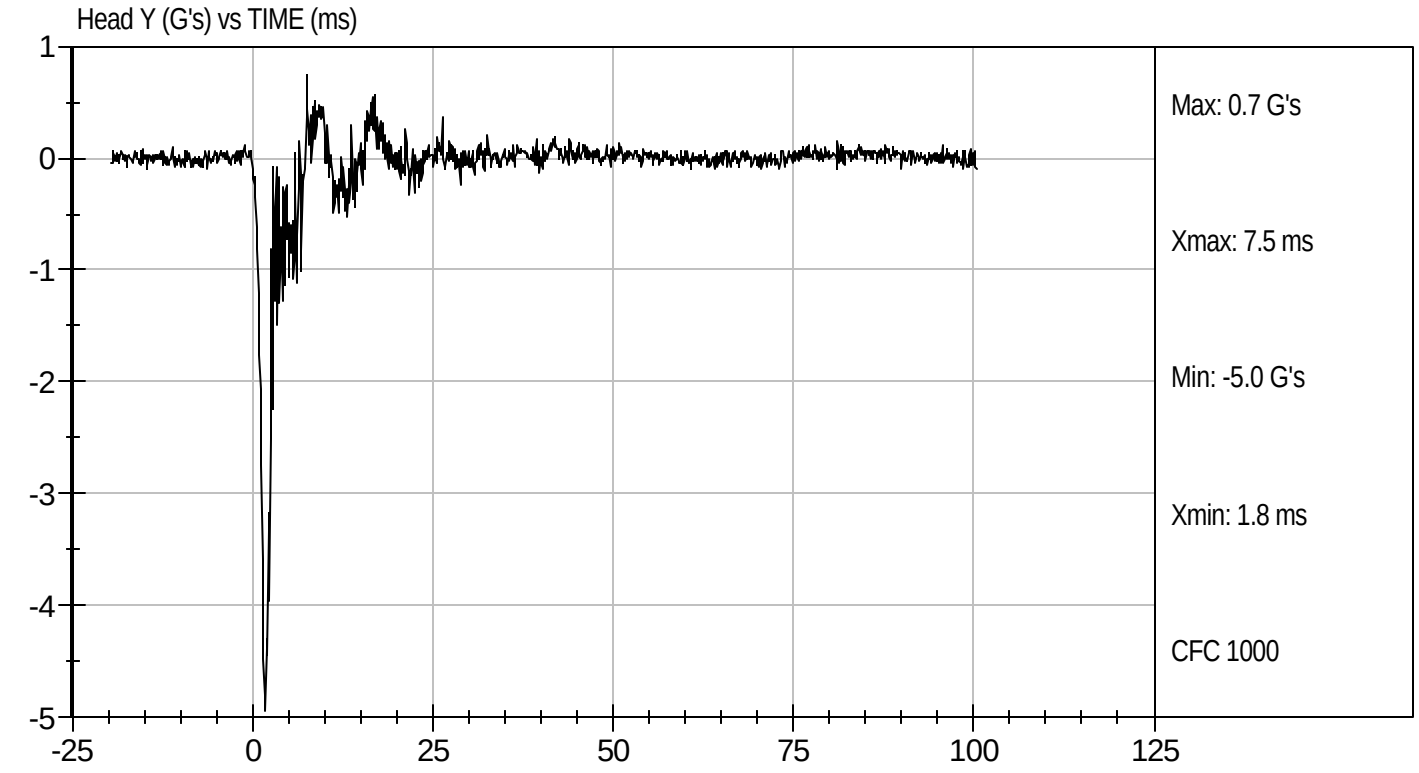
1/4/08
Test Date

David Winkelbauer
Approved By

Test Desc: Head Drop
Component ID: D08001

Test Date: 1/4/08
Velocity: 0 ft/s, 0.00 m/s





MGA RESEARCH CORPORATION

NECK FLEXION TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 202 **Test I.D:** D08002

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	22.0	Pass
Laboratory Relative Humidity		%	10 to 70	18	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.05	Pass
Pendulum Deceleration	10 msec	G's	22.50 to 27.50	23.26	Pass
	20 msec	G's	17.60 to 22.60	18.01	Pass
	30 msec	G's	12.50 to 18.50	13.88	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 29.0	13.84	Pass
Deceleration Decay Time to Cross 5 G's		msec	34.0 to 42.0	36.6	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	68.7	Pass
	Time	msec	57.0 to 64.0	57.9	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	113.0 to 128.0	113.1	Pass
Moment About Occipital Condyle	Maximum	N m	88.1 to 108.5	96.9	Pass
	Time	msec	47.0 to 58.0	49.7	Pass
Positive Moment Decay Time To Zero Crossing		msec	97.0 to 107.0	97.6	Pass
			Overall Test Results		Pass

Laboratory Technician

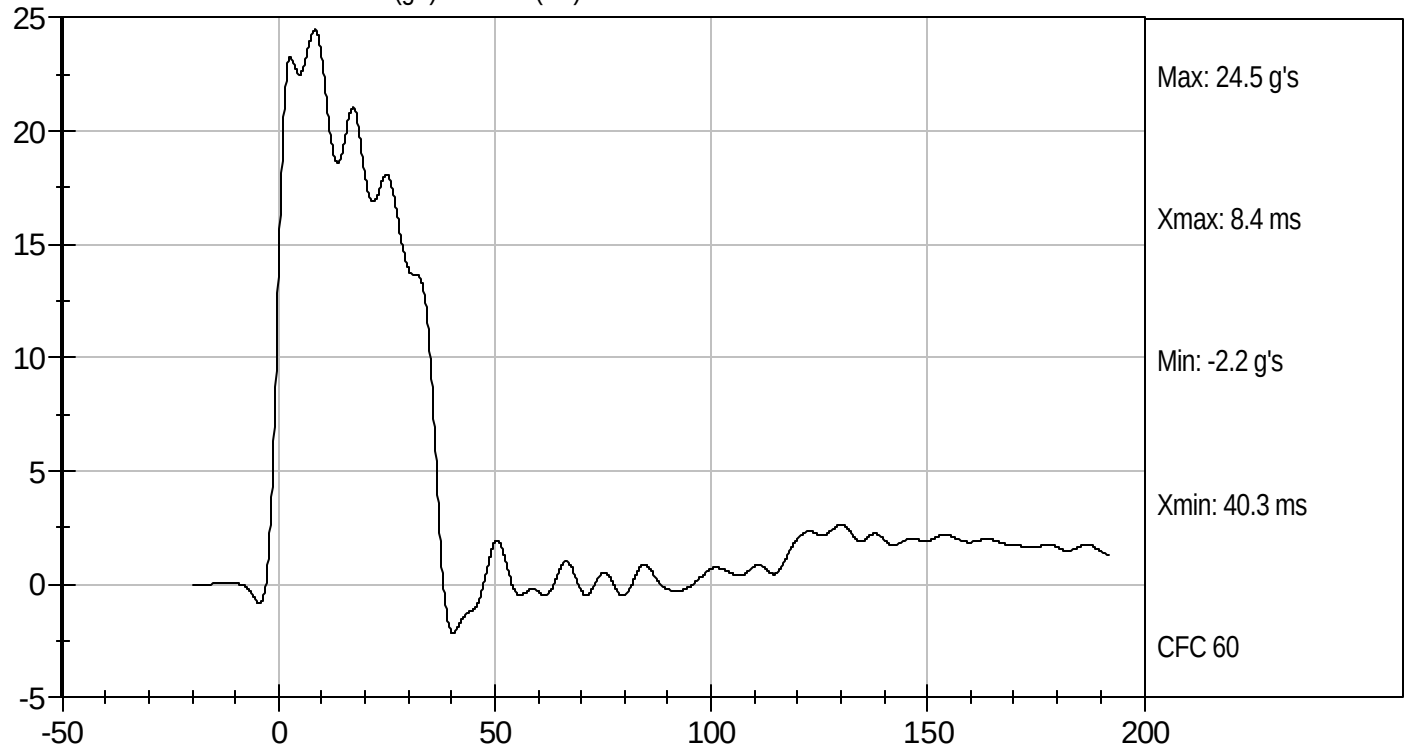
1/4/08
Test Date

David Winkelbauer
Approved By

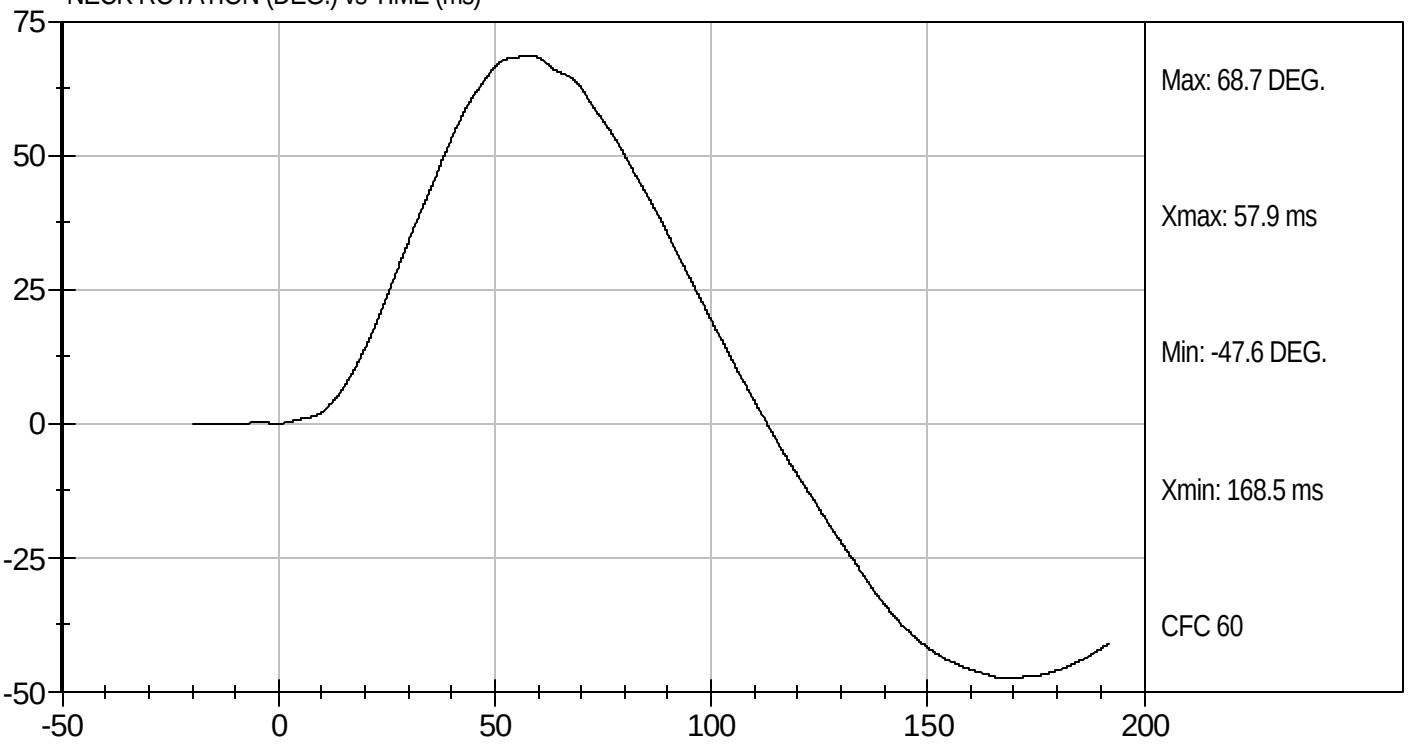
Test Desc: Neck Flexion
Component ID: D08002

Test Date: 1/4/08
Velocity: 23.14 ft/s, 7.05 m/s

PENDULUM DECELERATION (g's) vs TIME (ms)

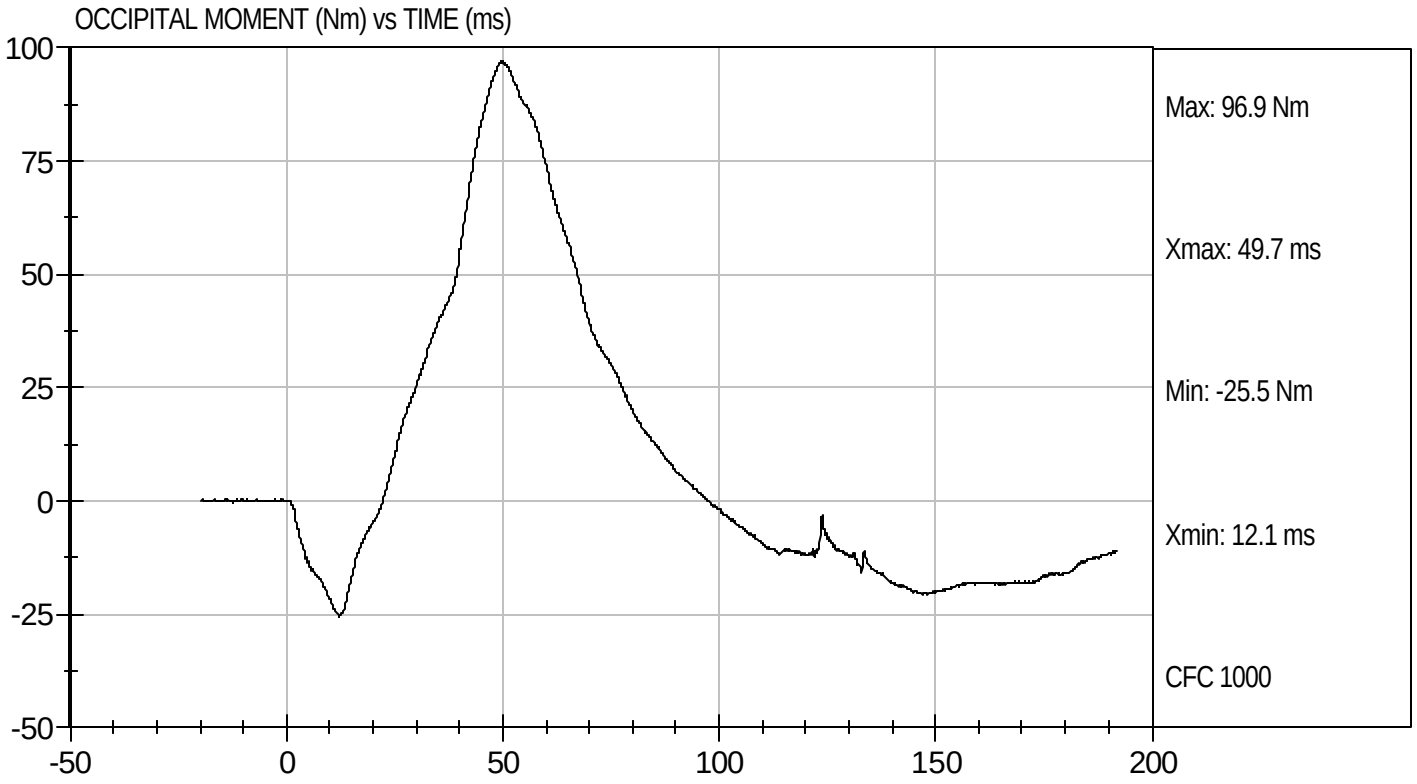


NECK ROTATION (DEG.) vs TIME (ms)



Test Desc: Neck Flexion
Component ID: D08002

Test Date: 1/4/08
Velocity: 23.14 ft/s, 7.05 m/s



MGA RESEARCH CORPORATION

NECK EXTENSION TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 202 **Test I.D:** D08003

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	22.1	Pass
Laboratory Relative Humidity		%	10 to 70	18	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.12	Pass
Pendulum Deceleration	10 msec	G's	17.20 to 21.20	17.98	Pass
	20 msec	G's	14.00 to 19.00	16.18	Pass
	30 msec	G's	11.00 to 16.00	12.89	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 22.0	12.88	Pass
Deceleration Decay Time to Cross 5 G's		msec	38.0 to 46.0	38.4	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	93.5	Pass
	Time	msec	72.0 to 82.0	77.0	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	147.0 to 174.0	155.1	Pass
Moment About Occipital Condyle	Maximum	N m	-52.9 to -79.9	-64.4	Pass
	Time	msec	65.0 to 79.0	69.8	Pass
Negative Moment Decay Time To Zero Crossing		msec	120.0 to 148.0	140.0	Pass
			Overall Test Results		Pass

Laboratory Technician

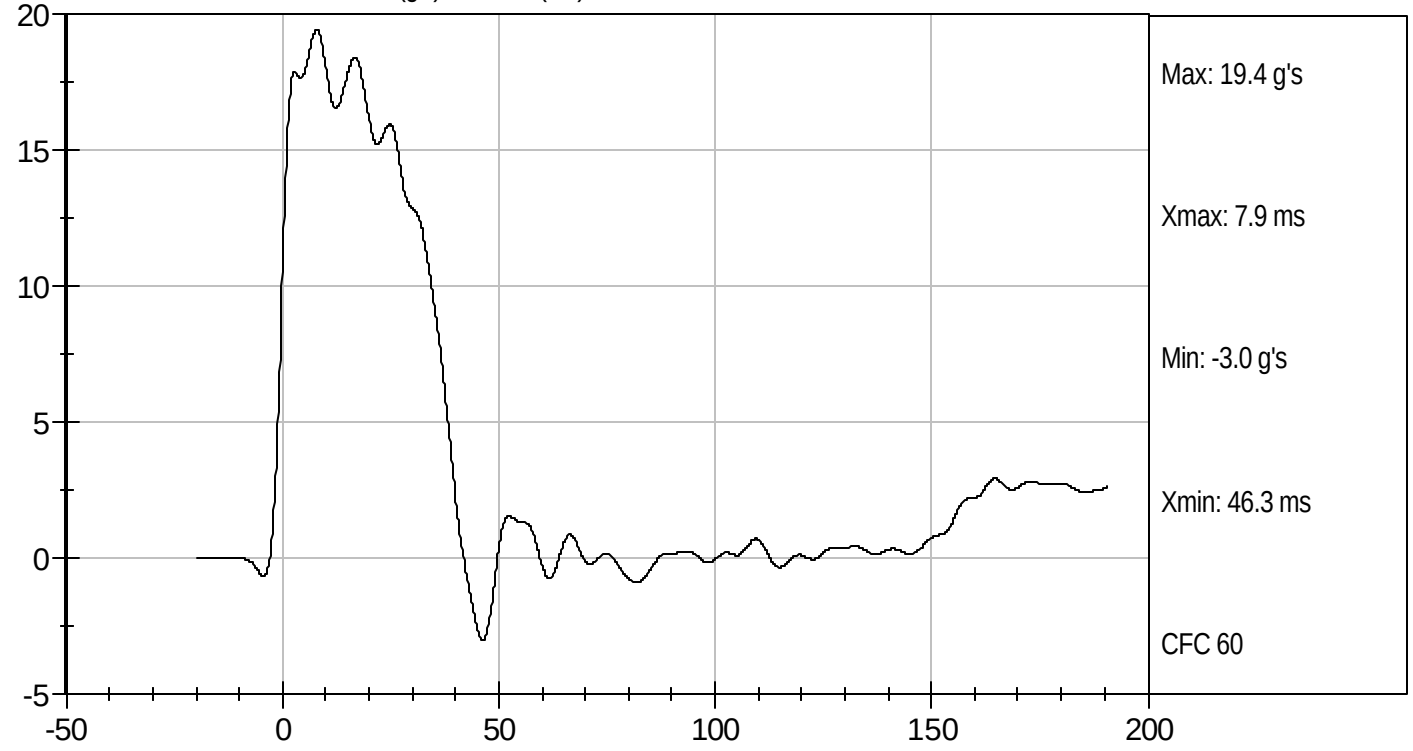
1/4/08
Test Date

David Winkelbauer
Approved By

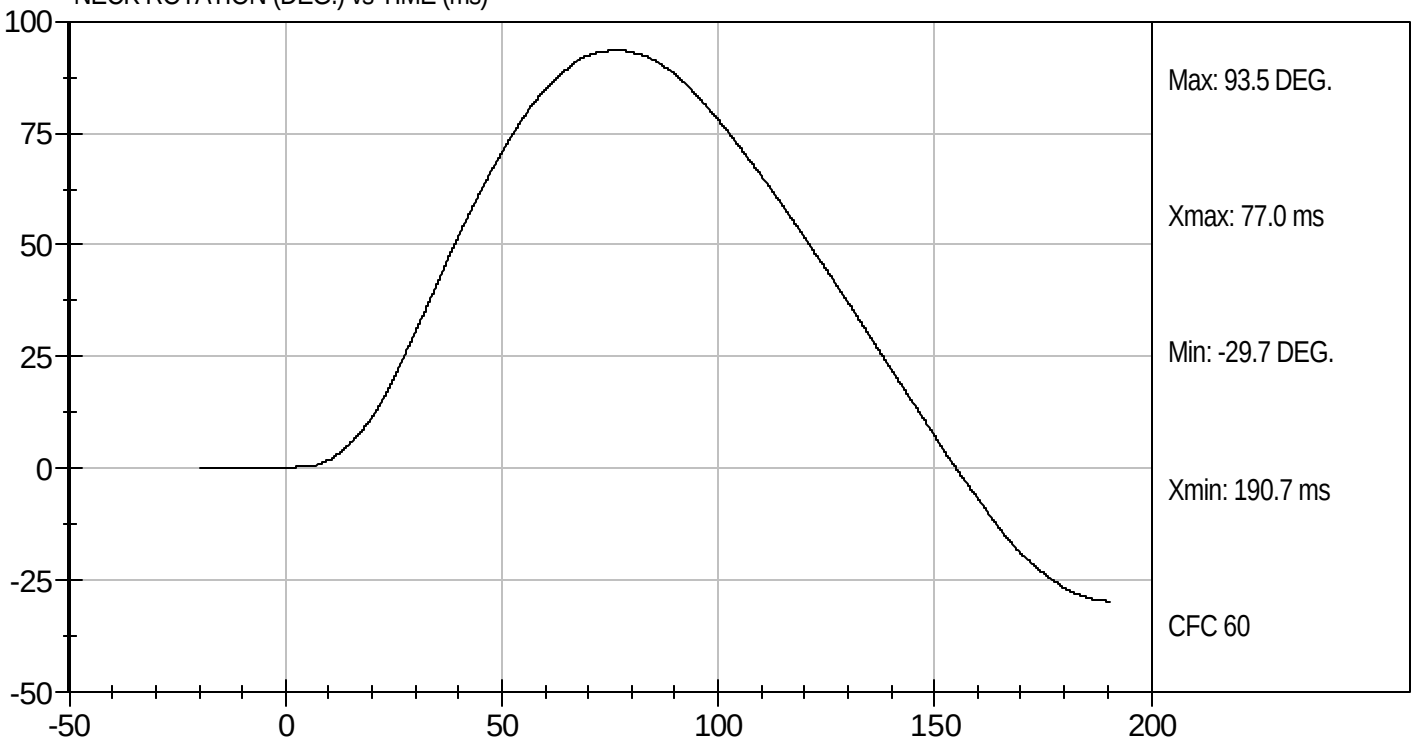
Test Desc: Neck Extension
Component ID: D08003

Test Date: 1/4/08
Velocity: 20.08 ft/s, 6.12 m/s

PENDULUM DECELERATION (g's) vs TIME (ms)

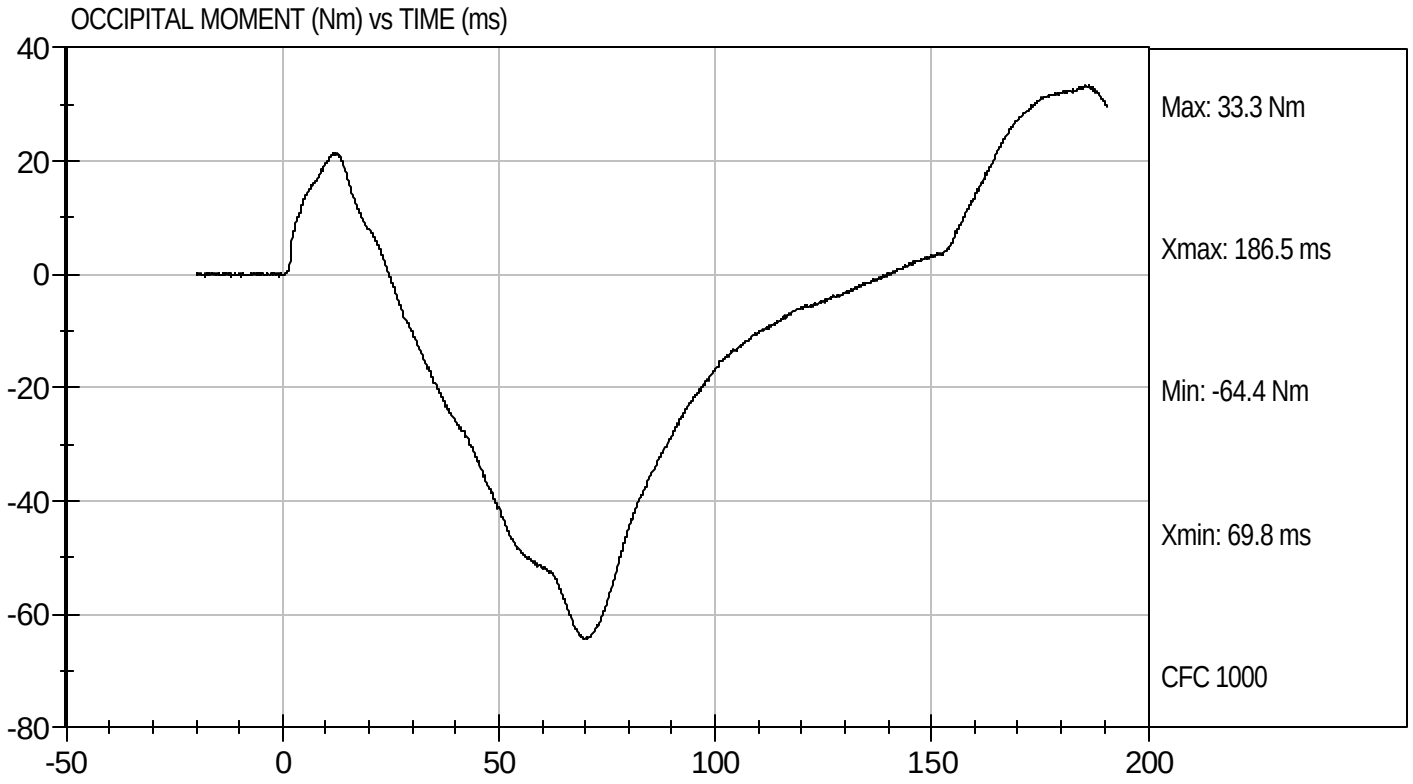


NECK ROTATION (DEG.) vs TIME (ms)



Test Desc: Neck Extension
Component ID: D08003

Test Date: 1/4/08
Velocity: 20.08 ft/s, 6.12 m/s



MGA RESEARCH CORPORATION

THORAX IMPACT

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 202 **Test I.D:** D08004

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.9	Pass
Laboratory Relative Humidity	%	10 to 70	18	Pass
Probe Velocity	m/s	6.58 to 6.82	6.68	Pass
Peak Probe Force	N	5159 to 5893	5,418	Pass
Peak Sternum Displacement	cm	6.35 to 7.26	6.68	Pass
Internal Hysteresis	%	69 to 85	69	Pass
		Overall Test Results		Pass

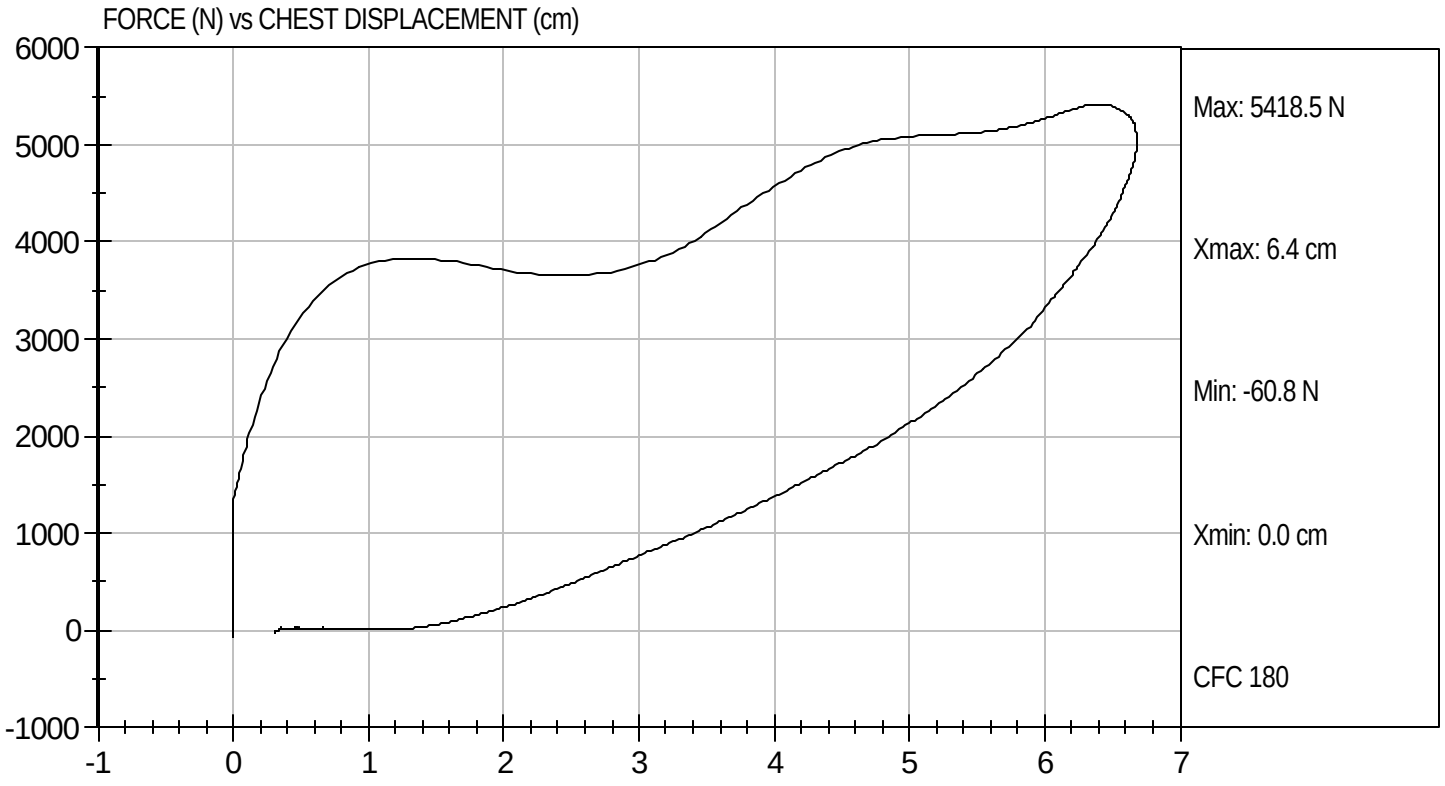
Laboratory Technician

1/7/08
Test Date

David Winkelbauer
Approved By

Test Desc: Thorax Impact
Component ID: D08004

Test Date: 1/7/08
Velocity: 21.92 ft/s, 6.68 m/s



MGA RESEARCH CORPORATION

RIGHT KNEE IMPACT TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 202 **Test I.D:** D08005

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	49	Pass
Probe Velocity	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	Newtons	4715 to 5782	5,165	Pass
		Overall Test Results		Pass

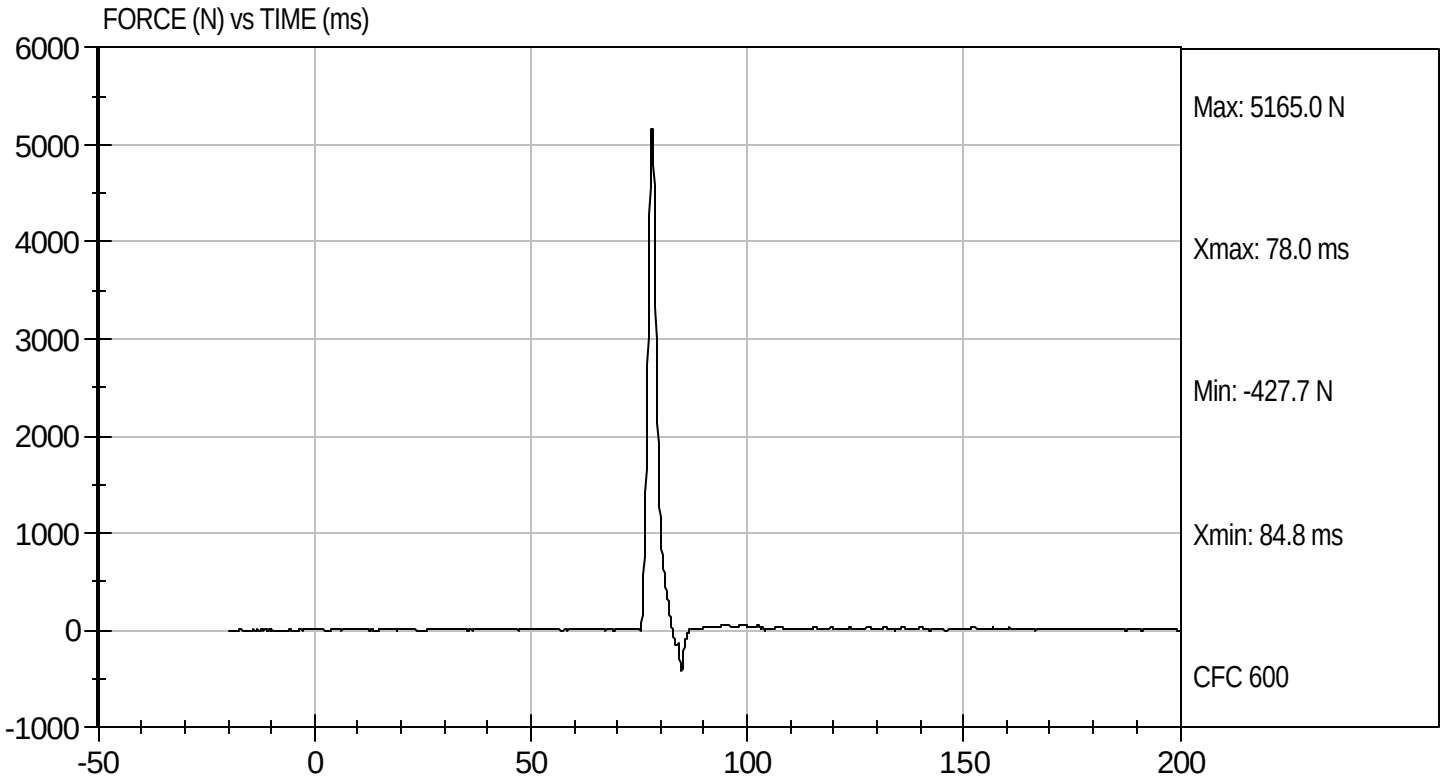
Laboratory Technician

1/7/08
Test Date

David Winkelbauer
Approved By

Test Desc: Right Knee
Component ID: D08005

Test Date: 1/7/08
Velocity: 6.83 ft/s, 2.08 m/s



MGA RESEARCH CORPORATION

LEFT KNEE IMPACT TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 202 **Test I.D:** D08006

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	20.6	Pass
Laboratory Relative Humidity	%	10 to 70	49	Pass
Probe Velocity	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	Newtons	4715 to 5782	4,862	Pass
		Overall Test Results		Pass

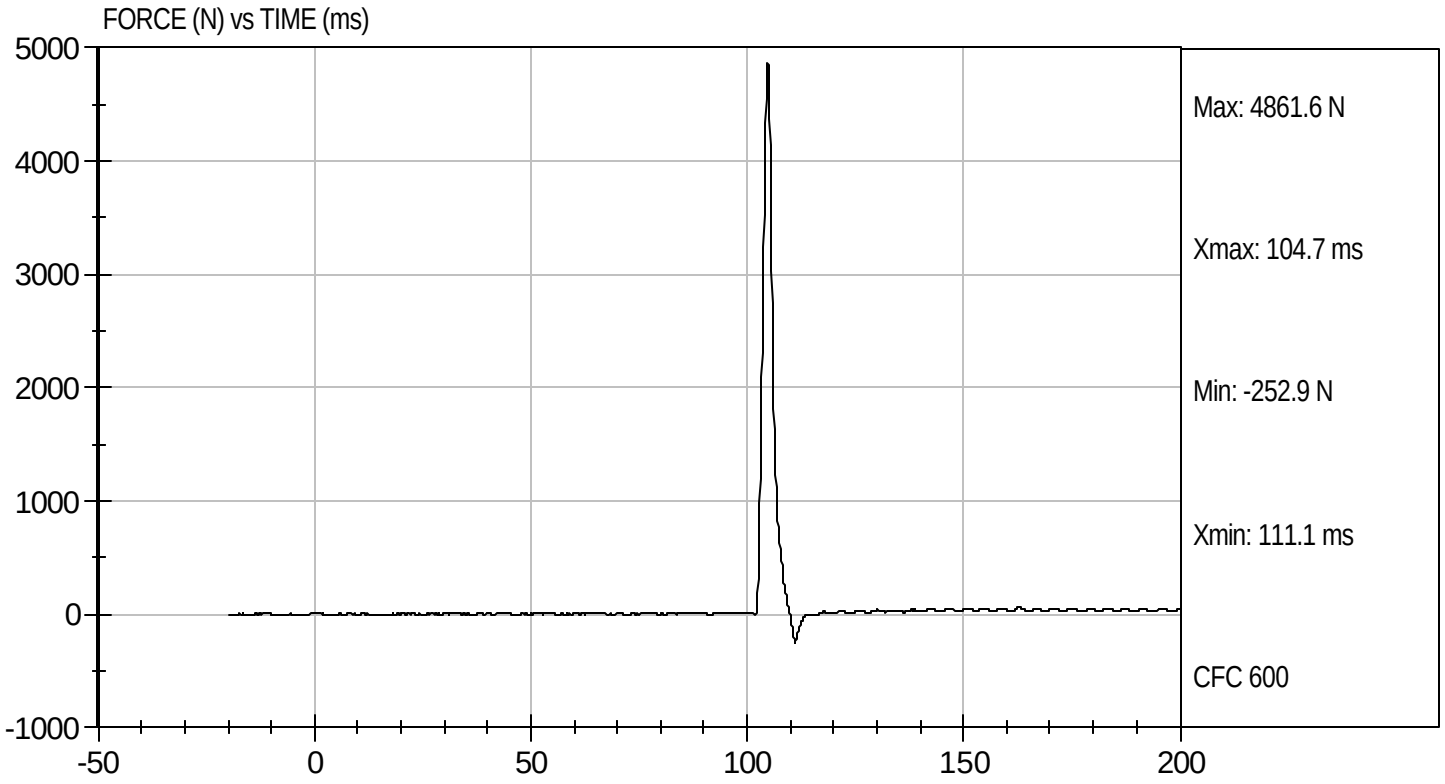
Laboratory Technician

1/7/08
Test Date

David Winkelbauer
Approved By

Test Desc: Left Knee
Component ID: D08006

Test Date: 1/7/08
Velocity: 6.83 ft/s, 2.08 m/s



MGA RESEARCH CORPORATION

HIP-FEMUR FLEXION TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 202 **Test I.D:** D08000

Tested Parameter	Units	Specification	Result		Pass/Fail
			Right	Left	
Laboratory Temperature	deg C	18.9 to 25.6	21.5	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	18	18	Pass
Rotation Rate	deg/sec	5 -10	8	8	Pass
30 Degrees	Nm	94.9 Nm Max	83.1	77.2	Pass
150 ft-lbf / 203.4 Nm	Deg	40- 50 Degree Max Rotation	41	42	Pass
		Overall Test Results			Pass

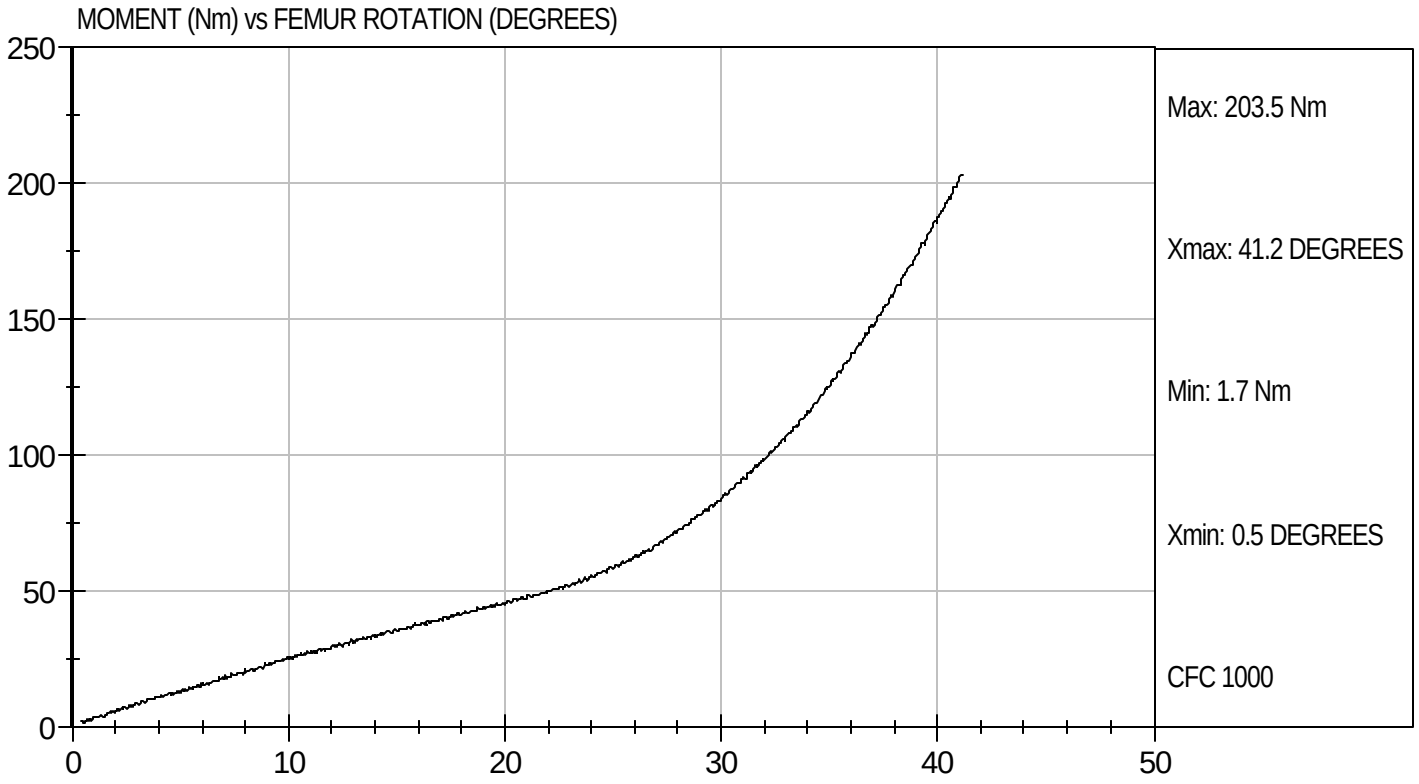
Laboratory Technician

1/4/08
Test Date

David Winkelbauer
Approved By

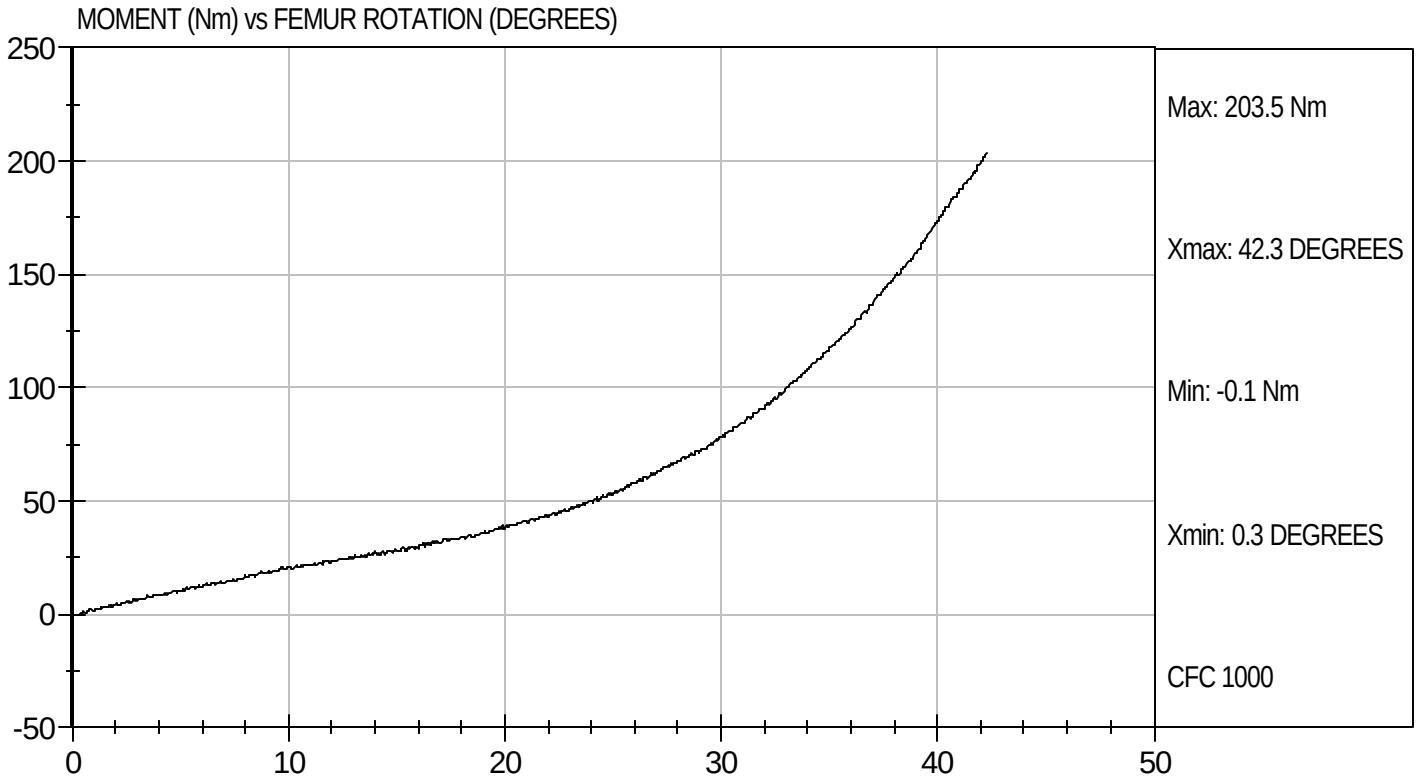
Test Desc: Hip Femur Flexion
Component ID: D08009

Test Date: 1/4/08
Velocity: 0 ft/s, 0.00 m/s



Test Desc: Hip Femur Flexion
Component ID: D08000

Test Date: 1/4/08
Velocity: 0 ft/s, 0.00 m/s



CERTIFICATION DATA

Thor-Lx Legs #036 & #037

Installed in Hybrid III 50th Percentile Male Dummy #202

Test Performer: Vehicle Research and Test Center
Test Type: Dorsiflexion/Ball of Foot
Test Name: LX0036_19DEC07_DORSI_02
Test Date: 12/19/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(4.9 - 5.1)	4.97	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.2	Pass	
Relative Humidity (%)	(N/A)	27	Pass	
Peak Tibia Compressive Load (N)	(2956 - 3613)	3259.632	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(77.1 - 94.2)	77.124	Pass	Channel ANKLE MOMENT
Peak Ankle Y-axis Rotation (º)	(32.7 - 39.9)	35.293	Pass	Channel ANKRY

Test Performer: Vehicle Research and Test Center
Test Type: Heel of Foot
Test Name: LX0036_20DEC07_HEEL_03
Test Date: 12/20/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(3.9 - 4.1)	3.98	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.2	Pass	
Relative Humidity (%)	(N/A)	37	Pass	
Peak Tibia Compressive Load (N)	(2738 - 3346)	2755.950	Pass	Channel LTIBFZ

Test Performer: Vehicle Research and Test Center
Test Type: Eversion
Test Name: LX0036_19DEC07_EVER_01
Test Date: 12/19/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(1.9 - 2.1)	1.98	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.2	Pass	
Relative Humidity (%)	(N/A)	25	Pass	
Peak Tibia Compressive Load (N)	(552 - 675)	617.374	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(36.3 - 44.4)	40.916	Pass	Channel ANKLE MOMENT
Peak Ankle X-axis Rotation (º)	(-30.3 - -37.0)	-33.917	Pass	Channel ANKRX

Test Performer: Vehicle Research and Test Center
Test Type: Inversion
Test Name: LX0036_19DEC07_INVER_01
Test Date: 12/19/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(1.9 - 2.1)	2.00	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.1	Pass	
Relative Humidity (%)	(N/A)	25	Pass	
Peak Tibia Compressive Load (N)	(552 - 675)	640.921	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(-36.3 - -44.4)	-40.060	Pass	Channel ANKLE MOMENT
Peak Ankle X-axis Rotation (º)	(30.3 - 37.0)	32.901	Pass	Channel ANKRX

Test Performer: Vehicle Research and Test Center
Test Type: Dorsiflexion/Ball of Foot
Test Name: LX0037_12DEC07_DORSI_01
Test Date: 12/26/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(4.9 - 5.1)	5.04	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.2	Pass	
Relative Humidity (%)	(N/A)	33	Pass	
Peak Tibia Compressive Load (N)	(2956 - 3613)	3289.176	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(77.1 - 94.2)	84.367	Pass	Channel ANKLE MOMENT
Peak Ankle Y-axis Rotation (º)	(32.7 - 39.9)	33.943	Pass	Channel ANKRY

Test Performer: Vehicle Research and Test Center
Test Type: Heel of Foot
Test Name: LX0037_14DEC07_HEEL_01
Test Date: 12/14/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(3.9 - 4.1)	3.90	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.2	Pass	
Relative Humidity (%)	(N/A)	28	Pass	
Peak Tibia Compressive Load (N)	(2738 - 3346)	2982.207	Pass	Channel LTIBFZ

Test Performer: Vehicle Research and Test Center
Test Type: Eversion
Test Name: LX0037_13DEC07_EVER_01
Test Date: 12/13/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(1.9 - 2.1)	2.01	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.2	Pass	
Relative Humidity (%)	(N/A)	33	Pass	
Peak Tibia Compressive Load (N)	(552 - 675)	687.630	Fail	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(-36.3 - -44.4)	-42.357	Pass	Channel ANKLE MOMENT
Peak Ankle X-axis Rotation (º)	(30.3 - 37.0)	31.428	Pass	Channel ANKRX

Test Performer: Vehicle Research and Test Center
Test Type: Inversion
Test Name: LX0037_13DEC07_INVER_01
Test Date: 12/13/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(1.9 - 2.1)	2.00	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.2	Pass	
Relative Humidity (%)	(N/A)	33	Pass	
Peak Tibia Compressive Load (N)	(552 - 675)	631.205	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(36.3 - 44.4)	40.369	Pass	Channel ANKLE MOMENT
Peak Ankle X-axis Rotation (º)	(-30.3 - -37.0)	-34.108	Pass	Channel ANKRX

MGA RESEARCH CORPORATION

HEAD DROP TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 206 **Test ID:** D08011

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.6	20.7	Pass
Laboratory Relative Humidity	%	10 to 70	19	Pass
Peak Resultant Acceleration	G's	225 - 275	233	Pass
Peak Lateral Acceleration	G's	<= +/- 15.0	-10.3	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 10% of peak	Yes	Pass
		Overall Test Results		Pass

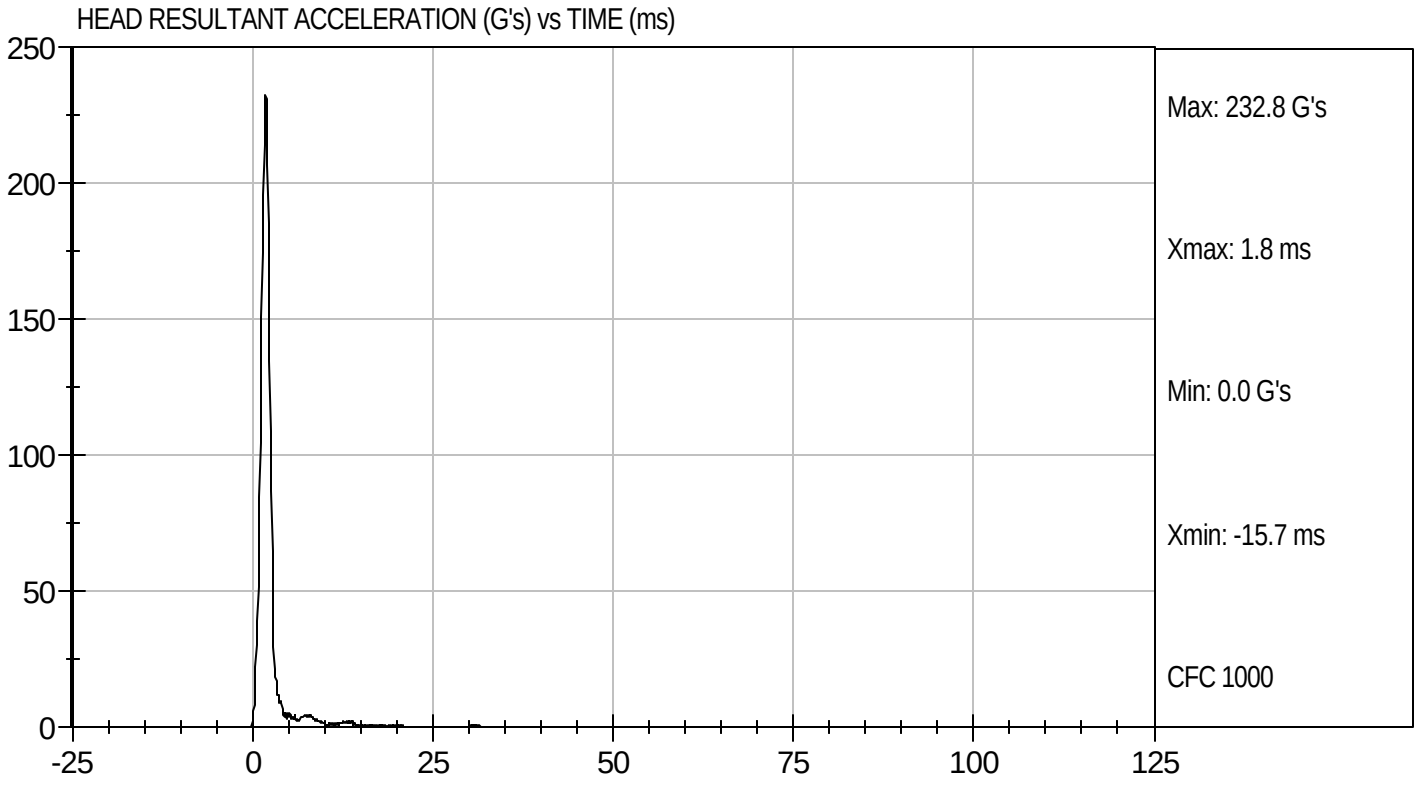
Laboratory Technician

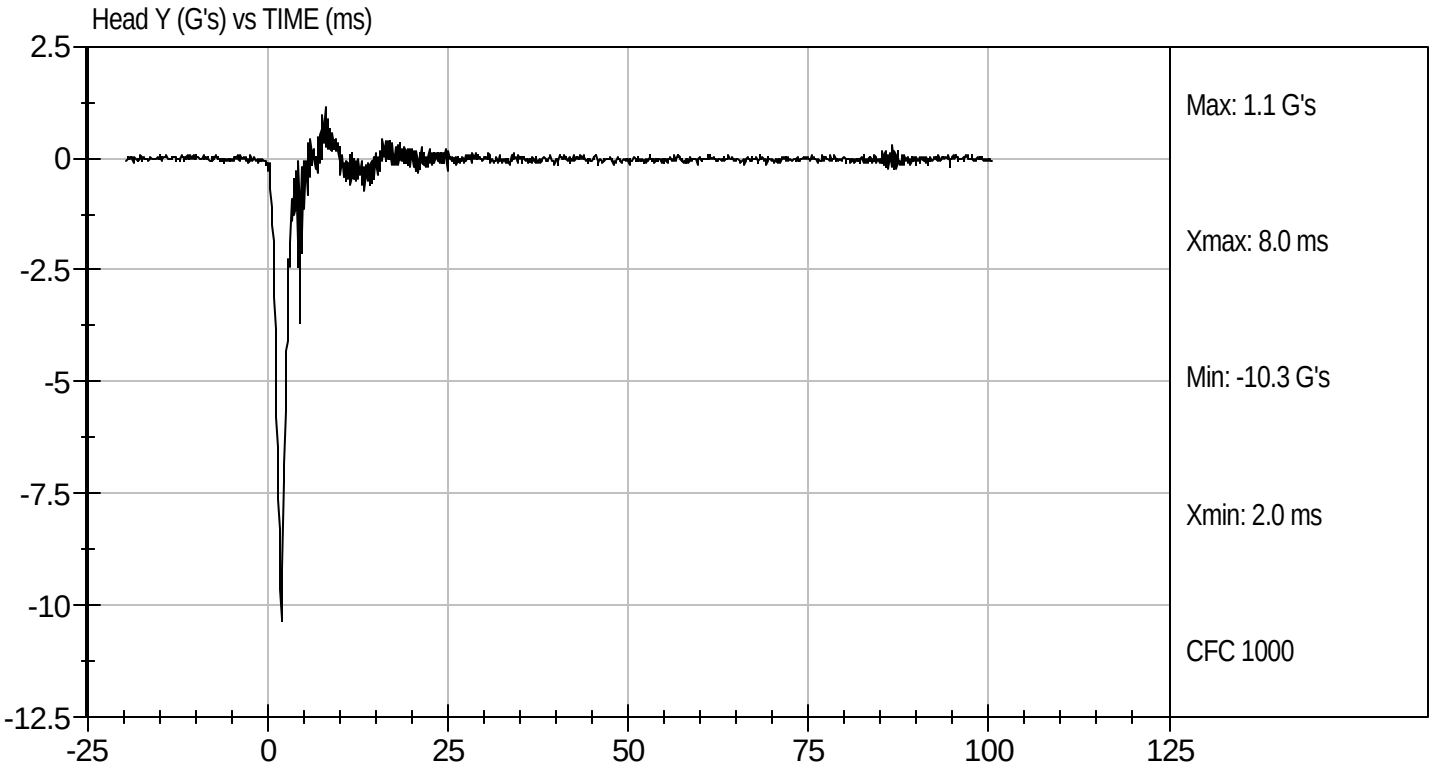
1/4/08
Test Date

David Winkelbauer
Approved By

Test Desc: Head Drop
Component ID: D08011

Test Date: 1/4/08
Velocity: 0 ft/s, 0.00 m/s





MGA RESEARCH CORPORATION

NECK FLEXION TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 206 **Test I.D:** D08012

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.9	Pass
Laboratory Relative Humidity		%	10 to 70	19	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.05	Pass
Pendulum Deceleration	10 msec	G's	22.50 to 27.50	22.77	Pass
	20 msec	G's	17.60 to 22.60	19.43	Pass
	30 msec	G's	12.50 to 18.50	14.84	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 29.0	14.81	Pass
Deceleration Decay Time to Cross 5 G's		msec	34.0 to 42.0	35.4	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	69.7	Pass
	Time	msec	57.0 to 64.0	59.0	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	113.0 to 128.0	116.9	Pass
Moment About Occipital Condyle	Maximum	N m	88.1 to 108.5	92.5	Pass
	Time	msec	47.0 to 58.0	48.3	Pass
Positive Moment Decay Time To Zero Crossing		msec	97.0 to 107.0	101.6	Pass
			Overall Test Results		Pass

Laboratory Technician

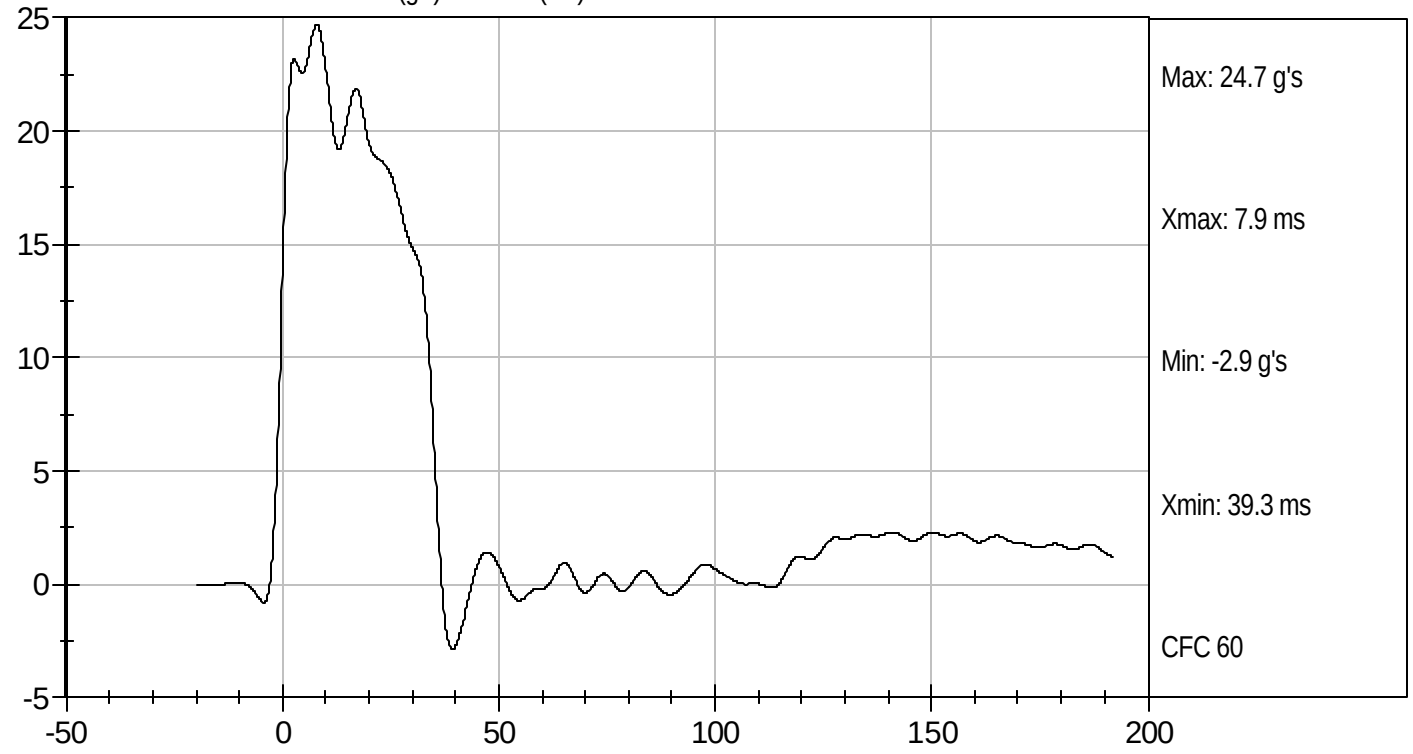
1/4/08
Test Date

David Winkelbauer
Approved By

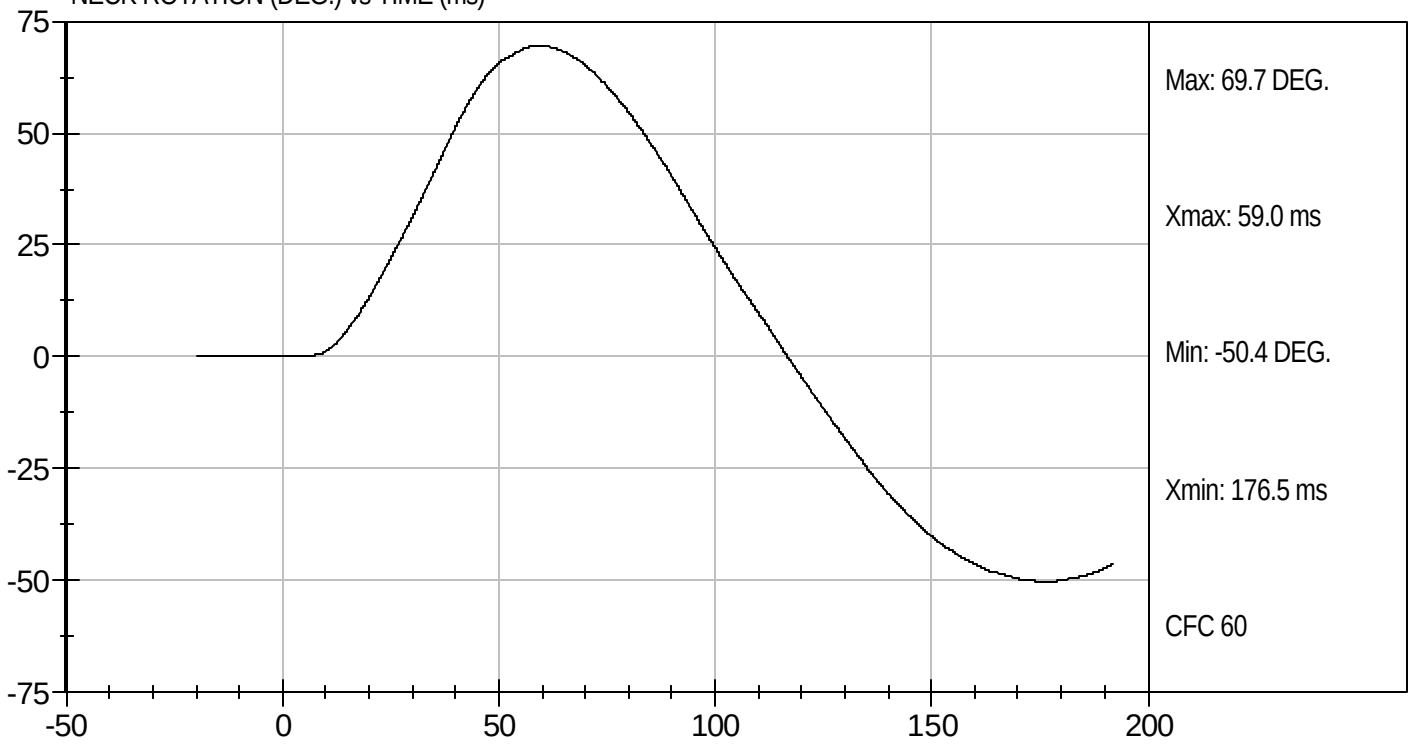
Test Desc: Neck Flexion
Component ID: D08012

Test Date: 1/4/08
Velocity: 23.14 ft/s, 7.05 m/s

PENDULUM DECELERATION (g's) vs TIME (ms)

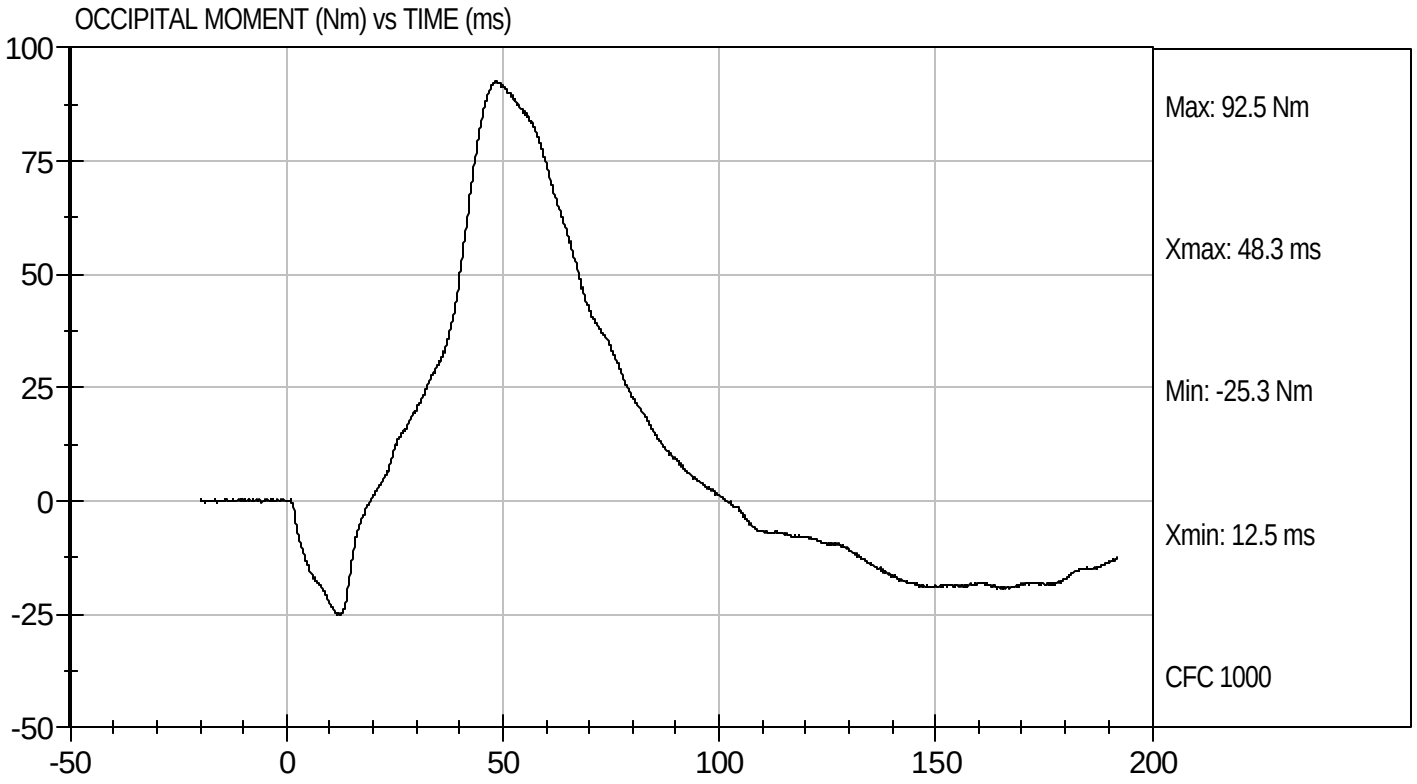


NECK ROTATION (DEG.) vs TIME (ms)



Test Desc: Neck Flexion
Component ID: D08012

Test Date: 1/4/08
Velocity: 23.14 ft/s, 7.05 m/s



MGA RESEARCH CORPORATION

NECK EXTENSION TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 206 **Test I.D:** D08013

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.7	Pass
Laboratory Relative Humidity		%	10 to 70	18	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.12	Pass
Pendulum Deceleration	10 msec	G's	17.20 to 21.20	18.20	Pass
	20 msec	G's	14.00 to 19.00	15.74	Pass
	30 msec	G's	11.00 to 16.00	11.37	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 22.0	11.37	Pass
Deceleration Decay Time to Cross 5 G's		msec	38.0 to 46.0	40.8	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	94.3	Pass
	Time	msec	72.0 to 82.0	75.0	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	147.0 to 174.0	159.6	Pass
Moment About Occipital Condyle	Maximum	N m	-52.9 to -79.9	-62.8	Pass
	Time	msec	65.0 to 79.0	71.5	Pass
Negative Moment Decay Time To Zero Crossing		msec	120.0 to 148.0	138.9	Pass
			Overall Test Results		Pass

Laboratory Technician

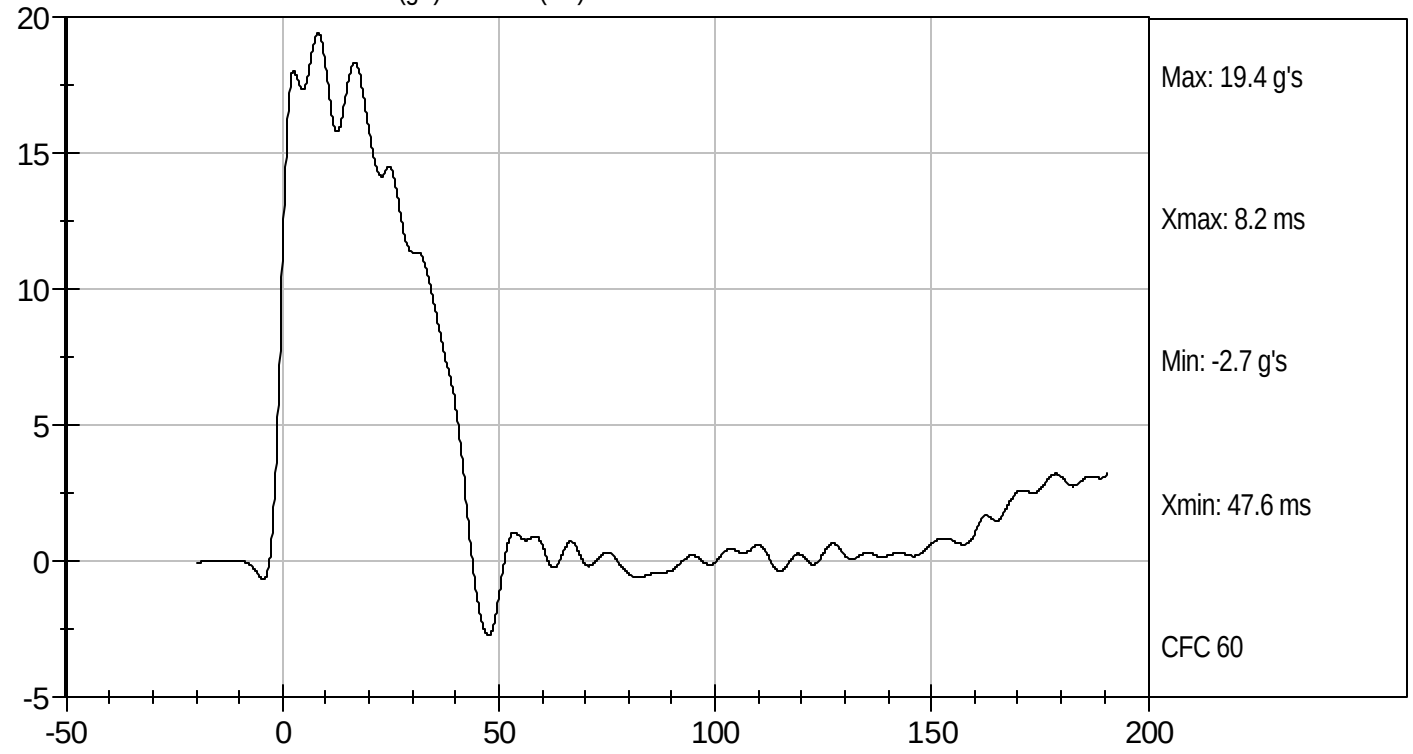
1/4/08
Test Date

David Winkelbauer
Approved By

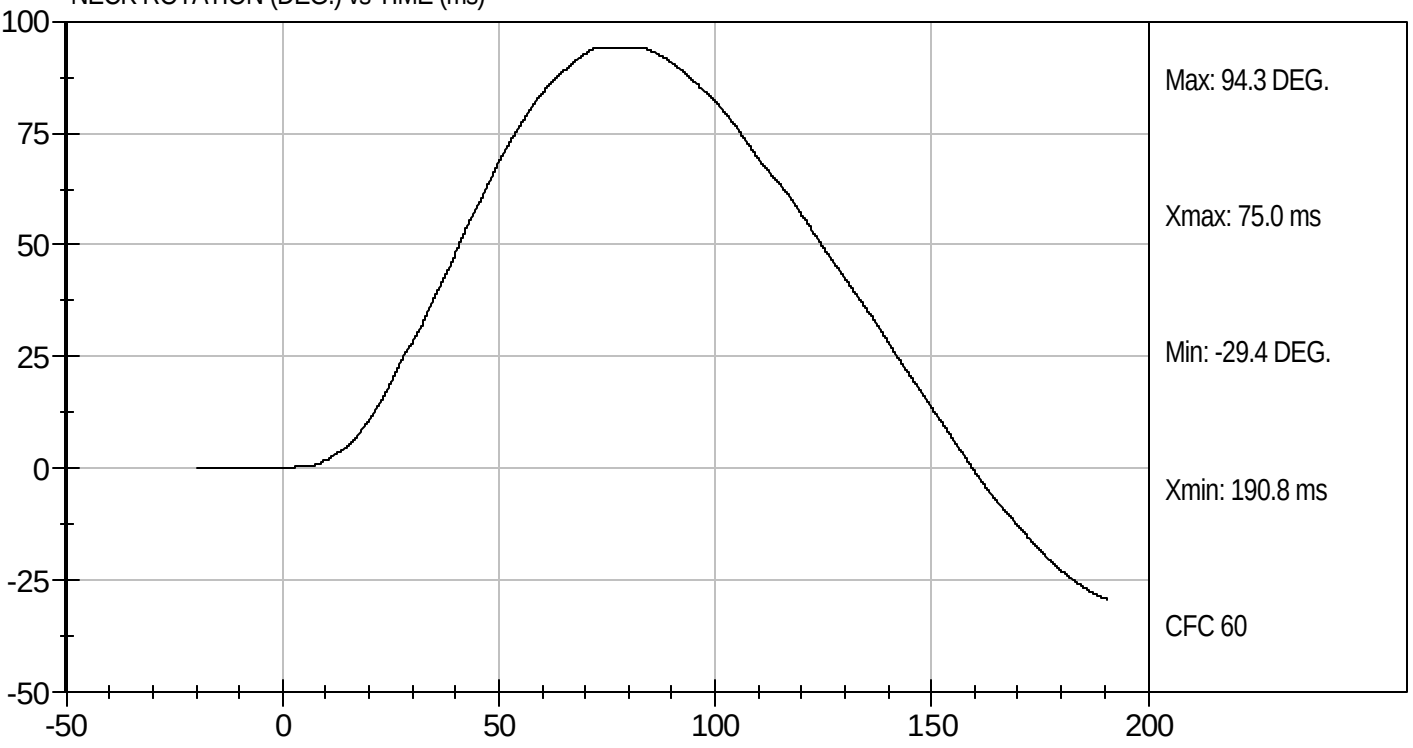
Test Desc: Neck Extension
Component ID: D08013

Test Date: 1/4/08
Velocity: 20.08 ft/s, 6.12 m/s

PENDULUM DECELERATION (g's) vs TIME (ms)

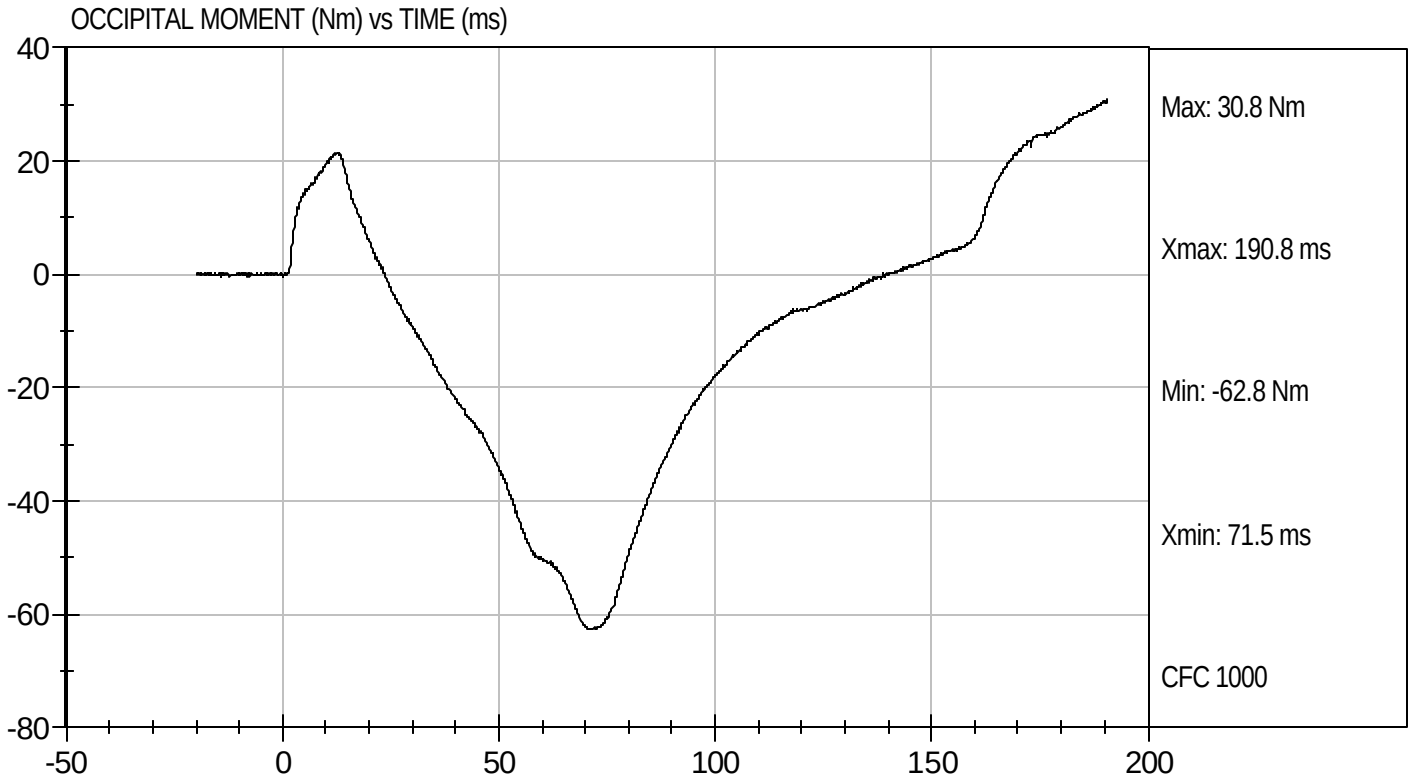


NECK ROTATION (DEG.) vs TIME (ms)



Test Desc: Neck Extension
Component ID: D08013

Test Date: 1/4/08
Velocity: 20.08 ft/s, 6.12 m/s



MGA RESEARCH CORPORATION

THORAX IMPACT

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 206 **Test I.D:** D08014

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	19	Pass
Probe Velocity	m/s	6.58 to 6.82	6.77	Pass
Peak Probe Force	N	5159 to 5893	5,451	Pass
Peak Sternum Displacement	cm	6.35 to 7.26	6.63	Pass
Internal Hysteresis	%	69 to 85	70	Pass
		Overall Test Results		Pass

Laboratory Technician

1/7/08
Test Date

David Winkelbauer
Approved By

Test Desc: Thorax Impact
Component ID: D08014

Test Date: 1/7/08
Velocity: 22.22 ft/s, 6.77 m/s



MGA RESEARCH CORPORATION

RIGHT KNEE IMPACT TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 206 **Test I.D:** D08015

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	20.6	Pass
Laboratory Relative Humidity	%	10 to 70	48	Pass
Probe Velocity	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	Newtons	4715 to 5782	4,839	Pass
		Overall Test Results		Pass

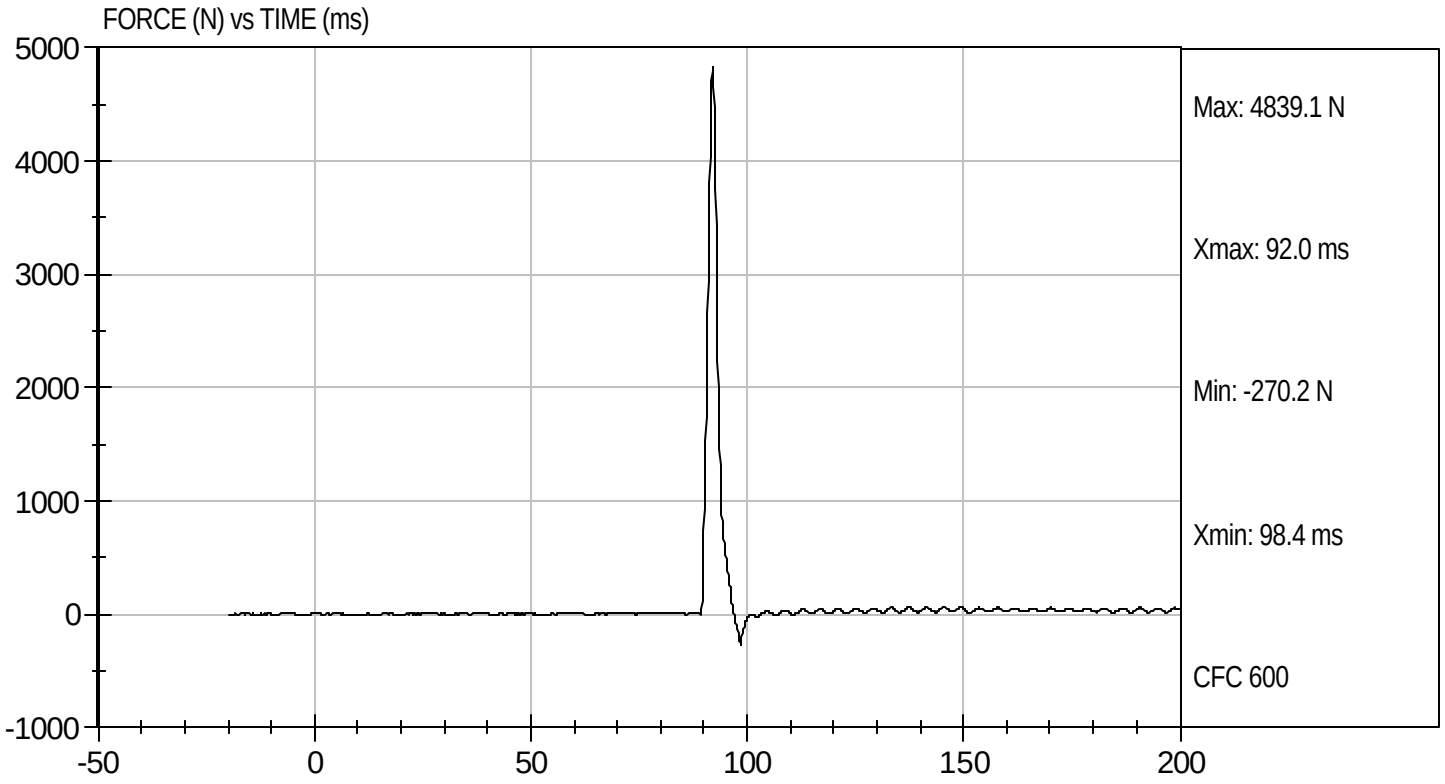
Laboratory Technician

1/7/08
Test Date

David Winkelbauer
Approved By

Test Desc: Right Knee
Component ID: D08015

Test Date: 1/7/08
Velocity: 6.83 ft/s, 2.08 m/s



MGA RESEARCH CORPORATION

LEFT KNEE IMPACT TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 206 **Test I.D:** D08016

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	48	Pass
Probe Velocity	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	4715 to 5782	4,846	Pass
		Overall Test Results		Pass

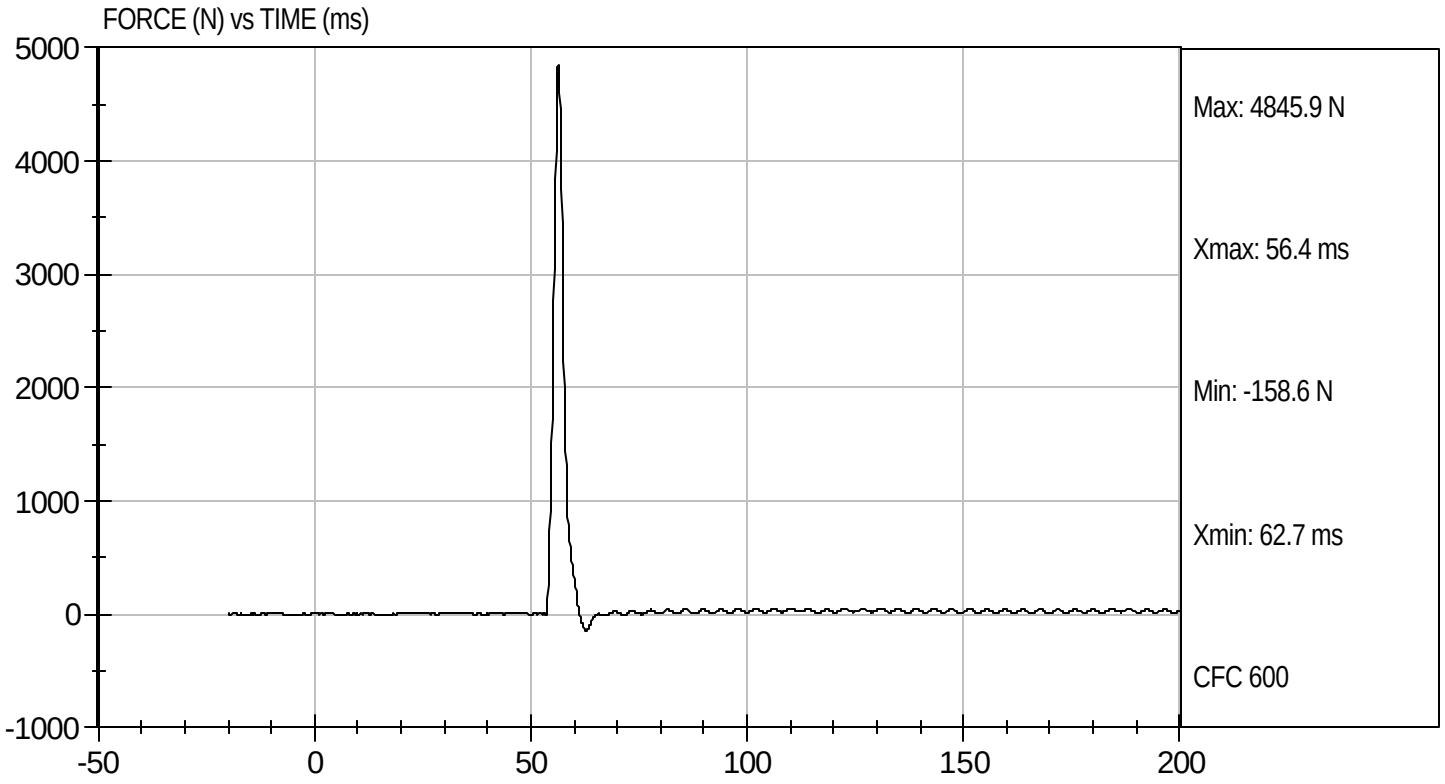
Laboratory Technician

1/7/08
Test Date

David Winkelbauer
Approved By

Test Desc: Left Knee
Component ID: D08016

Test Date: 1/7/08
Velocity: 6.85 ft/s, 2.09 m/s



MGA RESEARCH CORPORATION

HIP-FEMUR FLEXION TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 206 **Test I.D:** D08010

Tested Parameter	Units	Specification	Result		Pass/Fail
			Right	Left	
Laboratory Temperature	deg C	18.9 to 25.6	21.8	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	17	17	Pass
Rotation Rate	deg/sec	5 -10	8	8	Pass
30 Degrees	Nm	94.9 Nm Max	72.5	59.8	Pass
150 ft-lbf / 203.4 Nm	Deg	40- 50 Degree Max Rotation	42	44	Pass
		Overall Test Results			Pass

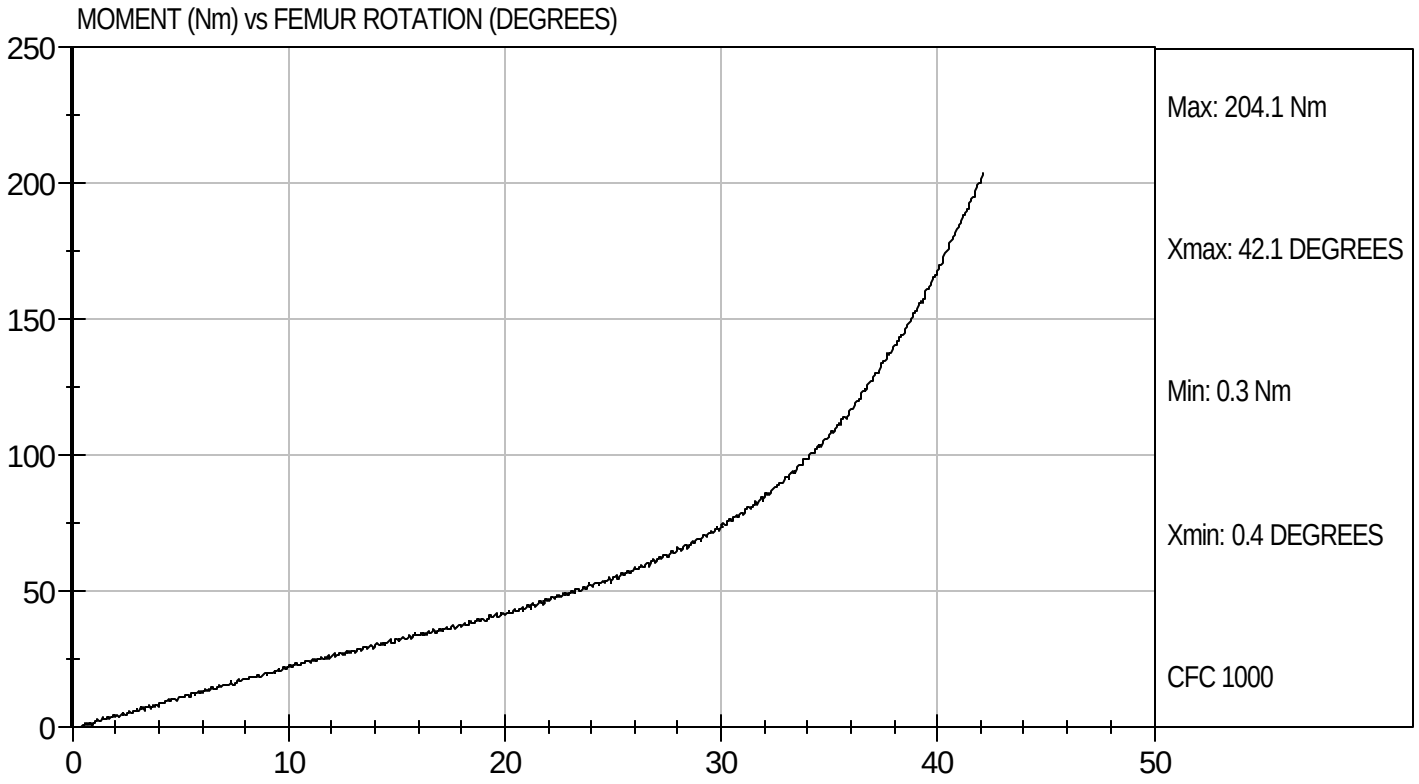
Laboratory Technician

1/4/08
Test Date

David Winkelbauer
Approved By

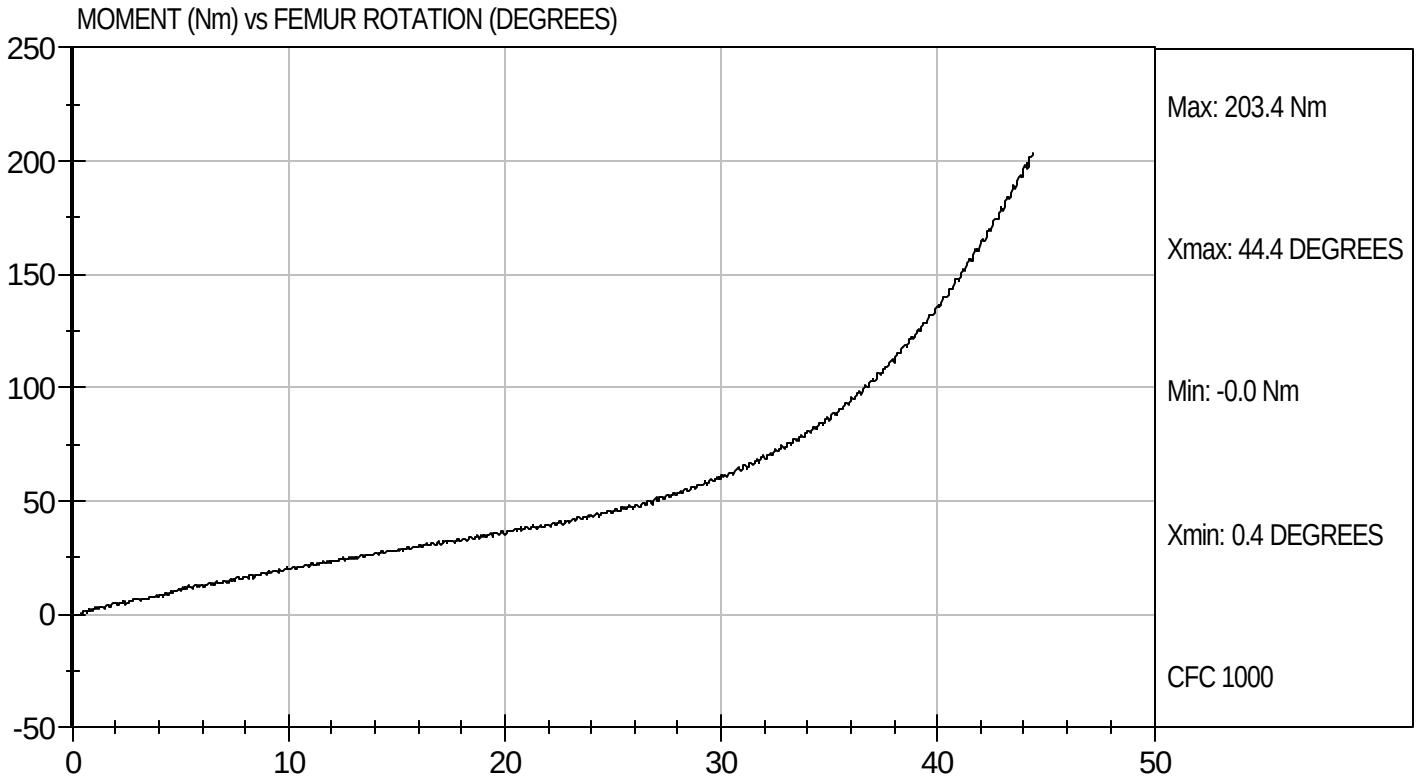
Test Desc: Hip Femur Flexion
Component ID: D08019

Test Date: 1/4/08
Velocity: 0 ft/s, 0.00 m/s



Test Desc: Hip Femur Flexion
Component ID: D08010

Test Date: 1/4/08
Velocity: 0 ft/s, 0.00 m/s



CERTIFICATION DATA

Thor-Lx Legs #045 & #046

Installed in Hybrid III 50th Percentile Male Dummy #206

Test Performer: Vehicle Research and Test Center
Test Type: Dorsiflexion/Ball of Foot
Test Name: LX0045_20DEC07_DORSI_02
Test Date: 12/20/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(4.9 - 5.1)	4.95	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.2	Pass	
Relative Humidity (%)	(N/A)	32	Pass	
Peak Tibia Compressive Load (N)	(2956 - 3613)	3405.064	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(77.1 - 94.2)	76.161	Fail	Channel ANKLE MOMENT
Peak Ankle Y-axis Rotation (º)	(32.7 - 39.9)	33.762	Pass	Channel ANKRY

Test Performer: Vehicle Research and Test Center
Test Type: Heel of Foot
Test Name: LX0045_21DEC07_HEEL_01
Test Date: 12/21/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(3.9 - 4.1)	3.99	Pass	
Temperature (ºC)	(20.6 - 22.2)	21.7	Pass	
Relative Humidity (%)	(N/A)	43	Pass	
Peak Tibia Compressive Load (N)	(2738 - 3346)	2981.474	Pass	Channel LTIBFZ

Test Performer: Vehicle Research and Test Center
Test Type: Eversion
Test Name: LX0045_20DEC07_EVER_01
Test Date: 12/20/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(1.9 - 2.1)	1.98	Pass	
Temperature (ºC)	(20.6 - 22.2)	21.9	Pass	
Relative Humidity (%)	(N/A)	42	Pass	
Peak Tibia Compressive Load (N)	(552 - 675)	653.499	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(-36.3 - -44.4)	-42.979	Pass	Channel ANKLE MOMENT
Peak Ankle X-axis Rotation (º)	(30.3 - 37.0)	34.157	Pass	Channel ANKRX

Test Performer: Vehicle Research and Test Center
Test Type: Inversion
Test Name: LX0045_20DEC07_INVER_01
Test Date: 12/20/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(1.9 - 2.1)	2.00	Pass	
Temperature (ºC)	(20.6 - 22.2)	21.9	Pass	
Relative Humidity (%)	(N/A)	39	Pass	
Peak Tibia Compressive Load (N)	(552 - 675)	565.271	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(36.3 - 44.4)	39.346	Pass	Channel ANKLE MOMENT
Peak Ankle X-axis Rotation (º)	(-30.3 - -37.0)	-34.633	Pass	Channel ANKRX

Test Performer: Vehicle Research and Test Center
Test Type: Dorsiflexion/Ball of Foot
Test Name: LX0046_26DEC2007 DORSI 01
Test Date: 12/26/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(4.9 - 5.1)	4.99	Pass	
Temperature (ºC)	(20.6 - 22.2)	21.9	Pass	
Relative Humidity (%)	(N/A)	40	Pass	
Peak Tibia Compressive Load (N)	(2956 - 3613)	3167.941	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(77.1 - 94.2)	81.155	Pass	Channel ANKLE MOMENT
Peak Ankle Y-axis Rotation (º)	(32.7 - 39.9)	33.645	Pass	Channel ANKRY

Test Performer: Vehicle Research and Test Center
Test Type: Heel of Foot
Test Name: LX0046_26DEC2007 HEEL 01
Test Date: 12/26/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(3.9 - 4.1)	3.97	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.2	Pass	
Relative Humidity (%)	(N/A)	38	Pass	
Peak Tibia Compressive Load (N)	(2738 - 3346)	2922.693	Pass	Channel LTIBFZ

Test Performer: Vehicle Research and Test Center
Test Type: Eversion
Test Name: LX0046_26DEC2007 EVER 01
Test Date: 12/26/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(1.9 - 2.1)	1.97	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.1	Pass	
Relative Humidity (%)	(N/A)	40	Pass	
Peak Tibia Compressive Load (N)	(552 - 675)	647.880	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(36.3 - 44.4)	42.929	Pass	Channel ANKLE MOMENT
Peak Ankle X-axis Rotation (º)	(-30.3 - -37.0)	-34.110	Pass	Channel ANKRX

Test Performer: Vehicle Research and Test Center
Test Type: Inversion
Test Name: LX0046_26DEC2007 INVER 01
Test Date: 12/26/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(1.9 - 2.1)	1.98	Pass	
Temperature (ºC)	(20.6 - 22.2)	21.9	Pass	
Relative Humidity (%)	(N/A)	40	Pass	
Peak Tibia Compressive Load (N)	(552 - 675)	636.513	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(-36.3 - -44.4)	-41.810	Pass	Channel ANKLE MOMENT
Peak Ankle X-axis Rotation (º)	(30.3 - 37.0)	34.081	Pass	Channel ANKRX

Transportation Research Center Inc.

Front Head Drop
HIII 10YO Serial No. D001 Certification No. 14-1
Test Date: 6/12/2007

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 ºC	21.2 ºC	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Peak Head Resultant Acceleration	250 - 300 g	270.3 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	9.1 g	Yes
Is Acceleration Curve Unimodal	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician

Approved

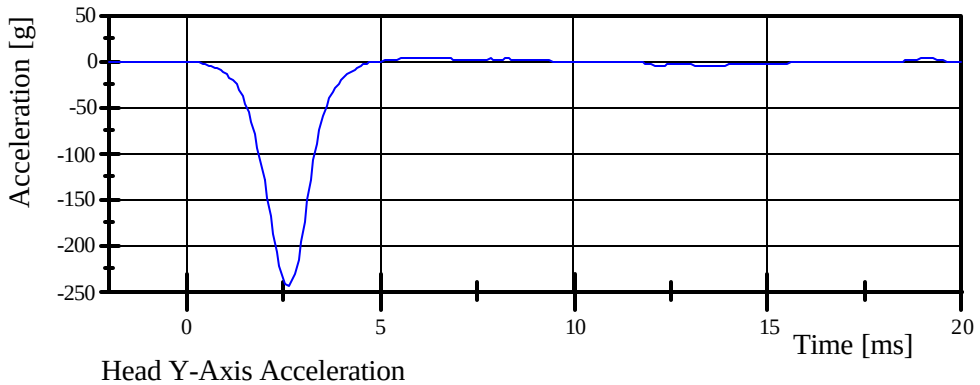
Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.12.2007 12:52:36 732

Transportation Research Center Inc.

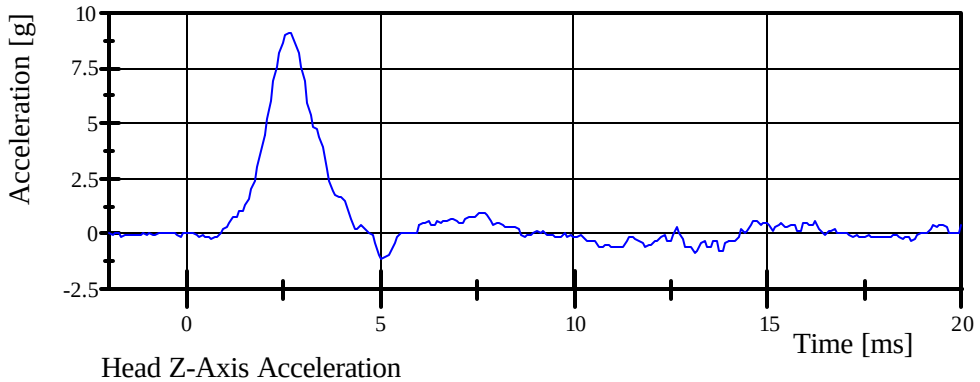
Front Head Drop
HIII 10YO Serial No. D001 Certification No. 14-1
Test Date: 6/12/2007

Head X-Axis Acceleration



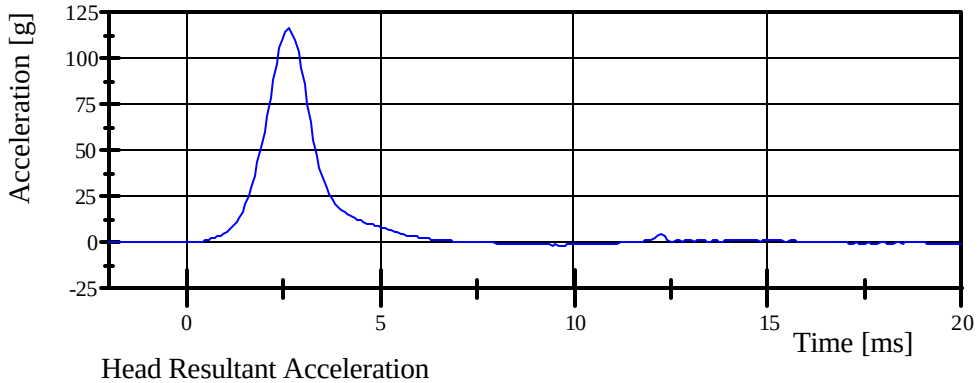
Filter Class: CFC_1000
Max: 4.4 g at 5.9 ms
Min: -243.9 g at 2.6 ms

Head Y-Axis Acceleration



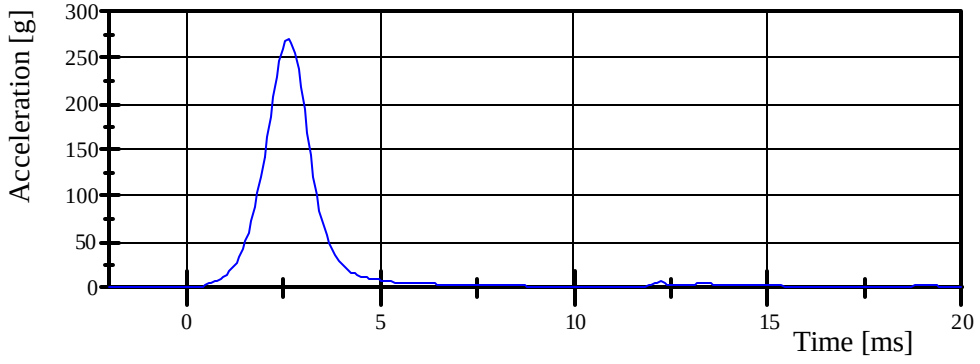
Filter Class: CFC_1000
Max: 9.1 g at 2.6 ms
Min: -1.1 g at 5.0 ms

Head Z-Axis Acceleration



Filter Class: CFC_1000
Max: 116.1 g at 2.6 ms
Min: -1.3 g at 9.6 ms

Head Resultant Acceleration



Filter Class: CFC_1000
Max: 270.3 g at 2.6 ms
Min: 0.0 g at -1.6 ms

Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.12.2007 12:52:49 732

Transportation Research Center Inc.

Neck Flexion
HIII 10YO Serial No. D001 Certification No. 14-2
Test Date: 6/13/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 ºC	21.1 ºC	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Pendulum Impact Velocity	5.98 - 6.22 m/s	6.073 m/s	Yes
Pendulum Integrated Velocity at 10ms	(-1.64) - (-2.04) m/s	-1.648 m/s	Yes
Pendulum Integrated Velocity at 20ms	(-3.04) - (-4.04) m/s	-3.189 m/s	Yes
Pendulum Integrated Velocity at 30ms	(-4.45) - (-5.65) m/s	-4.692 m/s	Yes
Total Head D-Plane Rotation	(-76.0) - (-90.0) º	-82.31 º	Yes
Total Neck Occipital Condyles Moment Between -74º and -88º Rotation	50.0 - 62.0 Nm	52.09 Nm	Yes
Neck Occipital Condyles Moment Decay to 10 Nm	86.0 - 105.0 ms	100.64 ms	Yes

Test meets specifications.

Comments:

Technician

Approved

Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.13.2007 14:49:16 1176

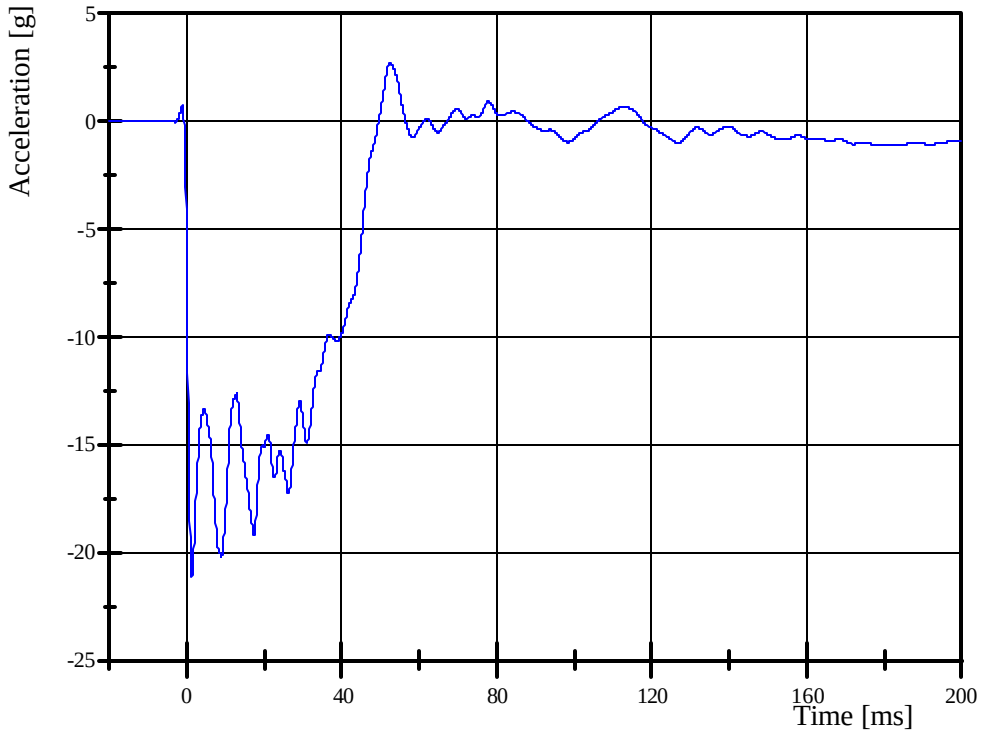
Transportation Research Center Inc.

Neck Flexion

HIII 10YO Serial No. D001 Certification No. 14-2

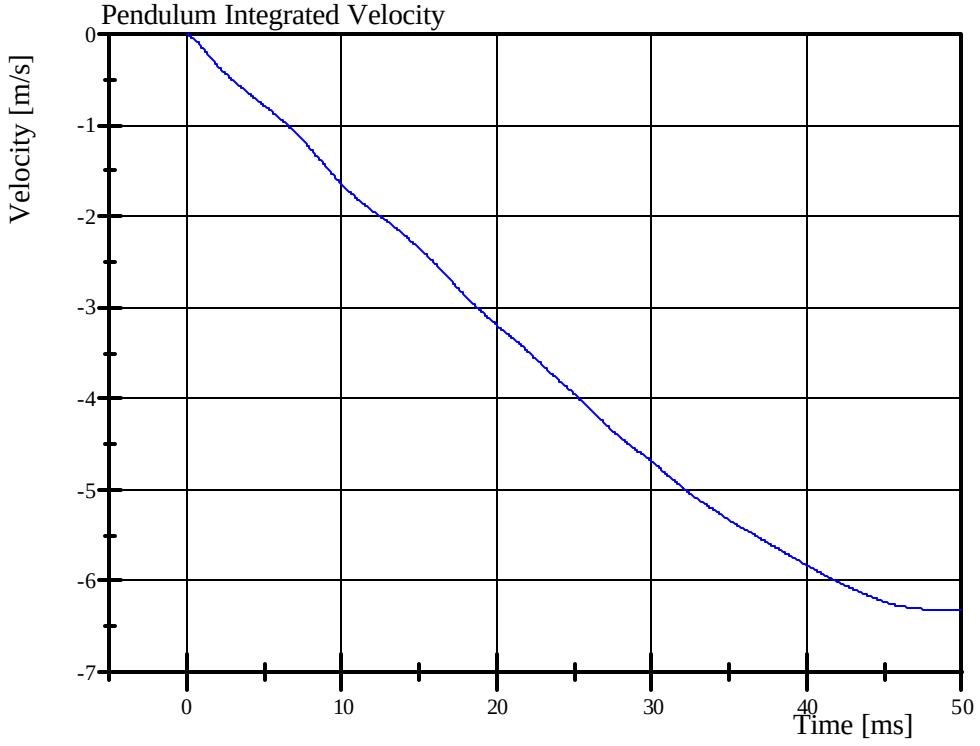
Test Date: 6/13/2007

Pendulum Acceleration



Filter Class: CFC_180
Max: 2.7 g at 52.6 ms
Min: -21.2 g at 1.3 ms

Pendulum Integrated Velocity



Filter Class: CFC_180
Max: 0.0 m/s at 0.0 ms
Min: -6.3 m/s at 49.5 ms

Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.13.2007 14:49:30 1176

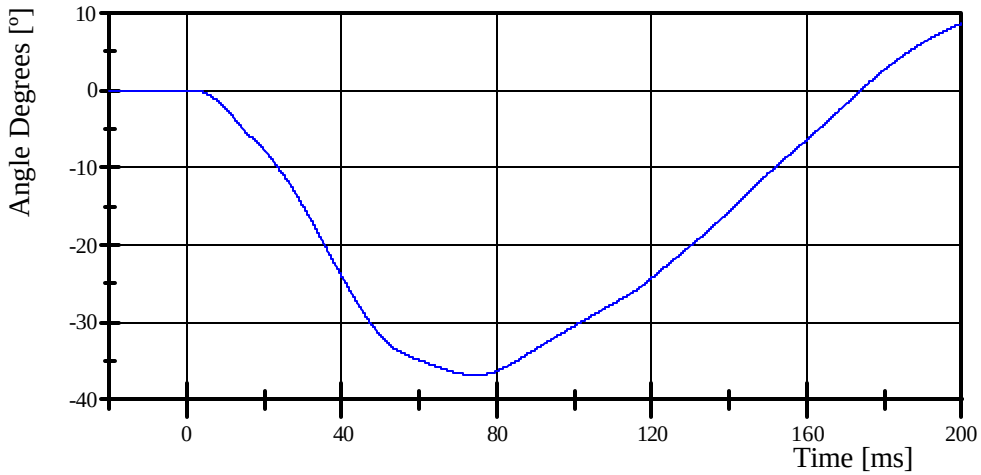
Transportation Research Center Inc.

Neck Flexion

HIII 10YO Serial No. D001 Certification No. 14-2

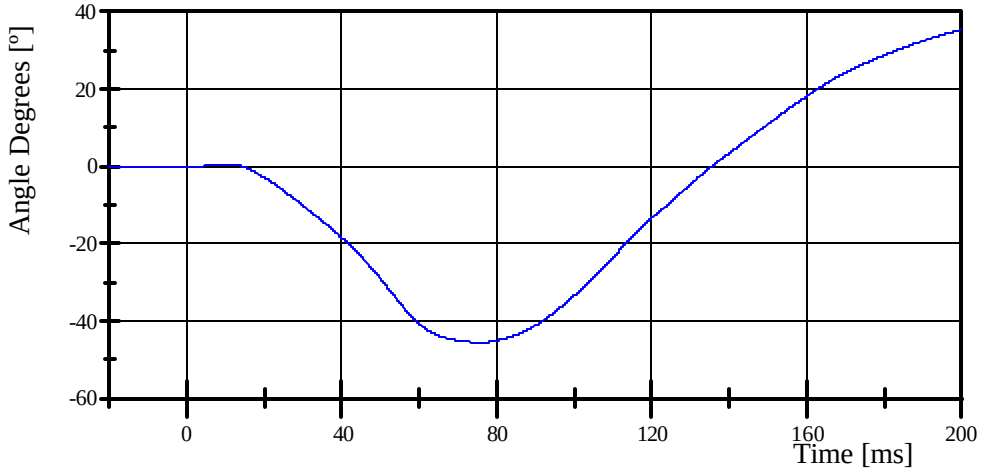
Test Date: 6/13/2007

Pot Rotation at the Base of Neck



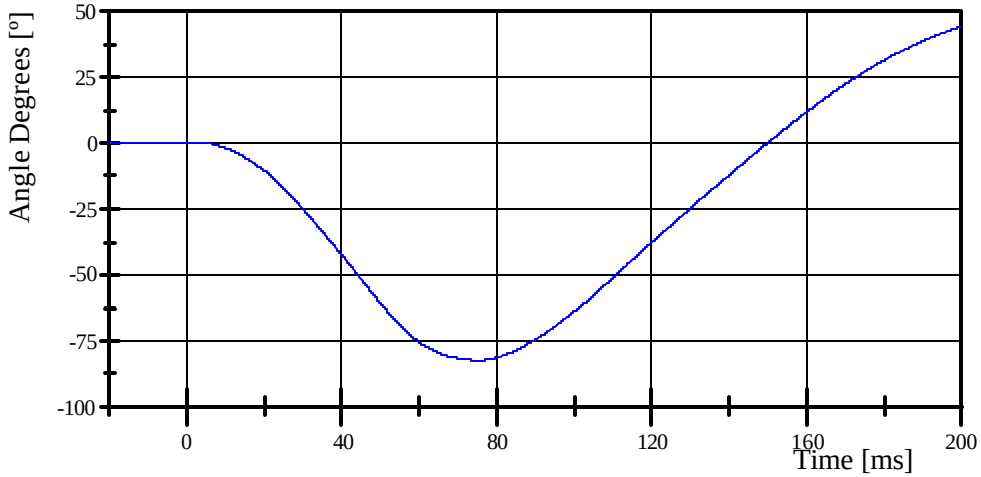
Filter Class: CFC_60
Max: 8.7 ° at 200.0 ms
Min: -36.8 ° at 74.3 ms

Head Rotation at Occypital Condyles



Filter Class: CFC_60
Max: 35.4 ° at 200.0 ms
Min: -45.6 ° at 75.7 ms

Total Head D-Plane Rotation



Filter Class: CFC_60
Max: 44.1 ° at 200.0 ms
Min: -82.3 ° at 75.3 ms

Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.13.2007 14:49:31 1176

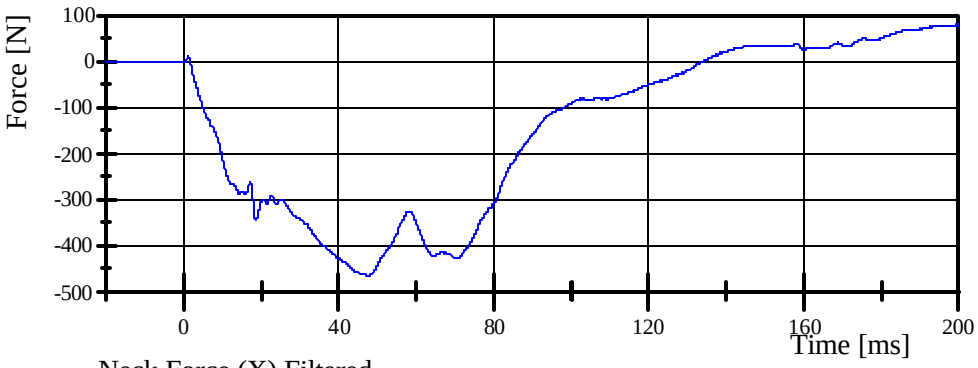
Transportation Research Center Inc.

Neck Flexion

HIII 10YO Serial No. D001 Certification No. 14-2

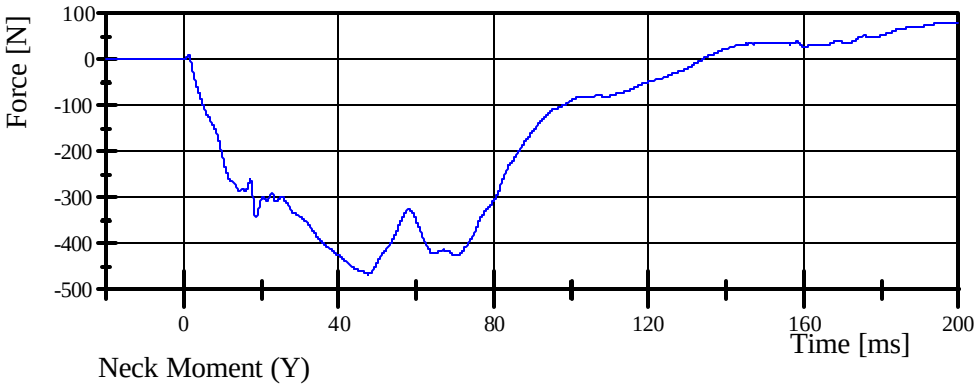
Test Date: 6/13/2007

Neck Force (X)



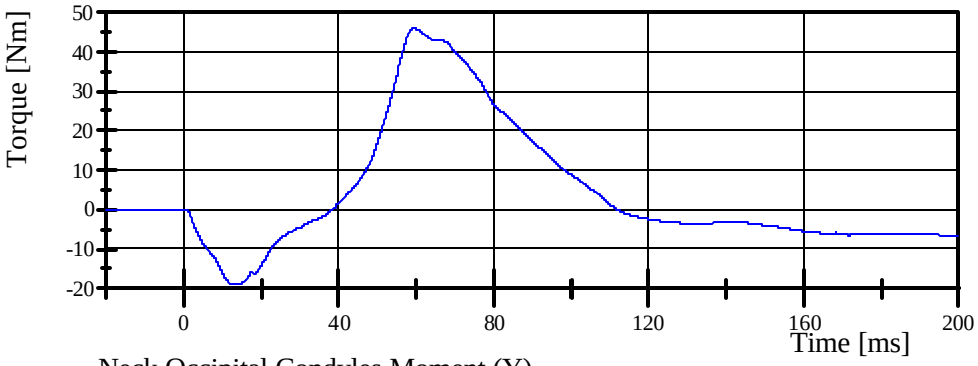
Filter Class: CFC_1000
Max: 80.1 N at 199.8 ms
Min: -467.0 N at 47.6 ms

Neck Force (X) Filtered



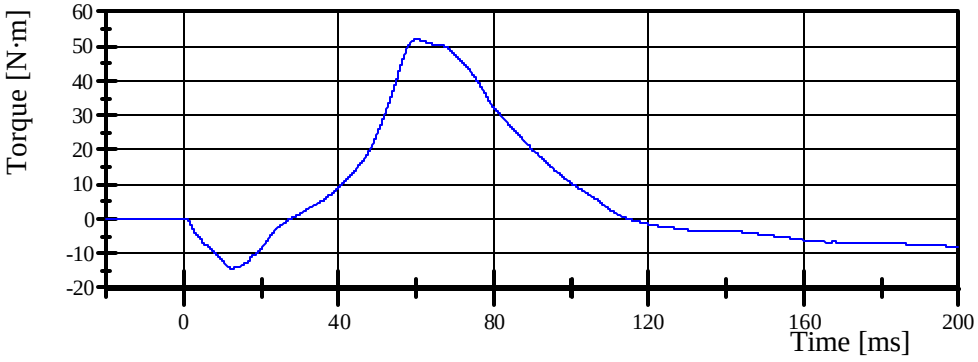
Filter Class: CFC_600
Max: 79.9 N at 200.0 ms
Min: -466.7 N at 47.5 ms

Neck Moment (Y)



Filter Class: CFC_600
Max: 45.9 Nm at 59.6 ms
Min: -19.1 Nm at 14.1 ms

Neck Occipital Condyles Moment (Y)



Filter Class: CFC_600
Max: 52.1 N·m at 60.2 ms
Min: -14.3 N·m at 12.8 ms

Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.13.2007 14:49:31 1176

Transportation Research Center Inc.

Neck Extension
HIII 10YO Serial No. D001 Certification No. 14-1
Test Date: 6/13/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 ºC	21.3 ºC	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Pendulum Impact Velocity	4.91 - 5.15 m/s	5.018 m/s	Yes
Pendulum Integrated Velocity at 10ms	1.49 - 1.89 m/s	1.789 m/s	Yes
Pendulum Integrated Velocity at 20ms	2.88 - 3.68 m/s	3.403 m/s	Yes
Pendulum Integrated Velocity at 30ms	4.20 - 5.20 m/s	4.899 m/s	Yes
Total Head D-Plane Rotation	96.0 - 115.0 º	103.19 º	Yes
Total Neck Occipital Condyles Moment Between 99º and 114º Rotation	(-37.0) - (-46.0) Nm	-43.33 Nm	Yes
Neck Occipital Condyles Moment Decay to -10 Nm	100.0 - 116.0 ms	107.36 ms	Yes

Test meets specifications.

Comments:

Technician

Approved

Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.13.2007 15:23:13 1295

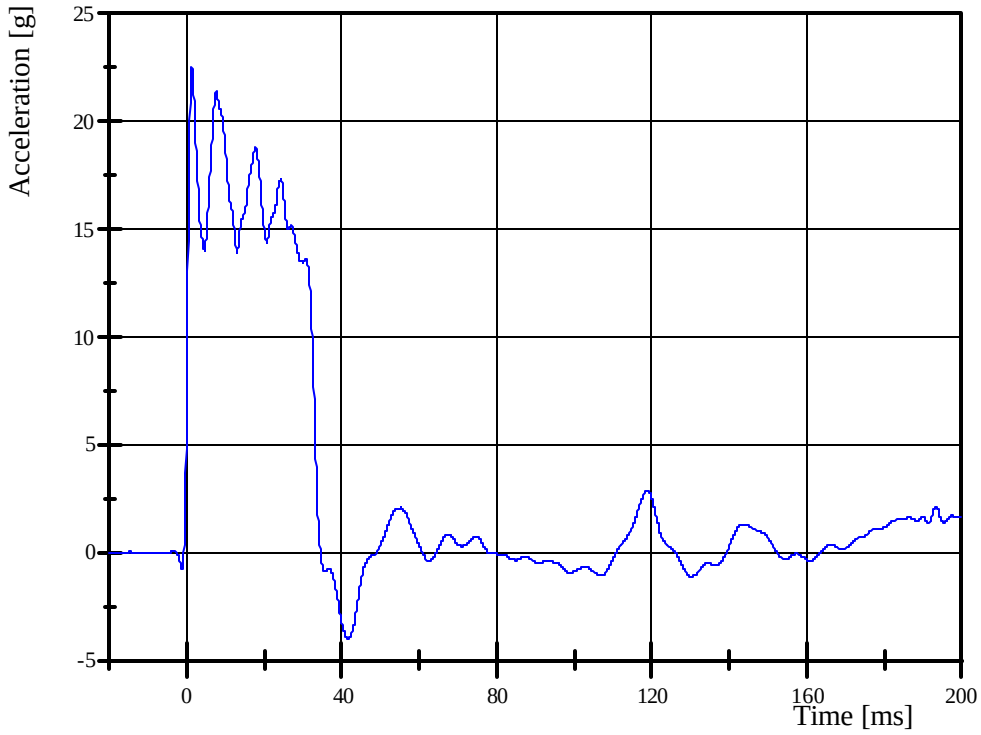
Transportation Research Center Inc.

Neck Extension

HIII 10YO Serial No. D001 Certification No. 14-1

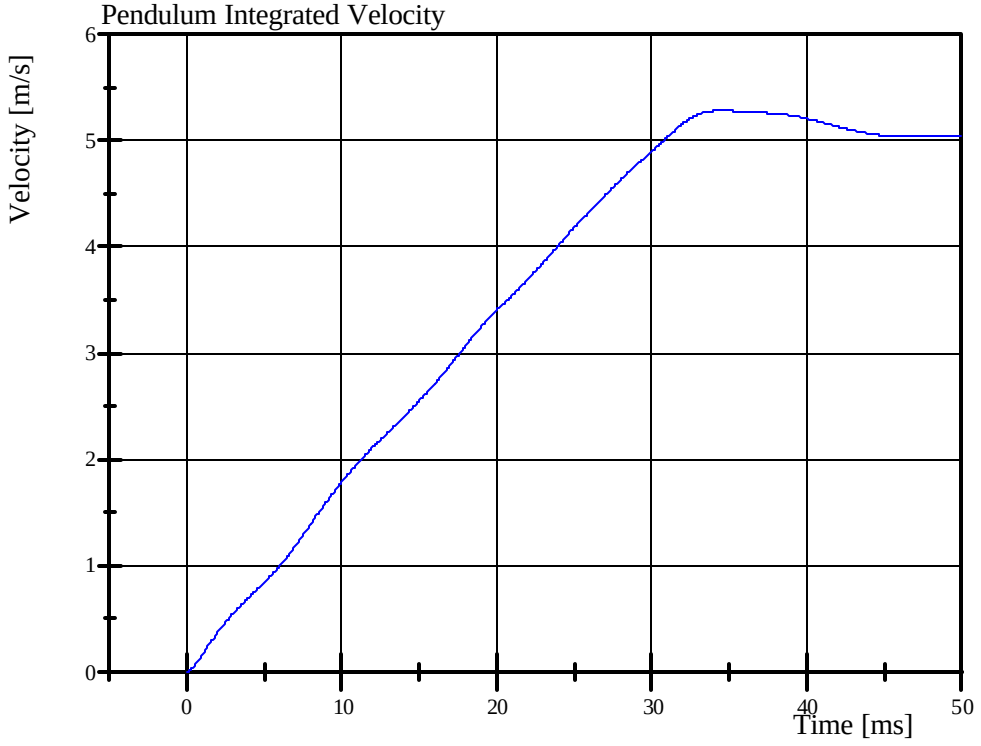
Test Date: 6/13/2007

Pendulum Acceleration



Filter Class: CFC_180
Max: 22.5 g at 1.2 ms
Min: -4.0 g at 41.5 ms

Pendulum Integrated Velocity



Filter Class: CFC_180
Max: 5.3 m/s at 34.5 ms
Min: 0.0 m/s at 0.0 ms

Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.13.2007 15:23:28 1295

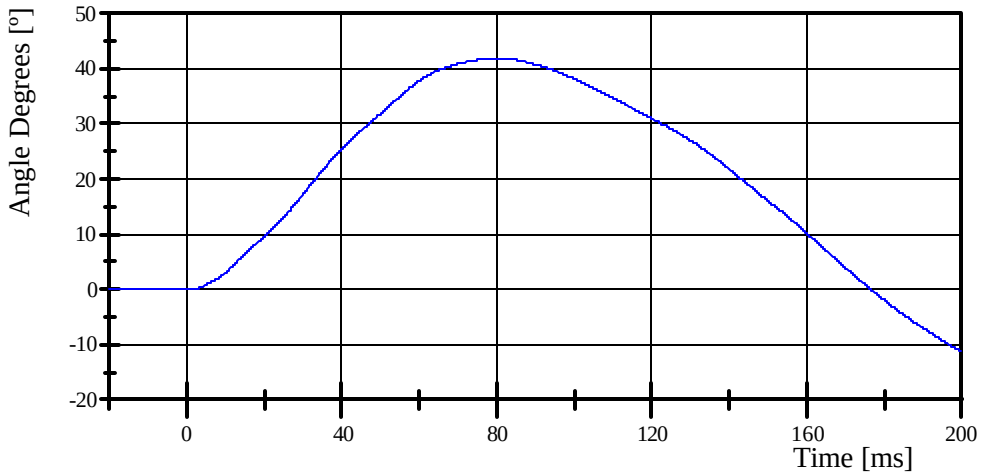
Transportation Research Center Inc.

Neck Extension

HIII 10YO Serial No. D001 Certification No. 14-1

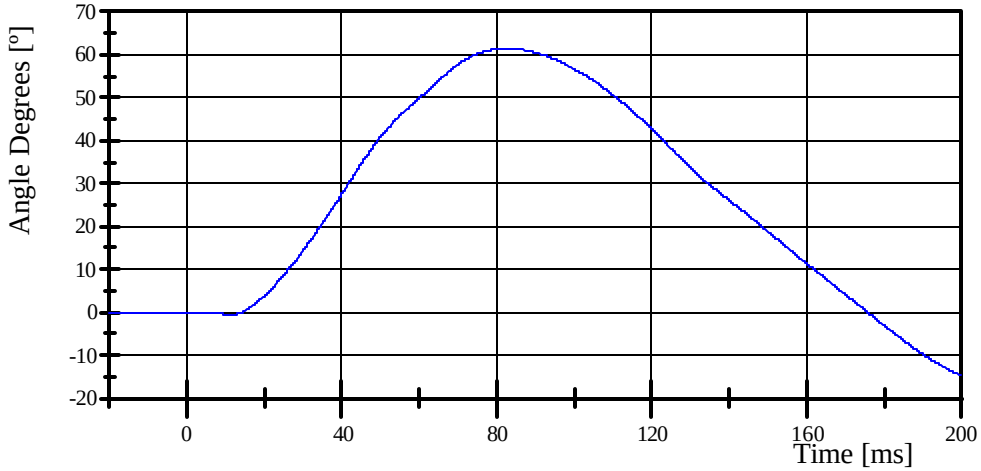
Test Date: 6/13/2007

Pot Rotation at the Base of Neck



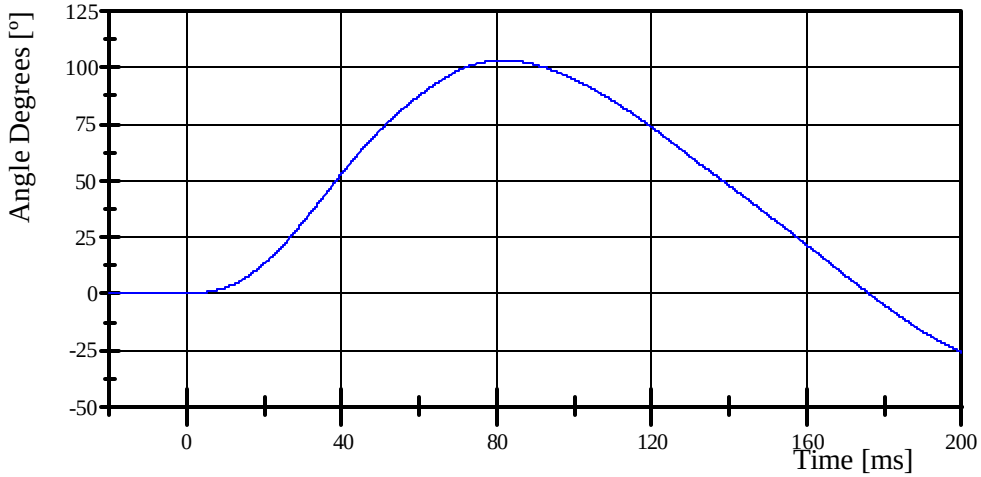
Filter Class: CFC_60
Max: 41.8 ° at 80.1 ms
Min: -11.2 ° at 200.0 ms

Head Rotation at Occypital Condyles



Filter Class: CFC_60
Max: 61.4 ° at 83.0 ms
Min: -14.7 ° at 200.0 ms

Total Head D-Plane Rotation



Filter Class: CFC_60
Max: 103.2 ° at 81.8 ms
Min: -25.9 ° at 200.0 ms

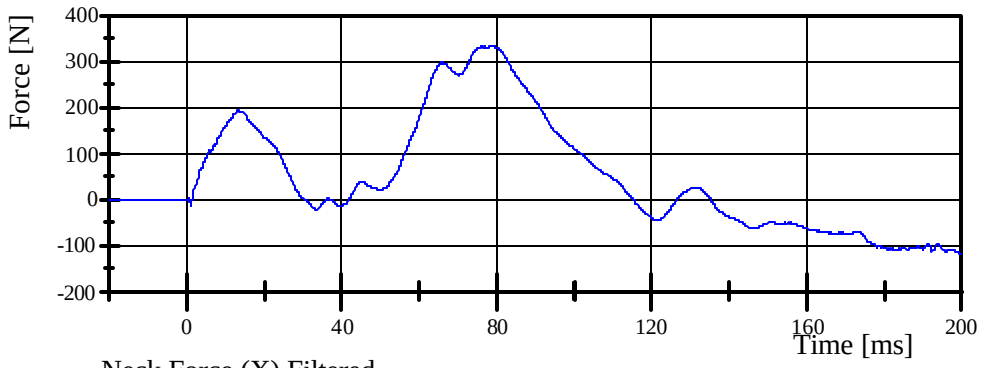
Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.13.2007 15:23:28 1295

Transportation Research Center Inc.

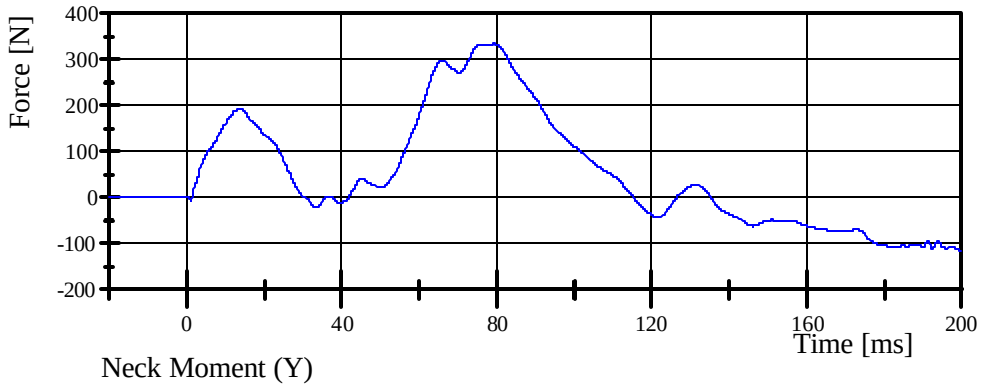
Neck Extension
HIII 10YO Serial No. D001 Certification No. 14-1
Test Date: 6/13/2007

Neck Force (X)



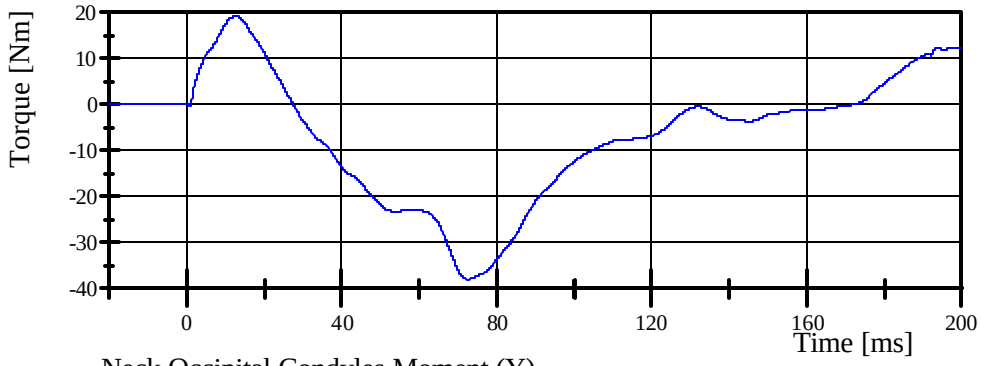
Filter Class: CFC_1000
Max: 333.9 N at 79.3 ms
Min: -118.3 N at 200.0 ms

Neck Force (X) Filtered



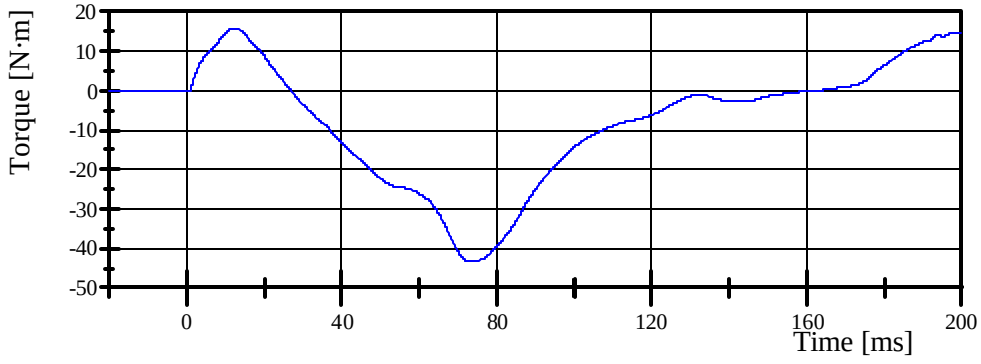
Filter Class: CFC_600
Max: 333.5 N at 79.3 ms
Min: -118.2 N at 200.0 ms

Neck Moment (Y)



Filter Class: CFC_600
Max: 19.3 Nm at 13.0 ms
Min: -38.0 Nm at 72.6 ms

Neck Occipital Condyles Moment (Y)



Filter Class: CFC_600
Max: 15.9 N·m at 12.3 ms
Min: -43.3 N·m at 73.4 ms

Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.13.2007 15:23:29 1295

Transportation Research Center Inc.

Front Thorax
HIII 10YO Serial No. D001 Certification No. 14-2
Test Date: 6/13/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 ºC	21.0 ºC	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Probe Velocity	5.88 - 6.12 m/s	5.946 m/s	Yes
Probe Force Peak Between 37.0 mm and 46.0 mm Chest Deflection	(-2,000) - (-2,450) N	-2,255.5 N	Yes
Probe Force Peak Between 20.0 mm and 40.5 mm Chest Deflection	>= (-2,450) N	-2,218.4 N	Yes
Maximum Chest Compression	(-37) - (-46) mm	-45.6 mm	Yes
Internal Hysteresis	69 - 85 %	79.2 %	Yes

Test meets specifications.

Comments:

Technician

Approved

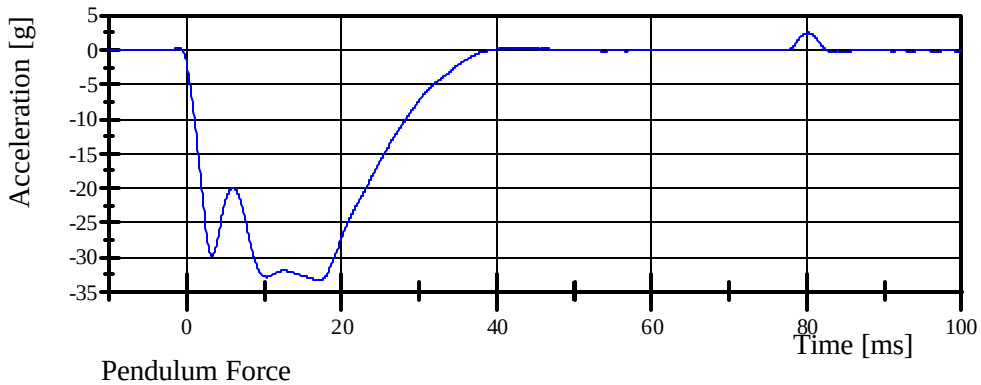
Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.13.2007 13:36:57 1588

Transportation Research Center Inc.

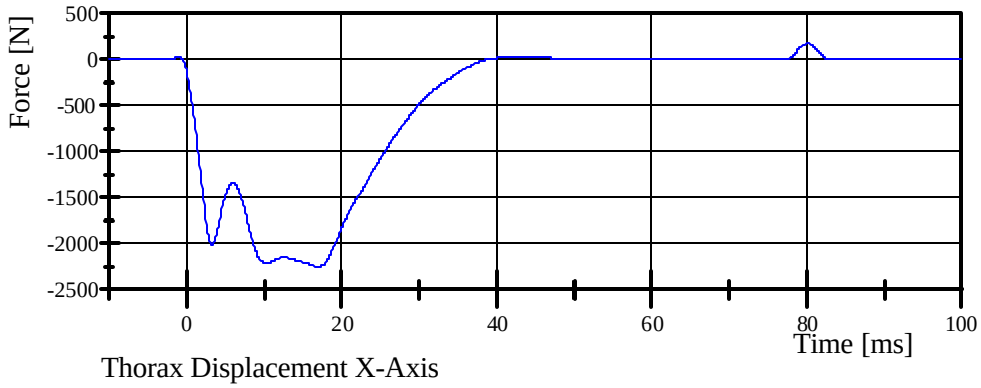
Front Thorax
HIII 10YO Serial No. D001 Certification No. 14-2
Test Date: 6/13/2007

Pendulum Acceleration



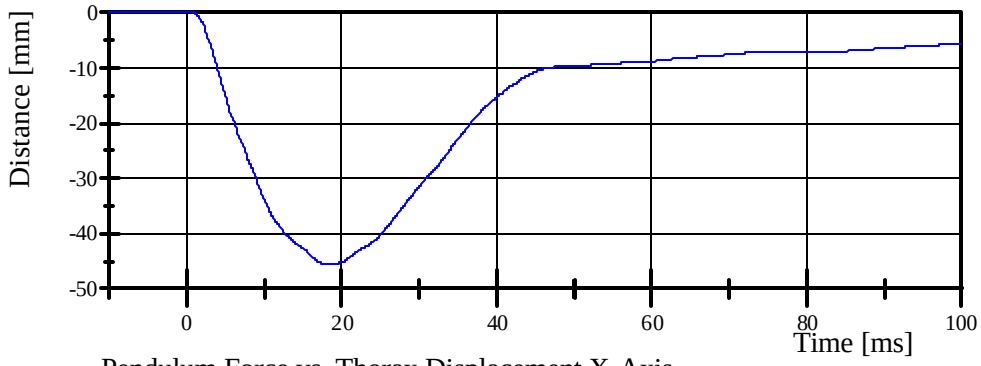
Filter Class: CFC_180
Max: 2.5 g at 80.2 ms
Min: -33.4 g at 17.0 ms

Pendulum Force



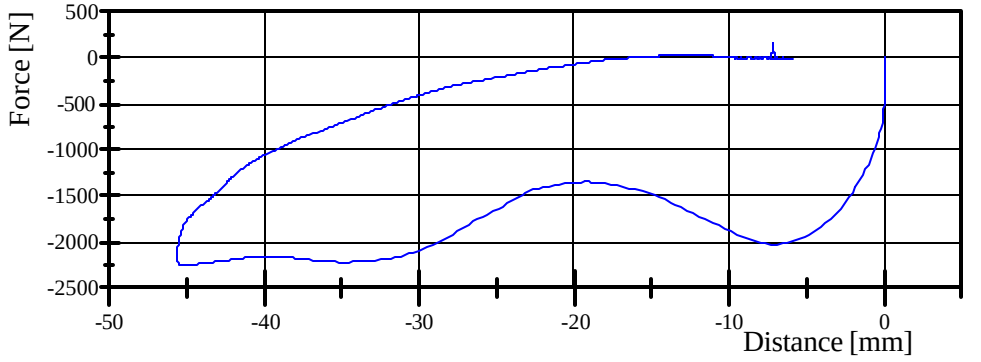
Filter Class: CFC_180
Max: 169.5 N at 80.2 ms
Min: -2,255.5 N at 17.0 ms

Thorax Displacement X-Axis



Filter Class: CFC_600
Max: 0.0 mm at -5.9 ms
Min: -45.6 mm at 18.5 ms

Pendulum Force vs. Thorax Displacement X-Axis



Filter Class: CFC_180
Max: 169.5 N at -7.2 mm
Min: -2,255.5 N at -45.1 mm

Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.13.2007 13:37:11 1588

POST-TEST DUMMY INSPECTION

Position:	Driver
Dummy:	Hybrid III 50th Percentile Male with Thor-Lx Legs
Serial Number:	#202 (Right Leg #037; Left Leg #036)
Inspected By:	Jessica Gall
Date:	February 14, 2008
Comments:	No Damage.

Position:	Passenger
Dummy:	Hybrid III 50th Percentile Male with Thor-Lx Legs
Serial Number:	#206 (Right Leg #045; Left Leg #046)
Inspected By:	Jessica Gall
Date:	February 14, 2008
Comments:	No Damage.

Position:	Left Rear Passenger
Dummy:	Hybrid III 10 year old
Serial Number:	#D001
Inspected By:	Jessica Gall
Date:	February 14, 2008
Comments:	No Damage.

APPENDIX D

CUSTOMER PROVIDED SEATING PROCEDURE

CONTROL LOG

50th Percentile Male Dummy - Driver side

Rev. No.	Date	Description
00	1/16/2008	Original release by VRTC
01	1/22/2008	Modified left foot placement to avoid pedals (modified step 30 and 35)

A.2 50th Percentile Male Dummy - Driver side

__1. Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment positions.
__ N/A – No lumbar adjustment

__2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position.
__ N/A – No additional support adjustment

__3. Position an adjustable leg support system in its rearmost position
__N/A – No adjustable leg support system

__4. Mark a point (seat cushion reference point) on the side of the seat cushion that is between 150 mm and 250 mm from the front edge of the seat cushion.

__5. Draw a line (seat cushion reference line) through the seat cushion reference point.

__6. Use only the controls that primarily move the seat in the fore-aft direction to move the seat cushion reference point to the rearmost position.

__7. If the seat cushion adjusts fore-aft, independent of the seat back, use only the controls that primarily move the seat cushion in the fore-aft direction to move the seat cushion reference point to the rearmost position.
__ N/A – No independent fore-aft seat cushion adjustment

__8. Use any part of any control, other than the parts just used for fore-aft positioning, to determine the range of angles of the seat cushion reference line and to set the seat cushion reference line at the mid-angle.
Maximum angle _____
Minimum angle _____
Mid-angle _____

__9. If the seat and/or seat cushion height is adjustable, use any part of any control other than the parts which primarily move the seat or seat cushion fore-aft, to put the seat cushion reference point in its lowest position with the seat cushion reference line angle at the mid-angle found in 8.
__N/A – No seat height adjustment

__10. Use only the controls that primarily move the seat in the fore-aft direction to verify the seat is in the rearmost position.

__11. Place seat back at angle specified by the manufacturer. If angle is not provided, place seat back at 25 degrees from vertical.
__ N/A – No seat back angle adjustment
Manufacturer's design seat back angle _____

__12. Is the seat a bucket seat?
__Yes, go to 13 and skip 14
__No, go to 14 and skip 13

__13. Bucket seats:
Locate and mark for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion.

__14. Bench seats
Locate and mark for future reference the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centerline of the steering wheel and the seat cushion upper surface.

__15. Head Restraint Position
__N/A Vehicle contains automatic head restraints.
__N/A, there is no head restraint adjustment
__Adjust the head restraint to its highest position.

__16. Place any adjustable seat belt anchorages at the vehicle manufacturer's nominal design position for a 50th percentile adult male occupant
__N/A – No adjustable upper seat belt anchorage
Manufacturer's specified anchorage position. _____
Tested anchorage position _____

__17. Place adjustable pedals in the full forward position (towards the front of the vehicle.)
__N/A – the pedals are not adjustable.

__18 Locate and mark the right heel point (RHP) on the carpet.
Flat accelerator pedals: Extend a line through the axis of symmetry (that is closest to the vertical plane) of the accelerator pedal. The RHP is the intersection of that line with the floorpan.
Curved accelerator pedals: Construct a line in the side view tangent to the accelerator pedal such that the distance from the contact point on the pedal to the floorpan, along the tangent line, is 200 mm. The RHP is at the intersection of this tangent line and the floorpan

__19 Locate a longitudinal line L1 and a transverse line T1 on the floorpan through the RHP. Locate a Left Heel Point (LHP) point on the line T1 that is to the left of the seat centerline at the same distance from the seat centerline as the RHP. Locate a longitudinal line L2 through the LHP.

__20. Set the steering wheel hub at the geometric center of the full range of driving positions including any telescoping positions as determined in data sheet 14.3.

__21. Verify that the seat is in the rearmost seat track position and full down height adjustment with the seat cushion at the mid-angle with the seat back at the manufacturer's nominal seat back angle or as determined in step 11

__22 With the seat in the rearmost, full down, mid-angle position, determine the H-point using SAE J826 and the FMVSS 208 leg and thigh dimensions. Record the measurements.

__23. Place the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion markings and the upper torso resting against the seat back.

__24. Rest the thighs on the seat cushion.

__25. Set the distance between the outboard knee clevis flange surfaces at 10.6 inches.
__measured distance (10.6 inches)

__26. Set the heels of the feet on the floor pan.

__27. Position the H-point of the dummy within 0.5 inch of the vertical dimension and 0.5 inch of the horizontal dimension of a point 0.25 inch below the H-point determined in step 22
Measure the pelvic angle with respect to the horizontal using the pelvic angle gage.
Adjust the dummy position until these three measurements are within the specifications.
____horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.)
____vertical inches from the point 0.25 below the determined H-point (0.5 inch max.)
____pelvic angle (20^{o} to 25^{o})
The H-point and pelvic angle are not adjusted after this step.

__28. Set the left and right feet in the neutral position (longitudinal centerline of foot in the same plane as the lower leg/thigh, foot Y angle at -15 degrees +/- 2 degrees to lower leg), as determined by the output of the potentiometers at the ankle.

__29. Without moving the seat, and while keeping the right thigh and leg in the same vertical plane, set the right foot heel on Line L1. If the vehicle interior prevents the heel from reaching L1, place the heel as close to L1 as possible, while maintaining a clearance of 0.25" from the vehicle interior.

__30 Without moving the seat, and while keeping the left thigh and leg in the same vertical plane, move the left foot laterally to the left **until any of the following occurs first**:
- The right edge of the foot is clear of the brake or clutch pedal by 0.25" laterally or
- The left edge of the shoe contacts the vehicle interior

__31. Place a 100 N +0, -5N weight (e.g. 100 N shot bag), no larger than 4" x 4", on each knee-thigh area. The weight should be centered on the assembly-hole on the top of the knee.

__32. Raise the heels off the floor pan so that the seat can be moved forward.

__33. Using only the control that primarily moves the seat in the fore-aft direction, move the seat forward and rest the rearmost point of the right foot heel on the floor pan such that:
- the heel is on the line L1
- the foot is in the same plane as the lower leg/thigh, foot at -15 degrees +/- 2 degrees (about the Y- axis) to lower leg,

- foot is contacting the accelerator pedal
- the thighs are resting on the seat cushion
- the thigh, leg and foot are in the same vertical plane

__33.1 If the heel is unable to reach line L1 because the foot contacts the vehicle interior, place the foot as close to the line L1 as possible while maintaining a gap of no more than 5 mm between the shoe and the vehicle interior.

__33.2 If the left foot contacts the brake or clutch pedals or the vehicle interior, then stop the forward movement of the left foot, raising the left knee off the seat cushion if needed. The pedals should not be depressed.

__34. If the right foot does not reach the accelerator pedal, move the adjustable pedal until it contacts the foot. Locate a new heel point. Repeat steps 18 – 33 to re-position the seat. If the pedals are not adjustable, place the heel at the point closest to the pedal, in the same longitudinal vertical plane as the line L1.

__N/A – the accelerator pedal is not adjustable
__N/A – the accelerator pedal did not need to be moved.

__35. Verify that the left thigh and leg are in a vertical longitudinal plane, the foot in the neutral position (longitudinal centerline of foot in the same plane as the lower leg/thigh, foot at -15 degrees +/- 2 degrees (Y-axis) to lower leg), the heel on the floor pan. Place the heel on the line L2, unless the left edge of the shoe contacts the vehicle, preventing the heel from reaching Line L2. If there is overlap with the pedal, move the leg to the left until a lateral clearance of 0.25” from the pedal is attained, unless the left edge of the shoe contacts the vehicle. If the left edge of the shoe contacts the vehicle interior, maintain a clearance of 0.25” from the vehicle interior.

__36. Remove the leg weights.

__37. Verify that the right foot is in the neutral position, at the lateral location determined in step 30, and is contacting the accelerator pedal. If the foot is not contacting the accelerator pedal, move the seat forward to rest the right foot on the accelerator pedal, keeping the foot in the neutral position

__38. While holding the thighs in place, push with a 50 lb force on a 3 inch diameter area of the chest that is centered 5" (127mm) vertically below the chin on the midsaggital plane of the dummy.

__39.1 Fasten the seat belt around the dummy.

__39.2 Remove all slack from the lap belt portion.

__39.3 Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times.

__39.4 Apply a 2 to 4 pound tension load to the lap belt.
____pound load applied

__39.5 Is the belt system equipped with a tension-relieving device?
__Yes, continue
__No, go to 40

__39.6 Introduce the maximum amount of slack into the upper torso belt that is recommended by the vehicle manufacturer in the vehicle owner’s manual..

__40. Place the upper arms adjacent to the torso with the centerline as close to a vertical plane as possible.

__41. Adjust the head level within ± 0.5 degrees using the seat back adjustment. Check the head angle after pushing on the chest with a 50 lb force on a 3 inch diameter area of the chest that is centered 5" (127mm) vertically below the chin on the midsaggital plane of the dummy, while holding the thighs in place, and releasing.

__42 No seat back adjustment. Adjust the neck bracket to achieve head level within ± 0.5 degrees Record neck bracket setting. _____

__43. Maintaining the head alignment as determined above, place the right hand with the palm in contact with the steering wheel at the rim’s horizontal centerline and with the thumb over the steering wheel.

__44. Maintaining the head alignment as determined above place the left hand with the palm in contact with the steering wheel at the rim’s horizontal centerline and with the thumb over the steering wheel.

__45. If the hands don't reach the steering wheel at the horizontal centerline, maintaining the head alignment place them at symmetric location on the wheel, below the horizontal centerline.

__46. Tape the thumb of each hand to the steering wheel by using masking tape with a width of 0.25 inch. The length of the tape shall only be enough to go around the thumb and steering wheel one time.

__47 Verify that the feet are in the neutral position (+/- 2 deg), and at lateral locations determined in step 30 (right foot) and step 35 (left foot), and the head is level (+/- 0.5 deg). Adjust and repeat until the feet position and angles and head angles are within their ranges.

A.4 50th Percentile Male Dummy - Passenger Side

__1. The seat is a bench seat for which the adjustments have already been made for the driver and there are no independent adjustments that can be made for the passenger. Go to 15.
__N/A- the passenger seat adjusts independently of the driver seat.

__2. Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment positions.
__ N/A – No lumbar adjustment

__3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position.
__ N/A – No additional support adjustment

__4. Position an adjustable leg support system in its rearmost position.
__N/A – No adjustable leg support system

__5. Mark a point (seat cushion reference point) on the side of the seat cushion that is between 150 mm and 250 mm from the front edge of the seat cushion.

__6. Draw a line (seat cushion reference line) through the seat cushion reference point.

__7. Use only the controls that primarily move the seat in the fore-aft direction to move the seat cushion reference point to the rearmost position.

__8. If the seat cushion adjusts fore-aft, independent of the seat back, use only the controls that primarily move the seat cushion in the fore-aft direction to move the seat cushion reference point to the rearmost position.
__ N/A – No independent fore-aft seat cushion adjustment

__9. Use any part of any control, other than the parts just used for fore-aft positioning, to determine the range of angles of the seat cushion reference line and to set the seat cushion reference line at the mid-angle.
Maximum angle _____
Minimum angle _____
Mid-angle _____

__10. If the seat and/or seat cushion height is adjustable, use any part of any control other than the parts which primarily move the seat or seat cushion fore-aft, to put the seat cushion reference point in its lowest position with the seat cushion reference line angle at the mid-angle found in 9.
__N/A – No seat height adjustment

__11. Use only the controls that primarily move the seat in the fore-aft direction to verify the seat is in the rearmost position.

__12. Place seat back at angle specified by the manufacturer. If angle is not provided, place seat back at 25 degrees from vertical.
__ N/A – No seat back angle adjustment
Manufacturer's design seat back angle _____

__13. Is the seat a bucket seat?
__Yes, go to 14 and skip 15
__No, go to 15 and skip 14

__14. Bucket seats:
Locate and mark for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion.

__15. Bench seats:
Locate and mark for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel.
Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel. _____

Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. _____

__16. Head Restraint Position
__N/A Vehicle contains automatic head restraints.
__N/A, there is no head restraint adjustment
__Adjust the head restraint to its highest position.

__17. Place any adjustable seat belt anchorages at the vehicle manufacturer's nominal design position for a 50th percentile adult male occupant
__N/A – No adjustable upper seat belt anchorage
Manufacturer's specified anchorage position. _____
Tested anchorage position _____

__18. Verify that the seat is in the rearmost seat track position and full down height adjustment with the seat cushion at the mid-angle, the seat back is at the manufacturer's nominal design position for the 50th male.

__19 With the seat in the rearmost, full down, mid-angle position, seat back at the manufacturer's nominal design position for the 50th male, determine the H-point using SAE J826 and the FMVSS 208 leg and thigh dimensions.

__20. Place the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion markings and the upper torso resting against the seat back.

__21. Rest the thighs on the seat cushion.

__22. Set the distance between the outboard knee clevis flange surfaces at 9 ¼ (+/- ¼) inches, with the leg-knee-thigh in the same vertical plane.
__ Record knee separation

__23. Set the heels of the feet on the floor pan.

__24. Position the H-point of the dummy within 0.5 inch of the vertical dimension and 0.5 inch of the horizontal dimension of a point 0.25 inch below the H-point determined in Step 19. Measure the pelvic angle with respect to the horizontal using the pelvic angle gage. Adjust the dummy position until these three measurements are within the specifications.
____horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.)
____vertical inches from the point 0.25 below the determined H-point (0.5 inch max.)
____pelvic angle (20^{o} to 25^{o})
The H-point and pelvic angle are not adjusted again after this step.

__25. Place a 100 N +0, -5N weight (e.g. 100 N shot bag), no larger than 4" x 4", on each knee-thigh area. The weight should be centered on the assembly-hole on the top of the knee.

__26. Set the left and right feet such that the following conditions are met after the feet are placed:
__ The foot is in neutral position.
__ The leg and thigh are in the same plane.
__ The thighs are resting on the seat cushion.
__ The heel is in contact with the floor pan.

__27 Lift the feet off the floor and set the toe towards the floorpan (Y angle = -25 +/- 2 deg). Using controls that move the seat fore-aft, move the seat forward until either foot contacts vehicle interior or the seat reaches the full-forward position, whichever happens first. Position the feet at that seat location with the heels on the floor and the feet in neutral position (Y angle = -15 +/- 2 deg). If the vehicle interior prevents the feet from reaching the neutral position, place the feet as close as possible to the neutral position while maintaining a distance of 5 mm from the vehicle interior.

__28 Move the seat forward while maintaining the foot orientations (+/-2 deg) until either foot contacts the vehicle interior or the seat reaches full-forward position, whichever happens first.

__29 Keeping the thigh-leg in the same vertical plane, move the feet apart symmetrically about the dummy midsaggital plane until the either foot contacts the vehicle interior or the knee spacing of 10.6 inches between the outboard knee clevis flange surfaces is attained, whichever comes first. Place the feet in neutral position unless contact with the vehicle interior prevents the feet from reaching the neutral position.

Check all that applies:
__ The right foot contacted a flat part of the toe board.
__ The right foot contacted the right side of vehicle interior.
__ The right foot contacted is at neutral position
__ The left foot contacted a flat part of the toe board.
__ The left foot contacted the left side if the vehicle interior.
__ The left foot contacted is at neutral position

__30. Remove the leg weights.

__31. While holding the thighs in place, push with a 50 lb force on a 3 inch diameter area of the chest that is centered 5" (127mm) vertically below the chin on the midsaggital plane of the dummy.

__32. Seat belt

__32.1 Fasten the seat belt around the dummy.

__32.2 Remove all slack from the lap belt portion.

__32.3 Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times.

__32.4 Apply a 2 to 4 pound tension load to the lap belt.
____pound load applied

__32.5 Is the belt system equipped with a tension-relieving device?
__Yes, continue
__No, go to 33

__32.6 Introduce the maximum amount of slack into the upper torso bet that is recommended by the vehicle manufacturer in the vehicle owner's manual.

__33. Place the upper arms adjacent to the torso with the centerline as close to a vertical plane as possible.

__34. Place the right upper arm in contact with the seat back and side of the torso.

__35. Place the left hand palm in contact with the outside of the left thigh and the little finger in contact with the seat cushion.

__36. Place the right hand palm in contact with the outside of the right thigh and the little finger in contact with the seat cushion.

__37. Adjust the head level within ± 0.5 degrees using the seat back adjustment. Check the head angle after pushing on the chest with a 50 lb force on a 3 inch diameter area of the chest that is centered 5" (127mm) vertically below the chin on the midsaggital plane of the dummy, while holding the thighs in place, and releasing.

__37.1 No seat back adjustment. Adjust the neck bracket to achieve head level within ± 0.5 degrees Record neck bracket setting. _____

U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

Memorandum

Vehicle Research and Test Center P.O. Box B37
East Liberty, Ohio 43319
(937) 666-4511

Subject: VRTC Seating Procedure for FMVSS 213-Type Booster Seat Testing with the Hybrid III 6 Year Old & 10 Year Old Child Dummies

OCT 24 2007

From: Joseph N. Kanianthra, Ph.D.
Associate Administrator for
Vehicle Safety Research

To: Docket NHTSA-2005-21245

Thru: Anthony M. Cooke
Chief Counsel

VRTC Seating Procedure for Hybrid III 6 Year Old Child Dummy for Testing Belt Positioning Booster Seats

VRTC Use the following procedure to position the dummy in the belt positioning booster seat:

10/24/07

a) Place the booster seat on the FMVSS 213 bench seat such that it is centered between the lap belt anchor positions and the booster is pushed rearward until the intersection of the booster's back and bottom contacts the intersection of the FMVSS 213 bench seat's back and base cushions.
b) Place the dummy in the booster seat so that the mid-sagittal line of the dummy is coincident with the centerline of the booster.
c) Measure the X and Z locations of the left and right shoulder pivots. Position the dummy so that the difference between the X and Z values for these two points is less than or equal to 1 cm (see Figure 1).
d) As illustrated in Figure 2 of this section, calculate the H-point location of the dummy relative to the FMVSS 213 seat Z point (see Figure 1B in FMVSS 213) by
    a. Measuring the X and Z coordinates of the knee pivot (X_{KP} and Z_{KP}) and head center of gravity (X_{CG} and Z_{CG}).
    b. Mathematically locating the intersection point of two circles using the knee pivot and head center of gravity as the centers and the known dummy anthropometric lengths as radii. The equations for calculating the H-point are as follows:

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$$X_{HP} = X_{CG} + \frac{A(X_{KP} - X_{CG})}{B} + \frac{\sqrt{473^2 - A^2}(Z_{KP} - Z_{CG})}{B}$$

$$Z_{HP} = Z_{CG} + \frac{A(Z_{KP} - Z_{CG})}{B} - \frac{\sqrt{473^2 - A^2}(X_{KP} - X_{CG})}{B}$$

Where:

$$A = \frac{(473^2 - 238^2 + B^2)}{2B}$$

$$B = \sqrt{(X_{KP} - X_{CG})^2 + (Z_{KP} - Z_{CG})^2}$$

e) Use the H-point location and head center of gravity location to determine the torso angle relative to vertical. This angle is calculated using

$$\text{Torso Angle} = \arctan\left(\frac{X_{HP} - X_{CG}}{Z_{CG} - Z_{HP}}\right)\left(\frac{180}{\pi}\right)$$

f) Adjust the dummy until the torso angle is 14 ± 0.5 degrees from vertical.

g) Secure the dummy and booster with belt restraint, following booster manufacturer's instructions for routing the shoulder and lap belts. Apply standard FMVSS 213 belt tensions.

h) Locate the shoulder belt such that its outboard edge is inside of the outer edge of the chest jacket (see Figure 3). If it is not feasible to get the outboard edge of the belt inside the outer edge of the chest jacket, document the closest distance from the belt to the chest jacket that is obtainable.

i) The straight line distance from the bottom of the dummy's chin to the center of the shoulder belt/middle of the sternum along the dummy's mid-sagittal line should be 15.5 ± 0.5 cm (see Figure 4). Measure and document the intersection of the dummy's mid-sagittal line and vertical center of shoulder belt's width.

j) Measure and document the angle of the shoulder belt relative to horizontal. The shoulder belt angle should be $50^{\circ} \pm 10^{\circ}$. If it is not feasible to achieve the specified shoulder belt angle while following the manufacturer's instructions for belt routing, document angle that is obtainable.

k) Locate the lap belt such that the top of the belt is 2.54 cm or more below the top rim of the pelvis molded skin at the dummy's mid-sagittal line (Figure 4). If it is not feasible to locate the lap belt at least 2.54 cm below the top of the pelvis while following the manufacturer's instructions for belt routing, position belt as low as possible on pelvis.

l) Measure and document the intersection of the dummy's mid-sagittal line and center of lap belt width.

m) Put upper arms as close as possible to, and in alignment with, the upper torso on sides and bend at elbows such that the hands are resting on the booster seat cushion if possible; otherwise bend lower arm perpendicular to upper arm and have hands pointed forward.

n) Level the top of the dummy's head $\pm$ 1° off of horizontal.
o) Document final H-point, Head CG, and Knee Pivot coordinates in addition to the torso angle.

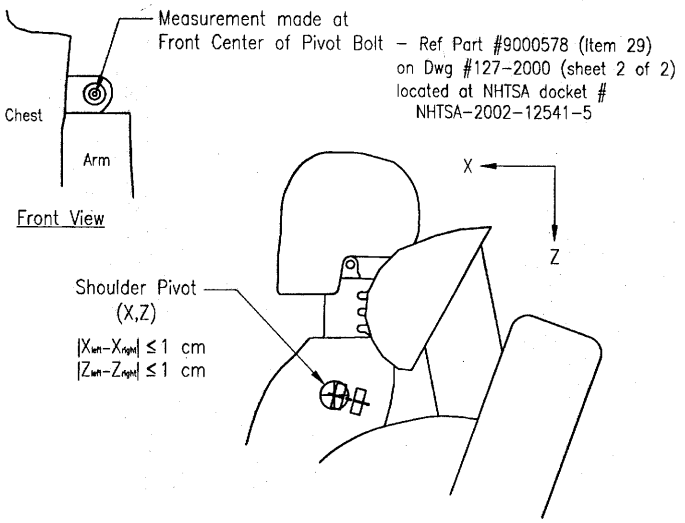


Figure 1. Shoulder Pivot Bolt Alignment

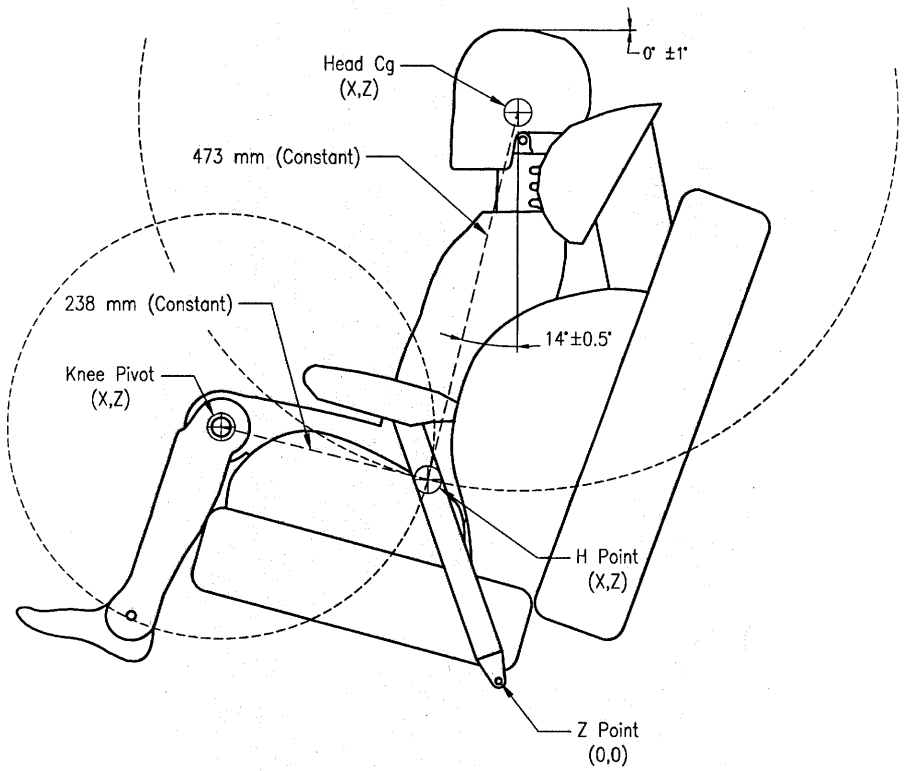


Figure 2. Locating the H-Point so that HIII-6C Torso Angle is 14 $\pm$ 0.5 Degrees from Vertical

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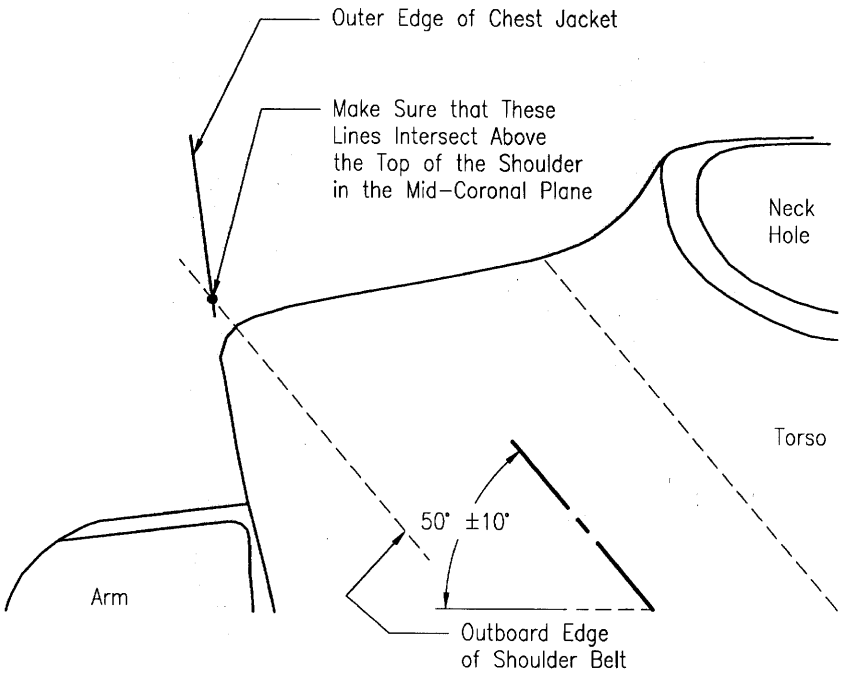


Figure 3. Shoulder Belt Placement

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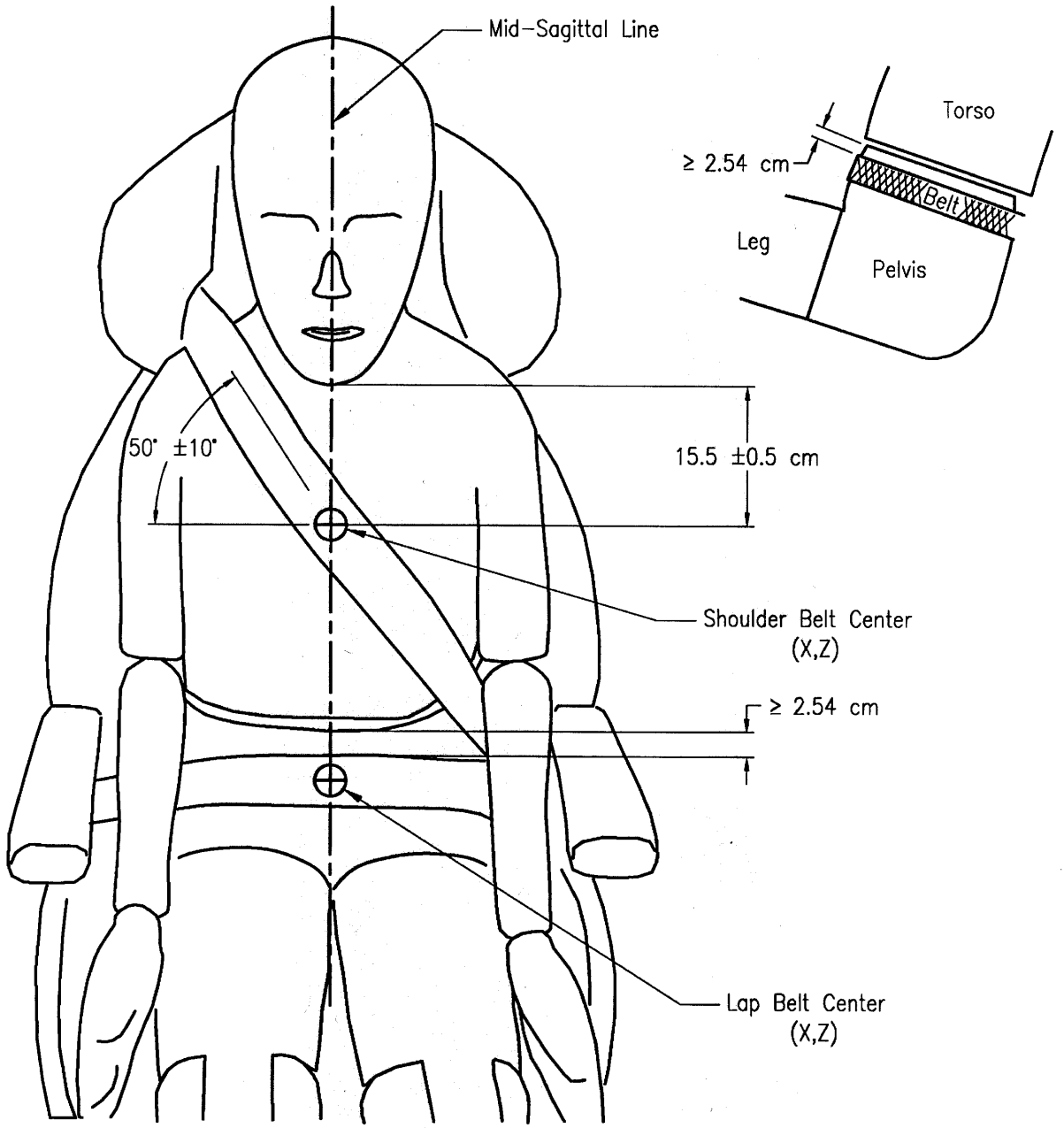


Figure 4. Overall Belt Placement for HIII-6C Dummy

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VRTC Seating Procedure for Hybrid III 10 Year Old Child Dummy for Testing Belt Positioning Booster Seats

Use the following procedure to position the dummy in the belt positioning booster seat:

a) Set the dummy's neck angle at the SP-16 setting (Figure 5a). See also Figure 20 of PADI (NHTSA-2005-21247-8) for more detail.
b) Set the dummy's lumbar angle at the SP-12 setting ("SP" means standard posture), see Figure 5b. This is done by aligning the notch on the lumbar adjustment bracket with the SP-12 notch on the lumbar attachment. See also Figure 45 of PADI for more detail.
c) Place the booster seat on the FMVSS 213 bench seat such that it is centered between the lap belt anchor positions and the booster is pushed rearward until the intersection of the booster's back and bottom contacts the intersection of the FMVSS 213 bench seat's back and base cushions.
d) Place the dummy in the booster seat so that the mid-sagittal line of the dummy is coincident with the centerline of the booster.
e) Measure the X and Z locations of the left and right shoulder pivots. Position the dummy so that the difference between the X and Z values for these two points is less than or equal to 1 cm (see Figure 6).
f) As illustrated in Figure 7 of this section, calculate the H-point location of the dummy relative to the FMVSS 213 seat Z point (see Figure 1B in FMVSS 213) by
    1. Measuring the X and Z coordinates of the knee pivot (X_{KP} and Z_{KP}) and head center of gravity (X_{CG} and Z_{CG}).
    2. Mathematically locating the intersection point of two circles using the knee pivot and head center of gravity as the centers and the known dummy anthropometric lengths as radii. The equations for calculating the H-point are as follows:

$$X_{HP} = X_{CG} + \frac{A(X_{KP} - X_{CG})}{B} + \frac{\sqrt{527^2 - A^2}(Z_{KP} - Z_{CG})}{B}$$

$$Z_{HP} = Z_{CG} + \frac{A(Z_{KP} - Z_{CG})}{B} - \frac{\sqrt{527^2 - A^2}(X_{KP} - X_{CG})}{B}$$

Where:

$$A = \frac{(527^2 - 288^2 + B^2)}{2B}$$

$$B = \sqrt{(X_{KP} - X_{CG})^2 + (Z_{KP} - Z_{CG})^2}$$

g) Use the H-point location and head center of gravity location to determine the torso angle relative to vertical. This angle is calculated using

$$\text{Torso Angle} = \arctan\left(\frac{X_{HP} - X_{CG}}{Z_{CG} - Z_{HP}}\right)\left(\frac{180}{\pi}\right)$$

h) Adjust the dummy until the torso angle is 14 ± 0.5 degrees from vertical.
i) Secure the dummy and booster with belt restraint, following booster manufacturer's instructions for routing the shoulder and lap belts. Apply standard FMVSS 213 belt tensions.
j) Locate the shoulder belt such that its outboard edge is inside of the outer edge of the chest jacket (see Figure 8). If it is not feasible to get the outboard edge of the belt inside the outer edge of the chest jacket, document the closest distance from the belt to the chest jacket that is obtainable.
k) The straight line distance from the bottom of the dummy's chin to the center of the shoulder belt/middle of the sternum along the dummy's mid-sagittal line should be 16 ± 0.5 cm (see Figure 9). Measure and document the intersection of the dummy's mid-sagittal line and vertical center of shoulder belt's width.
l) Measure and document the angle of the shoulder belt relative to horizontal. The shoulder belt angle should be $50^{\circ} \pm 10^{\circ}$. If it is not feasible to achieve the specified shoulder belt angle while following the manufacturer's instructions for belt routing, document angle that is obtainable.
m) Locate the lap belt such that the top of the belt is 2.54 cm or more below the top rim of the pelvis molded skin at the dummy's mid-sagittal line (Figure 9). If it is not feasible to locate the lap belt at least 2.54 cm below the top of the pelvis while following the manufacturer's instructions for belt routing, position belt as low as possible on pelvis.
n) Measure and document the intersection of the dummy's mid-sagittal line and center of lap belt width.
o) Put upper arms as close as possible to, and in alignment with, the upper torso on sides and bend at elbows such that the hands are resting on the booster seat cushion if possible; otherwise bend lower arm perpendicular to upper arm and have hands pointed forward.
p) Level dummy's head $\pm 1^{\circ}$ off of horizontal.
q) Document final H-point, Head CG, and Knee Pivot coordinates in addition to the torso angle.

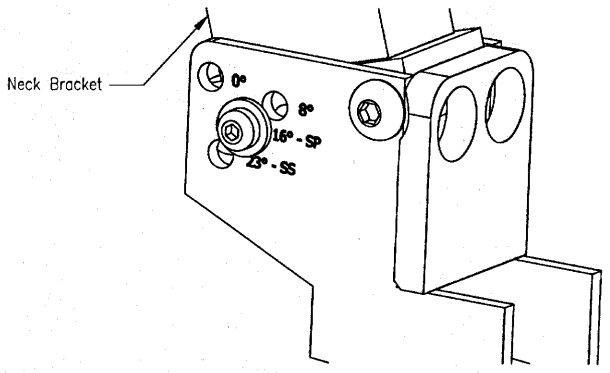


Figure 5a. Neck Angle Setting is SP-16 Degrees

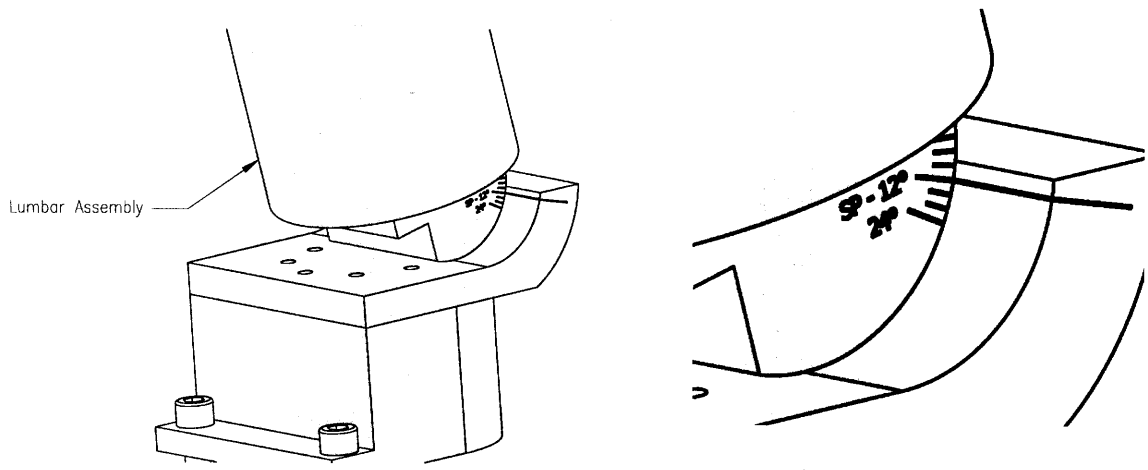


Figure 5b. Lumbar Angle Setting is SP-12 Degrees

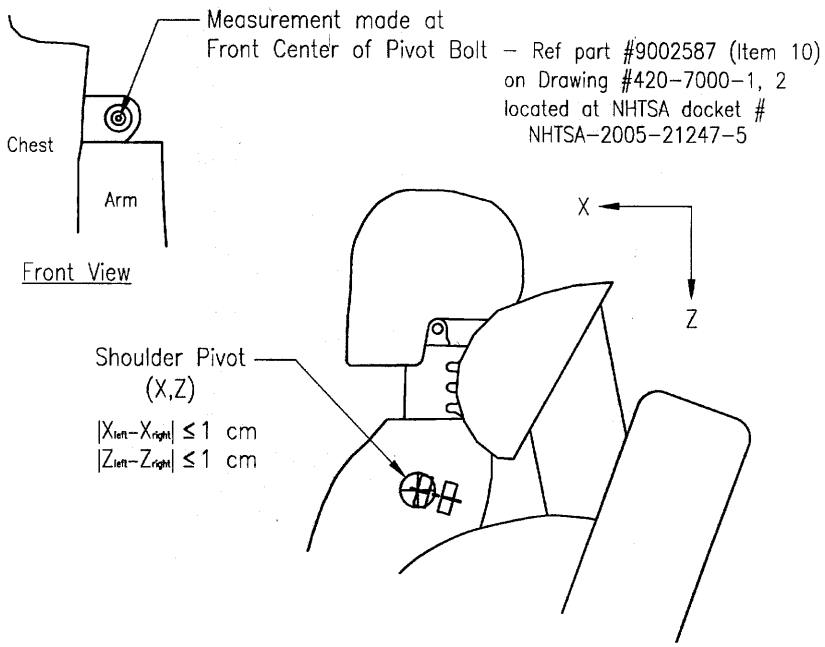


Figure 6. Shoulder Pivot Bolt Alignment

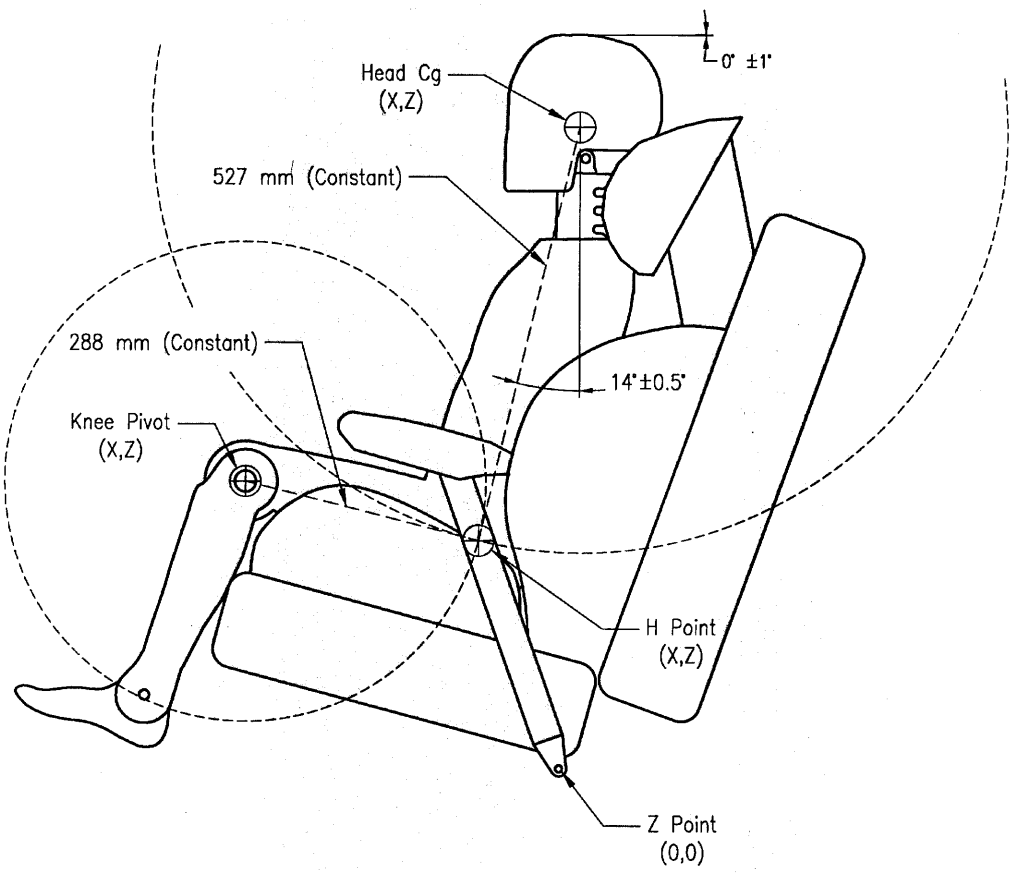


Figure 7. Locating the H-Point so that HIII-10C Torso Angle is 14 ± 0.5 Degrees from Vertical

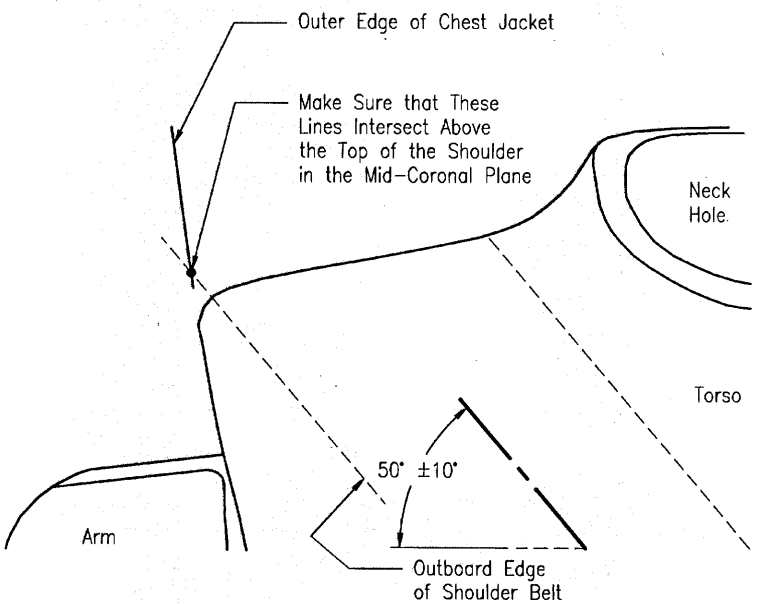


Figure 8. Shoulder Belt Placement

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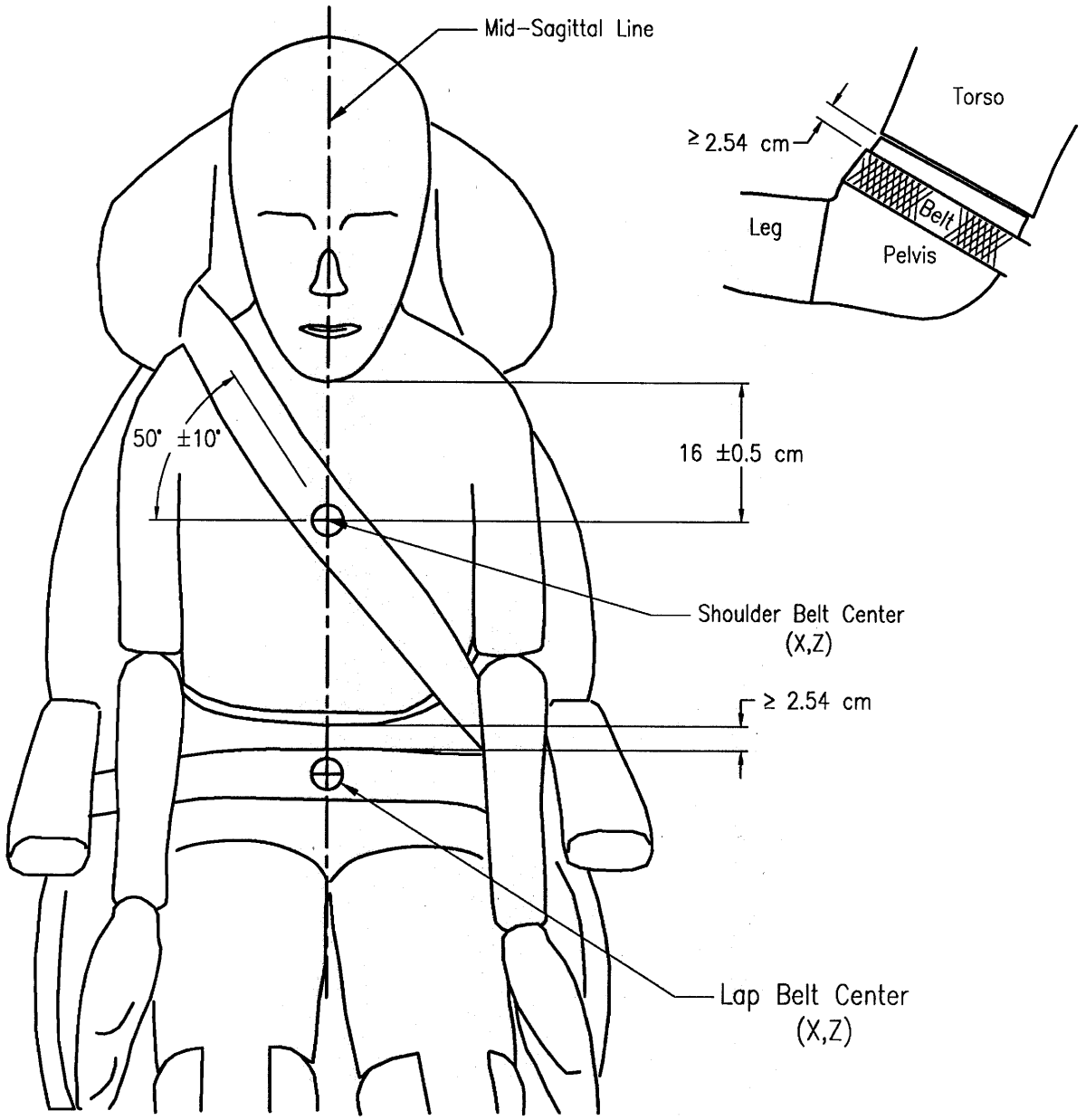


Figure 9. Overall Belt Placement for HIII-10C Dummy

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VRTC DUMMY SETUP SHEET

Dummy S/N _____ Test Date _____ Test No. _____

DUMMY CONFIGURATION

Lumbar Angle Setting (10YO only) ____ Neck Angle Setting (10YO only) ____

DUMMY ALIGNMENT

Dummy/Booster Centerline Coincident (check when confirmed) □

Left Shoulder Pivot Bolt: X _____ Z _____
Right Shoulder Pivot Bolt: X _____ Z _____

BELT PLACEMENT

Belt routed per manufacturer instructions (check when confirmed) □

Shoulder Belt Tension _____ lbs
Lap Belt Tension _____ lbs

Outside edge of shoulder belt inside outer edge of chest jacket (circle one)? Yes / No
If "No", what is distance from outside edge of belt to outer edge of chest jacket (along top of shoulder)? _____ mm

Intersection of mid-sagittal plane and center of shoulder belt: X____ Y____ Z____
Shoulder belt angle relative to horizontal (50 ± 10 degrees): _____ deg

Top edge of lap belt ≥ 2.54 cm from pelvis rim (circle one)? Yes / No
If "No", is belt positioned as low as possible (check when confirmed) □

Intersection of mid-sagittal plane and center of lap belt: X____ Y____ Z____

DUMMY POSTURE

Arms positioned correctly (check when confirmed) □

Head is level (0 ± 1 degree): _____ deg

Head Center of Gravity (outboard side): X_____ Y_____ Z_____
H-Point (outboard side): X_____ Y_____ Z_____
Knee Pivot (outboard side): X_____ Y_____ Z_____

Torso Angle (14 ± 0.5 degrees): _____ deg

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APPENDIX E

BARRIER CERTIFICATION

DECLARATION DE CONFORMITE / STATEMENT OF CONFORMITY

(NF L 00-015C)

Client / Customer :

MGA RESEARCH Corp
5000, Warren road
WI
53105 BURLINGTON
USA

Contact : M. David WINKELBAUER

N° Déclaration **DC 2007-11-199**
Statement N°

N° Contrat : Your Purchase order N°: 03-08-0119
Order N°

N°	Code	Désignation	Qté
1	PROD101XT	Progressive Deformable Barrier for frontal offset test PDB-XT	7.000
2		**Informations Tracabilité / Qualité**	
	QUAL1	N° de lot / Batch Number: CP0801003	
	QUAL1	N° de lot / Batch Number: CP0801004	
	QUAL1	N° de lot / Batch Number: CP0801006	
	QUAL1	N° de lot / Batch Number: CP0801007	
	QUAL1	N° de lot / Batch Number: CP0801009	
	QUAL1	N° de lot / Batch Number: CP0801012	
	QUAL1	N° de lot / Batch Number: CP0801011	
3		**Informations d'expédition**	
	BL	Bon de livraison N° / Delivery Note N° : BL 2007-11-199	

Nous déclarons que la fourniture citée est conforme aux exigences du contrat et que, après vérifications et essais, elle répond en tout point, aux exigences et règlements applicables, sauf exceptions, réserves ou dérogations énumérées dans la présente déclaration de conformité.

We hereby declare, barring exceptions, reservations, or exemptions listed in this statement of conformity, that the listed supplies comply with the contract requirements and that, after completion of testing and verification, they completely satisfy all specified requirements, and applicable standards and regulations.

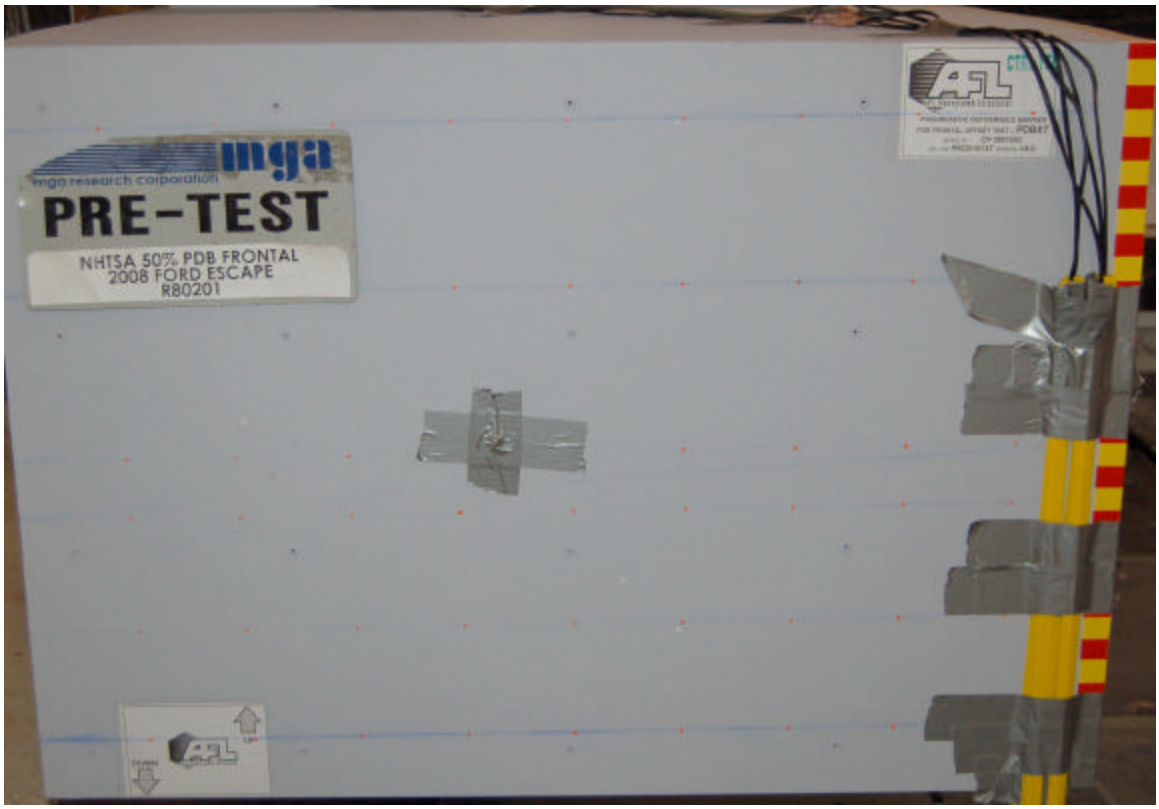
Responsable Qualité Fournisseur / Supplier Quality Manager **Date : 17 janvier 2008**

Nom et fonction / Name and title : Karine LAIGNEL **Signature :**

1419, Route de Viroy
BP 60120 - 45201 MONTARGIS - FRANCE
Tél : 02 38 89 14 00
Fax : 02 38 89 12 30
Email : contact@afl-honeycomb.com

Sarl au capital de 240 000 euros - Siret 417 624 947 00012 TVA Intracommunautaire FR 58 417 624 947 - Naf 2022

Barrier: Progressive Deformable Barrier for Frontal Offset Test PDB-XT
Batch Number: CP0801003





APPENDIX F

INSIA REPORT ON STRUCTURAL MEASUREMENTS

STRUCTURAL SURVEY OF CARS. MEASUREMENT METHODOLOGY OF THE MAIN RESISTANT ELEMENTS IN THE CAR BODY

APARICIO IZQUIERDO, FRANCISCO
PÁEZ AYUSO, FRANCISCO JAVIER

INSIA
Carretera de Valencia, km. 7
Campus Sur de la Universidad Politécnica de Madrid
28031 – MADRID – (SPAIN)

March, 1999

REPORT DOCUMENTATION PAGE
Title: *STRUCTURAL SURVEY OF CARS. MEASUREMENT METHODOLOGY OF THE MAIN RESISTANT ELEMENTS IN THE CAR BODY*
Author(s): Aparicio Izquierdo, Francisco Páez Ayuso, Francisco Javier
Performing Organisation name and address: INSIA – University Institute for Automobile Research Carretera de Valencia, Km. 7 – Campus Sur de la Universidad Politécnica de Madrid 28031 – Madrid – Spain
Suplementary notes: Under contract to: THE EUROPEAN COMMUNITY Project: "Improvement of Crash Compatibility between Cars" Contract Nº: RO – 97 – SC.1064
Abstract: The main aim of this working package -*Structural Survey of Cars*- is the reduction of incompatibilities, both structural and geometric, between passenger vehicles and their potential collision partners. The understanding of these incompatibilities needs a previous step for the knowledge of the existing car fleet. Firstly, it is necessary to select the main resistant elements in the car body. These elements have to be chosen from the point of view of the sort of collision that we want to study, that is to say, frontal and side impacts. Detailed measurements have been taken from exterior and interior elements, spread to a total number of 74 models selected from the main vehicle manufacturers at Spain. All of them are being sold this year. Using the information available from the previous measurements in vehicles, the geometric characteristics of the main resistant elements involved in the geometric compatibility between cars will be defined. This report shows the methodology followed to get these measurements.
Subject terms: Crash compatibility, geometric compatibility, resistant elements, measure methodology
Date: March, 1999

1.- METHODOLOGY.

Detailed measurements have been taken from exterior and interior elements. Using the information available from the previous measurements in vehicles, the geometric characteristics of the main resistant elements involved in the geometric compatibility between cars have been defined. These elements are presented in the following figures, and have been divided in two main groups according to the vehicle zones studied in this project.

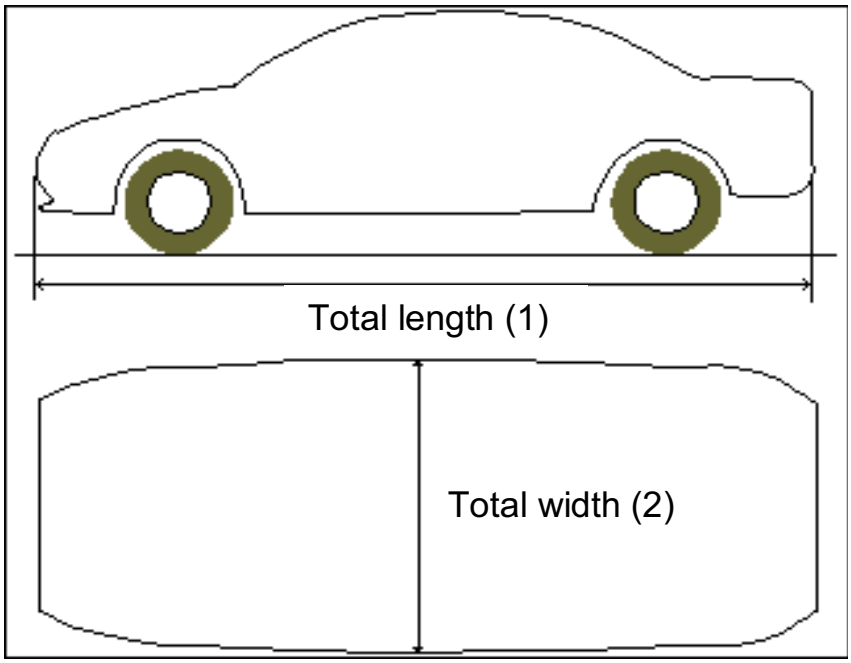


Figure 1.- Definition of the main resistant elements. General dimensions.

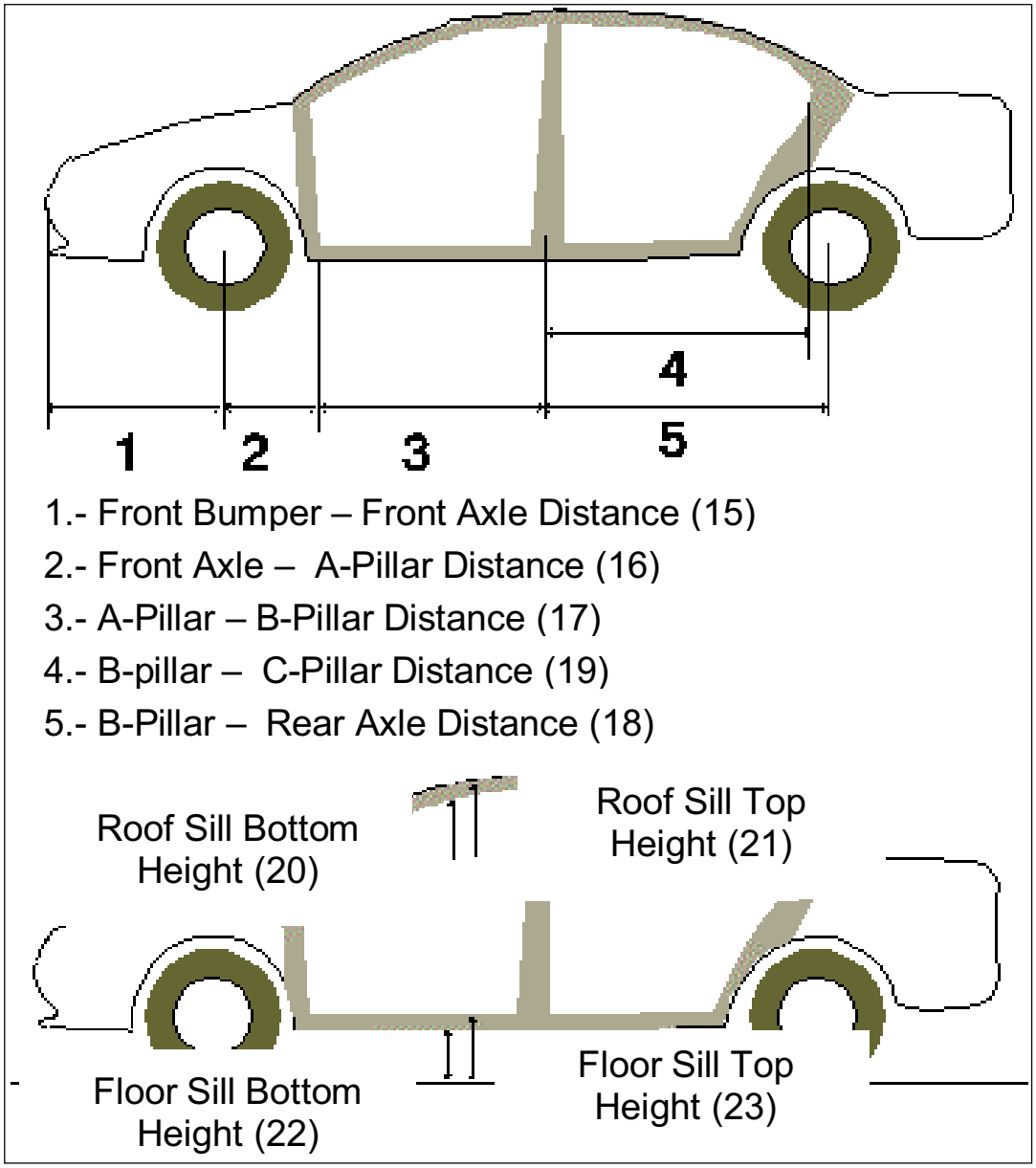


Figure 2.- Definition of the main resistant elements. Side elements.

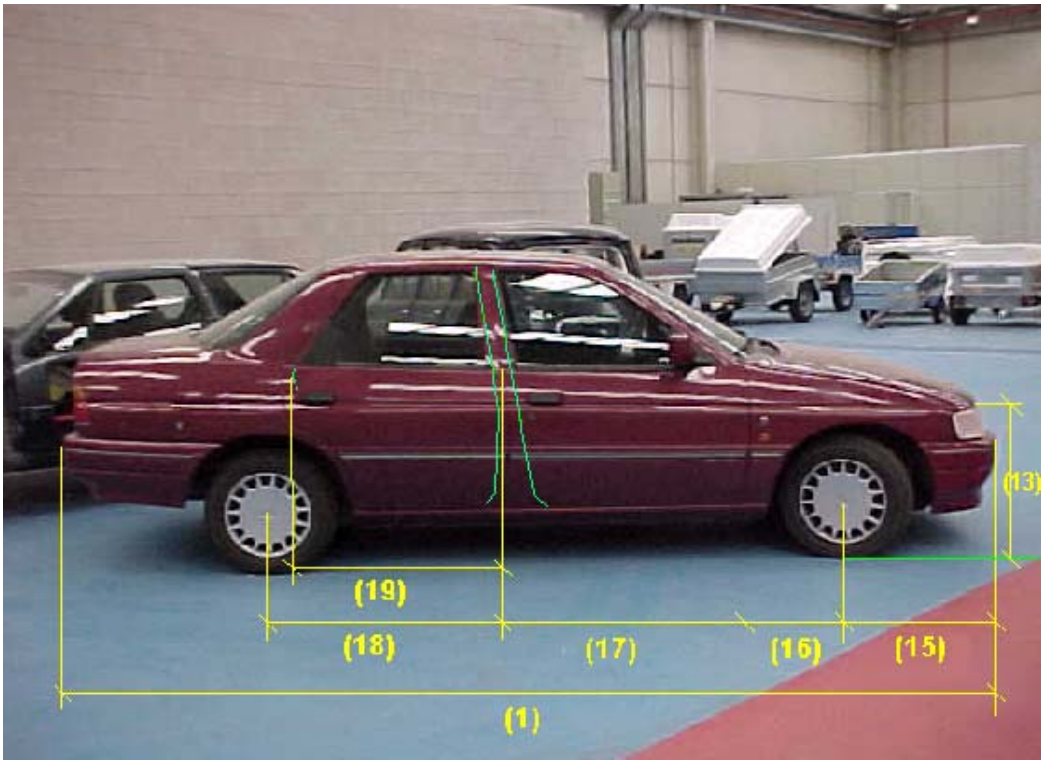


Figure 3.- Measurements of the side resistant elements (outer).

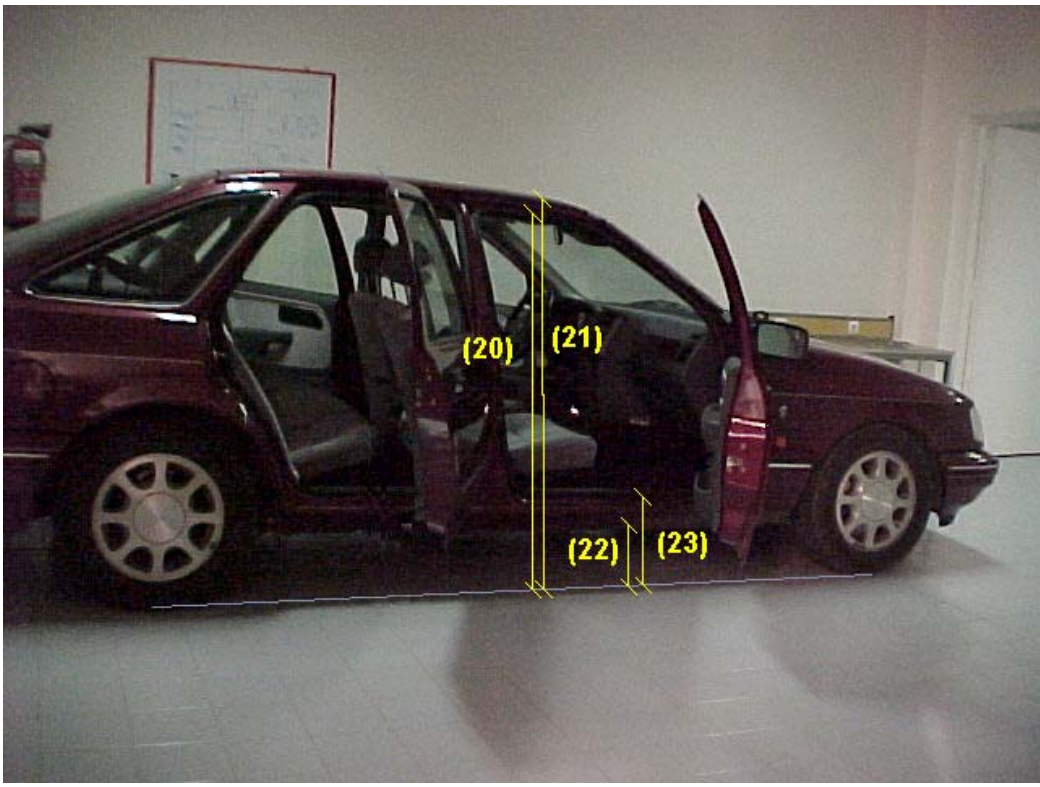


Figure 4.- Measurements of the side resistant elements (inner).

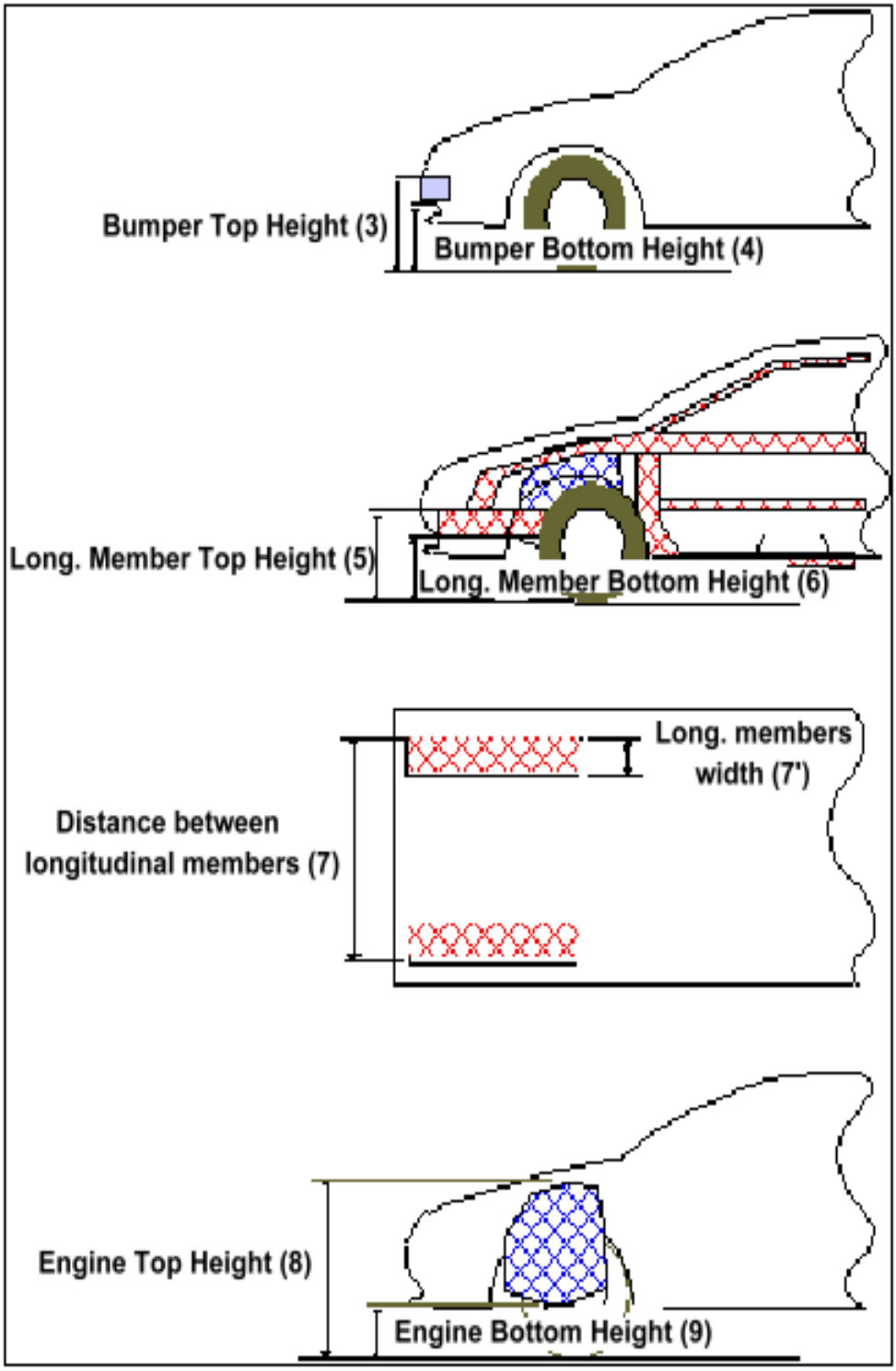


Figure 5.- Definition of the main resistant elements. Front elements.

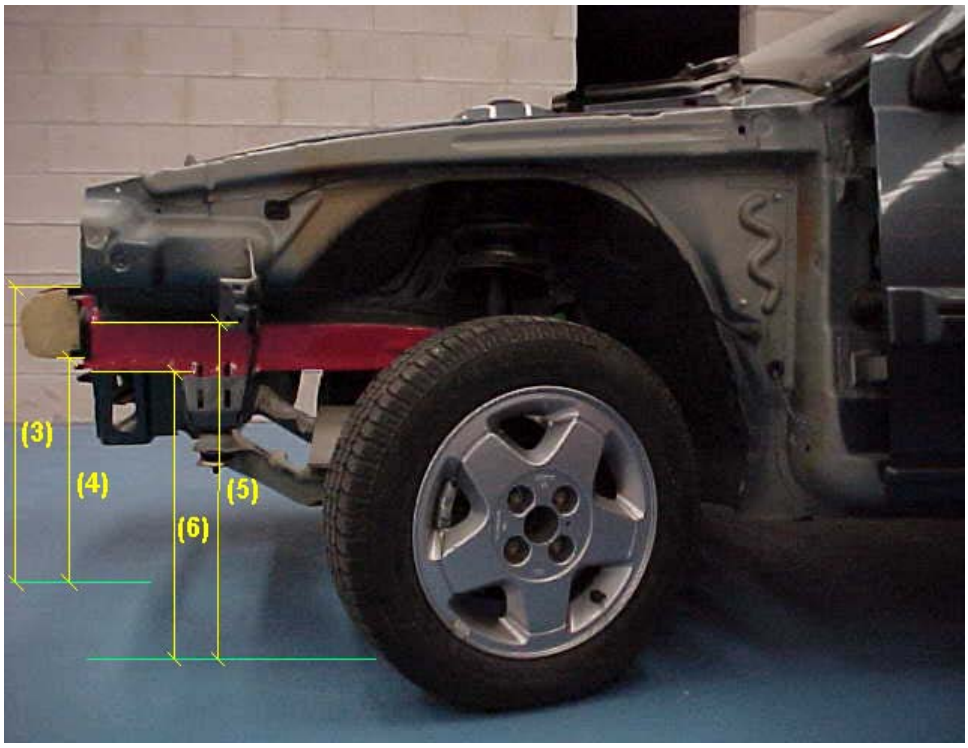


Figure 6.- Measurements of the main resistant elements. Front elements 1.

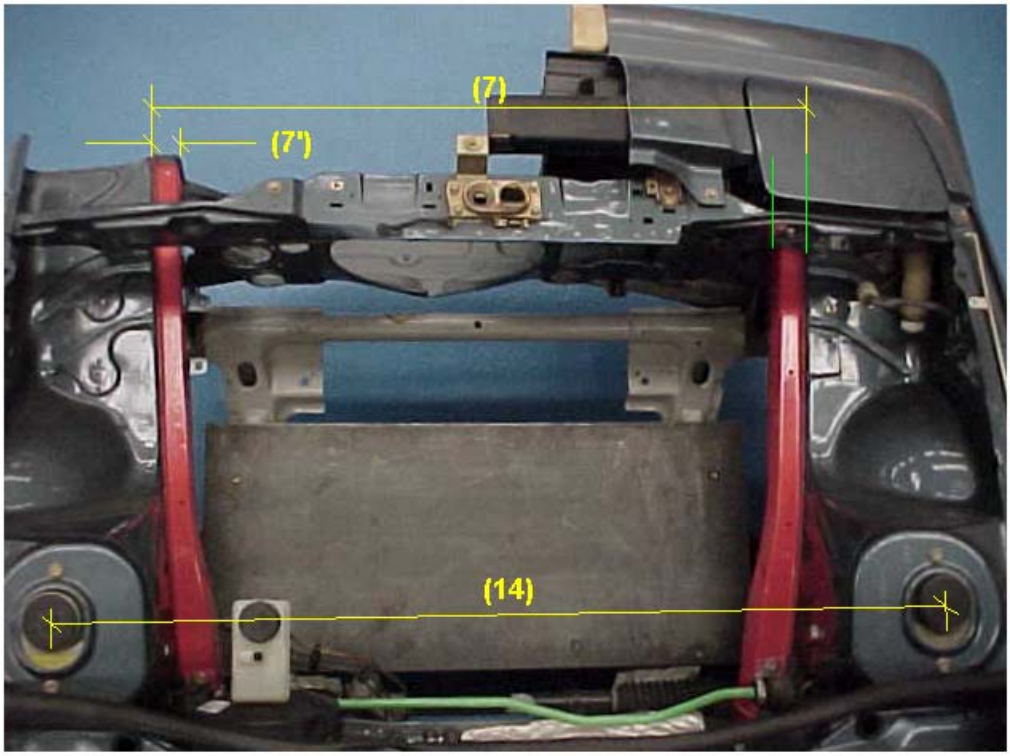


Figure 7.- Measurements of the main resistant elements. Front elements 2.

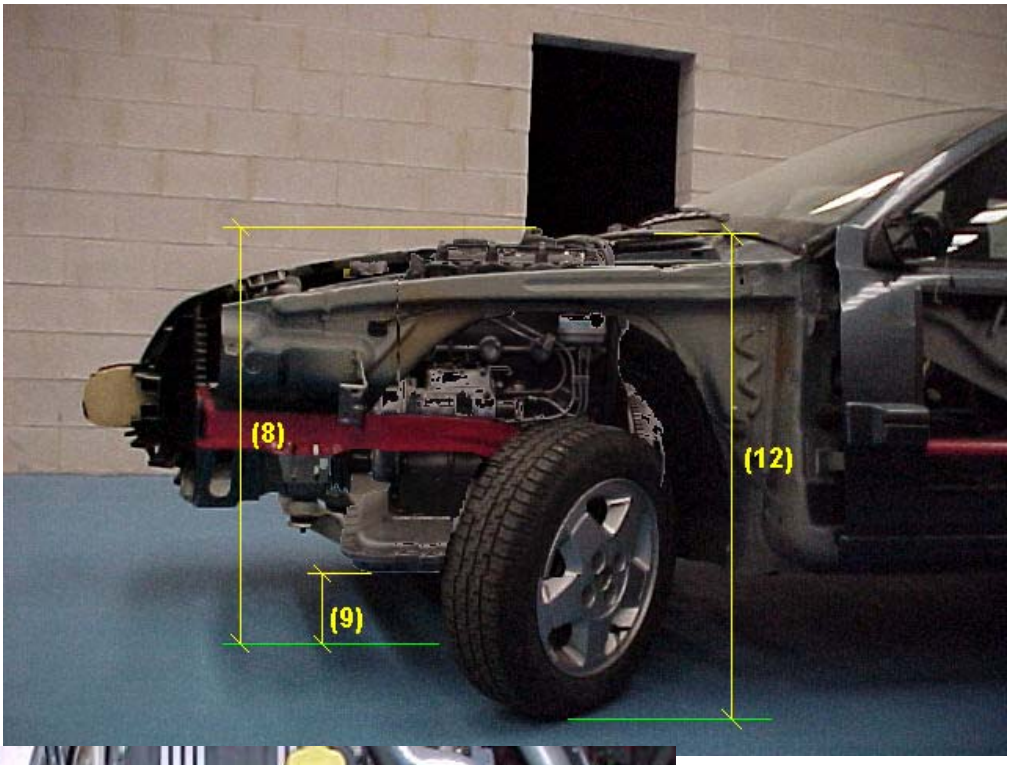


Figure 8.- Measurements of the main resistant elements. Front elements 3.

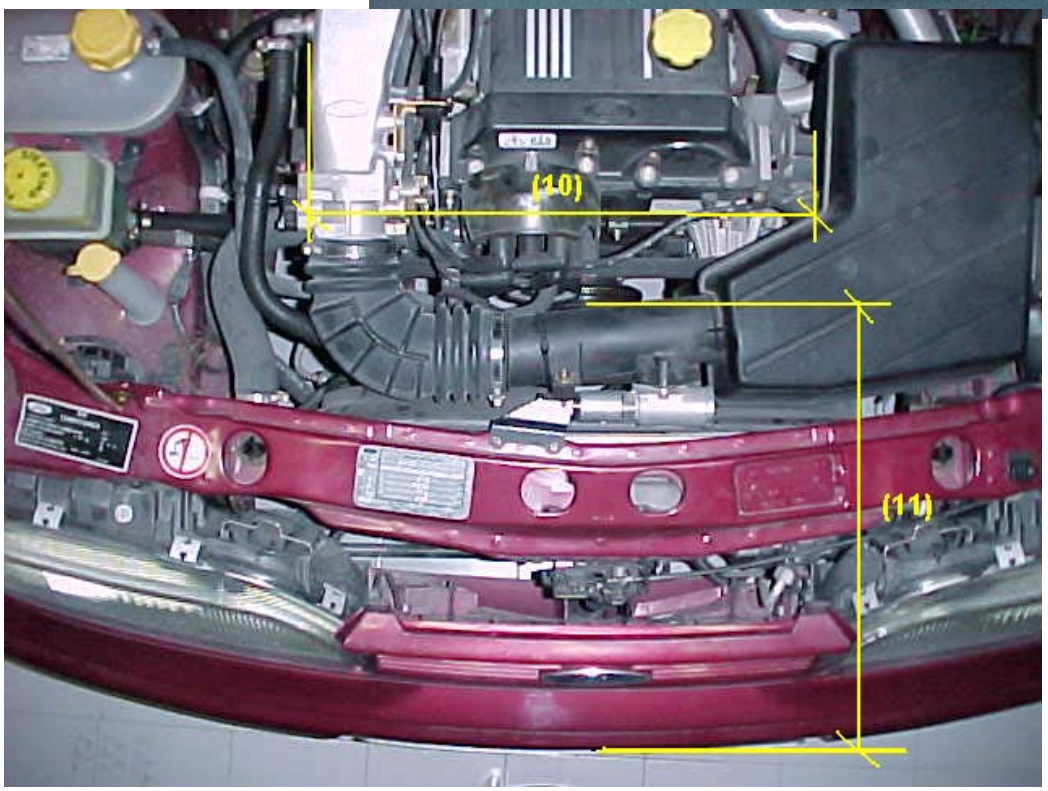


Figure 9.- Definition of the main resistant elements. Front elements (Longitudinal engine).

The procedure considered to measure these elements is described as follows, where it is indicated the location of these ones in the Excel Sheet (SURVEY.XLS) into brackets:

FRONT ELEMENTS

• **Total Length –(1)- (Side & Front Sheets - C column)**: distance between the point in the front bumper further on and the point in the rear bumper further back.

• **Weight (Side & Front Sheets - D column)**: mass, including an average driver weight (70 kg), and the fuel tank mass (at half-capacity).

• **Total Width –(2)- (Side & Front Sheets - E column)**: distance between the outer side points in a transverse plane of the vehicle (middle plane between the front and rear axles).

• **Bumper bottom height –(4)- (Front Sheet G column)**: distance between the ground and the lowest point on the front bumper, being a resistant member (aerodynamic elements under the front bumper are not considered).

• **Bumper top height –(3)- (Front Sheet H column)**: distance between the ground and the highest point on the front bumper, being a resistant member (aerodynamic elements are not considered).

• **Longitudinal member top height –(5)- (Front Sheet I column)**: distance between the ground and the highest point on the longitudinal members, measured approximately in the front bumper-longitudinal member joint (when accessible).

• **Longitudinal member bottom height –(6)- (Front Sheet J column)**: distance between the ground and the lowest point on the longitudinal members, measured approximately in the front bumper-longitudinal member joint.

• **Distance between longitudinal members (Front Sheet K column)**: transverse distance between extreme points in longitudinal members, measured approximately in the front bumper-longitudinal member joint.

Depending on the accessibility of these members, the extreme points are the inner points (I) or the outer points (O).

• **Longitudinal member width -7'- (Front Sheet L column)**: width of one of the longitudinal members, measured approximately in the front bumper-longitudinal member joint.

• **Engine top height (8) (Front Sheet N column)**: distance between the ground and the highest point on the engine that can be a resistant member in case of accident (usually, the highest point on the head, or the highest point of the inlet or exhaust manifolds).

• **Engine bottom height (9) (Front Sheet M column)**: distance between the ground and the lowest point on the engine (usually, the lowest point on the crankcase).

• **Engine and Gearbox width (10) (Front Sheet O & P columns)**:

- Transverse *configuration engine*: distance between extreme points in the gearbox-cylinder block unit or others resistant members attached to the cylinder block unit, i.e. fan belts (from a front point of view).

- *Longitudinal configuration engine*: distance between extreme points in the cylinder block unit (from a front point of view).

• **Front bumper - Engine distance (11) (Front Sheet Q column)**: distance between the point in the front bumper further on and the point in the engine further on that is a resistant element, i.e. the further on point of the exhaust manifold placed in the front of the engine.

• **Front shock absorber fixing width (14) (Front Sheet R column)**: transverse distance between the front shock absorber - body car joints.

• **Front shock absorber fixing height (12) (Front Sheet S column)**: distance between the ground and the front shock absorber-body car joint.

• **Bonnet leading edge height (Front Sheet T column)**: distance between the ground and the bonnet edge further on.

SIDE ELEMENTS

• **Front bumper - Front axle distance (15) (Side Sheet G column)**: distance between the point in the front bumper further on and the middle point in the front tyre-road contact patch.

• **Front axle - A Pillar distance (16) (Side Sheet H column)**: distance between the middle point in the front tyre-road contact patch and the point in the A-pillar further back.

• **A Pillar - B Pillar distance (17) (Side Sheet I column)**: distance between the point in the A-pillar further back and the middle point in the B-pillar.

• **B Pillar - C Pillar distance (19) (Side Sheet J column)**: distance between the middle point in the B-pillar and the point in the C-pillar further back (only 4/5-door vehicles).

• **B Pillar - Rear axle distance (18) (Side Sheet K column)**: distance between the middle point in the B-pillar and the middle point in the rear tyre-road contact patch.

• **Roof sill bottom height (20) (Side Sheet L column)**: distance between the ground and the lowest point on the roof sill, measured in the front door middle point.

• **Roof sill top height (21) (Side Sheet M column)**: distance between the ground and the highest point on the roof sill (usually located in the sill-roof joint), measured in the front door middle point.

• **Floor sill bottom height (22) (Side Sheet N column)**: distance between the ground and the lowest point on the floor sill, measured in the front door middle point.

• **Floor sill top height (23) (Side Sheet O column)**: distance between the ground and the highest point on the floor sill, measured in the front door middle point.

NOTE

- N/A: dimension not available.