

REPORT NUMBER: SPNCAP-KAR-15-025

**NEW CAR ASSESSMENT PROGRAM (NCAP)
SIDE IMPACT POLE TEST**

**BAYERISCHE MOTOREN WERKE AG
2015 MINI COOPER HARDTOP 3-DOOR HATCHBACK**

NHTSA No: M20154107

**PREPARED BY:
KARCO ENGINEERING, LLC.
9270 HOLLY ROAD
ADELANTO, CA 92301**



JANUARY 27, 2015

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
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15. Supplementary Notes																														
16. Abstract A 32.2 km/h (20 mph) 75° oblique impact Side NCAP Test was conducted on the subject 2015 Mini Cooper Hardtop 3-door hatchback in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. The test was conducted at the KARCO Engineering, LLC. facility in Adelanto, California on January 13, 2015. The impact velocity was 31.63 km/h and the outside ambient temperature at the struck (driver's) side of the vehicle was 16.7° C. The target vehicle's maximum post-test static crush was 295 mm located at level 3. The test vehicle's occupant performance data is as follows: <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th colspan="3">Driver ATD (SID-IIs)</th> </tr> <tr> <th>Units</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td></td> <td>1000</td> <td>315.2</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td>g</td> <td>82</td> <td>41</td> </tr> <tr> <td>Total Pelvic Force (Sum of Acetabular and Iliac Forces)</td> <td>N</td> <td>5525</td> <td>4057</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38</td> <td>19</td> </tr> <tr> <td>Maximum Abdominal Rib Deflection</td> <td>mm</td> <td>45</td> <td>17</td> </tr> </tbody> </table> The door on the struck side of the vehicle did not separate from the body at the hinges or latches. The opposite side door did not open during the side impact event.				Measurement Description	Driver ATD (SID-IIs)			Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)		1000	315.2	Resultant Lower Spine Acceleration	g	82	41	Total Pelvic Force (Sum of Acetabular and Iliac Forces)	N	5525	4057	Maximum Thoracic Rib Deflection	mm	38	19	Maximum Abdominal Rib Deflection	mm	45	17
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17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Admin. Technical Information Services Division, NPO-411 1200 New Jersey Ave., SE Washington, DC 20590 e-mail: tis@nhtsa.dot.gov FAX: 202-493-2833																												
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SECTION 1

TEST PURPOSE AND PROCEDURE

This side impact test is part of the MY 2015 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract number DTNH22-09-D-00122. The purpose of this test is to generate comparative side impact performance in a 2015 Mini Cooper Hardtop 3-door hatchback. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated September 2013.

SECTION 2

SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2015 Mini Cooper Hardtop 3-door hatchback. The subject vehicle was towed into the rigid pole at an angle of 74.4° and a velocity of 31.63 km/h. The test was conducted by KARCO Engineering, LLC. in Adelanto, California on January 13, 2015. Pre- and post-test photographs of the test vehicle and side impact dummy (SID-IIs) are included in Appendix A of this report.

One Part 572V (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side NCAP Pole Laboratory Test Procedure, dated September 2013. Camera locations and other pertinent camera information are included in this report.

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

- Primary and Redundant Head CG tri-axial accelerometers
- Thorax upper, middle and lower rib displacement potentiometers
- Abdomen upper and lower rib displacement potentiometers
- Lower spine (12) tri-axial accelerometers
- Iliac load cell
- Acetabulum load cell

Appendix B contains the vehicle and dummy response data. Dummy configuration and performance verification data can be found in Appendix C of this report. Appendix D contains the test equipment and instrumentation calibration data.

Injury readings for the SID-IIs dummy were recorded as follows:

Measurement Description	Units	Passenger ATD (SID-IIs)	
		IARV	Result
Head Injury Criteria (HIC ₃₆)		1000	315.2
Lower Spine (T12) Resultant Acceleration	g	82	41
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	4057
Maximum Thoracic Rib Deflection	mm	38*	19
Maximum Abdominal Rib Deflection	mm	45*	17

*Proposed IARV

Supplemental restraint information is given below:

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

GENERAL COMMENTS

The door on the struck side of the vehicle remained closed and latched. There was no separation at the hinges or latches. The door on the non-struck side remained closed and latched. There was no ATD injury value that exceeded its limit.

SECTION 3

OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback NHTSA No. M20154107
Test Program: NCAP Side Pole Impact Test Test Date: 01/13/15

CONVERSION FACTORS

Quantity	Typical Application	Std Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4536
Linear Velocity	Impact Velocity	miles/hr	km/hr	1.609344
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Volume	Small Fluids	oz	mL	29.574
Pressure	Tire Pressures	lbf/in ²	kPa	6.895
Temperature	General Use	°F	°C	$=(T_f - 32)/1.8$
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf-ft	N•m	1.355

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback NHTSA No. M20154107
 Test Program: NCAP Side Pole Impact Test Test Date: 01/13/15

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	M20154107
Model Year	2015
Make	Mini
Model	Cooper Hardtop
Body Style	3-Door Hatchback
VIN	WMWXM5C57FT973128
Body Color	Blazing Red Metallic
Odometer Reading (km / mi)	105 / 65
Engine Displacement (L)	1.5
Type / No. of Cylinders	Inline 3
Engine Placement	Transverse
Transmission Type	Manual
Transmission Speeds	6
Overdrive	Yes
Final Drive	Front
Roof Rack	No
Sunroof / T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
Anti-Lock Brakes (ABS)	Yes

Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks	Yes
Power Window Auto-Reverse	Yes
Other Optional Feature	None
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	Yes
Driver Torso/Pelvis Airbag	No
Driver Pelvis Airbag	No
Driver Knee Airbag	Yes
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Torso/Pelvis Airbag	No
Rear Pass. Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	No
Driver Load Limiter	Yes
Rear Pass. Load Limiter	No
Other Safety Restraint	None

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

Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Bayerische Motoren Werke AG
Date of Manufacture	Jul-14
Vehicle Type	Passenger Car

GVWR (kg)	1567
GAWR Front (kg)	871
GAWR Rear (kg)	755

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity	2	2		4	
Capacity Weight (VCW) (kg)				305.0	A
DSC x 68.04 (kg)				272.2	B
Cargo Weight (RCLW) (kg)				32.8	A-B

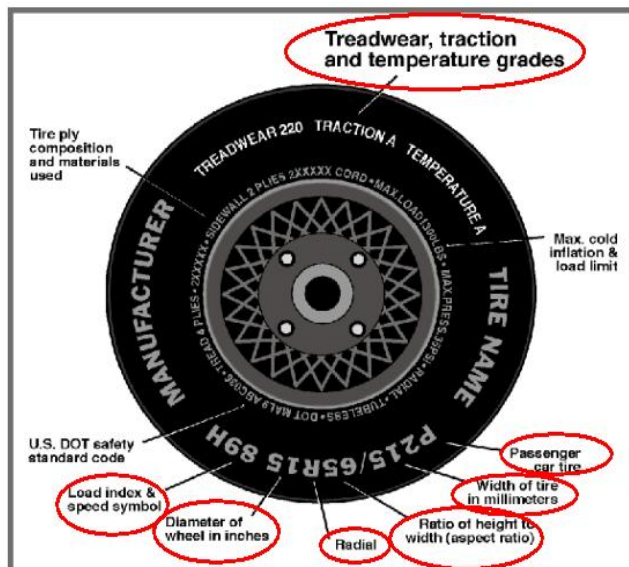
VEHICLE SEAT TYPE

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

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback NHTSA No. M20154107
 Test Program: NCAP Side Pole Impact Test Test Date: 01/13/15



Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	350	350
Cold Pressure (kPa)	240	240
Recommended Tire Size	175/65R15	175/65R15
Tire Size on Vehicle	175/65R15	175/65R15
Tire Manufacturer	Michelin	Michelin
Tire Model	Energy Saver	Energy Saver
Treadware	400	400
Traction Grade	A	A
Temperature Grade	A	A
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 1 Polyamide	1 Polyester, 2 Steel, 1 Polyamide
Load Index/Speed Symbol	84H	84H
Tire Material	Polyester, Steel, Polyamide	Polyester, Steel, Polyamide
DOT Safety Code Left	FT4E 00FX 2514	FT4E 00FX 2514
DOT Safety Code Right	FT4E 00FX 2514	FT4E 00FX 2514

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback NHTSA No. M20154107
 Test Program: NCAP Side Pole Impact Test Test Date: 01/13/15

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	240	240	240	240
Tire Placard	kPa	240	240	240	240
Owner's Manual	kPa	240	240	240	240
As Tested	kPa	240	240	240	240

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	357.5	217.5		366.0	252.0		362.0	241.5	
Right	kg	373.5	231.0		371.0	265.5		387.5	270.5	
Ratio	%	62.0%	38.0%	100.0%	58.7%	41.3%	100.0%	59.4%	40.6%	100.0%
Total	kg	731.0	448.5	1179.5	737.0	517.5	1254.5	749.5	512.0	1261.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1254.5	A
Actual Weight of 1 P572 O ATD Used	kg	49.0	B
Rated Cargo/Luggage Wt (RCLW)	kg	32.8	C
Calculated Vehicle Target Wt (TVTWT)	kg	1261.3	A+B+C

Does the measured As Tested Vehicle Weight lie within the required weight range (i.e.

Calculated Test Vehicle Target Weight -4.5 kg to -9.0 kg)? ☒ Yes ☐ No

TEST VEHICLE ATTITUDE AND CG

Measurement Description	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	°	-1.7	-1.3	-1.3	Yes
Front Passenger Sill Angle (front-to-rear)*	°	-1.5	-1.2	-1.1	Yes
Front Bumper-Line Angle (left-to-right)**	°	0.0	-0.1	-0.1	Yes
Rear Bumper-Line Angle (left-to-right)**	°	-0.3	-0.2	0.0	Yes
Vehicle CG (Aft of Front Axle)	mm	949	1030	1013	
Vehicle CG (Left (+)/Right (-) from Longitudinal Centerline)	mm	-19	-11	-32	

*ND=Nose Down (-), NU=Nose Up (+) **LD=Left Down (-), LU=Left Up (+)

***The "As Tested" vehicle attitude angle measurements must be within "As Delivered" and the "Fully Loaded" vehicle attitude measurements at each location. Indicate "Yes" or "No" for "Meets Requirement"

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

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback NHTSA No. M20154107
Test Program: NCAP Side Pole Impact Test Test Date: 01/13/15

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Headlights	5.0
Spare Tire Tools	3.5
Rear Trim	1.0
Front Bumper Fascia	7.5
Taillights	3.0
Rear Bumper Fascia	2.5
Front Brake Calipers	11.0
Non-Struck Side Rear Window	2.0
Ballast / Equipment Added	57.5

Test Height Adjustable Setting (If Applicable)	
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DATA SHEET NO. 2**SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA**

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback NHTSA No. M20154107
 Test Program: NCAP Side Pole Impact Test Test Date: 01/13/15

SEAT POSITIONING

The driver's seat, front center seat (if applicable), and front passenger's seat should be set to the forward most, mid-height, mid-angle position. The struck side rear passenger's seat, rear center seat, and non-struck side rear passenger's seat should be set to the rear most, lowest, mid-angle position.

SCRL ANGLE RANGE

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	4.8	0.0	2.4
Front Passenger Seat	4.5	0.0	2.3
Front Center Seat			
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat			
Rear Center Seat	Fixed	Fixed	Fixed

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle	As Tested SCRP	SCRP Height	SCRP Height (mm)		
				Rearmost	Mid Fore/Aft	Forwardmost
Driver Seat	2.4	493	Max	474	483	493
			Mid	474	483	493
			Min	474	483	493
Front Passenger Seat	2.3	501	Max	483	492	501
			Mid	483	492	501
			Min	483	492	501
Front Center Seat			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat			Max			
			Mid			
			Min			
Rear Center Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed

DATA SHEET NO. 2 ... (CONTINUED)

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback

NHTSA No. M20154107

Test Program: NCAP Side Pole Impact Test

Test Date: 01/13/15

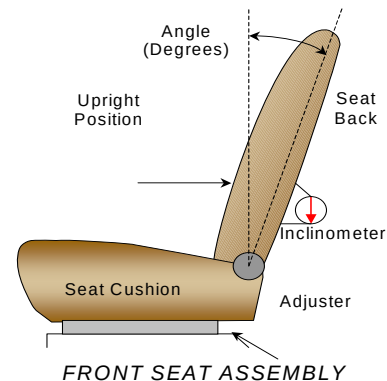
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position From Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	250	26	0	0
Front Passenger Seat	251	26	0	0
Front Center Seat				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat				
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

*Detent zero (0) is the forward most detent

SEAT BACK ADJUSTMENT

The driver's seat back is positioned such that the dummy's head is level. The front center and front passenger's seat backs are positioned in a similar manner to the driver's seat. The struck side rear passenger seat back is positioned in accordance with the information provided by the manufacturer in Form 1 for the 5th percentile female dummy in a Side NCAP MDB Test. The rear center and non-struck side rear passenger's seat back is set to match the struck side rear seat back. Seat back angle is measured at the seat back.



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degree	Detent*
Driver Seat w/Seated Dummy	35.0	28	11.0	2
Front Passenger Seat	33.8	28	10.9	2
Front Center Seat				
Struck Side Rear Seat w/Seated Dummy	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat				
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

*Detent zero (0) is the forward most detent

DATA SHEET NO. 2 ... (CONTINUED)

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback NHTSA No. M20154107
Test Program: NCAP Side Pole Impact Test Test Date: 01/13/15

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1. The positions are marked H, M1, ..., L from top to bottom.

	Total No. of Positions	Placed in Position
Driver Seat	Fixed	Fixed

HEAD RESTRAINT ADJUSTMENT

The driver's head restraint is adjusted to the lowest and most full forward in-use position.

	Total No. of Positions	Placed in Position
Driver Seat	5	Full Down

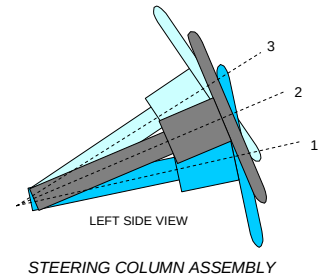
DATA SHEET NO. 2 ... (CONTINUED)

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback NHTSA No. M20154107
Test Program: NCAP Side Pole Impact Test Test Date: 01/13/15

STEERING COLUMN ADJUSTMENT

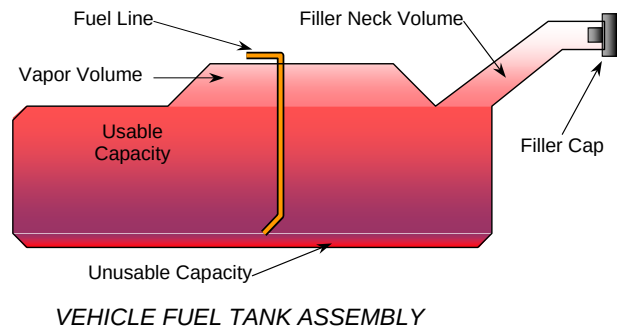
Steering wheel and column adjustments are made so that the steering wheel hub is at the center of the geometric locus it describes when it moves through its full range of motion.



	Degrees	Fore-Aft Position (mm)
Lowermost - Position 1	18.0	162
Geometric Center - Position 2	20.2	192
Uppermost - Position 3	22.5	222
Telescoping Steering Wheel Travel		60
Test Position	20.2	192

FUEL PUMP

The vehicle is equipped with an electric fuel pump. The fuel pump starts when the ignition is turned on. The fuel pump will operate for 5 seconds until pressure has been built up. The fuel pump will then switch to sleep mode until the engine is started or pressure decreases.



FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	40.12
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of "Standard Tank" (see Owner's Manual)	
Usable Capacity of "Optional Tank" (see Owner's Manual)	
93% of Usable Capacity	37.31
Actual amount of Solvent Used in Test	37.31
1/3 of Usable Capacity	13.37

Is the Actual Amount of Solvent Used in the test equal to 93% $\pm$ 1% of the Usable Capacity stated in the Form No. 1? ☒ Yes ☐ No

DATA SHEET NO. 3

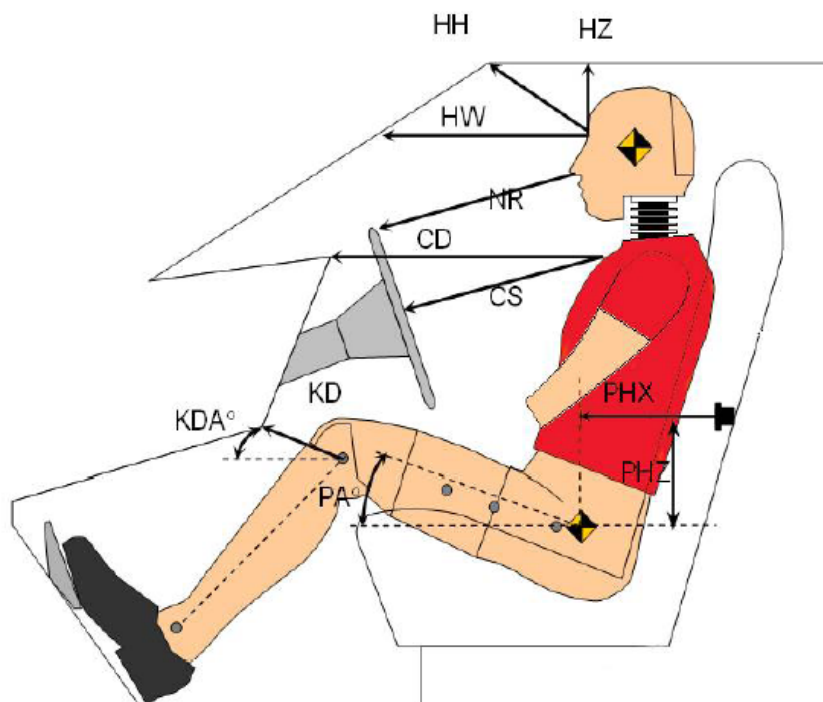
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback

NHTSA No. M20154107

Test Program: NCAP Side Pole Impact Test

Test Date: 01/13/15



Driver Code	Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	486	
HW	Head to Windshield	727	
HZ	Head to Roof	284	
NR	Nose to Rim	240	
CD	Chest to Dash	437	
CS	Chest to Steering Wheel	169	
KD(L)/KDA(L)°	Left Knee to Dash	155	36.4
KD(R)/KDA(R)°	Right Knee to Dash	110	34.3
PAX°	Pelvic Tilt Angle (x-axis)		19.1
PAY°	Pelvic Tilt Angle (y-axis)		0.4
PHX	Hip Point to Striker (x-axis)	469	
PHZ	Hip Point to Striker (z-axis)	201	

DATA SHEET NO. 4

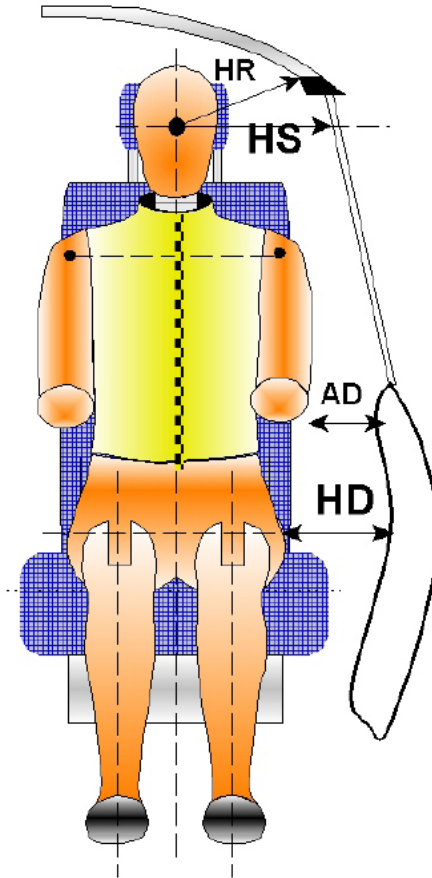
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback

NHTSA No. M20154107

Test Program: NCAP Side Pole Impact Test

Test Date: 01/13/15

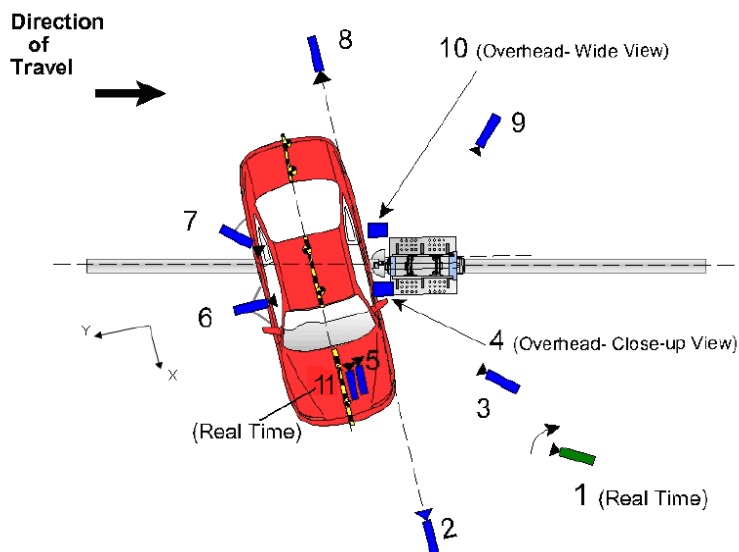


Code	Measurement Description	Units	Driver
HR	Head to Side Header	mm	246
HS	Head to Side Window	mm	324
AD	Arm to Door	mm	160
HD	Hip Point to Door	mm	174

DATA SHEET NO. 5

CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback NHTSA No. M20154107
 Test Program: NCAP Side Pole Impact Test Test Date: 01/13/15



Reference from Point of Impact for X and Y; from Ground for Z):
 +X = Forward of Vehicle, +Y = Right of Vehicle, +Z = Down

Camera No.	View	Coordinates (m)			Lens (mm)	Film Speed (fps)
		X*	Y*	Z*		
1	Real Time Pan View of Impact	8.89	46.57	-3.04		30
2	Front Ground Level - Impact View	8.34	-0.05	-0.93	24	1000
3	Impact Side 45° - Forward Pole View	4.10	-2.15	-1.15	8.5	1000
4	Overhead Close-Up View of Impact	0.00	0.00	-5.79	12.5	1000
5	On-Board - Dummy Front View	1.51	0.58	-1.33	35	1000
6	On-Board - Dummy Side View	-0.07	1.63	-1.05	14	1000
7	On-Board - Dummy Rear Oblique View	-0.98	1.56	-1.08	20	1000
8	Rear Ground Level - Impact View	-6.12	-6.23	-0.96	24	1000
9	Impact Side 45° - Rearward Pole View	-8.02	0.04	-1.01	35	1000
10	Overhead Wide View of Impact	-0.06	0.22	-5.79	14	1000
11	Real Time Dummy Front View	1.56	0.65	-1.36		30

*All measurements accurate to ± 6 mm

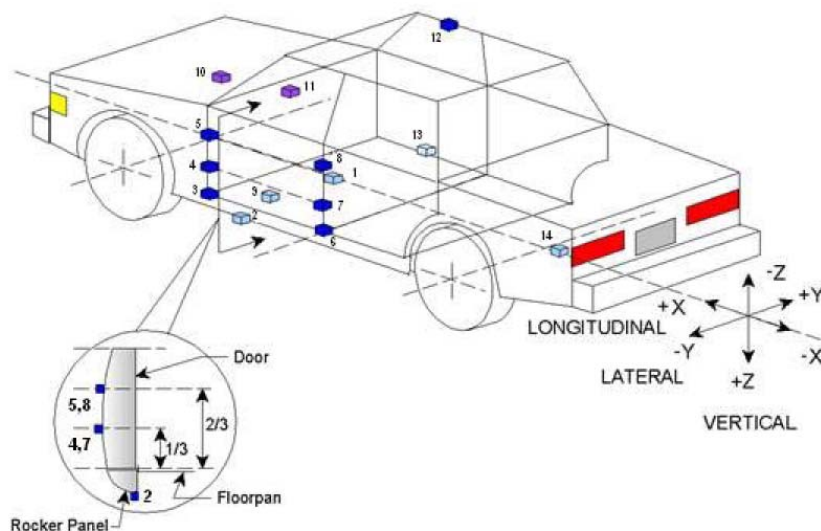
INSTRUMENTATION

Driver Dummy Channels	16
Vehicle Structure Accelerometers	15
Pole Load Cells	8
Total	39

DATA SHEET NO. 6

TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback NHTSA No. M20154107
 Test Program: NCAP Side Pole Impact Test Test Date: 01/13/15



Loc. No.	Sensor Description	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	1447	65	-299
2	Left Floor Sill	2341	-698	-173
3	A-Pillar Sill	2548	-769	-385
4	A-Pillar Low	2548	-769	-492
5	A-Pillar Mid	2548	-769	-764
6	B-Pillar Sill			
7	B-Pillar Low			
8	B-Pillar Mid			
9	Driver Seat Track	1672	-140	-252
10	Engine Top	3253	21	-804
11	Firewall	2749	-350	-832
12	Right Roof	1624	481	-1381
13	Right Floor Sill	1387	618	-286
14	Rear Floorpan	612	0	-525

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

DATA SHEET NO. 7

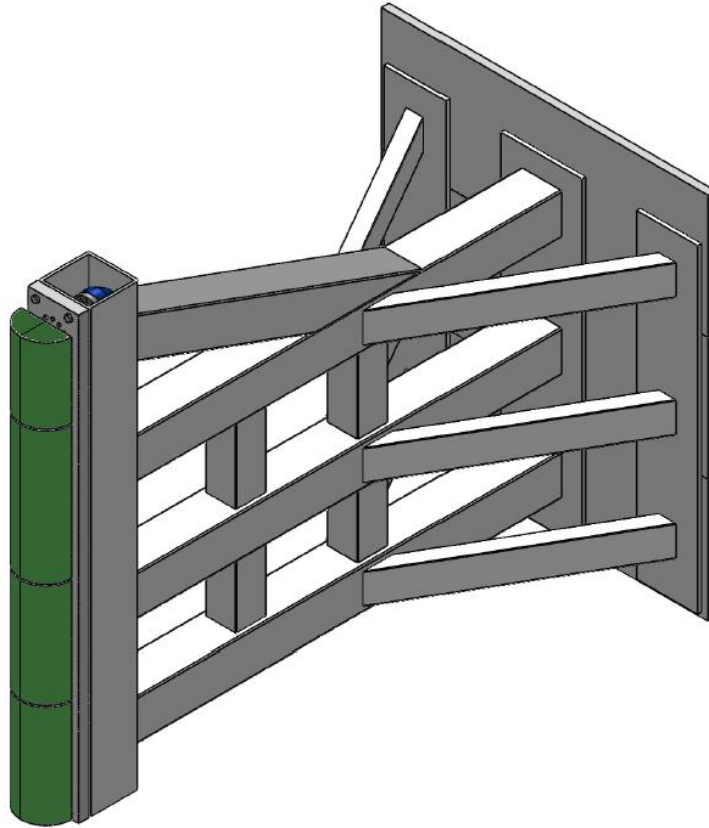
RIGID POLE LOAD CELL DATA

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback

NHTSA No. M20154107

Test Program: NCAP Side Pole Impact Test

Test Date: 01/13/15



ID	Units	Height From Ground
1	mm	87
2	mm	468
3	mm	648
4	mm	978
5	mm	1168
6	mm	1651
7	mm	1816
8	mm	2057

DATA SHEET NO. 8**POST-TEST OBSERVATIONS**Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback NHTSA No. M20154107Test Program: NCAP Side Pole Impact Test Test Date: 01/13/15**TEST DUMMY INFORMATION AND CONTACT POINTS**

Dummy Body Part	Driver SID-IIs Dummy
Face	Curtain Airbag
Top of Head	Curtain Airbag, Headrest
Left Side of Head	Curtain Airbag
Back of Head	Headrest, Seat Back
Left Shoulder	Seat, Torso Airbag, Door Panel
Upper Torso	Seat
Lower Torso	Seat, Torso Airbag
Left Hip	Seat, Torso Airbag, Door Panel
Left Knee	Door Panel, Right Knee

POST-TEST DOOR PERFORMANCE

Description	Struck Side		Non-Struck Side		Rear Hatch/Other Door
	Front	Rear	Front	Rear	
Remained Closed and Operational	No	No	Yes	Yes	Yes
Total Separation from Vehicle at Hinges or Latches	No	No	No	No	No
Latch or Hinge System Pulled Out of Their Anchorages	No	No	No	No	No
Disengaged from Latched Position	No	No	No	No	No
Latch Separated from Striker	No	No	No	No	No
Jammed Shut	Yes	Yes	No	No	No
If Door Opened at Striker, Record Width of Opening at Striker (mm)	N/A	N/A	N/A	N/A	N/A

POST-TEST SEAT PERFORMANCE

Description	Struck Side		Non-Struck Side	
	Front	Rear	Front	Rear
Seat Movement Along Seat Track	No	No	No	No
Seat Disengagement from Floor Pan	No	No	No	No
Seat Back Movement from Initial Position	No	No	No	No
Seat Back Collapse	No	No	No	No

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No separation occurred
Sill Separation	No separation occurred
Windshield Damage	Broken
Side Window Damage	Left front window broken
Other Notable Effects	None

DATA SHEET NO. 8 ... (CONTINUED)**POST-TEST OBSERVATIONS**Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback NHTSA No. M20154107Test Program: NCAP Side Pole Impact Test Test Date: 01/13/15**SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION**

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

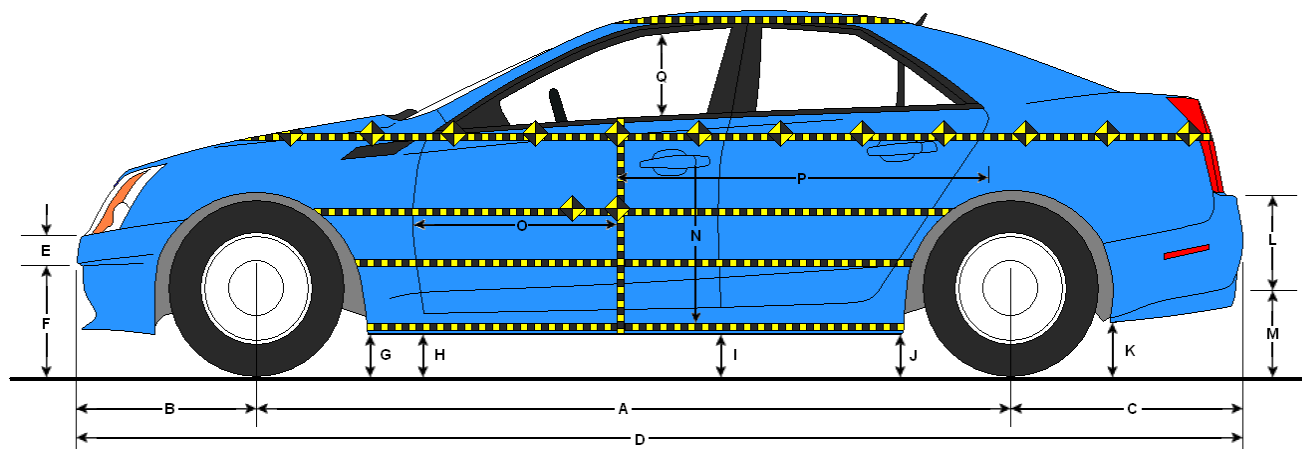
IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle)(Intended Impact Point)	mm		1181
Actual Impact Point (Aft of Front Axle)	mm		1161
Horizontal Offset (+ forward / - rearward)	mm	± 38 of Intended Impact Point	20
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	°	75 ± 3	74.4
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	31.63
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	31.66

DATA SHEET NO. 9

TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback NHTSA No. M20154107
 Test Program: NCAP Side Pole Impact Test Test Date: 01/13/15



LEFT SIDE VIEW

All measurements in mm with tolerance of ± 3 mm

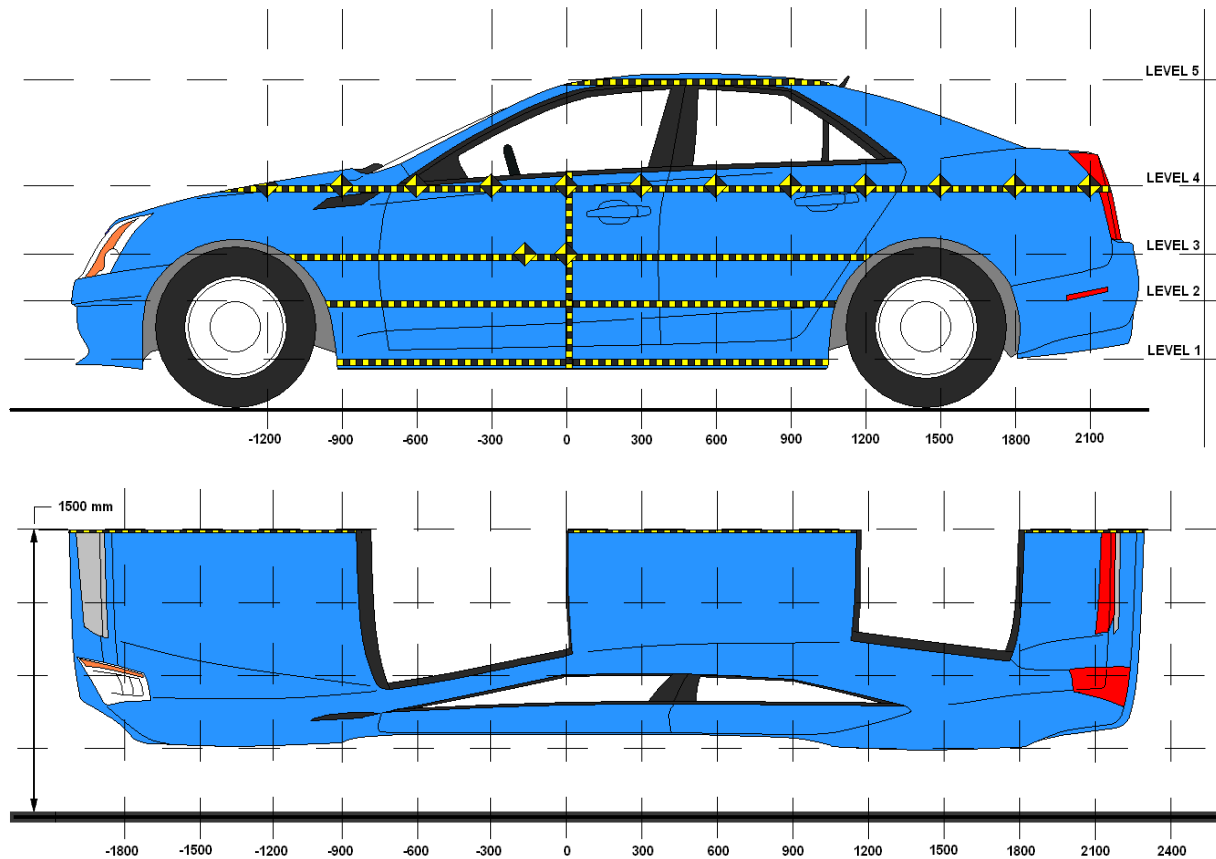
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2496	2433	-63
B	Front Axle to FSOV	737	752	15
C	Rear Axle to RSOV	561	583	22
D	Total Length at Centerline	3795	3769	-26
E	Front Bumper Thickness	109	108	-1
F	Front Bumper Bottom to Ground	424	434	10
G	Sill Height at Front Wheel Well	168	167	-1
H	Sill Height at Front Door Leading Edge	168	164	-4
I	Sill Height at B-Pillar	197	214	17
J1	Sill Height at Rear Wheel Well	201	220	19
J2	Pinch Weld Height at Rear Wheel Well	178	183	5
K	Sill Height Aft of Rear Wheel Well	432	441	9
L	Rear Bumper Thickness	94	93	-1
M	Rear Bumper Bottom to Ground	430	437	7
N	Sill Height to Bottom of Front Window Sill	631	634	3
O	Front Door Leading Edge to Impact CL	667	608	-59
P	Rear Door Trailing Edge to Impact CL	2006	580	-1426
Q	Front Window Opening	384	380	-4
R	Right Side Length	3067	3075	8
S	Left Side Length	3068	3003	-65
T	Vehicle Width at B-Pillar	1692	1667	-25

DATA SHEET NO. 10

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback NHTSA No. M20154107
 Test Program: NCAP Side Pole Impact Test Test Date: 01/13/15



NOTE: All measurements in mm with tolerance of $\pm 3\text{mm}$

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Description	Height Above Ground (mm)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	307	258	0
2	Occupant H-Point	519	278	0
3	Mid-Door	641	295	0
4	Window Sill	921	232	0
5	Window Top	1359	82	0

DATA SHEET NO. 10 ... (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback NHTSA No. M20154107
 Test Program: NCAP Side Pole Impact Test Test Date: 01/13/15

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

	Pre-Test (mm)					Post-Test (mm)					Difference (mm)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900			651	806				671	818				20	12	
-750	681	660	658	784		710	690	685	807		29	30	27	23	
-600	683	666	659	761		736	713	704	791		53	47	45	30	
-450	679	667	658	751		771	765	760	797		92	98	102	46	
-300	675	666	657	741		813	828	820	847		138	162	163	106	
-150	672	665	655	736	973	865	887	887	898	1011	193	222	232	162	38
0	669	664	654	728	958	927	942	949	960	1040	258	278	295	232	82
150	667	664	654	725	953	856	900	904	914	1027	189	236	250	189	74
300	666	664	654	719	949	781	812	827	849	1007	115	148	173	130	58
450	666	664	654	718	948	728	767	756	791	993	62	103	102	73	45
600	669	665	655	717	949	709	713	679	758	984	40	48	24	41	35
750	671	662	655	719	950	704	699	699	755	979	33	37	44	36	29
900	670	657	653	719	958	691	679	686	749	981	21	22	33	30	23
1050			648	723	973			668	747	990			20	24	17
1200			646	728	995			662	748	1010			16	20	15
1350				738					754					16	
1500				757					767					10	
1650															
1800															
1950															
2100															
2250															
2400															
2550															
2700															
2850															

DATA SHEET NO. 10 ... (CONTINUED)

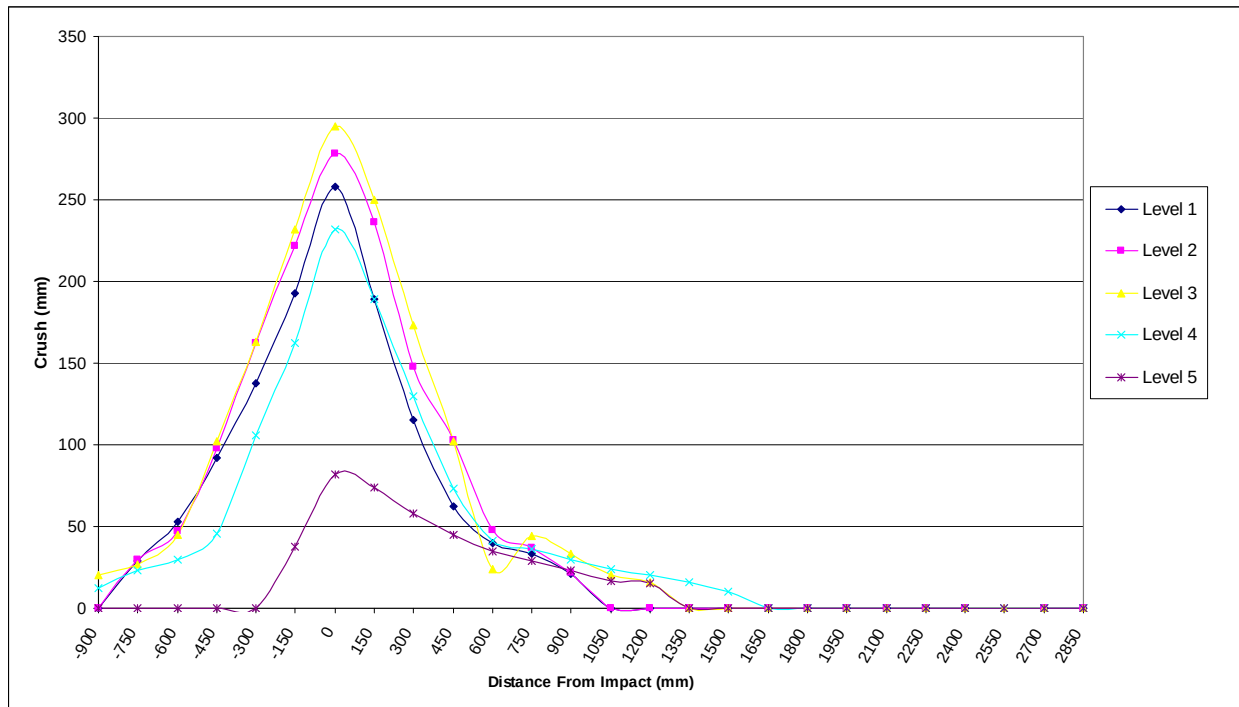
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback

NHTSA No. M20154107

Test Program: NCAP Side Pole Impact Test

Test Date: 01/13/15

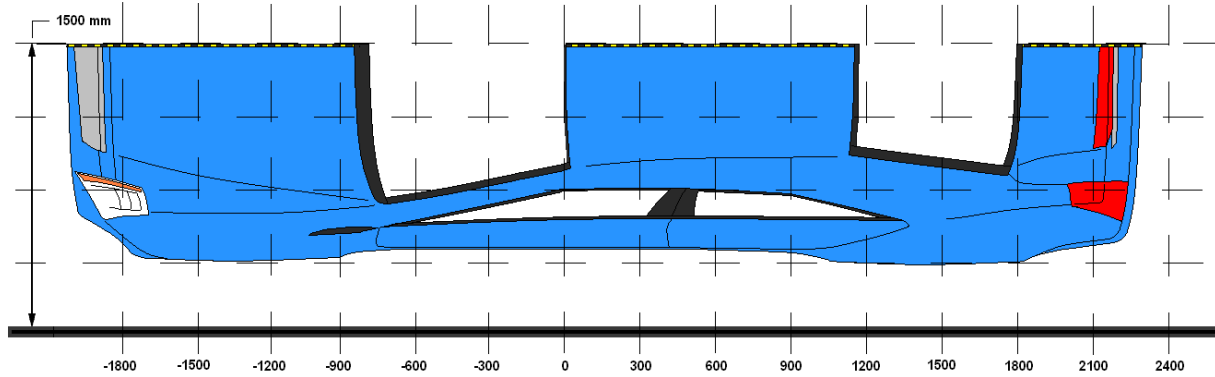


DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback NHTSA No. M20154107

Test Program: NCAP Side Pole Impact Test Test Date: 01/13/15



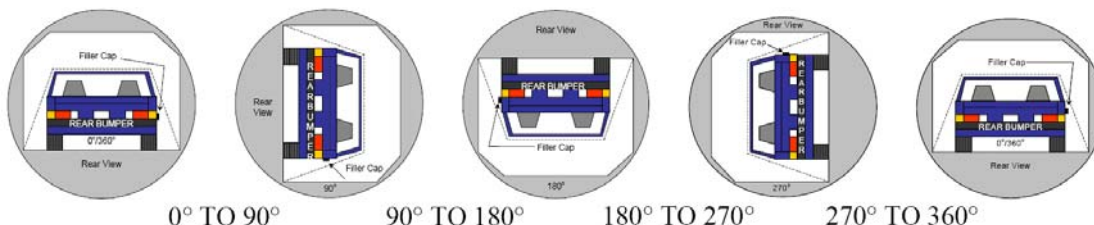
DPD	Distance From Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Crush (mm)
1	1500	4	757	767	10
2	900	3	653	686	33
3	450	2	664	767	103
4	0	3	654	949	295
5	-450	3	658	760	102
6	-900	3	651	671	20

DATA SHEET NO. 12

FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback NHTSA No. M20154107
 Test Program: NCAP Side Pole Impact Test Test Date: 01/13/15
 Temperature at Time of Impact: 16.7° C Test Time: 3:17 PM

- A. From impact until vehicle motion ceases: 0 oz.
 (Maximum allowable = 1 oz.)
- B. For the 5 minute period after motion ceases: 0 oz.
 (Maximum allowable = 5 oz.)
- C. For the following 25 minutes: 0 oz.
 (Maximum allowable = 1 oz./minute)
- D. Spillage Details: There was no Stoddard solvent spillage.



SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	85	300	385
90° To 180°	81	300	381
180° To 270°	79	300	379
270° To 360°	83	300	383

FMVSS 301 SPILLAGE TABLE

Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0° To 90°	0			
90° To 180°	0			
180° To 270°	0			
270° To 360°	0			

SOLVENT SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0° To 90°	No Spillage Occurred
90° To 180°	No Spillage Occurred
180° To 270°	No Spillage Occurred
270° To 360°	No Spillage Occurred

DATA SHEET NO. 13

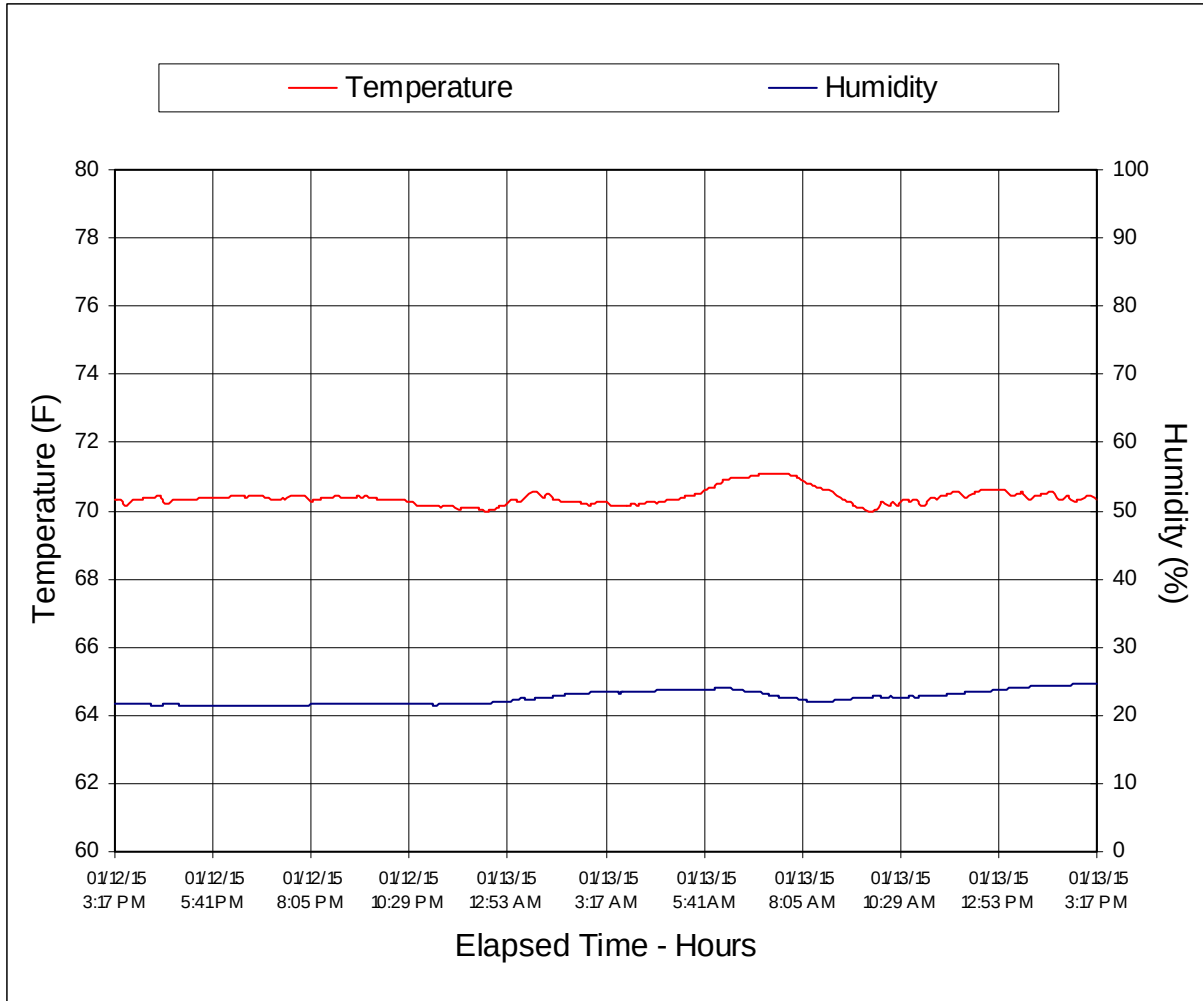
DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback

NHTSA No. M20154107

Test Program: NCAP Side Pole Impact Test

Test Date: 01/13/15



APPENDIX A
PHOTOGRAPHS

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FIGURE 1. As-Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



FIGURE 2. As-Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle



FIGURE 3. Pre-Test Frontal View of Test Vehicle



FIGURE 4. Post-Test Frontal View of Test Vehicle



FIGURE 5. Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle



FIGURE 6. Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle



FIGURE 7. Pre-Test Left Side View of Test Vehicle



FIGURE 8. Post-Test Left Side View of Test Vehicle



FIGURE 9. Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



FIGURE 10. Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



FIGURE 11. Pre-Test Rear View of Test Vehicle



FIGURE 12. Post-Test Rear View of Test Vehicle



FIGURE 13. Pre-Test Right Side View of Test Vehicle



FIGURE 14. Post-Test Right Side View of Test Vehicle

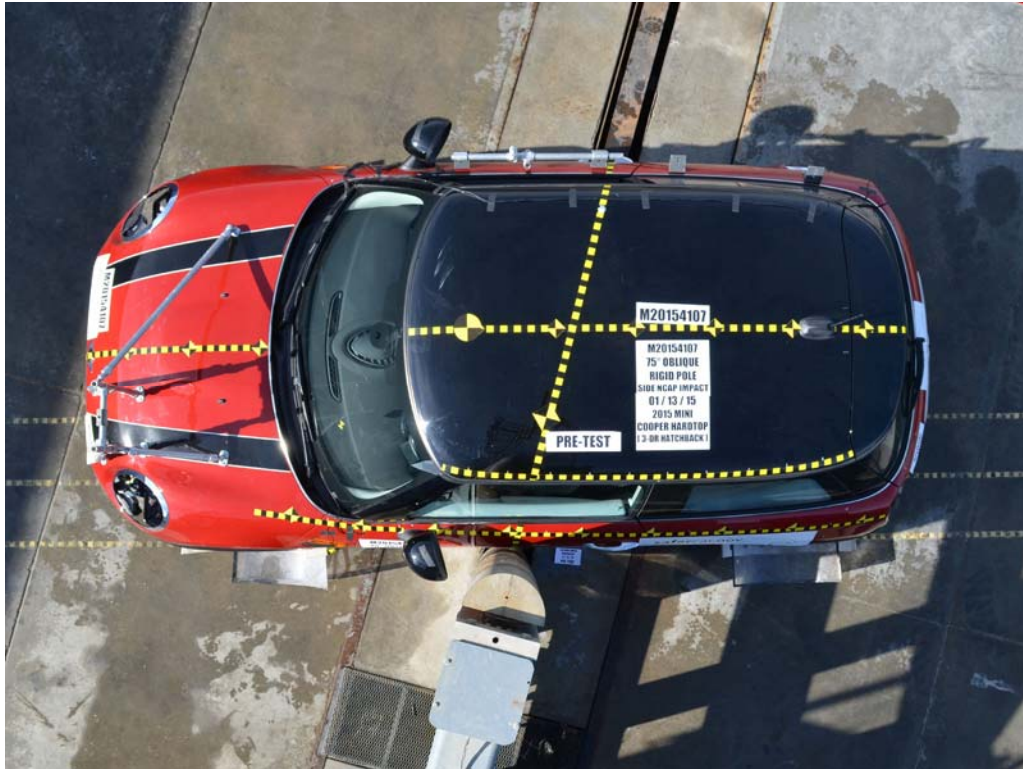


FIGURE 15. Pre-Test Overhead View of Test Area



FIGURE 16. Post-Test Overhead View of Test Area



FIGURE 17. Pre-Test Left Side View of Pole
Positioned Against Side of Vehicle



FIGURE 18. Pre-Test Right Side View of Pole
Positioned Against Side of Vehicle



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



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



FIGURE 21. Pre-Test Front Close-Up View of Dummy Head and Chest



FIGURE 22. Post-Test Front Close-Up View of Dummy



FIGURE 23. Pre-Test Left Side View of Dummy
Showing Belt and Chalking



FIGURE 24. Pre-Test Left Side View of Dummy Shoulder and Door Top View



FIGURE 25. Post-Test Left Side View of Dummy Shoulder and Door Top View



FIGURE 26. Pre-Test Frontal View of Seat Back Prior to Dummy Positioning



FIGURE 27. Pre-Test Frontal Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint



FIGURE 28. Pre-Test Overhead View of Seat Pan Prior to Dummy Positioning



FIGURE 29. Pre-Test Overhead View of Dummy Thighs on Seat Pan



FIGURE 30. Pre-Test Left Side View of Dummy's Neck
Showing Position of Adjustable Neck Bracket

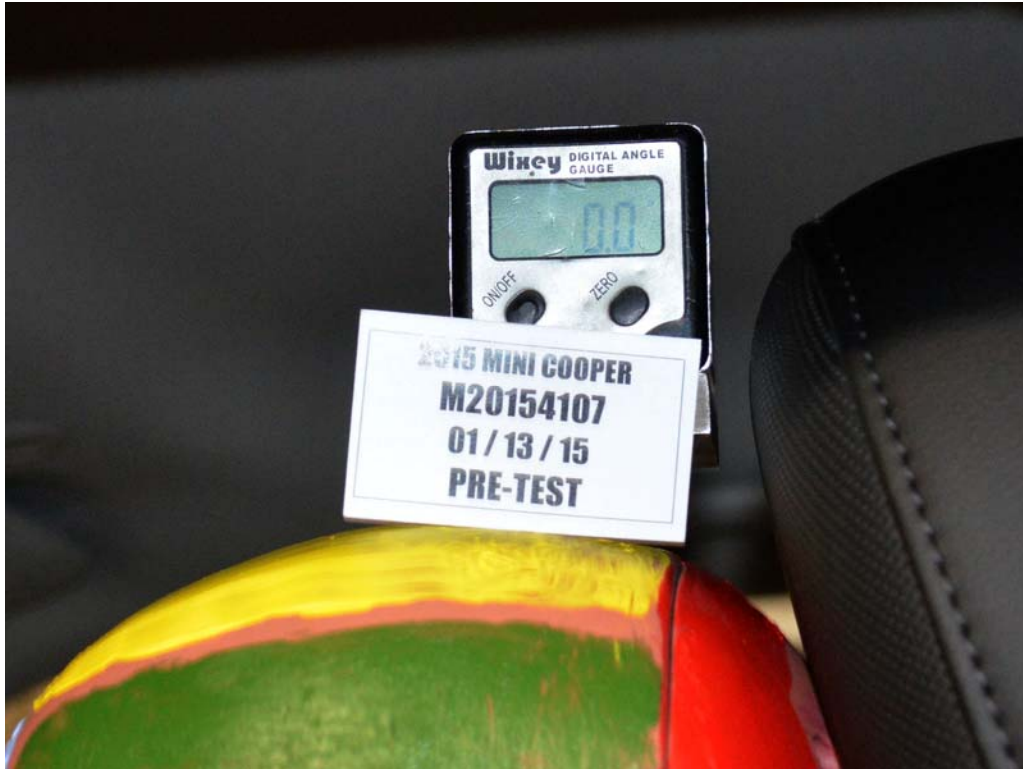


FIGURE 31. Pre-Test Left Side View of Dummy's Head Showing Head is Level



FIGURE 32. Pre-Test Placement of Dummy's Feet



FIGURE 33. Pre-Test View of Belt Anchorage for Dummy



FIGURE 34. Pre-Test Left Side View of Steering Wheel



FIGURE 35. View of Disengaged Parking Brake

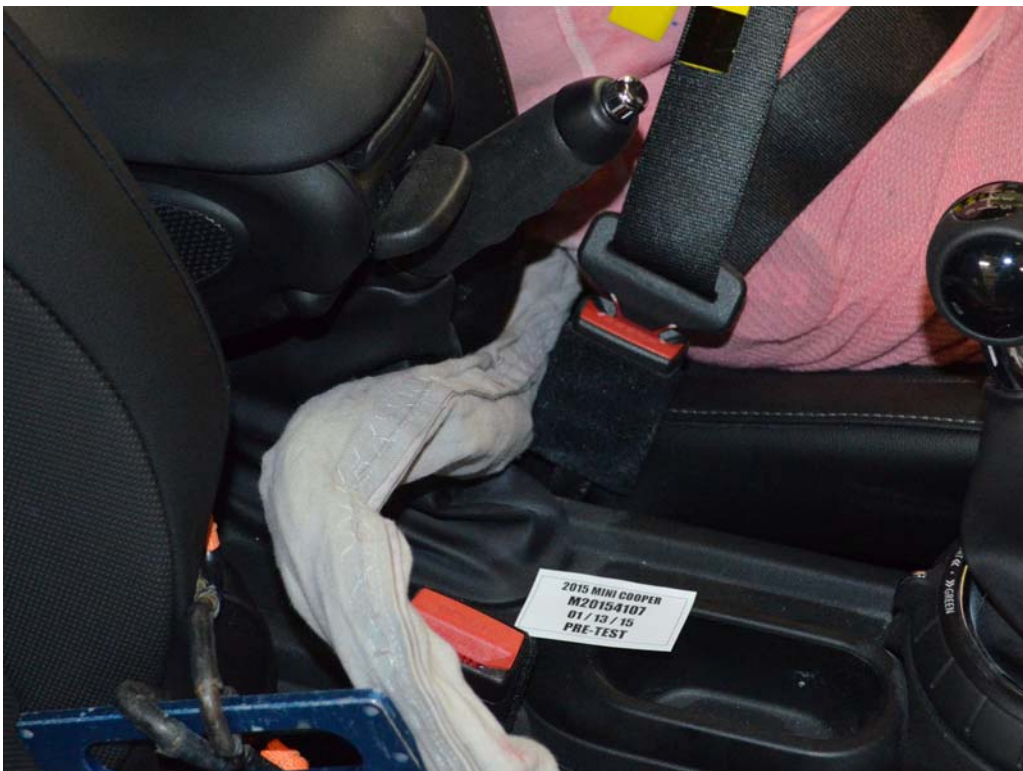


FIGURE 36. Pre-Test View of Parking Brake



FIGURE 37. Pre-Test Close-Up Left Side View of Driver Seat Track



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



FIGURE 39. Pre-Test Close-Up View of Driver Seat Back or Head Restraint



FIGURE 40. Pre-Test Dummy and Door Clearance View



FIGURE 41. Post-Test Dummy and Door Clearance View



FIGURE 42. Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment



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

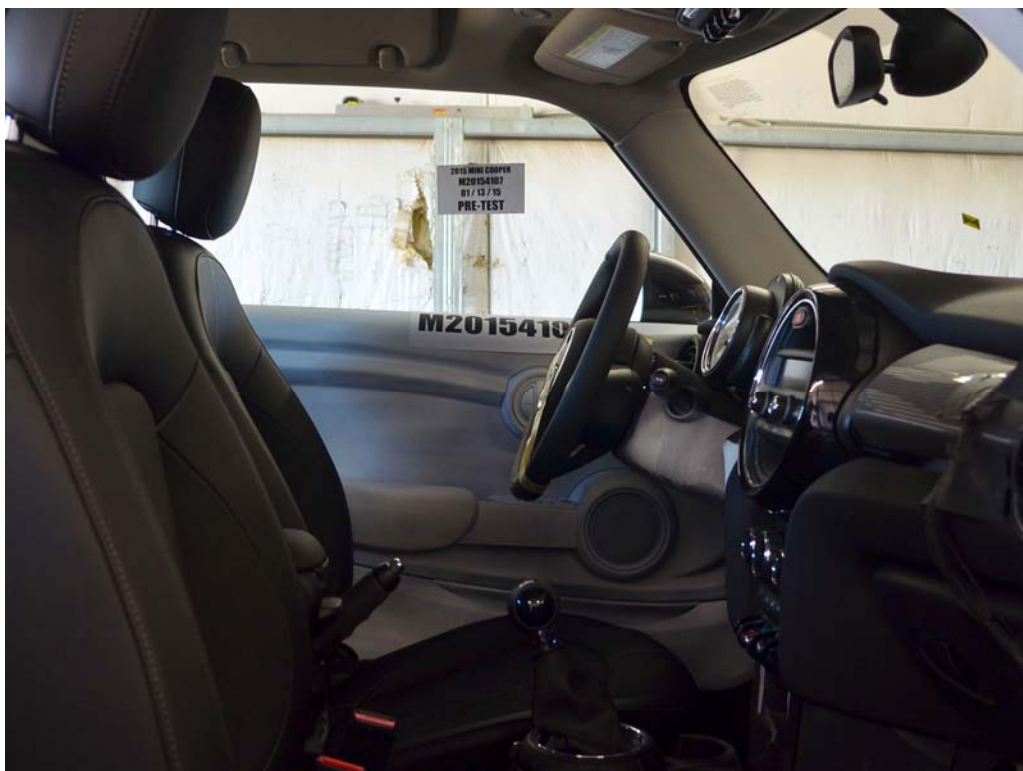


FIGURE 44. Pre-Test Inner Door Panel View



FIGURE 45. Post-Test Inner Door Panel View
Showing Dummy Contact Locations



FIGURE 46. Post-Test Dummy Close-Up Head Contact with Vehicle Interior View

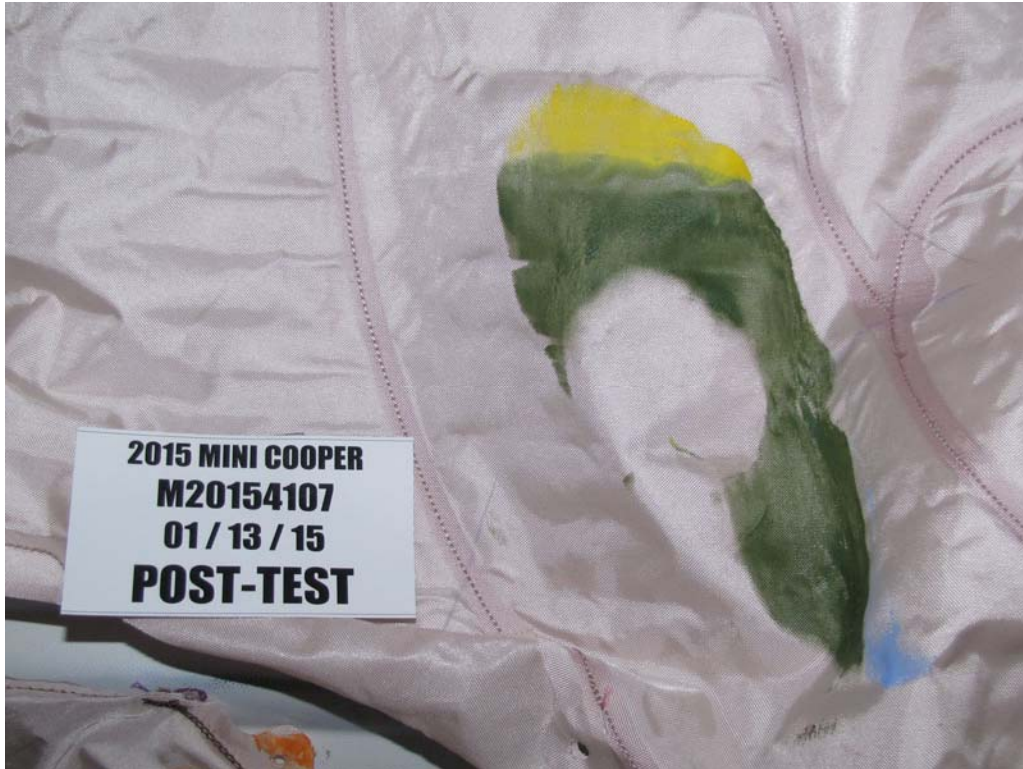


FIGURE 47. Post-Test Dummy Close-Up Head Contact With Side Airbag View



FIGURE 48. Post-Test Dummy Close-Up Torso Contact With Vehicle Interior View



FIGURE 49. Post-Test Dummy Close-Up Torso Contact With Side Airbag View



FIGURE 50. Post-Test Dummy Close-Up Pelvis Contact With Vehicle Interior View



FIGURE 51. Post-Test Dummy Close-Up Pelvis Contact With Side Airbag View



FIGURE 52. Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View



FIGURE 53. Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



FIGURE 54. Post-Test View of Fuel Filler Cap or Fuel Filler Neck



FIGURE 55. Close-Up View of Vehicle's Certification Label



FIGURE 56. Close-Up View of Vehicle's Tire Information Placard or Label



FIGURE 57. Pre-Test Pole Barrier Front View



FIGURE 58. Post-Test Pole Barrier Front View



FIGURE 59. Pre-Test Pole Barrier Side View



FIGURE 60. Post-Test Pole Barrier Side View



FIGURE 61. Pre-Test Ballast View



FIGURE 62. Post-Test Primary and Redundant Speed Trap Read-Out



FIGURE 63. FMVSS No. 301 Static Rollover 0 Degrees



FIGURE 64. FMVSS No. 301 Static Rollover 90 Degrees



FIGURE 65. FMVSS No. 301 Static Rollover 180 Degrees



FIGURE 66. FMVSS No. 301 Static Rollover 270 Degrees



FIGURE 67. FMVSS No. 301 Static Rollover 360 Degrees



FIGURE 68. Impact Event

LET'S MOTOR.®

2015 MINI Cooper Hardtop 2 door

Manufacturer's Suggested Retail Price	\$ 20,700.00
Options and Additional Charges:	(Optional equipment may not be available on all vehicles. Check with your authorized sales dealer.)
Blazing Red metallic	\$ 500.00
Leatherette Carbon Black	Included
Bonnet stripes in black	\$ 100.00
Roof and mirror caps in black	Included
Center air vent	\$ 250.00
MINI Excitement Package	Included
Automatic climate control	Included
Bluetooth and USB connection	Included
Installation kit for Portable	\$ 225.00
Wheel Locks	\$ 120.00
Destination Charge	\$ 850.00
Total Suggested Retail Price	\$ 23,745.00

STANDARD FEATURES

Performance and Minimalism

- 1.8-liter MINI four-cylinder turbo 3-cylinder engine
- 134 hp and 162 lb-ft torque
- 8-Speed Steptronic automatic transmission with oversteering
- MINI Driving Modes - Sport, Mild, Green
- Dynamic Stability Control (DSC) and ESP® + ESC
- Dynamic Cruise Control
- Go-kart handling, braking
- MacPherson strut front/multi-link rear suspension
- 17" alloy wheels
- Front 1-year drive train
- Electronic Brakeforce Distribution (EBD)
- Anti-lock Braking System (ABS)
- Corner Brake Control (CBC)

Interior comfort

- Automatic dual zone climate control
- Multi-function sport leather steering wheel
- Power seats
- Hidden cash storage
- Interior LED mood lighting

Interior technology

- On-board computer
- Bluetooth and USB interface
- Interactive LCD display

Safety

- Airbag system with ABS/ESP, 4 speakers, presets, and auxiliary input
- 8 Airbags including side curtain and knee airbags
- ISOFIX LATCH Child Seat System
- One Pedestrian Monitor
- Speed sensor
- Chime lights
- Rain sensor and automatic headlights
- 4-year/50,000-mile Limited Warranty
- 12 Year/100,000 Mile Powertrain Warranty
- 4 Year/50,000 Mile Mileage Based Assurance Program

Warranty

4-year/50,000-mile Limited Warranty
12 Year/100,000 Mile Powertrain Warranty
4 Year/50,000 Mile Mileage Based Assurance Program

PARTS CONTENT INFORMATION

For Vehicles in this Car Line: **5%**
US/Canadian Parts Content: **5%**
Major Source of Foreign Parts Content: **GERMANY: 35%**
UNITED KINGDOM: 25%

Note: Parts content does not include final assembly, distribution, or other non-parts costs.

For this Vehicle:
Final Assembly Point: **OXFORD, UNITED KINGDOM**
Country of Origin: **GERMANY**
Transmission: **GERMANY**

GOVERNMENT 5-STAR SAFETY RATINGS

Overall Vehicle Score **Not Rated**
Based on the combined ratings of frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight.

Frontal Crash	Driver Passenger	Not Rated
Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.		
Side Crash	Front seat Rear seat	Not Rated
Based on the risk of injury in a side impact.		
Rollover	Not Rated	
Based on the risk of rollover in a single-vehicle crash.		

Star ratings range from 1 to 5 stars (•••••) with 5 being the highest.
Source: National Highway Traffic Safety Administration (NHTSA)
www.safercar.gov or 1-888-327-4226

This vehicle is equipped with bumpers that are designed to absorb the impact of 2.5 miles per hour with no damage to the vehicle's body and safety systems, although the bumper and related components may sustain damage. The bumper system on this vehicle conforms to the current federal bumper standard of 2.5 miles per hour.

BOOT TO BONNET NO COST MAINTENANCE

\$0

Maintenance Program:
For the first 3 years or 36,000 miles, whichever comes first on all factory-recommended services

Your Maintenance Costs:
Engine Oil Services: \$0
Brake Pads: \$0
Engine Drive Belts: \$0
Brake Discs: \$0
Inspection Services: \$0
Brake Fluid: \$0
Wiper Blade Inserts: \$0

EPA DOT Fuel Economy and Environment

Fuel Economy

33 MPG
combined city/hwy

29 40
city highway

3.0 gallons per 100 miles

Subcompact Cars range from 15 to 119 MPG.
The best vehicle rates 119 MPG.

You Save \$2,250
more in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost

\$1,750

Fuel Economy & Greenhouse Gas Rating

1 2 3 4 5 6 7 8 9 10 Best

This vehicle emits 287 grams CO₂ per mile. The best emits 8 grams per mile (based on only Producing and distributing fuel with zero emissions; learn more at safercar.gov).

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 24 MPG and uses 11.9 gallons of fuel per 100 miles. Cost estimates are based on 15,000 miles per year at \$3.00 per gallon. MPGe is miles per gallon using electricity. Vehicle emissions are a significant cause of climate change and smog.

fuelconomy.gov
Calculate personalized estimates and compare vehicles.

MINI Division of BMW of North America, LLC

Woodcliff Lake, NJ 07677

VPC Location: OXONARD, CALIFORNIA

Port of Entry: HUENEME, CALIFORNIA

Center: WALDOWNE TRUCKING

Sold To: MINI of Monrovia
1431 South Mountain Avenue
Monrovia, CA 91701-0090
(877) 278-0090 916-4204

Ship To: MINI of Monrovia
1431 South Mountain Avenue
Monrovia, CA 91701-0090
(877) 278-0090 916-4204

FIGURE 69. Monroney Label

ADJUSTING CONTROLS

Reduction of restraining effect

Avoid wearing bulky clothing, and pull the shoulder belt carefully to readjust the tension. Make sure that the belt is not jammed; otherwise, the belt can be damaged and the restraining effect reduced.

Using the middle safety belt

A middle safety belt in the rear is used; the larger side of the backrest must be locked. Otherwise, the safety belt will not have a restraining effect.

Buckling the belt

Make sure you hear the latch plate engage in the belt buckle.

Unbuckling the belt

1. Hold the belt firmly.
2. Press the red button in the belt buckle.
3. Guide the belt back into its rest.

Safety belt reminder for driver's seat and front passenger seat

The indicator lamp lights up and a signal sound. Make sure that the safety belts are positioned correctly. The safety belt reminder is active at speeds above approx. 5 mph/10 km/h. It can also be activated if objects are placed on the front passenger seat.

Damage to safety belts

In the case of strain caused by accidents or damage, reuse the safety belts, including the safety belt tensioners, replaced and have the belt anchors checked.

Checking and replacing safety belts

Have the work performed only by your service center; otherwise, it cannot be ensured that this safety feature will function properly.

FRONT HEAD RESTRAINTS

Correctly adjusted head restraint

A correctly adjusted head restraint reduces the risk of injury to cervical vertebrae in the event of an accident.

Adjusting the head restraint

Correctly adjust the head restraints of all occupied seats; otherwise, there is an increased risk of injury in an accident.

Height

Adjust the head restraint so that its center is approximately at ear level.

Distance

Adjust the distance so that the head restraint is as close as possible to the back of the head. If necessary, adjust the distance by adjusting the tilt of the backrest.

CONTROLS ADJUSTING

Adjusting the height

1. Pull the head restraint upward as far as possible.

2. Press the button, arrow 1, and pull the head restraint out completely.

To remove the headrest, fold the backrest rearward if it is in the upright position.

Removing

Only remove the head restraint if no one will be sitting in the seat in question.

Adjusting the height

1. Pull the head restraint upward as far as possible.

2. Press the button, arrow 1, and pull the head restraint out completely.

Folding down head restraints

Only fold down head restraint if no passengers are in the rear. Fold out retracted headrests again if passengers are being carried in the rear; otherwise, there is increased risk of injury in the event of an accident.

REAR HEAD RESTRAINTS

Correctly adjusted head restraint

A correctly adjusted head restraint reduces the risk of injury to cervical vertebrae in the event of an accident.

Adjusting the head restraint

Correctly adjust the head restraints of all occupied seats; otherwise, there is an increased risk of injury in an accident.

Height

Adjust the head restraint so that its center is approximately at ear level.

Adjusting the height

1. Pull the head restraint upward as far as possible.

2. Press the button, arrow 1, and pull the head restraint out completely.

Folding down head restraints

Only fold down head restraint if no passengers are in the rear. Fold out retracted headrests again if passengers are being carried in the rear; otherwise, there is increased risk of injury in the event of an accident.

ADJUSTING CONTROLS

MIRRORS

Exterior mirrors

At a glance

1. Adjusting
2. Left/Right, Automatic Curb Monitor
3. Fold in and out

General information

The mirror on the passenger side is more curved than the driver's side mirror.

Estimating distances correctly

Objects reflected in the mirror are closer than they appear. Do not estimate the distance to the traffic behind you based on what you see in the mirror, as this will increase your risk of an accident.

Depending on how the vehicle is equipped, the mirror setting is stored for the remote control in use. When the vehicle is unlocked via the remote control, the position is automatically retrieved if the setting for this function is active. Selecting a mirror To change over to the other mirror: Slide the mirror changeover switch. Adjusting electrically The setting corresponds to the direction in which the button is pressed.

FIGURE 70. Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA

TABLE OF DATA PLOTS

Plot		Page
1	Driver Head Acceleration (X) Primary vs. Time	B-1
2	Driver Head Acceleration (Y) Primary vs. Time	B-1
3	Driver Head Acceleration (Z) Primary vs. Time	B-1
4	Driver Head Resultant Acceleration Primary vs. Time	B-1
5	Driver Lower Spine T12 Acceleration (X) vs. Time	B-2
6	Driver Lower Spine T12 Acceleration (Y) vs. Time	B-2
7	Driver Lower Spine T12 Acceleration (Z) vs. Time	B-2
8	Driver Lower Spine T12 Resultant Acceleration vs. Time	B-2
9	Driver Iliac Wing Force on Impact Side (Y) vs. Time	B-3
10	Driver Acetabulum Force on Impact Side (Y) vs. Time	B-3
11	Driver Total Pelvis Force on Impact Side (Y) vs. Time	B-3

The following additional data for this test can be obtained from the Research and Development section of the NHTSA website. The website can be found at
www.NHTSA.dot.gov

Additional Driver Dummy Instrumentation Data

Driver Head Acceleration Redundant (X)
Driver Head Acceleration Redundant (Y)
Driver Head Acceleration Redundant (Z)
Driver Upper Thorax Rib Deflection (Y)
Driver Middle Thorax Rib Deflection (Y)
Driver Lower Thorax Rib Deflection (Y)
Driver Upper Abdomen Rib Deflection (Y)
Driver Lower Abdomen Rib Deflection (Y)

Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Left Floor Sill Acceleration (Y)
Left A-Pillar Sill Acceleration (Y)
Left Lower A-Pillar Acceleration (Y)
Left Mid A-Pillar Acceleration (Y)

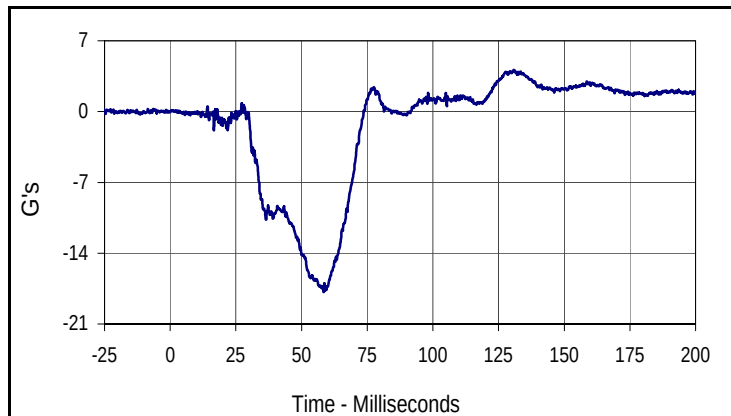
Left B-Pillar Sill Acceleration
Left Lower B-Pillar Acceleration (Y)
Left Mid B-Pillar Acceleration (Y)
Driver Seat Track at Dummy Hip Point Acceleration (Y)
Engine Top Acceleration (X)
Engine Top Acceleration (Y)
Firewall Center Acceleration (Y)
Right Roof at Vertical Impact Reference Line Acceleration (Y)
Right Sill at Vertical Impact Reference Line Acceleration (Y)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (X)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (Y)

Pole Instrumentation Data

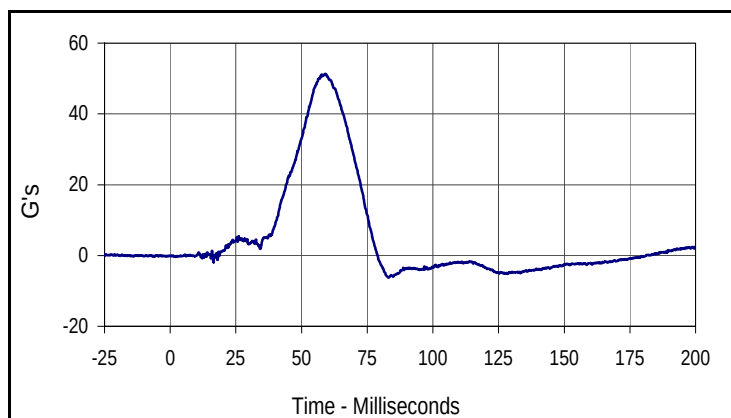
Load Cell Pole Barrier #1 Force (Y)
Load Cell Pole Barrier #2 Force (Y)
Load Cell Pole Barrier #3 Force (Y)
Load Cell Pole Barrier #4 Force (Y)
Load Cell Pole Barrier #5 Force (Y)
Load Cell Pole Barrier #6 Force (Y)
Load Cell Pole Barrier #7 Force (Y)
Load Cell Pole Barrier #8 Force (Y)

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback
 Test Program: NCAP Side Pole Impact Test

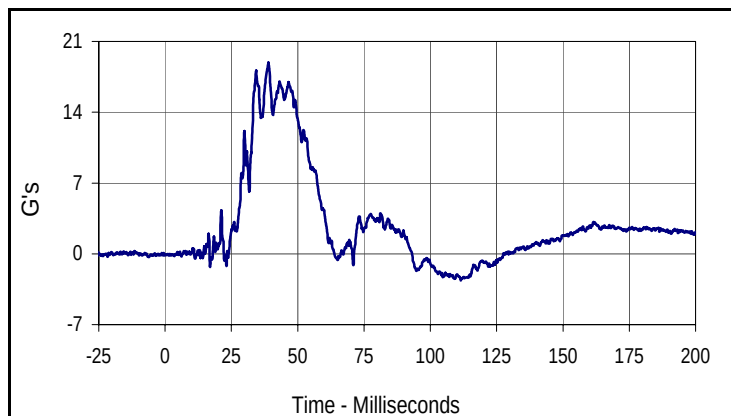
Test Date: 1/13/15
 NHTSA No.: M20154107



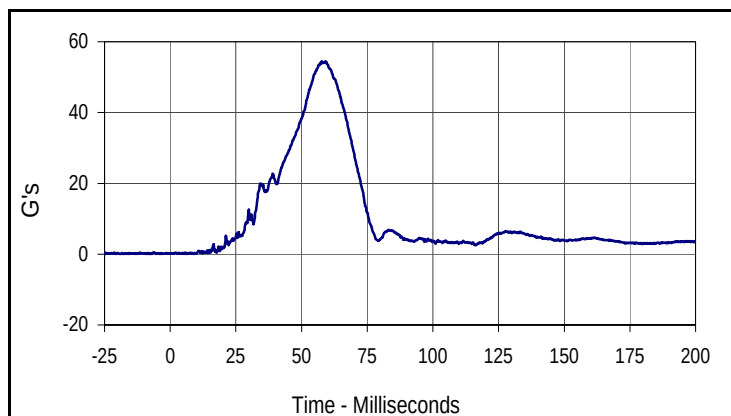
Curve Description			
Driver Head Acceleration X Primary			
Plot No.	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
4.1	130.8	-17.8	58.5



Curve Description			
Driver Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
51.3	59.0	-6.3	83.2



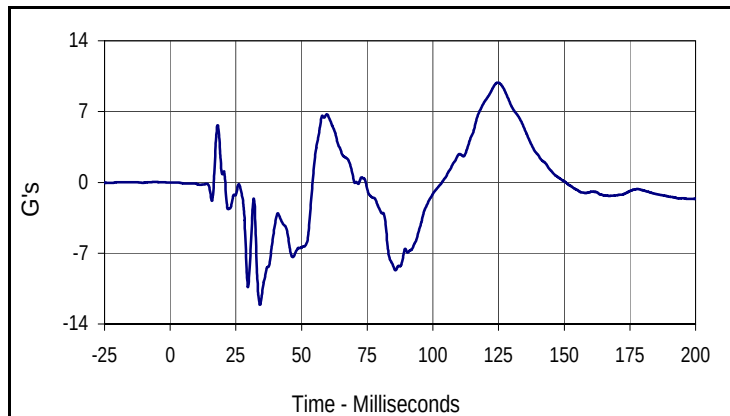
Curve Description			
Driver Head Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
18.9	39.0	-2.6	111.5



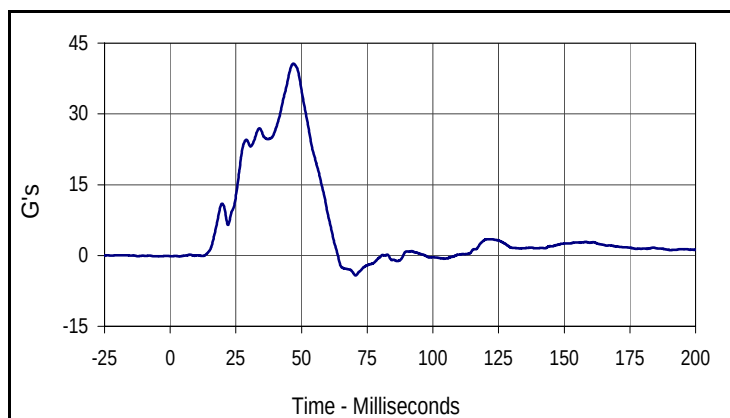
Curve Description			
Driver Head Acceleration Primary Res.			
Plot No.	Type	SAE Class	Units
004	RES	1000	G's
Max	Time	Min	Time
54.5	59.0	0.1	8.8

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback
 Test Program: NCAP Side Pole Impact Test

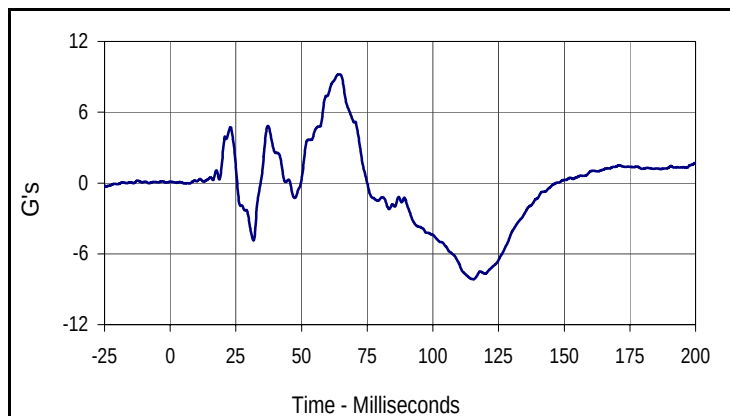
Test Date: 1/13/15
 NHTSA No.: M20154107



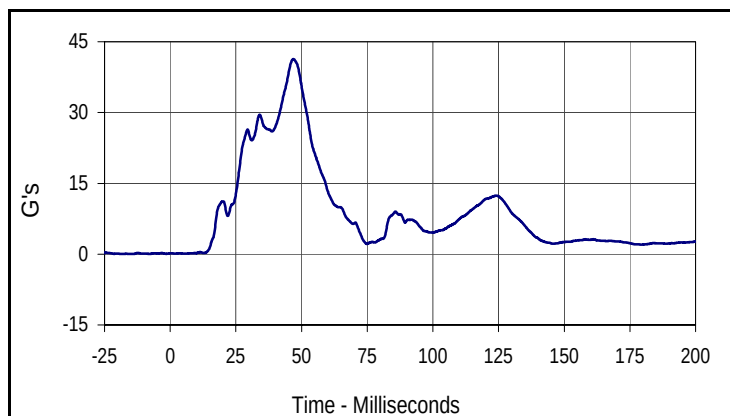
Curve Description			
Driver Lower Spine T12 Acceleration X			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
9.9	124.7	-12.1	34.2



Curve Description			
Driver Lower Spine T12 Acceleration Y			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
40.6	46.9	-4.2	70.6



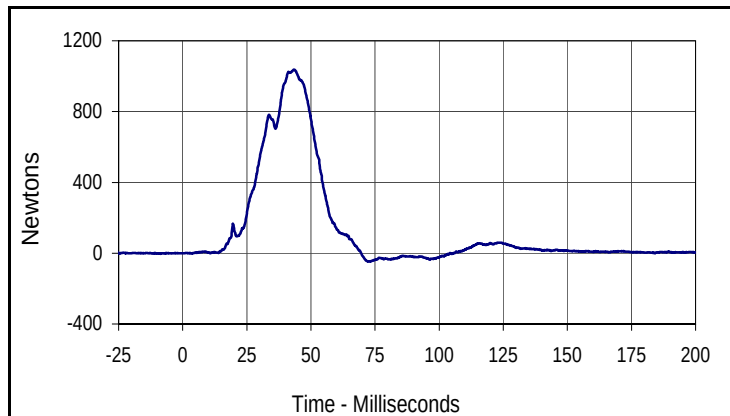
Curve Description			
Driver Lower Spine T12 Acceleration Z			
Plot No.	Type	SAE Class	Units
007	FIL	180	G's
Max	Time	Min	Time
9.2	64.5	-8.2	115.4



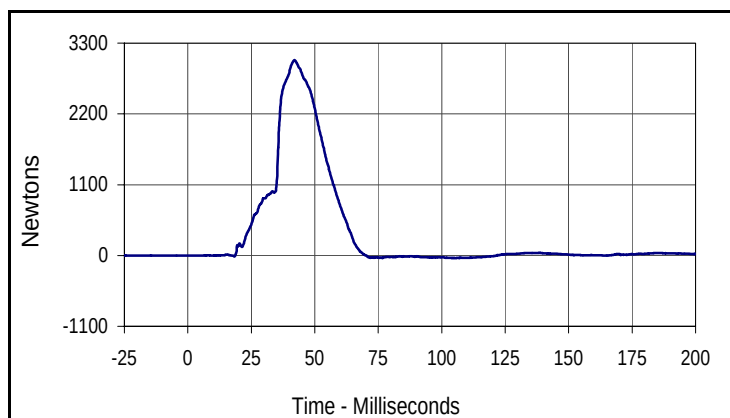
Curve Description			
Driver Lower Spine T12 Acceleration Res.			
Plot No.	Type	SAE Class	Units
008	RES	180	G's
Max	Time	Min	Time
41.3	46.9	0.1	2.1

Test Vehicle: 2015 Mini Cooper Hardtop 3-Door Hatchback
 Test Program: NCAP Side Pole Impact Test

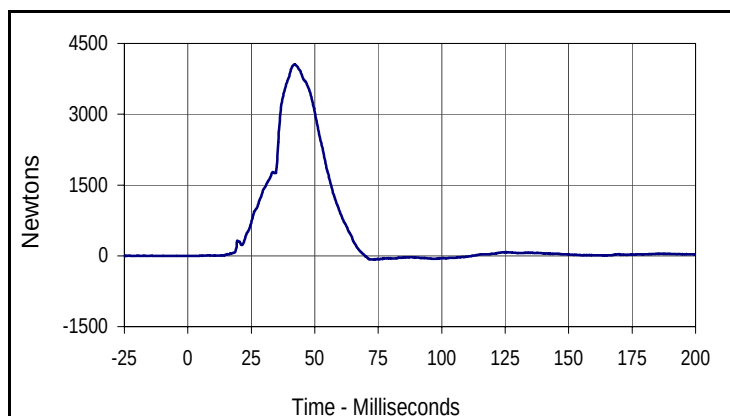
Test Date: 1/13/15
 NHTSA No.: M20154107



Curve Description			
Driver Iliac Wing Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
009	FIL	600	Newtons
Max	Time	Min	Time
1037.1	43.3	-48.2	72.7



Curve Description			
Driver Acetabulum Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
010	FIL	600	Newtons
Max	Time	Min	Time
3035.3	42.0	-43.0	105.4



Curve Description			
Driver Total Pelvic Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
011	SUM	600	Newtons
Max	Time	Min	Time
4056.6	42.0	-80.7	73.3

APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

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

Test Program: SID IIs External Measurements
 ATD Serial No.: 299

Test Date: 1/9/15
 Test I.D.: N/A



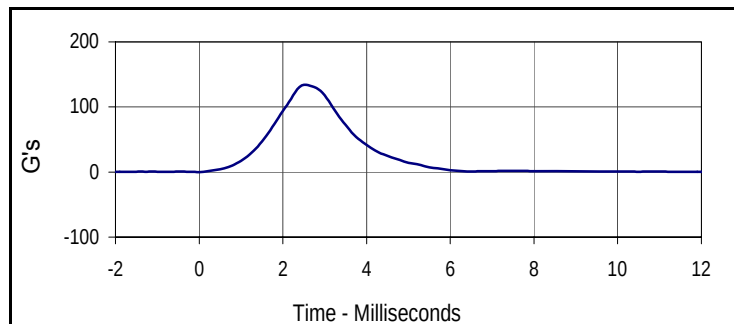
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	36	Pass
A	Sitting Height	mm	772 - 788	780	Pass
B	Shoulder Pivot Height	mm	437 - 453	445	Pass
C	H-Point Height	mm	79 - 89	85	Pass
D	H-Point from Seatback	mm	141 - 151	145	Pass
E	Shoulder Pivot from Backline	mm	97 - 107	102	Pass
F	Thigh Clearance	mm	119 - 135	125	Pass
G	Head Breadth	mm	140 - 148	145	Pass
H	Head Back from Backline	mm	40 - 46	44	Pass
I	Head Depth	mm	178 - 188	184	Pass
J	Head Circumference	mm	541 - 551	545	Pass
K	Buttock to Knee Length	mm	514 - 540	527	Pass
L	Popliteal Height	mm	343 - 369	352	Pass
M	Knee Pivot to Floor Height	mm	392 - 409	401	Pass
N	Buttock Popliteal Length	mm	416 - 442	432	Pass
O	Chest Depth w/o Jacket	mm	195 - 211	202	Pass
P	Foot Length	mm	216 - 232	221	Pass
Q	Hip Breadth with Pelvic Plug	mm	313 - 323	315	Pass
R	Arm Length	mm	249 - 259	252	Pass
S	Knee Joint to Seatback	mm	477 - 493	481	Pass
V	Shoulder Width	mm	341 - 357	352	Pass
W	Foot Width	mm	78 - 94	86	Pass
Y	Chest Circumference with Jacket	mm	851 - 881	872	Pass
Z	Waist Circumference	mm	760 - 791	774	Pass
Overall Test Results					Pass

Test Program: SID IIs Head Drop Test
 ATD Serial No.: 299

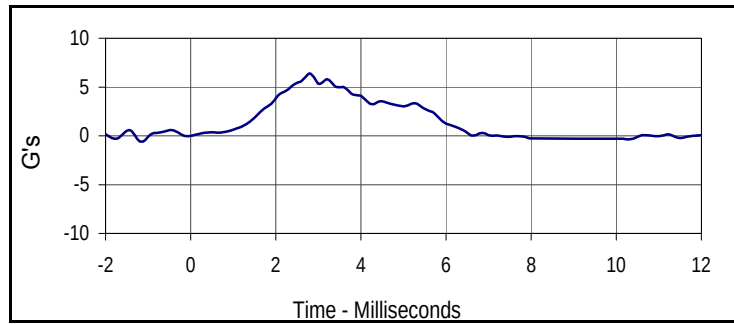
Test Date: 1/9/15
 Test I.D.: 299HD082



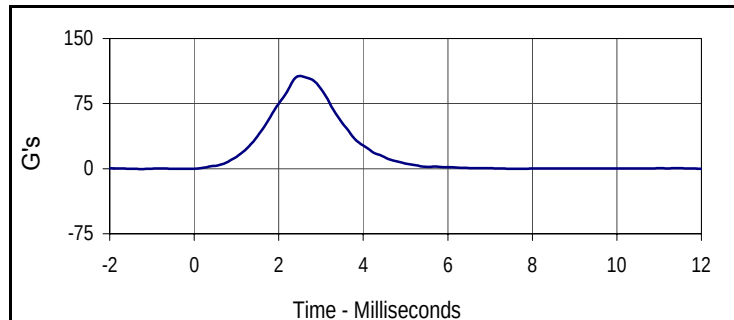
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	266	Pass
Temperature During Soak	Max	18.9 to 25.6	21.6	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	36.1	Pass
	Min		35.8	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.9	Pass
Peak Head Resultant Acceleration	G's	115 to 137	133.9	Pass
Peak Head X Acceleration	G's	<15	6.4	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	1.5	Pass
Overall Test Results				Pass



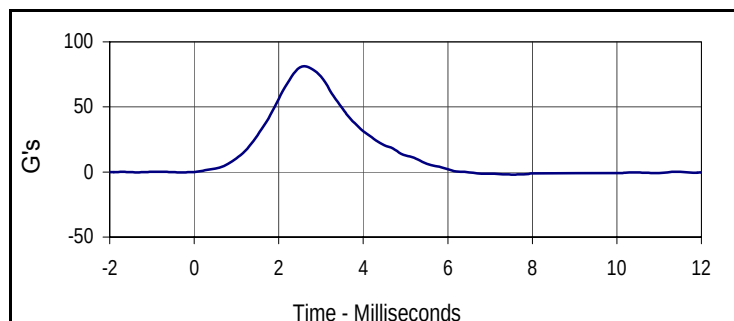
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
133.9	2.5	0.0	0.0



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
6.4	2.8	-0.5	-1.2



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
107.0	2.5	-0.4	-1.2



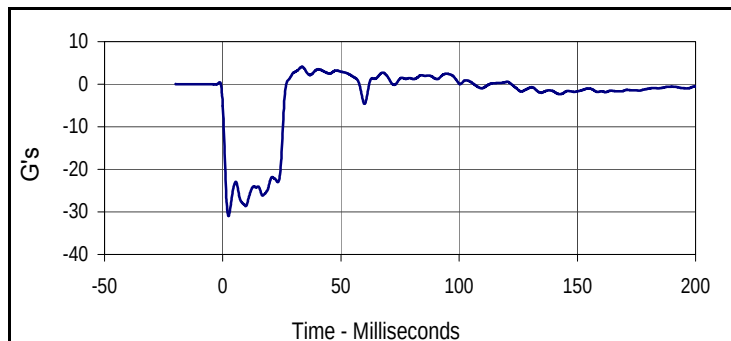
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
81.3	2.6	-2.0	7.6

Test Program: SID IIs Neck Flexion Test
 ATD Serial No.: 299

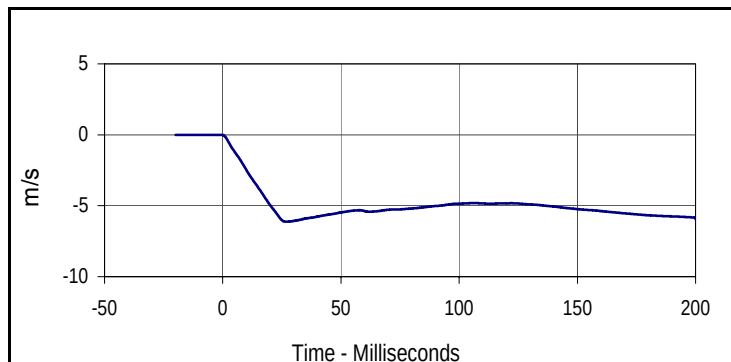
Test Date: 1/9/15
 Test I.D.: 299NB082



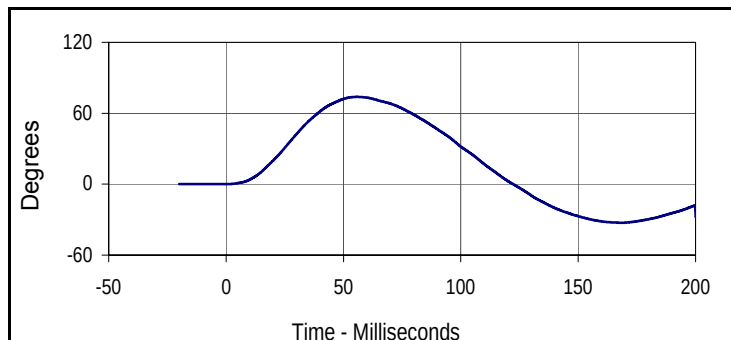
Tested Parameter	Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time	Minutes	≥240	311	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	36.1	Pass
	Min		35.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.9	Pass
Pendulum Velocity	m/s	5.51 to 5.63	5.54	Pass
Pendulum Deceleration	10 msec	-2.20 to -2.80	-2.48	Pass
	15 msec	-3.30 to -4.10	-3.72	Pass
	20 msec	-4.40 to -5.40	-4.95	Pass
	25 msec	-5.40 to -6.10	-6.01	Pass
	25-100 msec	-5.50 to -6.20	-6.12	Pass
D-Plane Rotation	Max	71 to 81	73.9	Pass
	Time	50 to 70	55.8	Pass
Peak Occipital Condyle Moment	Nm	-36 to -44	-40.1	Pass
Decaying Moment Time to Cross 0 Nm	msec	102 to 126	105.0	Pass
Overall Test Results			Pass	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
4.1	0.0	-31.0	0.0



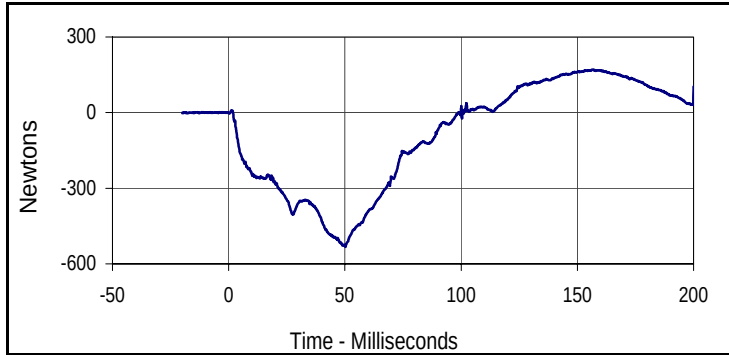
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.8	-6.1	26.9



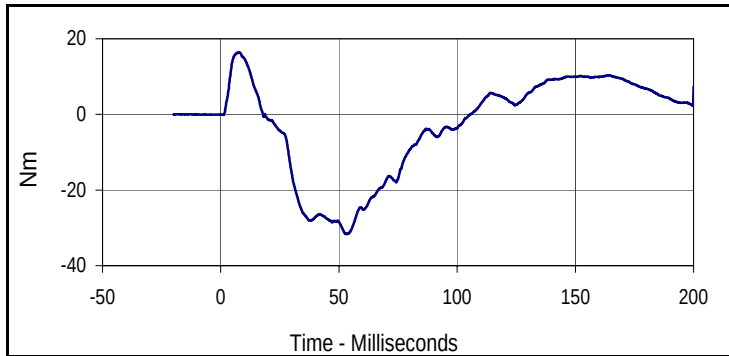
Curve Description			
D-Plane Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
73.9	55.8	-32.6	168.6

Test Program: SID IIs Neck Flexion Test
 ATD Serial No.: 299

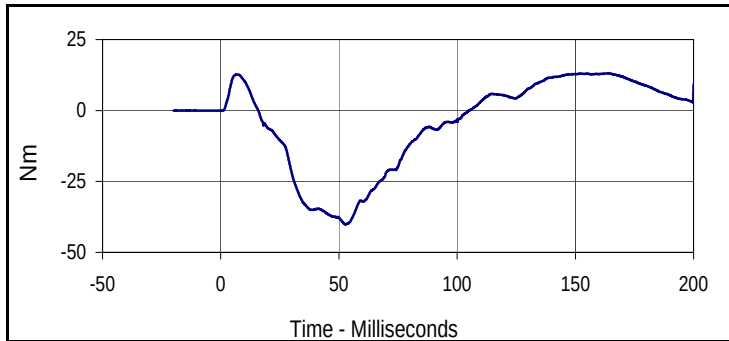
Test Date: 1/9/15
 Test I.D.: 299NB082



Curve Description			
Neck Force Y			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
170.7	156.4	-532.7	50.2



Curve Description			
Neck Moment X			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
16.4	7.6	-31.7	53.5



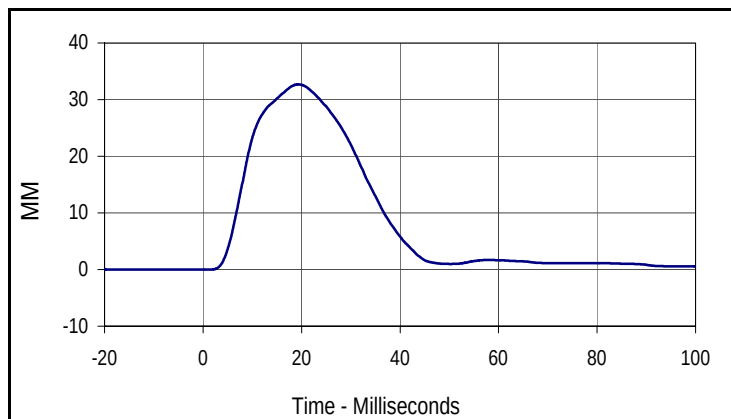
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
006	FIL	600	Nm
Max	Time	Min	Time
13.1	164.1	-40.1	52.7

Test Program: SID IIs Shoulder Impact Test
 ATD Serial No.: 299

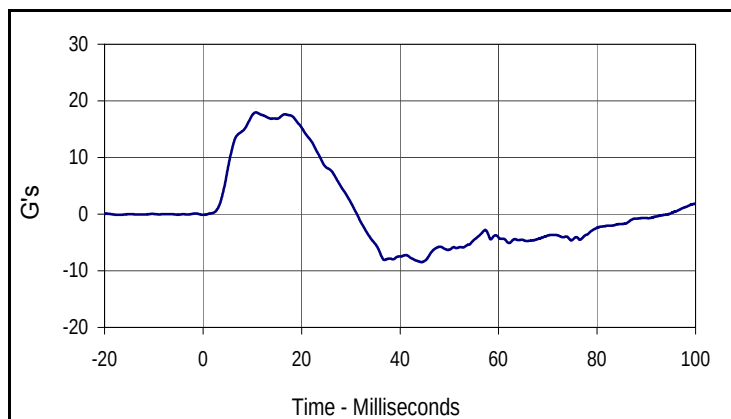
Test Date: 1/9/15
 Test I.D.: 299SH082



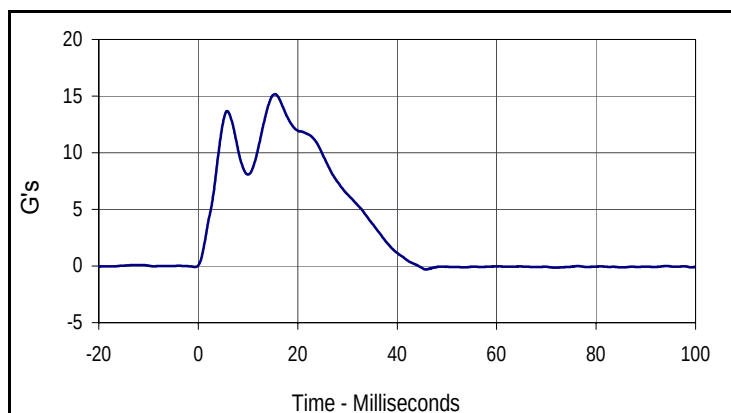
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	356	Pass
Temperature During Soak	Max °C	20.6 to 22.2	21.6	Pass
	Min °C		21.1	Pass
Humidity During Soak	Max %	10.0 to 70.0	36.1	Pass
	Min %		35.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.8	Pass
Impactor Velocity	m/s	4.20 to 4.40	4.33	Pass
Peak Shoulder Deflection	mm	28 to 37	32.7	Pass
Peak Lateral Spine Acceleration Y	G's	17 to 22	18.0	Pass
Peak Impactor Acceleration	G's	13 to 18	15.2	Pass
Overall Test Results			Pass	



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
32.7	19.3	0.0	-18.8



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
18.0	10.7	-8.5	44.4



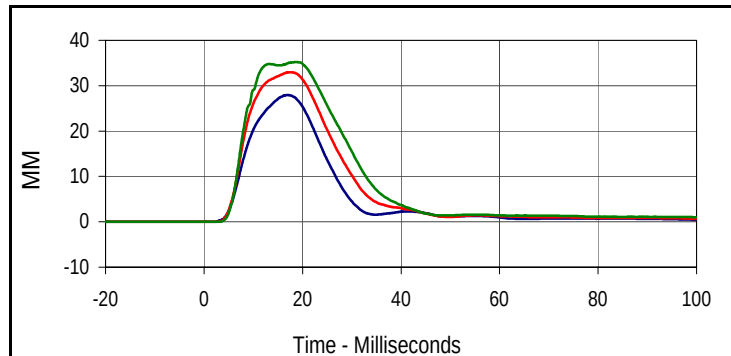
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
15.2	15.4	-0.3	45.8

Test Program: SID IIs Thorax with Arm Impact Test
 ATD Serial No.: 299

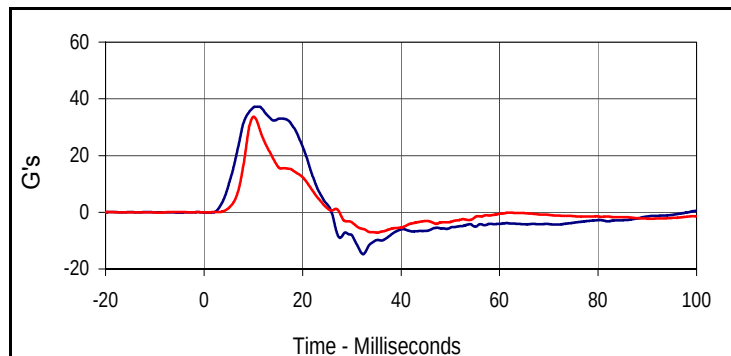
Test Date: 1/9/15
 Test I.D.: 299TWA082



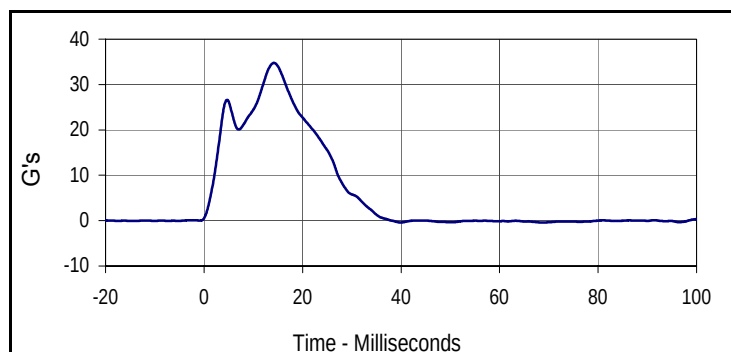
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	401	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	36.1	Pass
	Min		35.8	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.8	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.72	Pass
Peak Shoulder Deflection	mm	31 to 40	36.1	Pass
Peak Upper Thorax Rib Deflection	mm	25 to 32	27.9	Pass
Peak Middle Thorax Rib Deflection	mm	30 to 36	33.0	Pass
Peak Lower Thorax Rib Deflection	mm	32 to 38	35.2	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	37.3	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	33.7	Pass
Peak Impactor Acceleration	G's	30 to 36	34.8	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
27.9	16.9	0.0	-4.9
Middle Thorax Deflection			
Max	Time	Min	Time
33.0	17.4	0.0	-4.5
Lower Thorax Deflection			
Max	Time	Min	Time
35.2	18.5	0.0	-6.7



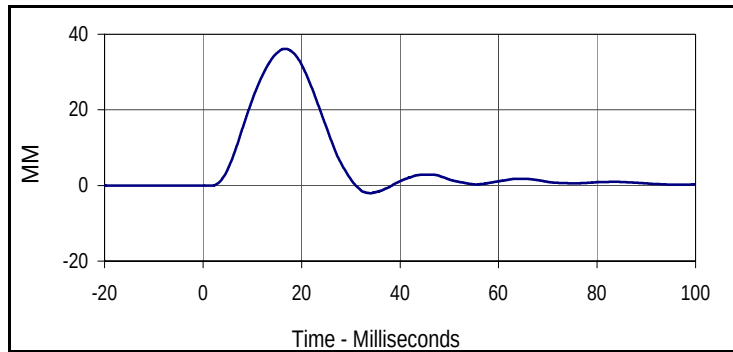
Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
37.3	11.2	-14.8	32.3
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
33.7	10.1	-7.2	35.1



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
34.8	14.2	-0.4	68.8

Test Program: SID IIs Thorax with Arm Impact Test
ATD Serial No.: 299

Test Date: 1/9/15
Test I.D.: 299TWA082



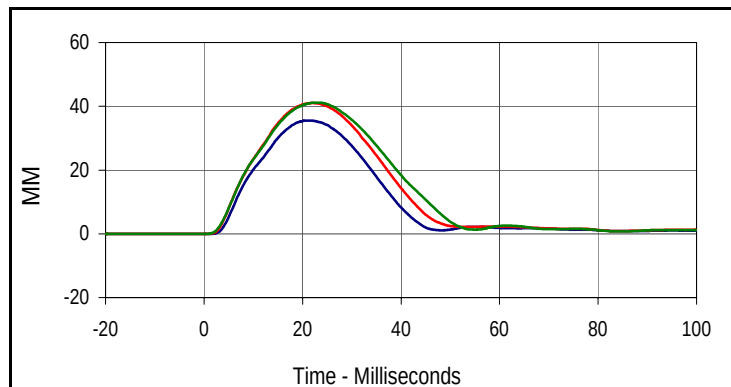
Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
007	FIL	600	MM
Max	Time	Min	Time
36.1	16.5	-2.0	34.0

Test Program: SID IIs Thorax without Arm Impact Test
 ATD Serial No.: 299

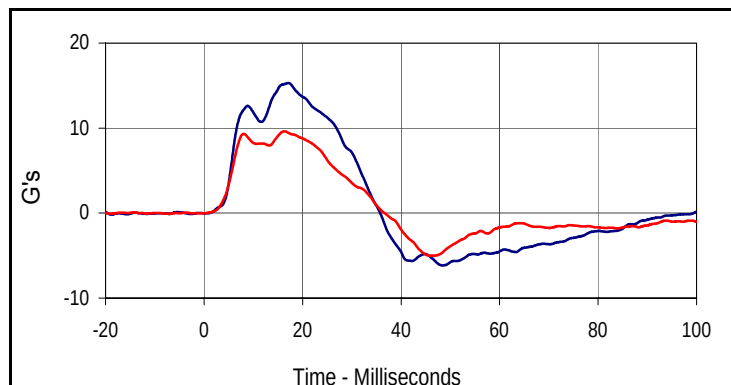
Test Date: 1/9/15
 Test I.D.: 299TWOA082



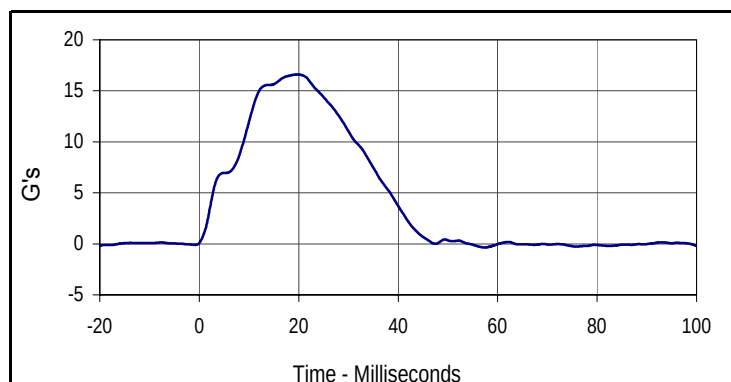
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥180	446	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.6	Pass
	Min	°C		21.1	Pass
Humidity During Soak	Max	%	10.0 to 70.0	36.1	Pass
	Min	%		35.8	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.6	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	35.9	Pass
Impactor Velocity		m/s	4.2 to 4.4	4.32	Pass
Peak Upper Thorax Rib Deflection		mm	32 to 40	35.5	Pass
Peak Middle Thorax Rib Deflection		mm	39 to 45	41.0	Pass
Peak Lower Thorax Rib Deflection		mm	35 to 43	41.1	Pass
Peak Upper Spine Y Acceleration		G's	13 to 17	15.3	Pass
Peak Lower Spine Y Acceleration		G's	7 to 11	9.6	Pass
Peak Impactor Acceleration		G's	14 to 18	16.6	Pass
Overall Test Results				Pass	



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
35.5	21.1	0.0	-1.3
Middle Thorax Deflection			
Max	Time	Min	Time
41.0	21.9	0.0	0.0
Lower Thorax Deflection			
Max	Time	Min	Time
41.1	23.1	0.0	-0.4



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.3	17.1	-6.2	48.4
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
9.6	16.3	-5.0	46.8



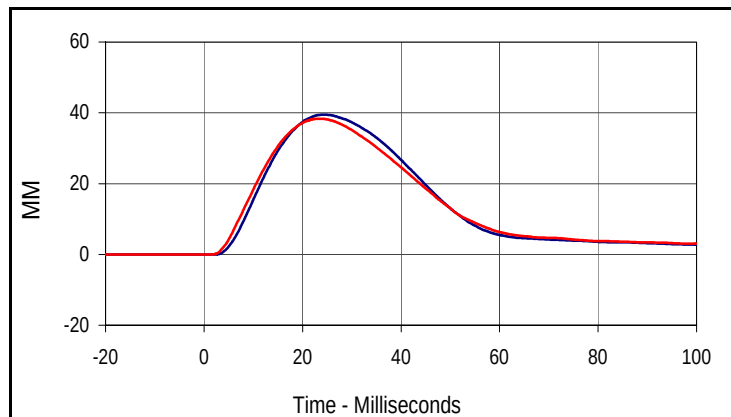
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
16.6	19.7	-0.4	57.4

Test Program: SID IIs Abdomen Impact Test
 ATD Serial No.: 299

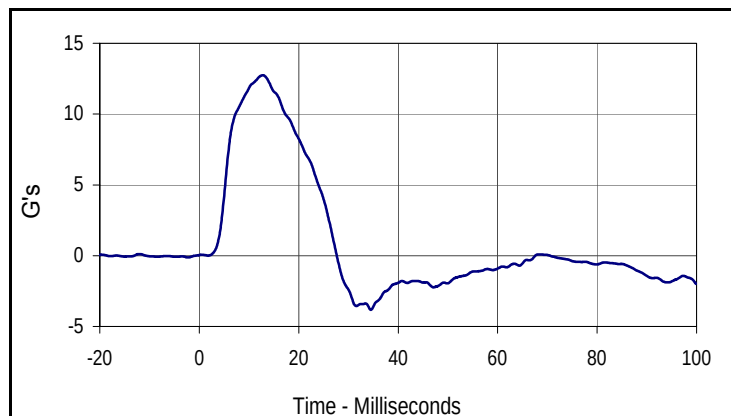
Test Date: 1/9/15
 Test I.D.: 299ABD082



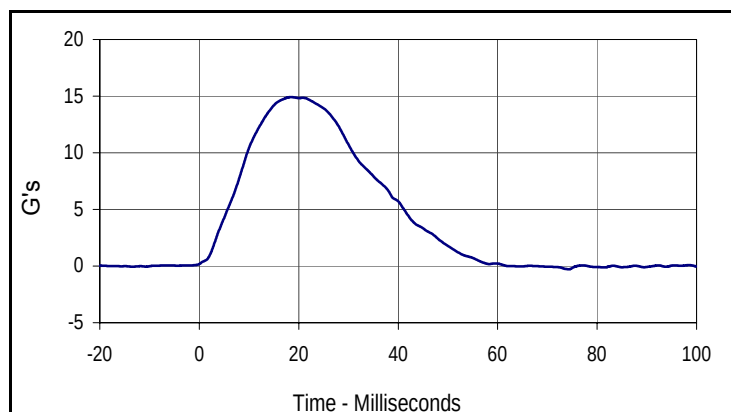
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	491	Pass
Temperature During Soak	Max °C	20.6 to 22.2	21.6	Pass
	Min °C		21.1	Pass
Humidity During Soak	Max %	10.0 to 70.0	36.1	Pass
	Min %		35.8	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.6	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	35.9	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.32	Pass
Peak Upper Abdominal Rib Deflection	mm	36 to 47	39.5	Pass
Peak Lower Abdominal Rib Deflection	mm	33 to 44	38.3	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	12.7	Pass
Peak Impactor Acceleration	G's	12 to 16	14.9	Pass
Overall Test Results			Pass	



Curve Description			
Upper Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
39.5	24.3	0.0	-14.9
Curve Description			
Lower Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
38.3	23.4	0.0	-20.0

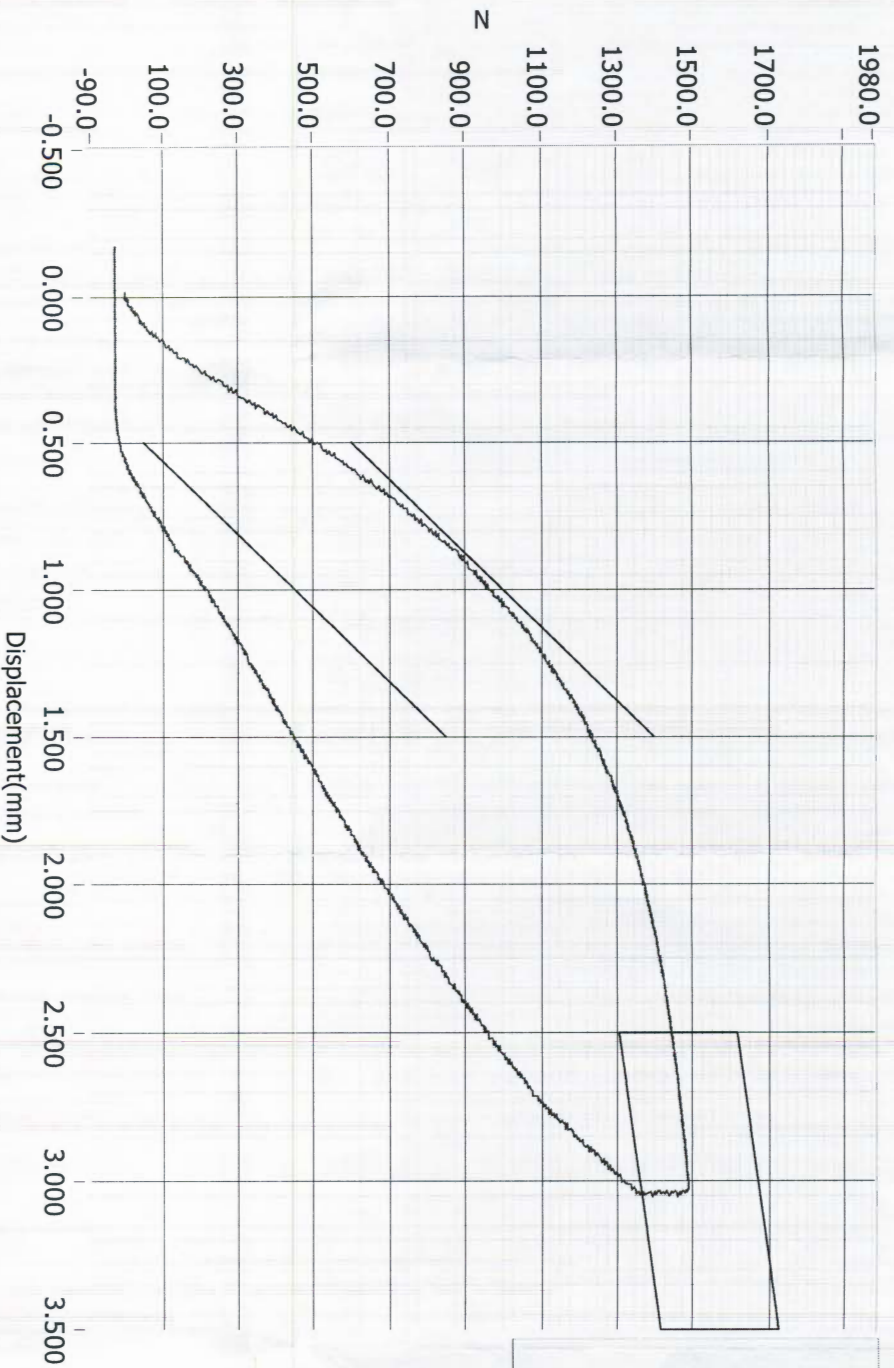


Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
12.7	12.8	-3.8	34.5



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
14.9	18.4	-0.3	74.3

Resultant Data - SIDIIs Plug Compression



- Loading Curve
- Boundary Limit Upper
- Boundary Limit Lower
- Peak Load Upper
- Peak Load Lower
- Peak Defl Upper
- Peak Defl Lower

1489N

ATD Calibration Lab

M20154107 Pre Test

Test ID	Part Serial Number	Test Date	Test Time
	70793	12/13/2013	4:18 PM
Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

Current Date : 12/13/2013

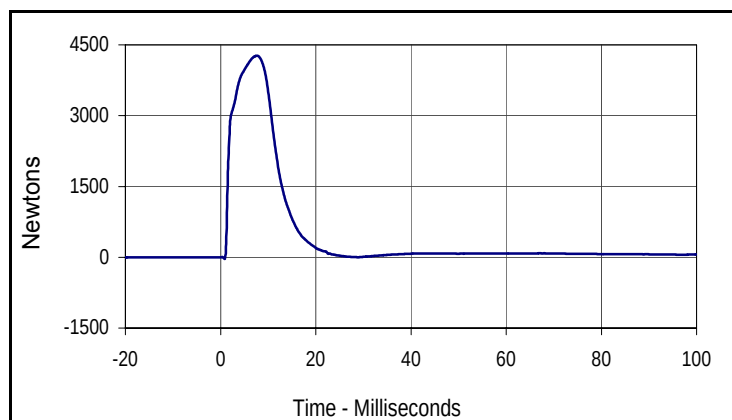
Current Time : 16:18:44

Test Program: SID IIs Pelvis Acetabulum Impact Test
 ATD Serial No.: 299

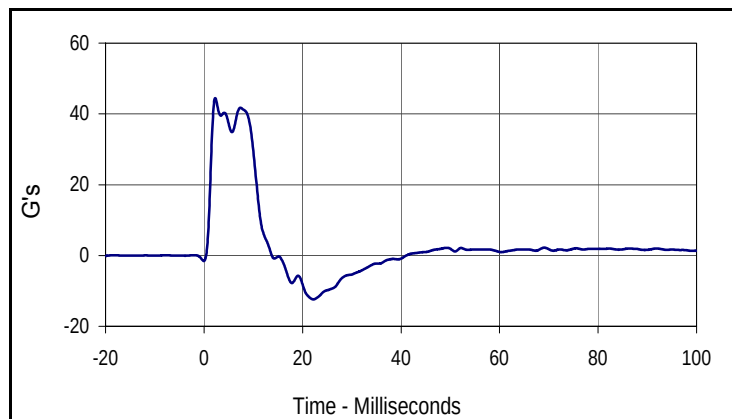
Test Date: 1/9/15
 Test I.D.: 299ACET082



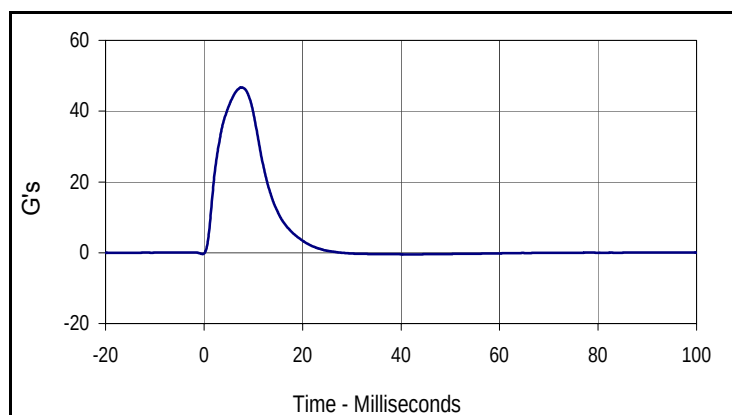
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	536	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	36.1	Pass
	Min		35.8	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.6	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	36.0	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.72	Pass
Peak Acetabulum Force Y	Newtons	3600 to 4300	4269.5	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	41.7	Pass
Peak Impactor Acceleration	G's	38 to 47	46.7	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Acetabulum Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4269.5	7.6	-33.9	0.9



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
44.5	2.3	-12.4	22.2



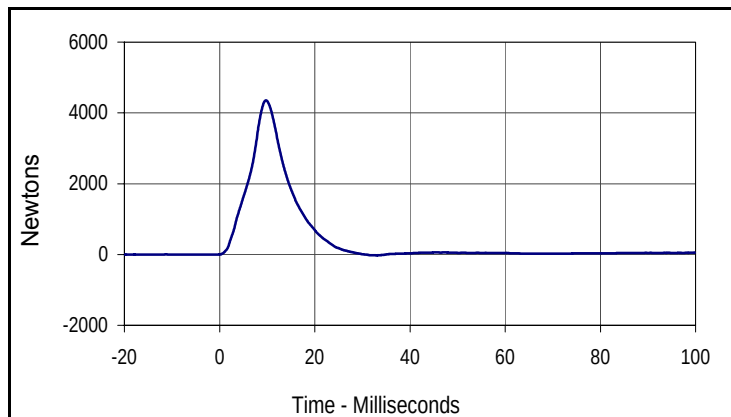
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
46.7	7.6	-0.5	41.2

Test Program: SID IIs Pelvis Iliac Calibration
 ATD Serial No.: 299

Test Date: 1/9/15
 Test I.D.: 299PL082



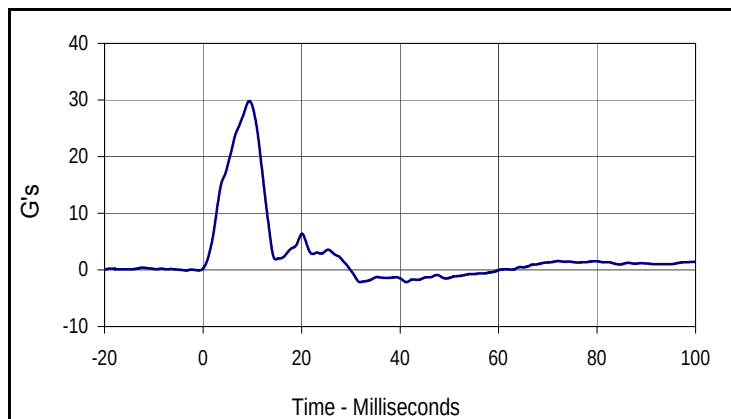
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	581	Pass
Temperature During Soak	Max °C	20.6 to 22.2	21.6	Pass
	Min °C		21.1	Pass
Humidity During Soak	Max %	10.0 to 70.0	36.1	Pass
	Min %		35.8	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.6	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	36.1	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.34	Pass
Peak Iliac Force	Newtons	4100 to 5100	4352.6	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	29.8	Pass
Peak Impactor Acceleration	G's	36 to 45	41.9	Pass
Overall Test Results			Pass	



Curve Description

Pelvis Iliac Force

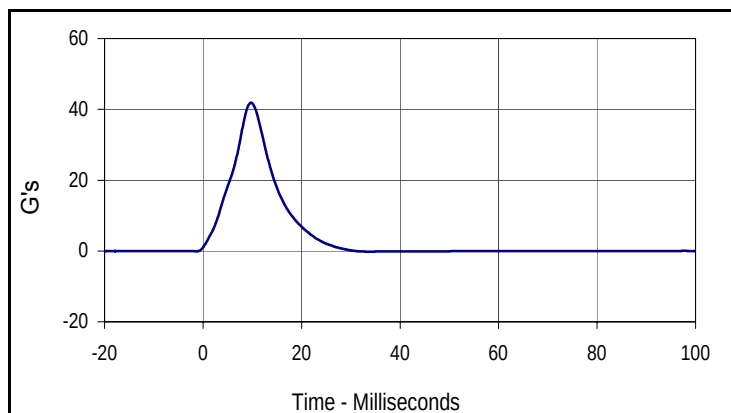
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4352.6	9.7	-25.3	33.0



Curve Description

Pelvis Y Acceleration

Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
29.8	9.4	-2.2	31.9



Curve Description

Impactor Acceleration

Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
41.9	9.7	-0.2	34.1

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

Test Program: SID IIs External Measurements
 ATD Serial No.: 299

Test Date: 1/15/15
 Test I.D.: N/A



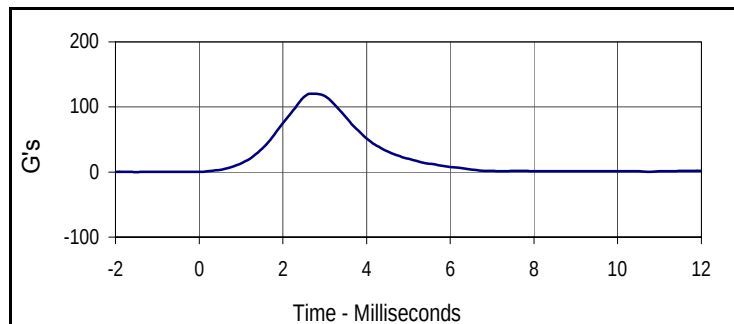
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.5	Pass
Laboratory Relative Humidity		%	10 to 70	36	Pass
A	Sitting Height	mm	772 - 788	780	Pass
B	Shoulder Pivot Height	mm	437 - 453	445	Pass
C	H-Point Height	mm	79 - 89	85	Pass
D	H-Point from Seatback	mm	141 - 151	145	Pass
E	Shoulder Pivot from Backline	mm	97 - 107	102	Pass
F	Thigh Clearance	mm	119 - 135	125	Pass
G	Head Breadth	mm	140 - 148	145	Pass
H	Head Back from Backline	mm	40 - 46	44	Pass
I	Head Depth	mm	178 - 188	184	Pass
J	Head Circumference	mm	541 - 551	545	Pass
K	Buttock to Knee Length	mm	514 - 540	527	Pass
L	Popliteal Height	mm	343 - 369	352	Pass
M	Knee Pivot to Floor Height	mm	392 - 409	401	Pass
N	Buttock Popliteal Length	mm	416 - 442	432	Pass
O	Chest Depth w/o Jacket	mm	195 - 211	202	Pass
P	Foot Length	mm	216 - 232	221	Pass
Q	Hip Breadth with Pelvic Plug	mm	313 - 323	315	Pass
R	Arm Length	mm	249 - 259	252	Pass
S	Knee Joint to Seatback	mm	477 - 493	481	Pass
V	Shoulder Width	mm	341 - 357	352	Pass
W	Foot Width	mm	78 - 94	86	Pass
Y	Chest Circumference with Jacket	mm	851 - 881	872	Pass
Z	Waist Circumference	mm	760 - 791	774	Pass
Overall Test Results					Pass

Test Program: SID IIs Head Drop Test
 ATD Serial No.: 299

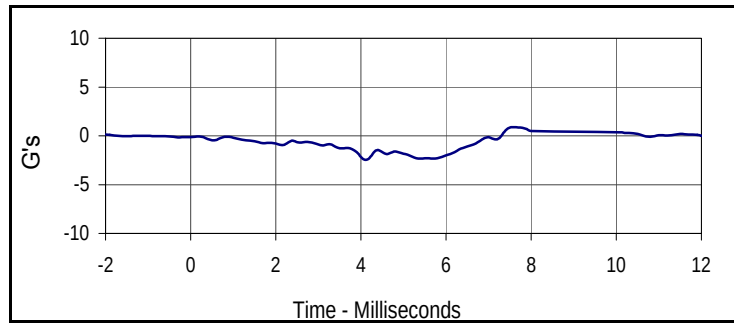
Test Date: 1/15/15
 Test I.D.: 299HD083



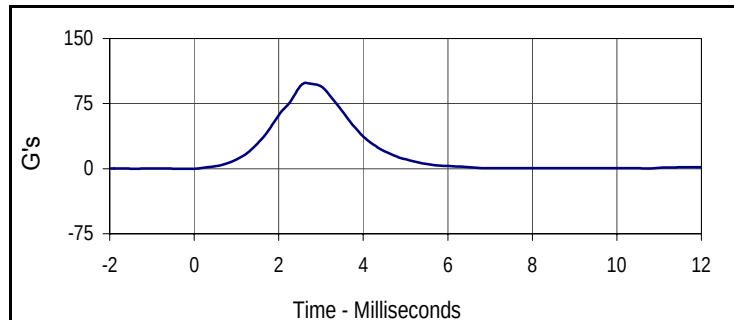
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	279	Pass
Temperature During Soak	Max	18.9 to 25.6	21.5	Pass
	Min		21.4	Pass
Humidity During Soak	Max	10.0 to 70.0	36.7	Pass
	Min		36.4	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	36.5	Pass
Peak Head Resultant Acceleration	G's	115 to 137	120.4	Pass
Peak Head X Acceleration	G's	<15	2.5	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	0.4	Pass
Overall Test Results				Pass



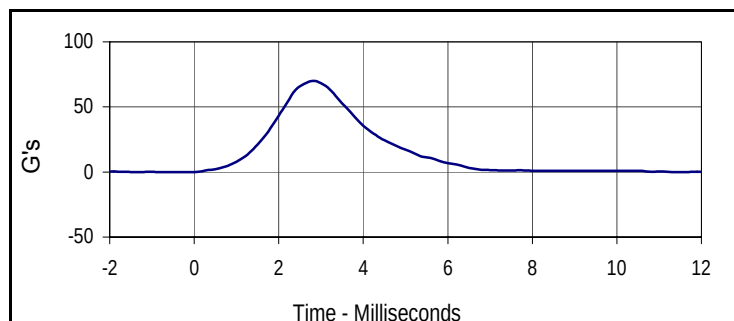
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
120.4	2.7	0.0	-16.5



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.9	7.6	-2.5	4.1



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
98.6	2.6	-0.4	-12.5



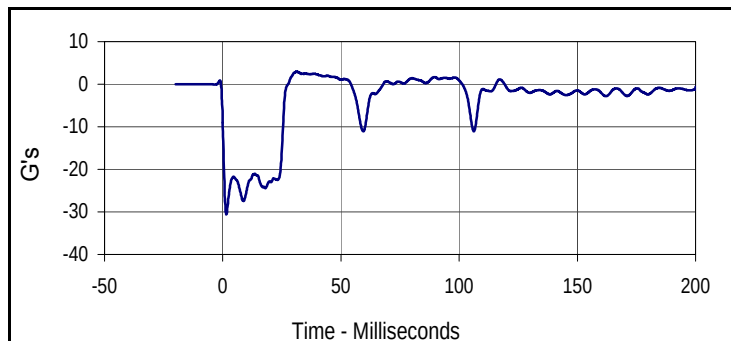
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
70.0	2.8	-0.3	-12.5

Test Program: SID IIs Neck Flexion Test
 ATD Serial No.: 299

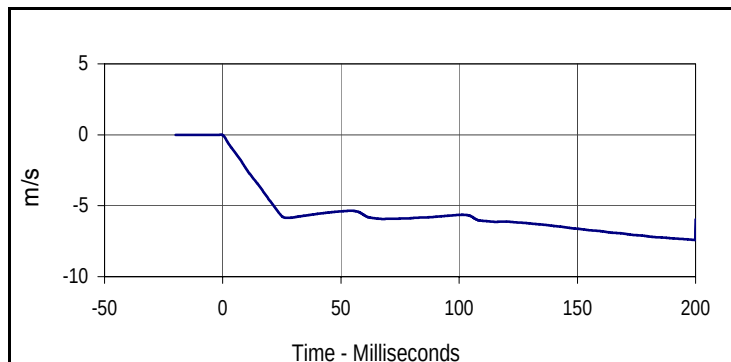
Test Date: 1/15/15
 Test I.D.: 299NB083



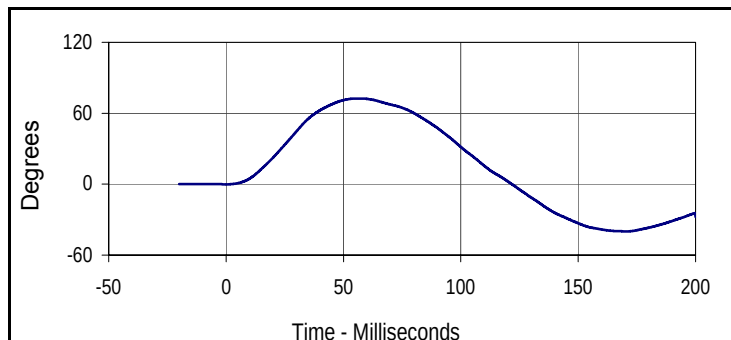
Tested Parameter	Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time	Minutes	≥240	324	Pass
Temperature During Soak	Max	20.6 to 22.2	21.5	Pass
	Min		21.4	Pass
Humidity During Soak	Max	10.0 to 70.0	36.7	Pass
	Min		36.4	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	36.6	Pass
Pendulum Velocity	m/s	5.51 to 5.63	5.57	Pass
Pendulum Deceleration	10 msec	-2.20 to -2.80	-2.42	Pass
	15 msec	-3.30 to -4.10	-3.51	Pass
	20 msec	-4.40 to -5.40	-4.67	Pass
	25 msec	-5.40 to -6.10	-5.74	Pass
	25-100 msec	-5.50 to -6.20	-5.93	Pass
D-Plane Rotation	Max	71 to 81	72.5	Pass
	Time	50 to 70	56.1	Pass
Peak Occipital Condyle Moment	Nm	-36 to -44	-40.1	Pass
Decaying Moment Time to Cross 0 Nm	msec	102 to 126	103.0	Pass
Overall Test Results			Pass	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
3.0	0.0	-30.6	0.0



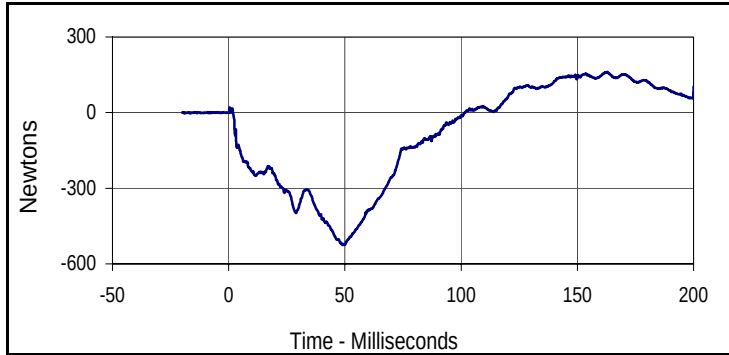
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.8	-7.4	199.9



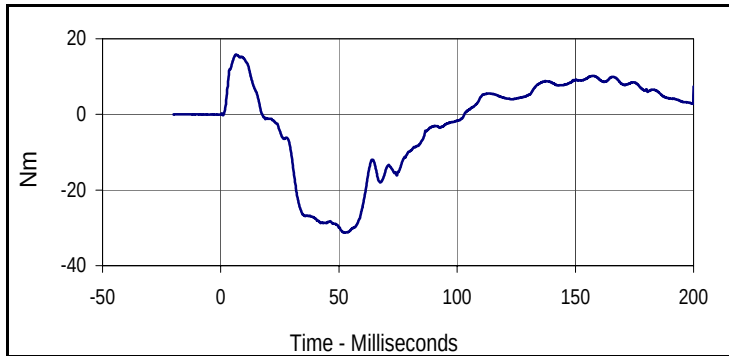
Curve Description			
D-Plane Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
72.5	56.1	-39.9	170.8

Test Program: SID IIs Neck Flexion Test
 ATD Serial No.: 299

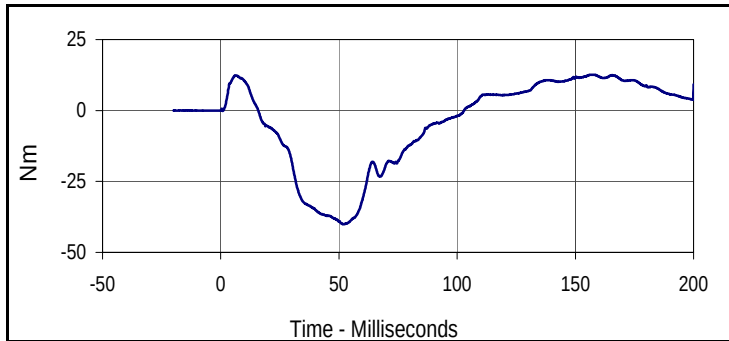
Test Date: 1/15/15
 Test I.D.: 299NB083



Curve Description			
Neck Force Y			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
162.0	162.9	-525.2	49.1



Curve Description			
Neck Moment X			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
15.9	6.5	-31.3	52.1



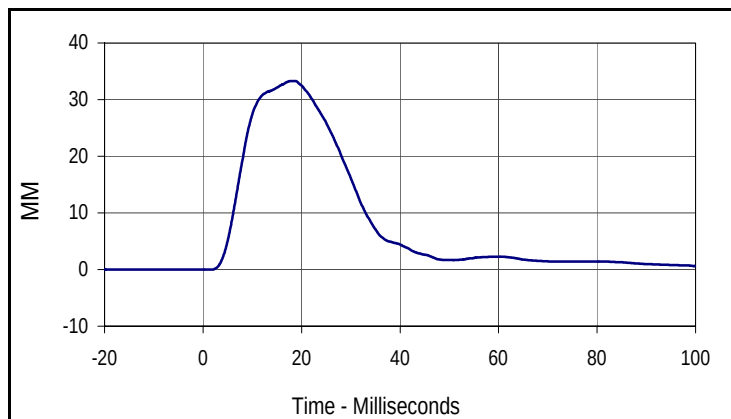
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
006	FIL	600	Nm
Max	Time	Min	Time
12.6	157.7	-40.1	51.9

Test Program: SID IIs Shoulder Impact Test
 ATD Serial No.: 299

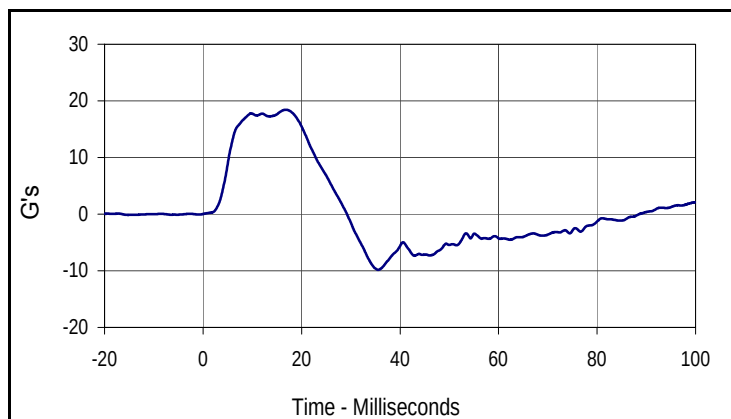
Test Date: 1/15/15
 Test I.D.: 299SH083



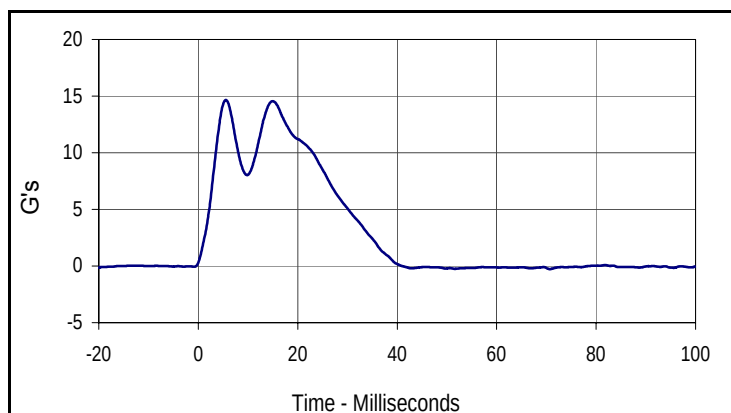
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	369	Pass
Temperature During Soak	Max °C	20.6 to 22.2	21.5	Pass
	Min °C		21.4	Pass
Humidity During Soak	Max %	10.0 to 70.0	36.7	Pass
	Min %		36.4	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	36.6	Pass
Impactor Velocity	m/s	4.20 to 4.40	4.33	Pass
Peak Shoulder Deflection	mm	28 to 37	33.3	Pass
Peak Lateral Spine Acceleration Y	G's	17 to 22	18.4	Pass
Peak Impactor Acceleration	G's	13 to 18	14.7	Pass
Overall Test Results			Pass	



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
33.3	18.1	0.0	0.6



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
18.4	16.8	-9.8	35.6



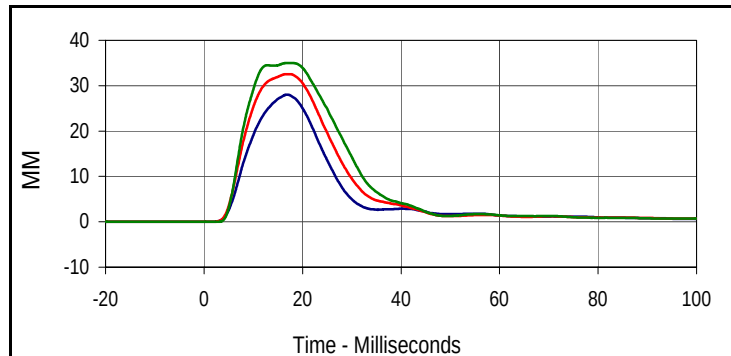
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
14.7	5.5	-0.3	70.7

Test Program: SID IIs Thorax with Arm Impact Test
 ATD Serial No.: 299

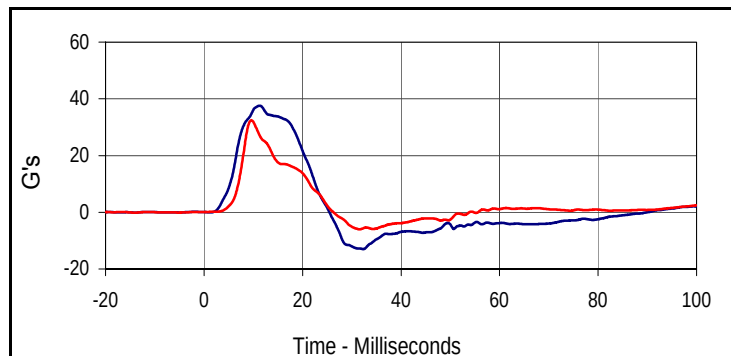
Test Date: 1/15/15
 Test I.D.: 299TWA083



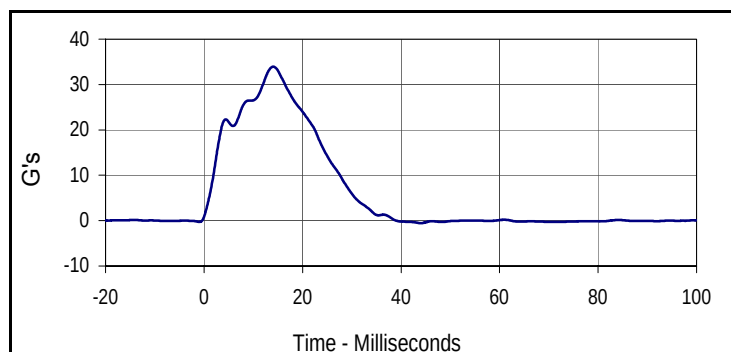
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	414	Pass
Temperature During Soak	Max	20.6 to 22.2	21.5	Pass
	Min		21.4	Pass
Humidity During Soak	Max	10.0 to 70.0	36.7	Pass
	Min		36.4	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	36.7	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.73	Pass
Peak Shoulder Deflection	mm	31 to 40	35.8	Pass
Peak Upper Thorax Rib Deflection	mm	25 to 32	28.0	Pass
Peak Middle Thorax Rib Deflection	mm	30 to 36	32.5	Pass
Peak Lower Thorax Rib Deflection	mm	32 to 38	35.0	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	37.6	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	32.4	Pass
Peak Impactor Acceleration	G's	30 to 36	33.9	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
28.0	16.8	0.0	-0.1
Middle Thorax Deflection			
Max	Time	Min	Time
32.5	17.0	0.0	0.7
Lower Thorax Deflection			
Max	Time	Min	Time
35.0	16.7	0.0	-7.9



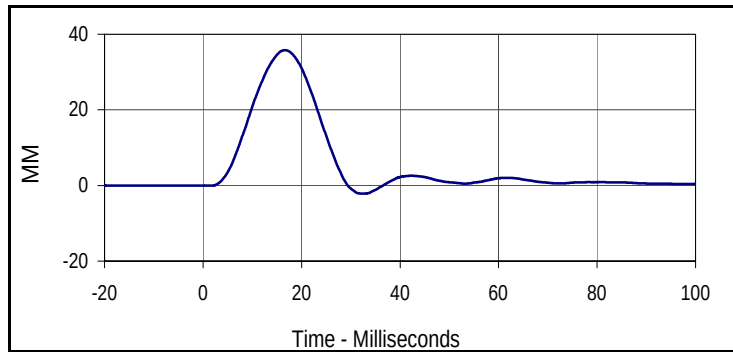
Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
37.6	11.4	-13.0	32.3
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
32.4	9.6	-6.0	31.6



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
33.9	14.0	-0.6	44.0

Test Program: SID IIs Thorax with Arm Impact Test
 ATD Serial No.: 299

Test Date: 1/15/15
 Test I.D.: 299TWA083



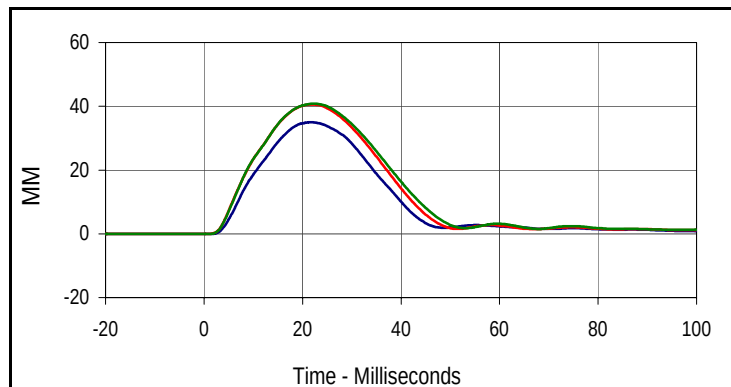
Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
007	FIL	600	MM
Max	Time	Min	Time
35.8	16.7	-2.2	32.4

Test Program: SID IIs Thorax without Arm Impact Test
 ATD Serial No.: 299

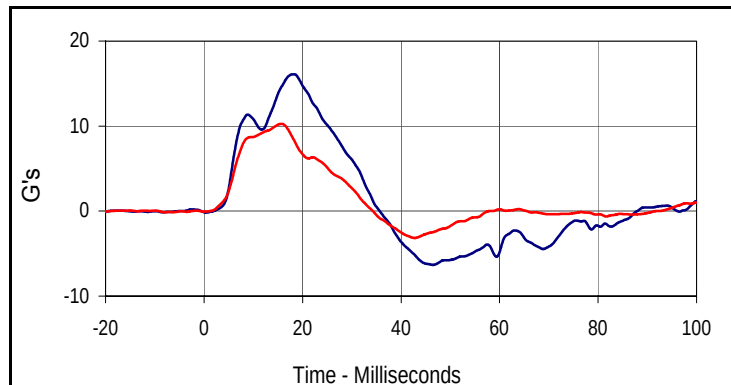
Test Date: 1/15/15
 Test I.D.: 299TWOA083



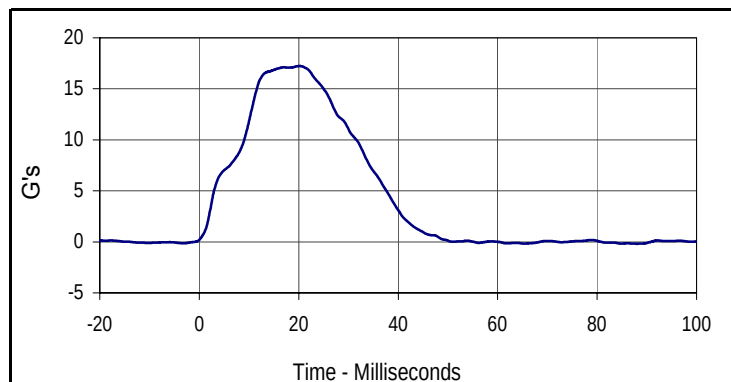
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥180	459	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.5	Pass
	Min	°C		21.4	Pass
Humidity During Soak	Max	%	10.0 to 70.0	36.7	Pass
	Min	%		36.4	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.4	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	36.7	Pass
Impactor Velocity		m/s	4.2 to 4.4	4.38	Pass
Peak Upper Thorax Rib Deflection		mm	32 to 40	35.0	Pass
Peak Middle Thorax Rib Deflection		mm	39 to 45	40.5	Pass
Peak Lower Thorax Rib Deflection		mm	35 to 43	40.8	Pass
Peak Upper Spine Y Acceleration		G's	13 to 17	16.1	Pass
Peak Lower Spine Y Acceleration		G's	7 to 11	10.3	Pass
Peak Impactor Acceleration		G's	14 to 18	17.2	Pass
Overall Test Results				Pass	



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
35.0	21.7	0.0	-5.4
Middle Thorax Deflection			
Max	Time	Min	Time
40.5	21.9	0.0	-12.2
Lower Thorax Deflection			
Max	Time	Min	Time
40.8	22.3	0.0	-12.0



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
16.1	18.2	-6.3	46.5
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
10.3	15.7	-3.2	42.8



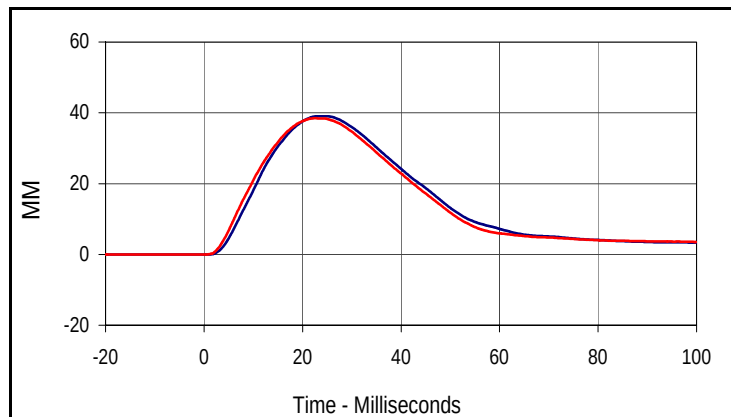
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
17.2	20.2	-0.2	88.0

Test Program: SID IIs Abdomen Impact Test
 ATD Serial No.: 299

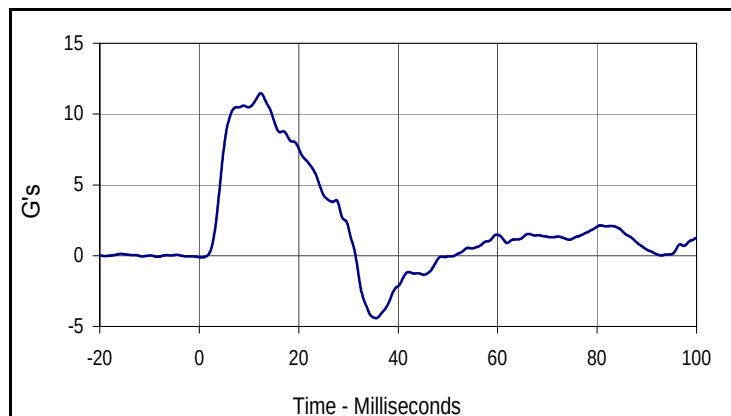
Test Date: 1/15/15
 Test I.D.: 299ABD083



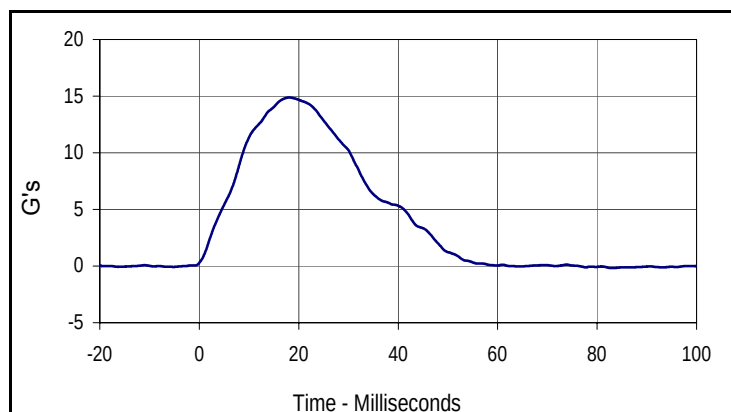
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	504	Pass
Temperature During Soak	Max	20.6 to 22.2	21.5	Pass
	Min		21.4	Pass
Humidity During Soak	Max	10.0 to 70.0	36.7	Pass
	Min		36.4	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	36.7	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.37	Pass
Peak Upper Abdominal Rib Deflection	mm	36 to 47	39.1	Pass
Peak Lower Abdominal Rib Deflection	mm	33 to 44	38.5	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	11.5	Pass
Peak Impactor Acceleration	G's	12 to 16	14.9	Pass
Overall Test Results			Pass	



Curve Description			
Upper Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
39.1	24.1	0.0	-15.8
Curve Description			
Lower Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
38.5	22.5	0.0	-10.4

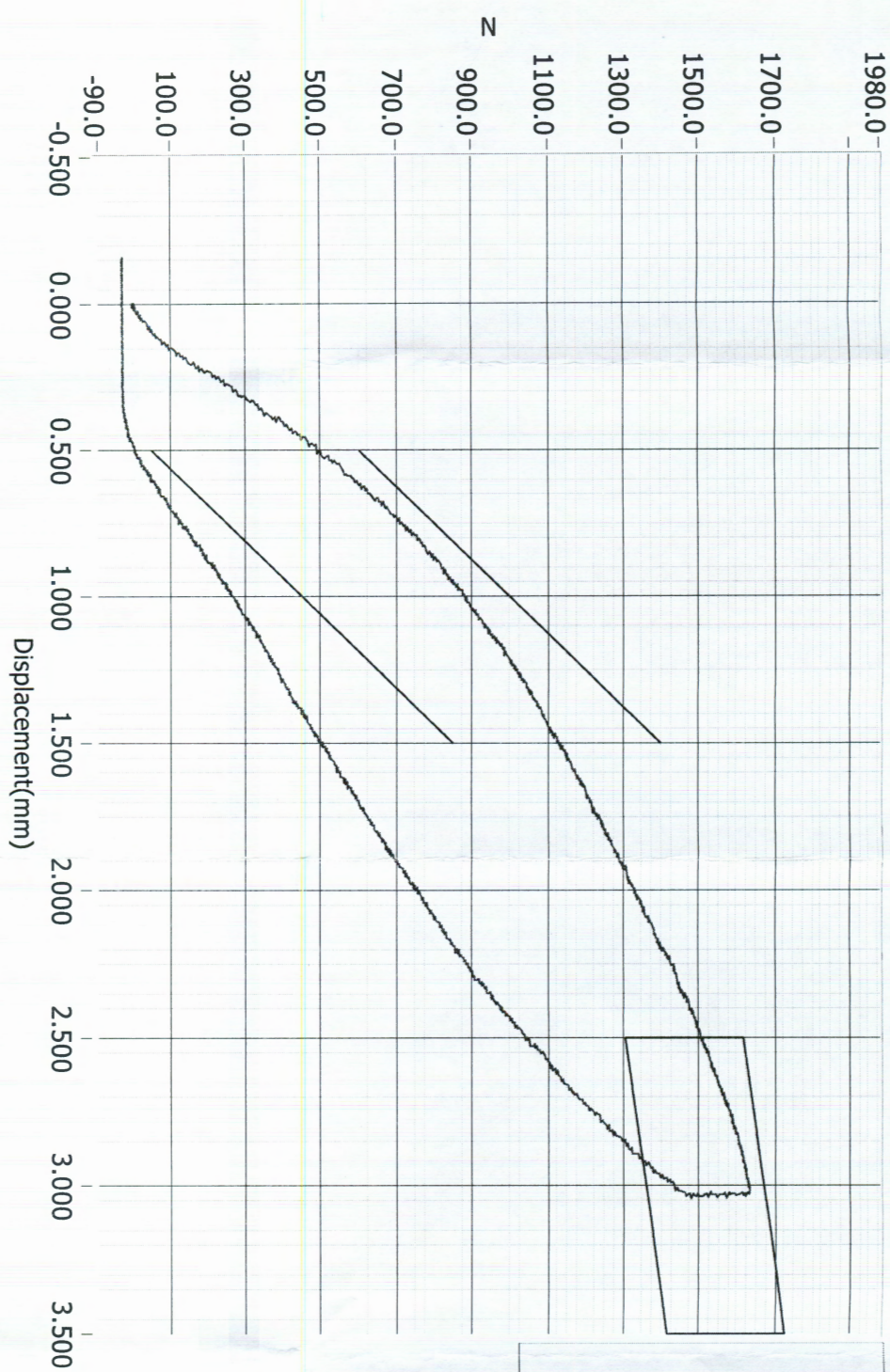


Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
11.5	12.4	-4.4	35.5



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
14.9	18.1	-0.2	83.0

Resultant Data - SIDIIs Plug Compression



Loading Curve	—
Boundary Limit Upper	—
Boundary Limit Lower	—
Peak Load Upper	—
Peak Load Lower	—
Peak Defl Upper	—
Peak Defl Lower	—

1631N

ATD Calibration Lab

M20154107 Post Test

Test ID	Part Serial Number	Test Date	Test Time
	70955	12/13/2013	8:57 PM
Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

Current Date : 12/13/2013

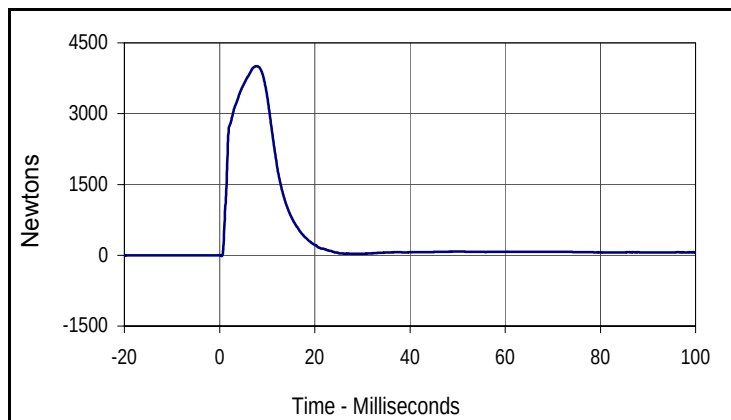
Current Time : 20:58:27

Test Program: SID IIs Pelvis Acetabulum Impact Test
 ATD Serial No.: 299

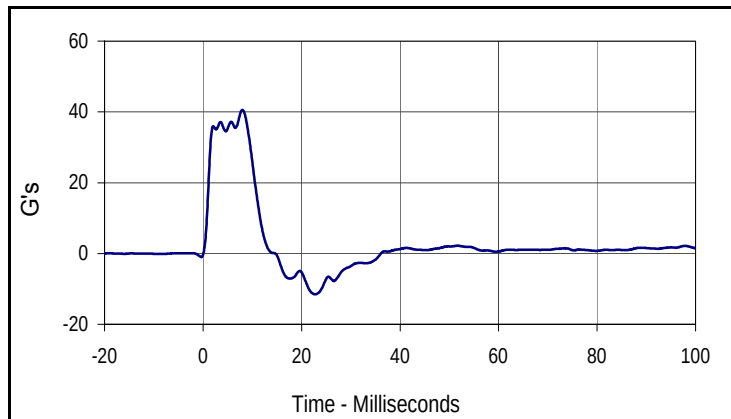
Test Date: 1/15/15
 Test I.D.: 299ACET083



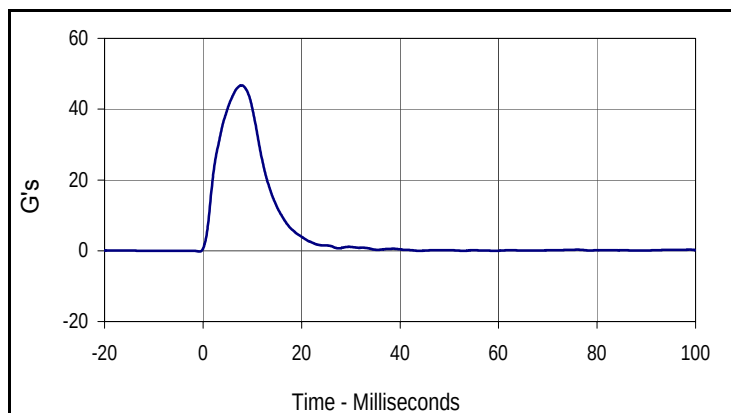
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	549	Pass
Temperature During Soak	Max	20.6 to 22.2	21.5	Pass
	Min		21.4	Pass
Humidity During Soak	Max	10.0 to 70.0	36.7	Pass
	Min		36.4	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	36.7	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.72	Pass
Peak Acetabulum Force Y	Newtons	3600 to 4300	4007.2	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	40.5	Pass
Peak Impactor Acceleration	G's	38 to 47	46.7	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Acetabulum Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4007.2	7.7	-16.8	0.5



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
40.5	8.0	-11.5	22.7



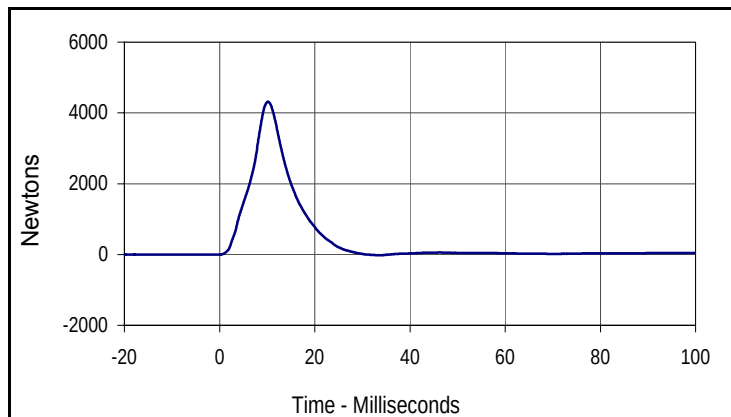
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
46.7	7.8	-0.2	-0.7

Test Program: SID IIs Pelvis Iliac Calibration
 ATD Serial No.: 299

Test Date: 1/15/15
 Test I.D.: 299PL083



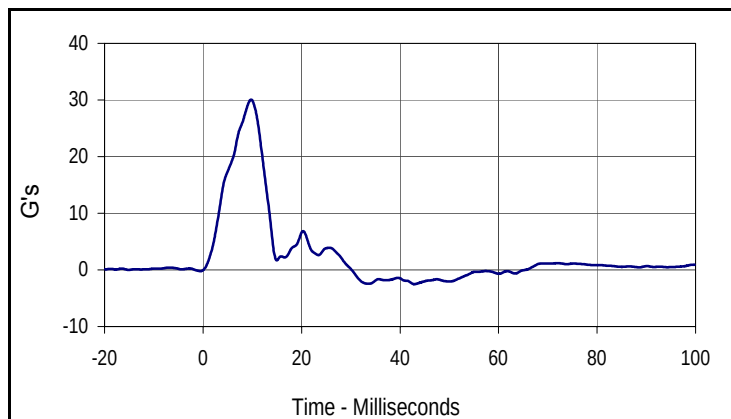
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	594	Pass
Temperature During Soak	Max	20.6 to 22.2	21.5	Pass
	Min		21.4	Pass
Humidity During Soak	Max	10.0 to 70.0	36.7	Pass
	Min		36.4	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	36.7	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.33	Pass
Peak Iliac Force	Newtons	4100 to 5100	4318.2	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	30.1	Pass
Peak Impactor Acceleration	G's	36 to 45	41.6	Pass
Overall Test Results			Pass	



Curve Description

Pelvis Iliac Force

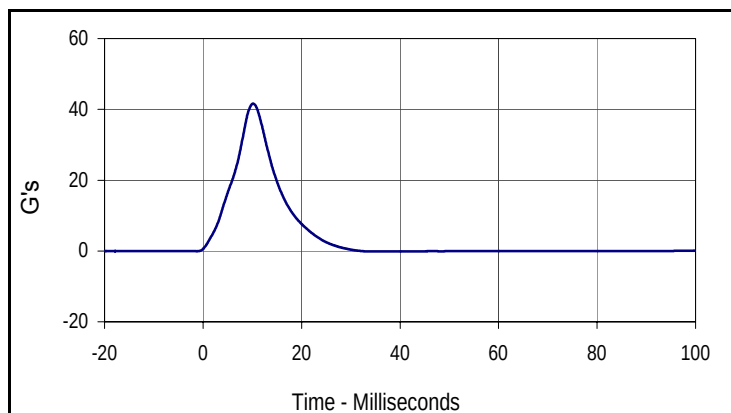
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4318.2	10.2	-22.8	33.1



Curve Description

Pelvis Y Acceleration

Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
30.1	9.8	-2.5	42.9



Curve Description

Impactor Acceleration

Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
41.6	10.1	-0.1	34.4

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N 299		
				Serial Number	Manufacturer	Calibration
Head Accelerometers	Primary		X	P58736	Endevco	10/6/14
			Y	P51929	Endevco	10/6/14
			Z	P51934	Endevco	10/6/14
	Redundant		X	P68604	Endevco	10/6/14
			Y	P51931	Endevco	10/6/14
			Z	P51939	Endevco	10/6/14
Displacement Potentiometers	Thoracic Rib	Upper	Y	1143	FTSS	10/7/14
		Middle	Y	1160	FTSS	10/7/14
		Lower	Y	1213	FTSS	10/7/14
	Abdominal Rib	Upper	Y	1218	FTSS	10/7/14
		Lower	Y	1234	FTSS	10/7/14
Lower Spine Accelerometers (T12)			X	04I20-Z04	Endevco	10/7/14
			Y	06A07-R08	Endevco	10/7/14
			Z	P58795	Endevco	10/7/14
Acetabulum Load Cell			Y	272	Denton	5/1/14
Iliac Wing Load Cell			Y	284	Denton	5/1/14
Pelvis Plug (Struck Side)				70684	FTSS	12/12/13
Pelvis Plug (Non-Struck Side)				70800	FTSS	12/13/13

TABLE 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	A148258	MSI	9/23/14
Vehicle Center of Gravity	Y	A147432	MSI	9/11/14
Vehicle Center of Gravity	Z	A147476	MSI	9/11/14
Left Floor Sill	Y	A147477	MSI	9/11/14
A-Pillar Sill	Y	A147469	MSI	9/11/14
A-Pillar Low	Y	A145471	MSI	8/16/14
A-Pillar Mid	Y	A147450	MSI	9/11/14
B-Pillar Sill	Y	N/A	N/A	N/A
B-Pillar Low	Y	N/A	N/A	N/A
B-Pillar Mid	Y	N/A	N/A	N/A
Driver Seat	Y	A145492	MSI	8/13/14
Engine Top	X	A147478	MSI	9/11/14
Engine Top	Y	A147458	MSI	9/11/14
Firewall	Y	A147459	MSI	9/11/14
Right Roof	Y	A147461	MSI	9/11/14
Right Floor Sill	Y	A147473	MSI	9/11/14
Rear Floorpan	X	A147441	MSI	9/11/14
Rear Floorpan	Y	A147463	MSI	9/11/14

TABLE 3 – Pole Instrumentation

	Serial Number	Manufacturer	Calibration Date
Load Cell 1	131822A	Interface	5/20/14
Load Cell 2	132304A	Interface	5/20/14
Load Cell 3	19477	Interface	5/20/14
Load Cell 4	19325	Interface	5/20/14
Load Cell 5	131827A	Interface	5/20/14
Load Cell 6	132302A	Interface	5/21/14
Load Cell 7	19267	Interface	5/21/14
Load Cell 8	19321	Interface	5/21/14