

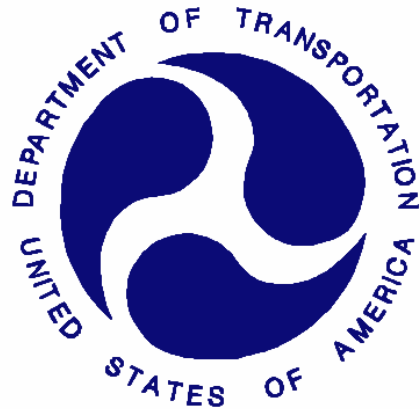
**\*REPORT NUMBER: NCAP-KAR-14-006**

**NEW CAR ASSESSMENT PROGRAM (NCAP)  
FRONTAL BARRIER IMPACT TEST**

**NISSAN MOTOR CO., LTD.  
2014 INFINITI Q50 3.7 AWD PREMIUM 4-DOOR SEDAN**

**NHTSA NUMBER: M20145200**

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



**DECEMBER 2, 2013**

**FINAL REPORT**

**U.S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
SAFETY PERFORMANCE STANDARDS  
OFFICE OF CRASHWORTHINESS STANDARDS  
1200 NEW JERSEY AVE, SE  
ROOM W43-410  
WASHINGTON, DC 20590**



## TECHNICAL REPORT DOCUMENTATION PAGE

<b>1. Report No.</b> NCAP-KAR-14-006	<b>2. Government Accession No.</b>	<b>3. Recipient's Catalog No.</b>																																																					
<b>4. Title and Subtitle</b> Final Report of New Car Assessment Program Testing of a 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No. M20145200		<b>5. Report Date</b> December 2, 2013																																																					
		<b>6. Performing Organization Code</b> KAR																																																					
<b>7. Authors</b> Mr. Steven D. Matsusaka, Engineering Department Supervisor, KARCO Mr. Frank Richardson, Program Manager, KARCO		<b>8. Performing Organization Report No.</b> TR-P33001-18-NC																																																					
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<b>9. Performing Organization Name and Address</b> KARCO Engineering, LLC. 9270 Holly Rd. Adelanto, CA 92301		<b>11. Contract or Grant No.</b> DTNH22-12-D-00259																																																					
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<b>12. Sponsoring Agency Name and Address</b> U. S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards 1200 New Jersey Ave., SE, Room W43-410 Washington, D.C. 20590		<b>14. Sponsoring Agency Code</b> NVS-111																																																					
		<b>15. Supplementary Notes</b>																																																					
<b>16. Abstract</b> <p>A 56.3 km/h NCAP Frontal Impact Test was conducted on a 2014 Infiniti Q50 3.7 AWD Premium 4-door sedan in accordance with the specifications of the Office of Crashworthiness Standards Frontal NCAP Laboratory Test Procedure. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301, and footwell intrusion performance. The test was conducted at the KARCO Engineering, LLC. facility in Adelanto, California on November 14, 2013.</p> <p>The impact velocity of the vehicle was 56.19 km/h and the ambient temperature at the barrier face at the time of impact was 24.4 deg. C. The target vehicle's post-test maximum crush was 426 mm at DPD 2 to the left of the vehicle's centerline. The test vehicle's performance is as follows:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th rowspan="2">Units</th> <th colspan="2">Driver ATD</th> <th colspan="2">Passenger ATD</th> </tr> <tr> <th>Threshold</th> <th>Result</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC<sub>15</sub>)</td> <td>N/A</td> <td>700.0</td> <td>225.2</td> <td>700.0</td> <td>152.5</td> </tr> <tr> <td>Maximum Chest Compression</td> <td>mm</td> <td>63</td> <td>-29</td> <td>52</td> <td>-25</td> </tr> <tr> <td>Nij</td> <td>N/A</td> <td>1</td> <td>0.24</td> <td>1</td> <td>0.48</td> </tr> <tr> <td>Neck Tension</td> <td>N</td> <td>4170</td> <td>993.7</td> <td>2620</td> <td>643.4</td> </tr> <tr> <td>Neck Compression</td> <td>N</td> <td>4000</td> <td>-201.3</td> <td>2520</td> <td>-378.0</td> </tr> <tr> <td>Left Femur Force</td> <td>N</td> <td>10008</td> <td>-821.1</td> <td>6805</td> <td>-2406.1</td> </tr> <tr> <td>Right Femur Force</td> <td>N</td> <td>10008</td> <td>-1387.2</td> <td>6805</td> <td>-1306.1</td> </tr> </tbody> </table>				Measurement Description	Units	Driver ATD		Passenger ATD		Threshold	Result	Threshold	Result	Head Injury Criteria (HIC <sub>15</sub> )	N/A	700.0	225.2	700.0	152.5	Maximum Chest Compression	mm	63	-29	52	-25	Nij	N/A	1	0.24	1	0.48	Neck Tension	N	4170	993.7	2620	643.4	Neck Compression	N	4000	-201.3	2520	-378.0	Left Femur Force	N	10008	-821.1	6805	-2406.1	Right Femur Force	N	10008	-1387.2	6805	-1306.1
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<b>17. Key Words</b> 35 mph Frontal Barrier Impact Test New Car Assessment Program (NCAP)		<b>18. Distribution Statement</b> Copies of this report are available from: National Highway Traffic Safety Administration 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**

### **PURPOSE AND SUMMARY OF TEST**

#### **PURPOSE**

This 56.3 km/h frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program, sponsored by the National Highway Traffic Safety Administration (NHTSA) under contract number DTNH22-12-D-00259. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for consumer information purposes.

The 56.3 km/h frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Frontal NCAP Laboratory Test Procedure, dated September 2013.

#### **SUMMARY**

A load cell barrier consisting of 176 load cells was impacted by a 2014 Infiniti Q50 3.7 AWD Premium 4-door sedan at a velocity of 56.19 km/h. The test was performed at KARCO Engineering, LLC. on November 14, 2013. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A of this report.

Three (3) real-time cameras and sixteen (16) high-speed cameras were used to document the frontal barrier impact event. Camera locations and other pertinent camera information can be found in Data Sheet 6 of this report.

One Part 572E 50<sup>th</sup> percentile male anthropomorphic test device (ATD) was placed in the driver seating position and one Part 572O 5<sup>th</sup> percentile female ATD was placed in the right-front passenger seating position according to dummy placement instructions specified in the Frontal NCAP Laboratory Test Procedure.

Both ATDs were fully instrumented with head, chest and pelvis tri-axial accelerometers, chest displacement potentiometers, upper neck force transducers, right / left femur load cells, and lower leg instrumentation. A seat belt load cell was placed on the driver's shoulder belt to measure the dummy torso section loading. The driver (position 1) ATD (Serial No. 034) and the right-front passenger (position 2) ATD (Serial No. 141) were calibrated prior to this test. Certification details, along with instrumentation calibration data, are found in Appendix C of this report.

The 110 channels of dummy and vehicle response data were recorded on an on-board data acquisition system. Appendix B contains the dummy response data traces.

There was 100% windshield retention and no intrusion into the protected zone of the windshield during the event.

The maximum static crush of the test vehicle was 426 mm located at DPD 2 to the left of the vehicle's centerline. Both the driver and passenger side doors remained closed during the impact event and were operable after the impact.

The driver's visible contact points were as follows: The driver ATD's head contacted the airbag, headrest, and sun visor. The upper torso contacted the airbag. Both the left and right knees contacted the knee bolster and steering column. The driver ATD's left thigh also contacted the lower steering wheel rim.

The passenger's visible contact points were as follows: The passenger ATD's head contacted the airbag and headrest. The upper torso contacted the airbag. Both the left and right knees contacted the glovebox.

The occupant data is summarized below:

ATD Position	HIC <sub>15</sub>	T <sup>1</sup>	T <sup>2</sup>	Chest Disp. (mm)	Nij	Neck Tension (N)	Neck Comp. (N)	Left Femur (N)	Right Femur (N)
Driver (50th)	225.2	64.7	79.7	-29	0.24	993.7	-201.3	-821.1	-1387.2
Passenger (5th)	152.5	61.6	76.6	-25	0.48	643.4	-378.0	-2406.1	-1306.1

## SECTION 2

### OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13

#### 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 <sup>2</sup>	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: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200  
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13

**TEST VEHICLE INFORMATION AND OPTIONS**

NHTSA Number	M20145200
Model Year	2014
Make	Infiniti
Model	Q50 3.7 AWD Premium
Body Style	4-Door Sedan
VIN	JN1BV7AR6EM688606
Body Color	Liquid Platinum
Odometer Reading (km / mi)	77 /48
Engine Displacement (L)	3.7
Type / No. of Cylinders	V6
Engine Placement	Longitudinal
Transmission Type	Automatic
Transmission Speeds	7
Overdrive	Yes
Final Drive	AWD
Roof Rack	No
Sunroof / T-Top	Yes
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	Yes
Anti-Lock Brakes (ABS)	Yes
Automatic Door Locks (ADLs)	Yes

Traction Control System	Yes
Power Steering	Yes
Power Window Auto-Reverse	Yes
Driver Frontal Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	No
Front Pass. Frontal Airbag	Yes
Front Pass. Curtain Airbag	Yes
Front Pass. Head/Torso Airbag	No
Front Pass. Torso Airbag	No
Front Pass. Torso/Pelvis Airbag	Yes
Front Pass. Pelvis Airbag	No
Front Pass. Knee Airbag	No
Driver Seat Belt Pretensioner	Yes
Driver Load Limiter	Yes
Front Pass. Seat Belt Pretensioner	Yes
Front Pass. Load Limiter	Yes
Other	No

Does Owner's Manual provide instructions to turn off automatic door locks? No

**DATA FROM CERTIFICATION LABEL**

Manufactured By	Nissan Motor Co., Ltd.
Date of Manufacture	Jul-13

GVWR (kg)	2269
GAWR Front (kg)	1145
GAWR Rear (kg)	1140

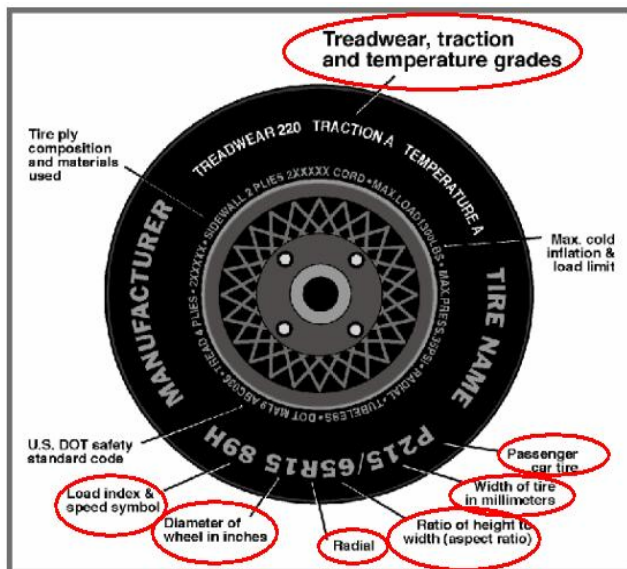
**VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION**

Measured Parameter	Front	Rear	Third	Total	
Type of Seats	Bucket	Bench			
Designated Seating Capacity	2	3		5	
Capacity Weight (VCW) (kg)				408.0	A
DSC x 68.04 (kg)				340.2	B
Cargo Weight (RCLW) (kg)				67.8	A-B

## DATA SHEET NO. 1 ... (CONTINUED)

### GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200  
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13



### VEHICLE TIRE INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	240	240
Recommended Tire Size	P225/55RF17	P225/55RF17
Tire Size on Vehicle	P225/55RF17	P225/55RF17
Tire Manufacturer	Bridgestone	Bridgestone
Tire Model	Potenza	Potenza
Treadwear	400	400
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	1 Rayon	1 Rayon
Tire Plies Body	1 Rayon, 2 Steel, 1 Aramid & Rayon	1 Rayon, 2 Steel, 1 Aramid & Rayon
Load Index / Speed Symbol	95V	95V
Tire Material	Rayon, Steel, Aramid & Rayon	Rayon, Steel, Aramid & Rayon
DOT Safety Code Left	EJUP CCM 2313	EJUP CCM 2313
DOT Safety Code Right	EJUP CCM 2313	EJUP CCM 2313

**DATA SHEET NO. 1 ... (CONTINUED)**

**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200  
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13

**TEST VEHICLE WEIGHTS**

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	502.5	378.0		524.5	464.5	
Right	kg	496.0	375.0		510.0	453.0	
Ratio	%	57.0%	43.0%	100.0%	53.0%	47.0%	100.0%
Total	kg	998.5	753.0	1751.5	1034.5	917.5	1952.0

**TARGET TEST WEIGHT CALCULATION**

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1751.5	A
Weight of 1 P572E ATD & 1 P572O ATD	kg	141.0	B
Rated Cargo/Luggage Weight (RCLW)	kg	67.8	C
Calculated Vehicle Target Weight (TVTW)	kg	1960.3	A+B+C

**TEST VEHICLE ATTITUDES**

Condition	Units	LF	RF	LR	RR	CG Aft of Front Axle
As Delivered	mm	720	724	714	710	1225
As Tested	mm	711	709	687	691	1340
Post-Test	mm	742	724	689	696	

**GENERAL TEST VEHICLE DATA**

Measurement Description	Units	Value
Total Vehicle Wheel Base	mm	2850
Total Vehicle Length at Left Side	mm	4242
Total Vehicle Length at Centerline	mm	4785
Total Vehicle Length at Right Side	mm	4246
Weight of Ballast in Cargo Area	kg	79.4
Weight of Vehicle Components Removed	kg	35.0
Amount of Stoddard Solvent in Fuel Tank	L	70.40

**VEHICLE COMPONENTS REMOVED TO MEET TEST WEIGHT:**

Plastic splash guards (2.5 kg), Trunk trim (6.0 kg), Spare tire tools (2.0 kg), Outboard mirrors (4.0 kg), Tail lights (2.0 kg), Rear bumper (5.0 kg), Rear door panels (5.0 kg), Rear speakers (2.0 kg), Rear seat cushion (6.5 kg)

**DATA SHEET NO. 1 ... (CONTINUED)**

**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200  
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13

**TARGET VEHICLE STRUCTURAL MEASUREMENTS**

No.	Description	Pre-Test
1	Total Length	4785
2	Total Width	1805
3	Bumper Top Height	595
4	Bumper Bottom Height	347
5	Longitudinal Member Top Height	540
6	Distance Between Longitudinal Members	770
7	Longitudinal Member Width	70
8	Engine Top Height	900
9	Engine Bottom Height	181
10	Engine and Gearbox Width	590
11	Front Bumper to Engine Distance	610
12	Front Shock Absorber Fixing Height	745
13	Bonnet Leading Edge Height	755
14	Front Shock Absorber Fixing Width	820
15	Front Bumper to Front Axle Distance	835
16	Front Axle to A-Pillar Distance	650
17	A-Pillar to B-Pillar Distance	991
18	B-Pillar to Rear Axle Distance	1110
19	B-Pillar to C-Pillar Distance	905
20	Roof Sill Bottom Height	1305
21	Roof Sill Top Height	1410
22	Floor Sill Bottom Height	177
23	Floor Sill Top Height	360

All measurements in millimeters.

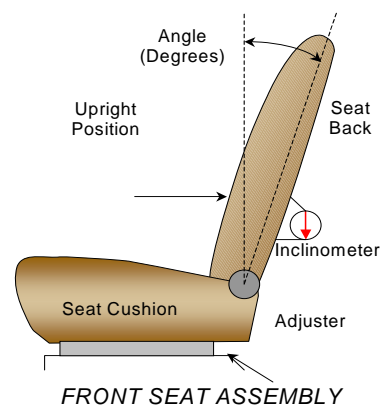
## DATA SHEET NO. 2

### SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200  
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13

#### NOMINAL DESIGN RIDING POSITION

The procedure for the driver is as follows: the seat back is set to the manufacturer's designated angle. The procedure for the passenger is as follows: the seat back is set to position the transverse instrumentation platform of the dummy's head at  $0^\circ \pm 0.5^\circ$ . Seat back angle is measured at the seat back.

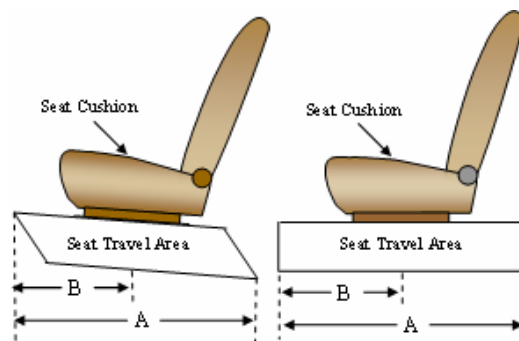


#### SEAT BACK ANGLE

Seating Position	Degrees
Driver Seat Back Angle	28.0
Passenger Seat Back Angle	26.3

#### SEAT FORE / AFT POSITIONING

The total seat travel is measured from the forward most possible position to the rear most possible position. The driver's seat is set to the middle of the fore-aft travel. The passenger's seat is set to the forward most position where the ATD will not contact any interior panels.



#### SEAT FORE/AFT POSITIONS

Seating Position	Total Fore-Aft Travel	Placed in Position
Driver Seat	310 mm	155 mm
Passenger Seat	260 mm	0 mm

#### SEAT BELT UPPER ANCHORAGE

The seat belt upper anchorage is positioned to the manufacturer's design position for a 50<sup>th</sup> percentile adult male ATD for the driver, and a 5<sup>th</sup> percentile adult female ATD for the passenger. Position "H" is the uppermost position, followed by position "M1". Position "L" is the lowermost position.

#### SEAT BELT UPPER ANCHORAGES

Seating Position	Total No. of Positions	Placed in Position
Driver Seat	4	H
Passenger Seat	4	H

## DATA SHEET NO. 2 ... (CONTINUED)

### SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

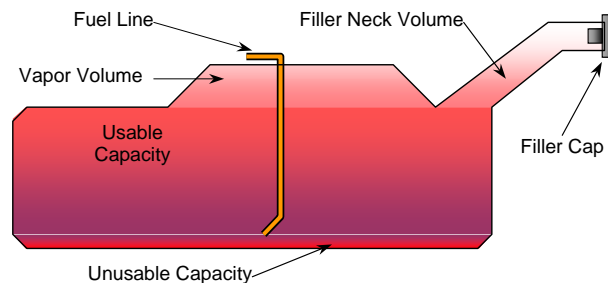
Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200  
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13

#### FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank"	75.70
Usable Capacity of "Optional Tank"	
92 - 94% of Usable Capacity	69.64 to 71.16
Actual Amount of Stoddard Solvent Used	70.40
1/3 of Usable Capacity	25.23

#### FUEL PUMP

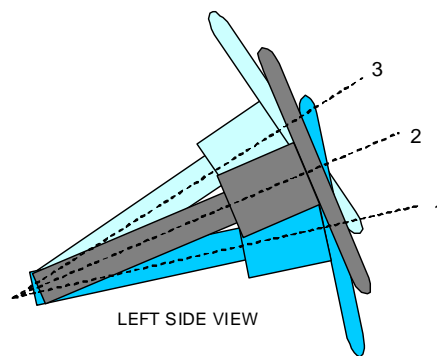
The vehicle is equipped with an electric fuel pump. The fuel pump is activated when the ignition is turned to the "ON" position.



VEHICLE FUEL TANK ASSEMBLY

#### STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when moved through its full range of motion. A digital inclinometer is used to measure a plate which is placed across the rim of the steering wheel for angular measurements. A tape measure is used to measure telescoping steering wheel travel.



STEERING COLUMN ASSEMBLY

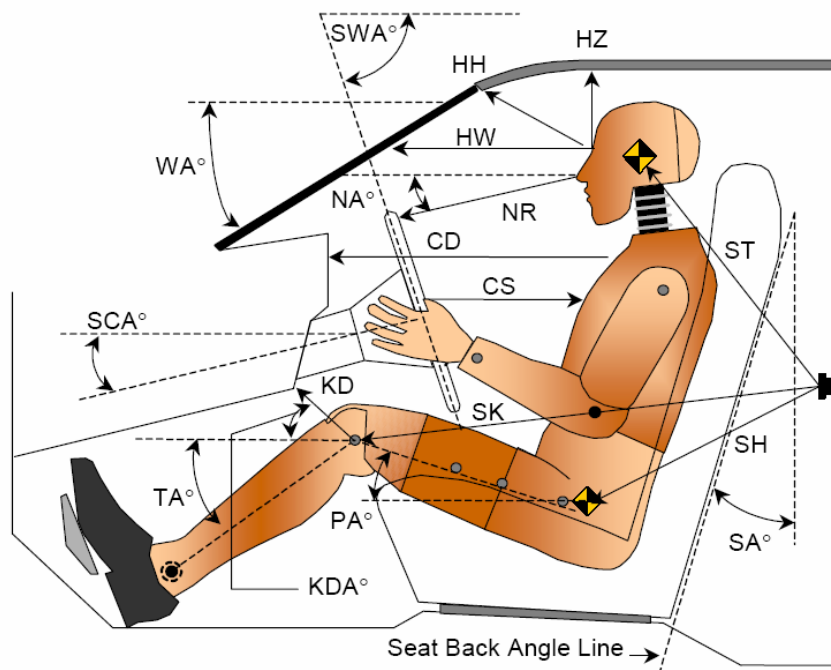
#### STEERING COLUMN POSITIONING

	Degrees	Fore-Aft Position (mm)
Lowermost Position, No. 1	14.8	130
Geometric Center Position, No. 2	17.7	150
Uppermost Position, No. 3	20.7	170
Telescoping Steering Wheel Travel		40
Test Position	17.7	150

### DATA SHEET NO. 3

#### DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200  
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13



**LEFT SIDE VIEW**

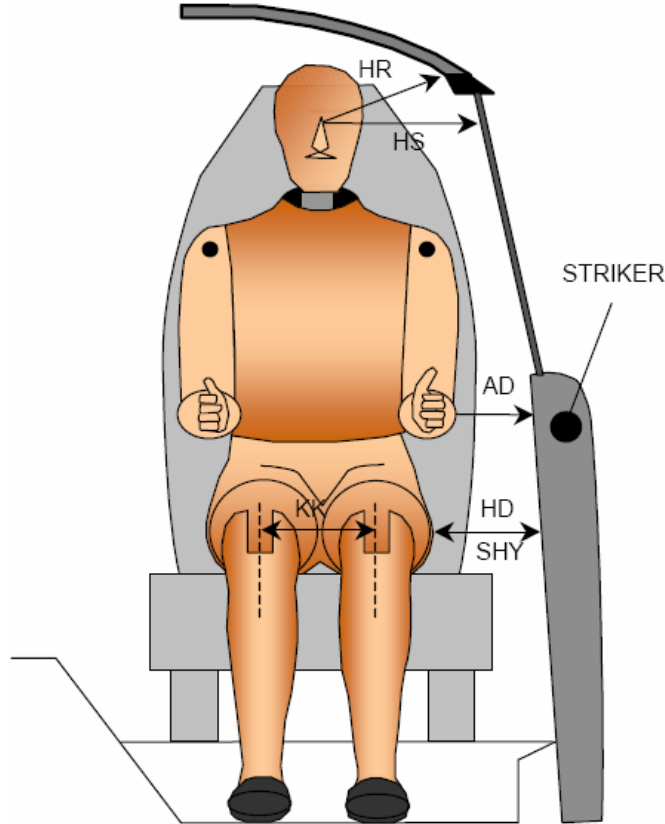
Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA°	Windshield Angle		25.9		
SWA°	Steering Wheel Angle		72.3		
SCA°	Steering Column Angle		17.7		
SA°	Seat Back Angle (On Headrest Post)		28.0		26.3
HZ	Head to Roof	169	90.0	144	90.0
HH	Head to Header	315	31.0	230	51.2
HW	Head to Windshield	591	0.0	494	0.0
NR	Nose to Rim	362	7.0	483	32.7
CD	Chest to Dash	541	12.0	419	10.1
CS	Chest to Steering Hub	286	0.0		
RA	Rim to Abdomen	195	0.0		
KDL	Left Knee to Dash	194	31.4	83	36.0
KDR	Right Knee to Dash	161	29.0	92	41.4
PA°	Pelvic Angle		24.8		21.8
TA°	Tibia Angle		30.4		54.0
SK	Striker to Knee	589	6.2	675	1.9
ST	Striker to Head	459	83.2	501	65.4
SH	Striker to H-Point	290	42.2	372	16.4

## DATA SHEET NO. 4

### DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200

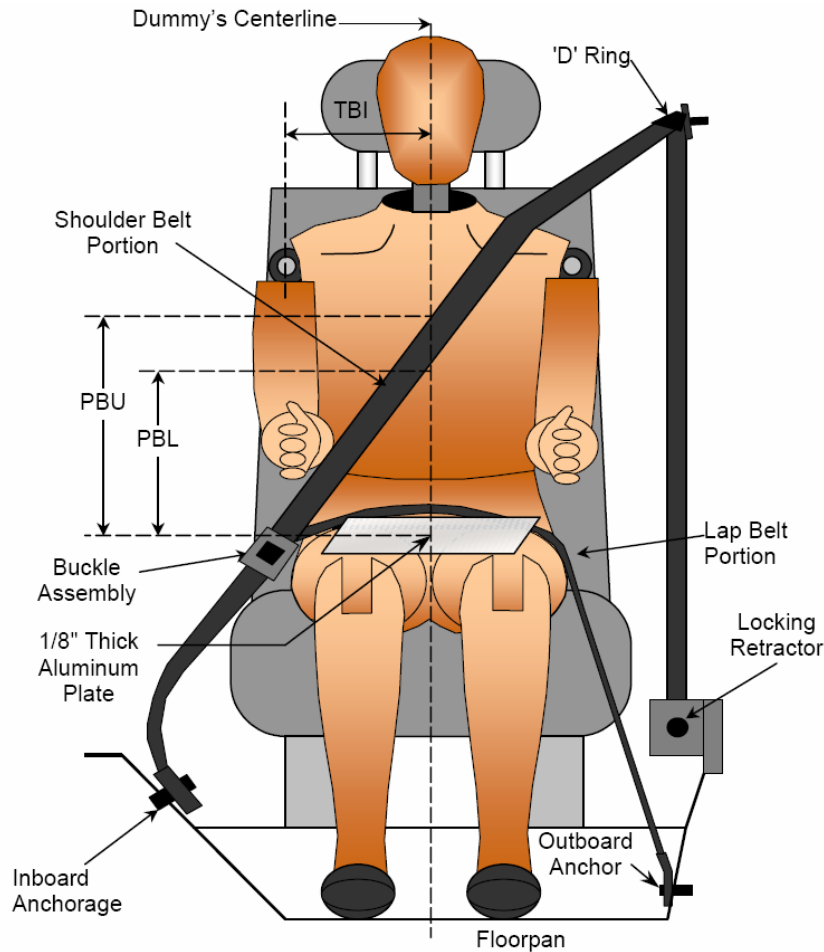
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13



Code	Description	Driver (mm)	Passenger (mm)
AD	Arm to Door	117	78
HD	H-Point to Door	145	219
HR	Head to Side Header	221	200
HS	Head to Side Window	326	308
KK	Knee to Knee	322	224
SHY	Striker to H-Point (Y-Direction)	250	267
AA	Ankle to Ankle	315	160

**DATA SHEET NO. 5**  
**SEAT BELT POSITIONING DATA**

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200  
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13



**FRONT VIEW OF DUMMY**

**SEAT BELT POSITIONING MEASUREMENTS**

Code	Measurement Description	Units	Driver	Passenger
PBU	Top Surface of Aluminum Plate to Belt Upper Edge	mm	386	355
PBL	Top Surface of Aluminum Plate to Belt Lower Edge	mm	305	277

**BELT LENGTH DATA**

Measurement Description	Units	Driver	Passenger
Shoulder Belt Length as Measured on ATD	mm	875	949
Lap Belt Length as Measured on ATD	mm	587	727
Remainder of Belt on Reel	mm	892	634
Total Belt Length for Continuous Webbing Systems	mm	2354	2310

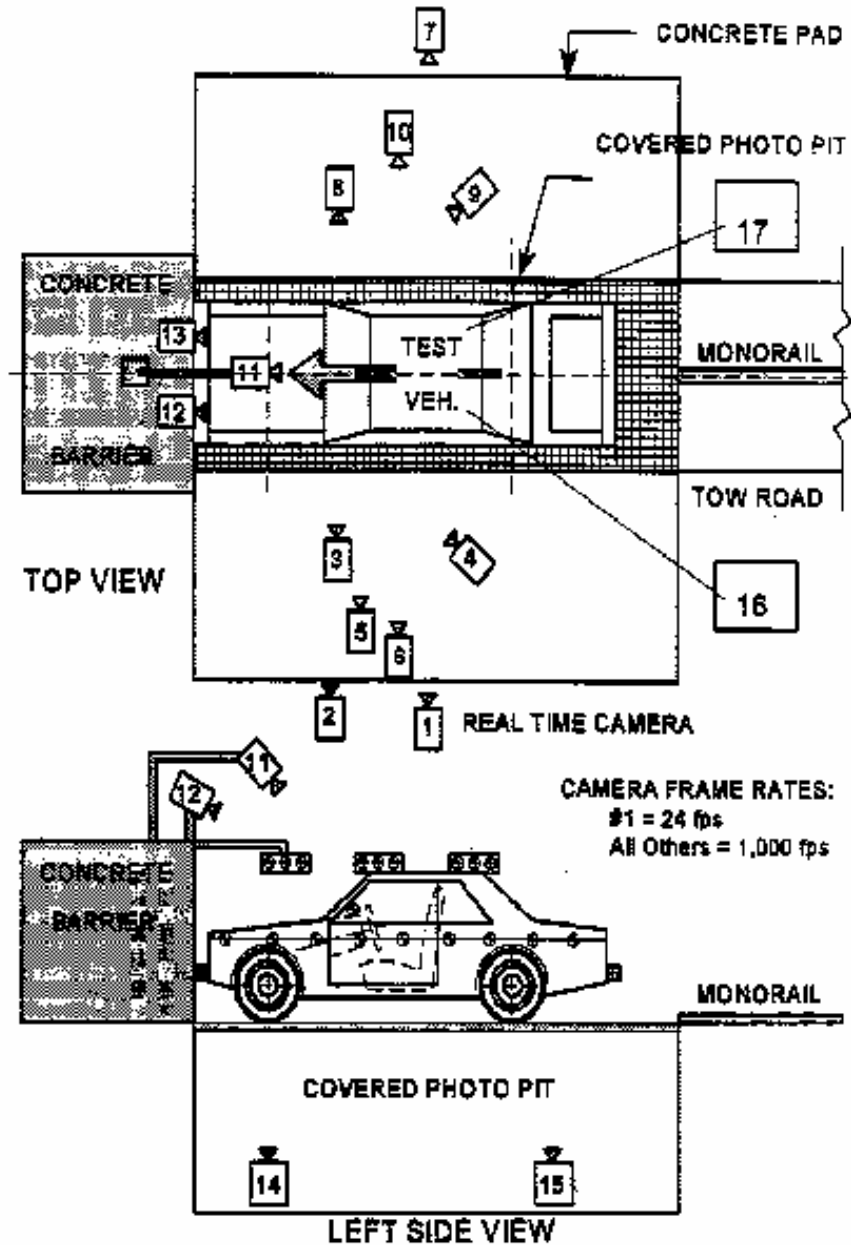
DATA SHEET NO. 6

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13

CAMERA POSITIONS FOR FRONTAL IMPACTS



**DATA SHEET NO. 6 ... (CONTINUED)**

**HIGH-SPEED CAMERA LOCATIONS AND DATA**

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200  
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13

**CAMERA LOCATIONS**

No.	Description	Location (mm)			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Real-Time Left Overall	-11412	-8150	-1484		30
2	Driver Close-Up	-2590	-7950	-1371	24	1000
3	Left Front Half	-1701	-6197	-1701	50	1000
4	Left Angle	-6696	-10308	-3211	ZOOM	1000
5	Steering Column - Top	-1966	-10412	-3688	50	1000
6	Steering Column - Bottom	-1972	-10412	-3379	50	1000
7	Right Overall	-2336	7569	-1012	24	1000
8	Passenger Close-Up	-1733	7581	-1408	50	1000
9	Right Front Half	-1600	8214	-1811	ZOOM	1000
10	Right Angle	-6217	9516	-4830	ZOOM	1000
11	Windshield	-354	0	-5749	12	1000
12	Driver Windshield	297	-366	-2460	12	1000
13	Passenger Windshield	297	366	-2460	24	1000
14	Pit Front	-756	0	1495	12	1000
15	Pit Rear	-3398	0	1495	8	1000
16	Onboard Driver Airbag (Optional)	-1500	250	-1230	12	1000
17	Onboard Passenger Airbag (Optional)	-1500	-250	-1230	12	1000
18	Real-Time Left View of Impact					
19	Real-Time Right View of Impact					

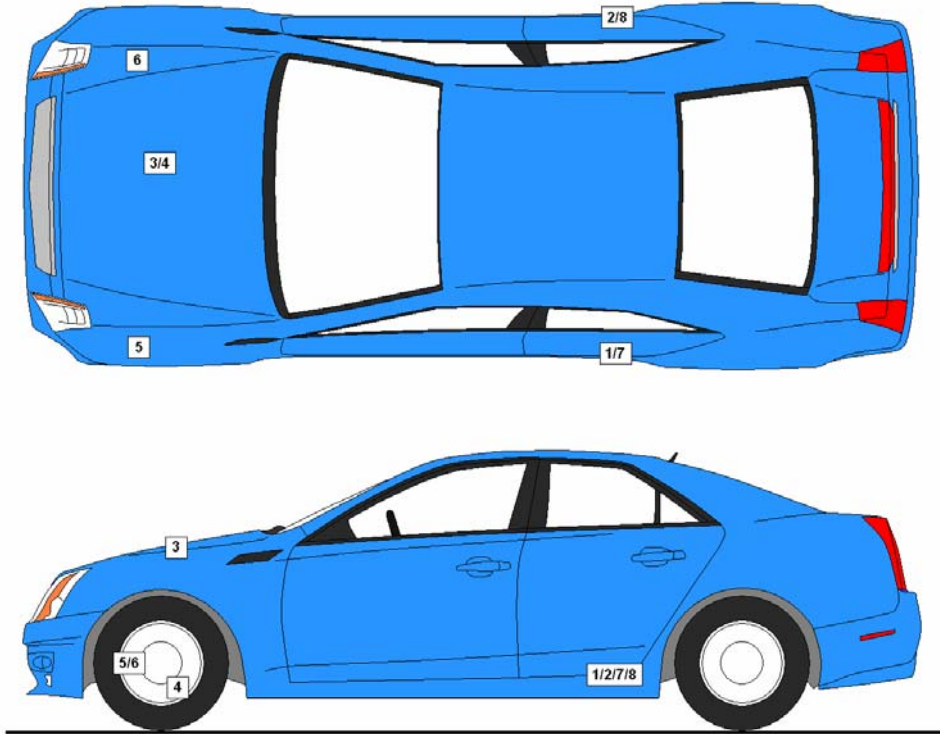
Coordinates:      +X = forward impact plane  
                       +Y = right of monorail center  
                       +Z = into ground

**DATA SHEET NO. 7**

**VEHICLE ACCELEROMETER LOCATIONS**

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13



**VEHICLE ACCELEROMETER PRE-TEST LOCATIONS**

No.	Description	Location		
		X	Y	Z
1	Left Rear Accelerometer X-Direction	2036	-710	-402
2	Right Rear Accelerometer X-Direction	2036	710	-402
3	Engine Top X	3998	49	-854
4	Engine Bottom X	4044	-98	-145
5	Left Rear Accelerometer Z-Direction	2036	-710	-402
6	Right Rear Accelerometer Z-Direction	2036	710	-402

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

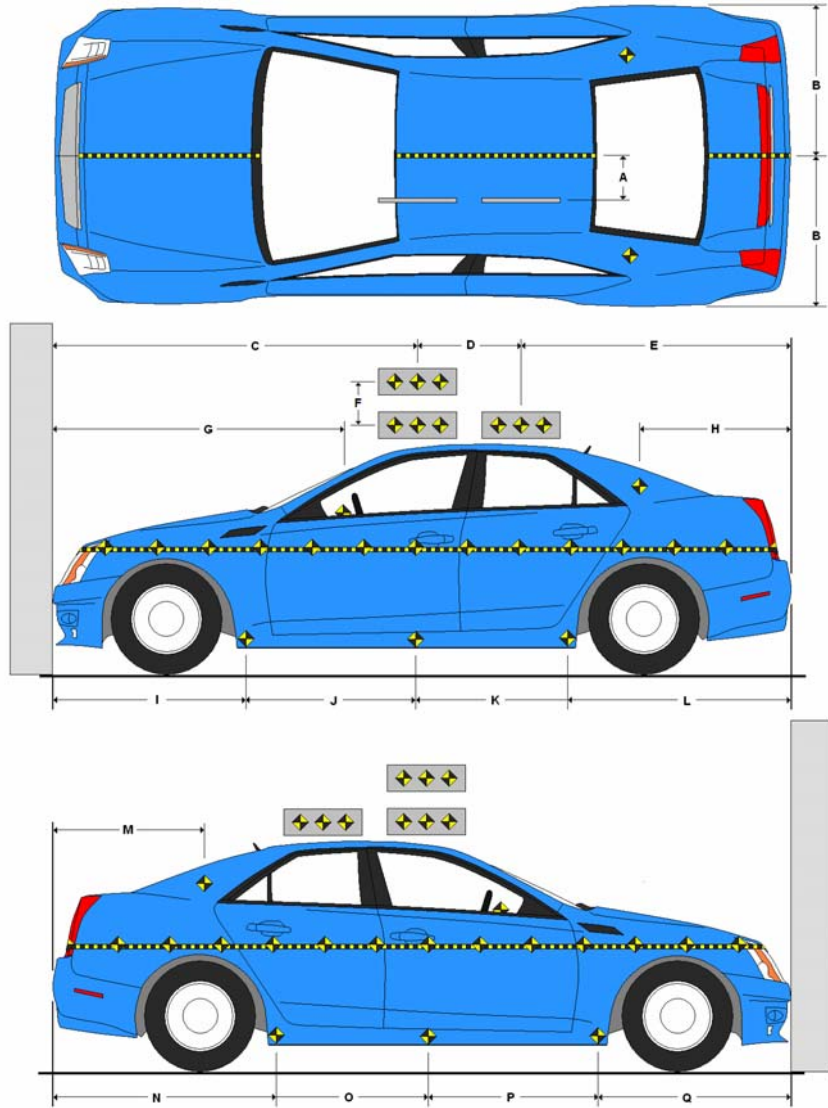
**DATA SHEET NO. 8**

**PHOTOGRAPHIC REFERENCE TARGET LOCATIONS**

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13

Item	Value
A	
B	903
C	2050
D	610
E	2020
F	305
G	1880
H	1000
I	1275
J	985
K	985
L	1532
M	980
N	1530
O	985
P	985
Q	1270



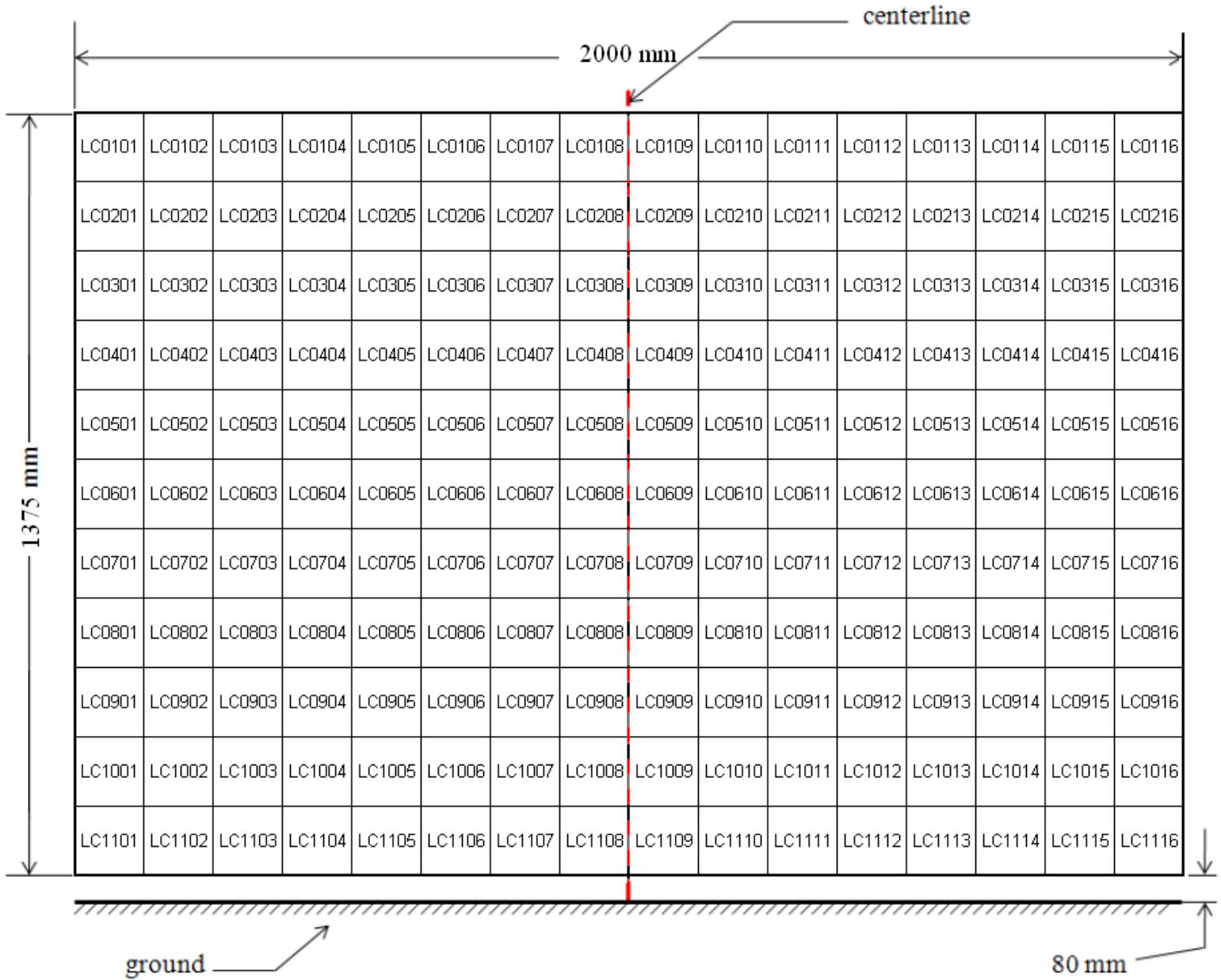
All measurements in millimeters.

**DATA SHEET NO. 9**

**LOAD CELL LOCATIONS ON FIXED BARRIER**

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13



**DATA SHEET NO. 10**

**TEST VEHICLE CAMERA AND INSTRUMENTATION SUMMARY**

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13

**INSTRUMENTATION**

Driver Dummy Accelerometers	50
Passenger Dummy Accelerometers	50
Vehicle Structure Accelerometers	8
Seat Belt Load Cells	1
Load Cell Barrier	528
Total	637

**CAMERA COVERAGE**

High-Speed Vehicle On Board	2
High-Speed Off board	14
Real Time	3
Total	19

**DATA SHEET NO. 11**  
**POST-TEST OBSERVATIONS**

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200  
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13

**TEST DUMMY INFORMATION AND CONTACT**

Description	Driver	Passenger
Dummy Type/Serial No.	P572E 50th Percentile Male ATD / 034	P572O 5th Percentile Female ATD / 141
Head Contact	Airbag, Headrest, Sun Visor	Airbag, Headrest
Upper Torso Contact	Airbag	Airbag
Lower Torso Contact	None	None
Left Knee Contact	Knee Bolster, Steering Column	Glovebox
Right Knee Contact	Knee Bolster, Steering Column	Glovebox

**DOOR OPENING AND SEAT TRACK INFORMATION**

Description	Driver	Passenger
Locked / Unlocked Doors	Locked	Locked
Front Door Opening	Remained closed and latched, operational	Remained closed and latched, operational
Rear Door Opening	Remained closed and latched, operational	Remained closed and latched, operational
Seat Track Shift (mm)	11	5
Seat Back Failure	None	None
Glazing Damage	None	None

**POST TEST STRUCTURAL OBSERVATIONS**

Critical Areas of Performance	Observations and Conclusions
Windshield Damage	Broken
Window Damage	None
Other Notable Effects	None

**VEHICLE REBOUND FROM BARRIER**

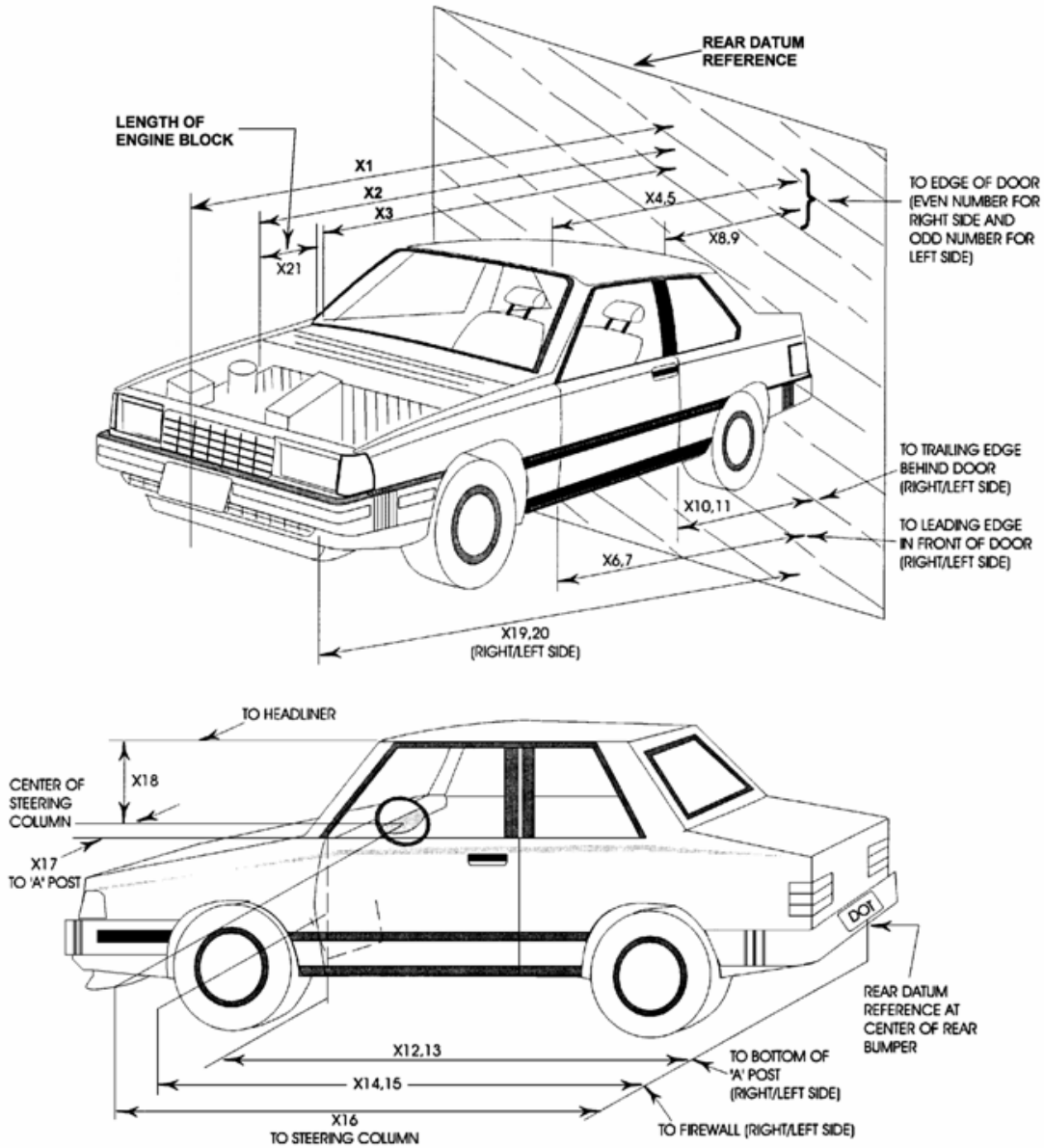
Measured Parameter	Units	Value
Left Side	mm	1808
Center	mm	1787
Right Side	mm	1941
Average	mm	1845

**SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION**

Restraint Type	Driver		Passenger	
	Installed	Operated	Installed	Operated
Front Airbag	Yes	Yes	Yes	Yes
Side Airbag 1 (Curtain)	Yes	No	Yes	No
Side Airbag 2 (Torso/Pelvis)	Yes	No	Yes	No
Knee Airbag	No		No	
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes
Other	No		No	

**DATA SHEET NO. 12**  
**VEHICLE PROFILE MEASUREMENTS**

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200  
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13



**DATA SHEET NO. 12 ... (CONTINUED)**

**VEHICLE PROFILE MEASUREMENTS**

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13

No.	Description	Pre-Test	Post-Test	Difference
1	Total Length of Vehicle at Centerline	4785	4400	-385
2	Rear Surface of Vehicle to Front of Engine	4175	4030	-145
3	RSOV to Firewall	3580	3387	-193
4	RSOV to Upper Leading Edge of Right Door	3328	3334	6
5	RSOV to Upper Leading Edge of Left Door	3322	3332	10
6	RSOV to Lower Leading Edge of Right Door	3285	3278	-7
7	RSOV to Lower Leading Edge of Left Door	3282	3283	1
8	RSOV to Upper Trailing Edge of Right Door	2196	2208	12
9	RSOV to Upper Trailing Edge of Left Door	2189	2197	8
10	RSOV to Lower Trailing Edge of Right Door	2201	2988	787
11	RSOV to Lower Trailing Edge of Left Door	2193	2195	2
12	RSOV to Bottom of A-Pillar, Right Side	3256	3258	2
13	RSOV to Bottom of A-Pillar, Left Side	3256	3258	2
14	RSOV to Firewall, Right Side	3860	3480	-380
15	RSOV to Firewall, Left Side	3850	3334	-516
16	RSOV to Steering Column	2750	2830	80
17	Center of Steering Column to A-Pillar	405	425	20
18	Center of Steering Column to Headliner	405	400	-5
19	RSOV to Right Side of Front Bumper	4246	4077	-169
20	RSOV to Left Side of Front Bumper	4242	4103	-139
21	Length of Engine Block	525	525	0
RD	RSOV to Right Side of Dash Panel	2970	2980	10
CD	RSOV to Center of Dash Panel	2940	2930	-10
LD	RSOV to Left Side of Dash Panel	2965	2965	0

All measurements in millimeters.

**DATA SHEET NO. 13**  
**ACCIDENT INVESTIGATION DATA**

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200  
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13

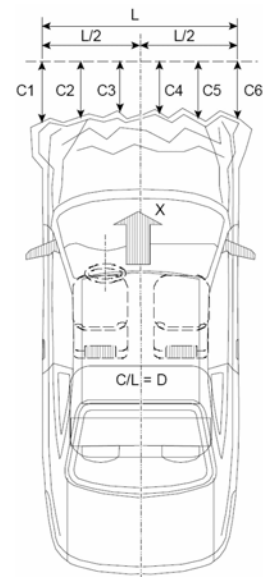
**VEHICLE INFORMATION**

VIN: JN1BV7AR6EM688606 Wheelbase (mm): 2850  
 Vehicle Size Category: 4-Door Sedan Test Weight (kg): 1952.0

**ACCELEROMETER DATA**

Accelerometer Locations: Left Rear Crossmember  
 Cal. Procedure/Interval: Drop Test / 6 months  
 Integration Algorithm: NHTSA Standard  
 Impact Velocity (km/h): 56.19  
 Velocity Change (km/h): 64.8  
 Time of Separation (msec): 63.6

Linearity: Good



**CRUSH PROFILE**

Collision Deformation Classification: 12FDEW2  
 Midpoint of Damage: Vehicle Centerline  
 Damage Region Length (mm): 1587  
 Impact Mode: Full Frontal

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush Zone 1 at Left Side	mm	270	522	252
C2	Crush Zone 2 at Left Side	mm	74	500	426
C3	Crush Zone 3 at Left Side	mm	39	411	372
C4	Crush Zone 4 at Right Side	mm	40	414	374
C5	Crush Zone 5 at Right Side	mm	75	438	363
C6	Crush Zone 6 at Right Side	mm	271	475	204
L	C1 to C6	mm	1587		

**DATA SHEET NO. 14**

**VEHICLE INTRUSION MEASUREMENTS**

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200

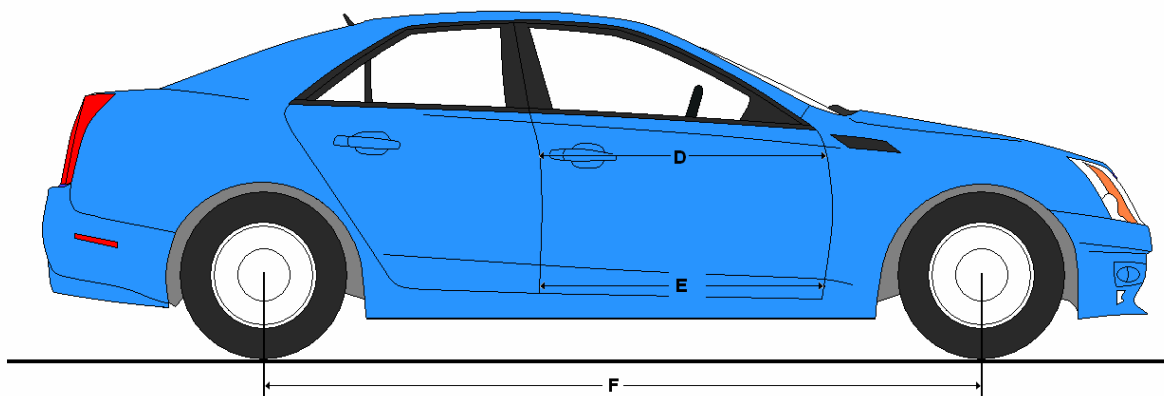
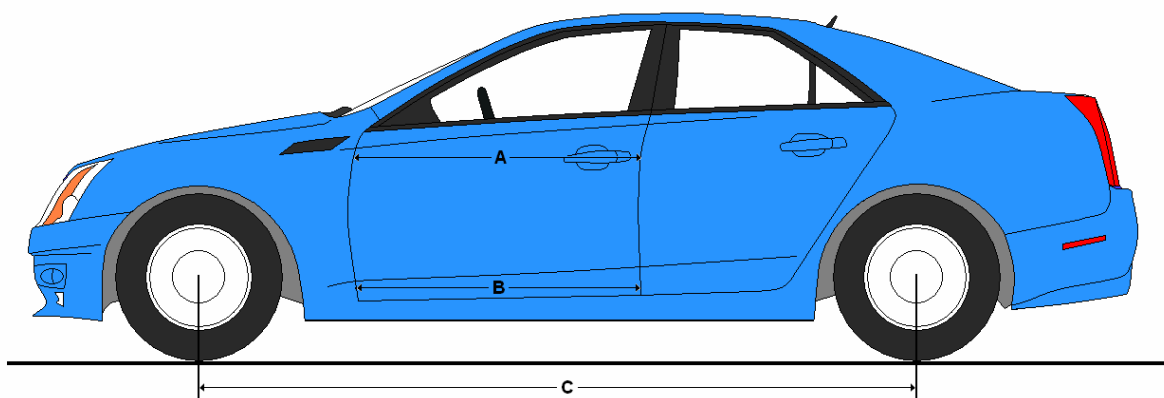
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13

**DOOR OPENING WIDTH**

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	988	986	2
B	Left Side Lower	mm	971	966	5
D	Right Side Upper	mm	991	988	3
E	Right Side Lower	mm	896	896	0

**WHEELBASE MEASUREMENTS**

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2850	2760	90
F	Right Side Wheelbase	mm	2850	2724	126



**DATA SHEET NO. 14 ... (CONTINUED)**

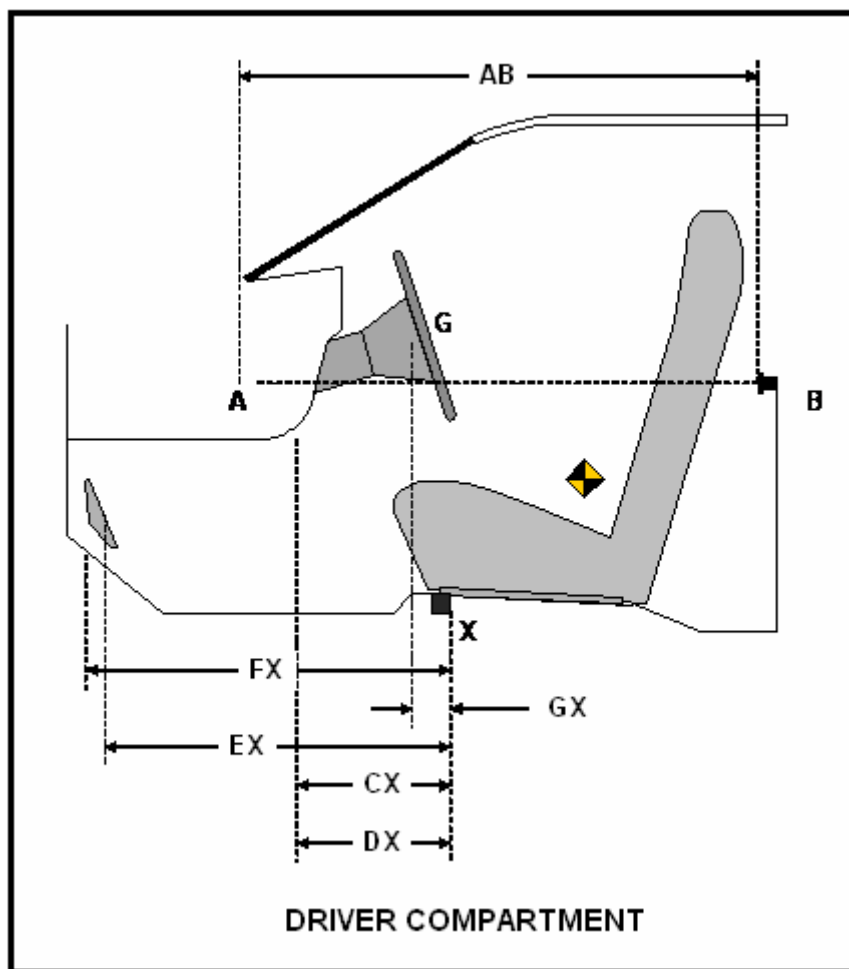
**VEHICLE INTRUSION MEASUREMENTS**

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200  
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13

**DRIVER COMPARTMENT INTRUSION**

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside Window Jam)	mm	811	811	0
CX	Left Knee Bolster to X	mm	250	255	-5
DX	Right Knee Bolster to X	mm	248	220	28
EX	Brake Pedal to X	mm	530	575	-45
FX	Foot Rest to X	mm	550	545	5
GX	Center of Steering Wheel Hub to X	mm	60	30	30

X = Front of Seat Track (Stationary)



**DATA SHEET NO. 15**

**SUMMARY OF FMVSS 212, 219 (PARTIAL), AND 301 DATA**

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13

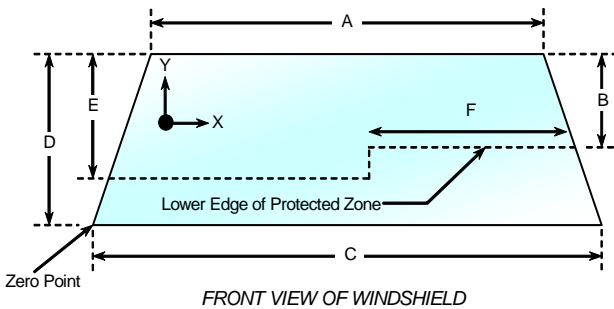
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with plastic molding and rubber cement.

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

Temperature of windshield molding during test: 21.1 ° C

**WINDSHIELD PERIPHERY MEASUREMENTS**

Measurement	Pre-Test (mm)	Post-Test (mm)	% Retention
Left Side	2204	2204	100.0%
Right Side	2204	2204	100.0%
Total	4408	4408	100.0%



Item	Units	Value
A	mm	1157
B	mm	345
C	mm	1420
D	mm	915
E	mm	529
F	mm	495

**AREAS OF PROTECTED ZONE FAILURES**

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.

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.

X	Y

**DATA SHEET NO. 15 ... (CONTINUED)**

**SUMMARY OF FMVSS 212, 219 (PARTIAL), AND 301 DATA**

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13

**FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA**

Temperature at Time of Impact: 24.4° C Test Time: 2:23 PM

**Stoddard Solvent Spillage Measurements**

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: There was no Stoddard solvent spillage.

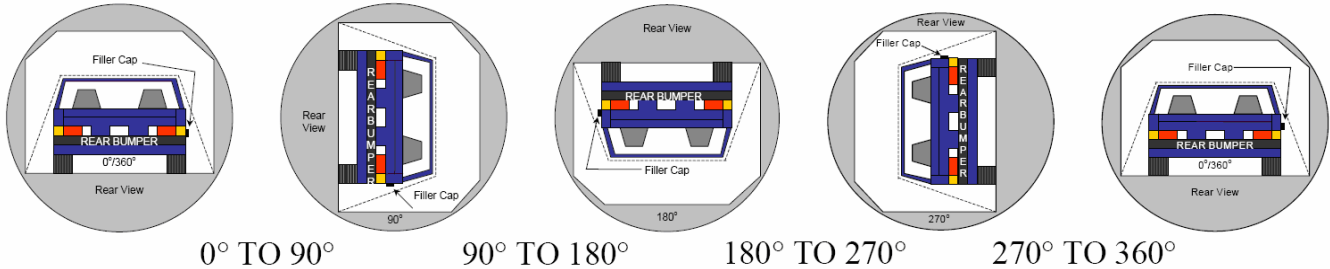
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**DATA SHEET NO. 16**

**FMVSS 301 STATIC ROLLOVER**

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13



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: There was no Stoddard solvent spillage.

**SOLVENT COLLECTION TIME TABLE IN SECONDS**

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	84	309	393
90° To 180°	82	300	382
180° To 270°	78	300	378
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**

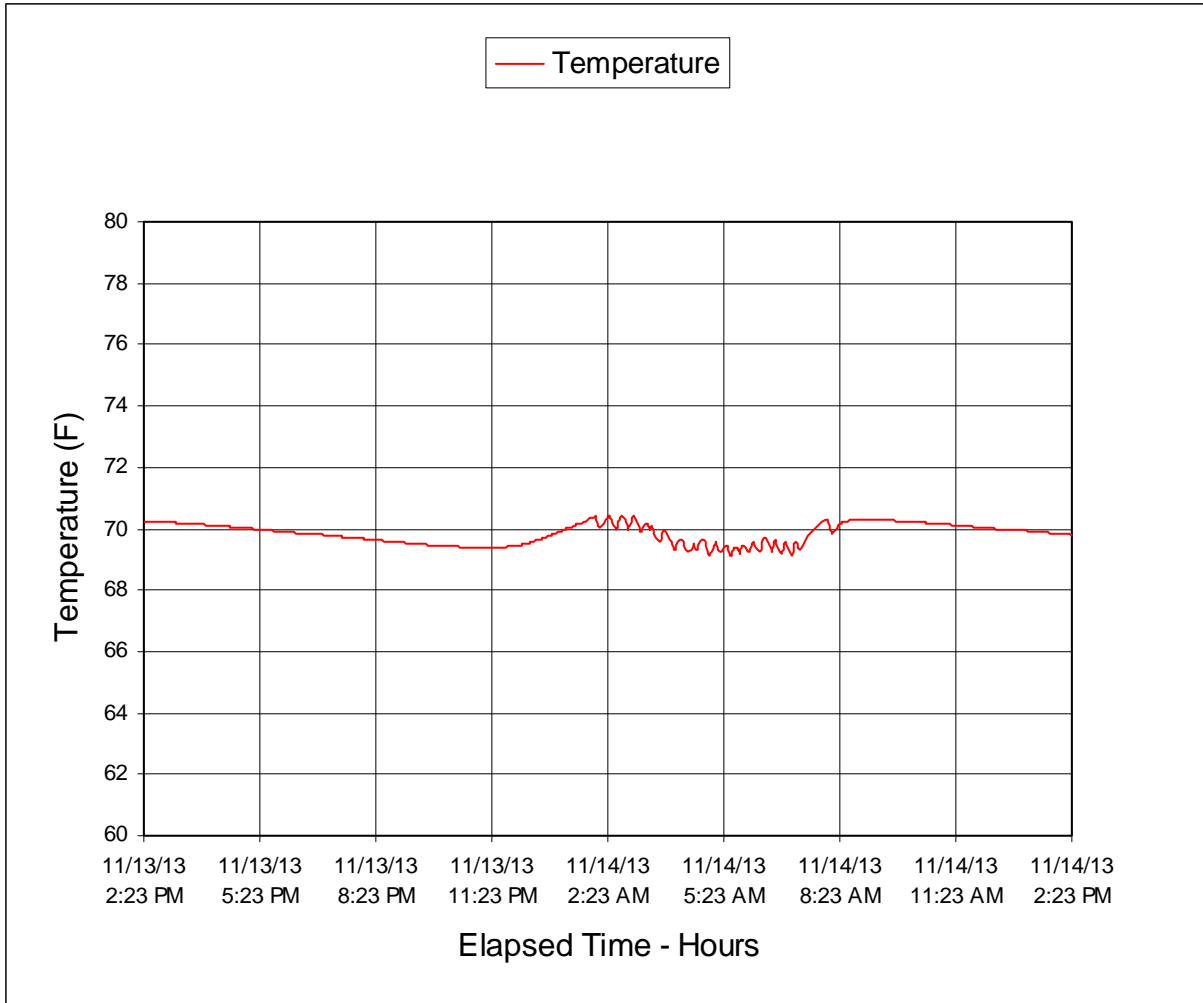
Test Phase	Spillage Location
0° To 90°	
90° To 180°	
180° To 270°	
270° To 360°	

**DATA SHEET NO. 17**

**DUMMY / VEHICLE TEMPERATURE STABILIZATION CHART**

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan NHTSA No.: M20145200

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 11/14/13



**APPENDIX A  
PHOTOGRAPHS**

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\* Photographs 43 and 64 display an incorrect test date.



FIGURE 1. Load Cell Location



FIGURE 2. Load Cell Wall



FIGURE 3. Manufacturer's Label

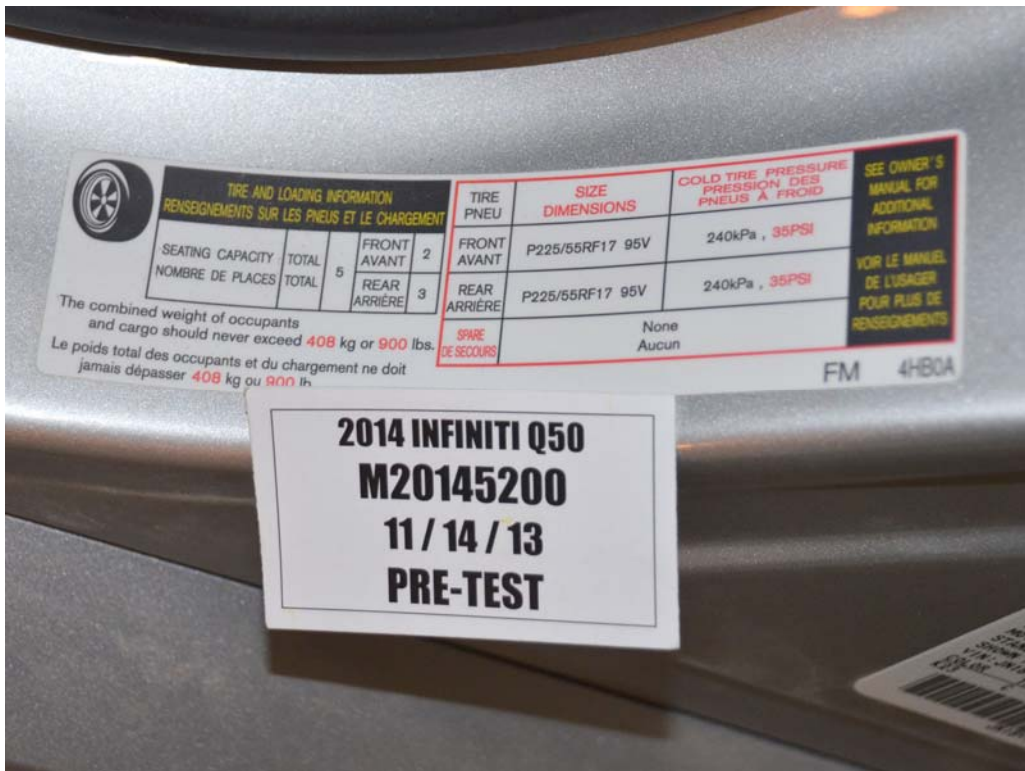


FIGURE 4. Tire Placard



FIGURE 5. 2014 Infiniti Q50 AWD Frontal as Delivered



FIGURE 6. Left Rear  $\frac{3}{4}$  View, as Received



FIGURE 7. Pre-Test Front View of Test Vehicle

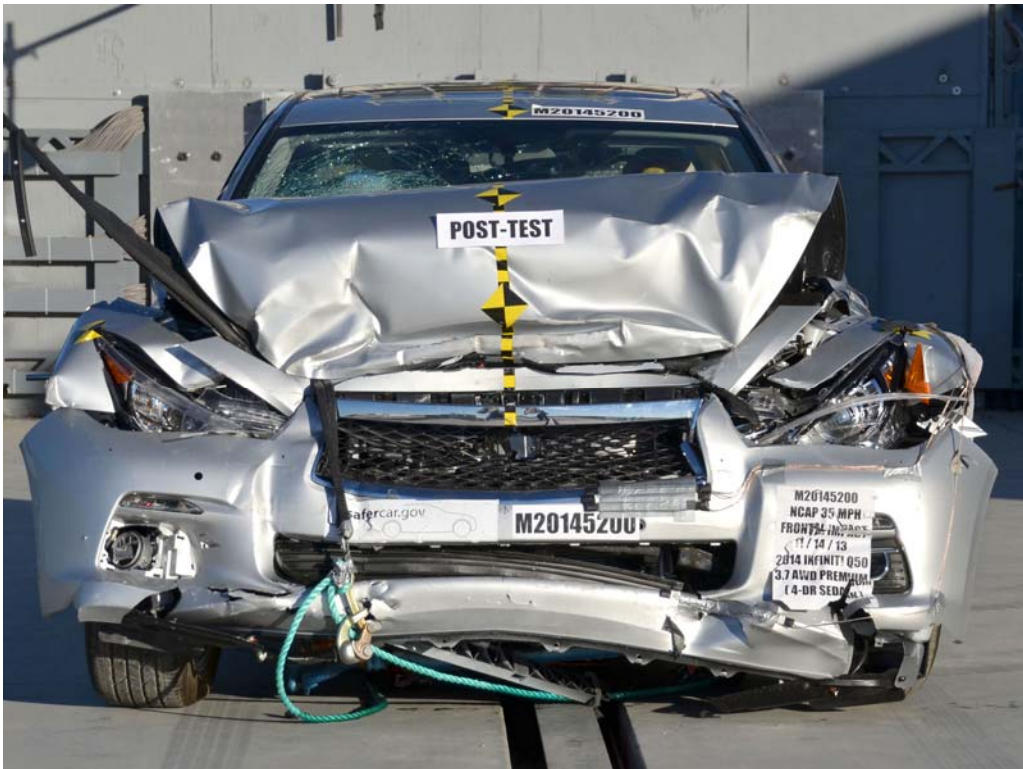


FIGURE 8. Post-Test Front View of Test Vehicle



FIGURE 9. Pre-Test Left View of Test Vehicle



FIGURE 10. Post-Test Left View of Test Vehicle



FIGURE 11. Pre-Test Right View of Test Vehicle



FIGURE 12. Post-Test Right View of Test Vehicle



FIGURE 13. Pre-Test Right Front  $\frac{3}{4}$  View



FIGURE 14. Post-Test Right Front  $\frac{3}{4}$  View



FIGURE 15. Pre-Test Left Rear  $\frac{3}{4}$  View



FIGURE 16. Post-Test Left Rear  $\frac{3}{4}$  View

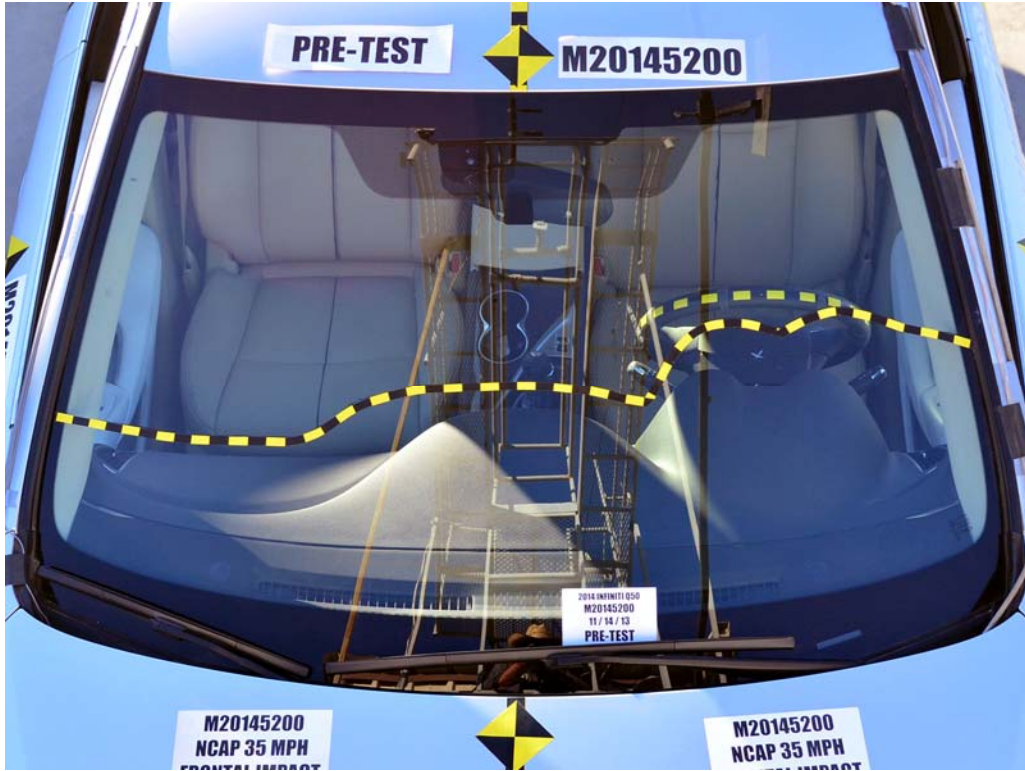


FIGURE 17. Pre-Test Windshield View



FIGURE 18. Post-Test Windshield View



FIGURE 19. Pre-Test Engine Compartment View

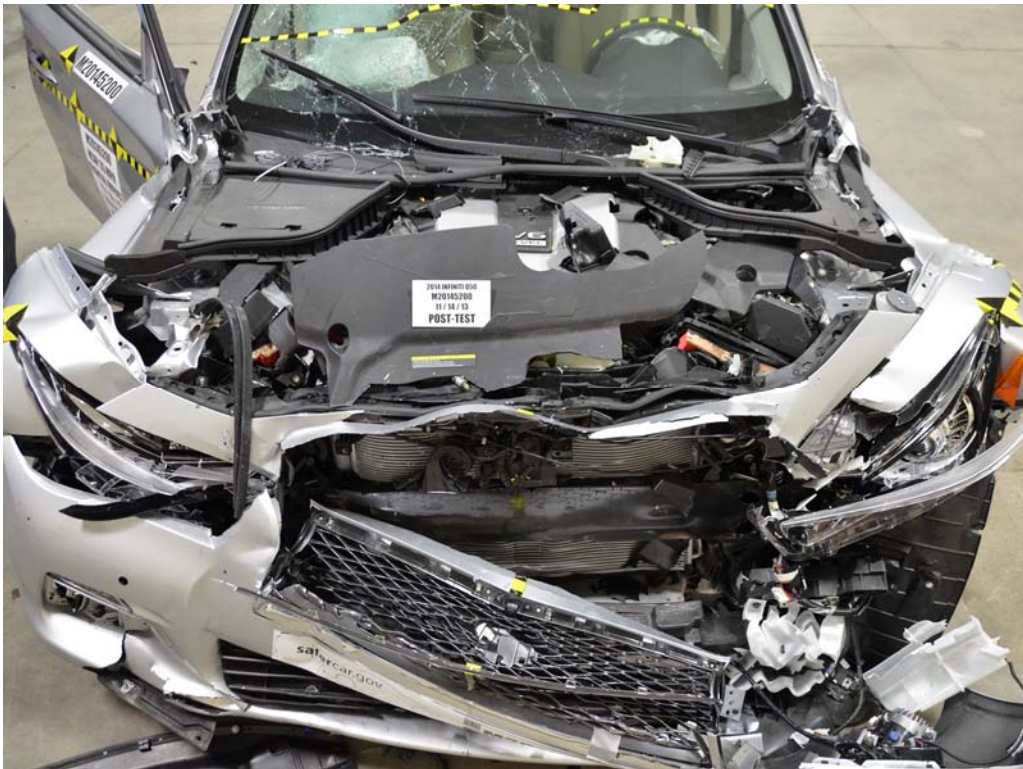


FIGURE 20. Post-Test Engine Compartment View



FIGURE 21. Pre-Test Fuel Filler Cap View



FIGURE 22. Post-Test Fuel Filler Cap View

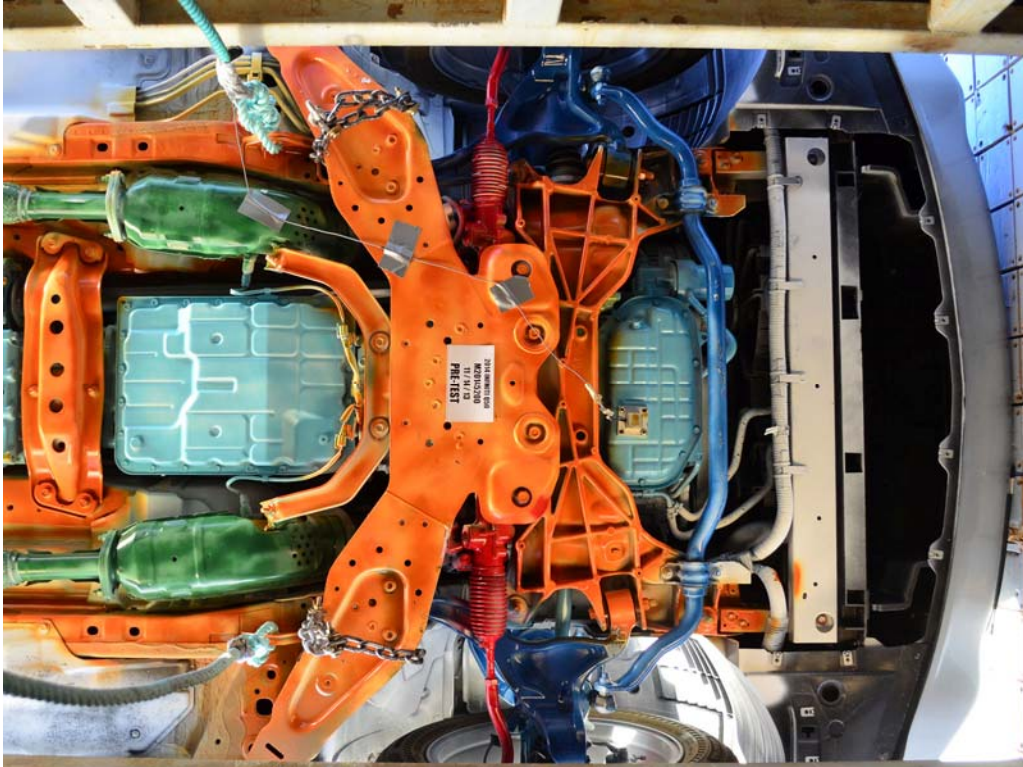


FIGURE 23. Pre-Test Front Underbody View

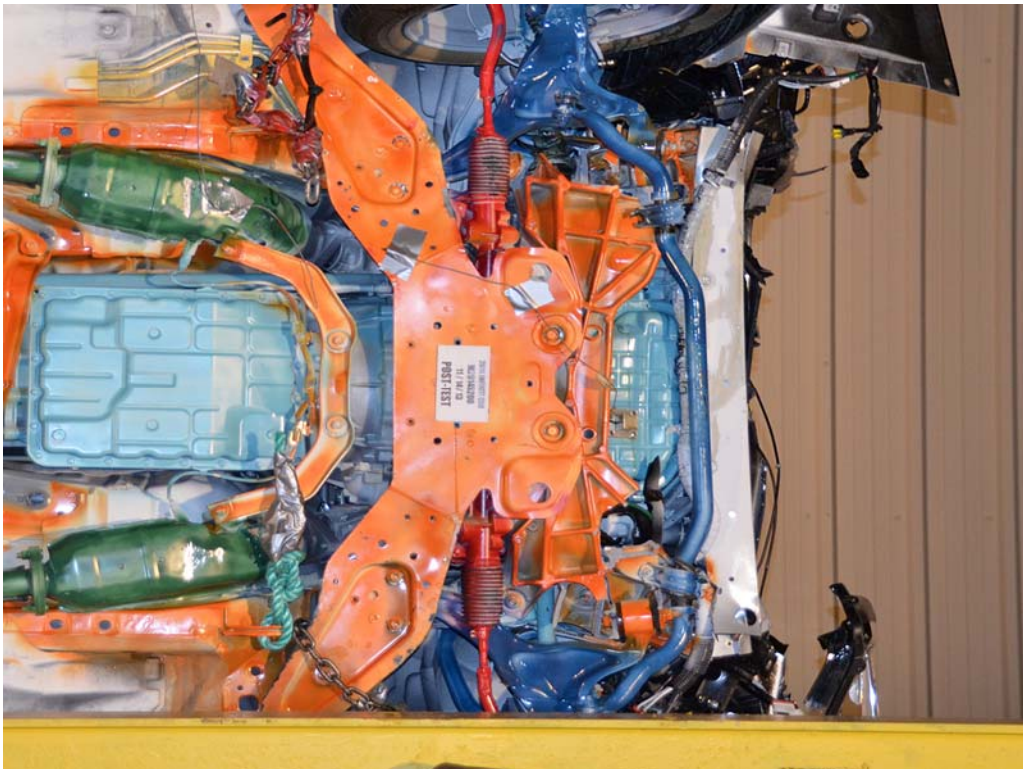


FIGURE 24. Post-Test Front Underbody View

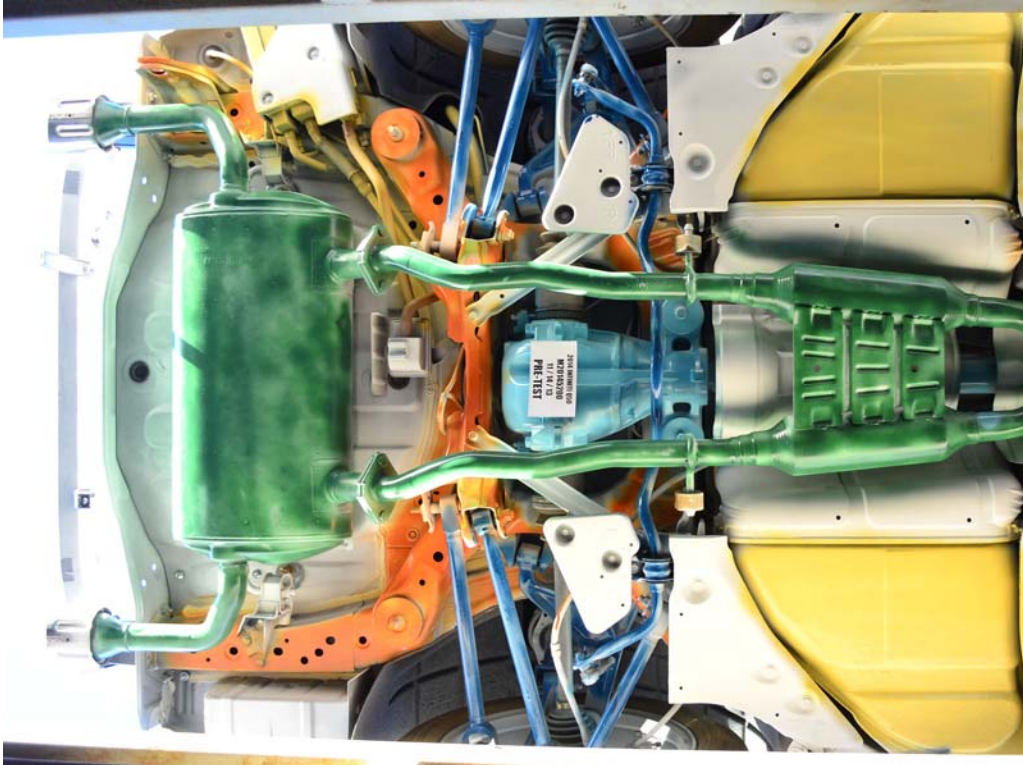


FIGURE 25. Pre-Test Rear Underbody View



FIGURE 26. Post-Test Rear Underbody View



FIGURE 27. Pre-Test Dummy Cable Routing



FIGURE 28. Post-Test Dummy Cable Routing



FIGURE 29. Pre-Test Driver Dummy Front View



FIGURE 30. Post-Test Driver Dummy Front View



FIGURE 31. Pre-Test Driver Dummy Window View

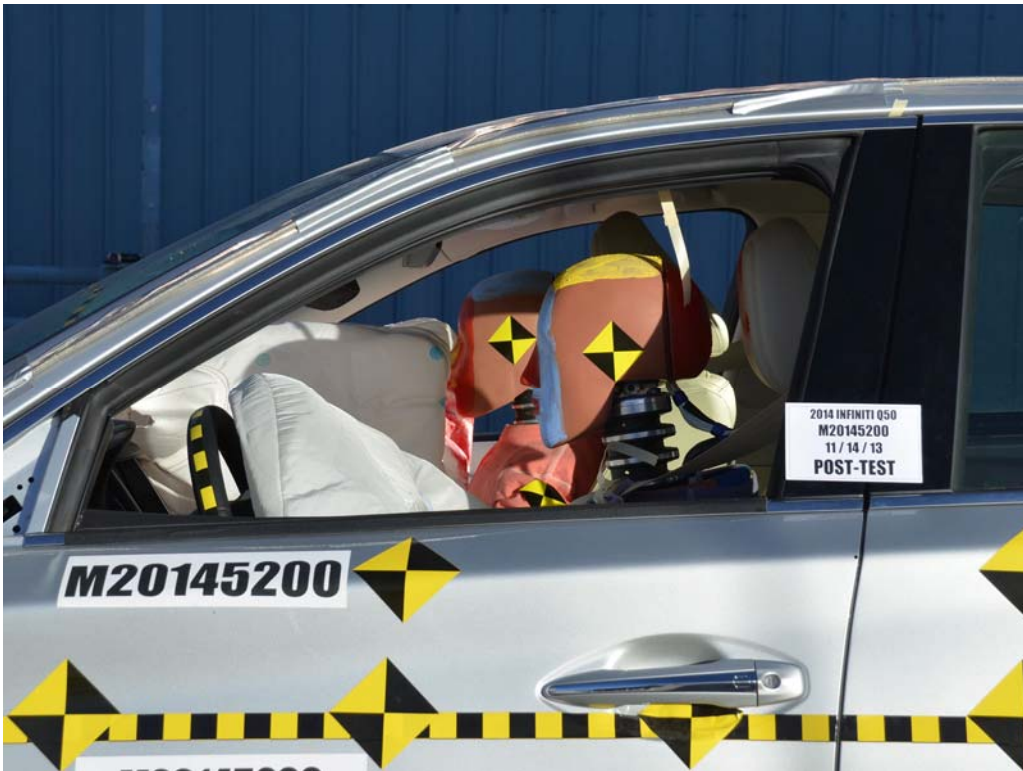


FIGURE 32. Post-Test Driver Dummy Window View



FIGURE 33. Pre-Test Driver Dummy and Vehicle Interior View



FIGURE 34. Post-Test Driver Dummy and Vehicle Interior View

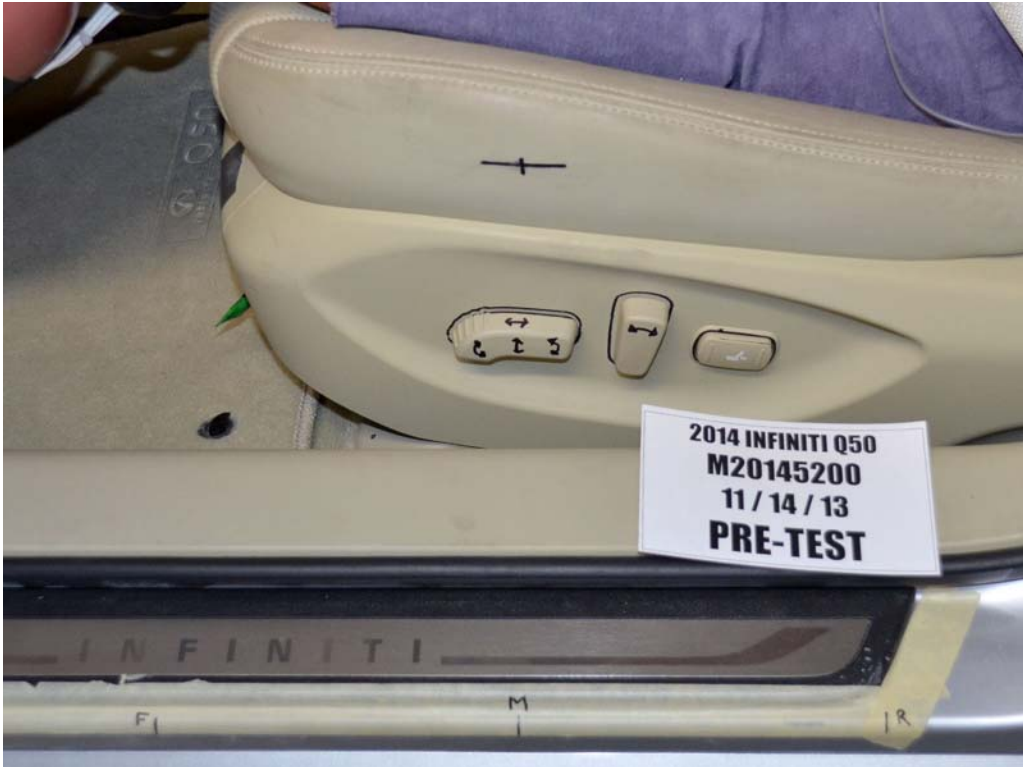


FIGURE 35. Pre-Test Driver's Seat Fore-Aft Markings



FIGURE 36. Post-Test Driver's Seat Fore-Aft Markings



FIGURE 37. Pre-Test View of Belt Anchorage for Driver Dummy



FIGURE 38. Post-Test View of Belt Anchorage for Driver Dummy



FIGURE 39. Pre-Test Driver Dummy Feet



FIGURE 40. Post-Test Driver Dummy Feet

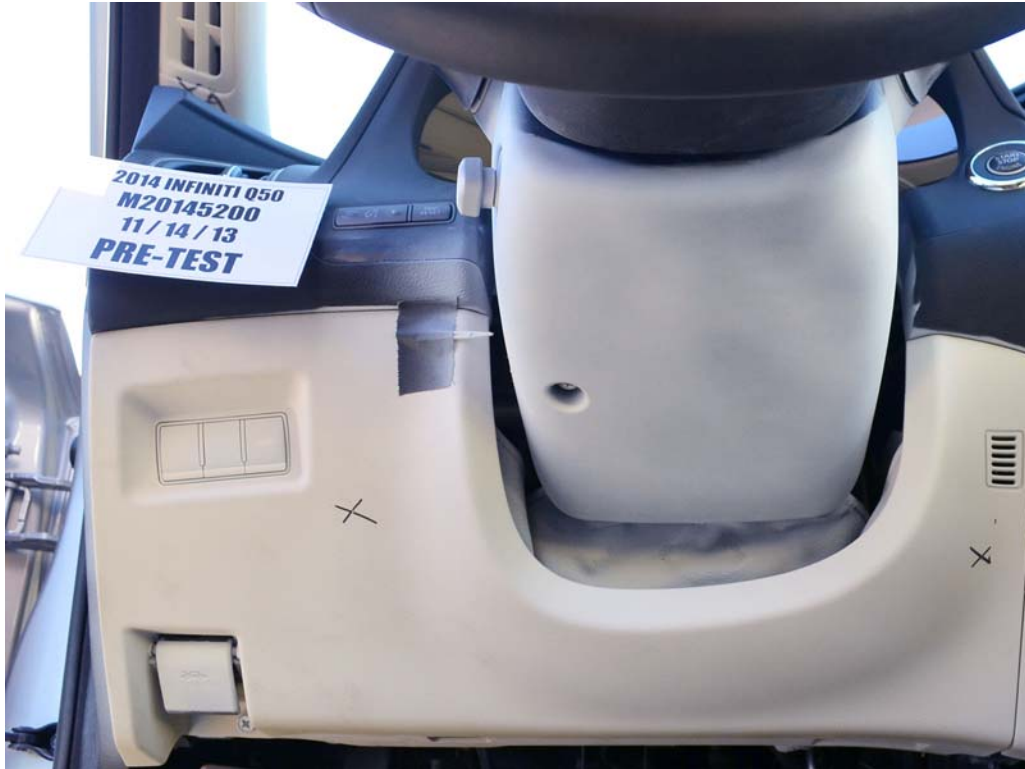


FIGURE 41. Pre-Test Driver's Side Knee Bolster



FIGURE 42. Post-Test Driver's Side Knee Bolster



FIGURE 43. Pre-Test Driver's Side Floorpan



FIGURE 44. Post-Test Driver's Side Floorpan



FIGURE 45. Post-Test Driver Dummy Face



FIGURE 46. Post-Test Driver Dummy Contact with Airbag



FIGURE 47. Post-Test Driver Dummy Contact with Headrest



FIGURE 47a. Post-Test Driver Dummy Contact with Sun Visor



FIGURE 47b. Post-Test Driver Dummy Contact with Knee Bolster



FIGURE 47c. Post-Test Driver Dummy Contact with Steering Column



FIGURE 48. Pre-Test View of the Steering Wheel

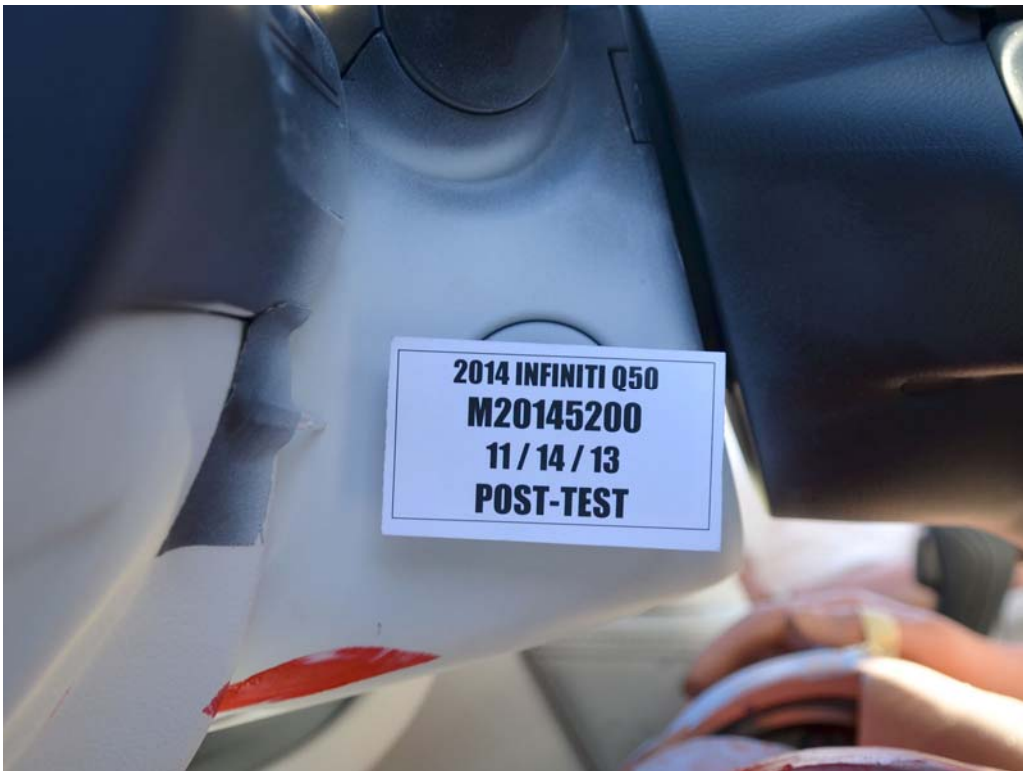


FIGURE 49. Post-Test View of the Steering Wheel



FIGURE 50. Pre-Test Passenger Dummy Front View



FIGURE 51. Post-Test Passenger Dummy Front View



FIGURE 52. Pre-Test Passenger Dummy Window View



FIGURE 53. Post-Test Passenger Dummy Window View



FIGURE 54. Pre-Test Passenger Dummy and Vehicle Interior View



FIGURE 55. Post-Test Passenger Dummy and Vehicle Interior View



FIGURE 56. Pre-Test Passenger's Seat Fore-Aft Markings

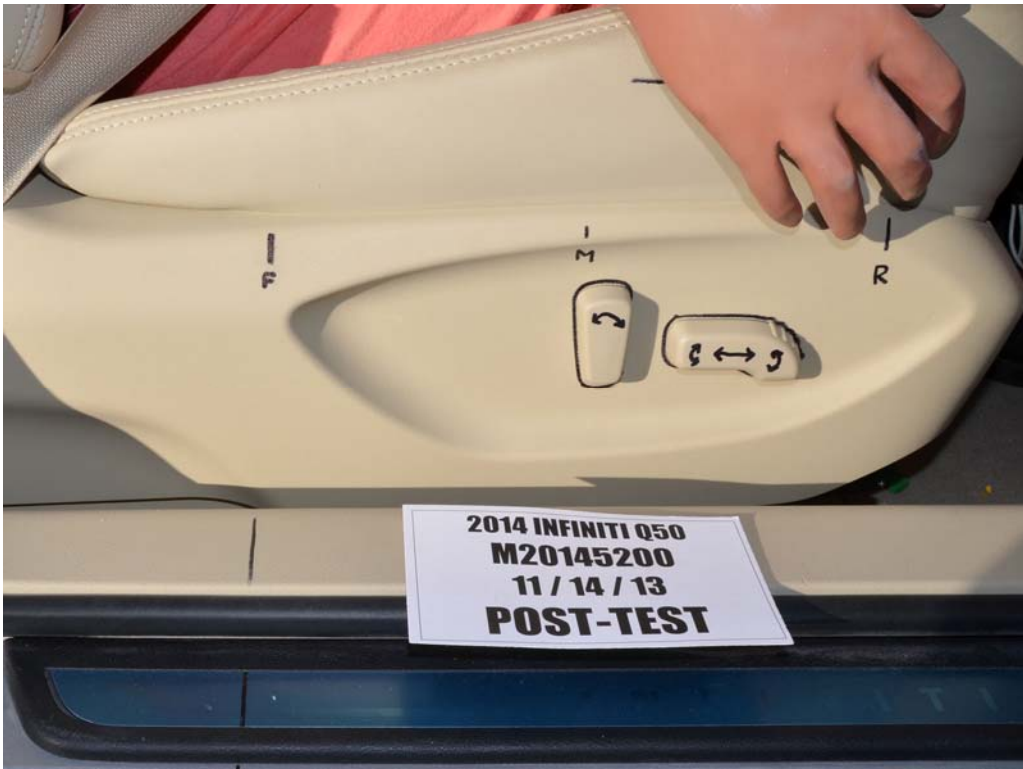


FIGURE 57. Post-Test Passenger's Seat Fore-Aft Markings



FIGURE 58. Pre-Test View of Belt Anchorage for Passenger Dummy



FIGURE 59. Post-Test View of Belt Anchorage for Passenger Dummy



FIGURE 60. Pre-Test Passenger Dummy Feet



FIGURE 61. Post-Test Passenger Dummy Feet



FIGURE 62. Pre-Test Passenger's Side Knee Bolster



FIGURE 63. Post-Test Passenger's Side Knee Bolster



FIGURE 64. Pre-Test Passenger's Side Floorpan



FIGURE 65. Post-Test Passenger's Side Floorpan



FIGURE 66. Post-Test Passenger Dummy's Face



FIGURE 67. Post-Test Passenger Dummy Contact with Airbag



FIGURE 68. Post-Test Passenger Dummy Contact with Headrest



FIGURE 68a. Post-Test Passenger Dummy Contact with Glovebox

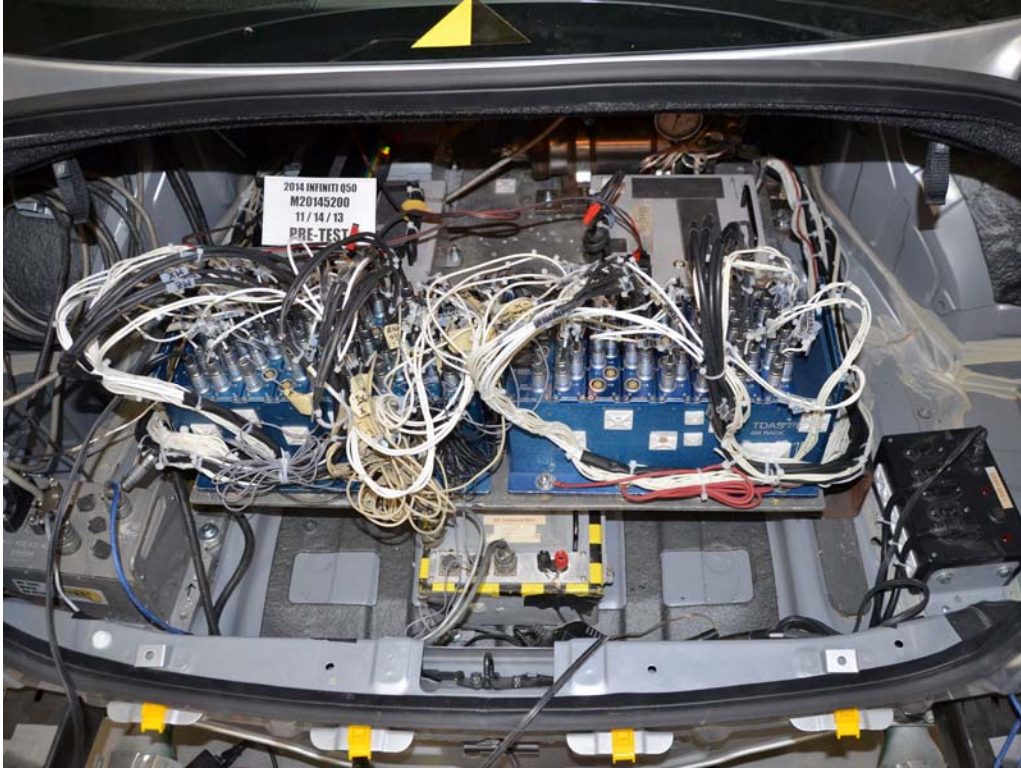


FIGURE 69. Photograph of Ballast Installed in Vehicle

**Photograph Not Applicable**

**No Stoddard  
Solvent Spillage**

FIGURE 70. Post-Test Stoddard Solvent Spillage Location View



FIGURE 71. Post-Test Speed Trap Read-Out

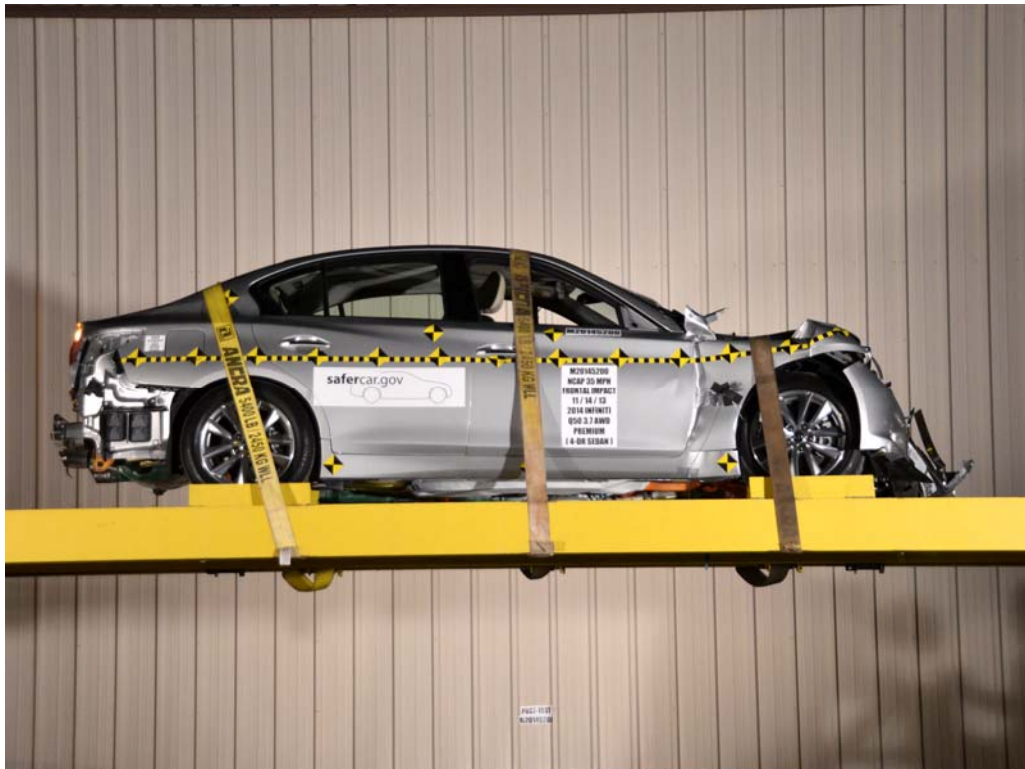


FIGURE 72. Vehicle at 0° on Static Rollover Device



FIGURE 73. Vehicle at 90° on Static Rollover Device



FIGURE 74. Vehicle at 180° on Static Rollover Device

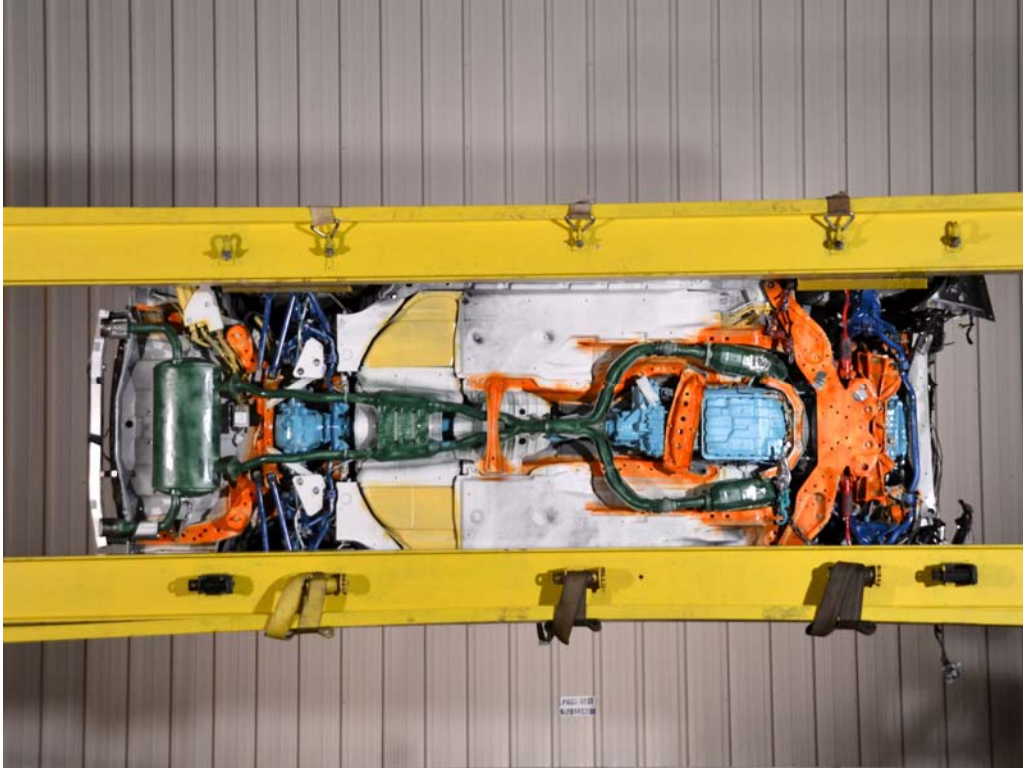


FIGURE 75. Vehicle at 270° on Static Rollover Device



FIGURE 76. Vehicle at 360° on Static Rollover Device



FIGURE 77. 2014 Infiniti Q50 AWD Frontal Impact Event

<b>2014 Q50 3.7 AWD PREM</b>		<b>EPA DOT Fuel Economy and Environment</b>	
<b>Standard Equipment Included at No Extra Charge</b> <b>PERFORMANCE:</b> 3.7-liter DOHC 24-valve V6 engine 328 horsepower 260 lb-ft torque ATTESA E-TS All-Wheel Drive System 7-speed automatic transmission Manual shift mode w/Downshift Rev-Matching Independent front and rear suspension 17-inch aluminum alloy wheels P225/50R17 all-season run-flat tires Zero-tilt aerodynamic concept Drive Mode Selector Vehicle speed sensitive power steering Active Trac Control <b>LUXURY:</b> Power sliding tinted glass moonroof with one-touch auto operation Automatic on/off LED headlights with daytime running lights LED fog lights and turning lamps mounted in lower front fascia LED rear brake lights and center high-mounted stoplight Leatherette seating surfaces with embroidered infotag Luxuriously crafted, ergonomically designed seats Heated leather wrapped steering wheel with illuminated controls Biway power heated front seats Dual Zone Automatic Temperature Control Kaccho aluminum interior trim Heated outside mirrors LED turning signal lamp on outside mirrors tilt and telescopic steering wheel Welcome lighting on front door handles Front door touch-unlock Variable intermittent, speed sensitive windshield wipers Chrome front grille Front aluminum lock plates		<b>Manufacturers Suggested Retail Base Price:</b> \$41,350.00 <b>Options Included by Manufacturer:</b> <b>DELUXE TOURING PACKAGE</b> 3,100.00 Power tilt/steering steering column+ Direct Adaptive Steering™ Auto-dimming outside mirror 60/40 split-folding rear seats Around View® Monitor with 360° Front and Rear Park Sensor Radio-sensing front door/wheel sensors+ <b>NAVIGATION PACKAGE**</b> 1,400.00 Infiniti InTouch™ Navigation System SiriusXM Traffic™+ Infiniti Connection™+ Voice recognition for navigation <b>LEATHER SEATING PACKAGE**</b> 1,200.00 Leather-appointed seats Driver seat 6-way power lumbar <b>DESTINATION CHARGES</b> 905.00 <b>Total**</b> \$47,755.00 <small>**Complimentary for 12 months. After trial, subscription required. Requires compatible 3G cellular network. Limited availability, subject to change. See website for details. Text rates apply.</small>	
<b>TECHNOLOGY:</b> Rear View Monitor Infiniti InTouch™ Dual Display System with Infiniti Controller Infiniti InTouch™ Apps Push Button Ignition Intelligent Key™ for storing climate, audio and driving preferences to each Infiniti InTouch™ key Bluetooth® Hands-free Phone System Infiniti Studio on Wheelchair for Road® 14-Speaker Premium Audio System Auto-dimming inside mirror with InControl® Universal Transceiver Two USB connection ports for iPod® interface and other compatible devices Auxiliary audio input and video input SiriusXM Satellite Radio™ Cruise control with steering wheel-mounted switches Voice recognition for audio, Bluetooth® and vehicle information <b>SAFETY AND SECURITY:</b> InControl Advanced Air Bag System Driver and Front Passenger seat-mounted side-impact supplemental air bags Rear-mounted curtain side-impact supplemental air bags 3-point front seat belts with pretensioners and load limiters Lower Anchors and Tethers for Children (LATCH) Anti-lock Braking System (ABS) Brake Assist Electronic Brake Force Distribution Vehicle Dynamic Control (VDC) with Traction Control System (TCS) Tire-specific Pressure Monitoring System Vehicle Security System Infiniti Vehicle Immobilizer System <small>***3 months of SiriusXM service included; subscription sold separately; not available to buyers in AK or HI; some features not available in all markets.            ** Optional equipment replaces standard equipment.</small>		<b>Fuel Economy</b> <b>22</b> <b>19</b> <b>27</b> <b>MPG</b> MID-SIZE CARS range from 13 to 58 MPG. The best vehicle rates 121 MPG. combined city/hwy city highway <b>4.5</b> gallons per 100 miles <b>You spend \$1,250 more in fuel costs over 5 years</b> compared to the average new vehicle. <b>Annual fuel cost \$2,550</b> <b>Fuel Economy &amp; Greenhouse Gas Rating</b> (based on mid-range) <b>5</b> <b>10</b> <b>15</b> <b>20</b> <b>30</b> <small>This vehicle emits 410 grams CO<sub>2</sub> per mile. The best emits 0 grams per mile (tailpipe only). Producing and transporting fuel also emits emissions. See www.epa.gov.</small> <b>fuel economy.gov</b> <small>Calculates personalized annual and lifetime vehicles.</small>	
<b>GOVERNMENT 5-STAR SAFETY RATINGS</b> <b>Overall Vehicle Score To Be Rated</b> <small>Based on the combined ratings of frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight.</small> <b>Frontal Crash To Be Rated</b> <small>Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.</small> <b>Driver Passenger To Be Rated To Be Rated</b> <b>Side Crash To Be Rated To Be Rated</b> <small>Based on the risk of injury in a side impact.</small> <b>Rollover To Be Rated</b> <small>Based on the risk of rollover in a single-vehicle crash.</small> <b>Star ratings range from 1 to 5 stars (*****) with 5 being the highest. Source: National Highway Traffic Safety Administration (NHTSA) www.safercar.gov or 1-888-327-4236</b>		<b>DELIVERY</b> <b>VEHICLE COLORS:</b> EXT./LIQUID PLATINUM INT: WHEAT <b>FINAL ASSEMBLY POINT:</b> LOS ANGELES <b>TRANSPORT METHOD:</b> TRUCK <b>DEALER:</b> BEHCHOFF INFINITI 7198 TULLY RD SAN JOSE CA 95122 <b>VIN:</b> JN1B7ANEM88600 <b>EMV-50 STATE EMISSIONS</b> NEDC: 9/14-686669 933-C <b>GPT:</b> A-C0349/L1550U/0401 Z86 <small>*** Please see the latest literature information booklet for details. ** Please ask your Infiniti retailer for details.</small>	

FIGURE 78. Monroney Label Photograph

**APPENDIX B**  
**DUMMY RESPONSE DATA TRACES**

## TABLE OF DATA PLOTS

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3	Driver Head Z Acceleration vs. Time Primary	B-1
4	Driver Head Resultant Acceleration vs. Time Primary	B-1
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The following additional dummy and vehicle response data can be found in the R&D section of the NHTSA website at [www.nhtsa.dot.gov](http://www.nhtsa.dot.gov)

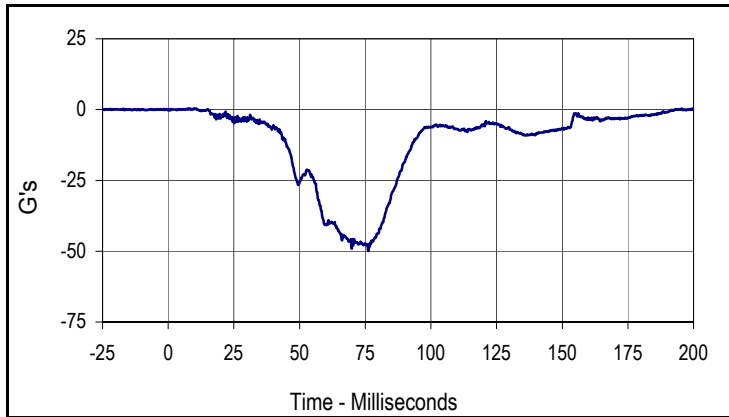
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Driver Head Z Acceleration Redundant  
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Driver Head Left X Acceleration  
Driver Head Left Z Acceleration  
Driver Upper Neck Force Y  
Driver Upper Neck Moment X  
Driver Upper Neck Moment Z  
Driver Chest X Acceleration Redundant  
Driver Chest Y Acceleration Redundant  
Driver Chest Z Acceleration Redundant  
Driver Pelvis X  
Driver Pelvis Y  
Driver Pelvis Z  
Driver Left Femur Force Z Redundant  
Driver Right Femur Force Z Redundant  
Driver Shoulder Belt Force  
Driver Lap Belt Force  
Driver Left Upper Tibia Moment X  
Driver Left Upper Tibia Moment Y  
Driver Left Upper Tibia Force Z  
Driver Left Lower Tibia Moment X  
Driver Left Lower Tibia Moment Y  
Driver Left Lower Tibia Force Z  
Driver Right Upper Tibia Moment X  
Driver Right Upper Tibia Moment Y  
Driver Right Upper Tibia Force Z  
Driver Right Lower Tibia Moment X  
Driver Right Lower Tibia Moment Y

Driver Right Lower Tibia Force Z  
Driver Left Foot Fore Z  
Driver Left Foot Aft X  
Driver Left Foot Aft Z  
Driver Right Foot Fore Z  
Driver Right Foot Aft X  
Driver Right Foot Aft Z  
Passenger Head X Acceleration Redundant  
Passenger Head Y Acceleration Redundant  
Passenger Head Z Acceleration Redundant  
Passenger Head Front Y Acceleration  
Passenger Head Front Z Acceleration  
Passenger Head Top X Acceleration  
Passenger Head Top Y Acceleration  
Passenger Head Left X Acceleration  
Passenger Head Left Z Acceleration  
Passenger Upper Neck Force X  
Passenger Upper Neck Force Z  
Passenger Upper Neck Moment Y  
Passenger Chest X Acceleration Redundant  
Passenger Chest Y Acceleration Redundant  
Passenger Chest Z Acceleration Redundant  
Passenger Pelvis X  
Passenger Pelvis Y  
Passenger Pelvis Z  
Passenger Left Femur Force Z Redundant  
Passenger Right Femur Force Z Redundant  
Passenger Shoulder Belt Force  
Passenger Lap Belt Force  
Passenger Left Upper Tibia Moment X  
Passenger Left Upper Tibia Moment Y  
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Passenger Left Lower Tibia Force Z  
Passenger Right Upper Tibia Moment X

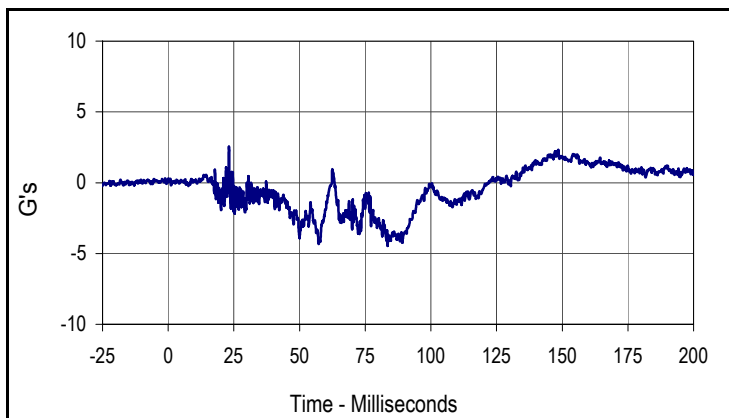
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Passenger Left Foot Aft X  
Passenger Left Foot Aft Z  
Passenger Right Foot Fore Z  
Passenger Right Foot Aft X  
Passenger Right Foot Aft Z  
Left Rear Seat Crossmember X  
Left Rear Seat Crossmember Z  
Right Rear Seat Crossmember X  
Right Rear Seat Crossmember Z  
Vehicle Engine Top X  
Vehicle Engine Bottom X  
Vehicle Left Rear Z  
Vehicle Right Rear Z  
Load Cell Barrier LC0101 – LC 1116

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan  
 Test Program: 56 km/h Frontal Impact NCAP Test

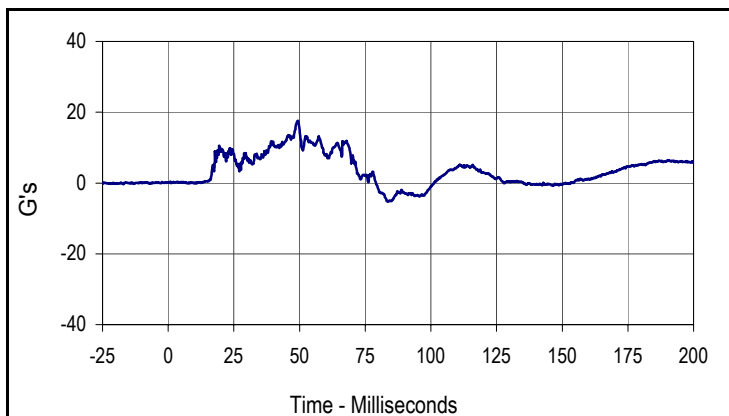
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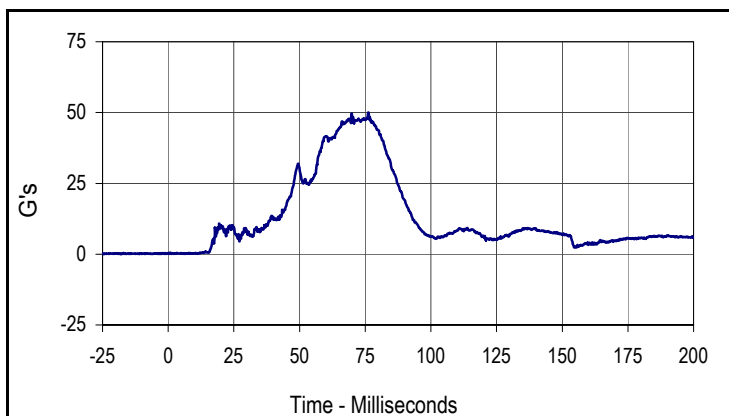
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Max	Time	Min	Time
0.5	200.0	-50.0	76.2



Curve Description			
Driver Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
2.6	23.1	-4.5	83.6



Curve Description			
Driver Head Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
17.6	49.4	-5.3	83.6



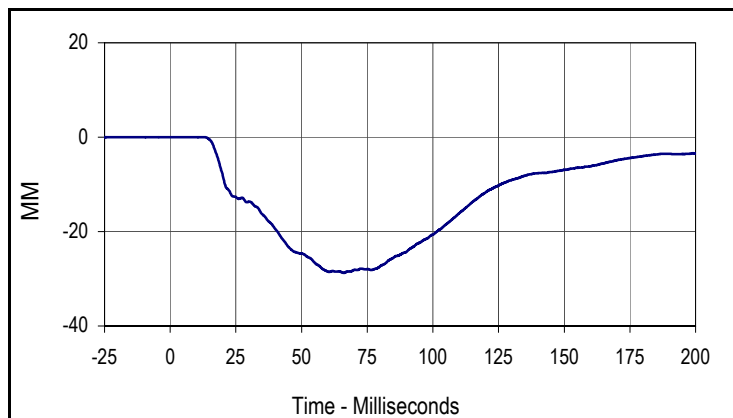
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Driver Head Resultant Acceleration Primary			
Plot No.	Type	SAE Class	Units
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50.0	76.2	0.1	6.0

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan

NHTSA No.: M20145200

Test Program: 56 km/h Frontal Impact NCAP Test

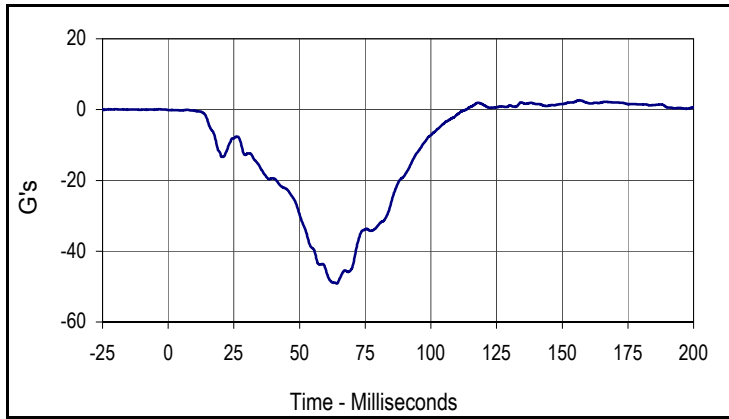
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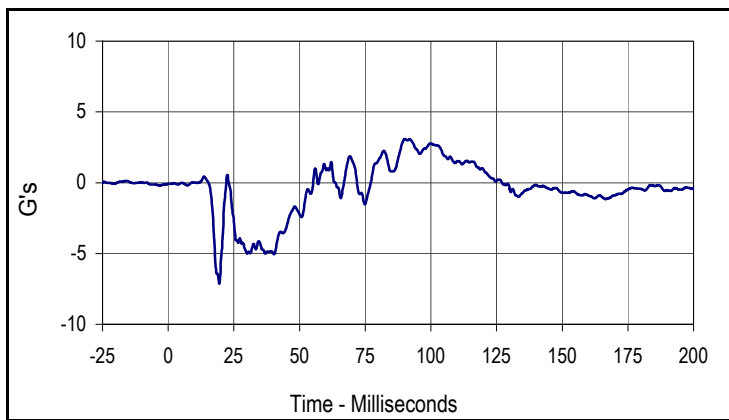
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Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan  
 Test Program: 56 km/h Frontal Impact NCAP Test

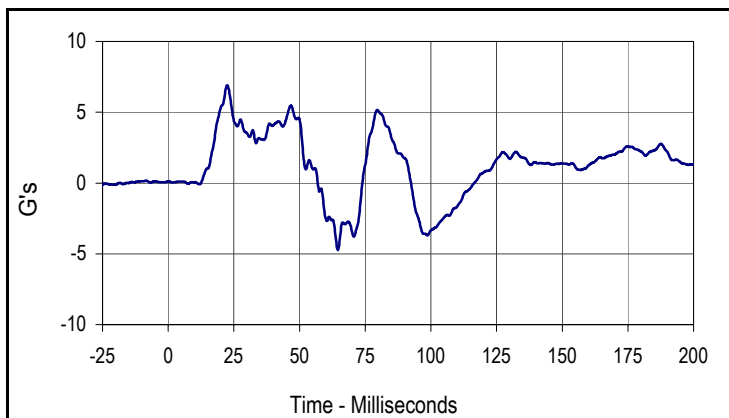
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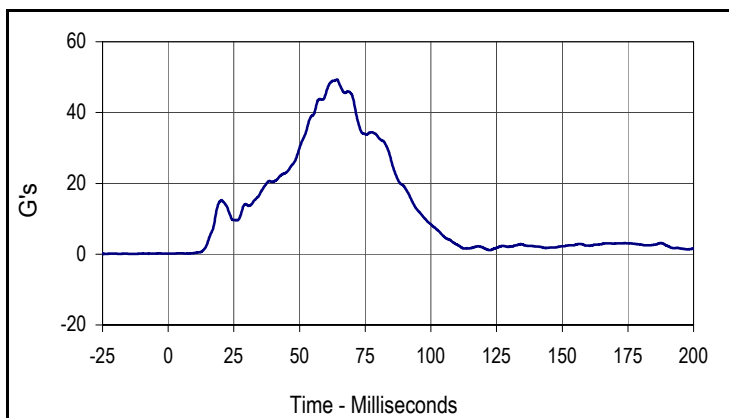
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Driver Chest Acceleration X Primary			
Plot No.	Type	SAE Class	Units
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Max	Time	Min	Time
2.6	156.6	-49.2	64.2



Curve Description			
Driver Chest Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
007	FIL	180	G's
Max	Time	Min	Time
3.1	90.1	-7.1	19.5



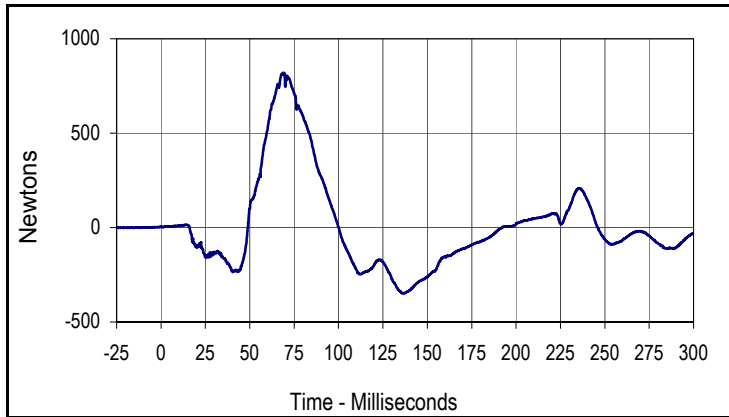
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Driver Chest Acceleration Z Primary			
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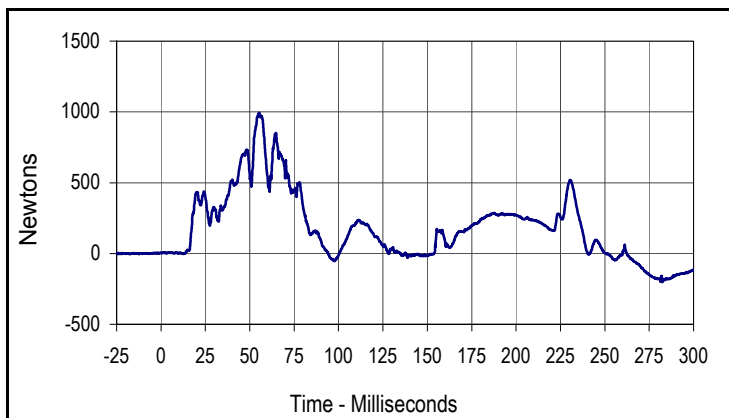
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Driver Chest Resultant Acceleration Primary			
Plot No.	Type	SAE Class	Units
009	RES	180	G's
Max	Time	Min	Time
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Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan  
 Test Program: 56 km/h Frontal Impact NCAP Test

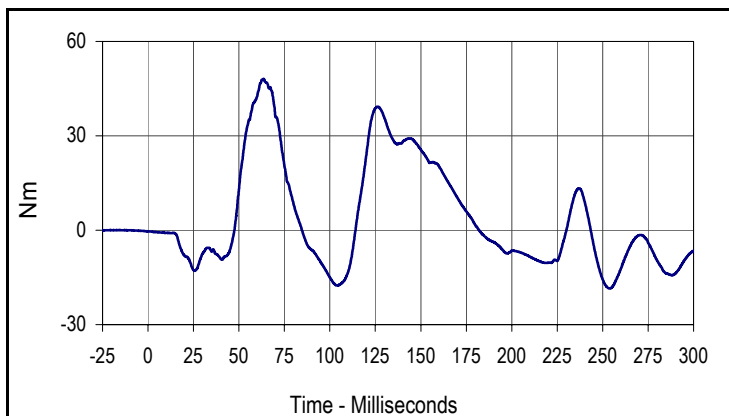
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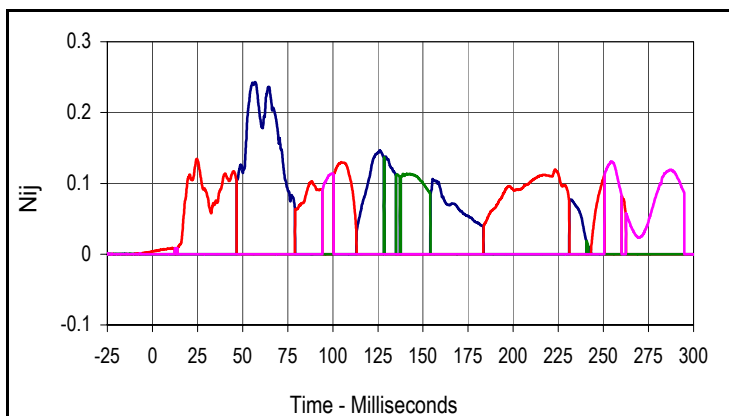
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Driver Upper Neck Force X			
Plot No.	Type	SAE Class	Units
010	FIL	1000	Newtons
Max	Time	Min	Time
819.9	68.9	-349.6	136.6



Curve Description			
Driver Upper Neck Force Z			
Plot No.	Type	SAE Class	Units
011	FIL	1000	Newtons
Max	Time	Min	Time
993.7	55.3	-201.3	282.5



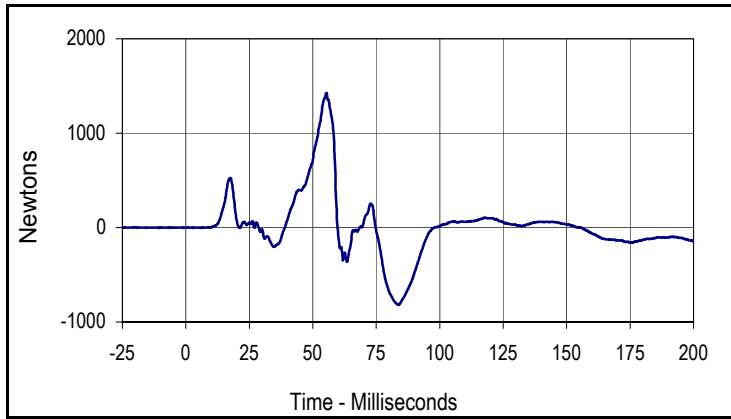
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Max	Time	Min	Time
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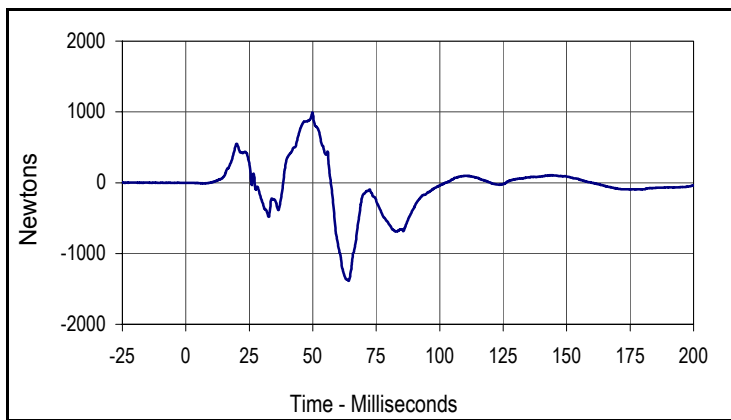
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Driver Nij			
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Units	Type	Max	Time
Nte	FIL	0.13	24.5
Units	Type	Max	Time
Ncf	FIL	0.14	128.4
Units	Type	Max	Time
Nce	FIL	0.13	254.4

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan  
 Test Program: 56 km/h Frontal Impact NCAP Test

NHTSA No.: M20145200  
 Test Date: 11/14/13



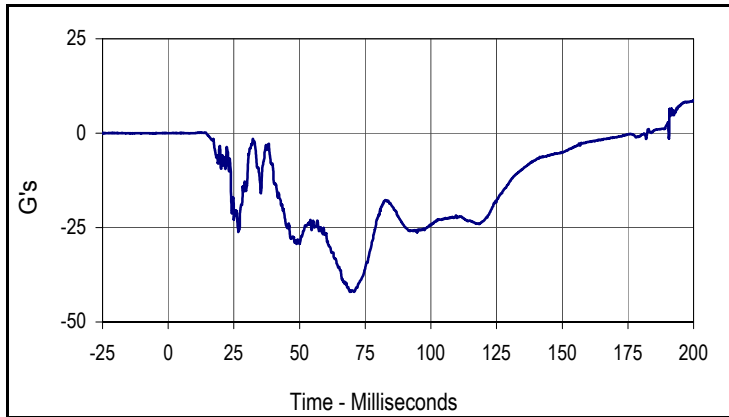
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Max	Time	Min	Time
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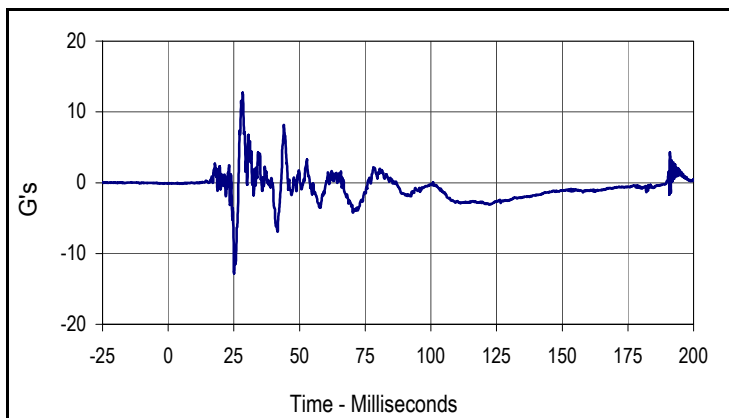
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Driver Right Femur Force Z			
Plot No.	Type	SAE Class	Units
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Max	Time	Min	Time
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Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan  
 Test Program: 56 km/h Frontal Impact NCAP Test

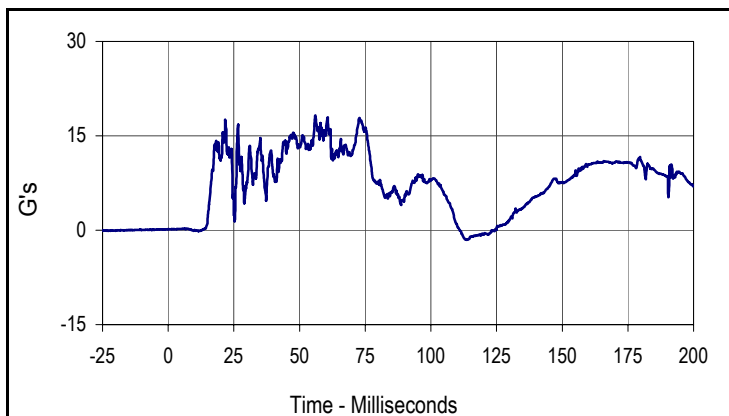
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 Test Date: 11/14/13



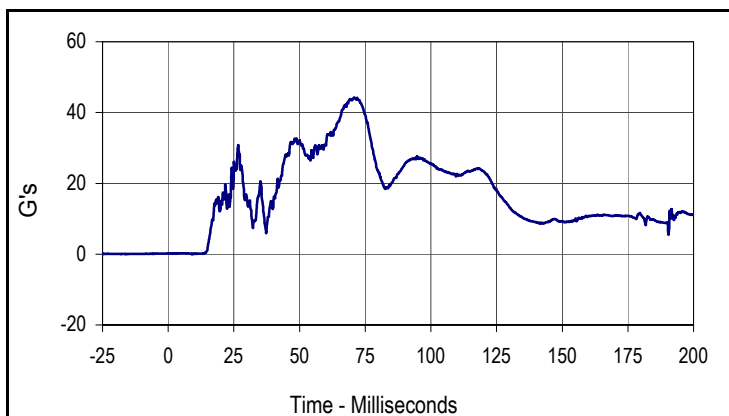
Curve Description			
Passenger Head Acceleration X Primary			
Plot No.	Type	SAE Class	Units
015	FIL	1000	G's
Max	Time	Min	Time
8.7	200.0	-42.0	70.8



Curve Description			
Passenger Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
016	FIL	1000	G's
Max	Time	Min	Time
12.7	28.4	-12.8	25.1



Curve Description			
Passenger Head Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
017	FIL	1000	G's
Max	Time	Min	Time
18.3	56.0	-1.5	113.6



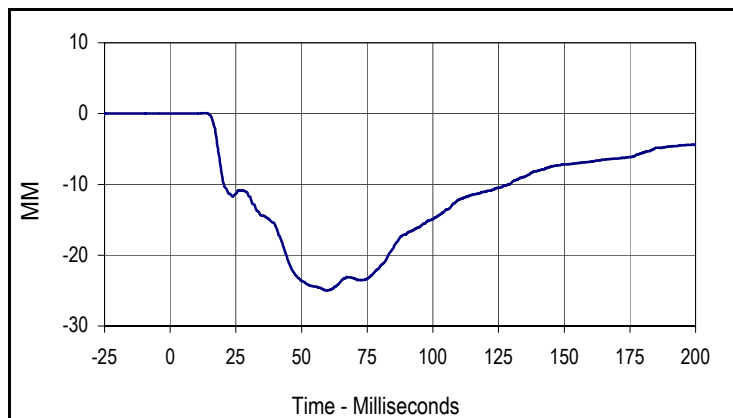
Curve Description			
Passenger Head Resultant Acceleration Primary			
Plot No.	Type	SAE Class	Units
018	RES	1000	G's
Max	Time	Min	Time
44.3	70.8	0.0	9.4

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan

NHTSA No.: M20145200

Test Program: 56 km/h Frontal Impact NCAP Test

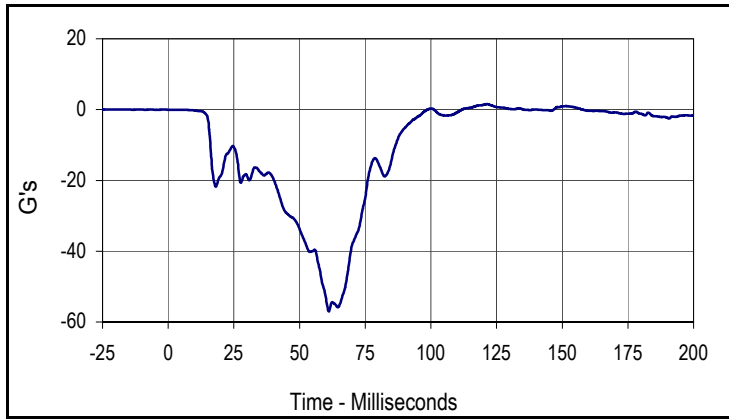
Test Date: 11/14/13



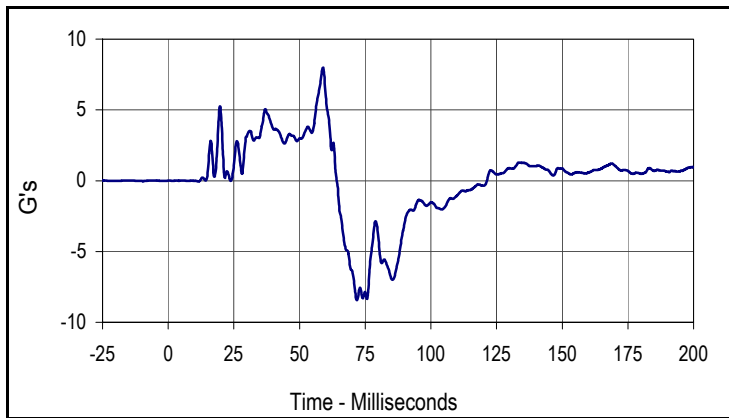
Curve Description			
Passenger Chest Deflection			
Plot No.	Type	SAE Class	Units
019	FIL	600	MM
Max	Time	Min	Time
0.0	14.0	-25.0	59.3

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan  
 Test Program: 56 km/h Frontal Impact NCAP Test

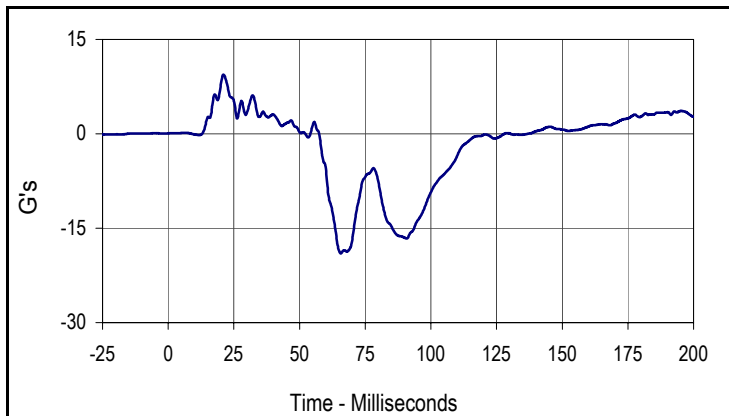
NHTSA No.: M20145200  
 Test Date: 11/14/13



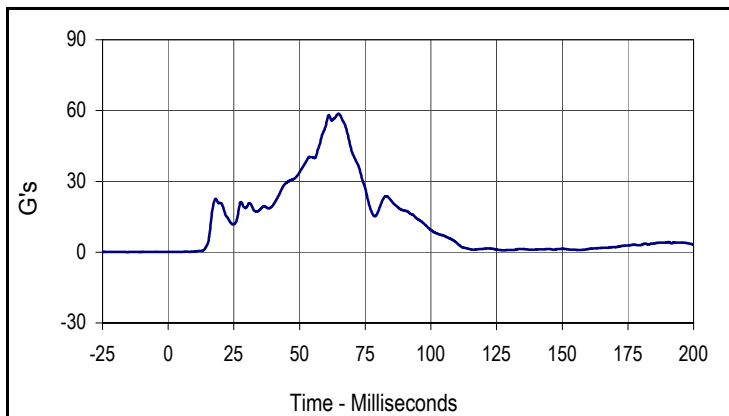
Curve Description			
Passenger Chest Acceleration X Primary			
Plot No.	Type	SAE Class	Units
020	FIL	180	G's
Max	Time	Min	Time
1.5	121.3	-57.0	61.1



Curve Description			
Passenger Chest Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
021	FIL	180	G's
Max	Time	Min	Time
8.0	59.0	-8.4	71.8



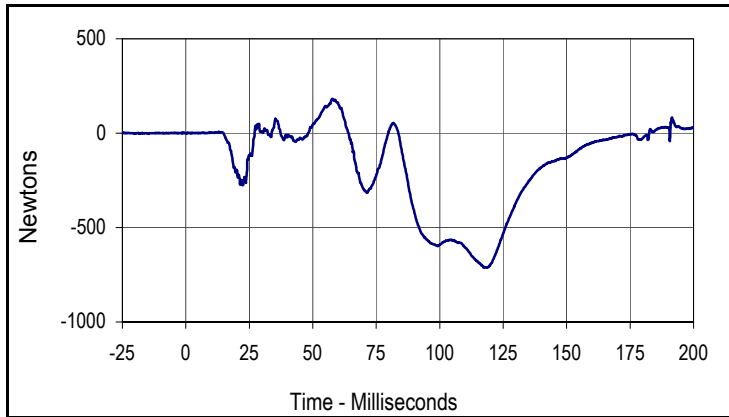
Curve Description			
Passenger Chest Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
022	FIL	180	G's
Max	Time	Min	Time
9.4	21.0	-19.0	65.7



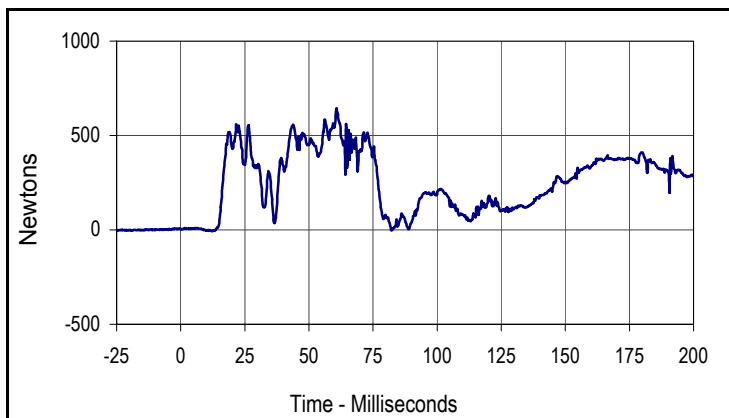
Curve Description			
Passenger Chest Resultant Acceleration Primary			
Plot No.	Type	SAE Class	Units
023	RES	180	G's
Max	Time	Min	Time
58.7	64.7	0.1	0.0

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan  
 Test Program: 56 km/h Frontal Impact NCAP Test

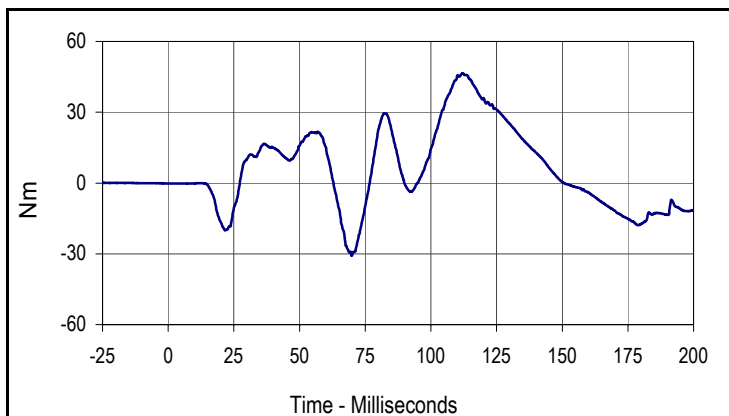
NHTSA No.: M20145200  
 Test Date: 11/14/13



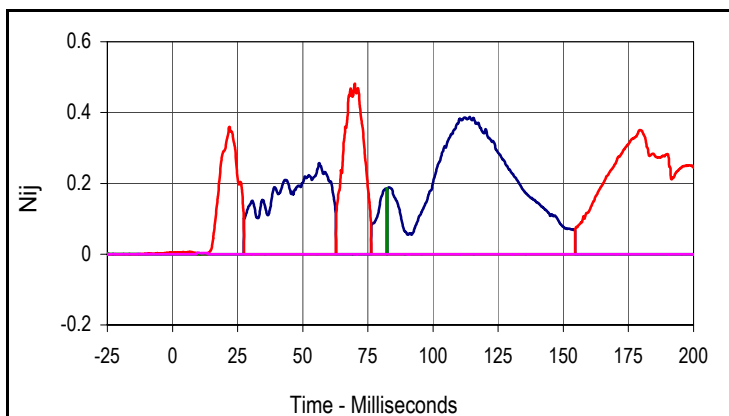
Curve Description			
Passenger Upper Neck Force X			
Plot No.	Type	SAE Class	Units
024	FIL	1000	Newtons
Max	Time	Min	Time
181.9	57.9	-711.5	118.5



Curve Description			
Passenger Upper Neck Force Z			
Plot No.	Type	SAE Class	Units
025	FIL	1000	Newtons
Max	Time	Min	Time
643.4	60.7	-7.0	12.3



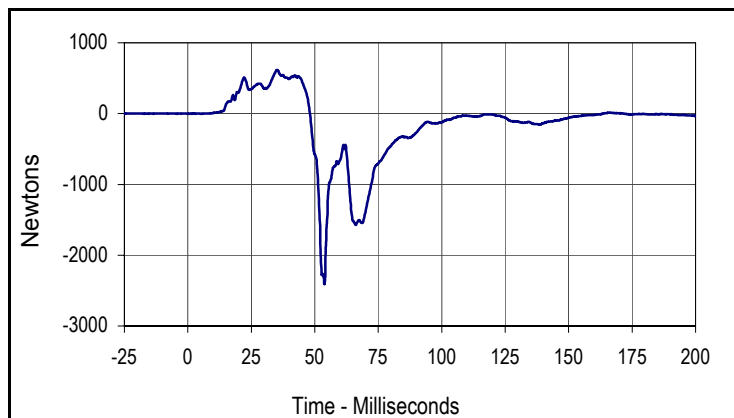
Curve Description			
Passenger Upper Neck Moment Y			
Plot No.	Type	SAE Class	Units
026	FIL	600	Nm
Max	Time	Min	Time
46.5	112.1	-30.9	69.9



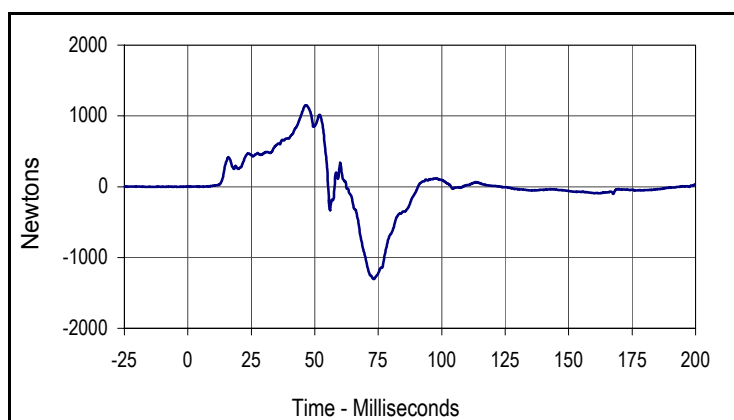
Curve Description			
Passenger Nij			
Units	Type	Max	Time
Ntf	FIL	0.39	114.1
Units	Type	Max	Time
Nte	FIL	0.48	69.9
Units	Type	Max	Time
Ncf	FIL	0.18	82.4
Units	Type	Max	Time
Nce	FIL	0.36	246.1

Test Vehicle: 2014 Infiniti Q50 3.7 AWD Premium 4-Door Sedan  
 Test Program: 56 km/h Frontal Impact NCAP Test

NHTSA No.: M20145200  
 Test Date: 11/14/13



Curve Description			
Passenger Left Femur Force Z			
Plot No.	Type	SAE Class	Units
027	FIL	600	Newtons
Max	Time	Min	Time
613.6	35.1	-2406.1	53.8



Curve Description			
Passenger Right Femur Force Z			
Plot No.	Type	SAE Class	Units
028	FIL	600	Newtons
Max	Time	Min	Time
1152.4	46.6	-1306.1	73.3

**APPENDIX C**  
**DUMMY CALIBRATION AND PERFORMANCE VERIFICATION DATA**

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

Test Program: Hybrid III 50th Percentile Male Dummy Damage Checklist

Test Date: 11/7/13



ATD Serial No.: 034

Test I.D.: N/A

Dummy Item	Inspect for	Comments	Damaged	OK
Entire Dummy	Perform general cleaning			X
Outer Skin	Gashes, rips, cracks			X
Head	Ballast secure			X
	General appearance			X
Neck	Broken or cracked rubber			X
	Upper neck bracket firmly attached to the lower neck bracket			X
	Looseness at the condyle joint			X
	Nodding blocks cracked or out of position			X
Spine	Broken or cracks in rubber			X
Ribs	Broken or bent ribs			X
	Broken or bent rib supports			X
	Damping material separated or cracked			X
	Rubber bumpers in place			X
Chest Displacement Assembly	Bent shaft			X
	Slider arm riding in track			X
Transducer Leads	Torn cables			X
Accelerometer Mountings	Head mounting secure			X
	Chest mounting secure			X
Knees	Skin condition			X
	Insert (do not remove)			X
	Casting			X
Limbs	Normal movement and adjustment			X
Knee Sliders	Wires intact			X
	Rubber returned to "at rest" position			X
Pelvis	Broken			X
Other				X

Describe the repair on repair or replacement of parts:

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Test Program: Hybrid III 50th Percentile Male External Measurements

Test Date: 11/7/13



ATD Serial No.: 034

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	29.5	Pass
A - Total sitting height	mm	879 to 889	884	Pass
B - Shoulder pivot height	mm	505 to 521	512	Pass
C - H point height	mm	84 to 89	85	Pass
D - H point location from backline	mm	135 to 140	137	Pass
E - Shoulder pivot from backline	mm	84 to 94	89	Pass
F - Thigh clearance	mm	140 to 155	146	Pass
G - Back of elbow to wrist pivot	mm	290 to 305	297	Pass
H - Head back to backline	mm	41 to 46	43	Pass
I - Shoulder to elbow length	mm	330 to 345	336	Pass
J - Elbow rest height	mm	190 to 211	201	Pass
K - Buttock to knee length	mm	579 to 604	586	Pass
L - Popliteal length	mm	429 to 455	438	Pass
M - Knee pivot height	mm	485 to 500	493	Pass
N - Buttock popliteal length	mm	452 to 477	472	Pass
O - Chest depth without jacket	mm	213 to 229	225	Pass
P - Foot length	mm	251 to 267	260	Pass
V - Shoulder breadth	mm	422 to 437	433	Pass
W - Foot breadth	mm	91 to 107	99	Pass
Y - Chest circumference (with chest jacket)	mm	970 to 1001	981	Pass
Z - Waist circumference	mm	836 to 866	864	Pass
AA - Location for chest circumference	mm	429 to 434	429	Pass
BB - Location for waist circumference	mm	226 to 231	230	Pass
Overall Test Results				Pass

Test Program: Hybrid III 50th Percentile Male Head Drop Test

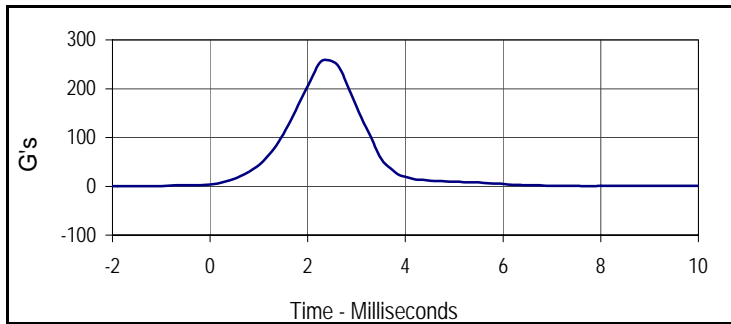
Test Date: 11/7/13



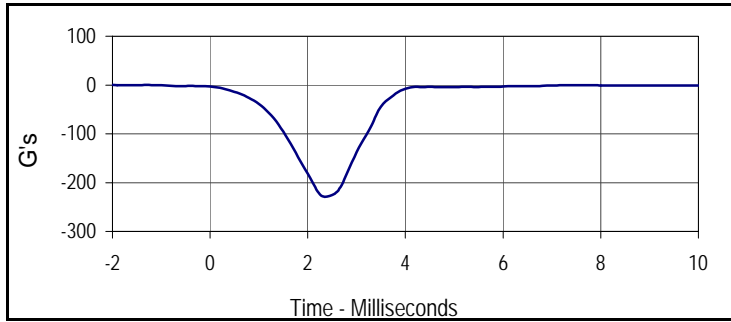
ATD Serial No.: 034

Test I.D.: M034HD045

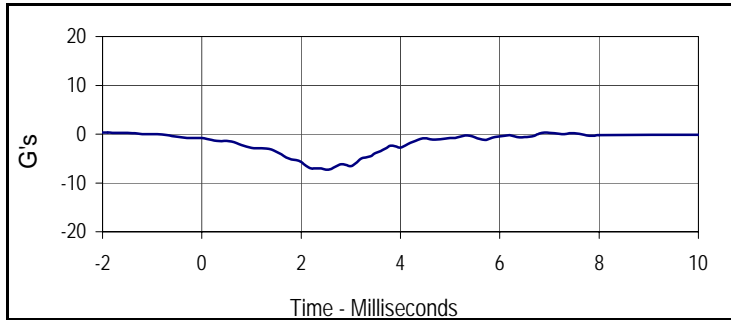
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	425	Pass
Temperature During Soak	Max	18.9 to 25.6	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass
	Min		32.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.5	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	258.8	Pass
Peak Lateral Acceleration	G's	≤15.0	7.3	Pass
Oscillations After Main Pulse	%	<10% of peak Res. Acceleration	7.5	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
<b>Overall Test Results</b>				<b>Pass</b>



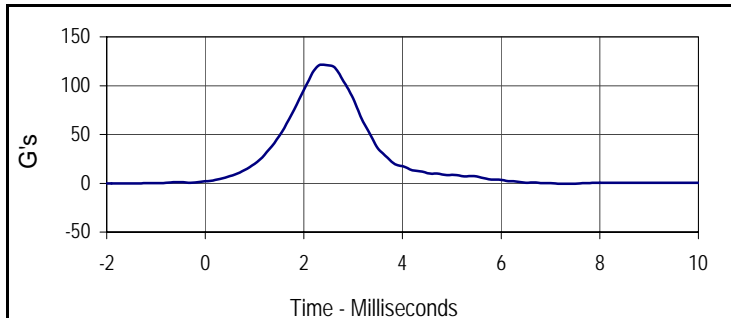
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
258.8	2.4	0.1	-1.2



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.0	-2.0	-228.4	2.4



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
0.3	-2.0	-7.3	2.5



Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
121.4	2.4	-0.1	-2.0

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test

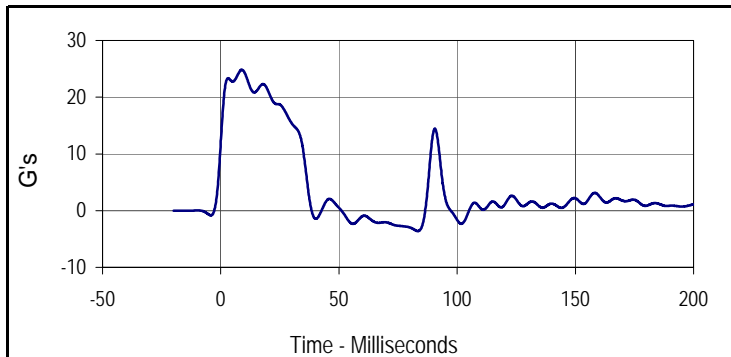
Test Date: 11/7/13



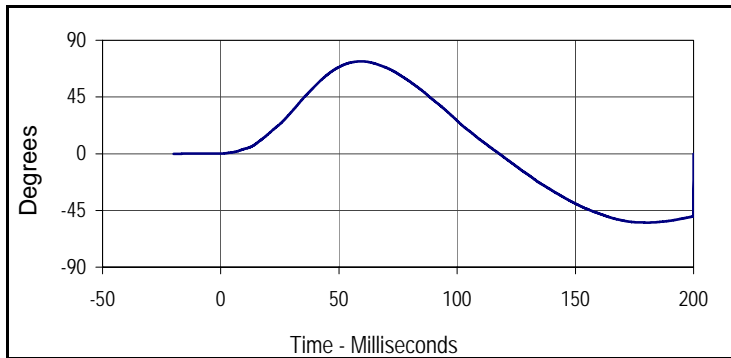
ATD Serial No.: 034

Test I.D.: M034NF045

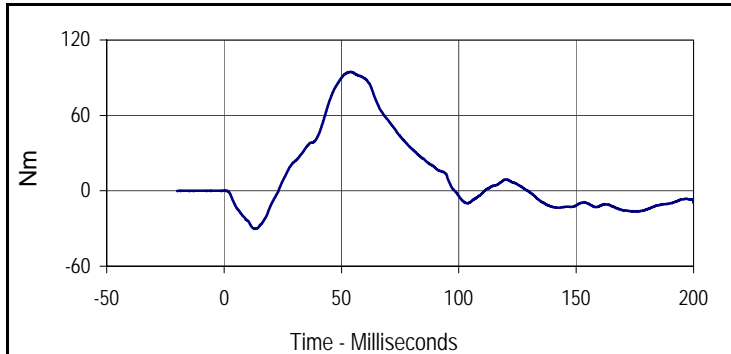
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	475	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.3	Pass	
	Min		21.2	Pass	
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass	
	Min		32.6	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	33.4	Pass	
Pendulum Velocity	m/s	6.89 to 7.13	7.04	Pass	
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	24.4	Pass
	20 Msec.	G's	17.6 to 22.6	21.1	Pass
	30 Msec.	G's	12.5 to 18.5	15.4	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 29.0	15.4	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	34.0 to 42.0	36.6	Pass	
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	73.3	Pass
	Time	Msec.	57.0 to 64.0	59.4	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	113.0 to 128.0	117.8	Pass	
Moment About Occ. Condyle	Max	Nm	88.1 to 108.5	94.5	Pass
	Time	Msec.	47.0 to 58.0	53.6	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	97.0 to 107.0	98.3	Pass	
<b>Overall Test Results</b>				<b>Pass</b>	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
24.8	8.9	-3.6	83.4



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
73.3	59.4	-54.6	180.4



Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
94.5	53.6	-30.2	13.0

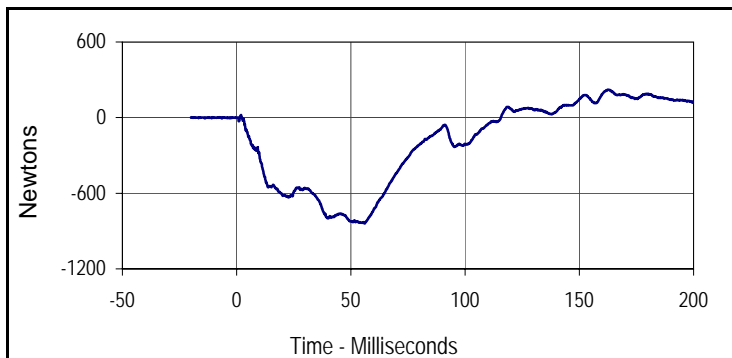
Test Program: Hybrid III 50th Percentile Male Neck Flexion Test

Test Date: 11/7/13

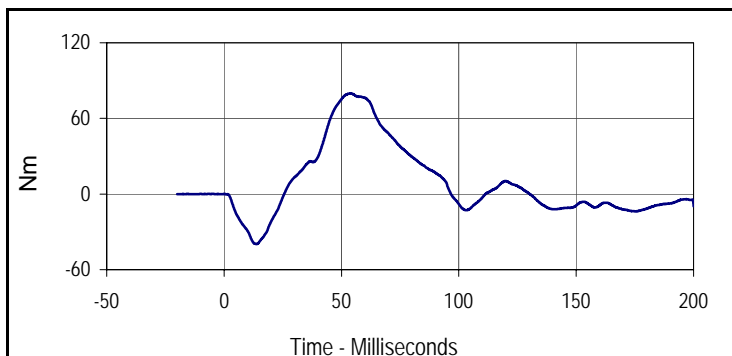


ATD Serial No.: 034

Test I.D.: M034NF045



Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
222.7	162.4	-838.2	56.0



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
79.8	54.0	-39.8	13.8

Test Program: Hybrid III 50th Percentile Male Neck Extension Test

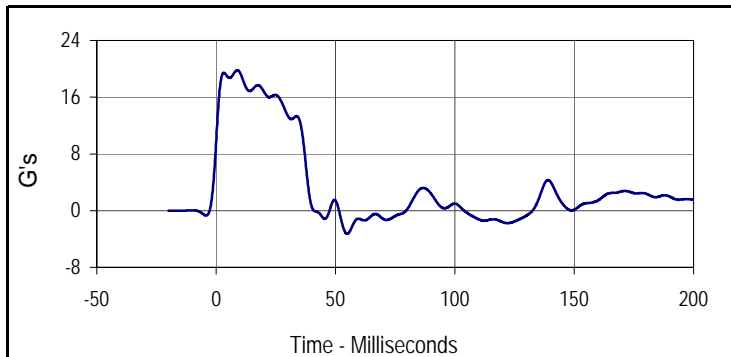
Test Date: 11/7/13



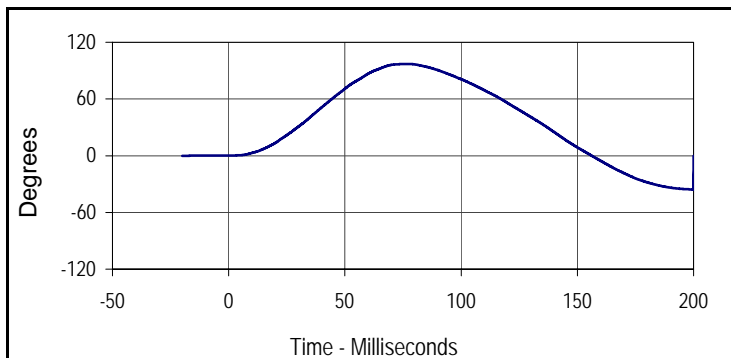
ATD Serial No.: 034

Test I.D.: M034NE045

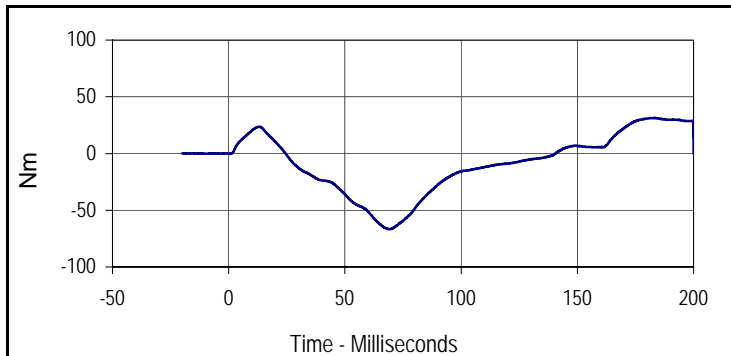
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	510	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.3	Pass	
	Min		21.2	Pass	
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass	
	Min		32.6	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	33.4	Pass	
Pendulum Velocity	m/s	5.94 to 6.19	6.12	Pass	
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	19.4	Pass
	20 Msec.	G's	14.0 to 19.0	16.8	Pass
	30 Msec.	G's	11.0 to 16.0	13.4	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 22.0	13.4	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	38.0 to 46.0	38.1	Pass	
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	97.1	Pass
	Time	Msec.	72.0 to 82.0	76.8	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	147.0 to 174.0	156.2	Pass	
Moment About Occ. Condyle	Max	Nm	-52.9 to -79.9	-66.6	Pass
	Time	Msec.	65.0 to 79.0	69.5	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	120.0 to 148.0	140.7	Pass	
<b>Overall Test Results</b>				<b>Pass</b>	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
19.8	8.9	-3.3	54.9



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
97.1	76.8	-35.6	199.9



Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
31.4	183.2	-66.6	69.5

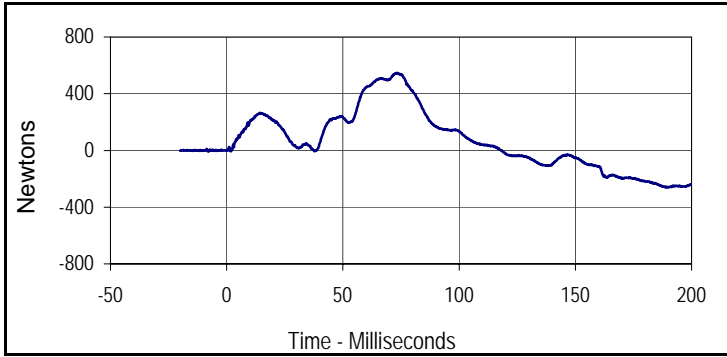
Test Program: Hybrid III 50th Percentile Male Neck Extension Test

Test Date: 11/7/13

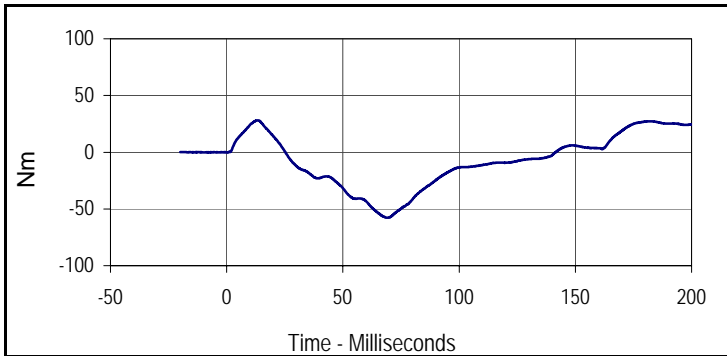


ATD Serial No.: 034

Test I.D.: M034NE045



Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
547.3	73.2	-260.7	188.8



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
28.1	13.2	-57.8	69.1

Test Program: Hybrid III 50th Percentile Male Thorax Impact Test

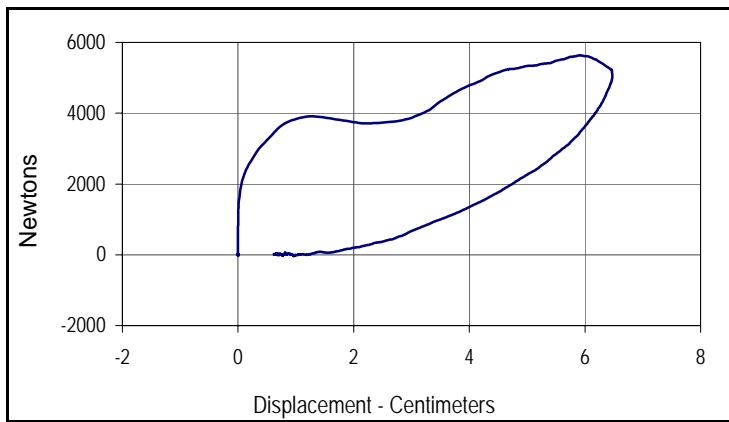
Test Date: 11/7/13



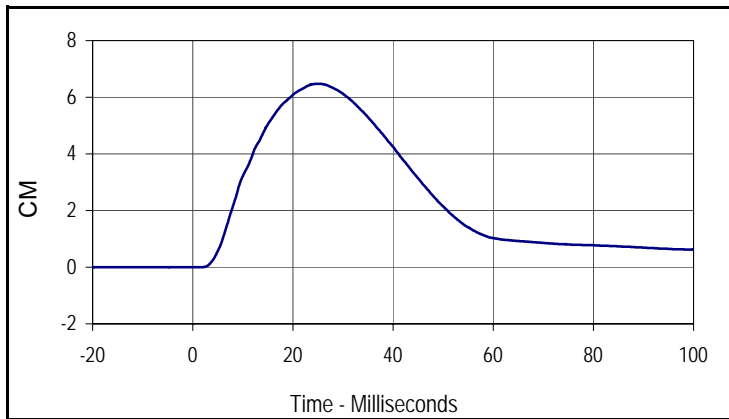
ATD Serial No.: 034

Test I.D.: M034CH045

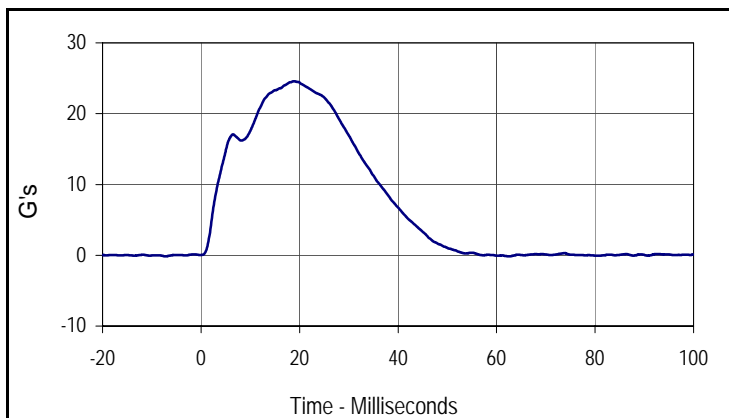
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	560	Pass
Temperature During Soak	Max	20.6 to 22.2	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass
	Min		32.6	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.3	Pass
Probe Velocity	m/s	6.58 to 6.82	6.71	Pass
Peak Probe Force	Newtons	5159 to 5893	5635	Pass
Peak Sternum Deflection	CM	6.35 to 7.26	6.47	Pass
Internal Hysteresis	%	69 to 85	71.3	Pass
Overall Test Results				Pass



Curve Description			
Probe Force vs. Chest Deflection			
Plot No.	Type	SAE Class	Hysteresis
001	FIL	600	71.3
Peak Probe Force		Peak Chest Deflection	
5635		6.47	



Curve Description			
Chest Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	CM
Max	Time	Min	Time
6.5	25.2	0.0	-20.0



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
24.6	18.9	-0.2	62.6

Test Program: Hybrid III 50th Percentile Male Knee Impact Test

Test Date: 11/7/13



ATD Serial No.: 034

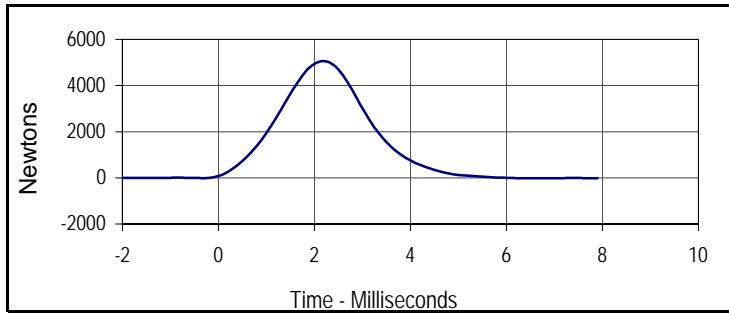
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**Left Knee**

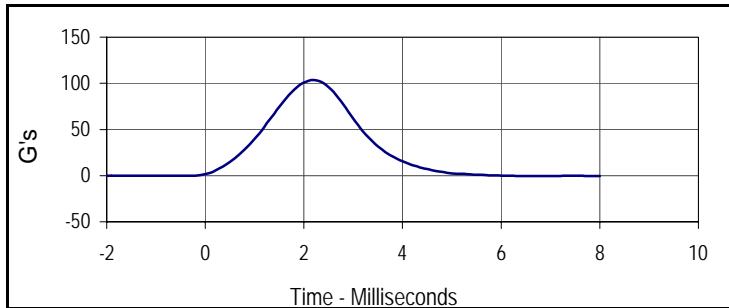
Tested Parameter	Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time	Minutes	≥240	595	Pass
Temperature During Soak	Max	18.9 to 25.6	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass
	Min		32.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.2	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.11	Pass
Peak Probe Force	Newtons	4715 to 5782	5062	Pass
<b>Overall Test Results</b>				<b>Pass</b>

**Right Knee**

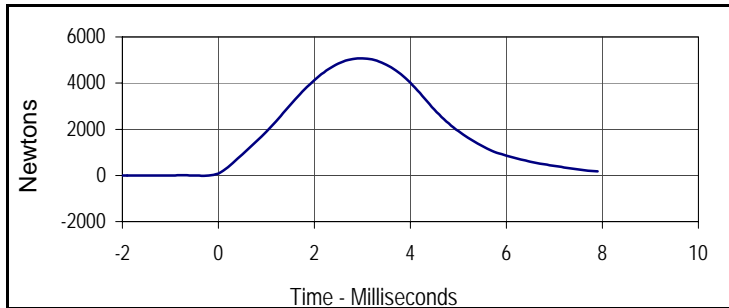
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.11	Pass
Peak Probe Force	Newtons	4715 to 5782	5075	Pass
<b>Overall Test Results</b>				<b>Pass</b>



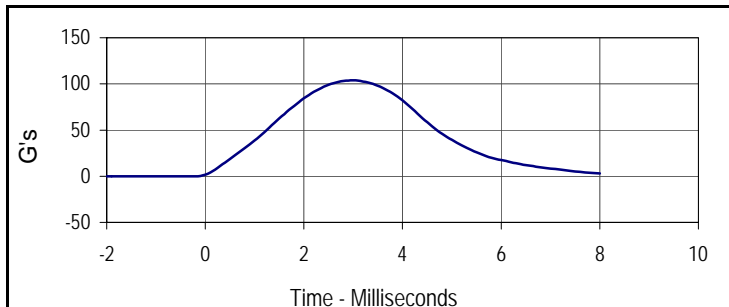
Curve Description			
Left Knee Probe Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
5062.2	2.2	-23.8	6.5



Curve Description			
Left Knee Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	600	G's
Max	Time	Min	Time
103.5	2.2	-0.5	0.0



Curve Description			
Right Knee Probe Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
5075.3	3.0	-12.6	-0.3



Curve Description			
Right Knee Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	600	G's
Max	Time	Min	Time
103.7	3.0	-0.5	0.0

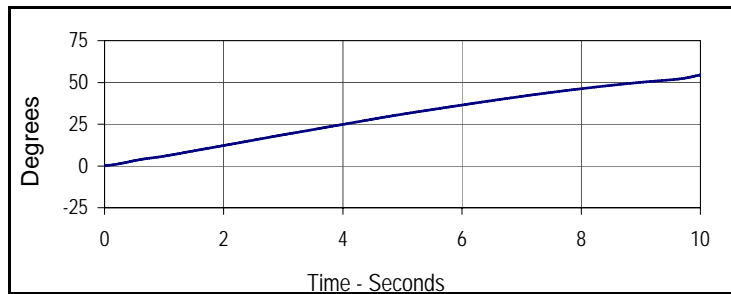


**Left Hip Joint-Femur Results**

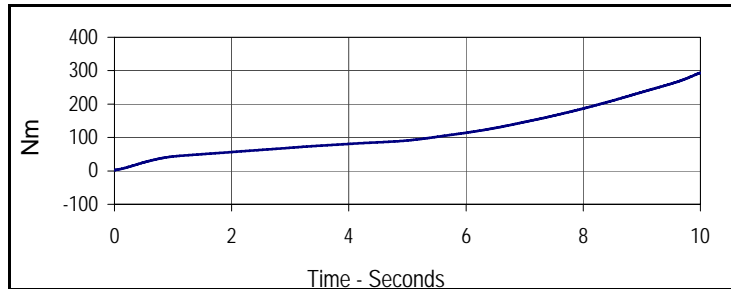
Tested Parameter	Units	Specification	Result	Pass/Fail
Hip Joint-Femur Assembly Soak Time	Minutes	≥240	645	Pass
Temperature During Soak	Max	18.9 to 25.6	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass
	Min		32.6	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.2	Pass
Rotation Rate	deg/sec	5 to 10	5.5	Pass
Femur Torque at 30°	Nm	≤ 95	87.9	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	47.4	Pass
<b>Overall Test Results</b>				<b>Pass</b>

**Right Hip Joint-Femur Results**

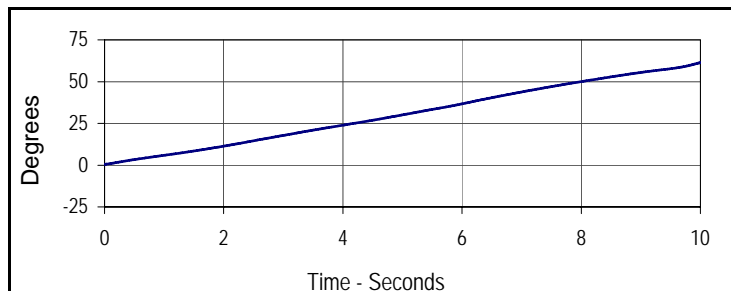
Rotation Rate	deg/sec	5 to 10	6.1	Pass
Femur Torque at 30°	Nm	≤ 95	93.7	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	46.7	Pass
<b>Overall Test Results</b>				<b>Pass</b>



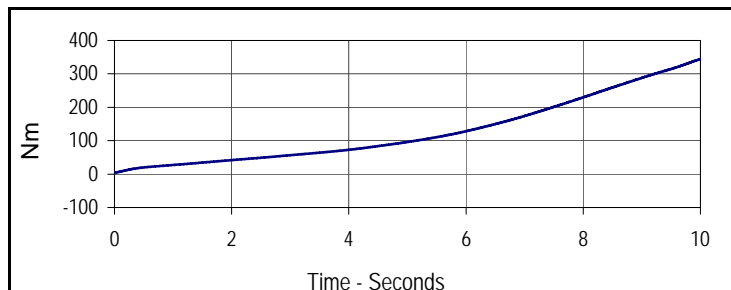
Curve Description			
Left Hip-Femur Rotation			
Plot No.	Type	SAE Class	Units
001	FIL	60	Degrees
Max	Time	Min	Time
54.5	10.0	0.2	0.0



Curve Description			
Left Femur Torque			
Plot No.	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
293.3	10.0	0.2	0.0



Curve Description			
Right Hip-Femur Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
61.3	10.0	0.2	0.0



Curve Description			
Right Femur Torque			
Plot No.	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
343.8	10.0	0.2	0.0

Test Program: Hybrid III 5th Percentile Female Dummy Damage Checklist

Test Date: 11/8/13



ATD Serial No.: 141

Test I.D.: N/A

Dummy Item	Inspect for	Comments	Damaged	OK
Entire Dummy	Perform general cleaning			X
Outer Skin	Gashes, rips, cracks			X
Head	Ballast secure			X
	General appearance			X
Neck	Broken or cracked rubber			X
	Upper neck bracket firmly attached to the lower neck bracket			X
	Looseness at the condyle joint			X
	Nodding blocks cracked or out of position			X
Spine	Broken or cracks in rubber			X
Ribs	Broken or bent ribs			X
	Broken or bent rib supports			X
	Damping material separated or cracked			X
	Rubber bumpers in place			X
Chest Displacement Assembly	Bent shaft			X
	Slider arm riding in track			X
Transducer Leads	Torn cables			X
Accelerometer Mountings	Head mounting secure			X
	Chest mounting secure			X
Knees	Skin condition			X
	Insert (do not remove)			X
	Casting			X
Limbs	Normal movement and adjustment			X
Knee Sliders	Wires intact			X
	Rubber returned to "at rest" position			X
Pelvis	Broken			X
Other				X

Describe the repair on repair or replacement of parts:

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Test Program: Hybrid III 5th Percentile Female External Measurements

Test Date: 11/8/13



ATD Serial No.: 141

Test I.D.: N/A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.22	Pass
Laboratory Relative Humidity	%	10 to 70	33.4	Pass
A - Total sitting height	mm	774.7 to 800.1	786	Pass
B - Shoulder pivot height	mm	431.8 to 457.2	450	Pass
C - H point height	mm	81.3 to 86.3	85	Pass
D - H point location from backline	mm	144.8 to 149.8	146	Pass
E - Shoulder pivot from backline	mm	68.6 to 83.8	77	Pass
F - Thigh clearance	mm	119.4 to 134.6	126	Pass
G - Back of elbow to wrist pivot	mm	243.9 to 259.1	250	Pass
H - Head back to backline	mm	40.7 to 45.7	44	Pass
I - Shoulder to elbow length	mm	276.8 to 297.2	285	Pass
J - Elbow rest height	mm	182.8 to 203.2	198	Pass
K - Buttock to knee length	mm	520.7 to 546.1	531	Pass
L - Popliteal length	mm	355.6 to 376.0	371	Pass
M - Knee pivot height	mm	393.7 to 419.1	402	Pass
N - Buttock popliteal length	mm	414.0 to 439.4	420	Pass
O - Chest depth without jacket	mm	175.3 to 190.5	186	Pass
P - Foot length	mm	218.5 to 233.7	221	Pass
R - Buttock to Knee Pivot Length	mm	457.2 to 482.6	473	Pass
S - Head Breadth	mm	137.1 to 147.3	144	Pass
T - Head Depth	mm	177.8 to 188.0	180	Pass
U - Hip Breadth	mm	299.7 to 314.9	302	Pass
V - Shoulder breadth	mm	350.5 to 365.7	359	Pass
W - Foot breadth	mm	78.8 to 94.0	90	Pass
X - Head circumference	mm	528.3 to 548.7	541	Pass
Y - Chest circumference (with chest jacket)	mm	850.8 to 881.3	864	Pass
Z - Waist circumference	mm	759.5 to 789.9	766	Pass
AA - Location for chest circumference	mm	299.7 to 309.9	300	Pass
BB - Location for waist circumference	mm	160.1 to 170.2	164	Pass
<b>Overall Test Results</b>				<b>Pass</b>

Test Program: Hybrid III 5th Percentile Female Head Drop Test

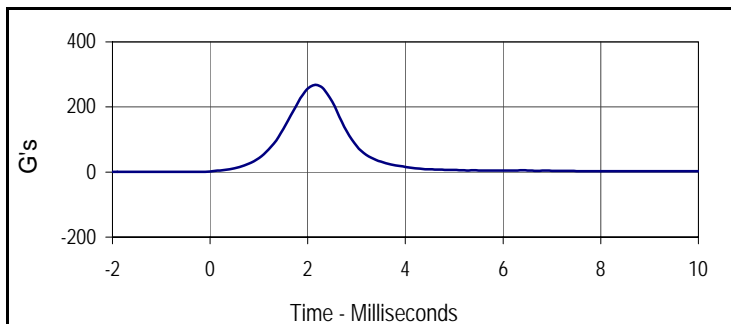
Test Date: 11/8/13



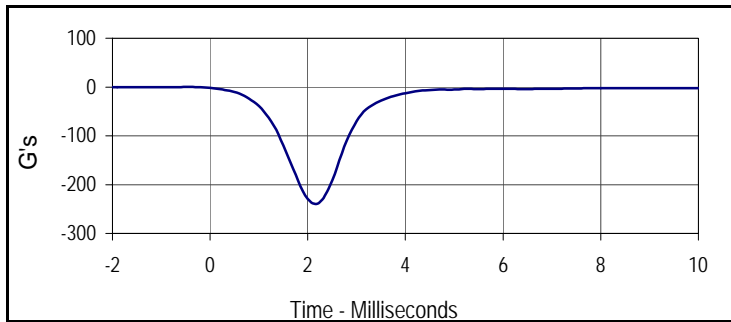
ATD Serial No.: 141

Test I.D.: F141HD058

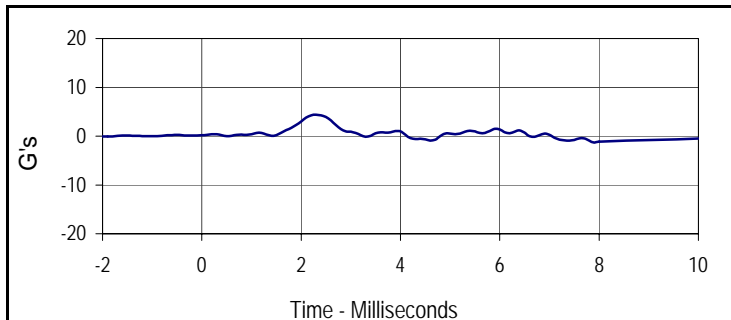
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	275	Pass
Temperature During Soak	Max	18.9 to 25.6	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass
	Min		33.3	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.4	Pass
Peak Resultant Acceleration	G's	250.0 to 300.0	267.7	Pass
Peak Lateral Acceleration	G's	≤15.0	4.4	Pass
Oscillations After Main Pulse	%	<10% of peak Res. Acceleration	2.0	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
<b>Overall Test Results</b>				<b>Pass</b>



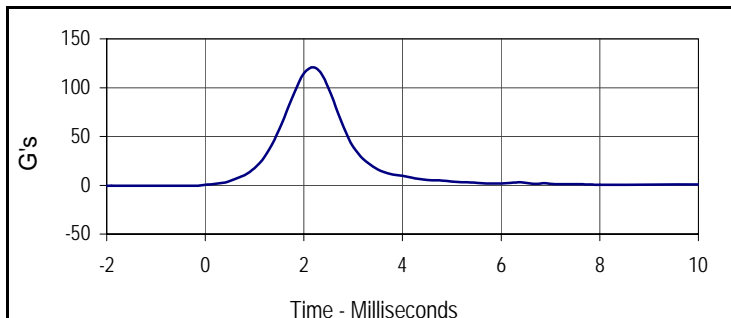
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
267.7	2.2	0.4	-1.0



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.0	-0.5	-238.9	2.2



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
4.4	2.3	-0.9	4.6



Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
120.7	2.2	-0.5	-0.4

Test Program: Hybrid III 5th Percentile Female Neck Flexion Test

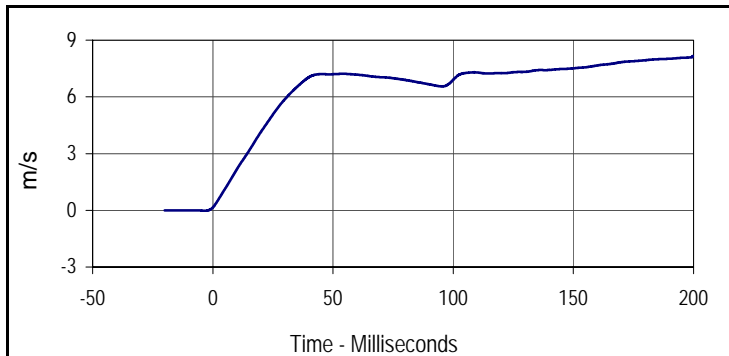
Test Date: 11/8/13



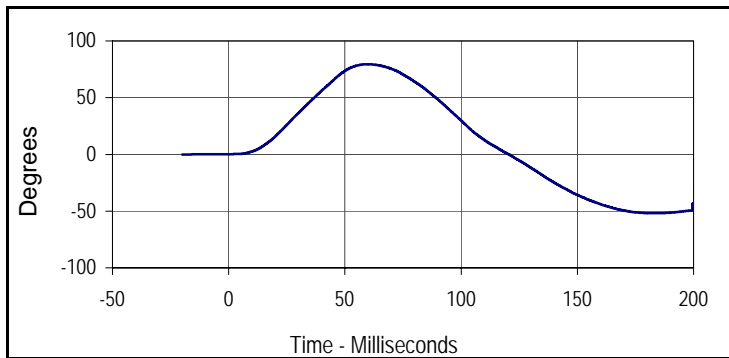
ATD Serial No.: 141

Test I.D.: F141NF058

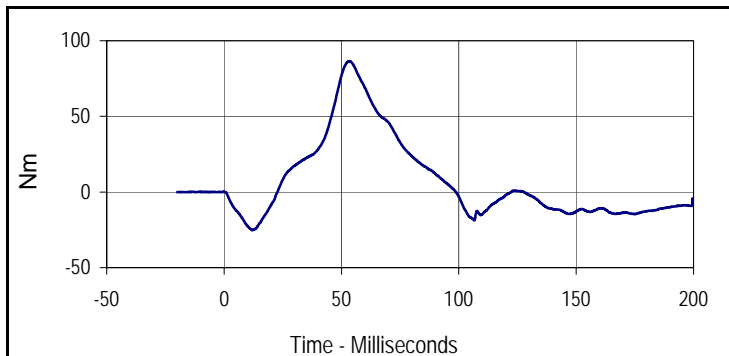
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	330	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.3	Pass	
	Min		21.2	Pass	
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass	
	Min		33.3	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	33.5	Pass	
Pendulum Velocity	m/s	6.89 to 7.13	7.05	Pass	
Pendulum Deceleration	10 Msec.	m/s	2.1 to 2.5	2.2	Pass
	20 Msec.	m/s	4.0 to 5.0	4.1	Pass
	30 Msec.	m/s	5.8 to 7.0	5.9	Pass
"D" Plane Rotation	Max	Degrees	77.0 to 91.0	79.5	Pass
Peak Moment in Rotation	Max	Nm	69.0 to 83.0	70.1	Pass
Positive Moment Decay, Time To 10 Nm	Msec.	80.0 to 100.0	90.5	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
8.2	200.0	0.0	-3.3



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
79.5	59.5	-51.8	185.0



Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
86.5	53.3	-25.3	11.9

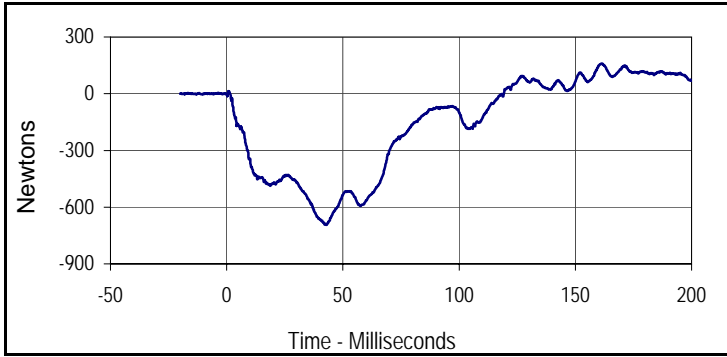
Test Program: Hybrid III 5th Percentile Female Neck Flexion Test

Test Date: 11/8/13

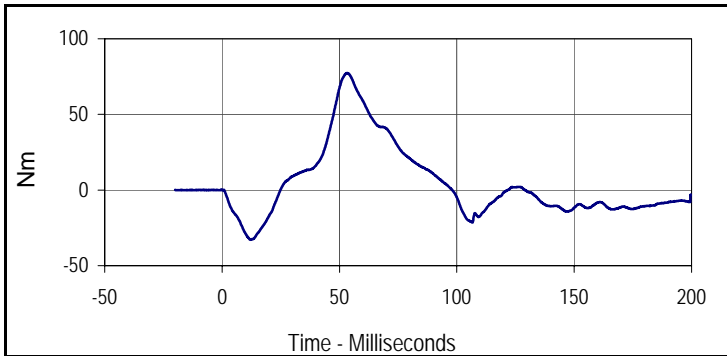


ATD Serial No.: 141

Test I.D.: F141NF058



Curve Description			
Upper Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
159.5	161.4	-693.6	42.8



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
77.3	53.3	-32.9	12.0

Test Program: Hybrid III 5th Percentile Female Neck Extension Test

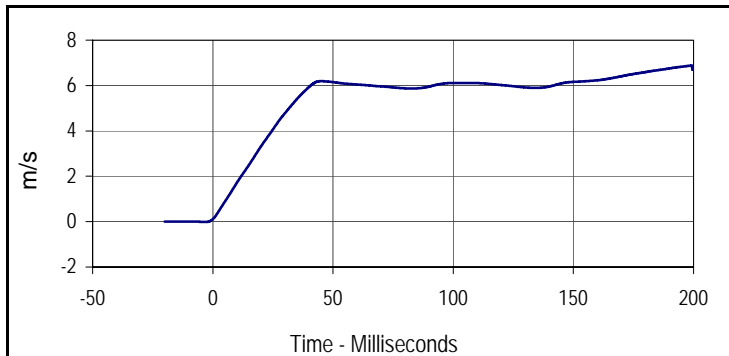
Test Date: 11/8/13



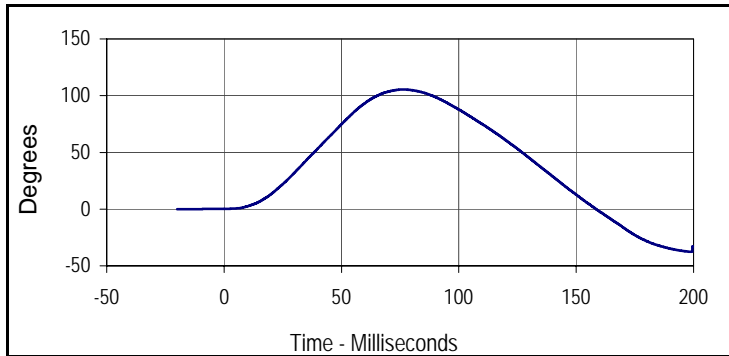
ATD Serial No.: 141

Test I.D.: F141NE058

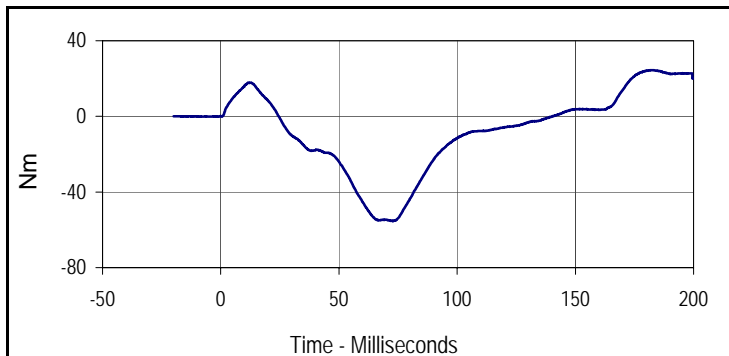
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	365	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.3	Pass	
	Min		21.2	Pass	
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass	
	Min		33.3	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	33.5	Pass	
Pendulum Velocity	m/s	5.95 to 6.19	6.09	Pass	
Pendulum Deceleration	10 Msec.	m/s	1.5 to 1.9	1.7	Pass
	20 Msec.	m/s	3.1 to 3.9	3.3	Pass
	30 Msec.	m/s	4.6 to 5.6	4.8	Pass
"D" Plane Rotation	Max	Degrees	99.0 to 114.0	105.4	Pass
Peak Moment in Rotation	Max	Nm	-53.0 to -65.0	-55.4	Pass
Positive Moment Decay, Time To -10 Nm	Msec.	94.0 to 114.0	102.4	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
6.9	199.4	0.0	-3.2



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
105.4	76.1	-37.7	199.4



Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
24.5	182.7	-55.4	72.9

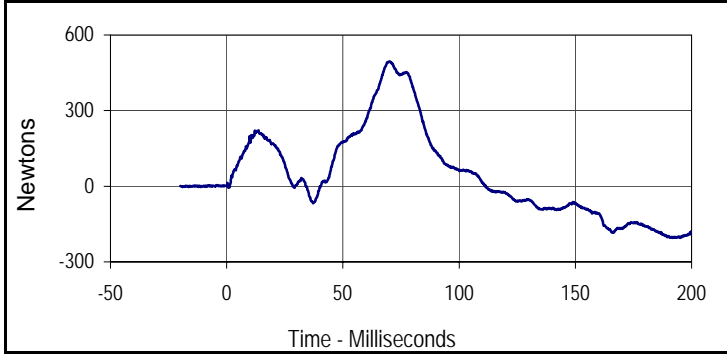
Test Program: Hybrid III 5th Percentile Female Neck Extension Test

Test Date: 11/8/13

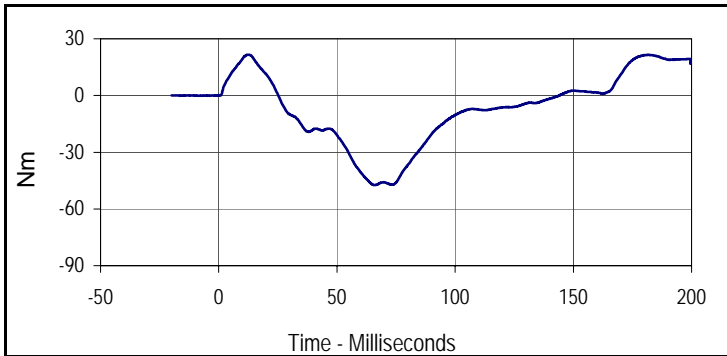


ATD Serial No.: 141

Test I.D.: F141NE058



Curve Description			
Upper Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
494.6	69.8	-205.2	191.8



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
21.6	12.8	-47.4	65.7

Test Program: Hybrid III 5th Percentile Female Thorax Impact Test

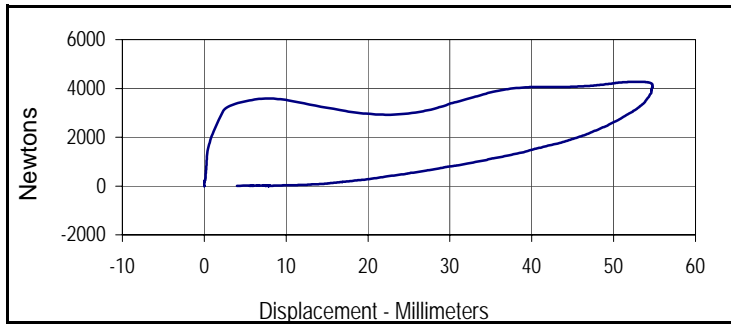
Test Date: 11/8/13



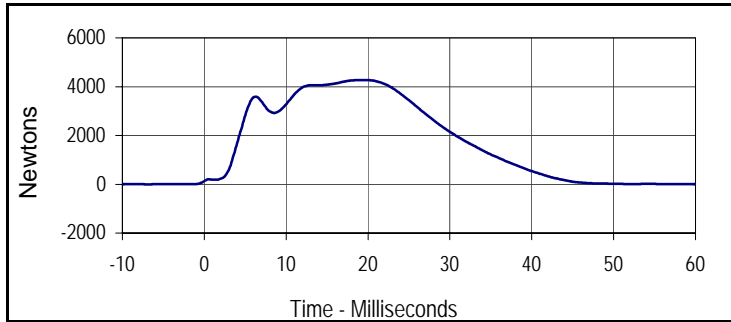
ATD Serial No.: 141

Test I.D.: F141CH058

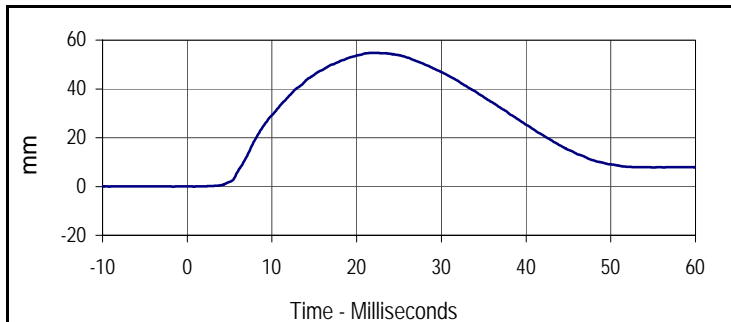
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	415	Pass
Temperature During Soak	Max	20.6 to 22.2	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass
	Min		33.3	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.4	Pass
Probe Velocity	m/s	6.59 to 6.83	6.73	Pass
Peak Chest Deflection	mm	50.0 to 58.0	54.8	Pass
Peak Force Between 50 and 58 MM	Newtons	3900 to 4400	4272	Pass
Peak Force Between 18 and 50 MM	Newtons	≤4600	4215	Pass
Internal Hysteresis	%	69 to 85	72.9	Pass
Overall Test Results				Pass



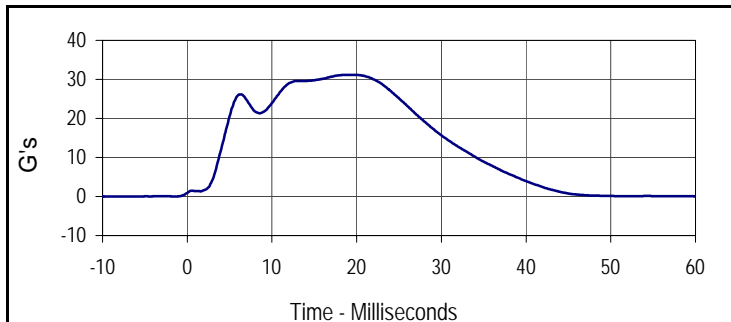
Curve Description			
Probe Force vs. Chest Deflection			
Plot No.	Type	SAE Class	Hysteresis
001	FIL	180	72.9
Peak Probe Force		Peak Chest Deflection	
4272.2		54.8	



Curve Description			
Probe Force			
Plot No.	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
4272.2	19.8	-1.1	-6.8



Curve Description			
Chest Deflection			
Plot No.	Type	SAE Class	Units
003	FIL	600	mm
Max	Time	Min	Time
54.8	22.1	0.0	-1.7



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
31.2	19.8	0.0	-6.8

Test Program: Hybrid III 5th Percentile Female Knee Impact Test

Test Date: 11/8/13



ATD Serial No.: 141

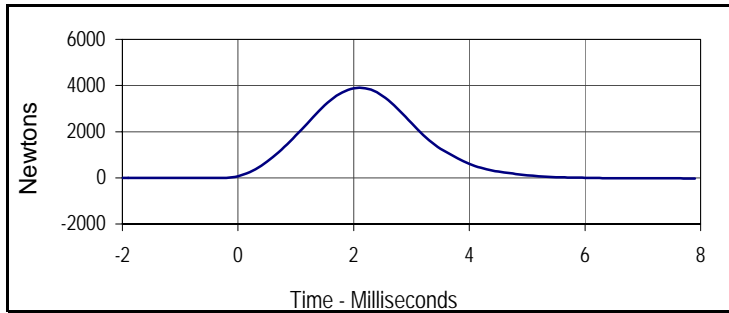
Test I.D.: F141LK058, F141RK058

**Left Knee**

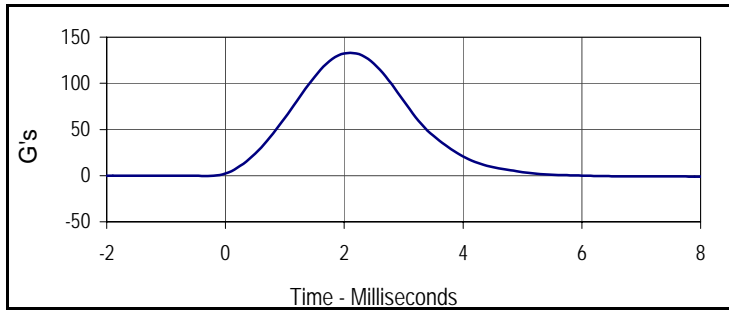
Tested Parameter	Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time	Minutes	≥240	445	Pass
Temperature During Soak	Max	18.9 to 25.6	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass
	Min		33.3	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.4	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	3450 to 4060	3903	Pass
<b>Overall Test Results</b>				<b>Pass</b>

**Right Knee**

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	Newtons	3450 to 4060	3798	Pass
<b>Overall Test Results</b>				<b>Pass</b>



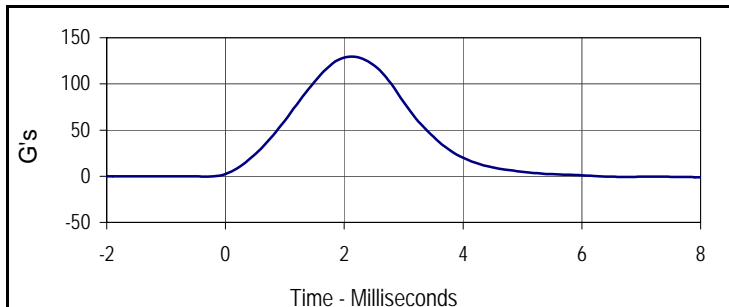
Curve Description			
Left Knee Probe Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3903.4	2.1	-33.3	7.9



Curve Description			
Left Knee Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	600	G's
Max	Time	Min	Time
133.2	2.1	-1.3	8.4



Curve Description			
Right Knee Probe Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
3798.5	2.1	-30.2	7.9



Curve Description			
Right Knee Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	600	G's
Max	Time	Min	Time
129.6	2.1	-1.4	9.4

Test Program: Hybrid III 5th Percentile Female Torso Flexion Test

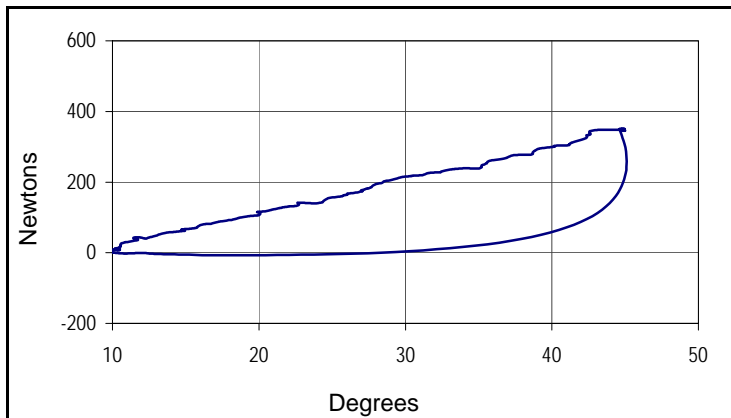
Test Date: 11/8/13



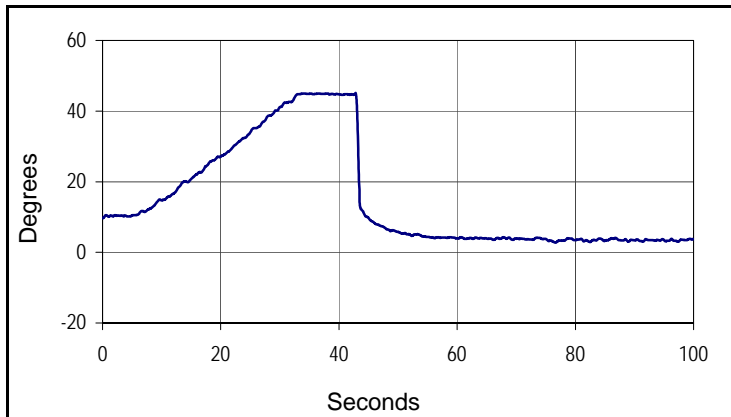
ATD Serial No.: 141

Test I.D.: TF058

Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	470	Pass
Temperature During Soak	Max	18.9 to 25.6	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass
	Min		33.3	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.5	Pass
Initial Reference Plane Angle	Degrees	≤ 20	9.7	Pass
Peak Force at 45° +/-0.5°	Newtons	320.0 to 390.0	351.7	Pass
Torso Rotation Rate	deg/sec	0.5 to 1.5	1.1	Pass
Final Reference Plane Angle	Degrees	+/-8	3.8	Pass
Overall Test Results				Pass



Curve Description		
Force vs Torso Rotation		
Plot No.	Type	Filter Freq
001	FIL	1 Hz
Peak Force		Peak Rotation
351.7		45.1



Curve Description			
Torso Rotation			
Plot No.	Type	Filter Freq	Units
002	FIL	1 Hz	Degrees
Max	Time	Min	Time
45.1	42.8	2.8	76.7

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

Test Program: Hybrid III 50th Percentile Male Dummy Damage Checklist

Test Date: 11/20/13



ATD Serial No.: 034

Test I.D.: N/A

Dummy Item	Inspect for	Comments	Damaged	OK
Entire Dummy	Perform general cleaning			X
Outer Skin	Gashes, rips, cracks			X
Head	Ballast secure			X
	General appearance			X
Neck	Broken or cracked rubber			X
	Upper neck bracket firmly attached to the lower neck bracket			X
	Looseness at the condyle joint			X
	Nodding blocks cracked or out of position			X
Spine	Broken or cracks in rubber			X
Ribs	Broken or bent ribs			X
	Broken or bent rib supports			X
	Damping material separated or cracked			X
	Rubber bumpers in place			X
Chest Displacement Assembly	Bent shaft			X
	Slider arm riding in track			X
Transducer Leads	Torn cables			X
Accelerometer Mountings	Head mounting secure			X
	Chest mounting secure			X
Knees	Skin condition			X
	Insert (do not remove)			X
	Casting			X
Limbs	Normal movement and adjustment			X
Knee Sliders	Wires intact			X
	Rubber returned to "at rest" position			X
Pelvis	Broken			X
Other				X

Describe the repair on repair or replacement of parts:

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Test Program: Hybrid III 50th Percentile Male External Measurements

Test Date: 11/20/13



ATD Serial No.: 034

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	29.5	Pass
A - Total sitting height	mm	879 to 889	884	Pass
B - Shoulder pivot height	mm	505 to 521	512	Pass
C - H point height	mm	84 to 89	85	Pass
D - H point location from backline	mm	135 to 140	137	Pass
E - Shoulder pivot from backline	mm	84 to 94	89	Pass
F - Thigh clearance	mm	140 to 155	146	Pass
G - Back of elbow to wrist pivot	mm	290 to 305	297	Pass
H - Head back to backline	mm	41 to 46	43	Pass
I - Shoulder to elbow length	mm	330 to 345	336	Pass
J - Elbow rest height	mm	190 to 211	201	Pass
K - Buttock to knee length	mm	579 to 604	586	Pass
L - Popliteal length	mm	429 to 455	438	Pass
M - Knee pivot height	mm	485 to 500	493	Pass
N - Buttock popliteal length	mm	452 to 477	472	Pass
O - Chest depth without jacket	mm	213 to 229	225	Pass
P - Foot length	mm	251 to 267	260	Pass
V - Shoulder breadth	mm	422 to 437	433	Pass
W - Foot breadth	mm	91 to 107	99	Pass
Y - Chest circumference (with chest jacket)	mm	970 to 1001	981	Pass
Z - Waist circumference	mm	836 to 866	864	Pass
AA - Location for chest circumference	mm	429 to 434	429	Pass
BB - Location for waist circumference	mm	226 to 231	230	Pass
Overall Test Results				Pass

Test Program: Hybrid III 50th Percentile Male Head Drop Test

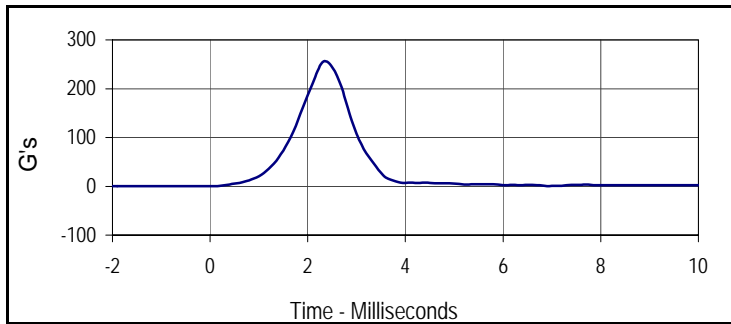
Test Date: 11/20/13



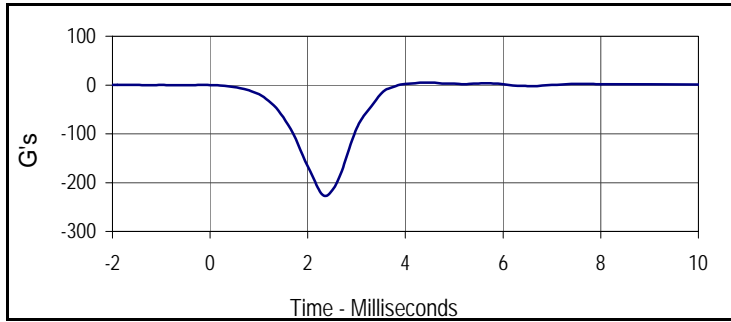
ATD Serial No.: 034

Test I.D.: M034HD046

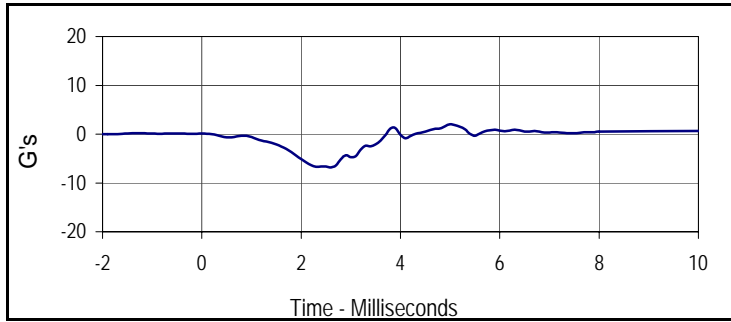
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	425	Pass
Temperature During Soak	Max	18.9 to 25.6	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.5	Pass
	Min		34.4	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.4	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	255.5	Pass
Peak Lateral Acceleration	G's	≤15.0	6.8	Pass
Oscillations After Main Pulse	%	<10% of peak Res. Acceleration	2.9	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
<b>Overall Test Results</b>				<b>Pass</b>



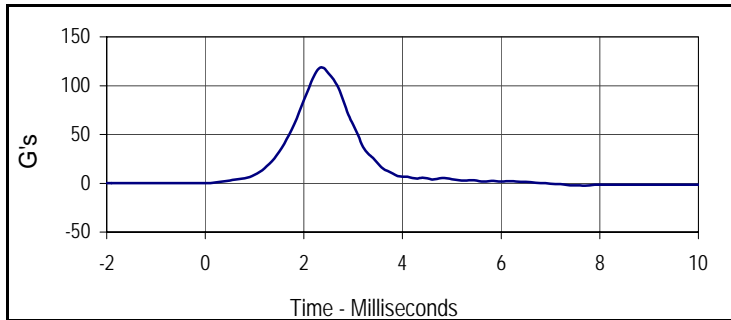
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
255.5	2.4	0.1	-0.1



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
4.8	4.5	-226.3	2.4



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
2.0	5.0	-6.8	2.6



Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
118.3	2.4	0.0	-1.3

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test

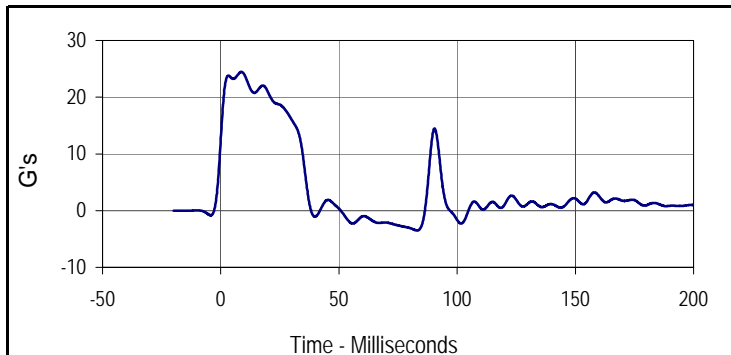
Test Date: 11/20/13



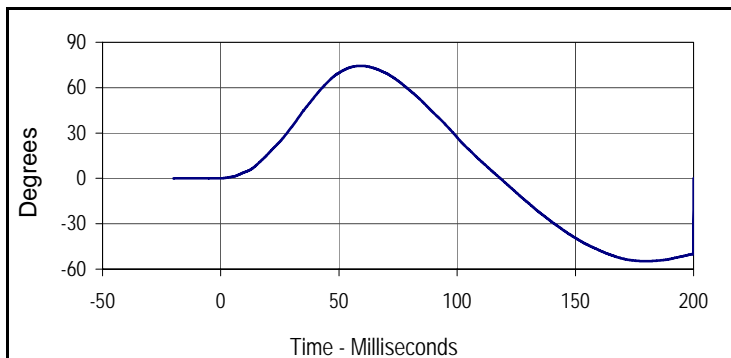
ATD Serial No.: 034

Test I.D.: M034NF046

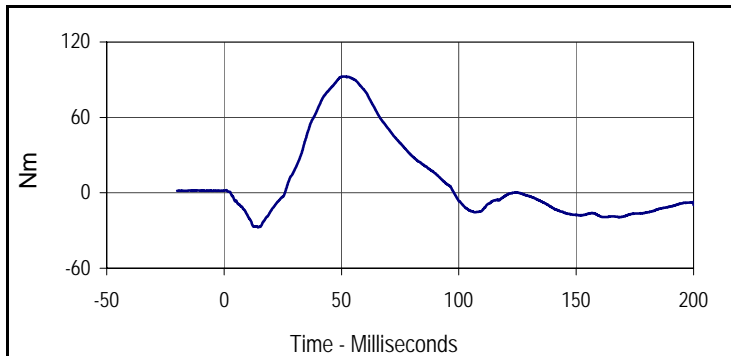
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	475	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass	
	Min		21.0	Pass	
Humidity During Soak	Max	10.0 to 70.0	34.5	Pass	
	Min		34.4	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	34.5	Pass	
Pendulum Velocity	m/s	6.89 to 7.13	7.04	Pass	
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	24.0	Pass
	20 Msec.	G's	17.6 to 22.6	20.9	Pass
	30 Msec.	G's	12.5 to 18.5	16.0	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 29.0	16.0	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	34.0 to 42.0	36.2	Pass	
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	74.4	Pass
	Time	Msec.	57.0 to 64.0	59.3	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	113.0 to 128.0	118.3	Pass	
Moment About Occ. Condyle	Max	Nm	88.1 to 108.5	92.5	Pass
	Time	Msec.	47.0 to 58.0	51.2	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	97.0 to 107.0	98.0	Pass	
<b>Overall Test Results</b>				<b>Pass</b>	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
24.5	8.7	-3.5	83.1



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
74.4	59.3	-54.8	179.8



Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
92.5	51.2	-27.4	14.4

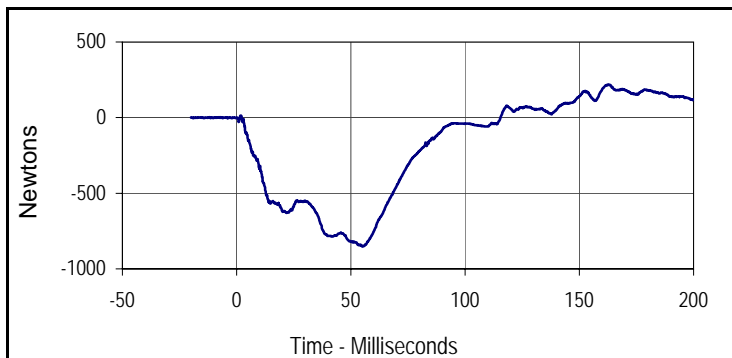
Test Program: Hybrid III 50th Percentile Male Neck Flexion Test

Test Date: 11/20/13

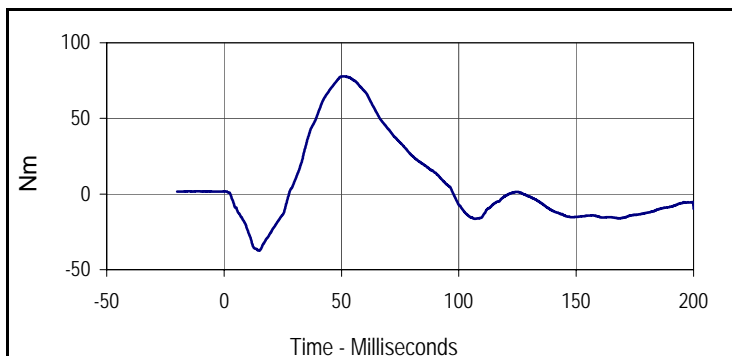


ATD Serial No.: 034

Test I.D.: M034NF046



Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
219.5	162.8	-851.1	55.0



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
77.9	51.1	-37.3	14.5

Test Program: Hybrid III 50th Percentile Male Neck Extension Test

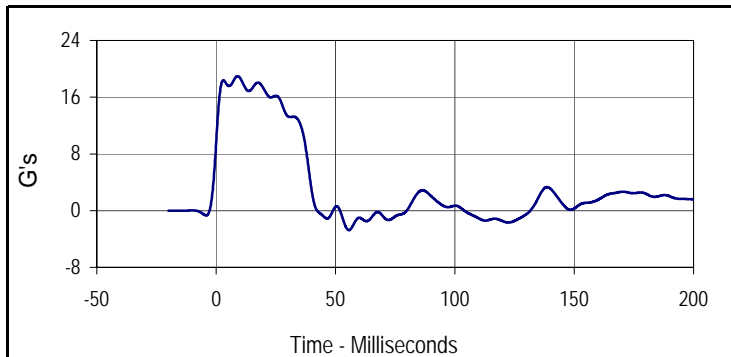
Test Date: 11/20/13



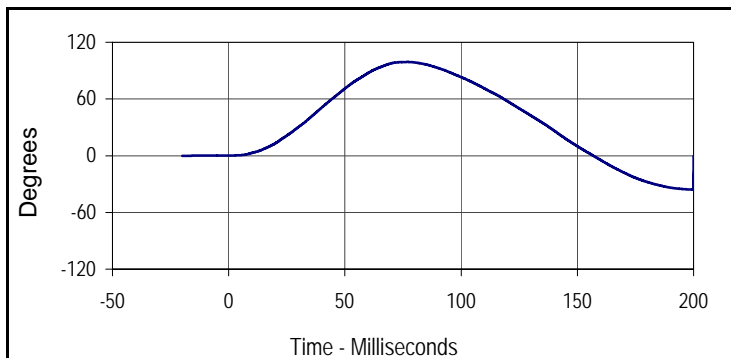
ATD Serial No.: 034

Test I.D.: M034NE046

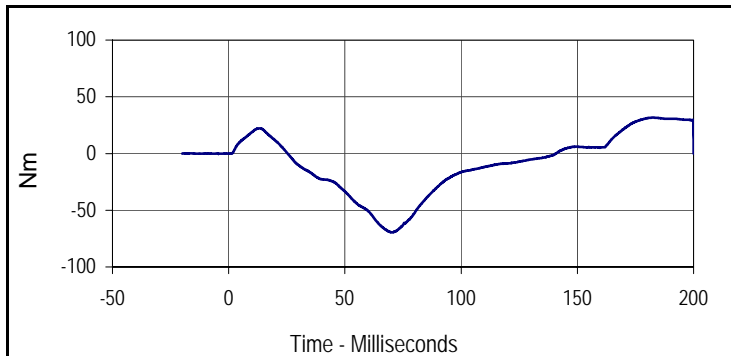
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	510	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass	
	Min		21.0	Pass	
Humidity During Soak	Max	10.0 to 70.0	34.5	Pass	
	Min		34.4	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	34.5	Pass	
Pendulum Velocity	m/s	5.94 to 6.19	6.08	Pass	
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	18.7	Pass
	20 Msec.	G's	14.0 to 19.0	17.2	Pass
	30 Msec.	G's	11.0 to 16.0	13.3	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 22.0	13.3	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	38.0 to 46.0	39.2	Pass	
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	99.2	Pass
	Time	Msec.	72.0 to 82.0	76.9	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	147.0 to 174.0	156.9	Pass	
Moment About Occ. Condyle	Max	Nm	-52.9 to -79.9	-69.5	Pass
	Time	Msec.	65.0 to 79.0	70.2	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	120.0 to 148.0	140.8	Pass	
<b>Overall Test Results</b>				<b>Pass</b>	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
19.0	9.0	-2.8	55.6



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
99.2	76.9	-35.7	199.9



Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
31.7	182.6	-69.5	70.2

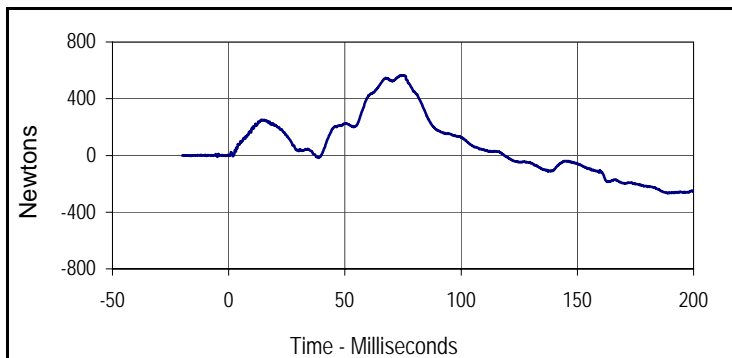
Test Program: Hybrid III 50th Percentile Male Neck Extension Test

Test Date: 11/20/13

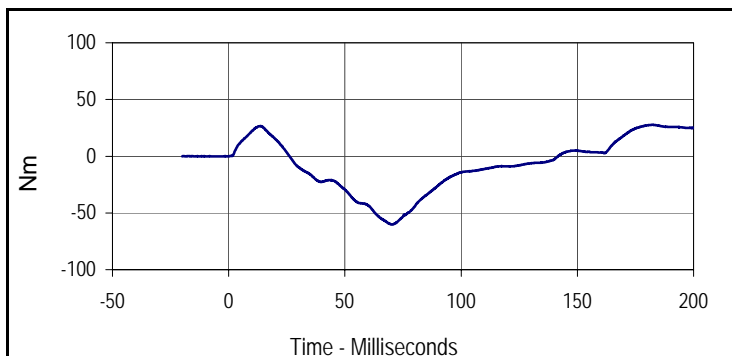


ATD Serial No.: 034

Test I.D.: M034NE046



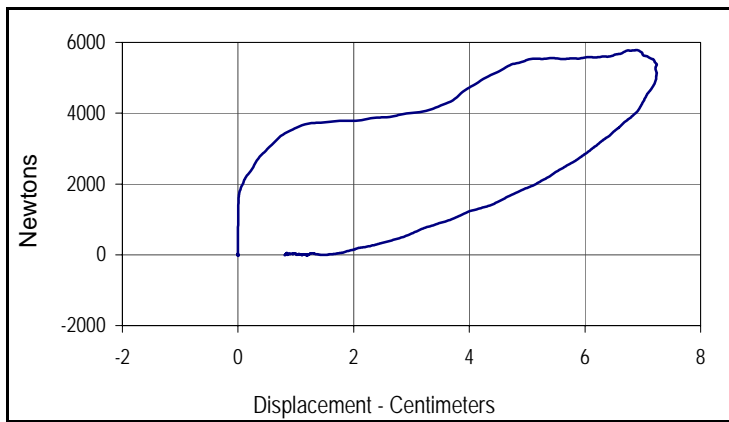
Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
565.5	75.2	-266.5	188.8



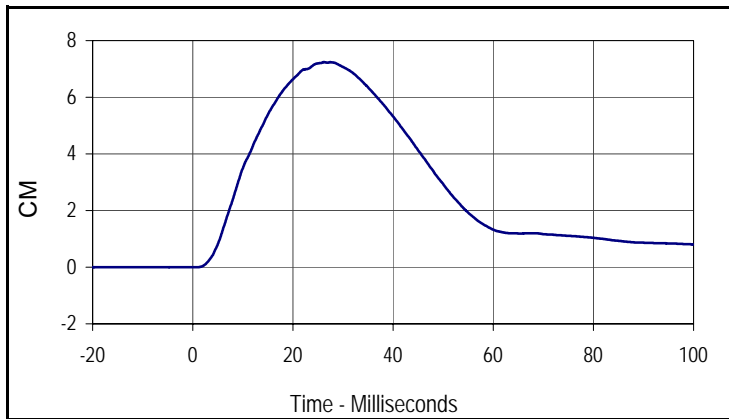
Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
27.7	182.1	-60.2	70.3



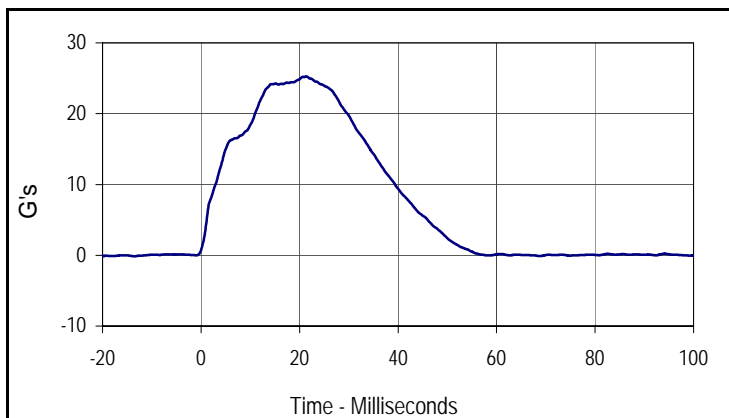
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	560	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.5	Pass
	Min		34.4	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.5	Pass
Probe Velocity	m/s	6.58 to 6.82	6.74	Pass
Peak Probe Force	Newtons	5159 to 5893	5780	Pass
Peak Sternum Deflection	CM	6.35 to 7.26	7.24	Pass
Internal Hysteresis	%	69 to 85	69.6	Pass
Overall Test Results				Pass



Curve Description			
Probe Force vs. Chest Deflection			
Plot No.	Type	SAE Class	Hysteresis
001	FIL	600	69.6
Peak Probe Force		Peak Chest Deflection	
5780		7.24	



Curve Description			
Chest Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	CM
Max	Time	Min	Time
7.2	26.2	0.0	-5.7



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
25.2	21.4	-0.1	-13.6

Test Program: Hybrid III 50th Percentile Male Knee Impact Test

Test Date: 11/20/13



ATD Serial No.: 034

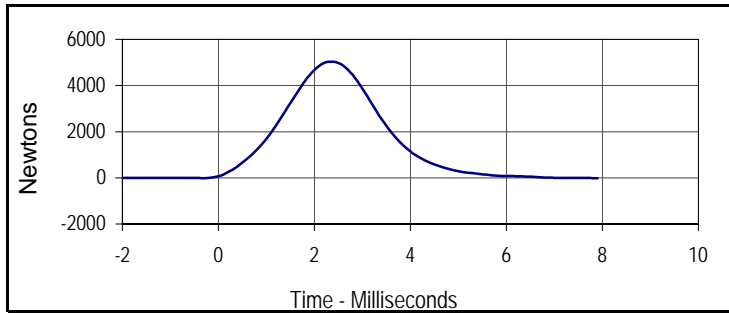
Test I.D.: M034LK046, M034RK046

**Left Knee**

Tested Parameter	Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time	Minutes	≥240	595	Pass
Temperature During Soak	Max	18.9 to 25.6	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.5	Pass
	Min		34.4	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.5	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.12	Pass
Peak Probe Force	Newtons	4715 to 5782	5034	Pass
<b>Overall Test Results</b>				<b>Pass</b>

**Right Knee**

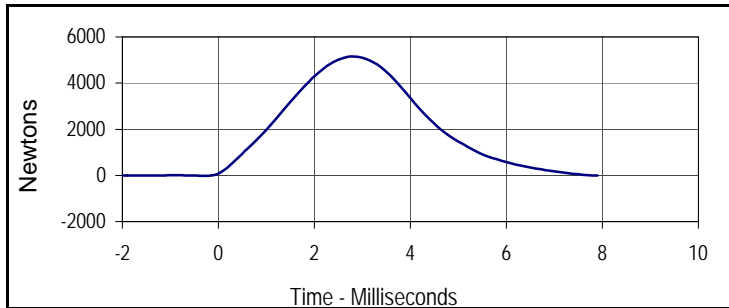
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force	Newtons	4715 to 5782	5157	Pass
<b>Overall Test Results</b>				<b>Pass</b>



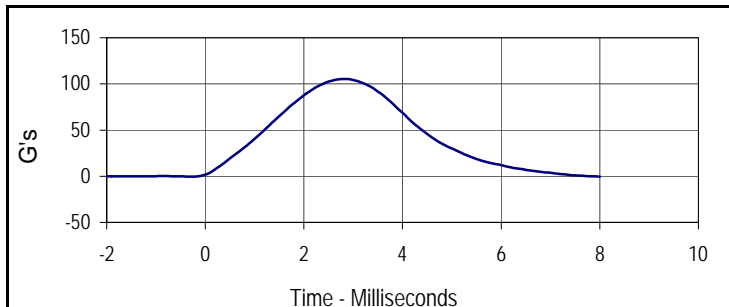
Curve Description			
Left Knee Probe Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
5034.0	2.4	-16.1	7.9



Curve Description			
Left Knee Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	600	G's
Max	Time	Min	Time
102.9	2.4	-0.4	0.0



Curve Description			
Right Knee Probe Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
5156.9	2.8	-18.5	-0.3



Curve Description			
Right Knee Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	600	G's
Max	Time	Min	Time
105.4	2.8	-1.1	0.0

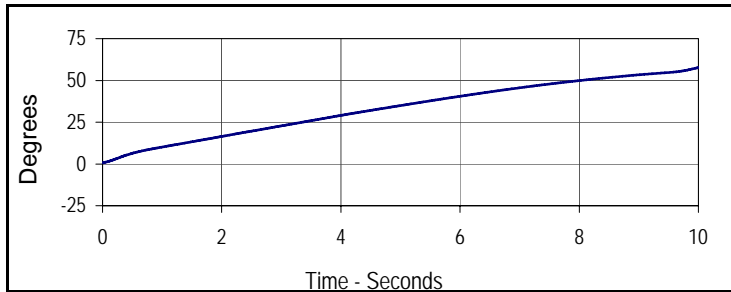


**Left Hip Joint-Femur Results**

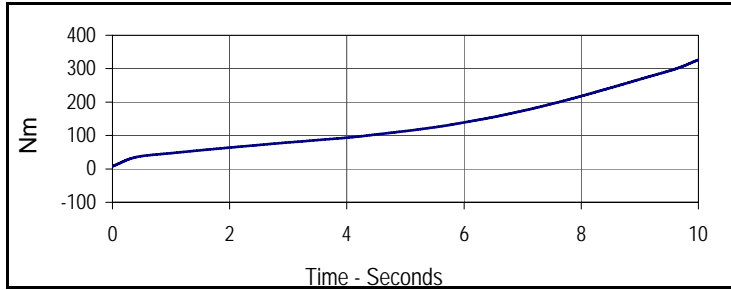
Tested Parameter	Units	Specification	Result	Pass/Fail
Hip Joint-Femur Assembly Soak Time	Minutes	≥240	645	Pass
Temperature During Soak	Max	18.9 to 25.6	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	34.5	Pass
	Min		34.4	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	34.4	Pass
Rotation Rate	deg/sec	5 to 10	5.8	Pass
Femur Torque at 30°	Nm	≤ 95	94.7	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	48.3	Pass
<b>Overall Test Results</b>				<b>Pass</b>

**Right Hip Joint-Femur Results**

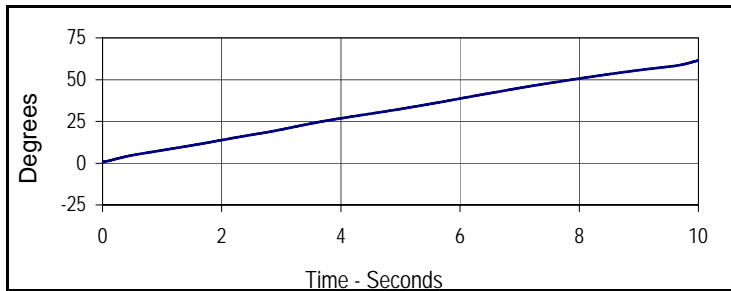
Rotation Rate	deg/sec	5 to 10	6.1	Pass
Femur Torque at 30°	Nm	≤ 95	77.2	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	48.6	Pass
<b>Overall Test Results</b>				<b>Pass</b>



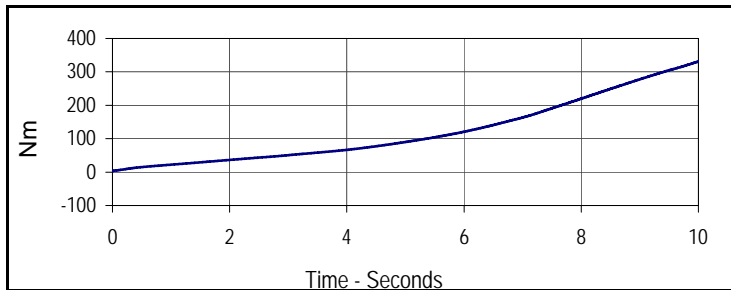
Curve Description			
Left Hip-Femur Rotation			
Plot No.	Type	SAE Class	Units
001	FIL	60	Degrees
Max	Time	Min	Time
57.6	10.0	0.6	0.0



Curve Description			
Left Femur Torque			
Plot No.	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
326.1	10.0	0.6	0.0



Curve Description			
Right Hip-Femur Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
61.4	10.0	0.6	0.0



Curve Description			
Right Femur Torque			
Plot No.	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
330.6	10.0	0.6	0.0

Test Program: Hybrid III 5th Percentile Female Dummy Damage Checklist

Test Date: 11/21/13



ATD Serial No.: 141

Test I.D.: N/A

Dummy Item	Inspect for	Comments	Damaged	OK
Entire Dummy	Perform general cleaning			X
Outer Skin	Gashes, rips, cracks			X
Head	Ballast secure			X
	General appearance			X
Neck	Broken or cracked rubber			X
	Upper neck bracket firmly attached to the lower neck bracket			X
	Looseness at the condyle joint			X
	Nodding blocks cracked or out of position			X
Spine	Broken or cracks in rubber			X
Ribs	Broken or bent ribs			X
	Broken or bent rib supports			X
	Damping material separated or cracked			X
	Rubber bumpers in place			X
Chest Displacement Assembly	Bent shaft			X
	Slider arm riding in track			X
Transducer Leads	Torn cables			X
Accelerometer Mountings	Head mounting secure			X
	Chest mounting secure			X
Knees	Skin condition			X
	Insert (do not remove)			X
	Casting			X
Limbs	Normal movement and adjustment			X
Knee Sliders	Wires intact			X
	Rubber returned to "at rest" position			X
Pelvis	Broken			X
Other				X

Describe the repair on repair or replacement of parts:

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Test Program: Hybrid III 5th Percentile Female External Measurements

Test Date: 11/21/13



ATD Serial No.: 141

Test I.D.: N/A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.15	Pass
Laboratory Relative Humidity	%	10 to 70	33.5	Pass
A - Total sitting height	mm	774.7 to 800.1	786	Pass
B - Shoulder pivot height	mm	431.8 to 457.2	450	Pass
C - H point height	mm	81.3 to 86.3	85	Pass
D - H point location from backline	mm	144.8 to 149.8	146	Pass
E - Shoulder pivot from backline	mm	68.6 to 83.8	77	Pass
F - Thigh clearance	mm	119.4 to 134.6	126	Pass
G - Back of elbow to wrist pivot	mm	243.9 to 259.1	250	Pass
H - Head back to backline	mm	40.7 to 45.7	44	Pass
I - Shoulder to elbow length	mm	276.8 to 297.2	285	Pass
J - Elbow rest height	mm	182.8 to 203.2	198	Pass
K - Buttock to knee length	mm	520.7 to 546.1	531	Pass
L - Popliteal length	mm	355.6 to 376.0	371	Pass
M - Knee pivot height	mm	393.7 to 419.1	402	Pass
N - Buttock popliteal length	mm	414.0 to 439.4	420	Pass
O - Chest depth without jacket	mm	175.3 to 190.5	186	Pass
P - Foot length	mm	218.5 to 233.7	221	Pass
R - Buttock to Knee Pivot Length	mm	457.2 to 482.6	473	Pass
S - Head Breadth	mm	137.1 to 147.3	144	Pass
T - Head Depth	mm	177.8 to 188.0	180	Pass
U - Hip Breadth	mm	299.7 to 314.9	302	Pass
V - Shoulder breadth	mm	350.5 to 365.7	359	Pass
W - Foot breadth	mm	78.8 to 94.0	90	Pass
X - Head circumference	mm	528.3 to 548.7	541	Pass
Y - Chest circumference (with chest jacket)	mm	850.8 to 881.3	864	Pass
Z - Waist circumference	mm	759.5 to 789.9	766	Pass
AA - Location for chest circumference	mm	299.7 to 309.9	300	Pass
BB - Location for waist circumference	mm	160.1 to 170.2	164	Pass
Overall Test Results				Pass

Test Program: Hybrid III 5th Percentile Female Head Drop Test

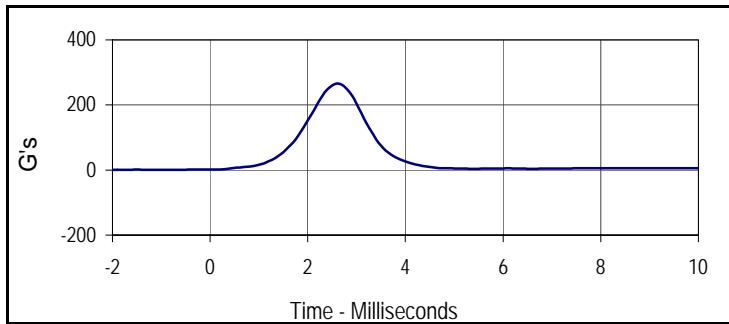
Test Date: 11/21/13



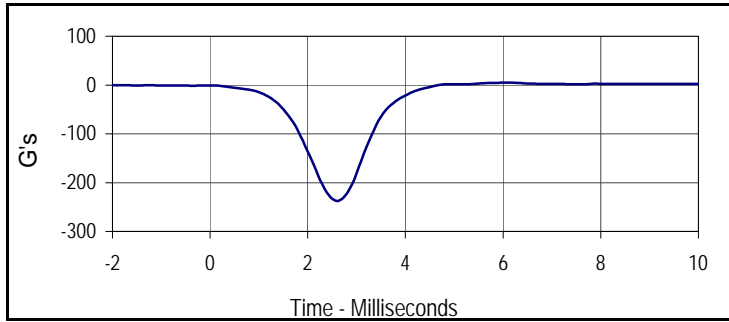
ATD Serial No.: 141

Test I.D.: F141HD059

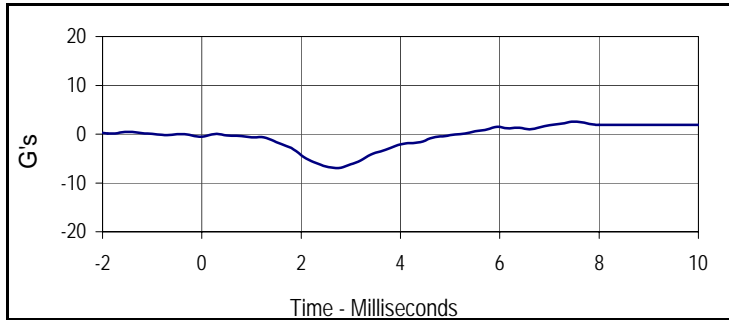
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	275	Pass
Temperature During Soak	Max	18.9 to 25.6	21.2	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	33.6	Pass
	Min		33.5	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.6	Pass
Peak Resultant Acceleration	G's	250.0 to 300.0	266.1	Pass
Peak Lateral Acceleration	G's	≤15.0	6.9	Pass
Oscillations After Main Pulse	%	<10% of peak Res. Acceleration	2.2	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



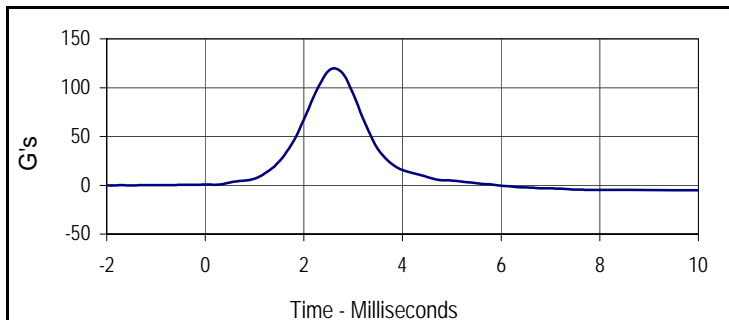
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
266.1	2.6	0.4	-1.8



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
4.8	6.0	-237.5	2.6



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
1.5	6.0	-6.9	2.7



Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
119.9	2.6	-0.5	6.0

Test Program: Hybrid III 5th Percentile Female Neck Flexion Test

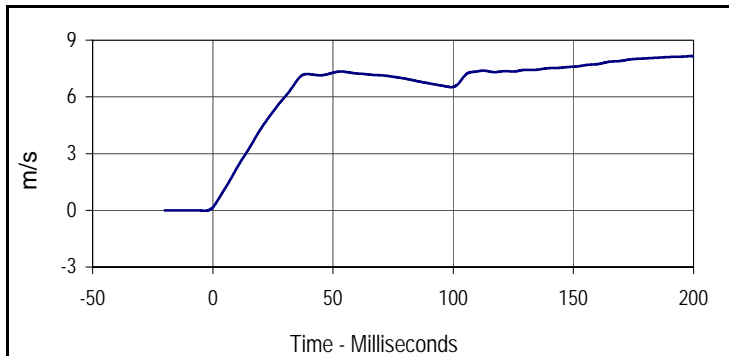
Test Date: 11/21/13



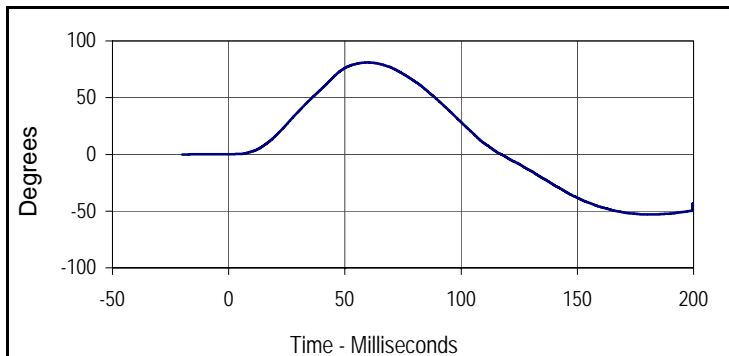
ATD Serial No.: 141

Test I.D.: F141NF059

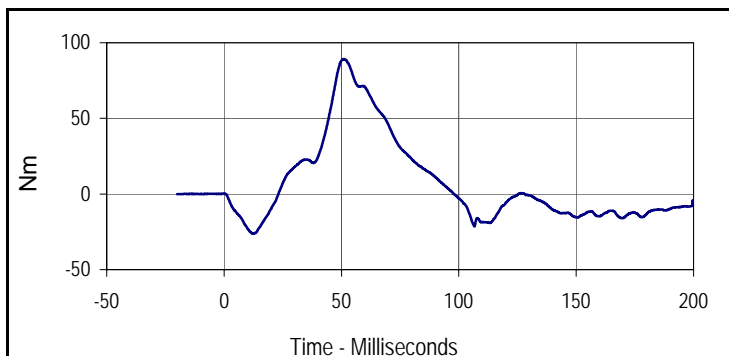
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	330	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass	
	Min		21.1	Pass	
Humidity During Soak	Max	10.0 to 70.0	33.6	Pass	
	Min		33.5	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	33.6	Pass	
Pendulum Velocity	m/s	6.89 to 7.13	7.01	Pass	
Pendulum Deceleration	10 Msec.	m/s	2.1 to 2.5	2.2	Pass
	20 Msec.	m/s	4.0 to 5.0	4.3	Pass
	30 Msec.	m/s	5.8 to 7.0	6.0	Pass
"D" Plane Rotation	Max	Degrees	77.0 to 91.0	81.0	Pass
Peak Moment in Rotation	Max	Nm	69.0 to 83.0	71.2	Pass
Positive Moment Decay, Time To 10 Nm	Msec.	80.0 to 100.0	89.9	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
8.2	199.4	0.0	-3.3



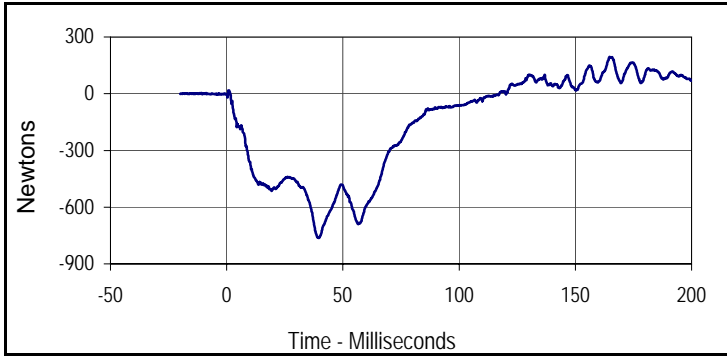
Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
81.0	59.6	-53.0	183.1



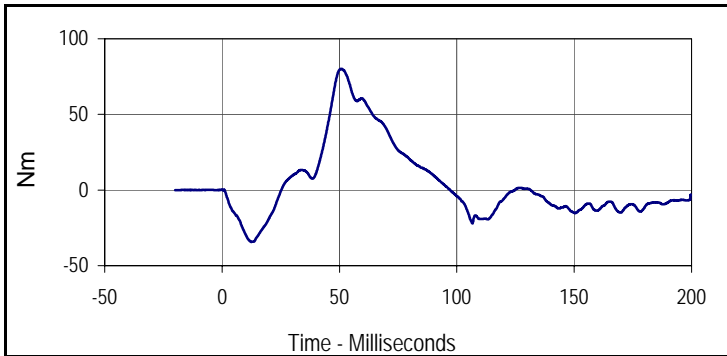
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
89.2	50.9	-26.2	12.2

Test Program: Hybrid III 5th Percentile Female Neck Flexion Test  
 ATD Serial No.: 141

Test Date: 11/21/13  
 Test I.D.: F141NF059



Curve Description			
Upper Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
194.4	164.7	-762.9	39.7



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
80.1	50.9	-34.3	12.4

Test Program: Hybrid III 5th Percentile Female Neck Extension Test

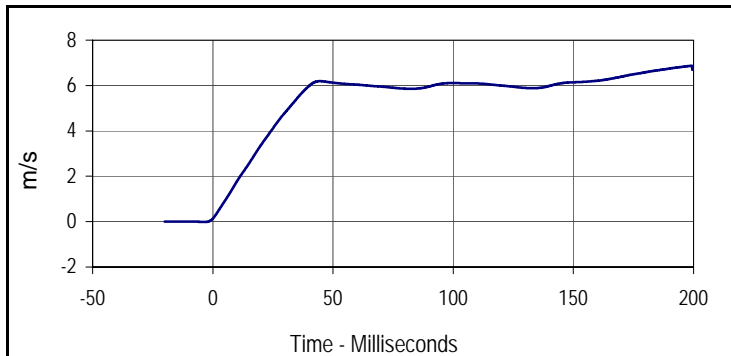
Test Date: 11/21/13



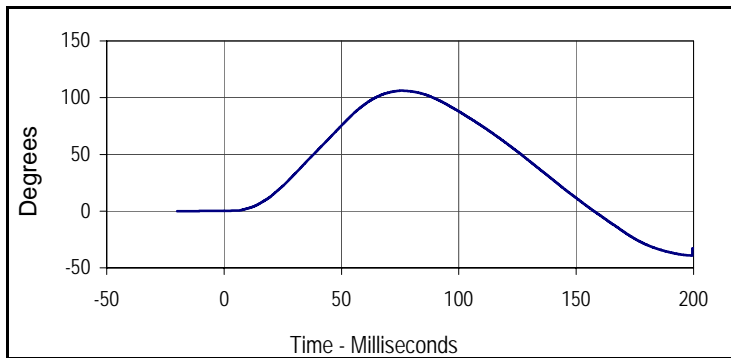
ATD Serial No.: 141

Test I.D.: F141NE059

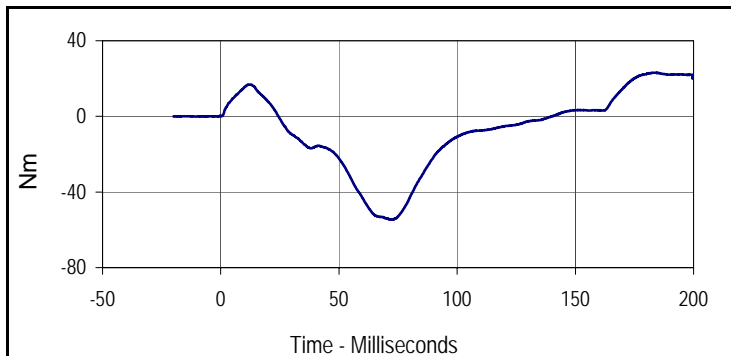
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	365	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass	
	Min		21.1	Pass	
Humidity During Soak	Max	10.0 to 70.0	33.6	Pass	
	Min		33.5	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.1	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	33.5	Pass	
Pendulum Velocity	m/s	5.95 to 6.19	6.05	Pass	
Pendulum Deceleration	10 Msec.	m/s	1.5 to 1.9	1.8	Pass
	20 Msec.	m/s	3.1 to 3.9	3.4	Pass
	30 Msec.	m/s	4.6 to 5.6	4.8	Pass
"D" Plane Rotation	Max	Degrees	99.0 to 114.0	106.2	Pass
Peak Moment in Rotation	Max	Nm	-53.0 to -65.0	-54.6	Pass
Positive Moment Decay, Time To -10 Nm	Msec.	94.0 to 114.0	101.4	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
6.9	199.4	0.0	-3.4



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
106.2	75.7	-39.2	199.4



Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
23.1	182.9	-54.6	72.8

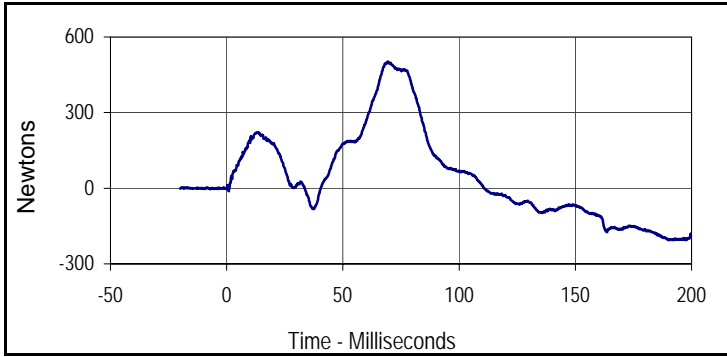
Test Program: Hybrid III 5th Percentile Female Neck Extension Test

Test Date: 11/21/13

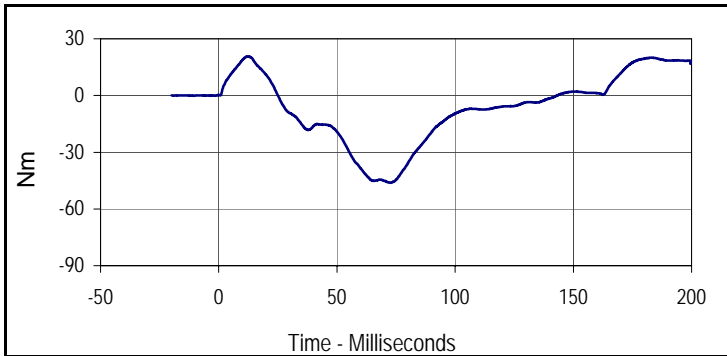


ATD Serial No.: 141

Test I.D.: F141NE059



Curve Description			
Upper Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
501.8	69.3	-206.6	192.1



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
20.7	12.6	-46.1	72.8

Test Program: Hybrid III 5th Percentile Female Thorax Impact Test

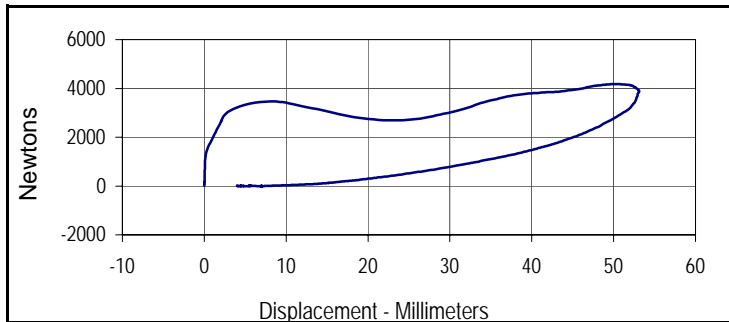
Test Date: 11/21/13



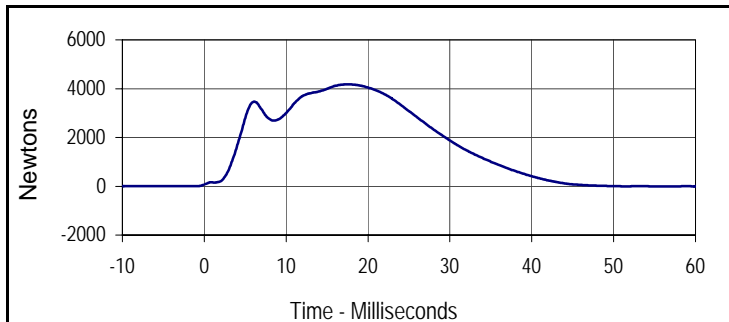
ATD Serial No.: 141

Test I.D.: F141CH059

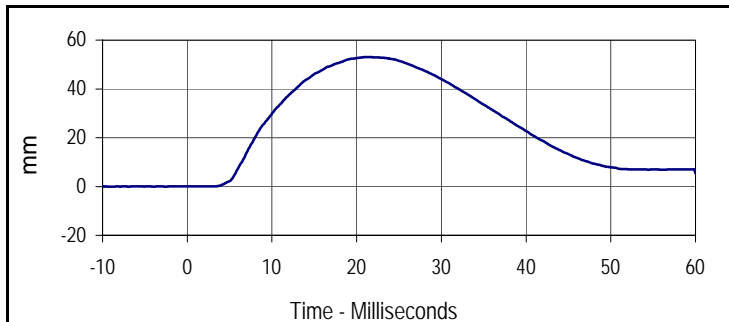
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	415	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	33.6	Pass
	Min		33.5	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.5	Pass
Probe Velocity	m/s	6.59 to 6.83	6.75	Pass
Peak Chest Deflection	mm	50.0 to 58.0	53.1	Pass
Peak Force Between 50 and 58 MM	Newtons	3900 to 4400	4177	Pass
Peak Force Between 18 and 50 MM	Newtons	≤4600	4177	Pass
Internal Hysteresis	%	69 to 85	72.7	Pass
Overall Test Results				Pass



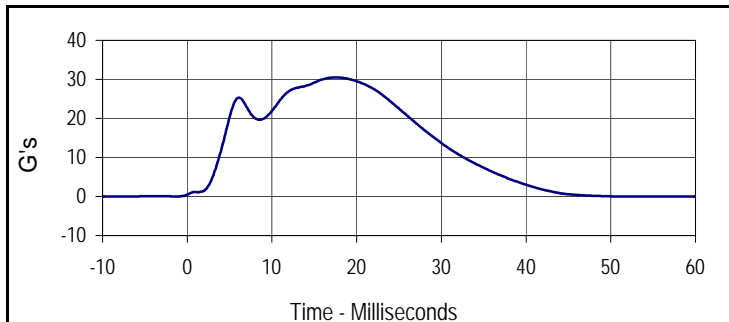
Curve Description			
Probe Force vs. Chest Deflection			
Plot No.	Type	SAE Class	Hysteresis
001	FIL	180	72.7
Peak Probe Force		Peak Chest Deflection	
4177.2		53.1	



Curve Description			
Probe Force			
Plot No.	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
4177.2	17.4	-7.6	59.9



Curve Description			
Chest Deflection			
Plot No.	Type	SAE Class	Units
003	FIL	600	mm
Max	Time	Min	Time
53.1	21.3	0.0	-9.2



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
30.5	17.4	-0.1	59.9



**Left Knee**

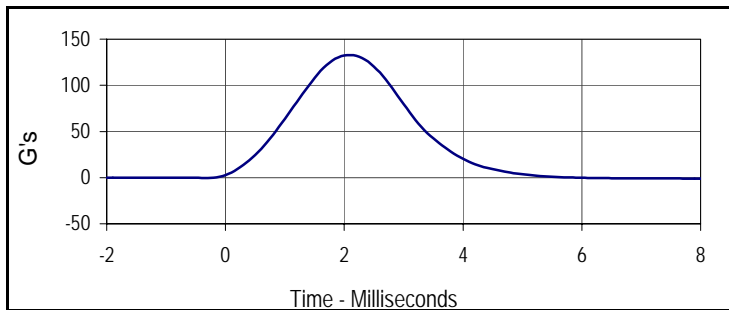
Tested Parameter	Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time	Minutes	≥240	445	Pass
Temperature During Soak	Max	18.9 to 25.6	21.2	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	33.6	Pass
	Min		33.5	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.5	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	3450 to 4060	3891	Pass
<b>Overall Test Results</b>				<b>Pass</b>

**Right Knee**

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	3450 to 4060	3780	Pass
<b>Overall Test Results</b>				<b>Pass</b>



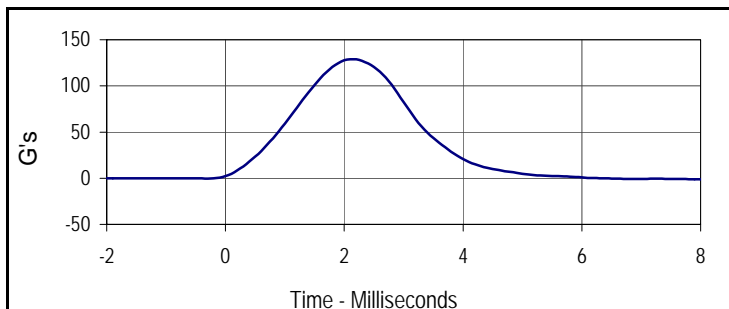
Curve Description			
Left Knee Probe Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3891.0	2.1	-35.0	7.9



Curve Description			
Left Knee Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	600	G's
Max	Time	Min	Time
132.7	2.1	-1.4	8.4



Curve Description			
Right Knee Probe Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
3779.8	2.1	-33.7	7.9



Curve Description			
Right Knee Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	600	G's
Max	Time	Min	Time
129.0	2.1	-1.3	9.2

Test Program: Hybrid III 5th Percentile Female Torso Flexion Test

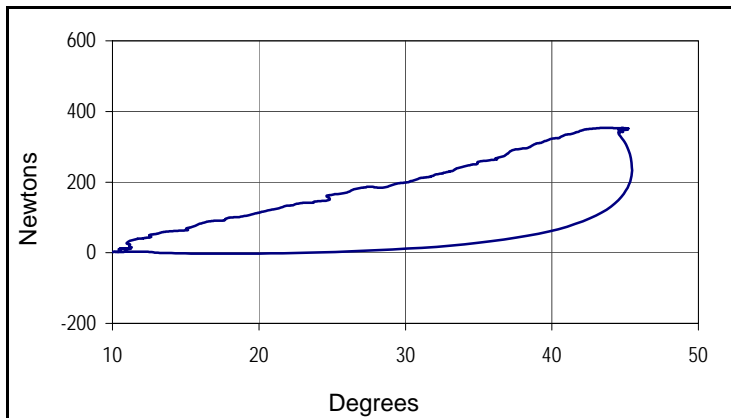
Test Date: 11/21/13



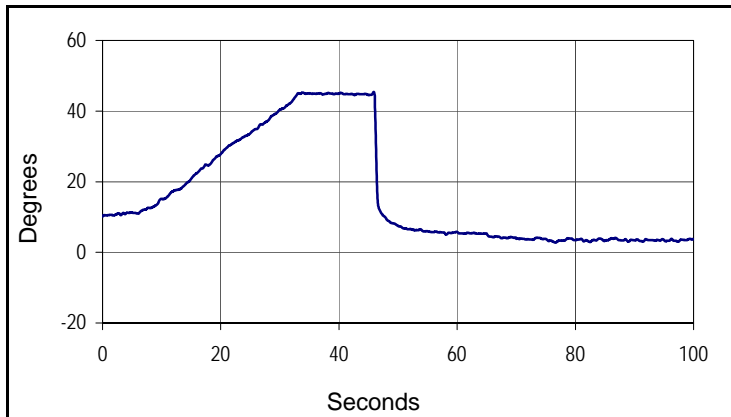
ATD Serial No.: 141

Test I.D.: TF059

Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	470	Pass
Temperature During Soak	Max	18.9 to 25.6	21.2	Pass
	Min		21.1	Pass
Humidity During Soak	Max	10.0 to 70.0	33.6	Pass
	Min		33.5	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.5	Pass
Initial Reference Plane Angle	Degrees	≤ 20	10.2	Pass
Peak Force at 45° +/-0.5°	Newtons	320.0 to 390.0	353.6	Pass
Torso Rotation Rate	deg/sec	0.5 to 1.5	1.0	Pass
Final Reference Plane Angle	Degrees	+/-8	3.8	Pass
Overall Test Results				Pass



Curve Description		
Force vs Torso Rotation		
Plot No.	Type	Filter Freq
001	FIL	1 Hz
Peak Force		Peak Rotation
353.9		45.5



Curve Description			
Torso Rotation			
Plot No.	Type	Filter Freq	Units
002	FIL	1 Hz	Degrees
Max	Time	Min	Time
45.5	45.9	2.8	76.7