

REPORT NUMBER: NCAP-KAR-12-052

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

**TOYOTA MOTOR CORPORATION
2012 SCION IQ 3-DOOR HATCHBACK**

NHTSA NUMBER: MC5119

**PREPARED BY:
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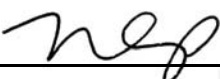
MARCH 7, 2012


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**

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FINAL REPORT ACCEPTANCE BY OCWS:

Division Chief, New Car Assessment Program
NHTSA, Office of Crashworthiness Standards

Date: _____

COTR, New Car Assessment Program
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16. Abstract <p>A 56.3 km/h NCAP Frontal Impact Test was conducted on a 2012 Scion iQ 3-door hatchback 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 February 22, 2012.</p> <p>The impact velocity of the vehicle was 56.42 km/h and the ambient temperature at the barrier face at the time of impact was 21.7 deg. C. The target vehicle's post-test maximum crush was 253 mm at 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 (HIC₁₅)</td> <td>N/A</td> <td>700.0</td> <td>217.9</td> <td>700.0</td> <td>399.4</td> </tr> <tr> <td>Maximum Chest Compression</td> <td>mm</td> <td>63</td> <td>-21</td> <td>52</td> <td>-16</td> </tr> <tr> <td>Nij</td> <td>N/A</td> <td>1</td> <td>0.45</td> <td>1</td> <td>0.52</td> </tr> <tr> <td>Neck Tension</td> <td>N</td> <td>4170</td> <td>2207.7</td> <td>2620</td> <td>1151.0</td> </tr> <tr> <td>Neck Compression</td> <td>N</td> <td>4000</td> <td>-1249.4</td> <td>2520</td> <td>-243.2</td> </tr> <tr> <td>Left Femur Force</td> <td>N</td> <td>10008</td> <td>-3315.1</td> <td>6805</td> <td>-1837.1</td> </tr> <tr> <td>Right Femur Force</td> <td>N</td> <td>10008</td> <td>-3506.0</td> <td>6805</td> <td>-2958.1</td> </tr> </tbody> </table>				Measurement Description	Units	Driver ATD		Passenger ATD		Threshold	Result	Threshold	Result	Head Injury Criteria (HIC ₁₅)	N/A	700.0	217.9	700.0	399.4	Maximum Chest Compression	mm	63	-21	52	-16	Nij	N/A	1	0.45	1	0.52	Neck Tension	N	4170	2207.7	2620	1151.0	Neck Compression	N	4000	-1249.4	2520	-243.2	Left Femur Force	N	10008	-3315.1	6805	-1837.1	Right Femur Force	N	10008	-3506.0	6805	-2958.1
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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 DTNH22-06-D-00027. 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 August, 2011.

SUMMARY

A load cell barrier consisting of 36 load cells was impacted by a 2012 Scion iQ 3-door hatchback at a velocity of 56.42 km/h. The test was performed at KARCO Engineering, LLC. on February 22, 2012. 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 50th percentile male anthropomorphic test device (ATD) was placed in the driver seating position and one Part 572O 5th 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. 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 132 channels of 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. There was no Stoddard solvent leakage after the event or during any phase of the static rollover.

The maximum static crush of the test vehicle was 253 mm located at 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, headliner and headrest. The upper torso contacted the airbag. Both the left and right knees contacted the knee airbag.

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 knee airbag.

The occupant data is summarized below:

ATD Position	HIC ₁₅	T ¹	T ²	Chest Disp. (mm)	Nij	Neck Tension (N)	Neck Comp. (N)	Left Femur (N)	Right Femur (N)
Driver (50th)	217.9	74.1	89.1	-21	0.45	2207.7	-1249.4	-3315.1	-3506.0
Passenger (5th)	399.4	49.2	64.2	-16	0.52	1151.0	-243.2	-1837.1	-2958.1

SECTION 2
DATA SHEETS

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12

CONVERSION FACTORS

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

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	MC5119
Model Year	2012
Make	Scion
Model	iQ
Body Style	3-Door Hatchback
VIN	JTNJJB05CJ009679
Body Color	Hot Lava
Odometer Reading (km / mi)	82 / 51
Engine Displacement (L)	1.3
Type / No. of Cylinders	Inline 4
Engine Placement	Transverse
Transmission Type	CVT
Transmission Speeds	n/a
Overdrive	Yes
Final Drive	Front
Roof Rack	No
Sunroof / T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
Anti-Lock Brakes (ABS)	Yes
All Wheel Drive (AWD)	No
Traction Control System	Yes

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

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

DATA FROM CERTIFICATION LABEL

Manufactured By	Toyota Motor Corporation
Date of Manufacture	Sep-11

GVWR (kg)	1274
GAWR Front (kg)	644
GAWR Rear (kg)	633

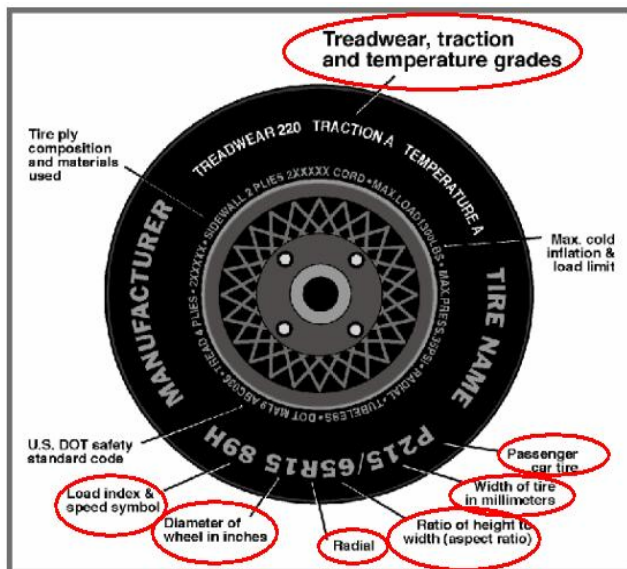
VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total	
Type of Seats	Bucket	Bench			
Designated Seating Capacity	2	2		4	
Capacity Weight (VCW) (kg)				288.0	A
DSC x 68.04 (kg)				272.2	B
Cargo Weight (RCLW) (kg)				15.8	A-B

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
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VEHICLE TIRE INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	230	230
Recommended Tire Size	175/60R16	175/60R16
Tire Size on Vehicle	175/60R16	175/60R16
Tire Manufacturer	Goodyear	Goodyear
Tire Model	Assurance	Assurance
Treadwear	580	580
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 1 Nylon	1 Polyester, 2 Steel, 1 Nylon
Load Index / Speed Symbol	82H	82H
Tire Material	Polyester, Steel, Nylon	Polyester, Steel, Nylon
DOT Safety Code Left	EUAB 3MNR 3011	EUAB 3MNR 3011
DOT Safety Code Right	EUAB 3MNR 3011	EUAB 3MNR 3011

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12

TEST VEHICLE WEIGHTS

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	307.5	193.5		344.0	243.5	
Right	kg	283.0	183.0		306.0	224.5	
Ratio	%	61.1%	38.9%	100.0%	58.1%	41.9%	100.0%
Total	kg	590.5	376.5	967.0	650.0	468.0	1118.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	967.0	A
Weight of 1 P572E ATD & 1 P572O ATD	kg	141.0	B
Rated Cargo/Luggage Weight (RCLW)	kg	15.8	C
Calculated Vehicle Target Weight (TVTW)	kg	1123.8	A+B+C

TEST VEHICLE ATTITUDES

Condition	Units	LF	RF	LR	RR	CG Aft of Front Axle
As Delivered	mm	665	674	694	695	779
As Tested	mm	652	661	664	672	837
Post-Test	mm	643	621	678	670	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheel Base	mm	2000
Total Vehicle Length at Left Side	mm	2600
Total Vehicle Length at Centerline	mm	3038
Total Vehicle Length at Right Side	mm	2600
Weight of Ballast in Cargo Area	kg	60.0
Weight of Vehicle Components Removed	kg	49.0
Amount of Stoddard Solvent in Fuel Tank	L	29.74

VEHICLE COMPONENTS REMOVED TO MEET TEST WEIGHT:

Rear interior trim panels (5.5 kg), rear seat (19.0 kg), Trunk liner and air pump (6.0 kg), rear bumper cover (4.0 kg), taillights (2.0 kg), rear hatch (12.5 kg), outboard mirrors (2.0 kg), bumper beam (9.0 kg)

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

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12

TARGET VEHICLE STRUCTURAL MEASUREMENTS

No.	Description	Pre-Test	Post-Test	Difference
1	Total Length	3038	2785	-253
2	Total Width	1665	1840	175
3	Bumper Top Height	580	620	40
4	Bumper Bottom Height	200	460	260
5	Longitudinal Member Top Height	500	480	-20
6	Distance Between Longitudinal Members	900	893	-7
7	Longitudinal Member Width	65	73	8
8	Engine Top Height	882	850	-32
9	Engine Bottom Height	436	404	-32
10	Engine and Gearbox Width	1660	1660	0
11	Front Bumper to Engine Distance	400	268	-132
12	Front Shock Absorber Fixing Height	848	900	52
13	Bonnet Leading Edge Height	833	880	47
14	Front Shock Absorber Fixing Width	1170	1165	-5
15	Front Bumper to Front Axle Distance	545	380	-165
16	Front Axle to A-Pillar Distance	445	355	-90
17	A-Pillar to B-Pillar Distance	1138	1136	-2
18	B-Pillar to Rear Axle Distance	443	458	15
19	B-Pillar to C-Pillar Distance	548	540	-8
20	Roof Sill Bottom Height	1330	1365	35
21	Roof Sill Top Height	1437	1473	36
22	Floor Sill Bottom Height	202	229	27
23	Floor Sill Top Height	320	345	25

All measurements in millimeters.

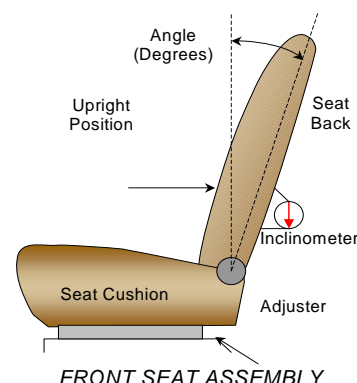
DATA SHEET NO. 2

SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12

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 using a digital inclinometer.

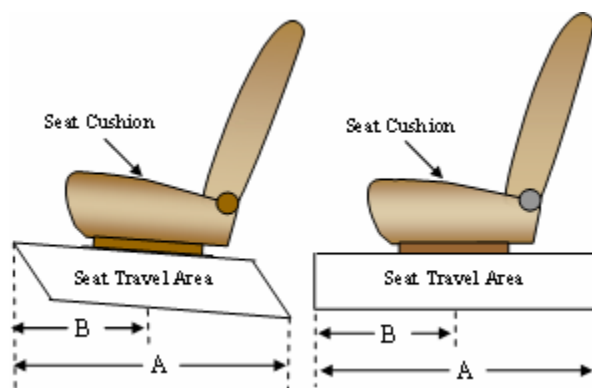


SEAT BACK ANGLE

Seating Position	Degrees
Driver Seat Back Angle	15.0
Passenger Seat Back Angle	8.9

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	240 mm [24 detents]	120 mm [12th detent]
Passenger Seat	260 mm [27 detents]	20 mm [2nd detent]

SEAT BELT UPPER ANCHORAGE

The seat belt upper anchorage is positioned to the manufacturer's design position for a 50th percentile adult male ATD for the driver, and a 5th 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	Fixed	Fixed
Passenger Seat	Fixed	Fixed

DATA SHEET NO. 2 ... (CONTINUED)

SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

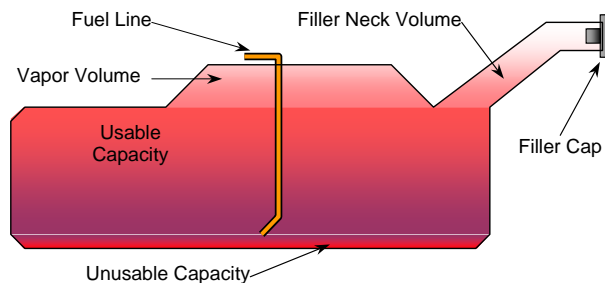
Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12

FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank"	31.98
Usable Capacity of "Optional Tank"	
92 - 94% of Usable Capacity	29.42 to 30.06
Actual Amount of Stoddard Solvent Used	29.74
1/3 of Usable Capacity	10.66

FUEL PUMP

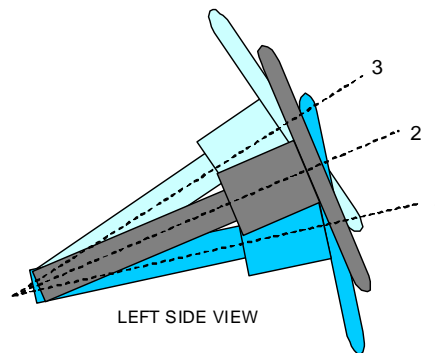
The vehicle is equipped with an electric fuel pump. The fuel pump is activated when the ignition is turned on.



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

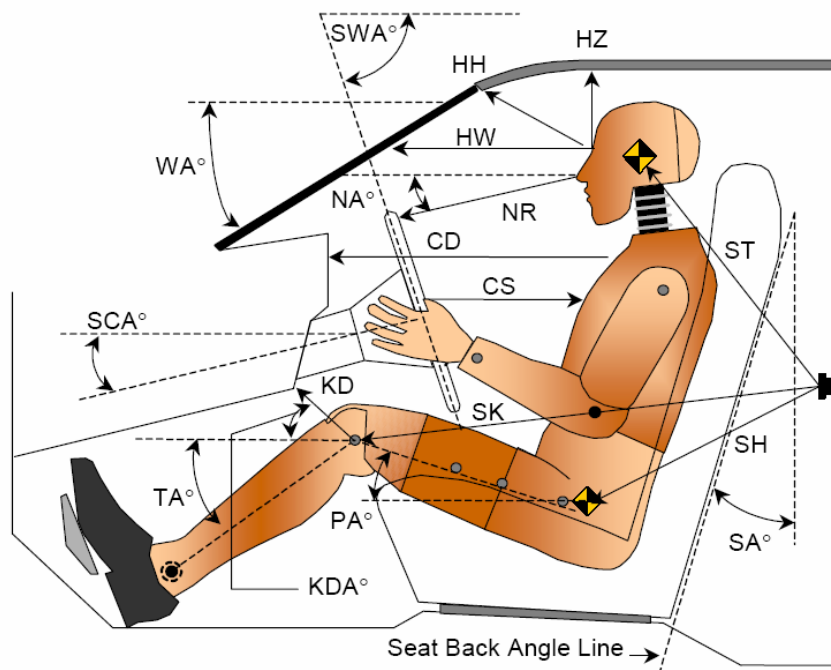
STEERING COLUMN POSITIONING

	Degrees	Fore-Aft Position (mm)
Lowermost Position, No. 1	19.8	
Geometric Center Position, No. 2	21.8	
Uppermost Position, No. 3	14.0	
Telescoping Steering Wheel Travel		
Test Position	21.8	

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12



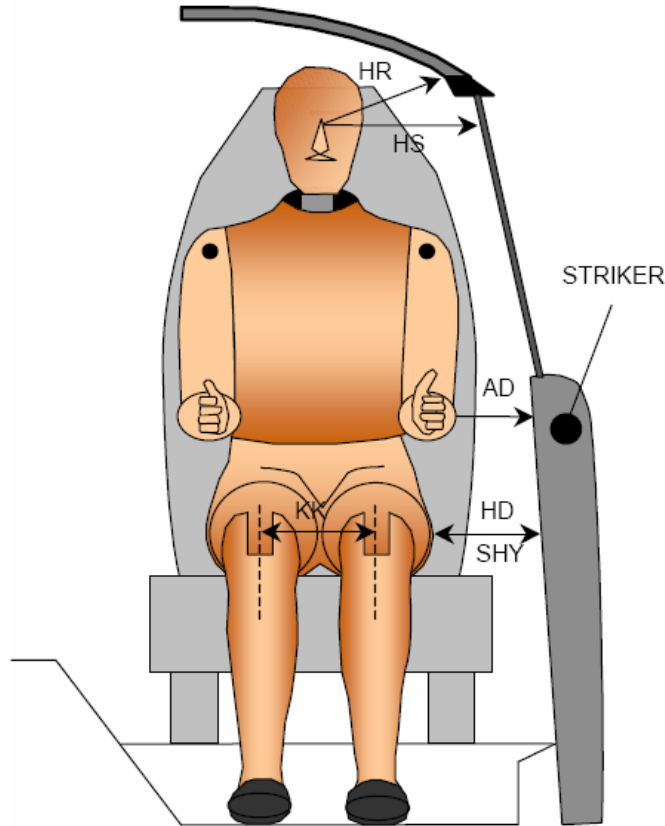
LEFT SIDE VIEW

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA°	Windshield Angle		26.6		
SWA°	Steering Wheel Angle		68.2		
SCA°	Steering Column Angle		21.8		
SA°	Seat Back Angle (On Headrest Post)		15.0		8.9
HZ	Head to Roof	205	90.0	243	90.0
HH	Head to Header	491	12.4	338	33.6
HW	Head to Windshield	730	0.0	655	0.0
NR	Nose to Rim	412	12.0	460	24.6
CD	Chest to Dash	521	8.5	434	3.7
CS	Chest to Steering Hub	306	0.0		
RA	Rim to Abdomen	221	0.0		
KDL	Left Knee to Dash	158	26.6	188	35.3
KDR	Right Knee to Dash	161	31.5	183	31.2
PA°	Pelvic Angle		24.7		20.2
TA°	Tibia Angle		53.9		49.8
SK	Striker to Knee	691	7.8	839	9.3
ST	Striker to Head	458	62.5	522	20.2
SH	Striker to H-Point	385	39.3	547	22.9

DATA SHEET NO. 4

DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12



Code	Description	Driver (mm)	Passenger (mm)
AD	Arm to Door	128	93
HD	H-Point to Door	145	173
HR	Head to Side Header	216	260
HS	Head to Side Window	310	338
KK	Knee to Knee	363	225
SHY	Striker to H-Point (Y-Direction)	188	214
AA	Ankle to Ankle	345	140

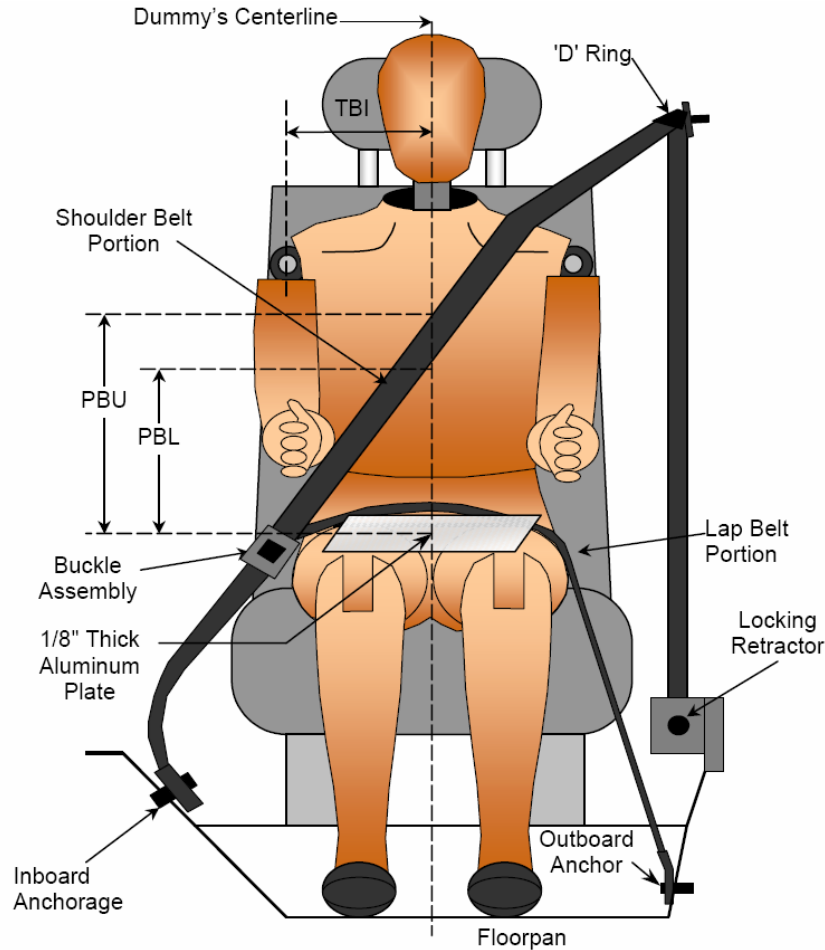
DATA SHEET NO. 5
SEAT BELT POSITIONING DATA

Test Vehicle: 2012 Scion iQ 3-Door Hatchback

NHTSA No.: MC5119

Test Program: 56 km/h Frontal Impact NCAP Test

Test Date: 2/22/12



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	364	350
PBL	Top Surface of Aluminum Plate to Belt Lower Edge	mm	285	250

BELT LENGTH DATA

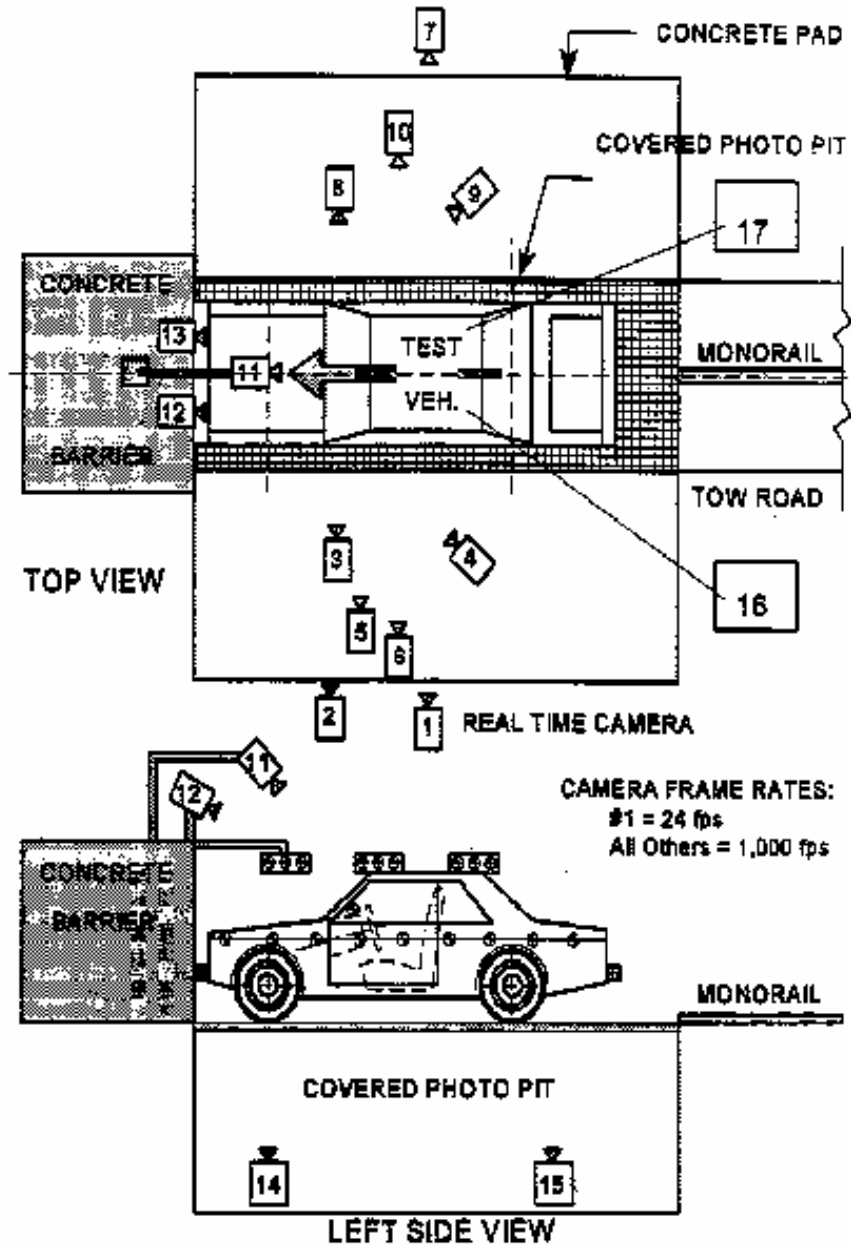
Measurement Description	Units	Driver	Passenger
Shoulder Belt Length as Measured on ATD	mm	947	1075
Lap Belt Length as Measured on ATD	mm	838	941
Remainder of Belt on Reel	mm	999	663
Total Belt Length for Continuous Webbing Systems	mm	2784	2679

DATA SHEET NO. 6

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12

CAMERA POSITIONS FOR FRONTAL IMPACTS



DATA SHEET NO. 6 ... (CONTINUED)

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12

CAMERA LOCATIONS

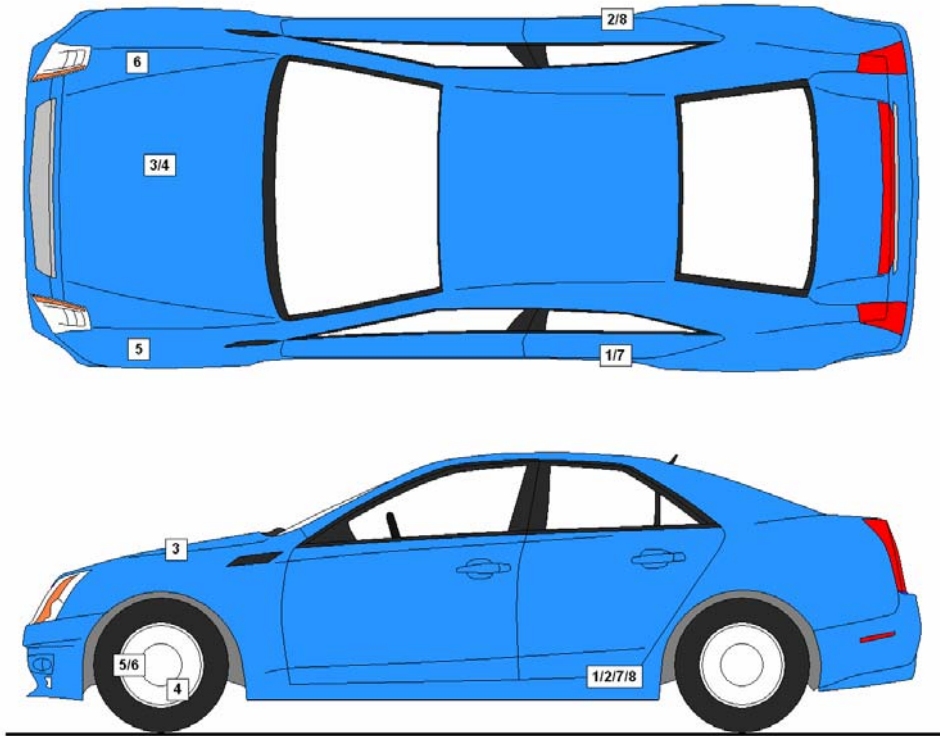
No.	Description	Location (mm)			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Real-Time Left Overall	-11412	-8150	-1484		30
2	Driver Close-Up	-2590	-7950	-1371	24	1000
3	Left Front Half	-1701	-6197	-1701	50	1000
4	Left Angle	-6696	-10308	-3211	ZOOM	1000
5	Steering Column - Top	-1966	-10412	-3688	50	1000
6	Steering 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)					
17	Onboard Passenger Airbag (Optional)					
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: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

No.	Description	Location		
		X	Y	Z
1	Left Rear Accelerometer X-Direction	1223	-678	-321
2	Right Rear Accelerometer X-Direction	1223	698	-321
3	Engine Top X	2505	268	-893
4	Engine Bottom X	2365	275	-154
5	Left Brake Caliper X	2572	-690	-240
6	Right Brake Caliper X	2572	690	-240
7	Left Rear Accelerometer Z-Direction	1223	-678	-321
8	Right Rear Accelerometer Z-Direction	1223	698	-321

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

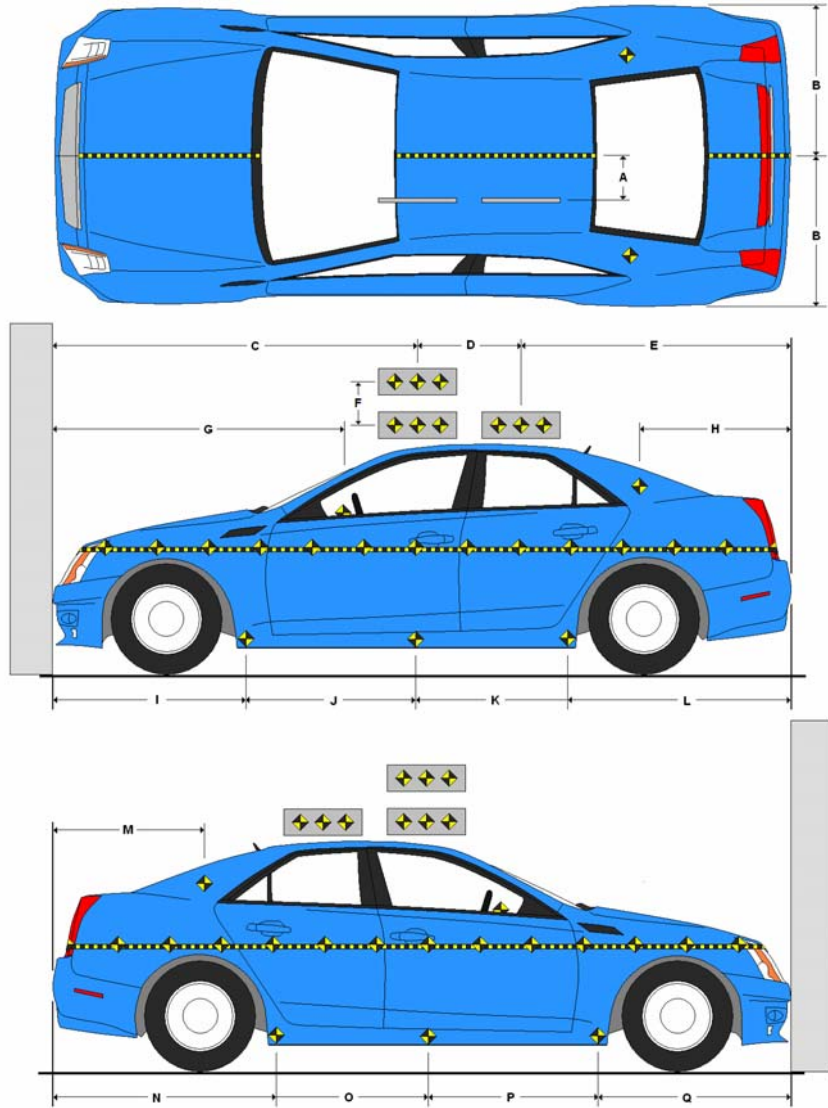
DATA SHEET NO. 8

PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12

Item	Value
A	370
B	832
C	1565
D	610
E	890
F	305
G	1383
H	340 </td
I	970
J	578
K	578
L	925
M	347
N	915
O	580
P	580
Q	967



All measurements in millimeters.

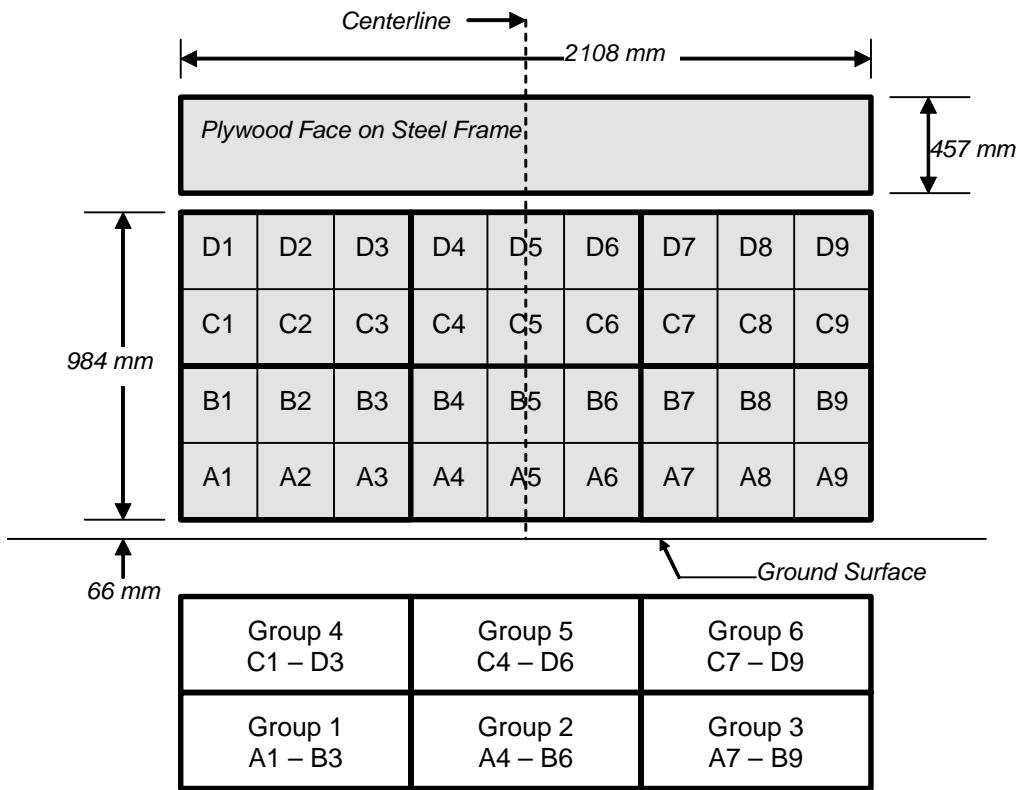
DATA SHEET NO. 9

LOAD CELL LOCATIONS ON FIXED BARRIER

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12

**36 Load Cell Rigid Barrier (NHTSA Standard)
Load Cell Locations on Fixed Barrier**



6 Groups of 6 Load Cells Each

DATA SHEET NO. 10

TEST VEHICLE CAMERA AND INSTRUMENTATION SUMMARY

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12

INSTRUMENTATION

Driver Dummy Accelerometers	44
Passenger Dummy Accelerometers	44
Vehicle Structure Accelerometers	8
Seat Belt Load Cells	0
Load Cell Barrier	36
Total	132

CAMERA COVERAGE

High-Speed Vehicle On Board	0
High-Speed Off board	14
Real Time	3
Total	17

DATA SHEET NO. 11

POST-TEST OBSERVATIONS

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12

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, Headliner, Headrest	Airbag, Headrest
Upper Torso Contact	Airbag	Airbag
Lower Torso Contact	None	None
Left Knee Contact	Knee Airbag	Knee Airbag
Right Knee Contact	Knee Airbag	Knee Airbag

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Locked / Unlocked Doors	Unlocked	Unlocked
Front Door Opening	Remained closed and latched, operational	Remained closed and latched, operational
Rear Door Opening		
Seat Track Shift (mm)	4	7
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

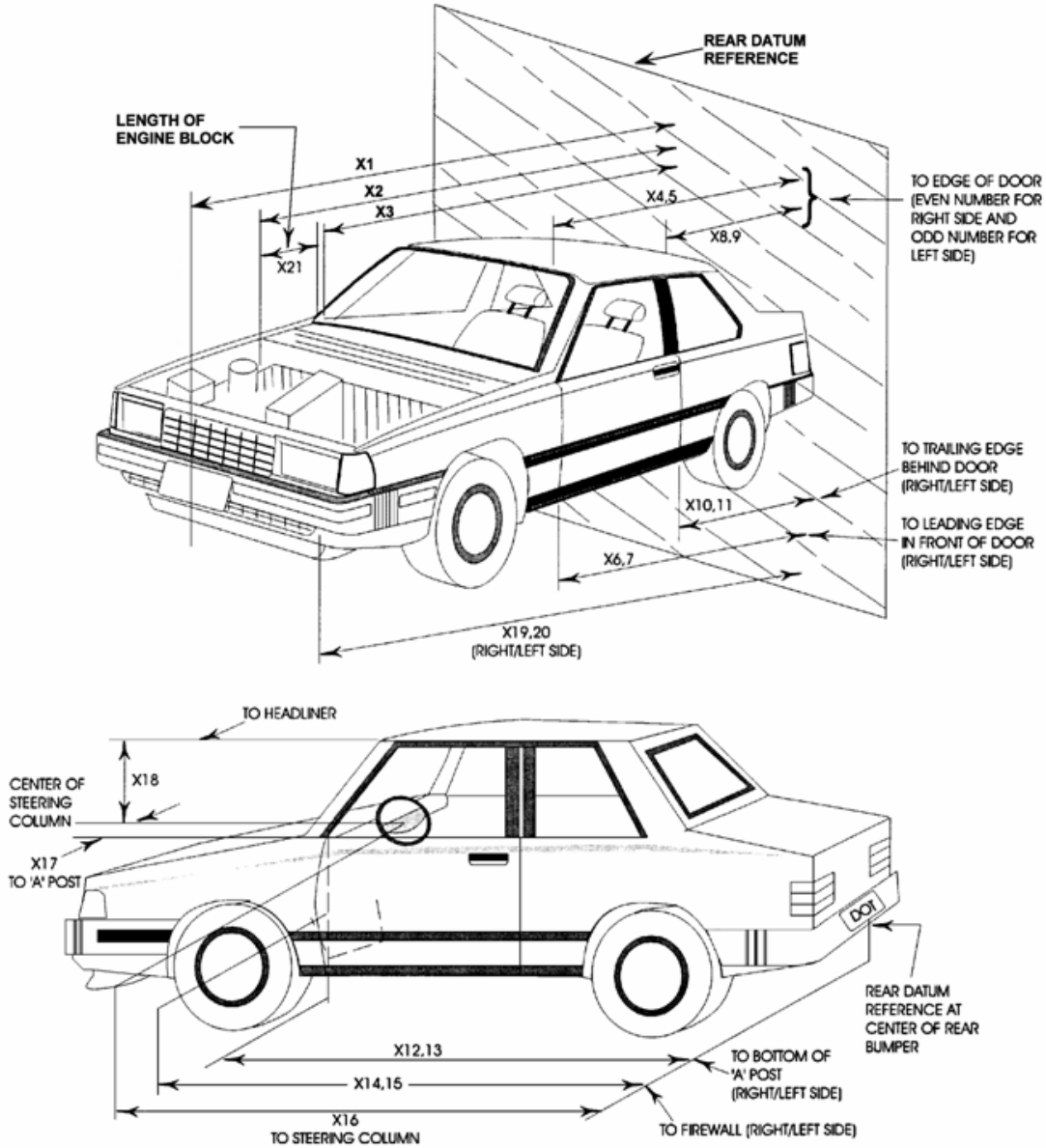
Measured Parameter	Units	Value
Left Side	mm	1481
Center	mm	1502
Right Side	mm	1633
Average	mm	1539

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	Yes	Yes	Yes	Yes
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes
Other (Seat Cushion)	Yes	Yes	Yes	Yes

DATA SHEET NO. 12
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12



DATA SHEET NO. 12 ... (CONTINUED)

VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12

No.	Description	Pre-Test	Post-Test	Difference
1	Total Length of Vehicle at Centerline	3038	2785	-253
2	Rear Surface of Vehicle to Front of Engine	2638	2770	132
3	RSOV to Firewall	2173	2195	22
4	RSOV to Upper Leading Edge of Right Door	2101	2118	17
5	RSOV to Upper Leading Edge of Left Door	2103	2120	17
6	RSOV to Lower Leading Edge of Right Door	2045	2050	5
7	RSOV to Lower Leading Edge of Left Door	2403	2043	-360
8	RSOV to Upper Trailing Edge of Right Door	831	859	28
9	RSOV to Upper Trailing Edge of Left Door	830	850	20
10	RSOV to Lower Trailing Edge of Right Door	958	963	5
11	RSOV to Lower Trailing Edge of Left Door	977	975	-2
12	RSOV to Bottom of A-Pillar, Right Side	2051	2086	35
13	RSOV to Bottom of A-Pillar, Left Side	2050	2081	31
14	RSOV to Firewall, Right Side	2238	2168	-70
15	RSOV to Firewall, Left Side	2223	2253	30
16	RSOV to Steering Column	1570	1610	40
17	Center of Steering Column to A-Pillar	415	380	-35
18	Center of Steering Column to Headliner	435	390	-45
19	RSOV to Right Side of Front Bumper	2600	2472	-128
20	RSOV to Left Side of Front Bumper	2600	2530	-70
21	Length of Engine Block	490	490	0
RD	RSOV to Right Side of Dash Panel	1860	1860	0
CD	RSOV to Center of Dash Panel	1700	1746	46
LD	RSOV to Left Side of Dash Panel	1790	1803	13

All measurements in millimeters.

DATA SHEET NO. 13
ACCIDENT INVESTIGATION DATA

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12

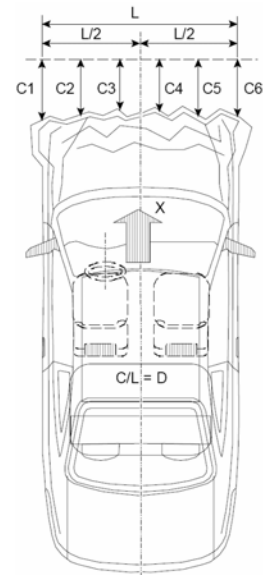
VEHICLE INFORMATION

VIN: JTNJJXB05CJ009679 Wheelbase (mm): 2000
 Vehicle Size Category: 3-Door Hatchback Test Weight (kg): 1118.0

ACCELEROMETER DATA

Accelerometer Locations: Left Rear Crossmember
 Cal. Procedure/Interval: Drop Test / 6 months
 Integration Algorithm: NHTSA Standard
 Impact Velocity (km/h): 56.42
 Velocity Change (km/h): 66.7
 Time of Separation (msec): 44.4

Linearity: Good



CRUSH PROFILE

Collision Deformation Classification: 12FDEW2
 Midpoint of Damage: Vehicle Centerline
 Damage Region Length (mm): 1579
 Impact Mode: Full Frontal

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush Zone 1 at Left Side	mm	190	295	105
C2	Crush Zone 2 at Left Side	mm	63	300	237
C3	Crush Zone 3 at Left Side	mm	40	265	225
C4	Crush Zone 4 at Right Side	mm	40	270	230
C5	Crush Zone 5 at Right Side	mm	63	307	244
C6	Crush Zone 6 at Right Side	mm	190	340	150
L	C1 to C6	mm	1579		

DATA SHEET NO. 14

VEHICLE INTRUSION MEASUREMENTS

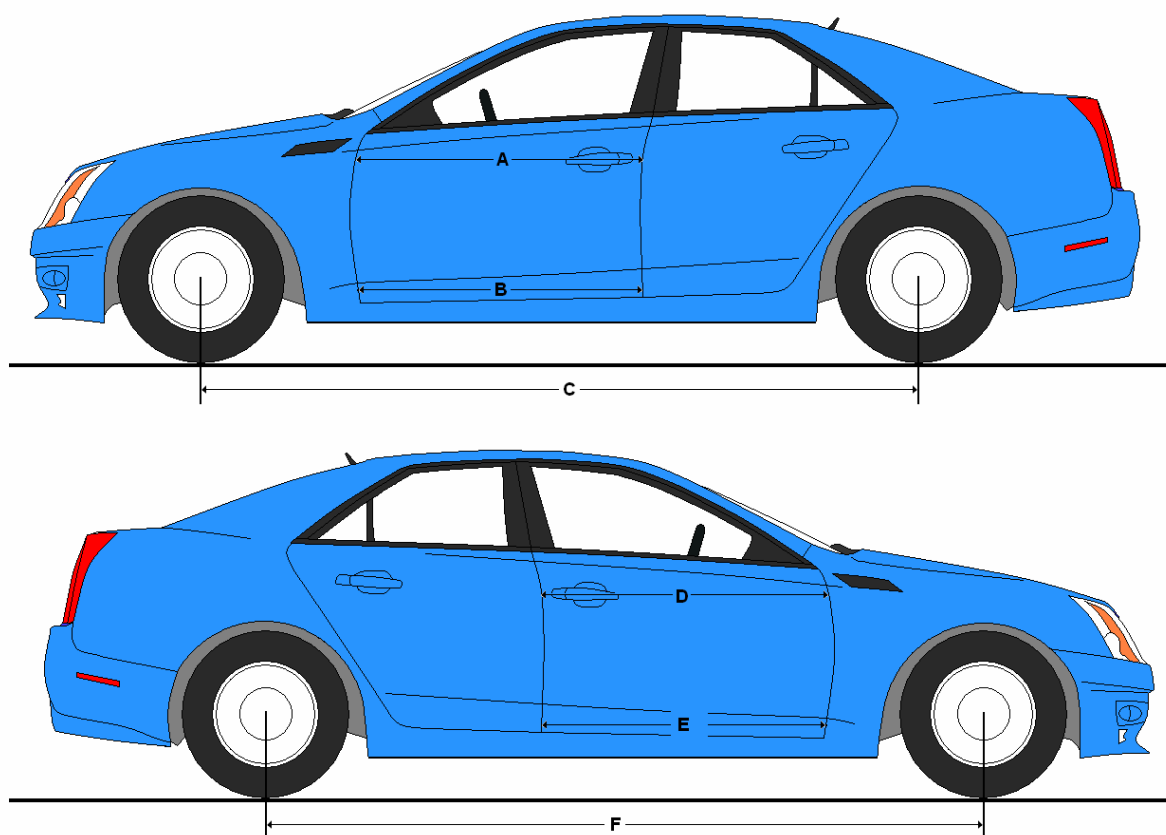
Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	1138	1133	5
B	Left Side Lower	mm	1058	1061	-3
D	Right Side Upper	mm	1140	1136	4
E	Right Side Lower	mm	1053	1049	4

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2000	1901	99
F	Right Side Wheelbase	mm	2000	1910	90



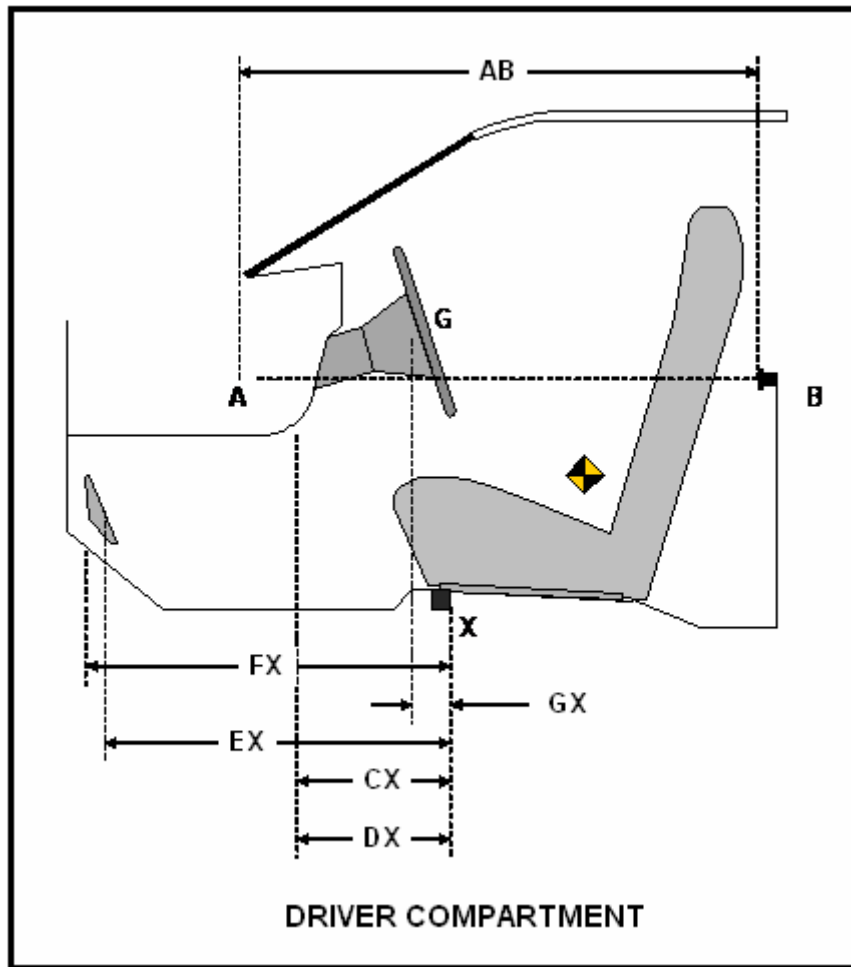
DATA SHEET NO. 14 ... (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12

DRIVER COMPARTMENT INTRUSION

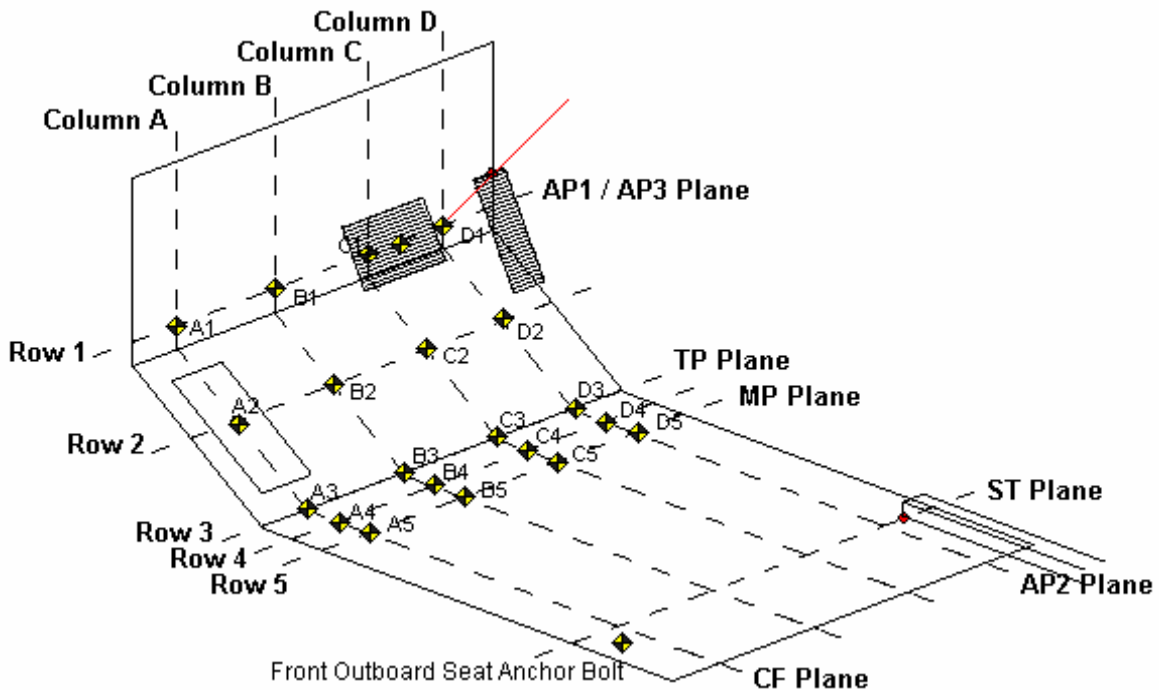
Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside Window Jam)	mm	1023	1020	3
CX	Left Knee Bolster to X	mm	238	250	-12
DX	Right Knee Bolster to X	mm	220	270	-50
EX	Brake Pedal to X	mm	442	450	-8
FX	Foot Rest to X	mm	474	570	-96
GX	Center of Steering Wheel Hub to X	mm	55	60	-5

X = Front of Seat Track (Stationary)



DATA SHEET NO. 14 ... (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12



- AP1: Y-Z Plane passing through D1
- AP2: X-Z Plane passing through D1
- AP3: X-Y plane passing through D1
- MP: Y-Z plane, halfway between the ST plane and AP1 plane
- CF Plane: X-Z plane passes through center of footrest.
- BP Plane: X-Z plane passes through center of brake pedal
- TP Plane: Y-Z plane, intersection of BP Plane and the intersection of the toe pan and floorboard
- Column A: intersection of vehicle and CF plane
- Column D: Intersection of vehicle and AP2 plane
- Row 1: intersection of the vehicle and the AP3 Plane
- Row 3: intersection of the vehicle and TP plane
- Row 5: intersection of the vehicle and MP plane
- Row 2: evenly spaced between row 1 and 3
- Row 4: evenly spaced between row 3 and 5

DATA SHEET NO. 14 ... (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12

DRIVER FLOORPAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	618	639	636	625	610	619	616	593	8	20	20	32
2	539	529	527	521	534	520	510	516	5	9	17	5
3	417	414	407	402	412	408	401	395	5	6	6	7
4	324	322	320	315	320	318	314	309	4	4	6	6
5	227	227	226	225	224	222	220	219	3	5	6	6

DRIVER FLOORPAN Y-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	10	-90	-193	-340	-6	-105	-205	-350	16	15	12	10
2	10	-92	-198	-347	0	-103	-204	-349	10	11	6	2
3	9	-92	-200	-351	5	-98	-201	-354	4	6	1	3
4	9	-95	-204	-355	6	-97	-207	-356	3	2	3	1
5	11	-97	-207	-358	9	-99	-208	-359	2	2	1	1

DRIVER FLOORPAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	86	63	65	70	80	52	50	68	6	11	15	2
2	-14	-4	-11	-12	-24	-20	-22	-28	10	16	11	16
3	-65	-64	-62	-60	-74	-82	-74	-73	9	18	12	13
4	-64	-70	-78	-67	-71	-82	-91	-78	7	12	13	11
5	-68	-67	-61	-62	-74	-77	-72	-71	6	10	11	9

All measurements in millimeters

DATA SHEET NO. 14 ... (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12

PASSENGER FLOORPAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	606	625	632	622	581	600	620	591	25	25	12	31
2	520	511	506	507	515	517	501	504	5	-6	5	3
3	394	387	385	379	388	383	379	376	6	4	6	3
4	312	302	297	291	311	299	294	290	1	3	3	1
5	215	209	206	202	211	209	203	201	4	0	3	1

PASSENGER FLOORPAN Y-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	337	209	108	-2	333	209	116	10	4	0	-8	-12
2	345	207	100	-10	347	206	108	-5	-2	1	-8	-5
3	351	207	98	-4	354	211	102	-1	-3	-4	-4	-3
4	356	210	98	-9	359	214	103	-5	-3	-4	-5	-4
5	359	213	98	-12	363	216	101	-9	-4	-3	-3	-3

PASSENGER FLOORPAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	67	53	50	61	80	68	47	65	-13	-15	3	-4
2	-23	-23	-19	-28	-19	-29	-27	-36	-4	6	8	8
3	-58	-71	-73	-69	-53	-70	-79	-74	-5	-1	6	5
4	-72	-77	-75	-68	-66	-76	-78	-71	-6	-1	3	3
5	-69	-67	-64	-65	-63	-67	-67	-68	-6	0	3	3

All measurements in millimeters

DATA SHEET NO. 15

SUMMARY OF FMVSS 212 AND 219 (PARTIAL) DATA

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12

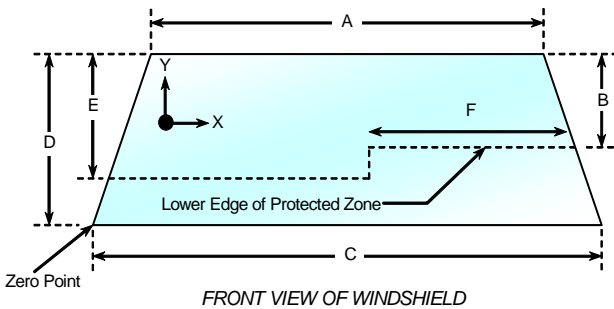
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with rubber cement.

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: 21.2 ° C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% Retention
Left Side	2083	2083	100.0%
Right Side	2083	2083	100.0%
Total	4166	4166	100.0%



Item	Units	Value
A	mm	1180
B	mm	495
C	mm	1385
D	mm	800
E	mm	493
F	mm	503

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 AND 219 (PARTIAL) DATA

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 21.7° C Test Time: 1:50 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.

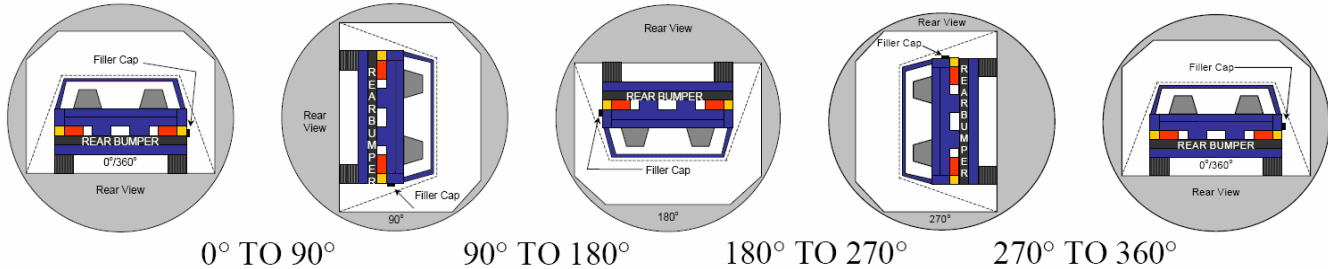
DATA SHEET NO. 16
FMVSS 301 STATIC ROLLOVER

Test Vehicle: 2012 Scion iQ 3-Door Hatchback

NHTSA No.: MC5119

Test Program: 56 km/h Frontal Impact NCAP Test

Test Date: 2/22/12



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°	88	300	388
90° To 180°	84	300	384
180° To 270°	92	300	392
270° To 360°	80	300	380

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

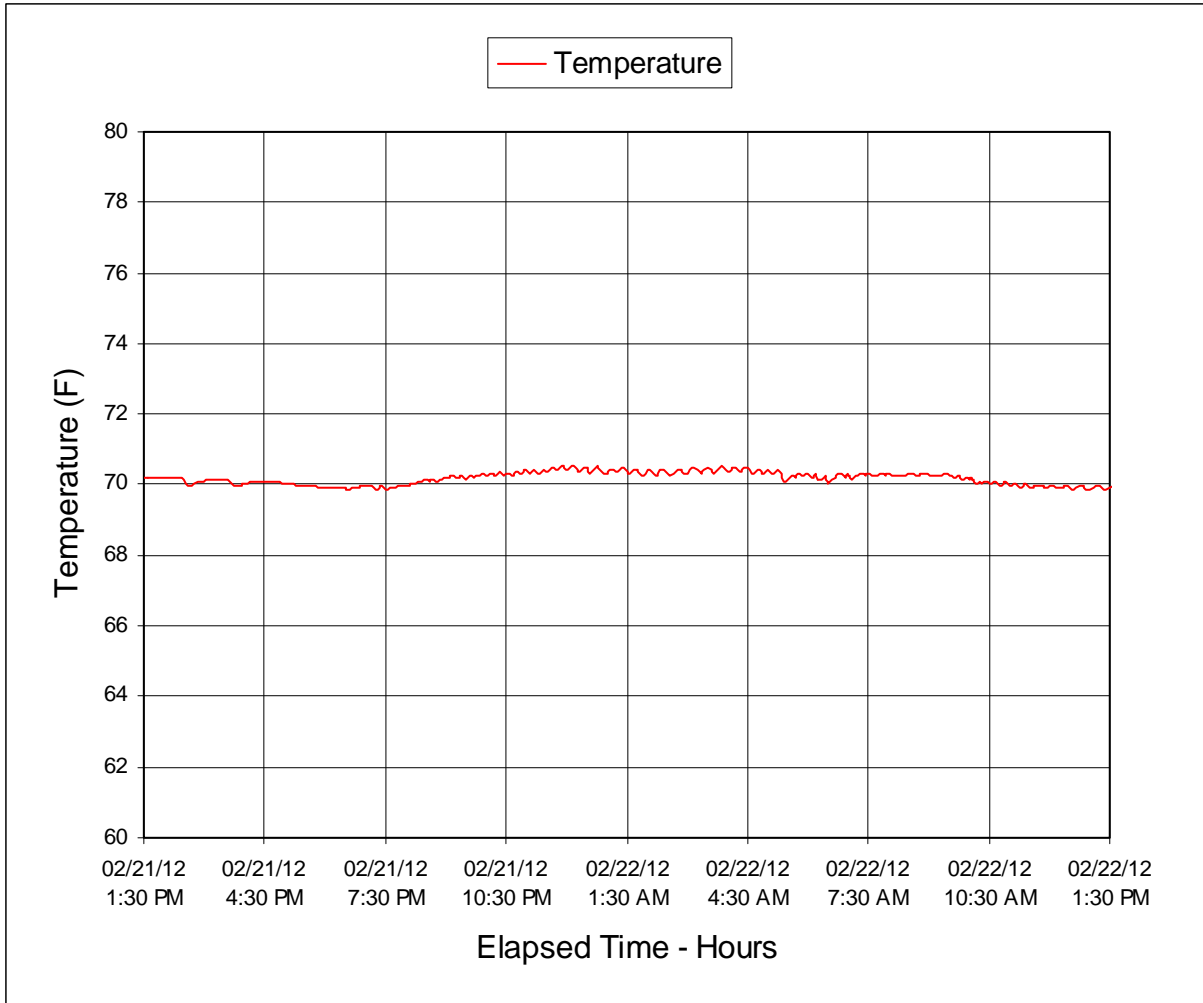
Test Phase	Spillage Location
0° To 90°	
90° To 180°	
180° To 270°	
270° To 360°	

DATA SHEET NO. 17

DUMMY / VEHICLE TEMPERATURE STABILIZATION CHART

Test Vehicle: 2012 Scion iQ 3-Door Hatchback NHTSA No.: MC5119

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 2/22/12



**APPENDIX A
PHOTOGRAPHS**

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FIGURE 1. Load Cell Location



FIGURE 2. Load Cell Wall



FIGURE 3. Manufacturer's Label

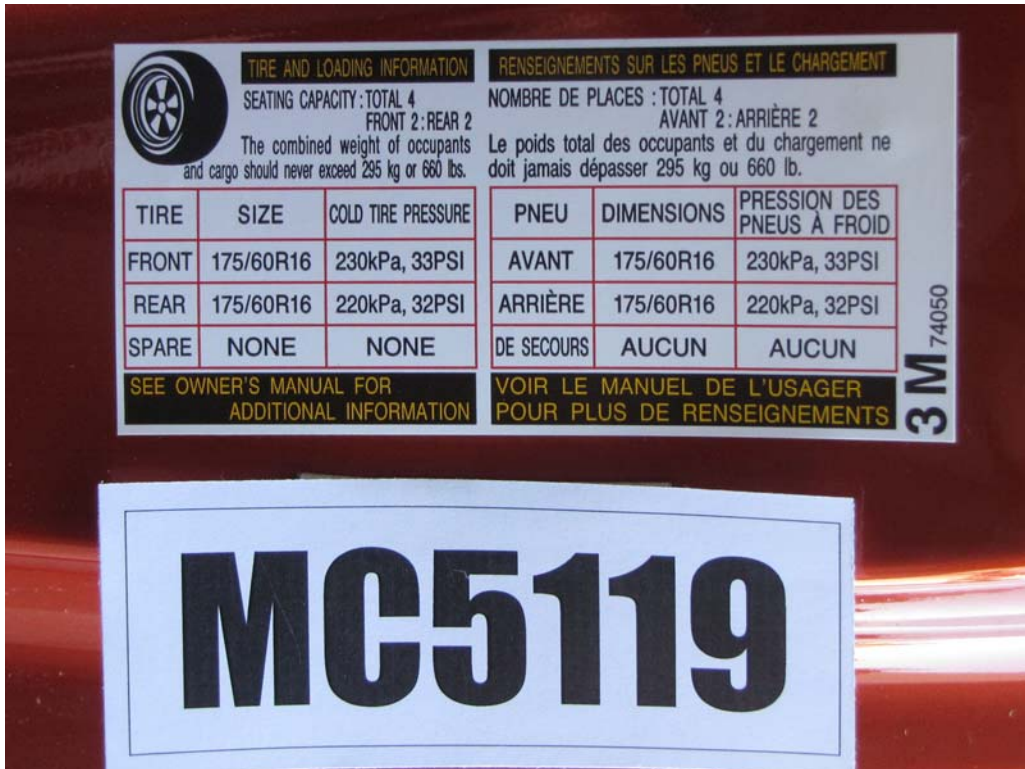


FIGURE 4. Tire Placard

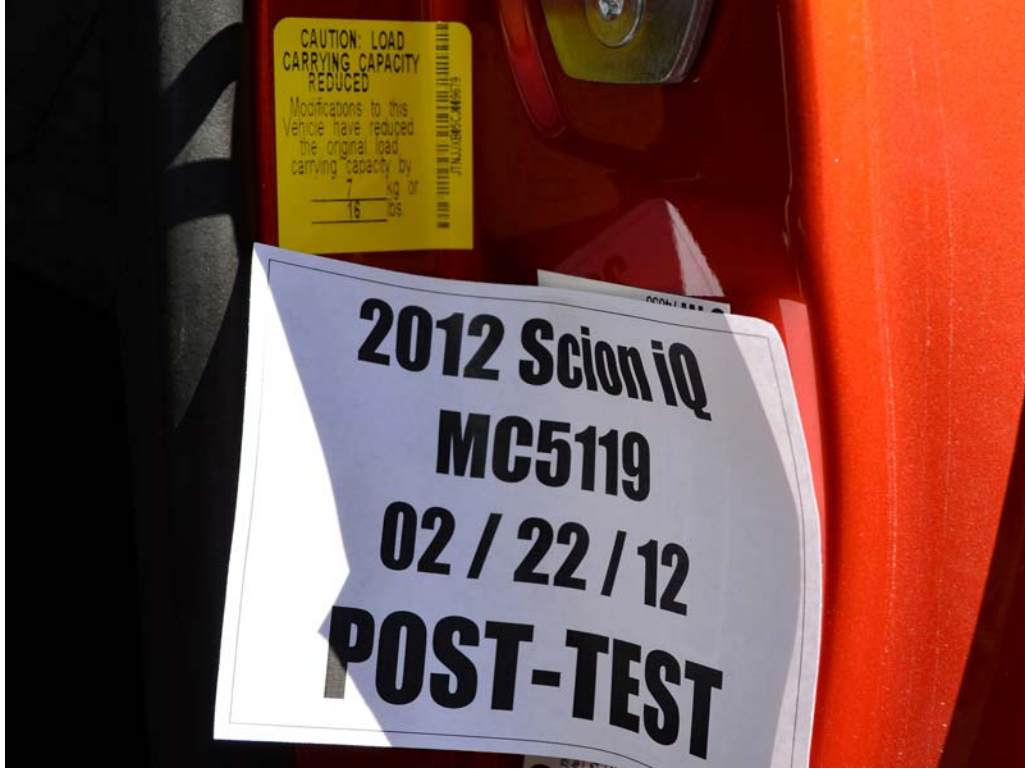


FIGURE 4a. Vehicle Label



FIGURE 5. 2012 Scion iQ Frontal, As Delivered



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

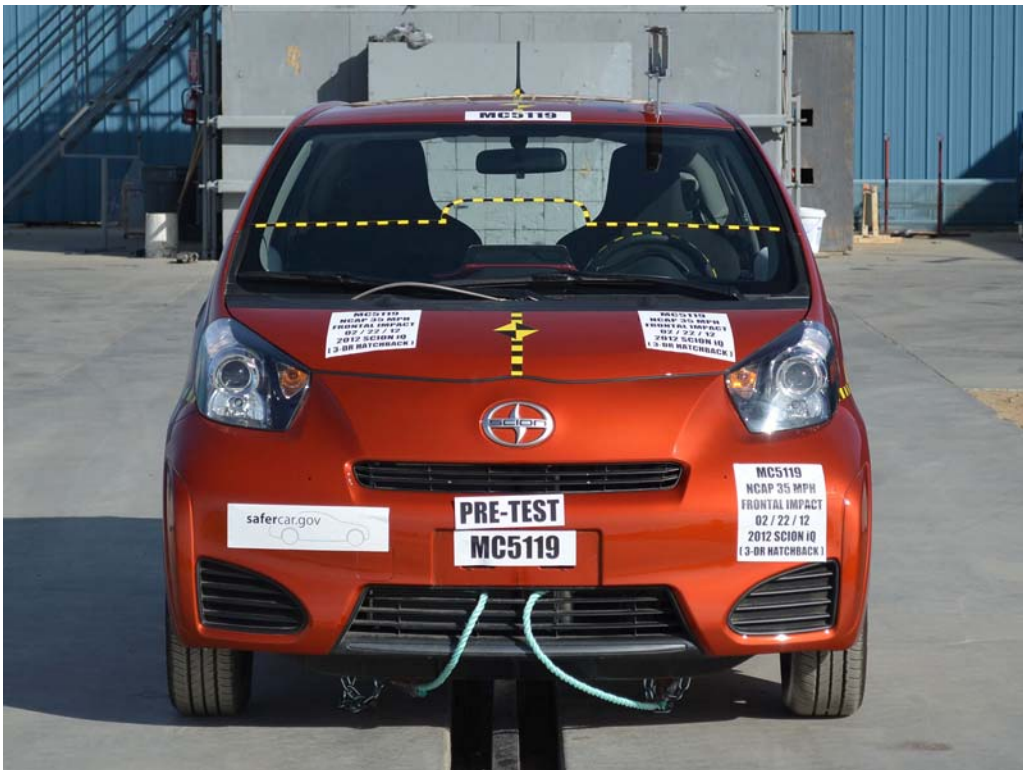


FIGURE 7. Pre-Test Front View of Test Vehicle



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

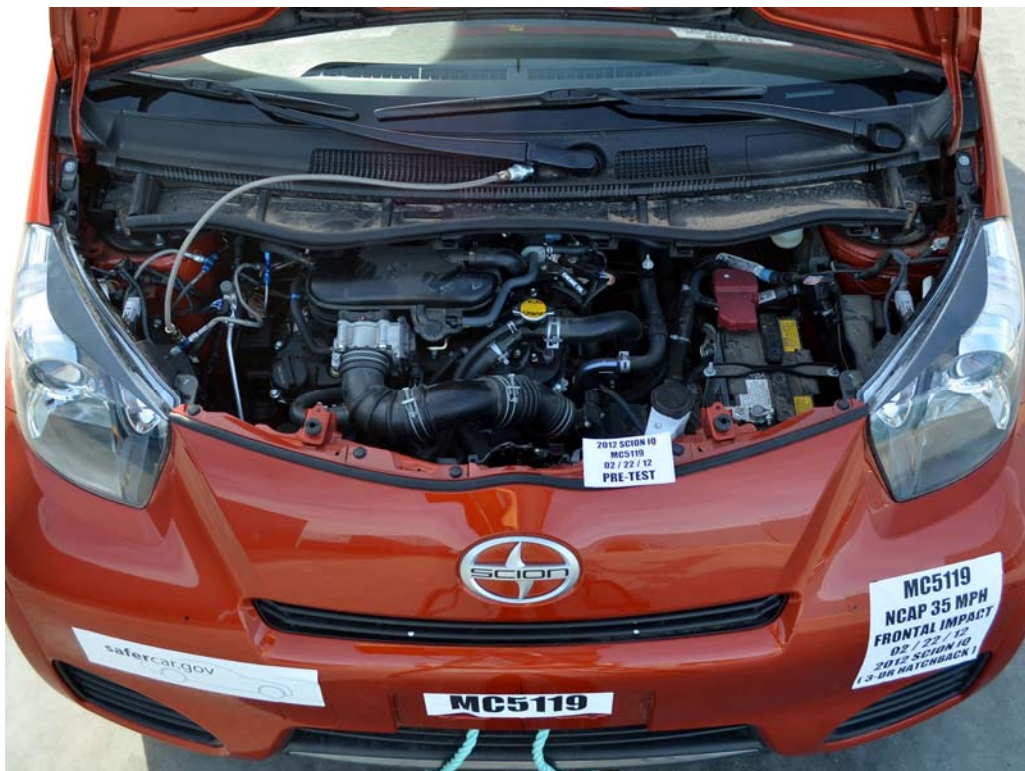


FIGURE 19. Pre-Test Engine Compartment View



FIGURE 20. Post-Test Engine Compartment View



FIGURE 21. Pre-Test Fuel Filler Cap View



FIGURE 22. Post-Test Fuel Filler Cap View

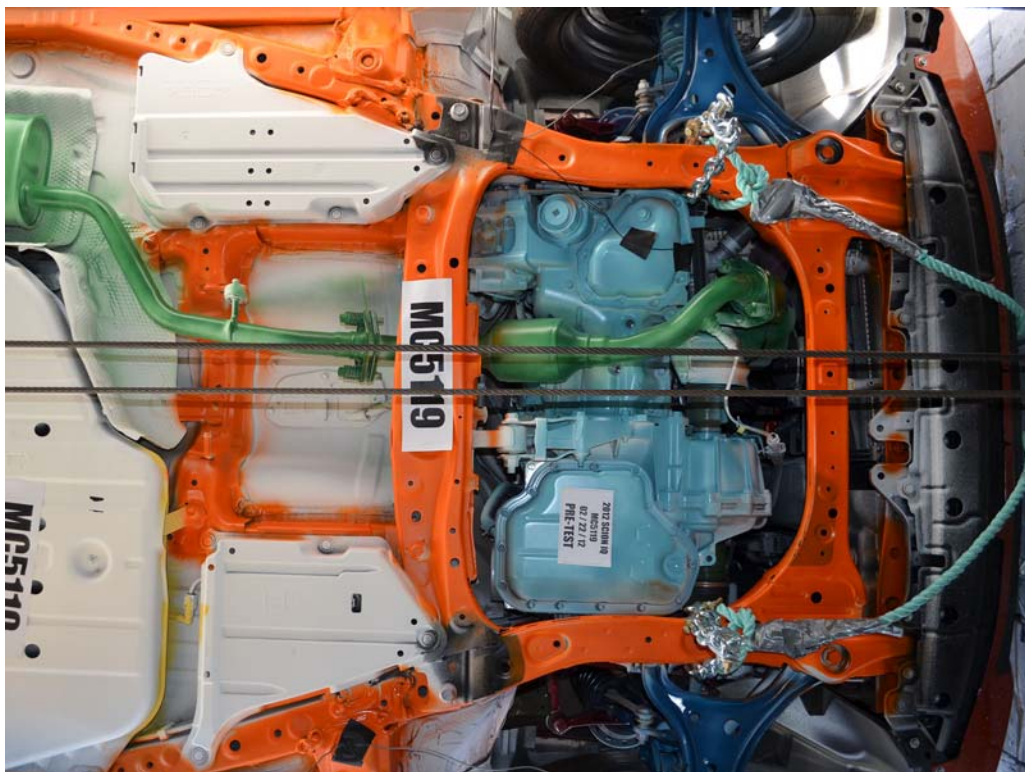


FIGURE 23. Pre-Test Front Underbody View

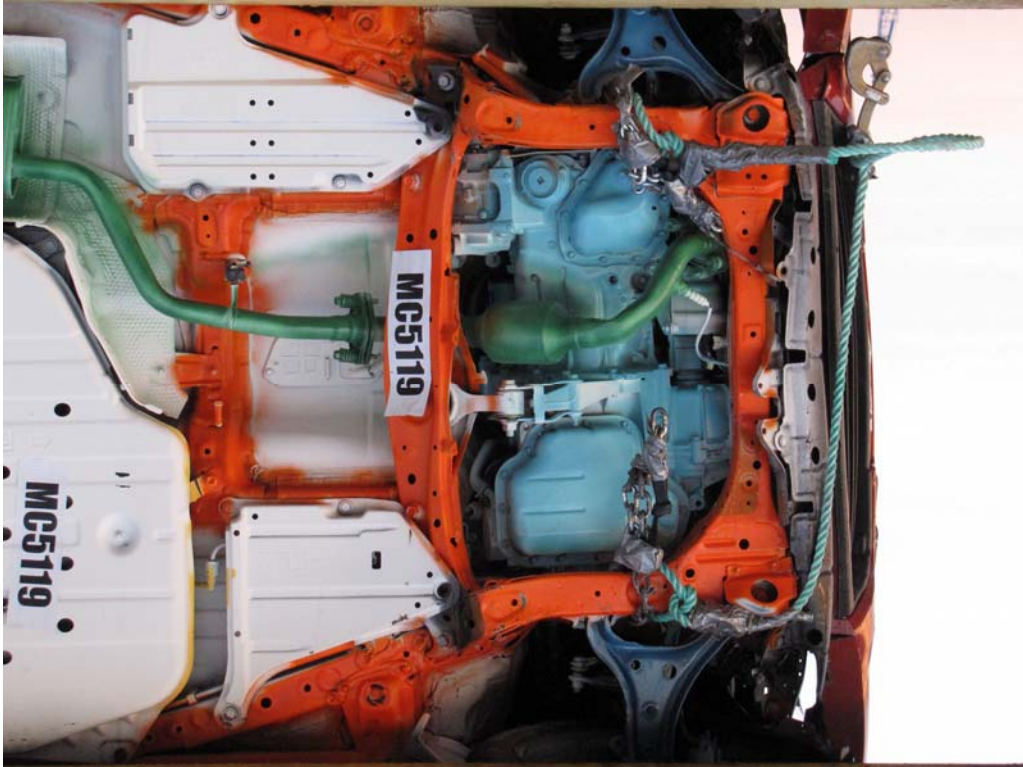


FIGURE 24. Post-Test Front Underbody View

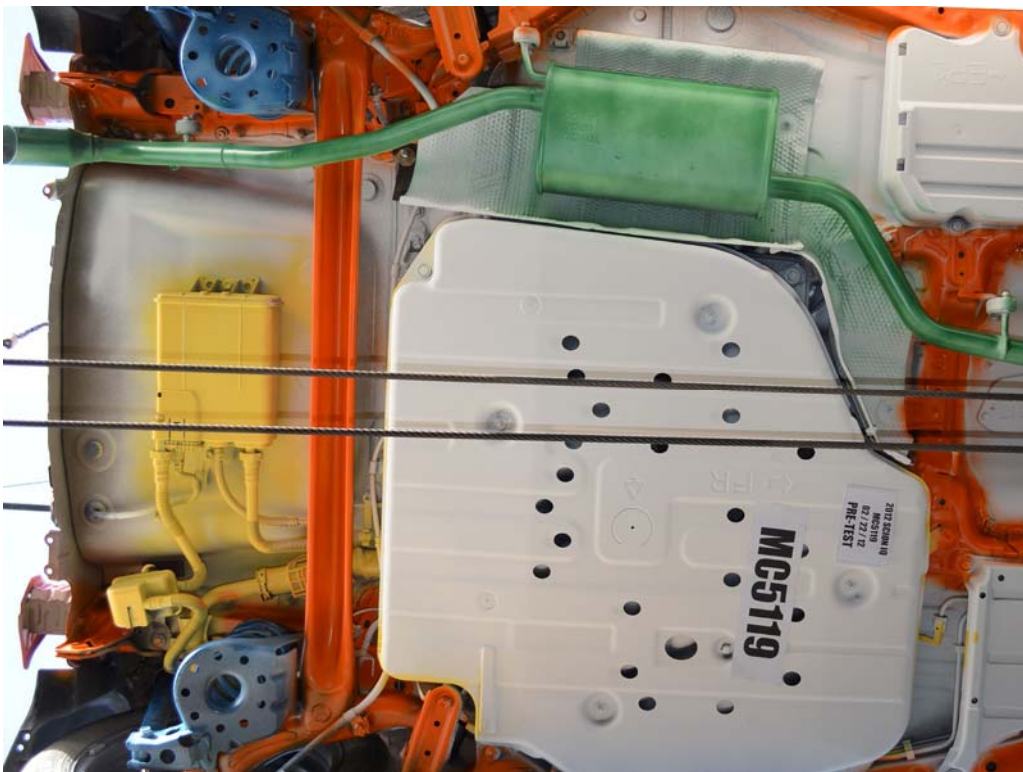


FIGURE 25. Pre-Test Rear Underbody View

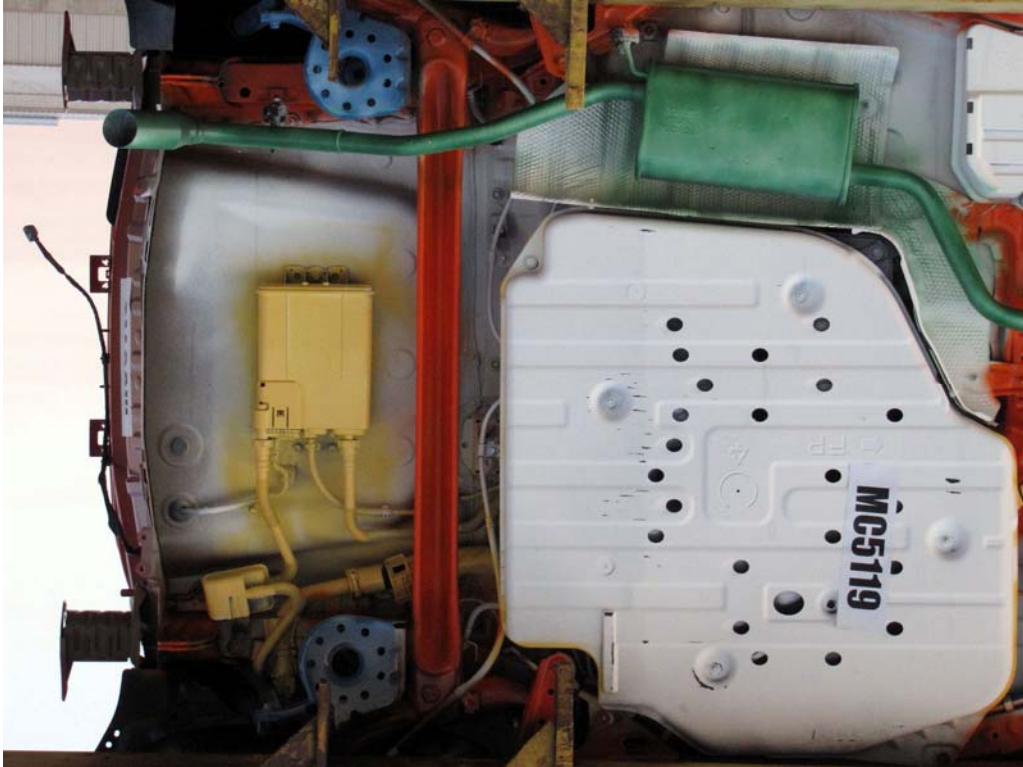


FIGURE 26. Post-Test Rear Underbody View



FIGURE 27. Pre-Test Dummy Cable Routing

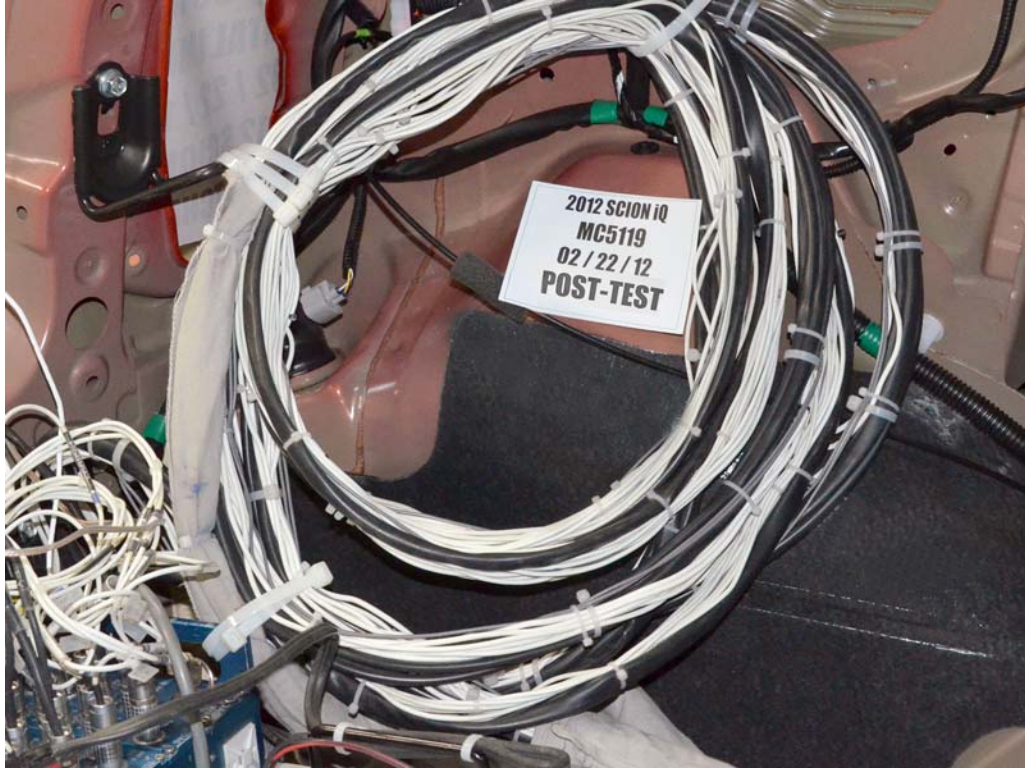


FIGURE 28. Post-Test Dummy Cable Routing



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 Driver Dummy Feet



FIGURE 38. Post-Test Driver Dummy Feet



FIGURE 39. Pre-Test Driver's Side Knee Bolster



FIGURE 40. Post-Test Driver's Side Knee Bolster



FIGURE 41. Pre-Test Driver's Side Floorpan



FIGURE 42. Post-Test Driver's Side Floorpan



FIGURE 43. Post-Test Driver Dummy Face



FIGURE 44. Post-Test Driver Dummy Contact With Airbag

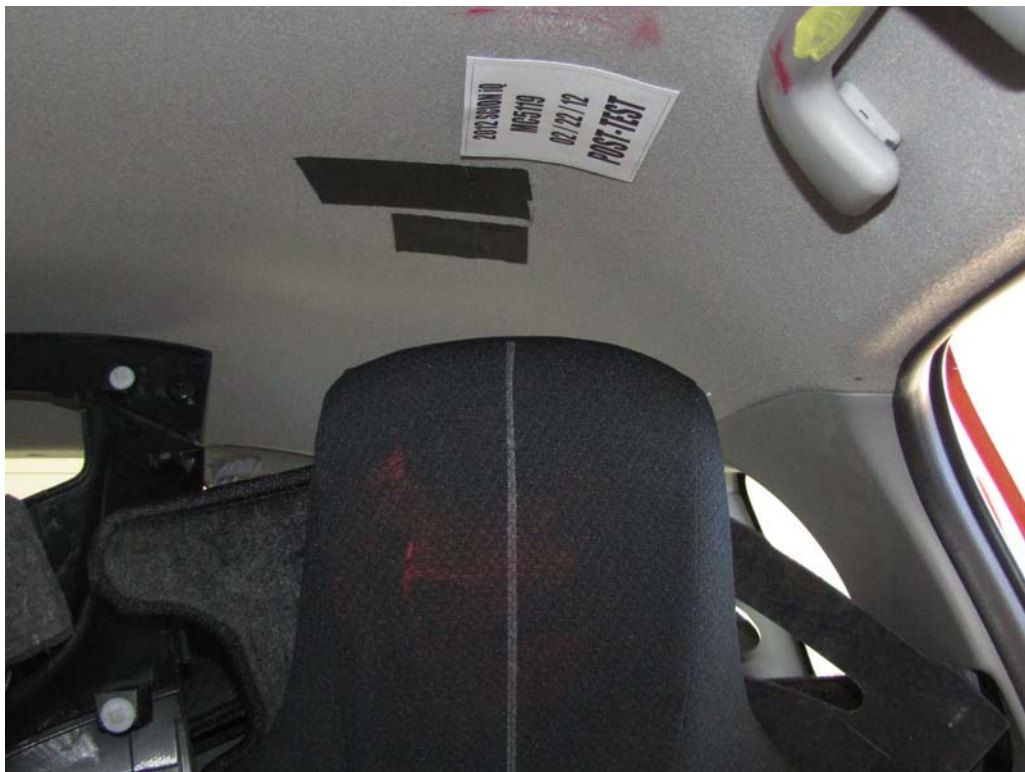


FIGURE 45. Post-Test Driver Dummy Contact With Headrest



FIGURE 45a. Post-Test Driver Dummy Contact With Headliner



FIGURE 45b. Post-Test Driver Dummy Contact With Knee Airbag



FIGURE 46. Pre-Test View Of Steering Wheel



FIGURE 47. Post-Test View Of Steering Wheel



FIGURE 48. Pre-Test Passenger Dummy Front View



FIGURE 49. Post-Test Passenger Dummy Front View



FIGURE 50. Pre-Test Passenger Dummy Window View



FIGURE 51. Post-Test Passenger Dummy Window View



FIGURE 52. Pre-Test Passenger Dummy and Vehicle Interior View



FIGURE 53. Post-Test Passenger Dummy and Vehicle Interior View



FIGURE 54. Pre-Test Passenger's Seat Fore-Aft Markings

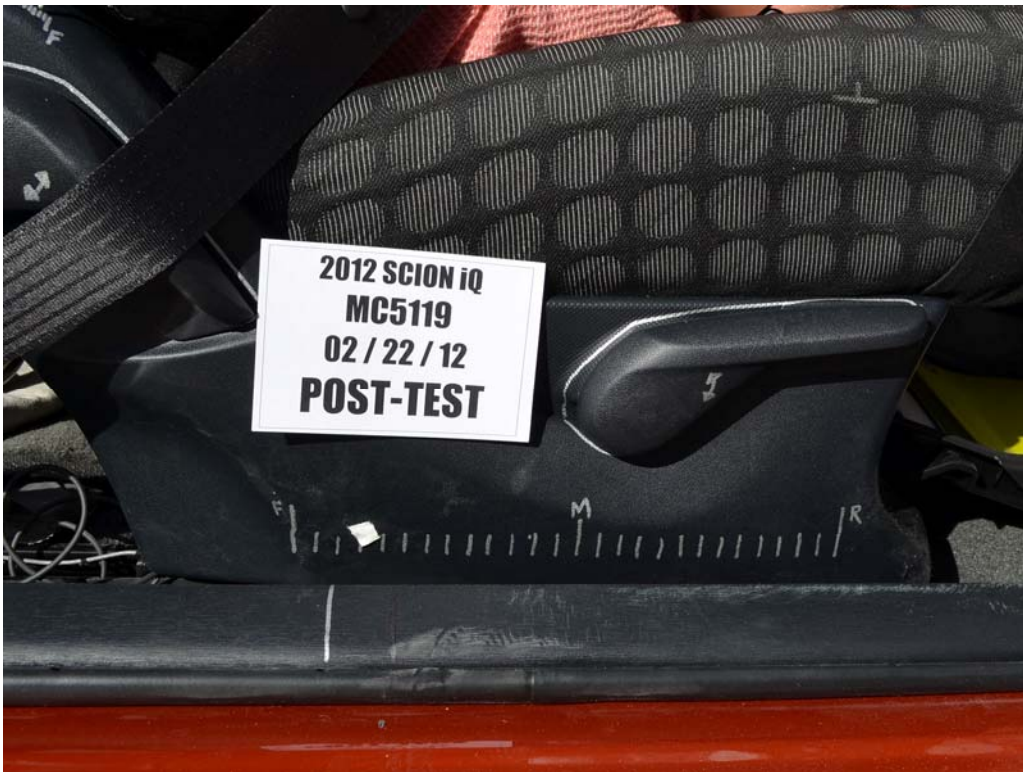


FIGURE 55. Post-Test Passenger's Seat Fore-Aft Markings



FIGURE 56. Pre-Test Passenger Dummy Feet



FIGURE 57. Post-Test Passenger Dummy Feet



FIGURE 58. Pre-Test Passenger's Side Knee Bolster



FIGURE 59. Post-Test Passenger's Side Knee Bolster



FIGURE 60. Pre-Test Passenger's Side Floorpan



FIGURE 61. Post-Test Passenger's Side Floorpan



FIGURE 62. Post-Test Passenger Dummy Contact With Airbag



FIGURE 62a. Post-Test Passenger Dummy Contact With Headrest



FIGURE 62b. Post-Test Passenger Dummy Contact With Knee Airbag



FIGURE 63. Pre-Test of Ballast Installed in Vehicle

Photograph Not Applicable No Stoddard Solvent Spillage

FIGURE 64. Post-Test Stoddard Solvent Spillage Location



FIGURE 65. Post-Test Speed Trap Read Out



FIGURE 66. Vehicle at 0° on Static Rollover Device



FIGURE 67. Vehicle at 90° on Static Rollover Device



FIGURE 68. Vehicle at 180°on Static Rollover Device



FIGURE 69. Vehicle at 270°on Static Rollover Device



FIGURE 70. Vehicle at 360°on Static Rollover Device



FIGURE 71. 2012 Scion iQ Frontal Impact Event

09-11

SCION IQ 3-DOOR LIFTBACK
 VIN: JTNJXB05CJ009679
 YR/M/DL: 2012/6/24
 CLR: HOT LAVA/BLACK/PAB (SABR10)
 FORT PLANT: Long Beach, CA RAILHEAD

STANDARD EQUIPMENT

MECHANICAL AND PERFORMANCE

- 1.8L 4-Cyl DOHC 15V Dual VVT-i 4-spd
- Continuously Variable Transmission (CVT)
- Electric Power Steering (EPS)
- Front Disc & Rear Drum Brakes
- 1st Maintenance Interval Front Suspension
- Compact Torsion Beam Rear Suspension
- 17" Steel Wheels with Full Wheel Covers with P175/65R16 Tires

SAFETY AND CONVENIENCE

- Star Safety System: Vehicle Stability Control (VSC), Traction Control (TRAC), Anti-lock Brake System (ABS), Electronic Brake Force Distribution (EBD), Brake Assist (BA) & Smart Stop Technology (SST)
- Dr and Fr Pass Individual Airbag System
- Dr and Fr Pass Seat Mounted Side Airbags
- Fr and Rr Side Curtain Airbags
- Dr and Fr Pass Seat Cushion Airbag
- Rr Window Curtain Airbag
- LATCH: LATCH Anchor & LATCH for Children
- Tire Pressure Monitoring System
- Tire Repair System
- Fire Aid Kit

EXTERIOR

- Full-Clearance Mirrors w/Turn Signal Indicator
- Projector-Beam Headlamps
- Intermittent Front Windshield Wipers
- Rear Window Wiper; Rear Window Defogger

INTERIOR

- Pioneer 180W AM/FM/CD/HD Radio & 6-speakers
- Aux USB Port w/MP3 Compatibility; Hands-Free Phone Capability & Music Streaming via Bluetooth Wireless Technology
- Leather-Trimmed T10 20-Watt Halogen Lights
- Power Windows w/ Fr & Rr Pass One-Touch
- Auto Up-Cover and Jam Protection
- Power Door Locks; Remote Keyless Entry
- Air Conditioning
- 20-Watt Split Fold-Flat Rear Seats
- Original Carfax, No-Accident Report
- Full Tank of Gas

MANUFACTURER'S SUGGESTED RETAIL PRICE \$15,265.00

OPTIONAL EQUIPMENT

FE	50 STATE EMISSIONS	100.00
OV	Rear Spoiler Package	20.00
UT	Storage Package	70.00
CL	Carpeted Cargo Mat	55.00
CJ	Carpeted Rear Floor Mats	95.00
CV	Carpeted Front Floor Mats	

GOVERNMENT SAFETY RATINGS

This vehicle has not been rated by the government for frontal crash, side crash or rollover risk.
 Source: National Highway Traffic Safety Administration (NHTSA).

www.safercar.gov or 1-888-327-4236

EPA Fuel Economy Estimates

CITY MPG	36	HIGHWAY MPG	37
Expected range for most drivers	29 to 43 MPG	Expected range for most drivers	30 to 44 MPG

Estimated Annual Fuel Cost \$1,498
 based on 15,000 miles at \$3.79 per gallon

Combined Fuel Economy This vehicle 37
 All Midsize Cars

Year actual mileage will vary depending on how you drive and maintain your vehicle.

DELIVERY PROCESSING AND HANDLING FEE 730.00

TOTAL \$16,330.00

Dealer Name / Address: 04513 5th St
 48 AUTO CENTER DRIVE
 TUSTIN, CA 92782

FIGURE 72. Monroney Label Photograph

APPENDIX B
DUMMY RESPONSE DATA TRACES

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6	Driver Chest X Acceleration vs. Time Primary	B-3
7	Driver Chest Y Acceleration vs. Time Primary	B-3
8	Driver Chest Z Acceleration vs. Time Primary	B-3
9	Driver Chest Resultant Acceleration vs. Time Primary	B-3
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11	Driver Upper Neck Force Z vs. Time Primary	B-4
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22	Passenger Chest Y Acceleration vs. Time Primary	B-8
23	Passenger Chest Z Acceleration vs. Time Primary	B-8
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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

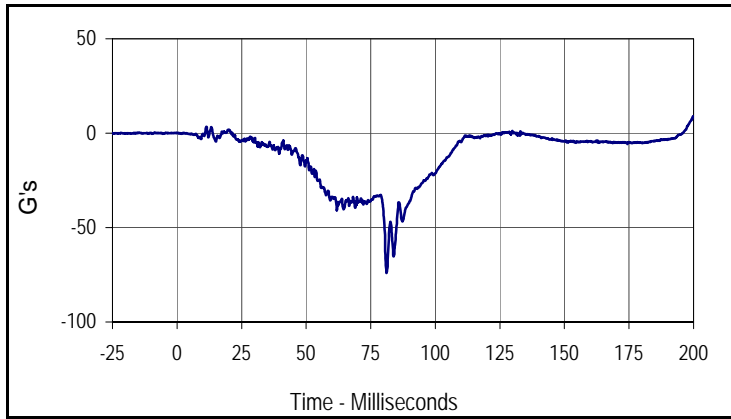
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Driver Head Z Acceleration Redundant
Driver Upper Neck Force Y
Driver Upper Neck Moment X
Driver Upper Neck Moment Z
Driver Chest X Acceleration Redundant
Driver Chest Y Acceleration Redundant
Driver Chest Z Acceleration Redundant
Driver Pelvis X
Driver 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 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
Passenger Left Upper Tibia Force Z
Passenger Left Lower Tibia Moment X
Passenger Left Lower Tibia Moment Y
Passenger Left Lower Tibia Force Z
Passenger Right Upper Tibia Moment X
Passenger Right Upper Tibia Moment Y
Passenger Right Upper Tibia Force Z
Passenger Right Lower Tibia Moment X
Passenger Right Lower Tibia Moment Y
Passenger Right Lower Tibia Force Z
Passenger Left Foot Fore Z
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

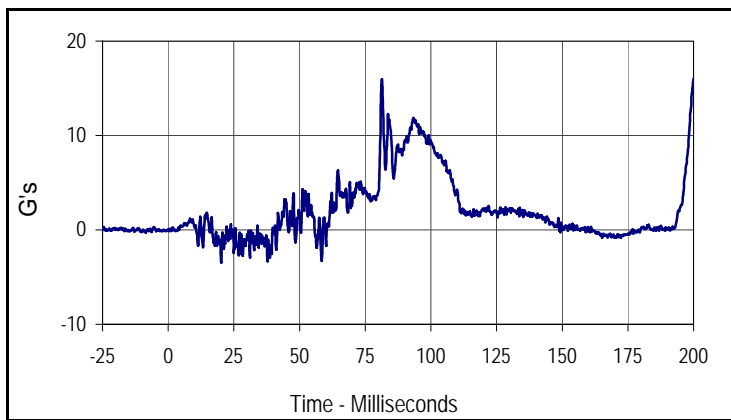
Left Rear Seat Crossmember Z
Right Rear Seat Crossmember X
Right Rear Seat Crossmember Z
Vehicle Engine Top X
Vehicle Engine Bottom X
Vehicle Left Brake Caliper X
Vehicle Right Brake Caliper X
Load Cell Barrier A1-A9
Load Cell Barrier B1-B9
Load Cell Barrier C1-C9
Load Cell Barrier D1-D9

Test Vehicle: 2012 Scion iQ 3-Door Hatchback
 Test Program: 56 km/h Frontal Impact NCAP Test

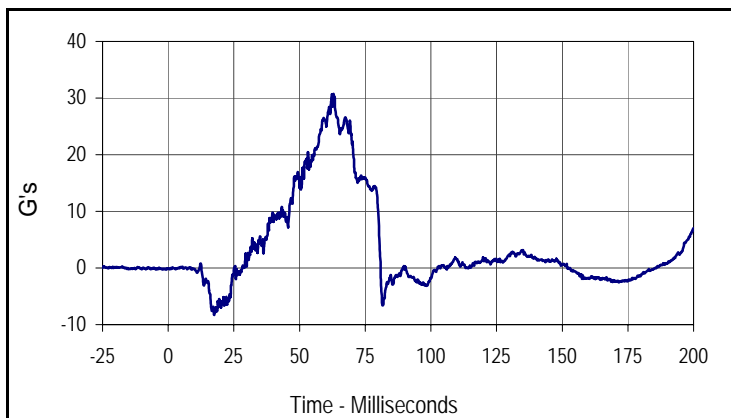
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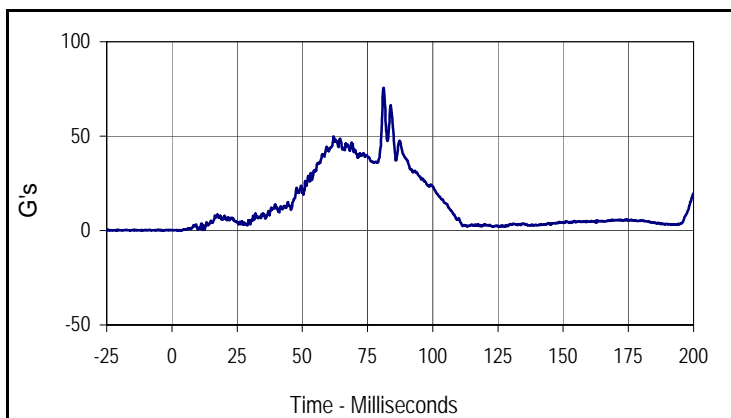
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Plot No.	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
9.0	200.0	-74.0	81.1



Curve Description			
Driver Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
16.0	200.0	-3.4	20.2



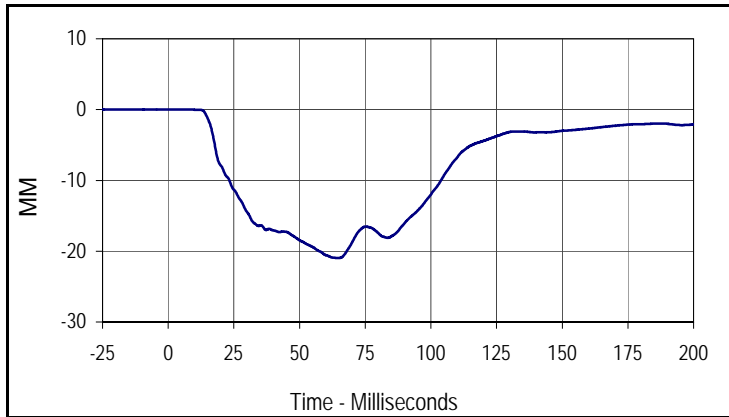
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Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
30.8	62.8	-8.3	17.5



Curve Description			
Driver Head Resultant Acceleration Primary			
Plot No.	Type	SAE Class	Units
004	RES	1000	G's
Max	Time	Min	Time
75.6	81.2	0.1	3.7

Test Vehicle: 2012 Scion iQ 3-Door Hatchback
 Test Program: 56 km/h Frontal Impact NCAP Test

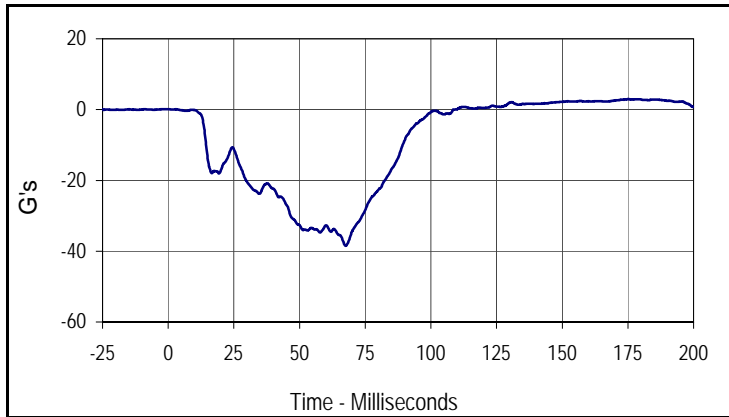
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 Test Date: 2/22/12



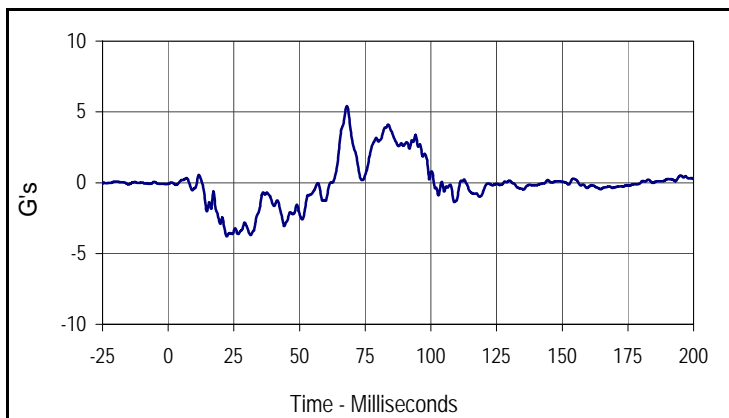
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Driver Chest Deflection			
Plot No.	Type	SAE Class	Units
005	FIL	180	MM
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0.0	0.9	-21.0	64.7

Test Vehicle: 2012 Scion iQ 3-Door Hatchback
 Test Program: 56 km/h Frontal Impact NCAP Test

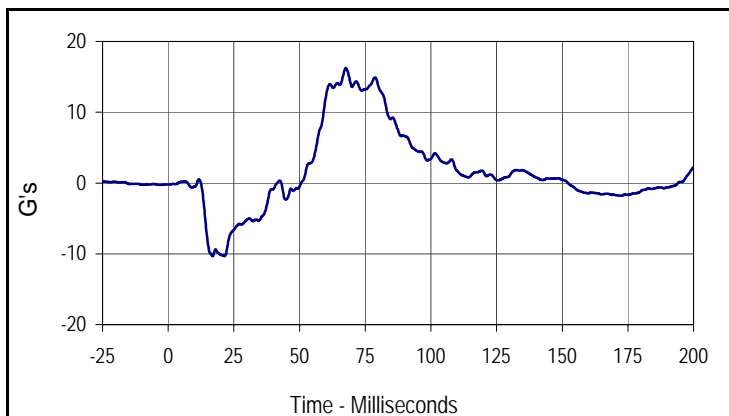
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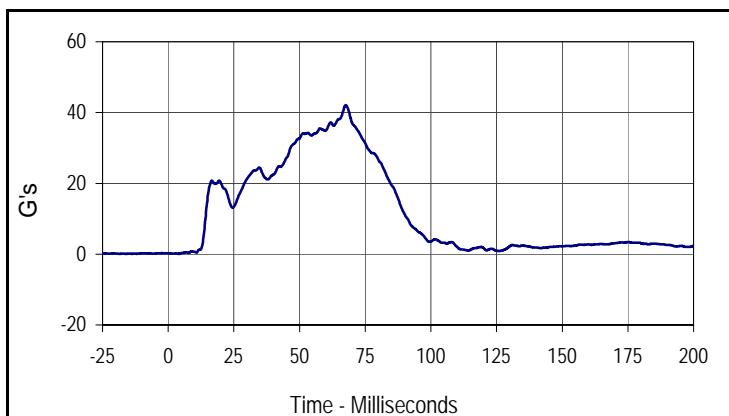
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Driver Chest Acceleration X Primary			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
3.0	175.2	-38.5	67.5



Curve Description			
Driver Chest Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
007	FIL	180	G's
Max	Time	Min	Time
5.4	68.0	-3.8	22.3



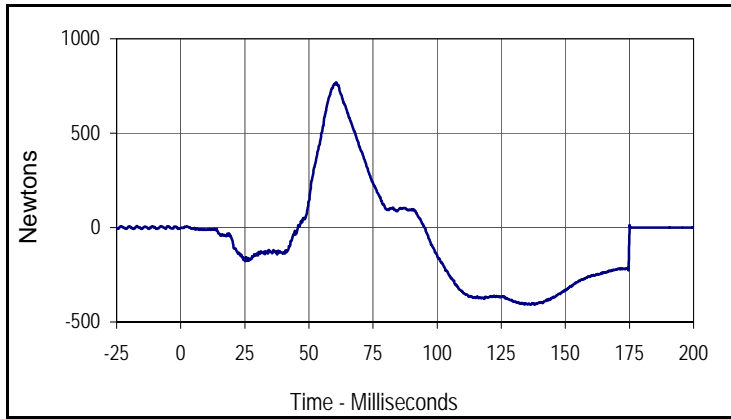
Curve Description			
Driver Chest Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
008	FIL	180	G's
Max	Time	Min	Time
16.2	67.6	-10.3	16.9



Curve Description			
Driver Chest Resultant Acceleration Primary			
Plot No.	Type	SAE Class	Units
009	RES	180	G's
Max	Time	Min	Time
42.1	67.6	0.0	3.9

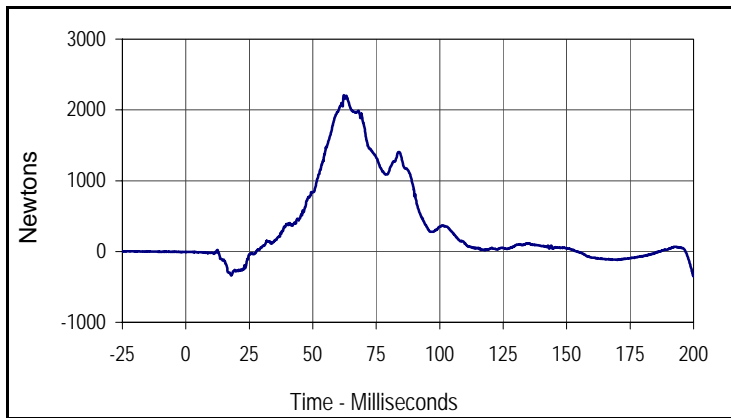
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 Test Program: 56 km/h Frontal Impact NCAP Test

NHTSA No.: MC5119
 Test Date: 2/22/12

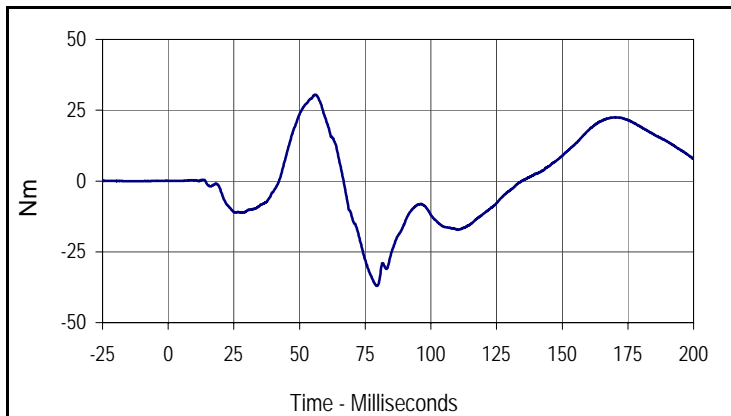


Curve Description			
Driver Upper Neck Force X			
Plot No.	Type	SAE Class	Units
010	FIL	1000	Newtons
Max	Time	Min	Time
769.4	60.6	-408.7	136.5

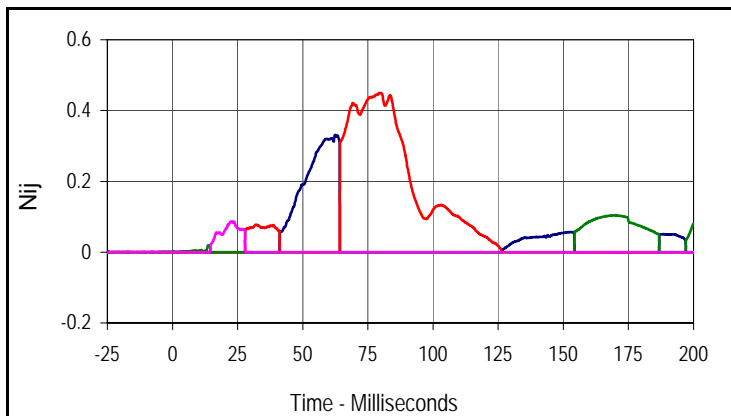
* Channel failed at 175.0 msec.



Curve Description			
Driver Upper Neck Force Z			
Plot No.	Type	SAE Class	Units
011	FIL	1000	Newtons
Max	Time	Min	Time
2207.7	62.2	-354.8	200.0



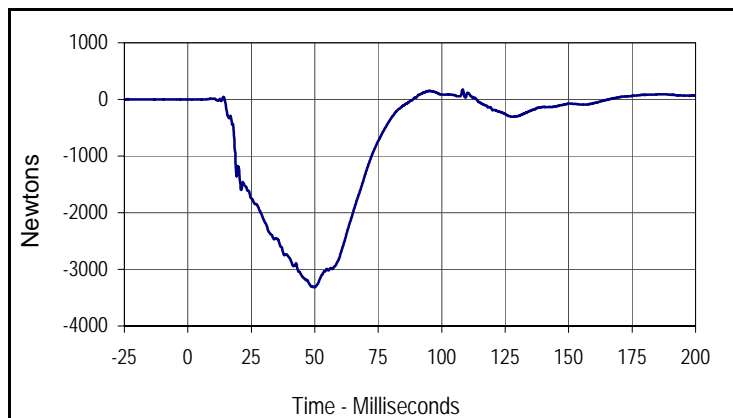
Curve Description			
Driver Upper Neck Moment Y			
Plot No.	Type	SAE Class	Units
012	FIL	600	Nm
Max	Time	Min	Time
30.5	55.8	-37.1	79.4



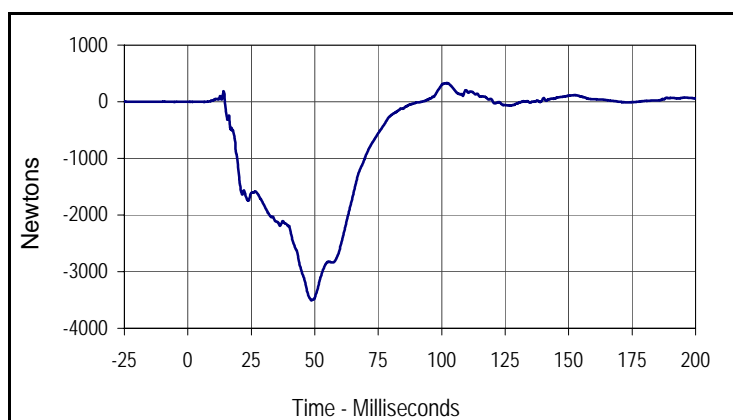
Curve Description			
Driver Nij			
Units	Type	Max	Time
Ntf	FIL	0.33	62.4
Units	Type	Max	Time
Nte	FIL	0.45	79.4
Units	Type	Max	Time
Ncf	FIL	0.23	216.0
Units	Type	Max	Time
Nce	FIL	0.09	22.8

Test Vehicle: 2012 Scion iQ 3-Door Hatchback
 Test Program: 56 km/h Frontal Impact NCAP Test

NHTSA No.: MC5119
 Test Date: 2/22/12



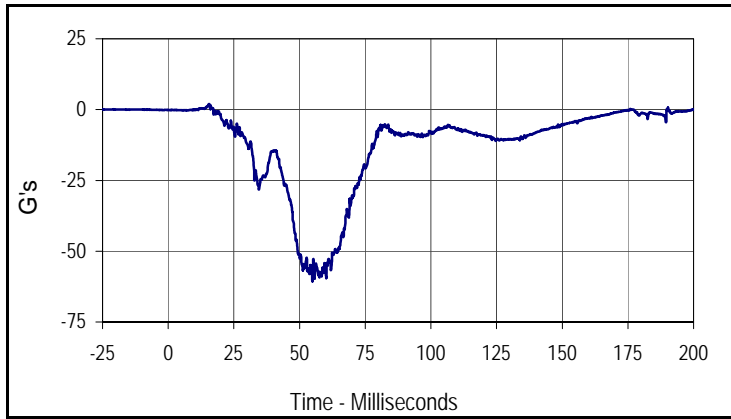
Curve Description			
Driver Left Femur Force Z			
Plot No.	Type	SAE Class	Units
013	FIL	600	Newtons
Max	Time	Min	Time
177.8	108.2	-3315.1	50.0



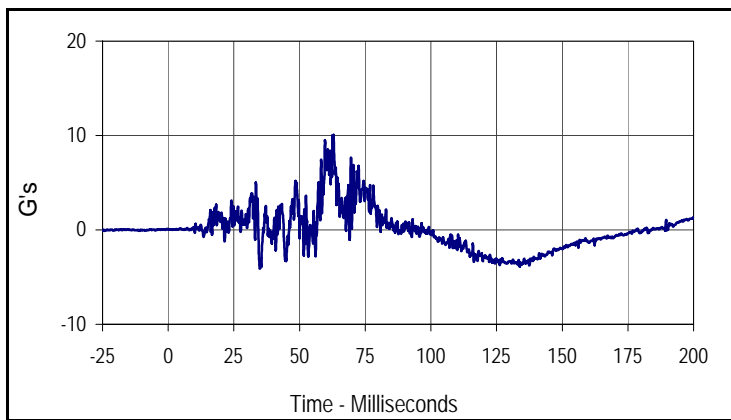
Curve Description			
Driver Right Femur Force Z			
Plot No.	Type	SAE Class	Units
014	FIL	600	Newtons
Max	Time	Min	Time
330.8	102.1	-3506.0	48.7

Test Vehicle: 2012 Scion iQ 3-Door Hatchback
 Test Program: 56 km/h Frontal Impact NCAP Test

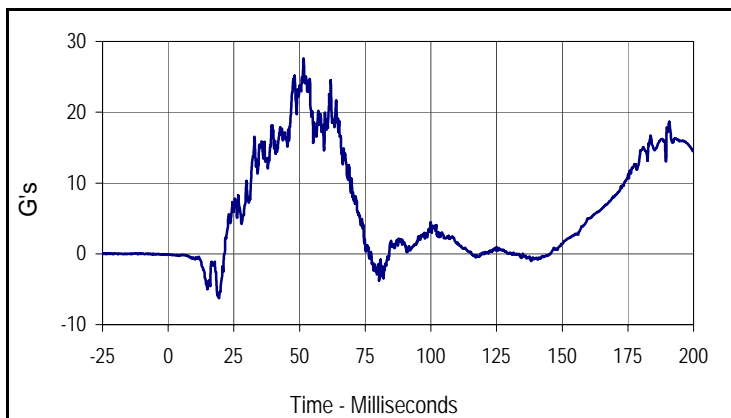
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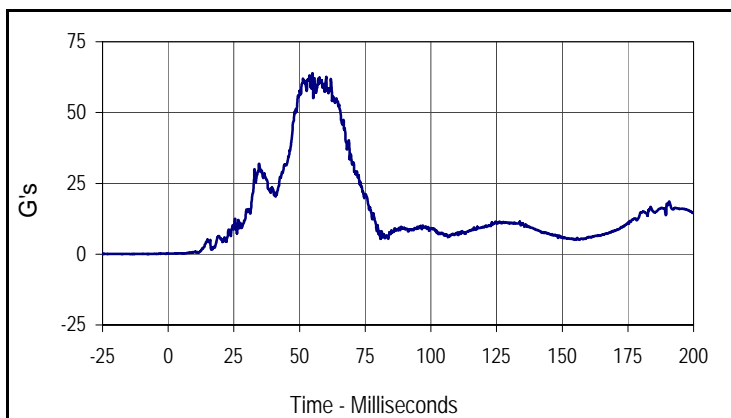
Curve Description			
Passenger Head Acceleration X Primary			
Plot No.	Type	SAE Class	Units
015	FIL	1000	G's
Max	Time	Min	Time
2.0	15.6	-60.7	54.9



Curve Description			
Passenger Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
016	FIL	1000	G's
Max	Time	Min	Time
10.0	62.6	-4.1	34.9



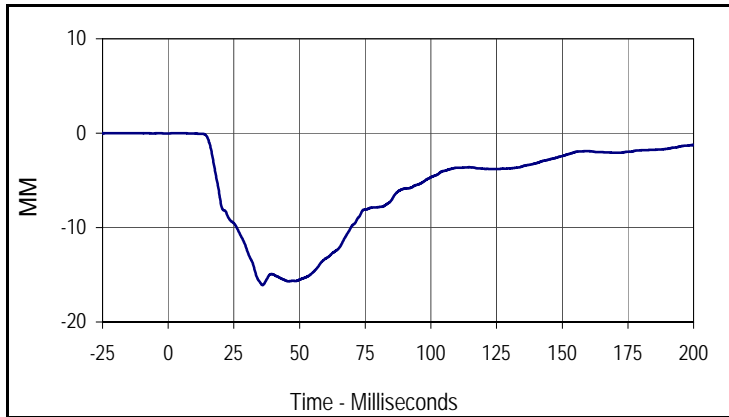
Curve Description			
Passenger Head Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
017	FIL	1000	G's
Max	Time	Min	Time
27.5	51.5	-6.3	19.3



Curve Description			
Passenger Head Resultant Acceleration Primary			
Plot No.	Type	SAE Class	Units
018	RES	1000	G's
Max	Time	Min	Time
63.8	54.9	0.2	0.0

Test Vehicle: 2012 Scion iQ 3-Door Hatchback
 Test Program: 56 km/h Frontal Impact NCAP Test

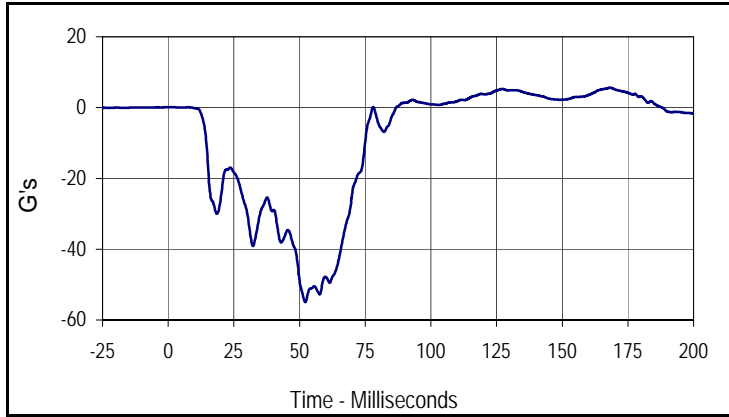
NHTSA No.: MC5119
 Test Date: 2/22/12



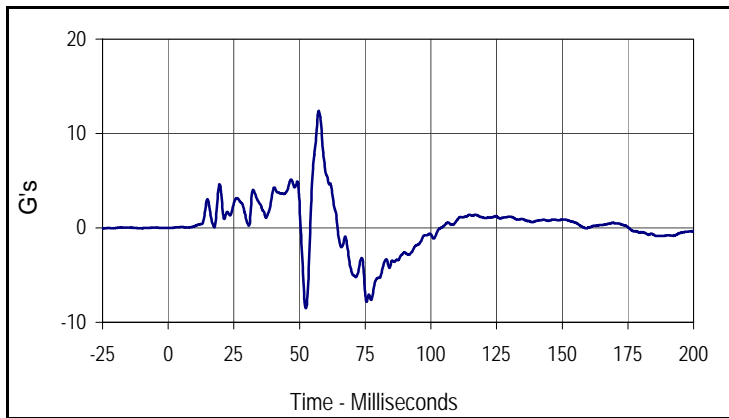
Curve Description			
Passenger Chest Deflection			
Plot No.	Type	SAE Class	Units
019	FIL	180	MM
Max	Time	Min	Time
0.0	5.1	-16.1	35.9

Test Vehicle: 2012 Scion iQ 3-Door Hatchback
 Test Program: 56 km/h Frontal Impact NCAP Test

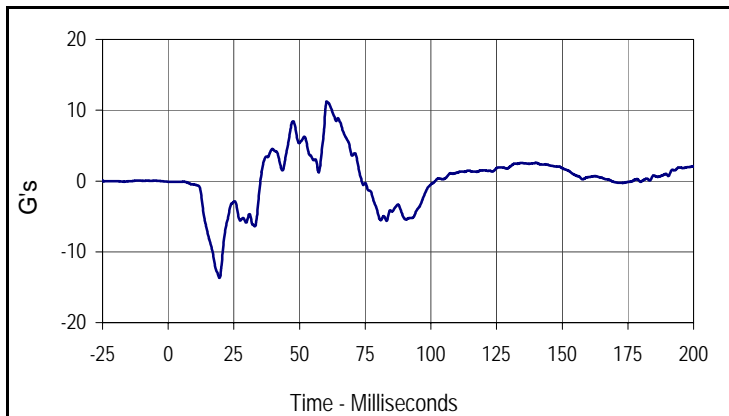
NHTSA No.: MC5119
 Test Date: 2/22/12



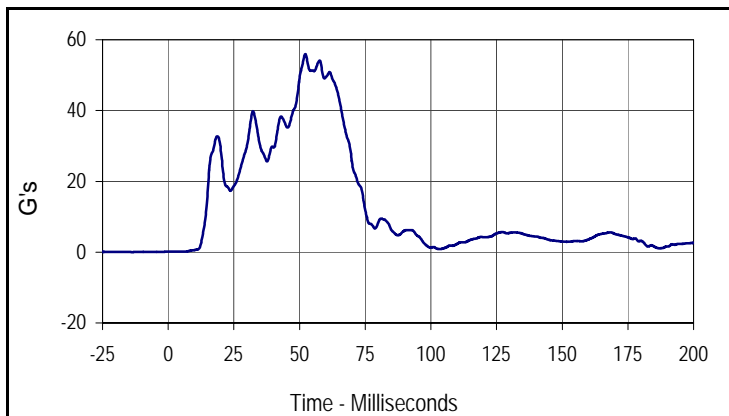
Curve Description			
Passenger Chest Acceleration X Primary			
Plot No.	Type	SAE Class	Units
020	FIL	180	G's
Max	Time	Min	Time
5.6	168.2	-55.0	52.2



Curve Description			
Passenger Chest Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
021	FIL	180	G's
Max	Time	Min	Time
12.4	57.3	-8.5	52.4



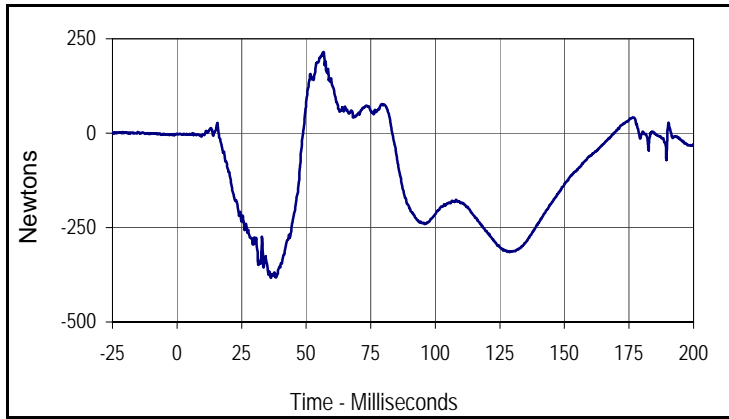
Curve Description			
Passenger Chest Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
022	FIL	180	G's
Max	Time	Min	Time
11.2	60.3	-13.7	19.5



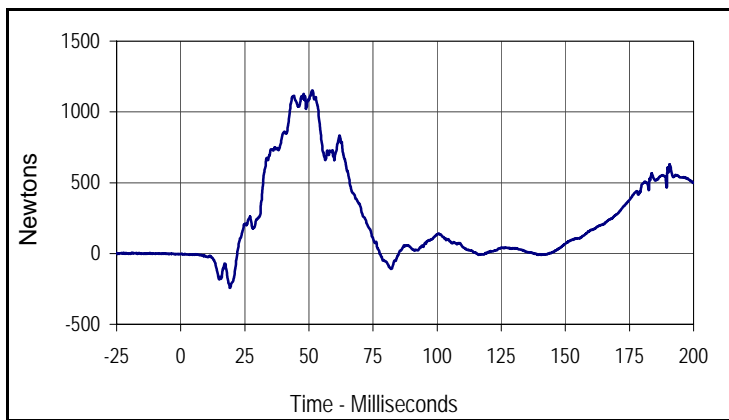
Curve Description			
Passenger Chest Resultant Acceleration Primary			
Plot No.	Type	SAE Class	Units
023	RES	180	G's
Max	Time	Min	Time
55.9	52.2	0.1	6.2

Test Vehicle: 2012 Scion iQ 3-Door Hatchback
 Test Program: 56 km/h Frontal Impact NCAP Test

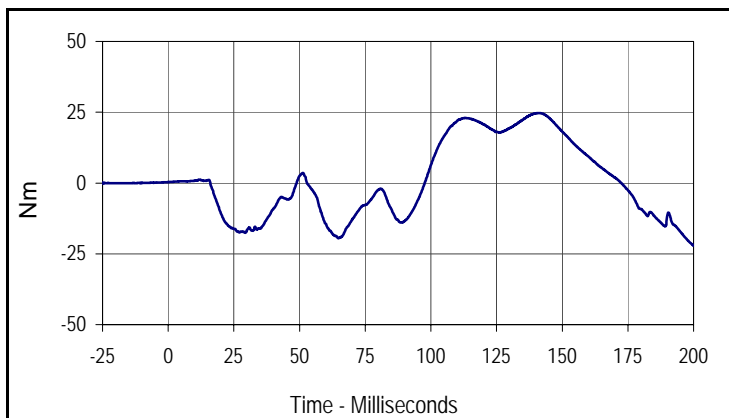
NHTSA No.: MC5119
 Test Date: 2/22/12



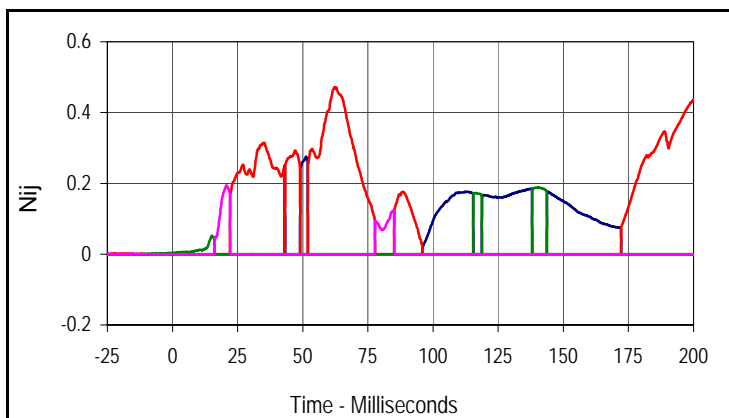
Curve Description			
Passenger Upper Neck Force X			
Plot No.	Type	SAE Class	Units
024	FIL	1000	Newtons
Max	Time	Min	Time
215.5	56.8	-383.2	36.3



Curve Description			
Passenger Upper Neck Force Z			
Plot No.	Type	SAE Class	Units
025	FIL	1000	Newtons
Max	Time	Min	Time
1151.0	51.4	-243.2	19.2



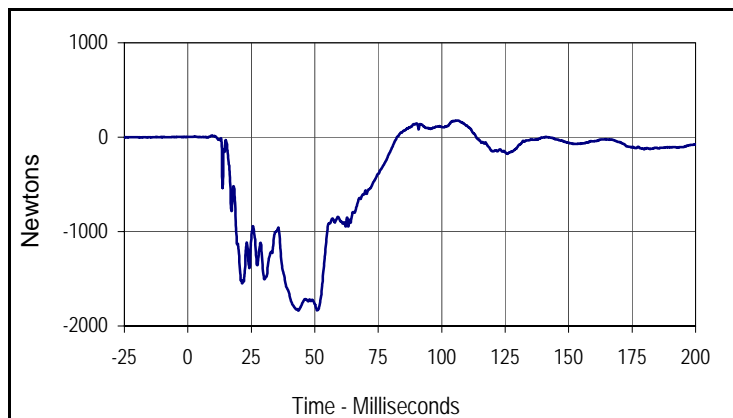
Curve Description			
Passenger Upper Neck Moment Y			
Plot No.	Type	SAE Class	Units
026	FIL	600	Nm
Max	Time	Min	Time
24.7	140.9	-22.1	200.0



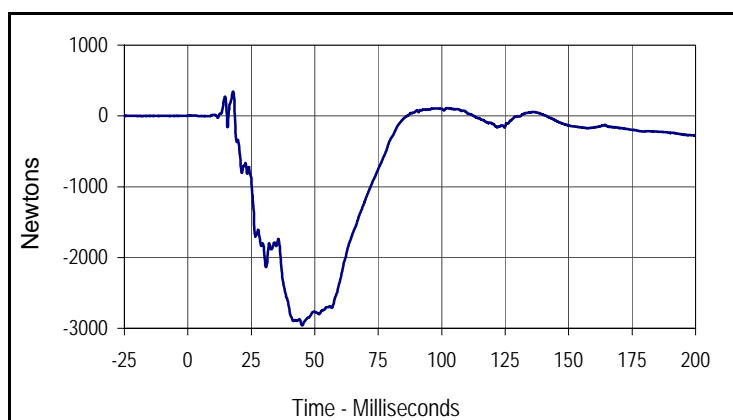
Curve Description			
Passenger Nij			
Units	Type	Max	Time
Ntf	FIL	0.28	51.3
Units	Type	Max	Time
Nte	FIL	0.51	220.0
Units	Type	Max	Time
Ncf	FIL	0.19	140.7
Units	Type	Max	Time
Nce	FIL	0.19	20.8

Test Vehicle: 2012 Scion iQ 3-Door Hatchback
 Test Program: 56 km/h Frontal Impact NCAP Test

NHTSA No.: MC5119
 Test Date: 2/22/12



Curve Description			
Passenger Left Femur Force Z			
Plot No.	Type	SAE Class	Units
027	FIL	600	Newtons
Max	Time	Min	Time
176.7	106.1	-1837.1	43.5



Curve Description			
Passenger Right Femur Force Z			
Plot No.	Type	SAE Class	Units
028	FIL	600	Newtons
Max	Time	Min	Time
345.2	17.9	-2958.1	45.1

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: 2/20/12

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:

Test Program: Hybrid III 50th Percentile Male External Measurements

Test Date: 2/20/12

ATD Serial No.: 034

Test I.D.: N/A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.22	Pass
Laboratory Relative Humidity	%	10 to 70	30.1	Pass
A - Total sitting height	mm	879 to 889	884	Pass
B - Shoulder pivot height	mm	505 to 521	514	Pass
C - H point height	mm	84 to 89	87	Pass
D - H point location from backline	mm	135 to 140	138	Pass
E - Shoulder pivot from backline	mm	84 to 94	87	Pass
F - Thigh clearance	mm	140 to 155	148	Pass
G - Back of elbow to wrist pivot	mm	290 to 305	298	Pass
H - Head back to backline	mm	41 to 46	44	Pass
I - Shoulder to elbow length	mm	330 to 345	335	Pass
J - Elbow rest height	mm	190 to 211	203	Pass
K - Buttock to knee length	mm	579 to 604	586	Pass
L - Popliteal length	mm	429 to 455	440	Pass
M - Knee pivot height	mm	485 to 500	489	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	432	Pass
W - Foot breadth	mm	91 to 107	99	Pass
Y - Chest circumference (with chest jacket)	mm	970 to 1001	985	Pass
Z - Waist circumference	mm	836 to 866	865	Pass
AA - Location for chest circumference	mm	429 to 434	431	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

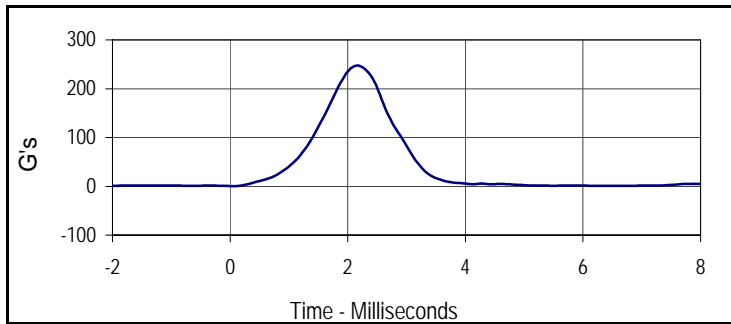
Test Date: 2/20/12

ATD Serial No.: 034

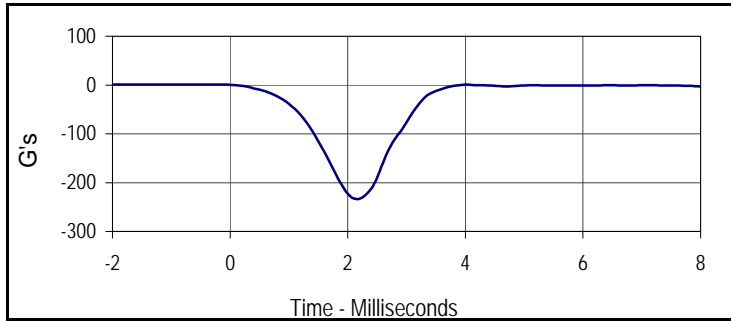
Test I.D.: M034HD030



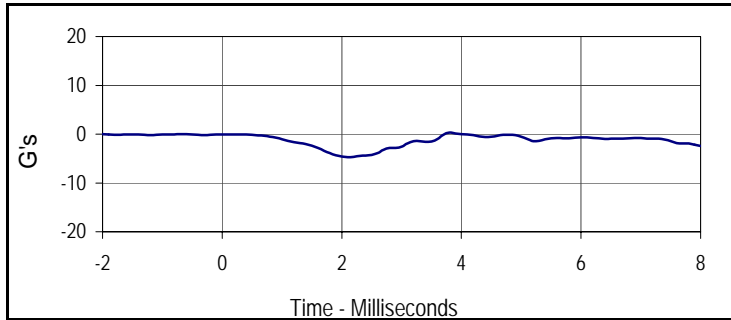
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	260	Pass
Temperature During Soak	Max	18.9 to 25.6	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.1	Pass
	Min		28.5	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	31.5	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	246.6	Pass
Peak Lateral Acceleration	G's	≤15.0	4.7	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



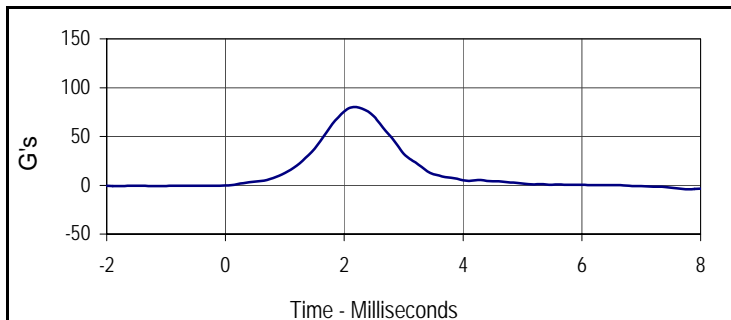
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
246.6	2.2	0.2	0.1



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
1.2	-0.3	-233.2	2.2



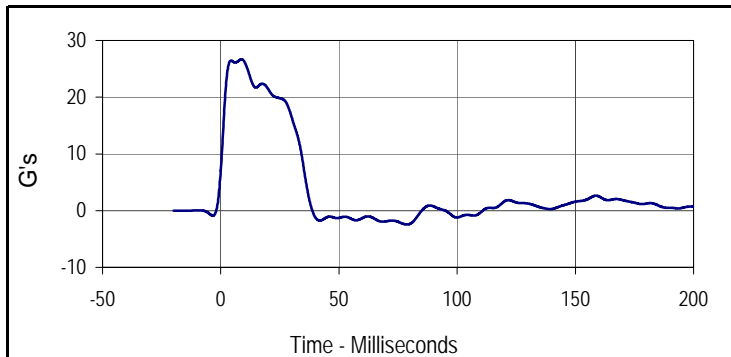
Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
0.3	3.8	-4.7	2.1



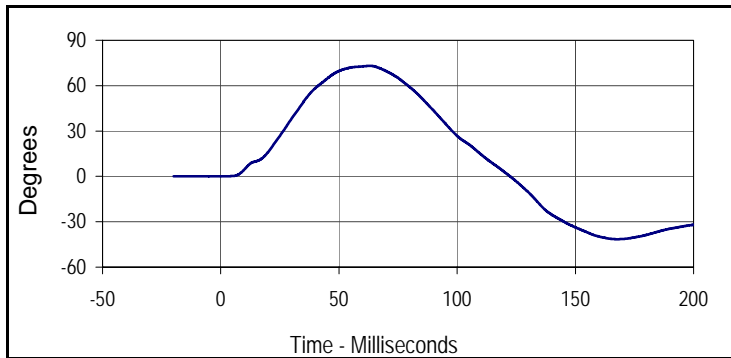
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
80.2	2.2	-0.8	-1.2



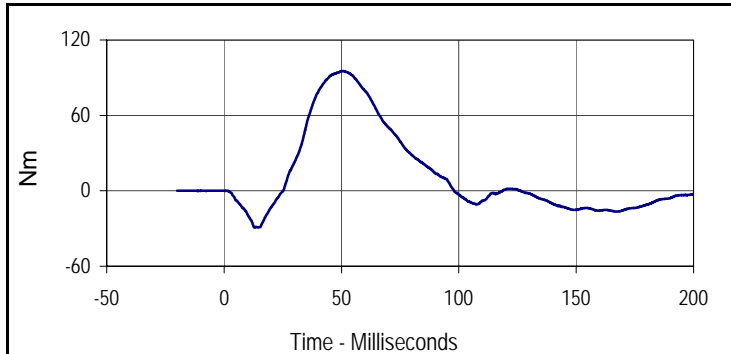
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	290	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass	
	Min		20.7	Pass	
Humidity During Soak	Max	10.0 to 70.0	33.1	Pass	
	Min		28.5	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	20.8	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	32.1	Pass	
Pendulum Velocity	m/s	6.89 to 7.13	6.99	Pass	
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	26.2	Pass
	20 Msec.	G's	17.6 to 22.6	21.5	Pass
	30 Msec.	G's	12.5 to 18.5	16.5	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 29.0	16.5	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	34.0 to 42.0	36.1	Pass	
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	73.1	Pass
	Time	Msec.	57.0 to 64.0	63.1	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	113.0 to 128.0	122.4	Pass	
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	95.3	Pass
	Time	Msec.	47.0 to 58.0	50.6	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	97.0 to 107.0	98.0	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
26.7	8.8	-2.5	78.8



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
73.1	63.1	-41.5	167.7



Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
95.3	50.6	-29.3	12.9

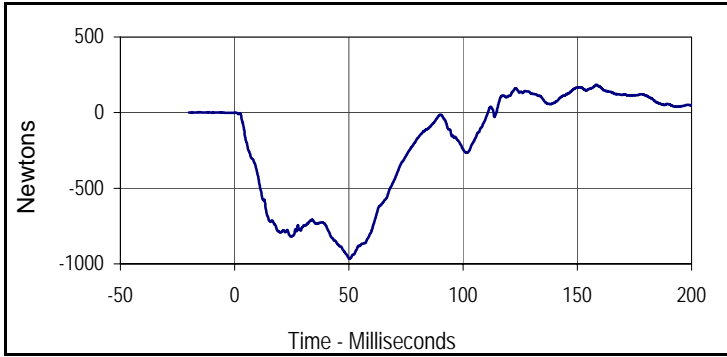
Test Program: Hybrid III 50th Percentile Male Neck Flexion Test

Test Date: 2/20/12

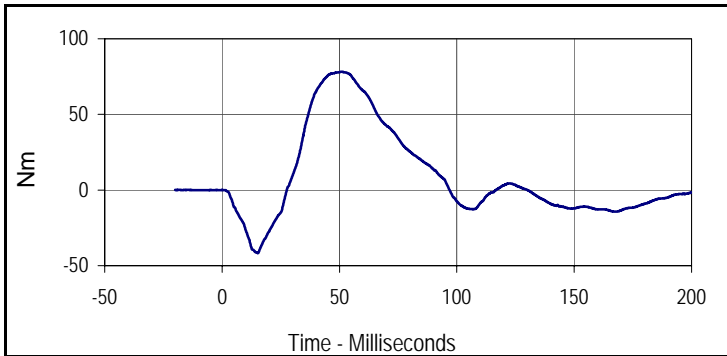


ATD Serial No.: 034

Test I.D.: M034NF030



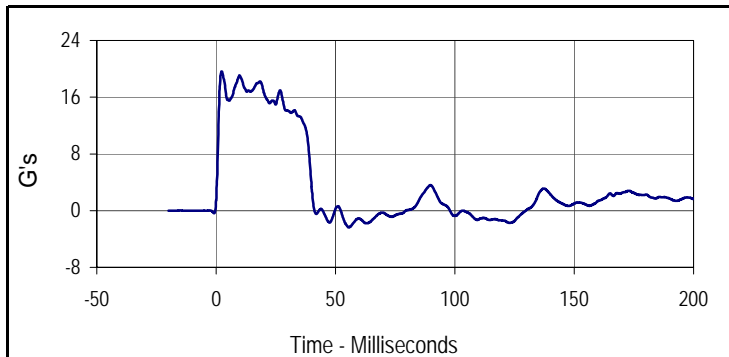
Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
185.0	158.3	-965.4	50.2



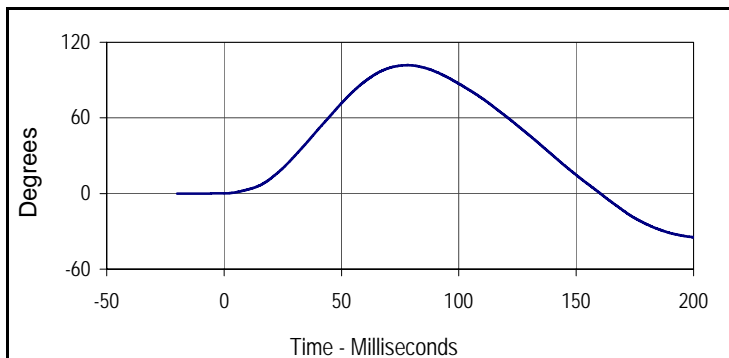
Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
78.2	51.3	-41.7	15.2



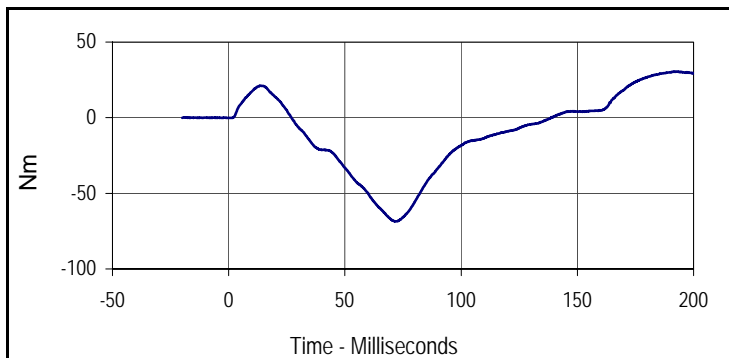
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	320	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass	
	Min		20.7	Pass	
Humidity During Soak	Max	10.0 to 70.0	33.1	Pass	
	Min		28.5	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	31.7	Pass	
Pendulum Velocity	m/s	5.94 to 6.19	6.03	Pass	
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	19.0	Pass
	20 Msec.	G's	14.0 to 19.0	16.7	Pass
	30 Msec.	G's	11.0 to 16.0	14.1	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 22.0	14.1	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	38.0 to 46.0	39.7	Pass	
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	101.9	Pass
	Time	Msec.	72.0 to 82.0	78.2	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	147.0 to 174.0	160.3	Pass	
Moment About Occ. Condyle	Max	Nm	-52.9 to -79.9	-68.6	Pass
	Time	Msec.	65.0 to 79.0	71.6	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	120.0 to 148.0	138.8	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
19.6	2.3	-2.4	55.6



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
101.9	78.2	-34.6	200.0



Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
30.5	192.9	-68.6	71.6

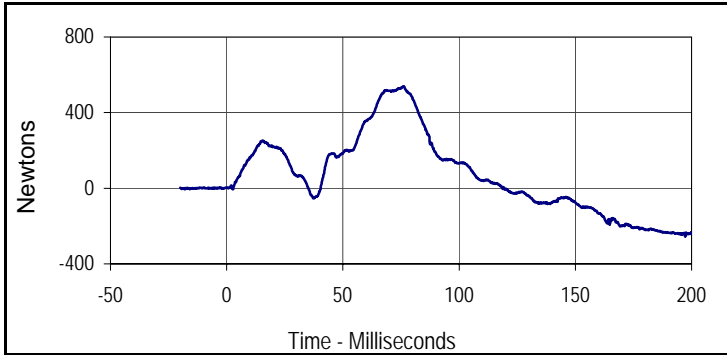
Test Program: Hybrid III 50th Percentile Male Neck Extension Test

Test Date: 2/20/12

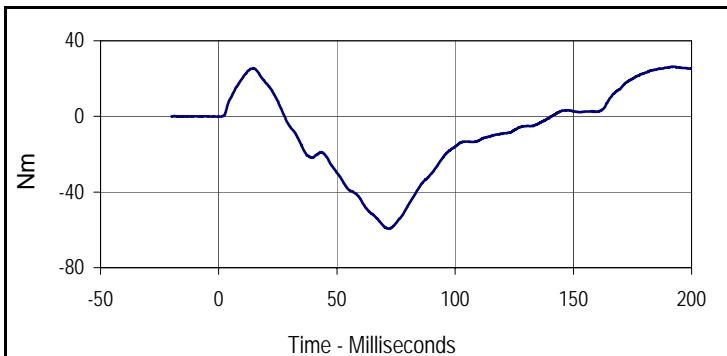


ATD Serial No.: 034

Test I.D.: M034NE030



Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
539.4	76.0	-254.3	197.2



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
26.3	192.9	-59.4	71.7

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

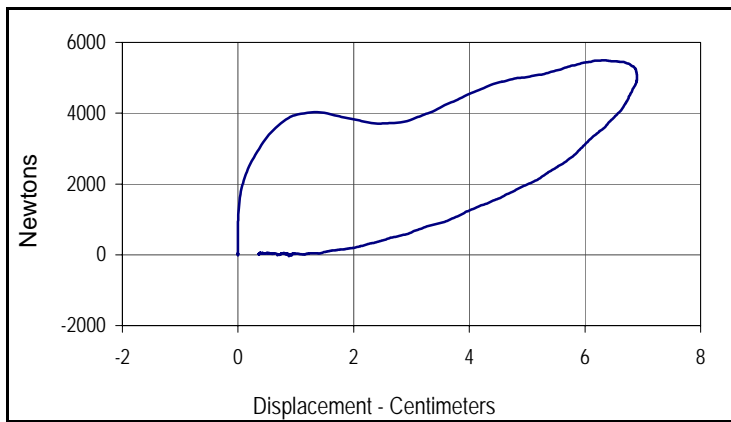
Test Date: 2/20/12

ATD Serial No.: 034

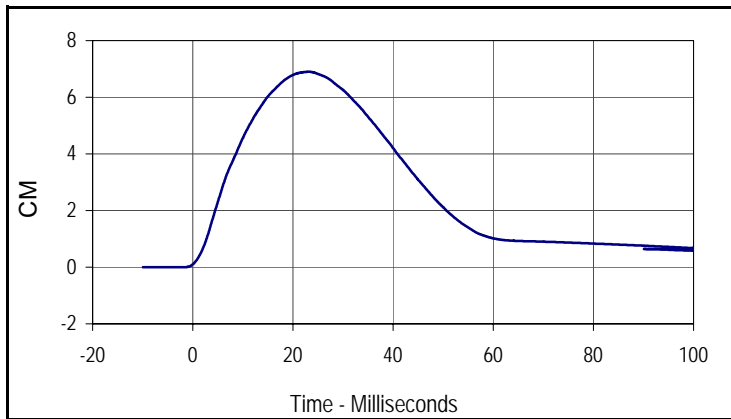
Test I.D.: M034CH030



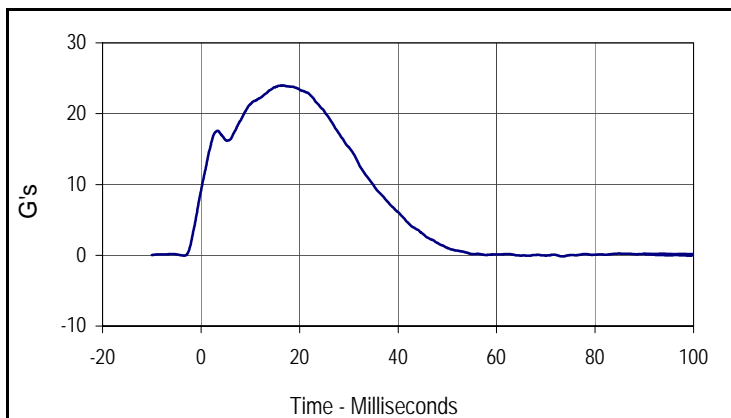
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	375	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.1	Pass
	Min		28.5	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.5	Pass
Probe Velocity	m/s	6.58 to 6.82	6.77	Pass
Peak Probe Force	Newtons	5159 to 5893	5495	Pass
Peak Sternum Deflection	CM	6.35 to 7.26	6.90	Pass
Internal Hysteresis	%	69 to 85	69.9	Pass
Overall Test Results				Pass



Curve Description			
Probe Force vs. Chest Deflection			
Plot No.	Type	SAE Class	Hysteresis
001	FIL	180	69.9
Peak Probe Force		Peak Chest Deflection	
5495		6.90	



Curve Description			
Chest Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	180	CM
Max	Time	Min	Time
6.9	23.2	0.0	-1.8



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
24.0	16.7	-0.2	73.3

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

Test Date: 2/20/12

ATD Serial No.: 034

Test I.D.: M034LK030, M034RK030

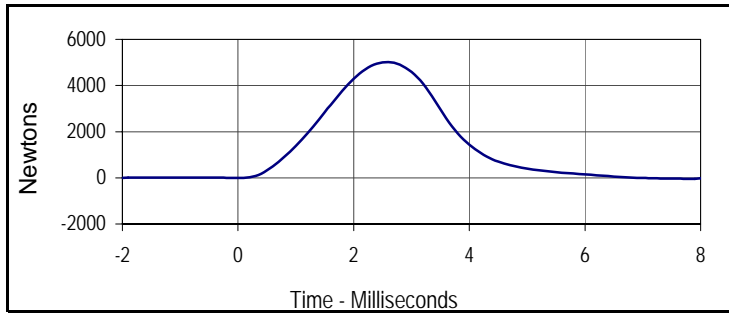


Left Knee

Tested Parameter	Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time	Minutes	≥240	400	Pass
Temperature During Soak	Max	18.9 to 25.6	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.1	Pass
	Min		28.5	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	32.1	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	Newtons	4715 to 5782	5018	Pass
Overall Test Results				Pass

Right Knee

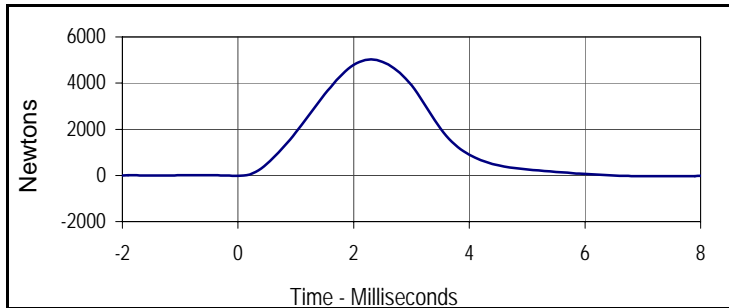
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.11	Pass
Peak Probe Force	Newtons	4715 to 5782	5023	Pass
Overall Test Results				Pass



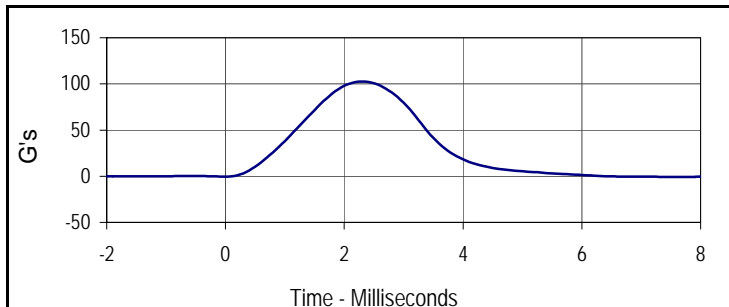
Curve Description			
Left Knee Probe Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
5017.7	2.6	-39.0	7.8



Curve Description			
Left Knee Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	600	G's
Max	Time	Min	Time
102.6	2.6	-0.8	7.8



Curve Description			
Right Knee Probe Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
5023.0	2.3	-33.9	7.6



Curve Description			
Right Knee Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	600	G's
Max	Time	Min	Time
102.7	2.3	-0.7	7.6

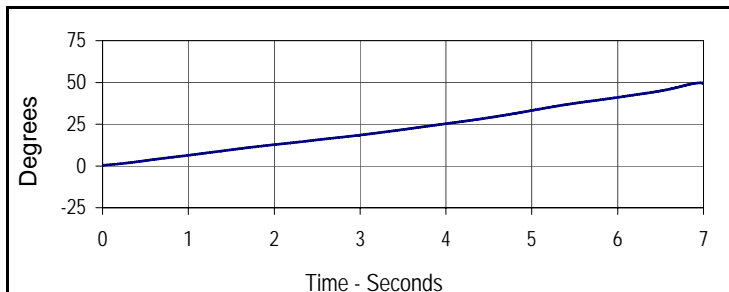


Left Hip Joint-Femur Results

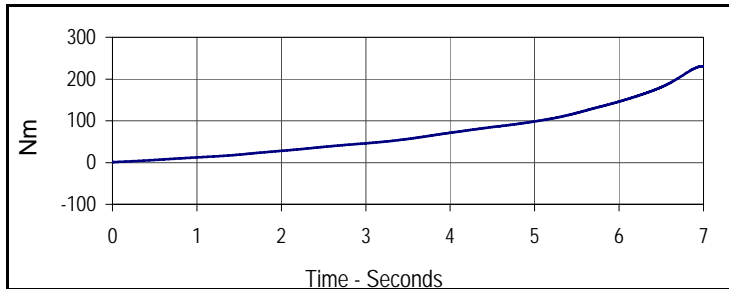
Tested Parameter	Units	Specification	Result	Pass/Fail
Hip Joint-Femur Assembly Soak Time	Minutes	≥240	450	Pass
Temperature During Soak	Max	18.9 to 25.6	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.1	Pass
	Min		28.5	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	32.3	Pass
Rotation Rate	deg/sec	5 to 10	7.1	Pass
Femur Torque at 30°	Nm	≤ 95	88.4	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	47.2	Pass
Overall Test Results				Pass

Right Hip Joint-Femur Results

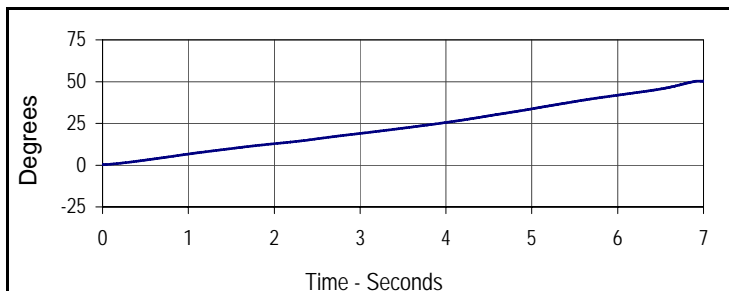
Rotation Rate	deg/sec	5 to 10	7.2	Pass
Femur Torque at 30°	Nm	≤ 95	88.0	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	47.4	Pass
Overall Test Results				Pass



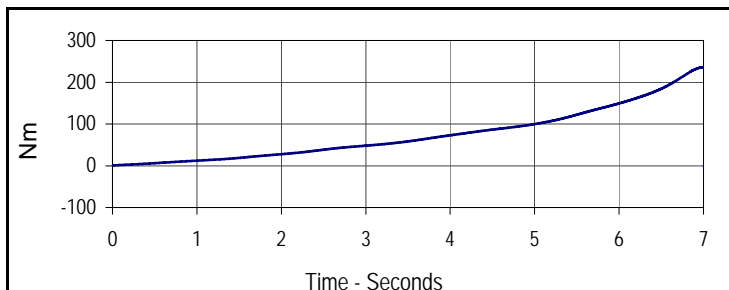
Curve Description			
Left Hip-Femur Rotation			
Plot No.	Type	SAE Class	Units
001	FIL	60	Degrees
Max	Time	Min	Time
49.7	7.0	0.4	0.0



Curve Description			
Left Femur Torque			
Plot No.	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
230.6	7.0	1.0	0.0



Curve Description			
Right Hip-Femur Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
50.4	7.0	0.2	0.0



Curve Description			
Right Femur Torque			
Plot No.	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
235.5	7.0	1.0	0.0

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

Test Date: 2/20/12

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:

Test Program: Hybrid III 5th Percentile Female External Measurements

Test Date: 2/20/12

ATD Serial No.: 141

Test I.D.: N/A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.56	Pass
Laboratory Relative Humidity	%	10 to 70	33.0	Pass
A - Total sitting height	mm	774.7 to 800.1	783	Pass
B - Shoulder pivot height	mm	431.8 to 457.2	450	Pass
C - H point height	mm	81.3 to 86.3	84	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	79	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	195	Pass
K - Buttock to knee length	mm	520.7 to 546.1	529	Pass
L - Popliteal length	mm	355.6 to 376.0	372	Pass
M - Knee pivot height	mm	393.7 to 419.1	399	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	475	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	860	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

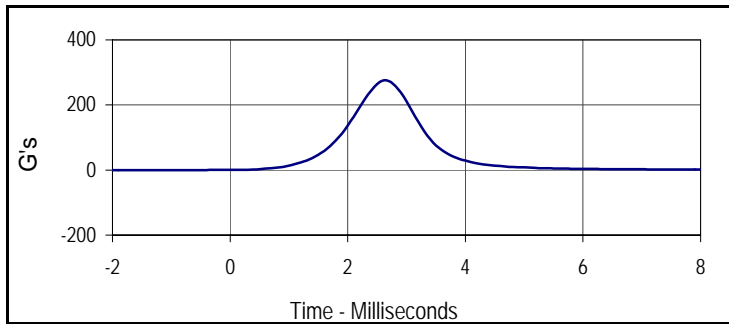
Test Date: 2/20/12

ATD Serial No.: 141

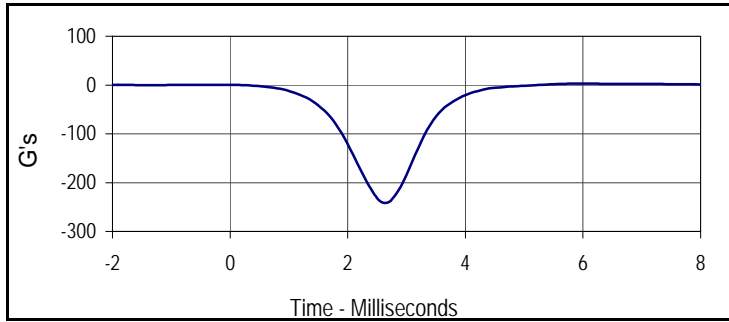
Test I.D.: F141HD035



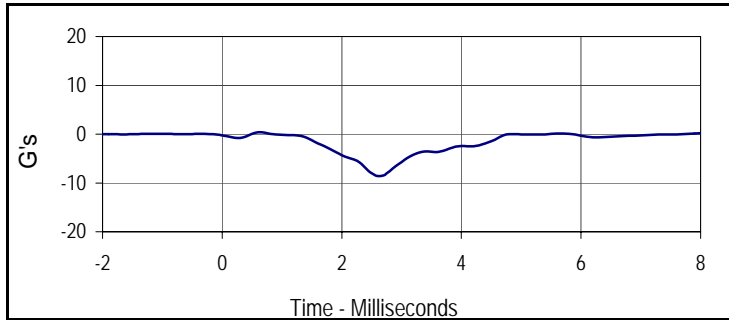
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	260	Pass
Temperature During Soak	Max	18.9 to 25.6	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.1	Pass
	Min		28.5	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.0	Pass
Peak Resultant Acceleration	G's	250.0 to 300.0	275.1	Pass
Peak Lateral Acceleration	G's	≤15.0	8.6	Pass
Oscillations After Main Pulse	%	<10% of peak Res. Acceleration	1.4	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



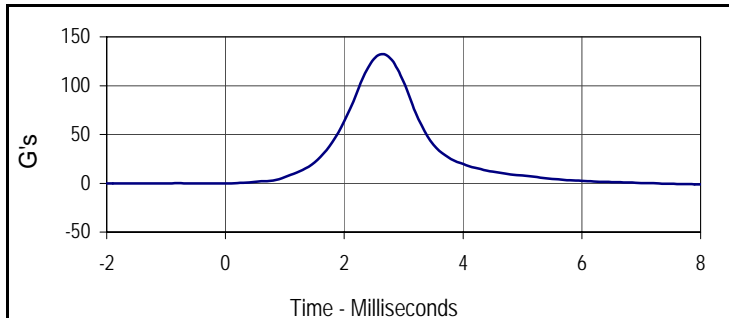
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
275.1	2.6	0.0	-2.0



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
2.9	6.0	-241.2	2.6



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
0.4	0.6	-8.6	2.6



Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
131.9	2.6	-0.1	-0.1

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

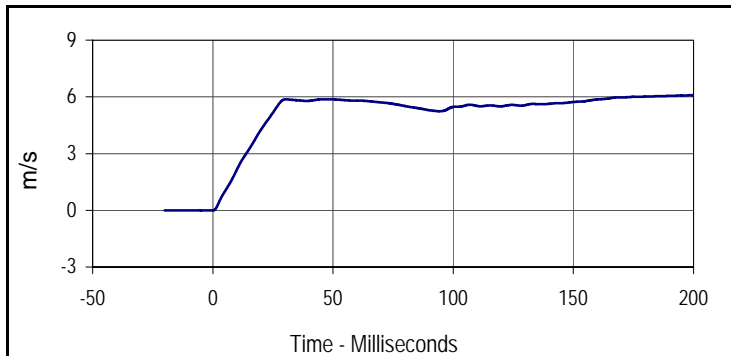
Test Date: 2/20/12

ATD Serial No.: 141

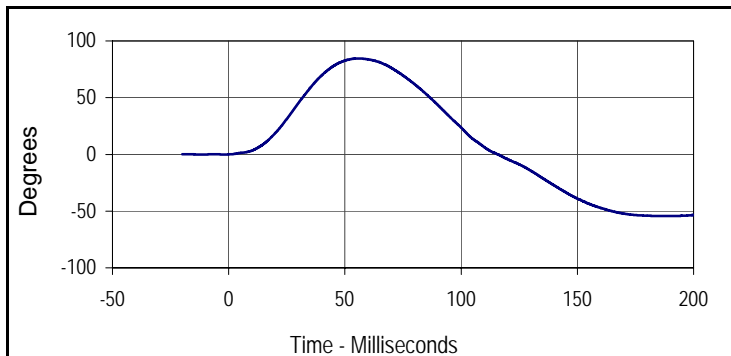
Test I.D.: F141NF035



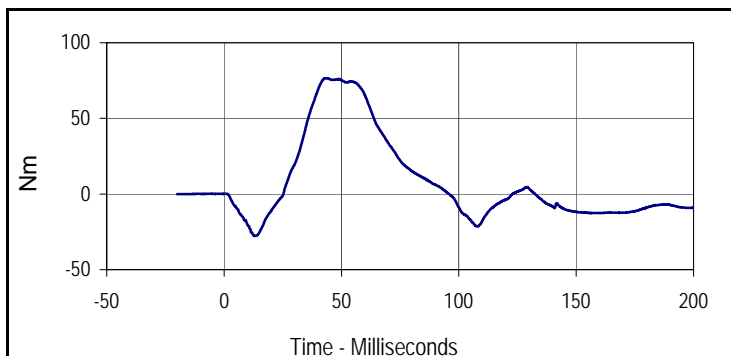
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	285	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass	
	Min		20.7	Pass	
Humidity During Soak	Max	10.0 to 70.0	33.1	Pass	
	Min		28.5	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	31.2	Pass	
Pendulum Velocity	m/s	6.89 to 7.13	7.00	Pass	
Pendulum Deceleration	10 Msec.	m/s	2.1 to 2.5	2.1	Pass
	20 Msec.	m/s	4.0 to 5.0	4.3	Pass
	30 Msec.	m/s	5.8 to 7.0	5.9	Pass
"D" Plane Rotation	Max	Degrees	77.0 to 91.0	84.6	Pass
Peak Moment in Rotation	Max	Nm	69.0 to 83.0	76.3	Pass
Positive Moment Decay, Time To 10 Nm	Msec.	80.0 to 100.0	84.3	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
6.1	200.0	0.0	-0.2



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
84.6	55.7	-54.4	186.7



Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
76.5	43.9	-27.7	12.9

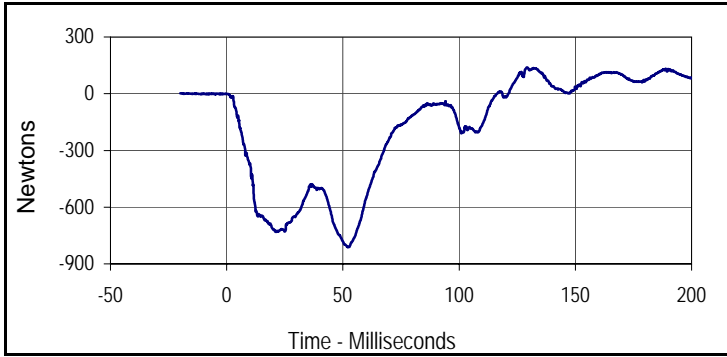
Test Program: Hybrid III 5th Percentile Female Neck Flexion Test

Test Date: 2/20/12

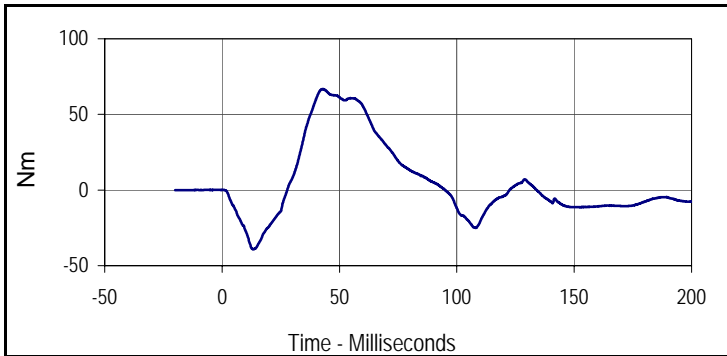


ATD Serial No.: 141

Test I.D.: F141NF035



Curve Description			
Upper Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
139.4	129.2	-811.5	52.3



Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
66.8	42.9	-39.2	13.4

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

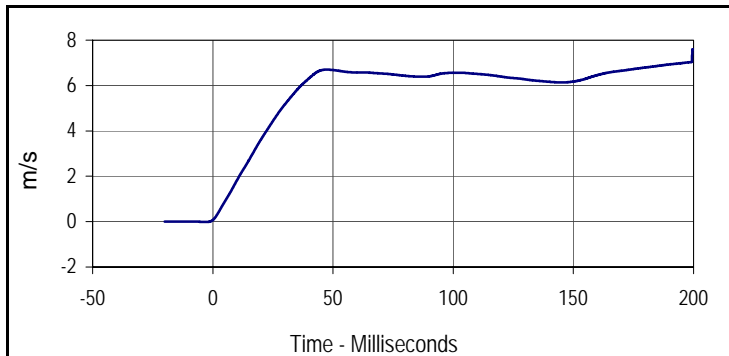
Test Date: 2/20/12

ATD Serial No.: 141

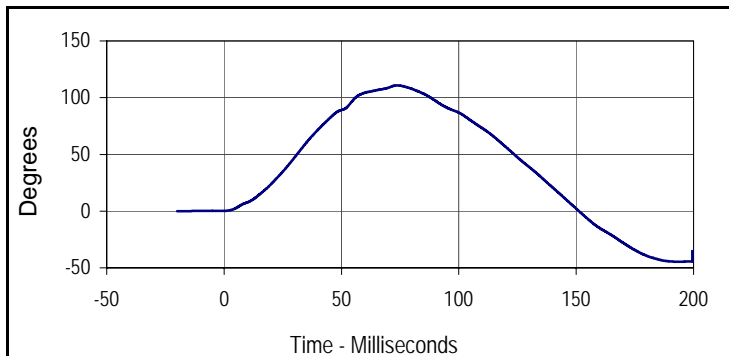
Test I.D.: F141NE035



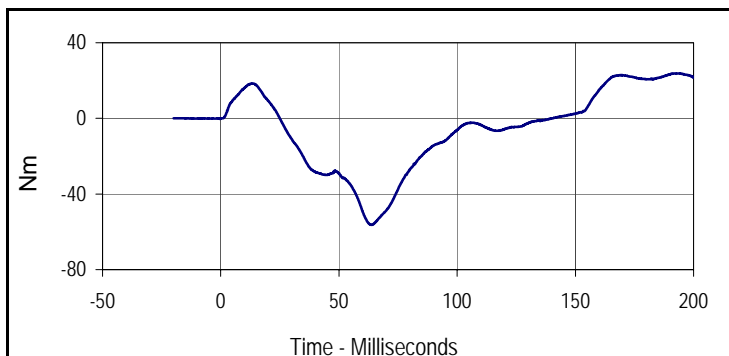
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	325	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass	
	Min		20.7	Pass	
Humidity During Soak	Max	10.0 to 70.0	33.1	Pass	
	Min		28.5	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.0	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	28.7	Pass	
Pendulum Velocity	m/s	5.95 to 6.19	6.07	Pass	
Pendulum Deceleration	10 Msec.	m/s	1.5 to 1.9	1.8	Pass
	20 Msec.	m/s	3.1 to 3.9	3.6	Pass
	30 Msec.	m/s	4.6 to 5.6	5.2	Pass
"D" Plane Rotation	Max	Degrees	99.0 to 114.0	110.8	Pass
Peak Moment in Rotation	Max	Nm	-53.0 to -65.0	-56.3	Pass
Positive Moment Decay, Time To -10 Nm	Msec.	94.0 to 114.0	96.6	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
7.6	200.0	0.0	-2.7



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
110.8	73.8	-44.6	193.5



Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
23.8	193.0	-56.3	64.0

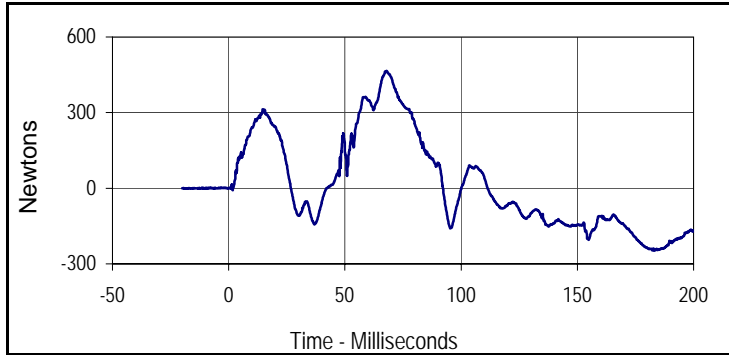
Test Program: Hybrid III 5th Percentile Female Neck Extension Test

Test Date: 2/20/12

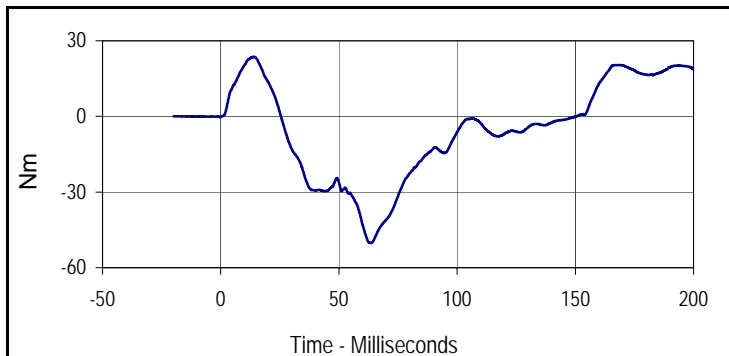


ATD Serial No.: 141

Test I.D.: F141NE035



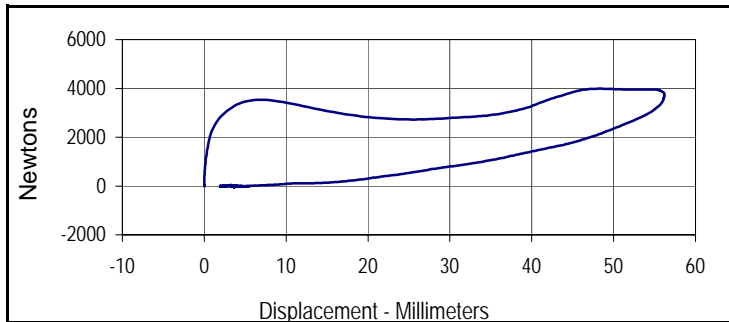
Curve Description			
Upper Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
464.9	67.9	-247.6	183.1



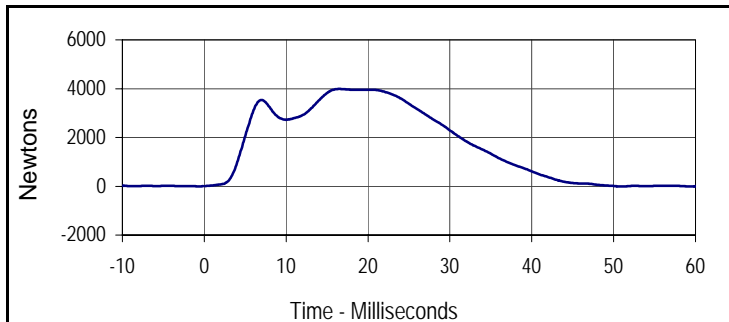
Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
23.6	13.9	-50.2	63.4



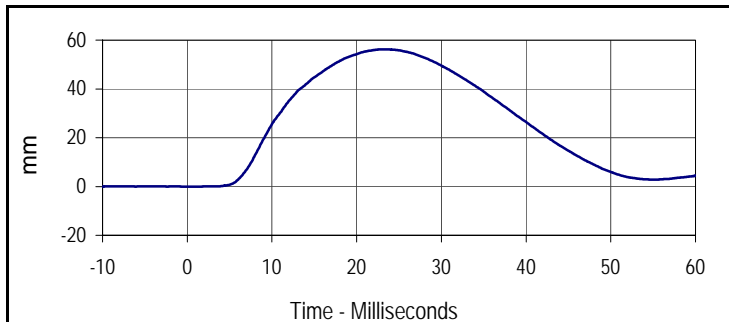
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	425	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.1	Pass
	Min		28.5	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.2	Pass
Probe Velocity	m/s	6.59 to 6.83	6.74	Pass
Peak Chest Deflection	mm	50.0 to 58.0	56.2	Pass
Peak Force Between 50 and 58 MM	Newtons	3900 to 4400	3989	Pass
Peak Force Between 18 and 50 MM	Newtons	≤4600	3973	Pass
Internal Hysteresis	%	69 to 85	70.3	Pass
Overall Test Results				Pass



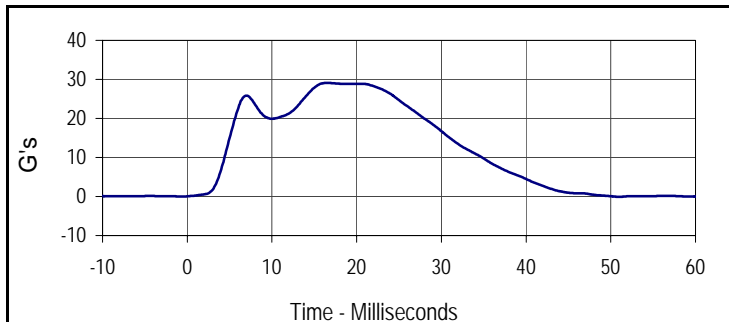
Curve Description			
Probe Force vs. Chest Deflection			
Plot No.	Type	SAE Class	Hysteresis
001	FIL	180	70.3
Peak Probe Force		Peak Chest Deflection	
3988.6		56.2	



Curve Description			
Probe Force			
Plot No.	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
3988.6	16.5	-45.3	92.2



Curve Description			
Chest Deflection			
Plot No.	Type	SAE Class	Units
003	FIL	600	mm
Max	Time	Min	Time
56.2	23.1	0.0	-0.4



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
29.1	16.5	-0.3	92.2

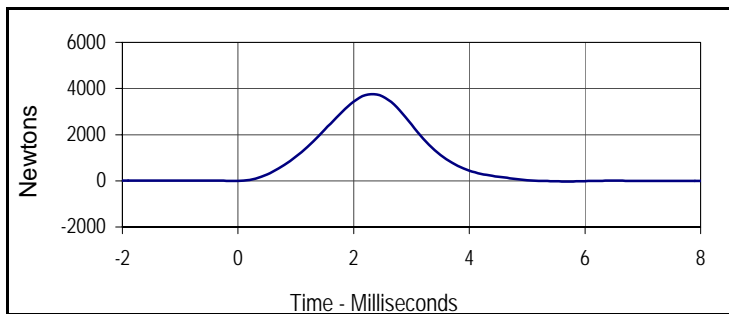


Left Knee

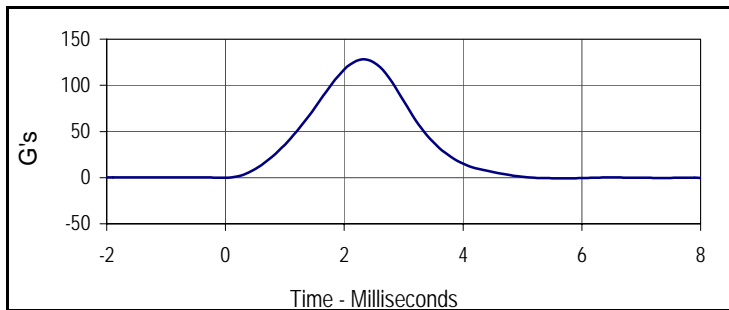
Tested Parameter	Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time	Minutes	≥240	460	Pass
Temperature During Soak	Max	18.9 to 25.6	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.1	Pass
	Min		28.5	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	32.9	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.11	Pass
Peak Probe Force	Newtons	3450 to 4060	3756	Pass
Overall Test Results				Pass

Right Knee

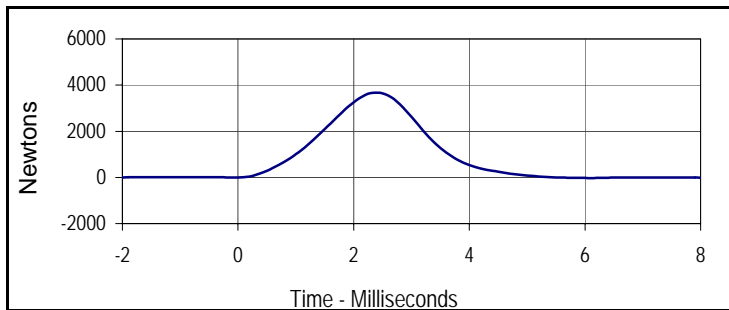
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	Newtons	3450 to 4060	3676	Pass
Overall Test Results				Pass



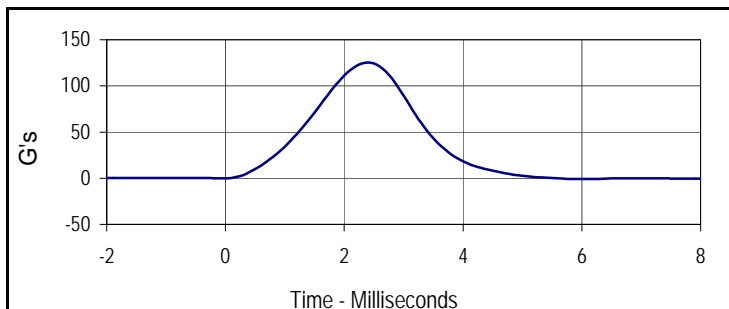
Curve Description			
Left Knee Probe Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3756.1	2.3	-27.9	5.7



Curve Description			
Left Knee Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	600	G's
Max	Time	Min	Time
128.1	2.3	-1.0	5.7



Curve Description			
Right Knee Probe Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
3676.5	2.4	-24.5	6.1



Curve Description			
Right Knee Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	600	G's
Max	Time	Min	Time
125.4	2.4	-0.8	6.1

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

Test Date: 2/20/12

ATD Serial No.: 141

Test I.D.: F141TF035



Left Hip Joint-Femur Results

Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥240	490	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.7	Pass
	Min	°C		20.7	Pass
Humidity During Soak	Max	%	10.0 to 70.0	33.1	Pass
	Min	%		28.5	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	29.1	Pass
Initial Reference Plane Angle		Degrees	≤ 20	7.4	Pass
Peak Force at 45° +/-0.5°		Newtons	320.0 to 390.0	347.1	Pass
Torso Rotation Rate		deg/sec	0.5 to 1.5	1.3	Pass
Final Reference Plane Angle		Degrees	+/-8	0.5	Pass
Overall Test Results					Pass

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

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

Test Date: 2/27/12

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:

Test Program: Hybrid III 50th Percentile Male External Measurements

Test Date: 2/27/12

ATD Serial No.: 034

Test I.D.: N/A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.39	Pass
Laboratory Relative Humidity	%	10 to 70	30.1	Pass
A - Total sitting height	mm	879 to 889	885	Pass
B - Shoulder pivot height	mm	505 to 521	514	Pass
C - H point height	mm	84 to 89	87	Pass
D - H point location from backline	mm	135 to 140	138	Pass
E - Shoulder pivot from backline	mm	84 to 94	87	Pass
F - Thigh clearance	mm	140 to 155	148	Pass
G - Back of elbow to wrist pivot	mm	290 to 305	298	Pass
H - Head back to backline	mm	41 to 46	44	Pass
I - Shoulder to elbow length	mm	330 to 345	336	Pass
J - Elbow rest height	mm	190 to 211	203	Pass
K - Buttock to knee length	mm	579 to 604	586	Pass
L - Popliteal length	mm	429 to 455	440	Pass
M - Knee pivot height	mm	485 to 500	490	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	432	Pass
W - Foot breadth	mm	91 to 107	99	Pass
Y - Chest circumference (with chest jacket)	mm	970 to 1001	985	Pass
Z - Waist circumference	mm	836 to 866	865	Pass
AA - Location for chest circumference	mm	429 to 434	431	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

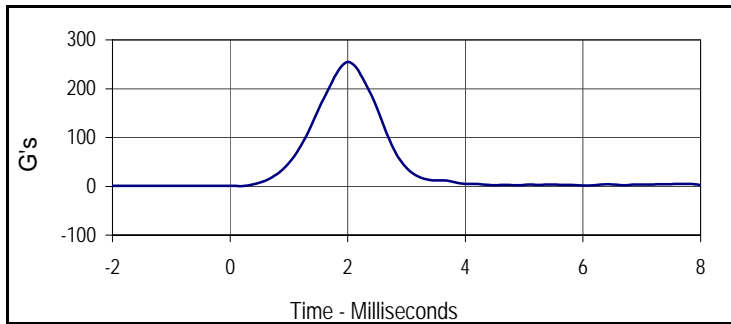
Test Date: 2/27/12

ATD Serial No.: 034

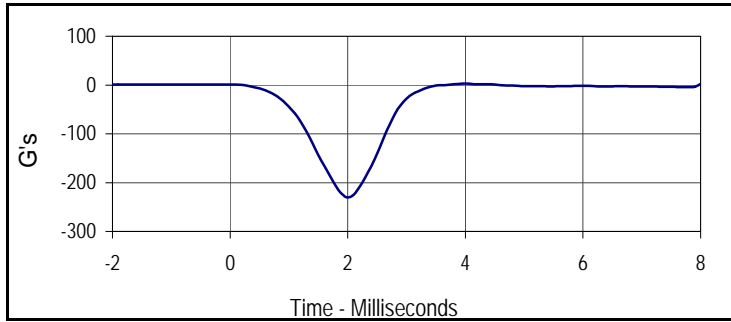
Test I.D.: M034HD031



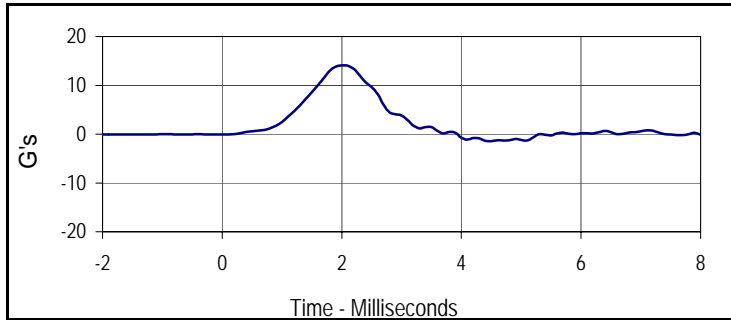
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	260	Pass
Temperature During Soak	Max	18.9 to 25.6	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass
	Min		29.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.6	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	32.1	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	254.6	Pass
Peak Lateral Acceleration	G's	≤15.0	14.1	Pass
Oscillations After Main Pulse	%	<10% of peak Res. Acceleration	2.0	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



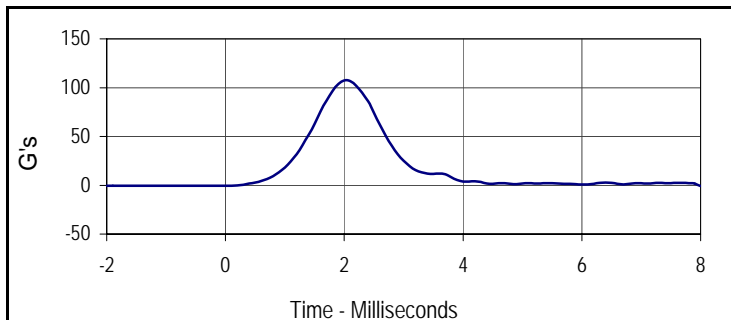
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
254.6	2.0	0.4	0.2



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
2.8	4.0	-230.4	2.0



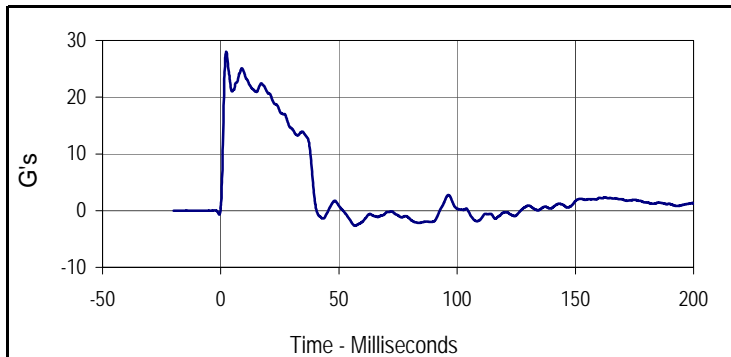
Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
14.1	2.0	-1.4	4.5



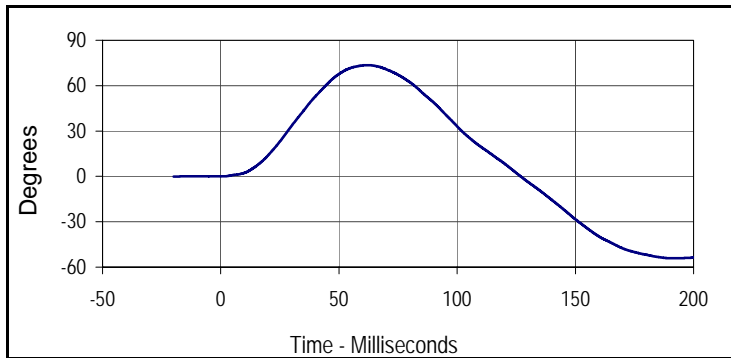
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
107.5	2.0	-0.5	0.1



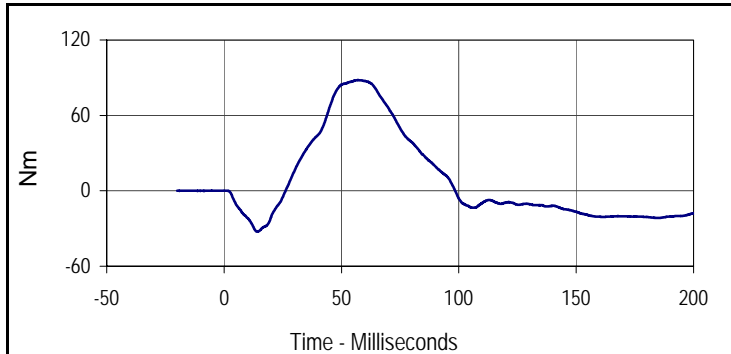
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	290	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass	
	Min		20.7	Pass	
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass	
	Min		29.0	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	20.8	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	31.4	Pass	
Pendulum Velocity	m/s	6.89 to 7.13	7.05	Pass	
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	24.2	Pass
	20 Msec.	G's	17.6 to 22.6	20.7	Pass
	30 Msec.	G's	12.5 to 18.5	14.5	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 29.0	14.5	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	34.0 to 42.0	39	Pass	
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	73.6	Pass
	Time	Msec.	57.0 to 64.0	62.0	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	113.0 to 128.0	126.9	Pass	
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	88.1	Pass
	Time	Msec.	47.0 to 58.0	57.0	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	97.0 to 107.0	98.5	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
28.0	2.3	-2.7	56.8



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
73.6	62.0	-54.2	191.2



Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
88.1	57.0	-32.4	14.0

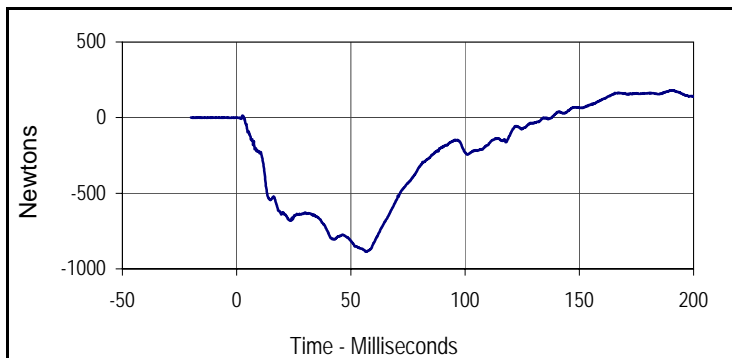
Test Program: Hybrid III 50th Percentile Male Neck Flexion Test

Test Date: 2/27/12

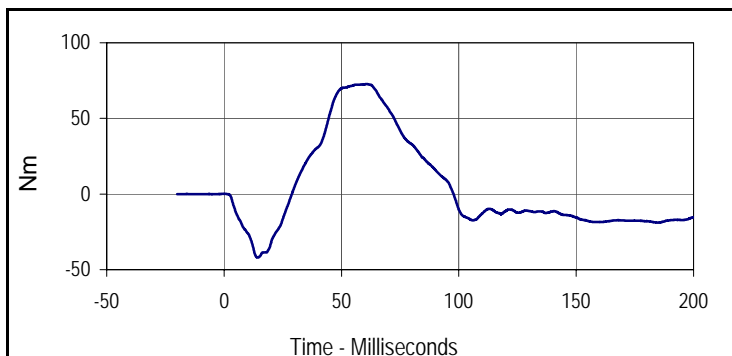


ATD Serial No.: 034

Test I.D.: M034NF031



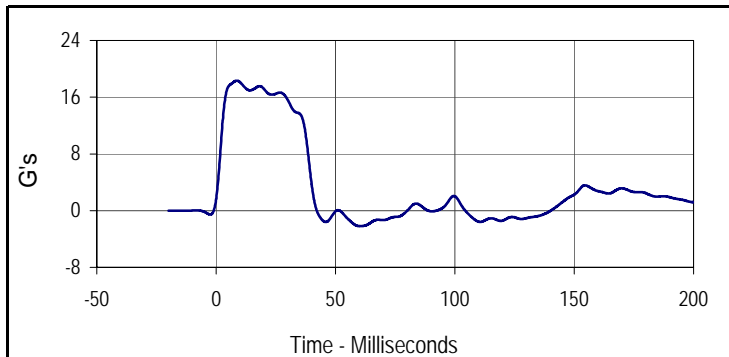
Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
181.5	191.1	-885.2	56.8



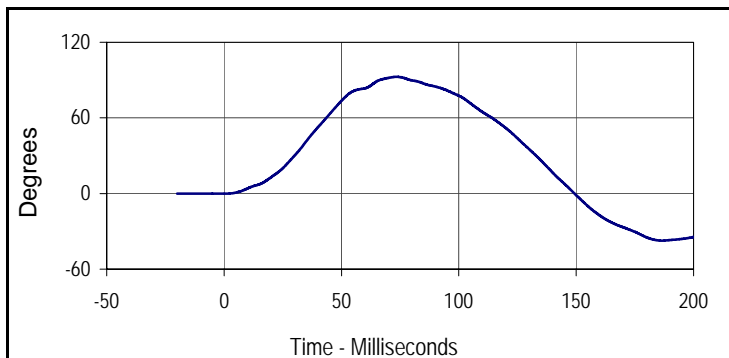
Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
72.7	60.6	-42.0	14.3



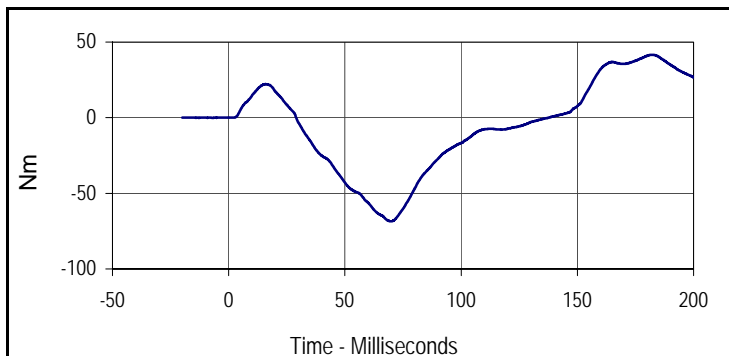
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	320	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass	
	Min		20.7	Pass	
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass	
	Min		29.0	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.4	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	30.1	Pass	
Pendulum Velocity	m/s	5.94 to 6.19	5.99	Pass	
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	18.1	Pass
	20 Msec.	G's	14.0 to 19.0	17.2	Pass
	30 Msec.	G's	11.0 to 16.0	15.6	Pass
Peak Pendulum Decel. after 30 Msec.	G's	≤ 22.0	15.6	Pass	
Deceleration Decay, Time to Cross 5 G's	Msec.	38.0 to 46.0	39.6	Pass	
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	92.6	Pass
	Time	Msec.	72.0 to 82.0	73.5	Pass
"D" Plane Rotation Decay, Time To Zero Crossing	Msec.	147.0 to 174.0	149.3	Pass	
Moment About Occ. Condyle	Max	Nm	-52.9 to -79.9	-68.5	Pass
	Time	Msec.	65.0 to 79.0	69.9	Pass
Positive Moment Decay, Time To Zero Crossing	Msec.	120.0 to 148.0	137.7	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
18.3	8.7	-2.2	60.2



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
92.6	73.5	-37.3	186.5



Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
41.6	181.7	-68.5	69.9

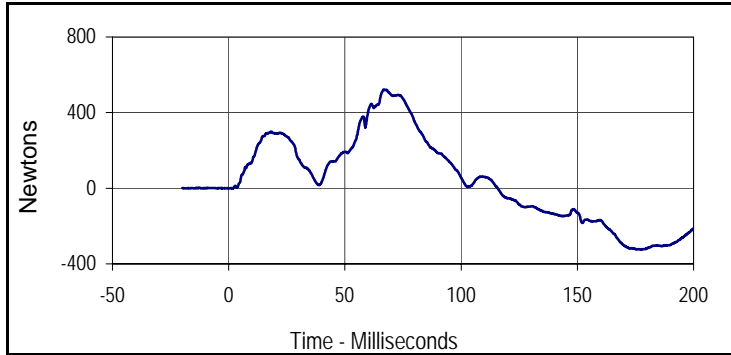
Test Program: Hybrid III 50th Percentile Male Neck Extension Test

Test Date: 2/27/12

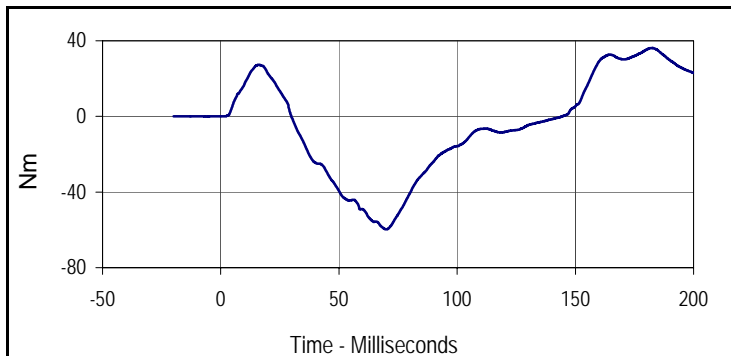


ATD Serial No.: 034

Test I.D.: M034NE031



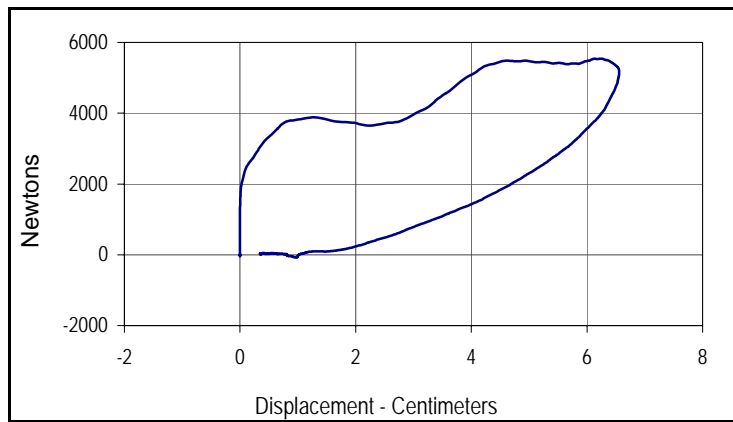
Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
522.8	66.7	-323.6	175.7



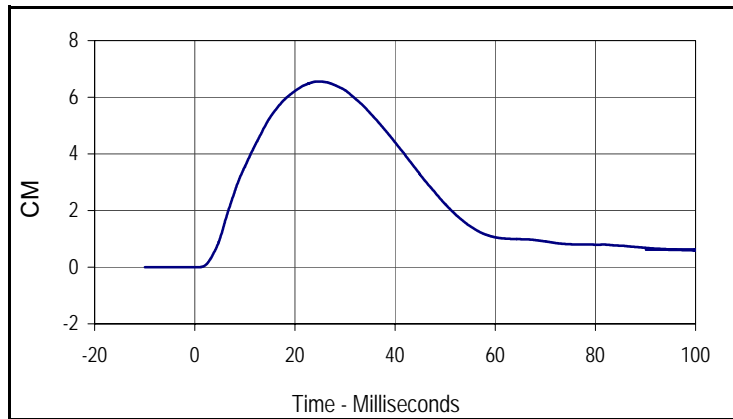
Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
36.2	182.6	-59.7	70.0



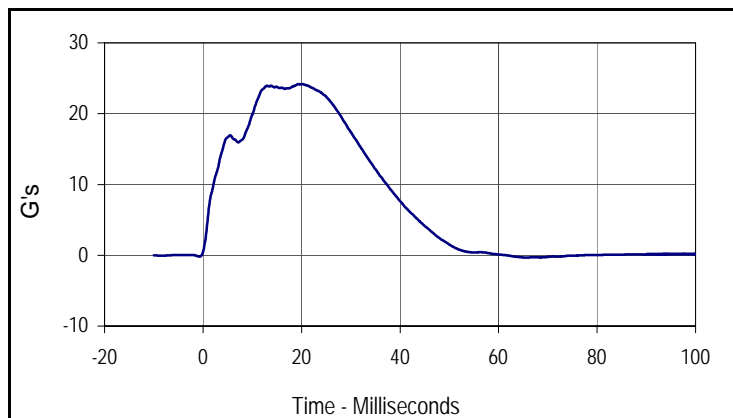
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	375	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass
	Min		29.0	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.1	Pass
Probe Velocity	m/s	6.58 to 6.82	6.64	Pass
Peak Probe Force	Newtons	5159 to 5893	5540	Pass
Peak Sternum Deflection	CM	6.35 to 7.26	6.56	Pass
Internal Hysteresis	%	69 to 85	70.0	Pass
Overall Test Results				Pass



Curve Description			
Probe Force vs. Chest Deflection			
Plot No.	Type	SAE Class	Hysteresis
001	FIL	180	70.0
Peak Probe Force		Peak Chest Deflection	
5540		6.56	



Curve Description			
Chest Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	180	CM
Max	Time	Min	Time
6.6	24.7	0.0	0.5



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
24.2	20.2	-0.3	65.6

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

Test Date: 2/27/12

ATD Serial No.: 034

Test I.D.: M034LK031, M034RK031

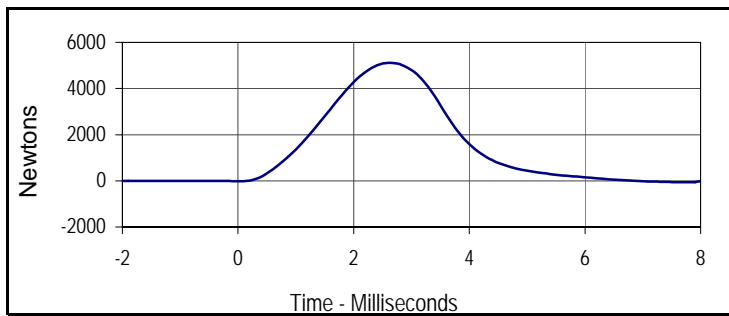


Left Knee

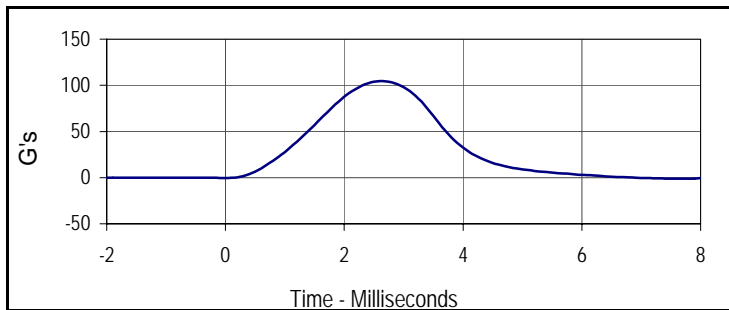
Tested Parameter	Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time	Minutes	≥240	400	Pass
Temperature During Soak	Max	18.9 to 25.6	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass
	Min		29.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.3	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	4715 to 5782	5114	Pass
Overall Test Results				Pass

Right Knee

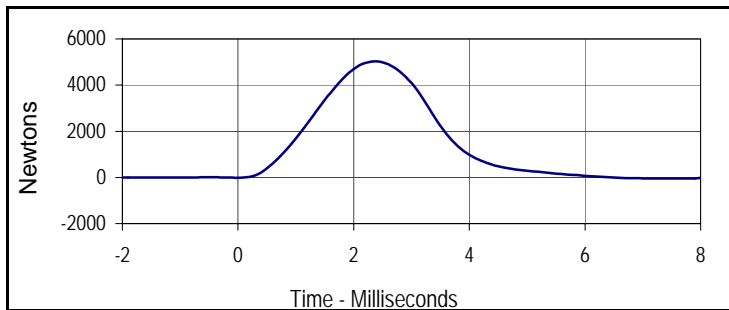
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	Newtons	4715 to 5782	5030	Pass
Overall Test Results				Pass



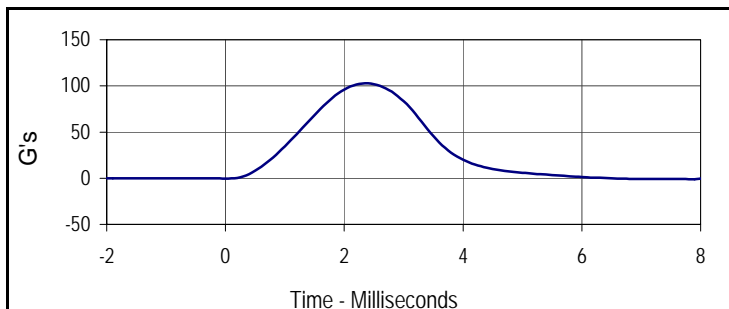
Curve Description			
Left Knee Probe Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
5114.5	2.6	-56.6	7.8



Curve Description			
Left Knee Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	600	G's
Max	Time	Min	Time
104.5	2.6	-1.2	7.8



Curve Description			
Right Knee Probe Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
5029.6	2.4	-49.3	7.9



Curve Description			
Right Knee Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	600	G's
Max	Time	Min	Time
102.8	2.4	-1.0	7.9

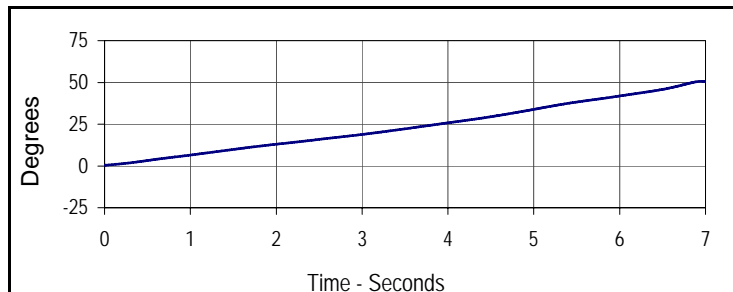


Left Hip Joint-Femur Results

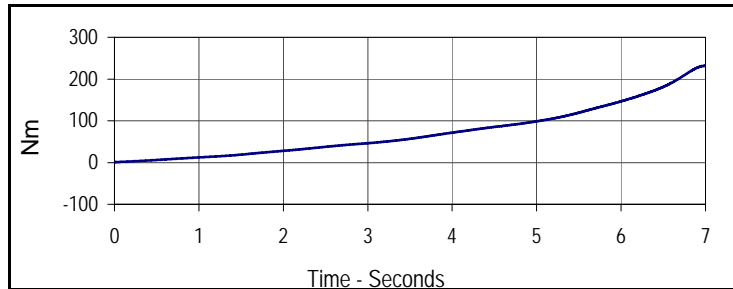
Tested Parameter	Units	Specification	Result	Pass/Fail
Hip Joint-Femur Assembly Soak Time	Minutes	≥240	450	Pass
Temperature During Soak	Max	18.9 to 25.6	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass
	Min		29.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.6	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.3	Pass
Rotation Rate	deg/sec	5 to 10	7.3	Pass
Femur Torque at 30°	Nm	≤ 95	87.0	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	48.1	Pass
Overall Test Results				Pass

Right Hip Joint-Femur Results

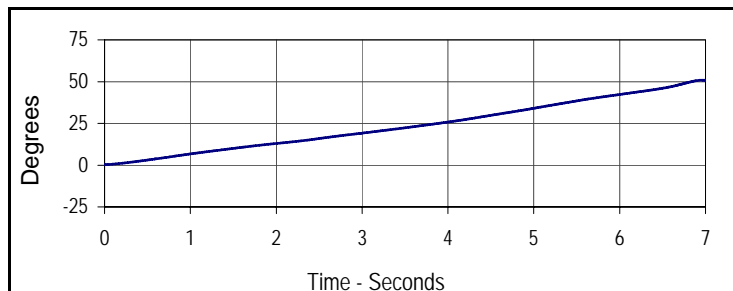
Rotation Rate	deg/sec	5 to 10	7.3	Pass
Femur Torque at 30°	Nm	≤ 95	86.5	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	48.0	Pass
Overall Test Results				Pass



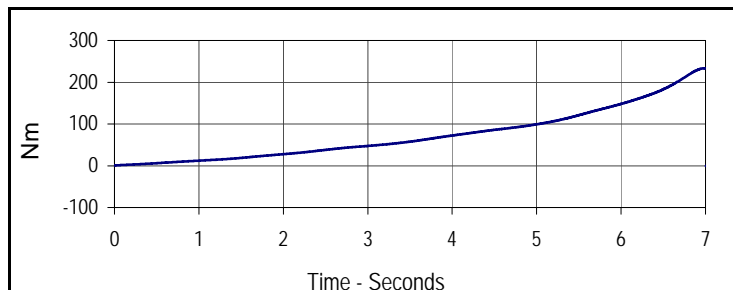
Curve Description			
Left Hip-Femur Rotation			
Plot No.	Type	SAE Class	Units
001	FIL	60	Degrees
Max	Time	Min	Time
50.7	7.0	0.4	0.0



Curve Description			
Left Femur Torque			
Plot No.	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
231.5	7.0	1.0	0.0



Curve Description			
Right Hip-Femur Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
50.9	7.0	0.2	0.0



Curve Description			
Right Femur Torque			
Plot No.	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
233.6	7.0	1.0	0.0

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

Test Date: 2/27/12

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:

Test Program: Hybrid III 5th Percentile Female External Measurements

Test Date: 2/27/12

ATD Serial No.: 141

Test I.D.: N/A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	20.94	Pass
Laboratory Relative Humidity	%	10 to 70	33.0	Pass
A - Total sitting height	mm	774.7 to 800.1	785	Pass
B - Shoulder pivot height	mm	431.8 to 457.2	451	Pass
C - H point height	mm	81.3 to 86.3	84	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	79	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	195	Pass
K - Buttock to knee length	mm	520.7 to 546.1	530	Pass
L - Popliteal length	mm	355.6 to 376.0	372	Pass
M - Knee pivot height	mm	393.7 to 419.1	399	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	475	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	861	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

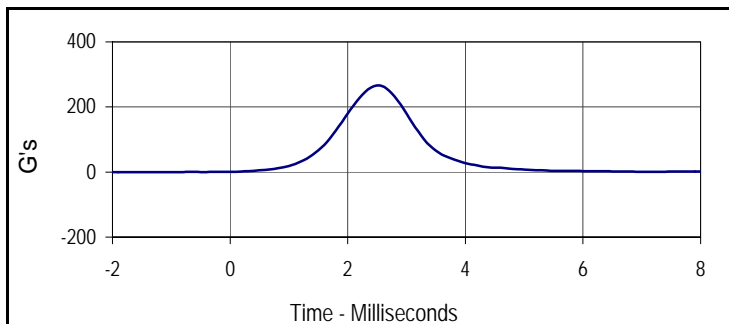
Test Date: 2/27/12

ATD Serial No.: 141

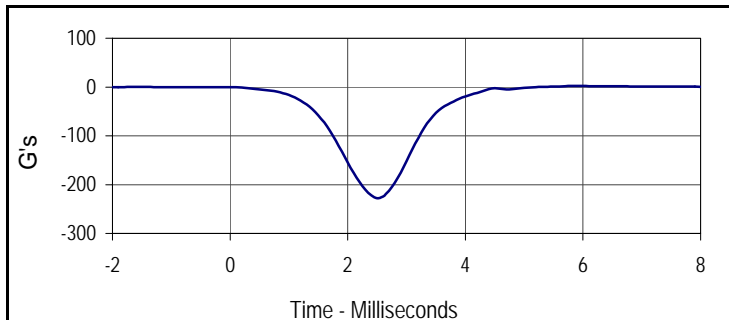
Test I.D.: F141HD036



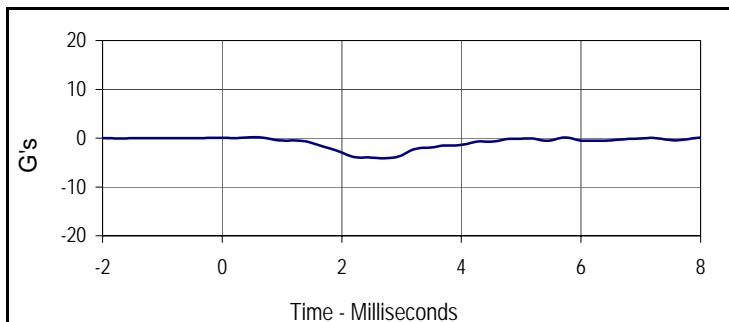
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	260	Pass
Temperature During Soak	Max	18.9 to 25.6	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass
	Min		29.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.0	Pass
Peak Resultant Acceleration	G's	250.0 to 300.0	266.3	Pass
Peak Lateral Acceleration	G's	≤15.0	4.1	Pass
Oscillations After Main Pulse	%	<10% of peak Res. Acceleration	1.1	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



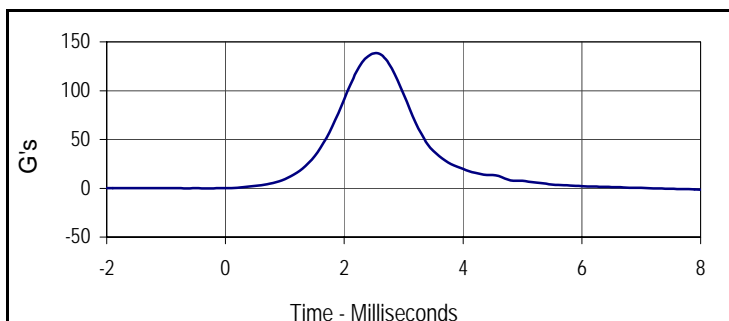
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
266.3	2.5	0.0	-2.0



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
2.2	5.9	-227.6	2.5



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
0.2	0.5	-4.1	2.7



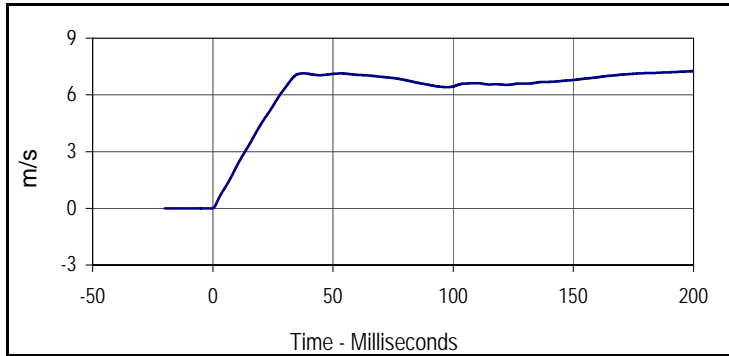
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
138.2	2.5	0.0	-0.7

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

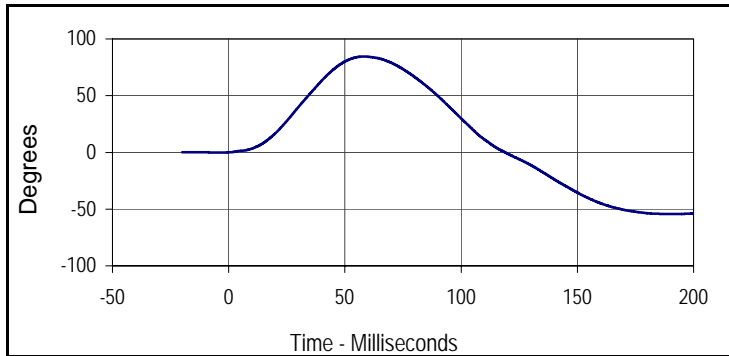
Test Date: 2/27/12
 Test I.D.: F141NF036



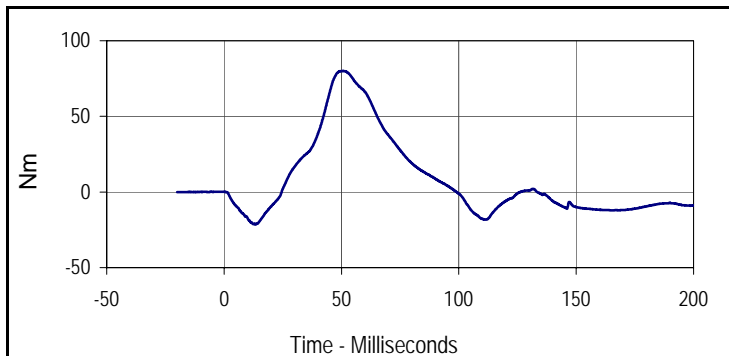
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	285	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass	
	Min		20.7	Pass	
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass	
	Min		29.0	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	20.8	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	31.0	Pass	
Pendulum Velocity	m/s	6.89 to 7.13	7.08	Pass	
Pendulum Deceleration	10 Msec.	m/s	2.1 to 2.5	2.2	Pass
	20 Msec.	m/s	4.0 to 5.0	4.4	Pass
	30 Msec.	m/s	5.8 to 7.0	6.4	Pass
"D" Plane Rotation	Max	Degrees	77.0 to 91.0	84.6	Pass
Peak Moment in Rotation	Max	Nm	69.0 to 83.0	80.0	Pass
Positive Moment Decay, Time To 10 Nm	Msec.	80.0 to 100.0	87.5	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
7.3	200.0	0.0	-0.6



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
84.6	58.1	-54.4	191.5



Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
80.0	50.5	-21.3	13.5

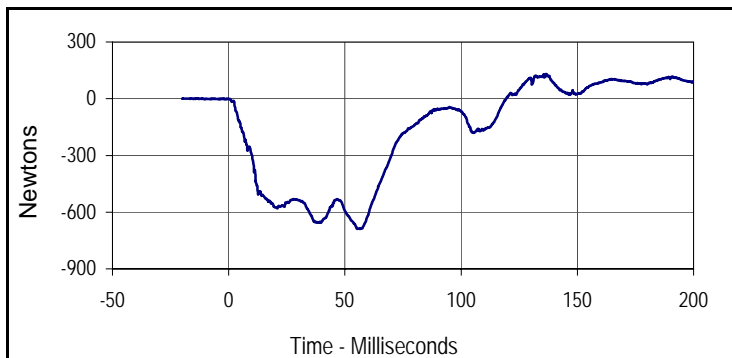
Test Program: Hybrid III 5th Percentile Female Neck Flexion Test

Test Date: 2/27/12

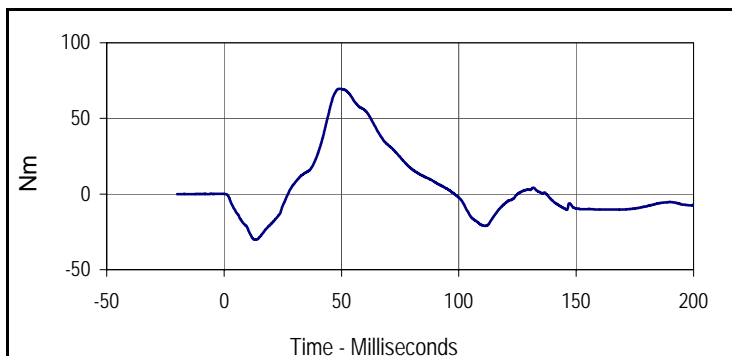


ATD Serial No.: 141

Test I.D.: F141NF036



Curve Description			
Upper Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
131.2	136.5	-688.3	55.2



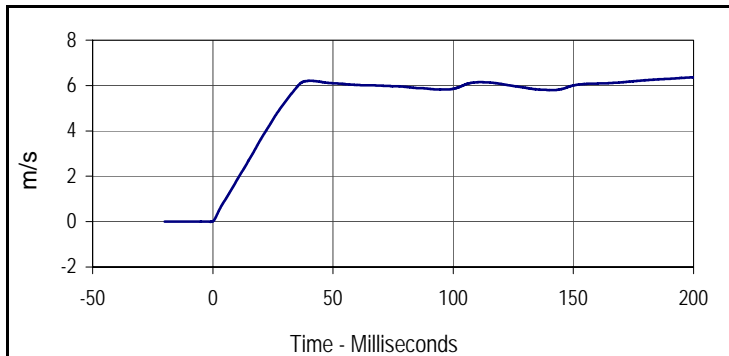
Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
69.6	49.2	-30.1	12.8

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

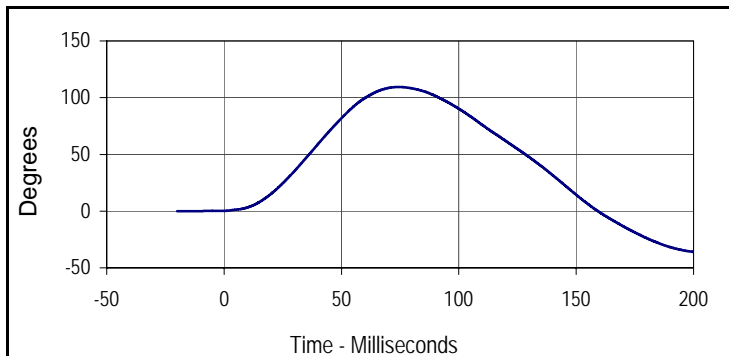
Test Date: 2/27/12
 Test I.D.: F141NE036



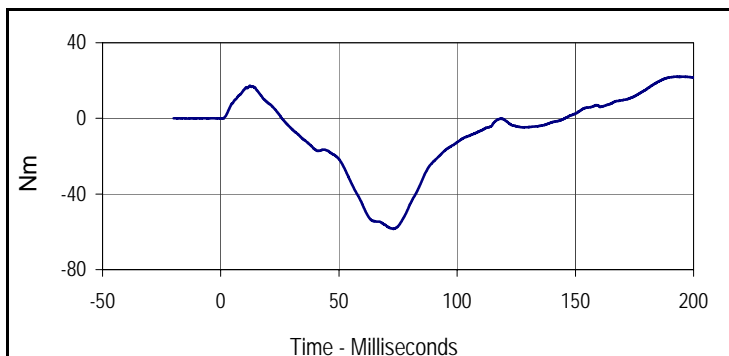
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	325	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass	
	Min		20.7	Pass	
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass	
	Min		29.0	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.1	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	29.2	Pass	
Pendulum Velocity	m/s	5.95 to 6.19	6.11	Pass	
Pendulum Deceleration	10 Msec.	m/s	1.5 to 1.9	1.8	Pass
	20 Msec.	m/s	3.1 to 3.9	3.6	Pass
	30 Msec.	m/s	4.6 to 5.6	5.3	Pass
"D" Plane Rotation	Max	Degrees	99.0 to 114.0	109.4	Pass
Peak Moment in Rotation	Max	Nm	-53.0 to -65.0	-58.4	Pass
Positive Moment Decay, Time To -10 Nm	Msec.	94.0 to 114.0	103.3	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
6.4	200.0	0.0	-0.9



Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
109.4	74.4	-35.9	200.0



Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
22.1	192.2	-58.4	73.0

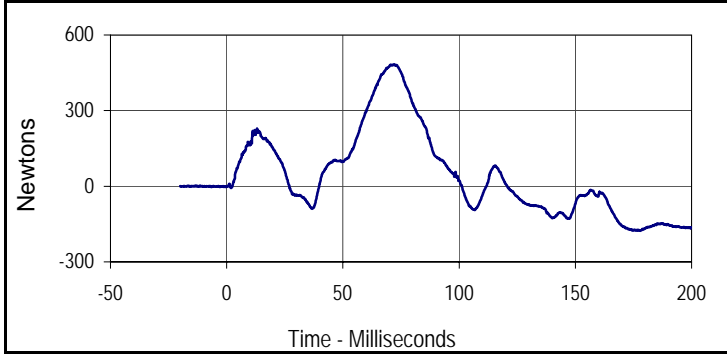
Test Program: Hybrid III 5th Percentile Female Neck Extension Test

Test Date: 2/27/12

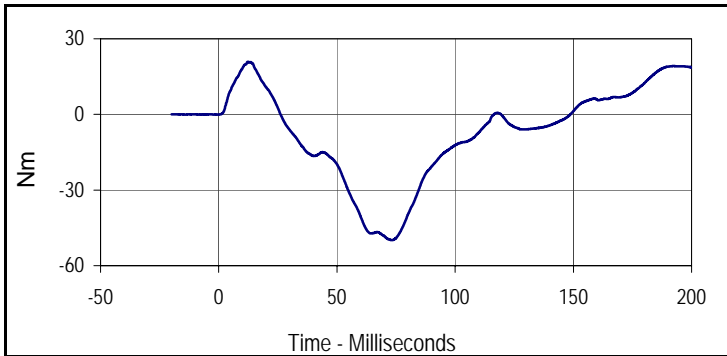


ATD Serial No.: 141

Test I.D.: F141NE036



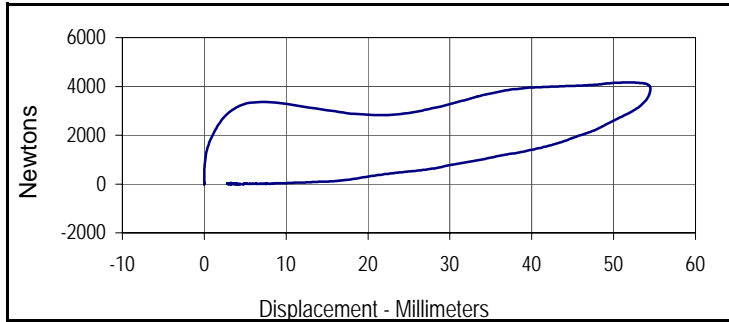
Curve Description			
Upper Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
482.9	71.7	-176.4	177.9



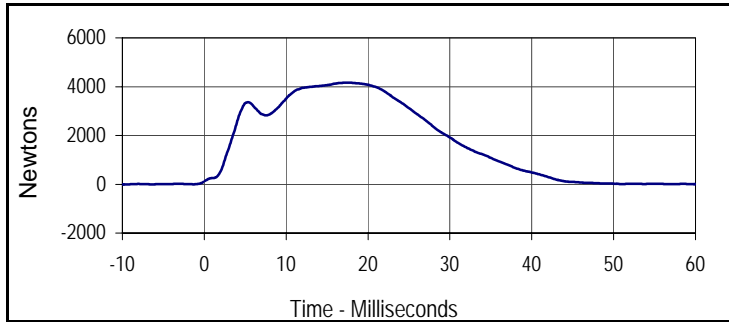
Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
20.9	12.2	-49.9	73.1



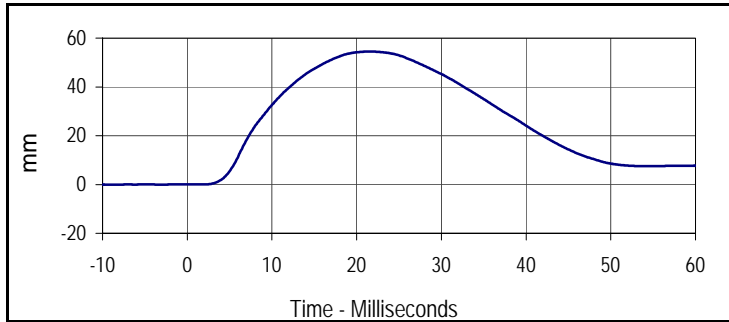
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥240	425	Pass
Temperature During Soak	Max	20.6 to 22.2	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass
	Min		29.0	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	32.7	Pass
Probe Velocity	m/s	6.59 to 6.83	6.68	Pass
Peak Chest Deflection	mm	50.0 to 58.0	54.5	Pass
Peak Force Between 50 and 58 MM	Newtons	3900 to 4400	4148	Pass
Peak Force Between 18 and 50 MM	Newtons	≤4600	4165	Pass
Internal Hysteresis	%	69 to 85	72.9	Pass
Overall Test Results				Pass



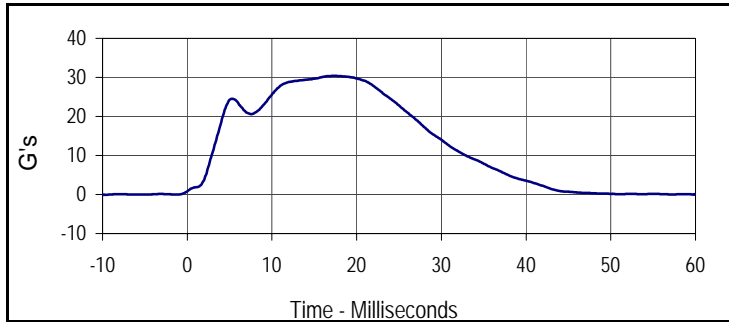
Curve Description			
Probe Force vs. Chest Deflection			
Plot No.	Type	SAE Class	Hysteresis
001	FIL	180	72.9
Peak Probe Force		Peak Chest Deflection	
4164.8		54.5	



Curve Description			
Probe Force			
Plot No.	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
4164.8	17.3	-27.1	100.7



Curve Description			
Chest Deflection			
Plot No.	Type	SAE Class	Units
003	FIL	600	mm
Max	Time	Min	Time
54.5	21.5	0.0	-9.1



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
30.4	17.3	-0.1	90.7

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

Test Date: 2/27/12

ATD Serial No.: 141

Test I.D.: F141LK036, F141LK036



Left Knee

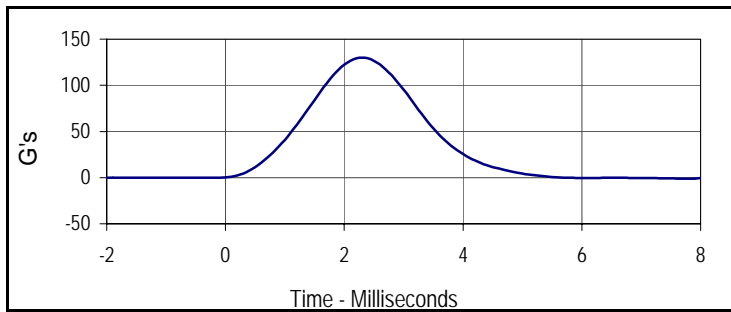
Tested Parameter	Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time	Minutes	≥240	460	Pass
Temperature During Soak	Max	18.9 to 25.6	21.7	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	33.5	Pass
	Min		29.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	33.4	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.12	Pass
Peak Probe Force	Newtons	3450 to 4060	3810	Pass
Overall Test Results				Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.11	Pass
Peak Probe Force	Newtons	3450 to 4060	3745	Pass
Overall Test Results				Pass



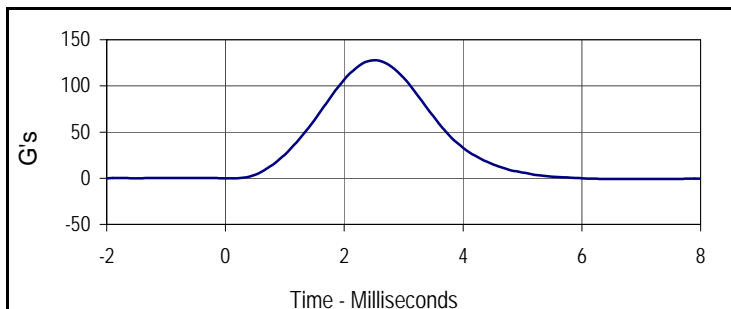
Curve Description			
Left Knee Probe Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3809.8	2.3	-37.4	7.9



Curve Description			
Left Knee Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	600	G's
Max	Time	Min	Time
130.0	2.3	-1.3	7.9



Curve Description			
Right Knee Probe Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
3744.8	2.5	-27.7	7.1



Curve Description			
Right Knee Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	600	G's
Max	Time	Min	Time
127.8	2.5	-0.9	7.1

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

Test Date: 2/27/12

ATD Serial No.: 141

Test I.D.: F141TF036



Left Hip Joint-Femur Results

Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥240	490	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.7	Pass
	Min	°C		20.7	Pass
Humidity During Soak	Max	%	10.0 to 70.0	33.5	Pass
	Min	%		29.0	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.4	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	29.1	Pass
Initial Reference Plane Angle		Degrees	≤ 20	8.3	Pass
Peak Force at 45° +/-0.5°		Newtons	320.0 to 390.0	368.4	Pass
Torso Rotation Rate		deg/sec	0.5 to 1.5	1.3	Pass
Final Reference Plane Angle		Degrees	+/-8	1.2	Pass
Overall Test Results					Pass