REPORT NUMBER: SPNCAP-KAR-20-020

NEW CAR ASSESSMENT PROGRAM (NCAP)

SIDE IMPACT POLE TEST

NISSAN MOTOR CO., LTD.

2020 NISSAN KICKS 5-DOOR SUV

NHTSA No: M20205201

PREPARED BY:

APPLUS IDIADA KARCO ENGINEERING, LLC.

9270 HOLLY ROAD

ADELANTO, CA 92301

MARCH 13, 2020

FINAL REPORT

PREPARED FOR:

U.S. DEPARTMENT OF TRANSPORTATION

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

OFFICE OF CRASHWORTHINESS STANDARDS

MAIL CODE: NRM-110

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Approval Date: March 13, 2020

FINAL REPORT ACCEPTANCE BY OCWS:

_____

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

Date: _____

_____

COTR, New Car Assessment Program
NHTSA, Office of Crashworthiness Standards

Date: _____

TECHNICAL REPORT DOCUMENTATION PAGE

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4. Title and Subtitle	5. Report Date
Final Report of New Car Assessment Program Side Impact Pole Testing of a 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201	March 13, 2020
	6. Performing Organization Code KAR
7. Authors Mr. Robert S. Ramos, Program Manager, Applus IDIADA KARCO Mr. Steven D. Matsusaka, Engineering Manager, Applus IDIADA KARCO	**8. Performing Organization Report No.** TR-P40044-01-NC
9. Performing Organization Name and Address Applus IDIADA KARCO Engineering, LLC. 9270 Holly Rd. Adelanto, CA 92301	**10. Work Unit No.**
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	14. Sponsoring Agency Code NRM-110

15. Supplementary Notes

16. Abstract

A 32.20 km/h 75° rigid pole side NCAP impact test was conducted on the subject 2020 Nissan Kicks 5-Door SUV in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. The test was conducted at the Applus IDIADA KARCO Engineering, LLC. facility in Adelanto, California on February 28, 2020.

The impact velocity was 31.49 km/h and the outside ambient temperature at the struck (driver's) side of the vehicle was 25.0°C. The target vehicle's maximum post-test static crush was 314 mm located at level 3. The test vehicle's occupant performance data is as follows:

Measurement Description	Driver ATD (SID-IIs)		
	Units	Threshold	Result
Head Injury Criteria (HIC_{36})		1000	217.7
Resultant Lower Spine Acceleration	g	82	30
Total Pelvic Force (Sum of Acetabular and Iliac Forces)	N	5525	2379
Maximum Thoracic Rib Deflection	mm	38	24
Maximum Abdominal Rib Deflection	mm	45	13

The struck side doors of the vehicle were jammed shut and did not separate from the body at the hinges or latches. The remaining doors did not open during the side impact event.

17. Key Words	18. Distribution Statement
New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs	Copies of this report are available from: National Highway Traffic Safety Admin. Technical Information Services Division 1200 New Jersey Ave., SE Washington, DC 20590

19. Security Classification of this report	20. Security Classification of this page	21. No. of Pages	22. Price
UNCLASSIFIED	UNCLASSIFIED	105	

TABLE OF CONTENTS

SECTION 1
TEST PURPOSE AND PROCEDURE

This side impact test is part of the MY 2020 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract number DTNH22-14-D-00355L. The purpose of this test is to generate comparative side impact performance in a 2020 Nissan Kicks 5-Door SUV. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure date October 2015.

SECTION 2
SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2020 Nissan Kicks 5-Door SUV. The subject vehicle was towed into the rigid pole at an angle of 74.9° and a velocity of 31.49 km/h. The test was conducted by Applus IDIADA KARCO Engineering, LLC. in Adelanto, California on February 28, 2020. Pre- and post-test photographs of the test vehicle and side impact dummy (SID-IIs) are included in Appendix A of this report.

One Part 572V (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side NCAP Pole Laboratory Test Procedure, dated October 2015. Camera locations and other pertinent camera information are included in this report.

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

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

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

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

Measurement Description	Units	Driver ATD (SID-IIs)	
		IARV	Result
Head Injury Criteria (HIC_{36})		1000	217.7
Lower Spine (T12) Resultant Acceleration	g	82	30
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2379
Maximum Thoracic Rib Deflection	mm	38*	24
Maximum Abdominal Rib Deflection	mm	45*	13

**Proposed IARV*

Supplemental restraint information is given below:

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

GENERAL COMMENTS

The struck side doors of the vehicle were jammed shut. There was no separation at the hinges or latches. The remaining doors remained closed and latched. There were no ATD values that exceeded their limits.

- The Left Floor Sill Acceleration Y channel failed at 16.0 milliseconds.
- The Left B-Post at Sill Acceleration Y, Left Lower B-Post Acceleration Y, and Left Mid B-Post Acceleration Y channels were not installed on the vehicle.
- Left A-Post at Sill Acceleration Y recorded questionable data

SECTION 3

OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20

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	^oF	^oC	=(Tf -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: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	M20205201
Model Year	2020
Make	Nissan
Model	Kicks
Body Style	5-Door SUV
VIN	3N1CP5BV1LL484754
Body Color	Gun Metallic
Odometer Reading (km / mi)	153 / 95
Engine Displacement (L)	1.6
Type / No. of Cylinders	4 Cylinder
Engine Placement	Transverse
Transmission Type	Automatic
Transmission Speeds	CVT
Overdrive	No
Final Drive	FWD
Roof Rack	No
Sunroof / T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
Anti-Lock Brakes (ABS)	Yes

Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks	Yes
Power Window Auto-Reverse	Yes
Other Optional Feature	No
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
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Torso/Pelvis Airbag	Yes
Rear Pass. Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	No
Driver Load Limiter	Yes
Rear Pass. Load Limiter	No
Other Safety Restraint	No

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

DATA FROM CERTIFICATION LABEL

Manufactured By	Nissan Motor Co., LTD.
Date of Manufacture	Nov-19
Vehicle Type	Passenger Car

GVWR (kg)	1640
GAWR Front (kg)	870
GAWR Rear (kg)	770

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity	2	3		5	
Capacity Weight (VCW) (kg)				385.0	*A*
DSC x 68.04 (kg)				340.2	*B*
Cargo Weight (RCLW) (kg)				44.8	*A-B*

VEHICLE SEAT TYPE

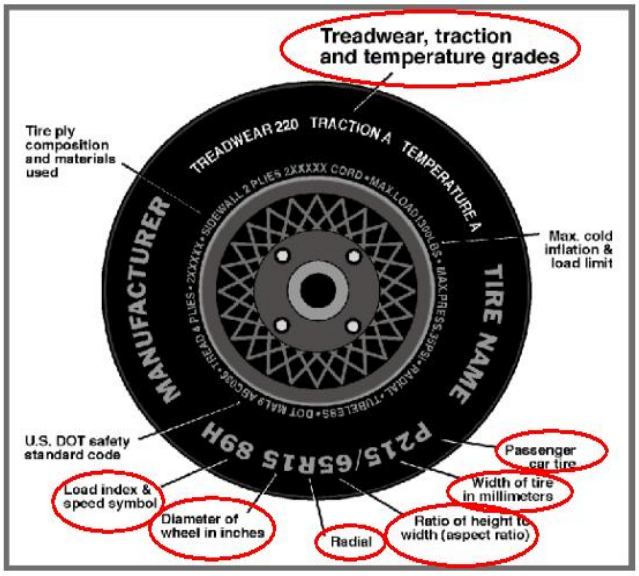
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable w/ Lever	Adjustable w/ Knob
Front Seat	Yes					Yes	
Rear or Second Row Seat			Yes		Yes		
Third Row Seat							

DATA SHEET NO. 1 … (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20



Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	220	220
Recommended Tire Size	205/60 R16	205/60 R16
Tire Size on Vehicle	205/60 R16	205/60 R16
Tire Manufacturer	Firestone	Firestone
Tire Model	FT140	FT140
Treadware	560	560
Traction Grade	A	A
Temperature Grade	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	92H	92H
Tire Material	Polyester, Steel, Nylon	Polyester, Steel, Nylon
DOT Safety Code Left	V6XW FT0 4419	V6XW FT0 4419
DOT Safety Code Right	V6XW FT0 4419	V6XW FT0 4419

DATA SHEET NO. 1 … (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	220	220	220	220
Tire Placard	kPa	220	220	220	220
Owner's Manual	kPa	220	220	220	220
As Tested	kPa	220	220	220	220

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	368.5	258.0		378.0	306.5		382.0	304.0	
Right	kg	377.0	219.0		380.5	245.0		384.0	245.5	
Ratio	%	61.0%	39.0%	100.0%	57.9%	42.1%	100.0%	58.2%	41.8%	100.0%
Total	kg	745.5	477.0	1222.5	758.5	551.5	1310.0	766.0	549.5	1315.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1222.5	A
Actual Weight of 1 P572V ATD Used	kg	49.0	B
Rated Cargo/Luggage Wt (RCLW)	kg	44.8	C
Calculated Vehicle Target Wt (TVTW)	kg	1316.3	A+B+C

Does the measured As Tested Vehicle Weight lie within the required weight range (i.e. Calculated Test Vehicle Target Weight -4.5 kg to -9.0 kg)? ☒ **Yes** ☐ **No**

TEST VEHICLE ATTITUDE AND CG

Measurement Description	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	°	-0.6	-0.4	-0.3	Yes
Front Passenger Sill Angle (front-to-rear)*	°	-1.2	-1.1	-1.1	Yes
Front Bumper-Line Angle (left-to-right)**	°	0.7	-0.6	-0.7	Yes
Rear Bumper-Line Angle (left-to-right)**	°	0.1	0.2	0.2	Yes
Vehicle CG (Aft of Front Axle)	mm	1023	1104	1096	
Vehicle CG (Left (+)/Right (-) from Longitudinal Centerline)	mm	19	34	32	

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

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

DATA SHEET NO. 1 … (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Spare Tire and Tools	18.0
Trunk Trim	2.0
Ballast / Equipment Added	58.5

Test Height Adjustable Setting (If Applicable)	N/A

DATA SHEET NO. 2

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

Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20

SEAT POSITIONING

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

SCRL ANGLE RANGE

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	3.1	0.0	1.6
Front Passenger Seat	Fixed	Fixed	Fixed
Front Center Seat			
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCRP Height (mm)	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid Fore/Aft	Forwardmost
Driver Seat	1.6	263	Max			
			Mid	242	254	263
			Min			
Front Passenger Seat	Fixed	261	Max			
			Mid	243	251	261
			Min			
Front Center Seat			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed

DATA SHEET NO. 2 … (CONTINUED)

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

Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20

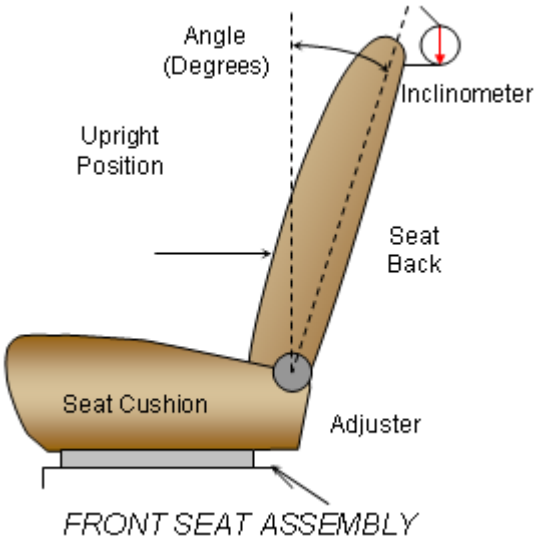
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position From Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	240	25	0	0
Front Passenger Seat	240	25	0	0
Front Center Seat				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

*Detent zero (0) is the forward most detent

SEAT BACK ADJUSTMENT

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



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degree	Detent*
Driver Seat w/Seated Dummy	62.0	32	2.5	0
Front Passenger Seat	60.2	32	2.5	0
Front Center Seat				
Struck Side Rear Seat w/Seated Dummy	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

*Detent zero (0) is the forward most detent

DATA SHEET NO. 2 … (CONTINUED)

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

Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1. The positions are marked H, M2, M1, L from top to bottom.

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

HEAD RESTRAINT ADJUSTMENT

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

	Total No. of Positions	Placed in Position
Driver Seat	4	Lowest

DATA SHEET NO. 2 … (CONTINUED)

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

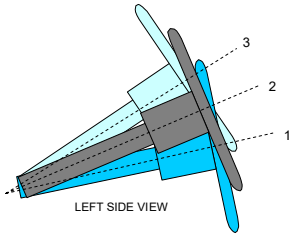
Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20

STEERING COLUMN ADJUSTMENT

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

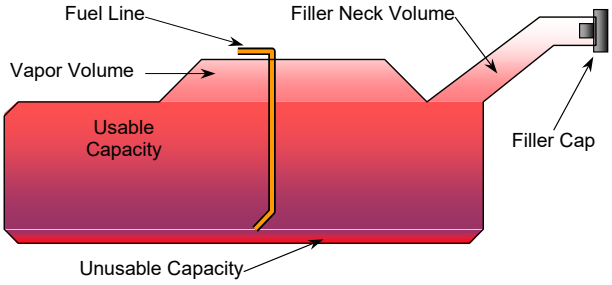
	Degrees	Fore-Aft Position (mm)
Lowermost - Position 1	23.5	91
Geometric Center - Position 2	25.3	108
Uppermost - Position 3	27.0	125
Telescoping Steering Wheel Travel		34
Test Position	25.3	108



STEERING COLUMN ASSEMBLY

FUEL PUMP

The vehicle is equipped with an electronic fuel pump. The fuel pump normally operates when the vehicle's electrical system is activated. The fuel pump operates approximately 1 second after the ignition is switched to "ON", while the engine is running, and approximately for 1.5 seconds after the engine stops running



VEHICLE FUEL TANK ASSEMBLY

FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	40.88
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of "Standard Tank" (see Owner's Manual)	40.88
Usable Capacity of "Optional Tank" (see Owner's Manual)	
93% of Usable Capacity	38.02
Actual amount of Solvent Used in Test	38.00
1/3 of Usable Capacity	13.63

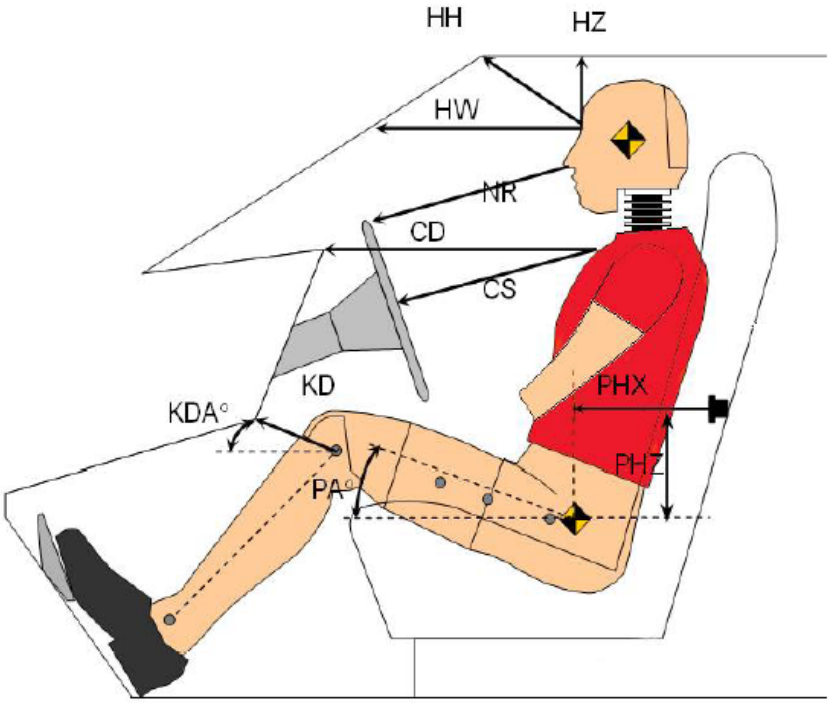
Is the Actual Amount of Solvent Used in the test equal to 93% ± 1% of the Usable Capacity stated in the Form No. 1? ☒ **Yes** ☐ **No**

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20



Driver Code	Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	300	
HW	Head to Windshield	630	
HZ	Head to Roof	224	
NR	Nose to Rim	260	
CD	Chest to Dash	416	
CS	Chest to Steering Wheel	183	
KD(L)/KDA(L)°	Left Knee to Dash	102	36.8
KD(R)/KDA(R)°	Right Knee to Dash	90	33.6
PAX°	Pelvic Tilt Angle (x-axis)		19.5
PAY°	Pelvic Tilt Angle (y-axis)		0.0
PHX	Hip Point to Striker (x-axis)	314	
PHZ	Hip Point to Striker (z-axis)	72	

DATA SHEET NO. 4

DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

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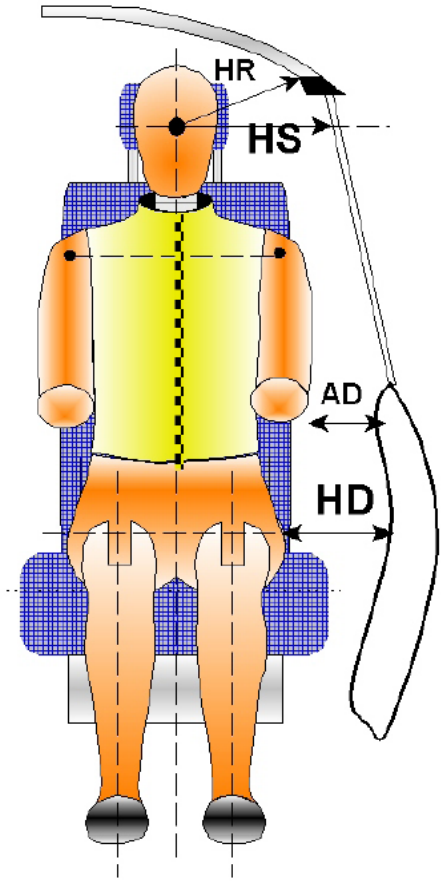


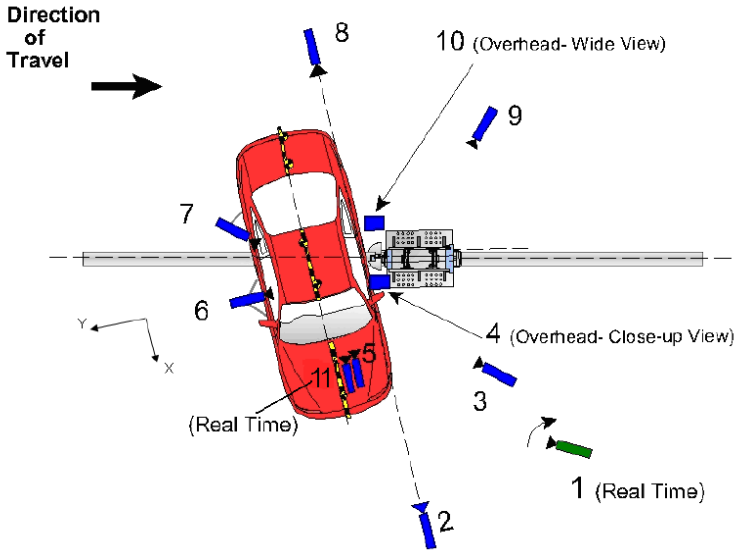
Code	Measurement Description	Units	Driver
HR	Head to Side Header	mm	255
HS	Head to Side Window	mm	359
AD	Arm to Door	mm	128
HD	Hip Point to Door	mm	144

DATA SHEET NO. 5

CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20



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

Camera No.	View	Coordinates (m)			Lens (mm)	Film Speed (fps)
		X*	Y*	Z*		
1	Real Time Pan View of Impact	8.89	46.57	-3.04		30
2	Front Ground Level - Impact View	8.34	-0.05	-0.93	24	1000
3	Impact Side 45° - Forward Pole View	4.10	-2.15	-1.15	8.5	1000
4	Overhead Close-Up View of Impact	0.00	0.00	-5.79	12.5	1000
5	On-Board - Dummy Front View	0.90	0.59	-1.54	8.5	1000
6	On-Board - Dummy Side View	-0.06	1.62	-1.17	8.5	1000
7	On-Board - Dummy Rear Oblique View	-0.83	1.61	-1.21	8.5	1000
8	Rear Ground Level - Impact View	-6.12	-6.23	-0.96	24	1000
9	Impact Side 45° - Rearward Pole View	-8.02	0.04	-1.01	35	1000
10	Overhead Wide View of Impact	-0.06	0.22	-5.79	14	1000
11	Real Time Dummy Front View	0.90	0.59	-1.55		30

*All measurements accurate to ±6 mm

INSTRUMENTATION

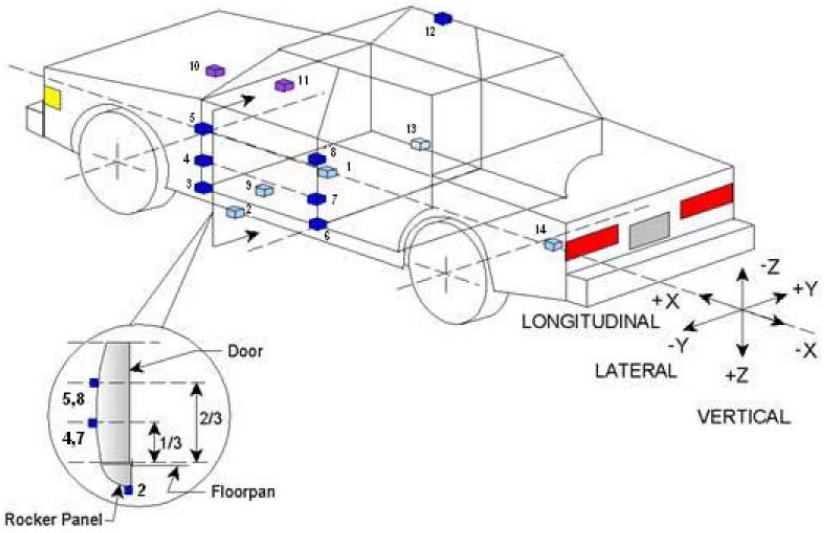
Driver Dummy Channels	19
Vehicle Structure Accelerometers	15
Pole Load Cells	8
Total	42

DATA SHEET NO. 6

TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20



Loc. No.	Sensor Description	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	1875	0	-670
2	Left Floor Sill	2500	-730	-225
3	A-Pillar Sill	2920	-770	-350
4	A-Pillar Low	2955	-780	-420
5	A-Pillar Mid	2965	-775	-810
6	B-Pillar Sill	N/A	N/A	N/A
7	B-Pillar Low	N/A	N/A	N/A
8	B-Pillar Mid	N/A	N/A	N/A
9	Driver Seat Track	2200	-520	-430
10	Engine Top	3590	425	-770
11	Firewall	3260	350	-800
12	Right Roof	2100	475	-1560
13	Right Floor Sill	2610	690	-380
14	Rear Floorpan	990	0	-720

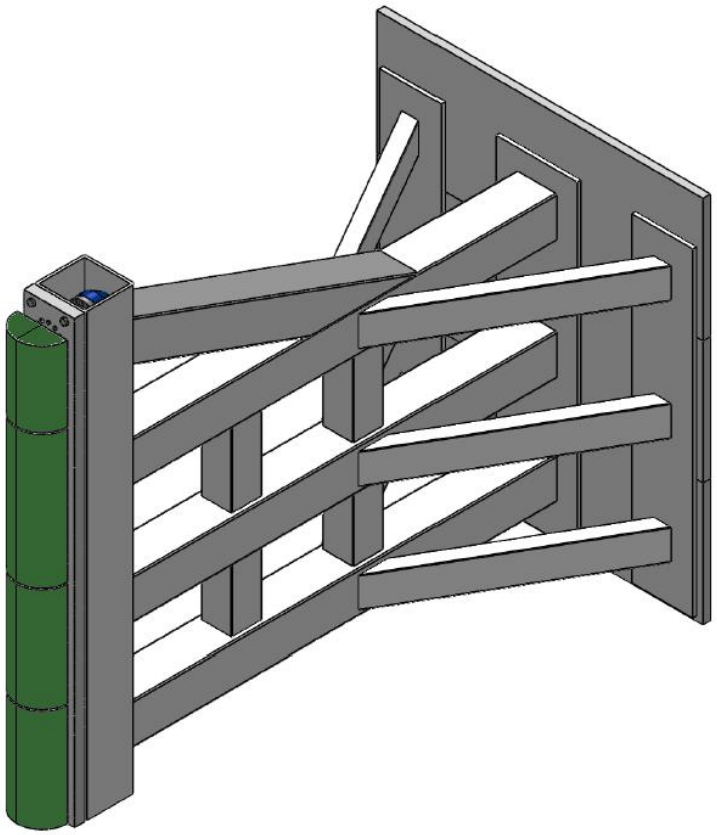
Reference: X – Rear surface of vehicle (+ forward)
Y – Vehicle centerline (+ to right)
Z – Ground plane (+ down)

DATA SHEET NO. 7

RIGID POLE LOAD CELL DATA

Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20



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

DATA SHEET NO. 8

POST-TEST OBSERVATIONS

Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20

TEST DUMMY INFORMATION AND CONTACT POINTS

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

POST-TEST DOOR PERFORMANCE

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

POST-TEST SEAT PERFORMANCE

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

DATA SHEET NO. 8 … (CONTINUED)

POST-TEST OBSERVATIONS

Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20

POST-TEST STRUCTURAL OBSERVATIONS

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

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

IMPACT POINT LOCATION DATA

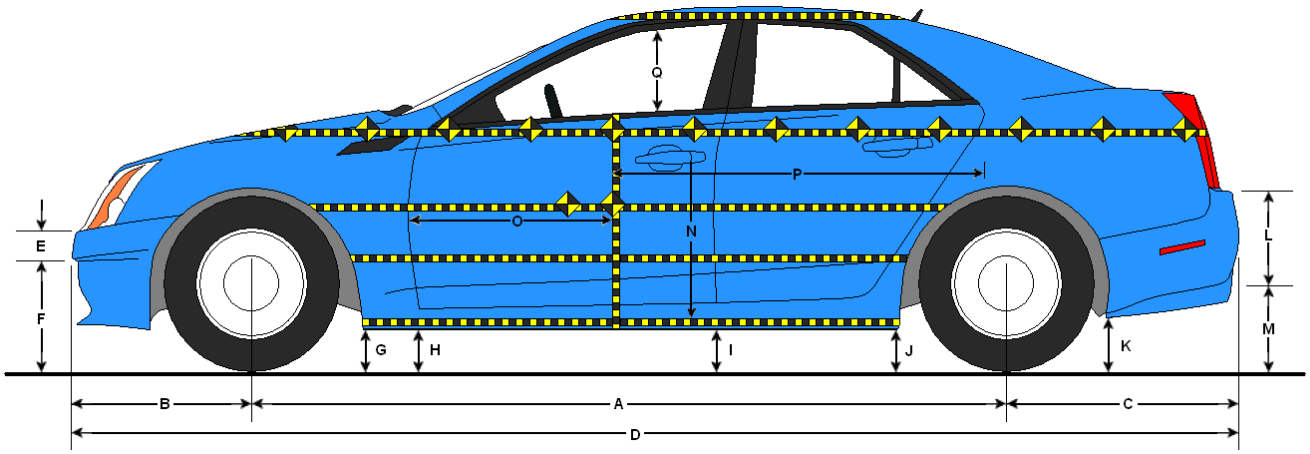
Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle)(Intended Impact Point)	mm		1056
Actual Impact Point (Aft of Front Axle)	mm		1064
Horizontal Offset (+ forward / - rearward)	mm	± 38 of Intended Impact Point	-8
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	°	75 ± 3	74.9
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	31.49
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	31.40

DATA SHEET NO. 9

TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20



LEFT SIDE VIEW

All measurements in mm with tolerance of ± 3mm

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

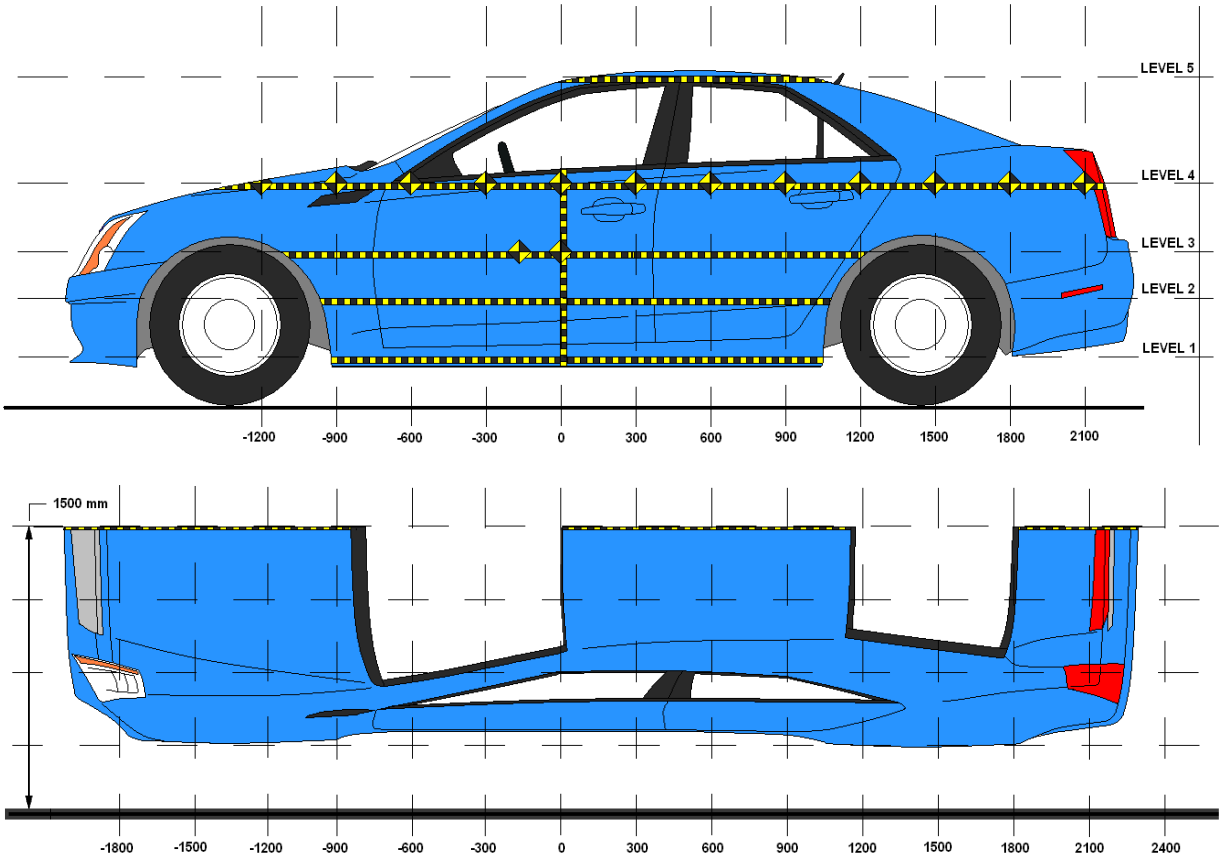
Code	Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2623	2596	-27
B	Front Axle to FSOV	865	870	5
C	Rear Axle to RSOV	813	817	4
D	Total Length at Centerline	4297	4283	-14
E	Front Bumper Thickness	86	89	3
F	Fromt Bumper Bottom to Ground	595	573	-22
G	Sill Height at Front Wheel Well	410	393	-17
H	Sill Height at Front Door Leading Edge	407	387	-20
I	Sill Height at B-Pillar	359	352	-7
J1	Sill Height at Rear Wheel Well	373	385	12
J2	Pinch Weld Height at Rear Wheel Well	339	346	7
K	Sill Height Aft of Rear Wheel Well	466	483	17
L	Rear Bumper Thickness	140	140	0
M	Rear Bumper Bottom to Ground	575	591	16
N	Sill Height to Bottom of Front Window Sill	722	764	42
O	Front Door Leading Edge to Impact CL	601	538	-63
P	Rear Door Trailing Edge to Impact CL	1574	1522	-52
Q	Front Window Opening	401	407	6
R	Right Side Length	3148	3156	8
S	Left Side Length	3148	3098	-50
T	Vehicle Width at B-Pillar	1736	1654	-82

DATA SHEET NO. 10

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20



NOTE: All measurements in mm with tolerance of ± 3mm

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Description	Height Above Ground (mm)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	392	241	0
2	Occupant H-Point	751	311	0
3	Mid-Door	809	314	0
4	Window Sill	1007	311	0
5	Window Top	1625	96	150

DATA SHEET NO. 10 … (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

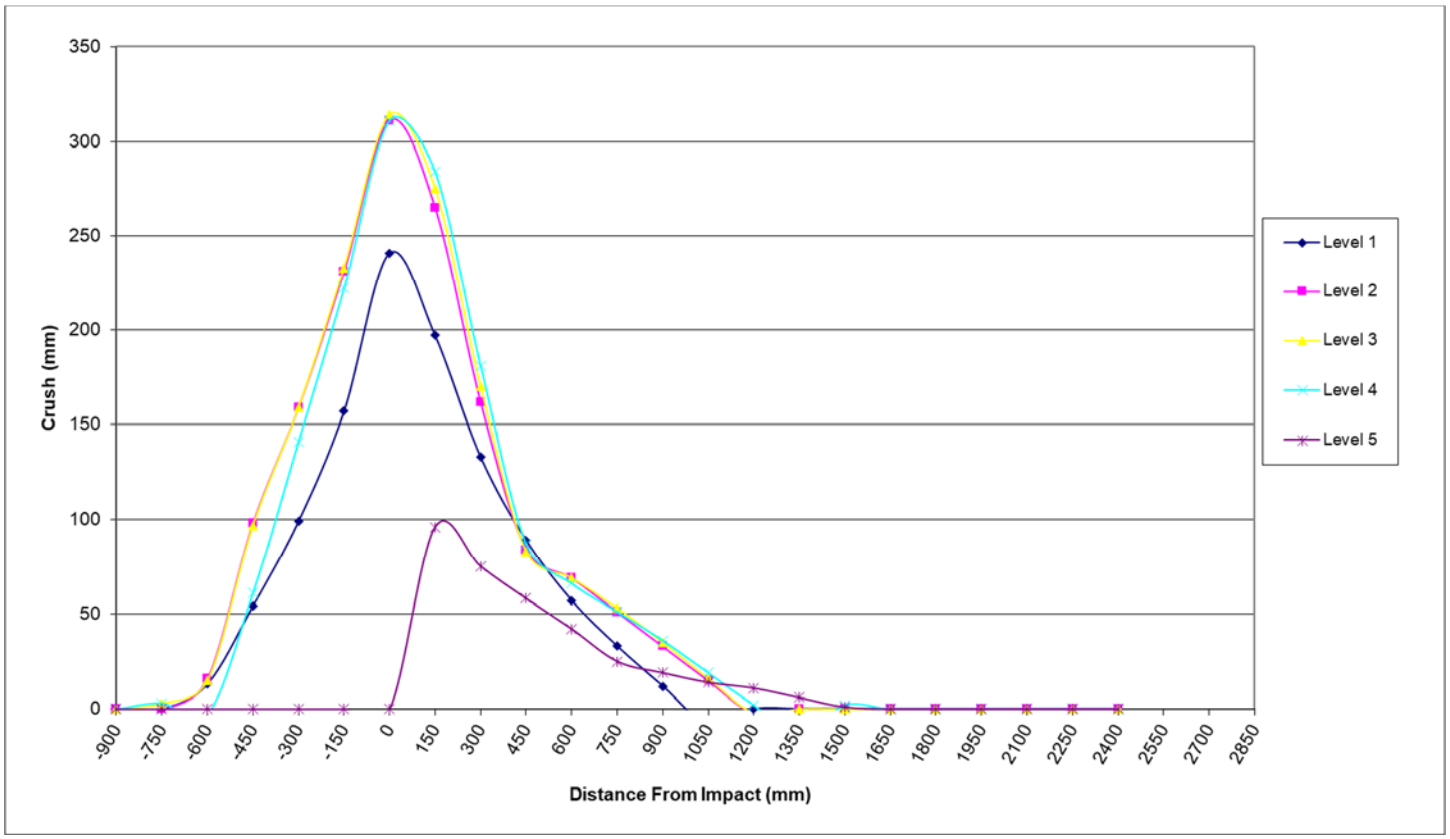
	Pre-Test (mm)					Post-Test (mm)					Difference (mm)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750			640	672				643	675				3	3	
-600	679	640	641	681		692	656	656	678		13	16	15	-3	
-450	684	639	640	676		738	737	737	737		54	98	97	61	
-300	686	640	639	667		785	799	798	808		99	159	159	141	
-150	685	641	640	661		842	872	873	883		157	231	233	222	
0	685	643	641	655		926	954	955	966		241	311	314	311	
150	683	645	643	651	948	880	910	918	935	1044	197	265	275	284	96
300	680	648	645	637	946	813	810	815	818	1021	133	162	170	181	75
450	682	652	650	649	946	771	736	733	736	1004	89	84	83	87	58
600	683	654	652	656	943	740	723	721	722	985	57	69	69	66	42
750	682	655	654	660	946	715	706	707	711	971	33	51	53	51	25
900	682	644	646	665	944	694	677	681	701	963	12	33	35	36	19
1050	678	631	634	669	945	670	646	650	688	959	-8	15	16	19	14
1200		627	624	665	945		625	622	667	956		-2	-2	2	11
1350				656	950				642	956				-14	6
1500				652	954				654	955				2	1
1650				657					657					0	
1800															
1950															
2100															
2250															
2400															
2550															
2700															
2850															

DATA SHEET NO. 10 … (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20

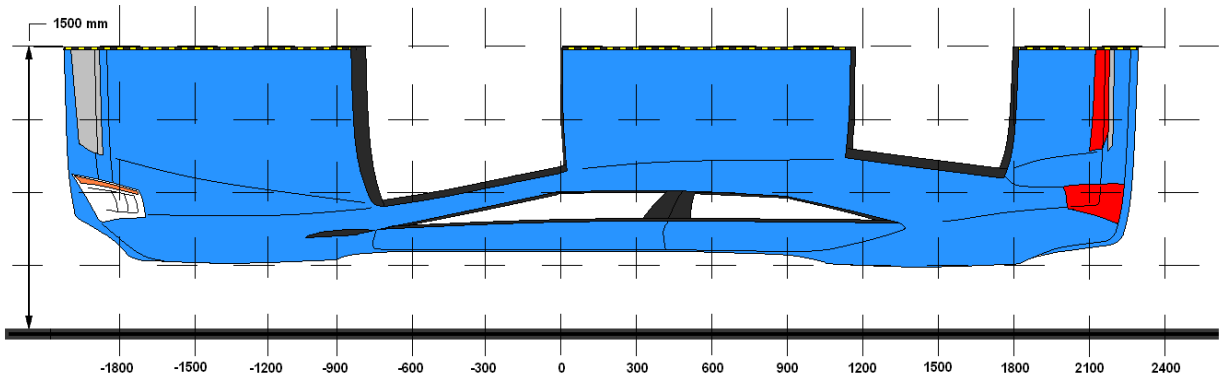


DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20



DPD	Distance From Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Crush (mm)
1	1650	4	657	657	0
2	1200	5	945	956	11
3	750	3	654	707	53
4	150	4	651	935	284
5	-300	2	640	799	159
6	-750	3	640	643	3

DATA SHEET NO. 12

FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20

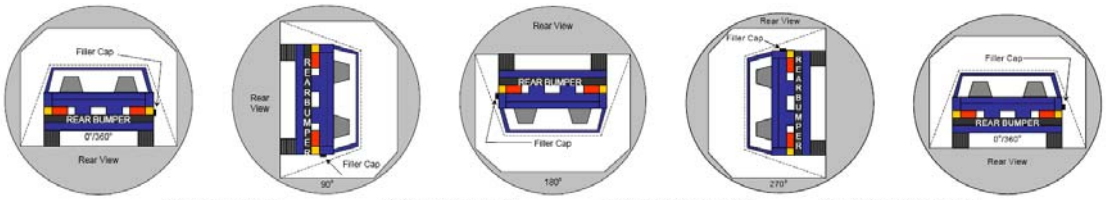
Temperature at Time of Impact: 25.0° C Test Time: 12:09 PM

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

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

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

D. Spillage Details: There was no Stoddard solvent spillage.



0° TO 90° 90° TO 180° 180° TO 270° 270° TO 360°

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	85	300	385
90° To 180°	80	300	380
180° To 270°	79	300	379
270° To 360°	78	300	378

FMVSS 301 SPILLAGE TABLE

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

SOLVENT SPILLAGE LOCATION TABLE

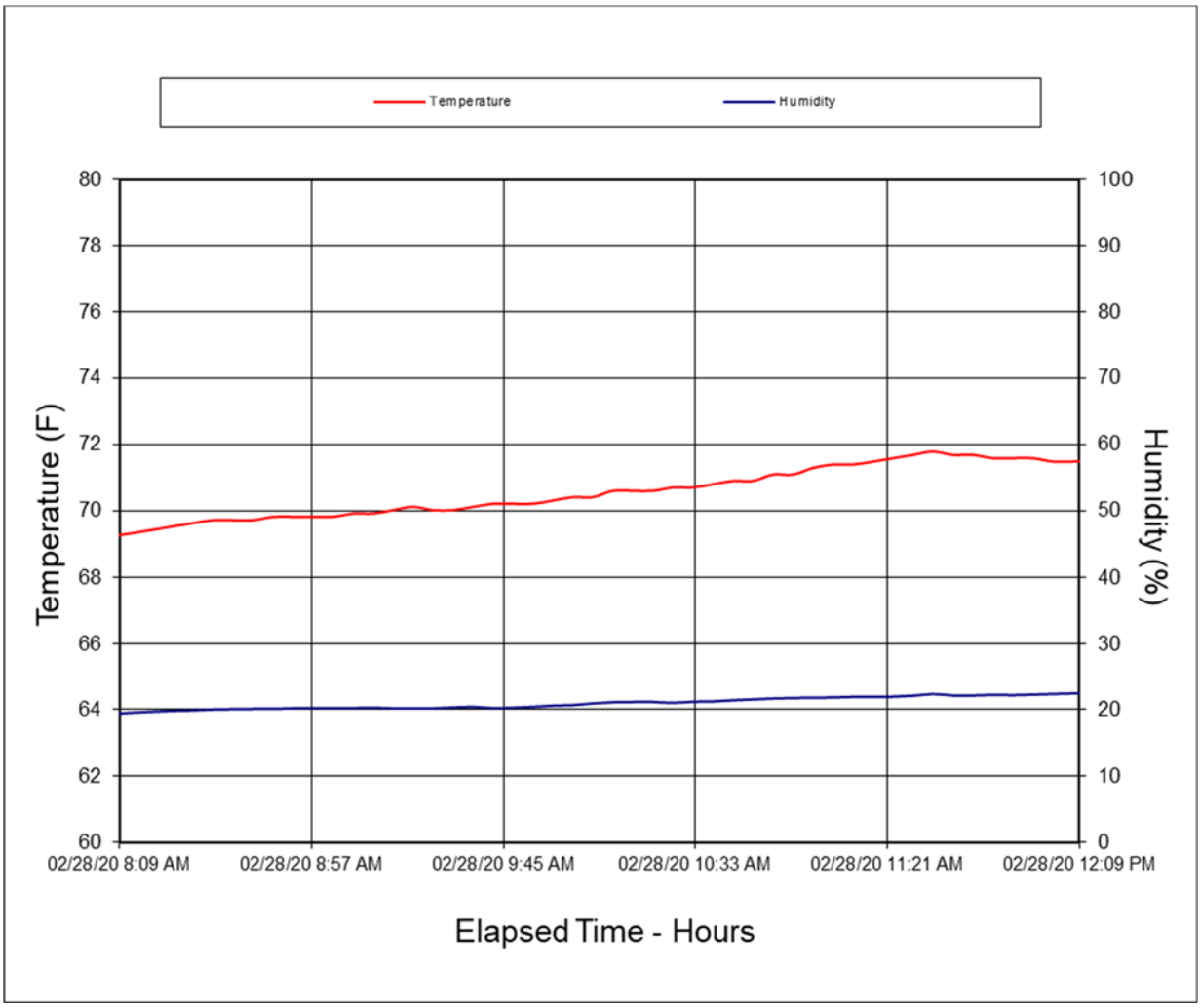
Test Phase	Spillage Location
0° To 90°	No Spillage Occurred
90° To 180°	No Spillage Occurred
180° To 270°	No Spillage Occurred
270° To 360°	No Spillage Occurred

DATA SHEET NO. 13

DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION

Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No. M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 02/28/20



APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

TABLE OF PHOTOGRAPHS … (CONTINUED)

TABLE OF PHOTOGRAPHS … (CONTINUED)

FIGURE 1. As-Delivered Right Front ¾ View of Test Vehicle

FIGURE 2. As-Delivered Left Rear ¾ View of Test Vehicle

FIGURE 3. Pre-Test Frontal View of Test Vehicle

FIGURE 4. Post-Test Frontal View of Test Vehicle

FIGURE 5. Pre-Test Left Front ¾ View of Test Vehicle

FIGURE 6. Post-Test Left Front ¾ View of Test Vehicle

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

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

FIGURE 9. Pre-Test Left Rear ¾ View of Test Vehicle

FIGURE 10. Post-Test Left Rear ¾ View of Test Vehicle

FIGURE 11. Pre-Test Rear View of Test Vehicle

FIGURE 12. Post-Test Rear View of Test Vehicle

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

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

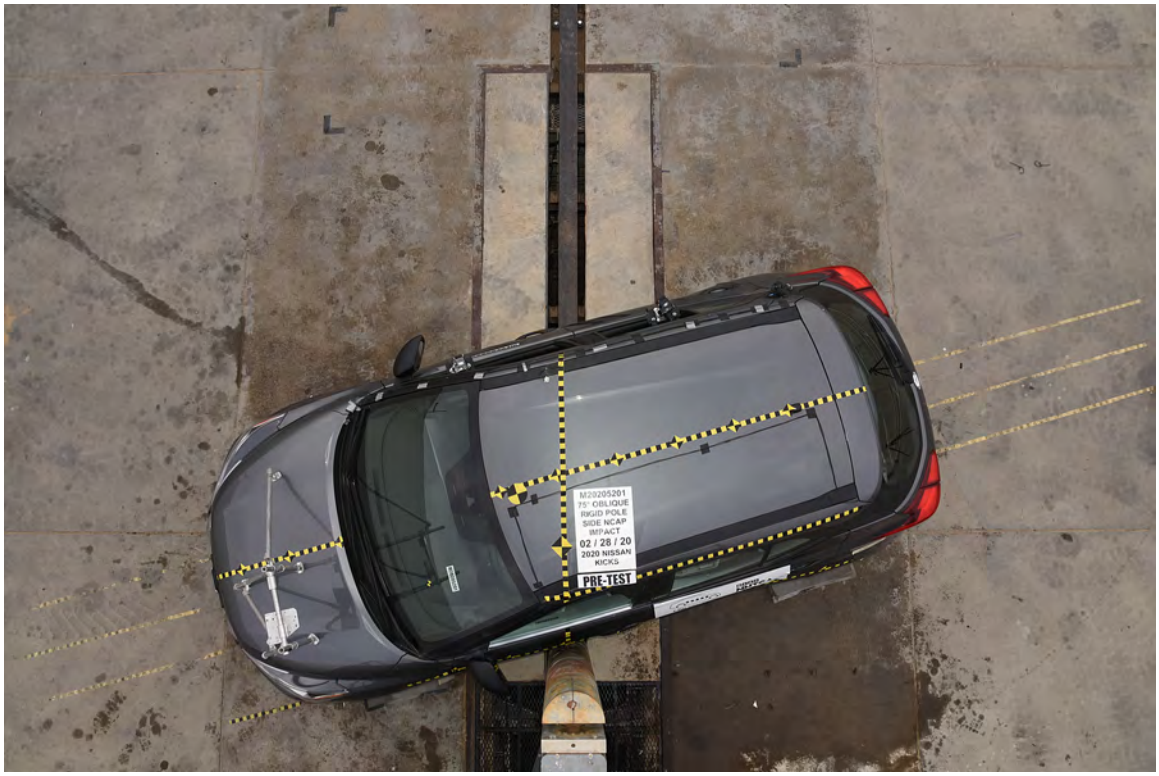


FIGURE 15. Pre-Test Overhead View of Test Area

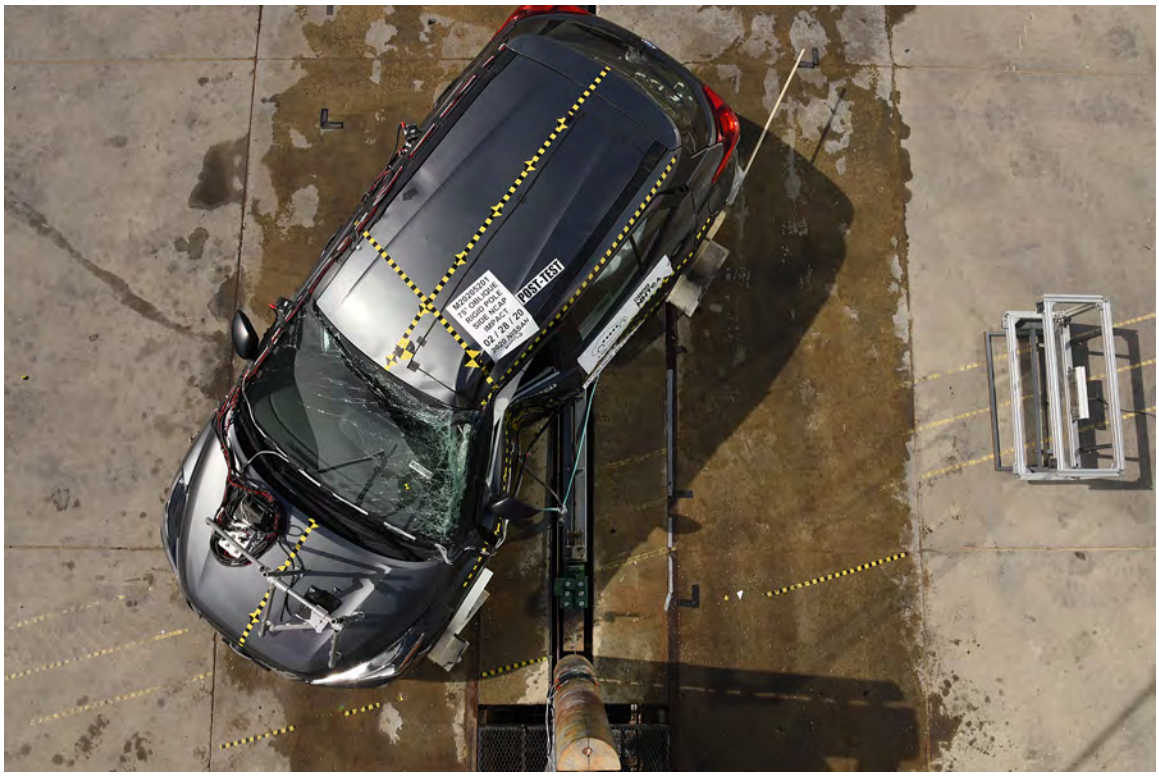


FIGURE 16. Post-Test Overhead View of Test Area

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

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

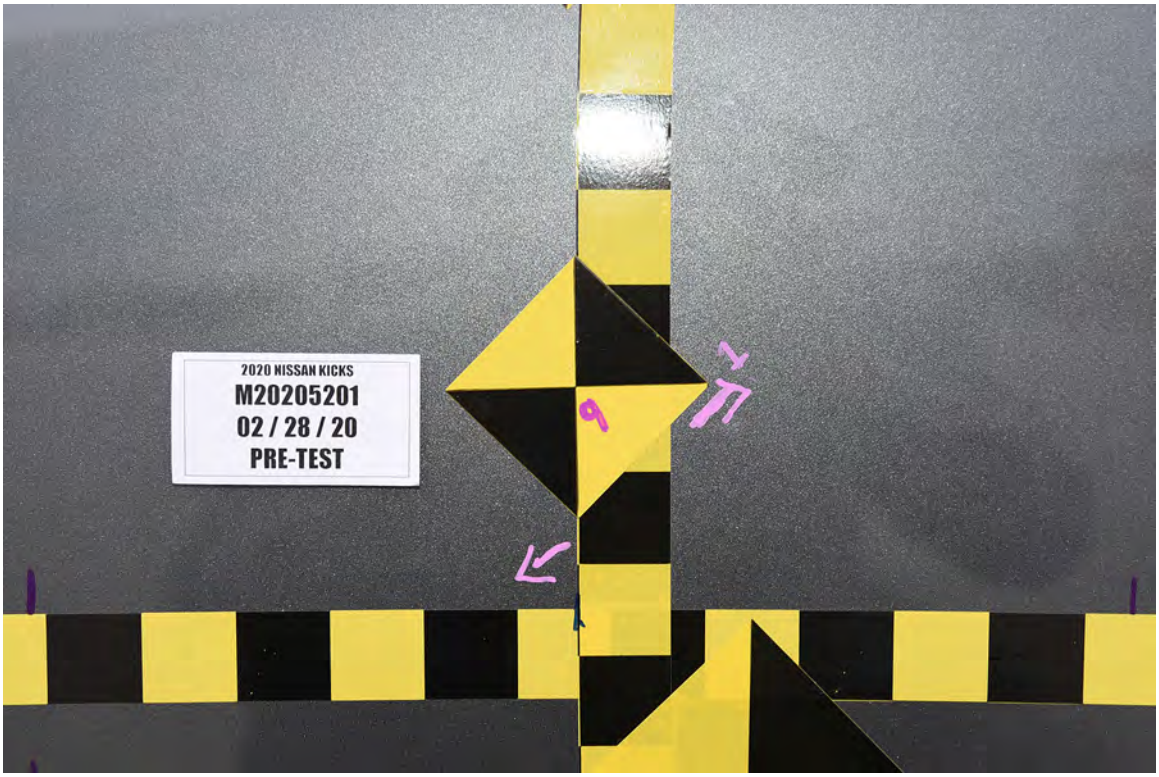


FIGURE 19. Pre-Test Close-Up View of Impact Point Target

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

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

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

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

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

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

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

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

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

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

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

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

Showing Dummy’s Head is Level

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

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

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

FIGURE 35. View of Disengaged Parking Brake

FIGURE 36. Pre-Test View of Parking Brake

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

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

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

FIGURE 40. Pre-Test Dummy and Door Clearance View

FIGURE 41. Post-Test Dummy and Door Clearance View

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

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

Photograph Not Available

FIGURE 44. Pre-Test Inner Door Panel View

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

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

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

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

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

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

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

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

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

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

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

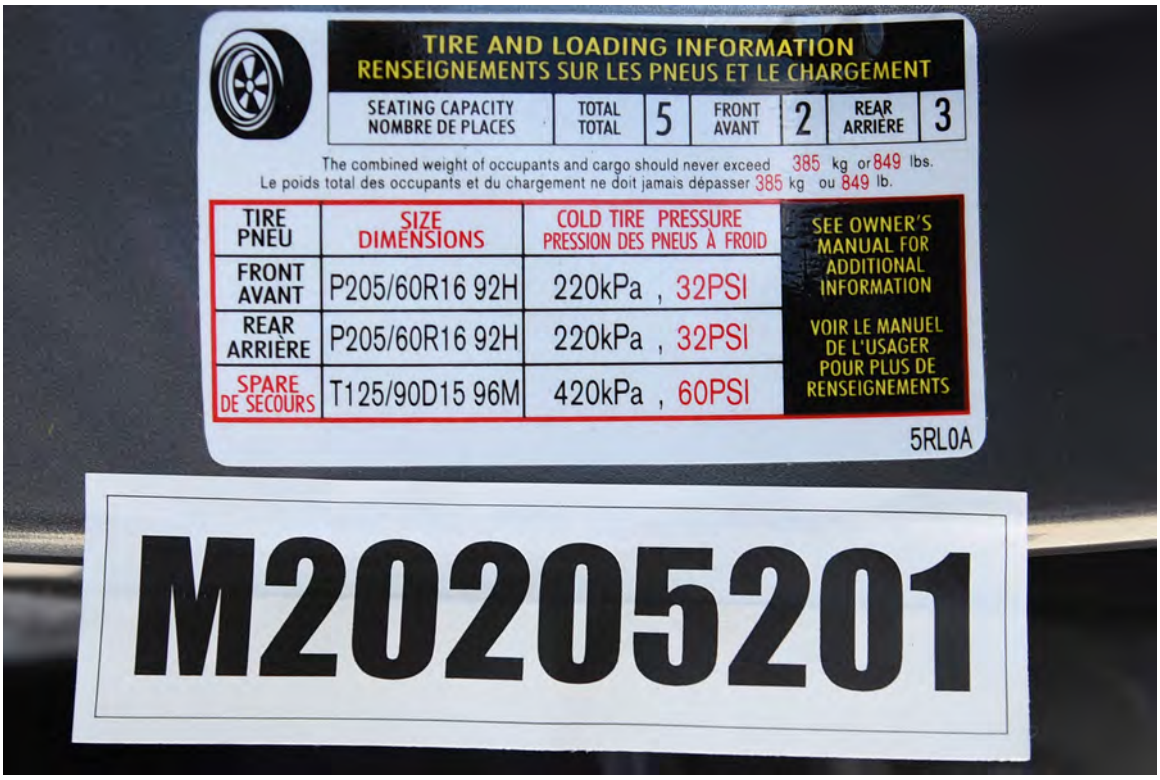


FIGURE 56. Close-Up View of Vehicle's Tire Information Placard or Label

FIGURE 57. Pre-Test Pole Barrier Front View

FIGURE 58. Post-Test Pole Barrier Front View

FIGURE 59. Pre-Test Pole Barrier Side View

FIGURE 60. Post-Test Pole Barrier Side View

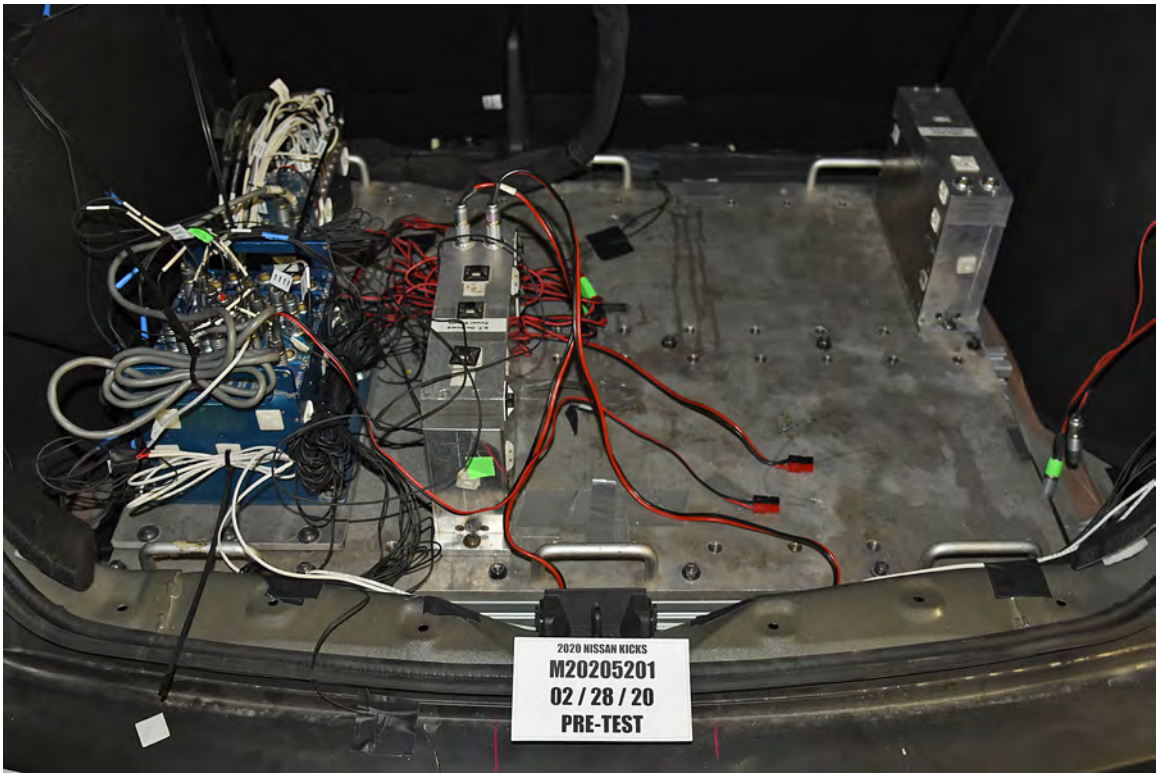


FIGURE 61. Pre-Test Ballast View

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

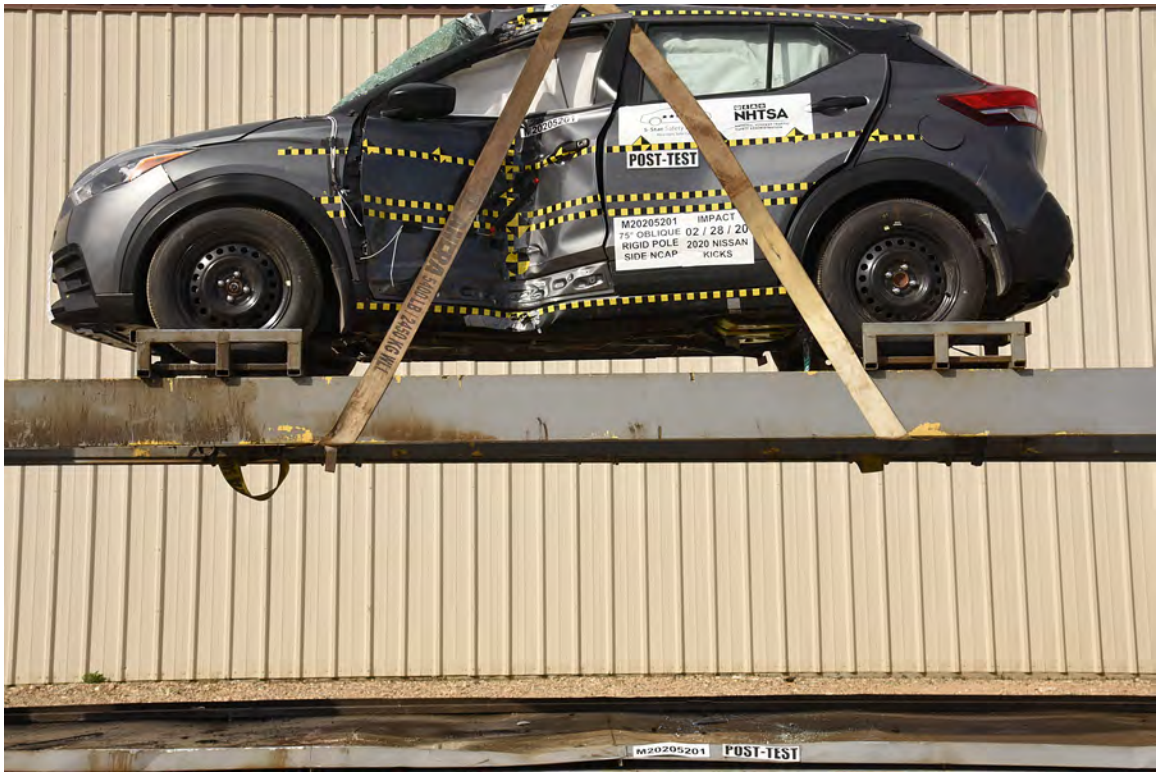


FIGURE 63. FMVSS No. 301 Static Rollover 0 Degrees

FIGURE 64. FMVSS No. 301 Static Rollover 90 Degrees

FIGURE 65. FMVSS No. 301 Static Rollover 180 Degrees

FIGURE 66. FMVSS No. 301 Static Rollover 270 Degrees

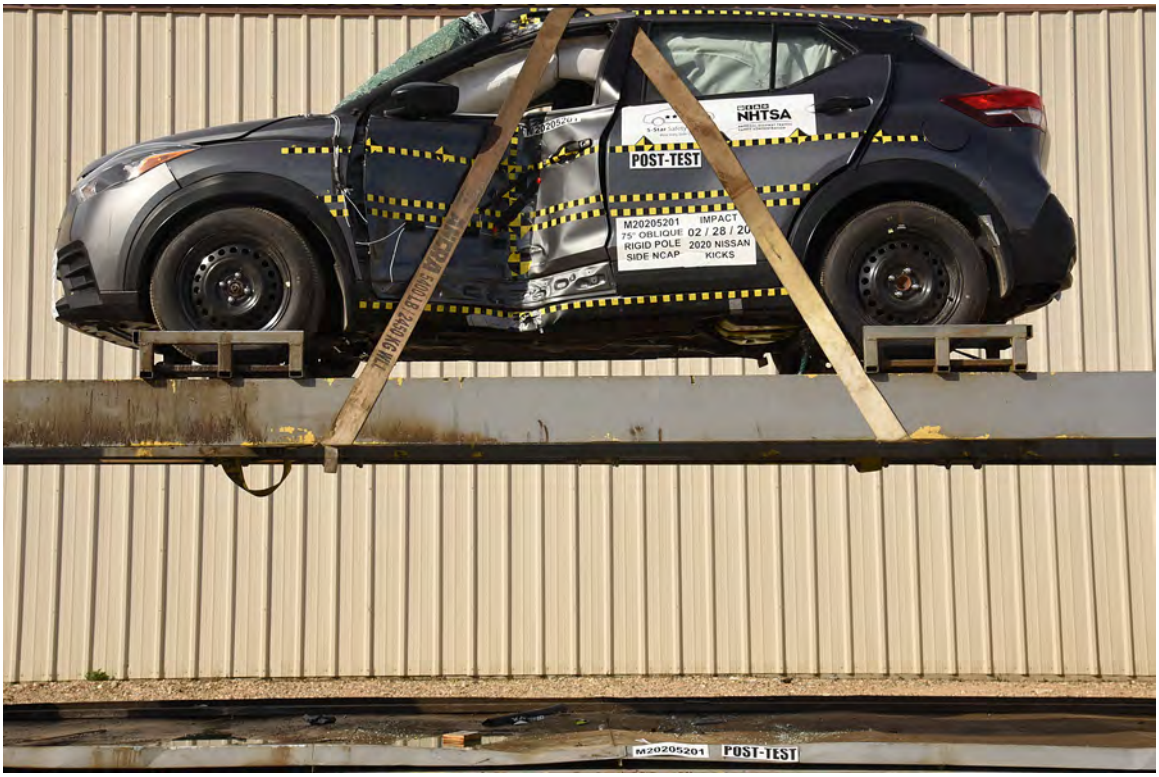


FIGURE 67. FMVSS No. 301 Static Rollover 360 Degrees

FIGURE 68. Impact Event

FIGURE 69. Monroney Label

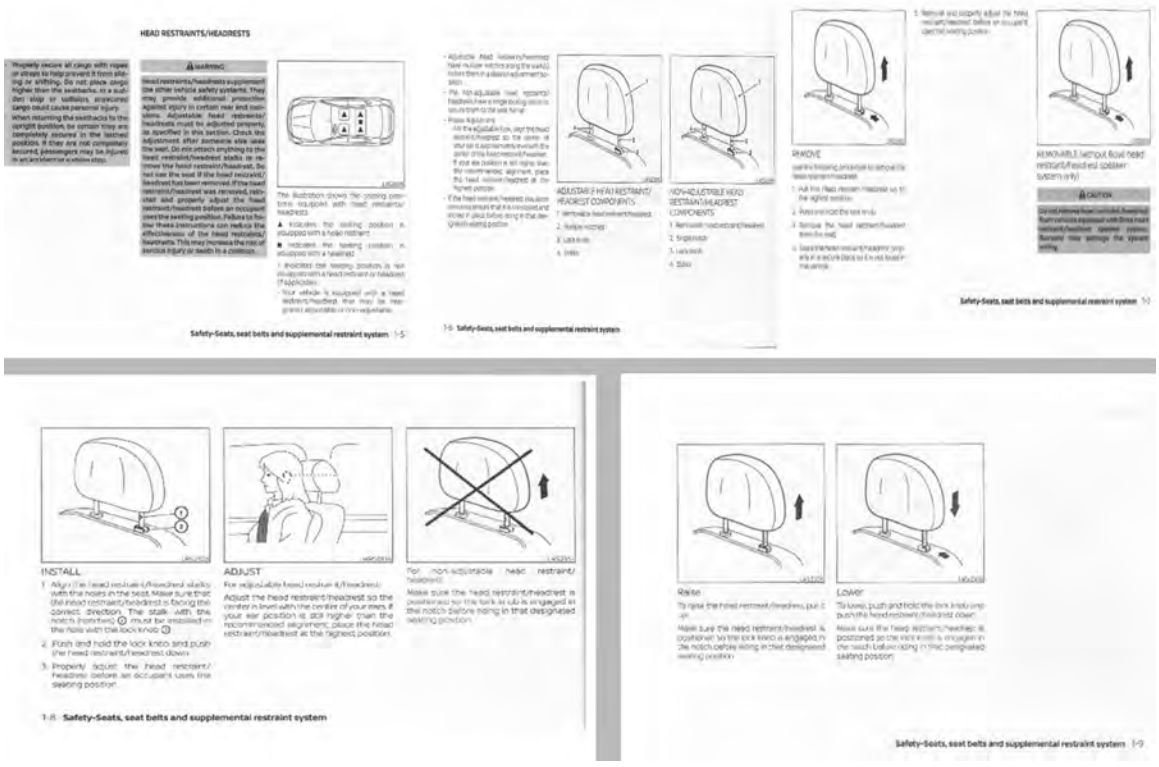


FIGURE 70. Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

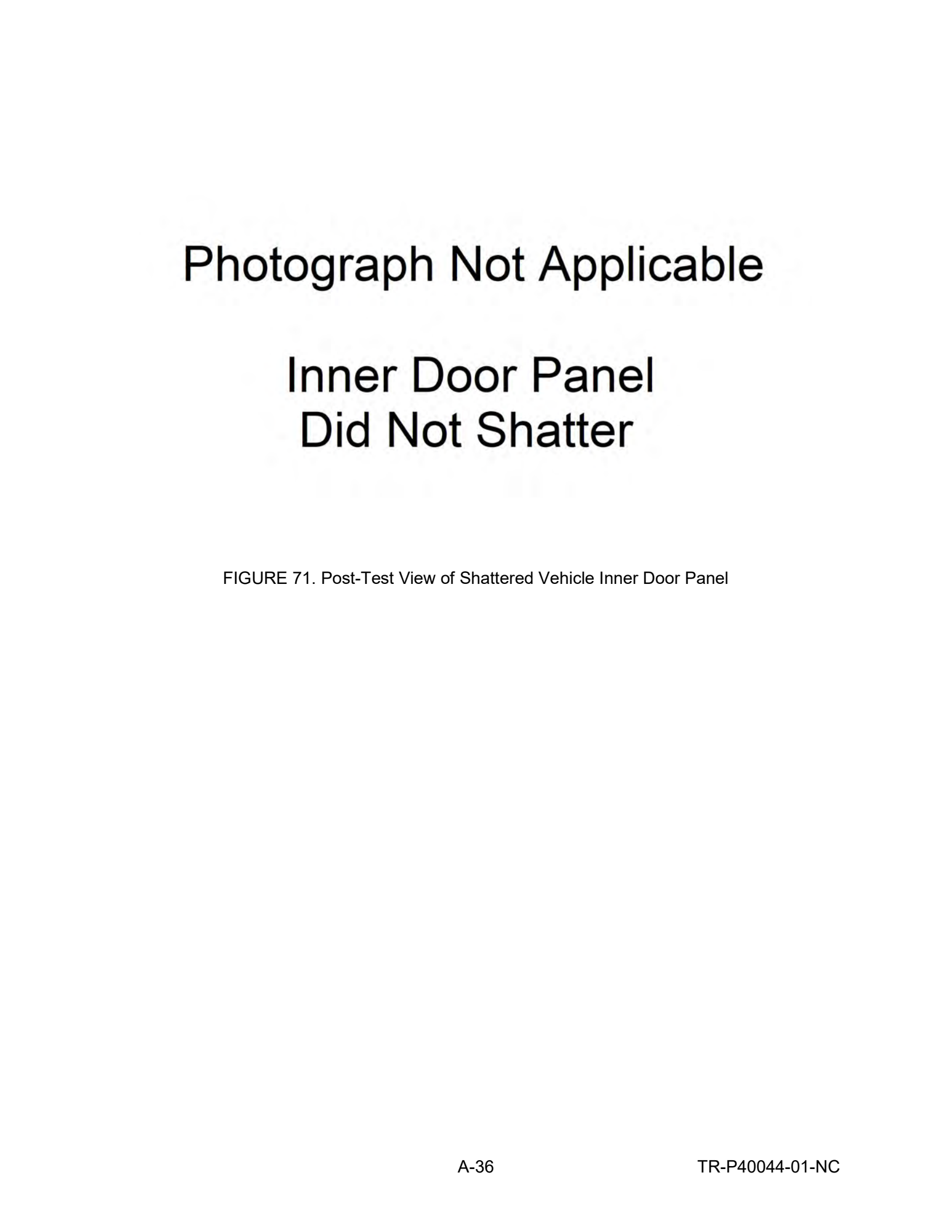


FIGURE 71. Post-Test View of Shattered Vehicle Inner Door Panel

APPENDIX B
DUMMY RESPONSE DATA

TABLE OF DATA PLOTS

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

Additional Driver Dummy Instrumentation Data

Driver Head Acceleration Redundant (X)

Driver Head Acceleration Redundant (Y)

Driver Head Acceleration Redundant (Z)

Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)

Vehicle Center of Gravity Acceleration (Y)

Vehicle Center of Gravity Acceleration (Z)

Left Floor Sill Acceleration (Y)

Left A-Pillar Sill Acceleration (Y)

Left Lower A-Pillar Acceleration (Y)

Left Mid A-Pillar Acceleration (Y)

Left B-Pillar Sill Acceleration

Left Lower B-Pillar Acceleration (Y)

Left Mid B-Pillar Acceleration (Y)

Driver Seat Track at Dummy Hip Point Acceleration (Y)

Engine Top Acceleration (X)

Engine Top Acceleration (Y)

Firewall Center Acceleration (Y)

Right Roof at Vertical Impact Reference Line Acceleration (Y)

Right Sill at Vertical Impact Reference Line Acceleration (Y)

Rear Floorpan Behind Rear Axle at Centerline Acceleration (X)

Rear Floorpan Behind Rear Axle at Centerline Acceleration (Y)

Pole Instrumentation Data

Load Cell Pole Barrier #1 Force (Y)

Load Cell Pole Barrier #2 Force (Y)

Load Cell Pole Barrier #3 Force (Y)

Load Cell Pole Barrier #4 Force (Y)

Load Cell Pole Barrier #5 Force (Y)

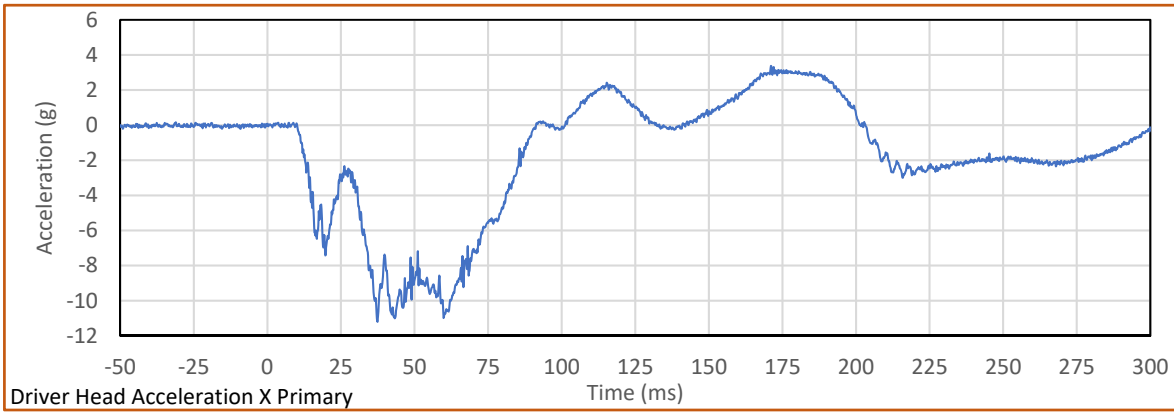
Load Cell Pole Barrier #6 Force (Y)

Load Cell Pole Barrier #7 Force (Y)

Load Cell Pole Barrier #8 Force (Y)

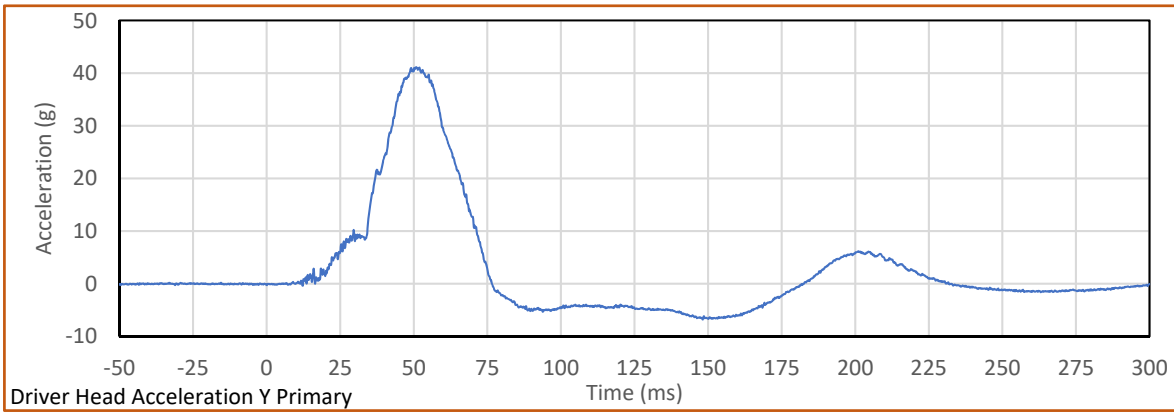
Test Vehicle: 2020 Nissan Kicks 5-Door SUV NHTSA No.: M20205201

Test Program: NCAP Side Pole Impact Test Test Date: 2/28/2020



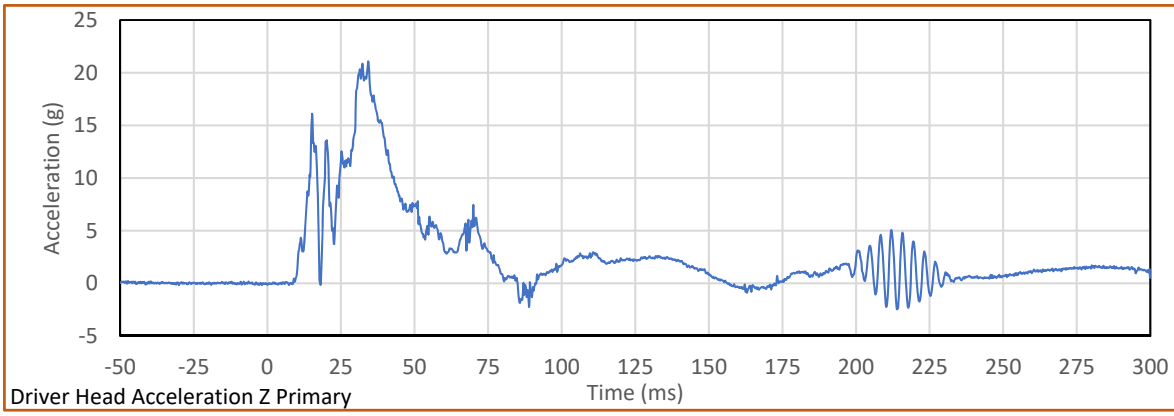
11HEAD0000S2ACXA
Max:3.4@171.1
Min:-11.2@37.4
SAE Class 1000

Driver Head Acceleration X Primary



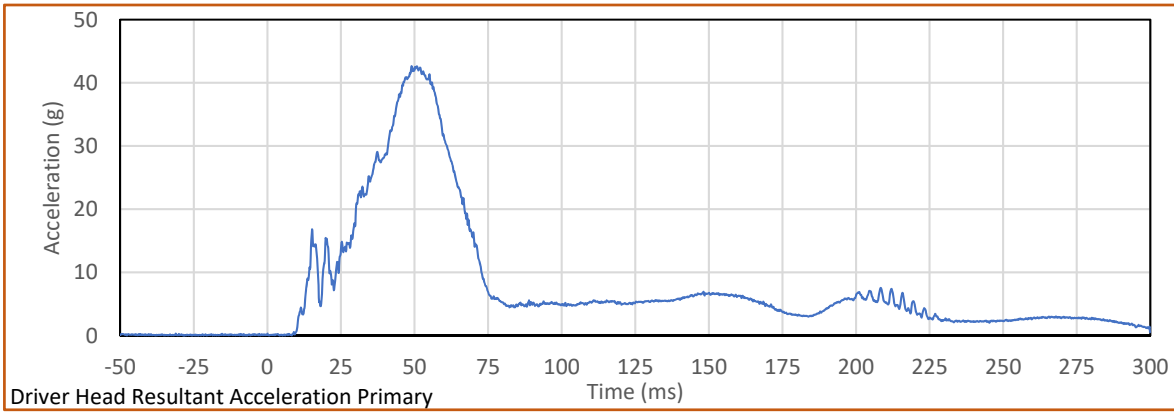
11HEAD0000S2ACYA
Max:41.1@50.8
Min:-6.8@148.2
SAE Class 1000

Driver Head Acceleration Y Primary



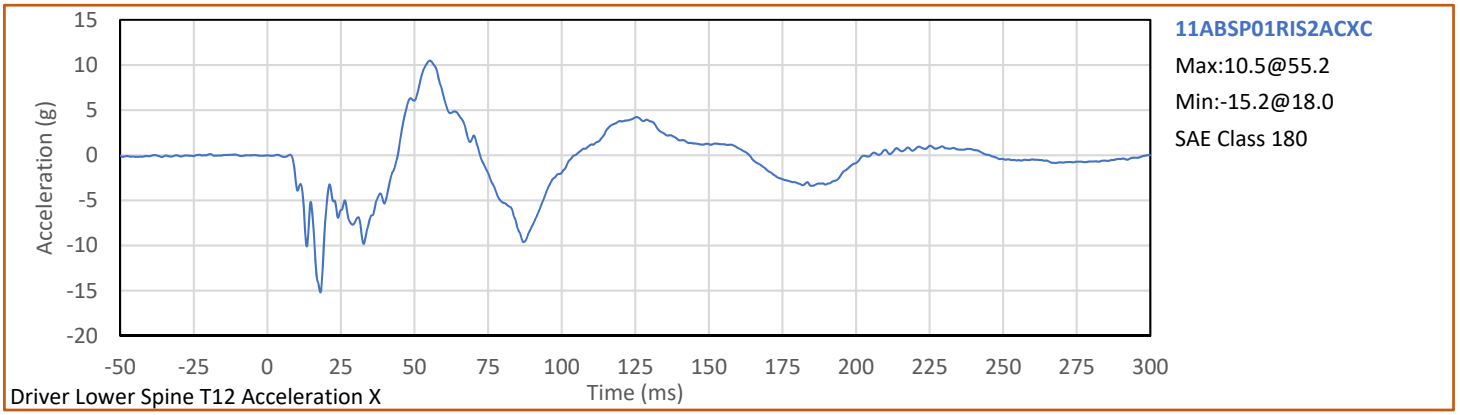
11HEAD0000S2ACZA
Max:21.1@34.3
Min:-2.5@214.0
SAE Class 1000

Driver Head Acceleration Z Primary

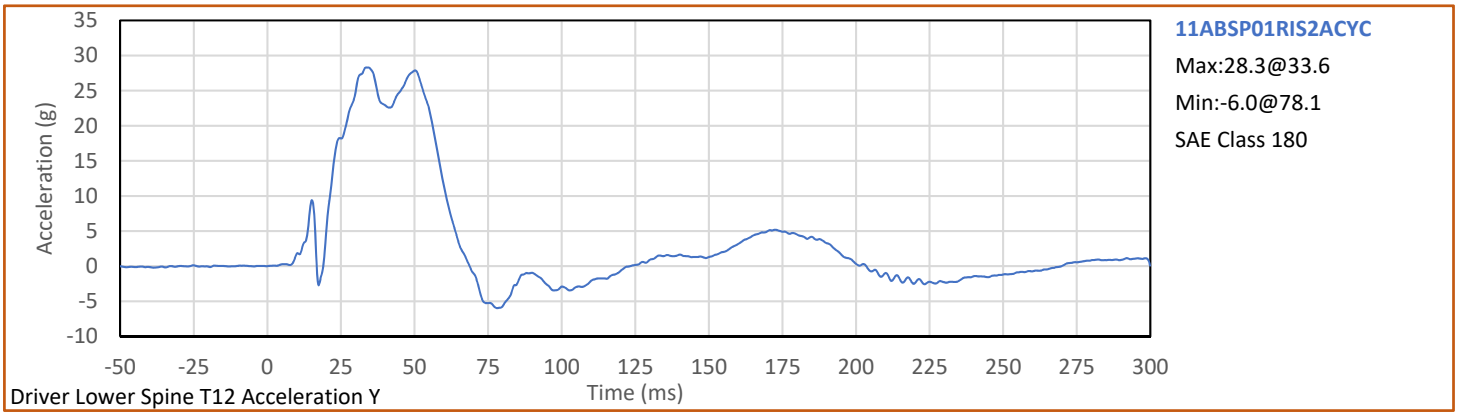


11HEAD0000S2ACRA
Max:42.6@49.0
Min:0.0@5.2
SAE Class 1000

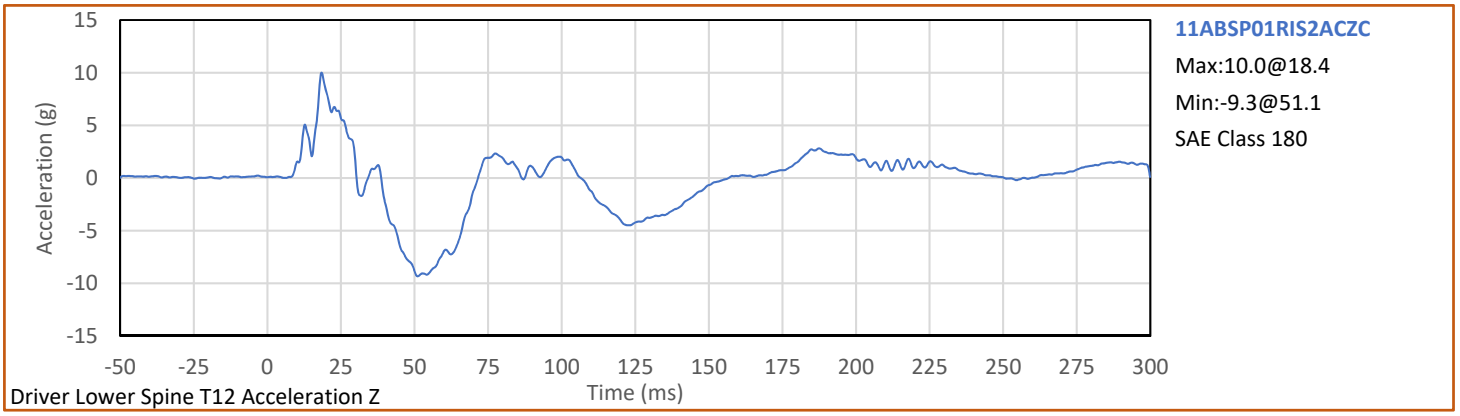
Driver Head Resultant Acceleration Primary



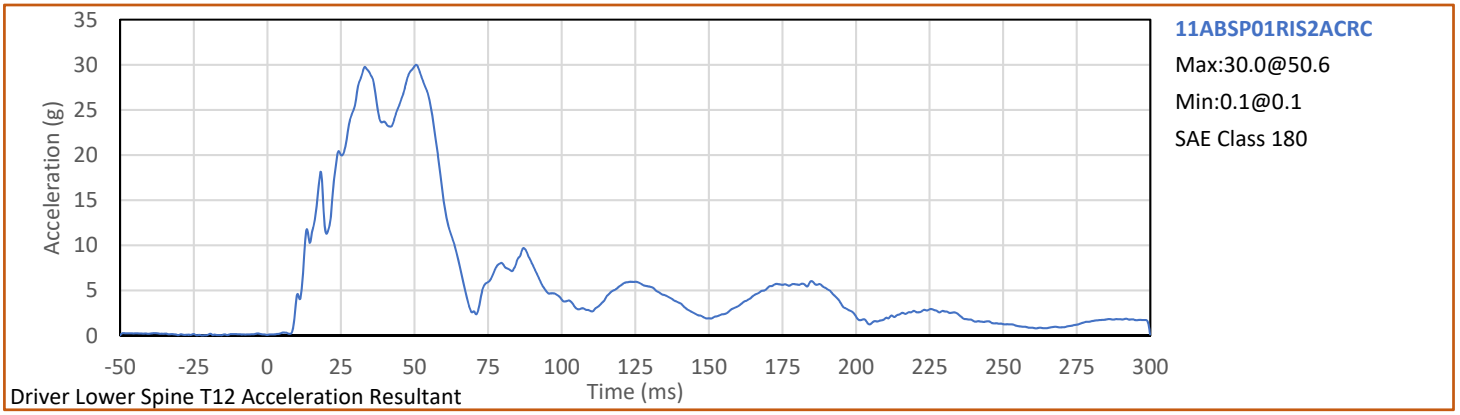
Driver Lower Spine T12 Acceleration X



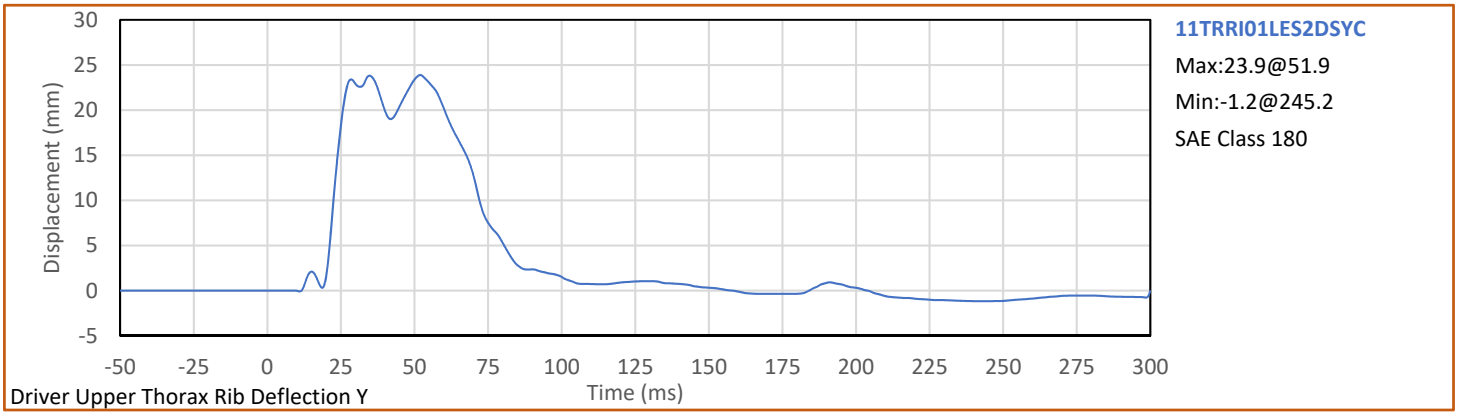
Driver Lower Spine T12 Acceleration Y



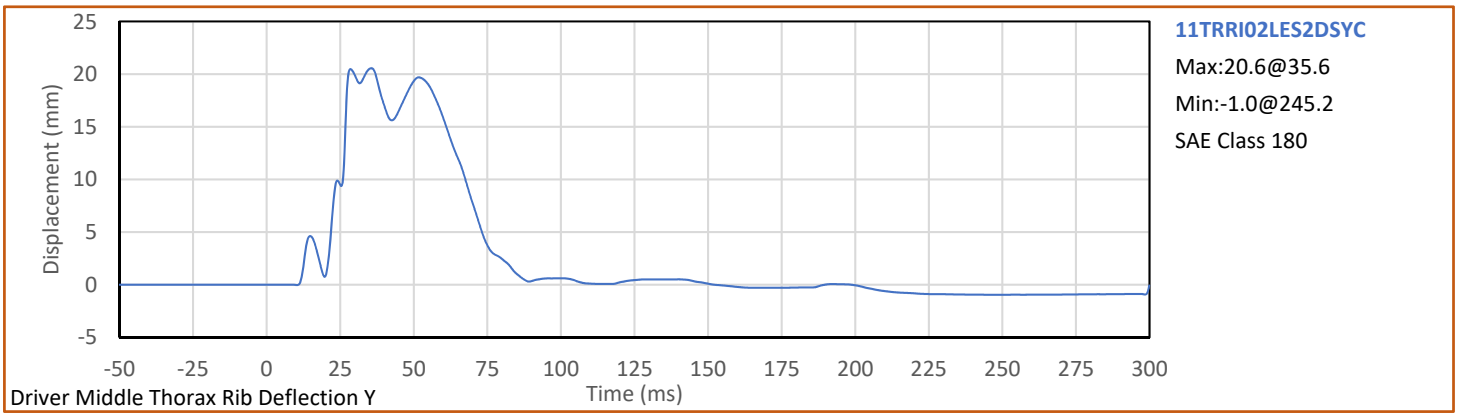
Driver Lower Spine T12 Acceleration Z



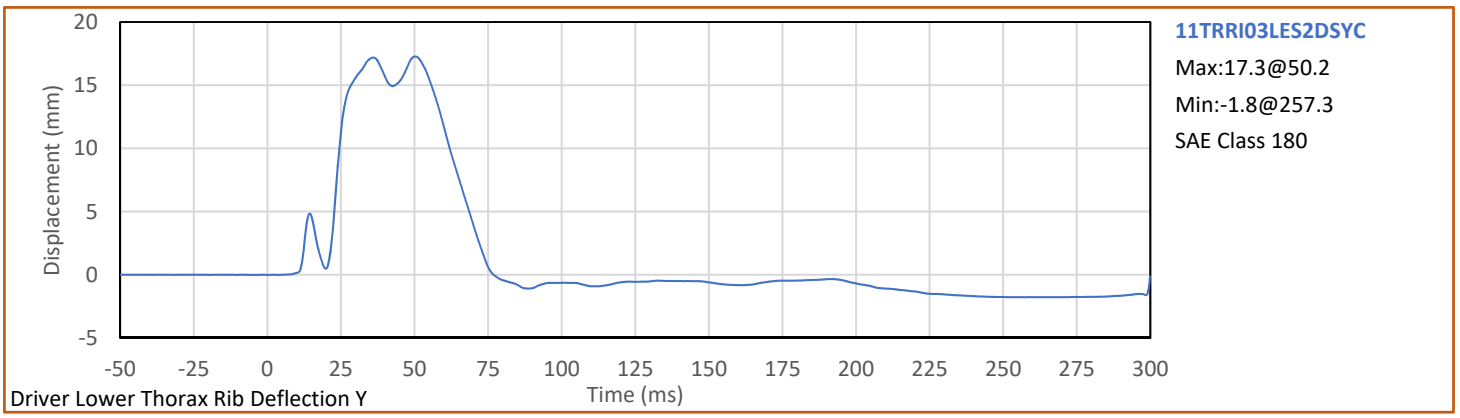
Driver Lower Spine T12 Acceleration Resultant



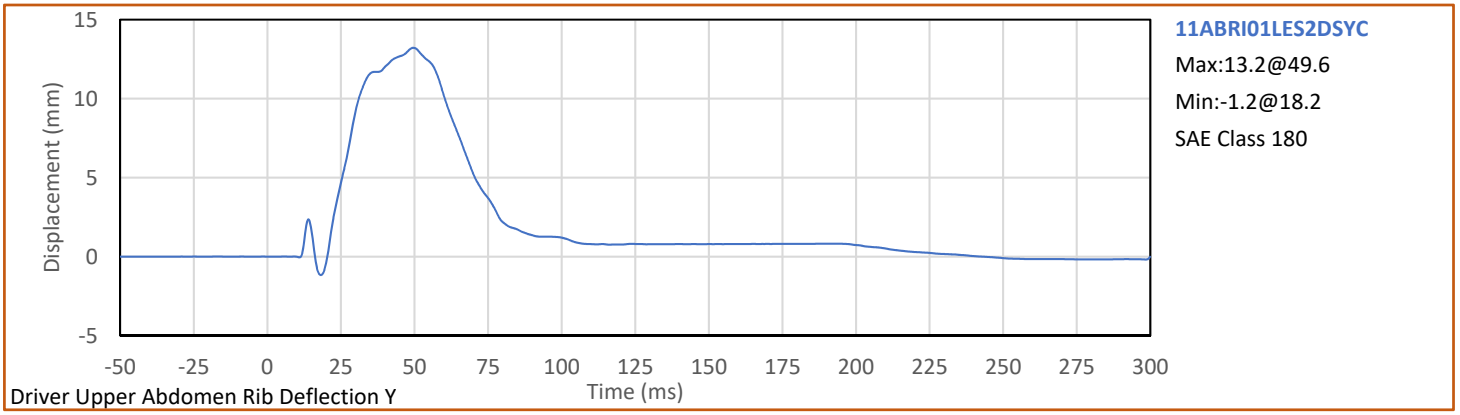
Driver Upper Thorax Rib Deflection Y



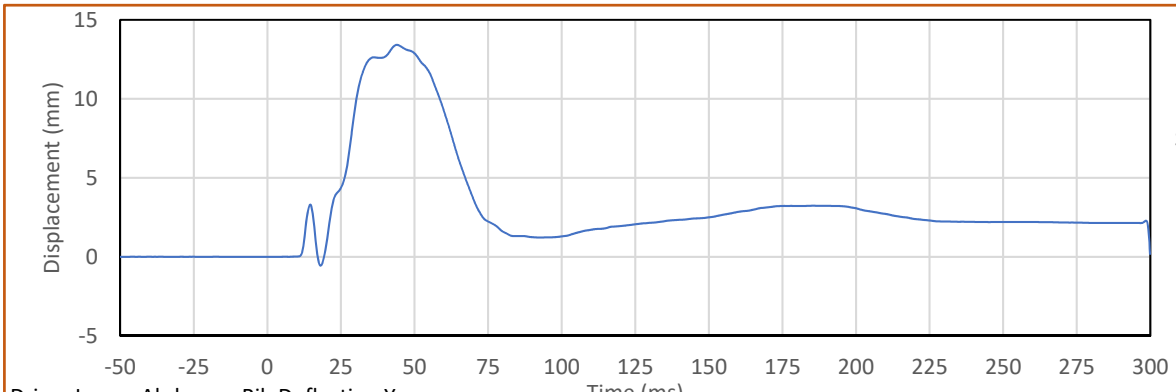
Driver Middle Thorax Rib Deflection Y



Driver Lower Thorax Rib Deflection Y

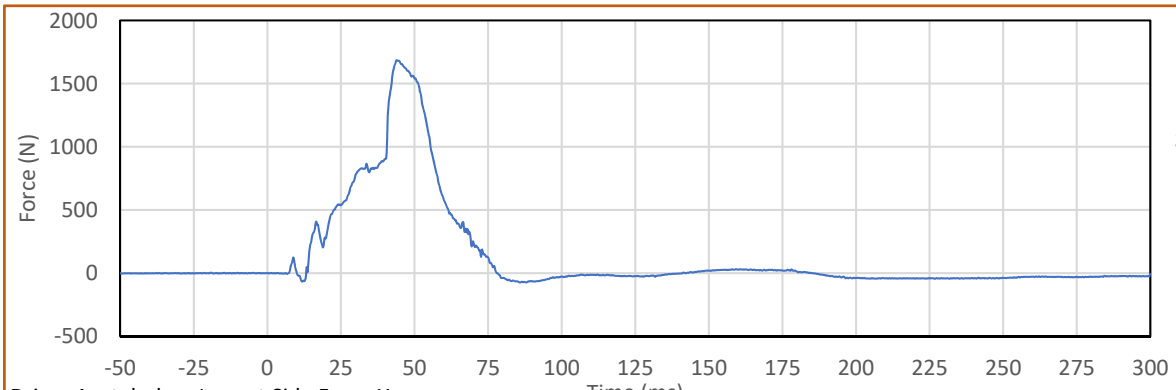


Driver Upper Abdomen Rib Deflection Y



Driver Lower Abdomen Rib Deflection Y

11ABRI02LES2DSYC
Max:13.4@44.0
Min:-0.6@18.1
SAE Class 180

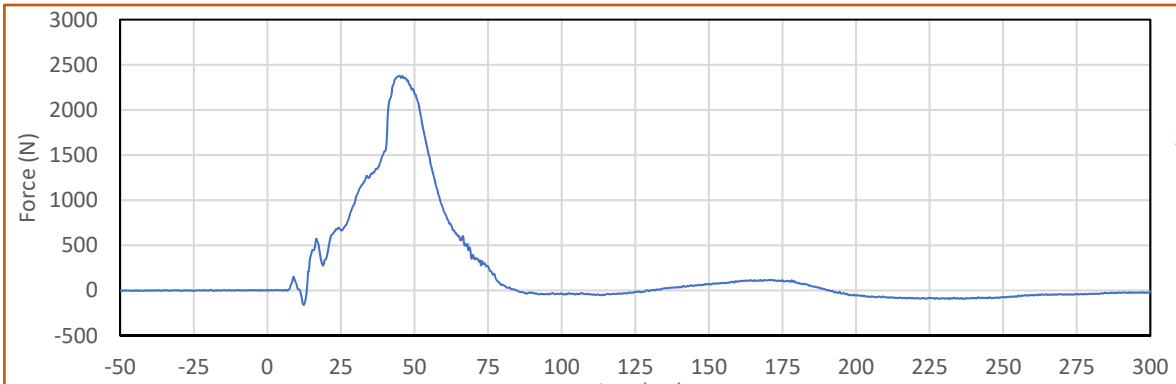


Driver Acetabulum Impact Side Force Y

11ACTBLE00S2FOYB
Max:1685.2@43.9
Min:-74.0@85.8
SAE Class 600

Driver Iliac Wing Impact Side Force Y

11ILACLE00S2FOYB
Max:731.1@46.9
Min:-99.8@12.3
SAE Class 600



Driver Combined Pelvic Force

11PELVLE00S2FOYB
Max:2378.8@44.9
Min:-159.7@12.4
SAE Class 600

APPENDIX C
ATD CONFIGURATION AND PERFORMANCE VERIFICATION DATA

APPENDIX C
Pre-Test ATD Qualification and Performance Verification
SID-IIs Small Side Impact ATD, Left Side Configuration
S/N: 299

Applus IDIADA
KARCO

SID-IIs Small Side Impact ATD
External Measurements

ATD Serial No.: 299 Test Date: 2020-02-27

Tested Parameter	Units	Spec Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Relative Humidity	%	10	70	20	Pass
A - Sitting Height	mm	772	788	785	Pass
B - Shoulder Pivot Height	mm	437	453	450	Pass
C - Hpoint Height	mm	79	89	84	Pass
D - H Point From Seatback	mm	141	151	145	Pass
E - Shoulder Pivot From Backline	mm	97	107	102	Pass
F - Thigh Clearance	mm	119	135	129	Pass
G - Head Breadth	mm	140	148	141	Pass
H - Head Back From Backline	mm	40	46	44	Pass
I - Head Depth	mm	178	188	184	Pass
J - Head Circumference	mm	541	551	548	Pass
K - Buttock To Knee Length	mm	514	540	525	Pass
L - Popliteal Height	mm	343	369	355	Pass
K - Knee Pivot To Floor Height	mm	392	409	398	Pass
N - Buttock Popliteal Length	mm	416	442	431	Pass
O - Chest Depth W/O Jacket	mm	195	211	205	Pass
P - Foot Length	mm	216	232	222	Pass
Q - Hip Breadth (W/Pelvic Plugs)	mm	313	323	317	Pass
R - Arm Length	mm	249	259	255	Pass
S - Knee Joint To Seatback	mm	477	493	485	Pass
V - Shoulder Width	mm	341	357	343	Pass
W - Foot Width	mm	78	94	86	Pass
Y - Chest Circumference W/Jacket	mm	851	881	872	Pass
Z - Waist Circumference	mm	761	791	771	Pass
			Overall Test Results		Pass

Technician: J. Hernandez

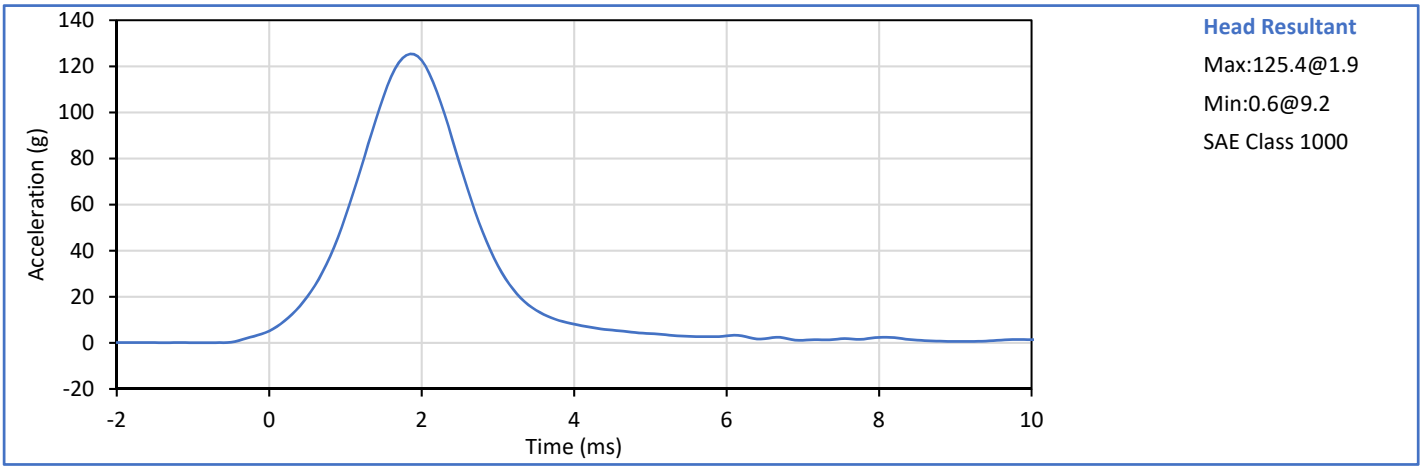
Approved By: P. Puzzuto

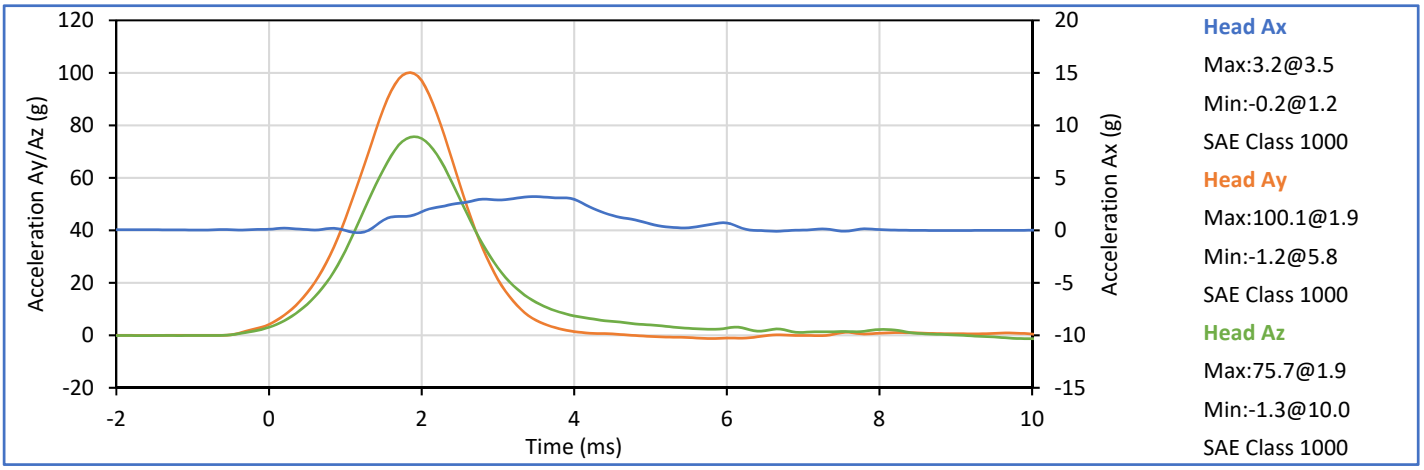
Applus IDIADA
KARCO

SID-IIs Small Side Impact ATD
Head Drop

ATD Serial No.: 299 Test Date: 2020-02-27

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.1	Pass
Laboratory Humidity	%	10	70	22	Pass
Peak Resultant Acceleration	g	115.0	137.0	125.4	Pass
Peak Head Ax	g	-15.0	15.0	-0.2	Pass
Oscillations After Main Pulse	%	0.0	15.0	2.6	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
			Overall Test Results		Pass





Technician: J. Hernandez

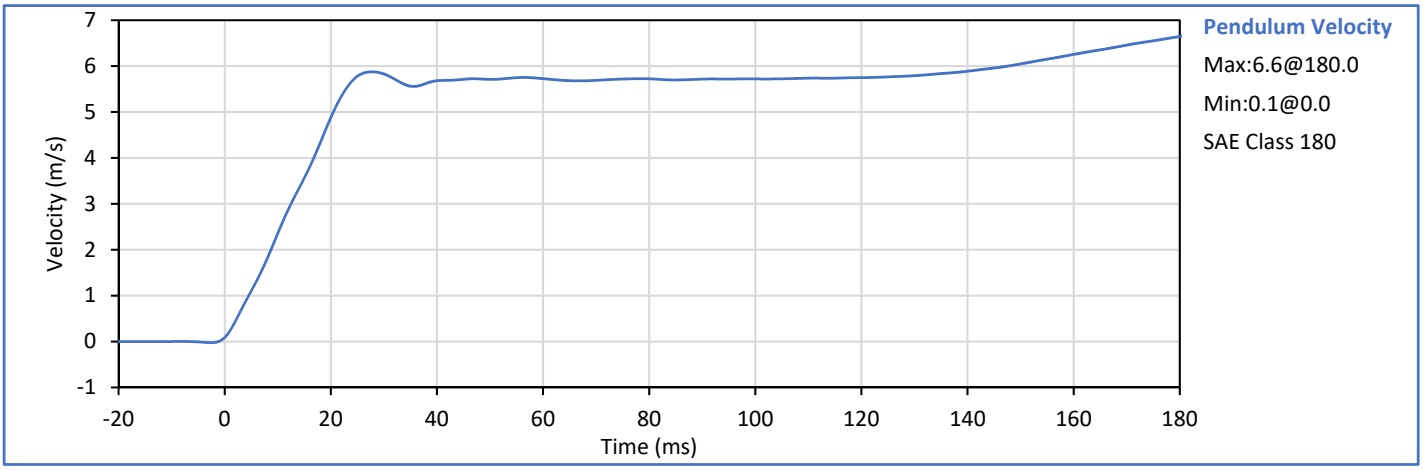
Approved By: P. Puzzuto

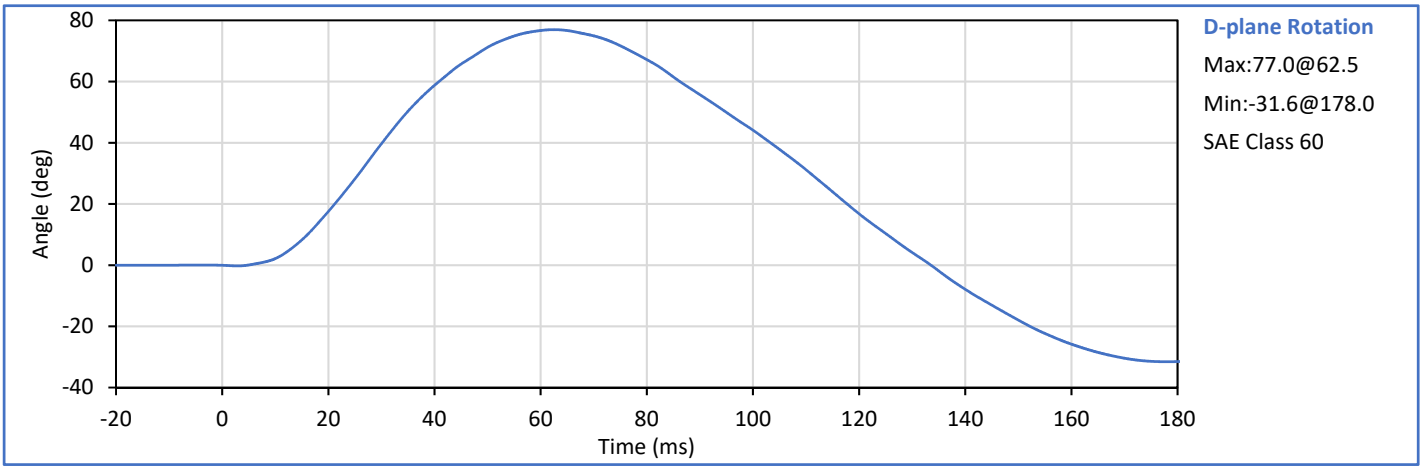
Applus IDIADA KARCO

SID-IIs Small Side Impact ATD
Neck Flexion

ATD Serial No.: 299 Test Date: 2020-02-27

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Humidity	%	10	70	20	Pass
Pendulum Velocity	m/s	5.51	5.63	5.61	Pass
Pendulum Decel at 10 ms	m/s	2.20	2.80	2.35	Pass
Pendulum Decel at 15 ms	m/s	3.30	4.10	3.56	Pass
Pendulum Decel at 20 ms	m/s	4.40	5.40	4.88	Pass
Pendulum Decel at 25 ms	m/s	5.40	6.10	5.78	Pass
Pendulum Decel from 25-100 ms	m/s	5.50	6.20	5.88	Pass
Peak "D" Plane Rotation	deg	71.0	81.0	77.0	Pass
Time of Peak "D" Plane Rotation	ms	50.0	70.0	62.5	Pass
Peak Occ. Condyle Moment	Nm	-44.0	-36.0	-40.8	Pass
Time of Moment Decay to 0 Nm	ms	102.0	126.0	114.0	Pass
			Overall Test Results		Pass





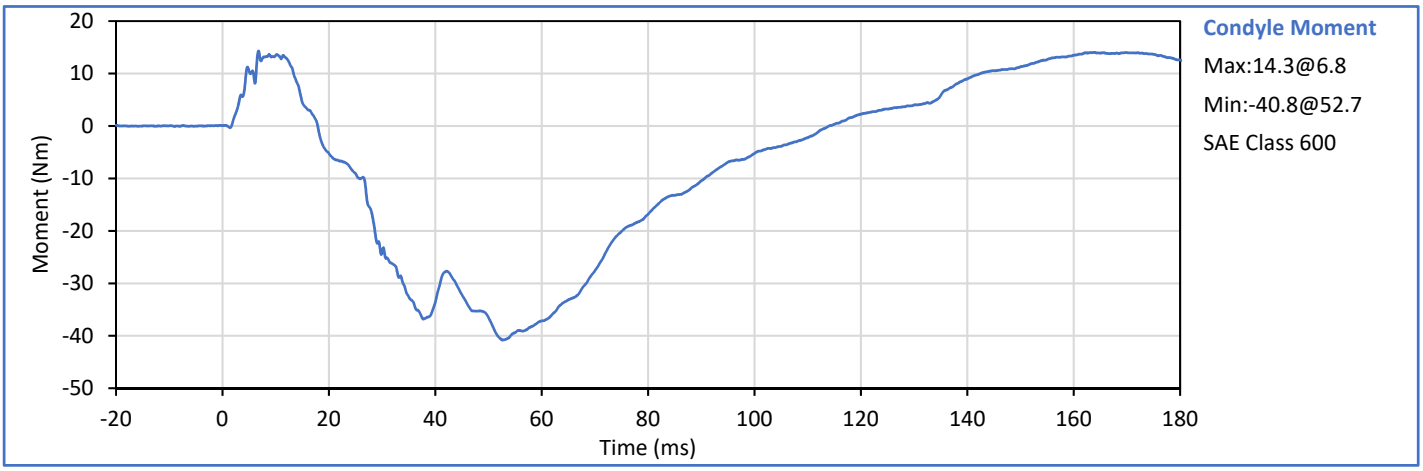
Technician: J. Hernandez

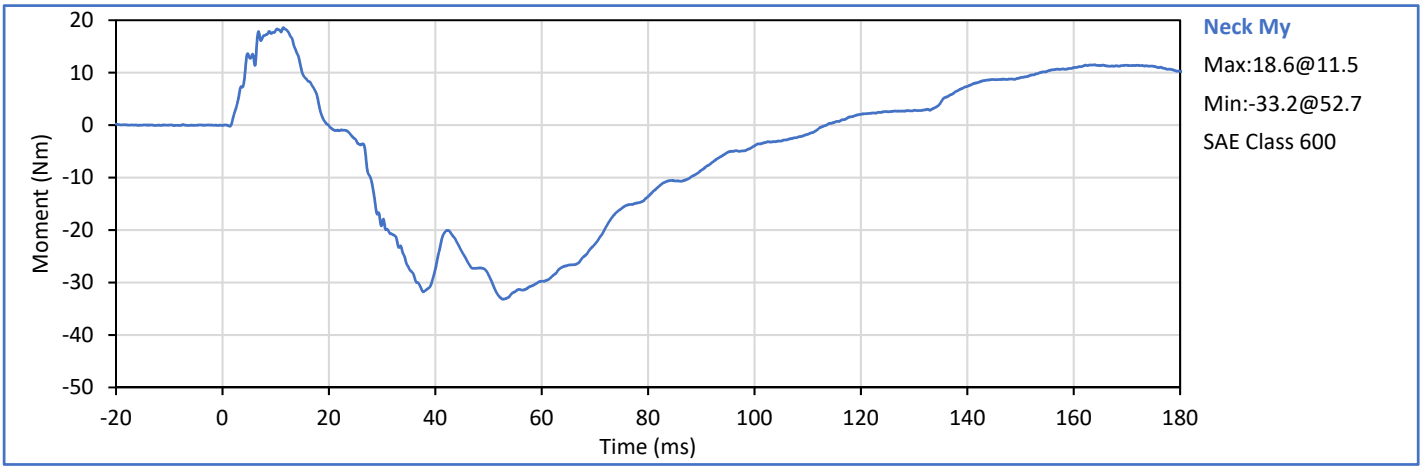
Approved By: P. Puzzuto

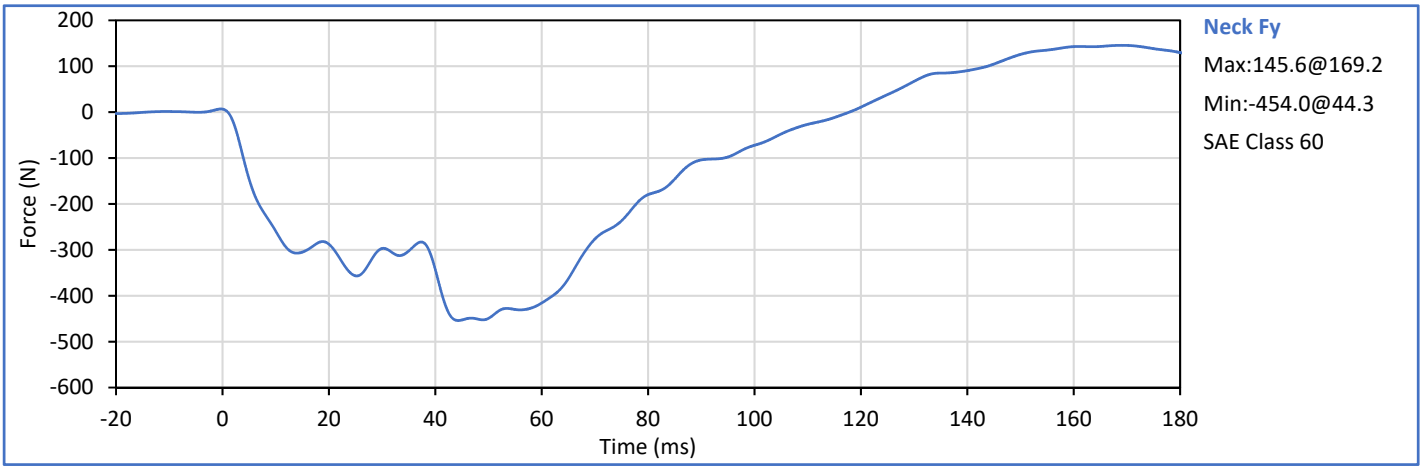
Applus IDIADA
KARCO

SID-IIs Small Side Impact ATD
Neck Flexion

ATD Serial No.: 299 Test Date: 2020-02-27





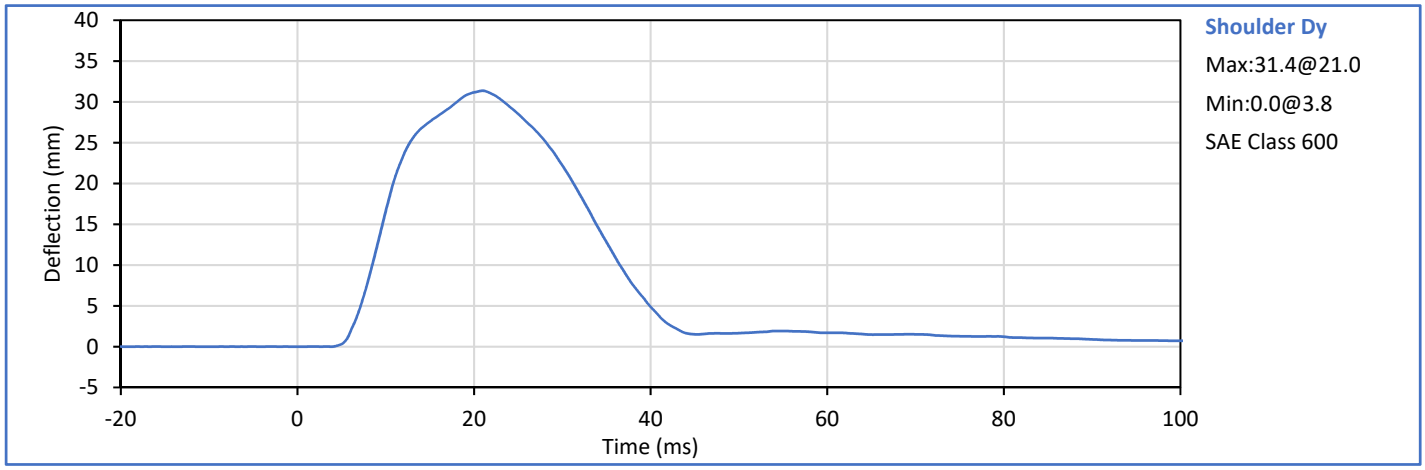


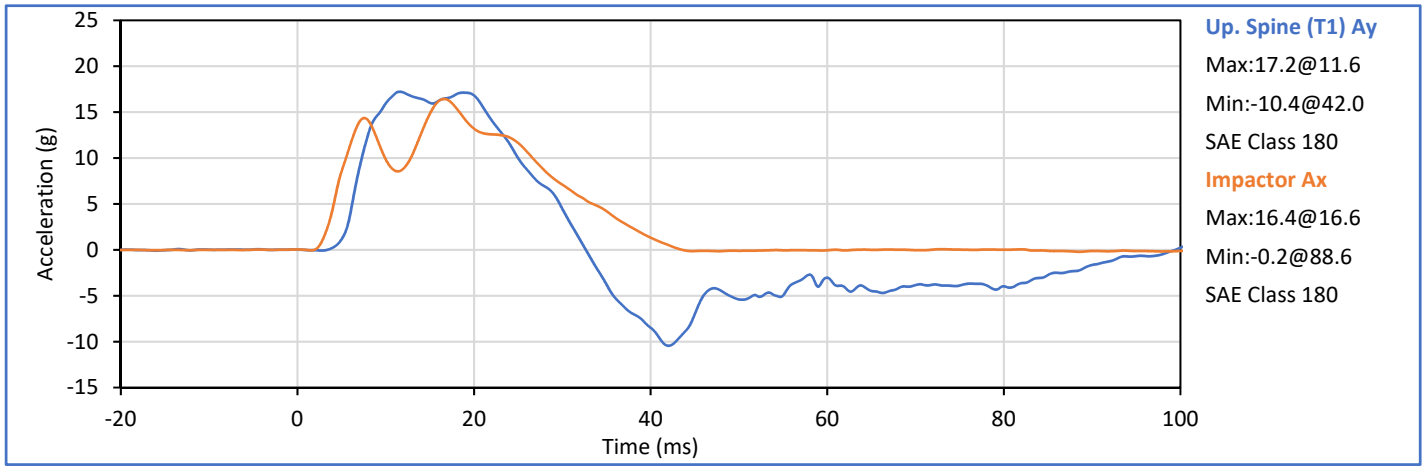
Applus IDIADA
KARCO

SID-IIs Small Side Impact ATD
Shoulder Impact Test

ATD Serial No.: 299 Test Date: 2020-02-27

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Humidity	%	10	70	19	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Shoulder Dy	mm	28.0	37.0	31.4	Pass
Peak Upper Spine (T1) Ay	g	17.0	22.0	17.2	Pass
Peak Impactor Ax	g	13.0	18.0	16.4	Pass
			Overall Test Results		Pass





Technician: J. Hernandez

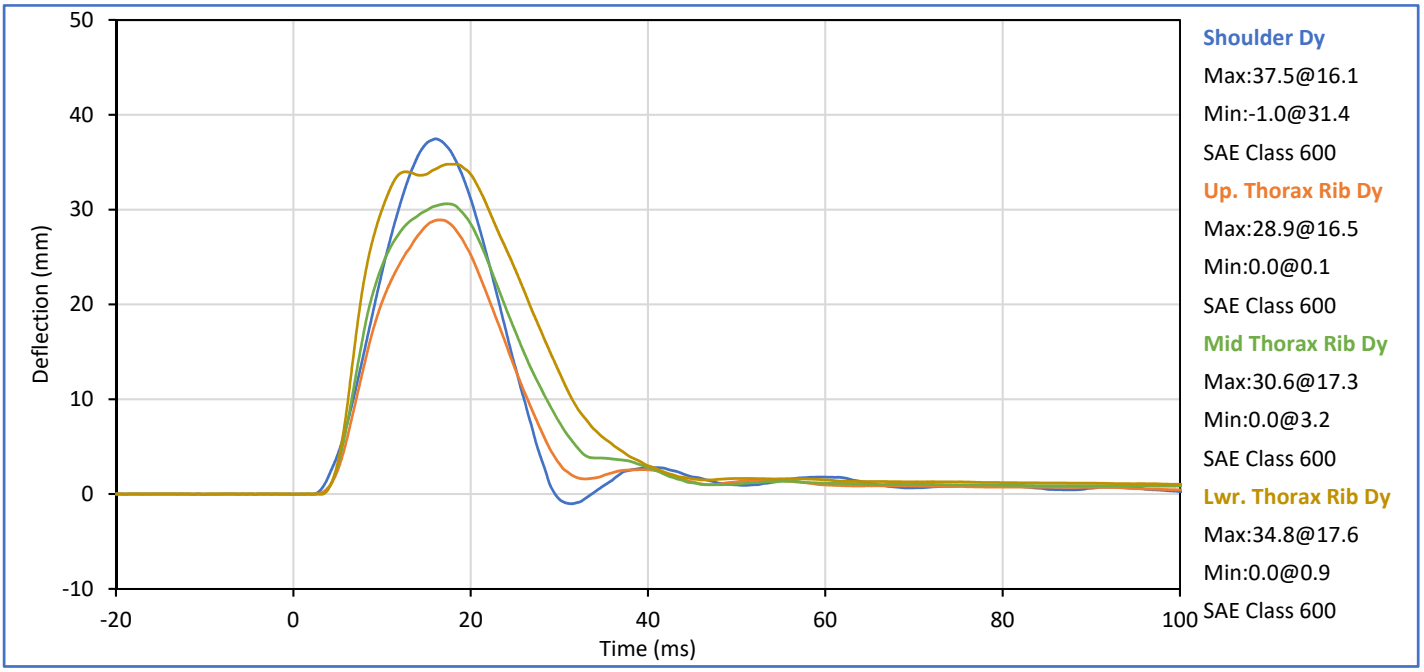
Approved By: P. Puzzuto

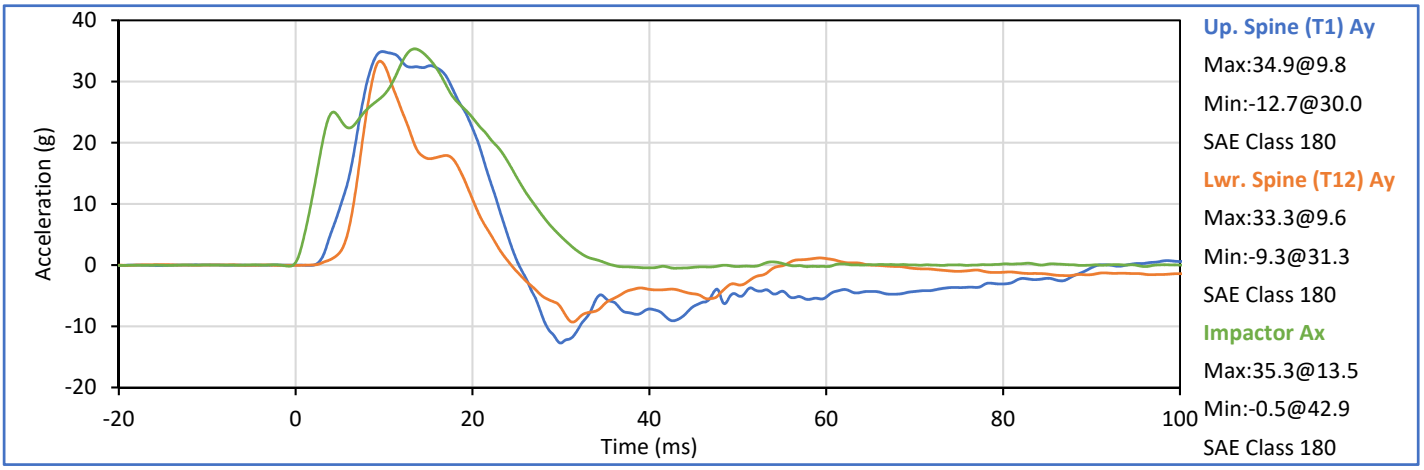
Applus IDIADA
KARCO

SID-IIs Small Side Impact ATD
Thorax (With Arm)

ATD Serial No.: 299 Test Date: 2020-02-27

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Humidity	%	10	70	20	Pass
Impactor Velocity	m/s	6.60	6.80	6.68	Pass
Peak Shoulder Dy	mm	31.0	40.0	37.5	Pass
Peak Upper Rib Dy	mm	25.0	32.0	28.9	Pass
Peak Middle Rib Dy	mm	30.0	36.0	30.6	Pass
Peak Lower Rib Dy	mm	32.0	38.0	34.8	Pass
Peak Upper Spine (T1) Ay	g	34.0	43.0	34.9	Pass
Peak Lower Spine (T12) Ay	g	29.0	37.0	33.3	Pass
Peak Impactor Ax	g	30.0	36.0	35.3	Pass
			Overall Test Results		Pass





Technician: J. Hernandez

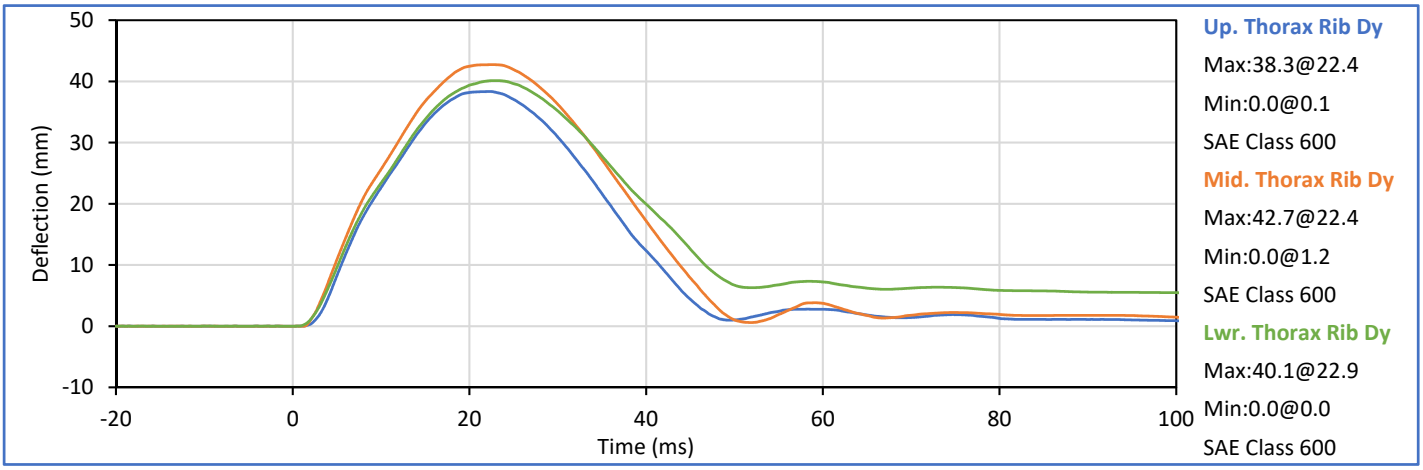
Approved By: P. Puzzuto

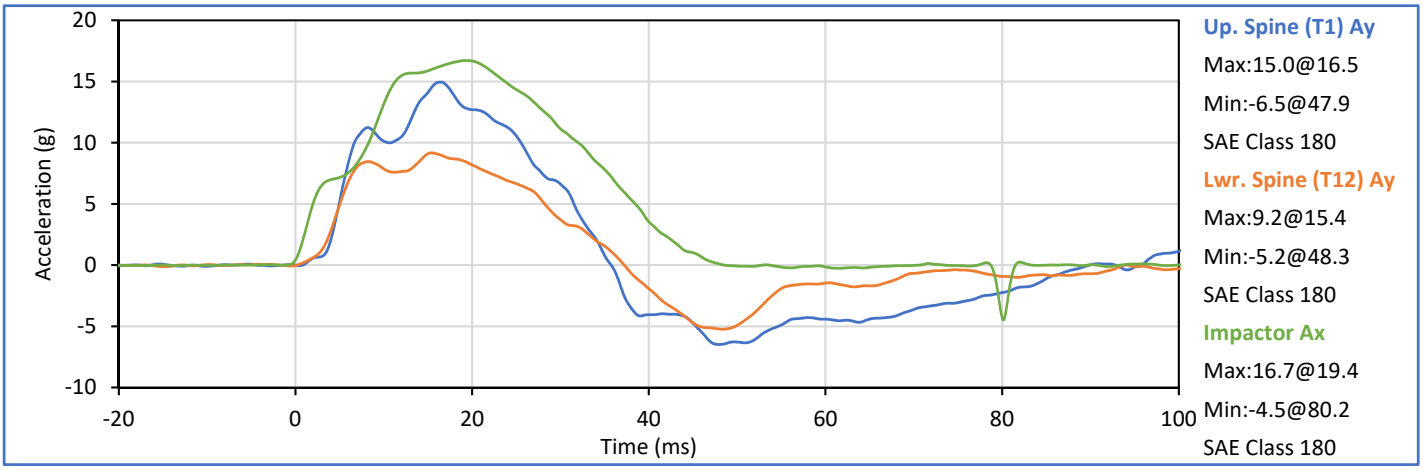
Applus IDIADA
KARCO

SID-IIs Small Side Impact ATD
Thorax (No Arm)

ATD Serial No.: 299 Test Date: 2020-02-27

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Humidity	%	10	70	19	Pass
Impactor Velocity	m/s	4.20	4.40	4.33	Pass
Peak Upper Rib Dy	mm	32.0	40.0	38.3	Pass
Peak Middle Rib Dy	mm	39.0	45.0	42.7	Pass
Peak Lower Rib Dy	mm	35.0	43.0	40.1	Pass
Peak Upper Spine (T1) Ay	g	13.0	17.0	15.0	Pass
Peak Lower Spine (T12) Ay	g	7.0	11.0	9.2	Pass
Peak Impactor Ax	g	14.0	18.0	16.7	Pass
			Overall Test Results		Pass





Technician: J. Hernandez

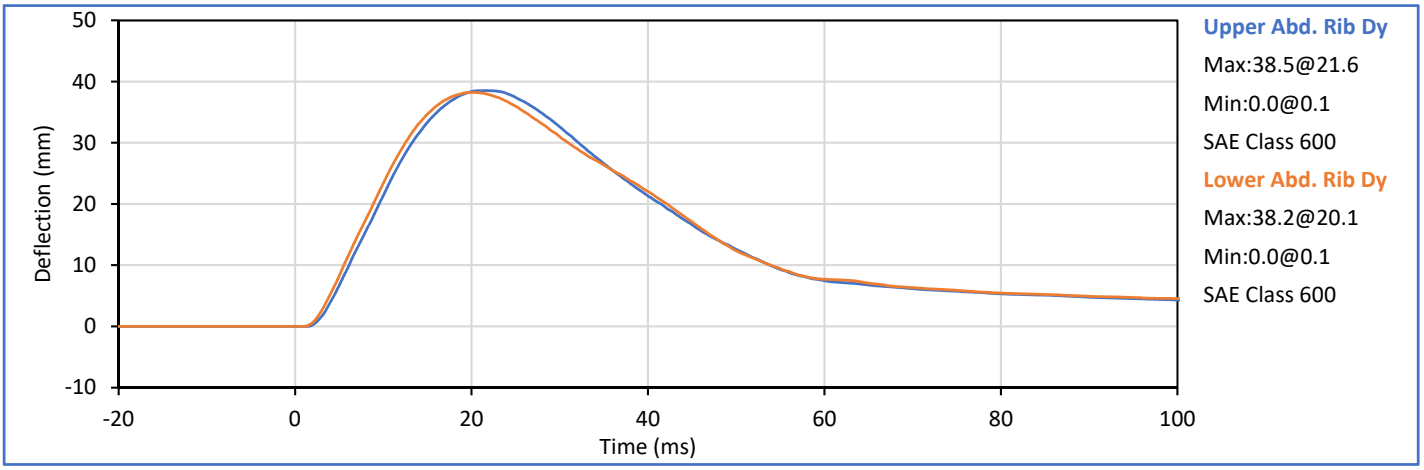
Approved By: P. Puzzuto

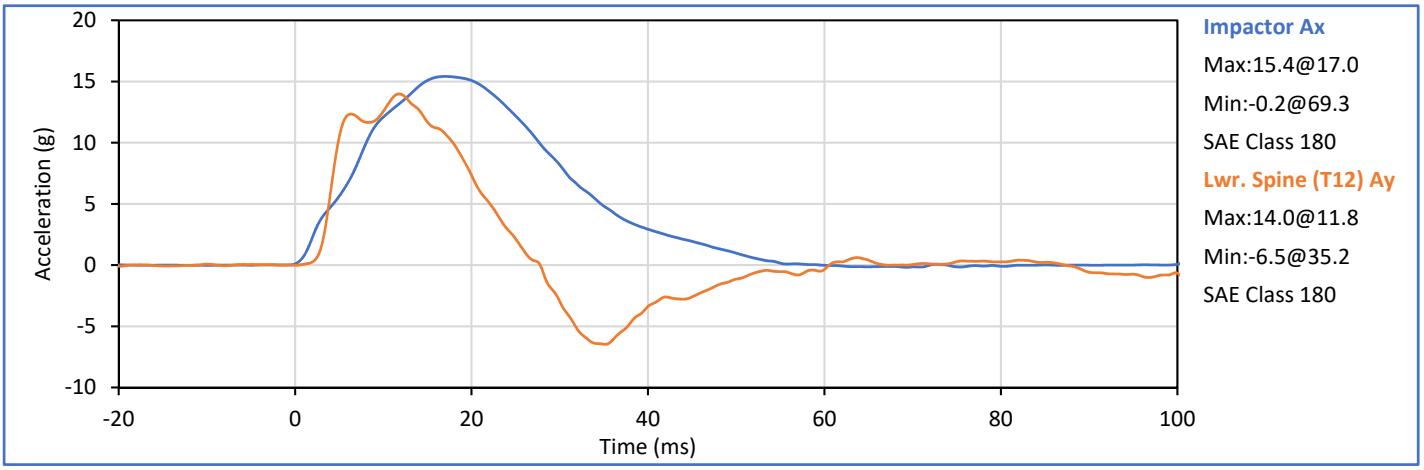
Applus IDIADA
KARCO

SID-IIs Small Side Impact ATD
Abdomen Impact

ATD Serial No.: 299 Test Date: 2020-02-27

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Humidity	%	10	70	19	Pass
Impactor Velocity	m/s	4.20	4.40	4.35	Pass
Peak Upper Abdomen Rib Dy	mm	36.0	47.0	38.5	Pass
Peak Lower Abdomen Rib Dy	mm	33.0	44.0	38.2	Pass
Peak Lower Spine T12 Ay	mm	9.0	14.0	14.0	Pass
Peak Impactor Ax	g	12.0	16.0	15.4	Pass
			Overall Test Results		Pass





Technician: J. Hernandez

Approved By: P. Puzzuto

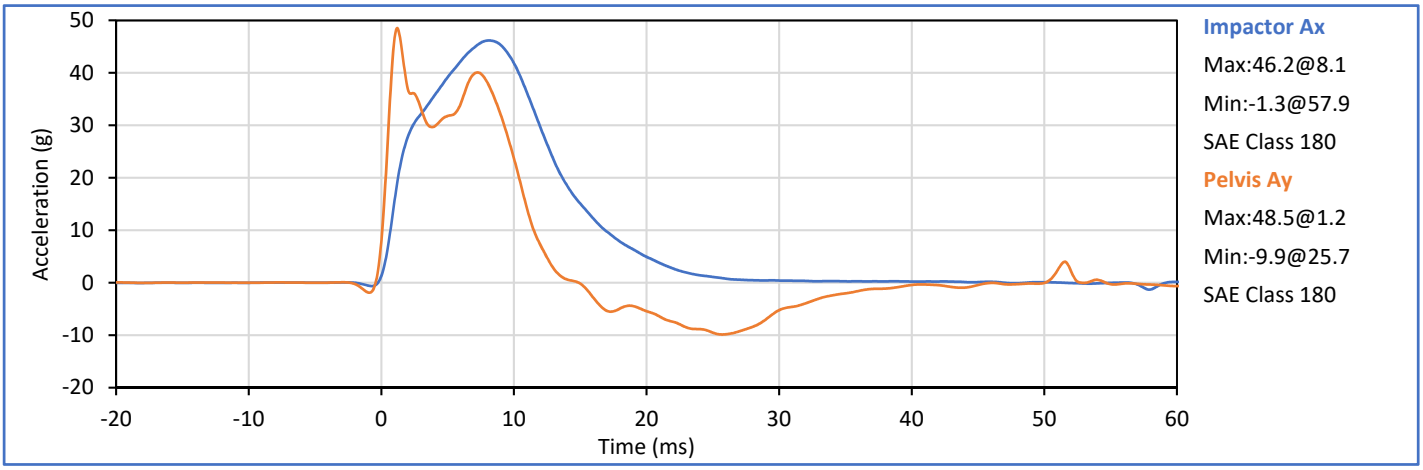
Applus IDIADA
KARCO

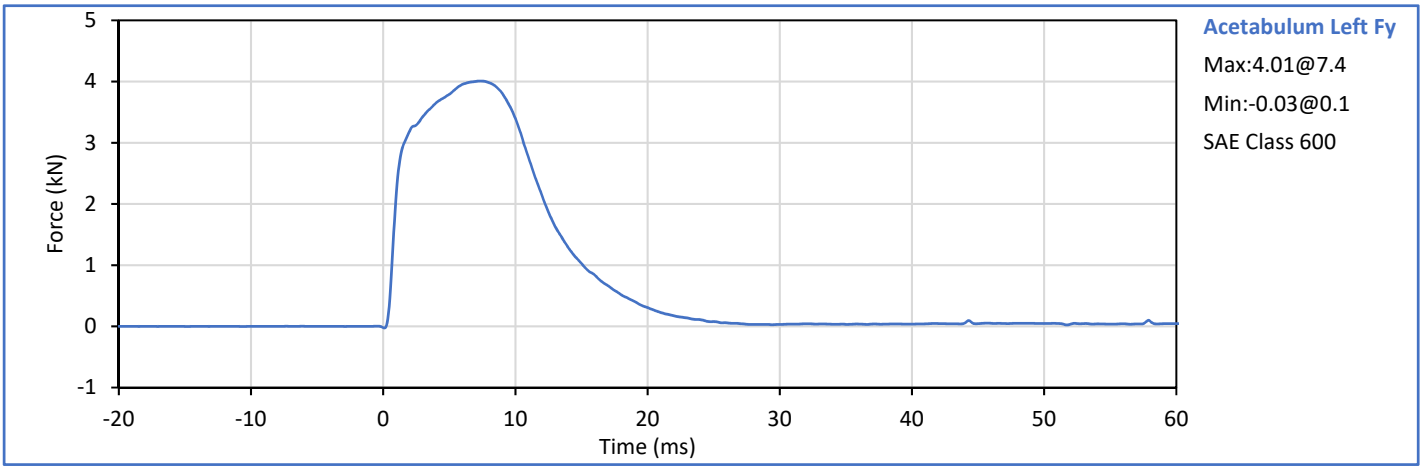
SID-IIs Small Side Impact ATD
Pelvis Acetabulum Impact

ATD Serial No.: 299 Test Date: 2020-02-27

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.2	Pass
Laboratory Humidity	%	10	70	42	Pass
Impactor Velocity	m/s	6.60	6.80	6.72	Pass
Peak Acetabulum Fy	kN	3.60	4.30	4.01	Pass
Pelvis Ay after 6ms	g	34.0	42.0	40.1	Pass
Peak Impactor Ax	g	38.0	47.0	46.2	Pass
			Overall Test Results		Pass

Pelvis Plug S/N: 13593





Technician: J. Hernandez

Approved By: P. Puzzuto

SID-IIs Small Side Impact ATD
Pelvis Acetabulum Impact

ATD Serial No.: 299 Test Date: 2020-02-27

Pelvis Plug S/N: 13593

SACO RESEARCH

SID-IIs Pelvis Plug Certification Test

Plug S/N 13593
Test Number 11237
Report Number 11275
Test Date 9/25/2019 12:43:56 PM

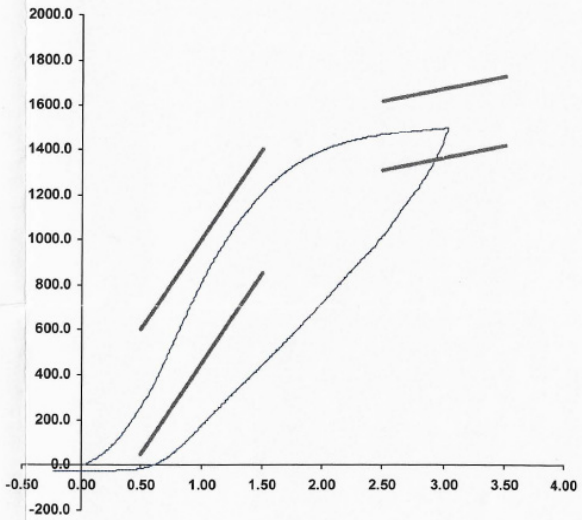
	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	268.60	50.00	600.00
Force @ 1.5 mm (N)	1,210.23	850.00	1,400.00
Force @ 2.5 mm (N)	1,468.90	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,500.60	1,361.00	1,673.00

Testing Machine STM-20 5965542
Load Cell S/N (FI360947), Units (LBS 1000

Crosshead Speed (mm / min) or Rat 12.7
Extension or Position Measured by XHD_100 (XHD100)

Notes:

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 25-Sep-19
SACO Research

By : DC Date : 9/25/2019

SACO Research 41735 Elm St, #401 Murrieta, CA 92562 Tel 310-694-2082 FAX

Applus IDIADA
KARCO

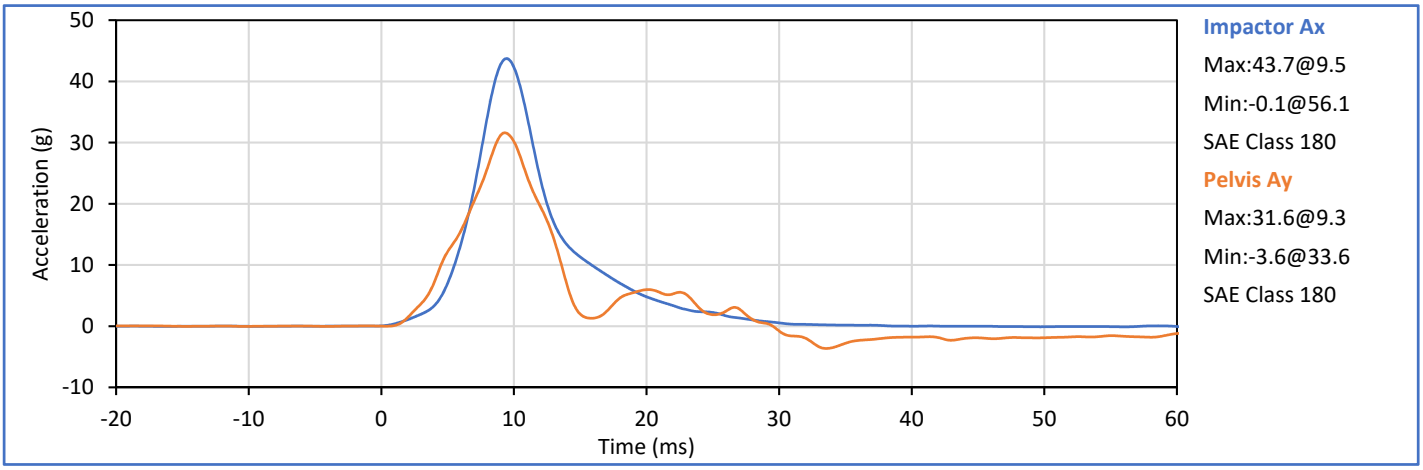
SID-IIs Small Side Impact ATD
Pelvis Iliac Impact

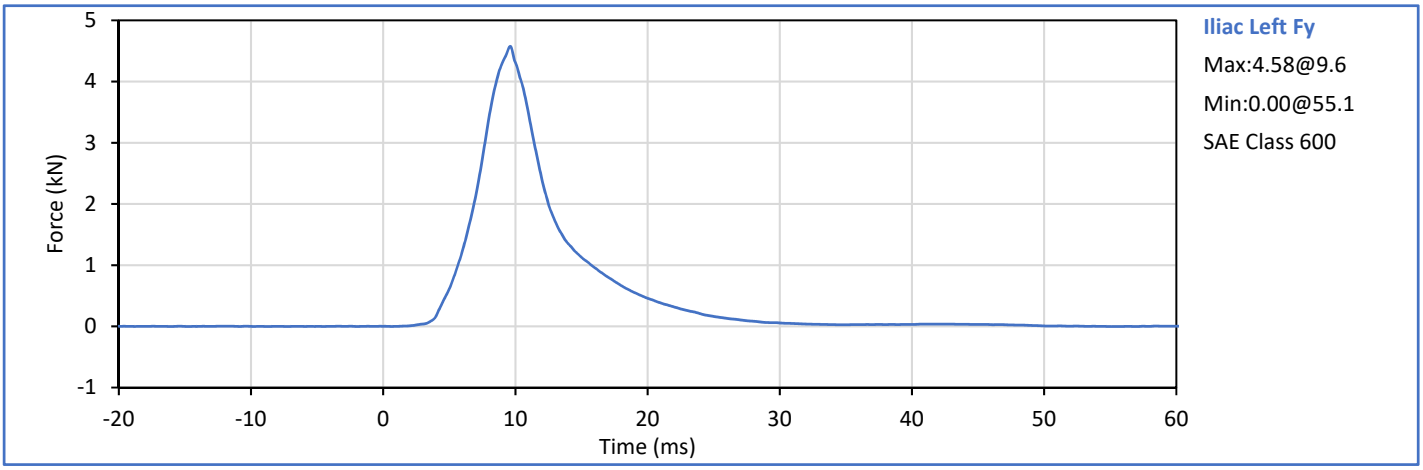
ATD Serial No.: 299 Test Date: 2020-02-27

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Humidity	%	10	70	19	Pass
Impactor Velocity	m/s	4.20	4.40	4.33	Pass
Peak Iliac Fy	kN	4.10	5.10	4.58	Pass
Pelvis Ay after 6ms	g	28.0	39.0	31.6	Pass
Peak Impactor Ax	g	36.0	45.0	43.7	Pass
			Overall Test Results		Pass

Pelvis Plug S/N: 12228 *

* Plug is not impacted and remains certified





Technician: J. Hernandez

Approved By: P. Puzzuto

APPENDIX C
Post-Test ATD Qualification and Performance Verification
SID-IIs Small Side Impact ATD, Left Side Configuration
S/N: 299

Applus IDIADA
KARCO

SID-IIs Small Side Impact ATD
External Measurements

ATD Serial No.: 299 Test Date: 2020-03-04

Tested Parameter	Units	Spec Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.2	Pass
Laboratory Relative Humidity	%	10	70	44	Pass
A - Sitting Height	mm	772	788	778	Pass
B - Shoulder Pivot Height	mm	437	453	450	Pass
C - Hpoint Height	mm	79	89	82	Pass
D - H Point From Seatback	mm	141	151	149	Pass
E - Shoulder Pivot From Backline	mm	97	107	101	Pass
F - Thigh Clearance	mm	119	135	126	Pass
G - Head Breadth	mm	140	148	145	Pass
H - Head Back From Backline	mm	40	46	44	Pass
I - Head Depth	mm	178	188	184	Pass
J - Head Circumference	mm	541	551	548	Pass
K - Buttock To Knee Length	mm	514	540	526	Pass
L - Popliteal Height	mm	343	369	351	Pass
K - Knee Pivot To Floor Height	mm	392	409	401	Pass
N - Buttock Popliteal Length	mm	416	442	438	Pass
O - Chest Depth W/O Jacket	mm	195	211	205	Pass
P - Foot Length	mm	216	232	225	Pass
Q - Hip Breadth (W/Pelvic Plugs)	mm	313	323	319	Pass
R - Arm Length	mm	249	259	255	Pass
S - Knee Joint To Seatback	mm	477	493	487	Pass
V - Shoulder Width	mm	341	357	346	Pass
W - Foot Width	mm	78	94	82	Pass
Y - Chest Circumference W/Jacket	mm	851	881	869	Pass
Z - Waist Circumference	mm	761	791	776	Pass
			Overall Test Results		Pass

Technician: J. Hernandez

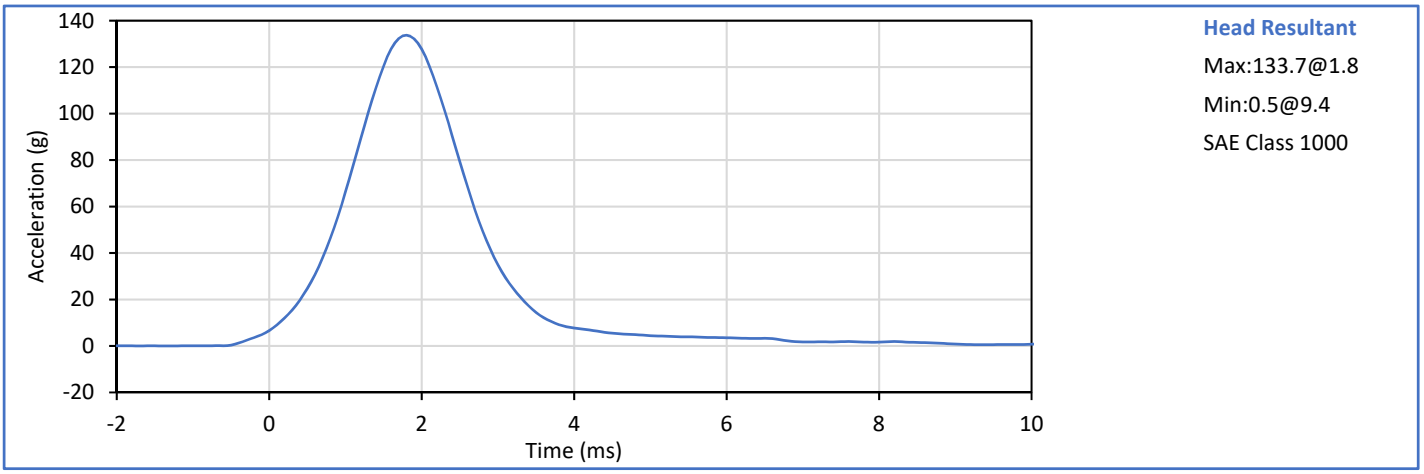
Approved By: P. Puzzuto

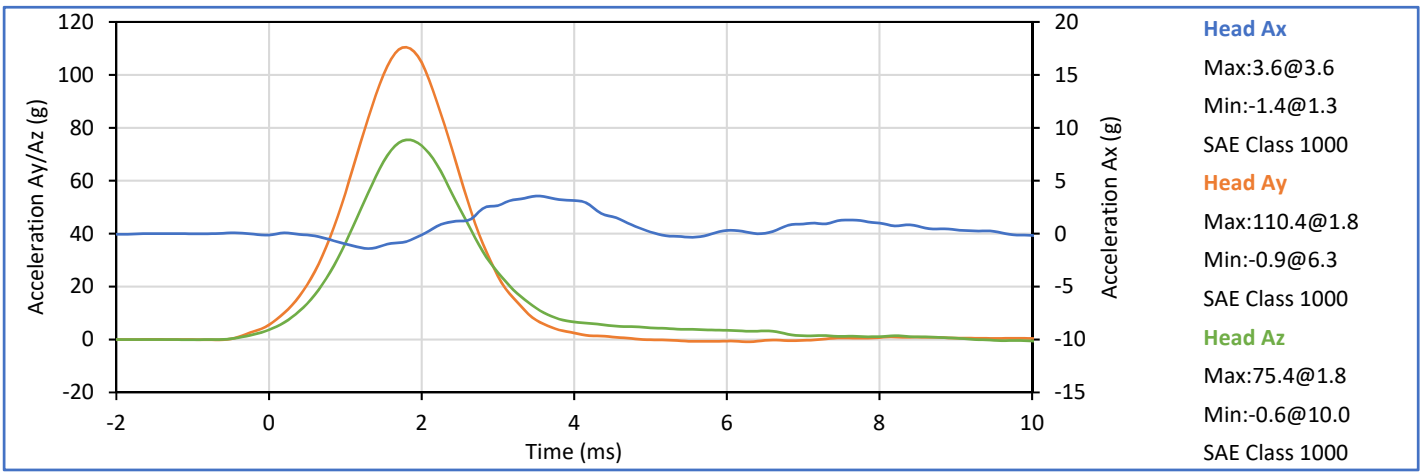
Applus IDIADA
KARCO

SID-IIs Small Side Impact ATD
Head Drop

ATD Serial No.: 299 Test Date: 2020-03-04

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.1	Pass
Laboratory Humidity	%	10	70	30	Pass
Peak Resultant Acceleration	g	115.0	137.0	133.7	Pass
Peak Head Ax	g	-15.0	15.0	-1.4	Pass
Oscillations After Main Pulse	%	0.0	15.0	2.7	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
			Overall Test Results		Pass





Technician: J. Hernandez

Approved By: P. Puzzuto

C-13

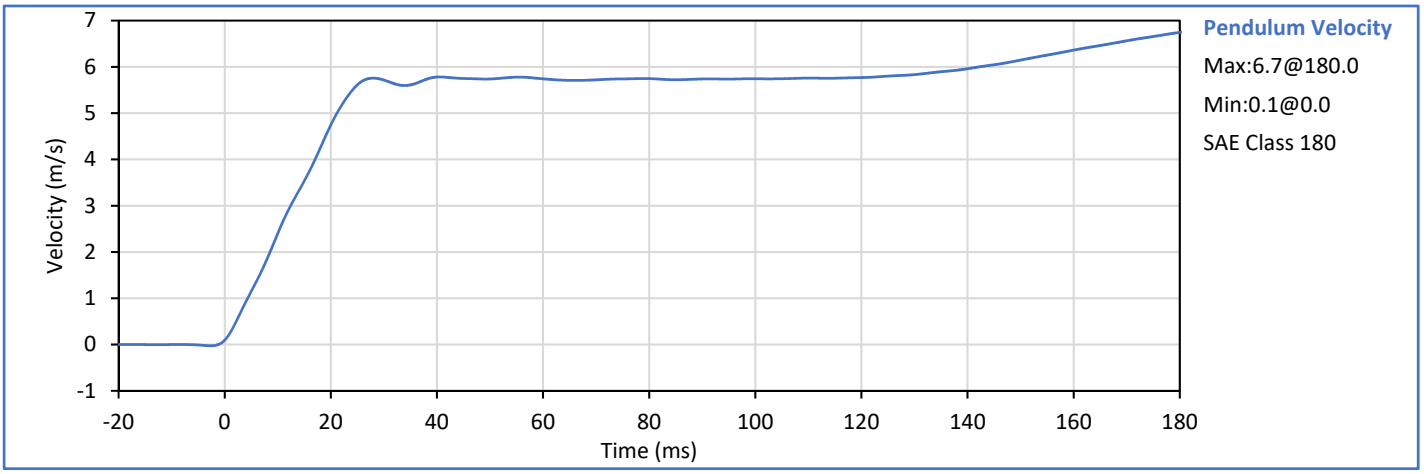
TR-P40044-01-NC

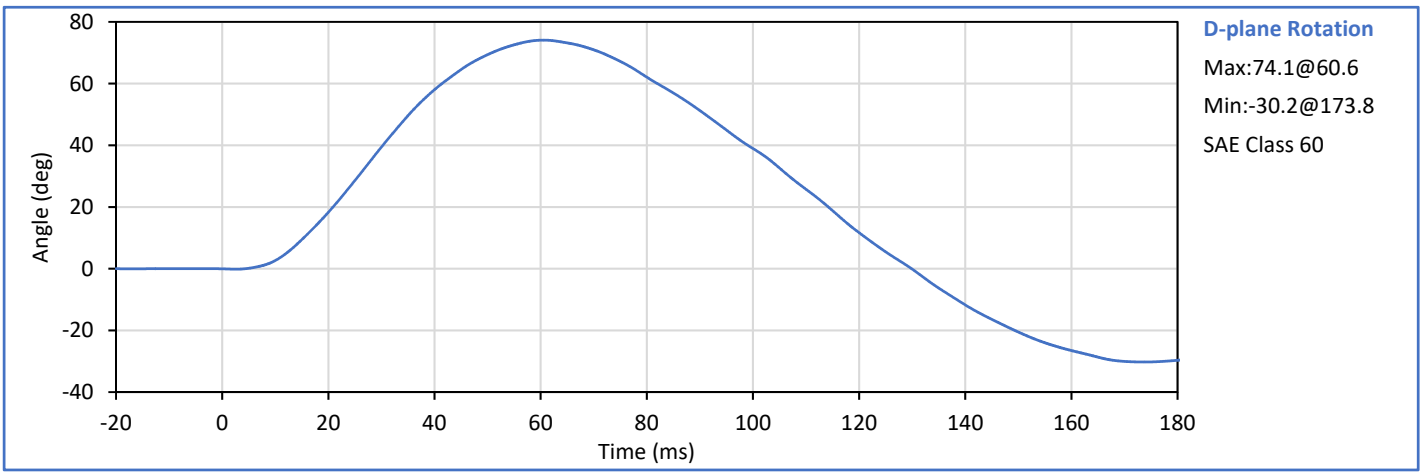
Applus IDIADA
KARCO

SID-IIs Small Side Impact ATD
Neck Flexion

ATD Serial No.: 299 Test Date: 2020-03-04

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Humidity	%	10	70	31	Pass
Pendulum Velocity	m/s	5.51	5.63	5.53	Pass
Pendulum Decel at 10 ms	m/s	2.20	2.80	2.40	Pass
Pendulum Decel at 15 ms	m/s	3.30	4.10	3.54	Pass
Pendulum Decel at 20 ms	m/s	4.40	5.40	4.75	Pass
Pendulum Decel at 25 ms	m/s	5.40	6.10	5.61	Pass
Pendulum Decel from 25-100 ms	m/s	5.50	6.20	5.78	Pass
Peak "D" Plane Rotation	deg	71.0	81.0	74.1	Pass
Time of Peak "D" Plane Rotation	ms	50.0	70.0	60.6	Pass
Peak Occ. Condyle Moment	Nm	-44.0	-36.0	-41.3	Pass
Time of Moment Decay to 0 Nm	ms	102.0	126.0	115.7	Pass
			Overall Test Results		Pass





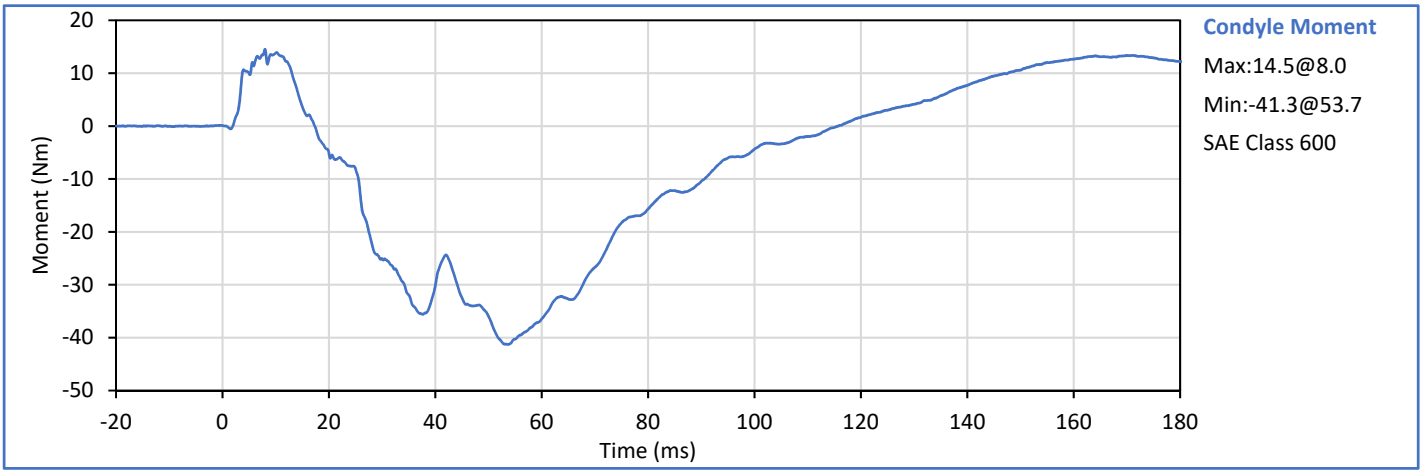
Technician: J. Hernandez

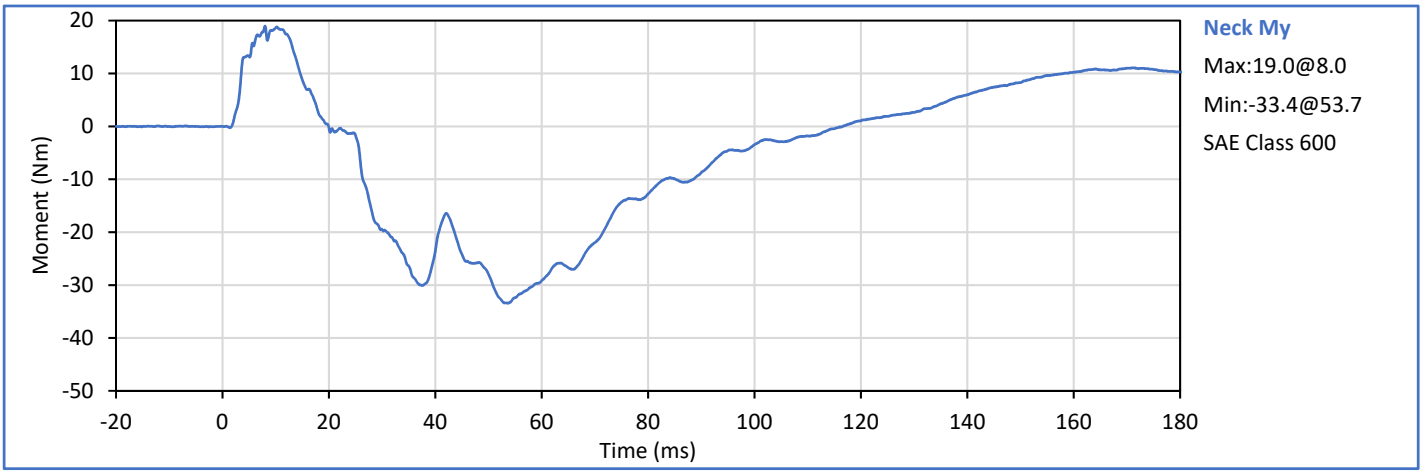
Approved By: P. Puzzuto

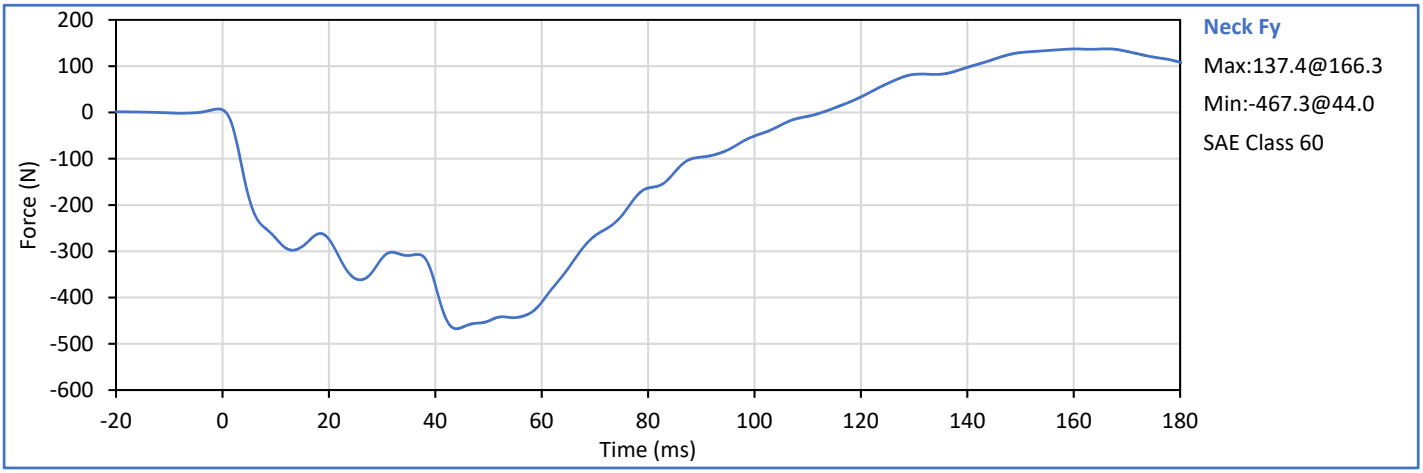
Applus IDIADA
KARCO

SID-IIs Small Side Impact ATD
Neck Flexion

ATD Serial No.: 299 Test Date: 2020-03-04





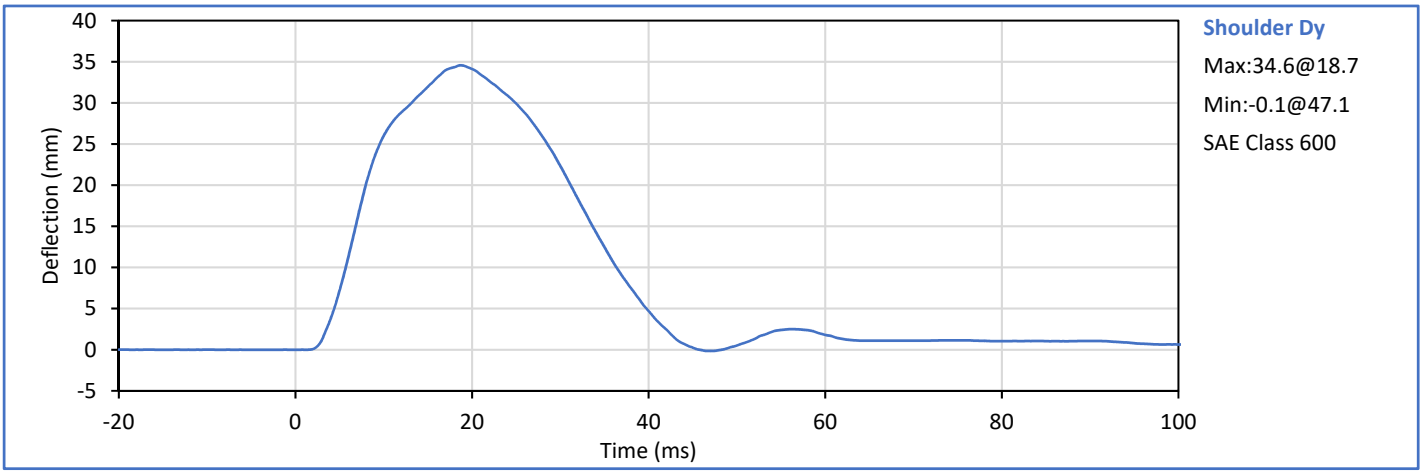


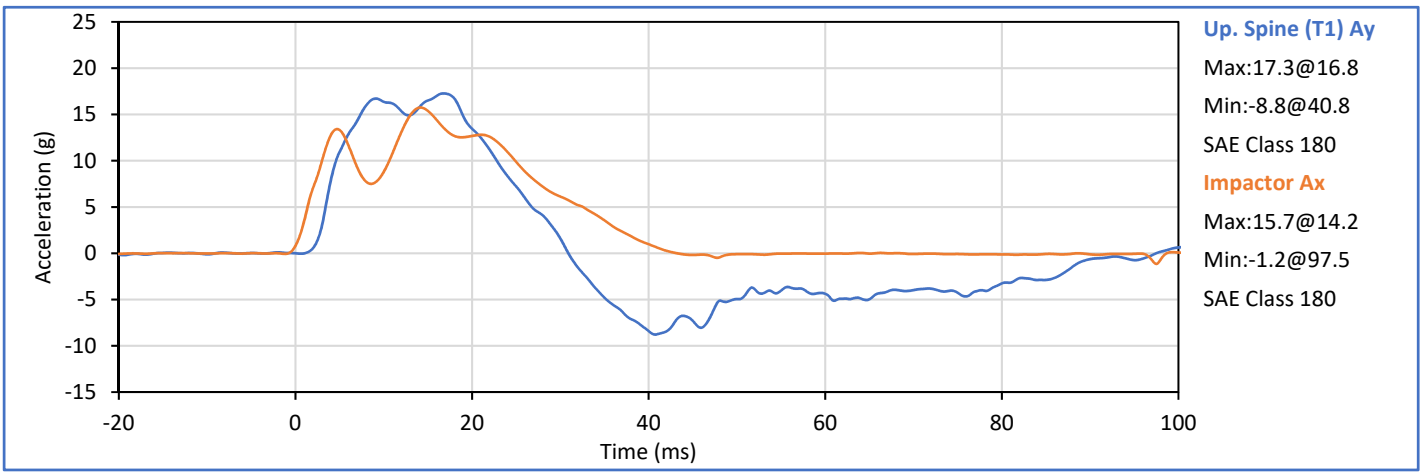
Applus IDIADA
KARCO

SID-IIs Small Side Impact ATD
Shoulder Impact Test

ATD Serial No.: 299 Test Date: 2020-03-05

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.7	Pass
Laboratory Humidity	%	10	70	26	Pass
Impactor Velocity	m/s	4.20	4.40	4.35	Pass
Peak Shoulder Dy	mm	28.0	37.0	34.6	Pass
Peak Upper Spine (T1) Ay	g	17.0	22.0	17.3	Pass
Peak Impactor Ax	g	13.0	18.0	15.7	Pass
			Overall Test Results		Pass





Technician: J. Hernandez

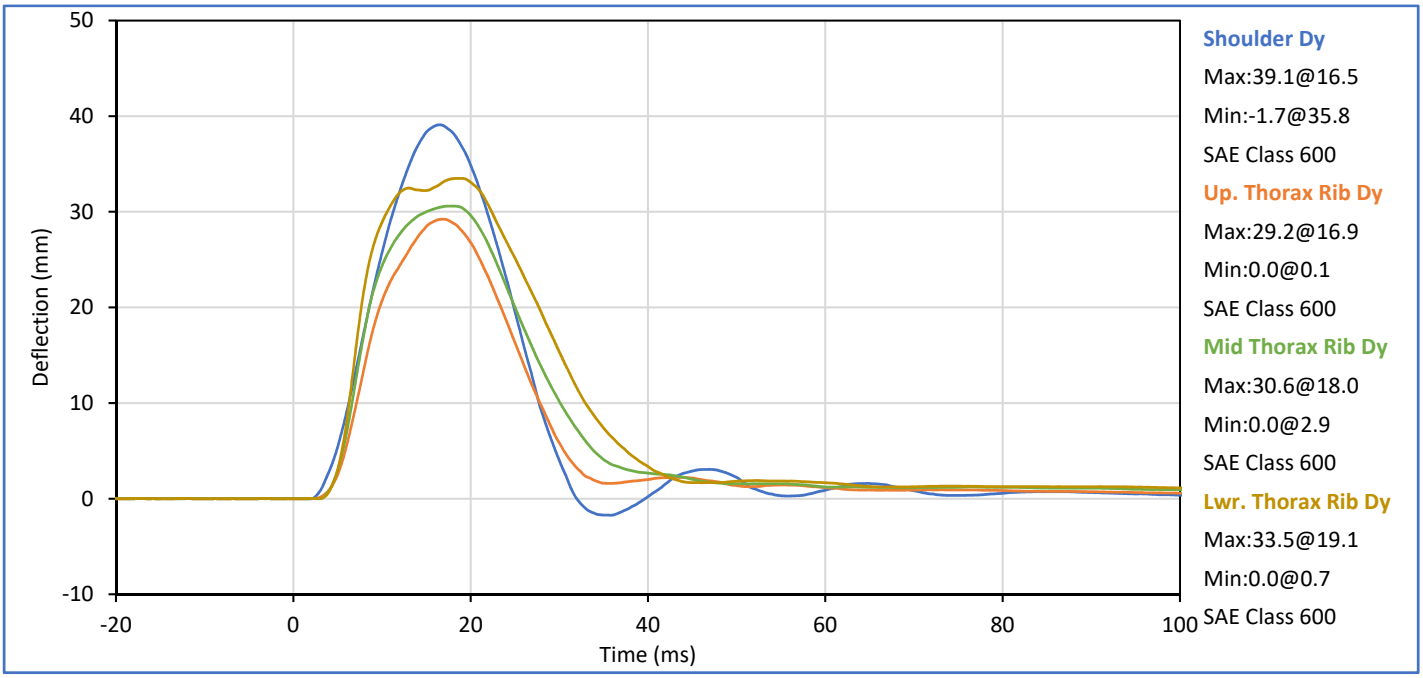
Approved By: P. Puzzuto

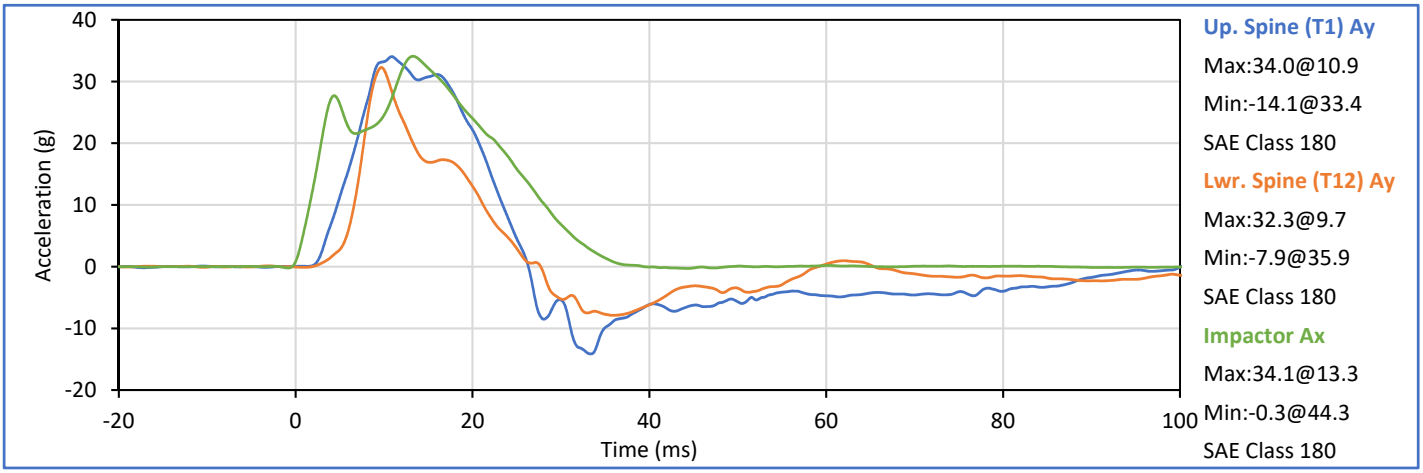
Applus IDIADA
KARCO

SID-IIs Small Side Impact ATD
Thorax (With Arm)

ATD Serial No.: 299 Test Date: 2020-03-05

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Humidity	%	10	70	25	Pass
Impactor Velocity	m/s	6.60	6.80	6.69	Pass
Peak Shoulder Dy	mm	31.0	40.0	39.1	Pass
Peak Upper Rib Dy	mm	25.0	32.0	29.2	Pass
Peak Middle Rib Dy	mm	30.0	36.0	30.6	Pass
Peak Lower Rib Dy	mm	32.0	38.0	33.5	Pass
Peak Upper Spine (T1) Ay	g	34.0	43.0	34.0	Pass
Peak Lower Spine (T12) Ay	g	29.0	37.0	32.3	Pass
Peak Impactor Ax	g	30.0	36.0	34.1	Pass
			Overall Test Results		Pass





Technician: J. Hernandez

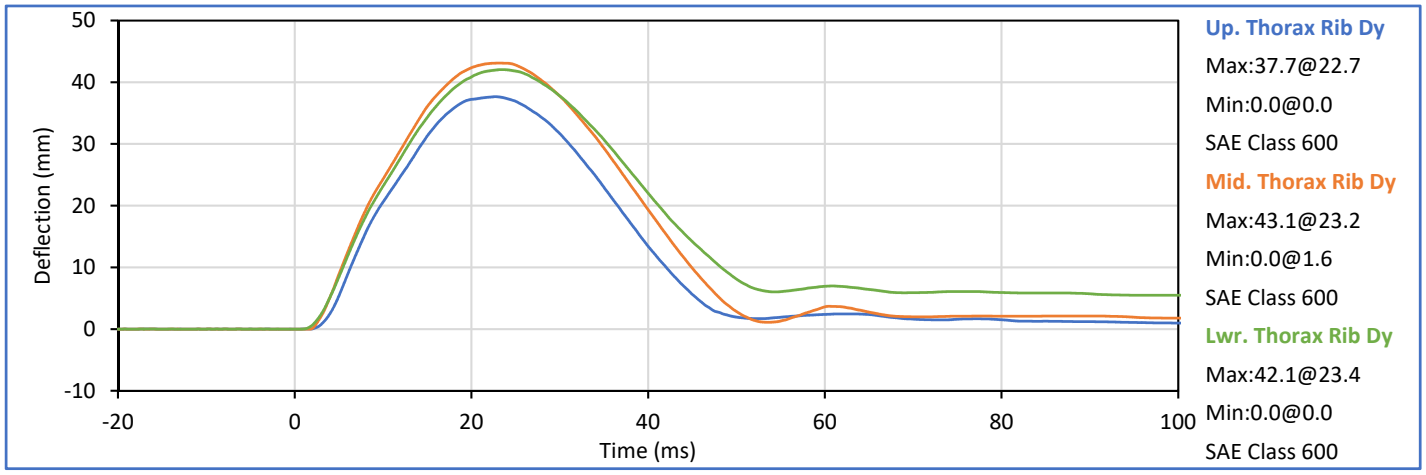
Approved By: P. Puzzuto

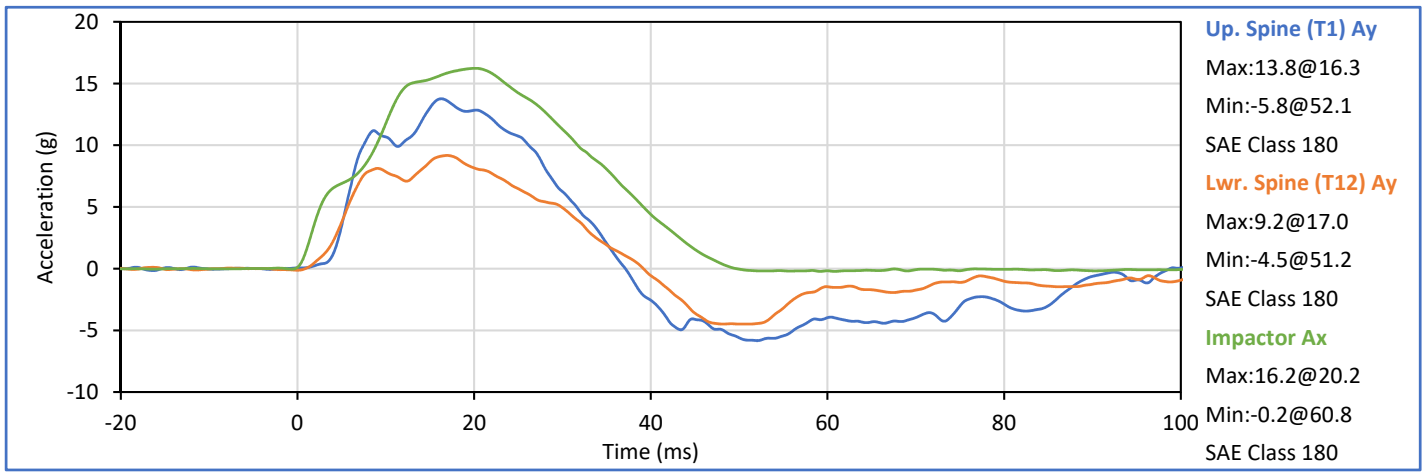
Applus IDIADA
KARCO

SID-IIs Small Side Impact ATD
Thorax (No Arm)

ATD Serial No.: 299 Test Date: 2020-03-05

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Humidity	%	10	70	24	Pass
Impactor Velocity	m/s	4.20	4.40	4.34	Pass
Peak Upper Rib Dy	mm	32.0	40.0	37.7	Pass
Peak Middle Rib Dy	mm	39.0	45.0	43.1	Pass
Peak Lower Rib Dy	mm	35.0	43.0	42.1	Pass
Peak Upper Spine (T1) Ay	g	13.0	17.0	13.8	Pass
Peak Lower Spine (T12) Ay	g	7.0	11.0	9.2	Pass
Peak Impactor Ax	g	14.0	18.0	16.2	Pass
			Overall Test Results		Pass





Technician: J. Hernandez

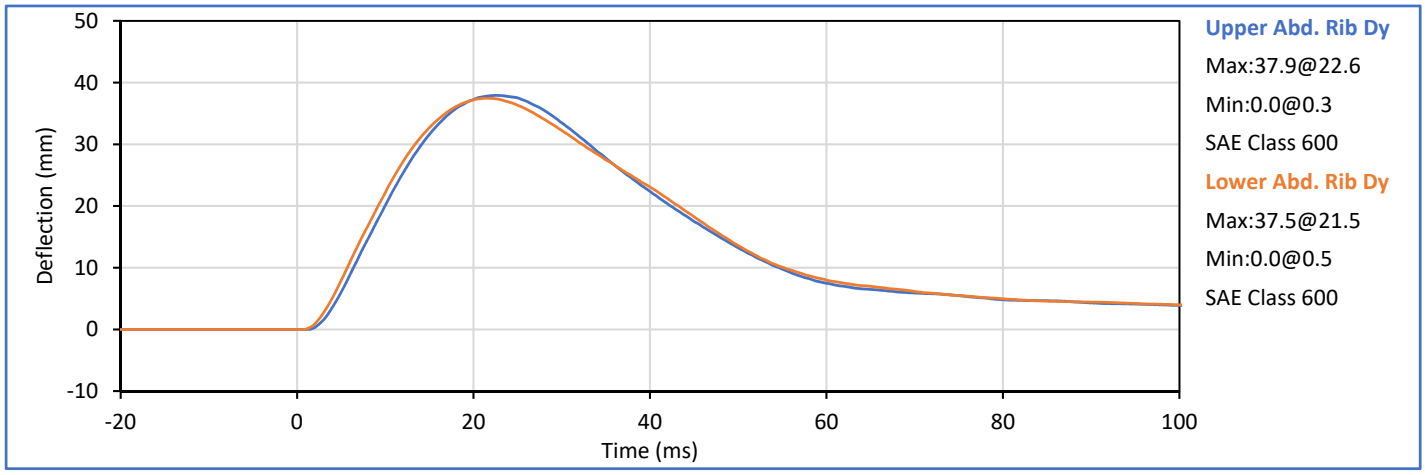
Approved By: P. Puzzuto

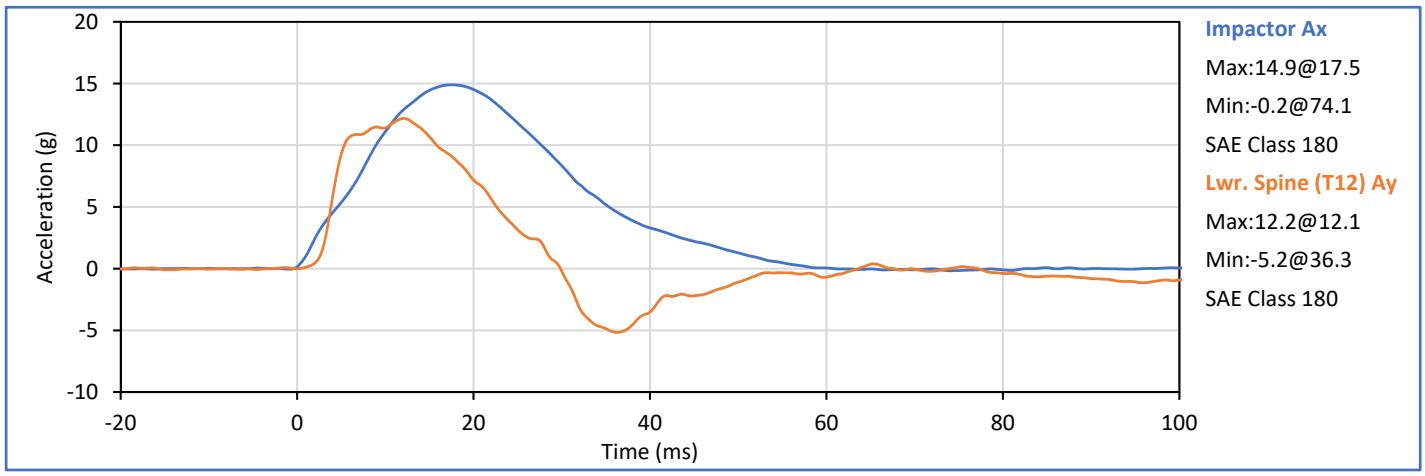
Applus IDIADA
KARCO

SID-IIs Small Side Impact ATD
Abdomen Impact

ATD Serial No.: 299 Test Date: 2020-03-05

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Humidity	%	10	70	24	Pass
Impactor Velocity	m/s	4.20	4.40	4.33	Pass
Peak Upper Abdomen Rib Dy	mm	36.0	47.0	37.9	Pass
Peak Lower Abdomen Rib Dy	mm	33.0	44.0	37.5	Pass
Peak Lower Spine T12 Ay	mm	9.0	14.0	12.2	Pass
Peak Impactor Ax	g	12.0	16.0	14.9	Pass
			Overall Test Results		Pass





Technician: J. Hernandez

Approved By: P. Puzzuto

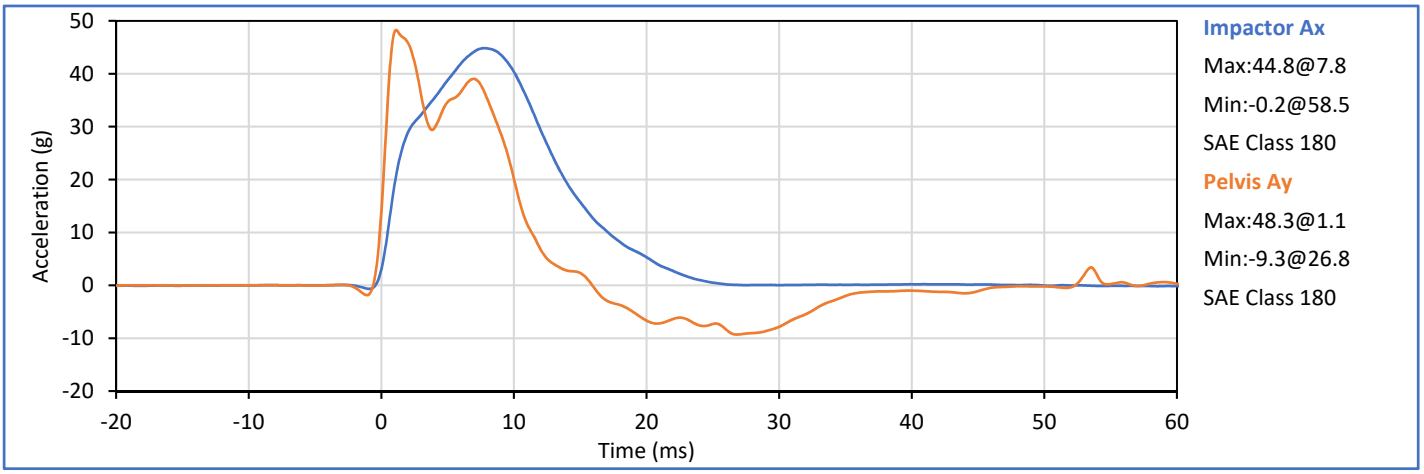
Applus IDIADA
KARCO

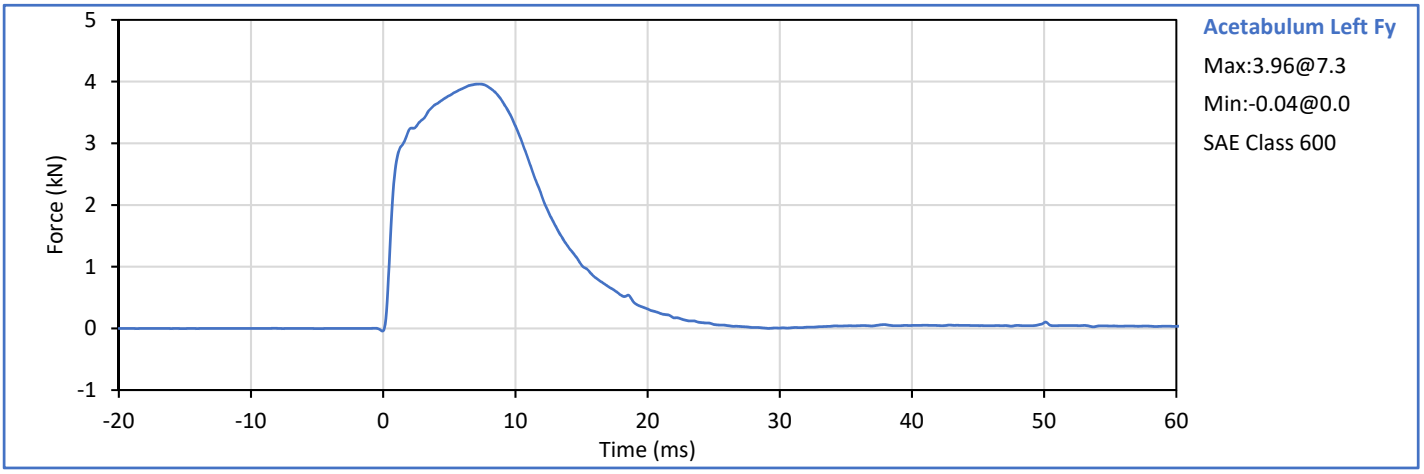
SID-IIs Small Side Impact ATD
Pelvis Acetabulum Impact

ATD Serial No.: 299 Test Date: 2020-03-05

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Humidity	%	10	70	26	Pass
Impactor Velocity	m/s	6.60	6.80	6.71	Pass
Peak Acetabulum Fy	kN	3.60	4.30	3.96	Pass
Pelvis Ay after 6ms	g	34.0	42.0	39.1	Pass
Peak Impactor Ax	g	38.0	47.0	44.8	Pass
			Overall Test Results		Pass

Pelvis Plug S/N: 13467





Technician: J. Hernandez

Approved By: P. Puzzuto

C-20

TR-P40044-01-NC

SID-IIs Small Side Impact ATD
Pelvis Acetabulum Impact

ATD Serial No.: 299 Test Date: 2020-03-05

Pelvis Plug S/N: 13467

SACO RESEARCH

SID-IIs Pelvis Plug Certification Test

Plug S/N 13467
Test Number 11110
Report Number 11148
Test Date 9/20/2019 10:36:21 AM

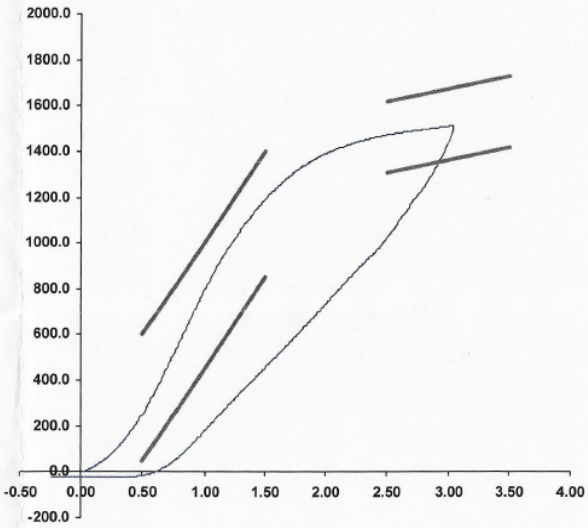
	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	262.91	50.00	600.00
Force @ 1.5 mm (N)	1,193.73	850.00	1,400.00
Force @ 2.5 mm (N)	1,473.90	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,512.84	1,361.00	1,673.00

Testing Machine STM-20 5965542
Load Cell S/N (FI360947), Units (LBS 1000

Crosshead Speed (mm / min) or Rat 12.7
Extension or Position Measured by XHD_100 (XHD100)

Notes:

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 20-Sep-19
SACO Research

By : DC Date : 9/20/2019

SACO Research 41735 Elm St, #401 Murrieta, CA 92562 Tel 310-694-2082 FAX

Applus IDIADA
KARCO

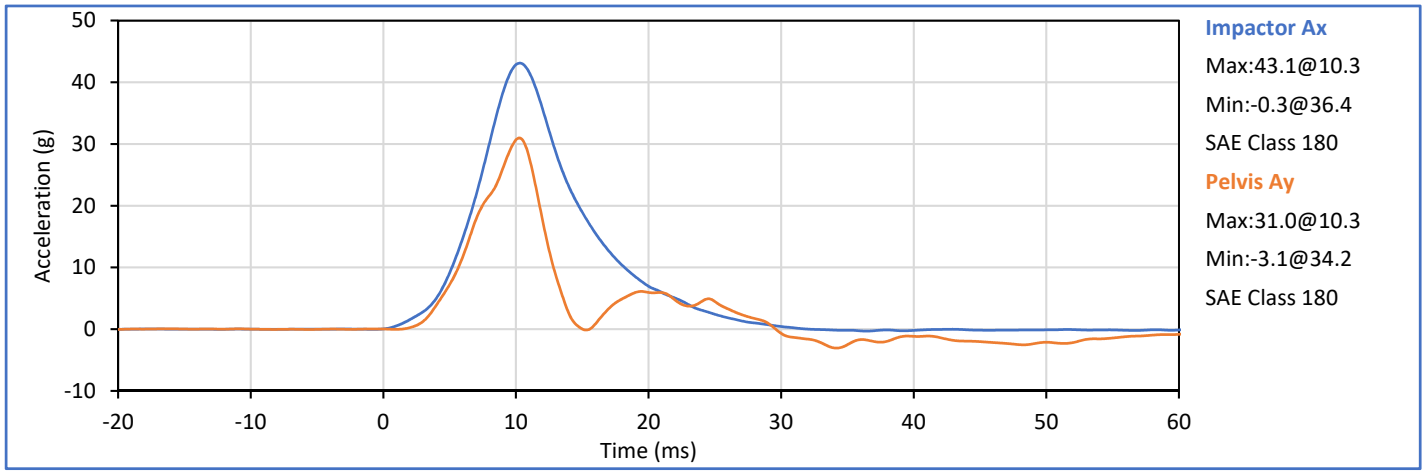
SID-IIs Small Side Impact ATD
Pelvis Iliac Impact

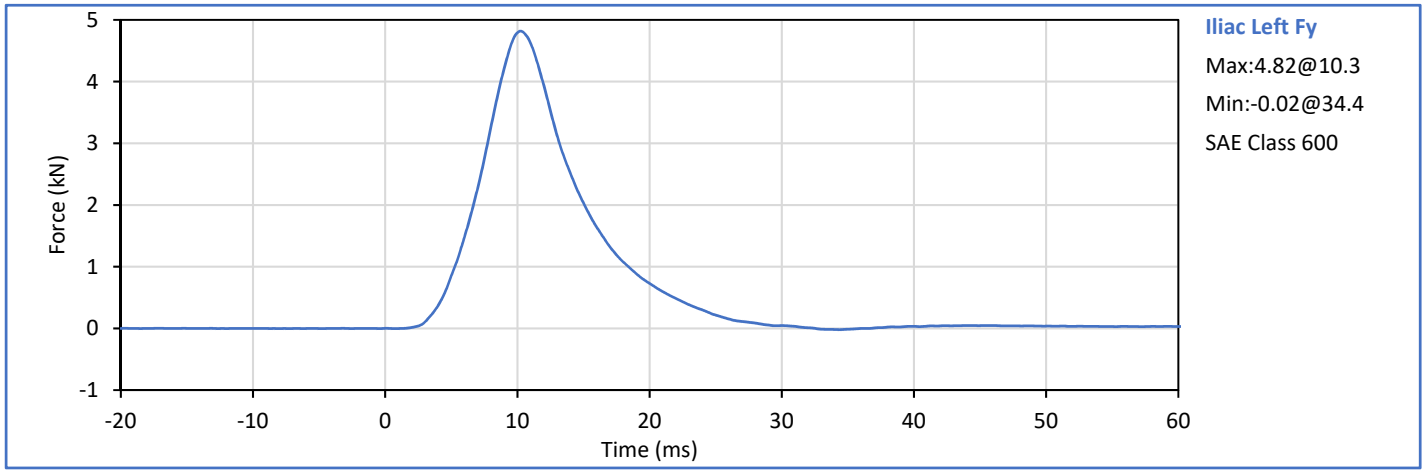
ATD Serial No.: 299 Test Date: 2020-03-04

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Humidity	%	10	70	27	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Iliac Fy	kN	4.10	5.10	4.82	Pass
Pelvis Ay after 6ms	g	28.0	39.0	31.0	Pass
Peak Impactor Ax	g	36.0	45.0	43.1	Pass
			Overall Test Results		Pass

Pelvis Plug S/N: 12228 *

* Plug is not impacted and remains certified





Technician: J. Hernandez

Approved By: P. Puzzuto

C-22

TR-P40044-01-NC

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

SID-IIs ATD S/N: 299

Table 1 - Driver ATD Instrumentation

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
Head Acceleration X Primary	P51929	Endevco	7264C-2k	2019-12-30
Head Acceleration Y Primary	P50086	Endevco	7264C-2k	2019-12-30
Head Acceleration Z Primary	P51931	Endevco	7264C-2k	2019-12-30
Head Acceleration X Redundant	P68604	Endevco	7264C-2k	2019-12-30
Head Acceleration Y Redundant	P51934	Endevco	7264C-2k	2019-12-30
Head Acceleration Z Redundant	P58736	Endevco	7264C-2k	2019-12-30
Head Rotation Rate X	ARS7571	DTS	ARS PRO-8k (2000Hz)	2019-07-08
Head Rotation Rate Y	ARS7316	DTS	ARS PRO-8k (2000Hz)	2019-07-08
Head Rotation Rate Z	ARS7330	DTS	ARS PRO-8k (2000Hz)	2019-07-08
Upper Thorax Rib Deflection Y	1143	Servo	08TCI-3725	2019-12-30
Middle Thorax Rib Deflection Y	1075	Servo	08TCI-3725	2019-12-30
Lower Thorax Rib Deflection Y	1213	Servo	08TCI-3725	2019-12-30
Upper Abdomen Rib Deflection Y	1218	Servo	08TCI-3725	2019-12-30
Lower Abdomen Rib Deflection Y	1177	Servo	08TCI-3725	2019-12-31
Lower Spine T12 Acceleration X	P58761	Endevco	7264C-2k	2019-12-30
Lower Spine T12 Acceleration Y	P50077	Endevco	7264C-2k	2019-12-30
Lower Spine T12 Acceleration Z	P58795	Endevco	7264C-2k	2019-12-30
Iliac Wing Impact Side Force Y	278 Fy (Iliac)	R.A. Denton	3228J	2019-04-11
Acetabulum Impact Side Force Y	260 Fy (Acetabulum)	R.A. Denton	3249J	2019-04-11

Table 2 - Vehicle Instrumentation

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
Vehicle CG Ax	A265923	MSI	52F-2000	2019-12-18
Vehicle CG Ay	A254901	MSI	52F-2000	2019-12-13
Vehicle CG Az	A265860	MSI	52F-2000	2019-12-16
Left Floor Sill Ay	A265867	MSI	52F-2000	2019-12-13
A-Pillar Sill Ay	10432	Endevco	757F-2k	2019-12-16
A-Pillar Low Ay	A273388	MSI	52F-2000	2019-12-04
A-Pillar Mid Ay	A273444	MSI	52F-2000	2019-12-13
B-Pillar Sill Ay	Not Installed			
B-Pillar Low Ay	Not Installed			
B-Pillar Mid Ay	Not Installed			
Driver Seat Track at H-Point Ay	10858	Endevco	757F-2k	2019-12-17
Engine Top Ax	10377	Endevco	757F-2k	2019-12-09
Engine Top Ay	A254850	MSI	52F-2000	2019-12-13
Firewall Ay	A273454	MSI	52F-2000	2019-12-12
Right Roof Ay	A185686	MSI	52F-2000	2019-12-02
Right Floor Sill Ay	10914	Endevco	757F-2k	2019-12-18
Rear Floorpan Ax	A265853	MSI	52F-2000	2019-11-13
Rear Floorpan Ay	A266317	MSI	52F-2000	2019-11-13

Table 3 - Barrier Pole Instrumentation

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
Barrier Pole 01 Fx	19461A	Interface	1220FS-50k	2019-03-20
Barrier Pole 02 Fx	131822A	Interface	1220-FS	2019-05-07
Barrier Pole 03 Fx	131816A	Interface	1220AF-50k	2019-03-20
Barrier Pole 04 Fx	19325	Interface	1220-FS	2019-05-07
Barrier Pole 05 Fx	131827A	Interface	1220-FS	2019-05-07
Barrier Pole 06 Fx	19340	Interface	1220FS-50k	2019-03-20
Barrier Pole 07 Fx	19267	Interface	1220-FS	2019-05-07
Barrier Pole 08 Fx	19466A	Interface	1220FS-50k	2019-03-20