

**RESEARCH FMVSS 214
MOVING DEFORMABLE BARRIER SIDE IMPACT**

**NISSAN MOTOR CO., LTD,
2020 Nissan Rogue**

**PREPARED BY:
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P. O. Box B-67
East Liberty, OH 43319**



Report Date: October 28, 2021

FINAL REPORT

**PREPARED FOR:
Vehicle Research and Test Center
P. O. Box 37
East Liberty, OH 43319**

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Project Manager, John Shultz

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Vehicle Research & Test Center

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16. Abstract A 48/24 km/h 90° Moving Deformable Barrier Research Side Impact Test was conducted on the subject 2020 Nissan Rogue in accordance with the specifications of the Laboratory Test Procedure for the Moving Deformable Barrier test. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on March 11, 2021. The impact velocity of the Moving Deformable Barrier (MDB) was 52.86 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 22.0°C. The target vehicle post test maximum crush was 204 mm at level 2. The test vehicle's performance was as follows: <table border="1" data-bbox="371 1052 1294 1362"> <thead> <tr> <th colspan="3">Driver ATD (WorldSID-50M)</th> </tr> <tr> <th>Measurement Description</th> <th>Units</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criterion (HIC15)</td> <td>N/A</td> <td>50</td> </tr> <tr> <td>Brain Injury Criterion (BrIC)</td> <td>N/A</td> <td>0.49</td> </tr> <tr> <td>Peak Shoulder Force</td> <td>N</td> <td>-1048.00</td> </tr> <tr> <td>Peak Thoracic Rib Deflection</td> <td>mm</td> <td>14.42</td> </tr> <tr> <td>Peak Abdominal Rib Deflection</td> <td>mm</td> <td>10.26</td> </tr> <tr> <td>Pubic Symphysis Force</td> <td>N</td> <td>-846.51</td> </tr> <tr> <td>Peak Resultant Sacro-Iliac Force</td> <td>N</td> <td>1903.19</td> </tr> </tbody> </table> <table border="1" data-bbox="371 1379 1294 1690"> <thead> <tr> <th colspan="3">Passenger ATD (WorldSID-05F)</th> </tr> <tr> <th>Measurement Description</th> <th>Units</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criterion (HIC15)</td> <td>N/A</td> <td>47</td> </tr> <tr> <td>Brain Injury Criterion (BrIC)</td> <td>N/A</td> <td>0.90</td> </tr> <tr> <td>Peak Shoulder Force</td> <td>N</td> <td>1199.64</td> </tr> <tr> <td>Peak Thoracic Rib Deflection</td> <td>mm</td> <td>6.96</td> </tr> <tr> <td>Peak Abdominal Rib Deflection</td> <td>mm</td> <td>11.99</td> </tr> <tr> <td>Pubic Symphysis Force</td> <td>N</td> <td>-950.81</td> </tr> <tr> <td>Peak Resultant Sacro-Iliac Force</td> <td>N</td> <td>1403.0</td> </tr> </tbody> </table>				Driver ATD (WorldSID-50M)			Measurement Description	Units	Result	Head Injury Criterion (HIC15)	N/A	50	Brain Injury Criterion (BrIC)	N/A	0.49	Peak Shoulder Force	N	-1048.00	Peak Thoracic Rib Deflection	mm	14.42	Peak Abdominal Rib Deflection	mm	10.26	Pubic Symphysis Force	N	-846.51	Peak Resultant Sacro-Iliac Force	N	1903.19	Passenger ATD (WorldSID-05F)			Measurement Description	Units	Result	Head Injury Criterion (HIC15)	N/A	47	Brain Injury Criterion (BrIC)	N/A	0.90	Peak Shoulder Force	N	1199.64	Peak Thoracic Rib Deflection	mm	6.96	Peak Abdominal Rib Deflection	mm	11.99	Pubic Symphysis Force	N	-950.81	Peak Resultant Sacro-Iliac Force	N	1403.0
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SECTION 1

PURPOSE AND TEST PROCEDURE

PURPOSE AND TEST PROCEDURE

This moving deformable barrier side impact test is a part of the Federal Motor Vehicle Safety Standard 214 Side Impact Protection program. It was conducted for the National Highway Traffic Safety Administration's (NHTSA) under 693JJ918D000019 by Transportation Research Center Inc.. The purpose of this test was to evaluate the repeatability, reproducibility, and durability of the WorldSID 50th percentile male ATD (WorldSID-50M) equipped with RibEye™, to determine whether the dummy is a viable option to replace the EuroSID-2 dummy with rib extension modifiers (ES-2re) in future side impact moving deformable barrier crash tests conducted by NHTSA. The test was conducted using NHTSA's 'LABORATORY TEST PROCEDURE FOR FMVSS No. 214, DYNAMIC SIDE IMPACT PROTECTION – Moving Deformable Barrier Test' dated September 2012 as a guideline. WorldSID-50M dummy was used instead of the ES-2re listed in the test procedure."

SECTION 2

SUMMARY OF TEST RESULTS

A 2020 Nissan Rogue was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 52.86 km/h (32.85 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by the Transportation Research Center Inc. in East Liberty, Ohio, on March 11, 2021. Pre-test and post-test photographs of the test vehicle and the MDB and the dummies (WorldSID-50M and WorldSID-05F with RibEye) are included in Appendix A.

Dummies were placed in the driver and left rear designated seating positions according to instructions specified in the Research Side Impact Moving Barrier Test Procedure, dated July 2017. The WorldSID-50M was seated per NHTSA report <https://rosap.ntl.bts.gov/view/dot/41900>. The side impact event was documented by 11 cameras. Camera locations are included in this report.

The dummies were instrumented in the following manner:

- DRIVER ATD (WorldSID-50M)
- Head CG tri-axial accelerometer
- Head angular rate sensor
- Upper and lower neck load cells
- Shoulder load cell
- RibEye measurement system in thorax ribs 1-3 and abdominal ribs 1 and 2, with three LEDs per rib
- Upper (T1), middle (T4), and lower spine (T12) tri-axial accelerometers
- Lumbar load cell
- Pelvic tri-axial accelerometers
- Pubic load cell
- Left and right sacroiliac load cells
- Left femur load cell

- PASSENGER ATD (WorldSID-05F)
- Head CG tri-axial accelerometer
- Head angular rate sensor
- Upper and lower neck load cells
- Shoulder load cell
- RibEye measurement system in thorax ribs 1-3 and abdominal ribs 1 and 2, with three LEDs per rib
- Upper (T1), middle (T4), and lower spine (T12) tri-axial accelerometers
- Lumbar load cell
- Pelvic tri-axial accelerometers
- Pubic load cell
- Left and right sacroiliac load cells
- Left femur load cell
- Chest bands 1-59

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 of this report contains the test equipment and instrumentation calibration data. Worksheets and plots found in Appendix E describe dummy positions in detail.

Dummy injury readings were recorded as follows:

Driver ATD (WorldSID-50M)		
Measurement Description	Units	Result
Head Injury Criterion (HIC15)	N/A	50
Brain Injury Criterion (BrIC)	N/A	0.49
Peak Shoulder Force	N	-1048.00
Peak Thoracic Rib Deflection	mm	14.42
Peak Abdominal Rib Deflection	mm	10.26
Pubic Symphysis Force	N	-846.51
Peak Resultant Sacro-Iliac Force	N	1903.19

Passenger ATD (WorldSID-05F)		
Measurement Description	Units	Result
Head Injury Criterion (HIC15)	N/A	47
Brain Injury Criterion (BrIC)	N/A	0.90
Peak Shoulder Force	N	1199.64
Peak Thoracic Rib Deflection	mm	6.96
Peak Abdominal Rib Deflection	mm	11.99
Pubic Symphysis Force	N	-950.81
Peak Resultant Sacro-Iliac Force	N	1403.0

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	Yes		
Knee Airbag	No	N/A		
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Pelvis Airbag	Yes	Yes	No	N/A
Side Pelvis Airbag	No	N/A	No	N/A
Seat Belt Pretensioner	Yes	Yes	No	N/A
Seat Belt Load Limiter	Yes	Yes	No	N/A
Other Safety Restraint	No	N/A	No	N/A

GENERAL COMMENTS

All doors remained closed throughout the test. No fuel spillage occurred during the impact and the static rollover test was not performed.

Data Acquisition Explanations

LEFT LOWER A-PILLAR AY; CF at 50.0 ms

LEFT MIDDLE A-PILLAR AY; CF at 10.0 ms

LEFT REAR SEAT STRUCTURE AY; CF at 24.0 ms

Ribeye Error Codes:

- 1 if the top sensor is blocked or sees too much ambient light
- 2 if the bottom sensor is blocked or sees too much ambient light
- 3 if both top and bottom sensors are blocked or see too much ambient light
- 4 if the middle sensor is blocked or sees too much ambient light
- 5 if the middle and top sensors are blocked or see too much ambient light
- 6 if the middle and bottom sensors are blocked or see too much ambient light
- 7 if all three sensors are blocked or see too much ambient light
- 8 if a divide-by-zero condition occurred in the data processing
- 9 if data goes past the end of the calibration curves

**error codes may be positive or negative in data and will occur to all x, y, and z channels*

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2020 Nissan Rogue
 Test Program: Moving Deformable Barrier Side Impact Test Date: 3/11/2021

TEST VEHICLE INFORMATION AND OPTIONS

Model Year	2020	Traction Control System (TCS)	Yes
Make	Nissan	Auto-Leveling System	No
Model	Rogue S	Automatic Door Locks (ADL)	Yes
Body Style	MPV	Power Window Auto-Reverse	No
VIN	5N1AT2MT1LC812630	Other Optional Feature	No
Body Color	Glacier White	Driver Front Airbag	Yes
Odometer Reading (km/mi)	19 mi	Driver Curtain Airbag	Yes
Engine Displacement (L)	2.5	Driver Head/Torso Airbag	No
Type/No. Cylinders	Straight/4	Driver Torso Airbag	No
Engine Placement	Transverse Front	Driver Torso/Pelvis Airbag	Yes
Transmission Type	Automatic	Driver Pelvis Airbag	No
Transmission Speeds	CVT	Driver Knee Airbag	No
Overdrive	Yes	Rear Pass. Curtain Airbag	Yes
Final Drive	FWD	Rear Pass. Head/Torso Airbag	No
Roof Rack	No	Rear Pass. Torso Airbag	No
Sunroof/T-Top	No	Rear Pass. Torso/Pelvis Airbag	No
Running Boards	No	Rear Pass. Pelvis Airbag	No
Tilt Steering Wheel	Yes	Driver Seat Belt Pretensioner	Yes
Power Seats	No	Rear Pass. Seat Belt Pretensioner	No
Anti-Lock Brakes (ABS)	Yes	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?

Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	NISSAN MOTOR CO., LTD,	GVWR (kg)	2082
Date of Manufacturer	7/20	GAWR Front (kg)	1040
Vehicle Type	MPV	GAWR Rear (kg)	1055

VEHICLE SEATING AND WEIGHT CAPACITY DATA

	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	3	N/A	5
Vehicle Capacity Weight (VCW) (kg)				408.0
DSC X 68.04 kg				340.2
Rated Cargo and Luggage Weight (RCLW) (kg)				67.8

VEHICLE SEAT TYPE

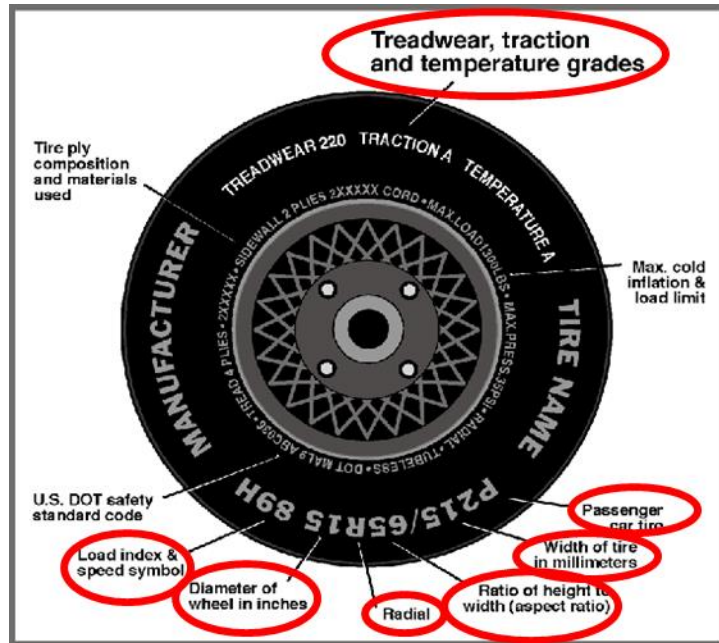
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						W/ Lever	W/ Knob
Front Seat	Yes	N/A	N/A	N/A	N/A	Yes	N/A
Rear or Second Row Seat	N/A	N/A	Yes	Yes	N/A	Yes	N/A
Third row seat	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact

Test Date: 3/11/2021



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	230	230
Recommended Tire Size	225/65R17 102H	225/65R17 102H
Tire Size on Vehicle	225/65R17	225/65R17
Tire Manufacturer	Hankook	Hankook
Tire Model	DynaPro HT	DynaPro HT
Treadwear	380	380
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	2	2
Tire Plies Body	5	5
Load Index/Speed Symbol	102H	102H
Tire Material	Steel, Polyester, Nylon	Steel, Polyester, Nylon
DOT Safety Code Left	T7H1 HU H 0220	T7H1 HU H 0220
DOT Safety Code Right	T7H1 HU H 0220	T7H1 HU H 0220

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

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact Test Date: 3/11/2021

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	296	303	303	296
Tire Placard	kPa	230	230	230	230
Owner's Manual	kPa	230	230	230	230
As Tested	kPa	230	230	230	230

MDB TIRE SPECIFICATIONS

	Units	Requirement	LF	RF	LR	RR
Tire Size		P205/75R15	P205/75R15	P205/75R15	P205/75R15	P205/75R15
Tire Pressure	kPa	200 ± 21 kPa	207	207	207	207

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	461.2	331.2		516.0	403.4		510.0	420.4	
Right	kg	455.2	314.6		461.8	367.0		459.0	364.6	
Ratio	%	58.7	41.3		55.9	44.1		55.2	44.8	
Totals	kg	916.4	645.8	1562.2	977.8	770.4	1748.2	969.0	785.0	1754.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1562.2	(A)
Weight of 1 WorldSID (75kg) & 1 SID-IIs (49kg) ATD	kg	124.0	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	67.8	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1754.0	(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 kg)? ☒ YES ☐ NO

TEST VEHICLE ATTITUDES AND CG

	Units	Fully Loaded	As Tested	Meets Requirement***
LF	mm	824	820	Yes
RF	mm	832	828	Yes
RR	mm	827	830	Yes
LR	mm	810	814	Yes
Vehicle CG (Aft of Front Axle)	mm	+1211	1192	
Vehicle CG (Left(+)/Right(-) from Longitudinal Centerline)	mm	+49	+41	

***The "As Tested" vehicle attitude measurements must be equal to or within ± 10 mm of the "Fully Loaded" vehicle attitude measurements at each wheel well. Indicate "Yes" or "No" for "Meets Requirement".

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

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact

Test Date: 3/11/2021

Test height adjustable suspension setting, if applicable:

N/A

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Ballast: None	0.0
Components removed: None	0.0

DATA SHEET NO. 2

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

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact

Test Date: 3/11/2021

SCRL ANGLE RANGE

Seat	SCRL(°)		
	Max.	Min.	Mid
Driver Seat	15.6	12.8	14.2
Front Passenger Seat	N/A	N/A	14.1
Front Center Seat*	N/A	N/A	N/A
Struck Side Rear Seat	N/A	N/A	10.3
Non-Struck Side Rear Seat	N/A	N/A	10.0
Rear Center Seat*	N/A	N/A	10.3

* If applicable.

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCR P Height (mm)	SCR P Height Position	SCR P Height (mm)		
				Rearmost	Mid Fore/Aft	Forward- Most
Driver Seat	14.2	208	Max	167	160	152
			Mid	200	208	216
			Min	237	231	224
Front Passenger Seat	14.1	211	Max	N/A	N/A	N/A
			Mid	208	211	213
			Min	N/A	N/A	N/A
Front Center Seat*	N/A	N/A	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A
Struck Side Rear Seat	10.3	283	Max	N/A	N/A	N/A
			Mid	283	283	283
			Min	N/A	N/A	N/A
Non-Struck Side Rear Seat	10.0	245	Max	N/A	N/A	N/A
			Mid	245	245	245
			Min	N/A	N/A	N/A
Rear Center Seat*	10.3	240	Max	N/A	N/A	N/A
			Mid	240	240	240
			Min	N/A	N/A	N/A

* If applicable.

DATA SHEET NO. 2 (CONTINUED)

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

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact

Test Date: 3/11/2021

SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position from Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	240	25	143	14
Front Passenger Seat	240	25	142	14
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	225	14	225	14
Non-Struck Side Rear Seat	225	14	225	14
Rear Center Seat*	N/A	N/A	N/A	N/A

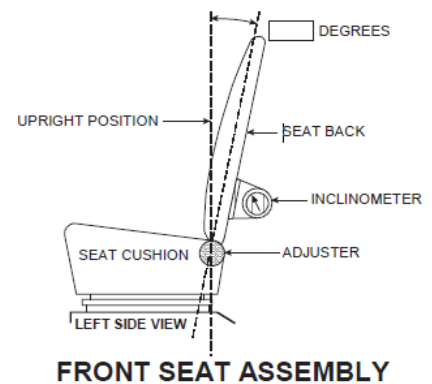
* If applicable.

NORMAL DESIGN RIDING POSITION

For adjustable driver and passenger seat backs. Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent, if applicable.

Driver seat: The driver's seat back was positioned according to the manufacturer's information as provided on Form 1; resulting in a head rest post angle of 3.1° rearward measured at the head rest post. The seat was positioned at mid-track fore and aft travel. The front center and front passenger's seat backs are positioned in a similar manner as the driver's seat back.

Rear Passenger Seat: The left rear passenger seat back is adjusted to 1 detent rearward of most upright position. The seat track travel was fixed.



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degrees	Detent*
Driver Seat w/ Seated Dummy	69.5	42	2.7	10
Front Passenger Seat	69.5	42	3.5	7
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	18.3	10	3.9	2
Non-Struck Side Rear Seat	17.9	10	3.1	1
Rear Center Seat*	N/A	N/A	N/A	N/A

* If applicable.

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted with the information provided by the manufacturer on Form No. 1

	Total # of Positions	Placed in Position #
Driver Seat	4	4, Uppermost
Rear Seat	1; Fixed	Fixed

HEAD RESTRAINT ADJUSTMENT

Head restraints are adjusted to the lowest and most full rearward in-use position.

	Total # of Positions	Placed in Position #
Driver Seat	3	3, Uppermost
Rear Seat	2	1, Lowermost

DATA SHEET NO. 2 (CONTINUED)

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

Test Vehicle: 2020 Nissan Rogue

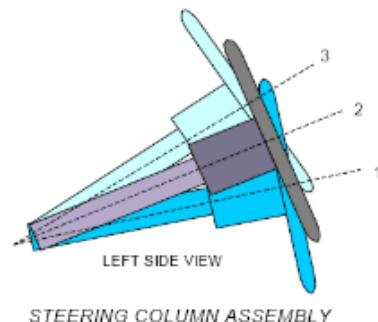
Test Program: Moving Deformable Barrier Side Impact

Test Date: 3/11/2021

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel geometric locus it describes when moved through its full range of motion.

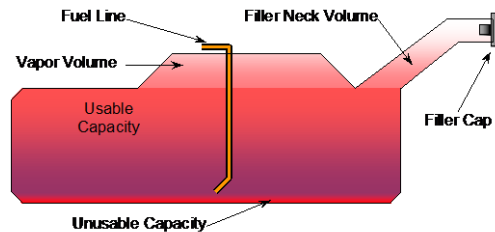
	Degrees	Fore/Aft Position, mm
Lowermost, Position No. 1	25.0	0
Geometric Center, Position No. 2	26.8	23
Uppermost, Position No. 3	29.2	45
Telescoping Steering Wheel Travel		45
Test Position	26.8	23



FUEL PUMP

Describe the fuel pump type, details about how it operates and the location of the fuel filler neck:

When engine is running



FUEL TANK CAPACITY

VEHICLE FUEL TANK ASSEMBLY

	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	54.9
Usable Capacity of "Optional" Tank (see Form No. 1)	N/A
Usable Capacity of Standard Tank (see Owner's Manual)	54.9
Usable Capacity of Optional Tank (see Owner's Manual)	N/A
93% of Usable Capacity	51.0
Actual Amount of Solvent Used in Test	51.0
1/3 of Usable Capacity	18.3

Is the Actual Amount of Solvent Used in the test equal to 93% +/- 1% of the Usable Capacity stated on Form No. 1? ☒ YES ☐ NO

TABLE 1 WORLD SID-50M AND WORLD SID-05F INSTRUMENTATION DATATest Vehicle: 2020 Nissan RogueTest Program: Moving Deformable Barrier Side Impact Test Date: 3/11/2021

Driver Dummy Serial Number: EB8888

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
Head Acceleration (g)	X	3.58	165.45	-8.10	36.65
	Y	27.45	41.05	-4.32	72.90
	Z	5.97	83.60	-8.92	41.70
	R	29.27	41.05		
Head Angular Rate (deg/sec)	X	676.72	55.95	-485.22	35.80
	Y	398.60	147.55	-457.32	64.15
	Z	906.29	91.45	-1059.85	47.35
Upper Neck Force (N)	X	80.22	292.15	-182.20	92.85
	Y	101.36	30.20	-418.85	67.00
	Z	523.31	41.10	-268.70	67.90
Upper Neck Moment (Nm)	X	8.90	65.05	-13.09	31.40
	Y	17.96	80.35	-14.81	52.60
	Z	16.80	63.35	-8.08	113.15
Lower Neck Force (N)	X	135.40	289.25	-268.90	52.60
	Y	277.65	33.85	-229.01	67.90
	Z	653.20	41.15	-373.21	70.05
Lower Neck Moment (Nm)	X	17.50	33.80	-47.31	68.55
	Y	39.85	92.30	-15.03	292.30
	Z	20.11	64.00	-7.03	130.15
Driver Shoulder Force (N)	X	168.36	76.75	-511.89	14.60
	Y	245.68	100.20	-1048.00	23.40
	Z	306.73	26.25	-153.44	106.45
Shoulder Rear Ribeye Position (mm)	X	-46.53	49.60	-64.96	82.70
	Y	-75.25	25.95	-85.46	60.70
	Z	-41.31	108.20	-57.14	54.45
Length of Change (mm)		4.86	48.30	-6.31	78.20
Shoulder Middle Ribeye Position (mm)	X	-12.92	50.75	-33.85	80.40
	Y	-82.51	27.45	-97.86	102.75
	Z	-40.73	103.20	-60.17	52.65
Length of Change (mm)		11.67	27.35	-3.75	80.35
Shoulder Front Ribeye Position (mm)	X	24.66	49.30	1.09	81.90
	Y	-68.76	36.20	-86.78	95.65
	Z	-45.92	107.30	-65.36	51.10
Length of Change (mm)		12.57	28.25	-2.18	100.35

TABLE 1 WORLD SID-50M AND WORLD SID-05F INSTRUMENTATION DATA
(CONTINUED)

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact Test Date: 3/11/2021

Driver Dummy Serial Number: EB8888

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
Thorax Rib 1 Rear Ribeye Position (mm)	X	-20.63	38.80	-34.57	24.20
	Y	-91.25	30.30	-101.70	217.75
	Z	1.40	149.20	-8.02	56.20
Length of Change (mm)		11.22	32.90	-0.52	183.55
Thorax Rib 1 Middle Ribeye Position (mm)	X	16.66	38.50	1.40	299.95
	Y	-93.58	30.30	-110.33	117.85
	Z	2.39	148.45	-8.61	54.85
Length of Change (mm)		14.42	30.45	-1.72	117.90
Thorax Rib 1 Front Ribeye Position (mm)	X	53.84	38.95	36.10	299.90
	Y	-83.85	32.10	-105.49	242.55
	Z	1.39	243.25	-8.82	54.10
Length of Change (mm)		11.41	28.35	-5.46	242.55
Thorax Rib 2 Rear Ribeye Position (mm)	X	-10.29	37.40	-26.94	-28.40
	Y	-90.89	36.05	-101.42	117.40
	Z	41.13	155.20	31.04	56.70
Length of Change (mm)		12.69	36.05	-0.16	-19.25
Thorax Rib 2 Middle Ribeye Position (mm)	X	29.12	37.75	7.95	-18.60
	Y	-96.57	36.05	-111.88	104.05
	Z	44.23	149.80	32.86	57.30
Length of Change (mm)		11.00	32.15	-1.39	104.10
Thorax Rib 2 Front Ribeye Position (mm)	X	63.87	37.80	43.78	-35.20
	Y	-85.39	34.00	-105.24	274.25
	Z	47.52	149.20	37.20	57.25
Length of Change (mm)		7.75	26.00	-4.06	274.25
Thorax Rib 3 Rear Ribeye Position (mm)	X	-33.27	37.00	-47.89	3.25
	Y	-84.74	32.40	-94.62	296.10
	Z	-34.46	-29.70	-44.59	58.95
Length of Change (mm)		11.15	35.30	-0.21	6.70
Thorax Rib 3 Middle Ribeye Position (mm)	X	2.19	38.40	-17.31	-1.20
	Y	-89.82	33.25	-102.04	186.00
	Z	-33.22	-24.20	-44.04	58.90
Length of Change (mm)		8.81	33.30	-0.95	110.90

TABLE 1 WORLD SID-50M AND WORLD SID-05F INSTRUMENTATION DATA
(CONTINUED)

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact Test Date: 3/11/2021

Driver Dummy Serial Number: EB8888

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
Thorax Rib 3 Front Ribeye Position (mm)	X	34.31	36.80	12.94	-31.80
	Y	-80.03	35.50	-92.57	0.30
	Z	-34.57	-22.80	-44.19	59.30
Length of Change (mm)		2.69	31.85	-2.22	73.00
Abdomen Rib 1 Rear Ribeye Position (mm)	X	-17.56	39.80	-30.01	-48.80
	Y	-87.43	32.00	-97.81	150.00
	Z	-1.22	33.05	-13.04	61.15
Length of Change (mm)		10.26	33.75	-0.89	150.05
Abdomen Rib 1 Middle Ribeye Position (mm)	X	17.98	39.85	1.50	-27.50
	Y	-92.98	32.20	-104.92	297.60
	Z	0.36	32.00	-12.07	62.70
Length of Change (mm)		9.34	32.35	-1.36	140.05
Abdomen Rib 1 Front Ribeye Position (mm)	X	50.38	38.80	33.36	120.70
	Y	-85.62	33.00	-98.31	104.80
	Z	1.80	3.90	-9.50	62.25
Length of Change (mm)		3.74	29.60	-2.10	104.70
Abdomen Rib 2 Rear Ribeye Position (mm)	X	-6.92	56.95	-22.65	287.85
	Y	-85.53	44.15	-96.93	294.30
	Z	35.17	288.10	19.03	67.80
Length of Change (mm)		8.56	53.50	-6.37	287.30
Abdomen Rib 2 Middle Ribeye Position (mm)	X	25.33	42.20	3.49	287.30
	Y	-92.74	53.05	-107.52	287.20
	Z	34.79	287.80	16.14	66.70
Length of Change (mm)		10.12	53.15	-5.08	287.00
Abdomen Rib 2 Front Ribeye Position (mm)	X	57.51	50.65	34.24	286.80
	Y	-85.20	55.95	-103.19	287.40
	Z	36.84	288.40	17.19	65.90
Length of Change (mm)		7.73	65.95	-3.88	287.75
T1 Acceleration (g)	X	7.97	37.15	-4.31	87.55
	Y	25.71	26.10	-11.18	14.05
	Z	10.22	14.45	-7.82	285.30
	R	26.13	26.05		

TABLE 1 WORLD SID-50M AND WORLD SID-05F INSTRUMENTATION DATA
(CONTINUED)

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact Test Date: 3/11/2021

Driver Dummy Serial Number: EB8888

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
T4 Acceleration (g)	X	4.74	88.30	-8.24	37.60
	Y	12.64	13.95	-28.84	25.40
	Z	7.19	14.30	-2.25	284.80
	R	29.50	25.40		
T12 Acceleration (g)	X	6.83	36.20	-4.62	89.10
	Y	28.92	26.05	-10.62	17.65
	Z	13.40	285.35	-2.94	65.55
	R	30.49	26.10		
Pubic Symphysis (N)	Y	96.10	283.70	-846.51	40.00
Left Sacro-Iliac Force (N)	X	230.64	284.20	-179.79	41.30
	Y	38.31	92.90	-1879.74	40.00
	Z	267.01	91.70	-378.13	30.80
Left Sacro-Iliac Moment (Nm)	X	17.36	286.10	-31.90	39.20
	Y	18.07	43.00	-11.11	284.60
	Z	43.51	32.20	-10.15	58.50
Right Sacro-Iliac Force (N)	X	104.50	300.00	-377.35	32.40
	Y	73.20	67.70	-1136.00	38.20
	Z	192.97	52.45	-191.87	93.50
Right Sacro-Iliac Moment (Nm)	X	28.42	64.75	-17.94	95.70
	Y	13.83	44.95	-4.69	287.35
	Z	33.48	32.20	-8.84	61.05
Lumbar Force (N)	X	176.64	111.25	-246.59	283.75
	Y	355.18	41.65	-76.78	17.00
	Z	731.33	48.15	-613.71	92.25
Lumbar Moment (Nm)	X	25.31	82.05	-7.15	18.05
	Y	9.92	284.30	-9.50	62.75
	Z	4.68	14.30	-10.54	282.10
Pelvis Acceleration (g)	X	17.50	284.25	-17.48	42.45
	Y	34.54	37.85	-8.13	68.05
	Z	15.50	284.30	-5.46	288.10
	R	37.44	39.95		

**TABLE 1 WORLD SID-50M AND WORLD SID-05F INSTRUMENTATION DATA
(CONTINUED)**

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact Test Date: 3/11/2021

Driver Dummy Serial Number: EB8888

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
Left Femur Force (N)	X	522.49	30.85	-61.97	19.95
	Y	27.84	56.60	-290.37	33.95
	Z	290.40	289.40	-194.97	55.00
Left Femur Moment (Nm)	X	174.93	36.00	-24.83	64.30
	Y	90.10	34.50	-25.63	82.50
	Z	13.07	32.90	-11.09	116.55
Left Femoral Neck Force (N)	X	352.88	34.95	-221.70	82.70
	Y	176.82	289.45	-1380.23	37.60
	Z	302.21	63.20	-536.28	38.30
Left Outer Knee Force (N)	Y	412.39	66.15	-200.18	33.90
Left Inner Knee Force (N)	Y	2025.56	66.60	-92.31	284.70

**TABLE 1 WORLD SID-50M AND WORLD SID-05F INSTRUMENTATION DATA
(CONTINUED)**

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact Test Date: 3/11/2021

Passenger Dummy Serial Number: DK1774

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
Head Acceleration (g)	X	12.39	157.65	-6.93	71.40
	Y	25.28	55.00	-8.16	90.05
	Z	10.95	40.40	-21.87	65.45
	R	27.07	57.95		
Head Angular Rate (deg/sec)	X	2530.63	53.40	-933.00	124.25
	Y	846.99	141.45	-579.10	74.85
	Z	1320.62	85.25	-1056.68	52.50
Upper Neck Force (N)	X	180.33	57.60	-417.54	97.20
	Y	11.84	174.80	-1170.13	67.95
	Z	141.93	156.55	-464.40	65.20
Upper Neck Moment (Nm)	X	28.20	44.30	-18.20	97.05
	Y	9.57	113.80	-9.92	177.85
	Z	13.08	65.45	-7.60	100.30
Lower Neck Force (N)	X	109.74	161.95	-169.73	72.10
	Y	145.07	67.15	-512.55	44.45
	Z	122.64	156.60	-1240.69	66.95
Lower Neck Moment (Nm)	X	0.82	171.40	-94.43	76.65
	Y	49.68	96.50	-13.20	157.80
	Z	19.36	71.20	-5.11	198.90
Driver Shoulder Force (N)	X	170.89	51.75	-27.63	26.10
	Y	1199.64	53.00	-104.70	86.00
	Z	47.40	100.30	-338.52	61.95
Shoulder Rear Ribeye Position (mm)	X	-33.13	155.80	-48.95	55.40
	Y	-55.46	63.55	-66.58	32.00
	Z	-38.49	159.20	-48.56	72.80
Length of Change (mm)		2.87	66.40	-2.65	44.90
Shoulder Middle Ribeye Position (mm)	X	-1.90	154.85	-17.71	57.70
	Y	-62.60	63.55	-76.56	43.40
	Z	-39.01	159.20	-51.02	72.90
Length of Change (mm)		11.90	63.65	-1.41	43.15
Shoulder Front Ribeye Position (mm)	X	27.41	154.90	16.72	55.90
	Y	-54.91	65.00	-66.73	86.30
	Z	-44.83	103.60	-56.50	62.10
Length of Change (mm)		12.29	53.50	-0.15	26.00

TABLE 1 WORLDSID-50M AND WORLDSID-05F INSTRUMENTATION DATA
(CONTINUED)

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact Test Date: 3/11/2021

Passenger Dummy Serial Number: DK1774

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
Thorax Rib 1 Rear Ribeye Position (mm)	X	-24.92	93.20	-31.10	50.65
	Y	-74.38	52.20	-79.99	-40.20
	Z	-7.33	204.90	-12.53	61.40
Length of Change (mm)		3.59	53.70	-0.09	1.10
Thorax Rib 1 Middle Ribeye Position (mm)	X	2.20	92.35	-3.64	50.20
	Y	-84.46	52.90	-91.83	-40.20
	Z	-7.49	82.70	-14.39	61.20
Length of Change (mm)		6.96	52.30	-0.12	28.45
Thorax Rib 1 Front Ribeye Position (mm)	X	33.10	93.40	29.33	47.10
	Y	-71.25	52.60	-77.69	-26.80
	Z	-6.66	263.85	-11.76	60.80
Length of Change (mm)		5.96	52.70	-0.11	-18.35
Thorax Rib 2 Rear Ribeye Position (mm)	X	-11.45	90.15	-16.44	50.50
	Y	-74.14	59.40	-78.66	-25.60
	Z	31.93	93.50	27.98	60.80
Length of Change (mm)		2.57	59.40	-0.18	-25.65
Thorax Rib 2 Middle Ribeye Position (mm)	X	19.88	91.40	14.26	50.20
	Y	-87.12	52.60	-93.47	8.40
	Z	30.78	93.50	25.97	61.00
Length of Change (mm)		5.76	52.15	-0.15	-19.40
Thorax Rib 2 Front Ribeye Position (mm)	X	49.93	153.70	45.49	49.20
	Y	-72.94	53.20	-79.11	-19.40
	Z	36.46	248.60	32.21	60.80
Length of Change (mm)		5.45	53.10	-0.48	154.35
Thorax Rib 3 Rear Ribeye Position (mm)	X	-41.27	76.00	-44.99	43.30
	Y	-74.18	51.15	-78.52	196.85
	Z	-31.62	198.10	-41.38	63.30
Length of Change (mm)		2.41	51.15	-1.02	196.90
Thorax Rib 3 Middle Ribeye Position (mm)	X	-13.51	75.60	-17.32	43.40
	Y	-85.53	51.50	-90.54	196.80
	Z	-30.12	-30.20	-41.90	60.90
Length of Change (mm)		2.78	51.40	-1.30	196.90

TABLE 1 WORLD SID-50M AND WORLD SID-05F INSTRUMENTATION DATA
(CONTINUED)

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact Test Date: 3/11/2021

Passenger Dummy Serial Number: DK1774

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
Thorax Rib 3 Front Ribeye Position (mm)	X	11.84	51.90	7.96	43.90
	Y	-74.16	52.25	-78.31	196.85
	Z	-32.98	197.60	-42.84	61.60
Length of Change (mm)		1.77	52.25	-0.79	196.85
Abdomen Rib 1 Rear Ribeye Position (mm)	X	-21.48	74.60	-27.09	43.30
	Y	-69.85	53.40	-78.79	198.55
	Z	-5.92	199.55	-15.85	62.70
Length of Change (mm)		7.94	57.25	-0.67	198.60
Abdomen Rib 1 Middle Ribeye Position (mm)	X	9.39	56.60	1.55	42.20
	Y	-78.95	54.10	-89.57	26.70
	Z	-6.91	159.40	-19.10	61.60
Length of Change (mm)		9.46	52.30	-0.20	-47.30
Abdomen Rib 1 Front Ribeye Position (mm)	X	38.44	55.90	29.84	34.70
	Y	-68.32	55.10	-77.98	29.50
	Z	-6.12	199.55	-16.86	60.95
Length of Change (mm)		5.06	51.65	-0.44	198.55
Abdomen Rib 2 Rear Ribeye Position (mm)	X	-1.28	76.95	-9.94	40.55
	Y	-70.35	55.15	-80.58	200.15
	Z	32.38	135.90	24.17	61.85
Length of Change (mm)		9.51	55.05	-0.45	200.25
Abdomen Rib 2 Middle Ribeye Position (mm)	X	27.39	56.55	17.56	40.20
	Y	-78.84	56.00	-92.80	199.60
	Z	29.63	151.20	20.05	61.00
Length of Change (mm)		11.99	55.05	-1.16	199.80
Abdomen Rib 2 Front Ribeye Position (mm)	X	57.29	54.70	48.40	33.50
	Y	-68.70	57.15	-80.28	10.20
	Z	32.34	153.70	23.69	60.90
Length of Change (mm)		6.68	58.05	-0.95	200.15
T1 Acceleration (g)	X	4.36	162.35	-12.03	58.40
	Y	40.41	63.65	-5.69	158.60
	Z	4.65	67.10	-2.04	143.75
	R	40.67	63.65		

TABLE 1 WORLD SID-50M AND WORLD SID-05F INSTRUMENTATION DATA
(CONTINUED)

Test Vehicle: 2020 Nissan Rogue
 Test Program: Moving Deformable Barrier Side Impact Test Date: 3/11/2021
 Passenger Dummy Serial Number: DK1774

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
T4 Acceleration (g)	X	3.69	109.65	-8.78	50.65
	Y	38.69	63.00	-4.27	152.45
	Z	3.41	67.30	-2.34	40.45
	R	39.07	51.25		
T12 Acceleration (g)	X	3.85	127.75	-5.85	67.10
	Y	48.32	51.45	-3.15	88.95
	Z	6.38	40.05	-3.25	113.90
	R	48.54	51.45		
Pubic Symphysis (N)	Y	11.04	19.75	-950.81	45.80
Left Sacro-Iliac Force (N)	X	371.80	50.40	-80.47	92.65
	Y	63.83	141.40	-1251.38	49.05
	Z	562.37	51.50	-108.39	263.70
Left Sacro-Iliac Moment (Nm)	X	8.69	223.05	-77.53	58.20
	Y	5.77	95.95	-21.18	52.35
	Z	25.30	50.45	-9.25	92.65
Right Sacro-Iliac Force (N)	X	166.93	127.05	-54.85	75.70
	Y	227.18	64.40	-228.41	42.50
	Z	381.59	54.90	-138.93	144.65
Right Sacro-Iliac Moment (Nm)	X	33.47	56.15	-12.77	143.00
	Y	5.27	34.50	-8.39	88.05
	Z	10.86	41.90	-10.78	124.35
Lumbar Force (N)	X	190.83	127.10	-362.04	50.70
	Y	1238.33	56.50	-114.54	142.90
	Z	245.87	142.95	-207.93	234.60
Lumbar Moment (Nm)	X	102.18	56.30	-12.05	143.80
	Y	20.07	51.60	-12.50	92.60
	Z	2.89	90.15	-12.62	143.70
Pelvis Acceleration (g)	X	9.53	46.70	-8.75	56.50
	Y	42.95	44.75	-2.88	135.55
	Z	12.59	50.20	-5.99	46.40
	R	43.74	44.70		

**TABLE 1 WORLDSID-50M AND WORLDSID-05F INSTRUMENTATION DATA
(CONTINUED)**

Test Vehicle: 2020 Nissan Rogue
 Test Program: Moving Deformable Barrier Side Impact Test Date: 3/11/2021
 Passenger Dummy Serial Number: DK1774

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
Left Femur Force (N)	X	38.34	44.60	-255.81	51.00
	Y	51.36	25.50	-149.77	50.50
	Z	137.32	25.70	-664.56	43.60
Left Femur Moment (Nm)	X	42.98	30.65	-17.18	45.35
	Y	197.97	44.85	-7.05	146.60
	Z	17.23	29.80	-11.39	123.45
Left Femoral Neck Force (N)	X	360.11	40.45	-176.59	122.25
	Y	1398.89	44.35	-37.91	119.40
	Z	620.29	45.00	-297.75	34.00
Left Outer Knee Force (N)	Y	1649.67	43.90	-42.32	116.95
Left Inner Knee Force (N)	Y	5660.95	43.95	-11.69	-37.85

Positive Direction

Longitudinal Forward
 Lateral Rightward
 Vertical Downward

Negative Direction

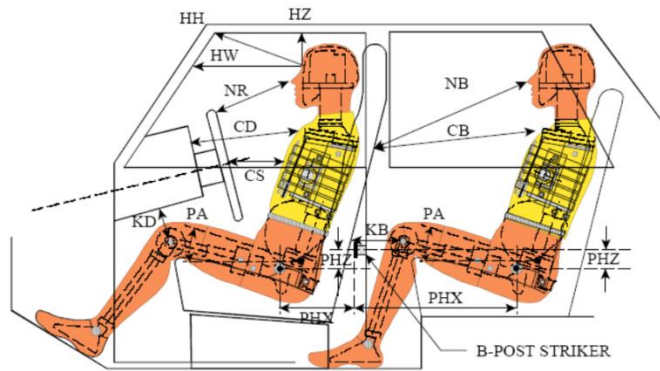
Longitudinal Rearward
 Lateral Leftward
 Vertical Upward

DATA SHEET NO. 3 DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact

Test Date: 3/11/2021



LEFT SIDE VIEW

NOTE: 2-DOOR VEHICLE SHOWN.
REAR DUMMY PHX & PHZ
MEASUREMENTS FOR A 4-DOOR
VEHICLE WOULD USE THE C-POST
STRIKER AS A REFERENCE POINT

Code	Measurement Description	Driver WorldSID-50M SN # EB8888		Passenger WorldSID-05F SN # DK1774	
		Length (mm)	Angle	Length (mm)	Angle
HH	Header to Header	385			
HW	Header to Windshield	643			
HZ	Head to Roof Liner	211		262	
NR	Nose to Rim/Seat Back	385		620	
CD	Chest to Dash/Seat Back	609		642	
CS	Chest to Steering Wheel	366			
KD(L)/KDA(L)°	Left Knee to Dash/Seat Back	151	0.4	199	67.2
KD(R)/KDA(R)°	Right Knee to Dash/Seat Back	109	9.7	240	66.2
PAX°	Pelvic Tilt Angle X		-0.7		-0.4
PAY°	Pelvic Tilt Angle Y		1.7		23.3
PHX	Hip Point to Striker (X-Axis)	277		-690	
PHZ	Hip Point to Striker (Z-Axis)	88		12	
HAX°	Head Tilt Angle X		0.2		0.9
HAY ¹ °	Head Tilt Angle Y		-2.0		-4.5
TAX°	Thorax Tilt Angle X		0.1		0.9
TAY°	Thorax Tilt Angle Y		-0.5		22.8
	Head Rest Angle		2.7		N/A
	H-Point Tool Angle		39.9		48.3
	Torso Angle		14.7		57.9
	Windshield Angle		60.6		

Note: All measurements are in millimeters. 2-door vehicle shown. Rear dummy HX, HZ, PHX and PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

All tilt sensor angles are recorded digitally

WorldSID-50M neck was adjusted 0 notches

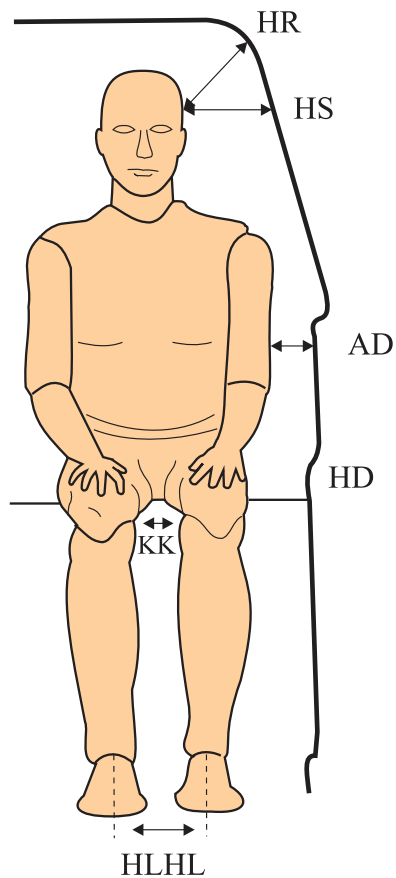
WorldSID-5F neck was adjusted -3 notches down

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact

Test Date: 3/11/2021



Code	Measurement Description	Driver WorldSID-50M SN # EB8888	Passenger WorldSID-05F SN # DK1774
HR	Head to Side Header	224	197
HS	Head to Side Window	335	313
AD	Arm to Door	122	99
HD	Hip Point to Door	86	51
KK	Knee to Knee	445	293
HLHL	Heel to Heel	329	247

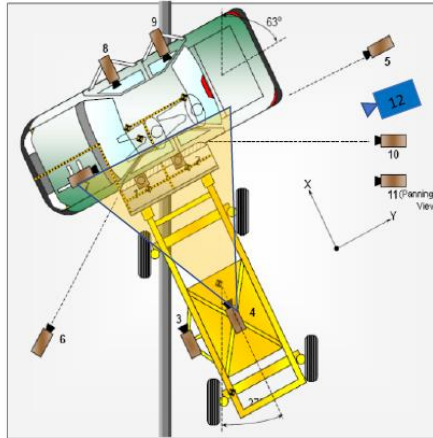
Note: All measurements are in millimeters.

DATA SHEET NO. 5 CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact

Test Date: 3/11/2021



CAMERA LOCATIONS AND DATA

Camera No.	View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Overhead Wide View	-1578	0	-5692	8.5	1000
2	Overhead Close-Up View	-1387	0	-5962	28	1000
3	Impact Point	-1522	-907	-861	25	1000
4	Struck-Side View at Impact	-2250	0	-1429	8.5	1000
5	Rear Impact View of Struck Side	0	9358	-1482	20	1000
6	Front Oblique Impact View of Struck Side	-2352	-4126	-1456	20	1000
7	Driver Dummy Front View (Onboard)				25	1000
8	Driver Dummy Side View (Onboard)				8.5	1000
9	Rear Passenger Dummy Side View (Onboard)				8.5	1000
10	Real-Time Rear View of Impact				Zoom	1000
11	Real-Time Pan View of Impact				Zoom	30
12	Real-Time Left Rear View of Impact				Zoom	30

Reference: Impact Point projected to Ground; +X = To Front of MDB, +Y = To Right of MDB, +Z = Down *All measurements accurate to ± 6 mm.

If applicable, explain why camera(s) did not operate as intended: Camera 8 failed to record

INSTRUMENTATION

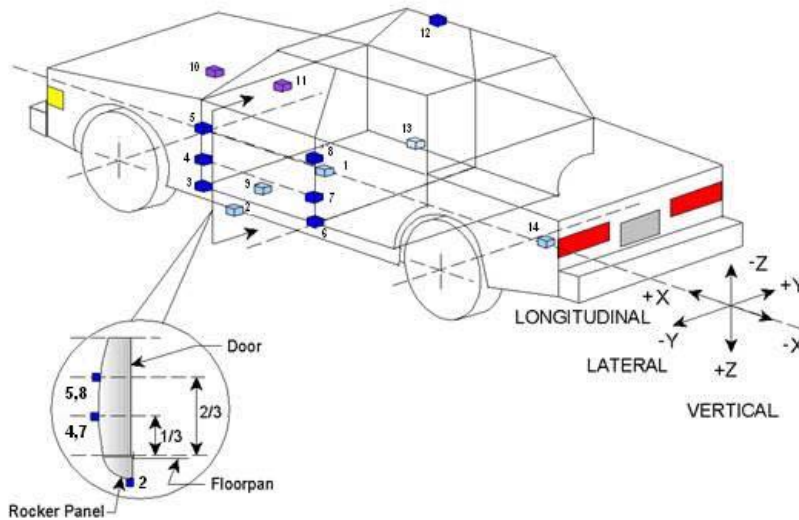
Driver Dummy Channels	135
Passenger Dummy Channels	194
Vehicle Structure Accelerometers	37
MDB Accelerometers	5
Contact Channels	10
TOTAL	322

DATA SHEET NO. 6
VEHICLE ACCELEROMETER DATA

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact

Test Date: 3/11/2021



Location		Coordinates (mm)			Positive Direction		Negative Direction	
		X	Y	Z	Max	Time (ms)	Max	Time (ms)
1	Vehicle CG	2603	-6	-49				
	Longitudinal (g)				3.40	12.00	-6.75	15.80
	Lateral (g)				20.98	7.25	-3.89	286.00
	Vertical (g)				11.74	17.65	-6.76	4.30
	Resultant (g)				21.08	7.25		
2	Vehicle CG ARS	2001	413	-248				
	Longitudinal (g)				138.46	9.85	-99.53	199.05
	Lateral (g)				23.97	13.95	-12.92	114.75
	Vertical (g)				79.92	204.15	-3.18	-27.25
3	Right Sill at Front Seat	2844	712	-130				
	Longitudinal (g)				3.61	58.05	-3.40	9.90
	Lateral (g)				25.73	6.40	-4.54	286.95
	Vertical (g)				4.83	61.30	-7.38	10.45
	Resultant (g)				26.25	6.40		
4	Right Side Sill At Rear Seat	1909	715	-111				
	Longitudinal (g)				3.83	57.75	-3.84	10.00
	Lateral (g)				22.28	6.65	-3.57	287.00
	Vertical (g)				5.04	79.60	-7.27	14.50
	Resultant (g)				22.49	6.60		
5	Left Side Sill At Front Seat	2810	-716	-138				
	Lateral (g)				67.63	2.65	-19.91	11.30
6	Left Side Sill At Rear Seat	1921	-715	-118				
	Lateral (g)				83.71	5.05	-13.03	13.10

DATA SHEET NO. 6 (CONTINUED)
VEHICLE ACCELEROMETER DATA

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact

Test Date: 3/11/2021

Location		Coordinates (mm)			Positive Direction		Negative Direction	
		X	Y	Z	Max	Time (ms)	Max	Time (ms)
7	Lower A-Post	3242	-814	-197				
	Lateral (g)				--- ¹	--- ¹	--- ¹	--- ¹
8	Middle A-Post	3234	-804	-377				
	Lateral (g)				--- ¹	--- ¹	--- ¹	--- ¹
9	Lower B-Post	2127	-705	-117				
	Lateral (g)				89.57	1.70	-15.03	12.75
10	Middle B-Post	2087	-700	-465				
	Lateral (g)				105.58	10.55	-14.84	30.70
11	Front Seat Track	2503	-551	-131				
	Lateral (g)				29.87	6.65	-4.06	289.45
12	Rear Seat Structure	1828	-529	-53				
	Lateral (g)				--- ¹	--- ¹	--- ¹	--- ¹
13	Right Rear Occupant Compartment	2001	413	-248				
	Lateral (g)				22.49	6.40	-2.12	80.30
14	Engine Block	3870	78	-314				
	Longitudinal (g)				6.73	83.65	-12.79	28.95
	Lateral (g)				20.61	28.45	-4.32	84.70
15	Rear Floorpan Above Axle	1062	2	-15				
	Longitudinal (g)				2.61	55.50	-5.22	37.65
	Lateral (g)				19.85	28.95	-2.89	92.25
	Vertical (g)				6.36	9.00	-7.25	17.90
	Resultant (g)				20.29	29.00		
16	Rear Deck	416	530	-55				
	Longitudinal (g)				4.62	56.70	-6.26	11.35
	Lateral (g)				23.52	31.75	-3.82	94.60
	Vertical (g)				5.58	83.65	-5.04	18.65
	Resultant (g)				23.59	31.80		
17	Rear Deck ARS	387	529	-55				
	Longitudinal (g)				135.57	42.35	-94.68	225.90
	Lateral (g)				51.14	8.90	-25.17	100.15
	Vertical (g)				100.72	63.30	-97.19	12.70
18	Left Front Door Mid Centerline	2678	-753	-210				
	Lateral (g)				117.82	7.25	-77.10	13.80
19	Left Front Door Mid Rear	2313	-752	-201				
	Lateral (g)				82.76	11.10	-42.80	15.60
20	Left Front Door Upper Centerline	2652	-756	-504				
	Lateral (g)				67.22	14.30	-51.77	24.70

¹ See data acquisition explanations

DATA SHEET NO. 6 (CONTINUED)
VEHICLE ACCELEROMETER DATA

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact

Test Date: 3/11/2021

Location		Coordinates (mm)			Positive Direction		Negative Direction	
		X	Y	Z	Max	Time (ms)	Max	Time (ms)
21	Left Rear Door Mid Rear	1434	-753	-238				
	Lateral (g)				52.38	19.75	-35.49	26.95
22	Left Rear Door Upper Centerline	1640	-742	-564				
	Lateral (g)				65.56	40.50	-50.07	30.40

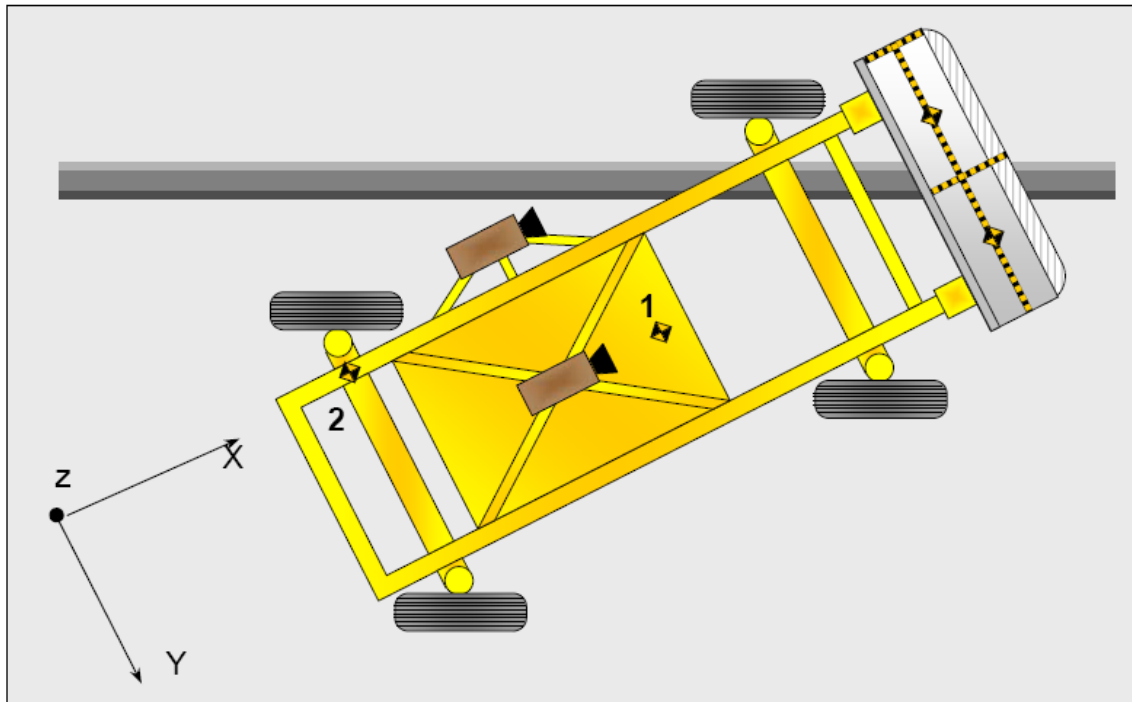
*0,0,0 located at rear bumper

DATA SHEET NO. 7
MDB ACCELEROMETER DATA

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact

Test Date: 3/11/2021



MDB ACCELEROMETER LOCATIONS

Location		Coordinates (mm)			Positive Direction		Negative Direction	
		X	Y	Z	Max	Time (ms)	Max	Time (ms)
1	MDB CG	-2179	0	-505				
	Longitudinal (g)				1.71	119.05	-21.27	16.45
	Lateral (g)				2.79	60.30	-9.11	32.60
	Vertical (g)				6.62	38.85	-8.37	22.35
	Resultant (g)				21.83	16.40		
2	MDB Rear	-3648	-650	-618				
	Longitudinal (g)				2.00	88.35	-20.96	31.20
	Lateral (g)				3.03	33.90	-3.36	58.25

Reference: X – Face of MDB (+ forward)
Y – MDB centerline (+ to right)
Z – Ground plane (+ down)

**DATA SHEET NO. 8
POST TEST OBSERVATIONS**

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact

Test Date: 3/11/2021

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Front Seat Dummy (WorldSID-50M)	Rear Seat Dummy (WorldSID-05F)
Face	SCAB	SCAB
Top of Head	SCAB	SCAB
Left Side of Head	SCAB	SCAB
Back of head	None	None
Left Shoulder	SAB	Door panel
Upper Torso	SAB	Door panel
Lower Torso	SAB	Arm rest
Left Hip	SAB, Door panel	Arm rest, Door panel
Left Knee	No contact	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	N/A	Yes	Yes	Yes
Total Separation from Vehicle at Hinges or Latches	No	N/A	No	No	No
Latch or Hinge Systems Pulled Out of Their Anchorages	No	N/A	No	No	No
Disengaged from Latched Position	No	N/A	No	No	No
Latch Separated from Striker	No	N/A	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

* Indicate "Yes", "No", or "NA".

POST-TEST SEAT PERFORMANCE

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

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Good
Sill Separation	None
Windshield Damage	Cracking
Side Window Damage	None
Other Notable Effects	None

DATA SHEET NO. 8 (CONTINUED)
POST TEST OBSERVATIONS

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact Test Date: 3/11/2021

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side (Driver)		Struck Side (Rear Passenger)	
	Mounted	Deployed	Mounted	Deployed
Front Airbag	Yes	Yes		
Knee Airbag	No	N/A		
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Pelvis Airbag	Yes	Yes	No	N/A
Side Pelvis Airbag	No	N/A	No	N/A
Seat Belt Pretensioner	Yes	Yes	No	N/A
Seat Belt Load Limiter	Yes	Yes	No	N/A
Other	No	N/A	No	N/A

IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vehicle Wheel Base	mm		2705
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		363
Actual Impact Point (Aft of Front Axle)	mm		349
Horizontal Offset (+ forward / - rearward)	mm	+/- 50 of Intended Impact Point	+14
Vertical Offset (+ down / - up)	mm	+/- 20 of Intended Impact Point	-1

DATA SHEET NO. 9
MDB SUMMARY OF RESULTS

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact

Test Date: 3/11/2021

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1252
Overall Length Including Honeycomb Frame	4115
Wheel Base of Framework Carriage	2591
CG Location of Front Axle	1114

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	414.0	267.8	681.8
Right	kg	364.4	319.0	683.4
Ratio	%	57.0	43.0	100.0
Totals	kg	778.4	586.8	1365.2

SPEED AND ANGLE AT IMPACT DATA

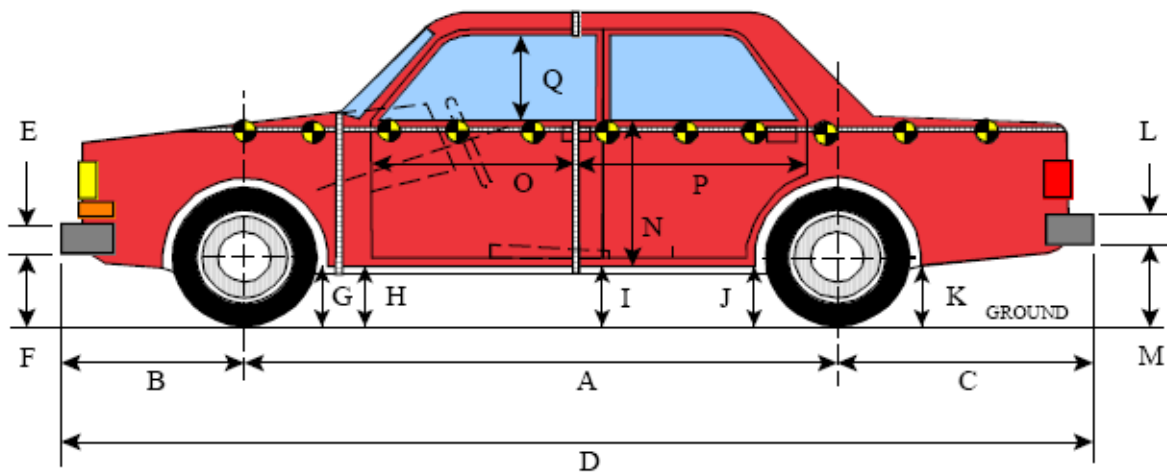
Measured Parameter	Units	Tolerance	Value
Trap No. 1 Velocity (Primary)	km/h	52.1 to 53.7	52.86
Trap No. 2 Velocity (Redundant)	km/h	52.1 to 53.7	52.89
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	90
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	63
MDB Crabbed Angle to MDB Forward Line of Motion	degrees	26 to 28	27

DATA SHEET NO. 10
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact

Test Date: 3/11/2021



LEFT SIDE VIEW

All MEASUREMENTS IN (mm) WITH TOLERANCE OF ± 3 mm

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2705	2710	-5
B	Front Axle to FSOV	955	955	0
C	Rear Axle to RSOV	1030	1030	0
D	Total Length at Centerline	4690	4680	10
E	Front Bumper Thickness	64	64	0
F	Front Bumper Bottom to Ground	472	480	-8
G	Sill Height at Front Wheel Well	375	455	-80
H	Sill Height at Front Door Leading Edge	378	455	-77
I	Sill Height at B Pillar	400	480	-80
J1	Sill Height at Rear Wheel Well	405	420	-15
J2	Pinch Weld Height at Rear Wheel Well	255	293	-38
K	Sill Height Aft of Rear Wheel Well	440	475	-35
L	Rear Bumper Thickness	130	130	0
M	Rear Bumper Bottom to Ground	495	520	-25
N	Sill Height to Bottom of Front Window Sill	800	705	95
O	Front Door Leading Edge to Impact CL	780	750	30
P	Rear Door Trailing Edge to Impact CL	1406	1380	26
Q	Front Window Opening	423	420	3
R	Right Side Length	4370	4380	-10
S	Left Side Length	4370	4360	10
T	Maximum Vehicle Width at B-Pillars	1820	1770	50
U	Maximum Vehicle Width	1830	1830	0

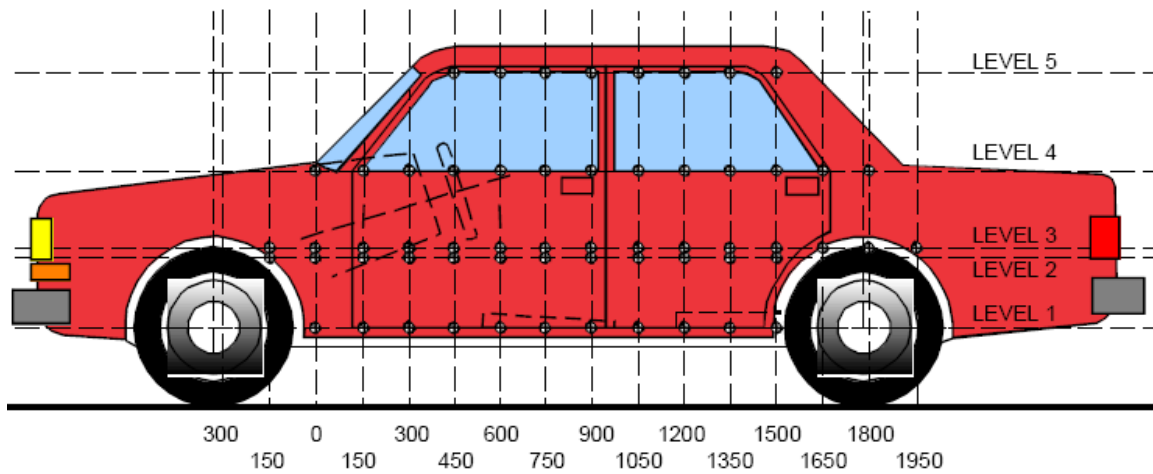
**All Dimensions in mm

DATA SHEET NO. 11
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact

Test Date: 3/11/2021



LEFT SIDE VIEW

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	404	116	300
2	Occupant H-Point	684	204	1650
3	Mid-Door	758	186	1500
4	Window Sill	1055	77	1350
5	Window Top	1586	8	1500
				1800

NOTE: The above measurements should be taken along the vertical impact reference line. Vehicle measurements forward of the vertical impact reference line are negative.

DATA SHEET NO. 11 (CONTINUED)
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact

Test Date: 3/11/2021

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-300				823					819					4	
-150			919	838				905	832				14	6	
0		910	914	844			888	894	835			22	20	9	
150	878	909	910	845		778	785	800	849		100	124	110	-4	
300	874	904	908	831		758	749	741	825		116	155	167	6	
450	871	903	908	828		763	735	734	827		108	168	174	1	
600	876	903	907	838		796	748	738	840		80	155	169	-2	
750	877	903	907	848		799	754	742	851		78	149	165	-3	
900	876	903	907	857	588	808	759	747	859	587	68	144	160	-2	1
1050	876	902	906	863	605	808	763	763	860	602	68	139	143	3	3
1200	875	901	904	865	612	803	794	792	867	607	72	107	112	-2	5
1350	873	899	902	866	613	779	733	739	789	608	94	166	163	77	5
1500	874	899	901	868	614	783	710	715	795	606	91	189	186	73	8
1650	877	902	904	868	613	801	698	719	799	607	76	204	185	69	6
1800	883	908	909	869	611	841	770	741	799	603	42	138	168	70	8
1950		908	912	864	608		852	821	829	603		56	91	35	5
2100			913	882	601			894	876	599			19	6	2
2250				869	592				878	591				-9	1
2400				869	582				856	581				13	1

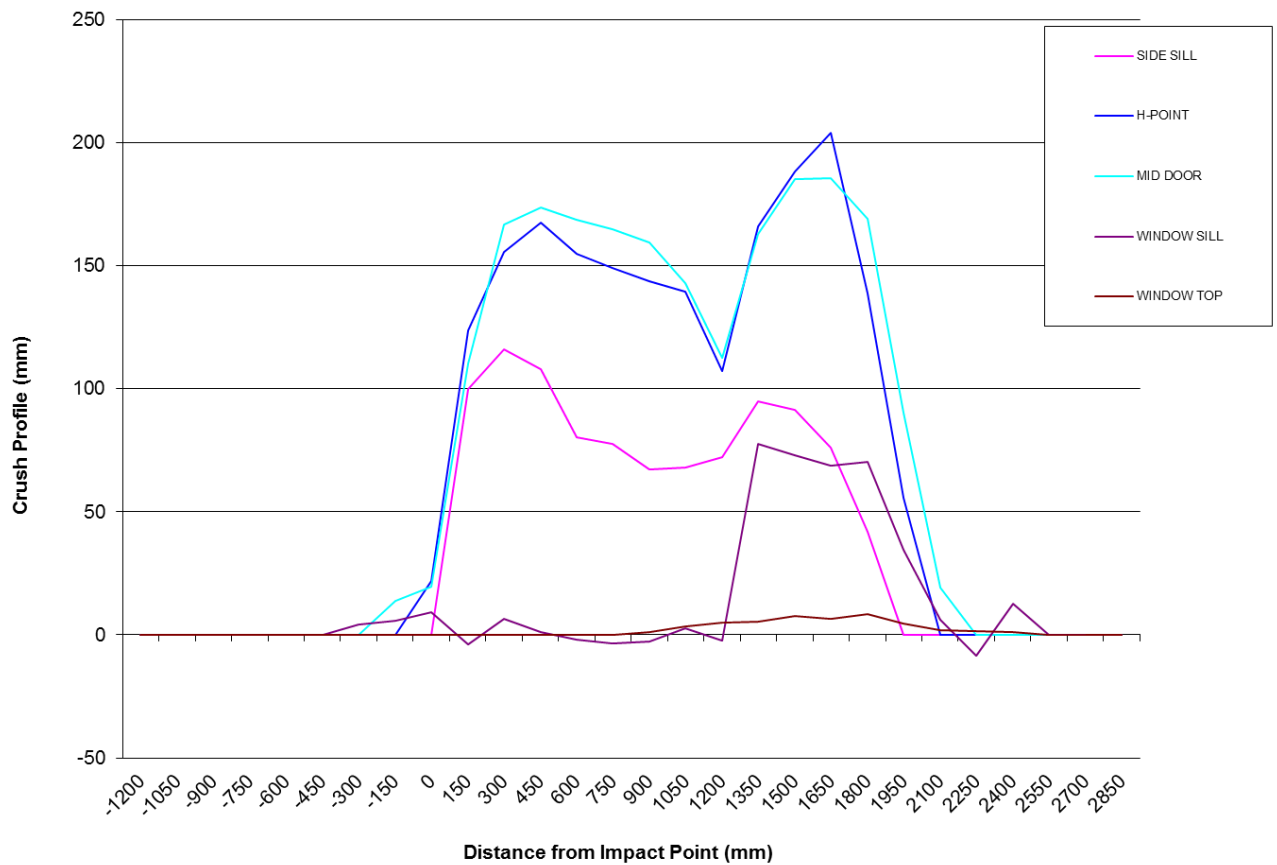
NOTE: Pre-test measurements are taken when the vehicle is in the "As Tested" weight condition. Vehicle measurements forward of the vertical impact reference line are negative. The crush profile grid is established prior to the test based on an estimated impact point. The vertical impact reference line was set at (0, 0, 0).

DATA SHEET NO. 11 (CONTINUED)
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact

Test Date: 3/11/2021

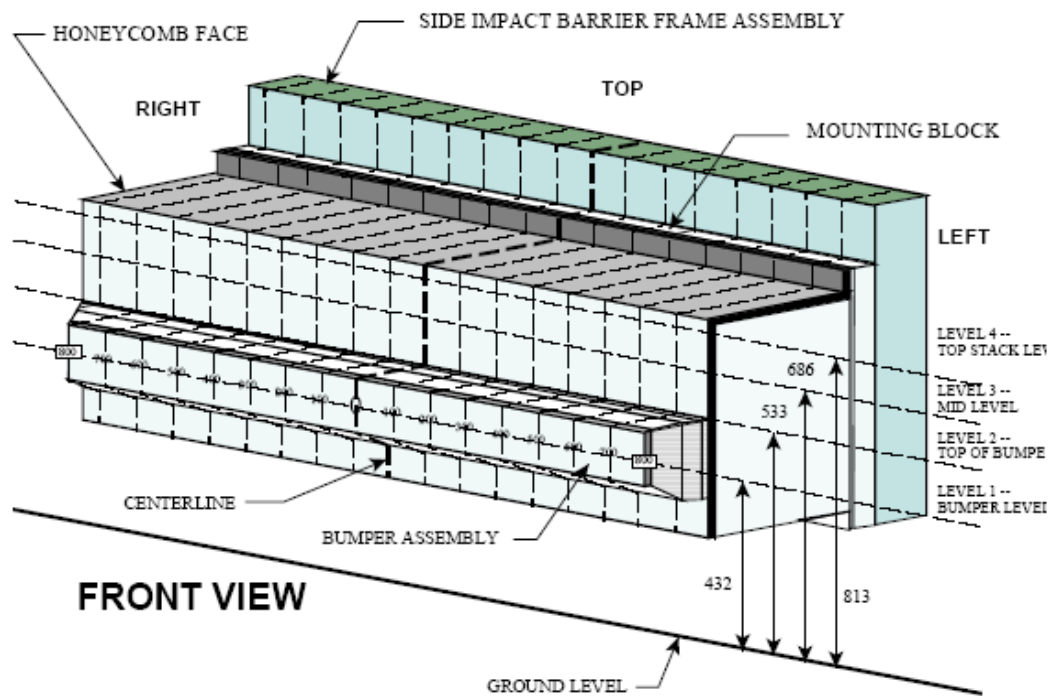


DATA SHEET NO. 12
MDB EXTERIOR STATIC CRUSH MEASUREMENTS

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact

Test Date: 3/11/2021



NOTE: Dimensions are shown in millimeters, mm

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE

Vertical Location			From Centerline		Maximum Crush
Row	Description	Height	Distance	Direction	
A	Center of Bumper	432	800	Right	158
B	Top of Bumper	533	800	Right	57
C	Mid-Level	686	800	Left	71
D	Top of Stack	813	800	Left	119

DEFORMABLE BARRIER STATIC CRUSH

Stack Level	Distance Right of Center								C/L	Distance Left of Center							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
1	158	153	151	149	151	145	140	138	135	133	130	129	126	125	125	130	132
2	57	48	47	47	46	52	42	37	34	31	30	28	28	28	34	39	52
3	---	---	-2	11	34	54	44	21	8	6	7	23	26	13	18	27	71
4	43	38	28	28	58	69	42	23	19	16	18	18	20	22	26	59	119

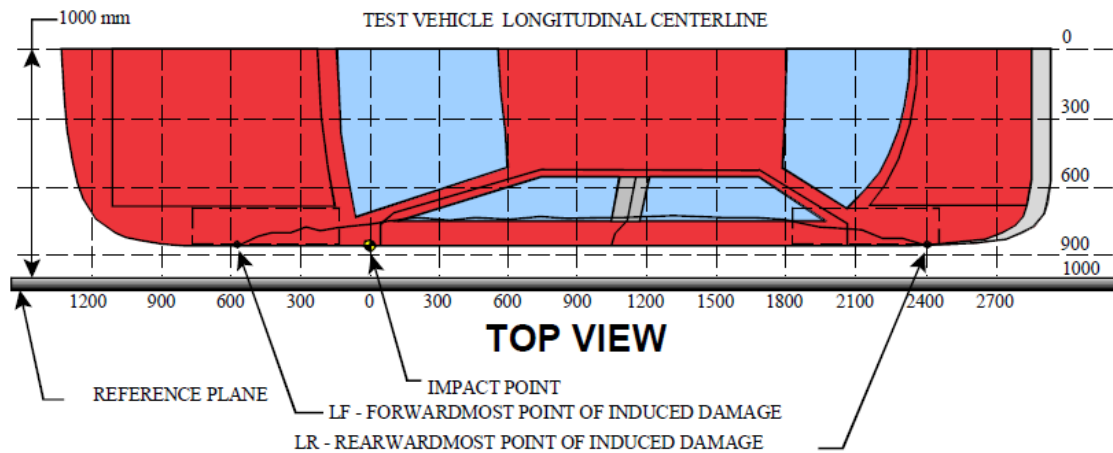
¹ Missing points post test

DATA SHEET NO. 13
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2020 Nissan Rogue

Test Program: Moving Deformable Barrier Side Impact

Test Date: 3/11/2021



MEASUREMENT CONVENTIONS:

Forward of the impact point (towards front of vehicle) is considered negative (—).
 Rearward of the impact point (toward rearend of vehicle) is considered positive (+).

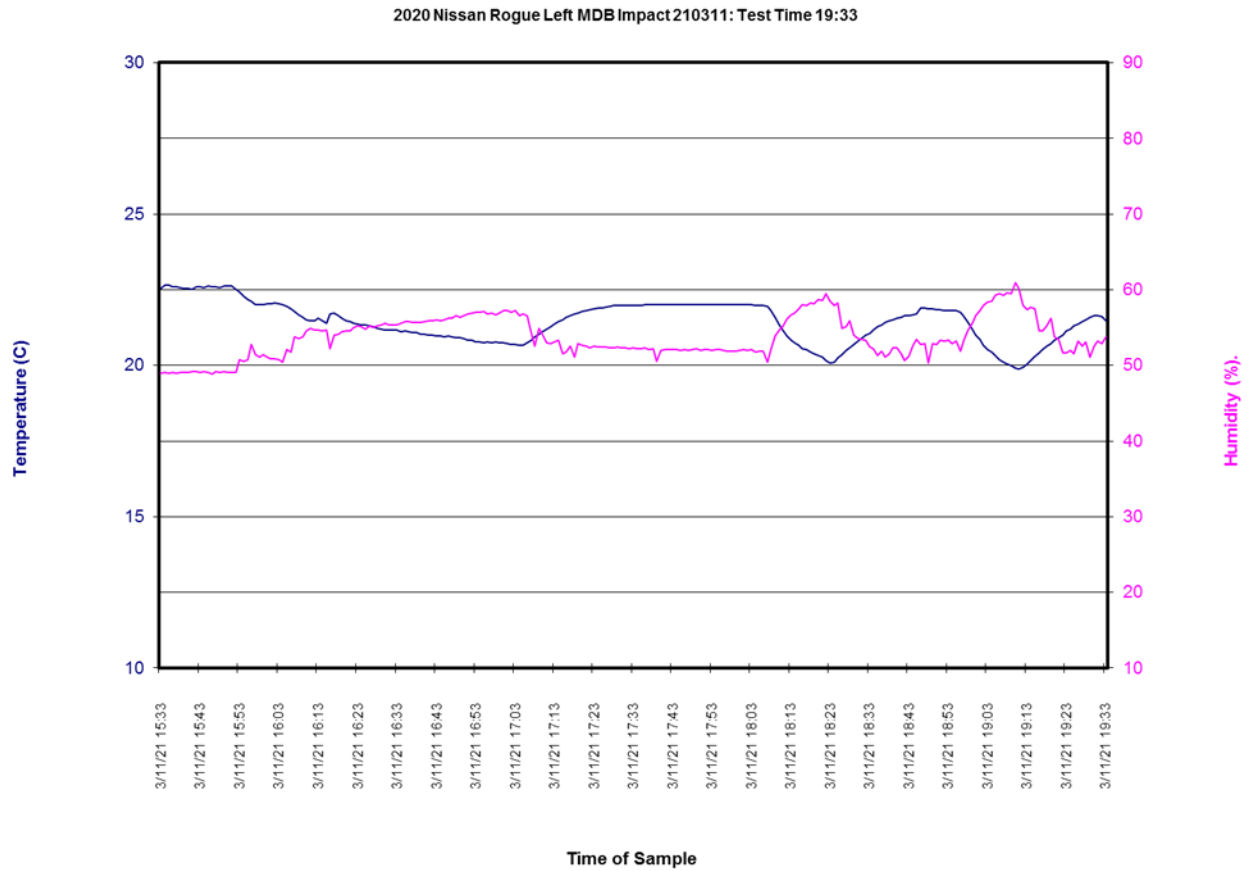
VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	2400	4	856	869	13
2	1800	3	741	909	168
3	1350	2	733	899	166
4	750	3	742	907	165
5	300	3	741	908	167
6	-300	4	819	823	4

MDB DAMAGE PROFILE DISTANCES

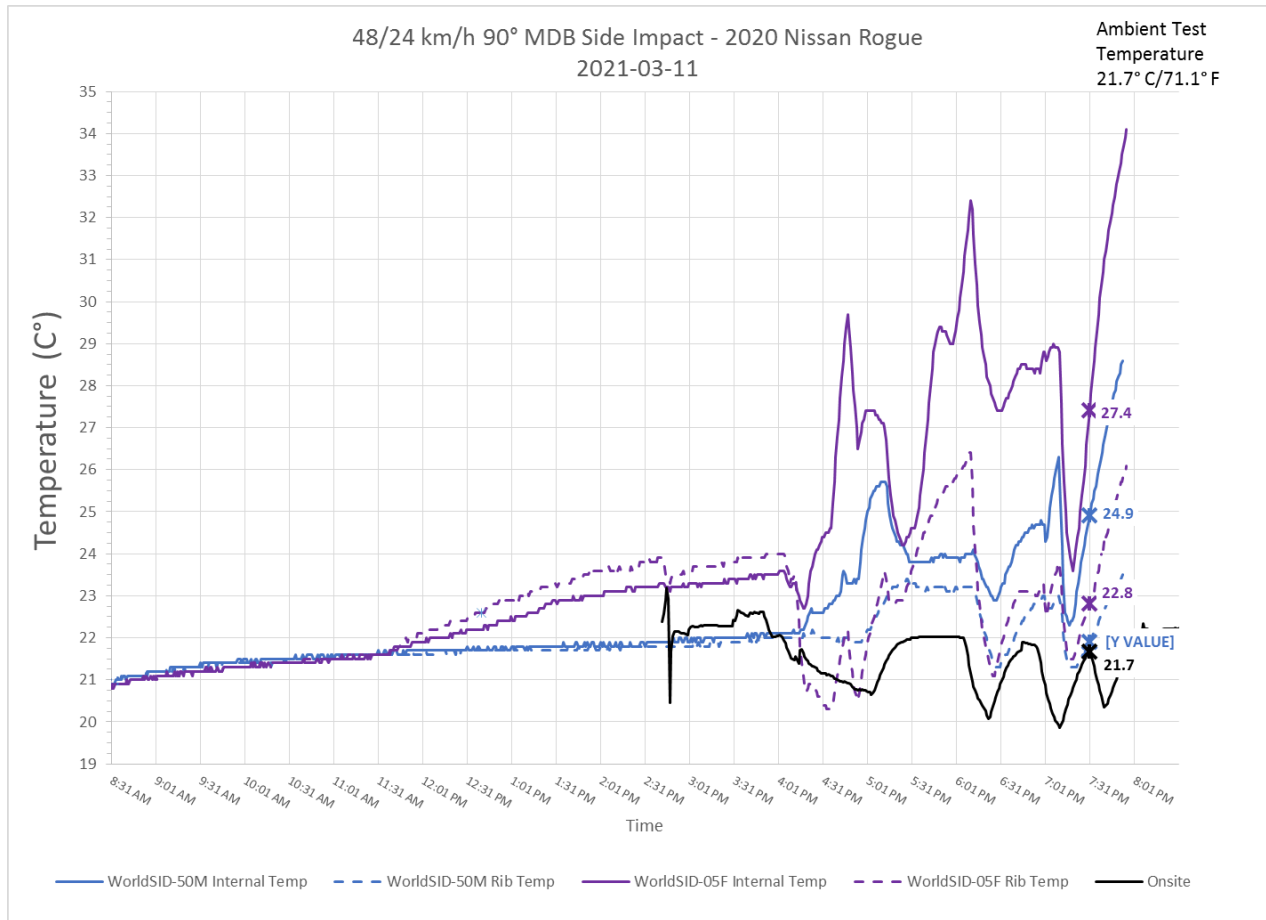
DPD	Distance From Center of MDB	Level	Post-Test (mm)*
1	800 mm left of center	1	132
2	500 mm left of center	1	125
3	200 mm left of center	1	130
4	200 mm right of center	1	140
5	500 mm right of center	1	149
6	800 mm right of center	1	158

DATA SHEET NO. 14
DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA
 Test Vehicle: 2020 Nissan Rogue
 Test Program: Moving Deformable Barrier Side Impact Test Date: 3/11/2021



DATA SHEET NO. 14 (CONTINUED)
DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle: 2020 Nissan Rogue
 Test Program: Moving Deformable Barrier Side Impact Test Date: 3/11/2021



APPENDIX A
PHOTOGRAPHS

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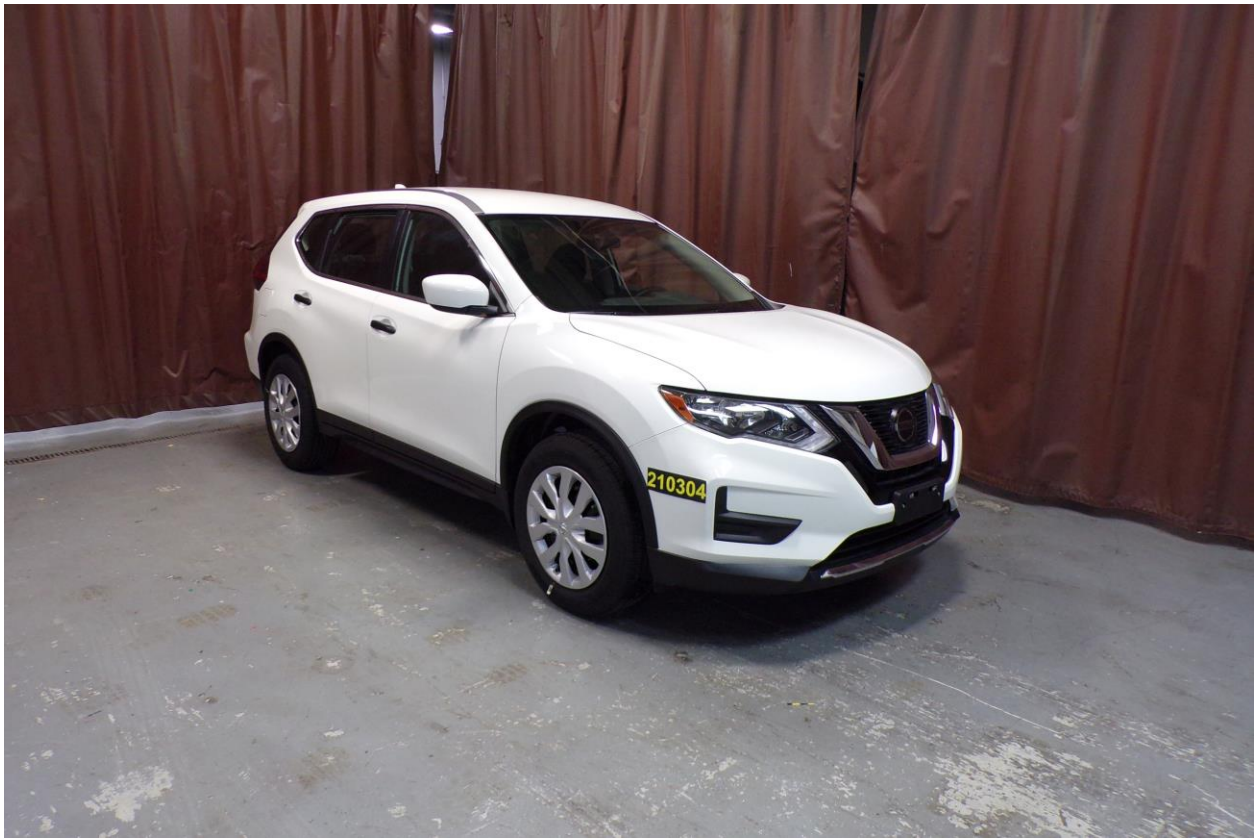
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001 As-Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



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



003 Pre-Test Frontal View of Test Vehicle



004 Post-Test Frontal View of Test Vehicle



005 Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle



006 Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle



007 Pre-Test Left Side View of Test Vehicle



008 Post-Test Left Side View of Test Vehicle



009 Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



010 Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



011 Pre-Test Rear View of Test Vehicle



012 Post-Test Rear View of Test Vehicle



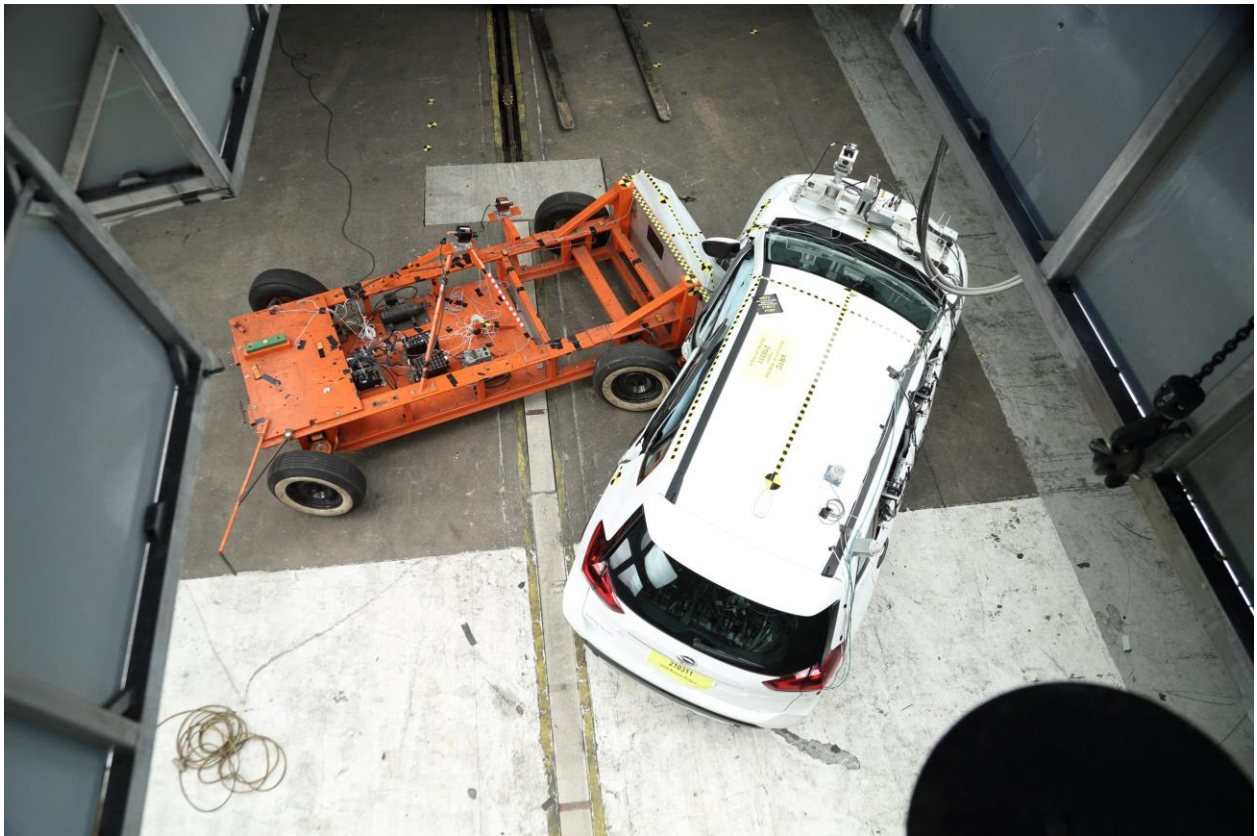
013 Pre-Test Right Side View of Test Vehicle



014 Post-Test Right Side View of Test Vehicle



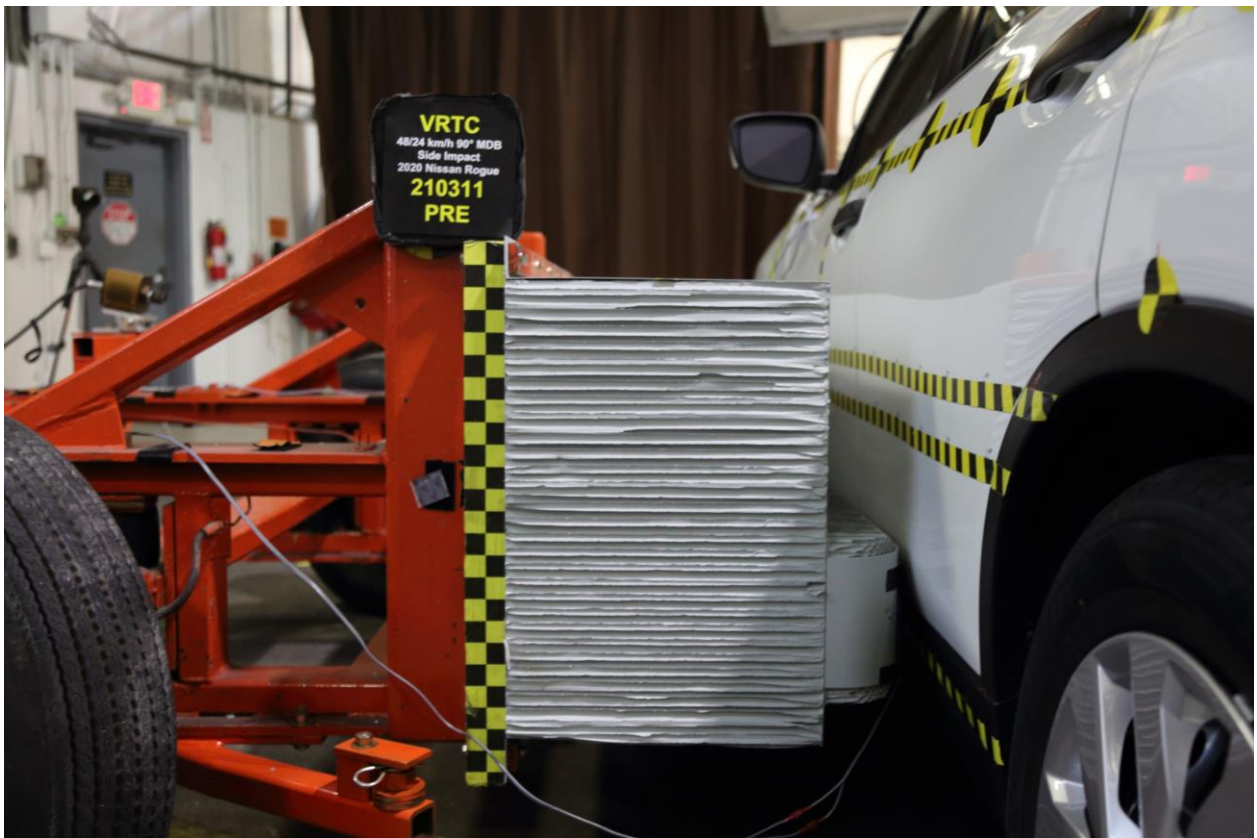
015 Pre-Test Overhead View of Test Area



016 Post-Test Overhead View of Test Area



017 Pre-Test Left Side View of MDB Positioned Against Side of Test Vehicle



018 Pre-Test Right Side View MDB Positioned Against Side of Test Vehicle



019 Pre-Test Close-Up View of Impact Point Target



020 Post-Test Close-Up View of Impact Point Target



021 Pre-Test Left Front Door Latch Close-Up



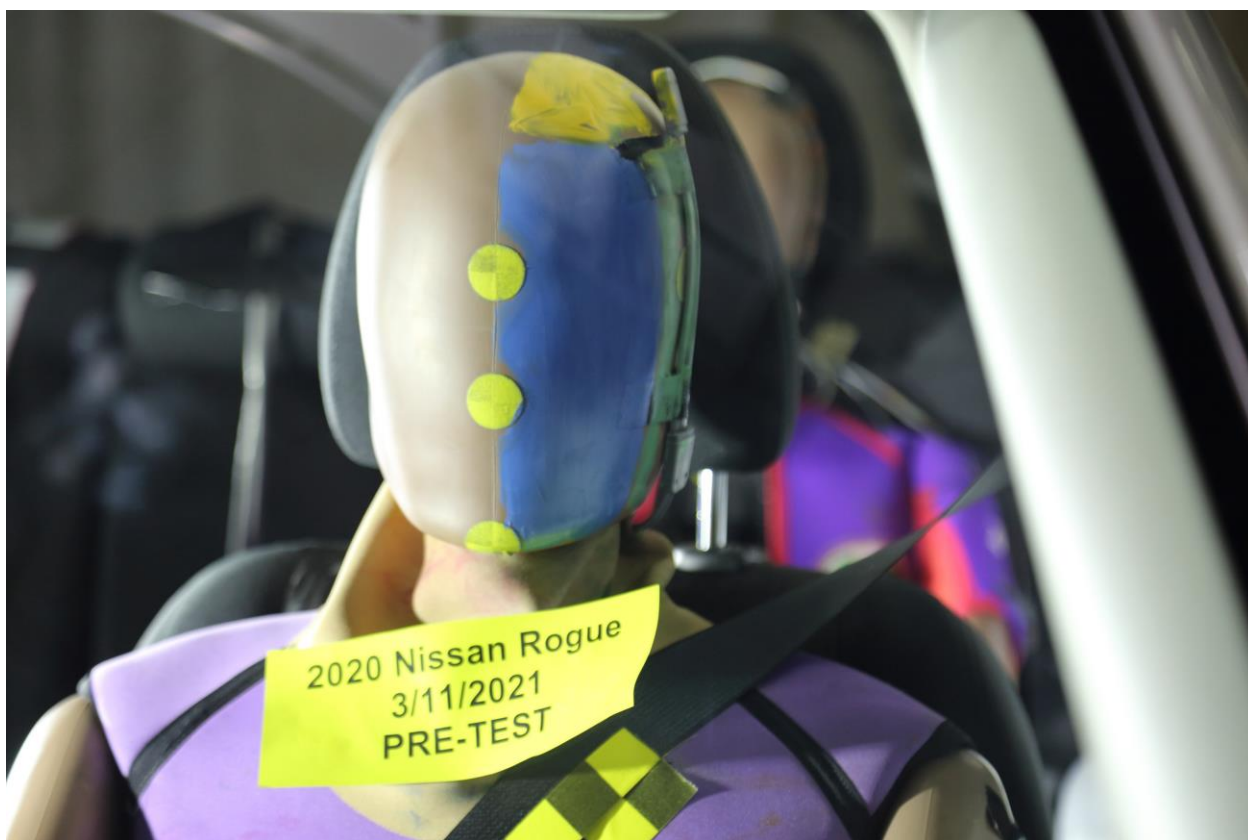
022 Post-Test Left Front Door Latch Close-Up



023 Pre-Test Left Rear Door Latch Close-Up



024 Post-Test Left Rear Door Latch Close-Up



025 Pre-Test Front Close-Up View of Driver Dummy



026 Post-Test Front Close-Up View of Driver Dummy



027 Pre-Test Left Side View of Driver Dummy Showing Belt and Chalking

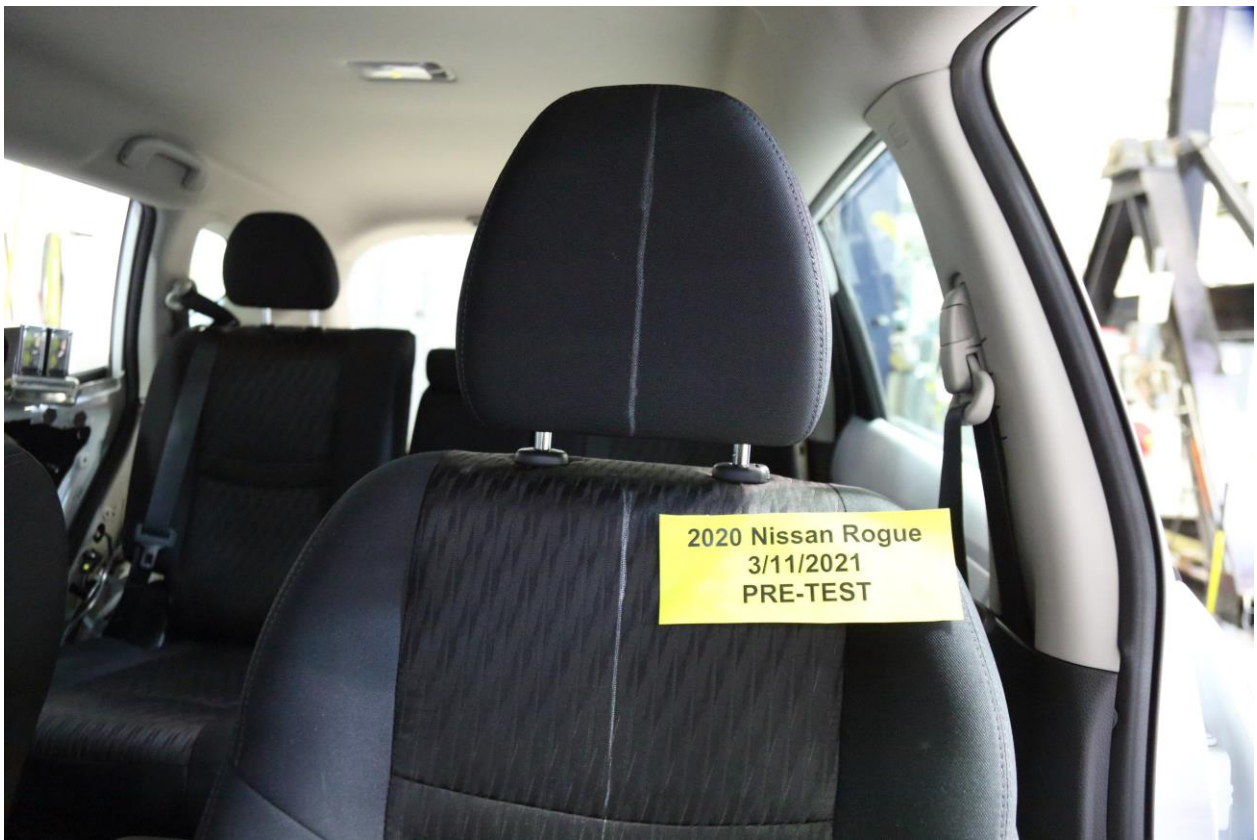
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028 Pre-Test Left Side View of Driver Dummy Shoulder and Door Top



029 Post-Test Left Side View of Driver Dummy Shoulder and Door Top



030 Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning



031 Pre-Test Frontal View of Driver Dummy Head and Shoulders in Relation to Head Restraint



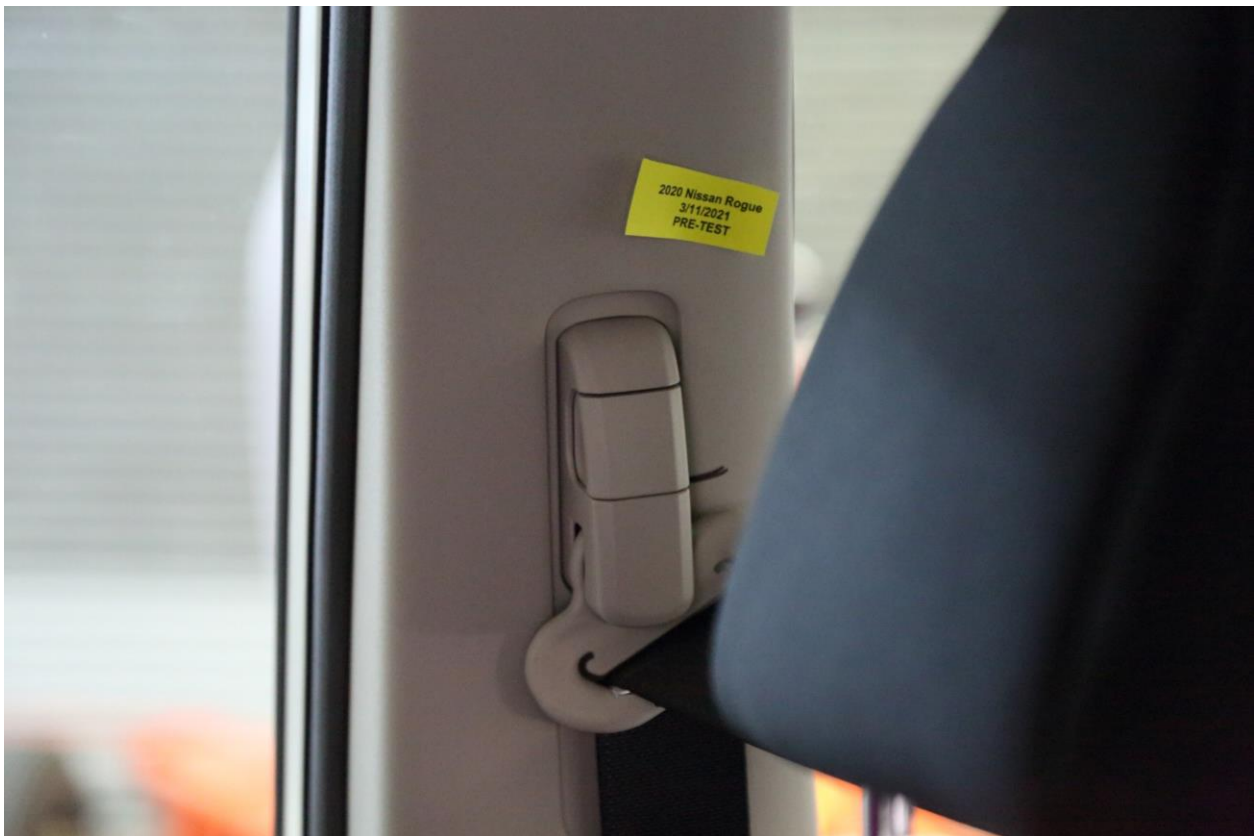
032 Pre-Test Frontal View of Driver Seat Pan Prior to Dummy Positioning



033 Pre-Test Overhead View of Driver Dummy Thighs on Seat Pan



034 Pre-Test Placement of Driver's Dummy Feet



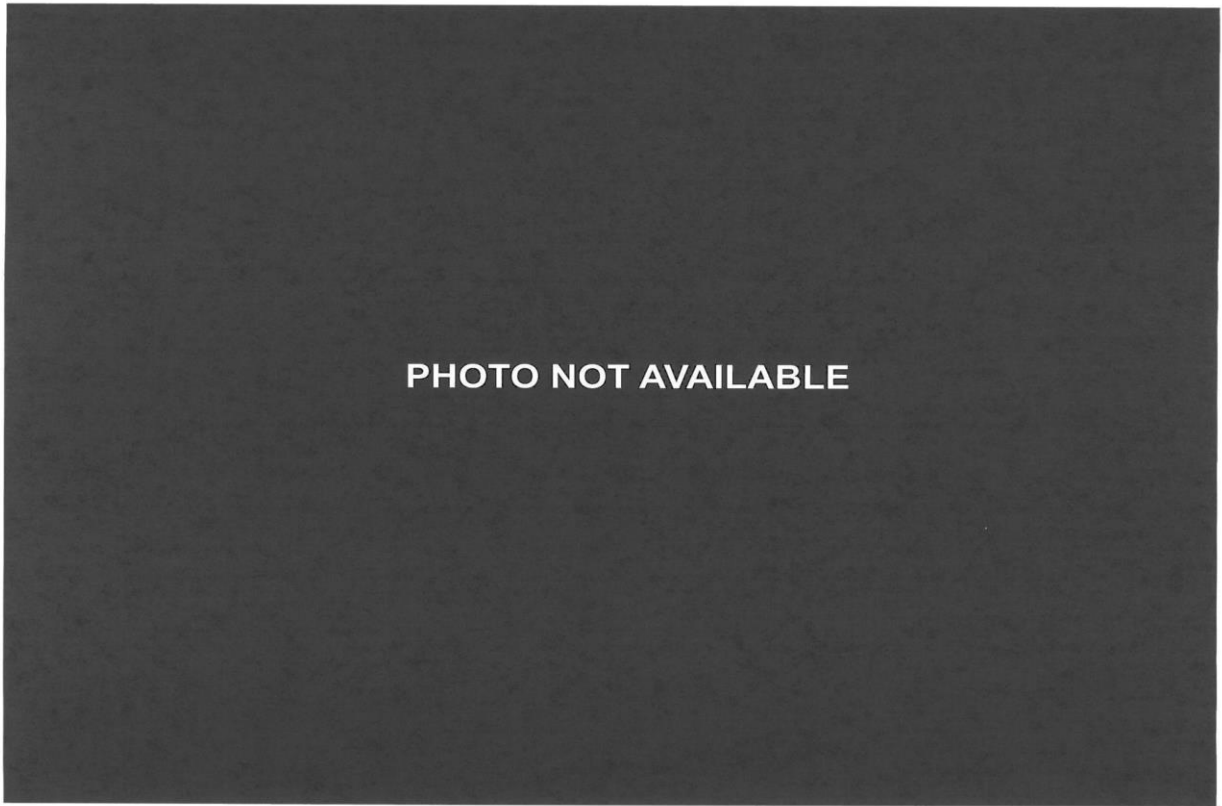
035 Pre-Test View of Belt Anchorage for Driver Dummy



036 Pre-Test Left Side View of Steering Wheel



037 View of Disengaged Parking Brake



038 Pre-Test View of Parking Brake



039 Pre-Test Close-Up Left Side View of Driver Seat Track

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040 Pre-Test Close-Up Left Side View of Driver Seat Back



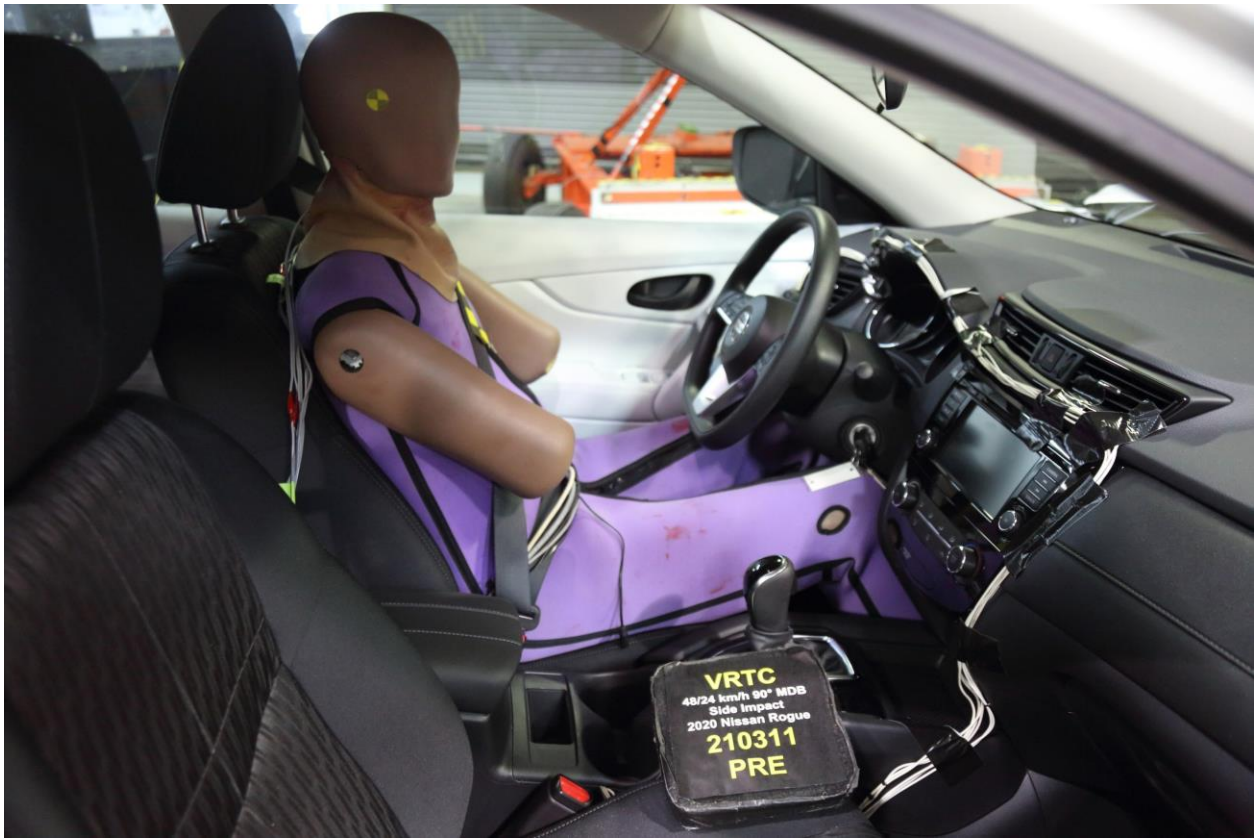
041 Pre-Test Close-Up View of Driver Seat Back or Head Restraint



042 Pre-Test Driver Dummy and Door Clearance View



043 Post-Test Driver Dummy and Door Clearance View



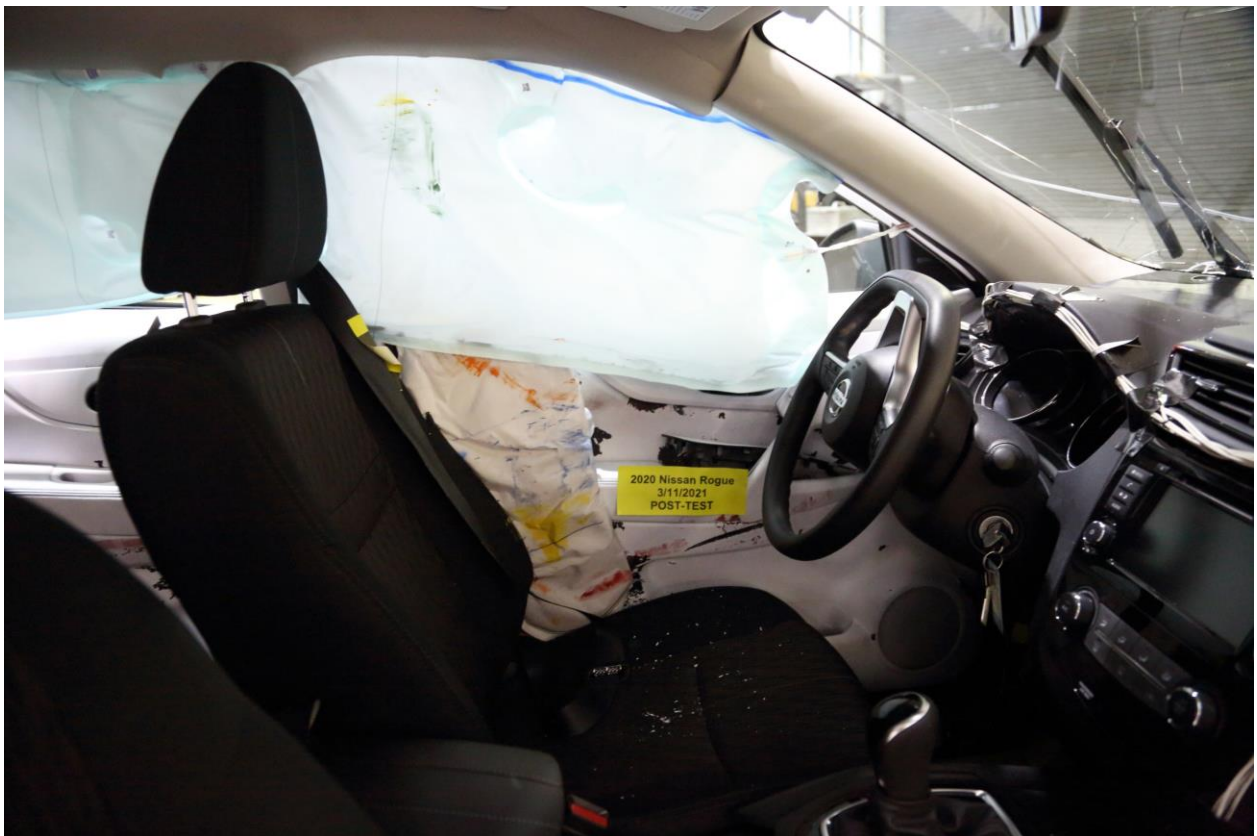
044 Pre-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



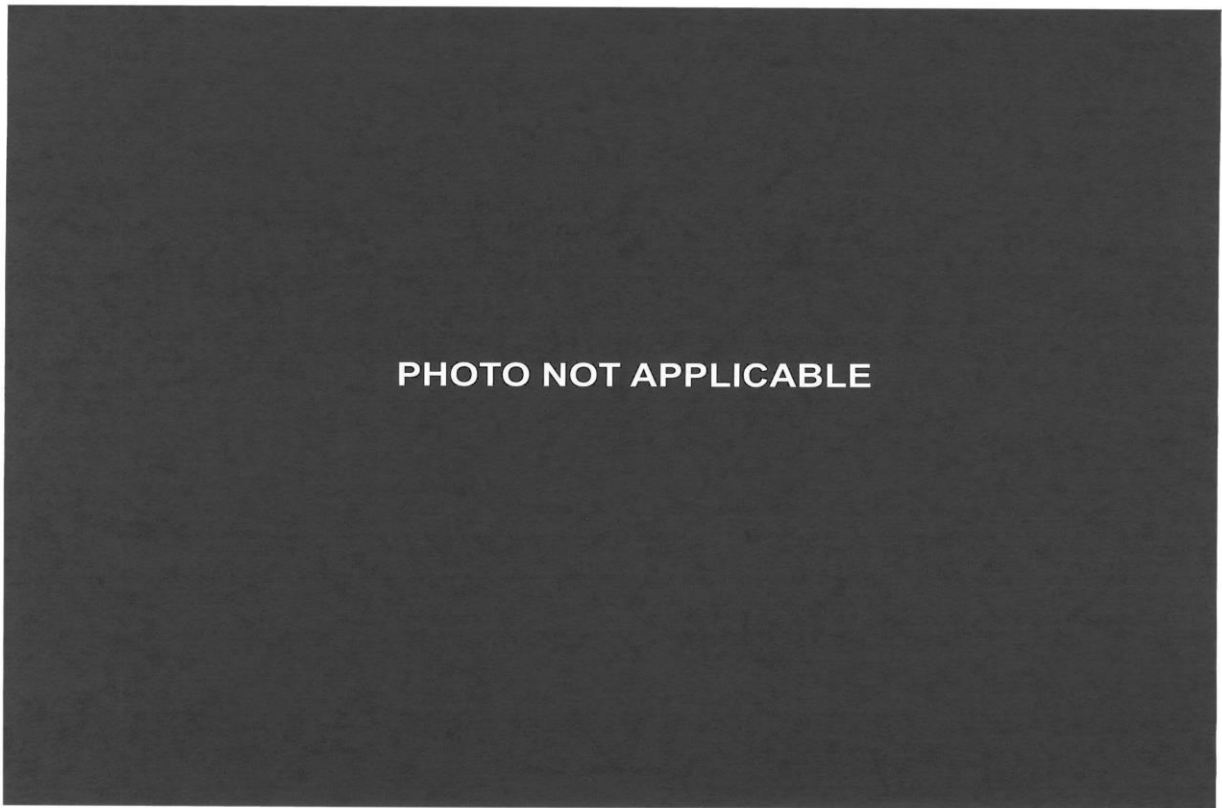
045 Post-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



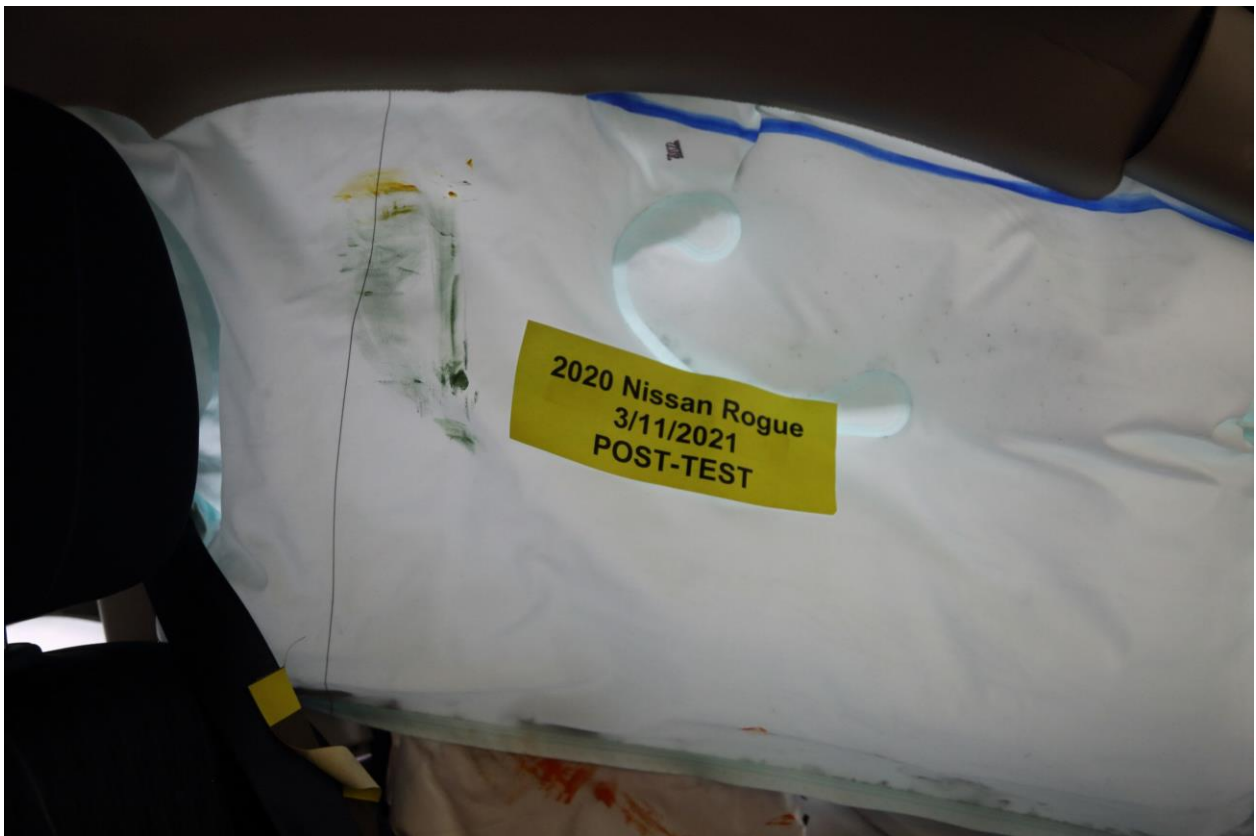
046 Pre-Test Driver Inner Door Panel View



047 Post-Test Driver Inner Door Panel View Showing Driver Dummy Contact Locations



048 Post-Test Driver Dummy Close-Up Head Contact with Vehicle View



049 Post-Test Driver Dummy Close-Up Head Contact with Side Airbag View

PHOTO NOT APPLICABLE

050 Post-Test Driver Dummy Close-Up Torso Contact with Vehicle Interior View



051 Post-Test Driver Dummy Close-Up Torso Contact with Side Airbag View



052 Post-Test Driver Dummy Close-Up Pelvis Contact View



053 Post-Test Driver Dummy Close-Up Pelvis Contact with Side Airbag View

PHOTO NOT APPLICABLE

054 Post-Test Driver Dummy Close-Up Knee Contact View



055 Pre-Test Left Side View of Passenger Dummy Showing Belt and Chalking



056 Pre-Test Left Side View of Passenger Dummy Shoulder and Door Top View



057 Post-Test Left Side View of Passenger Dummy Shoulder and Door Top View



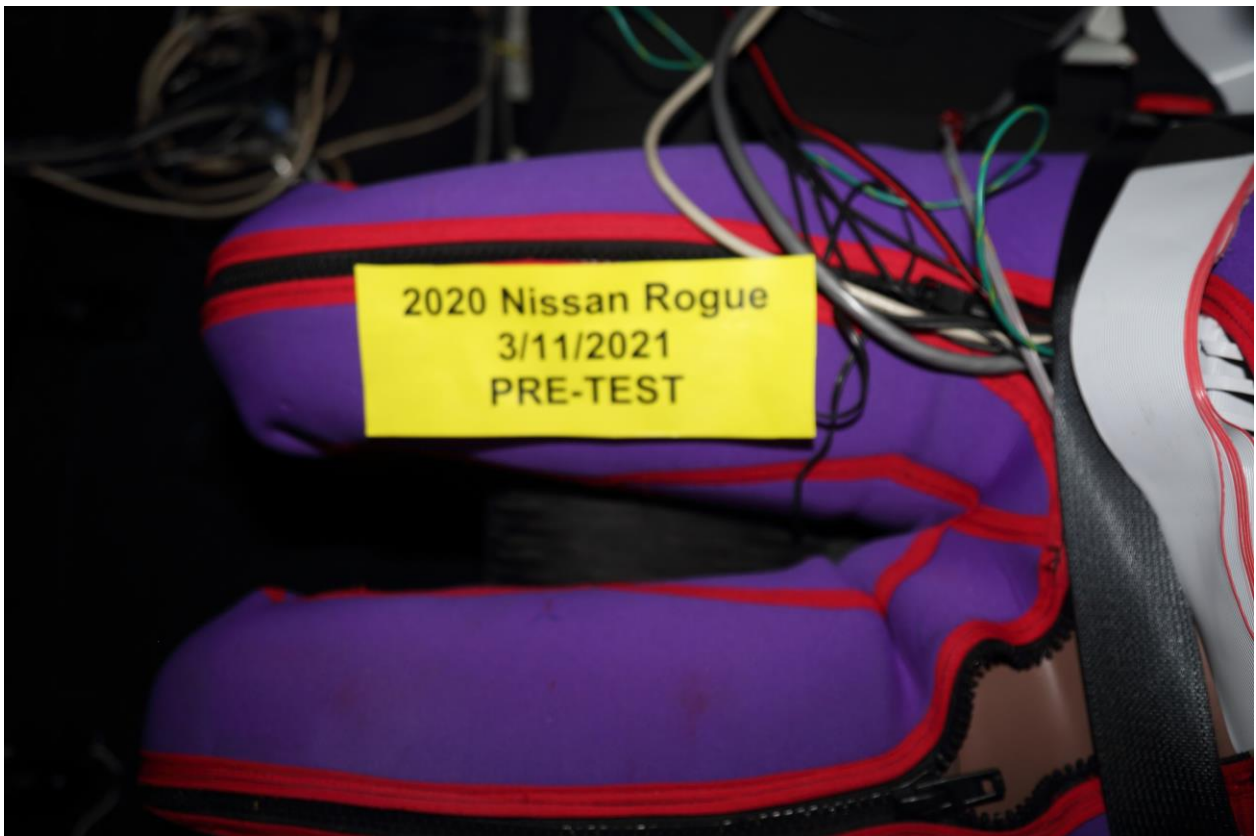
058 Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning



059 Pre-Test Frontal View of Rear Passenger Dummy Head and Shoulders in Relation to Head Restraint



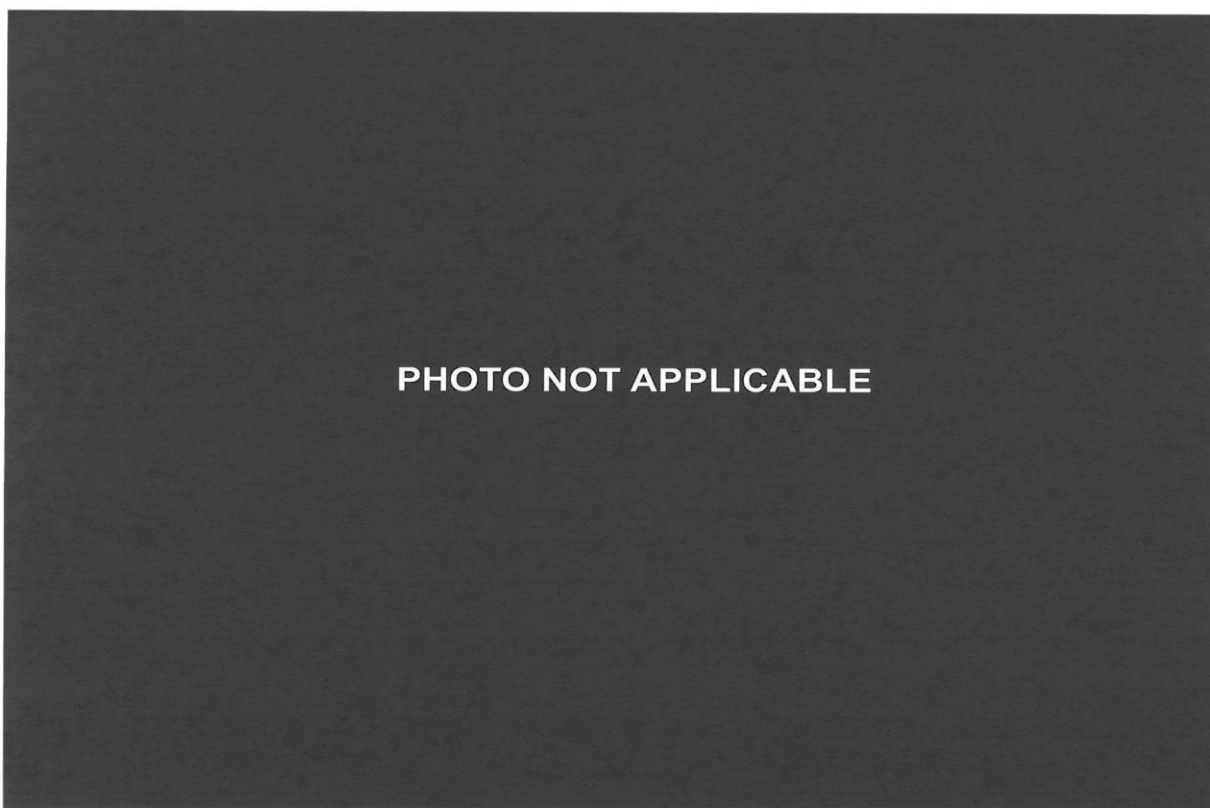
060 Pre-Test Overhead View of Rear Passenger Seat Pan Prior to Dummy Positioning



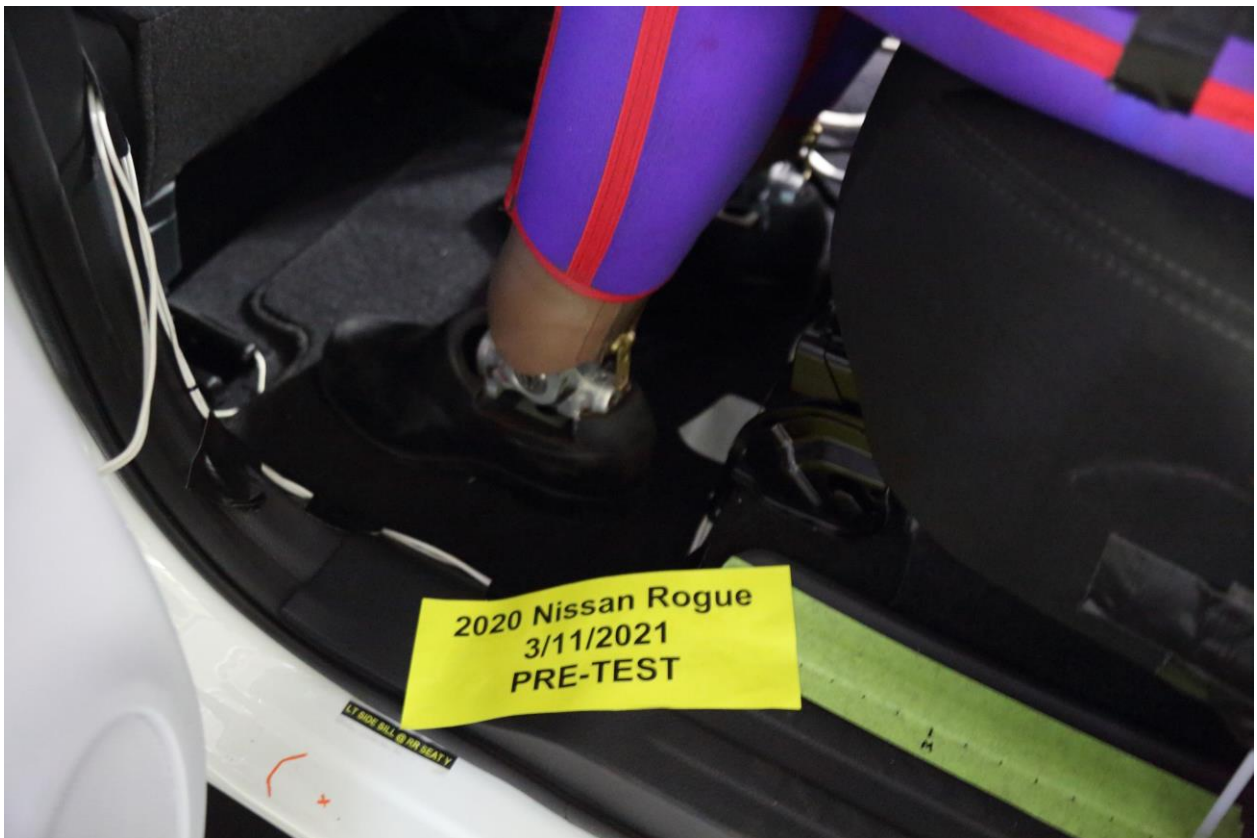
061 Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan



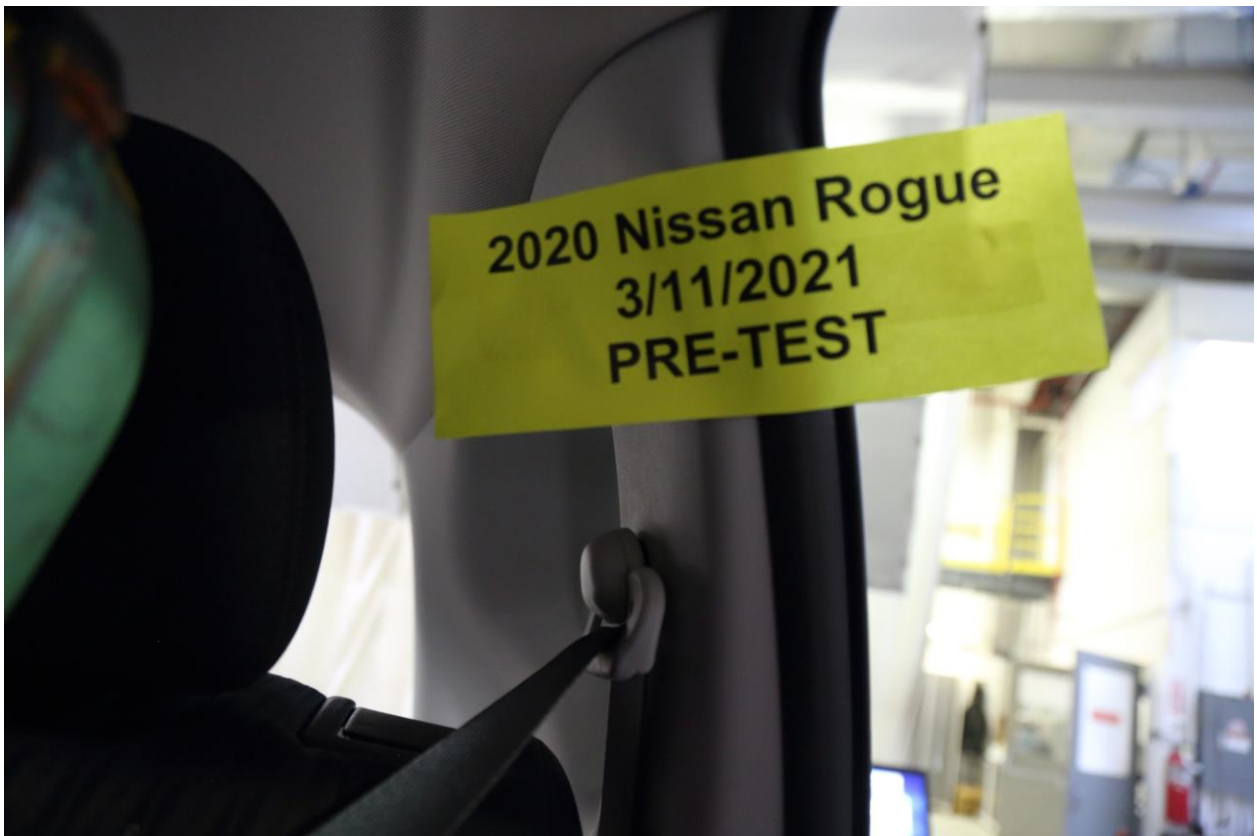
062 Pre-Test View of Rear Passenger Dummy's Neck Showing Position of Adjustable Neck Bracket



063 Pre-Test View of Rear Passenger Dummy's Head Showing Dummy Head is Level



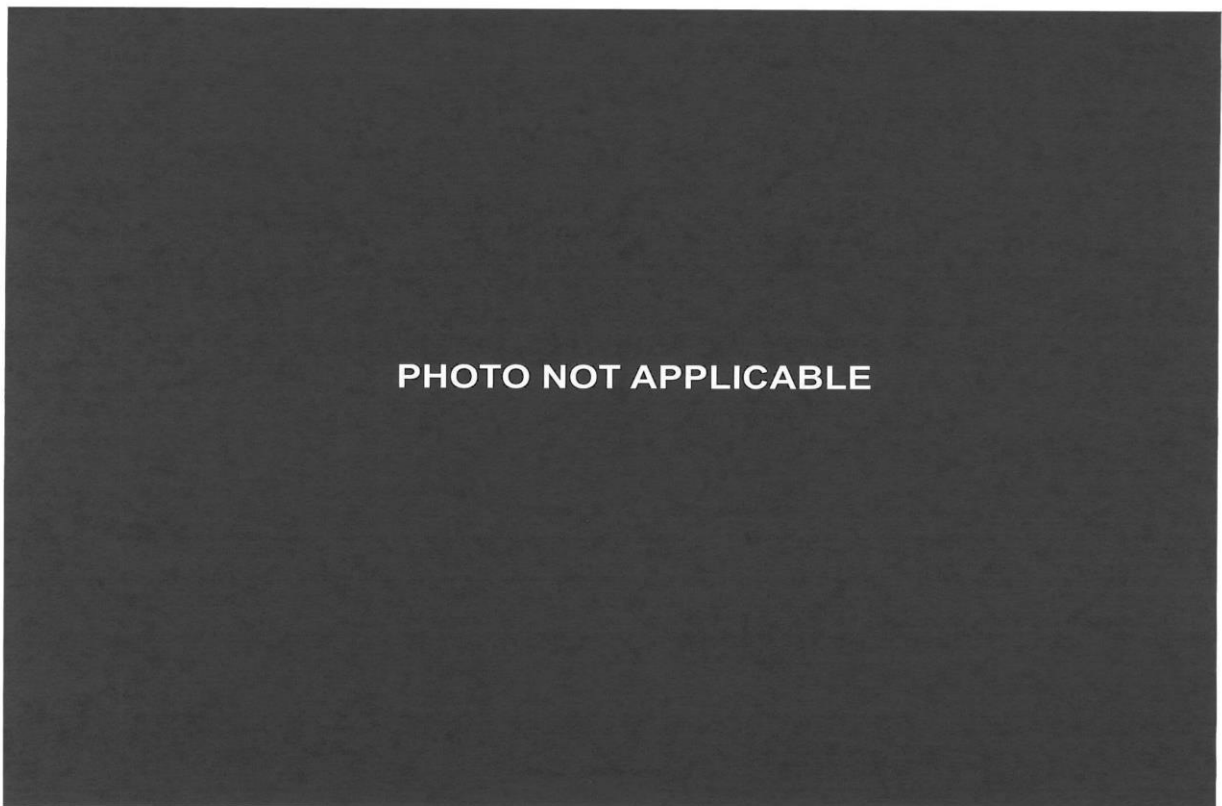
064 Pre-Test Placement of Rear Passenger Dummy's Feet



065 Pre-Test View of Belt Anchorage for Rear Passenger Dummy



066 Pre-Test Close-Up Left Side View of Rear Passenger Seat Track

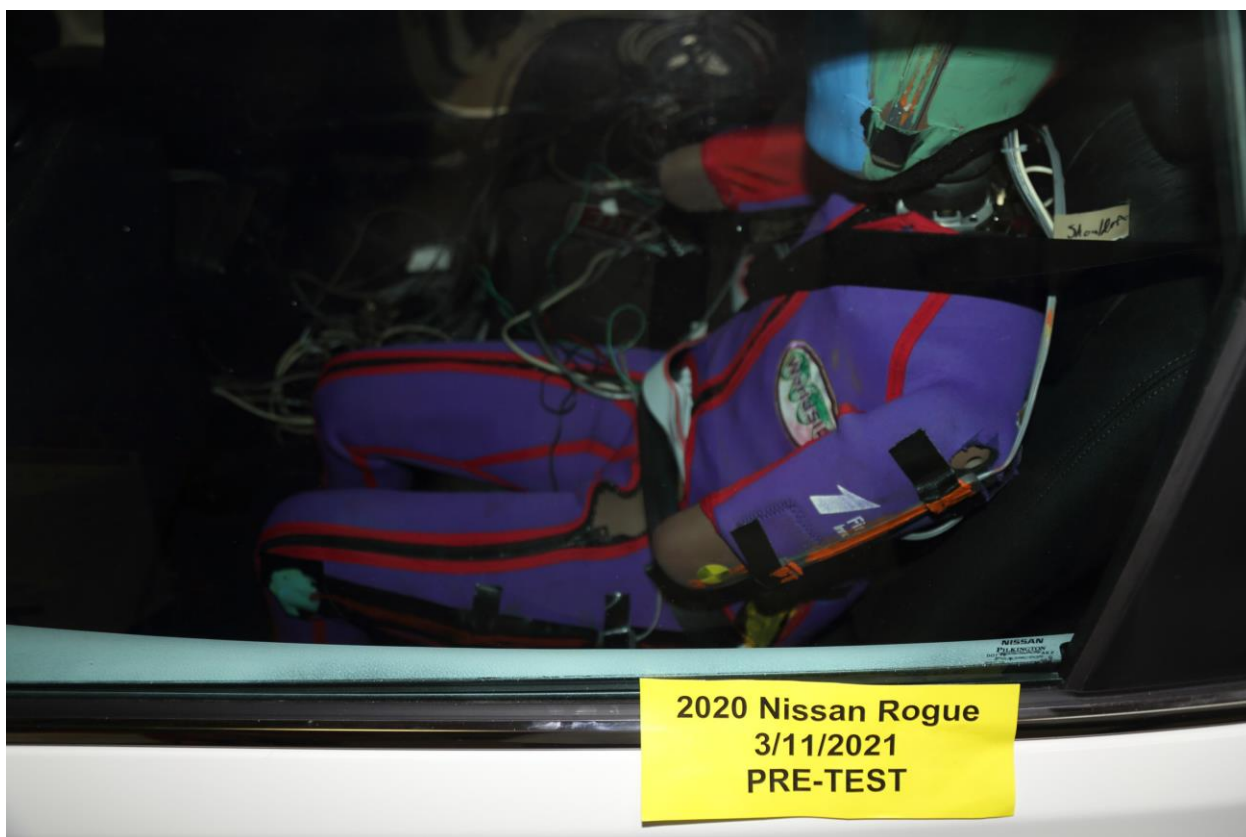


067 Pre-test Close-Up Left Side View of Rear Passenger Seat Back



068 Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint

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069 Pre-Test Rear Passenger Dummy and Door Clearance View



070 Post-Test Rear Passenger Dummy and Door Clearance View



071 Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



072 Post-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



073 Pre-Test Rear Passenger Inner Door Panel View



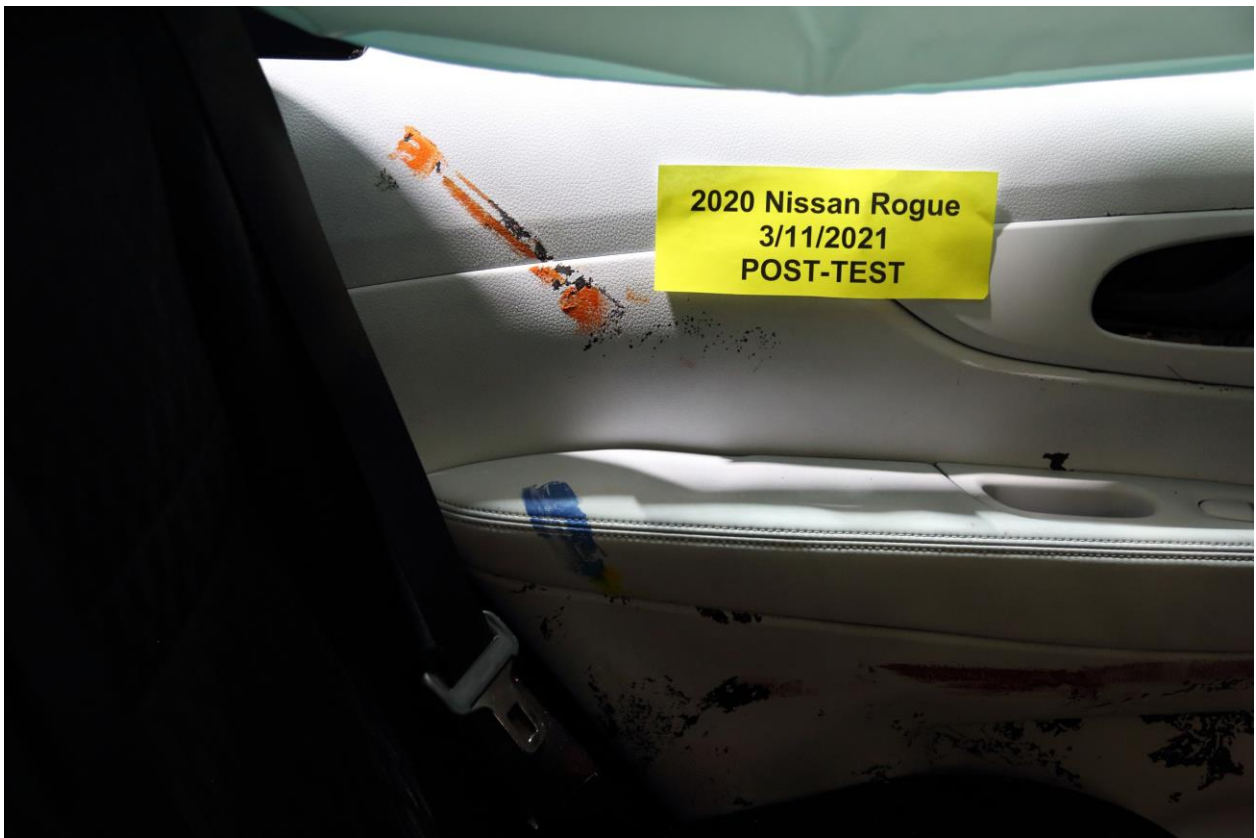
074 Post-Test Rear Passenger Inner Door Panel View

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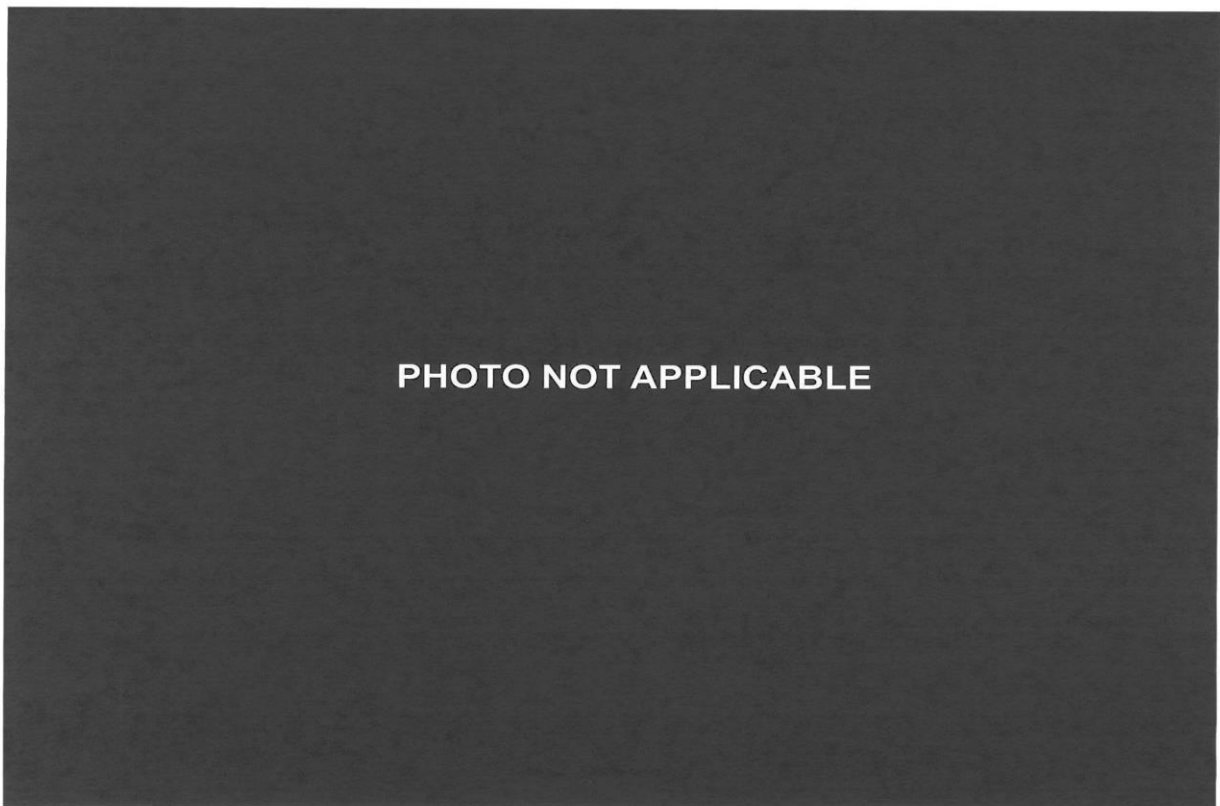
075 Post-Test Rear Passenger Dummy Close-Up Head Contact with Vehicle View



076 Post-Test Rear Passenger Dummy Close-Up Head Contact with Side Airbag View



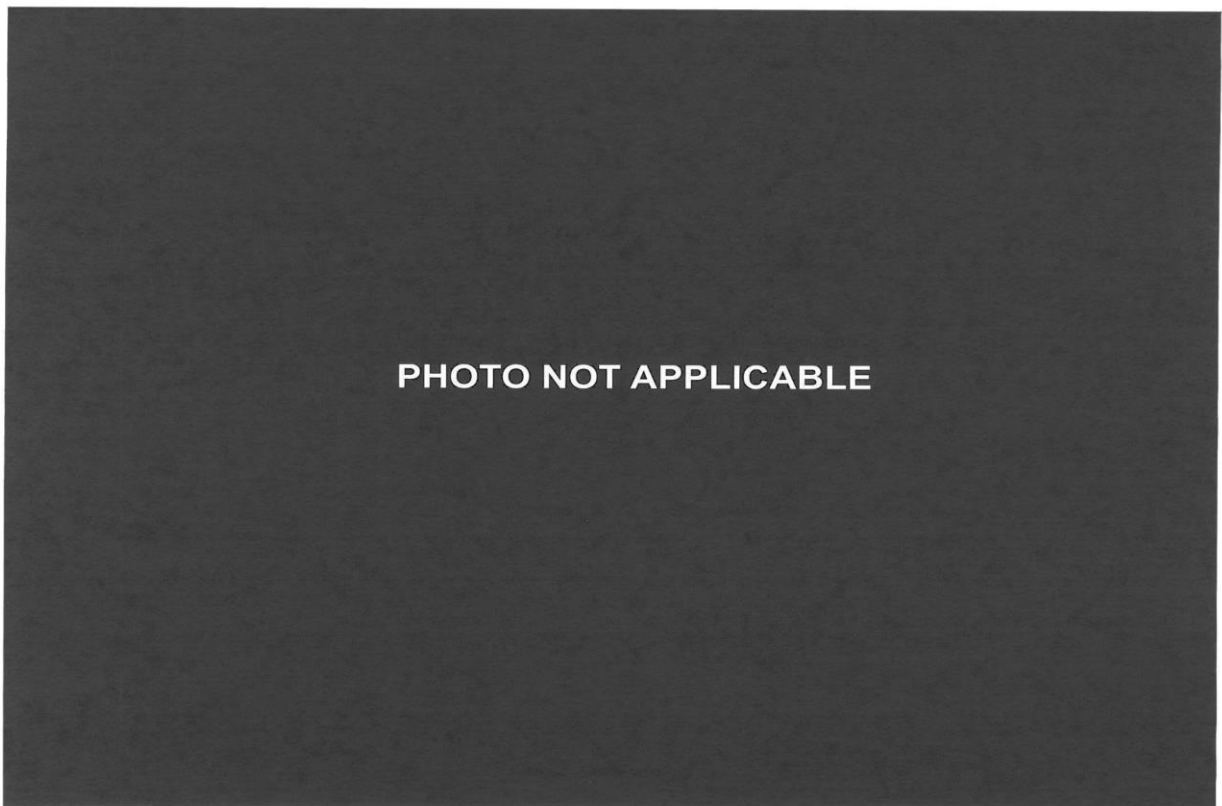
077 Post-Test Rear Passenger Dummy Close-Up Torso Contact with Vehicle Interior View



078 Post-Test Rear Passenger Dummy Close-Up Torso Contact with Side Airbag View



079 Post-Test Rear Passenger Dummy Close-Up Pelvis Contact View



080 Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Side Airbag View



081 Post-Test Rear Passenger Dummy Close-Up Knee Contact View

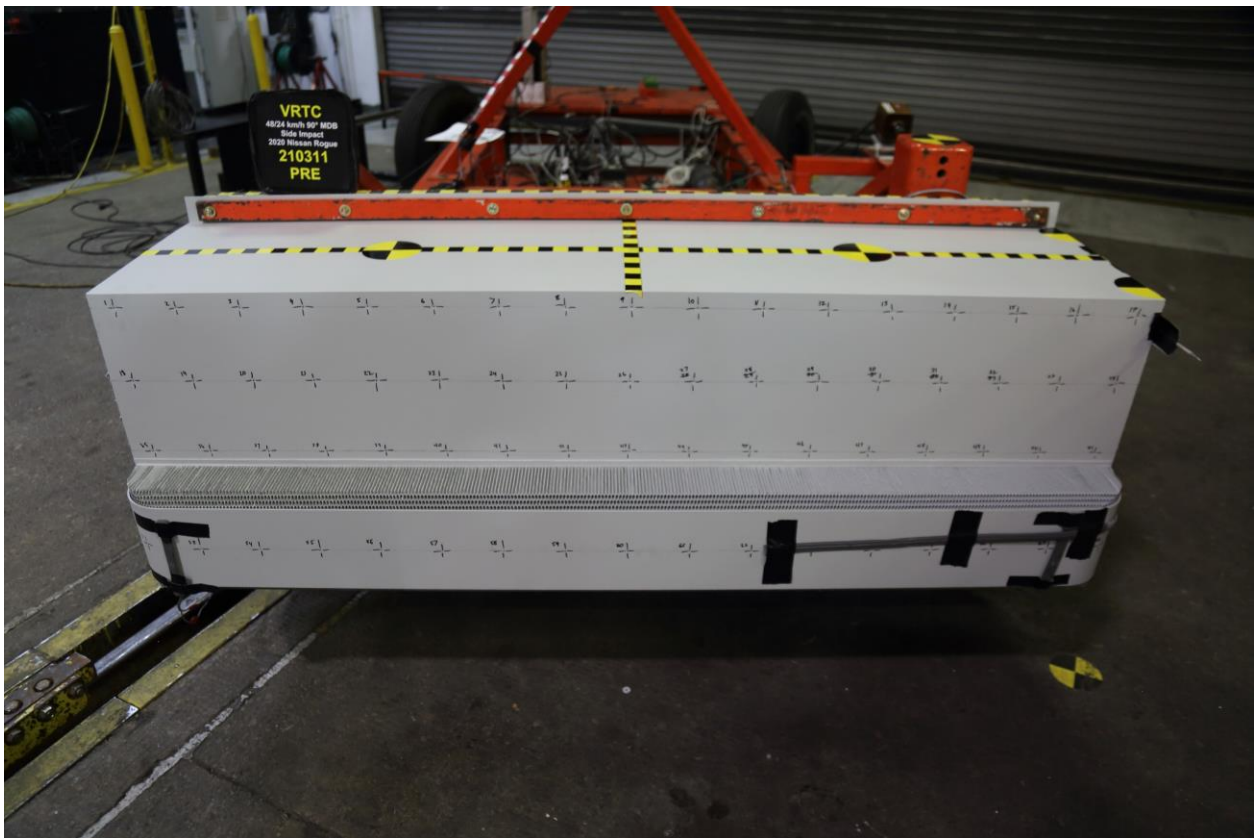
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082 Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



083 Post-Test View of Fuel Filler Cap or Fuel Filler Neck



084 Pre-Test Front View of MDB Impactor Face



085 Post-Test Front View of MDB Impactor Face



086 Pre-Test Top View of MDB Impactor Face



087 Post-Test Top View of MDB Impactor Face



088 Pre-Test Left Side View of MDB Impactor Face



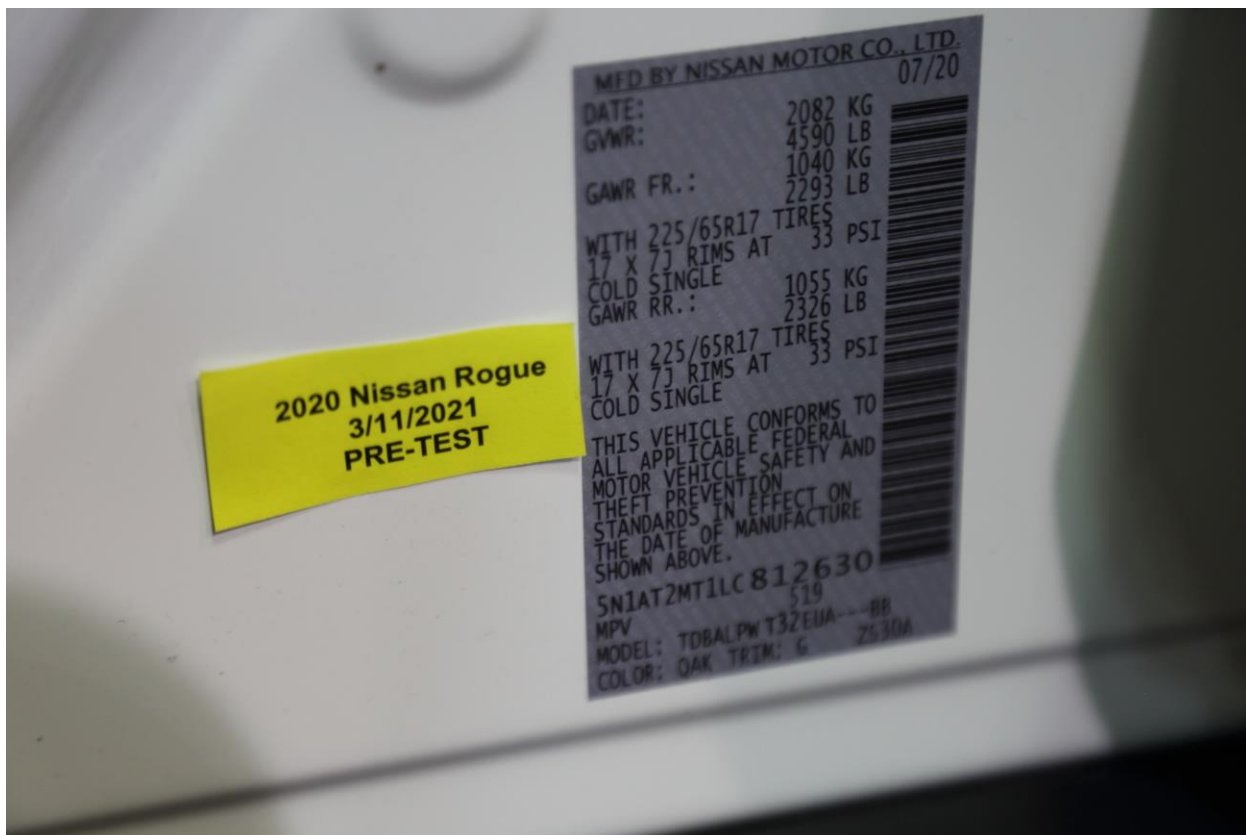
089 Post-Test Left Side View of MDB Impactor Face



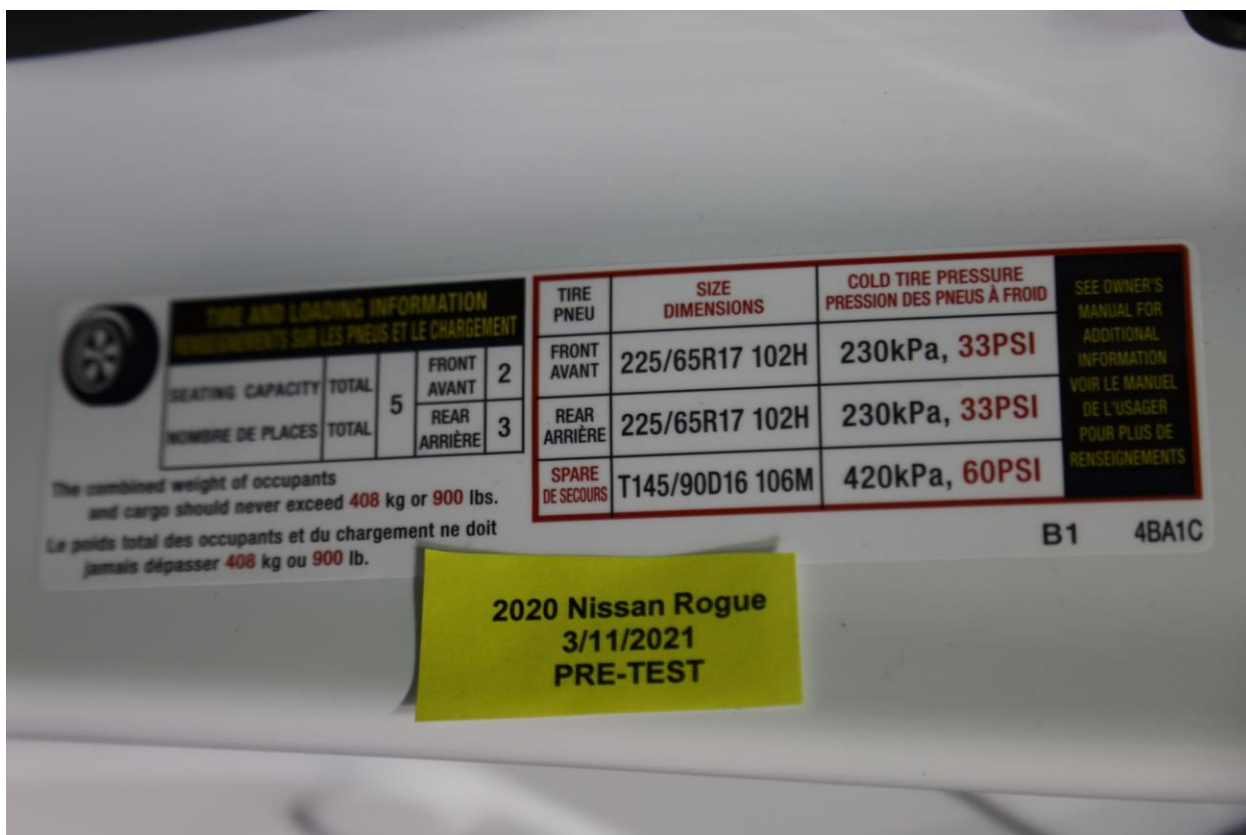
090 Pre-Test Right Side View of MDB Impactor Face



091 Post-Test Right Side View of MDB Impactor Face



092 Close-Up View of Vehicle's Certification Label



093 Close-Up View of Vehicle's Tire Information Placard or Label

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094 Pre-Test Ballast View



095 No. Post-Test Primary and Redundant Speed Trap Read-Out

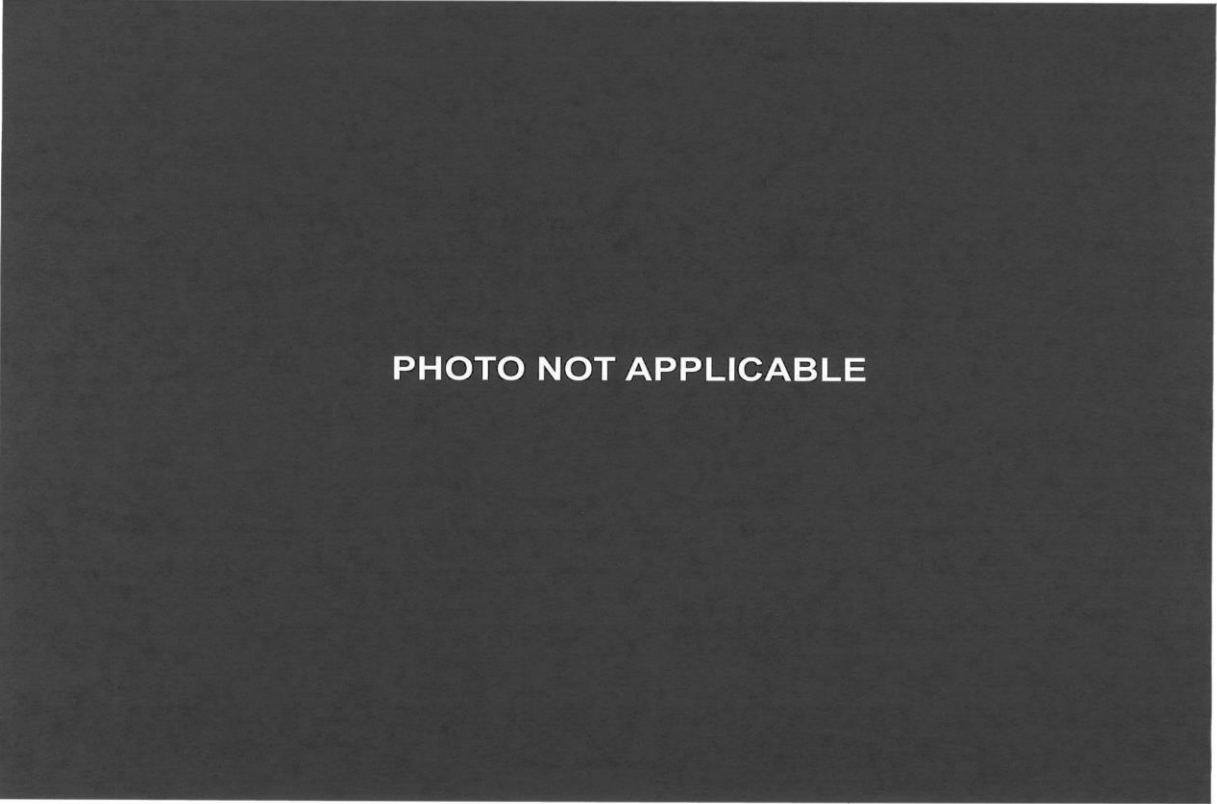


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096 FMVSS No. 301 Static Rollover 0 Degrees

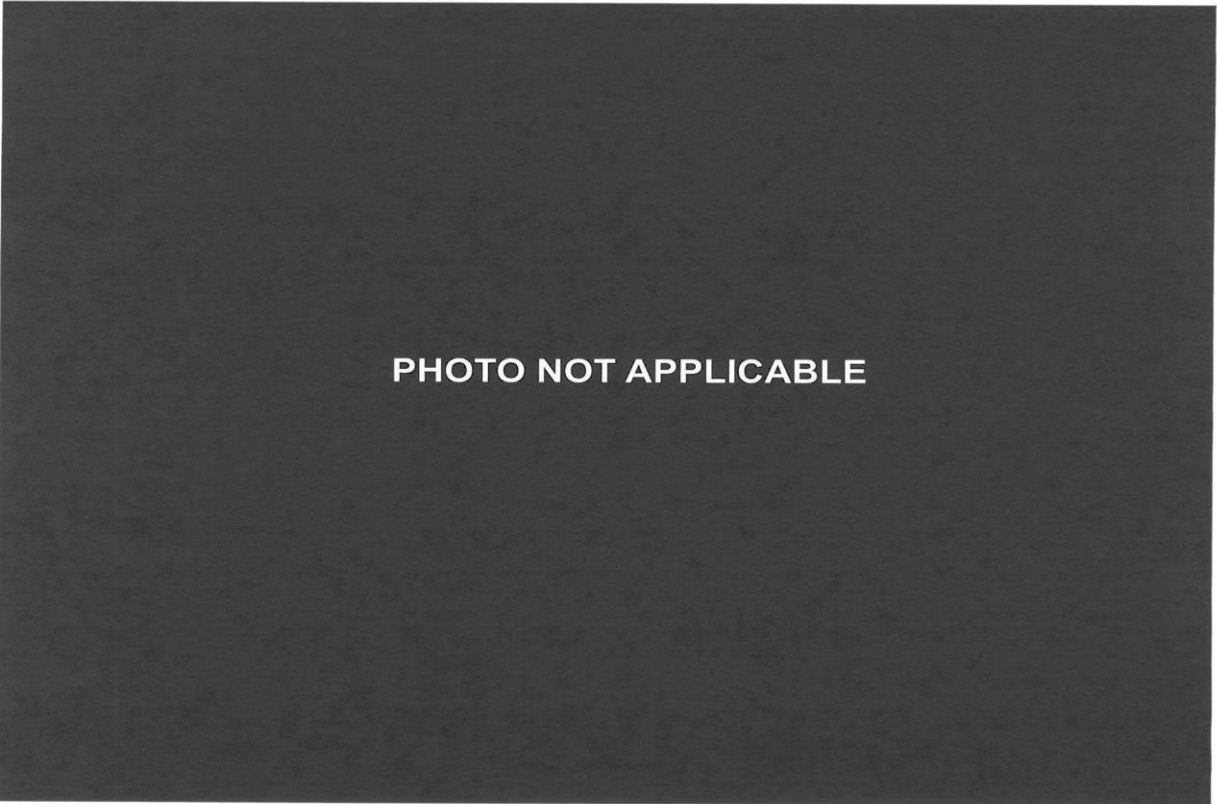


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097 FMVSS No. 301 Static Rollover 90 Degrees

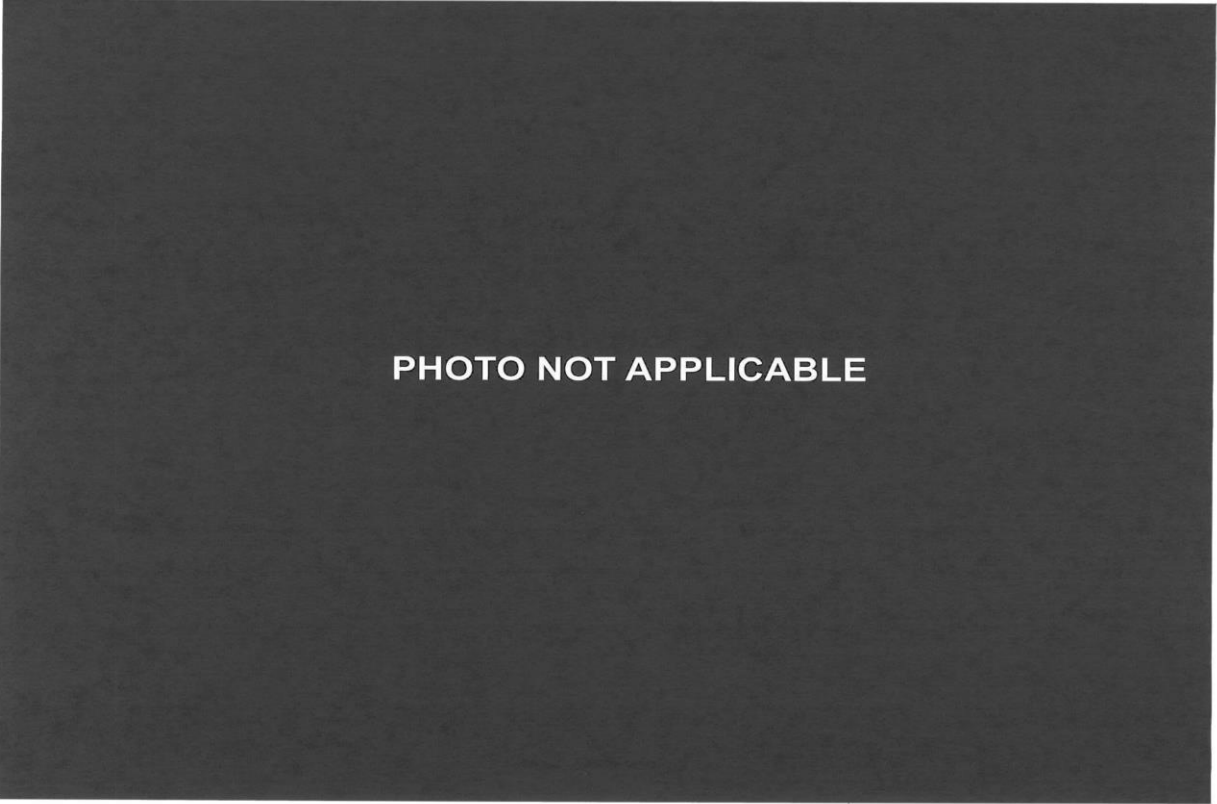


PHOTO NOT APPLICABLE

098 FMVSS No. 301 Static Rollover 180 Degrees

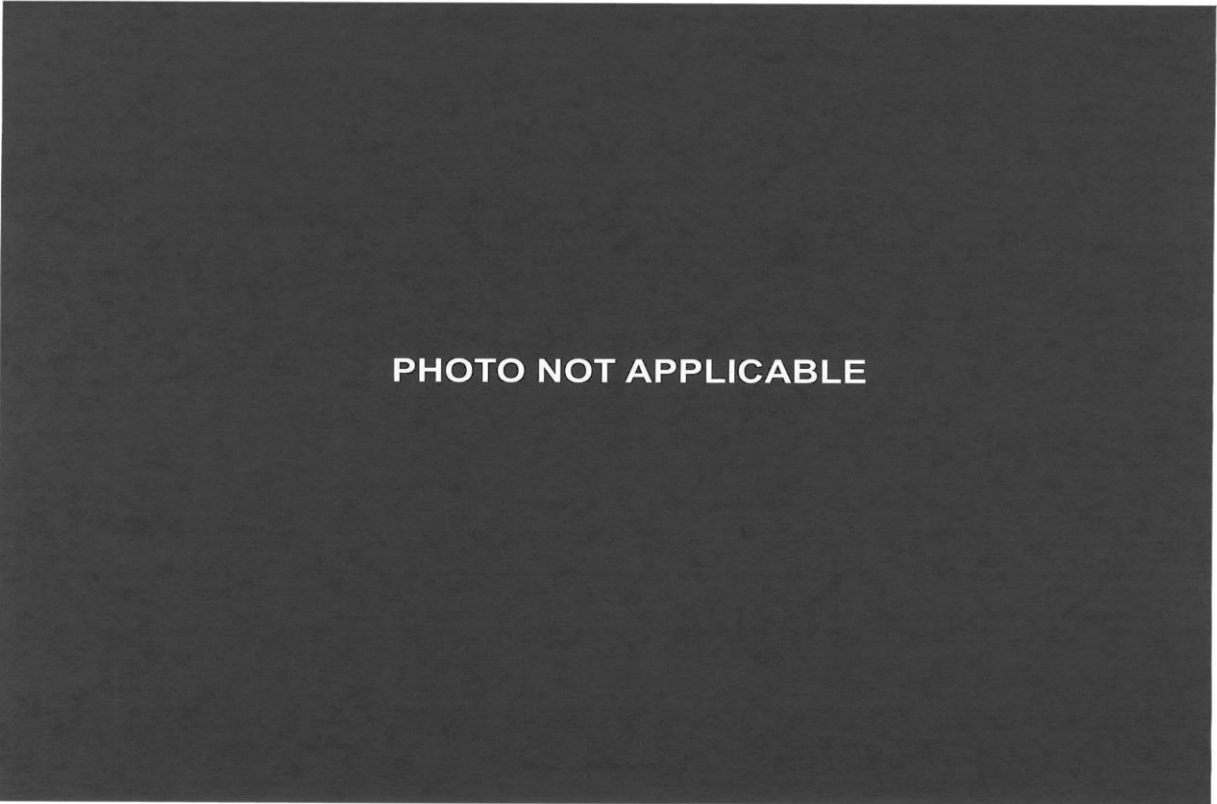


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099 FMVSS No. 301 Static Rollover 270 Degrees

PHOTO NOT APPLICABLE

100 FMVSS No. 301 Static Rollover 360 Degrees



101 Impact Event



2020 NISSAN ROGUE S FWD



Scan QR code for general model information & options

Standard Equipment Included at No Extra Charge

MECHANICAL & PERFORMANCE

170-hp 2.5-liter DOHC 16-valve I-4
175 lb-ft @ 4400 rpm of Torque
XTRONIC CVT® w/ Sport Mode Switch
Eco Mode
4-Wheel Front and Rear Disc Brakes
17" Steel Wheels w/ Full Wheel Covers
Temporary Spare Tire
Front Independent Suspension
Rear Multi-Link Suspension

SAFETY & SECURITY

Driver and Front Passenger Side Impact, Curtain Air Bags
Lower Anchors and Tethers for Children (LATCH)
4-Wheel Anti-Lock Braking System (ABS)
Vehicle Dynamic Control (VDC)
Traction Control System (TCS)
Electronic Brake Force Distribution (EBD)
Brake Assist (BA)
Tire Pressure Monitoring System (TPMS) with Easy-Fill Tire Alert
RearView Monitor
Automatic Emergency Braking with Pedestrian Detection (P-AEB)
Blind Spot Warning (BSW)
Rear Cross Traffic Alert (RCTA)
Lane Departure Warning (LDW)
Intelligent Lane Intervention (ILLI)
High Beam Assist (HBA)

COMFORT & CONVENIENCE

6-Way Manual Driver Seat
40/20/40 Split Folding Rear Seat
Cruise Control
NissanConnect®
Apple CarPlay®
Android Auto™ +
7" Color Display with Multi-Touch Control
SiriusXM® Radio+
Bluetooth® Hands-Free Phone System+
Streaming Audio via Bluetooth®+
Hands-Free Text Messaging Assistant+
Sliding/Reclining 2nd Row Seats
Hill Start Assist
Intelligent Engine Brake (i-EB)
Intelligent Trac Control (i-TC)
Active Ride Control (ARC)
Sport Mode Shifter w/ Manual Mode
Divide-N-Hide®
Power Windows with Driver Auto-up/down

COMFORT & CONVENIENCE CONT.

2nd Row Seat Air Vents
Adjustable Tilt and Telescoping Steering Column
Rear Door Alert

EXTERIOR

Intelligent Auto Headlights (I-AH)
LED Daytime Running Lights (DRL)
LED Tail Lamps
Rear Spoiler with Center High-mounted Stoplight

*For more information, see dealer, owner's manual, or www.NissanUSA.com for important information.
+Optional Equipment Replaces Standard Where Applicable

Manufacturer's Suggested Retail Base Price:	\$25,490.00
Options Included by Manufacturer	
Splash Guards	170.00
Floor Mats with Cargo Area Protector & First Aid Kit	290.00
DESTINATION CHARGES	1,095.00
Total*	\$27,045.00

*Does not include dealer installed options and accessories, local taxes or license fees. This label has been applied pursuant to federal law. Do not remove prior to delivery to the ultimate purchaser.

EPA DOT Fuel Economy and Environment

Gasoline Vehicle

Fuel Economy

29 MPG
combined city/hwy

26 city 33 highway

3.4 gallons per 100 miles

Annual fuel cost

\$1,400

Small SUV's range from 18 to 120 MPG. The best vehicle rates 136 MPG.

You save \$500
in fuel costs over 5 years compared to the average new vehicle.

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average driver's vehicle gets 27 MPG and costs \$7,500 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$2.70 per gallon. MPG is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuel economy.gov
Calculate personalized estimates and compare vehicles

Fuel Economy & Greenhouse Gas Rating

6

1 2 3 4 5 6 7 8 9 10 Best

This vehicle emits 312 grams CO₂ per mile. The best emits 0 grams per mile (battery only). Producing and distributing fuel also create emissions, learn more at fuel-economy.gov.

Smog Rating

1 2 3 4 5 6 7 8 9 10 Best

Smartphone QR Code

GOVERNMENT 5-STAR SAFETY RATINGS

Overall Vehicle Score ★★★★★
Based on the combined ratings of frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight.

Frontal Crash ★★★★★
Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.

Side Crash ★★★★★
Based on the risk of injury in a side impact.

Rollover ★★★★★
Based on the risk of rollover in a single-vehicle crash.

Star ratings range from 1 to 5 stars (★★★★★) with 5 being the highest.
Source: National Highway Traffic Safety Administration (NHTSA)
www.safercar.gov or 1-888-327-4236

This Vehicle qualifies for Nissan's
Security+Plus Extended Protection Plan
The only service agreement backed by Nissan Extended Services North America! Ask your dealer for details, or call 1-800-NISSAN-1 for more information.

DELIVERY

VEHICLE COLORS:
EXT: GLACIER WHITE
INT: CHARCOAL

FINAL ASSEMBLY POINT:
SMYRNA

TRANSPORT METHOD:
TRUCK

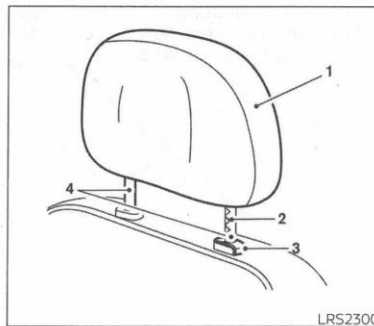
DEALER:
GORDE BOUCHER NISSAN
4141 S. 108TH STREET
GREENFIELD WI
53228

VIN: 5N1AT2MTL1C612630
EMS: 50 STATE EMISSIONS
MDL: 22110-812630 QAK-G
OPT: 0-8082L8C03G02

20200708222806AS3070

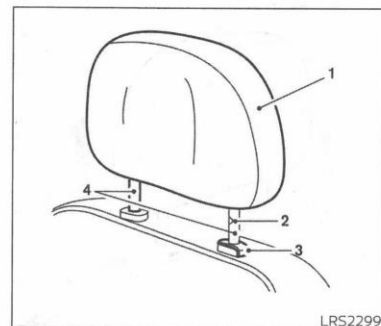
102 Monroney Label

- Adjustable head restraints/headrests have multiple notches along the stalk(s) to lock them in a desired adjustment position.
- The non-adjustable head restraints/headrests have a single locking notch to secure them to the seat frame.
- Proper Adjustment:
 - For the adjustable type, align the head restraint/headrest so the center of your ear is approximately level with the center of the head restraint/headrest.
 - If your ear position is still higher than the recommended alignment, place the head restraint/headrest at the highest position.
- If the head restraint/headrest has been removed, ensure that it is reinstalled and locked in place before riding in that designated seating position.



ADJUSTABLE HEAD RESTRAINT/HEADREST COMPONENTS

1. Removable head restraint/headrest
2. Multiple notches
3. Lock knob
4. Stalks

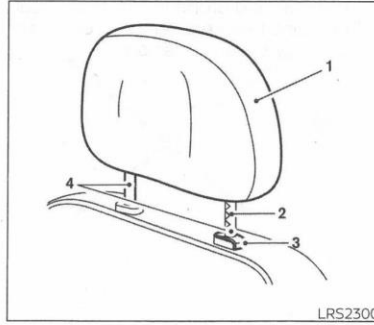


NON-ADJUSTABLE HEAD RESTRAINT/HEADREST COMPONENTS

1. Removable head restraint/headrest
2. Single notch
3. Lock knob
4. Stalks

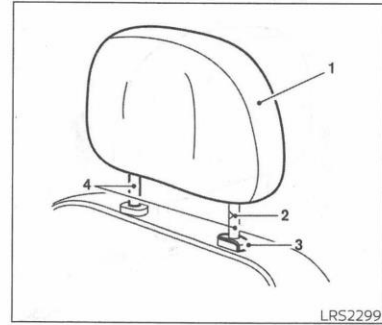
103 Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

- Adjustable head restraints/headrests have multiple notches along the stalk(s) to lock them in a desired adjustment position.
- The non-adjustable head restraints/headrests have a single locking notch to secure them to the seat frame.
- Proper Adjustment:
 - For the adjustable type, align the head restraint/headrest so the center of your ear is approximately level with the center of the head restraint/headrest.
 - If your ear position is still higher than the recommended alignment, place the head restraint/headrest at the highest position.
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ADJUSTABLE HEAD RESTRAINT/HEADREST COMPONENTS

1. Removable head restraint/headrest
2. Multiple notches
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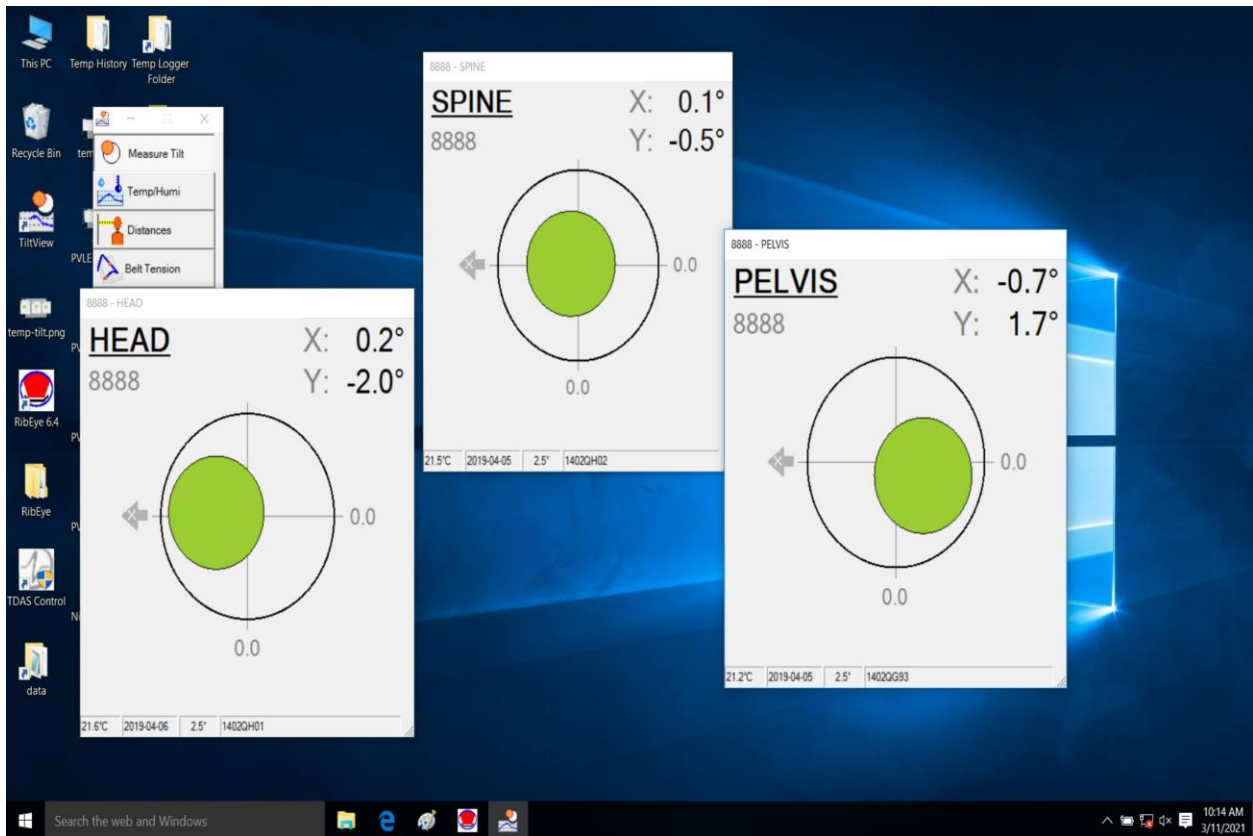


NON-ADJUSTABLE HEAD RESTRAINT/HEADREST COMPONENTS

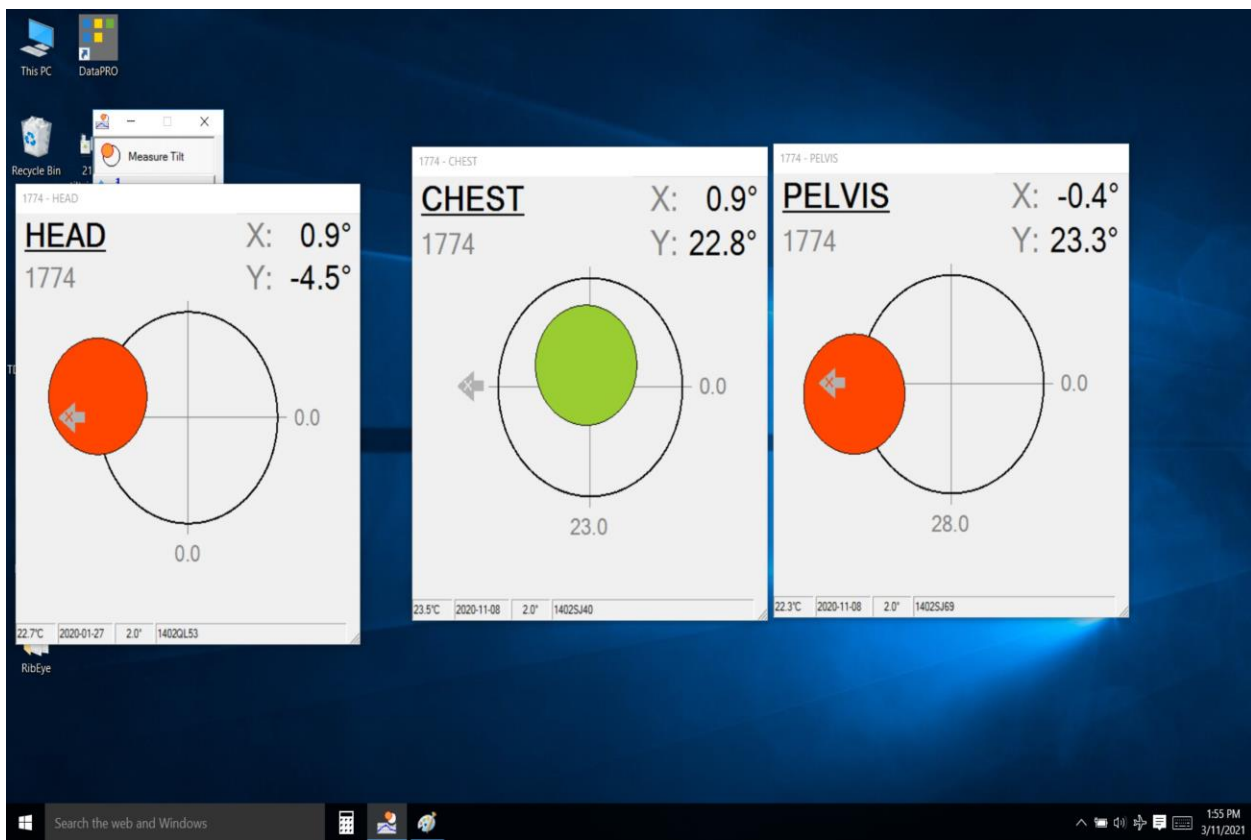
1. Removable head restraint/headrest
2. Single notch
3. Lock knob
4. Stalks

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104 Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual



105 WorldSID-50M Pre-Test Tilt Sensor View



No. 106 WorldSID-05F Pre-Test Tilt Sensor View



No. 107 WorldSID-05F Thorax Rib 2 Inclinometer



No. 108 WorldSID-05F H-Point Inclinometer

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

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Driver & Passenger Dummy Instrumentation Plots

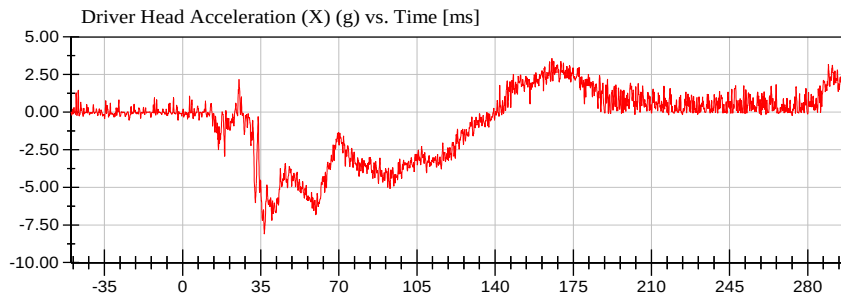
No.	Description	Page
374	REAR DECK ARS X	B-116
375	REAR DECK ARS Y	B-116
376	REAR DECK ARS Z	B-116
377	Left Front Door Mid Centerline (Y)	B-117
378	Left Front Door Mid Rear (Y)	B-117
379	Left Front Door Upper Centerline (Y)	B-117
380	Left Rear Door Mid Rear (Y)	B-117
381	Left Rear Door Upper Centerline (Y)	B-118
382	Head Contact	B-119
383	Shoulder Contact	B-119
384	Thorax Contact	B-119
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387	Shoulder Contact	B-120
388	Thorax Contact	B-120
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390	MDB CG AX	B-121
391	MDB CG AY	B-121
392	MDB CG AZ	B-121
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395	MDB REAR AY	B-122
396	LEFT MDB CONTACT	B-122
397	RIGHT MDB CONTACT	B-122

VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



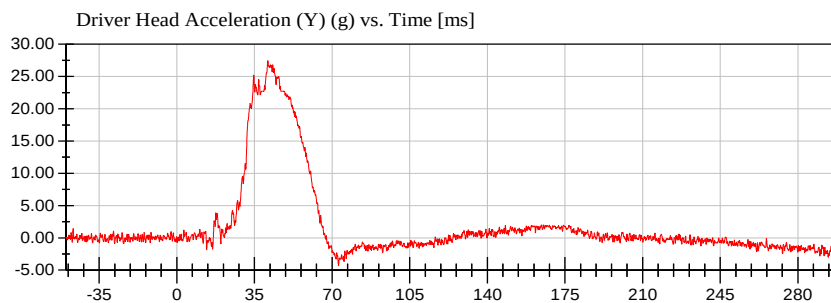
<Max>

3.58 g at 165.45 ms

<Min>

-8.10 g at 36.65 ms

CFC_1000



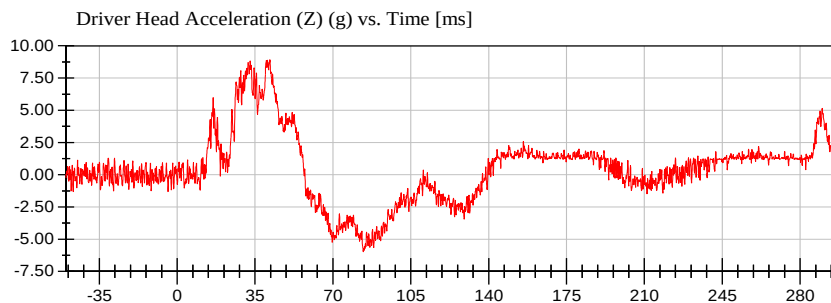
<Max>

27.45 g at 41.05 ms

<Min>

-4.32 g at 72.90 ms

CFC_1000



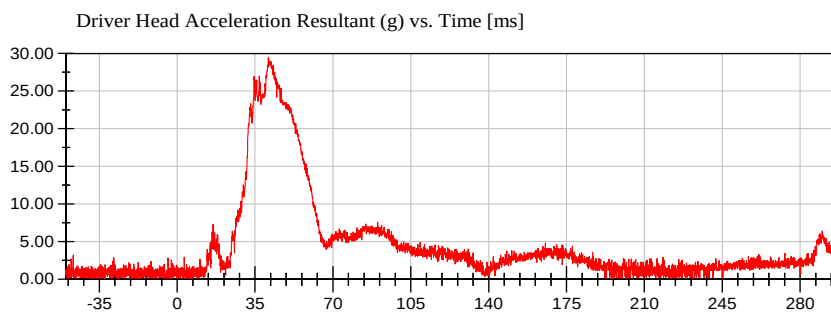
<Max>

8.92 g at 41.70 ms

<Min>

-5.97 g at 83.60 ms

CFC_1000



<Max>

29.44 g at 41.00 ms

<Min>

0.09 g at -3.00 ms

Prefiltered_> CFC 1000

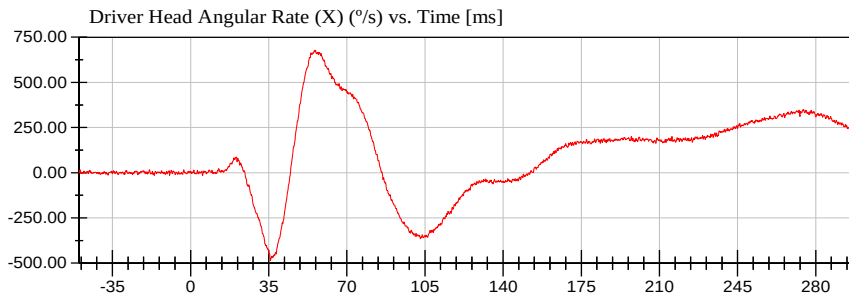


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



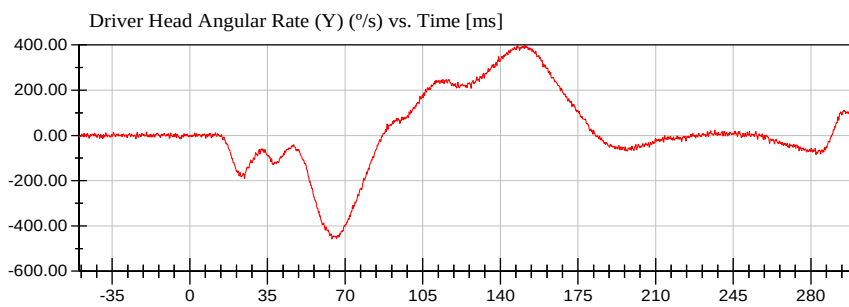
<Max>

676.72 °/s at 55.95 ms

<Min>

-485.22 °/s at 35.80 ms

CFC_1000



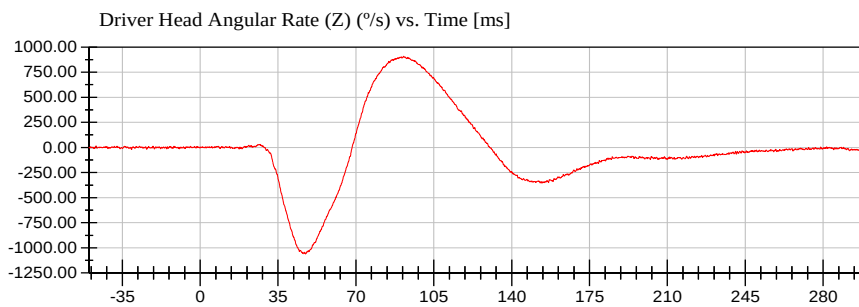
<Max>

398.60 °/s at 147.55 ms

<Min>

-457.32 °/s at 64.15 ms

CFC_1000



<Max>

906.29 °/s at 91.45 ms

<Min>

-1,059.85 °/s at 47.35 ms

CFC_1000



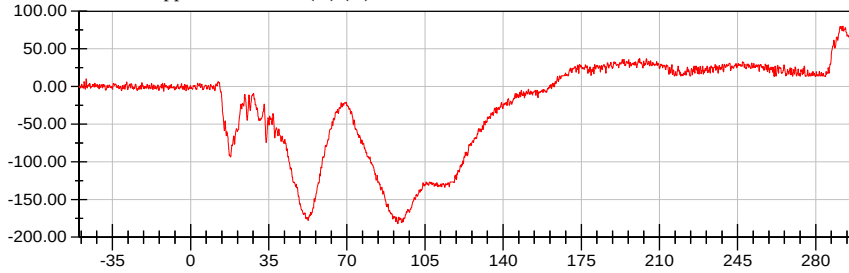
VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021

Driver Upper Neck Force (X) (N) vs. Time [ms]



<Max>

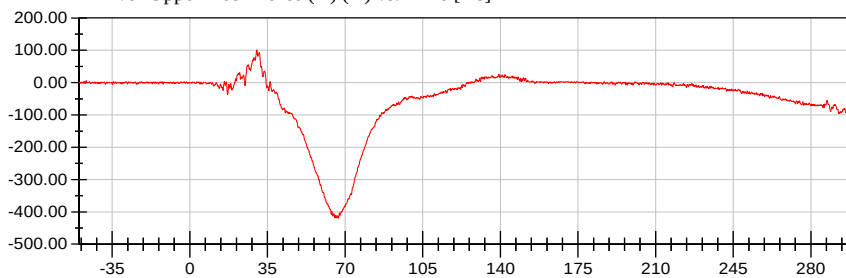
80.22 N at 292.15 ms

<Min>

-182.20 N at 92.85 ms

CFC_1000

Driver Upper Neck Force (Y) (N) vs. Time [ms]



<Max>

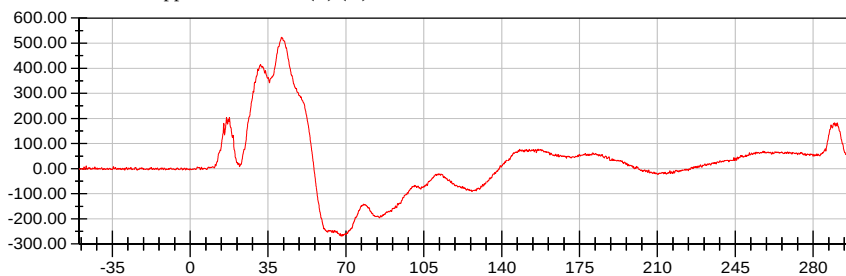
101.36 N at 30.20 ms

<Min>

-418.85 N at 67.00 ms

CFC_1000

Driver Upper Neck Force (Z) (N) vs. Time [ms]



<Max>

523.31 N at 41.10 ms

<Min>

-268.70 N at 67.90 ms

CFC_1000

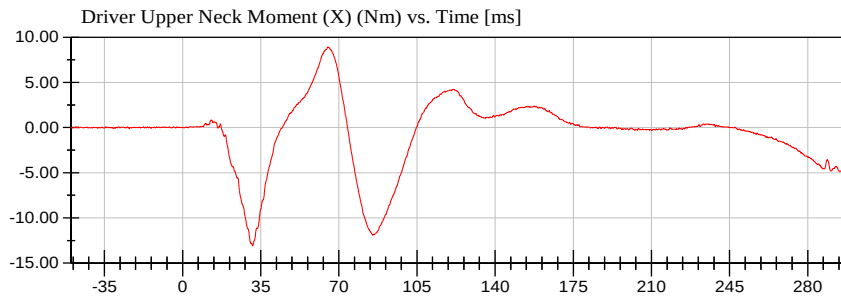


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



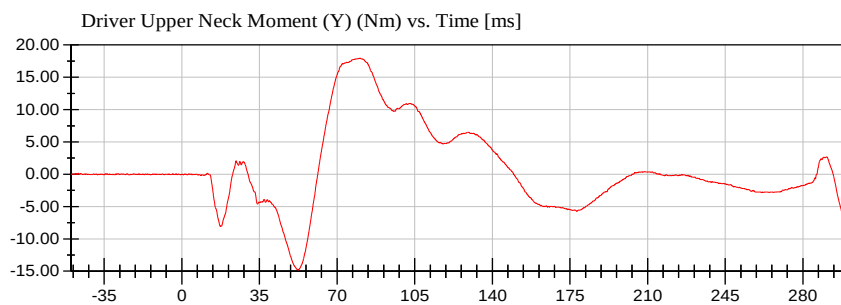
<Max>

8.90 Nm at 65.05 ms

<Min>

-13.09 Nm at 31.40 ms

CFC_600



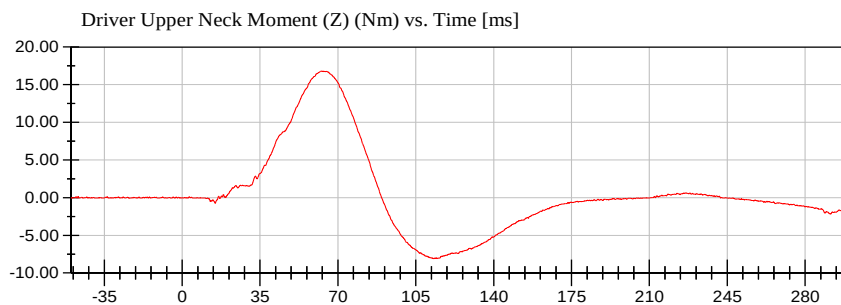
<Max>

17.96 Nm at 80.35 ms

<Min>

-14.81 Nm at 52.60 ms

CFC_600



<Max>

16.80 Nm at 63.35 ms

<Min>

-8.08 Nm at 113.15 ms

CFC_600



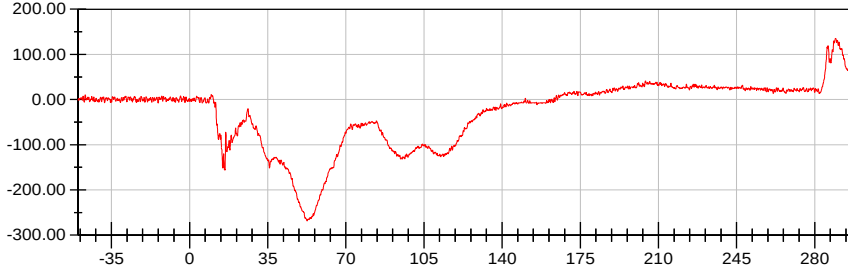
VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021

Driver Lower Neck Force (X) (N) vs. Time [ms]



<Max>

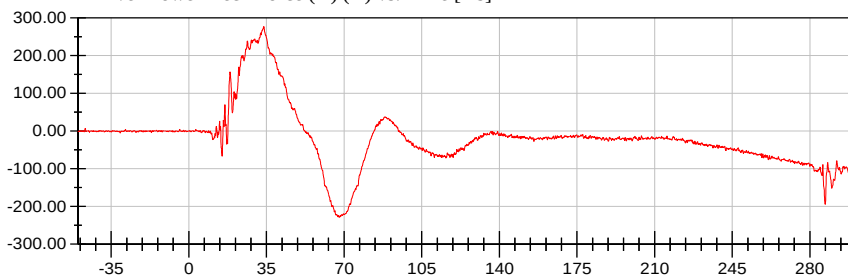
135.40 N at 289.25 ms

<Min>

-268.90 N at 52.60 ms

CFC_1000

Driver Lower Neck Force (Y) (N) vs. Time [ms]



<Max>

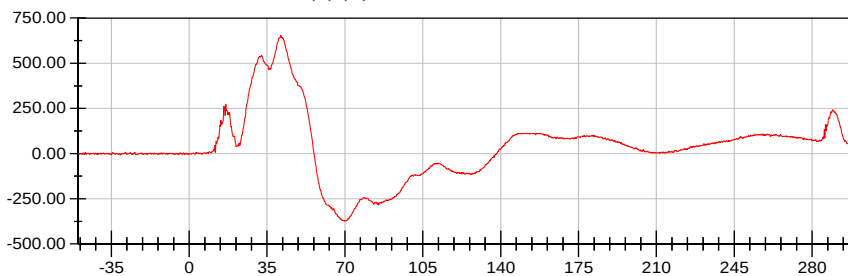
277.65 N at 33.85 ms

<Min>

-229.01 N at 67.90 ms

CFC_1000

Driver Lower Neck Force (Z) (N) vs. Time [ms]



<Max>

653.20 N at 41.15 ms

<Min>

-373.21 N at 70.05 ms

CFC_1000

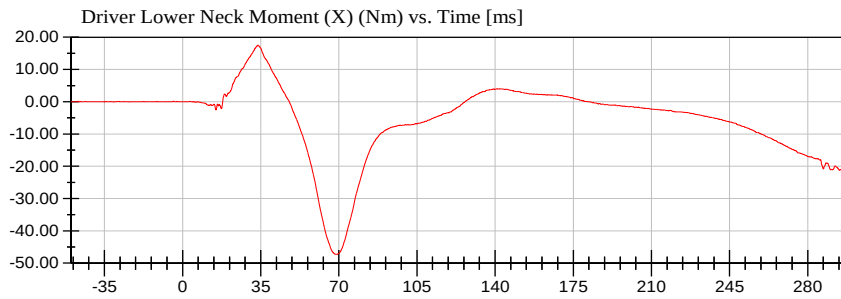


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



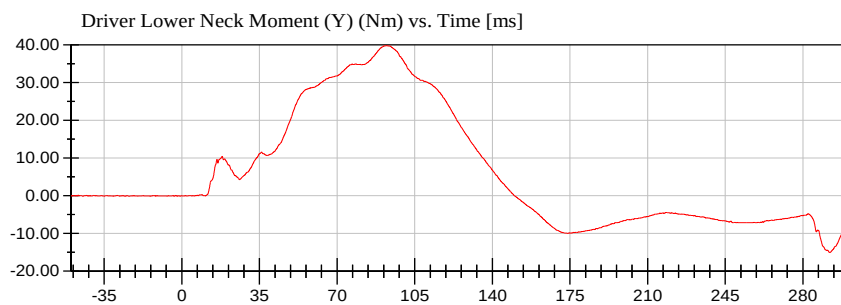
<Max>

17.50 Nm at 33.80 ms

<Min>

-47.31 Nm at 68.55 ms

CFC_600



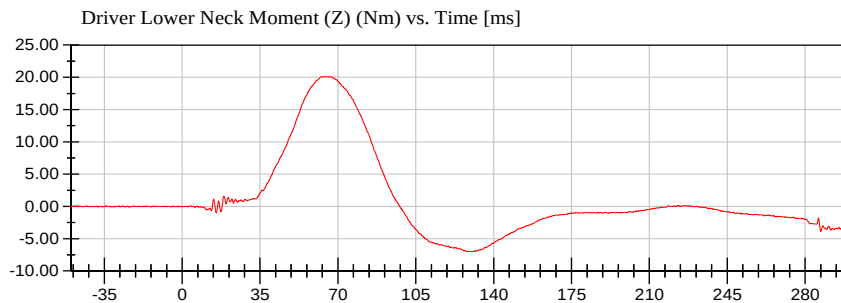
<Max>

39.85 Nm at 92.30 ms

<Min>

-15.03 Nm at 292.30 ms

CFC_600



<Max>

20.11 Nm at 64.00 ms

<Min>

-7.03 Nm at 130.15 ms

CFC_600

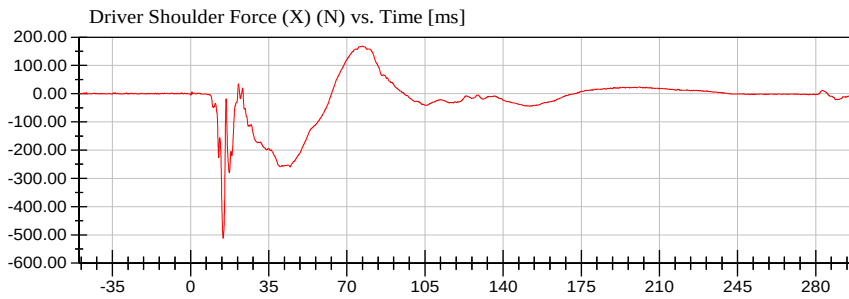


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



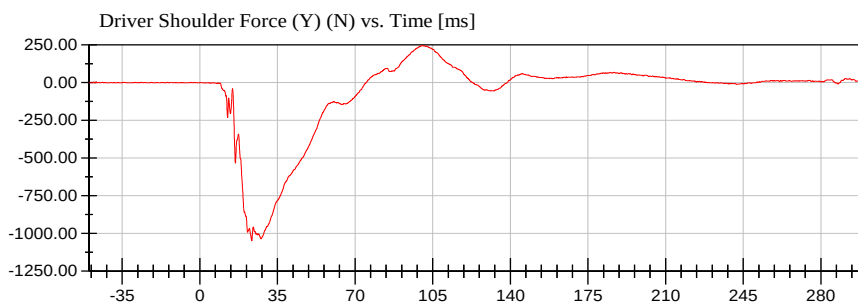
<Max>

168.36 N at 76.75 ms

<Min>

-511.89 N at 14.60 ms

CFC_600



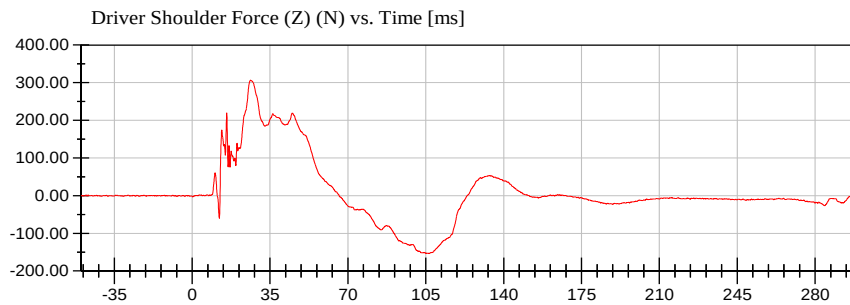
<Max>

245.68 N at 100.20 ms

<Min>

-1,048.00 N at 23.40 ms

CFC_600



<Max>

306.73 N at 26.25 ms

<Min>

-153.44 N at 106.45 ms

CFC_600



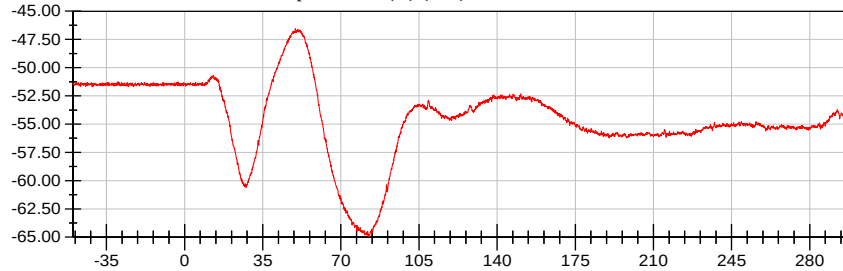
VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021

Driver Shoulder Rear Displacement (X) (mm) vs. Time [ms]



<Max>

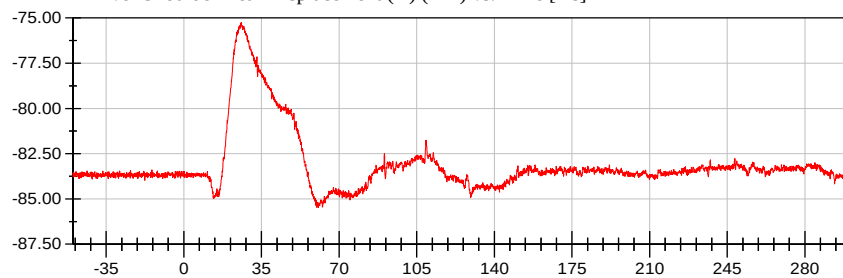
-46.53 mm at 49.60 ms

<Min>

-64.96 mm at 82.70 ms

Unfiltered

Driver Shoulder Rear Displacement (Y) (mm) vs. Time [ms]



<Max>

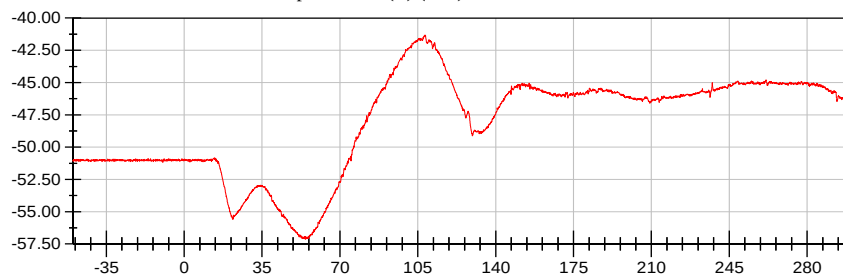
-75.25 mm at 25.95 ms

<Min>

-85.46 mm at 60.70 ms

Unfiltered

Driver Shoulder Rear Displacement (Z) (mm) vs. Time [ms]



<Max>

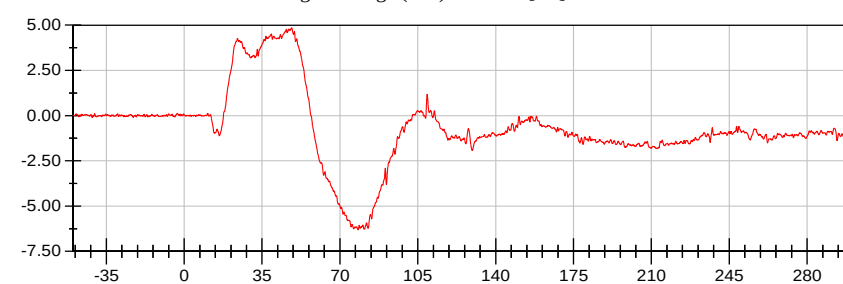
-41.31 mm at 108.20 ms

<Min>

-57.14 mm at 54.45 ms

Unfiltered

Driver Shoulder Rear Length Change (mm) vs. Time [ms]



<Max>

4.85 mm at 48.30 ms

<Min>

-6.31 mm at 78.20 ms

CFC_600

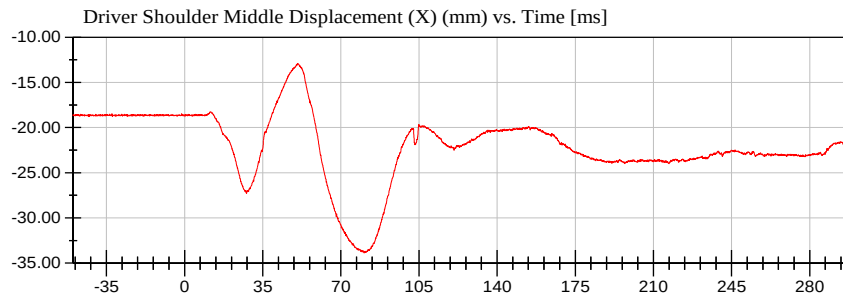


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



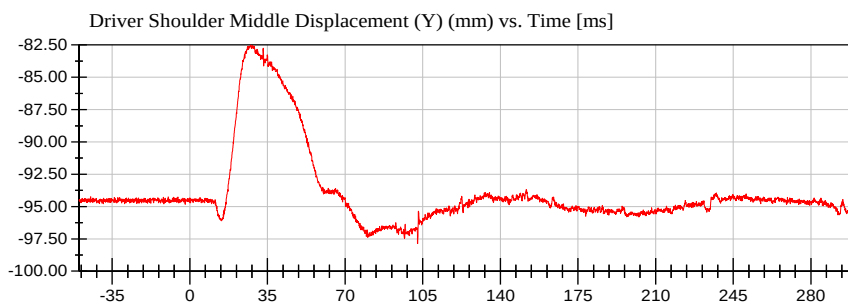
<Max>

-12.92 mm at 50.75 ms

<Min>

-33.84 mm at 80.40 ms

Unfiltered



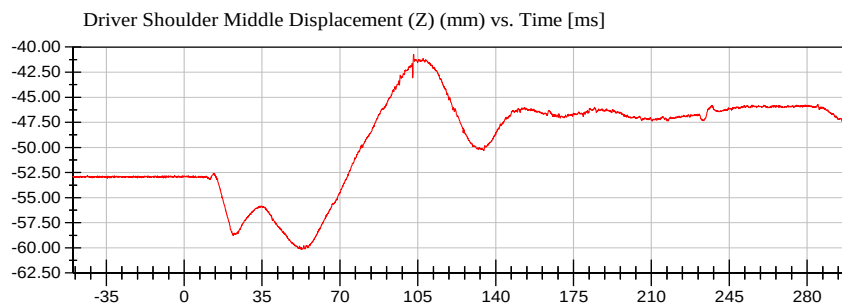
<Max>

-82.51 mm at 27.45 ms

<Min>

-97.86 mm at 102.75 ms

Unfiltered



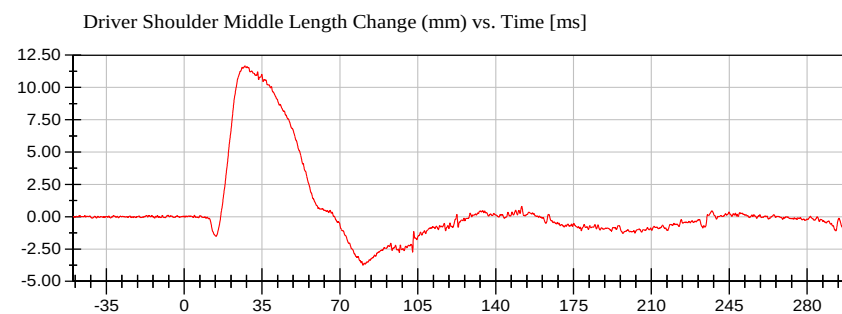
<Max>

-40.73 mm at 103.20 ms

<Min>

-60.17 mm at 52.65 ms

Unfiltered



<Max>

11.67 mm at 27.35 ms

<Min>

-3.75 mm at 80.35 ms

CFC_600

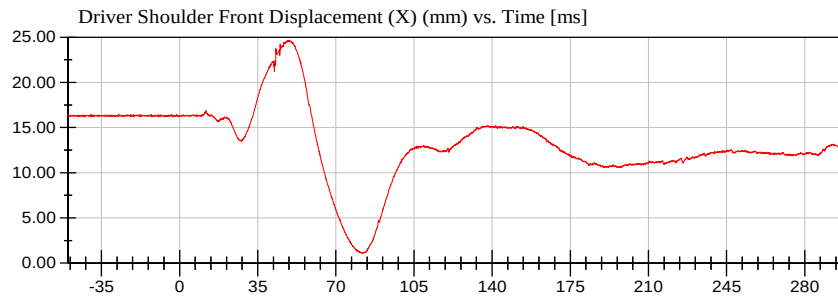


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



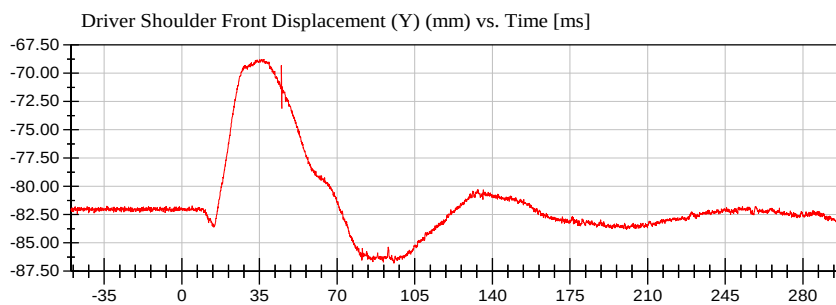
<Max>

24.66 mm at 49.30 ms

<Min>

1.09 mm at 81.90 ms

Unfiltered



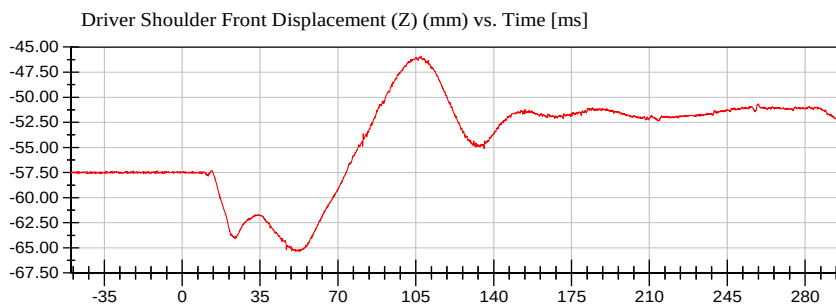
<Max>

-68.76 mm at 36.20 ms

<Min>

-86.78 mm at 95.65 ms

Unfiltered



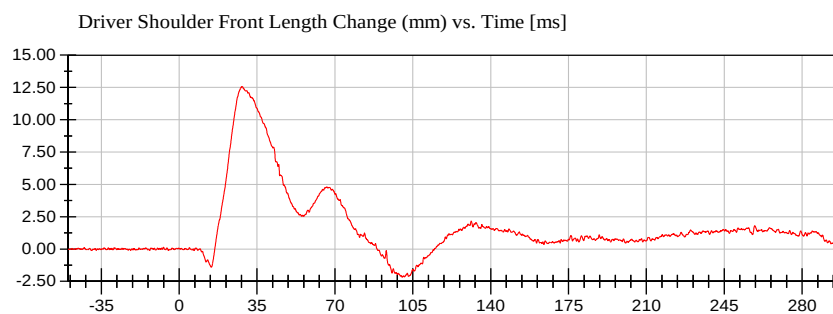
<Max>

-45.92 mm at 107.30 ms

<Min>

-65.35 mm at 51.10 ms

Unfiltered



<Max>

12.57 mm at 28.25 ms

<Min>

-2.18 mm at 100.35 ms

CFC_600

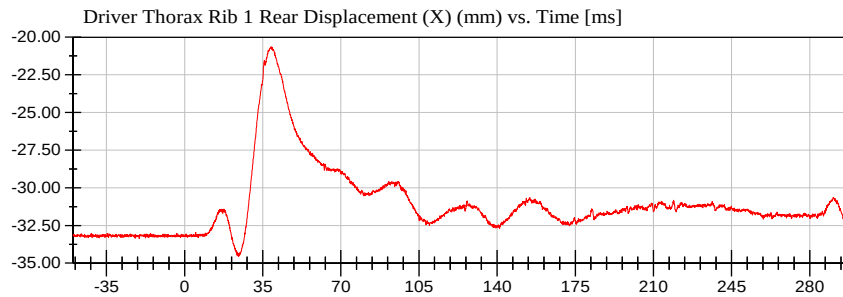


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



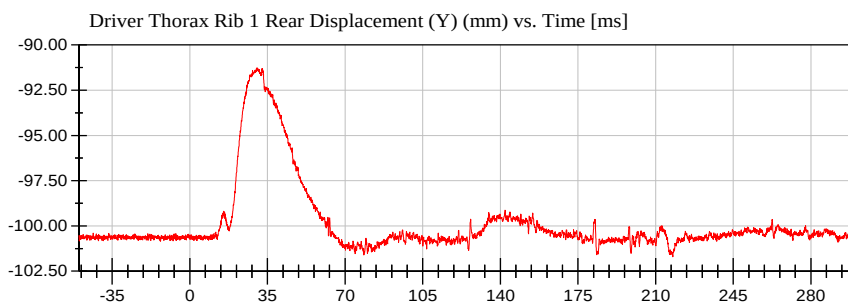
<Max>

-20.63 mm at 38.80 ms

<Min>

-34.57 mm at 24.20 ms

Unfiltered



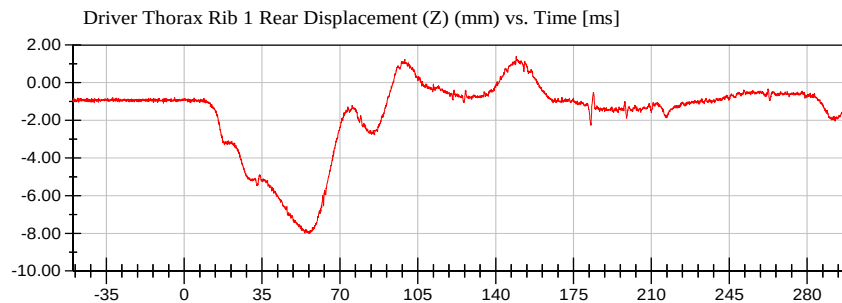
<Max>

-91.25 mm at 30.30 ms

<Min>

-101.70 mm at 217.75 ms

Unfiltered



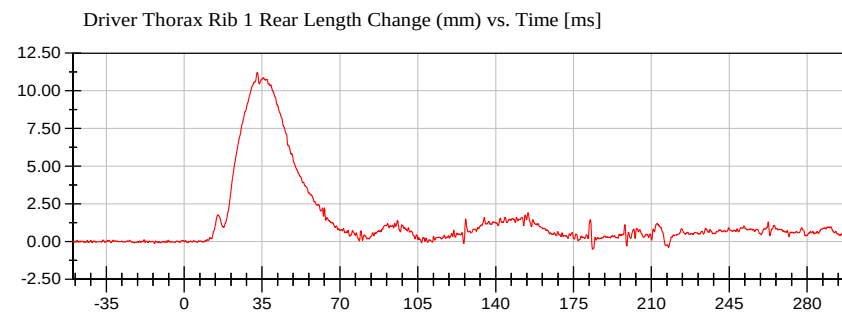
<Max>

1.40 mm at 149.20 ms

<Min>

-8.02 mm at 56.20 ms

Unfiltered



<Max>

11.22 mm at 32.90 ms

<Min>

-0.52 mm at 183.55 ms

CFC_600

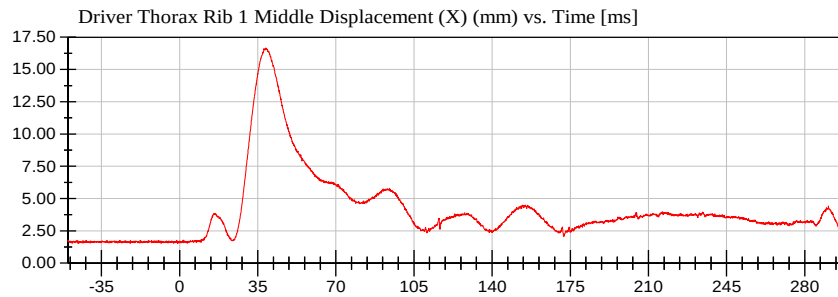


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



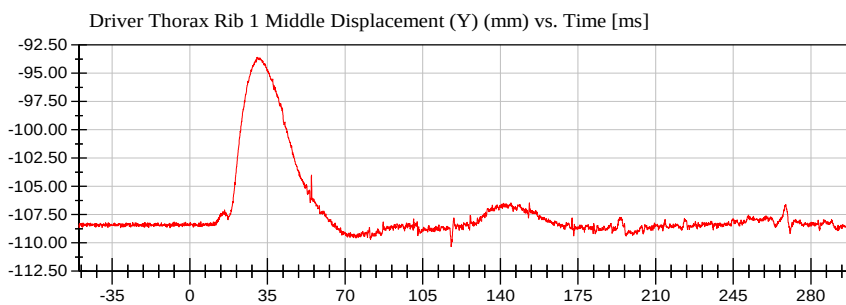
<Max>

16.66 mm at 38.50 ms

<Min>

1.40 mm at 299.95 ms

Unfiltered



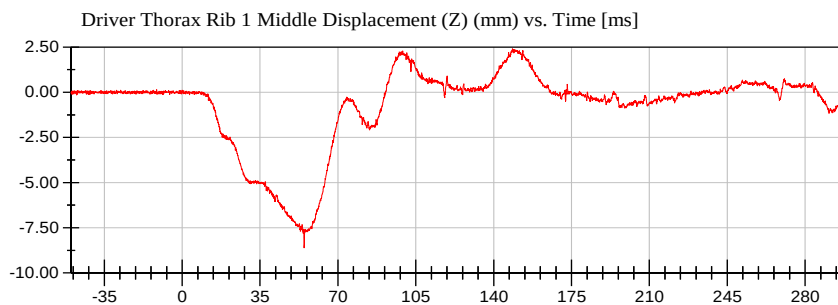
<Max>

-93.58 mm at 30.30 ms

<Min>

-110.33 mm at 117.85 ms

Unfiltered



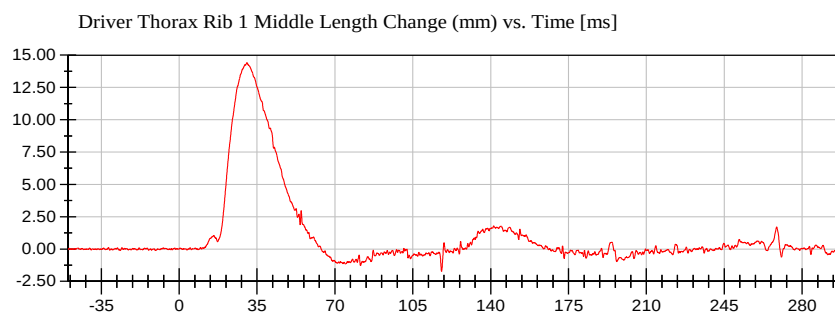
<Max>

2.39 mm at 148.45 ms

<Min>

-8.61 mm at 54.85 ms

Unfiltered



<Max>

14.42 mm at 30.45 ms

<Min>

-1.72 mm at 117.90 ms

CFC_600

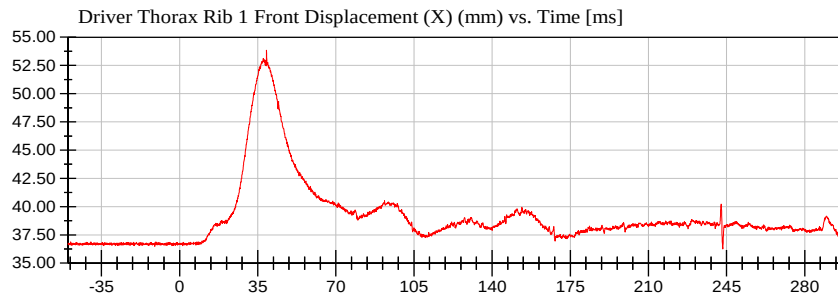


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



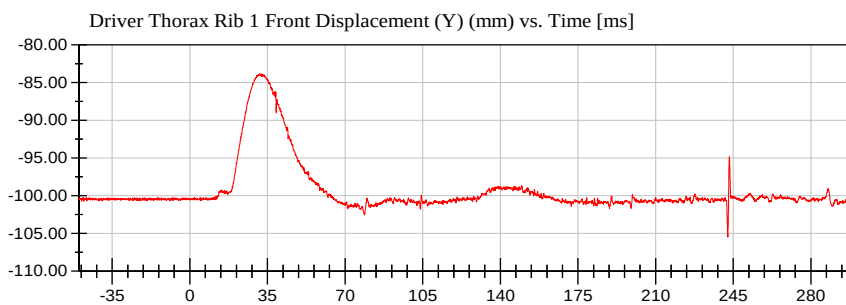
<Max>

53.84 mm at 38.95 ms

<Min>

36.10 mm at 299.90 ms

Unfiltered



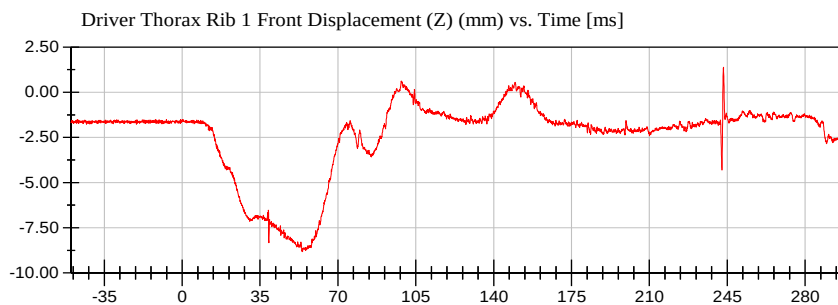
<Max>

-83.85 mm at 32.10 ms

<Min>

-105.49 mm at 242.55 ms

Unfiltered



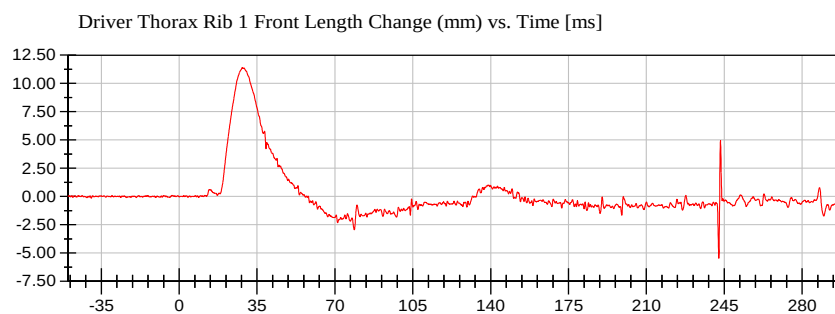
<Max>

1.39 mm at 243.25 ms

<Min>

-8.82 mm at 54.10 ms

Unfiltered



<Max>

11.41 mm at 28.35 ms

<Min>

-5.46 mm at 242.55 ms

CFC_600

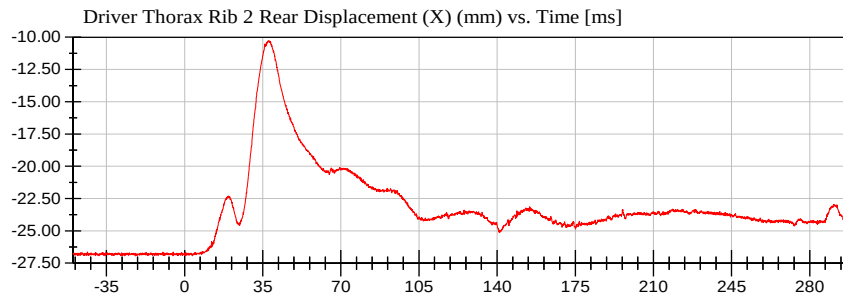


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



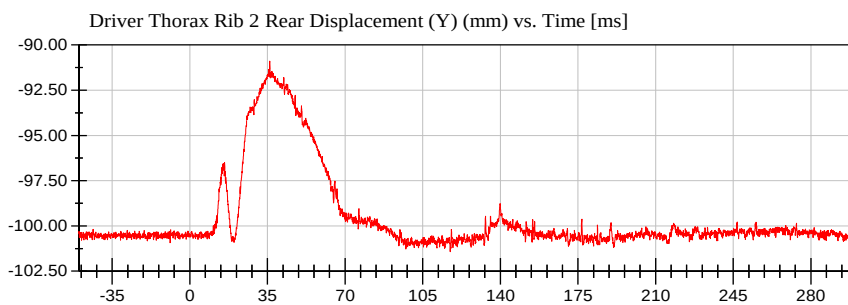
<Max>

-10.29 mm at 37.40 ms

<Min>

-26.94 mm at -28.40 ms

Unfiltered



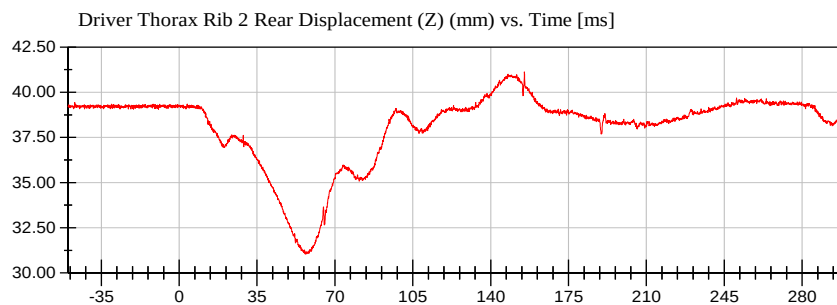
<Max>

-90.89 mm at 36.05 ms

<Min>

-101.42 mm at 117.40 ms

Unfiltered



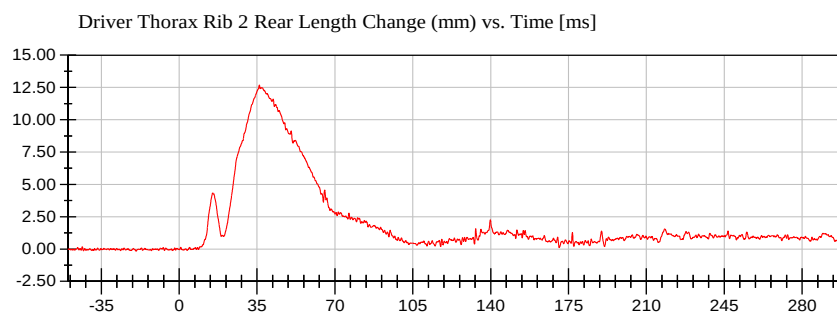
<Max>

41.13 mm at 155.20 ms

<Min>

31.04 mm at 56.70 ms

Unfiltered



<Max>

12.69 mm at 36.05 ms

<Min>

-0.16 mm at -19.25 ms

CFC_600



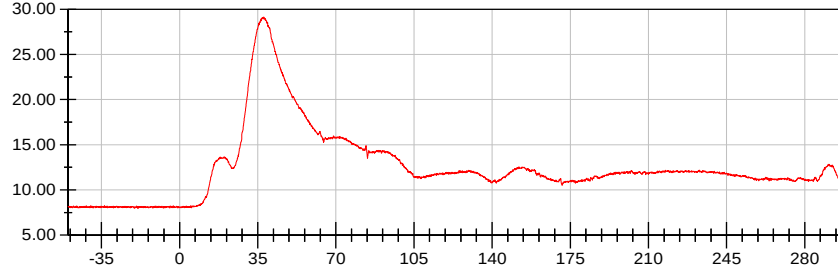
VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021

Driver Thorax Rib 2 Middle Displacement (X) (mm) vs. Time [ms]



<Max>

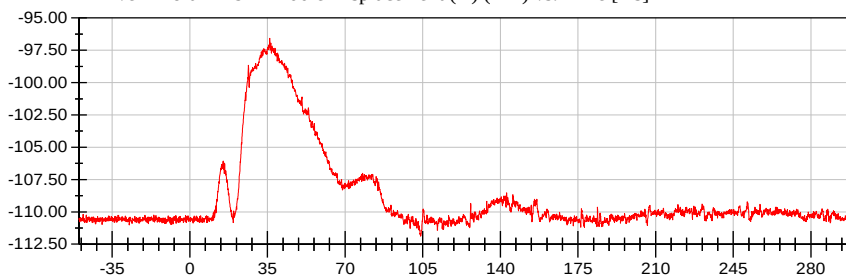
29.12 mm at 37.75 ms

<Min>

7.95 mm at -18.60 ms

Unfiltered

Driver Thorax Rib 2 Middle Displacement (Y) (mm) vs. Time [ms]



<Max>

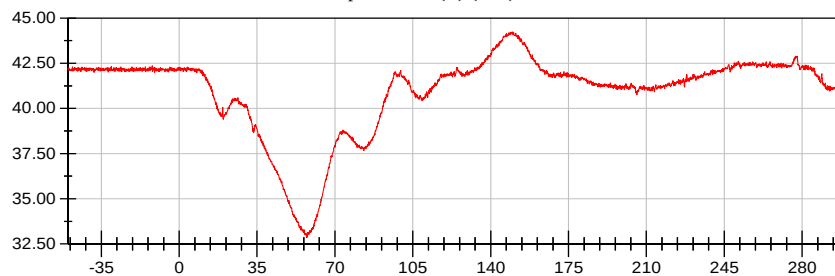
-96.57 mm at 36.05 ms

<Min>

-111.88 mm at 104.05 ms

Unfiltered

Driver Thorax Rib 2 Middle Displacement (Z) (mm) vs. Time [ms]



<Max>

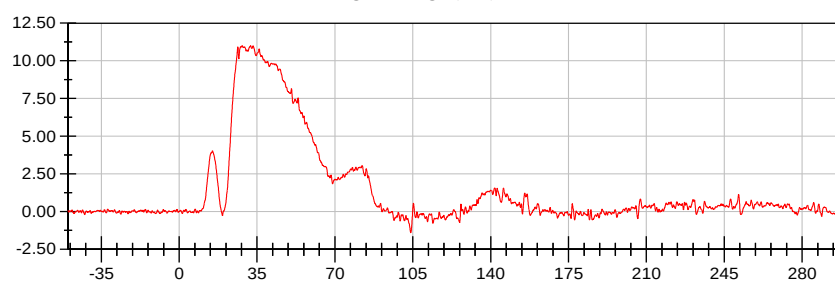
44.23 mm at 149.80 ms

<Min>

32.86 mm at 57.30 ms

Unfiltered

Driver Thorax Rib 2 Middle Length Change (mm) vs. Time [ms]



<Max>

11.00 mm at 32.15 ms

<Min>

-1.39 mm at 104.10 ms

CFC_600

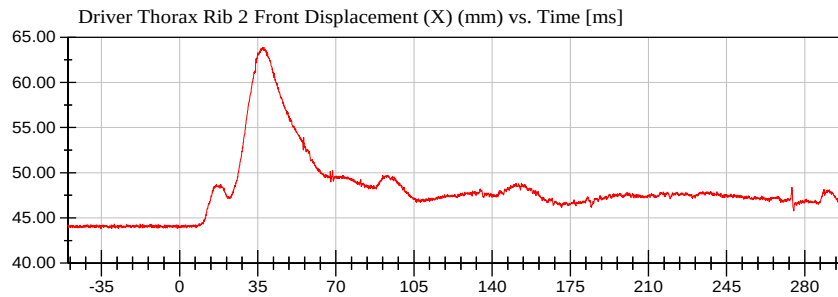


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



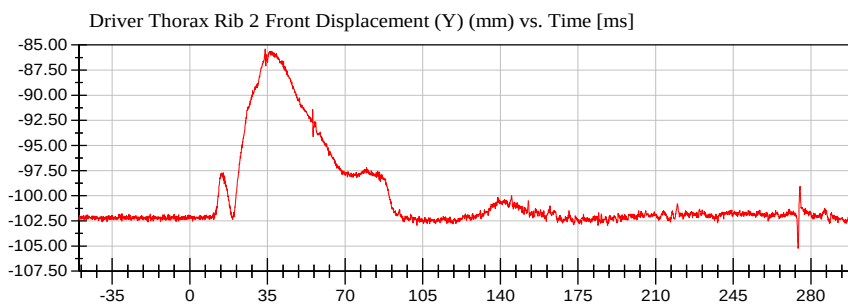
<Max>

63.87 mm at 37.80 ms

<Min>

43.78 mm at -35.20 ms

Unfiltered



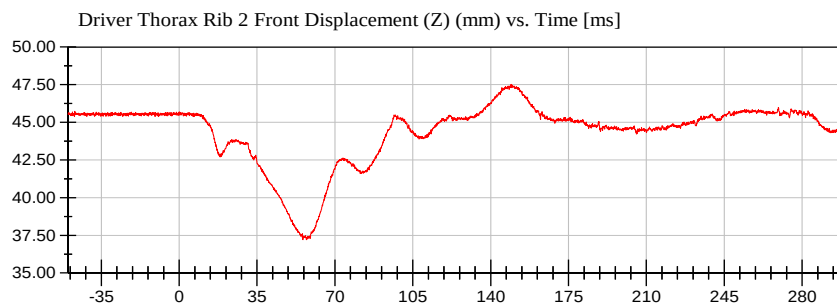
<Max>

-85.39 mm at 34.00 ms

<Min>

-105.24 mm at 274.25 ms

Unfiltered



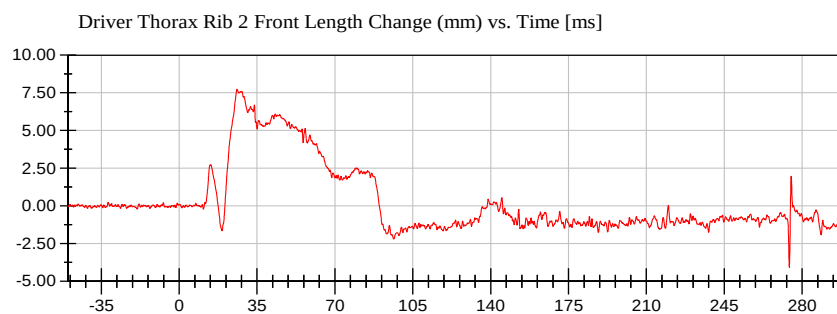
<Max>

47.52 mm at 149.20 ms

<Min>

37.20 mm at 57.25 ms

Unfiltered



<Max>

7.75 mm at 26.00 ms

<Min>

-4.05 mm at 274.25 ms

CFC_600



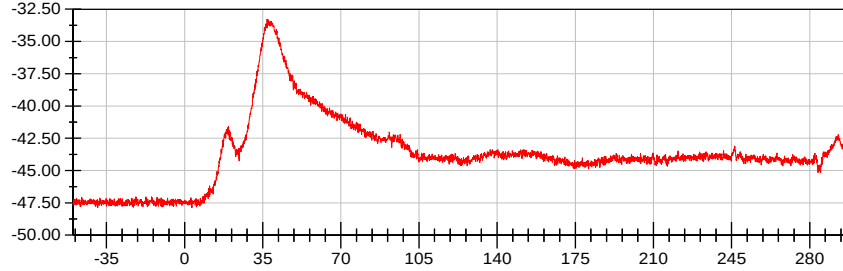
VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021

Driver Thorax Rib 3 Rear Displacement (X) (mm) vs. Time [ms]



<Max>

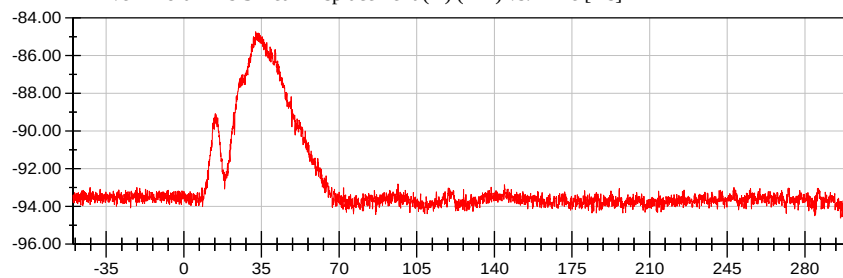
-33.27 mm at 37.00 ms

<Min>

-47.89 mm at 3.25 ms

Unfiltered

Driver Thorax Rib 3 Rear Displacement (Y) (mm) vs. Time [ms]



<Max>

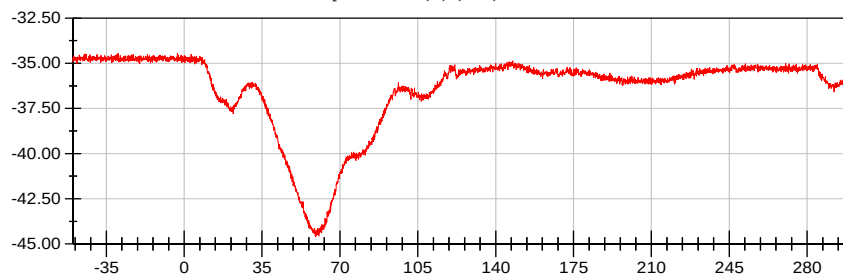
-84.74 mm at 32.40 ms

<Min>

-94.62 mm at 296.10 ms

Unfiltered

Driver Thorax Rib 3 Rear Displacement (Z) (mm) vs. Time [ms]



<Max>

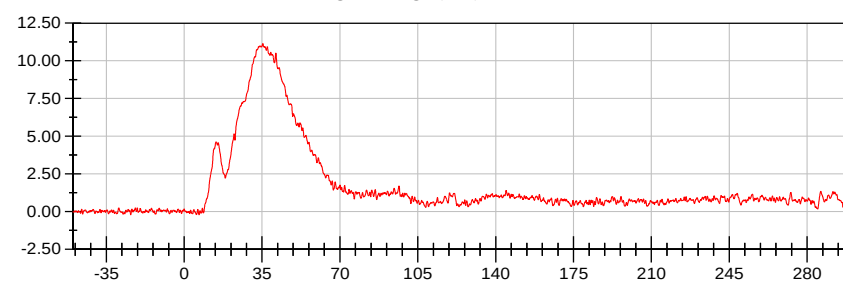
-34.46 mm at -29.70 ms

<Min>

-44.59 mm at 58.95 ms

Unfiltered

Driver Thorax Rib 3 Rear Length Change (mm) vs. Time [ms]



<Max>

11.15 mm at 35.30 ms

<Min>

-0.21 mm at 6.70 ms

CFC_600

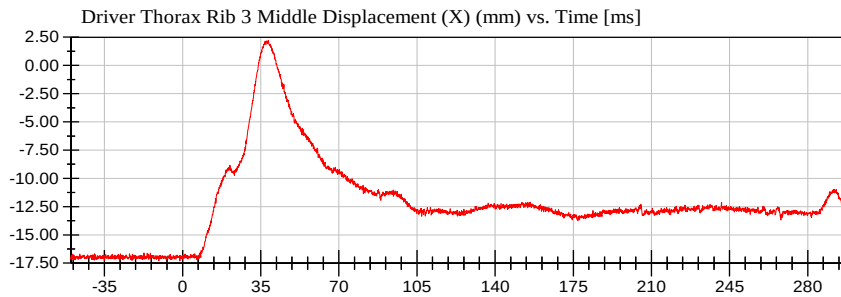


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021

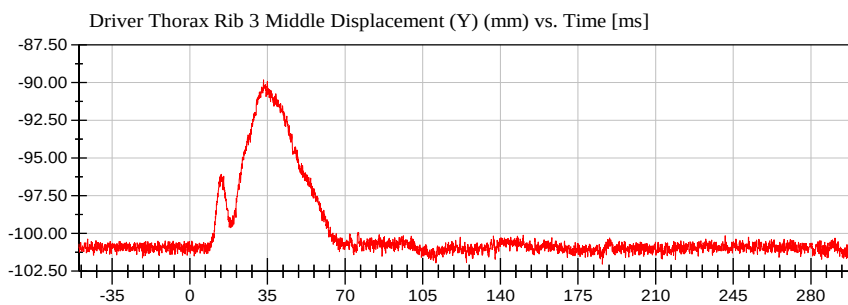


<Max>

2.18 mm at 38.40 ms

<Min>

-17.31 mm at -1.20 ms

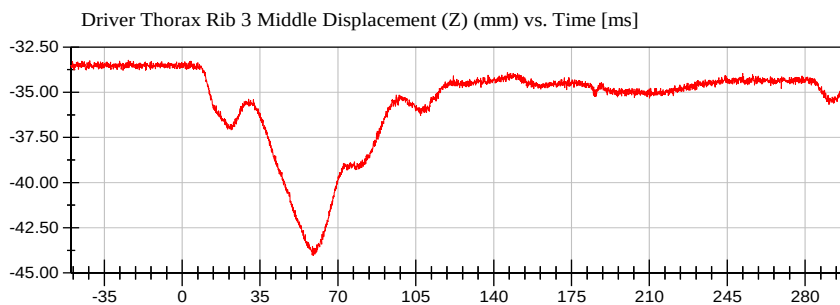


<Max>

-89.82 mm at 33.25 ms

<Min>

-102.04 mm at 186.00 ms

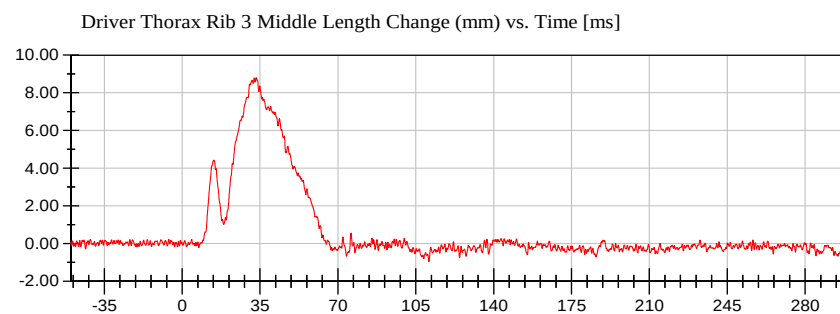


<Max>

-33.22 mm at -24.20 ms

<Min>

-44.04 mm at 58.90 ms



<Max>

8.81 mm at 33.30 ms

<Min>

-0.95 mm at 110.90 ms



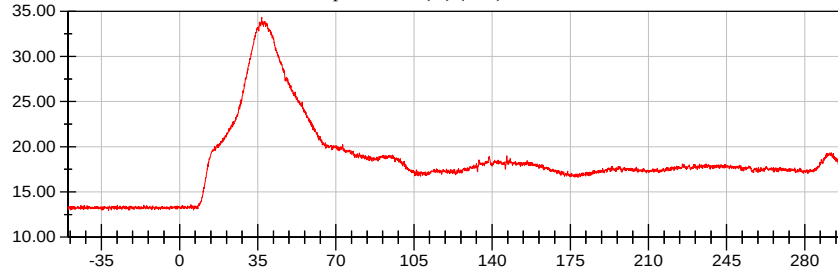
VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021

Driver Thorax Rib 3 Front Displacement (X) (mm) vs. Time [ms]



<Max>

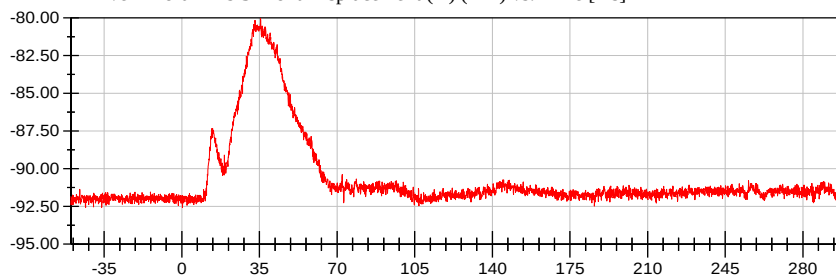
34.31 mm at 36.80 ms

<Min>

12.94 mm at -31.80 ms

Unfiltered

Driver Thorax Rib 3 Front Displacement (Y) (mm) vs. Time [ms]



<Max>

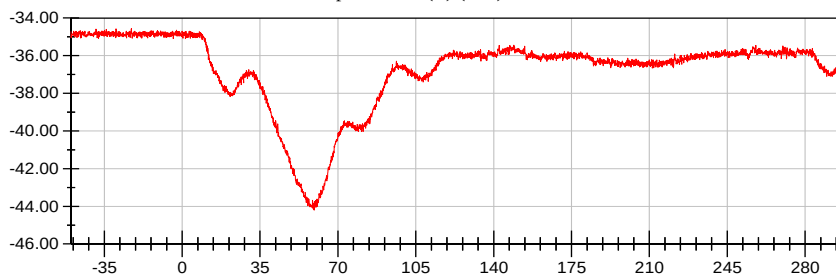
-80.03 mm at 35.50 ms

<Min>

-92.57 mm at 0.30 ms

Unfiltered

Driver Thorax Rib 3 Front Displacement (Z) (mm) vs. Time [ms]



<Max>

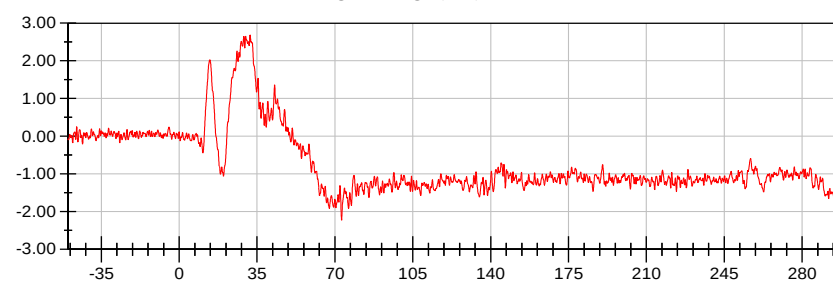
-34.57 mm at -22.80 ms

<Min>

-44.19 mm at 59.30 ms

Unfiltered

Driver Thorax Rib 3 Front Length Change (mm) vs. Time [ms]



<Max>

2.69 mm at 31.85 ms

<Min>

-2.22 mm at 73.00 ms

CFC_600

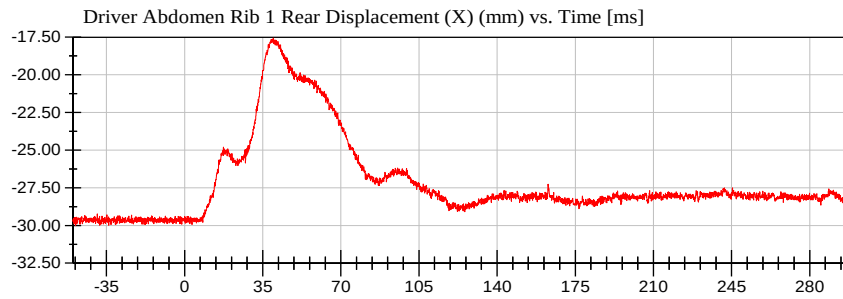


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



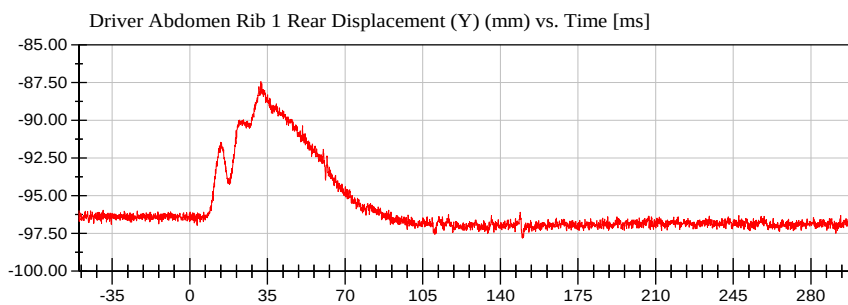
<Max>

-17.56 mm at 39.80 ms

<Min>

-30.01 mm at -48.80 ms

Unfiltered



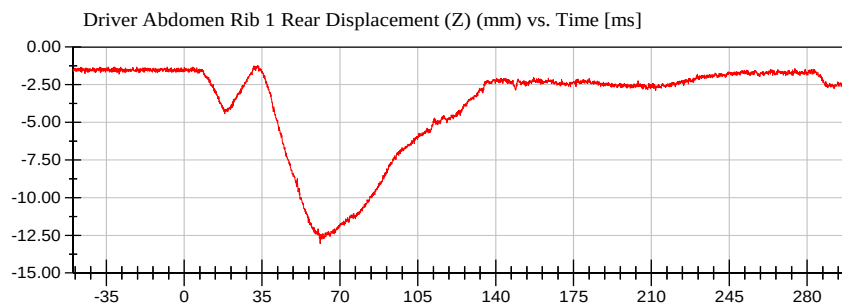
<Max>

-87.43 mm at 32.00 ms

<Min>

-97.81 mm at 150.00 ms

Unfiltered



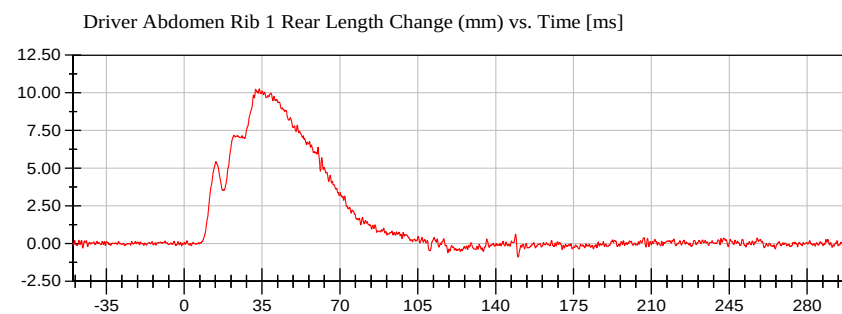
<Max>

-1.22 mm at 33.05 ms

<Min>

-13.04 mm at 61.15 ms

Unfiltered



<Max>

10.26 mm at 33.75 ms

<Min>

-0.89 mm at 150.05 ms

CFC_600

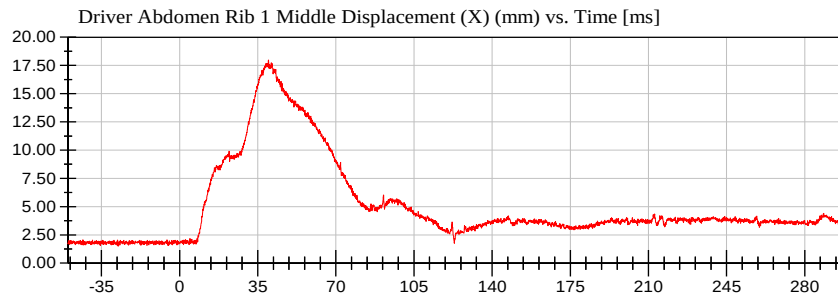


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



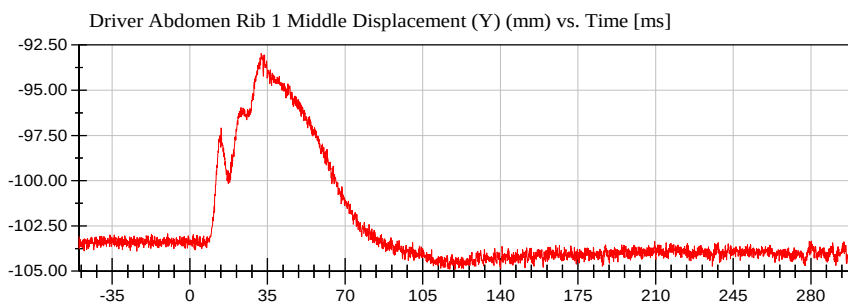
<Max>

17.97 mm at 39.85 ms

<Min>

1.50 mm at -27.50 ms

Unfiltered



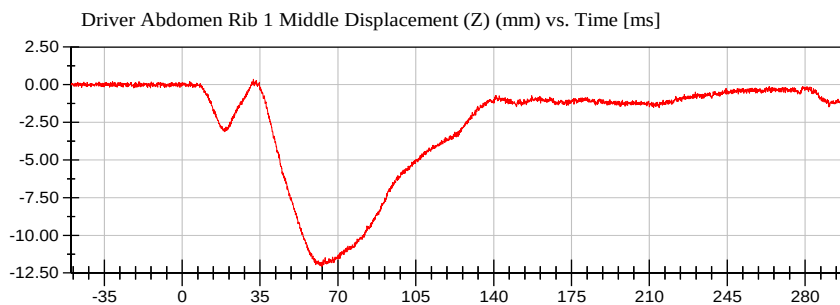
<Max>

-92.98 mm at 32.20 ms

<Min>

-104.92 mm at 297.60 ms

Unfiltered



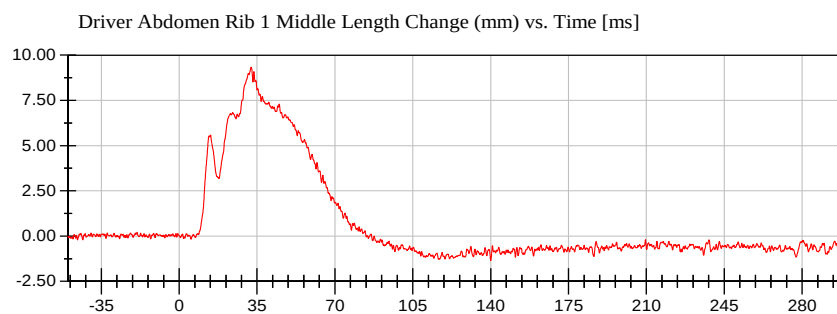
<Max>

0.36 mm at 32.00 ms

<Min>

-12.07 mm at 62.70 ms

Unfiltered



<Max>

9.34 mm at 32.35 ms

<Min>

-1.36 mm at 140.05 ms

CFC_600

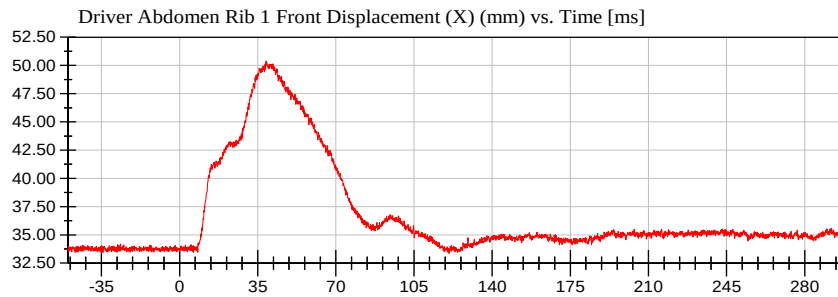


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



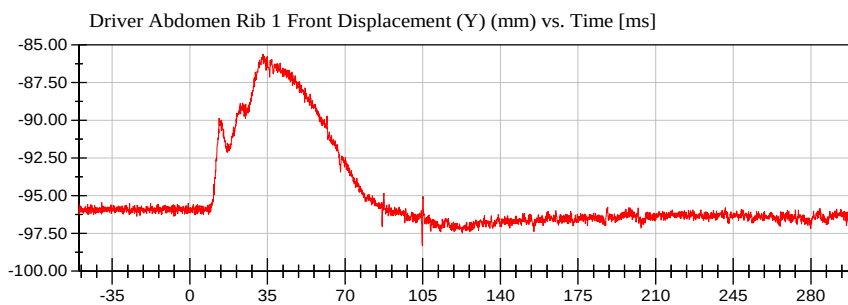
<Max>

50.38 mm at 38.80 ms

<Min>

33.36 mm at 120.70 ms

Unfiltered



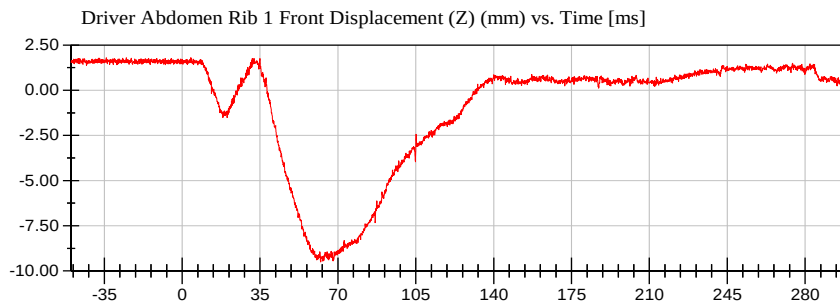
<Max>

-85.62 mm at 33.00 ms

<Min>

-98.31 mm at 104.80 ms

Unfiltered



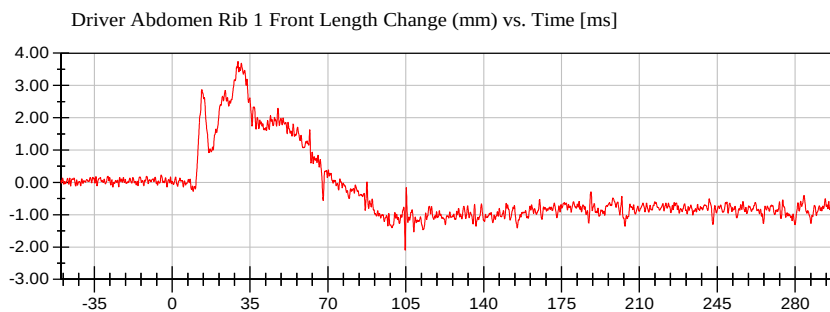
<Max>

1.80 mm at 3.90 ms

<Min>

-9.50 mm at 62.25 ms

Unfiltered



<Max>

3.74 mm at 29.60 ms

<Min>

-2.10 mm at 104.70 ms

CFC_600

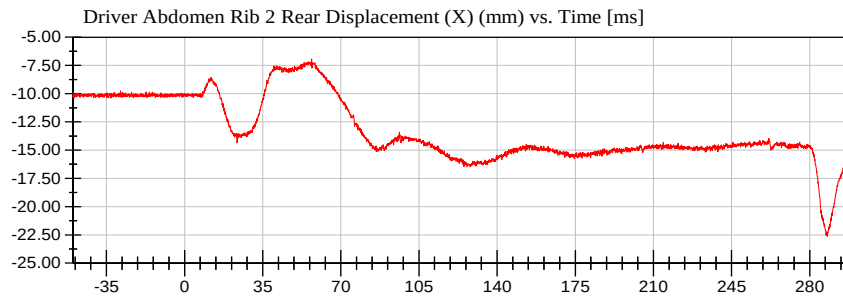


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



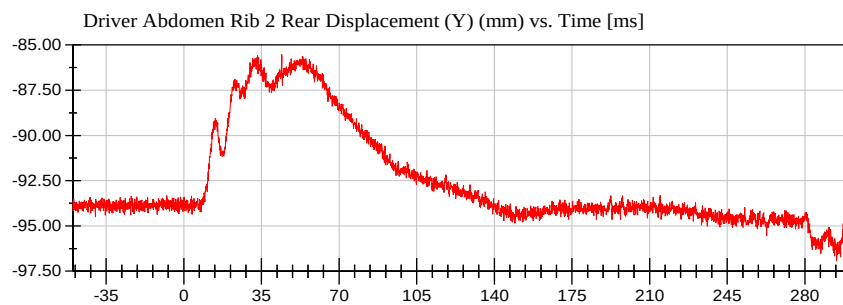
<Max>

-6.92 mm at 56.95 ms

<Min>

-22.65 mm at 287.85 ms

Unfiltered



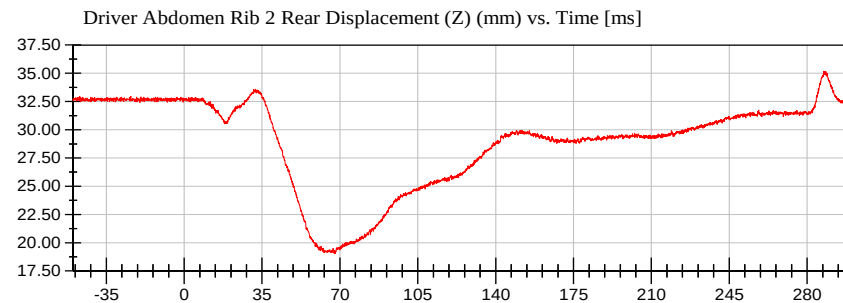
<Max>

-85.53 mm at 44.15 ms

<Min>

-96.93 mm at 294.30 ms

Unfiltered



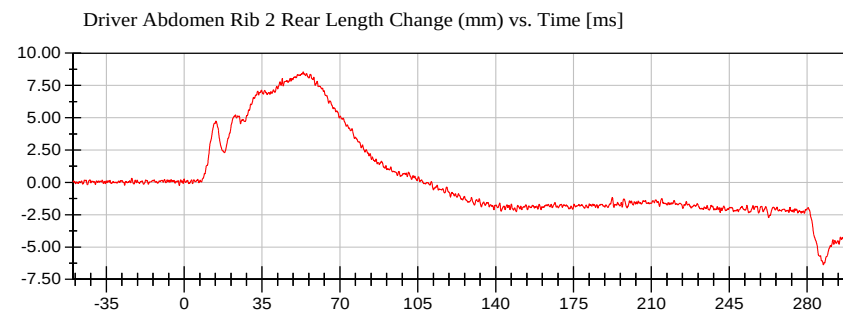
<Max>

35.17 mm at 288.10 ms

<Min>

19.03 mm at 67.80 ms

Unfiltered



<Max>

8.56 mm at 53.50 ms

<Min>

-6.37 mm at 287.30 ms

CFC_600

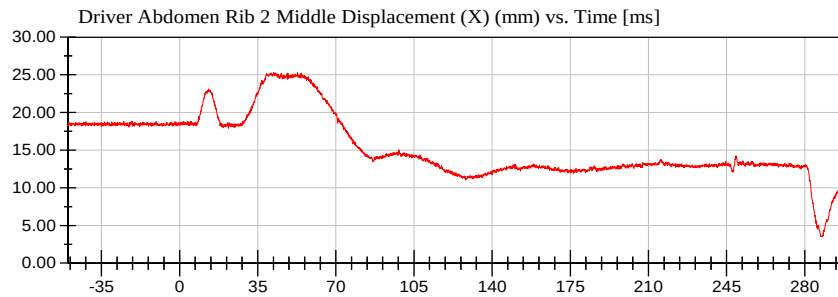


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



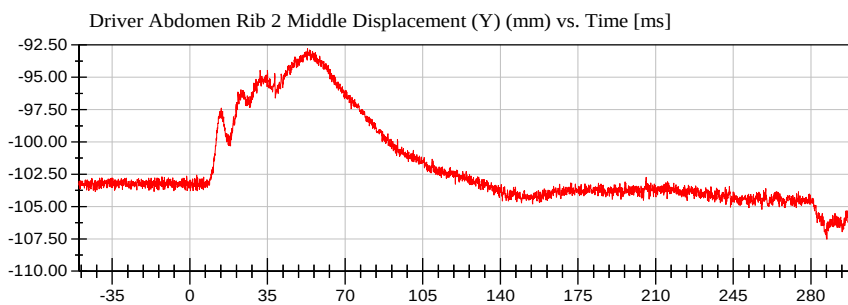
<Max>

25.33 mm at 42.20 ms

<Min>

3.49 mm at 287.30 ms

Unfiltered



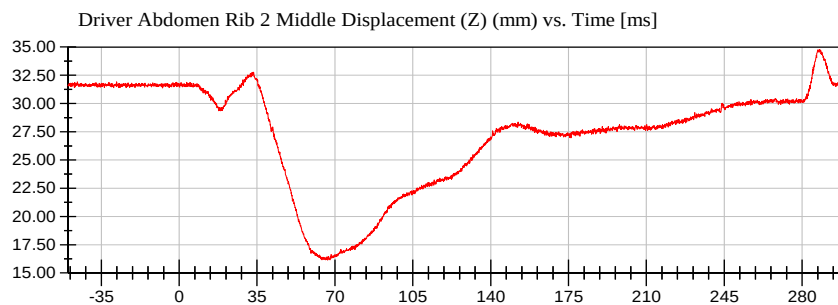
<Max>

-92.74 mm at 53.05 ms

<Min>

-107.52 mm at 287.20 ms

Unfiltered



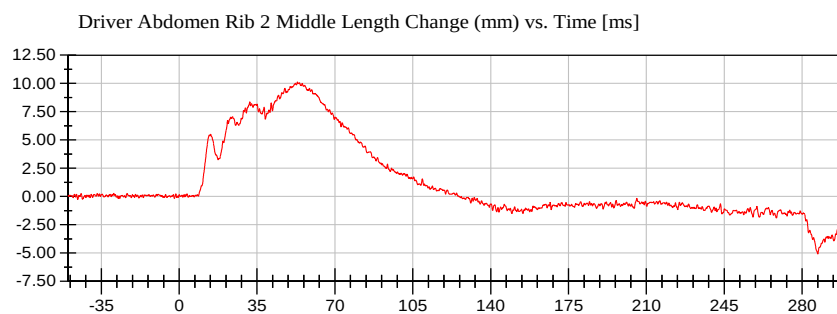
<Max>

34.78 mm at 287.80 ms

<Min>

16.14 mm at 66.70 ms

Unfiltered



<Max>

10.12 mm at 53.15 ms

<Min>

-5.08 mm at 287.00 ms

CFC_600

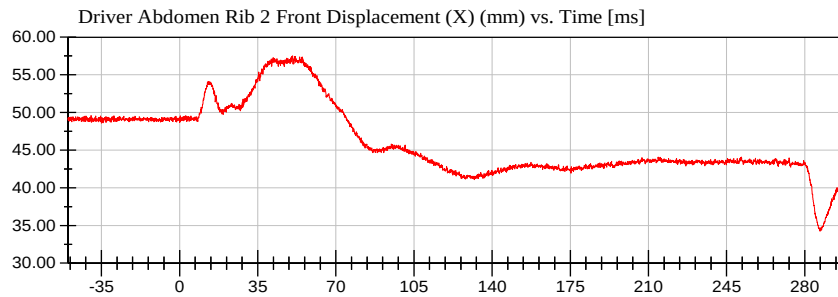


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



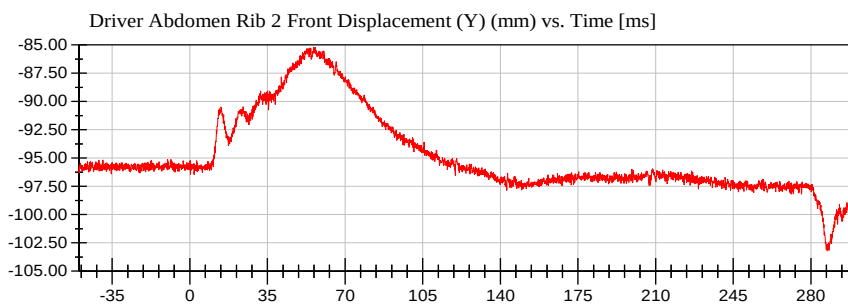
<Max>

57.51 mm at 50.65 ms

<Min>

34.24 mm at 286.80 ms

Unfiltered



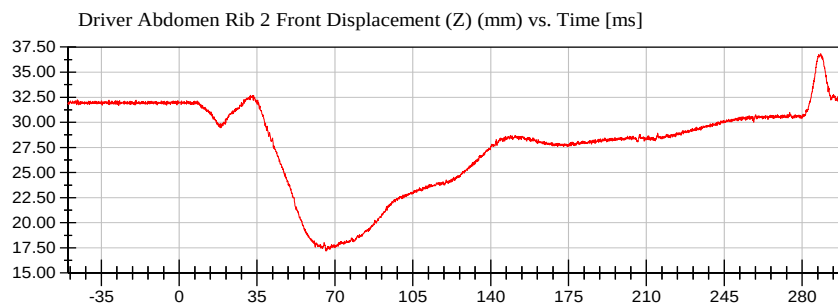
<Max>

-85.20 mm at 55.95 ms

<Min>

-103.18 mm at 287.40 ms

Unfiltered



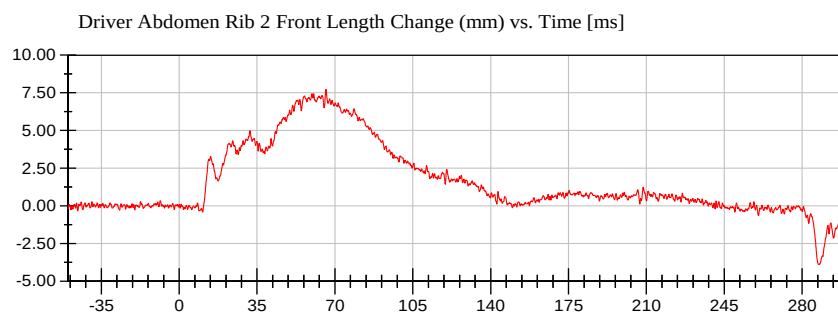
<Max>

36.84 mm at 288.40 ms

<Min>

17.19 mm at 65.90 ms

Unfiltered



<Max>

7.73 mm at 65.95 ms

<Min>

-3.88 mm at 287.75 ms

CFC_600



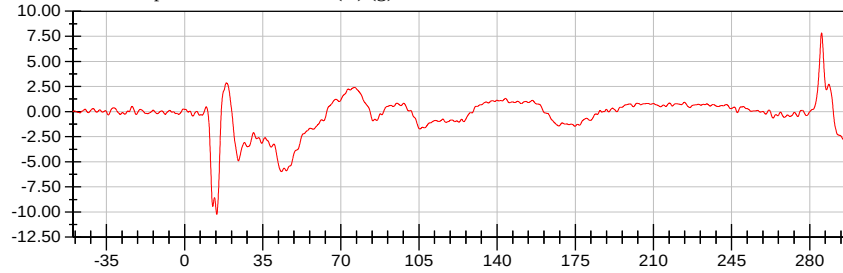
VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021

Driver Spine T1 Acceleration (X) (g) vs. Time [ms]



<Max>

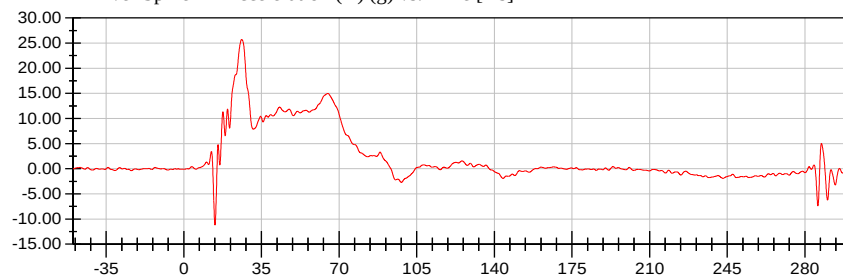
7.84 g at 285.30 ms

<Min>

-10.24 g at 14.45 ms

CFC_180

Driver Spine T1 Acceleration (Y) (g) vs. Time [ms]



<Max>

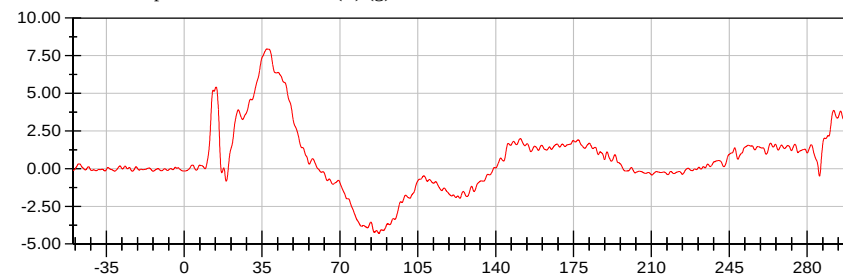
25.71 g at 26.10 ms

<Min>

-11.18 g at 14.05 ms

CFC_180

Driver Spine T1 Acceleration (Z) (g) vs. Time [ms]



<Max>

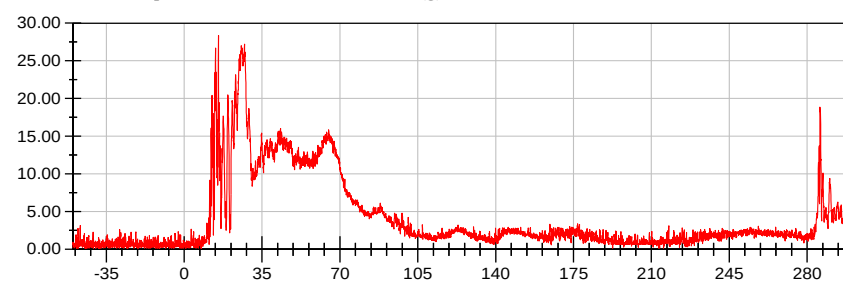
7.95 g at 37.15 ms

<Min>

-4.30 g at 87.55 ms

CFC_180

Driver Spine T1 Acceleration Resultant (g) vs. Time [ms]



<Max>

28.36 g at 15.40 ms

<Min>

0.14 g at -29.15 ms

Prefiltered_> CFC 1000

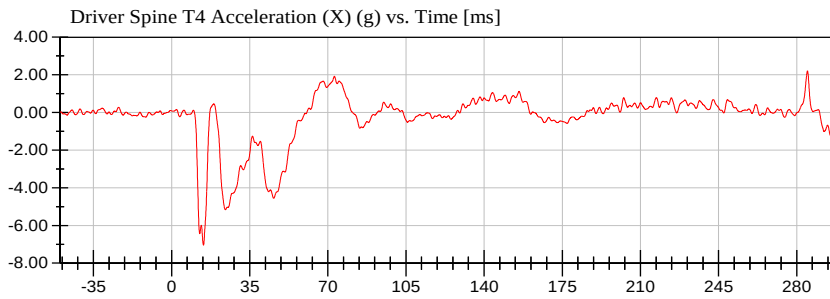


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



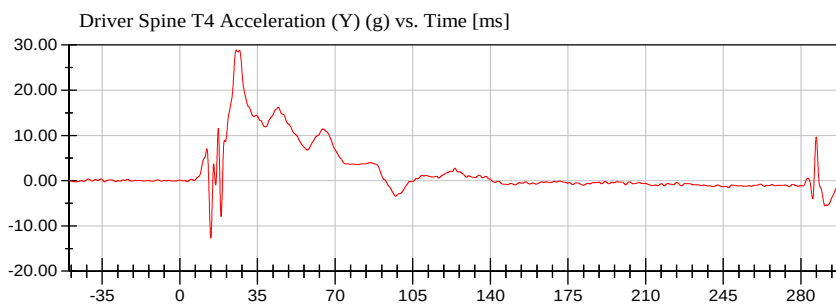
<Max>

2.21 g at 284.80 ms

<Min>

-7.05 g at 14.30 ms

CFC_180



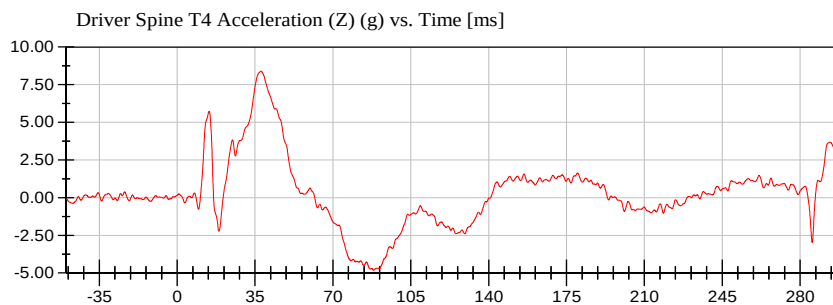
<Max>

28.84 g at 25.40 ms

<Min>

-12.64 g at 13.95 ms

CFC_180



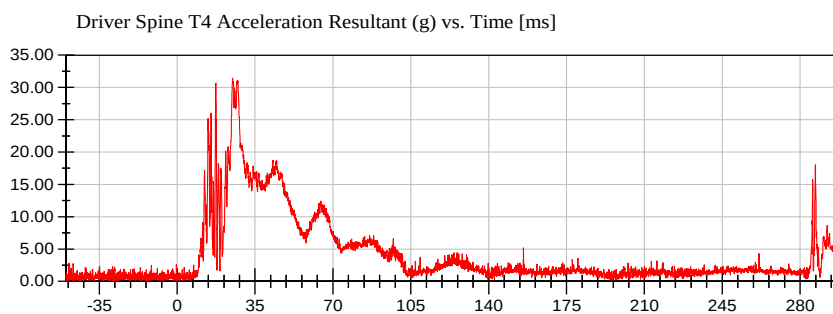
<Max>

8.40 g at 37.60 ms

<Min>

-4.83 g at 88.30 ms

CFC_180



<Max>

31.42 g at 24.85 ms

<Min>

0.08 g at -49.80 ms

Prefiltered_> CFC 1000

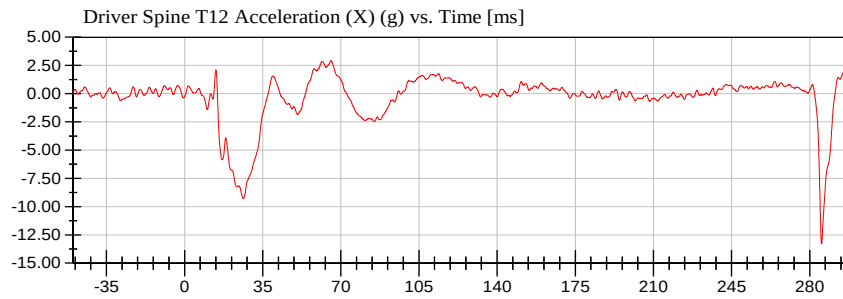


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



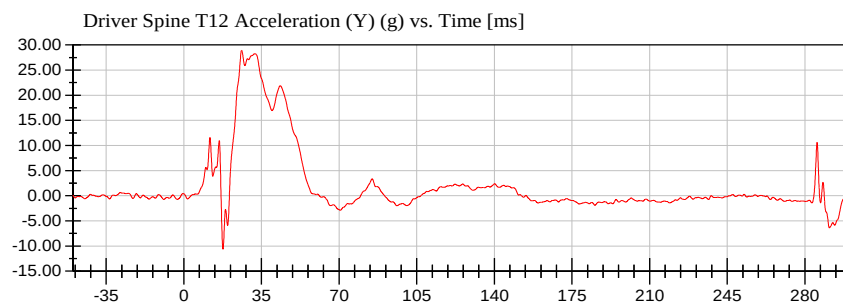
<Max>

2.92 g at 65.55 ms

<Min>

-13.31 g at 285.35 ms

CFC_180



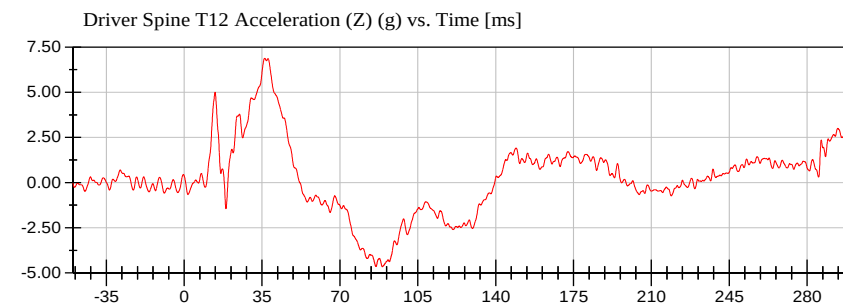
<Max>

28.92 g at 26.05 ms

<Min>

-10.62 g at 17.65 ms

CFC_180



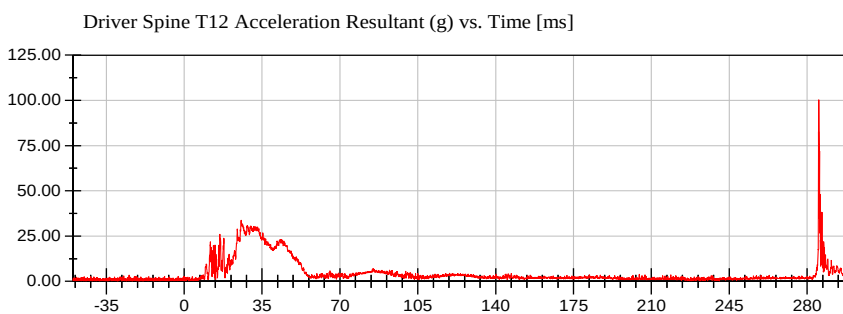
<Max>

6.88 g at 36.20 ms

<Min>

-4.65 g at 89.10 ms

CFC_180



<Max>

100.24 g at 285.25 ms

<Min>

0.12 g at -30.00 ms

Prefiltered_> CFC 1000

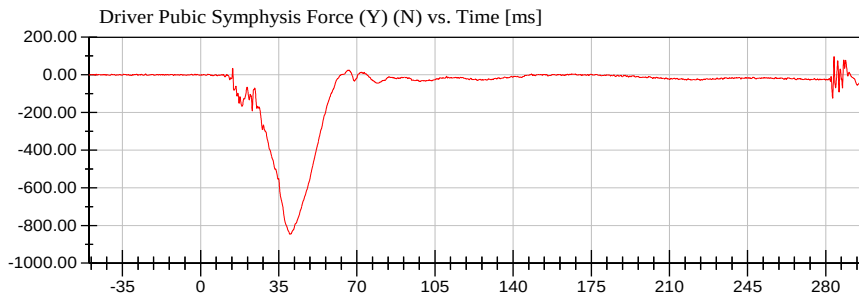


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



<Max>

96.10 N at 283.70 ms

<Min>

-846.51 N at 40.00 ms

CFC_600

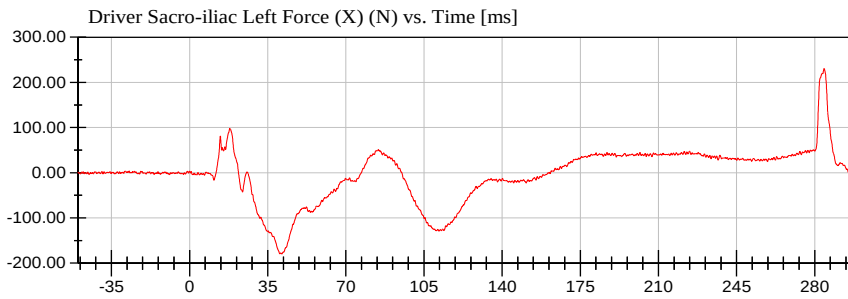


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



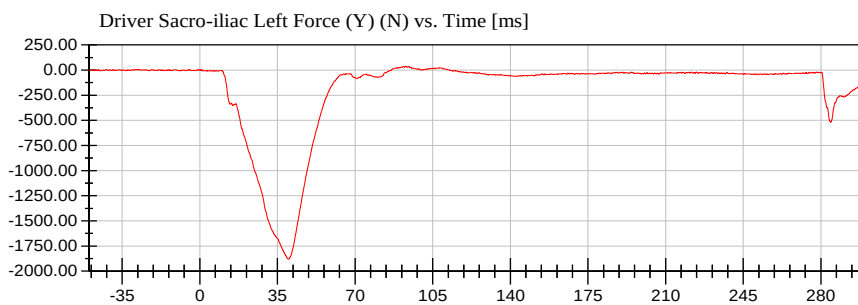
<Max>

230.64 N at 284.20 ms

<Min>

-179.79 N at 41.30 ms

CFC_600



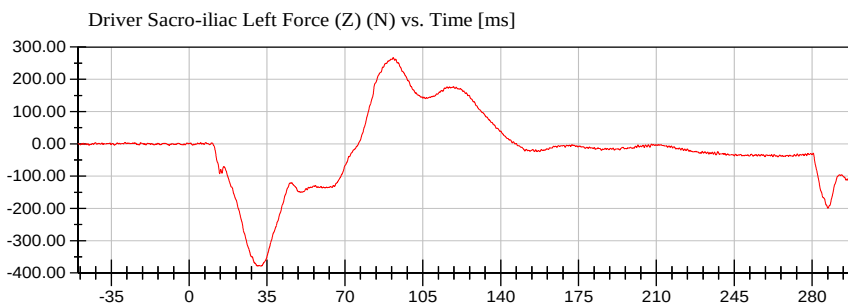
<Max>

38.30 N at 92.90 ms

<Min>

-1,879.74 N at 40.00 ms

CFC_600



<Max>

267.01 N at 91.70 ms

<Min>

-378.13 N at 30.80 ms

CFC_600

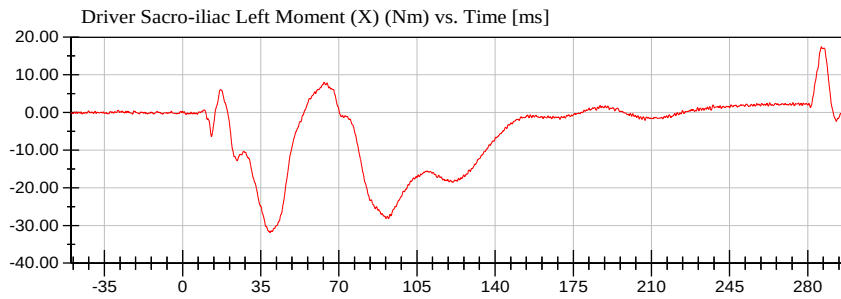


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



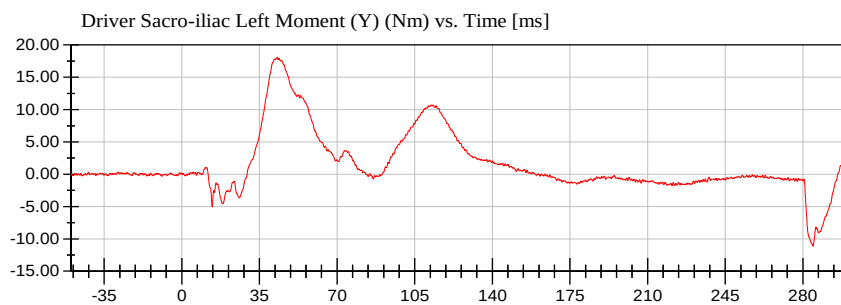
<Max>

17.36 Nm at 286.10 ms

<Min>

-31.90 Nm at 39.20 ms

CFC_600



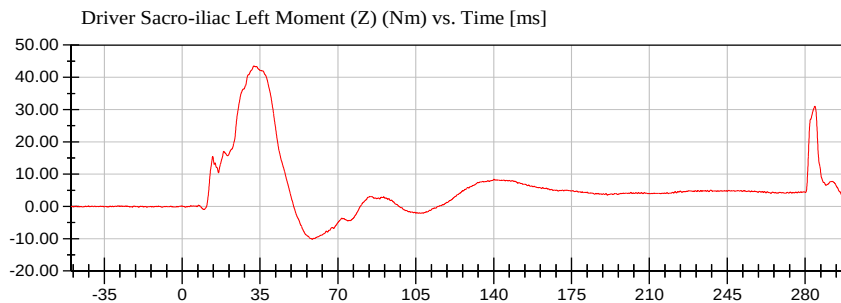
<Max>

18.07 Nm at 43.00 ms

<Min>

-11.11 Nm at 284.60 ms

CFC_600



<Max>

43.51 Nm at 32.20 ms

<Min>

-10.15 Nm at 58.50 ms

CFC_600

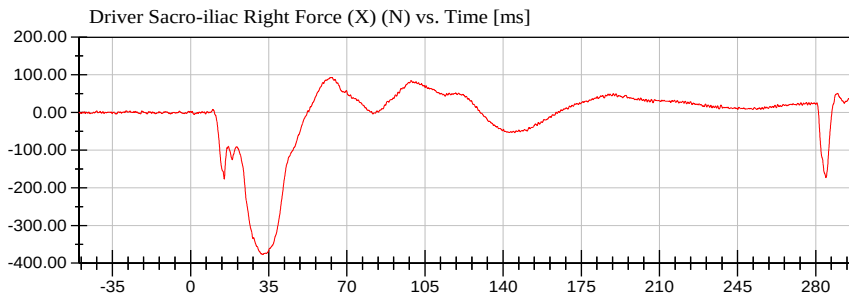


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



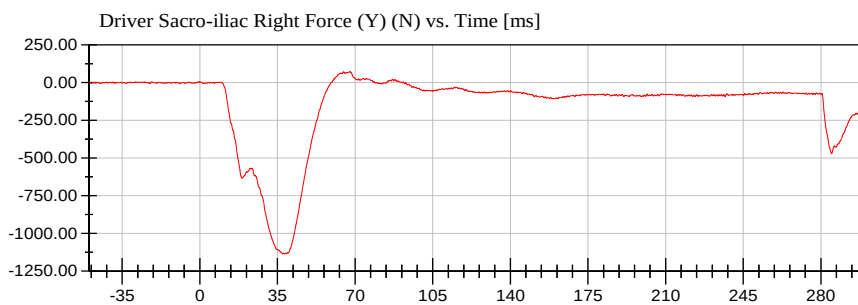
<Max>

104.50 N at 300.00 ms

<Min>

-377.35 N at 32.40 ms

CFC_600



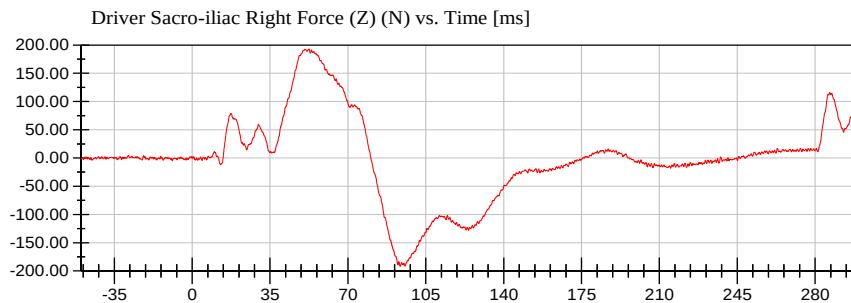
<Max>

73.20 N at 67.70 ms

<Min>

-1,136.00 N at 38.20 ms

CFC_600



<Max>

192.97 N at 52.45 ms

<Min>

-191.87 N at 93.50 ms

CFC_600

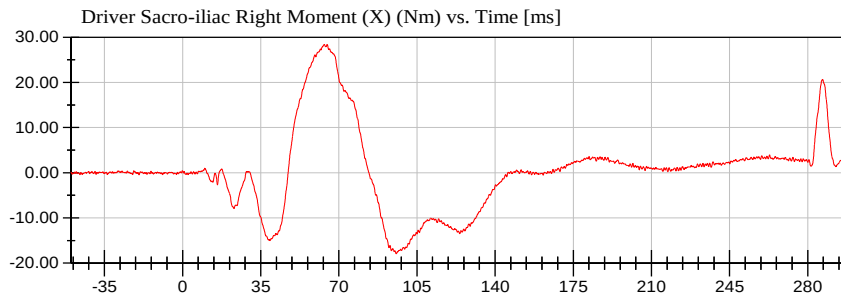


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



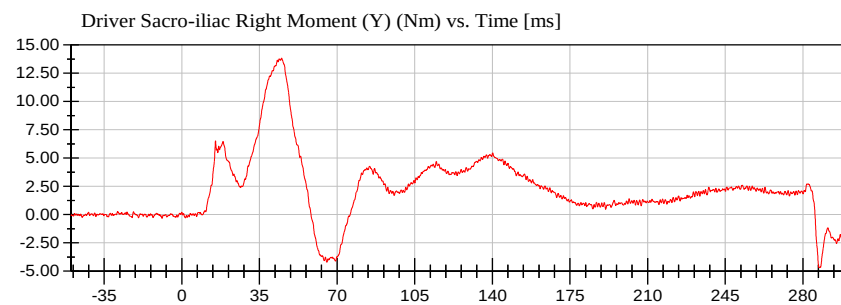
<Max>

28.42 Nm at 64.75 ms

<Min>

-17.94 Nm at 95.70 ms

CFC_600



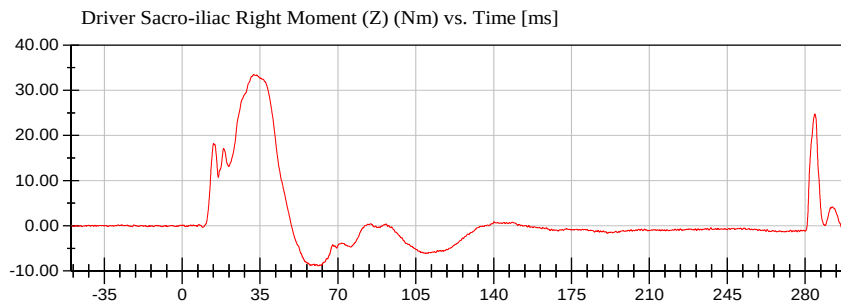
<Max>

13.83 Nm at 44.95 ms

<Min>

-4.69 Nm at 287.35 ms

CFC_600



<Max>

33.48 Nm at 32.20 ms

<Min>

-8.84 Nm at 61.05 ms

CFC_600

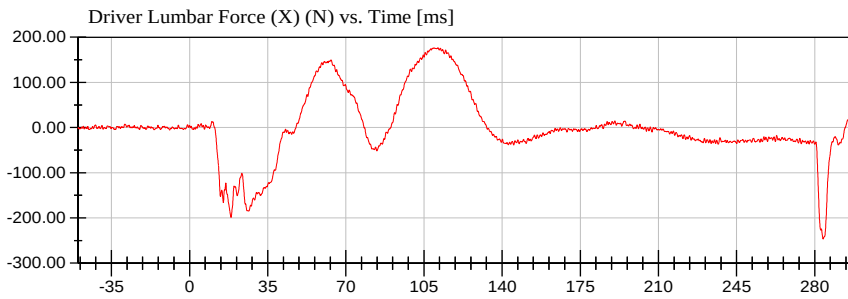


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



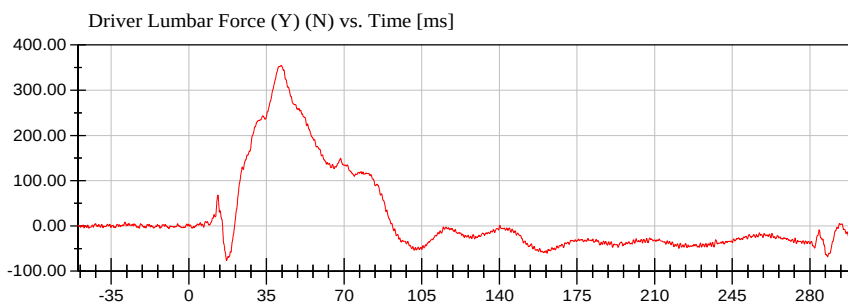
<Max>

176.64 N at 111.25 ms

<Min>

-246.59 N at 283.75 ms

CFC_600



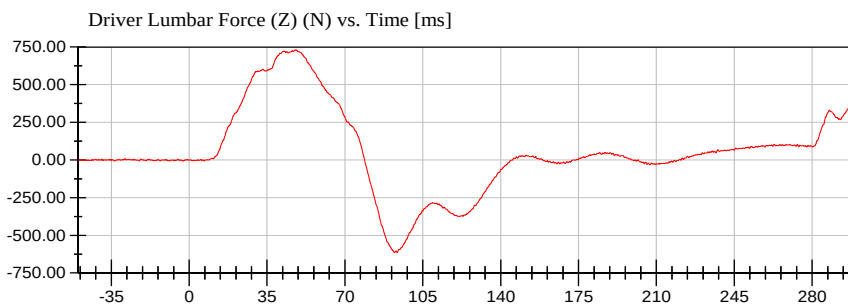
<Max>

355.18 N at 41.65 ms

<Min>

-76.78 N at 17.00 ms

CFC_600



<Max>

731.33 N at 48.15 ms

<Min>

-613.71 N at 92.25 ms

CFC_600

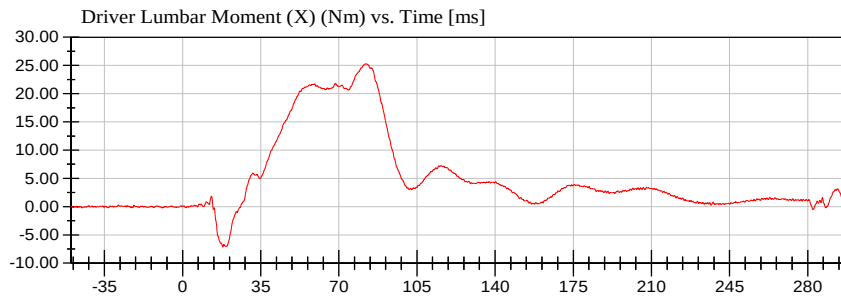


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



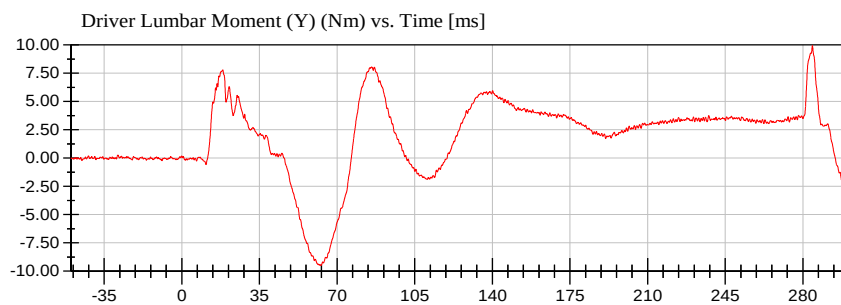
<Max>

25.31 Nm at 82.05 ms

<Min>

-7.15 Nm at 18.05 ms

CFC_600



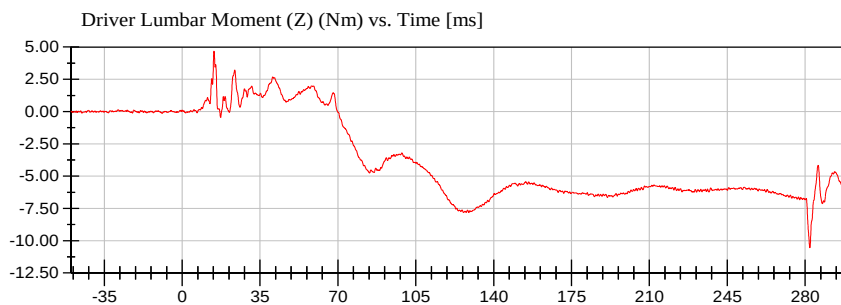
<Max>

9.92 Nm at 284.30 ms

<Min>

-9.50 Nm at 62.75 ms

CFC_600



<Max>

4.68 Nm at 14.30 ms

<Min>

-10.54 Nm at 282.10 ms

CFC_600

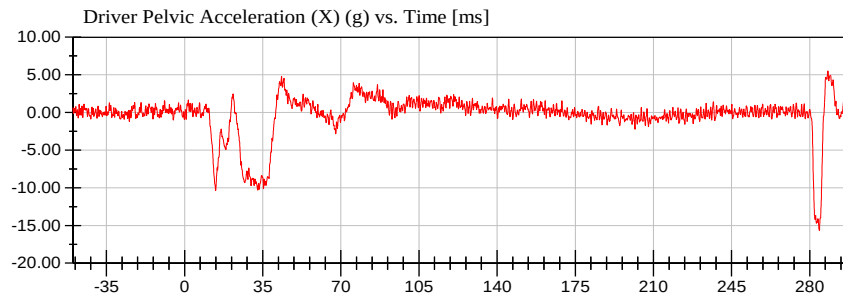


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



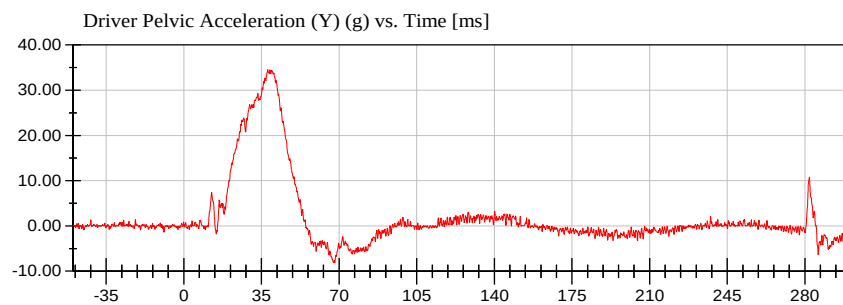
<Max>

5.51 g at 288.10 ms

<Min>

-15.64 g at 284.30 ms

CFC_1000



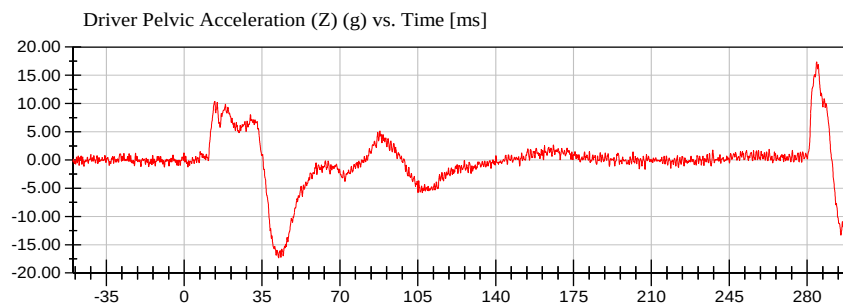
<Max>

34.54 g at 37.85 ms

<Min>

-8.13 g at 68.05 ms

CFC_1000



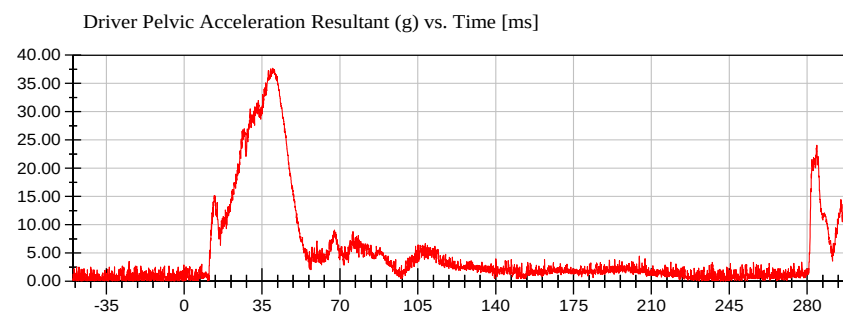
<Max>

17.34 g at 284.25 ms

<Min>

-17.32 g at 42.45 ms

CFC_1000



<Max>

37.67 g at 39.65 ms

<Min>

0.05 g at -48.50 ms

Prefiltered_> CFC 1000

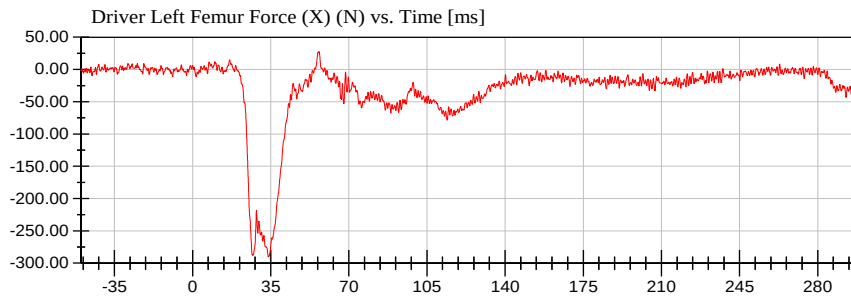


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



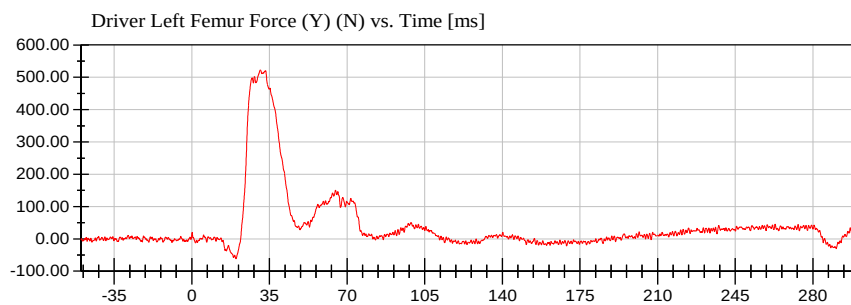
<Max>

27.84 N at 56.60 ms

<Min>

-290.37 N at 33.95 ms

CFC_600



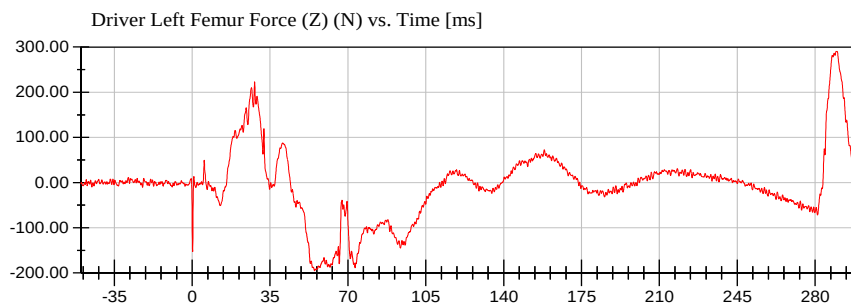
<Max>

522.49 N at 30.85 ms

<Min>

-61.97 N at 19.95 ms

CFC_600



<Max>

290.39 N at 289.40 ms

<Min>

-194.97 N at 55.00 ms

CFC_600



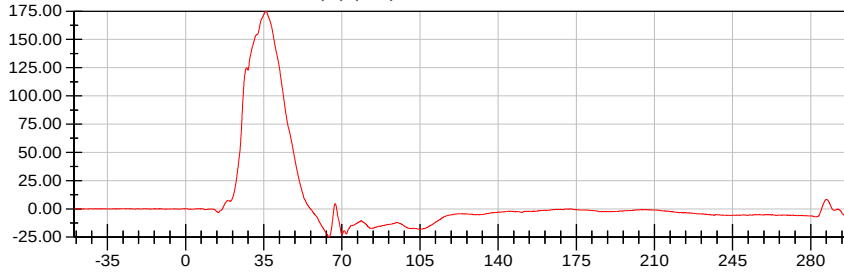
VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021

Driver Left Femur Moment (X) (Nm) vs. Time [ms]



<Max>

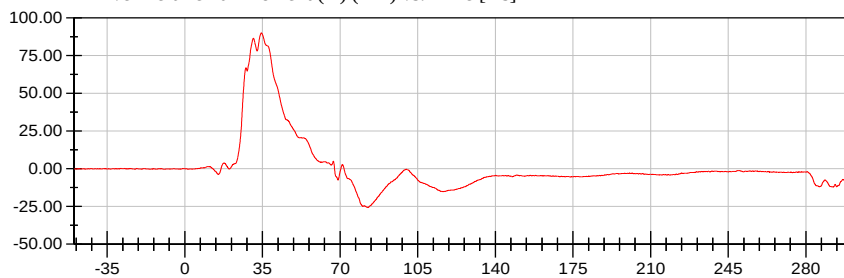
174.93 Nm at 36.00 ms

<Min>

-24.83 Nm at 64.30 ms

CFC_600

Driver Left Femur Moment (Y) (Nm) vs. Time [ms]



<Max>

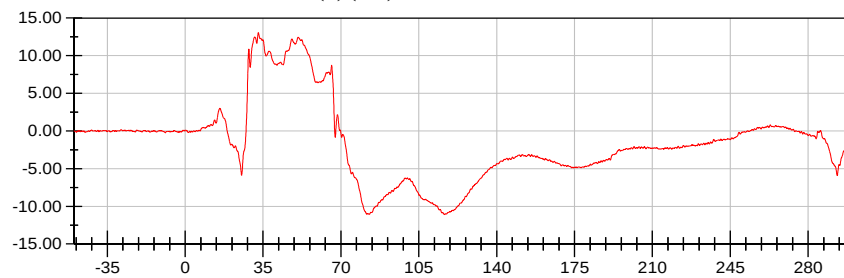
90.10 Nm at 34.50 ms

<Min>

-25.63 Nm at 82.50 ms

CFC_600

Driver Left Femur Moment (Z) (Nm) vs. Time [ms]



<Max>

13.07 Nm at 32.90 ms

<Min>

-11.09 Nm at 116.55 ms

CFC_600

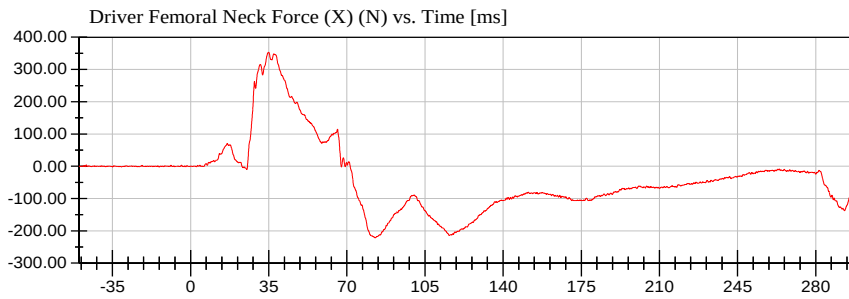


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



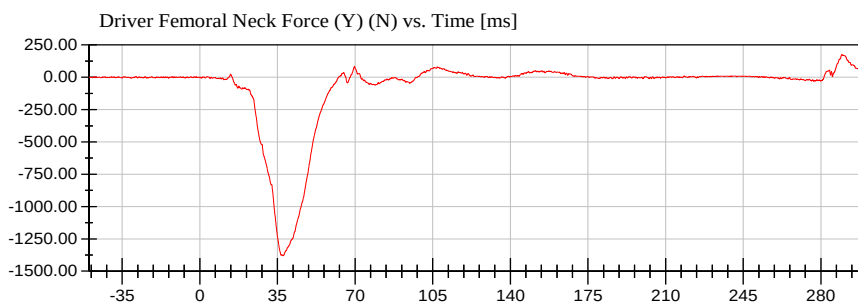
<Max>

352.88 N at 34.95 ms

<Min>

-221.70 N at 82.70 ms

CFC_600



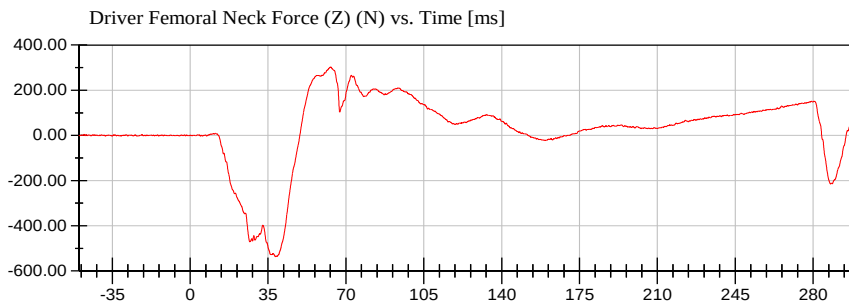
<Max>

176.82 N at 289.45 ms

<Min>

-1,380.23 N at 37.60 ms

CFC_600



<Max>

302.21 N at 63.20 ms

<Min>

-536.28 N at 38.30 ms

CFC_600

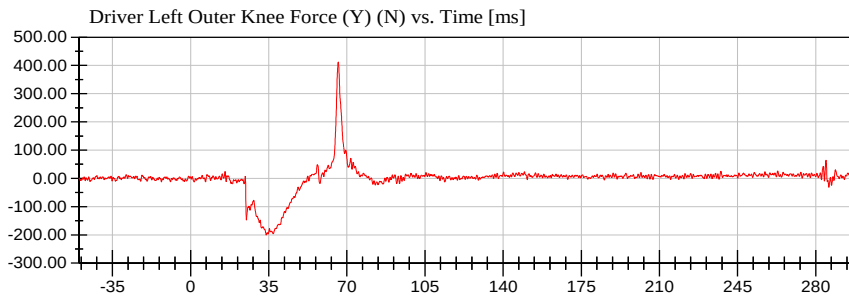


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



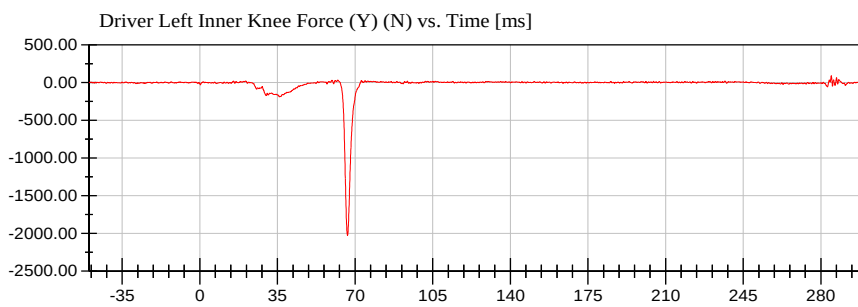
<Max>

412.39 N at 66.15 ms

<Min>

-200.18 N at 33.90 ms

CFC_600



<Max>

92.31 N at 284.70 ms

<Min>

-2,025.56 N at 66.60 ms

CFC_600

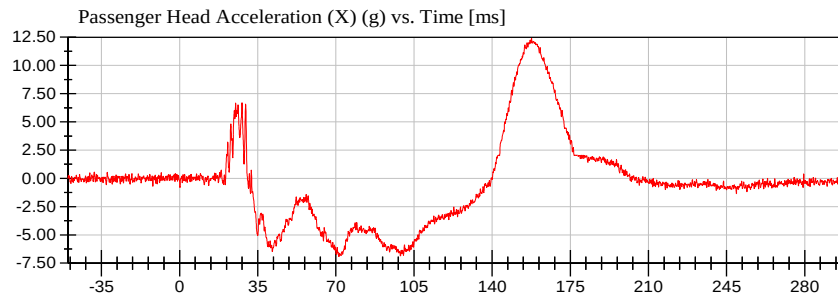


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



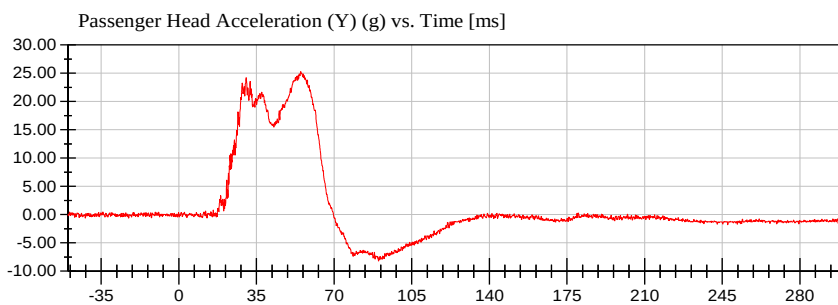
<Max>

12.39 g at 157.65 ms

<Min>

-6.93 g at 71.40 ms

CFC_1000



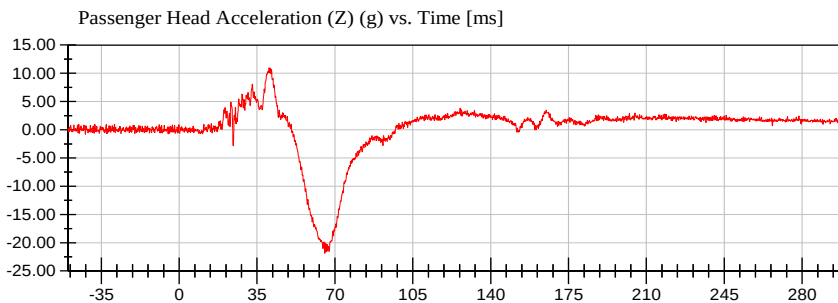
<Max>

25.28 g at 55.00 ms

<Min>

-8.16 g at 90.05 ms

CFC_1000



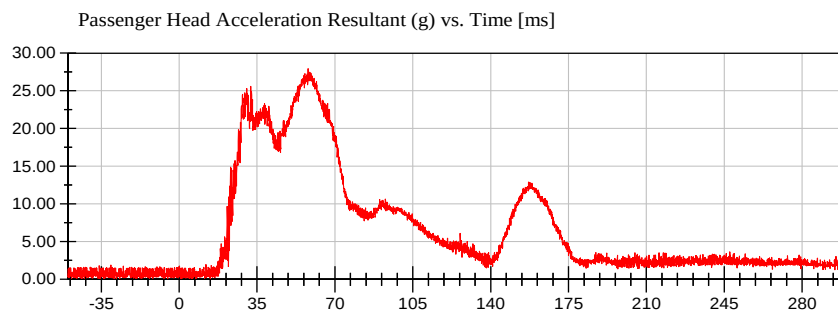
<Max>

10.95 g at 40.40 ms

<Min>

-21.87 g at 65.45 ms

CFC_1000



<Max>

27.93 g at 57.95 ms

<Min>

0.08 g at -42.60 ms

Prefiltered_> CFC 1000

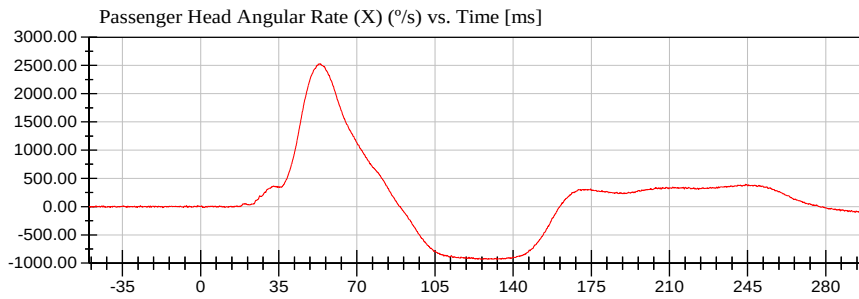


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



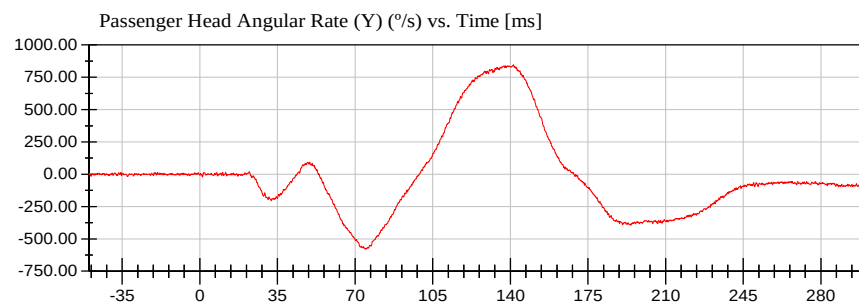
<Max>

2,530.62 °/s at 53.40 ms

<Min>

-933.00 °/s at 124.25 ms

CFC_1000



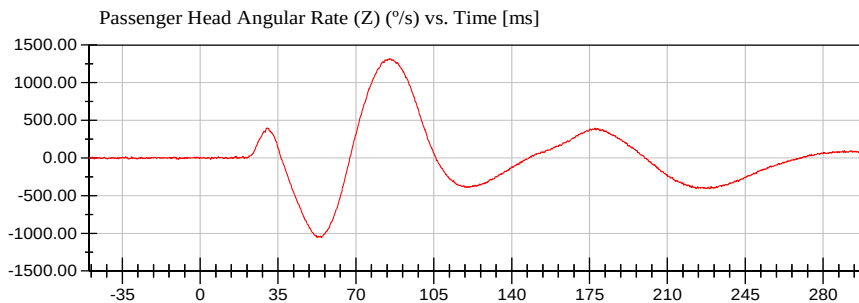
<Max>

846.99 °/s at 141.45 ms

<Min>

-579.10 °/s at 74.85 ms

CFC_1000



<Max>

1,320.62 °/s at 85.25 ms

<Min>

-1,056.68 °/s at 52.50 ms

CFC_1000

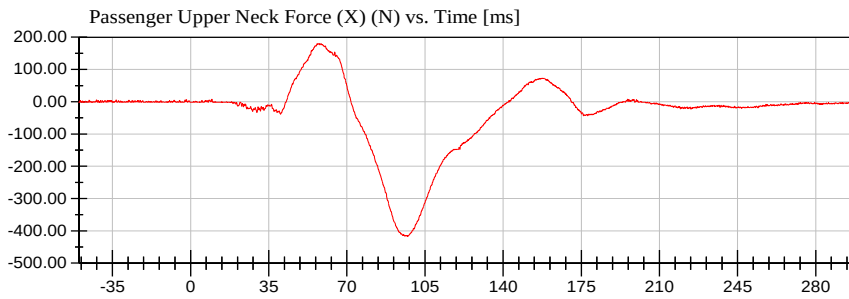


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



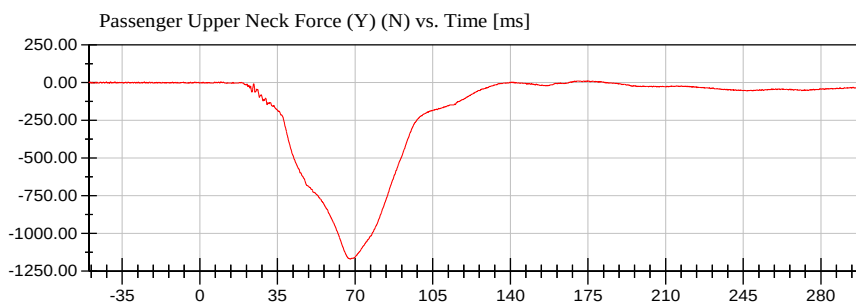
<Max>

180.33 N at 57.60 ms

<Min>

-417.54 N at 97.20 ms

CFC_1000



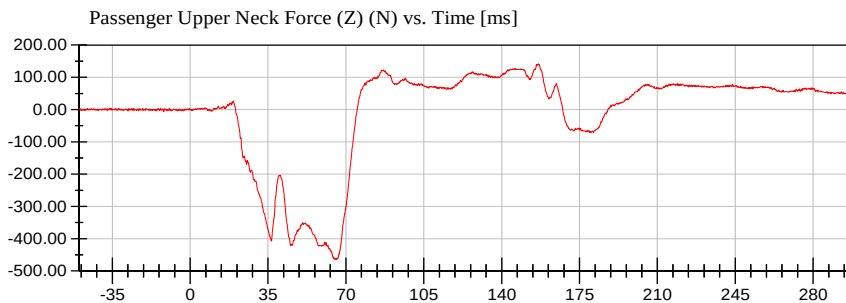
<Max>

11.84 N at 174.80 ms

<Min>

-1,170.13 N at 67.95 ms

CFC_1000



<Max>

141.93 N at 156.55 ms

<Min>

-464.40 N at 65.20 ms

CFC_1000

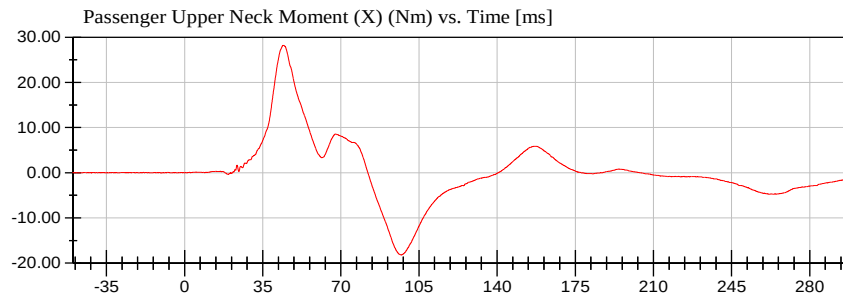


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



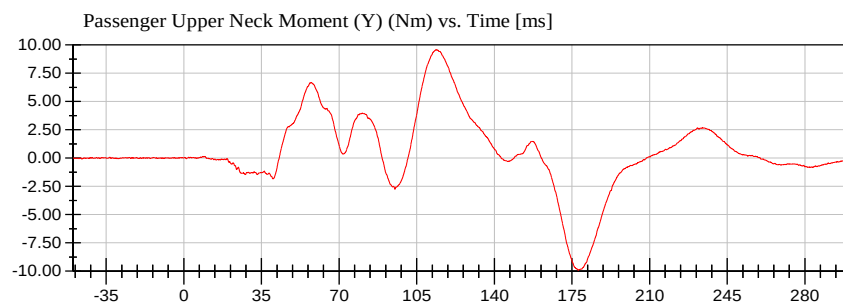
<Max>

28.20 Nm at 44.30 ms

<Min>

-18.20 Nm at 97.05 ms

CFC_600



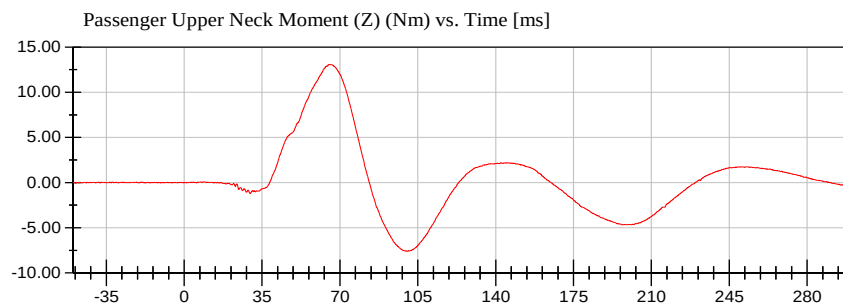
<Max>

9.57 Nm at 113.80 ms

<Min>

-9.92 Nm at 177.85 ms

CFC_600



<Max>

13.08 Nm at 65.45 ms

<Min>

-7.60 Nm at 100.30 ms

CFC_600

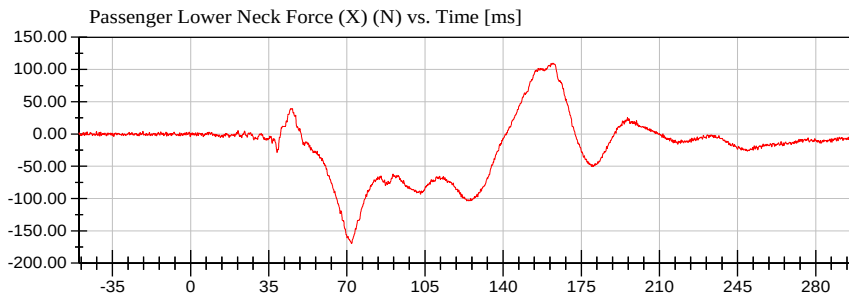


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



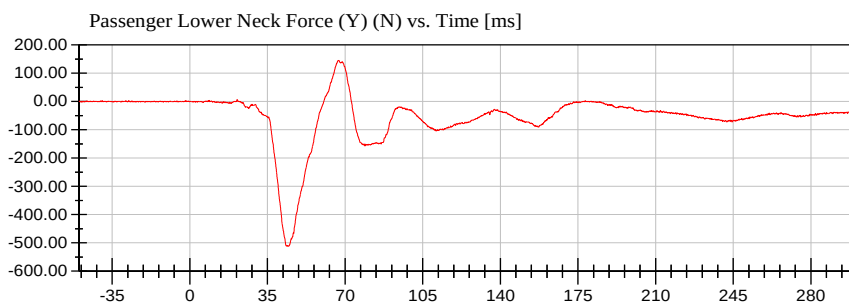
<Max>

109.74 N at 161.95 ms

<Min>

-169.73 N at 72.10 ms

CFC_1000



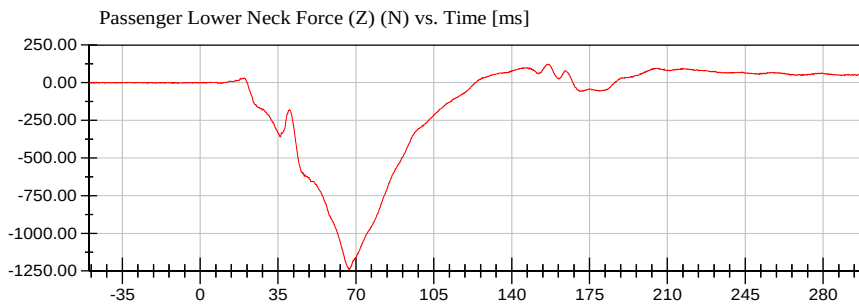
<Max>

145.07 N at 67.15 ms

<Min>

-512.55 N at 44.45 ms

CFC_1000



<Max>

122.64 N at 156.60 ms

<Min>

-1,240.69 N at 66.95 ms

CFC_1000

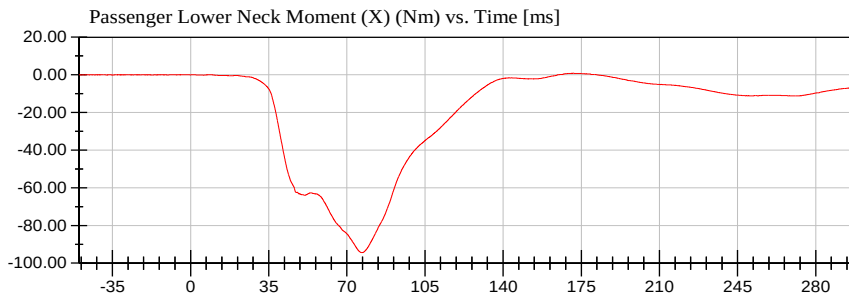


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



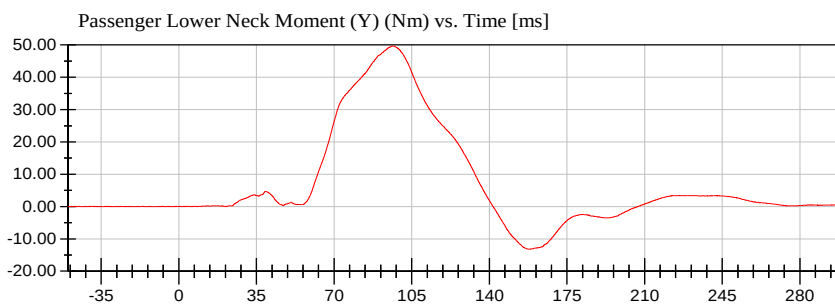
<Max>

0.82 Nm at 171.40 ms

<Min>

-94.43 Nm at 76.65 ms

CFC_600



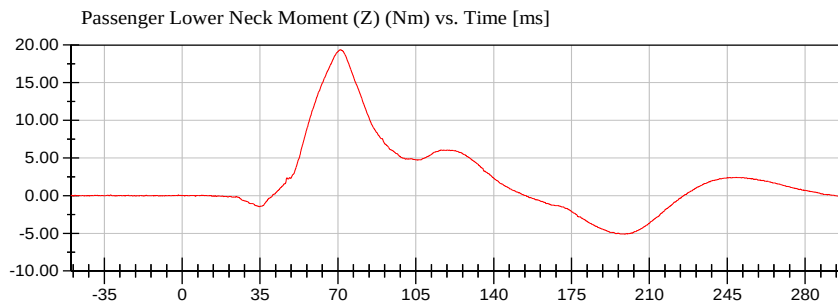
<Max>

49.68 Nm at 96.50 ms

<Min>

-13.19 Nm at 157.80 ms

CFC_600



<Max>

19.36 Nm at 71.20 ms

<Min>

-5.11 Nm at 198.90 ms

CFC_600

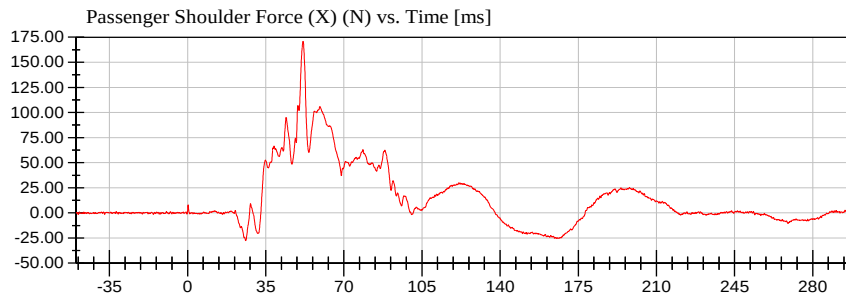


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



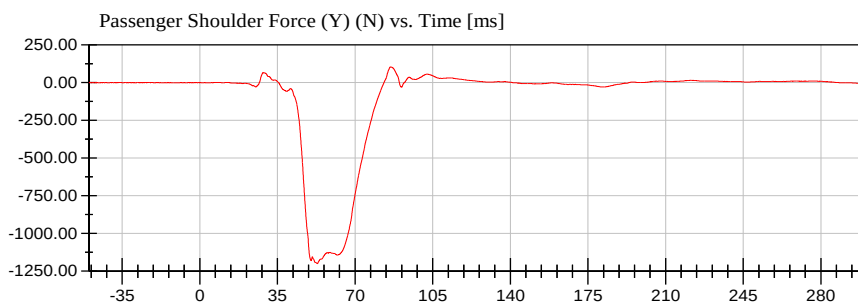
<Max>

170.89 N at 51.75 ms

<Min>

-27.63 N at 26.10 ms

CFC_600



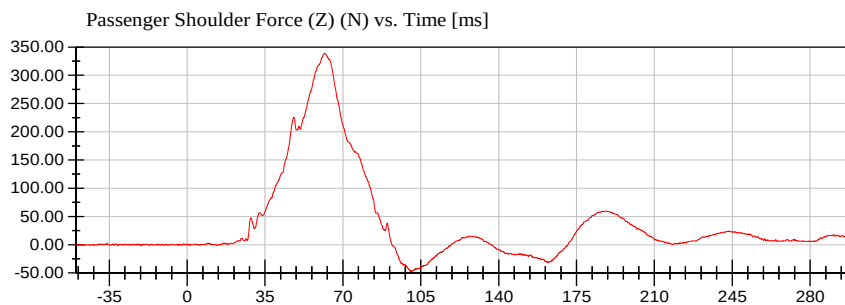
<Max>

104.70 N at 86.00 ms

<Min>

-1,199.64 N at 53.00 ms

CFC_600



<Max>

338.52 N at 61.95 ms

<Min>

-47.40 N at 100.30 ms

CFC_600

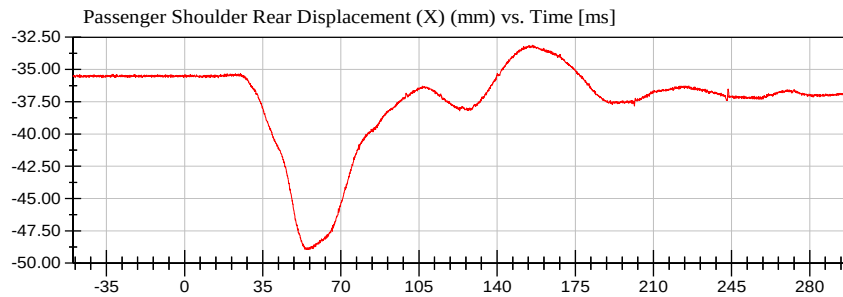


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



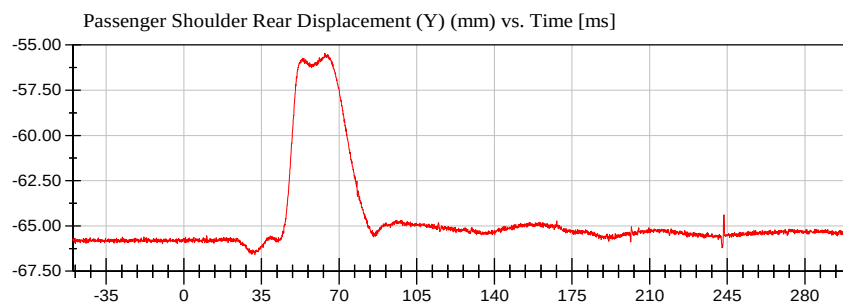
<Max>

-33.13 mm at 155.80 ms

<Min>

-48.95 mm at 55.40 ms

Unfiltered



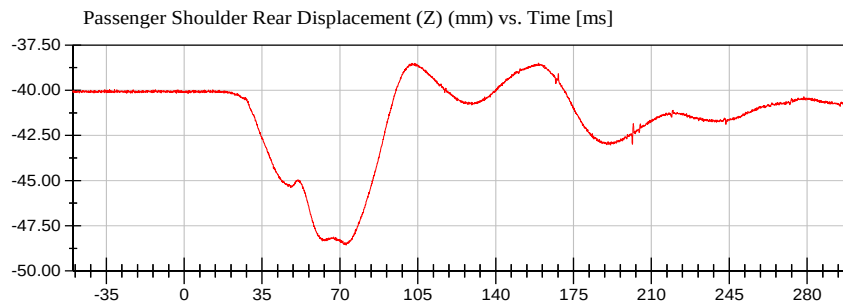
<Max>

-55.46 mm at 63.55 ms

<Min>

-66.57 mm at 32.00 ms

Unfiltered



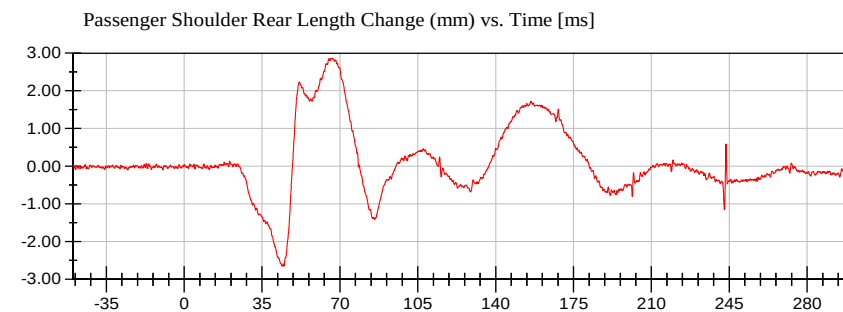
<Max>

-38.49 mm at 159.20 ms

<Min>

-48.56 mm at 72.80 ms

Unfiltered



<Max>

2.87 mm at 66.40 ms

<Min>

-2.65 mm at 44.90 ms

CFC_600

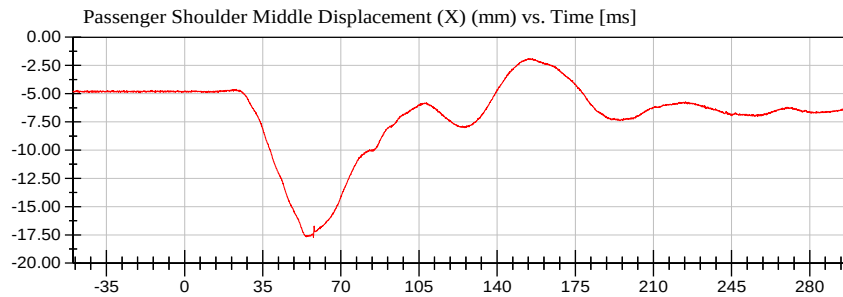


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



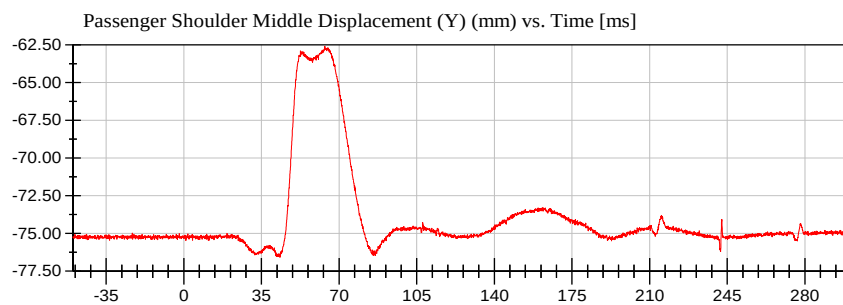
<Max>

-1.90 mm at 154.85 ms

<Min>

-17.71 mm at 57.70 ms

Unfiltered



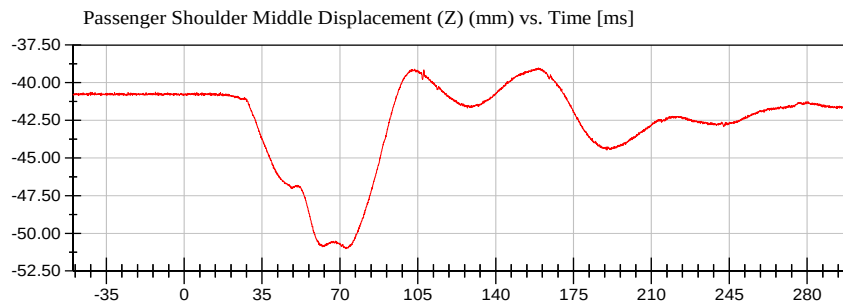
<Max>

-62.60 mm at 63.55 ms

<Min>

-76.56 mm at 43.40 ms

Unfiltered



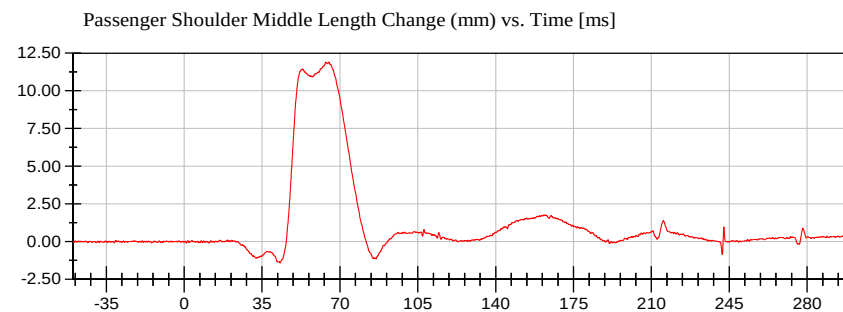
<Max>

-39.01 mm at 159.20 ms

<Min>

-51.02 mm at 72.90 ms

Unfiltered



<Max>

11.90 mm at 63.65 ms

<Min>

-1.41 mm at 43.15 ms

CFC_600

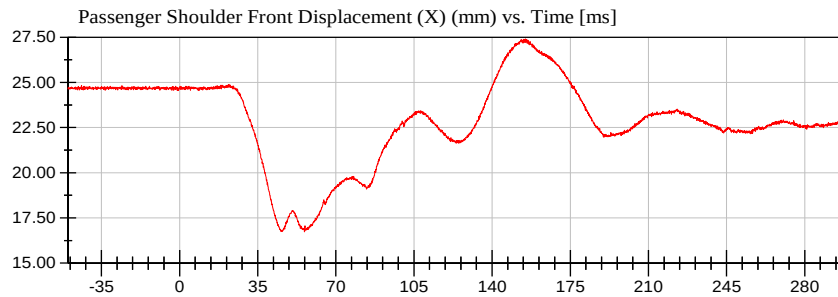


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



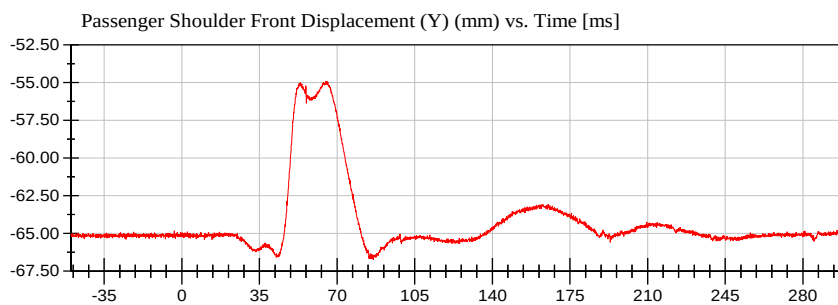
<Max>

27.41 mm at 154.90 ms

<Min>

16.72 mm at 55.90 ms

Unfiltered



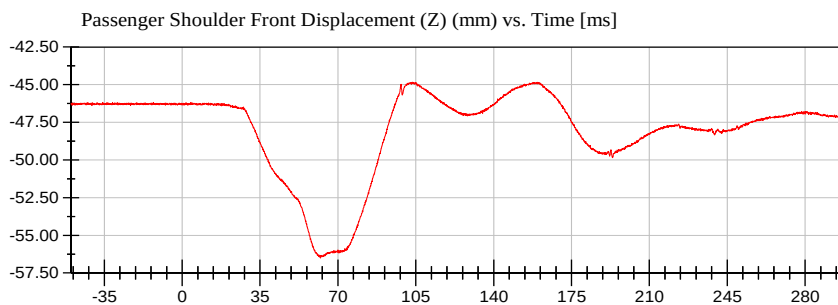
<Max>

-54.91 mm at 65.00 ms

<Min>

-66.73 mm at 86.30 ms

Unfiltered



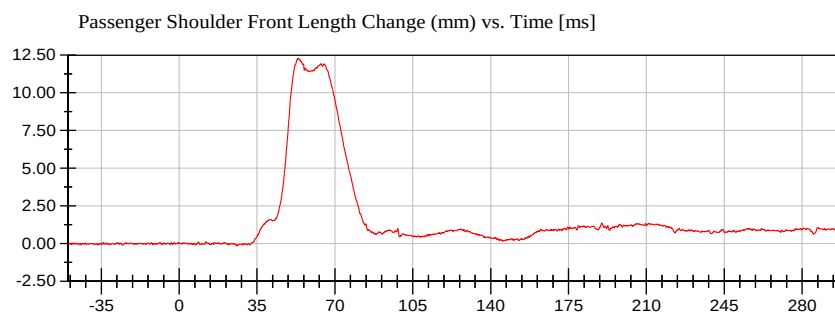
<Max>

-44.83 mm at 103.60 ms

<Min>

-56.50 mm at 62.10 ms

Unfiltered



<Max>

12.29 mm at 53.50 ms

<Min>

-0.15 mm at 26.00 ms

CFC_600



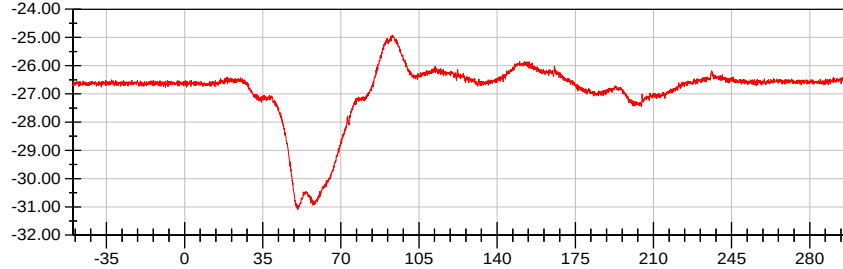
VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021

Passenger Thorax Rib 1 Rear Displacement (X) (mm) vs. Time [ms]



<Max>

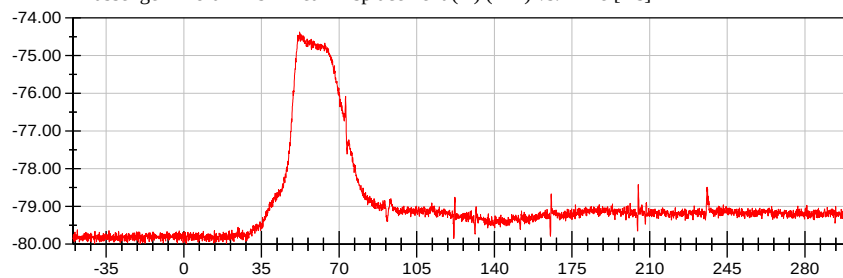
-24.92 mm at 93.20 ms

<Min>

-31.10 mm at 50.65 ms

Unfiltered

Passenger Thorax Rib 1 Rear Displacement (Y) (mm) vs. Time [ms]



<Max>

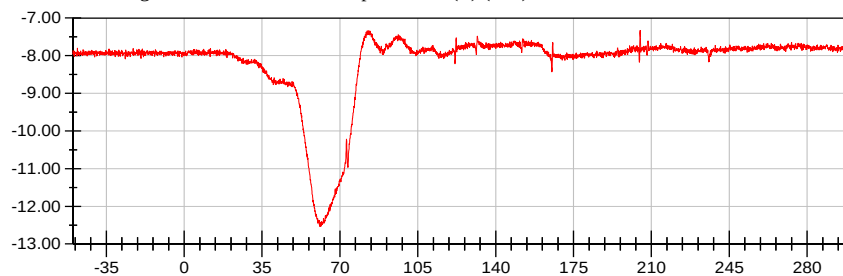
-74.38 mm at 52.20 ms

<Min>

-79.99 mm at -40.20 ms

Unfiltered

Passenger Thorax Rib 1 Rear Displacement (Z) (mm) vs. Time [ms]



<Max>

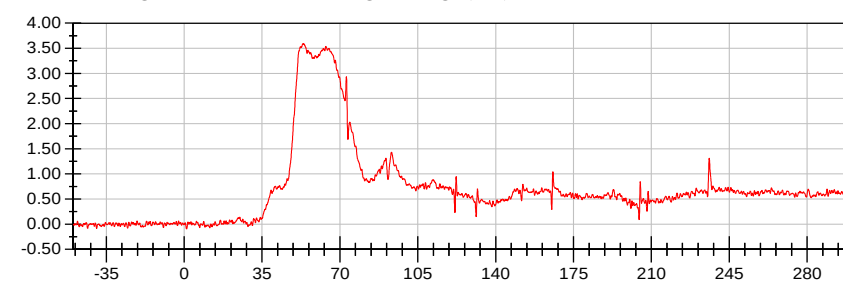
-7.33 mm at 204.90 ms

<Min>

-12.53 mm at 61.40 ms

Unfiltered

Passenger Thorax Rib 1 Rear Length Change (mm) vs. Time [ms]



<Max>

3.59 mm at 53.70 ms

<Min>

-0.09 mm at 1.10 ms

CFC_600

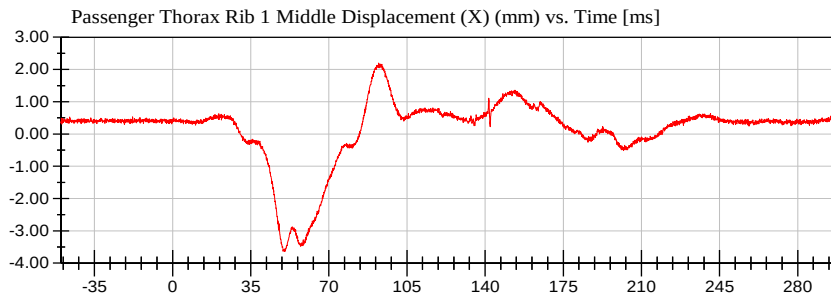


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



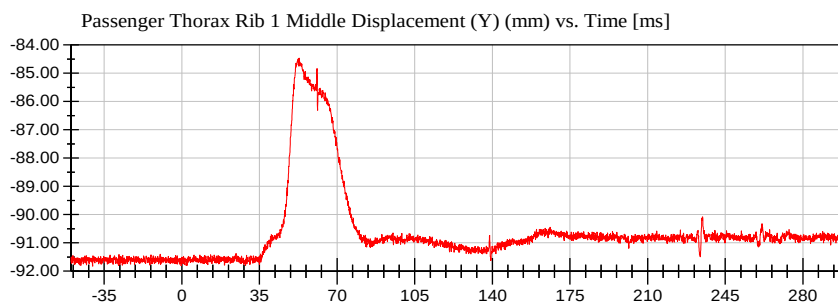
<Max>

2.20 mm at 92.35 ms

<Min>

-3.64 mm at 50.20 ms

Unfiltered



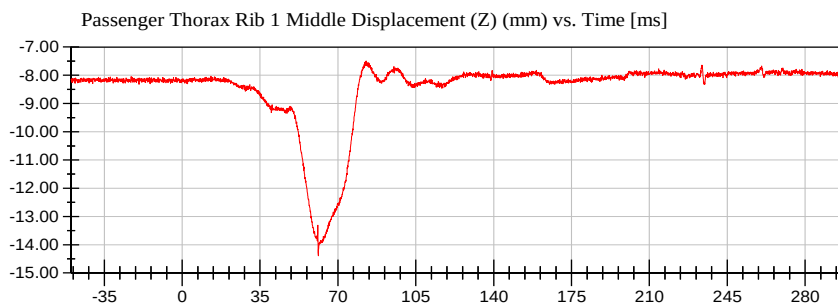
<Max>

-84.46 mm at 52.90 ms

<Min>

-91.83 mm at -40.20 ms

Unfiltered



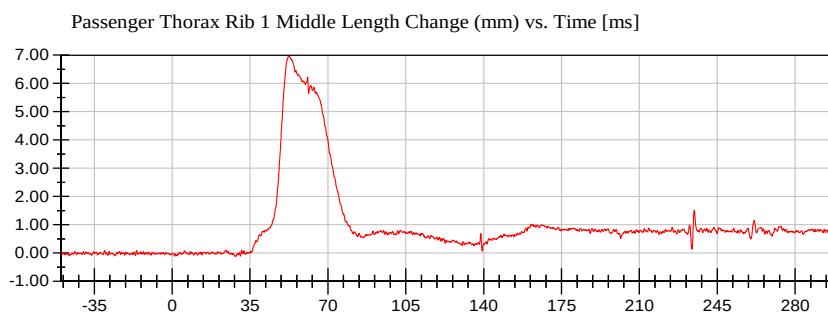
<Max>

-7.49 mm at 82.70 ms

<Min>

-14.39 mm at 61.20 ms

Unfiltered



<Max>

6.96 mm at 52.30 ms

<Min>

-0.12 mm at 28.45 ms

CFC_600

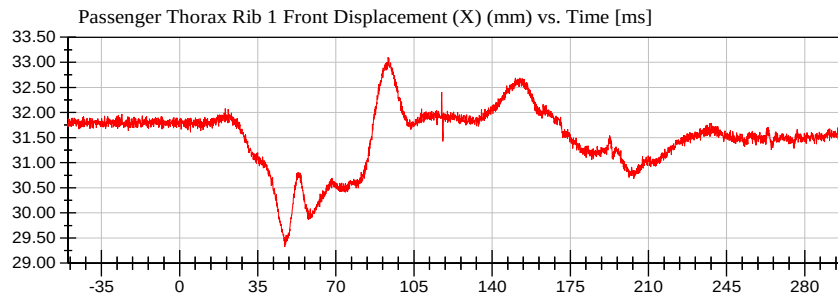


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



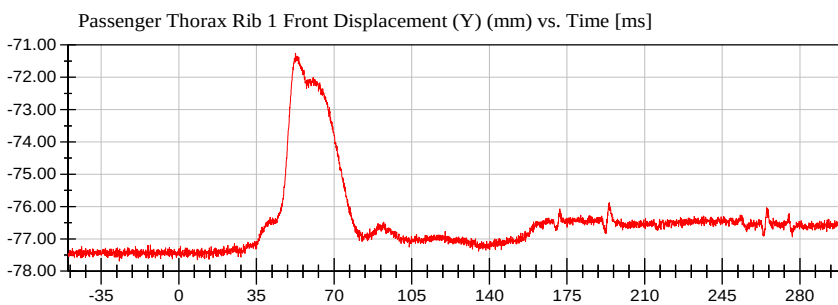
<Max>

33.09 mm at 93.40 ms

<Min>

29.33 mm at 47.10 ms

Unfiltered



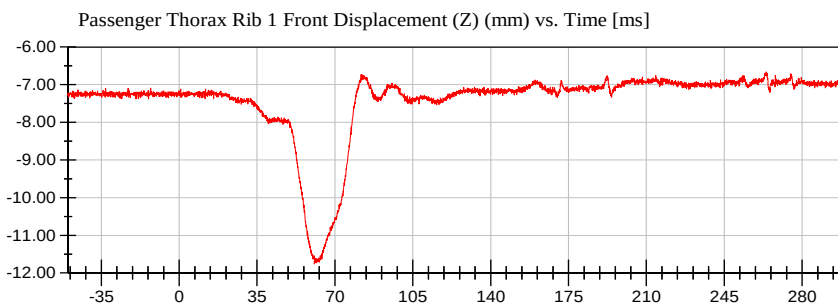
<Max>

-71.25 mm at 52.60 ms

<Min>

-77.69 mm at -26.80 ms

Unfiltered



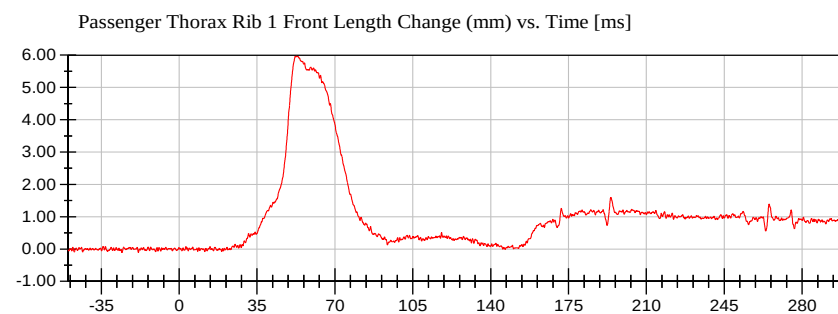
<Max>

-6.66 mm at 263.85 ms

<Min>

-11.76 mm at 60.80 ms

Unfiltered



<Max>

5.96 mm at 52.70 ms

<Min>

-0.10 mm at -18.35 ms

CFC_600



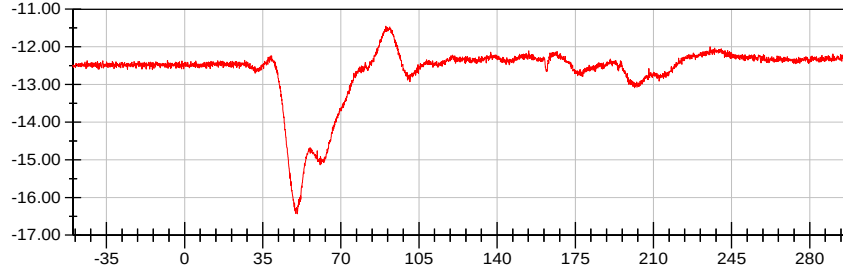
VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021

Passenger Thorax Rib 2 Rear Displacement (X) (mm) vs. Time [ms]



<Max>

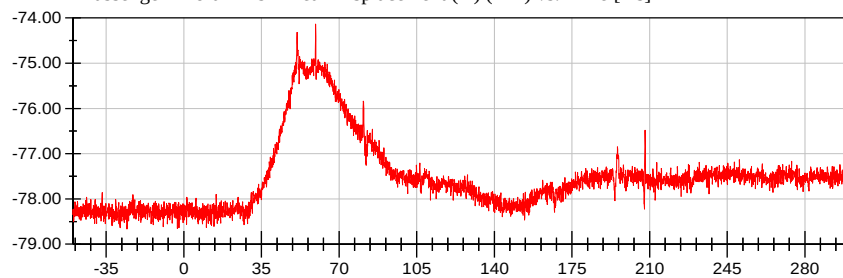
-11.45 mm at 90.15 ms

<Min>

-16.44 mm at 50.50 ms

Unfiltered

Passenger Thorax Rib 2 Rear Displacement (Y) (mm) vs. Time [ms]



<Max>

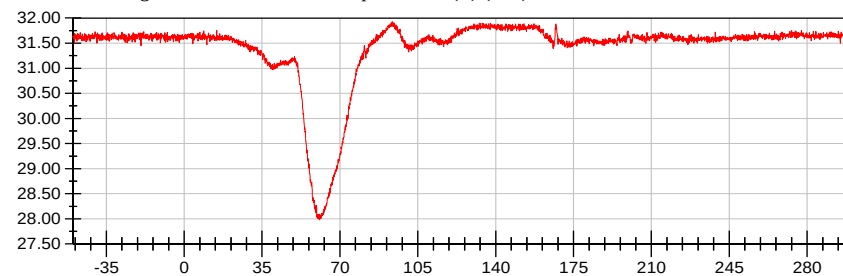
-74.14 mm at 59.40 ms

<Min>

-78.66 mm at -25.60 ms

Unfiltered

Passenger Thorax Rib 2 Rear Displacement (Z) (mm) vs. Time [ms]



<Max>

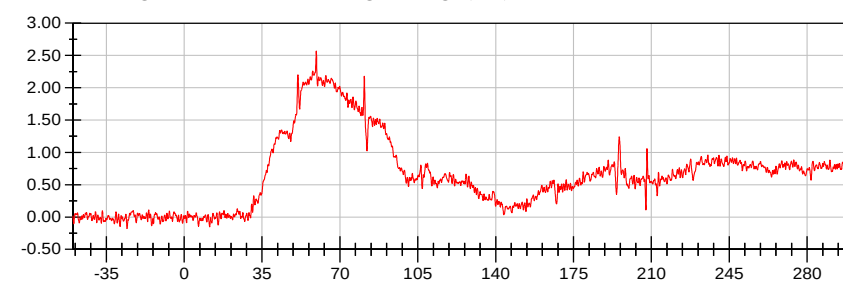
31.93 mm at 93.50 ms

<Min>

27.98 mm at 60.80 ms

Unfiltered

Passenger Thorax Rib 2 Rear Length Change (mm) vs. Time [ms]



<Max>

2.57 mm at 59.40 ms

<Min>

-0.18 mm at -25.65 ms

CFC_600

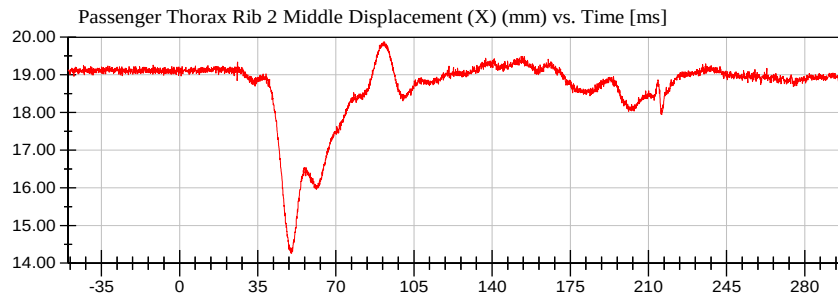


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



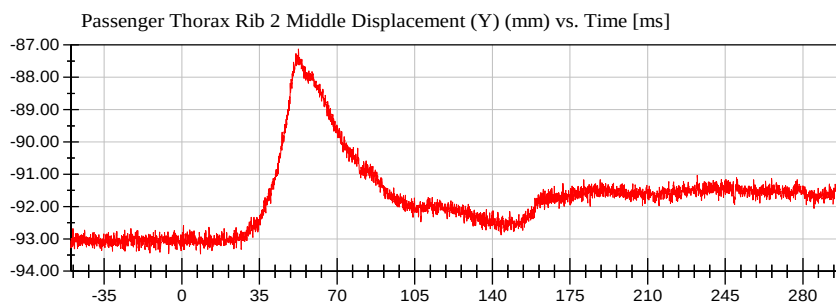
<Max>

19.87 mm at 91.40 ms

<Min>

14.26 mm at 50.20 ms

Unfiltered



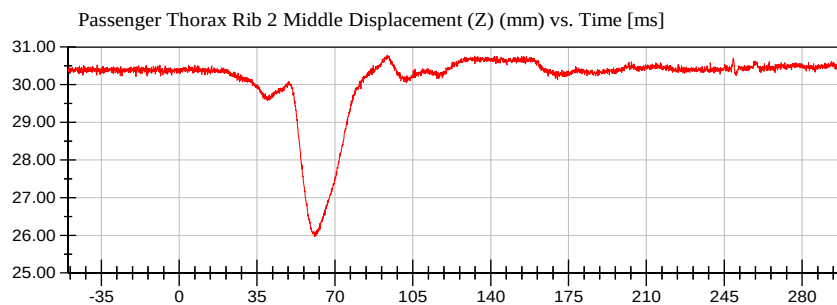
<Max>

-87.12 mm at 52.60 ms

<Min>

-93.46 mm at 8.40 ms

Unfiltered



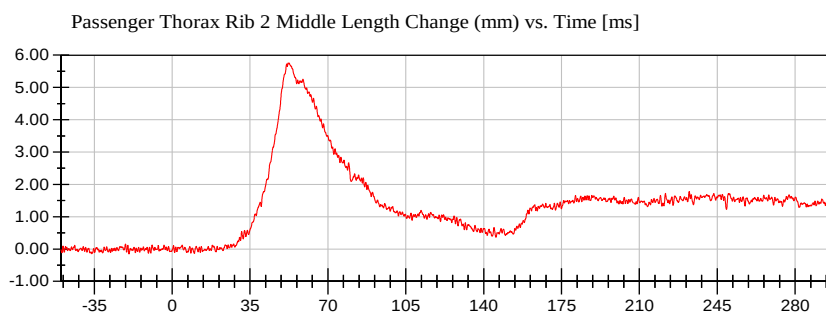
<Max>

30.78 mm at 93.50 ms

<Min>

25.97 mm at 61.00 ms

Unfiltered



<Max>

5.76 mm at 52.15 ms

<Min>

-0.15 mm at -19.40 ms

CFC_600

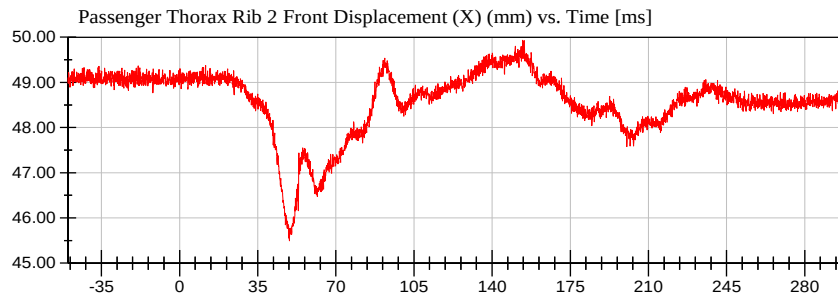


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



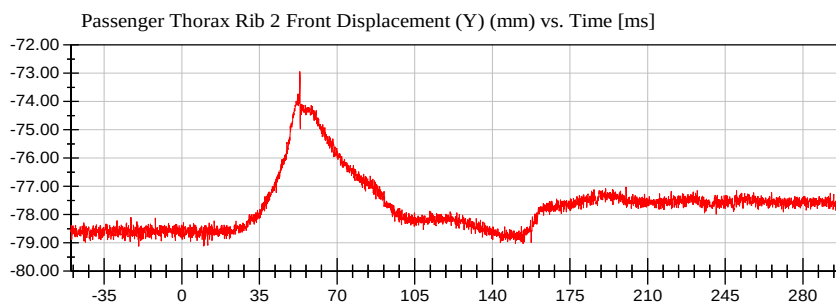
<Max>

49.93 mm at 153.70 ms

<Min>

45.49 mm at 49.20 ms

Unfiltered



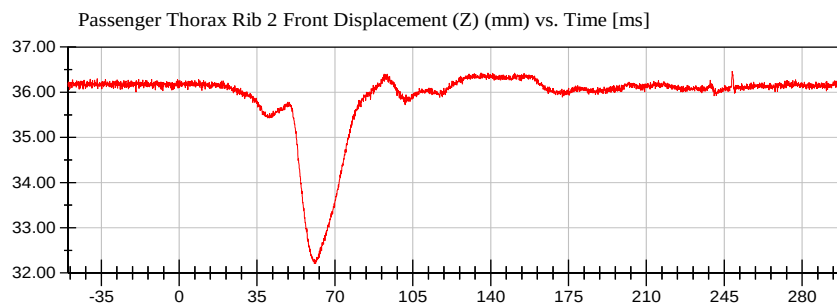
<Max>

-72.94 mm at 53.20 ms

<Min>

-79.11 mm at -19.40 ms

Unfiltered



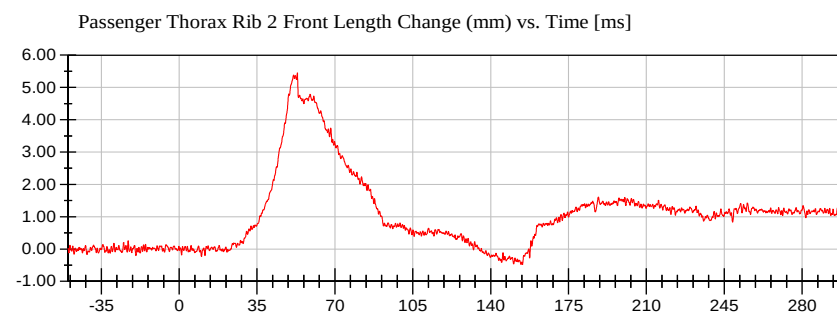
<Max>

36.46 mm at 248.60 ms

<Min>

32.21 mm at 60.80 ms

Unfiltered



<Max>

5.45 mm at 53.10 ms

<Min>

-0.48 mm at 154.35 ms

CFC_600



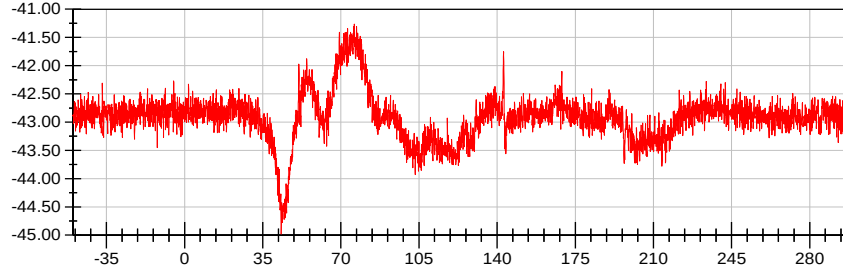
VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021

Passenger Thorax Rib 3 Rear Displacement (X) (mm) vs. Time [ms]



<Max>

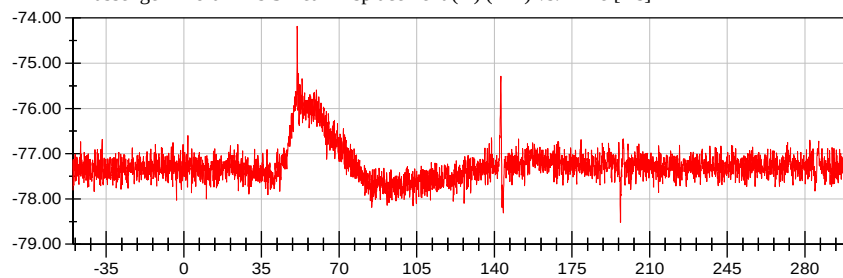
-41.26 mm at 76.00 ms

<Min>

-44.98 mm at 43.30 ms

Unfiltered

Passenger Thorax Rib 3 Rear Displacement (Y) (mm) vs. Time [ms]



<Max>

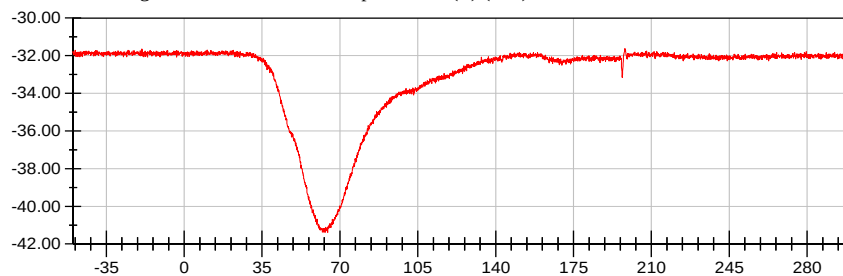
-74.18 mm at 51.15 ms

<Min>

-78.52 mm at 196.85 ms

Unfiltered

Passenger Thorax Rib 3 Rear Displacement (Z) (mm) vs. Time [ms]



<Max>

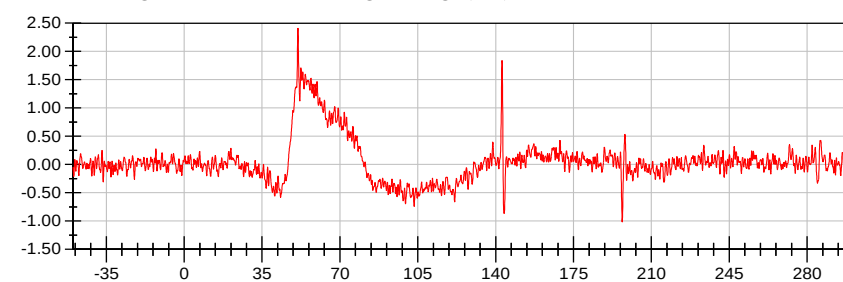
-31.62 mm at 198.10 ms

<Min>

-41.38 mm at 63.30 ms

Unfiltered

Passenger Thorax Rib 3 Rear Length Change (mm) vs. Time [ms]



<Max>

2.41 mm at 51.15 ms

<Min>

-1.02 mm at 196.90 ms

CFC_600

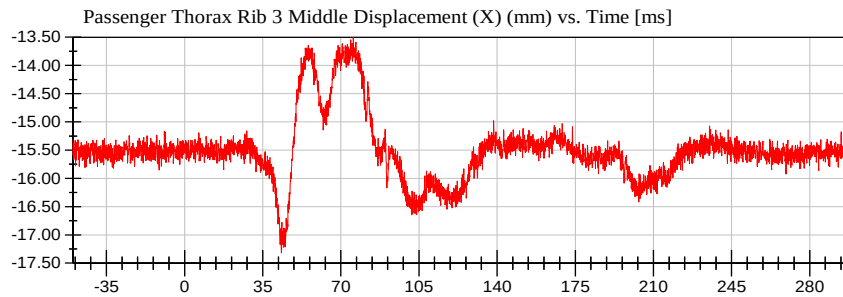


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



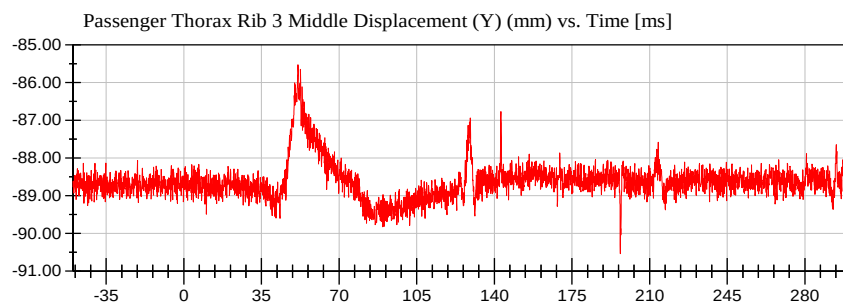
<Max>

-13.51 mm at 75.60 ms

<Min>

-17.32 mm at 43.40 ms

Unfiltered



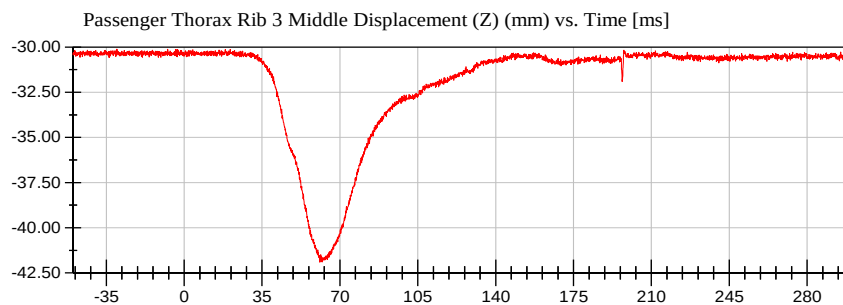
<Max>

-85.53 mm at 51.50 ms

<Min>

-90.54 mm at 196.80 ms

Unfiltered



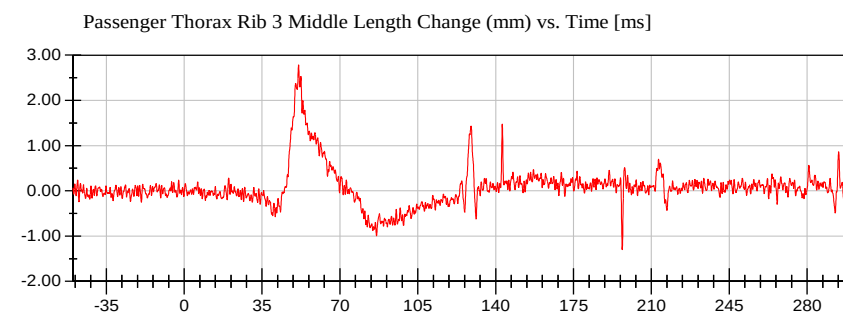
<Max>

-30.12 mm at -30.20 ms

<Min>

-41.90 mm at 60.90 ms

Unfiltered



<Max>

2.78 mm at 51.40 ms

<Min>

-1.30 mm at 196.90 ms

CFC_600

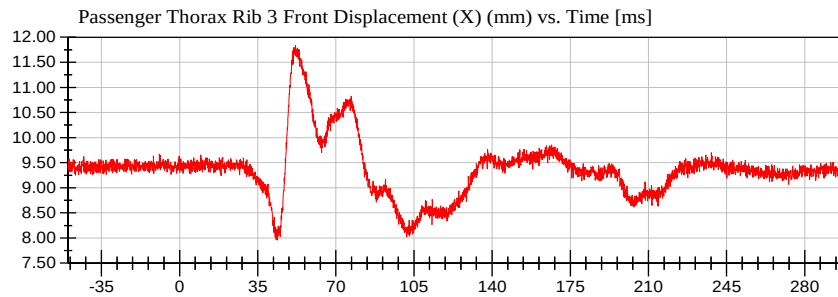


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



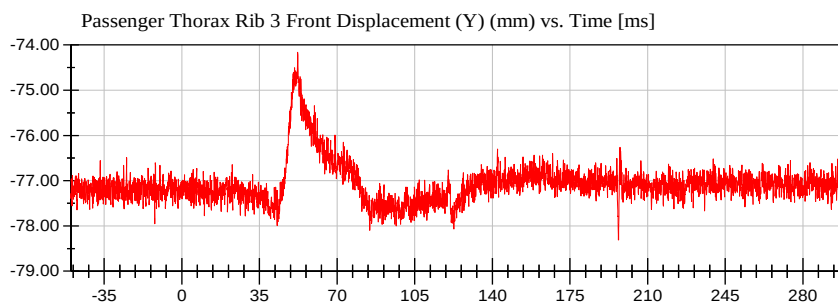
<Max>

11.84 mm at 51.90 ms

<Min>

7.96 mm at 43.90 ms

Unfiltered



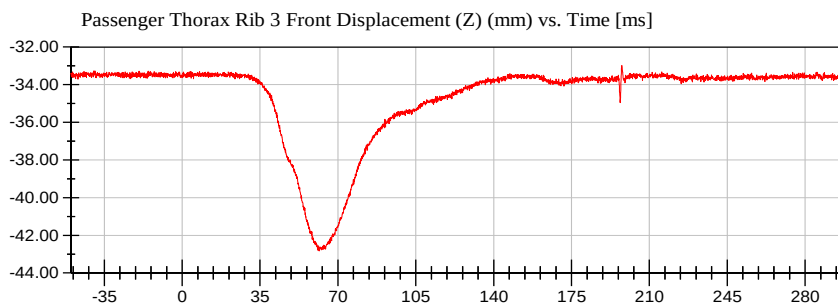
<Max>

-74.16 mm at 52.25 ms

<Min>

-78.31 mm at 196.85 ms

Unfiltered



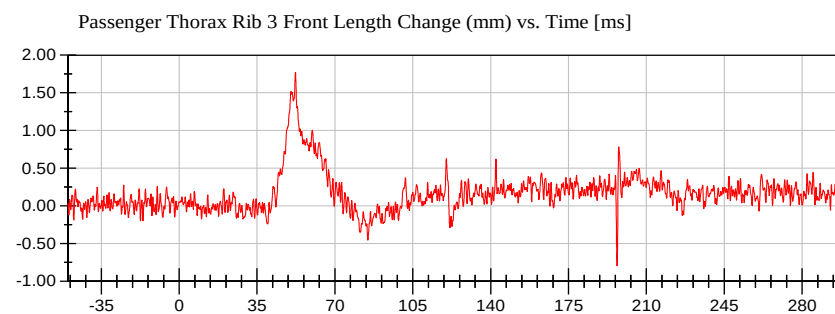
<Max>

-32.98 mm at 197.60 ms

<Min>

-42.84 mm at 61.60 ms

Unfiltered



<Max>

1.77 mm at 52.25 ms

<Min>

-0.79 mm at 196.85 ms

CFC_600

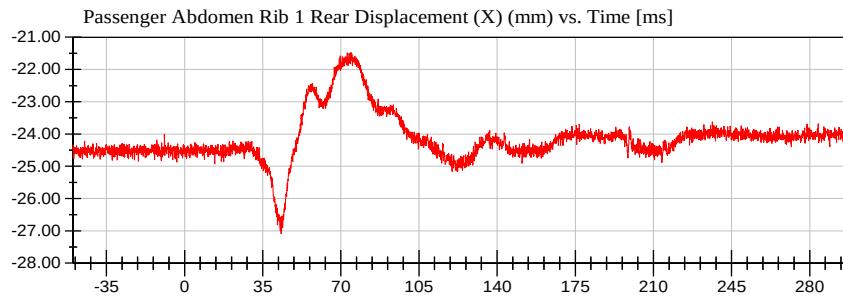


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



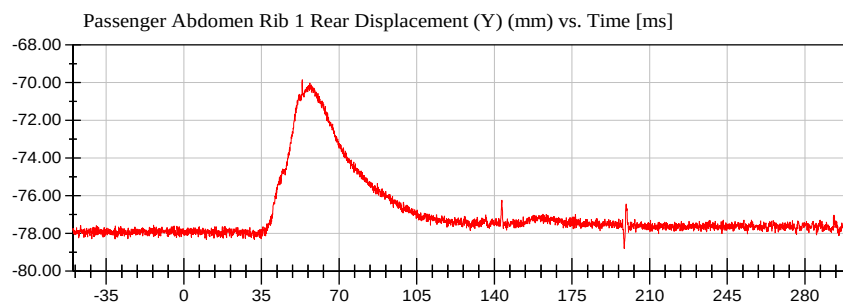
<Max>

-21.48 mm at 74.60 ms

<Min>

-27.09 mm at 43.30 ms

Unfiltered



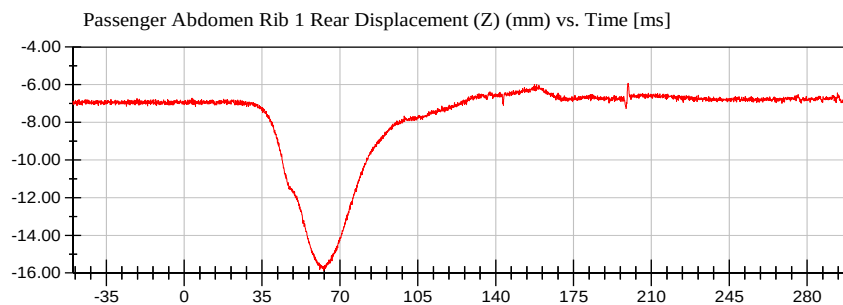
<Max>

-69.85 mm at 53.40 ms

<Min>

-78.79 mm at 198.55 ms

Unfiltered



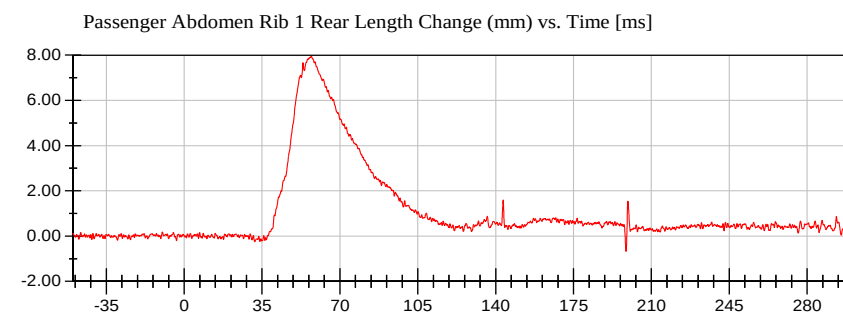
<Max>

-5.92 mm at 199.55 ms

<Min>

-15.85 mm at 62.70 ms

Unfiltered



<Max>

7.94 mm at 57.25 ms

<Min>

-0.67 mm at 198.60 ms

CFC_600



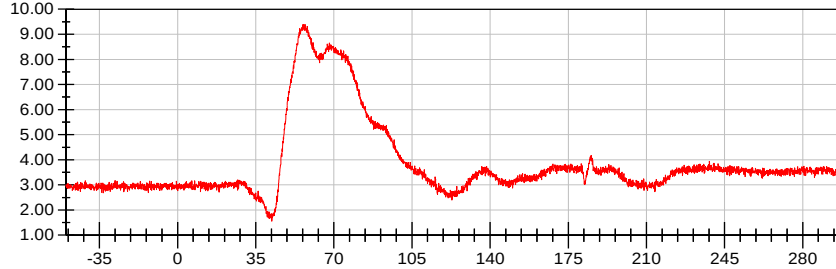
VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021

Passenger Abdomen Rib 1 Middle Displacement (X) (mm) vs. Time [ms]



<Max>

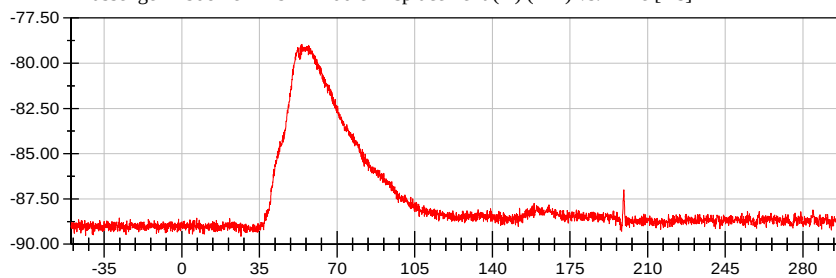
9.39 mm at 56.60 ms

<Min>

1.55 mm at 42.20 ms

Unfiltered

Passenger Abdomen Rib 1 Middle Displacement (Y) (mm) vs. Time [ms]



<Max>

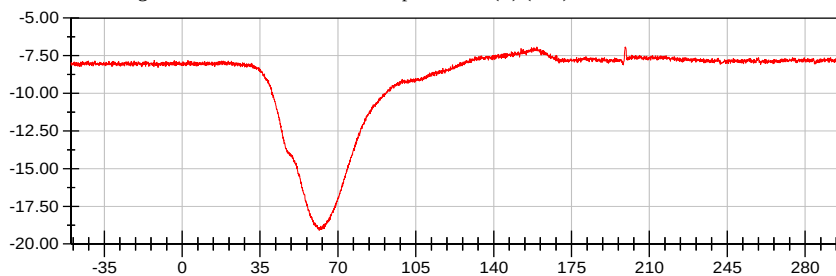
-78.95 mm at 54.10 ms

<Min>

-89.57 mm at 26.70 ms

Unfiltered

Passenger Abdomen Rib 1 Middle Displacement (Z) (mm) vs. Time [ms]



<Max>

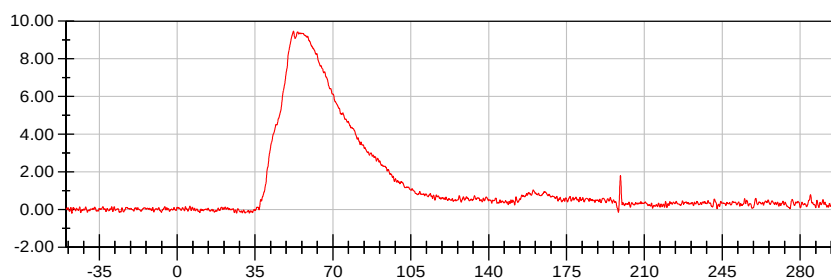
-6.91 mm at 159.40 ms

<Min>

-19.10 mm at 61.60 ms

Unfiltered

Passenger Abdomen Rib 1 Middle Length Change (mm) vs. Time [ms]



<Max>

9.46 mm at 52.30 ms

<Min>

-0.20 mm at -47.30 ms

CFC_600



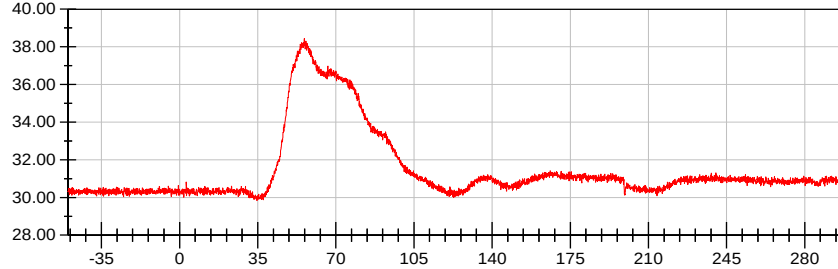
VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021

Passenger Abdomen Rib 1 Front Displacement (X) (mm) vs. Time [ms]



<Max>

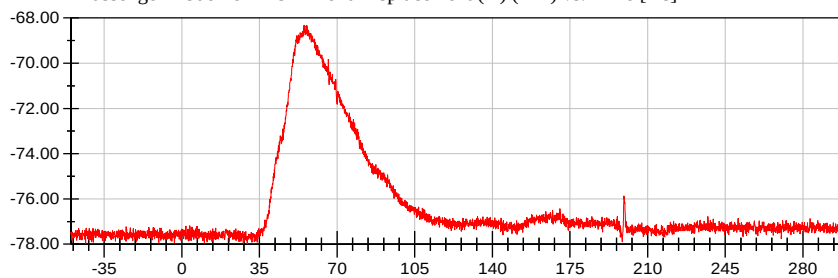
38.44 mm at 55.90 ms

<Min>

29.84 mm at 34.70 ms

Unfiltered

Passenger Abdomen Rib 1 Front Displacement (Y) (mm) vs. Time [ms]



<Max>

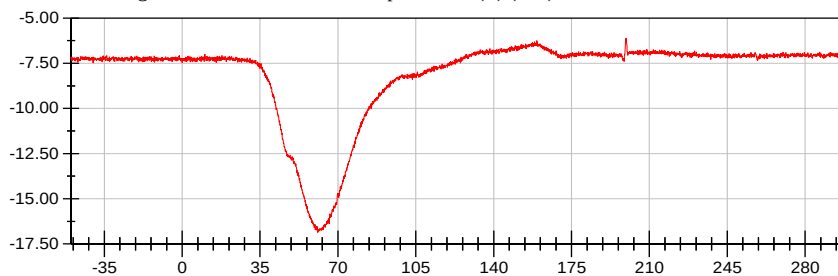
-68.32 mm at 55.10 ms

<Min>

-77.98 mm at 29.50 ms

Unfiltered

Passenger Abdomen Rib 1 Front Displacement (Z) (mm) vs. Time [ms]



<Max>

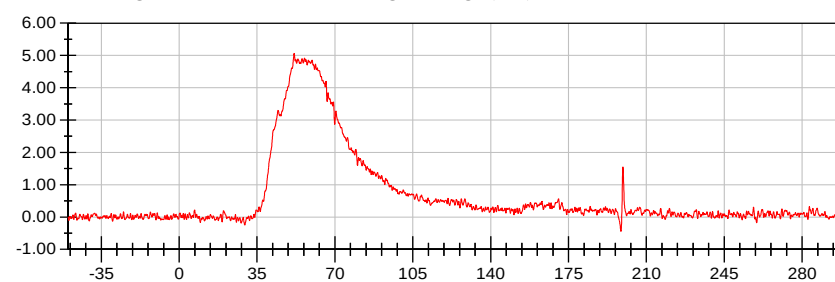
-6.12 mm at 199.55 ms

<Min>

-16.86 mm at 60.95 ms

Unfiltered

Passenger Abdomen Rib 1 Front Length Change (mm) vs. Time [ms]



<Max>

5.06 mm at 51.65 ms

<Min>

-0.44 mm at 198.55 ms

CFC_600

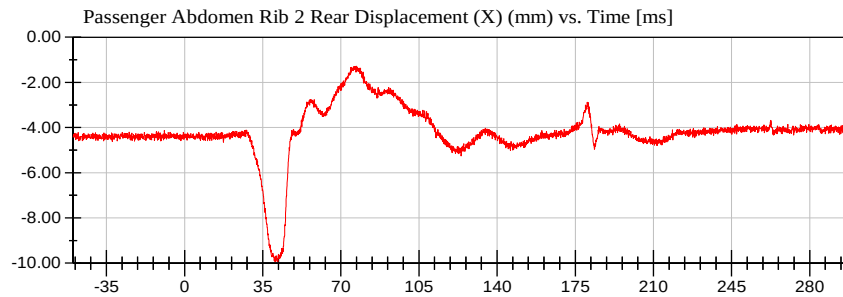


VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()



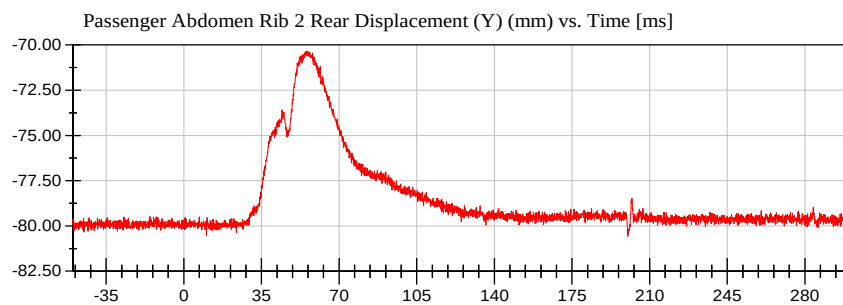
<Max>

-1.28 mm at 76.95 ms

<Min>

-9.94 mm at 40.55 ms

Unfiltered



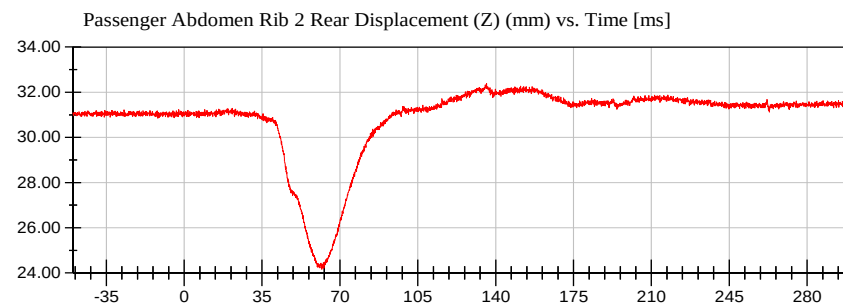
<Max>

-70.35 mm at 55.15 ms

<Min>

-80.58 mm at 200.15 ms

Unfiltered



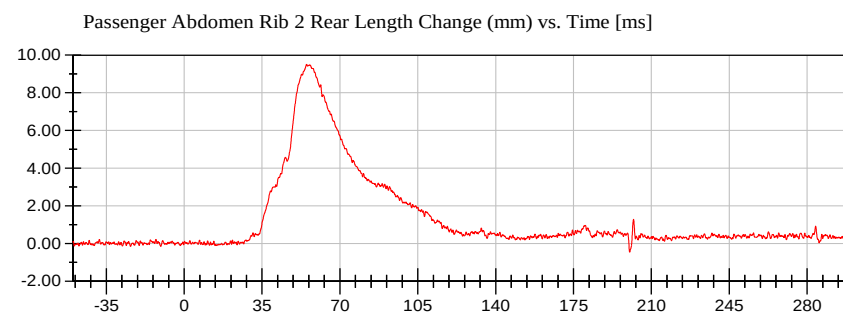
<Max>

32.38 mm at 135.90 ms

<Min>

24.17 mm at 61.85 ms

Unfiltered



<Max>

9.51 mm at 55.05 ms

<Min>

-0.45 mm at 200.25 ms

CFC_600

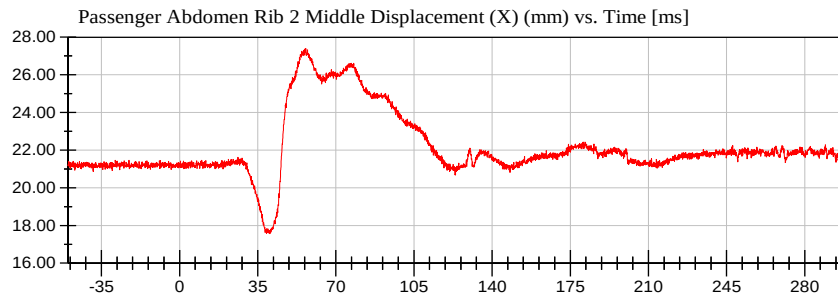


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



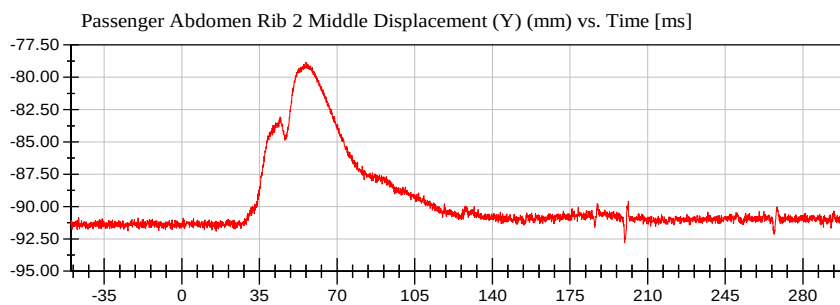
<Max>

27.39 mm at 56.55 ms

<Min>

17.56 mm at 40.20 ms

Unfiltered



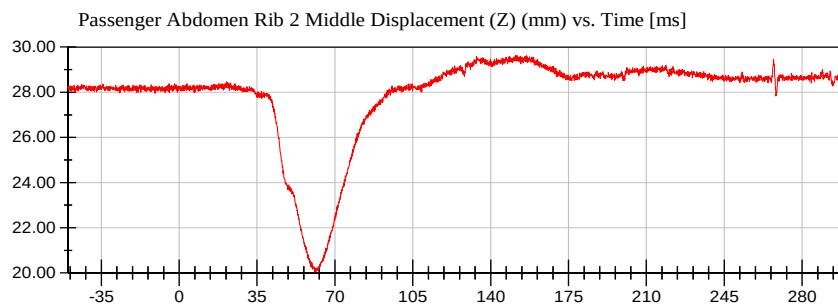
<Max>

-78.84 mm at 56.00 ms

<Min>

-92.80 mm at 199.60 ms

Unfiltered



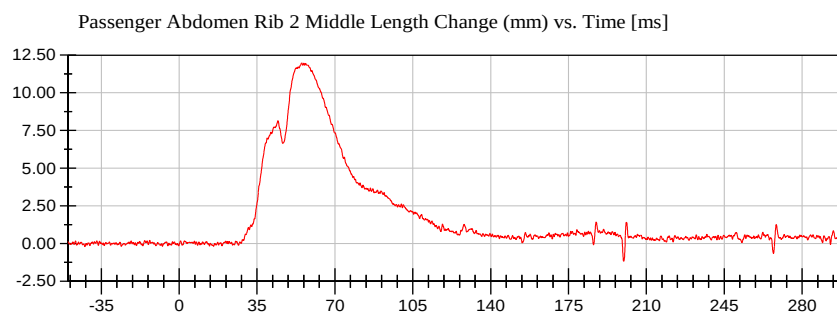
<Max>

29.63 mm at 151.20 ms

<Min>

20.04 mm at 61.00 ms

Unfiltered



<Max>

11.99 mm at 55.05 ms

<Min>

-1.16 mm at 199.80 ms

CFC_600

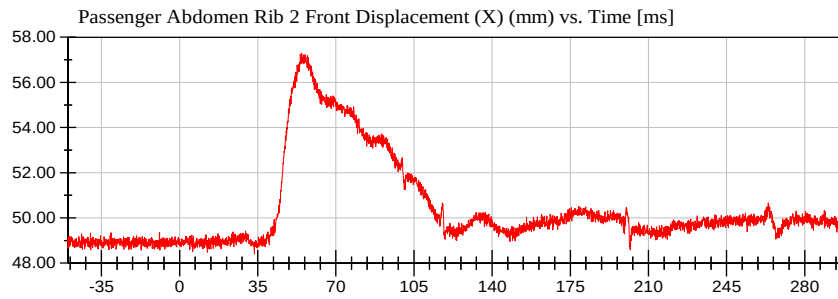


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



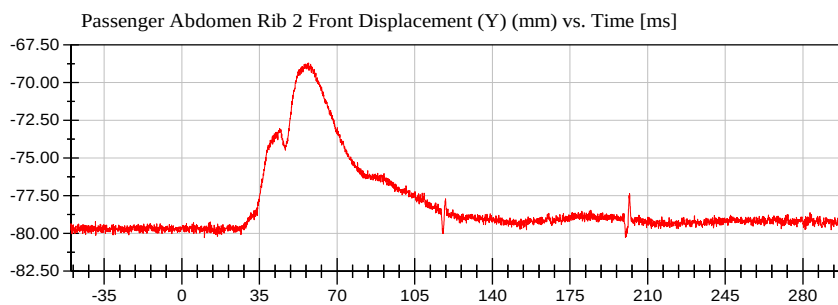
<Max>

57.29 mm at 54.70 ms

<Min>

48.40 mm at 33.50 ms

Unfiltered



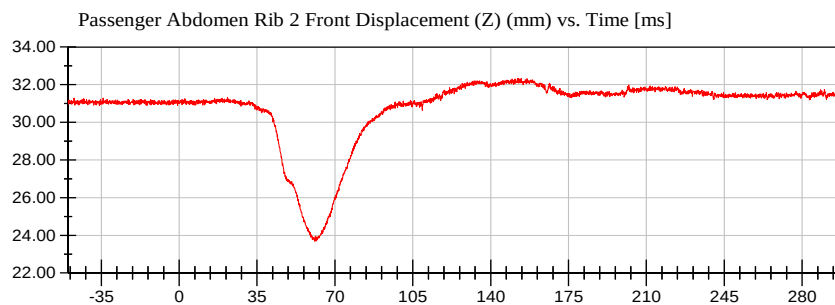
<Max>

-68.70 mm at 57.15 ms

<Min>

-80.28 mm at 10.20 ms

Unfiltered



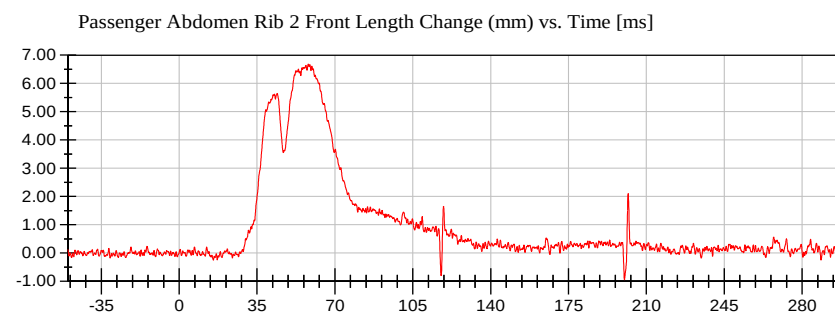
<Max>

32.33 mm at 153.70 ms

<Min>

23.69 mm at 60.90 ms

Unfiltered



<Max>

6.68 mm at 58.05 ms

<Min>

-0.94 mm at 200.15 ms

CFC_600

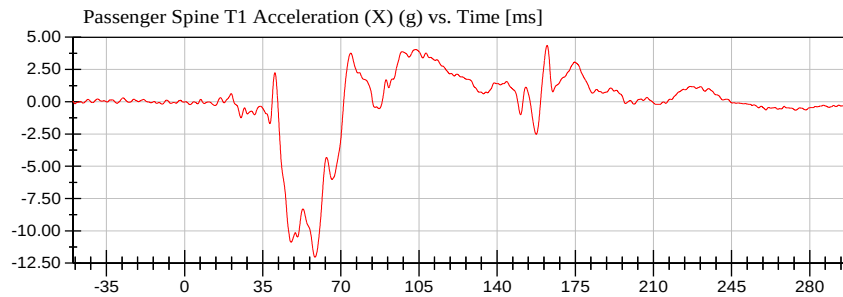


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



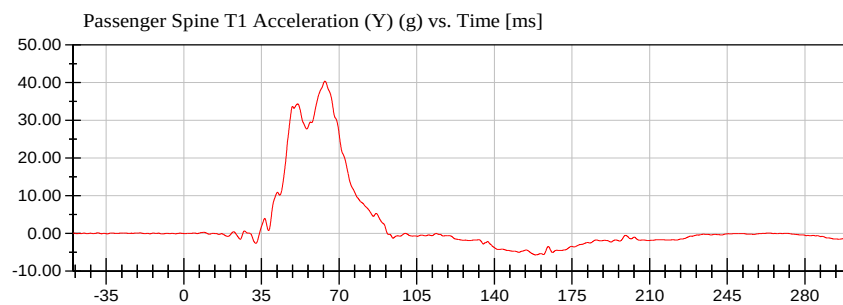
<Max>

4.36 g at 162.35 ms

<Min>

-12.03 g at 58.40 ms

CFC_180



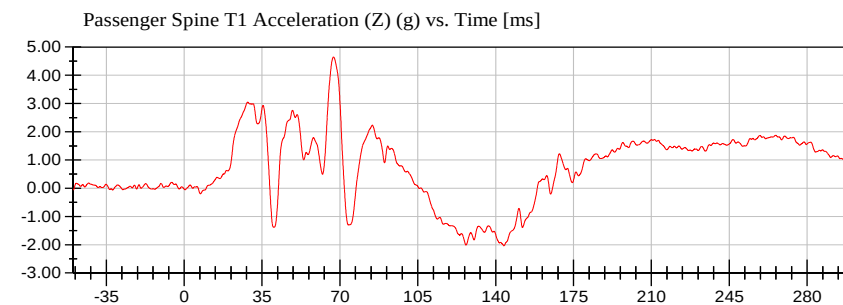
<Max>

40.41 g at 63.65 ms

<Min>

-5.69 g at 158.60 ms

CFC_180



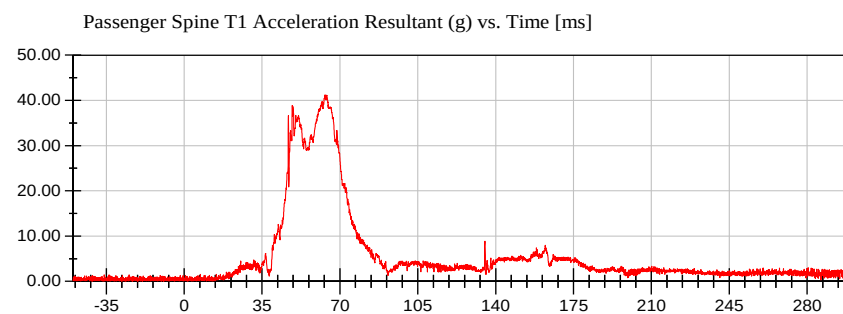
<Max>

4.65 g at 67.10 ms

<Min>

-2.04 g at 143.75 ms

CFC_180



<Max>

41.26 g at 63.35 ms

<Min>

0.03 g at -41.25 ms

Prefiltered_> CFC 1000

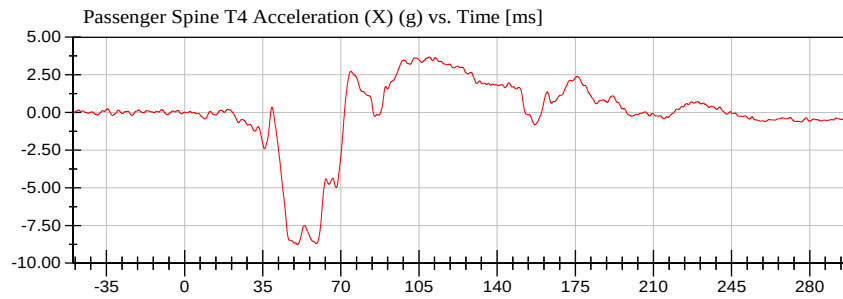


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



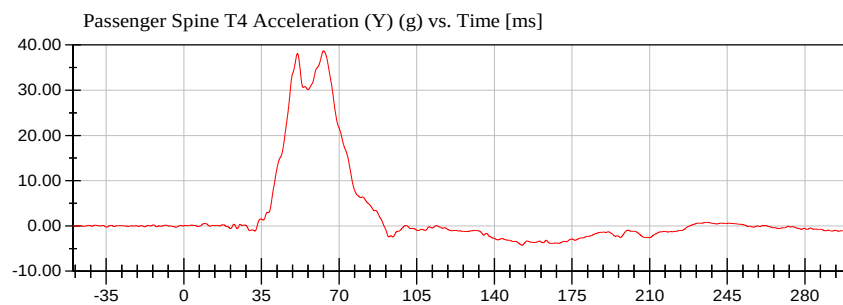
<Max>

3.69 g at 109.65 ms

<Min>

-8.78 g at 50.65 ms

CFC_180



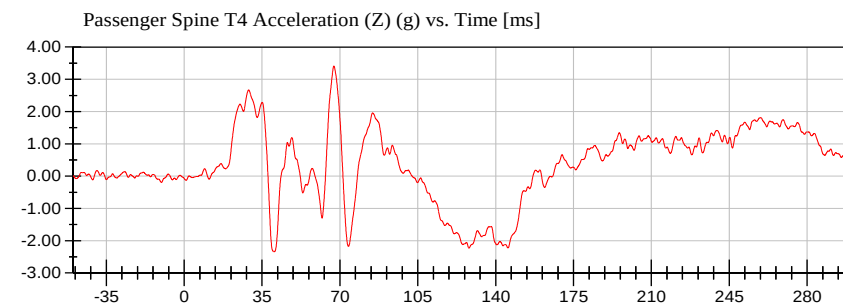
<Max>

38.69 g at 63.00 ms

<Min>

-4.26 g at 152.45 ms

CFC_180



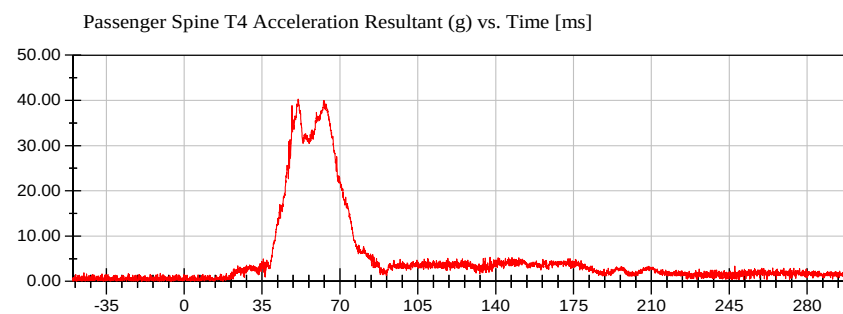
<Max>

3.41 g at 67.30 ms

<Min>

-2.34 g at 40.45 ms

CFC_180



<Max>

40.27 g at 51.30 ms

<Min>

0.02 g at -45.95 ms

Prefiltered_> CFC 1000



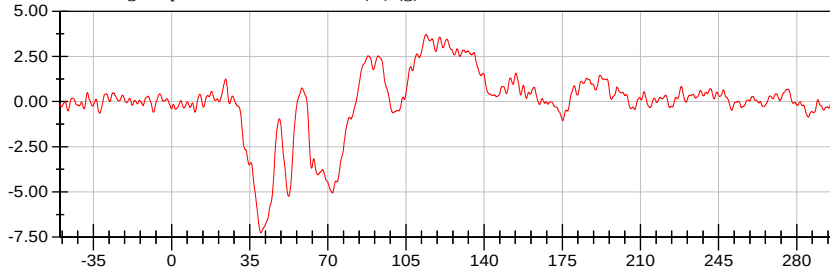
VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()

Passenger Spine T12 Acceleration (X) (g) vs. Time [ms]



<Max>

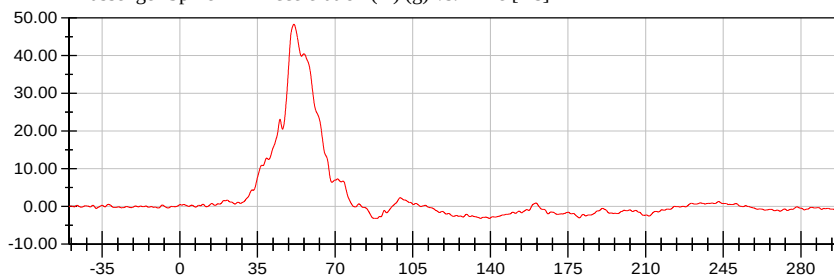
3.70 g at 113.90 ms

<Min>

-7.26 g at 40.05 ms

CFC_180

Passenger Spine T12 Acceleration (Y) (g) vs. Time [ms]



<Max>

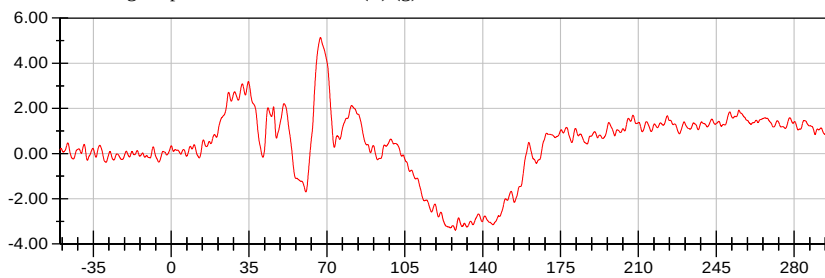
48.32 g at 51.45 ms

<Min>

-3.15 g at 88.95 ms

CFC_180

Passenger Spine T12 Acceleration (Z) (g) vs. Time [ms]



<Max>

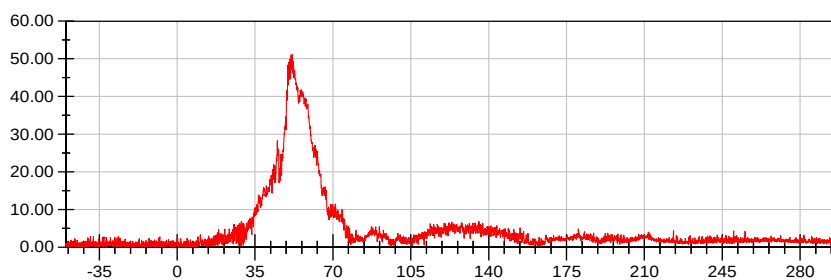
5.14 g at 67.10 ms

<Min>

-3.38 g at 127.75 ms

CFC_180

Passenger Spine T12 Acceleration Resultant (g) vs. Time [ms]



<Max>

51.10 g at 51.70 ms

<Min>

0.07 g at 0.75 ms

Prefiltered_> CFC 1000

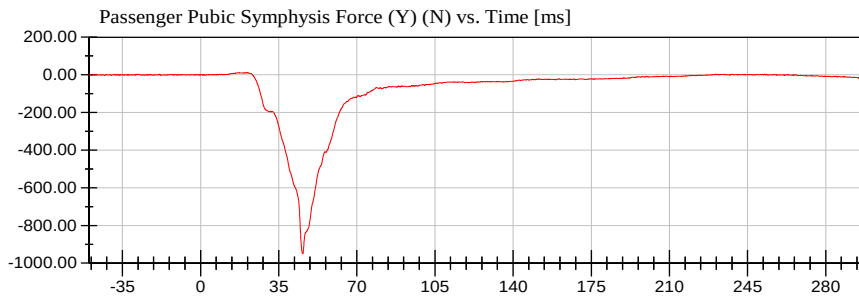


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



<Max>

11.04 N at 19.75 ms

<Min>

-950.81 N at 45.80 ms

CFC_600

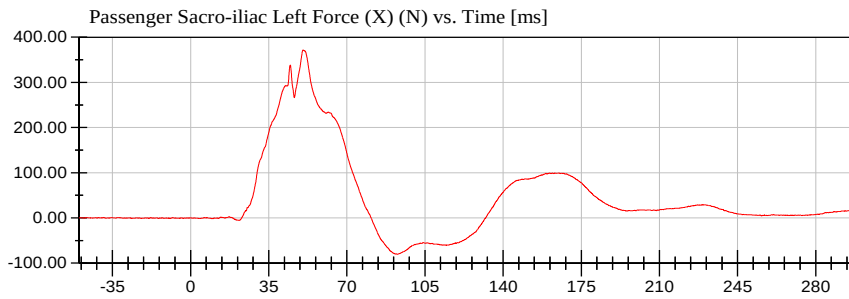


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



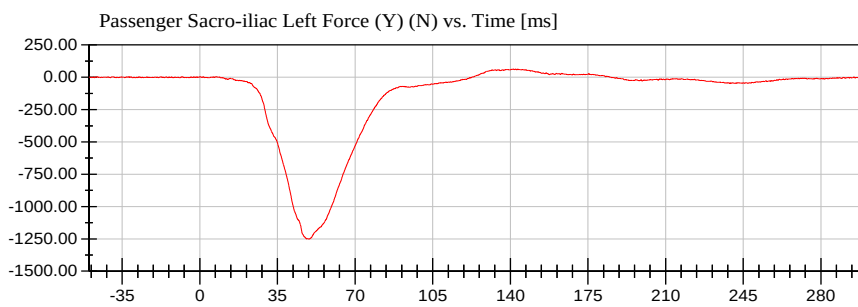
<Max>

371.80 N at 50.40 ms

<Min>

-80.47 N at 92.65 ms

CFC_600



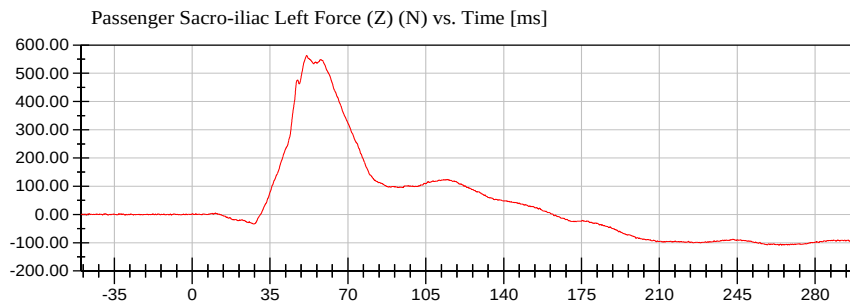
<Max>

63.83 N at 141.40 ms

<Min>

-1,251.38 N at 49.05 ms

CFC_600



<Max>

562.37 N at 51.50 ms

<Min>

-108.39 N at 263.70 ms

CFC_600

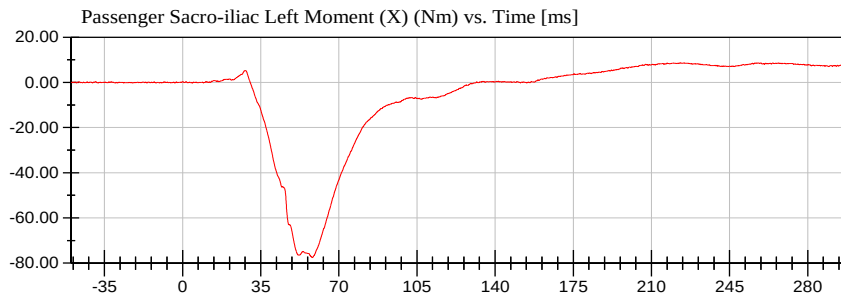


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



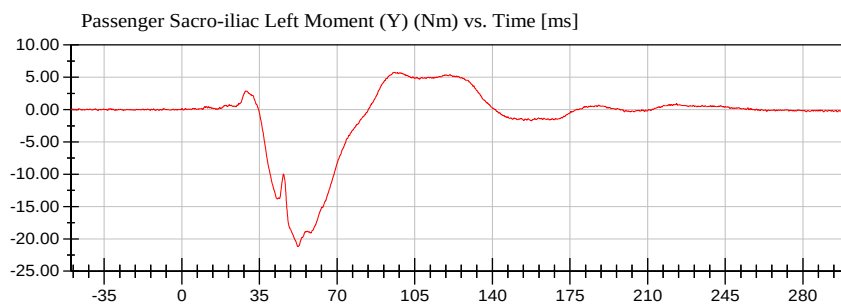
<Max>

8.69 Nm at 223.05 ms

<Min>

-77.53 Nm at 58.20 ms

CFC_600



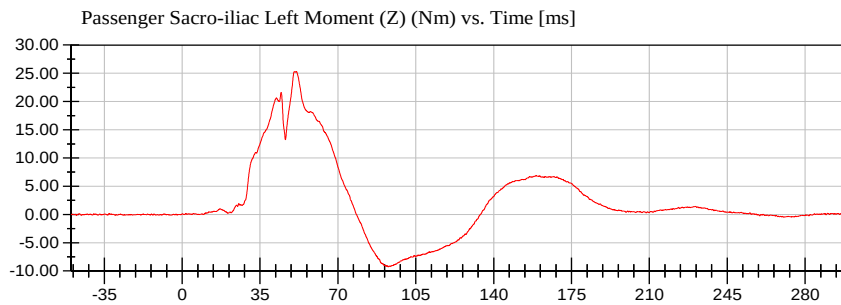
<Max>

5.77 Nm at 95.95 ms

<Min>

-21.18 Nm at 52.35 ms

CFC_600



<Max>

25.30 Nm at 50.45 ms

<Min>

-9.24 Nm at 92.65 ms

CFC_600

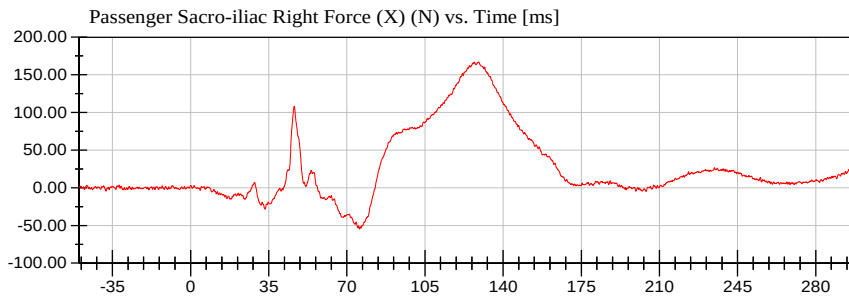


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



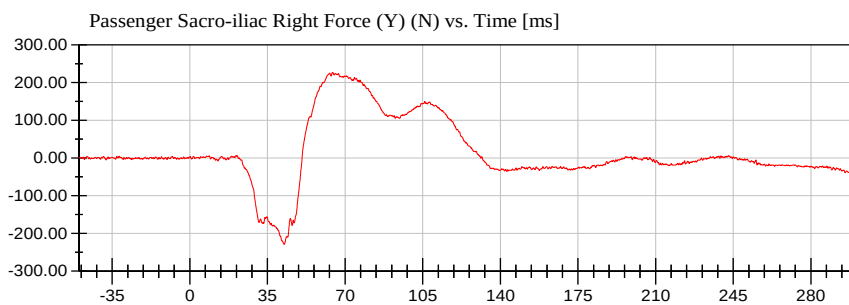
<Max>

166.93 N at 127.05 ms

<Min>

-54.85 N at 75.70 ms

CFC_600



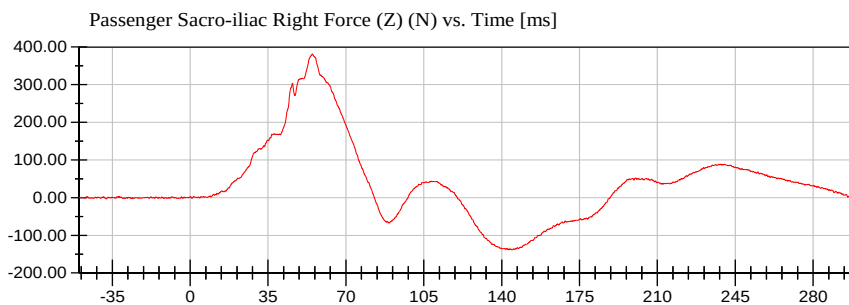
<Max>

227.18 N at 64.40 ms

<Min>

-228.41 N at 42.50 ms

CFC_600



<Max>

381.59 N at 54.90 ms

<Min>

-138.92 N at 144.65 ms

CFC_600

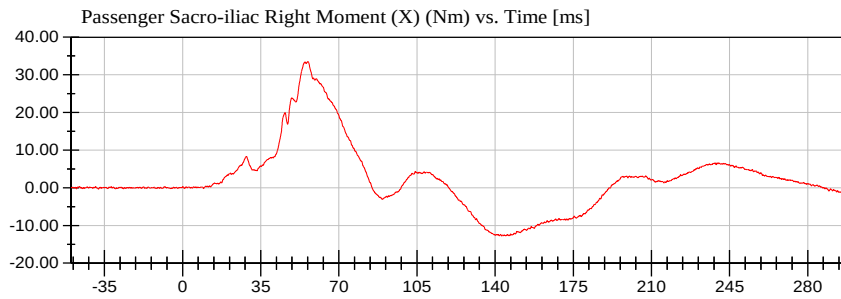


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



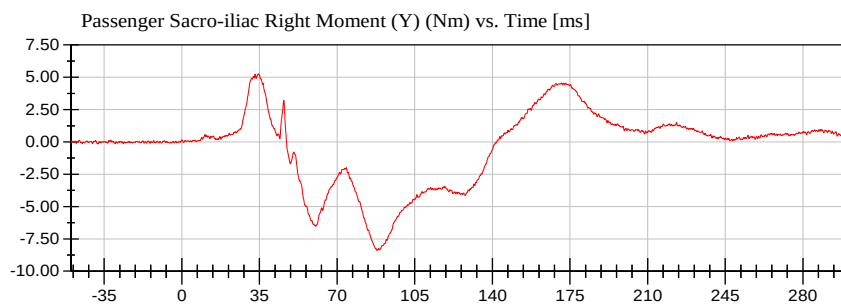
<Max>

33.47 Nm at 56.15 ms

<Min>

-12.77 Nm at 143.00 ms

CFC_600



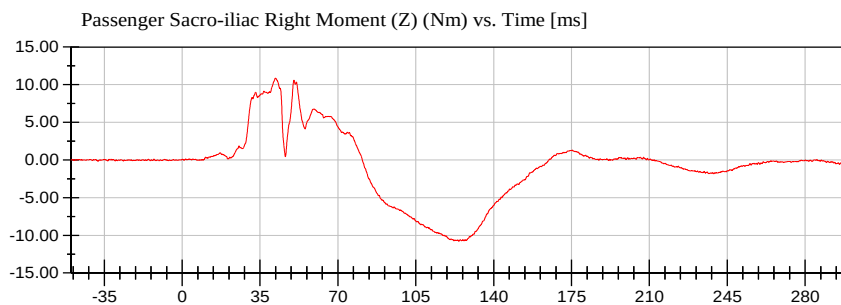
<Max>

5.27 Nm at 34.50 ms

<Min>

-8.39 Nm at 88.05 ms

CFC_600



<Max>

10.86 Nm at 41.90 ms

<Min>

-10.78 Nm at 124.35 ms

CFC_600

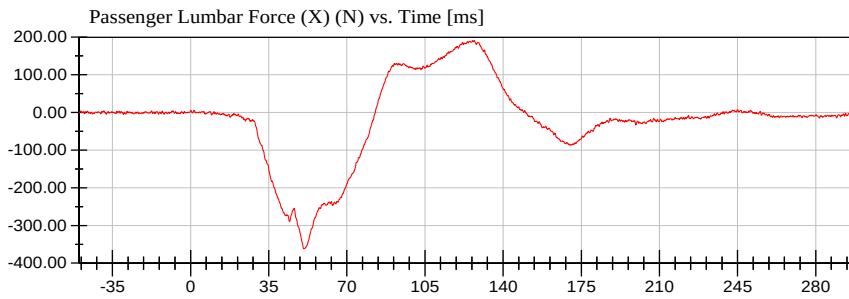


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



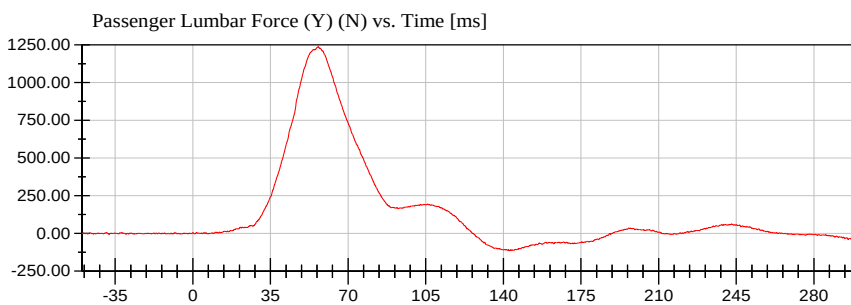
<Max>

190.83 N at 127.10 ms

<Min>

-362.04 N at 50.70 ms

CFC_600



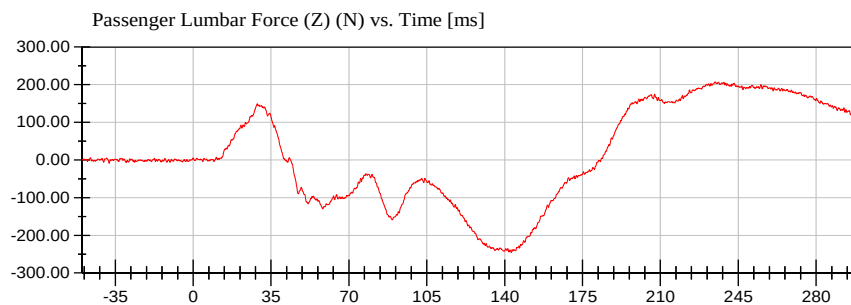
<Max>

1,238.33 N at 56.50 ms

<Min>

-114.54 N at 142.90 ms

CFC_600



<Max>

207.93 N at 234.60 ms

<Min>

-245.87 N at 142.95 ms

CFC_600



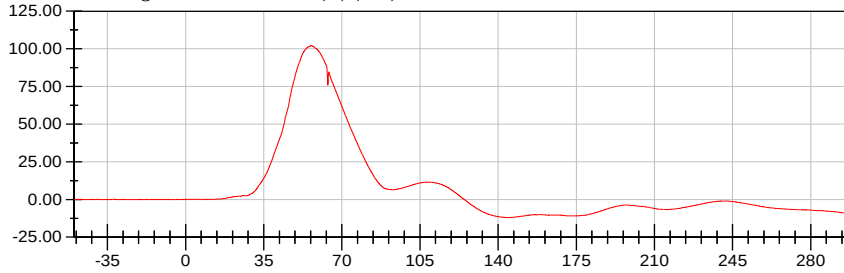
VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021

Passenger Lumbar Moment (X) (Nm) vs. Time [ms]



<Max>

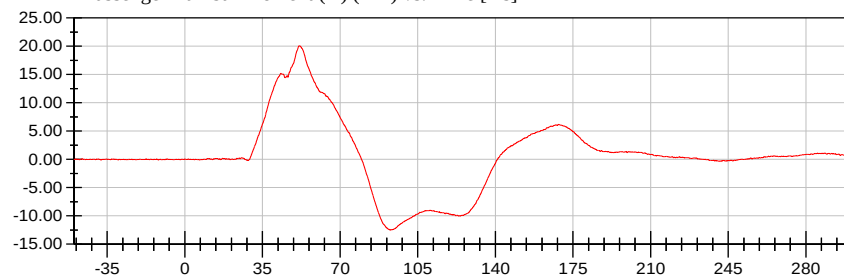
102.18 Nm at 56.30 ms

<Min>

-12.05 Nm at 143.80 ms

CFC_600

Passenger Lumbar Moment (Y) (Nm) vs. Time [ms]



<Max>

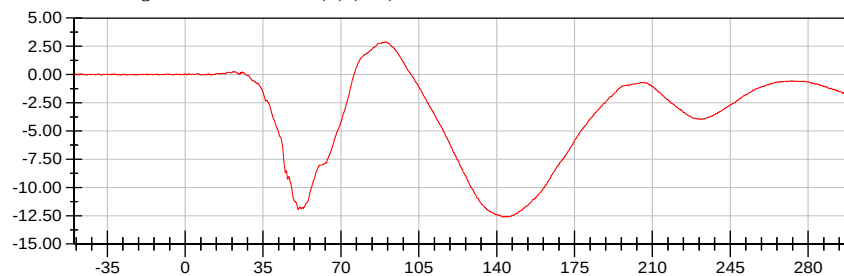
20.07 Nm at 51.60 ms

<Min>

-12.50 Nm at 92.60 ms

CFC_600

Passenger Lumbar Moment (Z) (Nm) vs. Time [ms]



<Max>

2.89 Nm at 90.15 ms

<Min>

-12.62 Nm at 143.70 ms

CFC_600

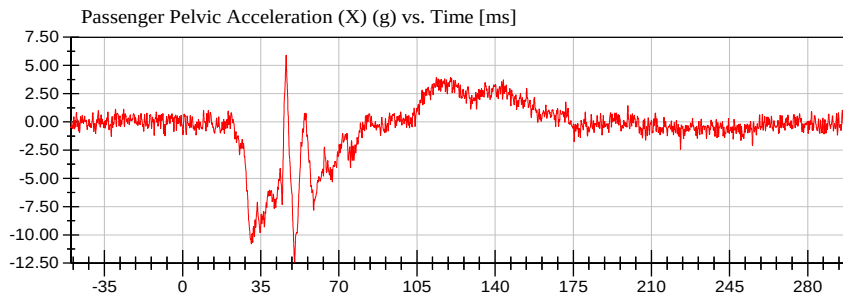


VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()



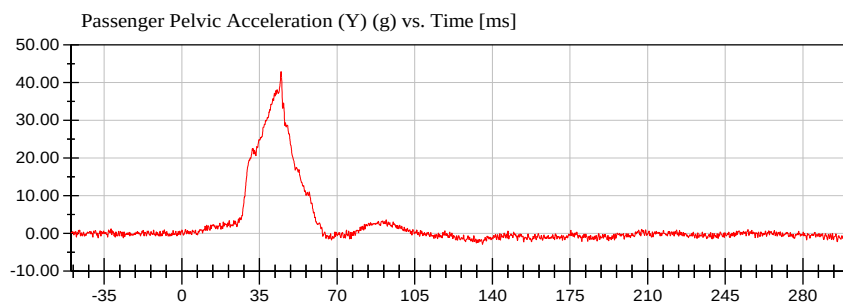
<Max>

5.91 g at 46.40 ms

<Min>

-12.42 g at 50.20 ms

CFC_1000



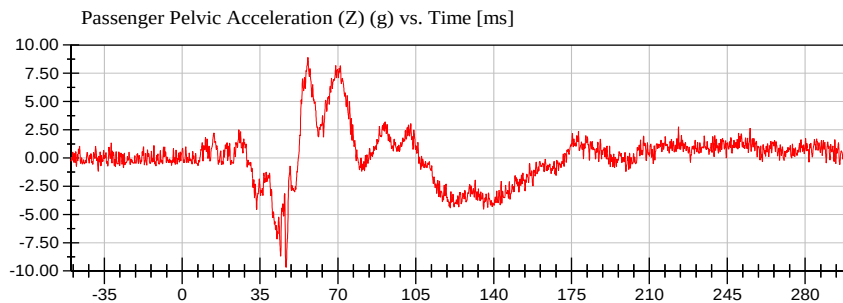
<Max>

42.95 g at 44.75 ms

<Min>

-2.88 g at 135.55 ms

CFC_1000



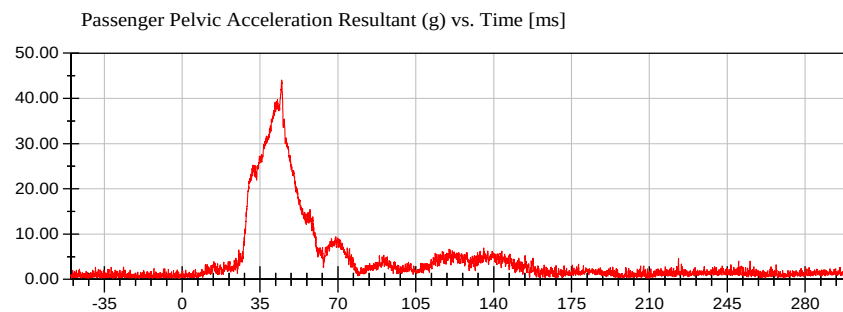
<Max>

8.87 g at 56.50 ms

<Min>

-9.67 g at 46.70 ms

CFC_1000



<Max>

44.03 g at 44.70 ms

<Min>

0.21 g at -19.25 ms

Prefiltered_> CFC 1000

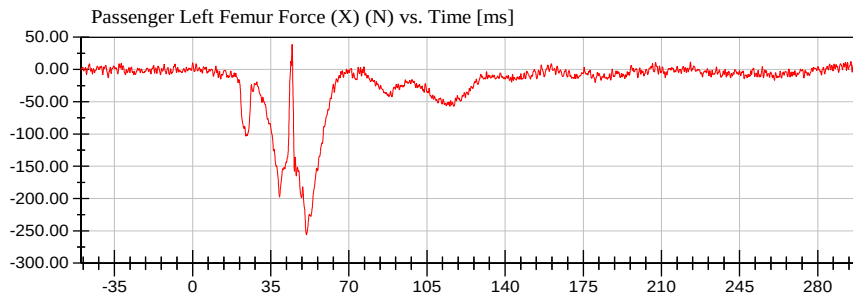


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



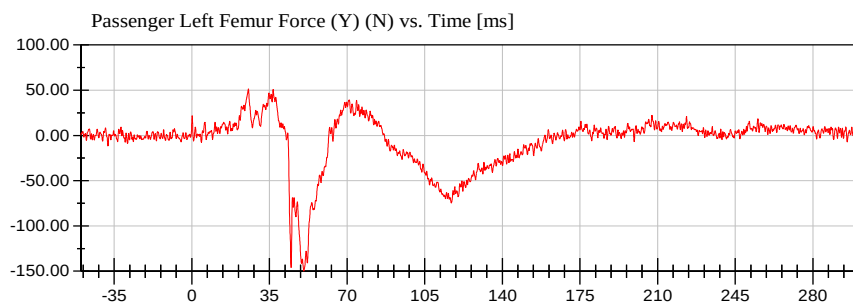
<Max>

38.34 N at 44.60 ms

<Min>

-255.81 N at 51.00 ms

CFC_600



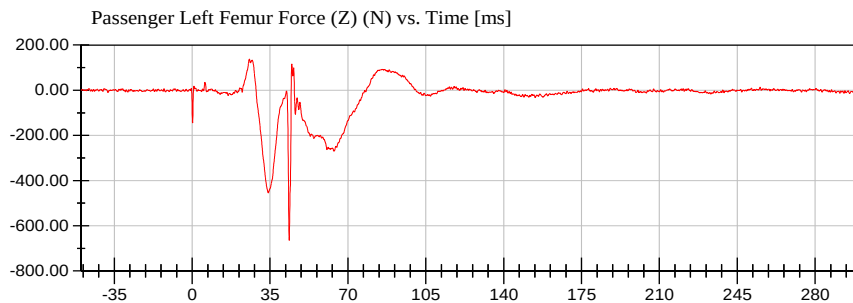
<Max>

51.36 N at 25.50 ms

<Min>

-149.77 N at 50.50 ms

CFC_600



<Max>

137.32 N at 25.70 ms

<Min>

-664.56 N at 43.60 ms

CFC_600

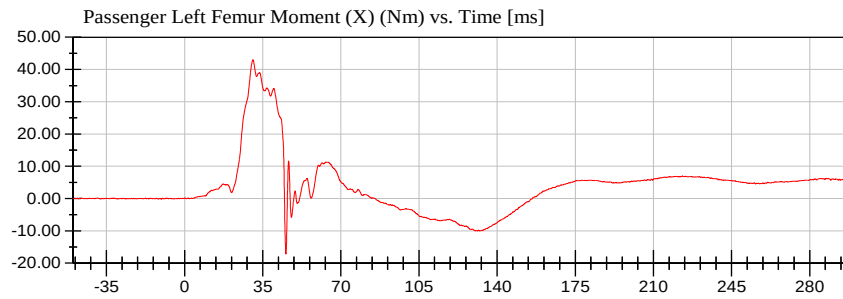


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



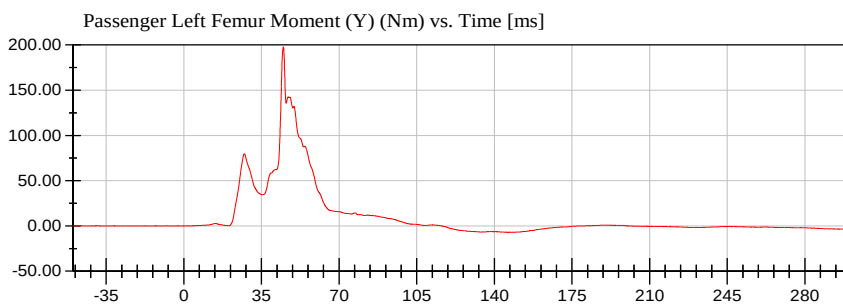
<Max>

42.98 Nm at 30.65 ms

<Min>

-17.18 Nm at 45.35 ms

CFC_600



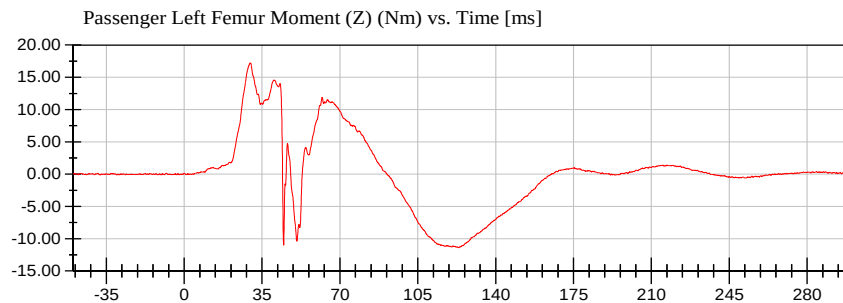
<Max>

197.97 Nm at 44.85 ms

<Min>

-7.04 Nm at 146.60 ms

CFC_600



<Max>

17.23 Nm at 29.80 ms

<Min>

-11.39 Nm at 123.45 ms

CFC_600

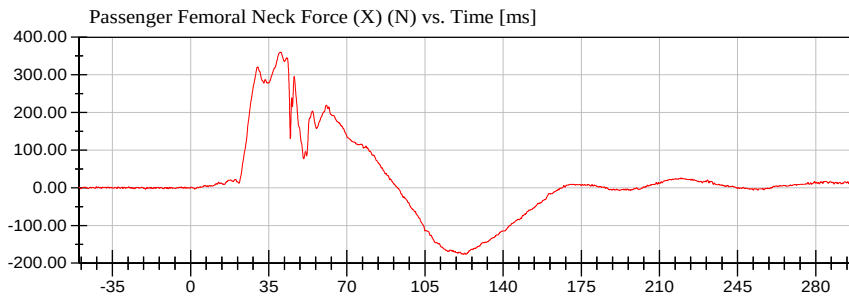


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



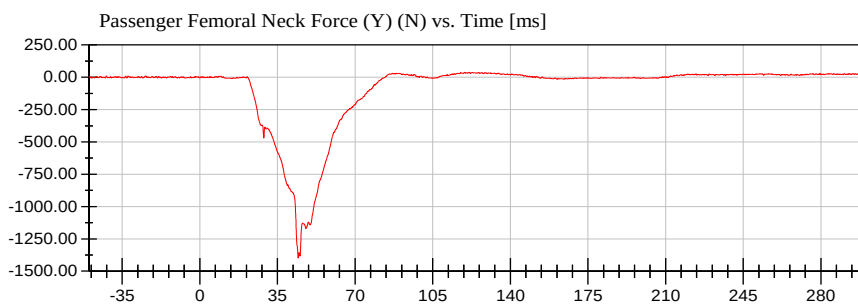
<Max>

360.11 N at 40.45 ms

<Min>

-176.59 N at 122.25 ms

CFC_600



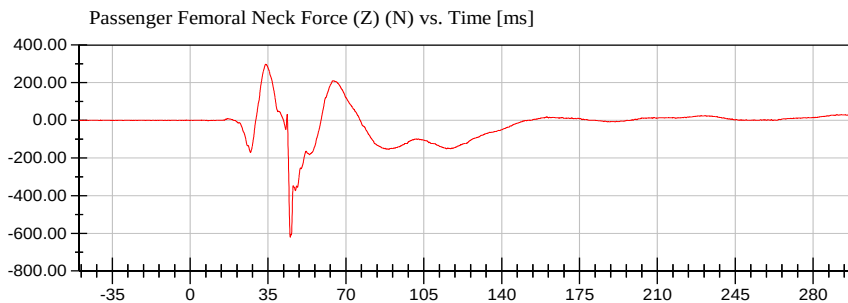
<Max>

37.91 N at 119.40 ms

<Min>

-1,398.89 N at 44.35 ms

CFC_600



<Max>

297.75 N at 34.00 ms

<Min>

-620.29 N at 45.00 ms

CFC_600

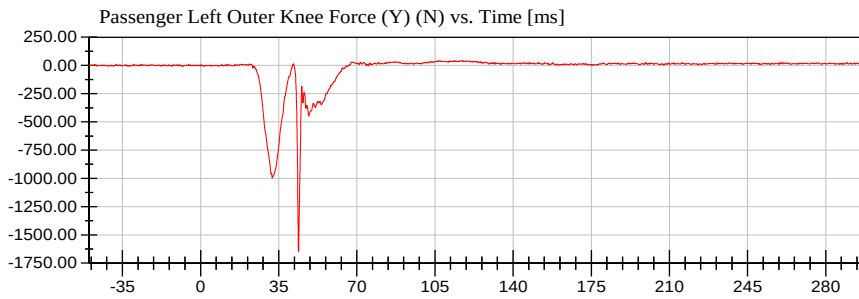


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



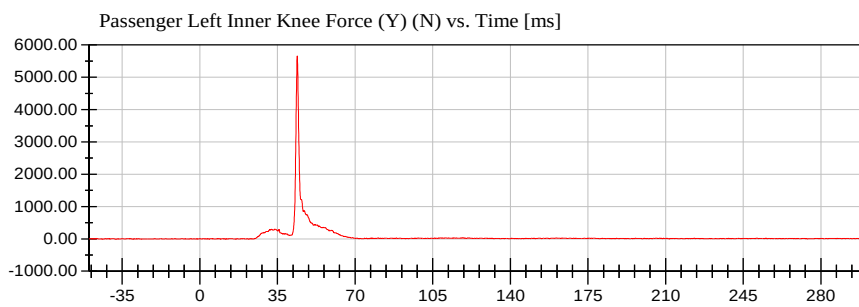
<Max>

42.32 N at 116.95 ms

<Min>

-1,649.67 N at 43.90 ms

CFC_600



<Max>

5,660.94 N at 43.95 ms

<Min>

-11.69 N at -37.85 ms

CFC_600

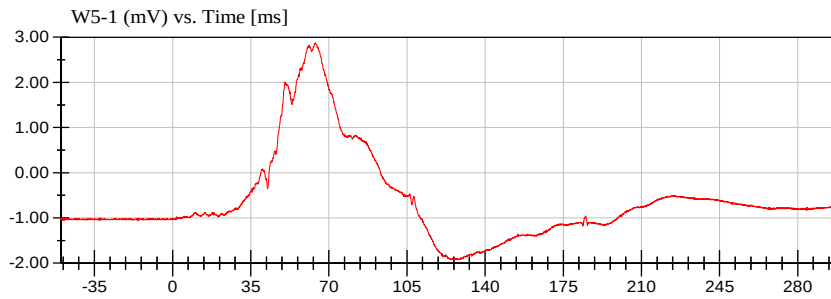


VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()



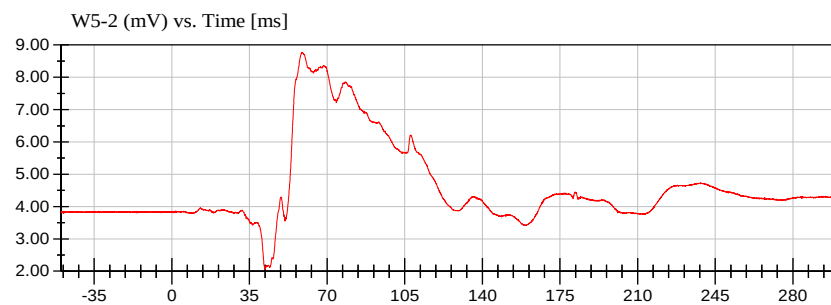
<Max>

2.88 mV at 64.05 ms

<Min>

-1.94 mV at 126.20 ms

CFC_1000



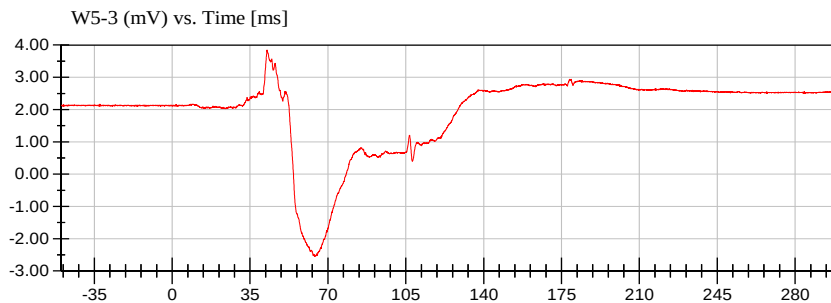
<Max>

8.77 mV at 58.65 ms

<Min>

2.06 mV at 42.05 ms

CFC_1000



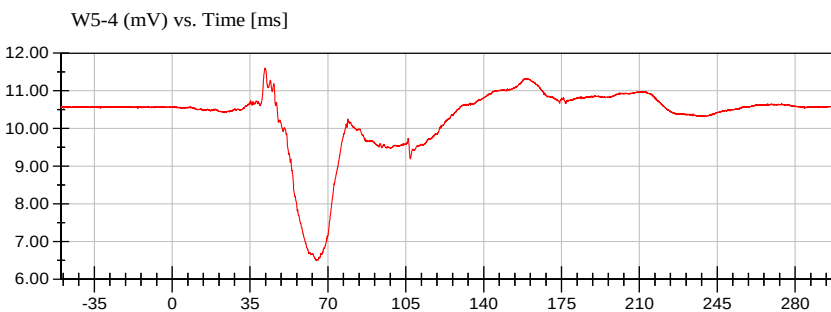
<Max>

3.85 mV at 42.60 ms

<Min>

-2.54 mV at 64.10 ms

CFC_1000



<Max>

11.61 mV at 41.70 ms

<Min>

6.51 mV at 64.75 ms

CFC_1000

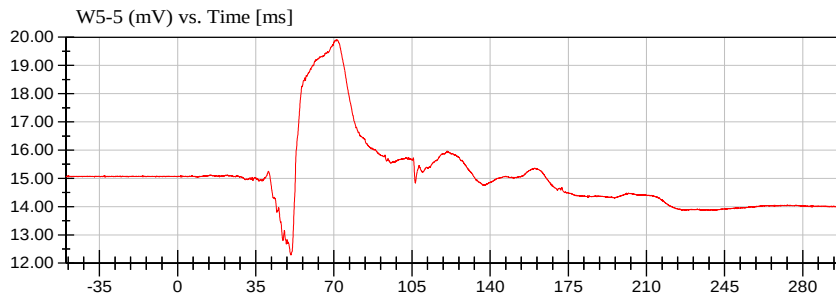


VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()



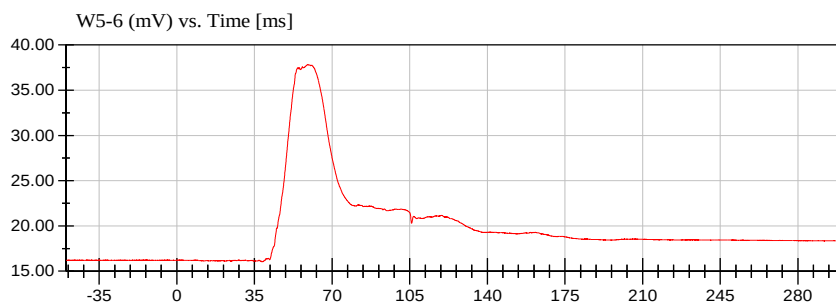
<Max>

19.92 mV at 71.35 ms

<Min>

12.29 mV at 50.80 ms

CFC_1000



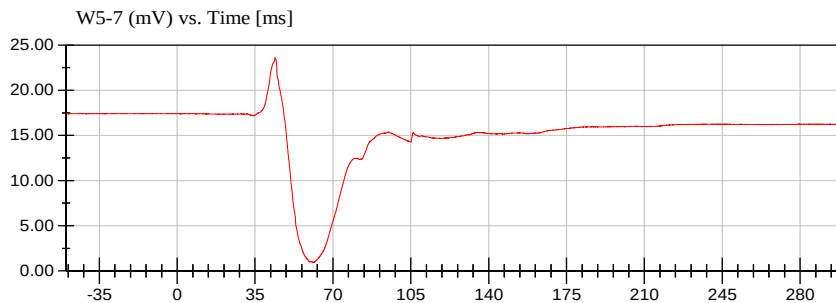
<Max>

37.84 mV at 58.85 ms

<Min>

16.02 mV at 38.45 ms

CFC_1000



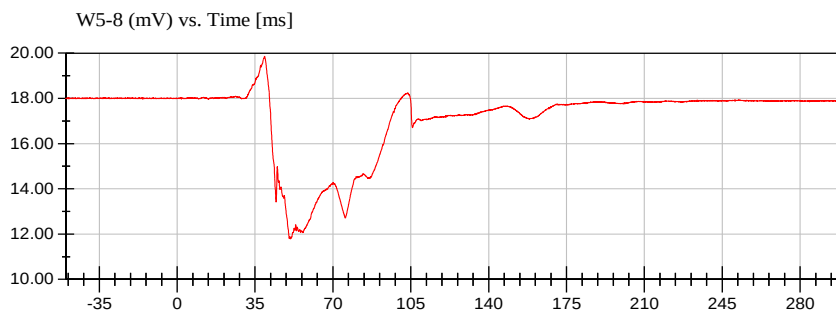
<Max>

23.61 mV at 44.05 ms

<Min>

0.95 mV at 61.35 ms

CFC_1000



<Max>

19.86 mV at 39.25 ms

<Min>

11.79 mV at 50.85 ms

CFC_1000

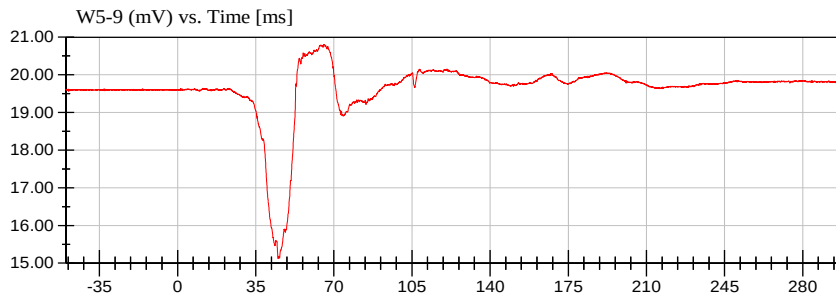


VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()



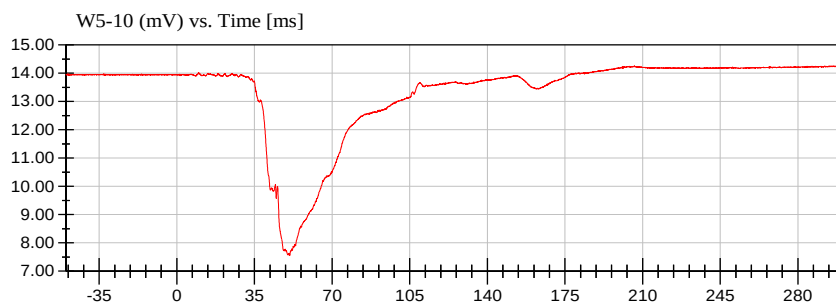
<Max>

20.81 mV at 65.50 ms

<Min>

15.12 mV at 45.05 ms

CFC_1000



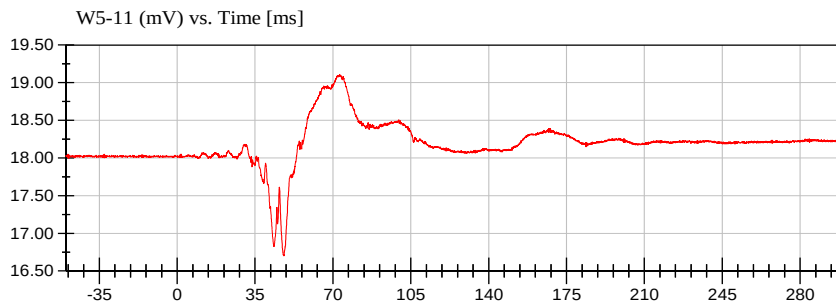
<Max>

14.26 mV at 206.30 ms

<Min>

7.55 mV at 50.85 ms

CFC_1000



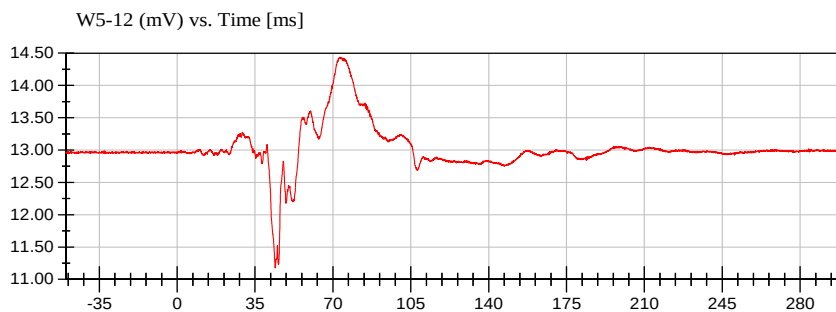
<Max>

19.11 mV at 72.95 ms

<Min>

16.70 mV at 48.00 ms

CFC_1000



<Max>

14.44 mV at 73.15 ms

<Min>

11.18 mV at 44.05 ms

CFC_1000



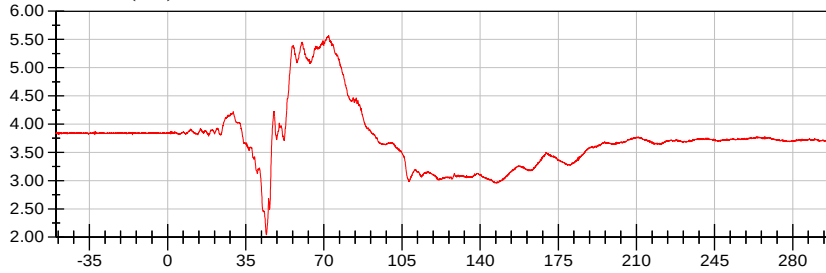
VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021

W5-13 (mV) vs. Time [ms]



<Max>

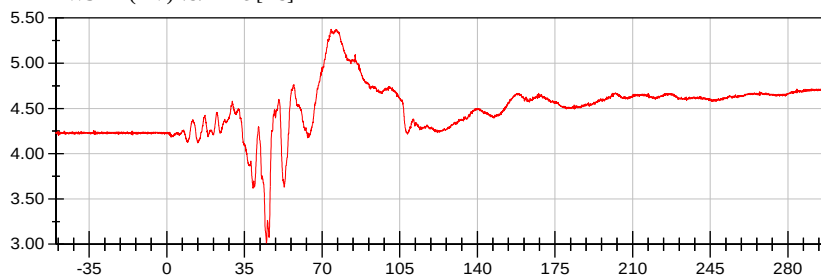
5.57 mV at 72.15 ms

<Min>

2.04 mV at 44.25 ms

CFC_1000

W5-14 (mV) vs. Time [ms]



<Max>

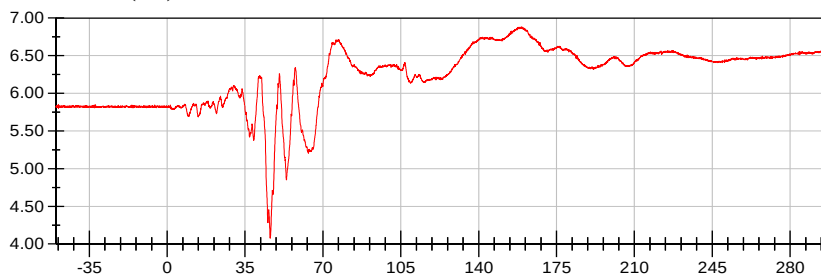
5.38 mV at 74.05 ms

<Min>

3.01 mV at 44.85 ms

CFC_1000

W5-15 (mV) vs. Time [ms]



<Max>

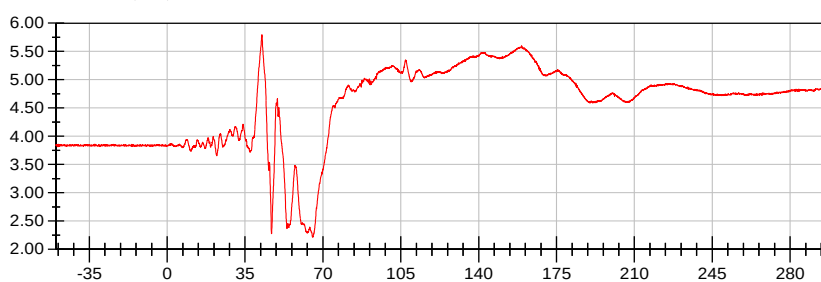
6.88 mV at 159.10 ms

<Min>

4.07 mV at 46.35 ms

CFC_1000

W5-16 (mV) vs. Time [ms]



<Max>

5.79 mV at 42.50 ms

<Min>

2.22 mV at 65.30 ms

CFC_1000



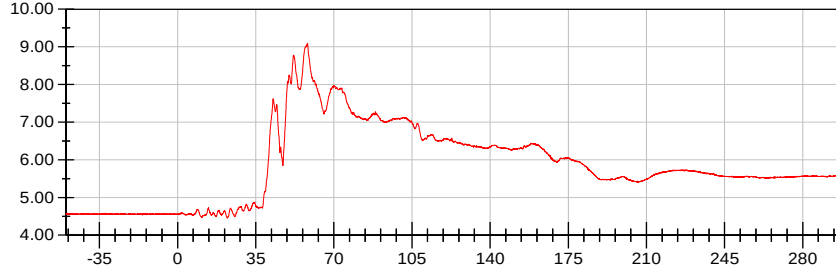
VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()

W5-17 (mV) vs. Time [ms]



<Max>

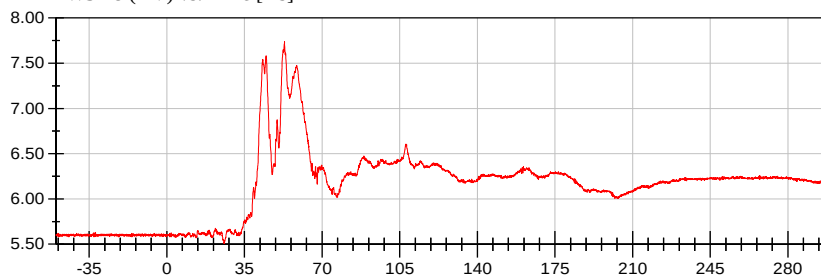
9.10 mV at 58.20 ms

<Min>

4.45 mV at 22.25 ms

CFC_1000

W5-18 (mV) vs. Time [ms]



<Max>

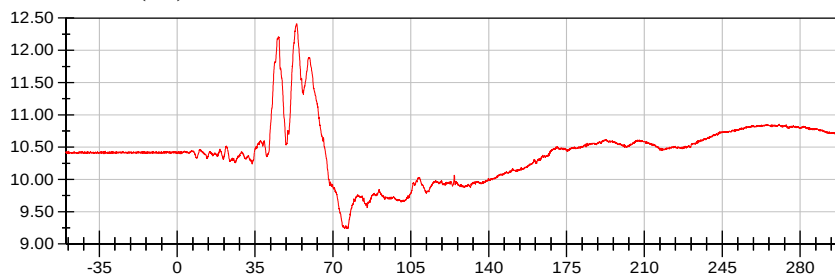
7.74 mV at 53.05 ms

<Min>

5.51 mV at 25.90 ms

CFC_1000

W5-19 (mV) vs. Time [ms]



<Max>

12.41 mV at 53.65 ms

<Min>

9.24 mV at 76.35 ms

CFC_1000

W5-20 (mV) vs. Time [ms]



<Max>

6.09 mV at 53.35 ms

<Min>

2.33 mV at 146.65 ms

CFC_1000



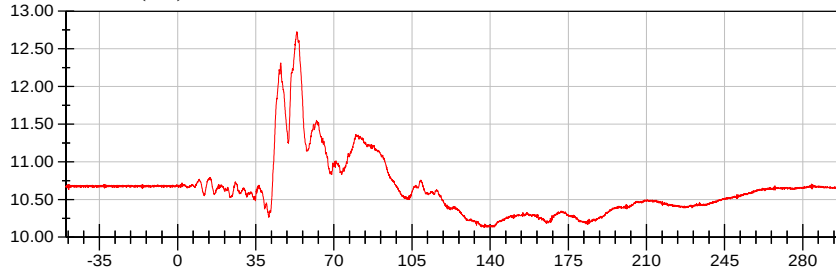
VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()

W5-21 (mV) vs. Time [ms]



<Max>

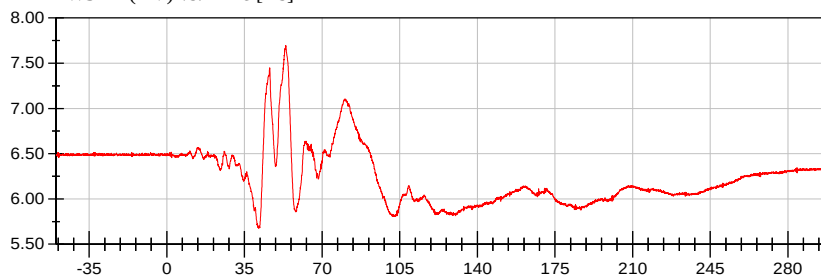
12.73 mV at 53.40 ms

<Min>

10.13 mV at 137.30 ms

CFC_1000

W5-22 (mV) vs. Time [ms]



<Max>

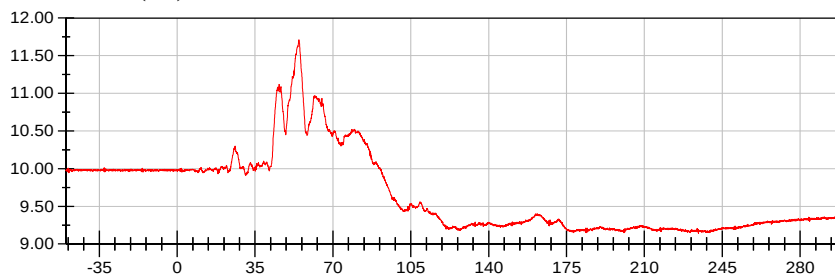
7.69 mV at 53.65 ms

<Min>

5.68 mV at 41.40 ms

CFC_1000

W5-23 (mV) vs. Time [ms]



<Max>

11.71 mV at 54.65 ms

<Min>

9.14 mV at 234.30 ms

CFC_1000

W5-24 (mV) vs. Time [ms]



<Max>

8.81 mV at 54.90 ms

<Min>

4.98 mV at 215.25 ms

CFC_1000



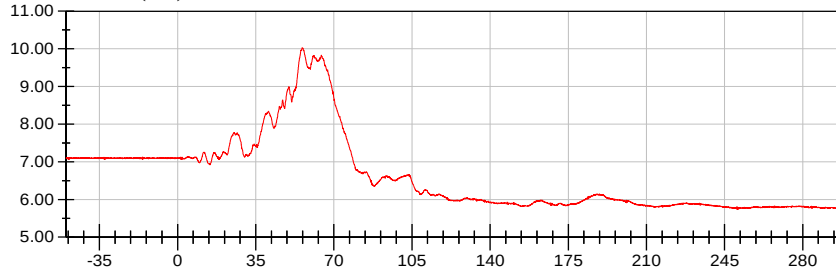
VRTC

Test Date: 03/11/2021

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Test Number: 210311 ()

W5-25 (mV) vs. Time [ms]



<Max>

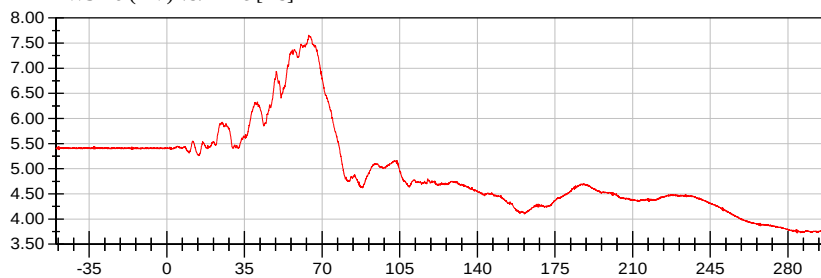
10.03 mV at 55.80 ms

<Min>

5.74 mV at 250.50 ms

CFC_1000

W5-26 (mV) vs. Time [ms]



<Max>

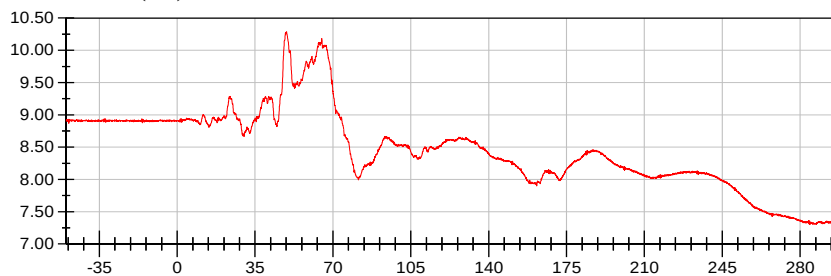
7.66 mV at 63.95 ms

<Min>

3.72 mV at 284.20 ms

CFC_1000

W5-27 (mV) vs. Time [ms]



<Max>

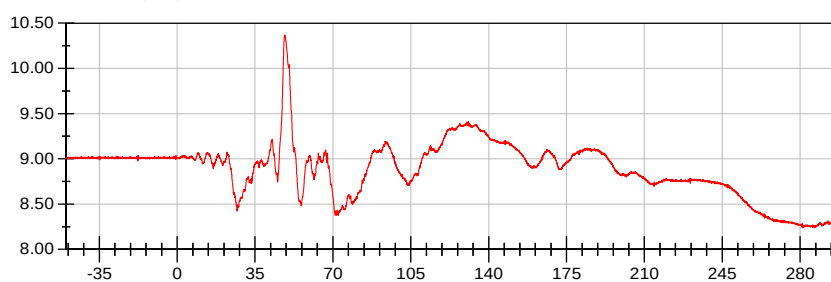
10.29 mV at 49.10 ms

<Min>

7.30 mV at 284.20 ms

CFC_1000

W5-28 (mV) vs. Time [ms]



<Max>

10.37 mV at 48.30 ms

<Min>

8.24 mV at 281.05 ms

CFC_1000



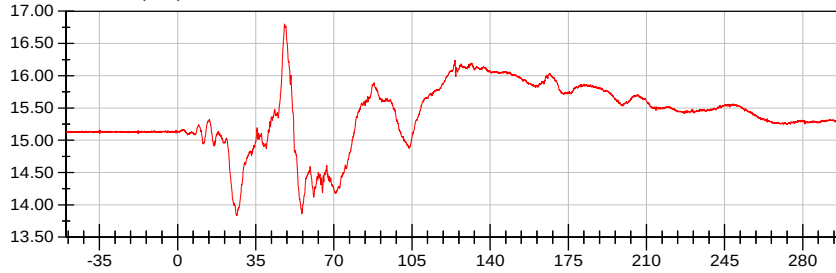
VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()

W5-29 (mV) vs. Time [ms]



<Max>

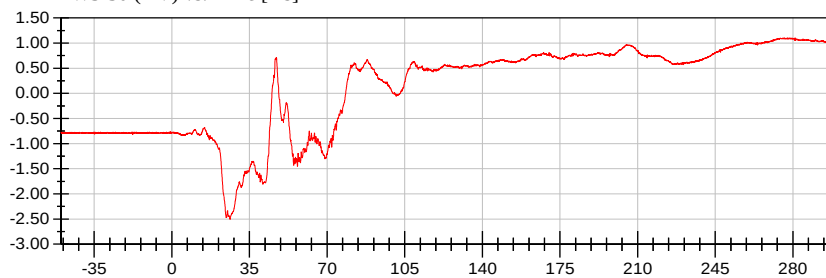
16.80 mV at 47.90 ms

<Min>

13.84 mV at 26.40 ms

CFC_1000

W5-30 (mV) vs. Time [ms]



<Max>

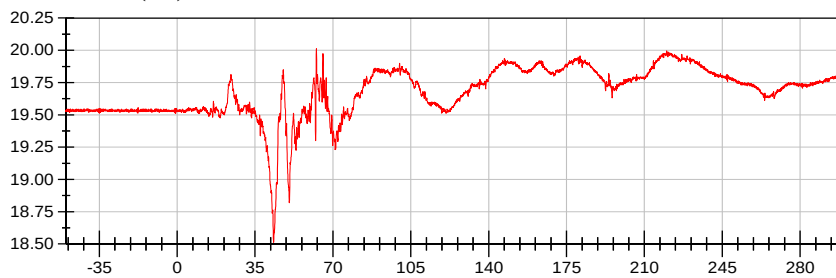
1.10 mV at 274.15 ms

<Min>

-2.51 mV at 26.25 ms

CFC_1000

W5-31 (mV) vs. Time [ms]



<Max>

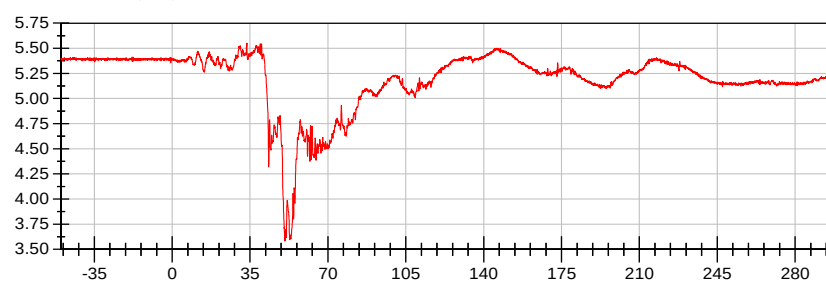
20.01 mV at 62.55 ms

<Min>

18.51 mV at 43.35 ms

CFC_1000

W5-32 (mV) vs. Time [ms]



<Max>

5.55 mV at 33.55 ms

<Min>

3.58 mV at 50.70 ms

CFC_1000



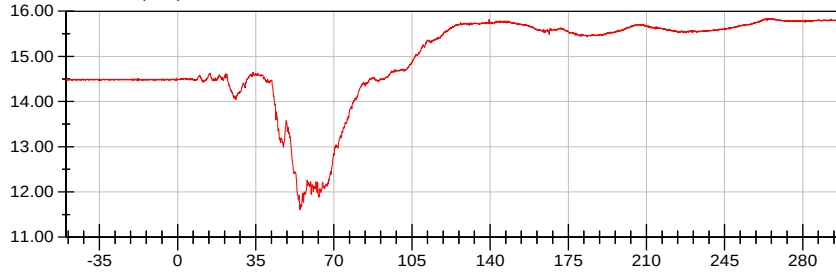
VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()

W5-33 (mV) vs. Time [ms]



<Max>

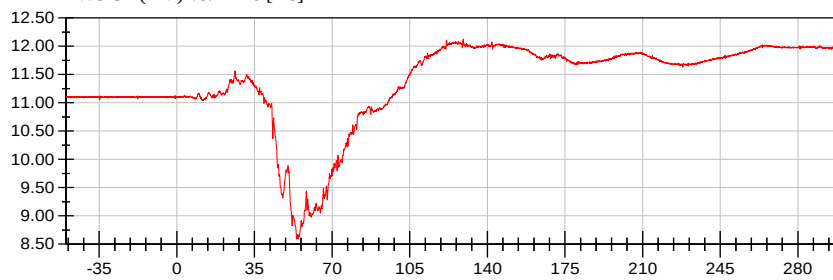
15.84 mV at 264.15 ms

<Min>

11.61 mV at 54.85 ms

CFC_1000

W5-34 (mV) vs. Time [ms]



<Max>

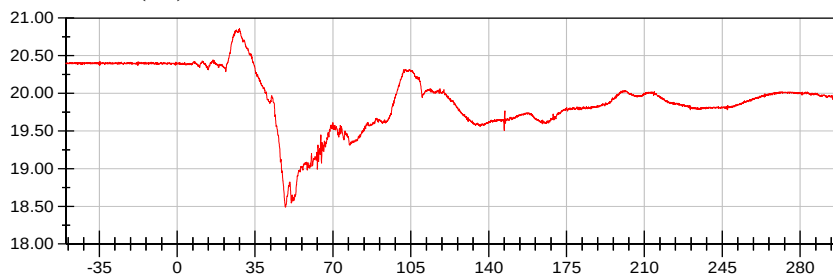
12.13 mV at 129.10 ms

<Min>

8.59 mV at 54.00 ms

CFC_1000

W5-35 (mV) vs. Time [ms]



<Max>

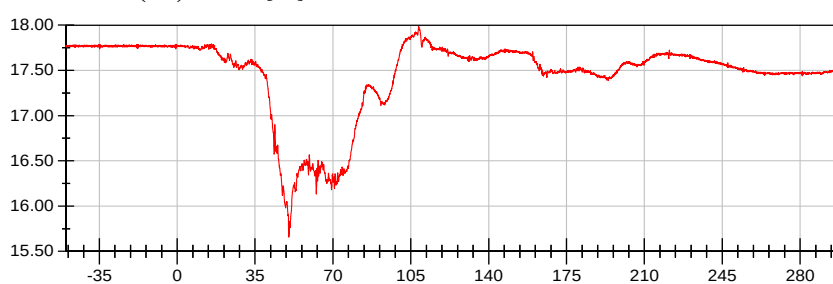
20.86 mV at 27.95 ms

<Min>

18.49 mV at 48.65 ms

CFC_1000

W5-36 (mV) vs. Time [ms]



<Max>

17.98 mV at 108.45 ms

<Min>

15.66 mV at 50.20 ms

CFC_1000



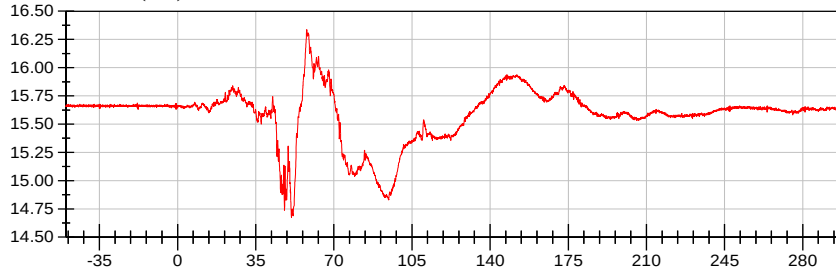
VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()

W5-37 (mV) vs. Time [ms]



<Max>

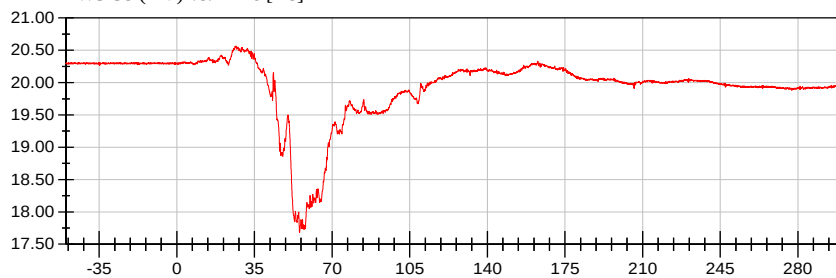
16.34 mV at 57.85 ms

<Min>

14.68 mV at 51.00 ms

CFC_1000

W5-38 (mV) vs. Time [ms]



<Max>

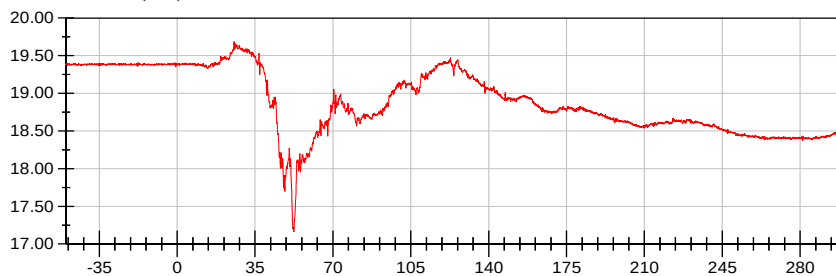
20.56 mV at 26.65 ms

<Min>

17.68 mV at 55.35 ms

CFC_1000

W5-39 (mV) vs. Time [ms]



<Max>

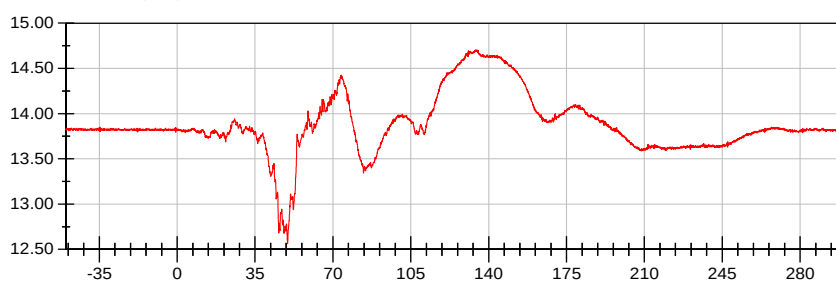
19.69 mV at 25.60 ms

<Min>

17.16 mV at 52.35 ms

CFC_1000

W5-40 (mV) vs. Time [ms]



<Max>

14.71 mV at 134.30 ms

<Min>

12.56 mV at 49.55 ms

CFC_1000

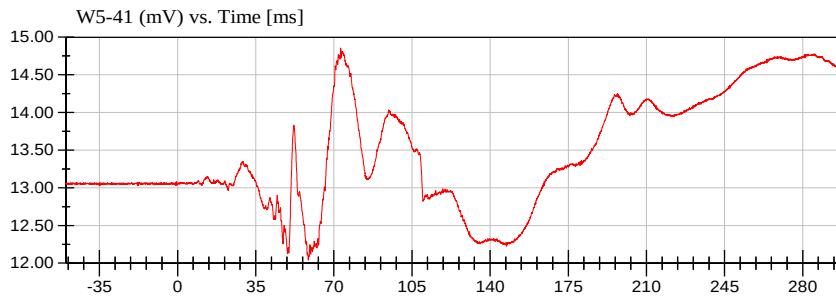


VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()



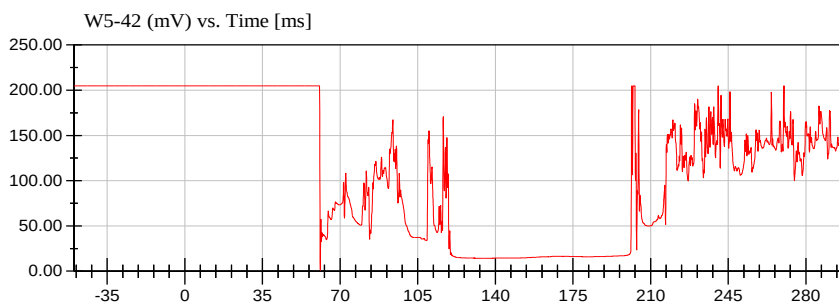
<Max>

14.86 mV at 73.05 ms

<Min>

12.04 mV at 58.55 ms

CFC_1000



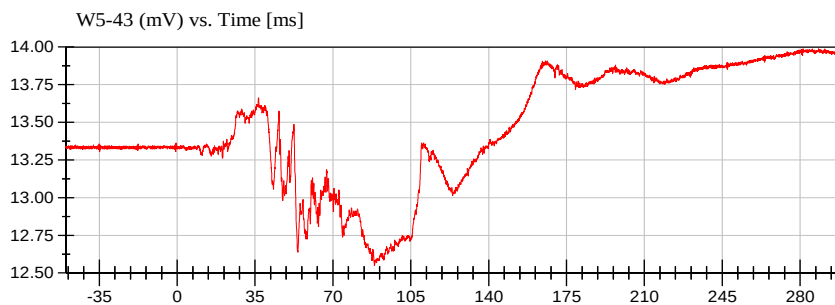
<Max>

204.79 mV at -50.00 ms

<Min>

1.27 mV at 61.10 ms

CFC_1000



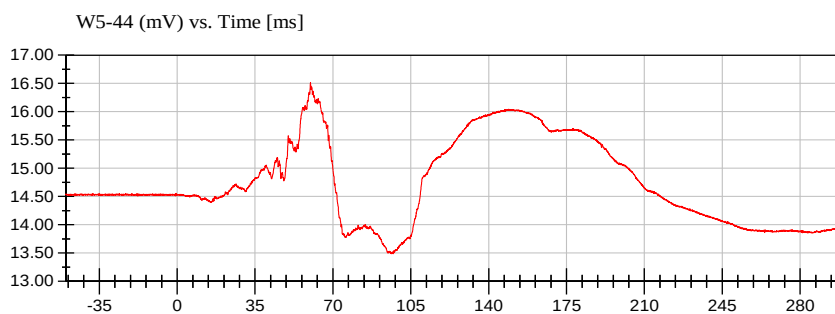
<Max>

13.99 mV at 281.30 ms

<Min>

12.55 mV at 88.70 ms

CFC_1000



<Max>

16.51 mV at 59.90 ms

<Min>

13.49 mV at 96.20 ms

CFC_1000



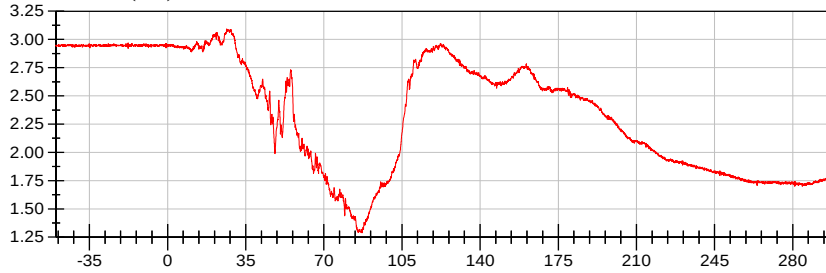
VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()

W5-45 (mV) vs. Time [ms]



<Max>

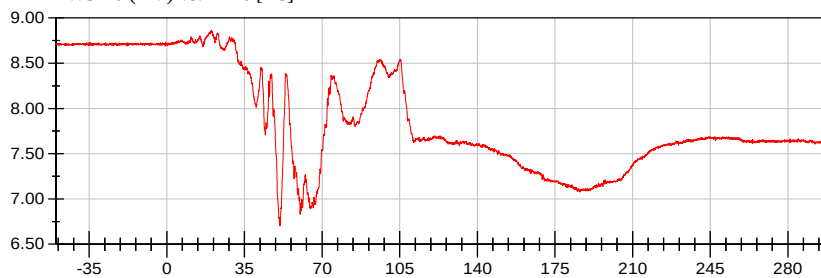
3.09 mV at 26.50 ms

<Min>

1.29 mV at 87.05 ms

CFC_1000

W5-46 (mV) vs. Time [ms]



<Max>

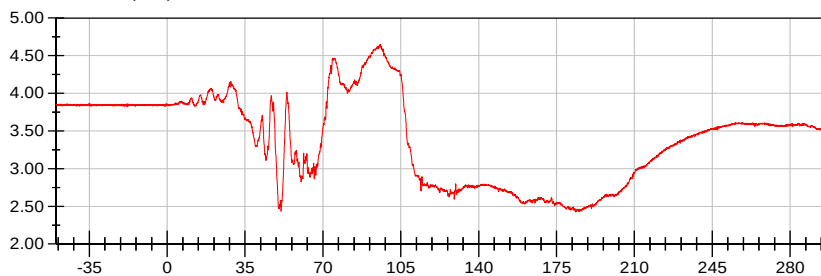
8.86 mV at 20.05 ms

<Min>

6.70 mV at 51.00 ms

CFC_1000

W5-47 (mV) vs. Time [ms]



<Max>

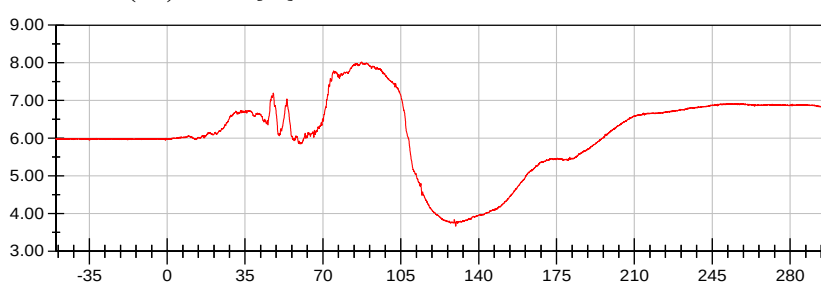
4.65 mV at 95.80 ms

<Min>

2.42 mV at 183.55 ms

CFC_1000

W5-48 (mV) vs. Time [ms]



<Max>

8.02 mV at 87.20 ms

<Min>

3.67 mV at 129.70 ms

CFC_1000



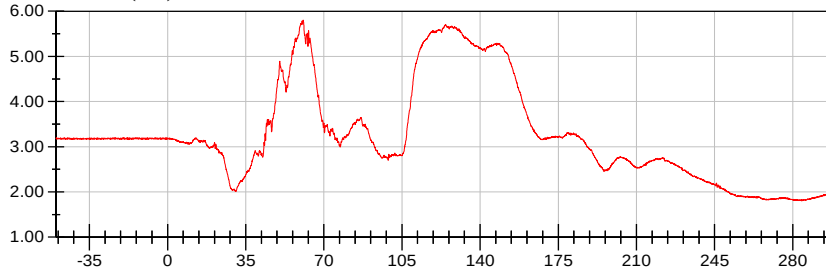
VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()

W5-49 (mV) vs. Time [ms]



<Max>

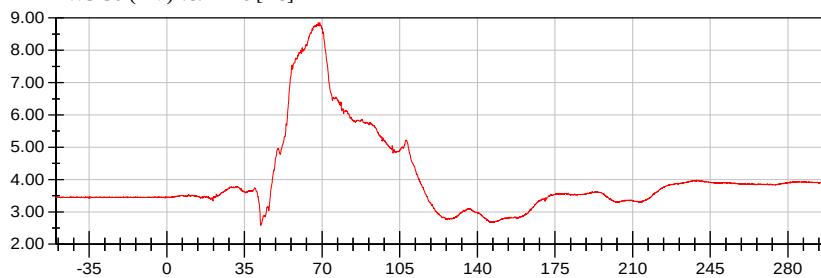
5.80 mV at 60.75 ms

<Min>

1.80 mV at 284.10 ms

CFC_1000

W5-50 (mV) vs. Time [ms]



<Max>

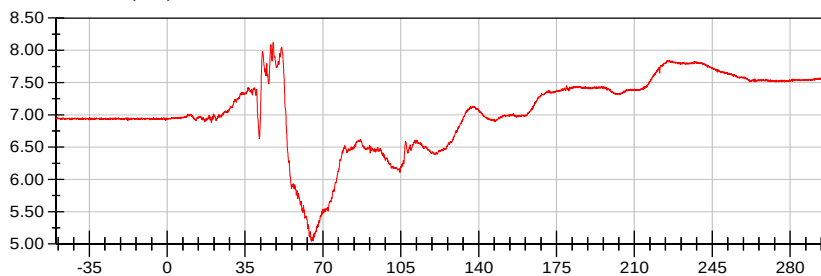
8.86 mV at 68.30 ms

<Min>

2.58 mV at 42.35 ms

CFC_1000

W5-51 (mV) vs. Time [ms]



<Max>

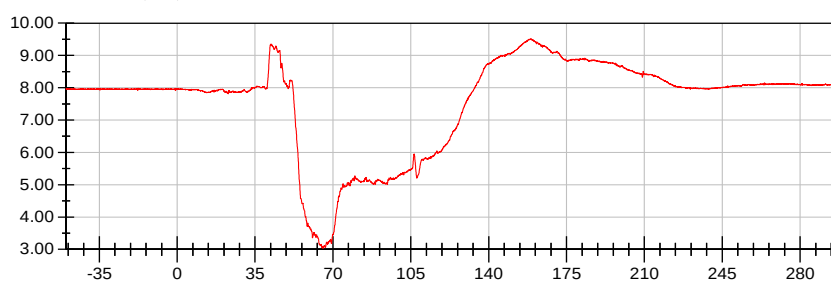
8.13 mV at 47.65 ms

<Min>

5.04 mV at 64.90 ms

CFC_1000

W5-52 (mV) vs. Time [ms]



<Max>

9.51 mV at 158.75 ms

<Min>

3.03 mV at 65.55 ms

CFC_1000



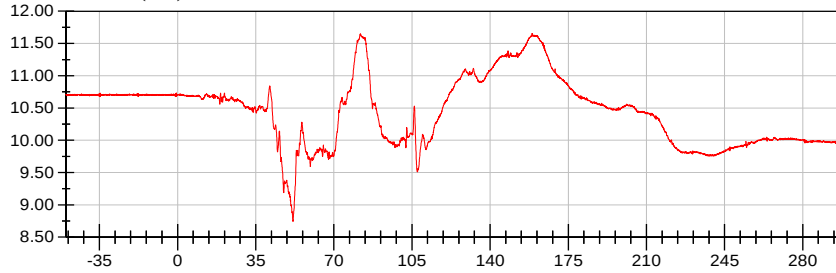
VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021

W5-53 (mV) vs. Time [ms]



<Max>

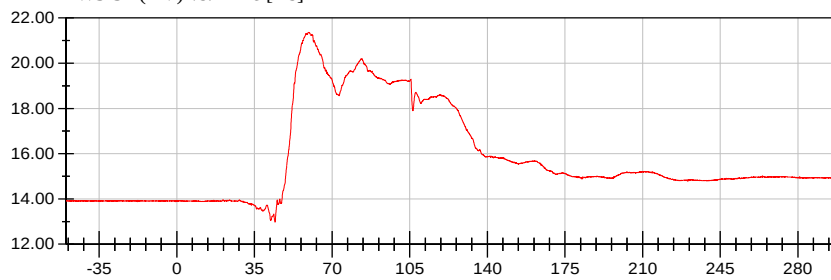
11.66 mV at 158.90 ms

<Min>

8.74 mV at 51.65 ms

CFC_1000

W5-54 (mV) vs. Time [ms]



<Max>

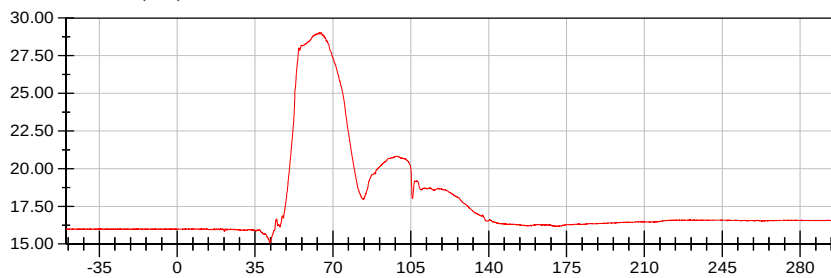
21.37 mV at 59.25 ms

<Min>

12.98 mV at 44.30 ms

CFC_1000

W5-55 (mV) vs. Time [ms]



<Max>

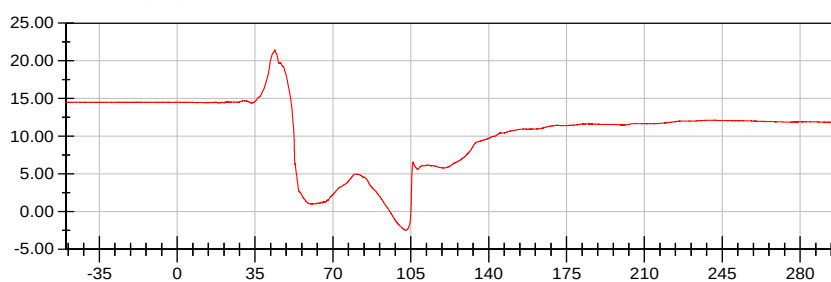
29.04 mV at 64.15 ms

<Min>

15.07 mV at 41.80 ms

CFC_1000

W5-56 (mV) vs. Time [ms]



<Max>

21.47 mV at 43.90 ms

<Min>

-2.47 mV at 102.70 ms

CFC_1000



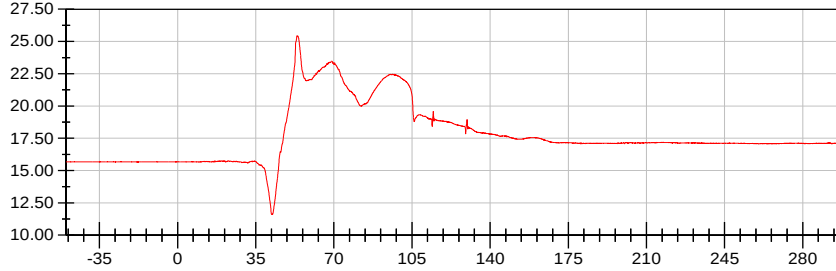
VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021

W5-57 (mV) vs. Time [ms]



<Max>

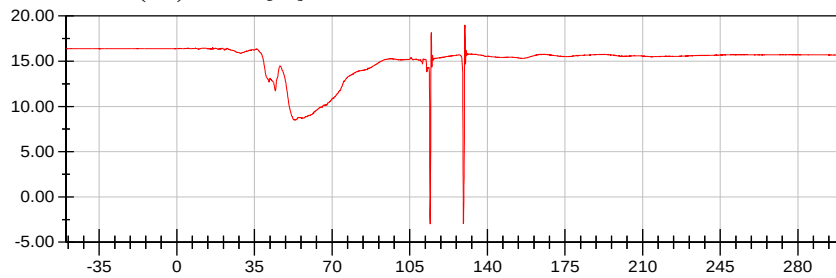
25.43 mV at 53.45 ms

<Min>

11.59 mV at 42.15 ms

CFC_1000

W5-58 (mV) vs. Time [ms]



<Max>

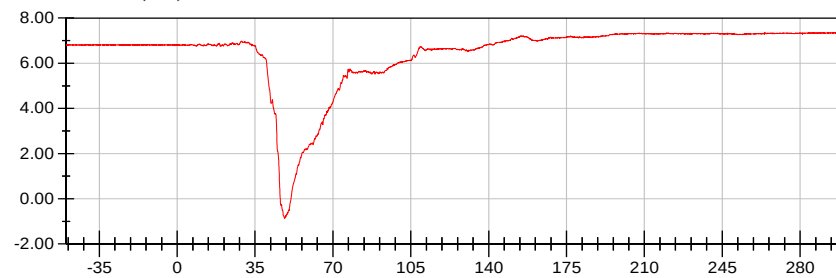
18.99 mV at 129.85 ms

<Min>

-2.97 mV at 114.20 ms

CFC_1000

W5-59 (mV) vs. Time [ms]



<Max>

7.37 mV at 297.75 ms

<Min>

-0.87 mV at 48.30 ms

CFC_1000



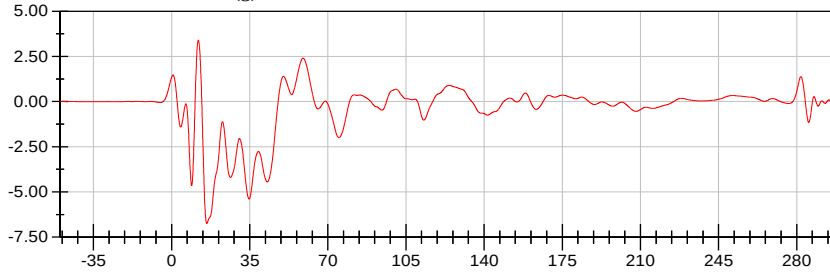
VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021

VEHICLE CG AX (g) vs. Time [ms]



<Max>

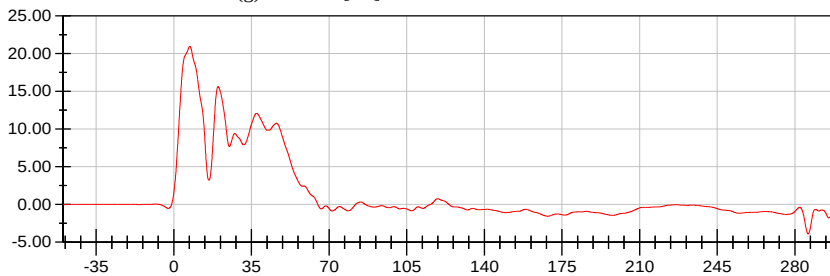
3.40 g at 12.00 ms

<Min>

-6.75 g at 15.80 ms

CFC_60

VEHICLE CG AY (g) vs. Time [ms]



<Max>

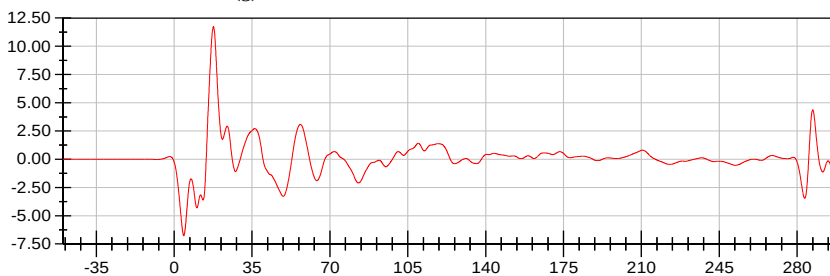
20.98 g at 7.25 ms

<Min>

-3.89 g at 286.00 ms

CFC_60

VEHICLE CG AZ (g) vs. Time [ms]



<Max>

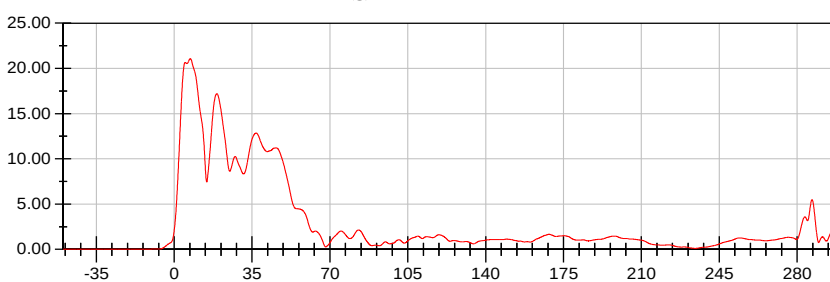
11.74 g at 17.65 ms

<Min>

-6.76 g at 4.30 ms

CFC_60

VEHICLE CG A RESULTANT (g) vs. Time [ms]



<Max>

21.08 g at 7.25 ms

<Min>

0.00 g at -15.70 ms

CFC_60

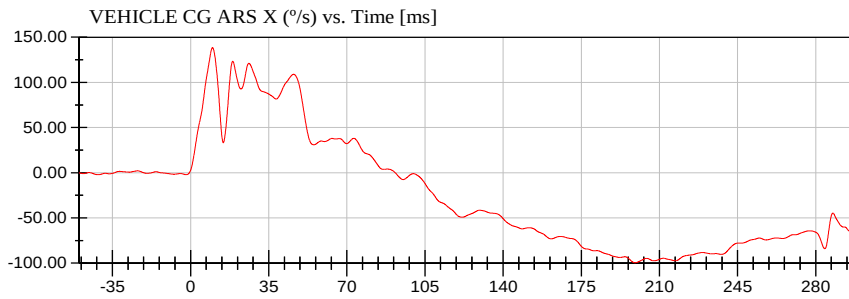


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



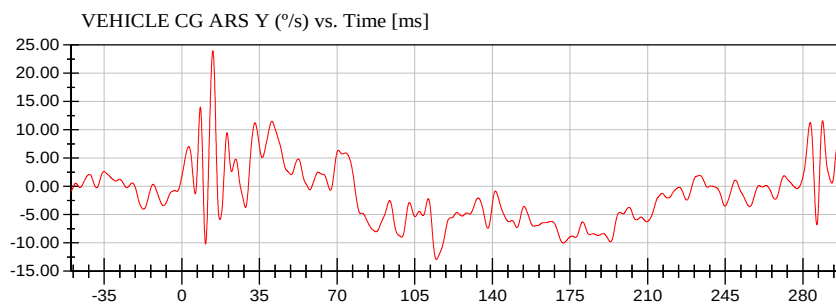
<Max>

138.46 °/s at 9.85 ms

<Min>

-99.53 °/s at 199.05 ms

CFC_60



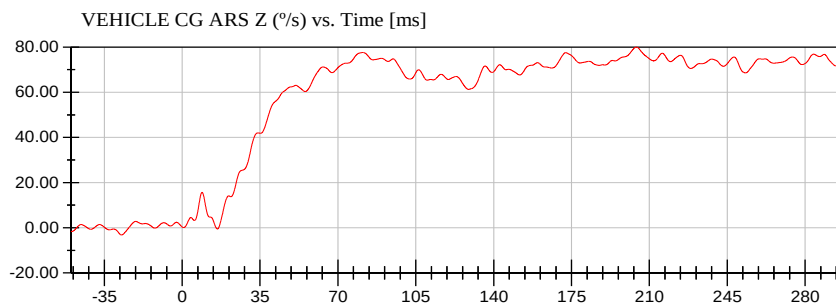
<Max>

23.97 °/s at 13.95 ms

<Min>

-12.92 °/s at 114.75 ms

CFC_60



<Max>

79.92 °/s at 204.15 ms

<Min>

-3.17 °/s at -27.25 ms

CFC_60

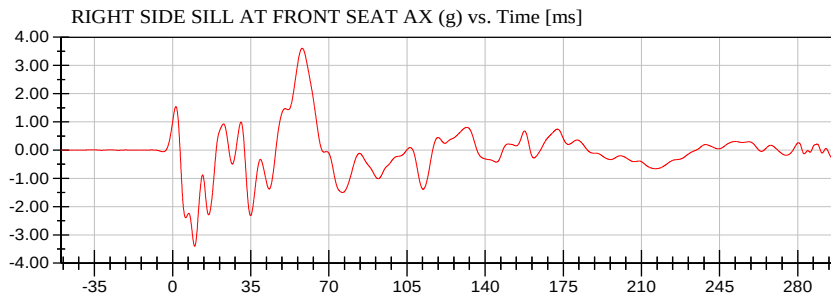


VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()



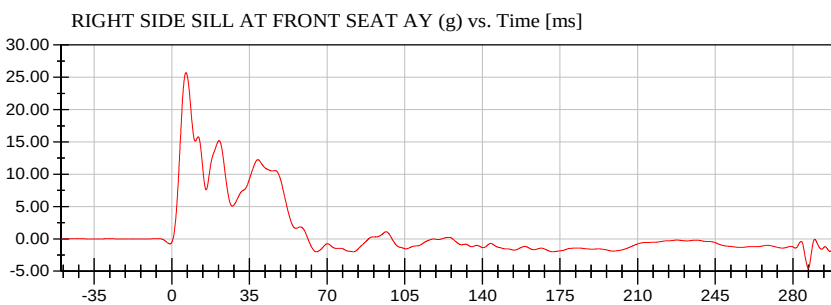
<Max>

3.61 g at 58.05 ms

<Min>

-3.40 g at 9.90 ms

CFC_60



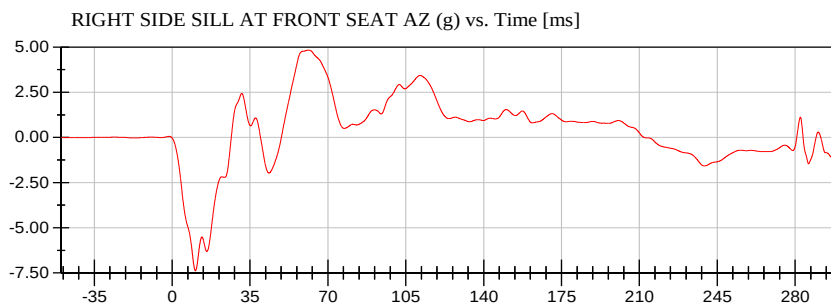
<Max>

25.73 g at 6.40 ms

<Min>

-4.54 g at 286.95 ms

CFC_60



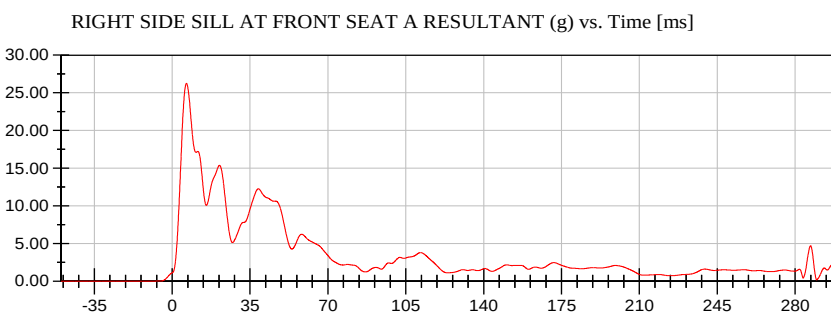
<Max>

4.83 g at 61.30 ms

<Min>

-7.38 g at 10.45 ms

CFC_60



<Max>

26.25 g at 6.40 ms

<Min>

0.00 g at -12.10 ms

CFC_60

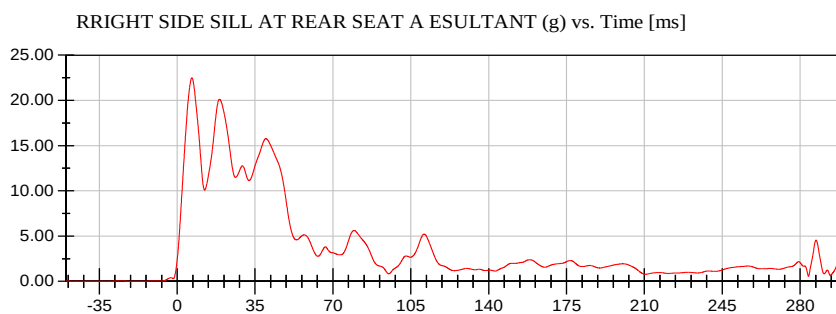
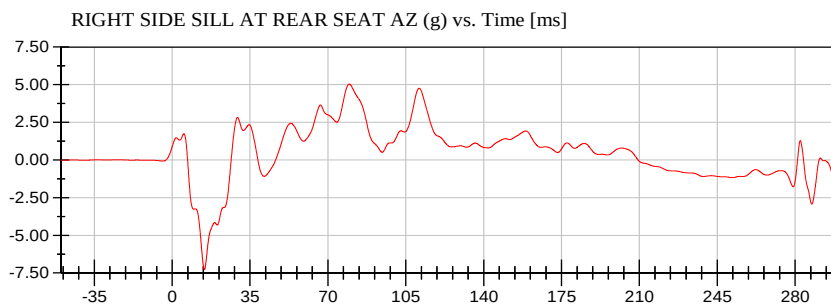
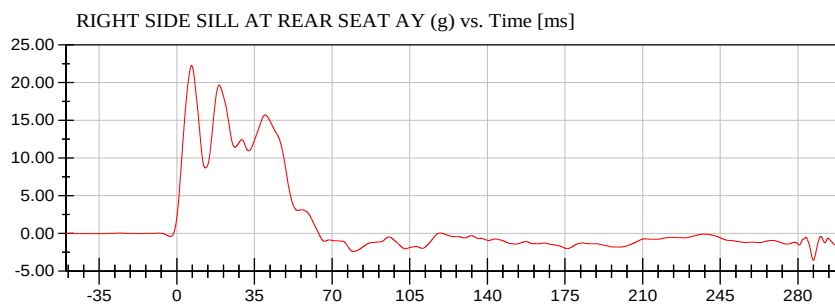
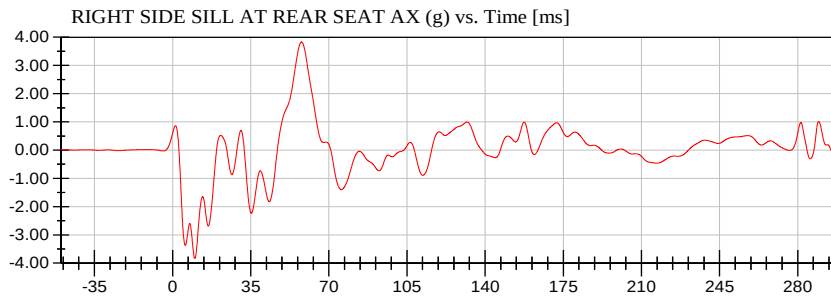


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021

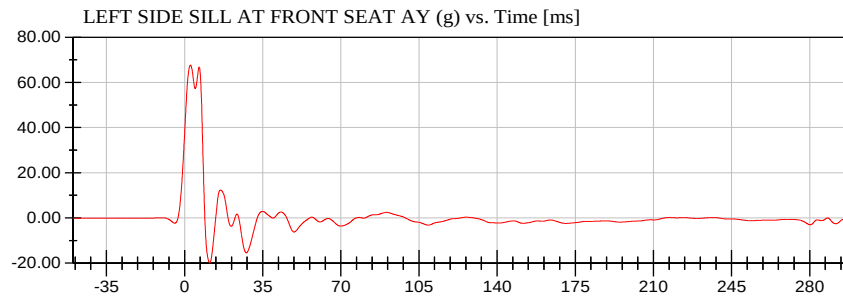


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



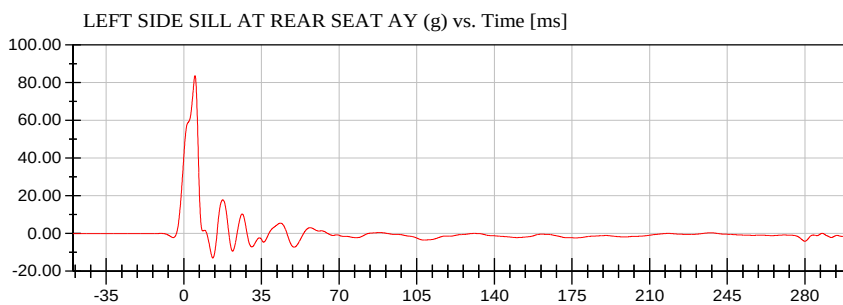
<Max>

67.63 g at 2.65 ms

<Min>

-19.91 g at 11.30 ms

CFC_60



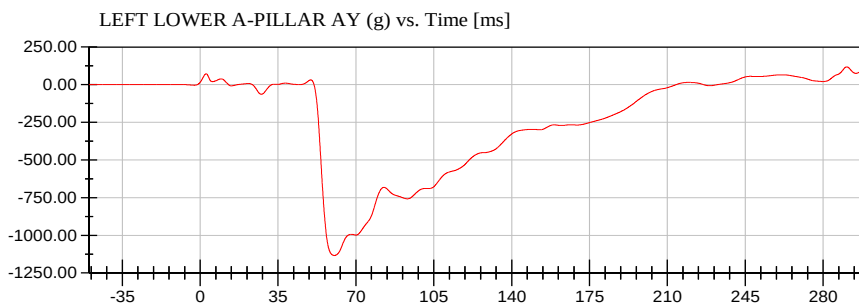
<Max>

83.71 g at 5.05 ms

<Min>

-13.03 g at 13.10 ms

CFC_60



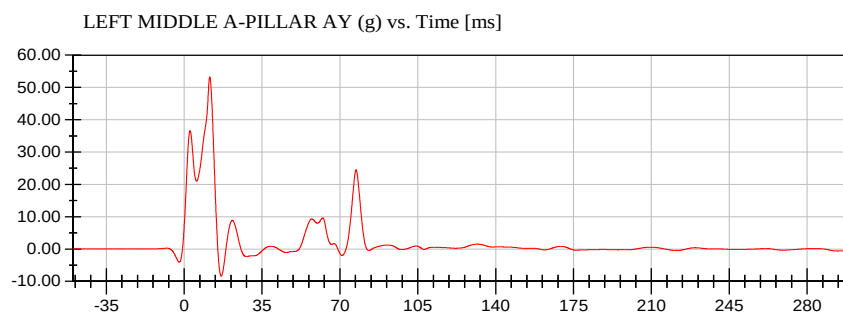
<Max>

118.02 g at 290.60 ms

<Min>

-1,133.74 g at 60.30 ms

CFC_60



<Max>

53.27 g at 11.50 ms

<Min>

-8.38 g at 16.65 ms

CFC_60



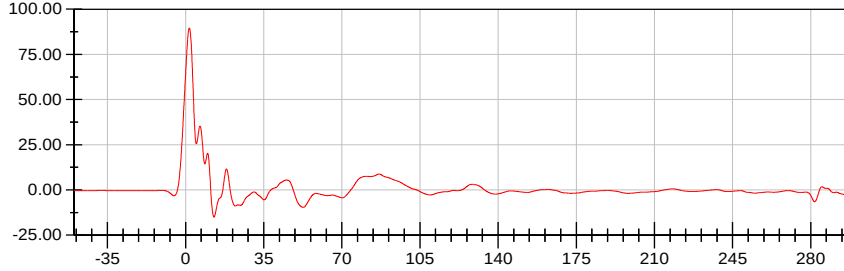
VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()

LEFT LOWER B-PILLAR AY (g) vs. Time [ms]



<Max>

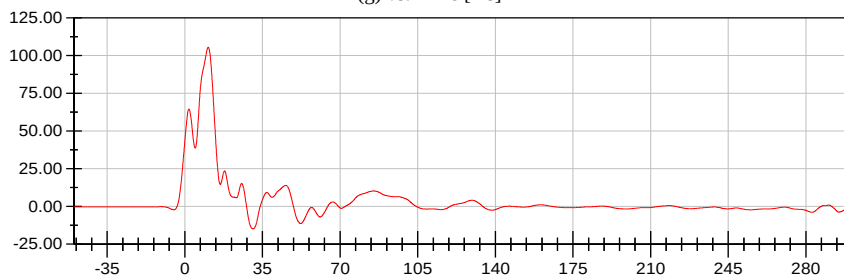
89.57 g at 1.70 ms

<Min>

-15.03 g at 12.75 ms

CFC_60

LEFT MIDDLE B-PILLAR AY (g) vs. Time [ms]



<Max>

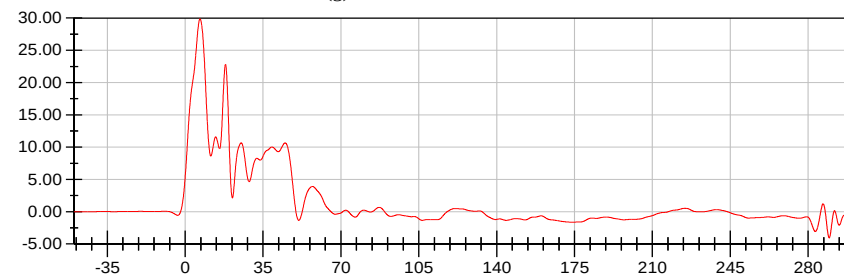
105.58 g at 10.55 ms

<Min>

-14.84 g at 30.70 ms

CFC_60

FRONT SEAT TRACK AY (g) vs. Time [ms]



<Max>

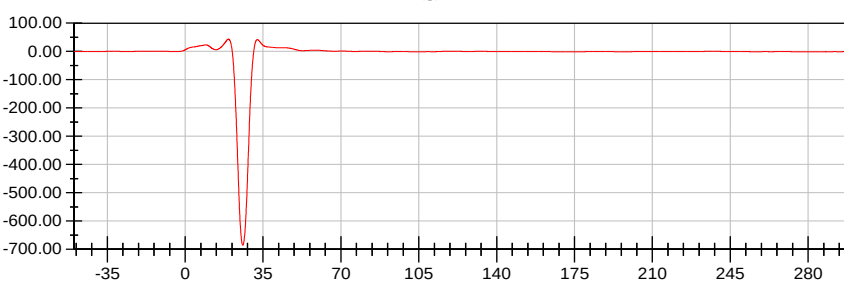
29.87 g at 6.65 ms

<Min>

-4.05 g at 289.45 ms

CFC_60

LEFT REAR SEAT STRUCTURE AY (g) vs. Time [ms]



<Max>

43.36 g at 19.45 ms

<Min>

-685.19 g at 25.95 ms

CFC_60



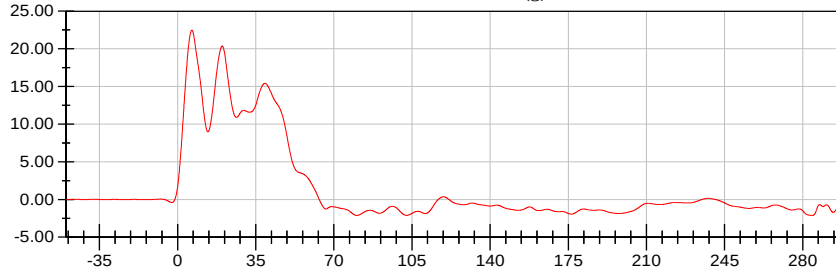
VRTC

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RIGHT REAR OCCUPANT COMPARTMENT AY (g) vs. Time [ms]



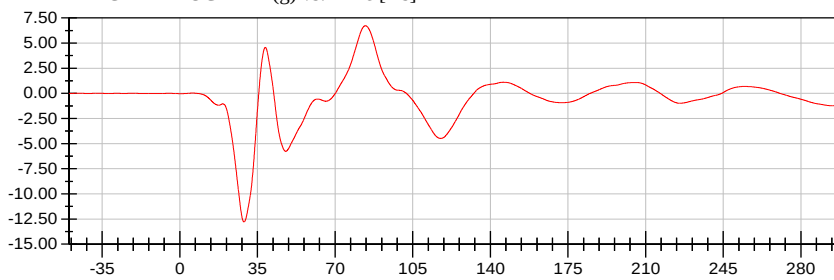
<Max>

22.49 g at 6.40 ms

<Min>

-2.12 g at 80.30 ms

ENGINE BLOCK AX (g) vs. Time [ms]



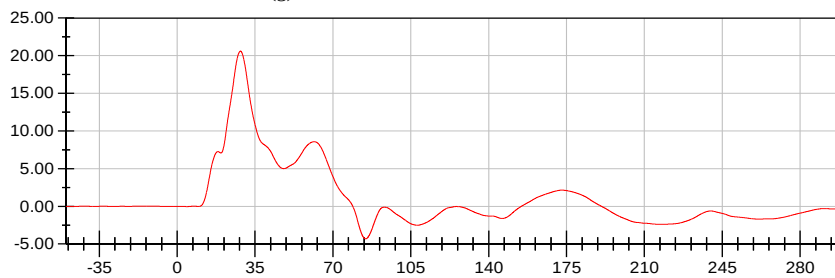
<Max>

6.73 g at 83.65 ms

<Min>

-12.79 g at 28.95 ms

ENGINE BLOCK AY (g) vs. Time [ms]



<Max>

20.61 g at 28.45 ms

<Min>

-4.32 g at 84.70 ms

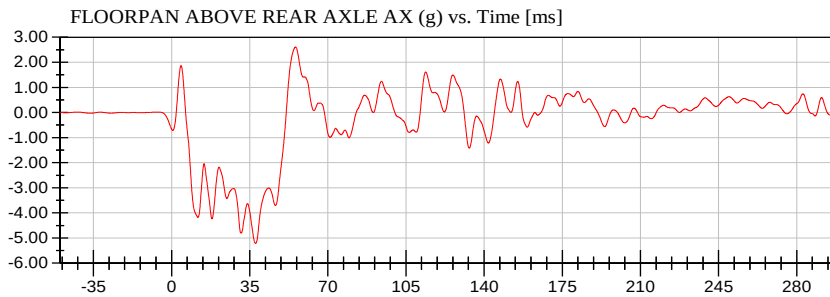


VRTC

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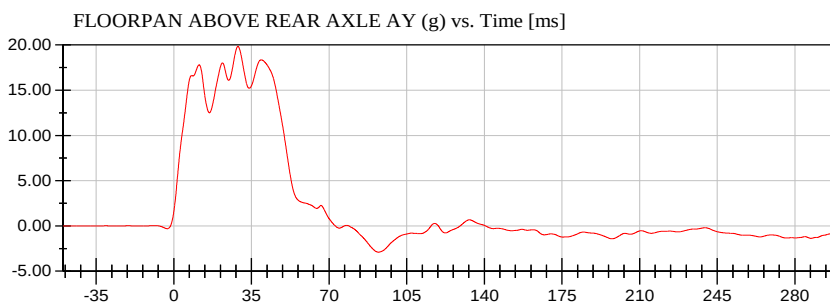
<Max>

2.61 g at 55.50 ms

<Min>

-5.22 g at 37.65 ms

CFC_60



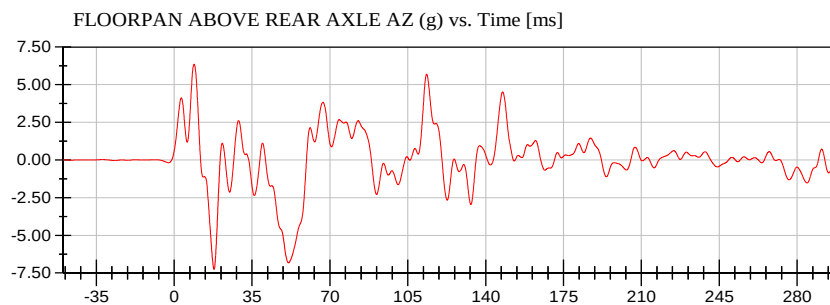
<Max>

19.85 g at 28.95 ms

<Min>

-2.89 g at 92.25 ms

CFC_60



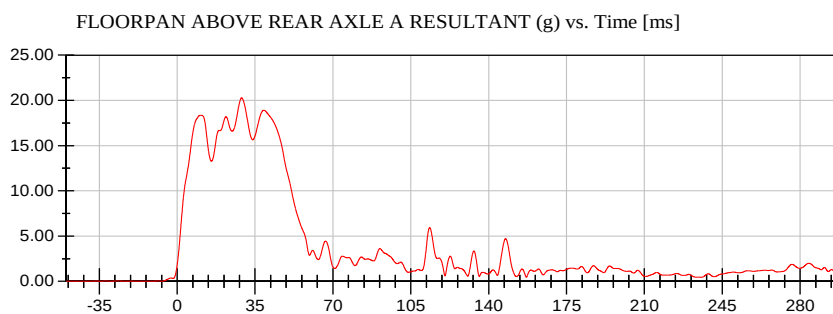
<Max>

6.36 g at 9.00 ms

<Min>

-7.25 g at 17.90 ms

CFC_60



<Max>

20.29 g at 29.00 ms

<Min>

0.00 g at -22.95 ms

CFC_60

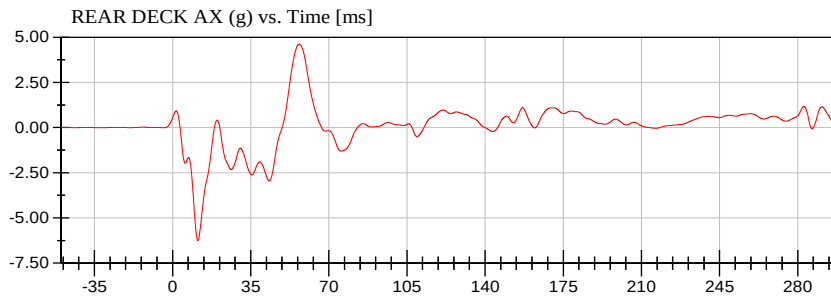


VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()



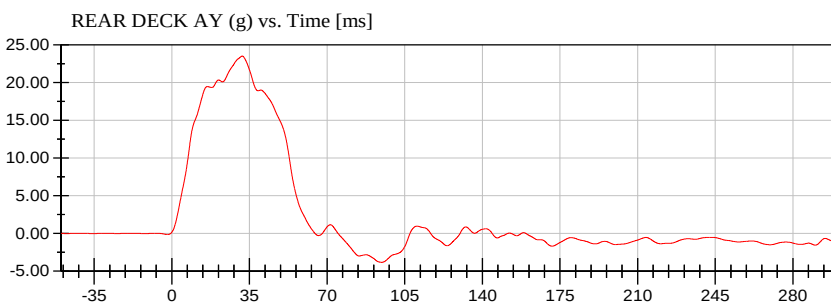
<Max>

4.62 g at 56.70 ms

<Min>

-6.26 g at 11.35 ms

CFC_60



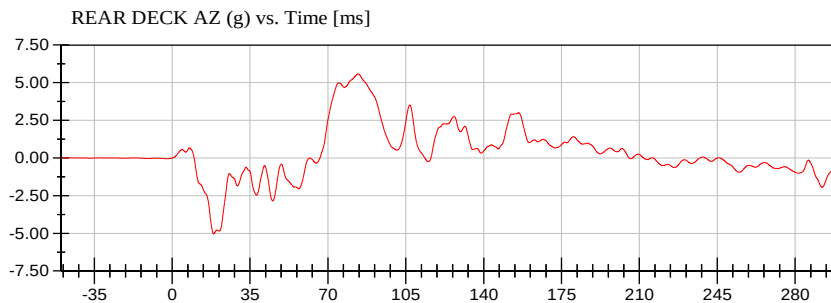
<Max>

23.52 g at 31.75 ms

<Min>

-3.82 g at 94.60 ms

CFC_60



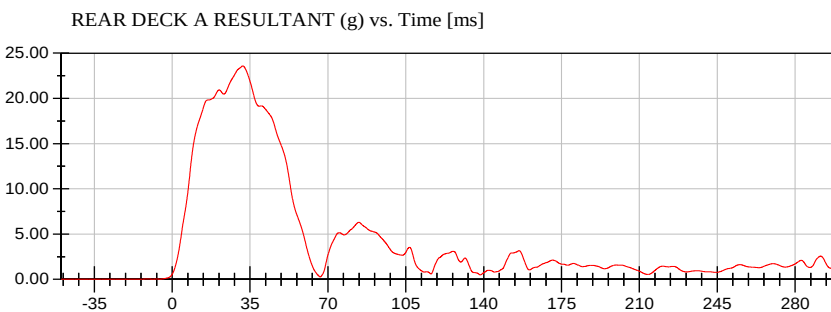
<Max>

5.58 g at 83.65 ms

<Min>

-5.04 g at 18.65 ms

CFC_60



<Max>

23.59 g at 31.80 ms

<Min>

0.00 g at -49.05 ms

CFC_60

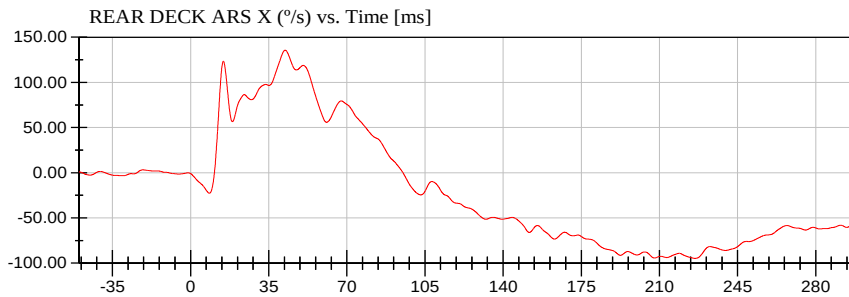


VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()



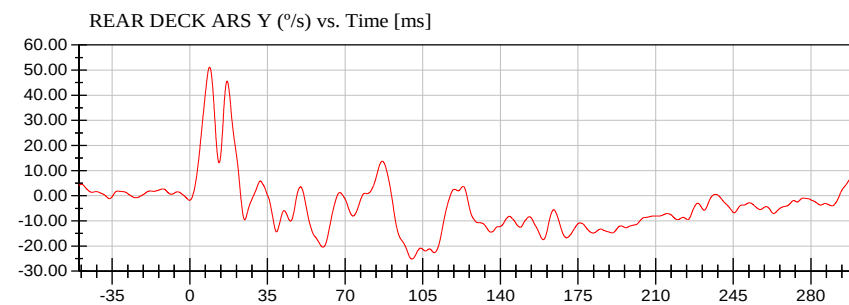
<Max>

135.57 °/s at 42.35 ms

<Min>

-94.68 °/s at 225.90 ms

CFC_60



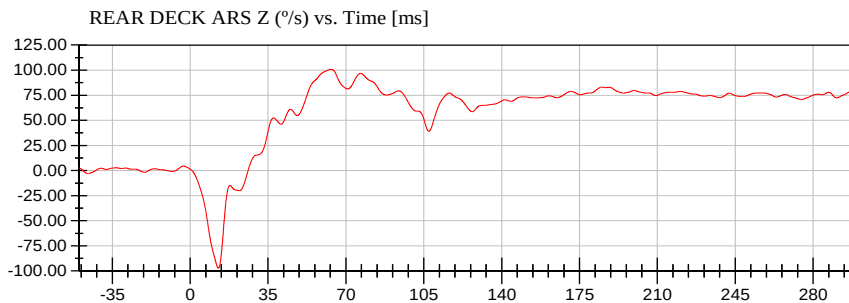
<Max>

51.14 °/s at 8.90 ms

<Min>

-25.17 °/s at 100.15 ms

CFC_60



<Max>

100.72 °/s at 63.30 ms

<Min>

-97.19 °/s at 12.70 ms

CFC_60



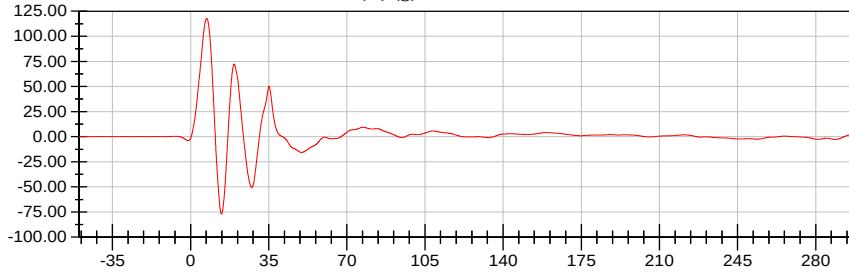
VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021

Left Front Door Mid Centerline (Y) (g) vs. Time [ms]



<Max>

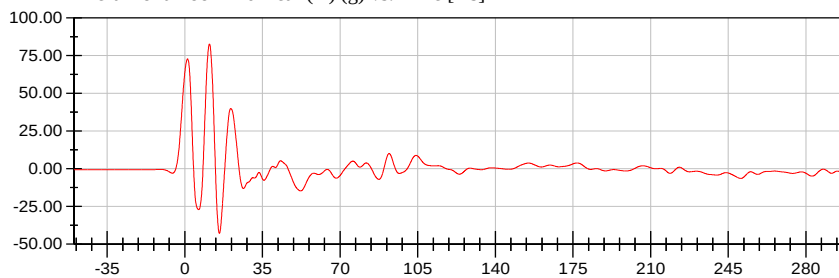
117.82 g at 7.25 ms

<Min>

-77.10 g at 13.80 ms

CFC_60

Left Front Door Mid Rear (Y) (g) vs. Time [ms]



<Max>

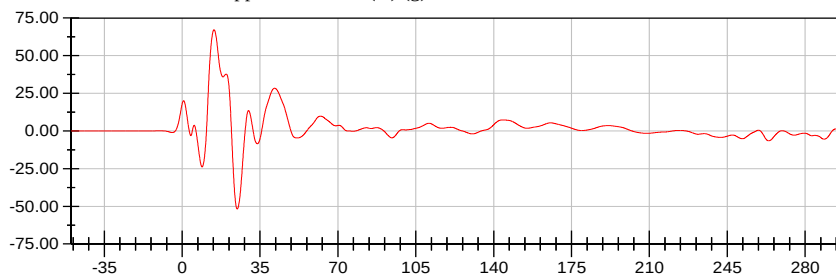
82.76 g at 11.10 ms

<Min>

-42.80 g at 15.60 ms

CFC_60

Left Front Door Upper Centerline (Y) (g) vs. Time [ms]



<Max>

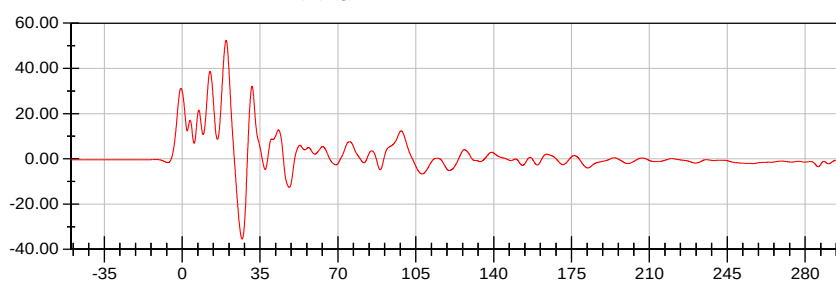
67.22 g at 14.30 ms

<Min>

-51.77 g at 24.70 ms

CFC_60

Left Rear Door Mid Rear (Y) (g) vs. Time [ms]



<Max>

52.38 g at 19.75 ms

<Min>

-35.49 g at 26.95 ms

CFC_60

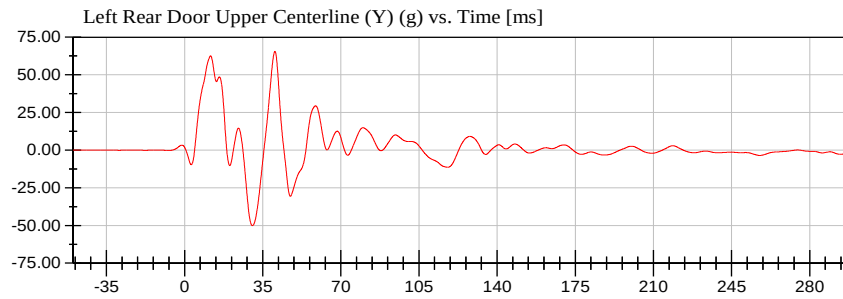


VRTC

Test Lab: CTF

Test Number: 210311 ()

Test Date: 03/11/2021



<Max>

65.56 g at 40.50 ms

<Min>

-50.07 g at 30.40 ms

CFC_60

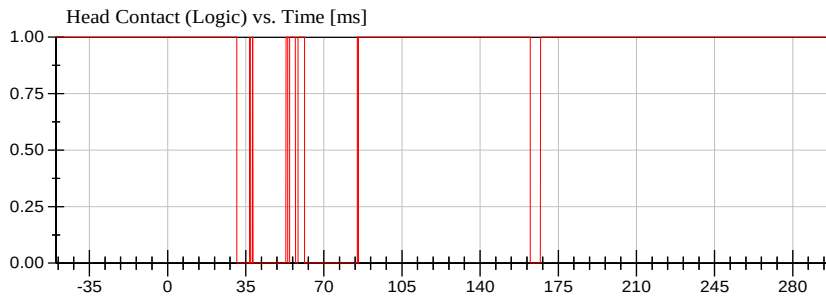


VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()



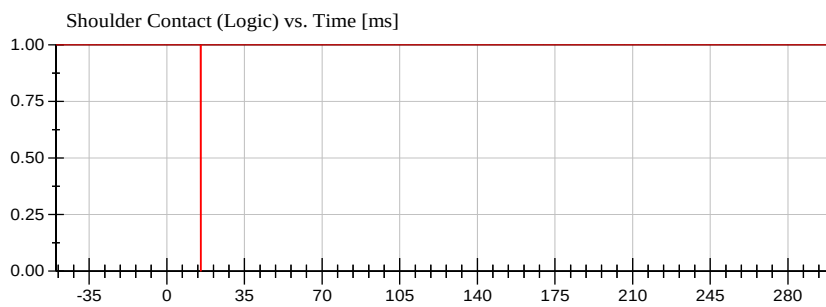
<Max>

1.00 Logic at -50.00 ms

<Min>

0.00 Logic at 31.00 ms

Unfiltered



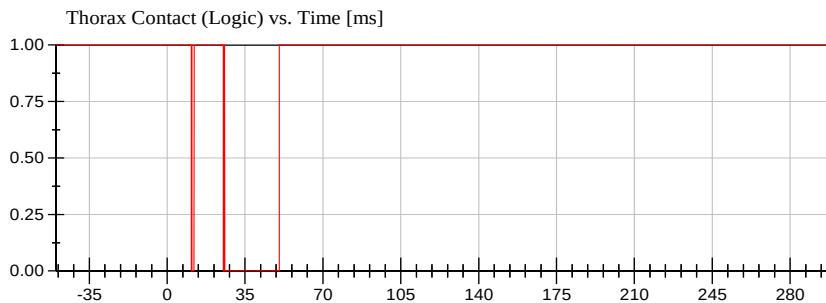
<Max>

1.00 Logic at -50.00 ms

<Min>

0.00 Logic at 15.15 ms

Unfiltered



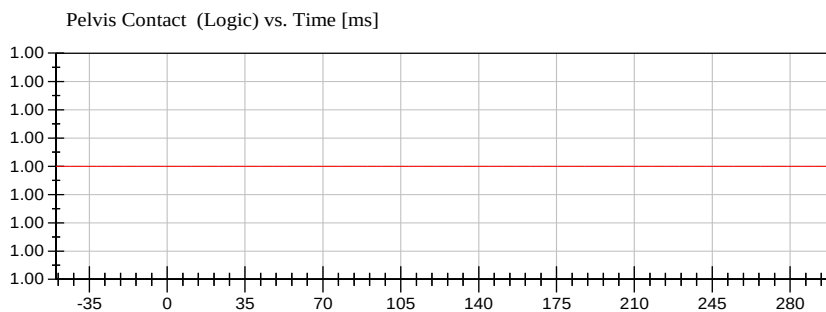
<Max>

1.00 Logic at -50.00 ms

<Min>

0.00 Logic at 10.85 ms

Unfiltered



<Max>

1.00 Logic at -50.00 ms

<Min>

1.00 Logic at -50.00 ms

Unfiltered

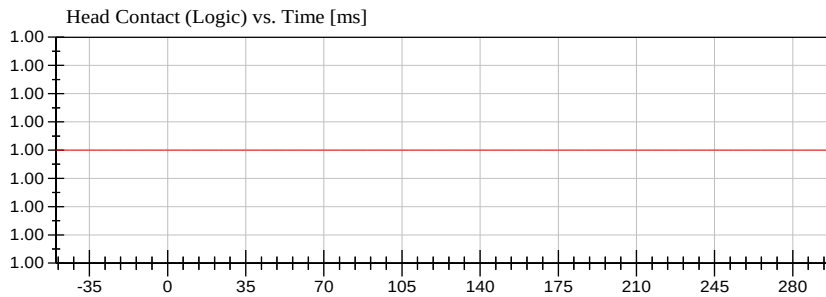


VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()



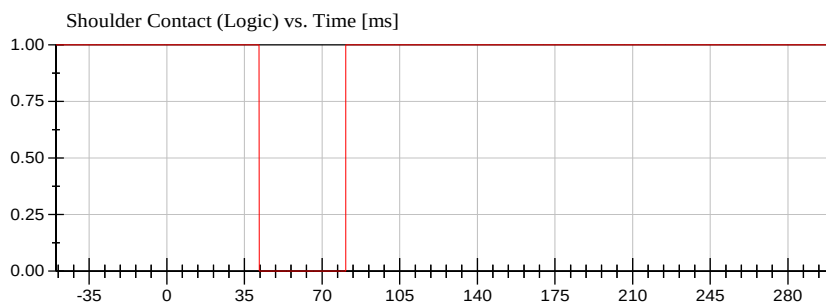
<Max>

1.00 Logic at -50.00 ms

<Min>

1.00 Logic at -50.00 ms

Unfiltered



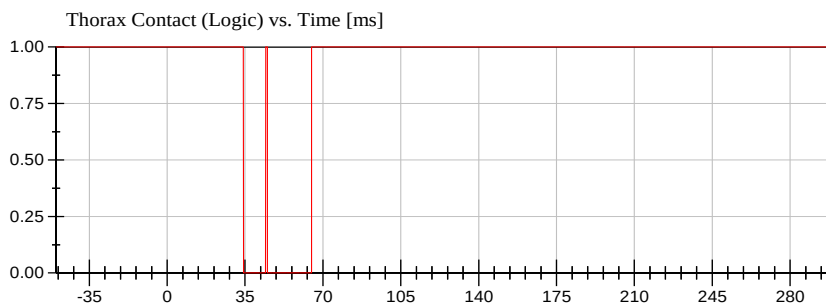
<Max>

1.00 Logic at -50.00 ms

<Min>

0.00 Logic at 41.65 ms

Unfiltered



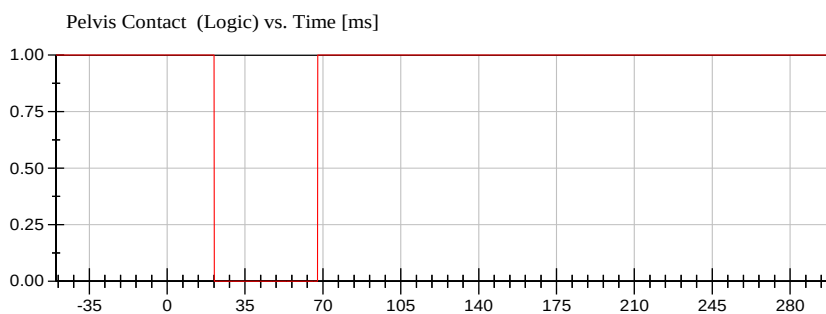
<Max>

1.00 Logic at -50.00 ms

<Min>

0.00 Logic at 34.30 ms

Unfiltered



<Max>

1.00 Logic at -50.00 ms

<Min>

0.00 Logic at 21.15 ms

Unfiltered

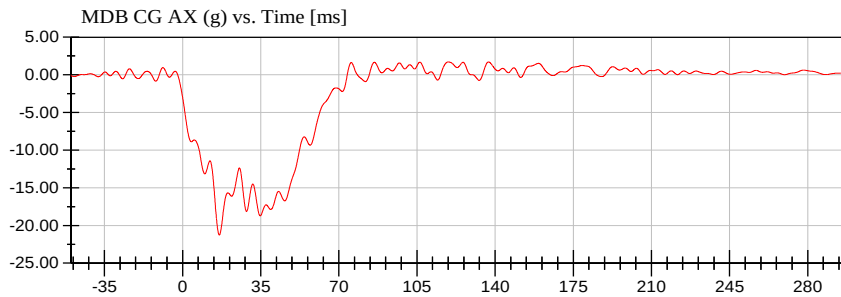


VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()



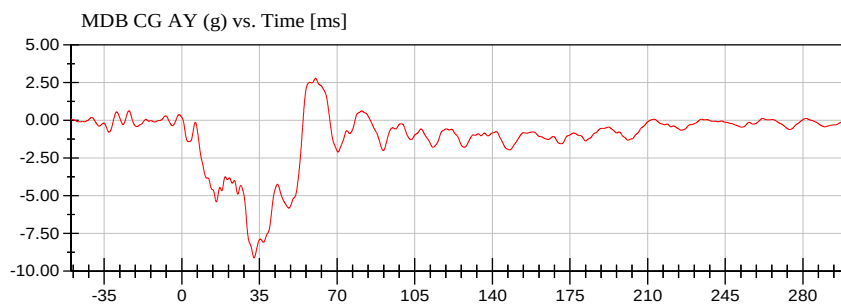
<Max>

1.71 g at 119.05 ms

<Min>

-21.27 g at 16.45 ms

CFC_60



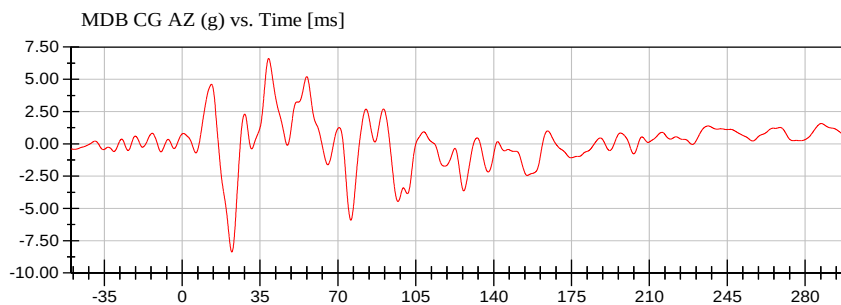
<Max>

2.79 g at 60.30 ms

<Min>

-9.11 g at 32.60 ms

CFC_60



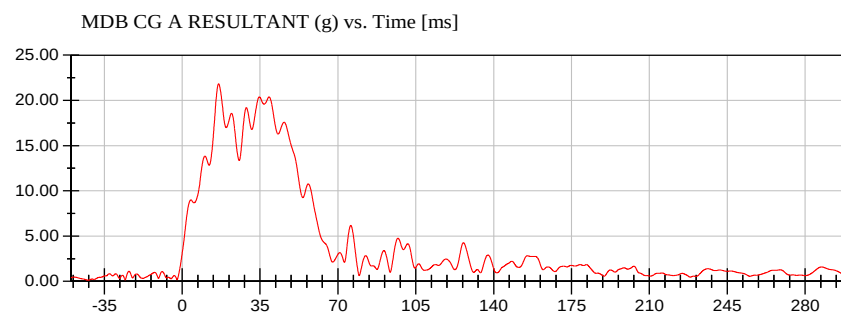
<Max>

6.62 g at 38.85 ms

<Min>

-8.37 g at 22.35 ms

CFC_60



<Max>

21.83 g at 16.40 ms

<Min>

0.13 g at -42.20 ms

CFC_60

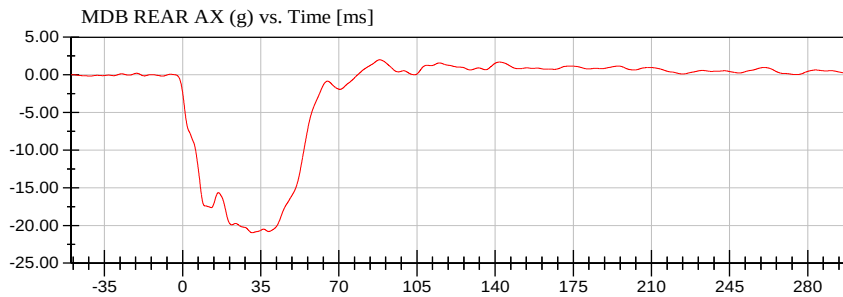


VRTC

Test Date: 03/11/2021

Test Lab: CTF

Test Number: 210311 ()



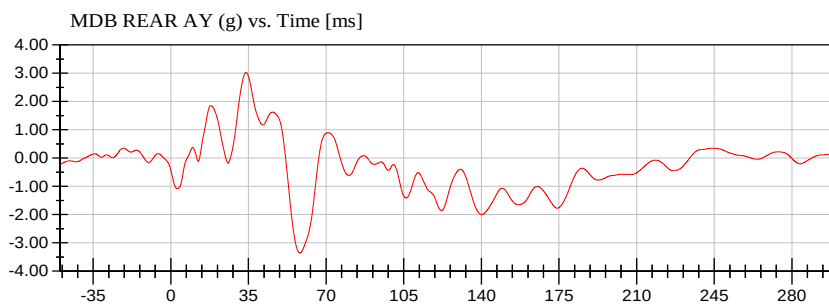
<Max>

2.00 g at 88.35 ms

<Min>

-20.96 g at 31.20 ms

CFC_60



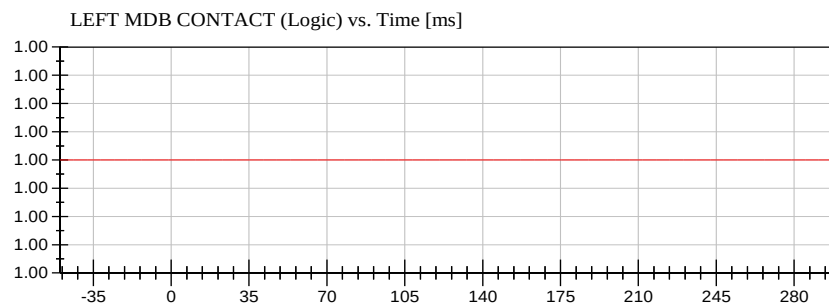
<Max>

3.03 g at 33.90 ms

<Min>

-3.36 g at 58.25 ms

CFC_60



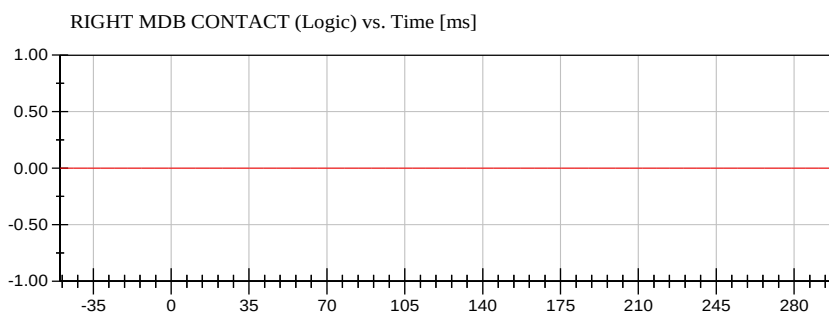
<Max>

1.00 Logic at -50.00 ms

<Min>

1.00 Logic at -50.00 ms

Unfiltered



<Max>

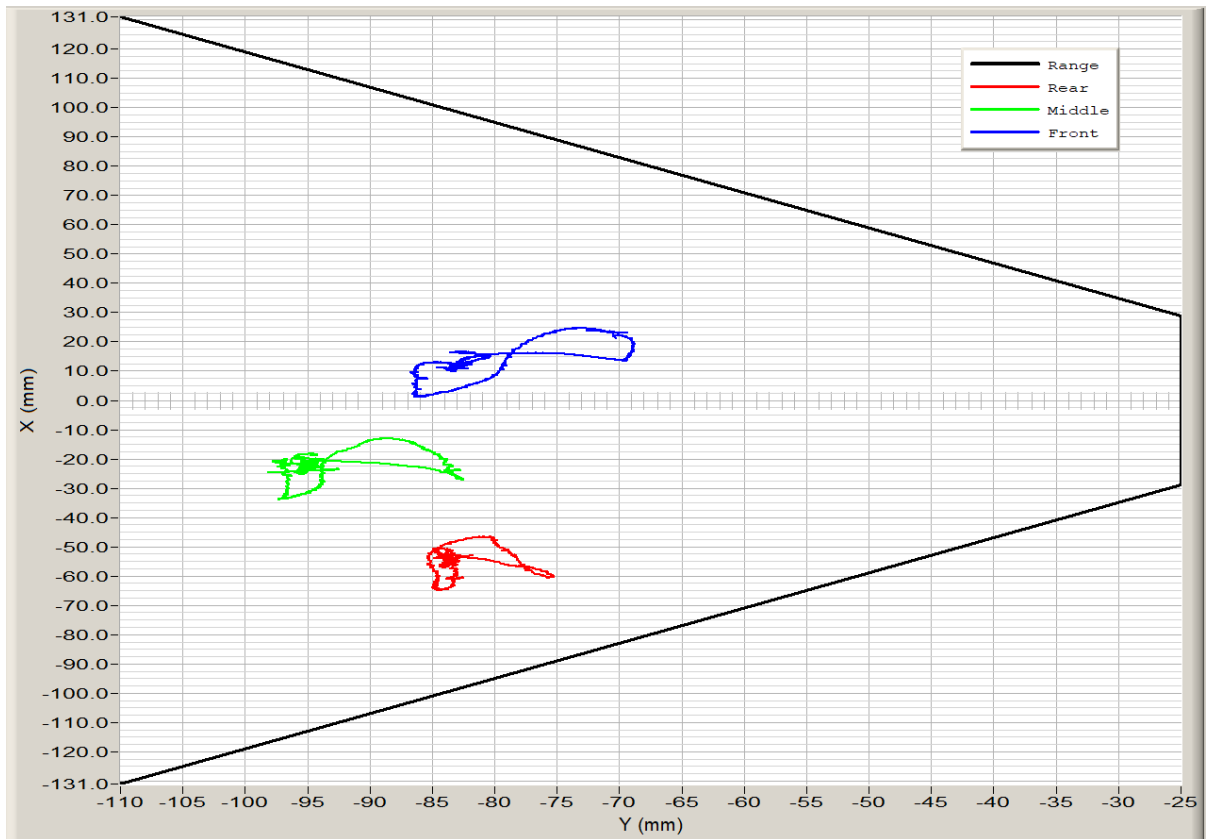
0.00 Logic at -50.00 ms

<Min>

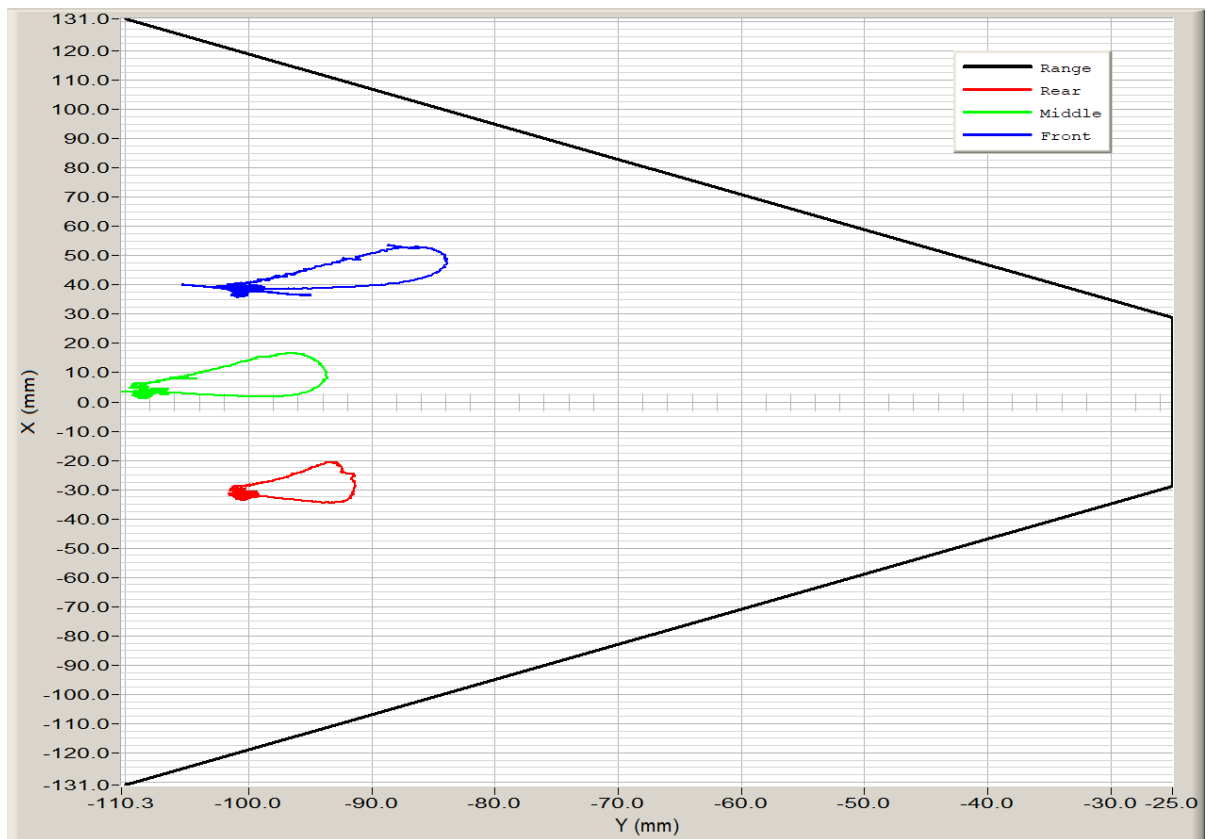
0.00 Logic at -50.00 ms

Unfiltered

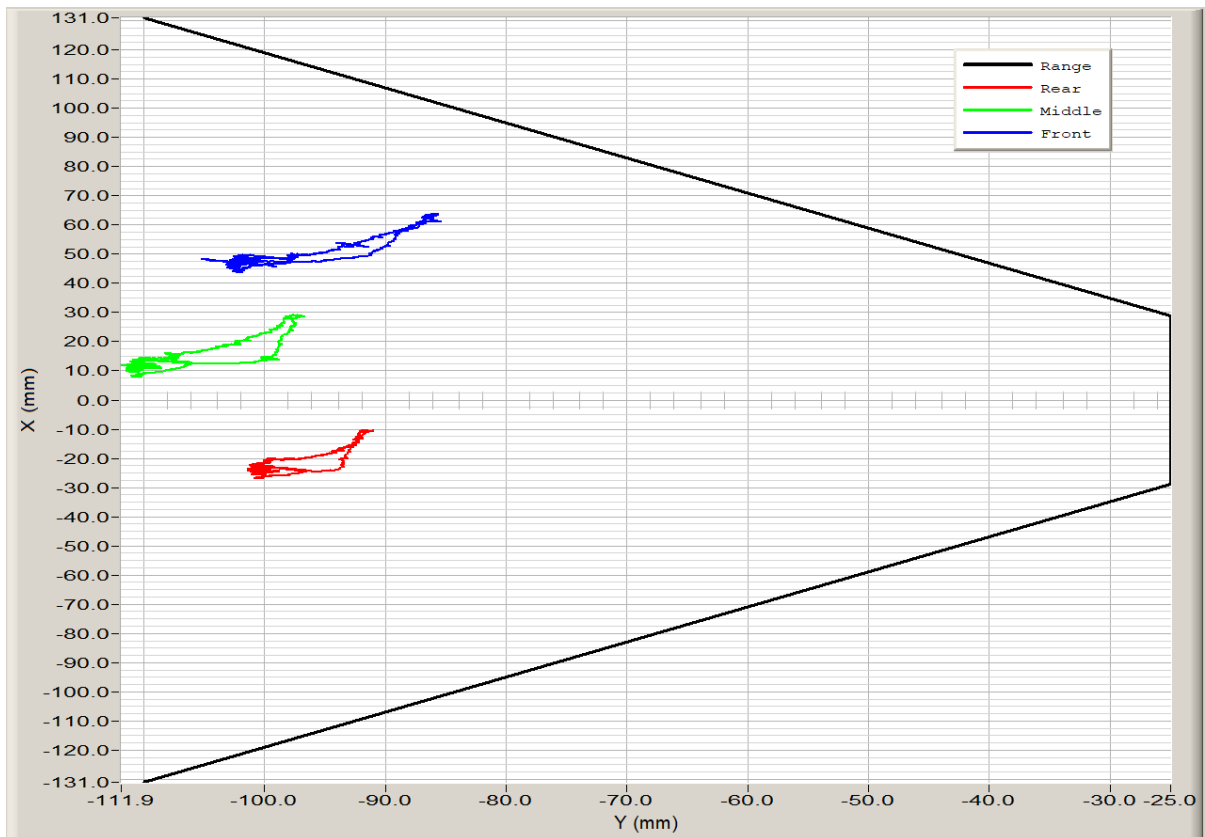




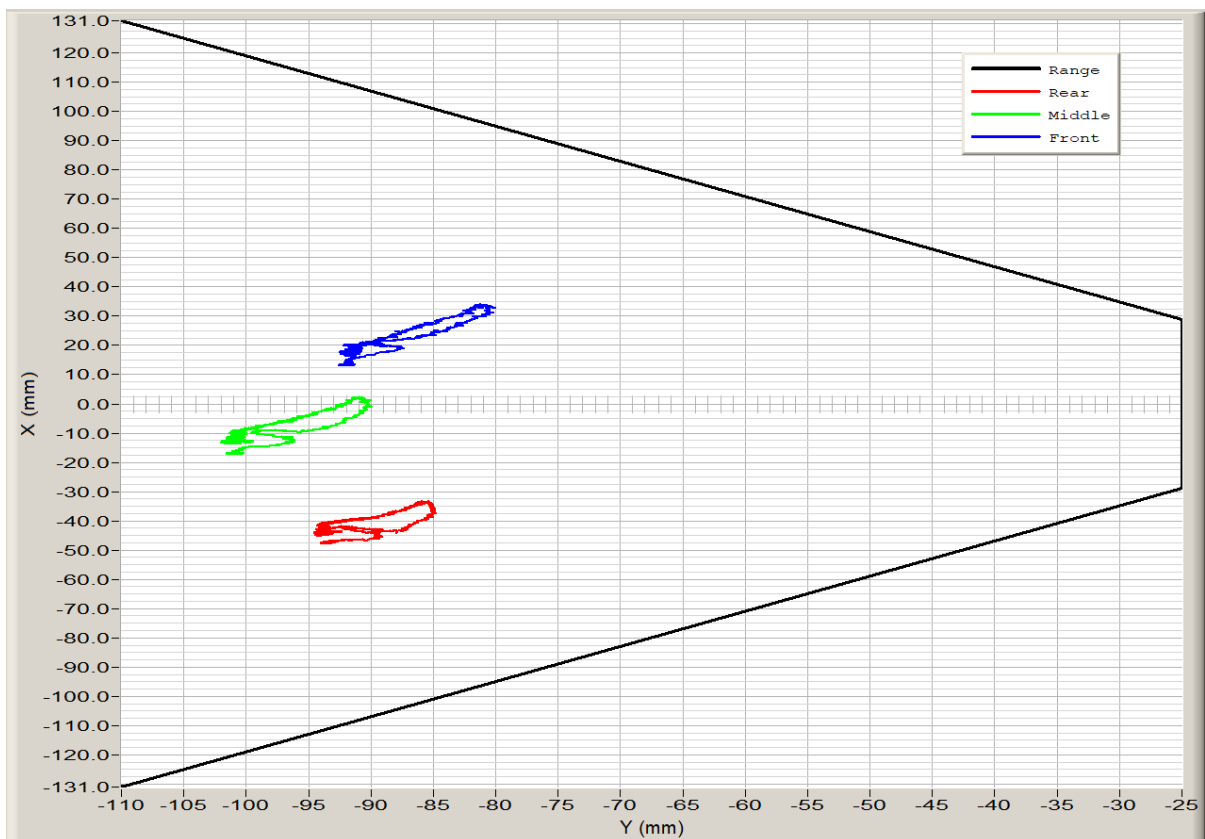
50th_Shoulder_XY



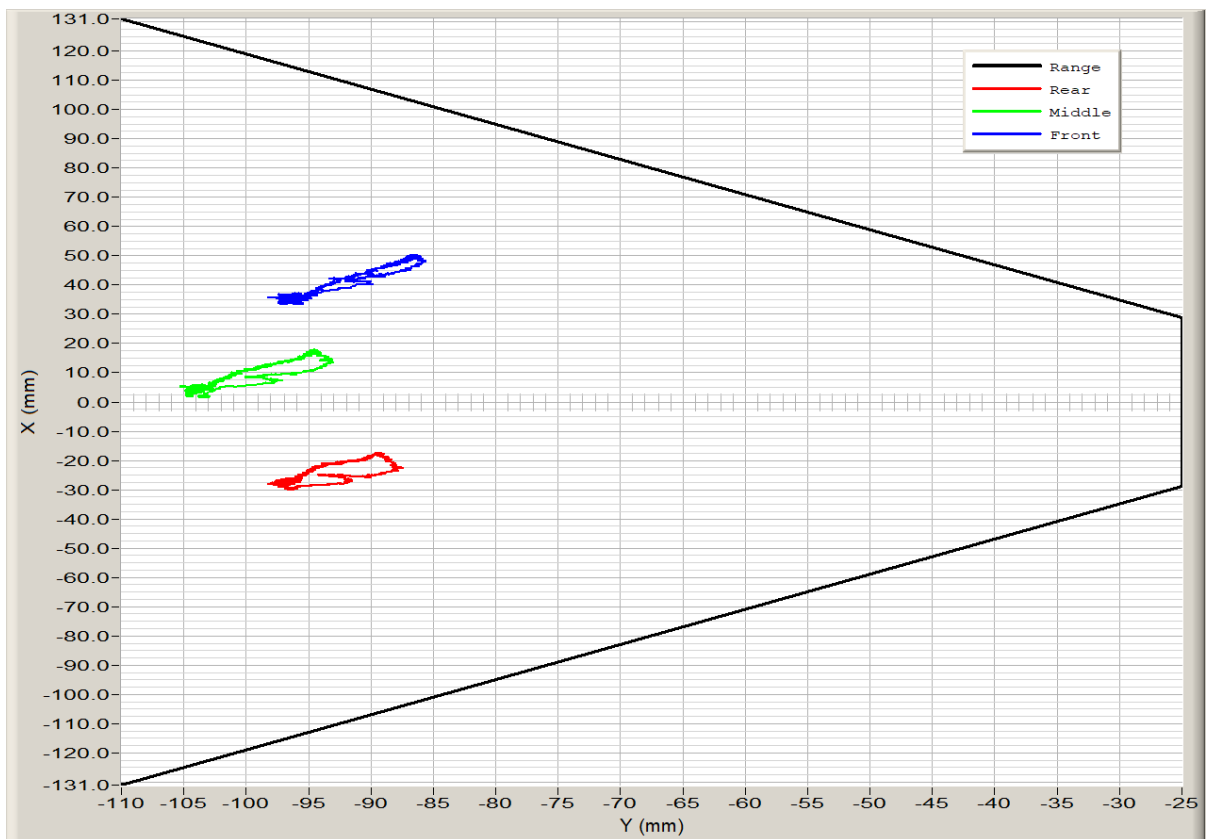
50th_Thorax_1_XY



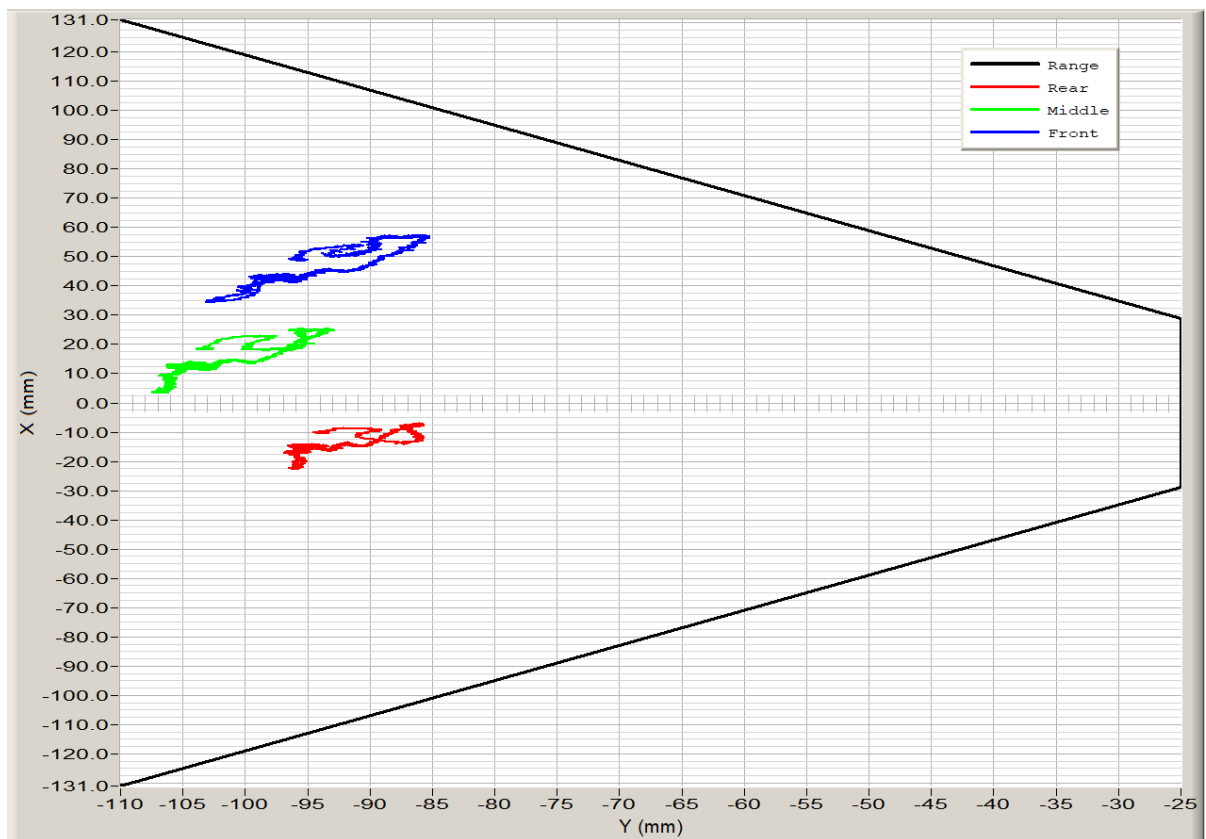
50th_Thorax_2_XY



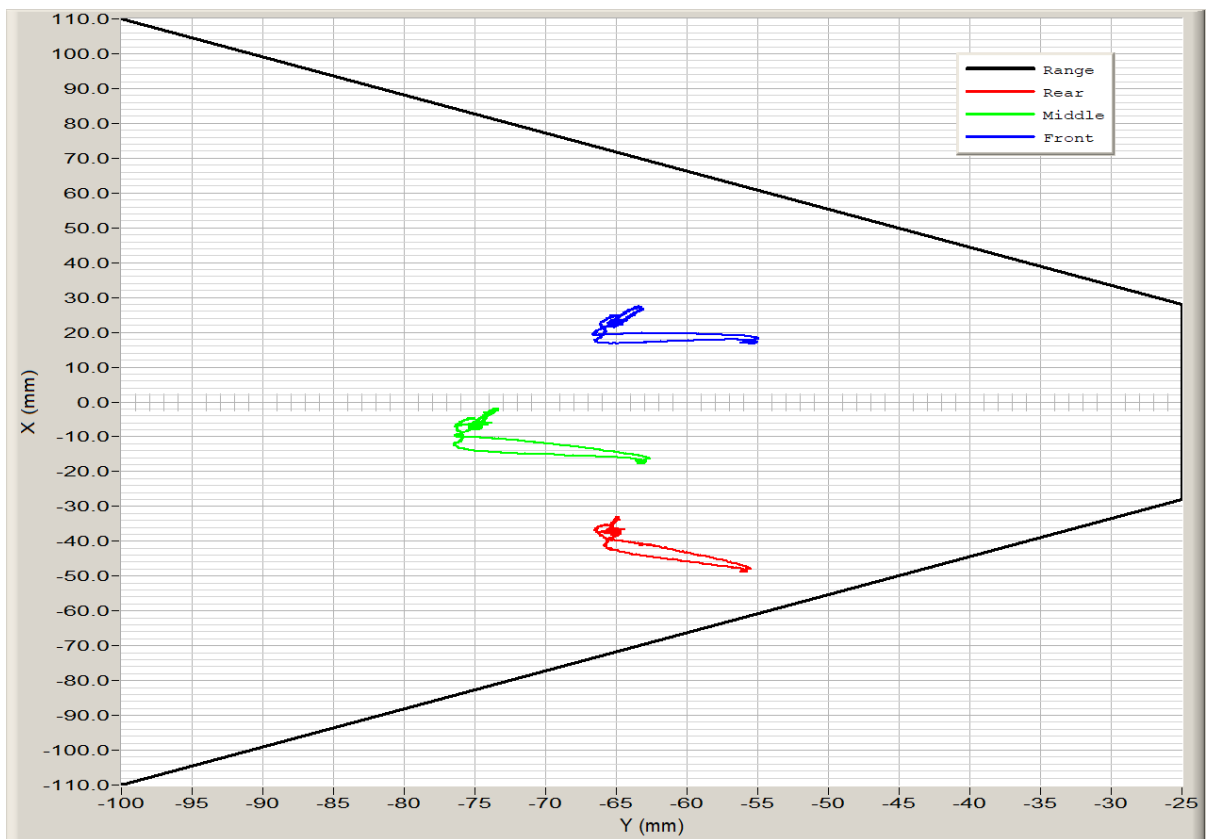
50th_Thorax_3_XY



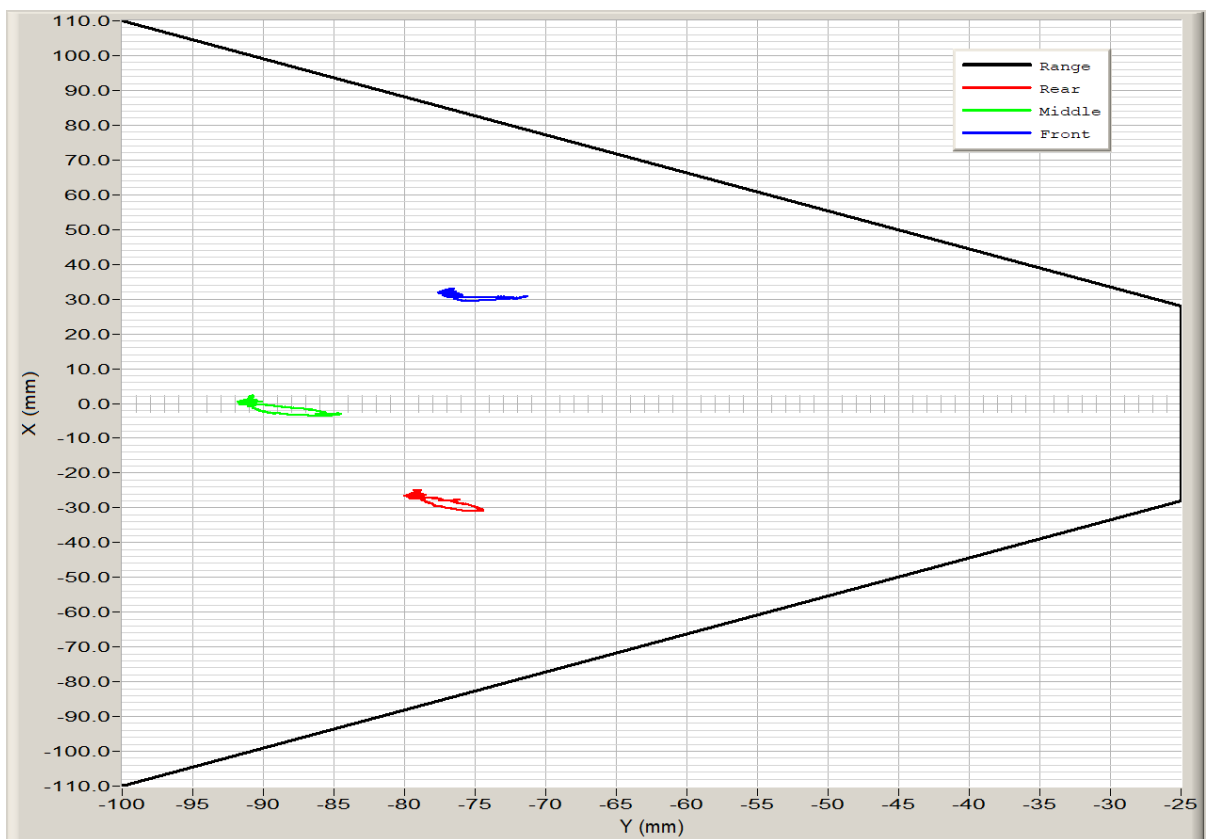
50th_Abdomen_1_XY



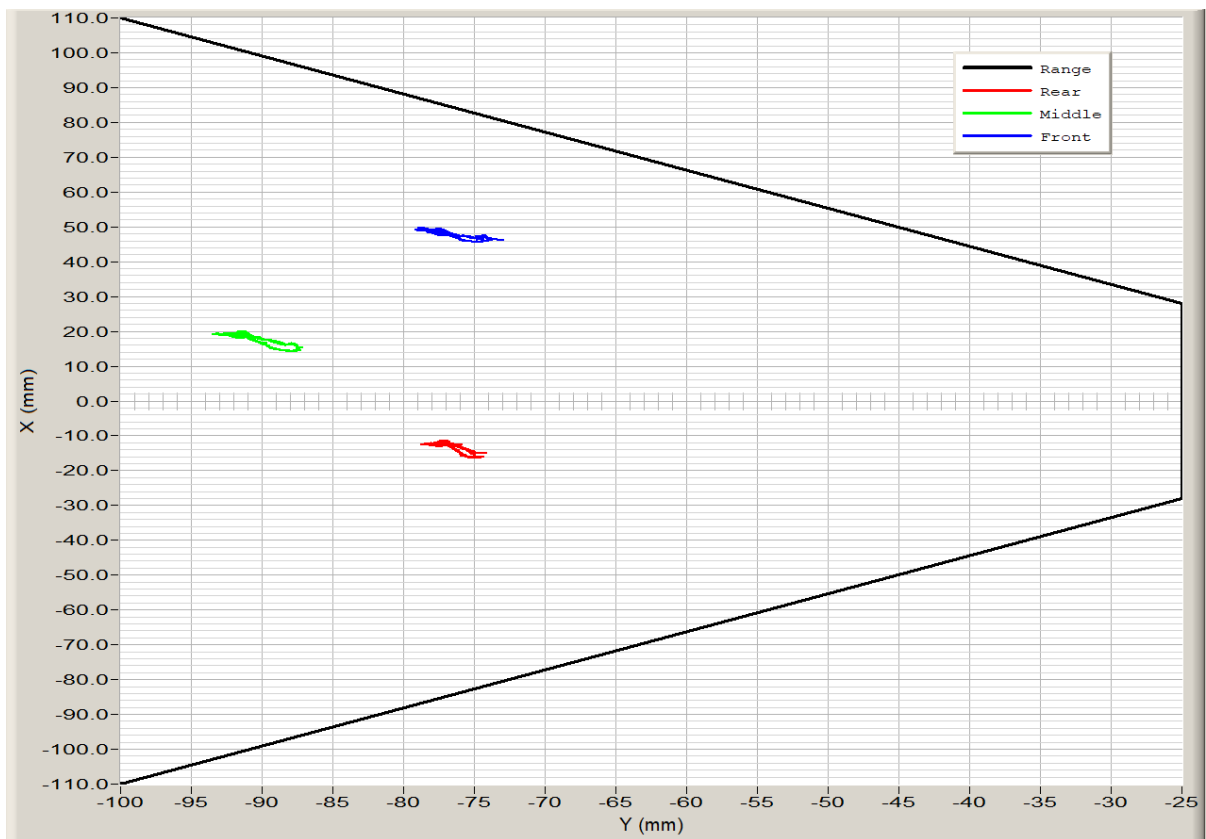
50th_Abdomen_2_XY



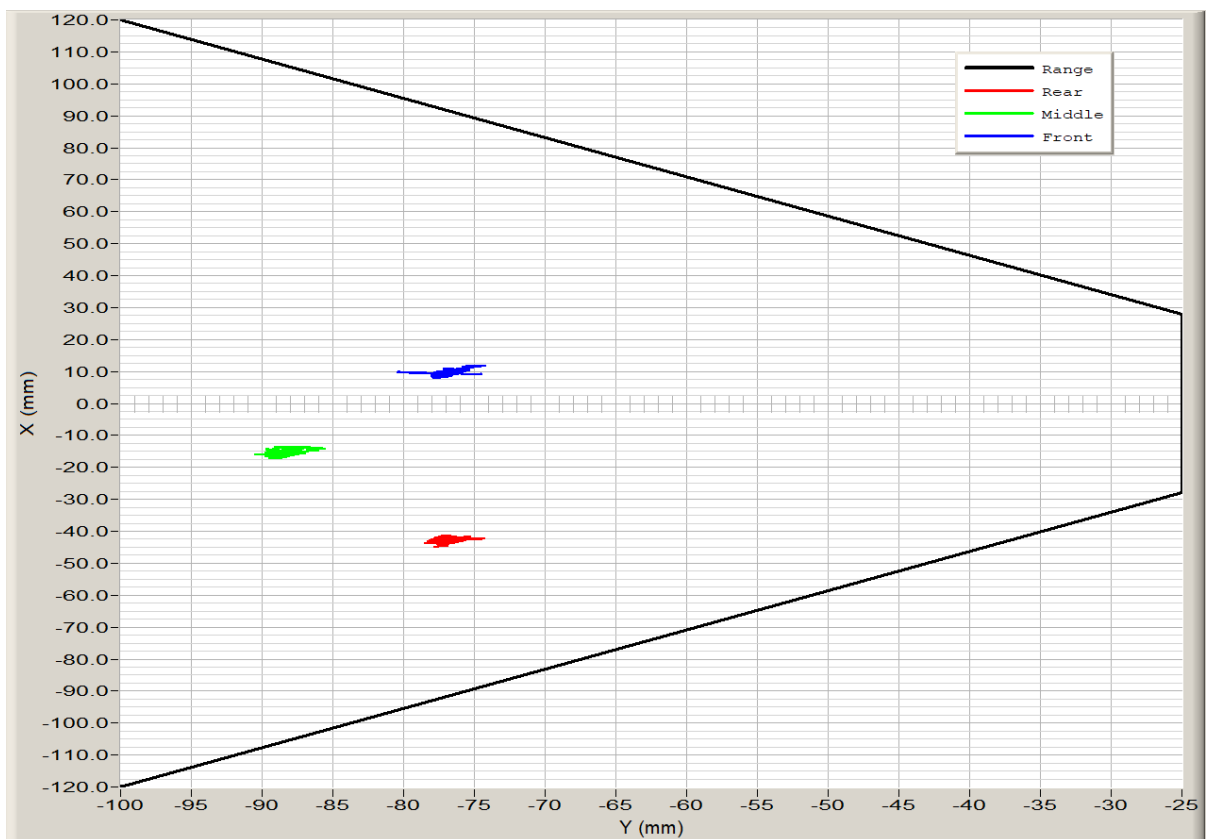
5th_Shoulder_XY



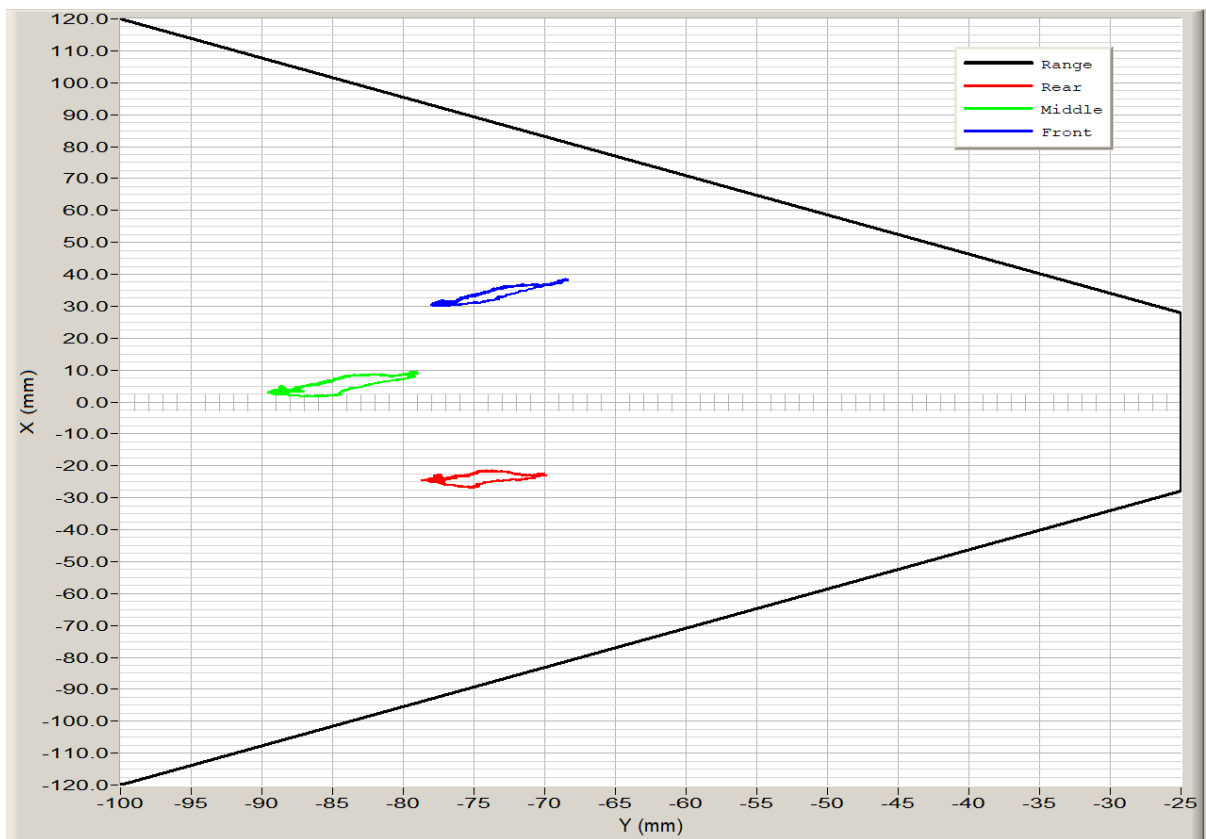
5th_Thorax_1_XY



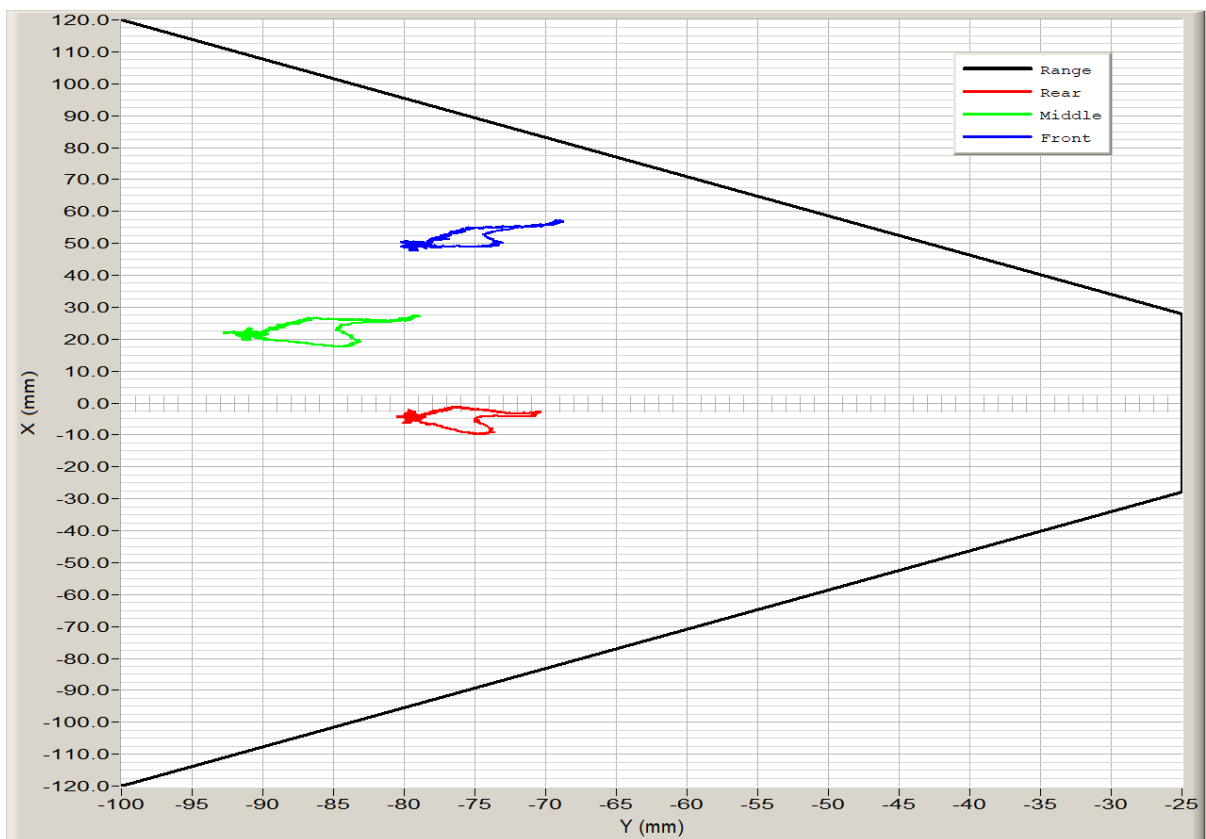
5th_Thorax_2_XY



5th_Thorax_3_XY



5th_Abdomen_1_XY



5th_Abdomen_2_XY

APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

TABLE OF QUALIFICATION MEASUREMENTS AND PLOTS

WorldSID-50M (Driver) Dummy

Description

Table 1. External Measurements

Table 2. Front Head Drop Test

Resultant Head Acceleration (G's) vs. Time (ms)

Head (X) Acceleration (G's) vs. Time (ms)

Head (Y) Acceleration (G's) vs. Time (ms)

Head (Z) Acceleration (G's) vs. Time (ms)

Table 3. Left Lateral Head Drop Test

Resultant Head Acceleration (G's) vs. Time (ms)

Head (X) Acceleration (G's) vs. Time (ms)

Head (Y) Acceleration (G's) vs. Time (ms)

Head (Z) Acceleration (G's) vs. Time (ms)

Table 4. Right Lateral Head Drop Test

Resultant Head Acceleration (G's) vs. Time (ms)

Head (X) Acceleration (G's) vs. Time (ms)

Head (Y) Acceleration (G's) vs. Time (ms)

Head (Z) Acceleration (G's) vs. Time (ms)

Table 5. Left Lateral Neck Pendulum Test

Pendulum Acceleration (G's) vs. Time (ms)

Pendulum Velocity (m/s) vs. Time (ms)

Flexion Angle (°) vs. Time (ms)

Forward Potentiometer Rotation at Base of Pendulum (°) vs. Time (ms)

Rear Potentiometer Rotation at Base of Pendulum (°) vs. Time (ms)

Center Headform Potentiometer Rotation at CG (°) vs. Time (ms)

Neck Force Y (N) vs. Time (ms)

Neck Force Y (N) Filtered for Total Neck Occipital Condyle Moment Calculation vs. Time (ms)

Neck Moment X (Nm) vs. Time (ms)

Total Neck Occipital Condyle Moment X (Nm) vs. Time (ms)

Table 6. Right Lateral Neck Pendulum Test

Pendulum Acceleration (G's) vs. Time (ms)

Pendulum Velocity (m/s) vs. Time (ms)

Flexion Angle (°) vs. Time (ms)

Forward Potentiometer Rotation at Base of Pendulum (°) vs. Time (ms)

Rear Potentiometer Rotation at Base of Pendulum (°) vs. Time (ms)

Center Headform Potentiometer Rotation at CG (°) vs. Time (ms)

Neck Force Y (N) vs. Time (ms)

Neck Force Y (N) Filtered for Total Neck Occipital Condyle Moment Calculation vs. Time (ms)

Neck Moment X (Nm) vs. Time (ms)

Total Neck Occipital Condyle Moment X (Nm) vs. Time (ms)

Table 7. Left Lateral Shoulder Impact Test

Impactor Acceleration (G's) vs. Time (ms)

Impactor Force (N) vs. Time (ms)

Shoulder Displacement (mm) vs. Time (ms)

Table 8. Left Lateral Thorax with Arm Impact Test

Impactor Acceleration (G's) vs. Time (ms)

Impactor Force (N) vs. Time (ms)

TABLE OF QUALIFICATION MEASUREMENTS AND PLOTS (CONTUNUED)

WorldSID-50M (Driver) Dummy

Description

Upper Spine Acceleration (G's) vs. Time (ms)
Lower Spine Acceleration (G's) vs. Time (ms)
Upper Thorax Rib Displacement (mm) vs. Time (ms)
Center Thorax Rib Displacement (mm) vs. Time (ms)
Lower Thorax Rib Displacement (mm) vs. Time (ms)

Table 9. Left Lateral Thorax without Arm Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Impactor Force (N) vs. Time (ms)
Upper Spine Acceleration (G's) vs. Time (ms)
Lower Spine Acceleration (G's) vs. Time (ms)
Upper Thorax Rib Displacement (mm) vs. Time (ms)
Center Thorax Rib Displacement (mm) vs. Time (ms)
Lower Thorax Rib Displacement (mm) vs. Time (ms)

Table 10. Left Lateral Abdomen Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Impactor Force (N) vs. Time (ms)
Upper Abdominal Rib Displacement (mm) vs. Time (ms)
Lower Abdominal Rib Displacement (mm) vs. Time (ms)
Lower Spine Acceleration (G's) vs. Time (ms)

Table 11. Left Lateral Pelvis Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Impactor Force (N) vs. Time (ms)
Pelvis Acceleration Y (G's) vs. Time (ms)
Lower Spine Acceleration Y (G's) vs. Time (ms)

TABLE OF QUALIFICATION MEASUREMENTS AND PLOTS

WorldSID-5F (Rear Passenger) Dummy

Description

Table 1. External Measurements

Table 2. Front Head Drop Test

Resultant Head Acceleration (G's) vs. Time (ms)

Head (X) Acceleration (G's) vs. Time (ms)

Head (Y) Acceleration (G's) vs. Time (ms)

Head (Z) Acceleration (G's) vs. Time (ms)

Table 3. Left Lateral Head Drop Test

Resultant Head Acceleration (G's) vs. Time (ms)

Head (X) Acceleration (G's) vs. Time (ms)

Head (Y) Acceleration (G's) vs. Time (ms)

Head (Z) Acceleration (G's) vs. Time (ms)

Table 4. Right Lateral Head Drop Test

Resultant Head Acceleration (G's) vs. Time (ms)

Head (X) Acceleration (G's) vs. Time (ms)

Head (Y) Acceleration (G's) vs. Time (ms)

Head (Z) Acceleration (G's) vs. Time (ms)

Table 5. Left Lateral Neck Pendulum Test

Pendulum Acceleration (G's) vs. Time (ms)

Pendulum Velocity (m/s) vs. Time (ms)

Flexion Angle (°) vs. Time (ms)

Forward Potentiometer Rotation at Base of Pendulum (°) vs. Time (ms)

Rear Potentiometer Rotation at Base of Pendulum (°) vs. Time (ms)

Center Headform Potentiometer Rotation at CG (°) vs. Time (ms)

Neck Force Y (N) vs. Time (ms)

Neck Force Y (N) Filtered for Total Neck Occipital Condyle Moment Calculation vs. Time (ms)

Neck Moment X (Nm) vs. Time (ms)

Total Neck Occipital Condyle Moment X (Nm) vs. Time (ms)

Table 6. Right Lateral Neck Pendulum Test

Pendulum Acceleration (G's) vs. Time (ms)

Pendulum Velocity (m/s) vs. Time (ms)

Flexion Angle (°) vs. Time (ms)

Forward Potentiometer Rotation at Base of Pendulum (°) vs. Time (ms)

Rear Potentiometer Rotation at Base of Pendulum (°) vs. Time (ms)

Center Headform Potentiometer Rotation at CG (°) vs. Time (ms)

Neck Force Y (N) vs. Time (ms)

Neck Force Y (N) Filtered for Total Neck Occipital Condyle Moment Calculation vs. Time (ms)

Neck Moment X (Nm) vs. Time (ms)

Total Neck Occipital Condyle Moment X (Nm) vs. Time (ms)

Table 7. Left Lateral Shoulder Impact Test

Impactor Acceleration (G's) vs. Time (ms)

Impactor Force (N) vs. Time (ms)

Shoulder Displacement (mm) vs. Time (ms)

Table 8. Left Lateral Thorax with Arm Impact Test

Impactor Acceleration (G's) vs. Time (ms)

Impactor Force (N) vs. Time (ms)

TABLE OF QUALIFICATION MEASUREMENTS AND PLOTS (CONTUNUED)

WorldSID-5F (Rear Passenger) Dummy

Description

Upper Spine Acceleration (G's) vs. Time (ms)

Lower Spine Acceleration (G's) vs. Time (ms)

Upper Thorax Rib Displacement (mm) vs. Time (ms)

Center Thorax Rib Displacement (mm) vs. Time (ms)

Lower Thorax Rib Displacement (mm) vs. Time (ms)

Table 9. Left Lateral Thorax without Arm Impact Test

Impactor Acceleration (G's) vs. Time (ms)

Impactor Force (N) vs. Time (ms)

Upper Spine Acceleration (G's) vs. Time (ms)

Lower Spine Acceleration (G's) vs. Time (ms)

Upper Thorax Rib Displacement (mm) vs. Time (ms)

Center Thorax Rib Displacement (mm) vs. Time (ms)

Lower Thorax Rib Displacement (mm) vs. Time (ms)

Table 10. Left Lateral Abdomen Impact Test

Impactor Acceleration (G's) vs. Time (ms)

Impactor Force (N) vs. Time (ms)

Upper Abdominal Rib Displacement (mm) vs. Time (ms)

Lower Abdominal Rib Displacement (mm) vs. Time (ms)

Lower Spine Acceleration (G's) vs. Time (ms)

Table 11. Left Lateral Pelvis Impact Test

Impactor Acceleration (G's) vs. Time (ms)

Impactor Force (N) vs. Time (ms)

Pelvis Acceleration Y (G's) vs. Time (ms)

Lower Spine Acceleration Y (G's) vs. Time (ms)

Pre-Test Calibration Sheets
Driver S/N EB8888

Transportation Research Center Inc.
WorldSID-50M
External Measurements
Serial No. EB8888 Certification No. 07

WorldSID-50M Angular Reference Measurements					
Parameter	Symbol	Tilt Sensor (°)	Inclinometer (°)		
			Center	Left	Right
Head X-Axis	A1	0	n/a	n/a	n/a
Head Y-Axis	A2	2.2	n/a	2	Note 1
Neck Bracket X-Axis	A3	n/a	-0.5	n/a	n/a
Neck Bracket Y-Axis	A4	n/a	-3.1	n/a	n/a
Thorax X-Axis	A5	1.3	n/a	n/a	n/a
Thorax Y-Axis	A6	3.9	n/a	n/a	n/a
Pelvis X-Axis	A7	0.7	n/a	n/a	n/a
Pelvis Y-Axis	A8	10.2	n/a	n/a	n/a
H-point Tool	A9	n/a	n/a	33.1	33.9

WorldSID-50M External Linear Dimensions				
Parameter	Symbol	Specification (mm)		
		Center	Left	Right
Seated Height	L1	870	n/a	n/a
Hip Pivot Height	L2	n/a	89	89
Hip Pivot to Back Line	L3	n/a	187	177
Thigh Clearance	L4	n/a	181	180
Knee Height	L5	n/a	580	583
Knee to Backline	L6	n/a	667	670
Head Back to Seat Back	L7	156	n/a	n/a
Thorax Rib 1 Front to Back	L8	n/a	209	209
Abdomen Rib 2 Front to Back	L9	n/a	223	226
Arm Length	L10	n/a	330	330
Width Across Arms	L11	482	n/a	n/a
Waist Width	L12	341	n/a	n/a

Note 1: No land marks on the right side of head. Unable to align level.

Transportation Research Center Inc.

Front Head Drop

WorldSID 50th Serial No. EB8888 Certification No. 7-1

Test Date: 2/24/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Peak Head Resultant Acceleration	211 - 261 g	238.8 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	-7.5 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	< 10 %	2.76 %	Yes

Test meets specifications.

Condition: Used

Comments:

Head Skin S/N: EG2845

Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

02.24.2021 08:44:10 951

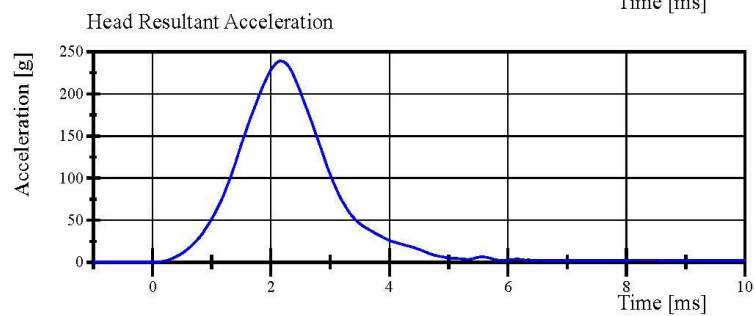
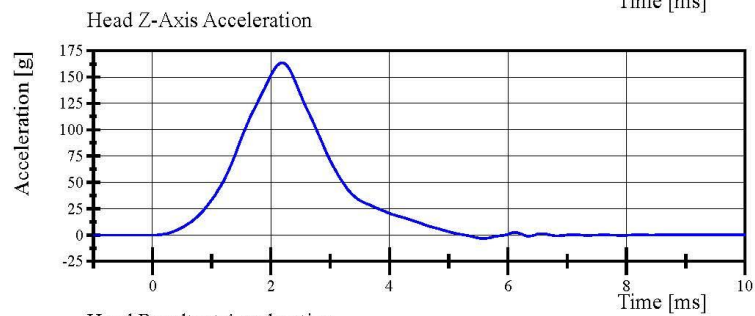
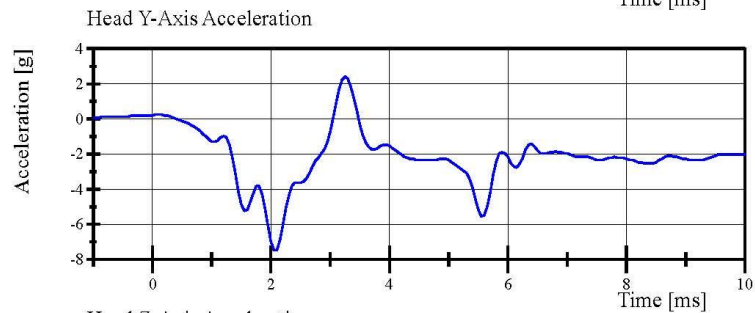
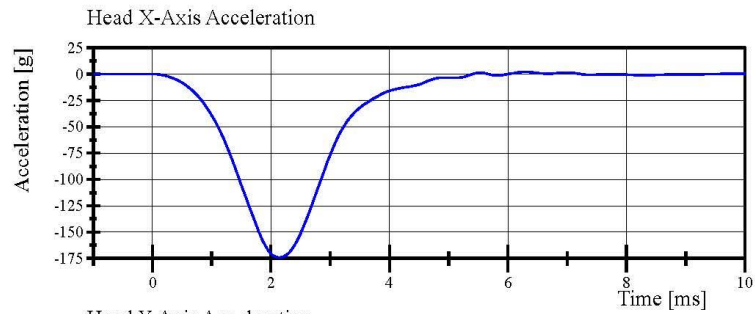


Transportation Research Center Inc.

Front Head Drop

WorldSID 50th Serial No. EB8888 Certification No. 7-1

Test Date: 2/24/2021



Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

02.24.2021 08:45:04 951



Transportation Research Center Inc.

Left Lateral Head Drop

WorldSID 50th Serial No. EB8888 Certification No. 7-1

Test Date: 2/24/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Peak Head Resultant Acceleration	107 - 126 g	117.3 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-1.8 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	< 10 %	2.95 %	Yes

Test meets specifications.

Condition: Used

Comments:

Head Skin S/N: EG2845

Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

02.24.2021 08:48:42 945

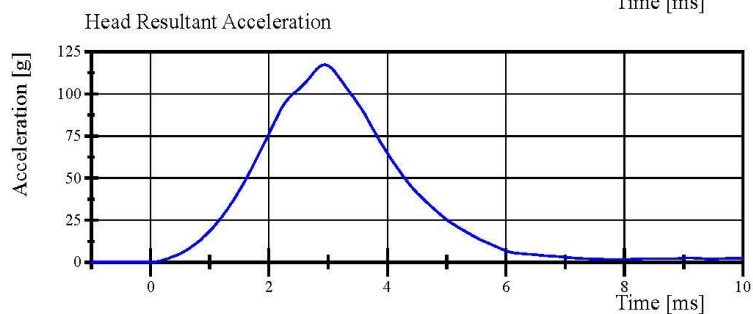
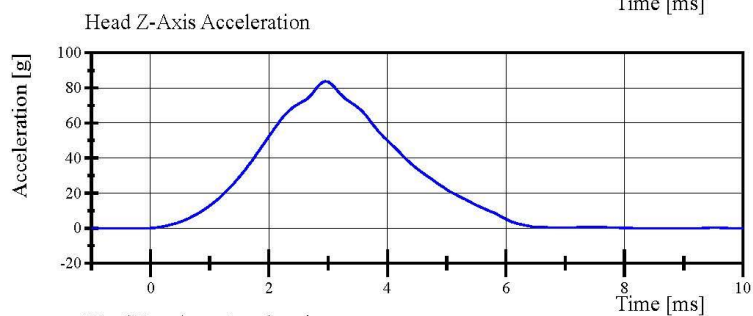
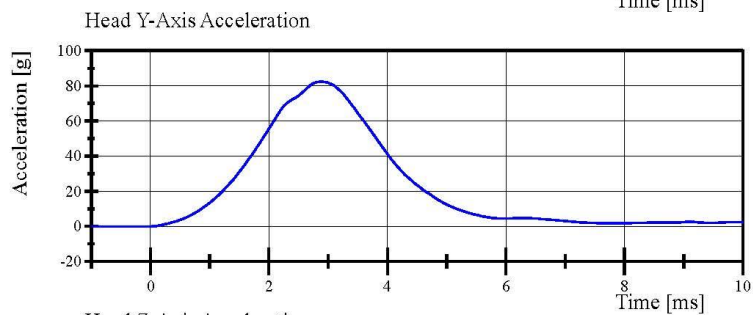
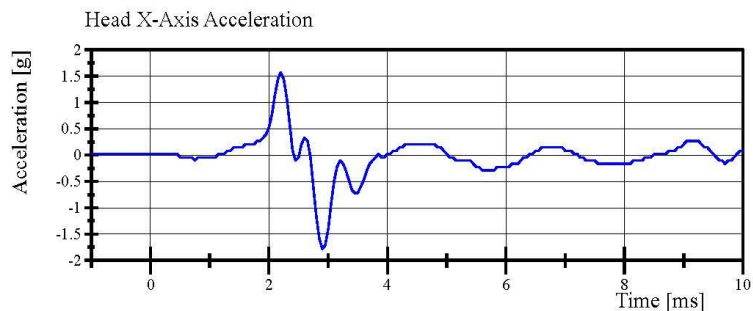


Transportation Research Center Inc.

Left Lateral Head Drop

WorldSID 50th Serial No. EB8888 Certification No. 7-1

Test Date: 2/24/2021



Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

02.24.2021 08:48:55 945



Transportation Research Center Inc.

Right Lateral Head Drop

WorldSID 50th Serial No. EB8888 Certification No. 7-1

Test Date: 2/24/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Peak Head Resultant Acceleration	107 - 126 g	115.3 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-3.3 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	< 10 %	1.94 %	Yes

Test meets specifications.

Condition: Used

Comments:

Head Skin S/N: EG2845

Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

02.24.2021 08:52:40 945

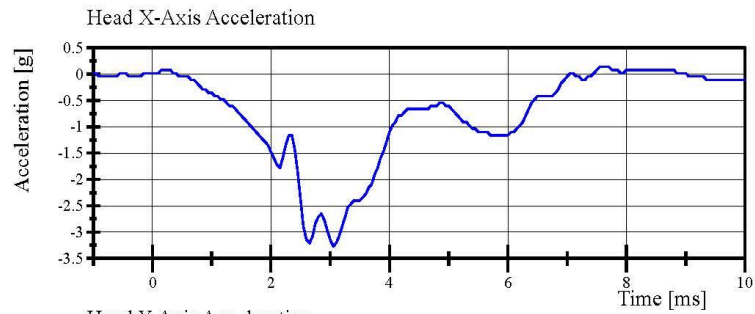


Transportation Research Center Inc.

Right Lateral Head Drop

WorldSID 50th Serial No. EB8888 Certification No. 7-1

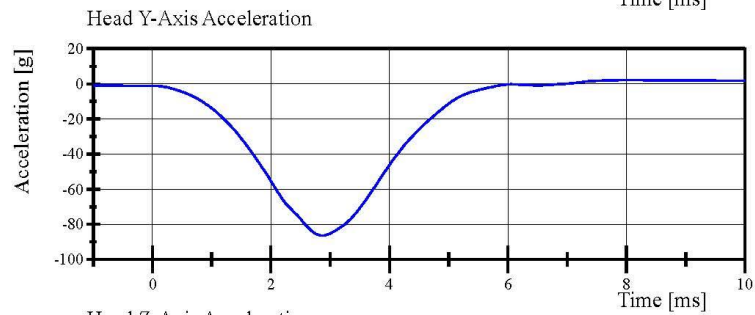
Test Date: 2/24/2021



Filter Class: CFC_1000

Max: 0.1 g at 7.6 ms

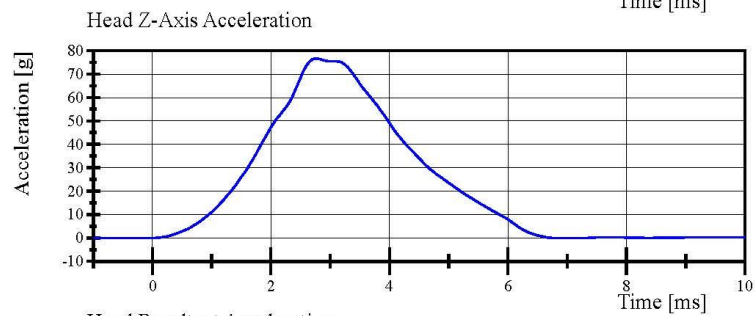
Min: -3.3 g at 3.1 ms



Filter Class: CFC_1000

Max: 2.2 g at 8.0 ms

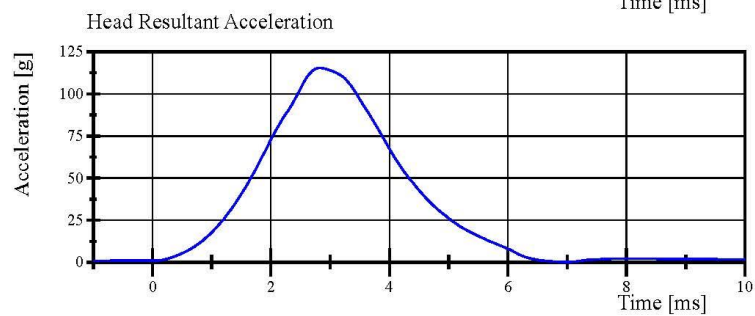
Min: -86.5 g at 2.9 ms



Filter Class: CFC_1000

Max: 76.7 g at 2.8 ms

Min: -0.2 g at 6.9 ms



Filter Class: CFC_1000

Max: 115.3 g at 2.9 ms

Min: 0.2 g at 7.0 ms

Specification Source: WorldSID 50th(W5) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

02.24.2021 08:52:53 945



Transportation Research Center Inc.

Left Lateral Neck

WorldSID 50th Serial No. EB8888 Certification No. 7-1

Test Date: 2/23/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Pendulum Velocity	(-3.30) - (-3.50) m/s	-3.333 m/s	Yes
Pendulum Integrated Velocity Change at 4 ms	0.87 - 1.09 m/s	0.986 m/s	Yes
Change at 8 ms	1.72 - 2.1 m/s	1.904 m/s	Yes
Change at 12 ms	2.63 - 3.17 m/s	2.844 m/s	Yes
Maximum Headform Flexion	(-50) - (-61) deg	-53.5 deg	Yes
Headform Flexion Decay - from Peak to Zero Degrees	58 - 72 ms	59.5 ms	Yes
Total Neck Occipital Condyles Moment	54 - 67 N·m	61.0 N·m	Yes
Total Neck Occipital Condyles Moment Decay Time to 0 N·m	71 - 87 ms	75.4 ms	Yes
Maximum Forward Pot Rotation			
Peak	(-32) - (-39) °	-34.9 °	Yes
Time of Peak	56 - 68 ms	61.1 ms	Yes
Maximum Rear Pot Rotation			
Peak	(-29) - (-36) °	-31.1 °	Yes
Time of Peak	56 - 68 ms	56.7 ms	Yes
Maximum Headform Angular Rate	(-2,047) - (-2,503) °/s	-2,292.5 °/s	Yes

Test meets specifications.

Condition: Used

Comments:

Neck S/N: EE8804

Specification Source: WorldSID 50th(WS) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

02.23.2021 12:42:31 4006

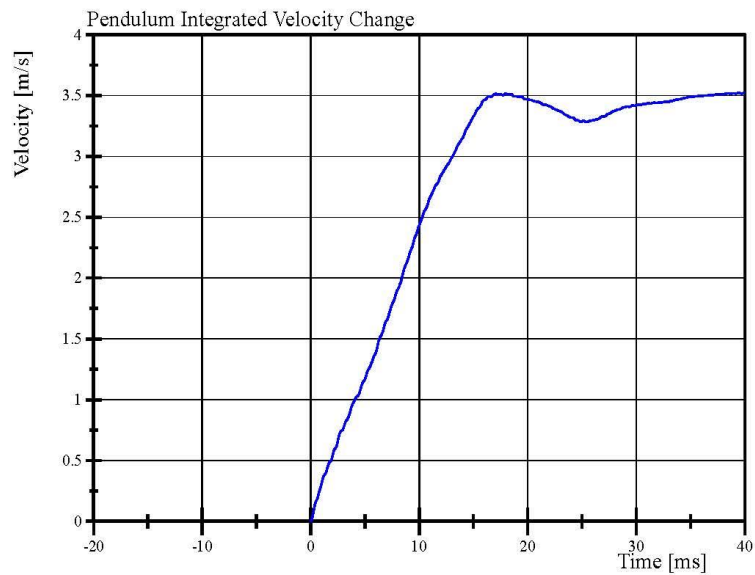
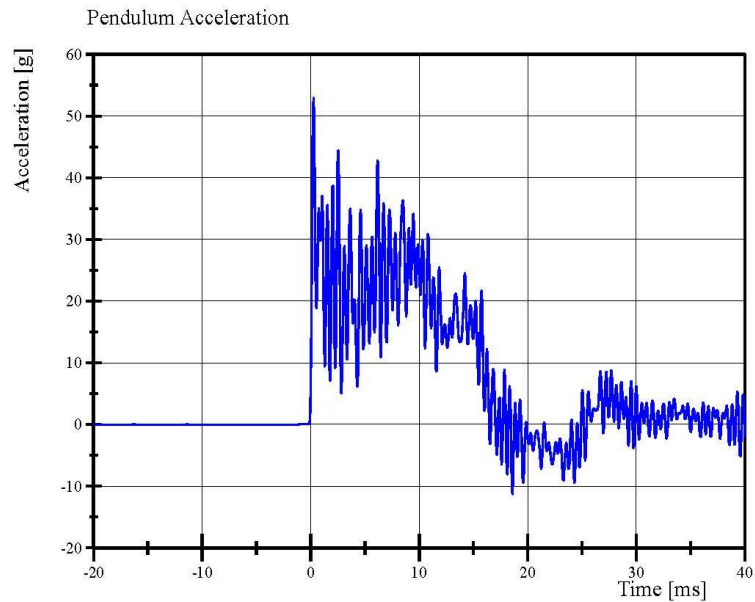


Transportation Research Center Inc.

Left Lateral Neck

WorldSID 50th Serial No. EB8888 Certification No. 7-1

Test Date: 2/23/2021



Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

02.23.2021 12:43:15 4006

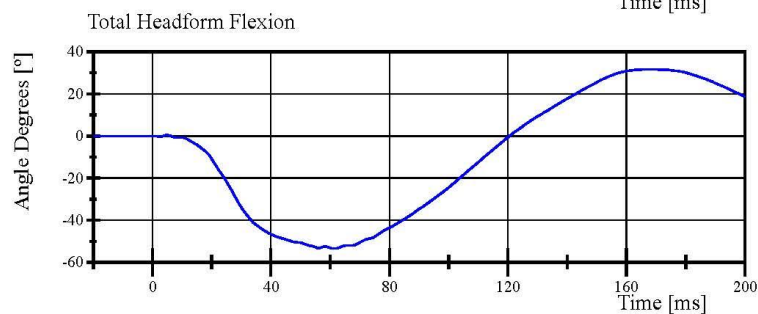
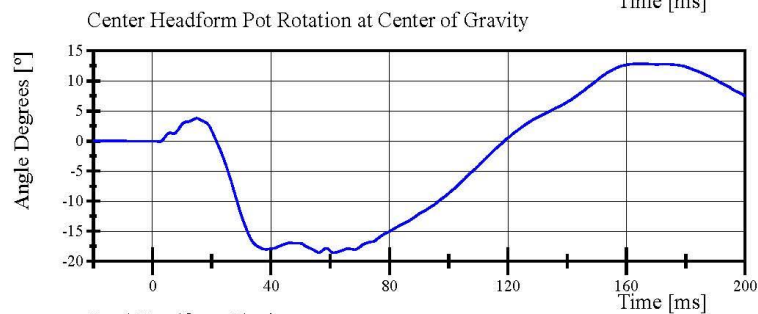
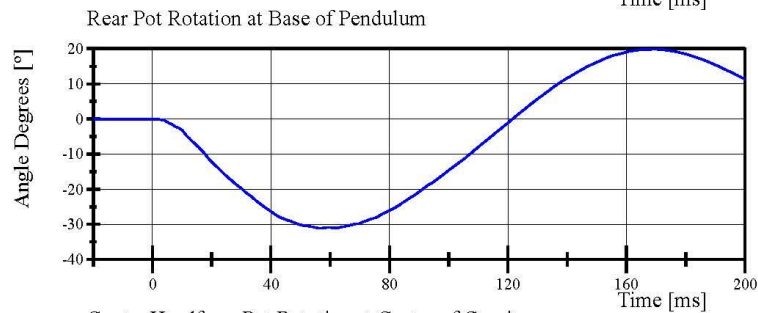
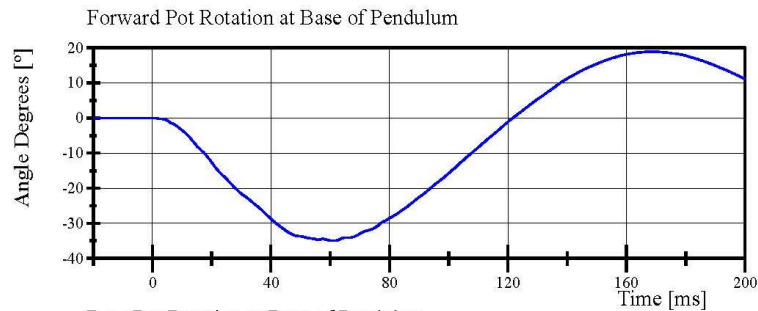


Transportation Research Center Inc.

Left Lateral Neck

WorldSID 50th Serial No. EB8888 Certification No. 7-1

Test Date: 2/23/2021



Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

02.23.2021 12:43:16 4006

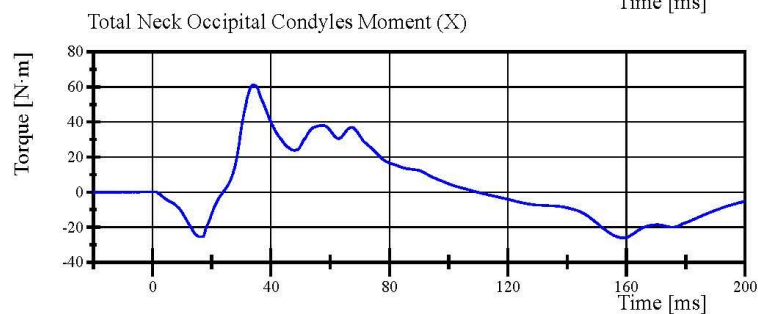
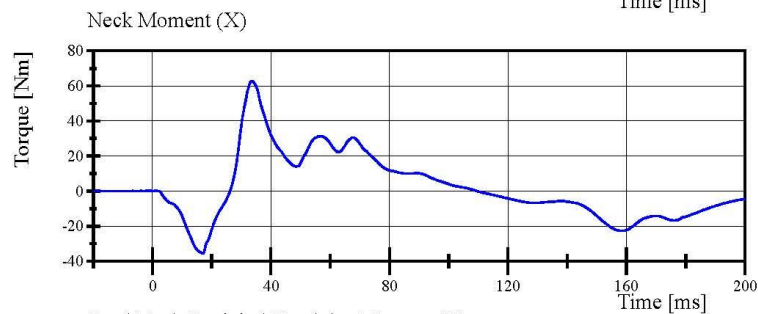
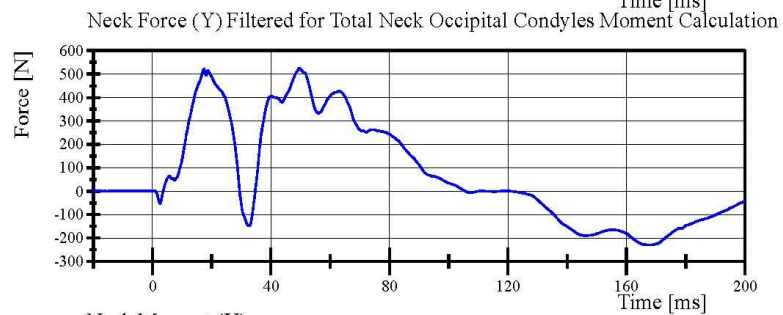
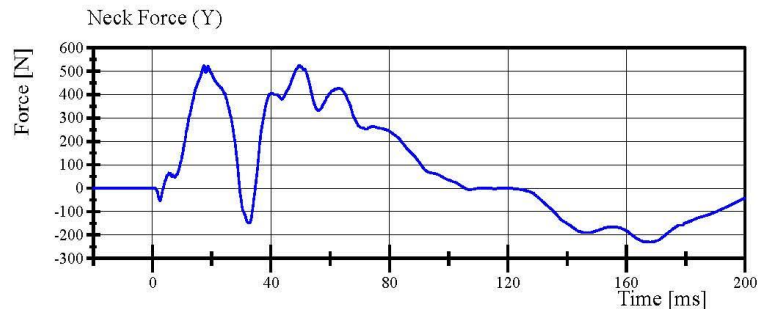


Transportation Research Center Inc.

Left Lateral Neck

WorldSID 50th Serial No. EB8888 Certification No. 7-1

Test Date: 2/23/2021



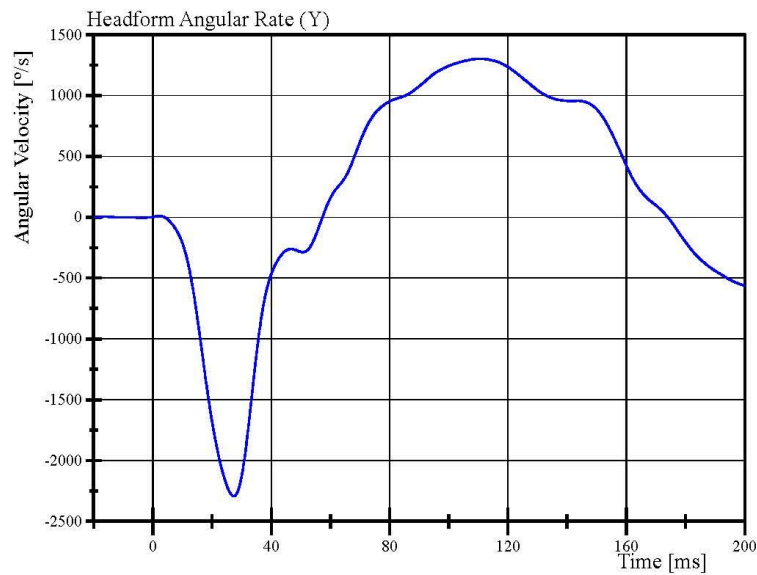
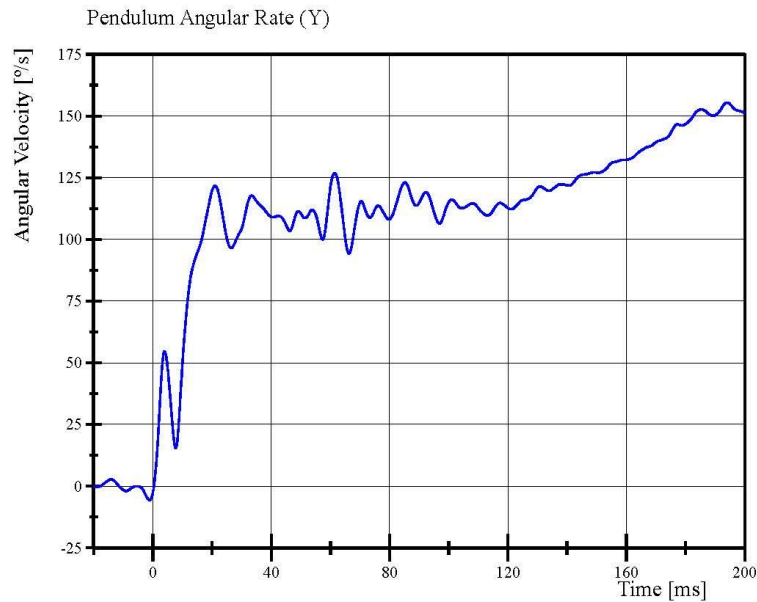
Specification Source: WordSID 50th(W5) VRTC Nov 2020.xlsx
WorldSID 50th_Qualification Manual 11_09_2020

02.23.2021 12:43:16 4006



Transportation Research Center Inc.

Left Lateral Neck
WorldSID 50th Serial No. EB8888 Certification No. 7-1
Test Date: 2/23/2021



Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

02.23.2021 12:43:16 4006



Transportation Research Center Inc.

Right Lateral Neck
WorldSID 50th Serial No. EB8888 Certification No. 7-1
Test Date: 2/23/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Pendulum Velocity	3.30 - 3.50 m/s	3.332 m/s	Yes
Pendulum Integrated Velocity Change at 4 ms	(-0.87) - (-1.09) m/s	-0.951 m/s	Yes
Change at 8 ms	(-1.72) - (-2.1) m/s	-1.869 m/s	Yes
Change at 12 ms	(-2.63) - (-3.17) m/s	-2.864 m/s	Yes
Maximum Headform Flexion	50 - 61 deg	53.0 deg	Yes
Headform Flexion Decay - from Peak to Zero Degrees	58 - 72 ms	59.3 ms	Yes
Total Neck Occipital Condyles Moment	(-54) - (-67) N·m	-62.7 N·m	Yes
Total Neck Occipital Condyles Moment Decay Time to 0 N·m	71 - 87 ms	75.5 ms	Yes
Maximum Forward Pot Rotation			
Peak	32 - 39 °	34.4 °	Yes
Time of Peak	56 - 68 ms	61.5 ms	Yes
Maximum Rear Pot Rotation			
Peak	29 - 36 °	30.7 °	Yes
Time of Peak	56 - 68 ms	62.0 ms	Yes
Maximum Headform Angular Rate	2,047 - 2,503 %/s	2,286.4 %/s	Yes

Test meets specifications.

Condition: Used

Comments:

Neck S/N: EE8804

Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

02.23.2021 12:45:08 4010

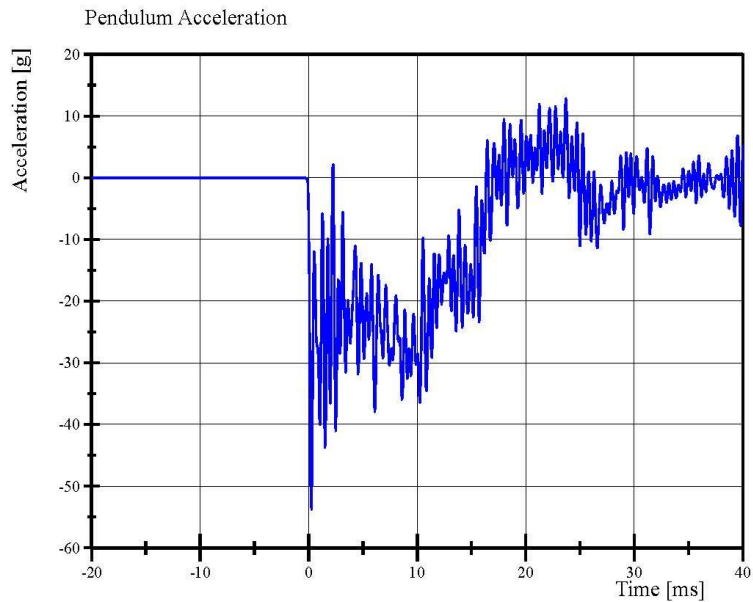


Transportation Research Center Inc.

Right Lateral Neck

WorldSID 50th Serial No. EB8888 Certification No. 7-1

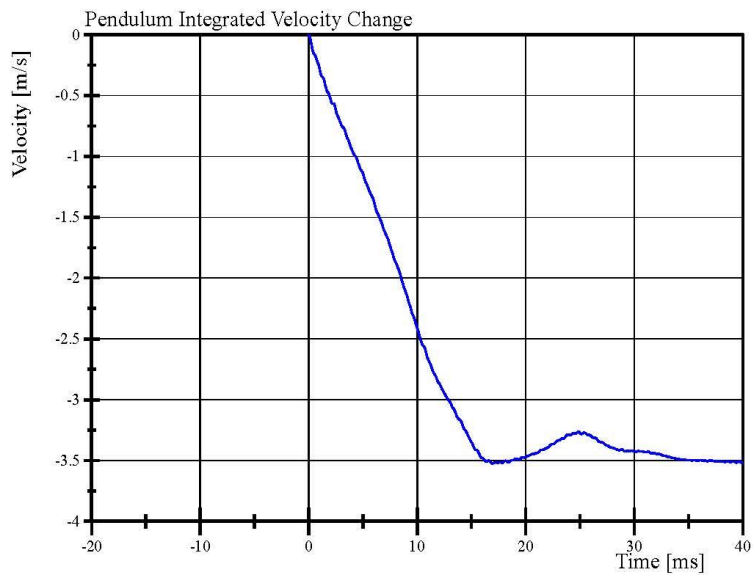
Test Date: 2/23/2021



Filter Class: CFC_1000

Max: 12.9 g at 23.7 ms

Min: -53.8 g at 0.3 ms



Filter Class: CFC_1000

Max: 0.0 m/s at -0.0 ms

Min: -3.5 m/s at 17.0 ms

Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

02.23.2021 12:45:23 4010

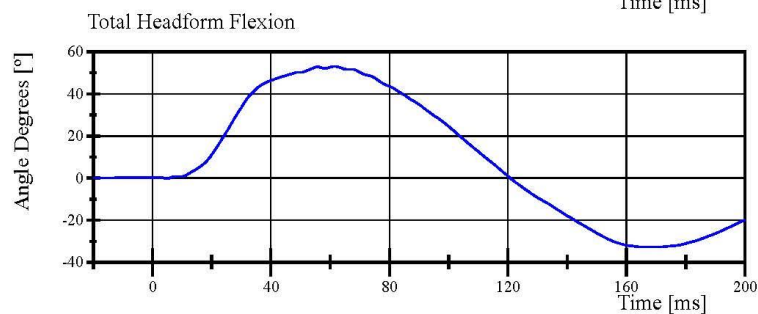
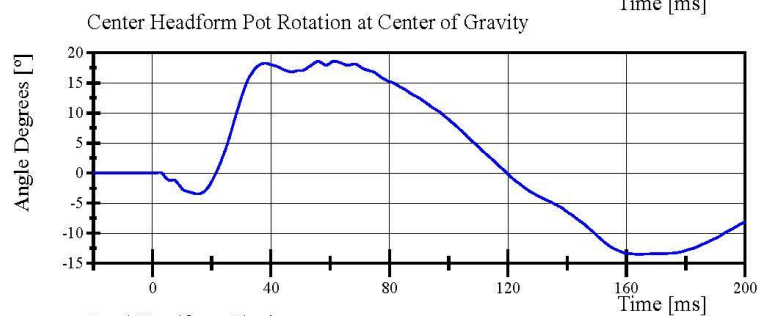
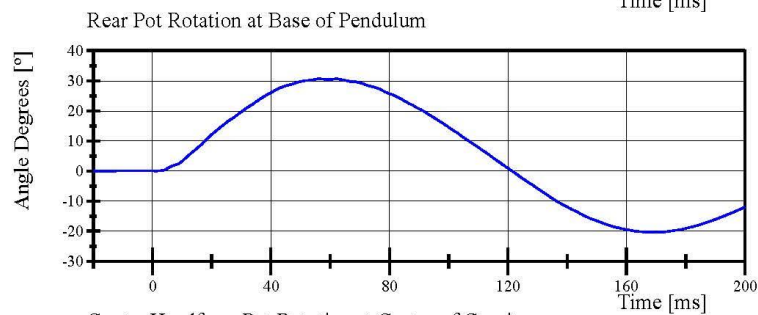
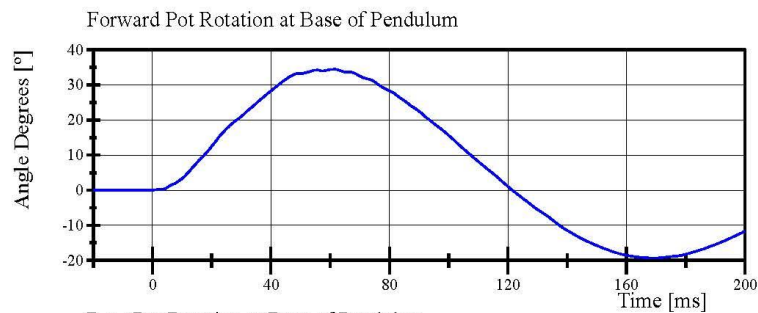


Transportation Research Center Inc.

Right Lateral Neck

WorldSID 50th Serial No. EB8888 Certification No. 7-1

Test Date: 2/23/2021



Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

02.23.2021 12:45:23 4010

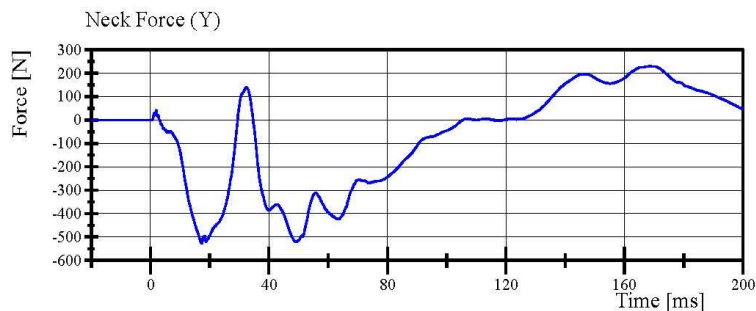


Transportation Research Center Inc.

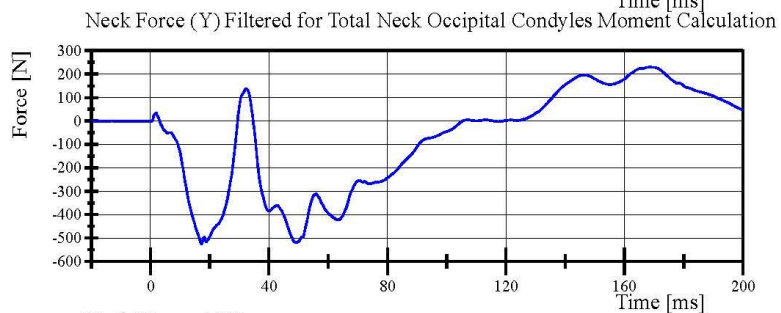
Right Lateral Neck

WorldSID 50th Serial No. EB8888 Certification No. 7-1

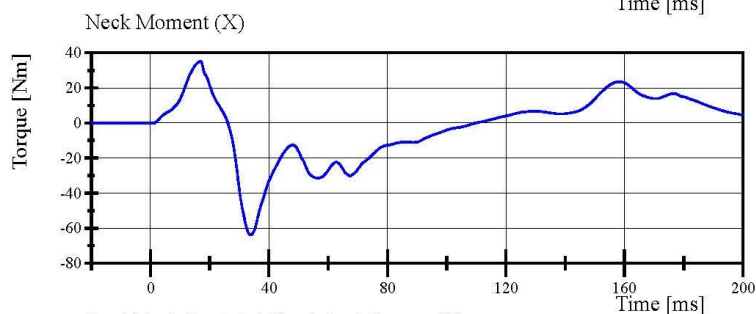
Test Date: 2/23/2021



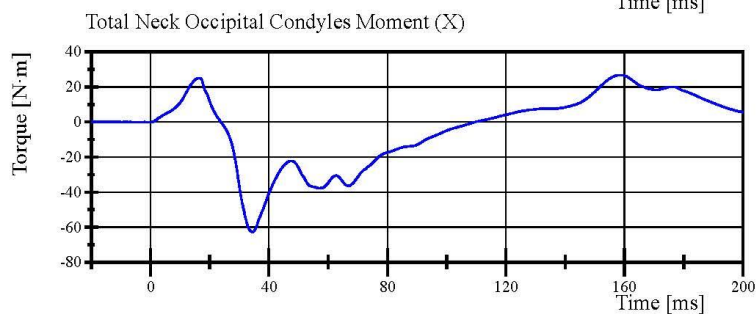
Filter Class: CFC_1000
Max: 229.9 N at 168.4 ms
Min: -527.0 N at 17.3 ms



Filter Class: CFC_600
Max: 229.8 N at 168.9 ms
Min: -526.4 N at 17.3 ms



Filter Class: CFC_600
Max: 35.0 Nm at 16.9 ms
Min: -63.9 Nm at 33.8 ms



Filter Class: Without_(Constar
Max: 26.7 N.m at 158.7 ms
Min: -62.7 N.m at 34.3 ms

Specification Source: WordSID 50th(W5) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

02.23.2021 12:45:23 4010

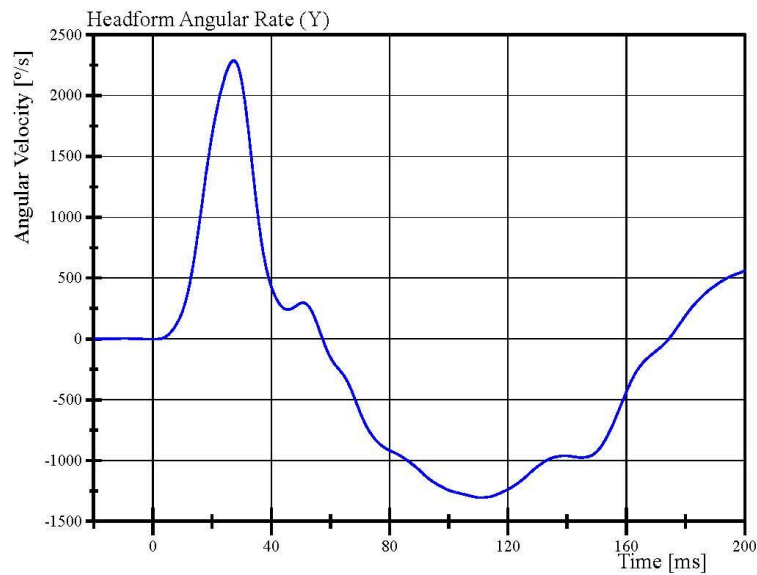
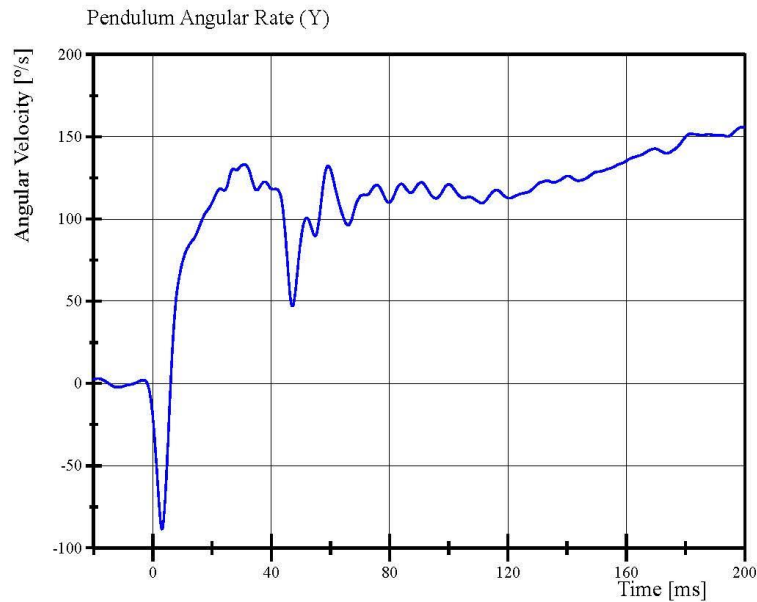


Transportation Research Center Inc.

Right Lateral Neck

WorldSID 50th Serial No. EB8888 Certification No. 7-1

Test Date: 2/23/2021



Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

02.23.2021 12:45:24 4010



Transportation Research Center Inc.

Left Lateral Torsion

WorldSID 50th Serial No. EB8888 Certification No. 7-1

Test Date: 2/23/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Pendulum Velocity	5.1 - 5.3 m/s	5.18 m/s	Yes
Pendulum Integrated Velocity Change at 10 ms	2.09 - 2.37 m/s	2.355 m/s	Yes
Change at 15 ms	3.19 - 3.63 m/s	3.516 m/s	Yes
Change at 20 ms	4.27 - 4.87 m/s	4.670 m/s	Yes
Peak Fixture Rotation	(-41.5) - (-51) °	-47.10 °	Yes
Decay Time to 0 deg from Peak Angle	35 - 43 ms	39.5 ms	Yes
Peak Head Angular Velocity Z-axis	(-1,345) - (-1,655) °/s	-1,548.5 °/s	Yes
Peak Lower Neck Moment Z-axis	34 - 42 N·m	38.3 N·m	Yes

Test meets specifications.

Condition: Used

Comments:

Neck S/N: EE8804

Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

02.23.2021 14:09:21 4006

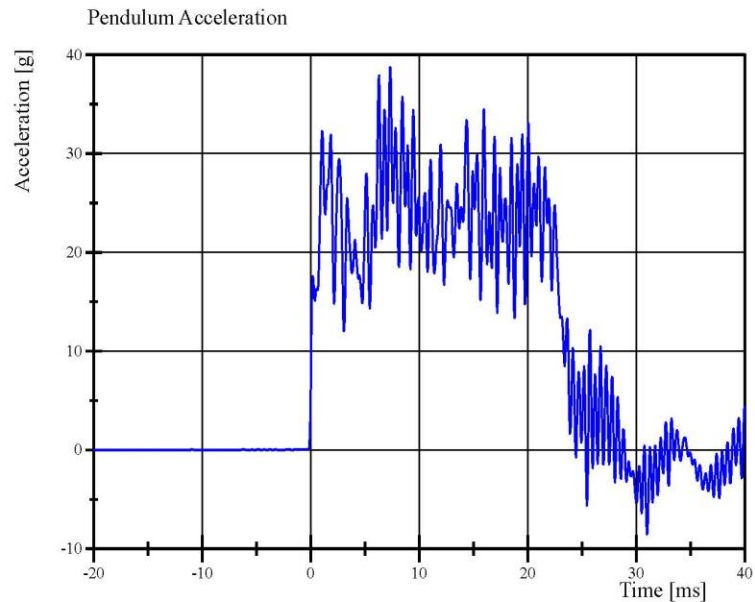


Transportation Research Center Inc.

Left Lateral Torsion

WorldSID 50th Serial No. EB8888 Certification No. 7-1

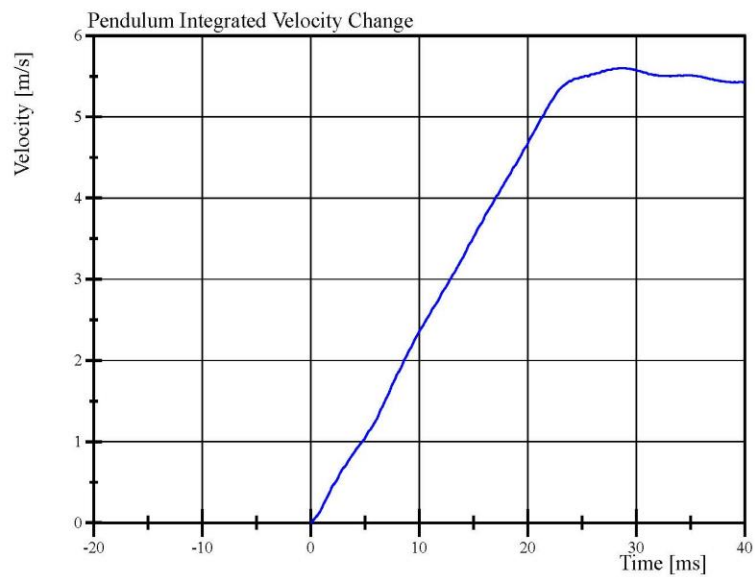
Test Date: 2/23/2021



Filter Class: CFC_1000

Max: 38.7 g at 7.4 ms

Min: -8.5 g at 31.0 ms



Filter Class: CFC_1000

Max: 5.6 m/s at 28.5 ms

Min: 0.0 m/s at 0.0 ms

Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

02.23.2021 14:11:27 4006

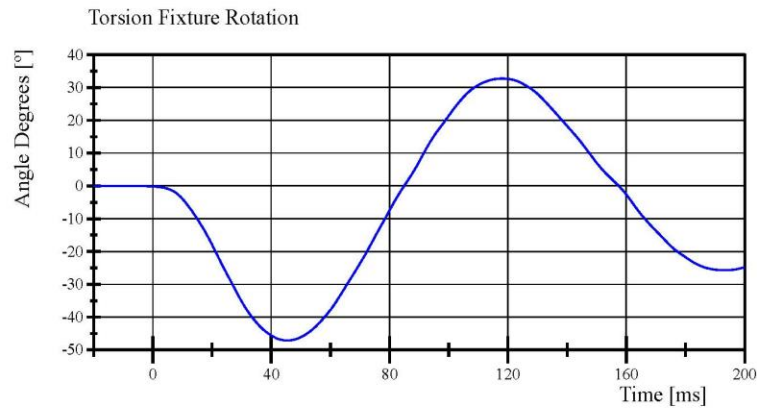


Transportation Research Center Inc.

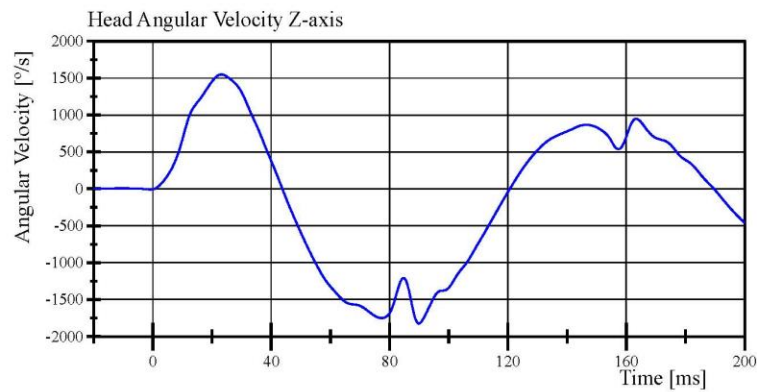
Left Lateral Torsion

WorldSID 50th Serial No. EB8888 Certification No. 7-1

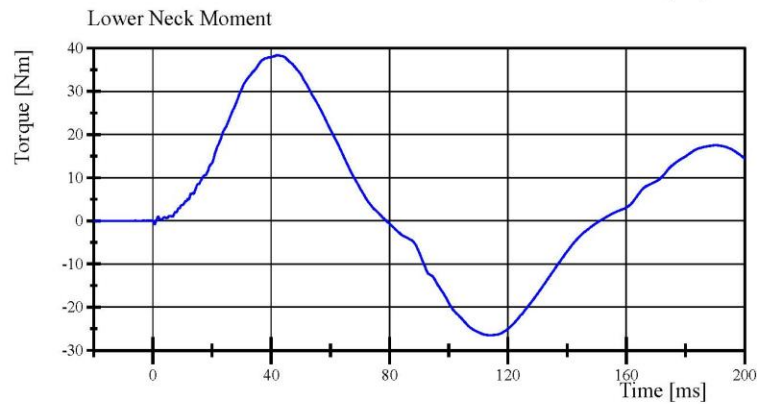
Test Date: 2/23/2021



Filter Class: CFC_60
Max: 32.7 ° at 118.0 ms
Min: -47.1 ° at 45.5 ms



Filter Class: CFC_60
Max: 1,548.5 °/s at 23.2 ms
Min: -1,822.7 °/s at 89.9 ms



Filter Class: CFC_600
Max: 38.3 Nm at 42.4 ms
Min: -26.5 Nm at 113.9 ms

Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

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Transportation Research Center Inc.

Right Lateral Torsion

WorldSID 50th Serial No. EB8888 Certification No. 7-1

Test Date: 2/23/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Pendulum Velocity	5.1 - 5.3 m/s	5.18 m/s	Yes
Pendulum Integrated Velocity Change at 10 ms	2.09 - 2.37 m/s	2.352 m/s	Yes
Change at 15 ms	3.19 - 3.63 m/s	3.559 m/s	Yes
Change at 20 ms	4.27 - 4.87 m/s	4.712 m/s	Yes
Peak Fixture Rotation	41.5 - 51 °	46.26 °	Yes
Decay Time to 0 deg from Peak Angle	35 - 43 ms	38.8 ms	Yes
Peak Head Angular Velocity Z-axis	1,345 - 1,655 °/s	1,564.2 °/s	Yes
Peak Lower Neck Moment Z-axis	(-34) - (-42) N·m	-38.9 N·m	Yes

Test meets specifications.

Condition: Used

Comments:

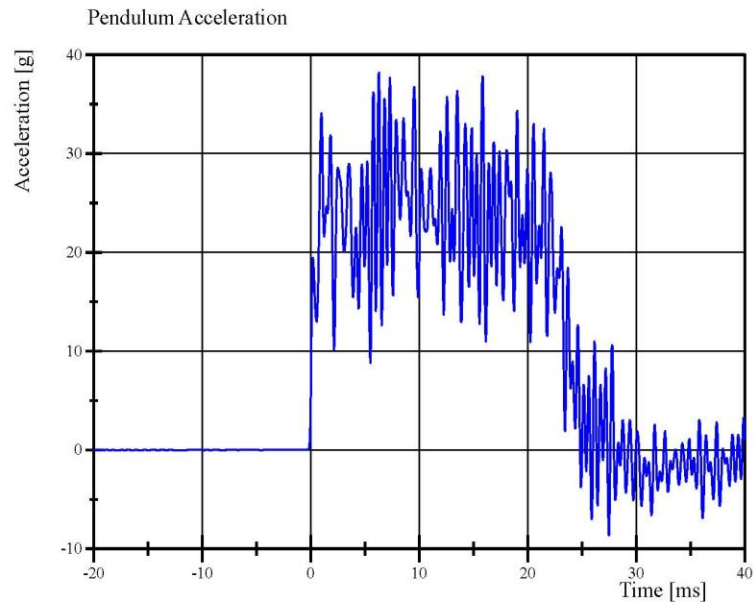
Neck S/N: EE8804

Transportation Research Center Inc.

Right Lateral Torsion

WorldSID 50th Serial No. EB8888 Certification No. 7-1

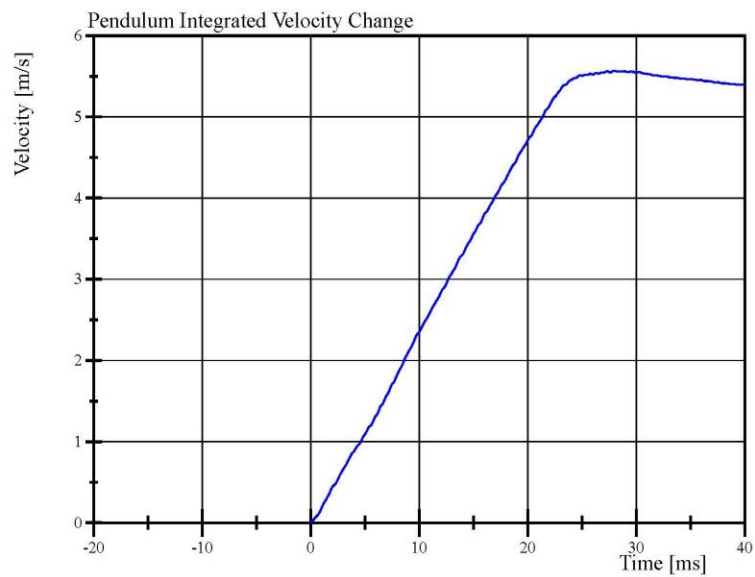
Test Date: 2/23/2021



Filter Class: CFC_1000

Max: 38.2 g at 6.3 ms

Min: -8.6 g at 27.5 ms



Filter Class: CFC_1000

Max: 5.6 m/s at 28.0 ms

Min: 0.0 m/s at 0.0 ms

Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

02.23.2021 14:50:07 4007

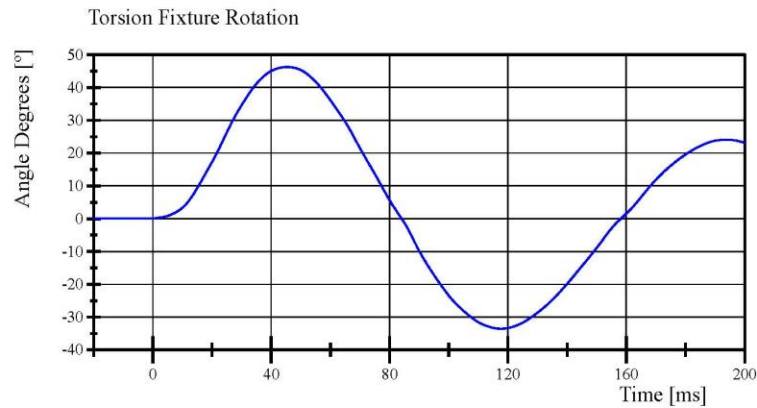


Transportation Research Center Inc.

Right Lateral Torsion

WorldSID 50th Serial No. EB8888 Certification No. 7-1

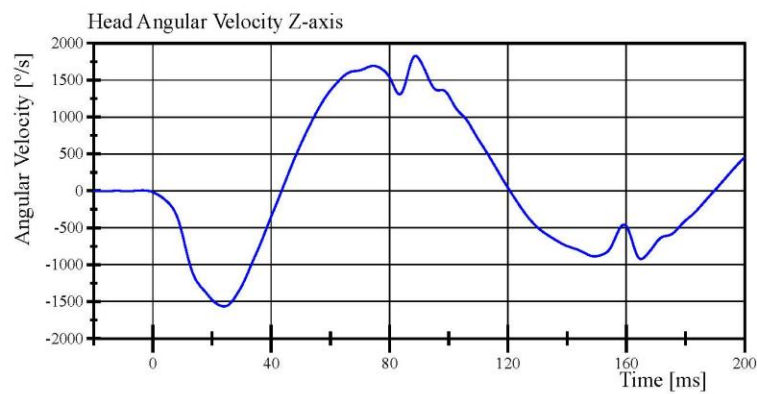
Test Date: 2/23/2021



Filter Class: CFC_60

Max: 46.3 ° at 45.3 ms

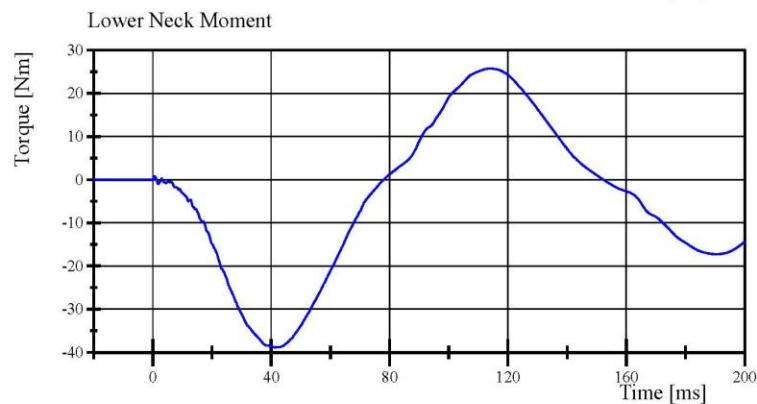
Min: -33.6 ° at 117.7 ms



Filter Class: CFC_60

Max: 1,826.8 °/s at 88.8 ms

Min: -1,564.2 °/s at 24.1 ms



Filter Class: CFC_600

Max: 25.8 Nm at 114.1 ms

Min: -38.9 Nm at 41.4 ms

Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

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Transportation Research Center Inc.

Left Lateral Shoulder

WorldSID 50th Serial No. EB8888 Certification No. 8-1

Test Date: 3/8/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.29 m/s	Yes
Impactor Force	2,600 - 3,300 N	2,911.2 N	Yes
Shoulder Force	(-1,470) - (-1,800) N	-1,661.3 N	Yes
Shoulder Rib Length Change	37 - 46 mm	41.5 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Arm S/N: EG3799

Shoulder Rib S/N: DW1916

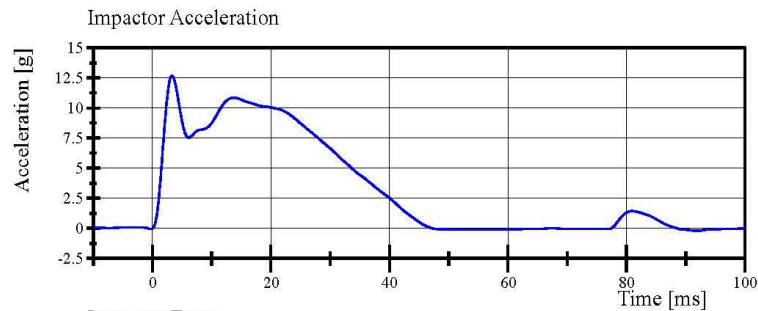
RibEye S/N: 124

Transportation Research Center Inc.

Left Lateral Shoulder

WorldSID 50th Serial No. EB8888 Certification No. 8-1

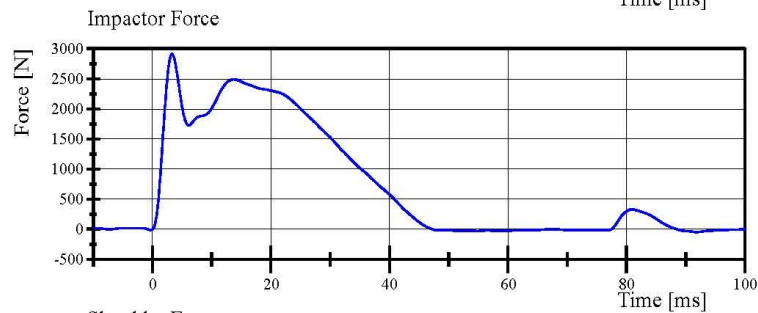
Test Date: 3/8/2021



Filter Class: CFC_180

Max: 12.7 g at 3.3 ms

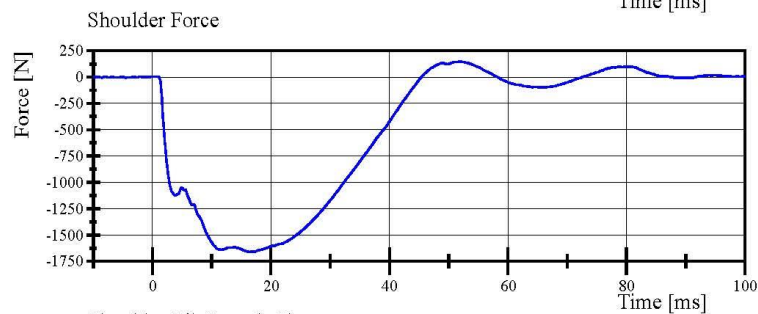
Min: -0.2 g at 91.9 ms



Filter Class: CFC_180

Max: 2,911.2 N at 3.3 ms

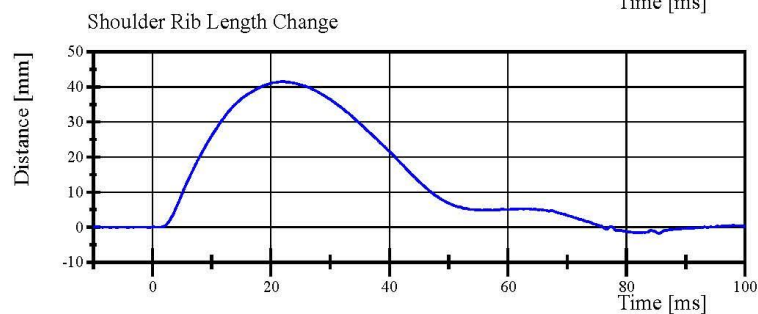
Min: -45.1 N at 91.9 ms



Filter Class: CFC_600

Max: 147.2 N at 51.9 ms

Min: -1,661.3 N at 16.5 ms



Filter Class: CFC_600

Max: 41.5 mm at 22.1 ms

Min: -1.8 mm at 85.5 ms

Specification Source: WorldSID 50th(W5) VRTC Nov 2020.xlsx
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Transportation Research Center Inc.

Left Lateral Thorax with Arm
WorldSID 50th Serial No. EB8888 Certification No. 8-7
Test Date: 3/10/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Impactor Velocity	6.6 - 6.8 m/s	6.71 m/s	Yes
Impactor Force	5,300 - 6,200 N	5,716.7 N	Yes
Peak Thorax Rib 1 Length Change	35 - 47 mm	40.9 mm	Yes
Peak Thorax Rib 2 Length Change	46 - 56 mm	46.5 mm	Yes
Peak Thorax Rib 3 Length Change	33.5 - 40.5 mm	34.12 mm	Yes
Peak T4 Acceleration, y-axis	28 - 37 g	33.8 g	Yes
Peak T12 Acceleration, y-axis	22 - 28 g	24.2 g	Yes

Test meets specifications.

Condition: Used

Comments:

Arm S/N: EG3799

Shoulder Rib S/N: DW1916

Thorax Rib 1 S/N: EB5400

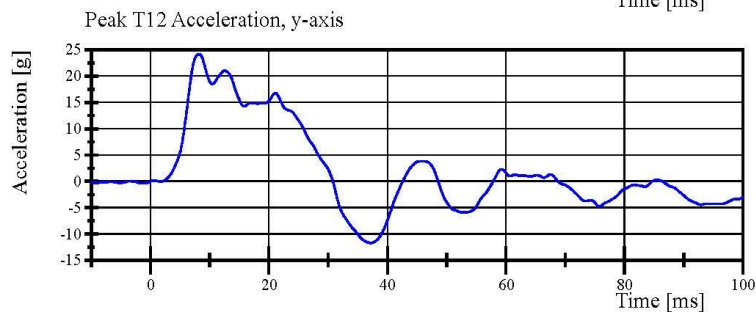
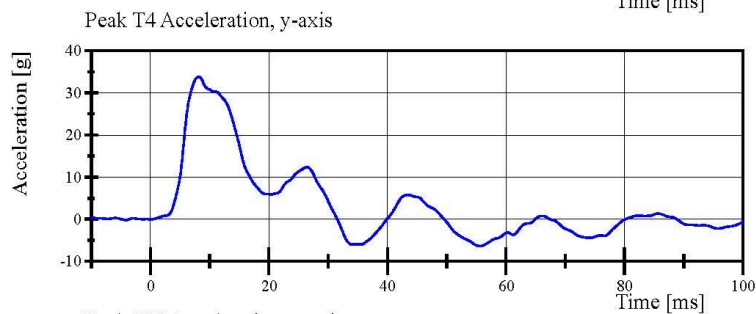
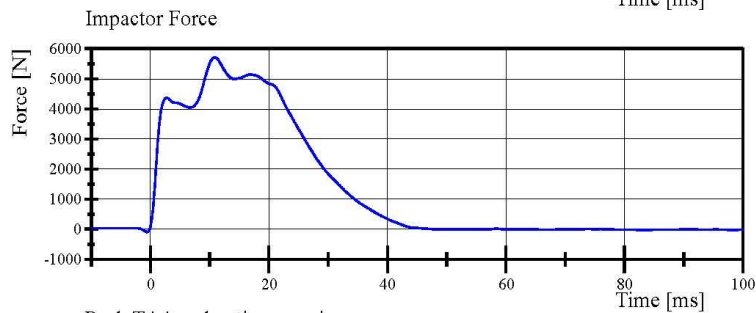
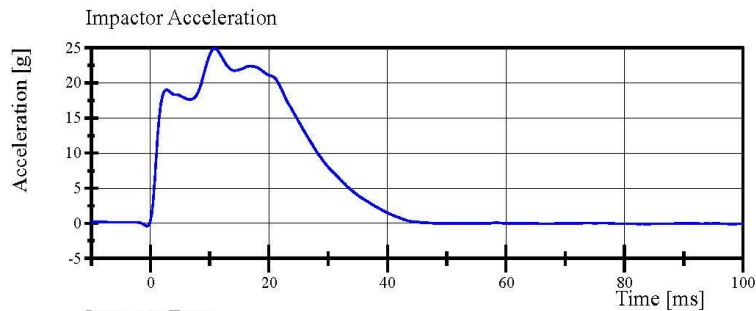
Thorax Rib 2 S/N: EB5401

Thorax Rib 3 S/N: EB5402

RibEye S/N: 124

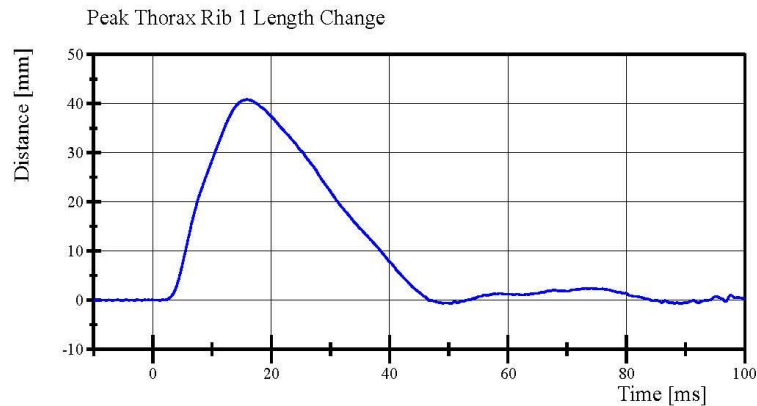
Transportation Research Center Inc.

Left Lateral Thorax with Arm
WorldSID 50th Serial No. EB8888 Certification No. 8-7
Test Date: 3/10/2021

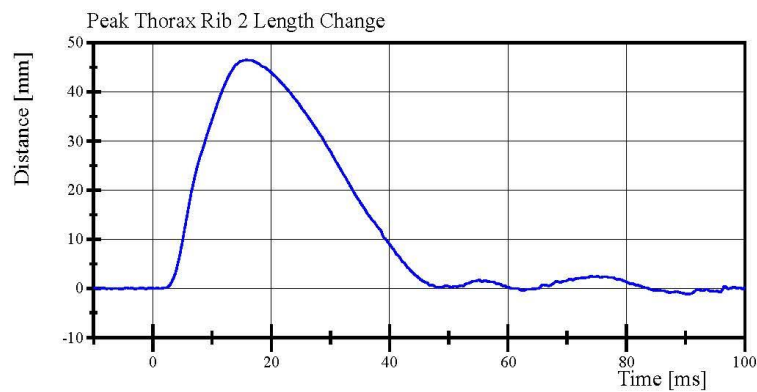


Transportation Research Center Inc.

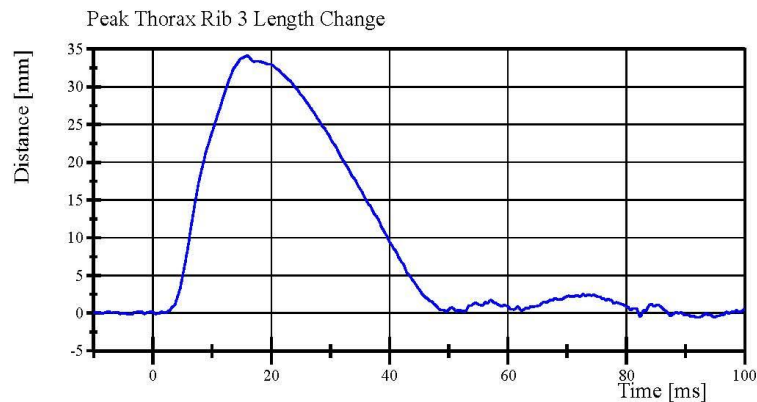
Left Lateral Thorax with Arm
WorldSID 50th Serial No. EB8888 Certification No. 8-7
Test Date: 3/10/2021



Filter Class: CFC_600
Max: 40.9 mm at 15.9 ms
Min: -0.7 mm at 50.4 ms



Filter Class: CFC_600
Max: 46.5 mm at 15.8 ms
Min: -1.1 mm at 90.2 ms



Filter Class: CFC_600
Max: 34.1 mm at 15.9 ms
Min: -0.6 mm at 92.0 ms

Transportation Research Center Inc.

Left Lateral Thorax without Arm
WorldSID 50th Serial No. EB8888 Certification No. 8-3
Test Date: 3/8/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.25 m/s	Yes
Impactor Force	3,200 - 3,800 N	3,547.6 N	Yes
Peak Thorax Rib 1 Length Change	33 - 43 mm	34.7 mm	Yes
Peak Thorax Rib 2 Length Change	35 - 43 mm	41.2 mm	Yes
Peak Thorax Rib 3 Length Change	32 - 40 mm	36.1 mm	Yes
Peak T4 Acceleration, y-axis	14 - 20 g	17.1 g	Yes
Peak T12 Acceleration, y-axis	14 - 22 g	16.0 g	Yes

Test meets specifications.

Condition: Used

Comments:

Thorax Rib 1 S/N: EB5400

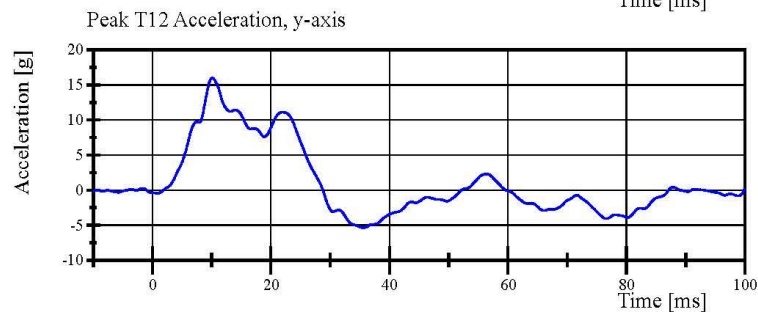
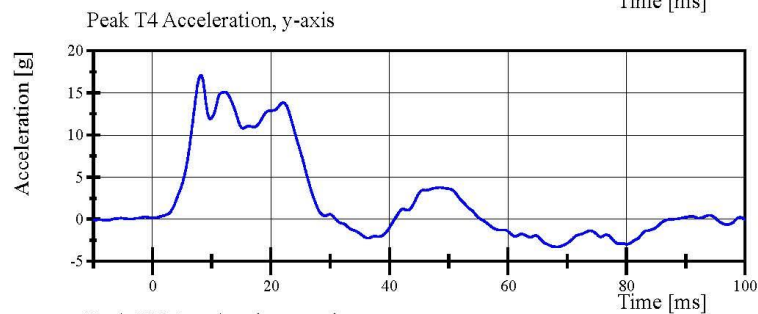
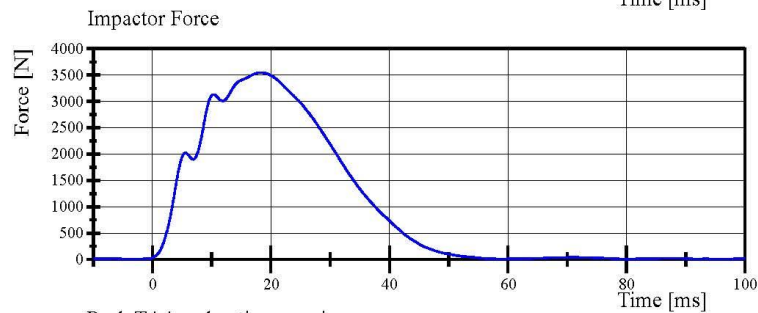
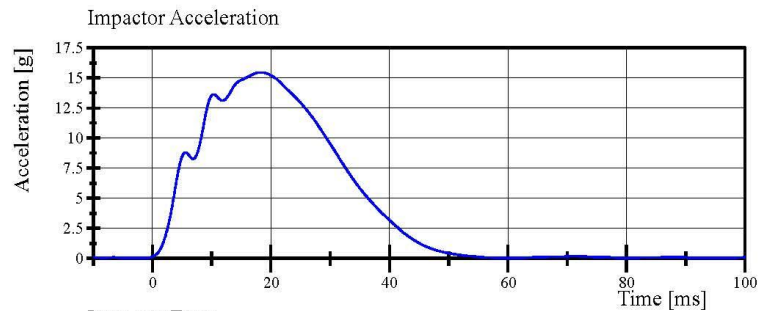
Thorax Rib 2 S/N: EB5401

Thorax Rib 3 S/N: EB5402

RibEye S/N: 124

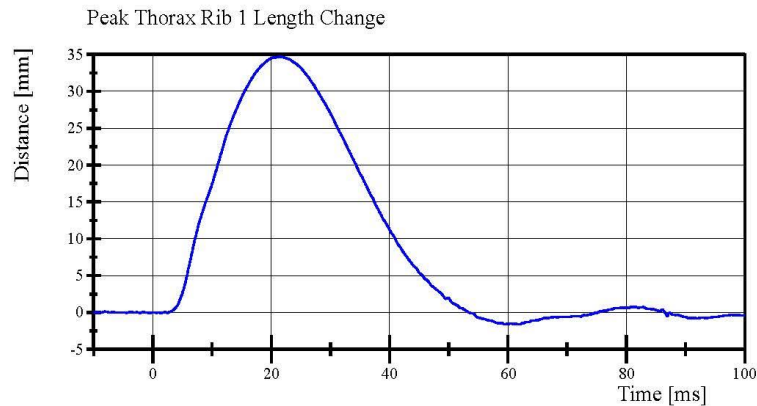
Transportation Research Center Inc.

Left Lateral Thorax without Arm
WorldSID 50th Serial No. EB8888 Certification No. 8-3
Test Date: 3/8/2021

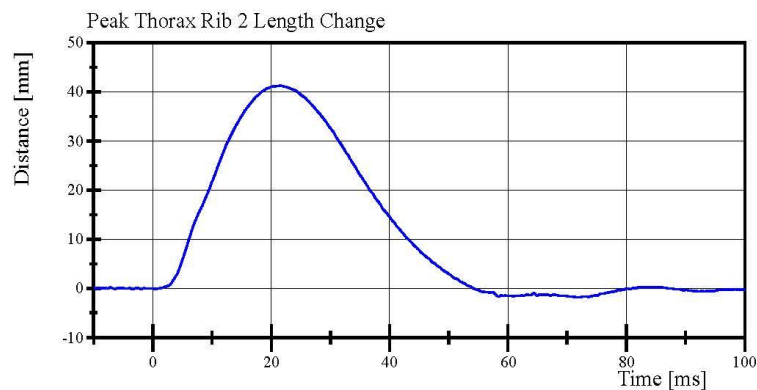


Transportation Research Center Inc.

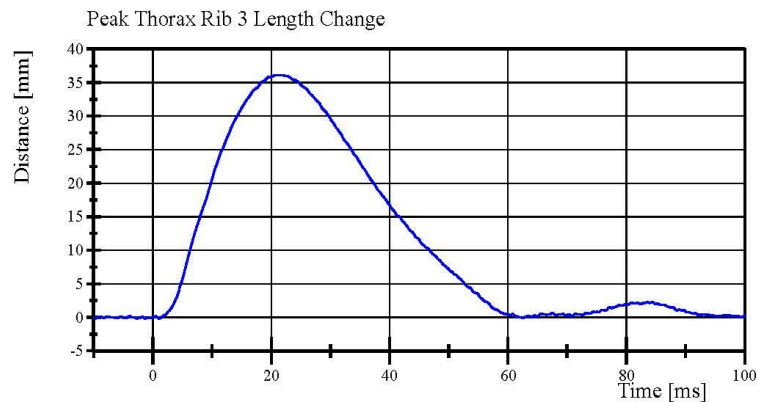
Left Lateral Thorax without Arm
WorldSID 50th Serial No. EB8888 Certification No. 8-3
Test Date: 3/8/2021



Filter Class: CFC_600
Max: 34.7 mm at 21.6 ms
Min: -1.6 mm at 61.9 ms



Filter Class: CFC_600
Max: 41.2 mm at 21.6 ms
Min: -1.8 mm at 72.0 ms



Filter Class: CFC_600
Max: 36.1 mm at 20.9 ms
Min: -0.2 mm at 1.1 ms

Transportation Research Center Inc.

Left Lateral Abdomen

WorldSID 50th Serial No. EB8888 Certification No. 8-1

Test Date: 3/8/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.33 m/s	Yes
Impactor Force	2,700 - 3,100 N	3,037.8 N	Yes
Peak Abdomen Rib 1 Length Change	32.5 - 39.5 mm	32.82 mm	Yes
Peak Abdomen Rib 2 Length Change	32 - 38 mm	32.5 mm	Yes
Peak T12 Acceleration, y-axis	14.5 - 19.5 g	17.96 g	Yes

Test meets specifications.

Condition: Used

Comments:

Abdomen Rib #1 S/N: DY5252

Abdomen Rib #2 S/N: DY5253

RibEye S/N: 124

Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
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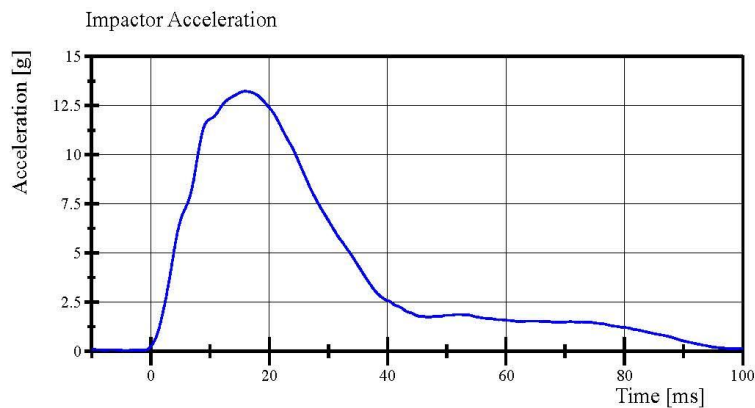


Transportation Research Center Inc.

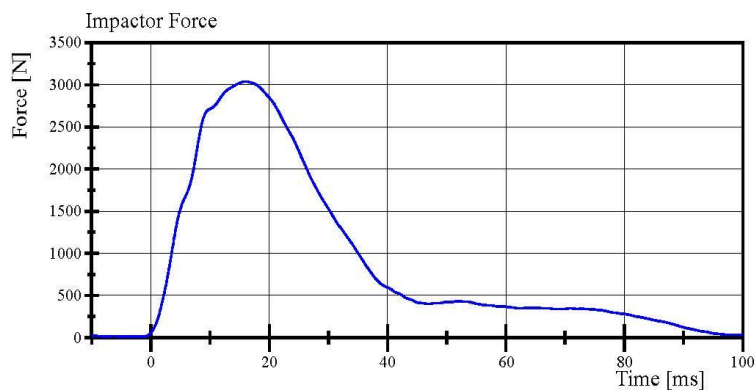
Left Lateral Abdomen

WorldSID 50th Serial No. EB8888 Certification No. 8-1

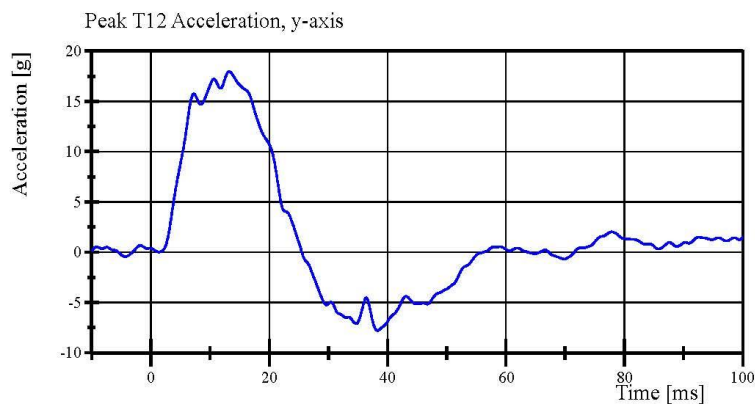
Test Date: 3/8/2021



Filter Class: CFC_180
Max: 13.2 g at 16.0 ms
Min: 0.0 g at -4.1 ms



Filter Class: CFC_180
Max: 3,037.8 N at 16.0 ms
Min: 10.0 N at -4.1 ms



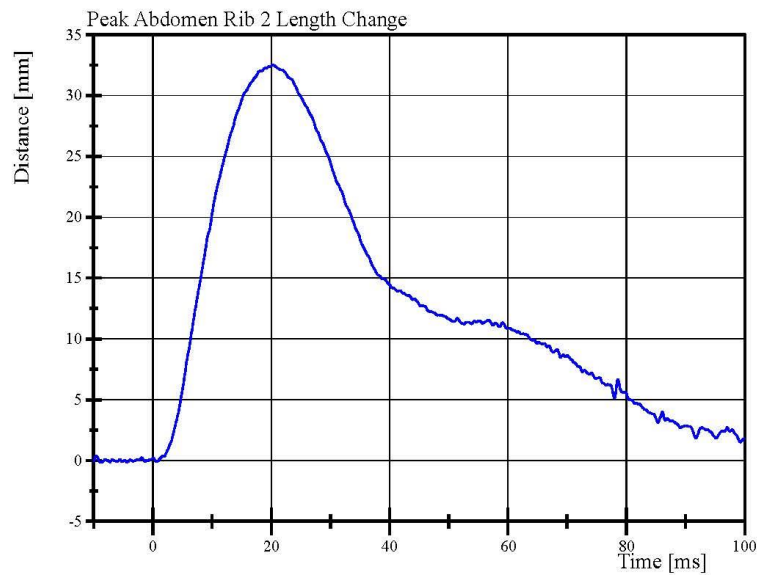
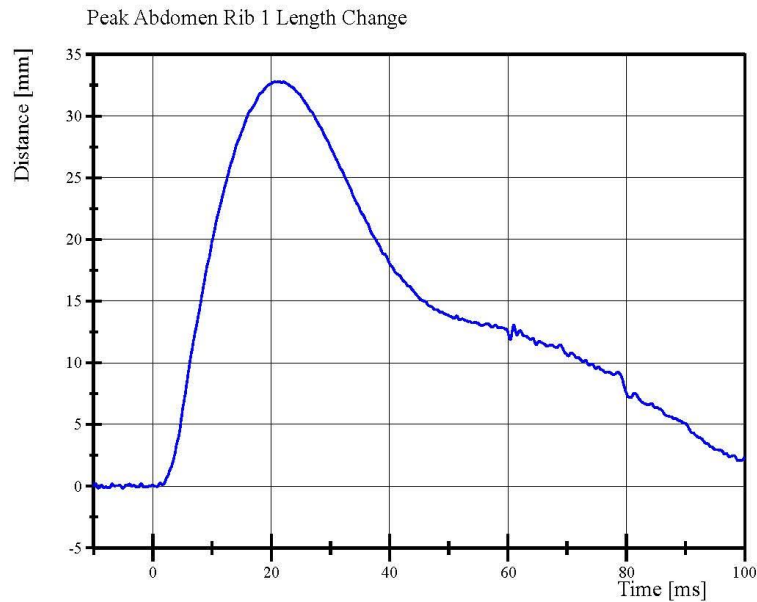
Filter Class: CFC_180
Max: 18.0 g at 13.3 ms
Min: -7.8 g at 38.3 ms

Transportation Research Center Inc.

Left Lateral Abdomen

WorldSID 50th Serial No. EB8888 Certification No. 8-1

Test Date: 3/8/2021



Transportation Research Center Inc.

Left Lateral Pelvis

WorldSID 50th Serial No. EB8888 Certification No. 7-1

Test Date: 2/25/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Impactor Velocity	6.6 - 6.8 m/s	6.71 m/s	Yes
Impactor Force	6,800 - 8,200 N	7,502.0 N	Yes
Pelvis Lateral Acceleration	38.5 - 48.5 g	41.70 g	Yes
Peak T12 Acceleration, y-axis	10 - 14 g	12.6 g	Yes
Pubic Lateral Force	(-1,300) - (-1,590) N	-1,372.9 N	Yes
Sacroiliac Lateral Force	(-1,860) - (-2,280) N	-2,083.6 N	Yes

Test meets specifications.

Condition: Used

Comments:

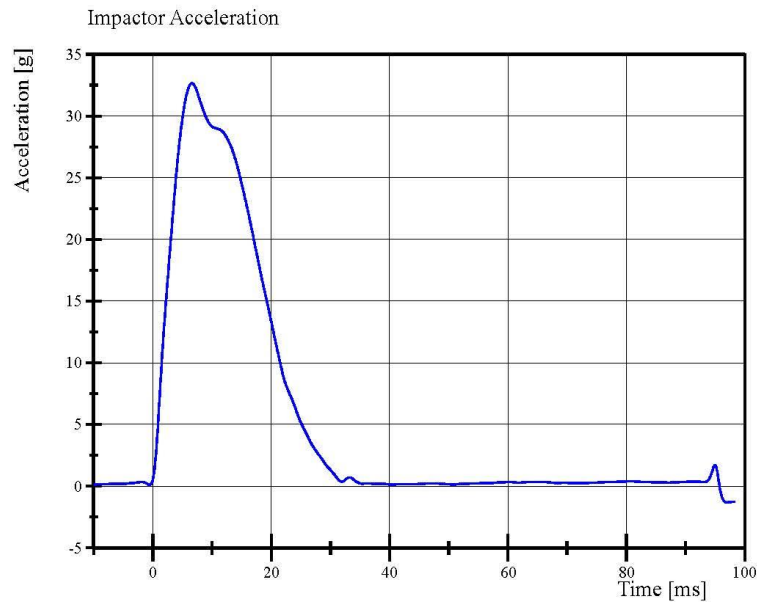
Pelvis S/N: EC3628

Transportation Research Center Inc.

Left Lateral Pelvis

WorldSID 50th Serial No. EB8888 Certification No. 7-1

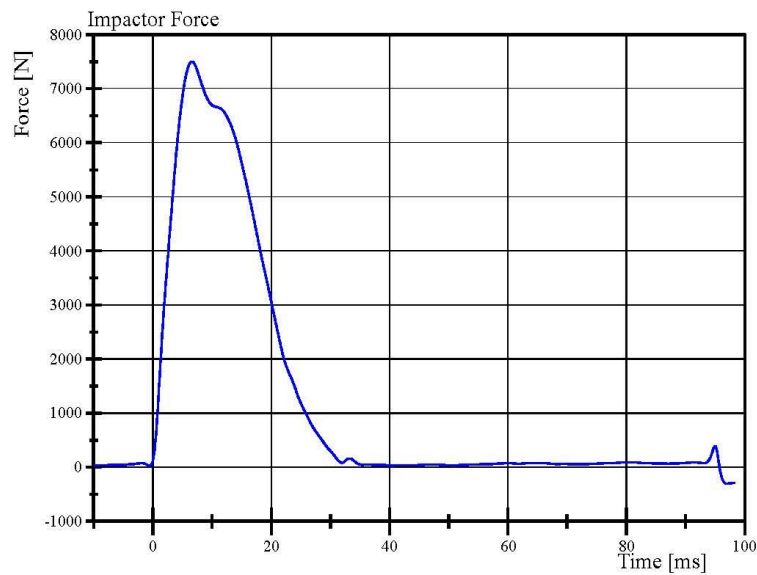
Test Date: 2/25/2021



Filter Class: CFC_180

Max: 32.7 g at 6.6 ms

Min: -1.3 g at 97.0 ms



Filter Class: CFC_180

Max: 7,502.0 N at 6.6 ms

Min: -302.4 N at 97.0 ms

Specification Source: WordSID 50th(W5) VRTC Nov 2020.xlsx
WorldSID 50th_Qualification Manual 11_09_2020

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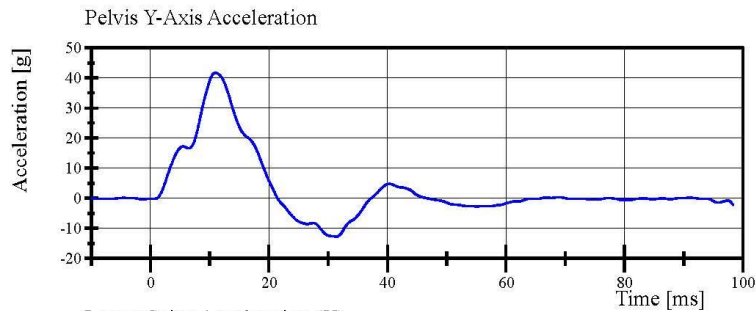


Transportation Research Center Inc.

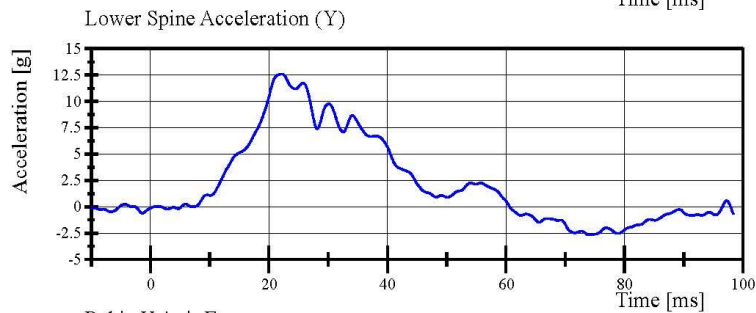
Left Lateral Pelvis

WorldSID 50th Serial No. EB8888 Certification No. 7-1

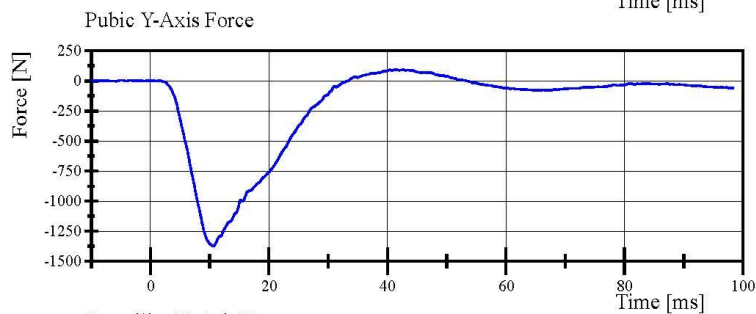
Test Date: 2/25/2021



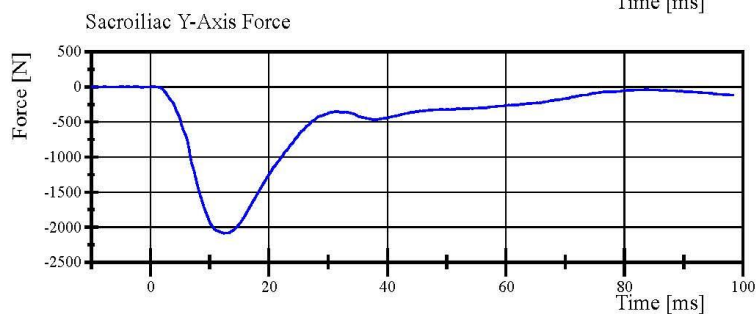
Filter Class: CFC_180
Max: 41.7 g at 11.0 ms
Min: -12.8 g at 31.3 ms



Filter Class: CFC_180
Max: 12.6 g at 22.2 ms
Min: -2.7 g at 74.0 ms



Filter Class: CFC_600
Max: 92.7 N at 41.3 ms
Min: -1,372.9 N at 10.6 ms



Filter Class: CFC_600
Max: 3.8 N at -2.6 ms
Min: -2,083.6 N at 12.4 ms

Specification Source: WordSID 50th(W5) VRTC Nov 2020.xlsx
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Post-Test Calibration Sheets
Driver S/N EB8888

Transportation Research Center Inc.
WorldSID-50M
External Measurements
Serial No. EB8888 Certification No. 09

WorldSID-50M Angular Reference Measurements					
Parameter	Symbol	Tilt Sensor (°)	Inclinometer (°)		
			Center	Left	Right
Head X-Axis	A1	0	n/a	n/a	n/a
Head Y-Axis	A2	2.2	n/a	2	Note 1
Neck Bracket X-Axis	A3	n/a	-0.5	n/a	n/a
Neck Bracket Y-Axis	A4	n/a	-3.1	n/a	n/a
Thorax X-Axis	A5	1.3	n/a	n/a	n/a
Thorax Y-Axis	A6	3.9	n/a	n/a	n/a
Pelvis X-Axis	A7	0.7	n/a	n/a	n/a
Pelvis Y-Axis	A8	10.2	n/a	n/a	n/a
H-point Tool	A9	n/a	n/a	33.1	33.9

WorldSID-50M External Linear Dimensions				
Parameter	Symbol	Specification (mm)		
		Center	Left	Right
Seated Height	L1	870	n/a	n/a
Hip Pivot Height	L2	n/a	89	89
Hip Pivot to Back Line	L3	n/a	187	177
Thigh Clearance	L4	n/a	181	180
Knee Height	L5	n/a	580	583
Knee to Backline	L6	n/a	667	670
Head Back to Seat Back	L7	156	n/a	n/a
Thorax Rib 1 Front to Back	L8	n/a	209	209
Abdomen Rib 2 Front to Back	L9	n/a	223	226
Arm Length	L10	n/a	330	330
Width Across Arms	L11	482	n/a	n/a
Waist Width	L12	341	n/a	n/a

Note 1: No land marks on the right side of head. Unable to align level.

Transportation Research Center Inc.

Front Head Drop

WorldSID 50th Serial No. EB8888 Certification No. 9-1

Test Date: 3/25/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Peak Head Resultant Acceleration	211 - 261 g	234.5 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	7.3 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	< 10 %	1.33 %	Yes

Test meets specifications.

Condition: Used

Comments:

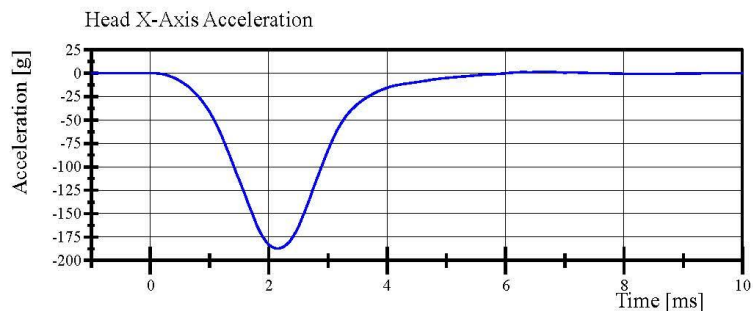
Head Skin S/N: EG2845

Transportation Research Center Inc.

Front Head Drop

WorldSID 50th Serial No. EB8888 Certification No. 9-1

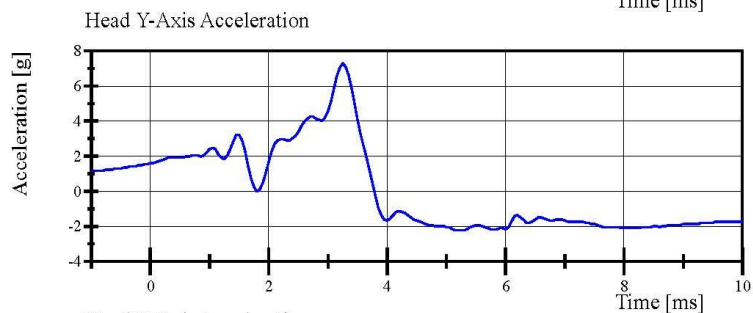
Test Date: 3/25/2021



Filter Class: CFC_1000

Max: 1.8 g at 6.7 ms

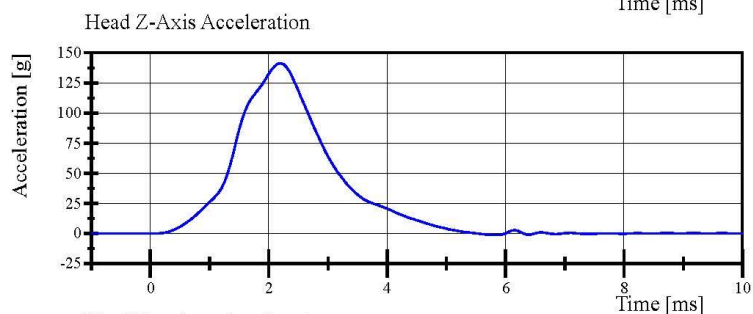
Min: -187.3 g at 2.2 ms



Filter Class: CFC_1000

Max: 7.3 g at 3.3 ms

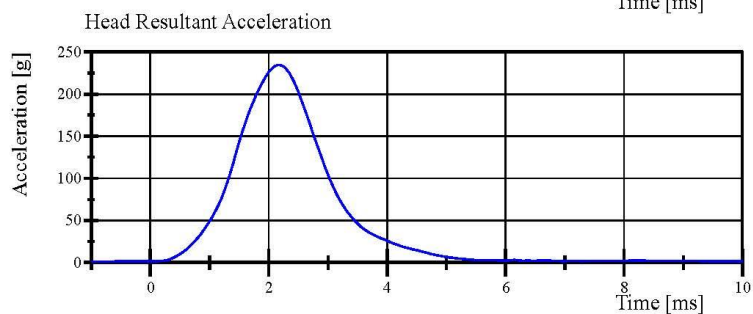
Min: -2.2 g at 5.2 ms



Filter Class: CFC_1000

Max: 141.5 g at 2.2 ms

Min: -1.2 g at 5.8 ms



Filter Class: CFC_1000

Max: 234.5 g at 2.2 ms

Min: 1.2 g at -1.0 ms

Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
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Transportation Research Center Inc.

Left Lateral Head Drop

WorldSID 50th Serial No. EB8888 Certification No. 9-1

Test Date: 3/25/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	41 %	Yes
Peak Head Resultant Acceleration	107 - 126 g	113.3 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	1.9 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	< 10 %	2.20 %	Yes

Test meets specifications.

Condition: Used

Comments:

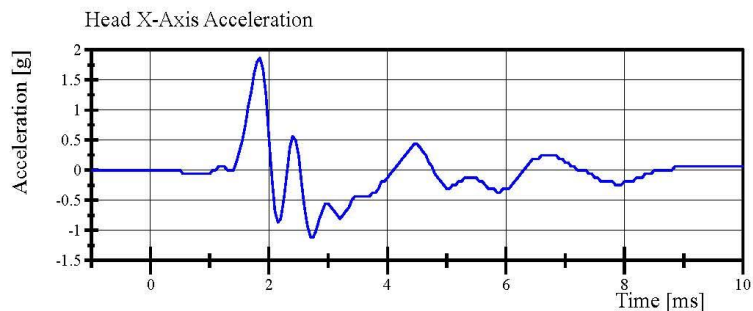
Head Skin S/N: EG2845

Transportation Research Center Inc.

Left Lateral Head Drop

WorldSID 50th Serial No. EB8888 Certification No. 9-1

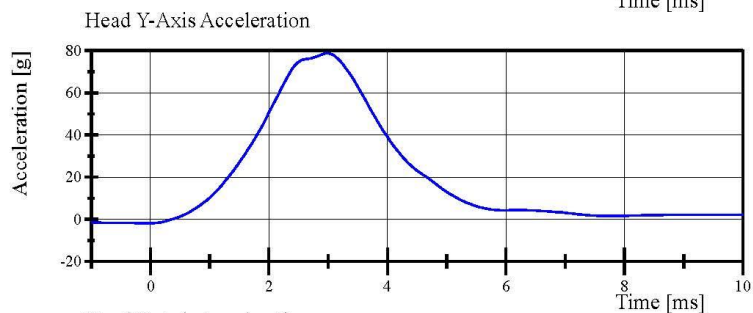
Test Date: 3/25/2021



Filter Class: CFC_1000

Max: 1.9 g at 1.9 ms

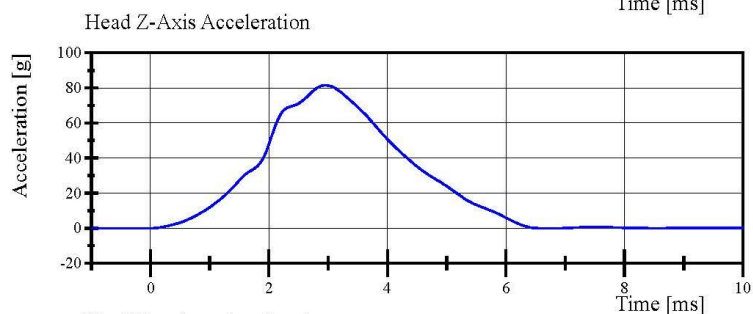
Min: -1.1 g at 2.7 ms



Filter Class: CFC_1000

Max: 78.8 g at 3.0 ms

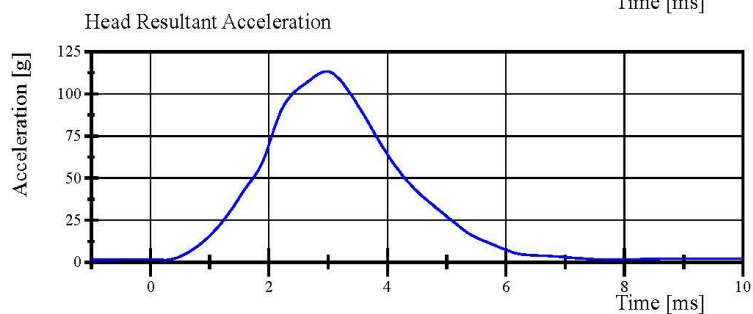
Min: -1.8 g at -0.1 ms



Filter Class: CFC_1000

Max: 81.5 g at 3.0 ms

Min: -0.1 g at -1.0 ms



Filter Class: CFC_1000

Max: 113.3 g at 3.0 ms

Min: 1.4 g at 0.3 ms

Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
WorldSID 50th_Qualification Manual 11_09_2020

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Transportation Research Center Inc.

Right Lateral Head Drop

WorldSID 50th Serial No. EB8888 Certification No. 9-1

Test Date: 3/25/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Peak Head Resultant Acceleration	107 - 126 g	116.3 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-3.7 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	< 10 %	2.53 %	Yes

Test meets specifications.

Condition: Used

Comments:

Head Skin S/N: EG2845

Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
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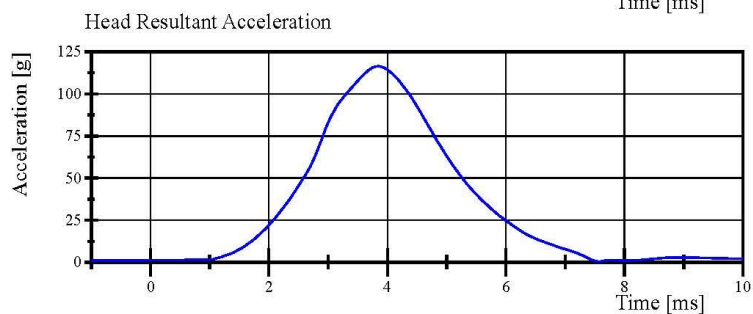
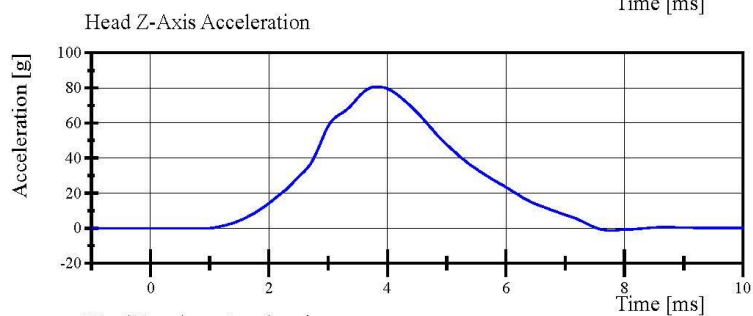
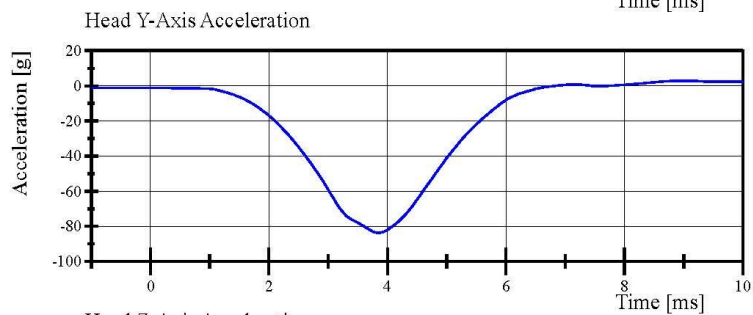
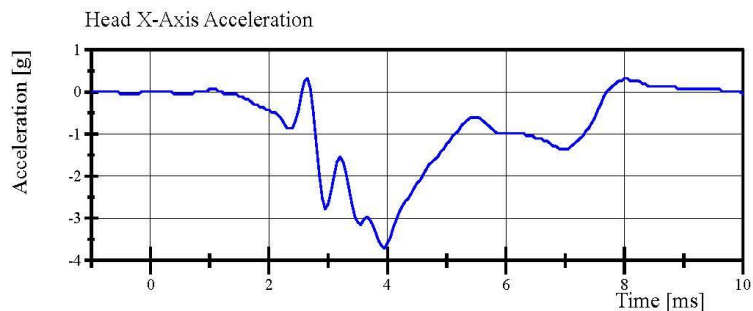


Transportation Research Center Inc.

Right Lateral Head Drop

WorldSID 50th Serial No. EB8888 Certification No. 9-1

Test Date: 3/25/2021



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Transportation Research Center Inc.

Left Lateral Neck
WorldSID 50th Serial No. EB8888 Certification No. 9-1
Test Date: 3/25/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Pendulum Velocity	(-3.30) - (-3.50) m/s	-3.323 m/s	Yes
Pendulum Integrated Velocity Change at 4 ms	0.87 - 1.09 m/s	1.001 m/s	Yes
Change at 8 ms	1.72 - 2.1 m/s	1.952 m/s	Yes
Change at 12 ms	2.63 - 3.17 m/s	2.940 m/s	Yes
Maximum Headform Flexion	(-50) - (-61) deg	-53.4 deg	Yes
Headform Flexion Decay - from Peak to Zero Degrees	58 - 72 ms	60.6 ms	Yes
Total Neck Occipital Condyles Moment	54 - 67 N·m	59.3 N·m	Yes
Total Neck Occipital Condyles Moment Decay Time to 0 N·m	71 - 87 ms	75.9 ms	Yes
Maximum Forward Pot Rotation			
Peak	(-32) - (-39) °	-34.6 °	Yes
Time of Peak	56 - 68 ms	61.7 ms	Yes
Maximum Rear Pot Rotation			
Peak	(-29) - (-36) °	-31.0 °	Yes
Time of Peak	56 - 68 ms	61.9 ms	Yes
Maximum Headform Angular Rate	(-2,047) - (-2,503) °/s	-2,278.2 °/s	Yes

Test meets specifications.

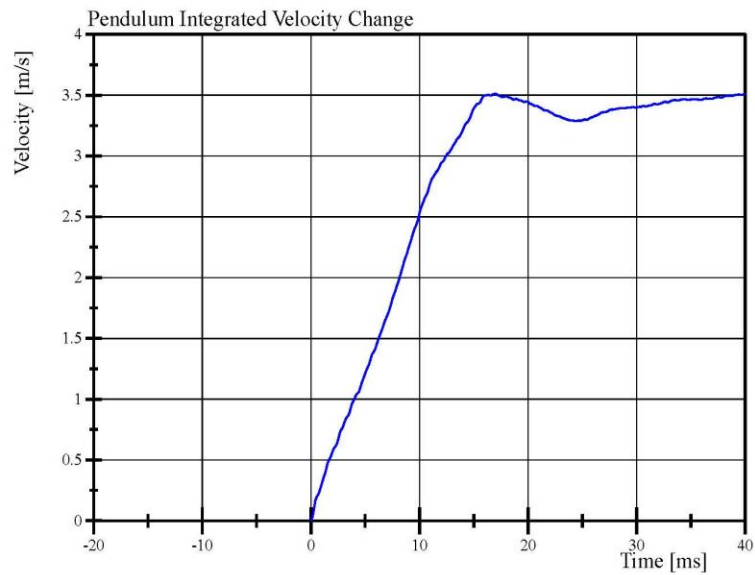
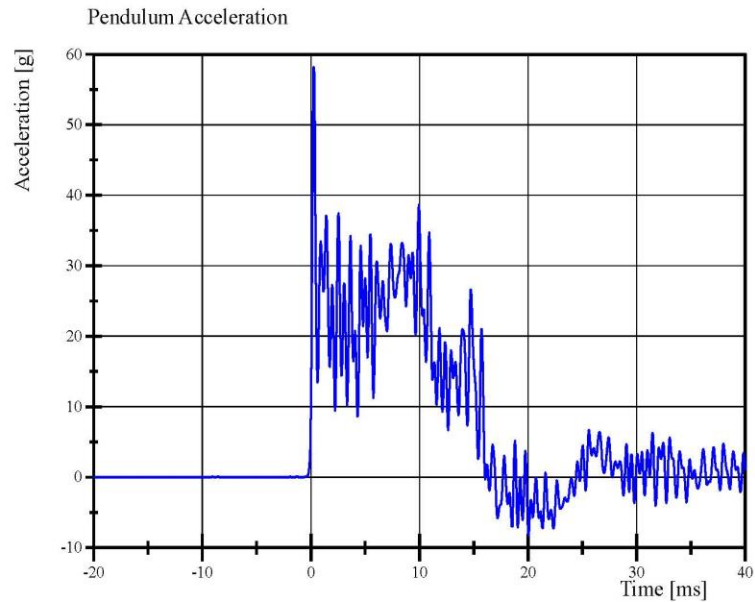
Condition: Used

Comments:

Neck S/N: EE8804

Transportation Research Center Inc.

Left Lateral Neck
WorldSID 50th Serial No. EB8888 Certification No. 9-1
Test Date: 3/25/2021



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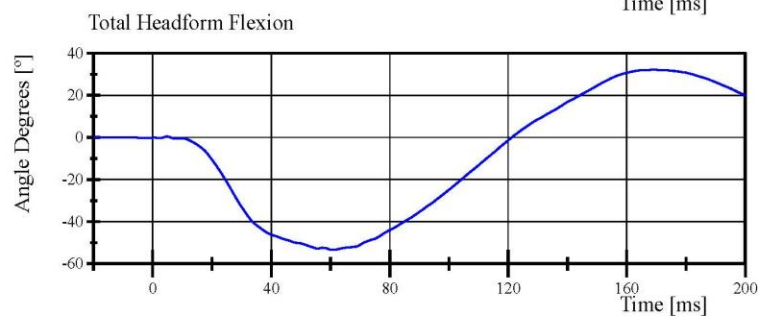
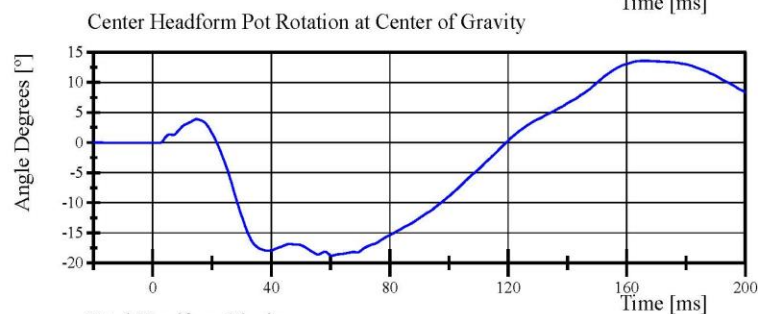
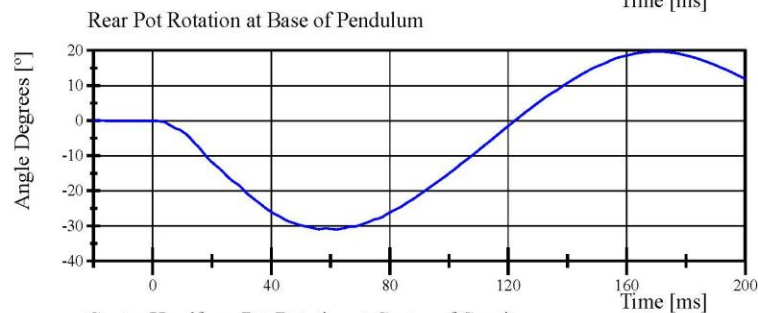
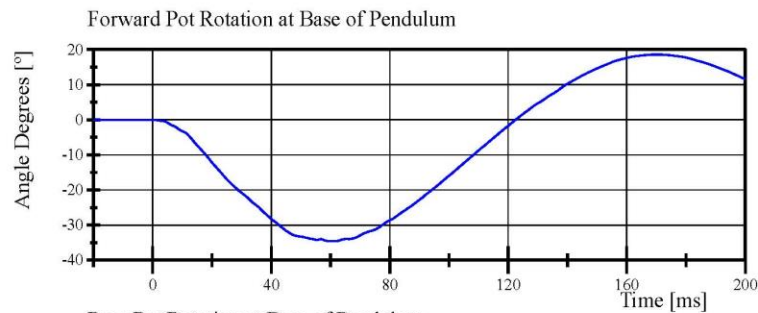


Transportation Research Center Inc.

Left Lateral Neck

WorldSID 50th Serial No. EB8888 Certification No. 9-1

Test Date: 3/25/2021



Specification Source: WorldSID 50th(W5) VRTC Nov 2020.xlsx
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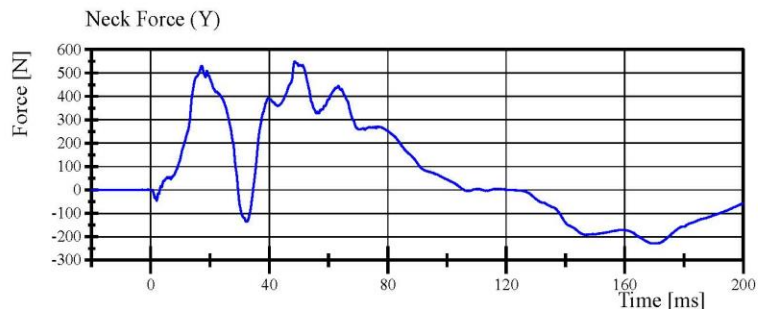
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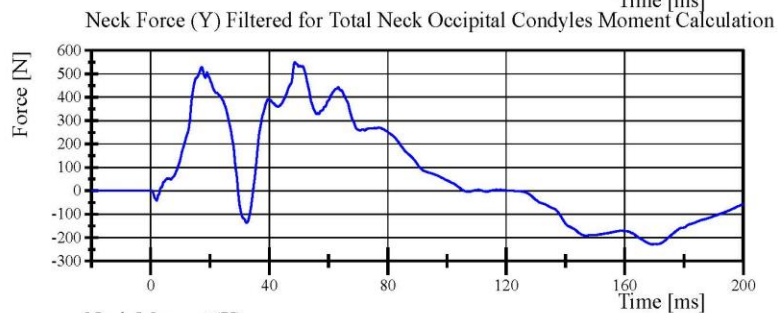


Transportation Research Center Inc.

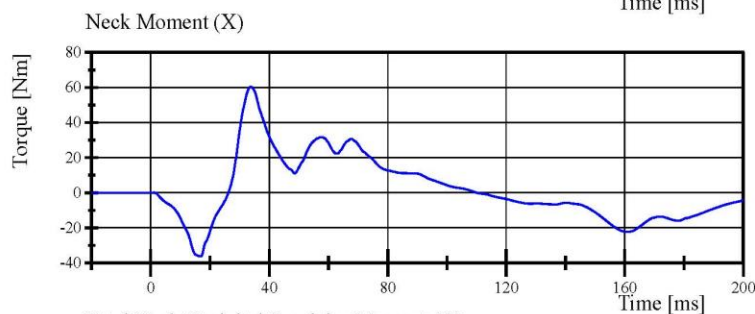
Left Lateral Neck
WorldSID 50th Serial No. EB8888 Certification No. 9-1
Test Date: 3/25/2021



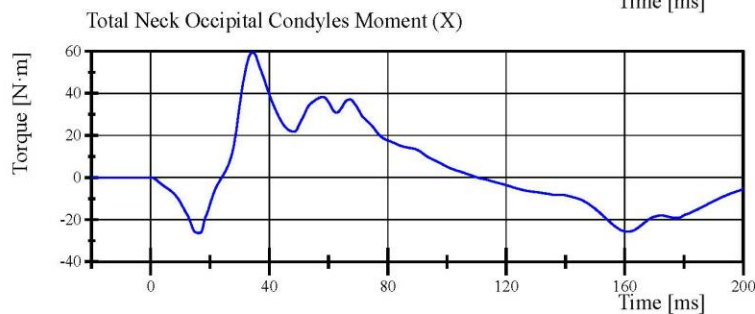
Filter Class: CFC_1000
Max: 550.1 N at 48.6 ms
Min: -228.5 N at 169.1 ms



Filter Class: CFC_600
Max: 549.5 N at 48.7 ms
Min: -228.5 N at 169.3 ms



Filter Class: CFC_600
Max: 60.4 Nm at 33.8 ms
Min: -36.3 Nm at 16.8 ms



Filter Class: Without_(Constar
Max: 59.3 N·m at 34.4 ms
Min: -26.3 N·m at 16.3 ms

Specification Source: WorldSID 50th(W5) VRTC Nov 2020.xlsx
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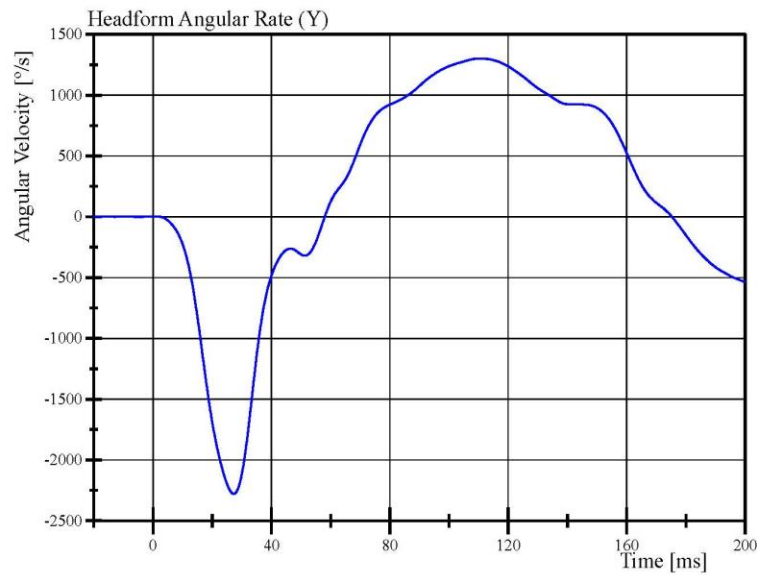
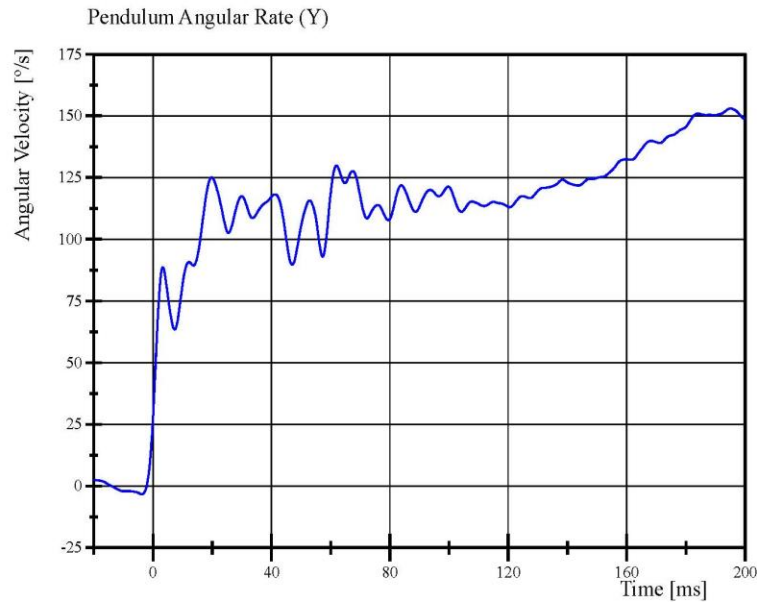


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Left Lateral Neck
WorldSID 50th Serial No. EB8888 Certification No. 9-1
Test Date: 3/25/2021



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Transportation Research Center Inc.

Right Lateral Neck
WorldSID 50th Serial No. EB8888 Certification No. 9-1
Test Date: 3/25/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Pendulum Velocity	3.30 - 3.50 m/s	3.332 m/s	Yes
Pendulum Integrated Velocity Change at 4 ms	(-0.87) - (-1.09) m/s	-0.969 m/s	Yes
Change at 8 ms	(-1.72) - (-2.1) m/s	-1.938 m/s	Yes
Change at 12 ms	(-2.63) - (-3.17) m/s	-2.901 m/s	Yes
Maximum Headform Flexion	50 - 61 deg	53.8 deg	Yes
Headform Flexion Decay - from Peak to Zero Degrees	58 - 72 ms	61.0 ms	Yes
Total Neck Occipital Condyles Moment	(-54) - (-67) N·m	-62.2 N·m	Yes
Total Neck Occipital Condyles Moment Decay Time to 0 N·m	71 - 87 ms	76.9 ms	Yes
Maximum Forward Pot Rotation			
Peak	32 - 39 °	34.8 °	Yes
Time of Peak	56 - 68 ms	61.2 ms	Yes
Maximum Rear Pot Rotation			
Peak	29 - 36 °	31.1 °	Yes
Time of Peak	56 - 68 ms	62.2 ms	Yes
Maximum Headform Angular Rate	2,047 - 2,503 °/s	2,289.6 °/s	Yes

Test meets specifications.

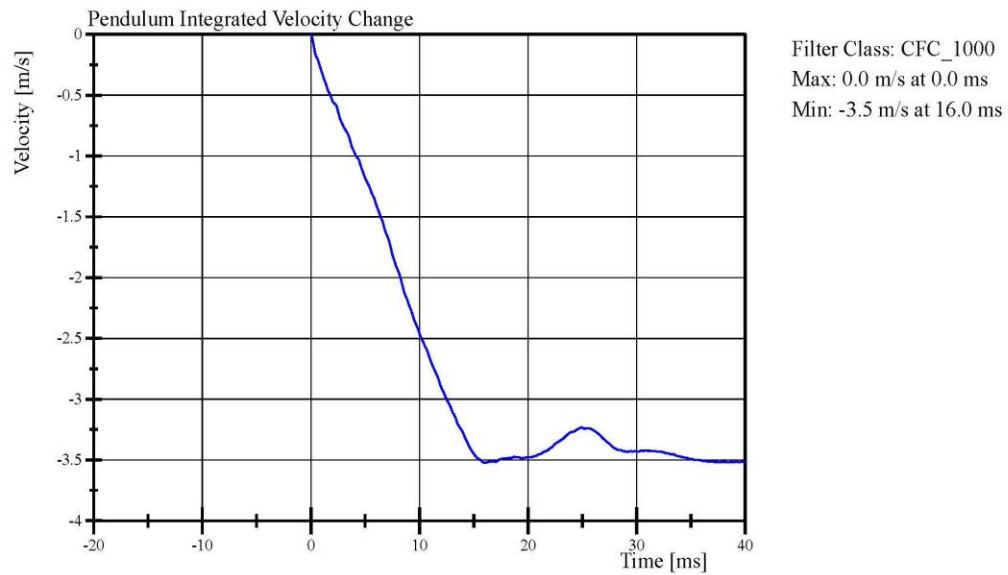
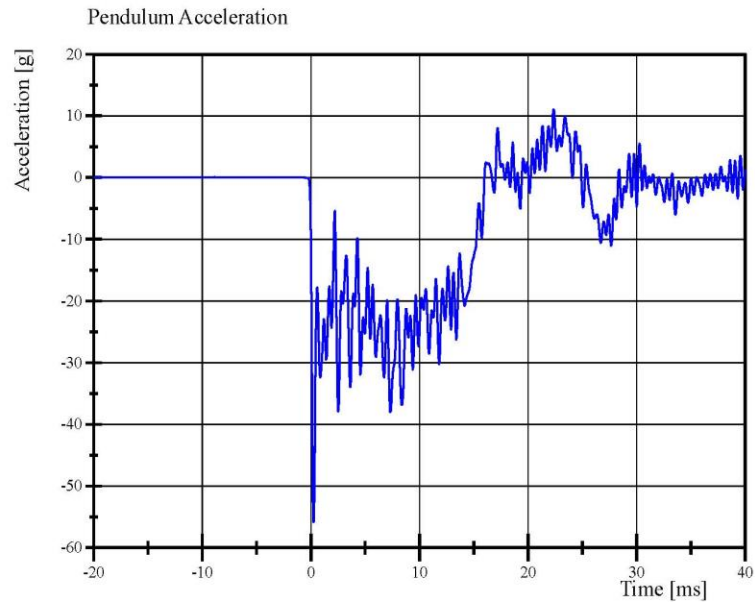
Condition: Used

Comments:

Neck S/N: EE8804

Transportation Research Center Inc.

Right Lateral Neck
WorldSID 50th Serial No. EB8888 Certification No. 9-1
Test Date: 3/25/2021



Specification Source: WorldSID 50th(WS) VRTC Nov 2020.xlsx
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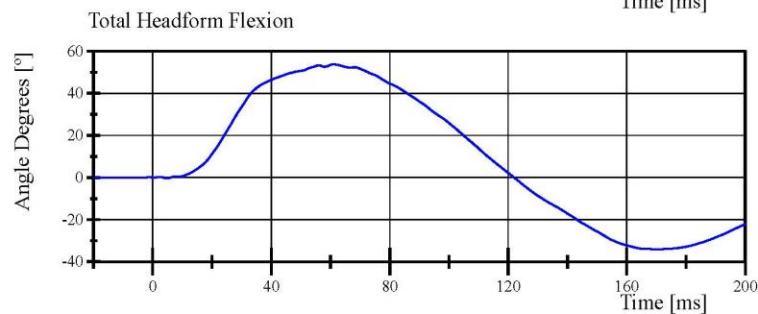
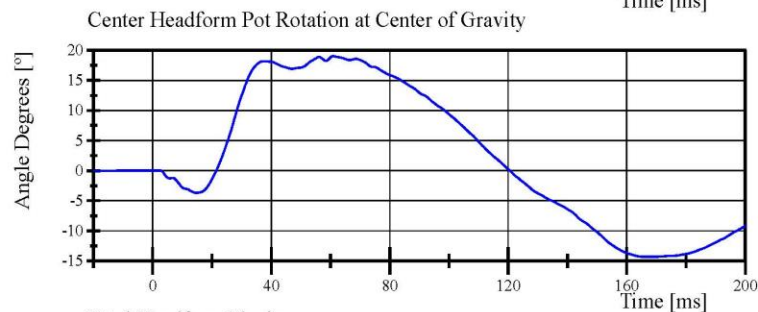
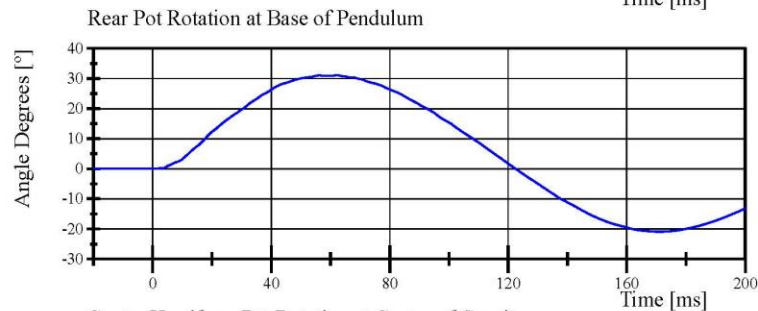
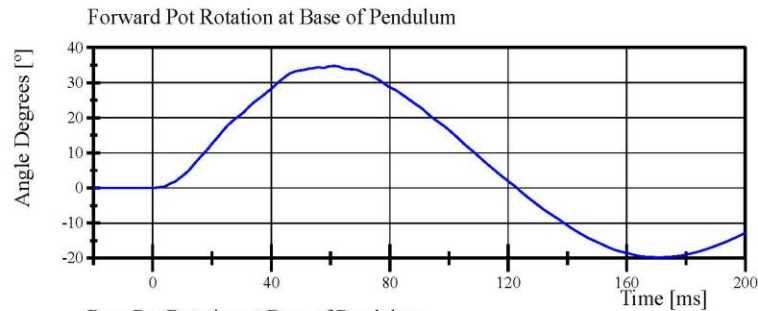
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Transportation Research Center Inc.

Right Lateral Neck
WorldSID 50th Serial No. EB8888 Certification No. 9-1
Test Date: 3/25/2021



Specification Source: WordSID 50th(W5) VRTC Nov 2020.xlsx
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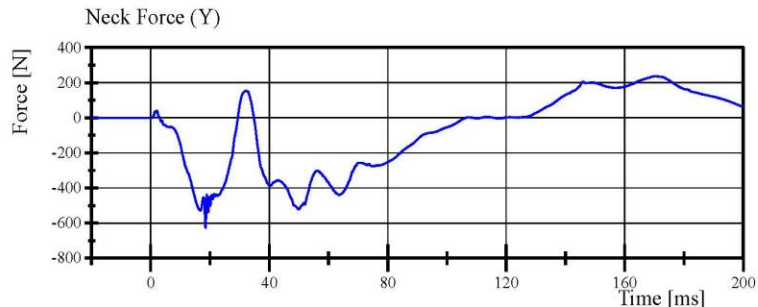
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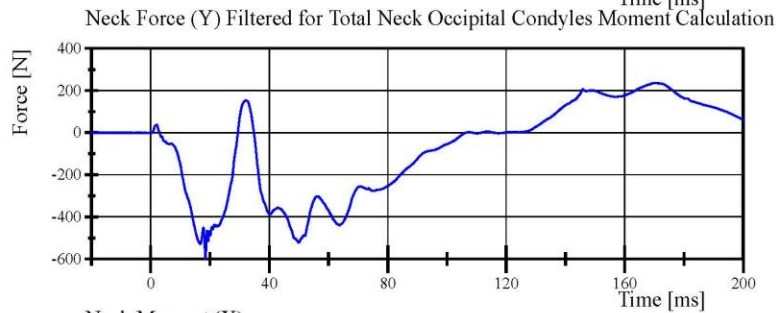


Transportation Research Center Inc.

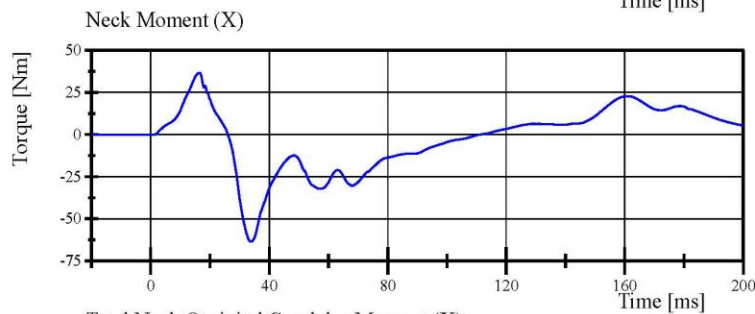
Right Lateral Neck
WorldSID 50th Serial No. EB8888 Certification No. 9-1
Test Date: 3/25/2021



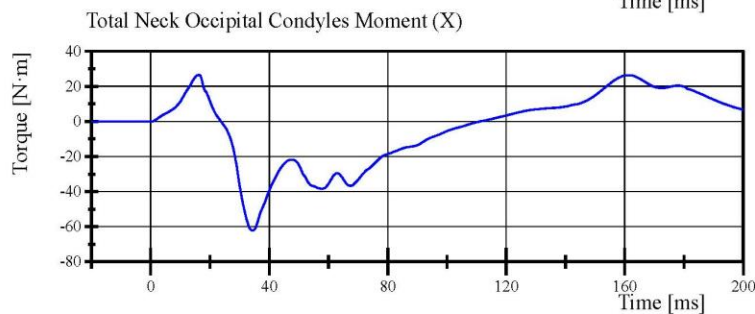
Filter Class: CFC_1000
Max: 236.9 N at 169.9 ms
Min: -626.8 N at 18.5 ms



Filter Class: CFC_600
Max: 236.7 N at 170.0 ms
Min: -598.3 N at 18.5 ms



Filter Class: CFC_600
Max: 36.6 Nm at 16.5 ms
Min: -63.6 Nm at 33.9 ms



Filter Class: Without_(Constar
Max: 26.4 N·m at 16.2 ms
Min: -62.2 N·m at 34.3 ms

Specification Source: WorldSID 50th(W5) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

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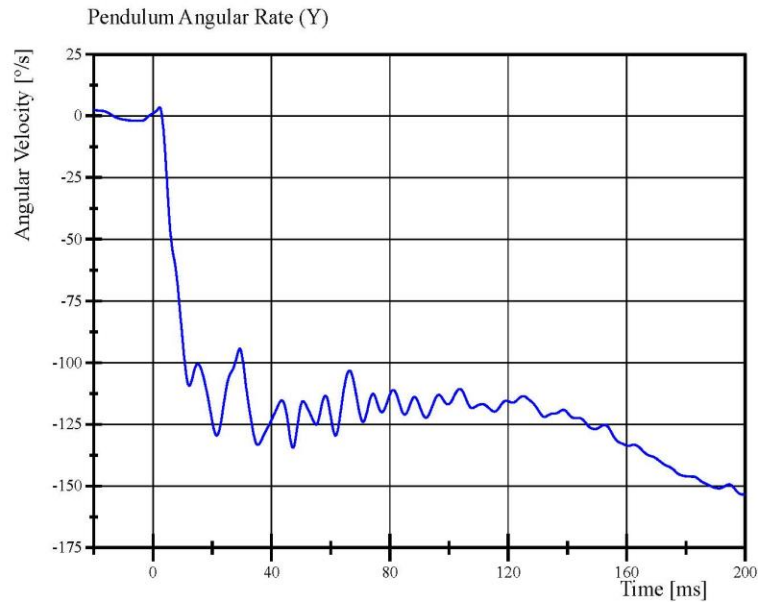
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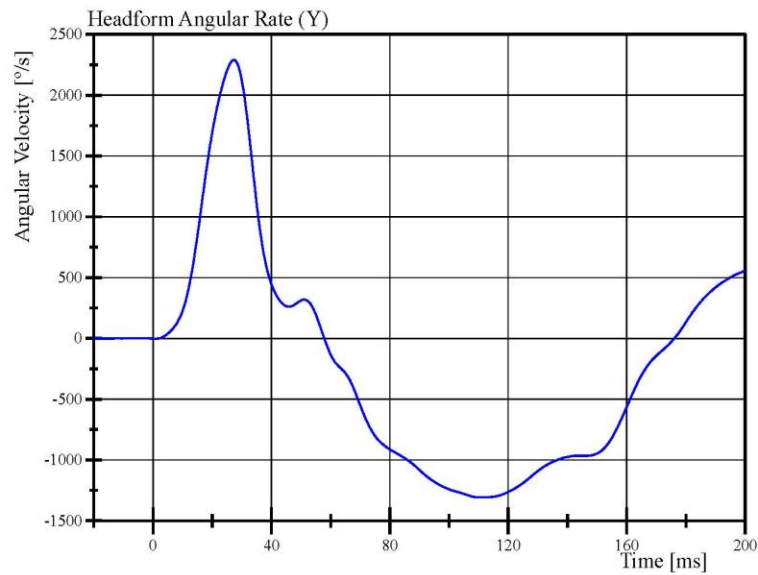


Transportation Research Center Inc.

Right Lateral Neck
WorldSID 50th Serial No. EB8888 Certification No. 9-1
Test Date: 3/25/2021



Filter Class: CFC_60
Max: 3.4 °/s at 2.3 ms
Min: -153.6 °/s at 200.0 ms



Filter Class: CFC_60
Max: 2,289.6 °/s at 27.4 ms
Min: -1,307.8 °/s at 111.0 ms

Specification Source: WorldSID 50th (WS) VRTC Nov 2020.xlsx
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Transportation Research Center Inc.

Left Lateral Torsion

WorldSID 50th Serial No. EB8888 Certification No. 9-1

Test Date: 3/25/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	44 %	Yes
Pendulum Velocity	5.1 - 5.3 m/s	5.18 m/s	Yes
Pendulum Integrated Velocity Change at 10 ms	2.09 - 2.37 m/s	2.364 m/s	Yes
Change at 15 ms	3.19 - 3.63 m/s	3.565 m/s	Yes
Change at 20 ms	4.27 - 4.87 m/s	4.771 m/s	Yes
Peak Fixture Rotation	(-41.5) - (-51) °	-48.01 °	Yes
Decay Time to 0 deg from Peak Angle	35 - 43 ms	40.4 ms	Yes
Peak Head Angular Velocity Z-axis	(-1,345) - (-1,655) °/s	-1,590.8 °/s	Yes
Peak Lower Neck Moment Z-axis	34 - 42 N·m	37.5 N·m	Yes

Test meets specifications.

Condition: Used

Comments:

Neck S/N: EE8804

Specification Source: WorldSID 50th(WS) VRTC Nov 2020.xlsx
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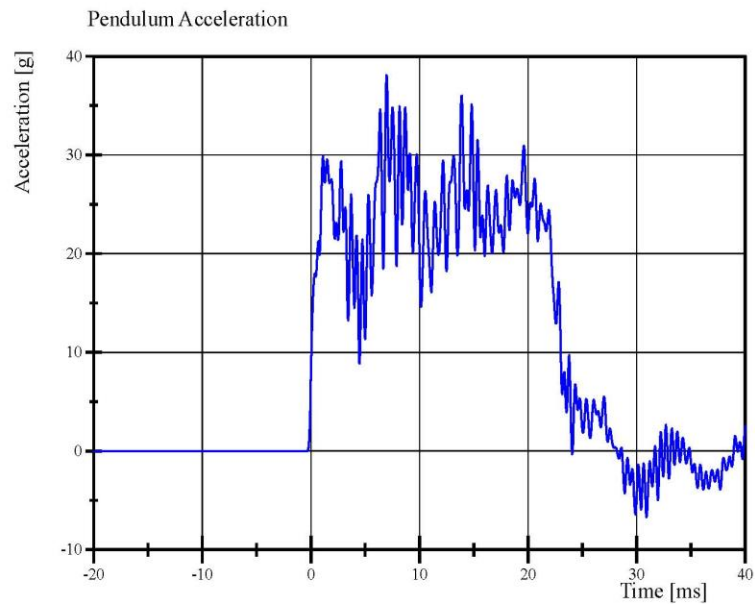


Transportation Research Center Inc.

Left Lateral Torsion

WorldSID 50th Serial No. EB8888 Certification No. 9-1

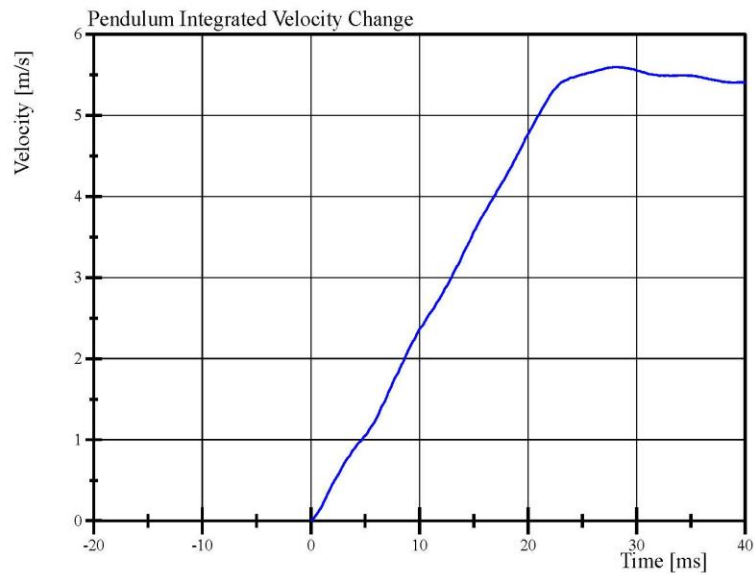
Test Date: 3/25/2021



Filter Class: CFC_1000

Max: 38.1 g at 7.0 ms

Min: -6.7 g at 30.9 ms



Filter Class: CFC_1000

Max: 5.6 m/s at 28.2 ms

Min: 0.0 m/s at -0.0 ms

Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
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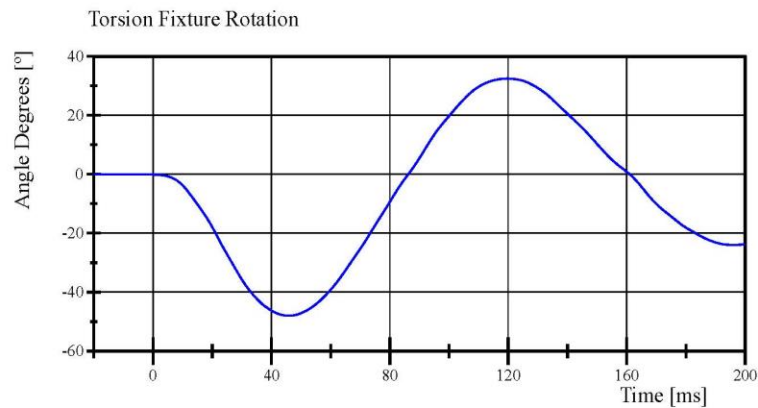


Transportation Research Center Inc.

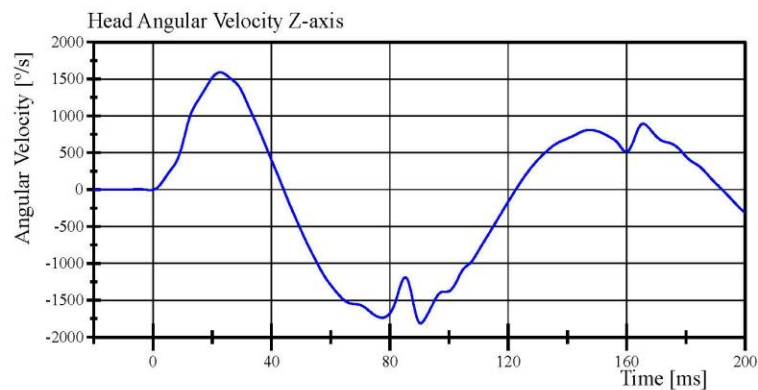
Left Lateral Torsion

WorldSID 50th Serial No. EB8888 Certification No. 9-1

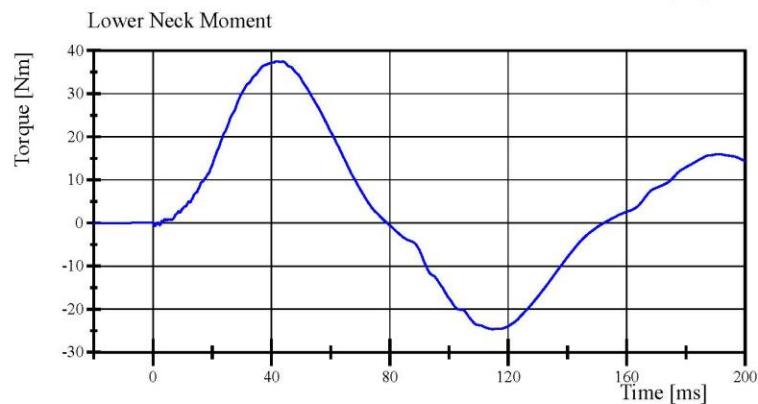
Test Date: 3/25/2021



Filter Class: CFC_60
Max: 32.4 ° at 119.7 ms
Min: -48.0 ° at 45.9 ms



Filter Class: CFC_60
Max: 1,590.8 °/s at 22.7 ms
Min: -1,812.1 °/s at 90.4 ms



Filter Class: CFC_600
Max: 37.5 Nm at 41.7 ms
Min: -24.6 Nm at 114.6 ms

Specification Source: WorldSID 50th(WS) VRTC Nov 2020.xlsx
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Transportation Research Center Inc.

Right Lateral Torsion

WorldSID 50th Serial No. EB8888 Certification No. 9-1

Test Date: 3/25/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Pendulum Velocity	5.1 - 5.3 m/s	5.18 m/s	Yes
Pendulum Integrated Velocity Change at 10 ms	2.09 - 2.37 m/s	2.249 m/s	Yes
Change at 15 ms	3.19 - 3.63 m/s	3.373 m/s	Yes
Change at 20 ms	4.27 - 4.87 m/s	4.527 m/s	Yes
Peak Fixture Rotation	41.5 - 51 °	47.63 °	Yes
Decay Time to 0 deg from Peak Angle	35 - 43 ms	40.1 ms	Yes
Peak Head Angular Velocity Z-axis	1,345 - 1,655 °/s	1,572.6 °/s	Yes
Peak Lower Neck Moment Z-axis	(-34) - (-42) N·m	-37.9 N·m	Yes

Test meets specifications.

Condition: Used

Comments:

Neck S/N: EE8804

Specification Source: WorldSID 50th(WS) VRTC Nov 2020.xlsx
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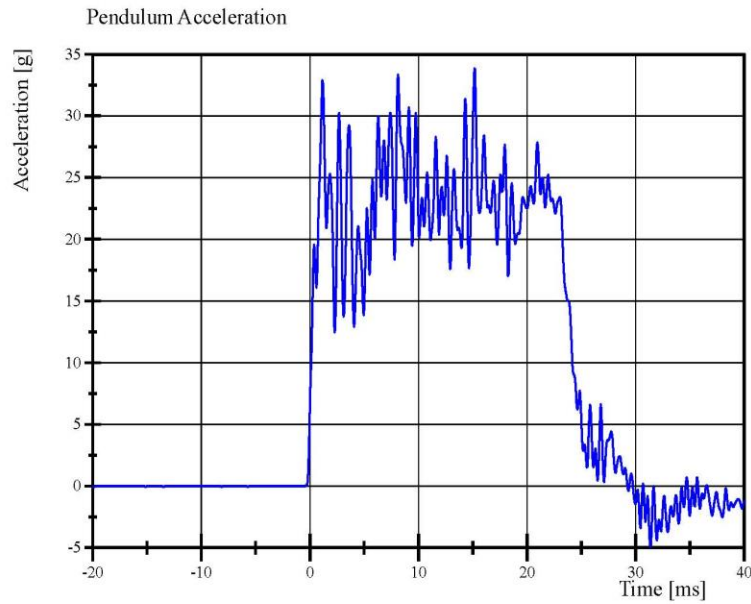


Transportation Research Center Inc.

Right Lateral Torsion

WorldSID 50th Serial No. EB8888 Certification No. 9-1

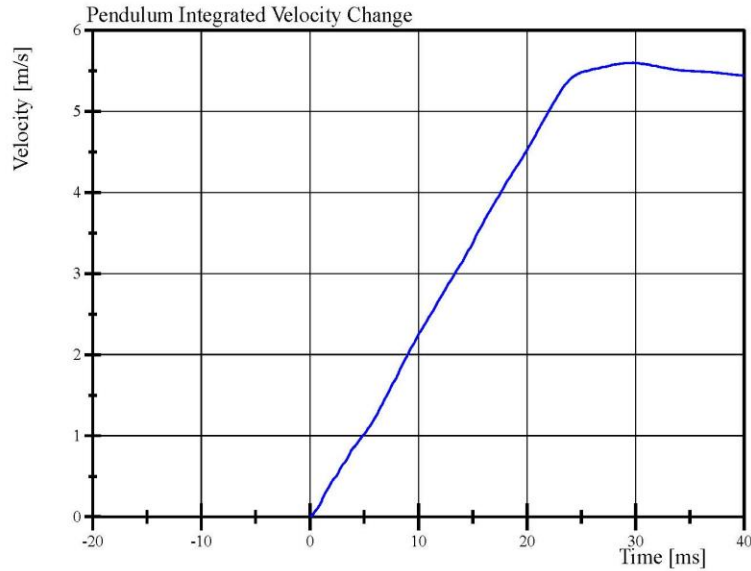
Test Date: 3/25/2021



Filter Class: CFC_1000

Max: 33.9 g at 15.2 ms

Min: -4.9 g at 31.4 ms



Filter Class: CFC_1000

Max: 5.6 m/s at 29.8 ms

Min: 0.0 m/s at 0.0 ms

Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
WorldSID 50th_Qualification Manual 11_09_2020

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Report Number: EB8888_WSH09

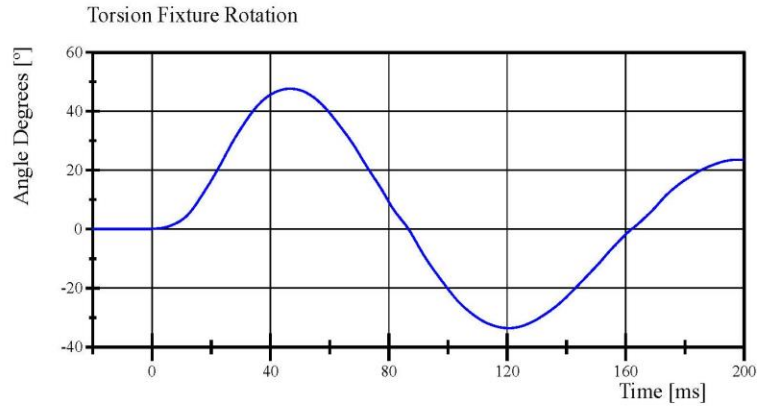
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Transportation Research Center Inc.

Right Lateral Torsion

WorldSID 50th Serial No. EB8888 Certification No. 9-1

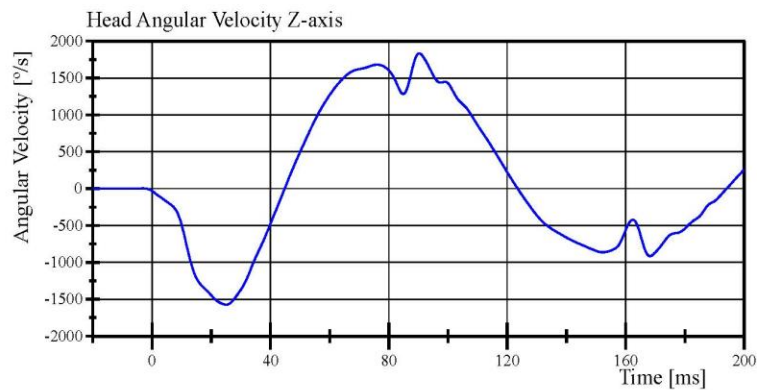
Test Date: 3/25/2021



Filter Class: CFC_60

Max: 47.6 ° at 46.6 ms

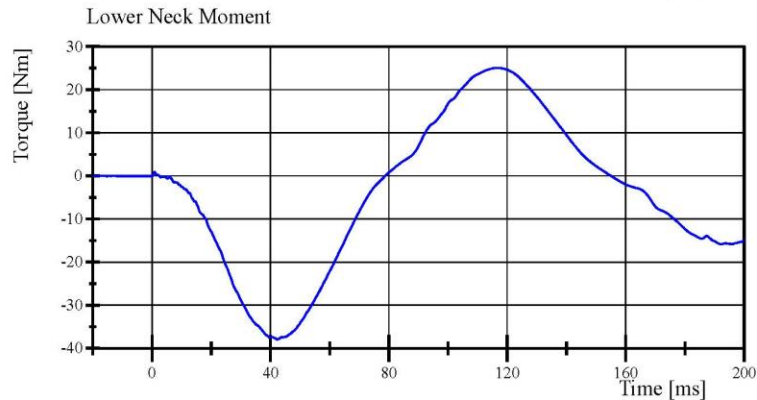
Min: -33.6 ° at 120.5 ms



Filter Class: CFC_60

Max: 1,833.1 °/s at 90.3 ms

Min: -1,572.6 °/s at 25.1 ms



Filter Class: CFC_600

Max: 25.0 Nm at 116.2 ms

Min: -37.9 Nm at 42.2 ms

Specification Source: WordSID 50th(W5) VRTC Nov 2020.xlsx
WorldSID 50th_Qualification Manual 11_09_2020

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Transportation Research Center Inc.

Left Lateral Shoulder

WorldSID 50th Serial No. EB8888 Certification No. 9-1

Test Date: 3/26/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	49 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.29 m/s	Yes
Impactor Force	2,600 - 3,300 N	3,027.4 N	Yes
Shoulder Force	(-1,470) - (-1,800) N	-1,668.3 N	Yes
Shoulder Rib Length Change	37 - 46 mm	41.2 mm	Yes

Test meets specifications.

Condition: Used

Comments:

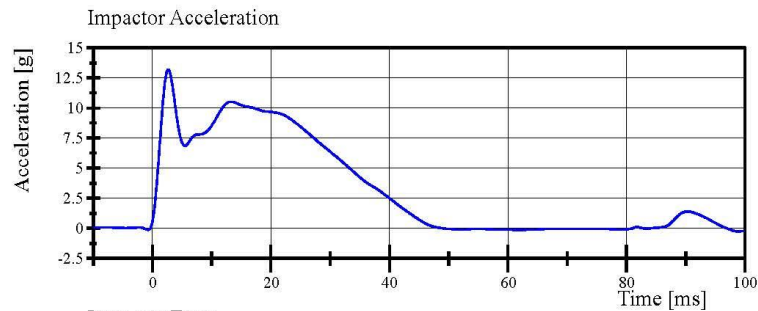
Arm S/N: EG3799

Shoulder Rib S/N: DW1916

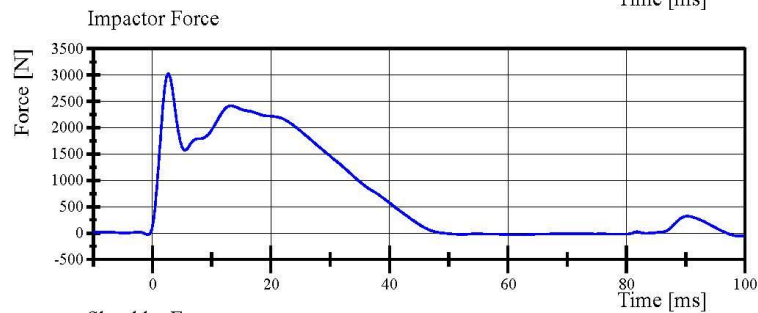
RibEye S/N: 124

Transportation Research Center Inc.

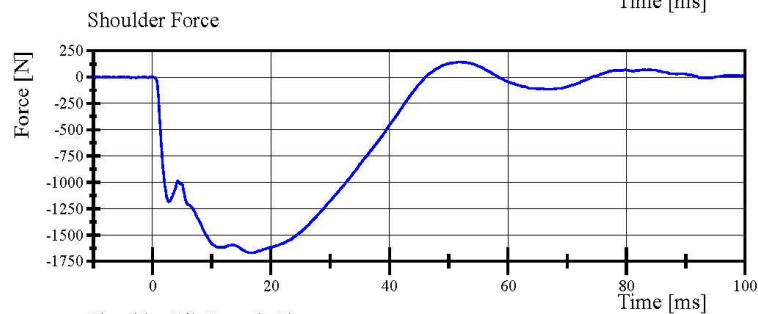
Left Lateral Shoulder
WorldSID 50th Serial No. EB8888 Certification No. 9-1
Test Date: 3/26/2021



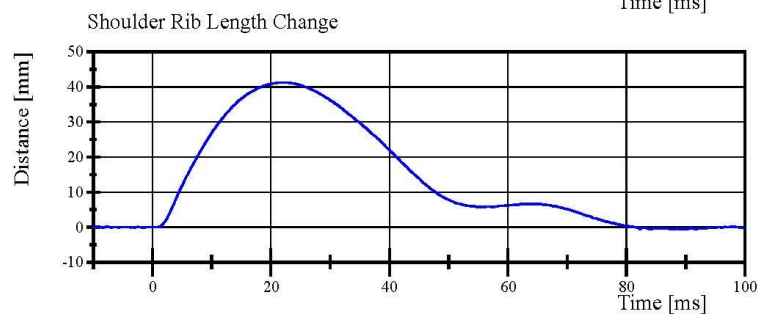
Filter Class: CFC_180
Max: 13.2 g at 2.7 ms
Min: -0.3 g at 98.8 ms



Filter Class: CFC_180
Max: 3,027.4 N at 2.7 ms
Min: -57.5 N at 98.8 ms



Filter Class: CFC_600
Max: 144.3 N at 51.9 ms
Min: -1,668.3 N at 16.4 ms



Filter Class: CFC_600
Max: 41.2 mm at 22.7 ms
Min: -0.5 mm at 82.3 ms

Transportation Research Center Inc.

Left Lateral Thorax with Arm
WorldSID 50th Serial No. EB8888 Certification No. 9-1
Test Date: 3/26/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Impactor Velocity	6.6 - 6.8 m/s	6.70 m/s	Yes
Impactor Force	5,300 - 6,200 N	5,783.1 N	Yes
Peak Thorax Rib 1 Length Change	35 - 47 mm	41.0 mm	Yes
Peak Thorax Rib 2 Length Change	46 - 56 mm	48.3 mm	Yes
Peak Thorax Rib 3 Length Change	33.5 - 40.5 mm	34.97 mm	Yes
Peak T4 Acceleration, y-axis	28 - 37 g	32.8 g	Yes
Peak T12 Acceleration, y-axis	22 - 28 g	23.5 g	Yes

Test meets specifications.

Condition: Used

Comments:

Arm S/N: EG3799

Shoulder Rib S/N: DW1916

Thorax Rib 1 S/N: EB5400

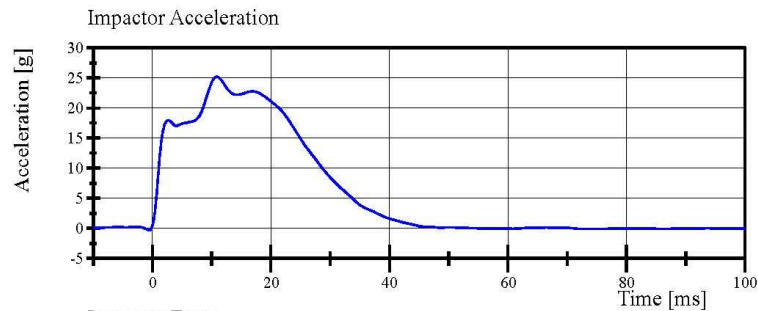
Thorax Rib 2 S/N: EB5401

Thorax Rib 3 S/N: EB5402

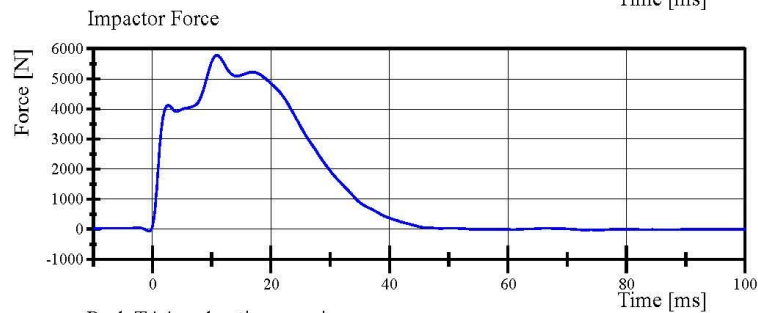
RibEye S/N: 124

Transportation Research Center Inc.

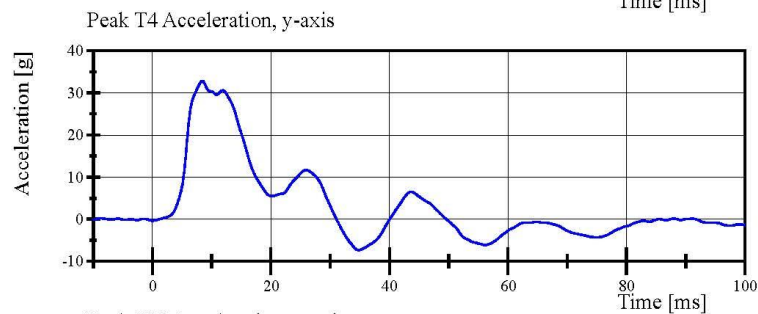
Left Lateral Thorax with Arm
WorldSID 50th Serial No. EB8888 Certification No. 9-1
Test Date: 3/26/2021



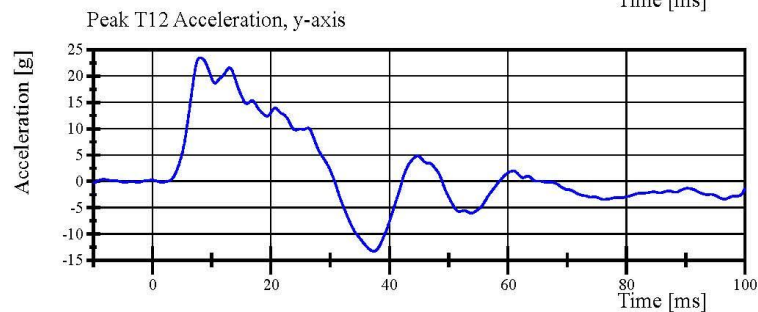
Filter Class: CFC_180
Max: 25.2 g at 10.9 ms
Min: -0.3 g at -0.6 ms



Filter Class: CFC_180
Max: 5,783.1 N at 10.9 ms
Min: -68.8 N at -0.6 ms



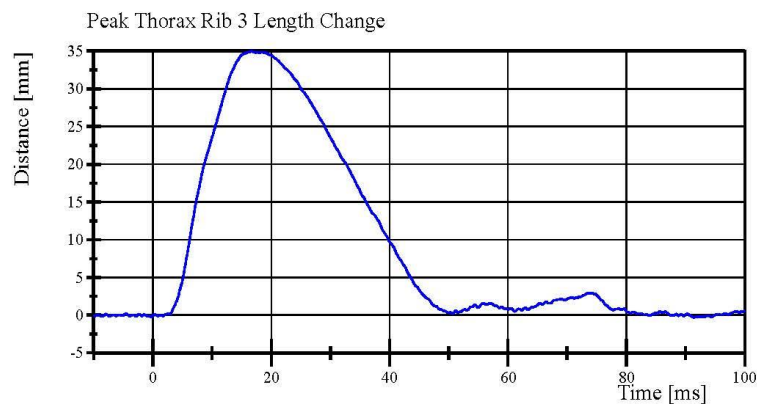
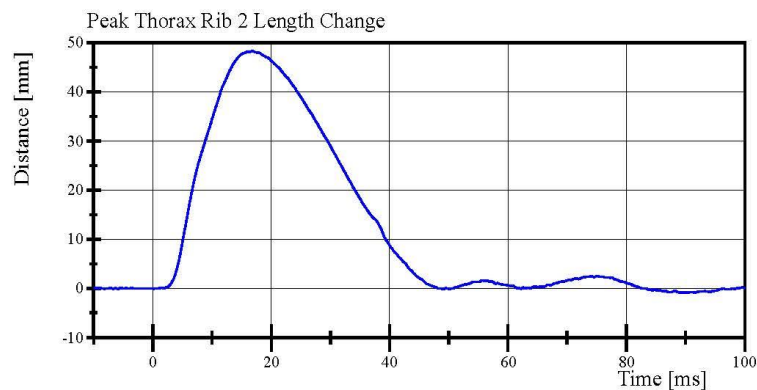
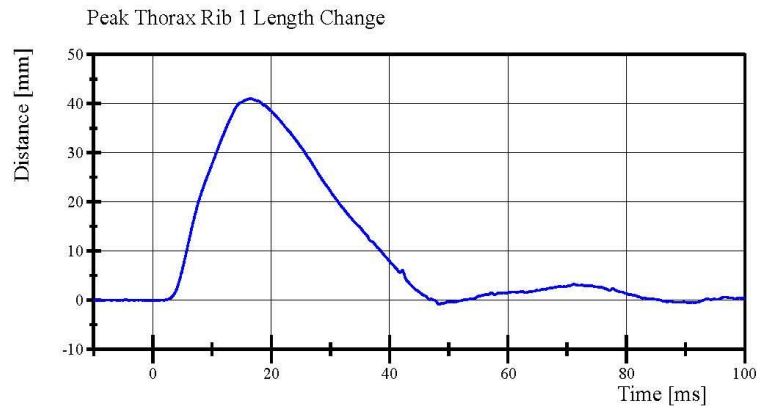
Filter Class: CFC_180
Max: 32.8 g at 8.4 ms
Min: -7.4 g at 34.9 ms



Filter Class: CFC_180
Max: 23.5 g at 8.1 ms
Min: -13.3 g at 37.4 ms

Transportation Research Center Inc.

Left Lateral Thorax with Arm
WorldSID 50th Serial No. EB8888 Certification No. 9-1
Test Date: 3/26/2021



Transportation Research Center Inc.

Left Lateral Thorax without Arm
WorldSID 50th Serial No. EB8888 Certification No. 9-1
Test Date: 3/26/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.25 m/s	Yes
Impactor Force	3,200 - 3,800 N	3,449.3 N	Yes
Peak Thorax Rib 1 Length Change	33 - 43 mm	36.6 mm	Yes
Peak Thorax Rib 2 Length Change	35 - 43 mm	42.1 mm	Yes
Peak Thorax Rib 3 Length Change	32 - 40 mm	33.7 mm	Yes
Peak T4 Acceleration, y-axis	14 - 20 g	15.4 g	Yes
Peak T12 Acceleration, y-axis	14 - 22 g	14.8 g	Yes

Test meets specifications.

Condition: Used

Comments:

Thorax Rib 1 S/N: EB5400

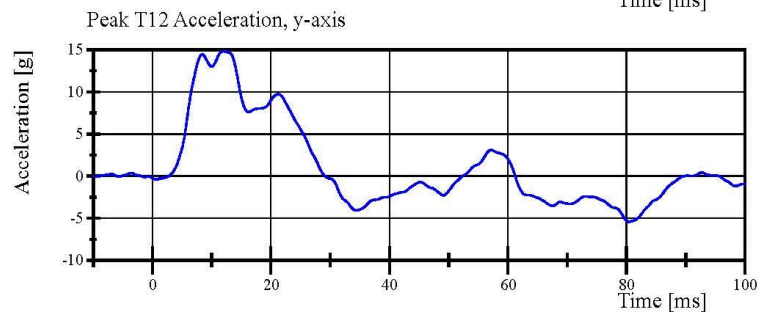
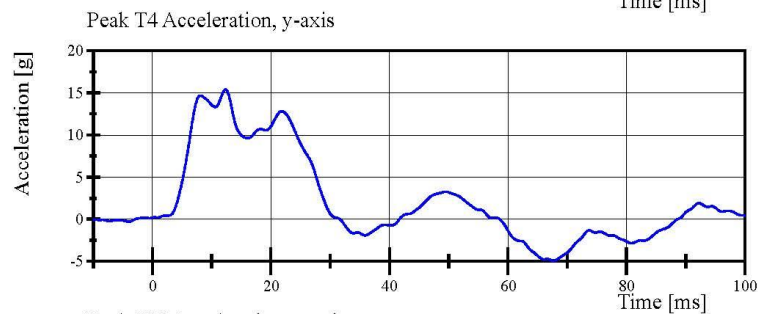
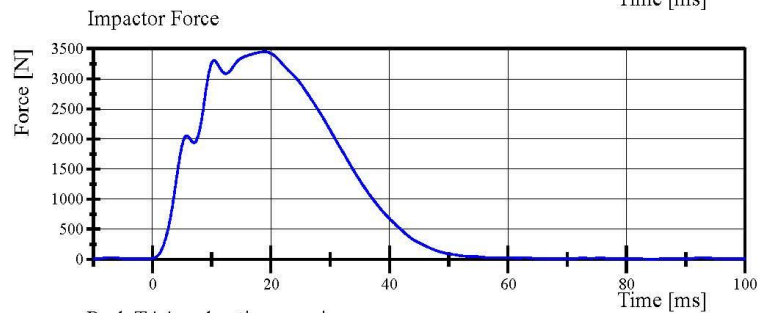
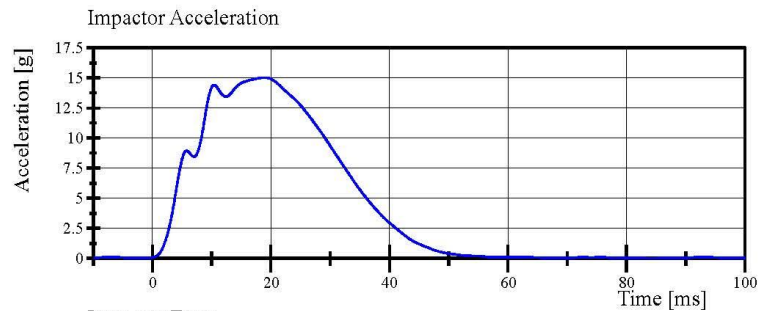
Thorax Rib 2 S/N: EB5401

Thorax Rib 3 S/N: EB5402

RibEye S/N: 124

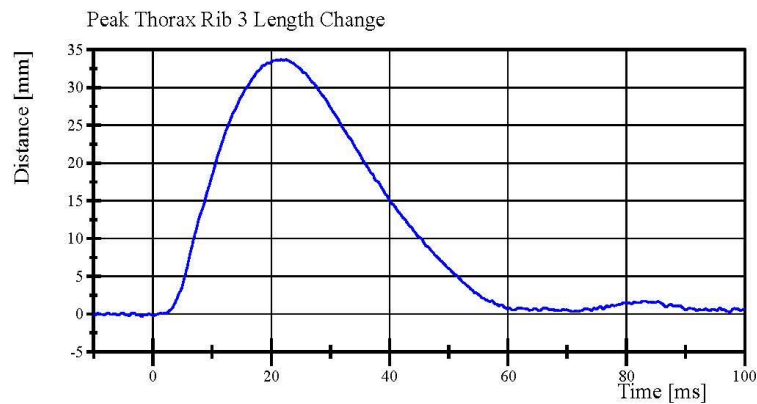
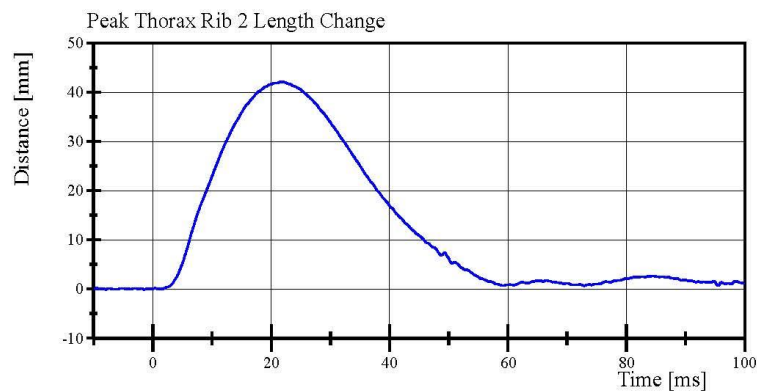
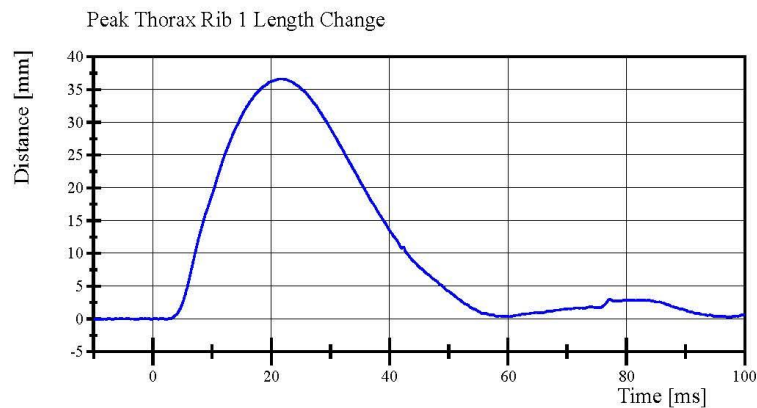
Transportation Research Center Inc.

Left Lateral Thorax without Arm
WorldSID 50th Serial No. EB8888 Certification No. 9-1
Test Date: 3/26/2021



Transportation Research Center Inc.

Left Lateral Thorax without Arm
WorldSID 50th Serial No. EB8888 Certification No. 9-1
Test Date: 3/26/2021



Transportation Research Center Inc.

Left Lateral Abdomen

WorldSID 50th Serial No. EB8888 Certification No. 9-1

Test Date: 3/26/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.32 m/s	Yes
Impactor Force	2,700 - 3,100 N	3,006.5 N	Yes
Peak Abdomen Rib 1 Length Change	32.5 - 39.5 mm	35.48 mm	Yes
Peak Abdomen Rib 2 Length Change	32 - 38 mm	34.5 mm	Yes
Peak T12 Acceleration, y-axis	14.5 - 19.5 g	17.94 g	Yes

Test meets specifications.

Condition: Used

Comments:

Abdomen Rib #1 S/N: DY5252

Abdomen Rib #2 S/N: DY5253

RibEye S/N: 124

Specification Source: WordSID 50th(W5) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020

Report Number: EB8888_WSH09

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03.26.2021 09:27:34 994

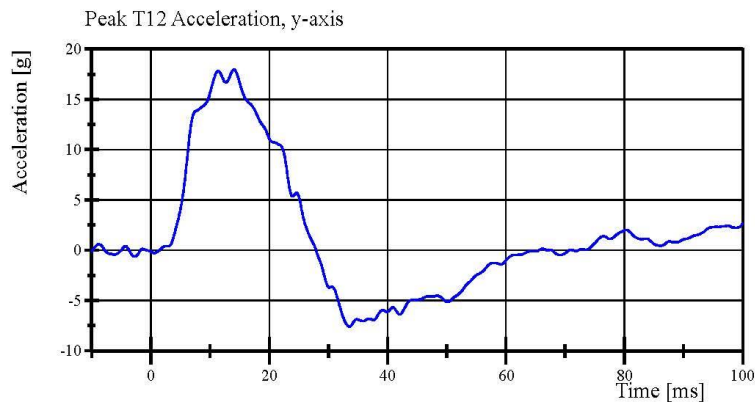
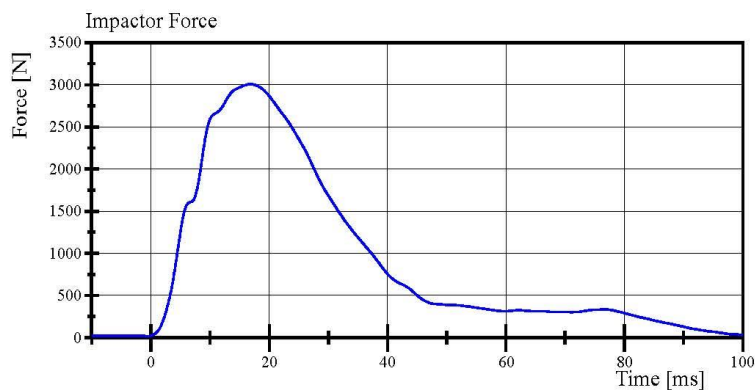
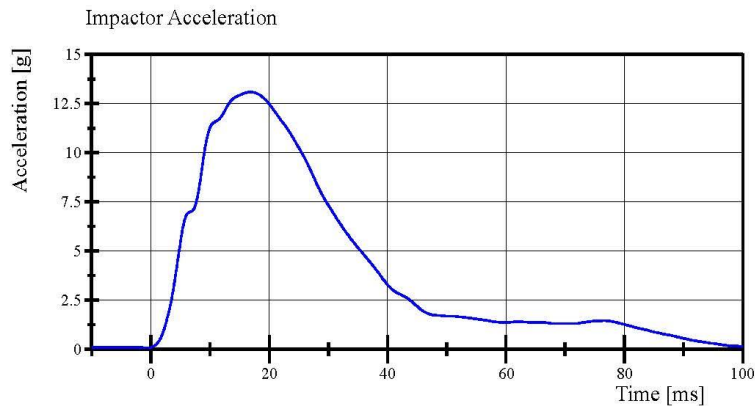


Transportation Research Center Inc.

Left Lateral Abdomen

WorldSID 50th Serial No. EB8888 Certification No. 9-1

Test Date: 3/26/2021

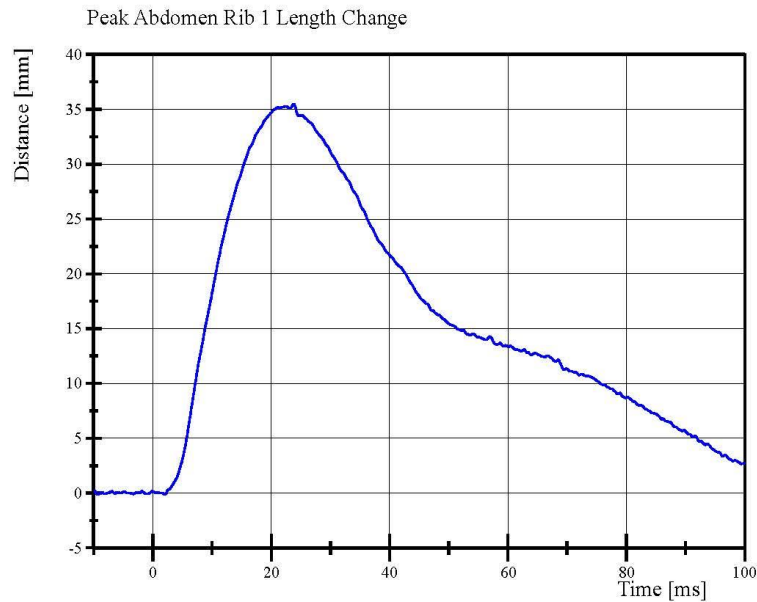


Transportation Research Center Inc.

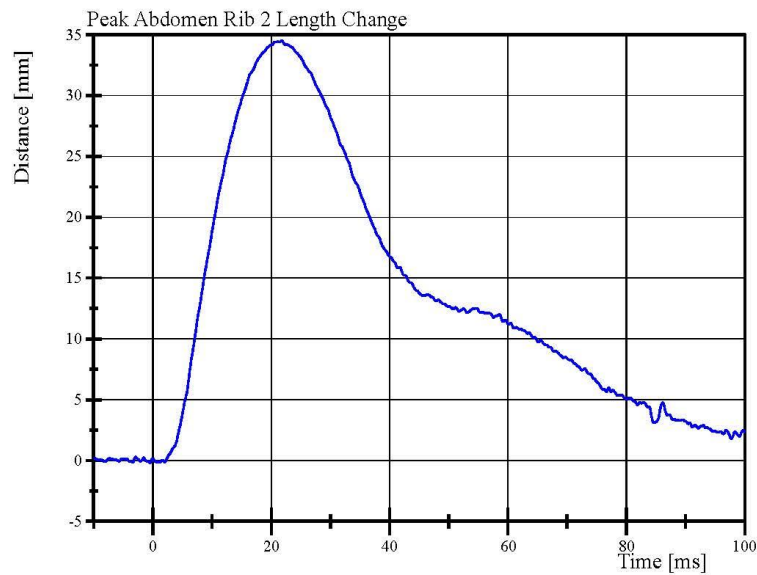
Left Lateral Abdomen

WorldSID 50th Serial No. EB8888 Certification No. 9-1

Test Date: 3/26/2021



Filter Class: CFC_600
Max: 35.5 mm at 23.8 ms
Min: -0.1 mm at -9.4 ms



Filter Class: CFC_600
Max: 34.5 mm at 21.8 ms
Min: -0.2 mm at -0.5 ms

Transportation Research Center Inc.

Left Lateral Pelvis
WorldSID 50th Serial No. EB8888 Certification No. 9-1
Test Date: 3/29/2021

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Impactor Velocity	6.6 - 6.8 m/s	6.71 m/s	Yes
Impactor Force	6,800 - 8,200 N	7,475.3 N	Yes
Pelvis Lateral Acceleration	38.5 - 48.5 g	42.15 g	Yes
Peak T12 Acceleration, y-axis	10 - 14 g	12.4 g	Yes
Pubic Lateral Force	(-1,300) - (-1,590) N	-1,359.1 N	Yes
Sacroiliac Lateral Force	(-1,860) - (-2,280) N	-2,118.0 N	Yes

Test meets specifications.

Condition: Used

Comments:

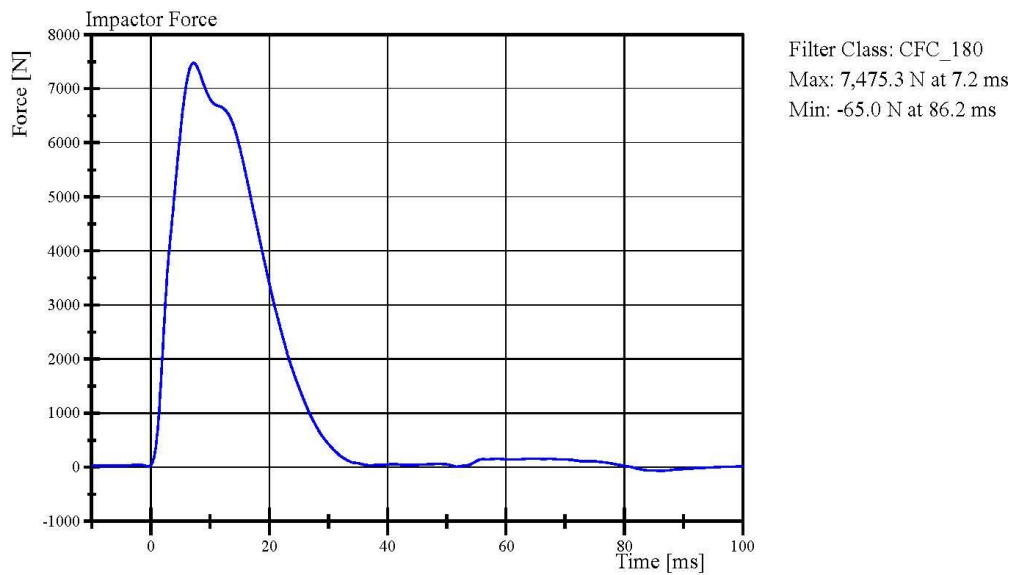
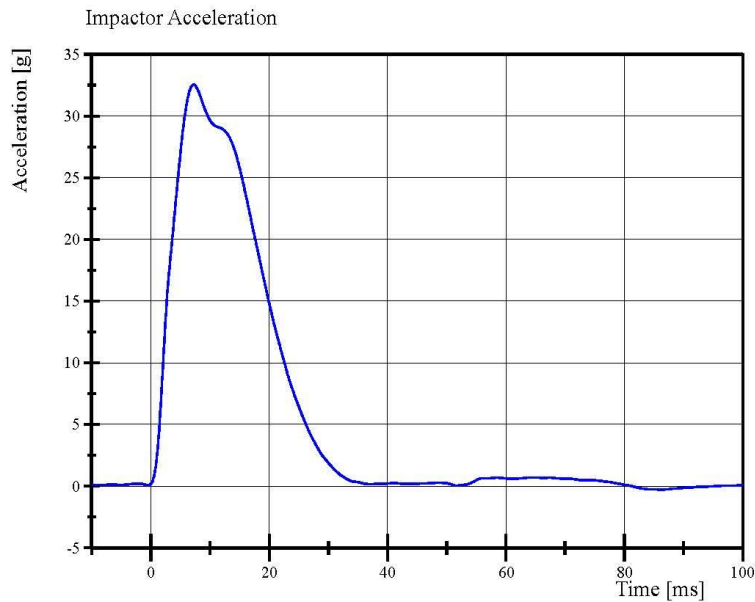
Pelvis S/N: EC3628

Transportation Research Center Inc.

Left Lateral Pelvis

WorldSID 50th Serial No. EB8888 Certification No. 9-1

Test Date: 3/29/2021



Specification Source: WordSID 50th(WS) VRTC Nov 2020.xlsx
WorldSID 50th_Qalification Manual 11_09_2020
Report Number: EB8888_WSH09

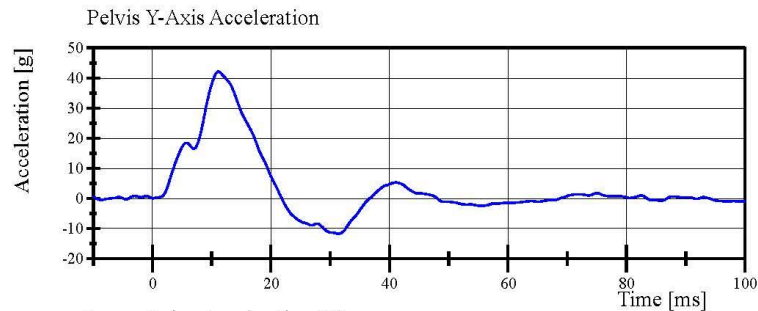
03.29.2021 08:54:31 997



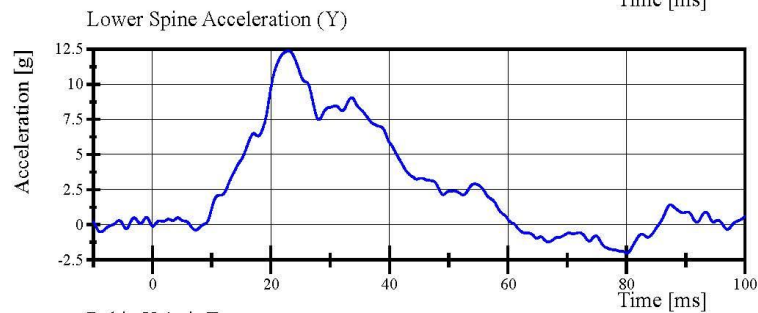
Page 44 of 47

Transportation Research Center Inc.

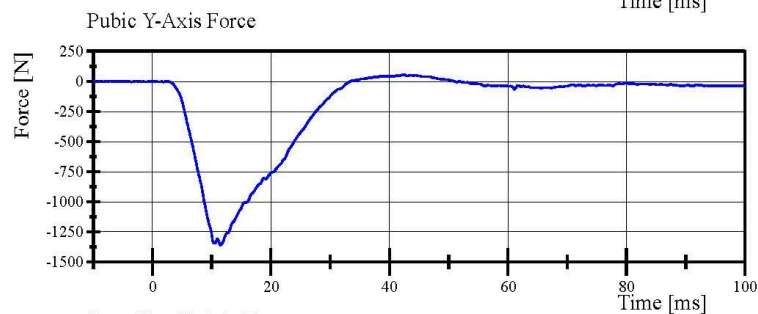
Left Lateral Pelvis
WorldSID 50th Serial No. EB8888 Certification No. 9-1
Test Date: 3/29/2021



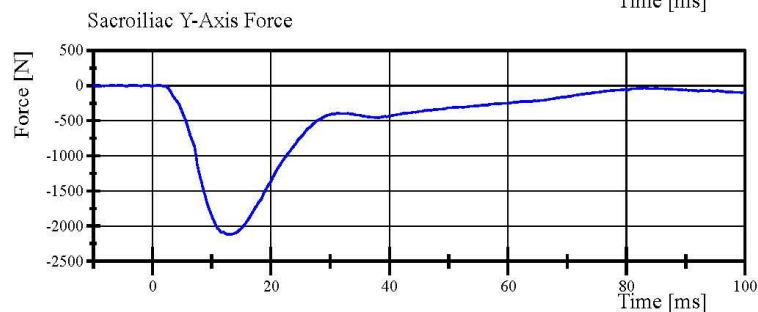
Filter Class: CFC_180
Max: 42.1 g at 11.1 ms
Min: -11.7 g at 31.5 ms



Filter Class: CFC_180
Max: 12.4 g at 23.0 ms
Min: -2.0 g at 80.1 ms



Filter Class: CFC_600
Max: 55.1 N at 42.5 ms
Min: -1,359.1 N at 11.5 ms



Filter Class: CFC_600
Max: 9.0 N at -0.9 ms
Min: -2,118.0 N at 12.7 ms

Pre-Test Calibration Sheets
Passenger S/N DK1774

**WorldSID-05F Head Front Qualification
Test Results Summary**

Dummy Serial Number: DK1774

Tested Components

Head: DM1000

Test ID: 210301-5

Test Date: 3/1/2021

Test Time: 9:06 AM

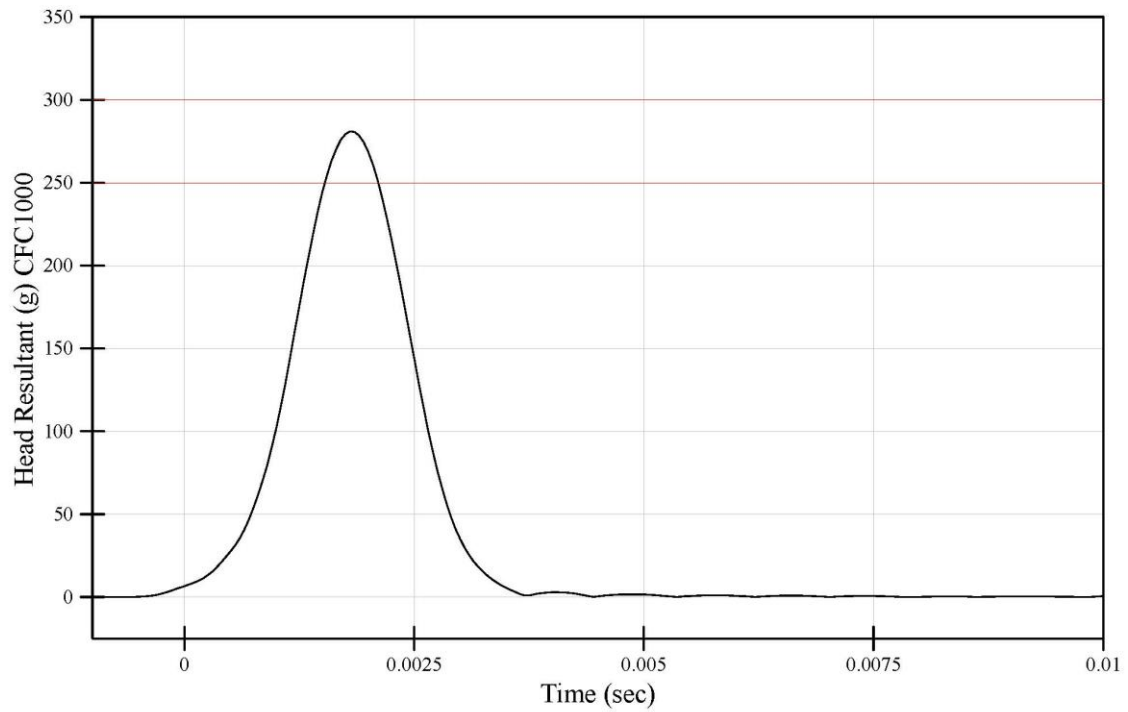
Test Results

<u>Test Parameter</u>	<u>Specification Range*</u>	<u>Result</u>	<u>Pass/Fail</u>
Test Temperature (°C)	20.6 - 22.2	21.7	Pass
Test Humidity (%)	10 - 70	51	Pass
Peak Resultant Acceleration (g)	250.0 - 300.0	280.9	Pass
Peak Acceleration, y-axis (g)	-15.00 - 15.00	-6.07	Pass
Oscillations occurring after the main acceleration pulse (%)	-10.0 - 10.0	1.0	Pass

* WorldSID-05F Qualification Manual - Humanetics WorldSID Small Female - Rev E

File Name: 210301-5 processed

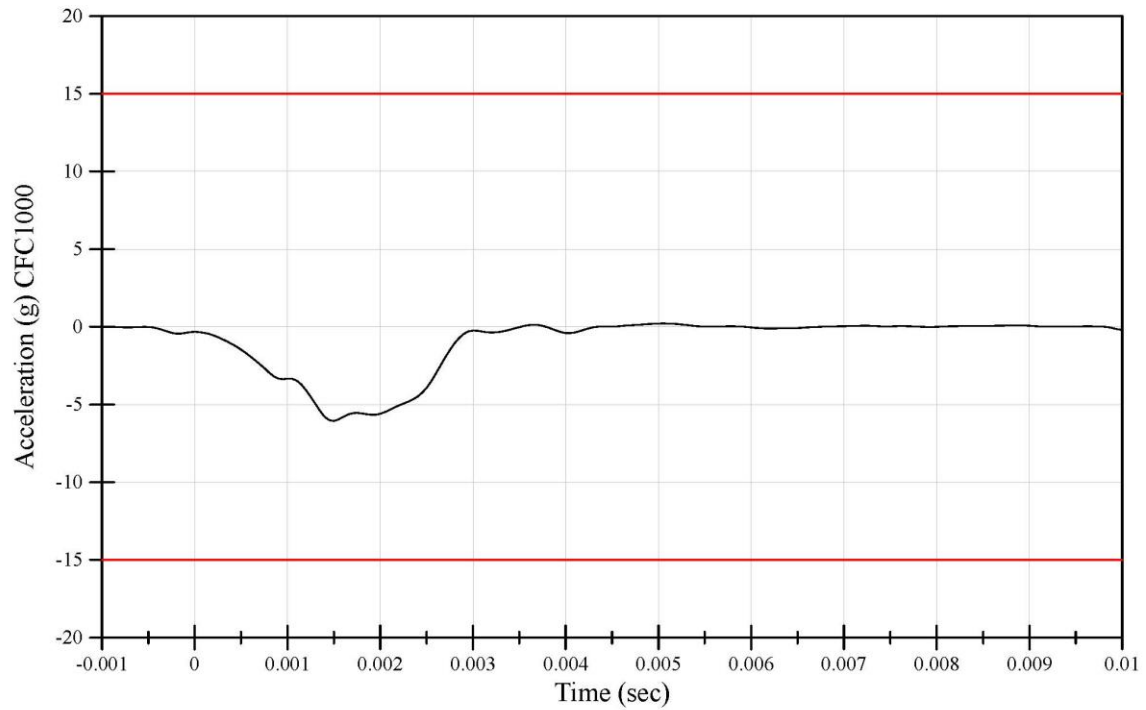
WorldSID-05F Head Front Qualification
Peak Resultant Acceleration
Head Serial Number: DM1000



File Name: 210301-5 processed

3/1/2021 9:06 AM

WorldSID-05F Head Front Qualification
Peak Lateral Y Acceleration
Head Serial Number: DM1000



File Name: 210301-5 processed

3/1/2021 9:06 AM

**WorldSID-05F Head Left Lateral Qualification
Test Results Summary**

Dummy Serial Number: DK1774

Tested Components

Head: DM1000

Test ID: 210301-6

Test Date: 3/1/2021

Test Time: 9:16 AM

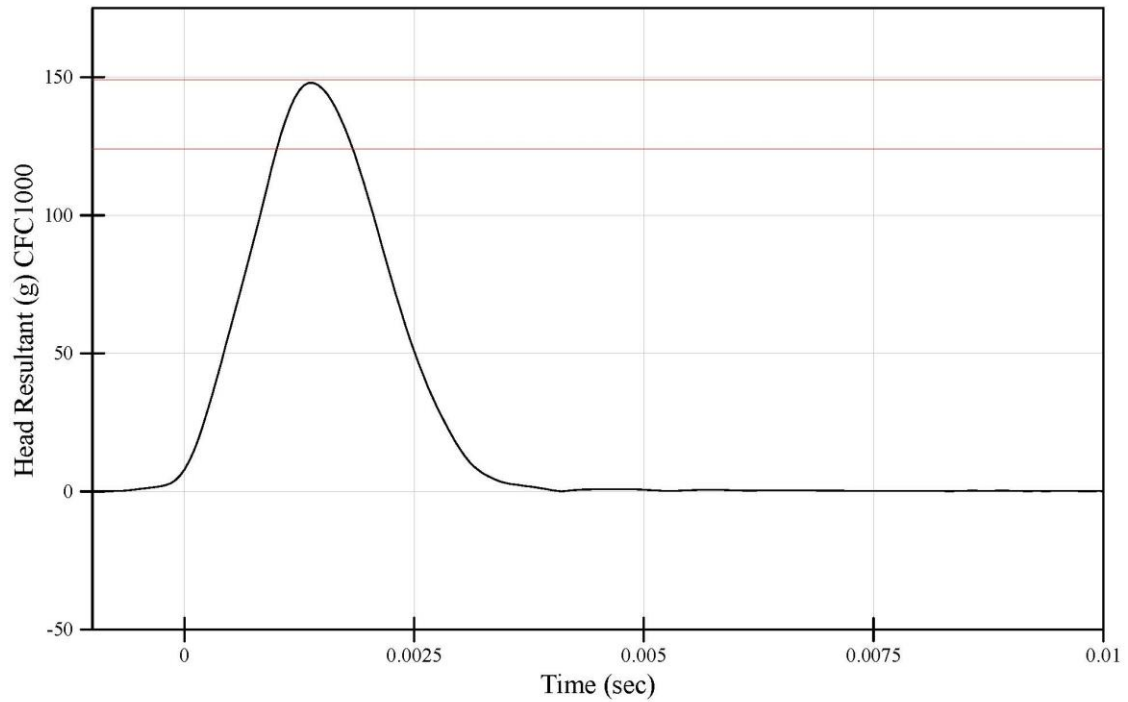
Test Results

<u>Test Parameter</u>	<u>Specification Range*</u>	<u>Result</u>	<u>Pass/Fail</u>
Test Temperature (°C)	20.6 - 22.2	21.9	Pass
Test Humidity (%)	10 - 70	52	Pass
Peak Resultant Acceleration (g)	124.0 - 149.0	147.9	Pass
Peak Acceleration, x-axis (g)	-15.00 - 15.00	13.31	Pass
Oscillations occurring after the main acceleration pulse (%)	-10.0 - 10.0	0.6	Pass

* WorldSID-05F Qualification Manual - Humanetics WorldSID Small Female - Rev E

File Name: 210301-6 processed

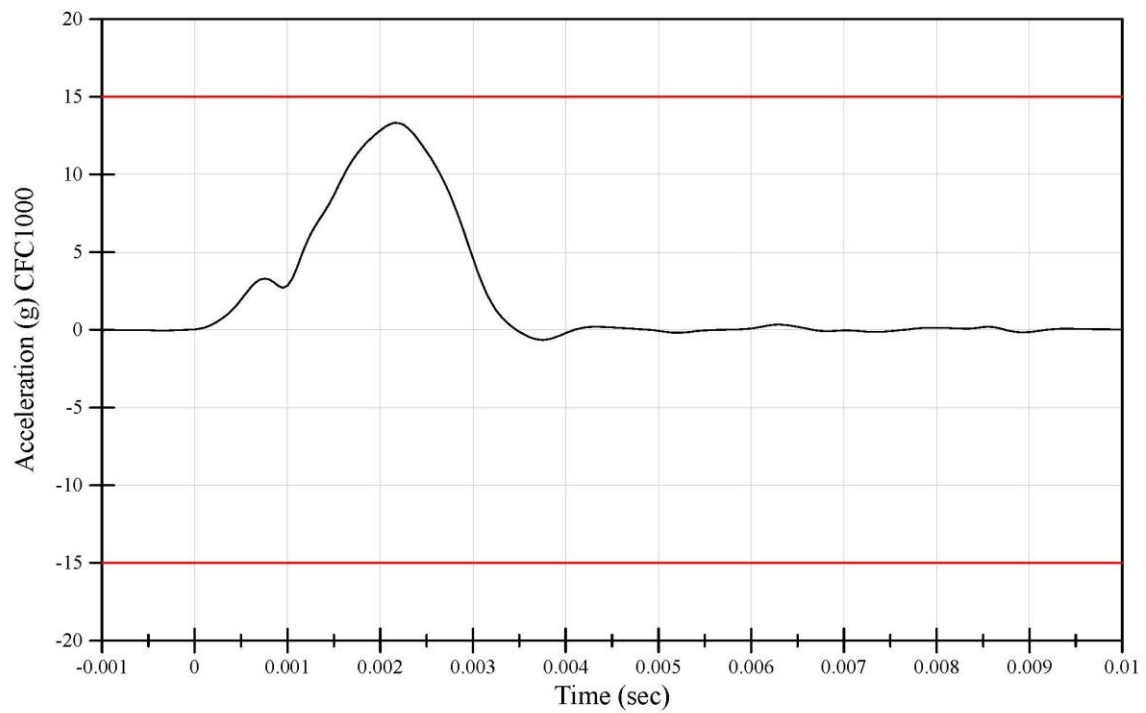
WorldSID-05F Head Left Lateral Qualification
Peak Resultant Acceleration
Head Serial Number: DM1000



File Name: 210301-6 processed

3/1/2021 9:16 AM

WorldSID-05F Head Left Lateral Qualification
Peak Lateral X Acceleration
Head Serial Number: DM1000



File Name: 210301-6 processed

3/1/2021 9:16 AM

WorldSID-05F Head Right Lateral Qualification Test Results Summary

Dummy Serial Number: DK1774

Tested Components

Head: DM1000

Test ID: 210301-8

Test Date: 3/1/2021

Test Time: 9:29 AM

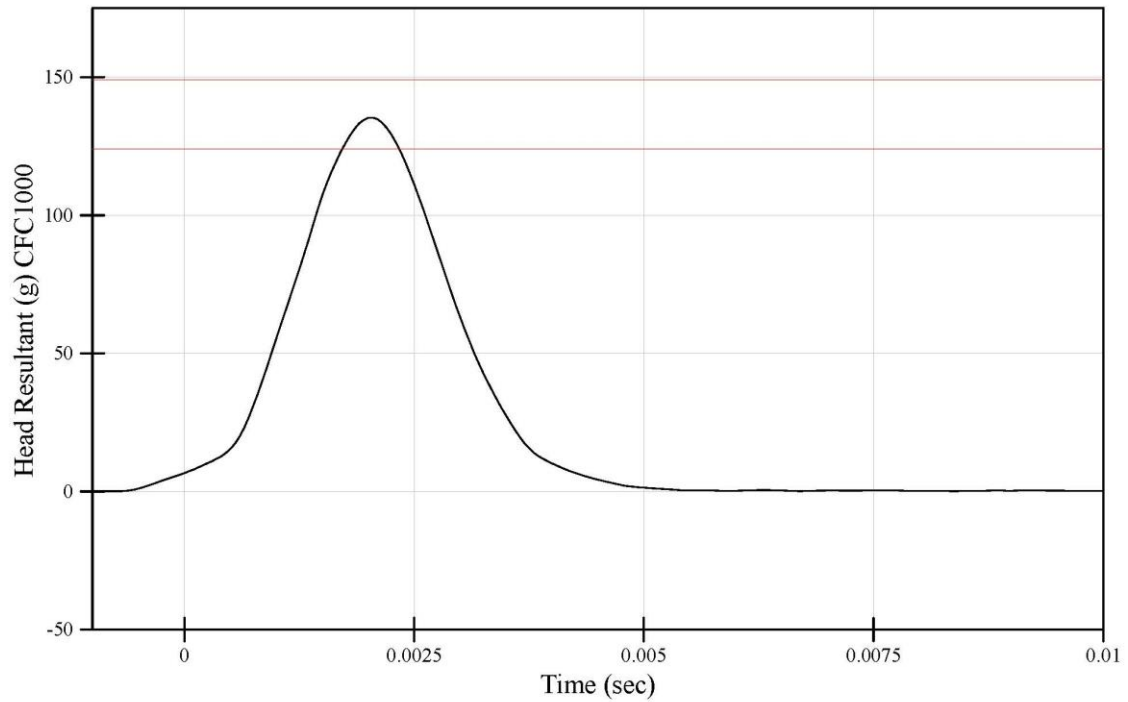
Test Results

<u>Test Parameter</u>	<u>Specification Range*</u>	<u>Result</u>	<u>Pass/Fail</u>
Test Temperature (°C)	20.6 - 22.2	21.9	Pass
Test Humidity (%)	10 - 70	52	Pass
Peak Resultant Acceleration (g)	124.0 - 149.0	135.3	Pass
Peak Acceleration, x-axis (g)	-15.00 - 15.00	-9.41	Pass
Oscillations occurring after the main acceleration pulse (%)	-10.0 - 10.0	0.4	Pass

* WorldSID-05F Qualification Manual - Humanetics WorldSID Small Female - Rev E

File Name: 210301-8 processed

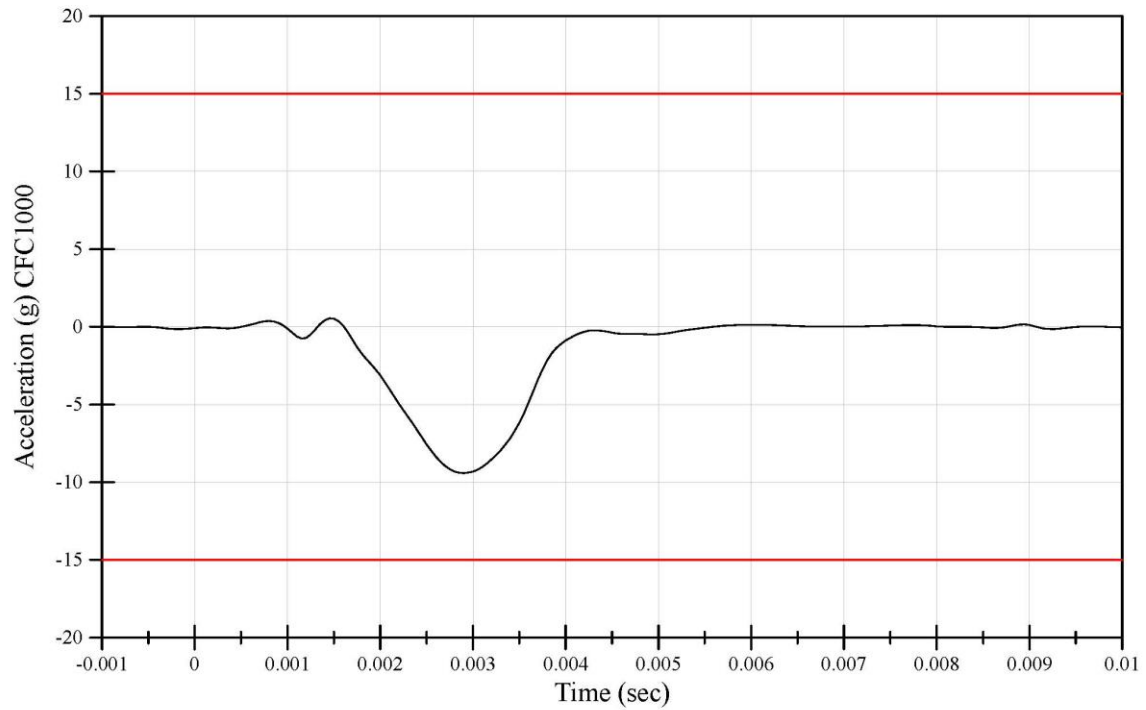
WorldSID-05F Head Right Lateral Qualification
Peak Resultant Acceleration
Head Serial Number: DM1000



File Name: 210301-8 processed

3/1/2021 9:29 AM

WorldSID-05F Head Right Lateral Qualification
Peak Lateral Y Acceleration
Head Serial Number: DM1000



File Name: 210301-8 processed

3/1/2021 9:29 AM

WorldSID-05F Neck Left Lateral Qualification Test Results Summary

Dummy Serial Number: DK1774

Tested Components

Neck: DX6209

Test ID: 210217-4

Test Date: 2/17/2021

Test Time: 10:00 AM

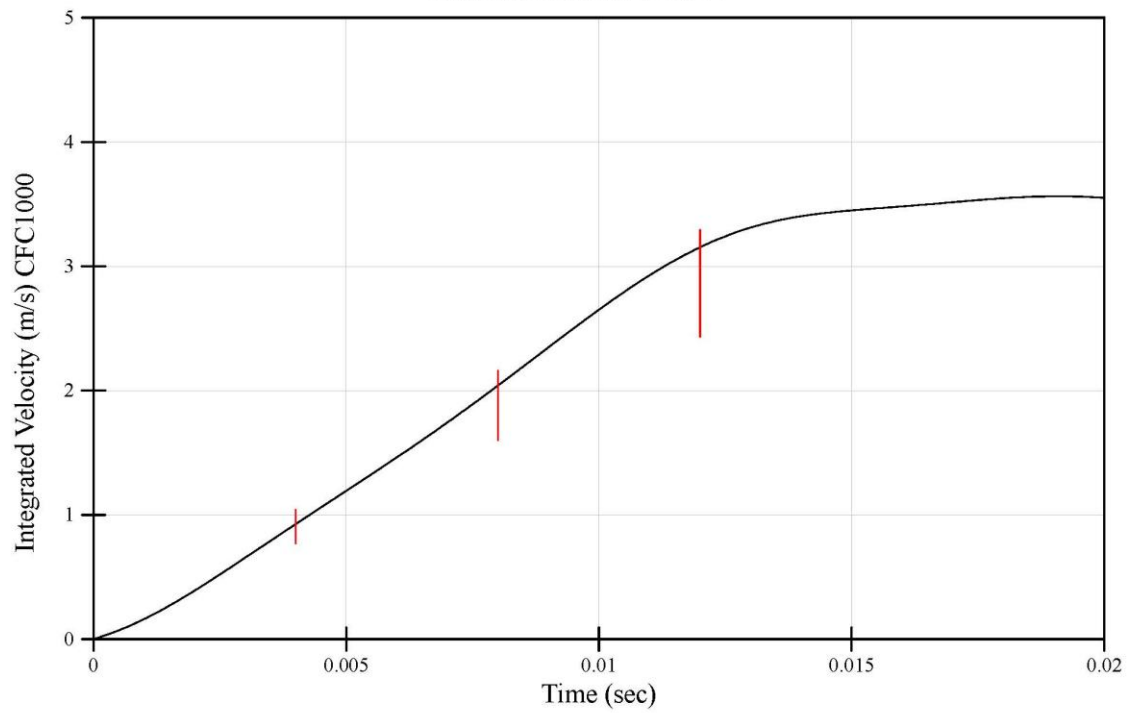
Test Results

<u>Test Parameter</u>	<u>Specification Range*</u>	<u>Result</u>	<u>Pass/Fail</u>
Test Temperature (°C)	20.6 - 22.2	20.8	Pass
Test Humidity (%)	10 - 70	18	Pass
Test Velocity (m/s)	3.30 - 3.50	3.43	Pass
Pendulum Velocity at 4 ms after T0 (m/s)	0.77 - 1.04	0.92	Pass
Pendulum Velocity at 8 ms after T0 (m/s)	1.60 - 2.16	2.04	Pass
Pendulum Velocity at 12 ms after T0 (m/s)	2.43 - 3.29	3.15	Pass
Peak Headform Flexion Angle (deg)	-71.4 - (-58.5)	-59.4	Pass
Peak Headform Flexion Angle Decay			
Time to 0 degrees (ms)	57.3 - 76.5	67.1	Pass
Peak X-Axis Moment at Occipital Condyle (Nm)	34.2 - 51.0	39.2	Pass
Peak X-Axis Moment at Occipital Condyle			
Decay Time to 0 Nm (ms)	69.4 - 93.3	80.5	Pass

* WorldSID-05F Qualification Manual - Humanetics WorldSID Small Female - Rev E

File Name: 210217-4 processed

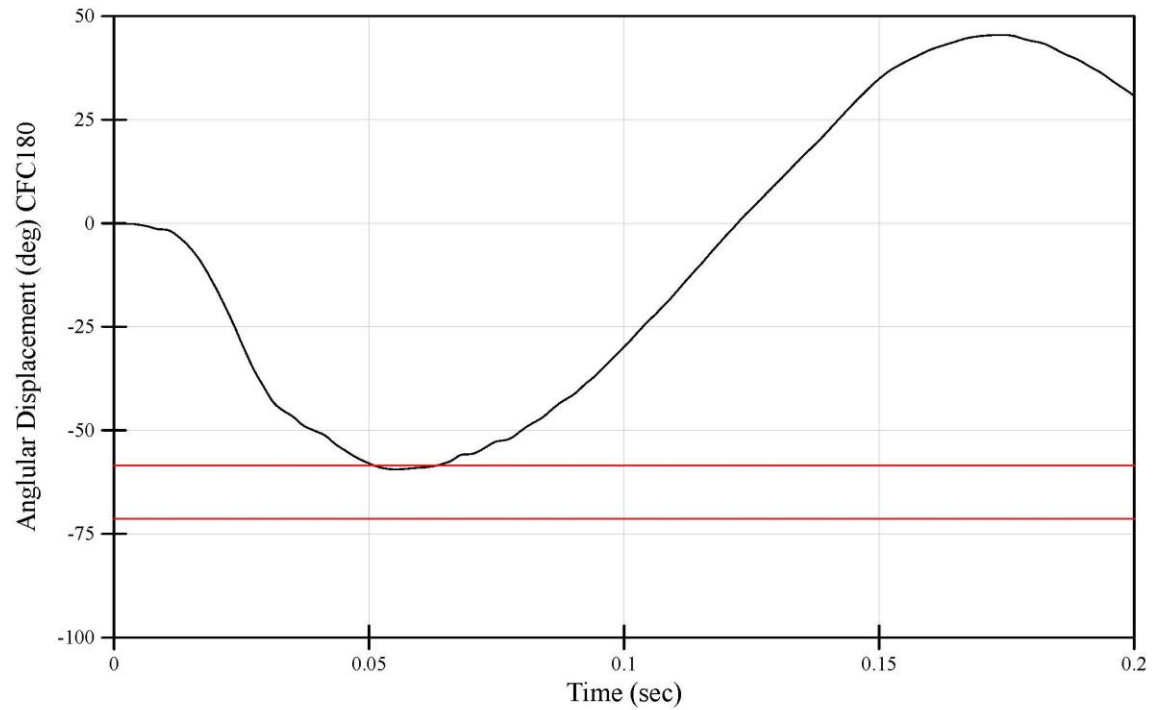
WorldSID-05F Neck Left Lateral Qualification
Probe Acceleration
Neck Serial Number: DK1774



File Name: 210217-4 processed

2/17/2021 10:00 AM

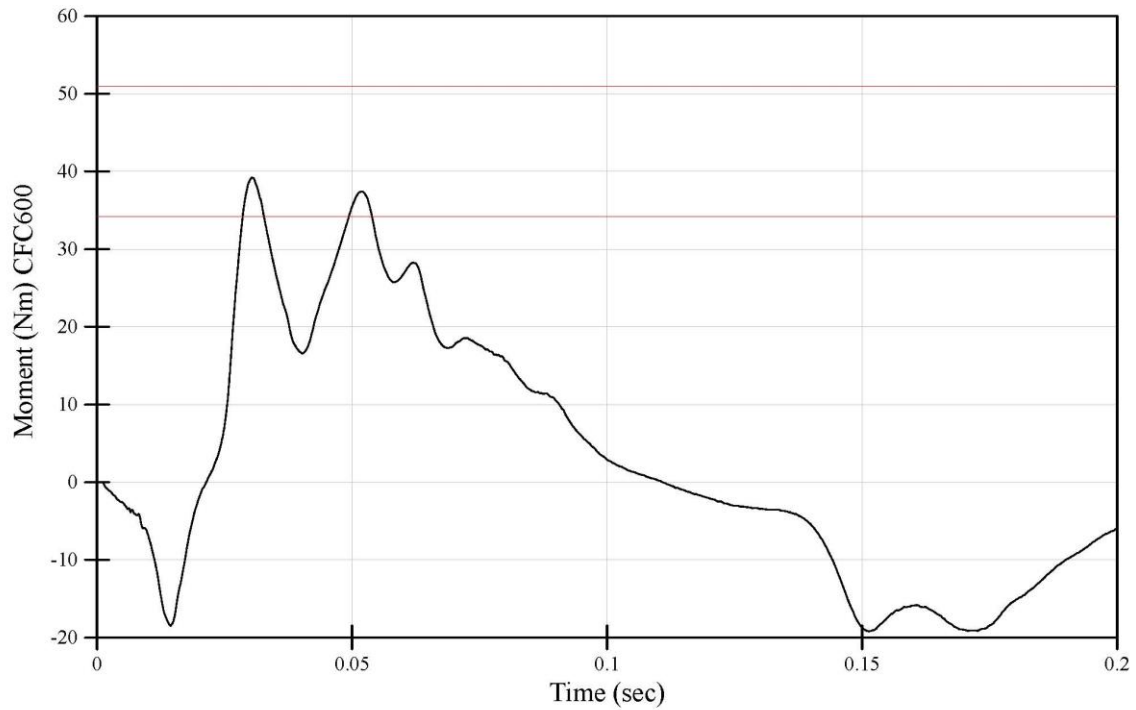
WorldSID-05F Neck Left Lateral Qualification
Peak Headform Flexion Angle
Neck Serial Number: DK1774



File Name: 210217-4 processed

2/17/2021 10:00 AM

WorldSID-05F Neck Left Lateral Qualification
Peak Moment at Occipital Condyle
Neck Serial Number: DK1774



File Name: 210217-4 processed

2/17/2021 10:00 AM

WorldSID-05F Neck Right Lateral Qualification Test Results Summary

Dummy Serial Number: DK1774

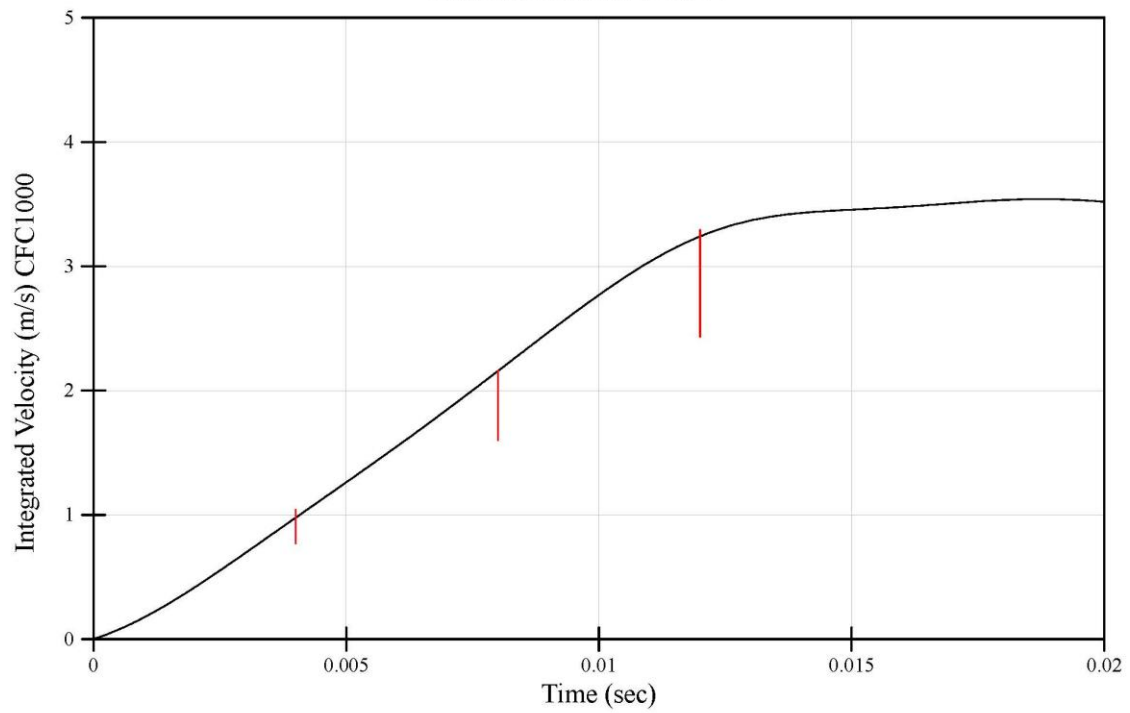
<u>Tested Components</u> Neck: DX6209	Test ID: 210217-5 Test Date: 2/17/2021 Test Time: 10:49 AM
--	--

Test Results			
<u>Test Parameter</u>	<u>Specification Range*</u>	<u>Result</u>	<u>Pass/Fail</u>
Test Temperature (°C)	20.6 - 22.2	21.2	Pass
Test Humidity (%)	10 - 70	18	Pass
Test Velocity (m/s)	3.30 - 3.50	3.45	Pass
Pendulum Velocity at 4 ms after T0 (m/s)	0.77 - 1.04	0.98	Pass
Pendulum Velocity at 8 ms after T0 (m/s)	1.60 - 2.16	2.16	Pass
Pendulum Velocity at 12 ms after T0 (m/s)	2.43 - 3.29	3.24	Pass
Peak Headform Flexion Angle (deg)	58.5 - 71.4	65.5	Pass
Peak Headform Flexion Angle Decay			
Time to 0 degrees (ms)	57.3 - 76.5	64.4	Pass
Peak X-Axis Moment at Occipital Condyle (Nm)	-51.0 - (-34.2)	-38.7	Pass
Peak X-Axis Moment at Occipital Condyle			
Decay Time to 0 Nm (ms)	69.4 - 93.3	81.2	Pass

* WorldSID-05F Qualification Manual - Humanetics WorldSID Small Female - Rev E

File Name: 210217-5 processed

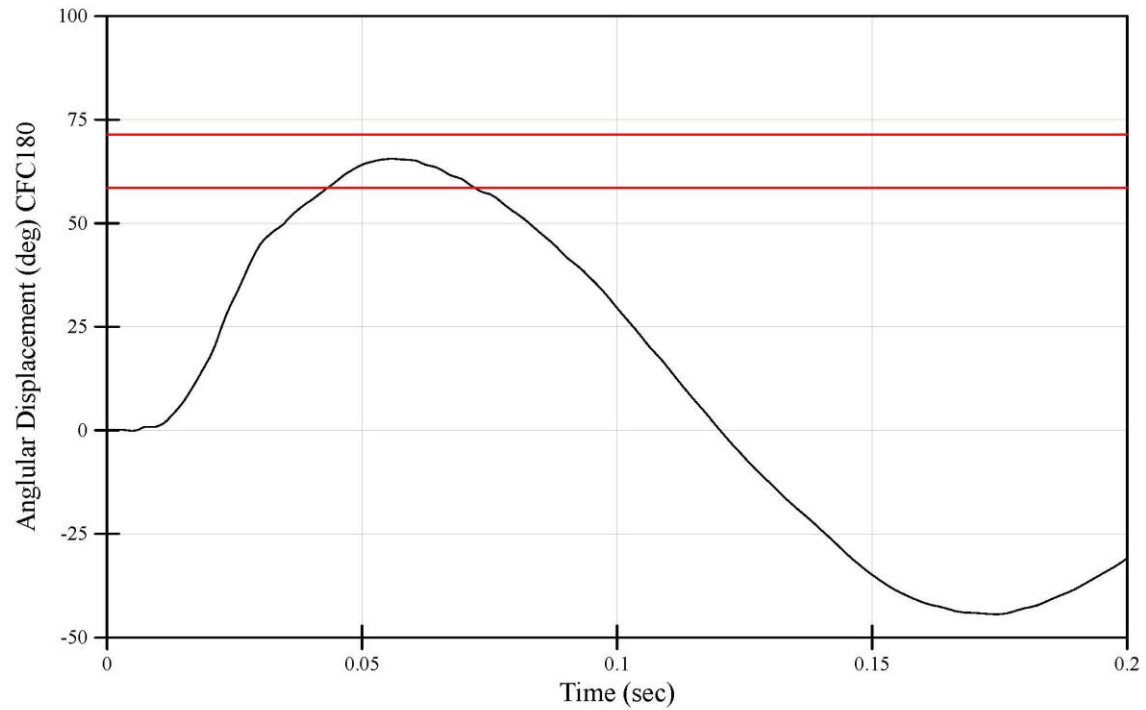
WorldSID-05F Neck Right Lateral Qualification
Probe Acceleration
Neck Serial Number: DK1774



File Name: 210217-5 processed

2/17/2021 10:49 AM

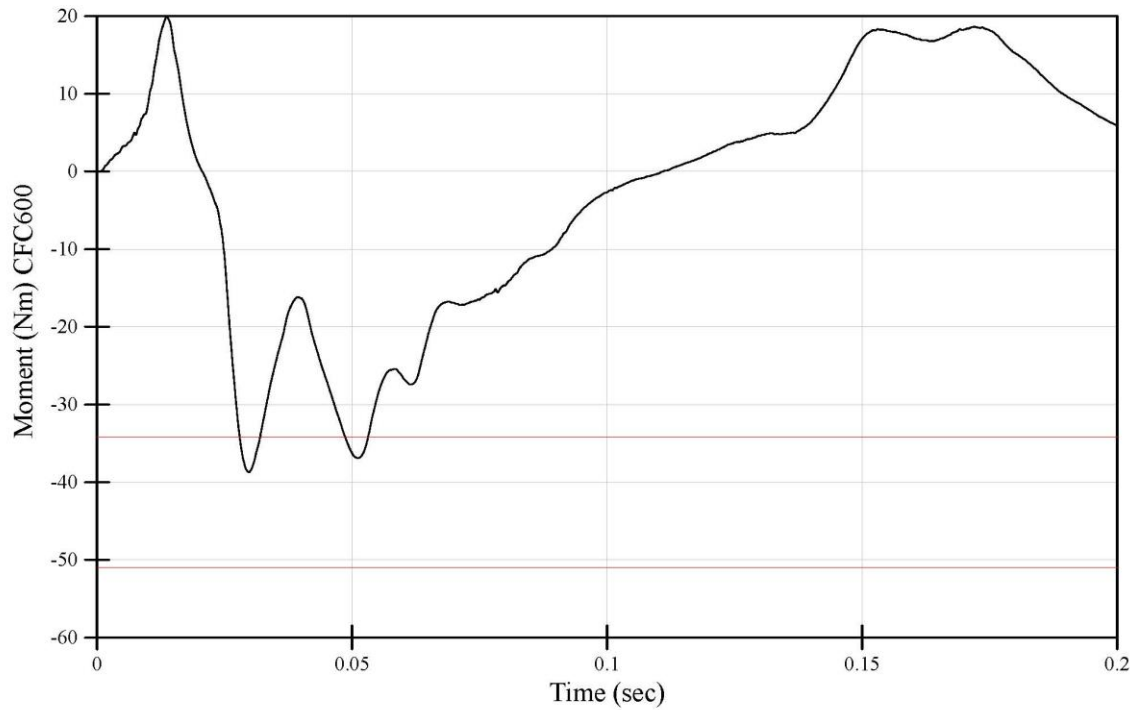
WorldSID-05F Neck Right Lateral Qualification
Peak Headform Flexion Angle
Neck Serial Number: DK1774



File Name: 210217-5 processed

2/17/2021 10:49 AM

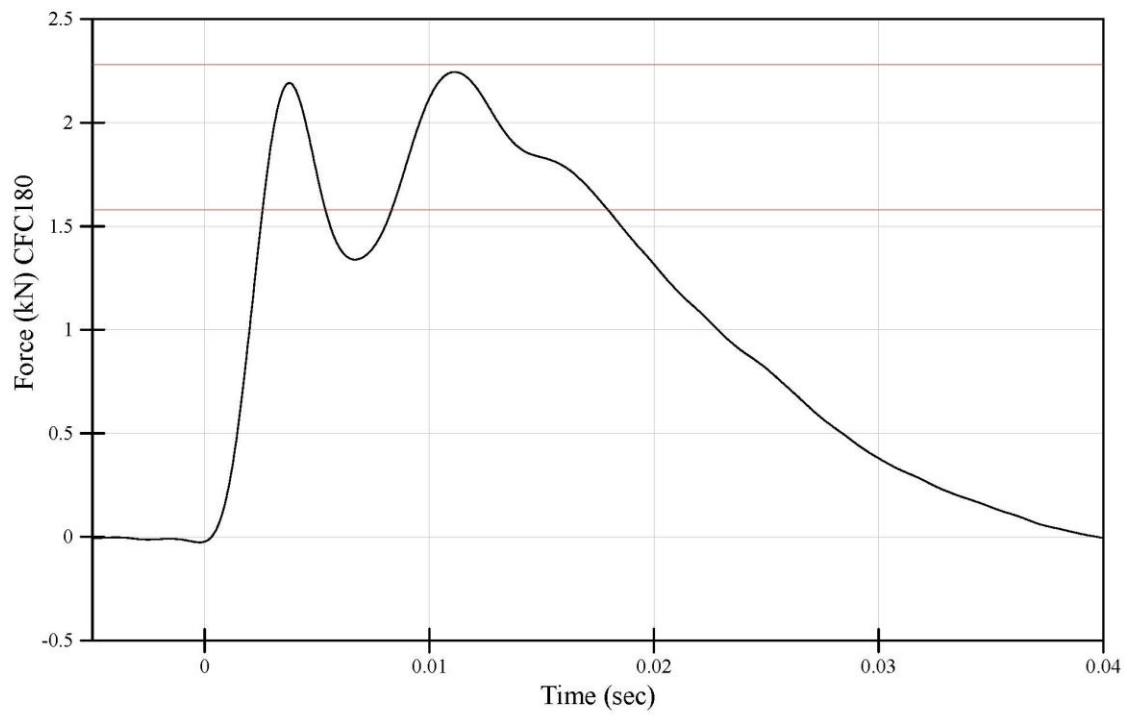
WorldSID-05F Neck Right Lateral Qualification
Peak Moment at Occipital Condyle
Neck Serial Number: DK1774



File Name: 210217-5 processed

2/17/2021 10:49 AM

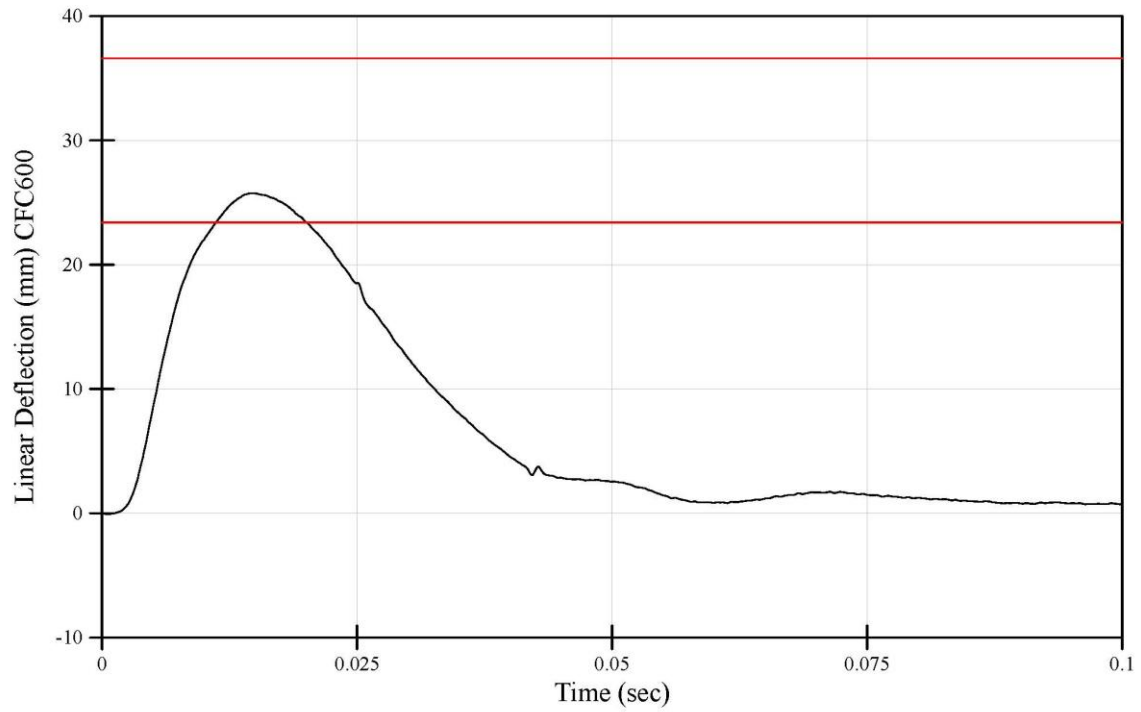
WorldSID-05F Shoulder Qualification
Peak Pendulum Force
Dummy Serial Number: DK1774



File Name: 210222-4 processed

2/22/2021 5:08 PM

WorldSID05F Shoulder Qualification
Peak Shoulder Rib Deflection
Dummy Serial Number: DK1774



File Name: 210222-4 processed

2/22/2021 5:08 PM

WorldSID-05F Thorax with Arm Qualification Test Results Summary

Dummy Serial Number: DK1774

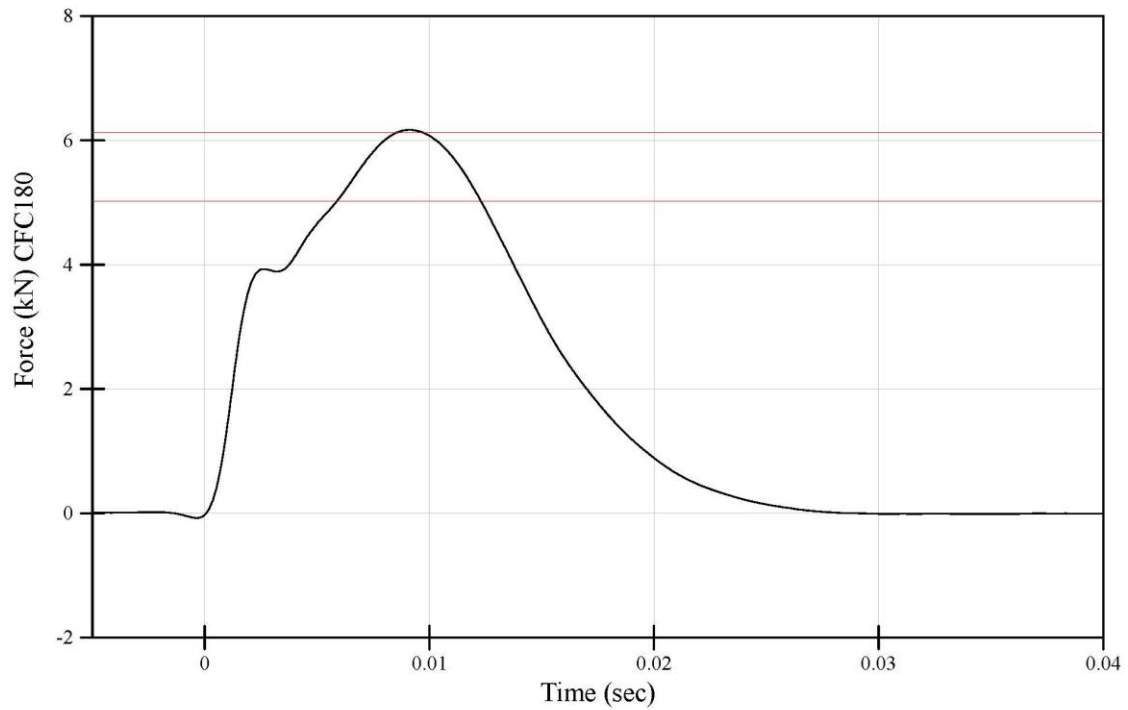
<u>Tested Components</u>		Test ID: 210223-2
Shoulder Rib: DM6270	Abdomen Rib 1: DM5165	Test Date: 2/23/2021
Thorax Rib 1: DM2783	Abdomen Rib 2: DM5167	Test Time: 11:11 AM
Thorax Rib 2: DM2784	RibEye: 161	
Thorax Rib 3: DM2787	Impacted Arm: DJ1634	

<u>Test Results</u>			
<u>Test Parameter</u>	<u>Specification Range*</u>	<u>Result</u>	<u>Pass/Fail</u>
Test Temperature (°C)	20.6 - 22.2	21.4	Pass
Test Humidity (%)	10 - 70	61	Pass
Test Velocity (m/s)	6.60 - 6.80	6.68	Pass
Thorax Rib Temperature Sensor (°C)	20.6 - 23.8	22.0	Pass
Peak Probe Force (kN)	5.02 - 6.13	6.17	Fail
Peak T4 Y Acceleration	34.7 - 52.0	68.5	Fail
Peak T12 Y Acceleration	44.5 - 54.9	62.5	Fail
Peak Thorax Rib 1 Y Length Change (mm)	18.3 - 26.4	17.6	Fail
Peak Thorax Rib 2 Y Length Change (mm)	21.6 - 26.4	18.7	Fail
Peak Thorax Rib 3 Y Length Change (mm)	19.7 - 26.6	14.7	Fail

* WorldSID-05F Qualification Manual - Humanetics WorldSID Small Female - Rev E

File Name: 210223-2 processed

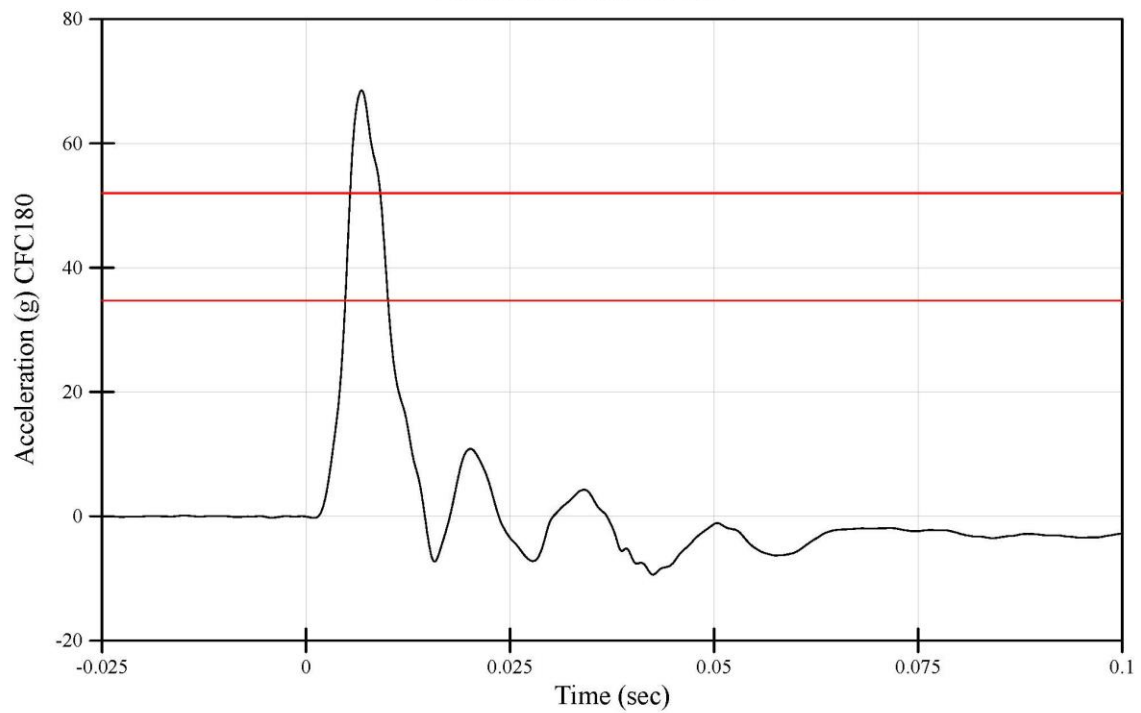
WorldSID-05F Left Thorax with Arm Qualification
Peak Pendulum Force
Dummy Serial Number: DK1774



File Name: 210223-2 processed

2/23/2021 11:11 AM

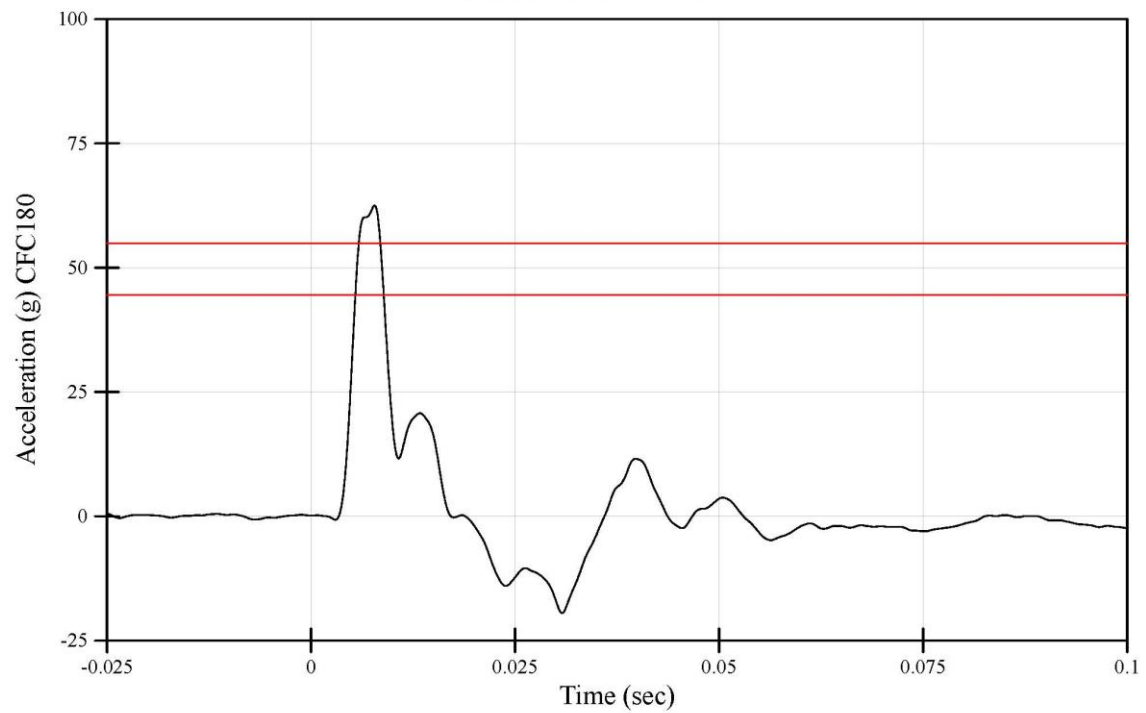
WorldSID-05F Left Thorax with Arm Qualification
Peak T4 Y Axis Acceleration
Dummy Serial Number: DK1774



File Name: 210223-2 processed

2/23/2021 11:11 AM

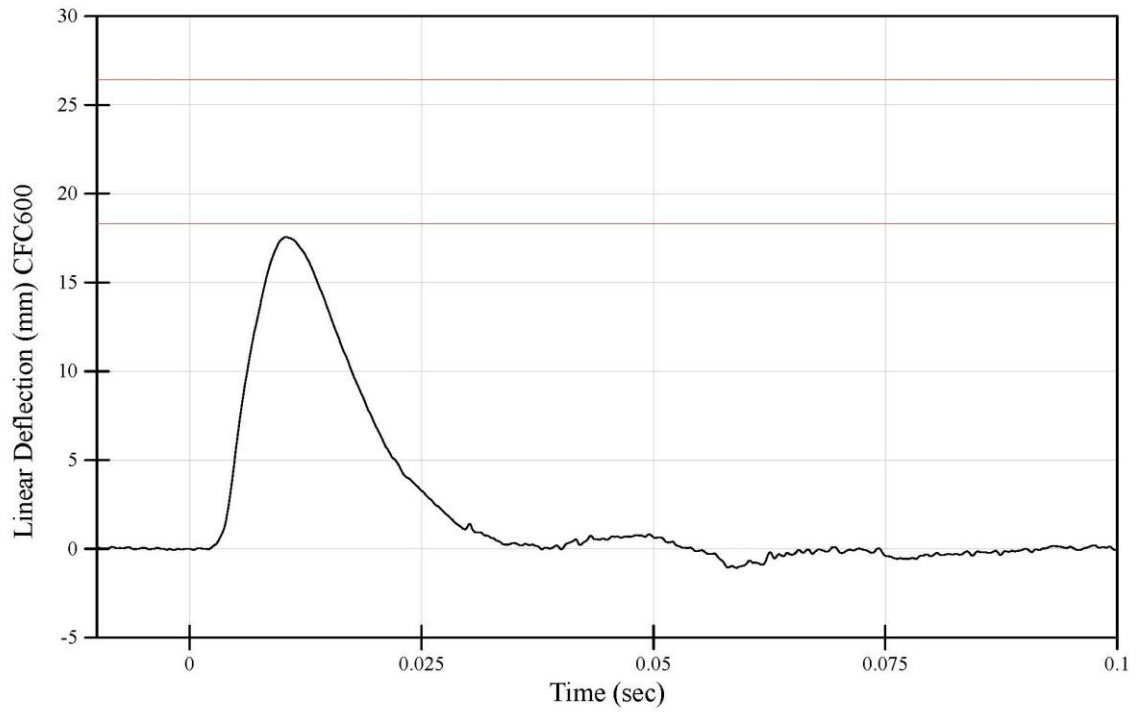
WorldSID-05F Left Thorax with Arm Qualification
Peak T12 Y Axis Acceleration
Dummy Serial Number: DK1774



File Name: 210223-2 processed

2/23/2021 11:11 AM

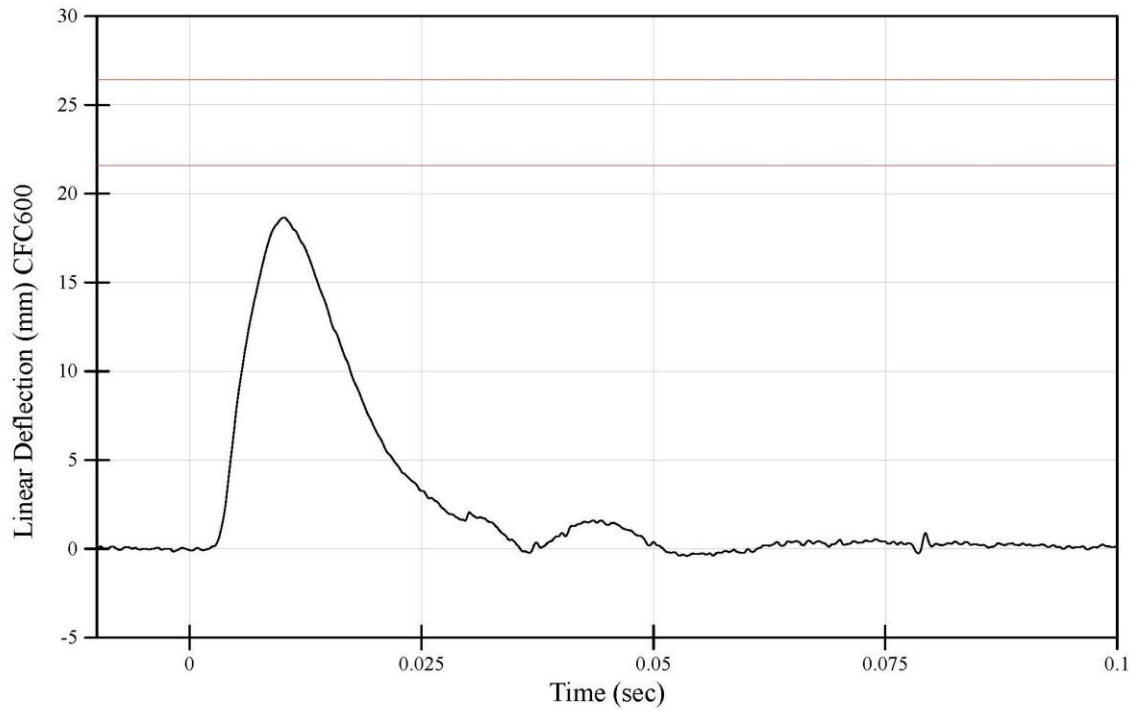
WorldSID-05F Left Thorax with Arm Qualification
Peak Thorax Rib 1 Compression
Dummy Serial Number: DK1774



File Name: 210223-2 processed

2/23/2021 11:11 AM

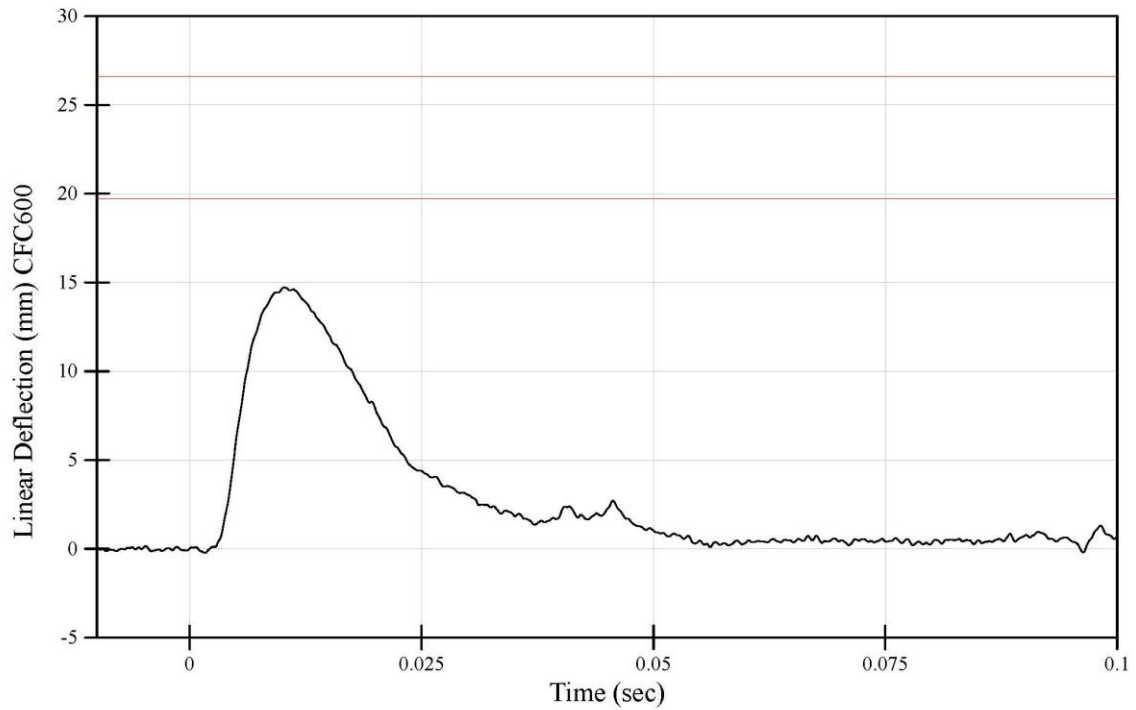
WorldSID-05F Left Thorax with Arm Qualification
Peak Thorax Rib 2 Compression
Dummy Serial Number: DK1774



File Name: 210223-2 processed

2/23/2021 11:11 AM

WorldSID-05F Left Thorax with Arm Qualification
Peak Thorax Rib 3 Compression
Dummy Serial Number: DK1774



File Name: 210223-2 processed

2/23/2021 11:11 AM

WorldSID-05F Thorax without Arm Qualification Test Results Summary

Dummy Serial Number: DK1774

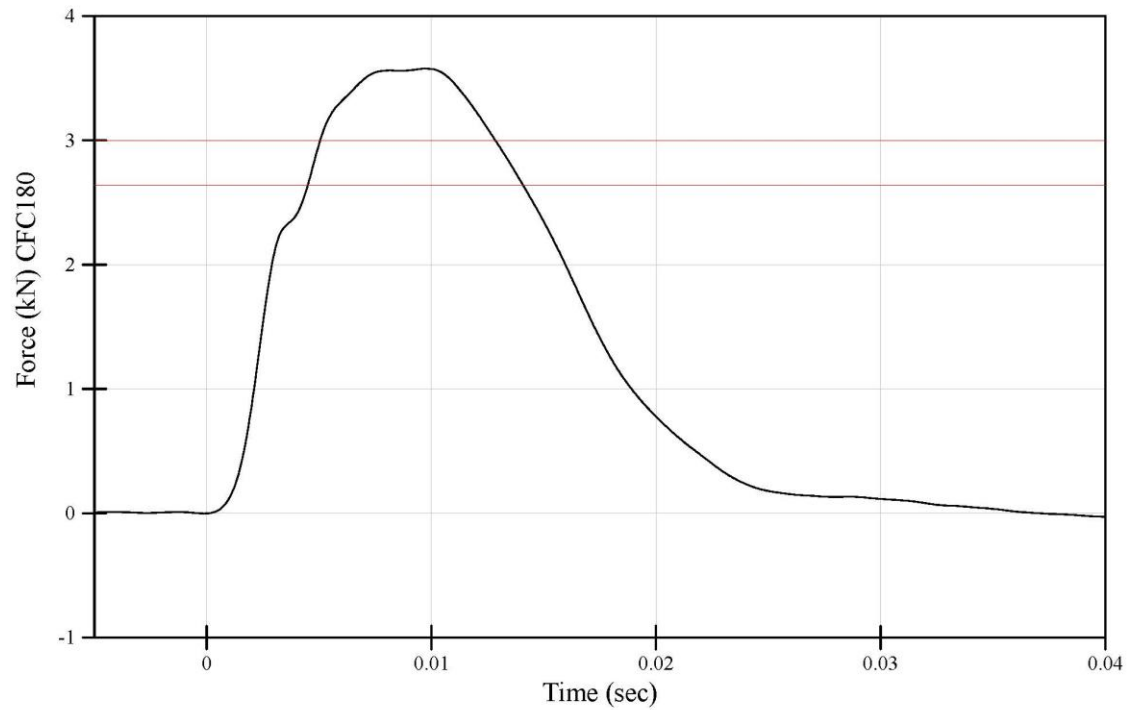
<u>Tested Components</u>		Test ID: 210223-5
Shoulder Rib: DM6270	Abdomen Rib 1: DM5165	Test Date: 2/23/2021
Thorax Rib 1: DM2783	Abdomen Rib 2: DM5167	Test Time: 4:26 PM
Thorax Rib 2: DM2784	RibEye: 161	
Thorax Rib 3: DM2787		

<u>Test Results</u>			
<u>Test Parameter</u>	<u>Specification Range*</u>	<u>Result</u>	<u>Pass/Fail</u>
Test Temperature (°C)	20.6 - 22.2	21.1	Pass
Test Humidity (%)	10 - 70	64	Pass
Test Velocity (m/s)	4.20 - 4.40	4.29	Pass
Thorax Rib Temperature Sensor (°C)	20.6 - 23.8	22.5	Pass
Peak Probe Force (kN)	2.64 - 3.22	3.58	Fail
Peak T4 Y Acceleration	21.2 - 27.5	34.8	Fail
Peak T12 Y Acceleration	20.6 - 28.9	35.2	Fail
Peak Thorax Rib 1 Y Length Change (mm)	20.5 - 27.7	18.0	Fail
Peak Thorax Rib 2 Y Length Change (mm)	21.7 - 26.7	19.5	Fail
Peak Thorax Rib 3 Y Length Change (mm)	20.9 - 27.3	17.5	Fail

* WorldSID-05F Qualification Manual - Humanetics WorldSID Small Female - Rev E

File Name: 210223-5 processed

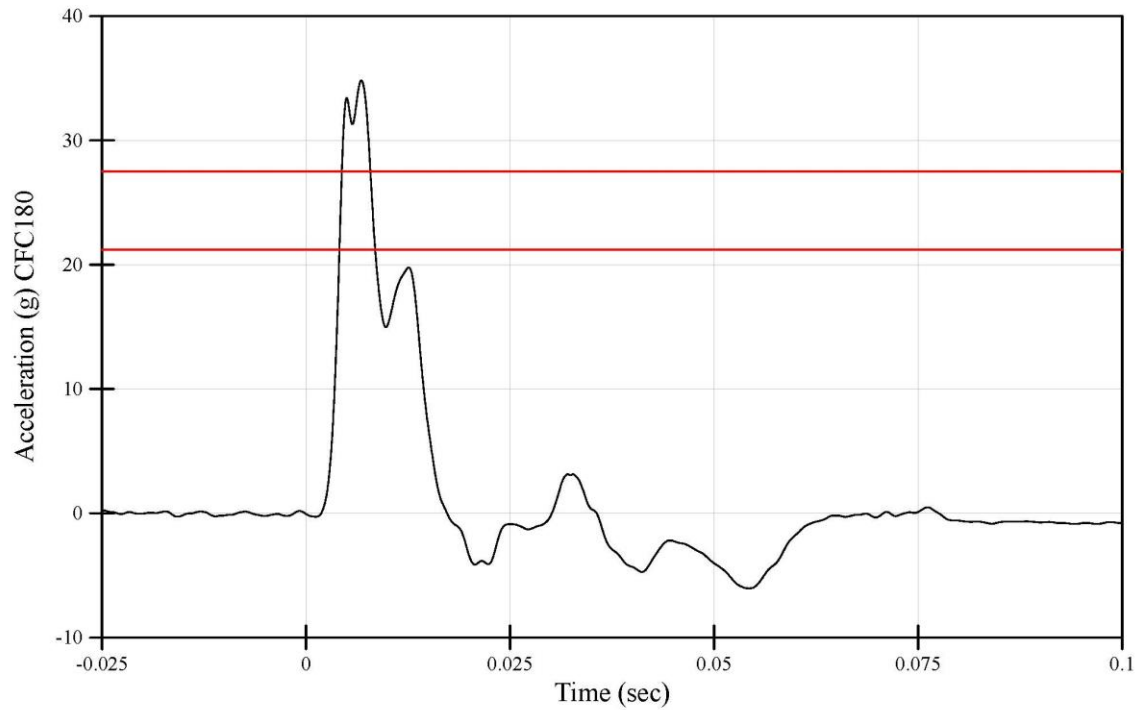
WorldSID-05F Left Thorax without Arm Qualification
Peak Pendulum Force
Dummy Serial Number: DK1774



File Name: 210223-5 processed

2/23/2021 4:26 PM

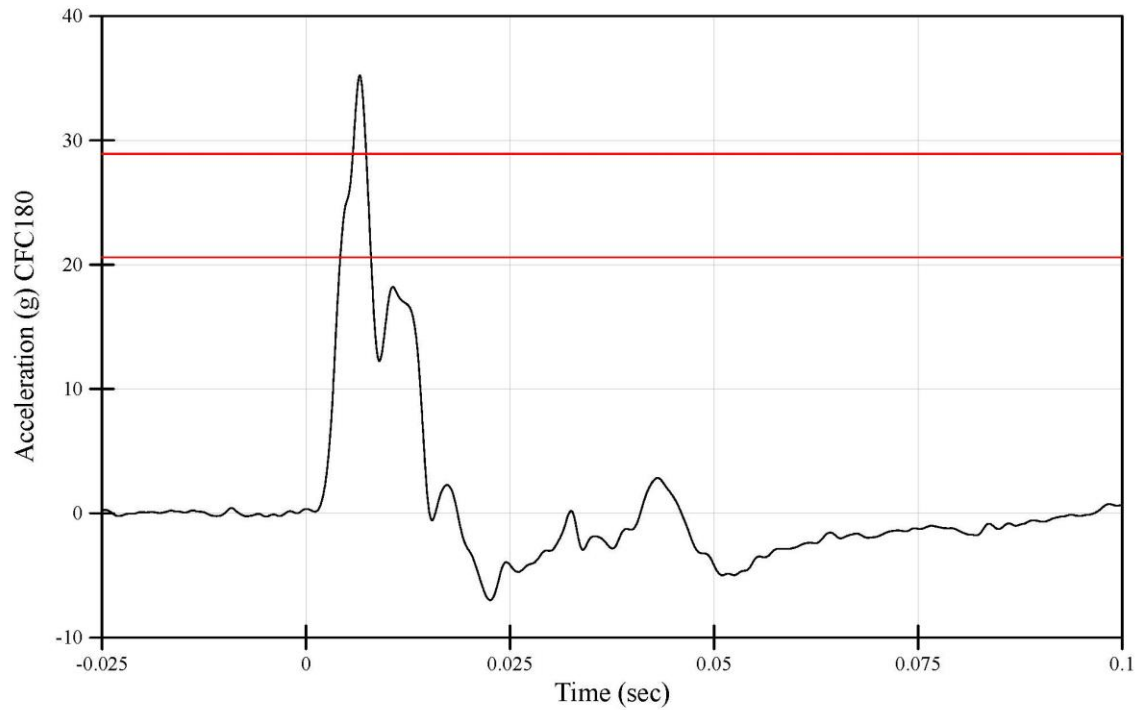
WorldSID-05F Left Thorax without Arm Qualification
Peak T4 Y Axis Acceleration
Dummy Serial Number: DK1774



File Name: 210223-5 processed

2/23/2021 4:26 PM

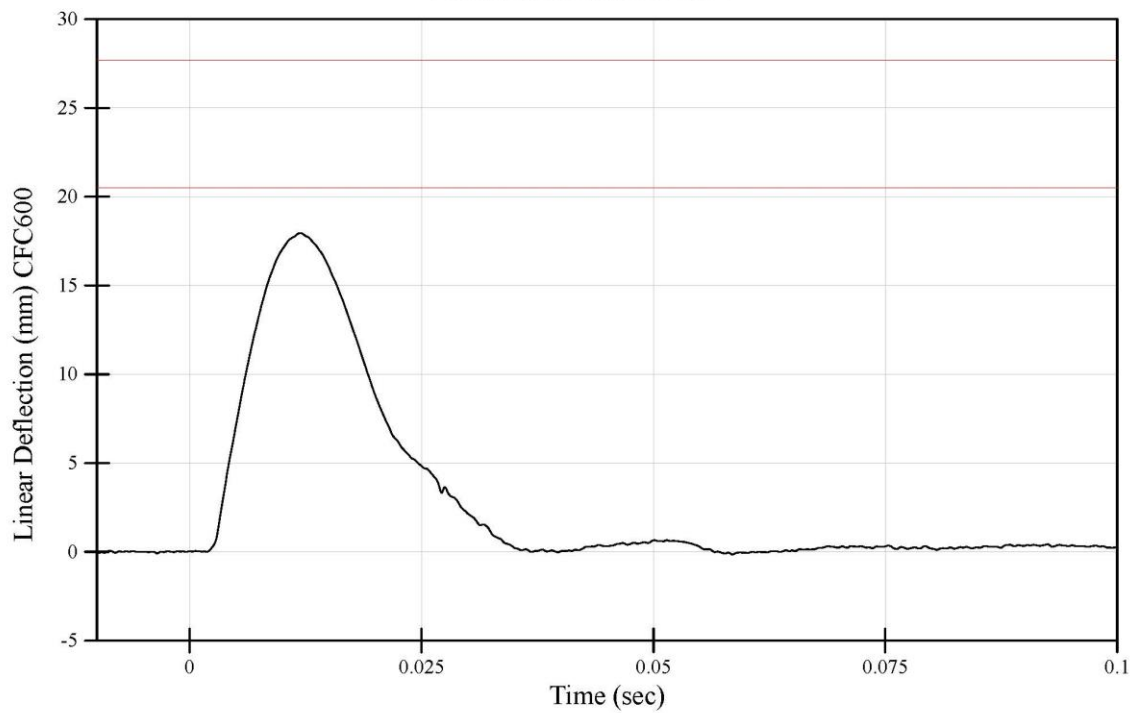
WorldSID-05F Left Thorax without Arm Qualification
Peak T12 Y Axis Acceleration
Dummy Serial Number: DK1774



File Name: 210223-5 processed

2/23/2021 4:26 PM

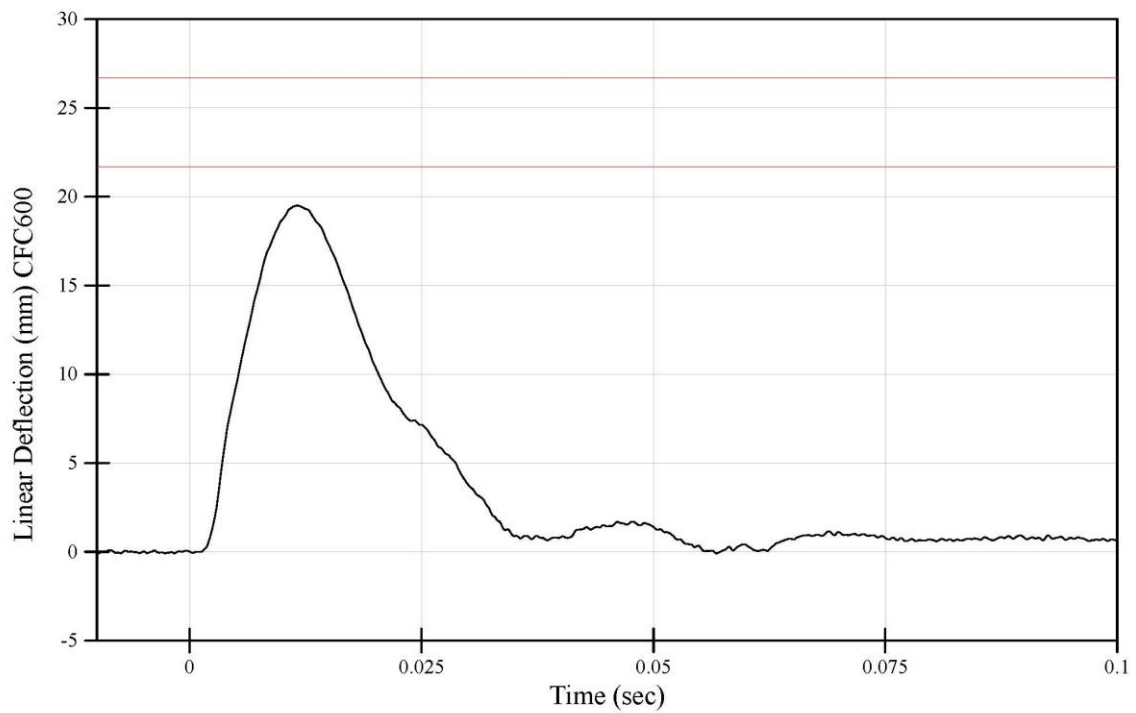
WorldSID-05F Left Thorax without Arm Qualification
Peak Thorax Rib 1 Compression
Dummy Serial Number: DK1774



File Name: 210223-5 processed

2/23/2021 4:26 PM

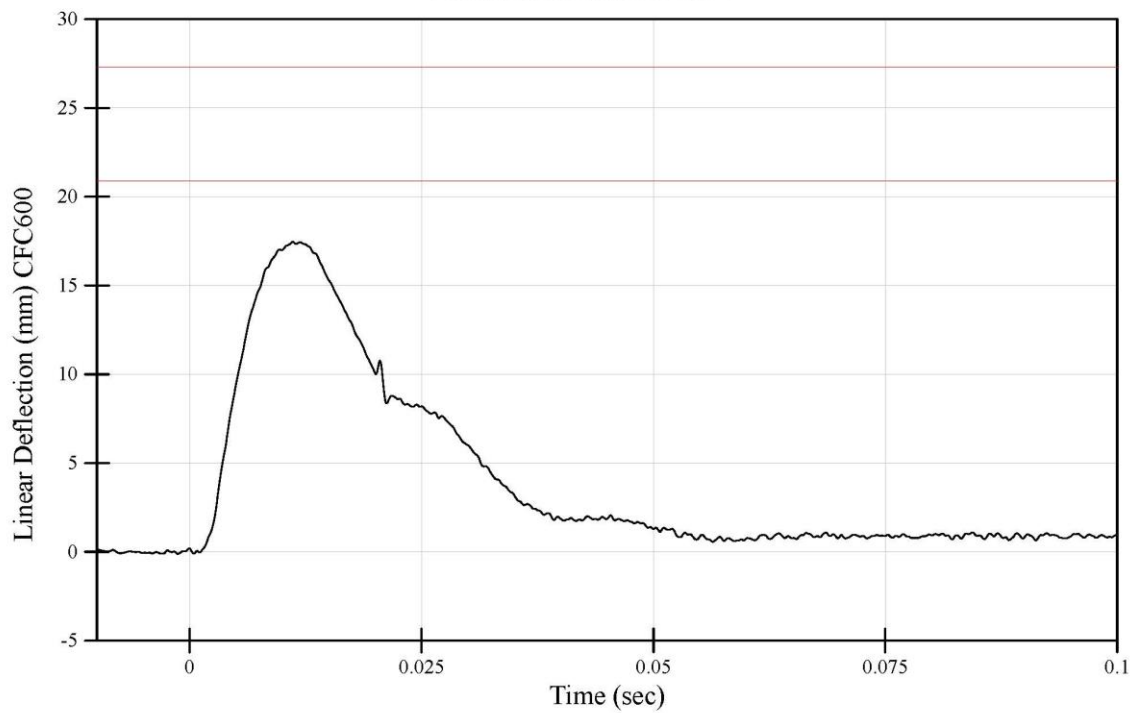
WorldSID-05F Left Thorax without Arm Qualification
Peak Thorax Rib 2 Compression
Dummy Serial Number: DK1774



File Name: 210223-5 processed

2/23/2021 4:26 PM

WorldSID-05F Left Thorax without Arm Qualification
Peak Thorax Rib 3 Compression
Dummy Serial Number: DK1774



File Name: 210223-5 processed

2/23/2021 4:26 PM

**WorldSID-05F Left Abdomen Qualification
Test Results Summary**

Dummy Serial Number: DK1774

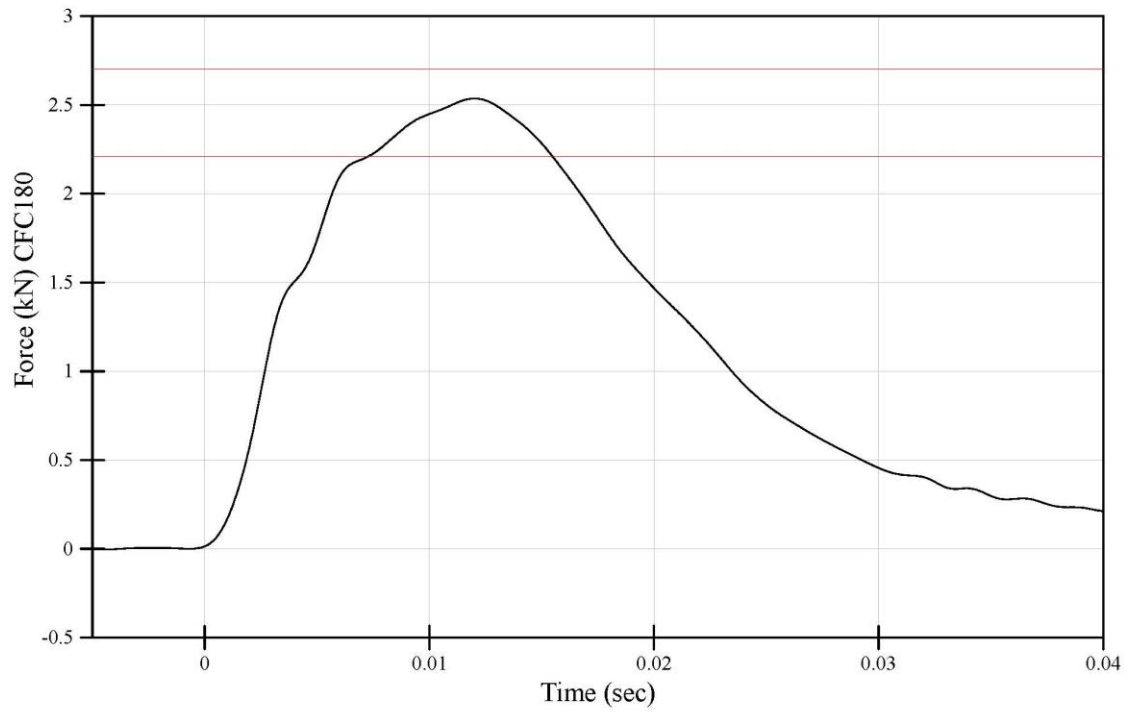
Tested Components		Test ID: 210224-3
Shoulder Rib: DM6270	Abdomen Rib 1: DM5165	Test Date: 2/24/2021
Thorax Rib 1: DM2783	Abdomen Rib 2: DM5167	Test Time: 11:30 AM
Thorax Rib 2: DM2784	RibEye: 161	
Thorax Rib 3: DM2787		

Test Results			
<u>Test Parameter</u>	<u>Specification Range*</u>	<u>Result</u>	<u>Pass/Fail</u>
Test Temperature (°C)	20.6 - 22.2	22.2	Pass
Test Humidity (%)	10 - 70	62	Pass
Test Velocity (m/s)	4.20 - 4.40	4.29	Pass
Thorax Rib Temperature Sensor (°C)	20.6 - 23.8	23.6	Pass
Peak Probe Force (kN)	2.21 - 2.70	2.54	Pass
Peak T12 Acceleration (g)	24.4 - 30.6	29.0	Pass
Peak Abdomen Rib 1 Length Change (mm)	23.1 - 31.2	23.3	Pass
Peak Abdomen Rib 2 Length Change (mm)	22.7 - 27.8	24.1	Pass

* WorldSID-50M Qualification Manual - Humanetics WorldSID Small Female - Rev E

File Name: 210224-3 processed

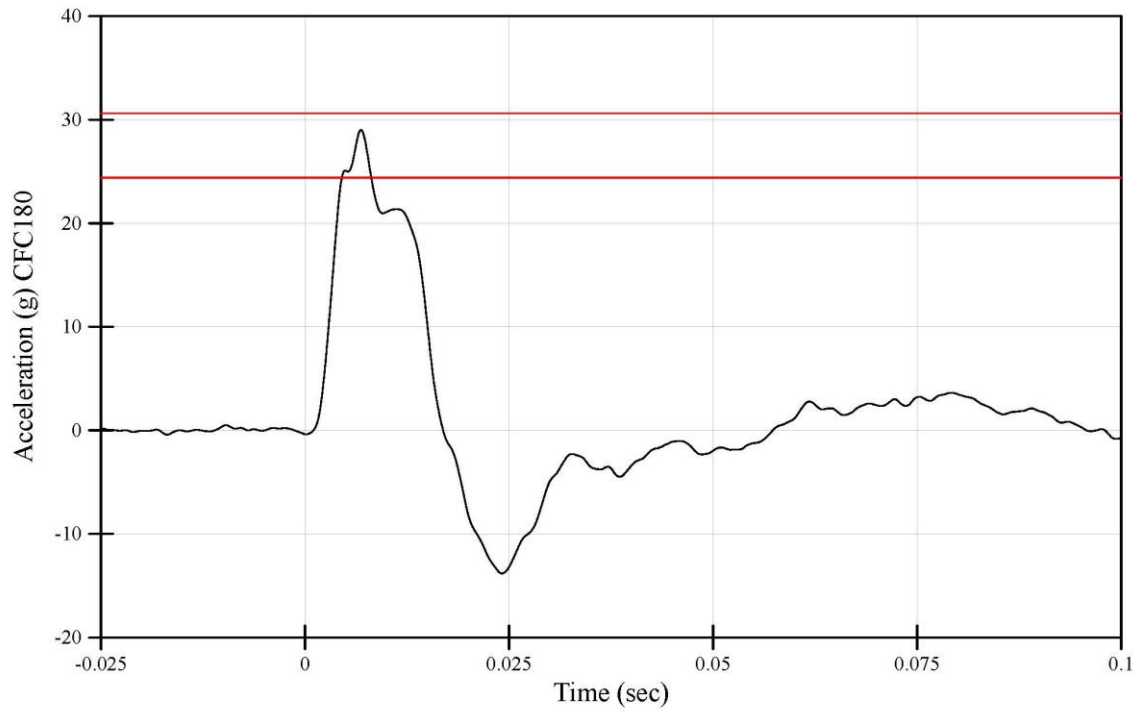
WorldSID-05F Abdomen Qualification
Peak Pendulum Force
Dummy Serial Number: DK1774



File Name: 210224-3 processed

2/24/2021 11:30 AM

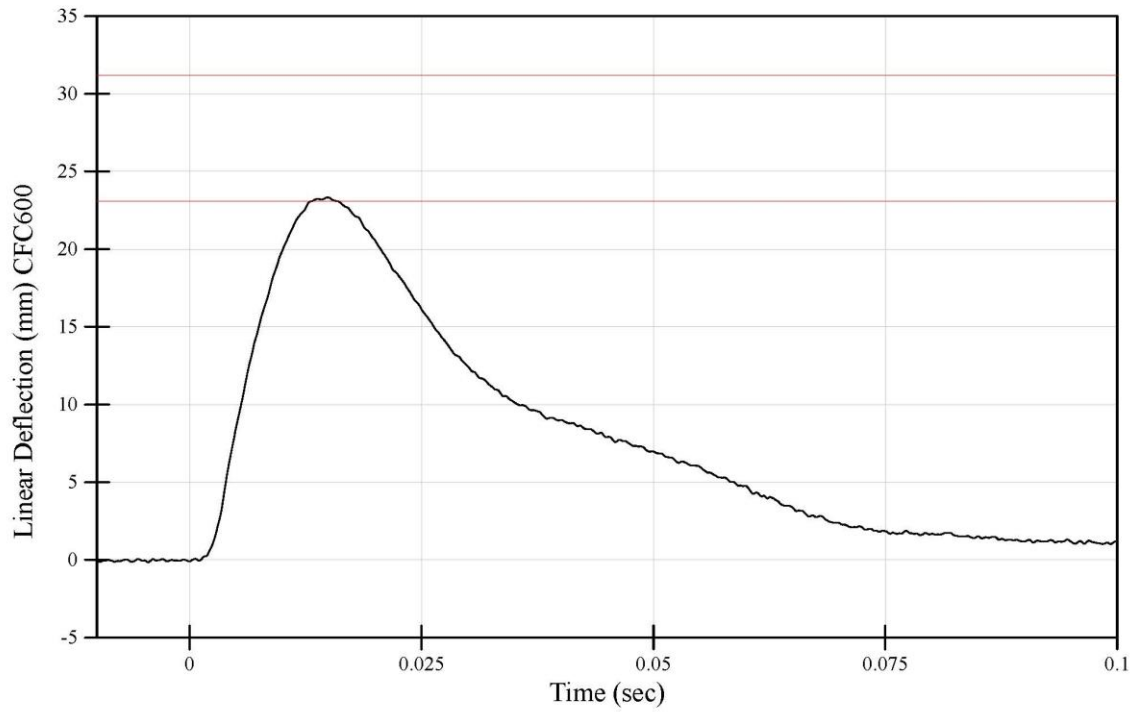
WorldSID-05F Abdomen Qualification
Peak T12 Y Axis Acceleration
Dummy Serial Number: DK1774



File Name: 210224-3 processed

2/24/2021 11:30 AM

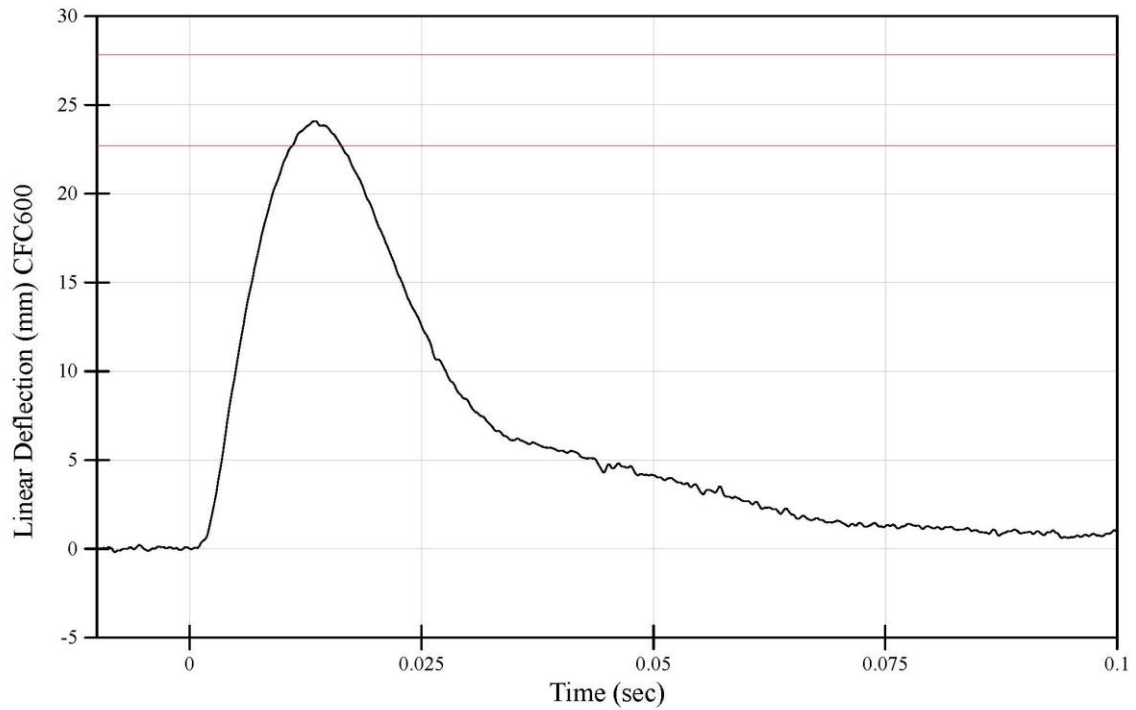
WorldSID-05F Abdomen Qualification
Peak Abdomen Rib 1 Compression
Dummy Serial Number: DK1774



File Name: 210224-3 processed

2/24/2021 11:30 AM

WorldSID-05F Abdomen Qualification
Peak Abdomen Rib 2 Compression
Dummy Serial Number: DK1774



File Name: 210224-3 processed

2/24/2021 11:30 AM

**WorldSID-05F Left Pelvis Qualification
Test Results Summary**

Dummy Serial Number: DK1774

Tested Components
Pelvis Bone: DW2458

Test ID: 210224-2
Test Date: 2/24/2021
Test Time: 8:38 AM

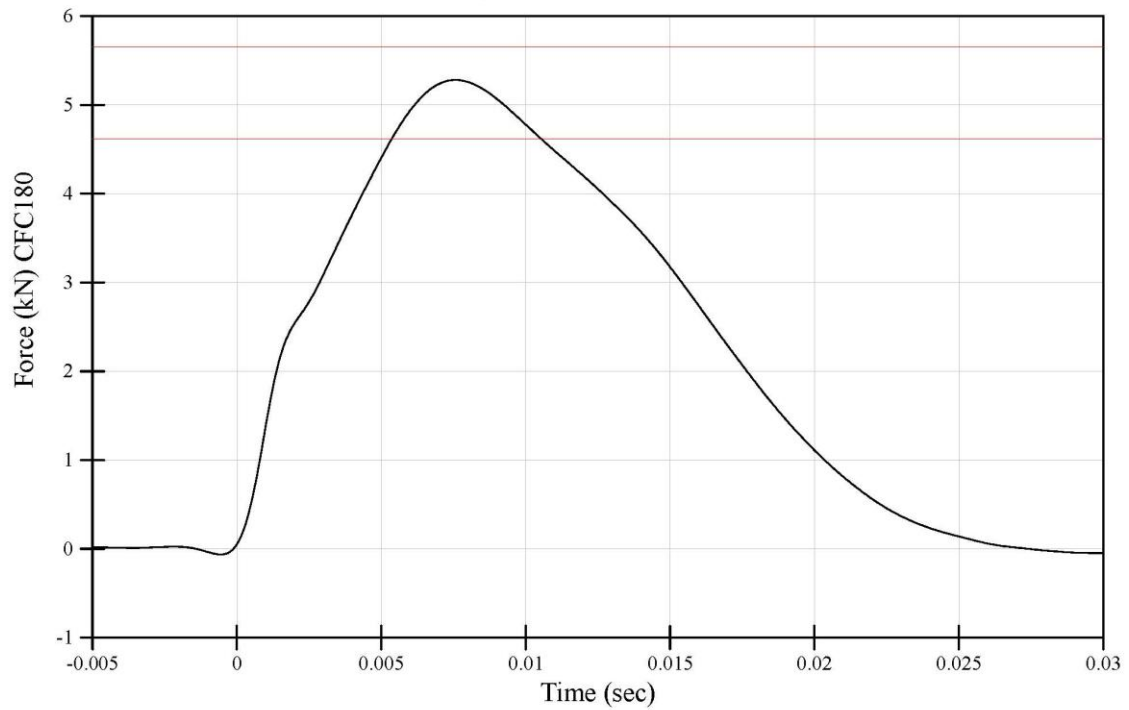
Test Results

<u>Test Parameter</u>	<u>Specification Range*</u>	<u>Result</u>	<u>Pass/Fail</u>
Test Temperature (°C)	20.6 - 22.2	21.7	Pass
Test Humidity (%)	10 - 70	60	Pass
Test Velocity (m/s)	6.60 - 6.80	6.69	Pass
Peak Probe Force (kN)	4.62 - 5.65	5.28	Pass
Peak Pubic Force FY (N)	-1200.0 - (-770.0)	-1031.8	Pass
Peak T12 Acceleration (g)	11.8 - 15.8	19.4	Fail
Peak Pelvis Acceleration (g)	48.6 - 74.4	45.0	Fail

* WorldSID-50M Qualification Manual - Humanetics WorldSID Small Female - Rev E

File Name: 210224-2 processed

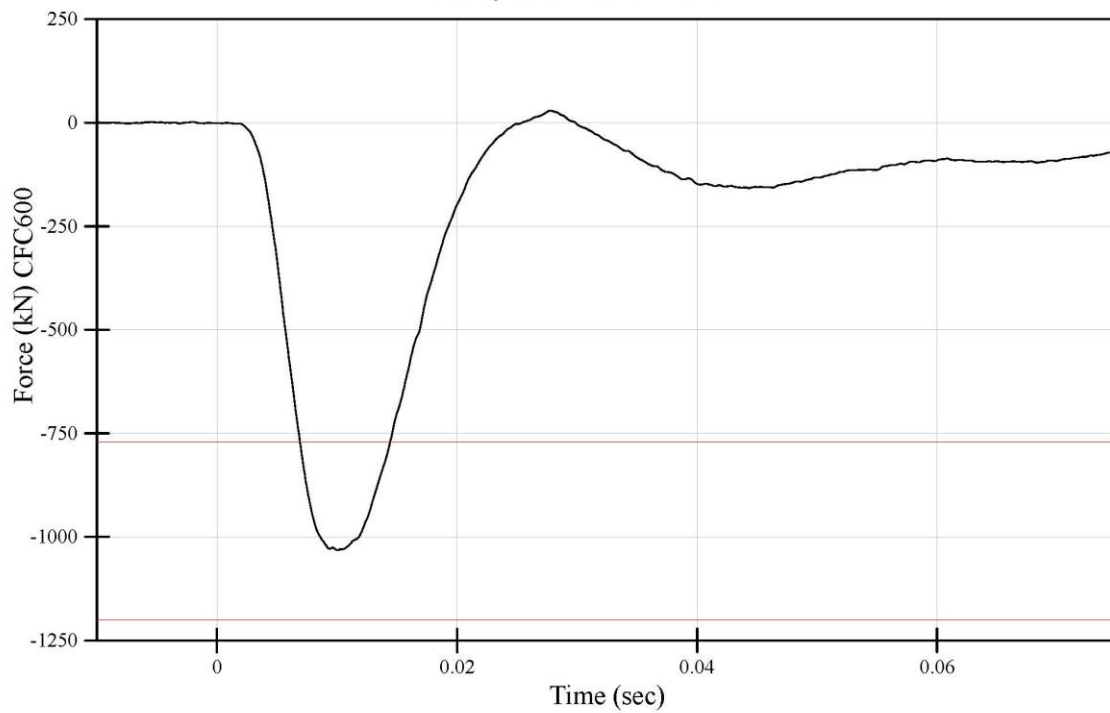
WorldSID-05F Left Pelvis Qualification
Peak Pendulum Force
Dummy Serial Number: DK1774



File Name: 210224-2 processed

2/24/2021 8:31 AM

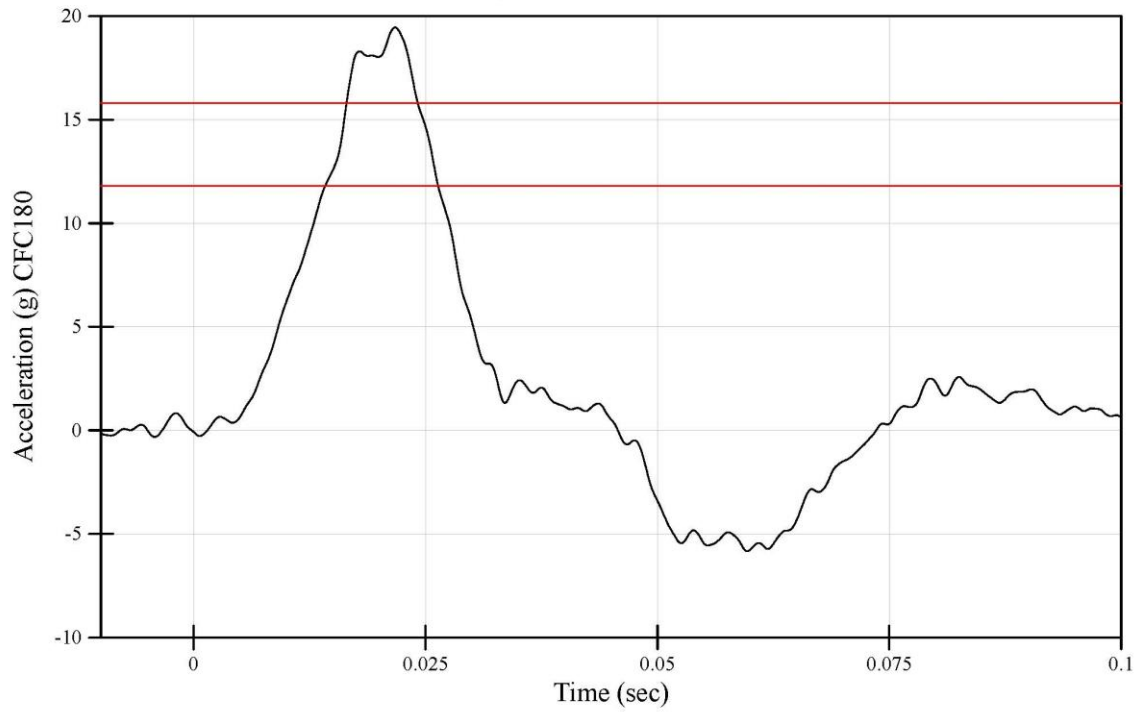
WorldSID-05F Left Pelvis Qualification
Peak Pubic Y axis Force
Dummy Serial Number: DK1774



File Name: 210224-2 processed

2/24/2021 8:31 AM

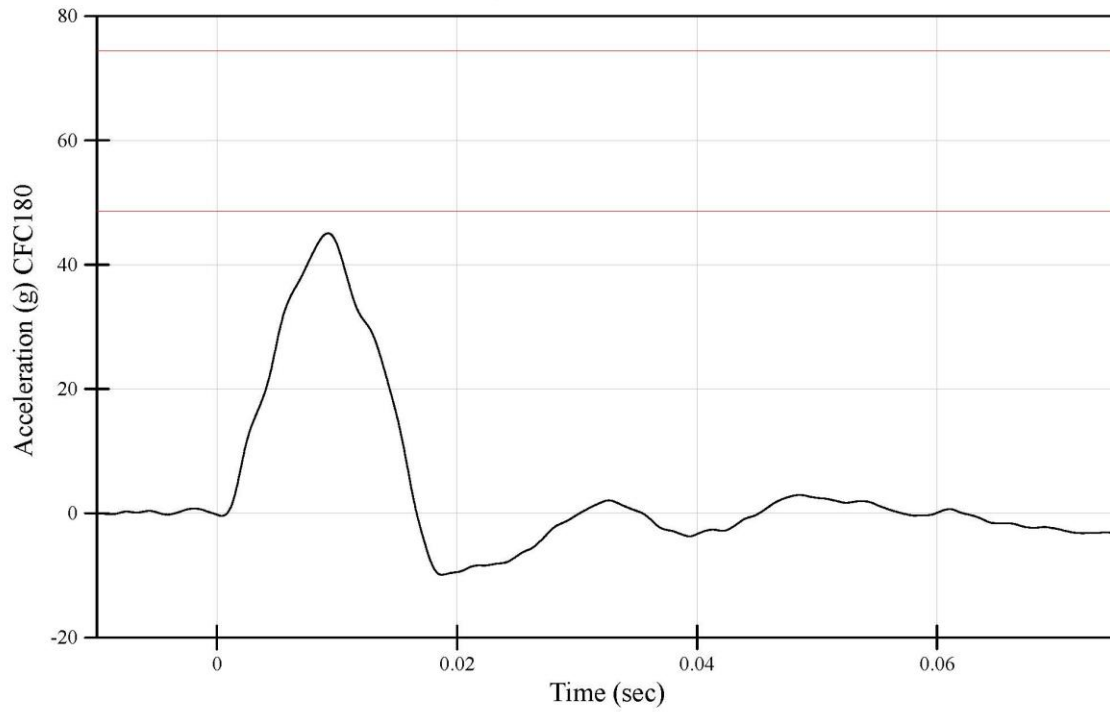
WorldSID-05F Left Pelvis Qualification
Peak T12 Y Axis Acceleration
Dummy Serial Number: DK1774



File Name: 210224-2 processed

2/24/2021 8:31 AM

WorldSID-05F Left Pelvis Qualification
Peak Pelvis Y Axis Acceleration
Dummy Serial Number: DK1774



File Name: 210224-2 processed

2/24/2021 8:31 AM

Post-Test Calibration Sheets
Passenger S/N DK1774

WorldSID-05F Head Front Qualification Test Results Summary

Dummy Serial Number: DK1774

Tested Components

Head: DM1000

Test ID: 210412-5

Test Date: 4/12/2021

Test Time: 9:35 AM

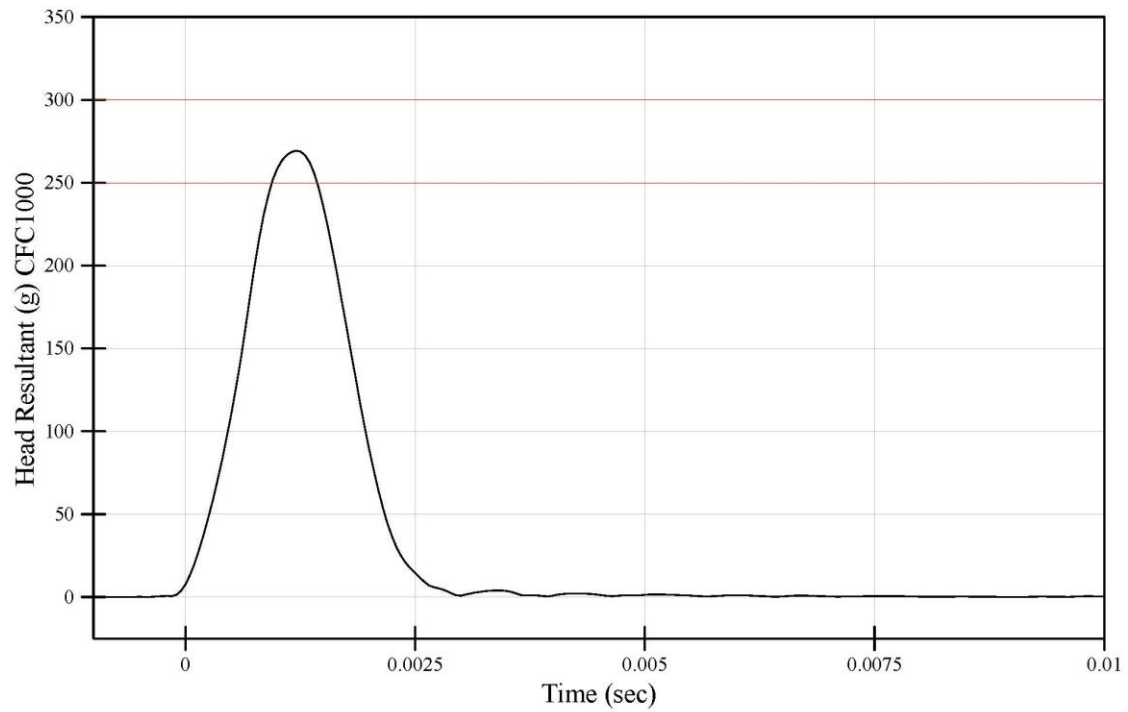
Test Results

<u>Test Parameter</u>	<u>Specification Range*</u>	<u>Result</u>	<u>Pass/Fail</u>
Test Temperature (°C)	20.6 - 22.2	21.7	Pass
Test Humidity (%)	10 - 70	57	Pass
Peak Resultant Acceleration (g)	250.0 - 300.0	269.3	Pass
Peak Acceleration, y-axis (g)	-15.00 - 15.00	-3.09	Pass
Oscillations occurring after the main acceleration pulse (%)	-10.0 - 10.0	1.5	Pass

* WorldSID-05F Qualification Manual - Humanetics WorldSID Small Female - Rev E

File Name: 210412-5 processed

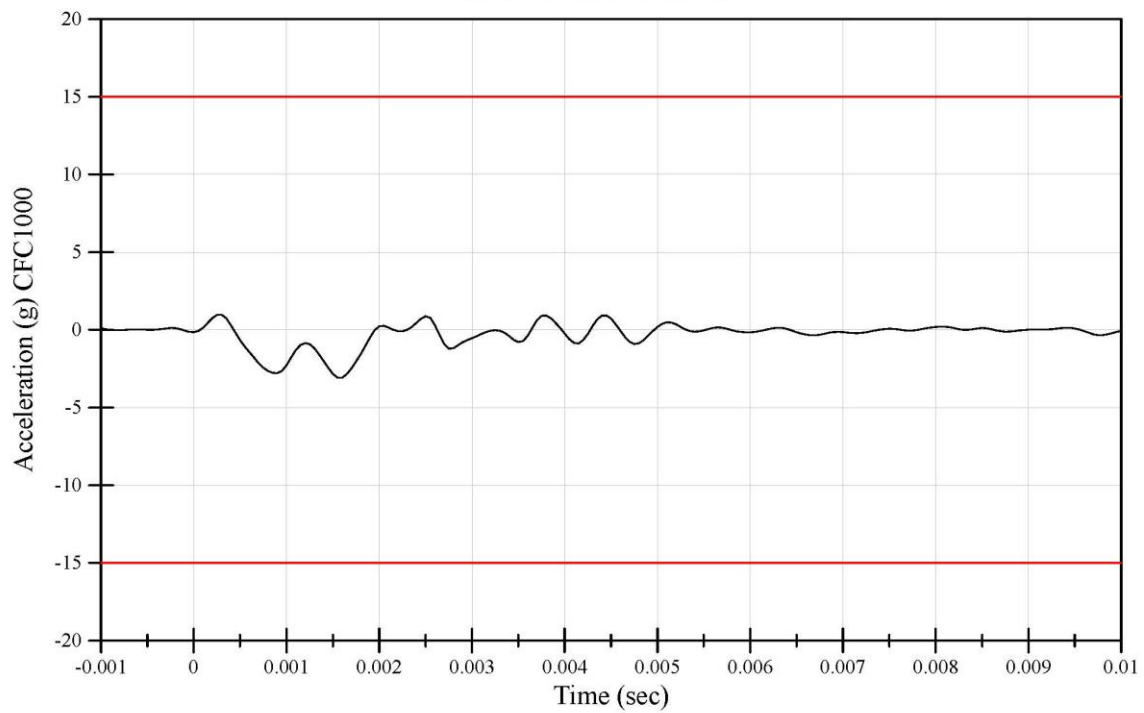
WorldSID-05F Head Front Qualification
Peak Resultant Acceleration
Head Serial Number: DM1000



File Name: 210412-5 processed

4/12/2021 9:35 AM

WorldSID-05F Head Front Qualification
Peak Lateral Y Acceleration
Head Serial Number: DM1000



File Name: 210412-5 processed

4/12/2021 9:35 AM

**WorldSID-05F Head Left Lateral Qualification
Test Results Summary**

Dummy Serial Number: DK1774

Tested Components

Head: DM1000

Test ID: 210412-3

Test Date: 4/12/2021

Test Time: 8:20 AM

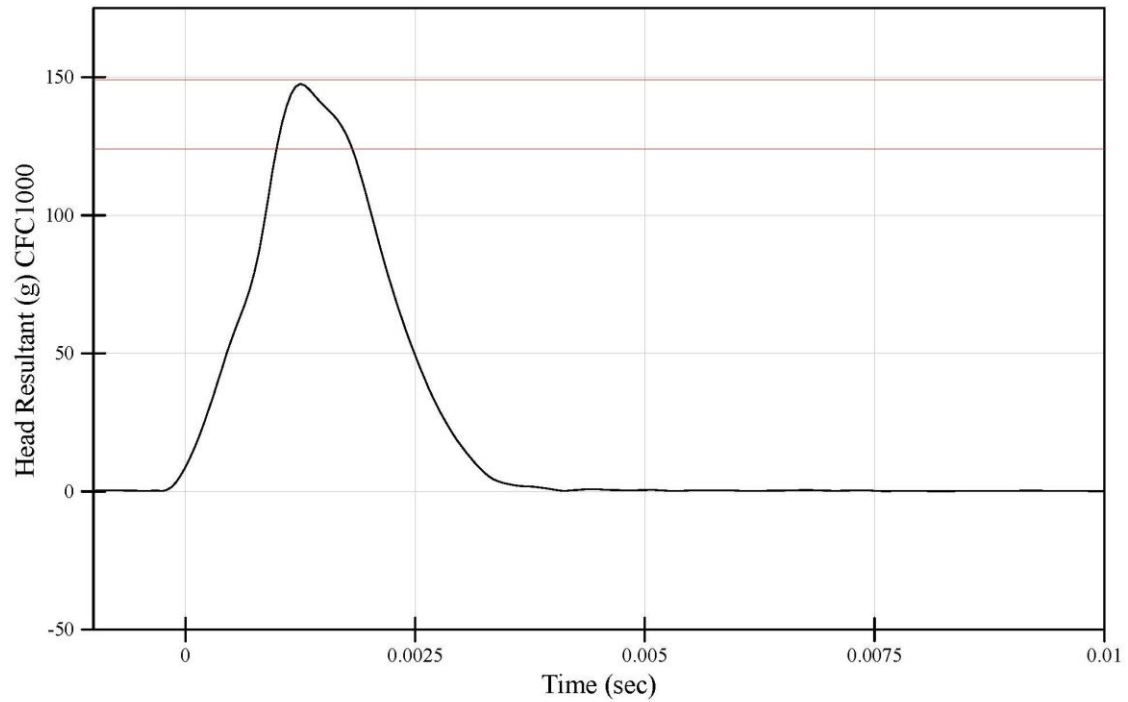
Test Results

<u>Test Parameter</u>	<u>Specification Range*</u>	<u>Result</u>	<u>Pass/Fail</u>
Test Temperature (°C)	20.6 - 22.2	21.6	Pass
Test Humidity (%)	10 - 70	59	Pass
Peak Resultant Acceleration (g)	124.0 - 149.0	147.5	Pass
Peak Acceleration, x-axis (g)	-15.00 - 15.00	-9.79	Pass
Oscillations occurring after the main acceleration pulse (%)	-10.0 - 10.0	0.5	Pass

* WorldSID-05F Qualification Manual - Humanetics WorldSID Small Female - Rev E

File Name: 210412-3 processed

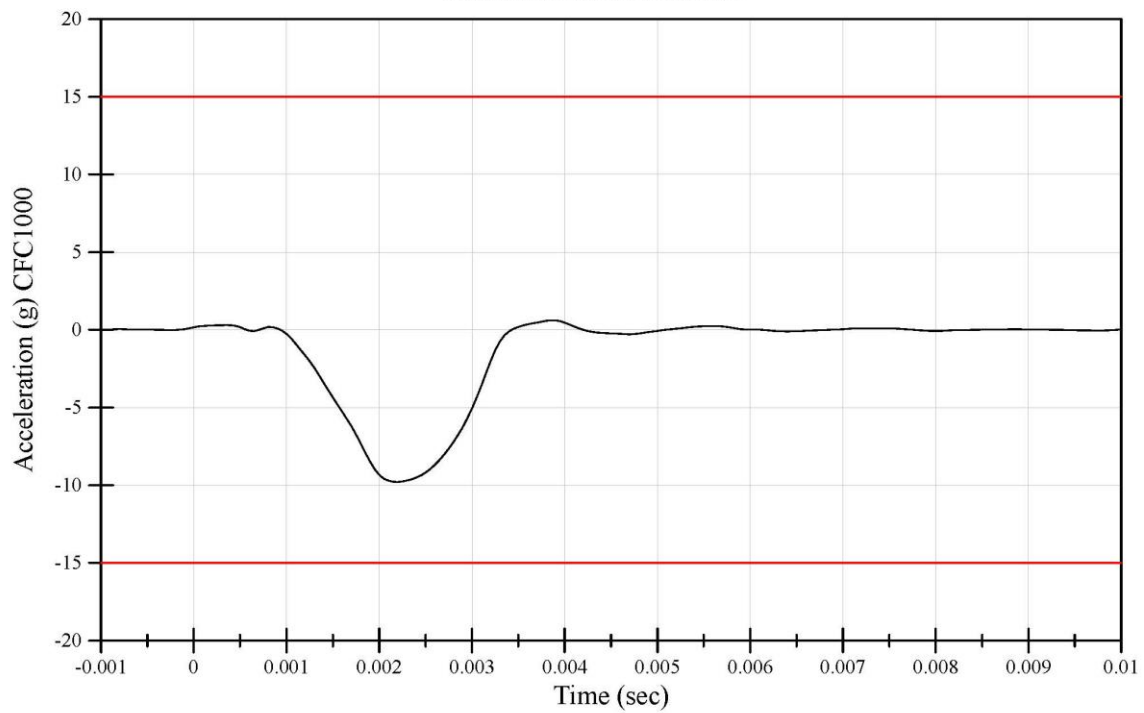
WorldSID-05F Head Left Lateral Qualification
Peak Resultant Acceleration
Head Serial Number: DM1000



File Name: 210412-3 processed

4/12/2021 8:20 AM

WorldSID-05F Head Left Lateral Qualification
Peak Lateral X Acceleration
Head Serial Number: DM1000



File Name: 210412-3 processed

4/12/2021 8:20 AM

WorldSID-05F Head Right Lateral Qualification Test Results Summary

Dummy Serial Number: DK1774

Tested Components

Head: DM1000

Test ID: 210412-4

Test Date: 4/12/2021

Test Time: 9:05 AM

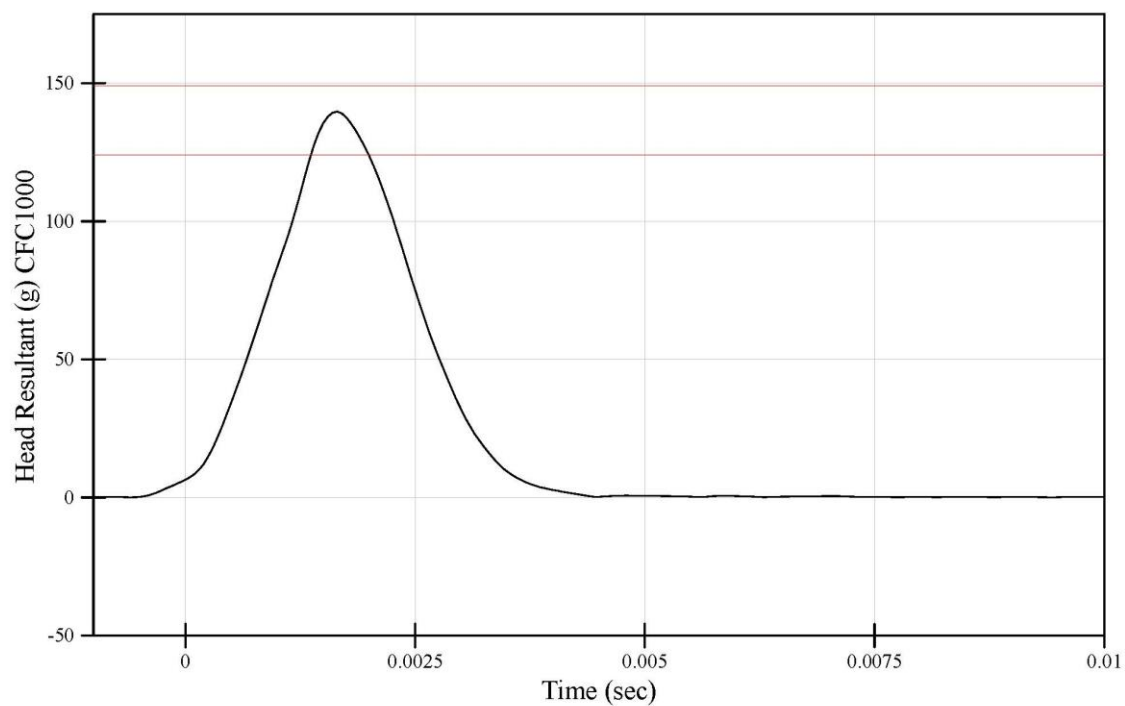
Test Results

<u>Test Parameter</u>	<u>Specification Range*</u>	<u>Result</u>	<u>Pass/Fail</u>
Test Temperature (°C)	20.6 - 22.2	21.6	Pass
Test Humidity (%)	10 - 70	58	Pass
Peak Resultant Acceleration (g)	124.0 - 149.0	139.7	Pass
Peak Acceleration, x-axis (g)	-15.00 - 15.00	-4.97	Pass
Oscillations occurring after the main acceleration pulse (%)	-10.0 - 10.0	0.5	Pass

* WorldSID-05F Qualification Manual - Humanetics WorldSID Small Female - Rev E

File Name: 210412-4 processed

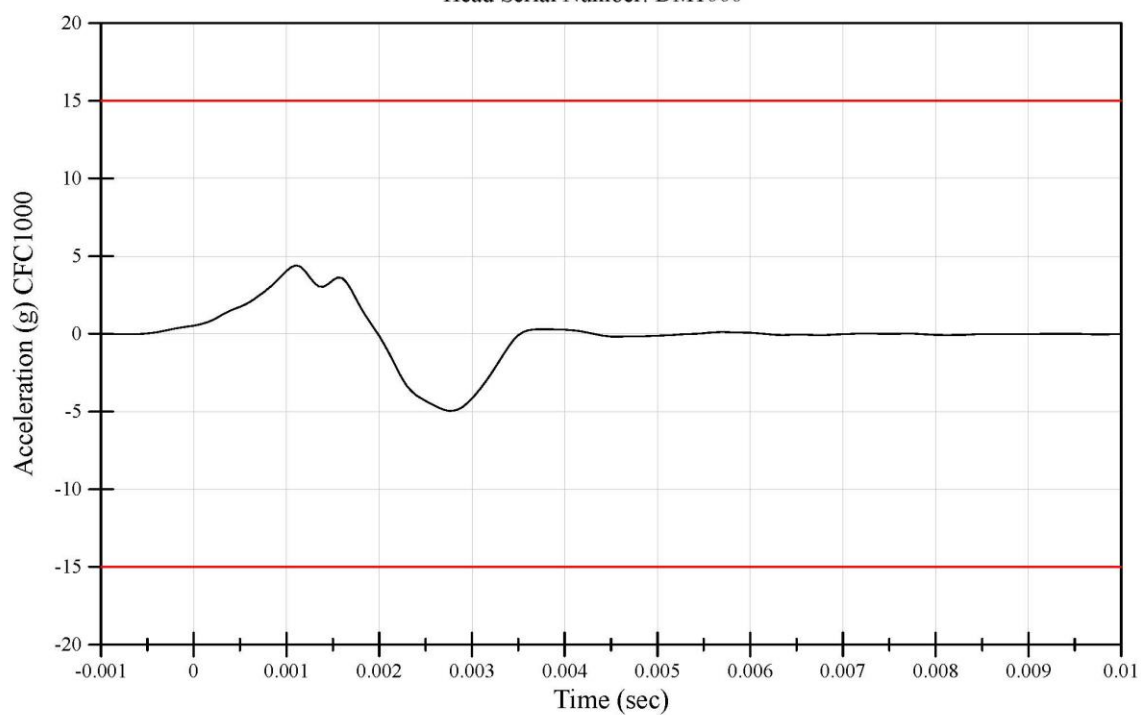
WorldSID-05F Head Right Lateral Qualification
Peak Resultant Acceleration
Head Serial Number: DM1000



File Name: 210412-4 processed

4/12/2021 9:05 AM

WorldSID-05F Head Right Lateral Qualification
Peak Lateral Y Acceleration
Head Serial Number: DM1000



File Name: 210412-4 processed

4/12/2021 9:05 AM

WorldSID-05F Neck Left Lateral Qualification Test Results Summary

Dummy Serial Number: DK1774

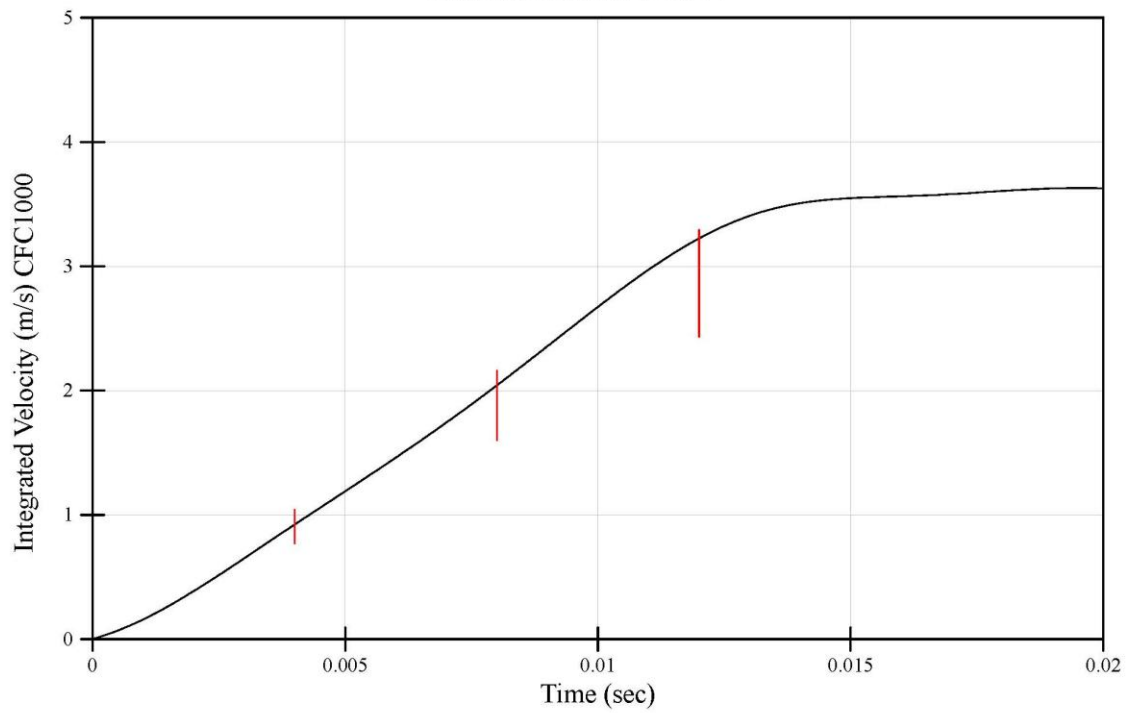
<u>Tested Components</u> Neck: DX6209	Test ID: 210407-10 Test Date: 4/7/2021 Test Time: 3:14 PM
--	---

Test Results			
<u>Test Parameter</u>	<u>Specification Range*</u>	<u>Result</u>	<u>Pass/Fail</u>
Test Temperature (°C)	20.6 - 22.2	20.6	Pass
Test Humidity (%)	10 - 70	54	Pass
Test Velocity (m/s)	3.30 - 3.50	3.50	Pass
Pendulum Velocity at 4 ms after T0 (m/s)	0.77 - 1.04	0.92	Pass
Pendulum Velocity at 8 ms after T0 (m/s)	1.60 - 2.16	2.04	Pass
Pendulum Velocity at 12 ms after T0 (m/s)	2.43 - 3.29	3.22	Pass
Peak Headform Flexion Angle (deg)	-71.4 - (-58.5)	-67.3	Pass
Peak Headform Flexion Angle Decay			
Time to 0 degrees (ms)	57.3 - 76.5	65.4	Pass
Peak X-Axis Moment at Occipital Condyle (Nm)	34.2 - 51.0	38.3	Pass
Peak X-Axis Moment at Occipital Condyle			
Decay Time to 0 Nm (ms)	69.4 - 93.3	80.2	Pass

* WorldSID-05F Qualification Manual - Humanetics WorldSID Small Female - Rev E

File Name: 210407-10 processed

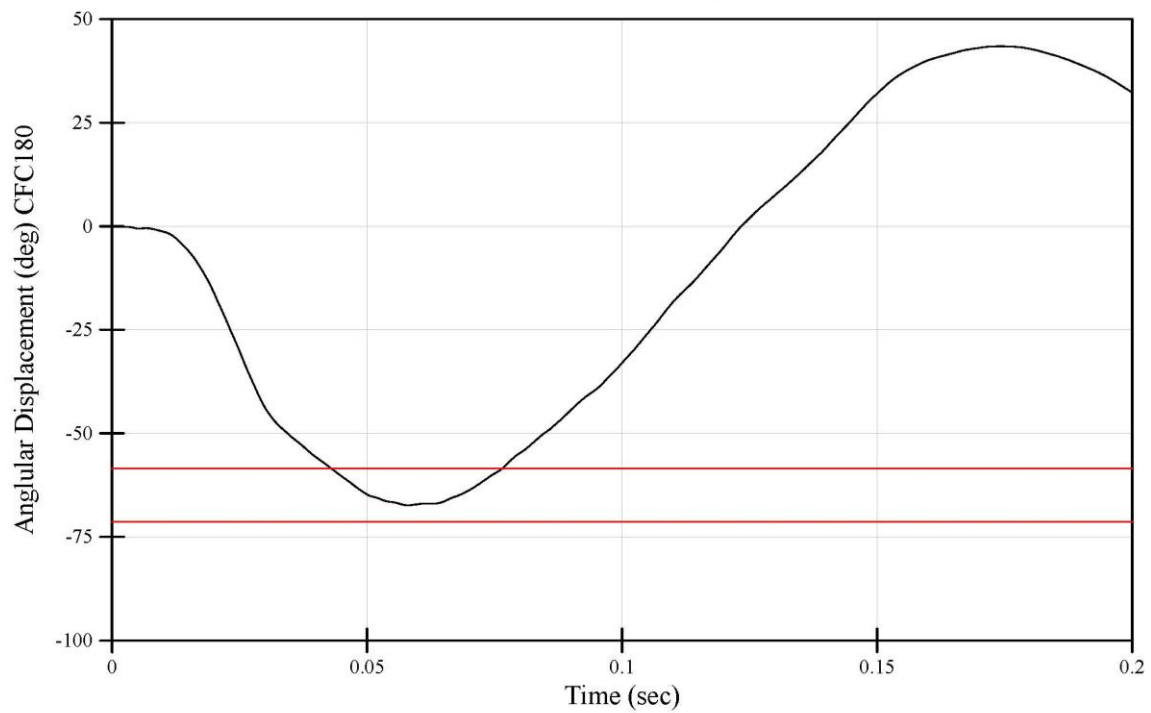
WorldSID-05F Neck Left Lateral Qualification
Probe Acceleration
Neck Serial Number: DK1774



File Name: 210407-10 processed

4/7/2021 3:14 PM

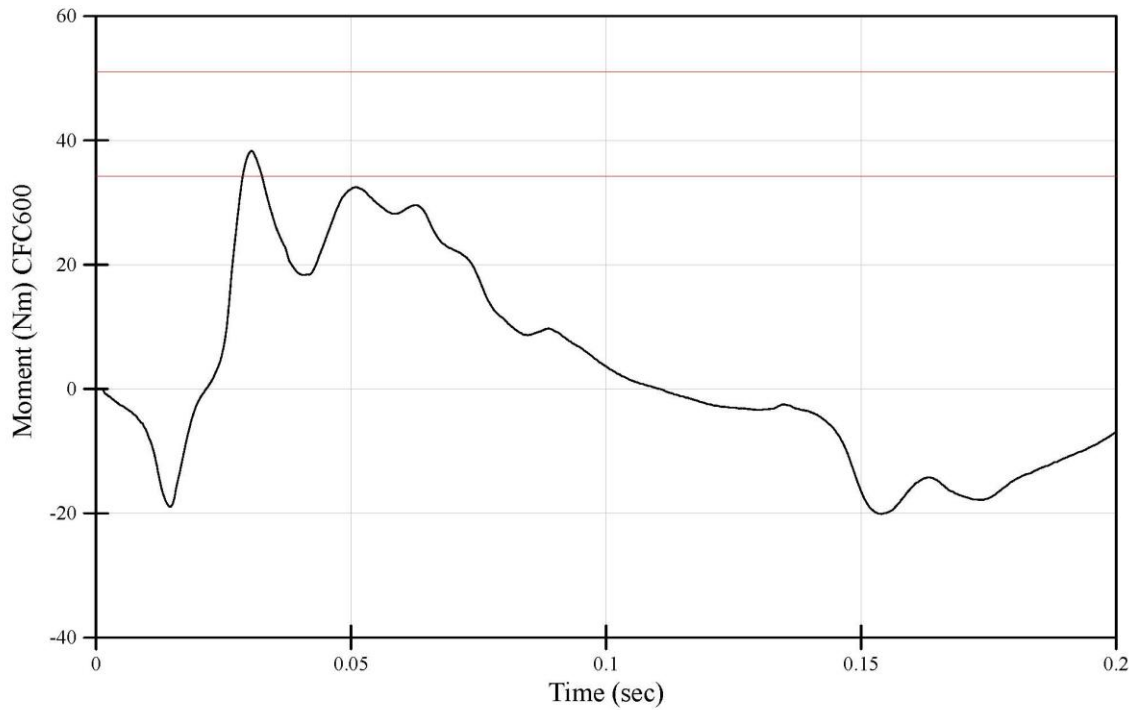
WorldSID-05F Neck Left Lateral Qualification
Peak Headform Flexion Angle
Neck Serial Number: DK1774



File Name: 210407-10 processed

4/7/2021 3:14 PM

WorldSID-05F Neck Left Lateral Qualification
Peak Moment at Occipital Condyle
Neck Serial Number: DK1774



File Name: 210407-10 processed

4/7/2021 3:14 PM

**WorldSID-05F Neck Right Lateral Qualification
Test Results Summary**

Dummy Serial Number: DK1774

Tested Components

Neck: DX6209

Test ID: 210407-12

Test Date: 4/7/2021

Test Time: 4:32 PM

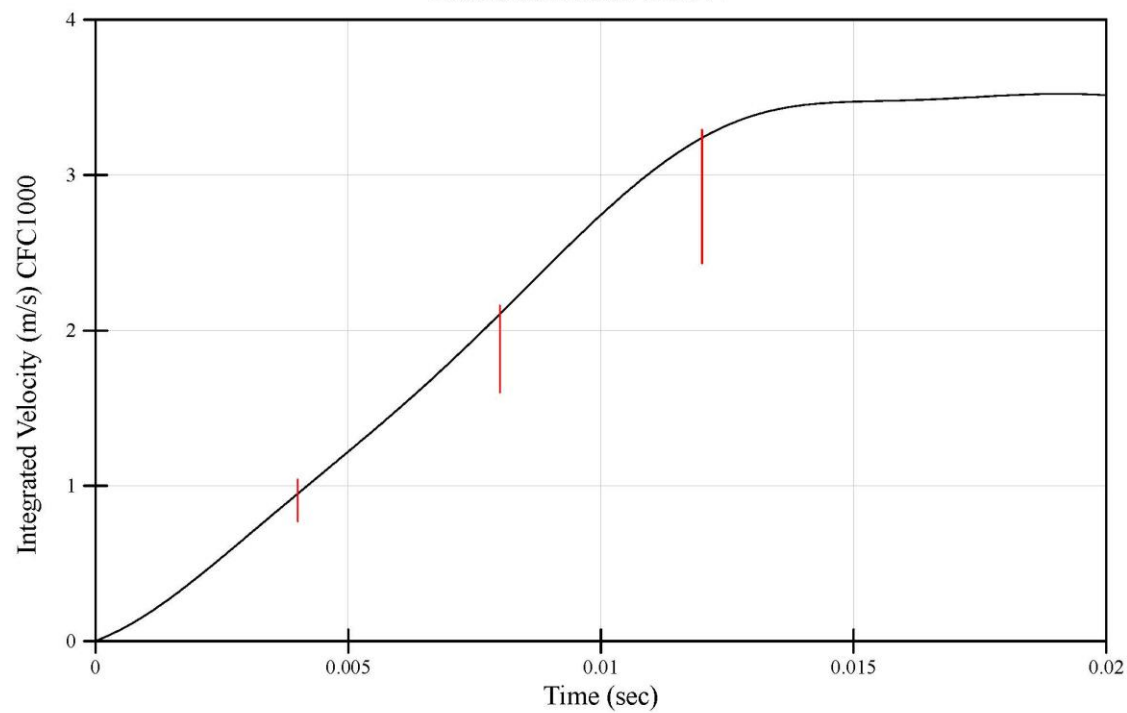
Test Results

<u>Test Parameter</u>	<u>Specification Range*</u>	<u>Result</u>	<u>Pass/Fail</u>
Test Temperature (°C)	20.6 - 22.2	20.8	Pass
Test Humidity (%)	10 - 70	56	Pass
Test Velocity (m/s)	3.30 - 3.50	3.43	Pass
Pendulum Velocity at 4 ms after T0 (m/s)	0.77 - 1.04	0.95	Pass
Pendulum Velocity at 8 ms after T0 (m/s)	1.60 - 2.16	2.11	Pass
Pendulum Velocity at 12 ms after T0 (m/s)	2.43 - 3.29	3.24	Pass
Peak Headform Flexion Angle (deg)	58.5 - 71.4	65.8	Pass
Peak Headform Flexion Angle Decay Time to 0 degrees (ms)	57.3 - 76.5	60.1	Pass
Peak X-Axis Moment at Occipital Condyle (Nm)	-51.0 - (-34.2)	-37.4	Pass
Peak X-Axis Moment at Occipital Condyle Decay Time to 0 Nm (ms)	69.4 - 93.3	81.8	Pass

* WorldSID-05F Qualification Manual - Humanetics WorldSID Small Female - Rev E

File Name: 210407-12 processed

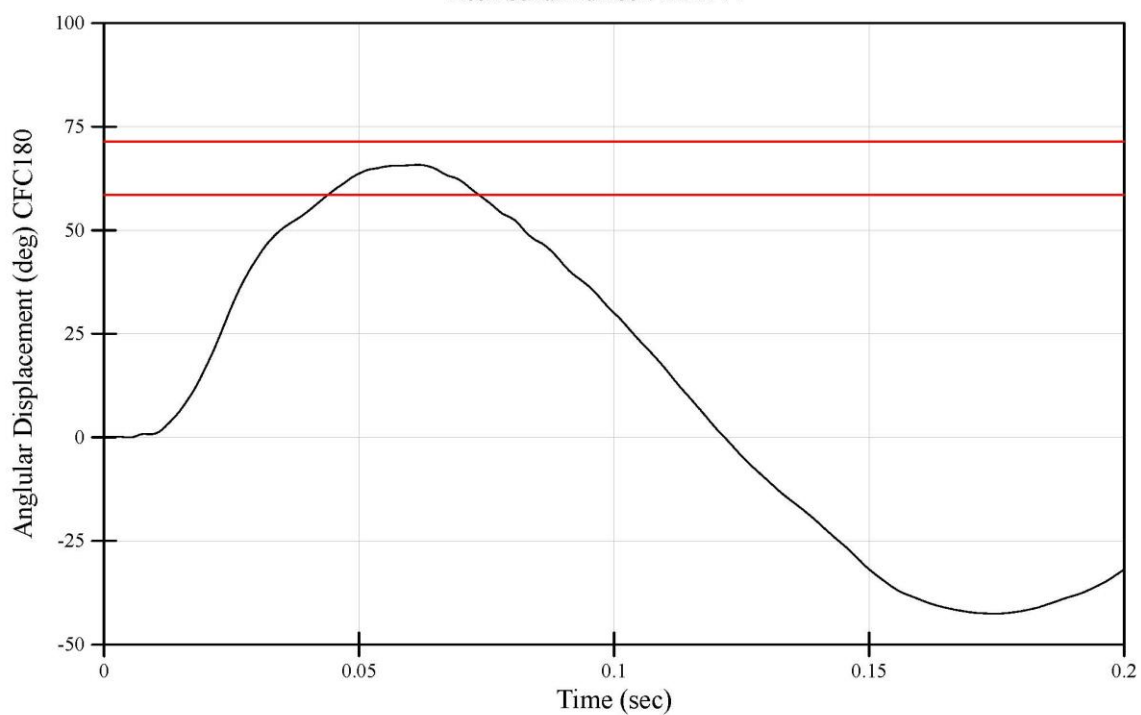
WorldSID-05F Neck Right Lateral Qualification
Probe Acceleration
Neck Serial Number: DK1774



File Name: 210407-12 processed

4/7/2021 4:32 PM

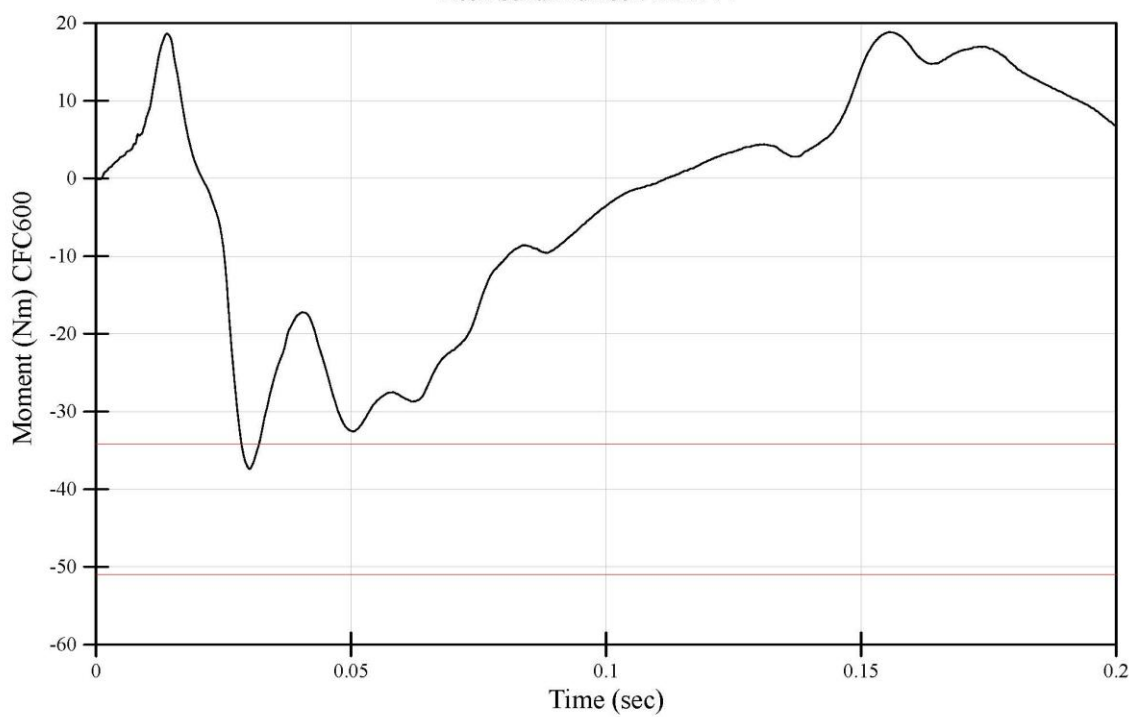
WorldSID-05F Neck Right Lateral Qualification
Peak Headform Flexion Angle
Neck Serial Number: DK1774



File Name: 210407-12 processed

4/7/2021 4:32 PM

WorldSID-05F Neck Right Lateral Qualification
Peak Moment at Occipital Condyle
Neck Serial Number: DK1774



File Name: 210407-12 processed

4/7/2021 4:32 PM

WorldSID-05F Shoulder Qualification Test Results Summary

Dummy Serial Number: DK1774

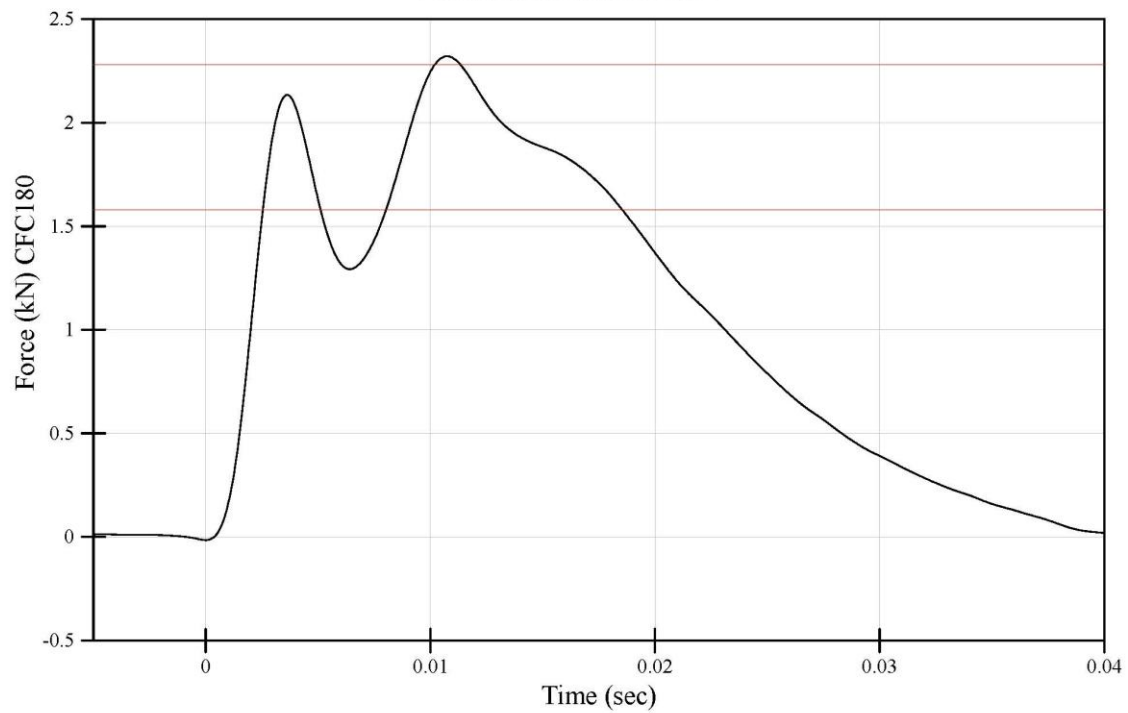
Tested Components		Test ID: 210405-2
Shoulder Pad: W5-P01	Thorax Rib 3: DM2787	Test Date: 4/5/2021
Shoulder Rib: DM6270	RibEye: 161	Test Time: 8:27 AM
Thorax Rib 1: DM2783	Impacted Arm: DJ1634	
Thorax Rib 2: DM2784		

Test Results			
<u>Test Parameter</u>	<u>Specification Range*</u>	<u>Result</u>	<u>Pass/Fail</u>
Test Temperature (°C)	20.6 - 22.2	21.6	Pass
Test Humidity (%)	10 - 70	49	Pass
Test Velocity (m/s)	4.20 - 4.40	4.23	Pass
Thorax Rib Temperature Sensor (°C)	20.6 - 23.8	21.4	Pass
Peak Probe Force (kN)	1.58 - 2.28	2.32	Fail
Peak Shoulder Rib Length Change (mm)	23.4 - 36.6	26.1	Pass

* WorldSID-05F Qualification Manual - Humanetics WorldSID Small Female - Rev E

File Name: 210405-2 processed

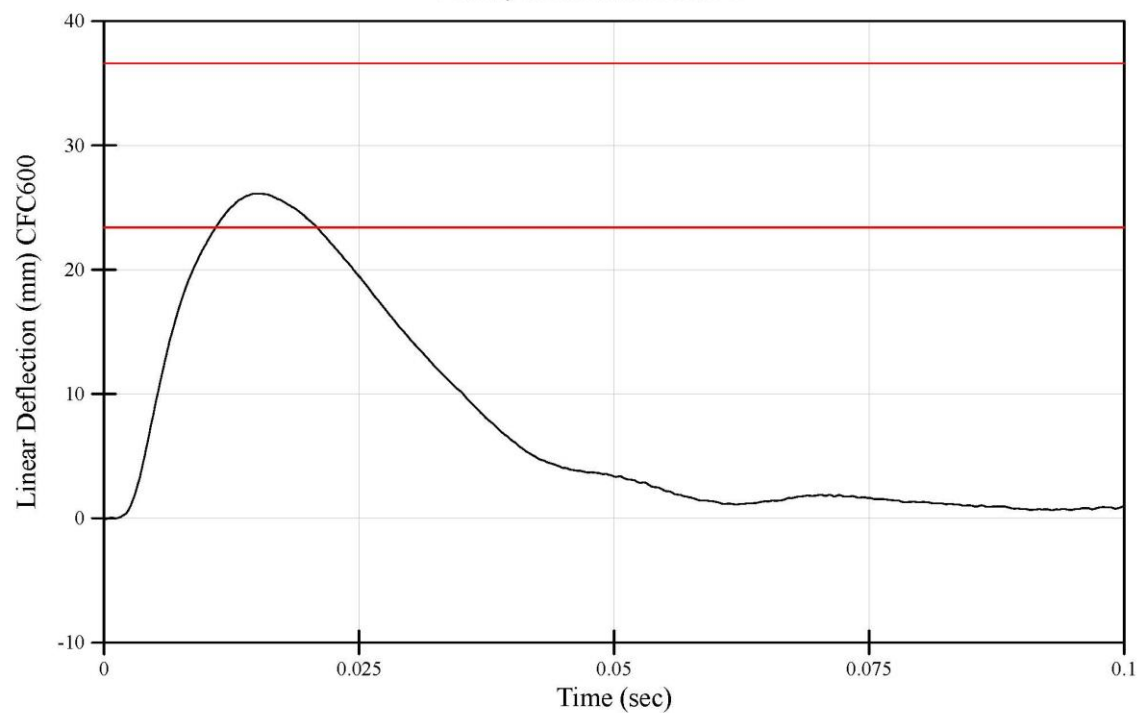
WorldSID-05F Shoulder Qualification
Peak Pendulum Force
Dummy Serial Number: DK1774



File Name: 210405-2 processed

4/5/2021 8:27 AM

WorldSID05F Shoulder Qualification
Peak Shoulder Rib Deflection
Dummy Serial Number: DK1774



File Name: 210405-2 processed

4/5/2021 8:27 AM

WorldSID-05F Left Thorax with Arm Qualification Test Results Summary

Dummy Serial Number: DK1774

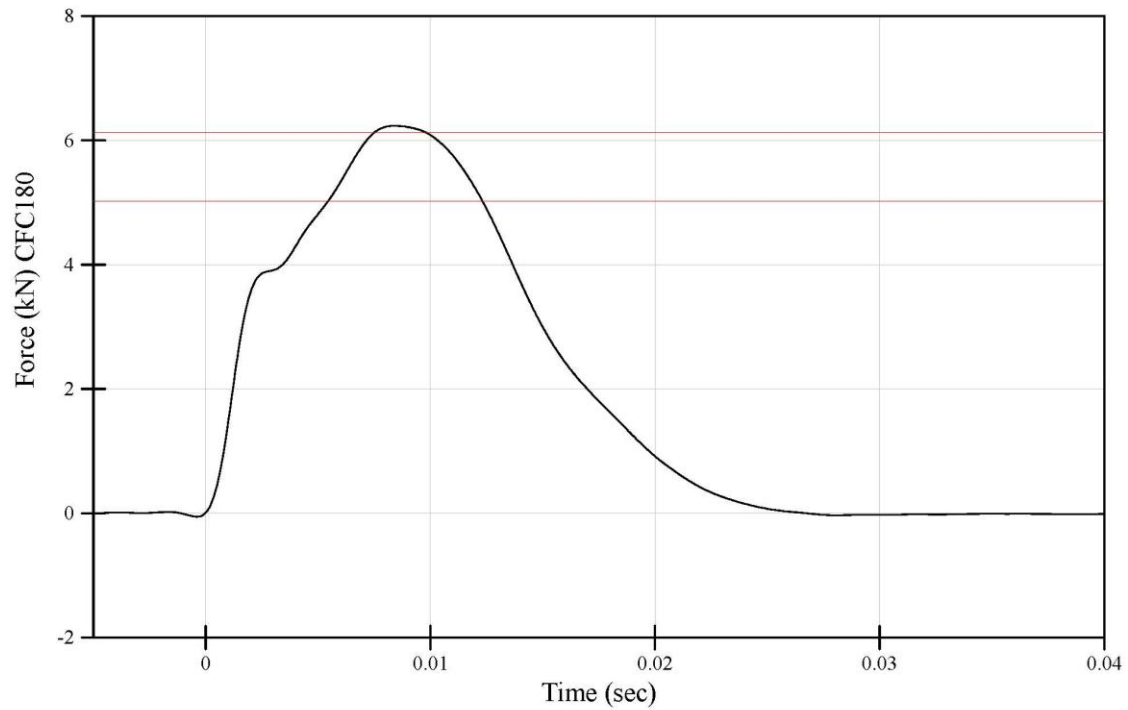
<u>Tested Components</u>		Test ID: 210405-4
Thorax Rib 1: DM2783	RibEye: 161	Test Date: 4/5/2021
Thorax Rib 2: DM2784	Impacted Arm: DJ1634	Test Time: 10:37 AM
Thorax Rib 3: DM2787		

Test Results			
<u>Test Parameter</u>	<u>Specification Range*</u>	<u>Result</u>	<u>Pass/Fail</u>
Test Temperature (°C)	20.6 - 22.2	21.7	Pass
Test Humidity (%)	10 - 70	53	Pass
Test Velocity (m/s)	6.60 - 6.80	6.67	Pass
Thorax Rib Temperature Sensor (°C)	20.6 - 23.8	21.7	Pass
Peak Probe Force (kN)	5.02 - 6.13	6.23	Fail
Peak T4 Y Acceleration	34.7 - 52.0	61.3	Fail
Peak T12 Y Acceleration	44.5 - 54.9	64.5	Fail
Peak Thorax Rib 1 Y Length Change (mm)	18.3 - 26.4	18.3	Fail
Peak Thorax Rib 2 Y Length Change (mm)	21.6 - 26.4	18.1	Fail
Peak Thorax Rib 3 Y Length Change (mm)	19.7 - 26.6	16.2	Fail

* WorldSID-05F Qualification Manual - Humanetics WorldSID Small Female - Rev E

File Name: 210405-4 processed

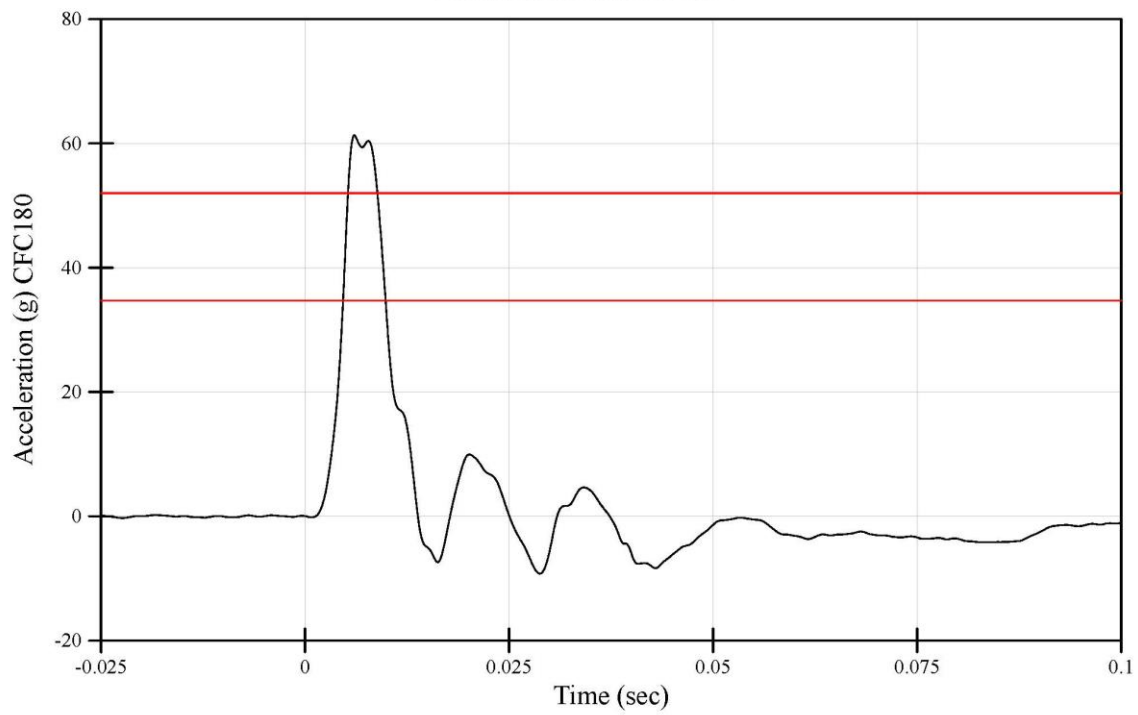
WorldSID-05F Left Thorax with Arm Qualification
Peak Pendulum Force
Dummy Serial Number: DK1774



File Name: 210405-4 processed

4/5/2021 10:37 AM

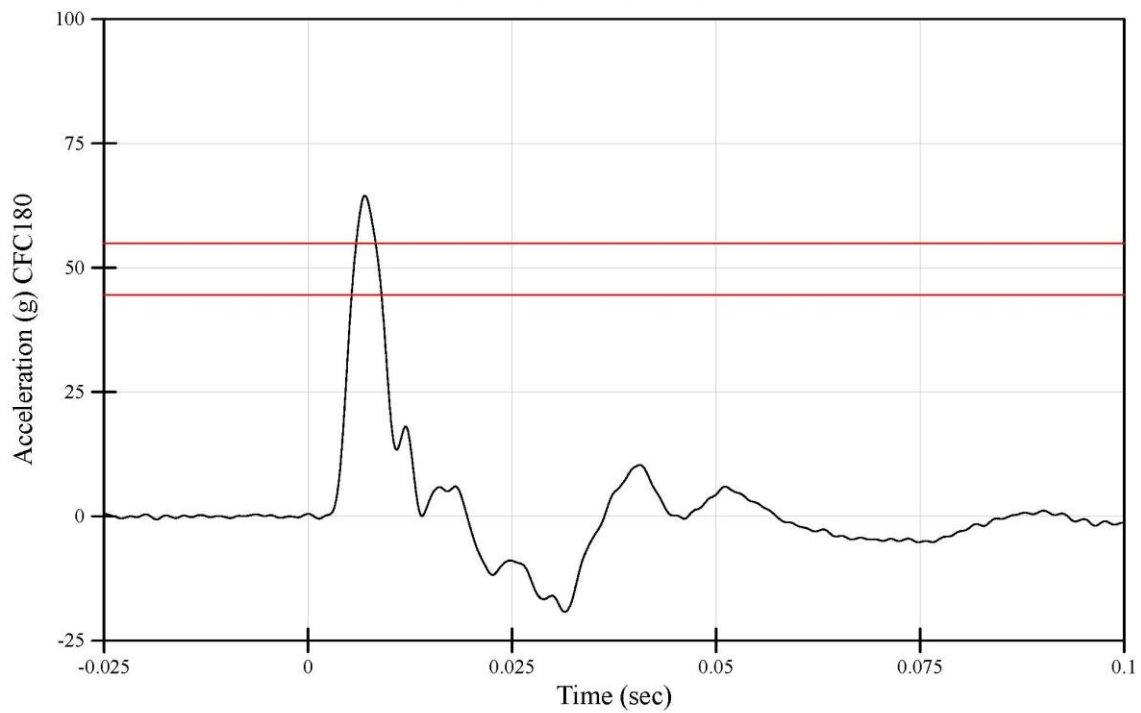
WorldSID-05F Left Thorax with Arm Qualification
Peak T4 Y Axis Acceleration
Dummy Serial Number: DK1774



File Name: 210405-4 processed

4/5/2021 10:37 AM

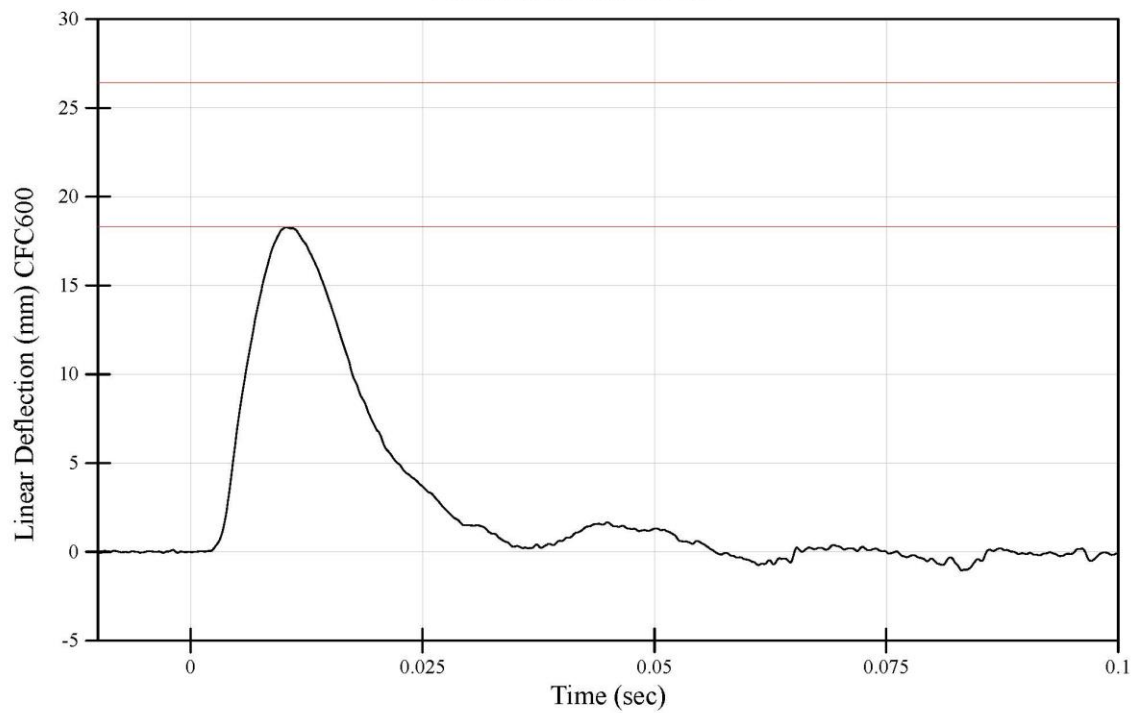
WorldSID-05F Left Thorax with Arm Qualification
Peak T12 Y Axis Acceleration
Dummy Serial Number: DK1774



File Name: 210405-4 processed

4/5/2021 10:37 AM

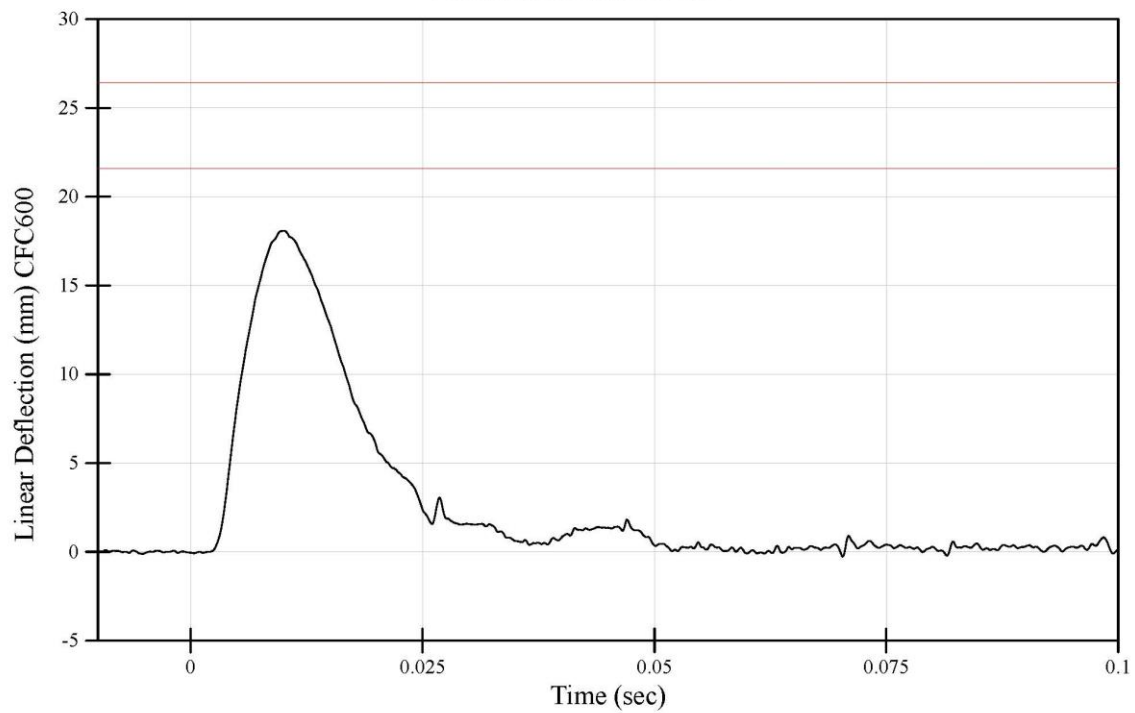
WorldSID-05F Left Thorax with Arm Qualification
Peak Thorax Rib 1 Compression
Dummy Serial Number: DK1774



File Name: 210405-4 processed

4/5/2021 10:37 AM

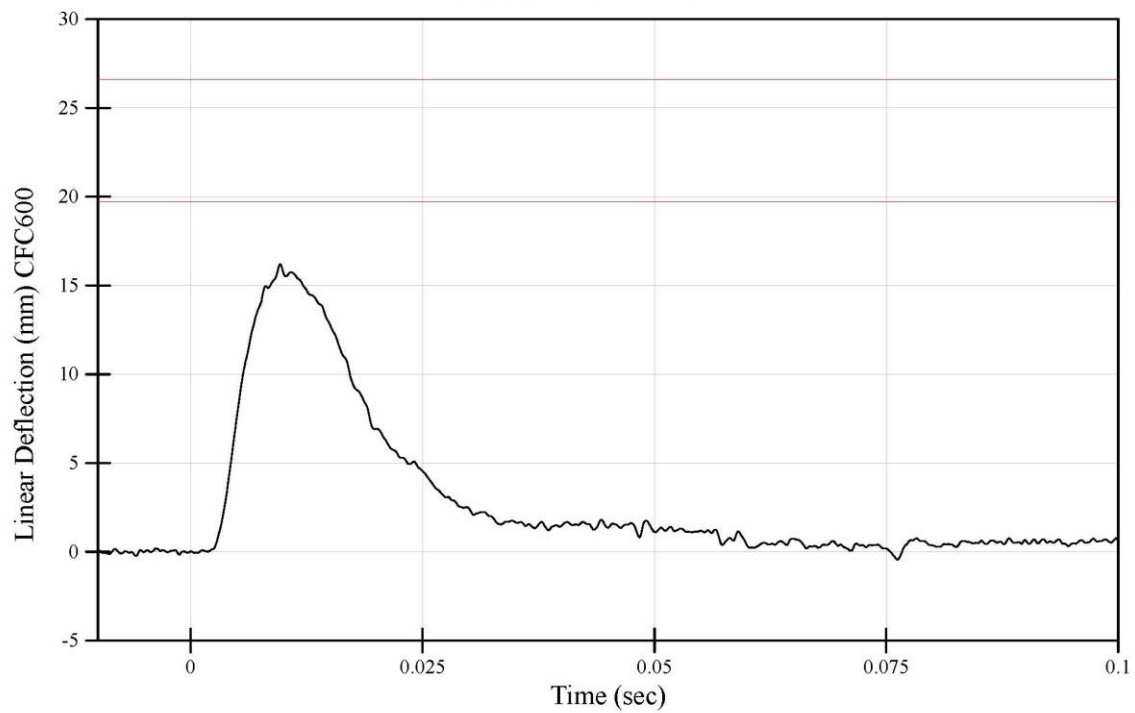
WorldSID-05F Left Thorax with Arm Qualification
Peak Thorax Rib 2 Compression
Dummy Serial Number: DK1774



File Name: 210405-4 processed

4/5/2021 10:37 AM

WorldSID-05F Left Thorax with Arm Qualification
Peak Thorax Rib 3 Compression
Dummy Serial Number: DK1774



File Name: 210405-4 processed

4/5/2021 10:37 AM

WorldSID-05F Left Thorax without Arm Qualification **Test Results Summary**

Dummy Serial Number: DK1774

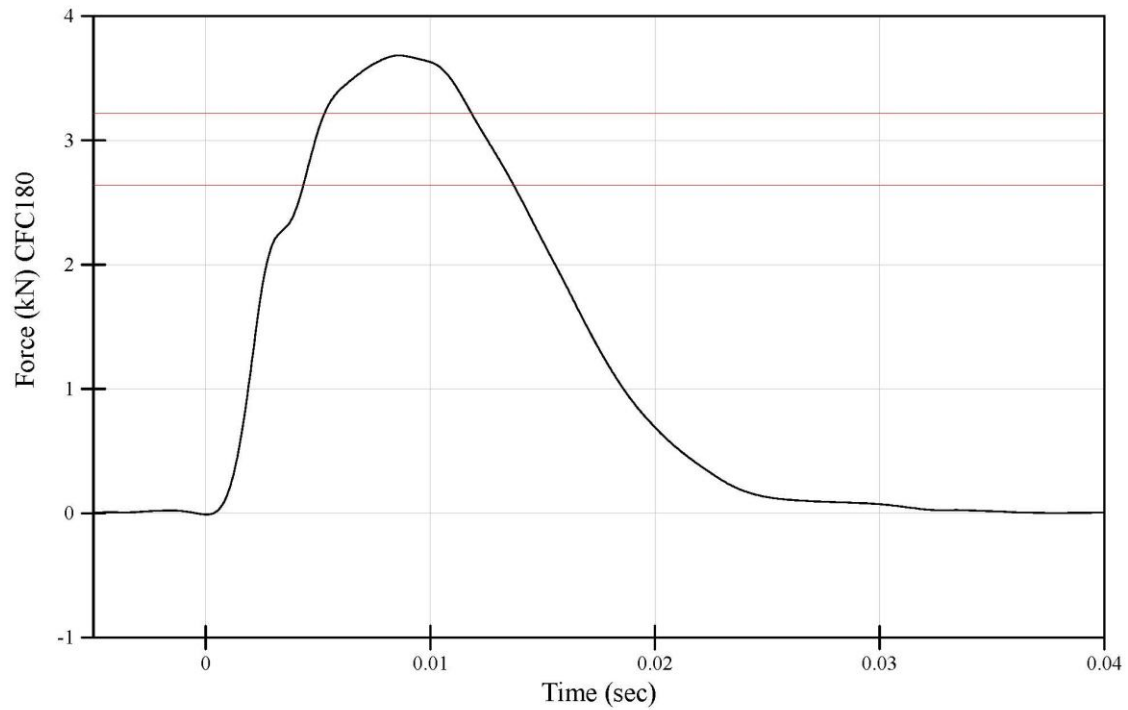
<u>Tested Components</u>	Test ID: 210405-6
Thorax Rib 1: DM2783	Test Date: 4/5/2021
Thorax Rib 2: DM2784	Test Time: 3:13 PM
Thorax Rib 3: DM2787	
RibEye: 161	

Test Results			
<u>Test Parameter</u>	<u>Specification Range*</u>	<u>Result</u>	<u>Pass/Fail</u>
Test Temperature (°C)	20.6 - 22.2	20.7	Pass
Test Humidity (%)	10 - 70	52	Pass
Test Velocity (m/s)	4.20 - 4.40	4.28	Pass
Thorax Rib Temperature Sensor (°C)	20.6 - 23.8	21.3	Pass
Peak Probe Force (kN)	2.64 - 3.22	3.68	Fail
Peak T4 Y Acceleration	21.2 - 27.5	37.5	Fail
Peak T12 Y Acceleration	20.6 - 28.9	31.3	Fail
Peak Thorax Rib 1 Y Length Change (mm)	20.5 - 27.7	19.7	Fail
Peak Thorax Rib 2 Y Length Change (mm)	21.7 - 26.7	18.5	Fail
Peak Thorax Rib 3 Y Length Change (mm)	20.9 - 27.3	18.0	Fail

* WorldSID-05F Qualification Manual - Humanetics WorldSID Small Female - Rev E

File Name: 210405-6 processed

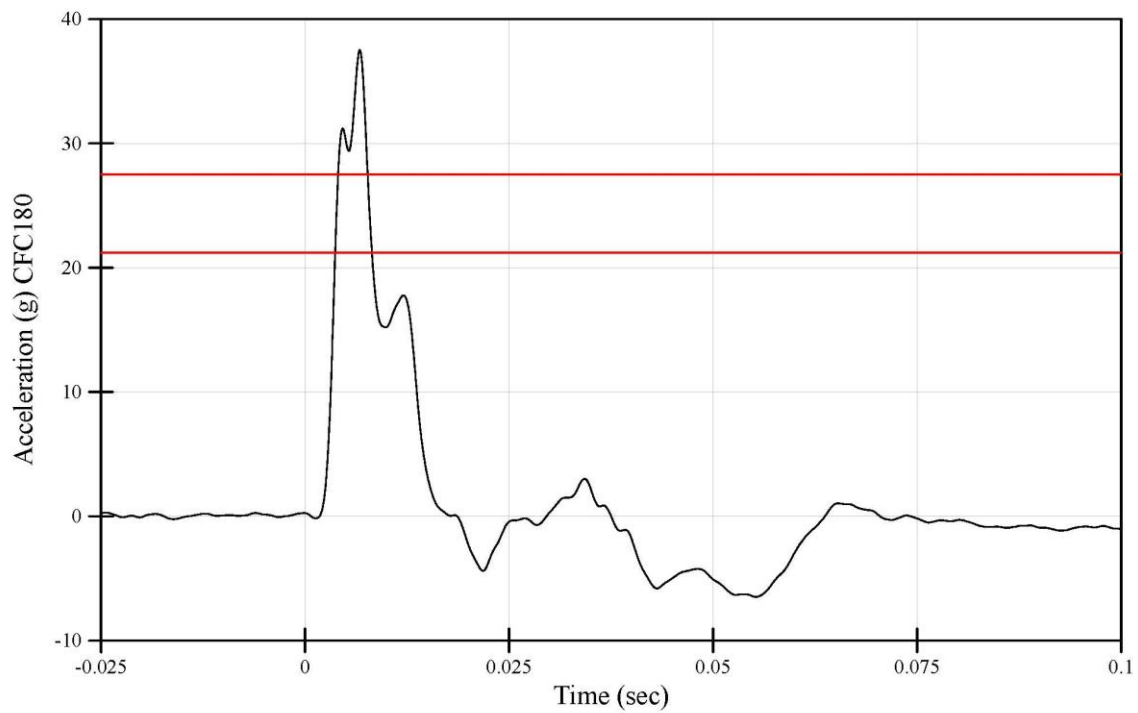
WorldSID-05F Left Thorax without Arm Qualification
Peak Pendulum Force
Dummy Serial Number: DK1774



File Name: 210405-6 processed

4/5/2021 3:13 PM

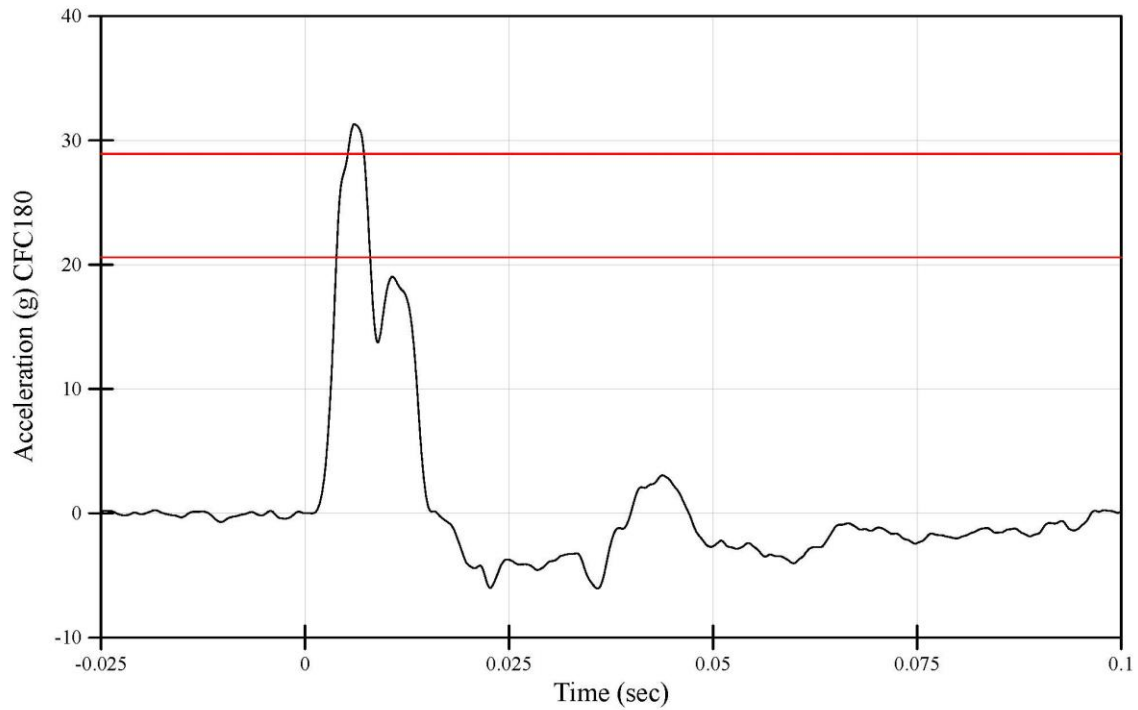
WorldSID-05F Left Thorax without Arm Qualification
Peak T4 Y Axis Acceleration
Dummy Serial Number: DK1774



File Name: 210405-6 processed

4/5/2021 3:13 PM

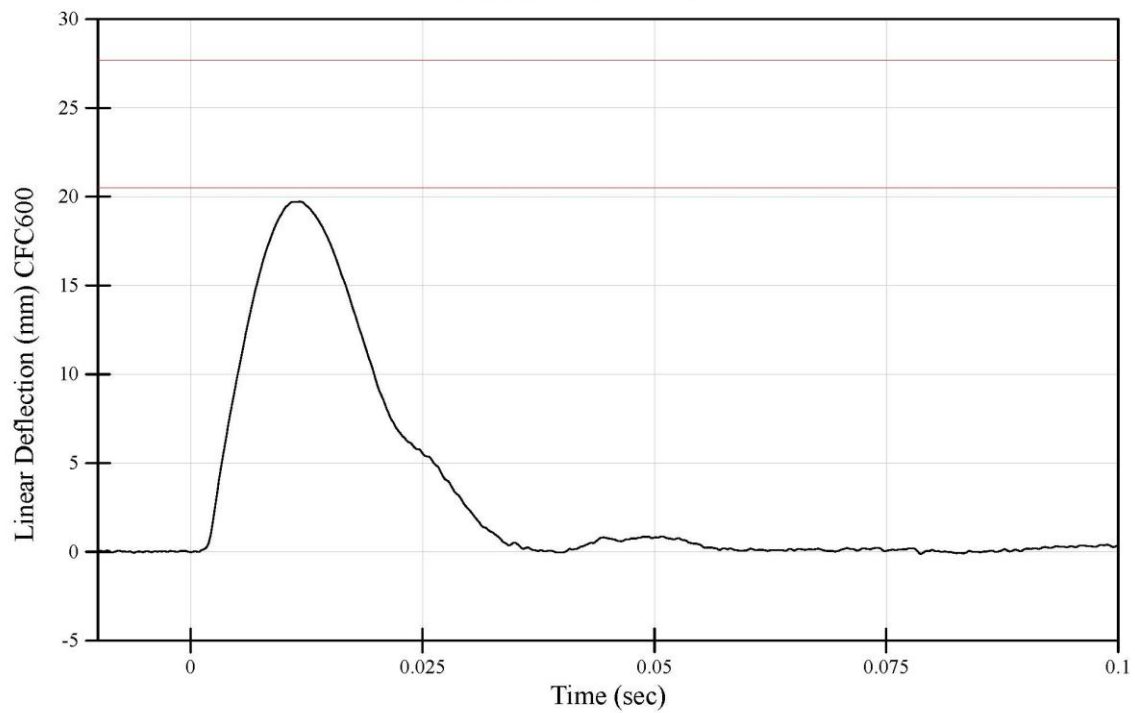
WorldSID-05F Left Thorax without Arm Qualification
Peak T12 Y Axis Acceleration
Dummy Serial Number: DK1774



File Name: 210405-6 processed

4/5/2021 3:13 PM

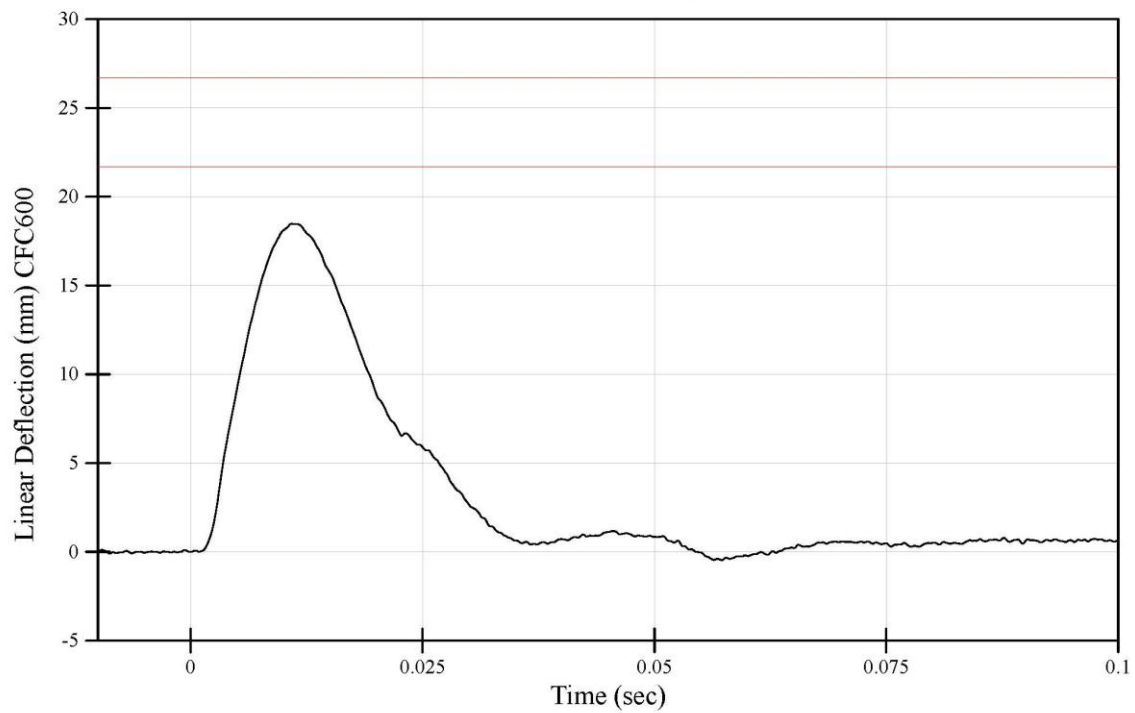
WorldSID-05F Left Thorax without Arm Qualification
Peak Thorax Rib 1 Compression
Dummy Serial Number: DK1774



File Name: 210405-6 processed

4/5/2021 3:13 PM

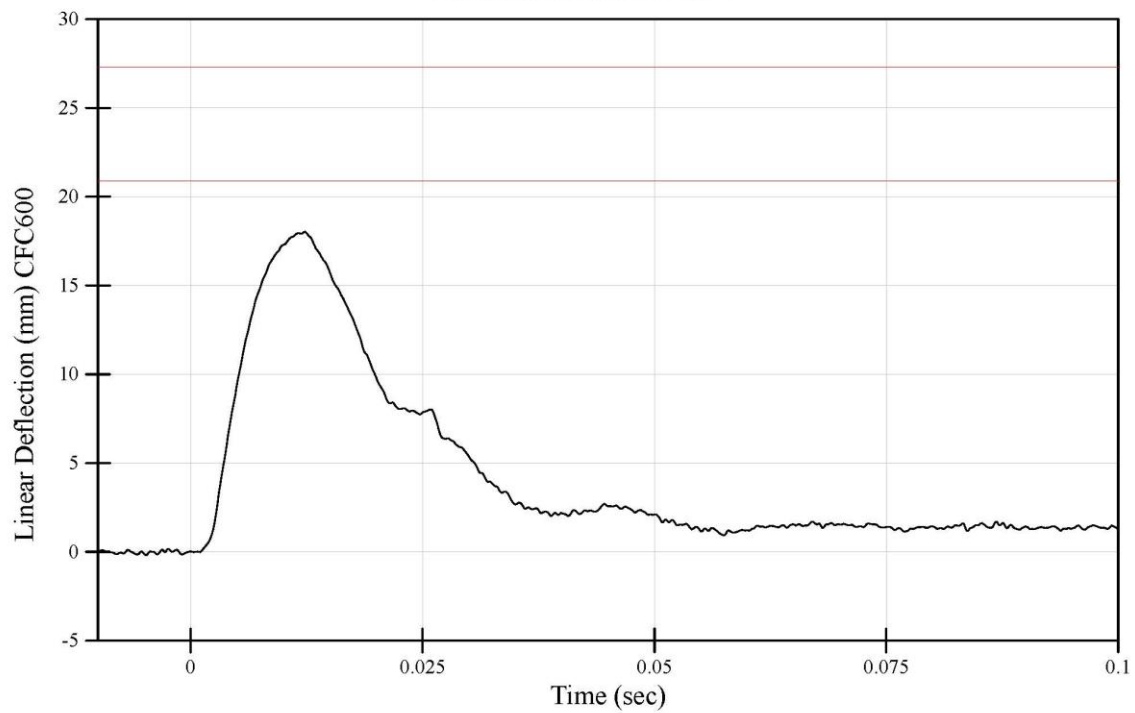
WorldSID-05F Left Thorax without Arm Qualification
Peak Thorax Rib 2 Compression
Dummy Serial Number: DK1774



File Name: 210405-6 processed

4/5/2021 3:13 PM

WorldSID-05F Left Thorax without Arm Qualification
Peak Thorax Rib 3 Compression
Dummy Serial Number: DK1774



File Name: 210405-6 processed

4/5/2021 3:13 PM

**WorldSID-05F Left Abdomen Qualification
Test Results Summary**

Dummy Serial Number: DK1774

Tested Components
Abdomen Rib 1: DM5165
Abdomen Rib 2: DM5167
RibEye: 161

Test ID: 210406-2
Test Date: 4/6/2021
Test Time: 9:40 AM

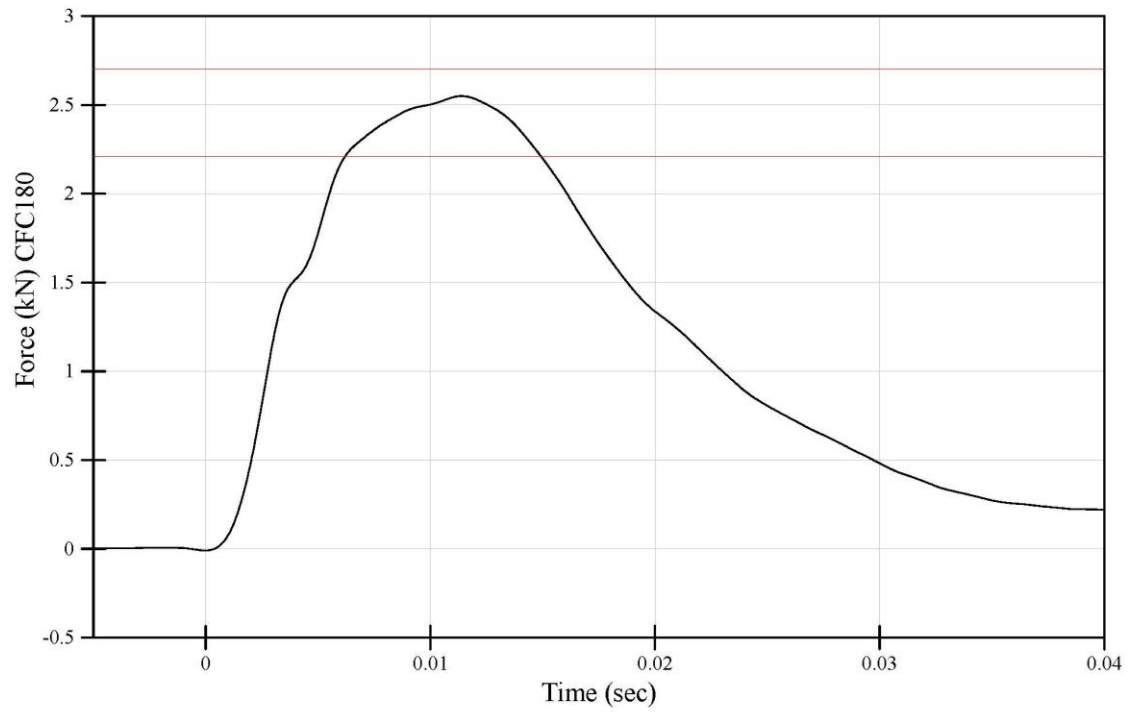
Test Results

<u>Test Parameter</u>	<u>Specification Range*</u>	<u>Result</u>	<u>Pass/Fail</u>
Test Temperature (°C)	20.6 - 22.2	21.2	Pass
Test Humidity (%)	10 - 70	57	Pass
Test Velocity (m/s)	4.20 - 4.40	4.32	Pass
Thorax Rib Temperature Sensor (°C)	20.6 - 23.8	22.1	Pass
Peak Probe Force (kN)	2.21 - 2.70	2.55	Pass
Peak T12 Acceleration (g)	24.4 - 30.6	30.7	Fail
Peak Abdomen Rib 1 Length Change (mm)	23.1 - 31.2	22.9	Fail
Peak Abdomen Rib 2 Length Change (mm)	22.7 - 27.8	23.2	Pass

* WorldSID-50M Qualification Manual - Humanetics WorldSID Small Female - Rev E

File Name: 210406-2 processed

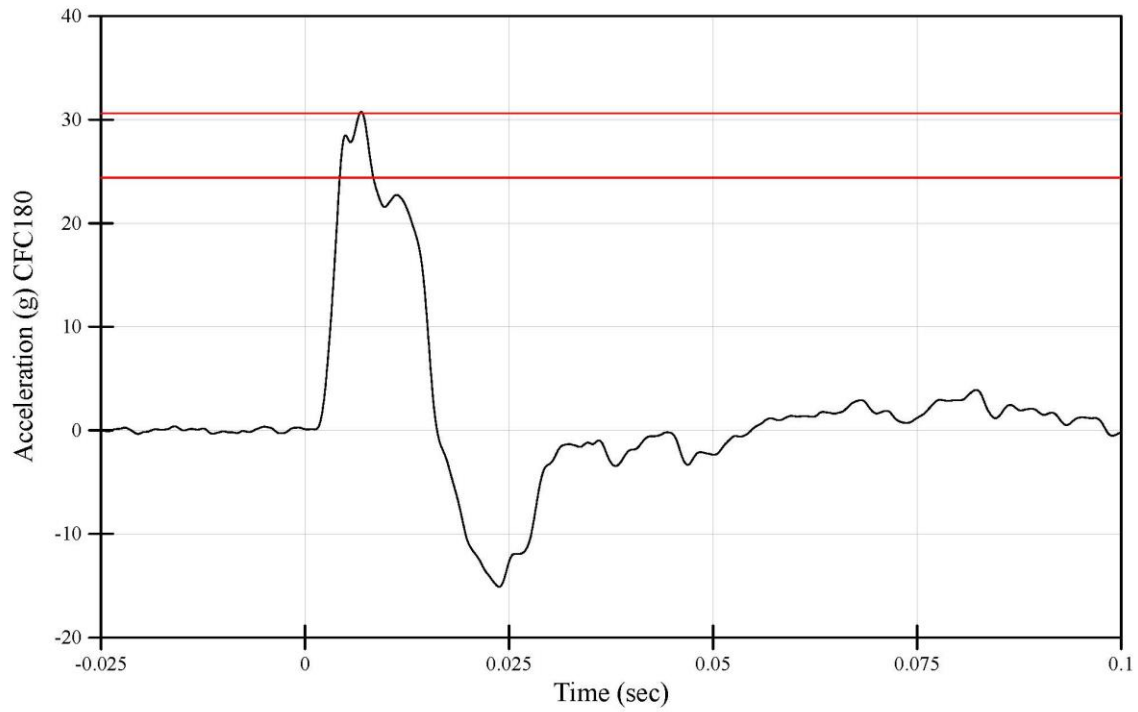
WorldSID-05F Left Abdomen Qualification
Peak Pendulum Force
Dummy Serial Number: DK1774



File Name: 210406-2 processed

4/6/2021 9:40 AM

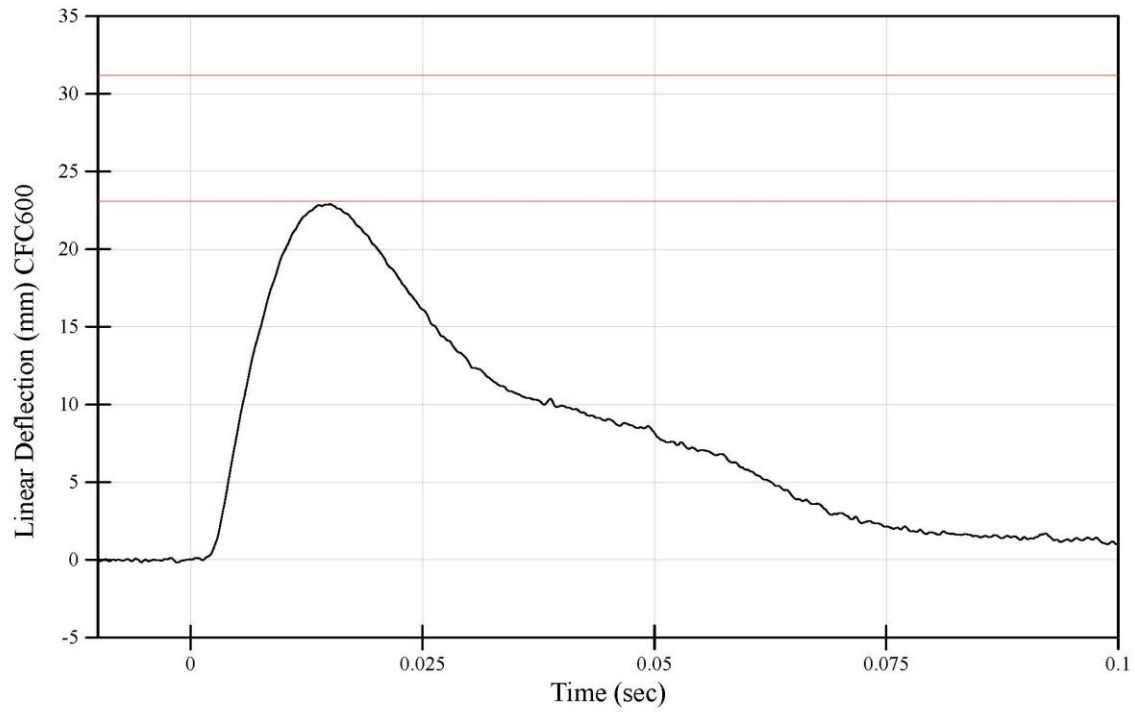
WorldSID-05F Left Abdomen Qualification
Peak T12 Y Axis Acceleration
Dummy Serial Number: DK1774



File Name: 210406-2 processed

4/6/2021 9:40 AM

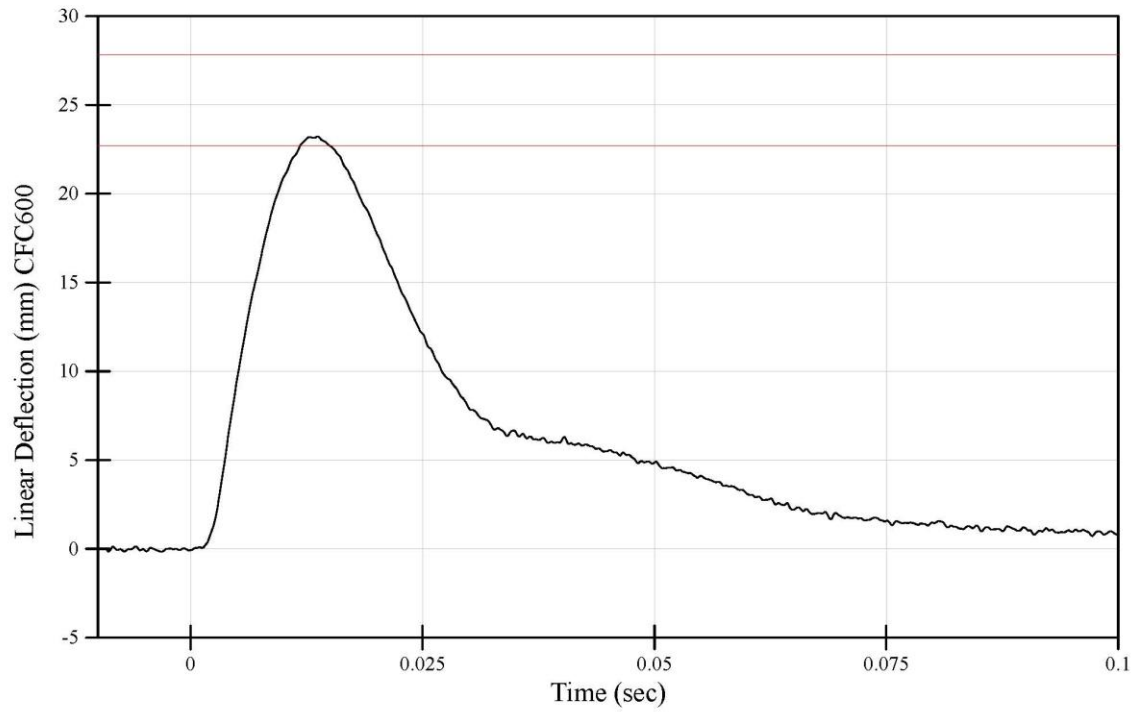
WorldSID-05F Left Abdomen Qualification
Peak Abdomen Rib 1 Compression
Dummy Serial Number: DK1774



File Name: 210406-2 processed

4/6/2021 9:40 AM

WorldSID-05F Left Abdomen Qualification
Peak Abdomen Rib 2 Compression
Dummy Serial Number: DK1774



File Name: 210406-2 processed

4/6/2021 9:40 AM

**WorldSID-05F Left Pelvis Qualification
Test Results Summary**

Dummy Serial Number: DK1774

Tested Components

Pelvis Flesh:
Pelvic Bone: DW2458

Test ID: 210405-8

Test Date: 4/5/2021

Test Time: 5:13 PM

Test Results

<u>Test Parameter</u>	<u>Specification Range*</u>	<u>Result</u>	<u>Pass/Fail</u>
Test Temperature (°C)	20.6 - 22.2	20.8	Pass
Test Humidity (%)	10 - 70	54	Pass
Test Velocity (m/s)	6.60 - 6.80	6.68	Pass
Peak Probe Force (kN)	4.62 - 5.65	5.20	Pass
Peak Pubic Force FY (N)	-1200.0 - (-770.0)	-919.1	Pass
Peak T12 Acceleration (g)	11.8 - 15.8	18.9	Fail
Peak Pelvis Acceleration (g)	48.6 - 74.4	43.4	Fail

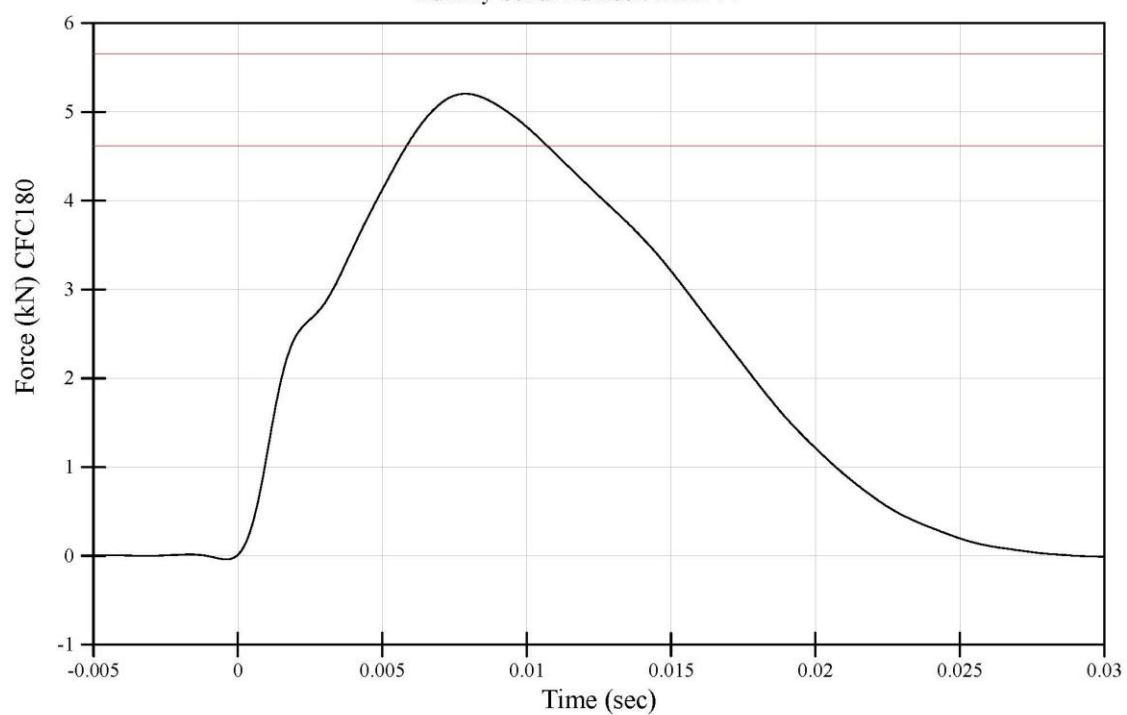
* WorldSID-50M Qualification Manual - Humanetics WorldSID Small Female - Rev E

File Name: 210405-8 processed

WorldSID-05F Left Pelvis Qualification

Peak Pendulum Force

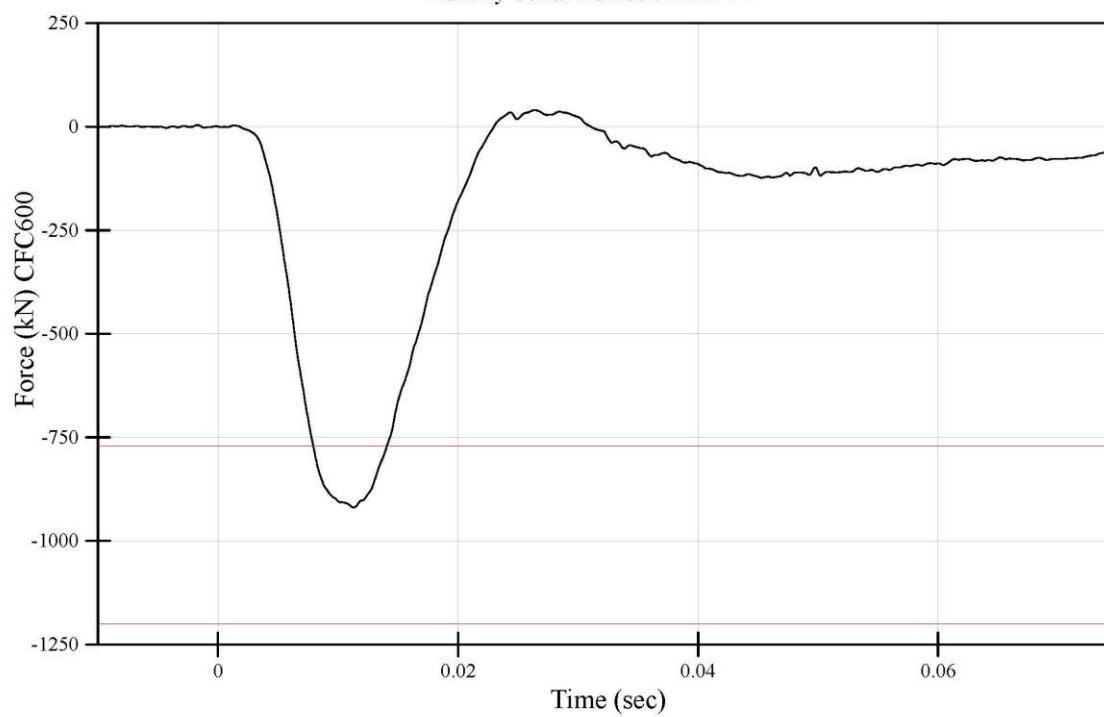
Dummy Serial Number: DK1774



File Name: 210405-8 processed

4/5/2021 5:13 PM

WorldSID-05F Left Pelvis Qualification
Peak Pubic Y axis Force
Dummy Serial Number: DK1774



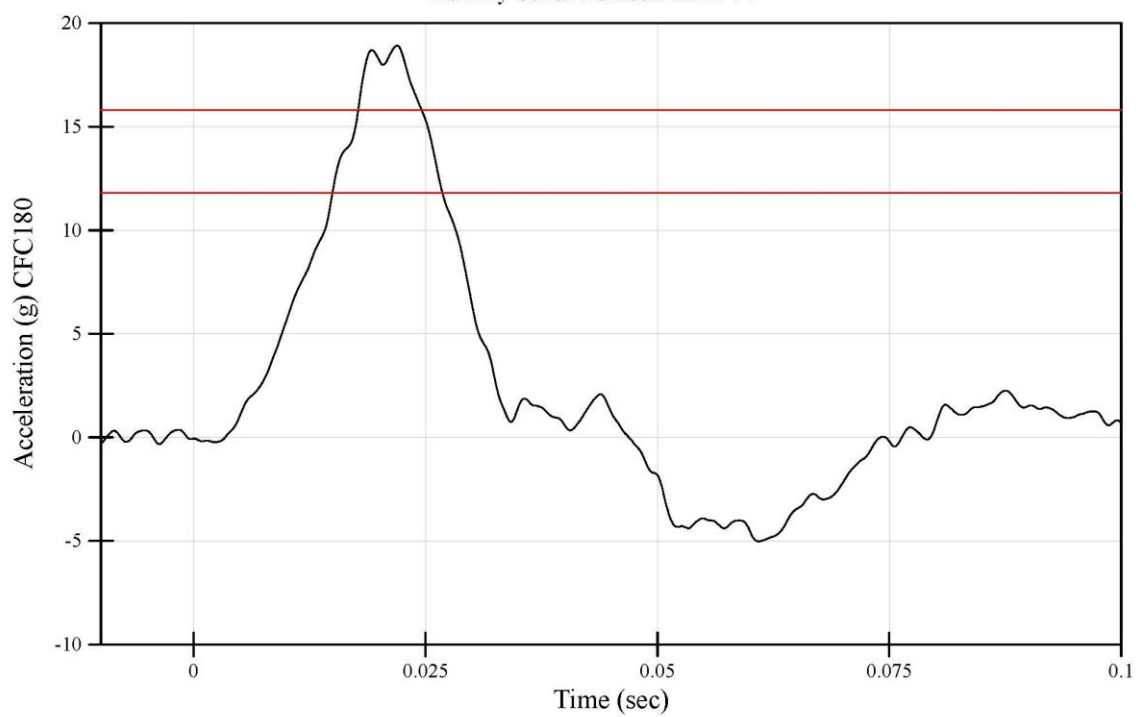
File Name: 210405-8 processed

4/5/2021 5:13 PM

WorldSID-05F Left Pelvis Qualification

Peak T12 Y Axis Acceleration

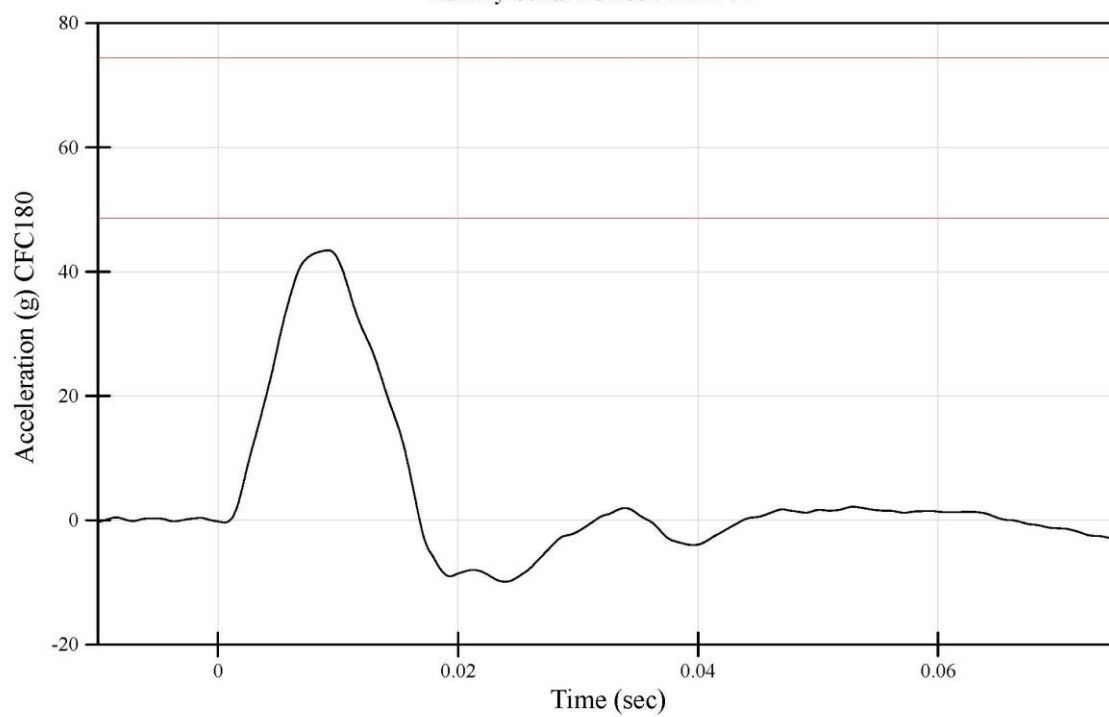
Dummy Serial Number: DK1774



File Name: 210405-8 processed

4/5/2021 5:13 PM

WorldSID-05F Left Pelvis Qualification
Peak Pelvis Y Axis Acceleration
Dummy Serial Number: DK1774



File Name: 210405-8 processed

4/5/2021 5:13 PM

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 – DUMMY INSTRUMENTATION (WorldSID-50M with RibEye™)

		WorldSID-50M S/N EB8888		
		Serial Number	Manufacturer	Calibration Date
Head Accelerometers (g)	X	12324-1	Endevco	22-Jul-2020
	Y	12324-3	Endevco	22-Jul-2020
	Z	12324-2	Endevco	22-Jul-2020
Head Angular Rates Sensors (deg/sec)	X	ARS12047	DTS	4-Aug-2020
	Y	ARS15094	DTS	4-Aug-2020
	Z	ARS11060	DTS	4-Aug-2020
Upper Neck Force (N)	X	DO9753	Humanetics	21-Jul-2020
	Y	DO9753	Humanetics	21-Jul-2020
	Z	DO9753	Humanetics	21-Jul-2020
Upper Neck Moment (Nm)	X	DO9753	Humanetics	21-Jul-2020
	Y	DO9753	Humanetics	21-Jul-2020
	Z	DO9753	Humanetics	21-Jul-2020
Lower Neck Force (N)	X	EB8143	Humanetics	21-Jul-2020
	Y	EB8143	Humanetics	21-Jul-2020
	Z	EB8143	Humanetics	21-Jul-2020
Lower Neck Moment (Nm)	X	EB8143	Humanetics	21-Jul-2020
	Y	EB8143	Humanetics	21-Jul-2020
	Z	EB8143	Humanetics	21-Jul-2020
Upper Spine Accelerometers (T1) (g)	X	EC1630	Humanetics	21-Jul-2020
	Y	EC1630	Humanetics	21-Jul-2020
	Z	EC1630	Humanetics	21-Jul-2020
Middle Spine Accelerometers (T4) (g)	X	12037-3	Endevco	21-Jul-2020
	Y	12037-2	Endevco	21-Jul-2020
	Z	12037-1	Endevco	21-Jul-2020
Lower Spine Accelerometers (T12) (g)	X	12352-3	Endevco	21-Jul-2020
	Y	12352-2	Endevco	21-Jul-2020
	Z	12352-1	Endevco	21-Jul-2020
Shoulder Force (N)	X	12375-3	Endevco	22-Jul-2020
	Y	12375-2	Endevco	22-Jul-2020
	Z	12375-1	Endevco	22-Jul-2020
Pubic Symphysis Force (N)	Y	EC4386	Humanetics	21-Jul-2020
Sacro-Iliac Left Force (N)	X	EG4066	Humanetics	21-Jul-2020
	Y	EG4066	Humanetics	21-Jul-2020
	Z	EG4066	Humanetics	21-Jul-2020
Sacro-Iliac Left Moment (Nm)	X	EG4066	Humanetics	21-Jul-2020
	Y	EG4066	Humanetics	21-Jul-2020
	Z	EG4066	Humanetics	21-Jul-2020

TABLE 1 – DUMMY INSTRUMENTATION (WorldSID-50M with RibEye™) (CONTINUED)

		WorldSID-50M S/N EB8888		
		Serial Number	Manufacturer	Calibration Date
Sacro-Iliac Right Force (N)	X	EG4066	Humanetics	21-Jul-2020
	Y	EG4066	Humanetics	21-Jul-2020
	Z	EG4066	Humanetics	21-Jul-2020
Sacro-Iliac Right Moment (Nm)	X	EG4066	Humanetics	21-Jul-2020
	Y	EG4066	Humanetics	21-Jul-2020
	Z	EG4066	Humanetics	21-Jul-2020
Lumbar Force (N)	X	EC2349	Humanetics	21-Jul-2020
	Y	EC2349	Humanetics	21-Jul-2020
	Z	EC2349	Humanetics	21-Jul-2020
Lumbar Moment (Nm)	X	EC2349	Humanetics	21-Jul-2020
	Y	EC2349	Humanetics	21-Jul-2020
	Z	EC2349	Humanetics	21-Jul-2020
Pelvis Accelerometers (g)	X	11905-3	Endevco	22-Jul-2020
	Y	11905-2	Endevco	22-Jul-2020
	Z	11905-1	Endevco	22-Jul-2020
Left Femur Force (N)	X	EA4925TPS	Humanetics	29-Jul-2020
	Y	EA4925TPS	Humanetics	29-Jul-2020
	Z	EA4925TPS	Humanetics	29-Jul-2020
Left Femur Moment (Nm)	X	EA4925TPS	Humanetics	29-Jul-2020
	Y	EA4925TPS	Humanetics	29-Jul-2020
	Z	EA4925TPS	Humanetics	29-Jul-2020
Left Femoral Neck Force (N)	X	EB6234T	Humanetics	21-Jul-2020
	Y	EB6234T	Humanetics	21-Jul-2020
	Z	EB6234T	Humanetics	21-Jul-2020
Left Outer Knee Force (N)	Y	93	Humanetics	21-Jul-2020
Left Inner Knee Force (N)	Y	95	Humanetics	21-Jul-2020

TABLE 1 – DUMMY INSTRUMENTATION (WorldSID-50M with RibEye™) (CONTINUED)

			WorldSID-50M S/N EB8888		
			Serial Number	Manufacturer	Calibration Date
Shoulder RibEye (mm)	Front	X	124	Boxboro Systems	7-Jul-2020
		Y	124	Boxboro Systems	7-Jul-2020
		Z	124	Boxboro Systems	7-Jul-2020
	Middle	X	124	Boxboro Systems	7-Jul-2020
		Y	124	Boxboro Systems	7-Jul-2020
		Z	124	Boxboro Systems	7-Jul-2020
	Rear	X	124	Boxboro Systems	7-Jul-2020
		Y	124	Boxboro Systems	7-Jul-2020
		Z	124	Boxboro Systems	7-Jul-2020
Thorax Rib 1 RibEye (mm)	Front	X	124	Boxboro Systems	7-Jul-2020
		Y	124	Boxboro Systems	7-Jul-2020
		Z	124	Boxboro Systems	7-Jul-2020
	Middle	X	124	Boxboro Systems	7-Jul-2020
		Y	124	Boxboro Systems	7-Jul-2020
		Z	124	Boxboro Systems	7-Jul-2020
	Rear	X	124	Boxboro Systems	7-Jul-2020
		Y	124	Boxboro Systems	7-Jul-2020
		Z	124	Boxboro Systems	7-Jul-2020
Thorax Rib 2 RibEye (mm)	Front	X	124	Boxboro Systems	7-Jul-2020
		Y	124	Boxboro Systems	7-Jul-2020
		Z	124	Boxboro Systems	7-Jul-2020
	Middle	X	124	Boxboro Systems	7-Jul-2020
		Y	124	Boxboro Systems	7-Jul-2020
		Z	124	Boxboro Systems	7-Jul-2020
	Rear	X	124	Boxboro Systems	7-Jul-2020
		Y	124	Boxboro Systems	7-Jul-2020
		Z	124	Boxboro Systems	7-Jul-2020
Thorax Rib 3 RibEye (mm)	Front	X	124	Boxboro Systems	7-Jul-2020
		Y	124	Boxboro Systems	7-Jul-2020
		Z	124	Boxboro Systems	7-Jul-2020
	Middle	X	124	Boxboro Systems	7-Jul-2020
		Y	124	Boxboro Systems	7-Jul-2020
		Z	124	Boxboro Systems	7-Jul-2020
	Rear	X	124	Boxboro Systems	7-Jul-2020
		Y	124	Boxboro Systems	7-Jul-2020
		Z	124	Boxboro Systems	7-Jul-2020

TABLE 1 – DUMMY INSTRUMENTATION (WorldSID-50M with RibEye™) (CONTINUED)

			WorldSID-50M S/N EB8888		
			Serial Number	Manufacturer	Calibration Date
Abdomen Rib 1 RibEye (mm)	Front	X	124	Boxboro Systems	7-Jul-2020
		Y	124	Boxboro Systems	7-Jul-2020
		Z	124	Boxboro Systems	7-Jul-2020
	Middle	X	124	Boxboro Systems	7-Jul-2020
		Y	124	Boxboro Systems	7-Jul-2020
		Z	124	Boxboro Systems	7-Jul-2020
	Rear	X	124	Boxboro Systems	7-Jul-2020
		Y	124	Boxboro Systems	7-Jul-2020
		Z	124	Boxboro Systems	7-Jul-2020
Abdomen Rib 2 RibEye (mm)	Front	X	124	Boxboro Systems	7-Jul-2020
		Y	124	Boxboro Systems	7-Jul-2020
		Z	124	Boxboro Systems	7-Jul-2020
	Middle	X	124	Boxboro Systems	7-Jul-2020
		Y	124	Boxboro Systems	7-Jul-2020
		Z	124	Boxboro Systems	7-Jul-2020
	Rear	X	124	Boxboro Systems	7-Jul-2020
		Y	124	Boxboro Systems	7-Jul-2020
		Z	124	Boxboro Systems	7-Jul-2020

TABLE 2 – DUMMY INSTRUMENTATION (WorldSID-05F with RibEye™)

		WorldSID-05F S/N DK1774		
		Serial Number	Manufacturer	Calibration Date
Head Accelerometers (g)	X	12346-3	Endevco	28-Oct-2020
	Y	12346-1	Endevco	28-Oct-2020
	Z	12346-2	Endevco	28-Oct-2020
Head Angular Rates Sensors (deg/sec)	X	ARS11034	DTS	3-Sep-2020
	Y	ARS14271	DTS	4-Aug-2020
	Z	ARS14273	DTS	4-Aug-2020
Upper Neck Force (N)	X	EB8759	Humanetics	27-Oct-2020
	Y	EB8759	Humanetics	27-Oct-2020
	Z	EB8759	Humanetics	27-Oct-2020
Upper Neck Moment (Nm)	X	EB8759	Humanetics	27-Oct-2020
	Y	EB8759	Humanetics	27-Oct-2020
	Z	EB8759	Humanetics	27-Oct-2020
Lower Neck Force (N)	X	DW9074	Humanetics	4-Nov-2020
	Y	DW9074	Humanetics	4-Nov-2020
	Z	DW9074	Humanetics	4-Nov-2020
Lower Neck Moment (Nm)	X	DW9074	Humanetics	4-Nov-2020
	Y	DW9074	Humanetics	4-Nov-2020
	Z	DW9074	Humanetics	4-Nov-2020
Shoulder Force (N)	X	DW9661	Humanetics	3-Sep-2020
	Y	DW9661	Humanetics	3-Sep-2020
	Z	DW9661	Humanetics	3-Sep-2020
Upper Spine Accelerometers (T1) (g)	X	12116-2	Endevco	28-Oct-2020
	Y	12116-1	Endevco	28-Oct-2020
	Z	12116-3	Endevco	28-Oct-2020
Middle Spine Accelerometers (T4) (g)	X	12075-3	Endevco	28-Oct-2020
	Y	12075-2	Endevco	28-Oct-2020
	Z	12075-1	Endevco	28-Oct-2020
Lower Spine Accelerometers (T12) (g)	X	12363-3	Endevco	28-Oct-2020
	Y	12363-2	Endevco	28-Oct-2020
	Z	12363-1	Endevco	28-Oct-2020
Pubic Symphysis Force (N)	Y	EF8492	Humanetics	27-Oct-2020
Sacro-Iliac Left Force (N)	X	EG1102	Humanetics	11-Sep-2020
	Y	EG1102	Humanetics	11-Sep-2020
	Z	EG1102	Humanetics	11-Sep-2020
Sacro-Iliac Left Moment (Nm)	X	EG1102	Humanetics	11-Sep-2020
	Y	EG1102	Humanetics	11-Sep-2020
	Z	EG1102	Humanetics	11-Sep-2020

TABLE 2 – DUMMY INSTRUMENTATION (WorldSID-05F with RibEye™) (CONTINUED)

		WorldSID-05F S/N DK1774		
		Serial Number	Manufacturer	Calibration Date
Sacro-Iliac Right Force (N)	X	EG1102	Humanetics	11-Sep-2020
	Y	EG1102	Humanetics	11-Sep-2020
	Z	EG1102	Humanetics	11-Sep-2020
Sacro-Iliac Right Moment (Nm)	X	EG1102	Humanetics	11-Sep-2020
	Y	EG1102	Humanetics	11-Sep-2020
	Z	EG1102	Humanetics	11-Sep-2020
Lumbar Force (N)	X	DW9492	Humanetics	29-Jul-2020
	Y	DW9492	Humanetics	29-Jul-2020
	Z	DW9492	Humanetics	29-Jul-2020
Lumbar Moment (Nm)	X	DW9492	Humanetics	29-Jul-2020
	Y	DW9492	Humanetics	29-Jul-2020
	Z	DW9492	Humanetics	29-Jul-2020
Pelvis Accelerometers (g)	X	12398-3	Endevco	28-Oct-2020
	Y	12398-2	Endevco	28-Oct-2020
	Z	12398-1	Endevco	28-Oct-2020
Left Femur Force (N)	X	DZ5708T	Humanetics	27-Oct-2020
	Y	DZ5708T	Humanetics	27-Oct-2020
	Z	DZ5708T	Humanetics	27-Oct-2020
Left Femur Moment (Nm)	X	DZ5708T	Humanetics	27-Oct-2020
	Y	DZ5708T	Humanetics	27-Oct-2020
	Z	DZ5708T	Humanetics	27-Oct-2020
Left Femoral Neck Force (N)	X	DK5906	Humanetics	13-Jul-2020
	Y	DK5906	Humanetics	13-Jul-2020
	Z	DK5906	Humanetics	13-Jul-2020
Left Outer Knee Force (N)	Y	EC4098	Humanetics	27-Oct-2020
Left Inner Knee Force (N)	Y	EG2793	Humanetics	27-Oct-2020

TABLE 2 – DUMMY INSTRUMENTATION (WorldSID-05F with RibEye™) (CONTINUED)

			WorldSID-05F S/N DK1774		
			Serial Number	Manufacturer	Calibration Date
Shoulder RibEye (mm)	Front	X	161	Boxboro Systems	2-Nov-2020
		Y	161	Boxboro Systems	2-Nov-2020
		Z	161	Boxboro Systems	2-Nov-2020
	Middle	X	161	Boxboro Systems	2-Nov-2020
		Y	161	Boxboro Systems	2-Nov-2020
		Z	161	Boxboro Systems	2-Nov-2020
	Rear	X	161	Boxboro Systems	2-Nov-2020
		Y	161	Boxboro Systems	2-Nov-2020
		Z	161	Boxboro Systems	2-Nov-2020
Thorax Rib 1 RibEye (mm)	Front	X	161	Boxboro Systems	2-Nov-2020
		Y	161	Boxboro Systems	2-Nov-2020
		Z	161	Boxboro Systems	2-Nov-2020
	Middle	X	161	Boxboro Systems	2-Nov-2020
		Y	161	Boxboro Systems	2-Nov-2020
		Z	161	Boxboro Systems	2-Nov-2020
	Rear	X	161	Boxboro Systems	2-Nov-2020
		Y	161	Boxboro Systems	2-Nov-2020
		Z	161	Boxboro Systems	2-Nov-2020
Thorax Rib 2 RibEye (mm)	Front	X	161	Boxboro Systems	2-Nov-2020
		Y	161	Boxboro Systems	2-Nov-2020
		Z	161	Boxboro Systems	2-Nov-2020
	Middle	X	161	Boxboro Systems	2-Nov-2020
		Y	161	Boxboro Systems	2-Nov-2020
		Z	161	Boxboro Systems	2-Nov-2020
	Rear	X	161	Boxboro Systems	2-Nov-2020
		Y	161	Boxboro Systems	2-Nov-2020
		Z	161	Boxboro Systems	2-Nov-2020
Thorax Rib 3 RibEye (mm)	Front	X	161	Boxboro Systems	2-Nov-2020
		Y	161	Boxboro Systems	2-Nov-2020
		Z	161	Boxboro Systems	2-Nov-2020
	Middle	X	161	Boxboro Systems	2-Nov-2020
		Y	161	Boxboro Systems	2-Nov-2020
		Z	161	Boxboro Systems	2-Nov-2020
	Rear	X	161	Boxboro Systems	2-Nov-2020
		Y	161	Boxboro Systems	2-Nov-2020
		Z	161	Boxboro Systems	2-Nov-2020

TABLE 2 – DUMMY INSTRUMENTATION (WorldSID-05F with RibEye™) (CONTINUED)

			WorldSID-05F S/N DK1774		
			Serial Number	Manufacturer	Calibration Date
Abdomen Rib 1 RibEye (mm)	Front	X	161	Boxboro Systems	2-Nov-2020
		Y	161	Boxboro Systems	2-Nov-2020
		Z	161	Boxboro Systems	2-Nov-2020
	Middle	X	161	Boxboro Systems	2-Nov-2020
		Y	161	Boxboro Systems	2-Nov-2020
		Z	161	Boxboro Systems	2-Nov-2020
	Rear	X	161	Boxboro Systems	2-Nov-2020
		Y	161	Boxboro Systems	2-Nov-2020
		Z	161	Boxboro Systems	2-Nov-2020
Abdomen Rib 2 RibEye (mm)	Front	X	161	Boxboro Systems	2-Nov-2020
		Y	161	Boxboro Systems	2-Nov-2020
		Z	161	Boxboro Systems	2-Nov-2020
	Middle	X	161	Boxboro Systems	2-Nov-2020
		Y	161	Boxboro Systems	2-Nov-2020
		Z	161	Boxboro Systems	2-Nov-2020
	Rear	X	161	Boxboro Systems	2-Nov-2020
		Y	161	Boxboro Systems	2-Nov-2020
		Z	161	Boxboro Systems	2-Nov-2020

TABLE 2 – DUMMY INSTRUMENTATION (WorldSID-05F with RibEye™) (CONTINUED)

		WorldSID-05F S/N DK1774		
		Serial Number	Manufacturer	Calibration Date
Chest Bands		EO4515 01	Humanetics	03-Feb-2021
		EO4515 02	Humanetics	03-Feb-2021
		EO4515 03	Humanetics	03-Feb-2021
		EO4515 04	Humanetics	03-Feb-2021
		EO4515 05	Humanetics	03-Feb-2021
		EO4515 06	Humanetics	03-Feb-2021
		EO4515 07	Humanetics	03-Feb-2021
		EO4515 08	Humanetics	03-Feb-2021
		EO4515 09	Humanetics	03-Feb-2021
		EO4515 10	Humanetics	03-Feb-2021
		EO4515 11	Humanetics	03-Feb-2021
		EO4515 12	Humanetics	03-Feb-2021
		EO4515 13	Humanetics	03-Feb-2021
		EO4515 14	Humanetics	03-Feb-2021
		EO4515 15	Humanetics	03-Feb-2021
		EO4515 16	Humanetics	03-Feb-2021
		EO4515 17	Humanetics	03-Feb-2021
		EO4515 18	Humanetics	03-Feb-2021
		EO4515 19	Humanetics	03-Feb-2021
		EO4515 20	Humanetics	03-Feb-2021
		EO4515 21	Humanetics	03-Feb-2021
		EO4515 22	Humanetics	03-Feb-2021
		EO4515 23	Humanetics	03-Feb-2021
		EO4515 24	Humanetics	03-Feb-2021
		EO4515 25	Humanetics	03-Feb-2021
		EO4515 26	Humanetics	03-Feb-2021
		EO4515 27	Humanetics	03-Feb-2021
		EO4515 28	Humanetics	03-Feb-2021
		EO4515 29	Humanetics	03-Feb-2021
		EO4515 30	Humanetics	03-Feb-2021
		EO4515 31	Humanetics	03-Feb-2021
		EO4515 32	Humanetics	03-Feb-2021
		EO4515 33	Humanetics	03-Feb-2021
		EO4515 34	Humanetics	03-Feb-2021
		EO4515 35	Humanetics	03-Feb-2021
		EO4515 36	Humanetics	03-Feb-2021
		EO4515 37	Humanetics	03-Feb-2021
		EO4515 38	Humanetics	03-Feb-2021
		EO4515 39	Humanetics	03-Feb-2021
		EO4515 40	Humanetics	03-Feb-2021

TABLE 2 – DUMMY INSTRUMENTATION (WorldSID-05F with RibEye™) (CONTINUED)

		WorldSID-05F S/N DK1774		
		Serial Number	Manufacturer	Calibration Date
Chest Bands		EO4515 41	Humanetics	03-Feb-2021
		EO4515 42	Humanetics	03-Feb-2021
		EO4515 43	Humanetics	03-Feb-2021
		EO4515 44	Humanetics	03-Feb-2021
		EO4515 45	Humanetics	03-Feb-2021
		EO4515 46	Humanetics	03-Feb-2021
		EO4515 47	Humanetics	03-Feb-2021
		EO4515 48	Humanetics	03-Feb-2021
		EO4515 49	Humanetics	03-Feb-2021
		EO4515 50	Humanetics	03-Feb-2021
		EO4515 51	Humanetics	03-Feb-2021
		EO4515 52	Humanetics	03-Feb-2021
		EO4515 53	Humanetics	03-Feb-2021
		EO4515 54	Humanetics	03-Feb-2021
		EO4515 55	Humanetics	03-Feb-2021
		EO4515 56	Humanetics	03-Feb-2021
		EO4515 57	Humanetics	03-Feb-2021
		EO4515 58	Humanetics	03-Feb-2021
		EO4515 59	Humanetics	03-Feb-2021

TABLE 3 – VEHICLE INSTRUMENTATION

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity (g)	X	P58537	Endevco	20-Nov-2020
	Y	P74456	Endevco	20-Nov-2020
	Z	P58494	Endevco	20-Nov-2020
Vehicle Center of Gravity Angular Rate (deg/sec)	X	ARS12506	DTS	3-Mar-2020
	Y	ARS12511	DTS	11-Sep-2020
	Z	ARS12500	DTS	11-Sep-2020
Right Side Sill At Front Seat (g)	X	P76454	Endevco	1-Feb-2021
	Y	P58611	Endevco	1-Feb-2021
	Z	P61295	Endevco	1-Feb-2021
Right Side Sill At Rear Seat (g)	X	P94567	Endevco	20-Nov-2020
	Y	P33547	Endevco	20-Nov-2020
	Z	P75115	Endevco	20-Nov-2020
Left Side Sill At Front Seat (g)	Y	P87139	Endevco	4-Feb-2021
Left Side Sill At Rear Seat (g)	Y	P94483	Endevco	4-Feb-2021
Left Lower A-Pillar (g)	Y	T23828	Endevco	29-Sep-2020
Left Middle A-Pillar (g)	Y	T23795	Endevco	17-Sep-2020
Left Lower B-Pillar (g)	Y	P76114	Endevco	20-Nov-2020
Left Middle B-Pillar (g)	Y	P76171	Endevco	20-Nov-2020
Front Seat Track (g)	Y	P34205	Endevco	11-Feb-2021
Rear Seat Structure (g)	Y	P80720	Endevco	8-Feb-2021
Right Rear Occupant Compartment (g)	Y	P58557	Endevco	11-Feb-2021
Engine Block (g)	X	P91613	Endevco	11-Feb-2021
	Y	P91965	Endevco	11-Feb-2021
Floorpan Above Rear Axle (g)	X	P57803	Endevco	11-Feb-2021
	Y	P50393	Endevco	11-Feb-2021
	Z	P34046	Endevco	11-Feb-2021
Rear Deck (g)	X	T16770	Endevco	1-Mar-2021
	Y	P61501	Endevco	1-Mar-2021
	Z	T11835	Endevco	1-Mar-2021
Rear Deck Angular Rate (deg/sec)	X	ARS8290	DTS	6-Jul-2020
	Y	ARS9185	DTS	6-Jul-2020
	Z	ARS8001	DTS	6-Jul-2020
Left Front Door Mid Centerline Acceleration (g)	Y	P50491	Endevco	12-Jan-2021
Left Front Door Mid Rear Acceleration (g)	Y	P57946	Endevco	12-Jan-2021
Left Front Door Upper Centerline (g)	Y	P88038	Endevco	12-Jan-2021
Left Rear Door Mid Rear (g)	Y	P90297	Endevco	11-Feb-2021
Left Rear Door Upper Centerline (g)	Y	P88030	Endevco	11-Feb-2021

TABLE 4 – MDB INSTRUMENTATION

MDB Instrumentation		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity (g)	X	P58472	Endevco	8-Feb-2021
	Y	T11389	Endevco	11-Feb-2021
	Z	P33965	Endevco	11-Feb-2021
MDB Rear (g)	X	T23821	Endevco	11-Sep-2020
	Y	T23805	Endevco	11-Sep-2020

Sign Convention
SAE J211 MAR95

Accelerometers:

+X: Forward
+Y: Rightward
+Z: Downward

Potentiometers:

+Chest longitudinal deflection: Outward
+Chest lateral deflection: Rightward
+Seat belt displacement: Outward
+Seat belt extension: Elongation
+Knee slider displacement: Distance between femur and tibia increased (in relation to a seated dummy)

Rotation potentiometers:

+About the X-axis: Left foot-eversion
Right foot-inversion
+About the Y-axis: Left/right foot-dorsiflexion
+About the Z-axis: Left foot-internal
Right foot-external

Load cells:

+Femur force: Tension
+Seat belt force: Tension
+Barrier force: Tension

Neck load cells:

+X force: Head pushed rearward
+Y force: Head pushed leftward
+Z force: Head pulled upward (tension on neck)
+X moment: Left ear rotating toward left shoulder
+Y moment: Chin rotating toward chest
+Z moment: Chin rotating toward left shoulder

Tibia load cells:

+X force: Ankle forward, knee rearward
+Y force: Ankle rightward, knee leftward
+Z force: Tension
+X moment: Bottom of tibia moving leftward
+Y moment: Bottom of tibia moving rearward

Sign Convention (Continued)
SAE J211 MAR95

<u>Lumbar load cells:</u>	+X force:	Chest rearward, pelvis forward
	+Y force:	Chest leftward, pelvis rightward
	+Z force:	Chest upward, pelvis downward
	+X moment:	Left shoulder toward left hip
	+Y moment:	Sternum toward front of legs
	+Z moment:	Right shoulder forward, left shoulder rearward

Frequency Response Classes
SAE J211 MAR95

<u>Typical Test Measurements</u>	<u>Channel Class</u>
Vehicle Structural Accelerations for use in:	
Total vehicle comparison	60
Collision simulation input	60
Component analysis	600
Integration for velocity or displacement	180
Barrier Face Forces	60
Belt Restraint System Loads	60
Anthropomorphic Test Device	
Head accelerations (linear and angular)	1000
Neck	
Forces	1000
Moments	600
Thorax	
Spine accelerations	180
Rib accelerations	1000
Sternum accelerations	1000
Deflections	600
Lumbar	
Forces	1000
Moments	1000
Pelvis	
Accelerations	1000
Forces	1000
Moments	1000
Femur/Knee/Tibia/Ankle	
Forces	600
Moments	600
Displacements	180
Sled Accelerations	60
Steering Column Loads	600
Head Form Accelerations	1000

Channel Number	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
1	11HEAD0000WSACXP	Driver Head Acceleration (X)	1000	+	yes	2000
2	11HEAD0000WSACYP	Driver Head Acceleration (Y)	1000	+	yes	2000
3	11HEAD0000WSACZP	Driver Head Acceleration (Z)	1000	+	yes	2000
3A	11HEAD0000WSACRP	Driver Head Acceleration Resultant	1000			
4	11HEAD0000WSAVXP	Driver Head Angular Rate (X)	1000	+	yes	8000
5	11HEAD0000WSAVYP	Driver Head Angular Rate (Y)	1000	+	yes	8000
6	11HEAD0000WSAVZP	Driver Head Angular Rate (Z)	1000	+	yes	8000
7	11NECKUP00WSFOXP	Driver Upper Neck Force (X)	1000	+	yes	10000
8	11NECKUP00WSFOYP	Driver Upper Neck Force (Y)	1000	+	yes	10000
9	11NECKUP00WSFOZP	Driver Upper Neck Force (Z)	1000	+	yes	12000
10	11NECKUP00WSMOXP	Driver Upper Neck Moment (X)	600	+	yes	300
11	11NECKUP00WSMOYP	Driver Upper Neck Moment (Y)	600	+	yes	300
12	11NECKUP00WSMOZP	Driver Upper Neck Moment (Z)	600	+	yes	200
13	11NECKLO00WSFOXP	Driver Lower Neck Force (X)	1000	+	yes	10000
14	11NECKLO00WSFOYP	Driver Lower Neck Force (Y)	1000	+	yes	10000
15	11NECKLO00WSFOZP	Driver Lower Neck Force (Z)	1000	+	yes	12000
16	11NECKLO00WSMOXP	Driver Lower Neck Moment (X)	600	+	yes	300
17	11NECKLO00WSMOYP	Driver Lower Neck Moment (Y)	600	+	yes	300
18	11NECKLO00WSMOZP	Driver Lower Neck Moment (Z)	600	+	yes	200
19	11SHLDLE00WSFOXP	Driver Shoulder Force (X)	600	+	yes	5000
20	11SHLDLE00WSFOYP	Driver Shoulder Force (Y)	600	+	yes	10000
21	11SHLDLE00WSFOZP	Driver Shoulder Force (Z)	600	+	yes	5000
22	11SHRILEREWSDSX0	Driver Shoulder Rear Displacement (X)	0	+	no	60
23	11SHRILEREWSDSY0	Driver Shoulder Rear Displacement (Y)	0	+	no	60
24	11SHRILEREWSDSZ0	Driver Shoulder Rear Displacement (Z)	0	+	no	60
25	11SHRILEREWSDSL B	Driver Shoulder Rear Length Change	600	+	no	60
26	11SHRILEMIWSDSX0	Driver Shoulder Middle Displacement (X)	0	+	no	60
27	11SHRILEMIWSDSY0	Driver Shoulder Middle Displacement (Y)	0	+	no	60
28	11SHRILEMIWSDSZ0	Driver Shoulder Middle Displacement (Z)	0	+	no	60
29	11SHRILEMIWSDSL B	Driver Shoulder Middle Length Change	600	+	no	60
30	11SHRILEFRWSDSX0	Driver Shoulder Front Displacement (X)	0	+	no	60
31	11SHRILEFRWSDSY0	Driver Shoulder Front Displacement (Y)	0	+	no	60
32	11SHRILEFRWSDSZ0	Driver Shoulder Front Displacement (Z)	0	+	no	60
33	11SHRILEFRWSDSL B	Driver Shoulder Front Length Change	600	+	no	60

Channel Number	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
34	11TRRILUREWSDSX0	Driver Thorax Rib 1 Rear Displacement (X)	0	+	no	60
35	11TRRILUREWSDSY0	Driver Thorax Rib 1 Rear Displacement (Y)	0	+	no	60
36	11TRRILUREWSDSZ0	Driver Thorax Rib 1 Rear Displacement (Z)	0	+	no	60
37	11TRRILUREWSDSLB	Driver Thorax Rib 1 Rear Length Change	600	+	no	60
38	11TRRILUMIWSDSX0	Driver Thorax Rib 1 Middle Displacement (X)	0	+	no	60
39	11TRRILUMIWSDSY0	Driver Thorax Rib 1 Middle Displacement (Y)	0	+	no	60
40	11TRRILUMIWSDSZ0	Driver Thorax Rib 1 Middle Displacement (Z)	0	+	no	60
41	11TRRILUMIWSDSLB	Driver Thorax Rib 1 Middle Length Change	600	+	no	60
42	11TRRILUFRWSDSX0	Driver Thorax Rib 1 Front Displacement (X)	0	+	no	60
43	11TRRILUFRWSDSY0	Driver Thorax Rib 1 Front Displacement (Y)	0	+	no	60
44	11TRRILUFRWSDSZ0	Driver Thorax Rib 1 Front Displacement (Z)	0	+	no	60
45	11TRRILUFRWSDSLB	Driver Thorax Rib 1 Front Length Change	600	+	no	60
46	11TRRILMREWSDSX0	Driver Thorax Rib 2 Rear Displacement (X)	0	+	no	60
47	11TRRILMREWSDSY0	Driver Thorax Rib 2 Rear Displacement (Y)	0	+	no	60
48	11TRRILMREWSDSZ0	Driver Thorax Rib 2 Rear Displacement (Z)	0	+	no	60
49	11TRRILMREWSDSLB	Driver Thorax Rib 2 Rear Length Change	600	+	no	60
50	11TRRILMMIWSDSX0	Driver Thorax Rib 2 Middle Displacement (X)	0	+	no	60
51	11TRRILMMIWSDSY0	Driver Thorax Rib 2 Middle Displacement (Y)	0	+	no	60
52	11TRRILMMIWSDSZ0	Driver Thorax Rib 2 Middle Displacement (Z)	0	+	no	60
53	11TRRILMMIWSDSLB	Driver Thorax Rib 2 Middle Length Change	600	+	no	60
54	11TRRILMFRWSDSX0	Driver Thorax Rib 2 Front Displacement (X)	0	+	no	60
55	11TRRILMFRWSDSY0	Driver Thorax Rib 2 Front Displacement (Y)	0	+	no	60
56	11TRRILMFRWSDSZ0	Driver Thorax Rib 2 Front Displacement (Z)	0	+	no	60
57	11TRRILMFRWSDSLB	Driver Thorax Rib 2 Front Length Change	600	+	no	60

Channel Number	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
58	11TRRILLREWSDSX0	Driver Thorax Rib 3 Rear Displacement (X)	0	+	no	60
59	11TRRILLREWSDSY0	Driver Thorax Rib 3 Rear Displacement (Y)	0	+	no	60
60	11TRRILLREWSDSZ0	Driver Thorax Rib 3 Rear Displacement (Z)	0	+	no	60
61	11TRRILLREWSDSLB	Driver Thorax Rib 3 Rear Length Change	600	+	no	60
62	11TRRILLMIWSDSX0	Driver Thorax Rib 3 Middle Displacement (X)	0	+	no	60
63	11TRRILLMIWSDSY0	Driver Thorax Rib 3 Middle Displacement (Y)	0	+	no	60
64	11TRRILLMIWSDSZ0	Driver Thorax Rib 3 Middle Displacement (Z)	0	+	no	60
65	11TRRILLMIWSDSLB	Driver Thorax Rib 3 Middle Length Change	600	+	no	60
66	11TRRILLFRWSDSX0	Driver Thorax Rib 3 Front Displacement (X)	0	+	no	60
67	11TRRILLFRWSDSY0	Driver Thorax Rib 3 Front Displacement (Y)	0	+	no	60
68	11TRRILLFRWSDSZ0	Driver Thorax Rib 3 Front Displacement (Z)	0	+	no	60
69	11TRRILLFRWSDSLB	Driver Thorax Rib 3 Front Length Change	600	+	no	60
70	11ABRILUREWSDSX0	Driver Abdomen Rib 1 Rear Displacement (X)	0	+	no	60
71	11ABRILUREWSDSY0	Driver Abdomen Rib 1 Rear Displacement (Y)	0	+	no	60
72	11ABRILUREWSDSZ0	Driver Abdomen Rib 1 Rear Displacement (Z)	0	+	no	60
73	11ABRILUREWSDSLB	Driver Abdomen Rib 1 Rear Length Change	600	+	no	60
74	11ABRILUMIWSDSX0	Driver Abdomen Rib 1 Middle Displacement (X)	0	+	no	60
75	11ABRILUMIWSDSY0	Driver Abdomen Rib 1 Middle Displacement (Y)	0	+	no	60
76	11ABRILUMIWSDSZ0	Driver Abdomen Rib 1 Middle Displacement (Z)	0	+	no	60
77	11ABRILUMIWSDSLB	Driver Abdomen Rib 1 Middle Length Change	600	+	no	60
78	11ABRILUFRWSDSX0	Driver Abdomen Rib 1 Front Displacement (X)	0	+	no	60
79	11ABRILUFRWSDSY0	Driver Abdomen Rib 1 Front Displacement (Y)	0	+	no	60
80	11ABRILUFRWSDSZ0	Driver Abdomen Rib 1 Front Displacement (Z)	0	+	no	60
81	11ABRILUFRWSDSLB	Driver Abdomen Rib 1 Front Length Change	600	+	no	60

Channel Number	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
82	11ABRILLREWSDSX0	Driver Abdomen Rib 2 Rear Displacement (X)	0	+	no	60
83	11ABRILLREWSDSY0	Driver Abdomen Rib 2 Rear Displacement (Y)	0	+	no	60
84	11ABRILLREWSDSZ0	Driver Abdomen Rib 2 Rear Displacement (Z)	0	+	no	60
85	11ABRILLREWSDSLB	Driver Abdomen Rib 2 Rear Length Change	600	+	no	60
86	11ABRILLMIWSDSX0	Driver Abdomen Rib 2 Middle Displacement (X)	0	+	no	60
87	11ABRILLMIWSDSY0	Driver Abdomen Rib 2 Middle Displacement (Y)	0	+	no	60
88	11ABRILLMIWSDSZ0	Driver Abdomen Rib 2 Middle Displacement (Z)	0	+	no	60
89	11ABRILLMIWSDSLB	Driver Abdomen Rib 2 Middle Length Change	600	+	no	60
90	11ABRILLFRWSDSX0	Driver Abdomen Rib 2 Front Displacement (X)	0	+	no	60
91	11ABRILLFRWSDSY0	Driver Abdomen Rib 2 Front Displacement (Y)	0	+	no	60
92	11ABRILLFRWSDSZ0	Driver Abdomen Rib 2 Front Displacement (Z)	0	+	no	60
93	11ABRILLFRWSDSLB	Driver Abdomen Rib 2 Front Length Change	600	+	no	60
94	11THSP0100WSACXP	Driver Spine T1 Acceleration (X)	180	+	yes	2000
95	11THSP0100WSACYP	Driver Spine T1 Acceleration (Y)	180	+	yes	2000
96	11THSP0100WSACZP	Driver Spine T1 Acceleration (Z)	180	+	yes	2000
96A	11THSP0100WSACRP	Driver Spine T1 Acceleration Resultant	180			
97	11THSP0400WSACXP	Driver Spine T4 Acceleration (X)	180	+	yes	2000
98	11THSP0400WSACYP	Driver Spine T4 Acceleration (Y)	180	+	yes	2000
99	11THSP0400WSACZP	Driver Spine T4 Acceleration (Z)	180	+	yes	2000
99A	11THSP0400WSACRP	Driver Spine T4 Acceleration Resultant	180			
100	11THSP1200WSACXP	Driver Spine T12 Acceleration (X)	180	+	yes	2000
101	11THSP1200WSACYP	Driver Spine T12 Acceleration (Y)	180	+	yes	2000
102	11THSP1200WSACZP	Driver Spine T12 Acceleration (Z)	180	+	yes	2000
102A	11THSP1200WSACRP	Driver Spine T12 Acceleration Resultant	180			
103	11PUBC0000WSFOYP	Driver Pubic Symphysis Force (Y)	600	+	yes	12000
104	11SACRLE00WSFOXP	Driver Sacro-iliac Left Force (X)	600	+	yes	6000
105	11SACRLE00WSFOYP	Driver Sacro-iliac Left Force (Y)	600	+	yes	12000
106	11SACRLE00WSFOZP	Driver Sacro-iliac Left Force (Z)	600	+	yes	6000
107	11SACRLE00WSMOXP	Driver Sacro-iliac Left Moment (X)	600	+	yes	800
108	11SACRLE00WSMOYP	Driver Sacro-iliac Left Moment (Y)	600	+	yes	400
109	11SACRLE00WSMOZP	Driver Sacro-iliac Left Moment (Z)	600	+	yes	400
110	11SACRRI00WSFOXP	Driver Sacro-iliac Right Force (X)	600	+	yes	6000
111	11SACRRI00WSFOYP	Driver Sacro-iliac Right Force (Y)	600	+	yes	12000
112	11SACRRI00WSFOZP	Driver Sacro-iliac Right Force (Z)	600	+	yes	6000

Channel Number	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
113	11SACRRI00WSMOXP	Driver Sacro-iliac Right Moment (X)	600	+	yes	800
114	11SACRRI00WSMOYP	Driver Sacro-iliac Right Moment (Y)	600	+	yes	400
115	11SACRRI00WSMOZP	Driver Sacro-iliac Right Moment (Z)	600	+	yes	400
116	11LUSP0000WSFOXP	Driver Lumbar Force (X)	600	+	yes	10000
117	11LUSP0000WSFOYP	Driver Lumbar Force (Y)	600	+	yes	10000
118	11LUSP0000WSFOZP	Driver Lumbar Force (Z)	600	+	yes	12000
119	11LUSP0000WSMOXP	Driver Lumbar Moment (X)	600	+	yes	300
120	11LUSP0000WSMOYP	Driver Lumbar Moment (Y)	600	+	yes	300
121	11LUSP0000WSMOZP	Driver Lumbar Moment (Z)	600	+	yes	200
122	11PELV0000WSACXP	Driver Pelvic Acceleration (X)	1000	+	yes	2000
123	11PELV0000WSACYP	Driver Pelvic Acceleration (Y)	1000	+	yes	2000
124	11PELV0000WSACZP	Driver Pelvic Acceleration (Z)	1000	+	yes	2000
124A	11PELV0000WSACRP	Driver Pelvic Acceleration Resultant	1000			
125	11FEMRLE00WSFOXP	Driver Left Femur Force (X)	600	+	yes	15000
126	11FEMRLE00WSFOYP	Driver Left Femur Force (Y)	600	+	yes	15000
127	11FEMRLE00WSFOZP	Driver Left Femur Force (Z)	600	+	yes	15000
128	11FEMRLE00WSMOXP	Driver Left Femur Moment (X)	600	+	yes	350
129	11FEMRLE00WSMOYP	Driver Left Femur Moment (Y)	600	+	yes	200
130	11FEMRLE00WSMOZP	Driver Left Femur Moment (Z)	600	+	yes	350
131	11FEACLE00WSFOXP	Driver Femoral Neck Force (X)	600	+	yes	10000
132	11FEACLE00WSFOYP	Driver Femoral Neck Force (Y)	600	+	yes	25000
133	11FEACLE00WSFOZP	Driver Femoral Neck Force (Z)	600	+	yes	10000
134	11KNEELE00WSFOYP	Driver Left Outer Knee Force (Y)	600	+	yes	20000
135	11KNEELEINWSFOYP	Driver Left Inner Knee Force (Y)	600	+	yes	20000
136	14HEAD0000WFACXP	Passenger Head Acceleration (X)	1000	+	yes	2000
137	14HEAD0000WFACYP	Passenger Head Acceleration (Y)	1000	+	yes	2000
138	14HEAD0000WFACZP	Passenger Head Acceleration (Z)	1000	+	yes	2000
138A	14HEAD0000WFACRP	Passenger Head Acceleration Resultant	1000			
139	14HEAD0000WFAVXP	Passenger Head Angular Rate (X)	1000	+	yes	8000
140	14HEAD0000WFAVYP	Passenger Head Angular Rate (Y)	1000	+	yes	8000
141	14HEAD0000WFAVZP	Passenger Head Angular Rate (Z)	1000	+	yes	8000
142	14NECKUP00WFFOXP	Passenger Upper Neck Force (X)	1000	+	yes	10000
143	14NECKUP00WFFOYP	Passenger Upper Neck Force (Y)	1000	+	yes	10000
144	14NECKUP00WFFOZP	Passenger Upper Neck Force (Z)	1000	+	yes	12000
145	14NECKUP00WFMOPX	Passenger Upper Neck Moment (X)	600	+	yes	300
146	14NECKUP00WFMOYP	Passenger Upper Neck Moment (Y)	600	+	yes	300
147	14NECKUP00WFMOZP	Passenger Upper Neck Moment (Z)	600	+	yes	200
148	14NECKLO00WFFOXP	Passenger Lower Neck Force (X)	1000	+	yes	10000
149	14NECKLO00WFFOYP	Passenger Lower Neck Force (Y)	1000	+	yes	10000
150	14NECKLO00WFFOZP	Passenger Lower Neck Force (Z)	1000	+	yes	12000
151	14NECKLO00WFMOXP	Passenger Lower Neck Moment (X)	600	+	yes	300
152	14NECKLO00WFMOYP	Passenger Lower Neck Moment (Y)	600	+	yes	300
153	14NECKLO00WFMOZP	Passenger Lower Neck Moment (Z)	600	+	yes	200
154	14SHLDLE00WFFOXP	Passenger Shoulder Force (X)	600	+	yes	4500
155	14SHLDLE00WFFOYP	Passenger Shoulder Force (Y)	600	+	yes	4500
156	14SHLDLE00WFFOZP	Passenger Shoulder Force (Z)	600	+	yes	6000

Channel Number	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
157	14SHRILEREWFDSX0	Passenger Shoulder Rear Displacement (X)	0	+	no	60
158	14SHRILEREWFDSY0	Passenger Shoulder Rear Displacement (Y)	0	+	no	60
159	14SHRILEREWFDSZ0	Passenger Shoulder Rear Displacement (Z)	0	+	no	60
160	14SHRILEREWFDSL B	Passenger Shoulder Rear Length Change	600	+	no	60
161	14SHRILEMIWFDSX0	Passenger Shoulder Middle Displacement (X)	0	+	no	60
162	14SHRILEMIWFDSY0	Passenger Shoulder Middle Displacement (Y)	0	+	no	60
163	14SHRILEMIWFDSZ0	Passenger Shoulder Middle Displacement (Z)	0	+	no	60
164	14SHRILEMIWFDSL B	Passenger Shoulder Middle Length Change	600	+	no	60
165	14SHRILEFRWFDSX0	Passenger Shoulder Front Displacement (X)	0	+	no	60
166	14SHRILEFRWFDSY0	Passenger Shoulder Front Displacement (Y)	0	+	no	60
167	14SHRILEFRWFDSZ0	Passenger Shoulder Front Displacement (Z)	0	+	no	60
168	14SHRILEFRWFDSL B	Passenger Shoulder Front Length Change	600	+	no	60
169	14TRRILUREWFDSX0	Passenger Thorax Rib 1 Rear Displacement (X)	0	+	no	60
170	14TRRILUREWFDSY0	Passenger Thorax Rib 1 Rear Displacement (Y)	0	+	no	60
171	14TRRILUREWFDSZ0	Passenger Thorax Rib 1 Rear Displacement (Z)	0	+	no	60
172	14TRRILUREWFDSL B	Passenger Thorax Rib 1 Rear Length Change	600	+	no	60
173	14TRRILUMIWFDSX0	Passenger Thorax Rib 1 Middle Displacement (X)	0	+	no	60
174	14TRRILUMIWFDSY0	Passenger Thorax Rib 1 Middle Displacement (Y)	0	+	no	60
175	14TRRILUMIWFDSZ0	Passenger Thorax Rib 1 Middle Displacement (Z)	0	+	no	60
176	14TRRILUMIWFDSL B	Passenger Thorax Rib 1 Middle Length Change	600	+	no	60
177	14TRRILUFRWFDSX0	Passenger Thorax Rib 1 Front Displacement (X)	0	+	no	60
178	14TRRILUFRWFDSY0	Passenger Thorax Rib 1 Front Displacement (Y)	0	+	no	60
179	14TRRILUFRWFDSZ0	Passenger Thorax Rib 1 Front Displacement (Z)	0	+	no	60
180	14TRRILUFRWFDSL B	Passenger Thorax Rib 1 Front Length Change	600	+	no	60

Channel Number	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
181	14TRRILMREWFD SX0	Passenger Thorax Rib 2 Rear Displacement (X)	0	+	no	60
182	14TRRILMREWFD SY0	Passenger Thorax Rib 2 Rear Displacement (Y)	0	+	no	60
183	14TRRILMREWFD SZ0	Passenger Thorax Rib 2 Rear Displacement (Z)	0	+	no	60
184	14TRRILMREWFD SLB	Passenger Thorax Rib 2 Rear Length Change	600	+	no	60
185	14TRRILMMIWFDSX0	Passenger Thorax Rib 2 Middle Displacement (X)	0	+	no	60
186	14TRRILMMIWFDSY0	Passenger Thorax Rib 2 Middle Displacement (Y)	0	+	no	60
187	14TRRILMMIWFDSZ0	Passenger Thorax Rib 2 Middle Displacement (Z)	0	+	no	60
188	14TRRILMMIWFDSL B	Passenger Thorax Rib 2 Middle Length Change	600	+	no	60
189	14TRRILMFRWFDSX0	Passenger Thorax Rib 2 Front Displacement (X)	0	+	no	60
190	14TRRILMFRWFDSY0	Passenger Thorax Rib 2 Front Displacement (Y)	0	+	no	60
191	14TRRILMFRWFDSZ0	Passenger Thorax Rib 2 Front Displacement (Z)	0	+	no	60
192	14TRRILMFRWFDSL B	Passenger Thorax Rib 2 Front Length Change	600	+	no	60
193	14TRRILLREWFDSX0	Passenger Thorax Rib 3 Rear Displacement (X)	0	+	no	60
194	14TRRILLREWFDSY0	Passenger Thorax Rib 3 Rear Displacement (Y)	0	+	no	60
195	14TRRILLREWFDSZ0	Passenger Thorax Rib 3 Rear Displacement (Z)	0	+	no	60
196	14TRRILLREWFDSL B	Passenger Thorax Rib 3 Rear Length Change	600	+	no	60
197	14TRRILLMIWFDSX0	Passenger Thorax Rib 3 Middle Displacement (X)	0	+	no	60
198	14TRRILLMIWFDSY0	Passenger Thorax Rib 3 Middle Displacement (Y)	0	+	no	60
199	14TRRILLMIWFDSZ0	Passenger Thorax Rib 3 Middle Displacement (Z)	0	+	no	60
200	14TRRILLMIWFDSL B	Passenger Thorax Rib 3 Middle Length Change	600	+	no	60
201	14TRRILLFRWFDSX0	Passenger Thorax Rib 3 Front Displacement (X)	0	+	no	60
202	14TRRILLFRWFDSY0	Passenger Thorax Rib 3 Front Displacement (Y)	0	+	no	60
203	14TRRILLFRWFDSZ0	Passenger Thorax Rib 3 Front Displacement (Z)	0	+	no	60
204	14TRRILLFRWFDSL B	Passenger Thorax Rib 3 Front Length Change	600	+	no	60

Channel Number	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
205	14ABRILUREWFDSX0	Passenger Abdomen Rib 1 Rear Displacement (X)	0	+	no	60
206	14ABRILUREWFDSY0	Passenger Abdomen Rib 1 Rear Displacement (Y)	0	+	no	60
207	14ABRILUREWFDSZ0	Passenger Abdomen Rib 1 Rear Displacement (Z)	0	+	no	60
208	14ABRILUREWFDSL B	Passenger Abdomen Rib 1 Rear Length Change	600	+	no	60
209	14ABRILUMIWFDSX0	Passenger Abdomen Rib 1 Middle Displacement (X)	0	+	no	60
210	14ABRILUMIWFDSY0	Passenger Abdomen Rib 1 Middle Displacement (Y)	0	+	no	60
211	14ABRILUMIWFDSZ0	Passenger Abdomen Rib 1 Middle Displacement (Z)	0	+	no	60
212	14ABRILUMIWFDSL B	Passenger Abdomen Rib 1 Middle Length Change	600	+	no	60
213	14ABRILUFRWFDSX0	Passenger Abdomen Rib 1 Front Displacement (X)	0	+	no	60
214	14ABRILUFRWFDSY0	Passenger Abdomen Rib 1 Front Displacement (Y)	0	+	no	60
215	14ABRILUFRWFDSZ0	Passenger Abdomen Rib 1 Front Displacement (Z)	0	+	no	60
216	14ABRILUFRWFDSL B	Passenger Abdomen Rib 1 Front Length Change	600	+	no	60
217	14ABRILLREWFDSX0	Passenger Abdomen Rib 2 Rear Displacement (X)	0	+	no	60
218	14ABRILLREWFDSY0	Passenger Abdomen Rib 2 Rear Displacement (Y)	0	+	no	60
219	14ABRILLREWFDSZ0	Passenger Abdomen Rib 2 Rear Displacement (Z)	0	+	no	60
220	14ABRILLREWFDSL B	Passenger Abdomen Rib 2 Rear Length Change	600	+	no	60
221	14ABRILLMIWFDSX0	Passenger Abdomen Rib 2 Middle Displacement (X)	0	+	no	60
222	14ABRILLMIWFDSY0	Passenger Abdomen Rib 2 Middle Displacement (Y)	0	+	no	60
223	14ABRILLMIWFDSZ0	Passenger Abdomen Rib 2 Middle Displacement (Z)	0	+	no	60
224	14ABRILLMIWFDSL B	Passenger Abdomen Rib 2 Middle Length Change	600	+	no	60
225	14ABRILLFRWFDSX0	Passenger Abdomen Rib 2 Front Displacement (X)	0	+	no	60
226	14ABRILLFRWFDSY0	Passenger Abdomen Rib 2 Front Displacement (Y)	0	+	no	60
227	14ABRILLFRWFDSZ0	Passenger Abdomen Rib 2 Front Displacement (Z)	0	+	no	60
228	14ABRILLFRWFDSL B	Passenger Abdomen Rib 2 Front Length Change	600	+	no	60

Channel Number	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
229	14THSP0100WFACXP	Passenger Spine T1 Acceleration (X)	180	+	yes	2000
230	14THSP0100WFACYP	Passenger Spine T1 Acceleration (Y)	180	+	yes	2000
231	14THSP0100WFACZP	Passenger Spine T1 Acceleration (Z)	180	+	yes	2000
231A	14THSP0100WFACRP	Passenger Spine T1 Acceleration Resultant	180			
232	14THSP0400WFACXP	Passenger Spine T4 Acceleration (X)	180	+	yes	2000
233	14THSP0400WFACYP	Passenger Spine T4 Acceleration (Y)	180	+	yes	2000
234	14THSP0400WFACZP	Passenger Spine T4 Acceleration (Z)	180	+	yes	2000
234A	14THSP0400WFACRP	Passenger Spine T4 Acceleration Resultant	180			
235	14THSP1200WFACXP	Passenger Spine T12 Acceleration (X)	180	+	yes	2000
236	14THSP1200WFACYP	Passenger Spine T12 Acceleration (Y)	180	+	yes	2000
237	14THSP1200WFACZP	Passenger Spine T12 Acceleration (Z)	180	+	yes	2000
237A	14THSP1200WFACRP	Passenger Spine T12 Acceleration Resultant	180			
238	14PUBC0000WFFOYP	Passenger Pubic Symphysis Force (Y)	600	+	yes	12000
239	14SACRLE00WFFOXP	Passenger Sacro-iliac Left Force (X)	600	+	yes	200
240	14SACRLE00WFFOYP	Passenger Sacro-iliac Left Force (Y)	600	+	yes	10000
241	14SACRLE00WFFOZP	Passenger Sacro-iliac Left Force (Z)	600	+	yes	5000
242	14SACRLE00WFMOXP	Passenger Sacro-iliac Left Moment (X)	600	+	yes	600
243	14SACRLE00WFMOYP	Passenger Sacro-iliac Left Moment (Y)	600	+	yes	275
244	14SACRLE00WFMOZP	Passenger Sacro-iliac Left Moment (Z)	600	+	yes	300
245	14SACRRI00WFFOXP	Passenger Sacro-iliac Right Force (X)	600	+	yes	5000
246	14SACRRI00WFFOYP	Passenger Sacro-iliac Right Force (Y)	600	+	yes	10000
247	14SACRRI00WFFOZP	Passenger Sacro-iliac Right Force (Z)	600	+	yes	5000
248	14SACRRI00WFMOXP	Passenger Sacro-iliac Right Moment (X)	600	+	yes	600
249	14SACRRI00WFMOYP	Passenger Sacro-iliac Right Moment (Y)	600	+	yes	275
250	14SACRRI00WFMOZP	Passenger Sacro-iliac Right Moment (Z)	600	+	yes	300
251	14LUSP0000WFFOXP	Passenger Lumbar Force (X)	600	+	yes	10000
252	14LUSP0000WFFOYP	Passenger Lumbar Force (Y)	600	+	yes	10000
253	14LUSP0000WFFOZP	Passenger Lumbar Force (Z)	600	+	yes	12000

Channel Number	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
254	14LUSP0000WFMOXP	Passenger Lumbar Moment (X)	600	+	yes	220
255	14LUSP0000WFMOYP	Passenger Lumbar Moment (Y)	600	+	yes	220
256	14LUSP0000WFMOZP	Passenger Lumbar Moment (Z)	600	+	yes	125
257	14PELV0000WFACXP	Passenger Pelvic Acceleration (X)	1000	+	yes	2000
258	14PELV0000WFACYP	Passenger Pelvic Acceleration (Y)	1000	+	yes	2000
259	14PELV0000WFACZP	Passenger Pelvic Acceleration (Z)	1000	+	yes	2000
259A	14PELV0000WFACRP	Passenger Pelvic Acceleration Resultant	1000			
260	14FEMRLE00WFFOXP	Passenger Left Femur Force (X)	600	+	yes	15000
261	14FEMRLE00WFFOYP	Passenger Left Femur Force (Y)	600	+	yes	15000
262	14FEMRLE00WFFOZP	Passenger Left Femur Force (Z)	600	+	yes	15000
263	14FEMRLE00WFMOXP	Passenger Left Femur Moment (X)	600	+	yes	300
264	14FEMRLE00WFMOYP	Passenger Left Femur Moment (Y)	600	+	yes	350
265	14FEMRLE00WFMOZP	Passenger Left Femur Moment (Z)	600	+	yes	350
266	14FEACLE00WFFOXP	Passenger Femoral Neck Force (X)	600	+	yes	10000
267	14FEACLE00WFFOYP	Passenger Femoral Neck Force (Y)	600	+	yes	25000
268	14FEACLE00WFFOZP	Passenger Femoral Neck Force (Z)	600	+	yes	10000
269	14KNEELEINWFFOYP	Passenger Left Outer Knee Force (Y)	600	+	yes	20000
270	14KNEELEOUWFFOYP	Passenger Left Inner Knee Force (Y)	600	+	yes	20000
271	14CHBA0100WFVO0A	W5-1	1000	+	no	200
272	14CHBA0200WFVO0A	W5-2	1000	+	no	200
273	14CHBA0300WFVO0A	W5-3	1000	+	no	200
274	14CHBA0400WFVO0A	W5-4	1000	+	no	200
275	14CHBA0500WFVO0A	W5-5	1000	+	no	200
276	14CHBA0600WFVO0A	W5-6	1000	+	no	200
277	14CHBA0700WFVO0A	W5-7	1000	+	no	200
278	14CHBA0800WFVO0A	W5-8	1000	+	no	200
279	14CHBA0900WFVO0A	W5-9	1000	+	no	200
280	14CHBA1000WFVO0A	W5-10	1000	+	no	200
281	14CHBA1100WFVO0A	W5-11	1000	+	no	200
282	14CHBA1200WFVO0A	W5-12	1000	+	no	200
283	14CHBA1300WFVO0A	W5-13	1000	+	no	200
284	14CHBA1400WFVO0A	W5-14	1000	+	no	200
285	14CHBA1500WFVO0A	W5-15	1000	+	no	200
286	14CHBA1600WFVO0A	W5-16	1000	+	no	200
287	14CHBA1700WFVO0A	W5-17	1000	+	no	200
288	14CHBA1800WFVO0A	W5-18	1000	+	no	200
289	14CHBA1900WFVO0A	W5-19	1000	+	no	200
290	14CHBA2000WFVO0A	W5-20	1000	+	no	200
291	14CHBA2100WFVO0A	W5-21	1000	+	no	200
292	14CHBA2200WFVO0A	W5-22	1000	+	no	200
293	14CHBA2300WFVO0A	W5-23	1000	+	no	200
294	14CHBA2400WFVO0A	W5-24	1000	+	no	200
295	14CHBA2500WFVO0A	W5-25	1000	+	no	200
296	14CHBA2600WFVO0A	W5-26	1000	+	no	200
297	14CHBA2700WFVO0A	W5-27	1000	+	no	200
298	14CHBA2800WFVO0A	W5-28	1000	+	no	200

Channel Number	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
299	14CHBA2900WFVO0A	W5-29	1000	+	no	200
300	14CHBA3000WFVO0A	W5-30	1000	+	no	200
301	14CHBA3100WFVO0A	W5-31	1000	+	no	200
302	14CHBA3200WFVO0A	W5-32	1000	+	no	200
303	14CHBA3300WFVO0A	W5-33	1000	+	no	200
304	14CHBA3400WFVO0A	W5-34	1000	+	no	200
305	14CHBA3500WFVO0A	W5-35	1000	+	no	200
306	14CHBA3600WFVO0A	W5-36	1000	+	no	200
307	14CHBA3700WFVO0A	W5-37	1000	+	no	200
308	14CHBA3800WFVO0A	W5-38	1000	+	no	200
309	14CHBA3900WFVO0A	W5-39	1000	+	no	200
310	14CHBA4000WFVO0A	W5-40	1000	+	no	200
311	14CHBA4100WFVO0A	W5-41	1000	+	no	200
312	14CHBA4200WFVO0A	W5-42	1000	+	no	200
313	14CHBA4300WFVO0A	W5-43	1000	+	no	200
314	14CHBA4400WFVO0A	W5-44	1000	+	no	200
315	14CHBA4500WFVO0A	W5-45	1000	+	no	200
316	14CHBA4600WFVO0A	W5-46	1000	+	no	200
317	14CHBA4700WFVO0A	W5-47	1000	+	no	200
318	14CHBA4800WFVO0A	W5-48	1000	+	no	200
319	14CHBA4900WFVO0A	W5-49	1000	+	no	200
320	14CHBA5000WFVO0A	W5-50	1000	+	no	200
321	14CHBA5100WFVO0A	W5-51	1000	+	no	200
322	14CHBA5200WFVO0A	W5-52	1000	+	no	200
323	14CHBA5300WFVO0A	W5-53	1000	+	no	200
324	14CHBA5400WFVO0A	W5-54	1000	+	no	200
325	14CHBA5500WFVO0A	W5-55	1000	+	no	200
326	14CHBA5600WFVO0A	W5-56	1000	+	no	200
327	14CHBA5700WFVO0A	W5-57	1000	+	no	200
328	14CHBA5800WFVO0A	W5-58	1000	+	no	200
329	14CHBA5900WFVO0A	W5-59	1000	+	no	200
330	12VEHCCG0000ACXA	VEHICLE CG AX	60	+	yes	2000
331	12VEHCCG0000ACYA	VEHICLE CG AY	60	+	yes	2000
332	12VEHCCG0000ACZA	VEHICLE CG AZ	60	+	yes	2000
332A	12VEHCCG0000ACRA	VEHICLE CG A RESULTANT	60			
333	12VEHCCG0000AVXA	VEHICLE CG ARS X	60	+	yes	8000
334	12VEHCCG0000AVYA	VEHICLE CG ARS Y	60	+	yes	8000
335	12VEHCCG0000AVZA	VEHICLE CG ARS Z	60	+	yes	8000
336	13SILBRIFR00ACXA	RIGHT SIDE SILL AT FRONT SEAT AX	60	+	yes	2000
337	13SILBRIFR00ACYA	RIGHT SIDE SILL AT FRONT SEAT AY	60	+	yes	2000
338	13SILBRIFR00ACZA	RIGHT SIDE SILL AT FRONT SEAT AZ	60	+	yes	2000
338A	13SILBRIFR00ACRA	RIGHT SIDE SILL AT FRONT SEAT A RESULTANT	60			

Channel Number	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
339	16SILBRIRE00ACXA	RIGHT SIDE SILL AT REAR SEAT AX	60	+	yes	2000
340	16SILBRIRE00ACYA	RIGHT SIDE SILL AT REAR SEAT AY	60	+	yes	2000
341	16SILBRIRE00ACZA	RIGHT SIDE SILL AT REAR SEAT AZ	60	+	yes	2000
341A	16SILBRIRE00ACRA	RIGHT SIDE SILL AT REAR SEAT A ESULTANT	60			
342	11SILBLEFR00ACYA	LEFT SIDE SILL AT FRONT SEAT AY	60	+	yes	2000
343	14SILBLERE00ACYA	LEFT SIDE SILL AT REAR SEAT AY	60	+	yes	2000
344	11APILLO0000ACYA	LEFT LOWER A-PILLAR AY	60	+	yes	2000
345	11APILMI0000ACYA	LEFT MIDDLE A-PILLAR AY	60	+	yes	2000
346	11BPILLO0000ACYA	LEFT LOWER B-PILLAR AY	60	+	yes	2000
347	11BPILMI0000ACYA	LEFT MIDDLE B-PILLAR AY	60	+	yes	2000
348	11SETR000000ACYA	FRONT SEAT TRACK AY	60	+	yes	2000
349	14SETRLERE00ACYA	LEFT REAR SEAT STRUCTURE AY	60	+	yes	2000
350	16OCCRIRE000ACYA	RIGHT REAR OCCUPANT COMPARTMENT AY	60	+	yes	2000
351	12ENGNTTP0000ACXA	ENGINE BLOCK AX	60	+	yes	2000
352	12ENGNTTP0000ACYA	ENGINE BLOCK AY	60	+	yes	2000
353	15FORA000000ACXA	FLOORPAN ABOVE REAR AXLE AX	60	+	yes	2000
354	15FORA000000ACYA	FLOORPAN ABOVE REAR AXLE AY	60	+	yes	2000
355	15FORA000000ACZA	FLOORPAN ABOVE REAR AXLE AZ	60	+	yes	2000
355A	15FORA000000ACRA	FLOORPAN ABOVE REAR AXLE A RESULTANT	60			
356	10FORARD0000ACXA	REAR DECK AX	60	+	yes	2000
357	10FORARD0000ACYA	REAR DECK AY	60	+	yes	2000
358	10FORARD0000ACZA	REAR DECK AZ	60	+	yes	2000
358A	10FORARD0000ACRA	REAR DECK A RESULTANT	60			
359	10FORARD0000AVXA	REAR DECK ARS X	60	+	yes	8000
360	10FORARD0000AVYA	REAR DECK ARS Y	60	+	yes	8000
361	10FORARD0000AVZA	REAR DECK ARS Z	60	+	yes	8000
362	11DOORMIMI71ACYA	Left Front Door Mid Centerline (Y)	60	+	yes	2000
363	11DOORMIRE71ACYA	Left Front Door Mid Rear (Y)	60	+	yes	2000
364	11DOORMIUP71ACYA	Left Front Door Upper Centerline (Y)	60	+	yes	2000
365	14DOORMIRE71ACYA	Left Rear Door Mid Rear (Y)	60	+	yes	2000
366	14DOORMIUP71ACYA	Left Rear Door Upper Centerline (Y)	60	+	yes	2000
367	11HEADCONT00VO00	Head Contact	0	+	no	1
368	11SHOUCONT00VO00	Shoulder Contact	0	+	no	1
369	11THORCONT00VO00	Thorax Contact	0	+	no	1
370	11PELVCONT00VO00	Pelvis Contact	0	+	no	1
371	14HEADCONT00VO00	Head Contact	0	+	no	1
372	14SHOUCONT00VO00	Shoulder Contact	0	+	no	1
373	14THORCONT00VO00	Thorax Contact	0	+	no	1
374	14PELVCONT00VO00	Pelvis Contact	0	+	no	1

Channel Number	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
375	M0MBARCG0000ACXA	MDB CG AX	60	+	yes	2000
376	M0MBARCG0000ACYA	MDB CG AY	60	+	yes	2000
377	M0MBARCG0000ACZA	MDB CG AZ	60	+	yes	2000
377A	M0MBARCG0000ACRA	MDB CG A RESULTANT	60	+	yes	
378	M0FRAMRE0000ACXA	MDB REAR AX	60	+	yes	2000
379	M0FRAMRE0000ACYA	MDB REAR AY	60	+	yes	2000
380	M0MBARLE0000VO00	LEFT MDB CONTACT	0	+	no	1
381	M0MBARRI0000VO00	RIGHT MDB CONTACT	0	+	no	1

APPENDIX E
SEATING PROCEDURE WORKSHEETS AND PLOTS

Driver WSID 50th Seating Worksheet

Vehicle	2020 Nissan Rogue	Technician	F. Xu
VIN #	5N1AT2MT1LC812630	Position	Driver
ATD	VRTC WSID 50th EB8888	Date	3/11/2021
Test #	210311		

SCRL Angle	Max	15.6	WSID 50th Tilt Sensors		X	Y
	Min -	12.8	Head	0°±2	0.2	-2.0
	Difference	2.8				
	/2	1.4	T6	0°±2	0.1	-0.5
	Min +	1.4				
	Mid Angle	14.2	Pelvis	0°±2	-0.7	1.7

Seat Back Angle	W/Level °	N/A	HEAD REST POST		FINAL HEAD REST	
Seat Pan Angle	W/Level °	N/A	ANGLE	2.7	POST ANGLE	N/A

Pelvis Angle	WSID 50th 0° +/-2.5°	Manual Inclinometer	N/A	Tilt Sensor	1.7
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Collected Points			
Name	Meas X	Meas Y	Meas Z
SBU -	-29.881	2.098	-11.404
SBL -	-27.750	1.711	15.518
STRIKER -	0.000	0.000	0.000
FOSB -	449.557	220.386	375.255
FISB -	449.188	629.702	371.699
ROSB -	56.194	223.709	398.798
RISB -	57.464	632.097	398.333
PCP - (Pedal Center Point)	1074.768	617.019	277.799
RHP - (Right Heel Point)	931.192	618.351	420.204
LHP - (Left Heel Point)	931.136	226.596	431.763
S0 -	561.050	421.802	-258.102
TS -	651.059	425.219	-413.162
BS -	494.901	422.354	-118.636
SC1 -	749.443	329.267	-113.054
OSCAR H-POINT -	285.470	229.520	95.003
DR PROJECTED WSID H-POINT AT MID-POSITION -	305.000		75.000
DRIVER STP 15.27 MID-POSITION -	306.000		183.000
DRIVER STP STEP 18.6 TRIAL 1 -	277.080	173.569	186.347
DR PROJECTED WSID H-POINT STEP 18.6.2 TRIAL 1 -	276.000		78.000
DRIVER STP STEP 18.6 TRIAL 2 -			
DR PROJECTED WSID H-POINT STEP 18.6.2 TRIAL 2 -			
DRIVER STP STEP 18.6 TRIAL 3 -			
DR PROJECTED WSID H-POINT STEP 18.6.2 TRIAL 3 -			
RHDCG -	101.778	504.834	-574.407
3DLHCG -	127.101	348.473	-574.680
LHDCG -	103.010	345.916	-574.821
BON -	198.495	426.712	-575.618
TN -	194.523	426.607	-518.956
TC -	180.780	428.540	-451.390
SHLD R1 -	155.148	428.586	-349.855
THX R1 -	190.861	430.071	-272.156
THX R2 -	226.060	432.052	-207.938
THX R3 -	243.391	433.316	-161.846
ABD R1 -	261.474	438.268	-106.708
ABD R2 -	280.977	441.070	-60.880
TPS -	313.252	427.285	-39.889
C1 -	171.067	427.413	-325.750
C2 -	195.361	430.146	-271.211
C3 -	274.857	437.422	-106.829
SHT -	81.391	209.860	-306.299
E1 -	280.714	195.136	-170.398
P1 -	220.941	190.585	41.082
H-POINT -	277.365	189.256	88.285
H-POINT 2 -	277.039	222.436	89.634

OK -	673.483	199.466	-5.813
IK -	676.197	644.328	-25.736
OA -	925.780	257.138	320.380
IA -	907.909	536.983	318.548
OH -	942.004	233.843	436.062
IH -	922.630	562.347	429.456
OP -	-121.339	343.144	-412.548
R -	198.752	425.848	-786.707
H -	555.374	426.720	-719.139
W1 -	841.219	427.259	-576.169
W1 - Outside	856.559	426.019	-575.850
W2 - Outside	1125.028	427.433	-424.450
D1 -	777.987	427.883	-373.856
D2 -	803.088	277.022	-6.803
D3 -	765.761	583.606	-41.015
HRP -	198.570	238.686	-697.002
HSP -	199.595	91.605	-573.714
ADP -	281.746	73.176	-170.717
HDP -	277.563	103.717	87.360

Calculated Measurements					
Name	Cal X	Cal Y	Cal Z	Cal 3D Distance	Deg
HZ -			211		
HH -				385	
HW -	643				
NR -				469	
CD -				609	
CS -	366				
CBS -	220				
IKD -				109	
OKD -				151	
HR -				224	
HS -		335			
AD -		122			
HD -		86			
HLHL -				329	
KK -				445	
SH -				347	
HRA -					2.7
H-POINT TOOL ANGLE -					39.9
TORSO ANGLE -					14.7
WINDSHIELD ANGLE -					60.6

Rear Passenger WSID 5th Seating Worksheet

Vehicle	2020 Nissan Rogue	Technician	F. Xu
VIN #	5N1AT2MT1LC812630	Position	
ATD	VRTC WSID 5th DK1774	Date	3/11/2021
SEATING #			

Seat Back Angle	W/Level °	N/A	HEAD REST		FINAL HEAD REST	
Seat Pan Angle	W/Level °	N/A	POST ANGLE	3.5	POST ANGLE	N/A

Pelvis Angle	Manual Inclinometer	23.3
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Collected Points			
Name	Meas X	Meas Y	Meas Z
SBU -	-1,029.970	21.505	-180.358
SBL -	-1,019.340	19.480	-156.414
STRIKER -	-998.431	18.274	-181.185
FOSB -			
FISB -			
ROSB -			
RISB -			
RHP -			
LHP -			
OSCAR H-POINT -			
LHDCG -	-858.943	335.997	-580.817
BON -	-771.912	412.551	-592.498
TN -	-772.528	414.970	-544.267
TC -	-780.992	413.314	-471.025
C1 -	-810.003	406.621	-356.708
SHT -	-892.475	227.317	-361.433
E1 -	-715.749	185.998	-264.816
P1 -	-739.343	173.383	-43.018
H-POINT -	-690.497	181.682	11.894
H-POINT 2 -	-692.071	213.865	9.931
OK -	-323.286	268.600	-34.256
IK -	-326.570	561.167	-45.043
OA -	-238.207	253.811	301.351
IA -	-247.773	485.128	309.313
OH -	-310.568	262.132	390.949
IH -	-314.251	508.623	403.638
OP -	-1,050.930	358.770	-529.088
R -	-771.216	411.886	-854.087
SB -	-169.143	406.492	-401.297
KBL -	-124.154	269.222	-35.021
KBR -	-86.944	560.561	-43.328
HRP -	-772.126	275.162	-733.623
HSP -	-771.352	99.721	-592.037
ADP -	-717.493	87.298	-265.517
HDP -	-688.879	130.682	11.627

WS05F Tilt Sensors	X	Y
Head	0.9	-4.5
T6	0.9	22.8
Pelvis	-0.4	23.3

Calculated Measurements					
Name	Cal X	Cal Y	Cal Z	Cal 3D Distance	Deg
HZ -			262		
NB -				620	
CB -				642	
IKB -				240	
OKB -				199	
HR -				197	
HS -		313			
AD -		99			
HD -		51			
HLHL -				247	
KK -				293	
SH -				392	
HRA -					3.5
H-POINT TOOL ANGLE -					48.3
TORSO ANGLE -					57.9
SEATBACK ANGLE -					7.0

APPENDIX F
CHEST BAND INFORMATION

APPENDIX - CHEST BAND INFORMATION

One 59-channel chest band was installed on the WorldSID 5th ATD in the driver side rear seat. The chest band was installed directly on the rib denoted in Table 1 using double-sided foam tape to ensure that the band followed the rib's motion (Figures 1-3). The band was used in this test to determine the shape of the rib contour throughout the crash event. Pertinent information regarding the location of the band on the dummy (Table 1) may be used for processing the chest band data in RBandPC or CrashStar software. Table 1 and Figure 4 show results from processing the chest band data using CrashStar. Distances are measured from each chest band gage to an origin along the spine-sternum line that corresponds to half the initial spine-sternum length measured from the spine. Deflection is calculated at each point in time to be the difference between the initial and final distances of each gage relative to this origin. Maximum deflection is the maximum deflection that occurs at any of the gages throughout the event. Information related to the chest band used in this test may be directed to heather.rhule@dot.gov.



Figure 1. Rear of WorldSID 5th dummy showing chest band location



Figure 2. Front of WorldSID 5th dummy showing chest band location



Figure 3. Right side of WorldSID 5th dummy showing chest band location

Table 1. Chest Band Information

Test date	03/11/2021
Test vehicle	2020 Nissan Rogue
Dummy	WorldSID 5th
Seating position	Driver Side Rear
Chest band location	Abdomen Rib 1
Chest circumference	775.6 mm
Number of active gages*	49
Distance between last and first gage before overlap	13.6 mm
Gage closest to spine	1
Distance from spine**	0 mm
Gage closest to sternum	21
Distance from sternum**	-6 mm
Maximum chest deflection from chest band data	8.2 mm
Gage of Max Deflection	9

*The number of active gages is the number of gages encircling the subject before overlap.

**Distance from anatomical reference (spine or sternum) is positive when the closest gage lies before the anatomical reference when moving around the chest band in a clock-wise direction

210311 - 2020 Nissan Rogue MDB
59 Gage - WorldSID 5th

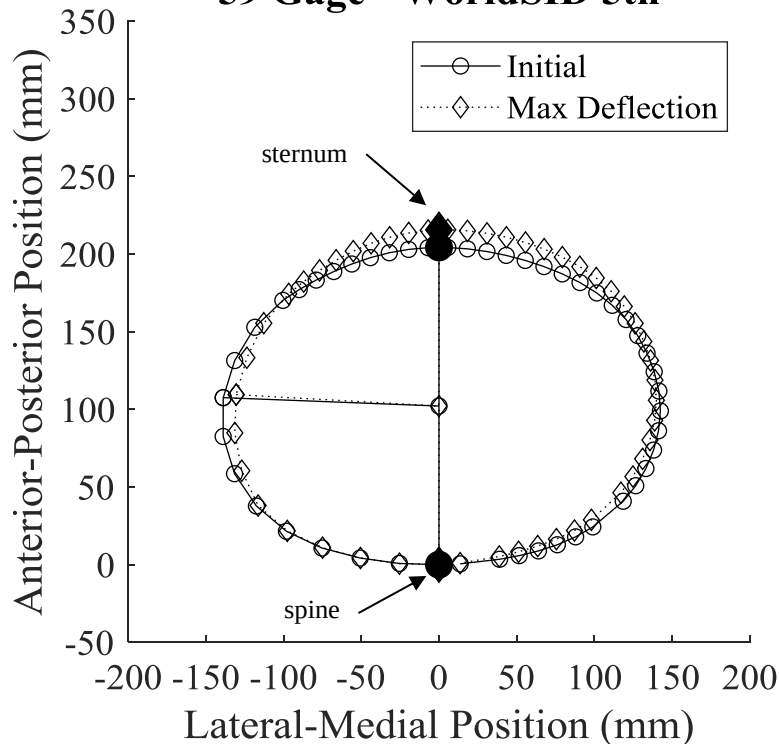


Figure 4. Chest band contours at initial position and maximum deflection for the WorldSID 5th dummy. Chest band gage #42 was removed due to a poor signal.