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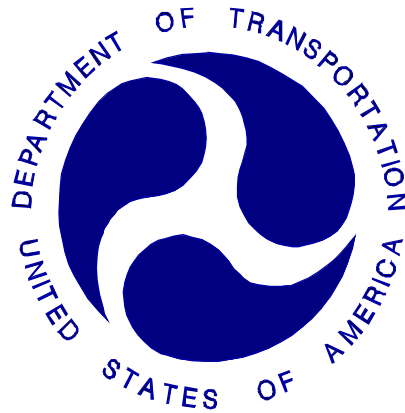
NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

GRACO SNUGRIDE REAR FACING
BRITAX COMPANION REAR FACING

NHTSA NUMBER: M85500

CALSPAN TEST NUMBER: 8806-NCAP-13

CALSPAN
TRANSPORTATION SCIENCES CENTER
P.O. BOX 400
BUFFALO, NEW YORK 14225



September 11, 2007

FINAL REPORT

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Rulemaking
Office of Crashworthiness Standards
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Washington, DC 20590

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Prepared By:

James Czarnecki, Project Engineer

Approved By:

Michael J. Kilgallon, Program Manager
Transportation Sciences Center

Approval Date:

TECHNICAL REPORT STANDARD TITLE PAGE

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4. Title and Subtitle Final Report of Graco Snugride Rear Facing and Britax Companion Rear Facing NHTSA No.: M85500				5. Report Date September 11, 2007	
				6. Performing Organization Code CAL	
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				14. Sponsoring Agency Code NVS-111	
15. Supplementary Notes					
16. Abstract This CRS test was performed in conjunction with a New Car Assessment Program (NCAP) load cell barrier test. A Graco Snugride rearward facing infant restraint was secured in Position 3 (P3) with the LATCH system. A Britax Companion rearward facing infant restraint was secured in Position 4 (P4) with the LATCH system. This test was conducted at the Calspan Corporation Crash Test Facility in Buffalo, New York, on September 11, 2007.					
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SECTION 1

PURPOSE AND SUMMARY OF TEST M85500

The purpose of this test was to obtain CRS performance data in a frontal impact NCAP condition. These data constitute part of the general consumer information collected by the New Car Assessment Program (NCAP).

The 55.84 kph NCAP frontal impact test was conducted in accordance with the Office of Crashworthiness Standards (OCS) NCAP Laboratory Test Procedure.

SUMMARY

Both child dummies were instrumented with head and chest triaxial accelerometers. In addition, upper six axial neck force and moment transducers were utilized.

The right rear (Position 3) child dummy (serial no. 102) and left rear (Position 4) child dummy (serial no. 103) were calibrated previous to this test. Child dummy certification information is found in section 5.

The right rear child dummy's HIC (15 ms) was 240.9, maximum chest deceleration over 3 ms was 53.4 g's. The left rear child dummy's HIC (15 ms) was 729.1, maximum chest deceleration over 3 ms was 67.0 g's.

SECTION 2
DATA SHEET NO. 1
CRASH TEST SUMMARY

TEST DUMMY INFORMATION:

DESCRIPTION	Position #3 CRS	Position #4 CRS
ATD Type/Serial No.	CRABI/102	CRABI /103
Restraint System:	Graco Snugride Rear Facing	Britax Companion Rear Facing

Number of Data Channels 76
Number of Cameras: 1 Real Time
2 High Speed

POST TEST DOOR OPENING

DESCRIPTION	FRONT	REAR
Left Side Doors	Closed / Operable without tools	Closed / Operable without tools
Right Side Doors	Closed / Operable without tools	Closed / Operable without tools
Hatch/Other Door	Removed prior to test for weight purposes	

POST TEST SEAT DATA

LOCATION	SEAT MOVEMENT (mm)	SEAT BACK FAILURE
P1 (Left Front)	0	None
P2 (Right Front)	0	None
P3 (Right Rear)	N/A	None
P4 (Left Rear)	N/A	None

VISIBLE DUMMY CONTACT POINTS

	Position #3 CRS	Position #4 CRS
Head Contact:	Back of head to head restraint	Back of head to head restraint
Upper Torso Contact:	None	None
Lower Torso Contact:	None	None
Left Knee Contact:	None	None
Right Knee Contact:	None	None

DATA SHEET NO. 2

CRS PARAMETER DATA

CRS: Graco Snugride Rear Facing and Britax Companion Rear Facing

NHTSA No. M85500

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Delivered Weight of Vehicle with Maximum Fluids = 1396 kg (A)

AS TESTED WEIGHT OF VEHICLE (2 ATDs + 2 CRABI w/ CRS +CARGO + EQUIPMENT & INSTRUMENTATION):

Left Front	=	<u>434</u>	kg	Left Rear	=	<u>366</u>	kg
Right Front	=	<u>428</u>	kg	Right Rear	=	<u>357</u>	kg
TOTAL FRONT	=	<u>862.0</u>	kg	TOTAL REAR	=	<u>723.0</u>	kg
TOTAL TEST WEIGHT =		<u>1585.0</u>	kg				

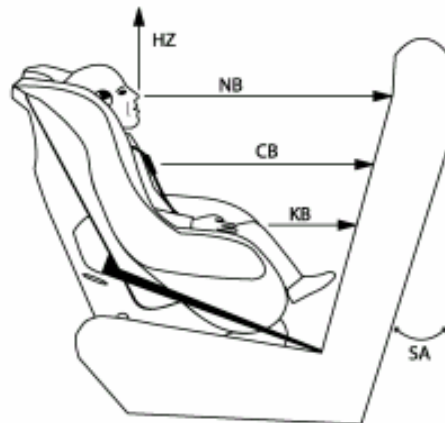
DATA SHEET NO. 3

CHILD DUMMY POSITIONING IN VEHICLE

CRS: Graco Snugride Rear Facing and Britax Companion Rear Facing

NHTSA No. M85500

Dummy Measurements for Rear-facing CRS Passengers



X—Z View

HZ	-	Head to Roof
NB	-	Nose to Front of Back Seat
CB	-	Chest to Front of Back Seat
KB	-	Knee to Front of Back Seat
SA	-	Seat Back Angle

Measurement	Millimeters unless noted	
	P3 CRS (102)	P4 CRS (103)
SA	31°	31
HZ	419	428
NB	591	564
CB	482	447
KB – LEFT	251	184
KB – RIGHT	251	184

All dimensions in mm (unless noted)

P3 – Right Rear Passenger (CRS #1)

P4 – Left Rear Passenger (CRS #2)

DATA SHEET 4

CHILD DUMMY INJURY CRITERIA VALUES (CONTINUED)

CRS: Graco Snugride Rear Facing and Britax Companion Rear Facing

NHTSA No. M85500

	HEAD INJURY CRITERIA (HIC)							
	HIC15				HIC36			
	HIC	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂	HIC	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #3 - Right	240.9	32.6	40.9	61.0	342.2	32.5	68.5	39.0
Position #4 - Left	729.1	51.5	66.5	74.9	1012.5	48.7	82.7	61.6

	CLIP SUMMARY*			
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #3 - Right	53.4	49.2	52.2	484.6
Position #4 - Left	67.0	67.0	64.0	67.0

* The maximum chest resultant acceleration is defined as the maximum acceleration which exceeds 0.003 seconds in duration.

DATA SHEET NO. 5

CRS PERFORMANCE DATA

CRS: Graco Snugride Rear Facing and Britax Companion Rear Facing

NHTSA No. M85500

		MAXIMUM VALUE			
DESCRIPTION	Unit	Positive	Time (ms)	Negative	Time (ms)
P3 CRS X	g	6.2	34.7	-71.3	46.1
P3 CRS Y	g	9.3	68.9	-12.3	84.6
P3 CRS Z	g	9.5	15.6	-16.3	84.9
P3 CRS Resultant	g	71.9	46.1	0.0	-14.9
P4 CRS X	g	8.4	131.5	-47.6	51.1
P4 CRS Y	g	29.9	141.5	-24.0	136.1
P4 CRS Z	g	30.9	64.7	-12.3	82.4
P4 CRS Resultant	g	6.2	34.7	-71.3	46.1

DATA SHEET NO. 5

CRS PERFORMANCE DATA (CONTINUED)

CRS: Graco Snugride Rear Facing and Britax Companion Rear Facing

NHTSA No. M85500

POSITION #3 CRS POST-TEST INSPECTION (Model No. 8646RRY3)

LOCATION	DAMAGE	REMARKS
Upper Tether Strap	N/A	N/A
Upper Tether Buckle	N/A	N/A
Upper Tether Hook	N/A	N/A
Vehicle Upper Tether Anchor	N/A	N/A
Lower Anchor Strap	No	None
Lower Anchor Buckle	No	None
Lower Anchor Hooks	No	None
Vehicle Lower CRS Anchors	No	None
Five Point Harness Connections	No	None
Cracks on CRS	No	None
Fabric Tears on CRS	No	None
Vehicle Seat Structure	No	None
Vehicle Seat Fabric Tears	No	None
Child Dummy	No	None

POSITION #4 CRS POST-TEST INSPECTION (Model No. E9L2063007338)

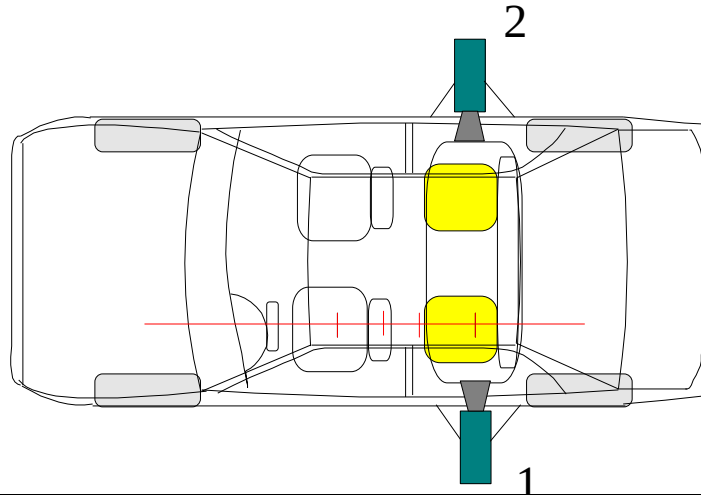
LOCATION	DAMAGE	REMARKS
Upper Tether Strap	N/A	N/A
Upper Tether Buckle	N/A	N/A
Upper Tether Hook	N/A	N/A
Vehicle Upper Tether Anchor	N/A	N/A
Lower Anchor Strap	No	None
Lower Anchor Buckle	No	None
Lower Anchor Hooks	No	None
Vehicle Lower CRS Anchors	No	None
Five Point Harness Connections	No	None
Cracks on CRS	No	None
Fabric Tears on CRS	No	None
Vehicle Seat Structure	No	None
Vehicle Seat Fabric Tears	No	None
Child Dummy	No	None

DATA SHEET NO. 6

CRS CAMERA DATA

CRS: Graco Snugride Rear Facing and Britax Companion Rear Facing

NHTSA No. M85500



Camera No.	View	Coordinates (millimeters)			Angle (deg.)	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
1	Left side CRS lateral view	3109	2421	2281	-23.1	24	1000
2	Right side CRS lateral view	2995	2485	2162	-23.1	24	1000

* Reference (from point of impact); all measurements accurate to within ± 6 mm.

X = + Forward

Y = + To Right

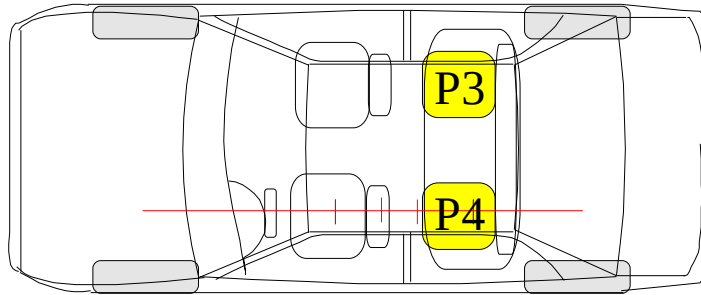
Z = + Up

DATA SHEET NO. 7

CRS ANCHIOR DATA

CRS: Graco Snugride Rear Facing and Britax Companion Rear Facing

NHTSA No. M85500



Description	P3			P4		
	X*	Y*	Z*	X	Y	Z
Outboard Seatbelt floor anchor	1189.168	741.8069	-188.844	1324.509	-593.003	172.7469
Inboard Seatbelt buckle anchor	1322.973	565.9044	174.263	1310.933	-155.222	189.9485
D-Ring Anchor	1305.846	156.1617	178.146	1050.381	-667.961	-419.21
Inboard LATCH anchor	1053.353	655.9021	-423.039	1286.622	-494.244	131.9325
Outboard LATCH anchor	1287.605	512.1364	130.8897	1290.928	-208.436	131.3592
Top Tether anchor	1288.769	210.0729	133.1327	743.6019	-350.107	-452.244

* Reference (from rear bumper centerline); all measurements accurate to within ± 6 mm.

X = + Forward

Y = + To Right

Z = + Up

SECTION 3

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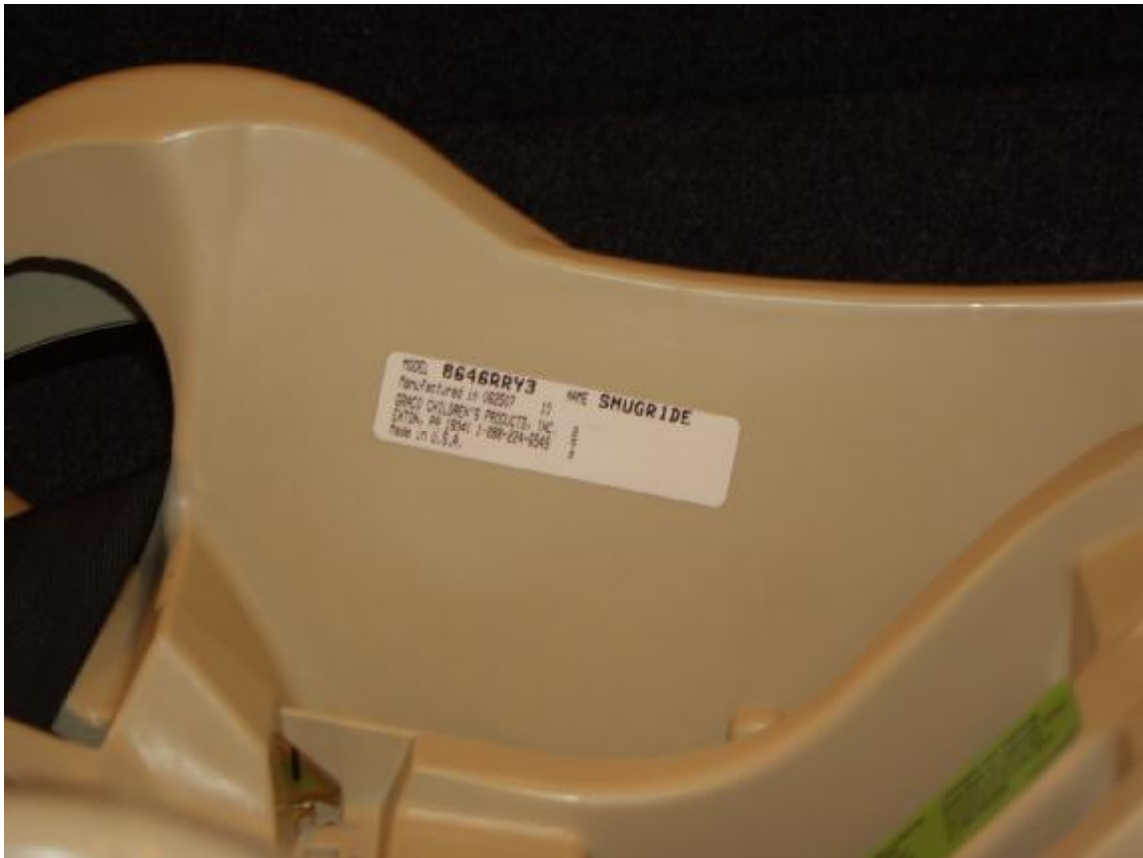


Figure 3-1: CLOSE-UP VIEW OF POSITION 3CRS BASE LABEL

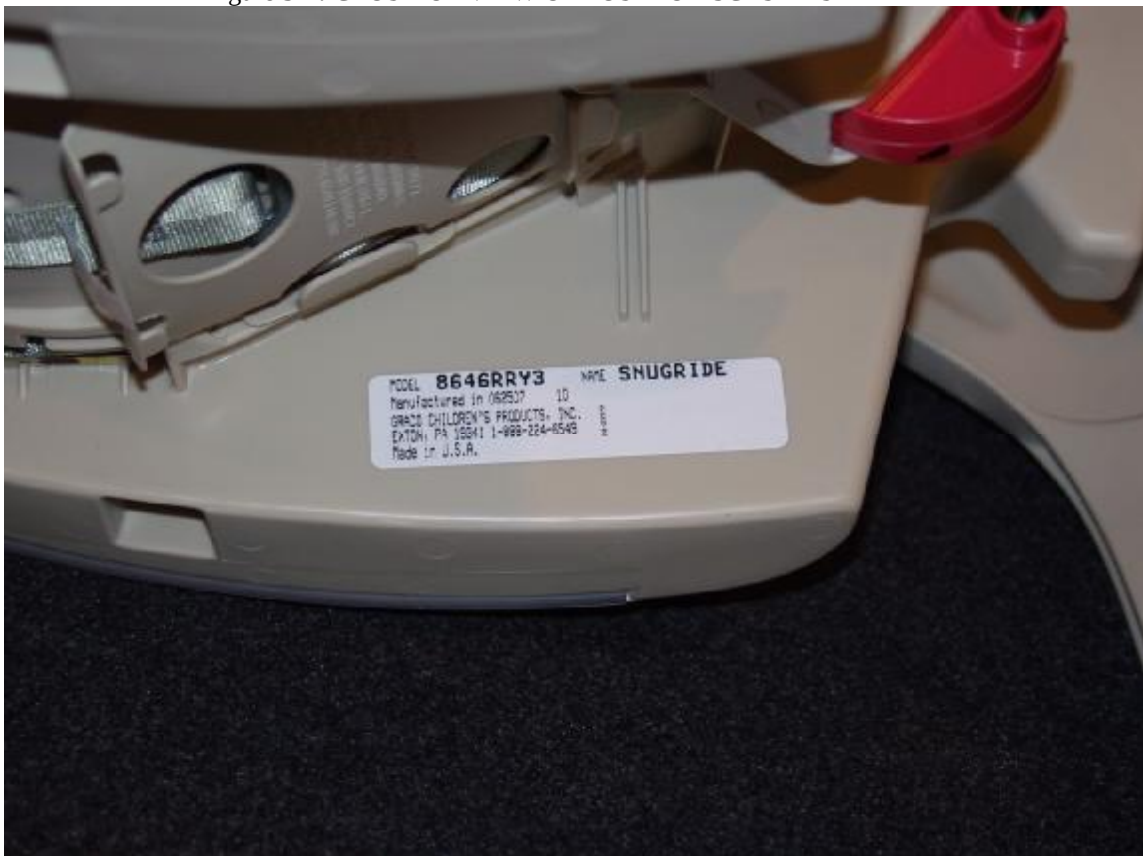


Figure 3-2: CLOSE-UP VIEW OF POSITION 3CRS CARRIER LABEL



Figure 3-3: PRE-TEST FRONTAL VIEW OF POSITION 3CRS



Figure 3-4: POST-TEST FRONTAL VIEW OF POSITION 3CRS

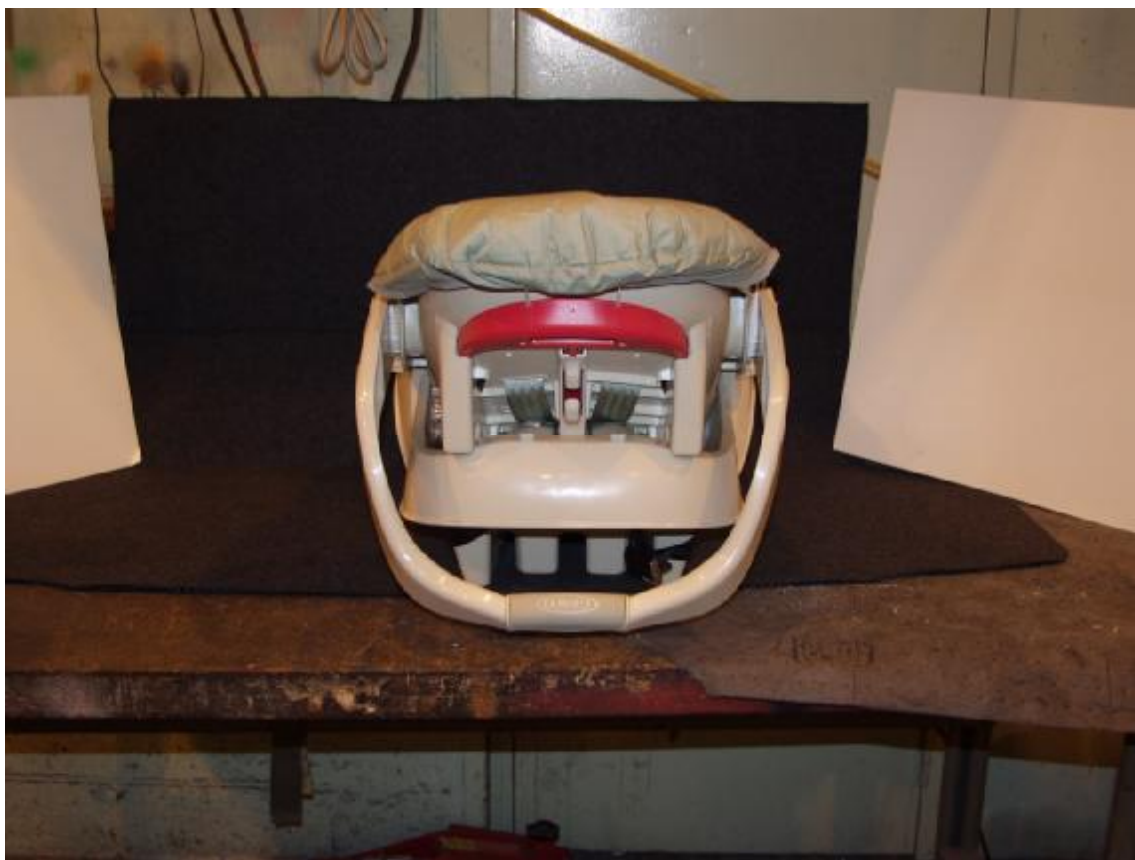


Figure 3-5: PRE-TEST REAR VIEW OF POSITION 3CRS



Figure 3-6: POST-TEST REAR VIEW OF POSITION 3CRS



Figure 3-7: PRE-TEST LEFT SIDE VIEW OF POSITION 3CRS



Figure 3-8: PRE-TEST LEFT SIDE VIEW OF POSITION 3CRS



Figure 3-9: PRE-TEST RIGHT SIDE VIEW OF POSITION 3CRS



Figure 3-10: POST-TEST RIGHT SIDE VIEW OF POSITION 3CRS



Figure 3-11: CLOSE-UP VIEW OF POSITION 4CRS BASE LABEL



Figure 3-12: CLOSE-UP VIEW OF POSITION 4CRS CARRIER LABEL



Figure 3-13: PRE-TEST FRONTAL VIEW OF POSITION 4CRS



Figure 3-14: POST-TEST FRONTAL VIEW OF POSITION 4CRS



Figure 3-15: PRE-TEST REAR VIEW OF POSITION 4CRS



Figure 3-16: POST-TEST REAR VIEW OF POSITION 4CRS



Figure 3-17: PRE-TEST LEFT SIDE VIEW OF POSITION 4CRS



Figure 3-18: POST-TEST LEFT SIDE VIEW OF POSITION 4CRS



Figure 3-19: PRE-TEST RIGHT SIDE VIEW OF POSITION 4CRS



Figure 3-20: POST-TEST RIGHT SIDE VIEW OF POSITION 4CRS



Figure 3-21: PRE-TEST POSITION 3 LEFT SIDE VIEW



Figure 3-22: POST-TEST POSITION 3 LEFT SIDE VIEW



Figure 3-23: PRE-TEST POSITION 3 RIGHT SIDE VIEW



Figure 3-24: POST-TEST POSITION 3 RIGHT SIDE VIEW



Figure 3-25: PRE-TEST POSITION 3 REAR VIEW



Figure 3-26: POST-TEST POSITION 3 REAR VIEW



Figure 3-27: PRE-TEST POSITION 4 LEFT SIDE VIEW



Figure 3-28: POST-TEST POSITION 4 LEFT SIDE VIEW



Figure 3-29: PRE-TEST POSITION 4 RIGHT SIDE VIEW



Figure 3-30: POST-TEST POSITION 4 RIGHT SIDE VIEW



Figure 3-31: PRE-TEST POSITION 4 REAR VIEW



Figure 3-32: POST-TEST POSITION 4 REAR VIEW

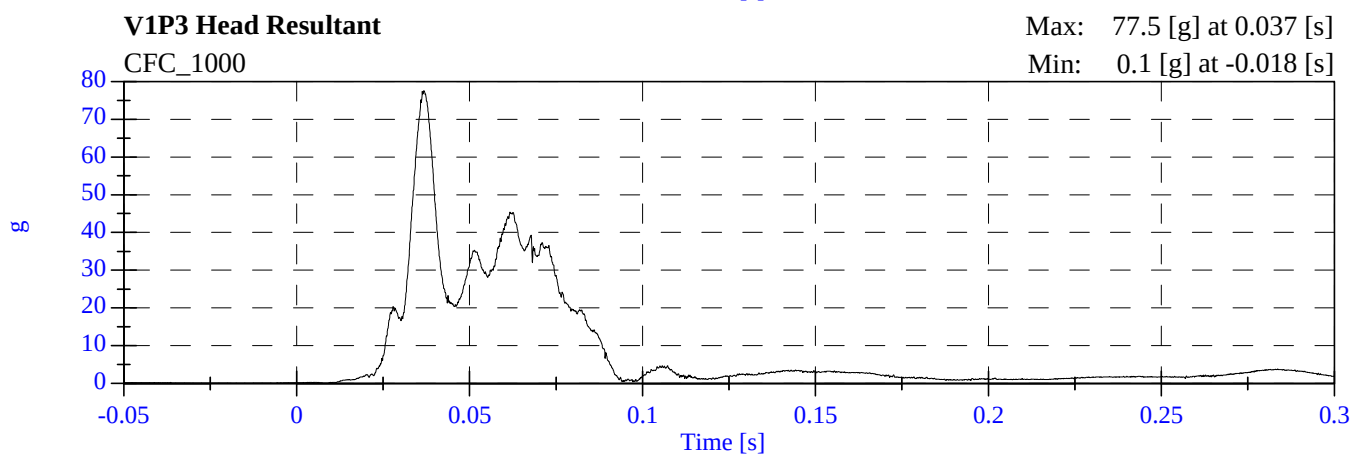
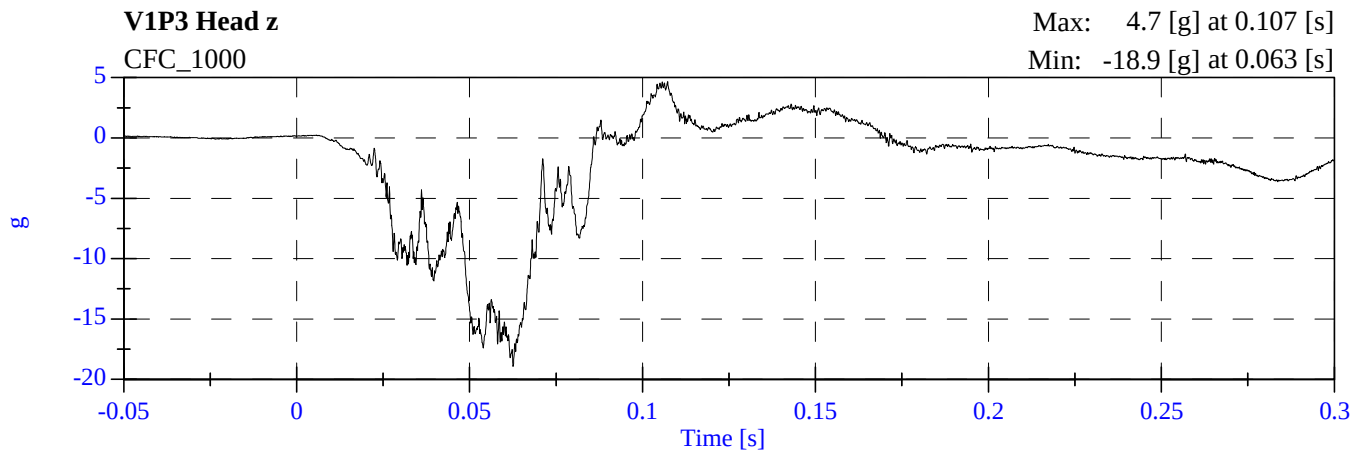
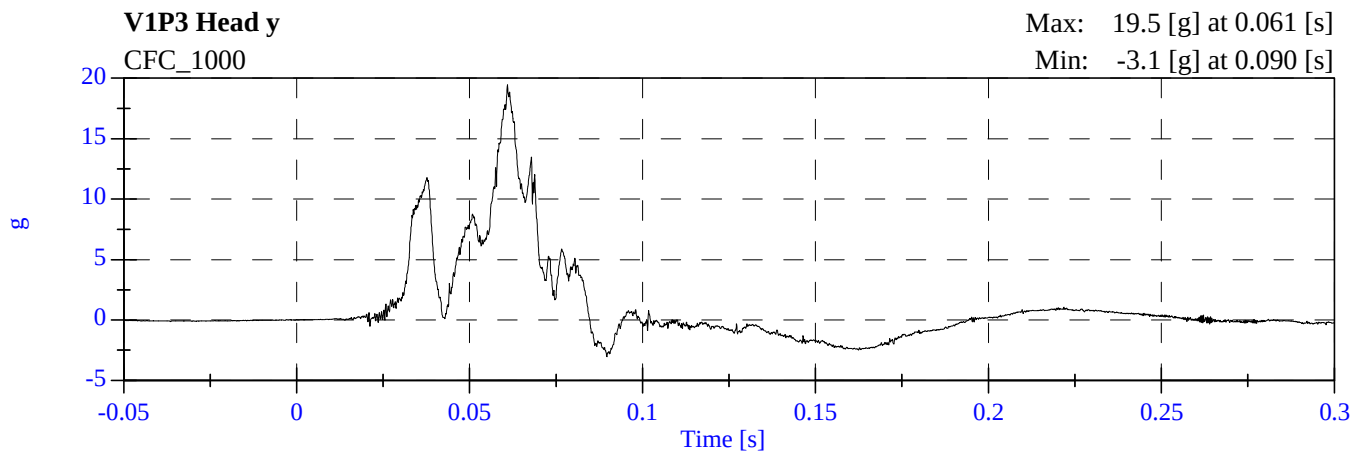
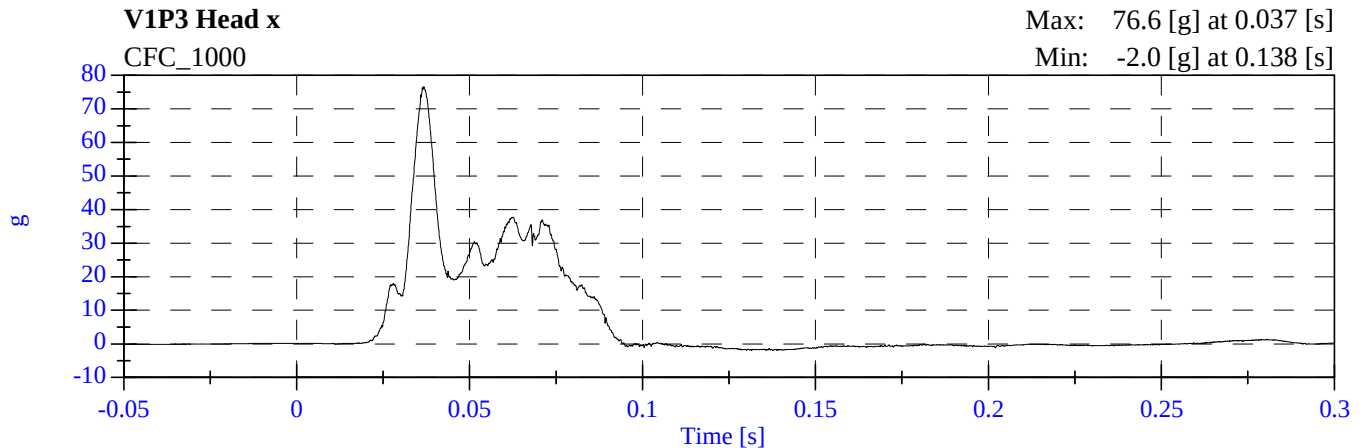
SECTION 4

CHILD DUMMY RESPONSE AND CRS DATA TRACES

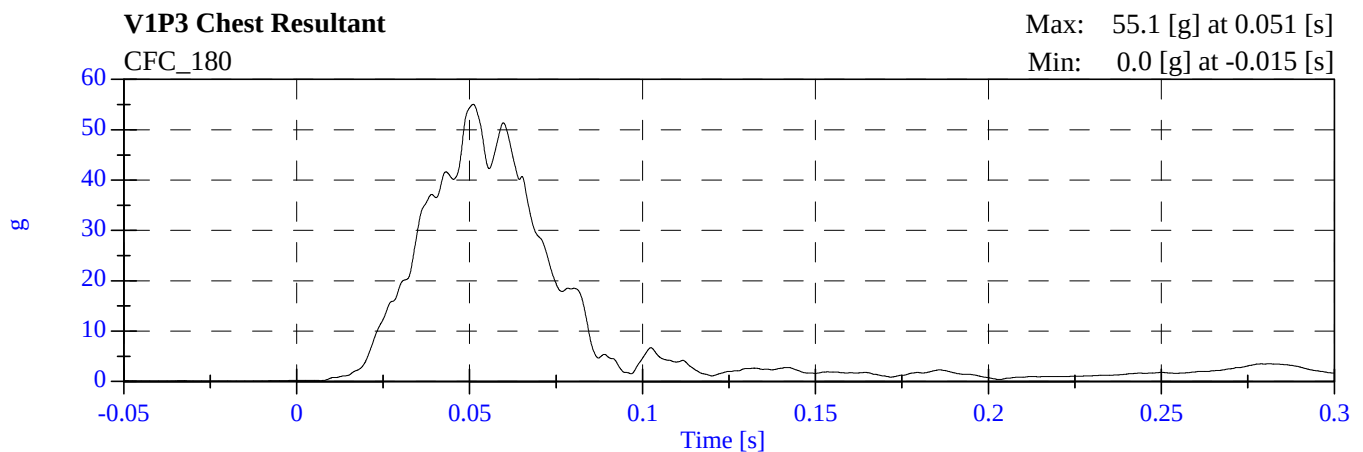
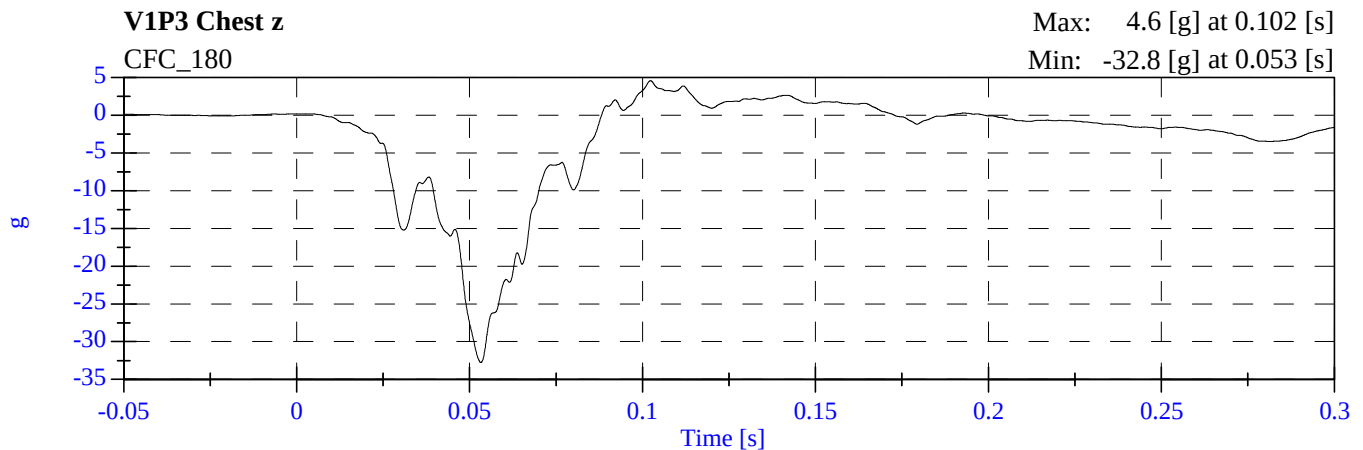
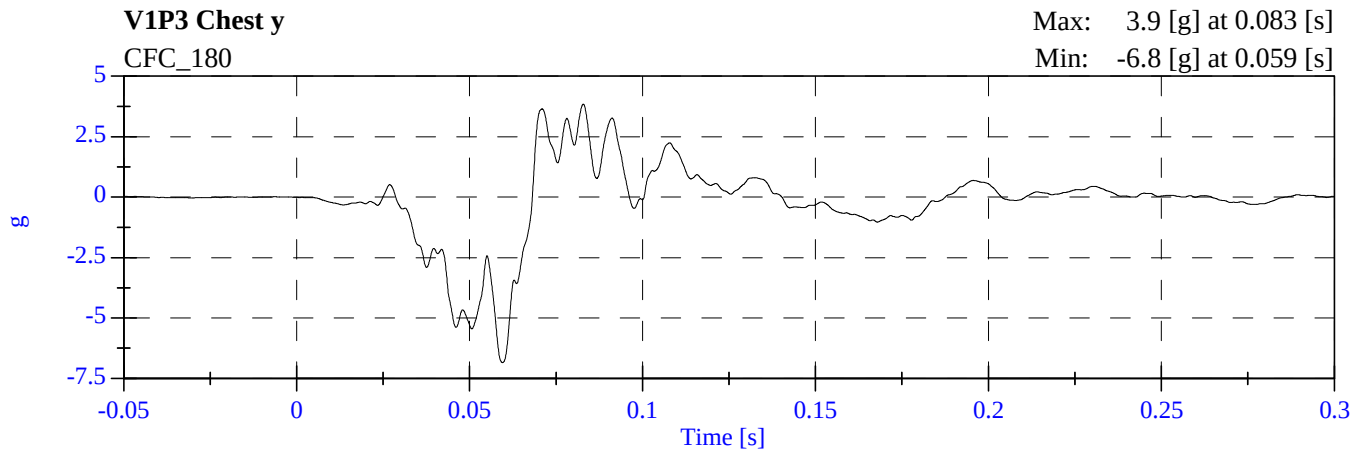
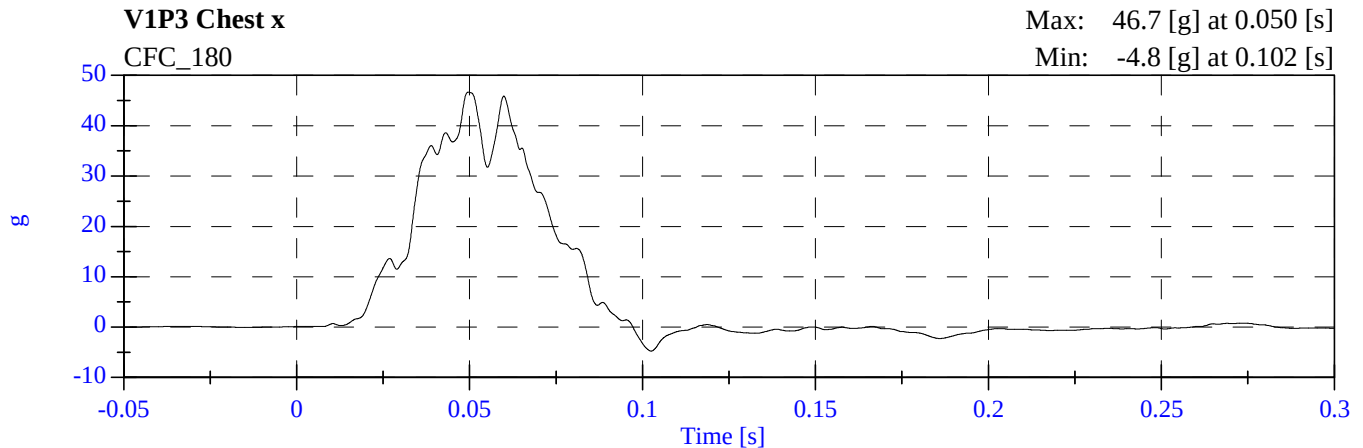
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2	P3 Head y [g, CFC_1000]	4-3
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24	P4 Child Seat Resultant [g, CFC_60]	4-8

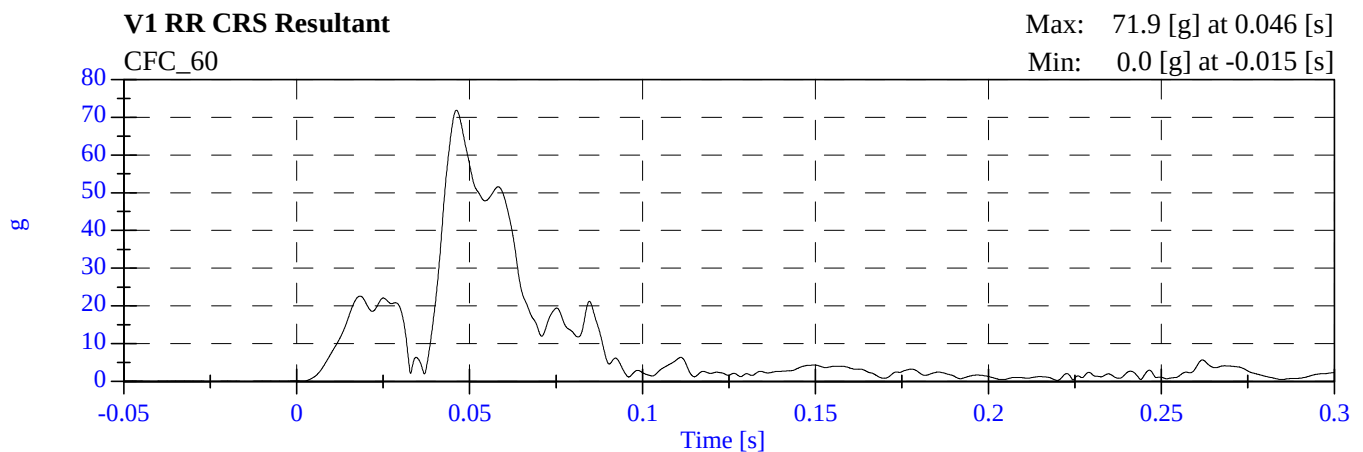
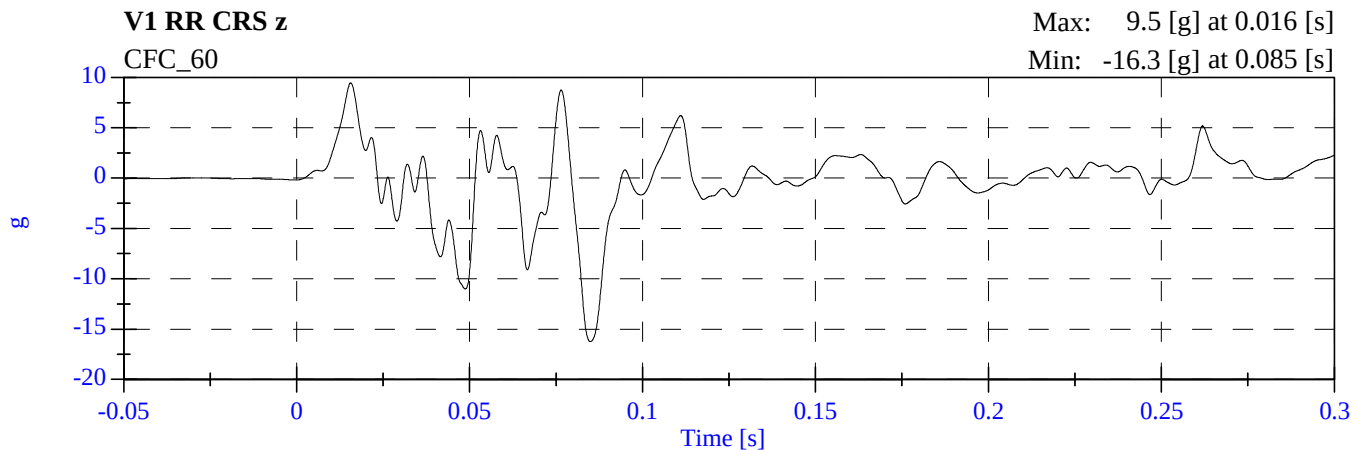
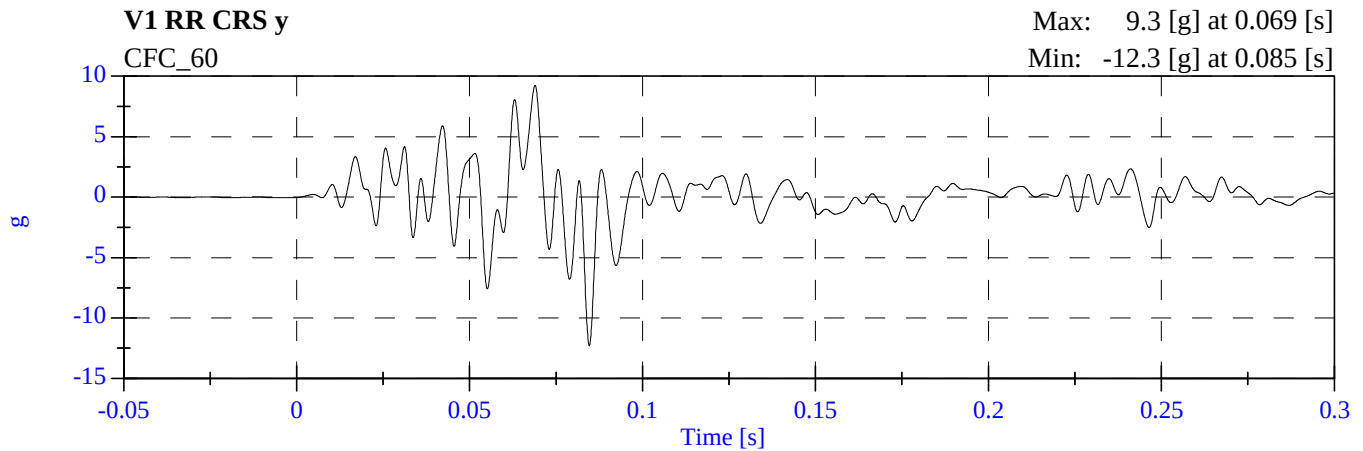
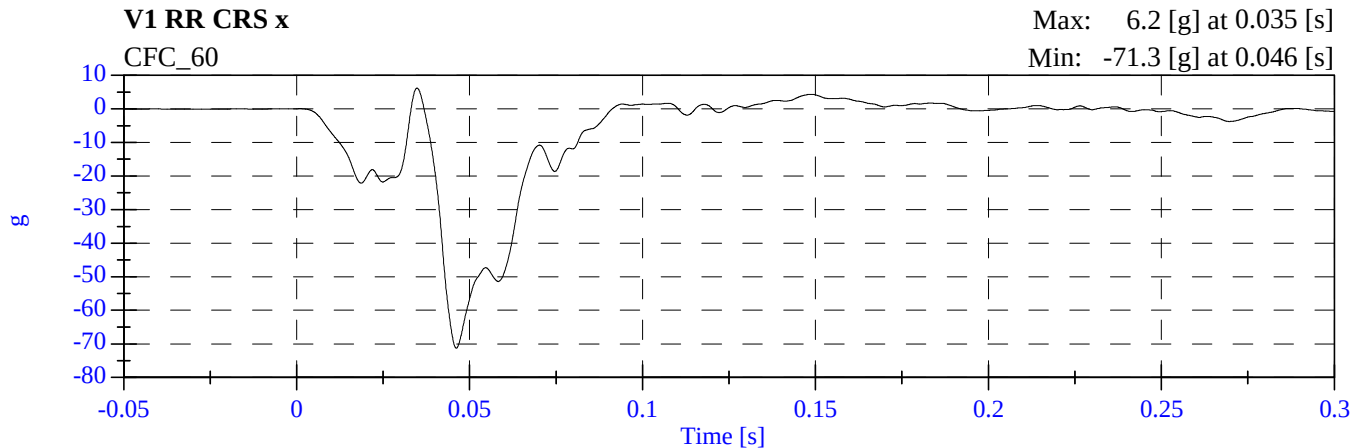
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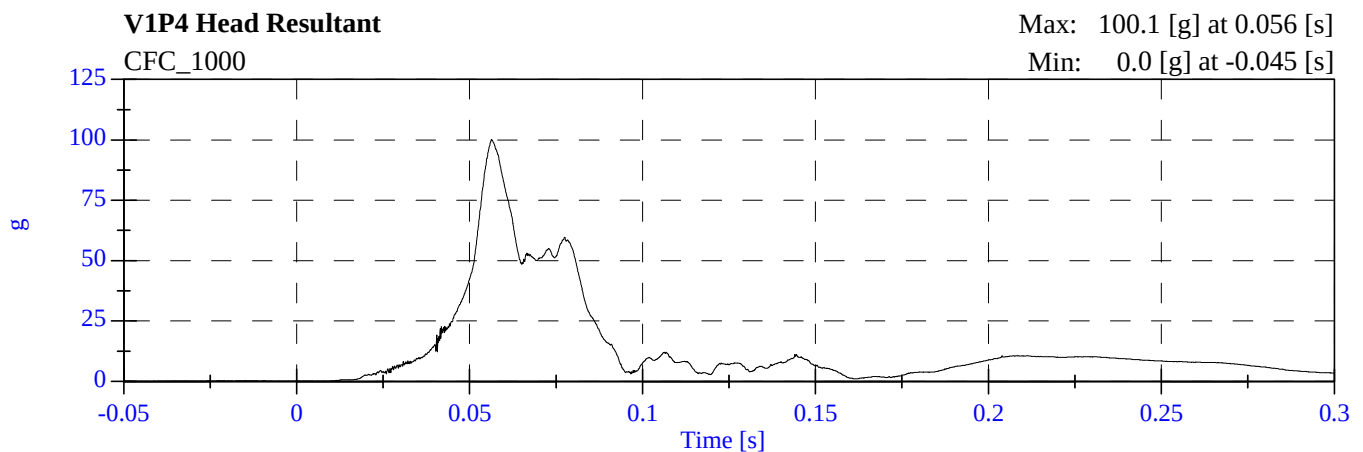
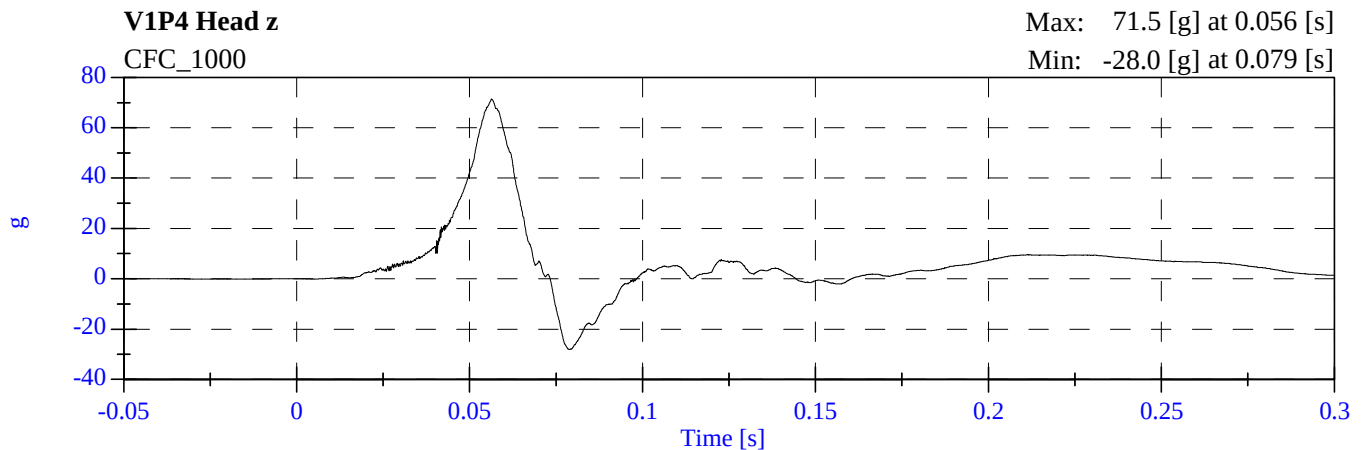
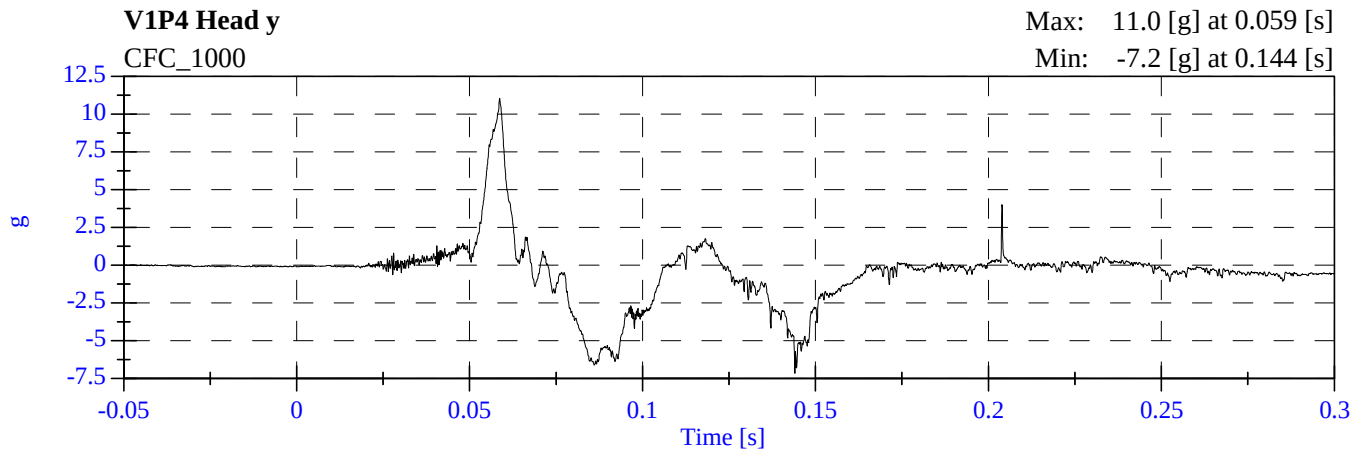
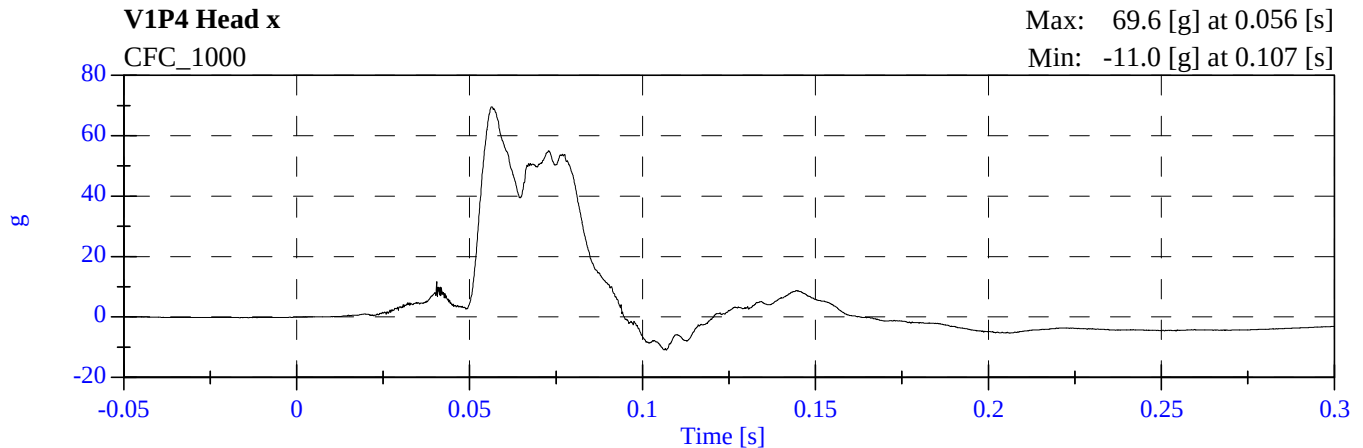
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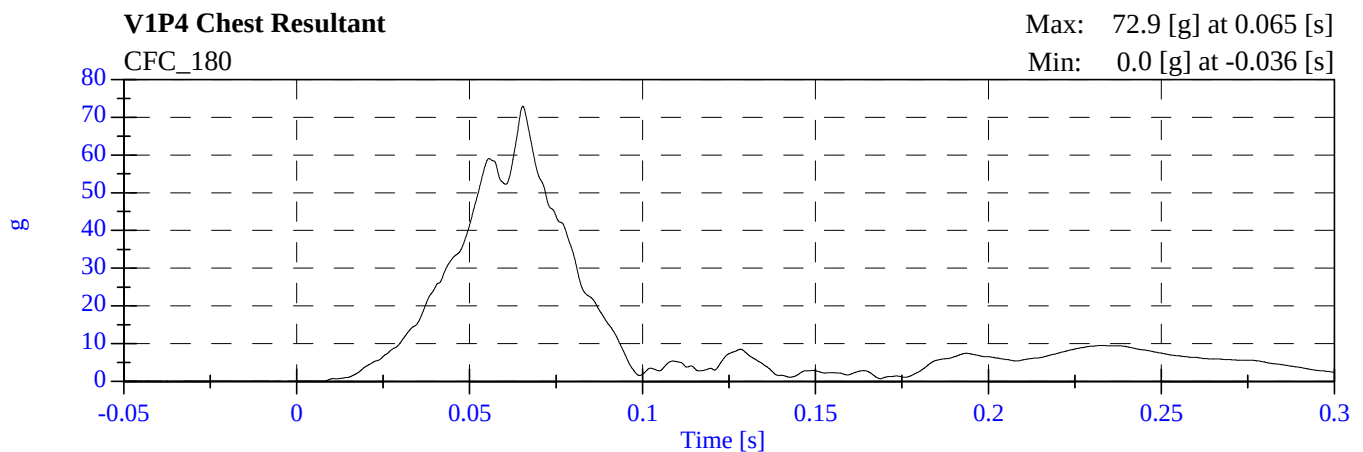
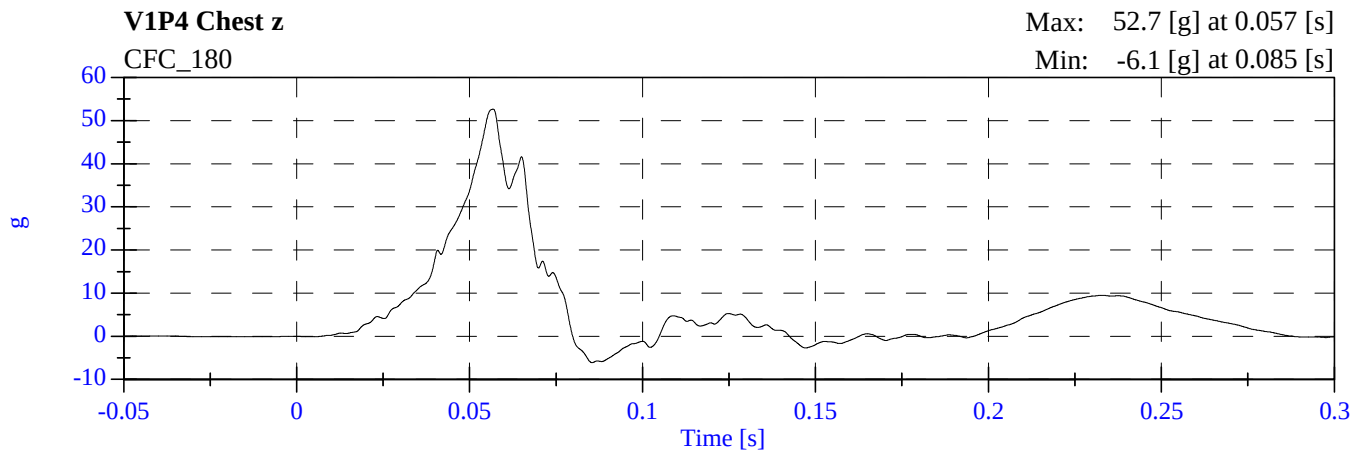
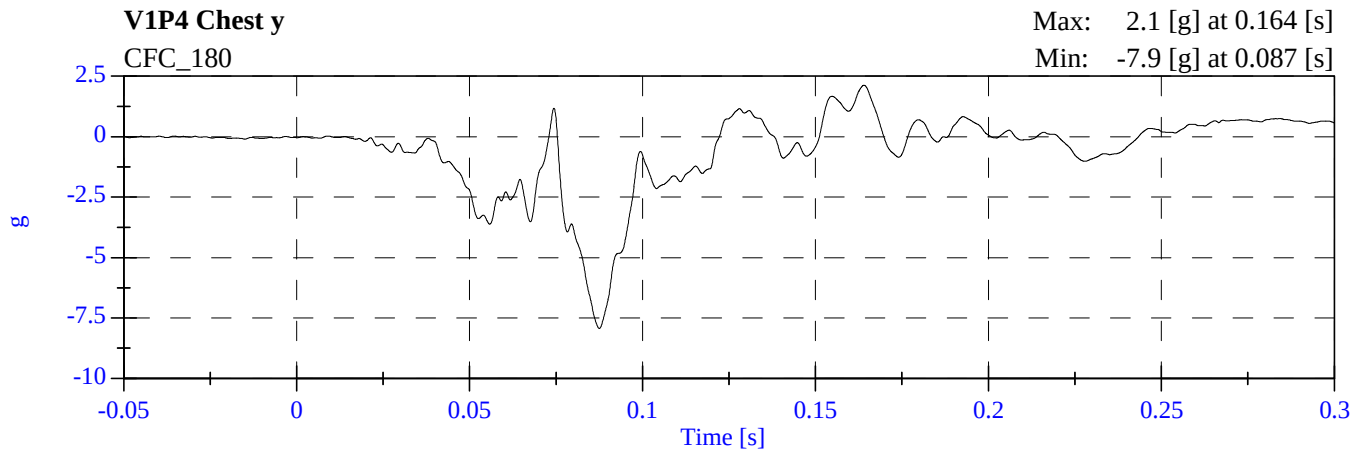
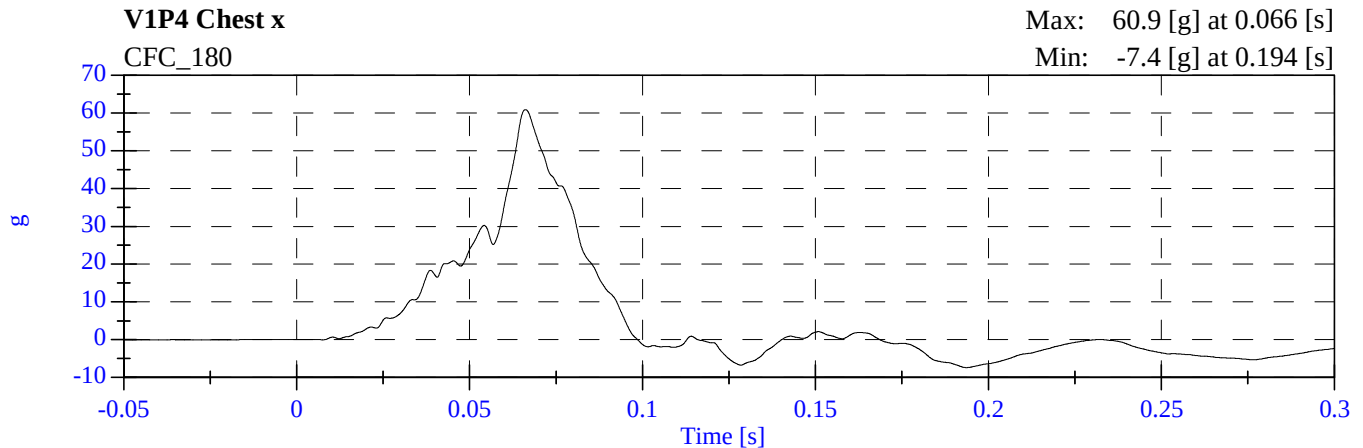
2008 NCAP Test 1 2008 Subaru Impreza M85500 - September 11, 2007



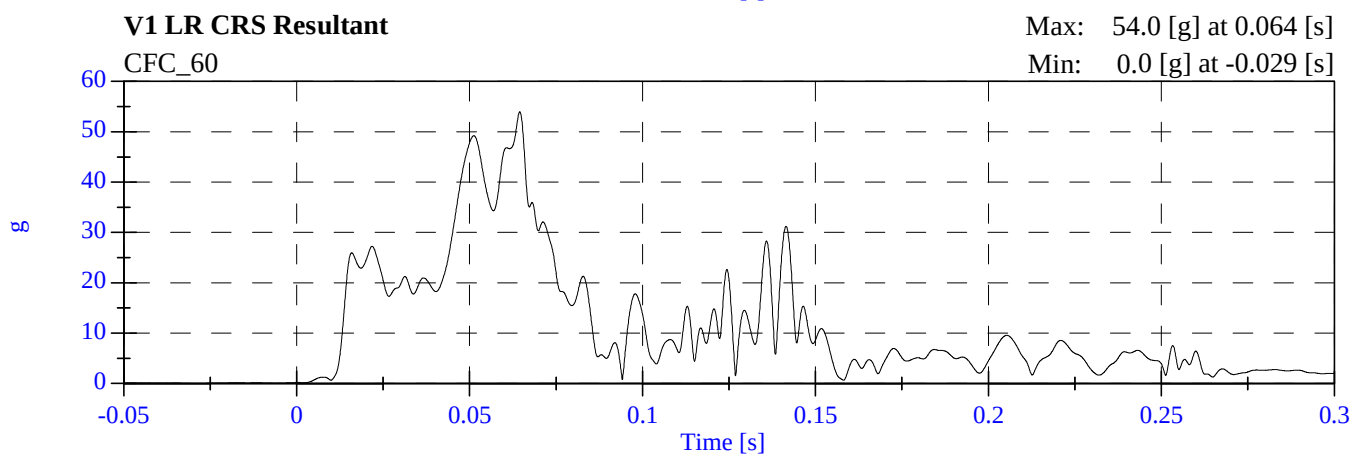
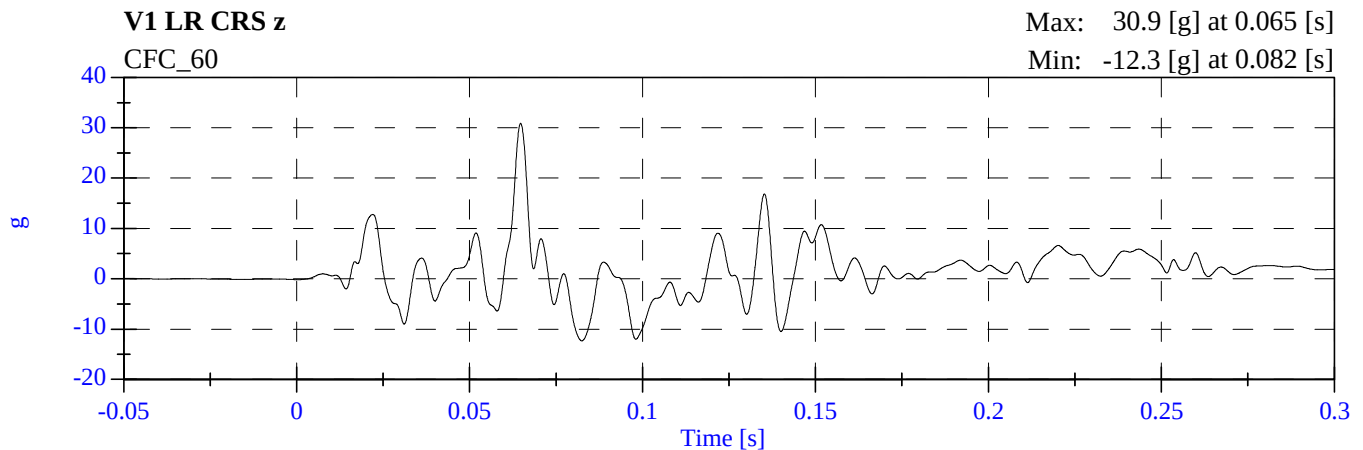
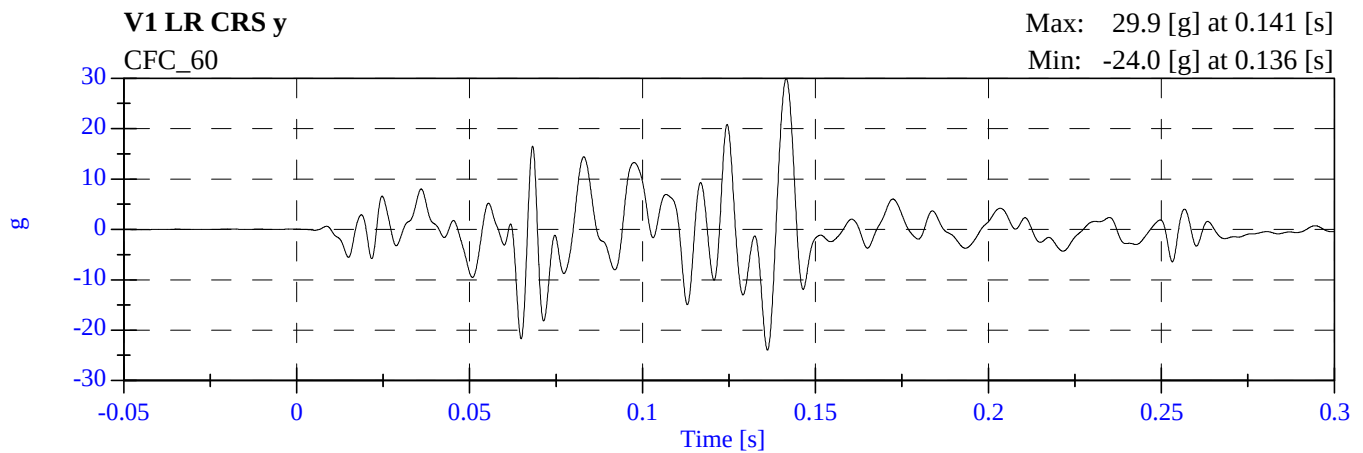
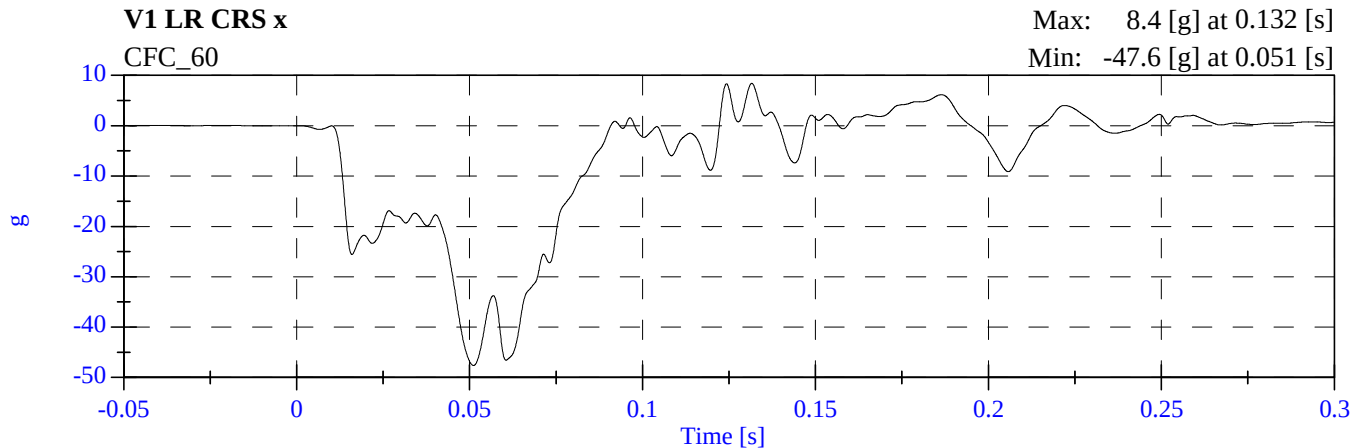
2008 NCAP Test 1 2008 Subaru Impreza M85500 - September 11, 2007



2008 NCAP Test 1 2008 Subaru Impreza M85500 - September 11, 2007



2008 NCAP Test 1 2008 Subaru Impreza M85500 - September 11, 2007



SECTION 5

CHILD DUMMY CALIBRATION INFORMATION

Head Drop Frontal

Part 572R Frontal Head Drop

Calibration Date:

01-15-07

Serial No: 103

Work File:

Crabi_103_HD_Front_

TEST RESULTS

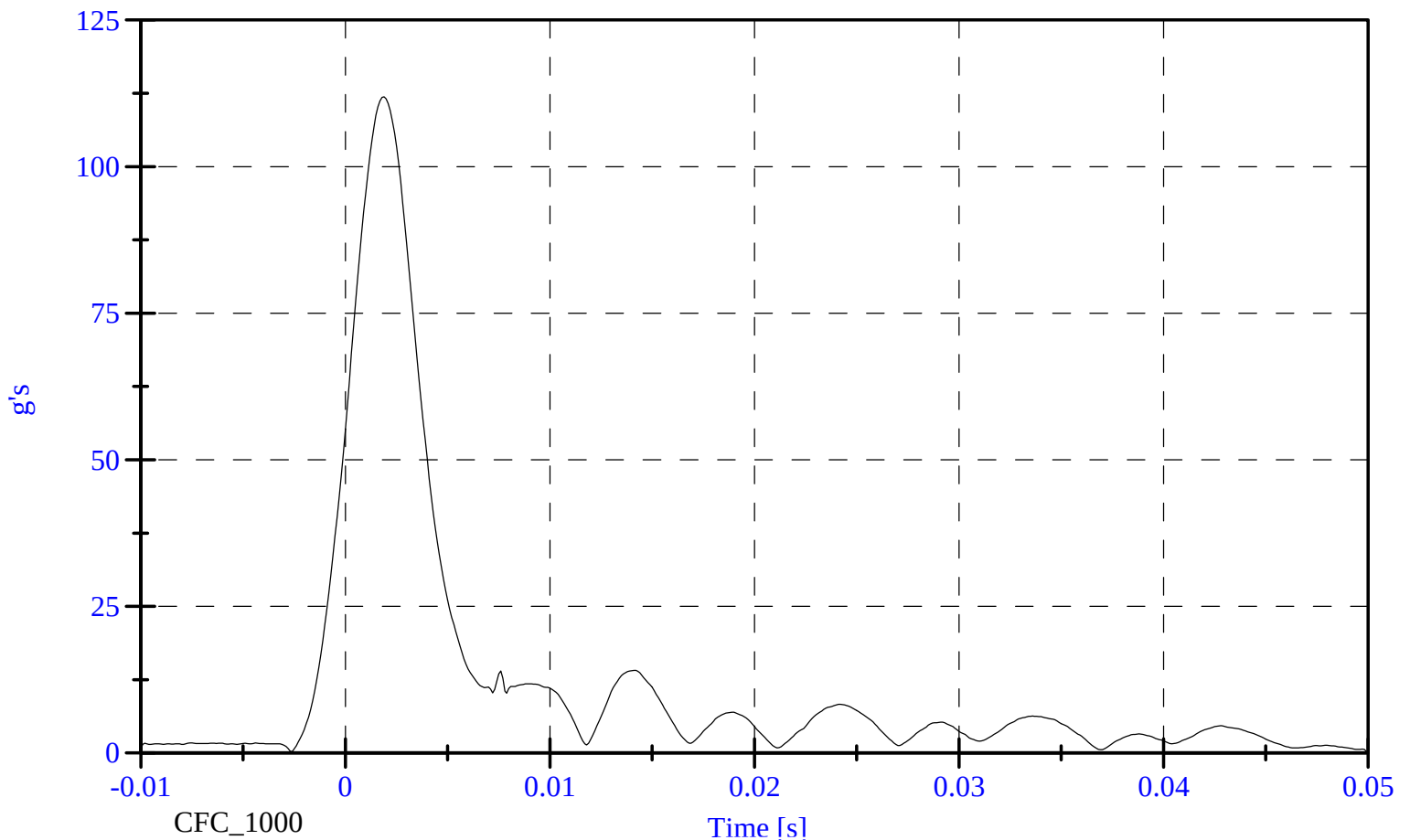
<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	36.00 %	Passed
Peak Resultant Accel.:	100-120 Gs	111.95 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	13.03 Gs	Passed
Curve PerCent NonModal:	< 17%	12.59 %	Passed

Head Drop Frontal

Head Resultant

Max: 112.0 [g's] at 0.002 [s]

Min: 0.2 [g's] at -0.003 [s]



Head Drop Rear

Part 572R Rear Head Drop

Calibration Date: 01-15-07

Serial No: 103

Work File: Crabi_103_HD_Rear_01-15-07

-----TEST RESULTS-----

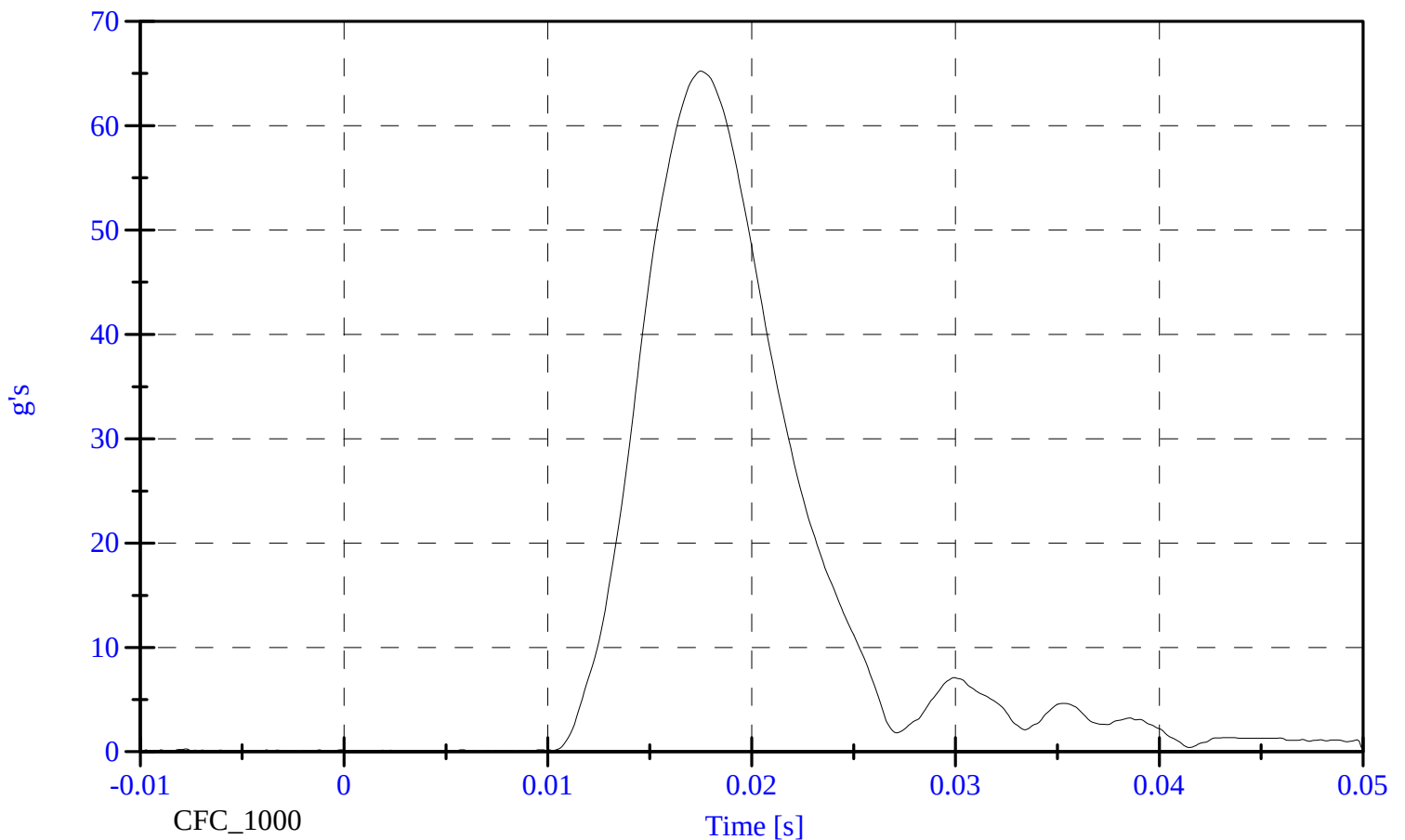
<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	36.00 %	Passed
Peak Resultant Accel.:	55-71 Gs	65.22 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	2.91 Gs	Passed
Curve PerCent NonModal:	< 17%	10.88 %	Passed

Head Drop Rear

Head Resultant

Max: 65.2 [g's] at 0.018 [s]

Min: 0.0 [g's] at -0.005 [s]



Neck Flexion

Part 572R	Neck Flexion Test	Calibration Date:	01-15-07
Serial No:	103	Work File:	Crabi_103_NF_01-15-0

-----TEST RESULTS-----

<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.11 C	Passed
Lab Humidity:	10-70 %	37.00 %	Passed
Test Pendulum Speed:	5.10- 5.30 m/s	5.25 m/s	Passed

-----PENDULUM PULSE-----

Pulse at 10 ms:	1.60- 2.30 m/s	1.78 m/s	Passed
Pulse at 20 ms:	3.40- 4.20 m/s	3.75 m/s	Passed
Pulse at 25 ms:	4.30- 5.20 m/s	4.59 m/s	Passed

-----D PLANE ROTATION-----

Maximum Rotation:	75.0-86.0 Deg	84.66 Deg	Passed
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-----MOMENT ABOUT THE OCCIPITAL CONDYLE-----

Max Occipital Moment:	36.00- 45.00 N-m	39.67 N-m	Passed
Occipital Moment Decay:	60.0-80.0 ms	76.00 ms	Passed

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Neck Extension

Part 572R	Neck Extension Test	Calibration Date:	01-15-07
Serial No:	103	Work File:	Crabi_103_NE1_01-15-

-----TEST RESULTS-----

<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.11 C	Passed
Lab Humidity:	10-70 %	37.00 %	Passed
Test Pendulum Speed:	2.40- 2.60 m/s	2.43 m/s	Passed

-----PENDULUM PULSE-----

Pulse at 6 ms:	0.80- 1.20 m/s	0.83 m/s	Passed
Pulse at 10 ms:	1.50- 2.10 m/s	1.62 m/s	Passed
Pulse at 14 ms:	2.20- 2.90 m/s	2.50 m/s	Passed

-----D PLANE ROTATION-----

Maximum Rotation:	80.0-92.0 Deg	80.83 Deg	Passed
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-----MOMENT ABOUT THE OCCIPITAL CONDYLE-----

Max Occipital Moment:	-23.00--12.00 N-m	-15.61 N-m	Passed
Occipital Moment Decay:	76.0-90.0 ms	83.10 ms	Passed

FM-ATDLAB-572.143E-0005-R00

Thorax Impact

Part 572R Thorax Impact

Calibration Date:

01-16-07

Serial No: 103

Work File:

Crabi_103_T3_01-16-0'

-----TEST RESULTS-----

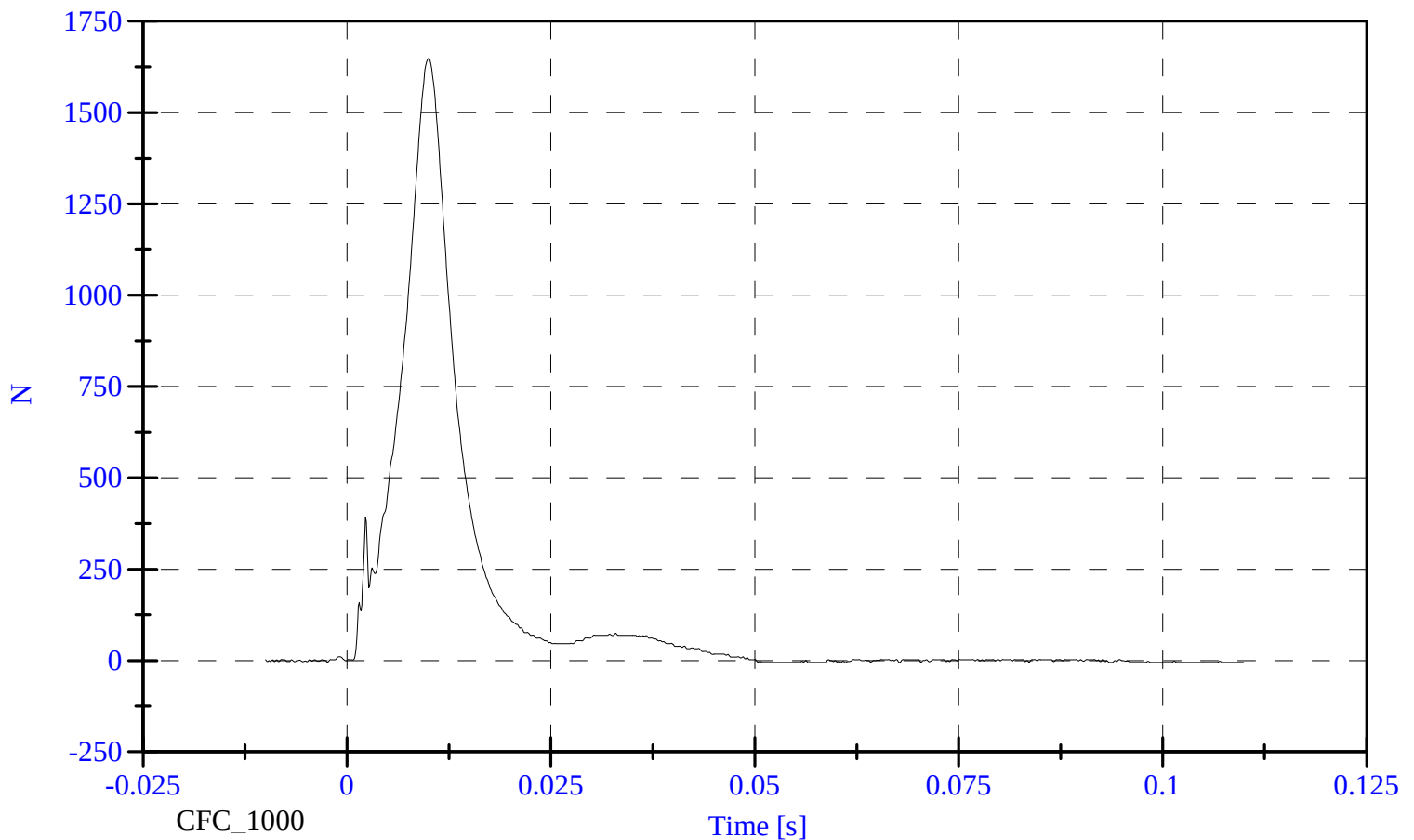
<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Pendulum Velocity:	4.90- 5.10 m/s	5.01 m/s	Passed
Maximum Res. Force:	1514.00-1796.00 N	1648.54 N	Passed

Thorax Impact

Probe Force vs. Time

Max: 1648.5 [N] at 0.010 [s]

Min: -5.5 [N] at 0.061 [s]



Head Drop Frontal

Part 572R Frontal Head Drop

Calibration Date: 01-15-07

Serial No: 102

Work File: Crabi_102_HD1_01-15-

-----TEST RESULTS-----

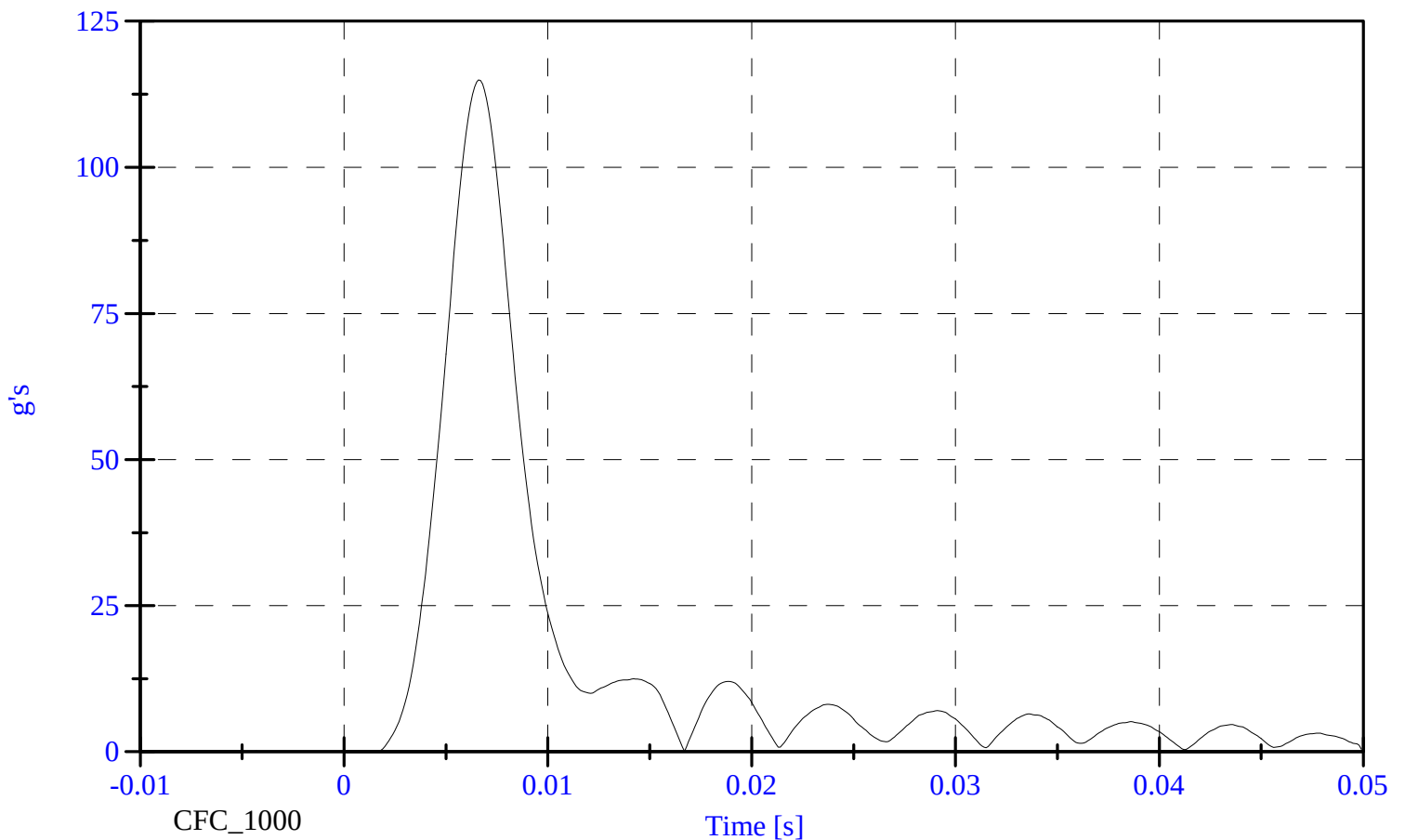
<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	36.00 %	Passed
Peak Resultant Accel.:	100-120 Gs	114.95 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	13.62 Gs	Passed
Curve PerCent NonModal:	< 17%	10.85 %	Passed

Head Drop Frontal

Head Resultant

Max: 114.9 [g's] at 0.007 [s]

Min: 0.0 [g's] at -0.010 [s]



Head Drop Rear

Part 572R Rear Head Drop

Calibration Date: 01-15-07

Serial No: 102

Work File: Crabi_102_HD_Rear_01-15-07

-----TEST RESULTS-----

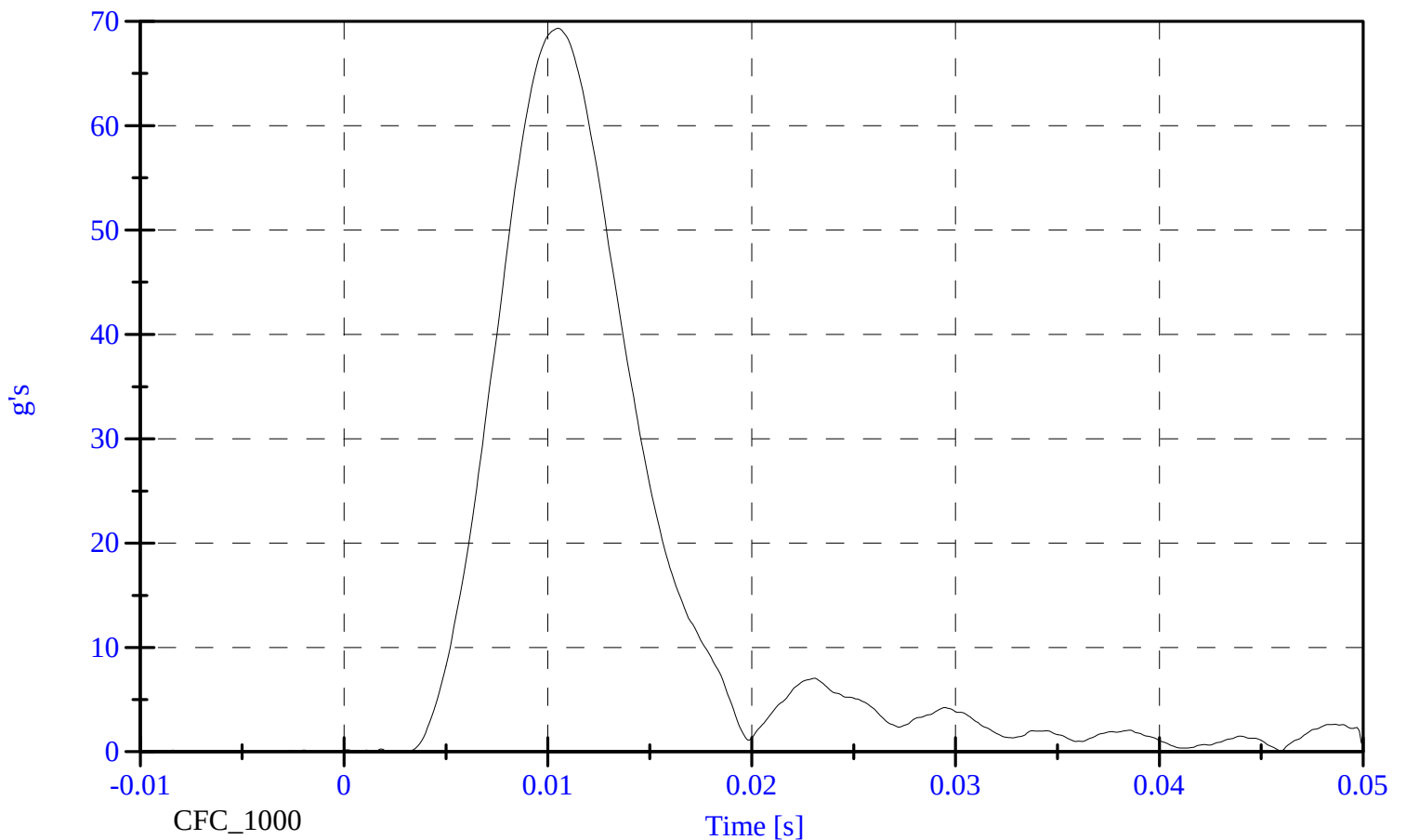
<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	66.0-78.0 F	70.0 F	Passed
Lab Humidity:	10-70 %	36.00 %	Passed
Peak Resultant Accel.:	55-71 Gs	69.35 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	7.02 Gs	Passed
Curve PerCent NonModal:	< 17%	10.15 %	Passed

Head Drop Rear

Head Resultant

Max: 69.3 [g's] at 0.011 [s]

Min: 0.0 [g's] at 0.001 [s]



Neck Flexion

Part 572R	Neck Flexion Test	Calibration Date:	01-15-07
Serial No:	102	Work File:	Crabi_102_NF1_01-15-

-----TEST RESULTS-----

<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.11 C	Passed
Lab Humidity:	10-70 %	36.00 %	Passed
Test Pendulum Speed:	5.10- 5.30 m/s	5.25 m/s	Passed

-----PENDULUM PULSE-----

Pulse at 10 ms:	1.60- 2.30 m/s	1.79 m/s	Passed
Pulse at 20 ms:	3.40- 4.20 m/s	3.77 m/s	Passed
Pulse at 25 ms:	4.30- 5.20 m/s	4.58 m/s	Passed

-----D PLANE ROTATION-----

Maximum Rotation:	75.0-86.0 Deg	85.14 Deg	Passed
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-----MOMENT ABOUT THE OCCIPITAL CONDYLE-----

Max Occipital Moment:	36.00- 45.00 N-m	42.67 N-m	Passed
Occipital Moment Decay:	60.0-80.0 ms	74.00 ms	Passed

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Neck Extension

Part 572R	Neck Extension Test	Calibration Date:	01-15-07
Serial No:	102	Work File:	Crabi_102_NE_01-15-0

-----TEST RESULTS-----

<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	69.0-72.0 F	70.00 F	Passed
Lab Humidity:	10-70 %	36.00 %	Passed
Test Pendulum Speed:	7.90- 8.50 ft/s	7.95 ft/s	Passed

-----PENDULUM PULSE-----

Pulse at 6 ms:	2.60- 3.90 ft/s	2.80 ft/s	Passed
Pulse at 10 ms:	4.90- 6.90 ft/s	5.28 ft/s	Passed
Pulse at 14 ms:	7.20- 9.50 ft/s	8.02 ft/s	Passed

-----D PLANE ROTATION-----

Maximum Rotation:	80.0-92.0 Deg	80.60 Deg	Passed
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-----MOMENT ABOUT THE OCCIPITAL CONDYLE-----

Max Occipital Moment:	-23.00--12.00 N-m	-12.85 N-m	Passed
Occipital Moment Decay:	76.0-90.0 ms	86.10 ms	Passed

FM-ATDLAB-572.143E-0005-R00

Thorax Impact

Part 572R Thorax Impact

Calibration Date:

01-16-07

Serial No: 102

Work File:

Crabi_102_T2_01-16-0'

-----TEST RESULTS-----

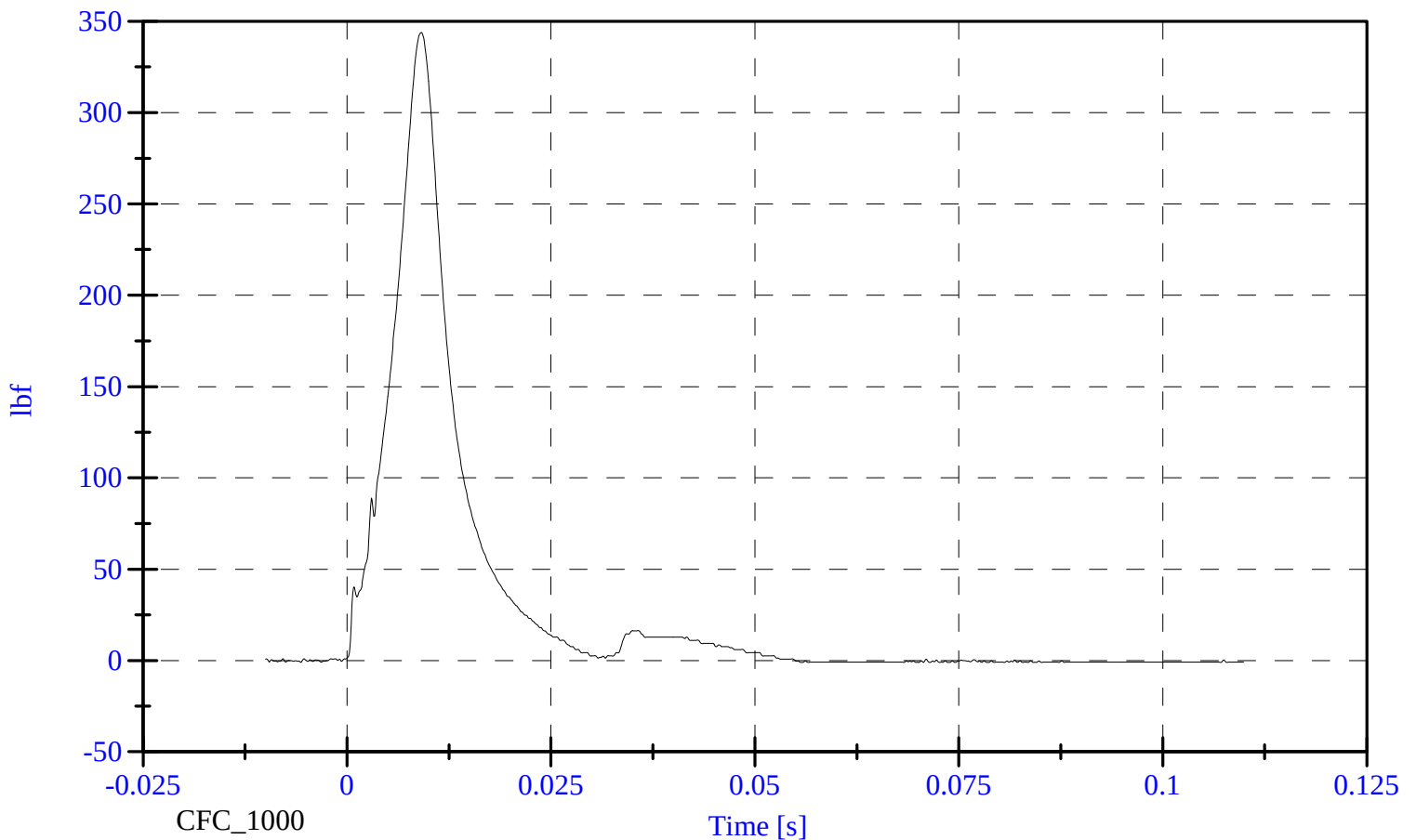
<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	69.0-72.0 F	70.0 F	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Pendulum Velocity:	16.20-16.80 ft/s	16.42 ft/s	Passed
Maximum Res. Force:	340.70- 404.10 lbf	344.01 lbf	Passed

Thorax Impact

Probe Force vs. Time

Max: 344.0 [lbf] at 0.009 [s]

Min: -1.1 [lbf] at 0.082 [s]



SECTION 6

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

P572C INSTRUMENTATION

	POSITION #3 (RIGHT) SERIAL NO.: 102		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-P51288	ENDEVCO	11-Jan-07
HEAD AY	AC-P51295	ENDEVCO	09-Jan-07
HEAD AZ	AC-P51282	ENDEVCO	09-Jan-07
HEAD RAZ	AC-P51298	ENDEVCO	09-Jan-07
UPPER NECK FX	LC-231Fx	DENTON	11-Jan-07
UPPER NECK FY	LC-231Fy	DENTON	11-Jan-07
UPPER NECK FZ	LC-231Fz	DENTON	11-Jan-07
UPPER NECK MX	LC-231Mx	DENTON	11-Jan-07
UPPER NECK MY	LC-231My	DENTON	11-Jan-07
UPPER NECK MZ	LC-231Mz	DENTON	11-Jan-07
CHEST AX	AC-B02A18-N21	ENTRAN	09-Jan-07
CHEST AY	AC-99H30-Z14	ENTRAN	09-Jan-07
CHEST AZ	AC-00L13-F39	ENTRAN	29-Jan-07

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

P572C INSTRUMENTATION

	POSITION #4 (LEFT) SERIAL NO.: 103		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-03E03E20-N04	ENTRAN	09-Jan-07
HEAD AY	AC-02A18-N01	ENTRAN	09-Jan-07
HEAD AZ	AC-B02A25-N01	ENTRAN	09-Jan-07
HEAD RAZ	AC-03D03D09-N08	ENTRAN	09-Jan-07
UPPER NECK FX	LC-211Fx	DENTON	08-Jan-07
UPPER NECK FY	LC-211Fy	DENTON	08-Jan-07
UPPER NECK FZ	LC-211Fz	DENTON	08-Jan-07
UPPER NECK MX	LC-211Mx	DENTON	08-Jan-07
UPPER NECK MY	LC-211My	DENTON	08-Jan-07
UPPER NECK MZ	LC-211Mz	DENTON	08-Jan-07
CHEST AX	AC-98H14-K15	ENTRAN	09-Jan-07
CHEST AY	AC-98H10-F02	ENTRAN	09-Jan-07
CHEST AZ	AC-P50093	ENDEVCO	09-Jan-07

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

VEHICLE AND MDB INSTRUMENTATION

	VEHICLE AND CRS INSTRUMENTS		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
P3 CRS (X)	J31101	ENDEVCO	8/10/2007
P3 CRS (Y)	J31059	ENDEVCO	8/10/2007
P3 CRS (Z)	P23174	ENDEVCO	8/10/2007
P4 CRS (X)	P18948	ENDEVCO	8/9/2007
P4 CRS (Y)	P14965	ENDEVCO	8/9/2007
P4 CRS (Z)	P17563	ENDEVCO	8/9/2007

REMARKS: None