

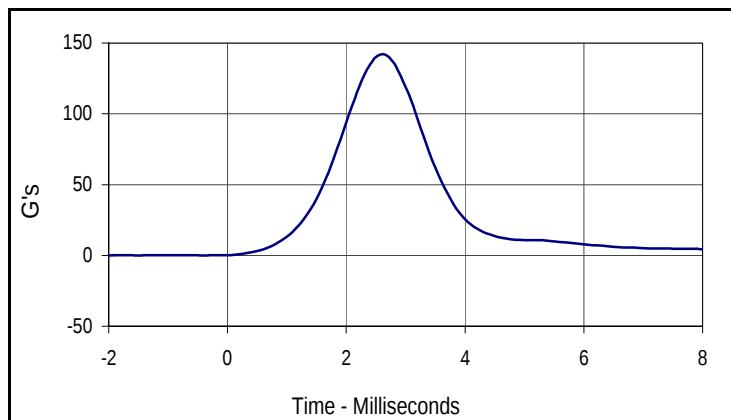
APPENDIX C
PRE-TEST CONFIGURATION AND PERFORMANCE VERIFICATION DATA

Test Program: ES2re Lateral Head Drop Calibration
 ATD Serial No.: F035

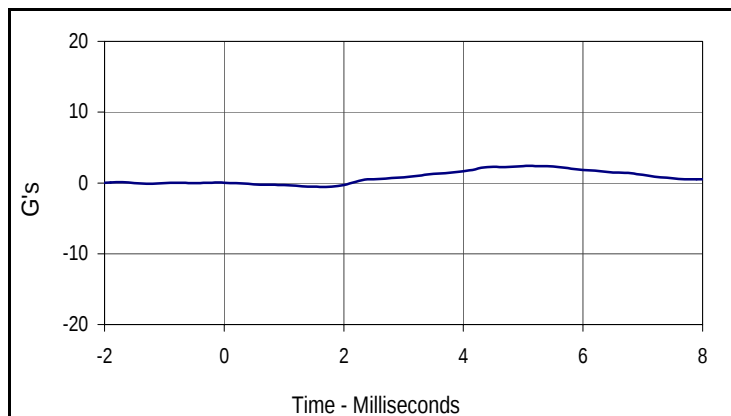
Test Date: 6/4/09
 Test I.D.: HD04G



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	125 to 155	142.1	Pass
Peak Longitudinal Acceleration	G's	≤15	2.4	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	7.6	Pass
Overall Test Results			Pass	



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
142.1	2.6	0.0	-2.0



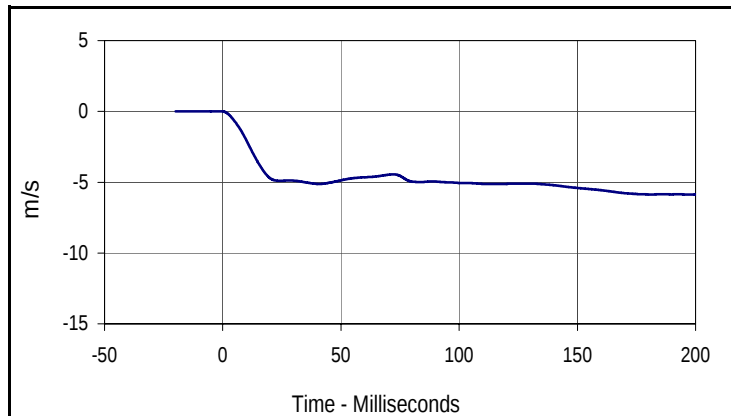
Curve Description			
Head X			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
2.4	5.1	-0.5	1.6

Test Program: ES2re Neck Calibration
 ATD Serial No.: F035

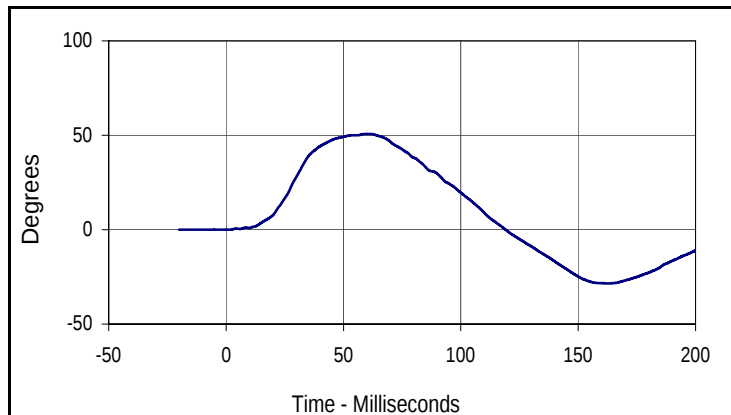
Test Date: 6/4/09
 Test I.D.: NB06A



Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	3.30 to 3.50	3.50	Pass
Pendulum Deceleration	1 msec	m/s	0.0 to -.050	-0.046	Pass
	3 msec	m/s	-.250 to -.375	-0.291	Pass
	14 msec	m/s	-3.20 to -3.70	-3.33	Pass
Headform Rotation	Max	Degrees	49.0 to 58.0	50.7	Pass
	Time	msec	54.0 to 66.0	60.8	Pass
Maximum Rotation To Time Zero Crossing		msec	53.0 to 88.0	58.3	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.3	-5.9	200.0



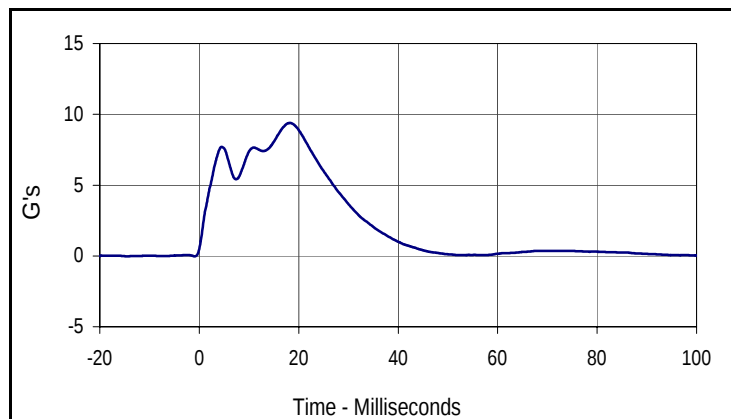
Curve Description			
Headform Rotation			
CURNO	Type	SAE Class	Units
002	FIL	180	Degrees
Max	Time	Min	Time
50.7	60.8	-28.4	162.5

Test Program: ES2re Shoulder Calibration
 ATD Serial No.: F035

Test Date: 6/4/09
 Test I.D.: SH06G



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.20 to 4.40	4.20	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	9.4	Pass
Overall Test Results				Pass



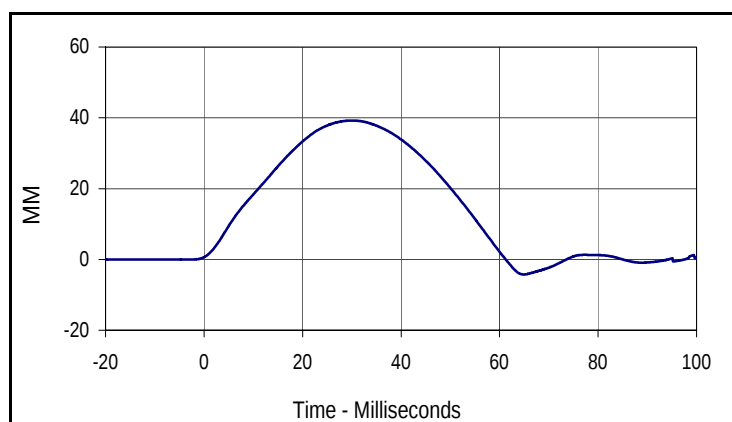
Curve Description			
Probe Impactor Acceleration			
CURNO	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
9.4	18.2	0.0	-0.9

Test Program: ES2re Rib Module Calibration
 ATD Serial No.: F035 Rib #1

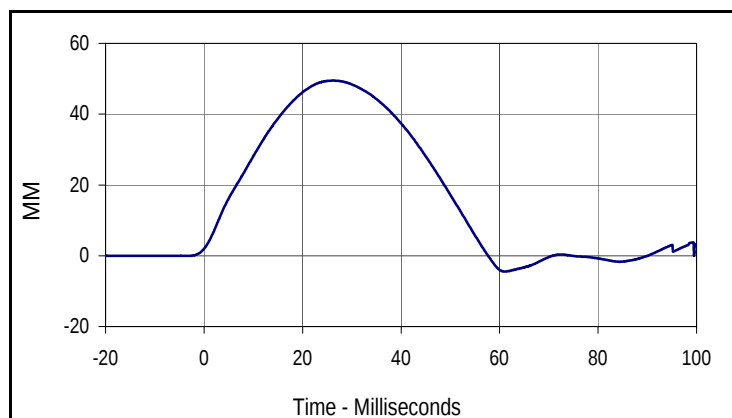
Test Date: 6/4/09
 Test I.D.: RIB06A, RIB06B



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Rib Deflection at 459 MM Drop Height	MM	36 to 40	39.2	Pass
Peak Rib Deflection at 815 MM Drop Height	MM	46 to 51	49.5	Pass
Overall Test Results			Pass	



Curve Description			
Upper Rib Deflection (459 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
39.2	30.3	-4.3	65.1



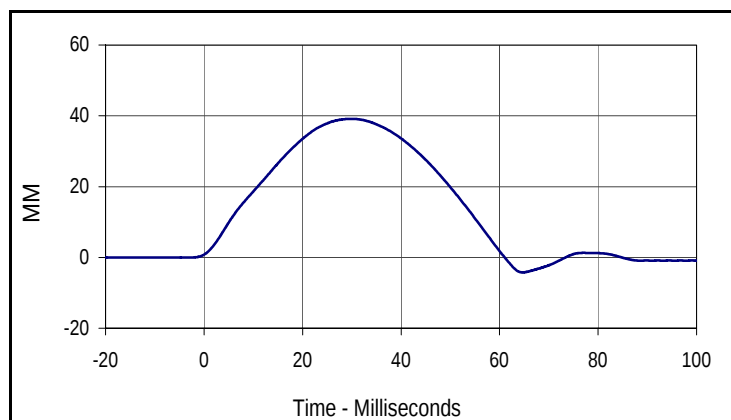
Curve Description			
Upper Rib Deflection (815 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
49.5	26.4	-4.5	61.2

Test Program: ES2re Rib Module Calibration
 ATD Serial No.: F035 Rib #2

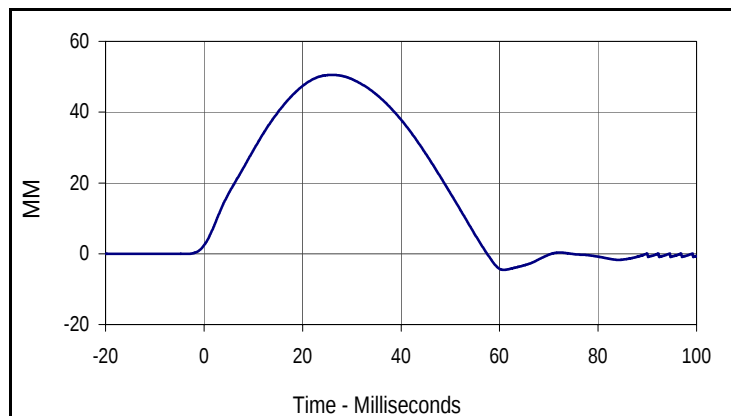
Test Date: 6/4/09
 Test I.D.: RIB06C, RIB06D



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Rib Deflection at 459 MM Drop Height	MM	36 to 40	39.1	Pass
Peak Rib Deflection at 815 MM Drop Height	MM	46 to 51	50.5	Pass
Overall Test Results			Pass	



Curve Description			
Upper Rib Deflection (459 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
39.1	30.1	-4.2	64.9



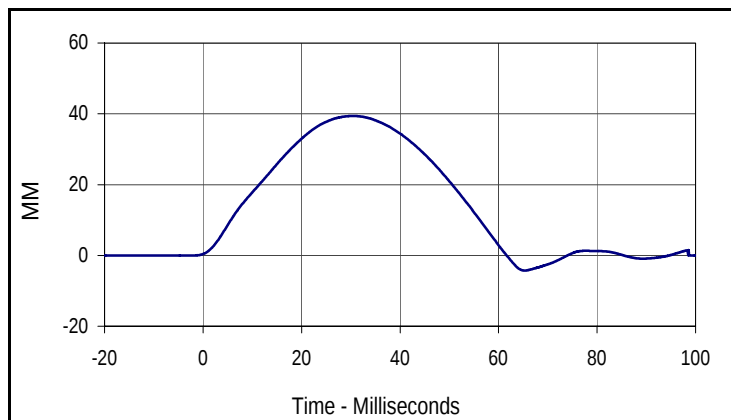
Curve Description			
Upper Rib Deflection (815 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
50.5	26.2	-4.6	61.0

Test Program: ES2re Rib Module Calibration
 ATD Serial No.: F035 Rib #3

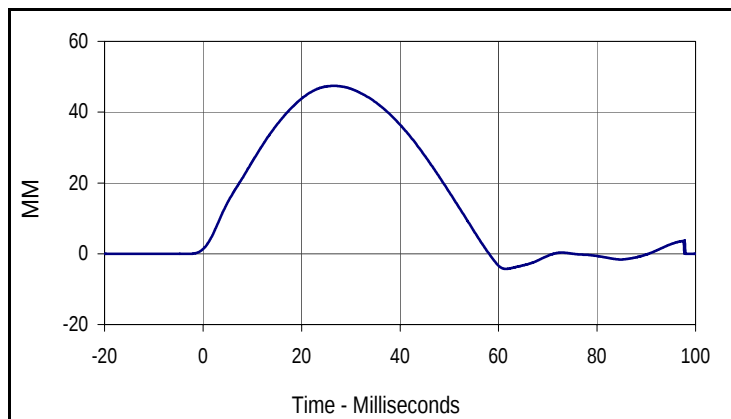
Test Date: 6/4/09
 Test I.D.: RIB06E, RIB06F



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Rib Deflection at 459 MM Drop Height	MM	36 to 40	39.4	Pass
Peak Rib Deflection at 815 MM Drop Height	MM	46 to 51	47.4	Pass
Overall Test Results			Pass	



Curve Description			
Upper Rib Deflection (459 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
39.4	30.7	-4.3	65.5



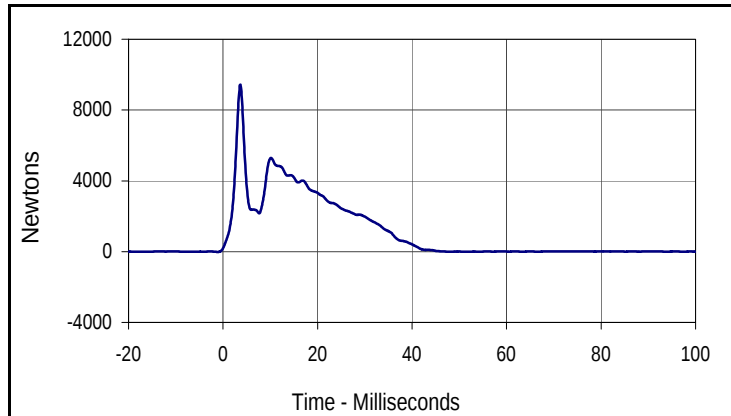
Curve Description			
Upper Rib Deflection (815 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
47.4	26.8	-4.3	61.6

Test Program: ES2re Thorax Calibration
 ATD Serial No.: F035

Test Date: 6/4/09
 Test I.D.: TH06A



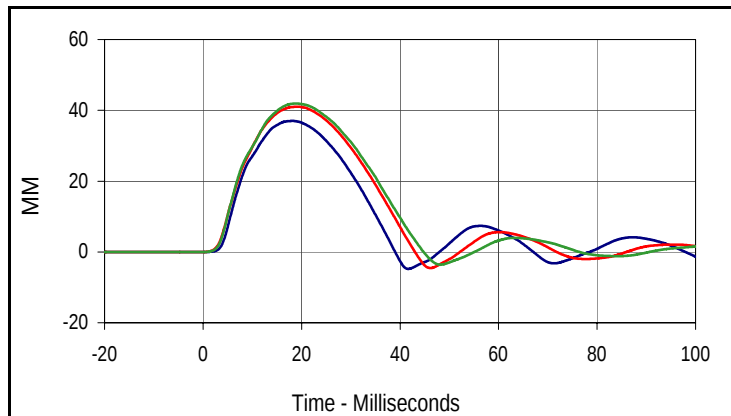
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	5.40 to 5.60	5.55	Pass
Impactor Force	N	5100 to 6200	5291.9	Pass
	msec	> 6.0 msec	10.2	Pass
Upper Rib Deflection	MM	34 to 41	37.0	Pass
Middle Rib Deflection	MM	37 to 45	41.0	Pass
Lower Rib Deflection	MM	37 to 44	41.9	Pass
Overall Test Results			Pass	



Curve Description

Impactor Force

CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
9426.3	3.7	-20.0	-1.1



Curve Description

Upper, Middle, Lower Rib Deflections

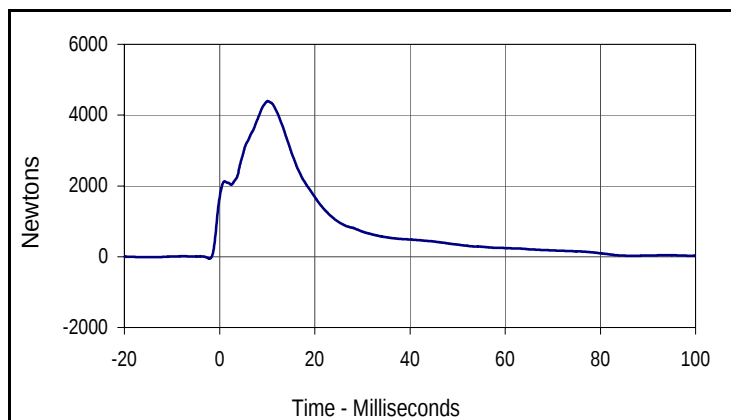
CURNO(s)	Type	SAE Class	Units
002-003-004	FIL	180	MM
Max (Upper)	Time	Min (Upper)	Time
37.0	18.2	-4.8	41.7
Max (Middle)	Time	Min (Middle)	Time
41.0	19.1	-4.6	46.2
Max (Lower)	Time	Min (Lower)	Time
41.9	18.8	-3.6	48.2

Test Program: ES2re Abodomen Calibration
 ATD Serial No.: F035

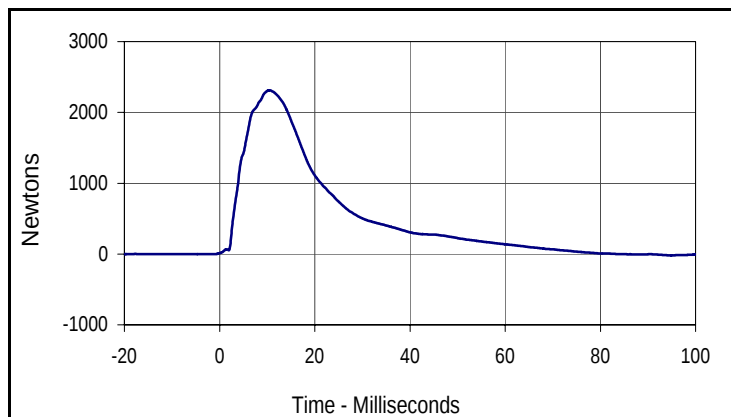
Test Date: 6/4/09
 Test I.D.: AB06A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	3.90 to 4.10	4.02	Pass
Impactor Force	N	4000 to 4800	4396.2	Pass
	msec	10.6 to 13.0	11.1	Pass
Abdominal Force	N	2200 to 2700	2313.0	Pass
	msec	10.0 to 12.3	11.7	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
4396.2	11.1	-52.1	-1.1



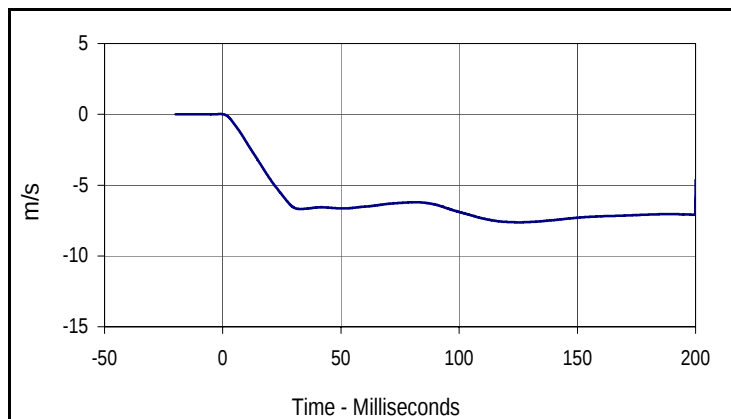
Curve Description			
Abdomen Sum Resultant			
CURNO	Type	SAE Class	Units
002	RES	600	Newtons
Max	Time	Min	Time
2313.0	11.7	-19.0	96.1

Test Program: ES2re Lumbar Spine Calibration
 ATD Serial No.: F035

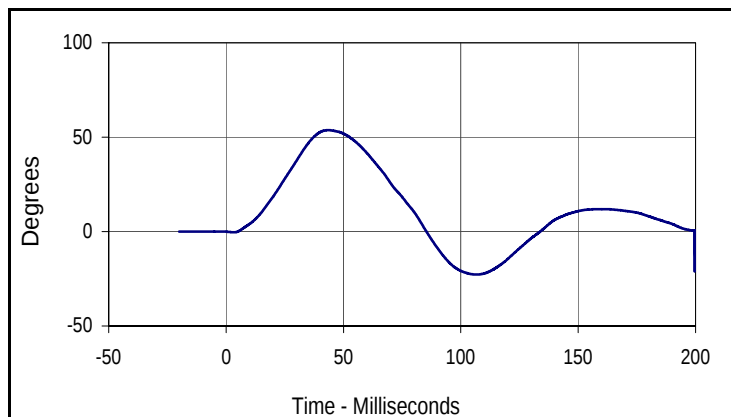
Test Date: 6/4/09
 Test I.D.: LS06A



Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.95 to 6.15	6.01	Pass
Pendulum Deceleration	1 msec	m/s	0.0 to -.050	-0.031	Pass
	3.7 msec	m/s	-.240 to -.425	-0.424	Pass
	27 msec	m/s	-5.80 to -6.50	-6.09	Pass
	30 msec	m/s	< -6.50	6.49	Pass
Headform Rotation	Max	Degrees	45.0 to 55.0	53.7	Pass
	Time	msec	39.0 to 53.0	43.5	Pass
Maximum Rotation To Time Zero Crossing		msec	37.0 to 57.0	41.9	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.0	-7.6	125.4



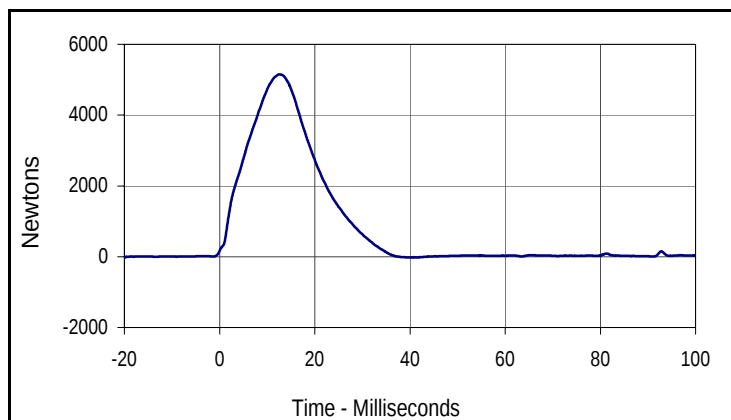
Curve Description			
Headform Rotation			
CURNO	Type	SAE Class	Units
002	FIL	180	Degrees
Max	Time	Min	Time
53.7	43.5	-22.7	106.6

Test Program: ES2re Pelvis Calibration
 ATD Serial No.: F035

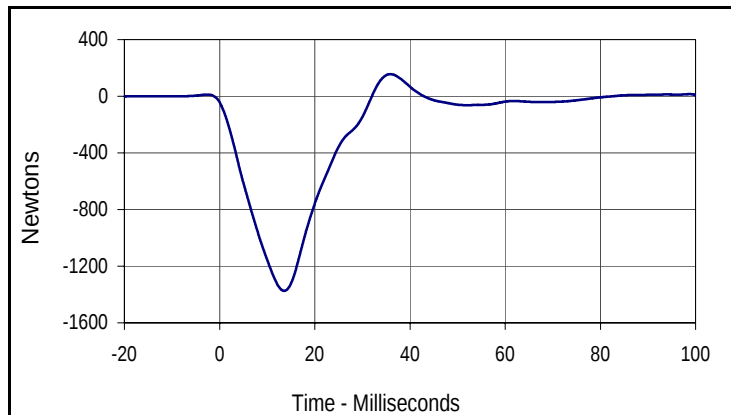
Test Date: 6/4/09
 Test I.D.: PL06A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.20 to 4.40	4.25	Pass
Impactor Force	N	4700 to 5400	5153.7	Pass
	msec	11.8 to 16.1	12.5	Pass
Pubic Symphysis Load	N	-1230 to -1590	-1373.9	Pass
	msec	12.2 to 17.0	13.6	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
5153.7	12.5	-22.1	41.4



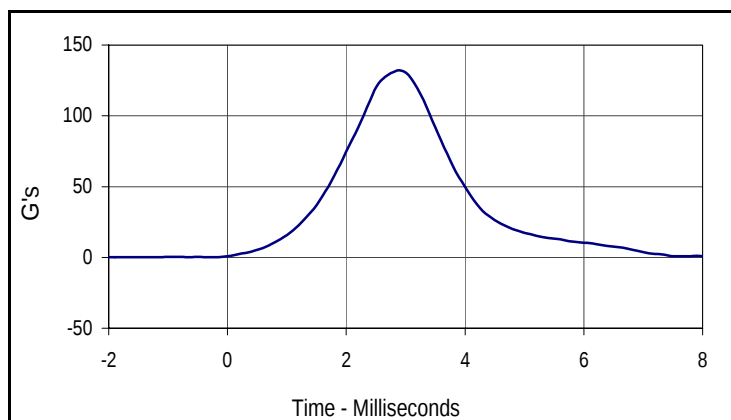
Curve Description			
Pubic FY			
CURNO	Type	SAE Class	Units
002	FIL	60	Newtons
Max	Time	Min	Time
156.2	35.9	-1373.9	13.6

Test Program: SID IIs Lateral Head Drop Calibration
 ATD Serial No.: 299

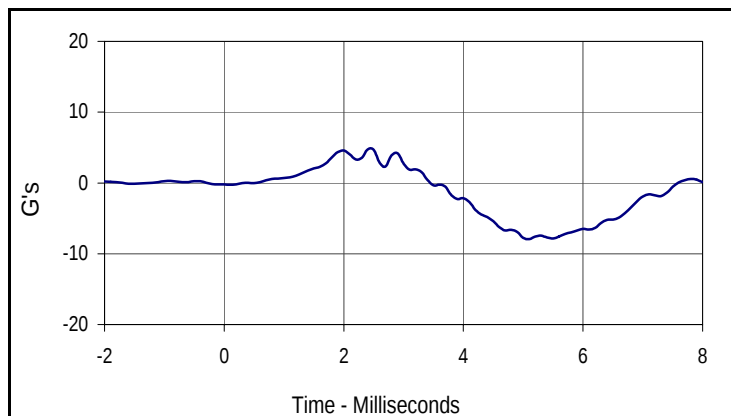
Test Date: 6/5/09
 Test I.D.: HDS06A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	115 to 137	132.3	Pass
Peak Longitudinal Acceleration	G's	≤15	8.0	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	13.2	Pass
Overall Test Results			Pass	



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
132.3	2.9	0.1	-1.7



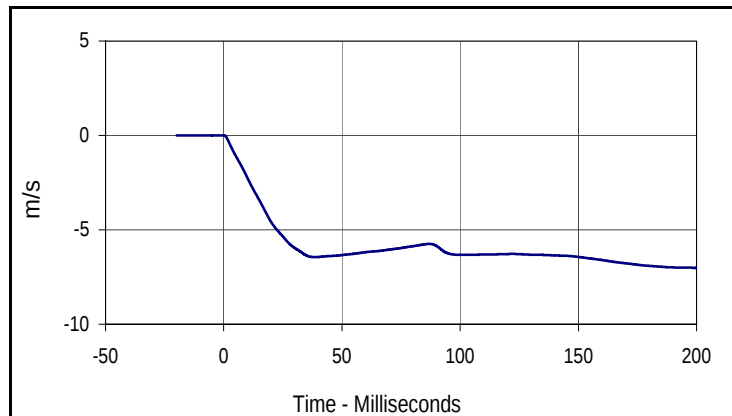
Curve Description			
Head X			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
4.7	2.4	-8.0	5.1

Test Program: SID IIs Neck Calibration
 ATD Serial No.: 299

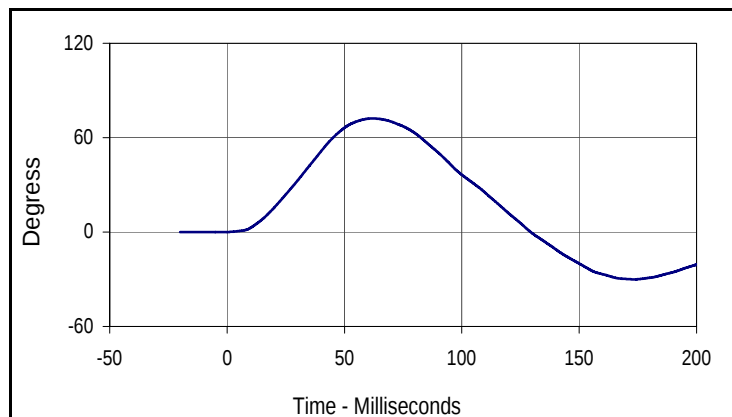
Test Date: 6/5/09
 Test I.D.: NBS06A



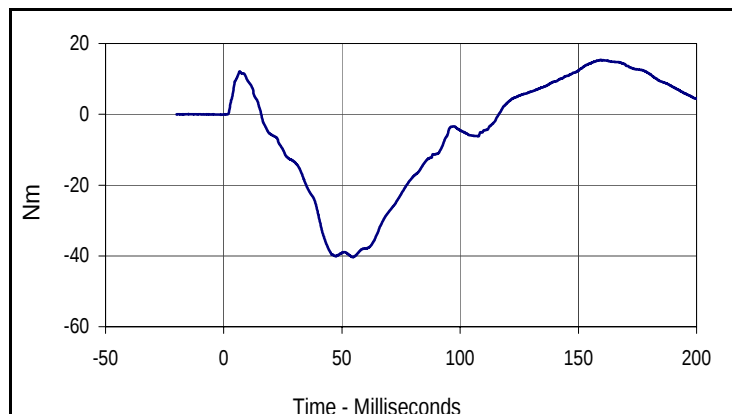
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.51 to 5.63	5.57	Pass
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.2	Pass
	15 msec	m/s	-3.30 to -4.10	-3.4	Pass
	20 msec	m/s	-4.40 to -5.40	-4.6	Pass
	25 msec	m/s	-5.40 to -6.10	-5.4	Pass
	25-100 msec	m/s	-5.50 to -6.20	-6.18	Pass
Translation-Rotation	Max	Degrees	71.0 to 81.0	72.2	Pass
	Time	msec	50.0 to 70.0	61.9	Pass
Peak Occipital Condyle Moment		Nm	-36.0 to -44.0	-40.4	Pass
Decaying Moment Time to Cross 0 Nm		msec	102.0 to 126.0	116.4	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.3	-7.0	200.0



Curve Description			
Maximum Translation Rotation			
CURNO	Type	SAE Class	Units
002	FIL	60	Degress
Max	Time	Min	Time
72.2	61.9	-30.0	173.4



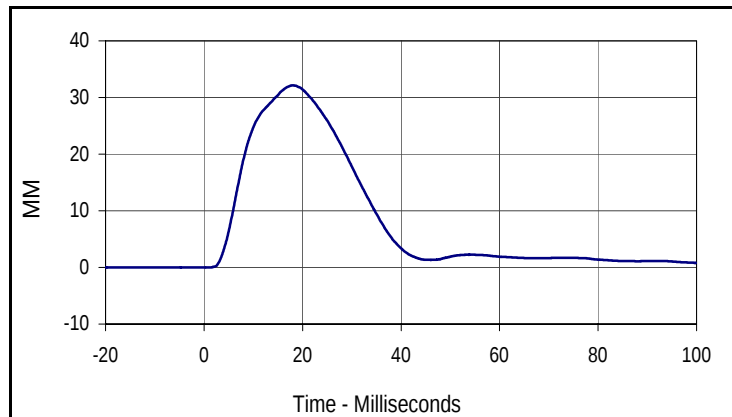
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
15.4	159.3	-40.4	54.7

Test Program: SID IIs Shoulder Calibration
 ATD Serial No.: 299

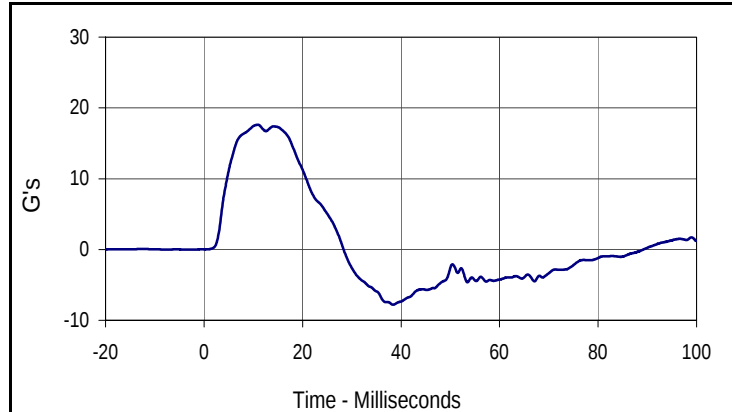
Test Date: 6/5/09
 Test I.D.: SH06A



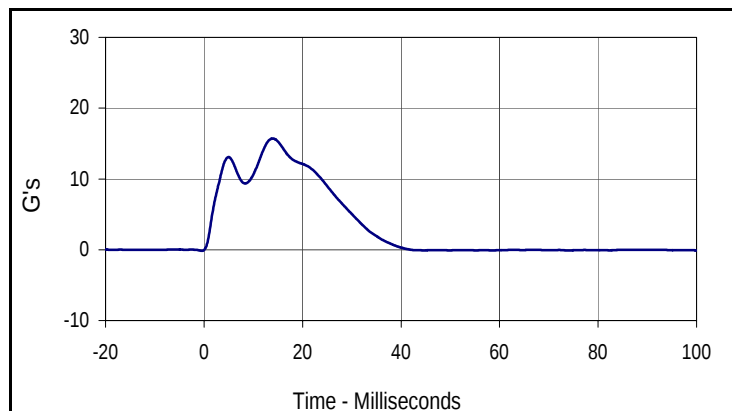
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.24	Pass
Shoulder Deflection	MM	28 to 37	32.1	Pass
Peak Upper Spine Y Acceleration	G's	17 to 22	17.6	Pass
Peak Impactor Acceleration	G's	13 to 18	15.7	Pass
Overall Test Results			Pass	



Curve Description			
Shoulder Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
32.1	18.0	0.0	-11.1



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
17.6	10.9	-7.8	38.4



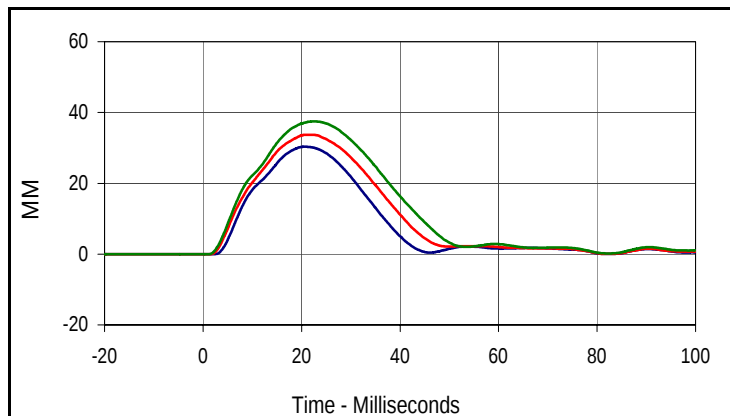
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
15.7	13.9	-0.1	-0.4

Test Program: SID IIs Thorax with Arm Calibration
 ATD Serial No.: 299

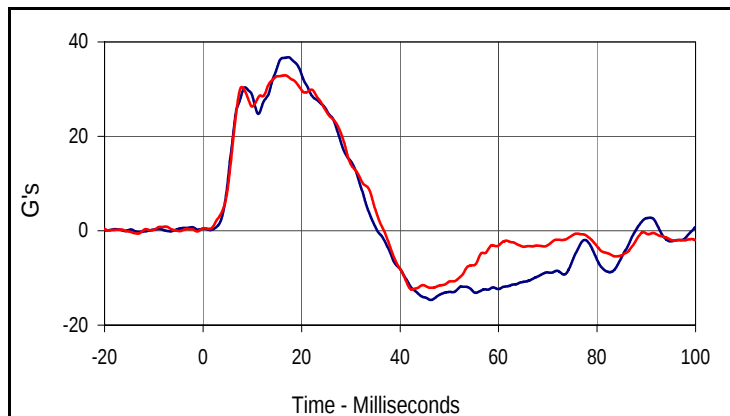
Test Date: 6/5/09
 Test I.D.: TH06A



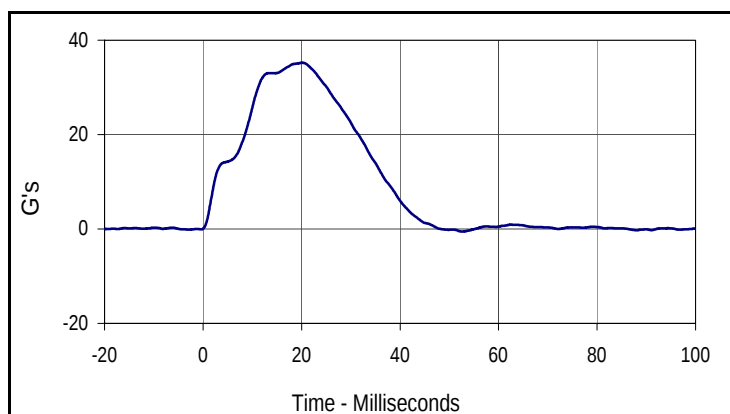
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	6.60 to 6.80	6.70	Pass
Shoulder Deflection	MM	31 to 40	37.5	Pass
Upper Thorax Rib Deflection	MM	26 to 32	30.3	Pass
Middle Abdominal Rib Deflection	MM	30 to 36	33.7	Pass
Lower Abdominal Rib Deflection	MM	32 to 38	37.5	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	36.8	Pass
Peak Lower Spine Y Acceleration	G's	28 to 35	32.9	Pass
Peak Impactor Acceleration	G's	31 to 36	35.2	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
30.3	20.7	0.0	-20.0
Middle Thorax Deflection			
Max	Time	Min	Time
33.7	21.5	0.0	-3.3
Lower Thorax Deflection			
Max	Time	Min	Time
37.5	22.4	0.0	-19.4



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
36.8	17.3	-14.7	46.2
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
32.9	16.6	-12.4	42.4



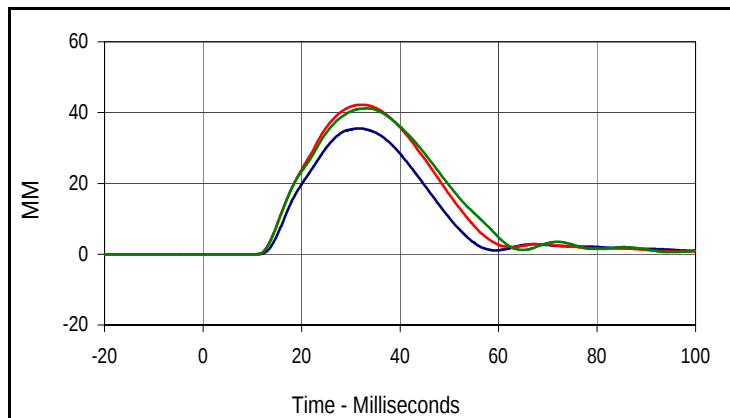
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
35.2	20.2	-0.6	52.6

Test Program: SID IIs Thorax w/o Arm Calibration
 ATD Serial No.: 299

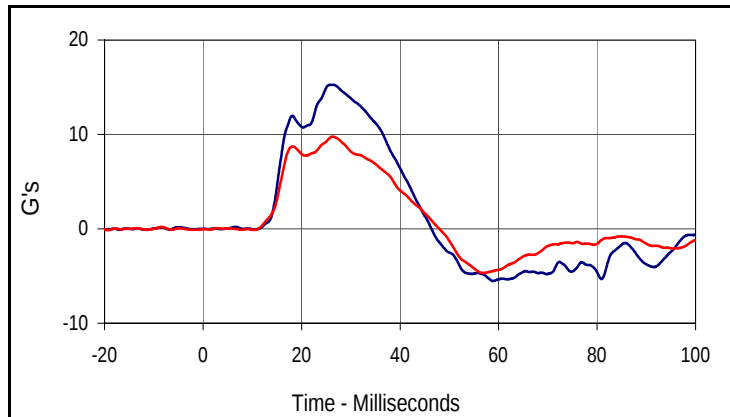
Test Date: 6/5/09
 Test I.D.: TOP6A



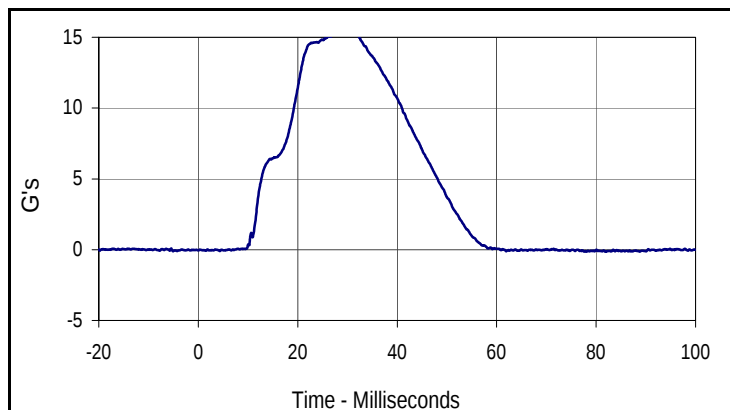
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.27	Pass
Upper Thorax Rib Deflection	MM	33 to 40	35.5	Pass
Middle Abdominal Rib Deflection	MM	39 to 45	42.2	Pass
Lower Abdominal Rib Deflection	MM	36 to 43	41.2	Pass
Peak Upper Spine Y Acceleration	G's	14 to 17	15.3	Pass
Peak Lower Spine Y Acceleration	G's	7 to 10	9.8	Pass
Peak Impactor Acceleration	G's	12 to 16	15.8	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
35.5	31.7	0.0	-2.5
Middle Thorax Deflection			
Max	Time	Min	Time
42.2	32.3	0.0	-5.6
Lower Thorax Deflection			
Max	Time	Min	Time
41.2	33.5	0.0	5.9



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.3	25.8	-5.5	58.9
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
9.8	26.3	-4.7	56.9



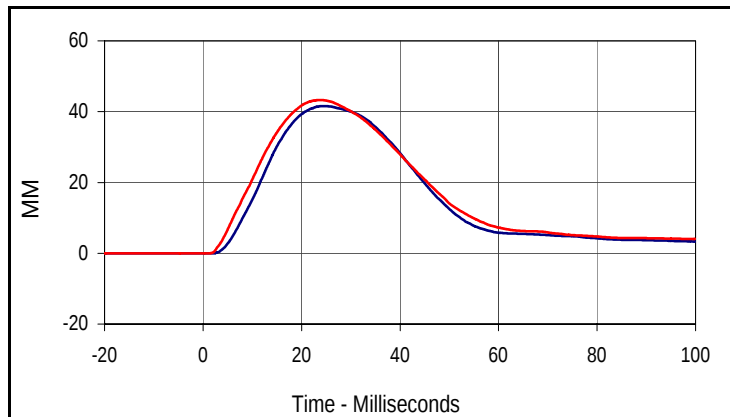
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
006	FIL	1000	G's
Max	Time	Min	Time
15.8	30.0	-0.1	78.1

Test Program: SID IIs Abdomen Calibration
 ATD Serial No.: 299

Test Date: 6/5/09
 Test I.D.: AB06A

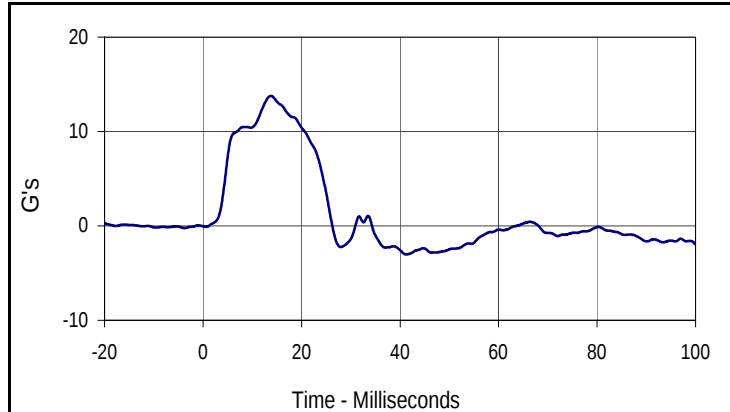


Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.30 to 4.50	4.32	Pass
Upper Abdominal Rib Deflection	MM	39 to 47	41.6	Pass
Lower Abdominal Rib Deflection	MM	37 to 46	43.3	Pass
Peak Lower Spine Y Acceleration	G's	11 to 14	13.8	Pass
Peak Impactor Acceleration	G's	12 to 16	13.8	Pass
Overall Test Results			Pass	

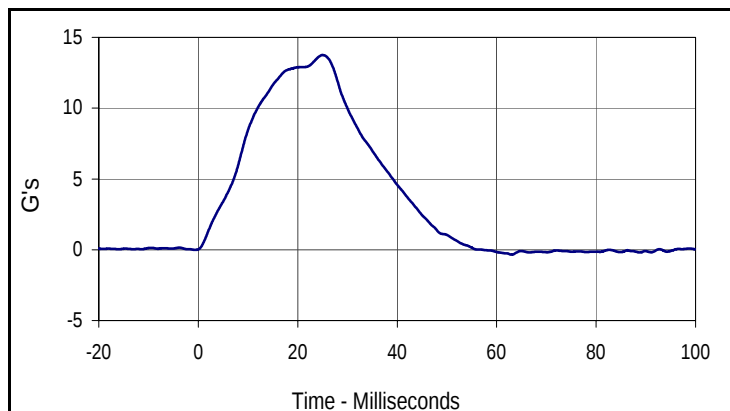


Curve Description			
Upper Abdominal Rib Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
41.6	24.6	0.0	1.3

Curve Description			
Lower Abdominal Rib Deflection			
CURNO	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
43.3	24.0	0.0	-20.0



Curve Description			
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
13.8	13.8	-3.0	41.3



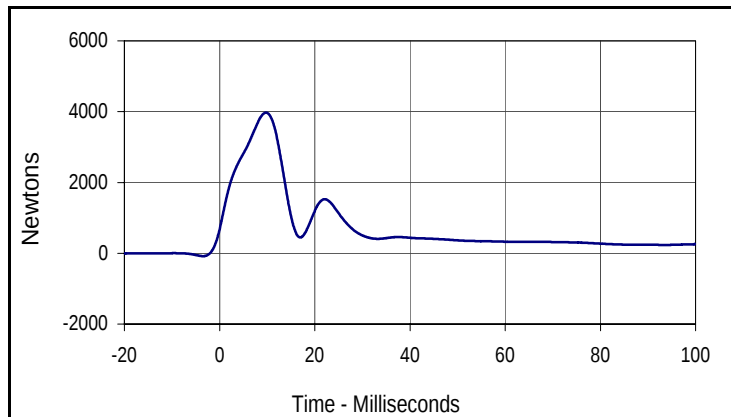
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
13.8	25.0	-0.3	63.0

Test Program: SID IIs Pelvis Acetabulum Calibration
 ATD Serial No.: 299

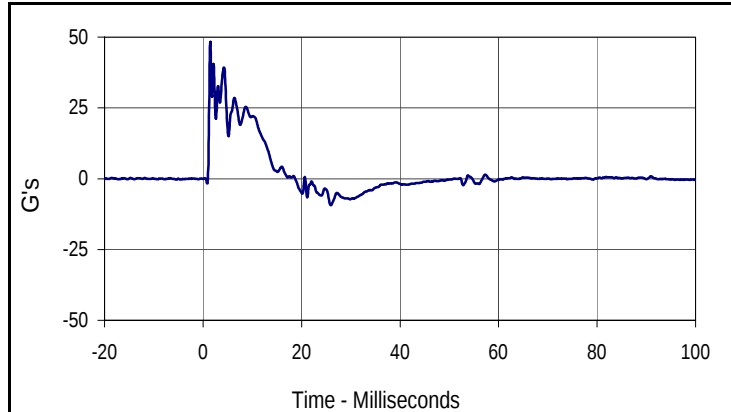
Test Date: 6/5/09
 Test I.D.: PA06A



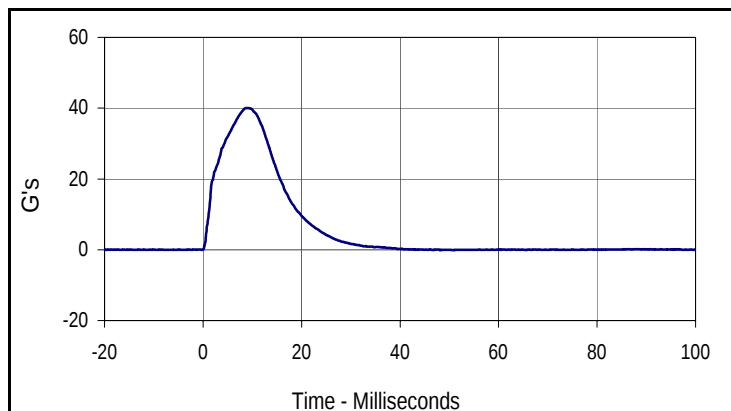
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	6.60 to 6.80	6.74	Pass
Peak Acetabulum Force	Newtons	3800 to 4600	3975.5	Pass
Peak Pelvis Y Acceleration	G's	41 to 50	48.3	Pass
Peak Impactor Acceleration	G's	38 to 47	40.1	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Acetabulum Force			
CURNO	Type	SAE Class	Units
001	FIL	60	Newtons
Max	Time	Min	Time
3975.5	9.8	-81.0	-3.5



Curve Description			
Pelvis Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	600	G's
Max	Time	Min	Time
48.3	1.5	-9.4	25.9



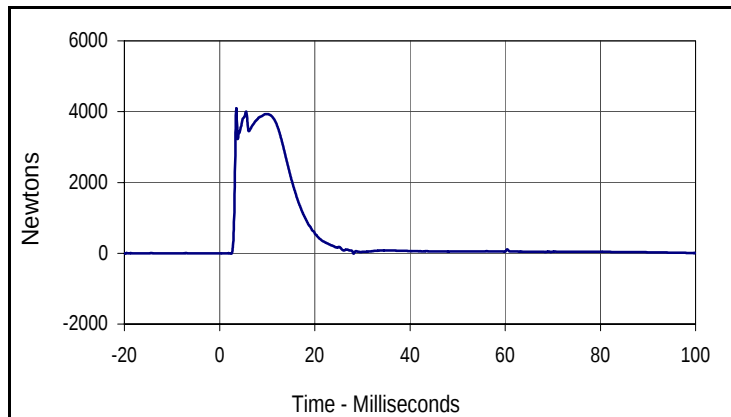
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
40.1	8.8	-0.1	0.0

Test Program: SID IIs Pelvis Iliac Calibration
 ATD Serial No.: 299

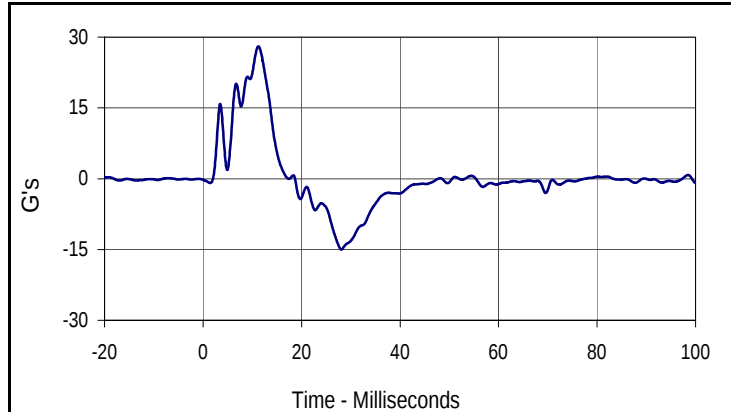
Test Date: 6/5/09
 Test I.D.: PL06A



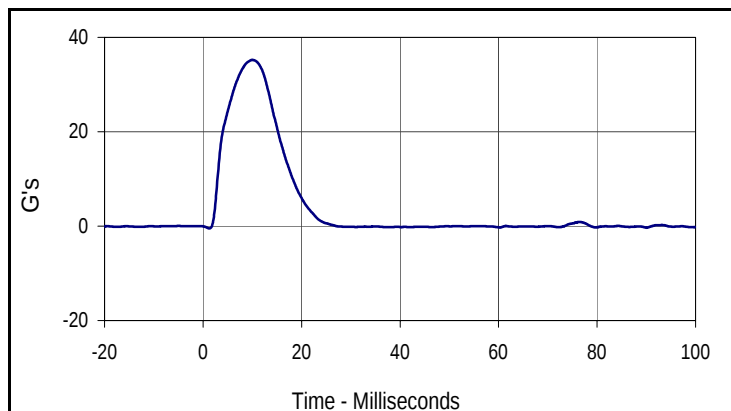
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.2 to 4.4	4.39	Pass
Peak Iliac Force	Newtons	3700 to 4500	4096.7	Pass
Peak Pelvis Y Acceleration	G's	27 to 33	28.0	Pass
Peak Impactor Acceleration	G's	34 to 40	35.2	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Iliac Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4096.7	3.5	-15.3	2.4



Curve Description			
Pelvis Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
28.0	11.2	-15.0	28.1



Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
35.2	10.0	-0.5	1.3

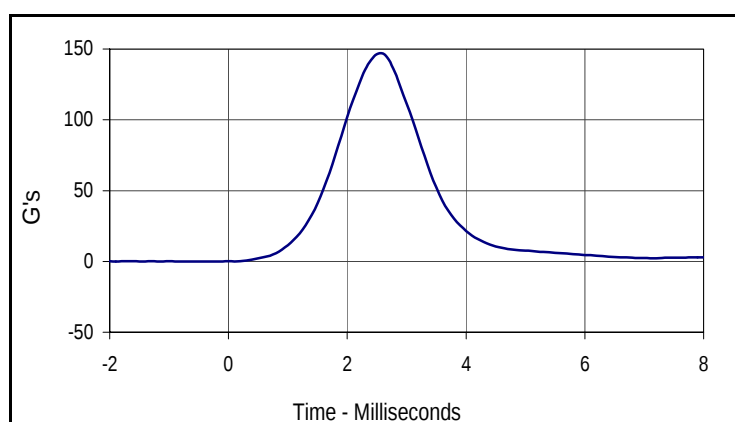
APPENDIX C
POST-TEST CONFIGURATION AND PERFORMANCE VERIFICATION DATA

Test Program: ES2re Lateral Head Drop Calibration
 ATD Serial No.: F035

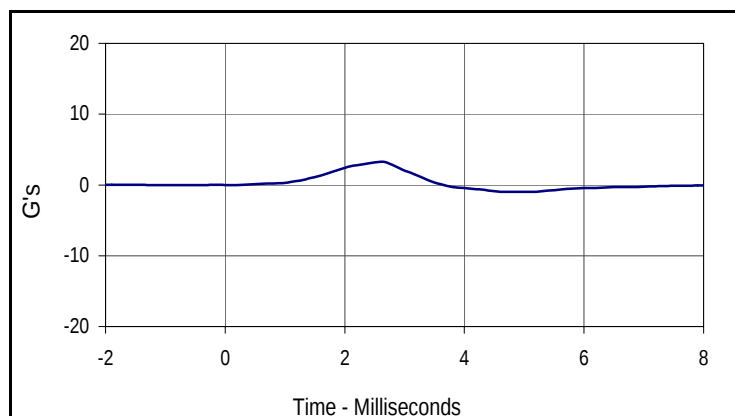
Test Date: 6/12/09
 Test I.D.: HD06B



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	125 to 155	146.8	Pass
Peak Longitudinal Acceleration	G's	≤15	3.3	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	5.2	Pass
Overall Test Results			Pass	



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
146.8	2.6	0.0	-0.2



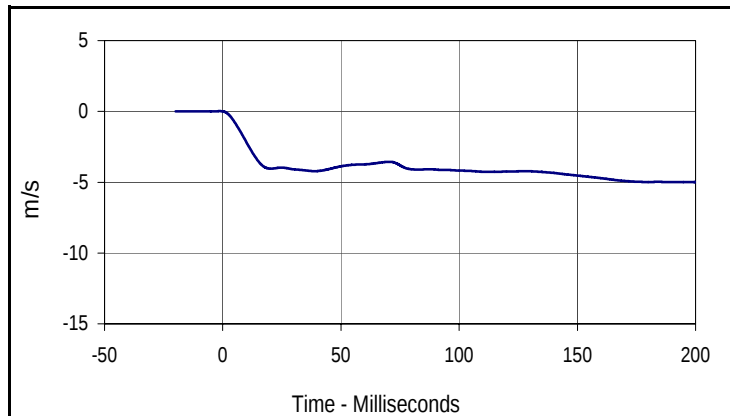
Curve Description			
Head X			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
3.3	2.6	-1.0	5.1

Test Program: ES2re Neck Calibration
 ATD Serial No.: F035

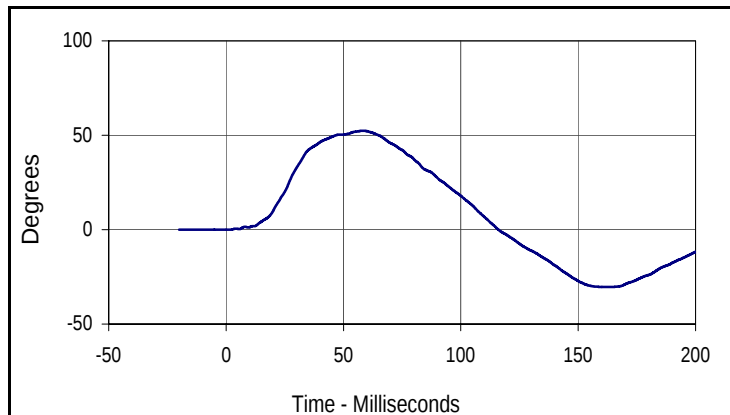
Test Date: 6/12/09
 Test I.D.: NB06B



Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	3.30 to 3.50	3.47	Pass
Pendulum Deceleration	1 msec	m/s	0.0 to -.050	-0.044	Pass
	3 msec	m/s	-.250 to -.375	-0.309	Pass
	14 msec	m/s	-3.20 to -3.70	-3.28	Pass
Headform Rotation	Max	Degrees	49.0 to 58.0	52.4	Pass
	Time	msec	54.0 to 66.0	58.4	Pass
Maximum Rotation To Time Zero Crossing		msec	53.0 to 88.0	57.6	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
0.0	-1.2	-5.0	200.0



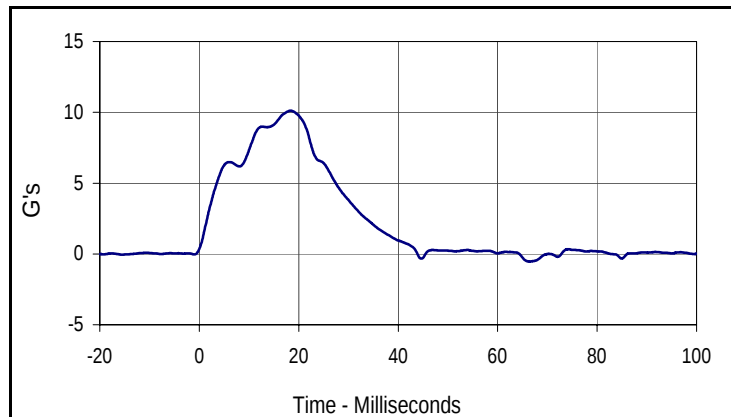
Curve Description			
Headform Rotation			
CURNO	Type	SAE Class	Units
002	FIL	180	Degrees
Max	Time	Min	Time
52.4	58.4	-30.4	161.9

Test Program: ES2re Shoulder Calibration
 ATD Serial No.: F035

Test Date: 6/12/09
 Test I.D.: SH06B



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.20 to 4.40	4.39	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	10.1	Pass
Overall Test Results			Pass	



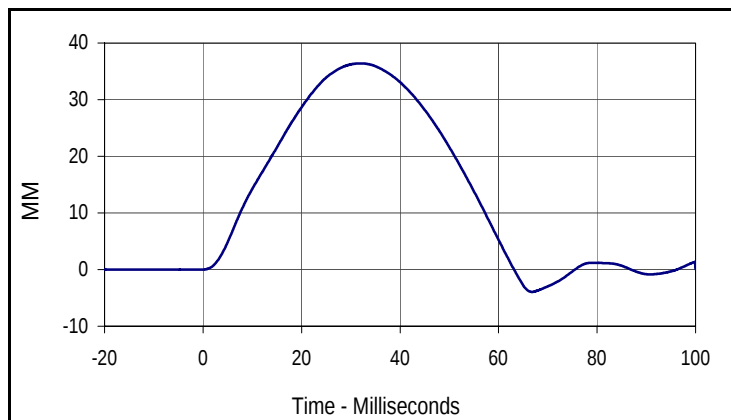
Curve Description			
Probe Impactor Acceleration			
CURNO	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
10.1	18.4	-0.5	66.3

Test Program: ES2re Rib Module Calibration
 ATD Serial No.: F035 Rib #1

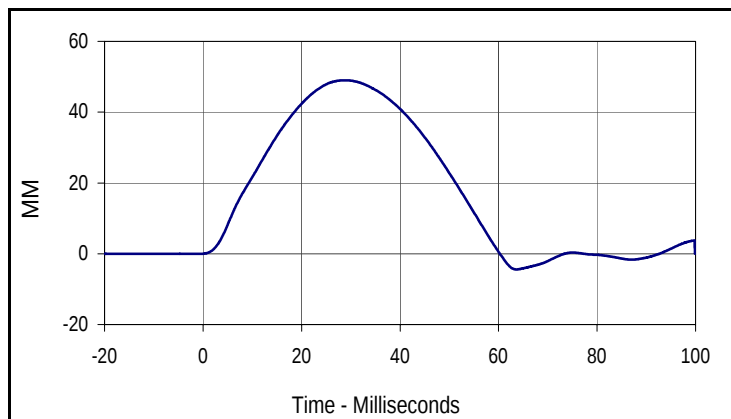
Test Date: 6/12/09
 Test I.D.: RIB06G,RIB06H



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Rib Deflection at 459 MM Drop Height	MM	36 to 40	36.4	Pass
Peak Rib Deflection at 815 MM Drop Height	MM	46 to 51	49.0	Pass
Overall Test Results			Pass	



Curve Description			
Upper Rib Deflection (459 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
36.4	32.0	-3.9	66.8



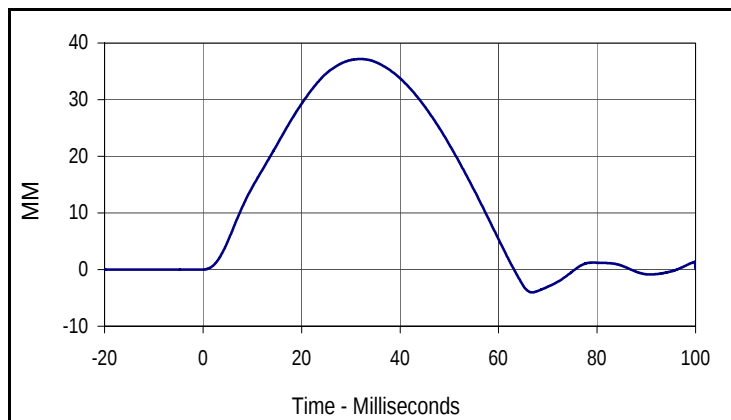
Curve Description			
Upper Rib Deflection (815 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
49.0	28.8	-4.4	63.6

Test Program: ES2re Rib Module Calibration
 ATD Serial No.: F035 Rib #2

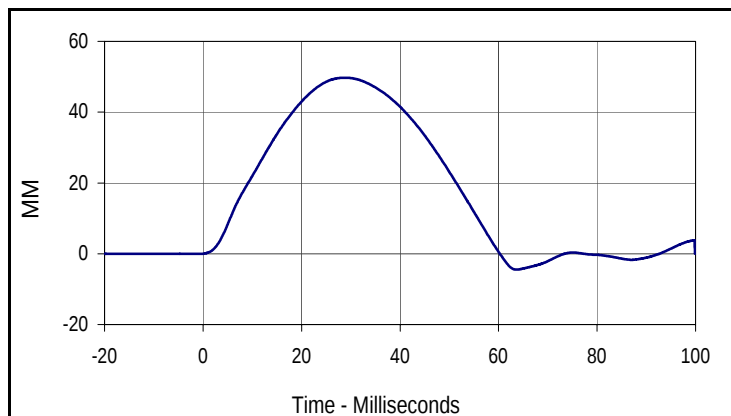
Test Date: 6/12/09
 Test I.D.: RIB06M,RIB06N



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Rib Deflection at 459 MM Drop Height	MM	36 to 40	37.2	Pass
Peak Rib Deflection at 815 MM Drop Height	MM	46 to 51	49.7	Pass
Overall Test Results			Pass	



Curve Description			
Upper Rib Deflection (459 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
37.2	32.0	-4.0	66.8



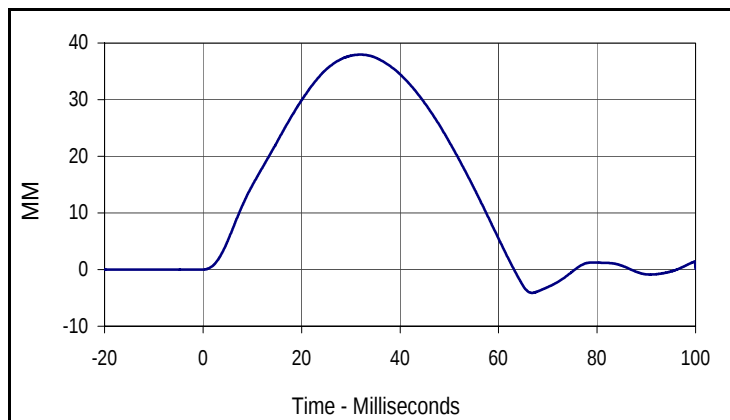
Curve Description			
Upper Rib Deflection (815 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
49.7	28.8	-4.5	63.6

Test Program: ES2re Rib Module Calibration
 ATD Serial No.: F035 Rib #3

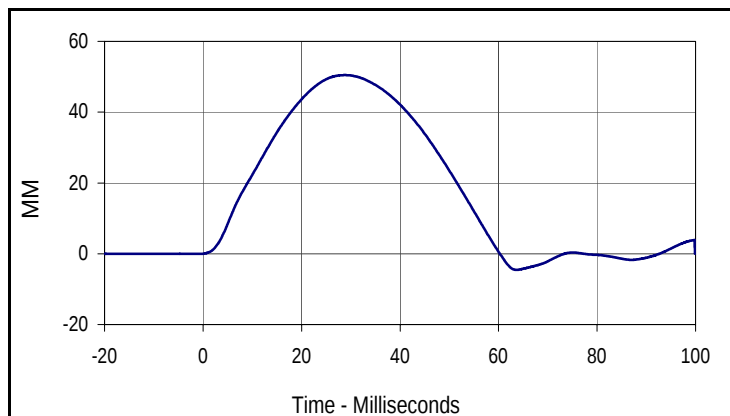
Test Date: 6/12/09
 Test I.D.: RIB06O,RIB06P



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Rib Deflection at 459 MM Drop Height	MM	36 to 40	37.9	Pass
Peak Rib Deflection at 815 MM Drop Height	MM	46 to 51	50.5	Pass
Overall Test Results			Pass	



Curve Description			
Upper Rib Deflection (459 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
37.9	32.0	-4.1	66.8



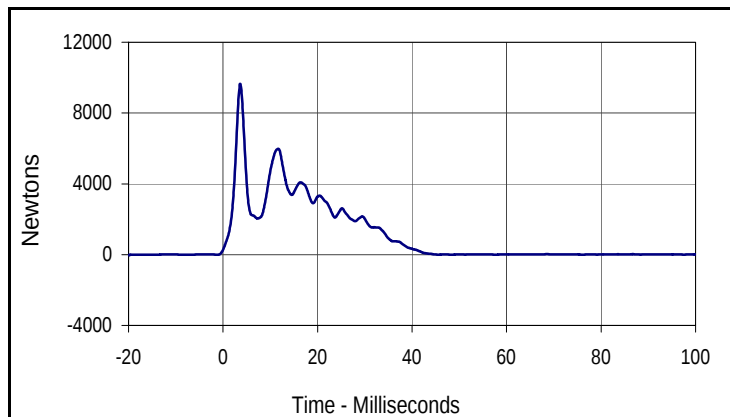
Curve Description			
Upper Rib Deflection (815 MM Drop Height)			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
50.5	28.8	-4.6	63.6

Test Program: ES2re Thorax Calibration
 ATD Serial No.: F035

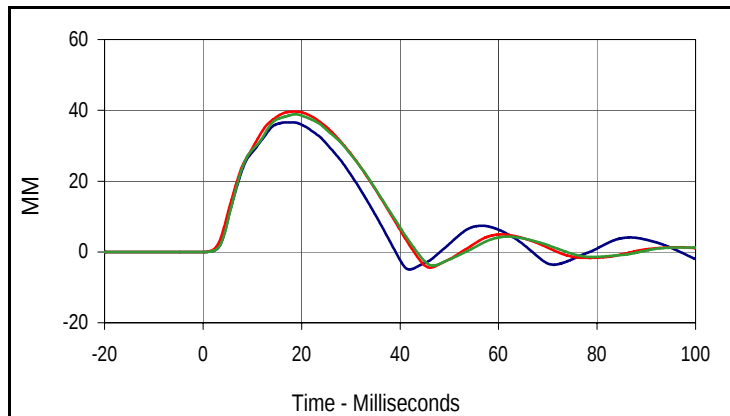
Test Date: 6/12/09
 Test I.D.: ES001



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	5.40 to 5.60	5.52	Pass
Impactor Force	N	5100 to 6200	5980.2	Pass
	msec	> 6.0 msec	11.6	Pass
Upper Rib Deflection	MM	34 to 41	36.6	Pass
Middle Rib Deflection	MM	37 to 45	39.6	Pass
Lower Rib Deflection	MM	37 to 44	38.9	Pass
Overall Test Results			Pass	



Curve Description			
Impactor Force			
CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
9641.1	3.6	-15.7	-20.0



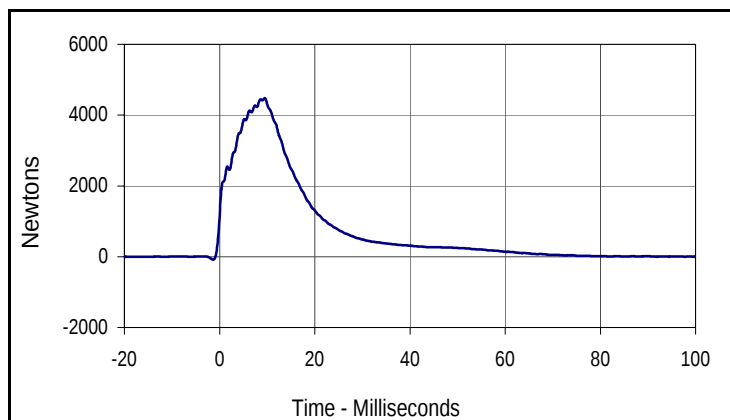
Curve Description			
Upper, Middle, Lower Rib Deflections			
CURNO(s)	Type	SAE Class	Units
002-003-004	FIL	180	MM
Max (Upper)	Time	Min (Upper)	Time
36.6	17.1	-5.0	41.9
Max (Middle)	Time	Min (Middle)	Time
39.6	18.5	-4.4	46.1
Max (Lower)	Time	Min (Lower)	Time
38.9	18.8	-3.9	46.7

Test Program: ES2re Abodomen Calibration
 ATD Serial No.: F035

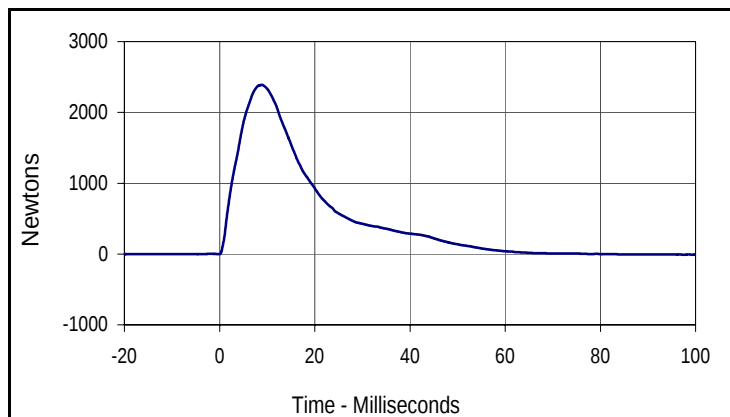
Test Date: 6/12/09
 Test I.D.: AB06C



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	3.90 to 4.10	3.95	Pass
Impactor Force	N	4000 to 4800	4477.2	Pass
	msec	10.6 to 13.0	10.6	Pass
Abdominal Force	N	2200 to 2700	2389.7	Pass
	msec	10.0 to 12.3	10.3	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
4477.2	10.5	-82.5	-0.3



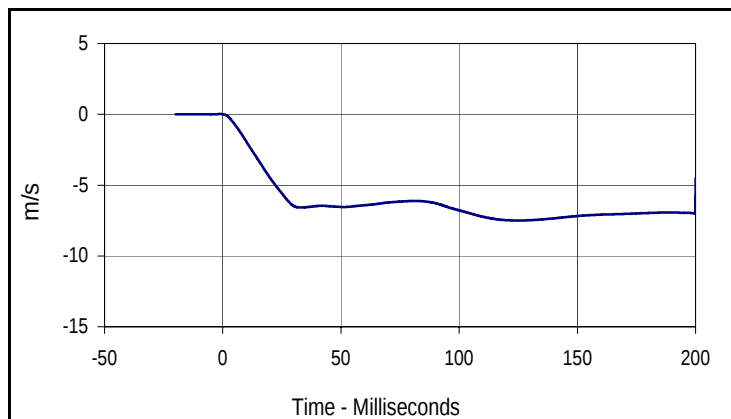
Curve Description			
Abdominal Force			
CURNO	Type	SAE Class	Units
002	RES	600	Newtons
Max	Time	Min	Time
2389.7	8.9	-8.7	97.9

Test Program: ES2re Lumbar Spine Calibration
 ATD Serial No.: F035

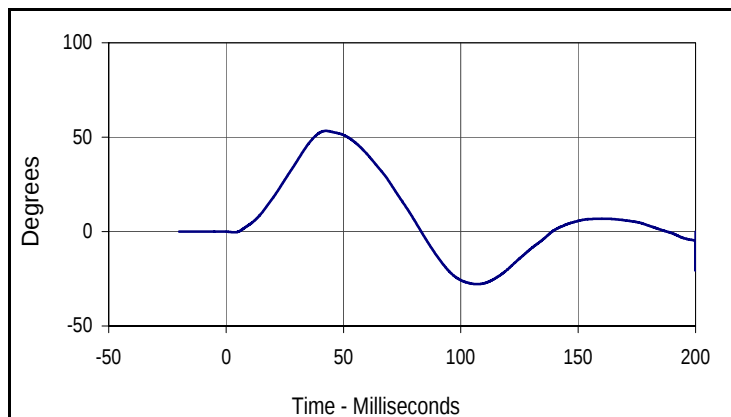
Test Date: 6/12/09
 Test I.D.: LS06C



Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.95 to 6.15	6.02	Pass
Pendulum Deceleration	1 msec	m/s	0.0 to -.050	-0.035	Pass
	3.7 msec	m/s	-.240 to -.425	-0.421	Pass
	27 msec	m/s	-5.80 to -6.50	-6.10	Pass
	30 msec	m/s	< -6.50	-6.48	Pass
Headform Rotation	Max	Degrees	45.0 to 55.0	53.3	Pass
	Time	msec	39.0 to 53.0	42.5	Pass
Maximum Rotation To Time Zero Crossing		msec	37.0 to 57.0	40.4	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
0.0	-1.0	-7.5	125.4



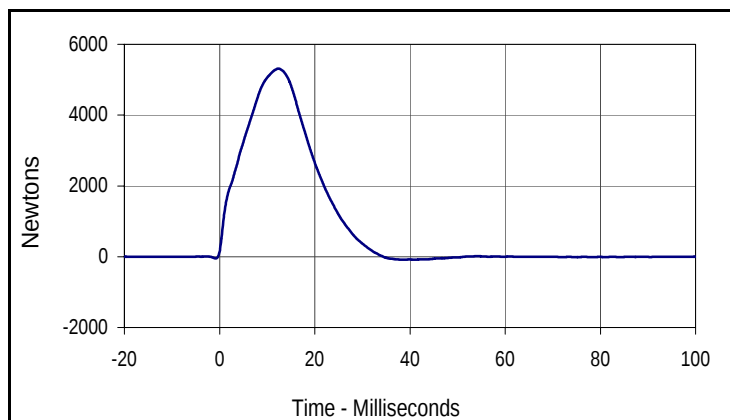
Curve Description			
Headform Rotation			
CURNO	Type	SAE Class	Units
002	FIL	180	Degrees
Max	Time	Min	Time
53.3	42.5	-27.8	106.9

Test Program: ES2re Pelvis Calibration
 ATD Serial No.: F035

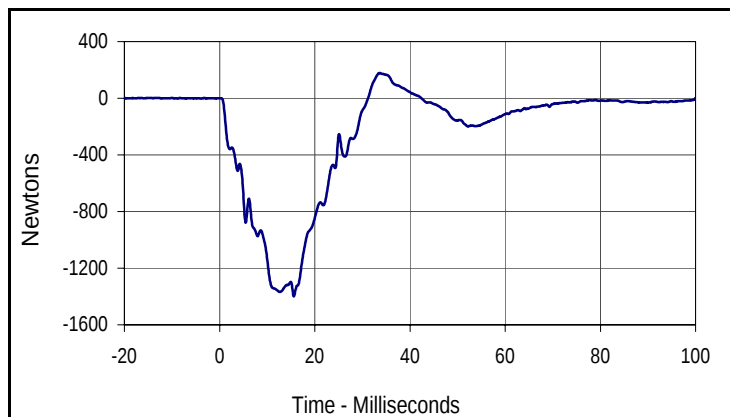
Test Date: 6/12/09
 Test I.D.: PL06C



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.20 to 4.40	4.23	Pass
Impactor Force	N	4700 to 5400	5310.3	Pass
	msec	11.8 to 16.1	12.4	Pass
Pubic Symphysis Load	N	-1230 to -1590	-1399.5	Pass
	msec	12.2 to 17.0	15.6	Pass
Overall Test Results				Pass



Curve Description			
Impactor Force			
CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
5310.3	12.4	-86.9	38.2



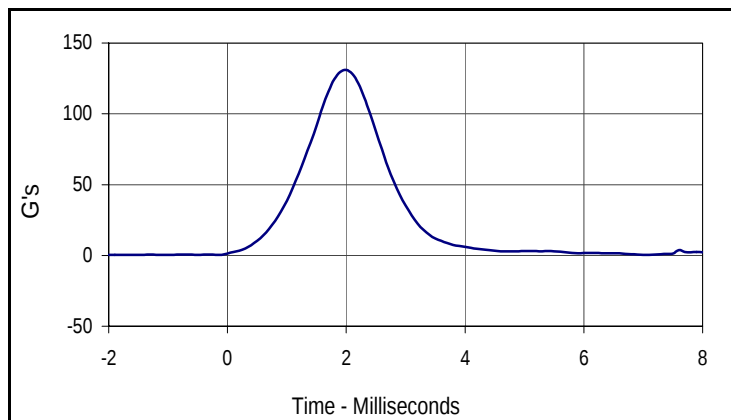
Curve Description			
Pubic Symphysis Load			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
178.0	33.6	-1399.5	15.6

Test Program: SID IIs Lateral Head Drop Calibration
 ATD Serial No.: 299

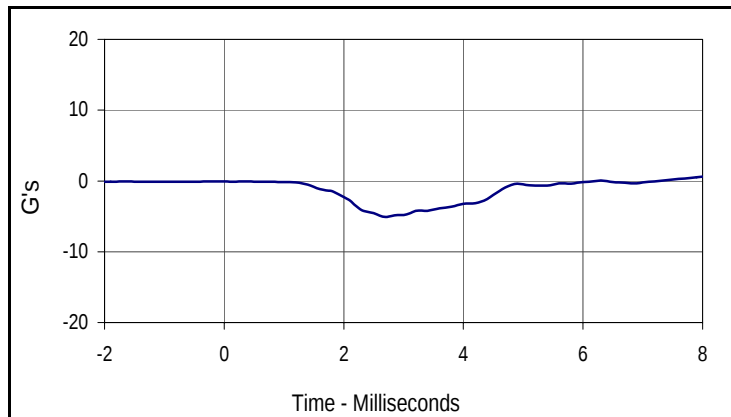
Test Date: 6/15/09
 Test I.D.: HD06C



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	115 to 137	131.1	Pass
Peak Longitudinal Acceleration	G's	≤15	5.1	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	2.4	Pass
Overall Test Results			Pass	



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
131.1	2.0	0.4	-0.2



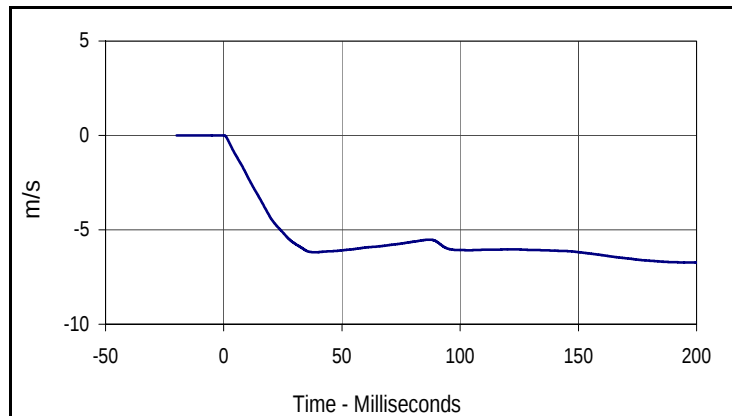
Curve Description			
Head X			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
-0.1	0.4	-5.1	2.7

Test Program: SID IIs Neck Calibration
 ATD Serial No.: 299

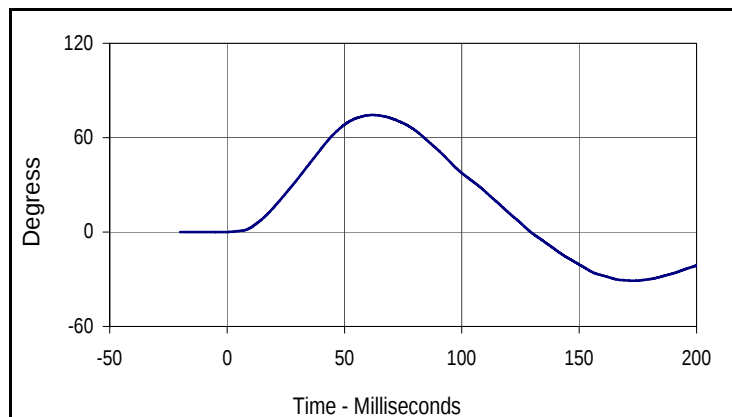
Test Date: 6/15/09
 Test I.D.: NB06C



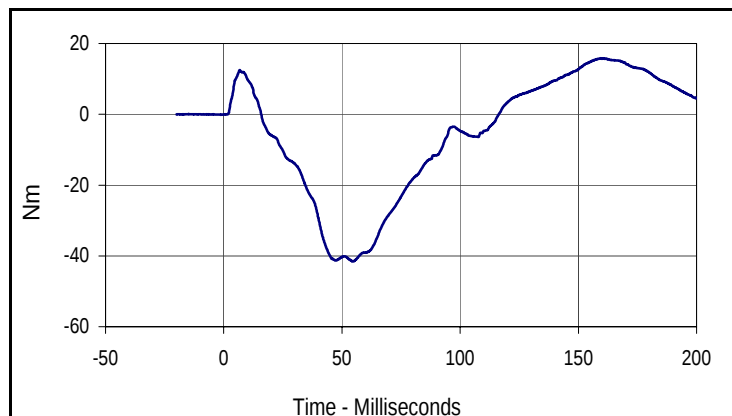
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.51 to 5.63	5.58	Pass
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.3	Pass
	15 msec	m/s	-3.30 to -4.10	-3.4	Pass
	20 msec	m/s	-4.40 to -5.40	-4.5	Pass
	25 msec	m/s	-5.40 to -6.10	-5.4	Pass
	25-100 msec	m/s	-5.50 to -6.20	-6.18	Pass
Translation-Rotation	Max	Degrees	71.0 to 81.0	74.4	Pass
	Time	msec	50.0 to 70.0	61.7	Pass
Peak Occipital Condyle Moment		Nm	-36.0 to -44.0	-41.6	Pass
Decaying Moment Time to Cross 0 Nm		msec	102.0 to 126.0	116.2	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.5	-6.7	199.8



Curve Description			
Maximum Translation Rotation			
CURNO	Type	SAE Class	Units
002	FIL	60	Degress
Max	Time	Min	Time
74.4	61.7	-31.0	173.2



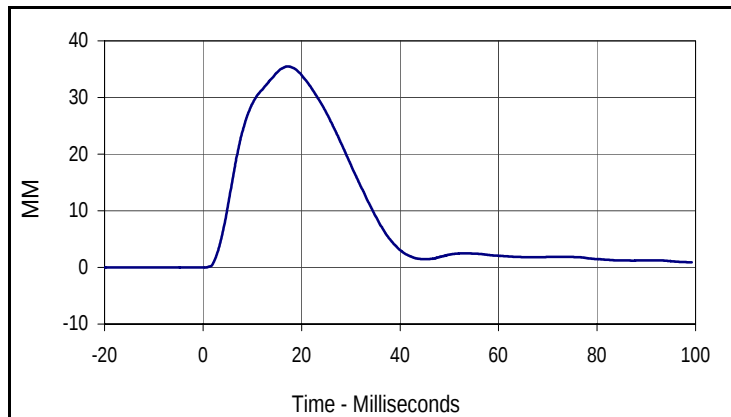
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
15.8	159.1	-41.6	54.5

Test Program: SID IIs Shoulder Calibration
 ATD Serial No.: 299

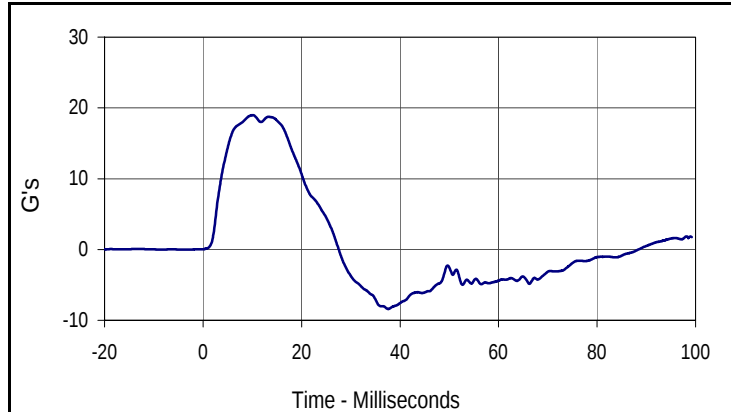
Test Date: 6/15/09
 Test I.D.: SH06D



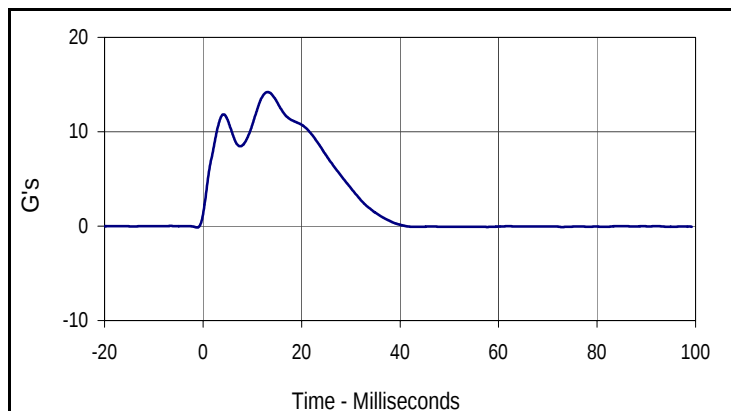
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.29	Pass
Shoulder Deflection	MM	28 to 37	35.5	Pass
Peak Upper Spine Y Acceleration	G's	17 to 22	19.0	Pass
Peak Impactor Acceleration	G's	13 to 18	14.2	Pass
Overall Test Results			Pass	



Curve Description			
Shoulder Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
35.5	17.2	0.0	-11.9



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
19.0	10.1	-8.4	37.6



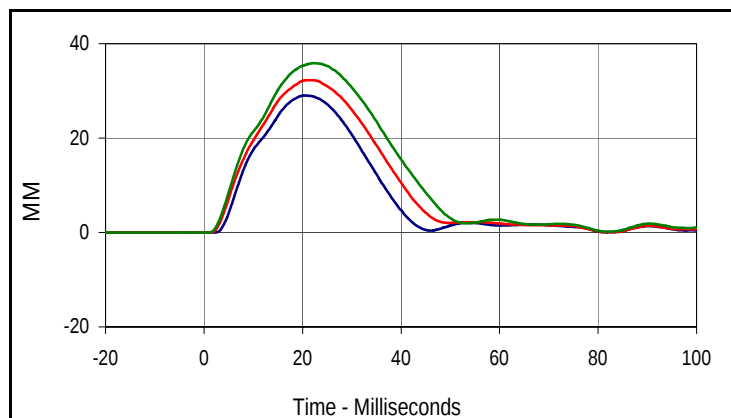
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
14.2	13.1	-0.1	-1.2

Test Program: SID IIs Thorax with Arm Calibration
 ATD Serial No.: 299

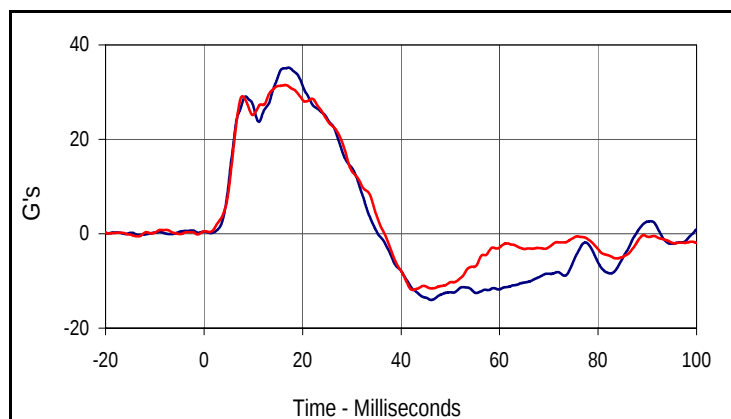
Test Date: 6/15/09
 Test I.D.: TH06C



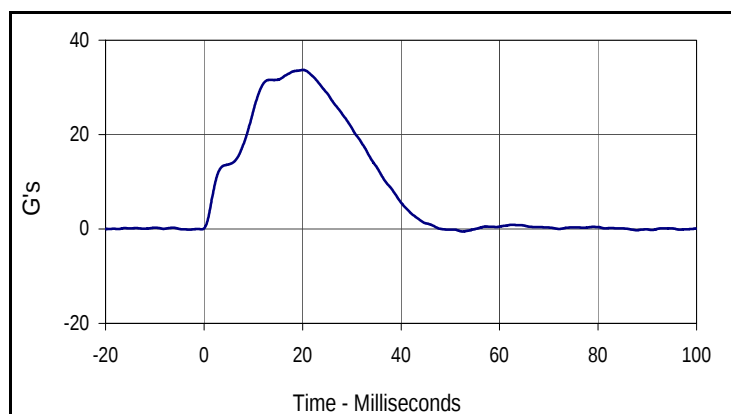
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	6.60 to 6.80	6.75	Pass
Shoulder Deflection	MM	31 to 40	36.3	Pass
Upper Thorax Rib Deflection	MM	26 to 32	29.0	Pass
Middle Abdominal Rib Deflection	MM	30 to 36	32.3	Pass
Lower Abdominal Rib Deflection	MM	32 to 38	35.9	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	35.2	Pass
Peak Lower Spine Y Acceleration	G's	28 to 35	31.5	Pass
Peak Impactor Acceleration	G's	31 to 36	33.7	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
29.0	20.6	0.0	-18.4
Middle Thorax Deflection			
Max	Time	Min	Time
32.3	21.4	0.0	-3.4
Lower Thorax Deflection			
Max	Time	Min	Time
35.9	22.3	0.0	-19.5



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
35.2	17.2	-14.0	46.1
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
31.5	16.5	-11.9	42.3



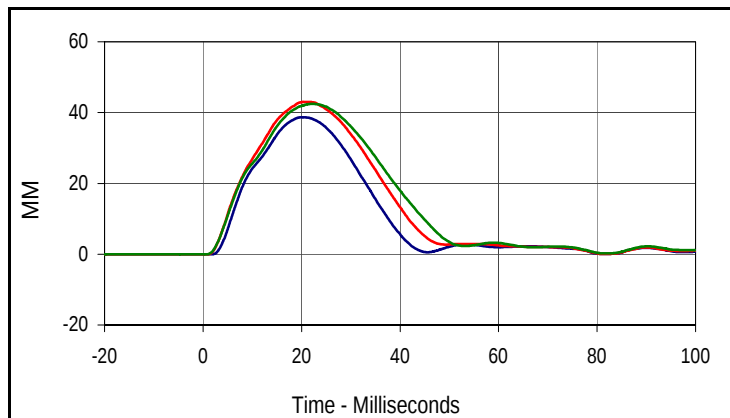
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
33.7	20.1	-0.5	52.5

Test Program: SID IIs Thorax w/o Arm Calibration
 ATD Serial No.: 299

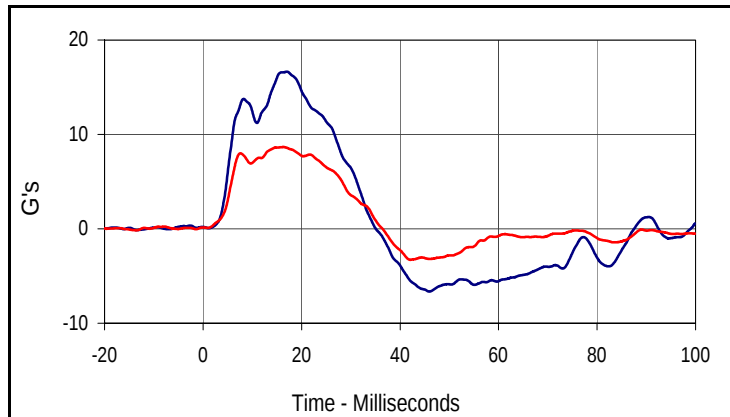
Test Date: 6/15/09
 Test I.D.: TA06C



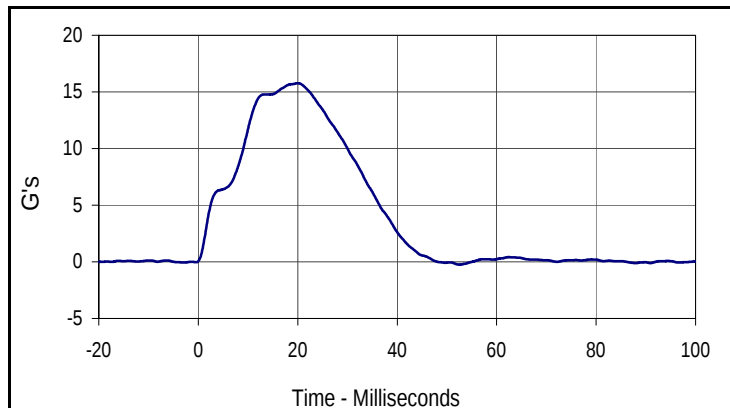
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.27	Pass
Upper Thorax Rib Deflection	MM	33 to 40	38.7	Pass
Middle Abdominal Rib Deflection	MM	39 to 45	43.0	Pass
Lower Abdominal Rib Deflection	MM	36 to 43	42.4	Pass
Peak Upper Spine Y Acceleration	G's	14 to 17	16.6	Pass
Peak Lower Spine Y Acceleration	G's	7 to 10	8.7	Pass
Peak Impactor Acceleration	G's	12 to 16	15.8	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
38.7	20.2	0.0	-18.8
Middle Thorax Deflection			
Max	Time	Min	Time
43.0	21.0	0.0	-3.8
Lower Thorax Deflection			
Max	Time	Min	Time
42.4	22.1	0.0	-19.7



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
16.6	17.0	-6.6	45.9
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
8.7	16.3	-3.3	42.1



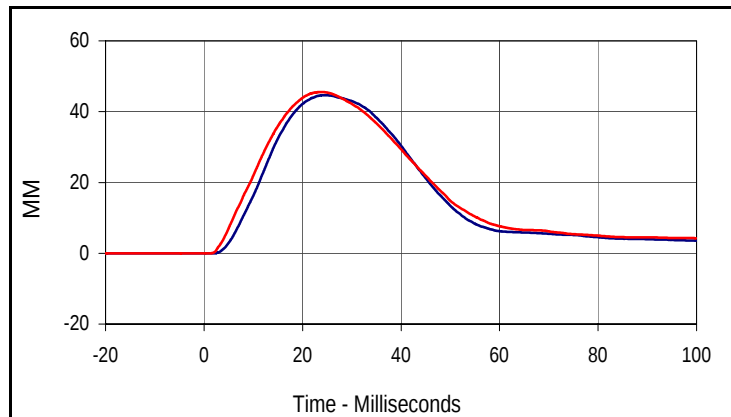
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
15.8	20.1	-0.2	52.5

Test Program: SID IIs Abdomen Calibration
 ATD Serial No.: 299

Test Date: 6/15/09
 Test I.D.: AB06C

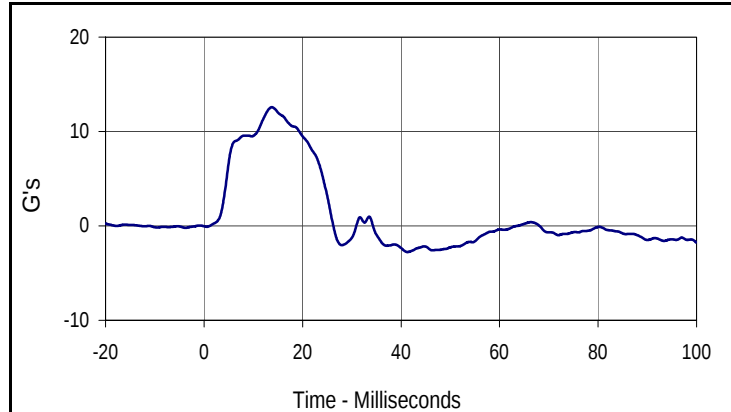


Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.30 to 4.50	4.37	Pass
Upper Abdominal Rib Deflection	MM	39 to 47	44.7	Pass
Lower Abdominal Rib Deflection	MM	37 to 46	45.5	Pass
Peak Lower Spine Y Acceleration	G's	11 to 14	12.6	Pass
Peak Impactor Acceleration	G's	12 to 16	12.9	Pass
Overall Test Results			Pass	

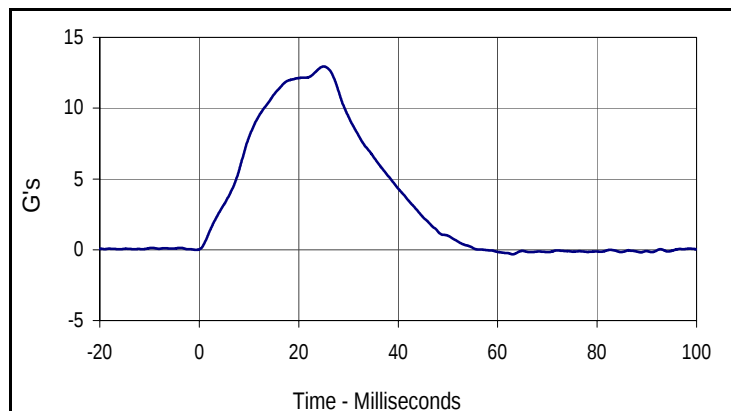


Curve Description			
Upper Abdominal Rib Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
44.7	24.6	0.0	1.3

Curve Description			
Lower Abdominal Rib Deflection			
CURNO	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
45.5	24.0	0.0	-20.0



Curve Description			
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
12.6	13.8	-2.8	41.3



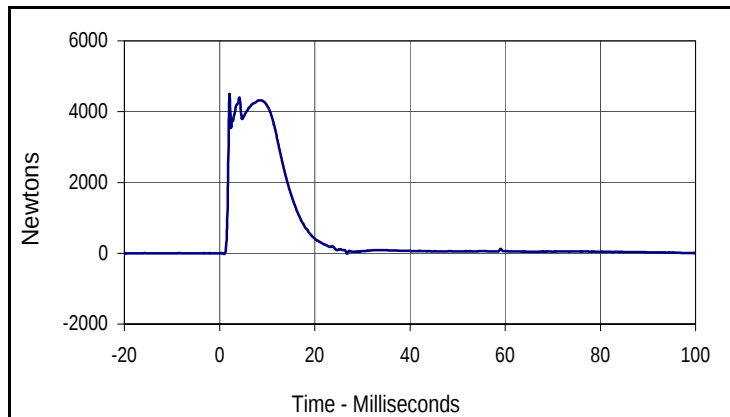
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
12.9	25.0	-0.3	63.0

Test Program: SID IIs Pelvis Acetabulum Calibration
 ATD Serial No.: 299

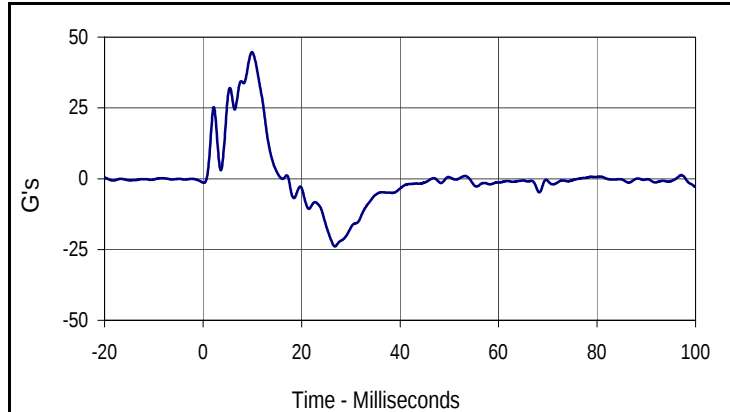
Test Date: 6/15/09
 Test I.D.: PA06C



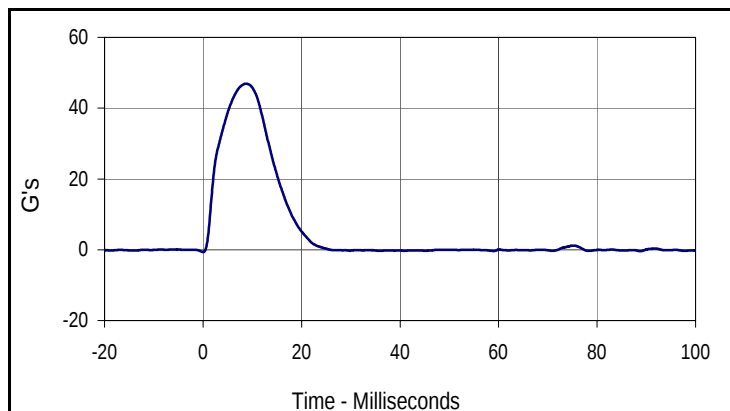
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	6.60 to 6.80	6.63	Pass
Peak Acetabulum Force	Newtons	3800 to 4600	4502.3	Pass
Peak Pelvis Y Acceleration	G's	41 to 50	44.7	Pass
Peak Impactor Acceleration	G's	38 to 47	46.9	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Acetabulum Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4502.3	2.1	-16.9	1.0



Curve Description			
Pelvis Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
44.7	9.9	-23.9	26.8



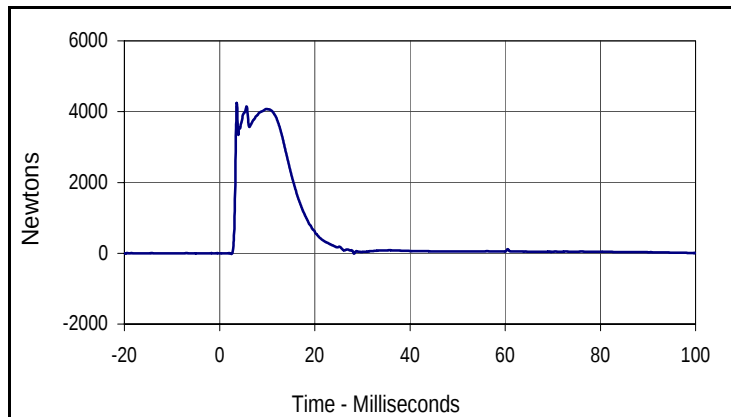
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
46.9	8.7	-0.7	0.0

Test Program: SID IIs Pelvis Iliac Calibration
 ATD Serial No.: 299

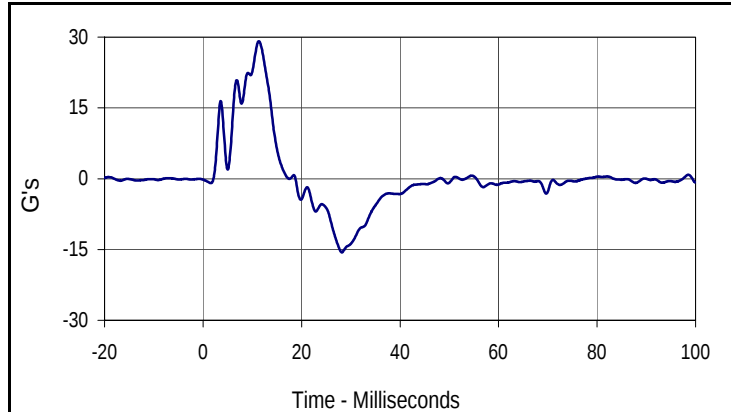
Test Date: 6/15/09
 Test I.D.: PI06C



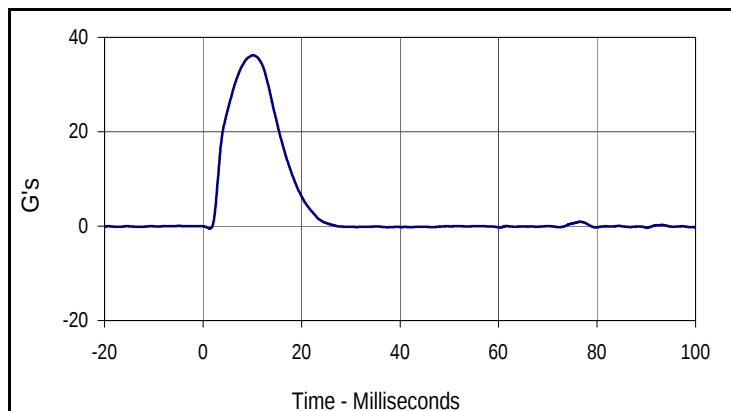
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.2 to 4.4	4.23	Pass
Peak Iliac Force	Newtons	3700 to 4500	4242.0	Pass
Peak Pelvis Y Acceleration	G's	27 to 33	29.1	Pass
Peak Impactor Acceleration	G's	34 to 40	36.2	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Iliac Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4242.0	3.6	-15.9	2.5



Curve Description			
Pelvis Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
29.1	11.3	-15.6	28.2



Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
36.2	10.1	-0.5	1.4