

**RAPPORT D'ESSAI - TEST REPORT
COLLISION FRONTALE DE RECHERCHE
RESEARCH FRONTAL IMPACT**

VÉHICULE D'ESSAI / TEST VEHICLE DODGE CARAVAN 2005 TC # 05-240

**ESSAIS DE RECHERCHE CONJOINTS TC/NHTSA SUR LES
SACS GONFLABLES FRONTAUX
JOINT TC/NHTSA FRONTAL AIRBAGS RESEARCH TESTS**

Préparé par :
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N° de contrat : **06-6008**
Rapport N°: **RR06-137**

Pour :
TRANSPORTS CANADA
SÉCURITÉ ET SÛRETÉ
Programmes de sécurité routière
Recherche et essais de véhicules
Ottawa (Ontario)

Prepared by :
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TEST AND RESEARCH CENTRE
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For :
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SAFETY AND SECURITY
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Vehicle Testing
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Les résultats des essais figurant dans ce compte-rendu ne représentent pas une décision officielle du Ministère des Transports quant à l'acceptation de la performance sécuritaire, de la consommation de carburant ou de la conformité d'un véhicule ou des composantes d'un véhicule aux normes de sécurité et d'antipollution. Le Ministère des Transports ne certifie, n'approuve ou n'endosse aucun produit de véhicule automobile.

The test results presented herein do not, in themselves, represent an official determination by the Department of Transport with fuel consumption or compliance with safety and emission standards of any motor vehicle or motor vehicle component. The Department of Transport does not certify, approve or endorse any motor vehicle product.

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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VÉHICULE D'ESSAI - TEST VEHICLE

Fabricant - Manufacturer DAIMLERCHRYSLER CANADA INC.	Type de carrosserie - Body Style Fourgonnette / Minivan	Marque, modèle, Année - Make, model, Year DODGE CARAVAN 2005
Classe de véhicule - Class of vehicle VTUM / MPV	Boîte de vitesse - Transmission Type Auto. avant / Auto. Front wheel	Moteur - Engine V6 trans. avant / V6 trans. front
Date de fabrication - Date of Manufacture 10-04	Cylindres - Cylinders 3.3 Lit.	N° d'ident. du véhicule - Vehicle Ident. No. 1D4GP25RX5B265228
Lecture de l'odomètre - Odometer Reading 23 km	Nombre de places assises désignées Number of Designated Seating Positions 7	Numéro d'ident. PMG - PMG Ident. Number UN6-222
PNBV - GVWR 2450 kg	PNBE (Avant) - GAWR (Front) 1293 kg	PNBE (Arrière) - GAWR (Rear) 1248 kg

CONFIGURATION D'ESSAI - TEST CONFIGURATION

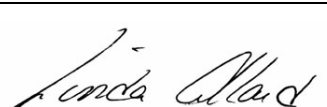
Type d'essai - Test type	Vitesse d'impact- Impact velocity		Angle d'impact Impact angle	Masse du véhicule d'essai Test vehicle mass
Véh. vs barrière - Veh. vs barrier	Prévu / Intended : 56.0 km/h	Obtenu / Obtained : 55.8 km/h	0 °	2131.0 kg
Description et position du mannequin (conducteur) Dummy description and position (driver) Description Hybrid III (5 %)	Position ** 109 mm	Description et position du mannequin (passager avant) Dummy description and position (front passenger) Description Hybrid III (5 %)	Position ** 108 mm	
Description et position du mannequin (2 ^e Rangée, passager arrière gauche) Dummy description and position (2 nd Row, left rear passenger) Description Hybrid III (5 %)	Position ** N/A	Description et position du mannequin (2 ^e Rangée, passager arrière droit) Dummy description and position (2 nd Row, right rear passenger) Description Hybrid III (5 %)	Position ** N/A	
Description et position du mannequin (3 ^e Rangée, passager arrière gauche) Dummy description and position (3 rd Row, left rear passenger) Description Hybrid III (6 ans/years old)	Position ** N/A	Description et position du mannequin (3 ^e Rangée, passager arrière droit) Dummy description and position (3 rd Row, right rear passenger) Description Hybrid III (6 ans/years old)	Position ** N/A	

RÉSULTATS GÉNÉRAUX - GENERAL RESULTS

Déploiement des sacs gonflables - Airbags deployment Coussins frontaux - Frontal airbags		Déploiement des sacs gonflables - Airbags deployment Coussins latéraux - Lateral airbags	
Conducteur / Driver	Passager / Passenger	Conducteur / Driver	Passager / Passenger
Déployé / Deployed 20.7ms	Déployé / Deployed 22.4ms	N/A	N/A
Rétracteurs de ceintures-prétensionneurs Seat belts retractors-pretensioners Conducteur / Driver		Limiteur de charge des ceintures de sécurité Seat belts load limiter Conducteur / Driver	
Déployé / Deployed		Non-équipé / Not equipped	

Essai réalisé selon la procédure de PMG : Collision frontale de recherche, version 3, révision 10 avril 2000.

Test performed according to PMG procedure: Research frontal impact, version 3, revised april 10, 2000.

Préparé par : Prepared by : 	Digitally signed by Pierre Beauchamp Date: 2005.12.05	Approuvé par : Approved by :	
Vérifié par : Verified by : 	Digitally signed by Linda Allard Date: 2005.12.05	Accepté par : Accepted by :	

* Tel qu'observé avec l'application d'une charge de 12V après l'essai.

* As observed by a 12V application after the test.

** Référence : 0 est la position la plus avancée. / ** Reference : 0 is the foremost position.

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DONNÉES DU VÉHICULE D'ESSAI / TEST VEHICLE DATA

Capacité du véhicule - Vehicle Capacity		Masse des bagages - Cargo Load		Type de sièges – Type of seats			Types de dossiers - Type of seat back				
521 kg		31 kg			Avt - Frt	Arr - Rr		Avt - Frt	Arr - Rr		
Nombre d'occupants (places assises désignées) Number of Occupants (Designated Seating Positions)				Banquette Bench			Dossier ajustable Adjustable Seat Back	X			
Avant – Front 2		Arrière – Rear 2+3		Total 7		Baquet Bucket	X	X	Dossier non-ajustable Non-adjustable Seat Back		X
Volume de carburant pour l'essai Fuel system test volume		Pression à froid - Cold Tire Pressure						Dimension - Size			
69.16 l		Avant - Front 250 kPa		Arrière - Rear 250 kPa		Secours - Spare 420 kPa		215/70R15			

PREMIÈRE PESÉE : VÉHICULE TEL QUE LIVRÉ (AVEC LIQUIDES AU MAXIMUM)

FIRST WEIGHT : VEHICLE AS RECEIVED (WITH MAXIMUM FLUIDS)

Avant gauche - Left front	538.0 kg	Avant droit - Right front	506.6 kg	Masse avant totale - Total front weight	1044.6 kg
Arrière gauche - Left rear	378.0 kg	Arrière droit - Right rear	358.0 kg	Masse arrière totale - Total rear weight	736.0 kg
Masse totale côté gauche - Total left side weight	916.0 kg	Masse totale côté droit - Total right side weight	864.6 kg	Masse totale - Total weight	1780.6 kg

TROISIÈME PESÉE : VÉHICULE PRÊT POUR L'ESSAI

THIRD WEIGHT : VEHICLE READY FOR TEST

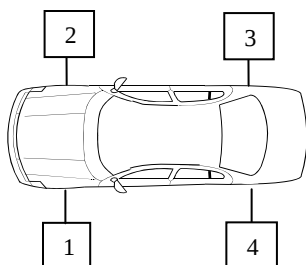
Avant gauche - Left front	574.8 kg	Avant droit - Right front	547.4 kg	Masse avant totale - Total front weight	1122.2 kg
Arrière gauche - Left rear	515.2 kg	Arrière droit - Right rear	493.6 kg	Masse arrière totale - Total rear weight	1008.8 kg
Masse totale côté gauche - Total left side weight	1090.0 kg	Masse totale côté droit - Total right side weight	1041.0 kg	Masse totale - Total weight	2131.0 kg

ATTITUDE DU VÉHICULE / VEHICLE ATTITUDE

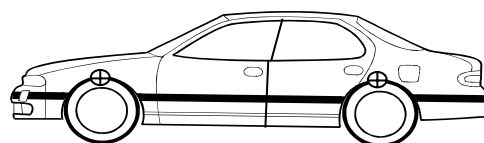
		Attitude tel que livré Attitude on delivery	Attitude tel que testé Attitude as tested
1	Roue avant gauche* Left front wheel*	765 mm	750 mm
2	Roue avant droite* Front right wheel*	765 mm	740 mm
3	Roue arrière droite* Rear right wheel*	785 mm	720 mm
4	Roue arrière gauche* Rear left wheel*	777 mm	730 mm

* Mesures prises aux puits de roues. // *Measurements taken at wheel openings.

Vue de plan / Plan view



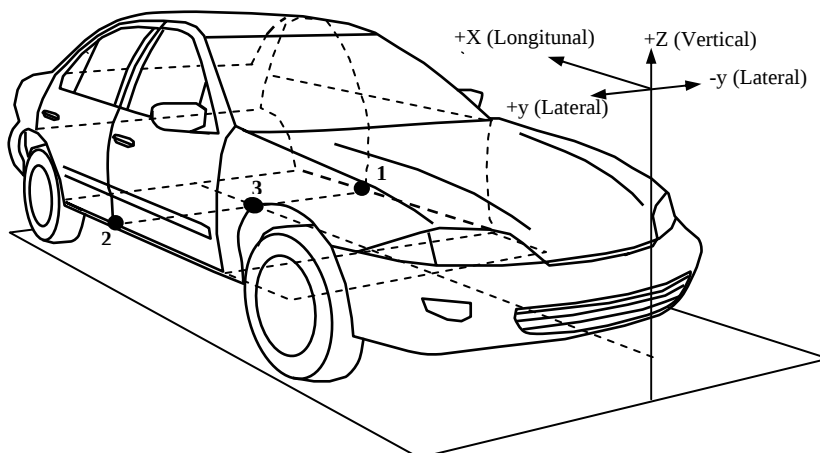
Vue de côté / Side view



⊕ Points de mesure / Measurement points

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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EMPLACEMENT DES ACCÉLÉROMÈTRES
ACCELEROMETER LOCATIONS

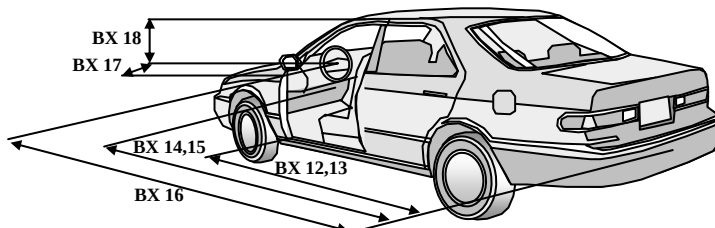
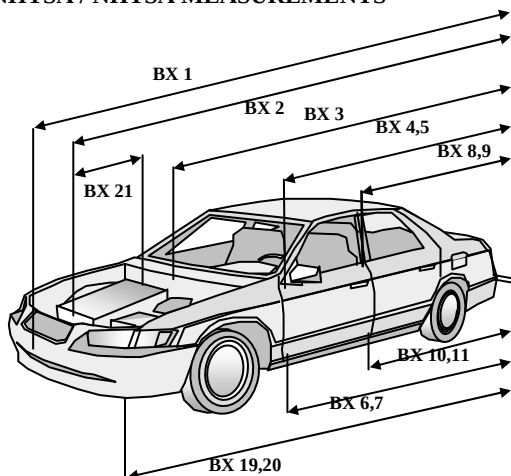


Point de référence : Centre transversal du véhicule, au point le plus avancé, au niveau du sol. Selon SAE J182a.
Reference point : Transversal center of the vehicle, at the foremost point and at ground level. As per SAE J182a.

EMPLACEMENT LOCATION	DESCRIPTIONS	COORDONNÉES / COORDINATES (mm)		
		X	Y	Z
#1	Seuil de la porte gauche @ pilier "B" Left door sill @ pillar "B"	2434	-612	332
#2	Seuil de la porte droite @ pilier "B" Right door sill @ pillar "B"	2434	-610	331
#3	Centre de gravité Centre of gravity	1997	-6	297

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MESURES NHTSA / NHTSA MEASUREMENTS



- 1 - Longueur totale du véhicule
Total length of vehicle
- 2 - Surface arrière à l'avant du bloc moteur
Rear surface at front of engine block
- 3 - Surface arrière à la cloison pare-feu
Rear surface at fire-wall
- 4 - Surface arrière à la partie supérieure avant porte avant droite
Rear surface of front superior part of right front door
- 5 - Surface arrière à la partie supérieure avant porte avant gauche
Rear surface of front superior part of left front door
- 6 - Surface arrière à la partie inférieure avant porte avant droite
Rear surface of front inferior part of right front door
- 7 - Surface arrière à la partie inférieure avant porte avant gauche
Rear surface of front inferior part of left front door
- 8 - Surface arrière à la partie supérieure arrière porte avant droite
Rear surface of rear superior part of right rear door
- 9 - Surface arrière à la partie supérieure arrière porte avant gauche
Rear surface of rear superior part of left rear door
- 10 - Surface arrière à la partie inférieure arrière porte avant droite
Rear surface of rear inferior part of right rear door
- 11 - Surface arrière à la partie inférieure arrière porte avant gauche
Rear surface of rear inferior part of left rear door
- 12 - Surface arrière à la partie inférieure du pilier "A" droit
Rear surface of rear inferior part of right pillar "A"
- 13 - Surface arrière à la partie inférieure du pilier "A" gauche
Rear surface of rear inferior part of left pillar "A"
- 14 - Surface arrière à la cloison pare-feu côté droit
Rear surface of right side of fire-wall
- 15 - Surface arrière à la cloison pare-feu côté gauche
Rear surface of left side of fire-wall
- 16 - Surface arrière à la colonne de direction
Rear surface of steering column
- 17 - Centre de la colonne de direction au pilier "A"
Centre of steering column to pillar "A"
- 18 - Centre de la colonne de direction au toit
Centre of steering column to roof
- 19 - Surface arrière du véhicule au coin droit du pare-choc avant
Rear surface of vehicle to right corner of front bumper
- 20 - Surface arrière du véhicule au coin gauche du pare-choc avant
Rear surface of vehicle to left corner of front bumper
- 21 - Longueur du bloc moteur
Length of engine block

	BX*	AX**	Δx		BX*	AX**	Δx
1	4803	4260	543	12	3299	3280	19
2	4178	3957	221	13	3307	3298	9
3	4009	3965	44	14	3454	---	---
4	3333	3324	9	15	3610	---	---
5	3335	3328	7	16	2905	2912	-7
6	3332	3324	8	17	454	438	16
7	3330	3323	7	18	501	523	-22
8	2360	2351	9	19	4748	4147	601
9	2353	2345	8	20	4747	4242	505
10	2389	2383	6	21	194	---	---
11	2391	2385	6				

Mesures en mm / Measurements in mm

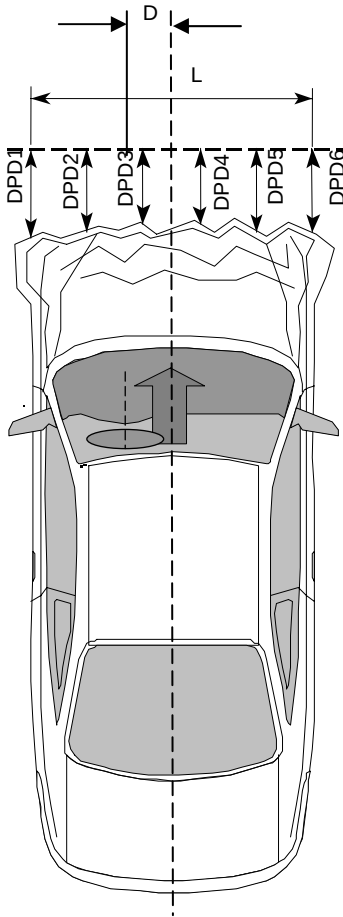
* BX : Mesures du véhicule avant-essai. / Pre-test vehicle measurements data.

** AX : Mesures du véhicule après-essai. / Post-test vehicle measurements data.

REMARQUES / COMMENTS : Aucune / None

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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MESURES DES DPD / DPD'S MEASUREMENTS



DPD 1:

DPD 2:

DPD 3:

DPD 4:

DPD 5:

DPD 6:

MESURE L:

MEASUREMENT L:

MESURE D:

MEASUREMENT D:

AVANT ESSAI PRE-TEST	APRÈS ESSAI POST-TEST	Δx
227	688	-461
64	586	-522
9	561	-552
8	561	-553
61	658	-597
218	632	-414
	1500	
	0	

Mesures en mm / Measurements in mm

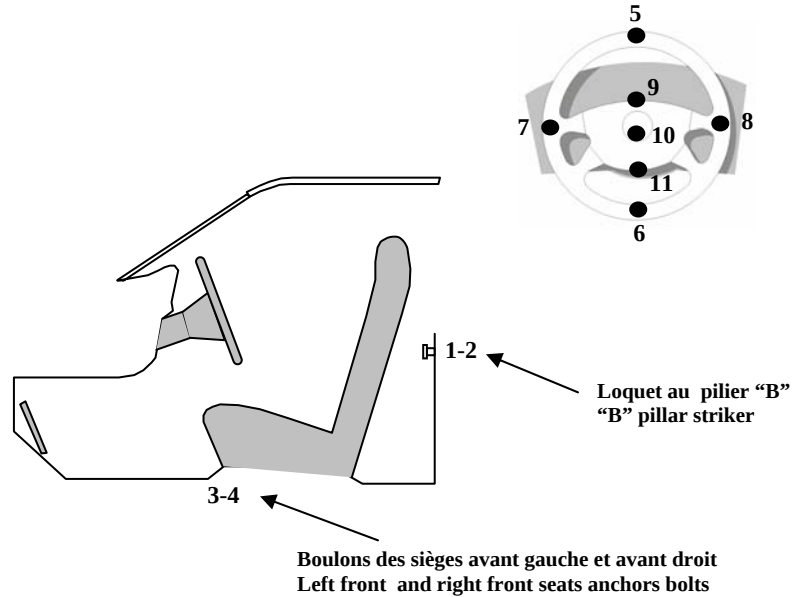
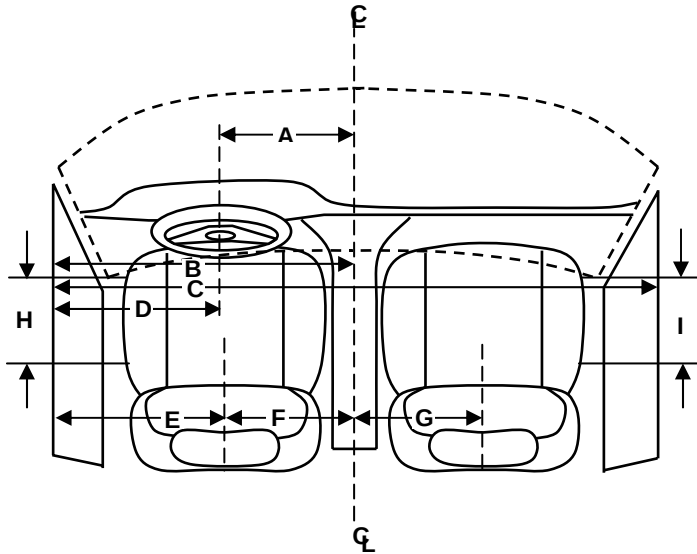
L : Longueur de la région endommagée
Length of damaged region

D : Distance du centre de déformation à la ligne de centre du véhicule
Midpoint of damage to Vehicle Longitudinal Centerline

REMARQUES / COMMENTS : Aucune / None

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MESURES DE VÉHICULE
VEHICLE MEASUREMENTS



Code	Description	mm
A	Centre du volant à la ligne de centre du véhicule Steering wheel center to center line of vehicle	388
B	Seuil de fenêtre à la ligne de centre du véhicule Window edge to center line of the vehicle	918
C	Fenêtre à fenêtre Window to window	1839
D	Centre du volant au seuil de la fenêtre Steering wheel center to window edge	530
E	Seuil de la fenêtre au centre du siège (conducteur) Window edge to seat midline (driver)	512
F	Centre du siège à la ligne de centre du véhicule (conducteur) Seat midline to center line of vehicle (driver)	406
G	Centre du siège à la ligne de centre du véhicule (passager) Seat midline to center line of vehicle (passenger)	427
H	Course du siège (conducteur) Seat travel (driver)	216
I	Course du siège (passager) Seat travel (passenger)	216
J	Ajustement du volant Steering wheel adjustment	55
K	Ajustement de la ceinture baudrier Upper torso belt adjustment	89

Code	Description	X(mm)	Y(mm)	Z(mm)
1	Loquet au pilier "B" (conducteur) "B" pillar striker (driver)	2399	-845	627
2	Loquet au pilier "B" (passager) "B" pillar striker (passenger)	2401	848	629
3	Boulon siège avant, extérieur (conducteur) Front seat bolt, outboard (driver)	1938	-605	300
4	Boulon siège avant, extérieur (passager) Front seat bolt, outboard (passenger)	1941	626	482
5	Jante du volant, centre haut Steering wheel rim, top centre	1815	-389	1175
6	Jante du volant, centre bas Steering wheel rim, bottom centre	1955	-390	814
7	Jante du volant, centre gauche Steering wheel rim, left centre	1884	-582	995
8	Jante du volant, centre droit Steering wheel rim, right centre	1889	-197	995
9	Moyeu du volant, centre haut Steering wheel hub, top centre	1865	-390	1031
10	Moyeu du volant, centre Steering wheel hub, centre	1908	-389	975
11	Moyeu du volant, centre bas Steering wheel hub, bottom centre	1923	-389	921
12	Centre du volant Center of steering wheel	1898	-388	994

Point de référence : Centre transversal du véhicule, au point le plus avancé, au niveau du sol. Selon SAE J182a.
Reference point : Transversal center of the vehicle, at the foremost point and at ground level. As per SAE J182a.

Remarques - Comments: Aucune / None

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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POSITIONNEMENT DES MANNEQUINS / MEASUREMENTS OF DUMMY POSITIONS

		<u>MESURES / MEASUREMENTS :</u>					
Conducteur/Driver : Hybrid III (5 %) #105		Toutes les mesures sont en mm / All measurements are in mm					
Angle du pelvis - Pelvic angle : Angle transversal - Transversal angle : Angle de la tête - Head angle : Seuil de porte - Door sill : Mouvement du lacet / Yaw movement : Position de la rail du siège / Seat track position * : 22.5° -0.4° 0.0° 0.0° 2 mm 109 mm							
Passager avant/Front Passenger: Hybrid III (5 %) #104		Conducteur / Driver			Passager / Passenger		
Angle du pelvis - Pelvic angle : Angle transversal - Transversal angle : Angle de la tête - Head angle : Seuil de porte - Door sill : Mouvement du lacet / Yaw movement : Position de la rail du siège / Seat track position * : 21.6° -0.2° 0.0° 0.0° 1 mm 108 mm		Ajustement du siège : Seat adjustment : Mi-course / Mid travel Électrique / Electrical			Ajustement du siège : Seat adjustment : Mi-course / Mid travel 12 de 23 crans/notches		
Cible de tête / Head target :		Angle du dossier (Tige d'Appuie-tête) Seat back angle (Headrest Pole) : 13.8 °			Angle du dossier (Tige d'Appuie-tête) Seat back angle (Headrest Pole) : 14.2 °		
Point-H / H-Point :		X	Y	Z	X	Y	Z
Rotule / Knee joint :		2317	-484	1202	2313	507	1200
		2168	-563	636	2169	582	633
		1853	-556	763	1841	558	736

Remarques – Comments : Tableau de bord du côté conducteur muni d'une protection des genoux
Driver's dash board is equipped with a knee protection airbag.

* Référence : 0 est la position la plus avancée.

* Reference : 0 is the foremost position.

Selon la procédure de positionnement de mannequin 5^e percentile Hybrid III, conformément à la sous-section O, TP208-12, 14 janvier 2003.

As per procedure for placement of a 5th percentile Hybrid III, conforming to subpart O, TP208-12, January 14th 2003.

Point de référence : Centre transversal du véhicule, au point le plus avancé, au niveau du sol. Selon SAE J182a.

Reference point : Transversal center of the vehicle, at the foremost point and at ground level. As per SAE J182a.

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POSITIONNEMENT DES MANNEQUINS / MEASUREMENTS OF DUMMY POSITIONS

2 ^{ème} Rangée / 2 nd row		MESURES / MEASUREMENTS :					
Passager gauche/Left Passenger: Hybrid III (5 %) #111		Toutes les mesures sont en mm / All measurements are in mm					
Angle du pelvis - Pelvic angle :							

Remarques – Comments : **Aucune / None**

Selon la procédure de positionnement de mannequin 5^e percentile Hybrid III, conformément à la sous-section O, TP208-12, 14 janvier 2003.

As per procedure for placement of a 5th percentile Hybrid III, conforming to subpart O, TP208-12, January 14th 2003.

Point de référence : Centre transversal du véhicule, au point le plus avancé, au niveau du sol. Selon SAE J182a.
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POSITIONNEMENT DES MANNEQUINS / MEASUREMENTS OF DUMMY POSITIONS

3^{ème} Rangée / 3rd row		MESURES / MEASUREMENTS :	
Passager gauche/Left Passenger: Hybrid III (6 ans/years old) #51		Toutes les mesures sont en mm / All measurements are in mm	
Type de siège – Type of seat	CRS-Booster		
Marque - Make	Graco	Passager gauche/Left Passenger	Passager droit/Right Passenger
Modèle - Model	Cargo	Ajustement du siège : Seat adjustment :	Ajustement du siège : Seat adjustment :
# de Modèle – Model #	8499ALECA	FIXE / FIXED	FIXE / FIXED
Date de Fabrication – Manufactured Date	2004-02-06	Angle du dossier (Tige d'Appuie-tête) Seat back angle (Headrest Pole) :	Angle du dossier (Tige d'Appuie-tête) Seat back angle (Headrest Pole) :
Passager droit/Right Passenger: Hybrid III (6 ans/years old) #103		N/A	N/A
Type de siège – Type of seat	CRS-Booster		
Marque - Make	Century		
Modèle - Model	Brevera Contour		
# de Modèle – Model #	44875LBLBCA		
Date de Fabrication – Manufactured Date	2003-03-26		

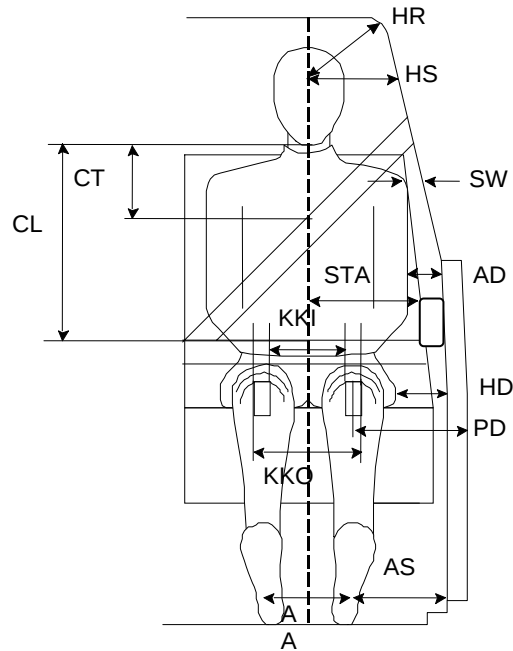
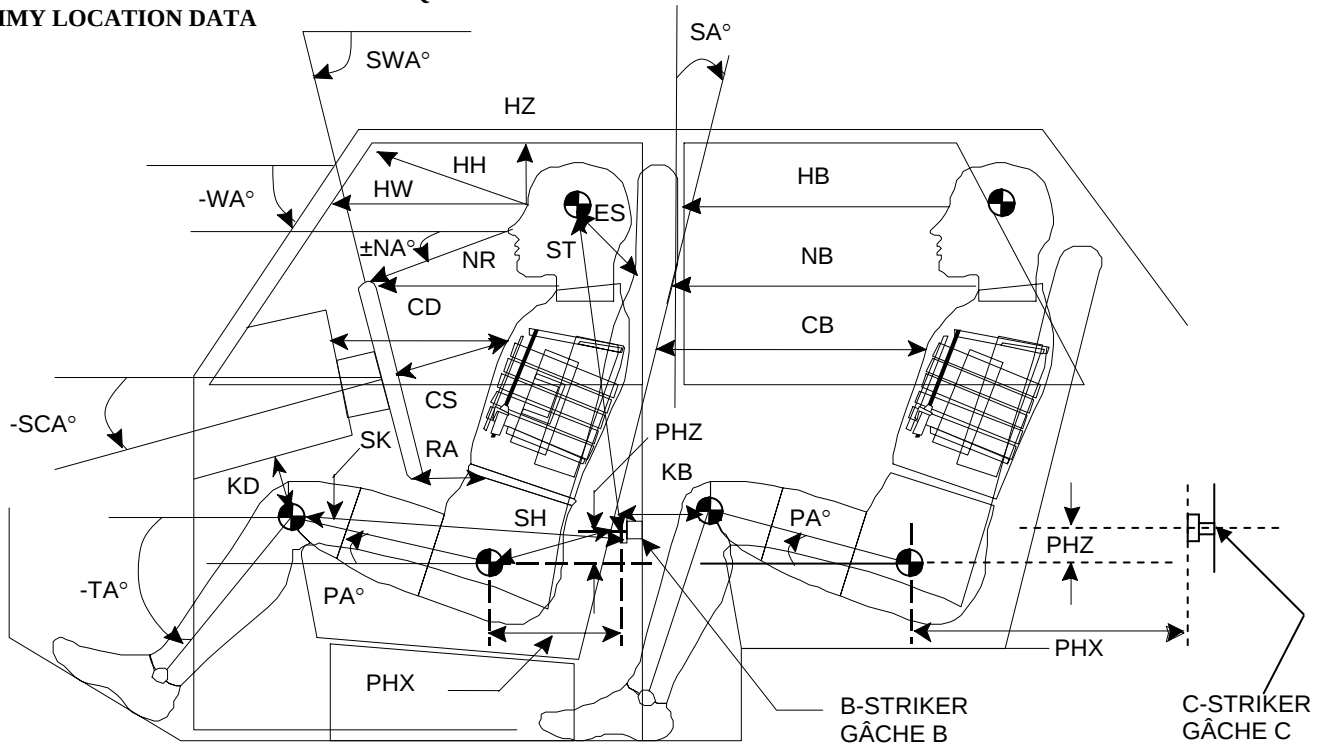
Remarques – Comments : Aucune / None

Point de référence : Centre transversal du véhicule, au point le plus avancé, au niveau du sol. Selon SAE J182a.

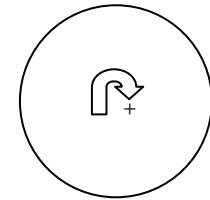
Reference point : Transversal center of the vehicle, at the foremost point and at ground level. As per SAE J182a.

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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COTES DE LOCALISATION DES MANNEQUINS
DUMMY LOCATION DATA



référence
reference :



Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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**COTES DE LOCALISATION DES MANNEQUINS (suite)
DUMMY LOCATION DATA (continued)**

(Mesures prises en mm / Measurements taken in mm)

DESCRIPTION	CODE	CONDUCTEUR DRIVER	PASSAGER Av. F. PASSENGER	PASSAGER Arr.G. L.R. PASSENGER	PASSAGER Arr.D. R.R. PASSENGER
De cheville à cheville (boulon extérieur) Ankle to ankle (exterior bolt)	AA	350	250		
Genou à genou (plaque) Intérieur / Interior Centre / Center Knee to knee (plate) Extérieur / Extérieur	KKI	160	100		
	KKC	230	170		
	KKO	300	250		
De la cheville jusqu'au seuil de porte (horizontalement) Ankle to door sill (horizontal)	AS	170	190		
Centre du genou au tableau de bord ou siège horizontalement (minimum) Knees centre to dash or seat back horizontal (minimum)	KDL	160	185		
	KDR	195	185		
Sternum au tableau de bord (horizontalement) Chest to dash (horizontal)	CD		540		
Milieu du sternum au centre du moyeu du volant ou siège avant Mid sternum to steering hub center or front seat	CS/CB	315			
Milieu du front jusqu'au pare-brise (horizontalement) Mid forehead to windshield (horizontal)	HW	902	889		
Milieu du front jusqu'au haut du pare-brise Mid forehead to windshield header	HH	438	423		
Nez à la jante du volant de direction (haut) ou siège avant Nose to steering wheel rim (top) or front seat	NR/HB	387			
Milieu du front jusqu'au début du toit Mid forehead to edge roof	HR	290	275		
Haut de l'oreille au haut du siège avant Ear top to front seat top	ES	219	229		
Menton au haut de la ceinture sous-abdominale (verticalement) Chin to lap belt upper edge (vertical)	CL	345	350		
Menton au haut de la ceinture baudrier (verticalement) Chin to thorax belt upper edge (vertical)	CT	120	110		
Milieu du front à la fenêtre latérale (horizontalement) Mid forehead to side window (horizontal)	HS	340	345		
La rotule à la porte (horizontalement) Patella to door (horizontal)	PD	238	235		
Du point-H à la porte (horizontalement) H-point to door (horizontal)	HD	172	178		
Du milieu du bras à la porte (horizontalement) Mid upper arm to door (horizontal)	AD	152	178		
Cou jusqu'au volant ou tableau de bord (horizontalement) ou siège avant Neck to steering wheel or dash board (horizontal) or front seat	NB	480	465		
Épaule à la fenêtre de côté Shoulder to side window	SW	280	285		
Abdomen à l'appui-bras Abdomen to armrest	STA	180	175		
Milieu du front au toit (verticalement) Mid forehead to roof (vertical)	HZ	325	325		
Tête au loquet (plan (x,z)) Striker to head ((x,z) plan)	ST	581	578		
Abdomen à la jante du volant de direction (bas) Steering wheel rim to abdomen (bottom)	RA	185			
Genou au loquet (plan (x,z)) Striker to knee ((x,z) plan)	SK	563	570		
Point-H au loquet (plan (x,z)) Striker to H-Point ((x,z) plan)	SH	231	232		
Point-H au loquet en X (horizontalement) Striker to H-Point in X (horizontal)	PHX	231	232		
Point-H au loquet en Z (verticalement) Striker to H-Point in Z (vertical)	PHZ	-9	-4		

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COTES DE LOCALISATION DES MANNEQUINS (suite)

DUMMY LOCATION DATA (continued)

(Mesures prises en deg. / Measurements taken in deg.)

DESCRIPTION	CODE	CONDUCTEUR DRIVER	PASSAGER Av. F. PASSENGER	PASSAGER Arr.G. L.R. PASSENGER	PASSAGER Arr.D. R.R. PASSENGER
Angle du volant Steering wheel angle	+SWA	67.5°			
Angle du pare-brise Windshield angle	-WA	-26.5°			
Angle de la colonne de direction Steering column angle	-SCA	-21.7°			
Angle du tibia gauche Left tibial angle	-TA	-24.4°	-26.2°		
Angle du tibia droit Right tibial angle	-TA	-23.6°	-25.6°		
Angle pelvis Pelvic angle	+PA	22.5°	21.8°		
Angle du nez à la jante de direction (haut) Nose to steering wheel rim (top) angle	±NA	-3.2°			
Angle du dossier (Tige d'Appuie-tête) Seat back angle (Headrest Pole)	+SA	13.8°	14.0°		
Angle ST (horizontalement) ST angle (horizontal)	+ST-A	81.9°	81.2°		
Angle SK (horizontalement) SK angle (horizontal)	±SK-A	14.0°	10.8°		
Angle SH (horizontalement) SH angle (horizontal)	-SH-A	2.2°	1.0°		

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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**MESURES DE MANNEQUIN DAE
TEST DUMMY MEASUREMENTS**

CONDUCTEUR / DRIVER

Description et emplacement du Mannequin
ATD description and location :

DESCRIPTION	X(mm)	Y(mm)	Z(mm)
Centre de gravité de la tête, extérieur - Head CG, outboard	2317	-484	1202
Base du nez - Glabella (root of nose)	2233	-416	1208
Menton - Chin (bottom)	2230	-420	1098
Jonction menton et cou - Chin / neck junction	2300	-420	1122
Thorax au niveau des côtes supérieures - Chest at upper rib level	2203	-410	932
Thorax au niveau des côtes inférieures - Chest at lower rib level	2172	-403	823
Boulon supérieur avant de l'épaule, ext. - Shoulder bolt, top front outboard	2349	-574	972
Boulon supérieur avant de l'épaule, int. - Shoulder bolt, top front inboard	2356	-256	982
Boulon du coude, extérieur - Elbow bolt, outboard	2140	-627	933
Boulon du coude, intérieur - Elbow bolt, inboard	2153	-167	947
Boulon du poignet, extérieur - Wrist bolt, outboard	1945	-602	1020
Boulon du poignet, intérieur - Wrist bolt, inboard	1950	-196	1025
Point d'articulation de la hanche, extérieur - Hip point, outboard	2256	-527	673
Boulon du genou gauche, extérieur - Knee bolt, left leg, outboard	1853	-555	763
Boulon de la cheville gauche, extérieur - Ankle bolt, left leg , outboard	1676	-530	466
Point du talon gauche - Heel point, left leg	1748	-555	366
Plante du pied gauche vs plancher - Ball of foot at toeboard contact, left leg	1609	-586	394
Boulon du genou droit, intérieur - Knee bolt, right leg , inboard	1838	-321	753
Boulon de la cheville droite, intérieur - Ankle bolt, right leg , inboard	1624	-261	494
Point du talon droit - Heel point, right leg	1659	-266	375
Plante du pied droit vs plancher - Ball of foot at toeboard contact, right leg	1500	-293	463
Potentiomètre de déflexion du sternum – Sternum deflection potentiometer	2182	-406	857

Remarques – Comments : **Aucune / None**

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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**MESURES DE MANNEQUIN DAE
TEST DUMMY MEASUREMENTS**

PASSAGER / PASSENGER

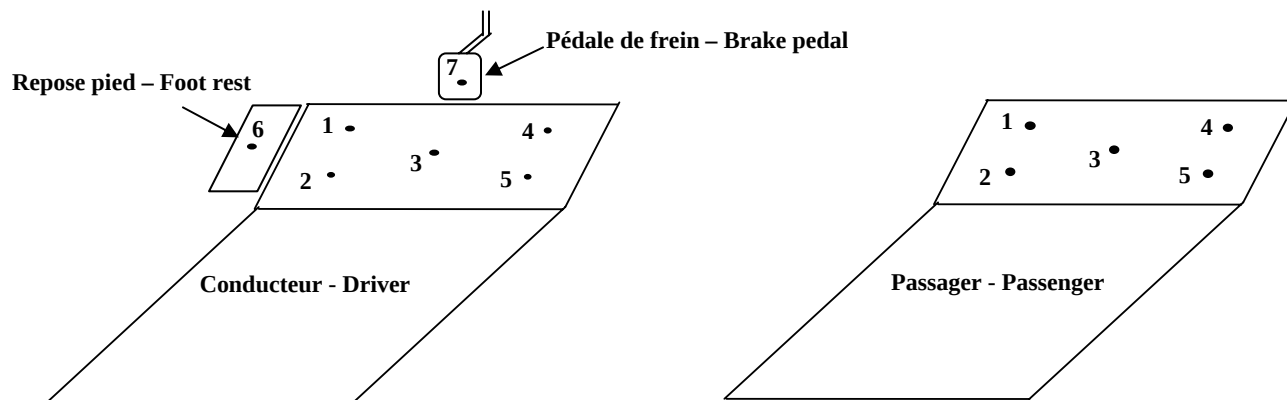
Description et emplacement du Mannequin
ATD description and location:

DESCRIPTION	X(mm)	Y(mm)	Z(mm)
Centre de gravité de la tête, extérieur - Head CG, outboard	2313	507	1200
Base du nez - Glabella (root of nose)	2226	442	1209
Menton - Chin (bottom)	2222	442	1103
Jonction menton et cou - Chin / neck junction	2290	442	1124
Thorax au niveau des côtes supérieures - Chest at upper rib level	2202	423	935
Thorax au niveau des côtes inférieures - Chest at lower rib level	2173	426	830
Boulon supérieur avant de l'épaule, ext. - Shoulder bolt, top front outboard	2337	588	964
Boulon supérieur avant de l'épaule, int. - Shoulder bolt, top front inboard	2326	275	974
Boulon du coude, extérieur - Elbow bolt, outboard	2237	640	771
Boulon du coude, intérieur - Elbow bolt, inboard	2240	231	778
Boulon du poignet, extérieur - Wrist bolt, outboard	2028	585	750
Boulon du poignet, intérieur - Wrist bolt, inboard	2028	259	749
Point d'articulation de la hanche, extérieur - Hip point, outboard	2256	547	673
Boulon du genou gauche, intérieur - Knee bolt, left leg, inboard	1836	380	731
Boulon de la cheville gauche, intérieur - Ankle bolt, left leg, inboard	1663	332	437
Point du talon gauche - Heel point, left leg	1727	341	334
Plante du pied gauche vs plancher - Ball of foot at toeboard contact, left leg	1581	368	361
Boulon du genou droit, extérieur - Knee bolt, right leg, outboard	1841	558	736
Boulon de la cheville droite, extérieur - Ankle bolt, right leg, outboard	1674	540	435
Point du talon droit - Heel point, right leg	1746	553	334
Plante du pied droit vs plancher - Ball of foot at toeboard contact, right leg	1609	590	359
Potentiomètre de déflexion du sternum – Sternum deflection potentiometer	2182	424	864

Remarques – Comments : **Aucune / None**

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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MESURES PLANCHER / FOOTWELL MEASUREMENTS



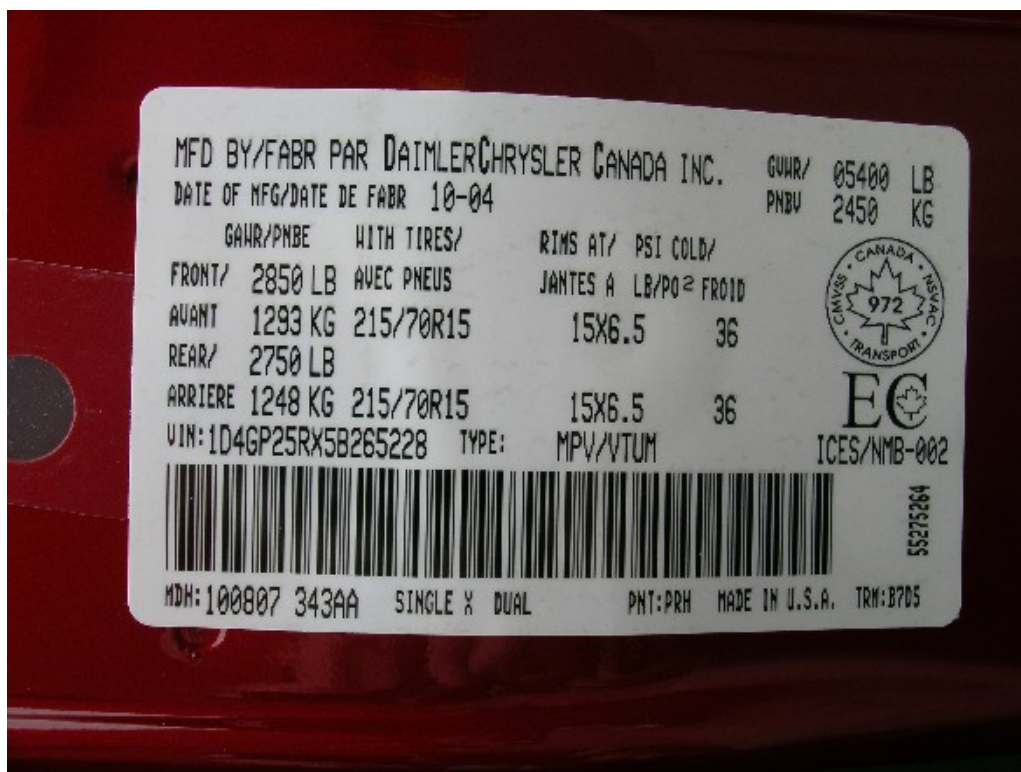
N° Cible	AVANT ESSAI	APRÈS ESSAI	
Target No.	PRE-TEST	POST-TEST	Δ mm
1	x	1269	1439
	y	-445	-463
	z	439	497
2	x	1343	1457
	y	-467	-478
	z	355	384
3	x	1304	1467
	y	-337	-348
	z	382	442
4	x	1301	1447
	y	-240	-270
	z	435	505
5	x	1328	1464
	y	-236	-263
	z	352	417
6	x	1364	1424
	y	-638	-653
	z	452	450
7	x	1410	1536
	y	-383	-466
	z	507	592

N° Cible	AVANT ESSAI	APRÈS ESSAI	
Target No.	PRE-TEST	POST-TEST	Δ mm
1	x	1241	1407
	y		
	z		
2	x	1334	1404
	y		
	z		
3	x	1283	1417
	y		
	z		
4	x	1231	1426
	y	463	448
	z	497	577
5	x	1335	1423
	y	461	452
	z	362	408

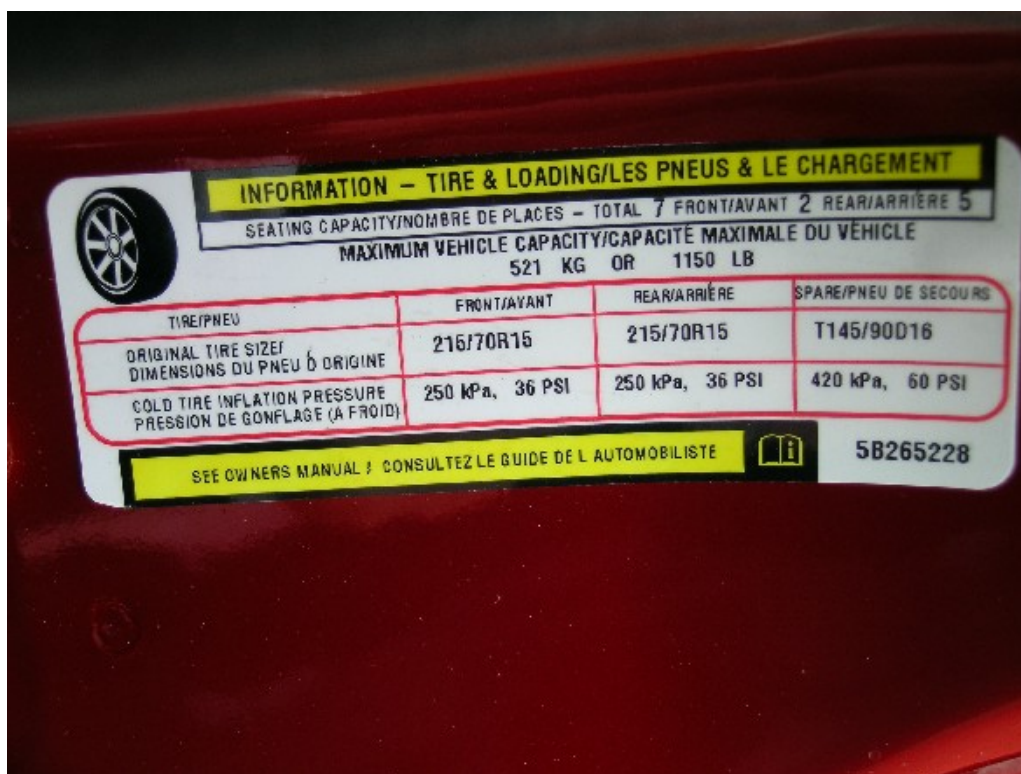
APPENDICE / APPENDIX A

**PHOTOGRAPHIES DE L'ESSAI
TEST PHOTOGRAPHS**

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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1. Étiquette de déclaration de conformité du véhicule d'essai.
Statement of compliance label of the test vehicle.



2. Étiquette d'information des pneus.
Tire information label.

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3. Vue $\frac{3}{4}$ avant du véhicule d'essai.
 $\frac{3}{4}$ front view of the test vehicle.



4. Vue $\frac{3}{4}$ arrière du véhicule d'essai.
 $\frac{3}{4}$ rear view of the test vehicle.

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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5. Vue générale côté gauche du véhicule d'essai, avant essai.
Left side view of the test vehicle, pre-test.

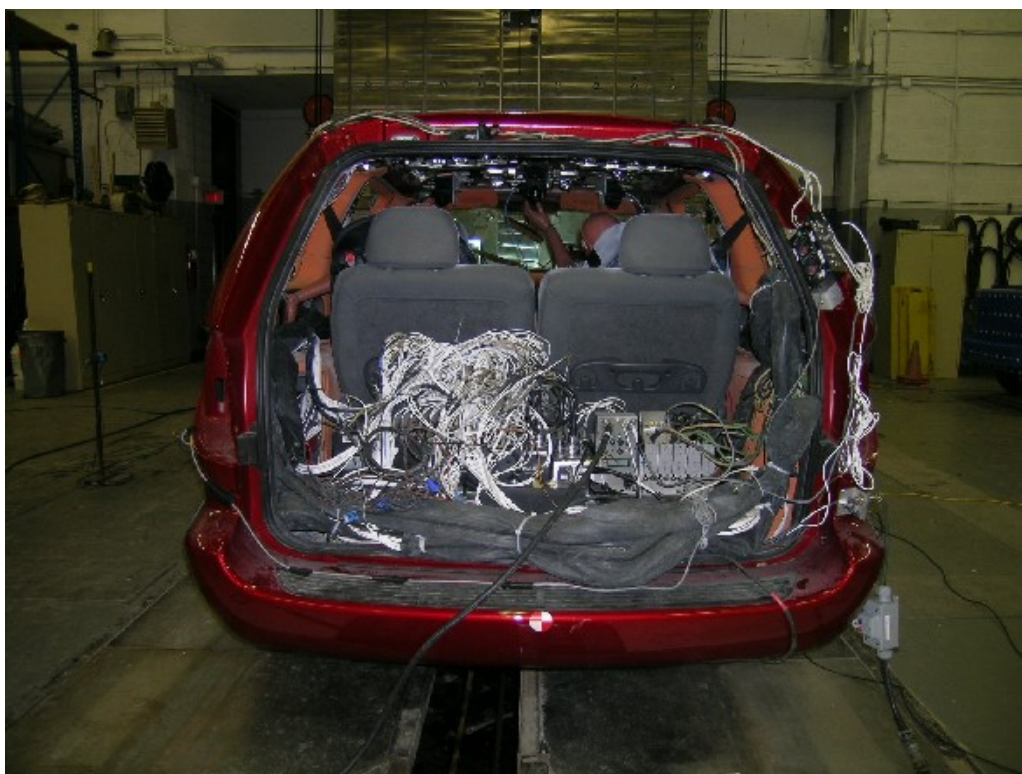


6. Vue générale côté gauche du véhicule d'essai, après essai.
Left side view of the test vehicle, post-test.

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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7. Vue arrière du véhicule d'essai, avant essai.
Rear view of the test vehicle, pre-test.



8. Vue arrière du véhicule d'essai, après essai.
Rear view of the test vehicle, post-test.

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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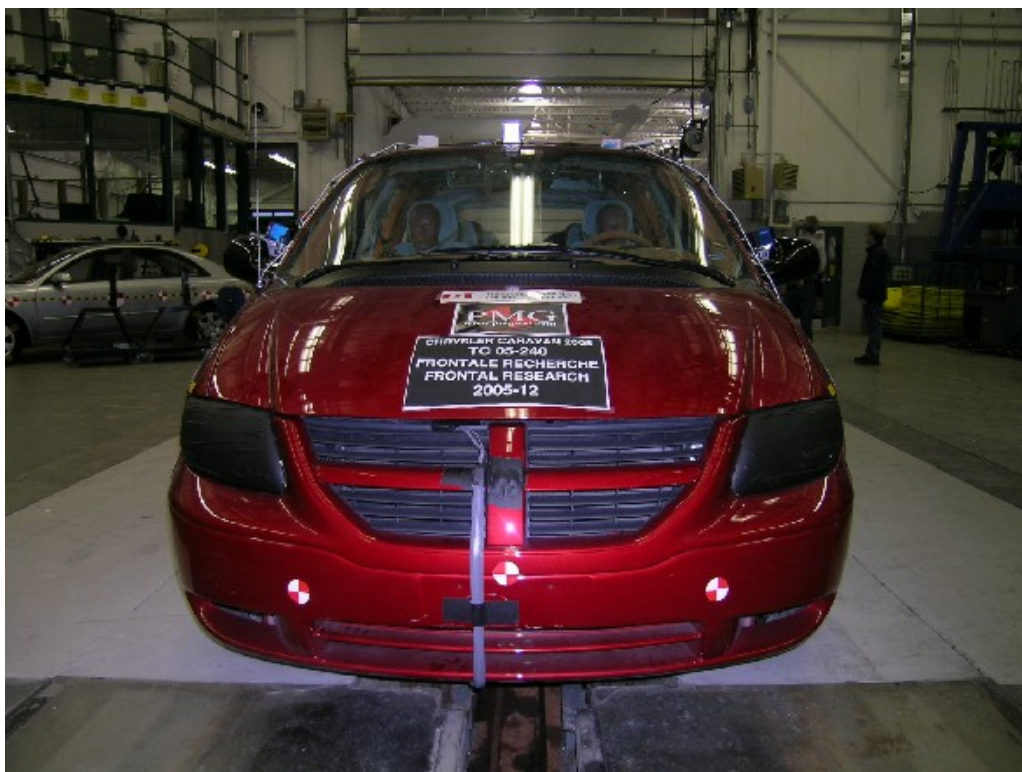


9. Vue générale côté droit du véhicule d'essai, avant essai.
General right side view of the test vehicle, pre-test.

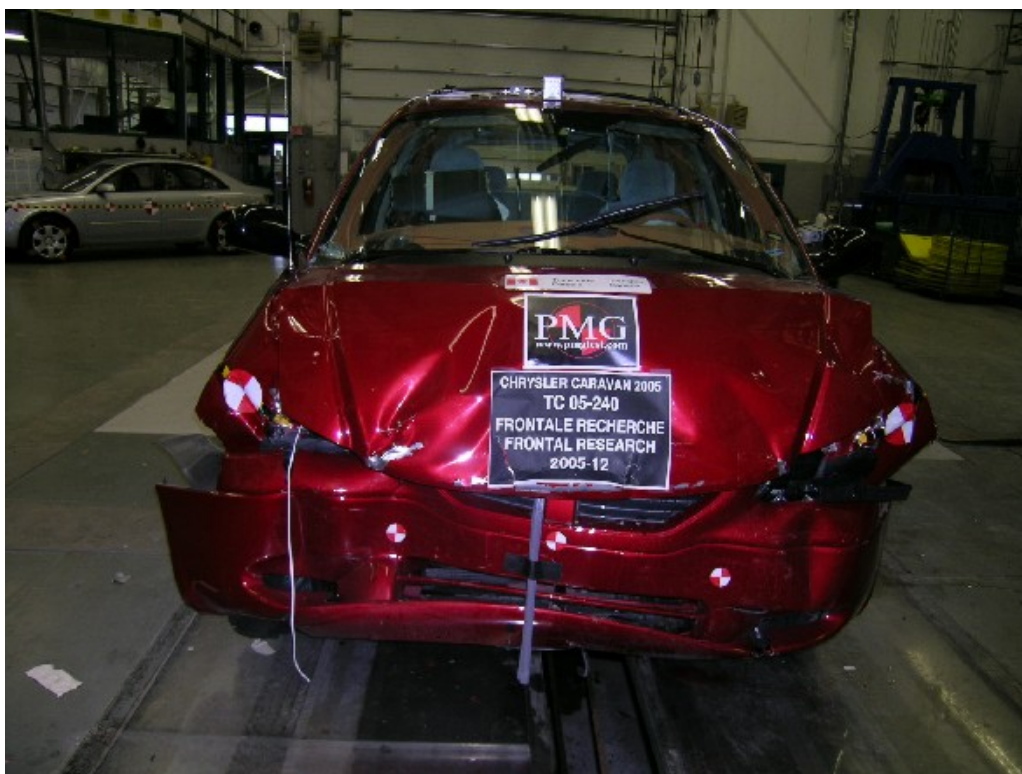


10. Vue générale côté droit du véhicule d'essai, après essai.
General right side view of the test vehicle, post-test.

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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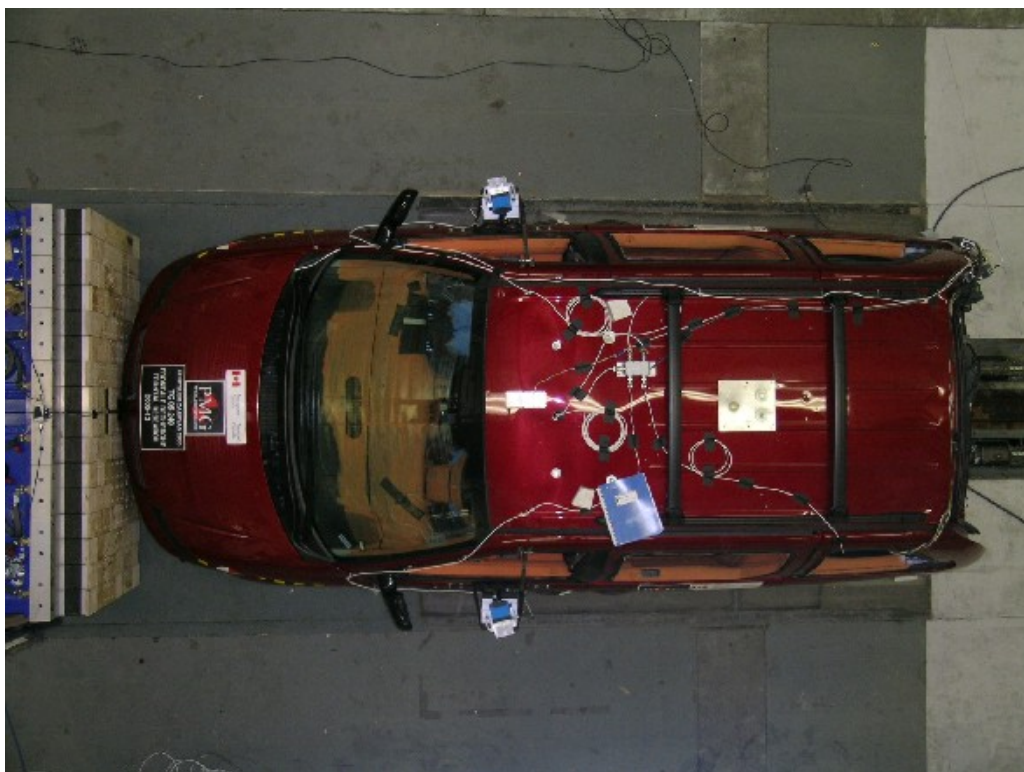


11. Vue avant du véhicule d'essai, avant essai.
Front view of the test vehicle, pre-test.



12. Vue avant du véhicule d'essai, après essai.
Front view of the test vehicle, post-test.

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13. Vue de plan du véhicule d'essai, avant essai.
Over view of the test vehicle, pre-test.



14. Vue de plan du véhicule d'essai, après essai.
Over view of the test vehicle, post-test.

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15. Vue de plan du devant du véhicule d'essai, avant essai.
Over view of the front part of the test vehicle, pre-test.



16. Vue de plan du devant du véhicule d'essai, après essai.
Over view of the front part of the test vehicle, post-test.

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17. Vue côté gauche de l'avant du véhicule d'essai, avant essai.
Left side view of front of test vehicle, pre-test.

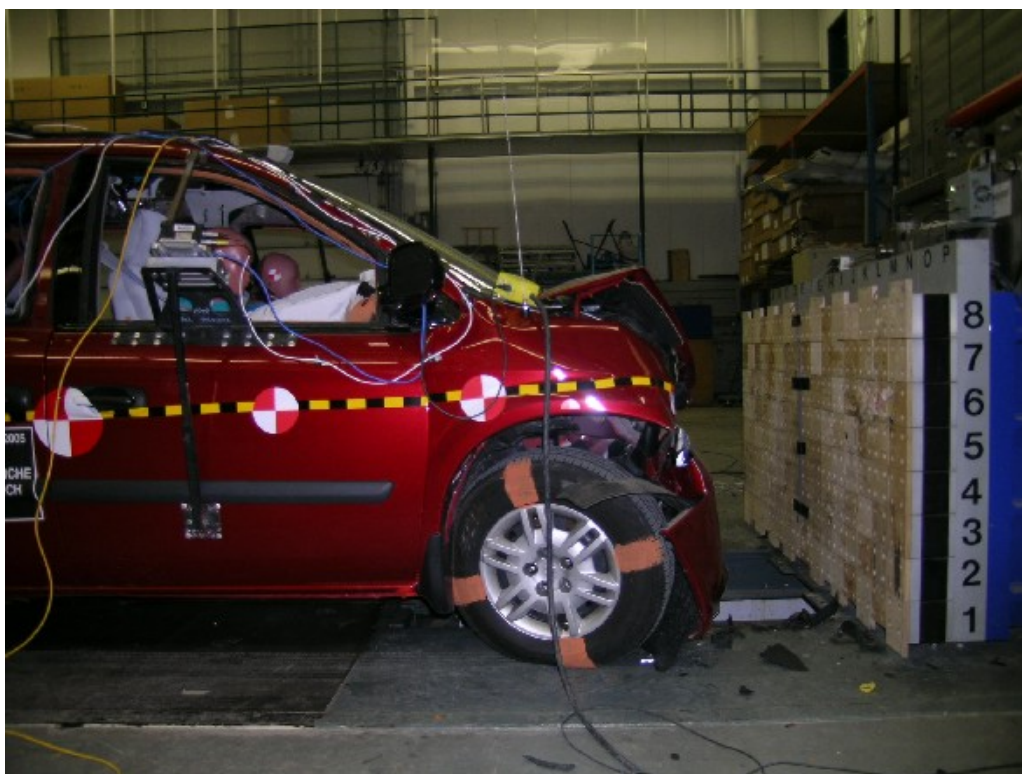


18. Vue côté gauche de l'avant du véhicule d'essai, après essai.
Left side view of front of test vehicle, post-test.

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19. Vue côté droit de l'avant du véhicule d'essai, avant essai.
Right side view of front of test vehicle, pre-test.



20. Vue côté droit de l'avant du véhicule d'essai, après essai.
Right side view of front of test vehicle, post-test.

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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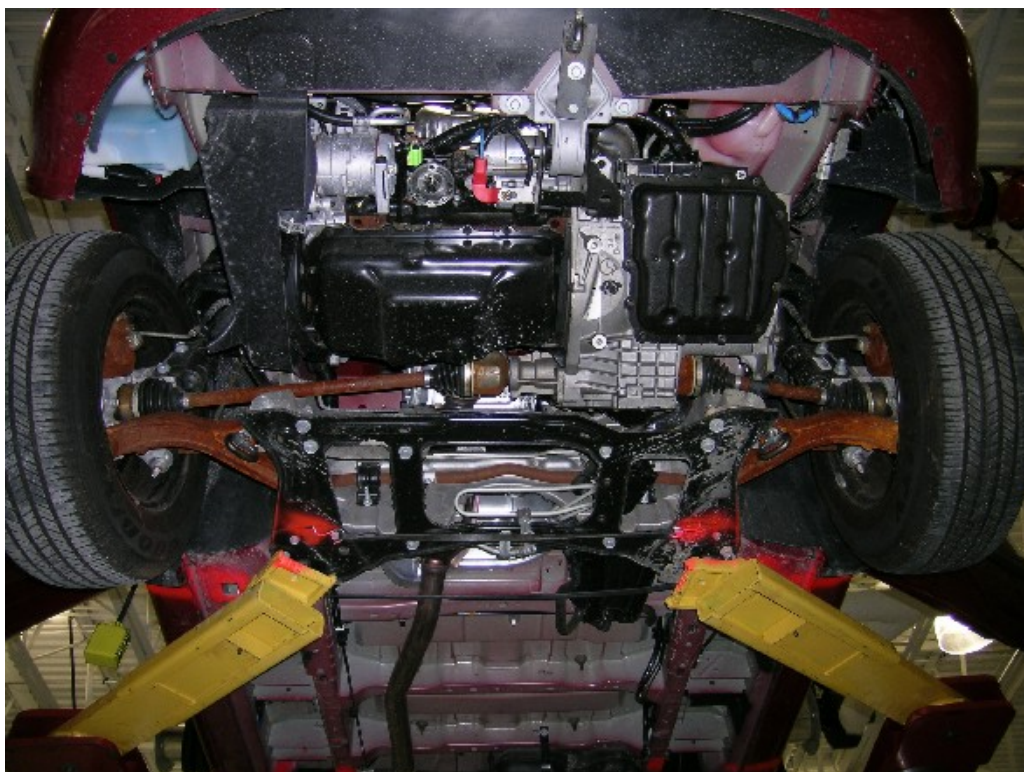


21. Vue du compartiment moteur du véhicule d'essai, avant essai.
Engine compartment view of the vehicle, pre-test.



22. Vue du compartiment moteur du véhicule d'essai, après essai.
Engine compartment view of the vehicle, post-test.

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23. Vue du dessous du compartiment moteur, avant essai.
Under view of the engine compartment , pre-test.



24. Vue du dessous du compartiment moteur, après essai.
Under view of the engine compartment , post-test.

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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25. Position du conducteur, avant essai.
Driver's position, pre-test.



26. Position du conducteur, après essai.
Driver's position, post-test.

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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27. Point de contact de tête du conducteur, après essai.
Driver's head contact point, post-test.



28. Point de contact de tête du conducteur, après essai.
Driver's head contact point, post-test.

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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29. Point de contact des genoux du conducteur, après essai.
Driver's knees contact point, post-test.

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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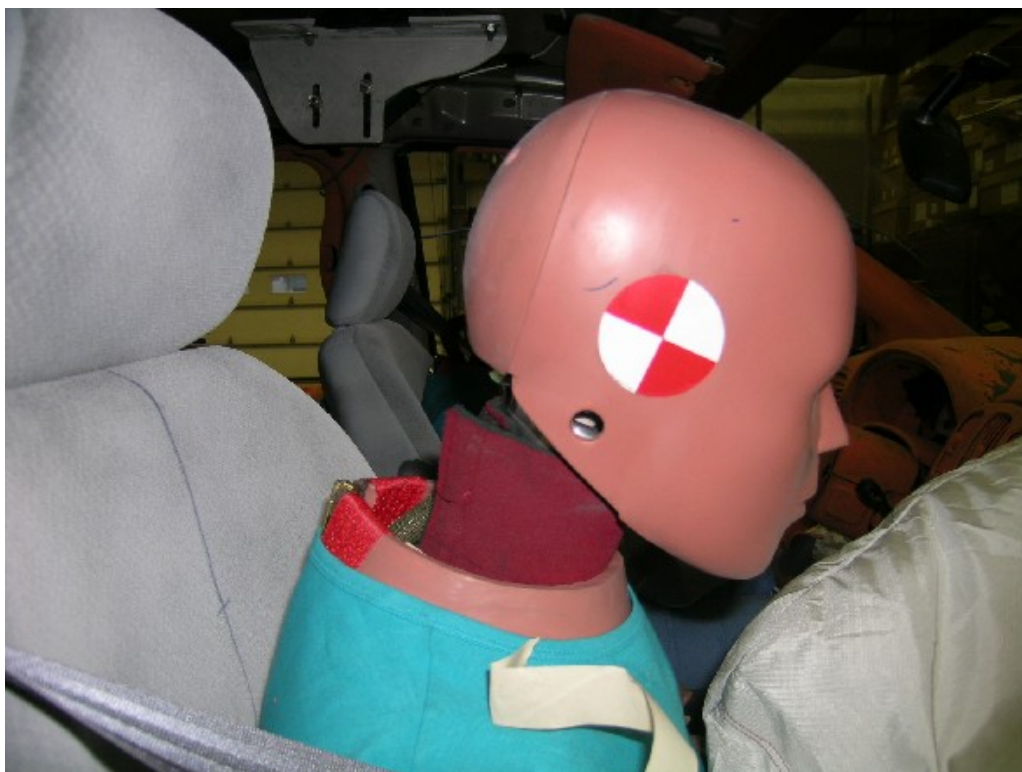


30. Position du passager, avant essai.
Passenger's position, pre-test.



31. Position du passager, après essai.
Passenger's position, post-test.

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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32. Point de contact de tête du passager, après essai.
Passenger's head contact point, post-test.



33. Point de contact de tête du passager, après essai.
Passenger's head contact point, post-test.

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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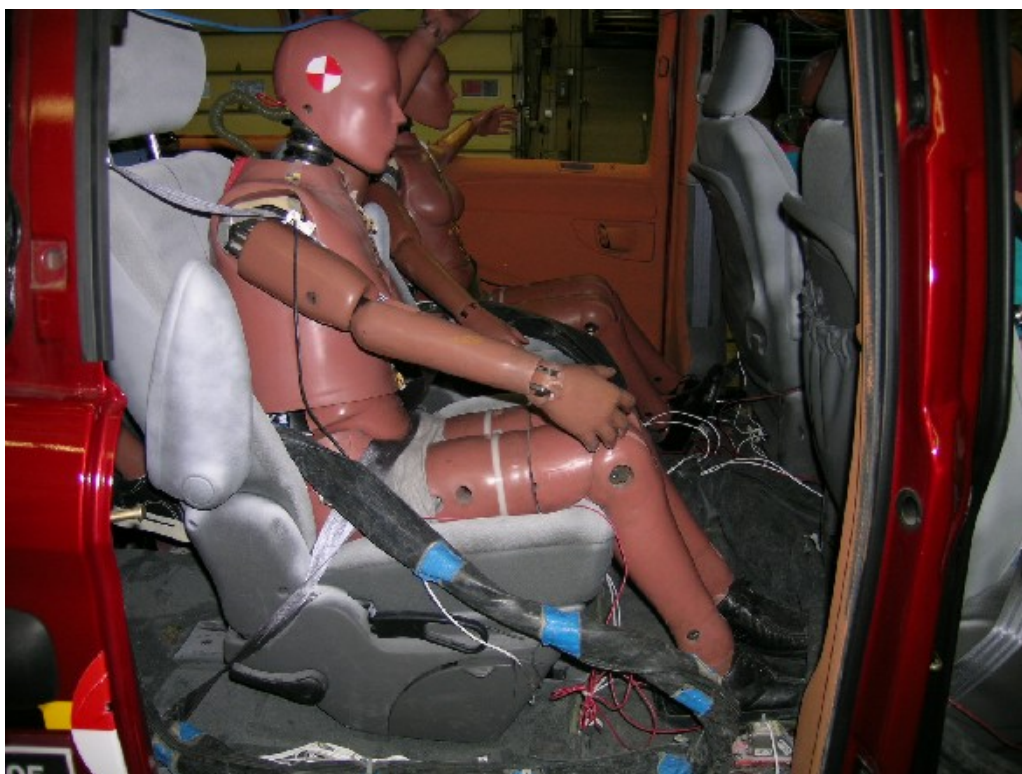


**34. Point de contact des genoux du passager, après essai.
Passenger's knees contact point, post-test.**

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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35. Position du passager arrière droit, 2^e rangée, avant essai.
Rear right passenger's position, 2nd row, pre-test.



36. Position du passager arrière droit, 2^e rangée, après essai.
Rear right passenger's position, 2nd row, post-test.

Date de collision Crash date	2005-12-02	Véhicule Vehicle	DODGE CARAVAN 2005	T.C. N° T.C.No	05-240
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37. Position du passager arrière gauche, 2^e rangée, avant essai.
Rear left passenger's position, 2nd row, pre-test.



38. Position du passager arrière gauche, 2^e rangée, après essai.
Rear left passenger's position, 2nd row, post-test.

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39. Position du passager arrière droit, 3^e rangée, avant essai.
Rear right passenger's position, 3rd row, pre-test.



40. Position du passager arrière droit, 3^e rangée, après essai.
Rear right passenger's position, 3rd row, post-test.

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41. Position du passager arrière droit, 3^e rangée, avant essai.
Rear right passenger's position, 3rd row, pre-test.



42. Position du passager arrière droit, 3^e rangée, après essai.
Rear right passenger's position, 3rd row, post-test.

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43. Affichage du lecteur de vitesse.
Speed trap reading.

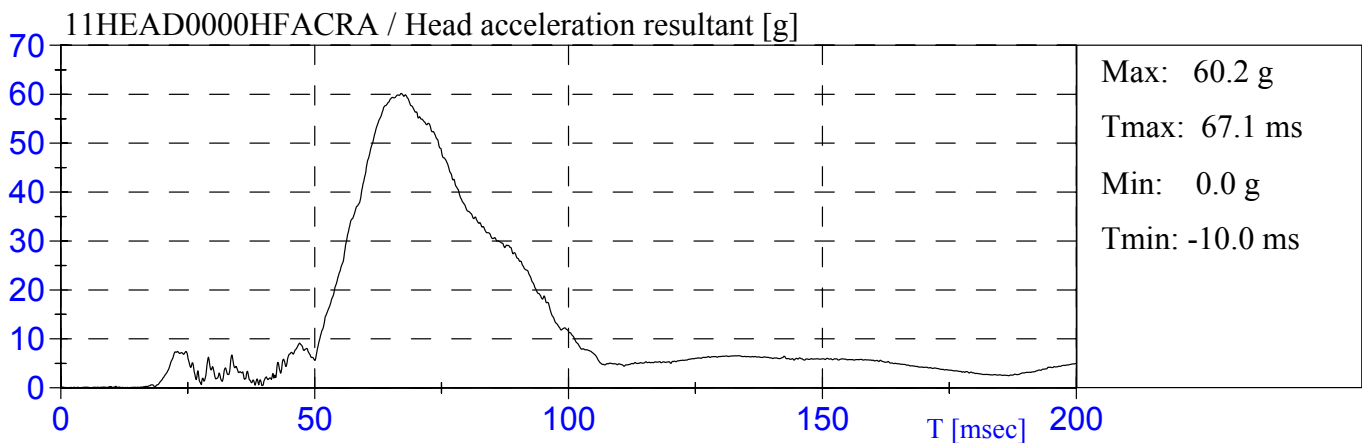
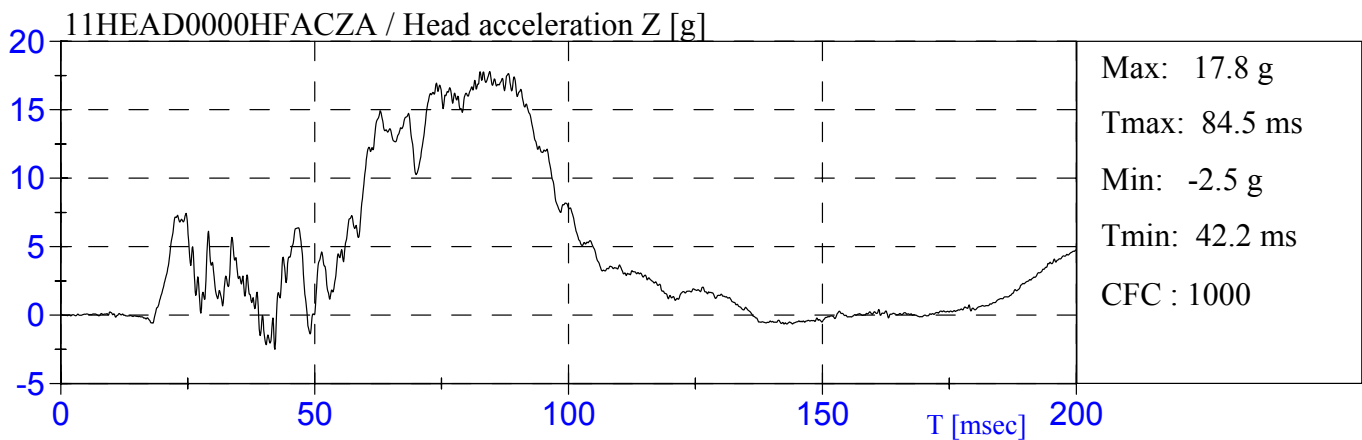
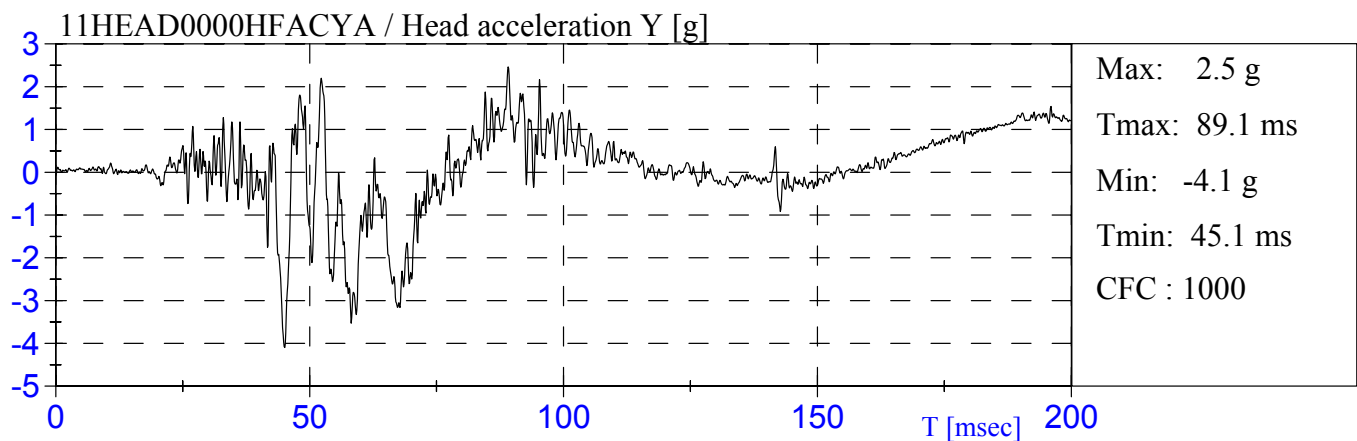
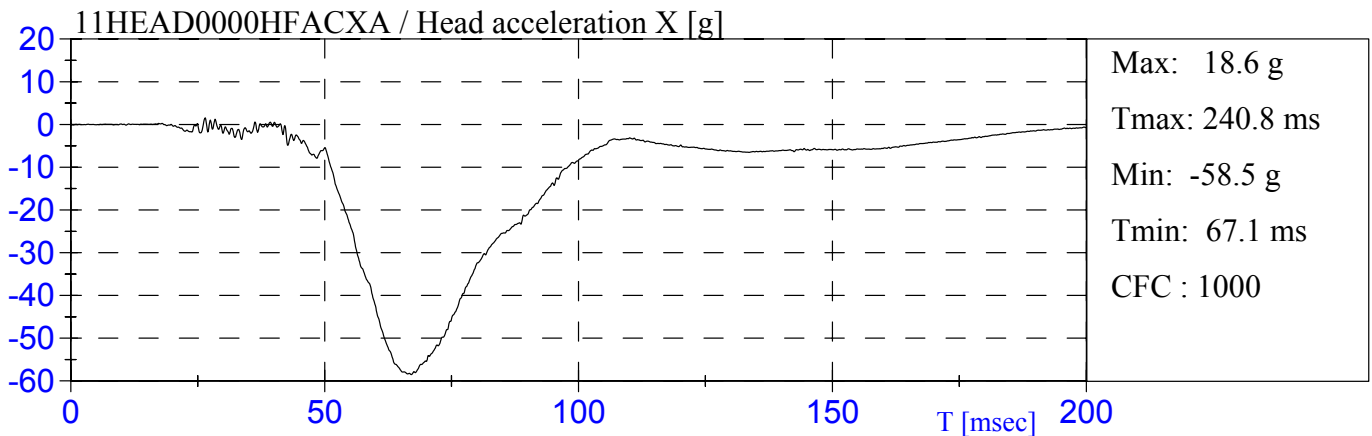
APPENDICE / APPENDIX B

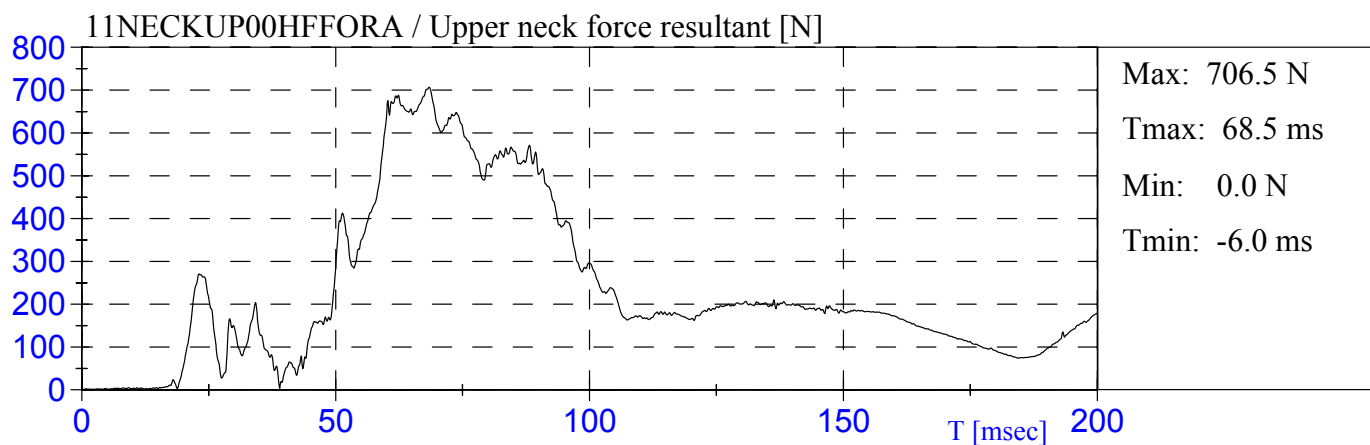
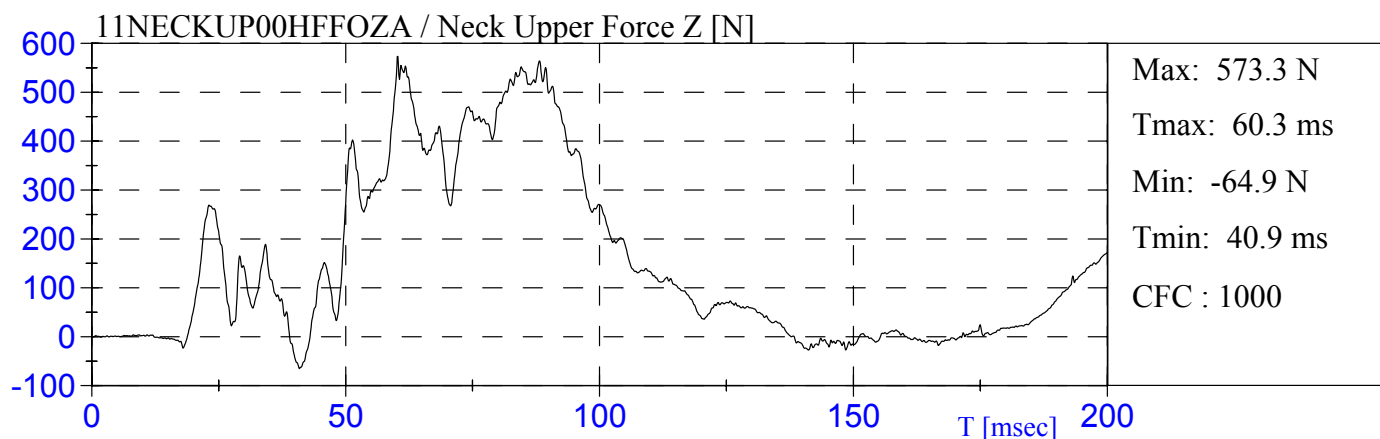
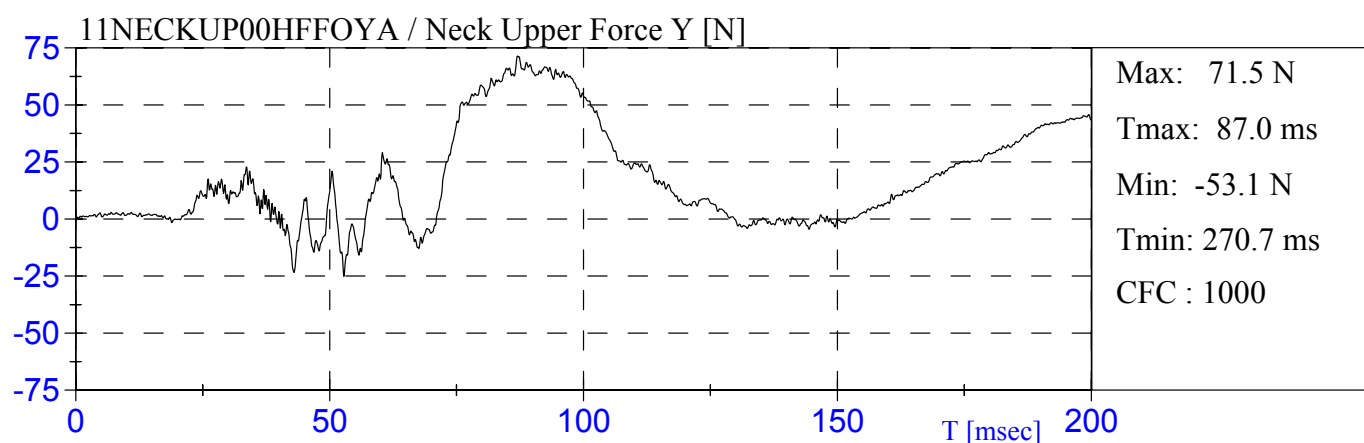
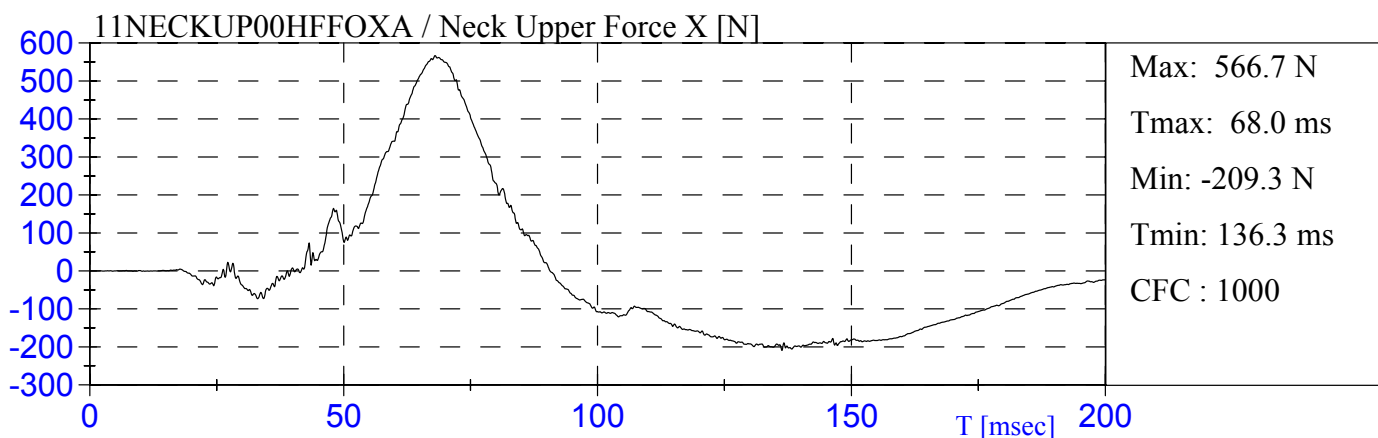
**DONNÉES GRAPHIQUES
GRAPHICAL DATA**

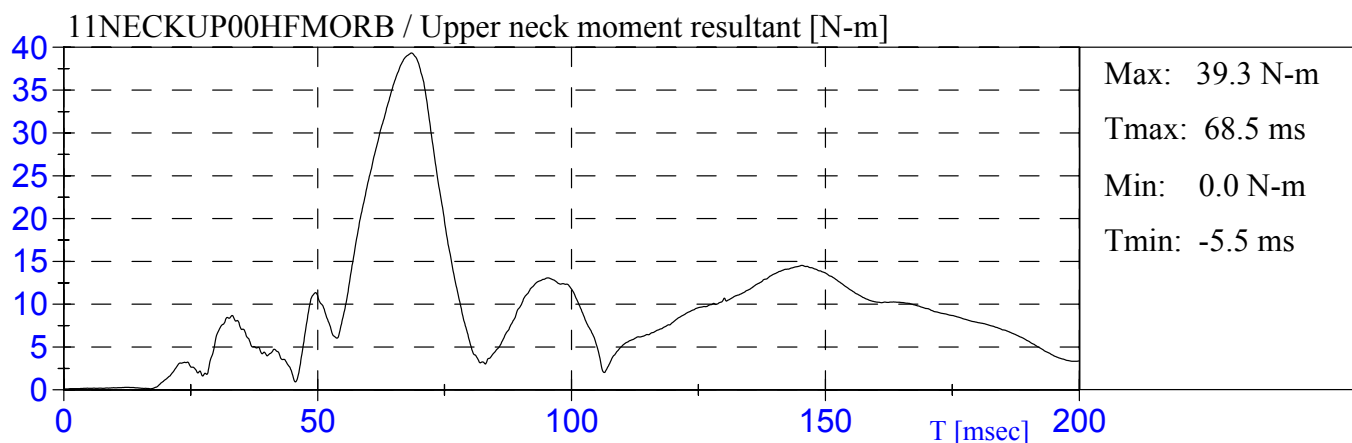
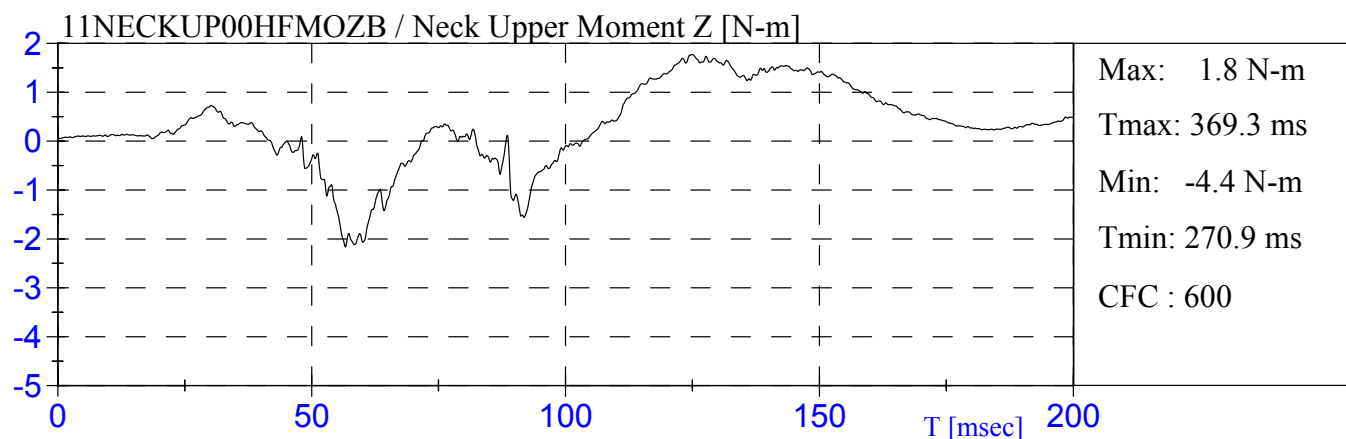
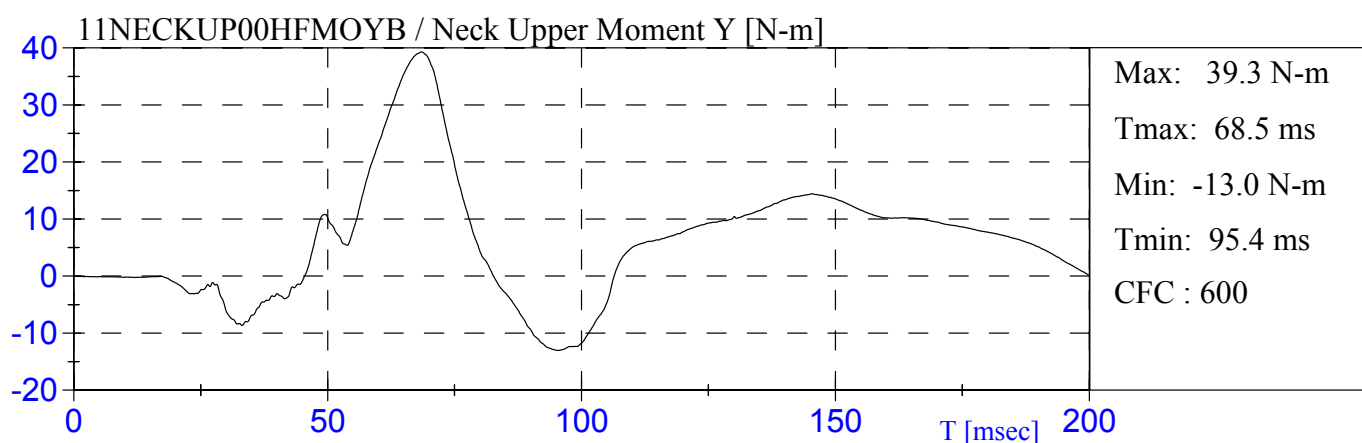
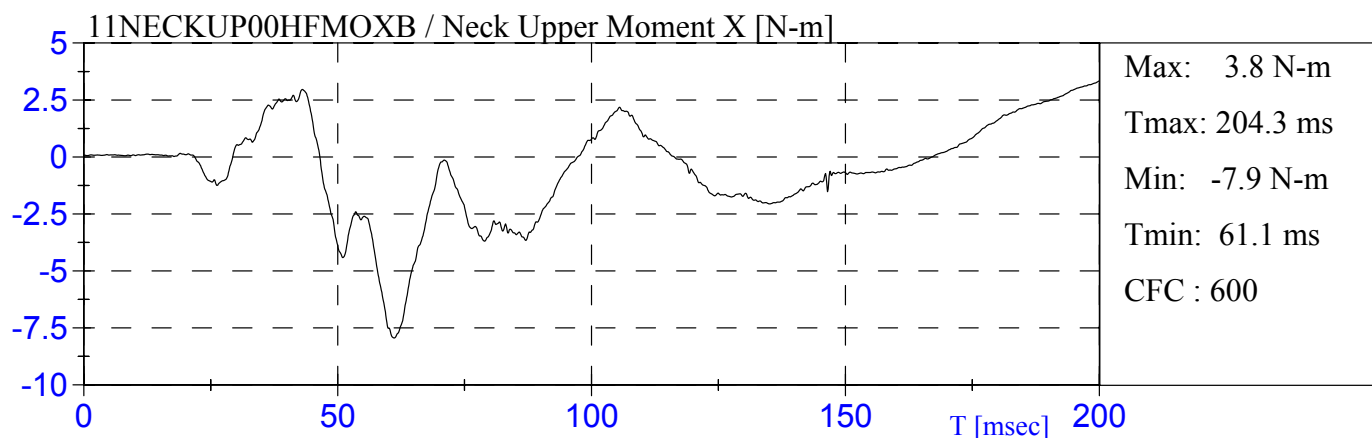


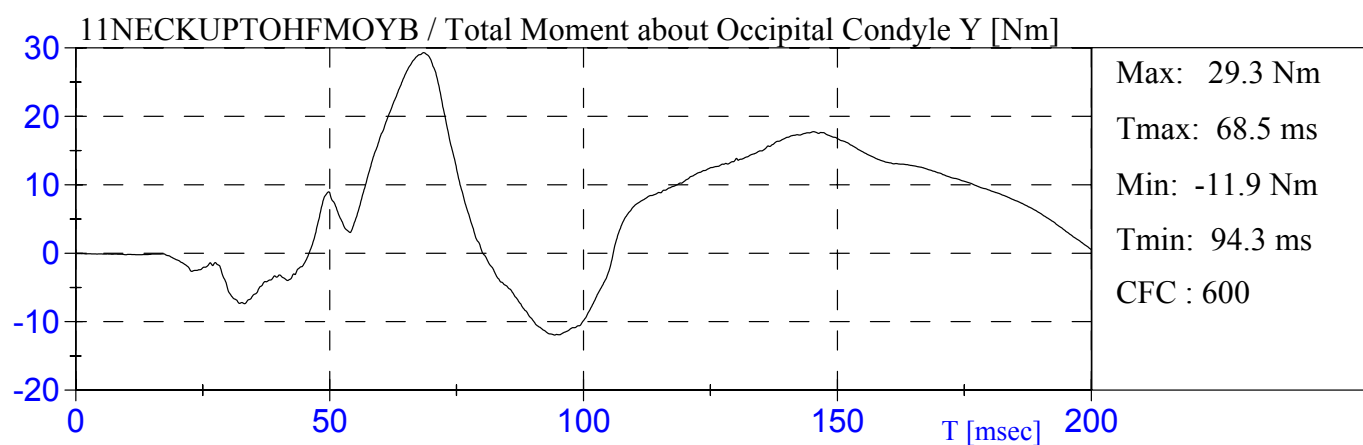
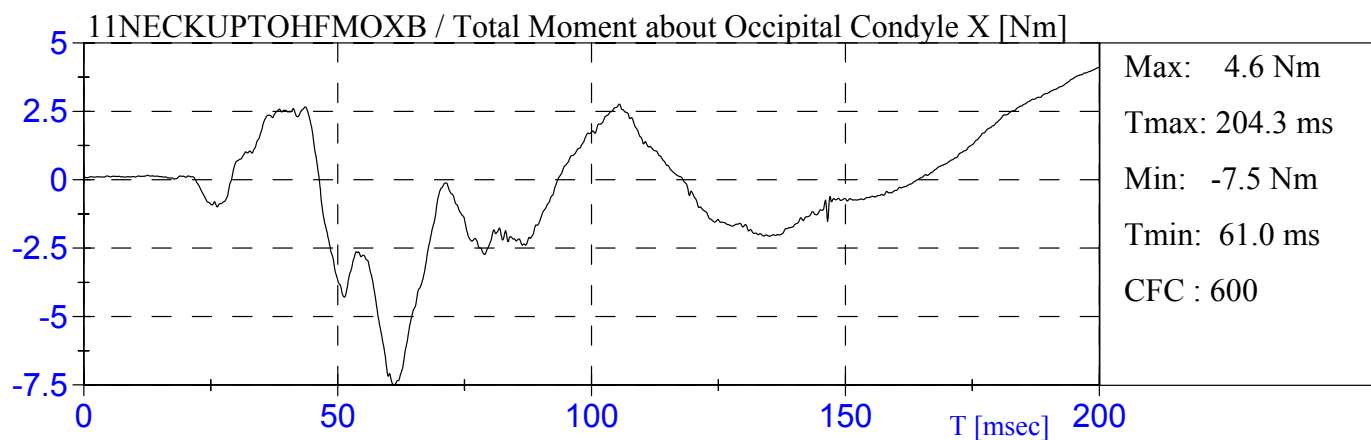
Nom du client Client Name	TRANSPORT CANADA
Type de véhicule Type of Vehicle	CHRYSLER CARAVAN 2005
Numéro de TC Tc Number	TC05-240
Vitesse Speed	56 km/h
Numéro de contrat Contract No	06-6008
Acquisition de données selon Data Acquisition according to	SAE J211/1 MAR 95
Date de l'essai Test date	2005-12-02
Titre du projet Project Title	COLLISION DE RECHERCHE COLLISION FRONTALE RESEARCH COLLISION TEST FRONTAL CRASH
MANNEQUIN / DUMMY	

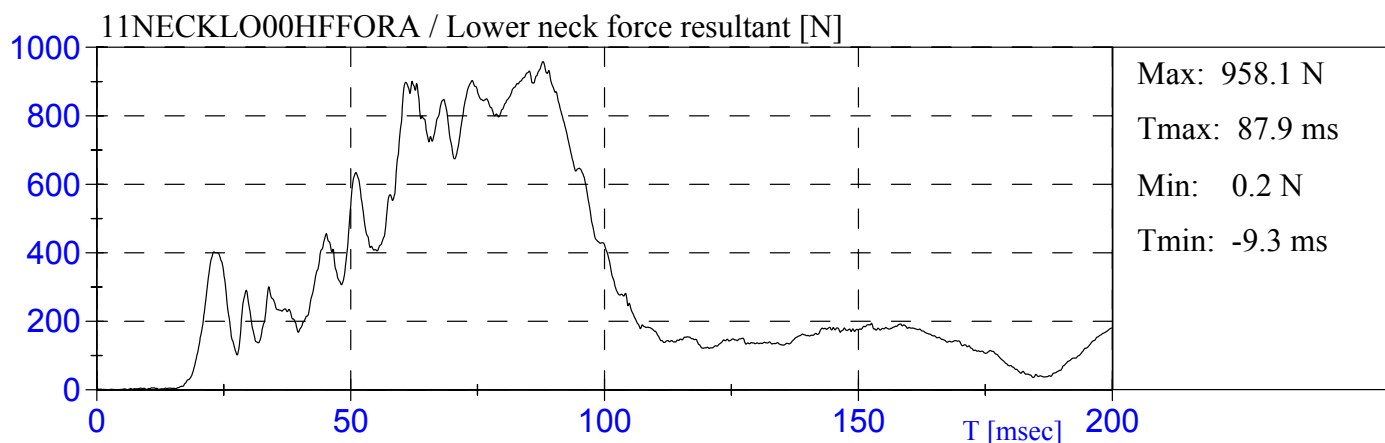
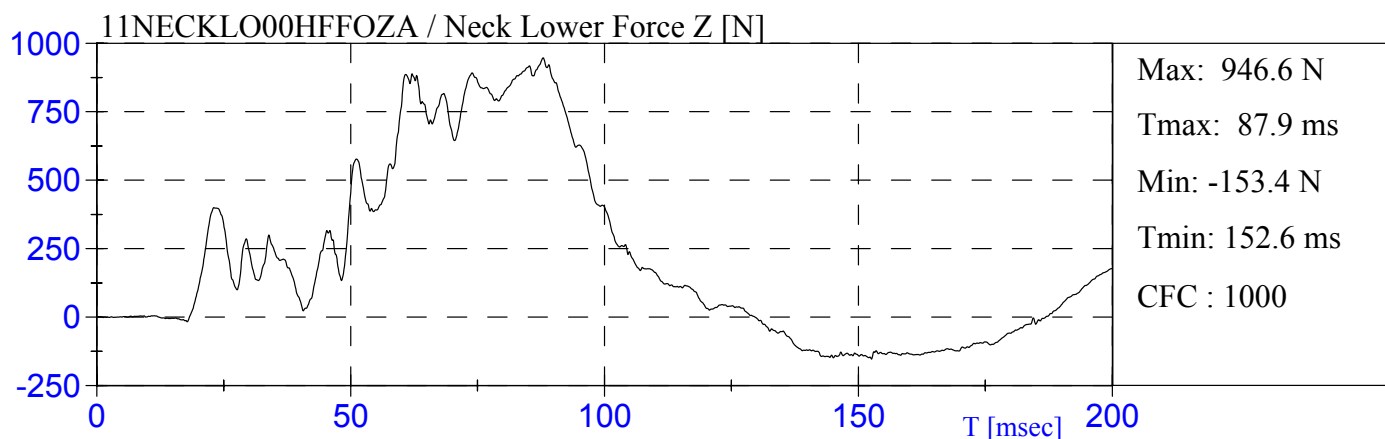
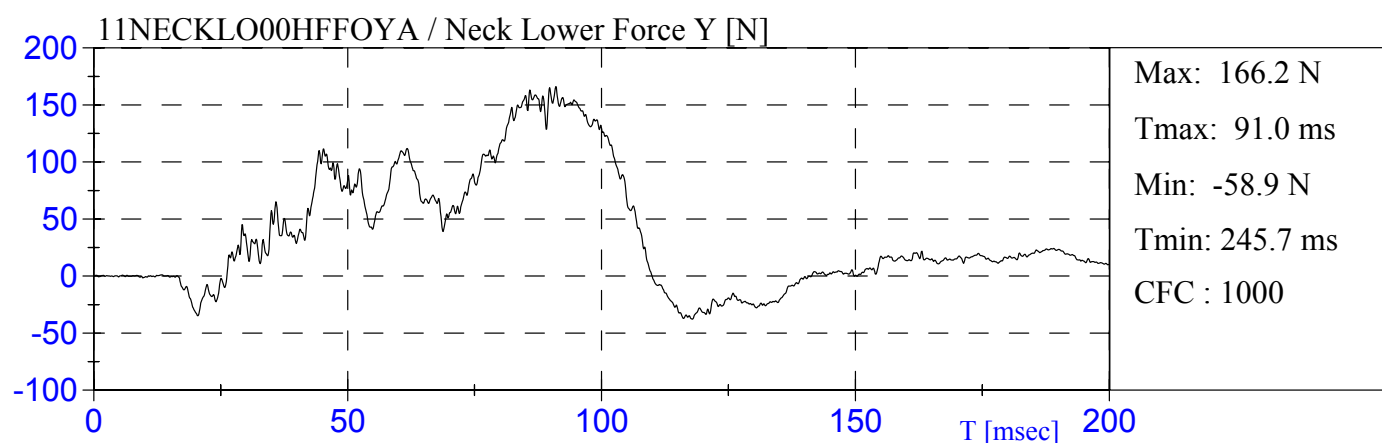
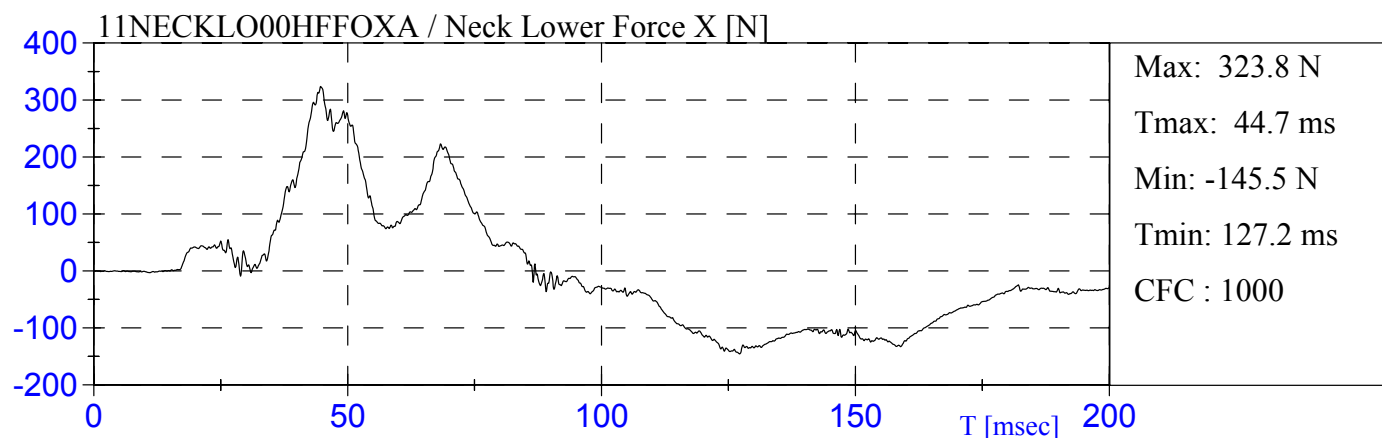
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Position 4	Position 5	Position 6
HF		HF
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Y7		Y7

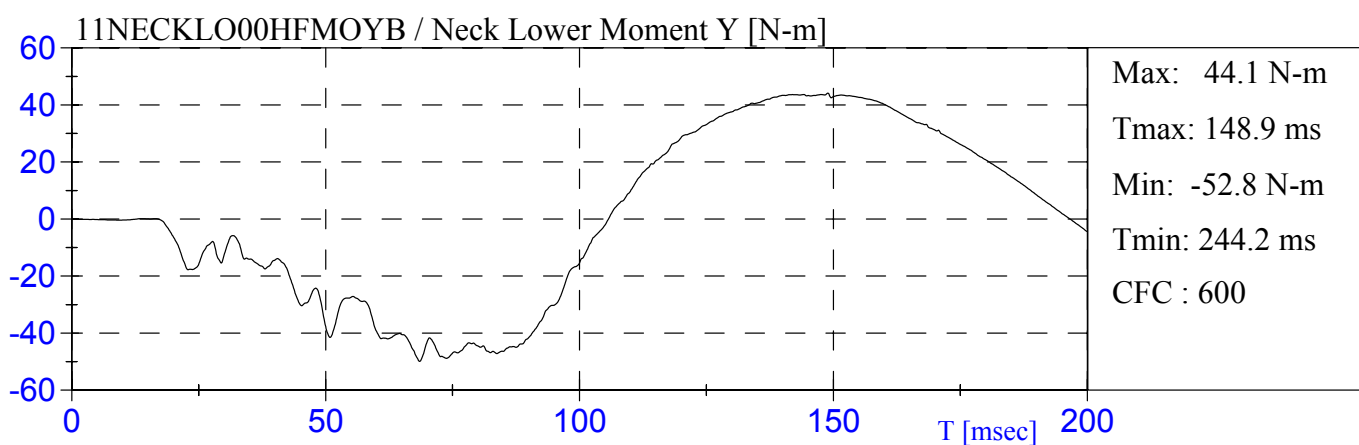
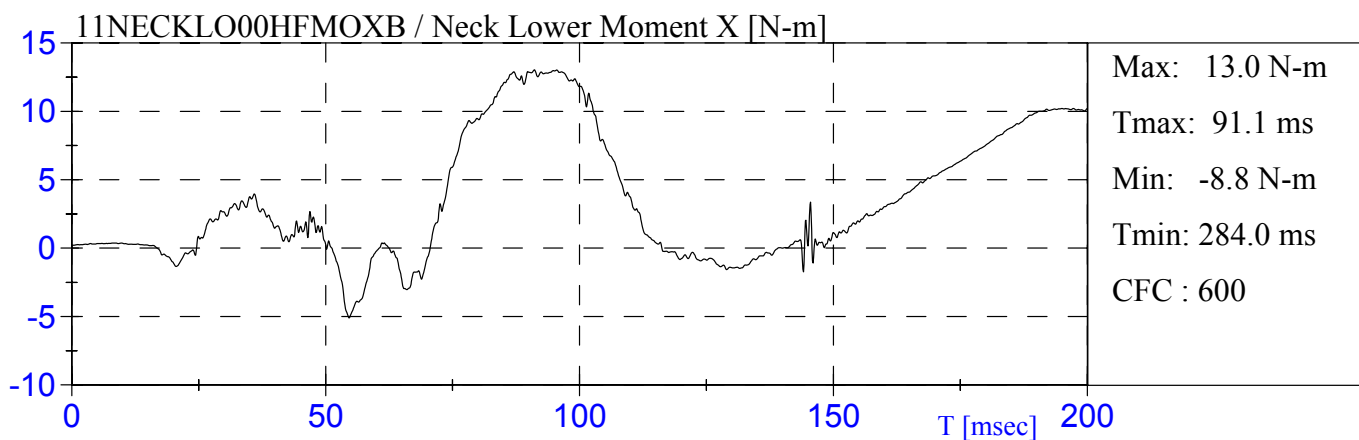


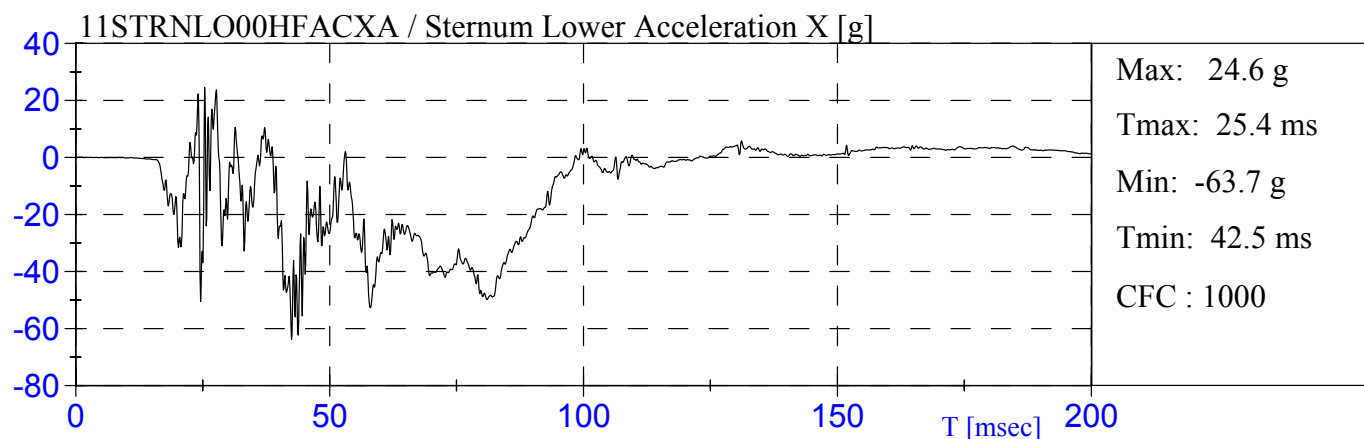
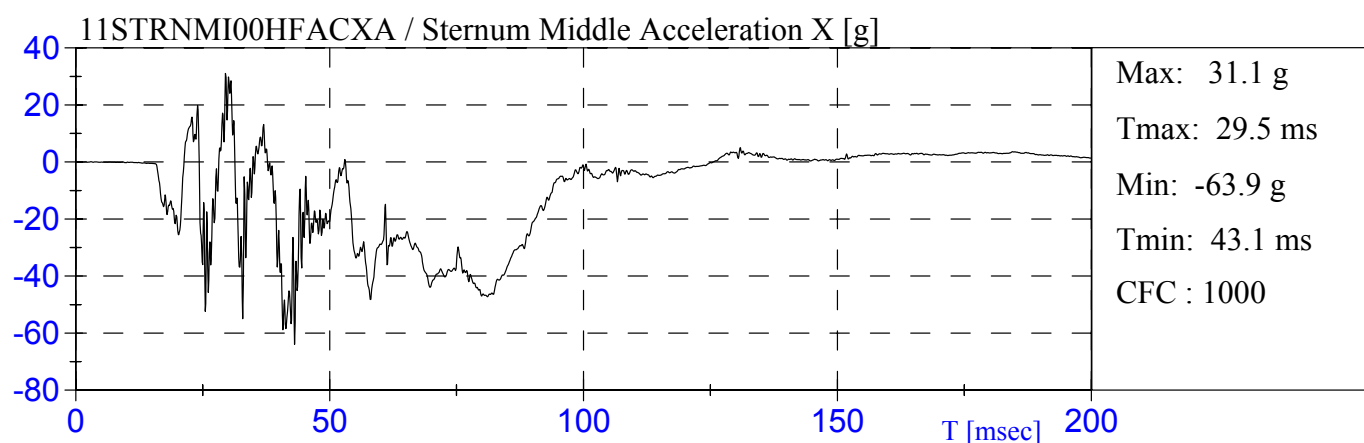
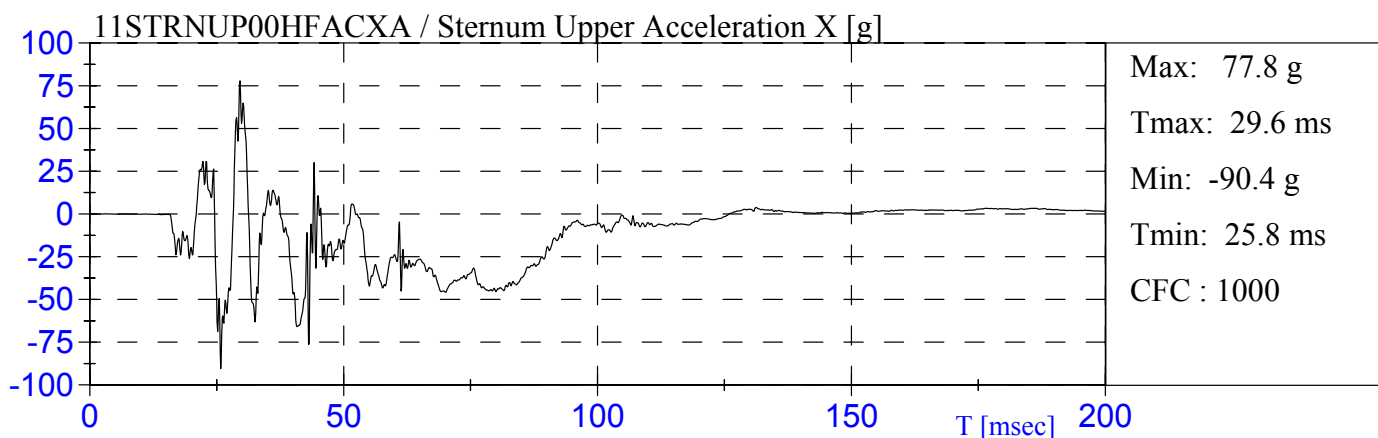


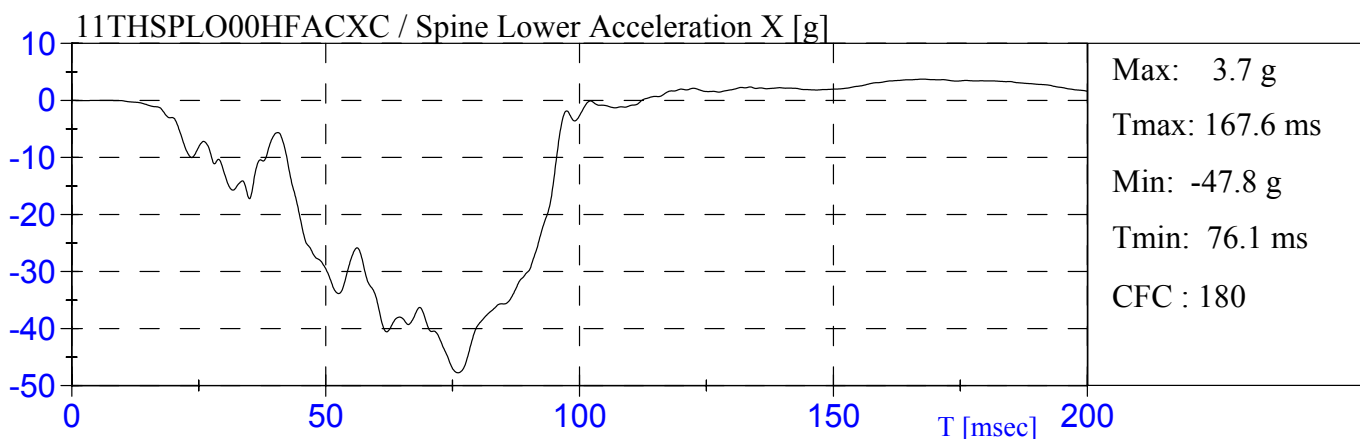
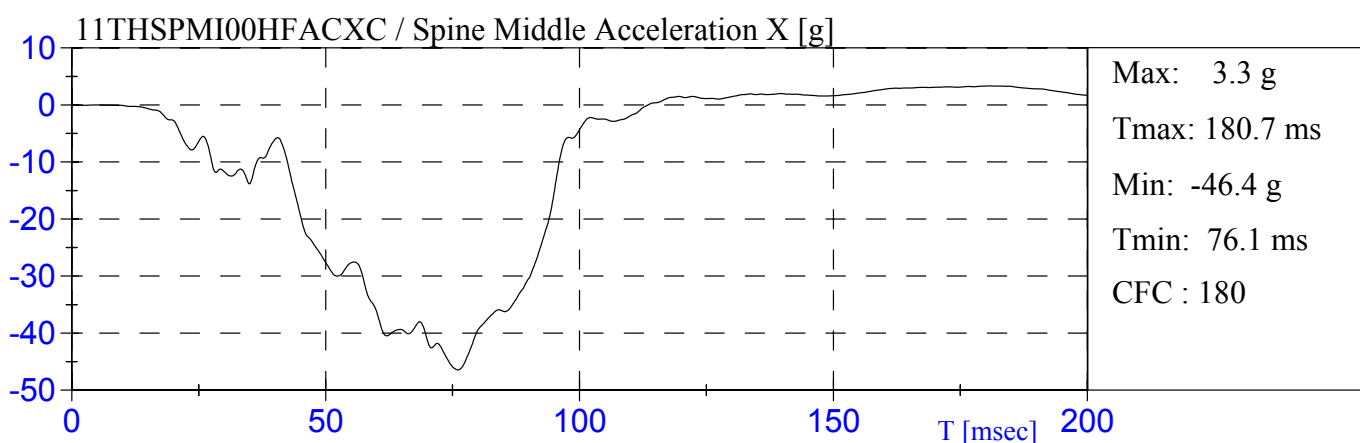
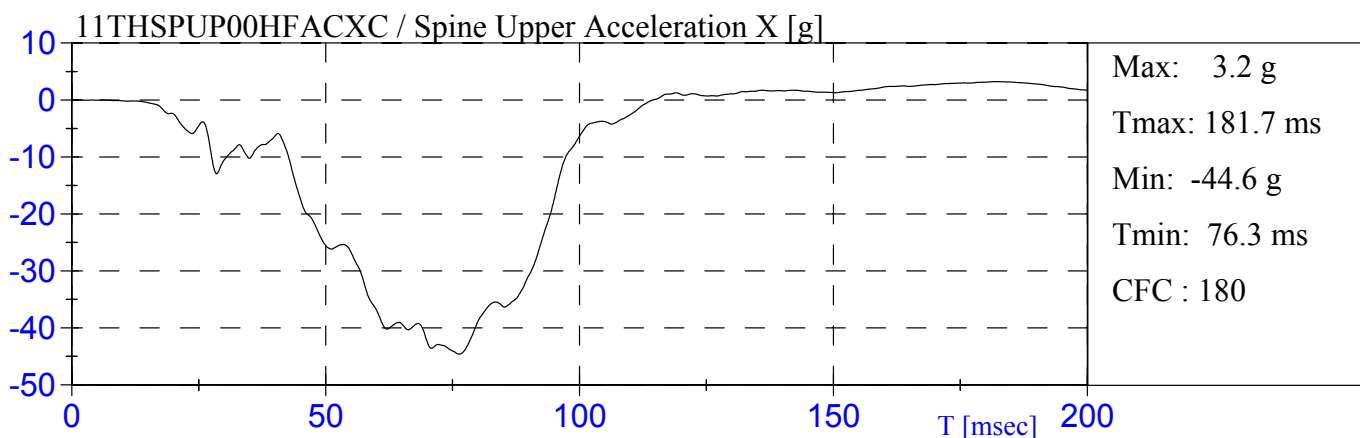


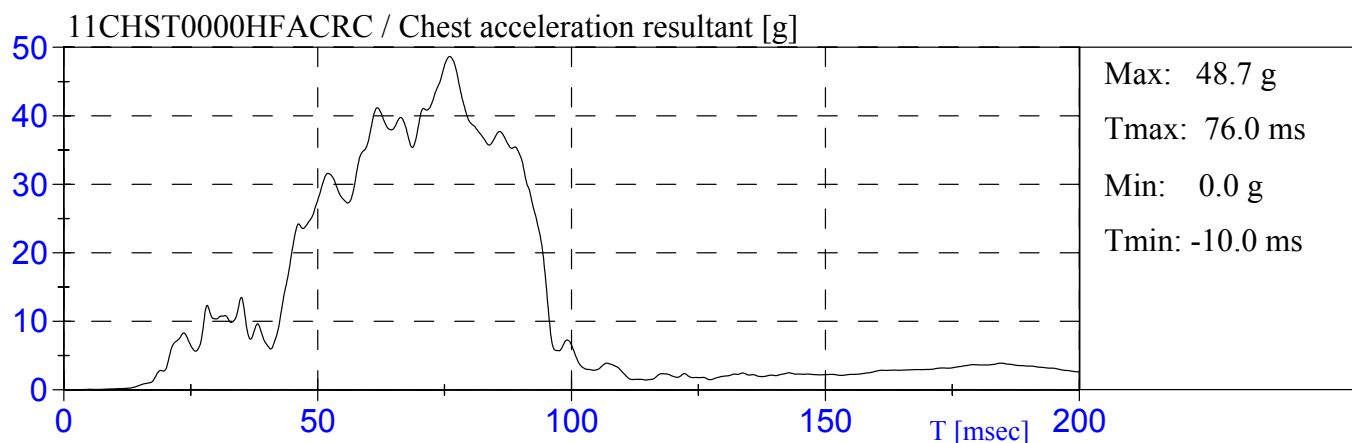
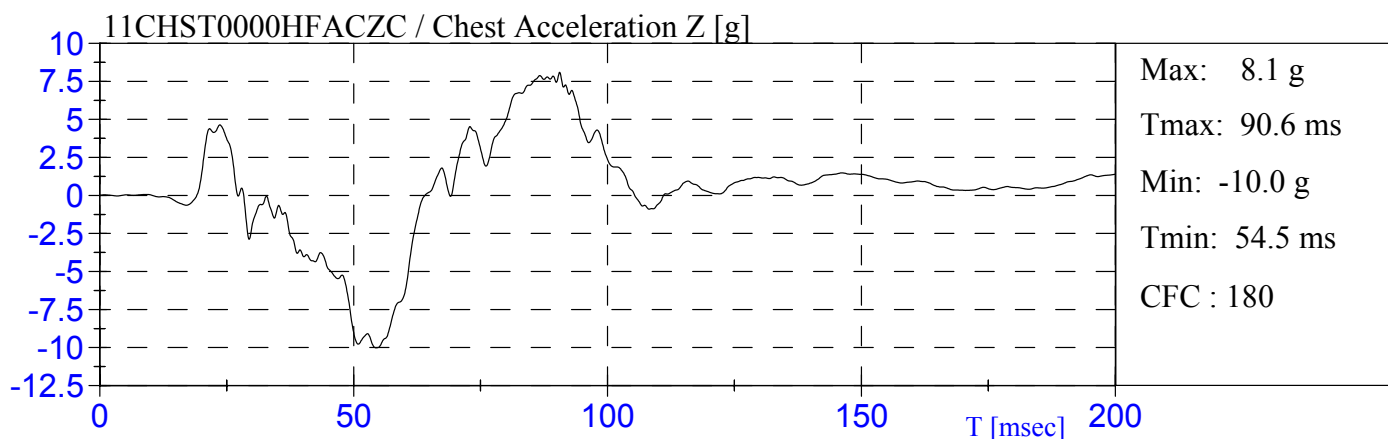
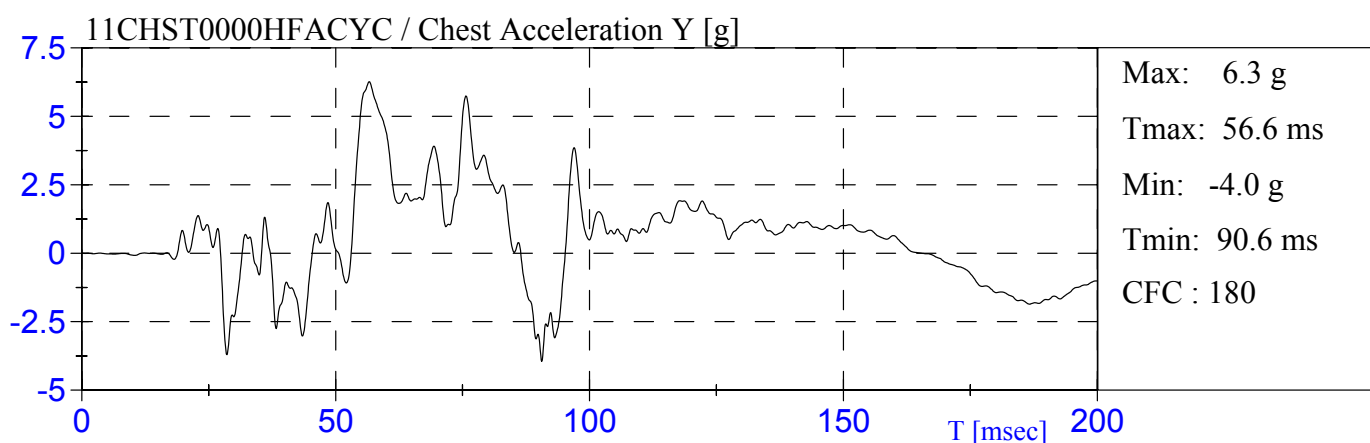
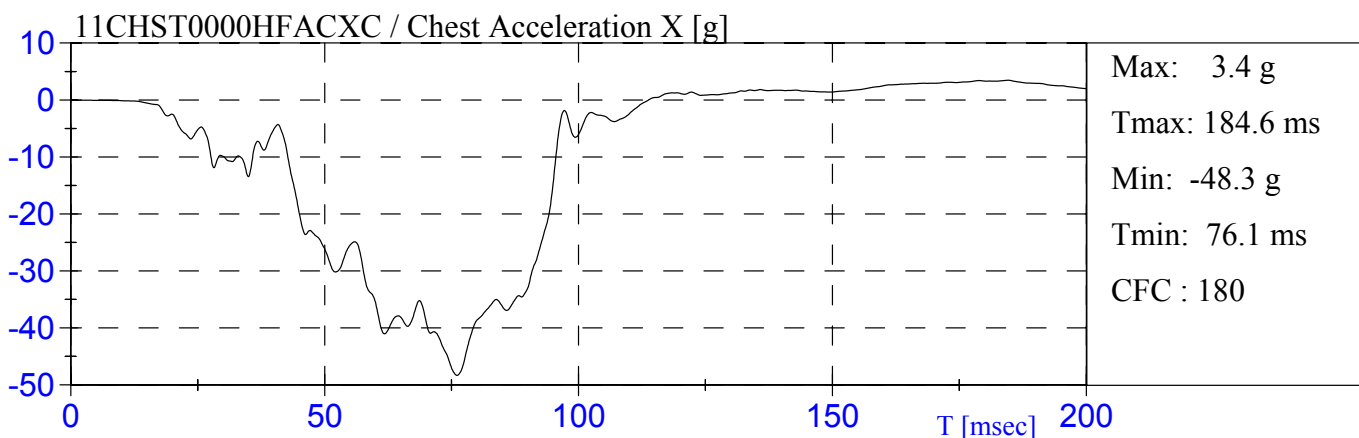


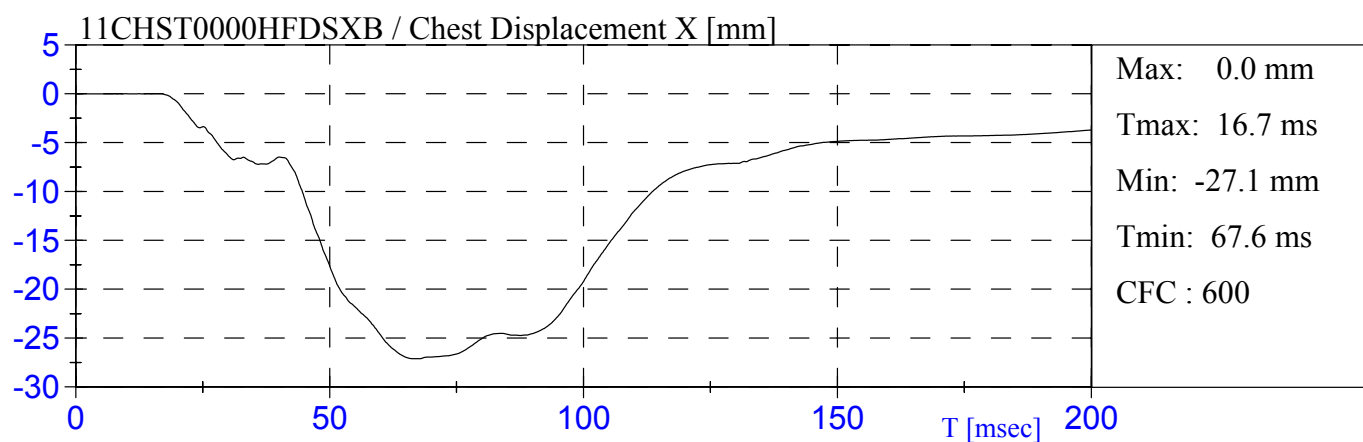


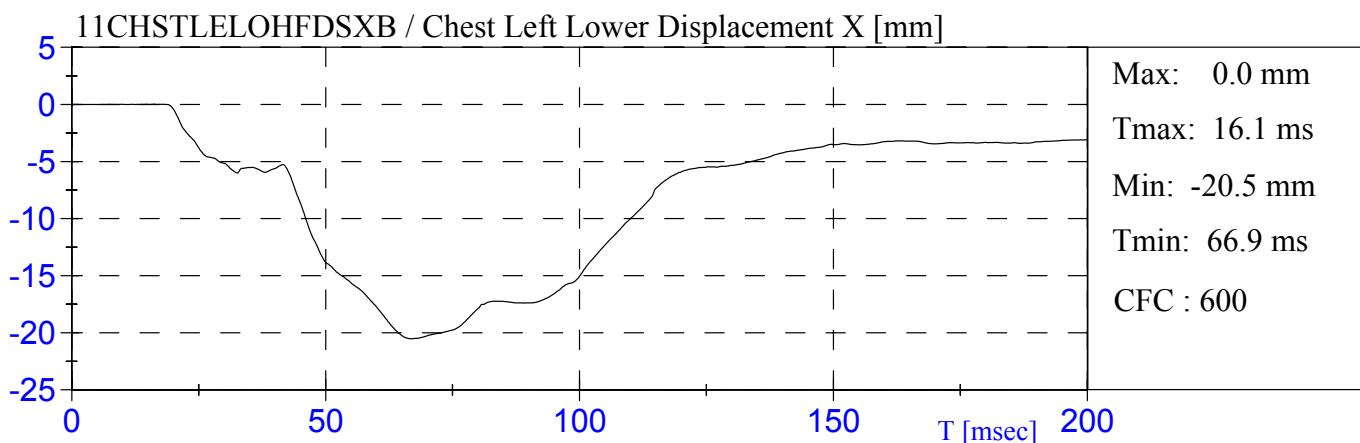
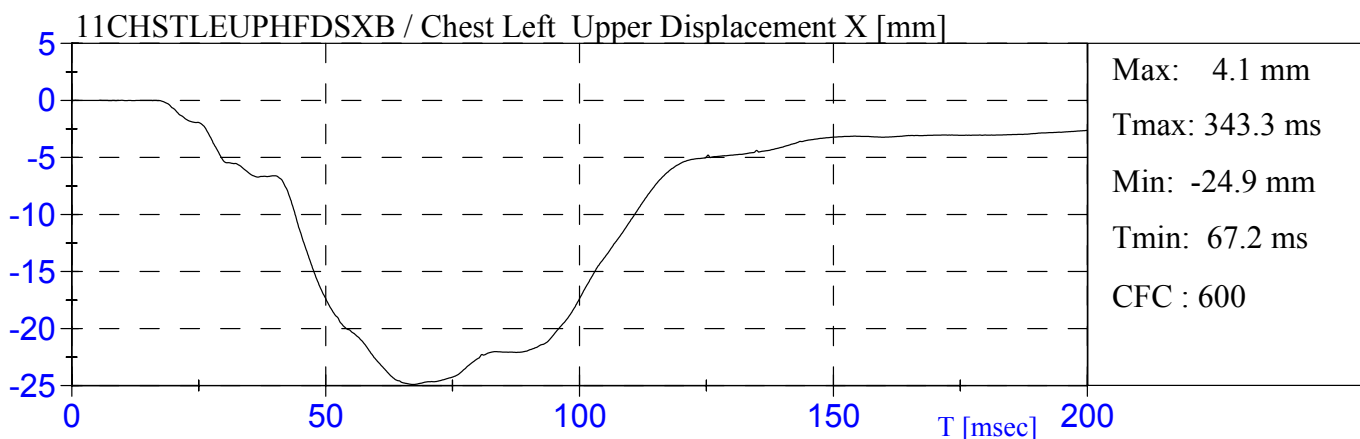
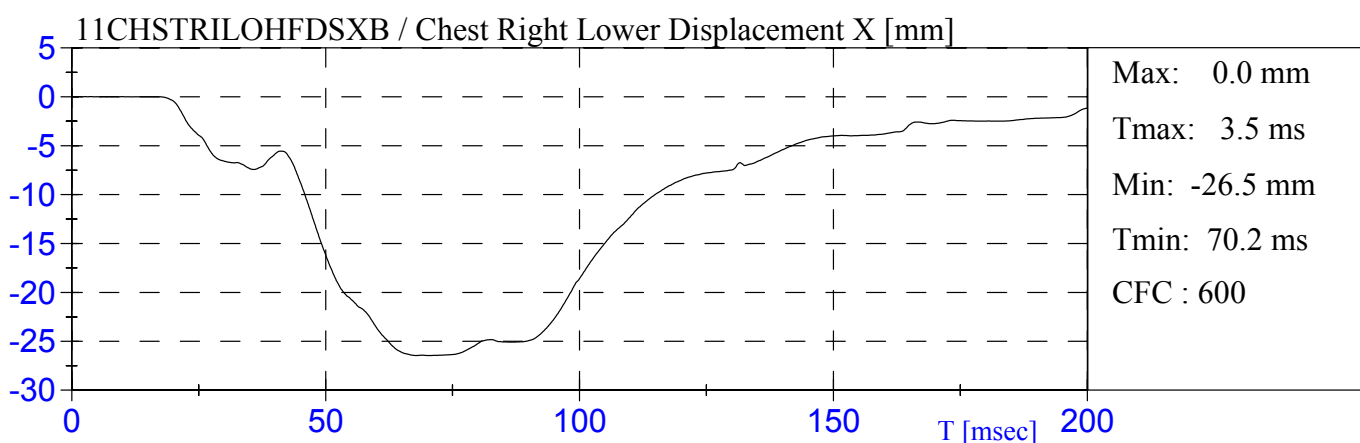
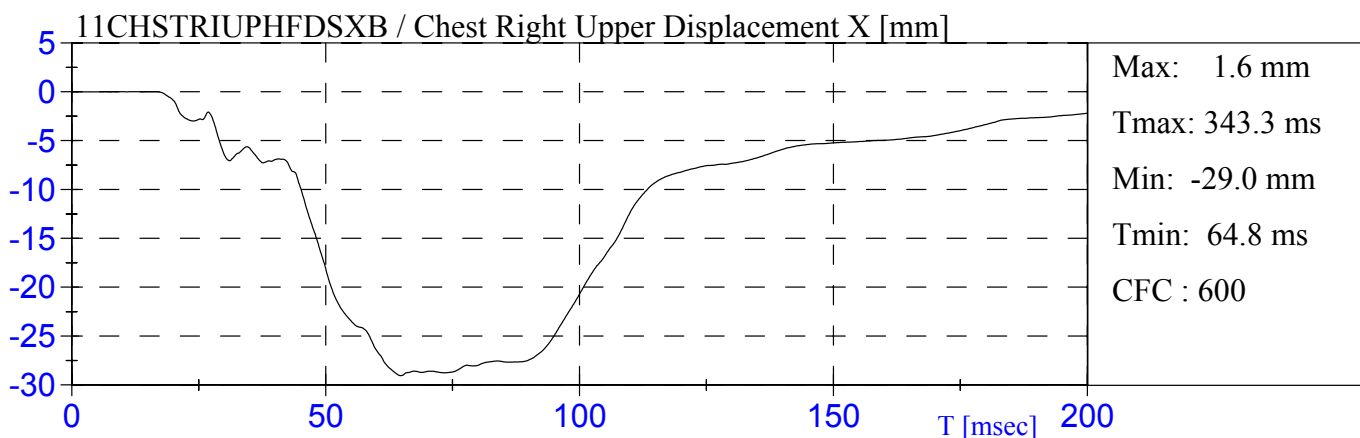


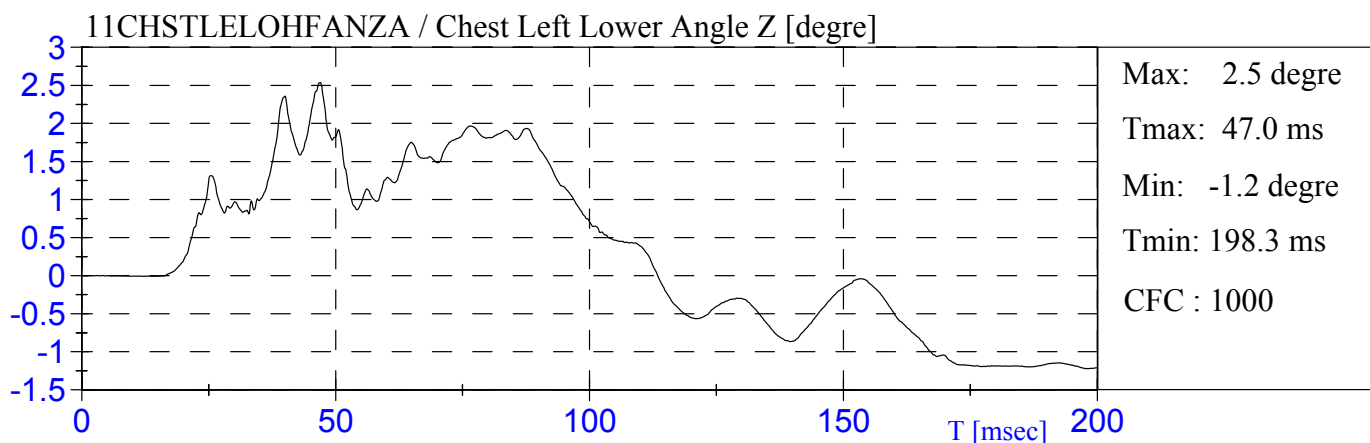
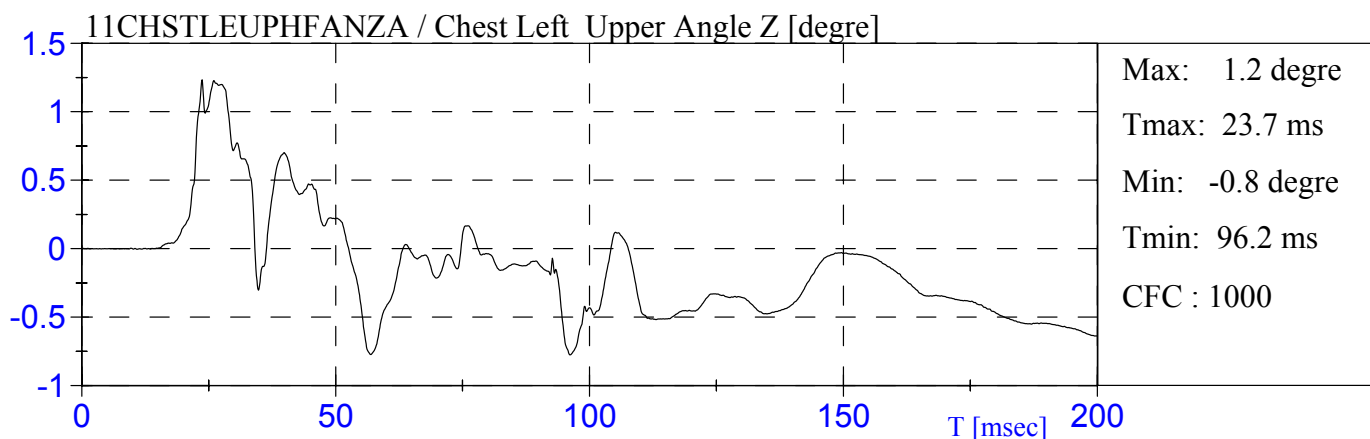
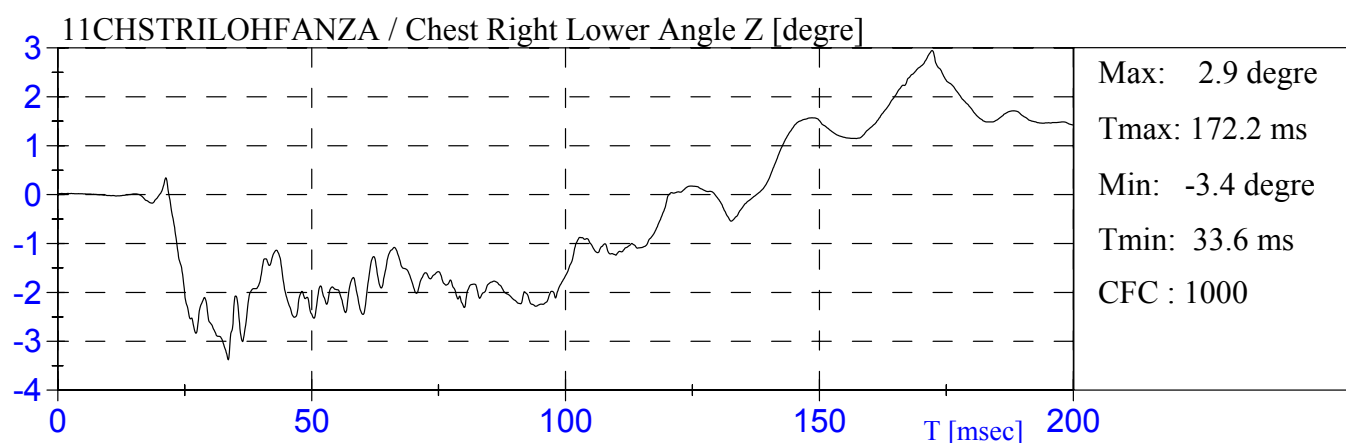
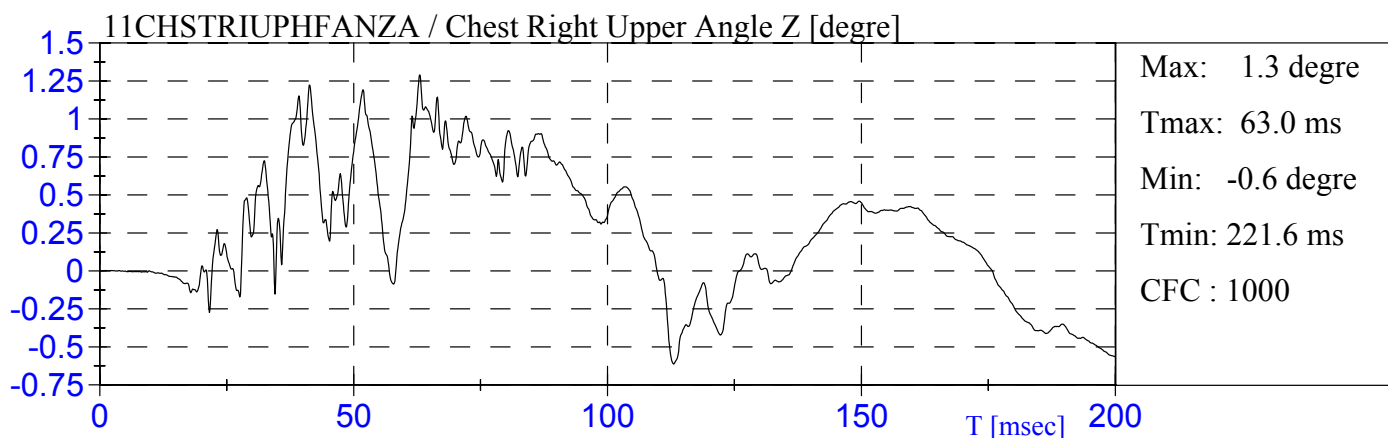


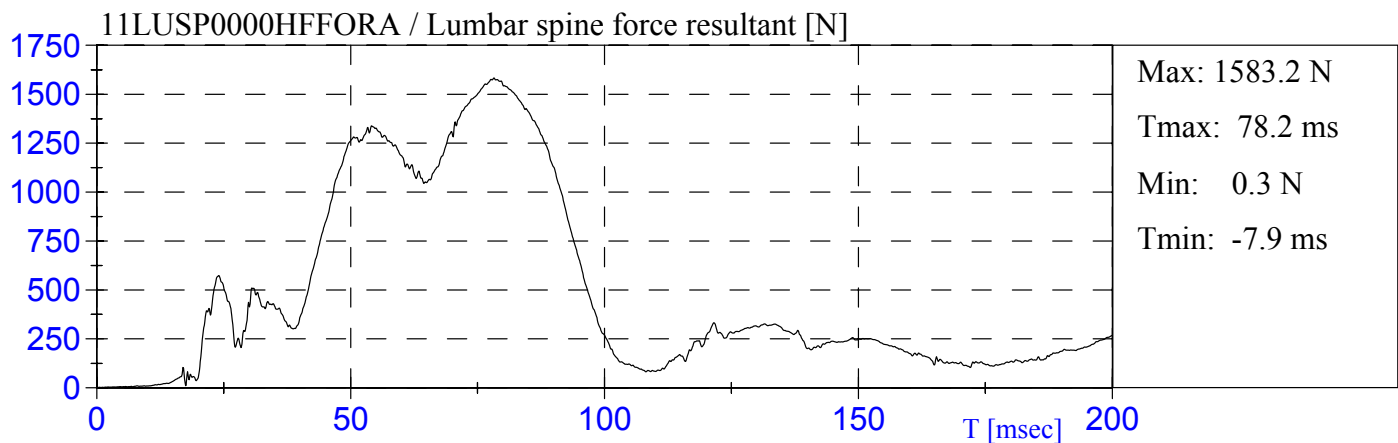
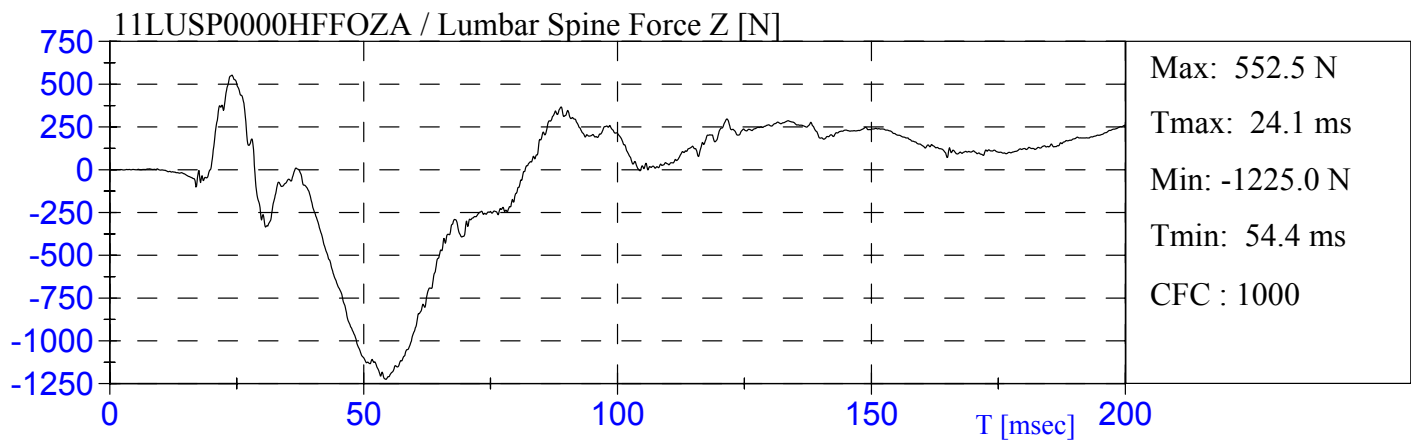
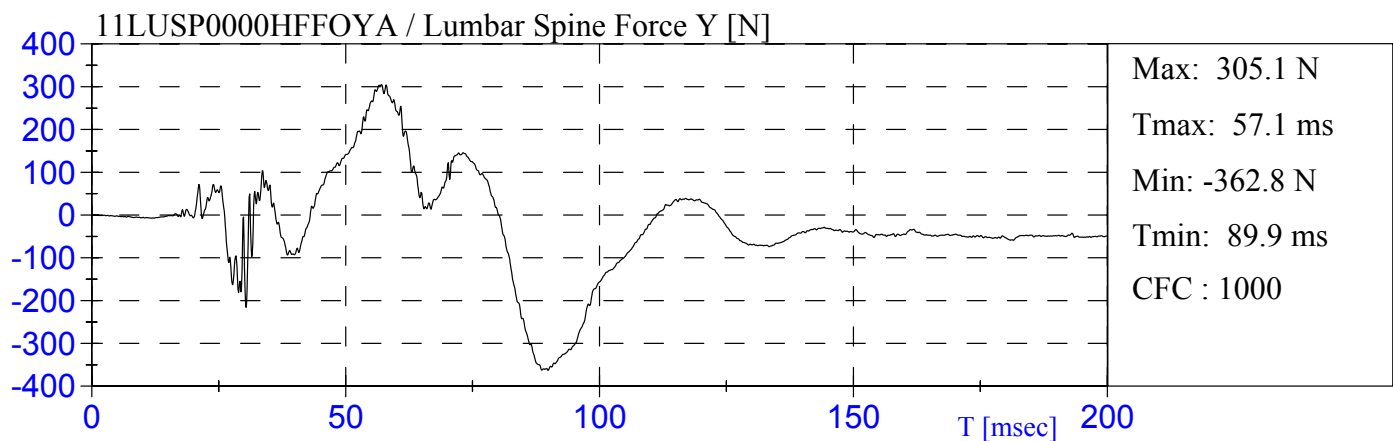
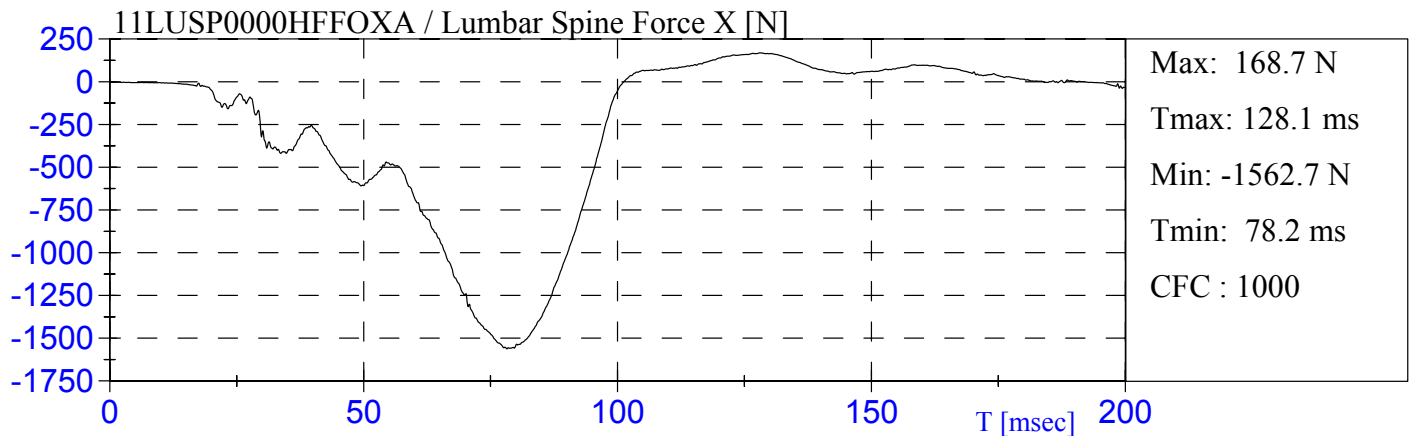


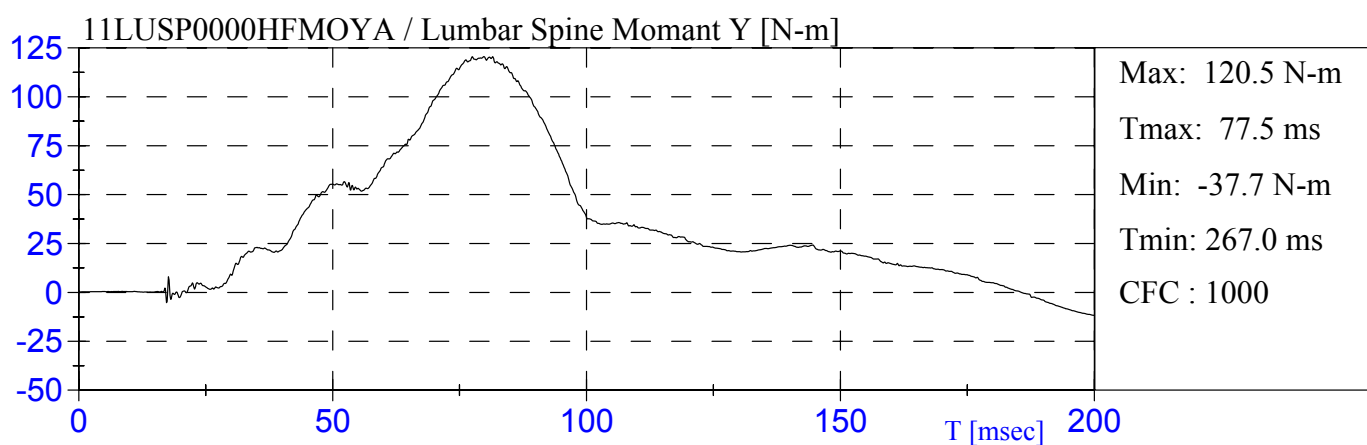
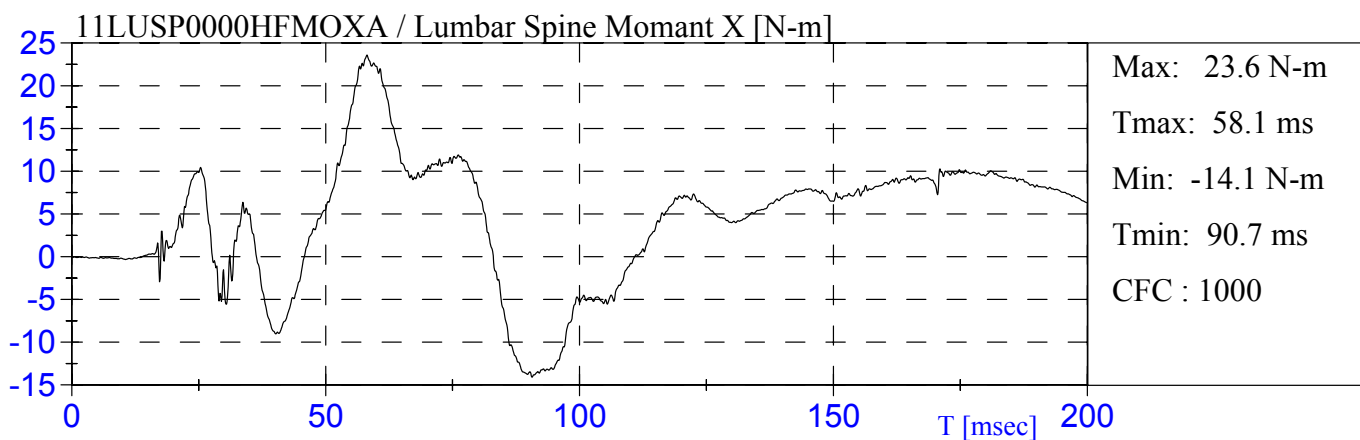


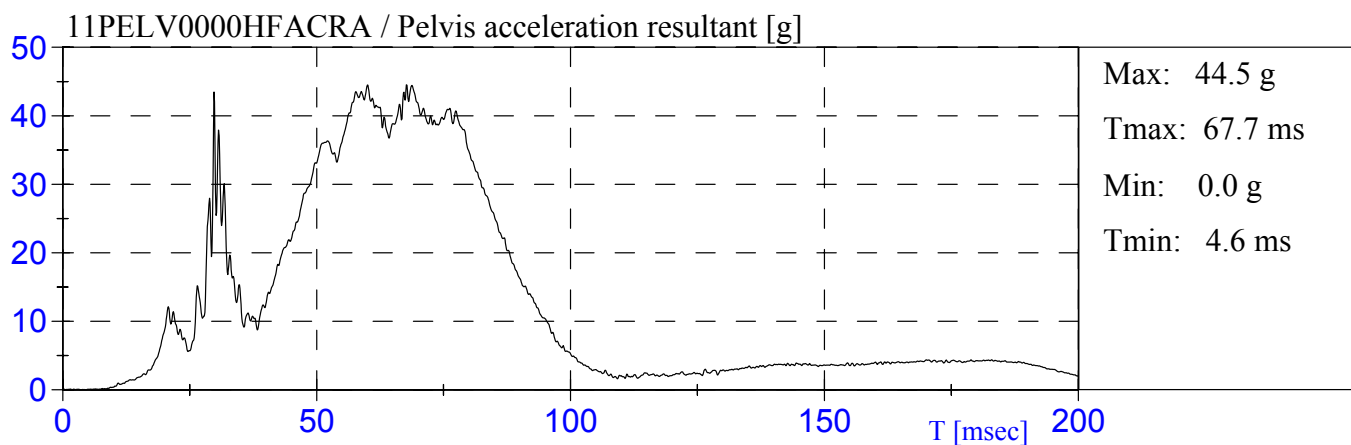
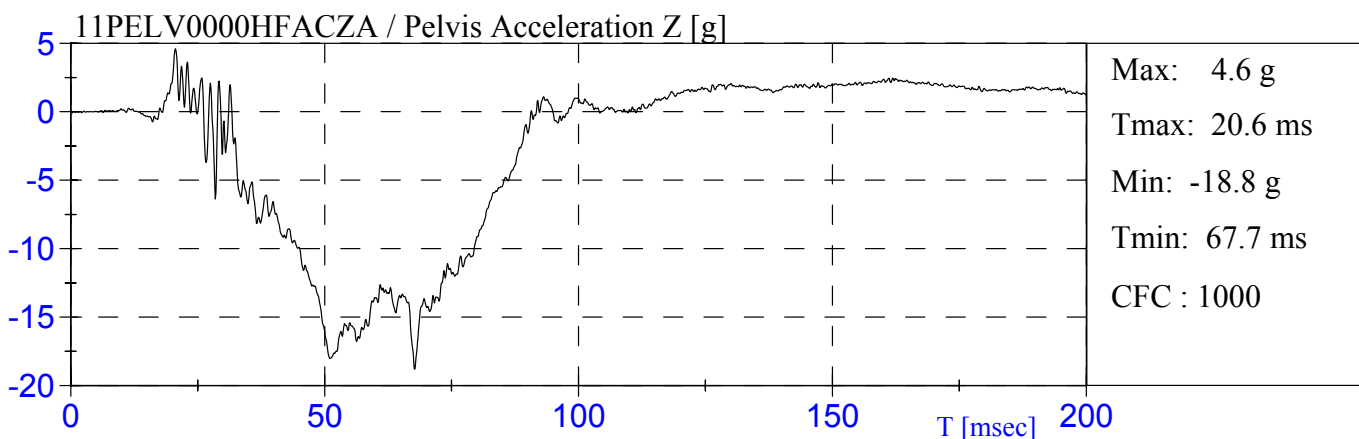
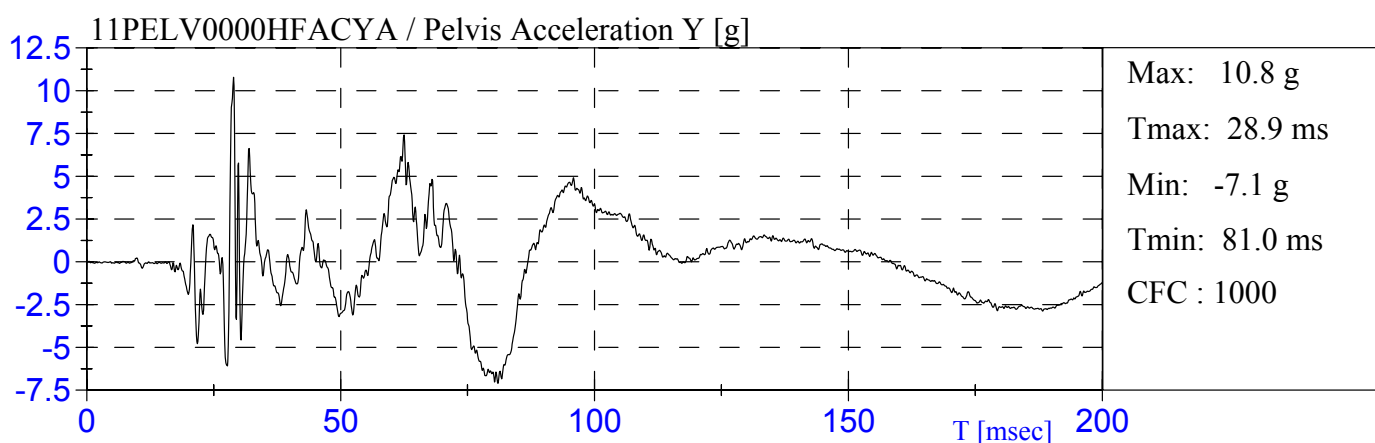
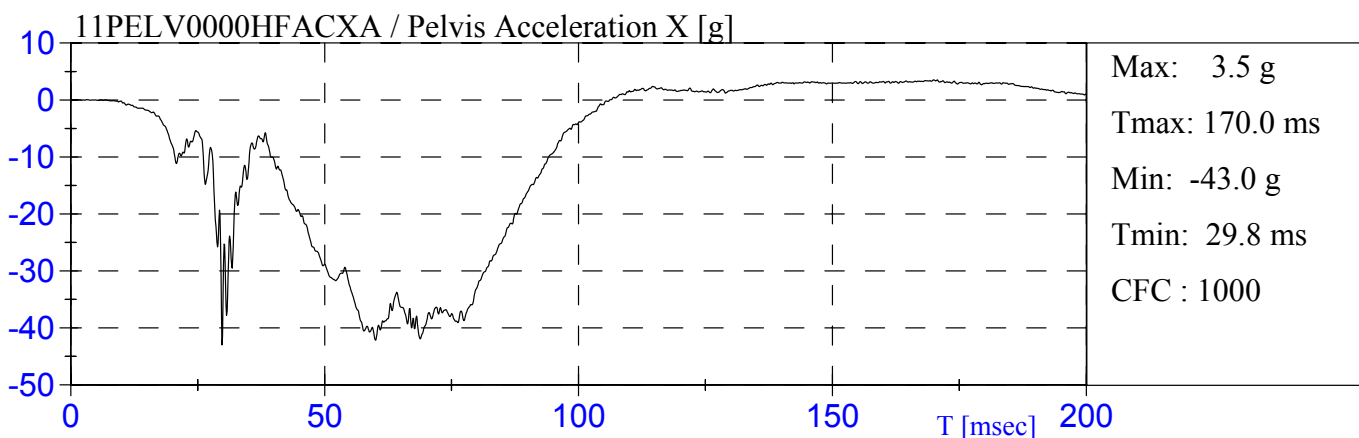


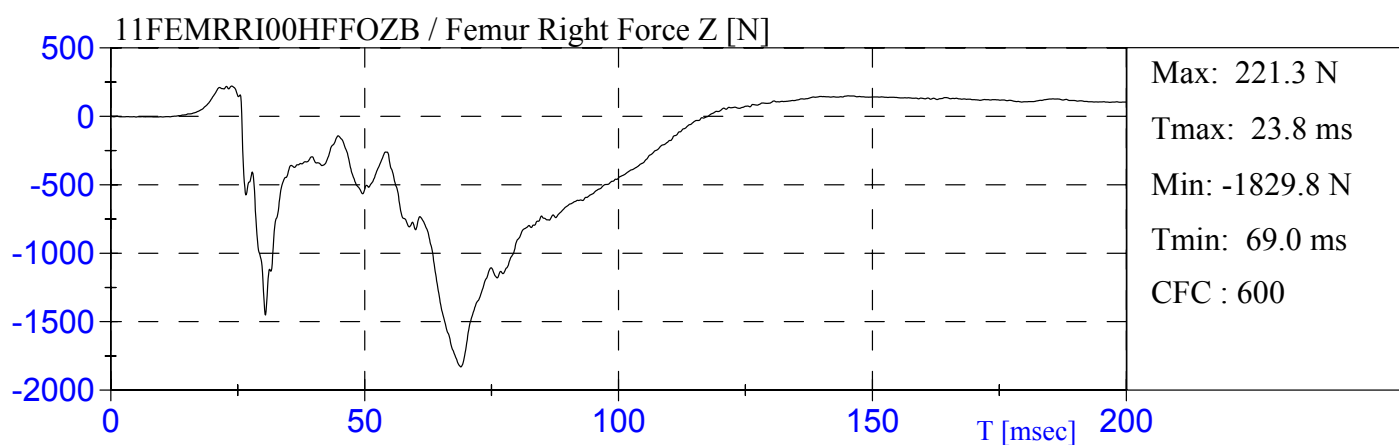
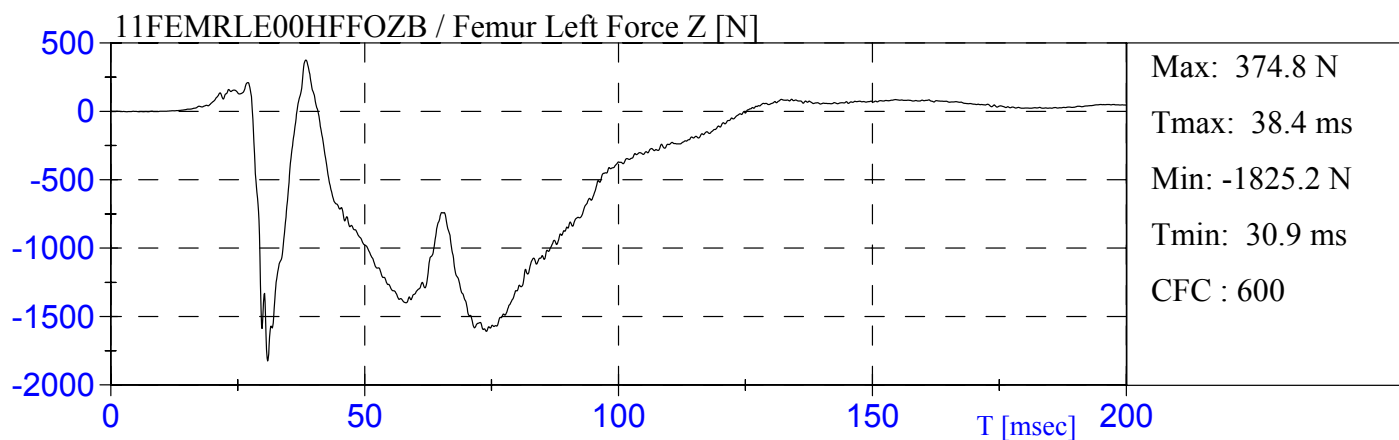


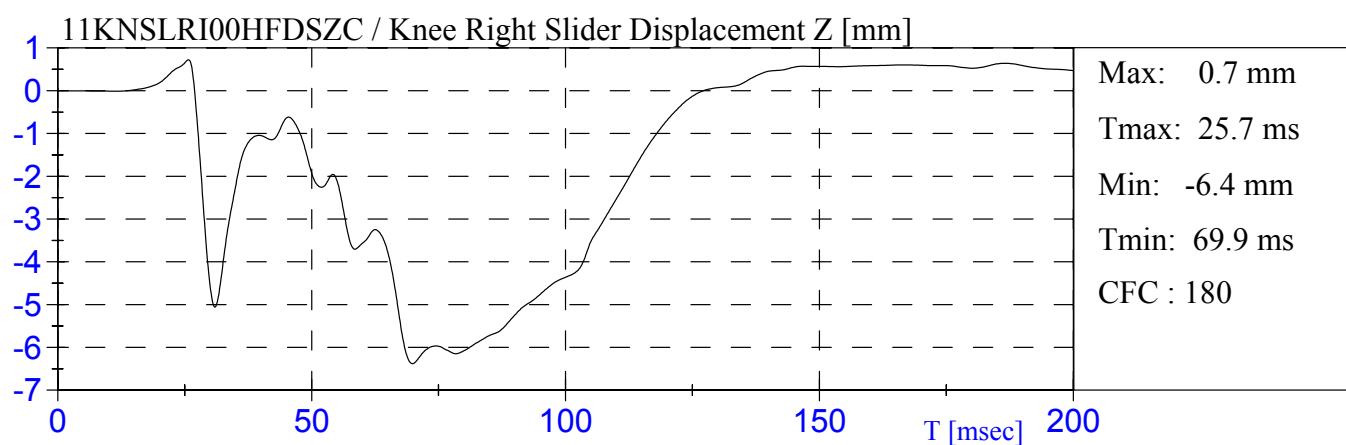
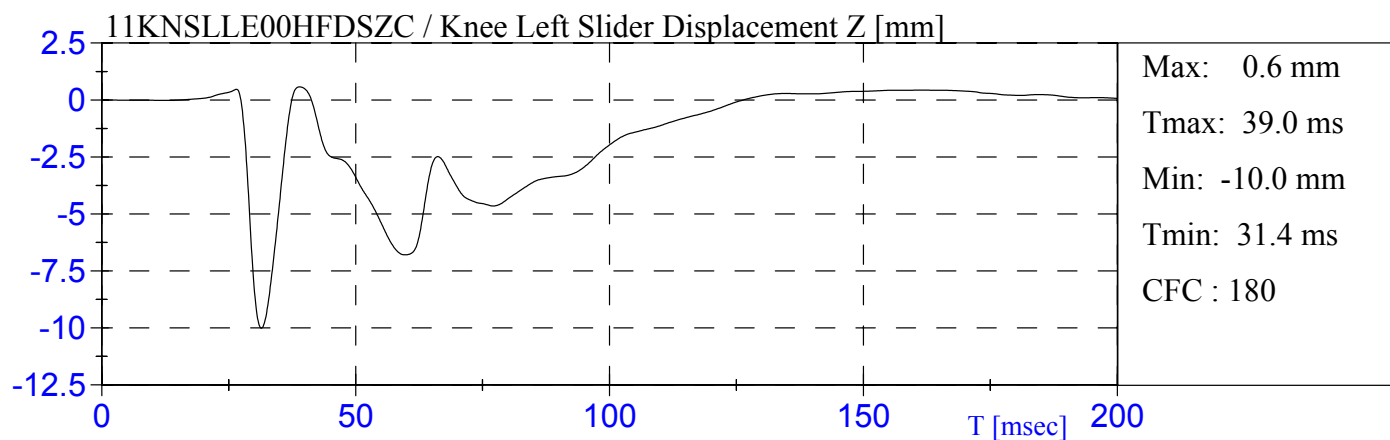


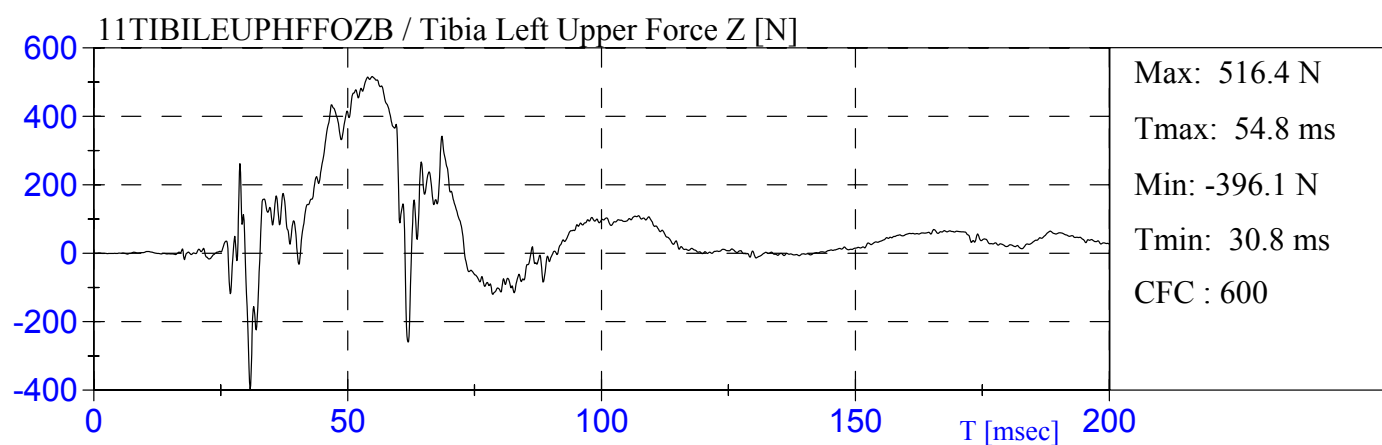
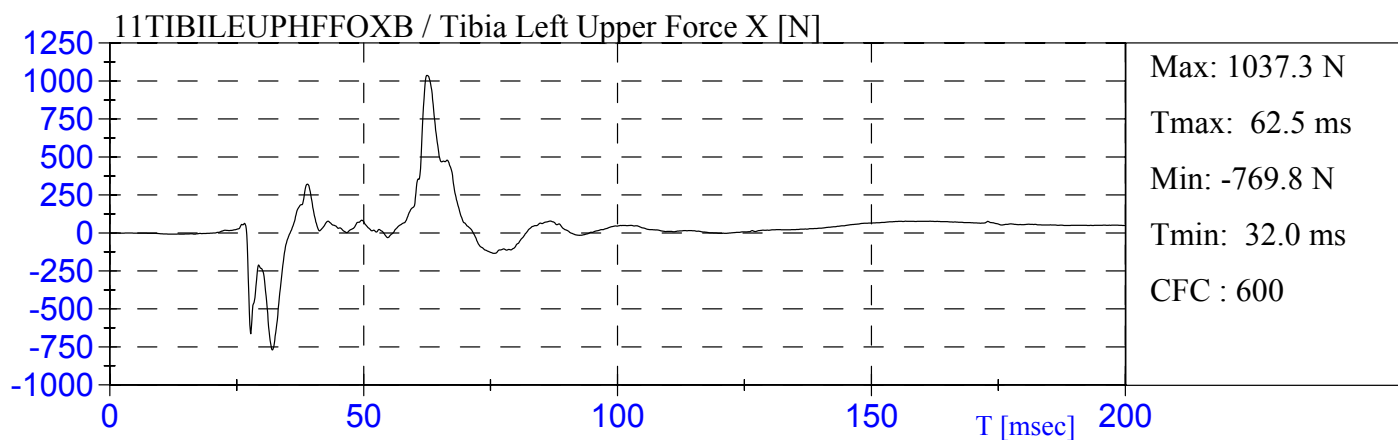


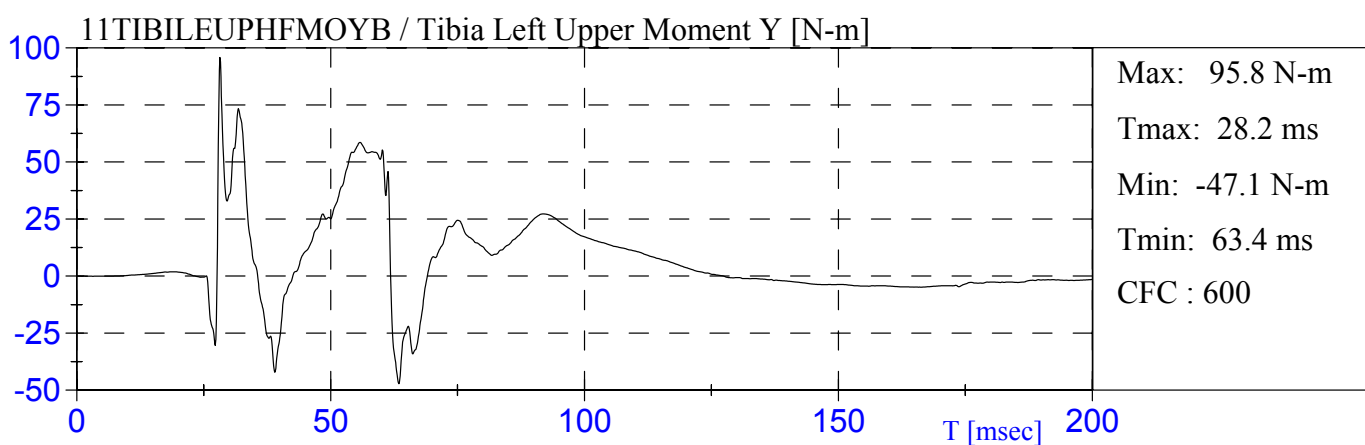
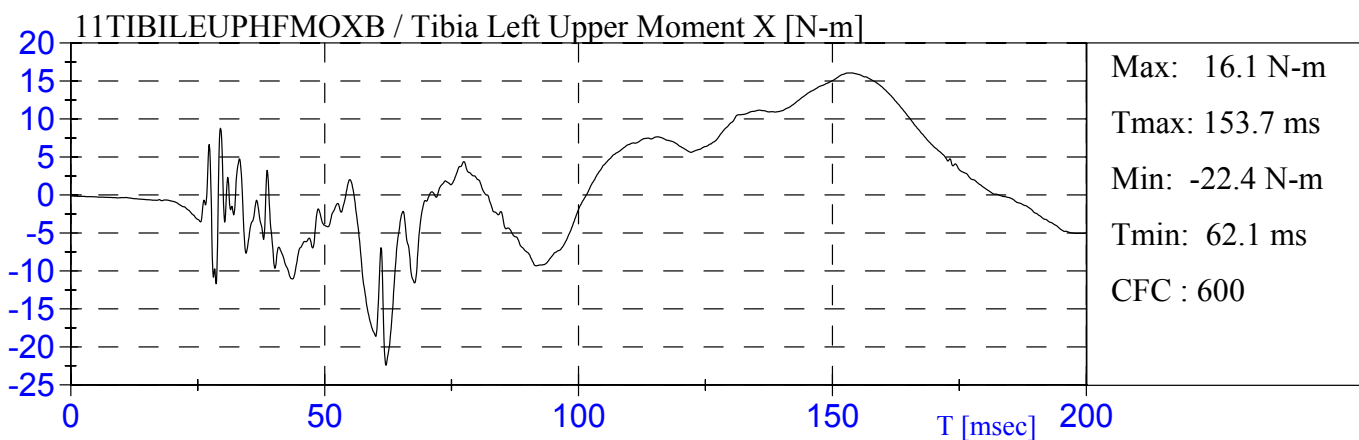


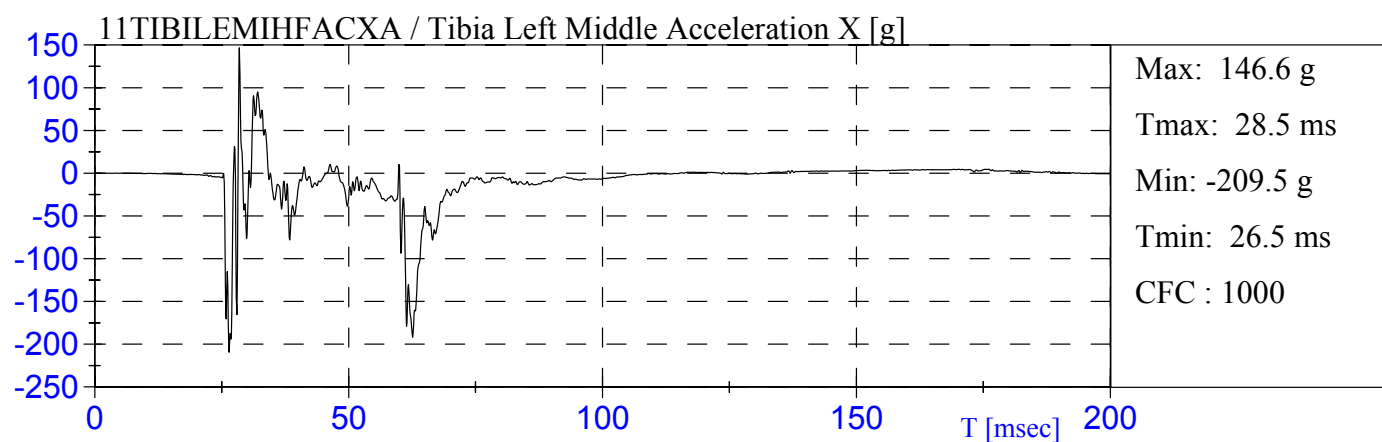


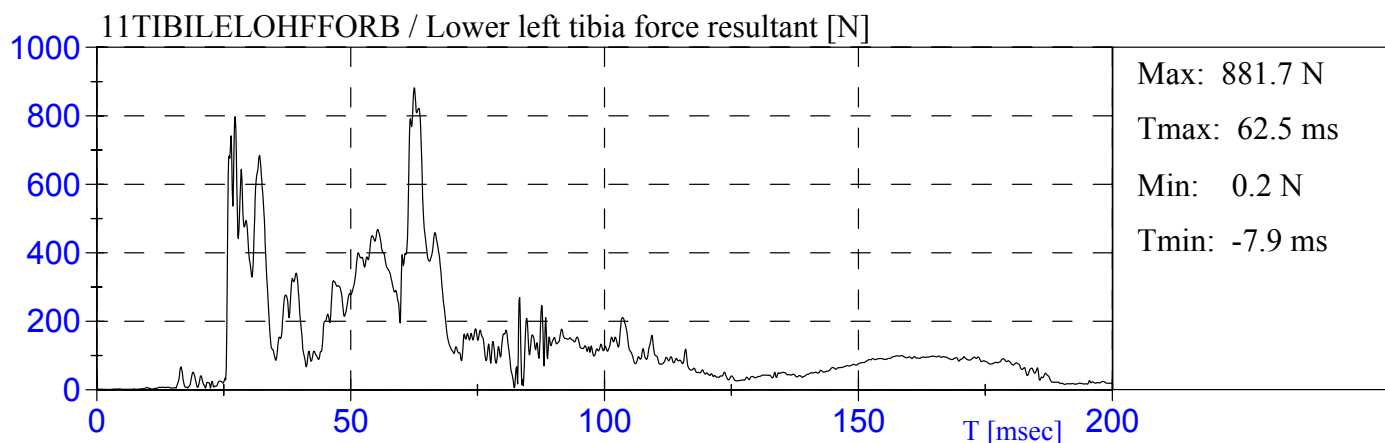
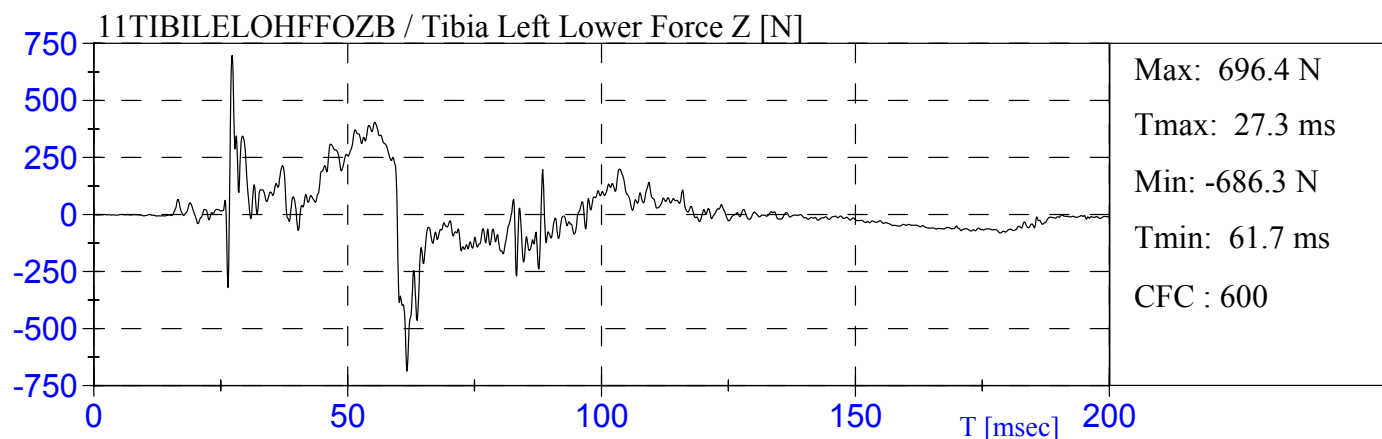
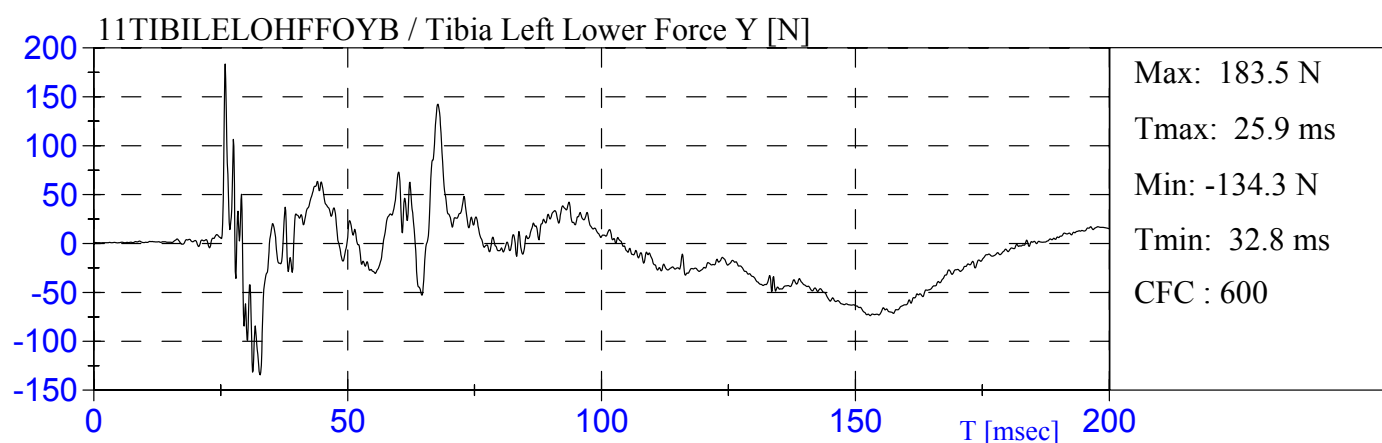
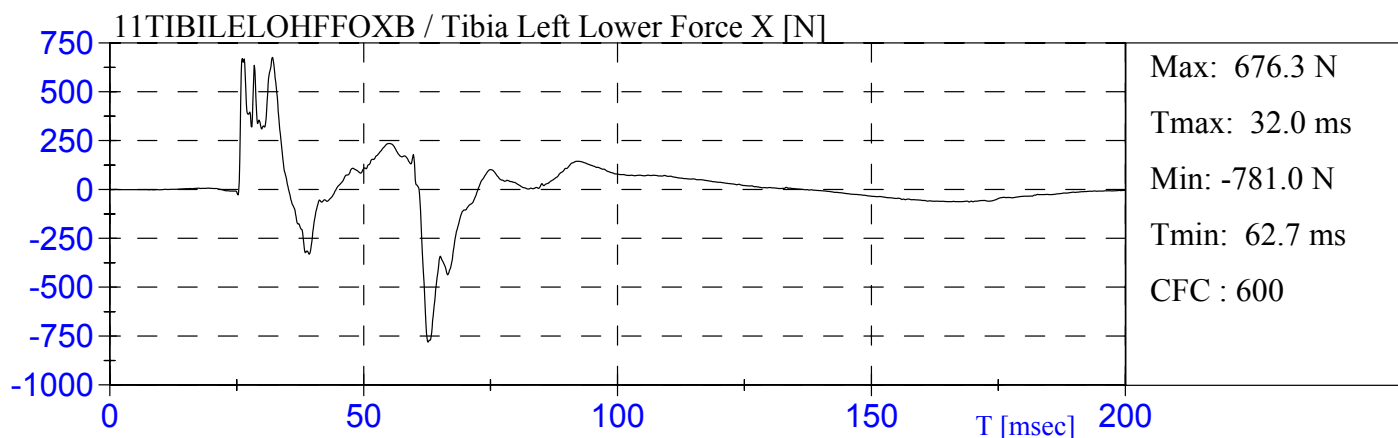


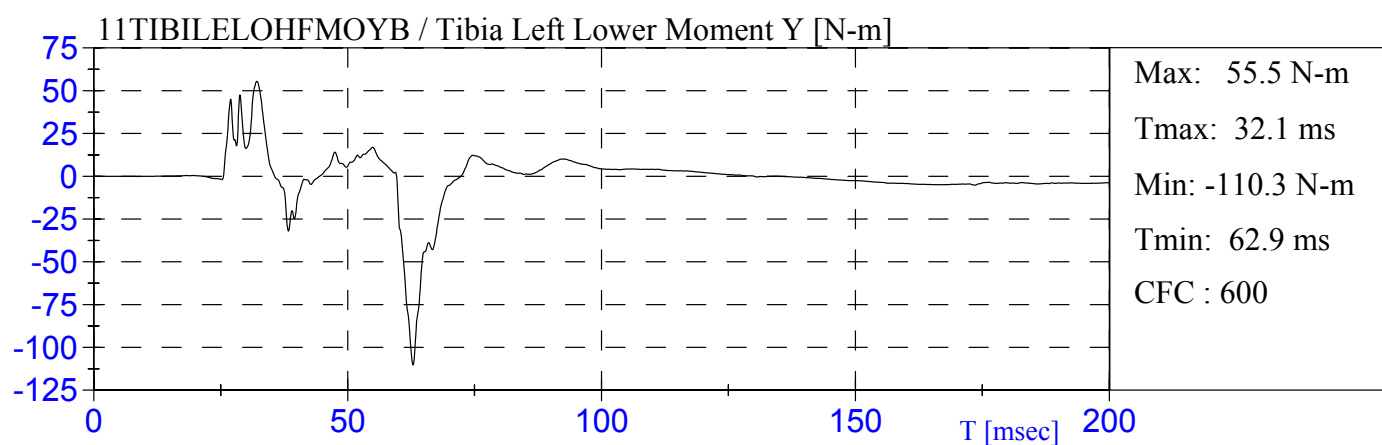
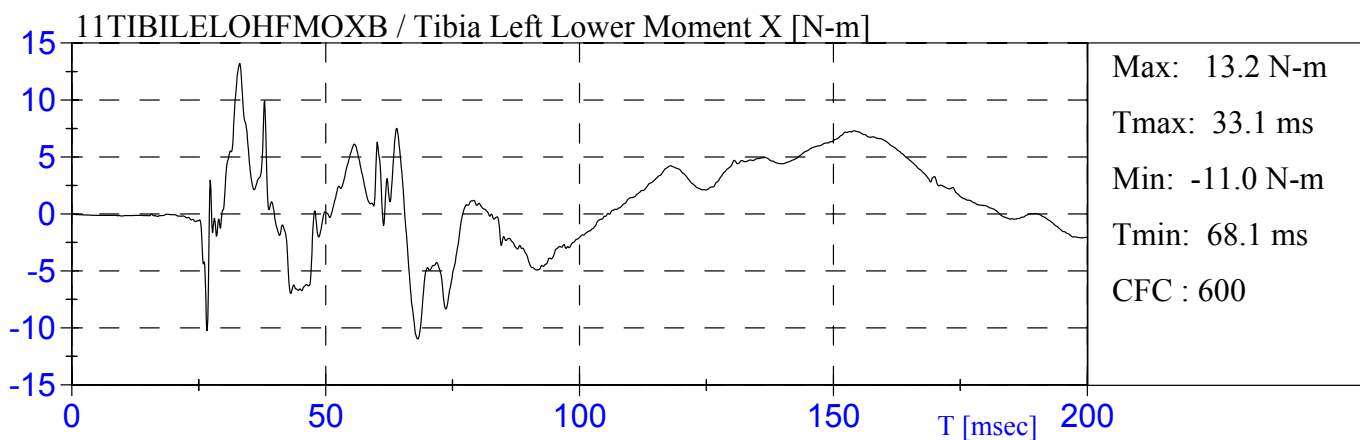


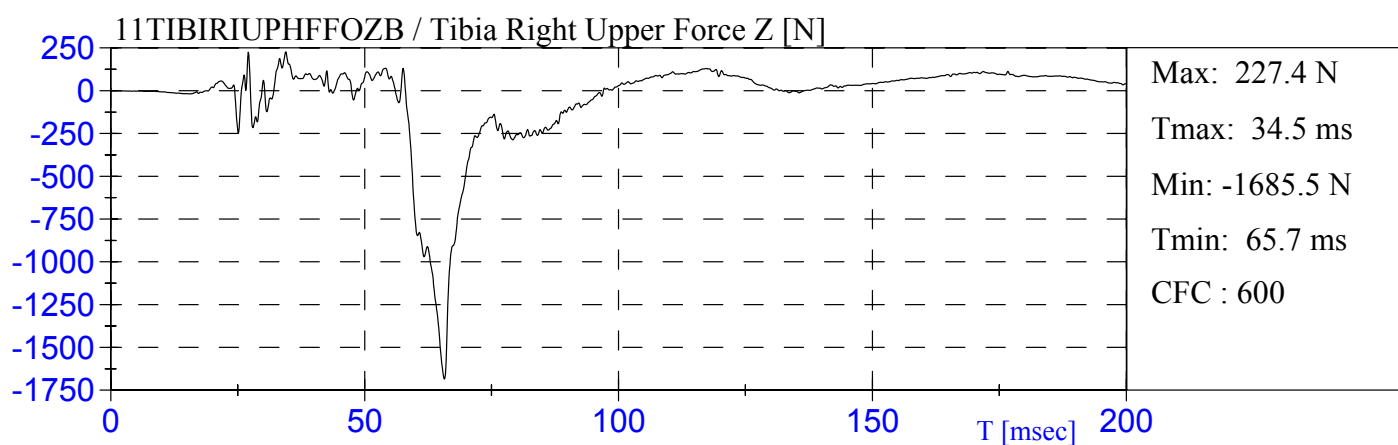
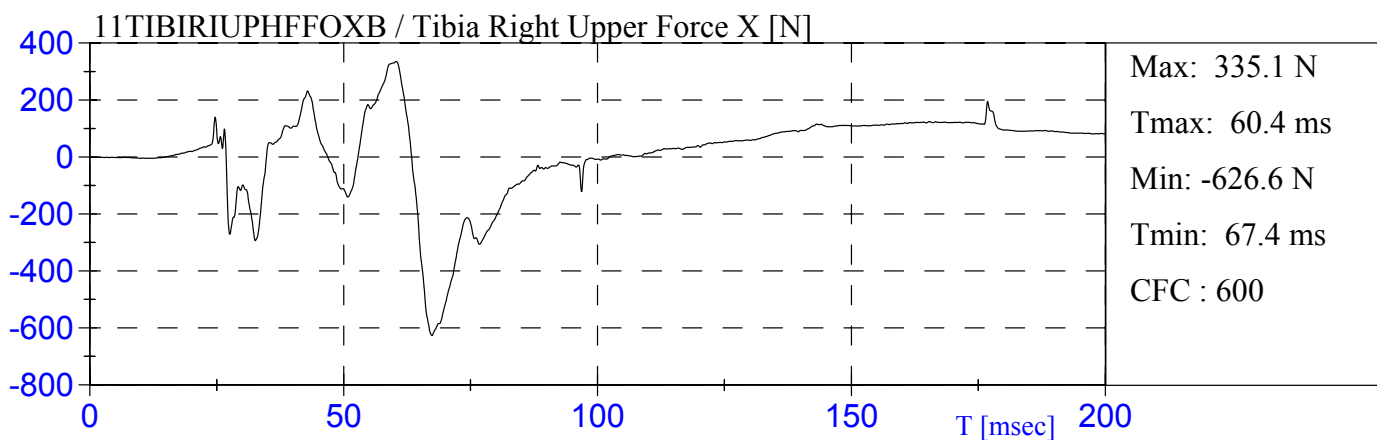


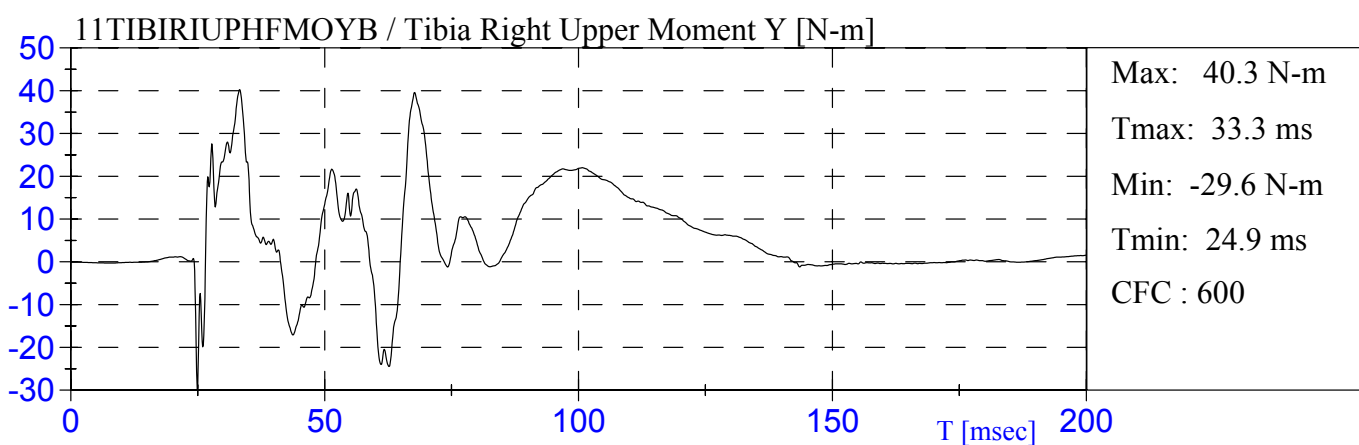
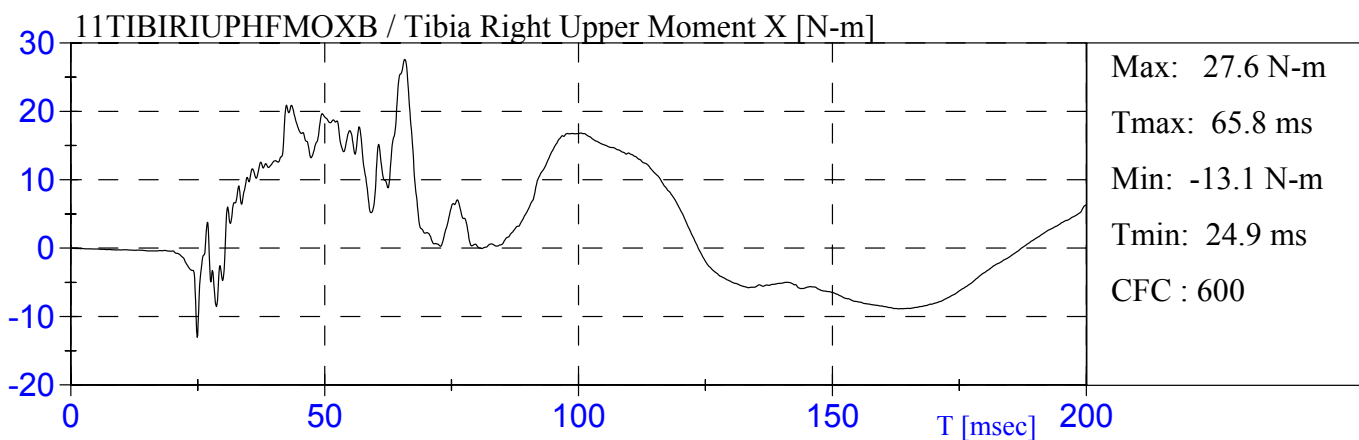


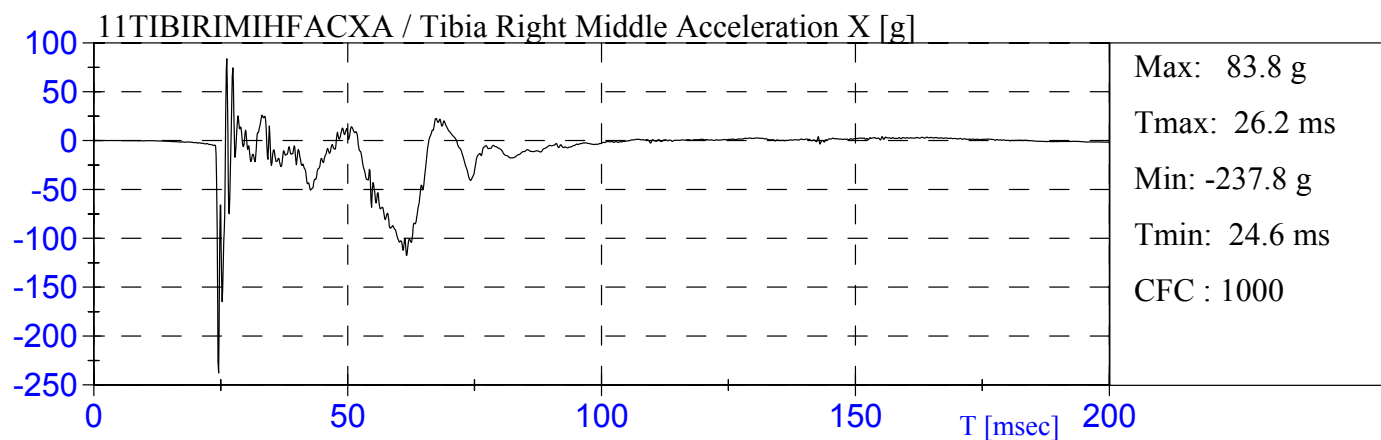


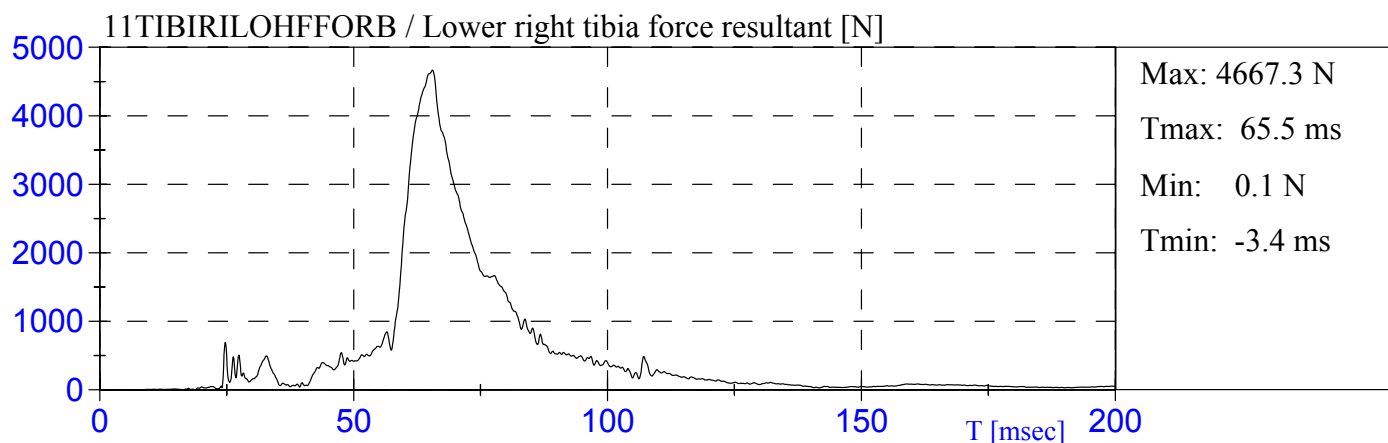
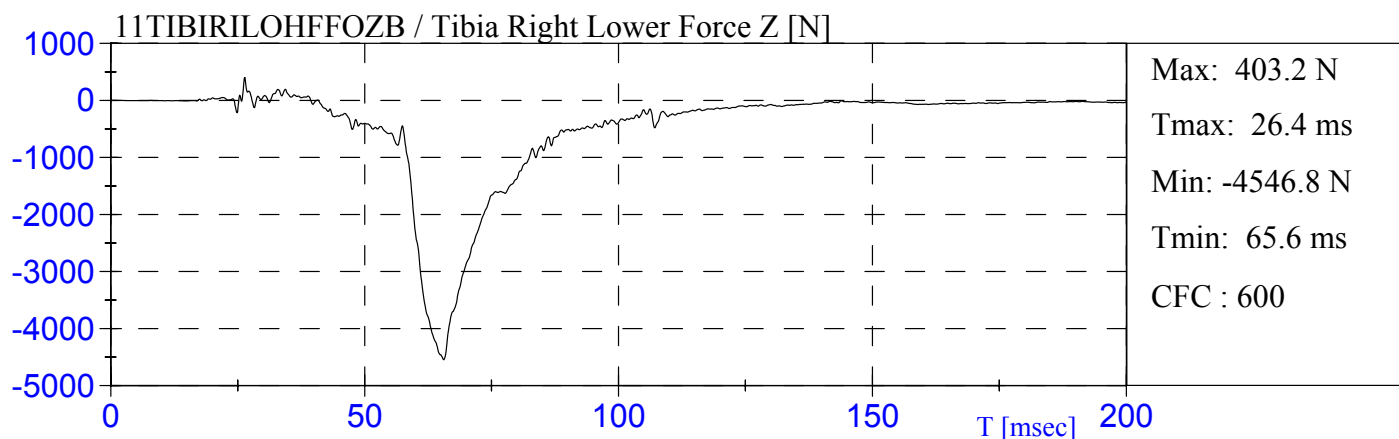
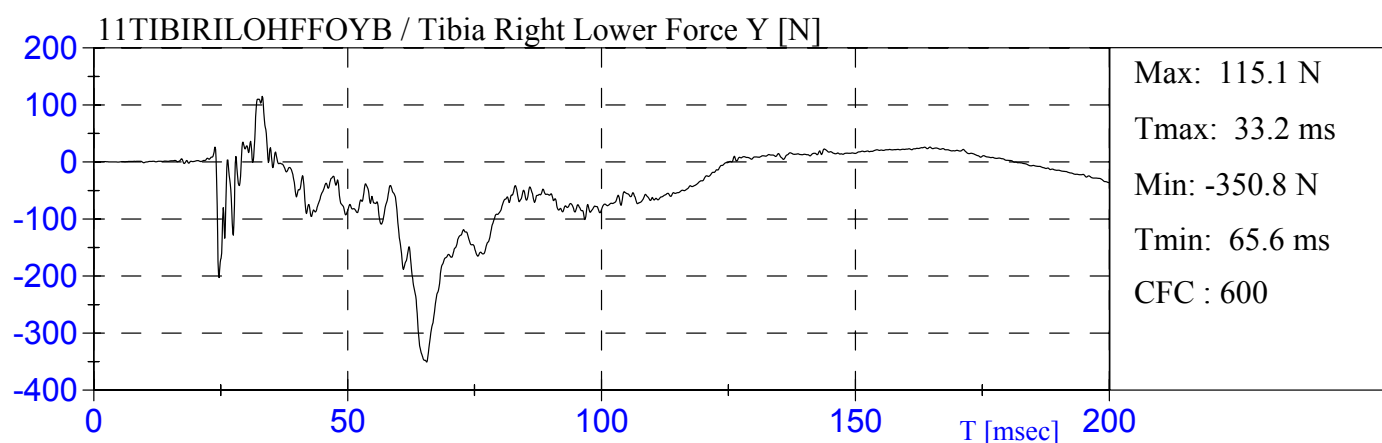
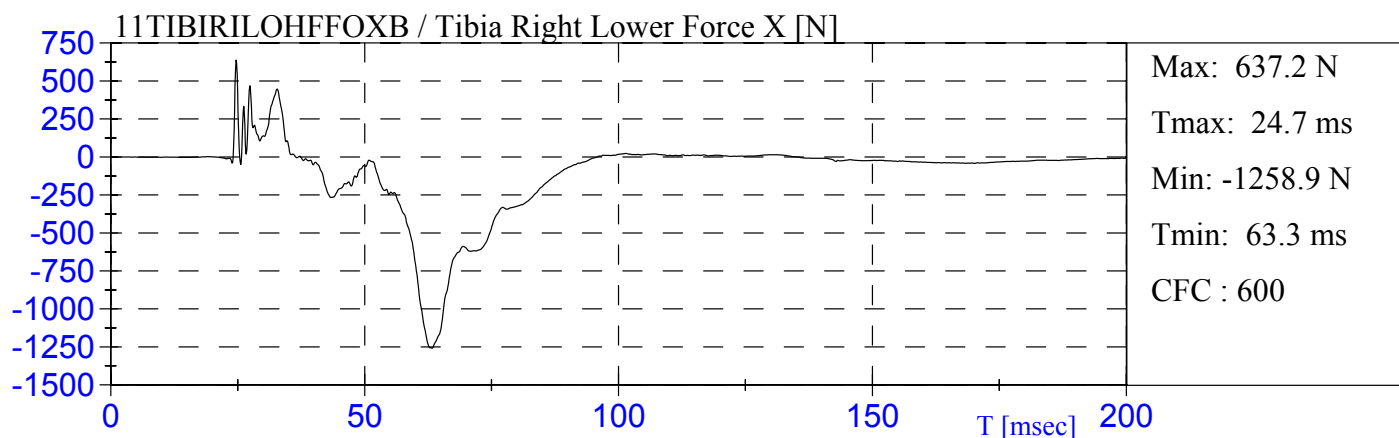


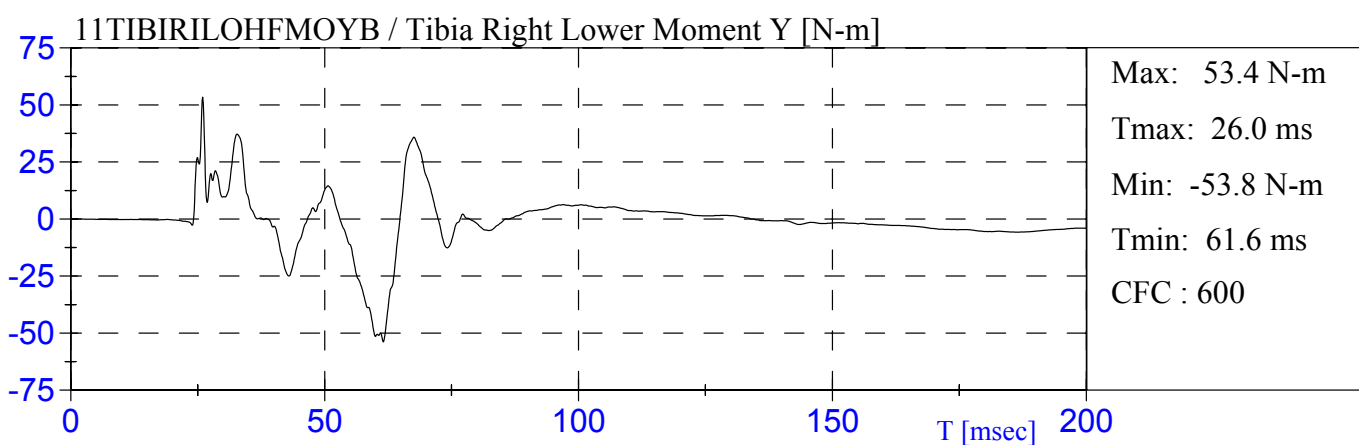
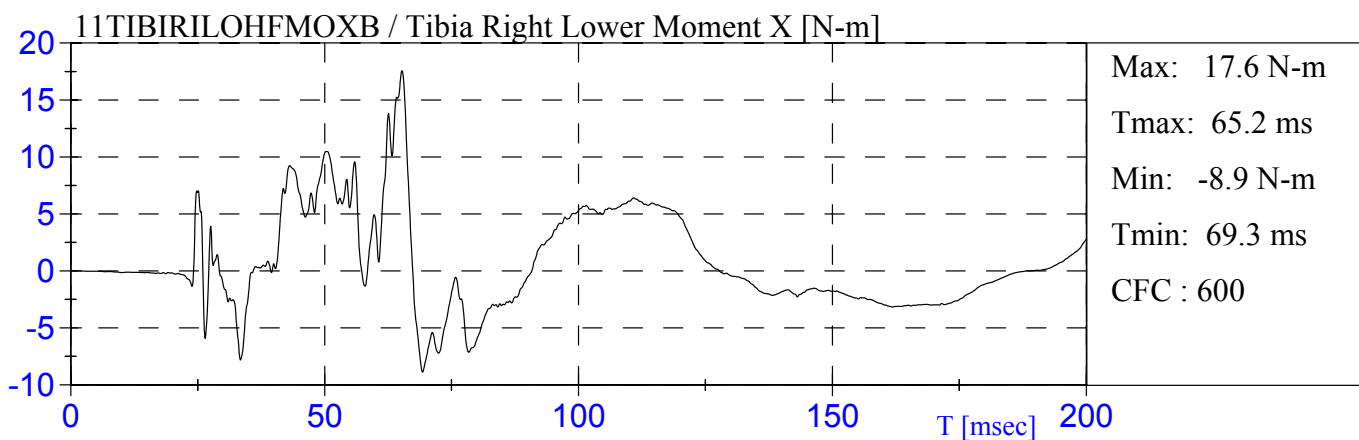


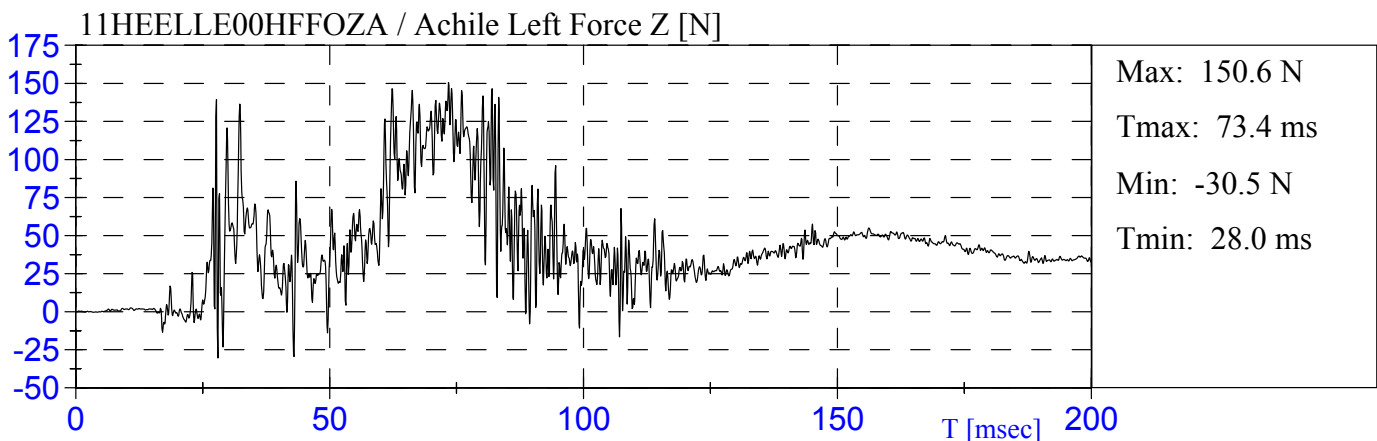
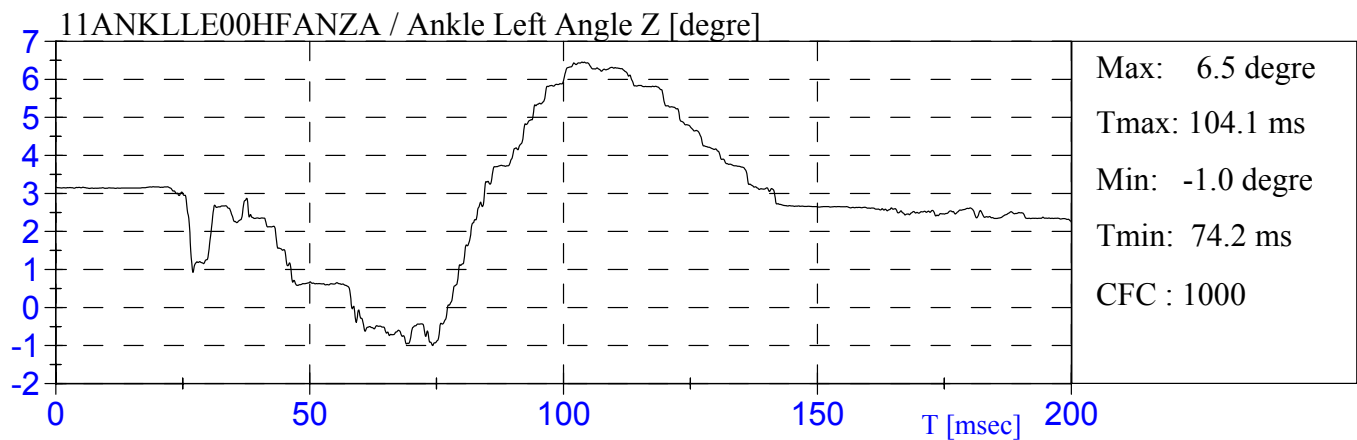
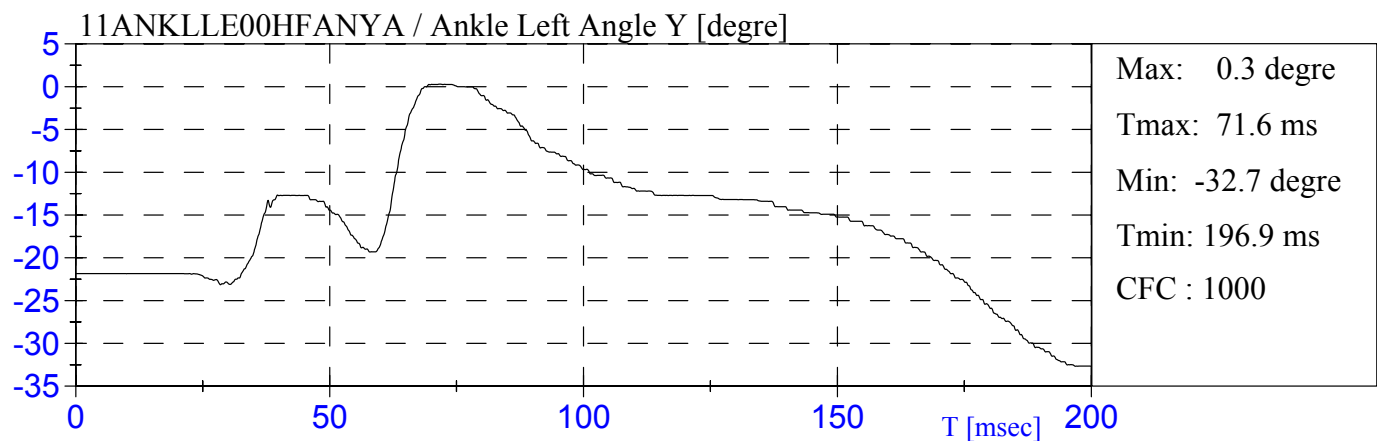
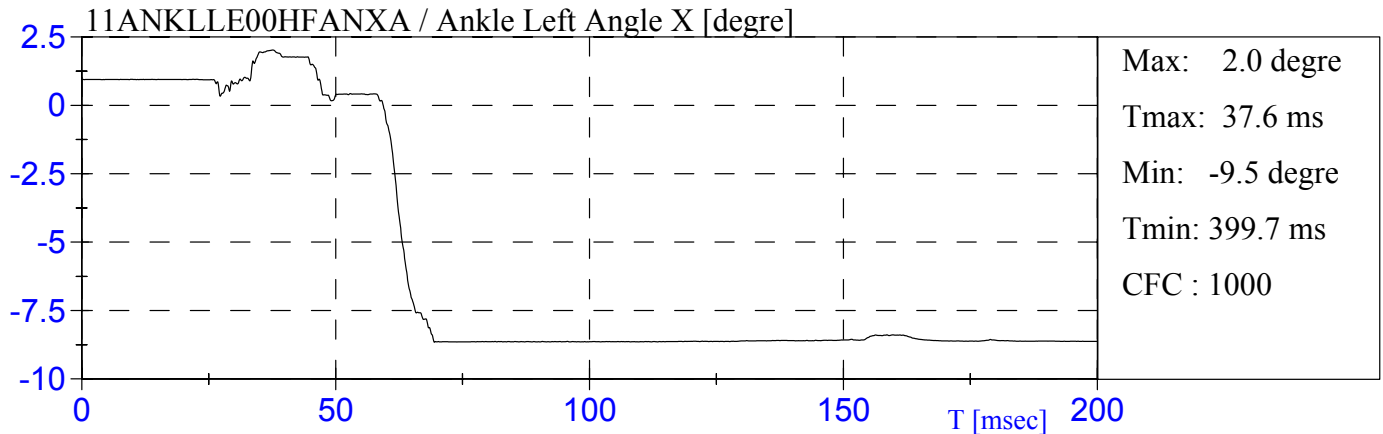


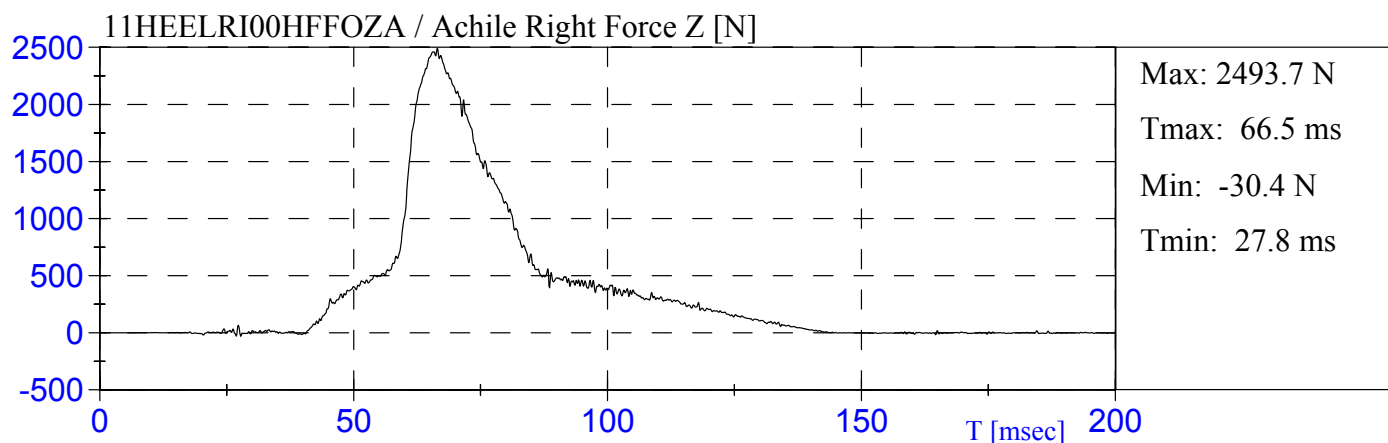
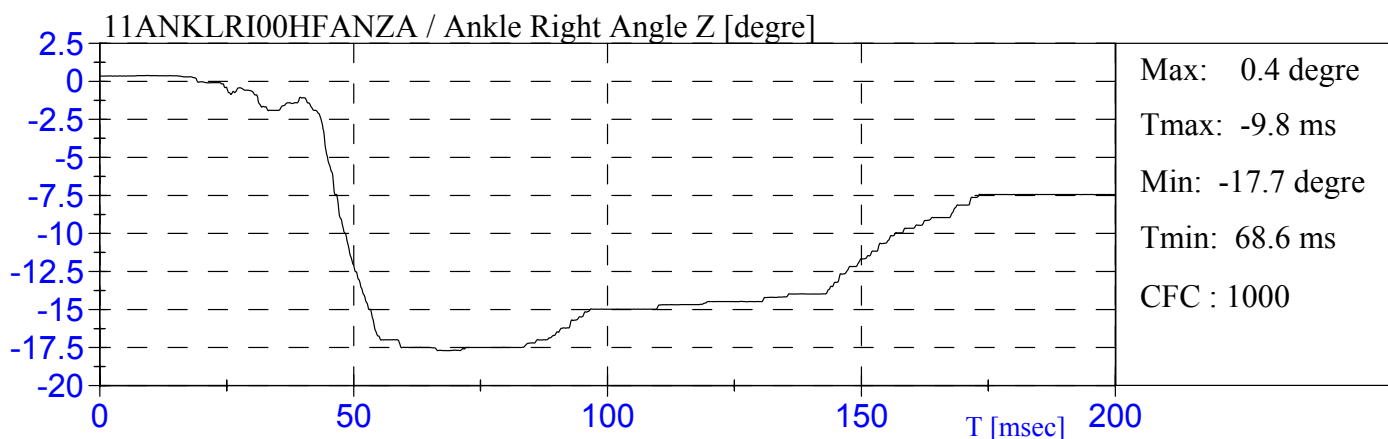
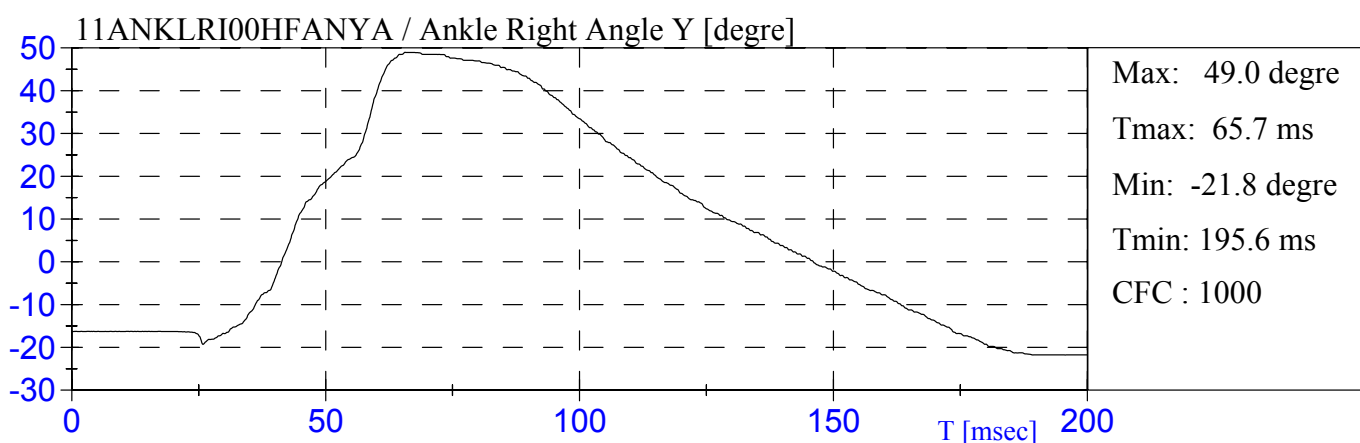
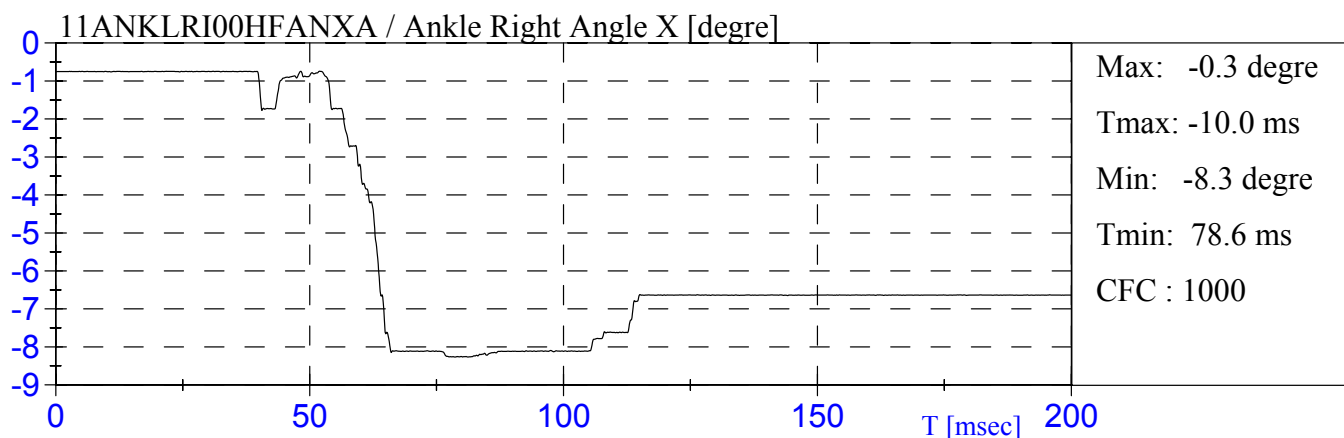


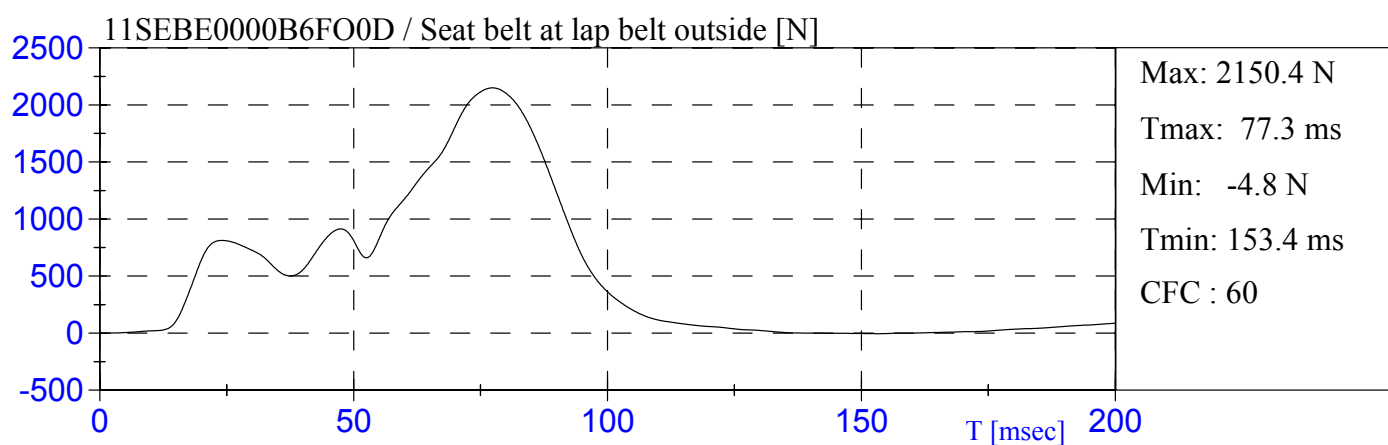
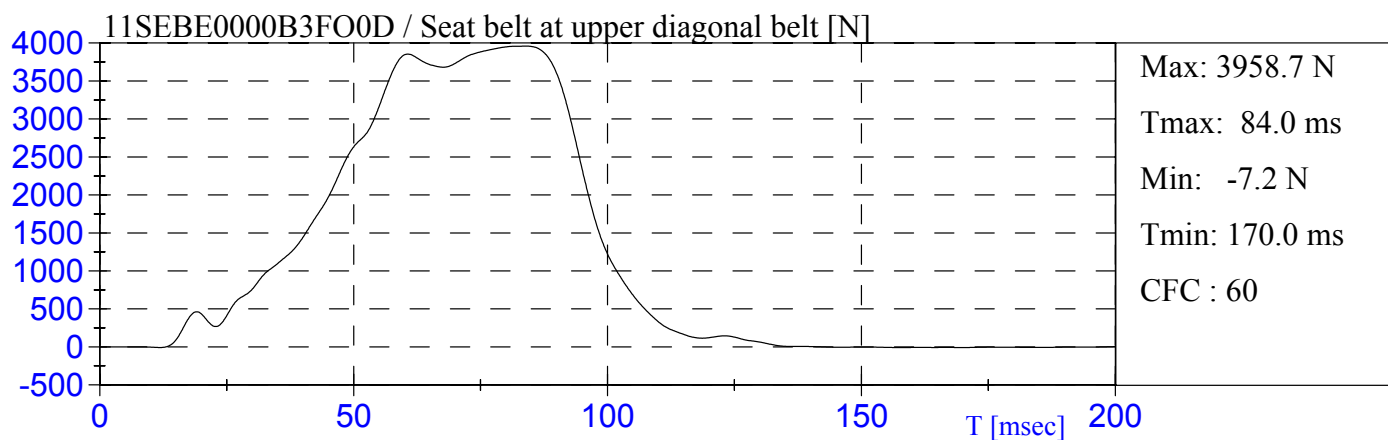


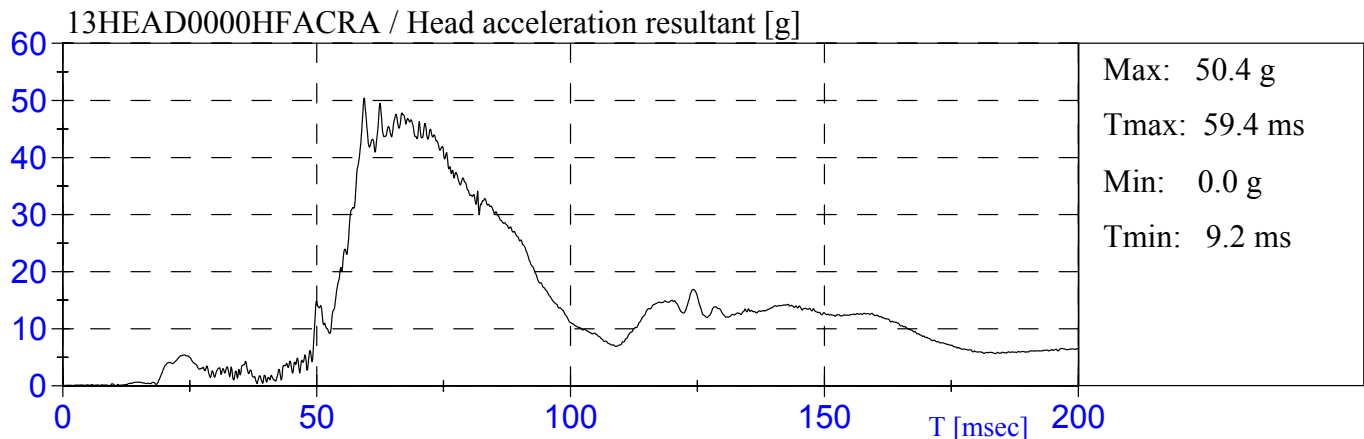
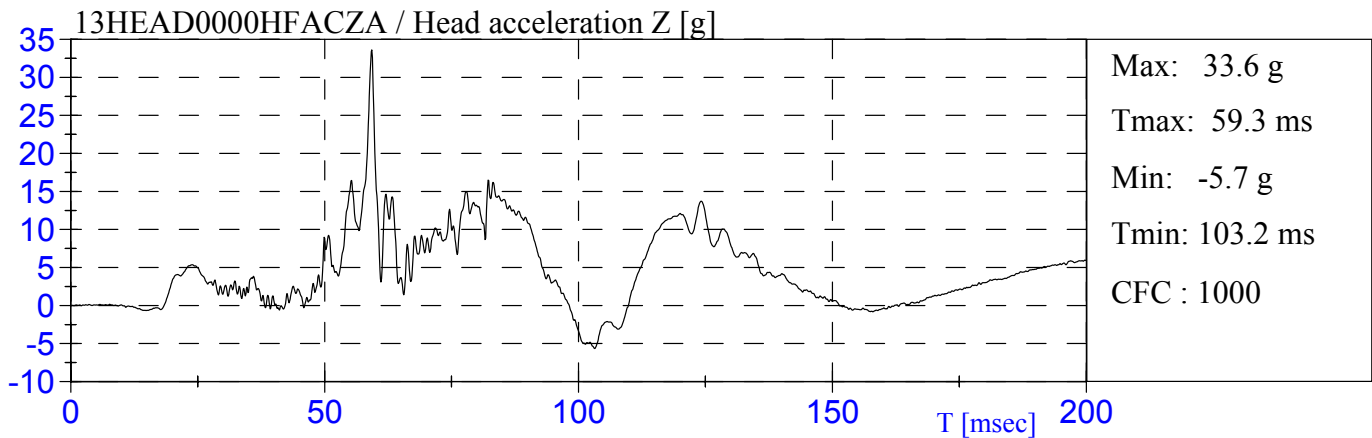
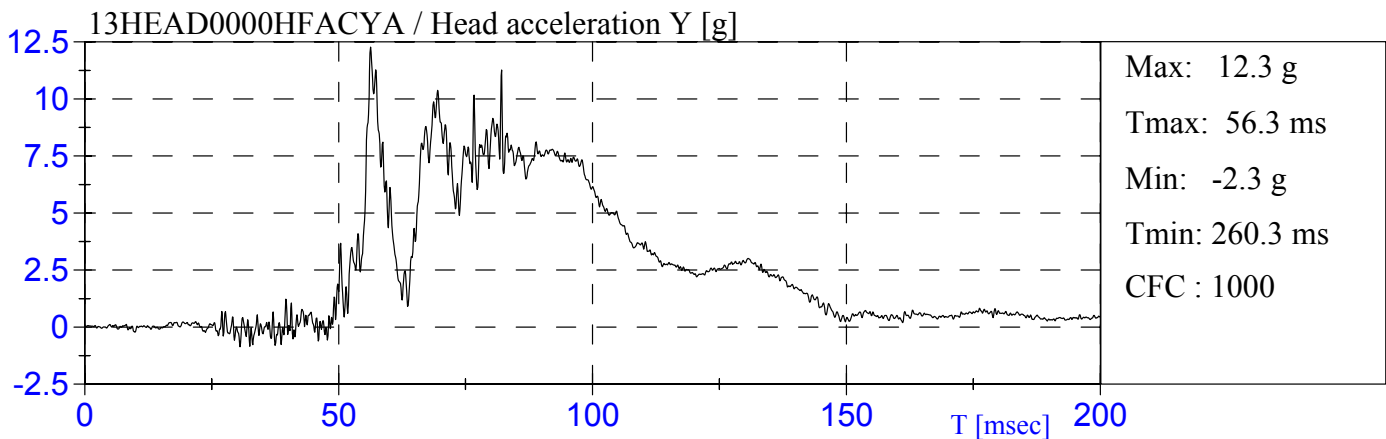
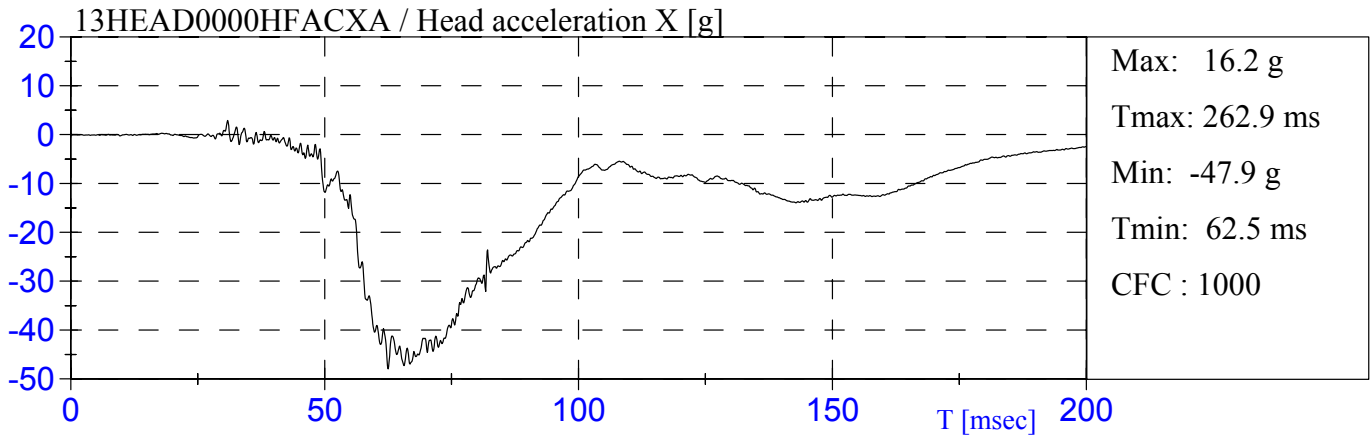


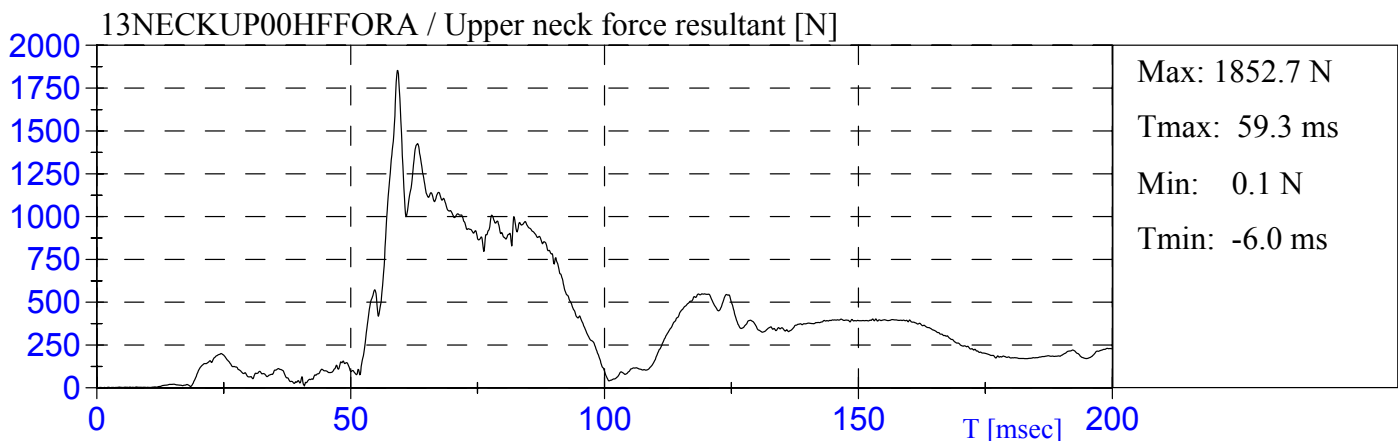
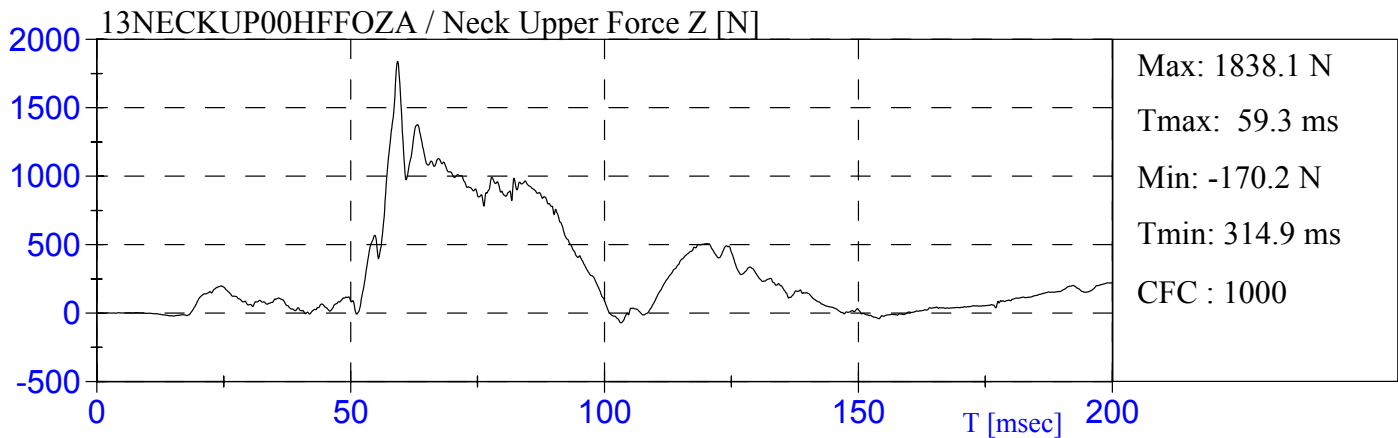
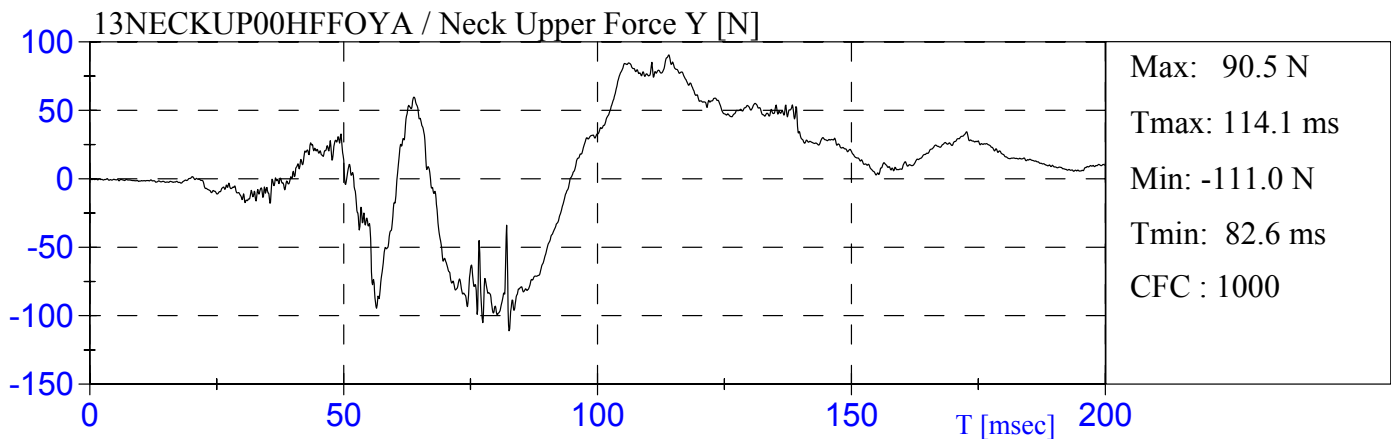
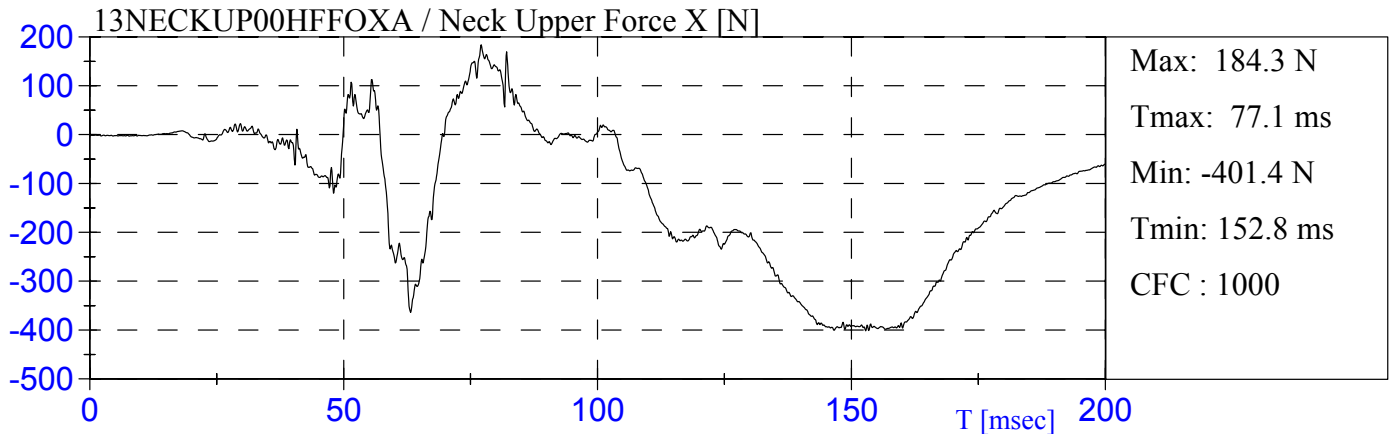


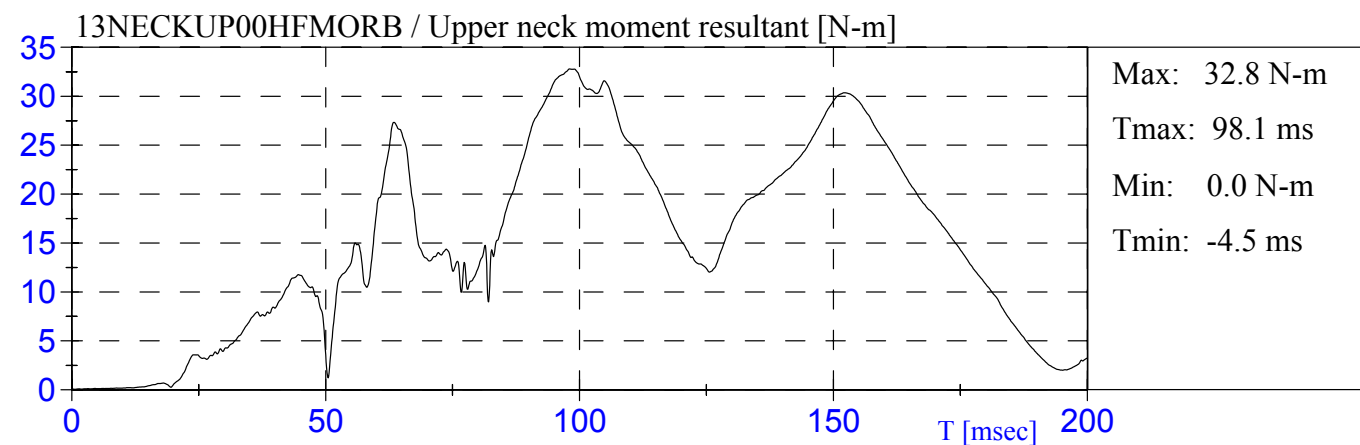
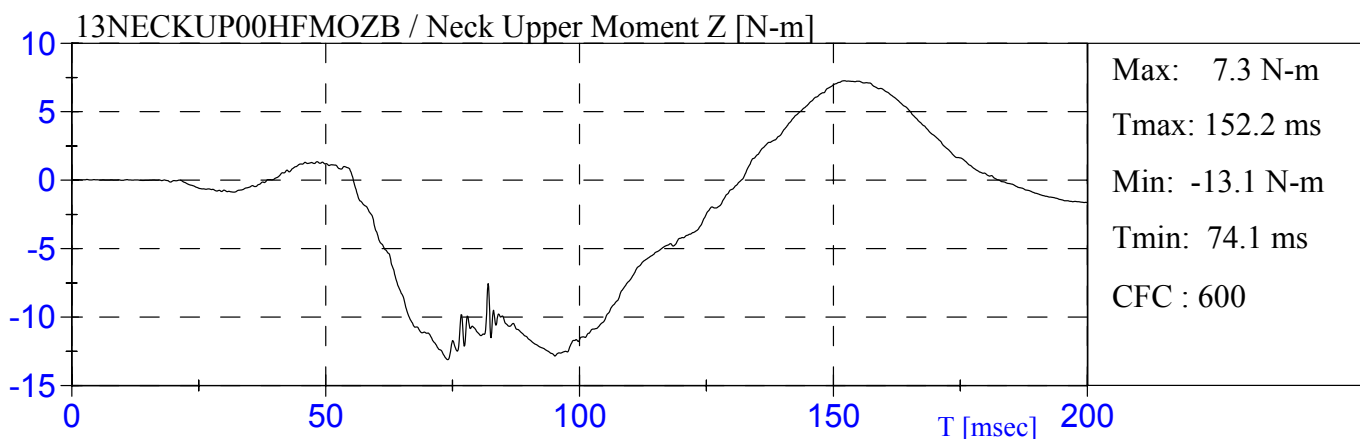
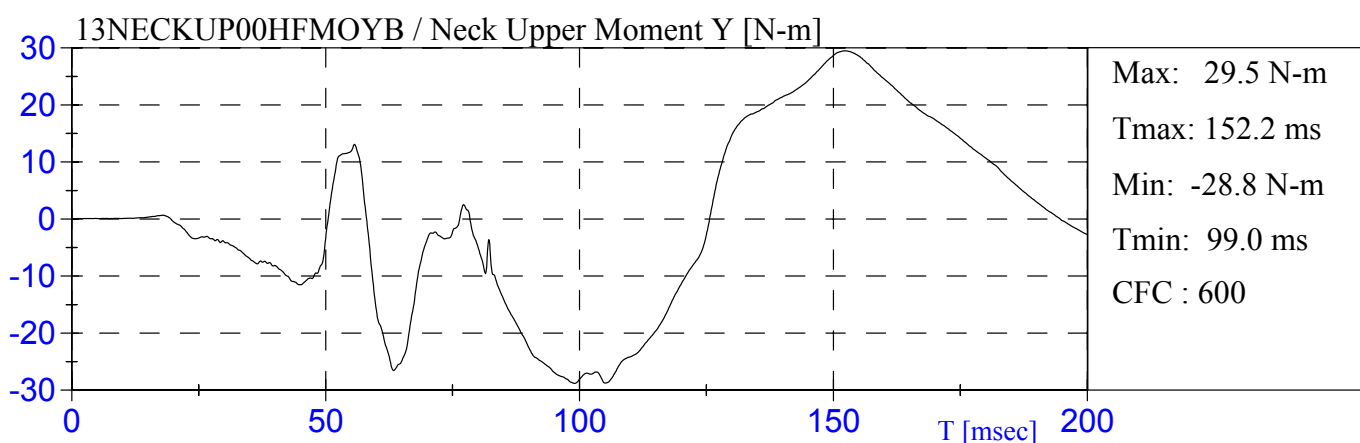
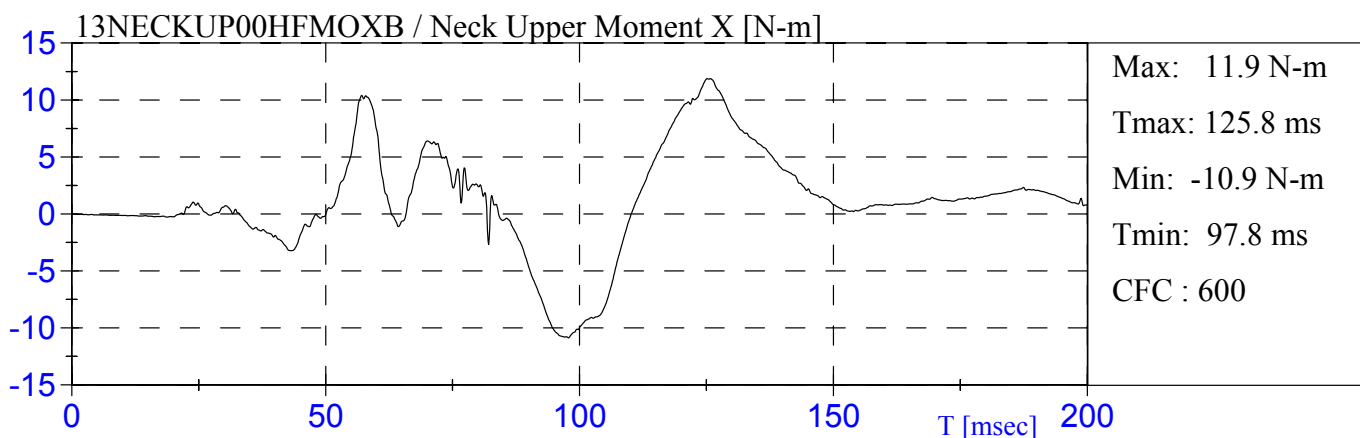


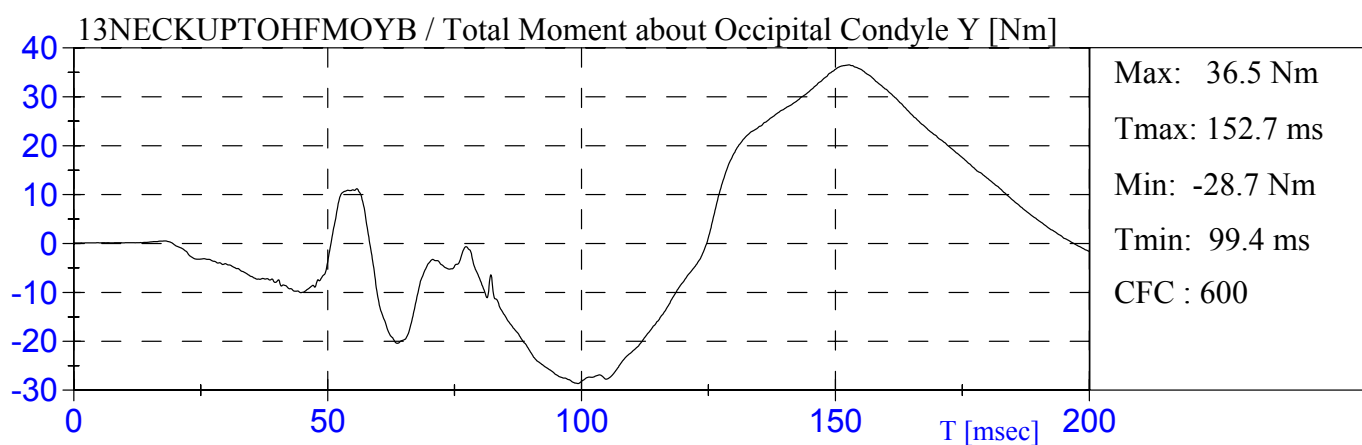
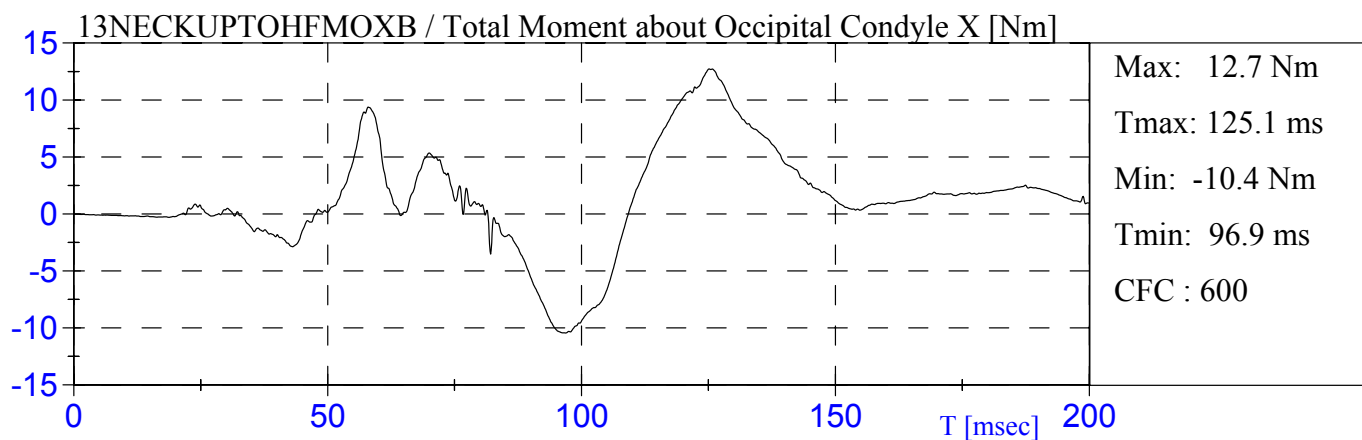


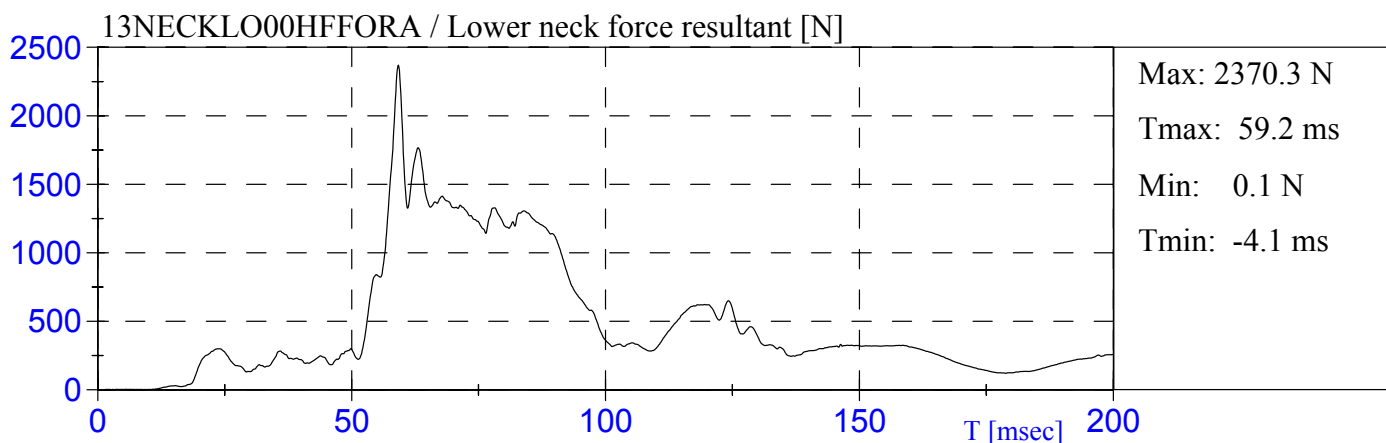
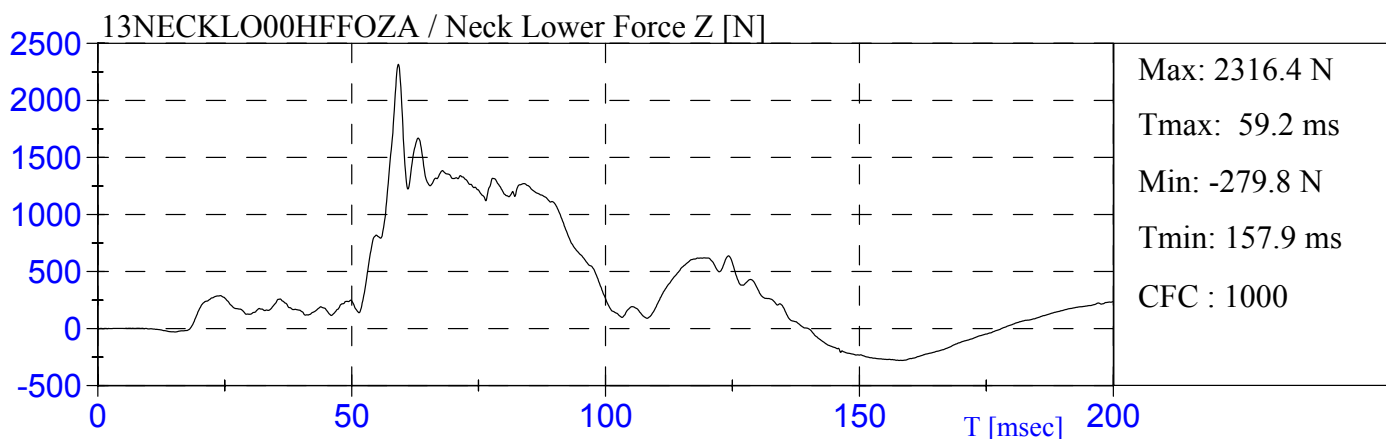
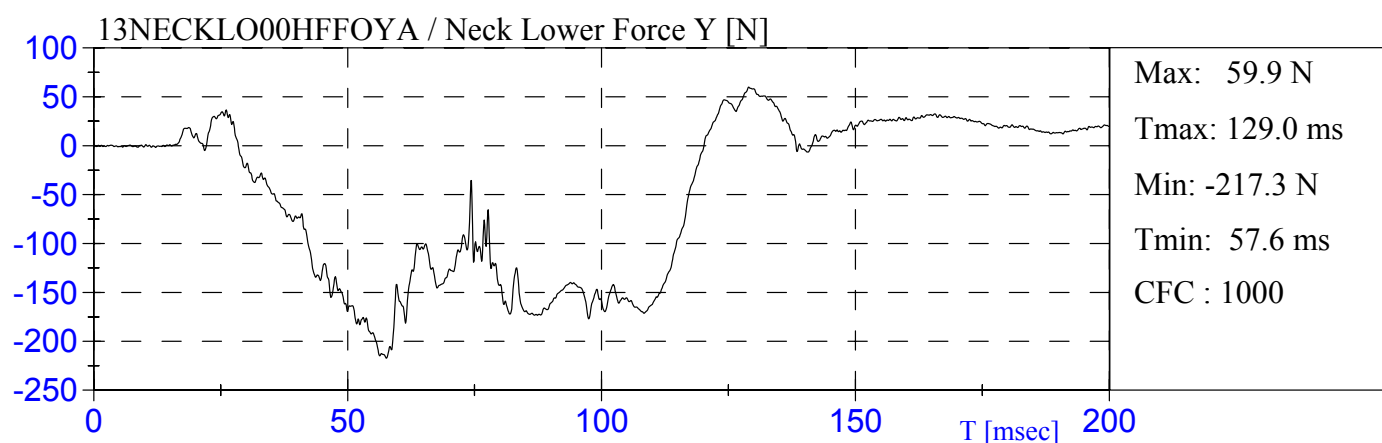
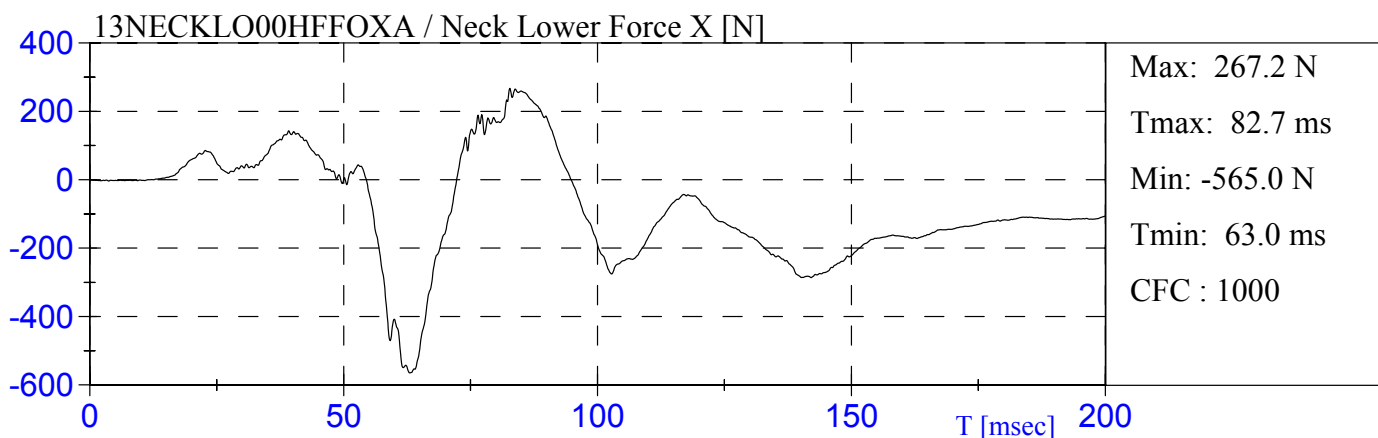


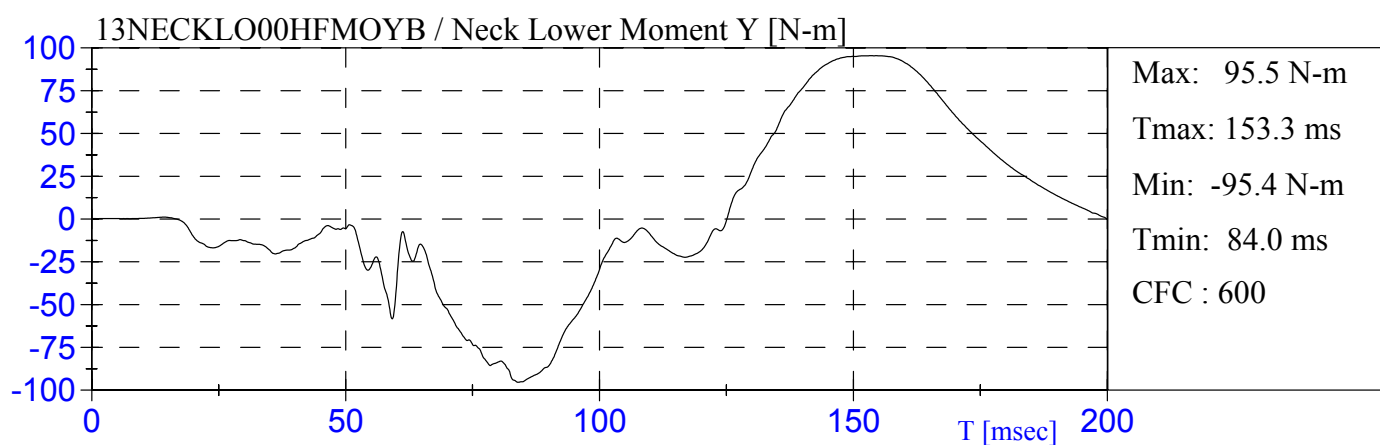
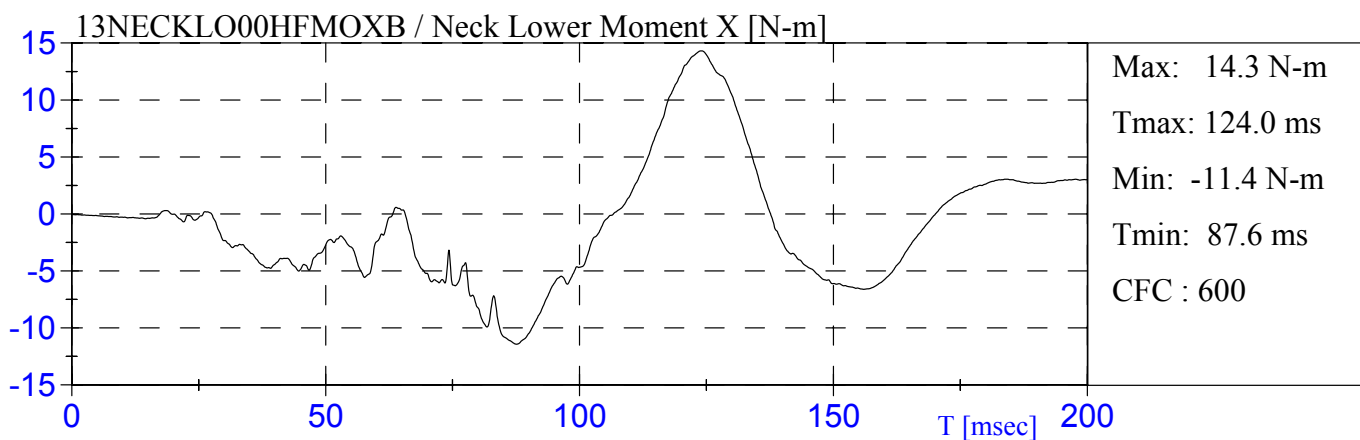


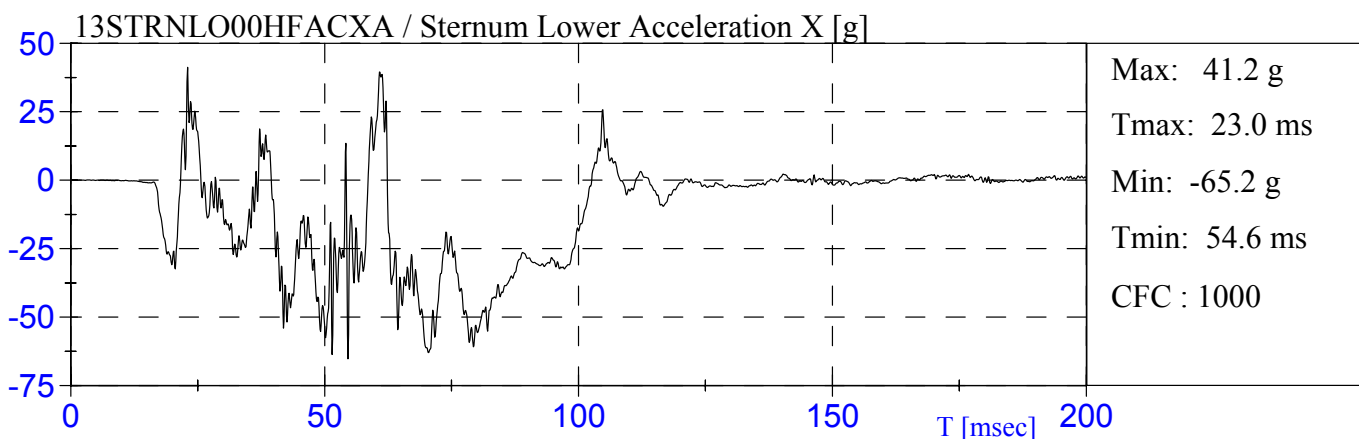
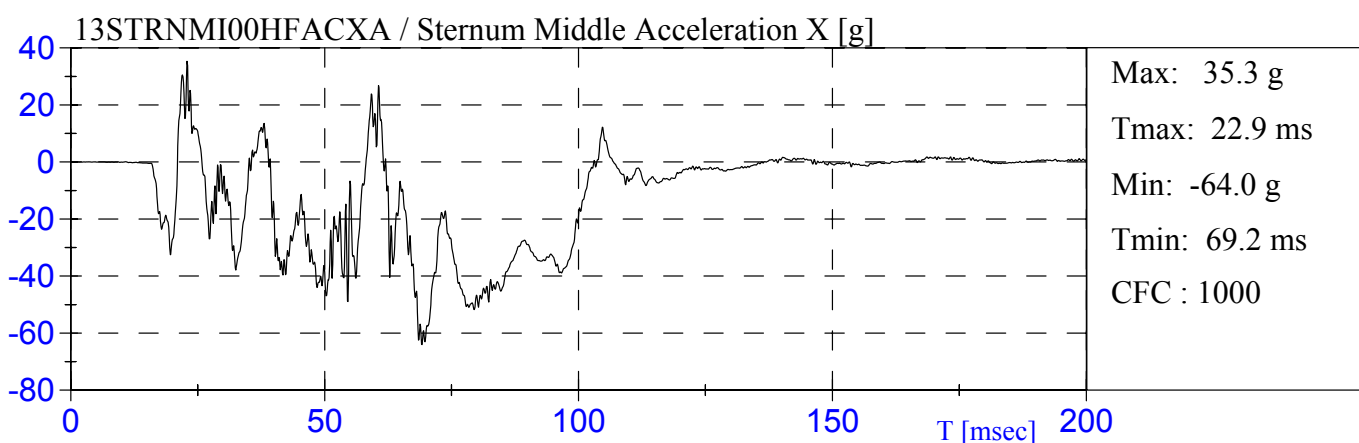
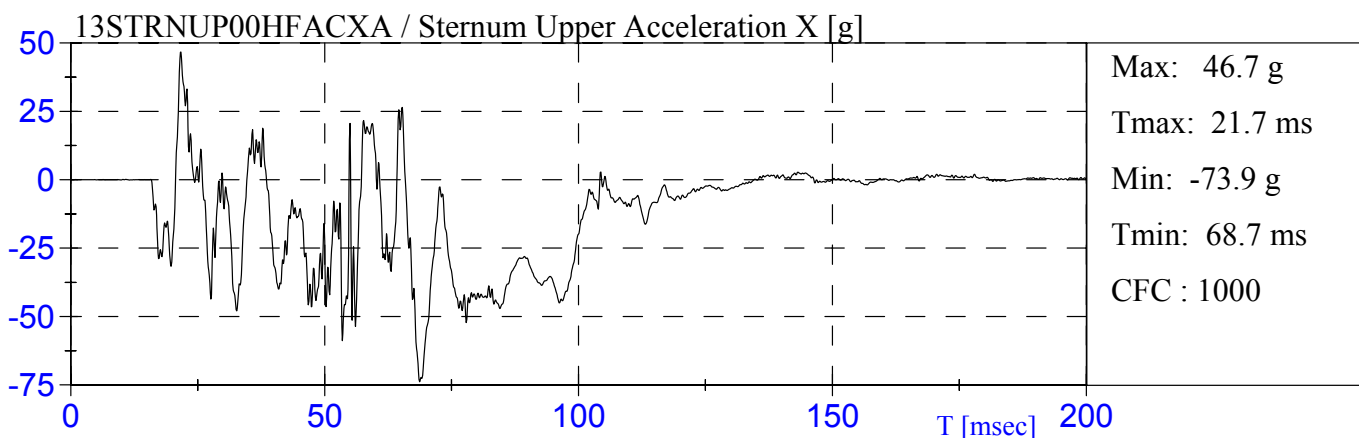


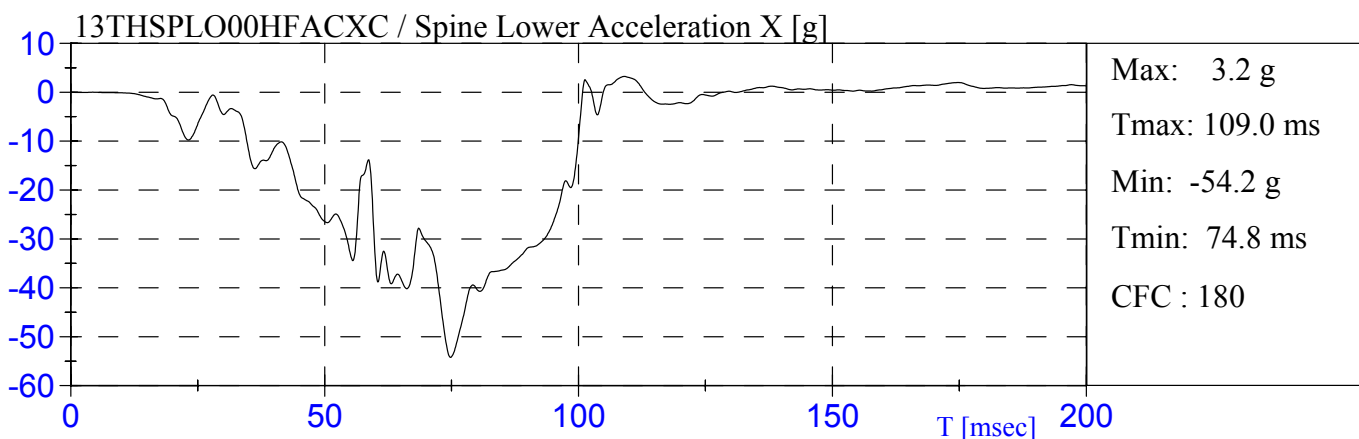
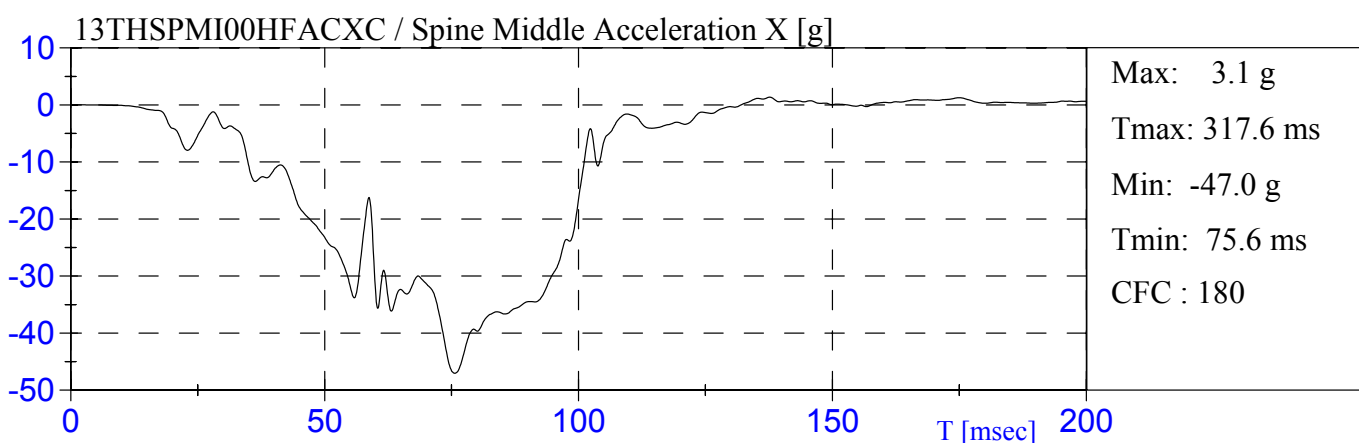
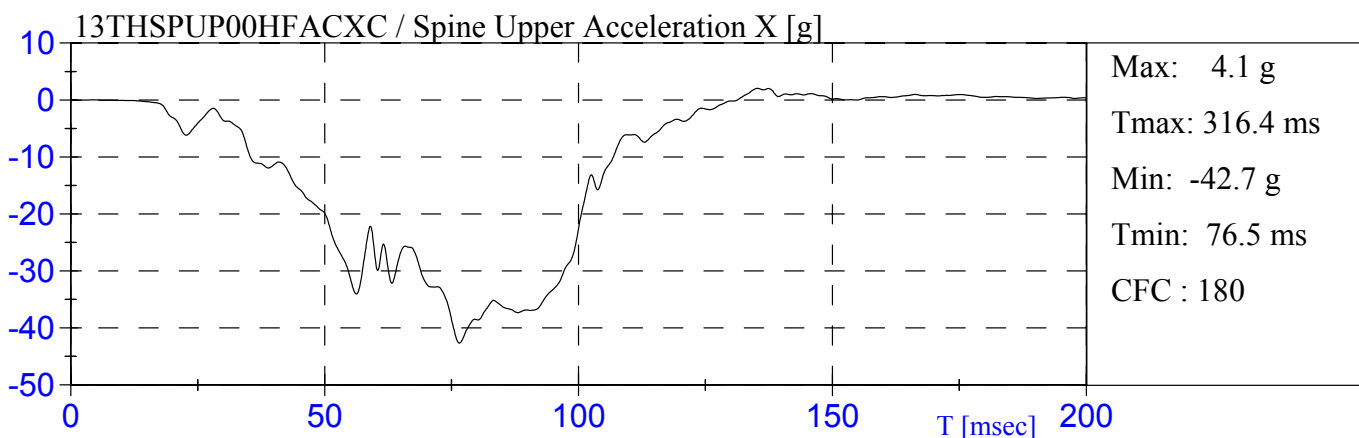


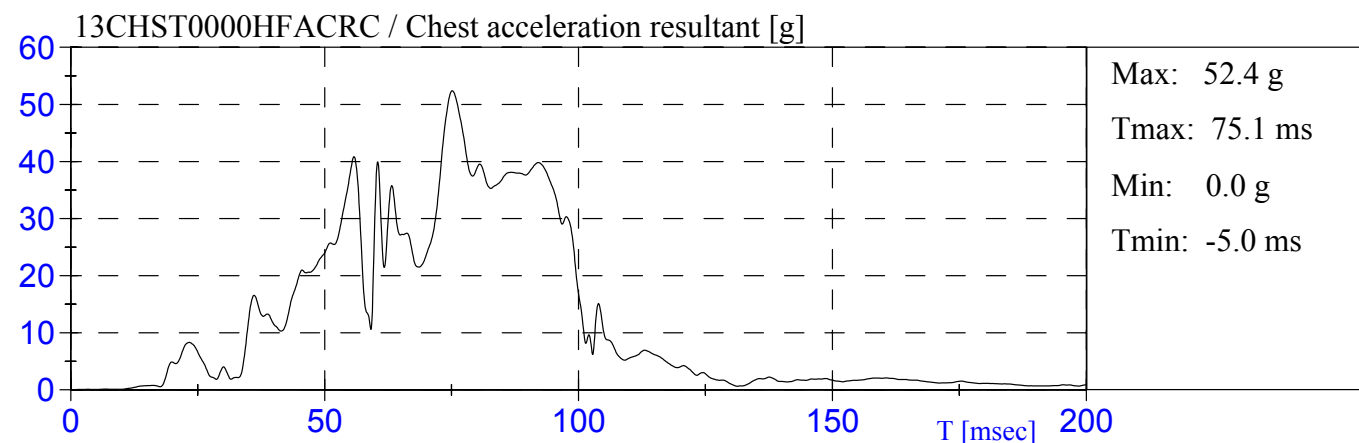
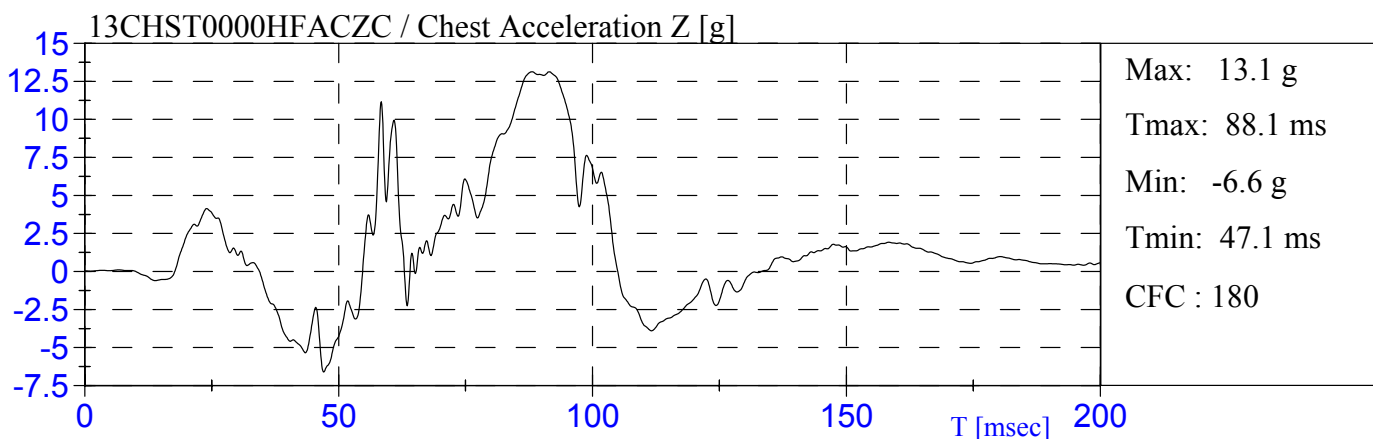
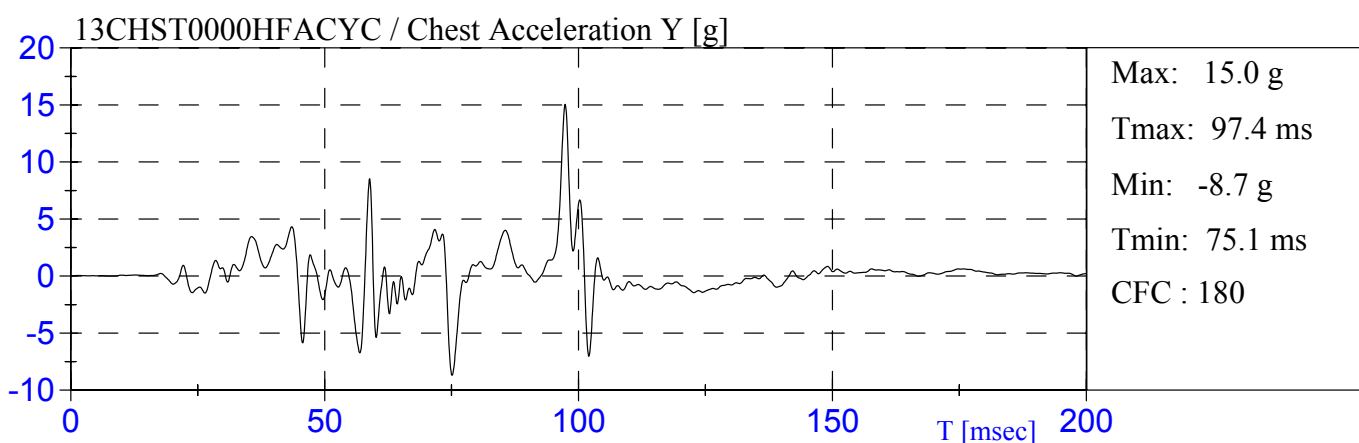
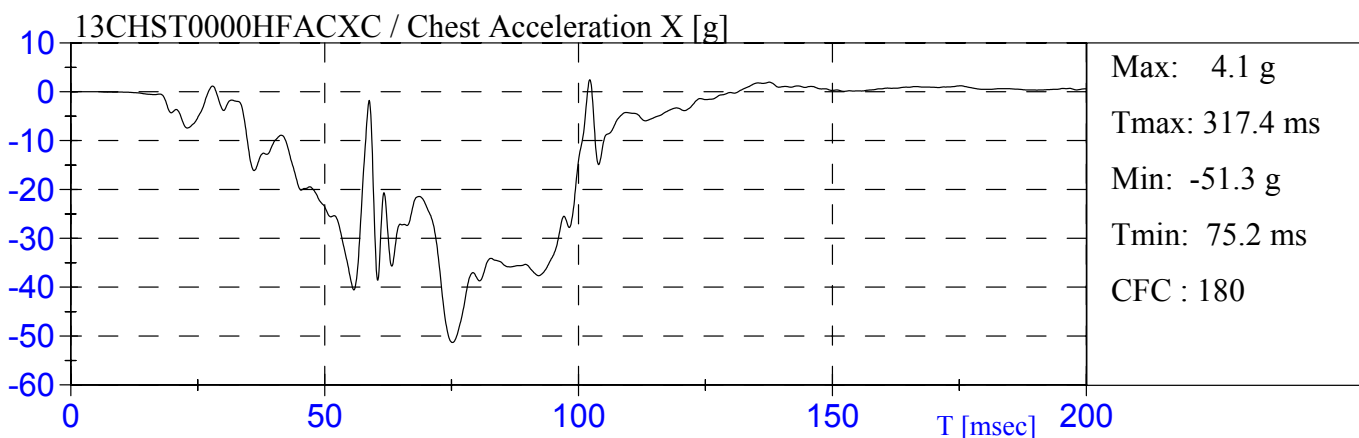


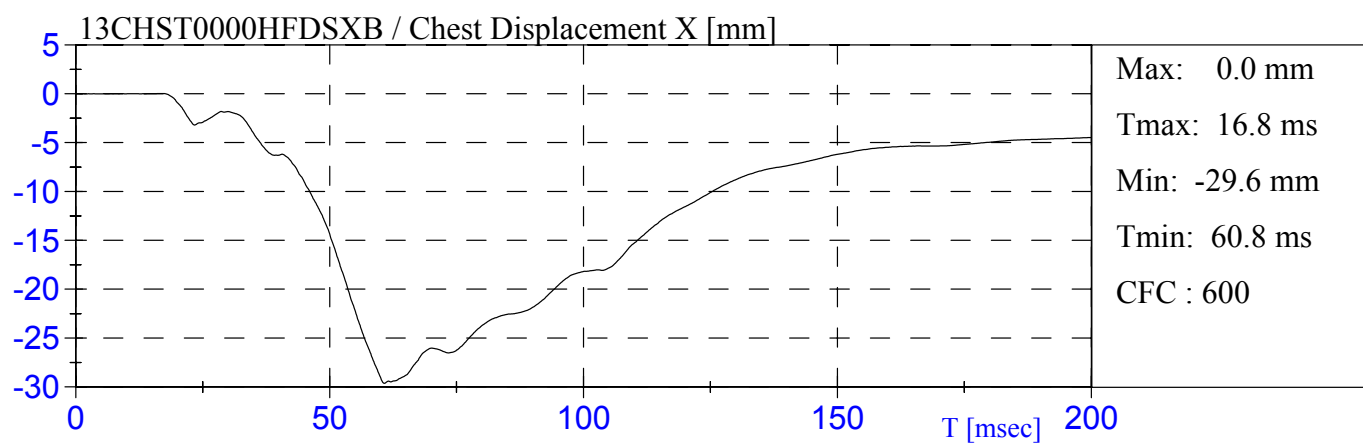


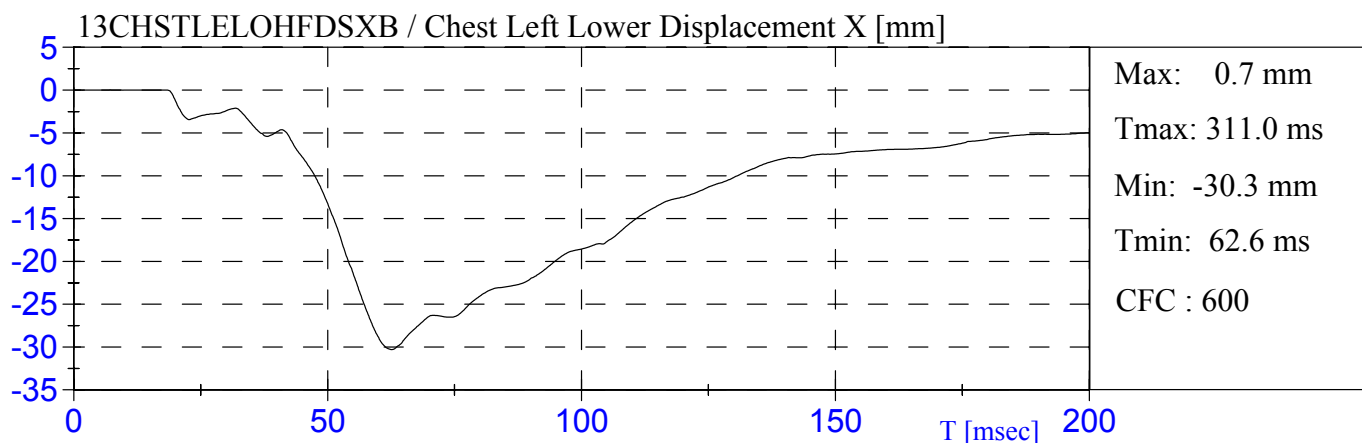
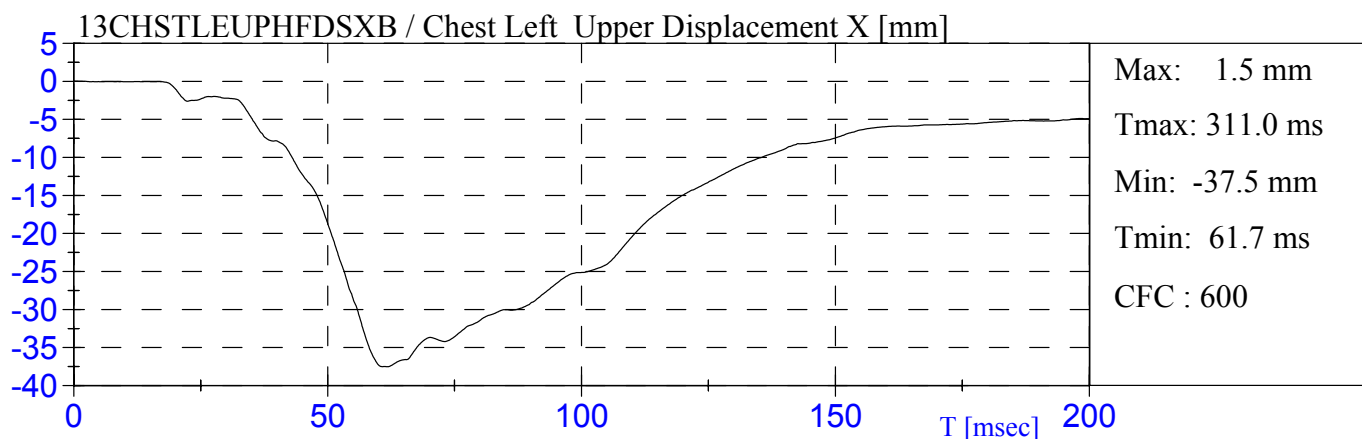
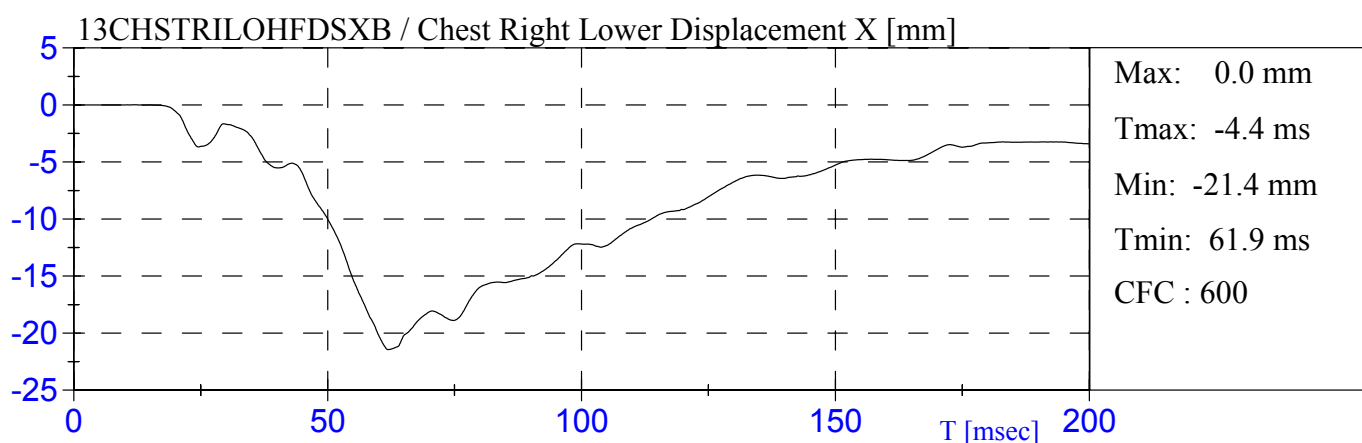
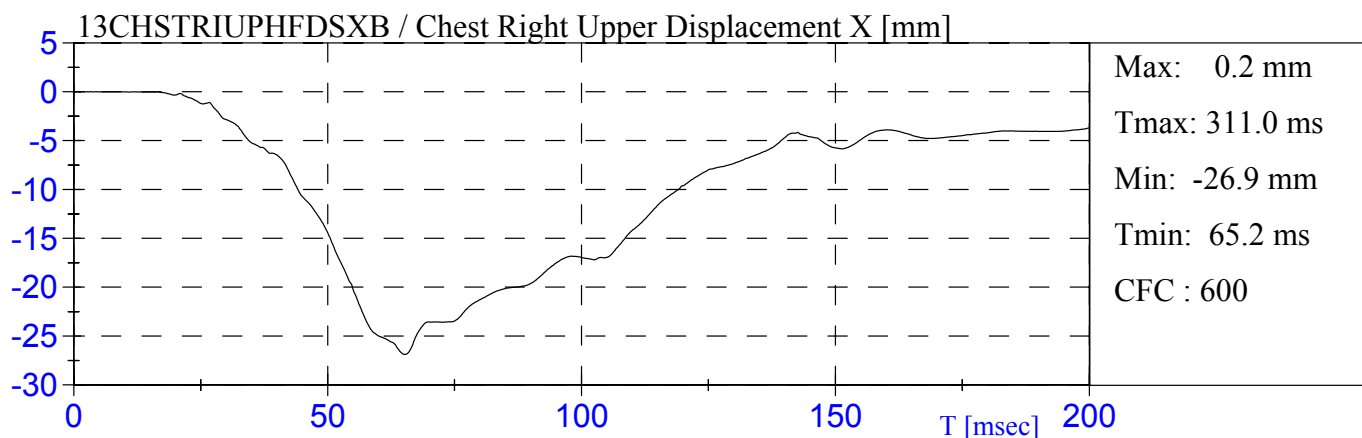


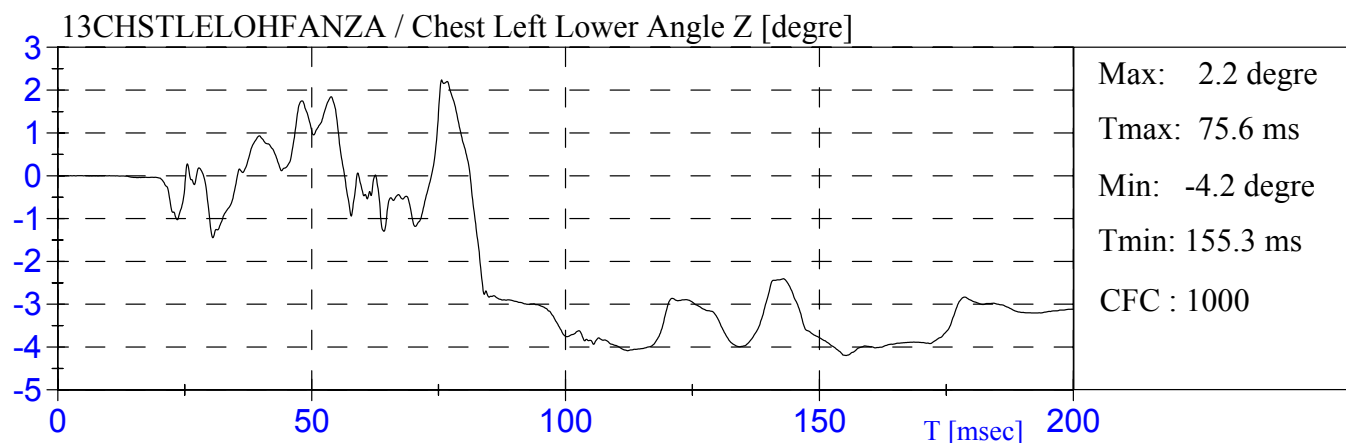
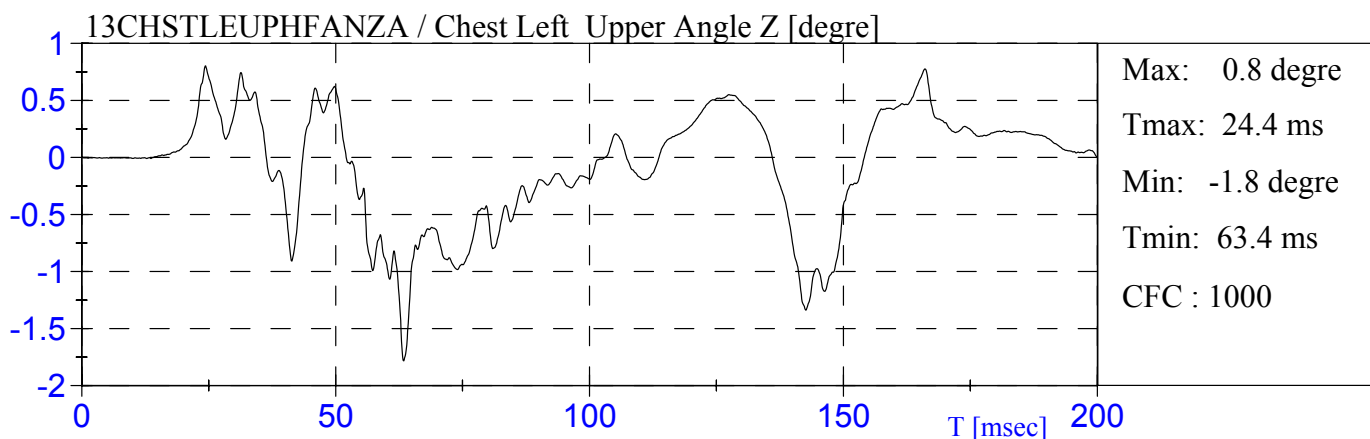
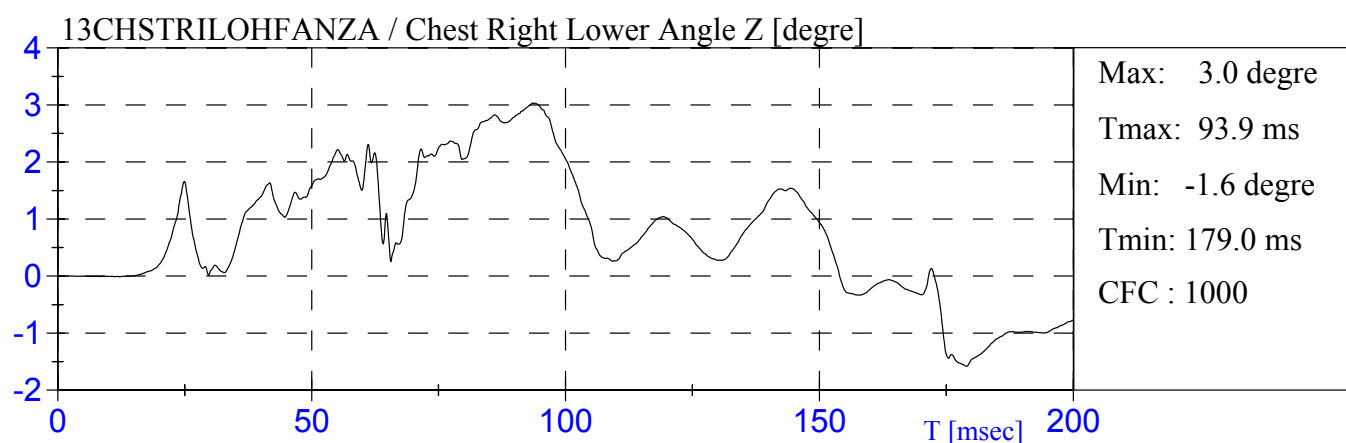
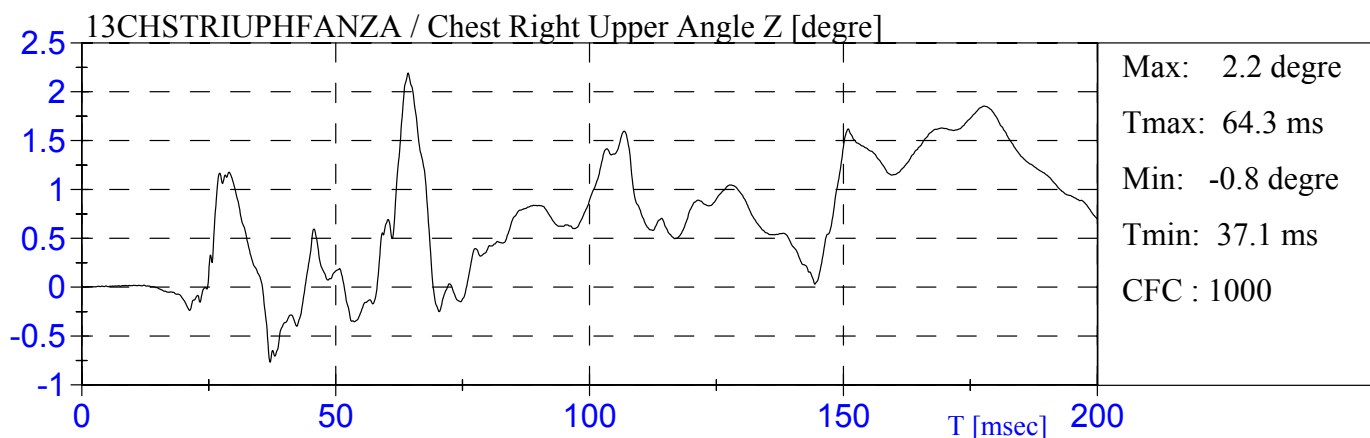


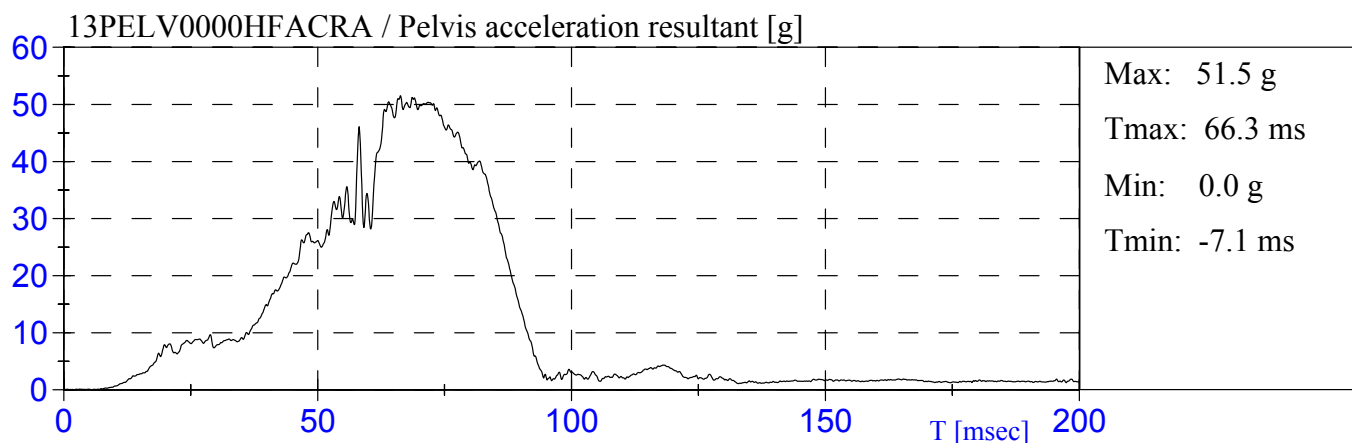
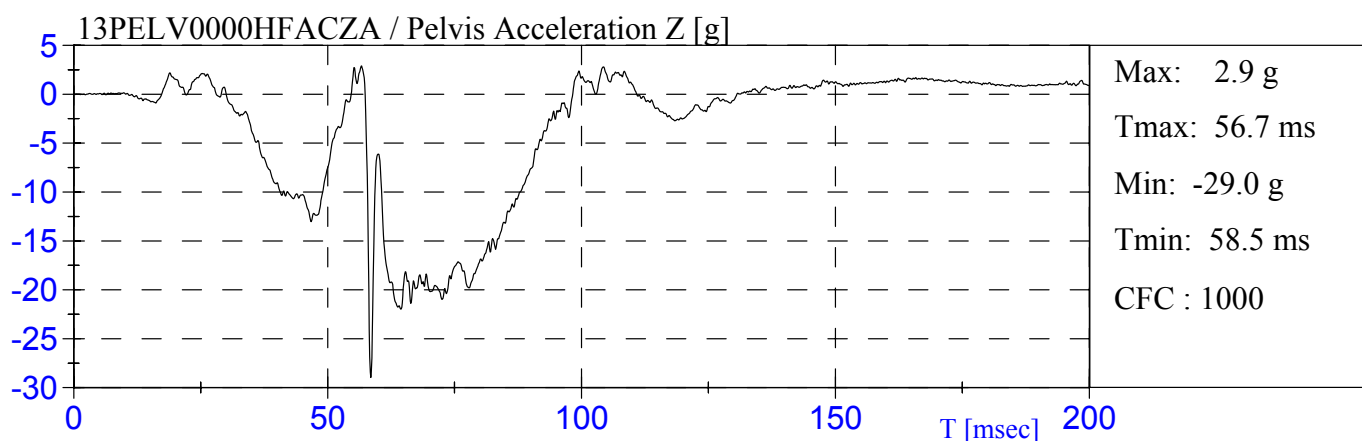
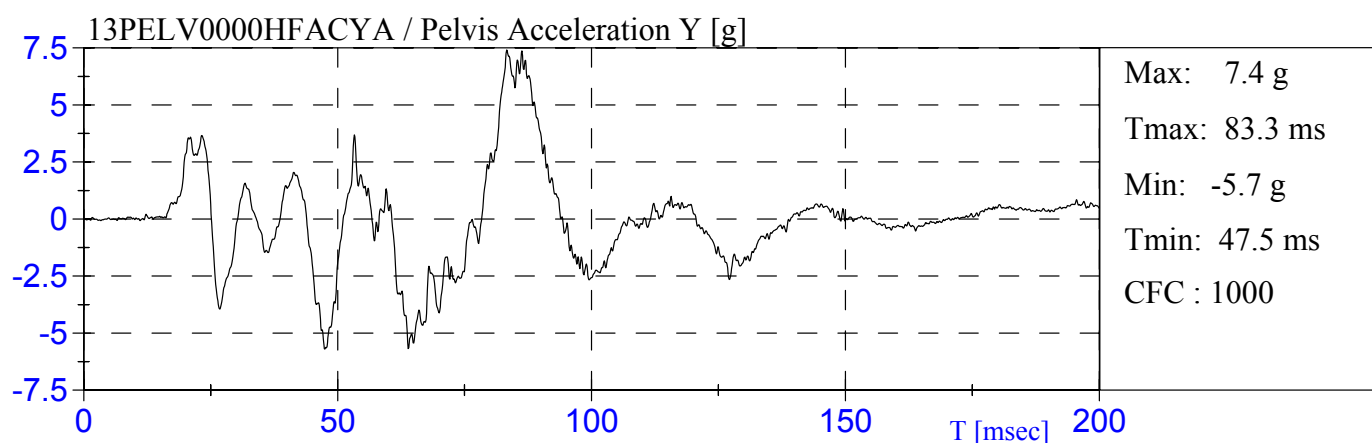
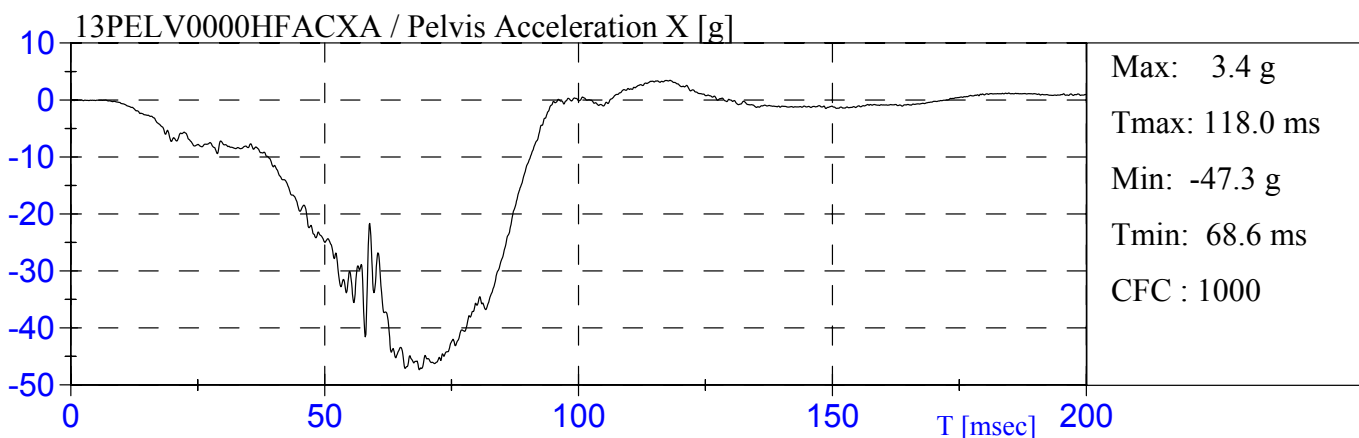


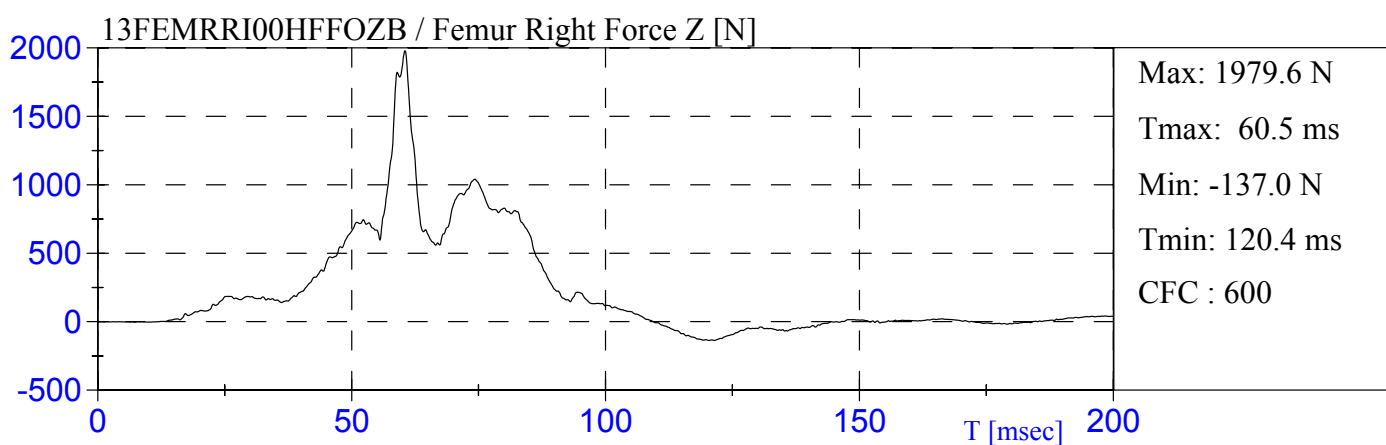
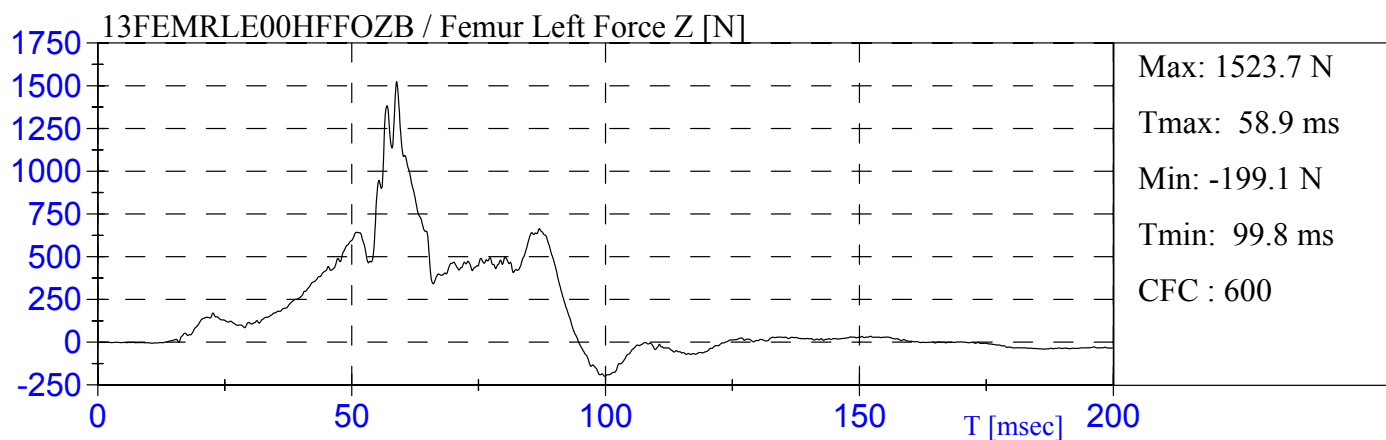


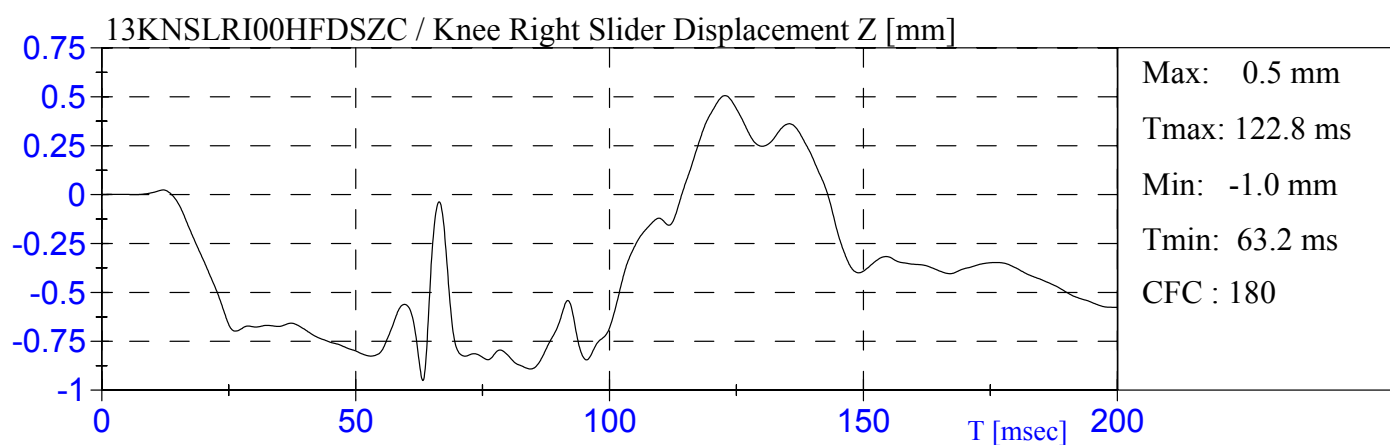
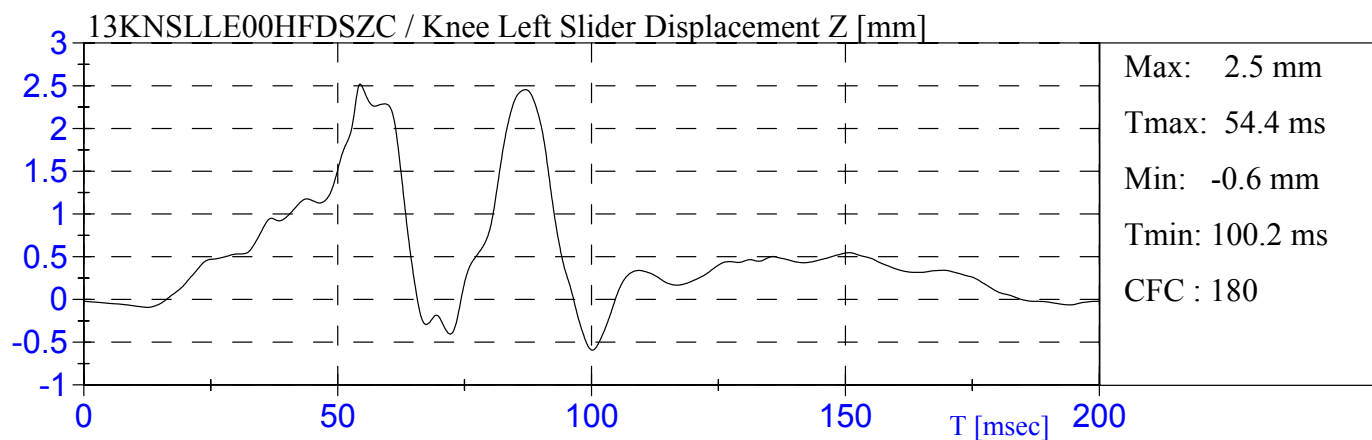


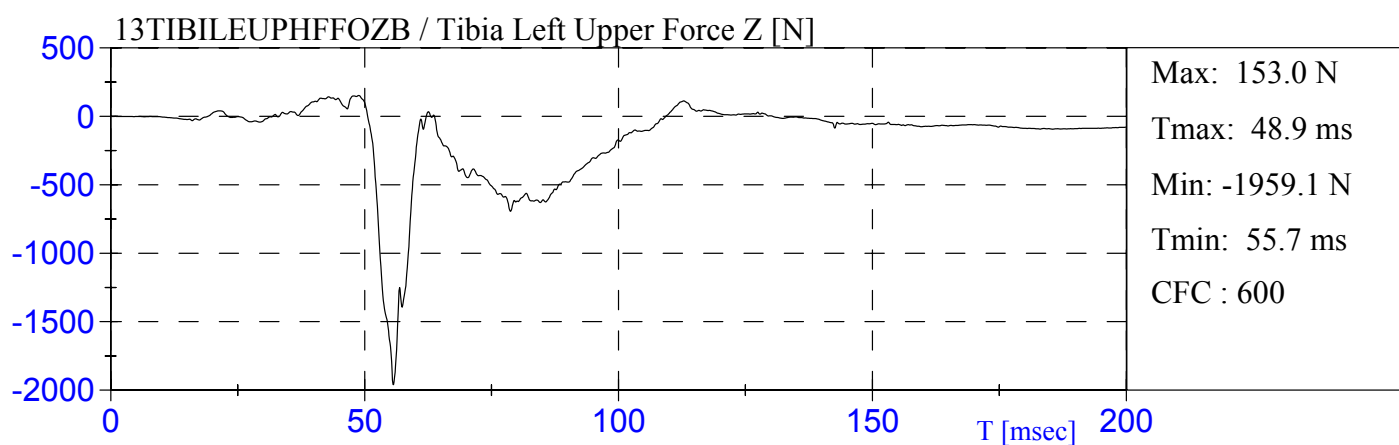
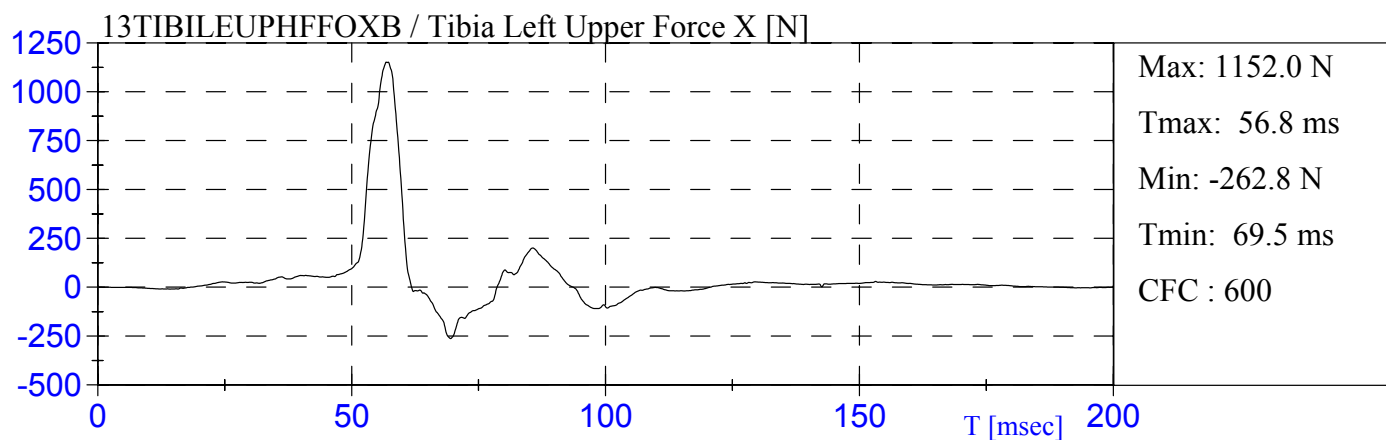


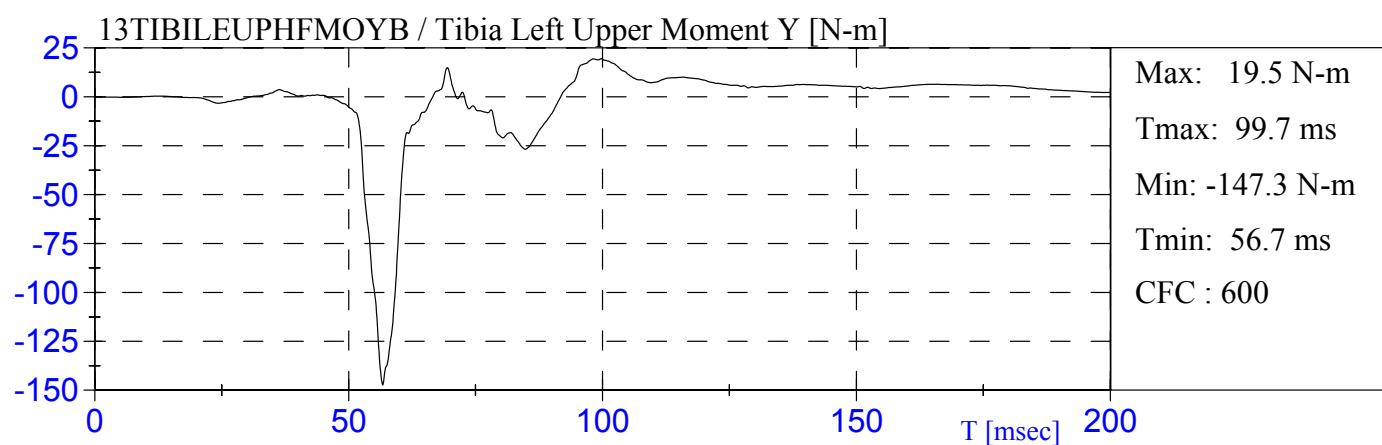
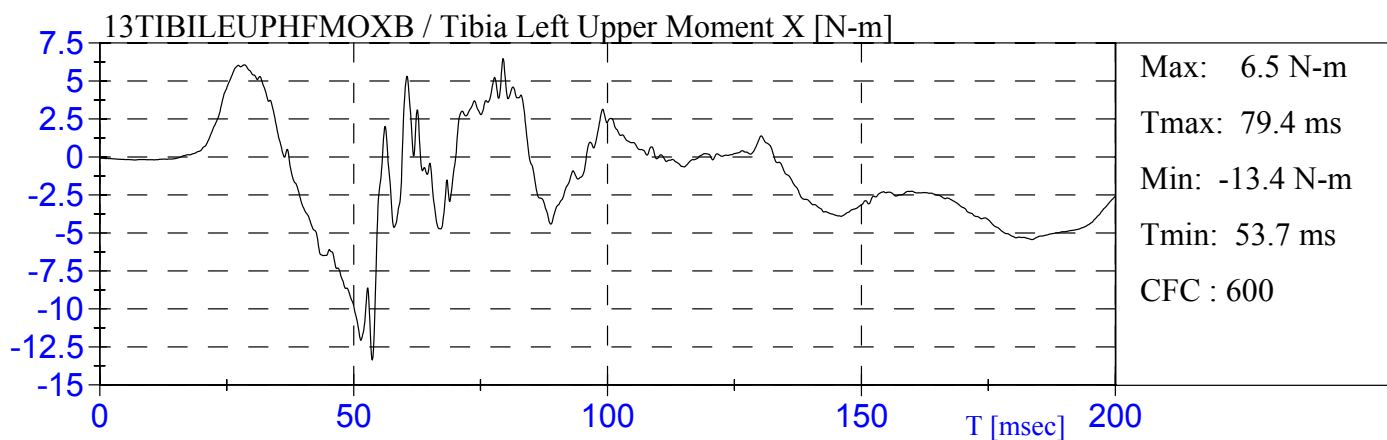


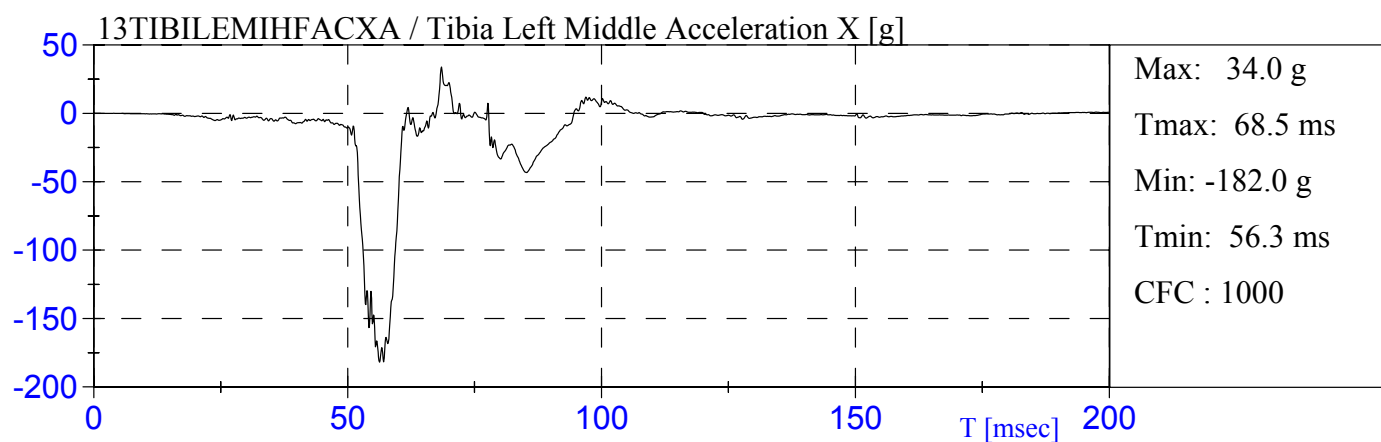


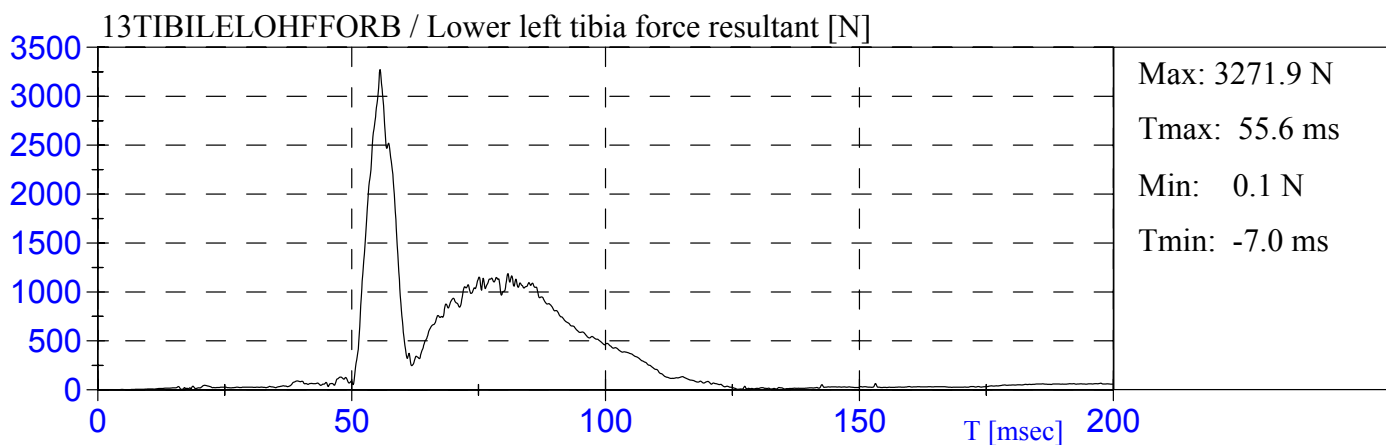
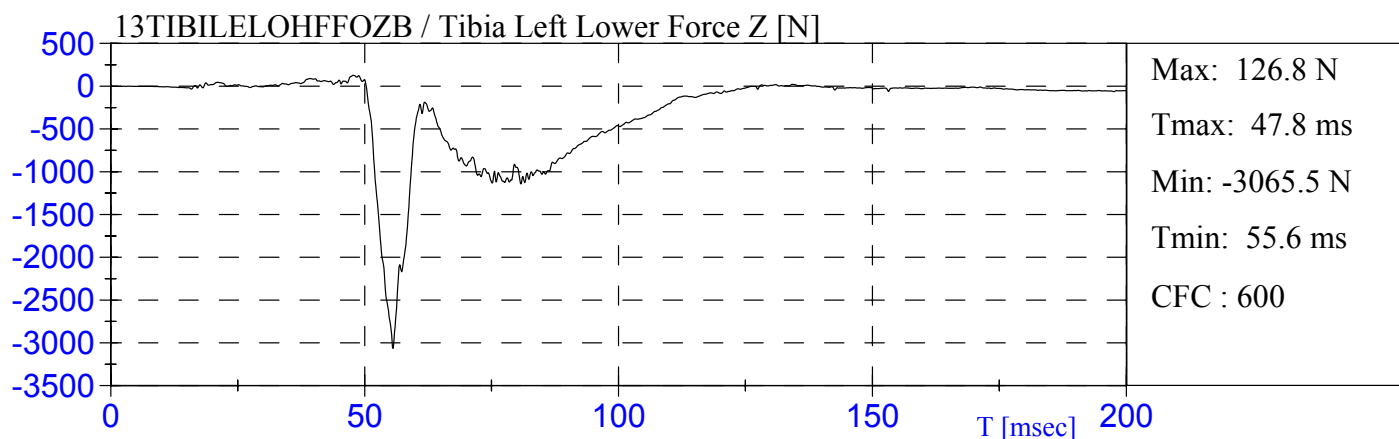
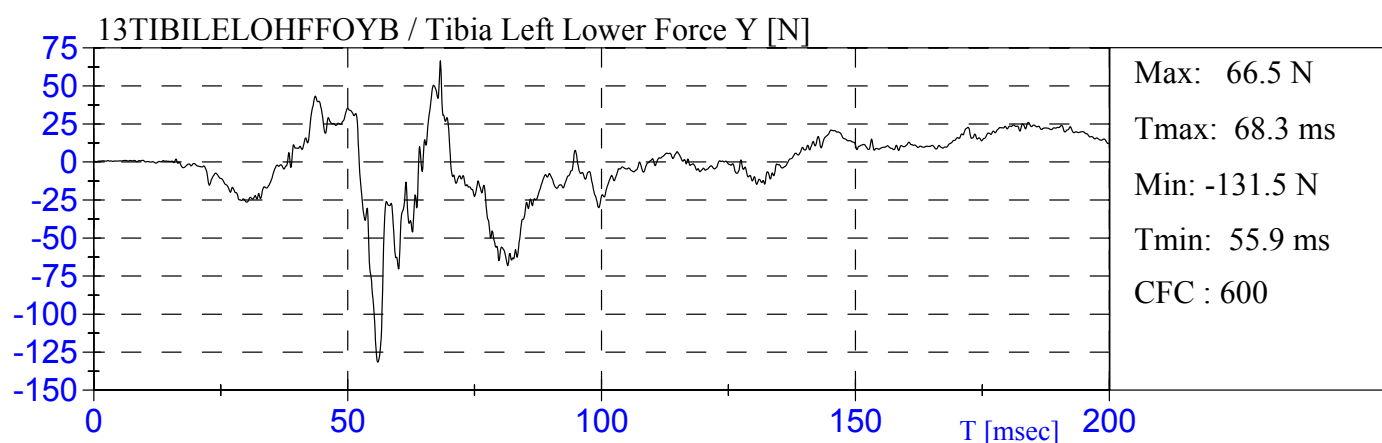
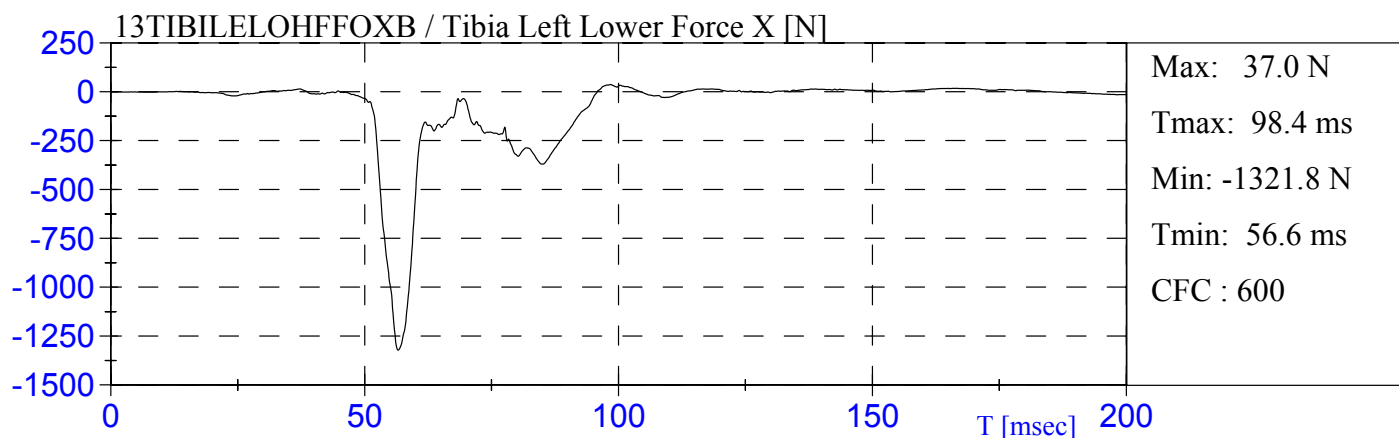


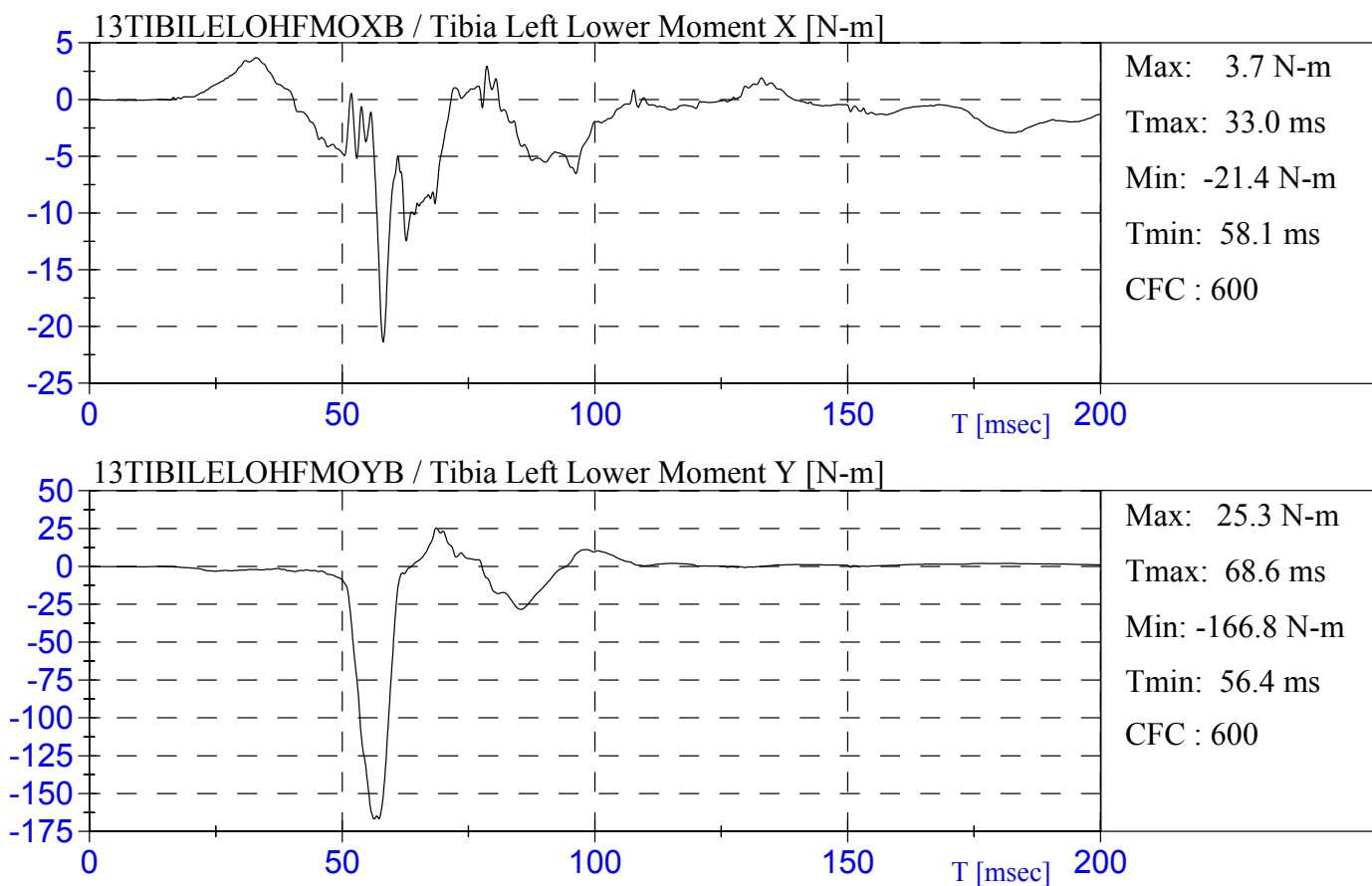


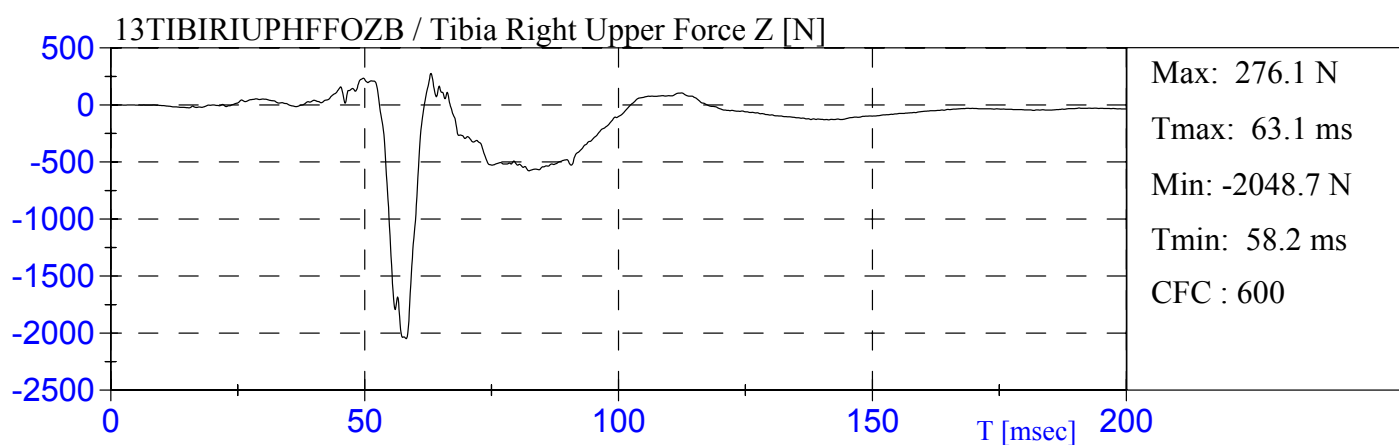
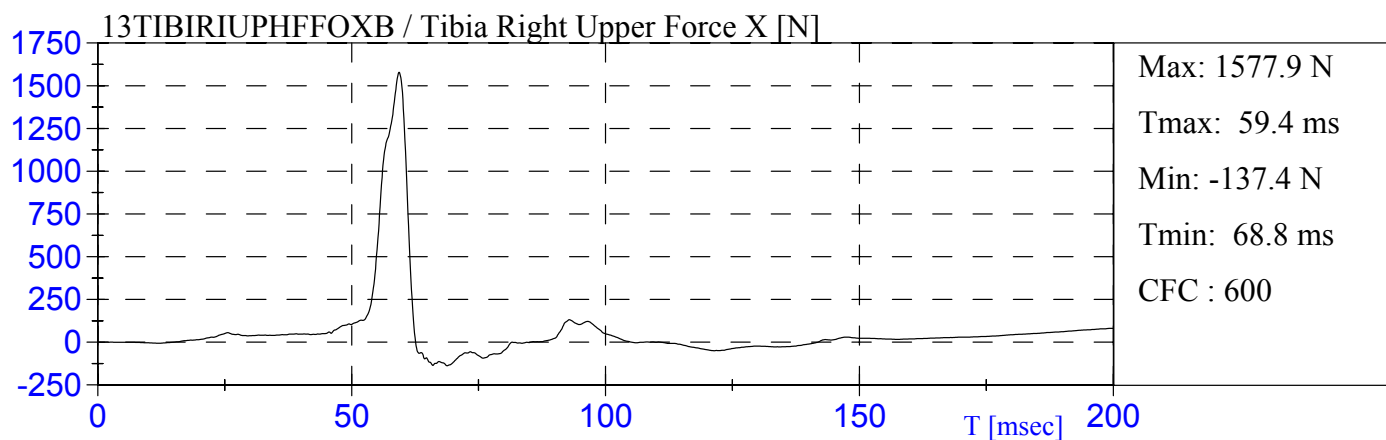


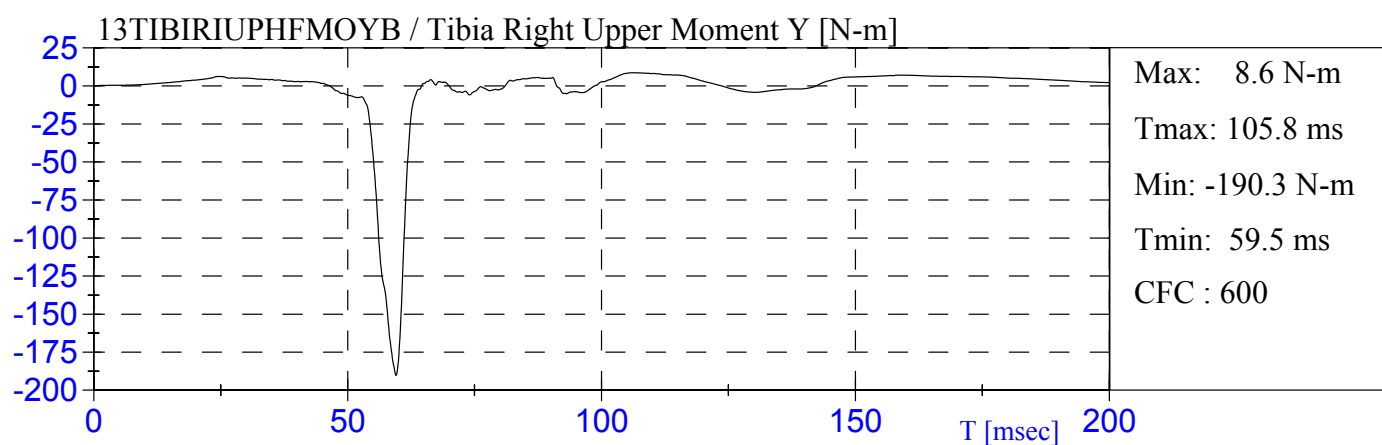
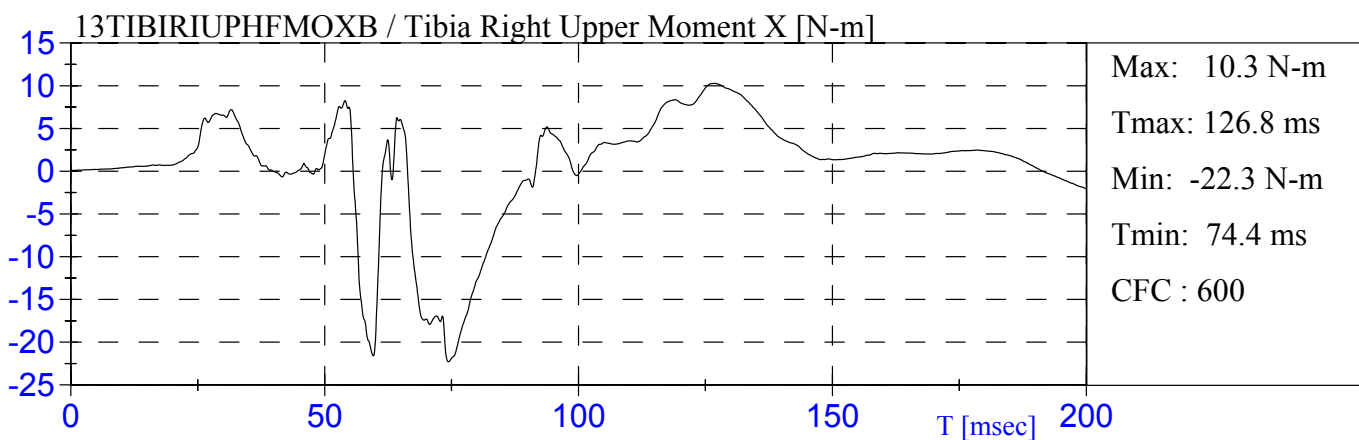


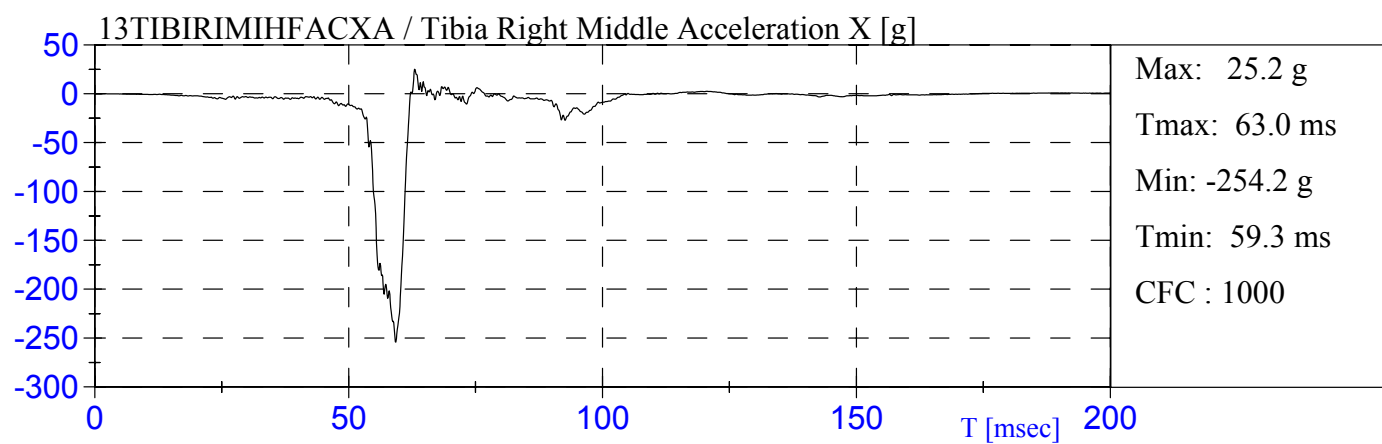


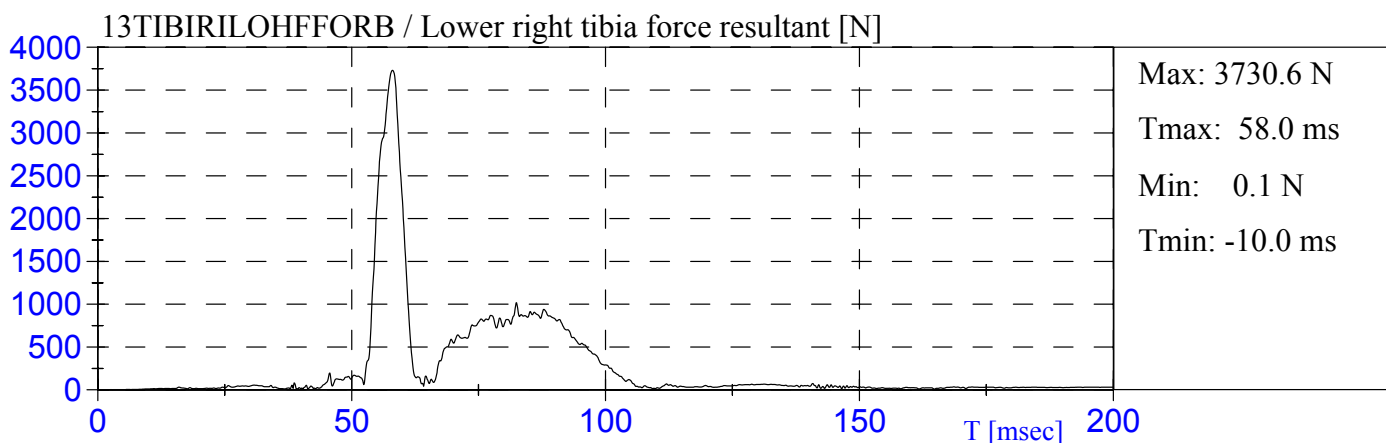
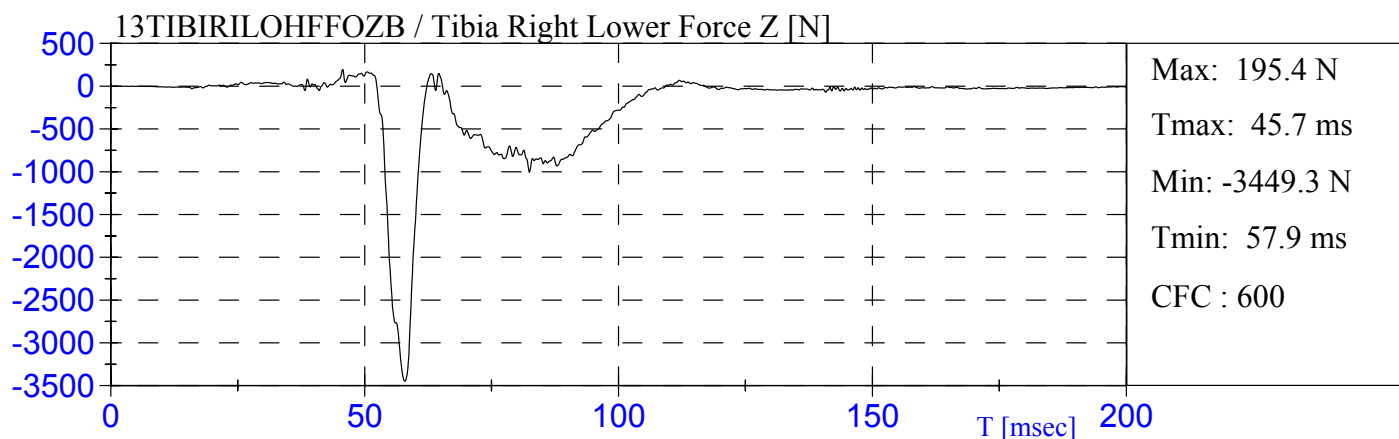
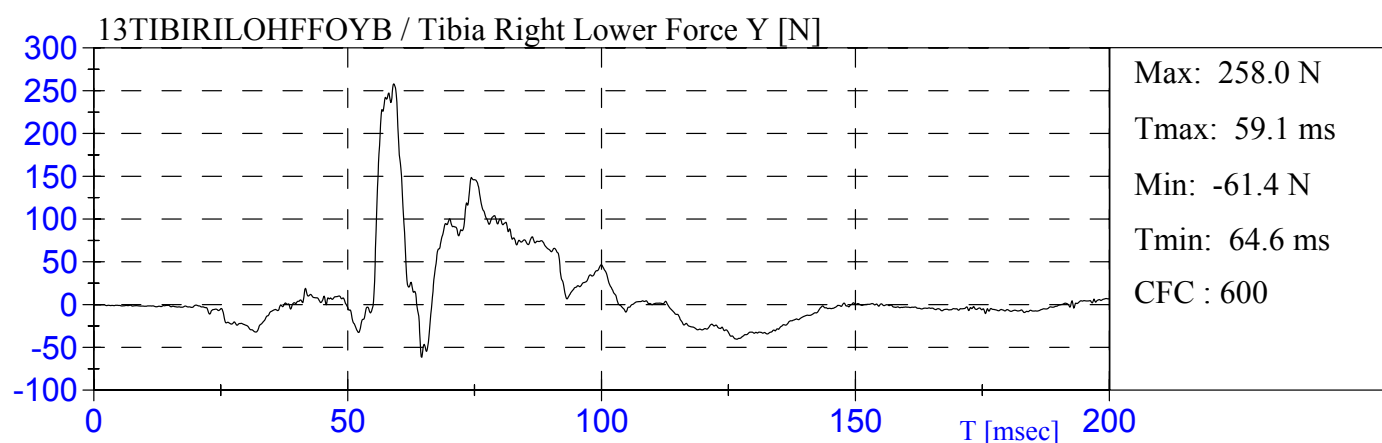
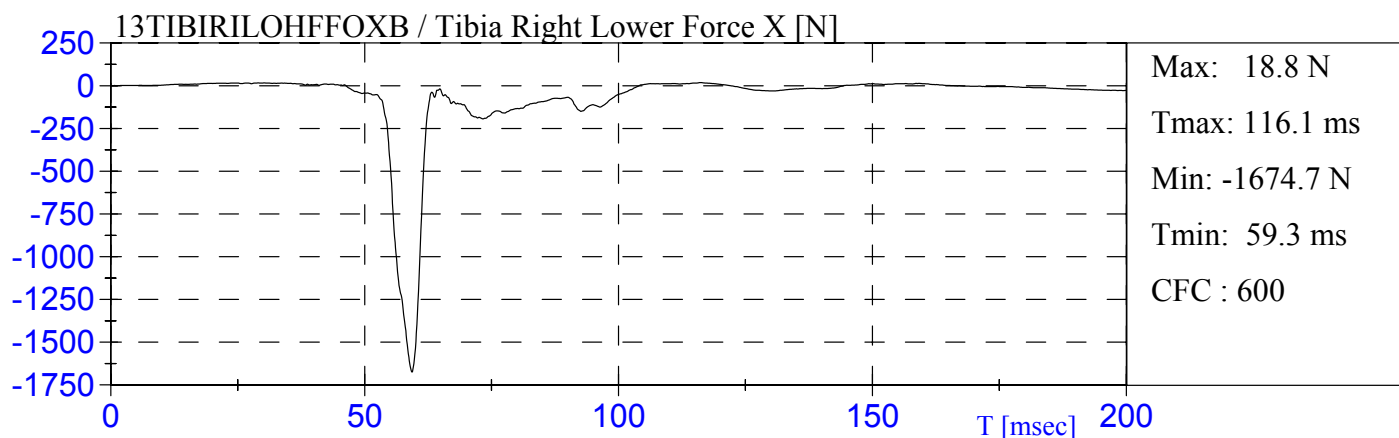


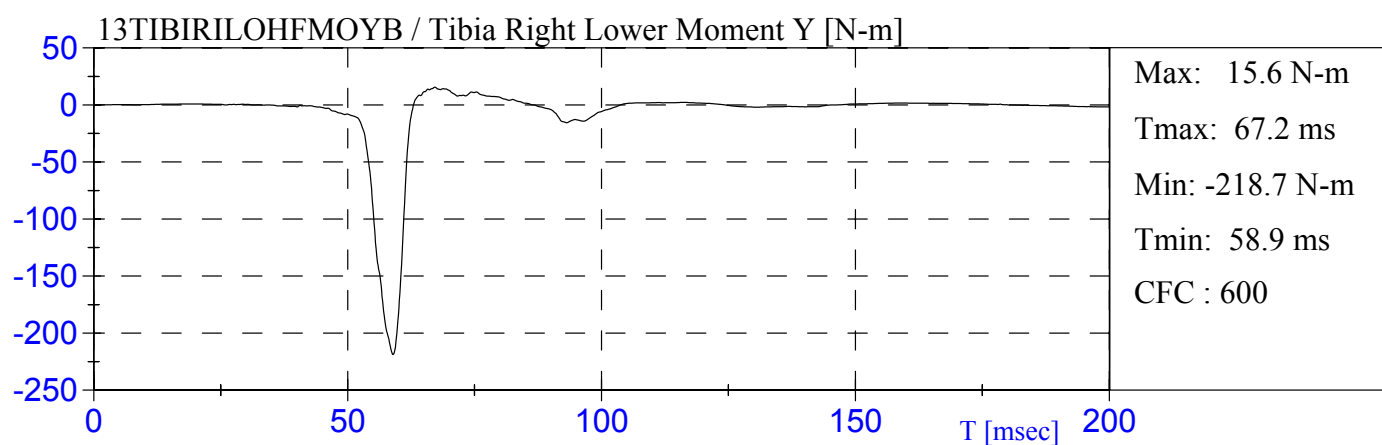
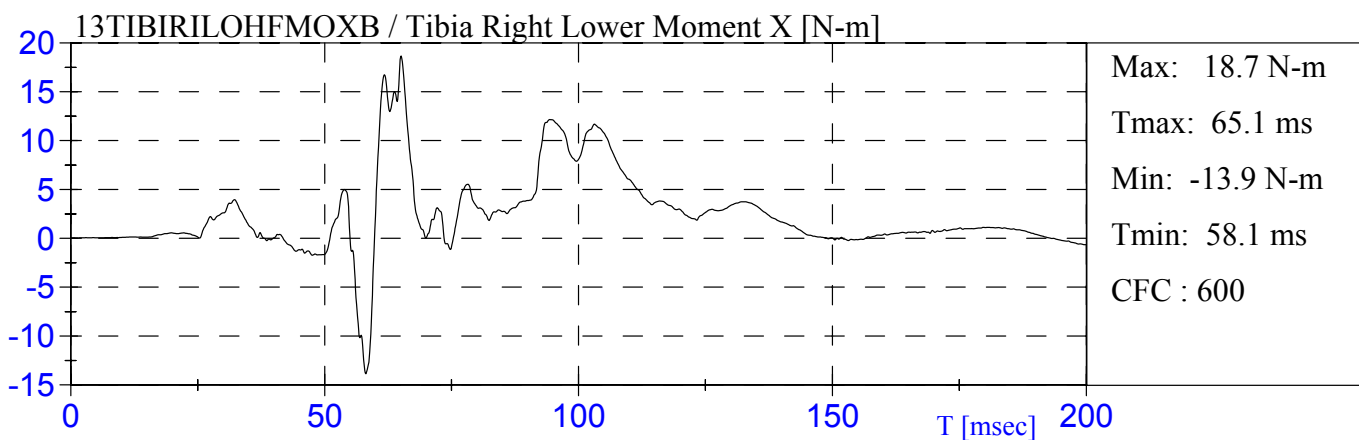


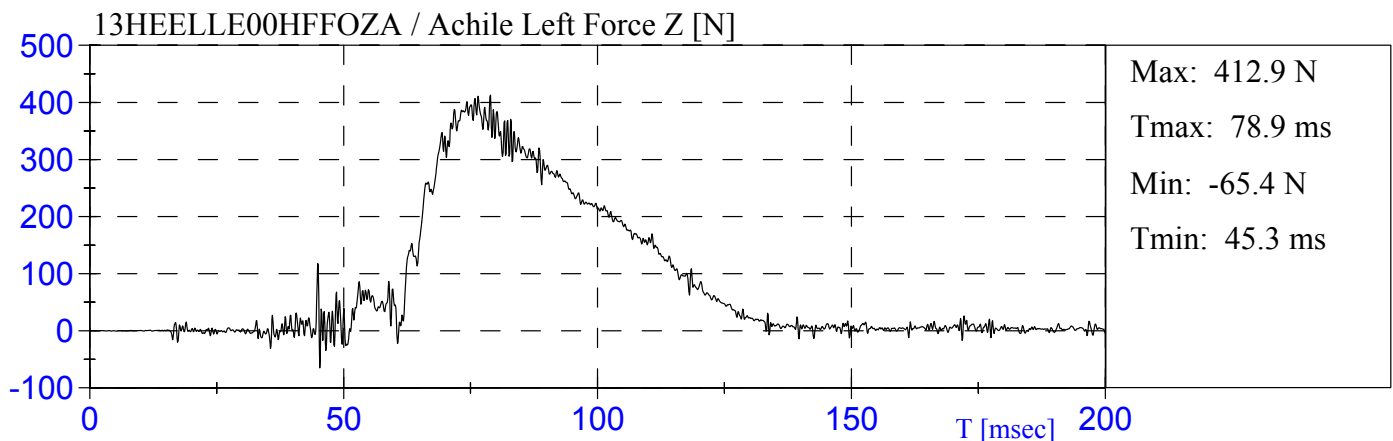
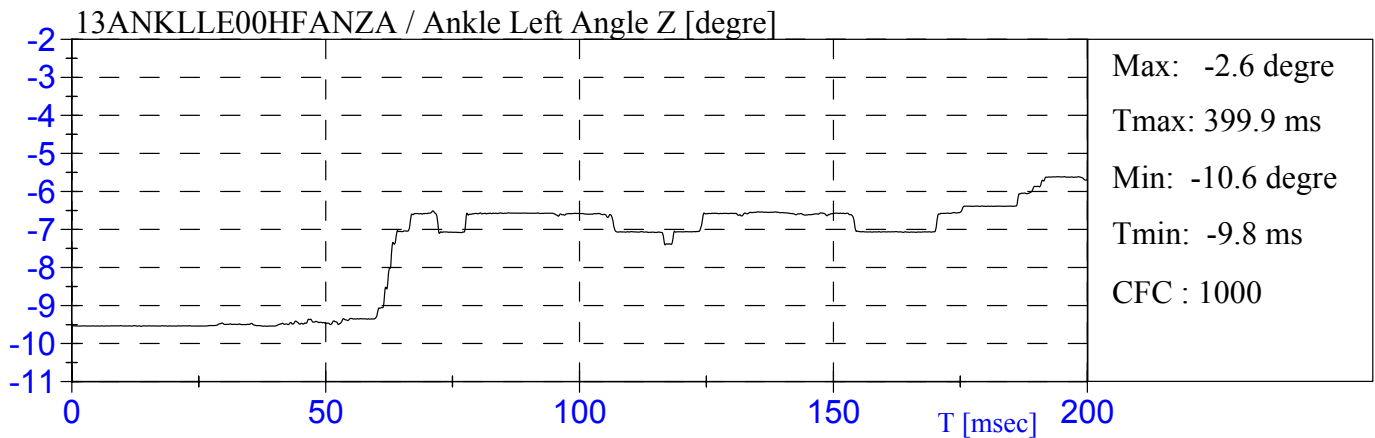
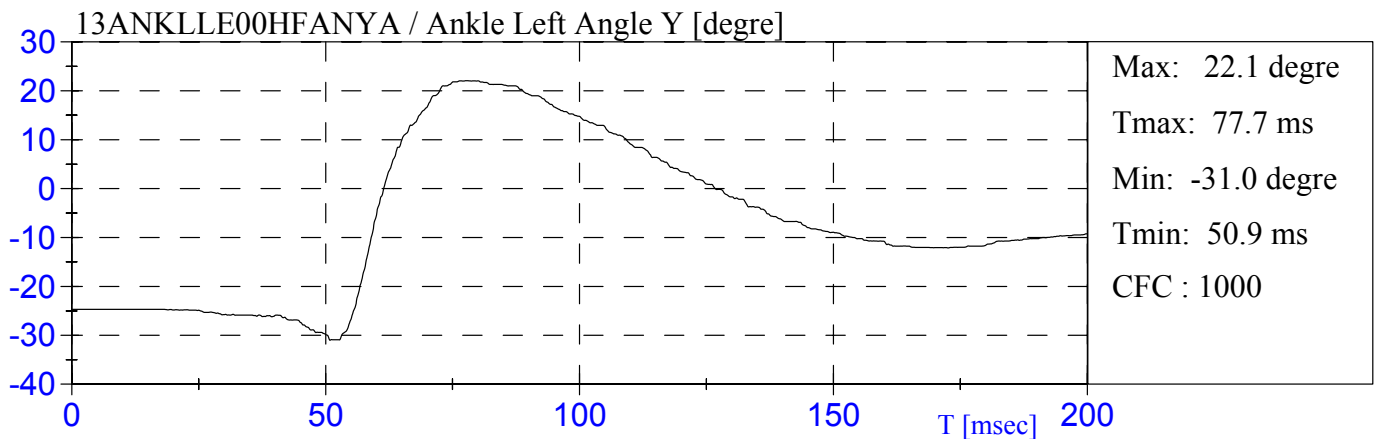
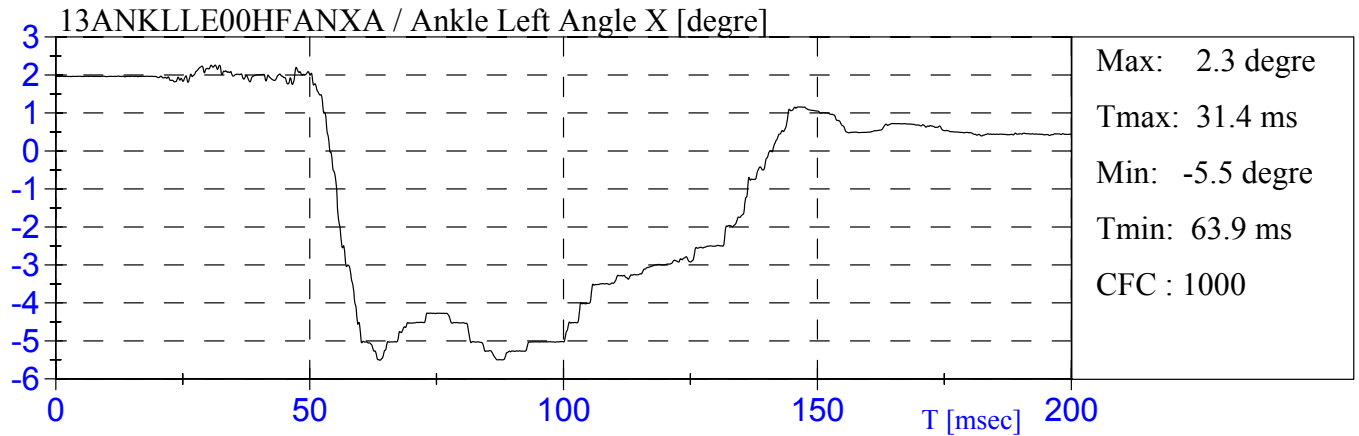


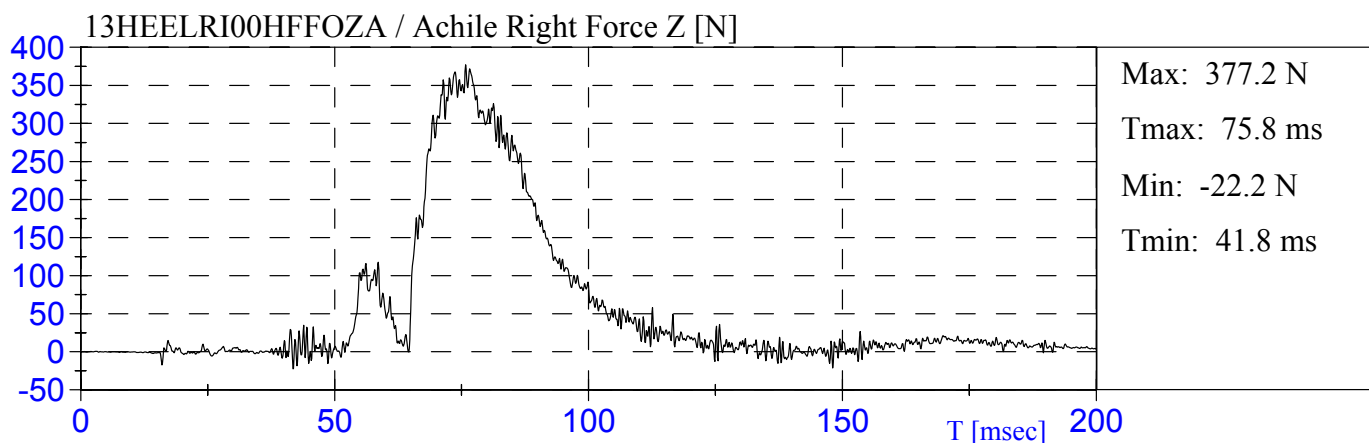
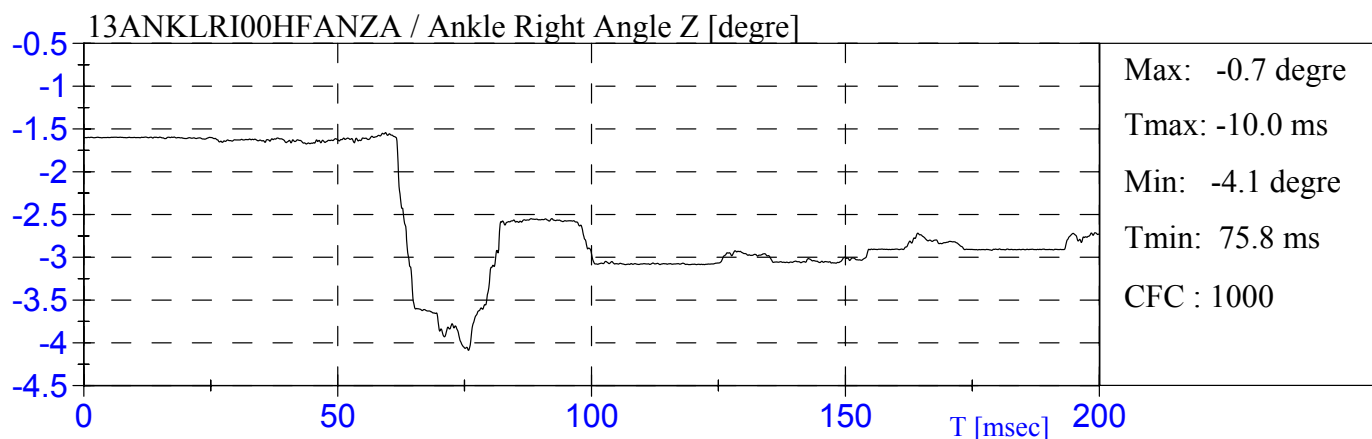
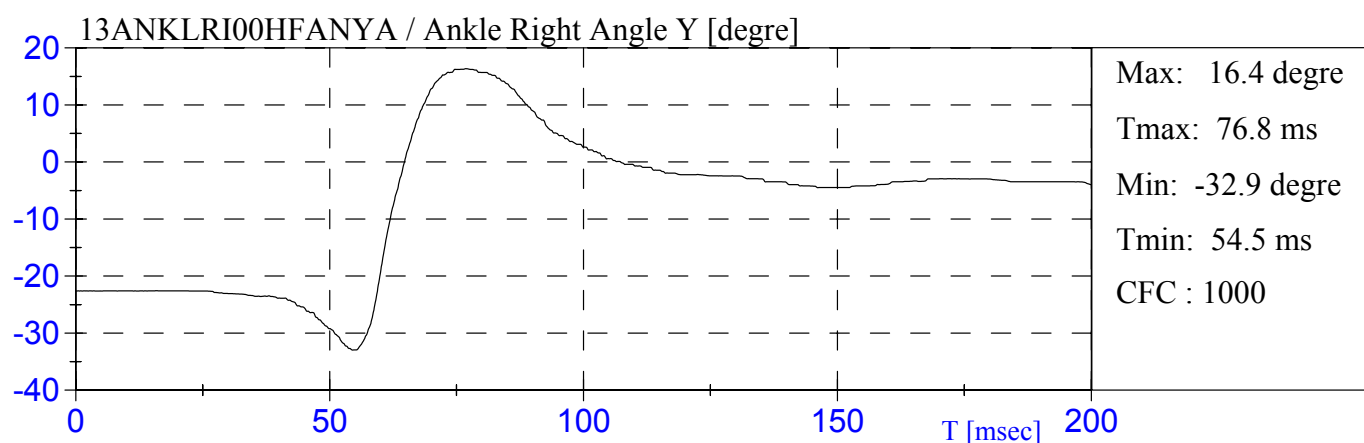
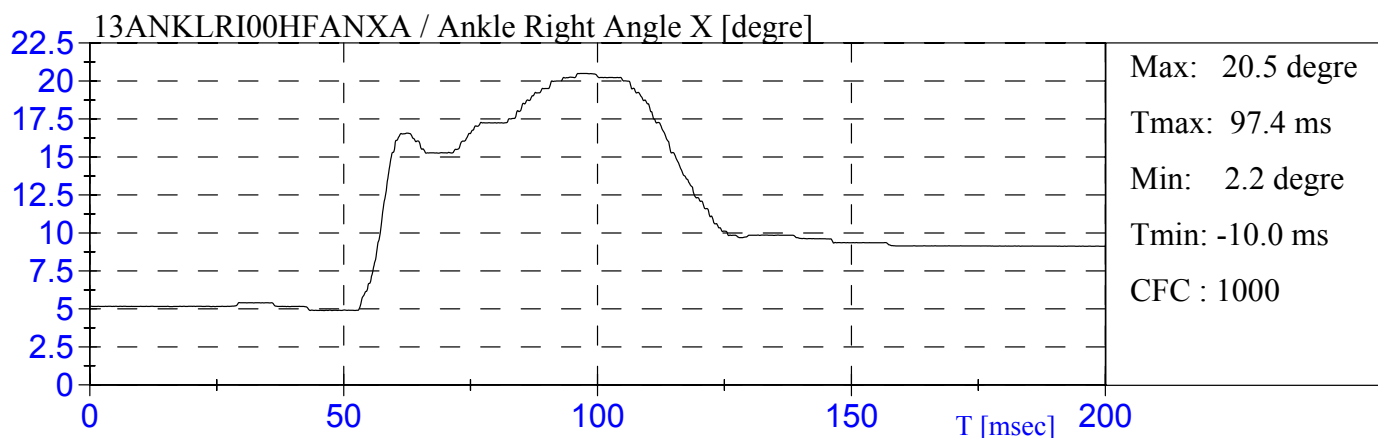


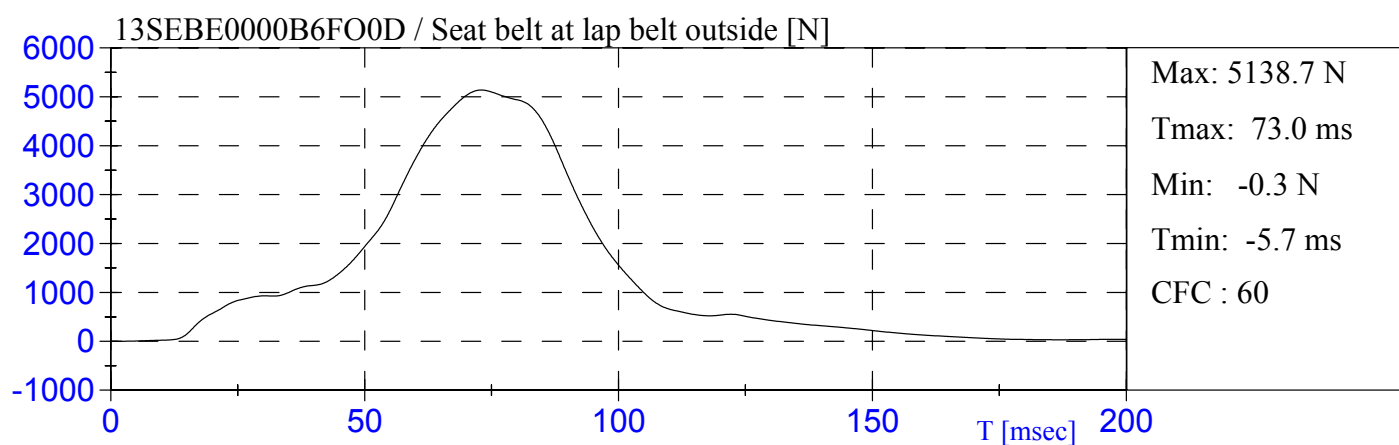
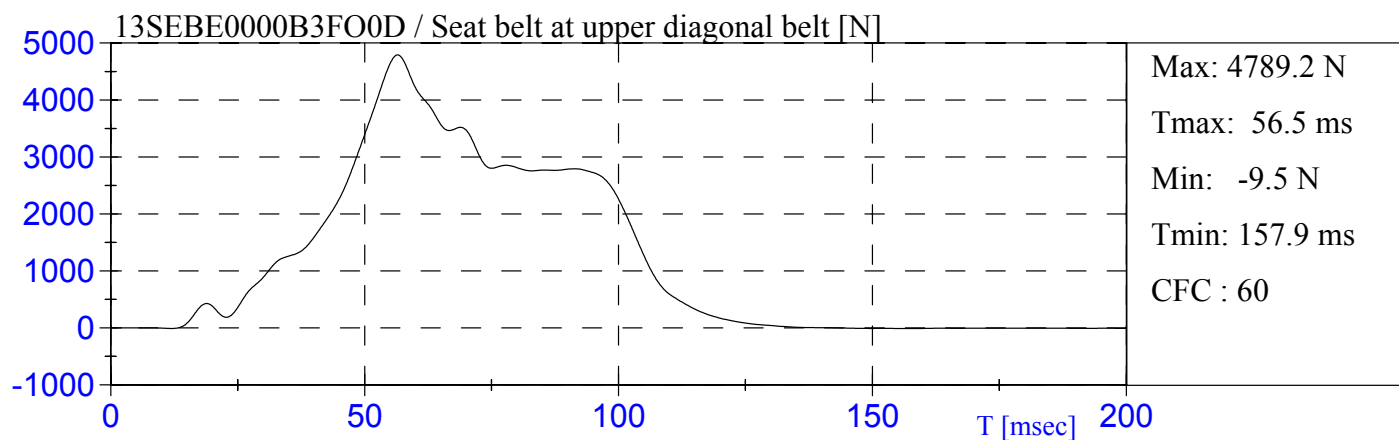


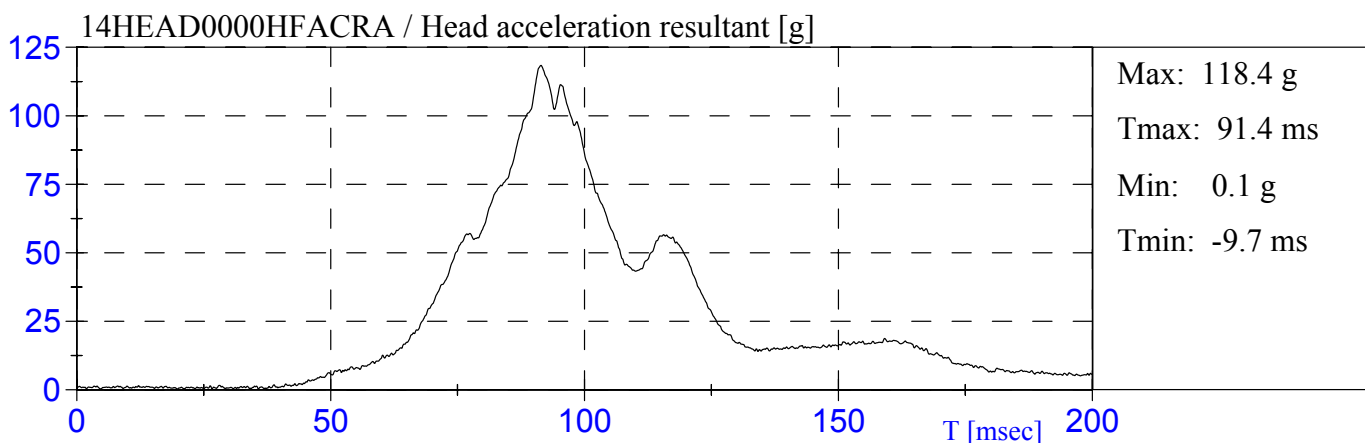
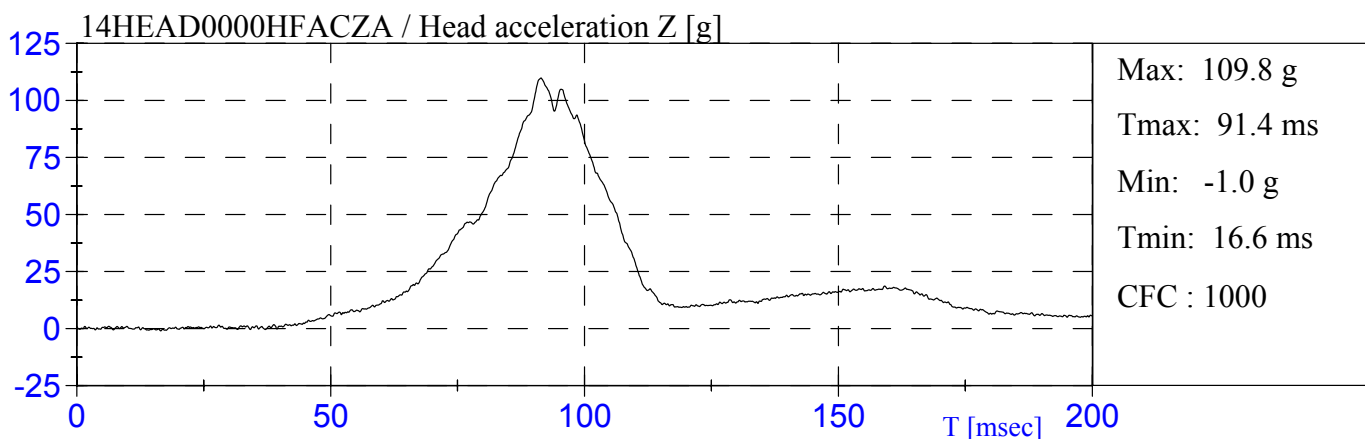
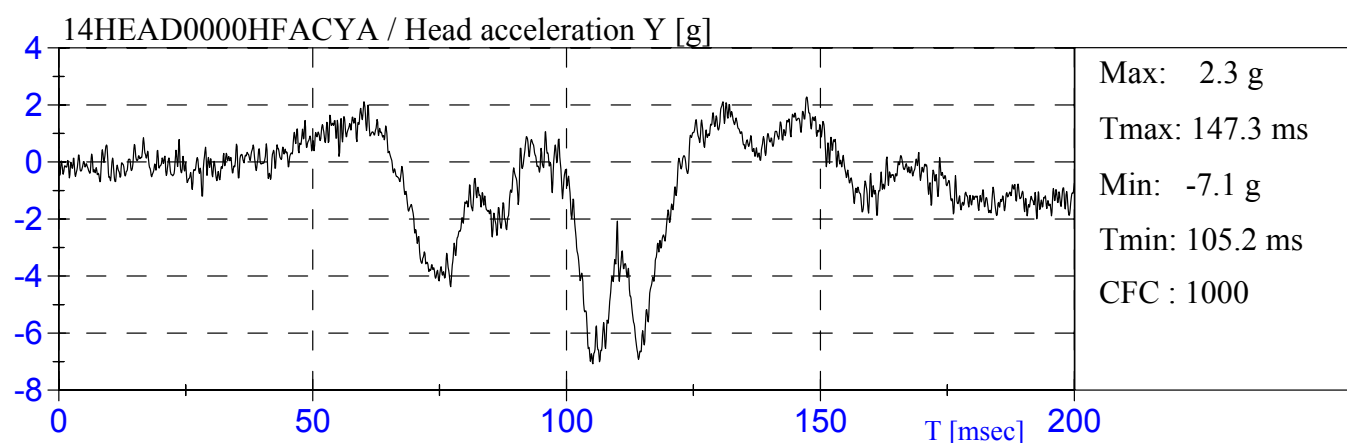
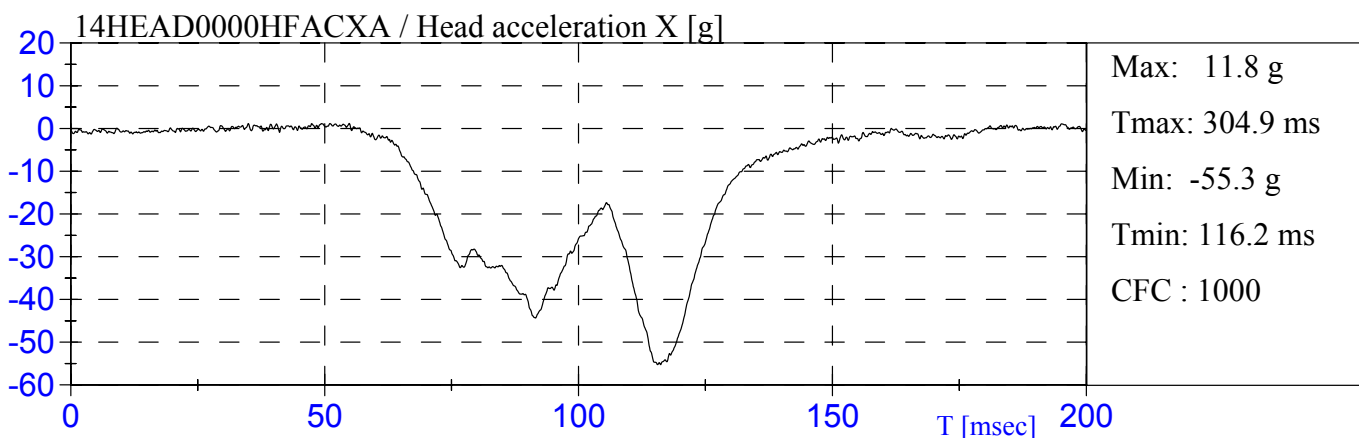


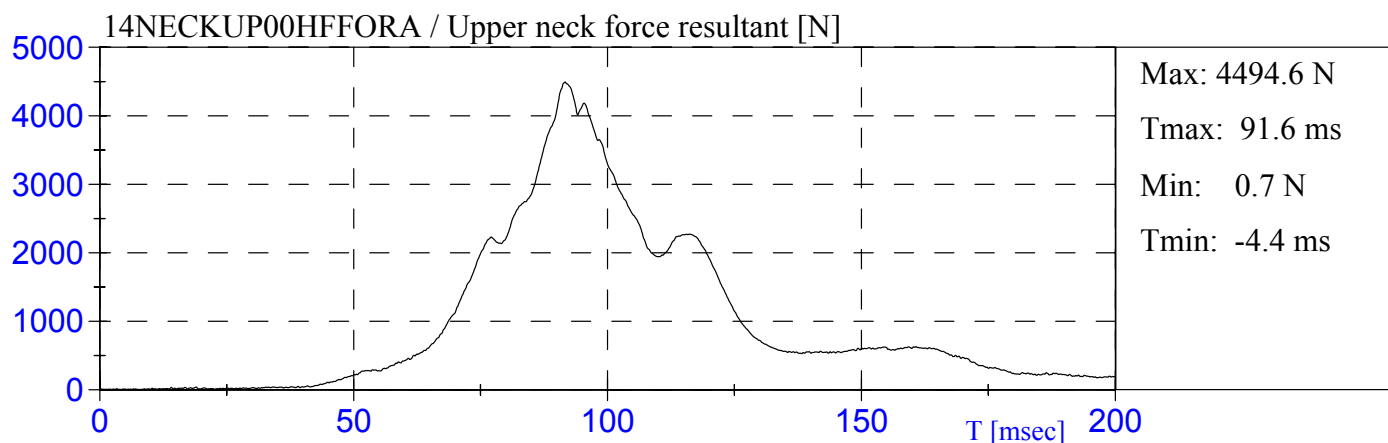
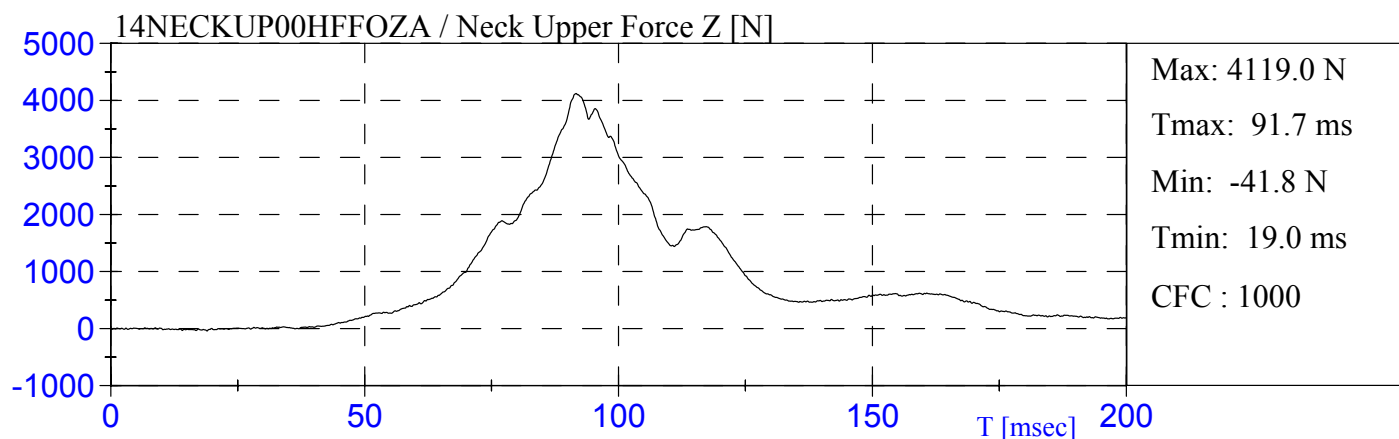
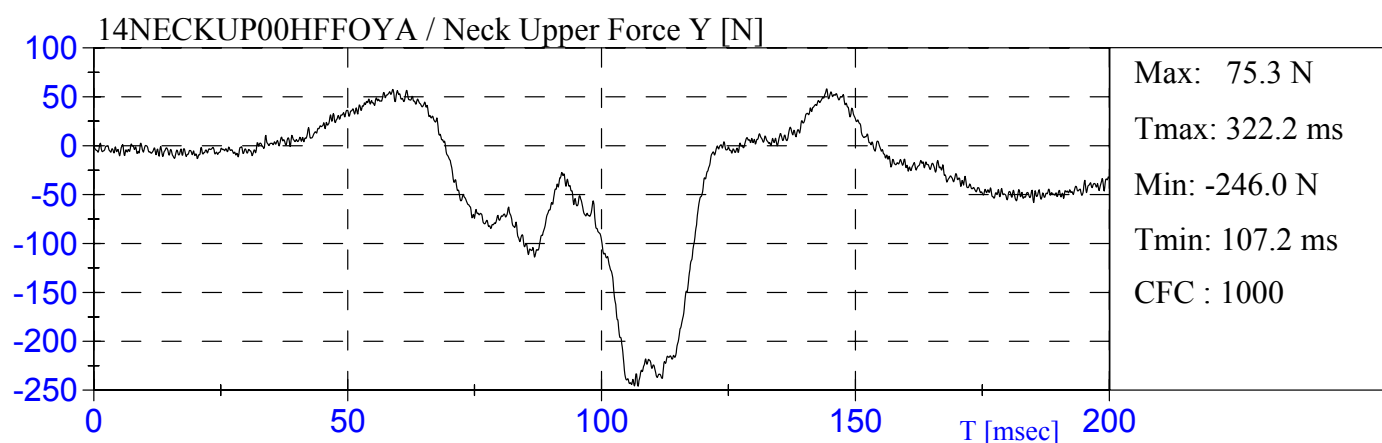
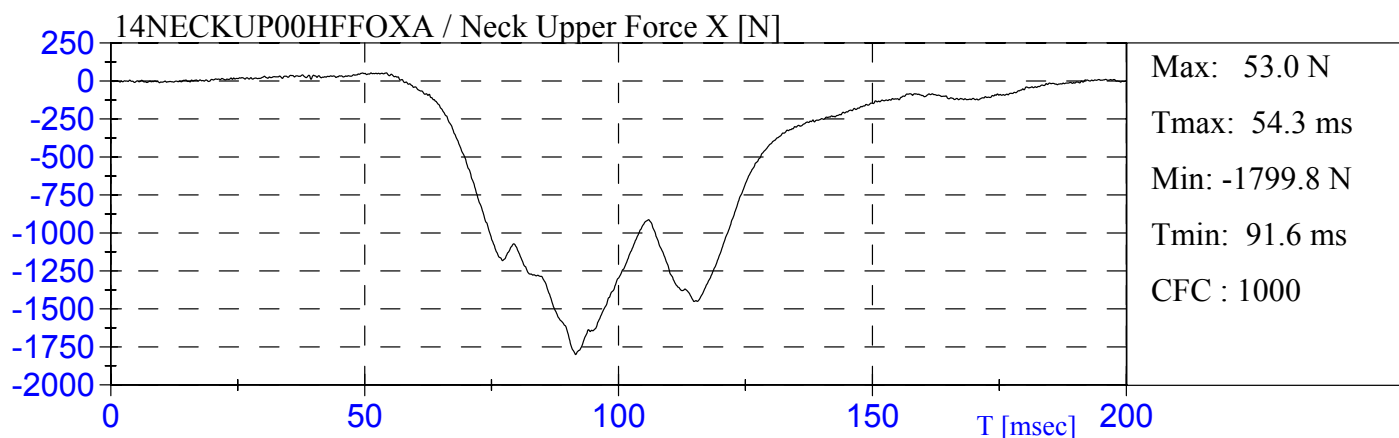


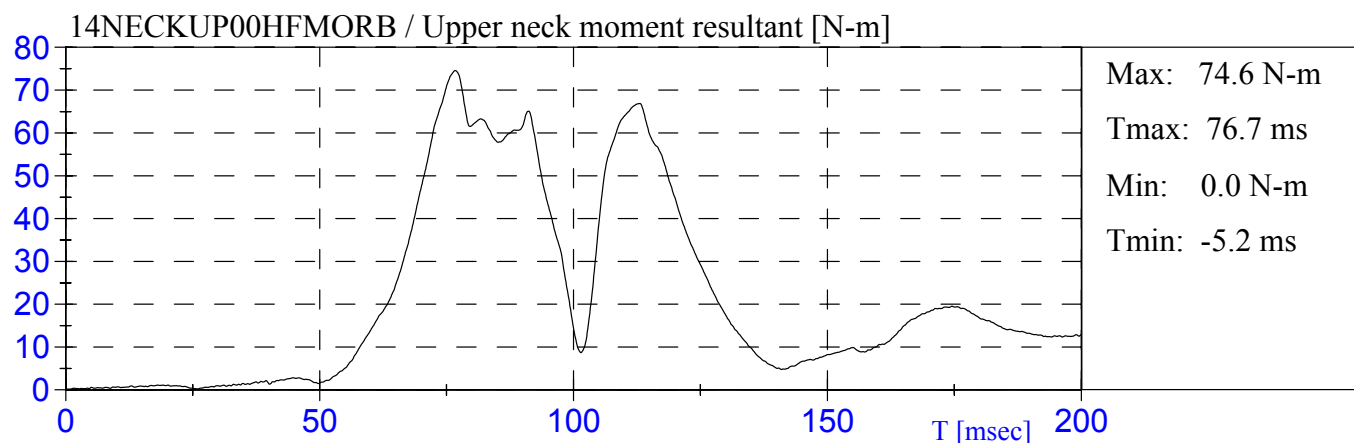
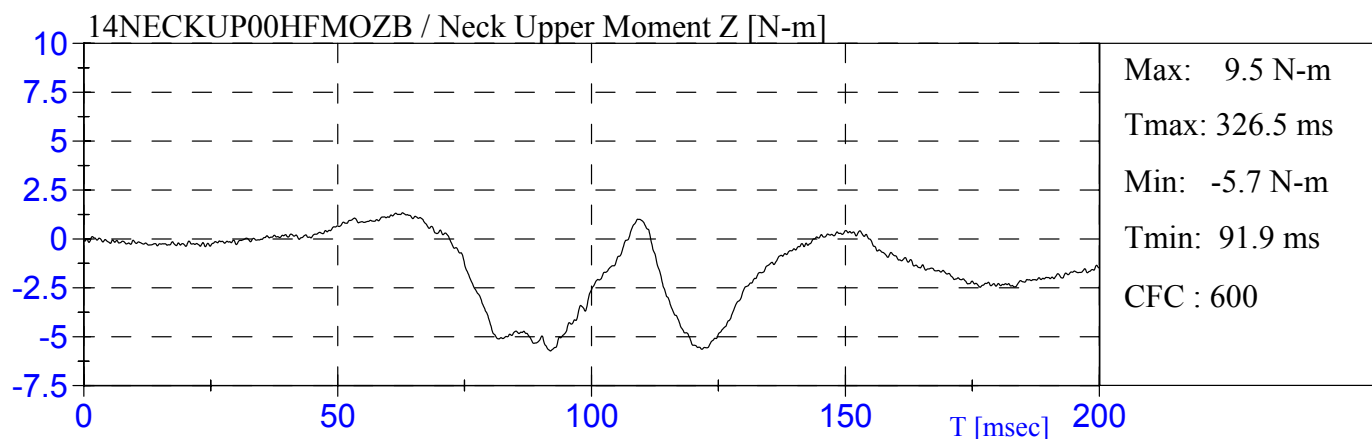
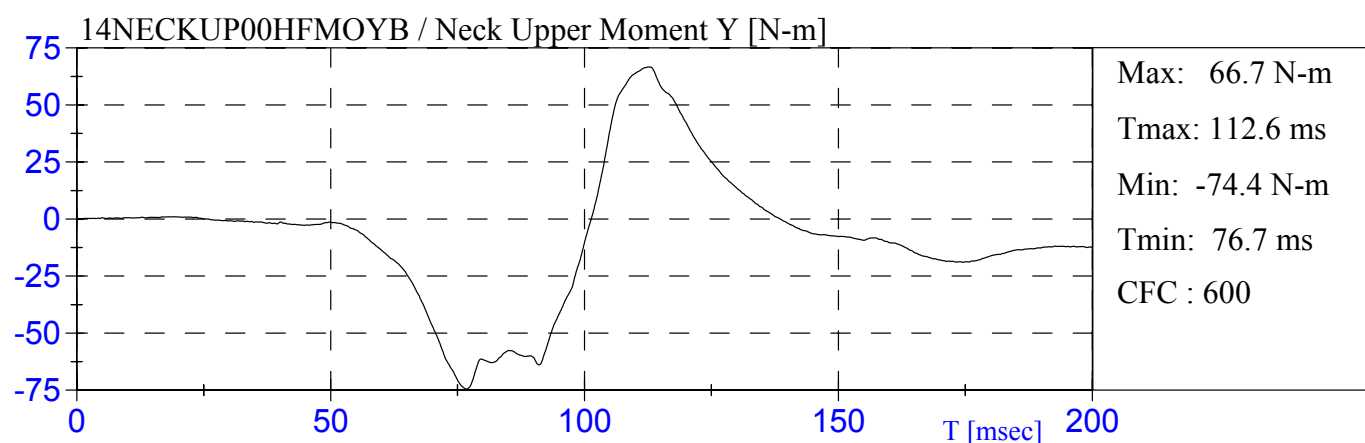
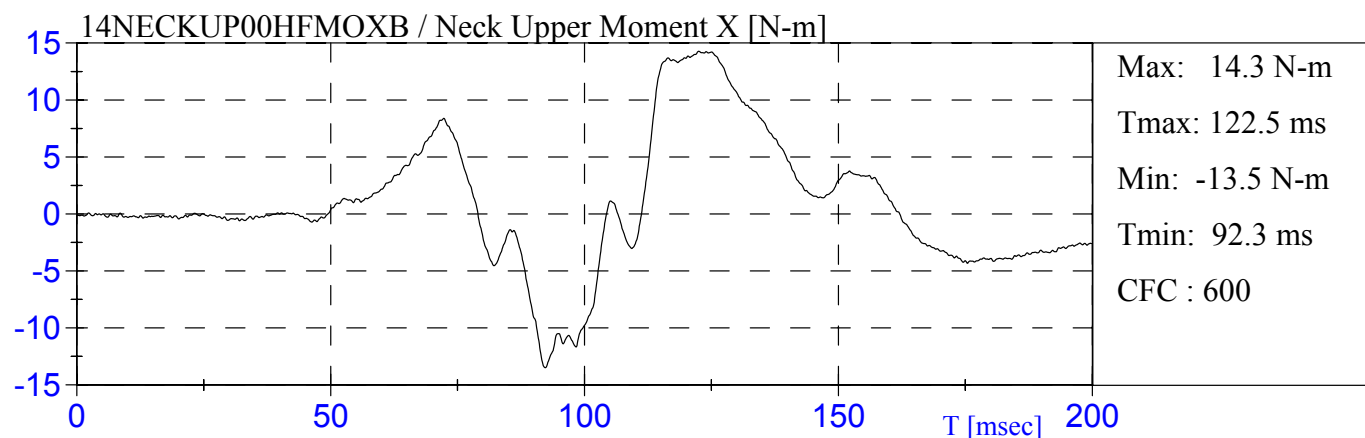


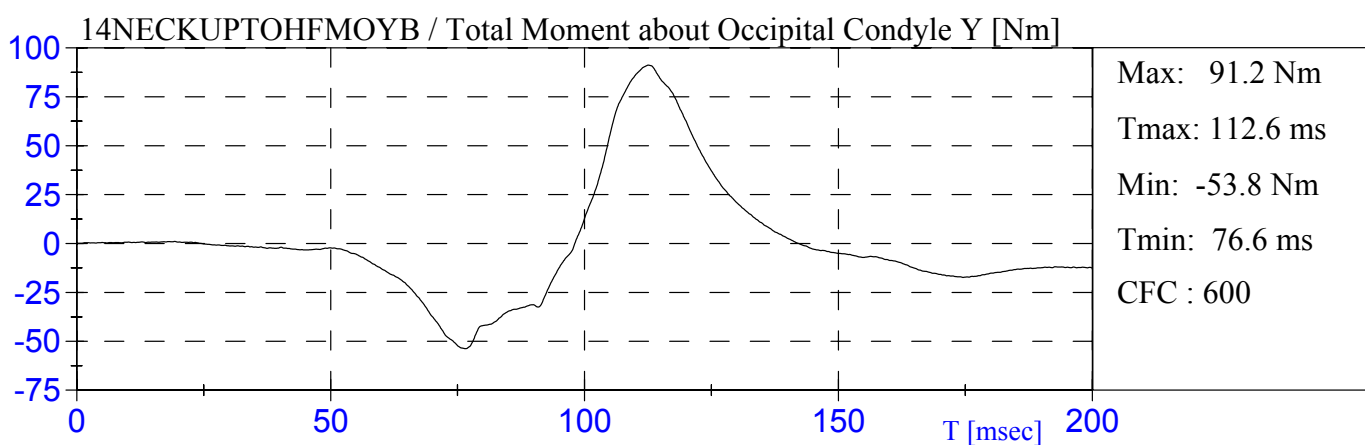
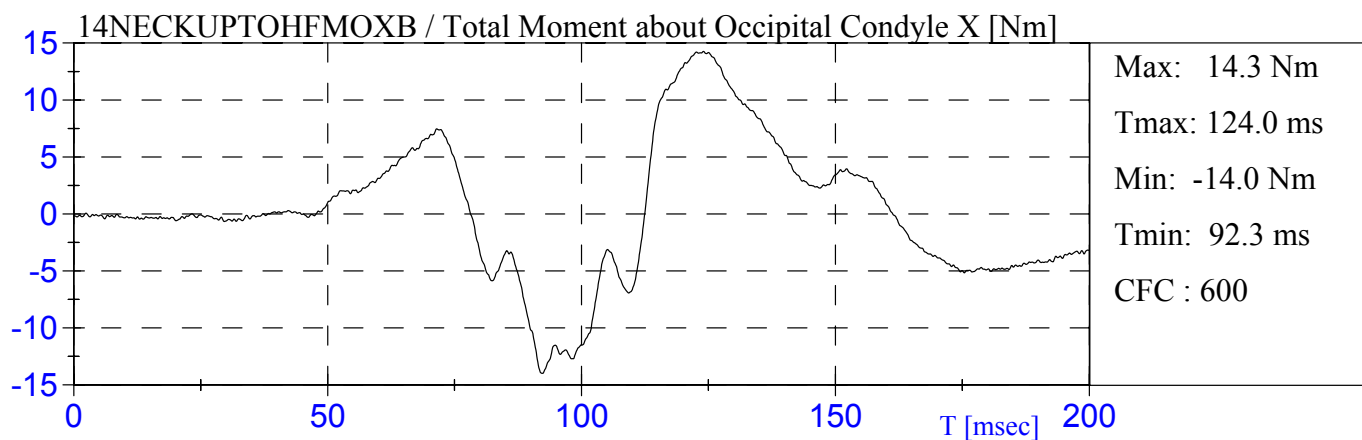


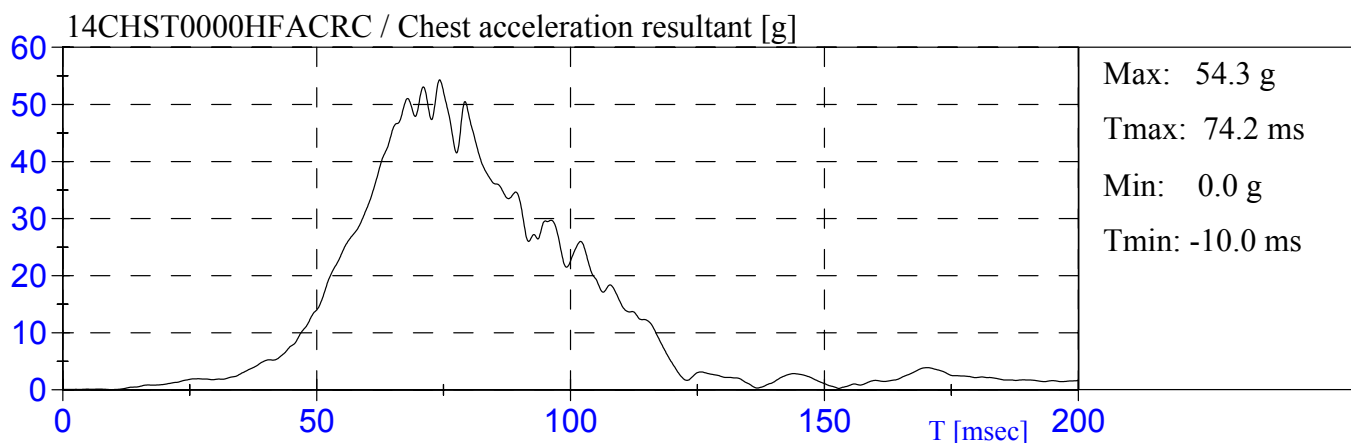
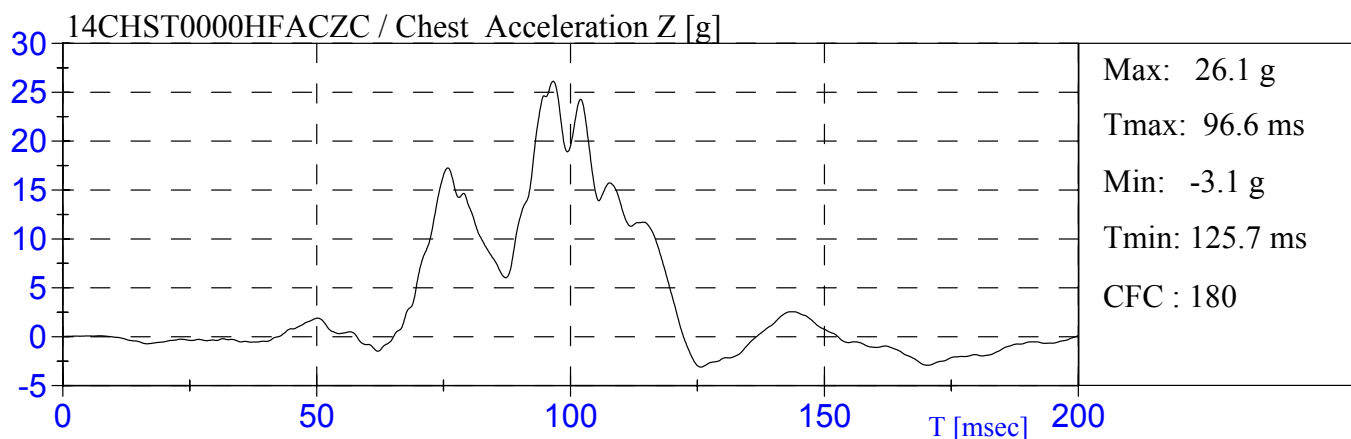
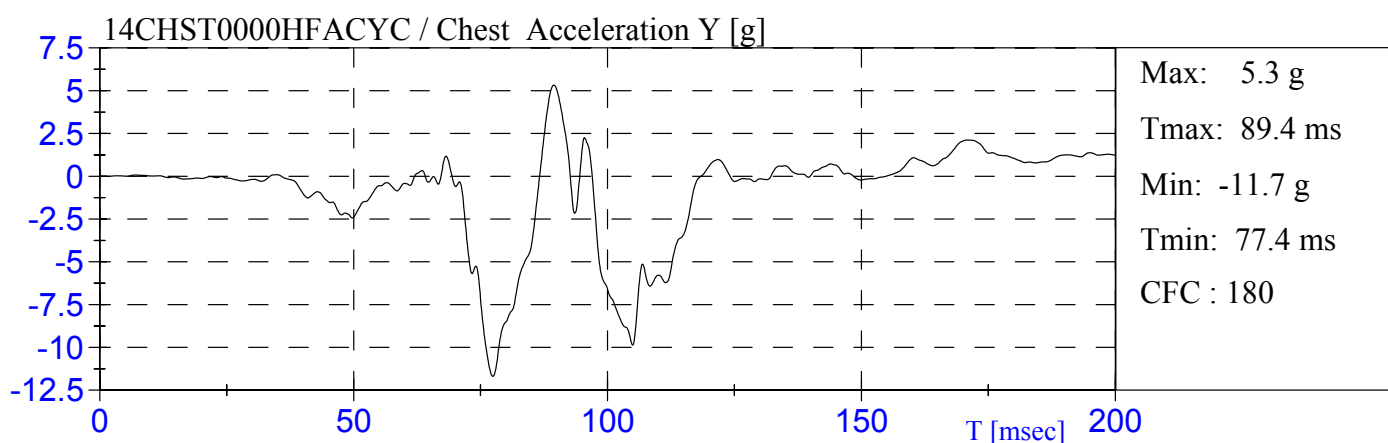
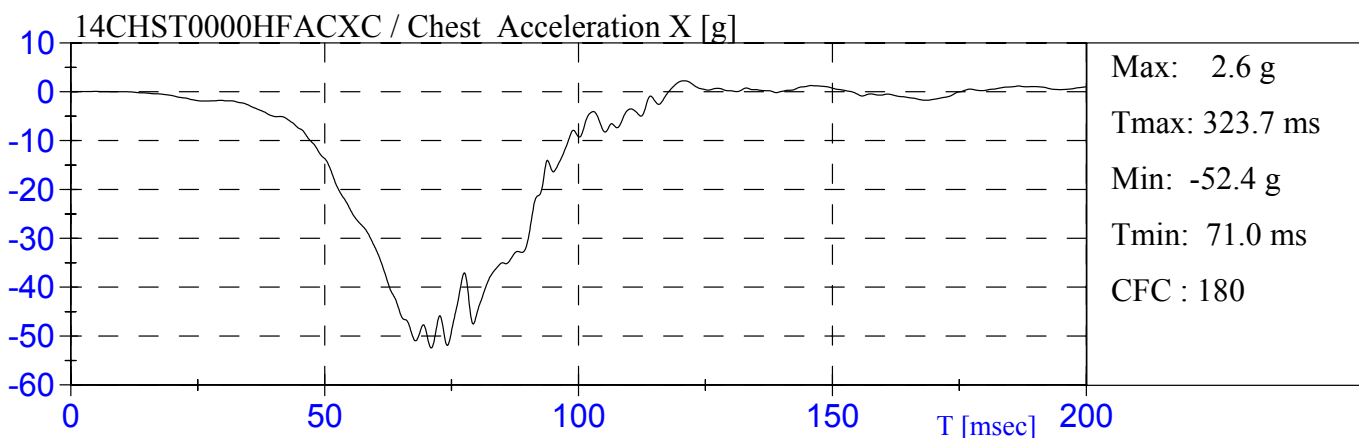


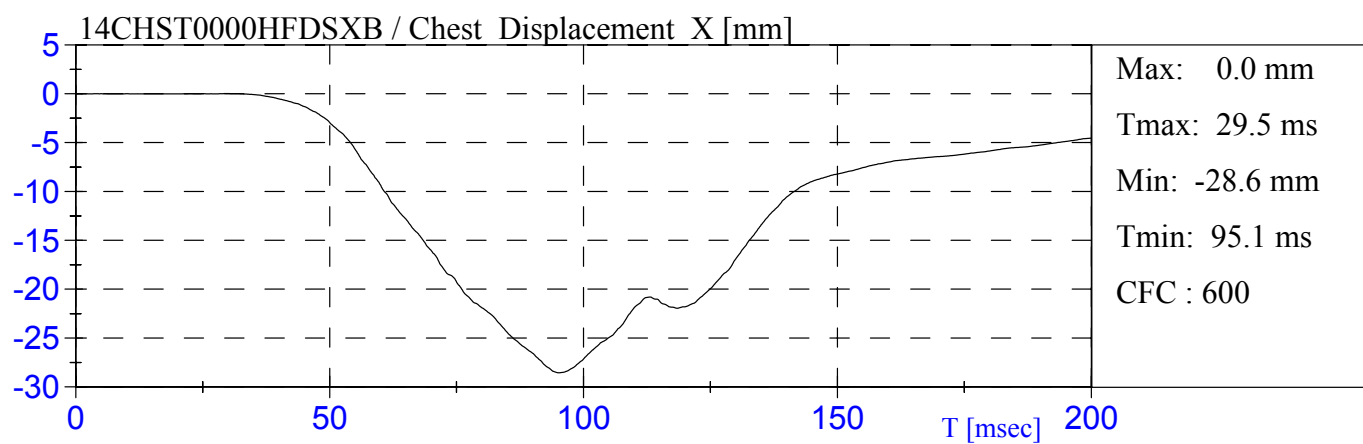


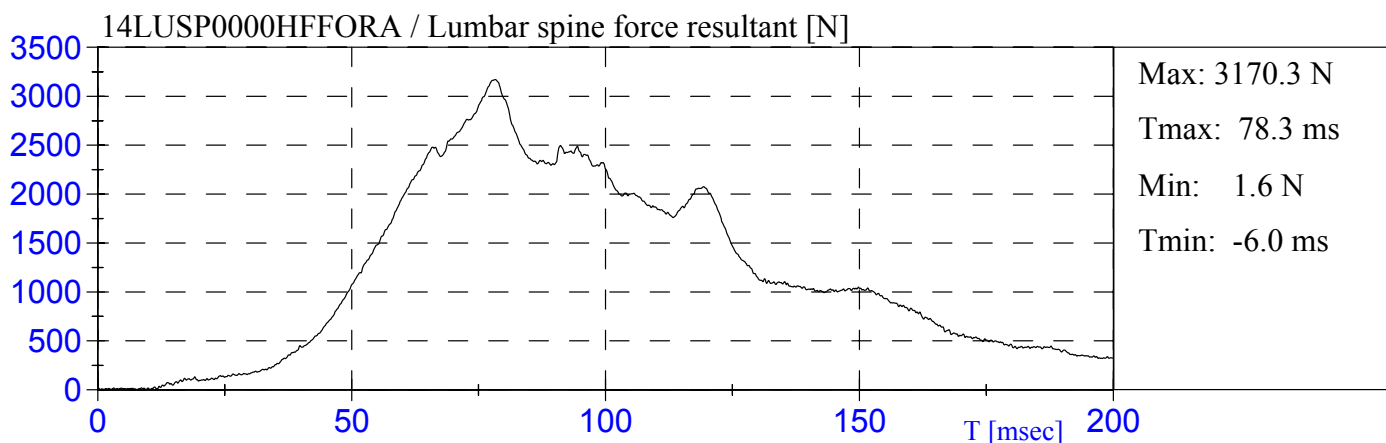
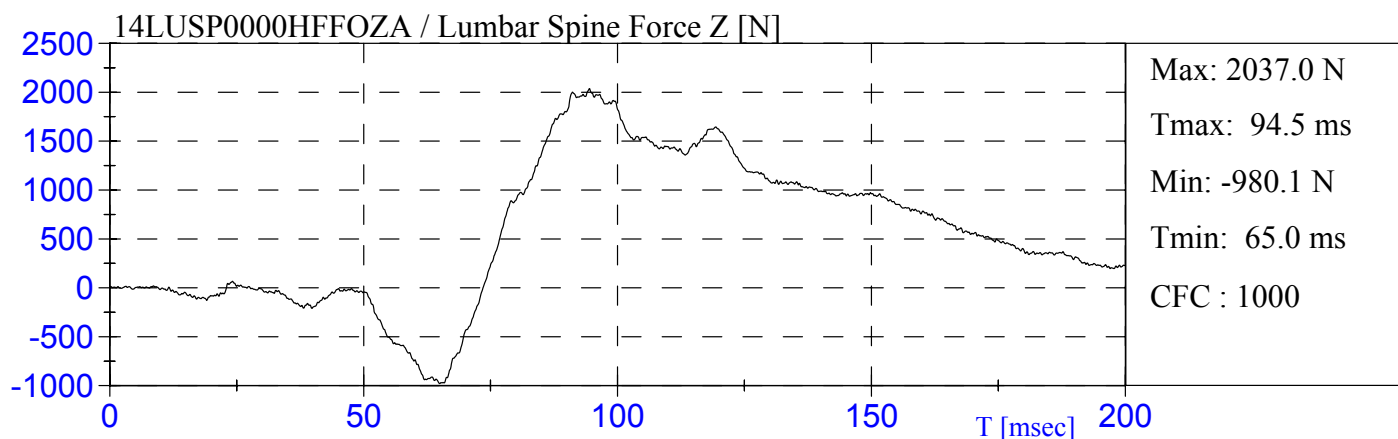
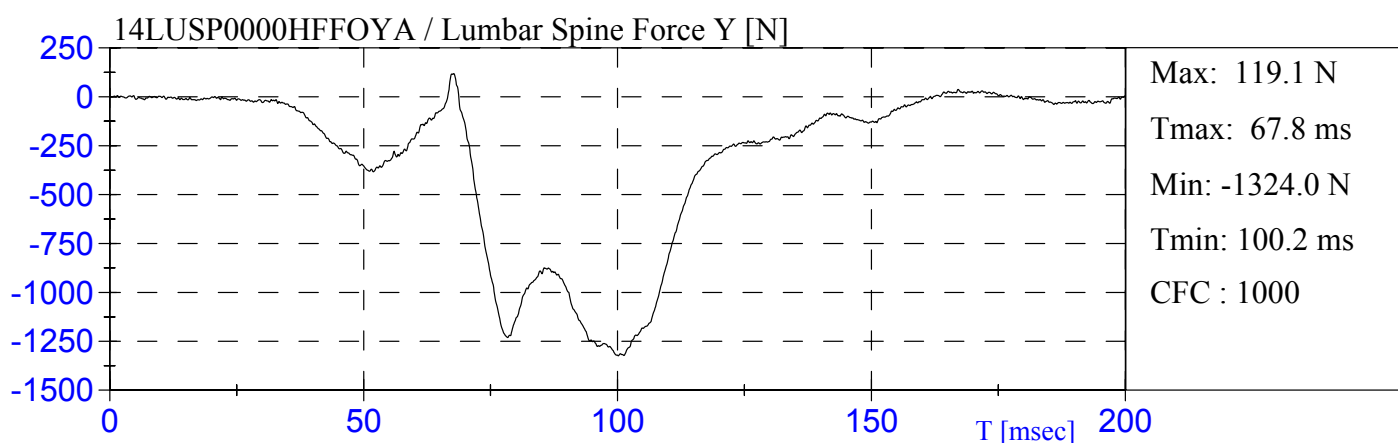
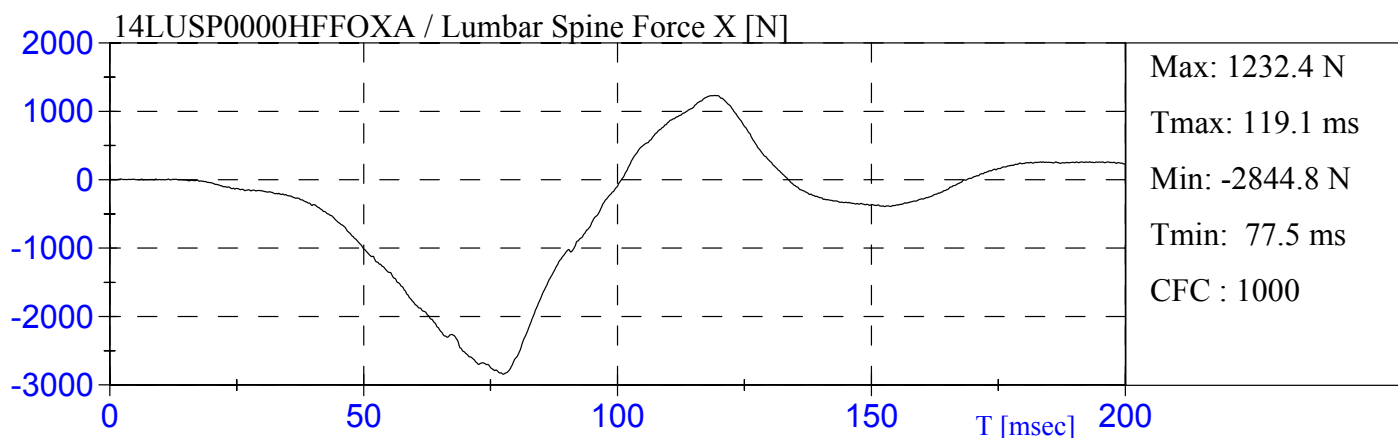


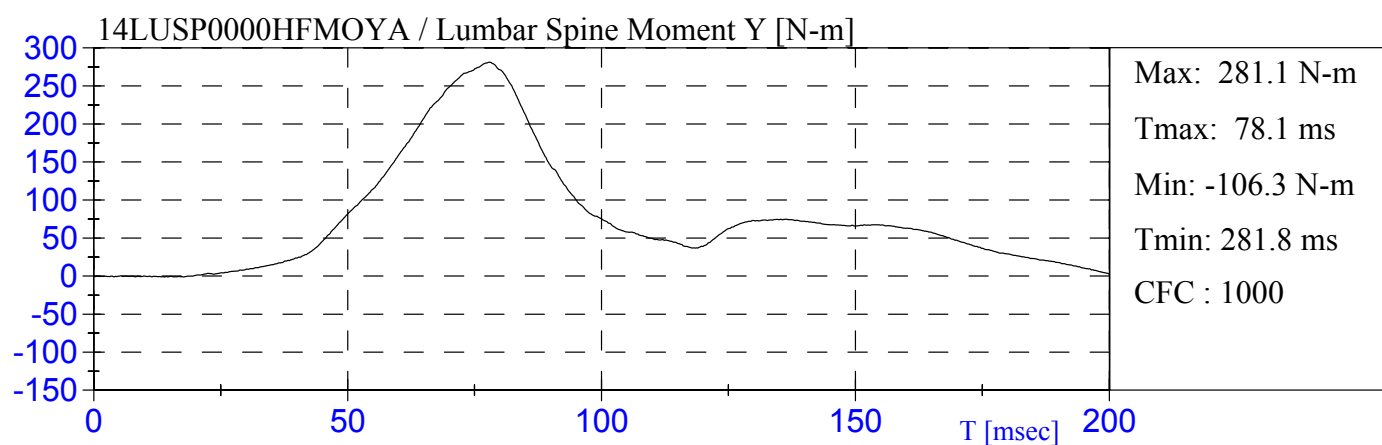
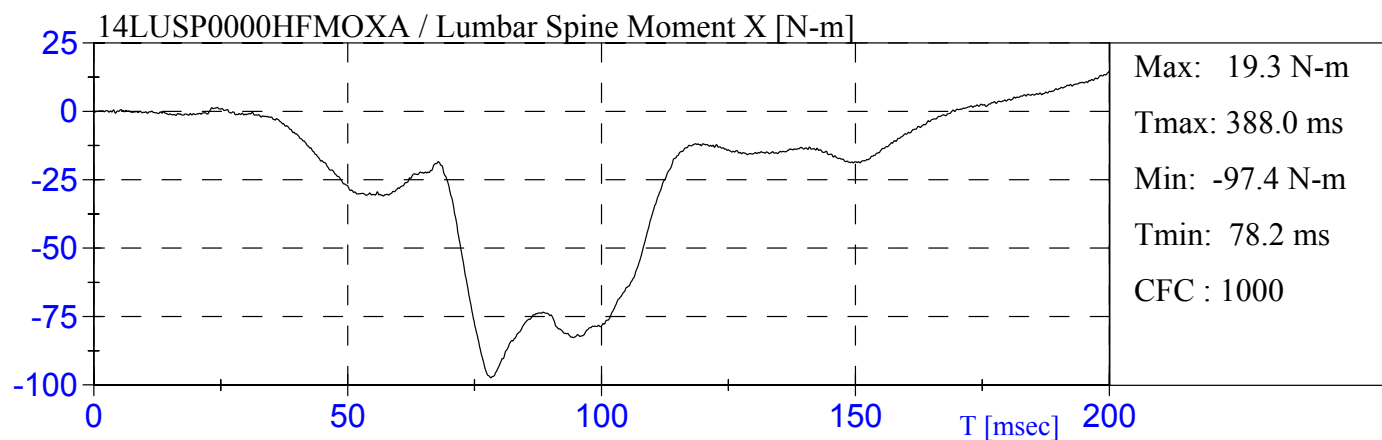


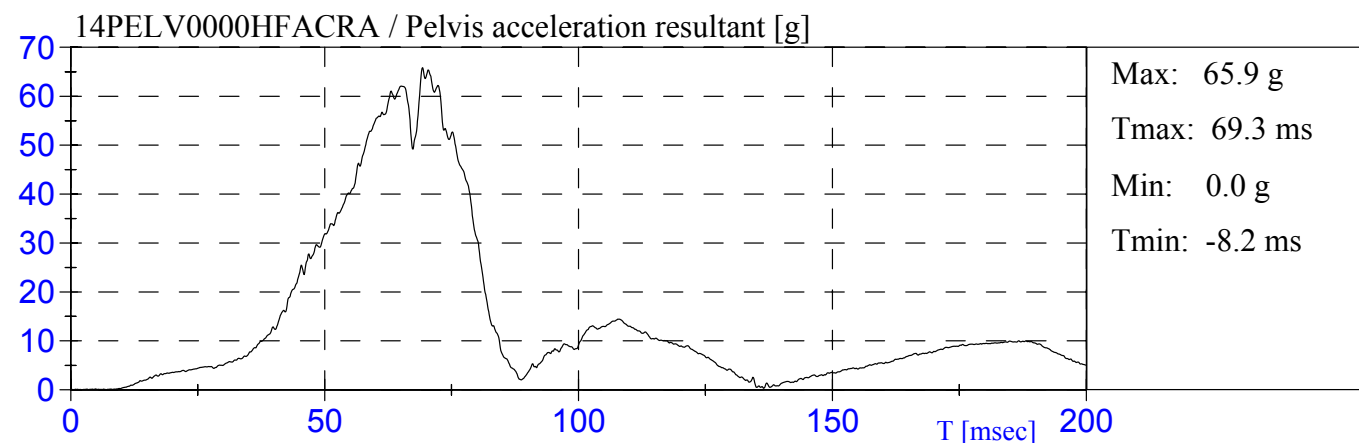
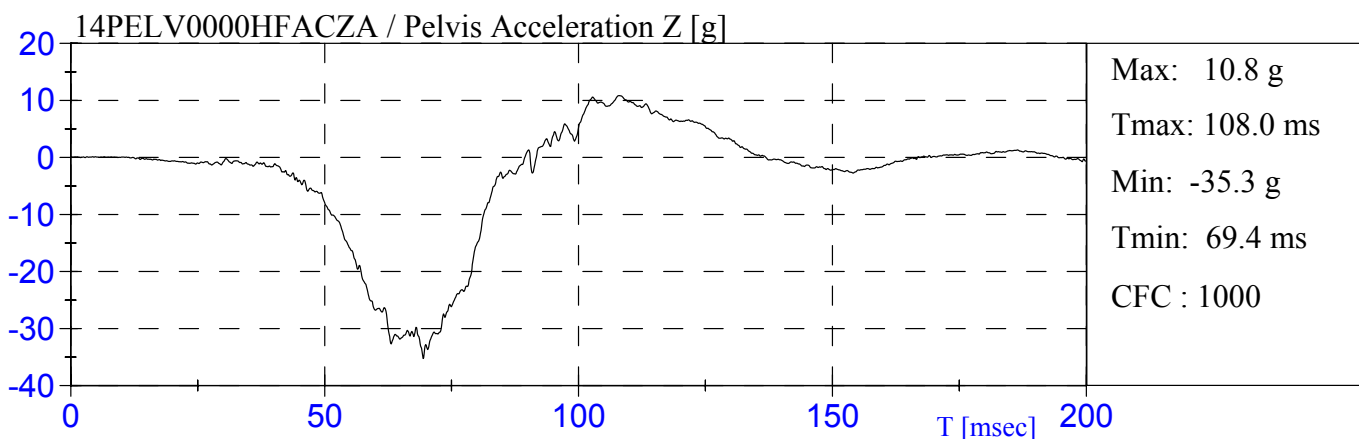
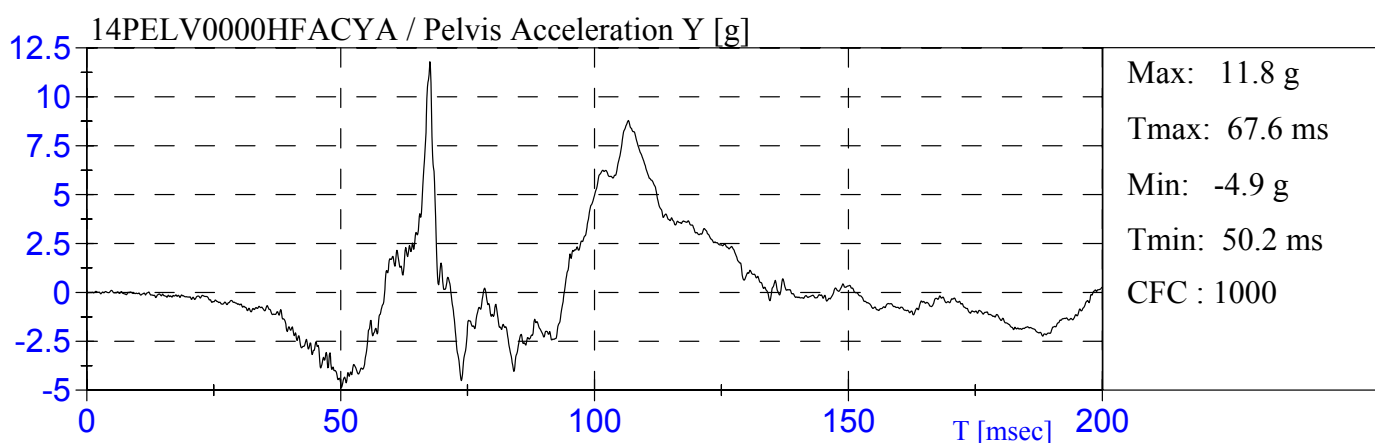
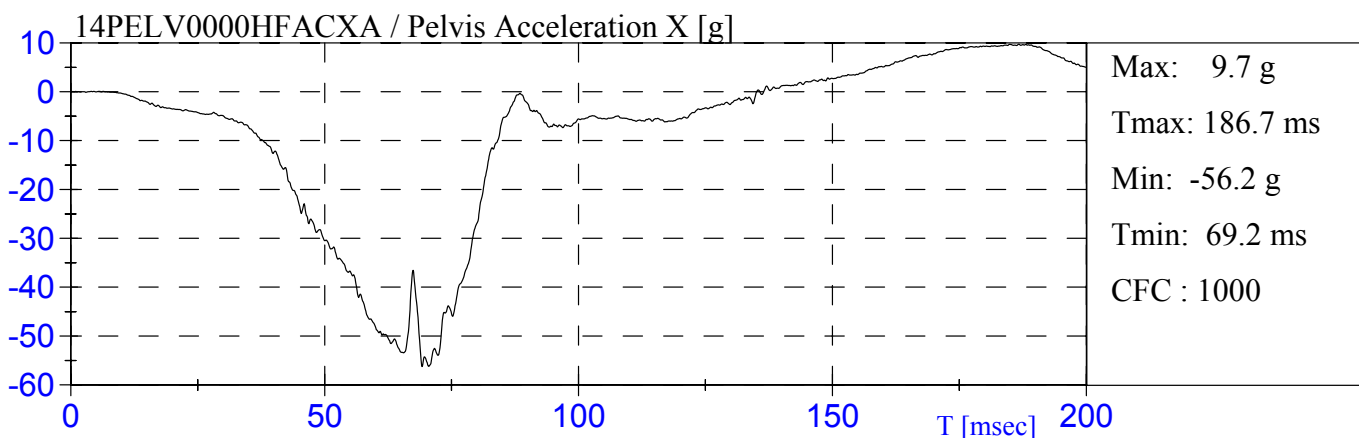


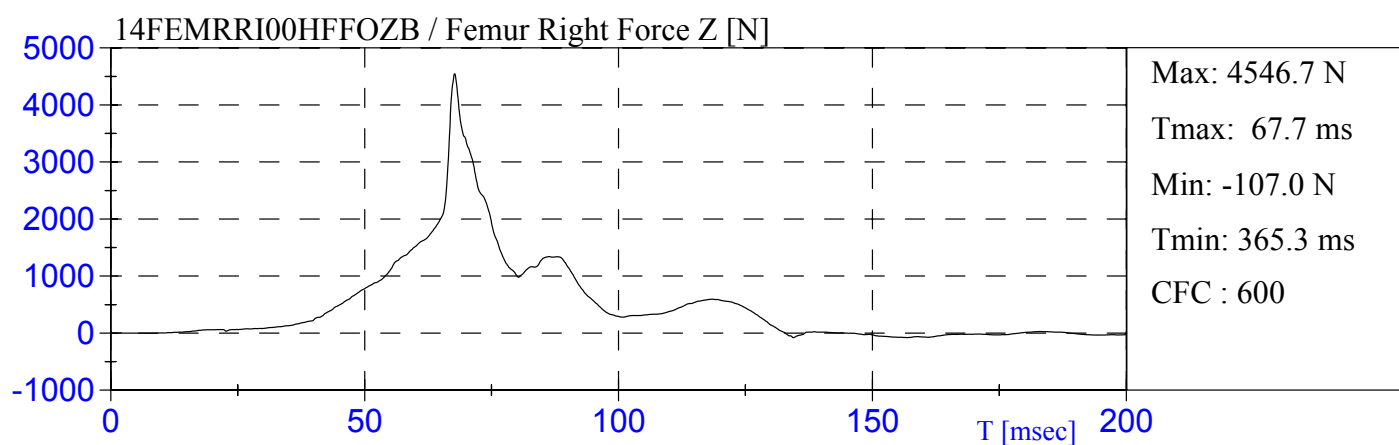
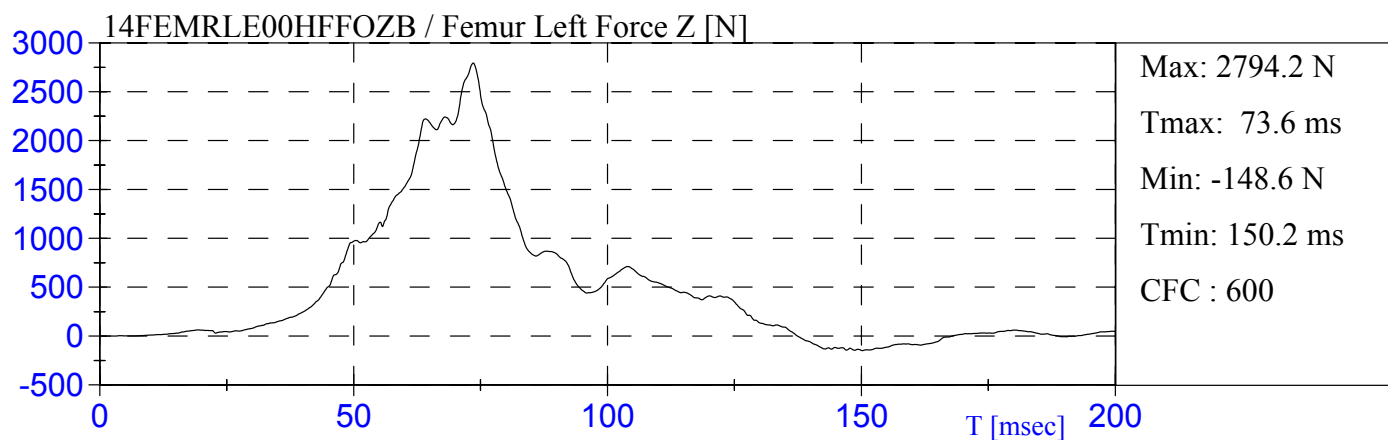


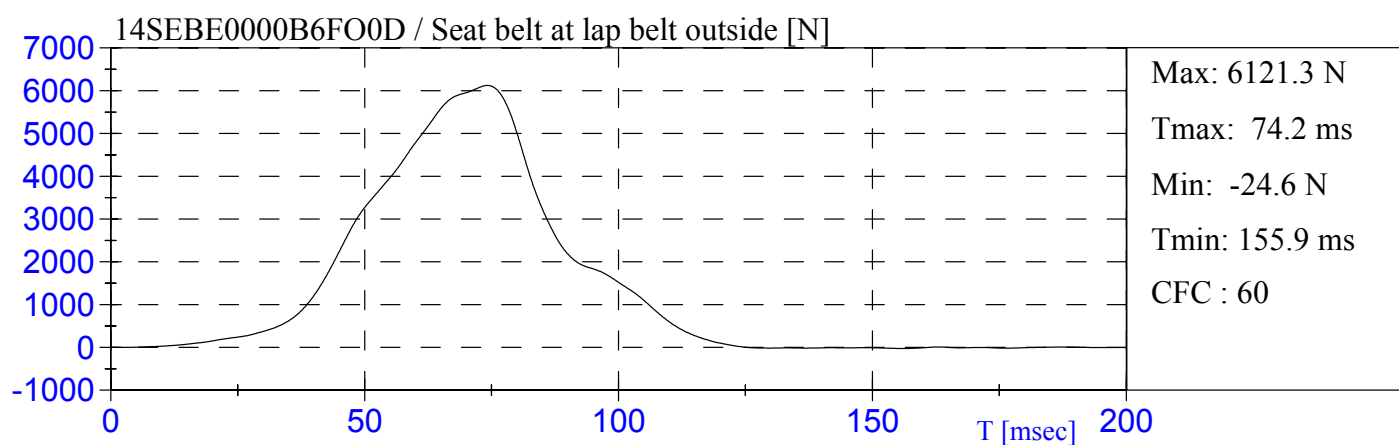
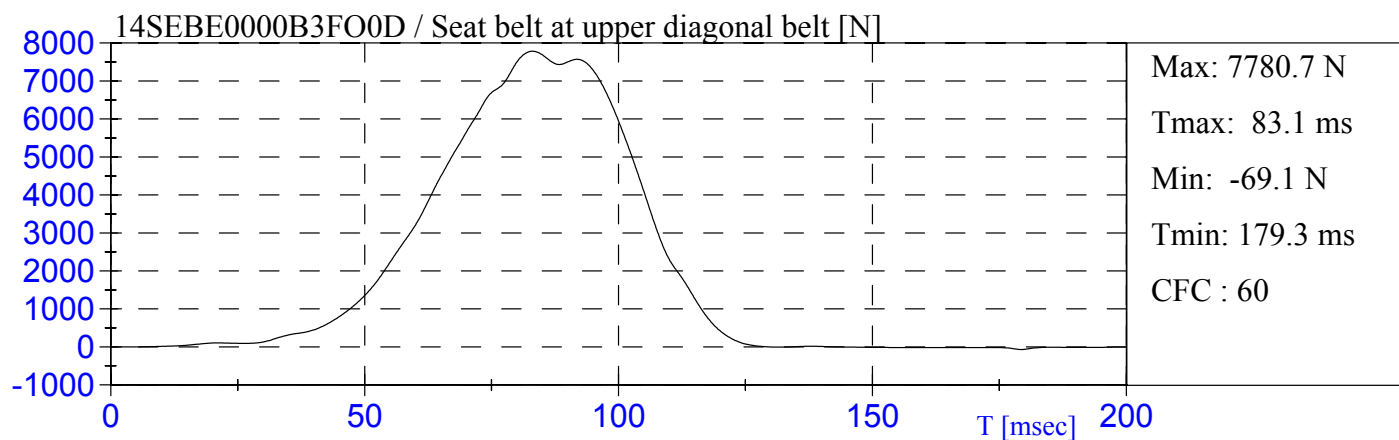


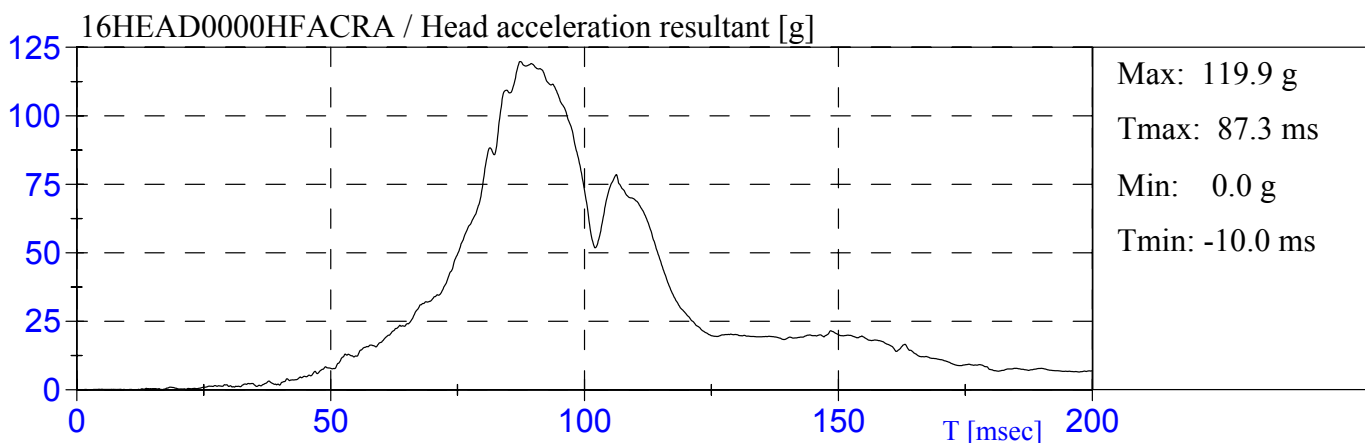
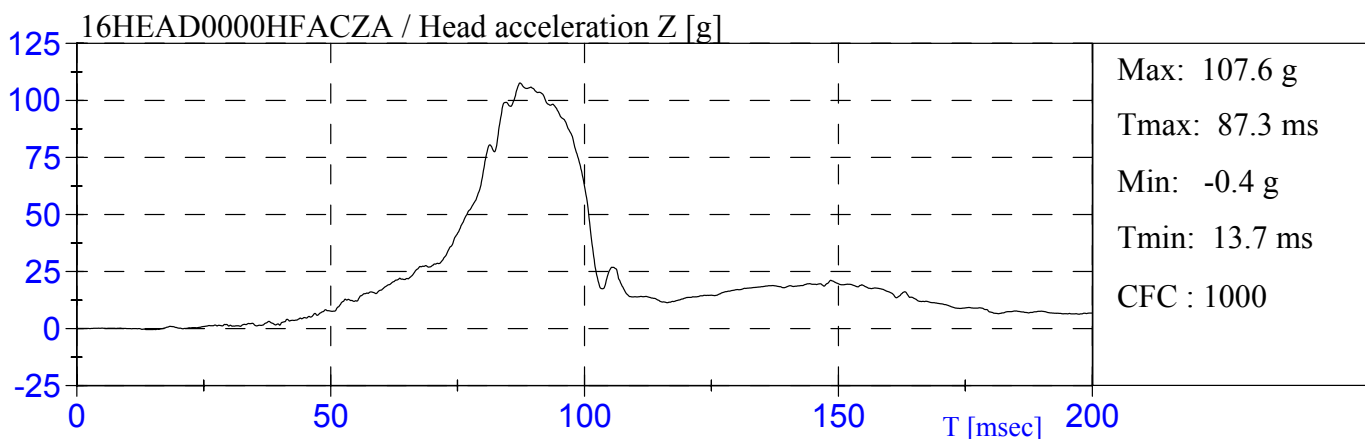
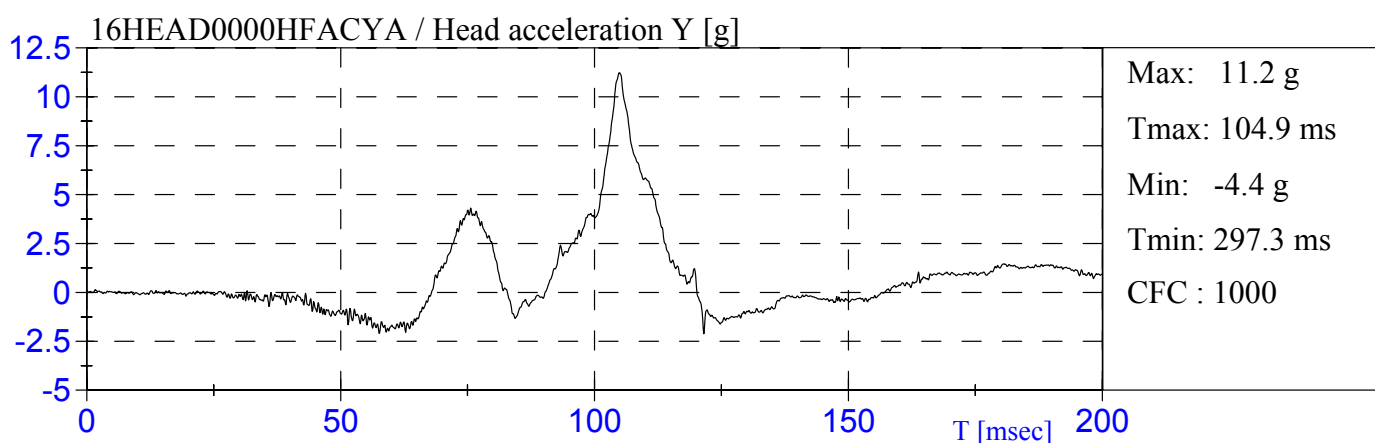
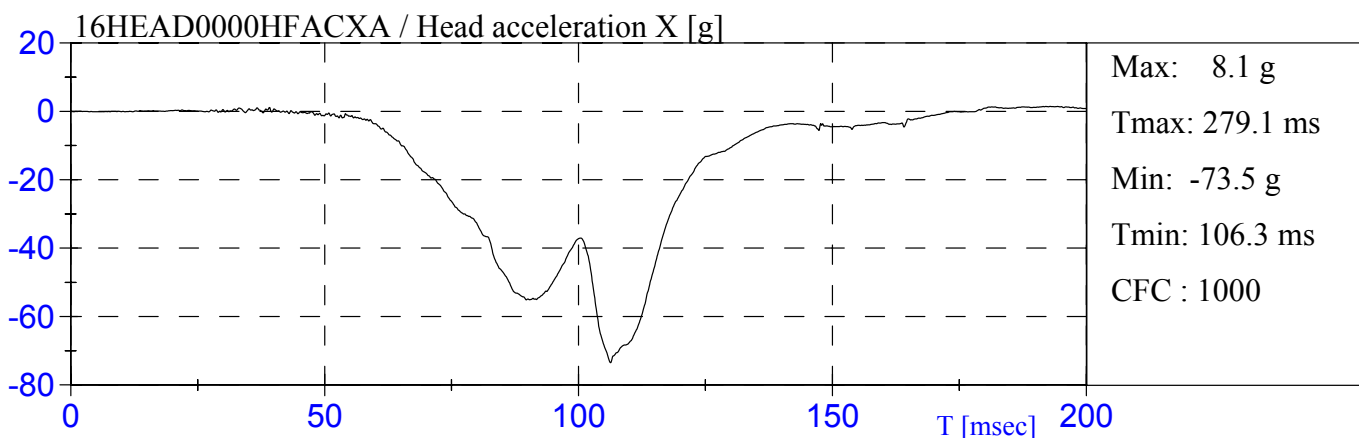


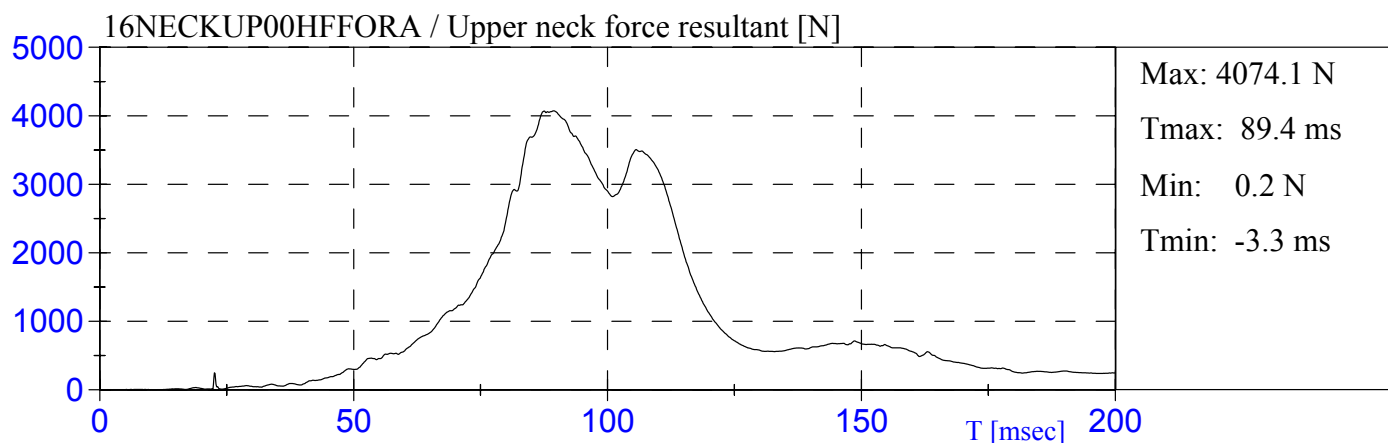
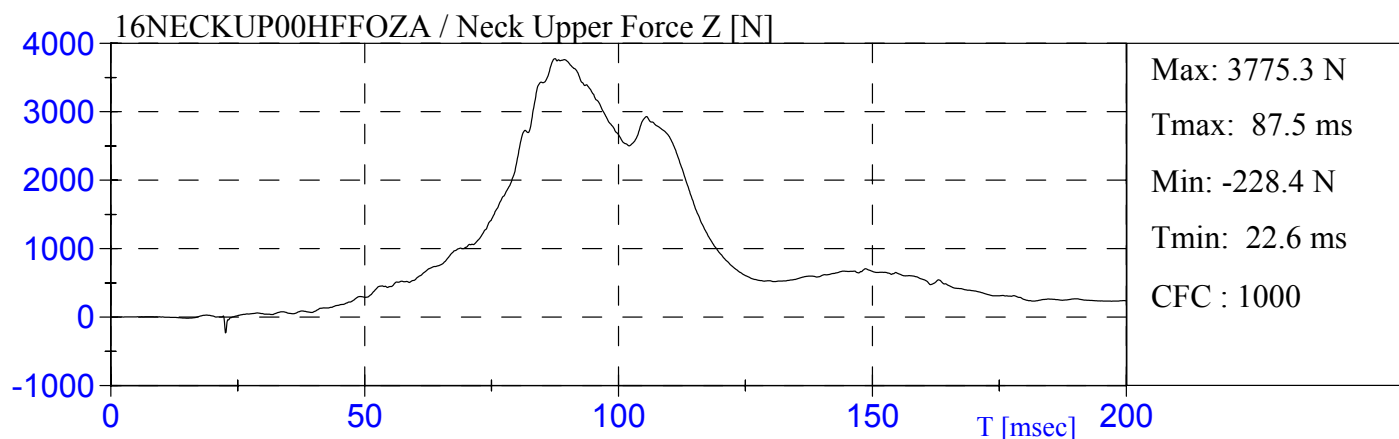
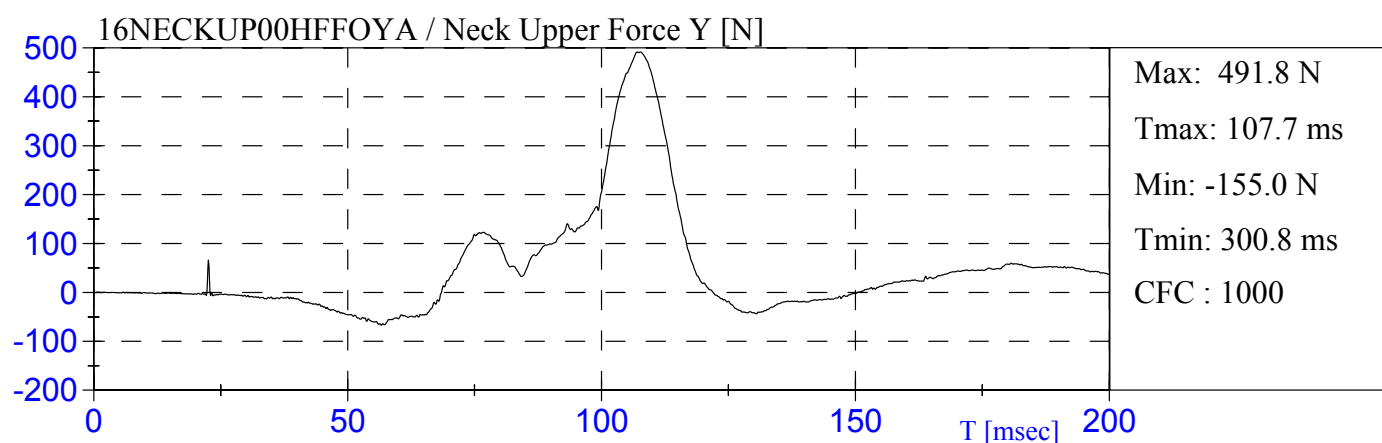
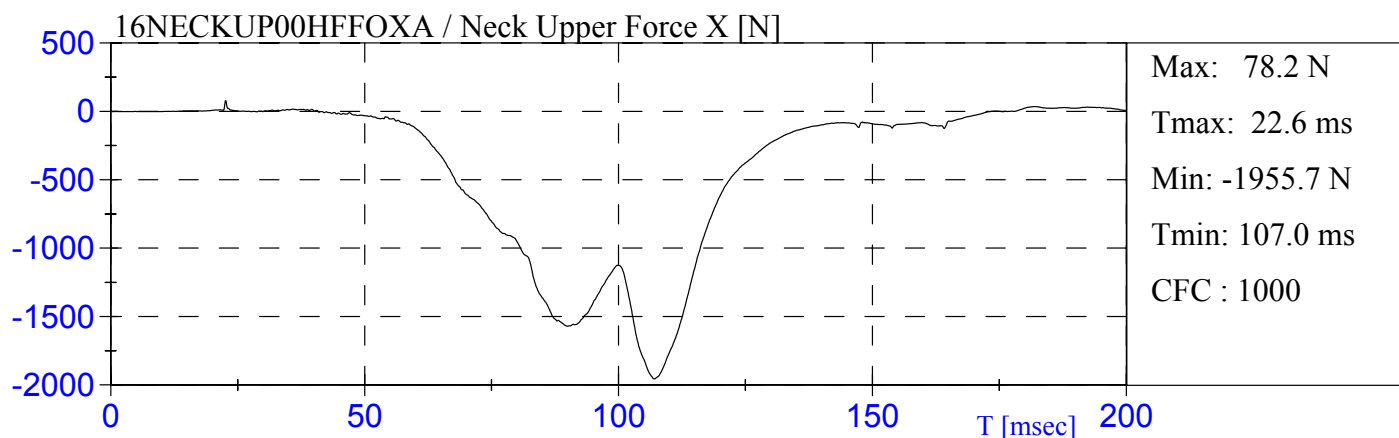


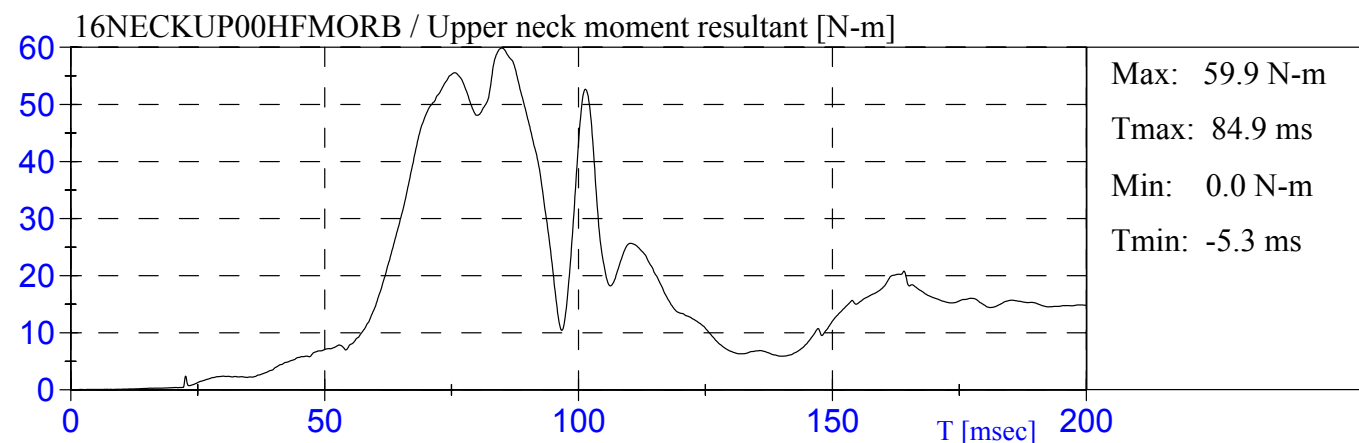
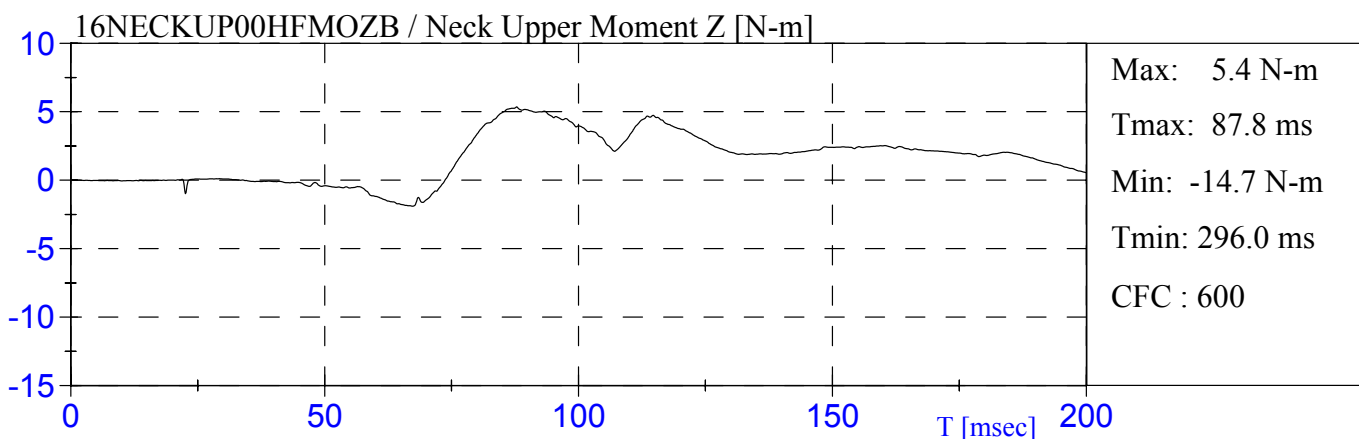
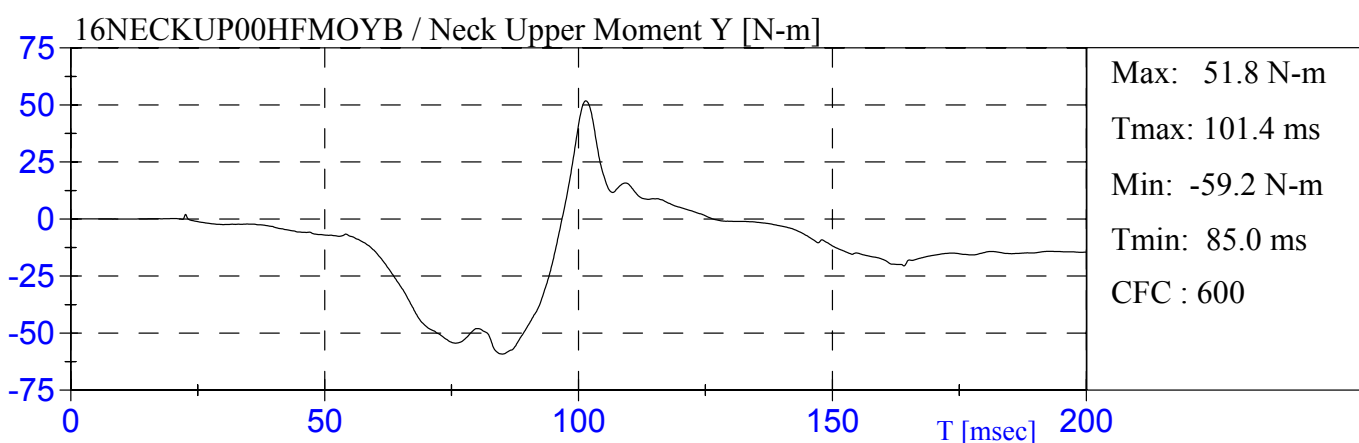
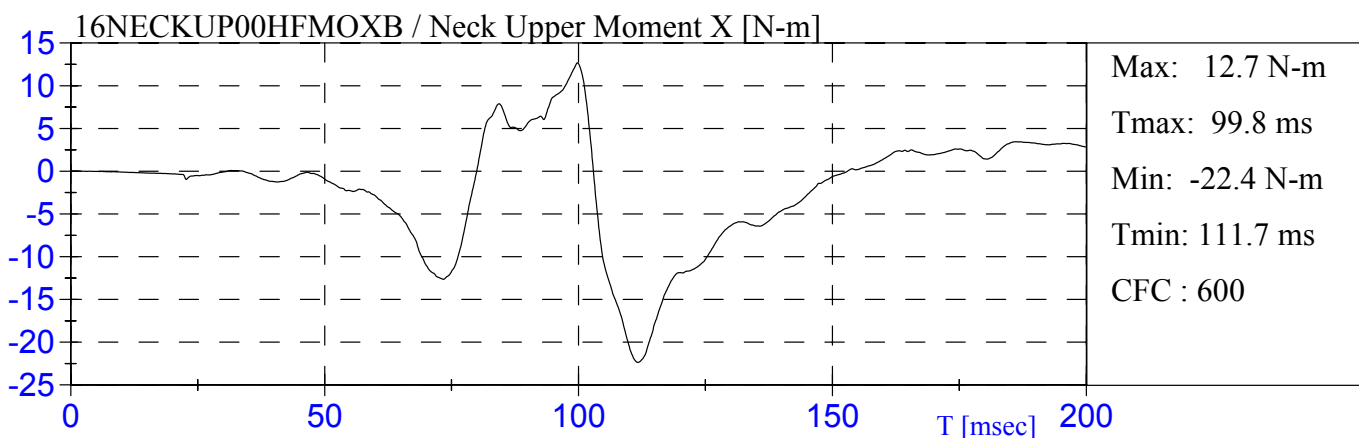


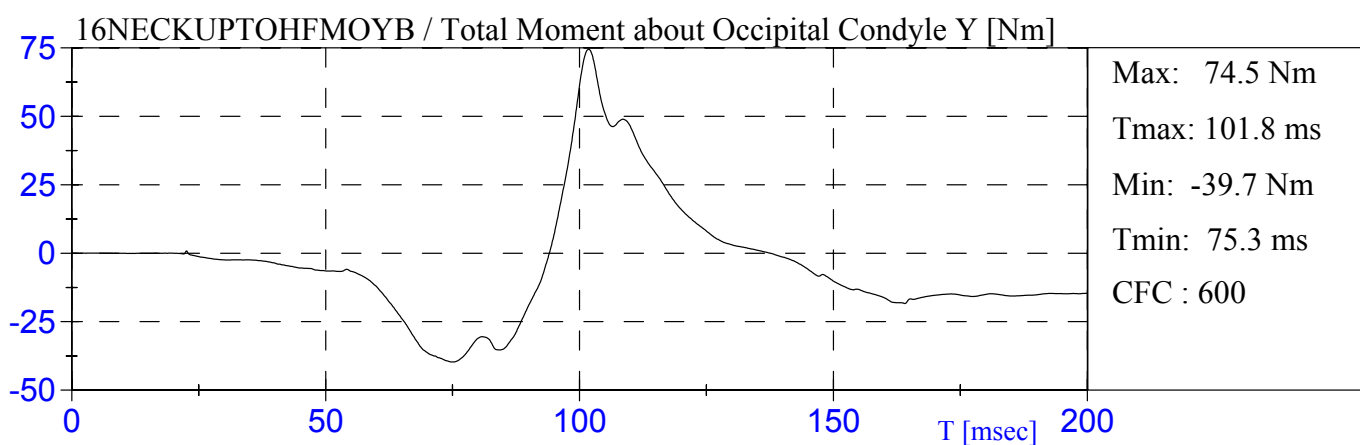
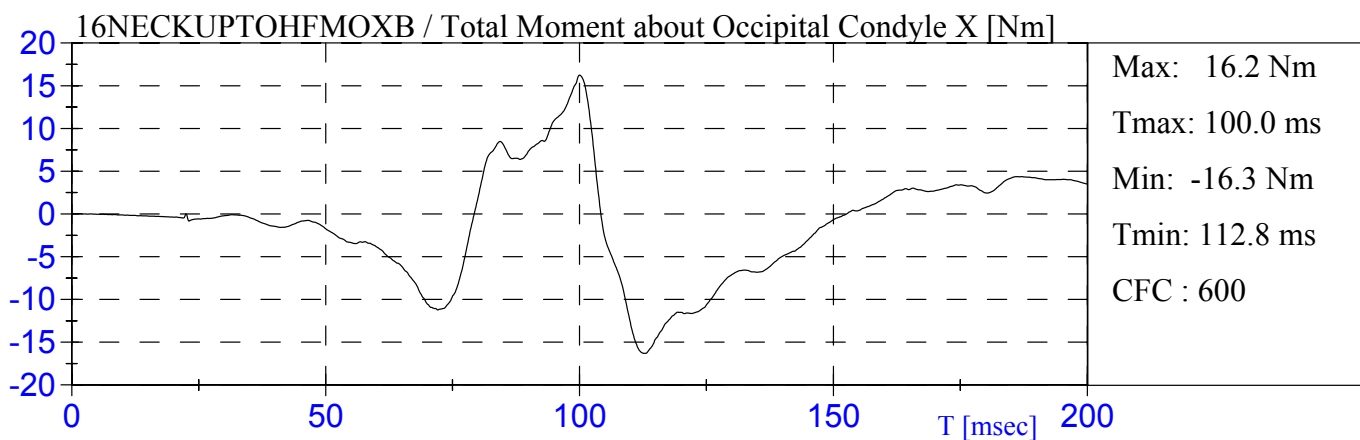


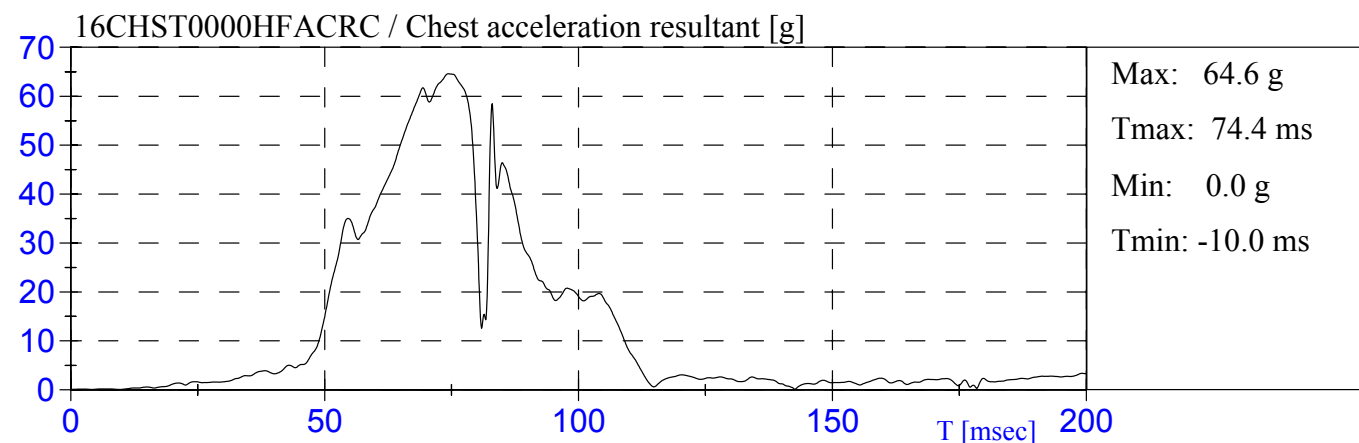
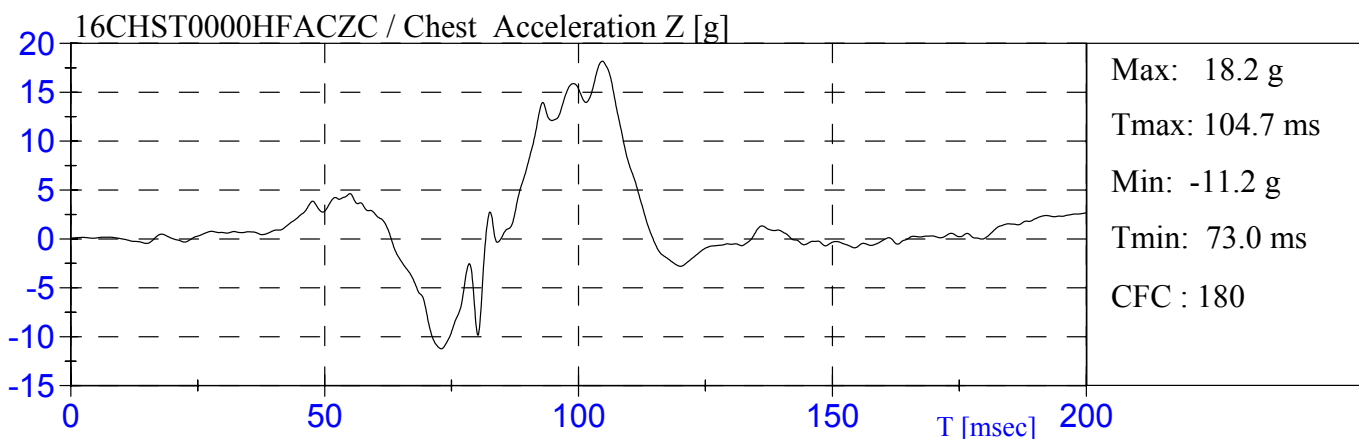
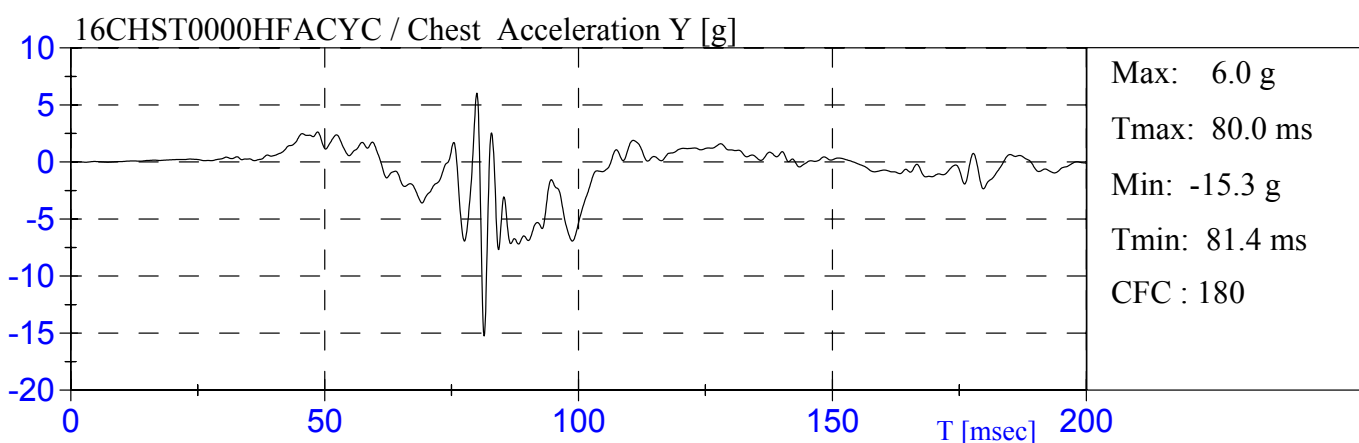
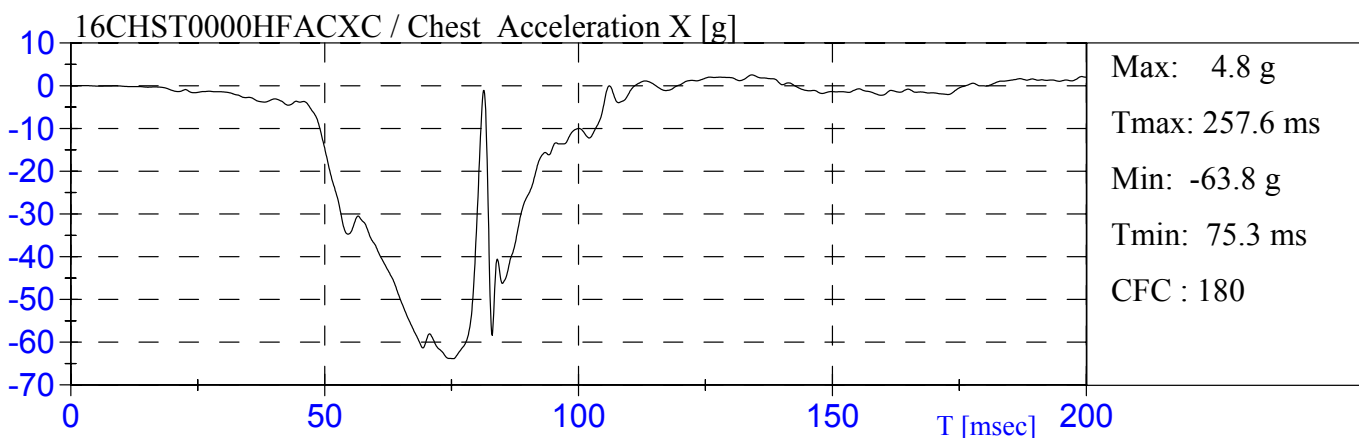


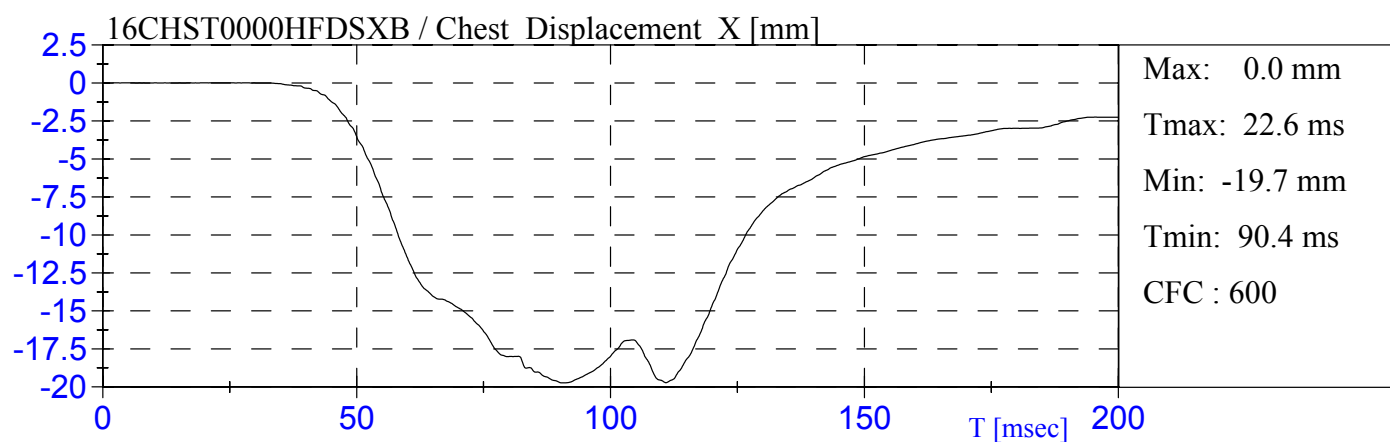


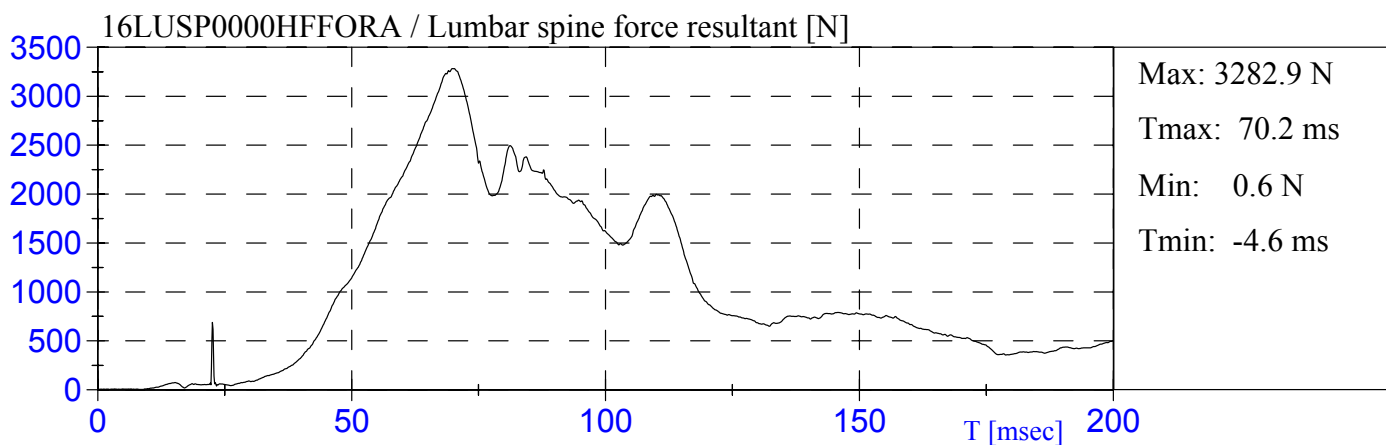
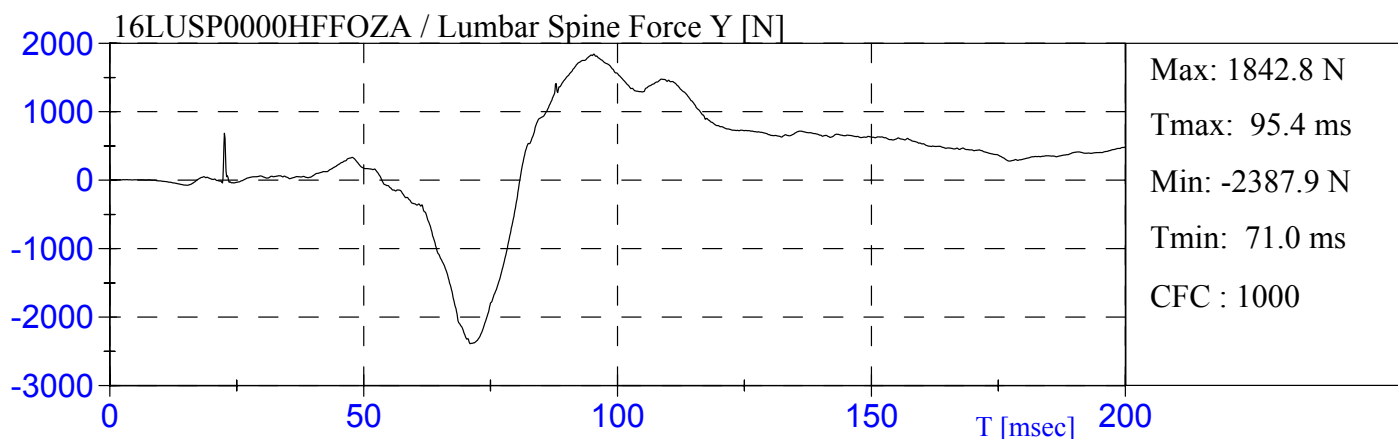
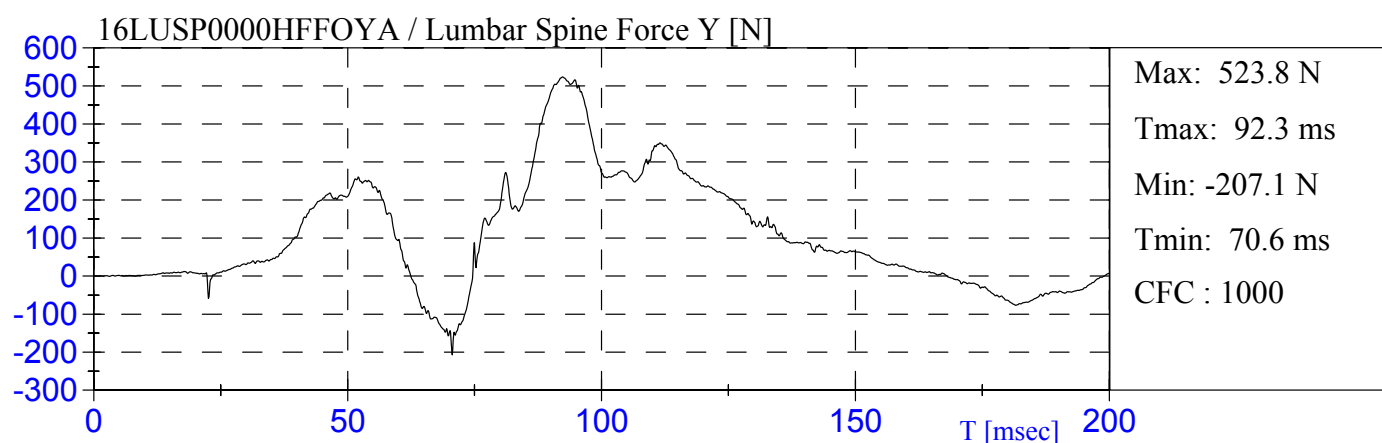
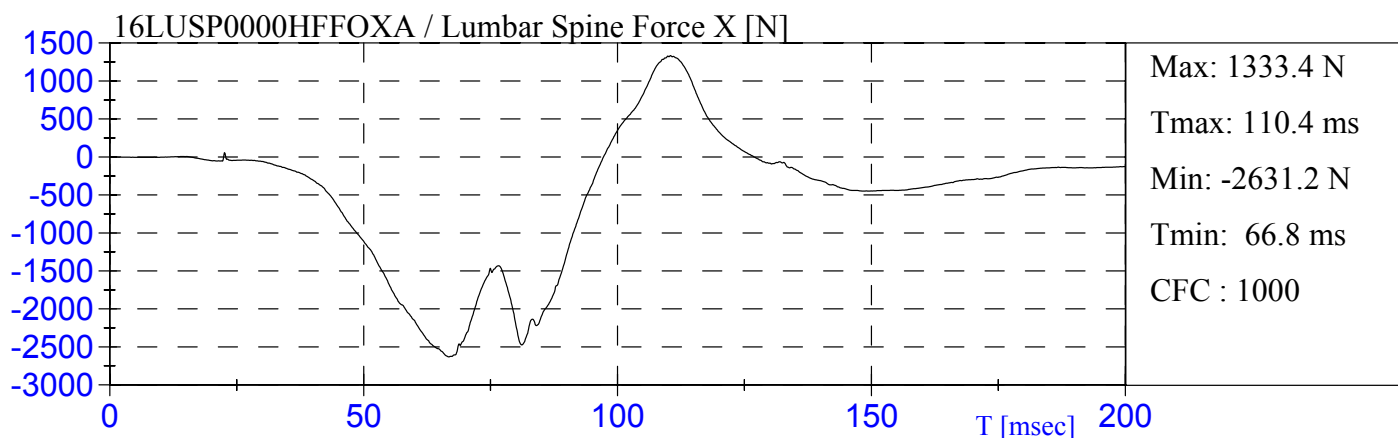


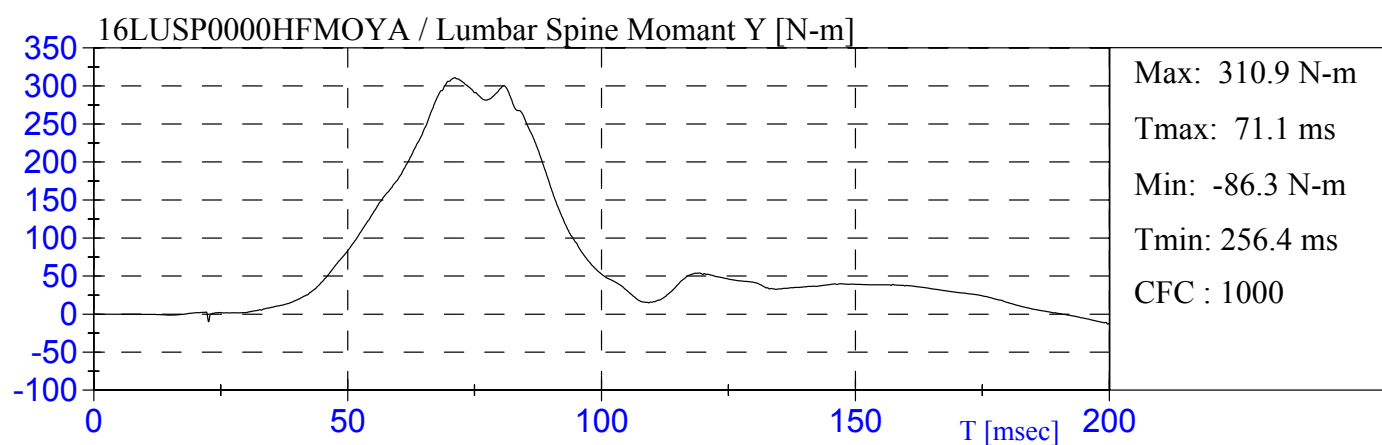
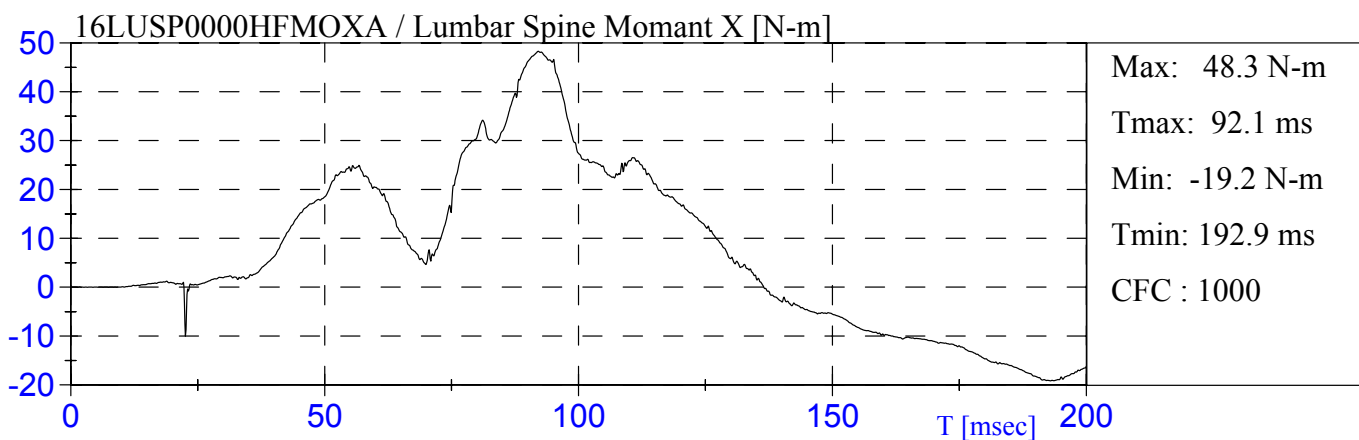


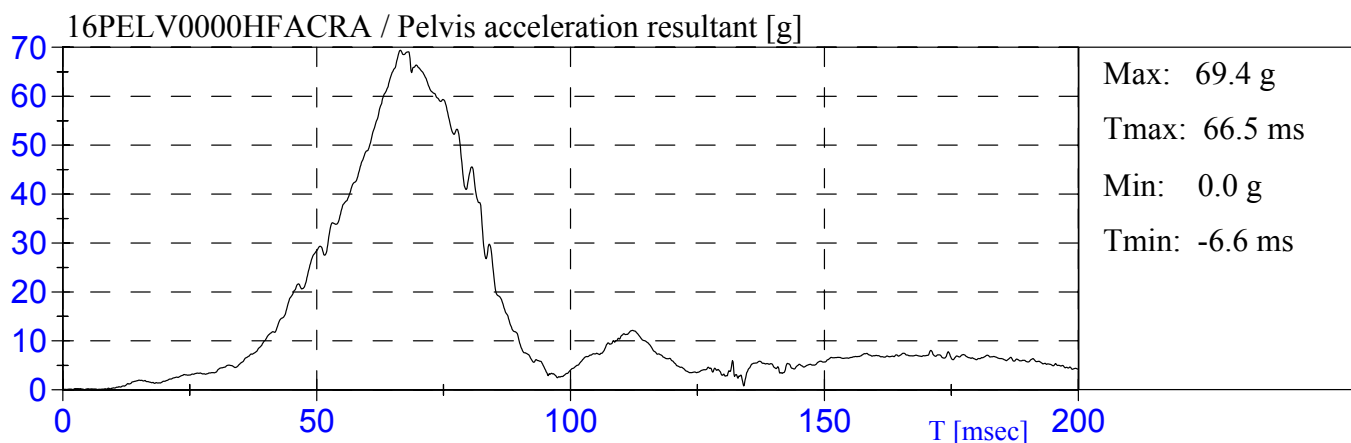
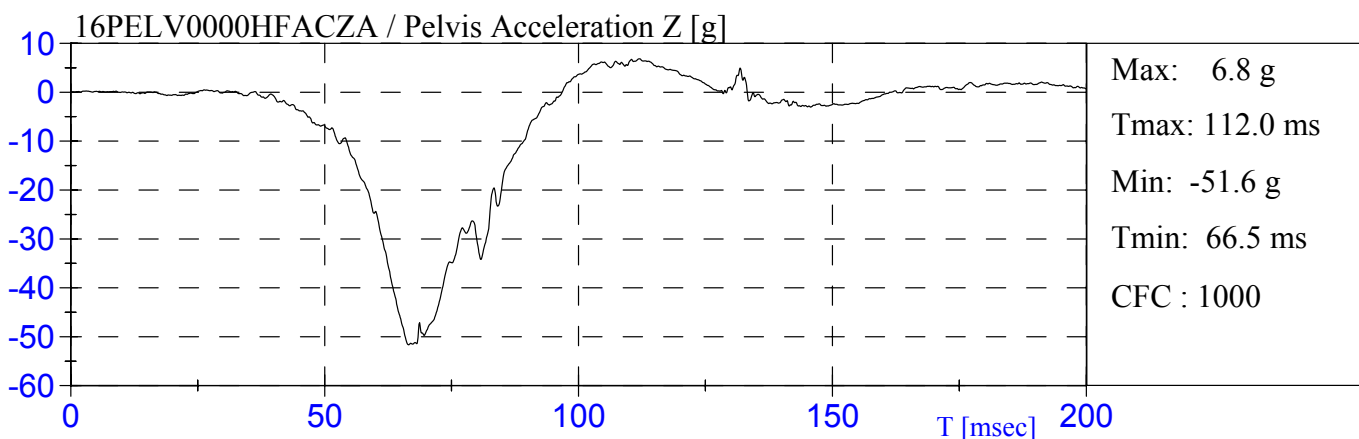
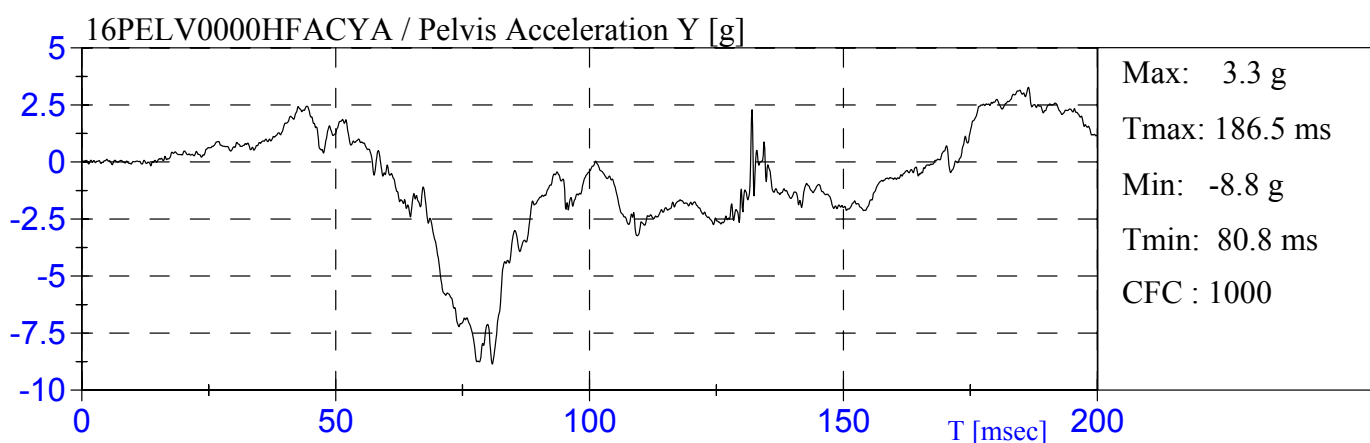
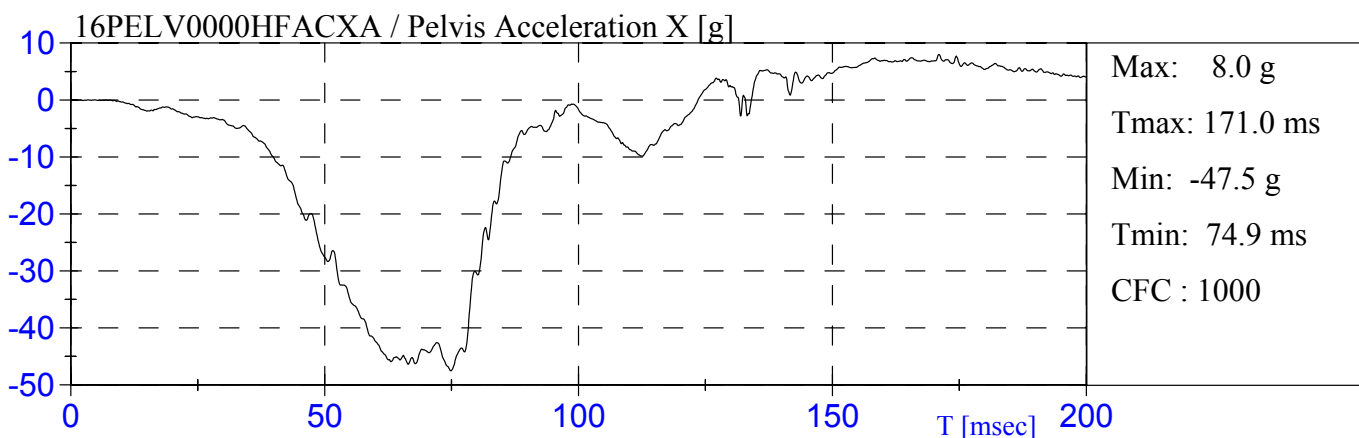


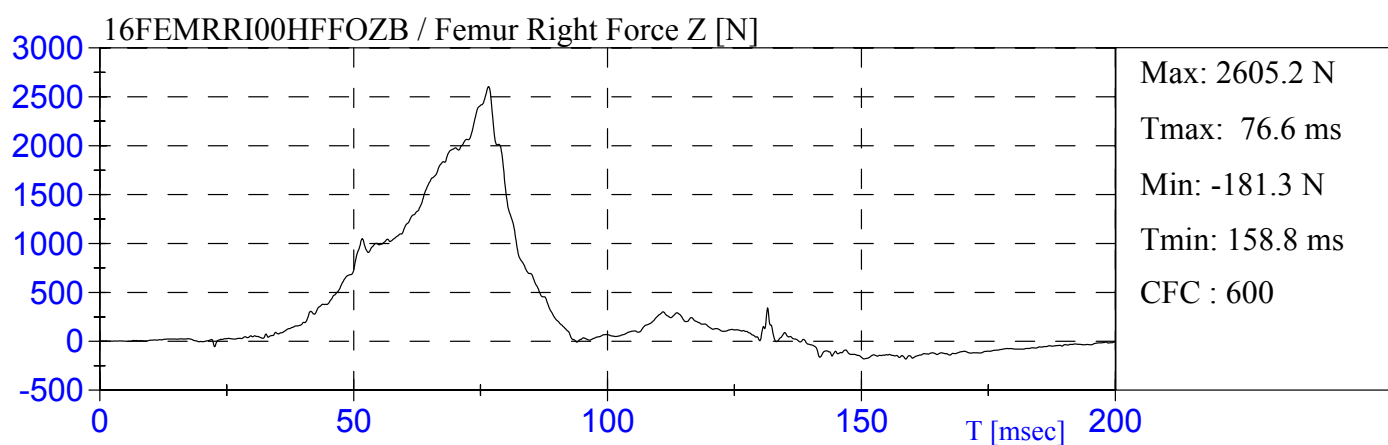
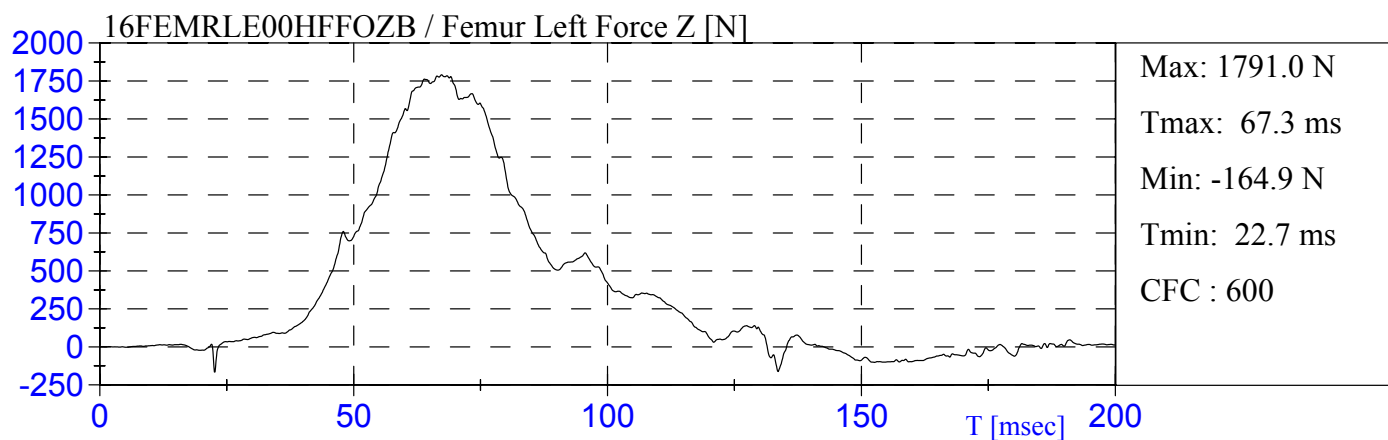


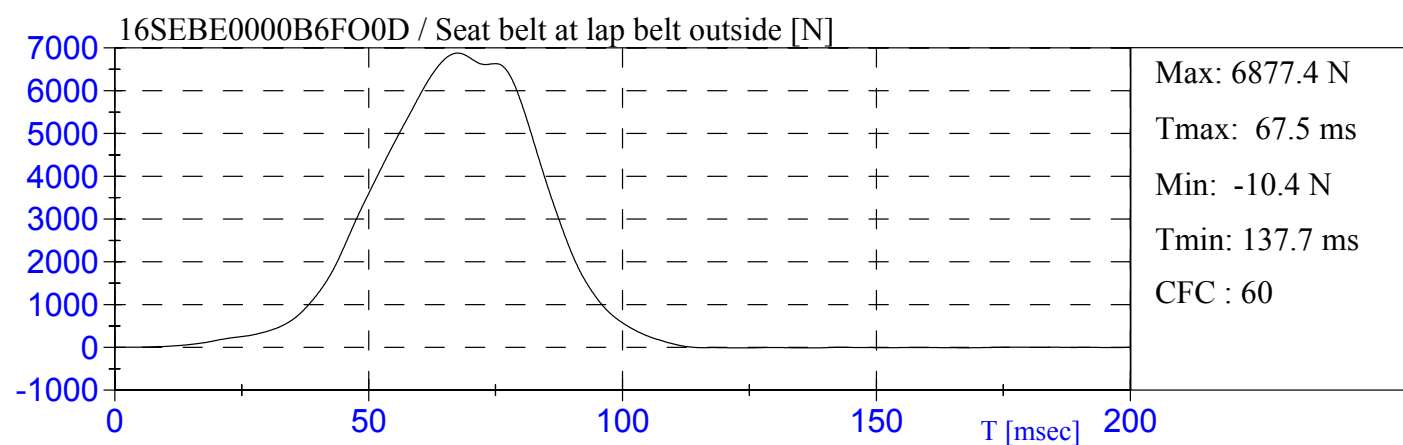
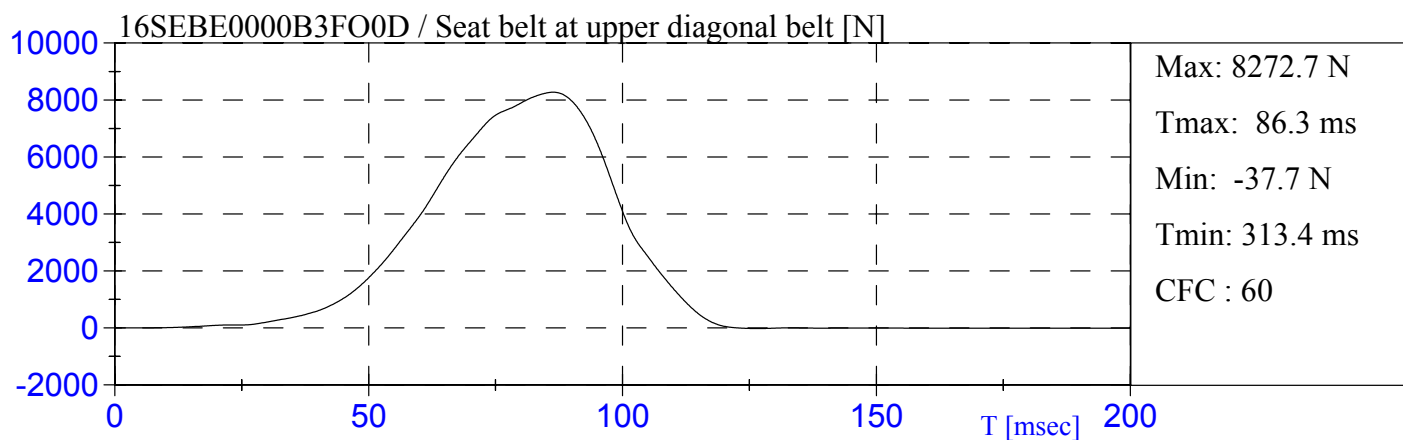


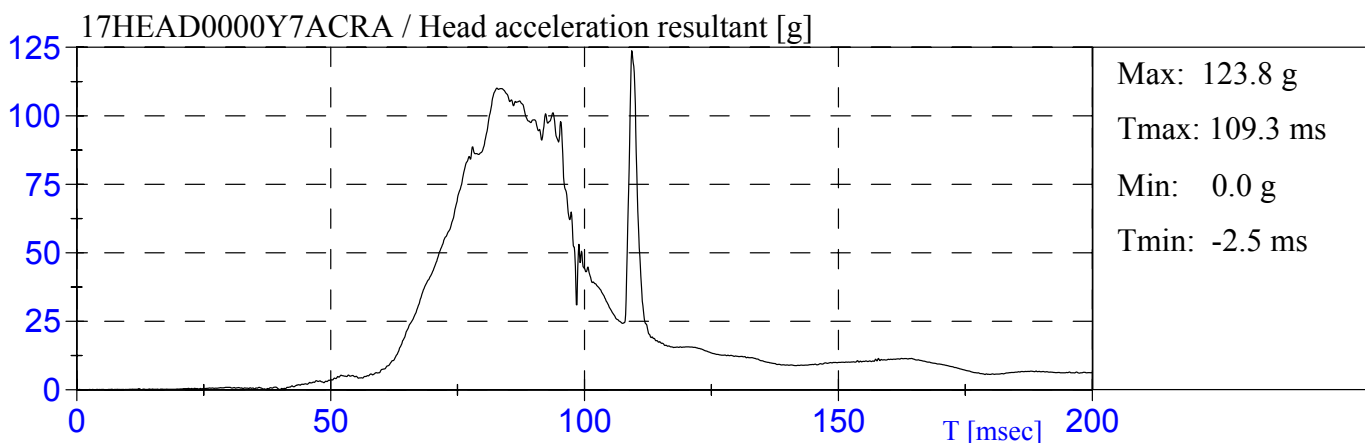
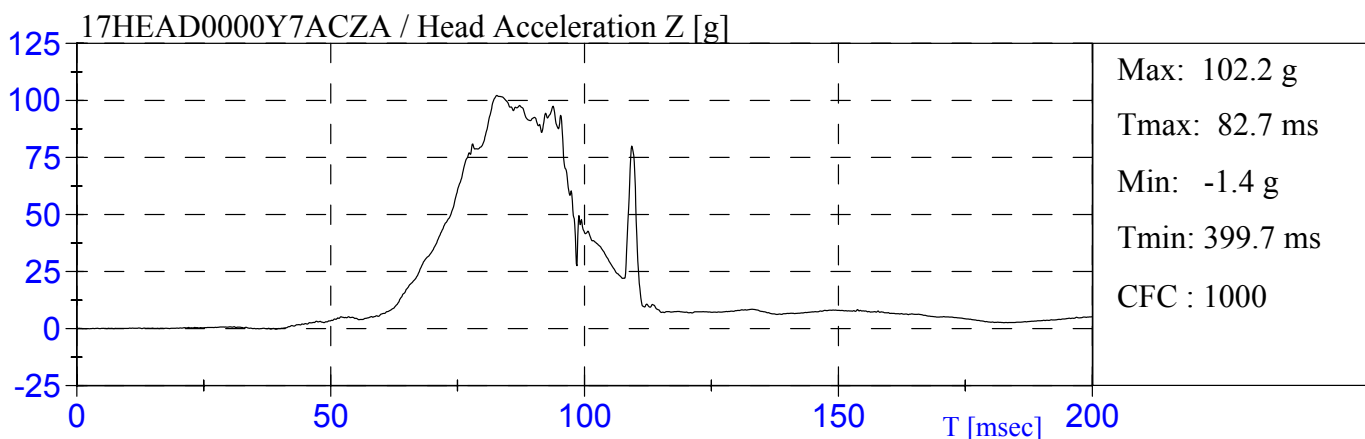
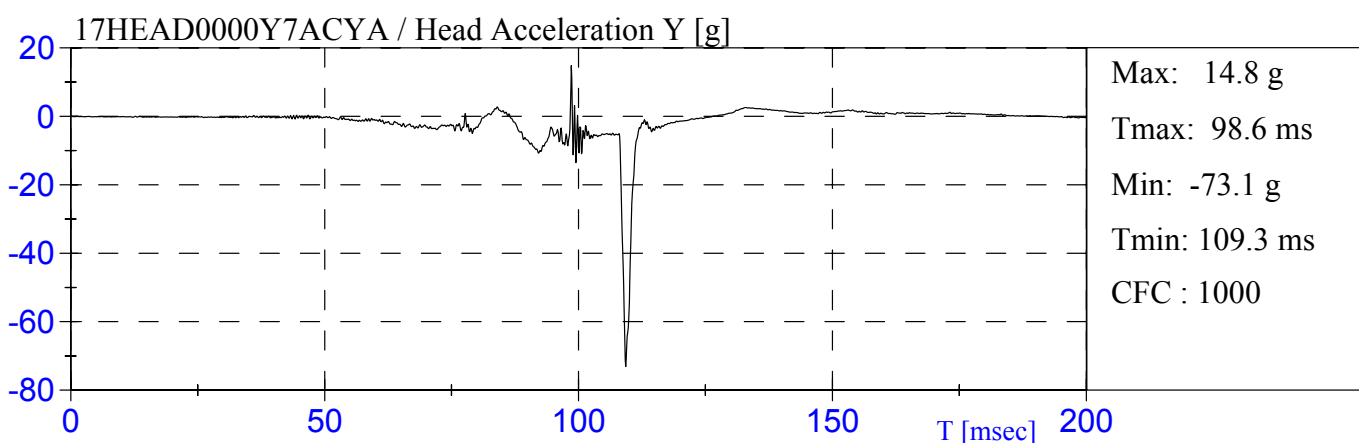
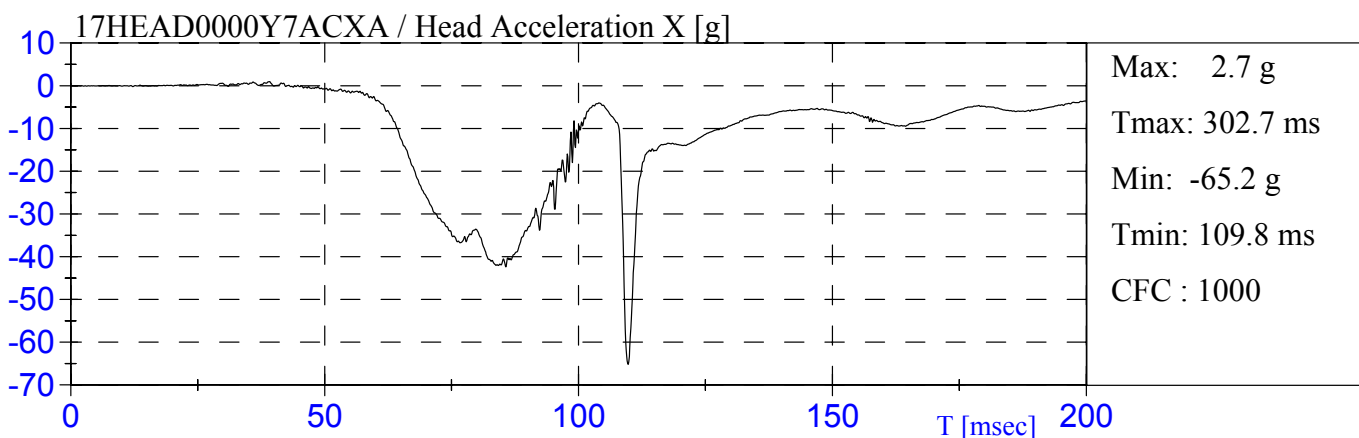


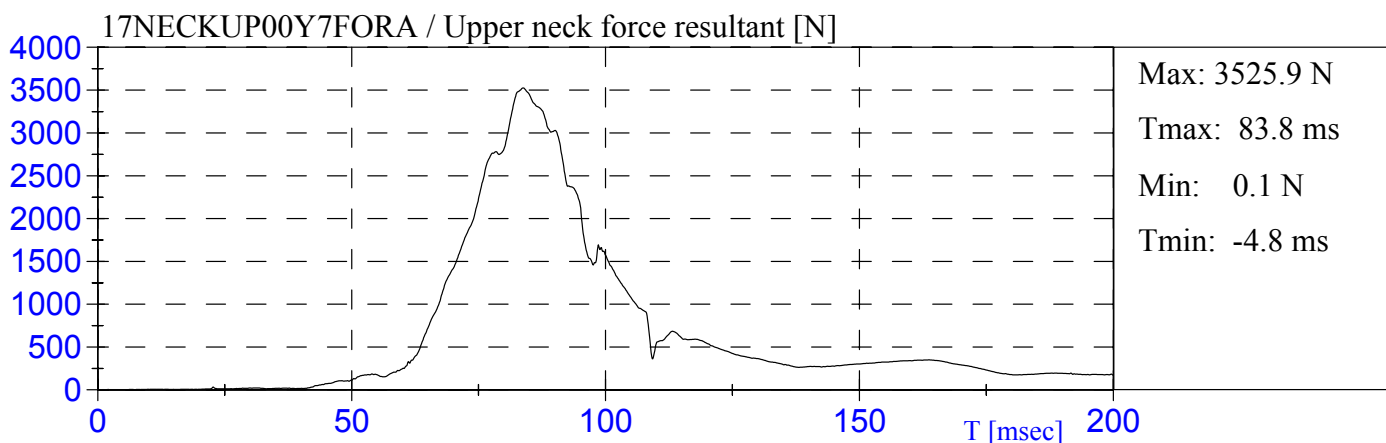
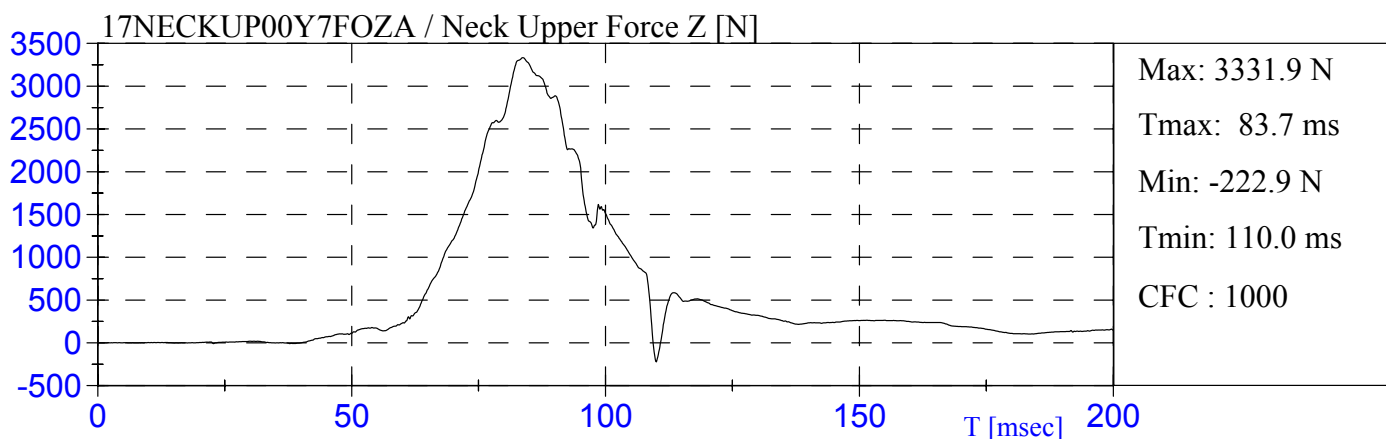
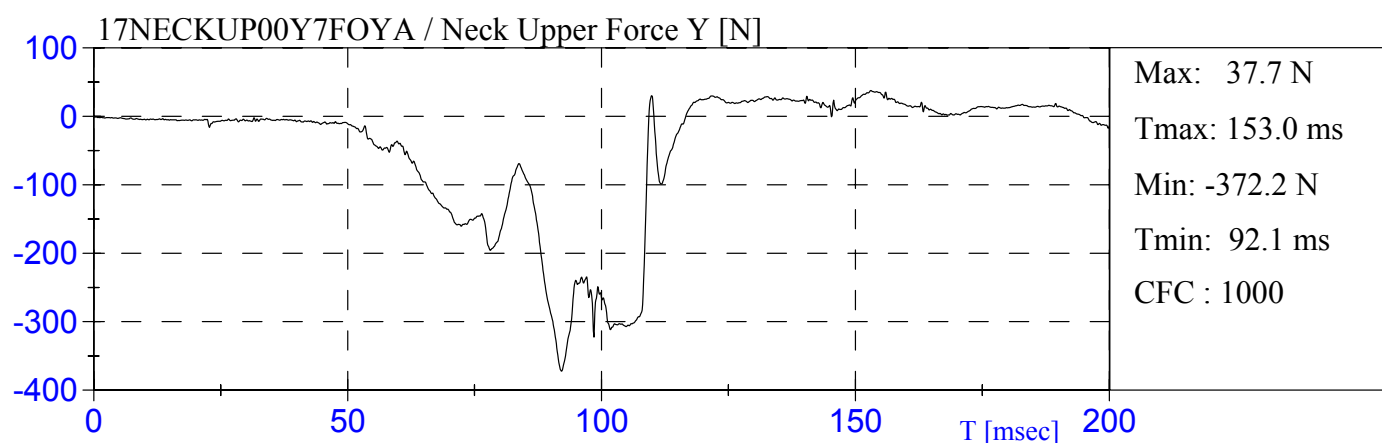
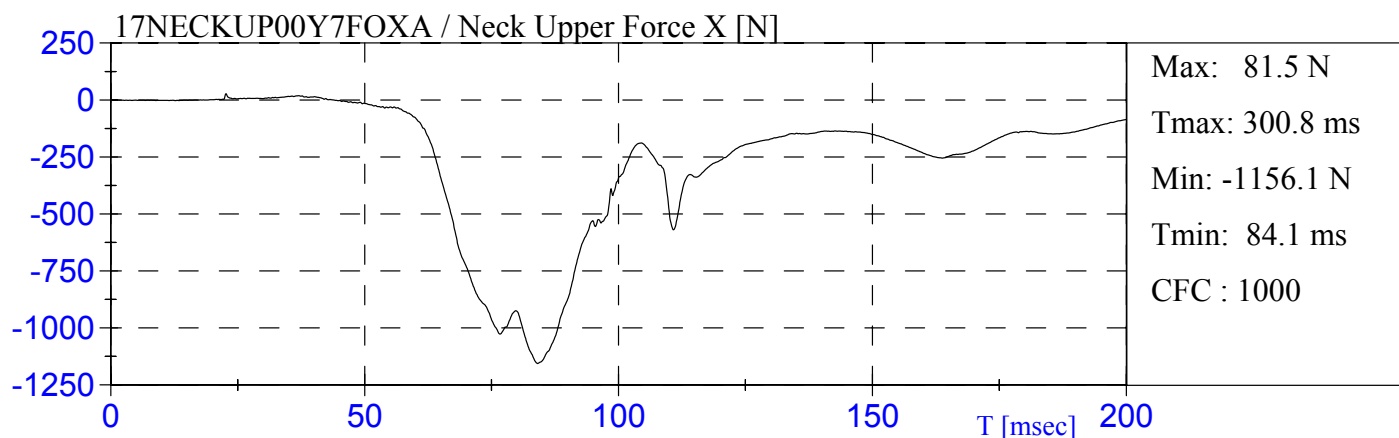


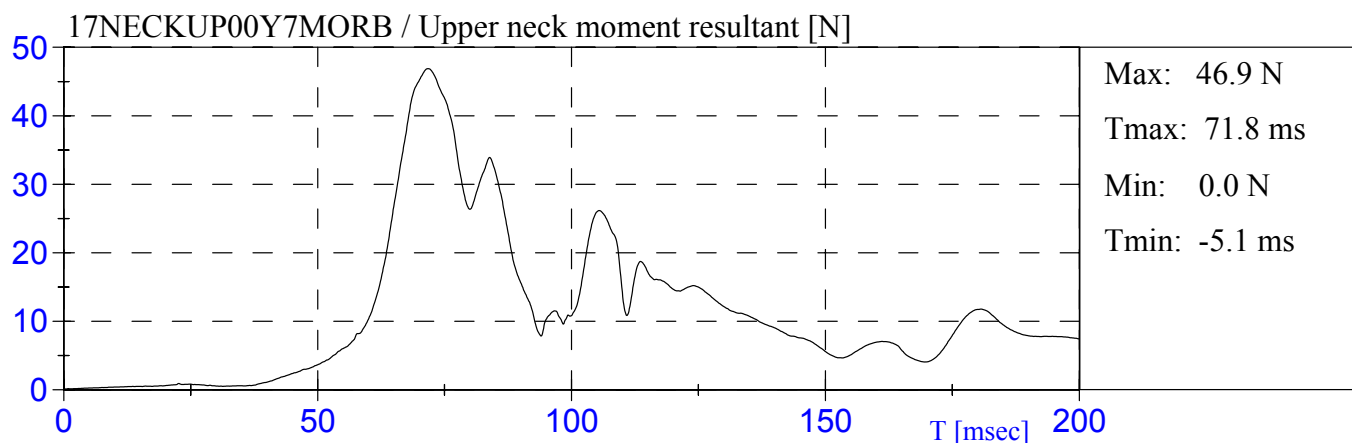
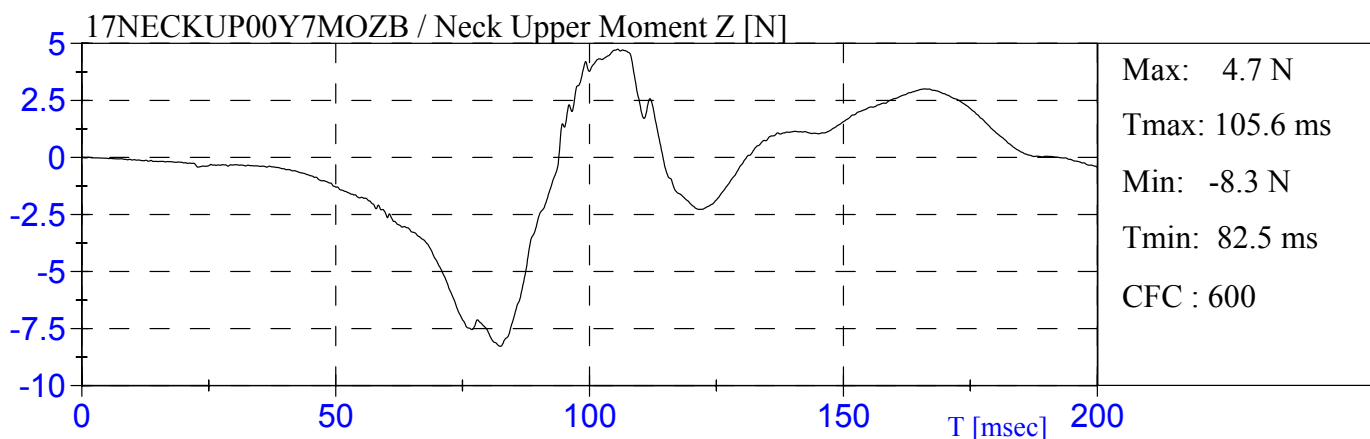
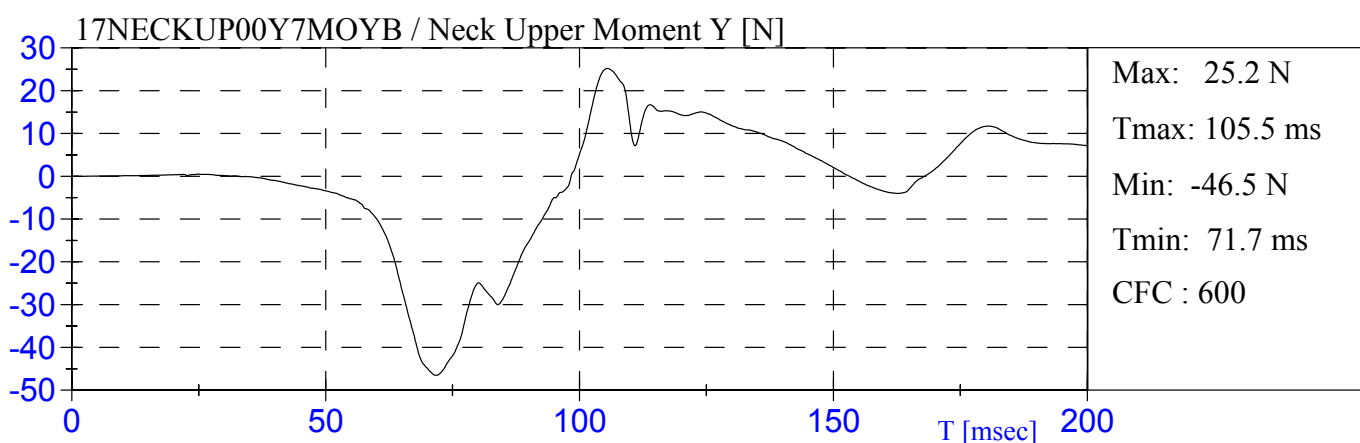
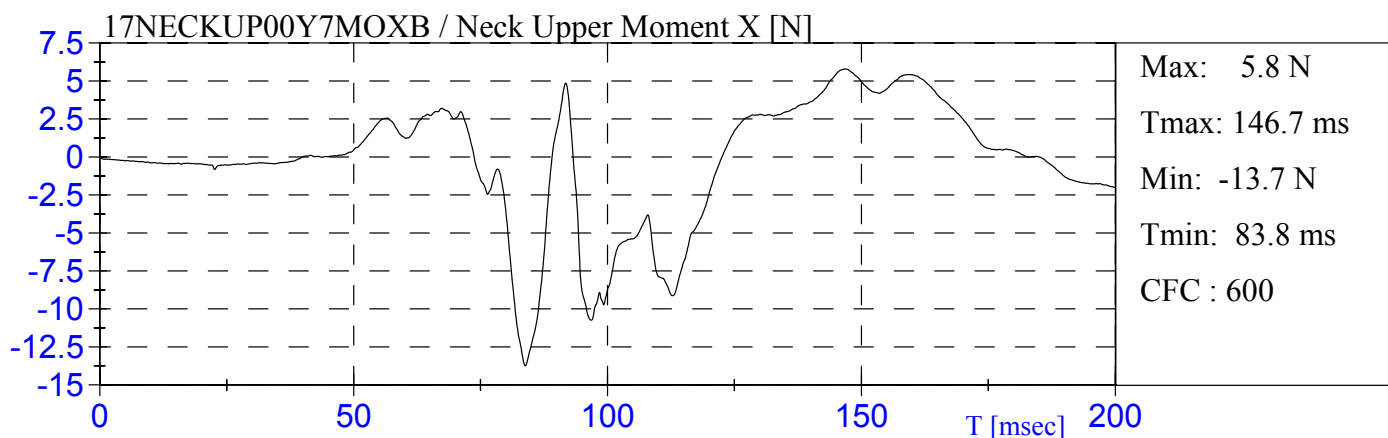


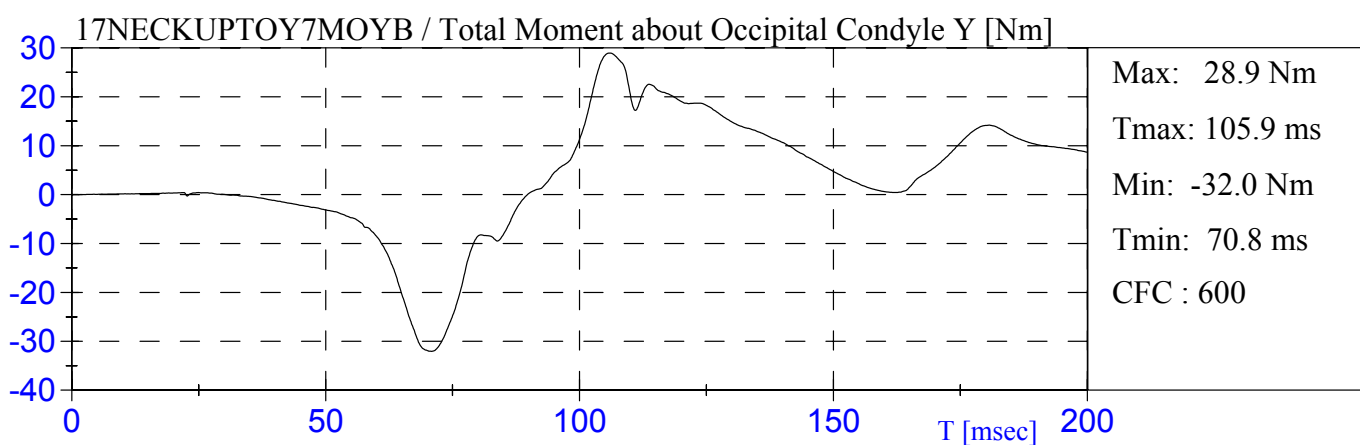
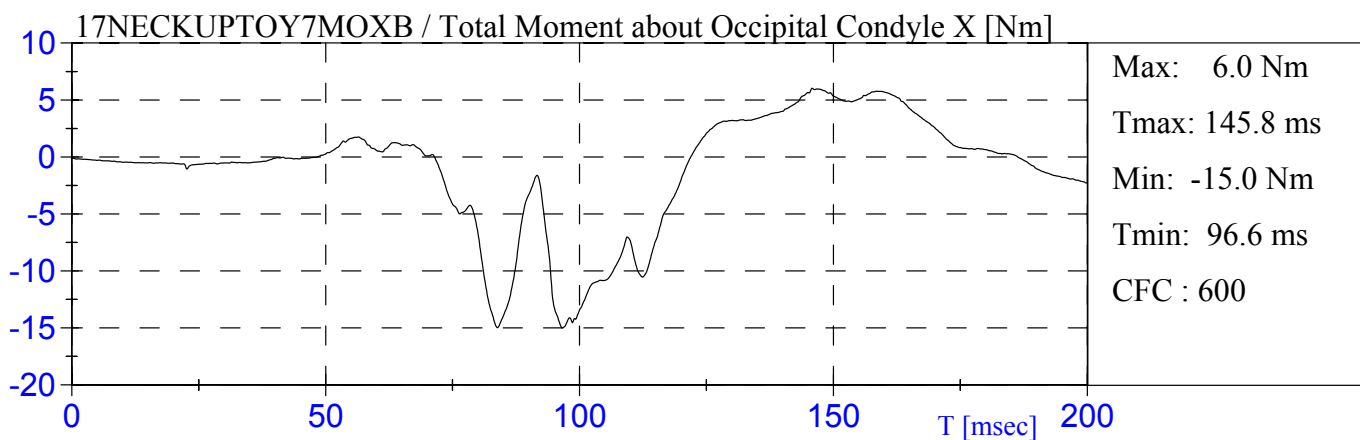


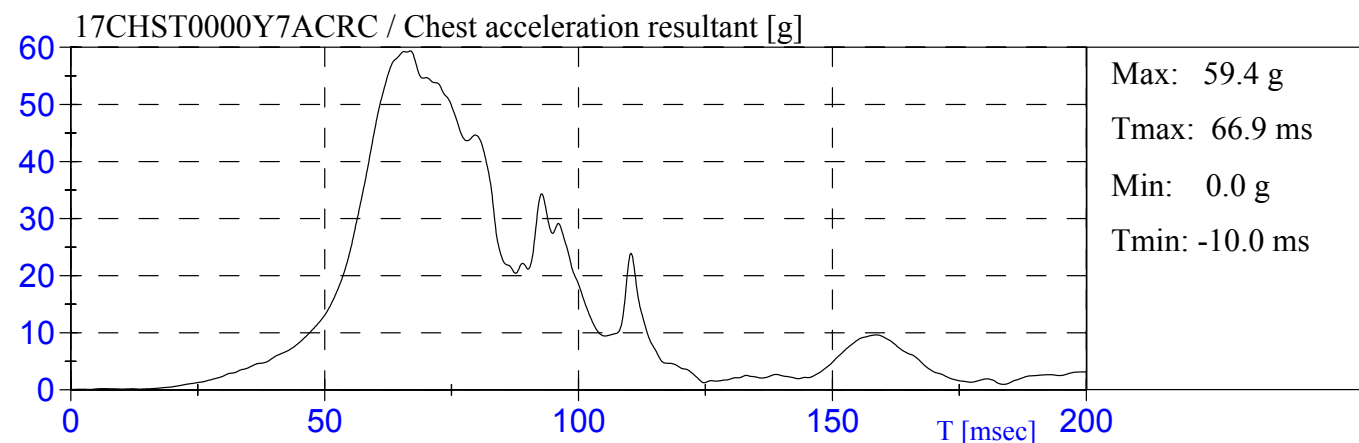
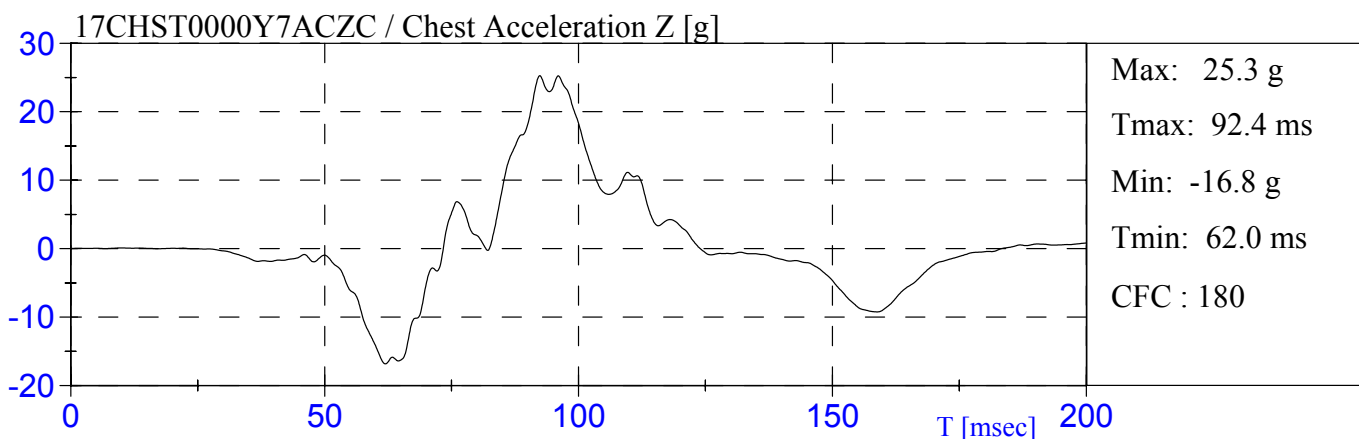
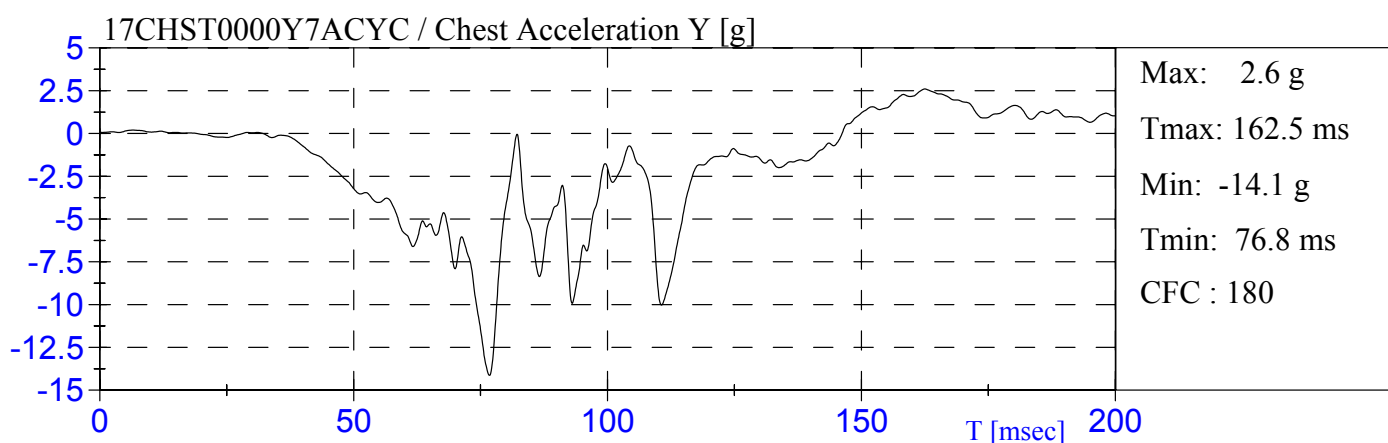
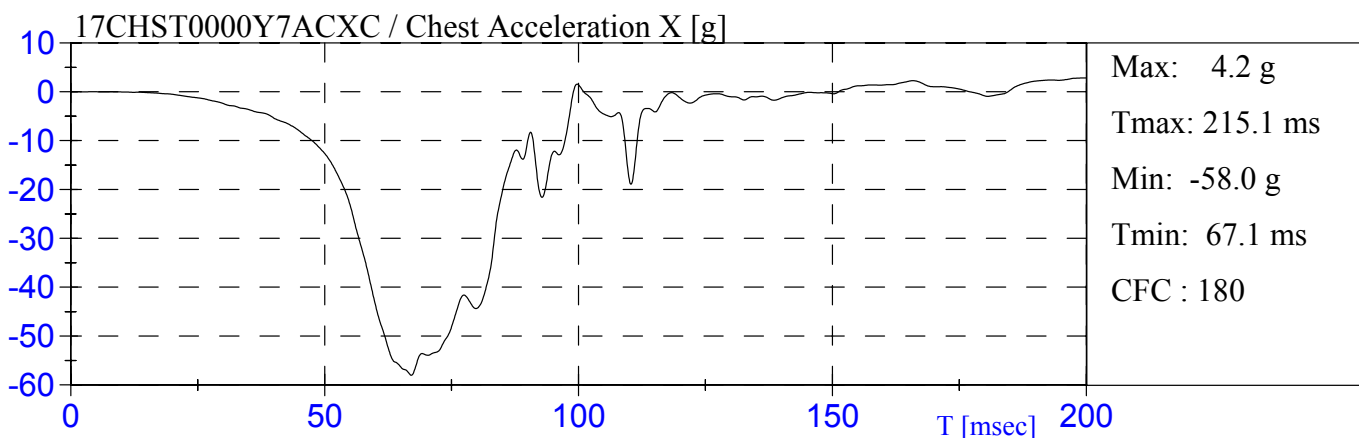


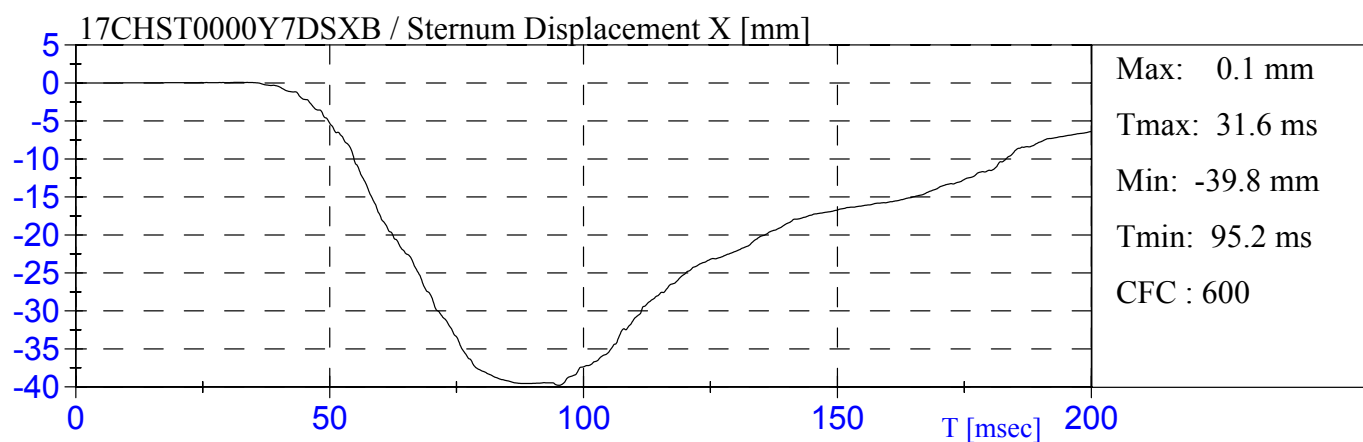


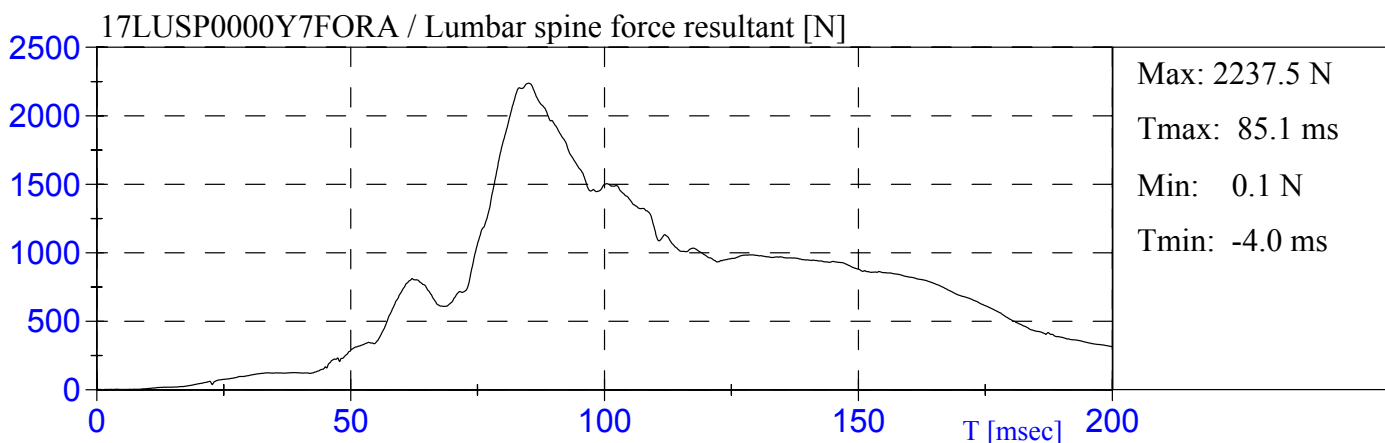
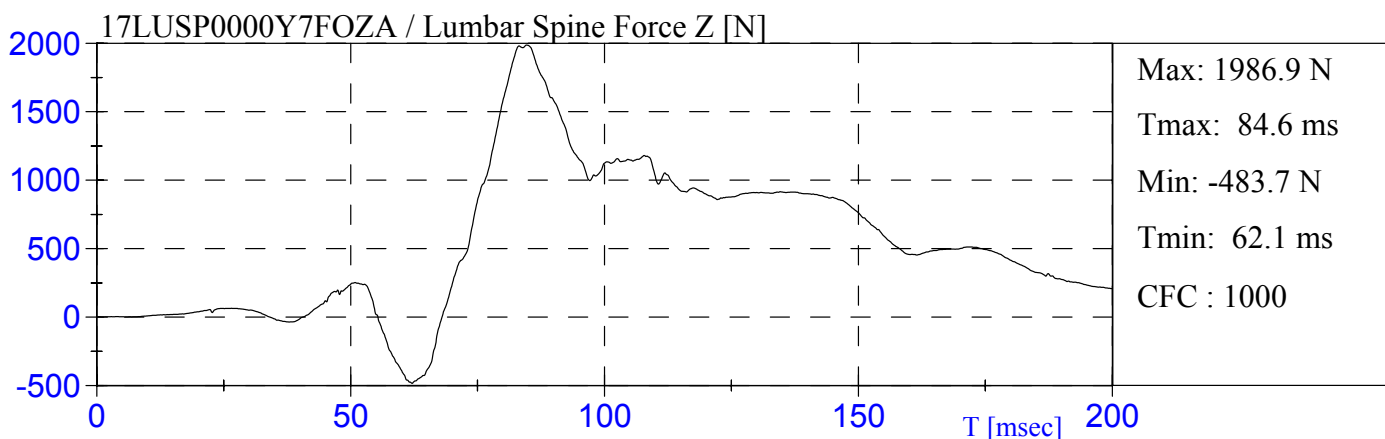
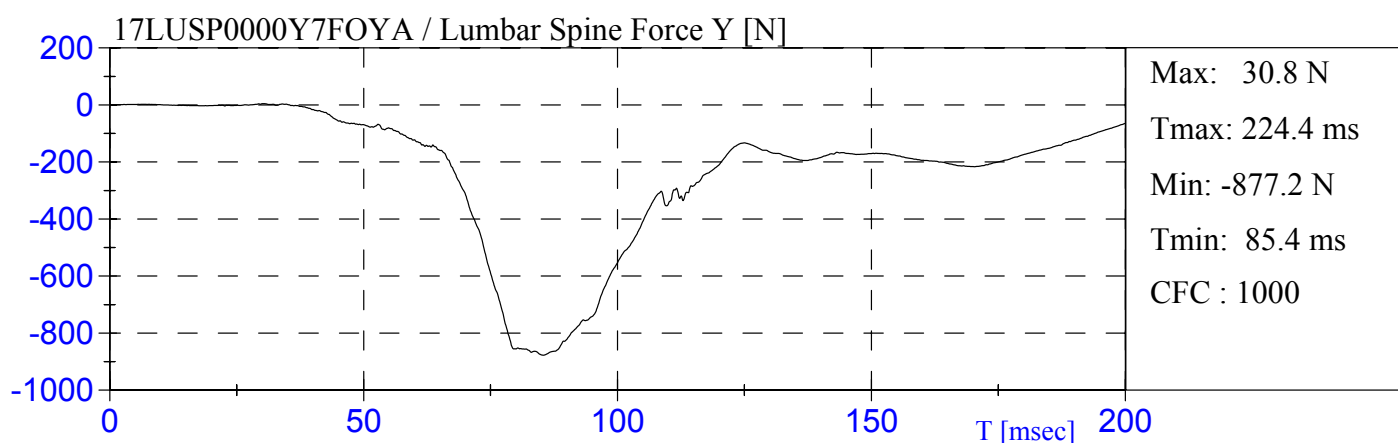
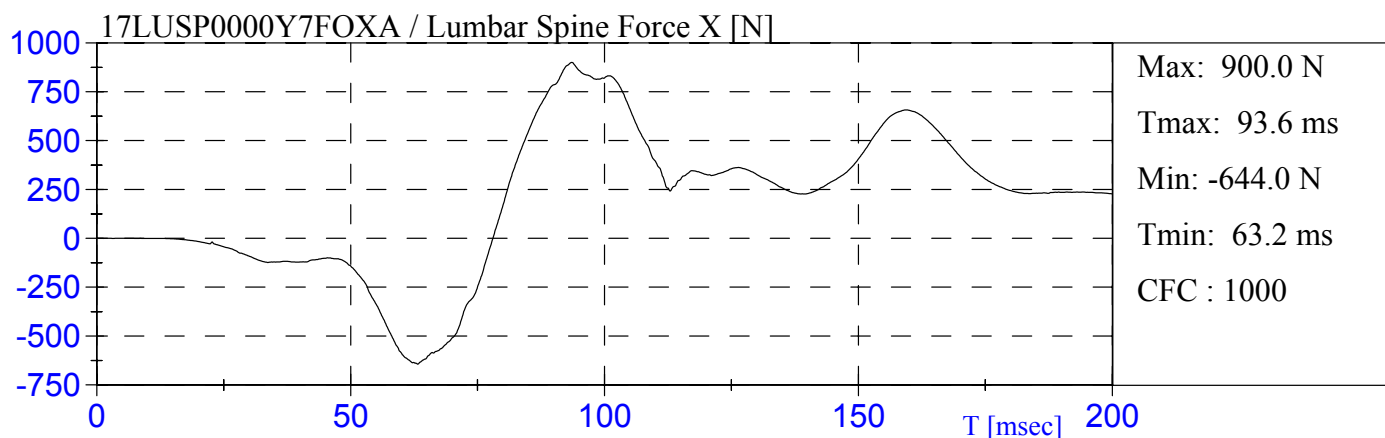


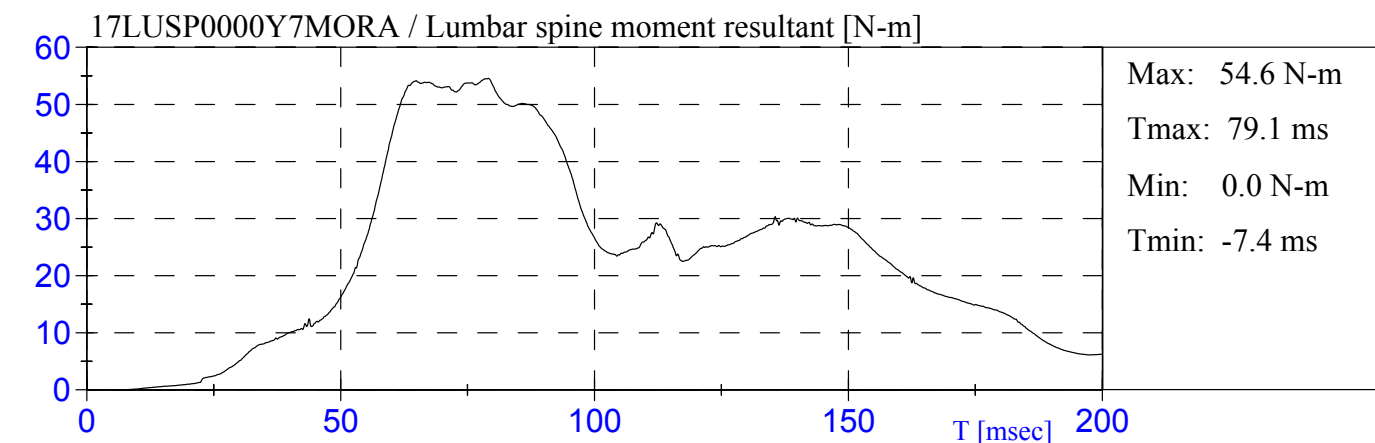
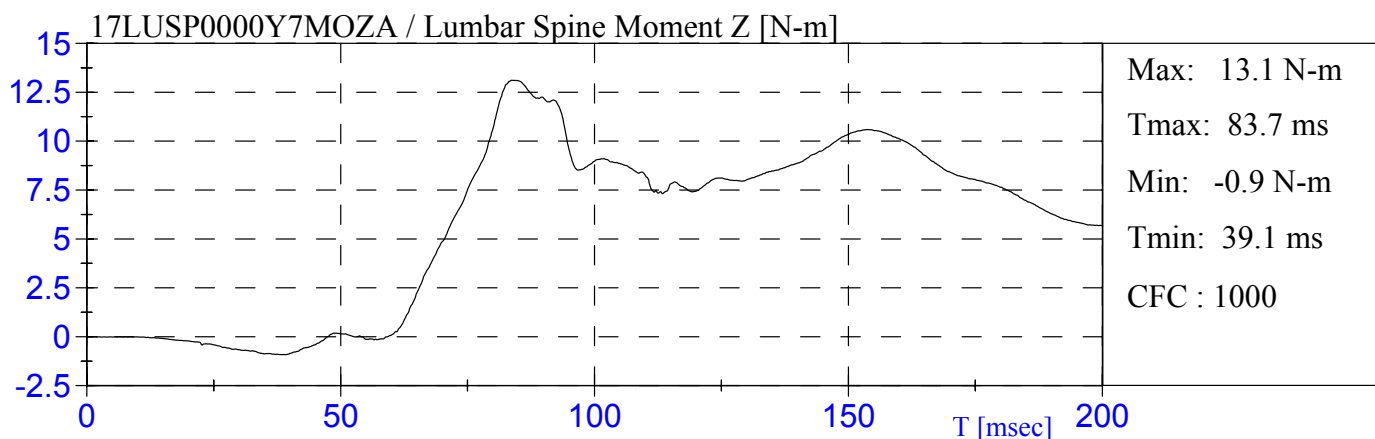
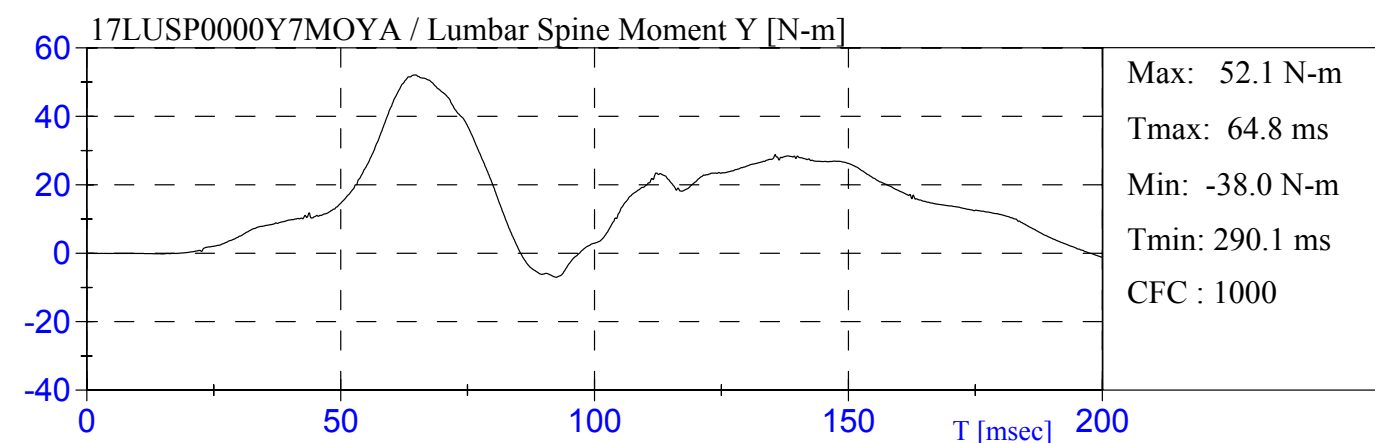
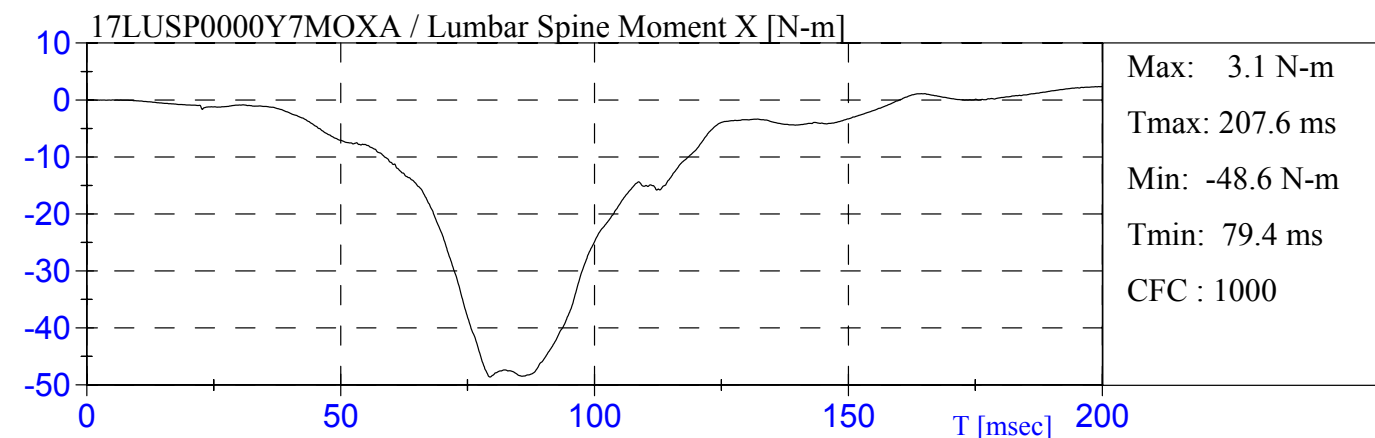


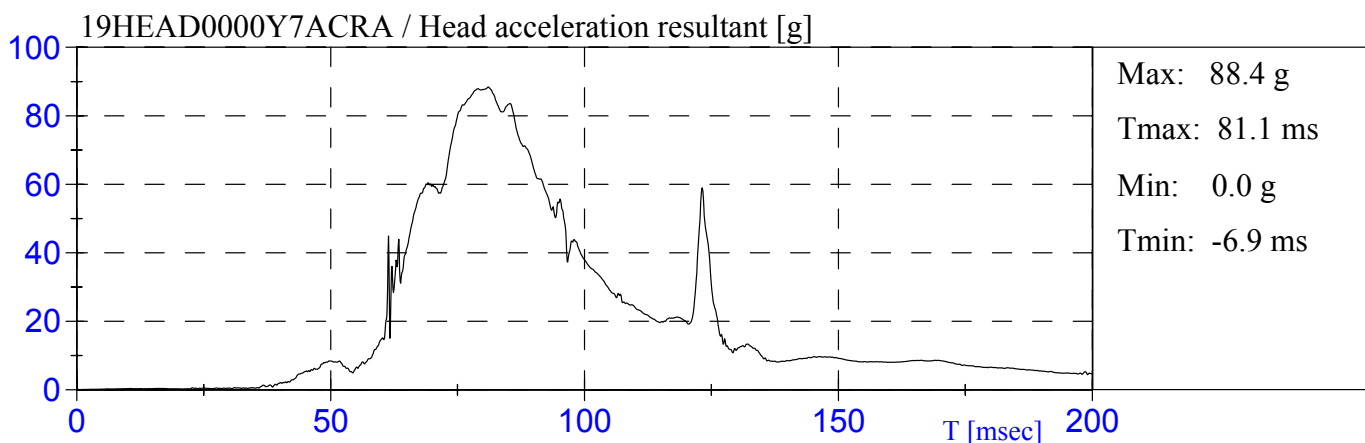
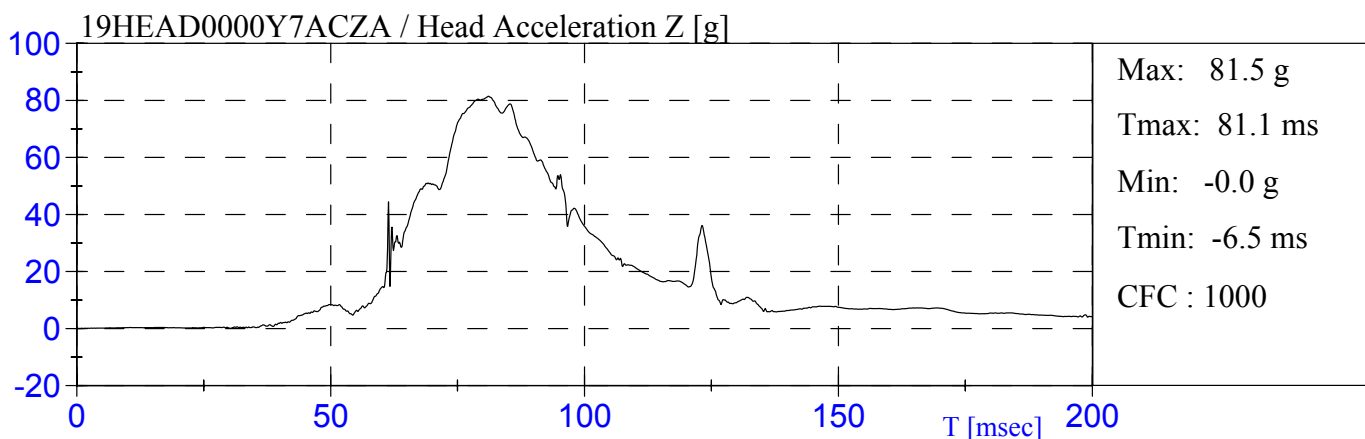
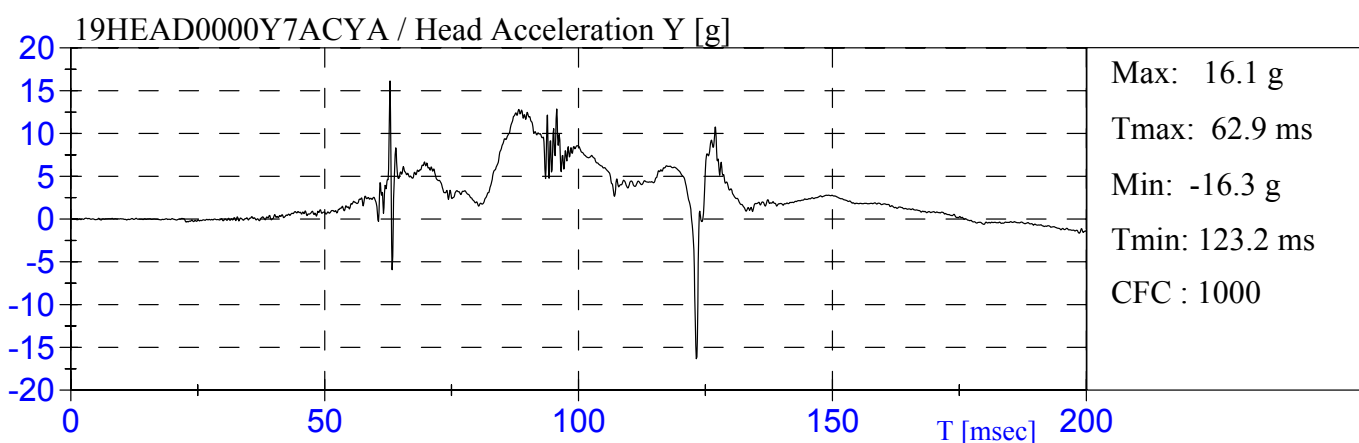
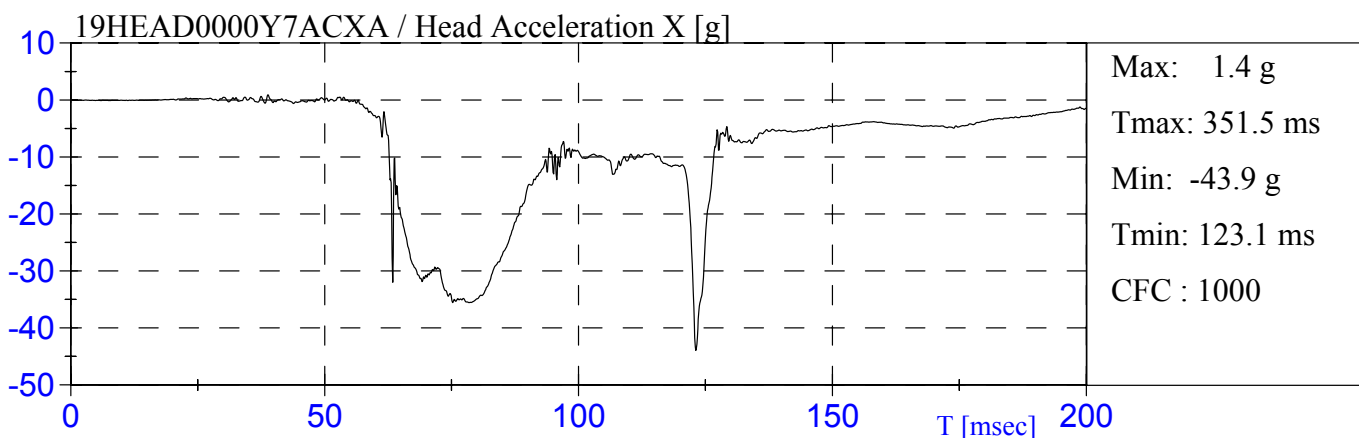


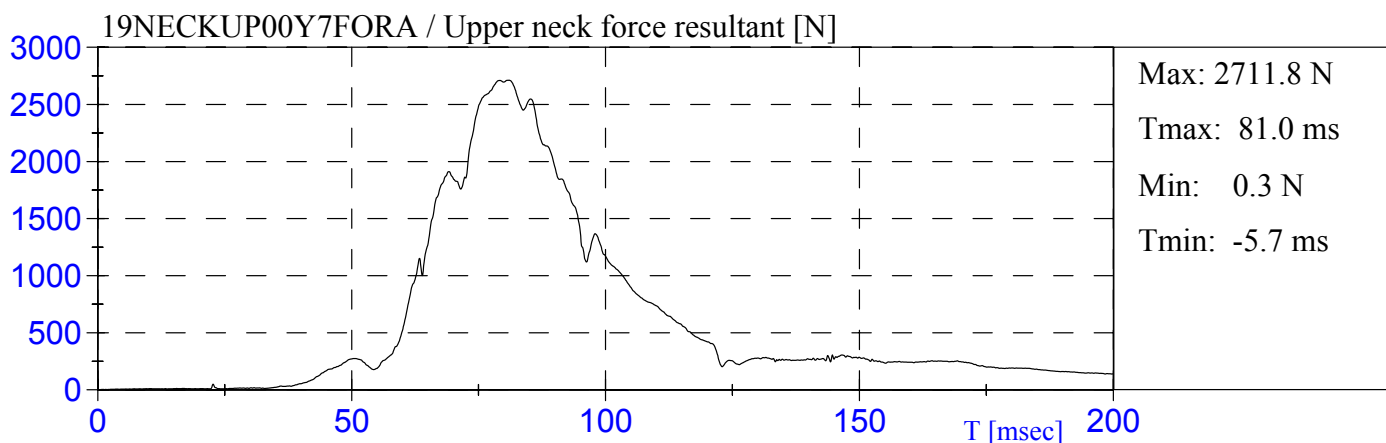
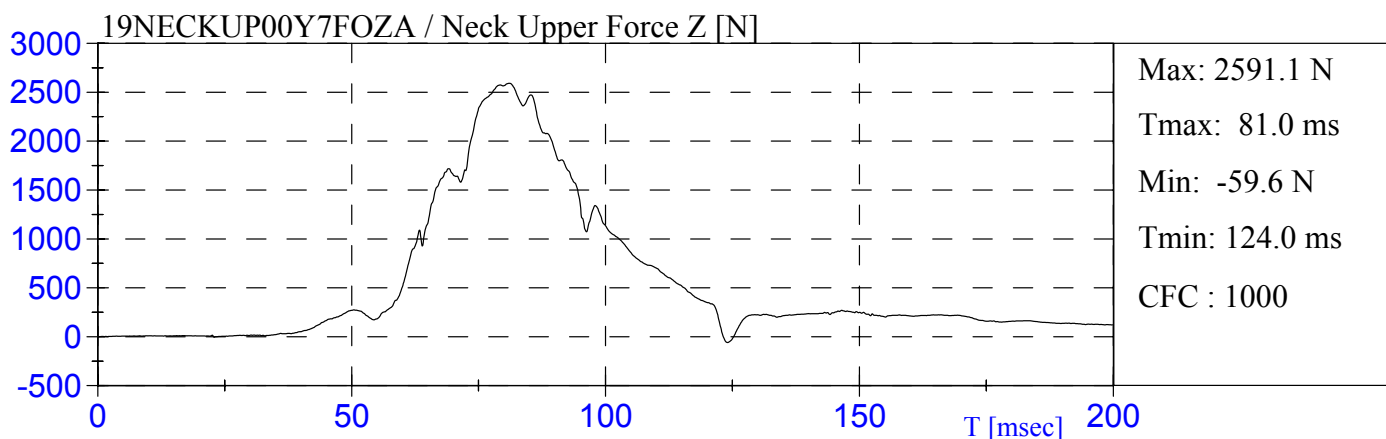
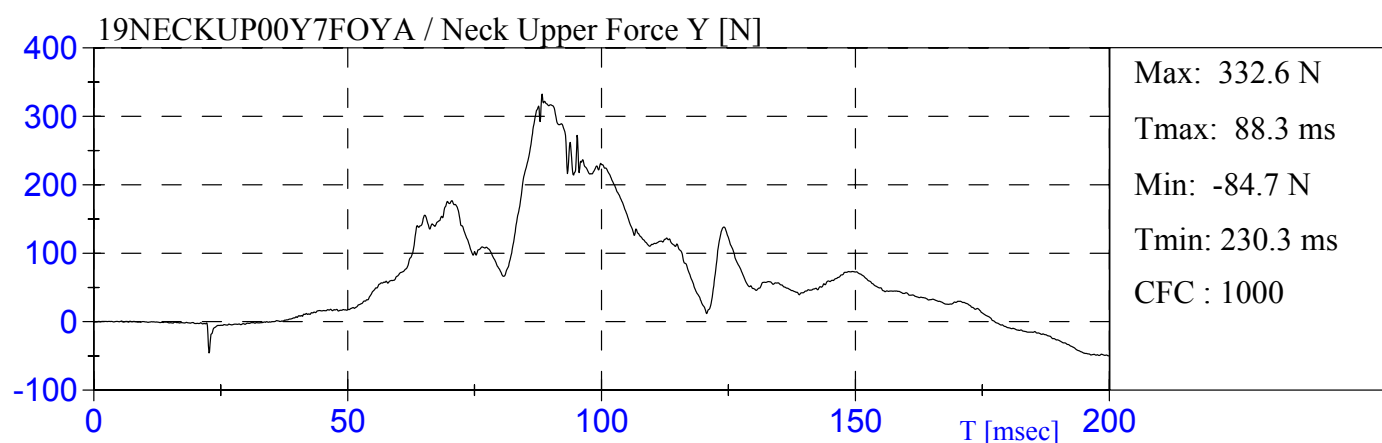
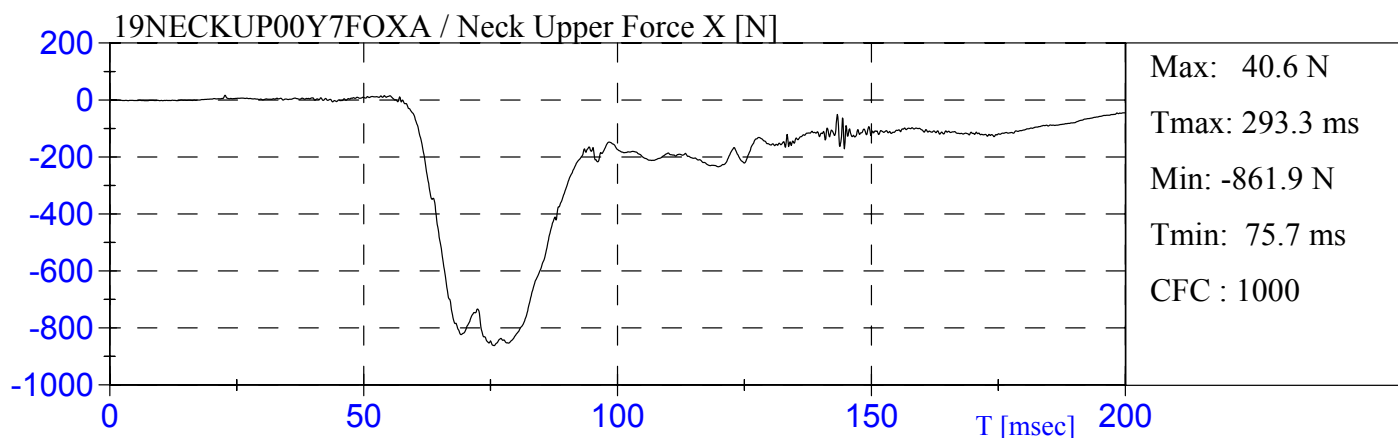


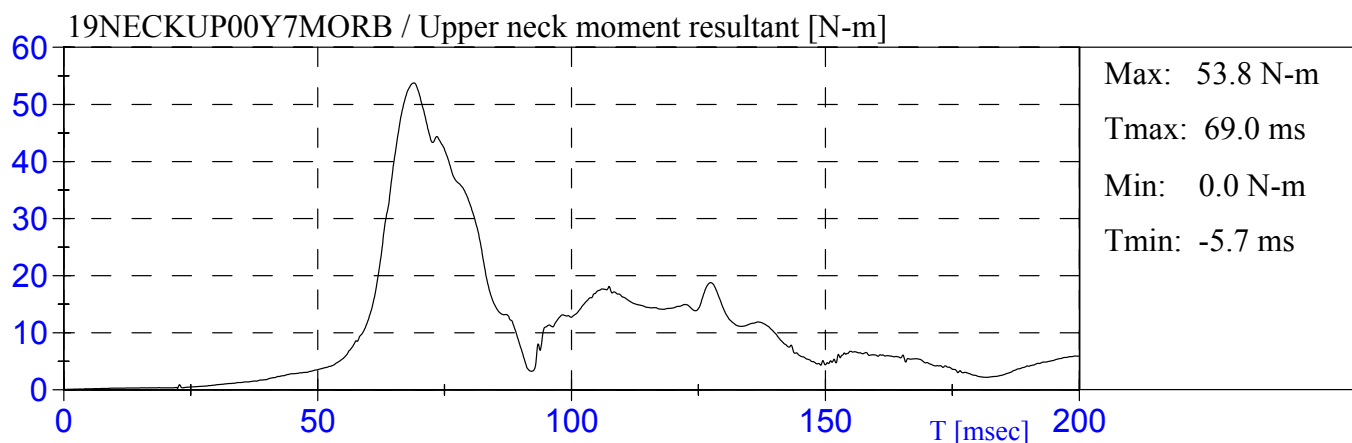
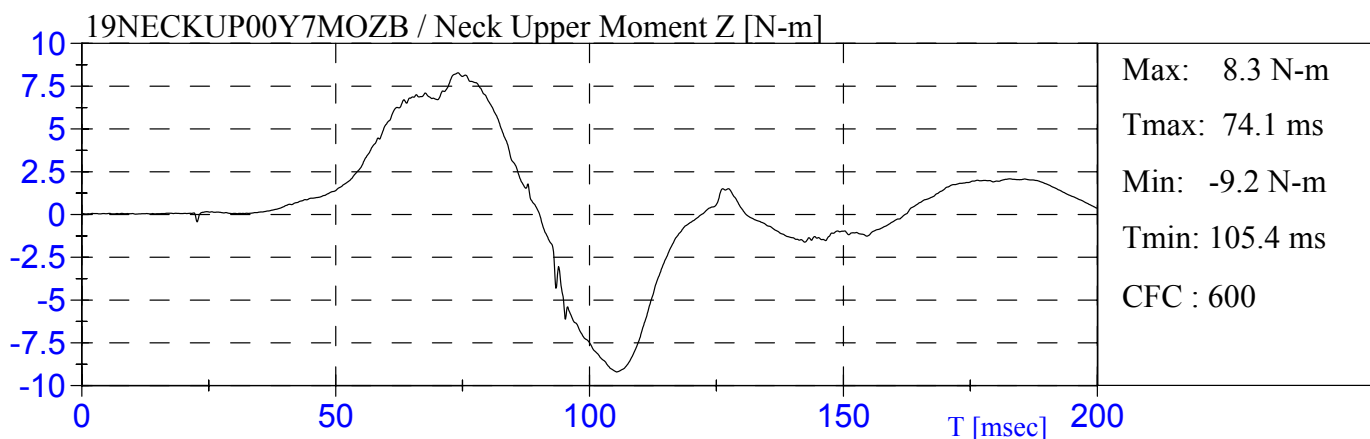
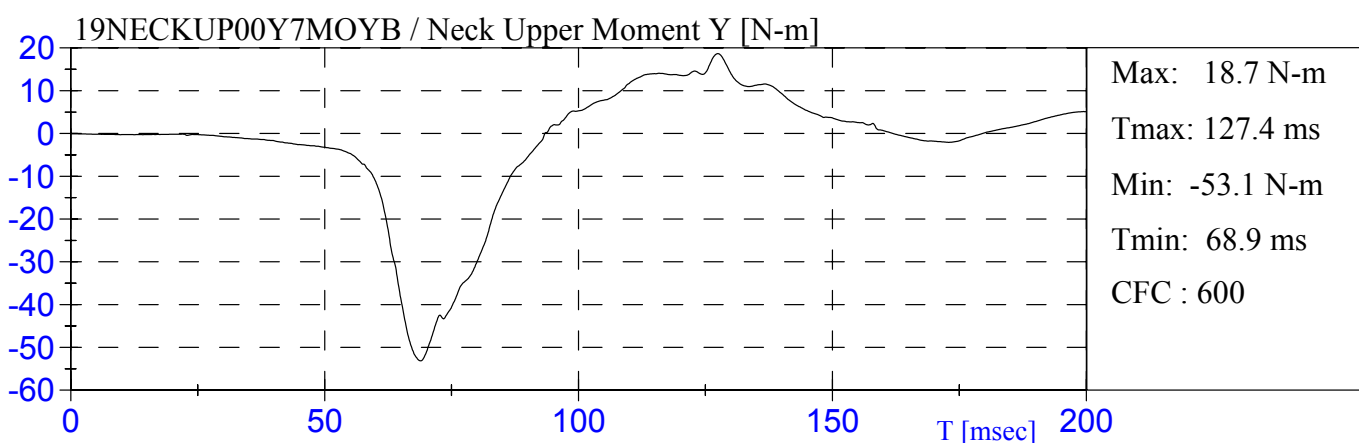
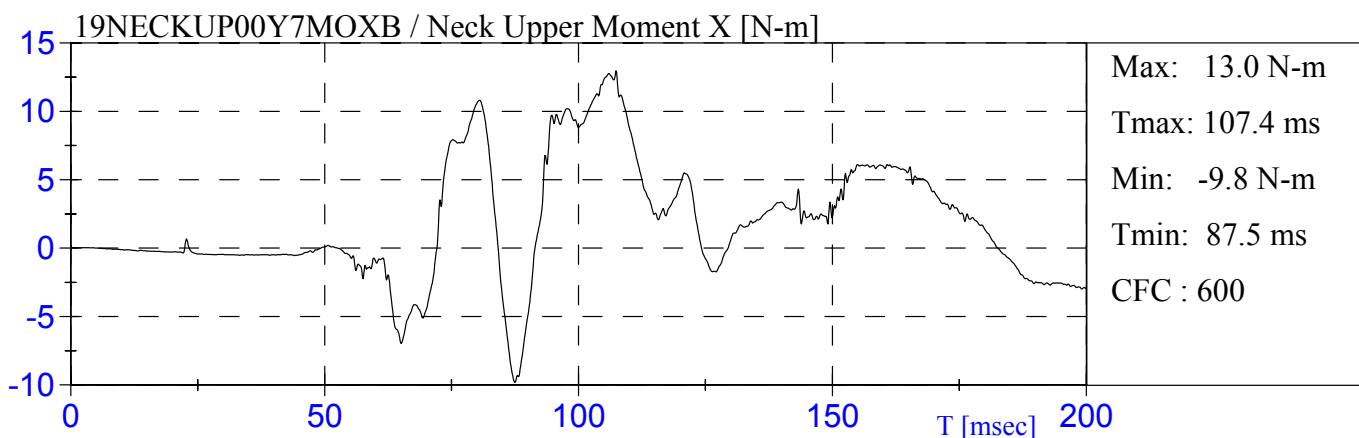


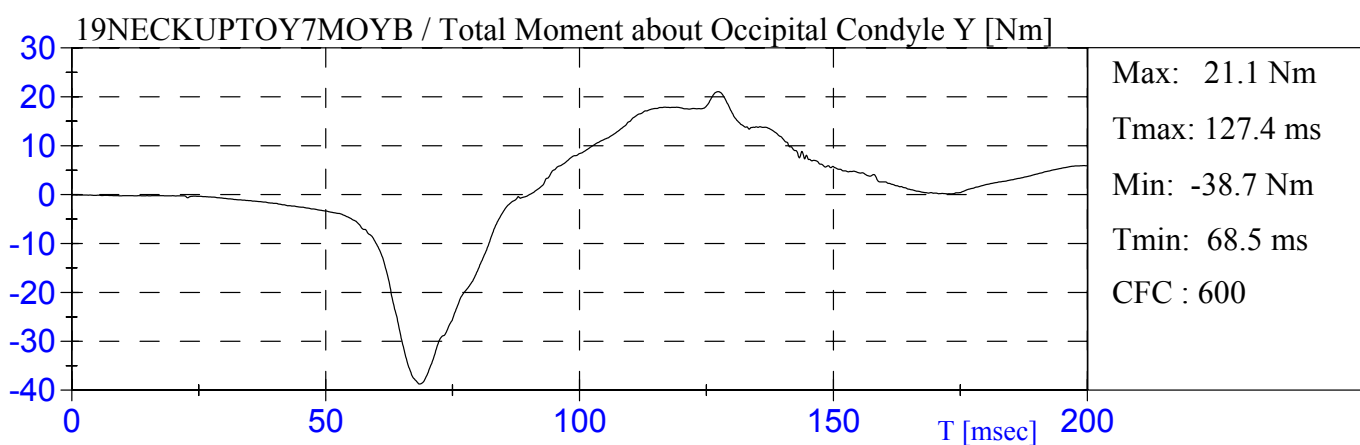
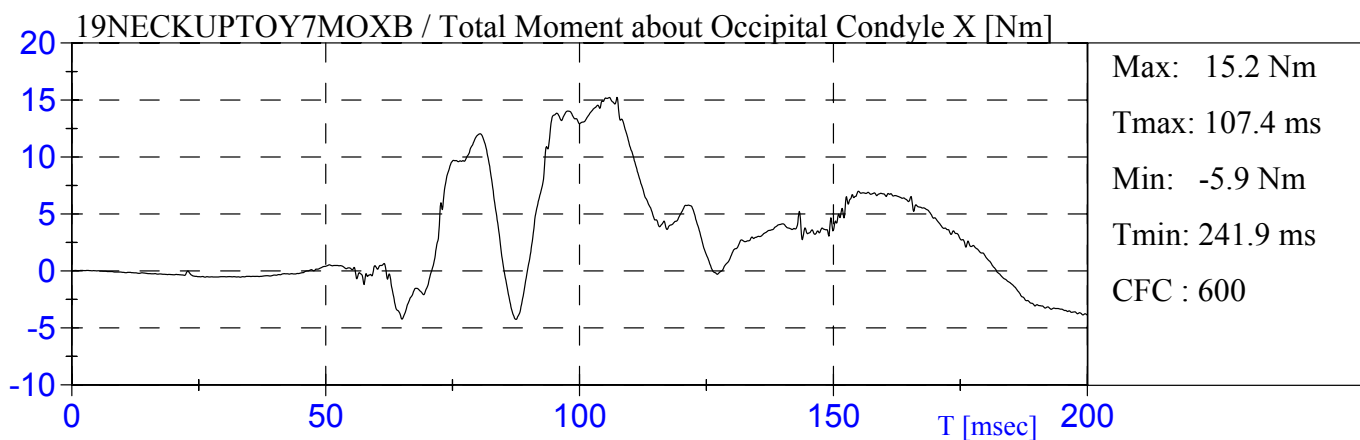


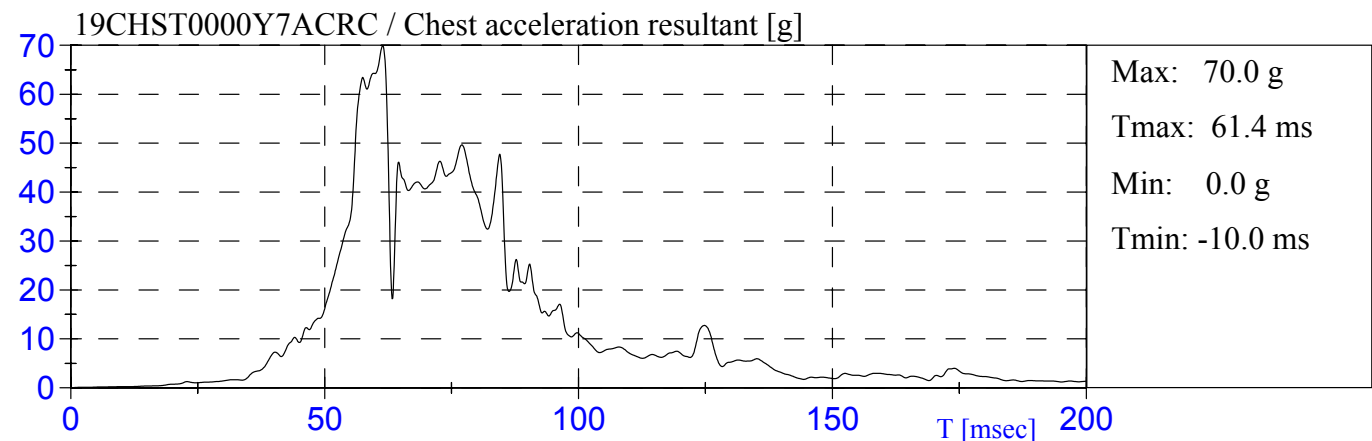
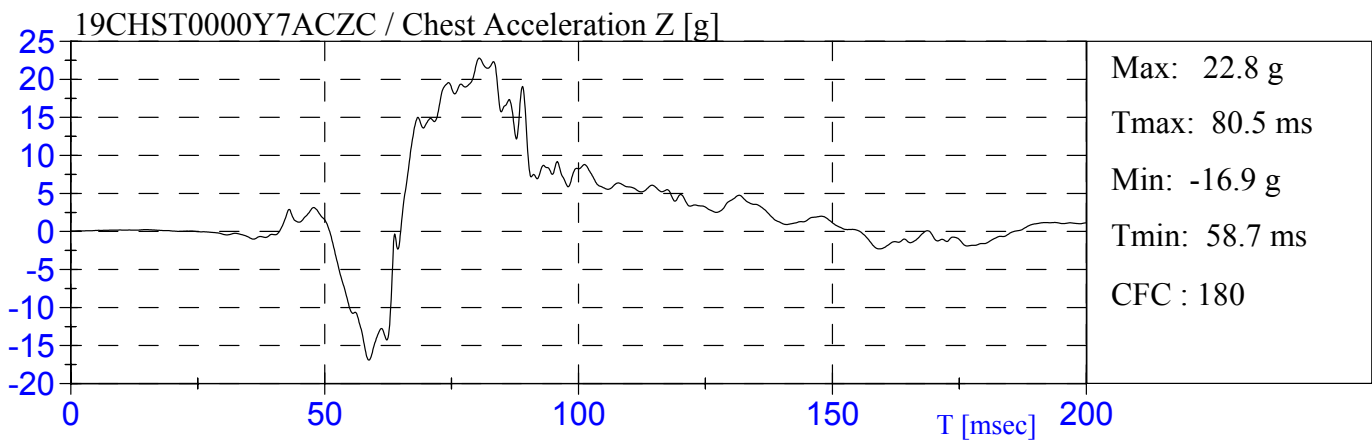
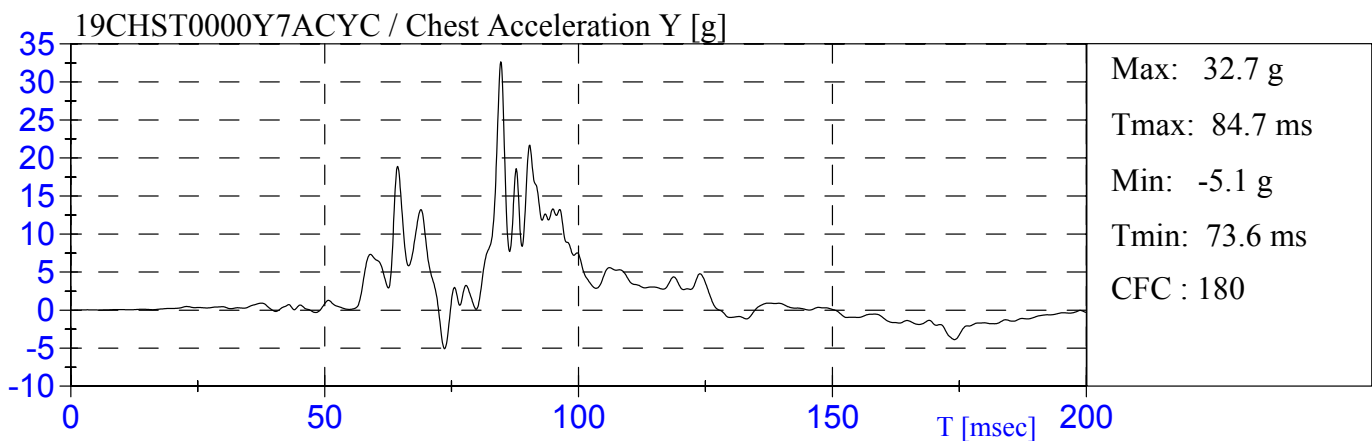
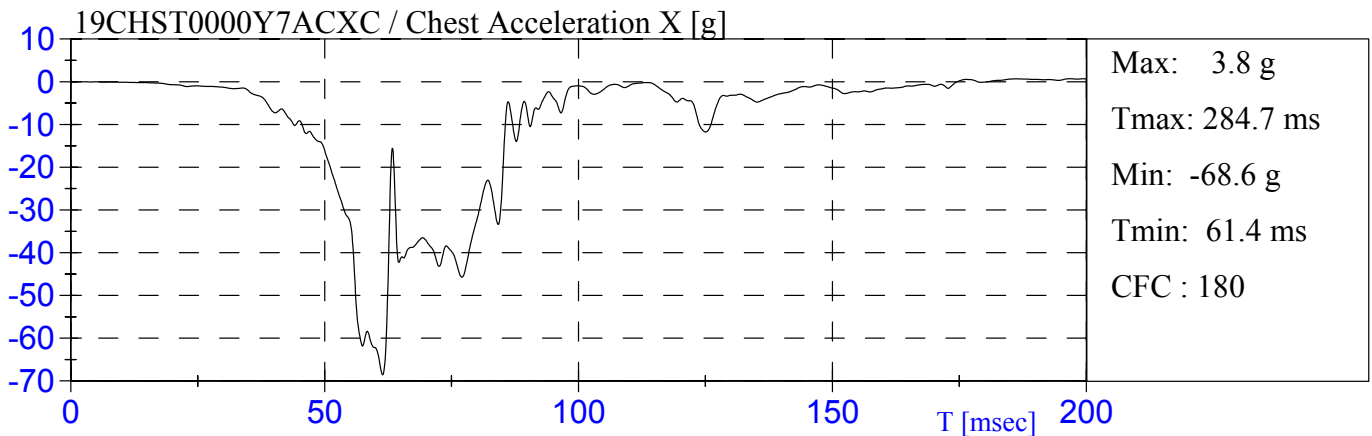


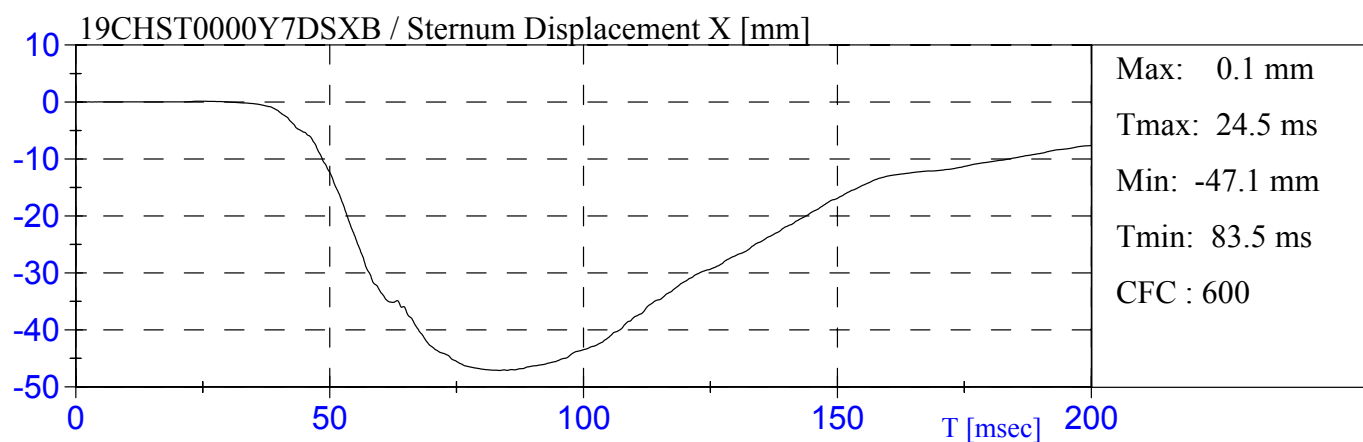


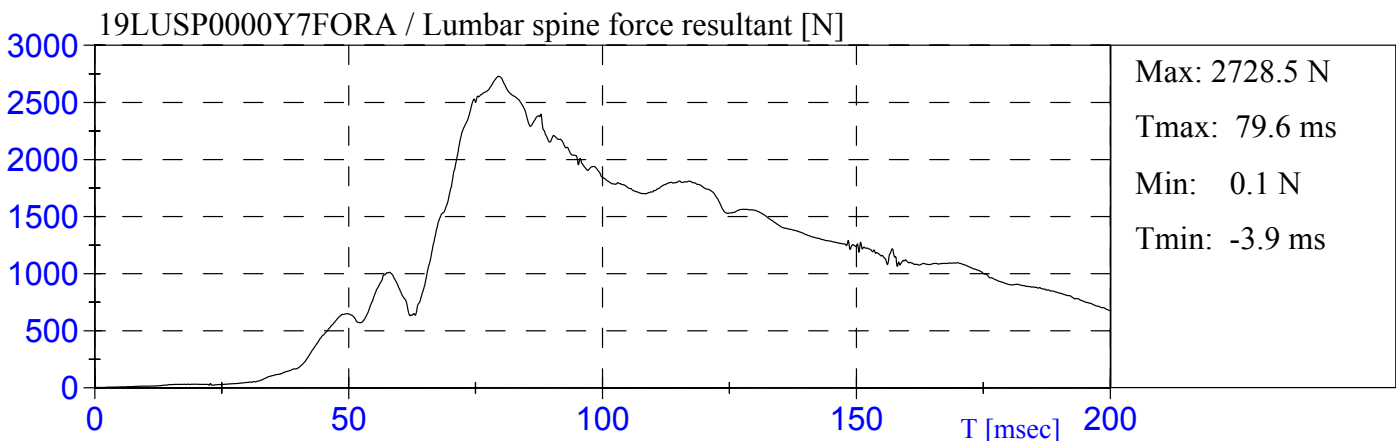
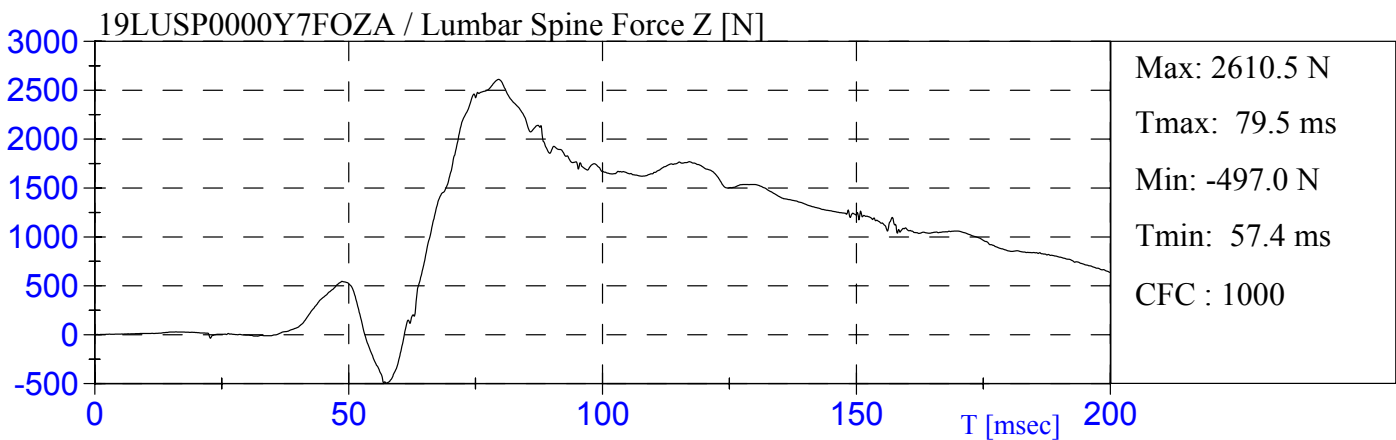
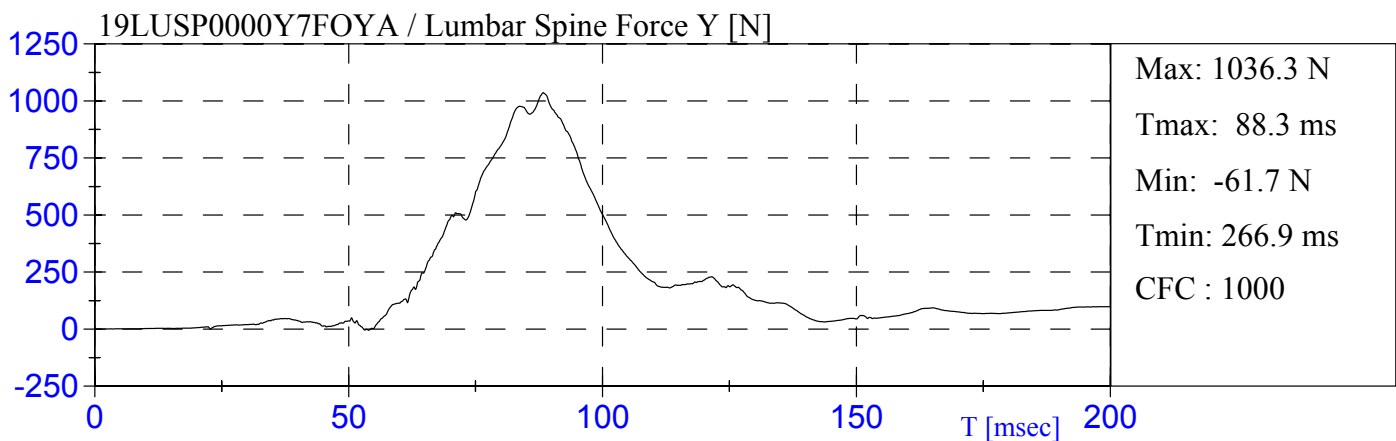
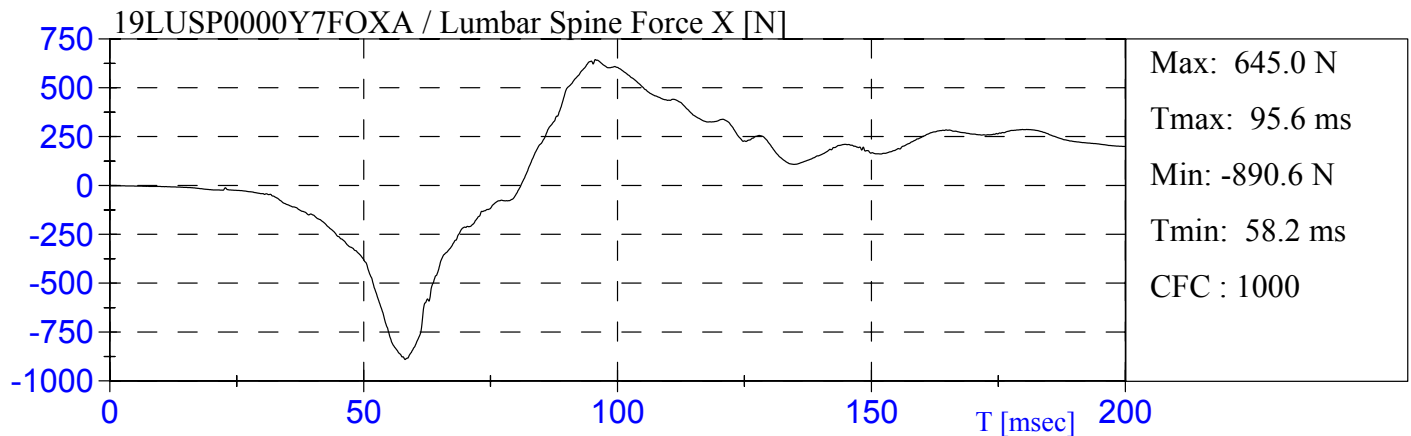


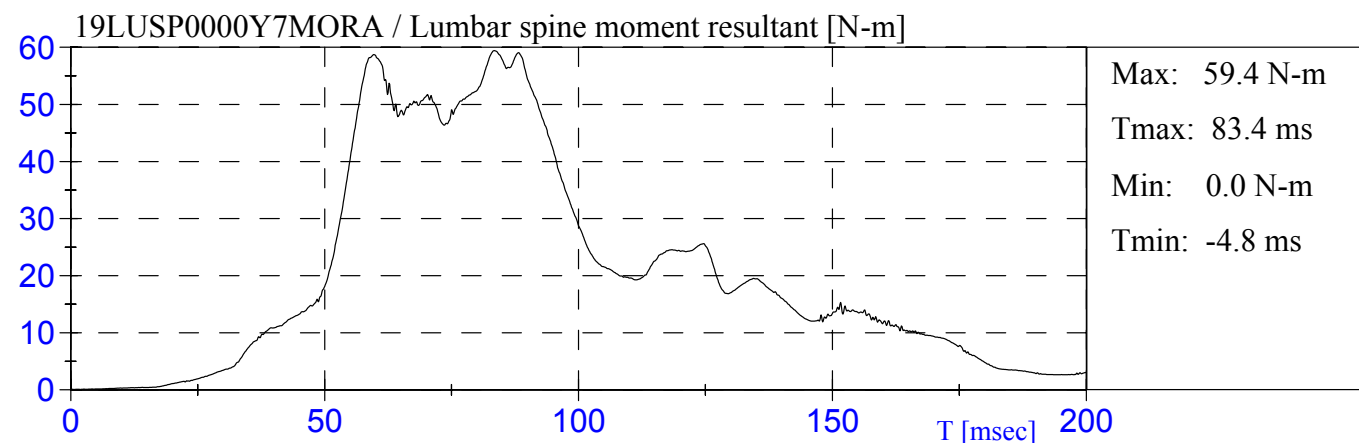
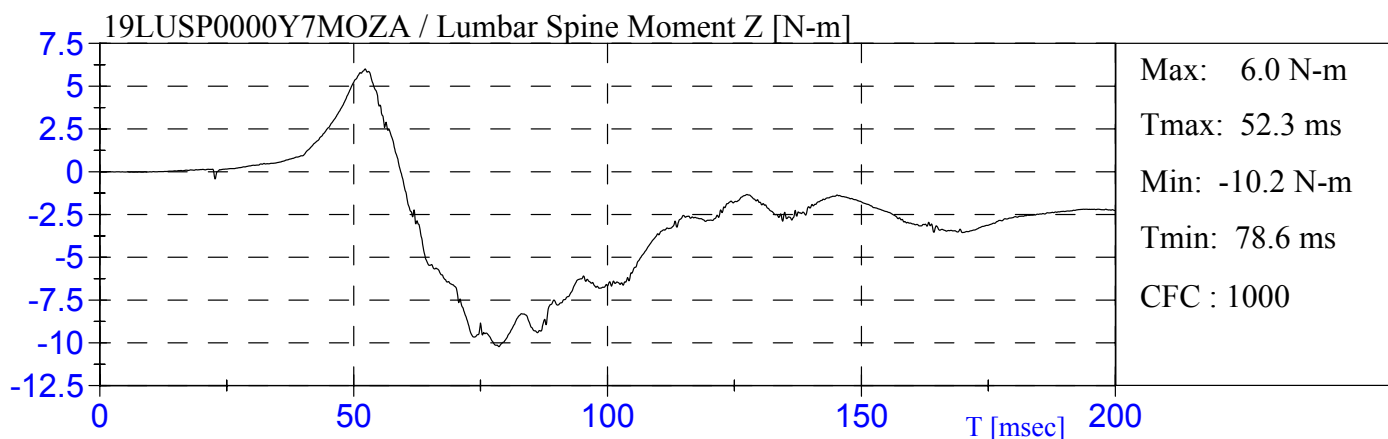
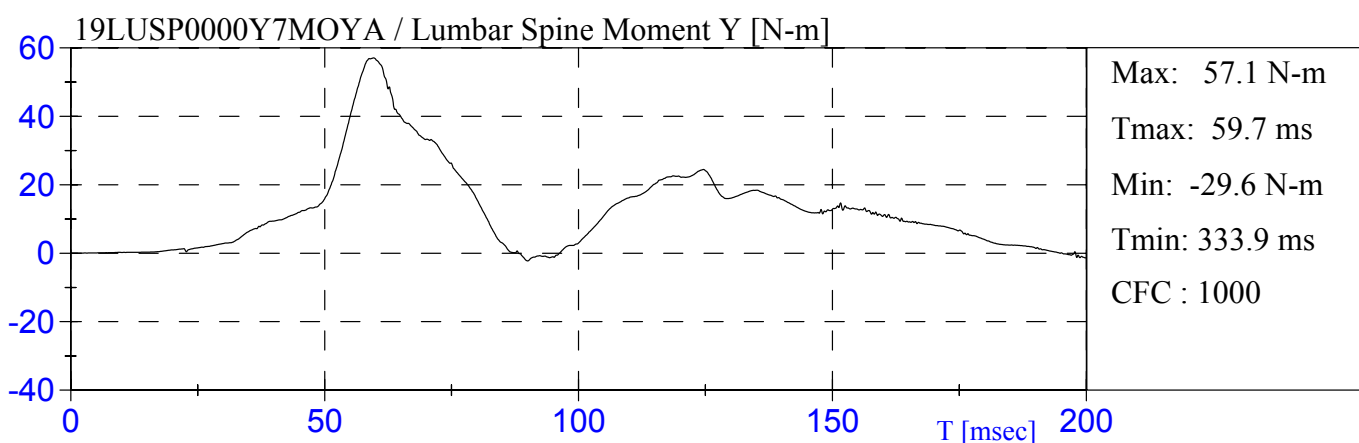
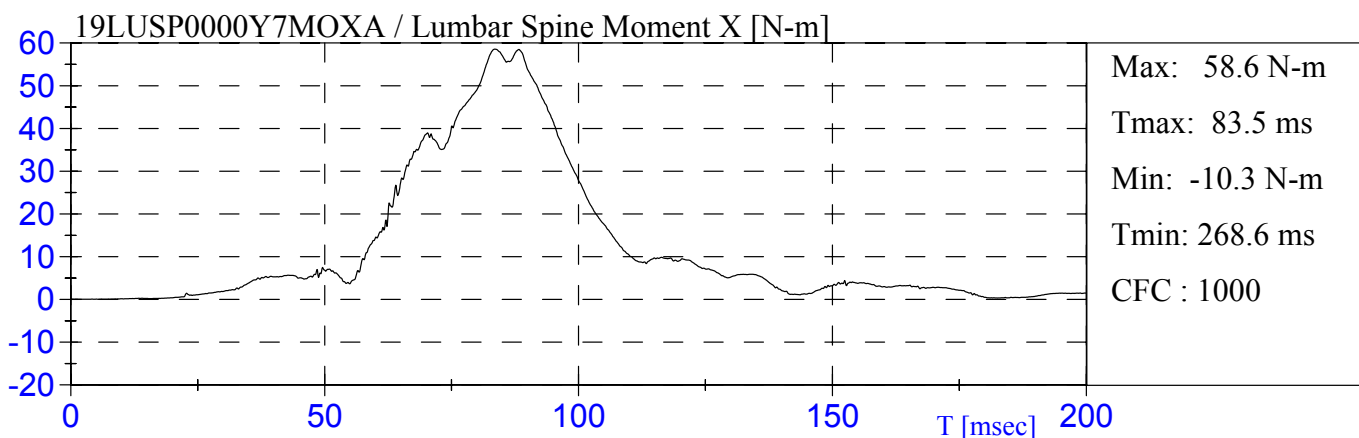


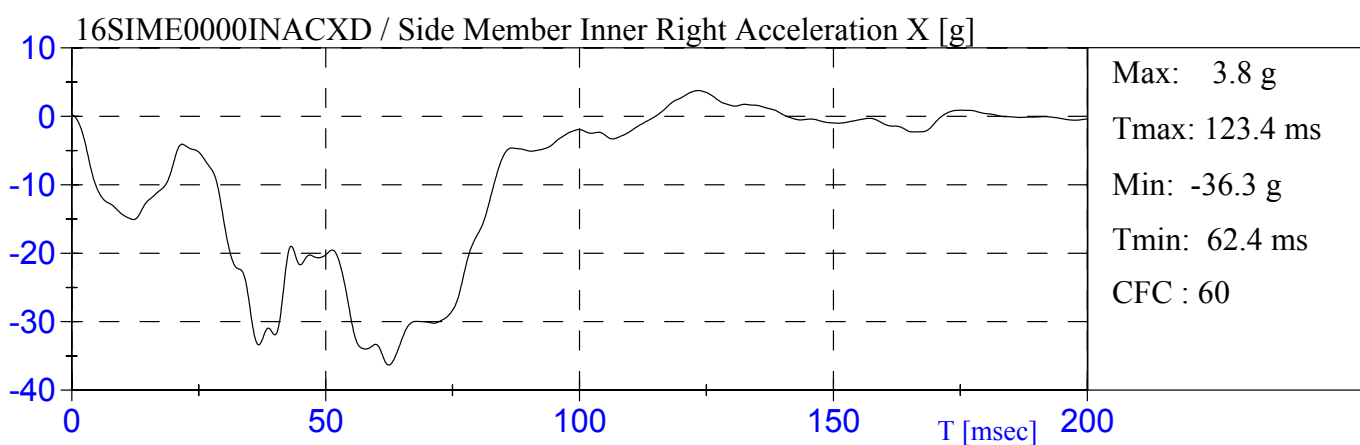
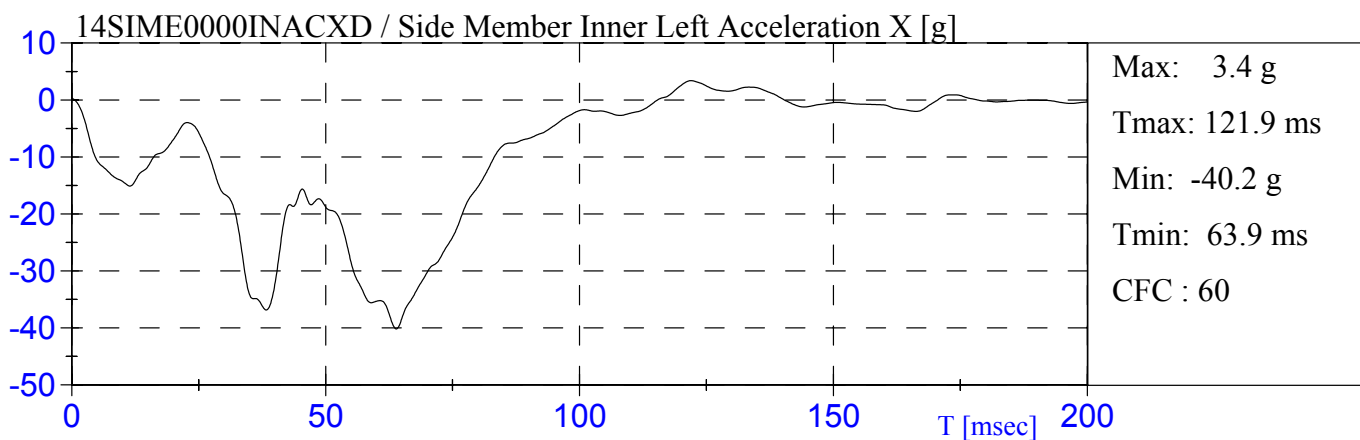


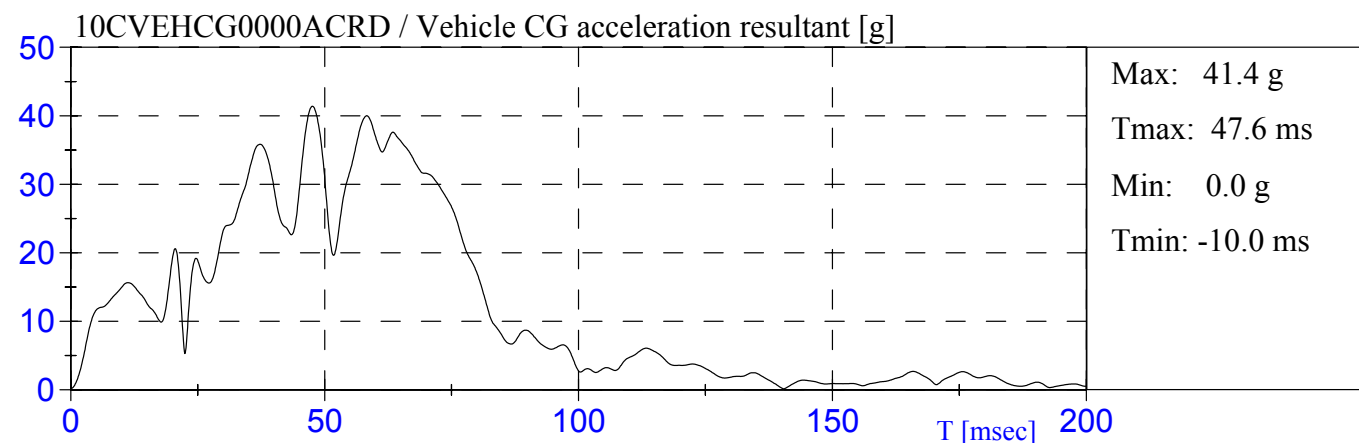
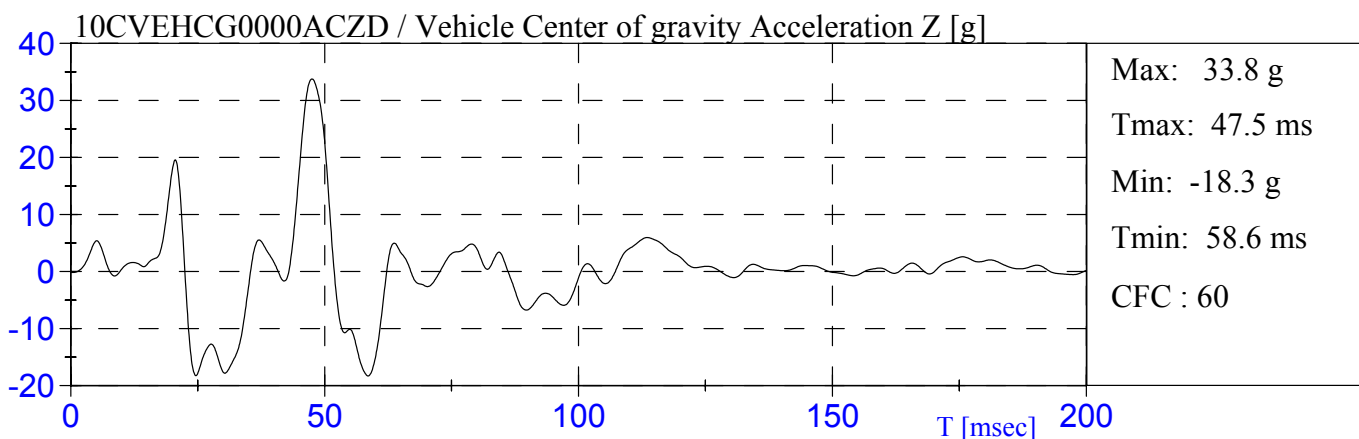
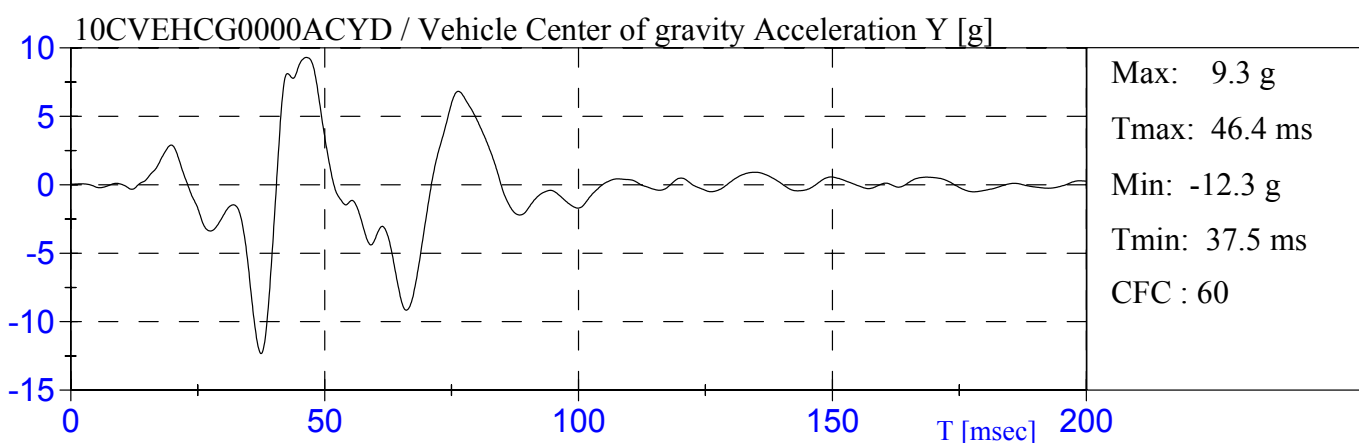
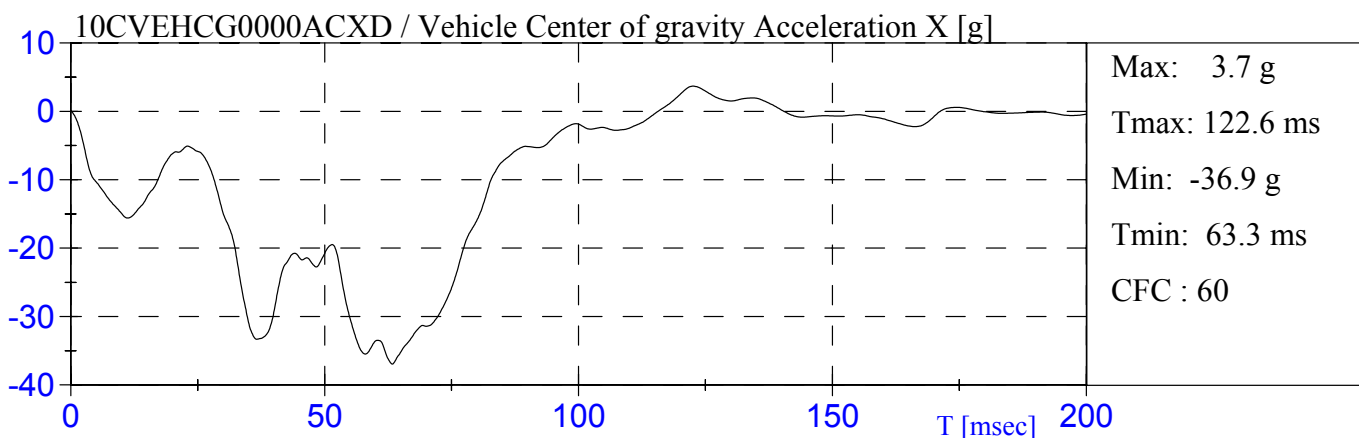


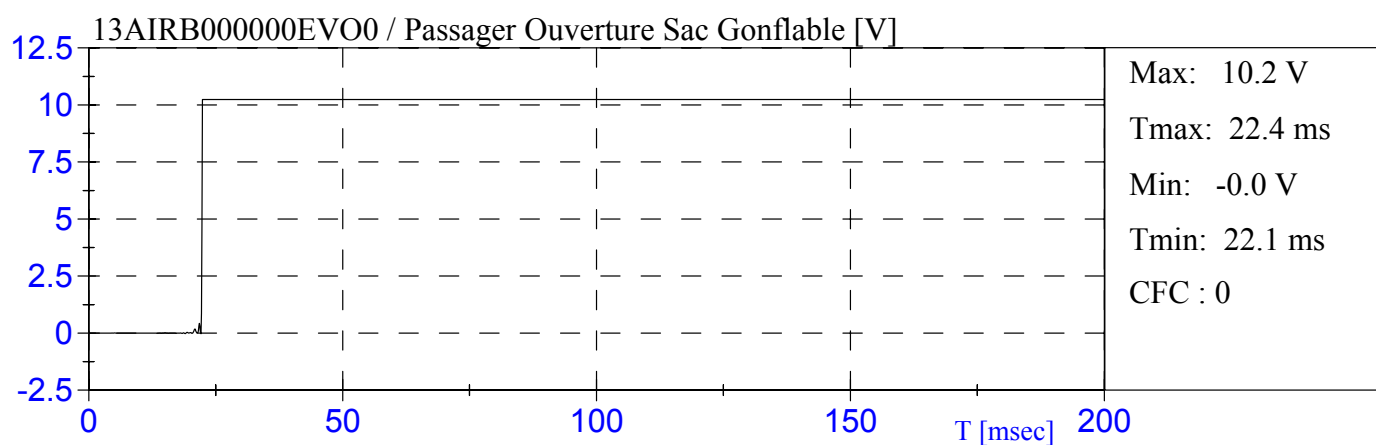
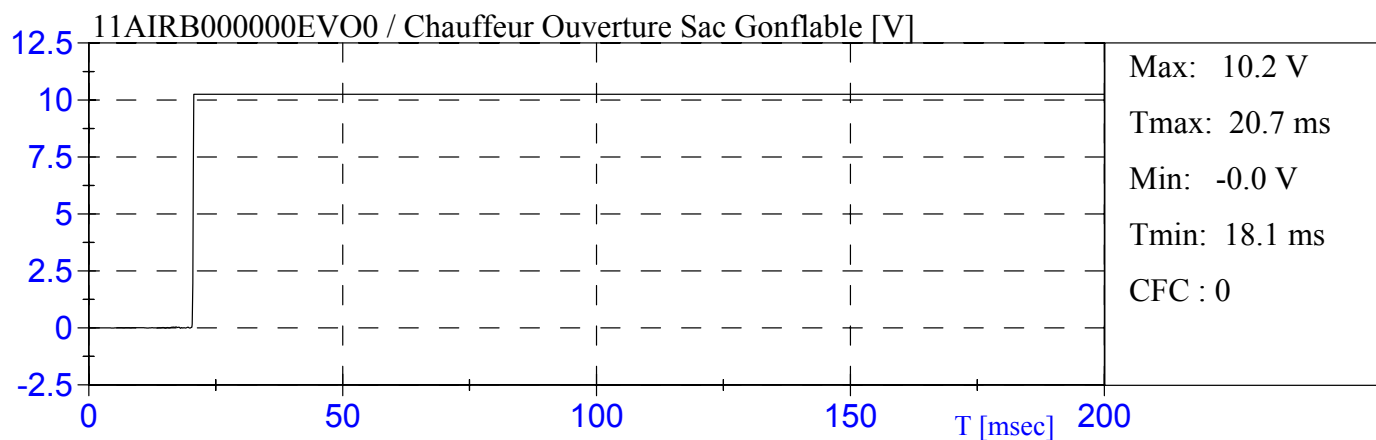


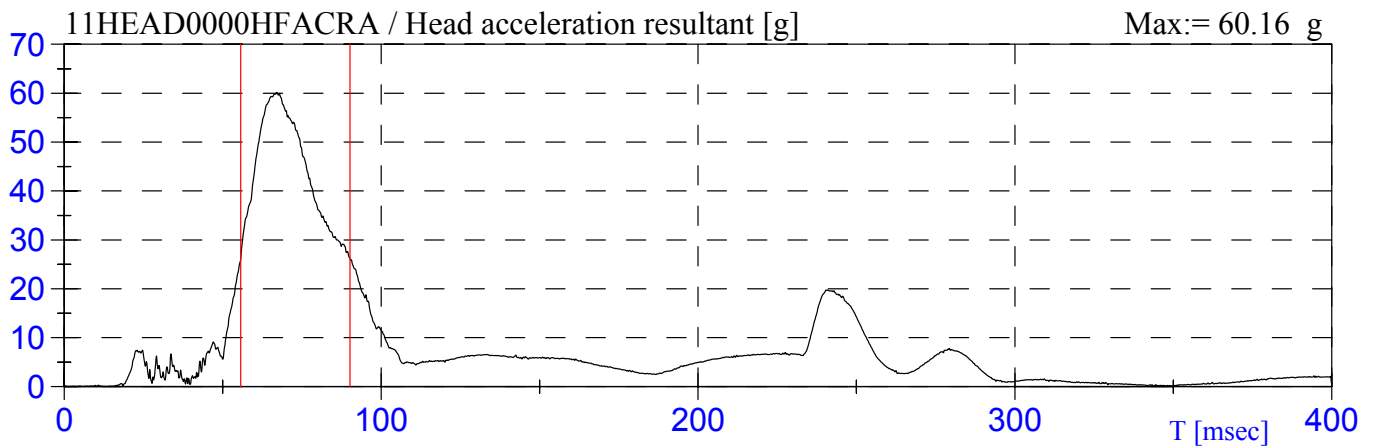










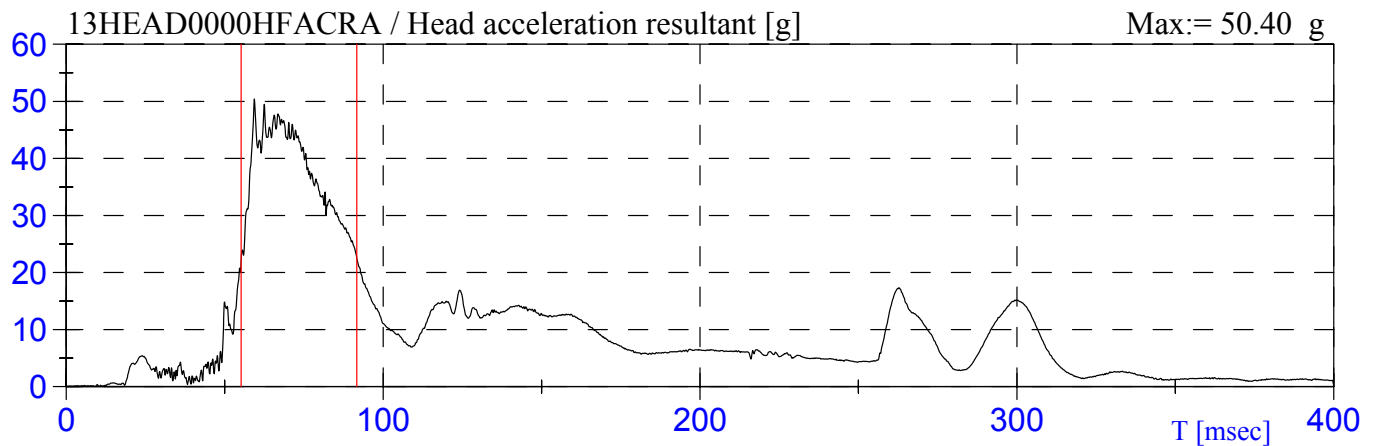


HEAD INJURY CRITERIA (HIC) *

CRITÈRE DE BLESSURE DE LA TÊTE

HIC:= 436	HIC(36ms):= 436	HIC(15ms):= 339
T1:= 55.7 ms	T1:= 55.7 ms	T1:= 60.6 ms
T2:= 90.2 ms	T2:= 90.2 ms	T2:= 75.6 ms

* Selon / According To: SAE J1727 96-08

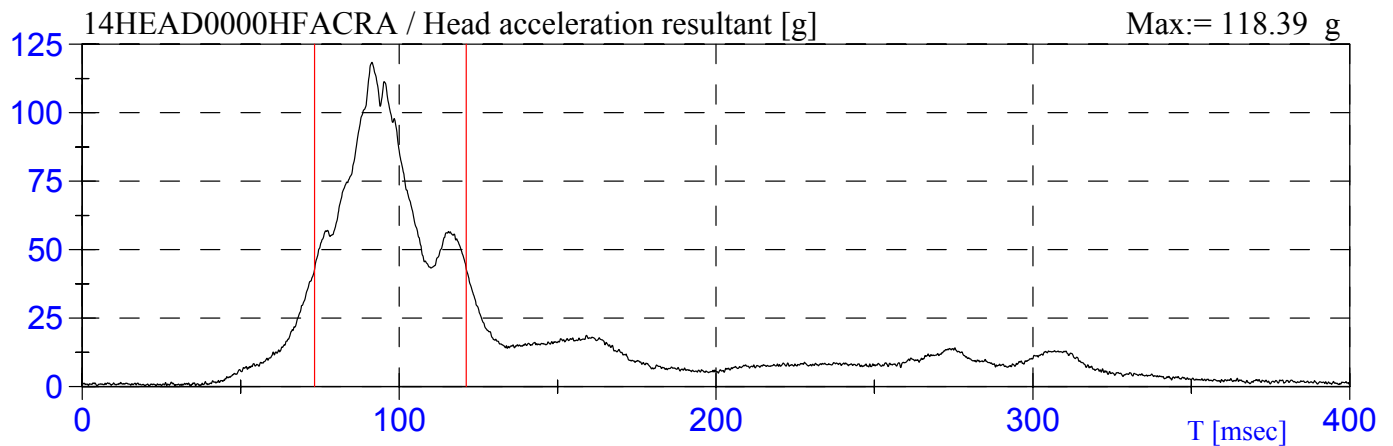


HEAD INJURY CRITERIA (HIC) *

CRITÈRE DE BLESSURE DE LA TÊTE

HIC:= 313	HIC(36ms):= 313	HIC(15ms):= 204
T1:= 55.2 ms	T1:= 55.4 ms	T1:= 58.7 ms
T2:= 91.7 ms	T2:= 91.4 ms	T2:= 73.7 ms

* Selon / According To: SAE J1727 96-08

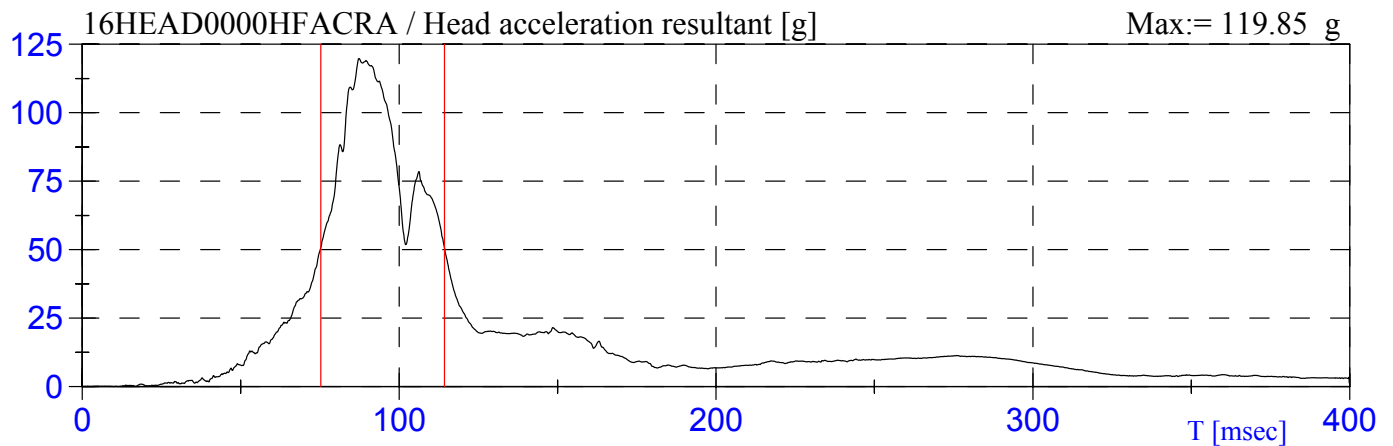


HEAD INJURY CRITERIA (HIC) *

CRITÈRE DE BLESSURE DE LA TÊTE

HIC:= 2052	HIC(36ms):= 1954	HIC(15ms):= 1570
T1:= 73.3 ms	T1:= 74.4 ms	T1:= 85.7 ms
T2:= 121.2 ms	T2:= 107.2 ms	T2:= 100.7 ms

* Selon / According To: SAE J1727 96-08

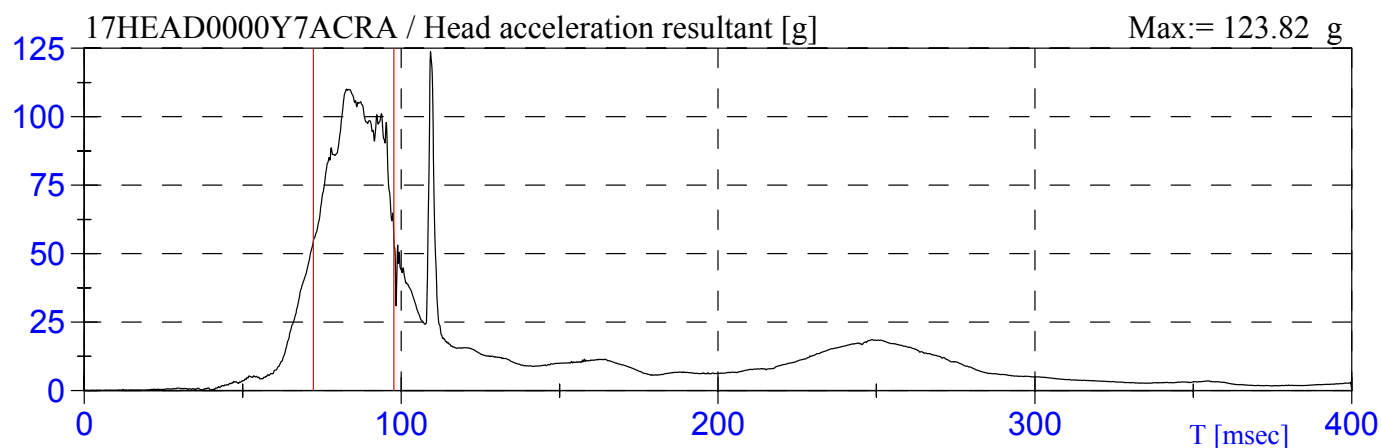


HEAD INJURY CRITERIA (HIC) *

CRITÈRE DE BLESSURE DE LA TÊTE

HIC:= 2585	HIC(36ms):= 2566	HIC(15ms):= 1930
T1:= 75.3 ms	T1:= 77.0 ms	T1:= 82.9 ms
T2:= 114.3 ms	T2:= 113.0 ms	T2:= 97.9 ms

* Selon / According To: SAE J1727 96-08

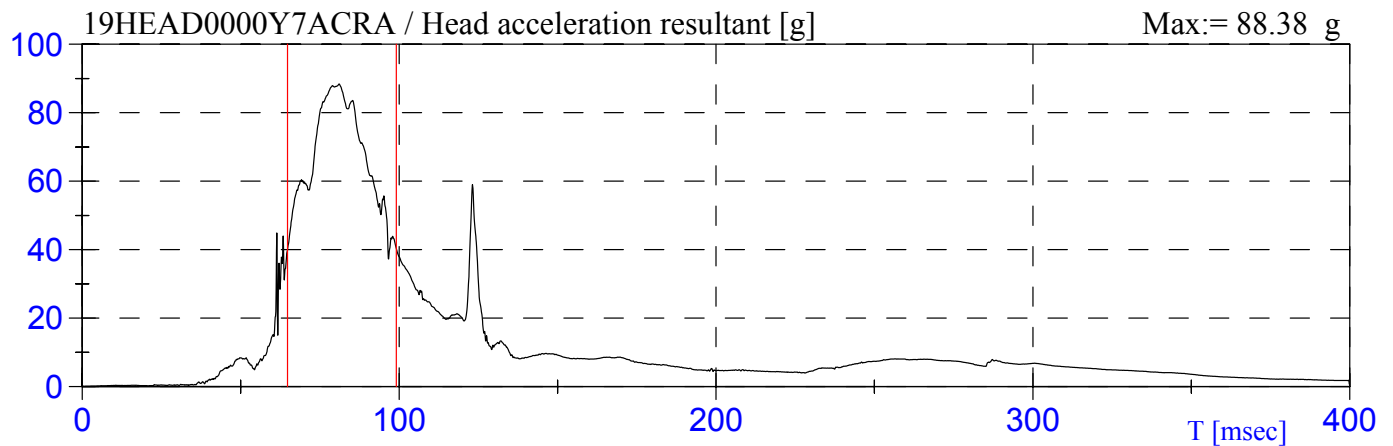


HEAD INJURY CRITERIA (HIC) *

CRITÈRE DE BLESSURE DE LA TÊTE

HIC:= 1973	HIC(36ms):= 1973	HIC(15ms):= 1548
T1:= 72.3 ms	T1:= 72.3 ms	T1:= 80.6 ms
T2:= 97.7 ms	T2:= 97.7 ms	T2:= 95.6 ms

* Selon / According To: SAE J1727 96-08



HEAD INJURY CRITERIA (HIC) *

CRITÈRE DE BLESSURE DE LA TÊTE

HIC:= 1259	HIC(36ms):= 1259	HIC(15ms):= 915
T1:= 64.8 ms	T1:= 64.8 ms	T1:= 73.6 ms
T2:= 99.1 ms	T2:= 99.1 ms	T2:= 88.6 ms

* Selon / According To: SAE J1727 96-08

Neck Injury Criteria: 11NIJCIP000000YX

$N_{ij}^* = 0.29$

Valeurs critiques
Criticals Values

N _{tf}	N _{te}	N _{cf}	N _{ce}	Tc	4287
				Cc	3880
0.29	0.28	0.12	0.07	Fc	155
				Ec	67

* Selon / According To: Federal Register 5/2000

Neck Injury Criteria: 13NIJCIP000000YX

$N_{ij}^* = 0.62$

Valeurs critiques
Criticals Values

N _{tf}	N _{te}	N _{cf}	N _{ce}	Tc	4287
				Cc	3880
0.33	0.62	0.24	0.42	Fc	155
				Ec	67

* Selon / According To: Federal Register 5/2000

Neck Injury Criteria: 14NIJCIP000000YX

$N_{ij}^* = 1.43$

Valeurs critiques
Criticals Values

N tf	N te	Ncf	N ce	Tc	4287
				Cc	3880
0.99	1.43	0.02	0.03	Fc	155
				Ec	67

* Selon / According To: Federal Register 5/2000

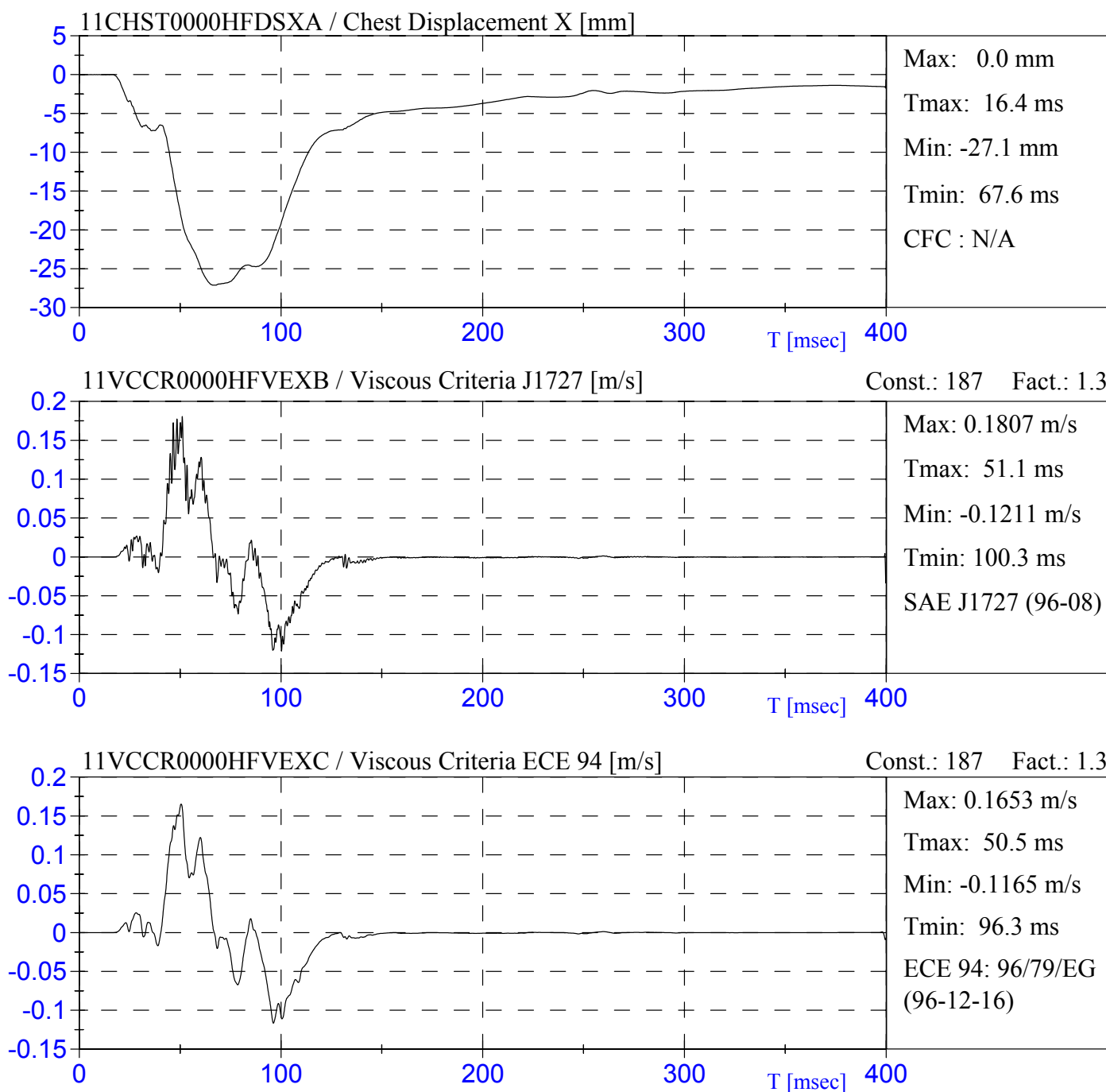
Neck Injury Criteria: 16NIJCIP000000YX

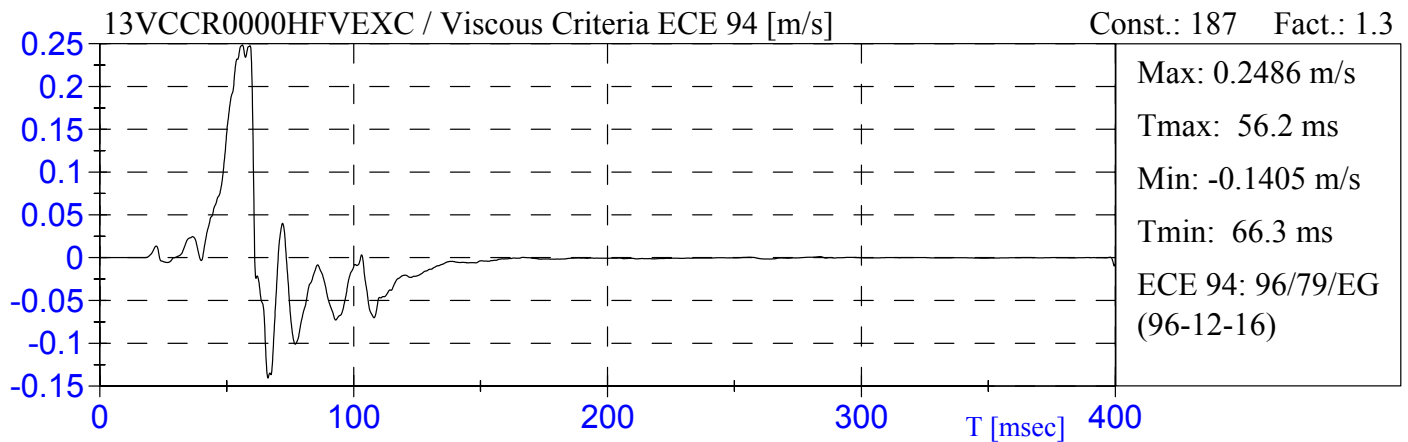
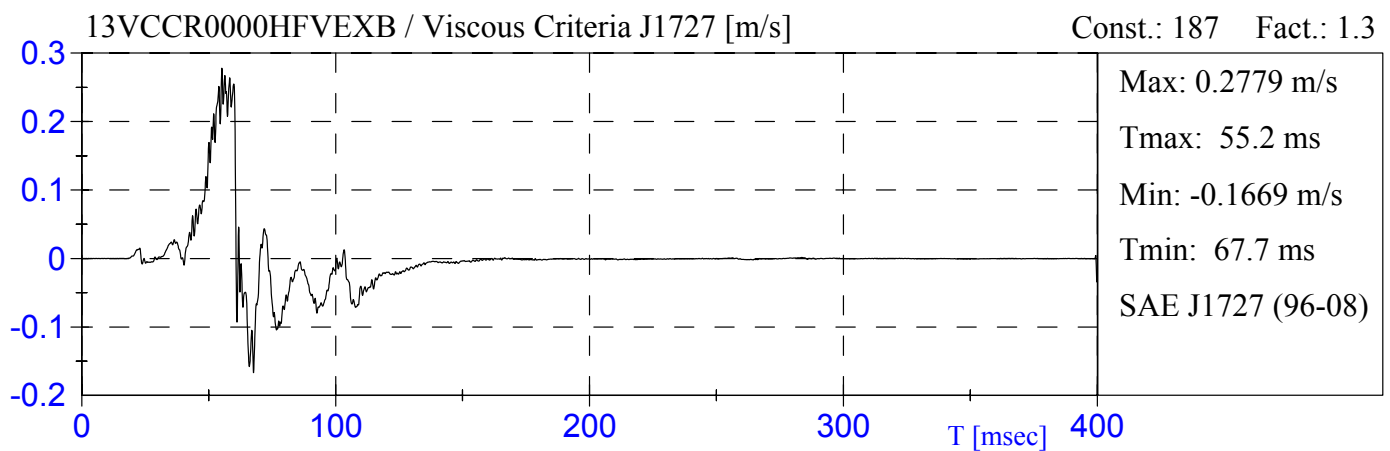
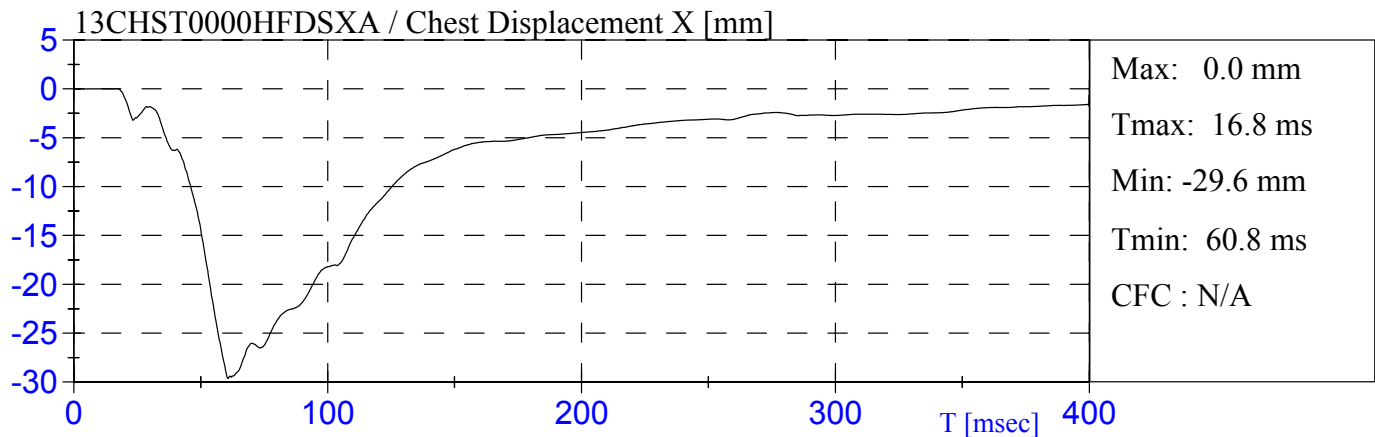
$N_{ij}^* = 1.33$

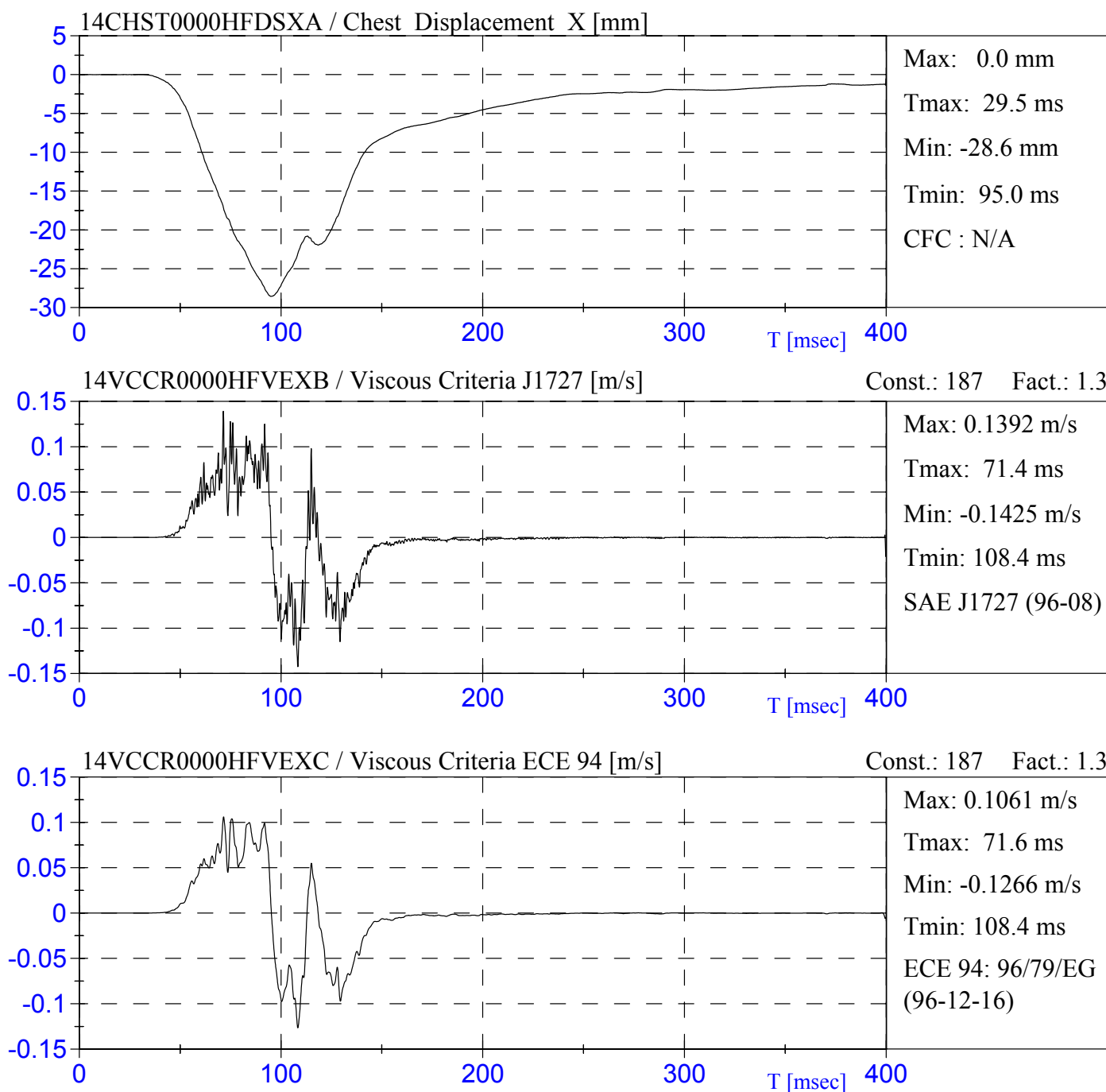
Valeurs critiques
Criticals Values

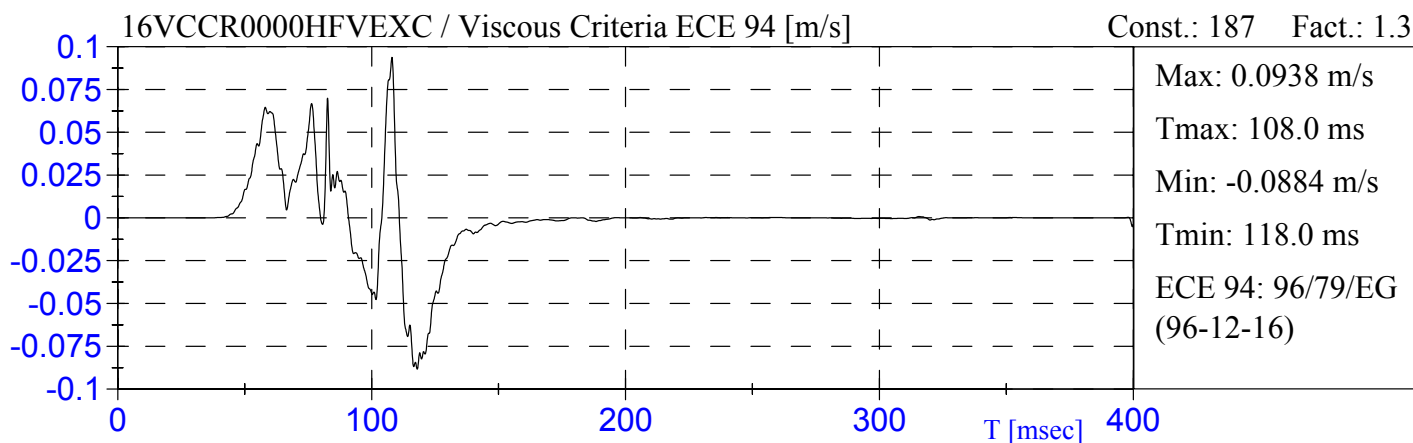
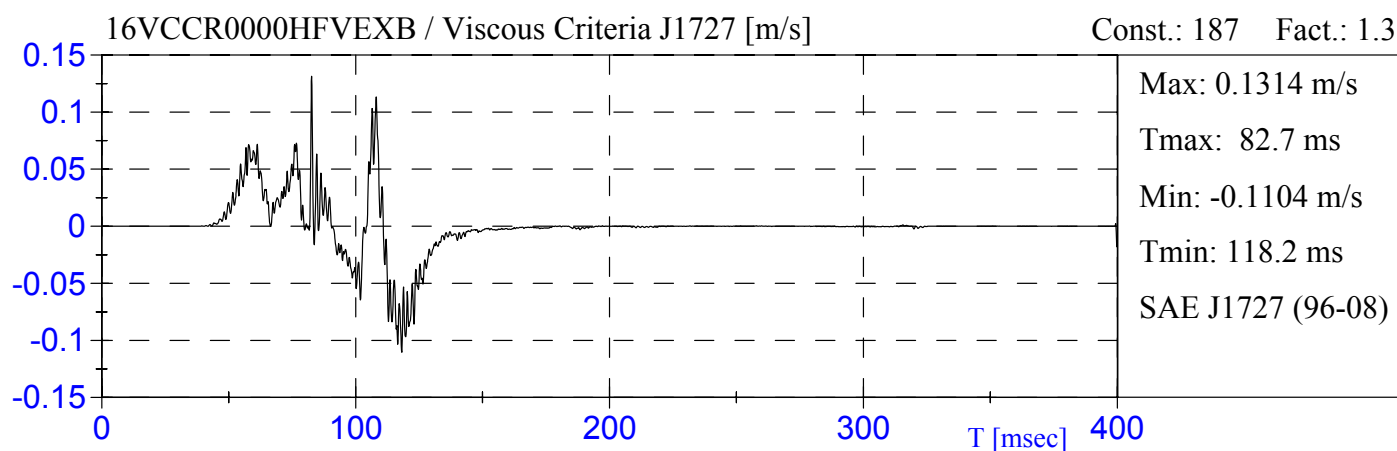
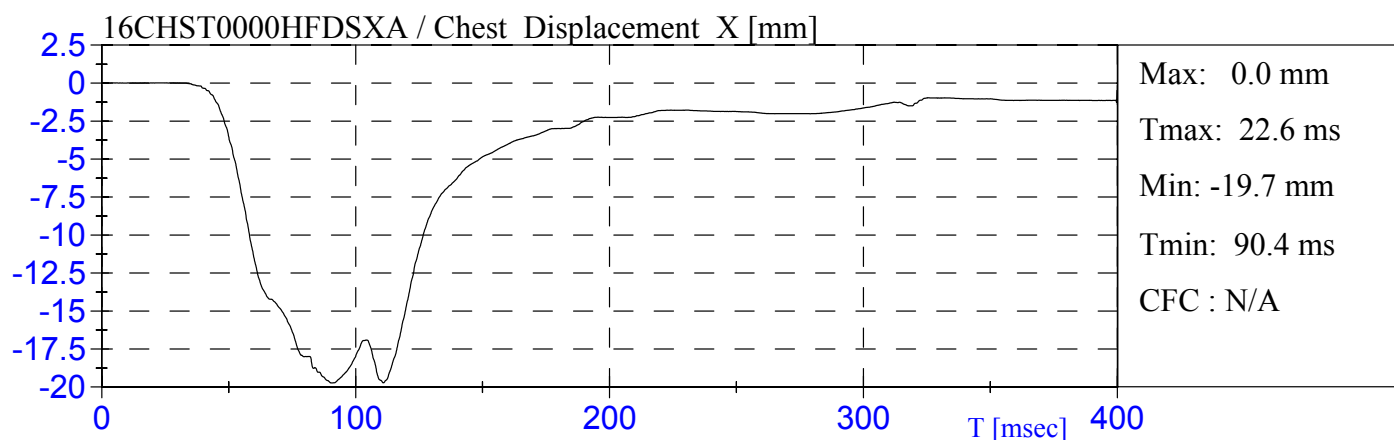
N _{tf}	N _{te}	N _{cf}	N _{ce}	Tc	4287
				Cc	3880
1.07	1.33	0.05	0.02	Fc	155
				Ec	67

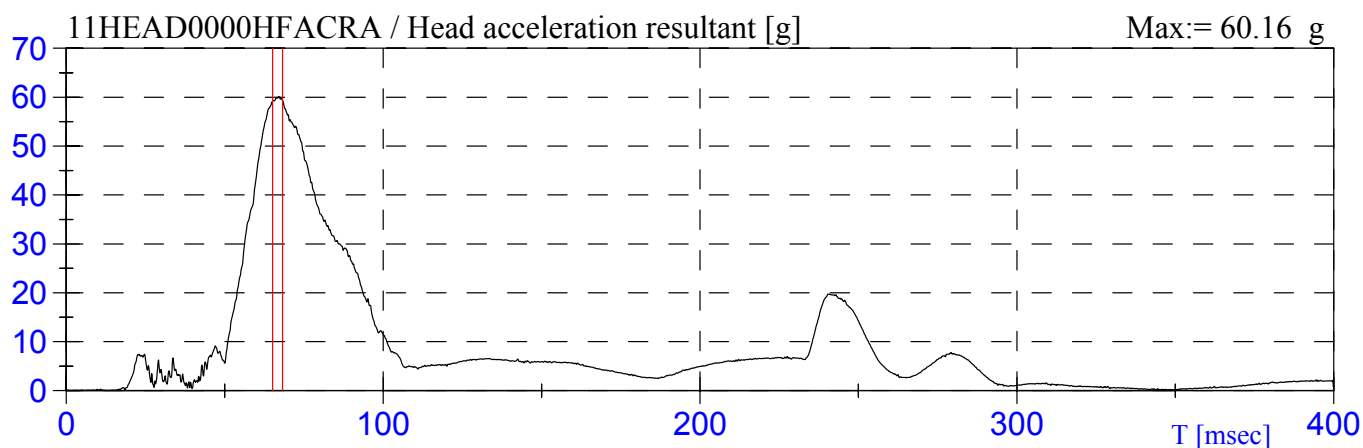
* Selon / According To: Federal Register 5/2000





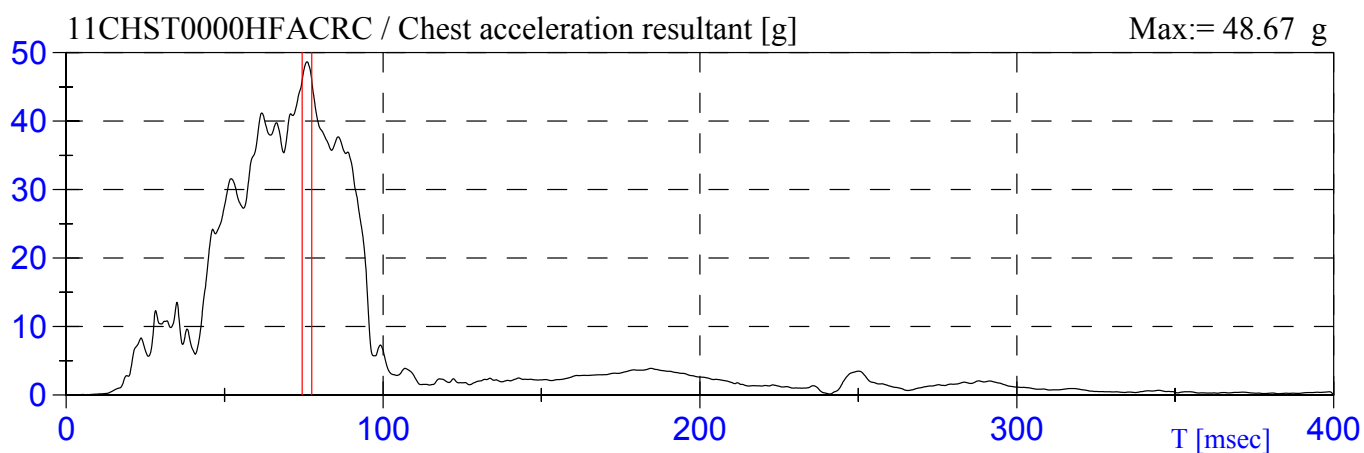






CLIP 3ms *

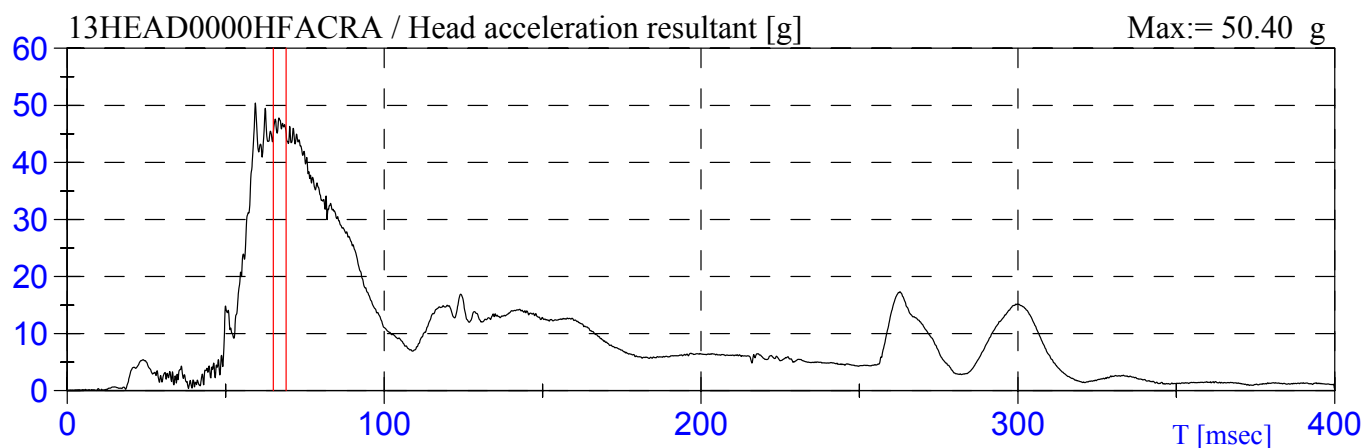
Acc. := 59.27 g	T1:= 65.2 ms	T2:= 68.3 ms
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CLIP 3ms *

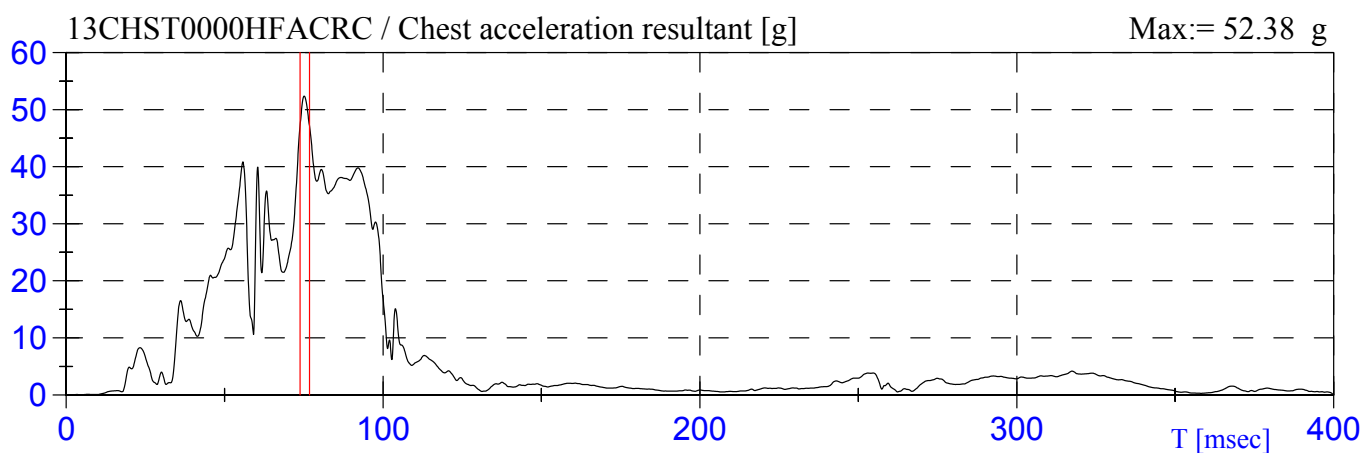
Acc. := 46.01 g	T1:= 74.5 ms	T2:= 77.5 ms
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* Selon / According To: NHTSA CLIP VERSION 2.1 5/95



CLIP 3ms *

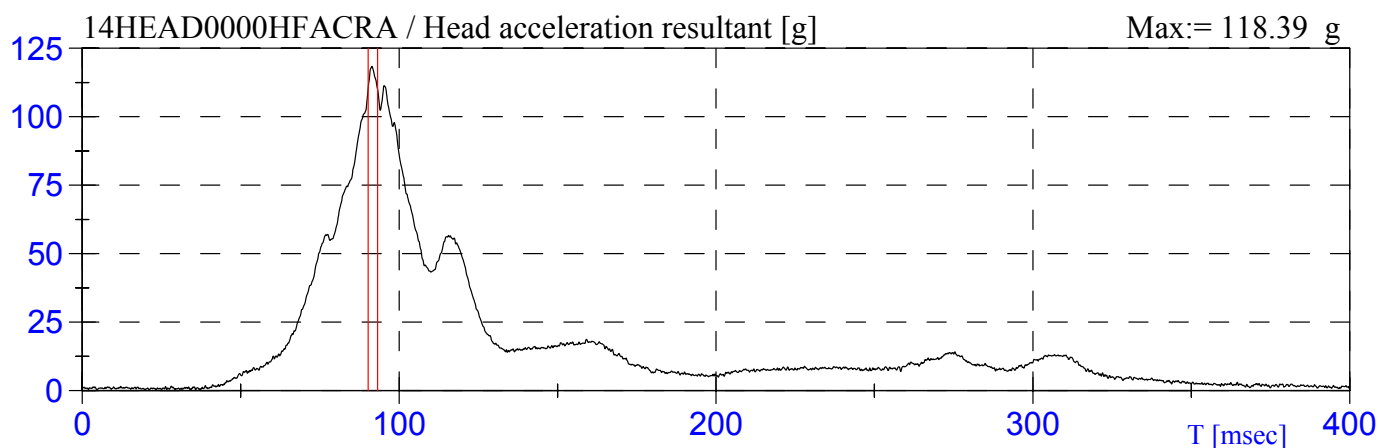
Acc. := 45.15 g	T1:= 65.1 ms	T2:= 69.1 ms
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CLIP 3ms *

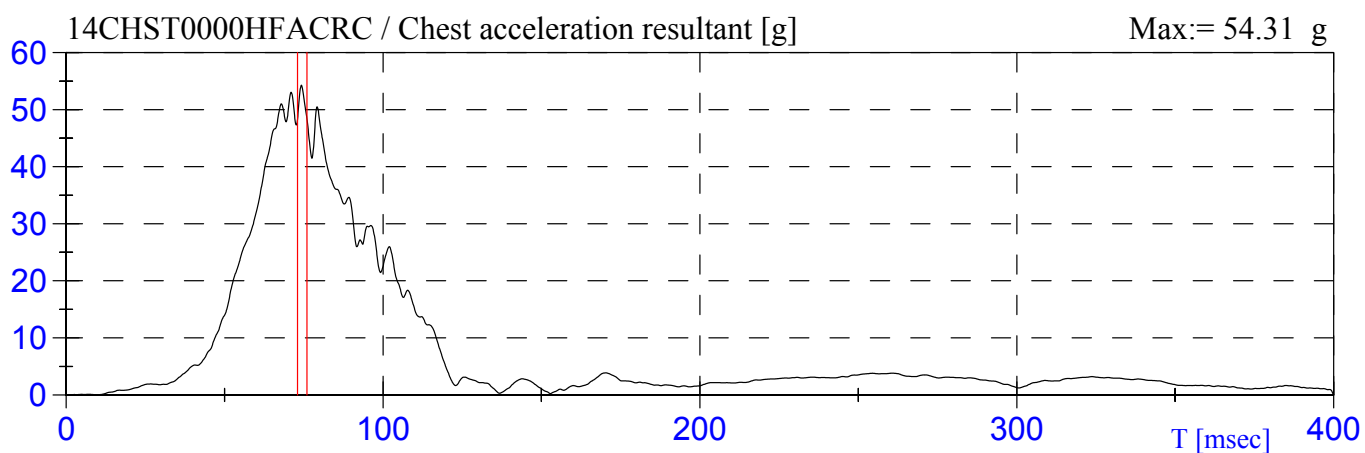
Acc. := 47.11 g	T1:= 73.8 ms	T2:= 76.8 ms
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* Selon / According To: NHTSA CLIP VERSION 2.1 5/95



CLIP 3ms *

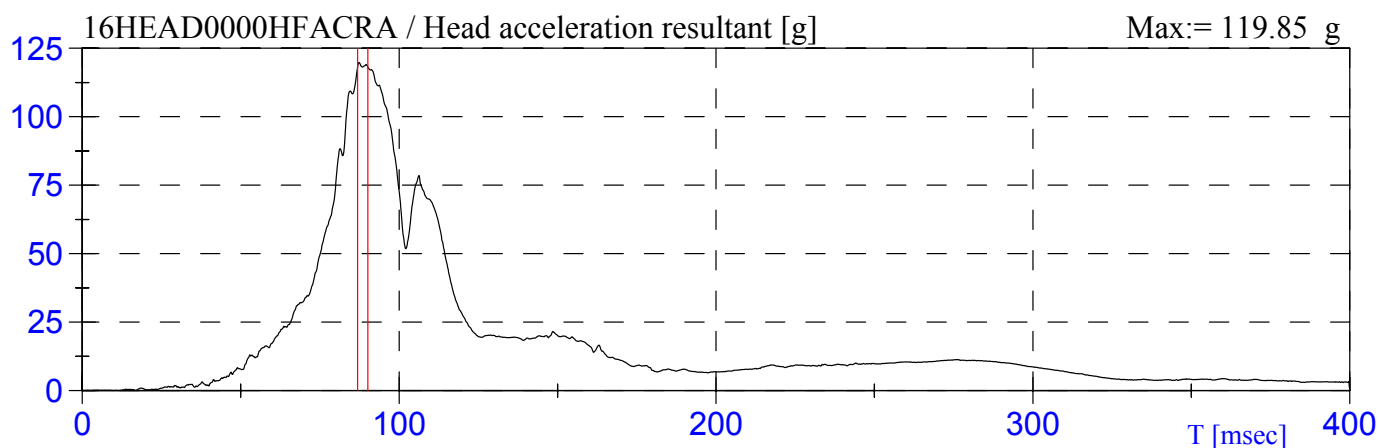
Acc. := 109.93 g	T1:= 90.2 ms	T2:= 93.2 ms
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CLIP 3ms *

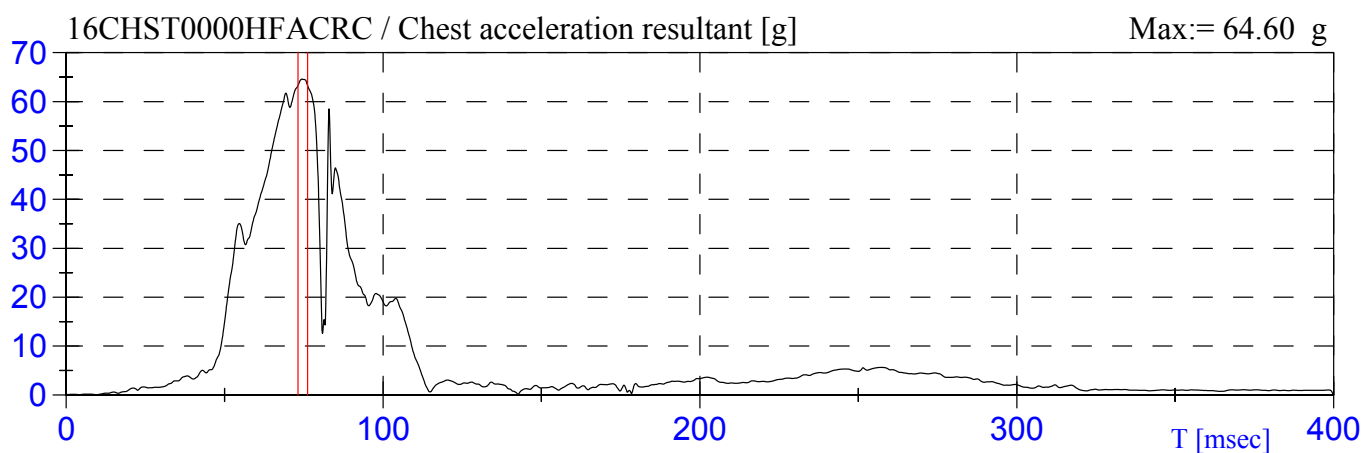
Acc. := 48.33 g	T1:= 73.0 ms	T2:= 76.0 ms
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* Selon / According To: NHTSA CLIP VERSION 2.1 5/95



CLIP 3ms *

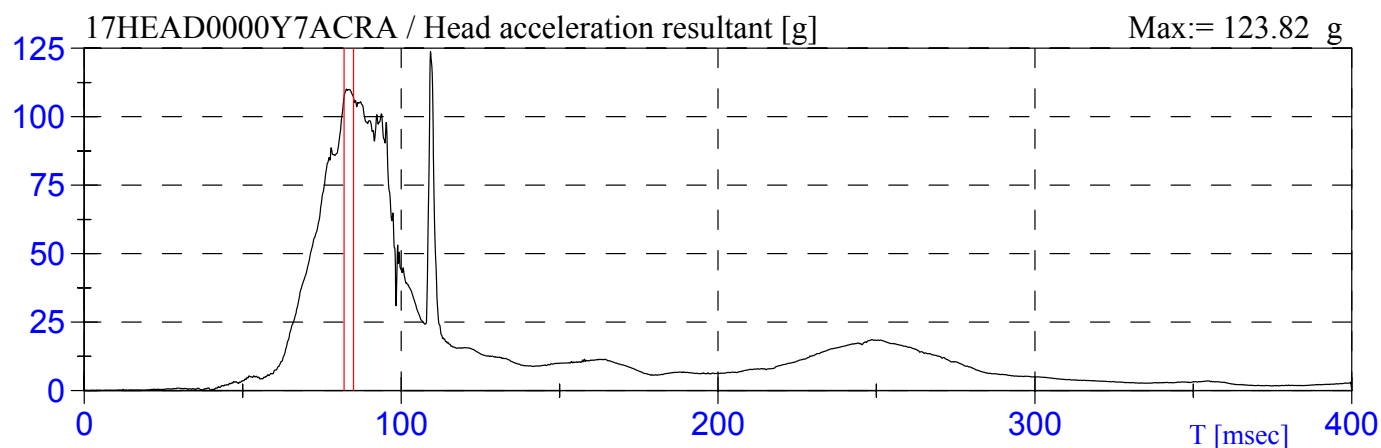
Acc. := 118.16 g	T1:= 86.9 ms	T2:= 90.1 ms
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CLIP 3ms *

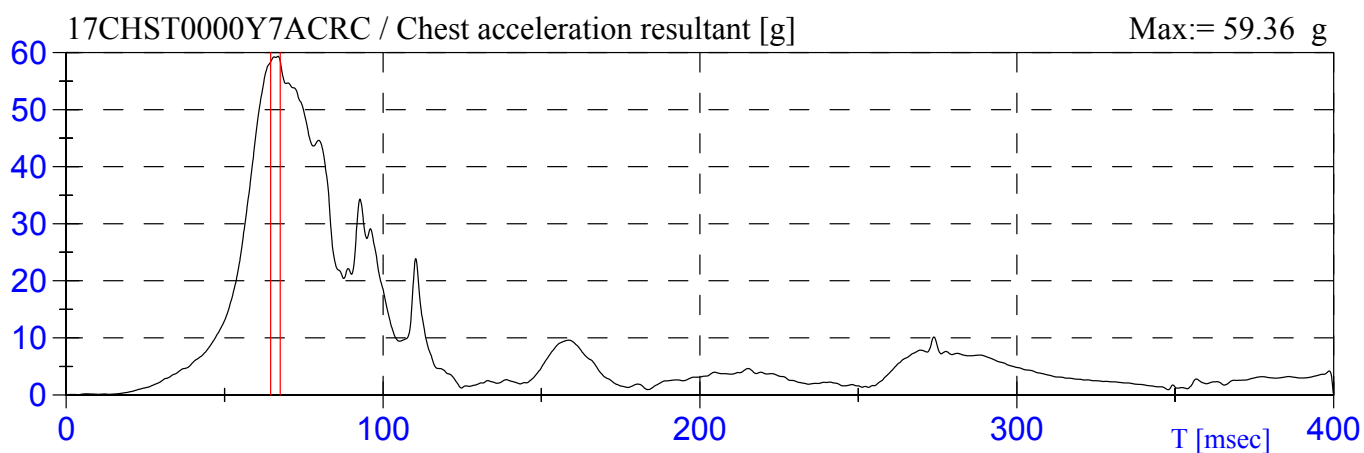
Acc. := 63.29 g	T1:= 73.2 ms	T2:= 76.2 ms
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* Selon / According To: NHTSA CLIP VERSION 2.1 5/95



CLIP 3ms *

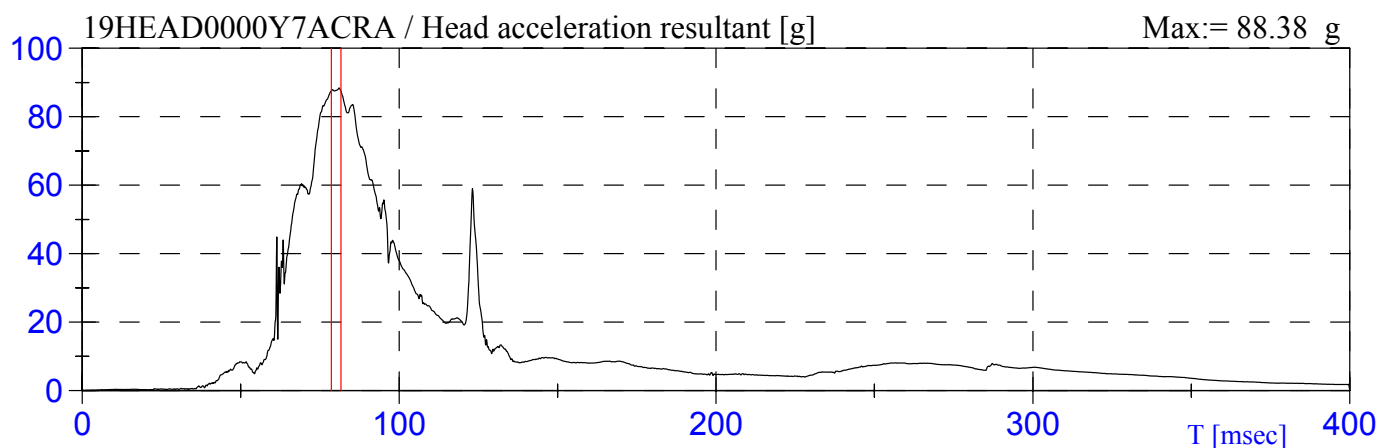
Acc. := 106.97 g	T1:= 82.0 ms	T2:= 85.0 ms
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CLIP 3ms *

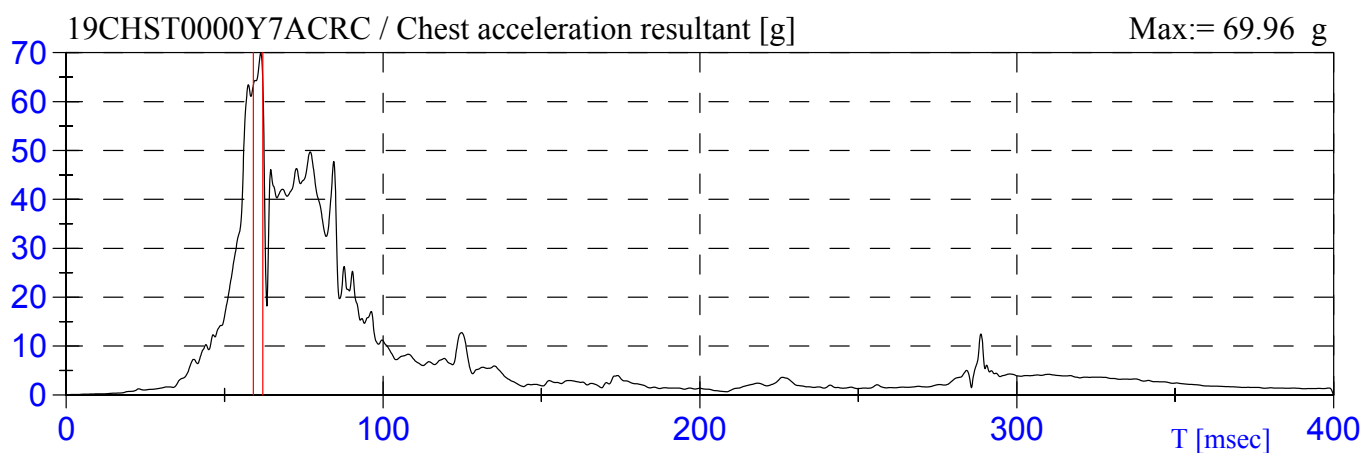
Acc. := 58.43 g	T1:= 64.6 ms	T2:= 67.6 ms
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* Selon / According To: NHTSA CLIP VERSION 2.1 5/95



CLIP 3ms *

Acc. := 87.56 g	T1:= 78.6 ms	T2:= 81.6 ms
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CLIP 3ms *

Acc. := 63.40 g	T1:= 59.1 ms	T2:= 62.1 ms
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* Selon / According To: NHTSA CLIP VERSION 2.1 5/95

APPENDICE /APPENDIX C

**DONNÉES DES TEMPÉRATURES
TEMPERATURE DATA**

Temperature TC05-240

