

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

VÉHICULE D'ESSAI / TEST VEHICLE KIA SEDONA LX 2005 TC # 05-247

**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°: **RR06-126**

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

Prepared by :
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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	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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VÉHICULE D'ESSAI - TEST VEHICLE

Fabricant - Manufacturer KIA MOTORS CORPORATION	Type de carrosserie - Body Style Fourgonnette / Minivan	Marque, modèle, Année - Make, model, Year KIA SEDONA 2005
Classe de véhicule - Class of vehicle MPV / VTUM	Boîte de vitesse - Transmission Type Auto. avant / Auto. Front wheel	Moteur - Engine V6 trans. avant / V6 trans. front
Date de fabrication - Date of Manufacture 01/05	Cylindres - Cylinders 3.5 Lit.	N° d'ident. du véhicule - Vehicle Ident. No. KNDUP131256715017
Lecture de l'odomètre - Odometer Reading 52 km	Nombre de places assises désignées Number of Designated Seating Positions 7	Numéro d'ident. PMG - PMG Ident. Number UN6-199
PNBV - GVWR 2703 kg	PNBE (Avant) - GAWR (Front) 1361 kg	PNBE (Arrière) - GAWR (Rear) 1350 kg

CONFIGURATION D'ESSAI - TEST CONFIGURATION

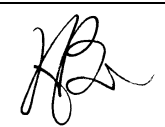
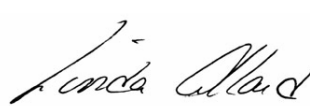
Type d'essai - Test type	Vitesse d'impact- Impact velocity		Angle d'impact Impact angle	Masse du véhicule d'essai Test vehicle mass
Véh. vs barrière - Veh. vs barrier	Prévu / Intended : 40.0 km/h	Obtenu / Obtained : 40.3 km/h	0 °	2361.6 kg
Description et position du mannequin (conducteur) Dummy description and position (driver) Description Hybrid III (5 %)	Position ** 12 mm	Description et position du mannequin (passager avant) Dummy description and position (front passenger) Description Hybrid III (5 %)	Position ** 11 mm	
Description et position du mannequin (passager arrière gauche, 2 nd rangée) Dummy description and position (left rear passenger, 2 nd row) Description Hybrid III (5 %)	Position ** N/A	Description et position du mannequin (passager arrière droit, 2 nd rangée) Dummy description and position (right rear passenger, 2 nd row) Description Hybrid III (5 %)	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 17.6ms	Déployé / Deployed 23.0ms	N/A	N/A
Rétrotracteurs de ceintures-prétensionneurs Seat belts retractors-pretensioners		Limiteur de charge des ceintures de sécurité Seat belts load limiter	
Conducteur / Driver	Passager / Passenger	Conducteur / Driver	Passager / Passenger
Déployé / Deployed	Déployé / Deployed	Non-équipé / Not equipped	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: 2005.11.28	Approuvé par : Approved by : 	Digitally signed by Alain Bussieres Date: 2006.06.08 14:02:57 -04'00'
Vérifié par : Verified by : 	Digitally signed by Linda Allard Date: 2005.11.28	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		
525 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	X
Avant – Front 2 Arrière – Rear 2+3 Total 7				Baquet Bucket	X	X	Dossier non-ajustable Non-adjustable Seat Back		
Volume de carburant pour l'essai Fuel system test volume		Pression à froid - Cold Tire Pressure					Dimension - Size		
68.25 l		Avant - Front 240 kPa		Arrière - Rear 240 kPa		Secours - Spare 240 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	Avant droit - Right front	Masse avant totale - Total front weight
623.2 kg	625.2 kg	1248.4 kg
Arrière gauche - Left rear	Arrière droit - Right rear	Masse arrière totale - Total rear weight
472.0 kg	441.0 kg	913.0 kg
Masse totale côté gauche - Total left side weight	Masse totale côté droit - Total right side weight	Masse totale - Total weight
1095.2 kg	1066.2 kg	2161.4 kg

TROISIÈME PESÉE : VÉHICULE PRÊT POUR L'ESSAI

THIRD WEIGHT : VEHICLE READY FOR TEST

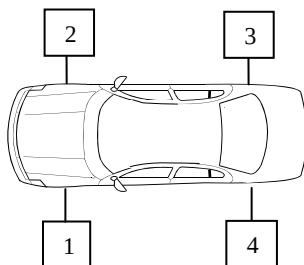
Avant gauche - Left front	Avant droit - Right front	Masse avant totale - Total front weight
660.4 kg	673.6 kg	1334.0 kg
Arrière gauche - Left rear	Arrière droit - Right rear	Masse arrière totale - Total rear weight
527.6 kg	500.0 kg	1027.6 kg
Masse totale côté gauche - Total left side weight	Masse totale côté droit - Total right side weight	Masse totale - Total weight
1188.0 kg	1173.6 kg	2361.6 kg

ATTITUDE DU VÉHICULE / VEHICLE ATTITUDE

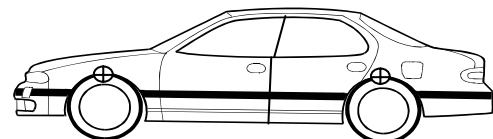
		Attitude tel que livré Attitude on delivery	Attitude tel que testé Attitude as tested
1	Roue avant gauche* Left front wheel*	746 mm	730 mm
2	Roue avant droite* Front right wheel*	752 mm	730 mm
3	Roue arrière droite* Rear right wheel*	759 mm	730 mm
4	Roue arrière gauche* Rear left wheel*	745 mm	730 mm

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

Vue de plan / Plan view



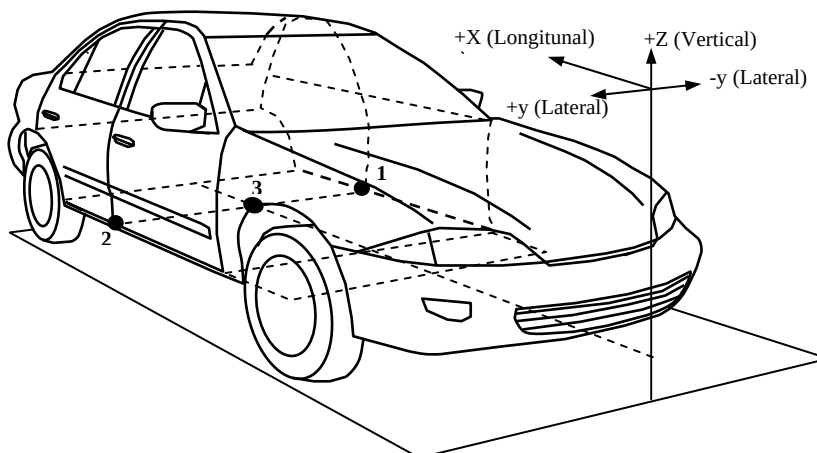
Vue de côté / Side view



⊕ Points de mesure / Measurement points

Date de collision Crash date	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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EMPLACEMENT DES ACCÉLÉROMÈTRES
ACCELEROMETER LOCATIONS

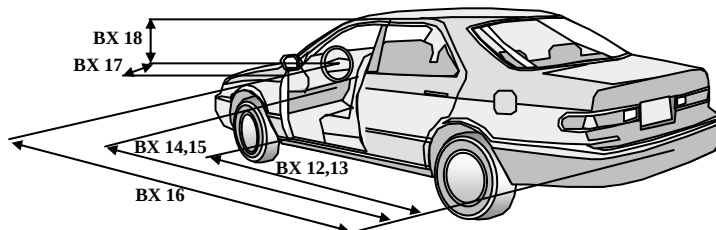
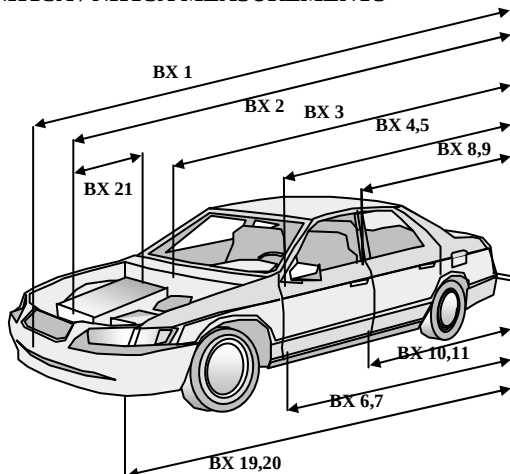


Point de référence : Centre transversal du véhicule, au point le plus avancé, au niveau du sol. Selon SAE J182a.
Reference point : Transversal center of the vehicle, at the foremost point and at ground level. As per SAE J182a.

EMPLACEMENT LOCATION	DESCRIPTIONS	COORDONNÉES / COORDINATES (mm)		
		X	Y	Z
#1	Seuil de la porte gauche @ pilier "B" Left door sill @ pillar "B"	2107	416	893
#2	Seuil de la porte droite @ pilier "B" Right door sill @ pillar "B"	2334	720	371
#3	Centre de gravité Centre of gravity	2412	-9	354

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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	4930	4613	317	12	3413	3407	6
2	4401	4317	84	13	3413	3411	2
3	3871	3867	4	14	3600	3584	16
4	3440	3442	-2	15	3675	3645	30
5	3423	3420	3	16	3005	3015	-10
6	3421	3425	-4	17	418	416	2
7	3424	3424	0	18	495	475	20
8	2408	2412	-4	19	4877	4613	264
9	2408	2405	3	20	4886	4629	257
10	2424	2427	-3	21	535	533	2
11	2432	2432	0				

Mesures en mm / Measurements in mm

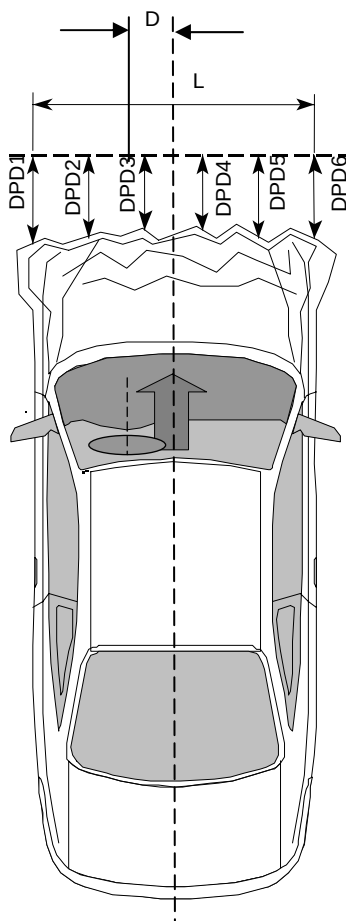
* BX : Mesures du véhicule avant-essai. / Pre-test vehicle measurements data.

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

REMARQUES / COMMENTS : Aucune / None.

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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
189	318	-129
52	298	-246
6	300	-294
0	301	-301
52	308	-256
178	315	-137
	1600	
	0	

Mesures en mm / Measurements in mm

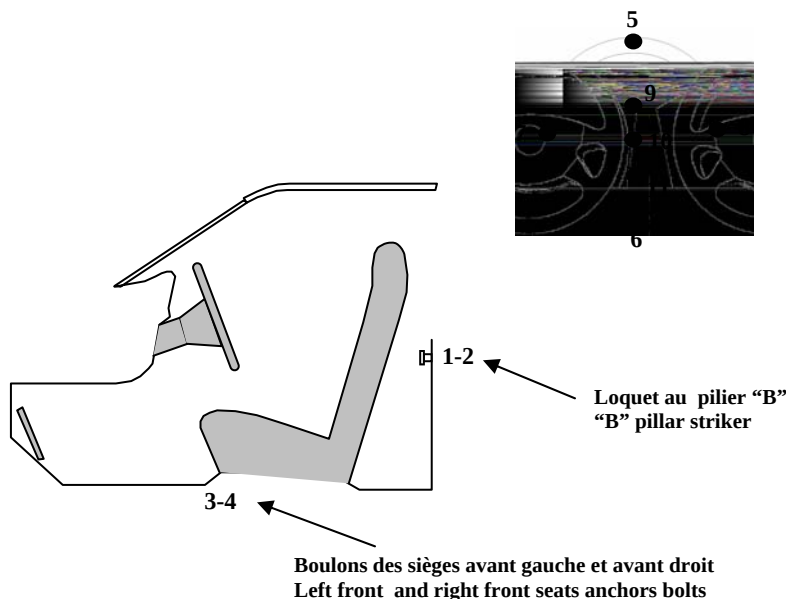
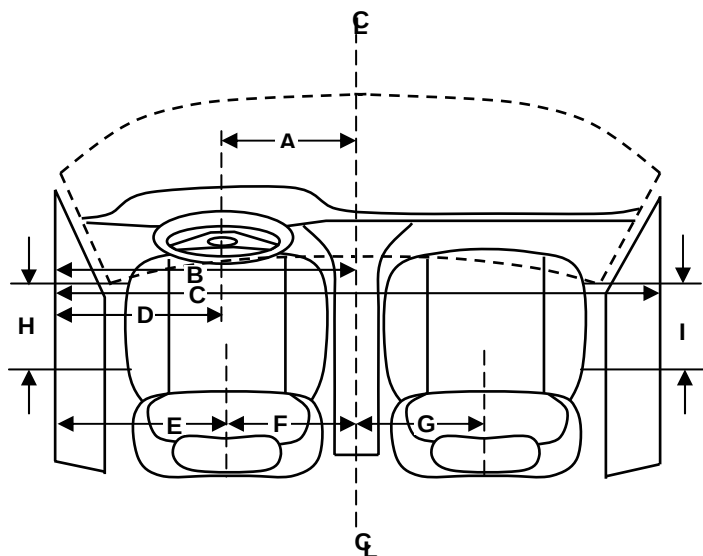
L : Longueur de la région endommagée
Length of damaged region

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	411
B	Seuil de fenêtre à la ligne de centre du véhicule Window edge to center line of the vehicle	877
C	Fenêtre à fenêtre Window to window	1760
D	Centre du volant au seuil de la fenêtre Steering wheel center to window edge	466
E	Seuil de la fenêtre au centre du siège (conducteur) Window edge to seat midline (driver)	458
F	Centre du siège à la ligne de centre du véhicule (conducteur) Seat midline to center line of vehicle (driver)	419
G	Centre du siège à la ligne de centre du véhicule (passager) Seat midline to center line of vehicle (passenger)	421
H	Course du siège (conducteur) Seat travel (driver)	231
I	Course du siège (passager) Seat travel (passenger)	230
J	Ajustement du volant Steering wheel adjustment	49
K	Ajustement de la ceinture baudrier Upper torso belt adjustment	71

Code	Description	X(mm)	Y(mm)	Z(mm)
1	Loquet au pilier "B" (conducteur) "B" pillar striker (driver)	2456	-847	662
2	Loquet au pilier "B" (passager) "B" pillar striker (passenger)	2457	846	663
3	Boulon siège avant, extérieur (conducteur) Front seat bolt, outboard (driver)	2015	-591	336
4	Boulon siège avant, extérieur (passager) Front seat bolt, outboard (passenger)	2020	590	335
5	Jante du volant, centre haut Steering wheel rim, top centre	1844	-413	1216
6	Jante du volant, centre bas Steering wheel rim, bottom centre	2000	-412	870
7	Jante du volant, centre gauche Steering wheel rim, left centre	1918	-602	1043
8	Jante du volant, centre droit Steering wheel rim, right centre	1918	-222	1043
9	Moyeu du volant, centre haut Steering wheel hub, top centre	1893	-412	1085
10	Moyeu du volant, centre Steering wheel hub, centre	1945	-412	1009
11	Moyeu du volant, centre bas Steering wheel hub, bottom centre	1971	-412	935
12	Centre du volant Center of steering wheel	1925	-411	1043

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	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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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 :	19.3°					
Angle transversal - Transversal angle :	-0.1°					
Angle de la tête - Head angle :	0.4°					
Seuil de porte - Door sill :	0.0°					
Mouvement du lacet / Yaw movement :	2 mm					
Position de la rail du siège / Seat track position * :	12 mm					
Passager avant/Front Passenger: Hybrid III (5 %) #104						
Angle du pelvis - Pelvic angle :	20.6°					
Angle transversal - Transversal angle :	0.5°					
Angle de la tête - Head angle :	0.0°					
Seuil de porte - Door sill :	0.0°					
Mouvement du lacet / Yaw movement :	0 mm					
Position de la rail du siège / Seat track position * :	11 mm					
Cible de tête / Head target :						
Point-H / H-Point :						
Rotule / Knee joint :						

Remarques – Comments : Aucune / None.

*** 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 / 2nd 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 : 22.3° Angle transversal - Transversal angle : 0.3° Angle de la tête - Head angle : -0.2° Seuil de porte - Door sill : 0.0° Mouvement du lacet / Yaw movement : 3 mm						
Passager avant/Front Passenger: Hybrid III (5 %) #103	Passager gauche/Left Passenger			Passager droit/Right Passenger		
Angle du pelvis - Pelvic angle : 22.3° Angle transversal - Transversal angle : 0.2° Angle de la tête - Head angle : 0.3° Seuil de porte - Door sill : 0.0° Mouvement du lacet / Yaw movement : 3 mm	Ajustement du siège : Seat adjustment :			Ajustement du siège : Seat adjustment :		
	FIXE / FIXED			FIXE / FIXED		
	Angle du dossier (Tige d'Appui-tête) Seat back angle (Headrest Pole):			Angle du dossier (Tige d'Appui-tête) Seat back angle (Headrest Pole):		
	15.0 °			14.8 °		
	X	Y	Z	X	Y	Z
Cible de tête / Head target :	3349	-439	1240	3350	413	1245
Point-H / H-Point :	3197	-525	686	3198	516	680
Rotule / Knee joint :	2870	-506	777	2869	473	792
Boulon supérieur avant de l'épaule ext./Shoulder bolt, top front outboard :	3363	-529	1006	3363	505	1008
Boulon supérieur avant de l'épaule int./Shoulder bolt, top front inboard :	3358	-215	1007	3359	195	1007
Potentiomètre de déflexion du sternum /Sternum deflection potentiometer	3207	-370	904	3207	349	904

Remarques – Comments : **Aucune / None.**

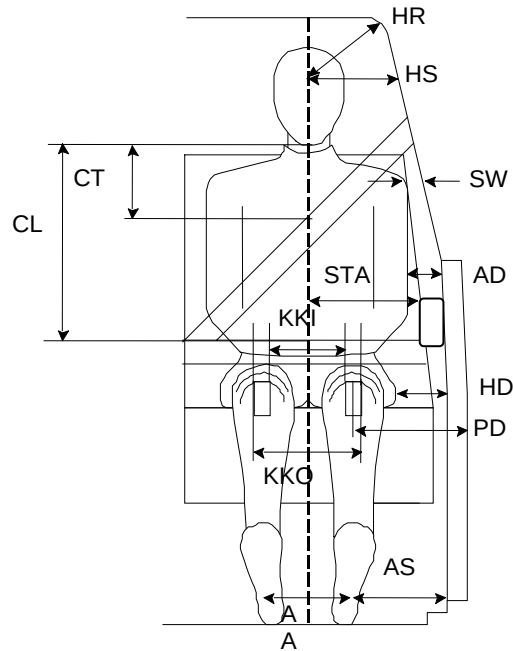
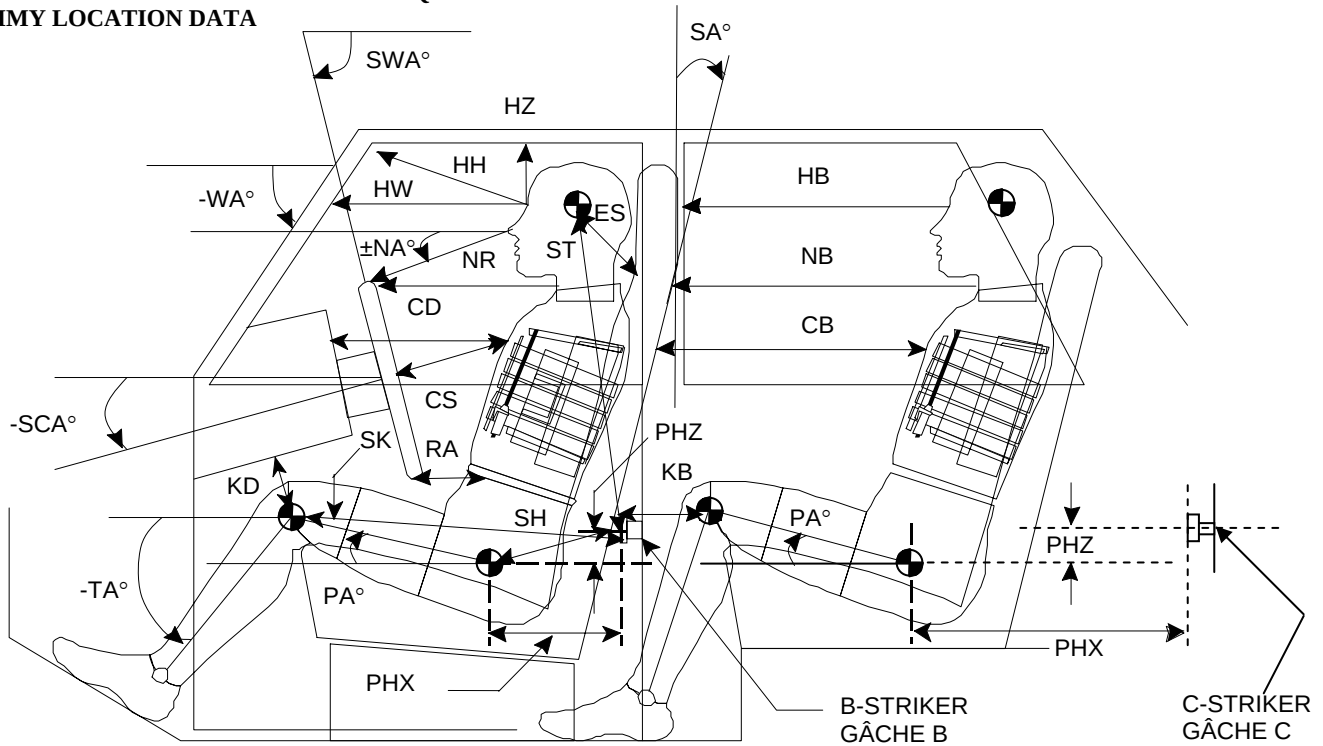
Selon la procédure de positionnement de mannequin 5^e percentile Hybrid III, conformément à la sous-section O, TP208-12, 14 janvier 2003.

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

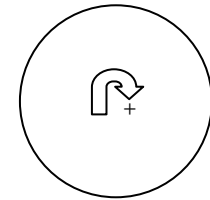
Point de référence : Centre transversal du véhicule, au point le plus avancé, au niveau du sol. Selon SAE J182a.
Reference point : Transversal center of the vehicle, at the foremost point and at ground level. As per SAE J182a.

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COTES DE LOCALISATION DES MANNEQUINS
DUMMY LOCATION DATA



référence
reference :



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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	300	280		
Genou à genou (plaque) Intérieur / Interior Centre / Center Knee to knee (plate) Extérieur / Extérieur	KKI	165	105		
	KKC	235	175		
	KKO	305	245		
De la cheville jusqu'au seuil de porte (horizontalement) Ankle to door sill (horizontal)	AS	180	170		
Centre du genou au tableau de bord ou siège horizontalement (minimum) Knees centre to dash or seat back horizontal (minimum)	KDL	20	25		
	KDR	20	25		
Sternum au tableau de bord (horizontalement) Chest to dash (horizontal)	CD		415		
Milieu du sternum au centre du moyeu du volant ou siège avant Mid sternum to steering hub center or front seat	CS/CB	207			
Milieu du front jusqu'au pare-brise (horizontalement) Mid forehead to windshield (horizontal)	HW	607	635		
Milieu du front jusqu'au haut du pare-brise Mid forehead to windshield header	HH	317	323		
Nez à la jante du volant de direction (haut) ou siège avant Nose to steering wheel rim (top) or front seat	NR/HB	292			
Milieu du front jusqu'au début du toit Mid forehead to edge roof	HR	280	290		
Haut de l'oreille au haut du siège avant Ear top to front seat top	ES	265	252		
Menton au haut de la ceinture sous-abdominale (verticalement) Chin to lap belt upper edge (vertical)	CL	355	350		
Menton au haut de la ceinture baudrier (verticalement) Chin to thorax belt upper edge (vertical)	CT	130	110		
Milieu du front à la fenêtre latérale (horizontalement) Mid forehead to side window (horizontal)	HS	330	350		
La rotule à la porte (horizontalement) Patella to door (horizontal)	PD	185	178		
Du point-H à la porte (horizontalement) H-point to door (horizontal)	HD	167	200		
Du milieu du bras à la porte (horizontalement) Mid upper arm to door (horizontal)	AD	136	170		
Cou jusqu'au volant ou tableau de bord (horizontalement) ou siège avant Neck to steering wheel or dash board (horizontal) or front seat	NB	340	566		
Épaule à la fenêtre de côté Shoulder to side window	SW	93	193		
Abdomen à l'appui-bras Abdomen to armrest	STA	180	170		
Milieu du front au toit (verticalement) Mid forehead to roof (vertical)	HZ	210	225		
Tête au loquet (plan (x,z)) Striker to head ((x,z) plan)	ST	643	632		
Abdomen à la jante du volant de direction (bas) Steering wheel rim to abdomen (bottom)	RA	88			
Genou au loquet (plan (x,z)) Striker to knee ((x,z) plan)	SK	694	697		
Point-H au loquet (plan (x,z)) Striker to H-Point ((x,z) plan)	SH	356	354		
Point-H au loquet en X (horizontalement) Striker to H-Point in X (horizontal)	PHX	354	353		
Point-H au loquet en Z (verticalement) Striker to H-Point in Z (vertical)	PHZ	-39	-30		

Date de collision Crash date	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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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	65.0°			
Angle du pare-brise Windshield angle	-WA	-29.8°			
Angle de la colonne de direction Steering column angle	-SCA	-26.0°			
Angle du tibia gauche Left tibial angle	-TA	-15.5°	-18.8°		
Angle du tibia droit Right tibial angle	-TA	-18.2°	-19.0°		
Angle pelvis Pelvic angle	+PA	19.3°	20.0°		
Angle du nez à la jante de direction (haut) Nose to steering wheel rim (top) angle	±NA	-7.2°			
Angle du dossier (Tige d'Appuie-tête) Seat back angle (Headrest Pole)	+SA	19.7°	18.5°		
Angle ST (horizontalement) ST angle (horizontal)	+ST-A	71.4°	70.8°		
Angle SK (horizontalement) SK angle (horizontal)	±SK-A	10.8°	9.8°		
Angle SH (horizontalement) SH angle (horizontal)	-SH-A	6.3°	4.9°		

Date de collision Crash date	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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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	2251	-498	1271
Base du nez - Glabella (root of nose)	2167	-424	1279
Menton - Chin (bottom)	2164	-425	1171
Jonction menton et cou - Chin / neck junction	2233	-425	1187
Thorax au niveau des côtes supérieures - Chest at upper rib level	2137	-416	1011
Thorax au niveau des côtes inférieures - Chest at lower rib level	2107	-408	902
Boulon supérieur avant de l'épaule, ext. - Shoulder bolt, top front outboard	2276	-584	1043
Boulon supérieur avant de l'épaule, int. - Shoulder bolt, top front inboard	2286	-266	1053
Boulon du coude, extérieur - Elbow bolt, outboard	2112	-674	928
Boulon du coude, intérieur - Elbow bolt, inboard	2128	-122	985
Boulon du poignet, extérieur - Wrist bolt, outboard	1943	-647	1061
Boulon du poignet, intérieur - Wrist bolt, inboard	1946	-184	1088
Point d'articulation de la hanche, extérieur - Hip point, outboard	2188	-535	745
Boulon du genou gauche, extérieur - Knee bolt, left leg, outboard	1774	-547	792
Boulon de la cheville gauche, extérieur - Ankle bolt, left leg , outboard	1646	-522	472
Point du talon gauche - Heel point, left leg	1717	-512	367
Plante du pied gauche vs plancher - Ball of foot at toeboard contact, left leg	1579	-557	386
Boulon du genou droit, intérieur - Knee bolt, right leg , inboard	1772	-314	779
Boulon de la cheville droite, intérieur - Ankle bolt, right leg , inboard	1619	-288	481
Point du talon droit - Heel point, right leg	1651	-298	348
Plante du pied droit vs plancher - Ball of foot at toeboard contact, right leg	1497	-310	445
Potentiomètre de déflexion du sternum – Sternum deflection potentiometer	2114	-408	940

Remarques – Comments : Aucune / None.

Date de collision Crash date	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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**MESURES DE MANNEQUIN DAE
TEST DUMMY MEASUREMENTS**

PASSAGER / PASSENGER

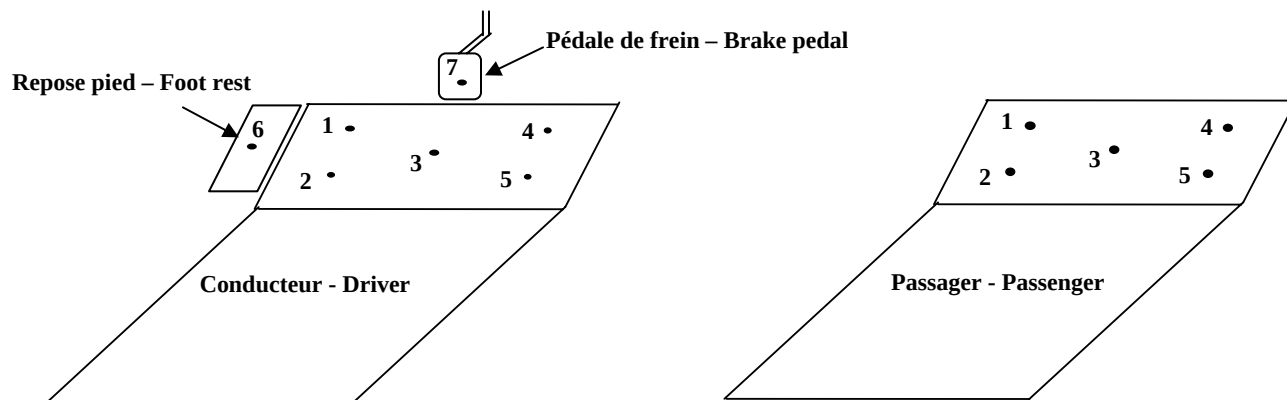
Description et emplacement du Mannequin
ATD description and location:

DESCRIPTION	X(mm)	Y(mm)	Z(mm)
Centre de gravité de la tête, extérieur - Head CG, outboard	2249	487	1260
Base du nez - Glabella (root of nose)	2162	417	1272
Menton - Chin (bottom)	2159	418	1166
Jonction menton et cou - Chin / neck junction	2232	418	1187
Thorax au niveau des côtes supérieures - Chest at upper rib level	2138	413	997
Thorax au niveau des côtes inférieures - Chest at lower rib level	2107	417	892
Boulon supérieur avant de l'épaule, ext. - Shoulder bolt, top front outboard	2265	576	1025
Boulon supérieur avant de l'épaule, int. - Shoulder bolt, top front inboard	2269	265	1028
Boulon du coude, extérieur - Elbow bolt, outboard	2208	634	816
Boulon du coude, intérieur - Elbow bolt, inboard	2214	224	814
Boulon du poignet, extérieur - Wrist bolt, outboard	1998	596	780
Boulon du poignet, intérieur - Wrist bolt, inboard	1996	250	780
Point d'articulation de la hanche, extérieur - Hip point, outboard	2188	544	740
Boulon du genou gauche, intérieur - Knee bolt, left leg, inboard	1767	377	771
Boulon de la cheville gauche, intérieur - Ankle bolt, left leg, inboard	1613	341	473
Point du talon gauche - Heel point, left leg	1650	346	355
Plante du pied gauche vs plancher - Ball of foot at toeboard contact, left leg	1512	378	422
Boulon du genou droit, extérieur - Knee bolt, right leg, outboard	1771	553	785
Boulon de la cheville droite, extérieur - Ankle bolt, right leg, outboard	1620	547	479
Point du talon droit - Heel point, right leg	1656	559	357
Plante du pied droit vs plancher - Ball of foot at toeboard contact, right leg	1527	589	416
Potentiomètre de déflexion du sternum – Sternum deflection potentiometer	2117	416	927

Remarques – Comments : Aucune / None.

Date de collision Crash date	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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MESURES PLANCHER / FOOTWELL MEASUREMENTS



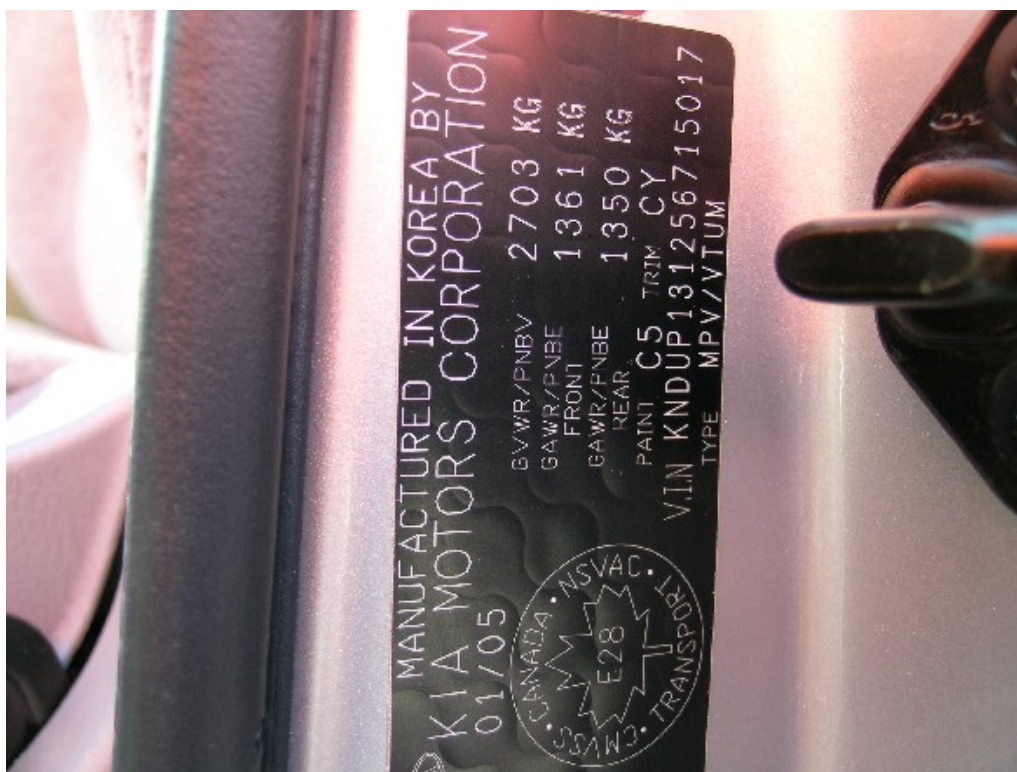
N° Cible	AVANT ESSAI	APRÈS ESSAI	
Target No.	PRE-TEST	POST-TEST	Δ mm
1	x	1313	1330
	y	-480	-481
	z	474	494
2	x	1421	1428
	y	-490	-491
	z	385	394
3	x	1358	1372
	y	-375	-376
	z	434	450
4	x	1327	1345
	y	-278	-279
	z	469	488
5	x	1428	1436
	y	-280	-281
	z	376	385
6	x	1400	1410
	y	-654	-655
	z	445	456
7	x	1495	1540
	y	-415	-413
	z	513	549

N° Cible	AVANT ESSAI	APRÈS ESSAI	
Target No.	PRE-TEST	POST-TEST	Δ mm
1	x	1401	1426
	y		
	z		
2	x	1518	1525
	y		
	z		
3	x	1445	1457
	y		
	z		
4	x	1396	1414
	y	539	538
	z	479	512
5	x	1508	1512
	y	558	560
	z	394	414

APPENDICE / APPENDIX A

**PHOTOGRAPHIES DE L'ESSAI
TEST PHOTOGRAPHS**

Date de collision Crash date	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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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.

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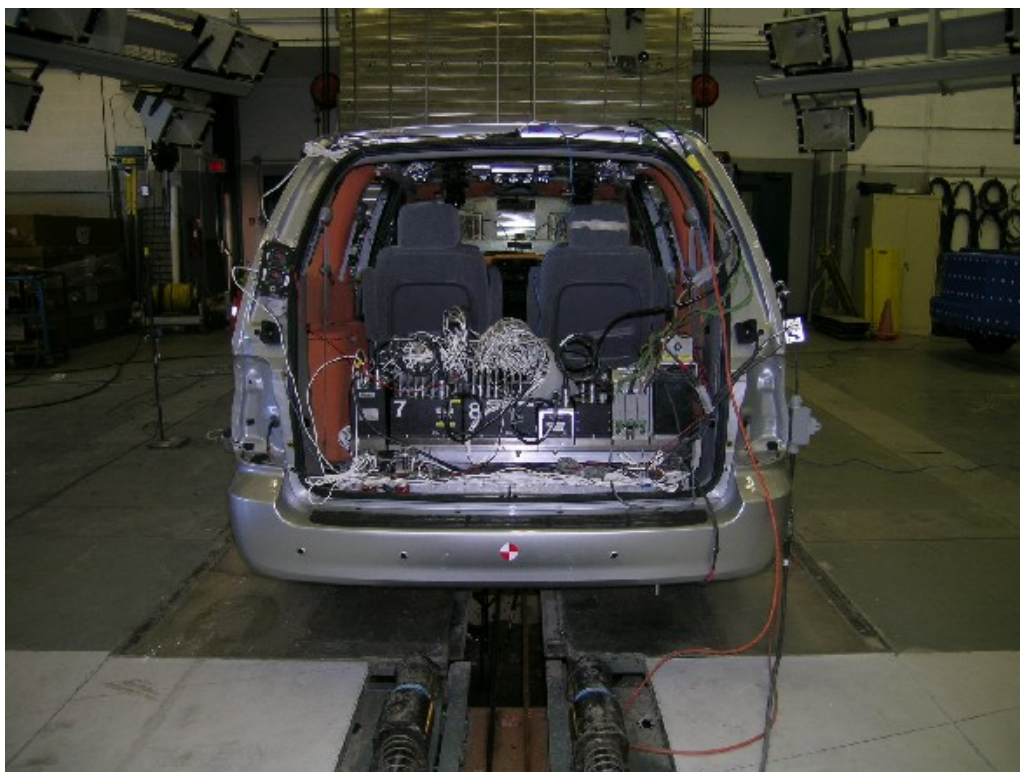


5. Vue générale côté gauche du véhicule d'essai, avant essai.
Left side view of the test vehicle, pre-test.



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	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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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	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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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.

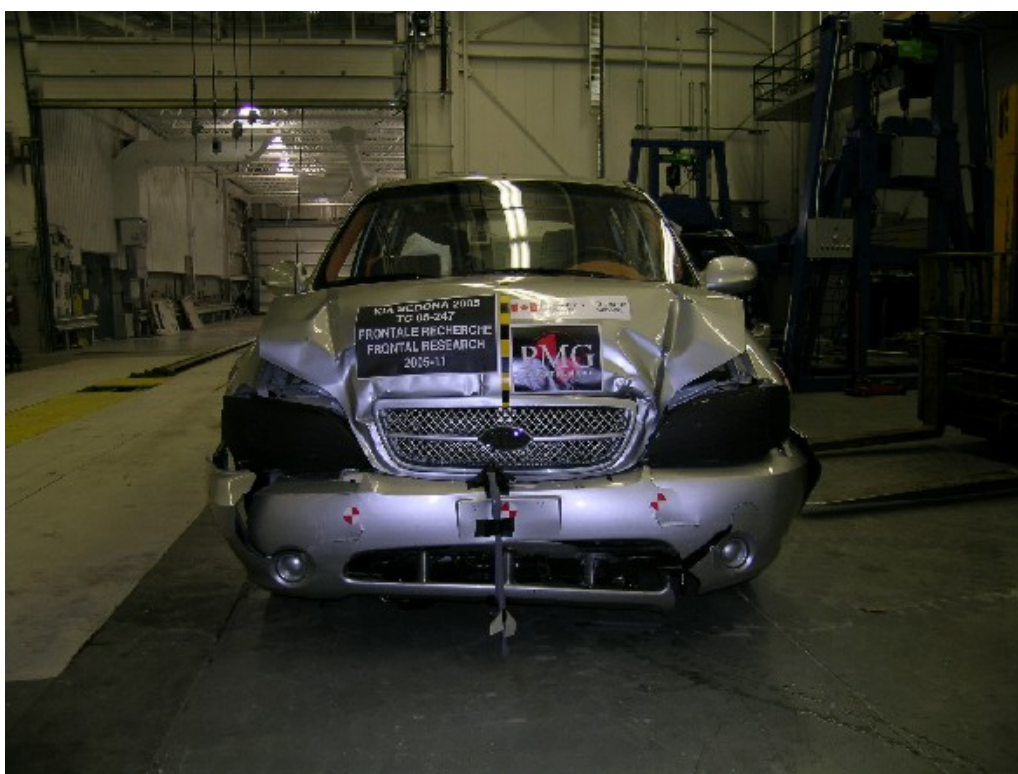


10. Vue générale côté droit du véhicule d'essai, après essai.
General right side view of the test vehicle, post-test.

Date de collision Crash date	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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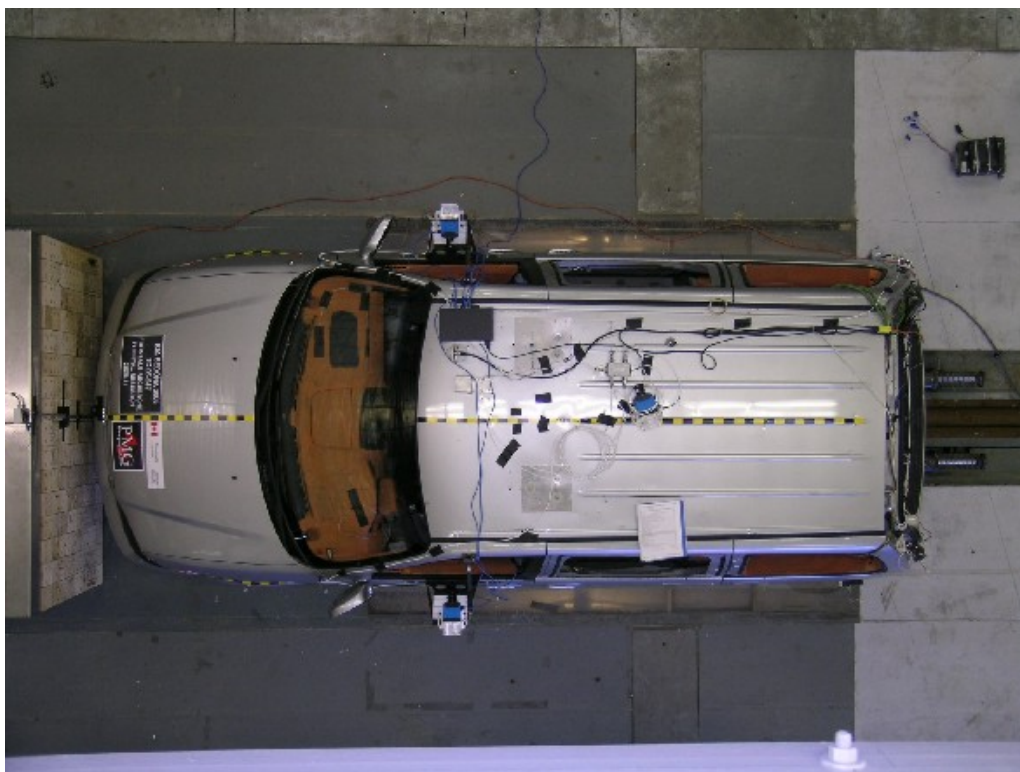


11. Vue avant du véhicule d'essai, avant essai.
Front view of the test vehicle, pre-test.



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

Date de collision Crash date	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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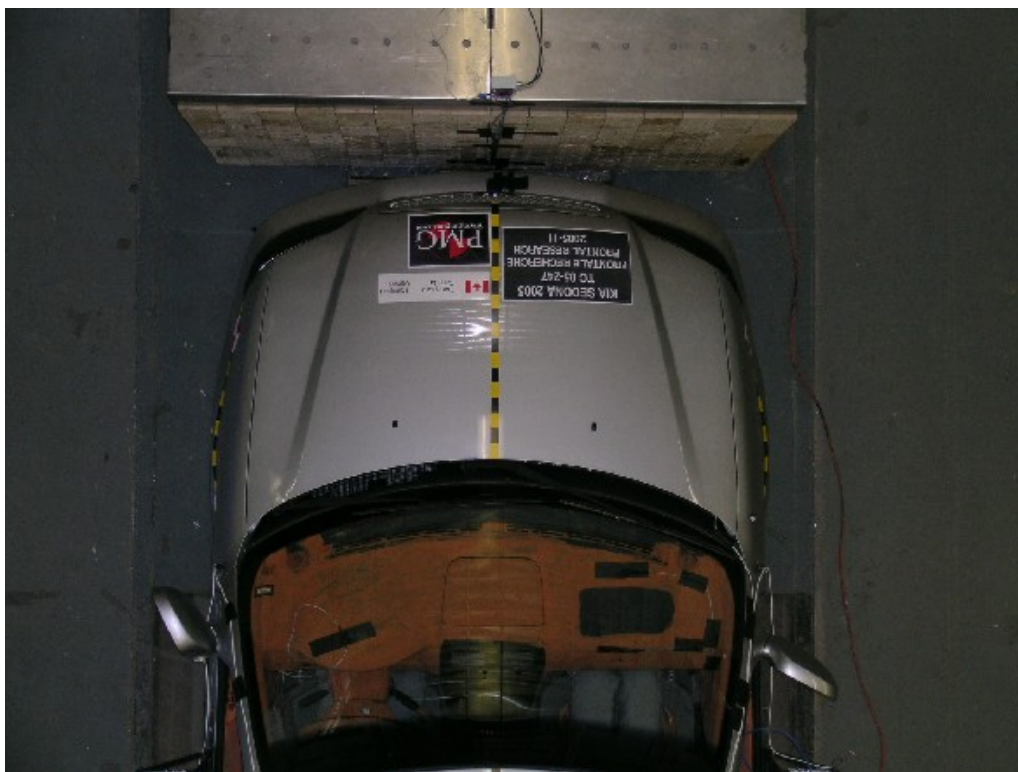


13. Vue de plan du véhicule d'essai, avant essai.
Over view of the test vehicle, pre-test.

Non disponible
Not available

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

Date de collision Crash date	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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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.

Non disponible
Not available

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

Date de collision Crash date	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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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.

Date de collision Crash date	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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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	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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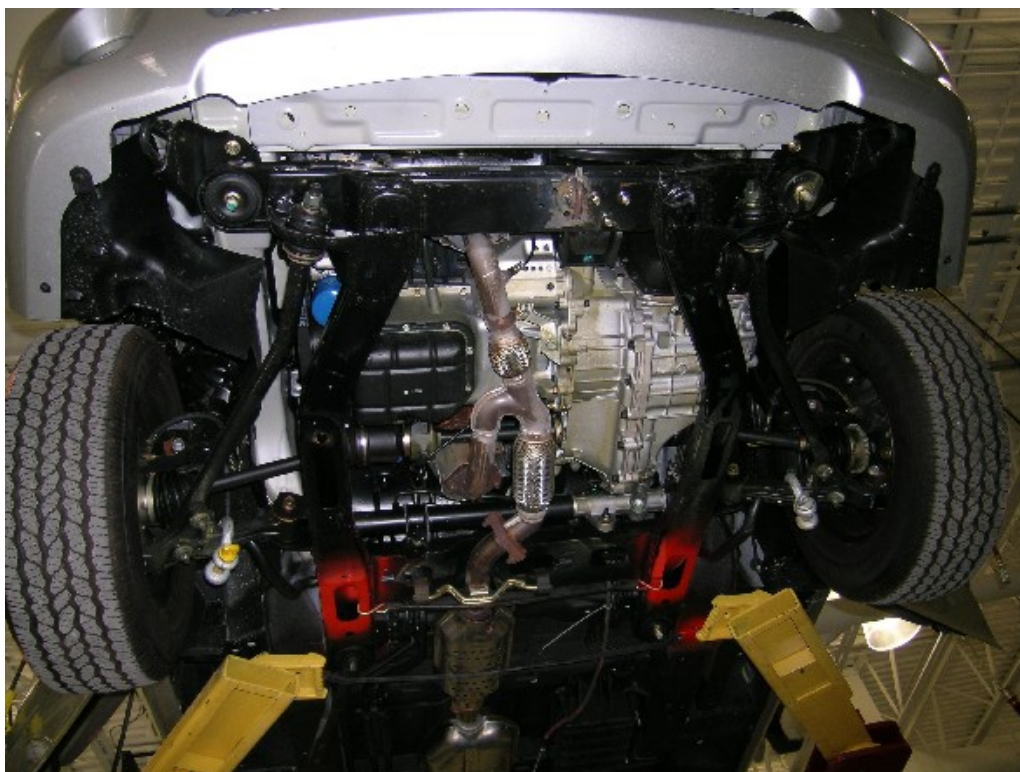


21. Vue du compartiment moteur du véhicule d'essai, avant essai.
Engine compartment view of the vehicle, pre-test.



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

Date de collision Crash date	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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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	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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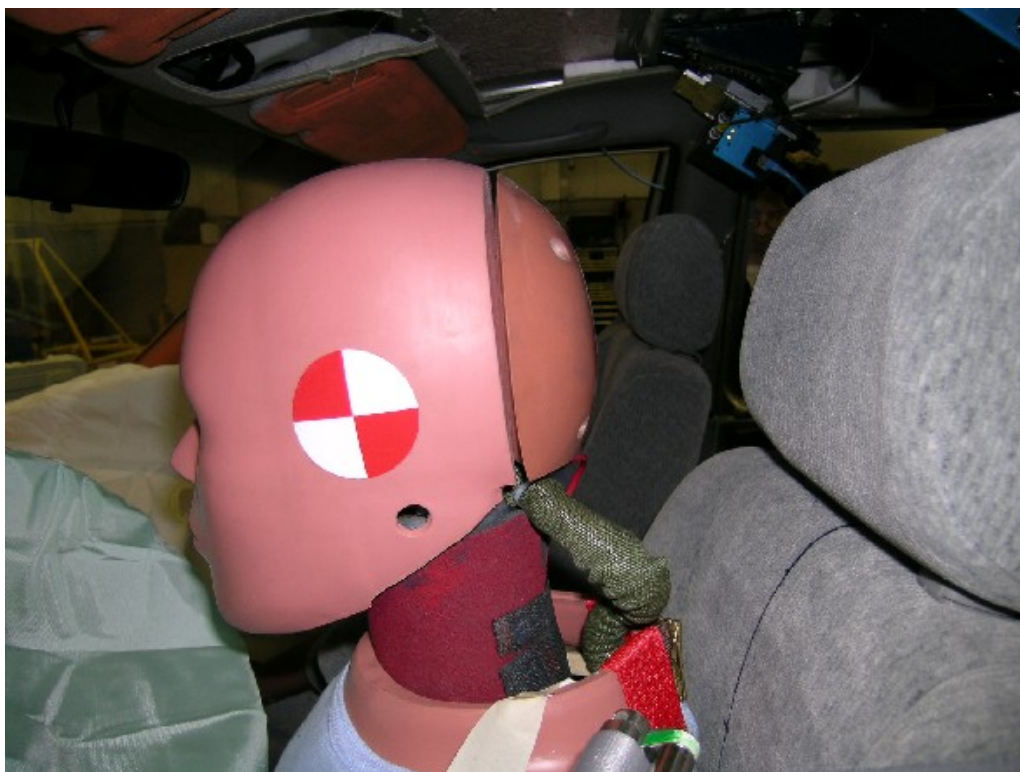


25. Position du conducteur, avant essai.
Driver's position, pre-test.



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

Date de collision Crash date	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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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	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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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	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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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	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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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	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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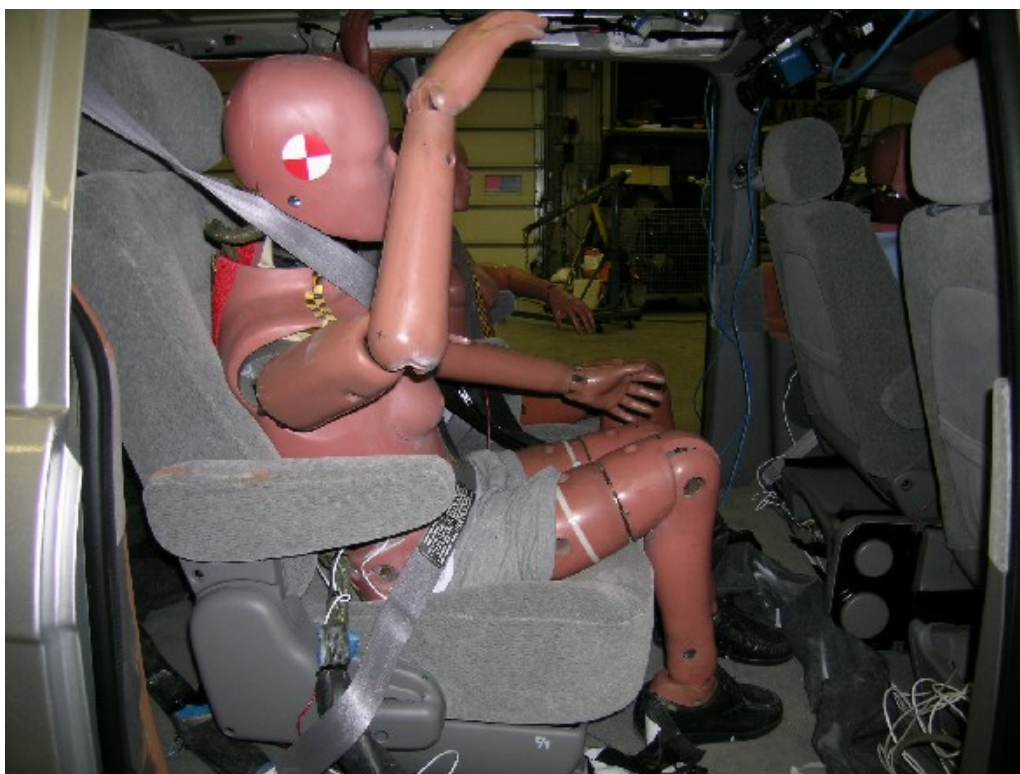


**34. Point de contact des genoux du passager, après essai.
Passenger's knees contact point, post-test.**

Date de collision Crash date	2005-11-08	Véhicule Vehicle	KIA SEDONA LX 2005	T.C. N° T.C.No	05-247
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35. Position du passager arrière droit, avant essai.
Rear right passenger's position, pre-test.

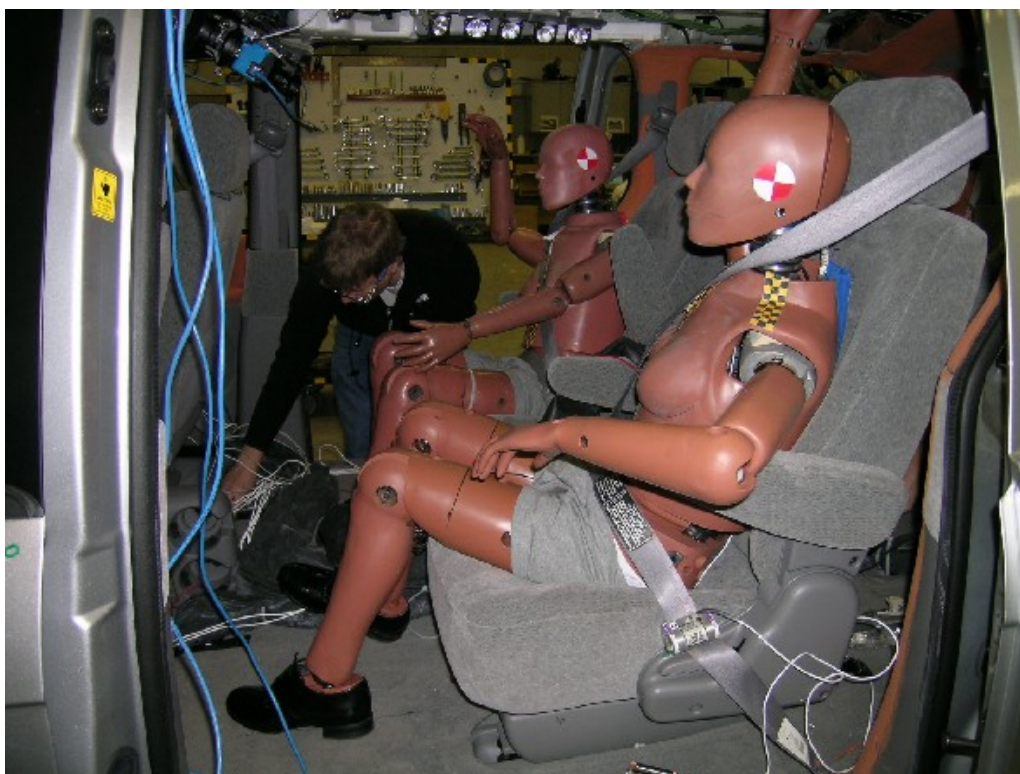


36. Position du passager arrière droit, après essai.
Rear right passenger's position, post-test.

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37. Position du passager arrière gauche, avant essai.
Rear left passenger's position, pre-test.



38. Position du passager arrière gauche, après essai.
Rear left passenger's position, post-test.

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39. 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 **KIA SEDONA 2005**

Numéro de TC
Tc Number **TC05-247**

Vitesse
Speed **40 km/h**

Numéro de contrat
Contract No **06-5004**

Acquisition de données selon
Data Acquisition according to **SAE J211/1 MAR 95**

Date de l'essai
Test date **2005-11-08**

Titre du projet
COLLISION DE RECHERCHE
COLLISION FRONTALE

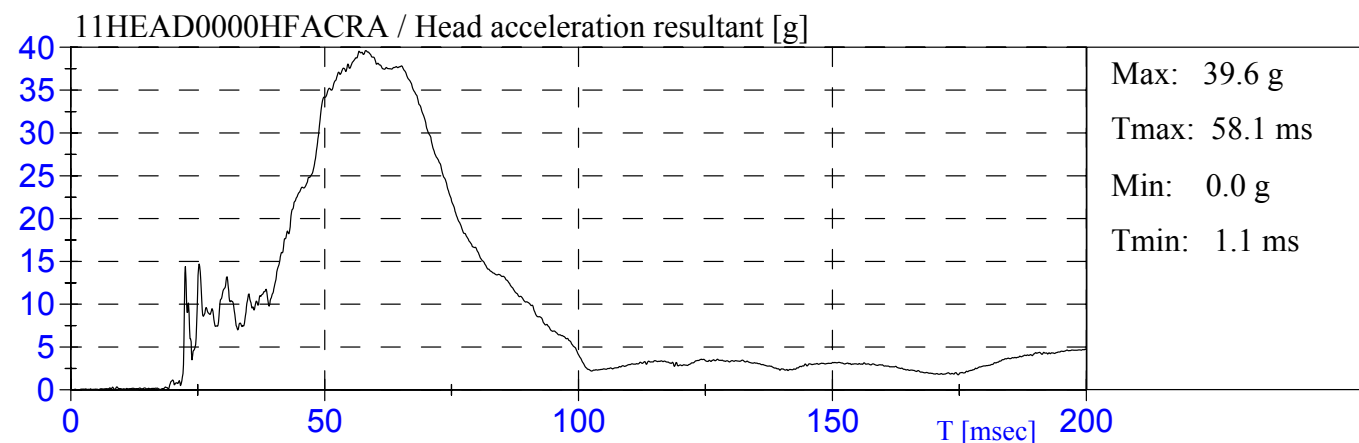
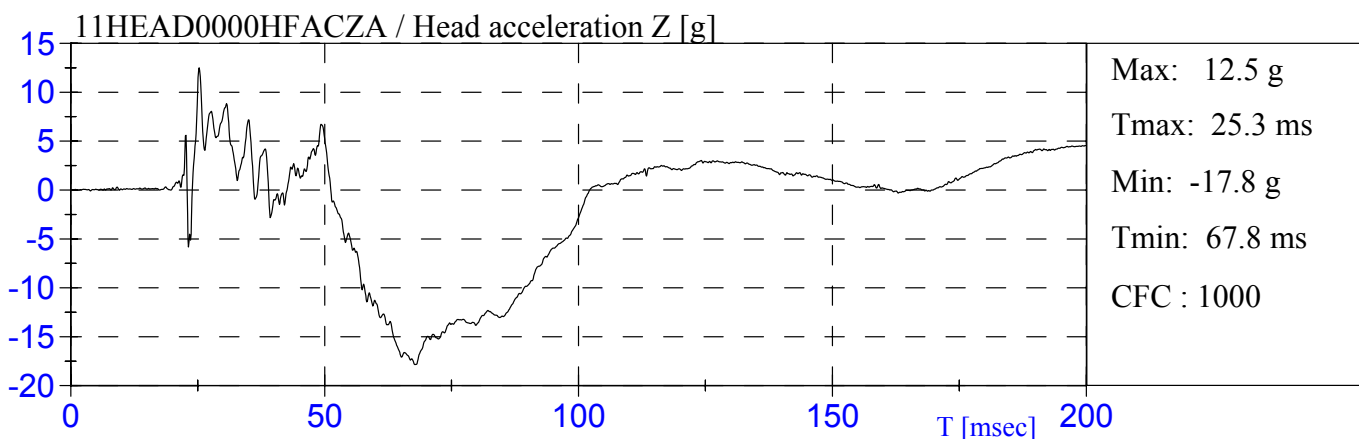
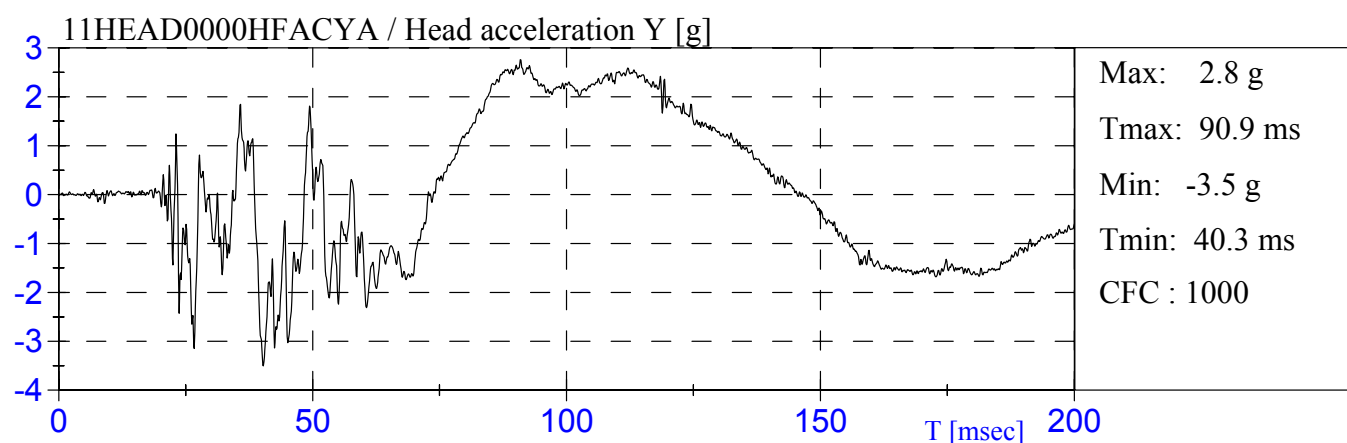
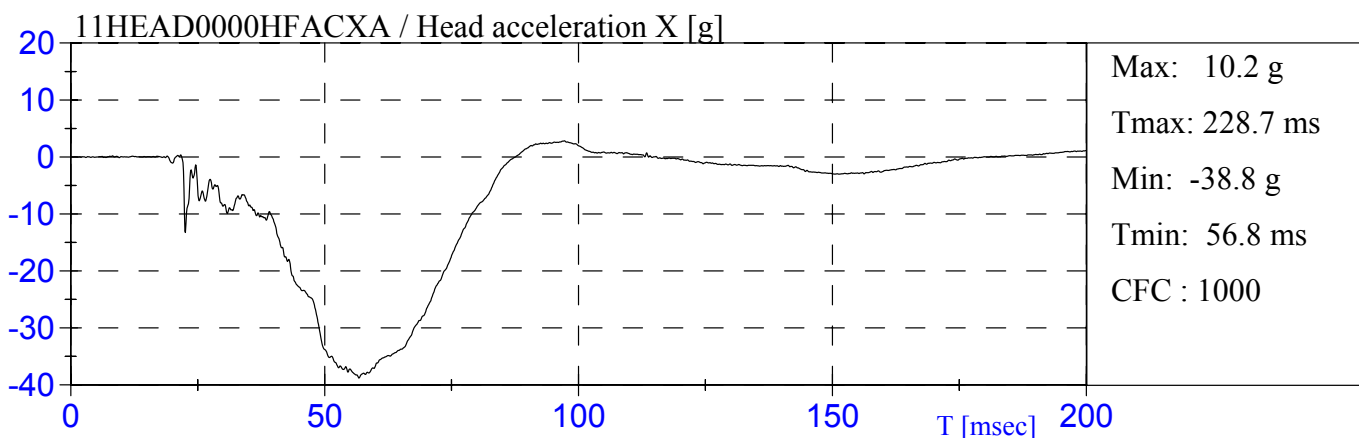
Project Title
RESEARCH COLLISION TEST
FRONTAL CRASH

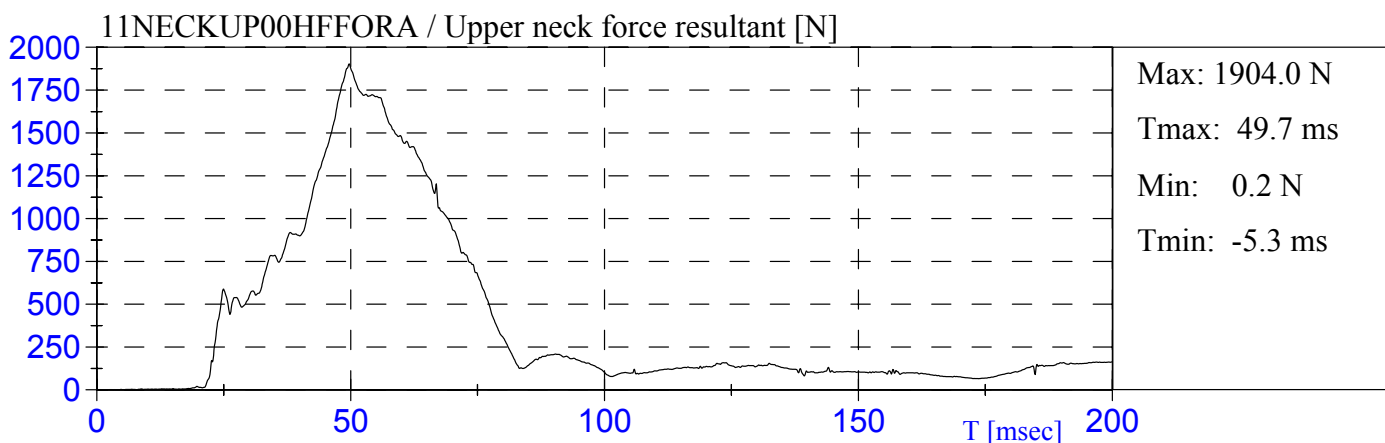
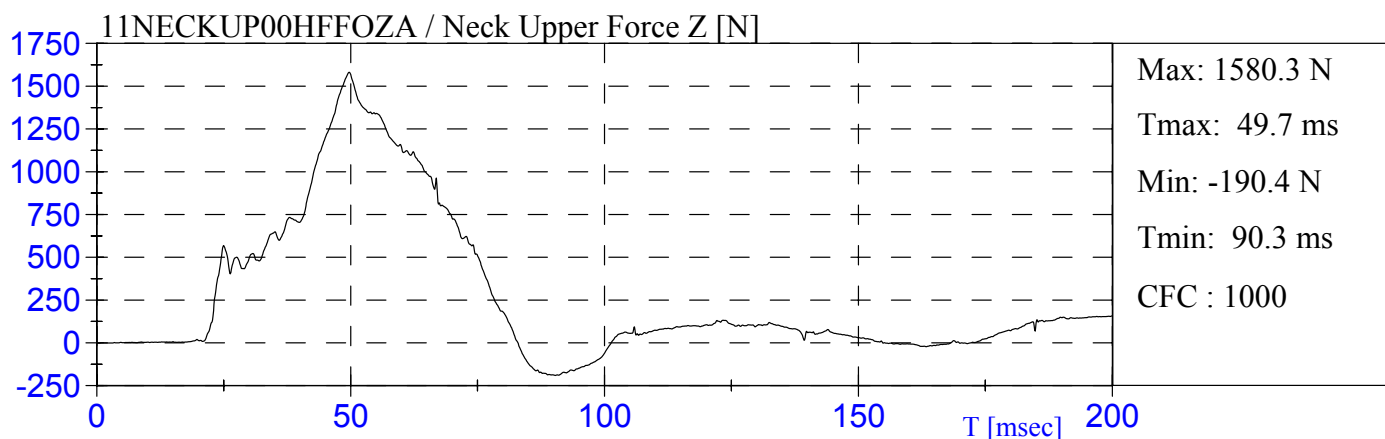
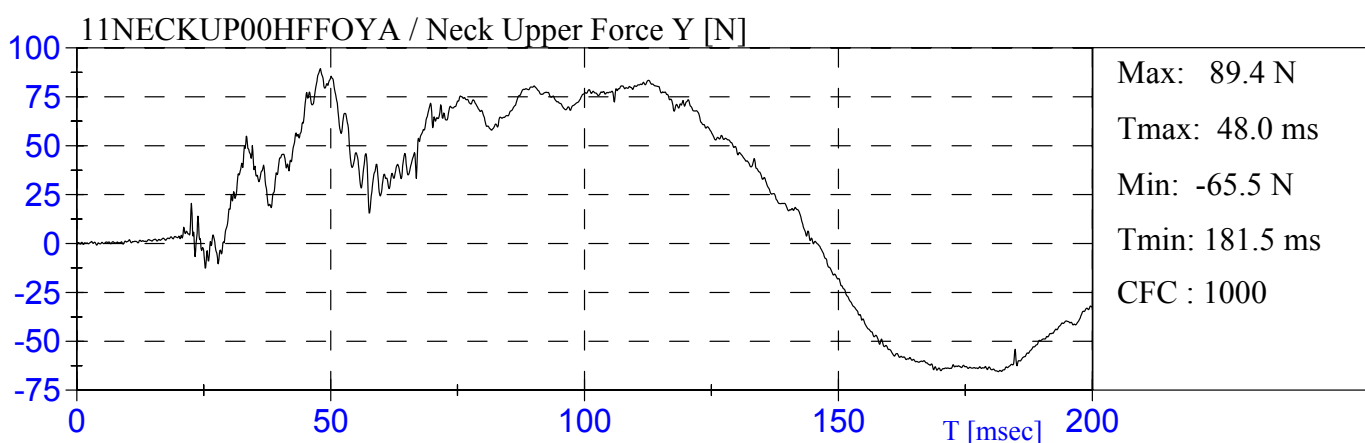
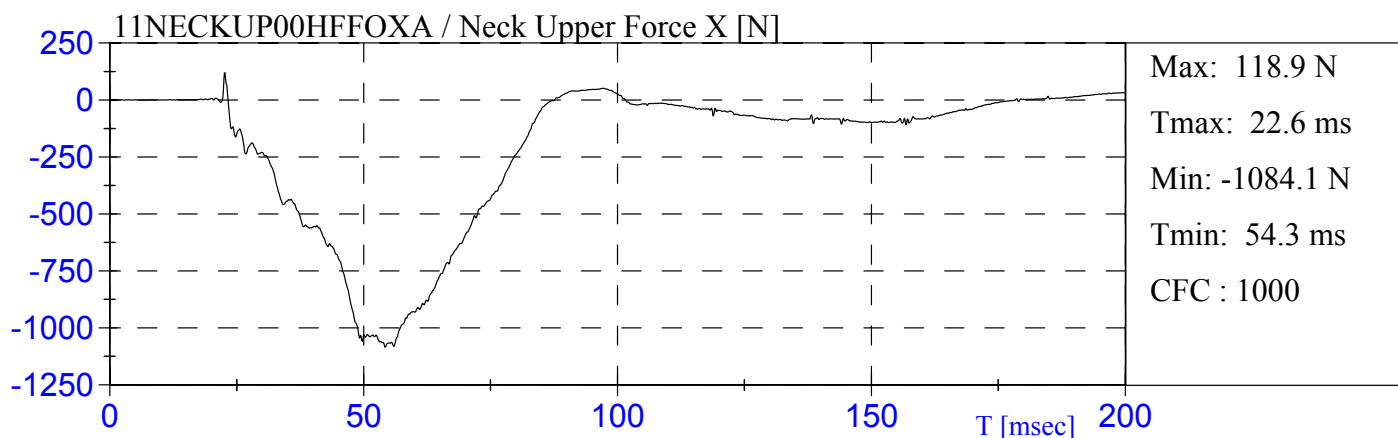
MANNEQUIN / DUMMY

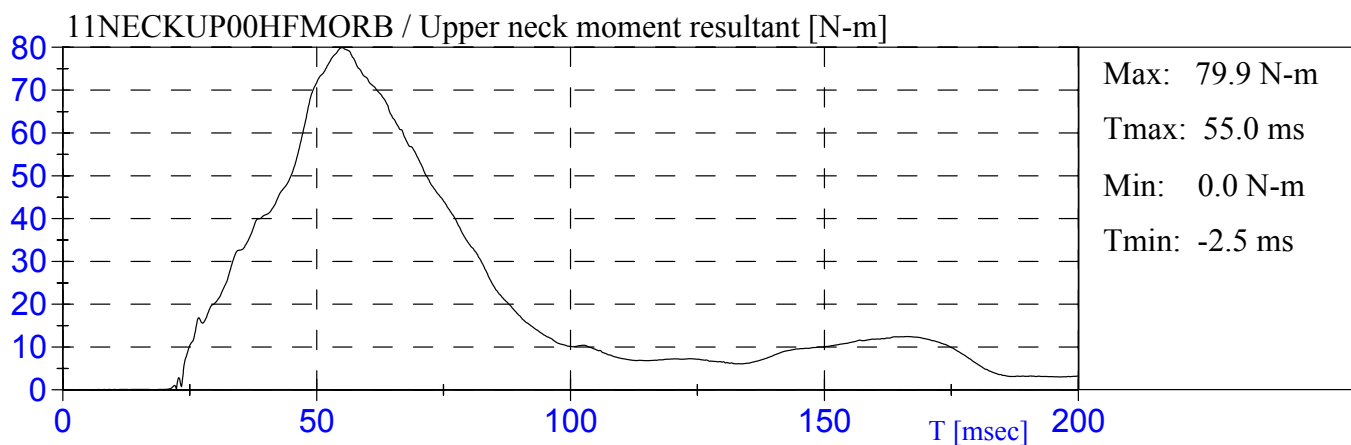
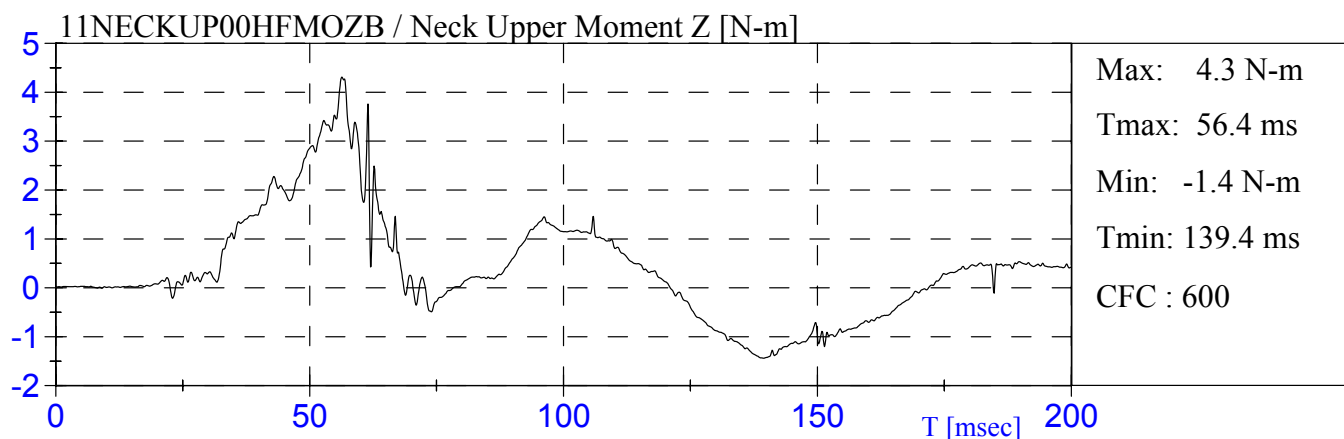
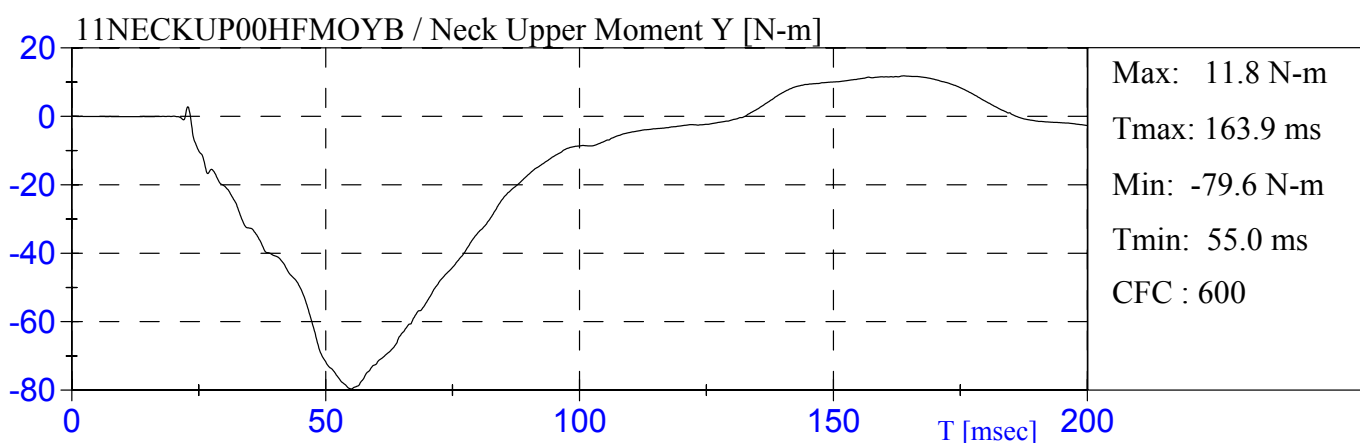
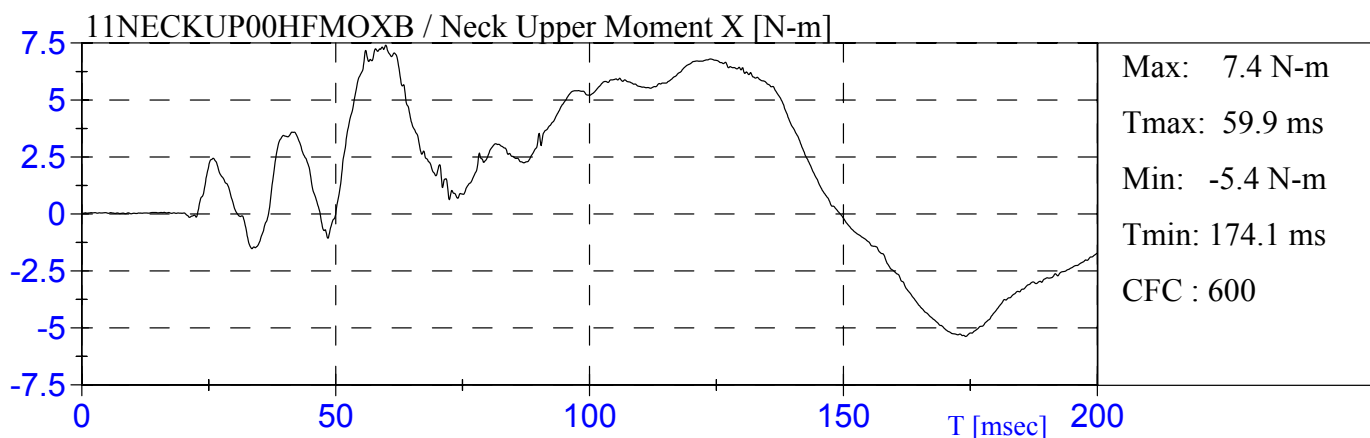
Position 1	Position 2	Position 3
HF		HF

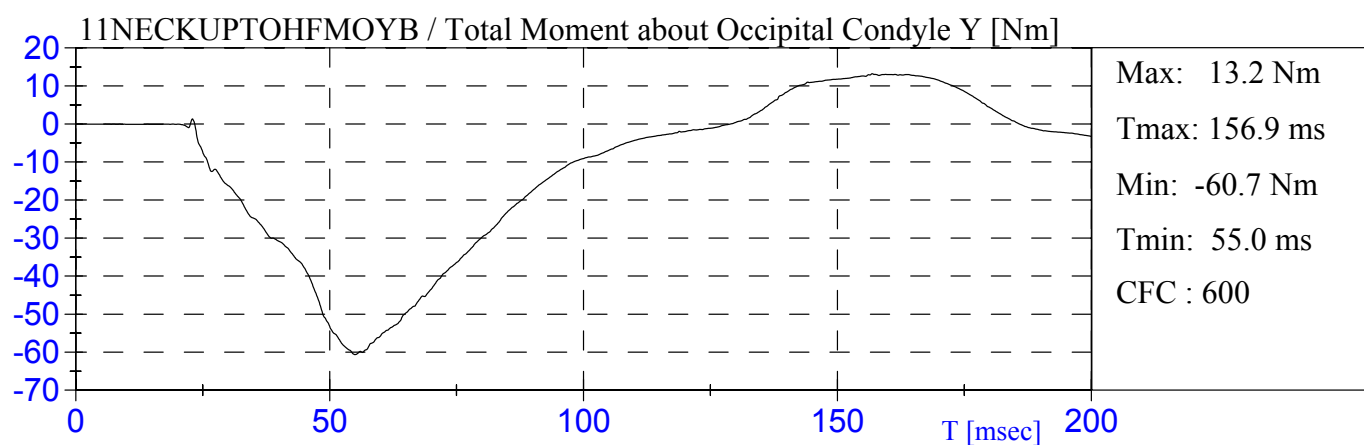
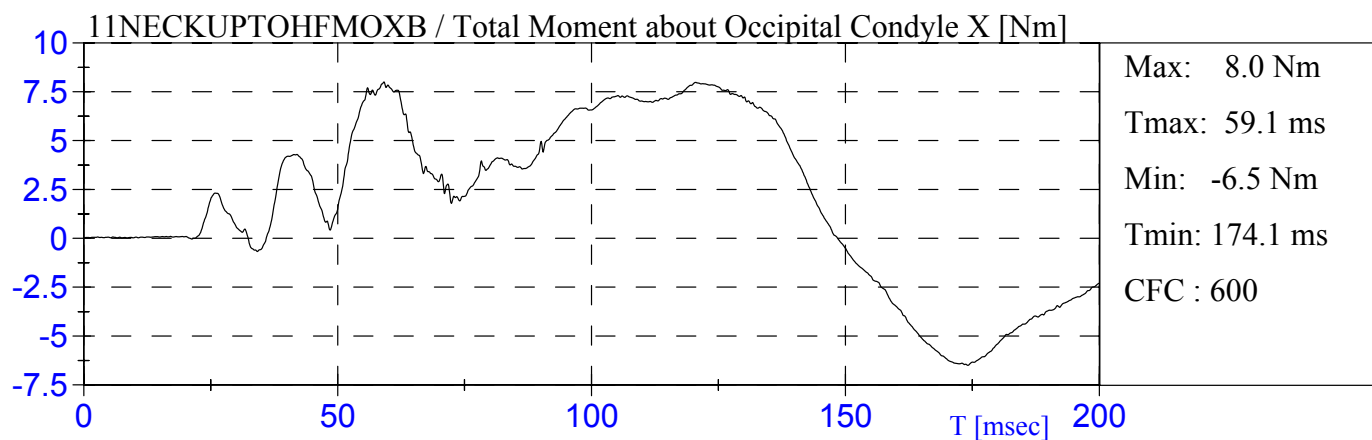
Position 4	Position 5	Position 6
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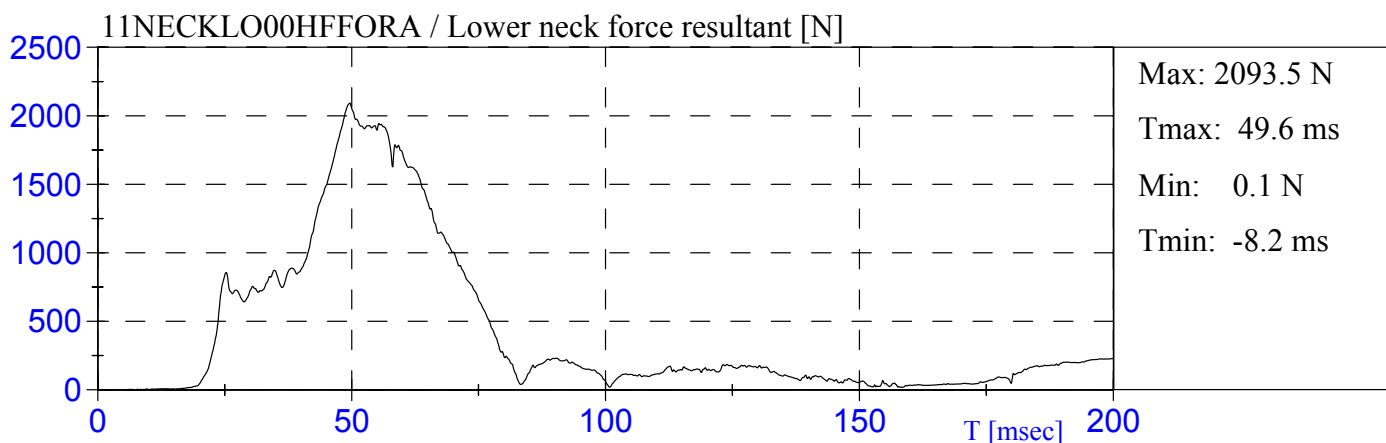
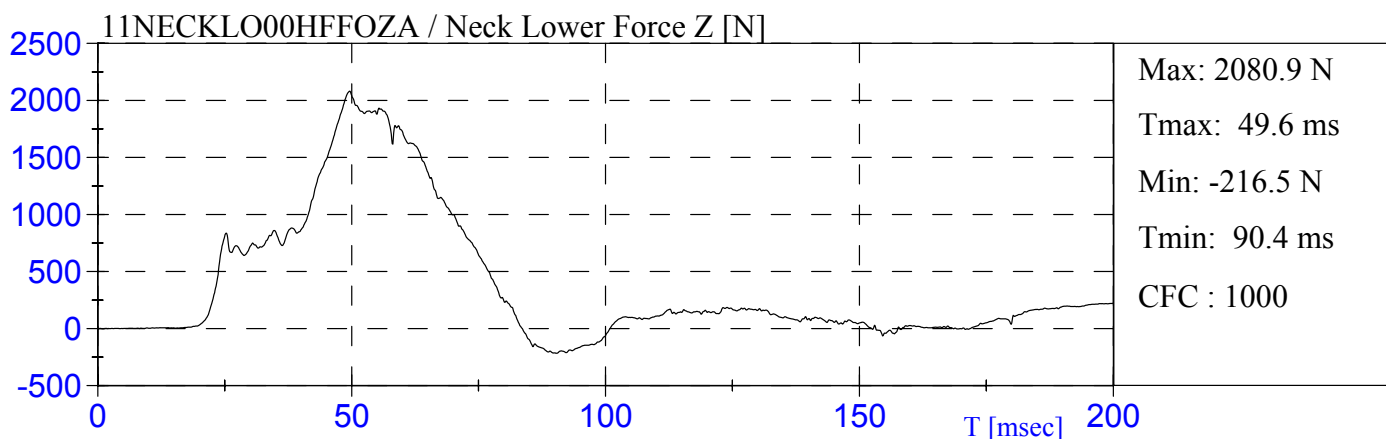
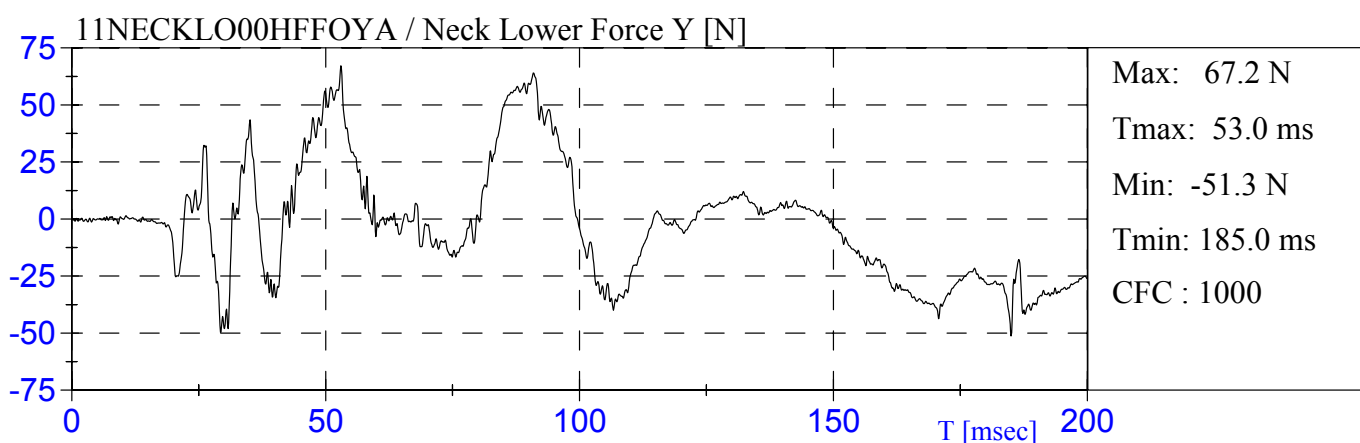
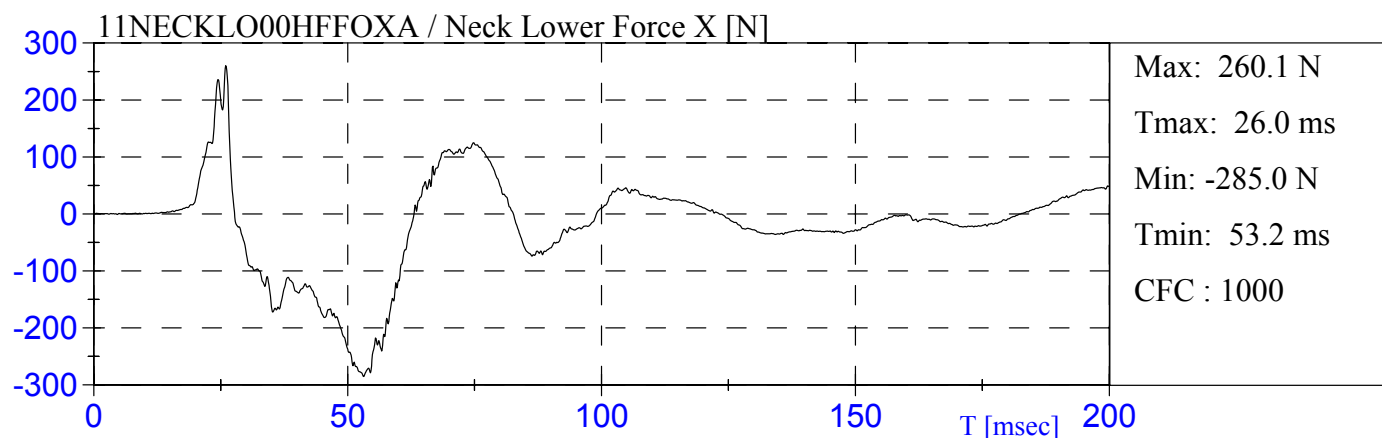
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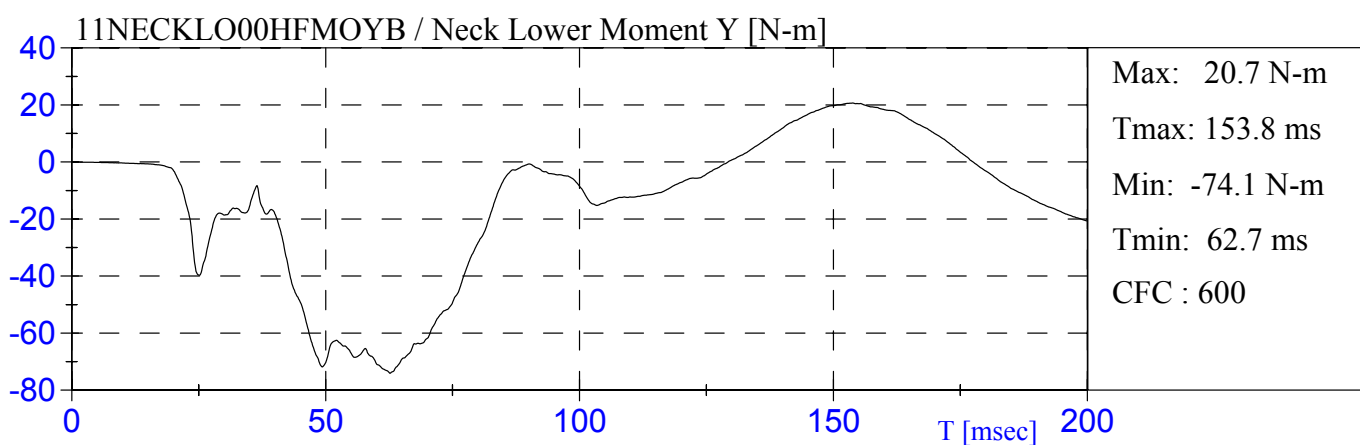
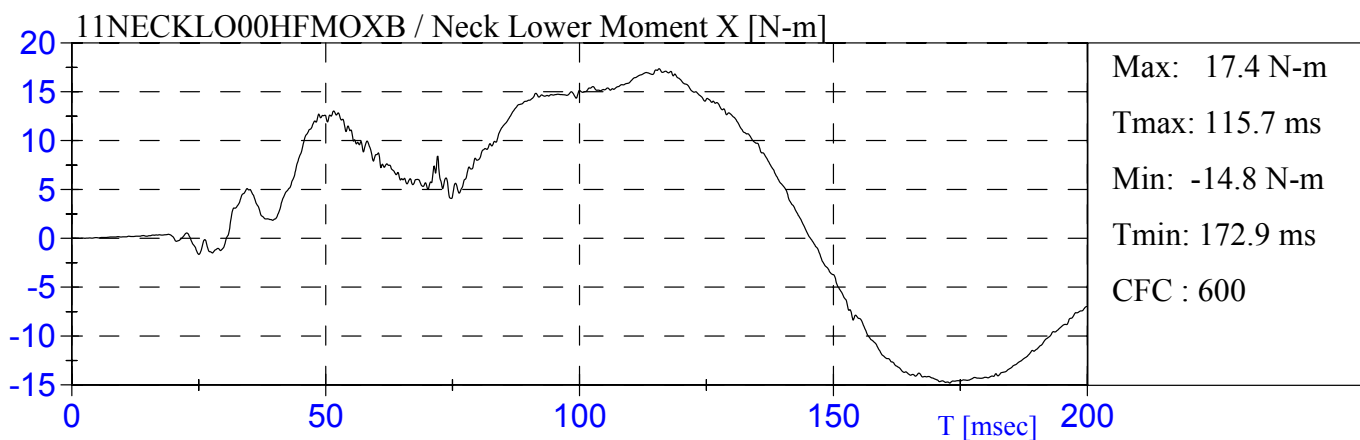


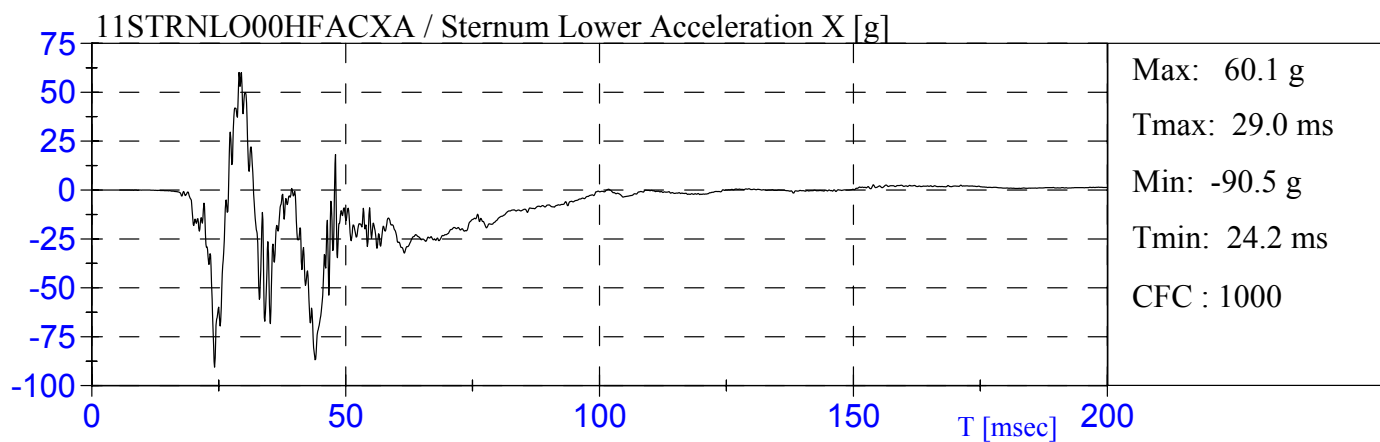
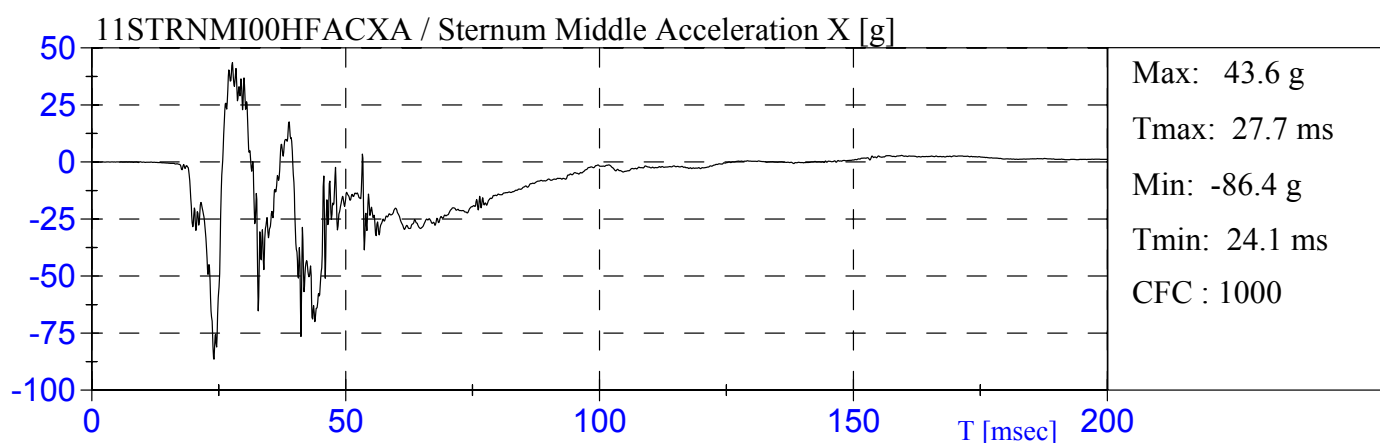
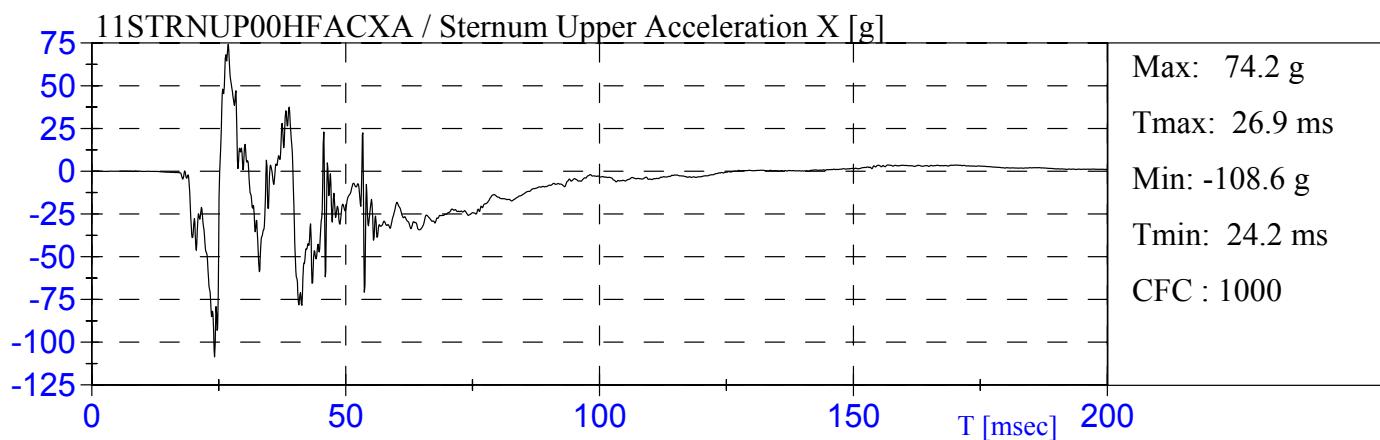


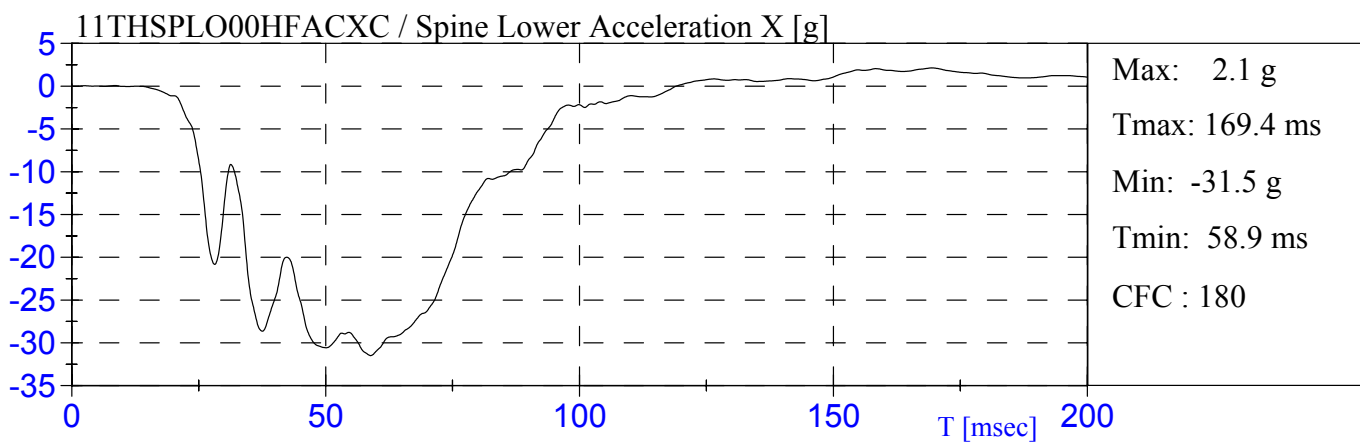
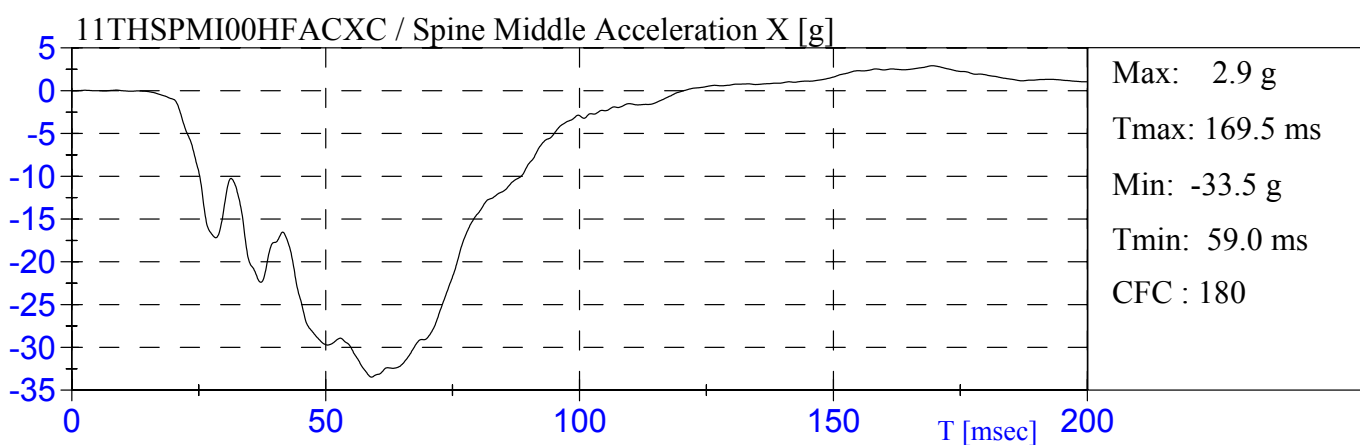
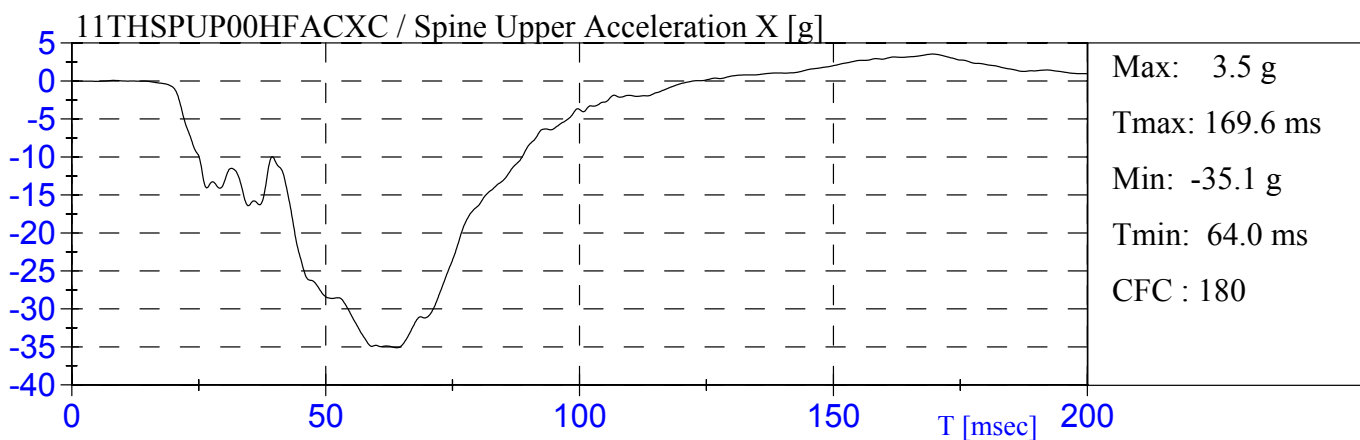


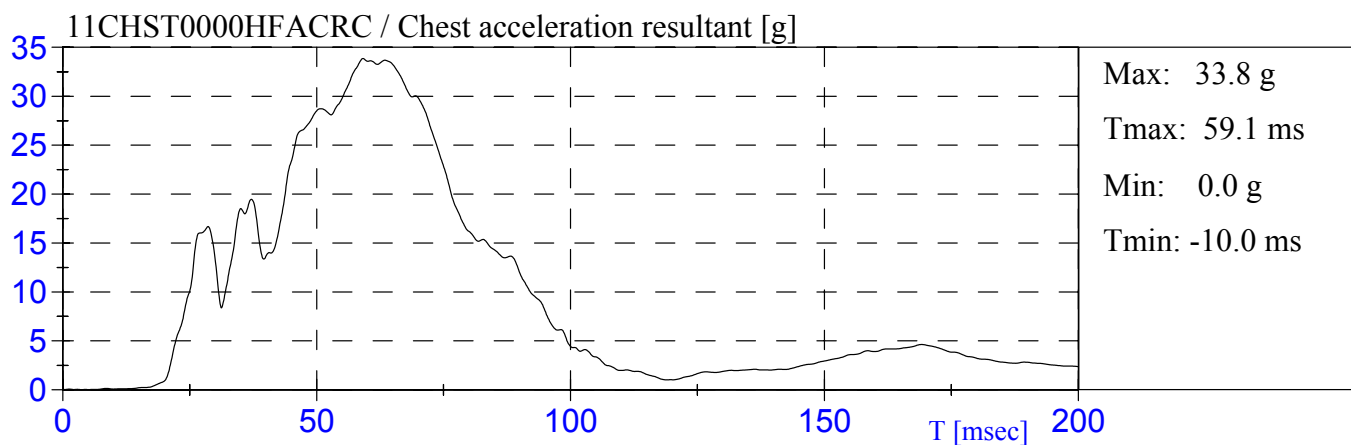
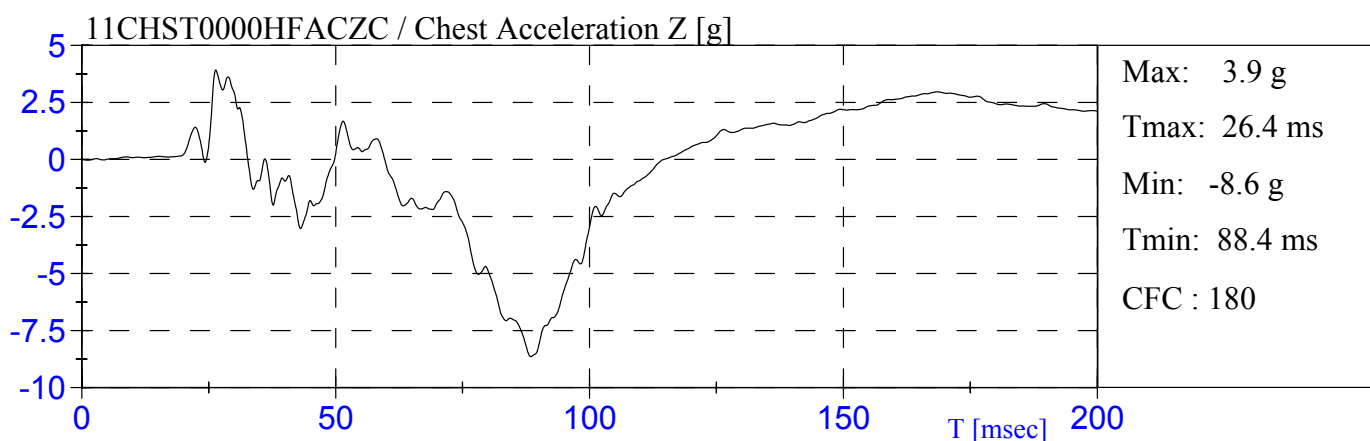
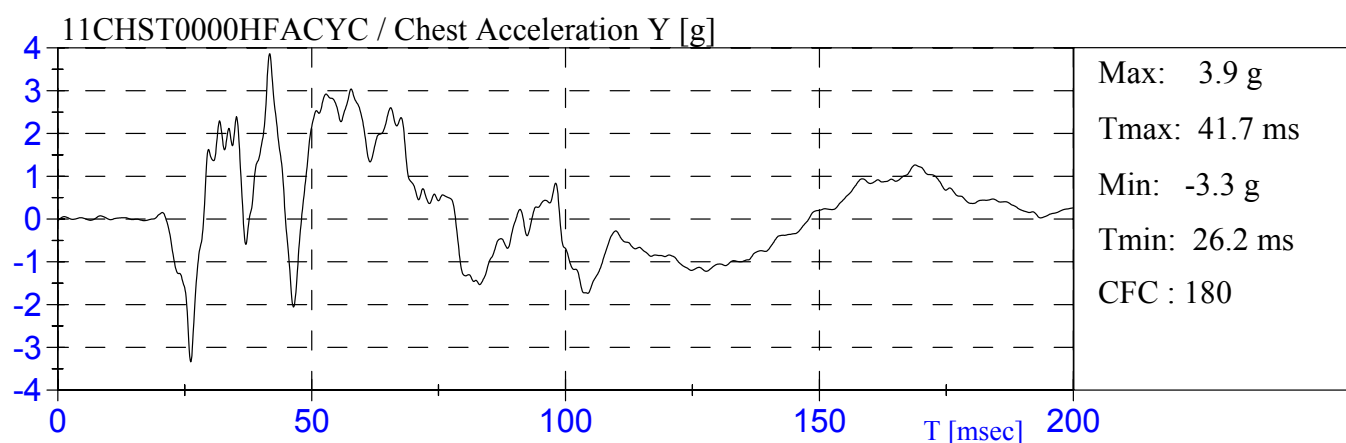
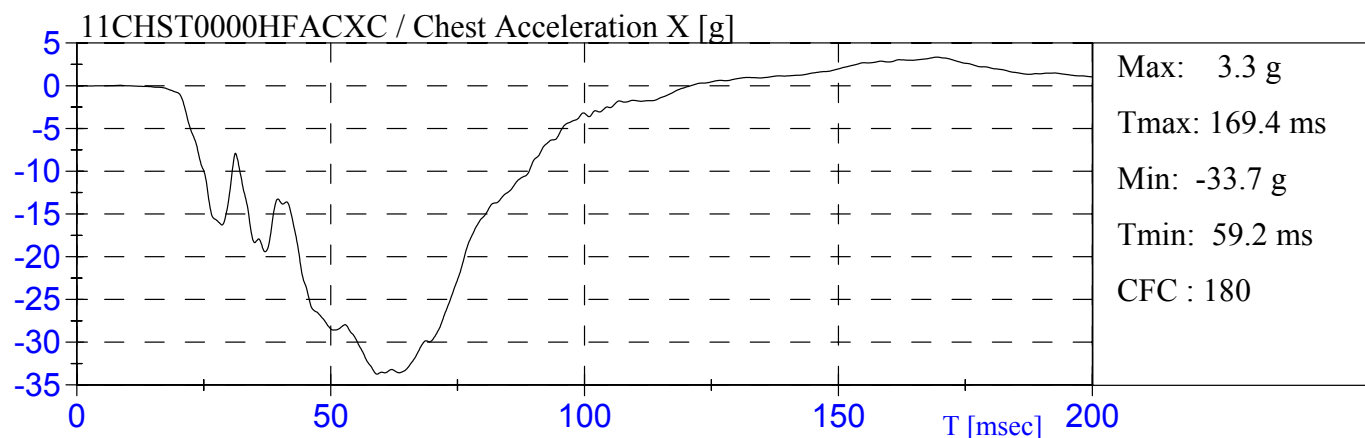


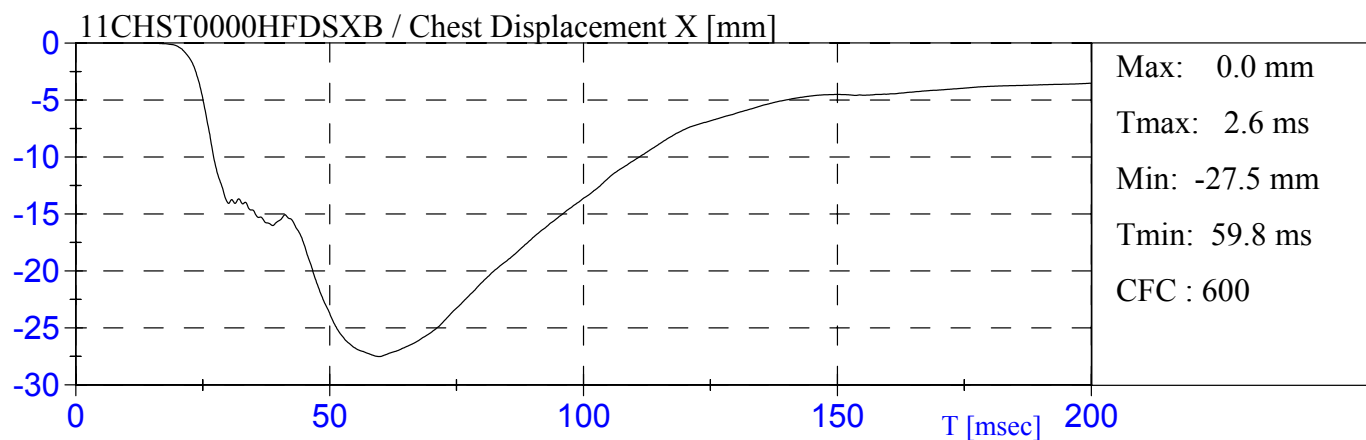


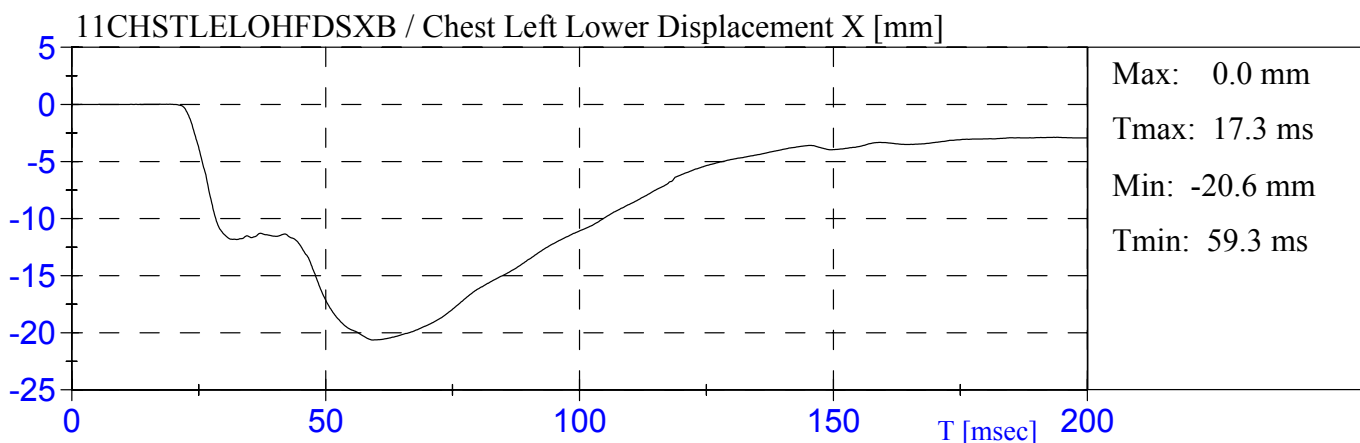
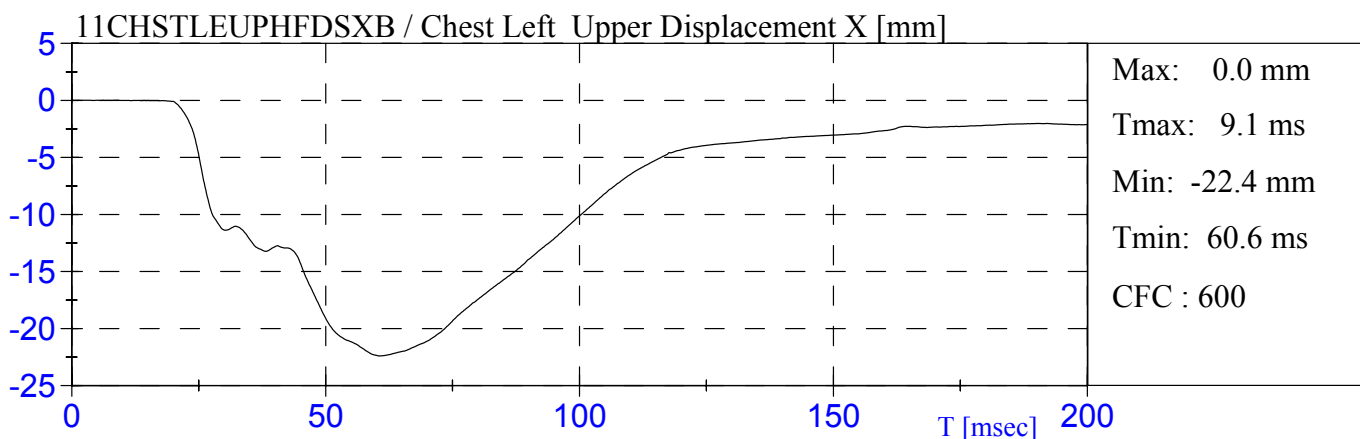
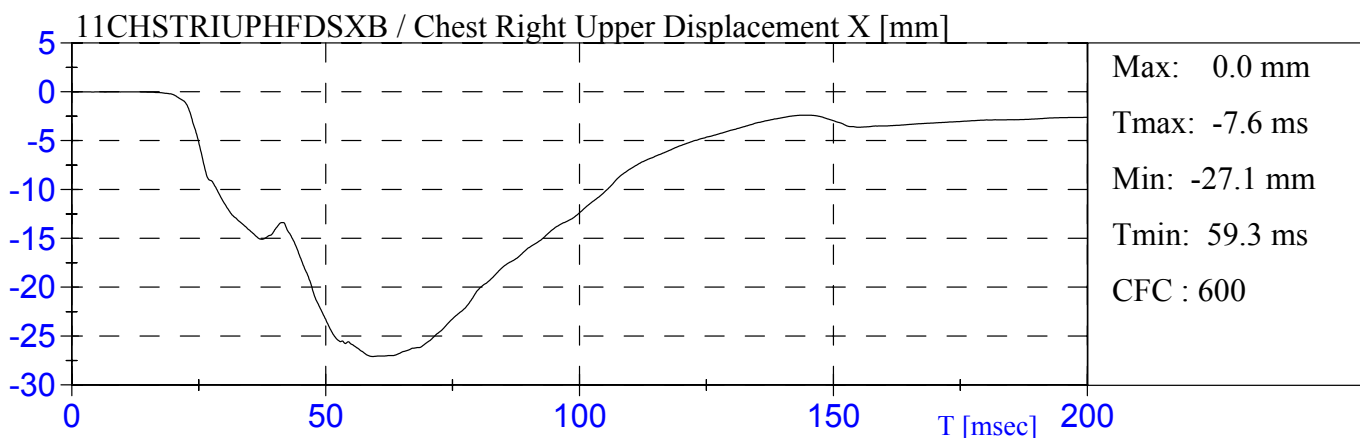


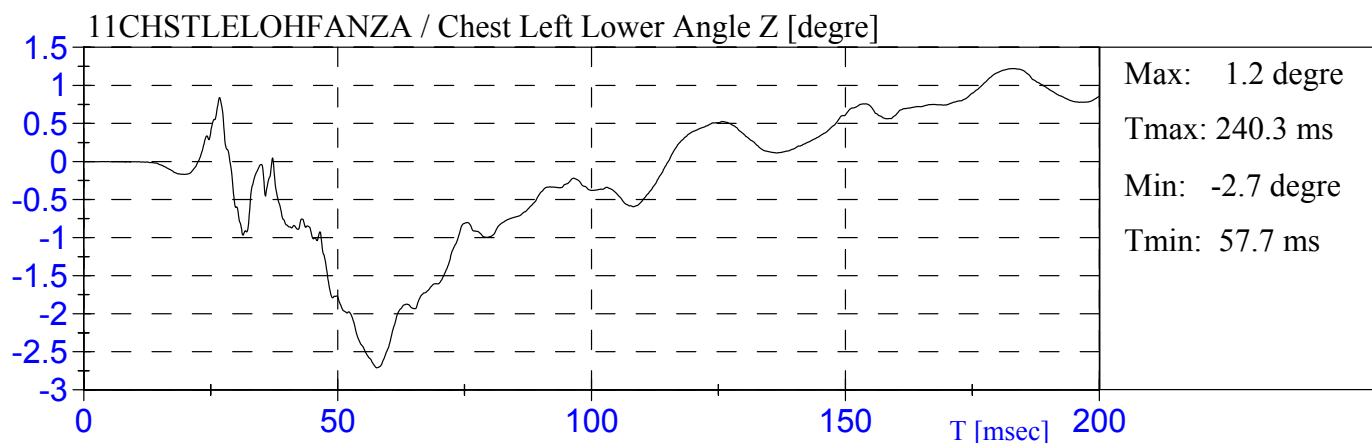
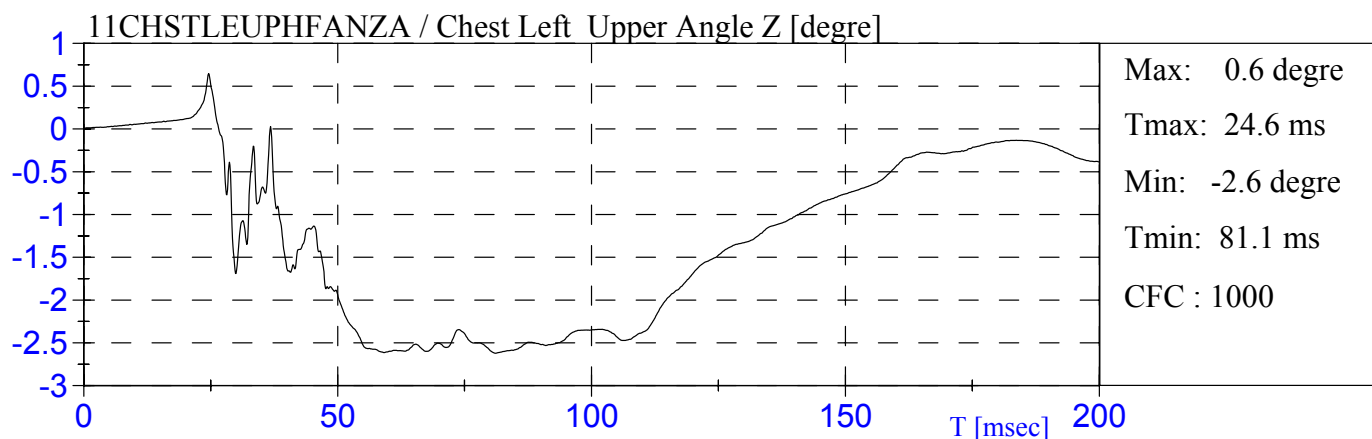
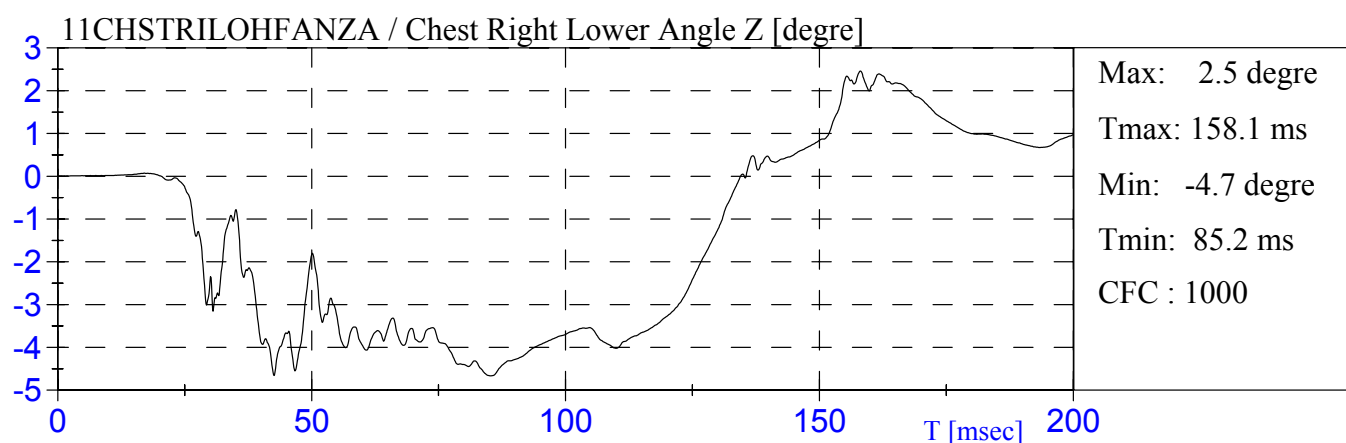
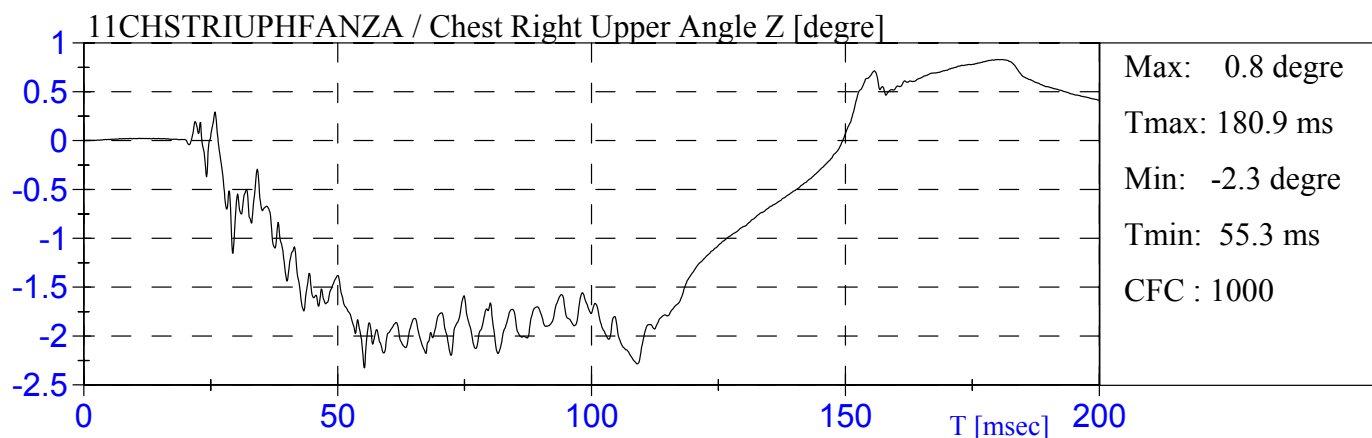


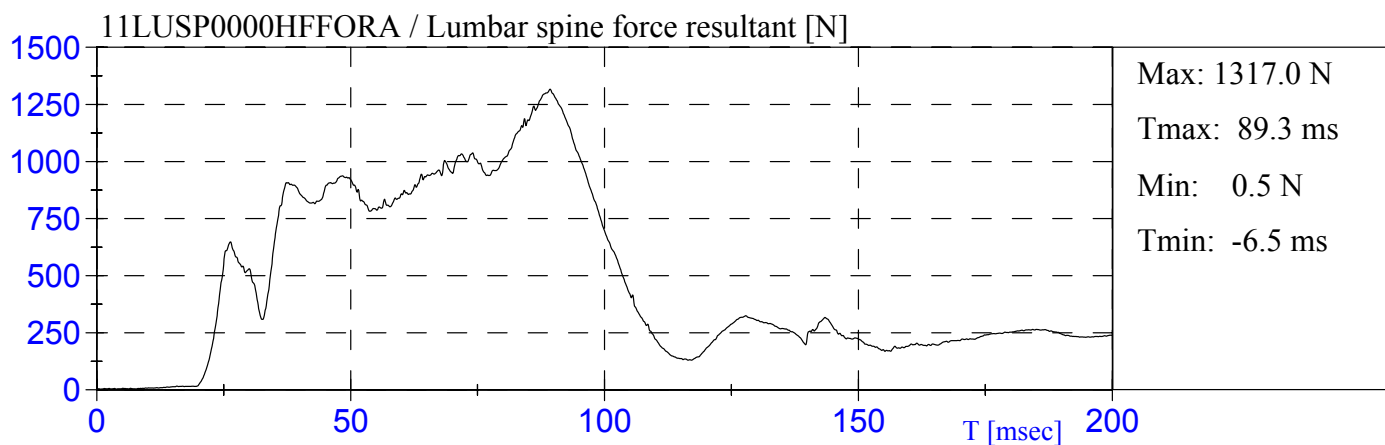
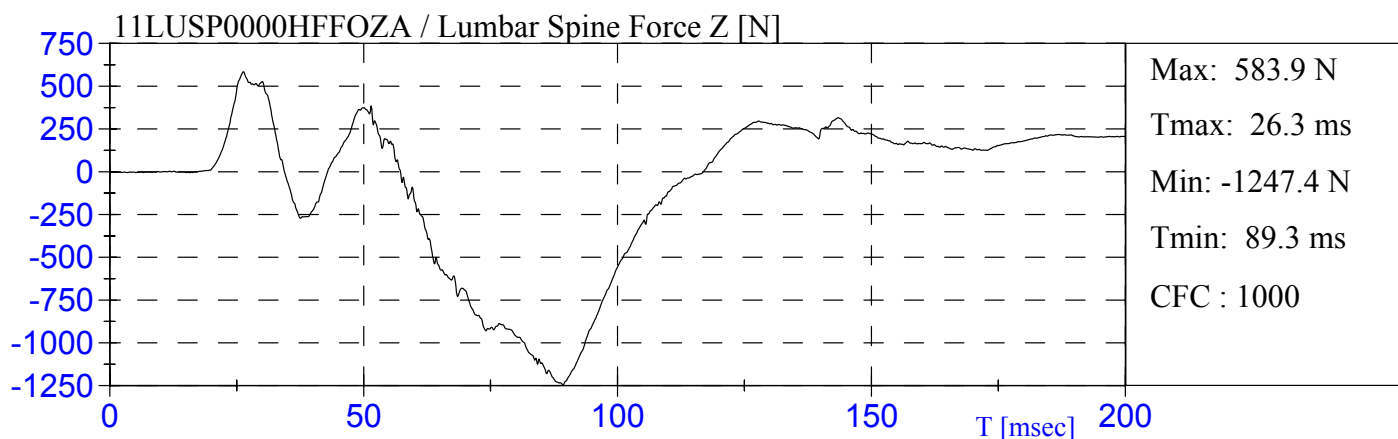
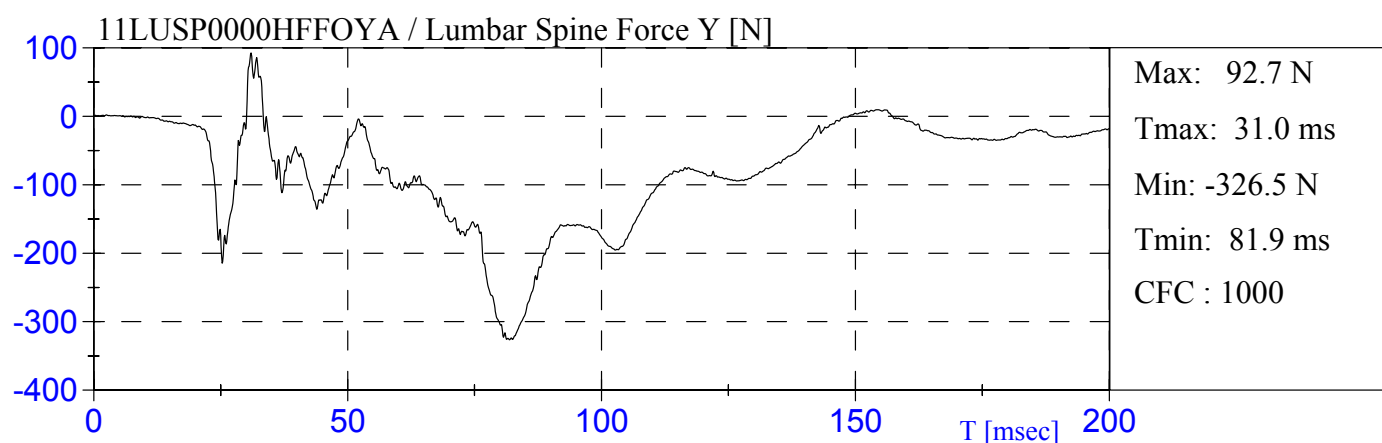
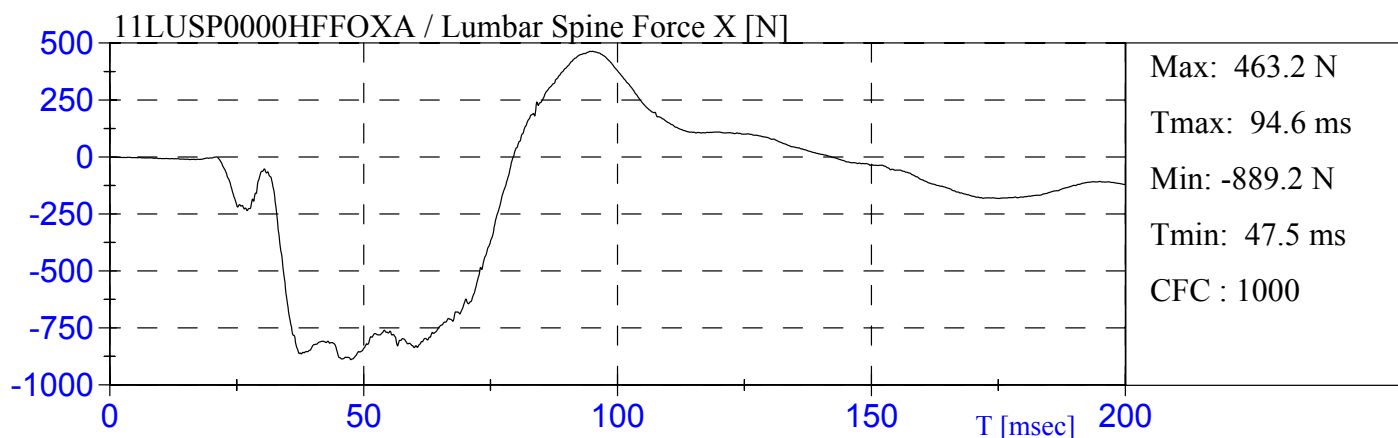


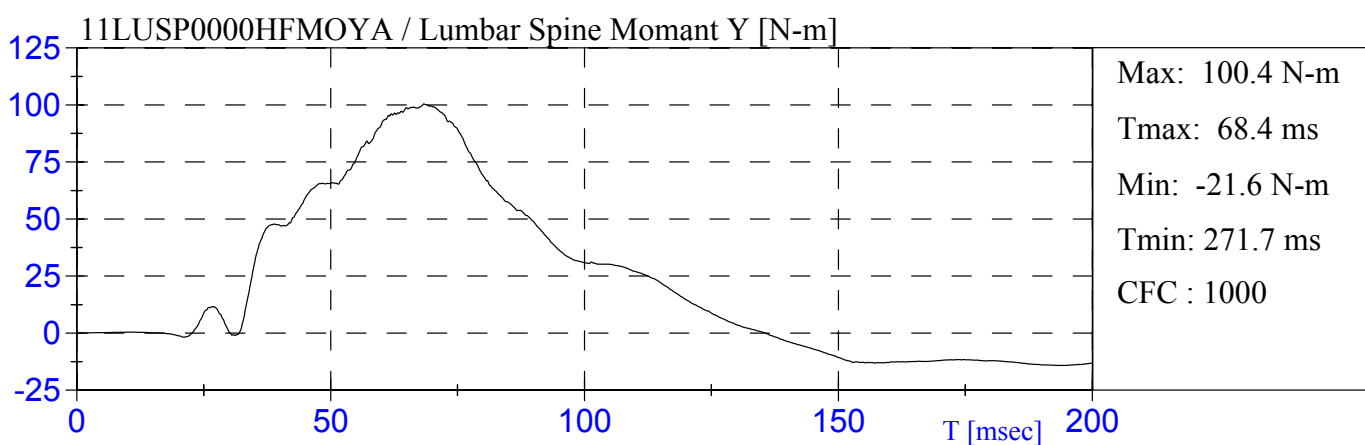
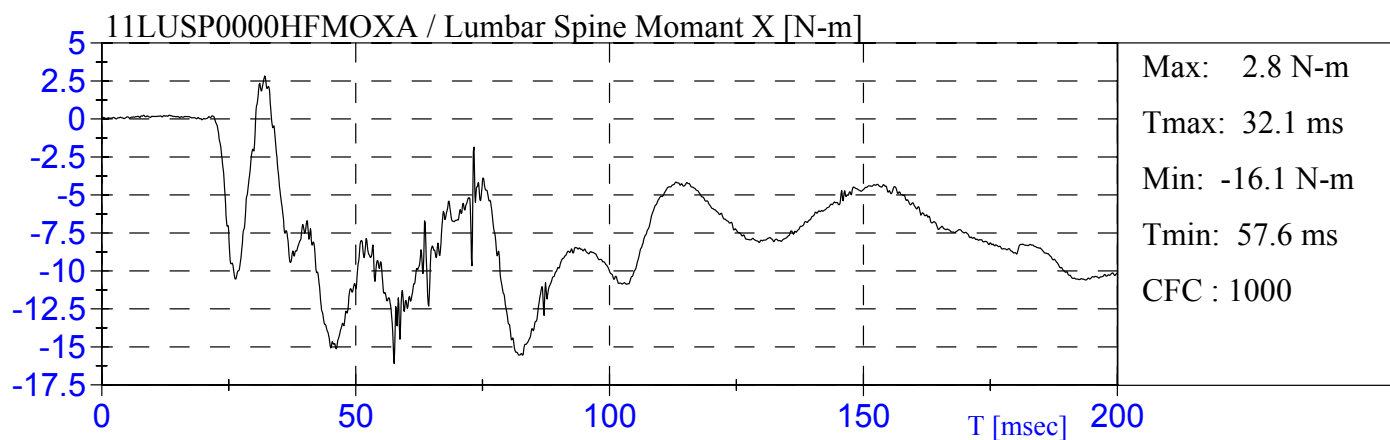


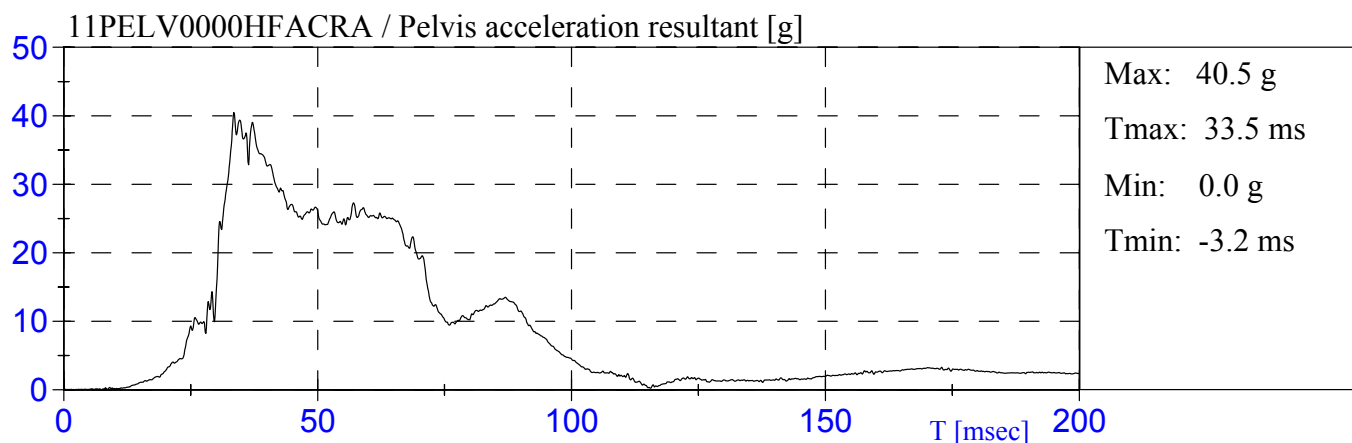
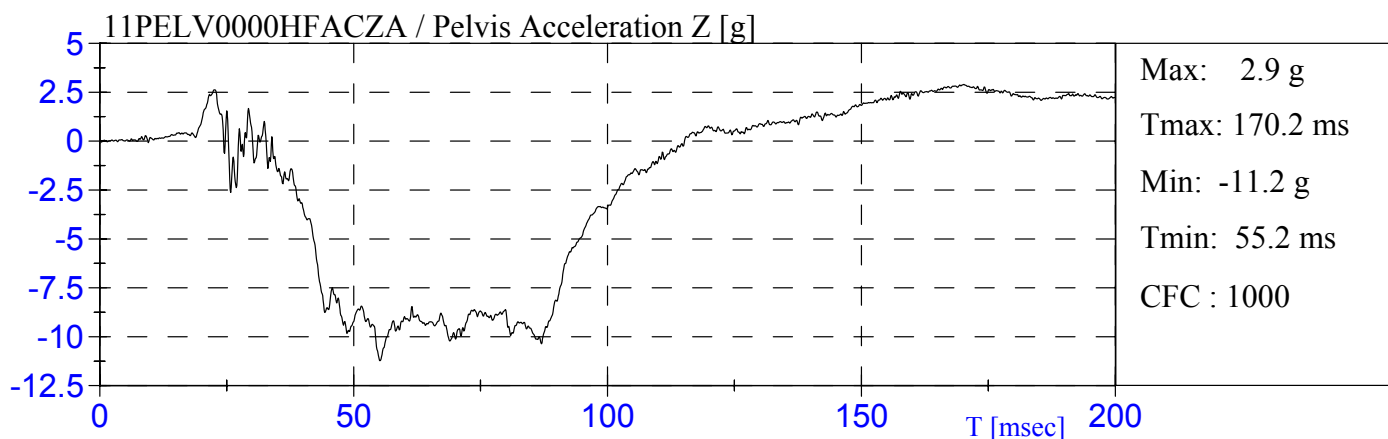
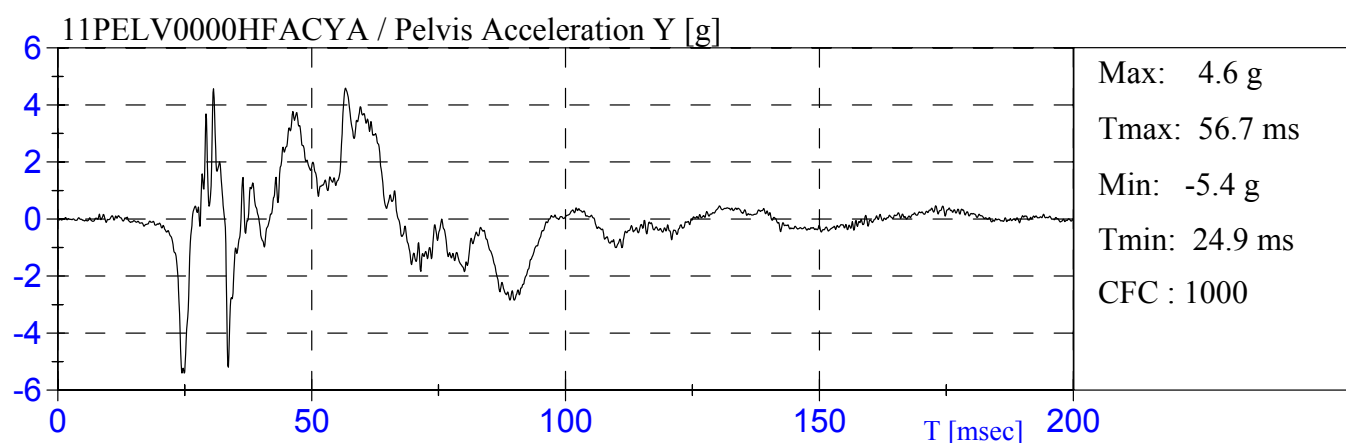
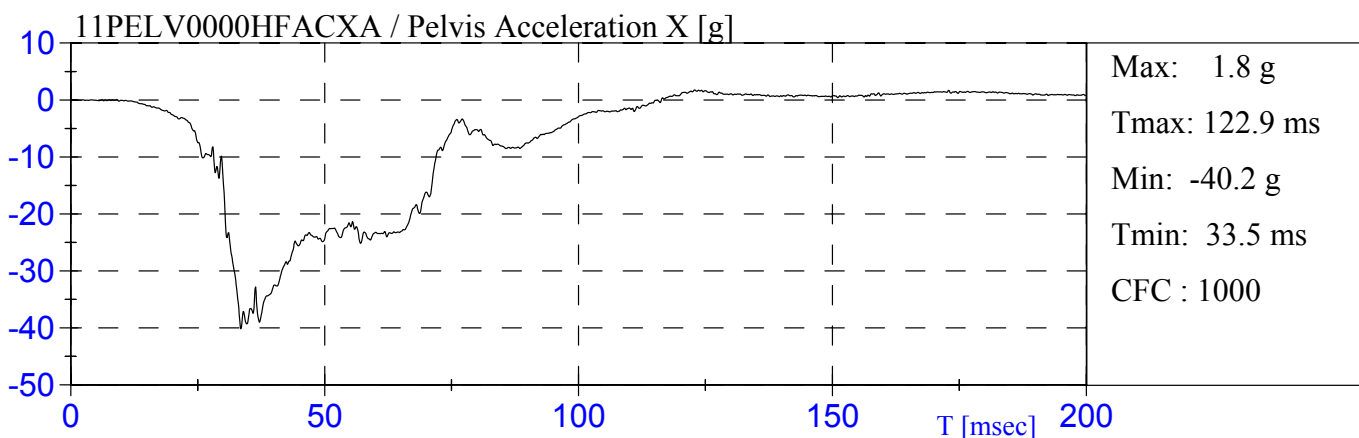


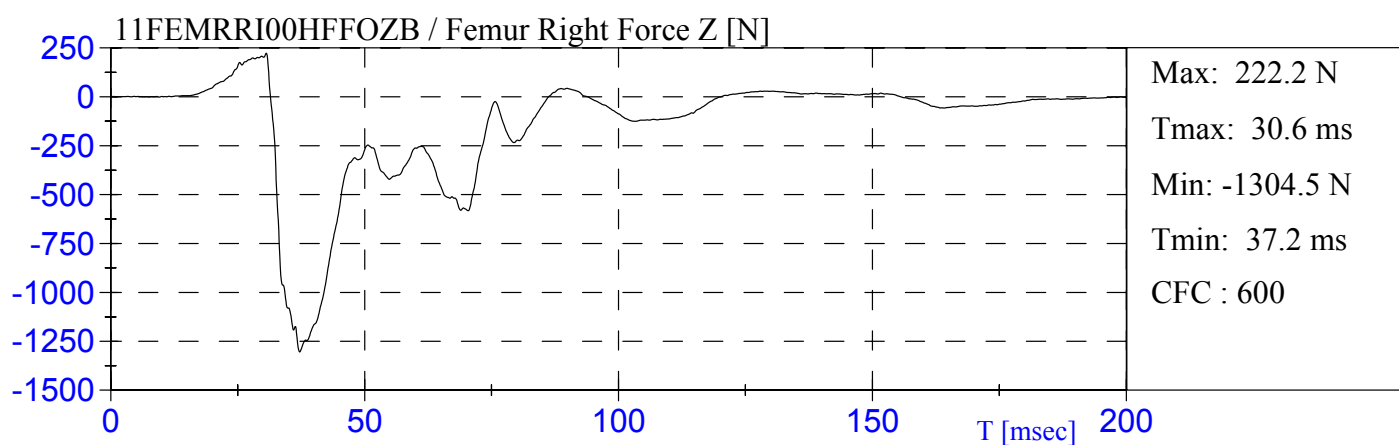
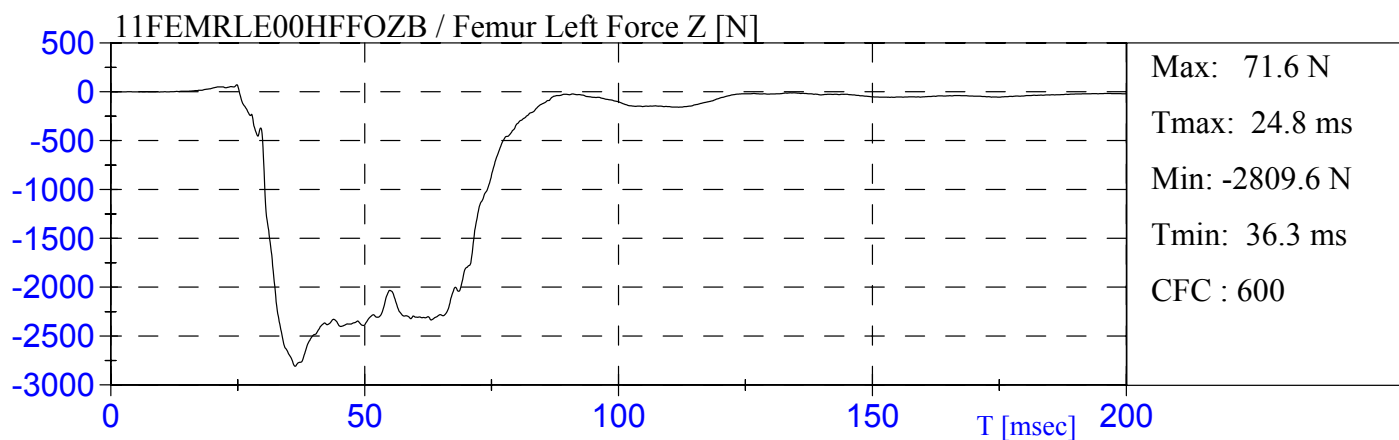


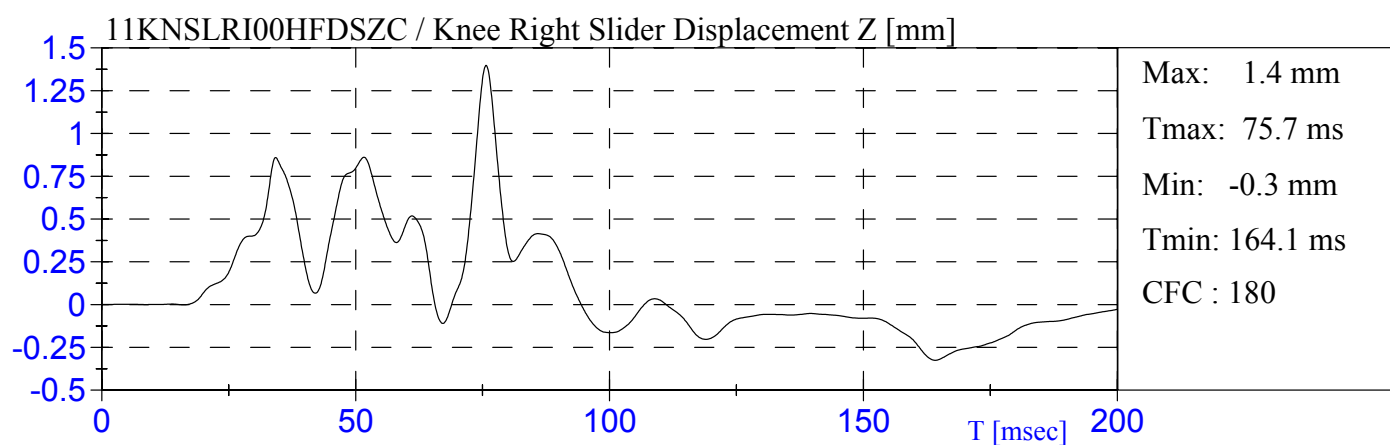
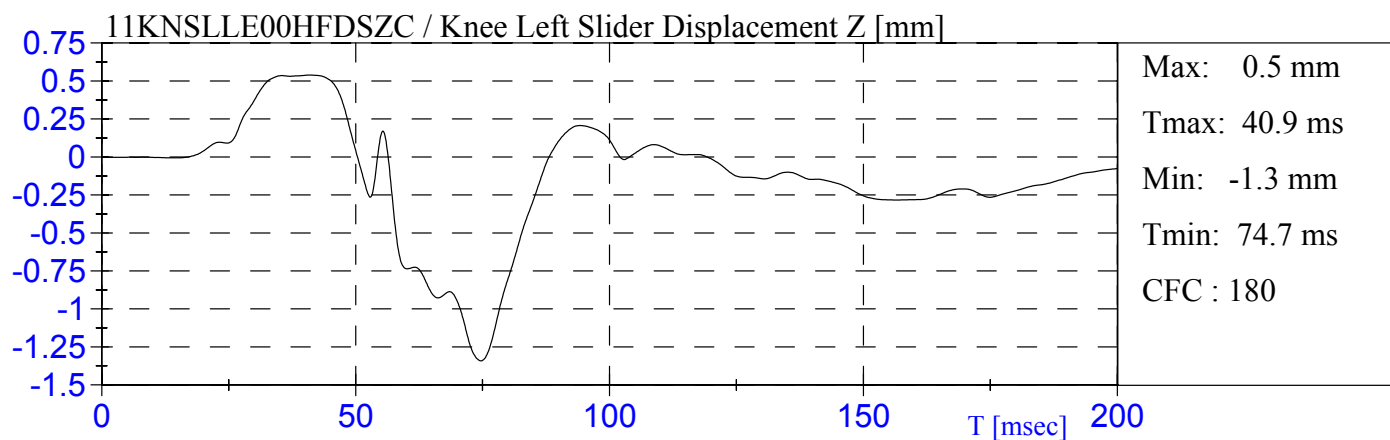


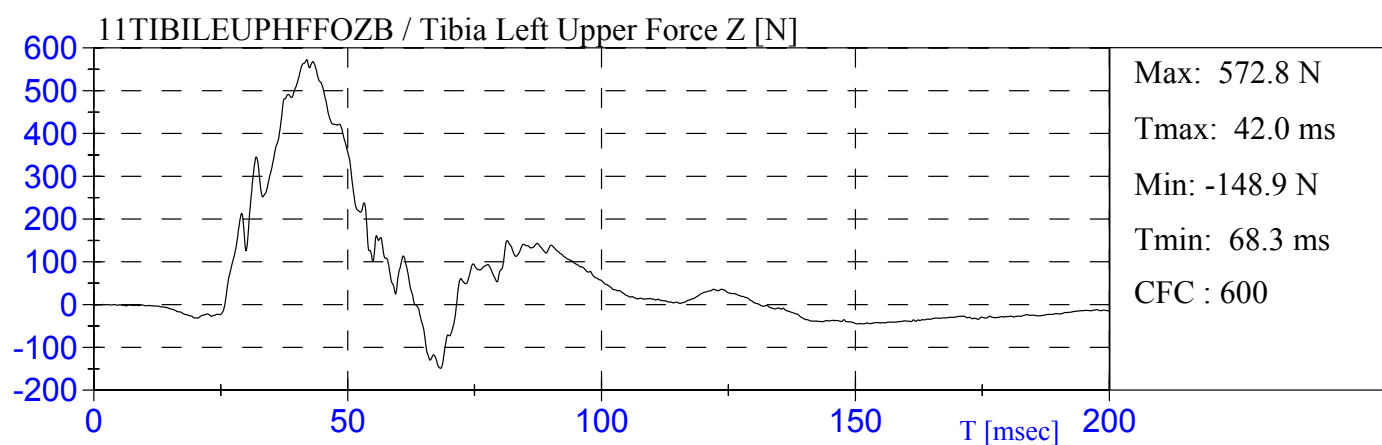
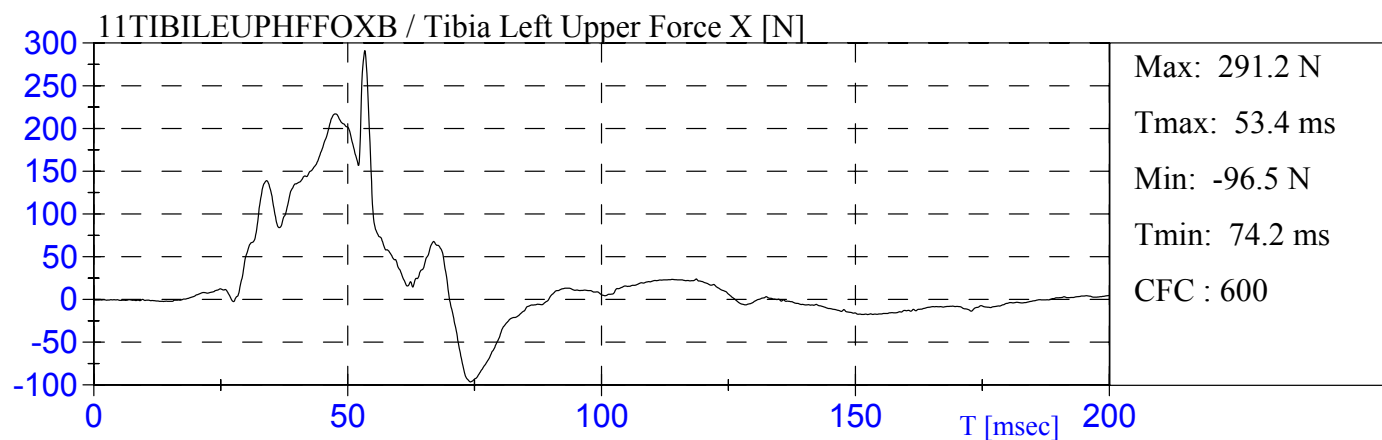


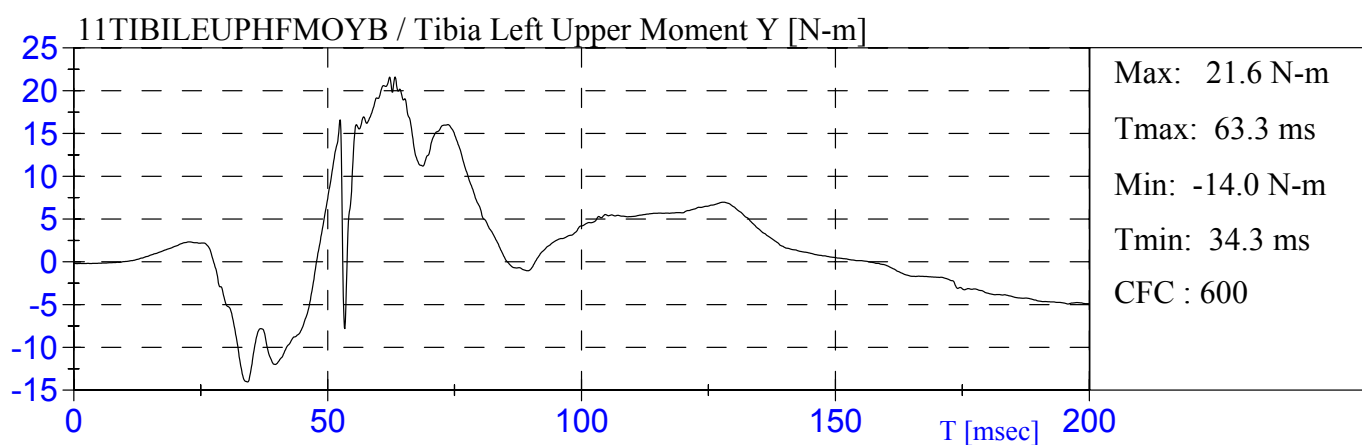
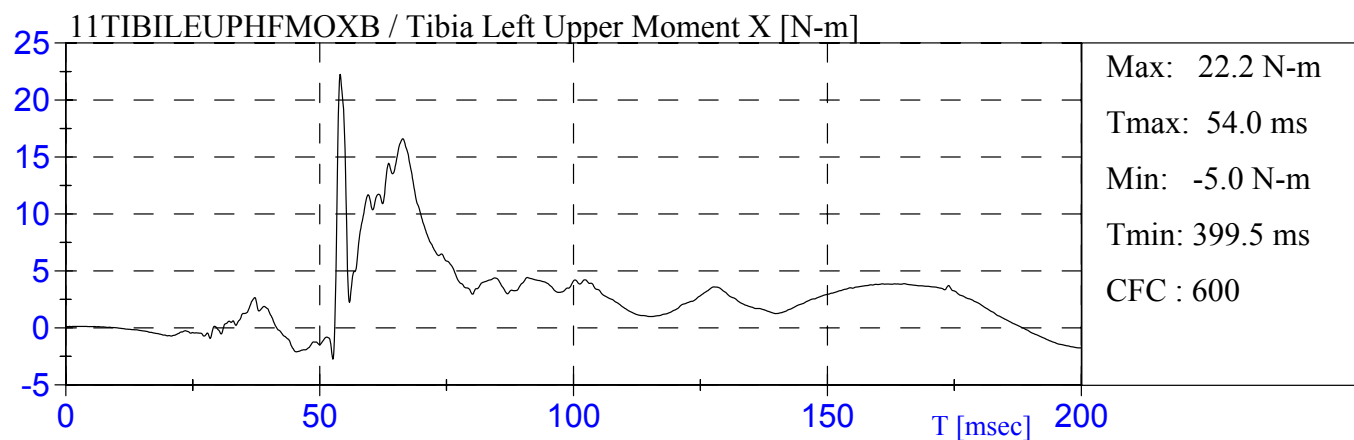


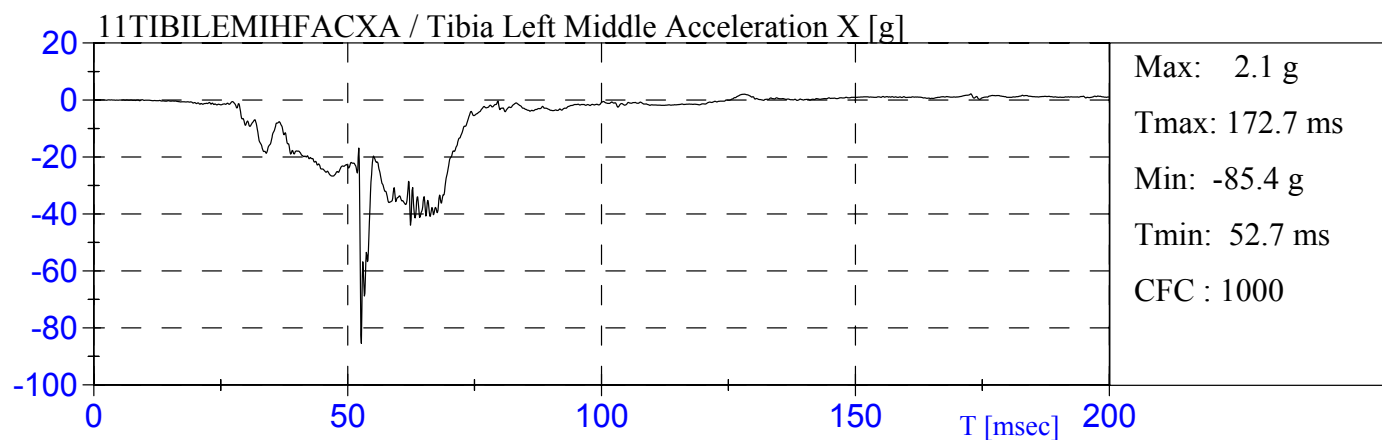


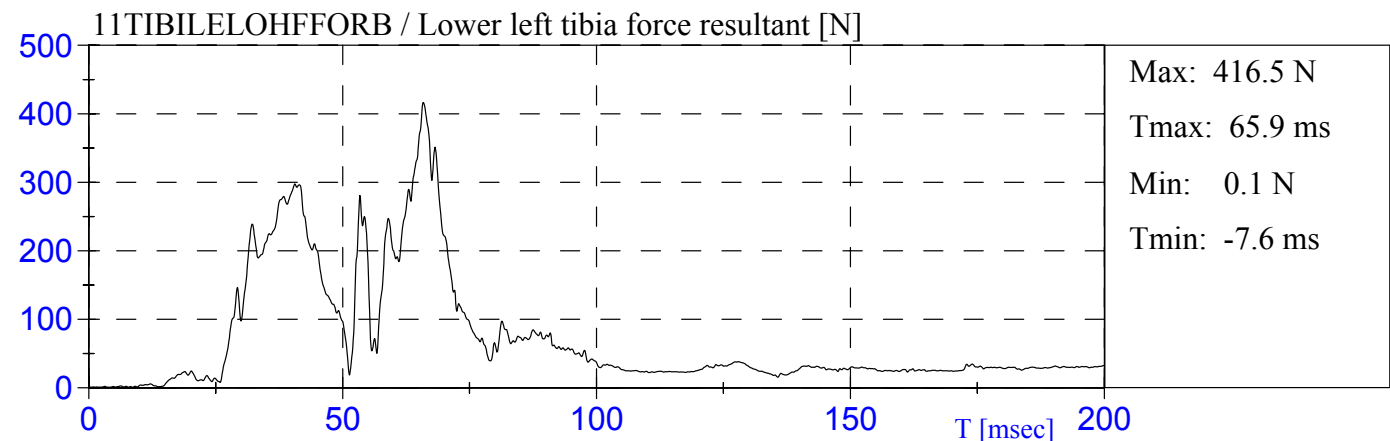
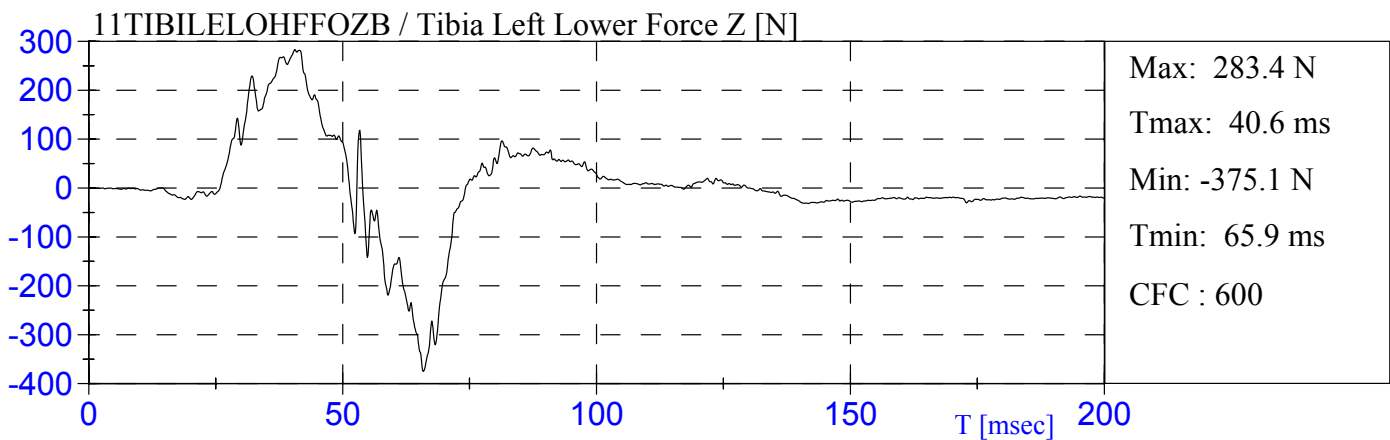
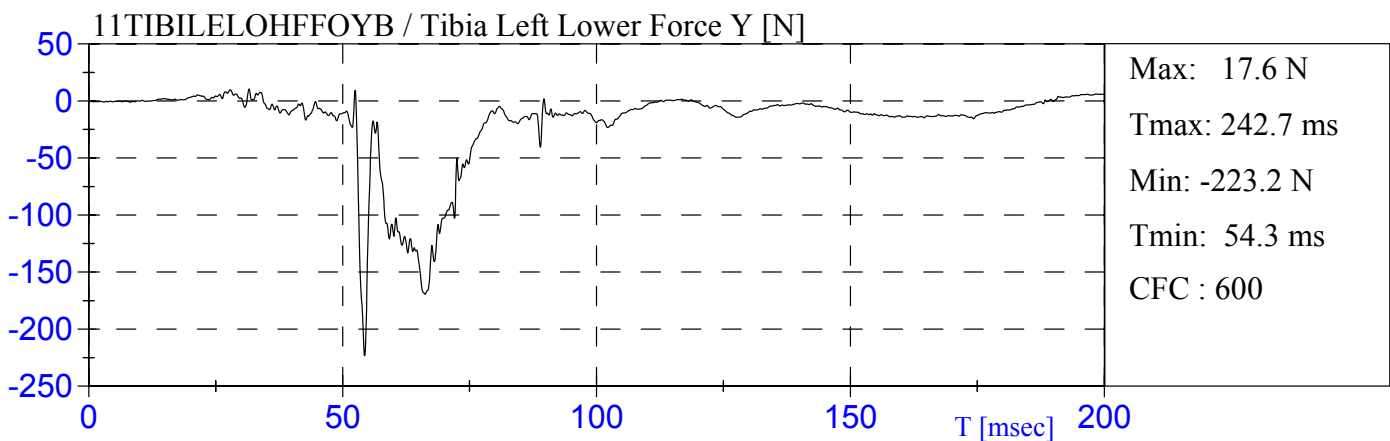
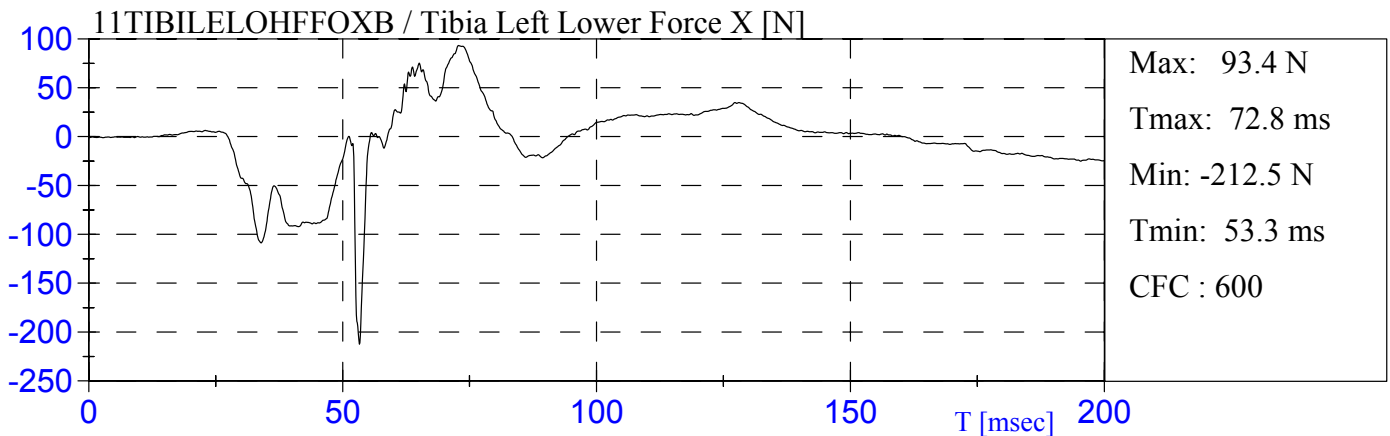


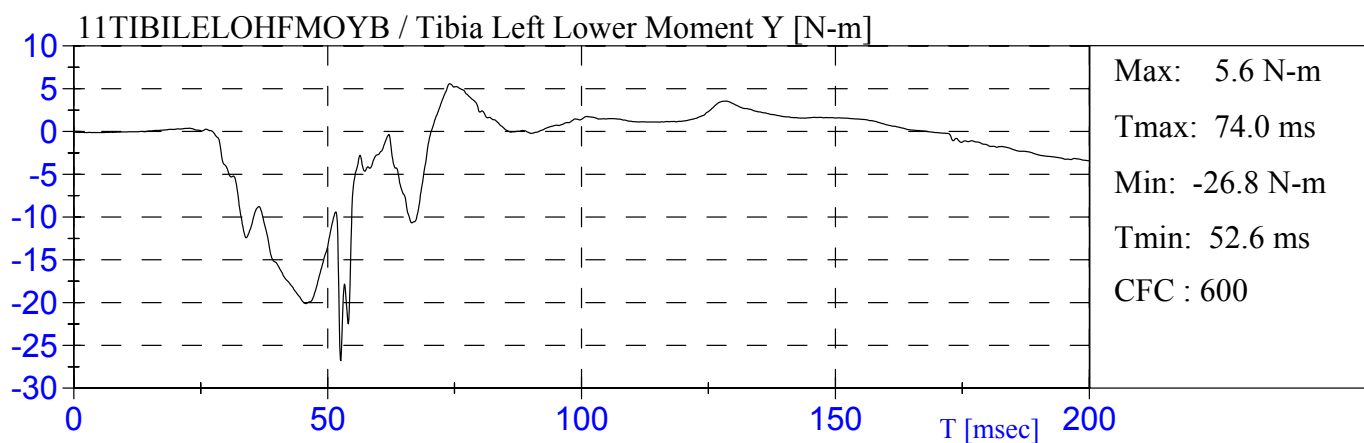
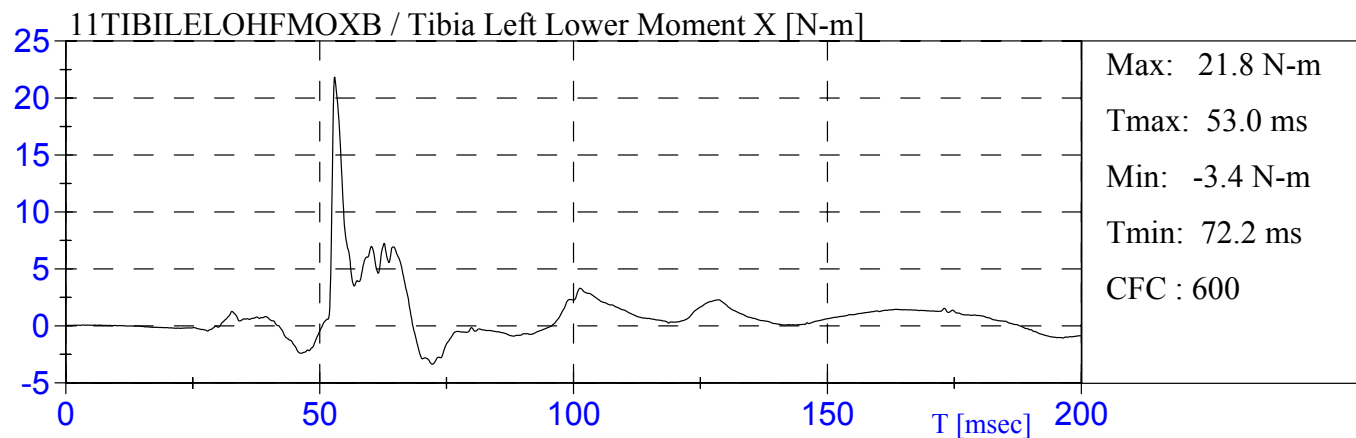


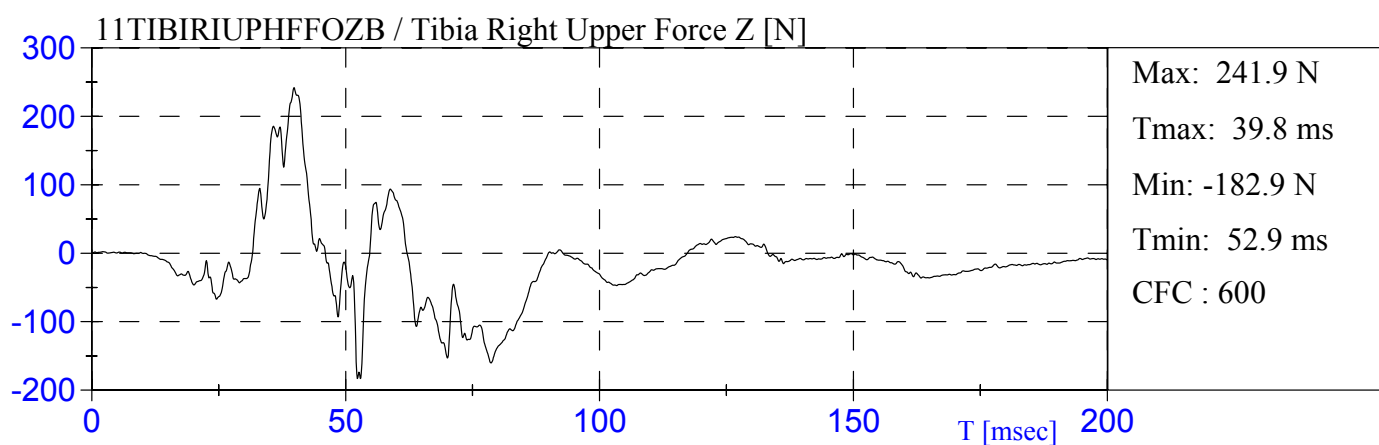
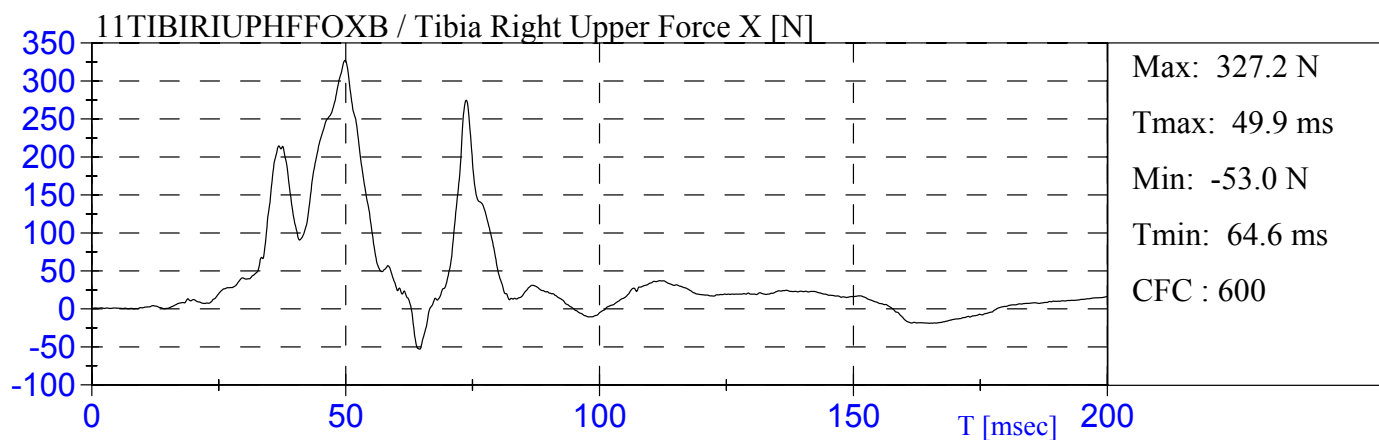


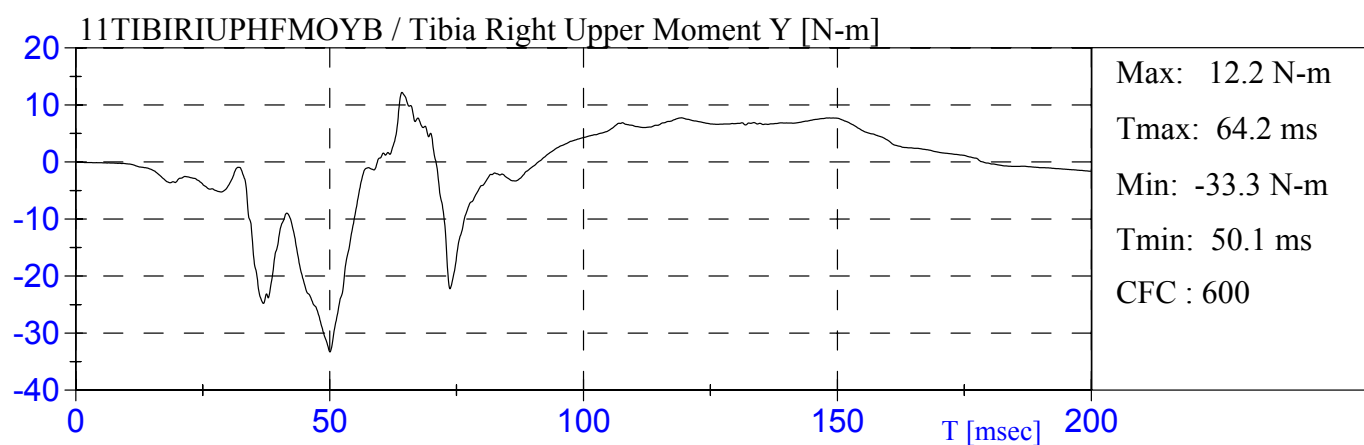
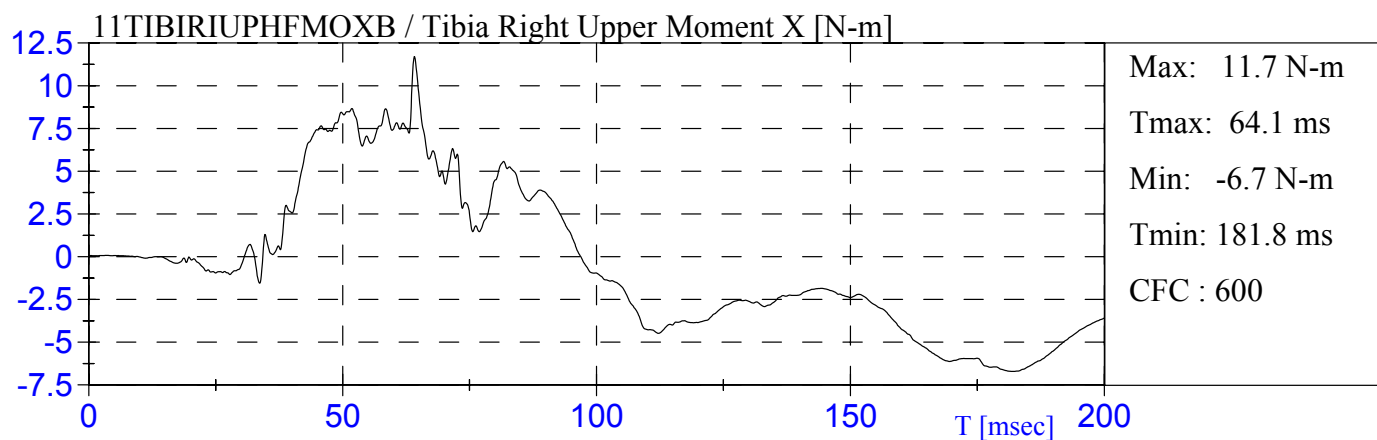


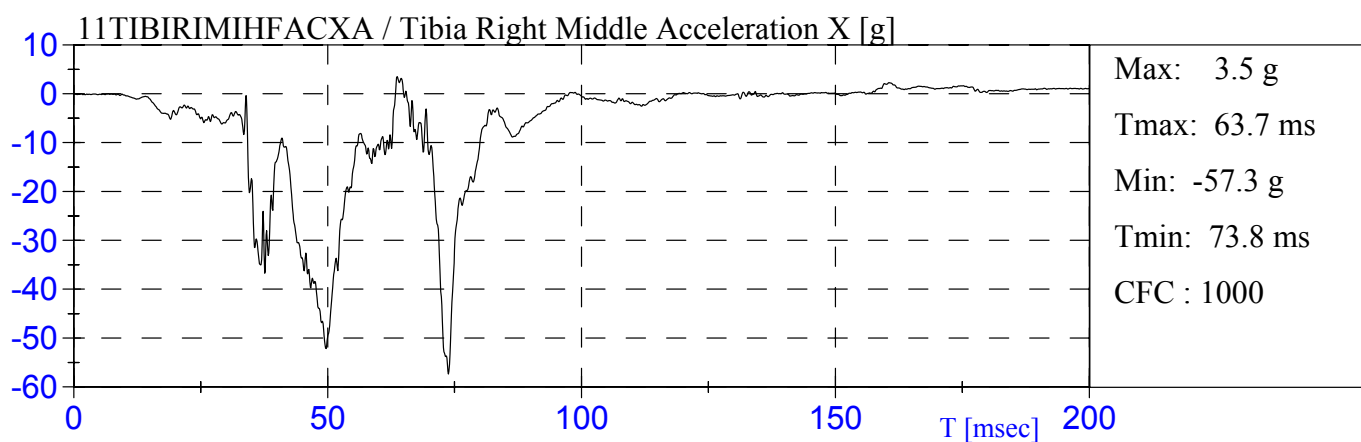


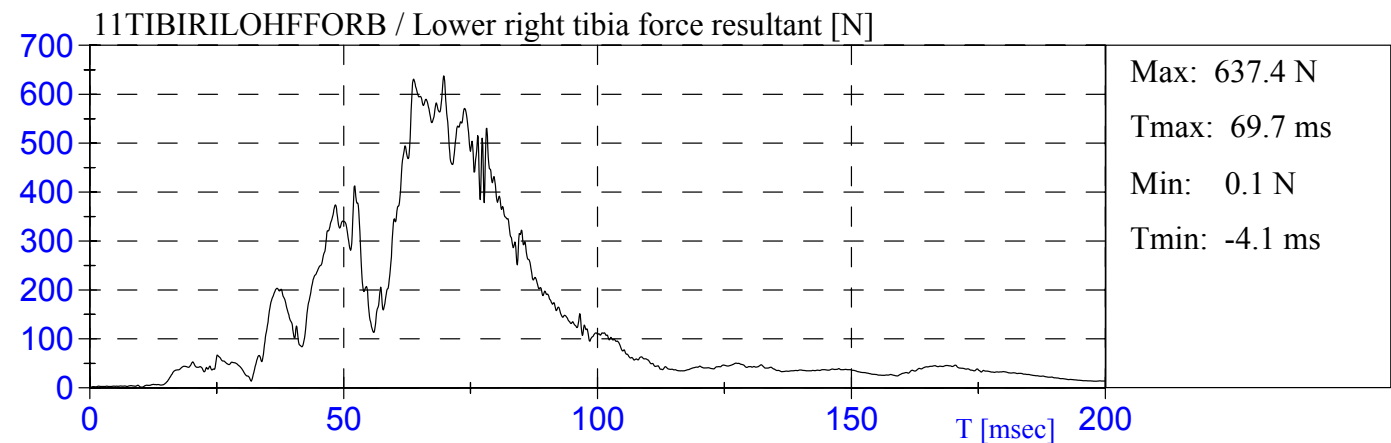
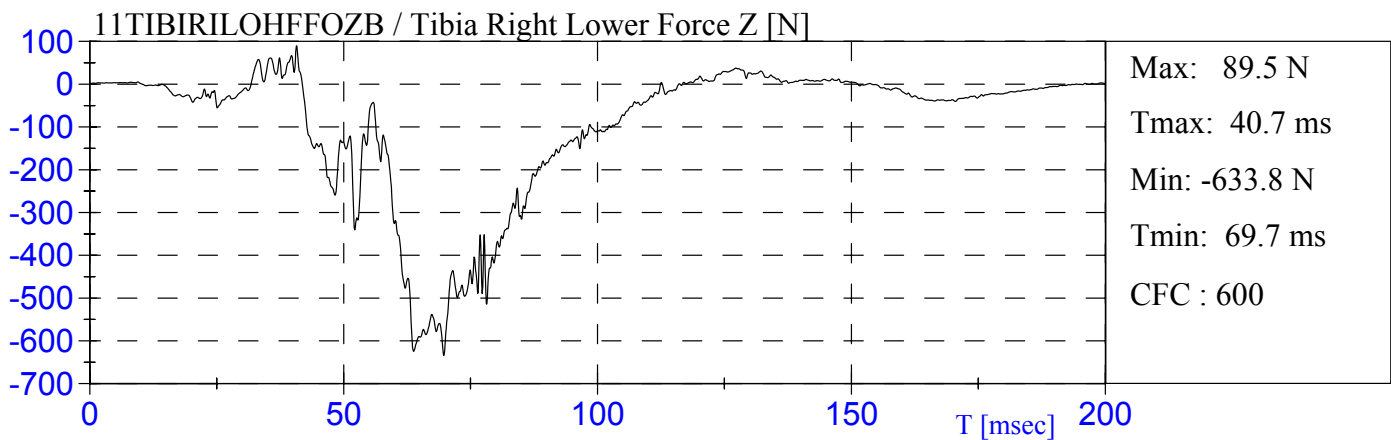
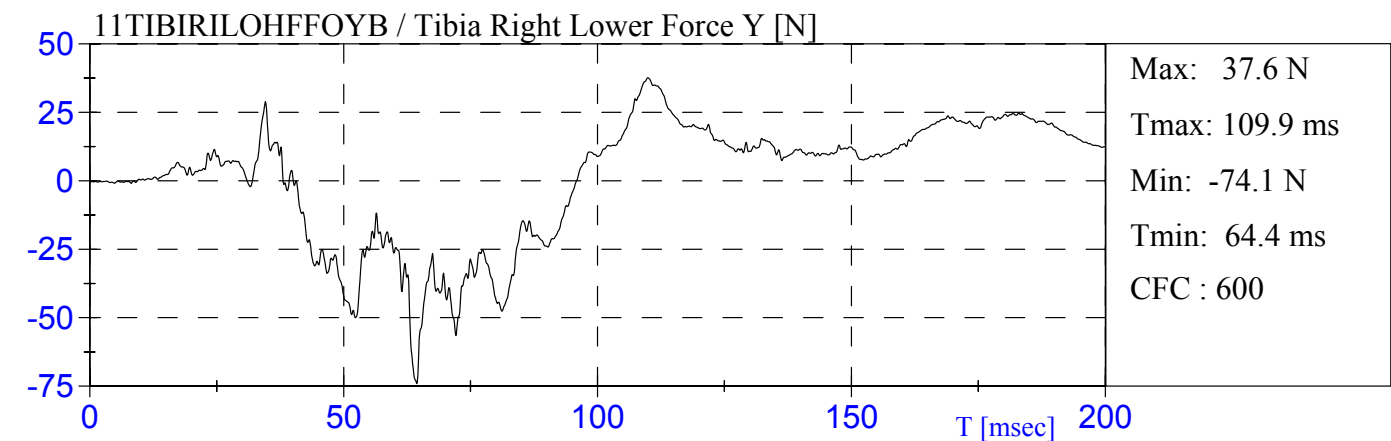
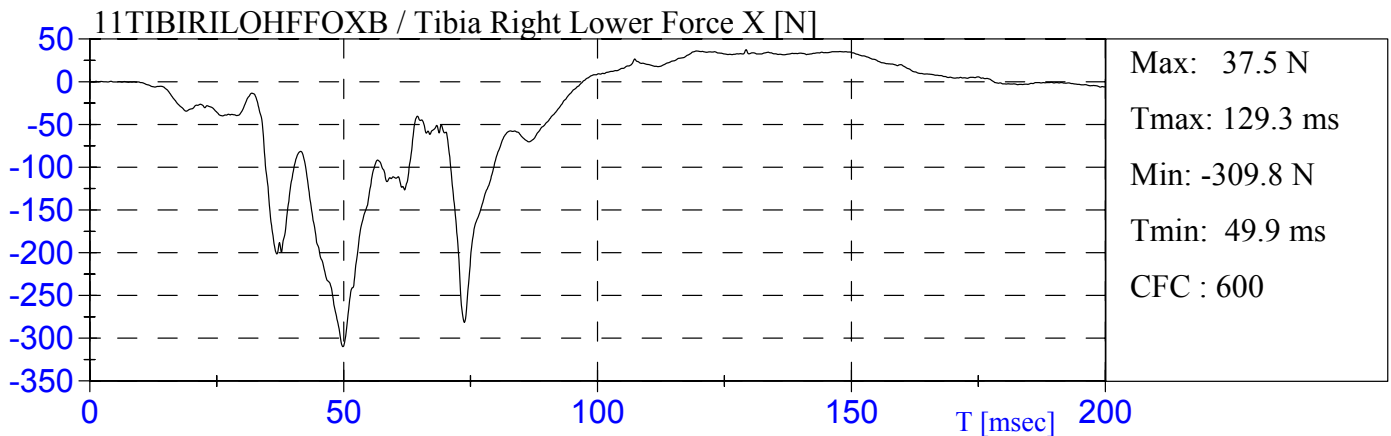


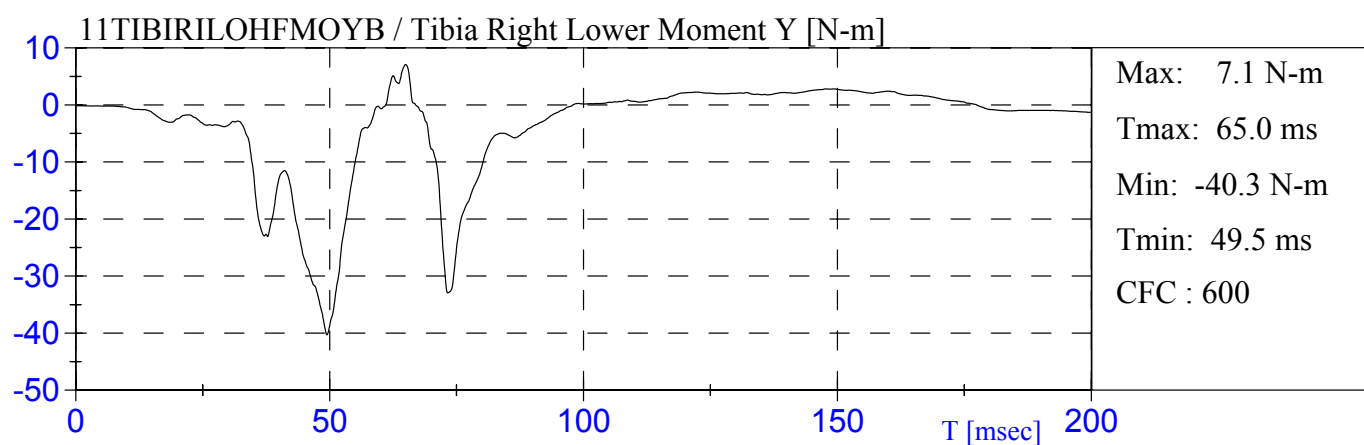
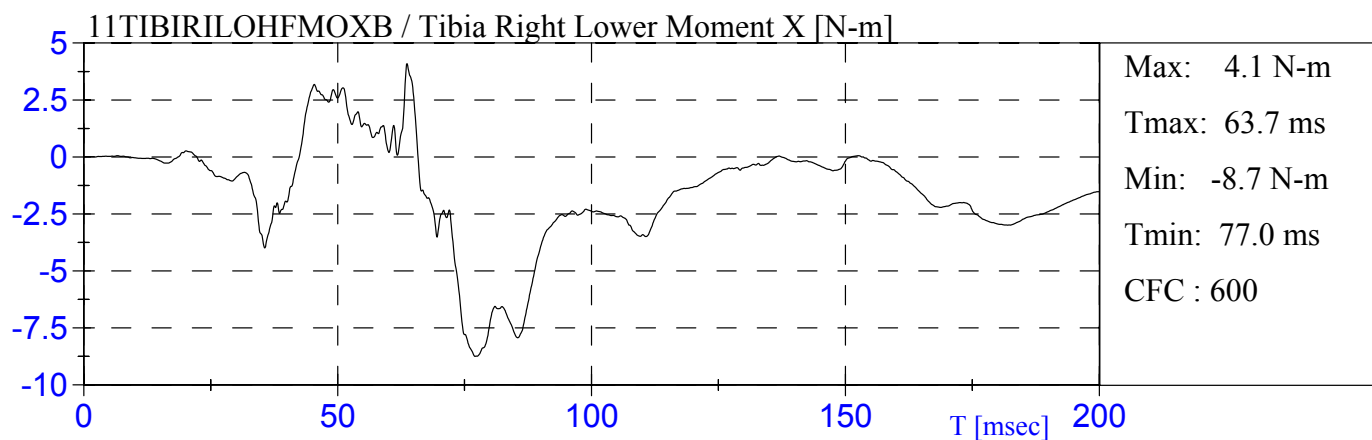


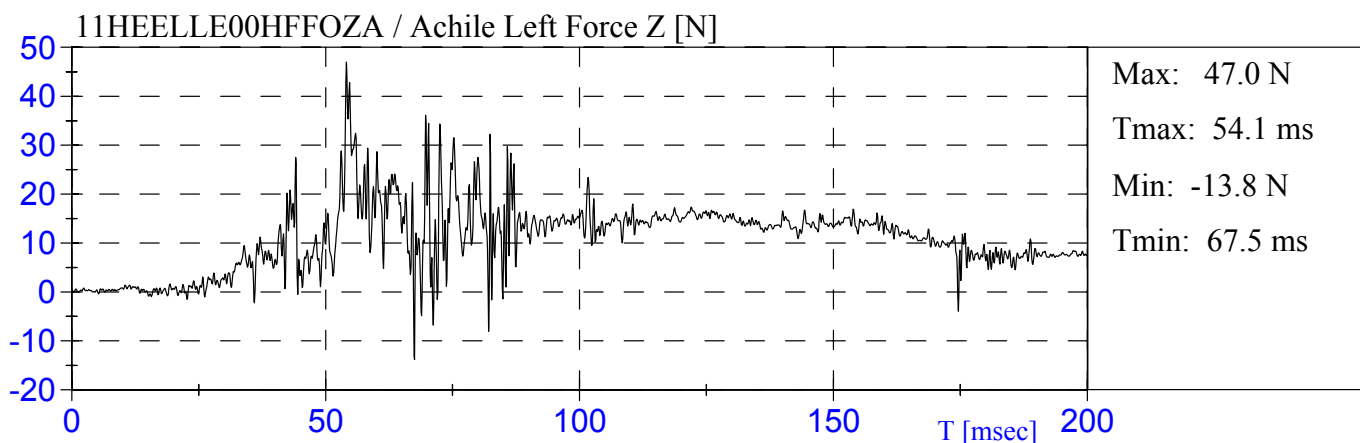
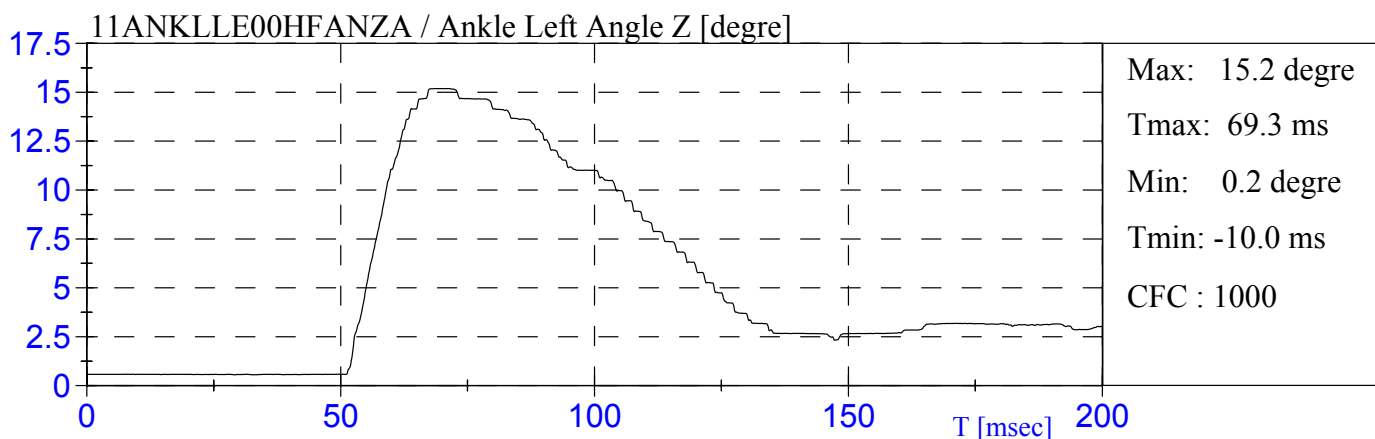
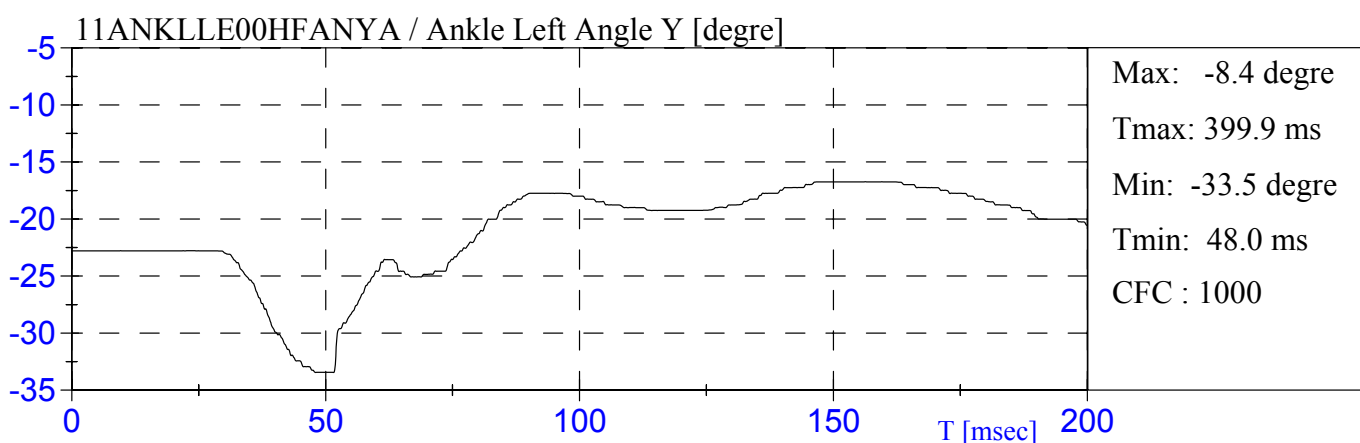
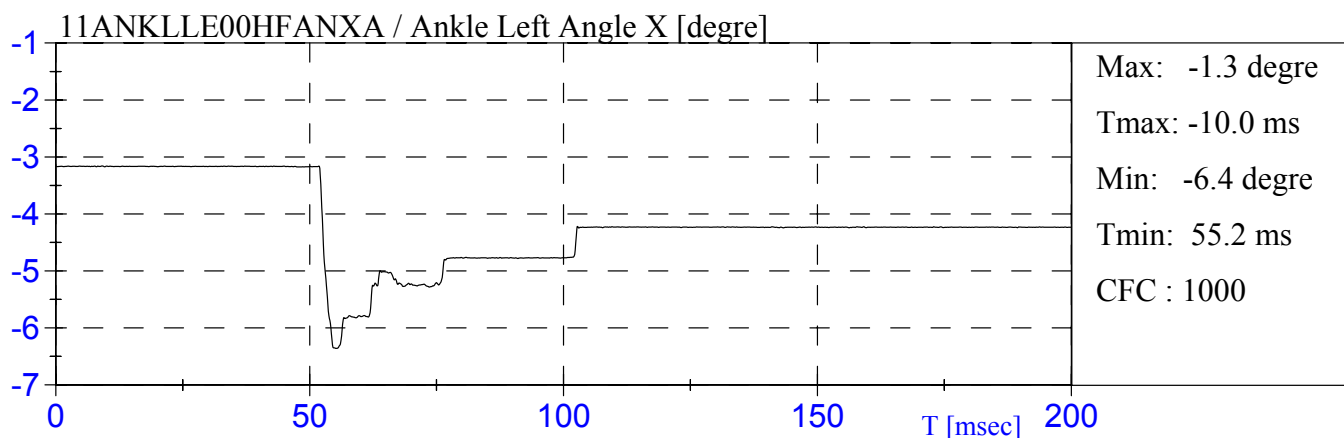


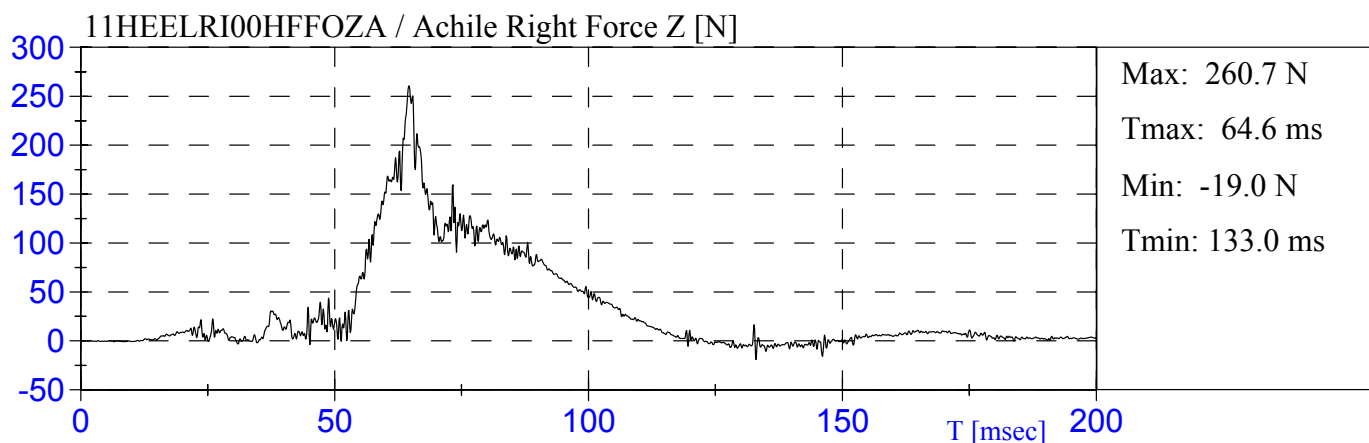
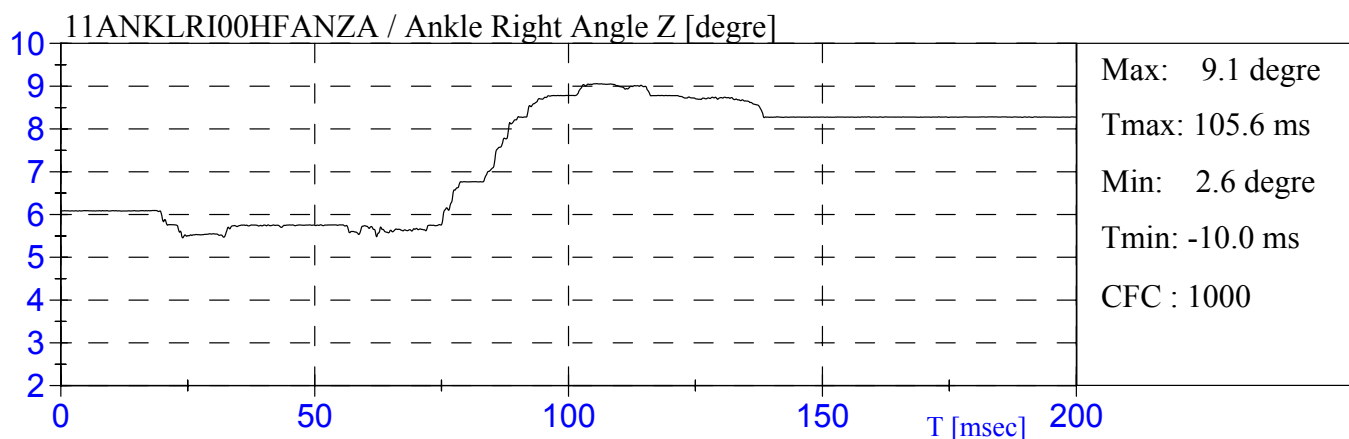
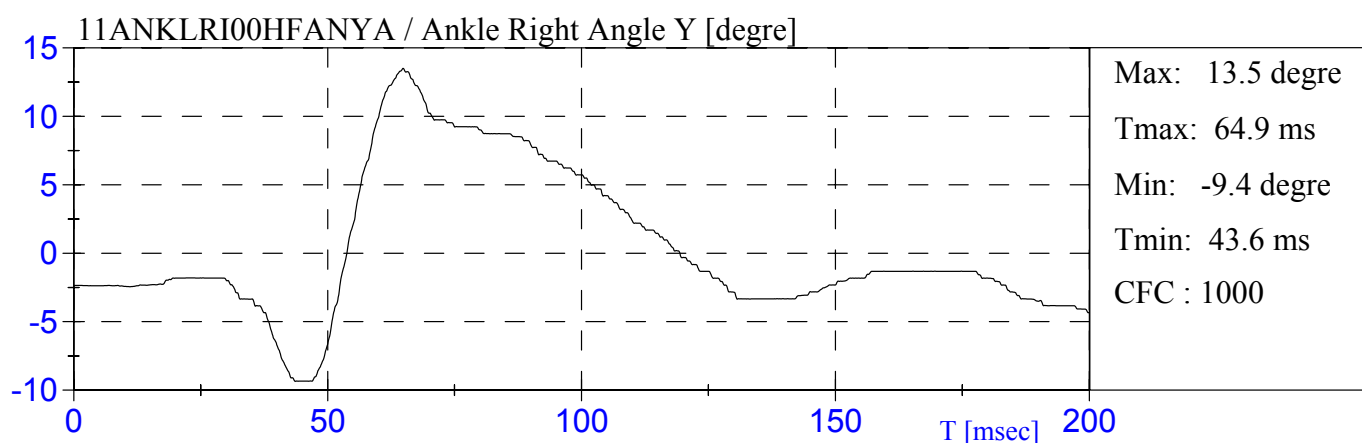
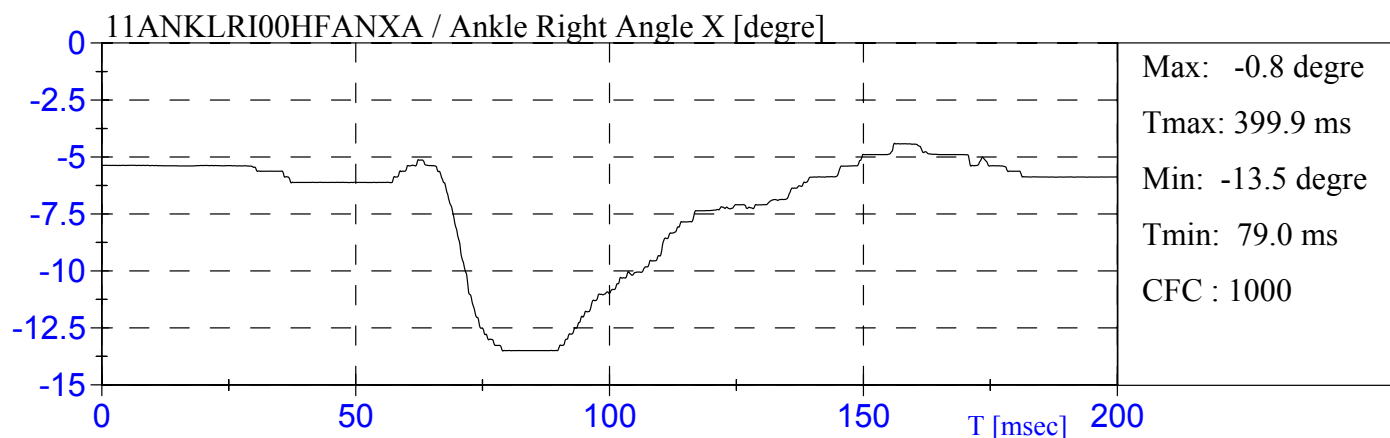


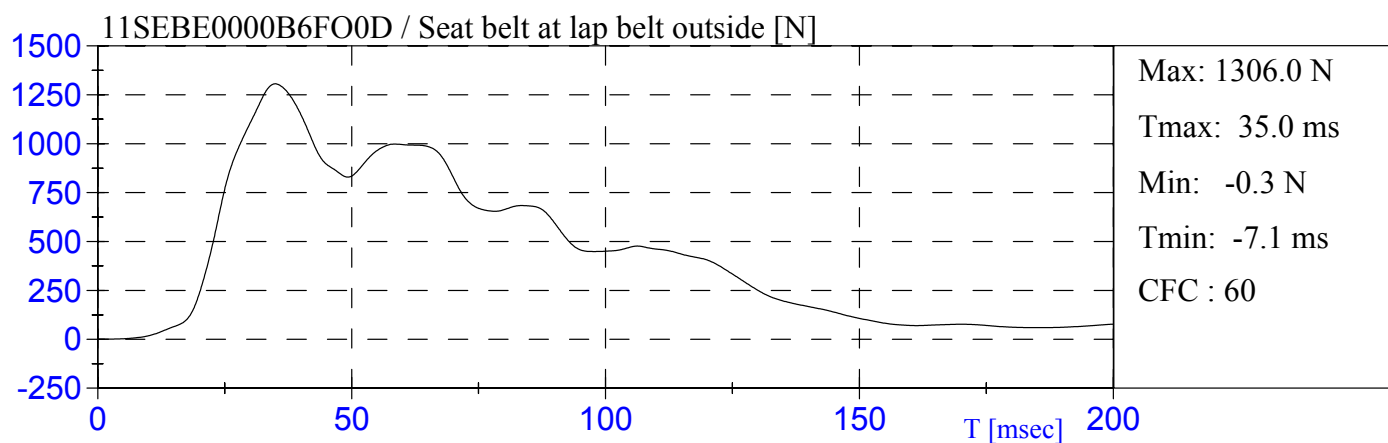
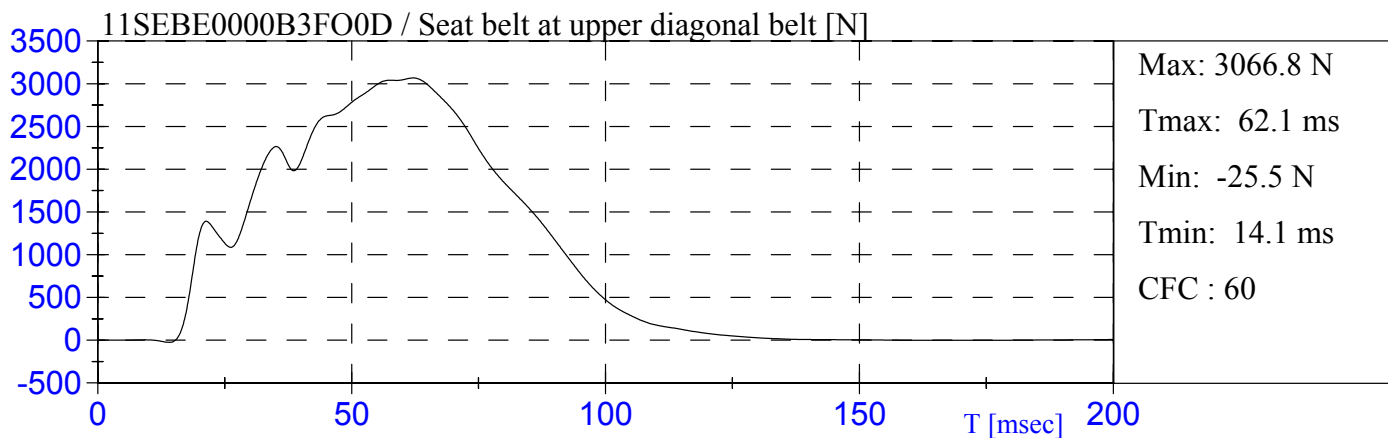


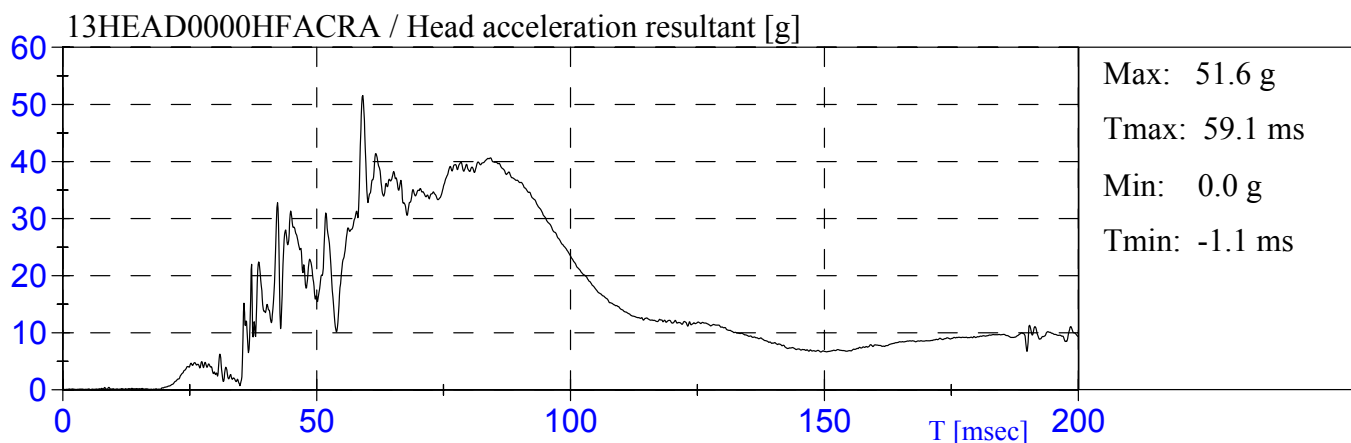
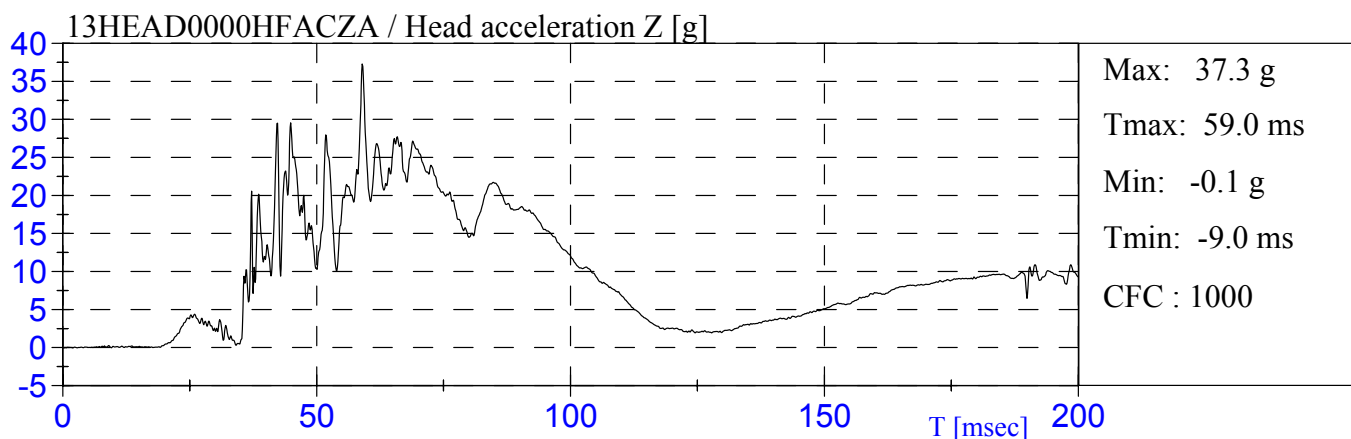
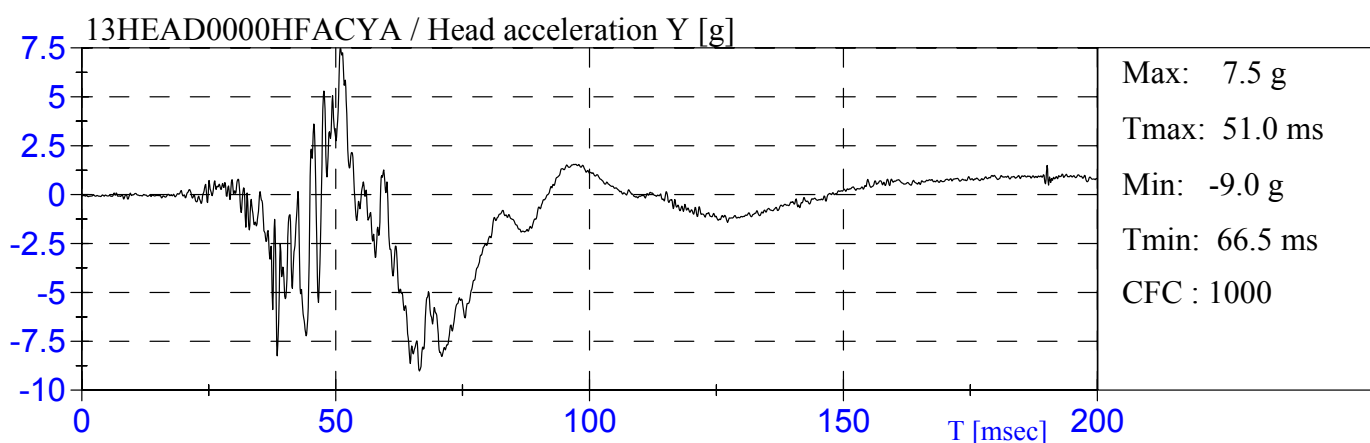
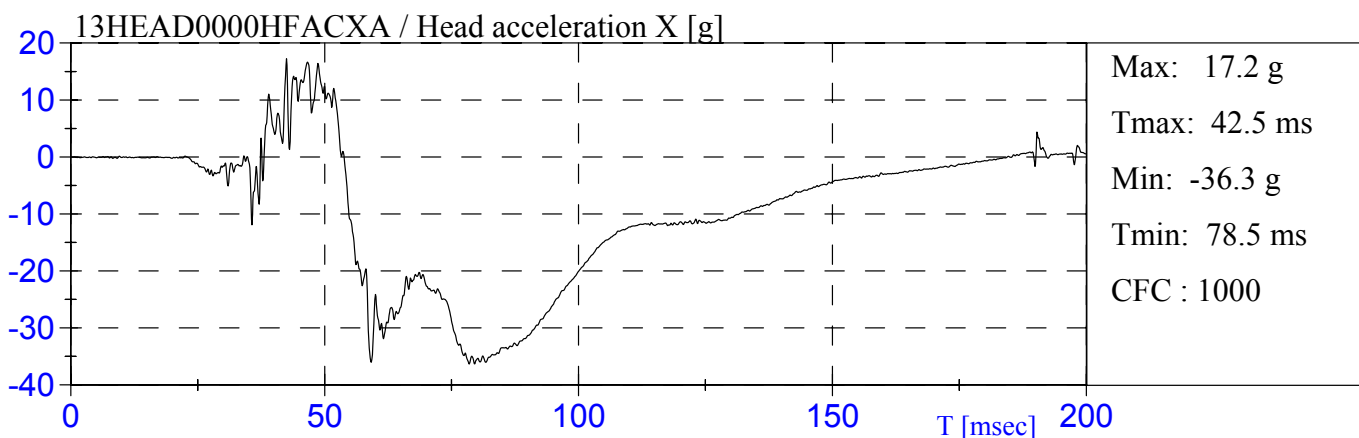


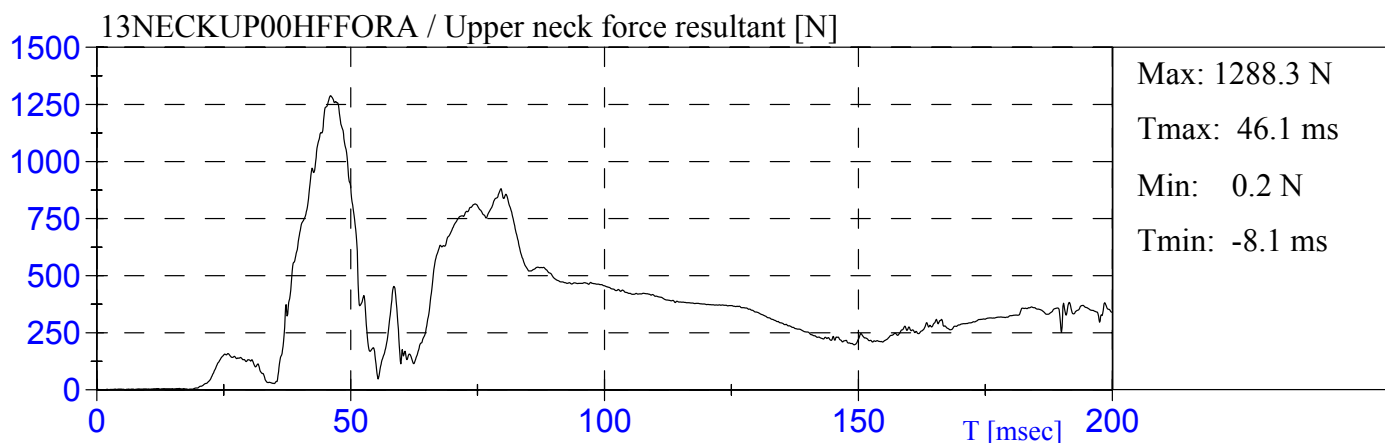
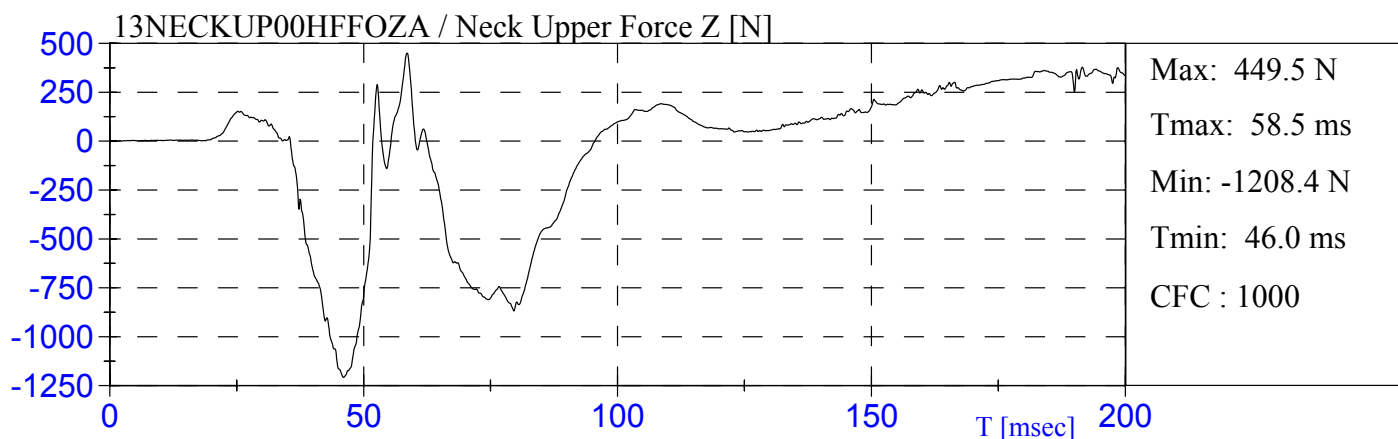
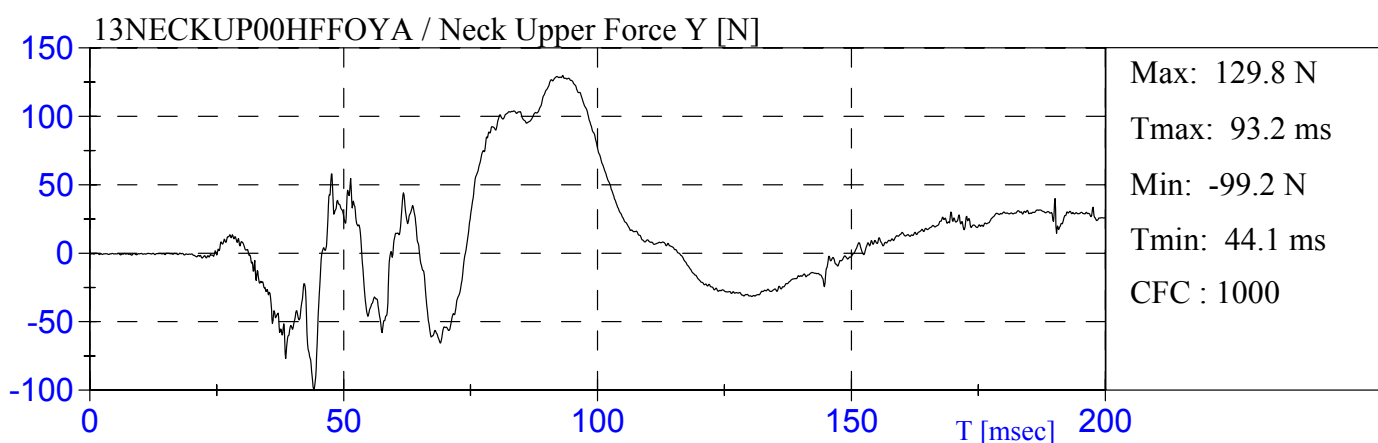
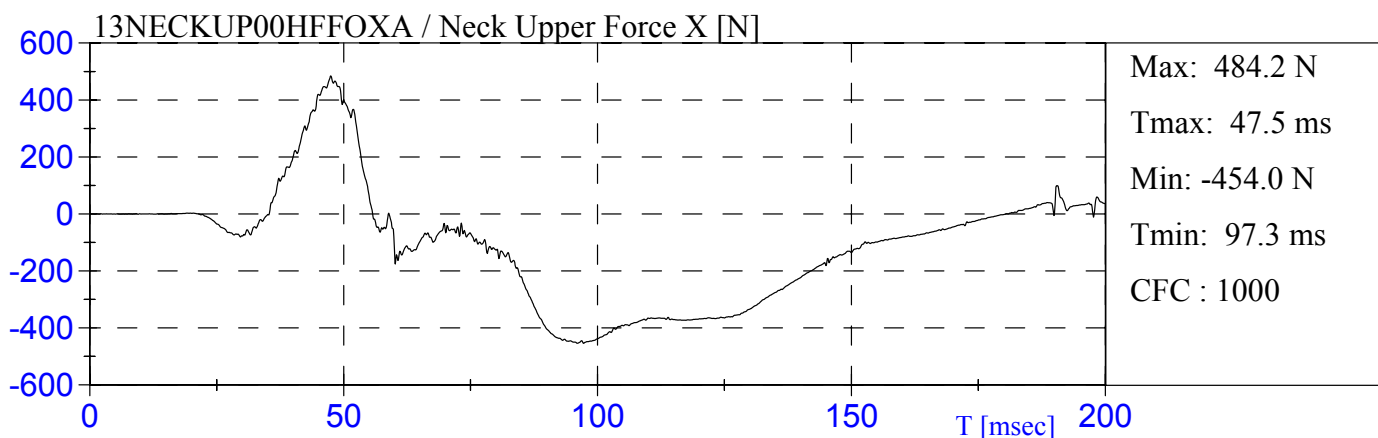


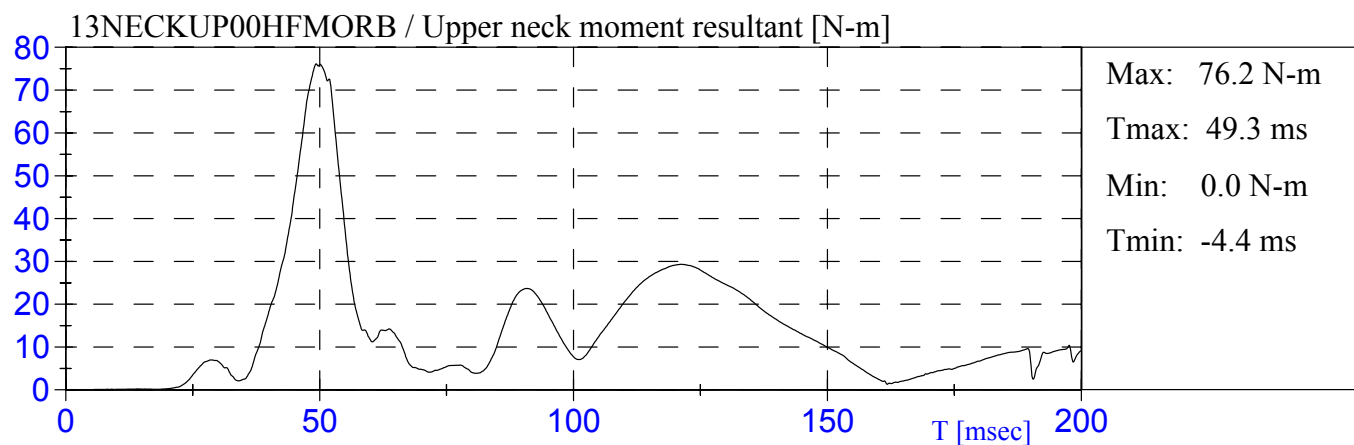
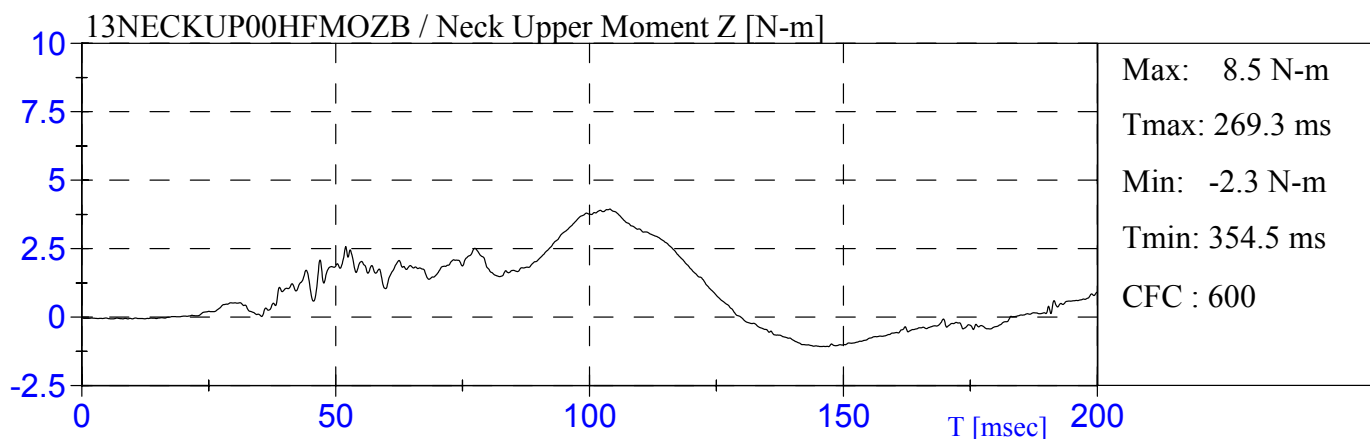
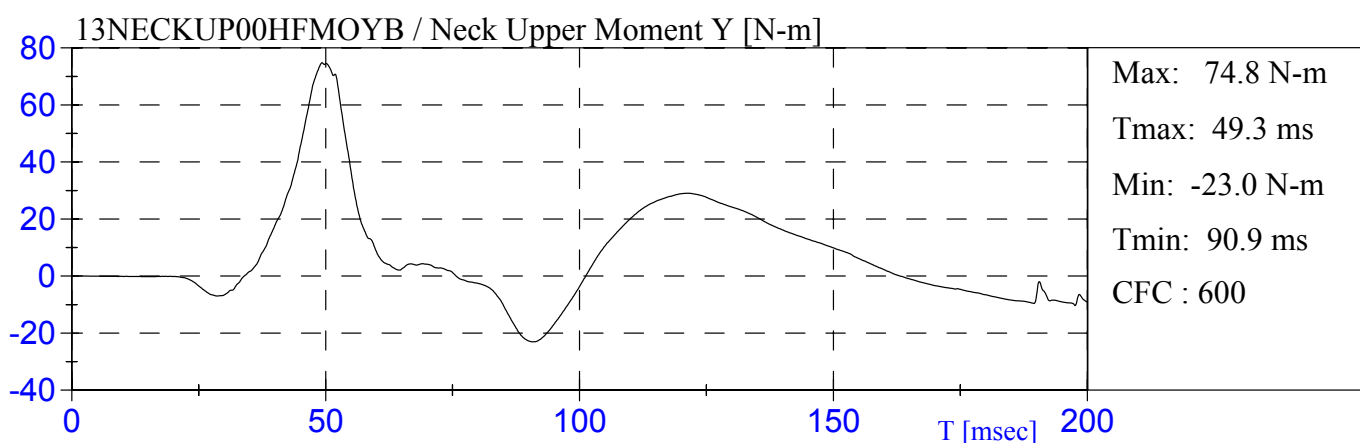
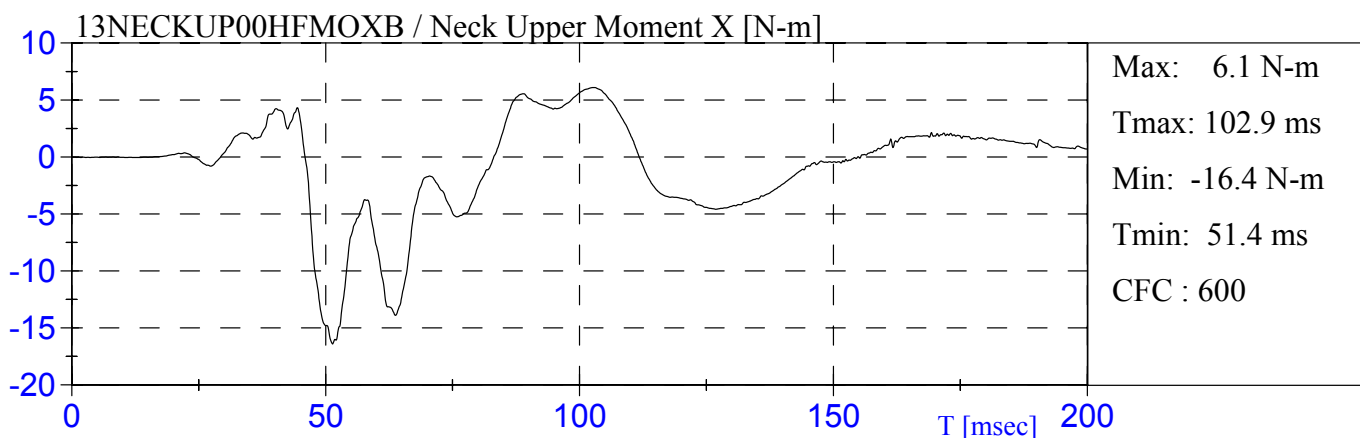


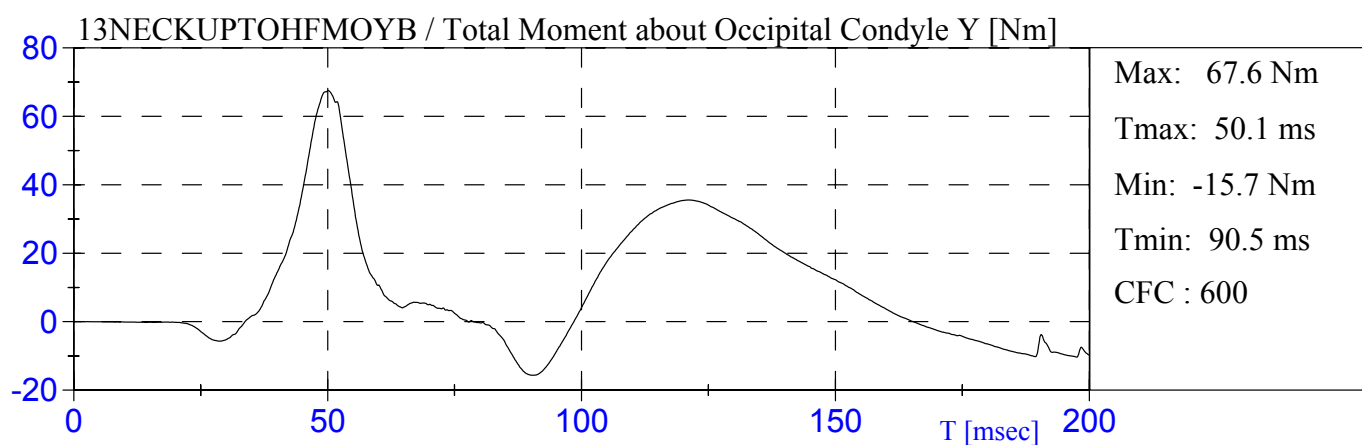
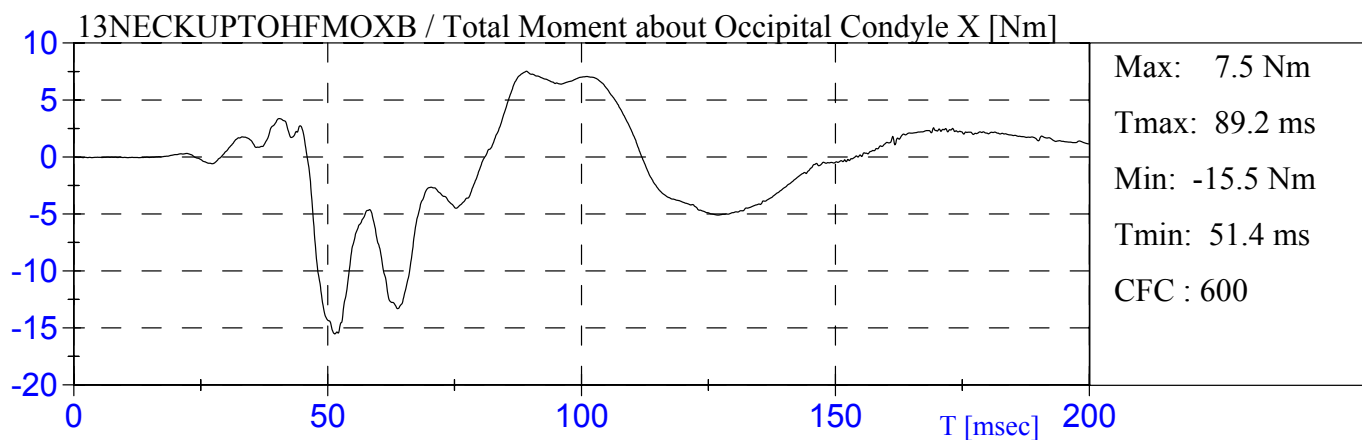


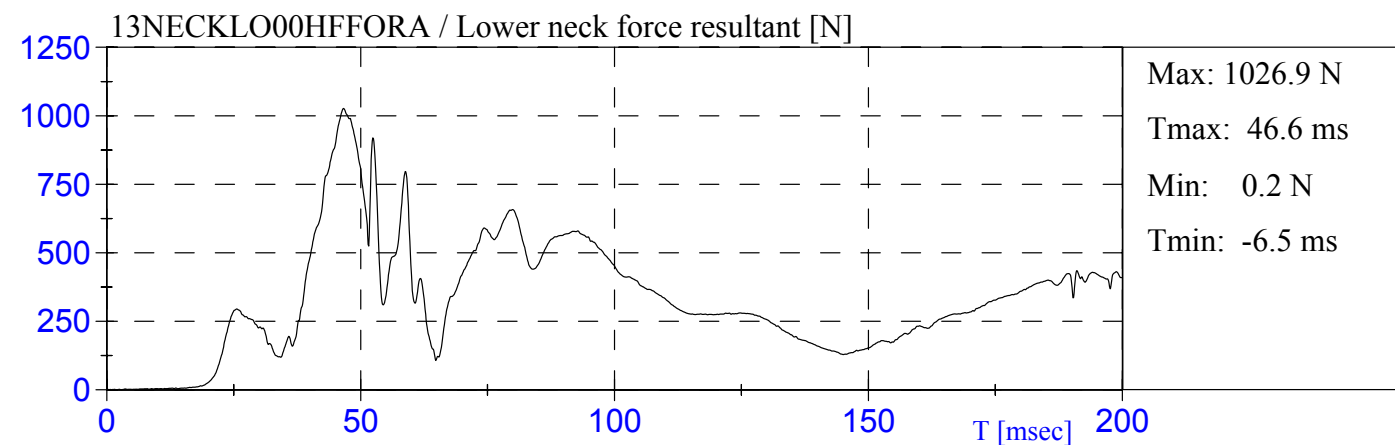
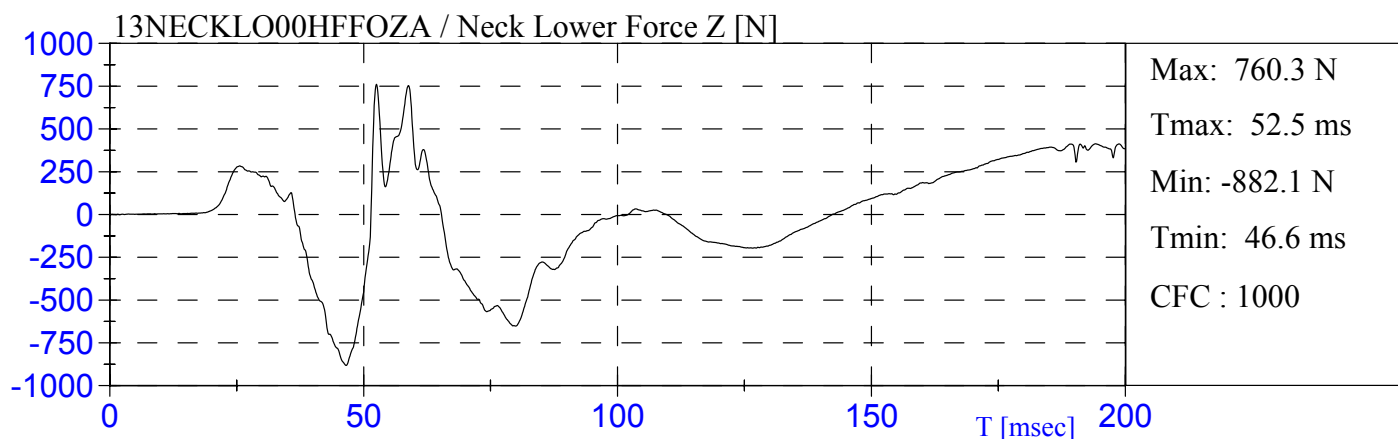
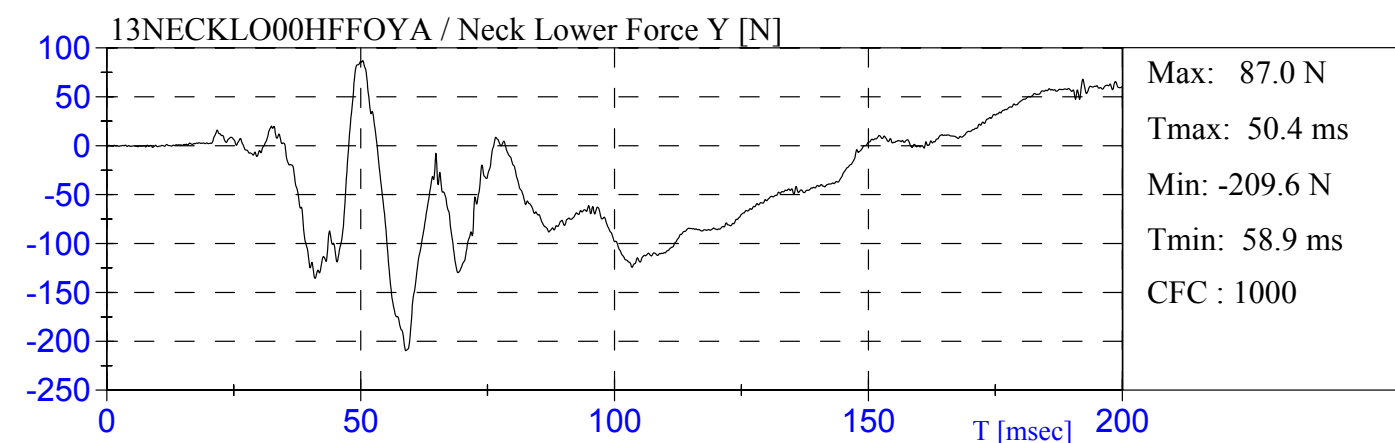
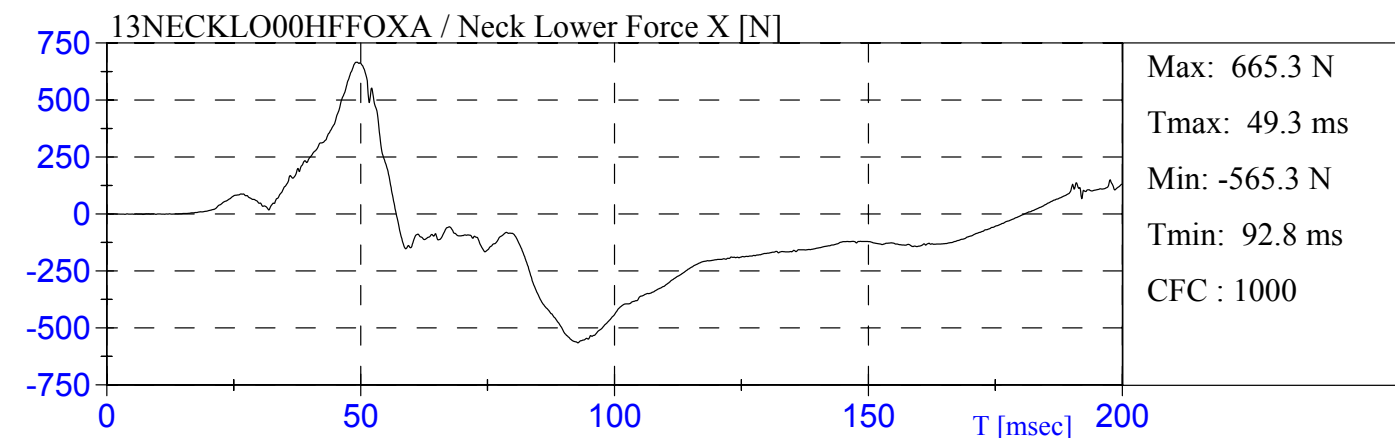


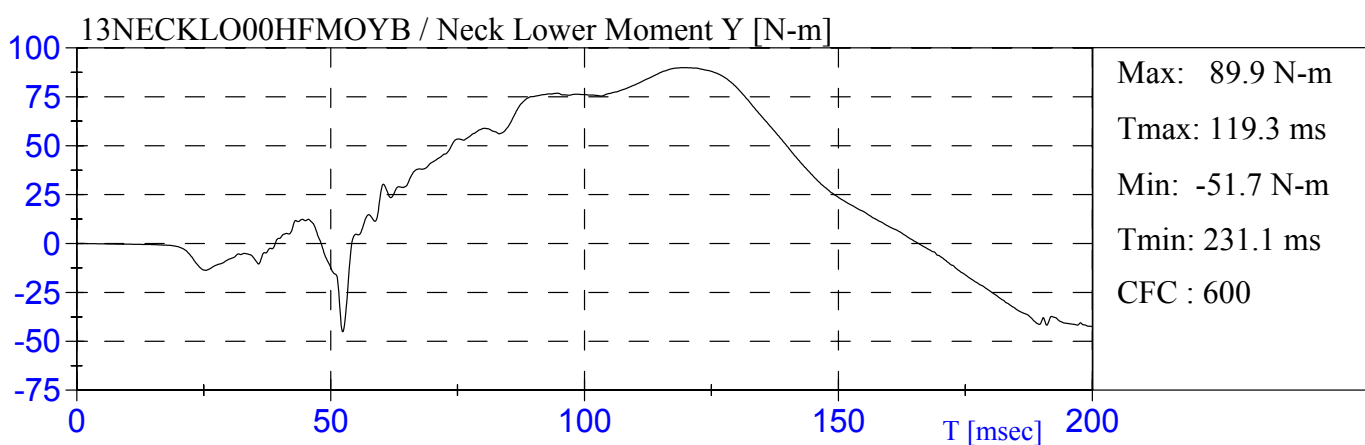
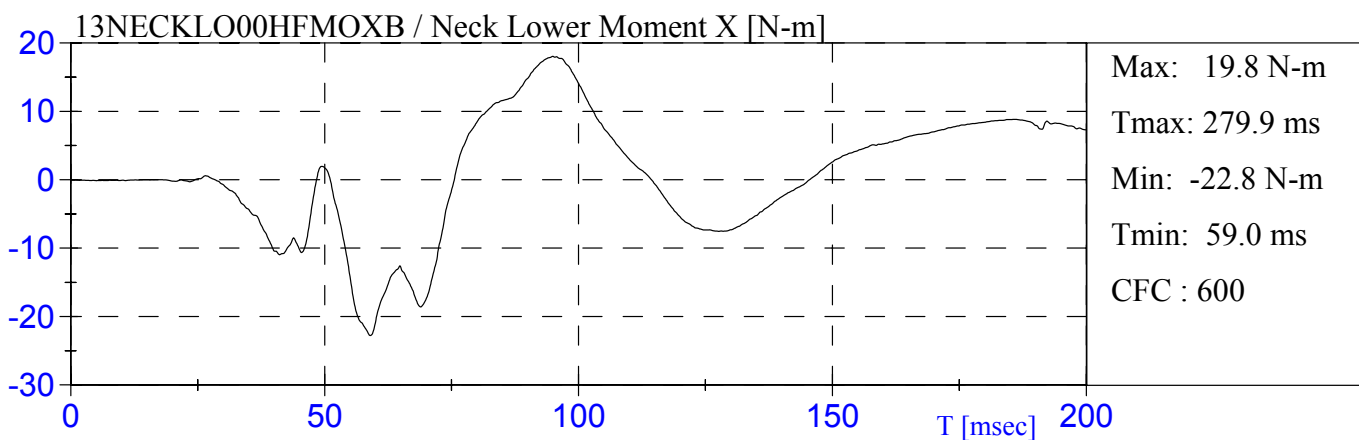


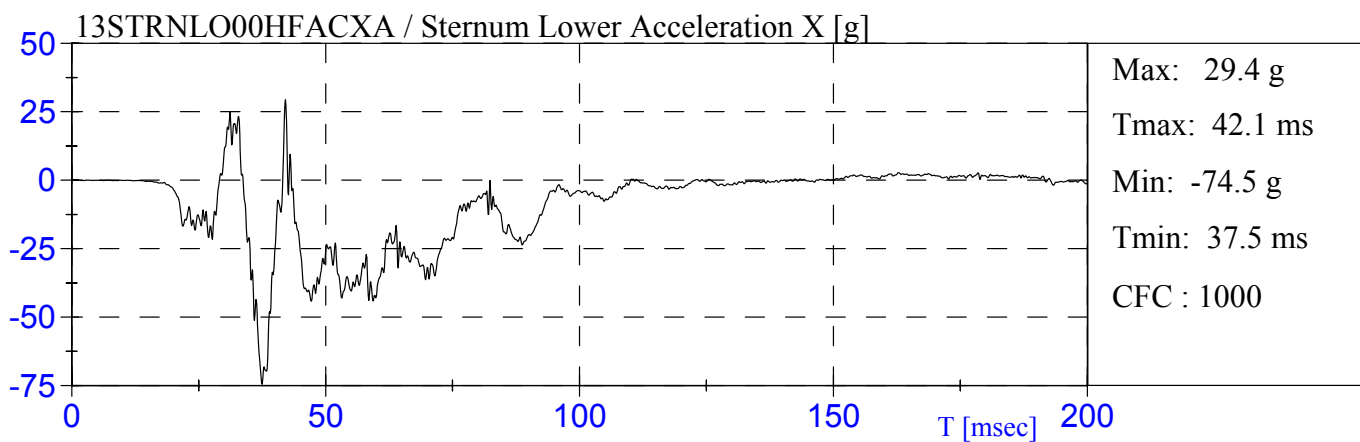
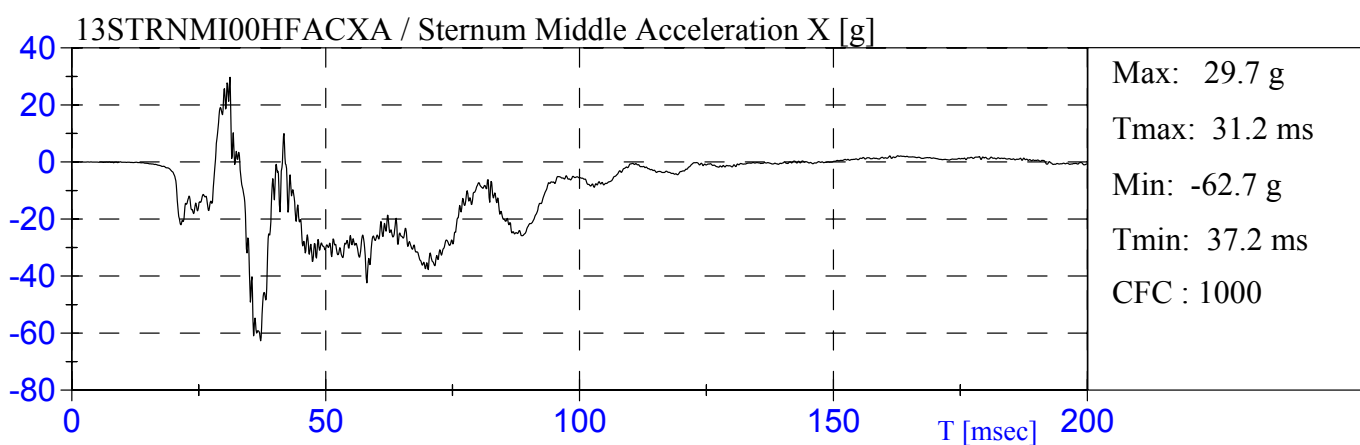
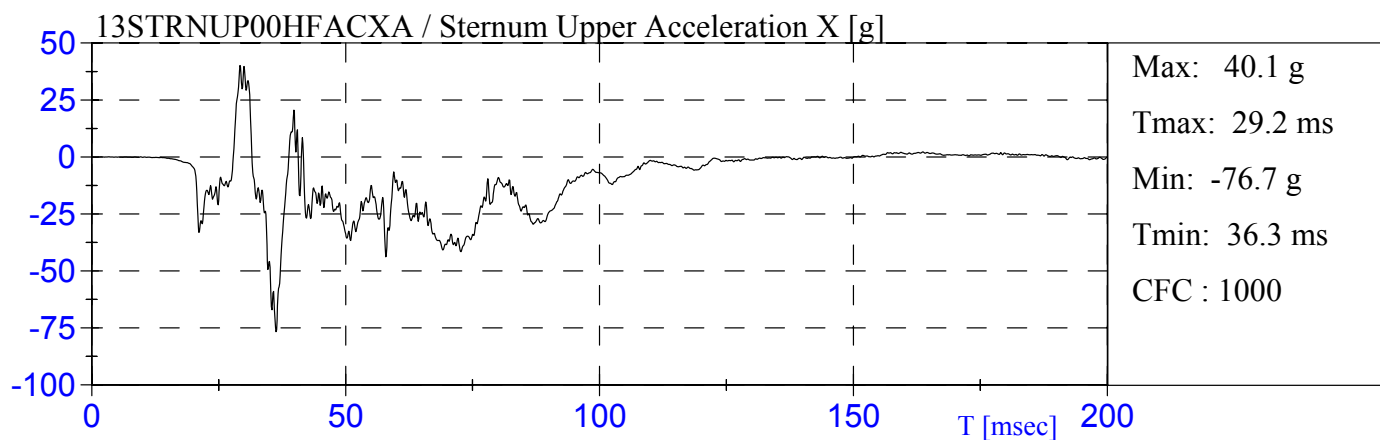


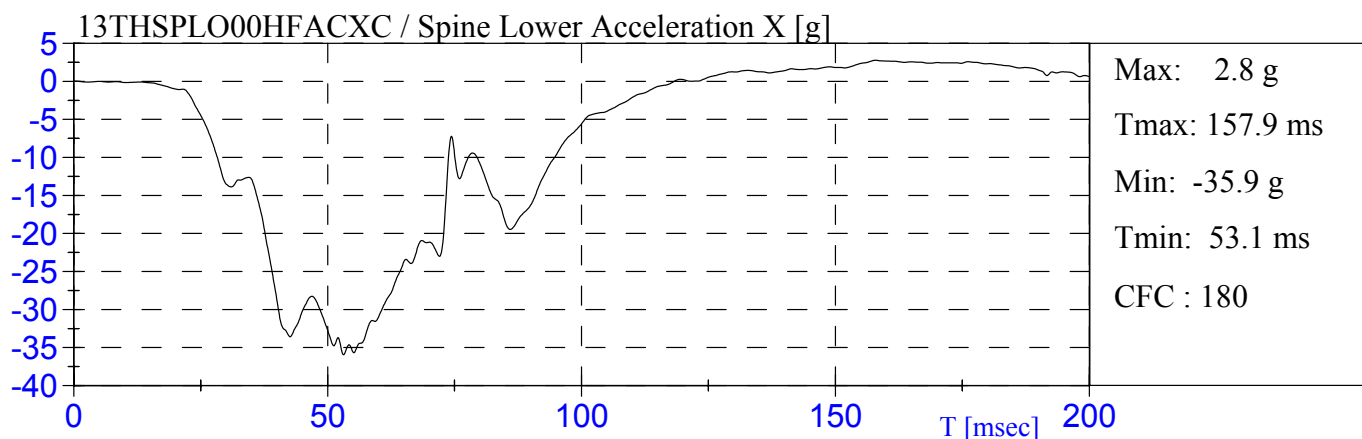
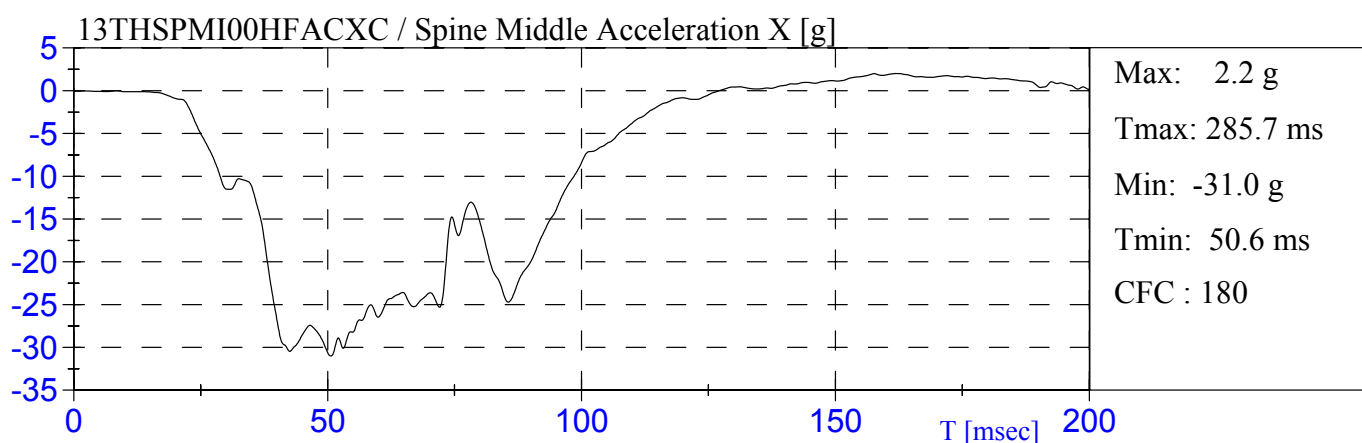
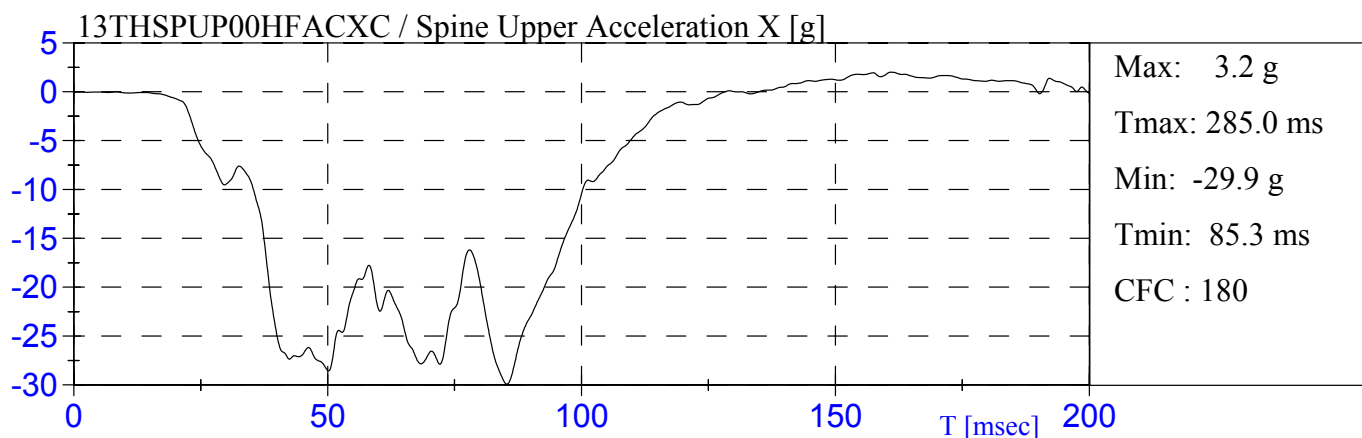


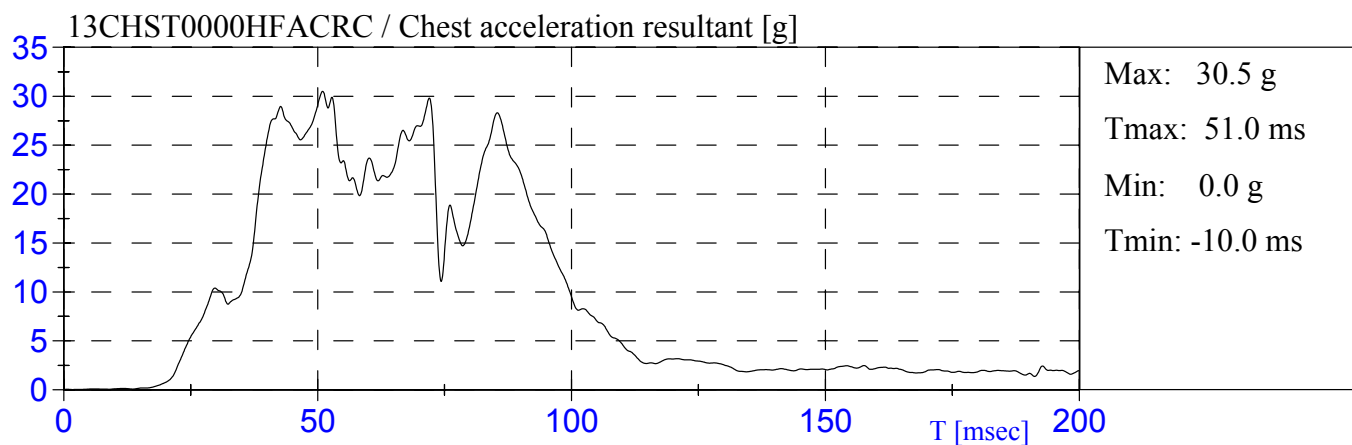
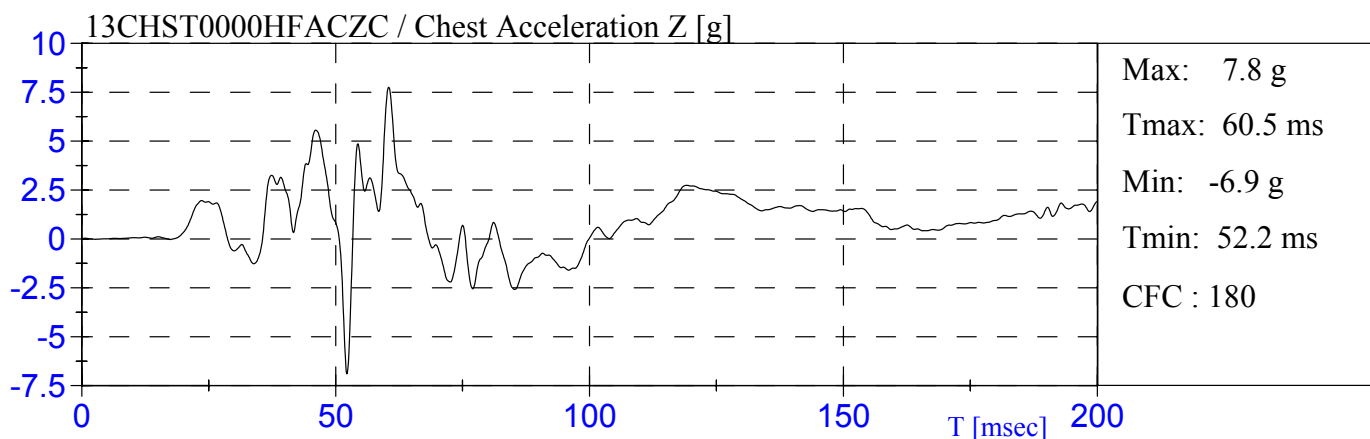
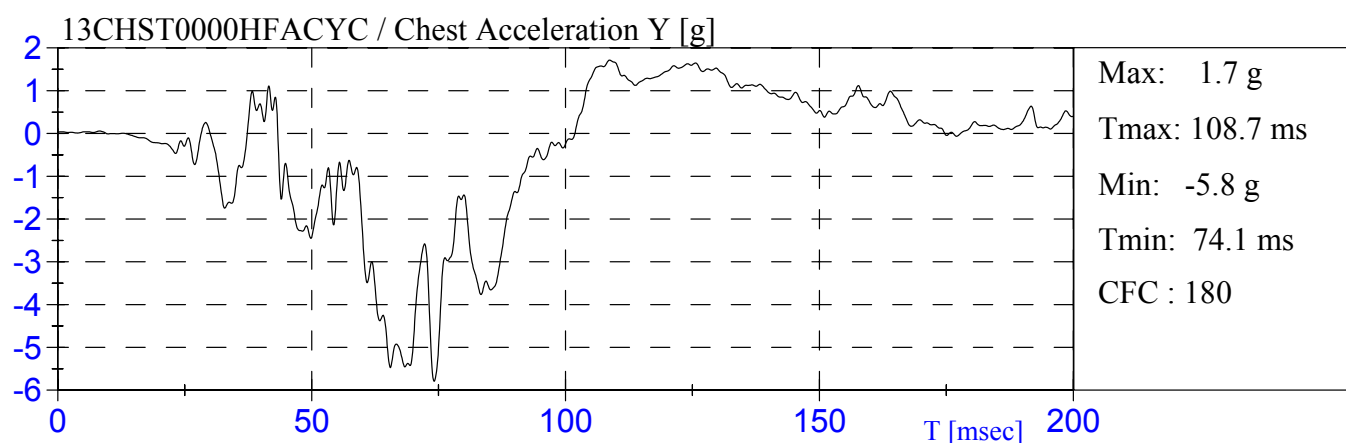
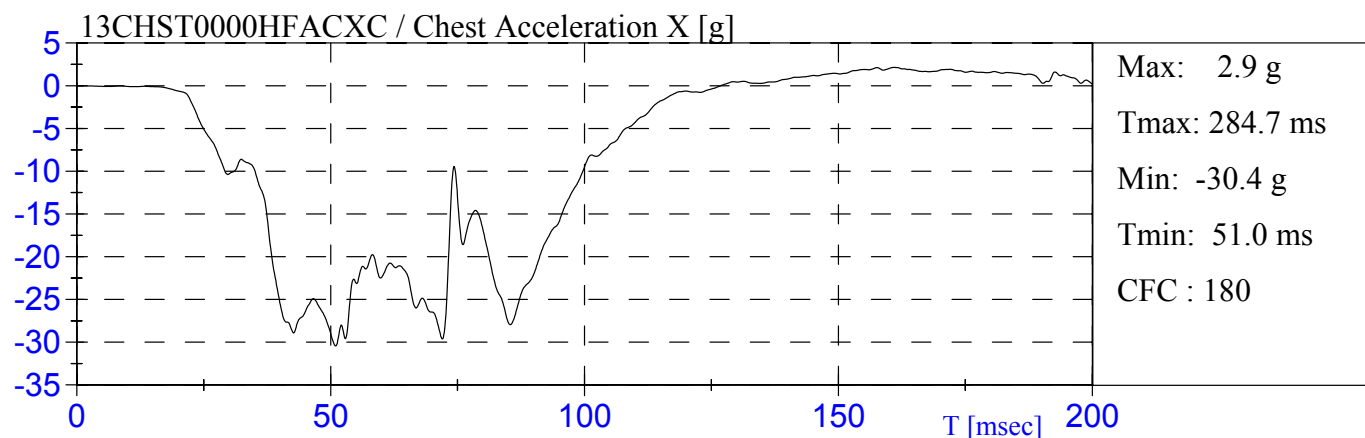


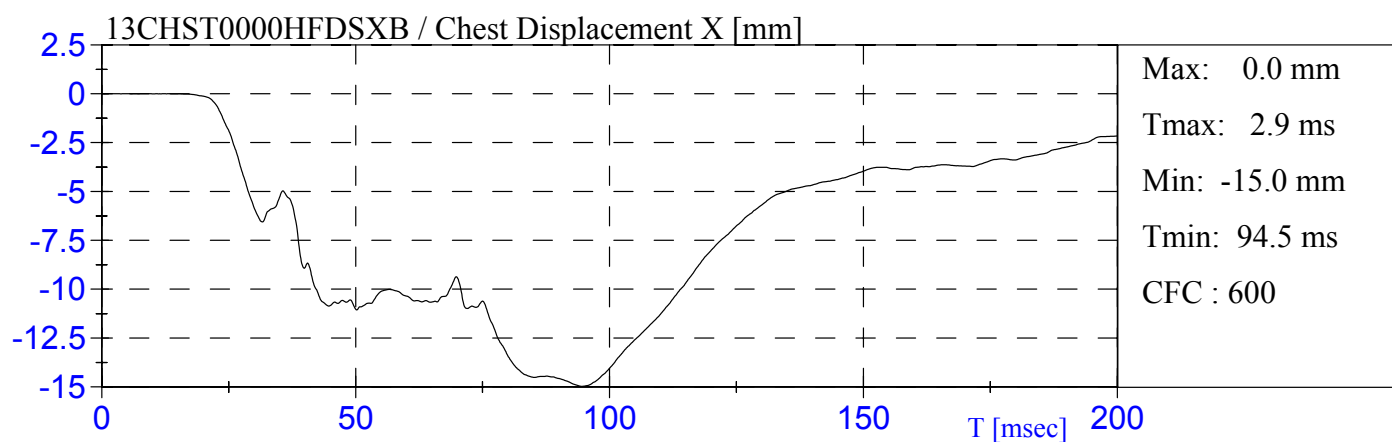


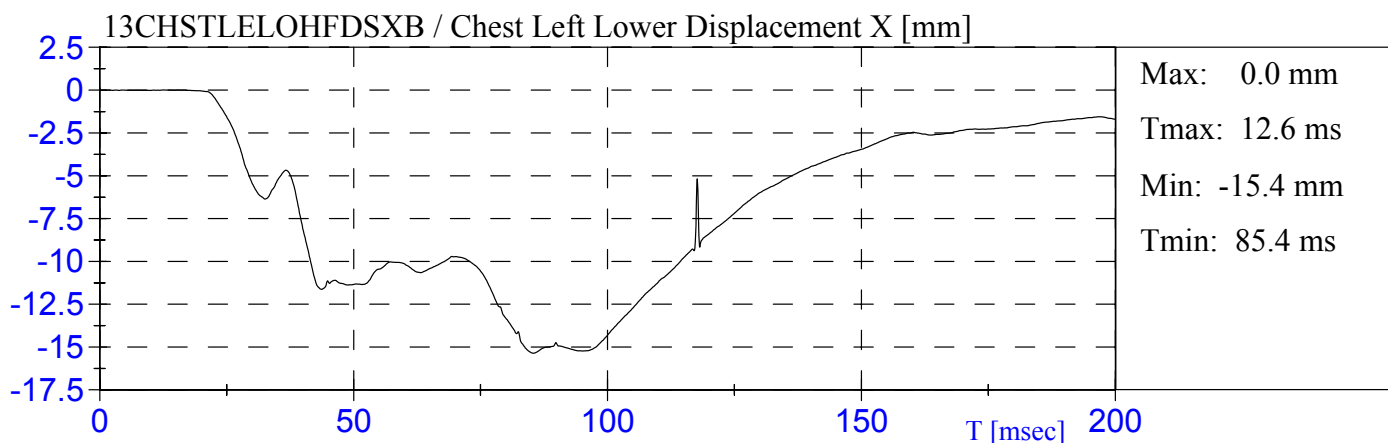
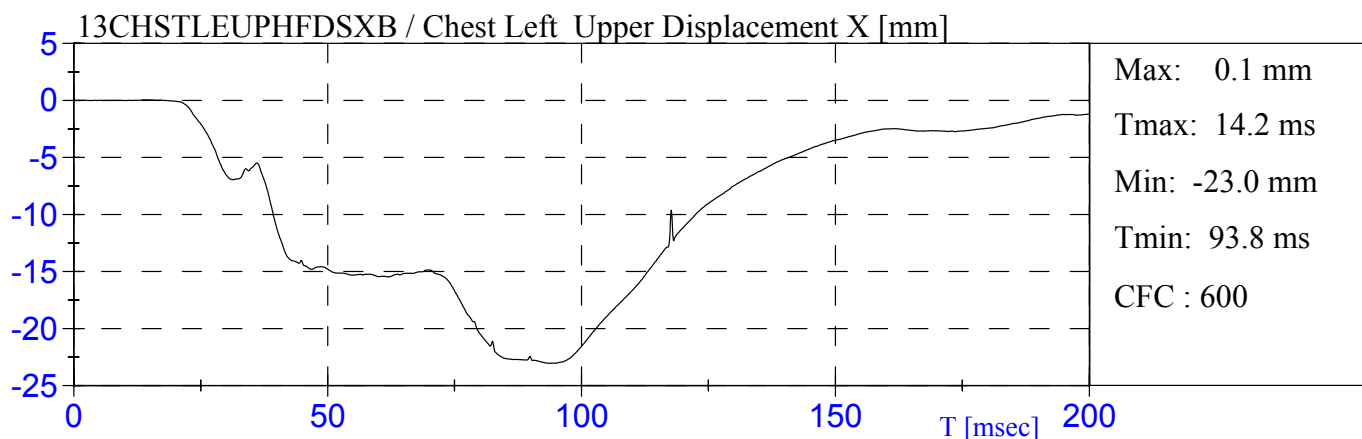
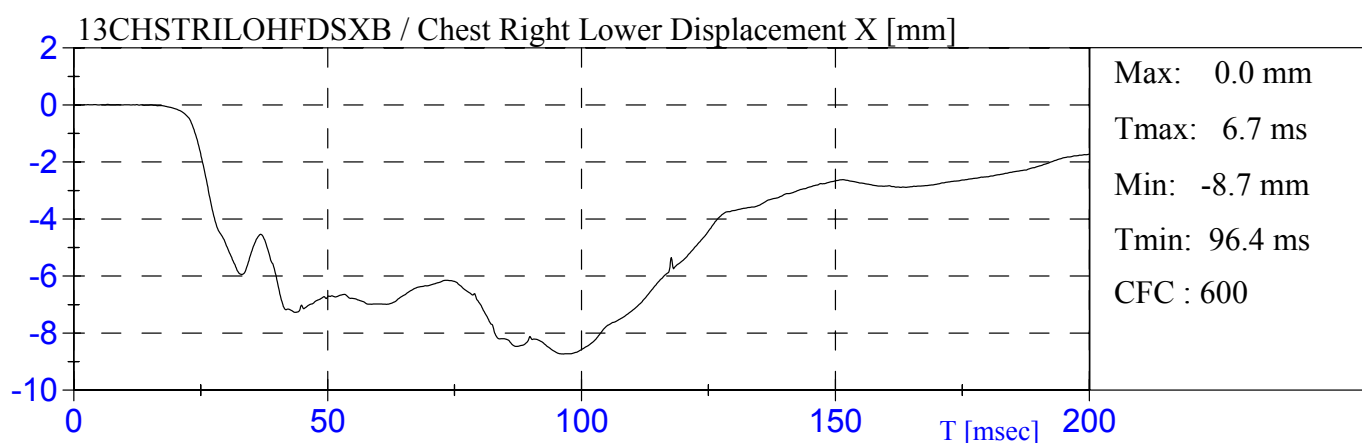
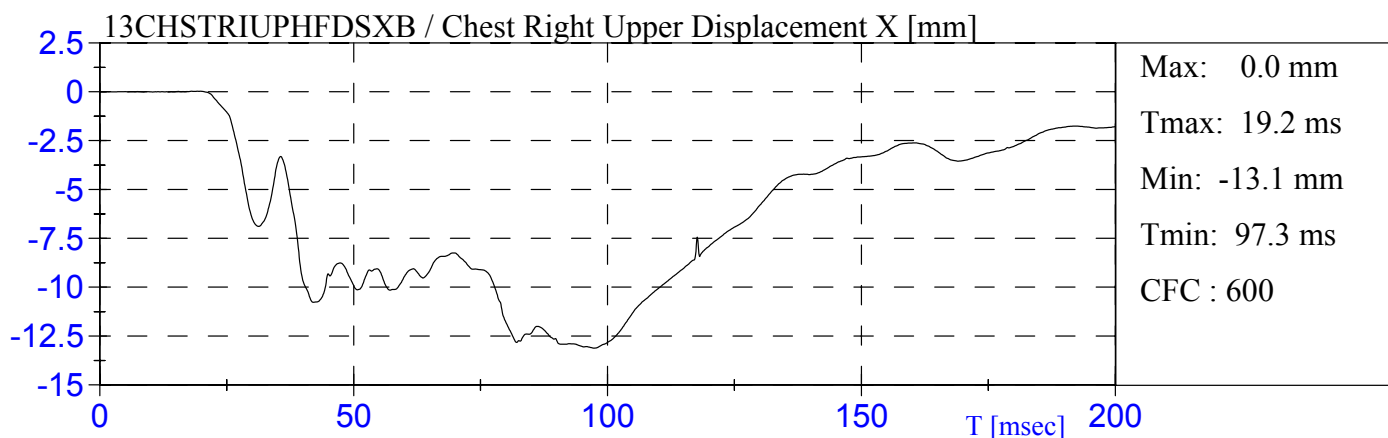


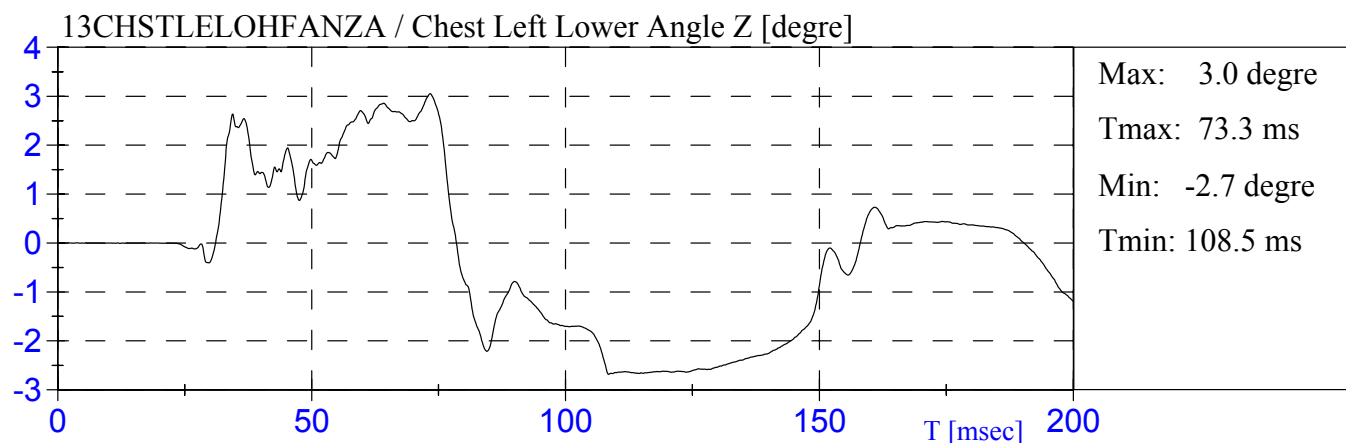
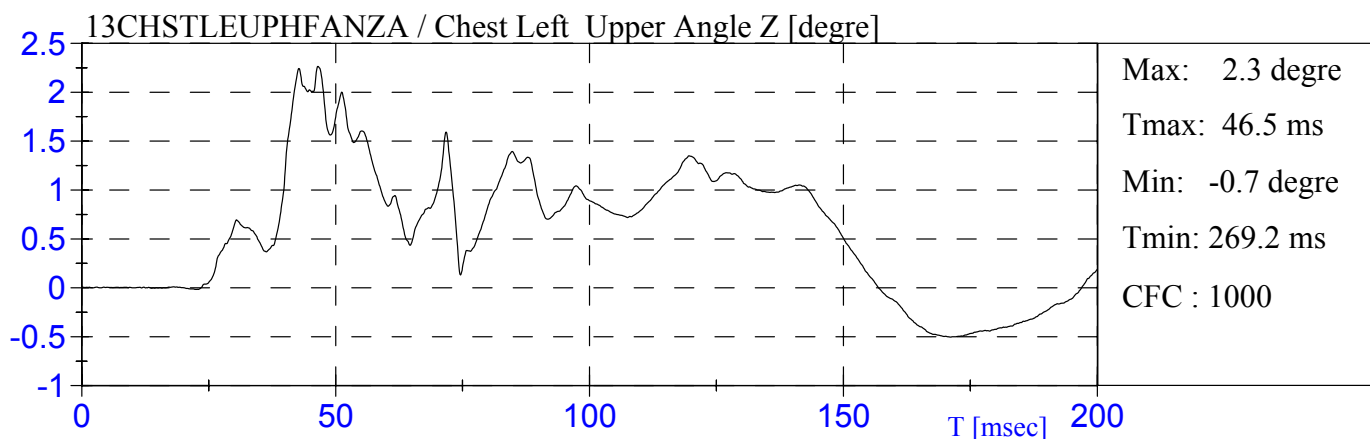
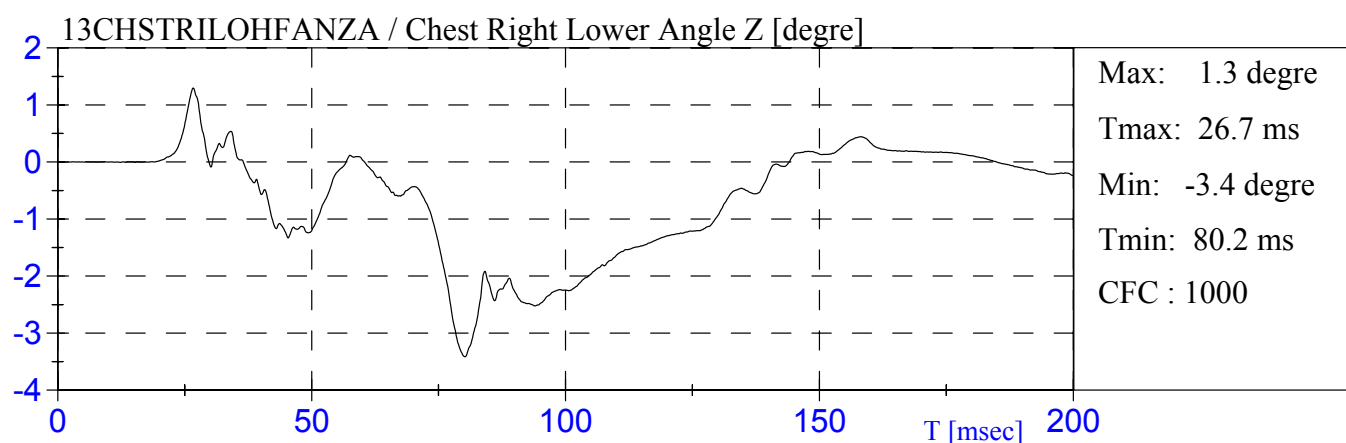
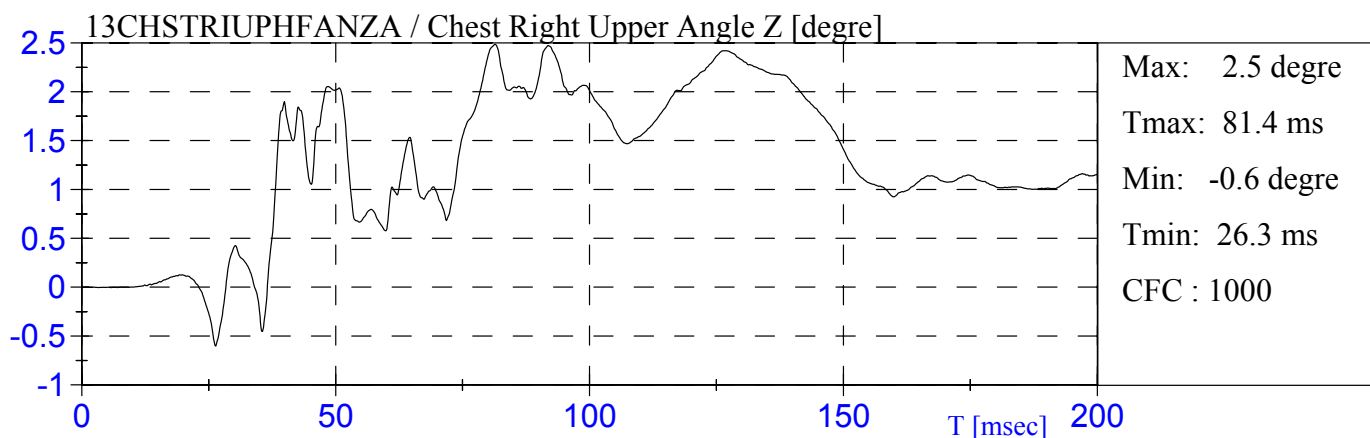


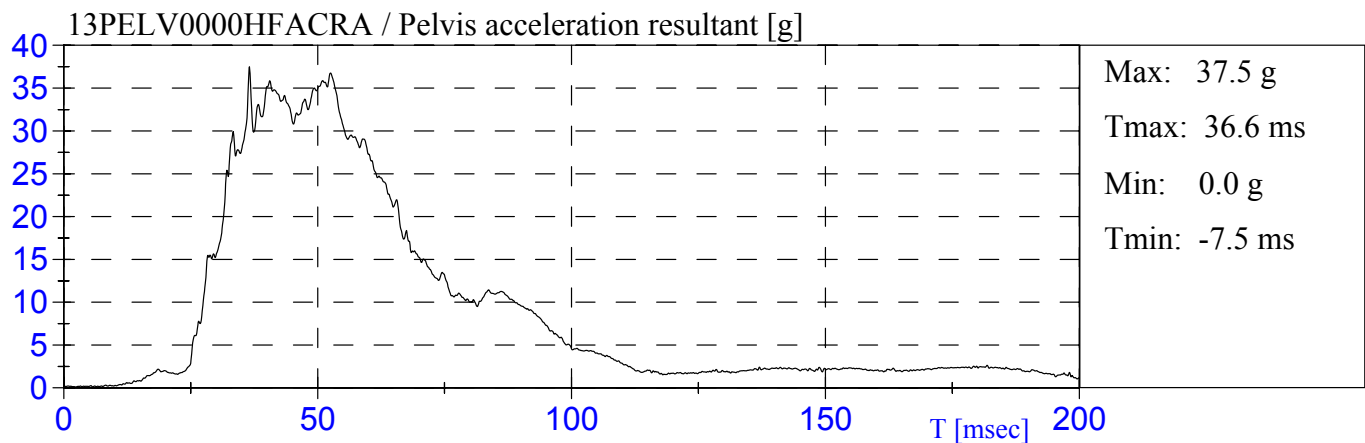
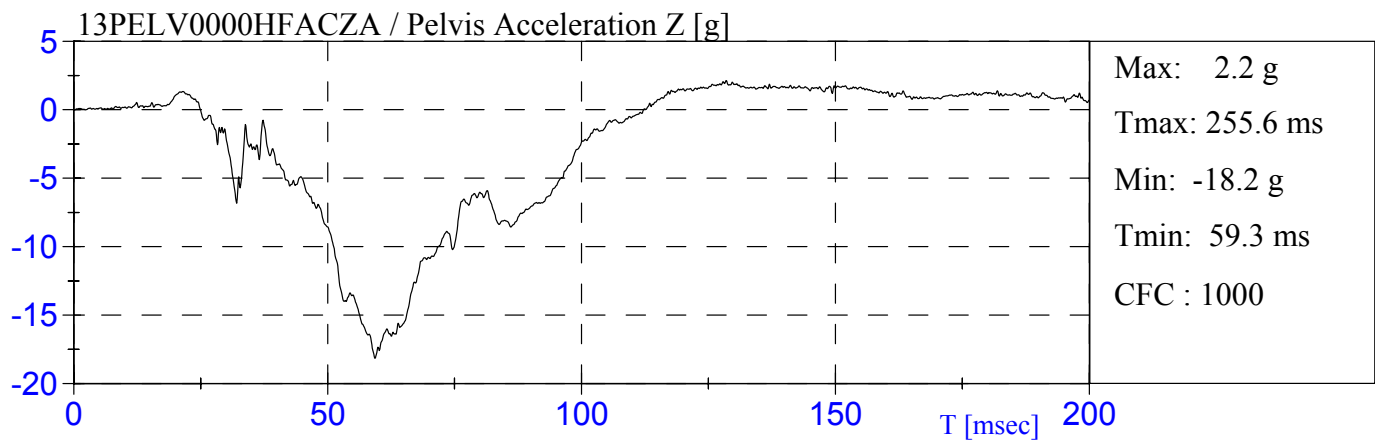
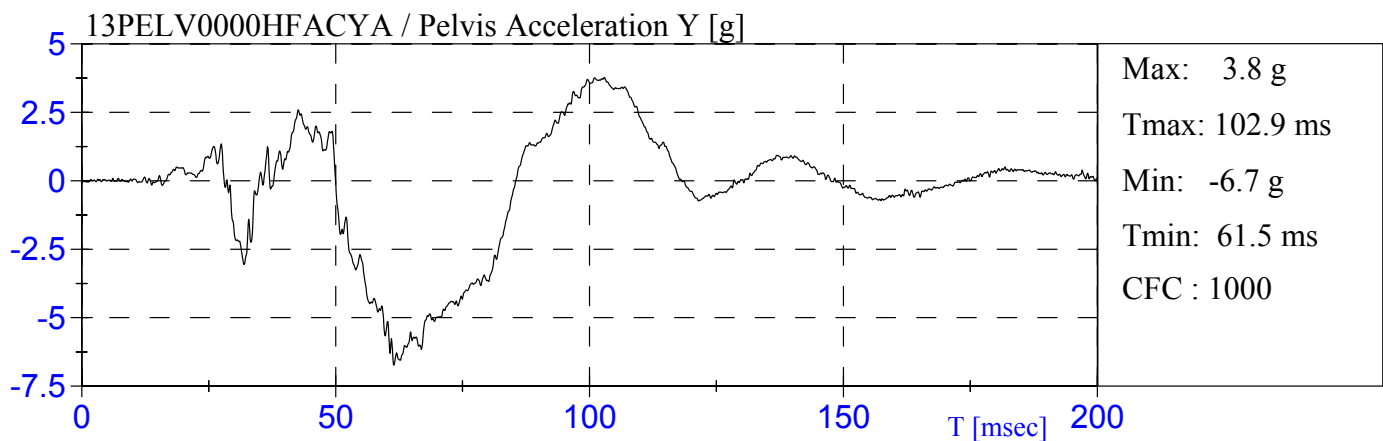
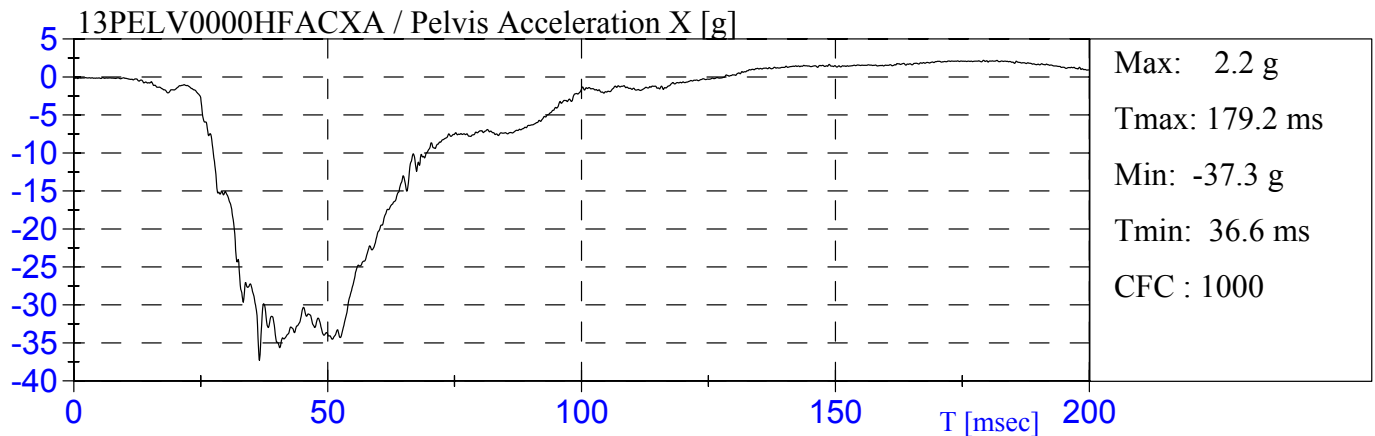


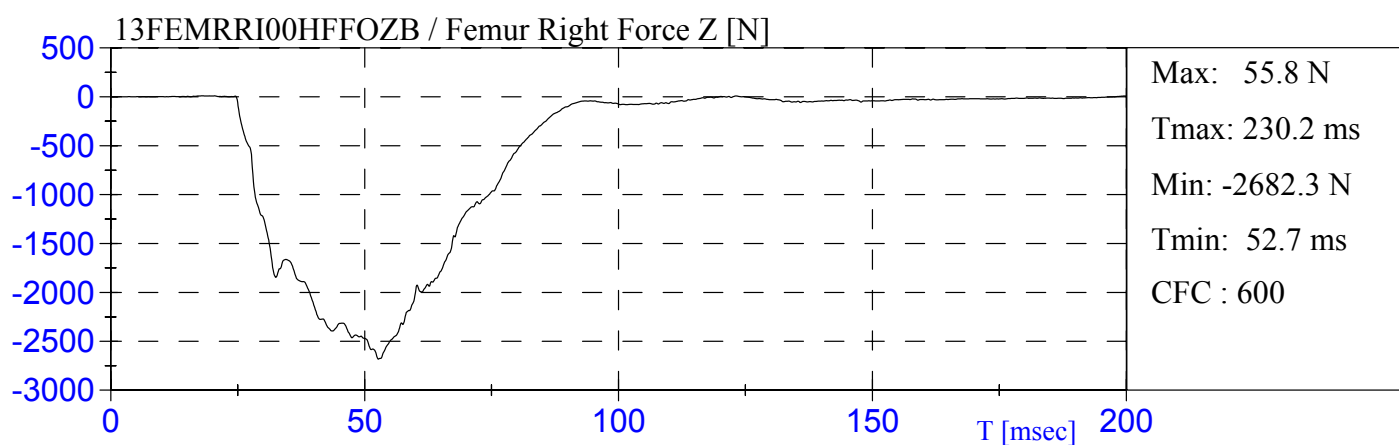
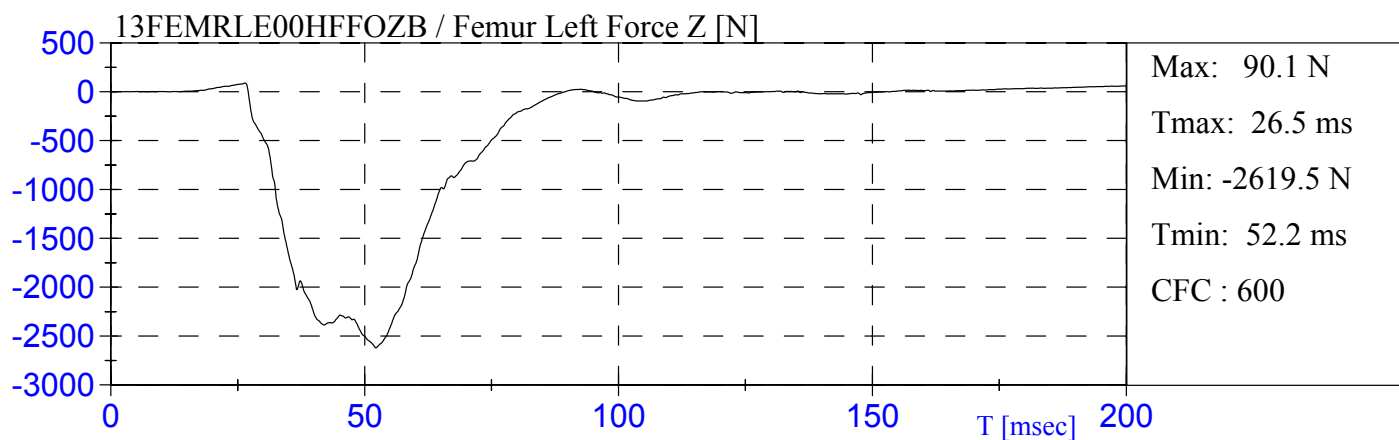


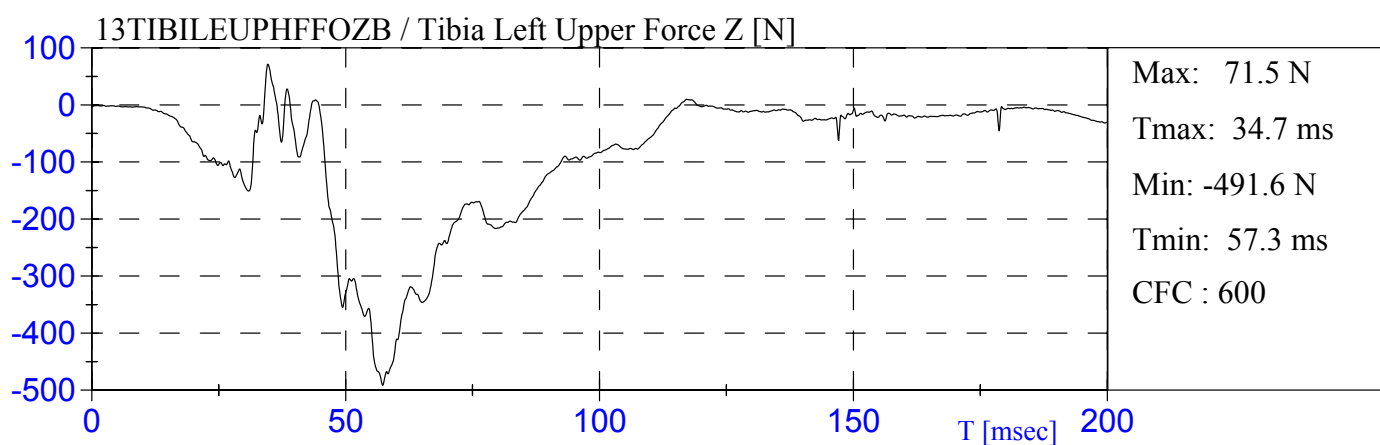
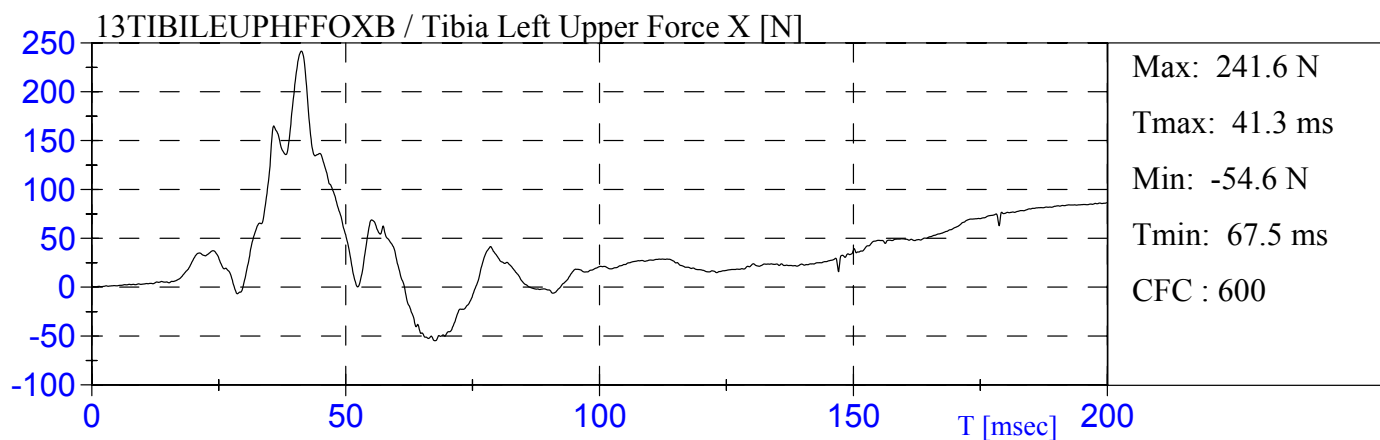


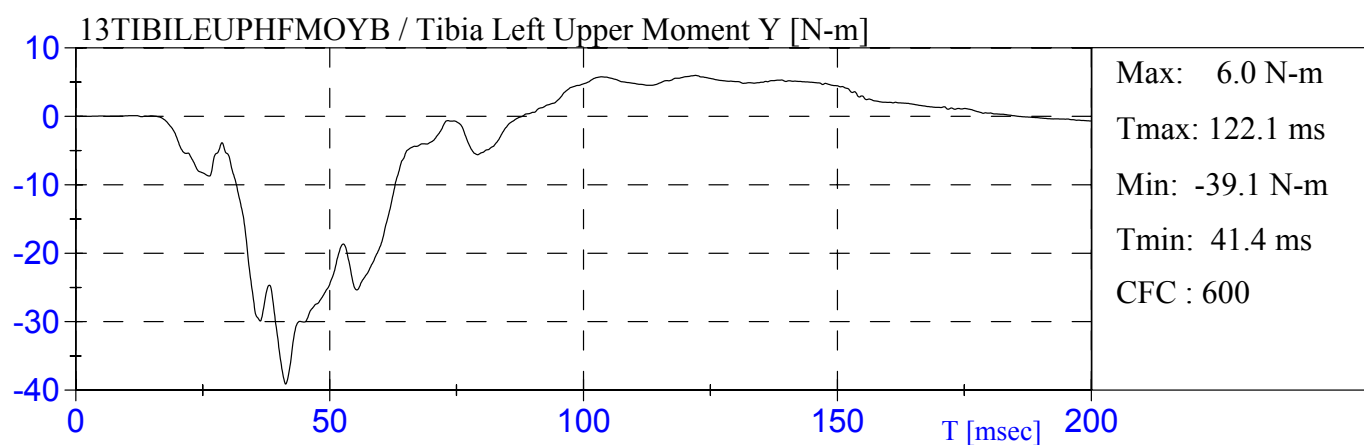
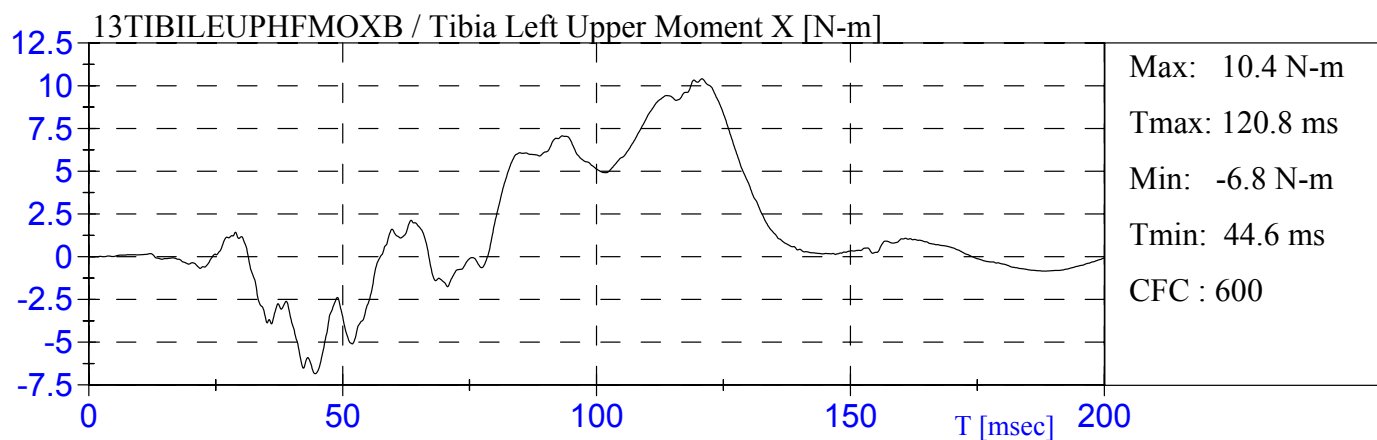


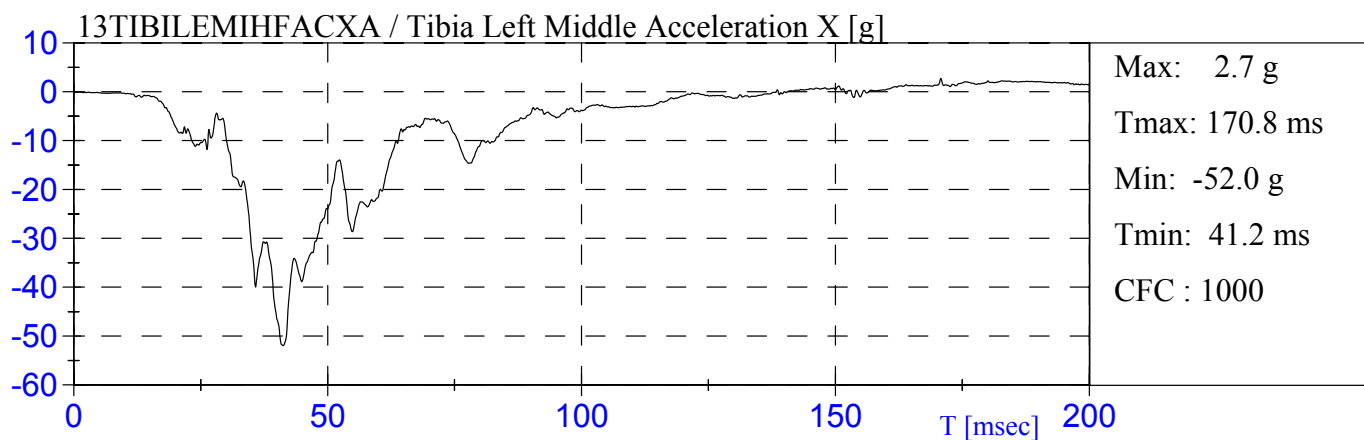


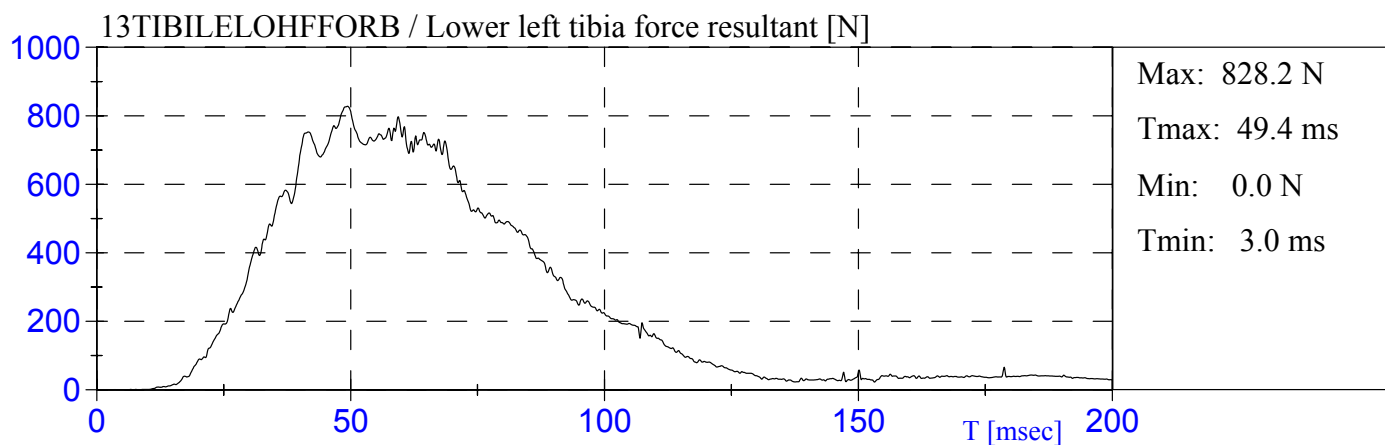
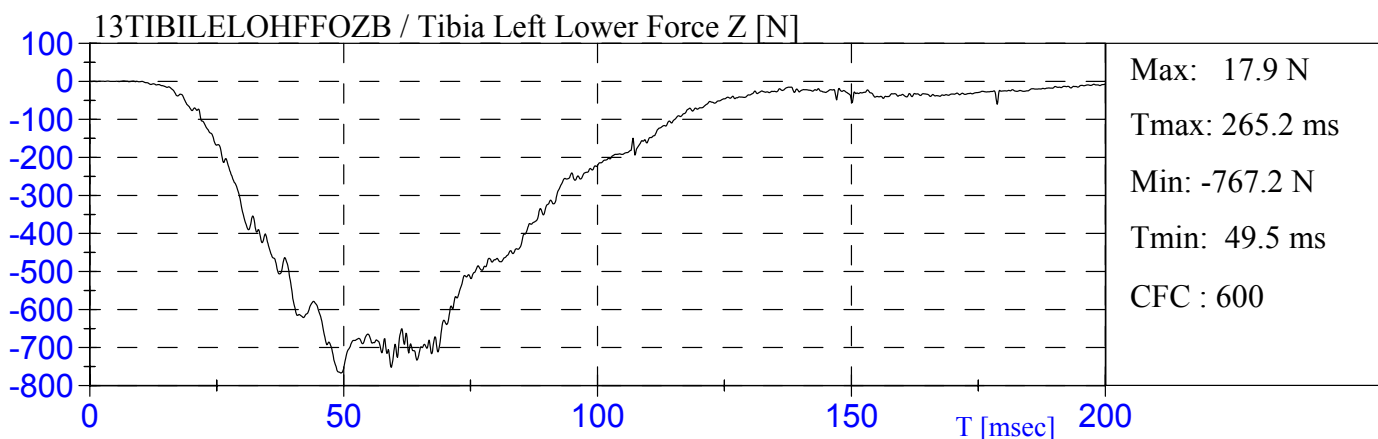
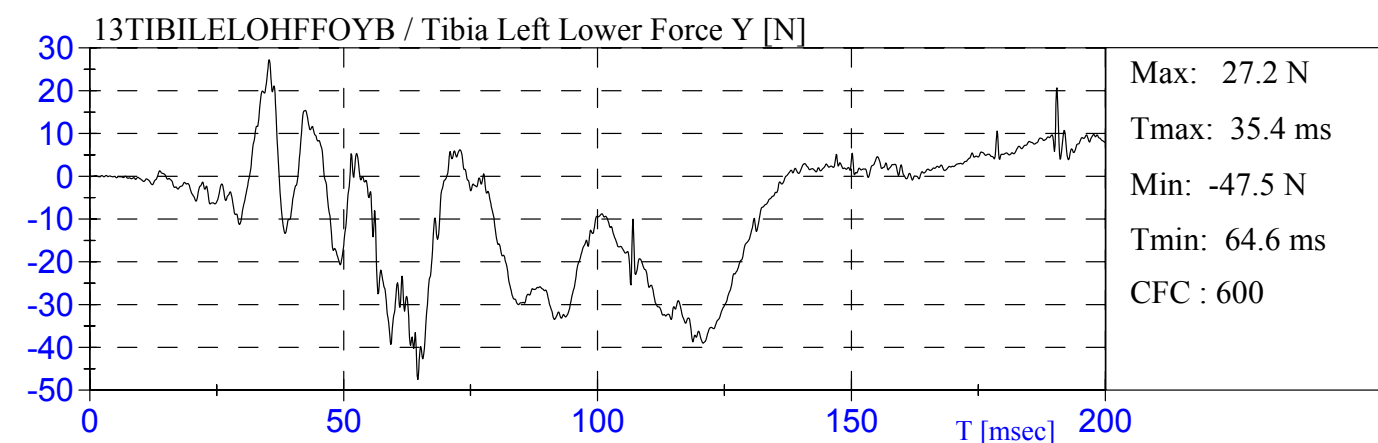
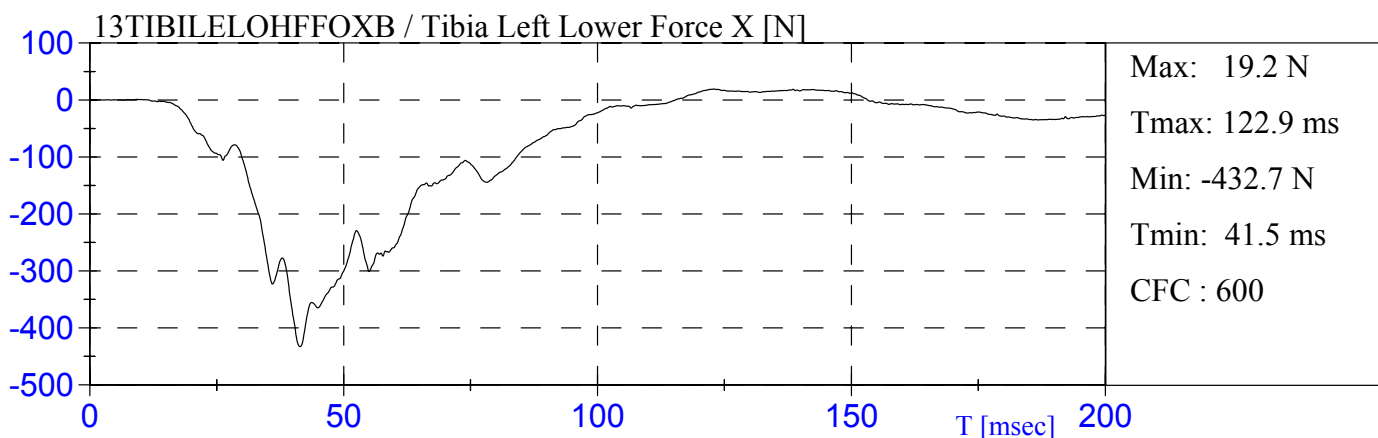


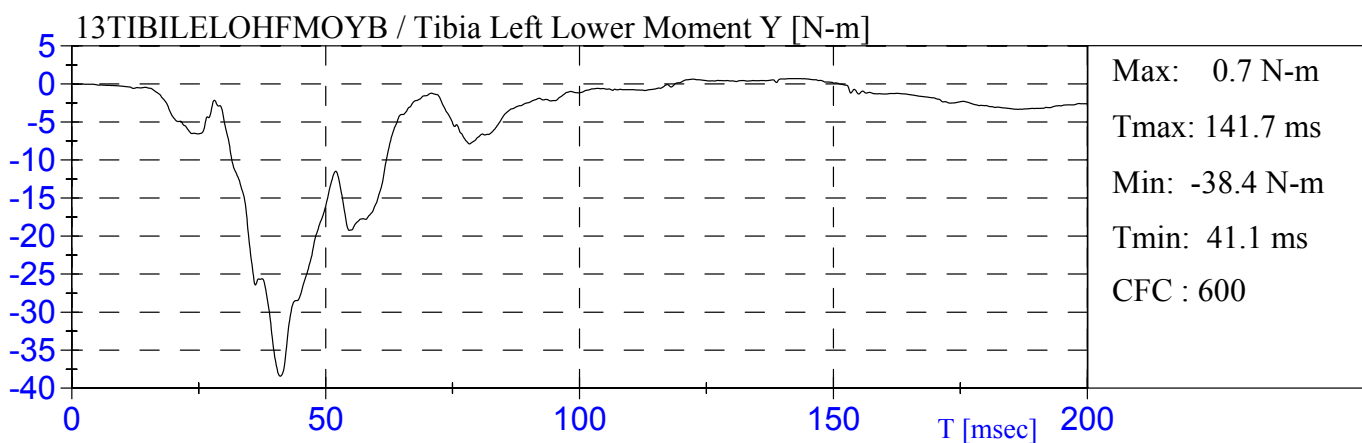
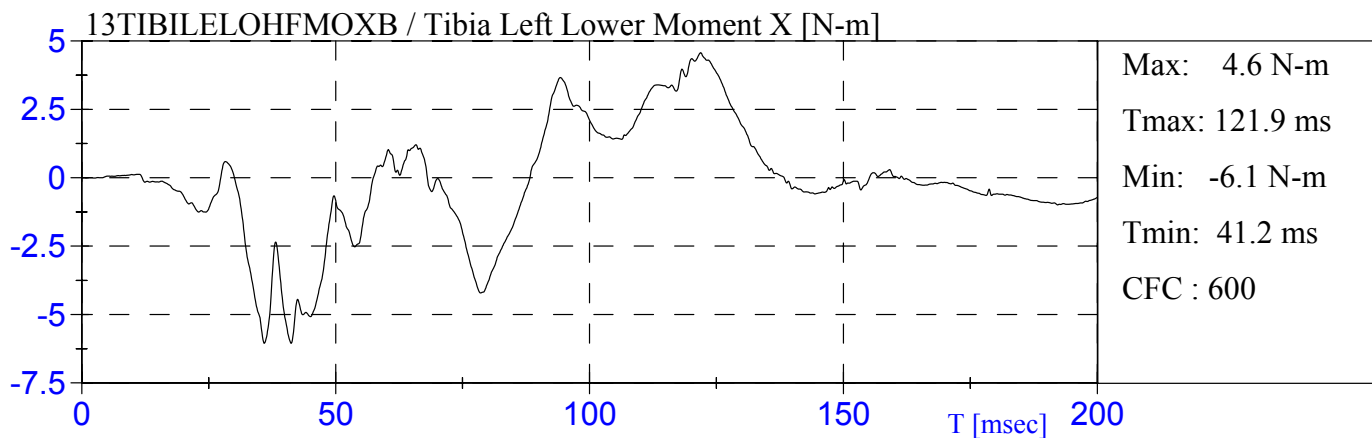


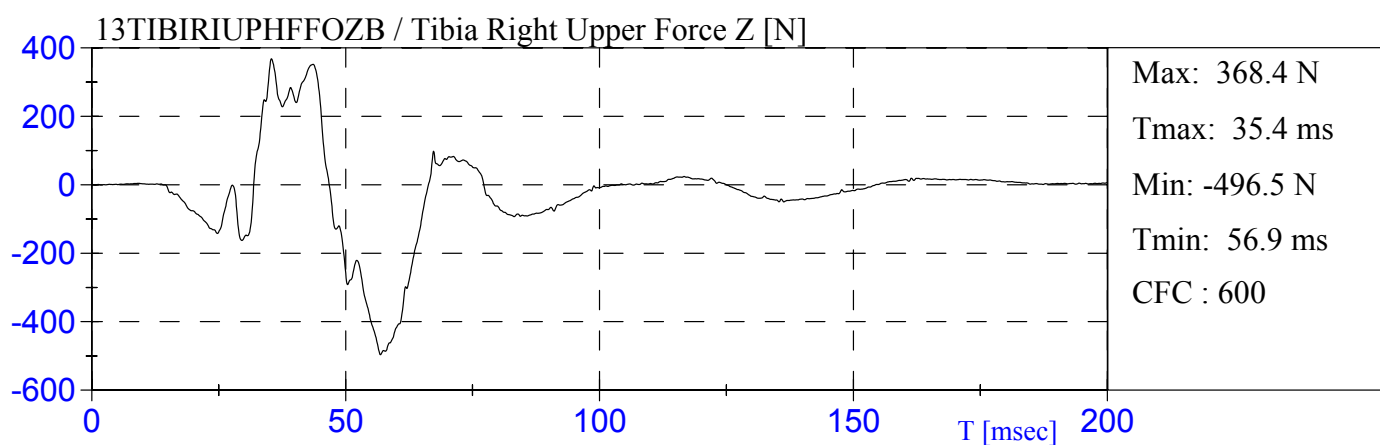
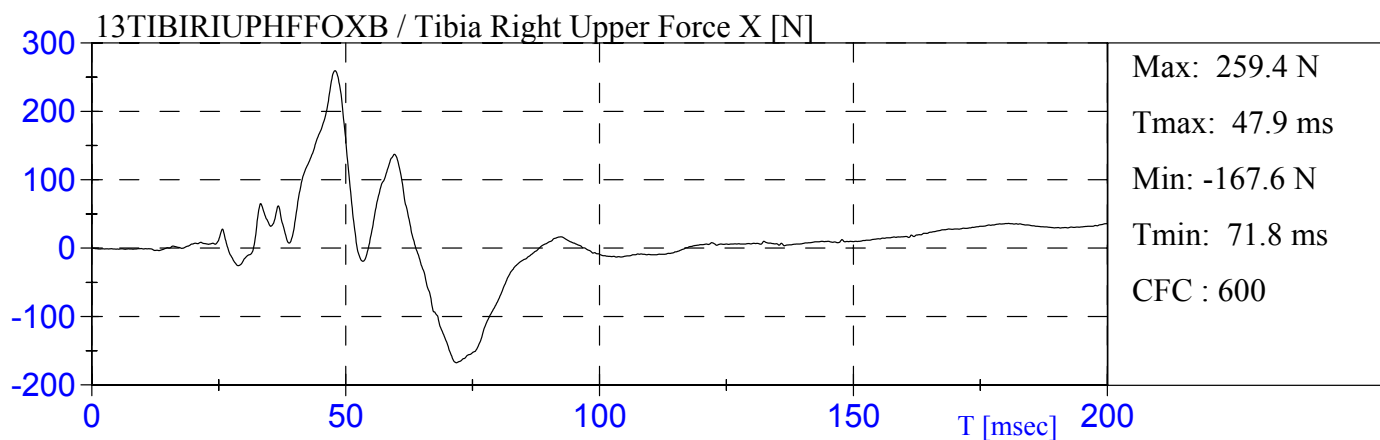


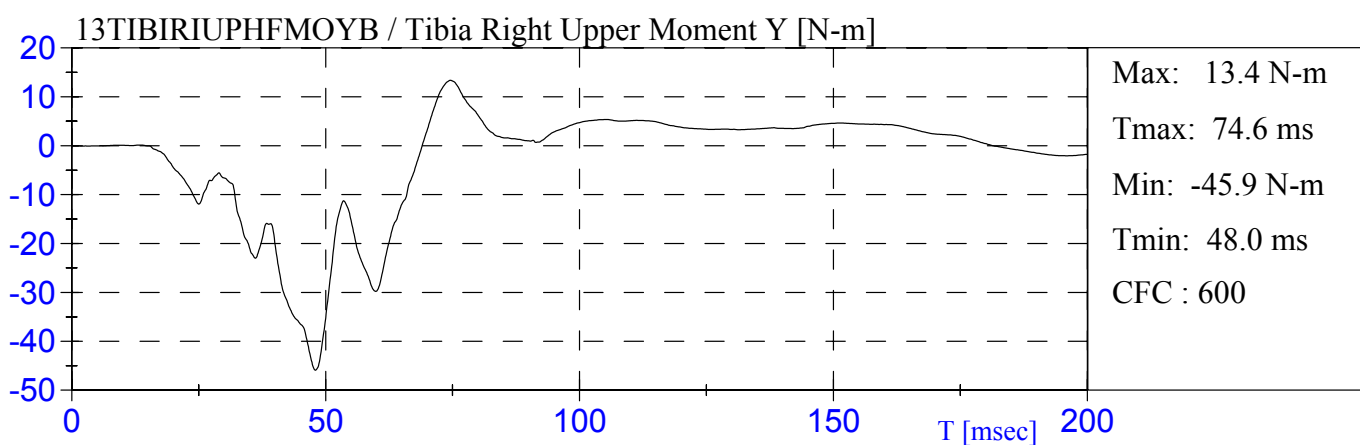
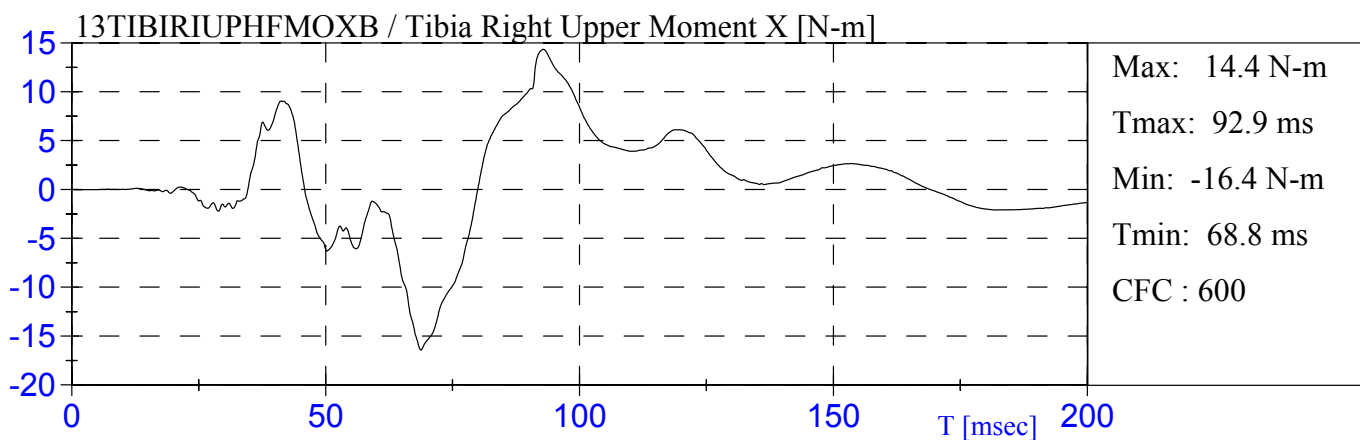


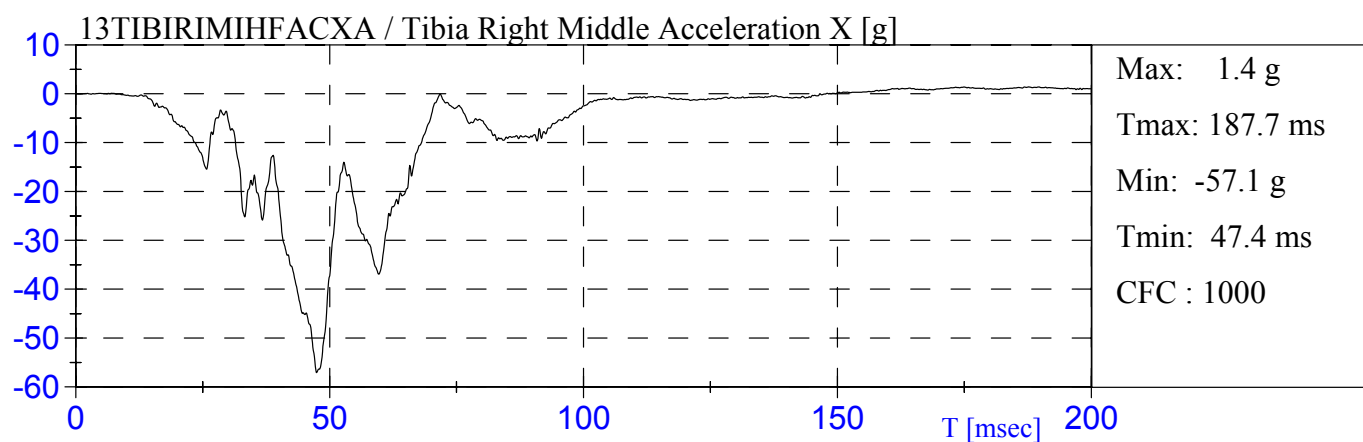


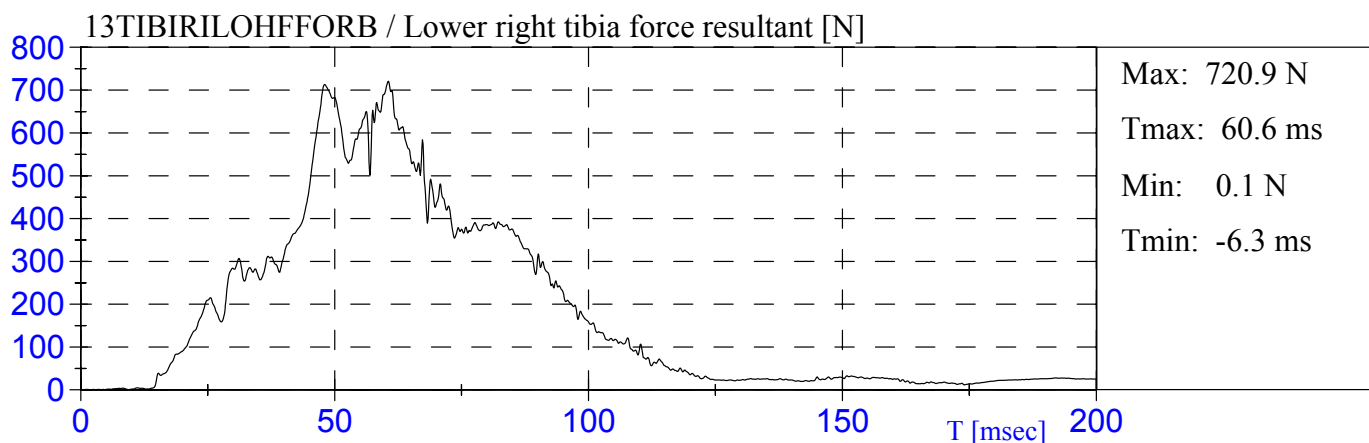
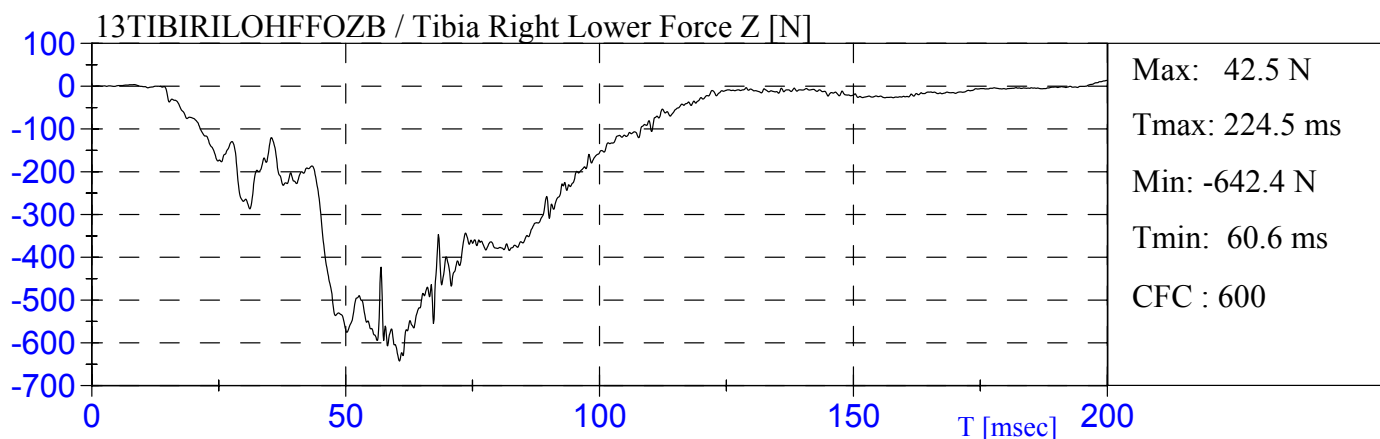
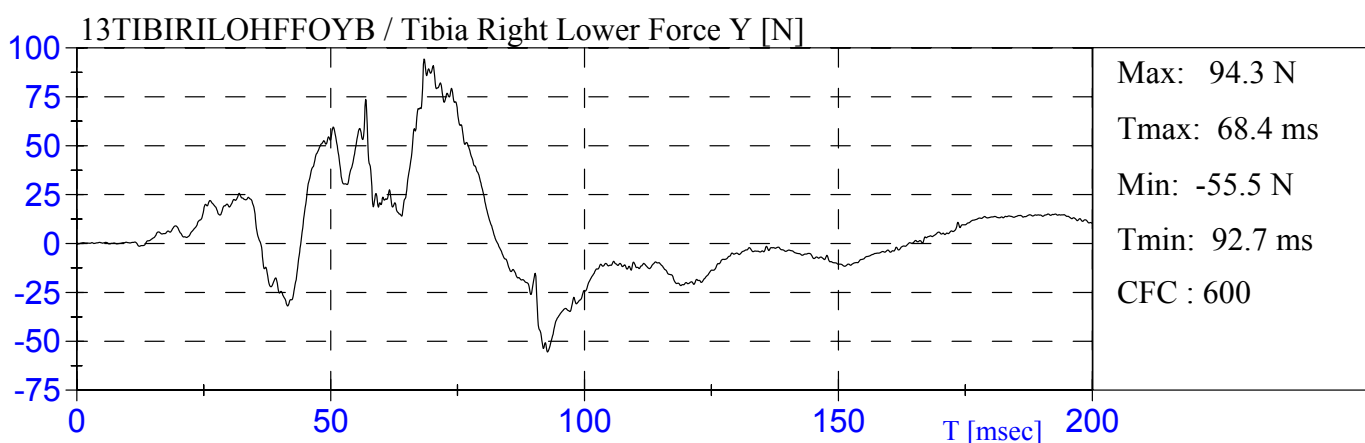
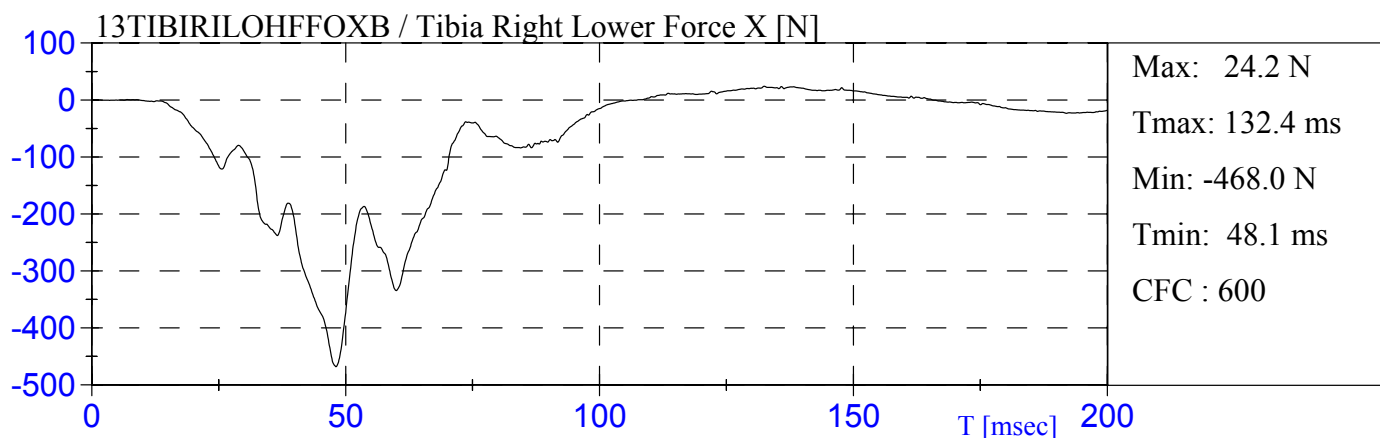


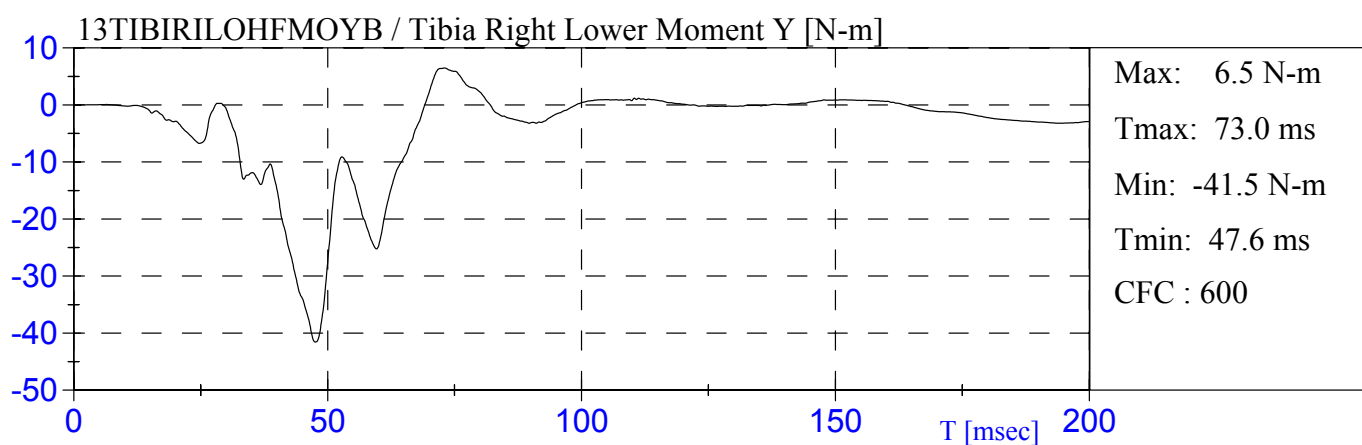
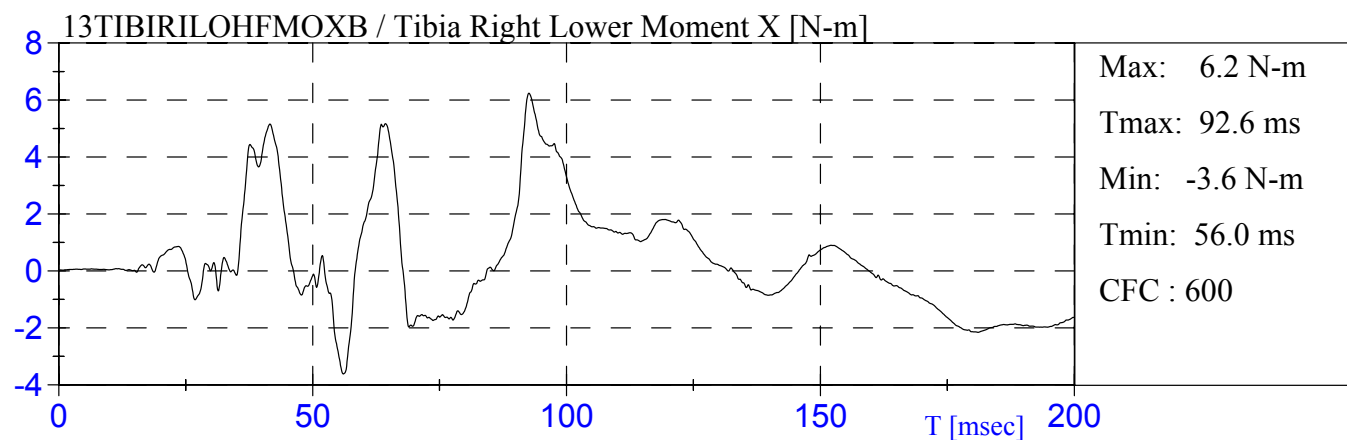


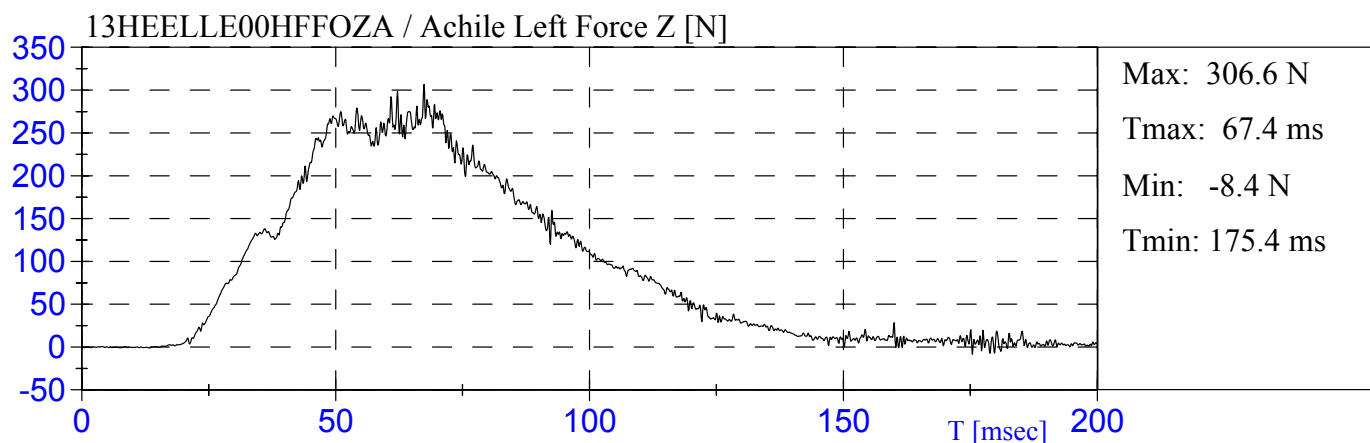
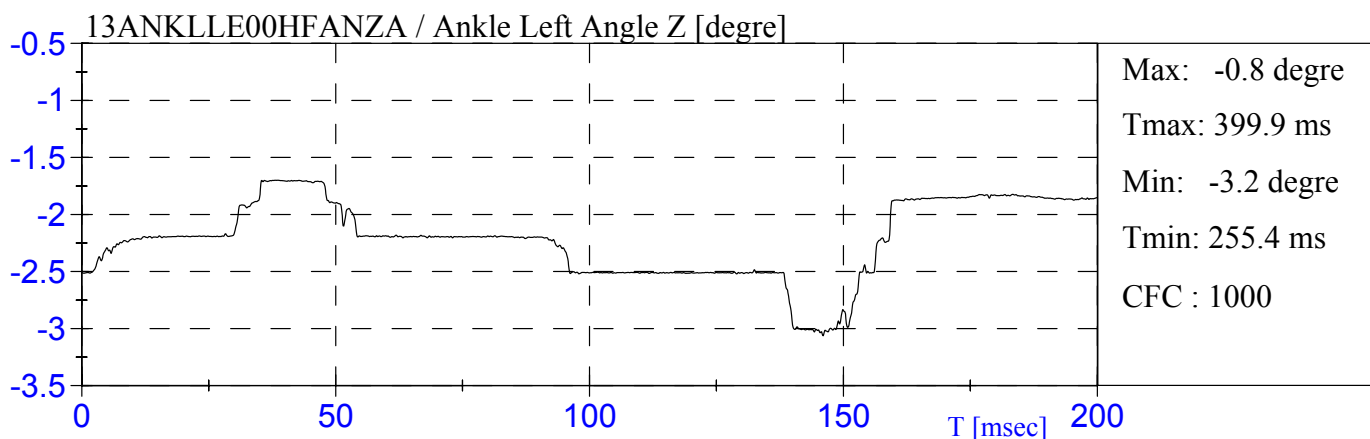
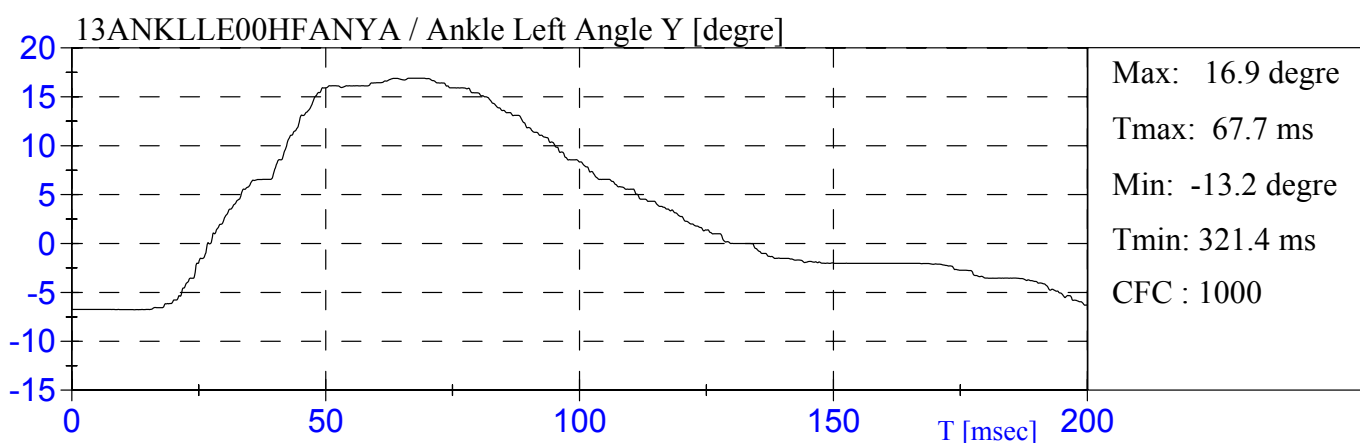
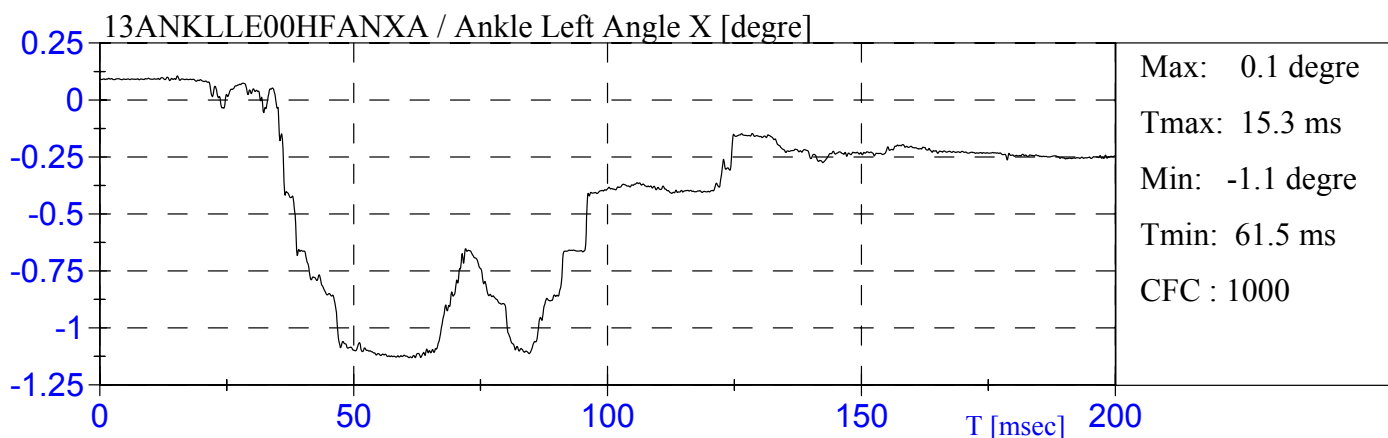


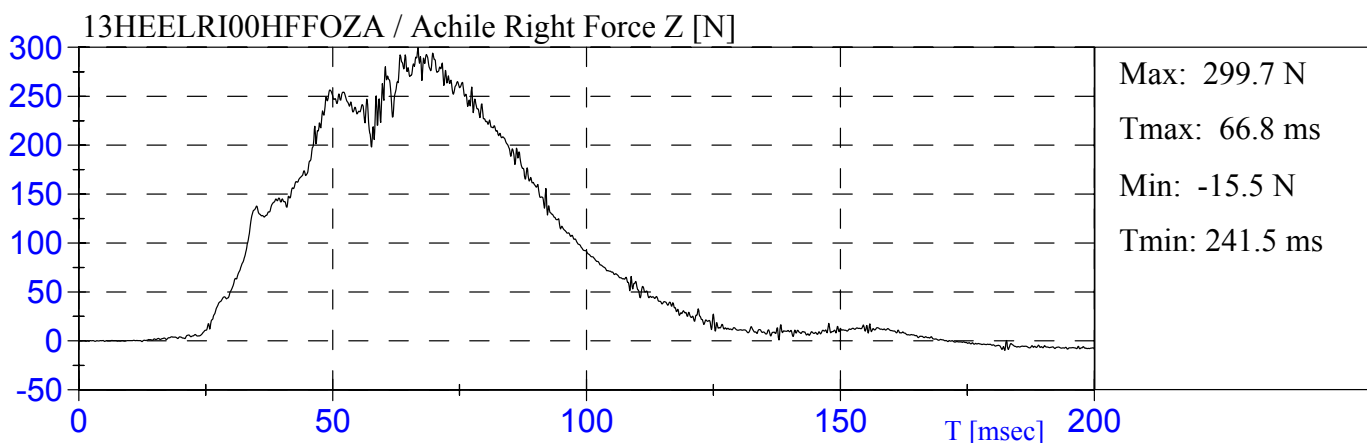
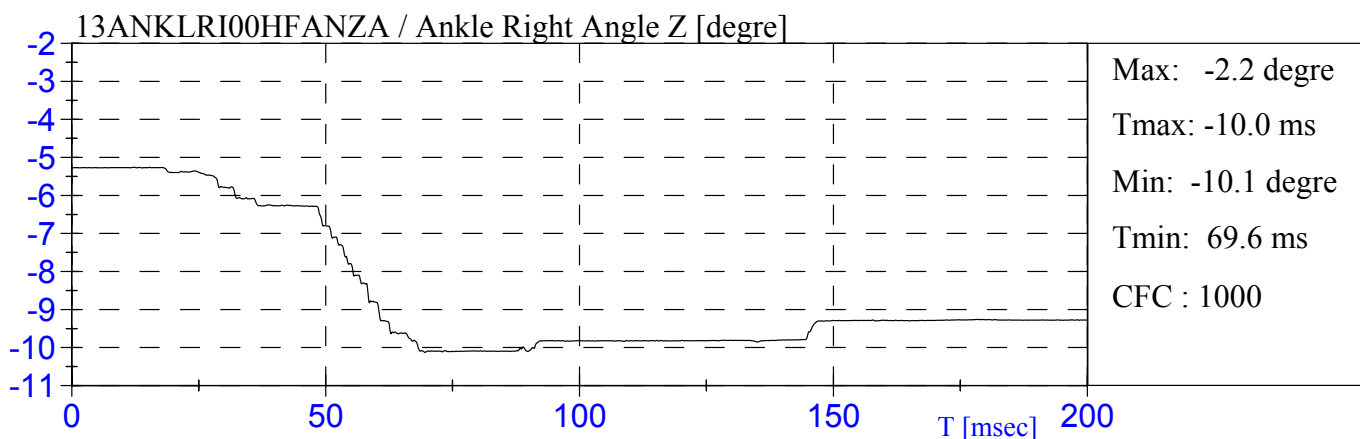
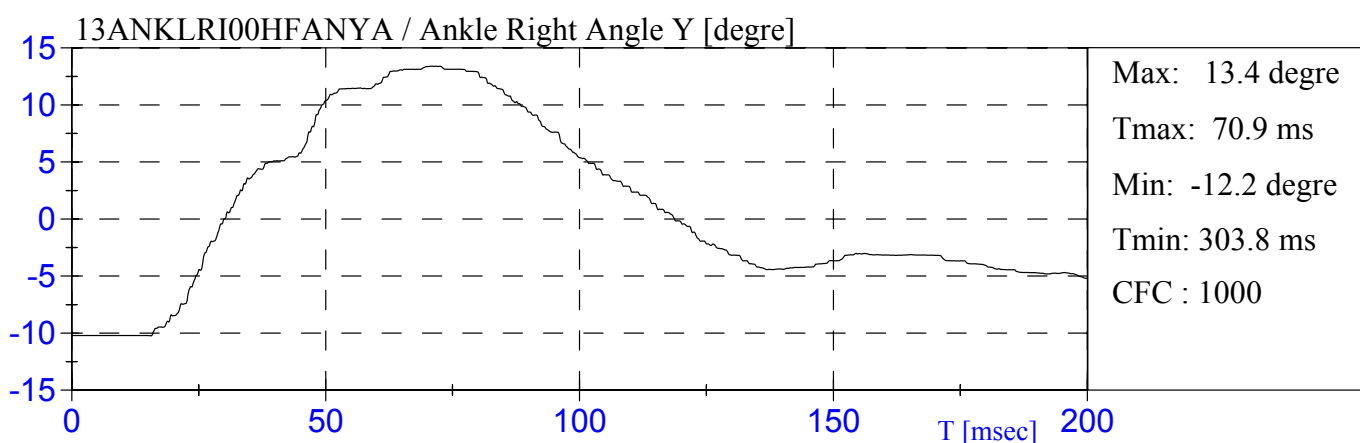
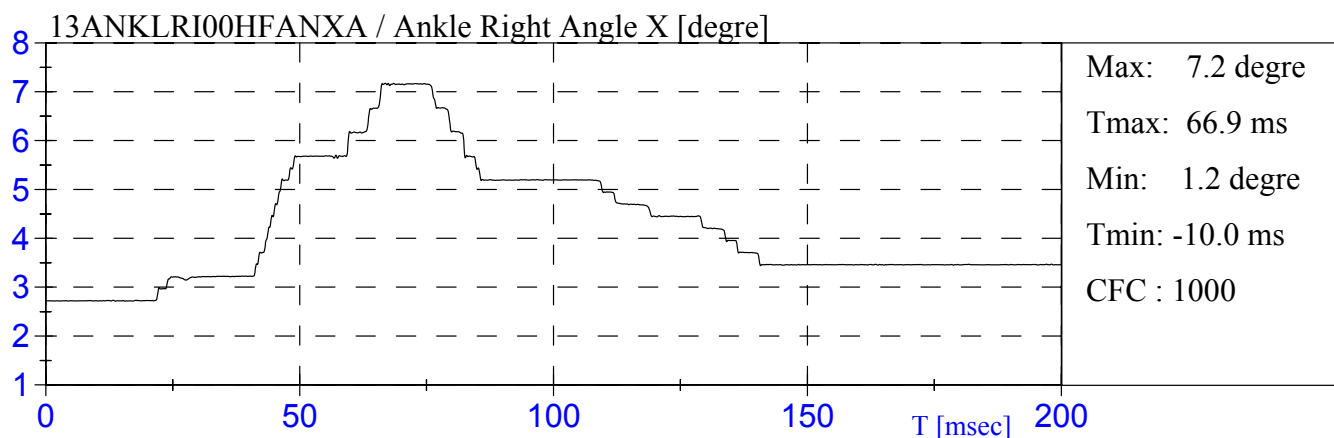


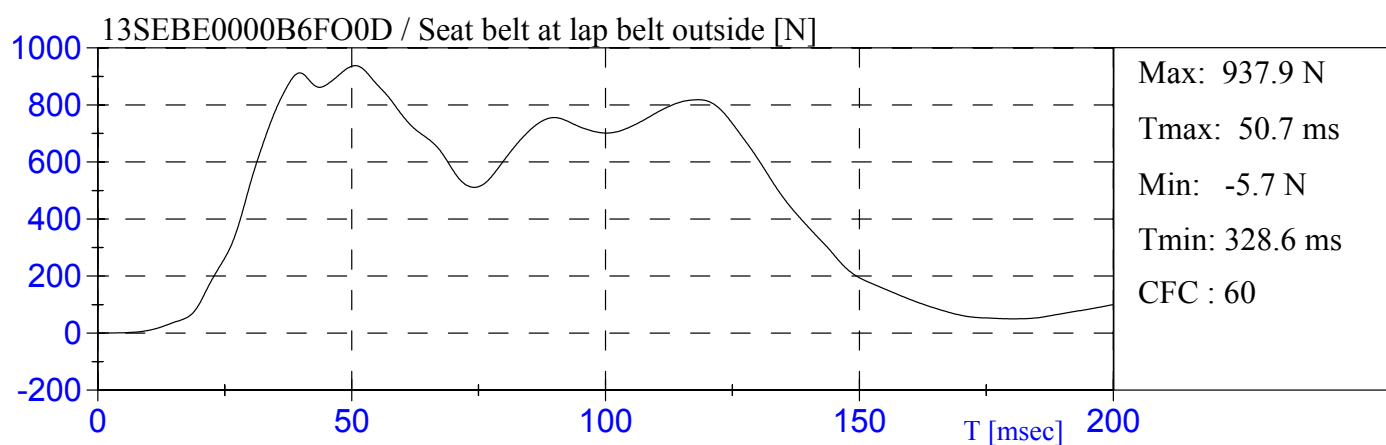
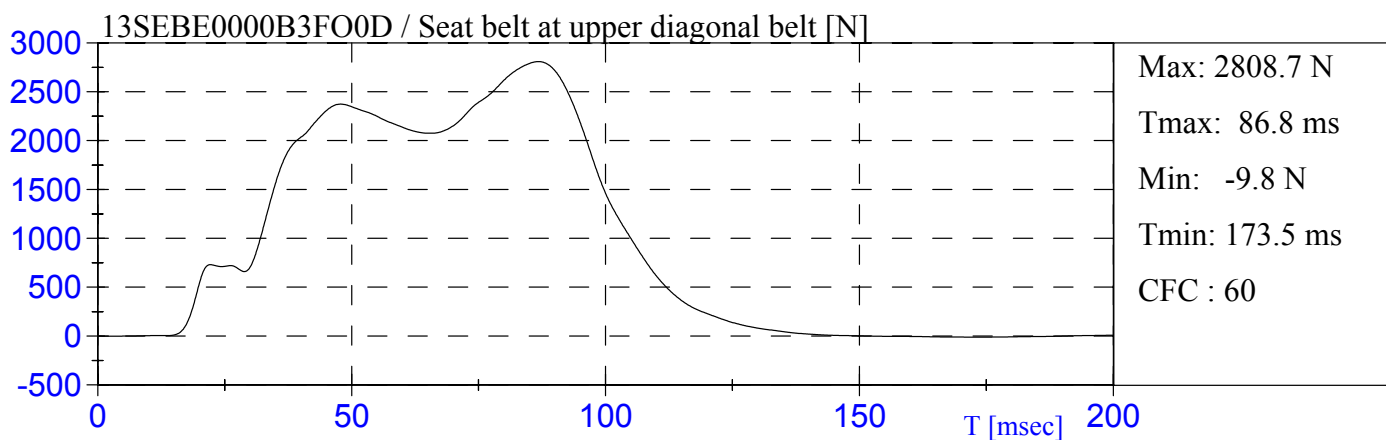


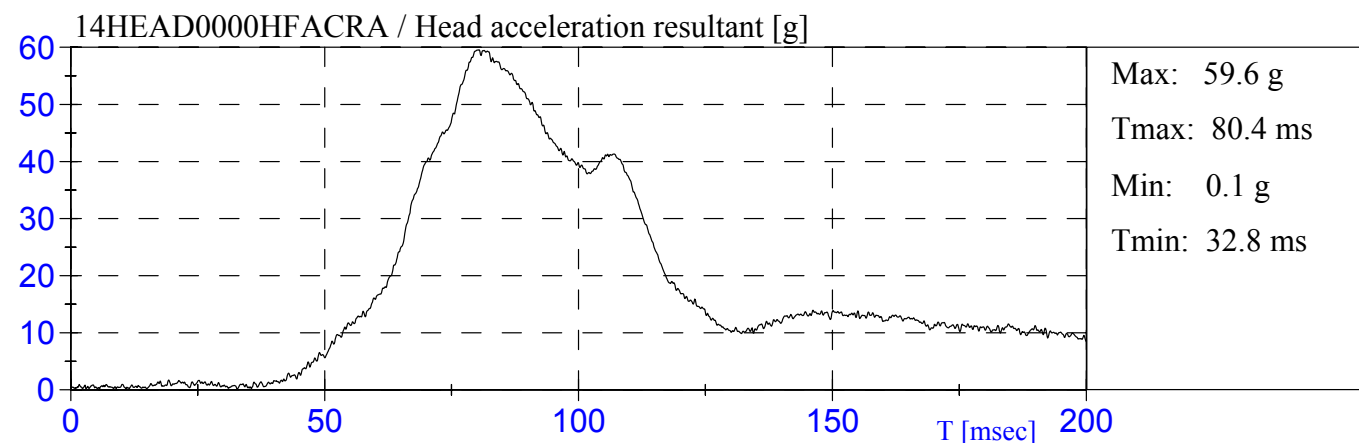
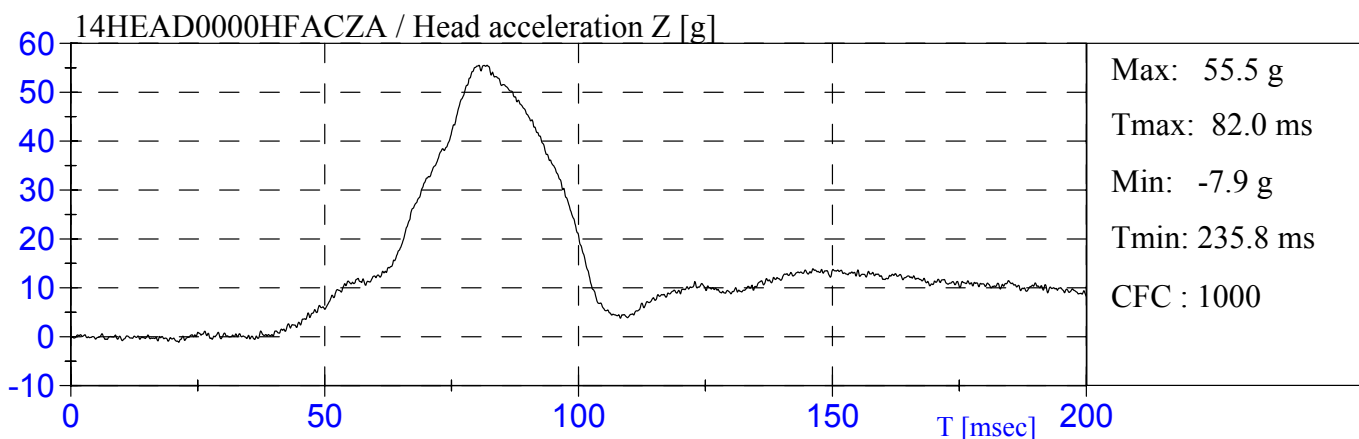
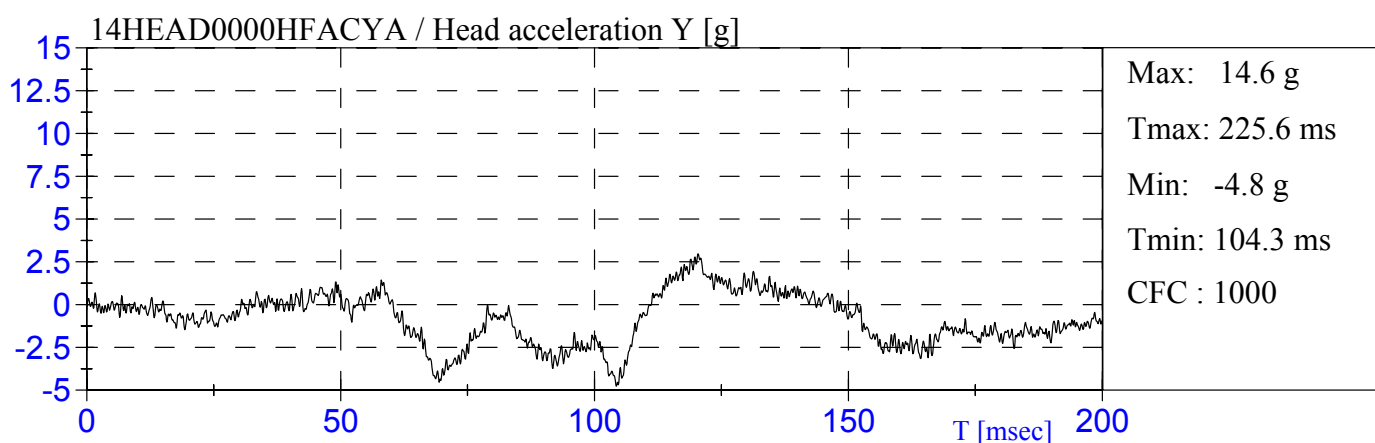
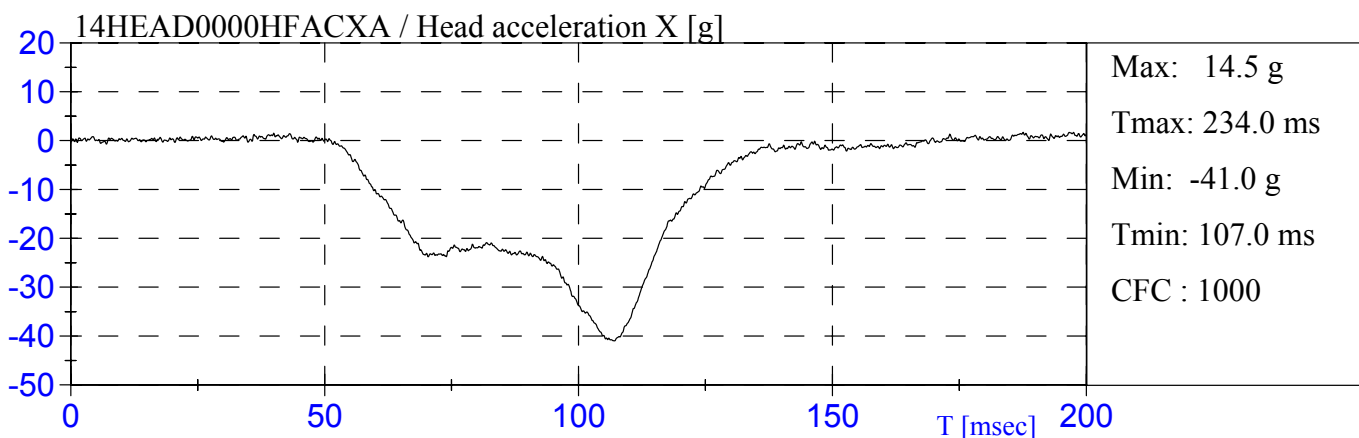


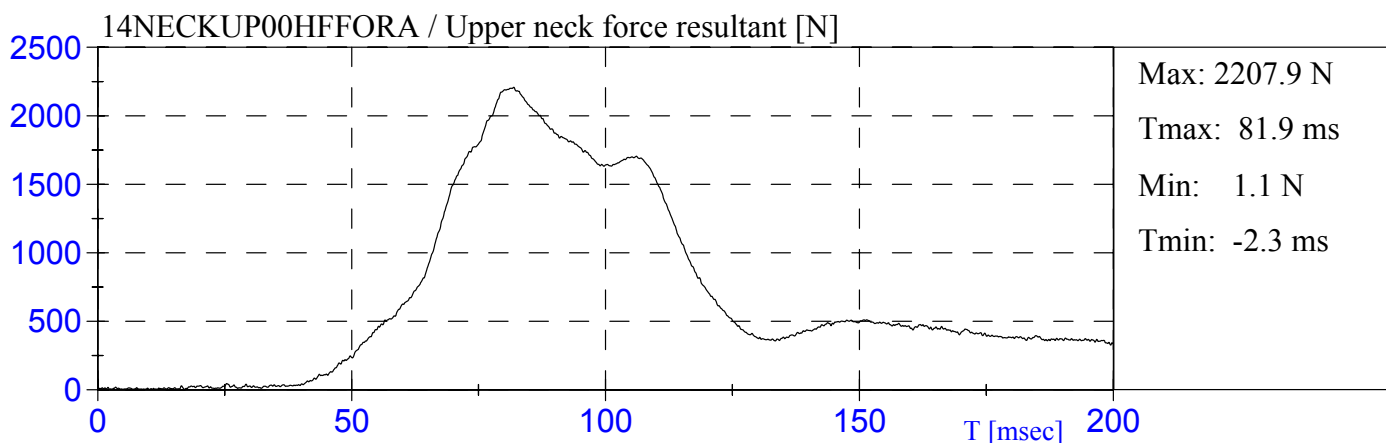
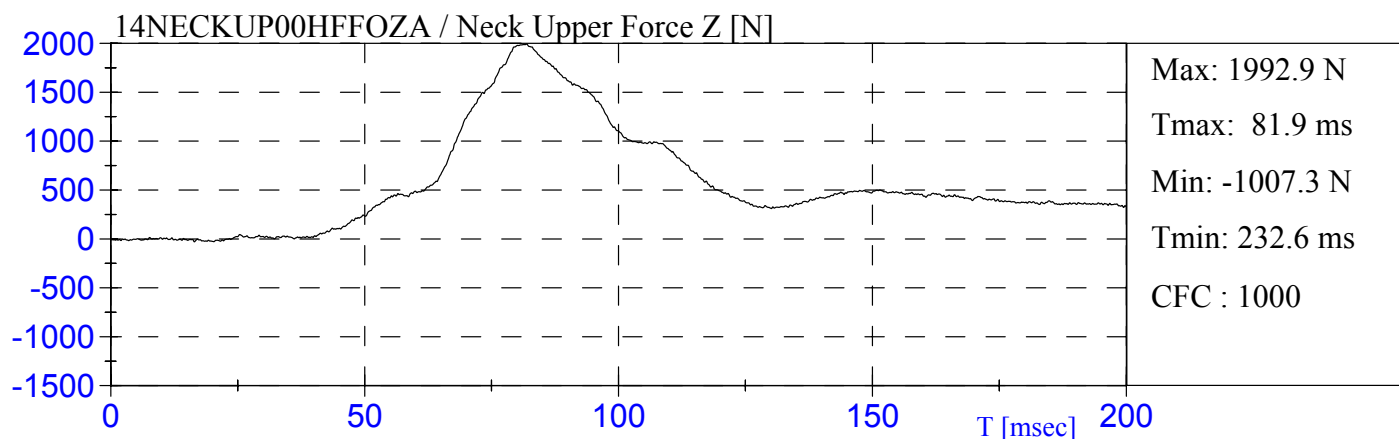
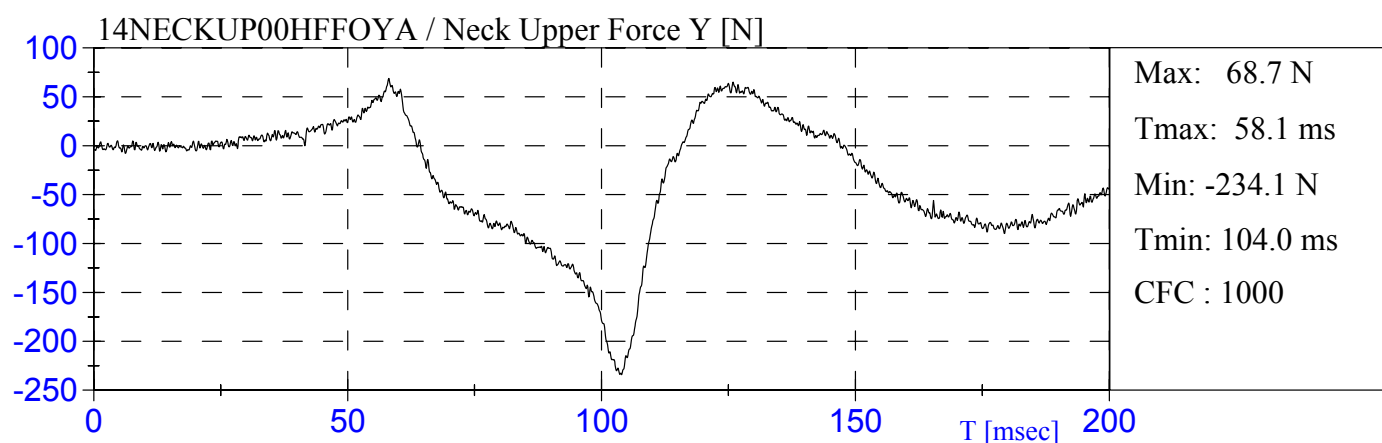
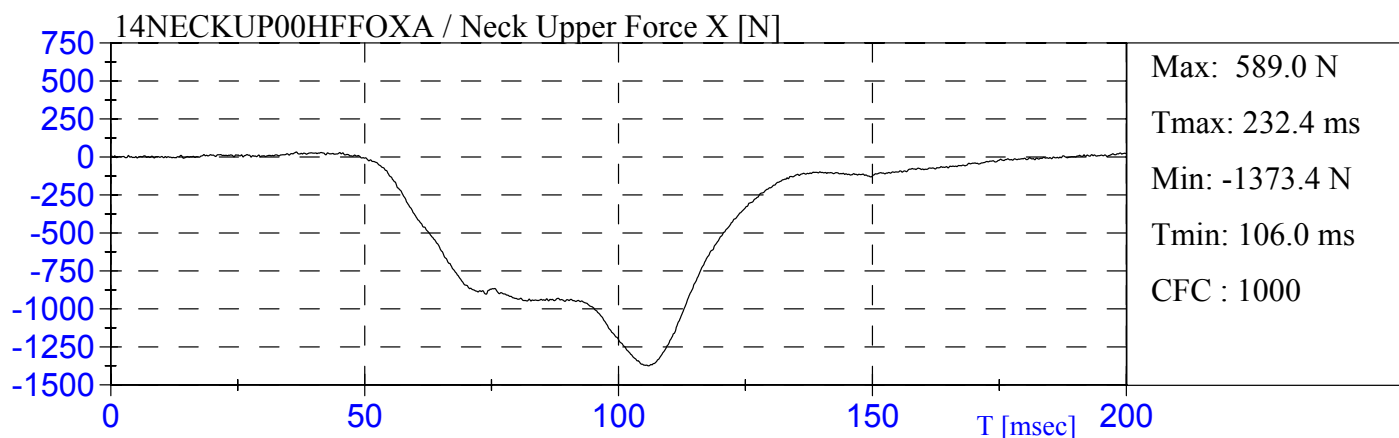


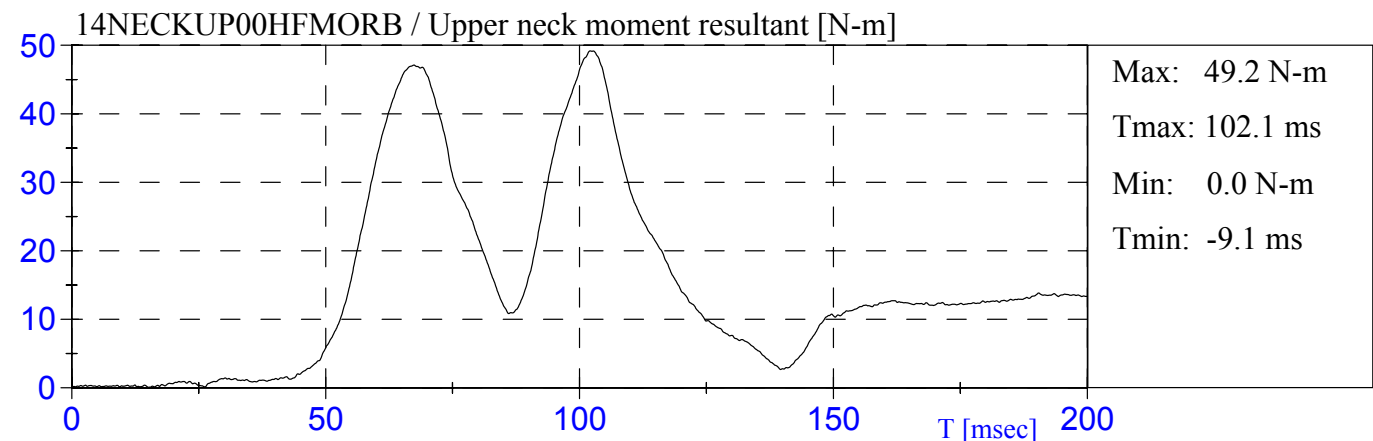
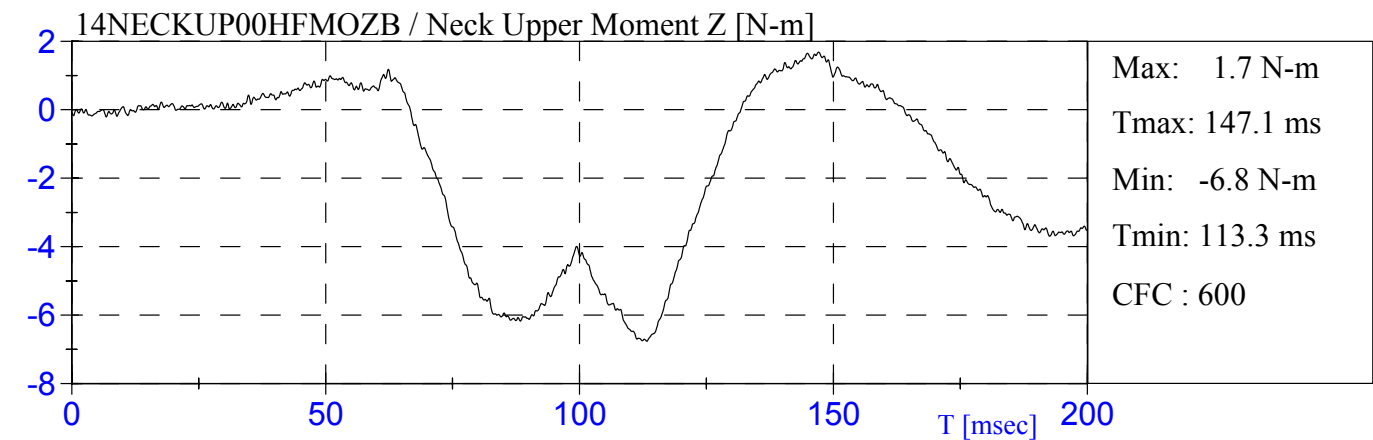
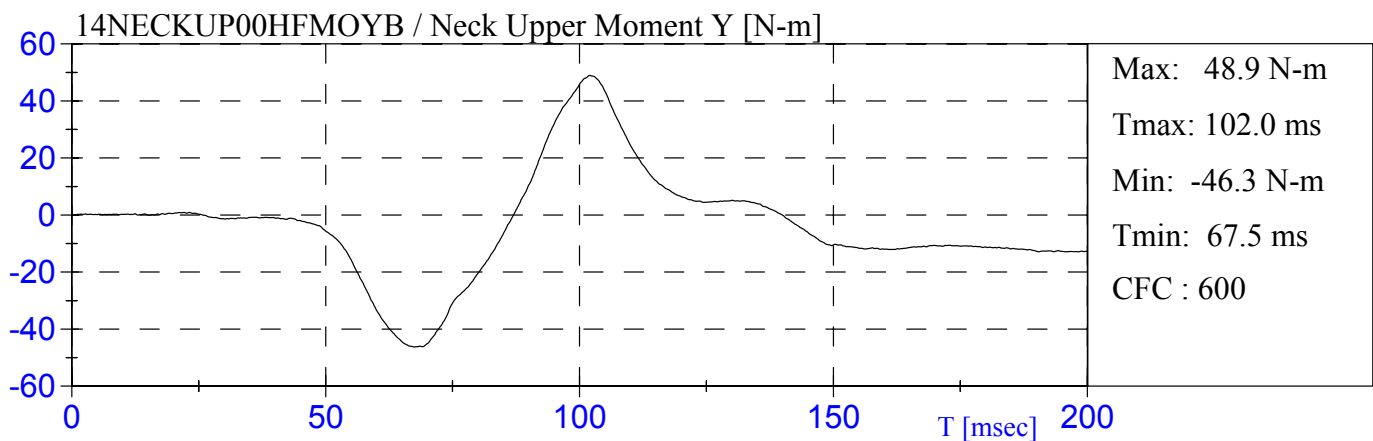
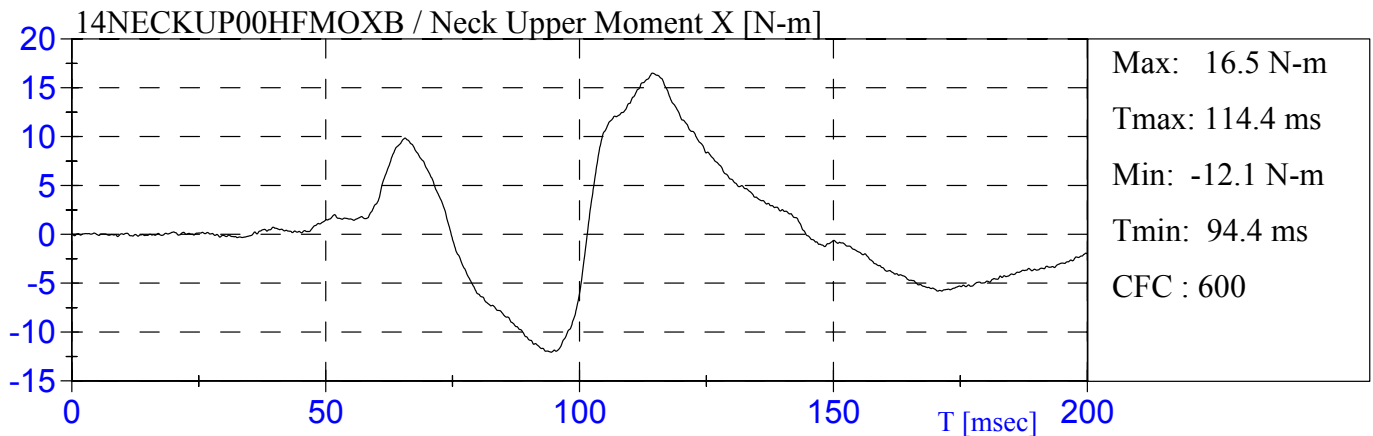


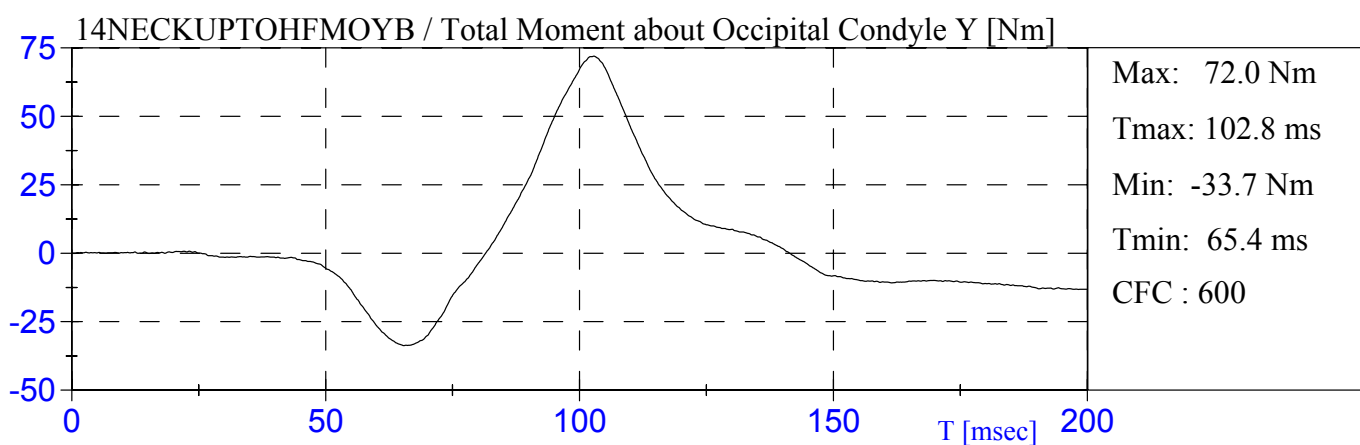
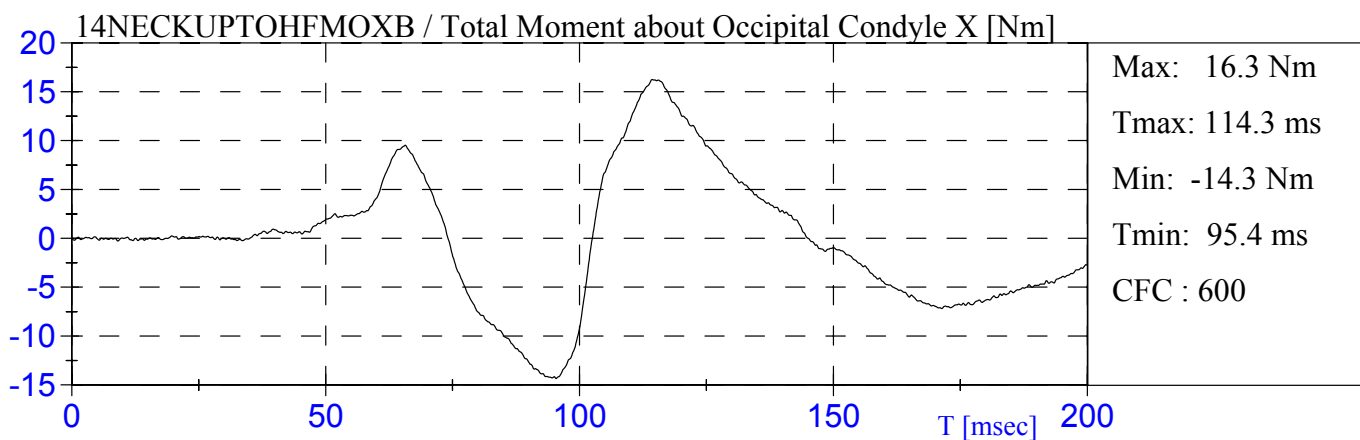


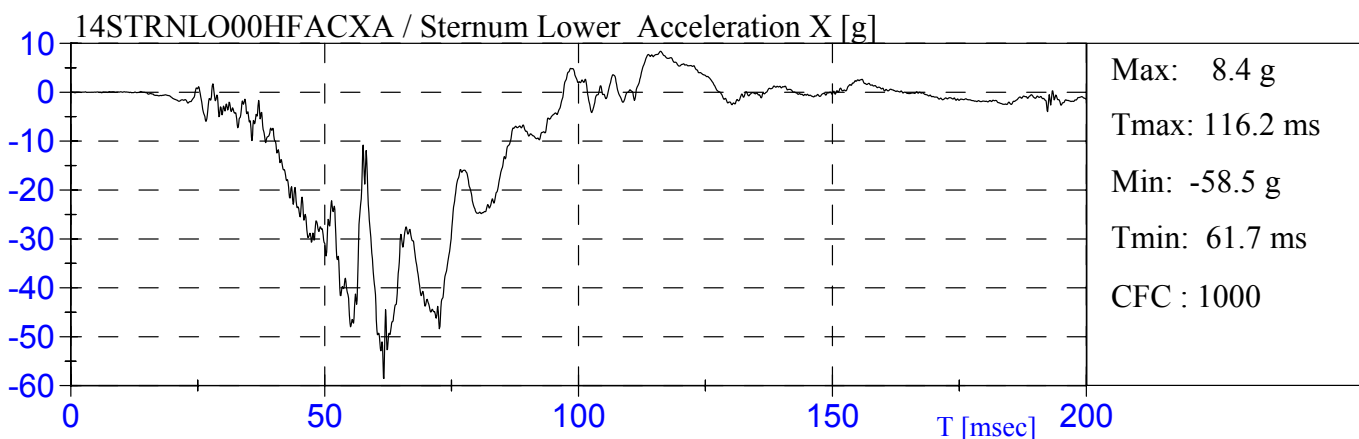
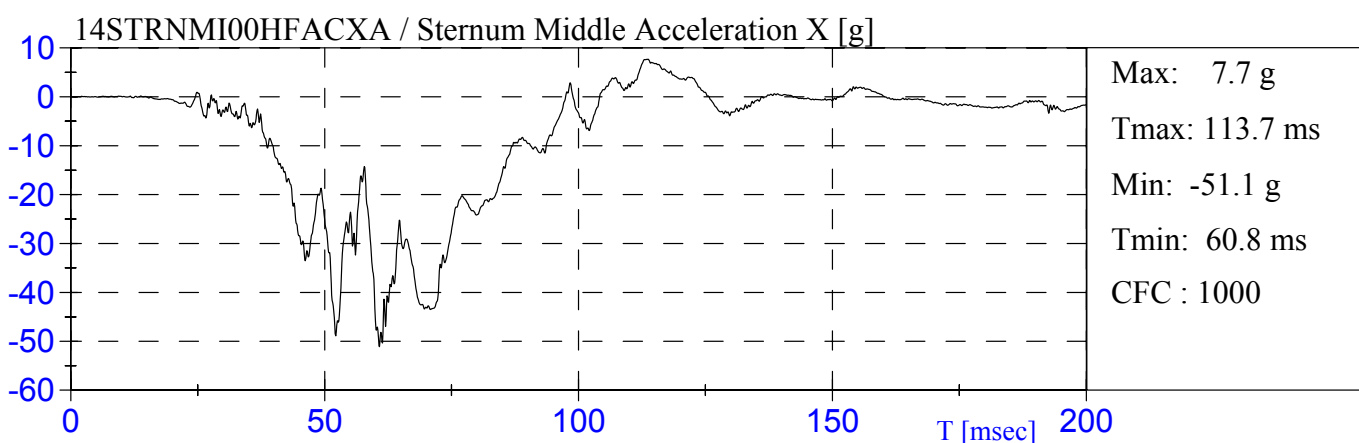
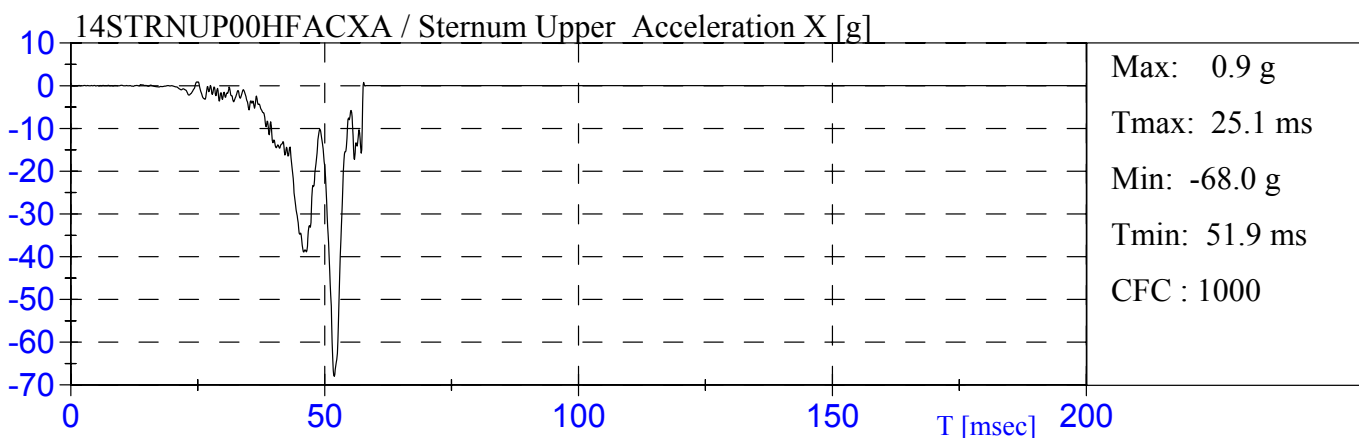


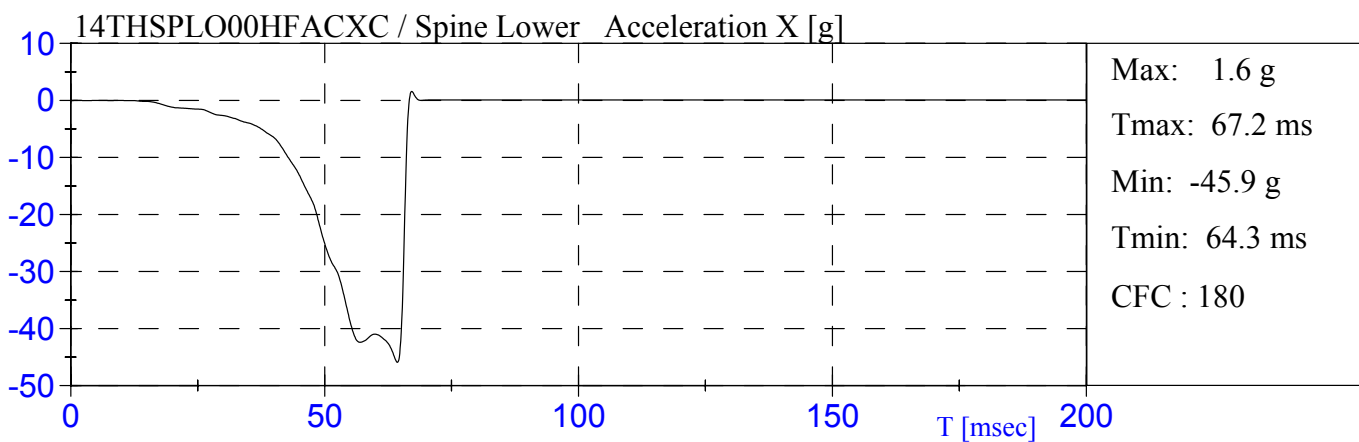
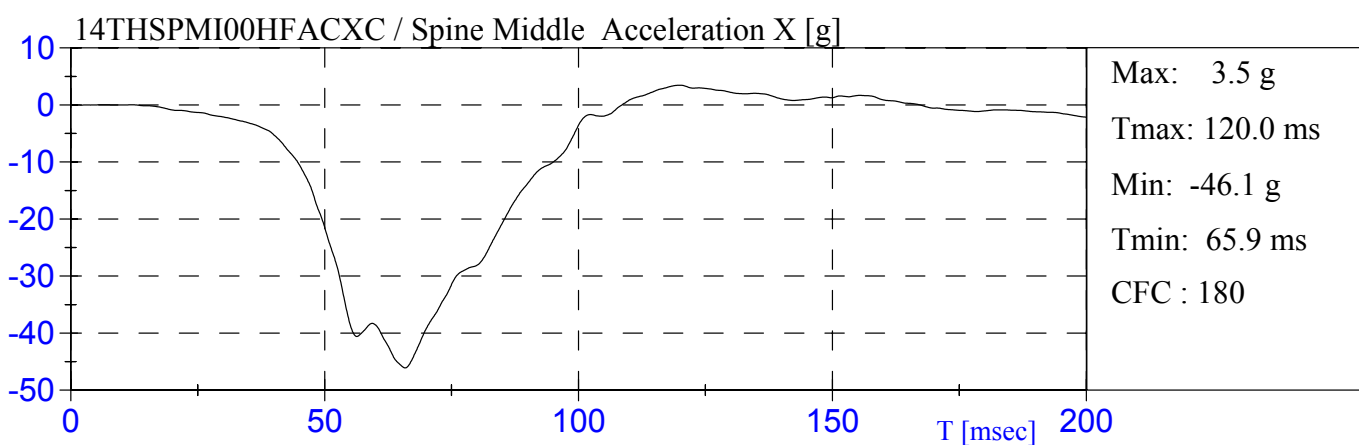
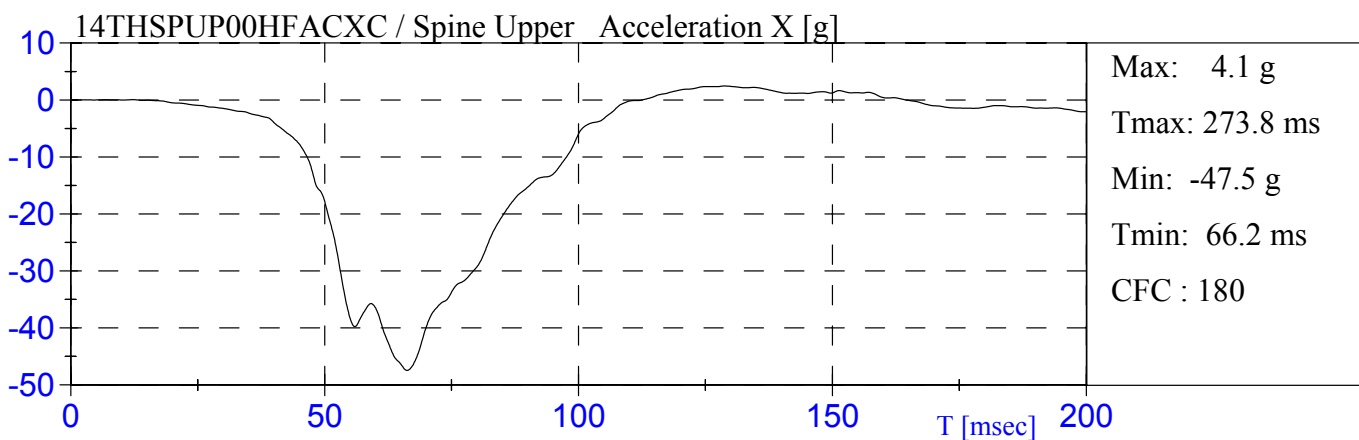


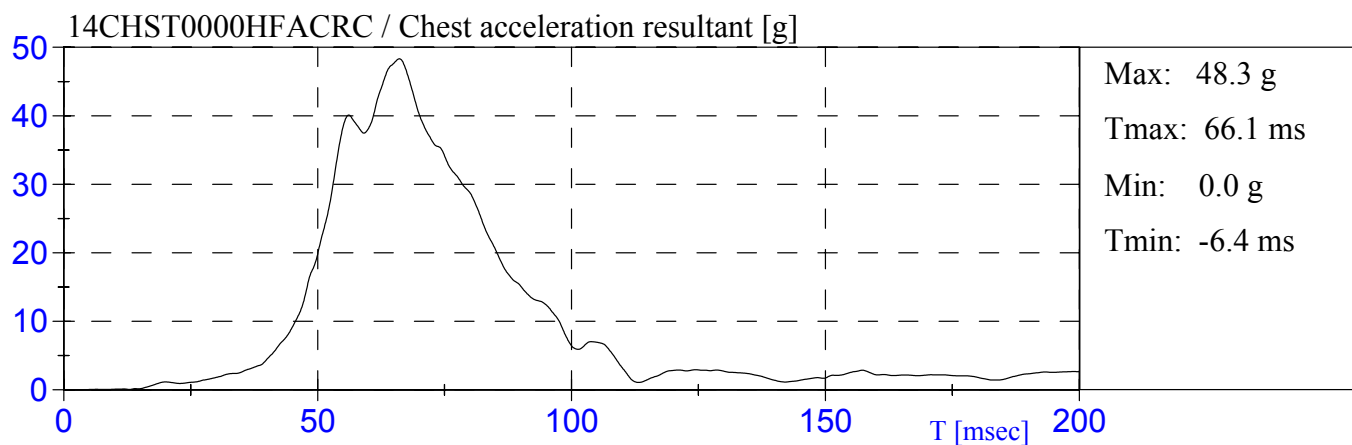
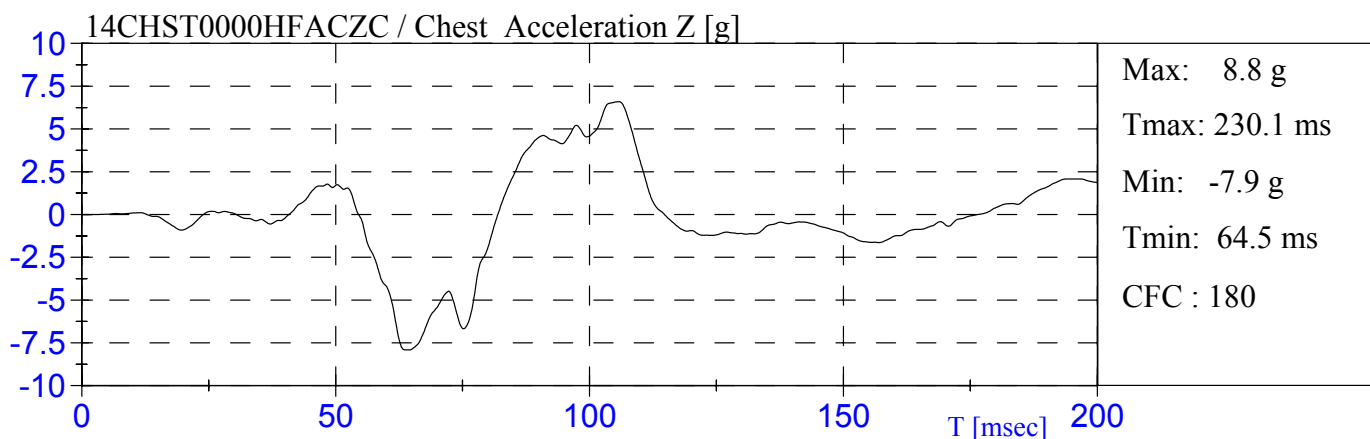
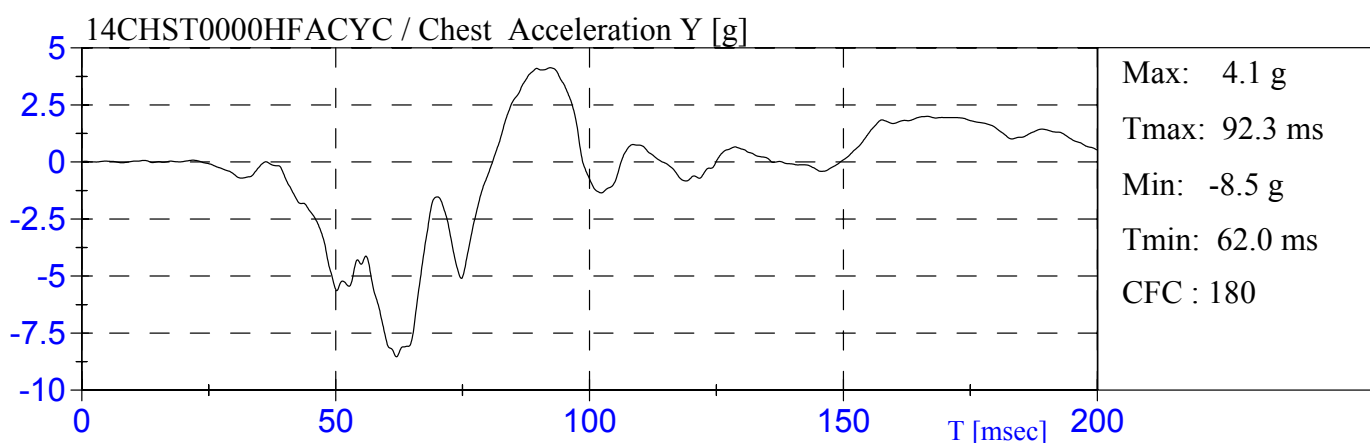
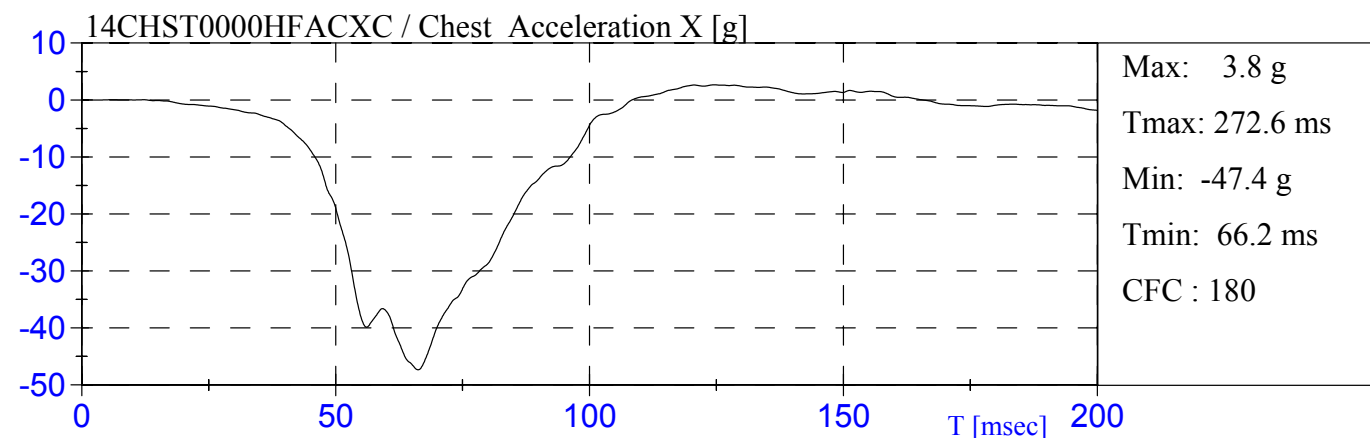


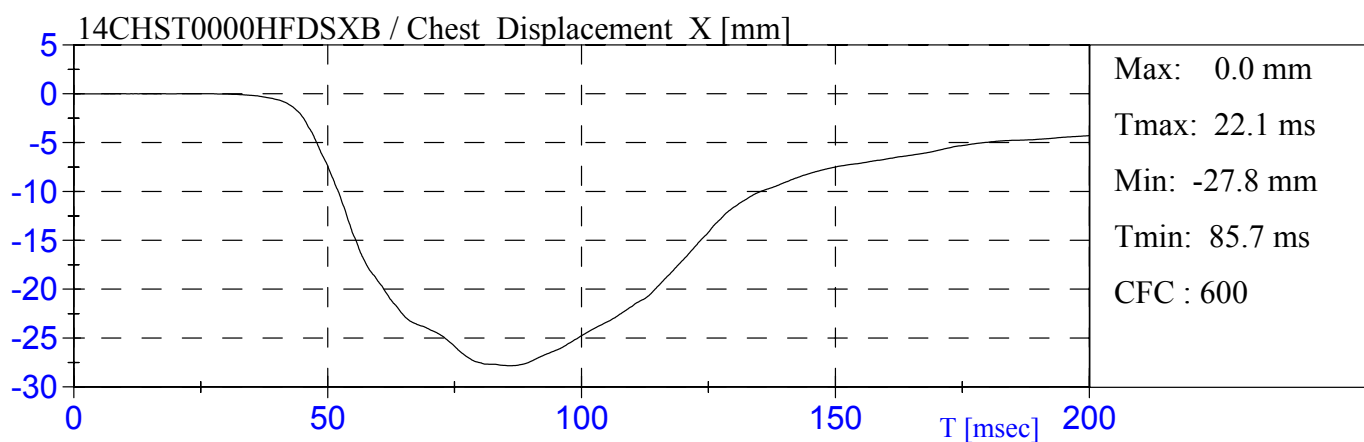


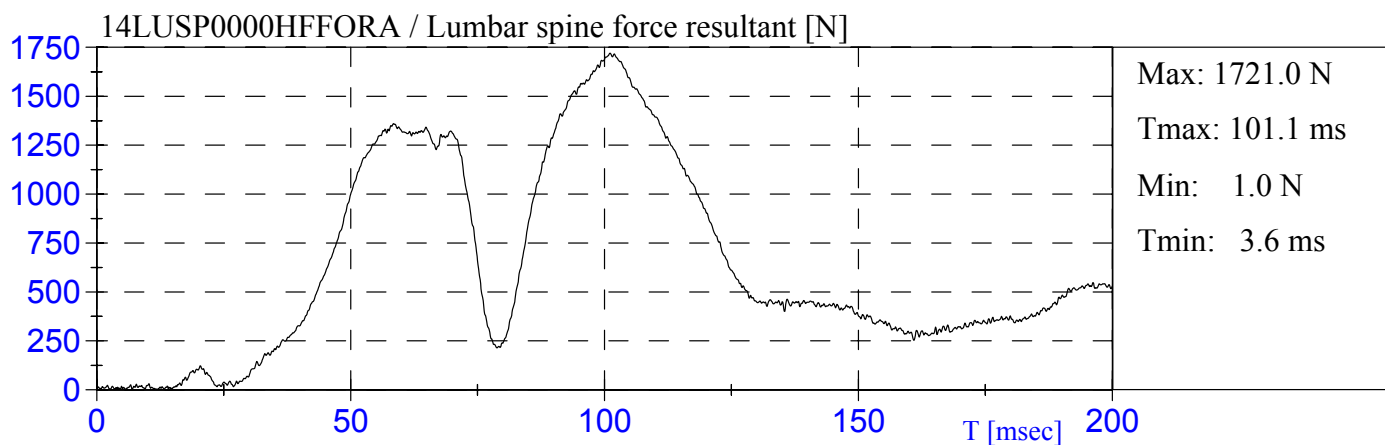
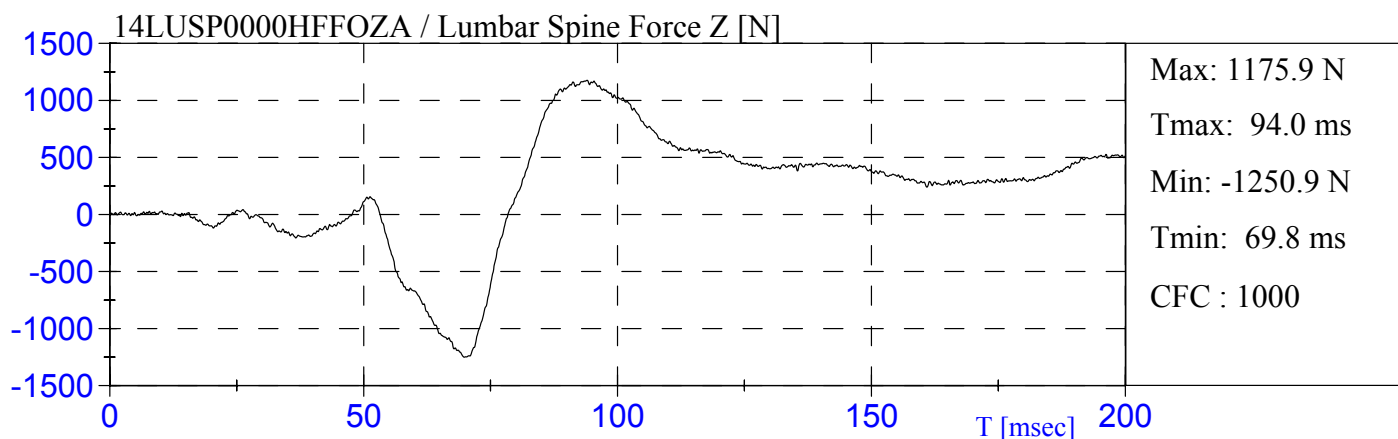
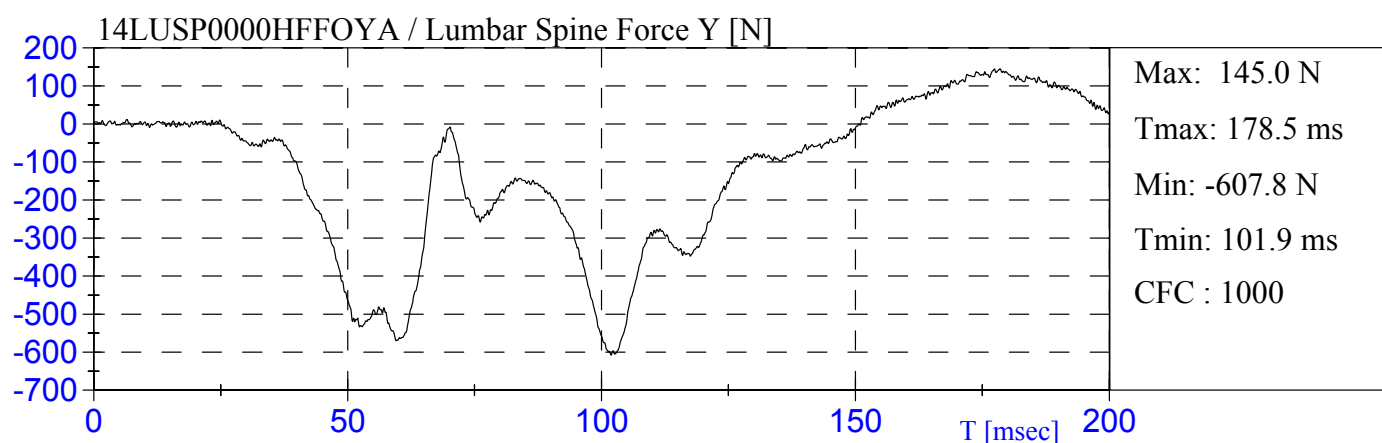
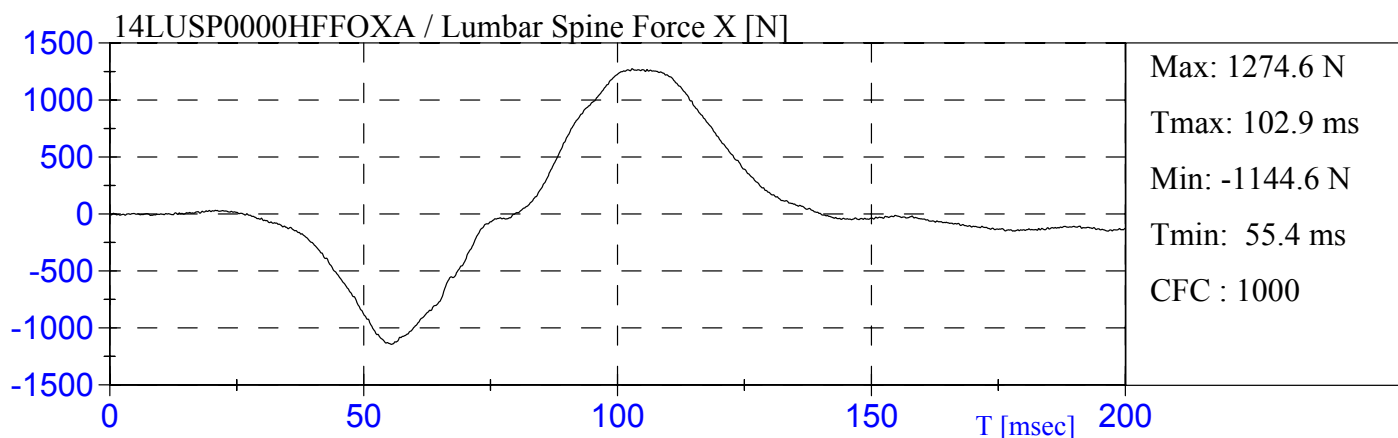


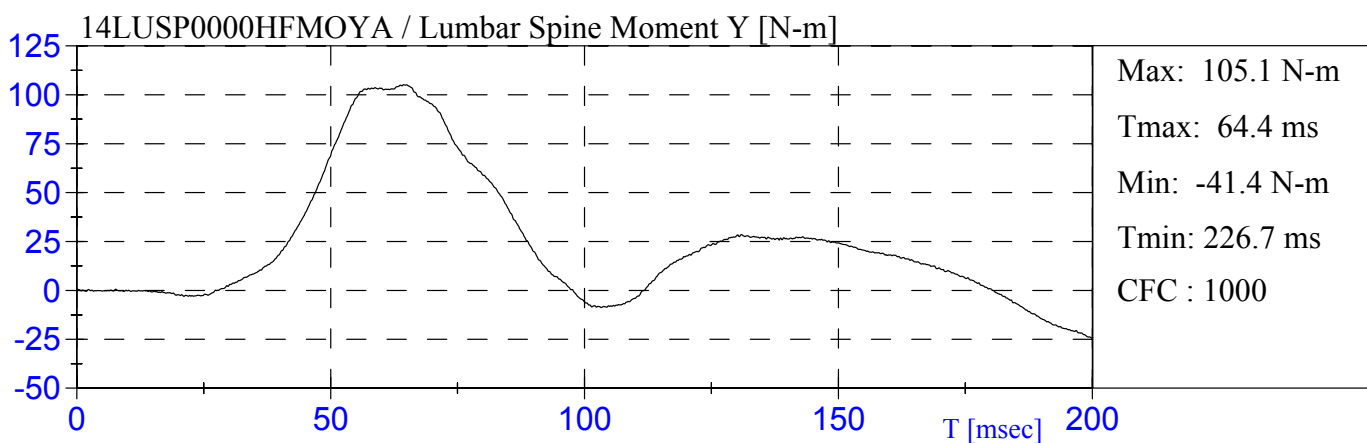
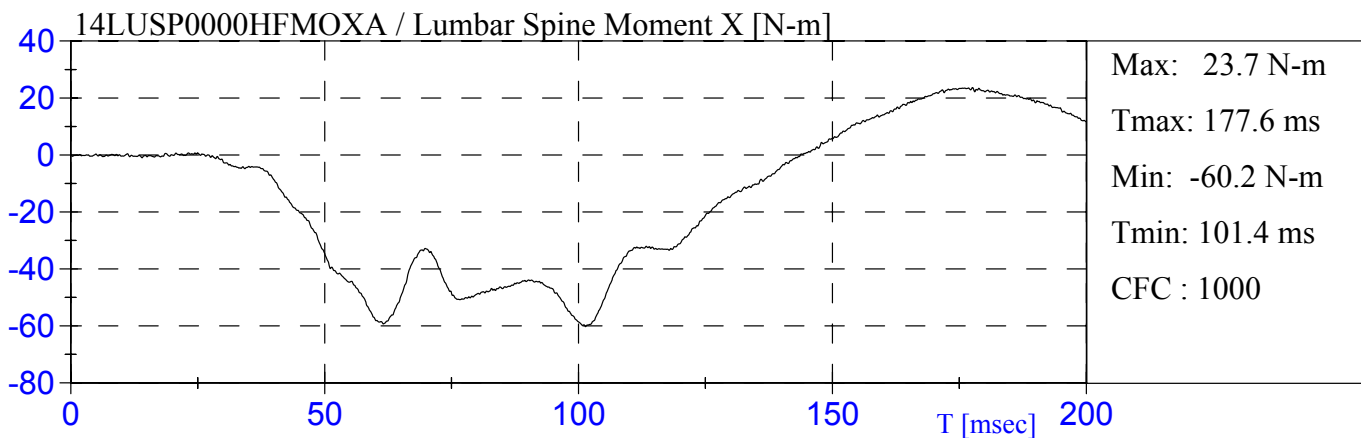


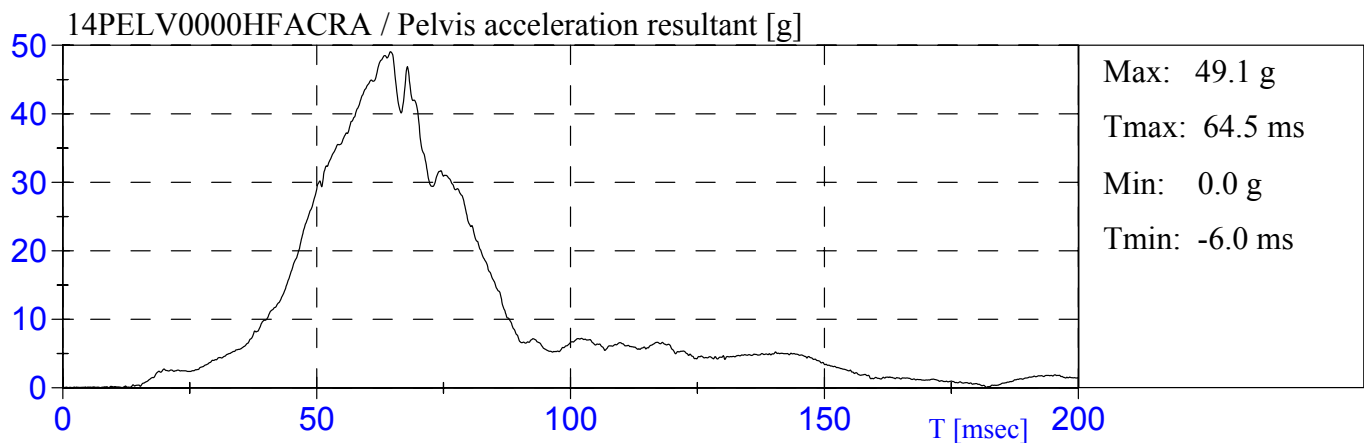
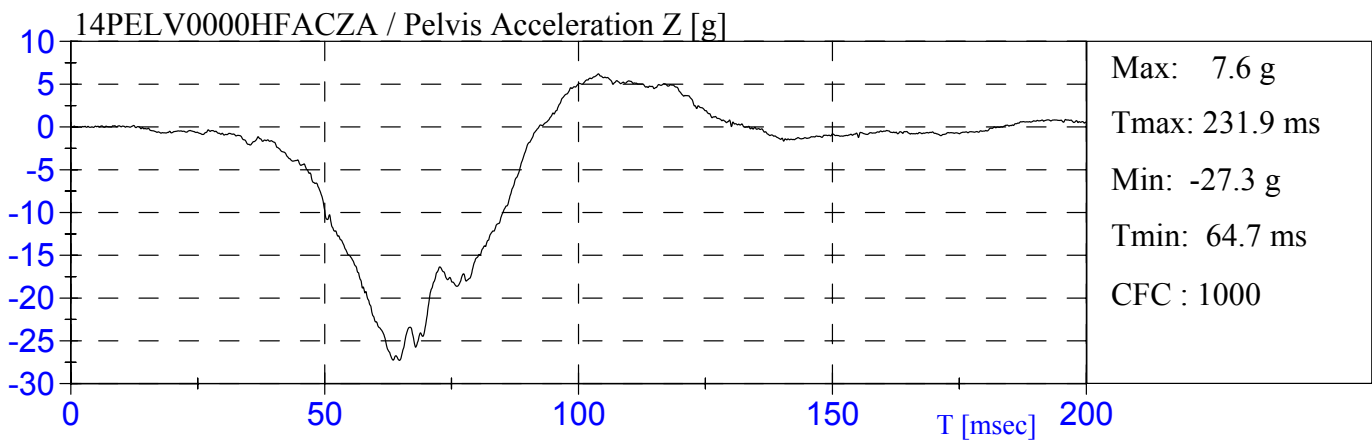
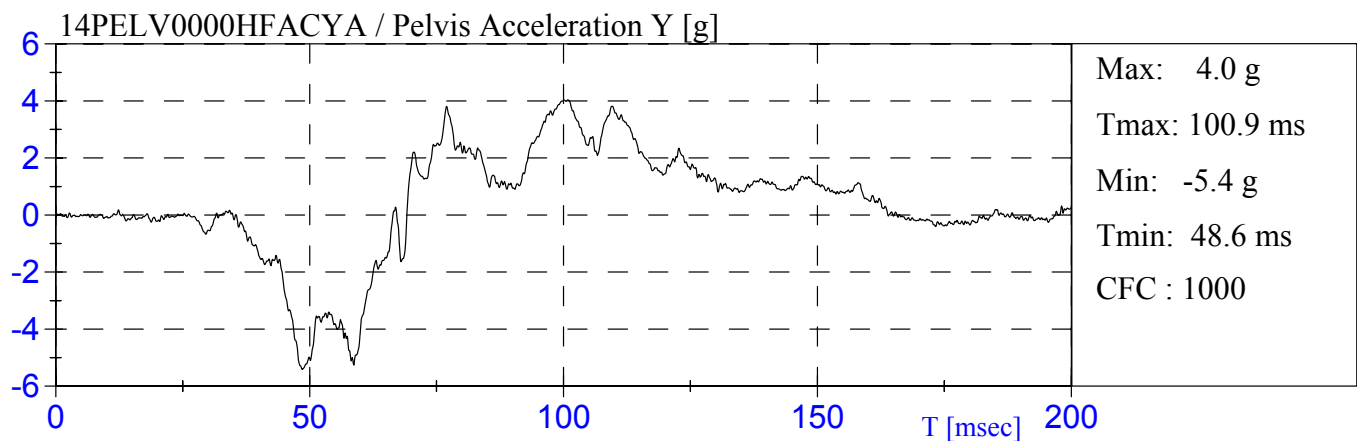
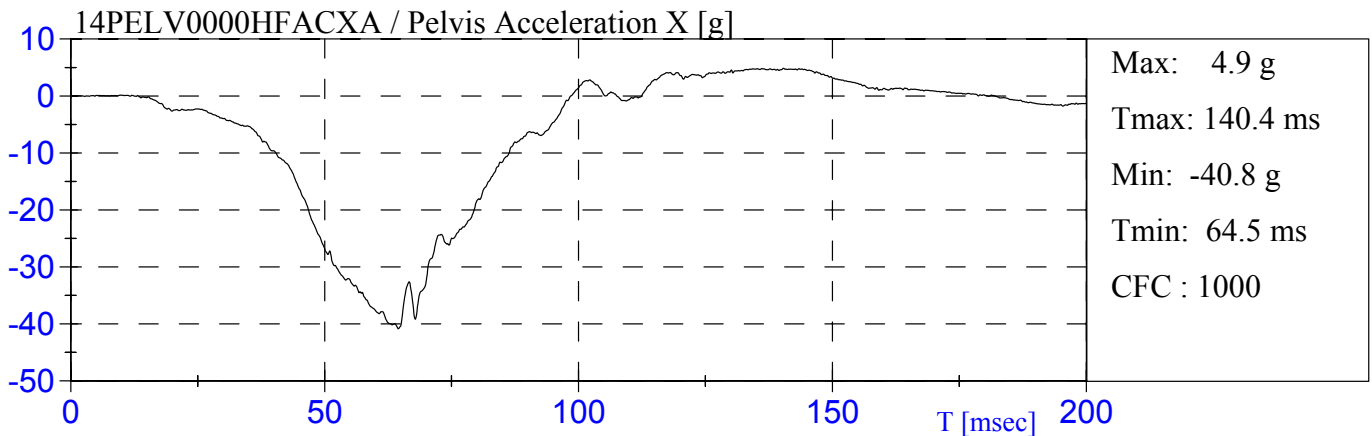


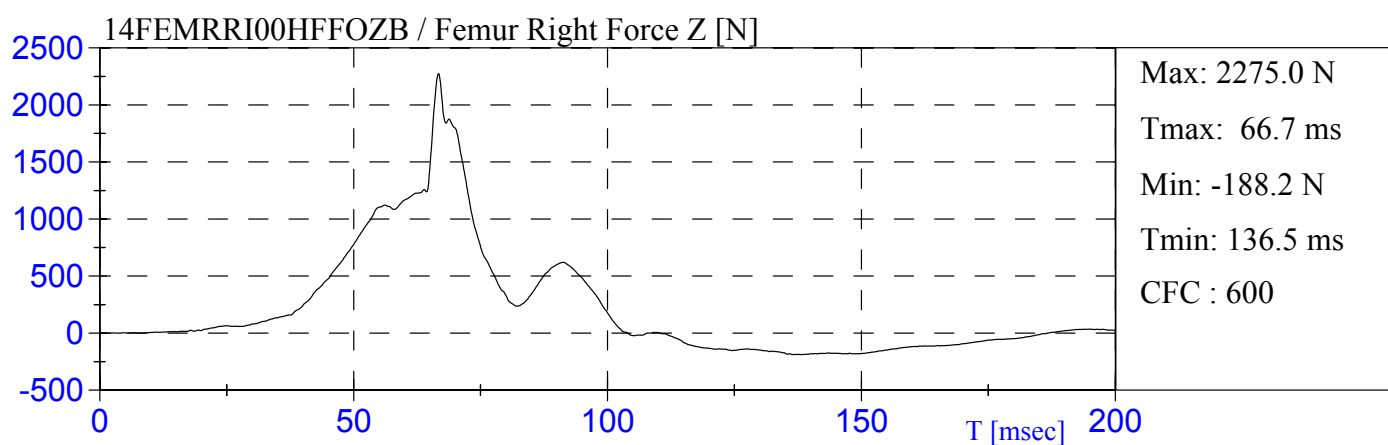
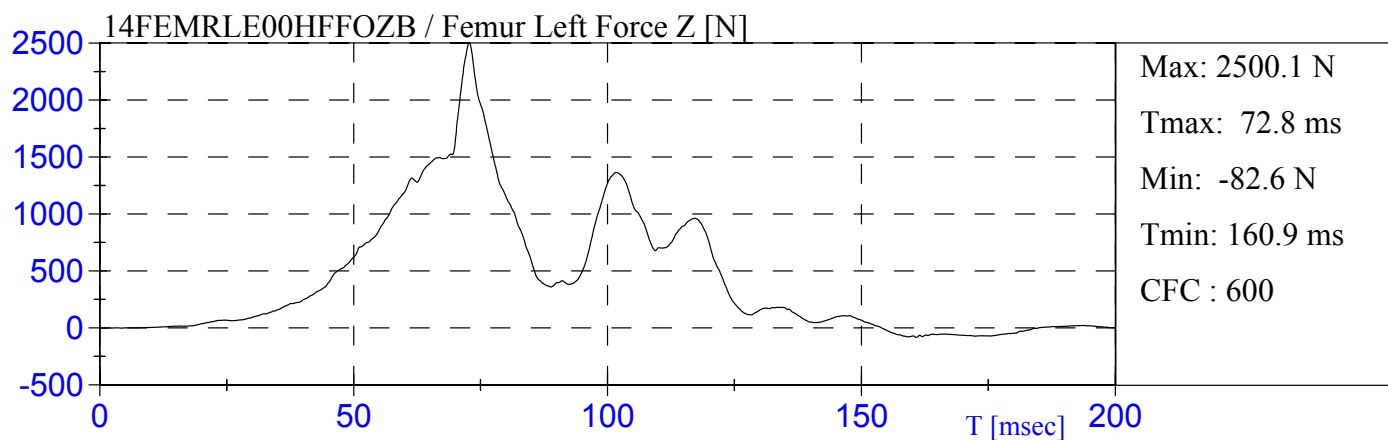


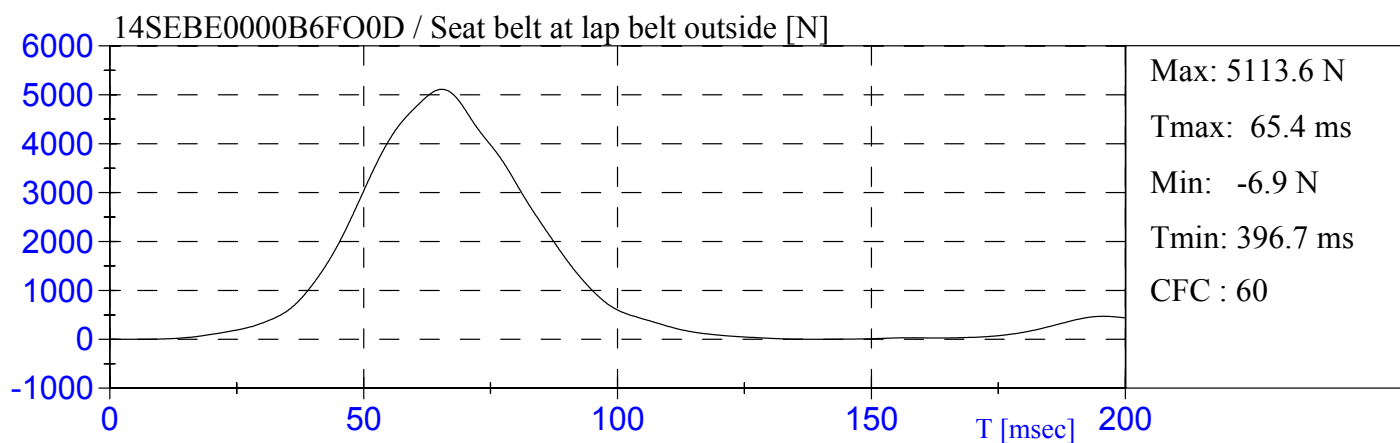
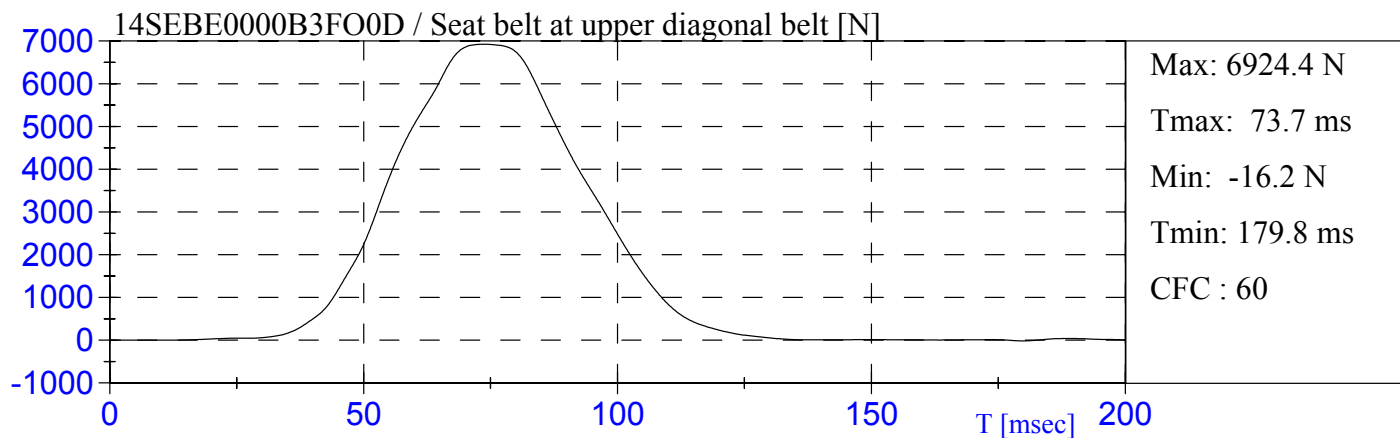


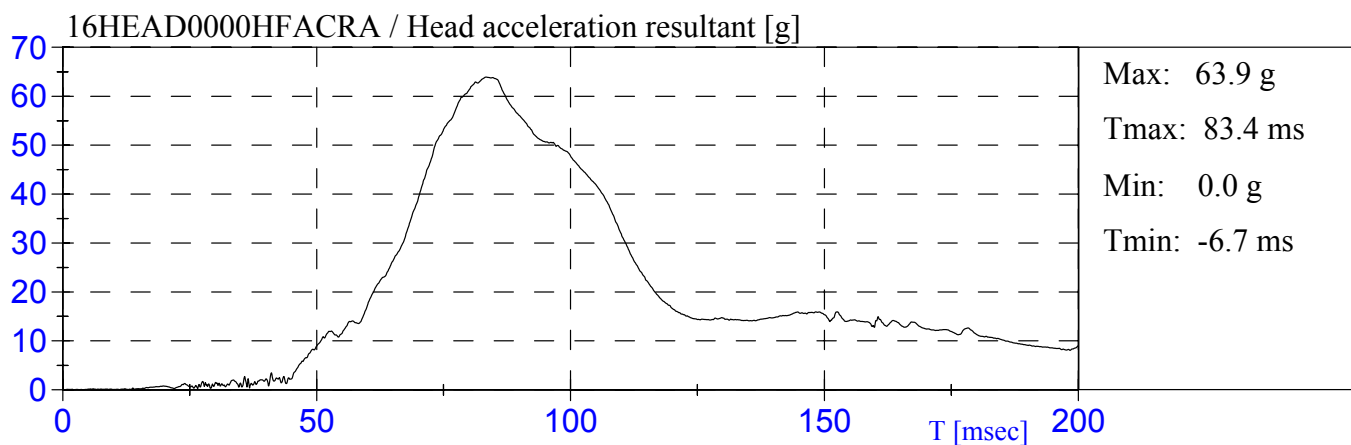
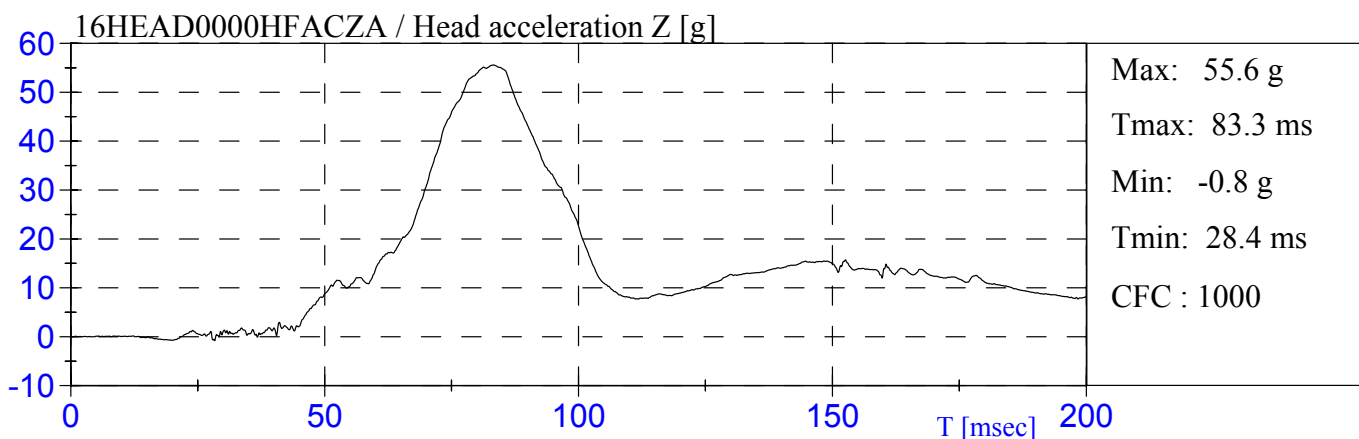
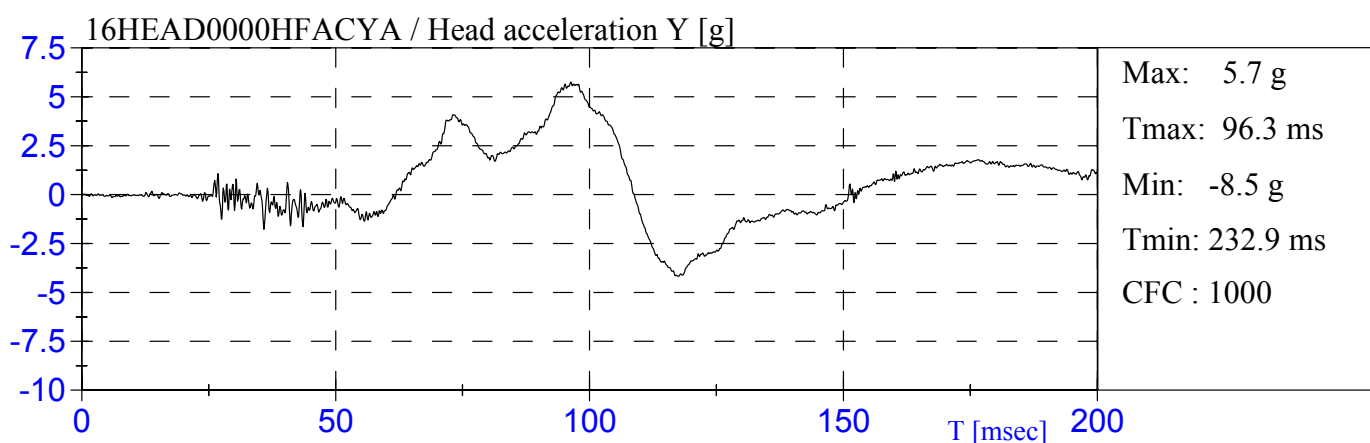
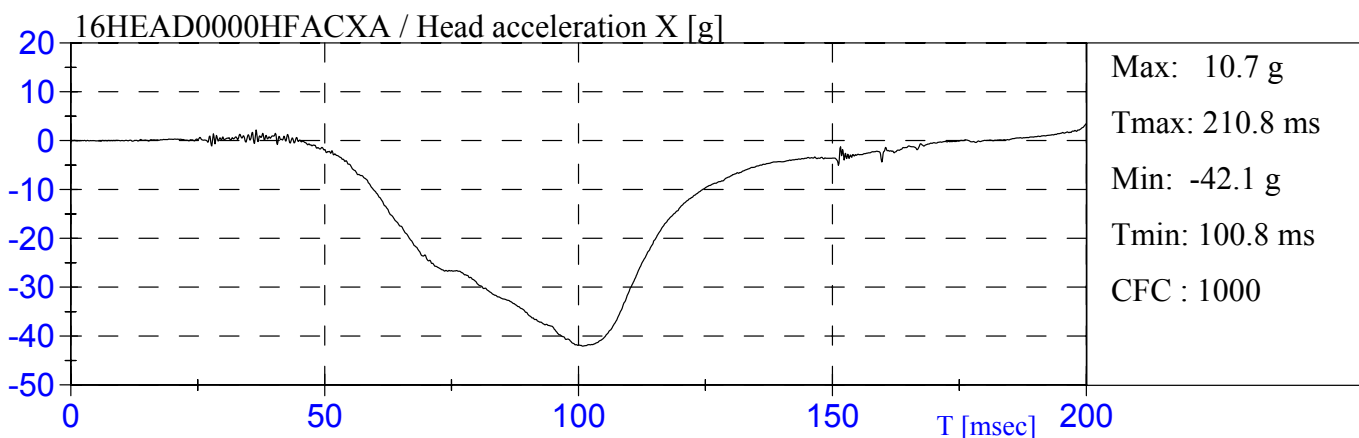


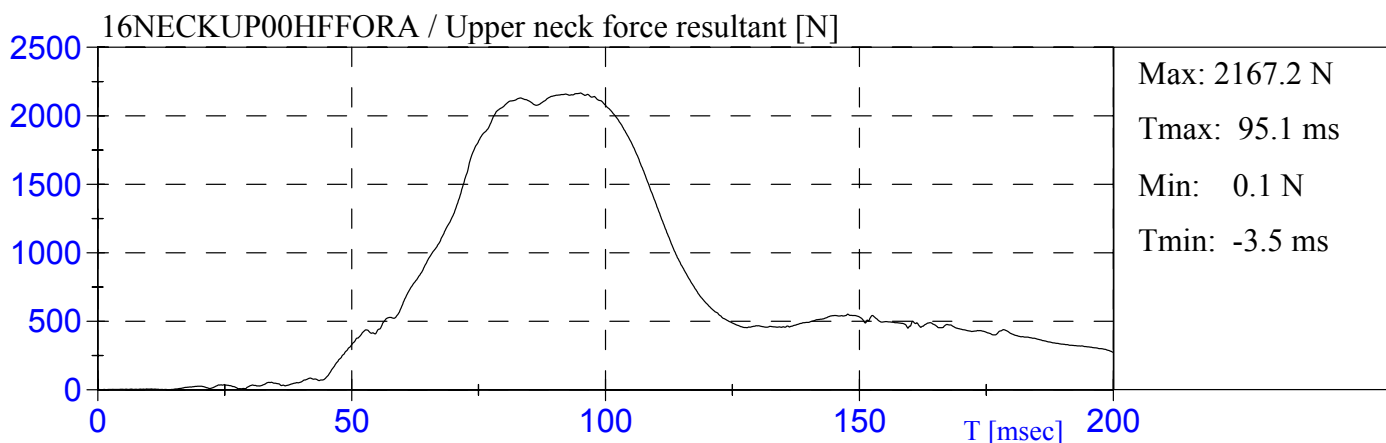
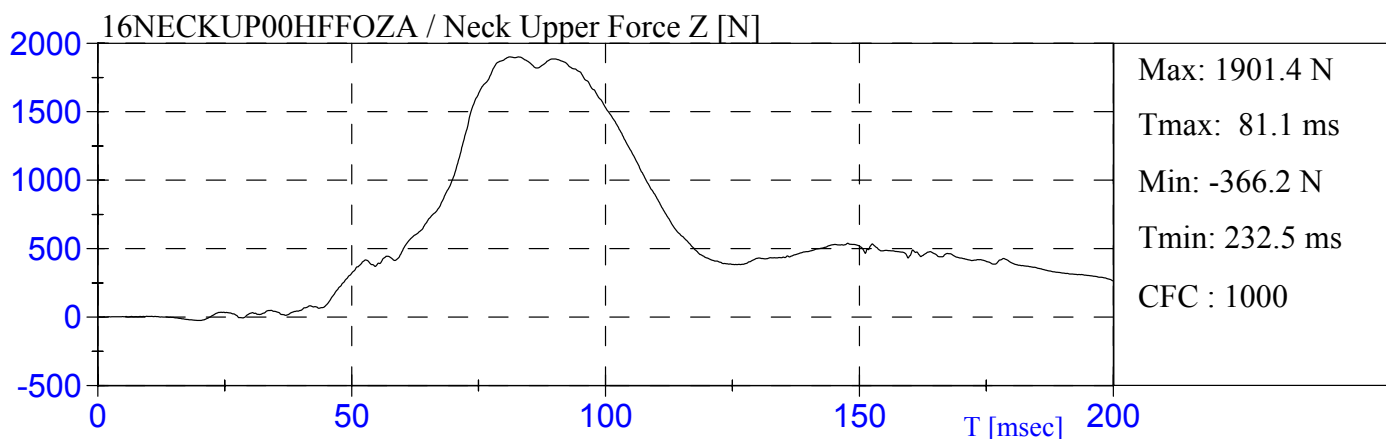
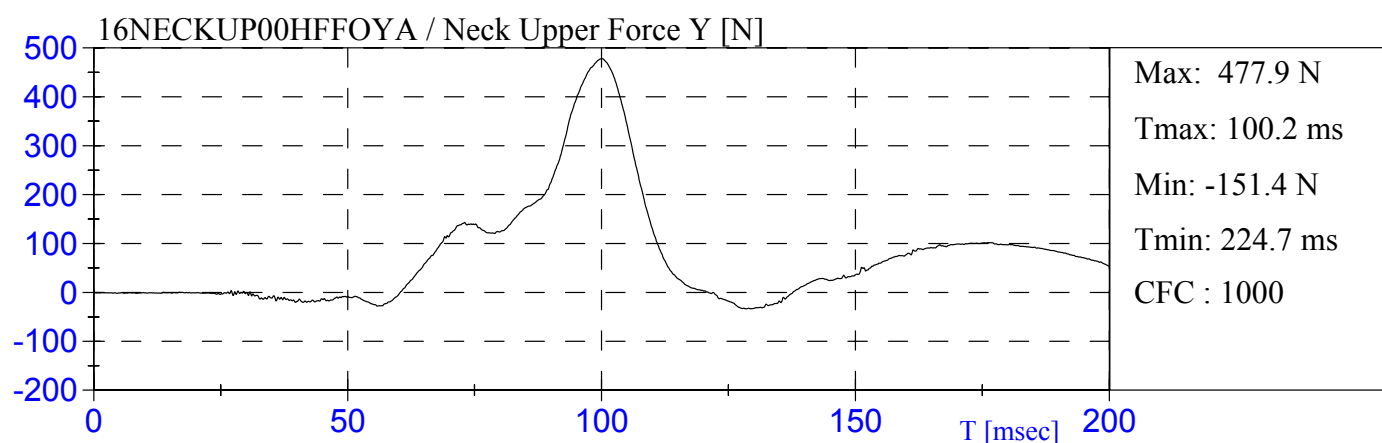
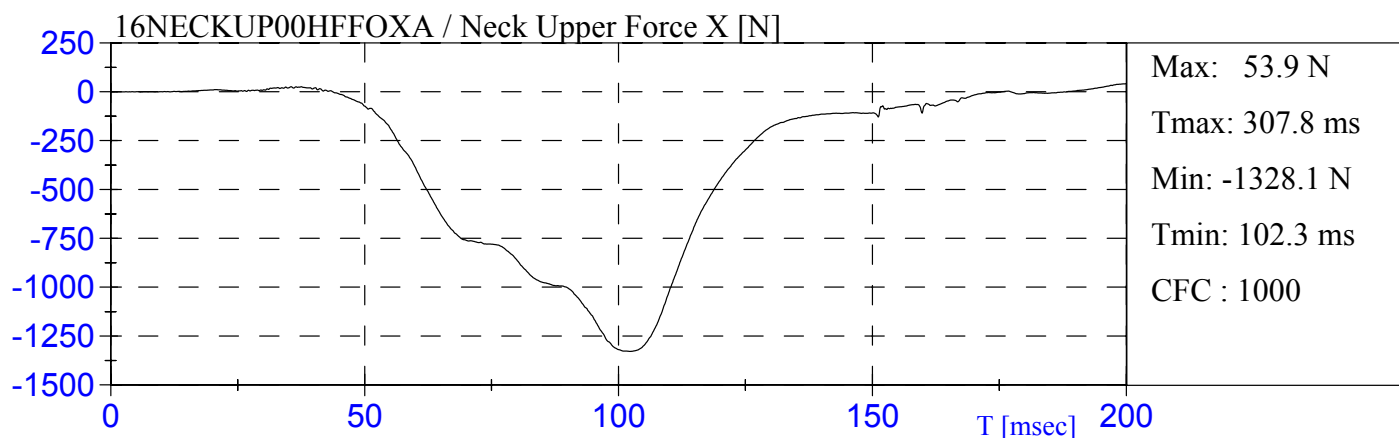


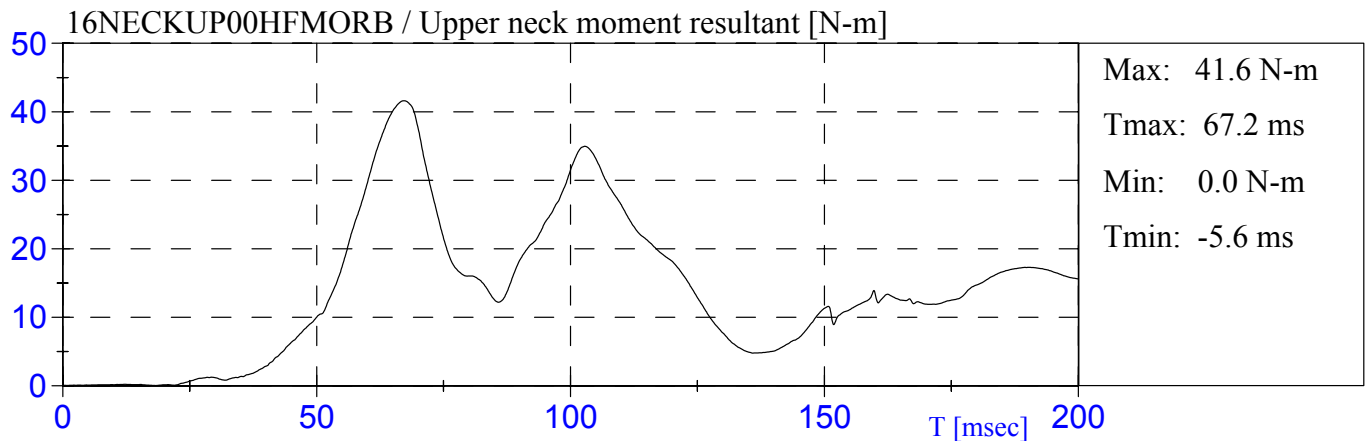
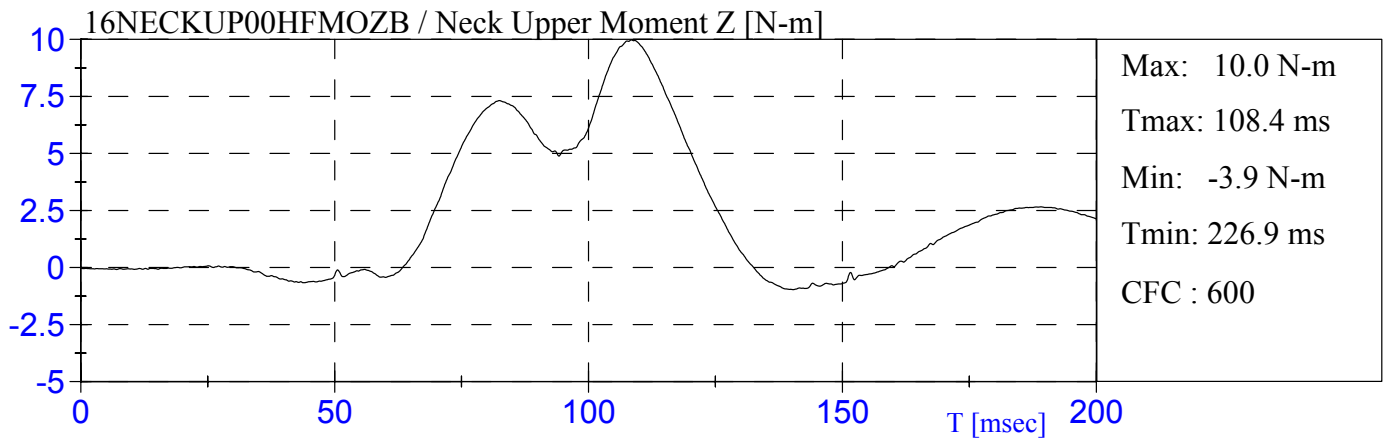
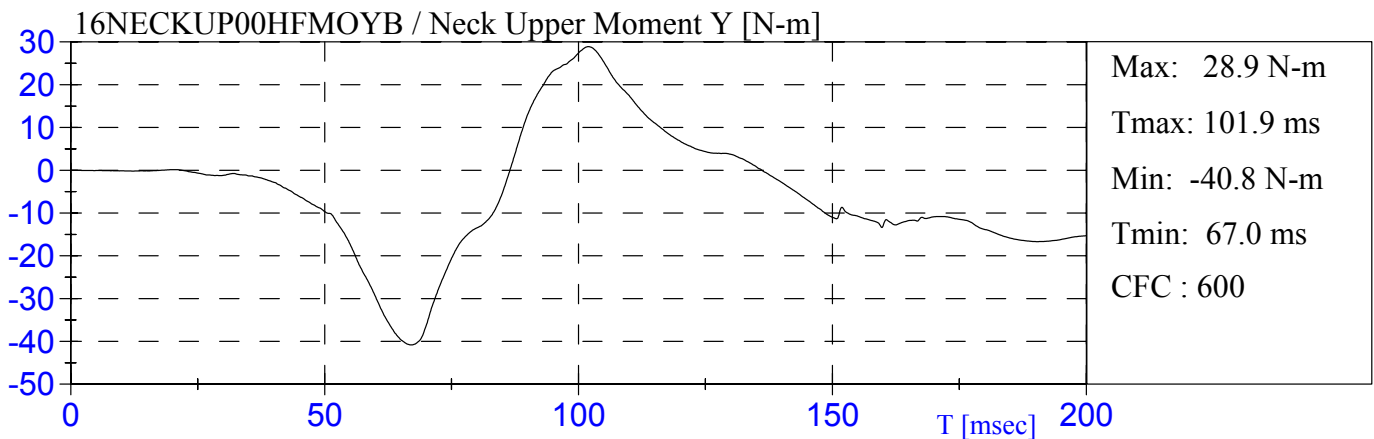
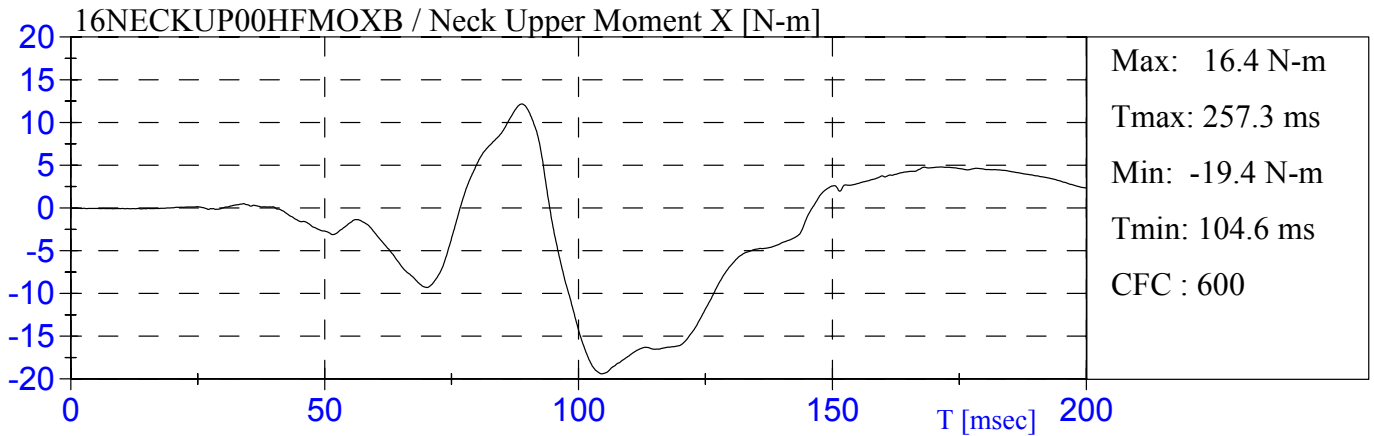


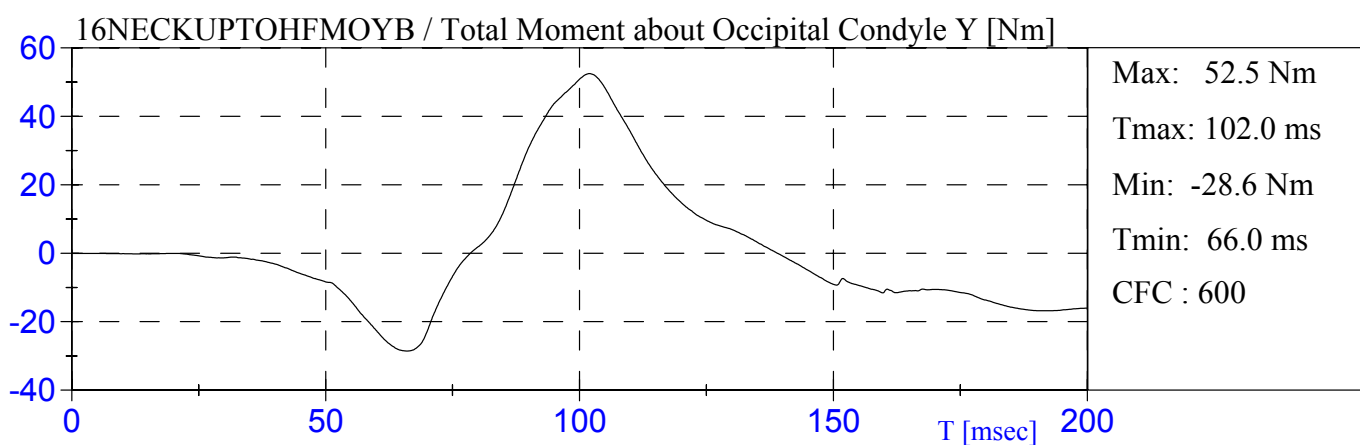
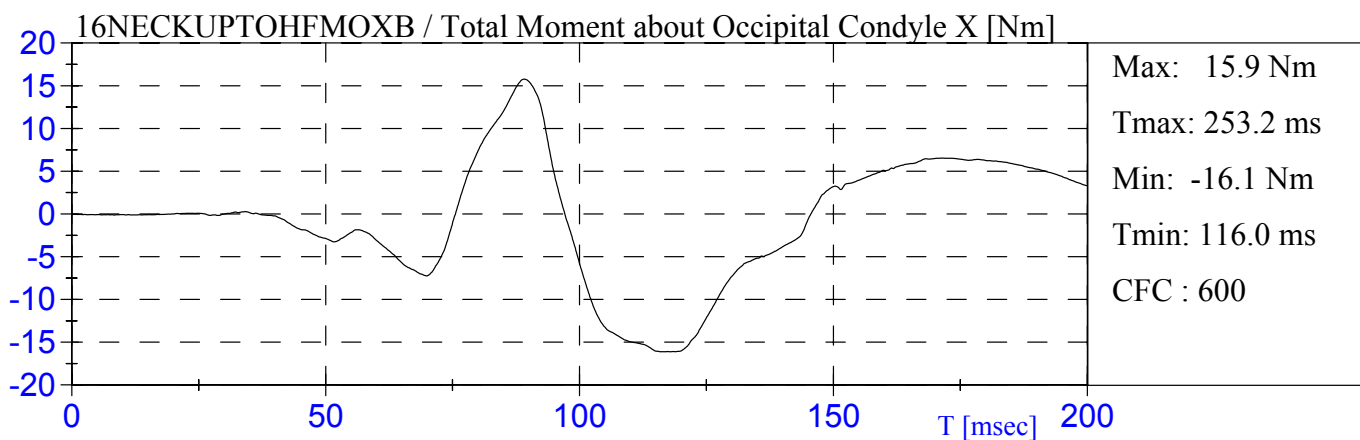


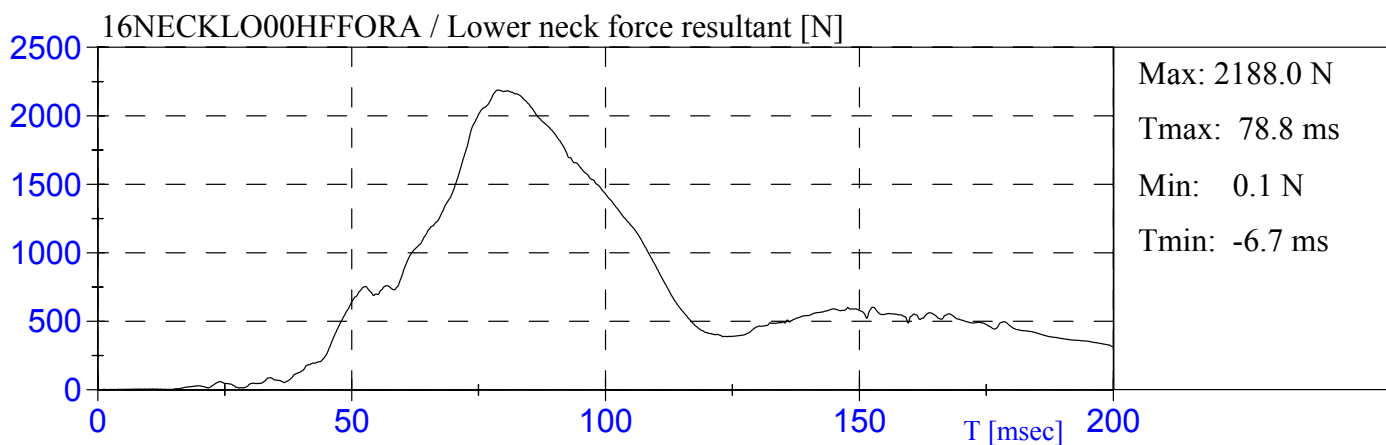
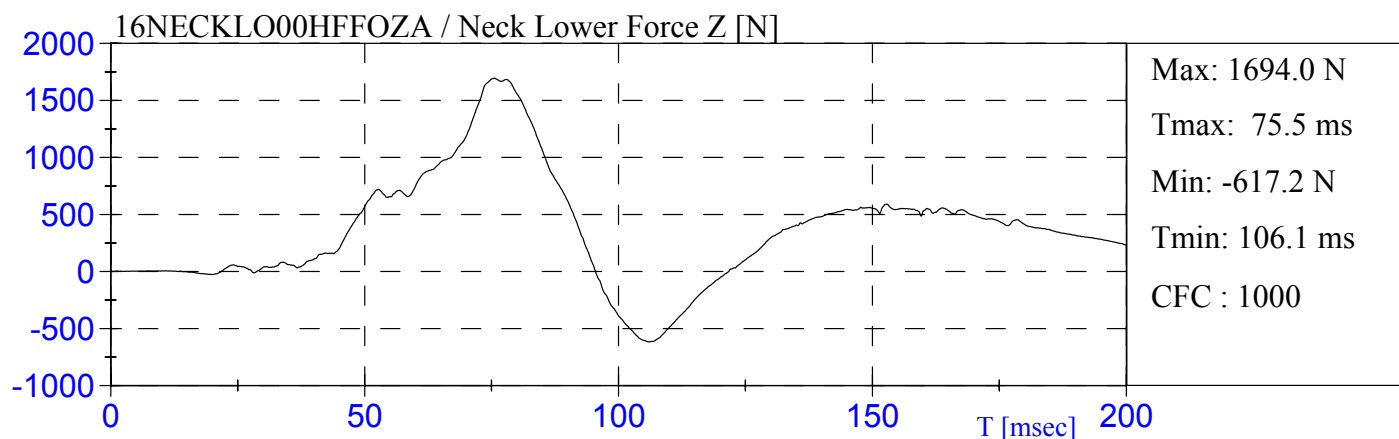
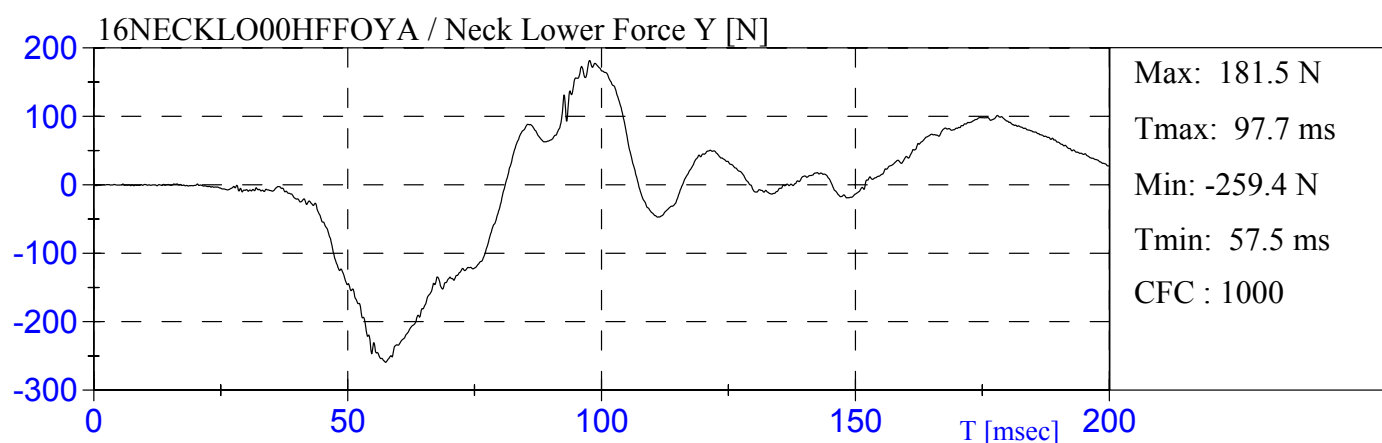
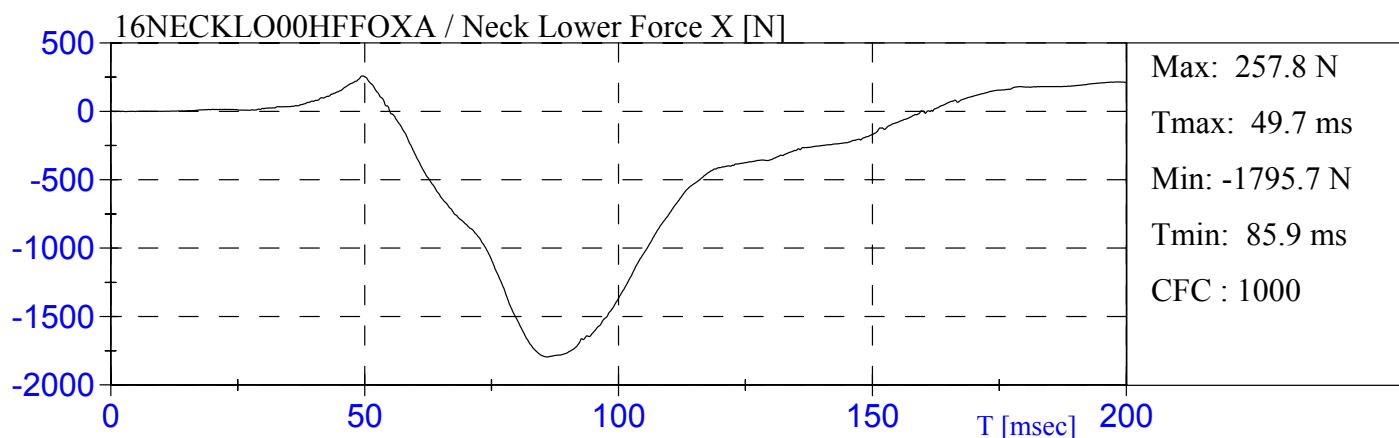


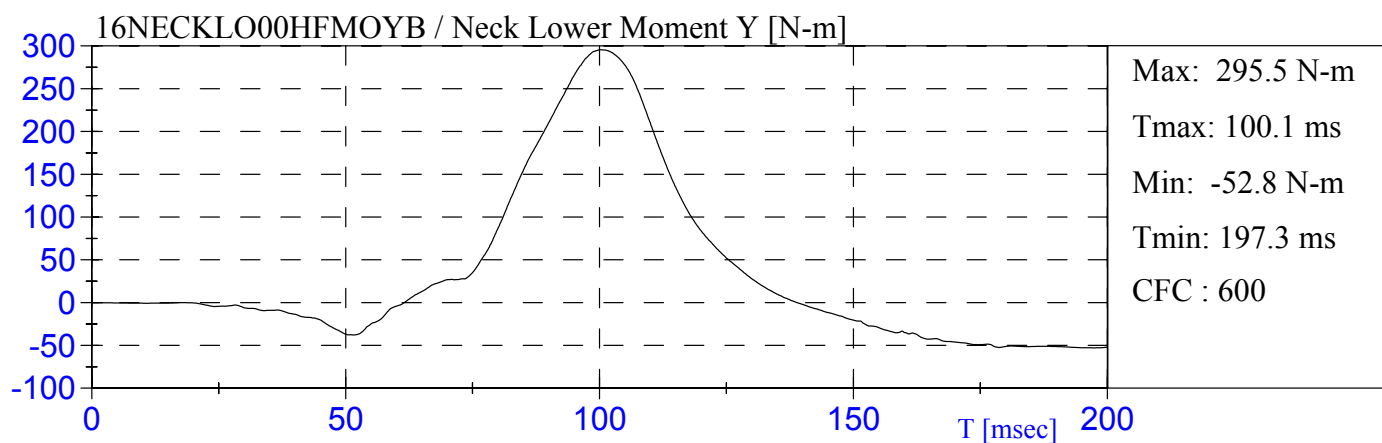
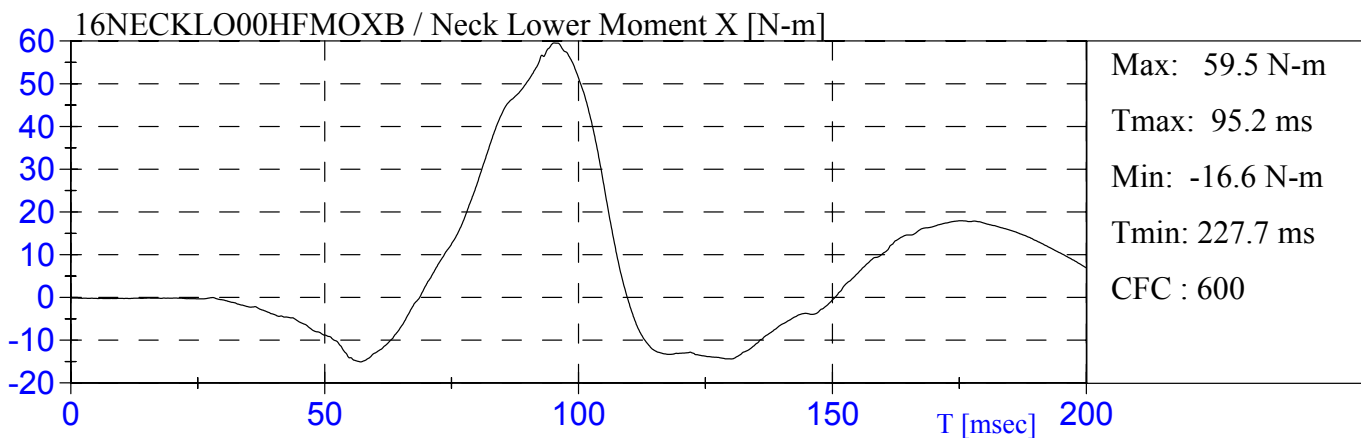


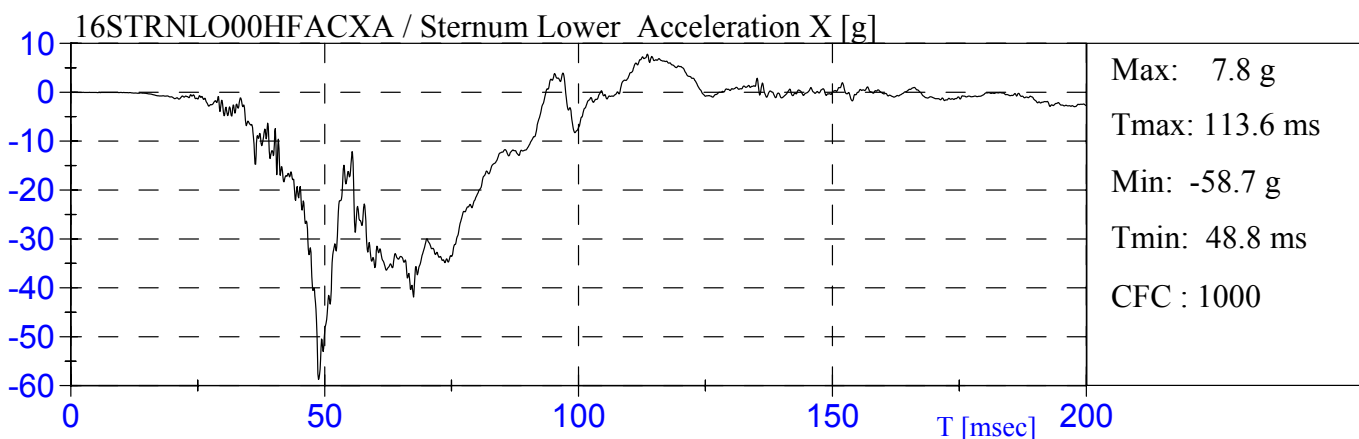
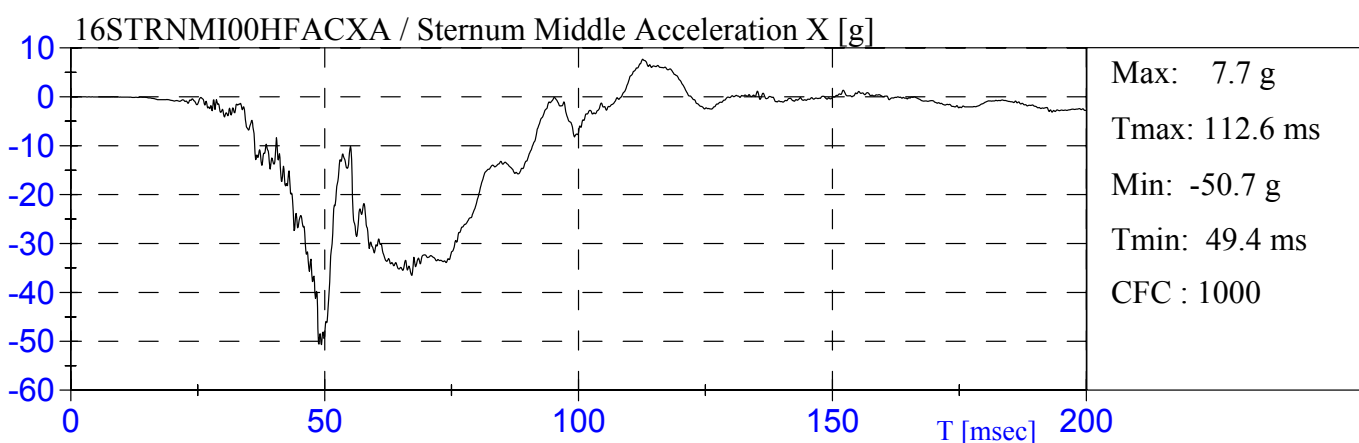
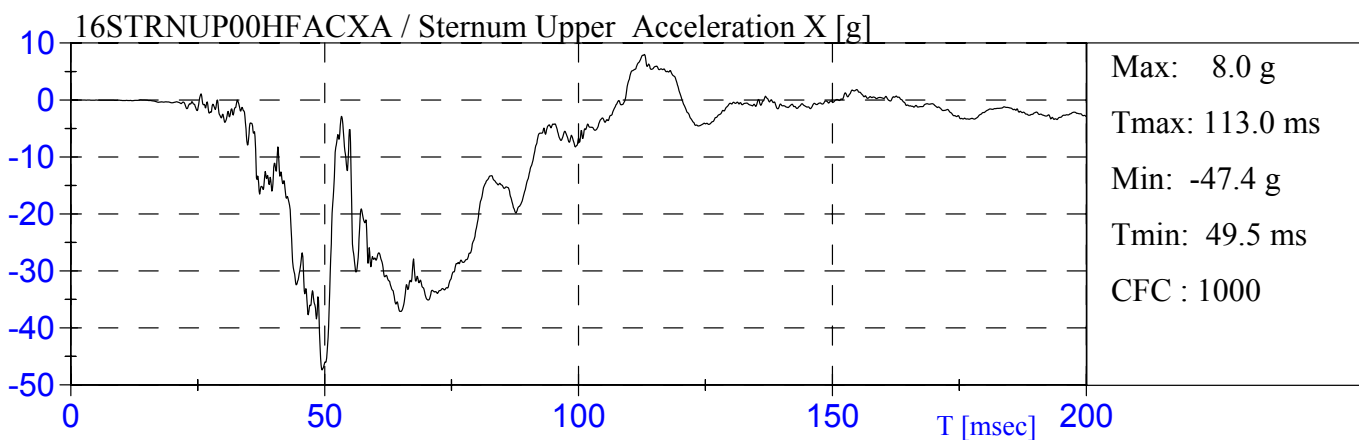


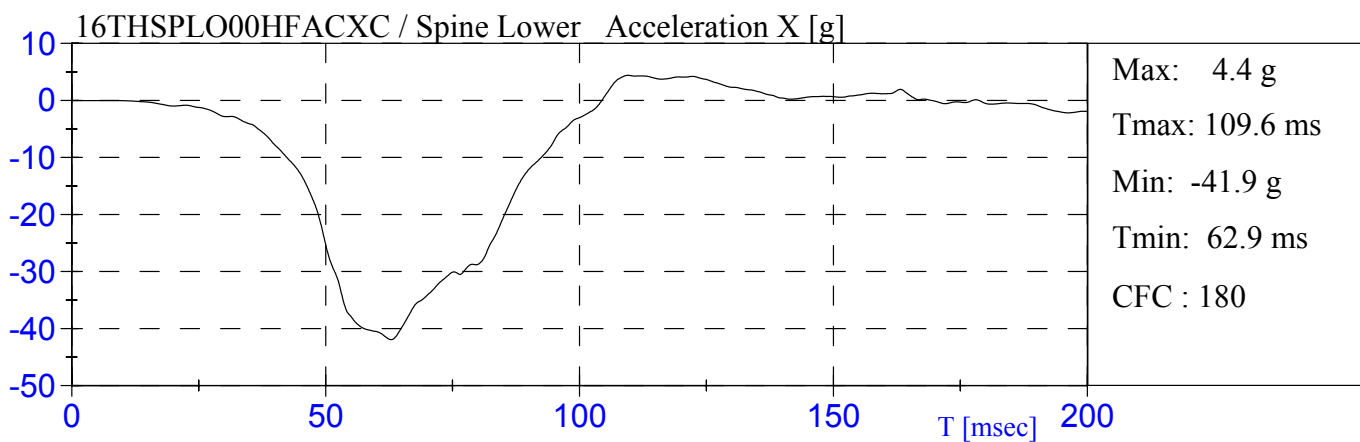
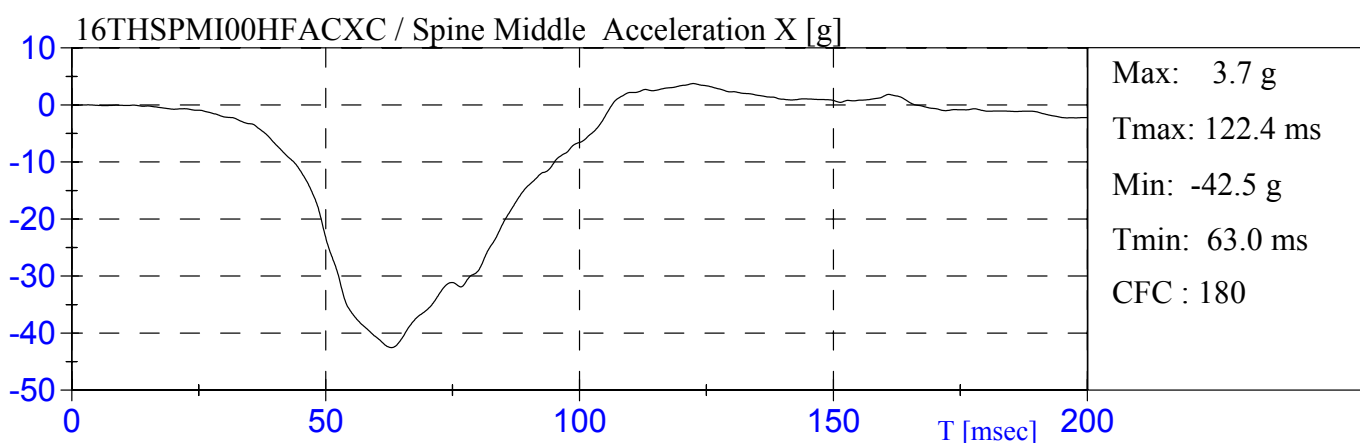
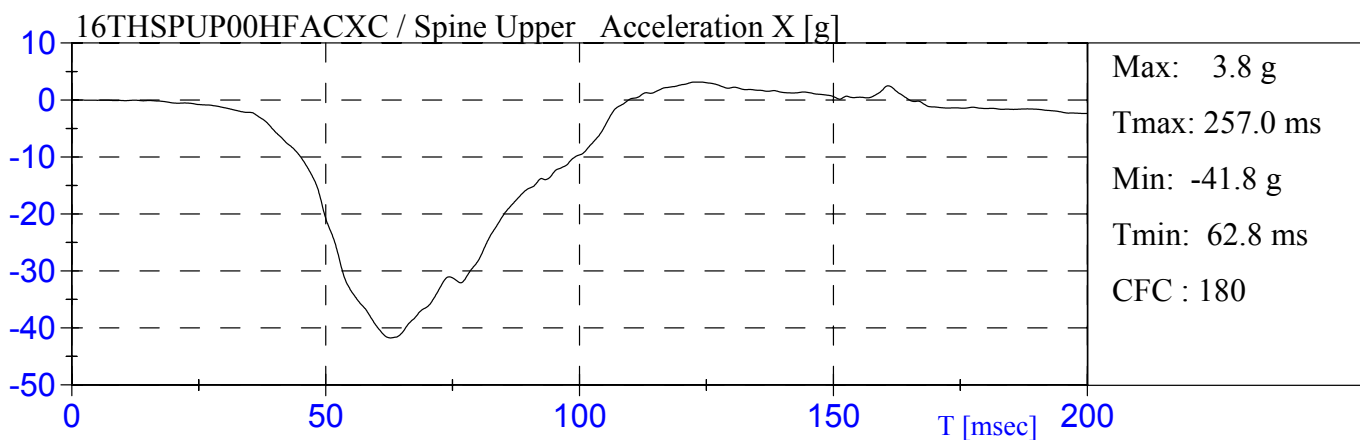


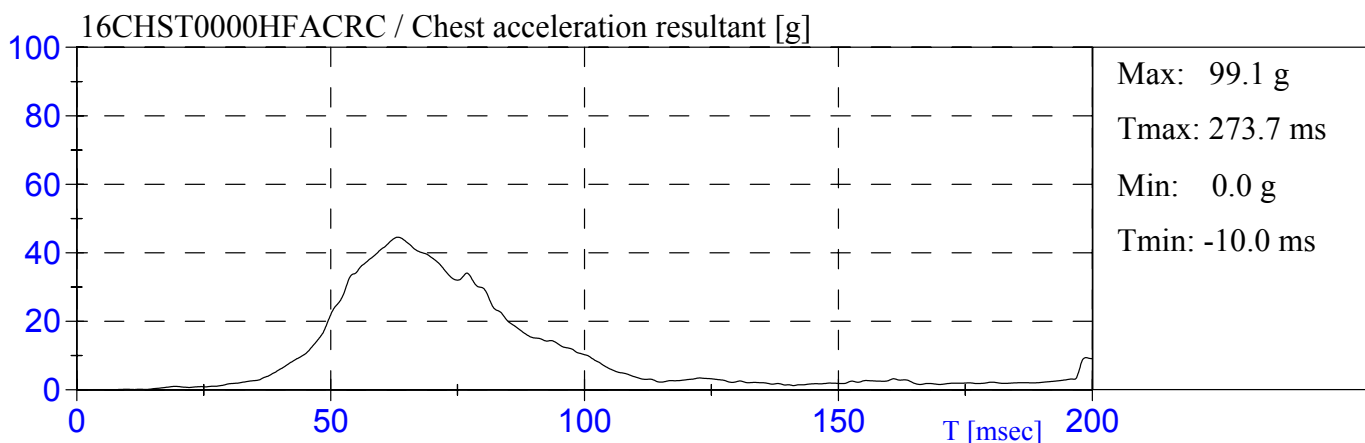
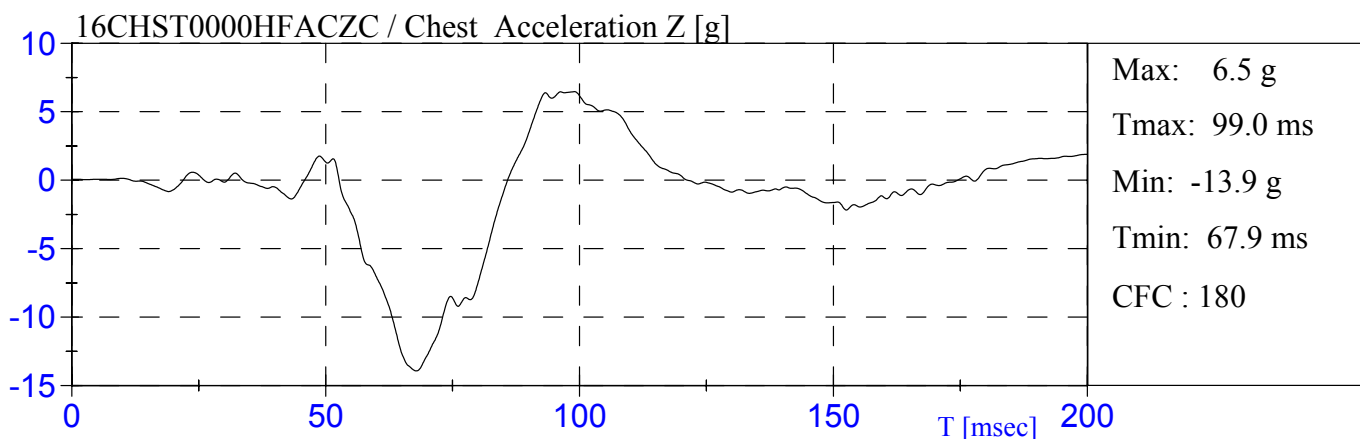
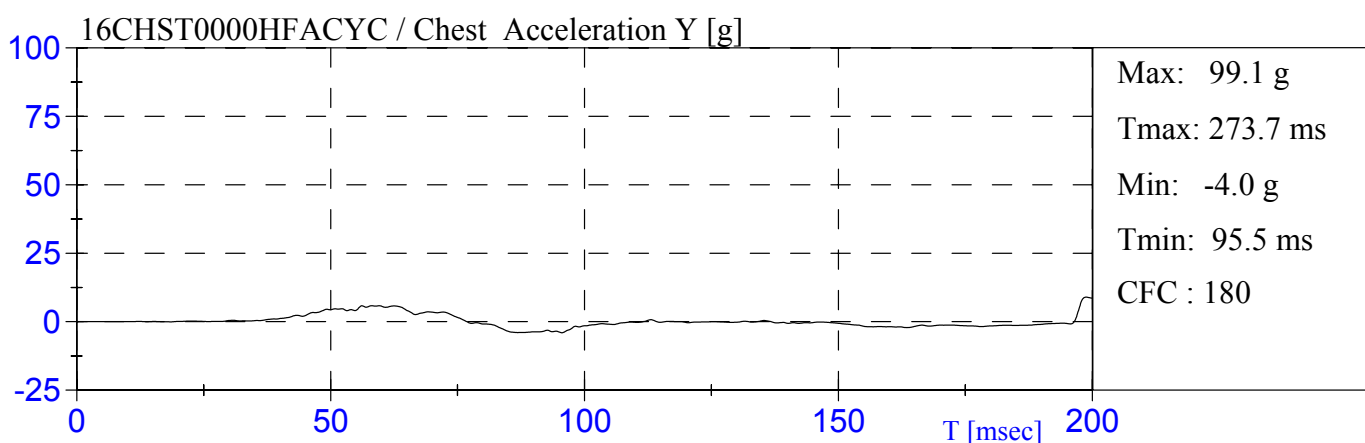
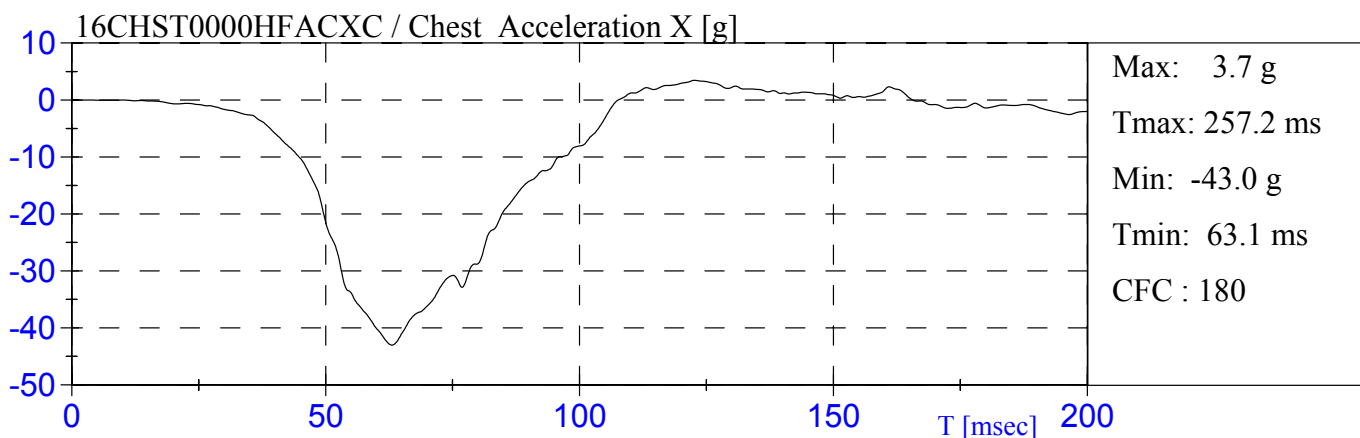


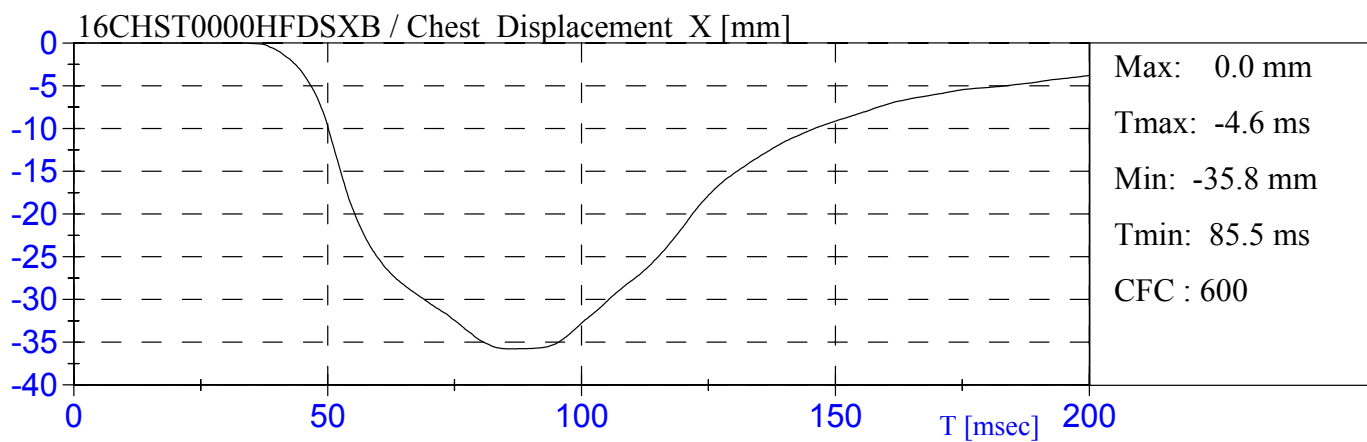


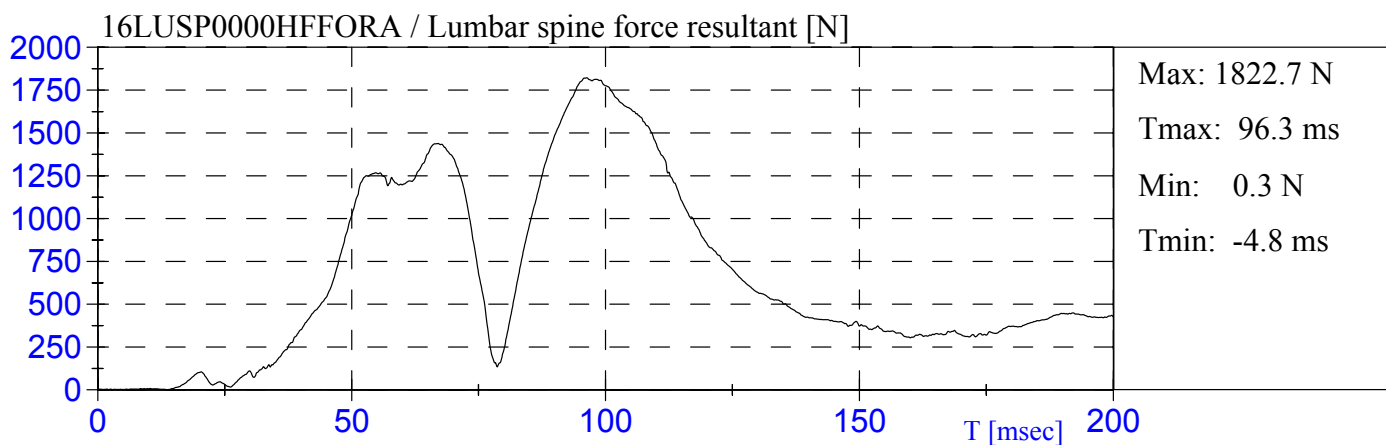
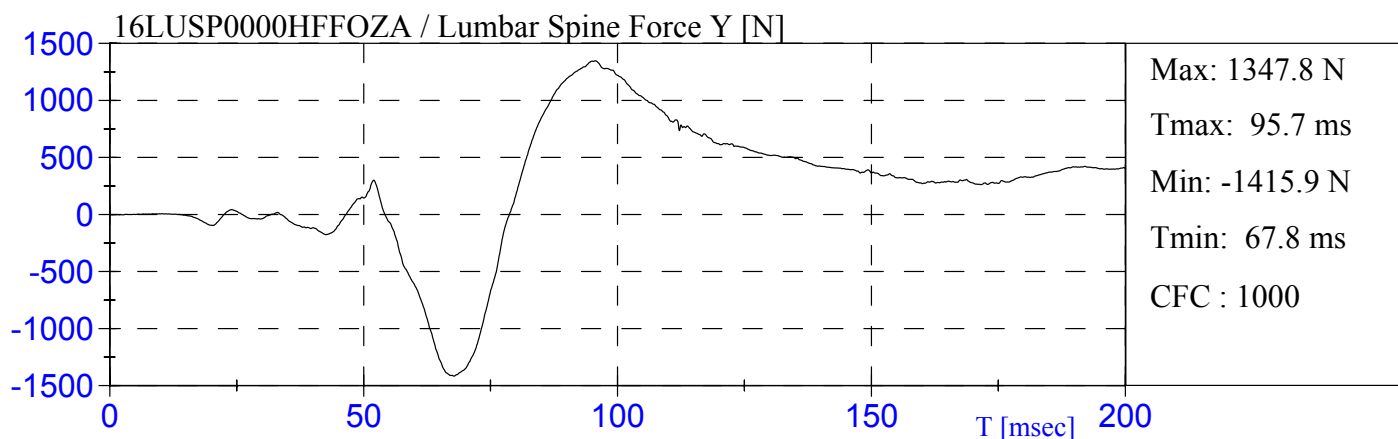
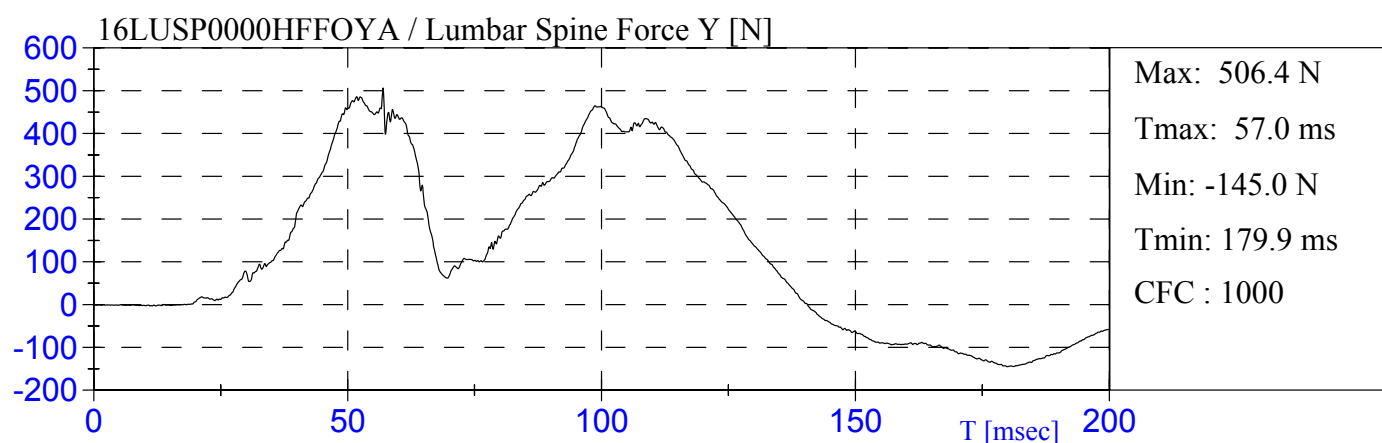
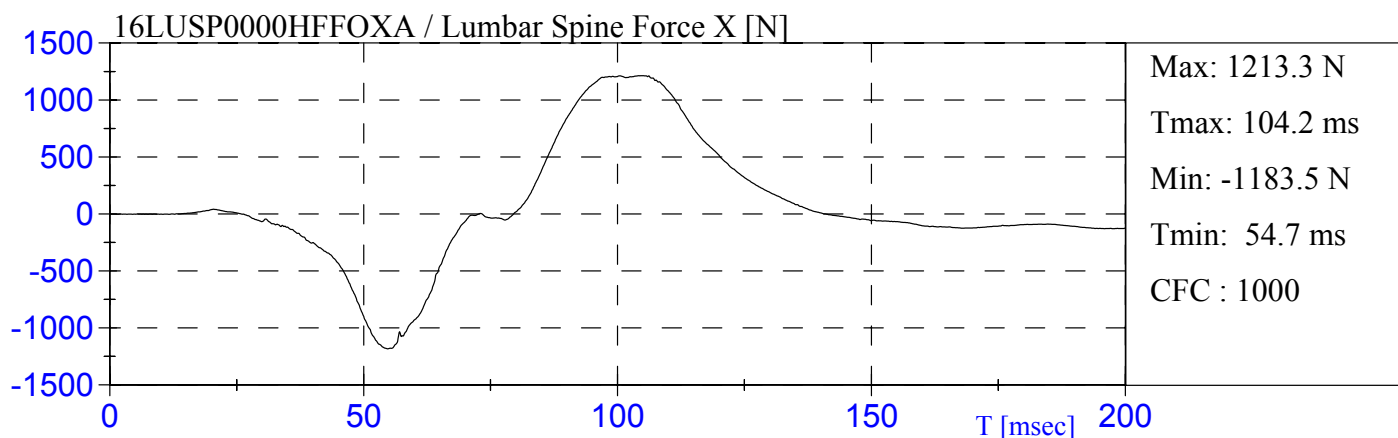


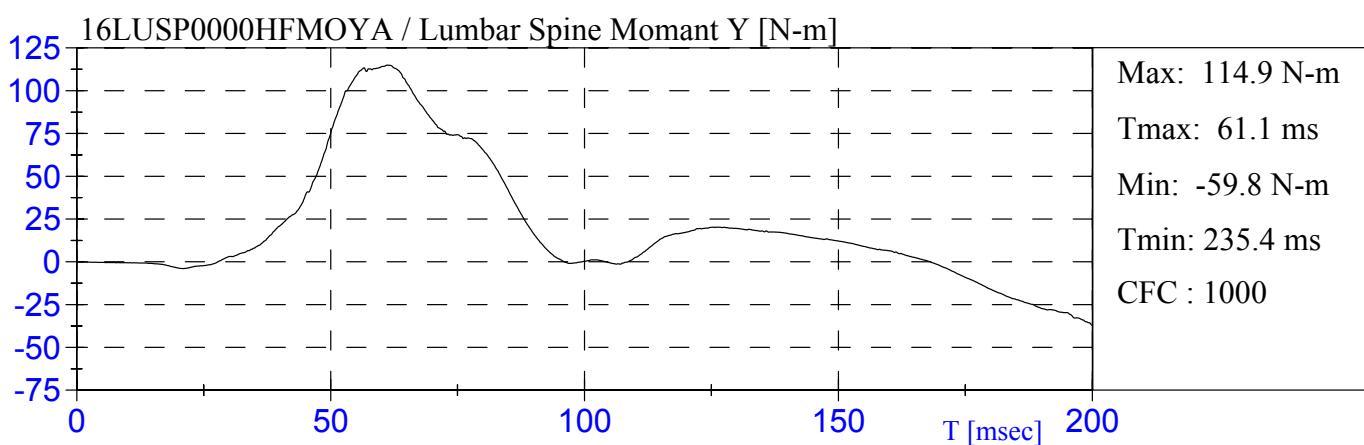
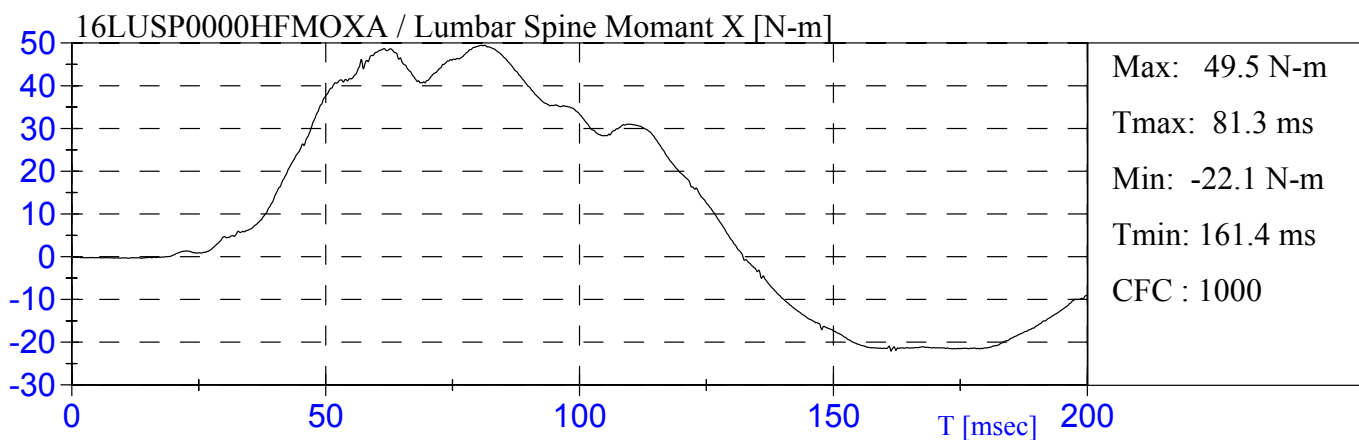


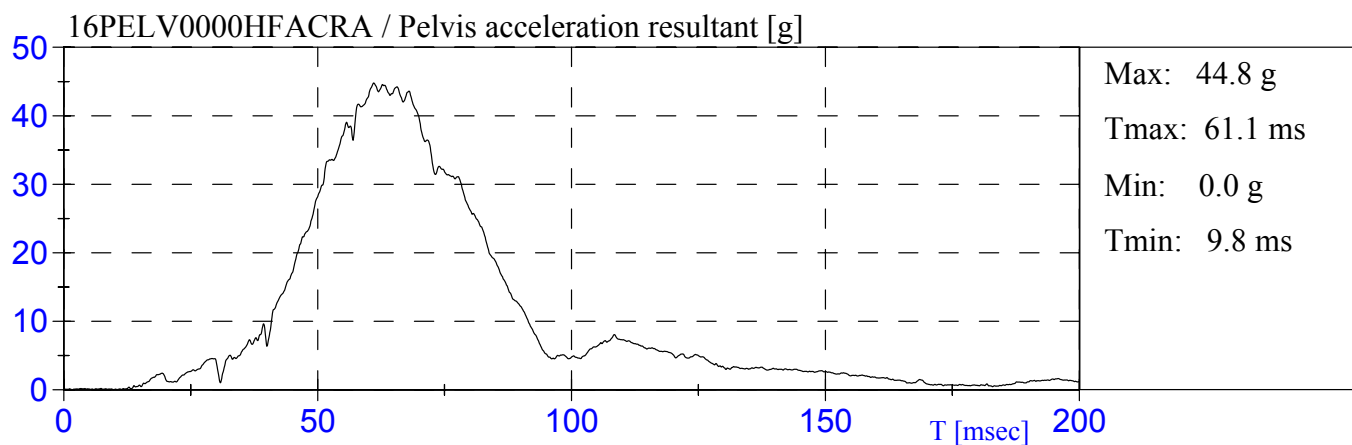
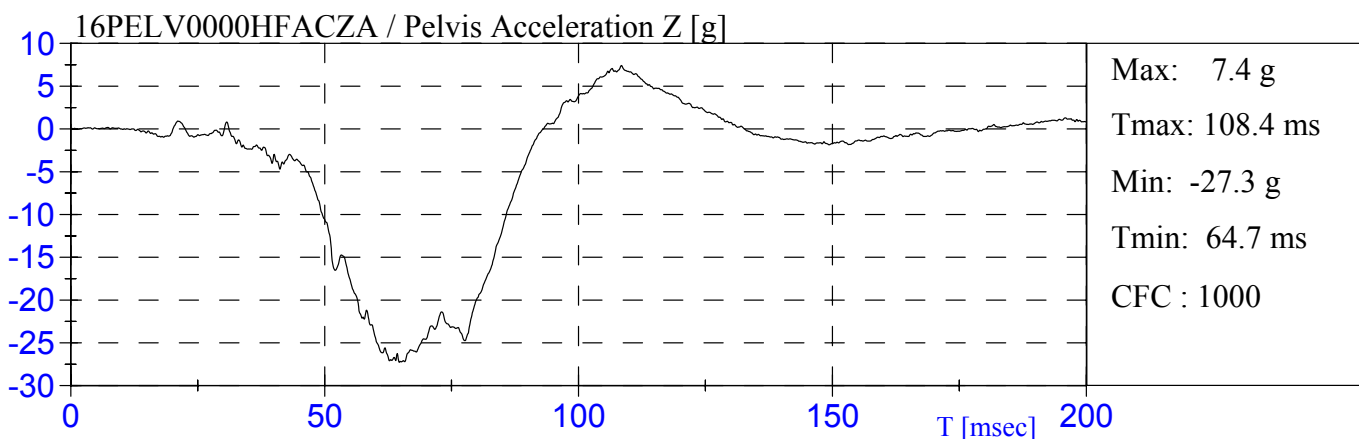
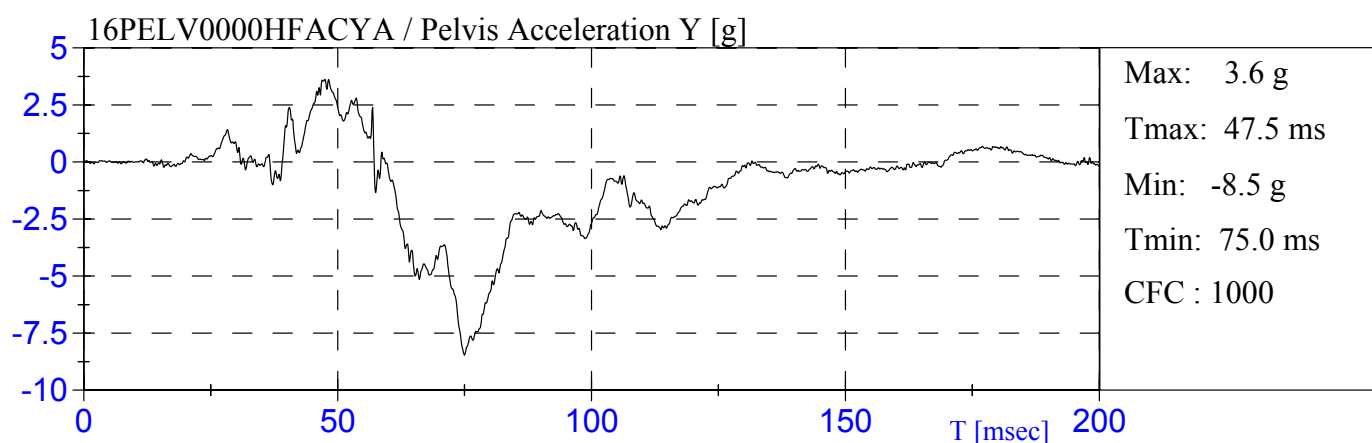
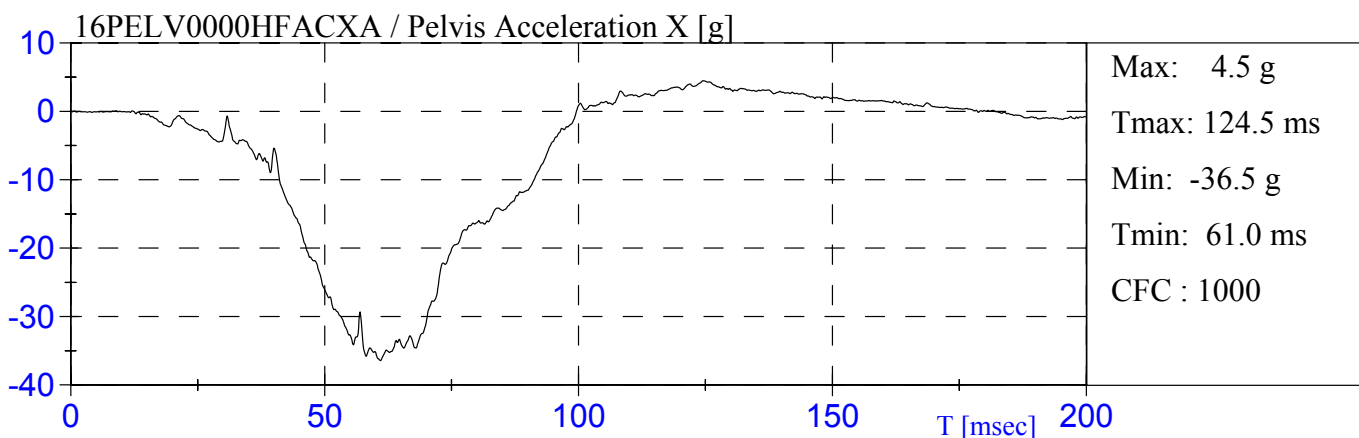


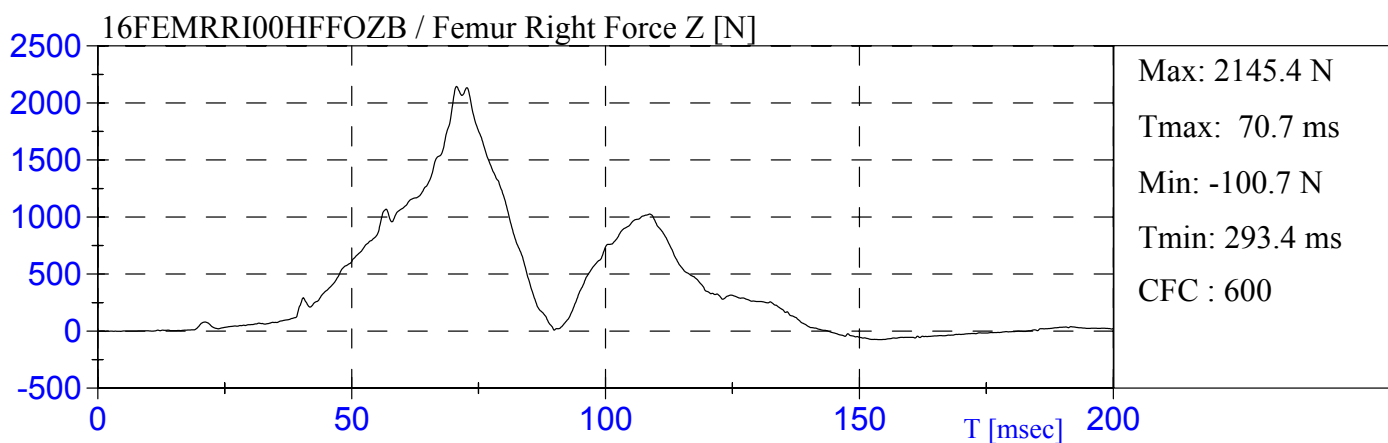
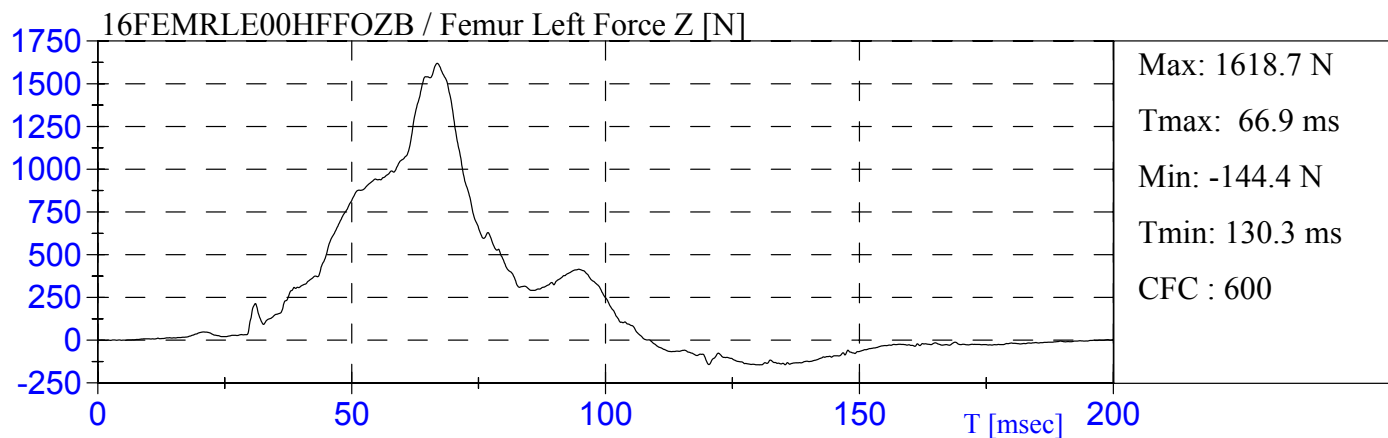


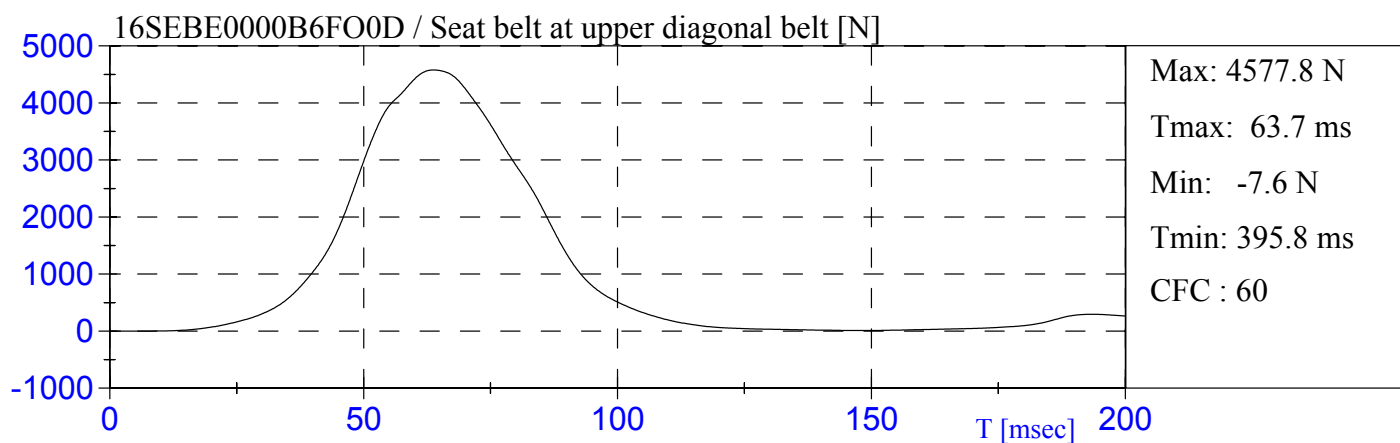
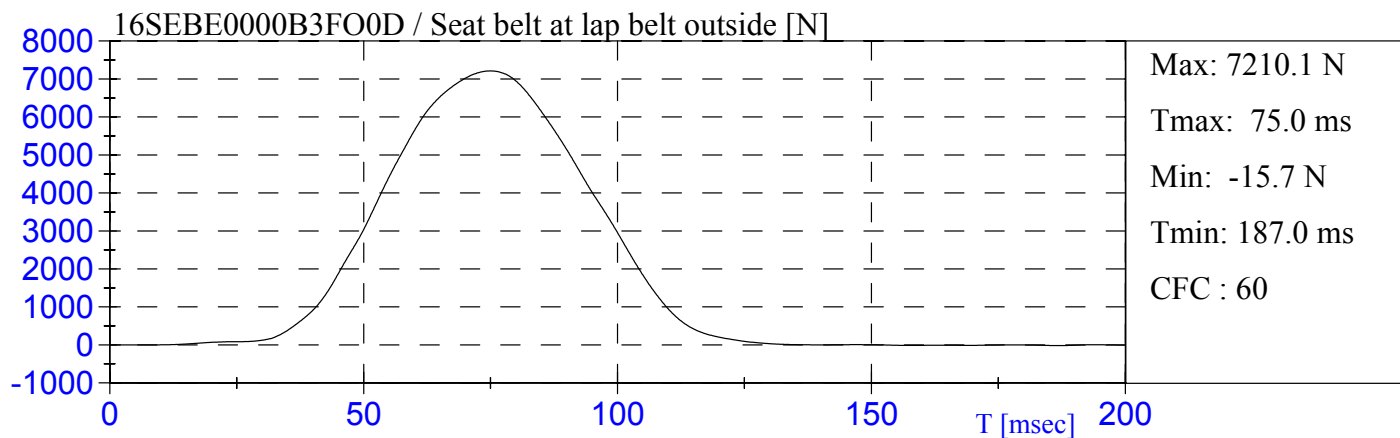


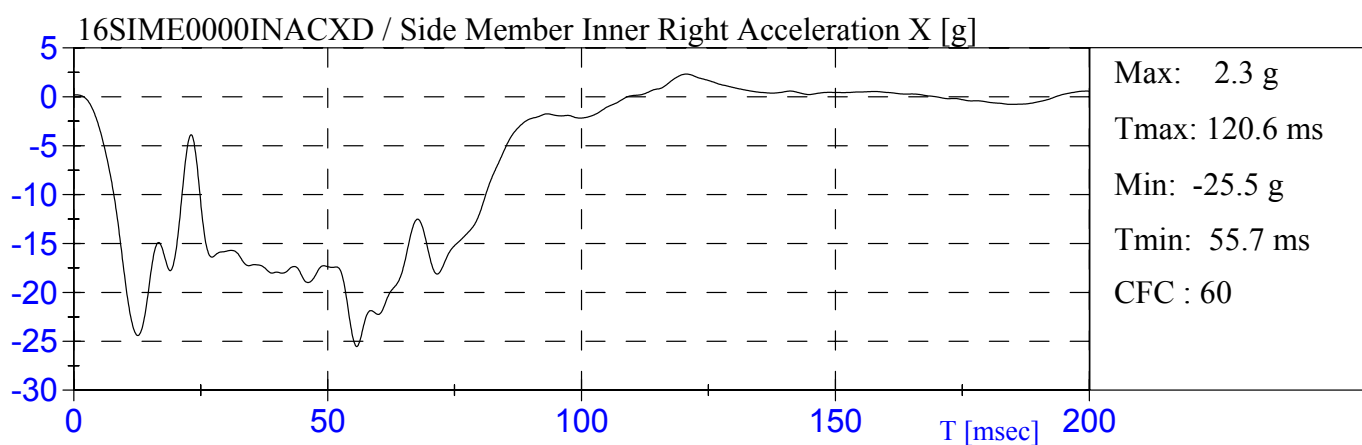
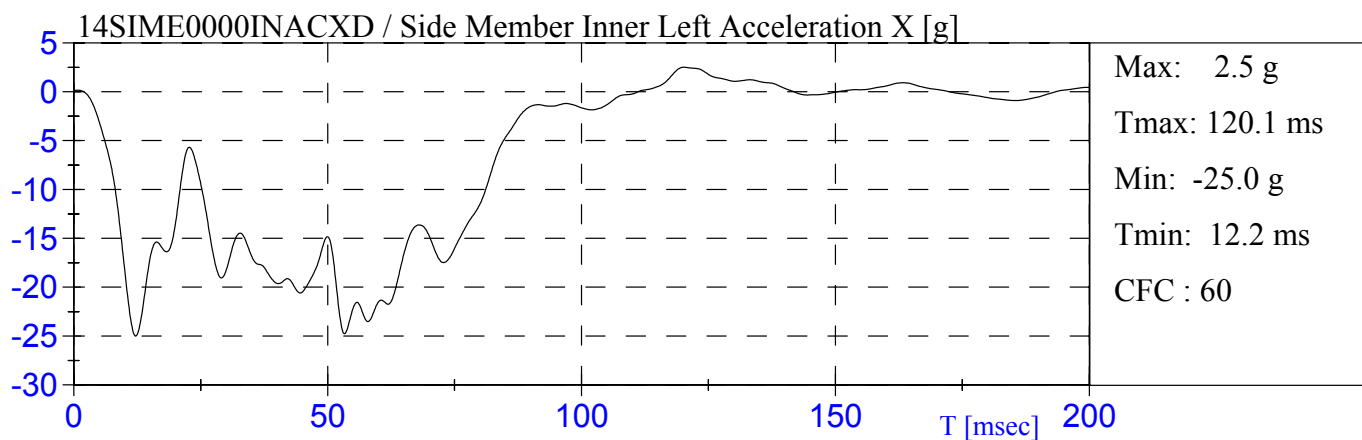


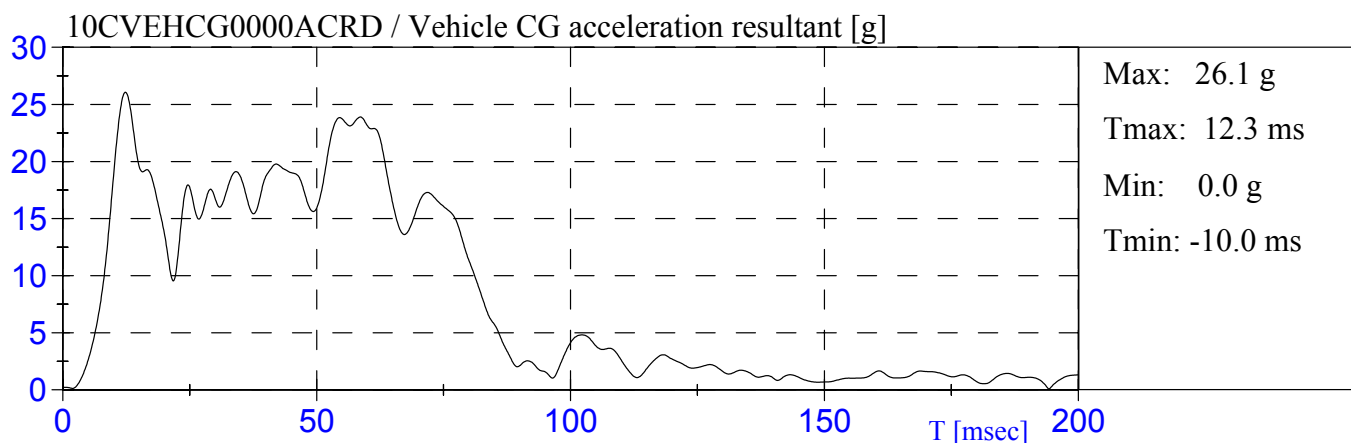
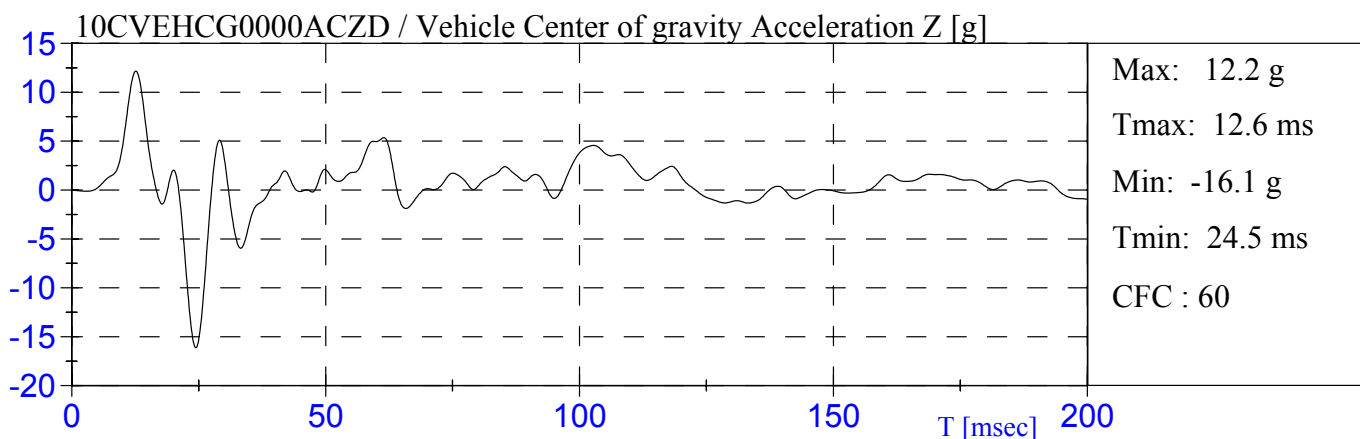
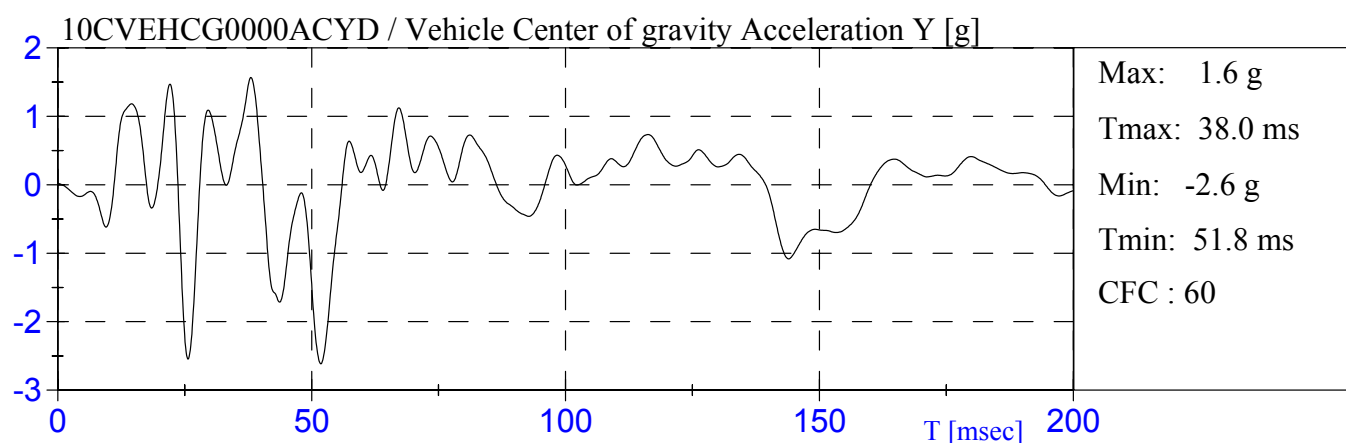
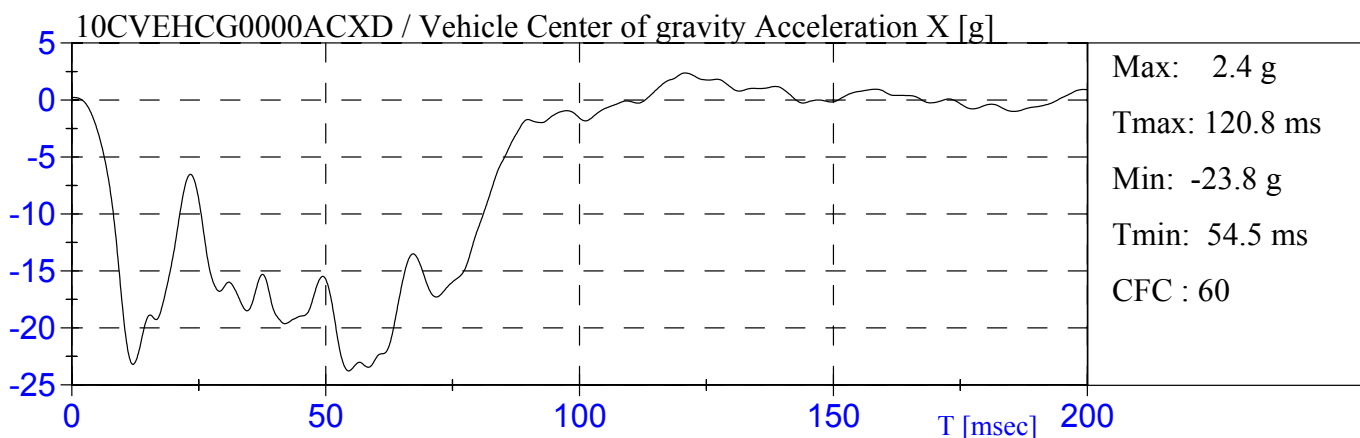


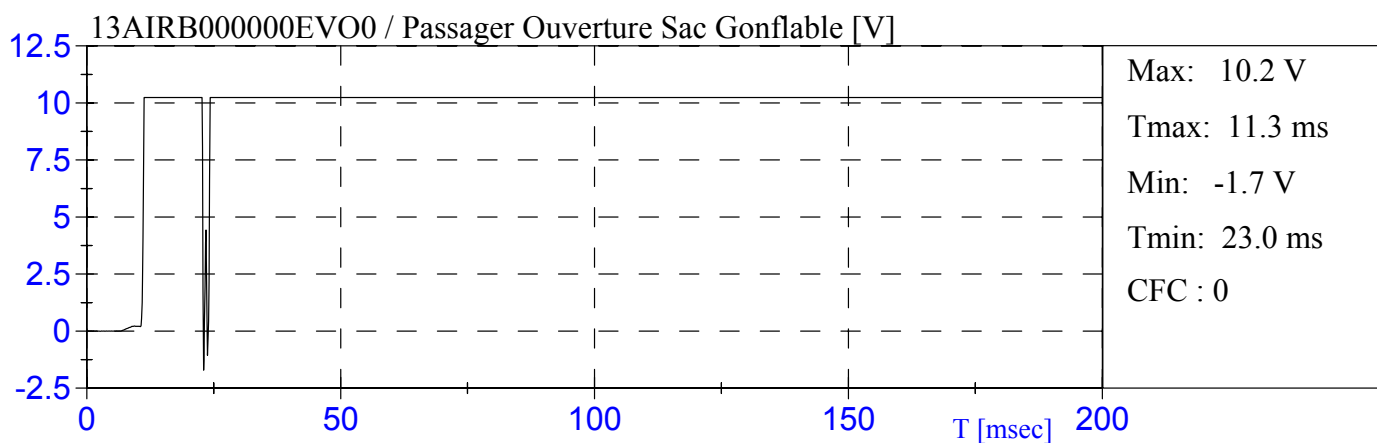
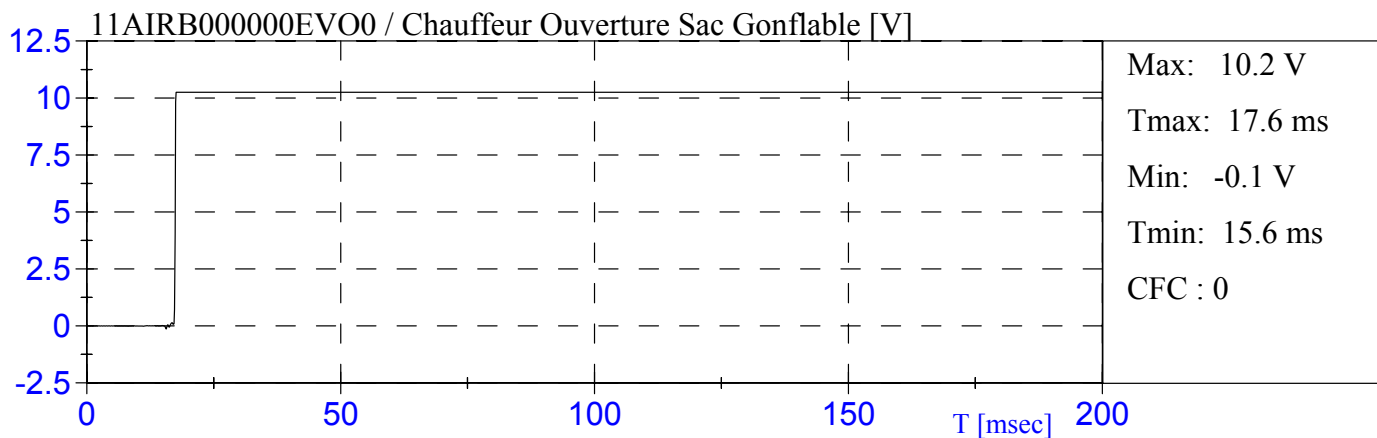


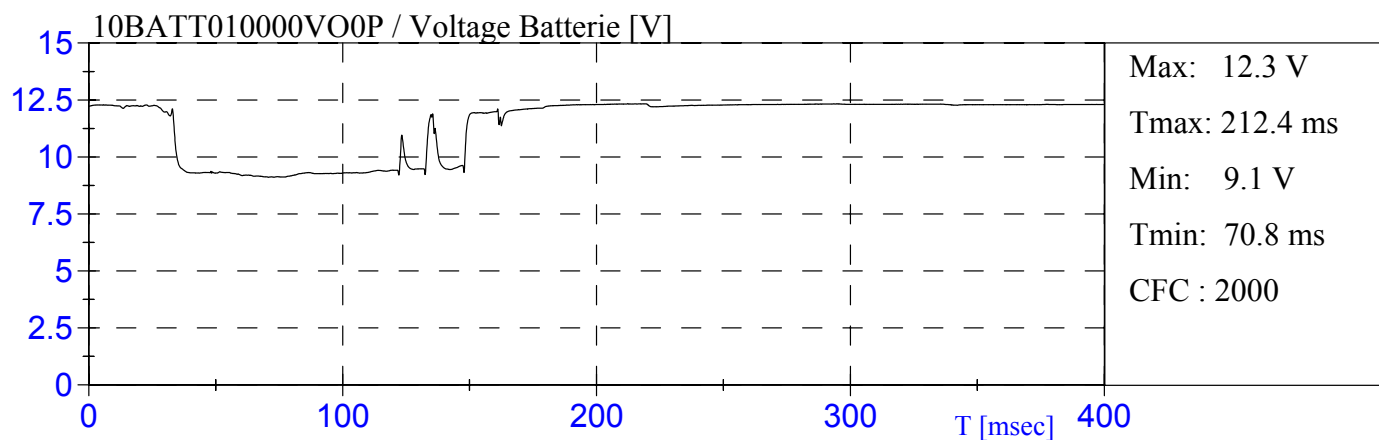


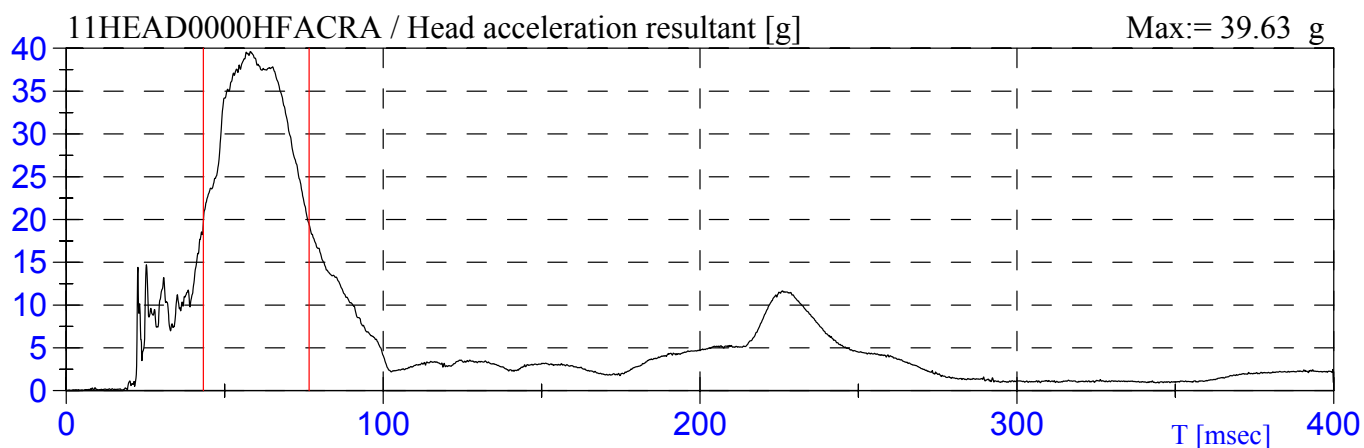








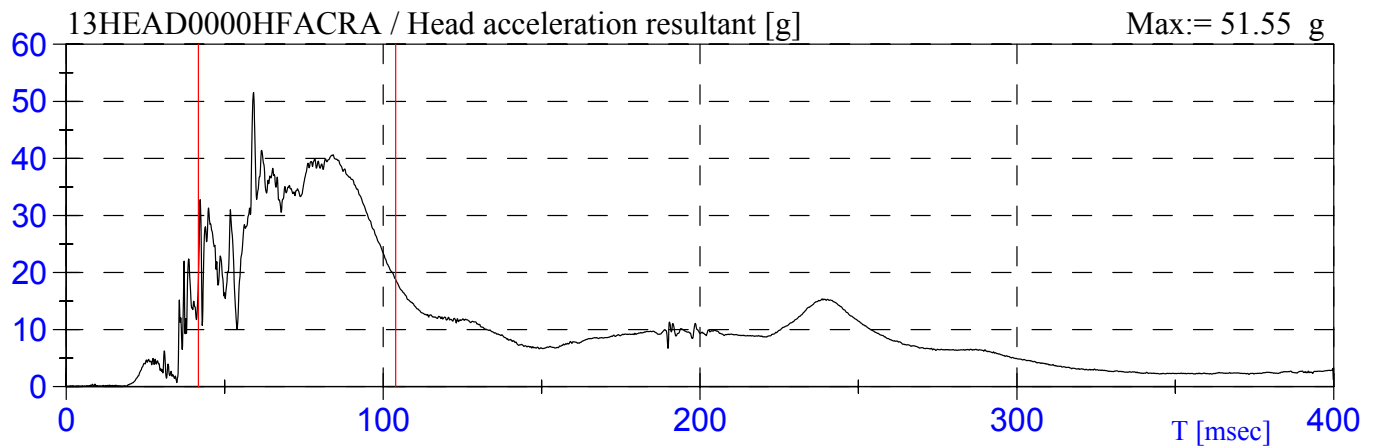




HEAD INJURY CRITERIA (HIC) *
CRITÈRE DE BLESSURE DE LA TÊTE

HIC:= 198	HIC(36ms):= 198	HIC(15ms):= 133
T1:= 43.3 ms	T1:= 43.3 ms	T1:= 51.9 ms
T2:= 76.7 ms	T2:= 76.7 ms	T2:= 66.9 ms

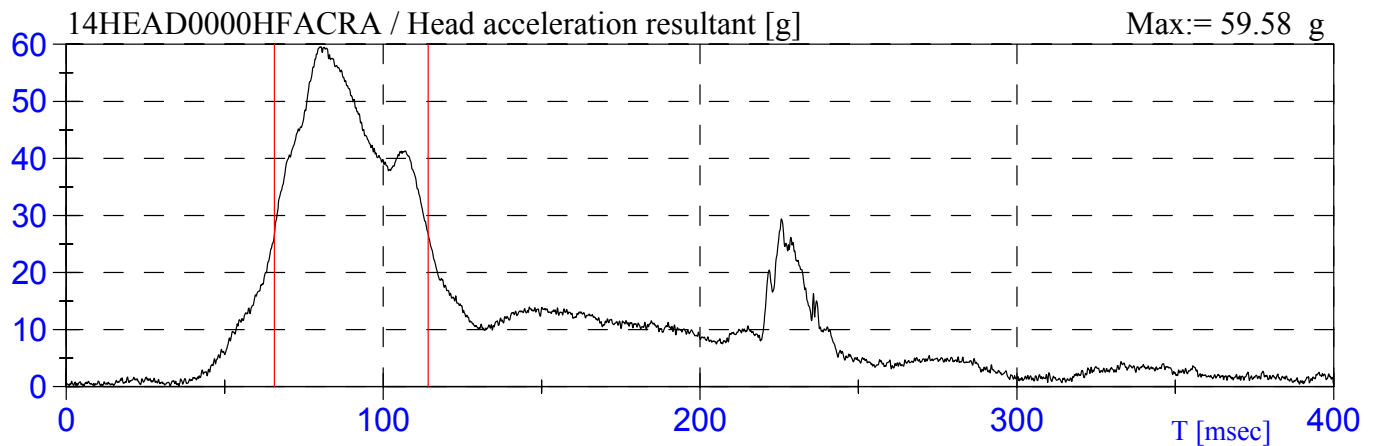
* Selon / According To: SAE J1727 96-08



HEAD INJURY CRITERIA (HIC) *
CRITÈRE DE BLESSURE DE LA TÊTE

HIC:= 343	HIC(36ms):= 298	HIC(15ms):= 141
T1:= 41.7 ms	T1:= 58.3 ms	T1:= 75.2 ms
T2:= 104.0 ms	T2:= 94.3 ms	T2:= 90.2 ms

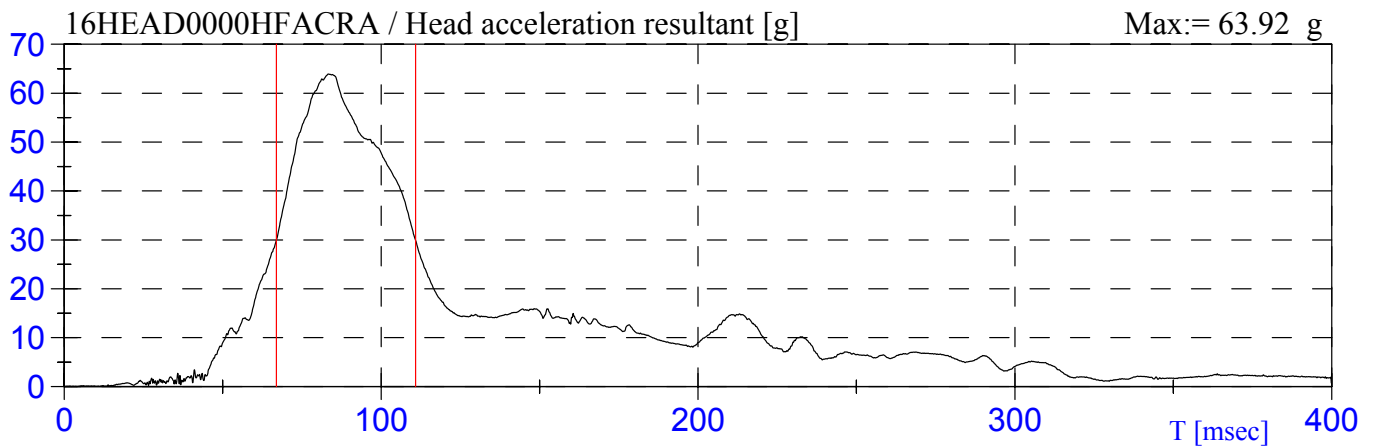
* Selon / According To: SAE J1727 96-08



HEAD INJURY CRITERIA (HIC) * CRITÈRE DE BLESSURE DE LA TÊTE

HIC:= 648	HIC(36ms):= 575	HIC(15ms):= 347
T1:= 65.7 ms	T1:= 71.1 ms	T1:= 76.0 ms
T2:= 114.2 ms	T2:= 107.1 ms	T2:= 91.0 ms

* Selon / According To: SAE J1727 96-08



HEAD INJURY CRITERIA (HIC) *

CRITÈRE DE BLESSURE DE LA TÊTE

HIC:= 773	HIC(36ms):= 742	HIC(15ms):= 422
T1:= 67.0 ms	T1:= 70.3 ms	T1:= 76.0 ms
T2:= 110.9 ms	T2:= 106.3 ms	T2:= 91.0 ms

* Selon / According To: SAE J1727 96-08

Neck Injury Criteria: 11NIJCIP000000YX

$N_{ij}^* = 1.22$

Valeurs critiques
Criticals Values

N _{tf}	N _{te}	N _{cf}	N _{ce}	Tc	4287
				Cc	3880
0.09	1.22	0.09	0.39	Fc	155
				Ec	67

* Selon / According To: Federal Register 5/2000

Neck Injury Criteria: 13NIJCIP000000YX

$N_{ij}^* = 0.68$

Valeurs critiques
Criticals Values

N _{tf}	N _{te}	N _{cf}	N _{ce}	Tc	4287
				Cc	3880
0.45	0.27	0.68	0.31	Fc	155
				Ec	67

* Selon / According To: Federal Register 5/2000

Neck Injury Criteria: 14NIJCIP000000YX

$N_{ij}^* = 0.74$

Valeurs critiques
Criticals Values

N _{tf}	N _{te}	N _{cf}	N _{ce}	Tc	4287
				Cc	3880
0.70	0.74	0.32	0.21	Fc	155
				Ec	67

* Selon / According To: Federal Register 5/2000

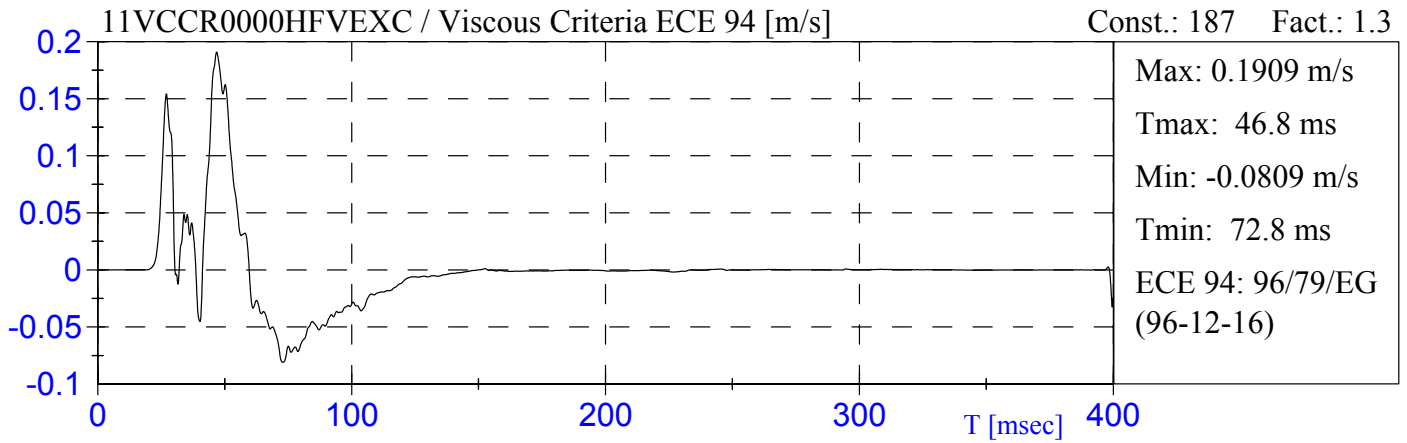
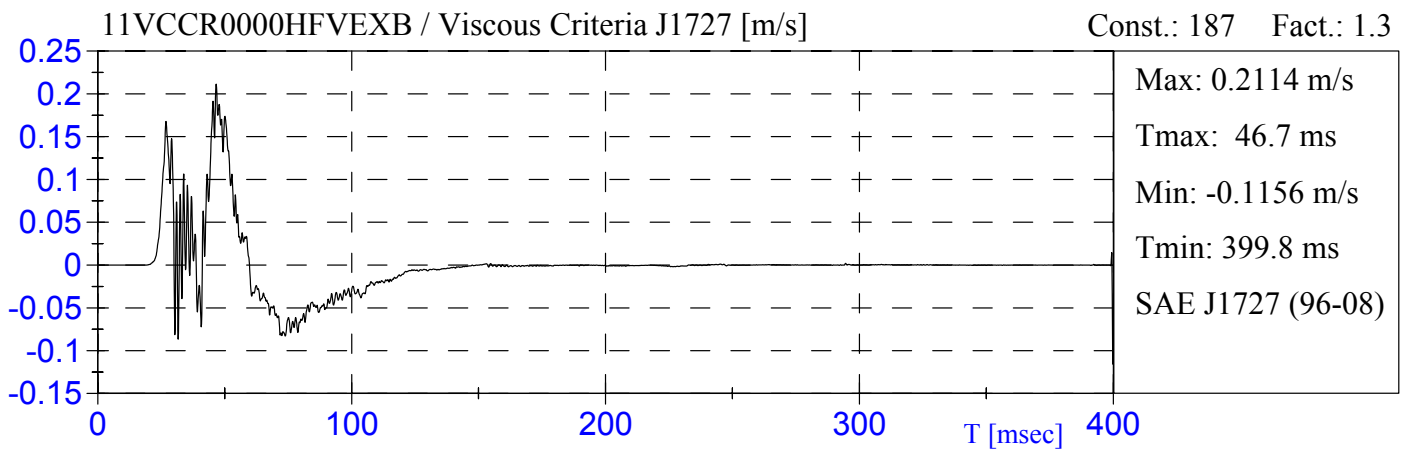
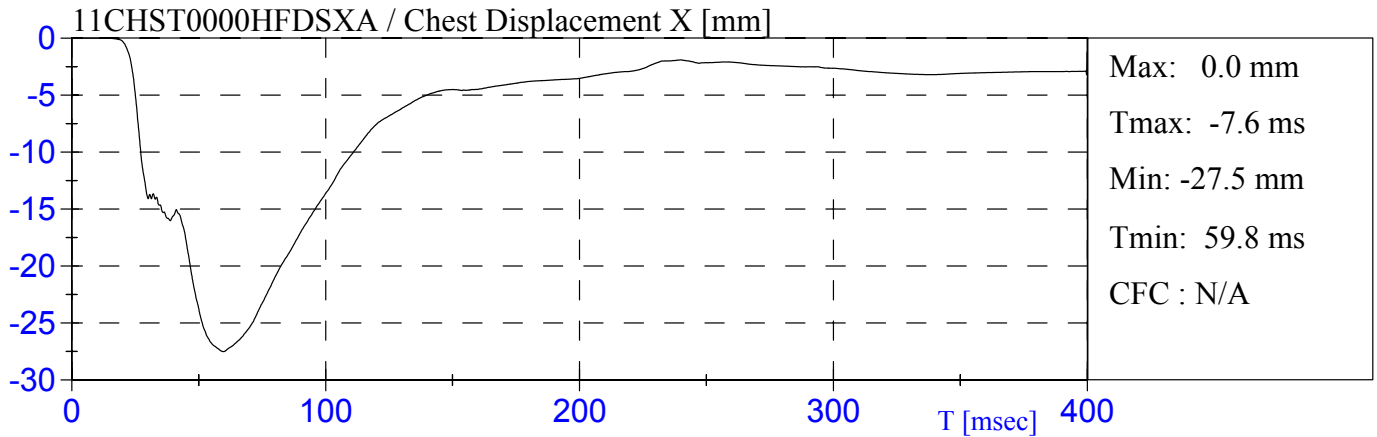
Neck Injury Criteria: 16NIJCIP000000YX

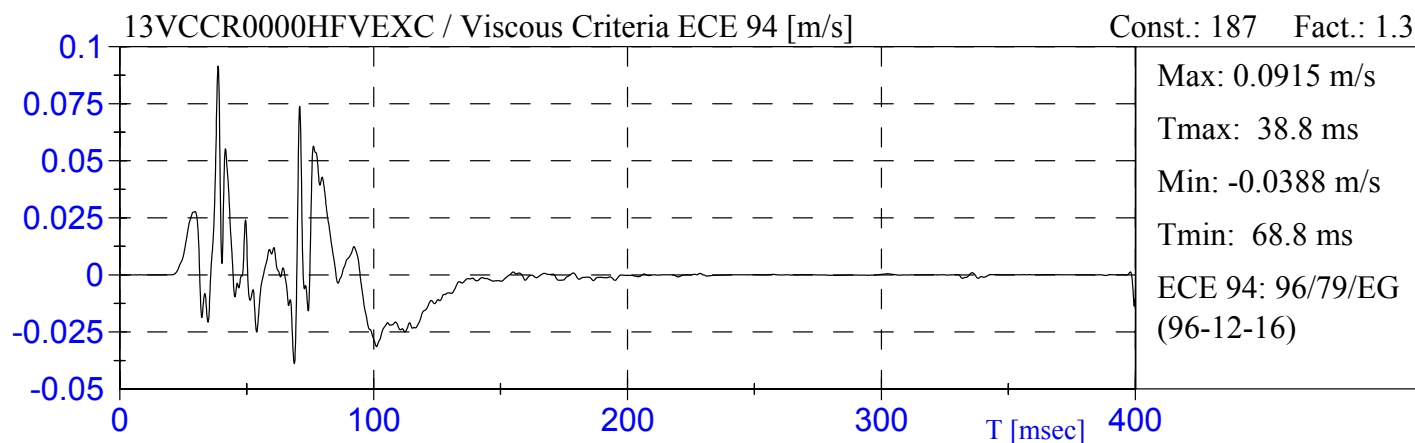
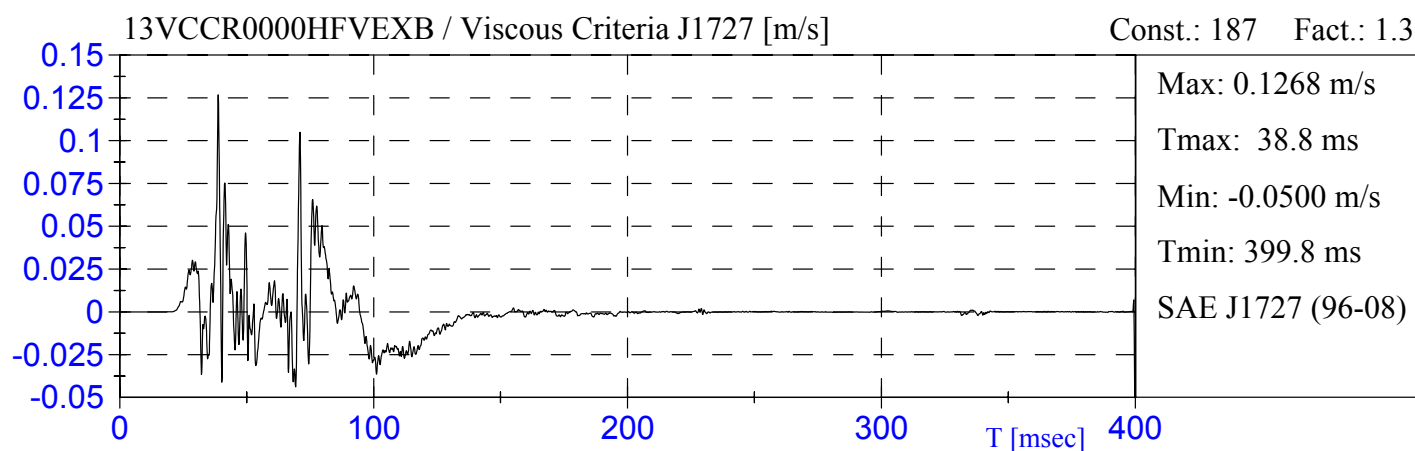
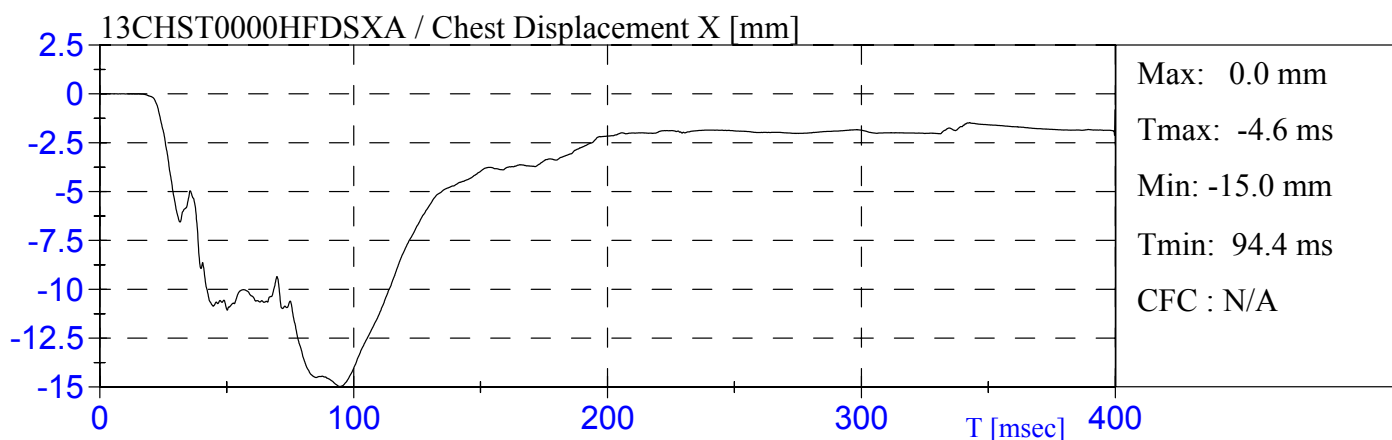
$N_{ij}^* = 0.70$

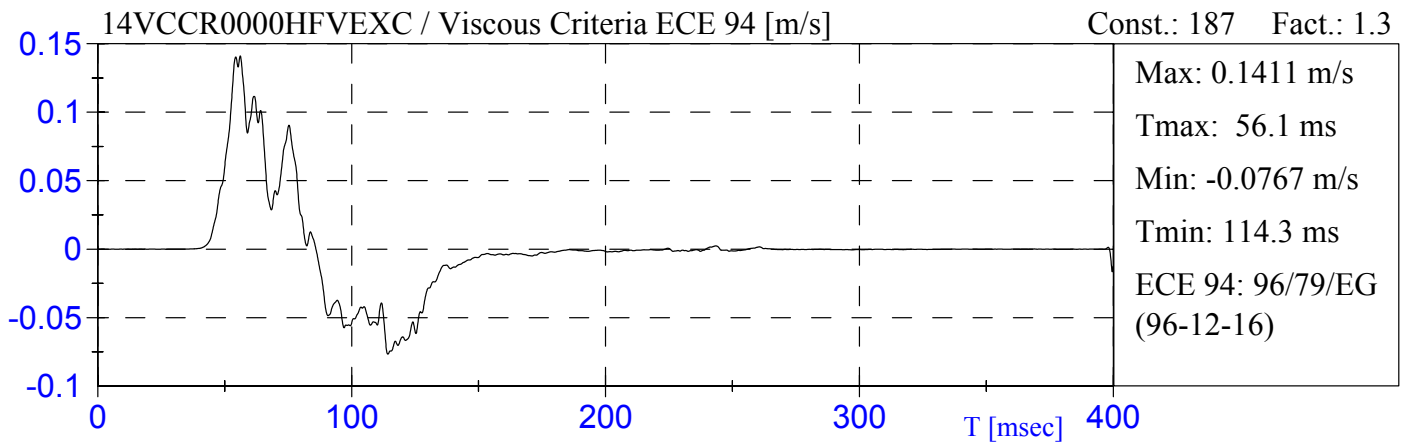
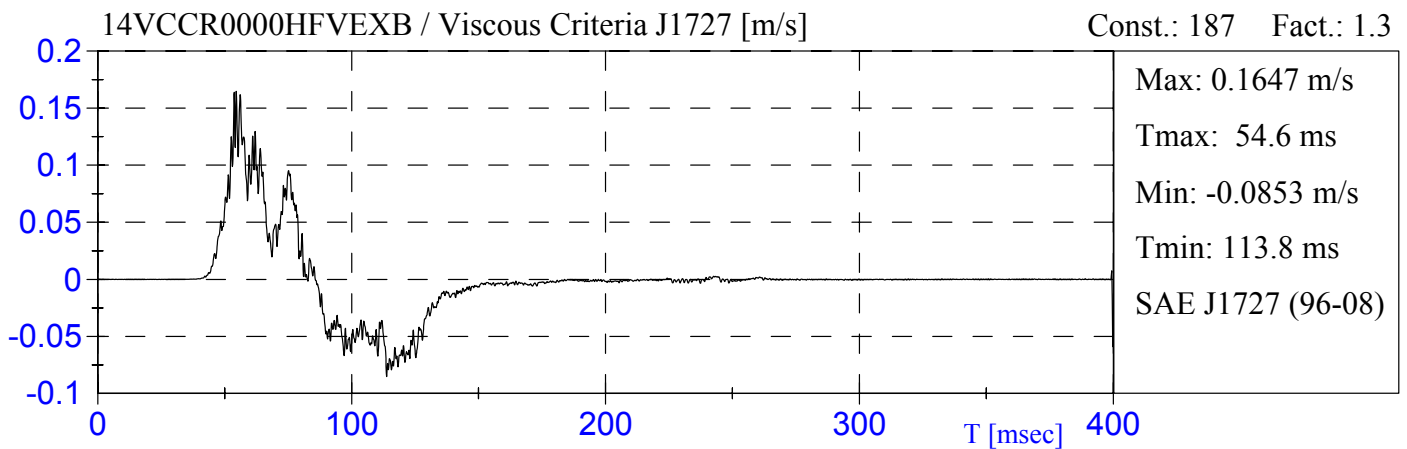
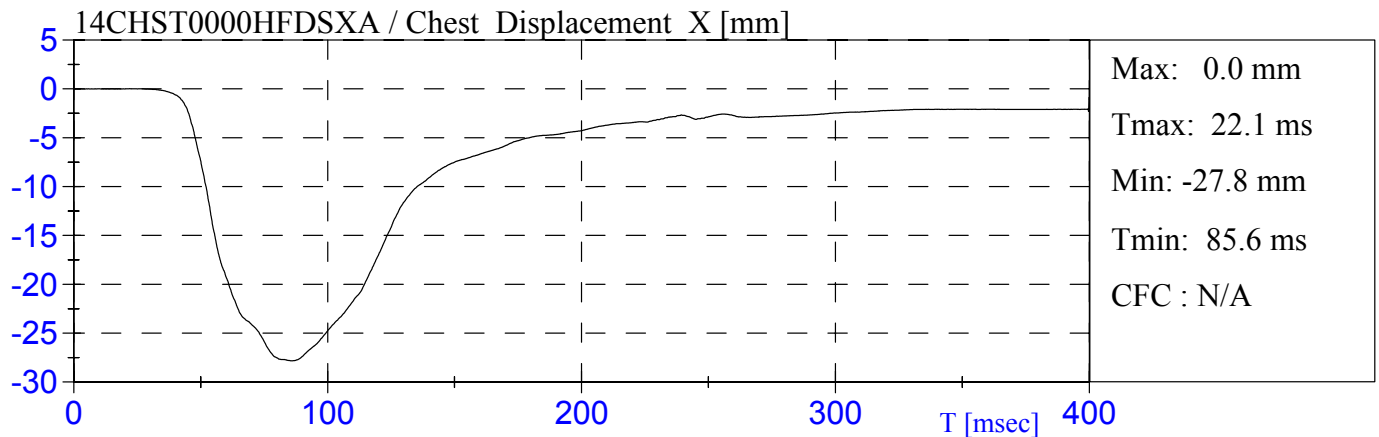
Valeurs critiques
Criticals Values

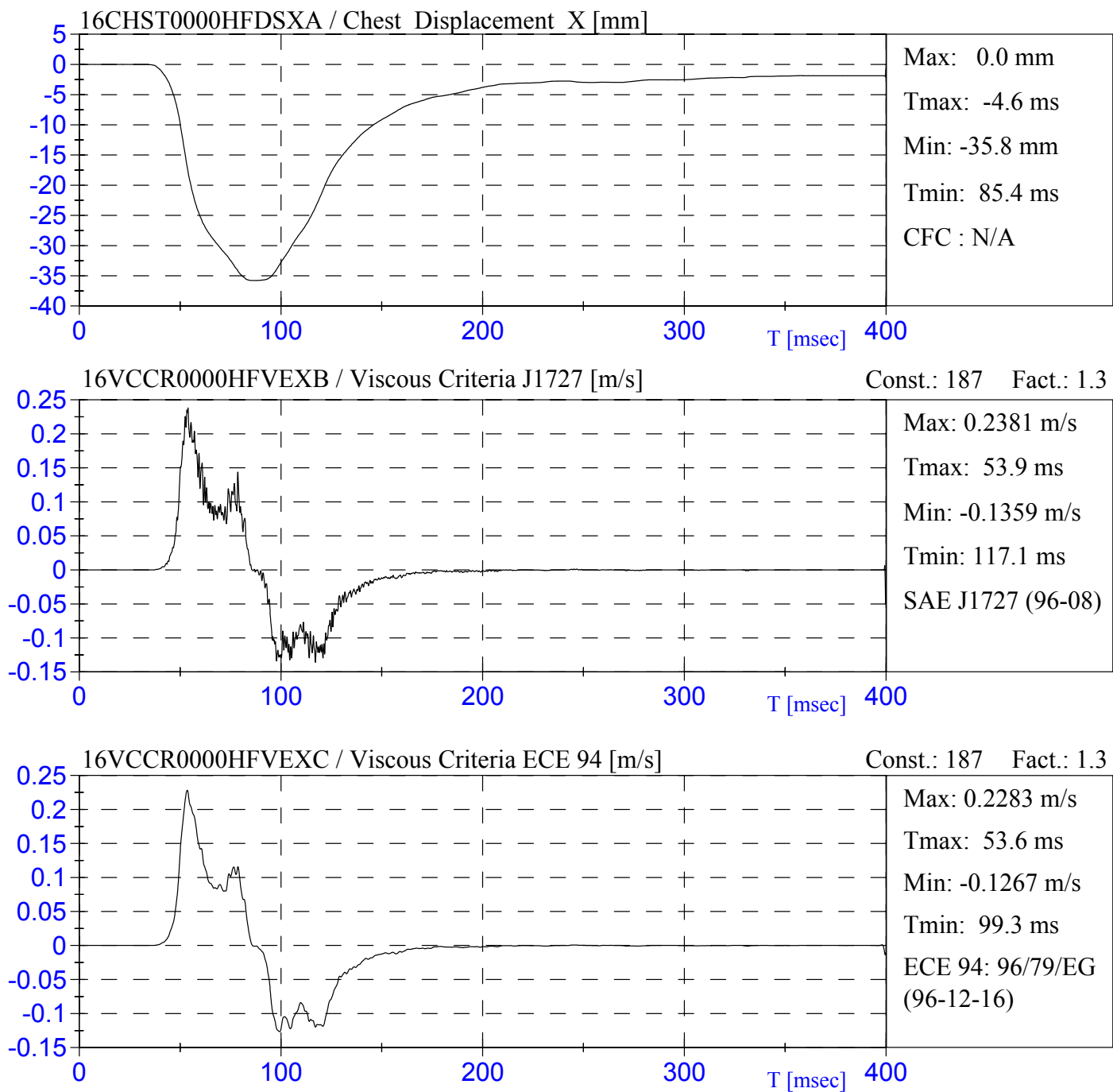
N _{tf}	N _{te}	N _{cf}	N _{ce}	Tc	4287
				Cc	3880
0.70	0.61	0.00	0.43	Fc	155
				Ec	67

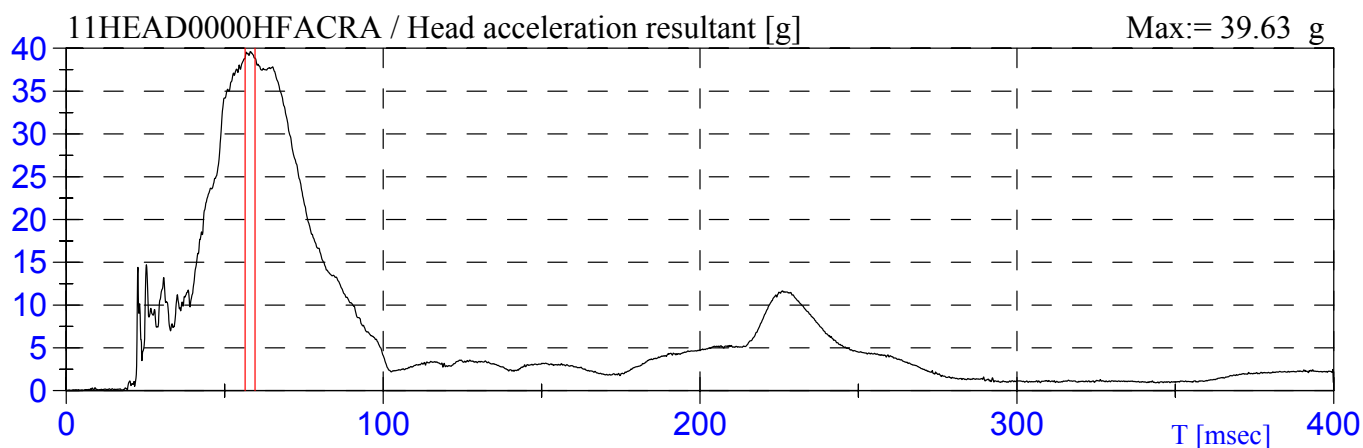
* Selon / According To: Federal Register 5/2000





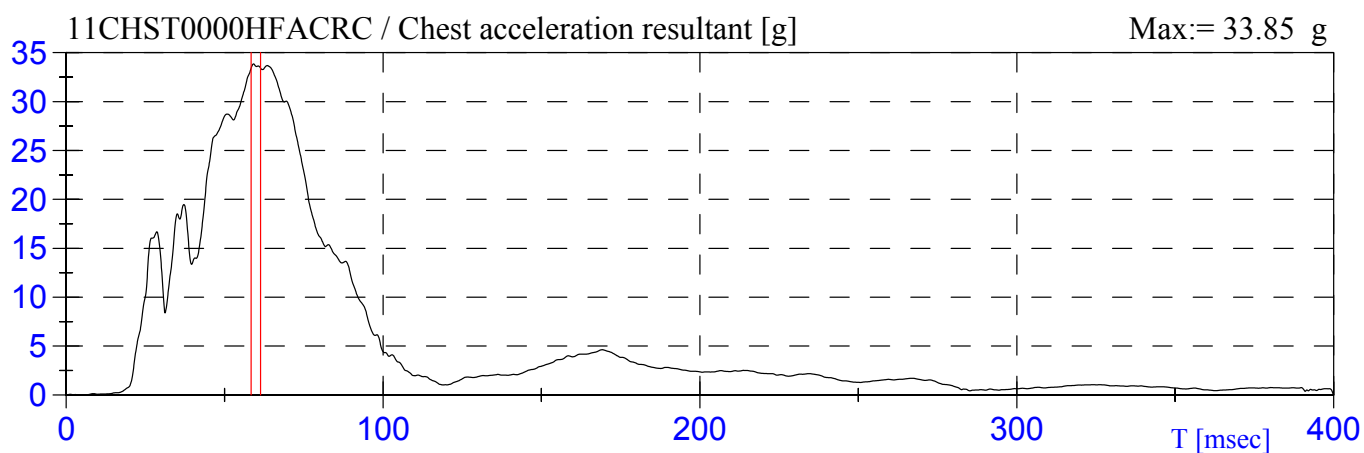






CLIP 3ms *

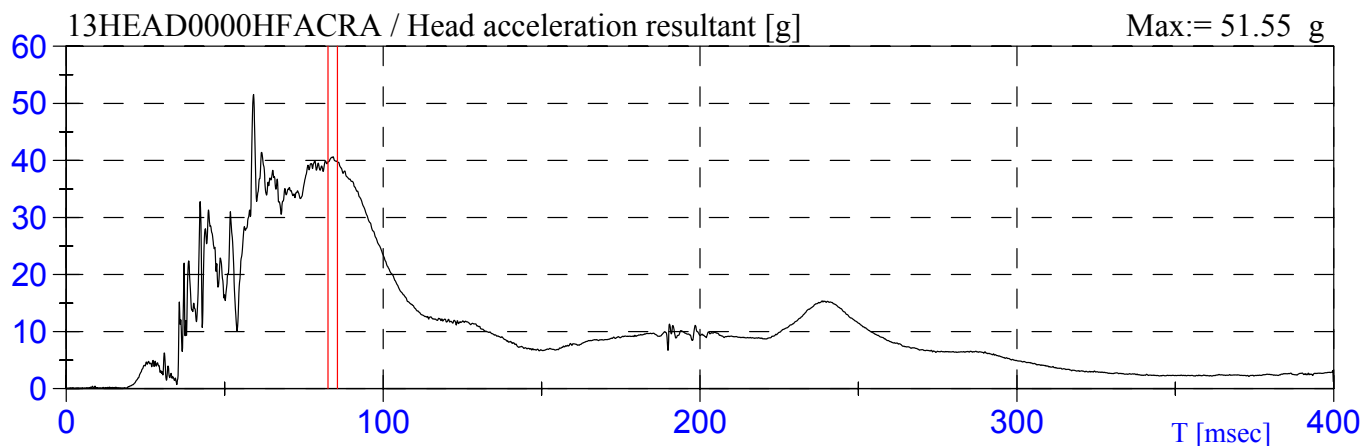
Acc. := 38.86 g	T1:= 56.4 ms	T2:= 59.6 ms
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CLIP 3ms *

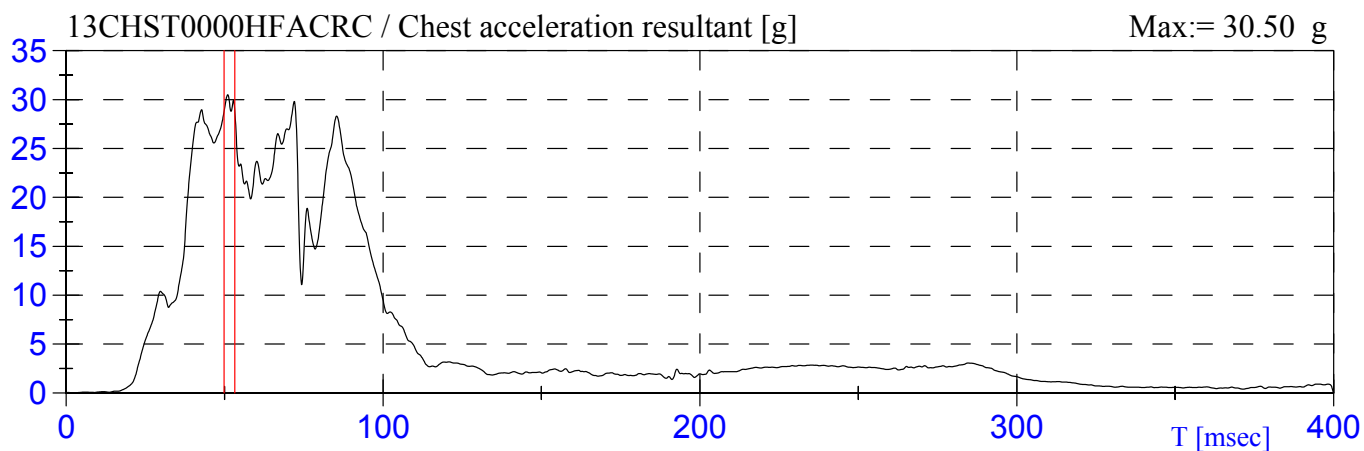
Acc. := 33.41 g	T1:= 58.4 ms	T2:= 61.4 ms
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* Selon / According To: NHTSA CLIP VERSION 2.1 5/95



CLIP 3ms *

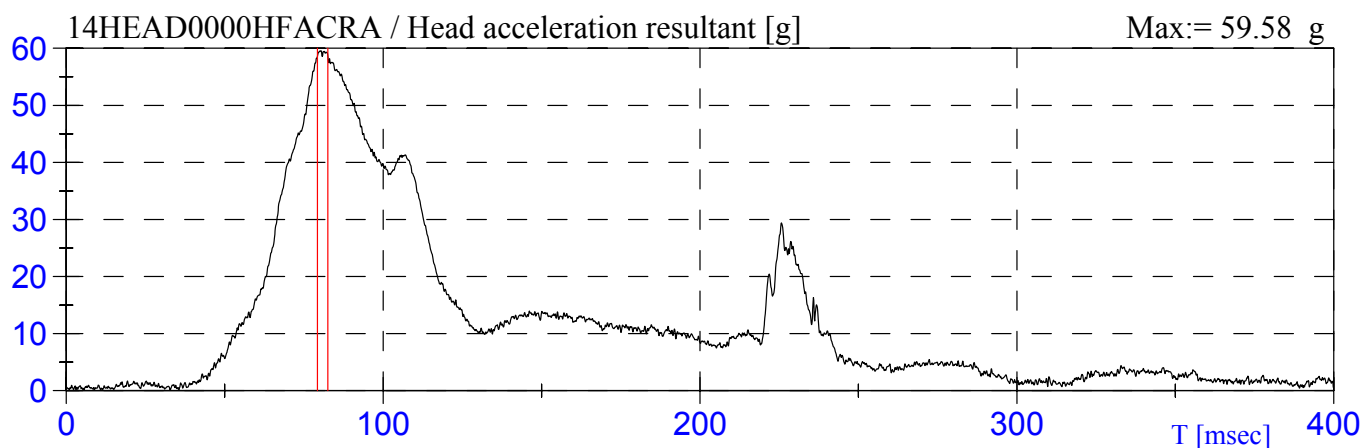
Acc. := 39.72 g	T1:= 82.6 ms	T2:= 85.6 ms
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CLIP 3ms *

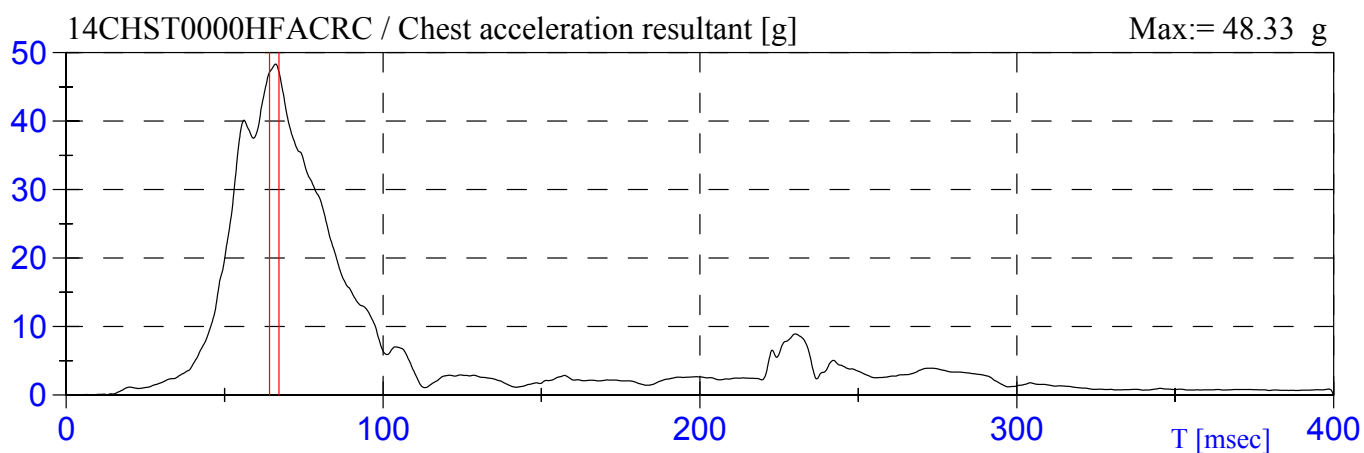
Acc. := 28.81 g	T1:= 49.9 ms	T2:= 53.3 ms
-----------------	--------------	--------------

* Selon / According To: NHTSA CLIP VERSION 2.1 5/95



CLIP 3ms *

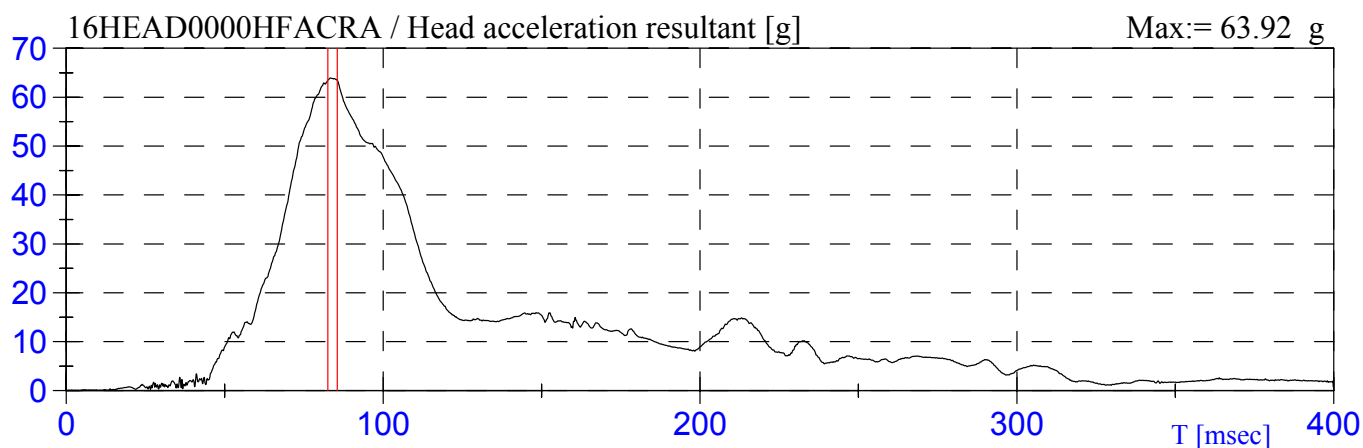
Acc. := 58.57 g	T1:= 79.3 ms	T2:= 82.6 ms
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CLIP 3ms *

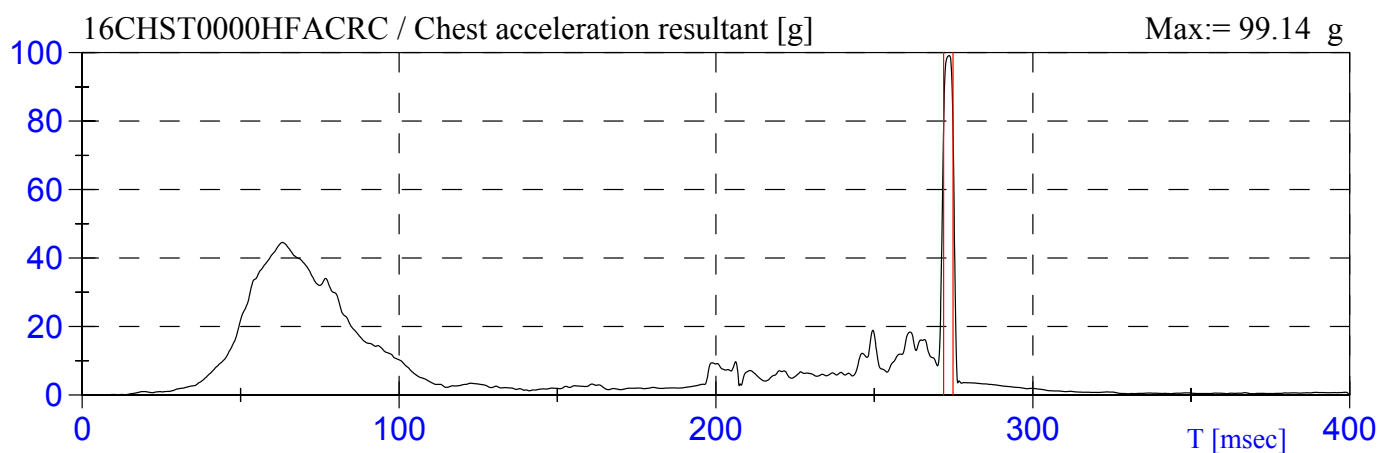
Acc. := 47.15 g	T1:= 64.2 ms	T2:= 67.2 ms
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* Selon / According To: NHTSA CLIP VERSION 2.1 5/95



CLIP 3ms *

Acc. := 63.44 g	T1:= 82.5 ms	T2:= 85.5 ms
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CLIP 3ms *

Acc. := 77.61 g	T1:= 271.8 ms	T2:= 274.8 ms
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* Selon / According To: NHTSA CLIP VERSION 2.1 5/95

COMMENTAIRES / COMMENTS

14STRNUP00HFACXA: N'est pas valide à partir de 57.6 ms.

Is not valid from 57.6 ms.

14THSPLO00HFACXC: N'est pas valide à partir de 65.8 ms.

Is not valid from 65.8 ms.

APPENDICE /APPENDIX C

**DONNÉES DES TEMPÉRATURES
TEMPERATURE DATA**

Temperature TC05-247

