

**RAPPORT D'ESSAI - TEST REPORT
COLLISION FRONTALE DE RECHERCHE
(FACE DÉFORMABLE)
RESEARCH FRONTAL IMPACT
(DEFORMABLE FACE)**

VÉHICULE D'ESSAI / TEST VEHICLE HYUNDAI TUCSON 2005 TC # 05-248
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**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°: **RR06-134**

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

Prepared by :
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SAFETY AND SECURITY
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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	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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VÉHICULE D'ESSAI - TEST VEHICLE

Fabricant - Manufacturer HYUNDAI MOTOR COMPANY IN KOREA	Type de carrosserie - Body Style Hayon 5P / 5D Hatchback	Marque, modèle, Année - Make, model, Year HYUNDAI TUCSON 2005
Classe de véhicule - Class of vehicle MPV /VTUM	Boîte de vitesse - Transmission Type Auto. avant / Auto. Front wheel	Moteur - Engine 4 cyl. trans. avant / 4 cyl. trans. front
Date de fabrication - Date of Manufacture MAY/31/05	Cylindres - Cylinders 2.0 Lit.	N° d'ident. du véhicule - Vehicle Ident. No. KM8JM12B95U220570
Lecture de l'odomètre - Odometer Reading 15 km	Nombre de places assises désignées Number of Designated Seating Positions 5	Numéro d'ident. PMG - PMG Ident. Number UN6-226
PNBV - GVWR 2010 kg	PNBE (Avant) - GAWR (Front) 1150 kg	PNBE (Arrière) - GAWR (Rear) 1100 kg

CONFIGURATION D'ESSAI - TEST CONFIGURATION

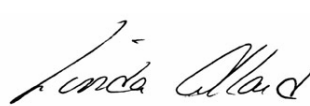
Type d'essai - Test type Véh. vs barrière avec Face Déformable TRL Veh. vs barrier with TRL Deformable Face	Vitesse d'impact- Impact velocity		Angle d'impact Impact angle	Masse du véhicule d'essai Test vehicle mass
	Prévu / Intended : 40.0 km/h	Obtenu / Obtained : 40.1 km/h	0 °	1770.6 kg
Description et position du mannequin (conducteur) Dummy description and position (driver) Description Hybrid III (5 %)	Position ** 10 mm	Description et position du mannequin (passager avant) Dummy description and position (front passenger) Description Hybrid III (5 %)	Position ** 0 mm	
Description et position du mannequin (passager arrière gauche) Dummy description and position (left rear passenger) Description Hybrid III (5 %)	Position ** N/A	Description et position du mannequin (passager arrière droit) Dummy description and position (right rear passenger) 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 44.7ms	Déployé / Deployed 46.3ms	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: 2005.12.02	Approuvé par : Approved by :
Vérifié par : Verified by : 	Digitally signed by Linda Allard Date: 2005.12.02	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		
390 kg					Avt - Frt	Arr - Rr		Avt - Frt	Arr - Rr
Nombre d'occupants (places assises désignées) Number of Occupants (Designated Seating Positions)				Banquette Bench		X	Dossier ajustable Adjustable Seat Back	X	
Avant – Front 2		Arrière – Rear 3		Total 5	Baquet Bucket	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		
52.78 l		Avant - Front 210 kPa		Arrière - Rear 210 kPa		Secours - Spare 420 kPa		P215/65R16	

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
441.4 kg	444.8 kg	886.2 kg
Arrière gauche - Left rear	Arrière droit - Right rear	Masse arrière totale - Total rear weight
307.0 kg	303.8 kg	610.8 kg
Masse totale côté gauche - Total left side weight	Masse totale côté droit - Total right side weight	Masse totale - Total weight
748.4 kg	748.6 kg	1497.0 kg

TROISIÈME PESÉE : VÉHICULE PRÊT POUR L'ESSAI

THIRD WEIGHT : VEHICLE READY FOR TEST

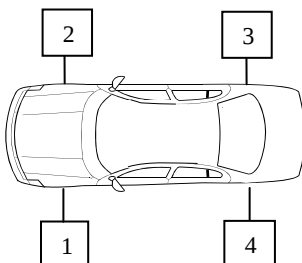
Avant gauche - Left front	Avant droit - Right front	Masse avant totale - Total front weight
477.0 kg	485.0 kg	962.0 kg
Arrière gauche - Left rear	Arrière droit - Right rear	Masse arrière totale - Total rear weight
406.6 kg	402.0 kg	808.6 kg
Masse totale côté gauche - Total left side weight	Masse totale côté droit - Total right side weight	Masse totale - Total weight
883.6 kg	887.0 kg	1770.6 kg

ATTITUDE DU VÉHICULE / VEHICLE ATTITUDE

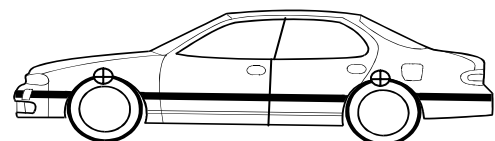
	Attitude tel que livré Attitude on delivery	Attitude tel que testé Attitude as tested
1 Roue avant gauche* Left front wheel*	765 mm	740 mm
2 Roue avant droite* Front right wheel*	761 mm	740 mm
3 Roue arrière droite* Rear right wheel*	792 mm	740 mm
4 Roue arrière gauche* Rear left wheel*	788 mm	740 mm

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

Vue de plan / Plan view



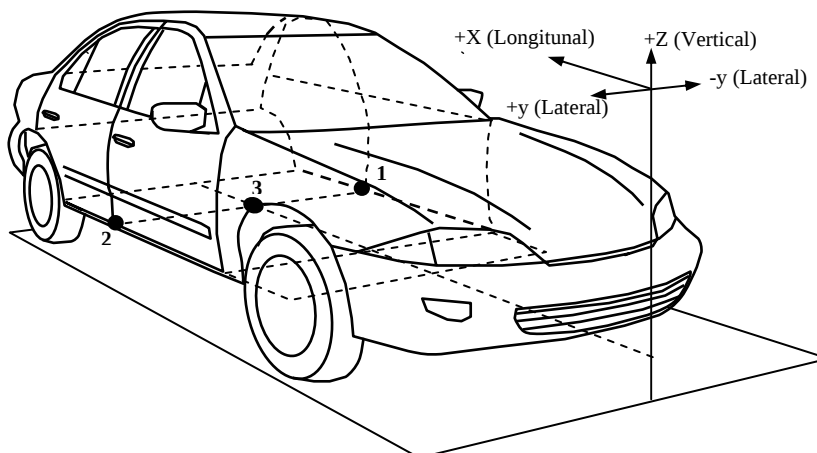
Vue de côté / Side view



⊕ Points de mesure / Measurement points

Date de collision Crash date	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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EMPLACEMENT DES ACCÉLÉROMÈTRES
ACCELEROMETER LOCATIONS

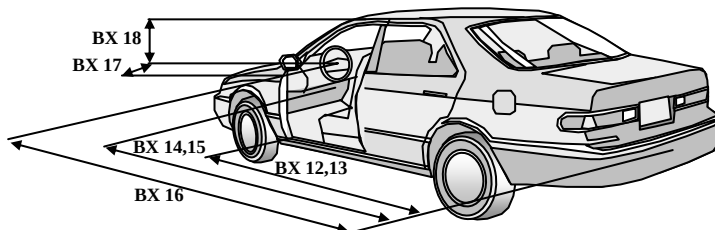
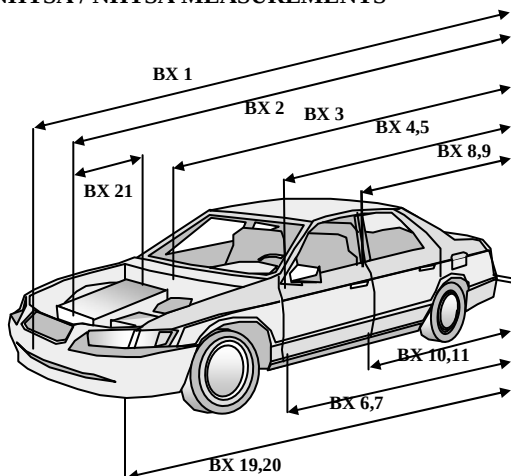


Point de référence : Centre transversal du véhicule, au point le plus avancé, au niveau du sol. Selon SAE J182a.
Reference point : Transversal center of the vehicle, at the foremost point and at ground level. As per SAE J182a.

EMPLACEMENT LOCATION	DESCRIPTIONS	COORDONNÉES / COORDINATES (mm)		
		X	Y	Z
#1	Seuil de la porte gauche @ pilier "B" Left door sill @ pillar "B"	2440	-620	417
#2	Seuil de la porte droite @ pilier "B" Right door sill @ pillar "B"	2474	617	416
#3	Centre de gravité Centre of gravity	2643	5	423

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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	4325	3965	360	12	2906	2907	-1
2	3716	3593	123	13	2907	2907	0
3	3441	3427	14	14	3071	3063	8
4	2897	2899	-2	15	3116	3097	19
5	2899	2902	-3	16	2493	2505	-12
6	2907	2908	-1	17	433	431	2
7	2907	2910	-3	18	508	490	18
8	1914	1915	-1	19	4304	3955	349
9	1922	1924	-2	20	4303	3953	350
10	1932	1932	0	21	164	163	1
11	1945	1947	-2				

Mesures en mm / Measurements in mm

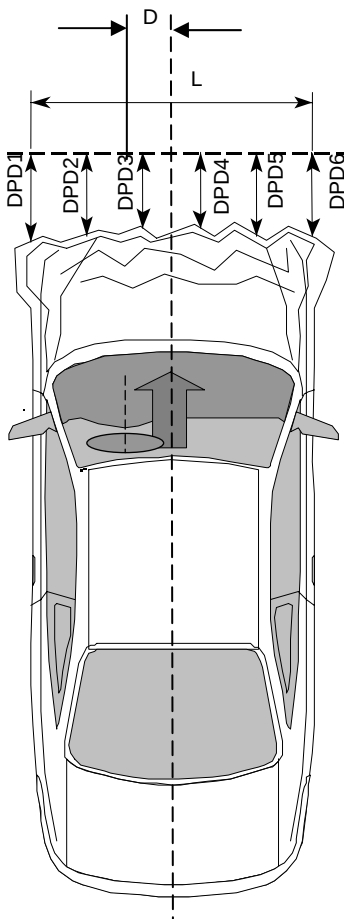
* BX : Mesures du véhicule avant-essai. / Pre-test vehicle measurements data.

** 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
162	500	-338
42	386	-344
6	374	-368
5	376	-371
41	440	-399
162	551	-389
	1501	
	0	

Mesures en mm / Measurements in mm

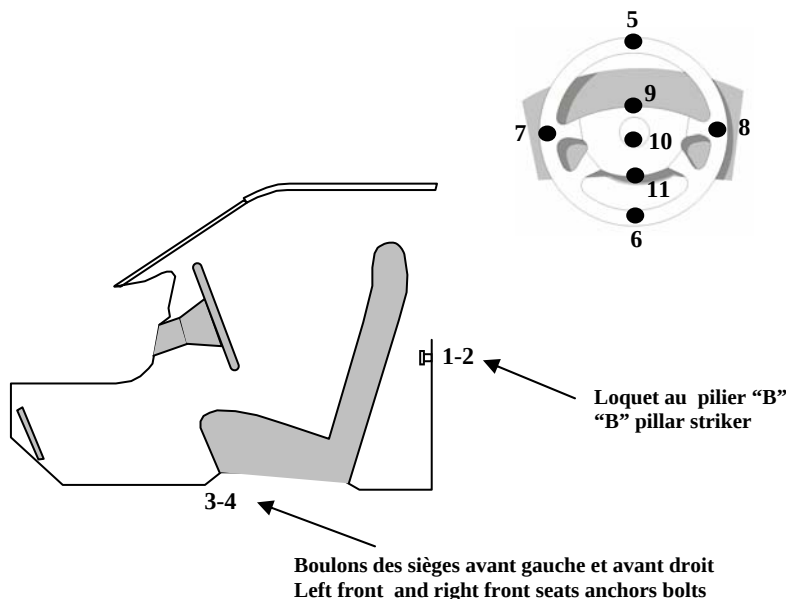
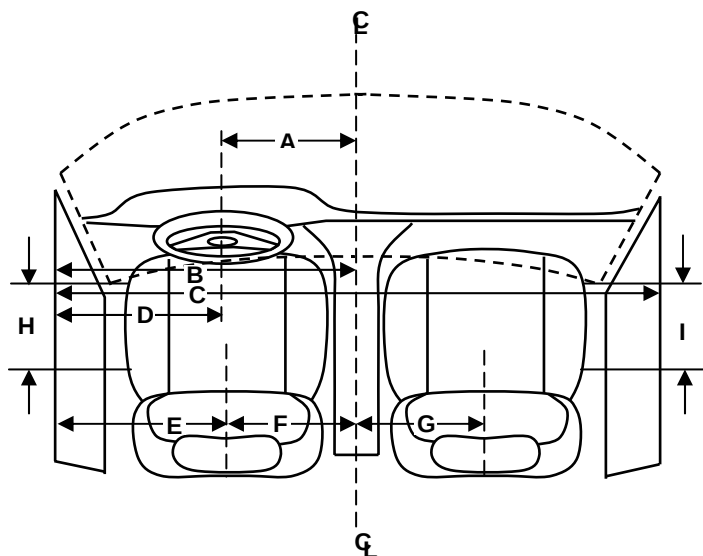
L : Longueur de la région endommagée
Length of damaged region

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	345
B	Seuil de fenêtre à la ligne de centre du véhicule Window edge to center line of the vehicle	800
C	Fenêtre à fenêtre Window to window	1597
D	Centre du volant au seuil de la fenêtre Steering wheel center to window edge	455
E	Seuil de la fenêtre au centre du siège (conducteur) Window edge to seat midline (driver)	448
F	Centre du siège à la ligne de centre du véhicule (conducteur) Seat midline to center line of vehicle (driver)	352
G	Centre du siège à la ligne de centre du véhicule (passager) Seat midline to center line of vehicle (passenger)	355
H	Course du siège (conducteur) Seat travel (driver)	238
I	Course du siège (passager) Seat travel (passenger)	239
J	Ajustement du volant Steering wheel adjustment	38
K	Ajustement de la ceinture baudrier Upper torso belt adjustment	72

Code	Description	X(mm)	Y(mm)	Z(mm)
1	Loquet au pilier "B" (conducteur) "B" pillar striker (driver)	2335	-768	784
2	Loquet au pilier "B" (passager) "B" pillar striker (passenger)	2336	766	785
3	Boulon siège avant, extérieur (conducteur) Front seat bolt, outboard (driver)	1892	-583	439
4	Boulon siège avant, extérieur (passager) Front seat bolt, outboard (passenger)	1893	584	441
5	Jante du volant, centre haut Steering wheel rim, top centre	1729	-344	1222
6	Jante du volant, centre bas Steering wheel rim, bottom centre	1906	-345	885
7	Jante du volant, centre gauche Steering wheel rim, left centre	1814	-533	1051
8	Jante du volant, centre droit Steering wheel rim, right centre	1827	-155	1051
9	Moyeu du volant, centre haut Steering wheel hub, top centre	1797	-345	1087
10	Moyeu du volant, centre Steering wheel hub, centre	1846	-344	1036
11	Moyeu du volant, centre bas Steering wheel hub, bottom centre	1864	-344	987
12	Centre du volant Center of steering wheel	1832	-345	1051

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	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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POSITIONNEMENT DES MANNEQUINS / MEASUREMENTS OF DUMMY POSITIONS

		<u>MESURES / MEASUREMENTS :</u>					
Conducteur/Driver :							

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 / 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

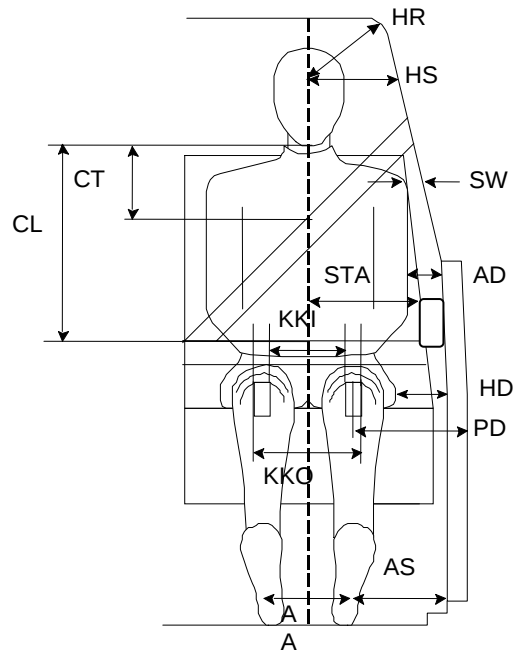
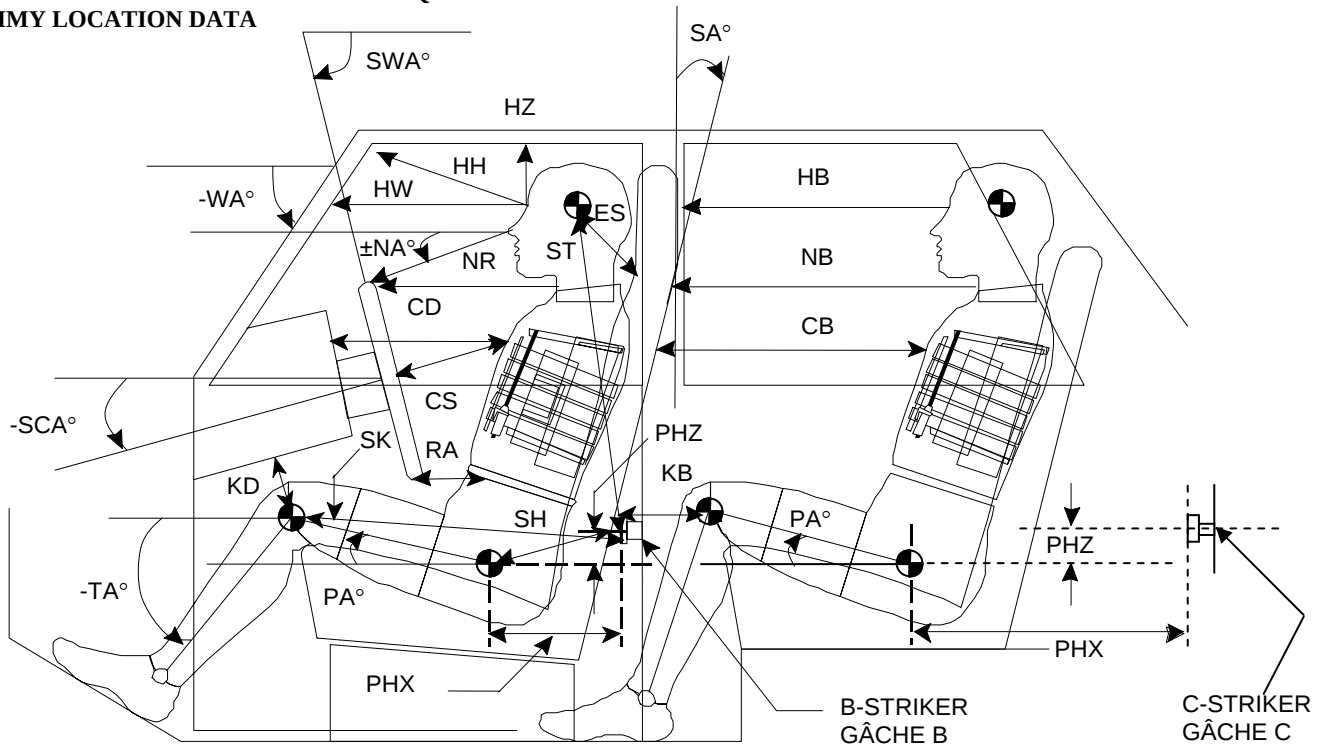
Selon la procédure de positionnement de mannequin 5^e percentile Hybrid III, conformément à la sous-section O, TP208-12, 14 janvier 2003.

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

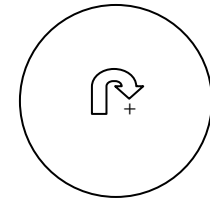
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COTES DE LOCALISATION DES MANNEQUINS
DUMMY LOCATION DATA



référence
reference :



Date de collision Crash date	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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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	240		
Genou à genou (plaque) Intérieur / Interior Centre / Center Knee to knee (plate) Extérieur / Extérieur	KKI	185	95		
	KKC	255	165		
	KKO	325	235		
De la cheville jusqu'au seuil de porte (horizontalement) Ankle to door sill (horizontal)	AS	165	155		
Centre du genou au tableau de bord ou siège horizontalement (minimum) Knees centre to dash or seat back horizontal (minimum)	KDL	20	15		
	KDR	35	10		
Sternum au tableau de bord (horizontalement) Chest to dash (horizontal)	CD		365		
Milieu du sternum au centre du moyeu du volant ou siège avant Mid sternum to steering hub center or front seat	CS/CB	204			
Milieu du front jusqu'au pare-brise (horizontalement) Mid forehead to windshield (horizontal)	HW	660	680		
Milieu du front jusqu'au haut du pare-brise Mid forehead to windshield header	HH	358	341		
Nez à la jante du volant de direction (haut) ou siège avant Nose to steering wheel rim (top) or front seat	NR/HB	304			
Milieu du front jusqu'au début du toit Mid forehead to edge roof	HR	300	315		
Haut de l'oreille au haut du siège avant Ear top to front seat top	ES	289	271		
Menton au haut de la ceinture sous-abdominale (verticalement) Chin to lap belt upper edge (vertical)	CL	355	360		
Menton au haut de la ceinture baudrier (verticalement) Chin to thorax belt upper edge (vertical)	CT	115	110		
Milieu du front à la fenêtre latérale (horizontalement) Mid forehead to side window (horizontal)	HS	342	358		
La rotule à la porte (horizontalement) Patella to door (horizontal)	PD	170	174		
Du point-H à la porte (horizontalement) H-point to door (horizontal)	HD	193	204		
Du milieu du bras à la porte (horizontalement) Mid upper arm to door (horizontal)	AD	116	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	395	510		
Épaule à la fenêtre de côté Shoulder to side window	SW	173	186		
Abdomen à l'appui-bras Abdomen to armrest	STA	170	175		
Milieu du front au toit (verticalement) Mid forehead to roof (vertical)	HZ	330	335		
Tête au loquet (plan (x,z)) Striker to head ((x,z) plan)	ST	522	523		
Abdomen à la jante du volant de direction (bas) Steering wheel rim to abdomen (bottom)	RA	80			
Genou au loquet (plan (x,z)) Striker to knee ((x,z) plan)	SK	663	683		
Point-H au loquet (plan (x,z)) Striker to H-Point ((x,z) plan)	SH	344	365		
Point-H au loquet en X (horizontalement) Striker to H-Point in X (horizontal)	PHX	335	352		
Point-H au loquet en Z (verticalement) Striker to H-Point in Z (vertical)	PHZ	79	96		

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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	61.8°			
Angle du pare-brise Windshield angle	-WA	-30.2°			
Angle de la colonne de direction Steering column angle	-SCA	-27.6°			
Angle du tibia gauche Left tibial angle	-TA	-22.9°	-20.7°		
Angle du tibia droit Right tibial angle	-TA	-32.9°	-20.2°		
Angle pelvis Pelvic angle	+PA	20.2°	20.5°		
Angle du nez à la jante de direction (haut) Nose to steering wheel rim (top) angle	±NA	-4.4°			
Angle du dossier (Tige d'Appuie-tête) Seat back angle (Headrest Pole)	+SA	18.5°	16.5°		
Angle ST (horizontalement) ST angle (horizontal)	+ST-A	69.7°	65.8°		
Angle SK (horizontalement) SK angle (horizontal)	±SK-A	-0.6°	-1.3°		
Angle SH (horizontalement) SH angle (horizontal)	-SH-A	-13.3°	-15.3°		

Date de collision Crash date	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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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	2154	-434	1274
Base du nez - Glabella (root of nose)	2068	-364	1284
Menton - Chin (bottom)	2063	-369	1175
Jonction menton et cou - Chin / neck junction	2132	-368	1198
Thorax au niveau des côtes supérieures - Chest at upper rib level	2033	-358	1006
Thorax au niveau des côtes inférieures - Chest at lower rib level	2002	-354	897
Boulon supérieur avant de l'épaule, ext. - Shoulder bolt, top front outboard	2175	-526	1045
Boulon supérieur avant de l'épaule, int. - Shoulder bolt, top front inboard	2186	-207	1049
Boulon du coude, extérieur - Elbow bolt, outboard	2008	-634	957
Boulon du coude, intérieur - Elbow bolt, inboard	2023	-88	951
Boulon du poignet, extérieur - Wrist bolt, outboard	1842	-573	1078
Boulon du poignet, intérieur - Wrist bolt, inboard	1861	-122	1093
Point d'articulation de la hanche, extérieur - Hip point, outboard	2087	-482	745
Boulon du genou gauche, extérieur - Knee bolt, left leg, outboard	1672	-504	777
Boulon de la cheville gauche, extérieur - Ankle bolt, left leg , outboard	1514	-490	469
Point du talon gauche - Heel point, left leg	1582	-490	363
Plante du pied gauche vs plancher - Ball of foot at toeboard contact, left leg	1449	-531	384
Boulon du genou droit, intérieur - Knee bolt, right leg , inboard	1664	-249	768
Boulon de la cheville droite, intérieur - Ankle bolt, right leg , inboard	1479	-218	490
Point du talon droit - Heel point, right leg	1482	-227	359
Plante du pied droit vs plancher - Ball of foot at toeboard contact, right leg	1347	-239	478
Potentiomètre de déflexion du sternum – Sternum deflection potentiometer	2012	-356	952

Remarques – Comments : **Aucune / None**

Date de collision Crash date	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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**MESURES DE MANNEQUIN DAE
TEST DUMMY MEASUREMENTS**

PASSAGER / PASSENGER

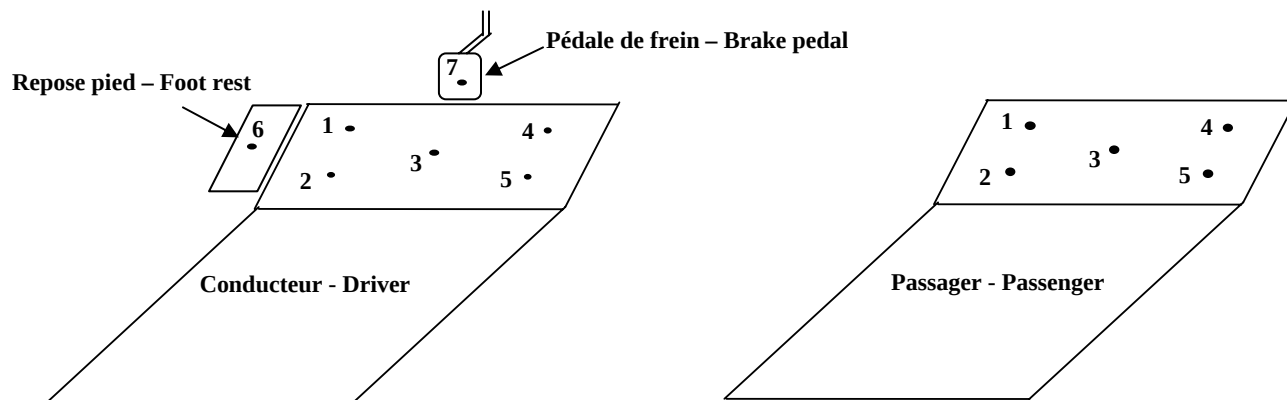
Description et emplacement du Mannequin
ATD description and location:

DESCRIPTION	X(mm)	Y(mm)	Z(mm)
Centre de gravité de la tête, extérieur - Head CG, outboard	2122	424	1262
Base du nez - Glabella (root of nose)	2037	356	1269
Menton - Chin (bottom)	2032	359	1163
Jonction menton et cou - Chin / neck junction	2103	358	1184
Thorax au niveau des côtes supérieures - Chest at upper rib level	2012	344	997
Thorax au niveau des côtes inférieures - Chest at lower rib level	1983	348	892
Boulon supérieur avant de l'épaule, ext. - Shoulder bolt, top front outboard	2136	511	1025
Boulon supérieur avant de l'épaule, int. - Shoulder bolt, top front inboard	2145	199	1030
Boulon du coude, extérieur - Elbow bolt, outboard	2065	560	818
Boulon du coude, intérieur - Elbow bolt, inboard	2068	158	829
Boulon du poignet, extérieur - Wrist bolt, outboard	1853	538	774
Boulon du poignet, intérieur - Wrist bolt, inboard	1862	185	770
Point d'articulation de la hanche, extérieur - Hip point, outboard	2068	476	734
Boulon du genou gauche, intérieur - Knee bolt, left leg, inboard	1650	325	765
Boulon de la cheville gauche, intérieur - Ankle bolt, left leg, inboard	1497	275	462
Point du talon gauche - Heel point, left leg	1571	277	363
Plante du pied gauche vs plancher - Ball of foot at toeboard contact, left leg	1427	312	374
Boulon du genou droit, extérieur - Knee bolt, right leg, outboard	1653	496	773
Boulon de la cheville droite, extérieur - Ankle bolt, right leg, outboard	1519	487	456
Point du talon droit - Heel point, right leg	1598	501	363
Plante du pied droit vs plancher - Ball of foot at toeboard contact, right leg	1460	535	376
Potentiomètre de déflexion du sternum – Sternum deflection potentiometer	1992	346	926

Remarques – Comments : **Aucune / None**

Date de collision Crash date	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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MESURES PLANCHER / FOOTWELL MEASUREMENTS



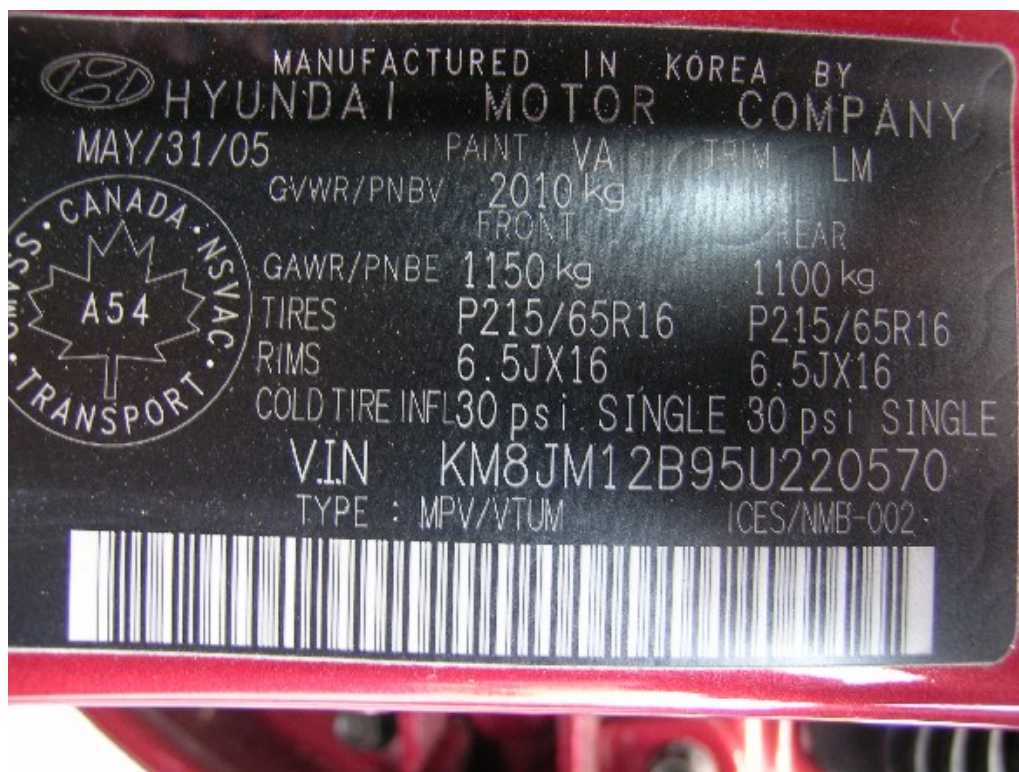
N° Cible	AVANT ESSAI	APRÈS ESSAI	
Target No.	PRE-TEST	POST-TEST	Δ mm
1	x	1195	-6
	y	-416	-2
	z	447	-13
2	x	1296	-1
	y	-418	-1
	z	377	-5
3	x	1242	-2
	y	-306	-2
	z	410	-6
4	x	1198	-5
	y	-214	-2
	z	442	-11
5	x	1294	0
	y	-206	-1
	z	378	-6
6	x	1348	-5
	y	-576	-1
	z	434	-3
7	x	1343	-13
	y	-291	6
	z	525	-12

N° Cible	AVANT ESSAI	APRÈS ESSAI	
Target No.	PRE-TEST	POST-TEST	Δ mm
1	x	1170	-11
	y		
	z		
2	x	1265	-3
	y		
	z		
3	x	1207	-8
	y		
	z		
4	x	1165	-21
	y	439	6
	z	495	-18
5	x	1275	-5
	y	454	3
	z	391	-5

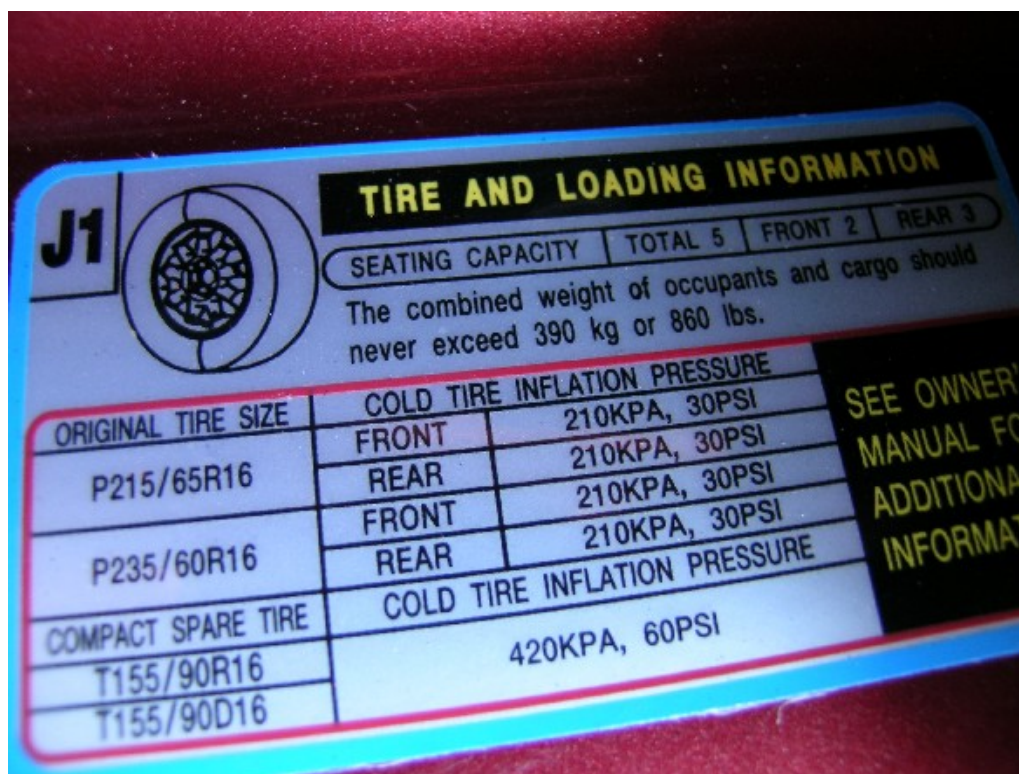
APPENDICE / APPENDIX A

**PHOTOGRAPHIES DE L'ESSAI
TEST PHOTOGRAPHS**

Date de collision Crash date	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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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.

Date de collision Crash date	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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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	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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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	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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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	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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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.

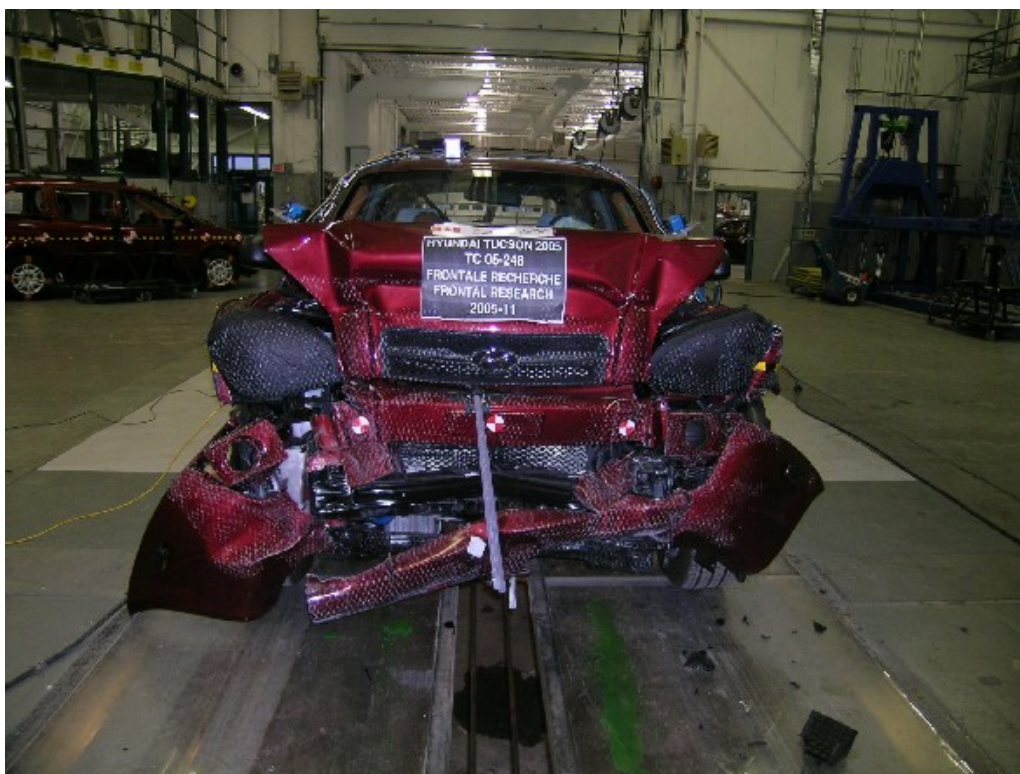


10. Vue générale côté droit du véhicule d'essai, après essai.
General right side view of the test vehicle, post-test.

Date de collision Crash date	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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11. Vue avant du véhicule d'essai, avant essai.
Front view of the test vehicle, pre-test.

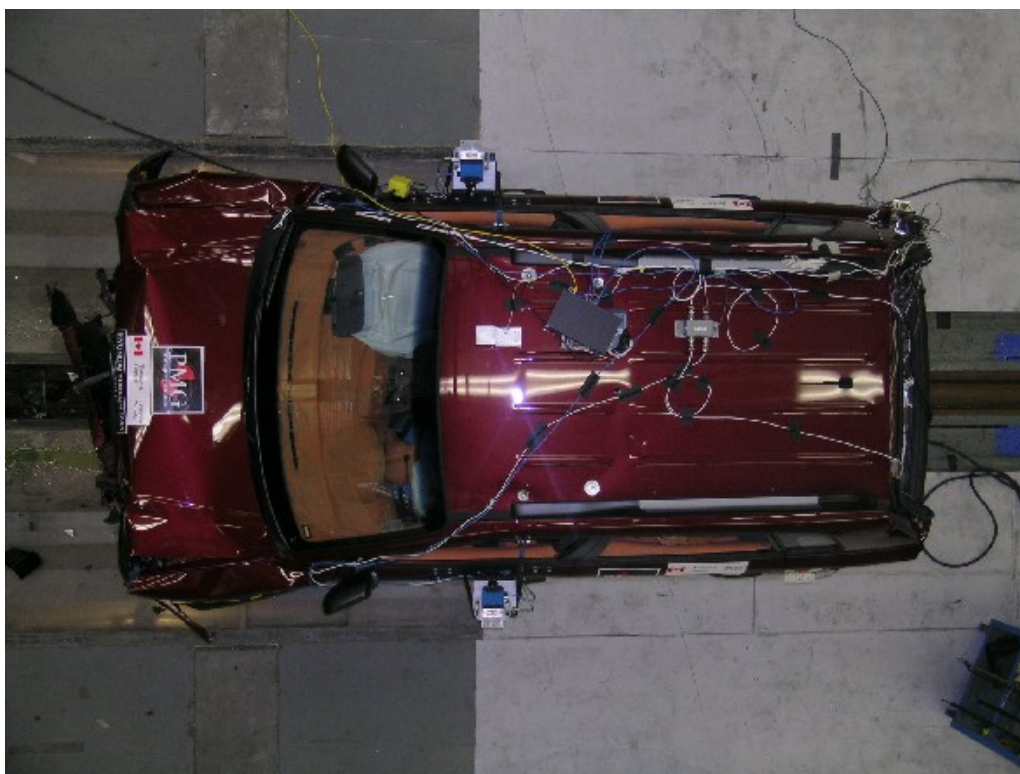


12. Vue avant du véhicule d'essai, après essai.
Front view of the test vehicle, post-test.

Date de collision Crash date	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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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.

Date de collision Crash date	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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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.

Date de collision Crash date	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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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	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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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	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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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	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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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	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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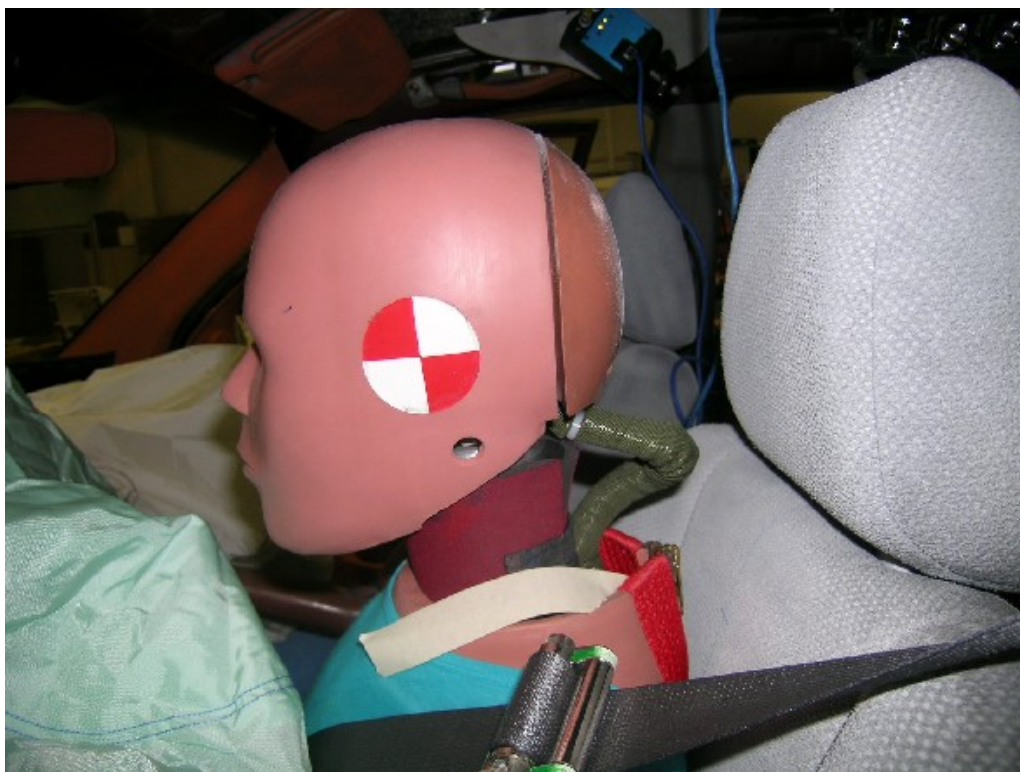


25. Position du conducteur, avant essai.
Driver's position, pre-test.



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

Date de collision Crash date	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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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	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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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	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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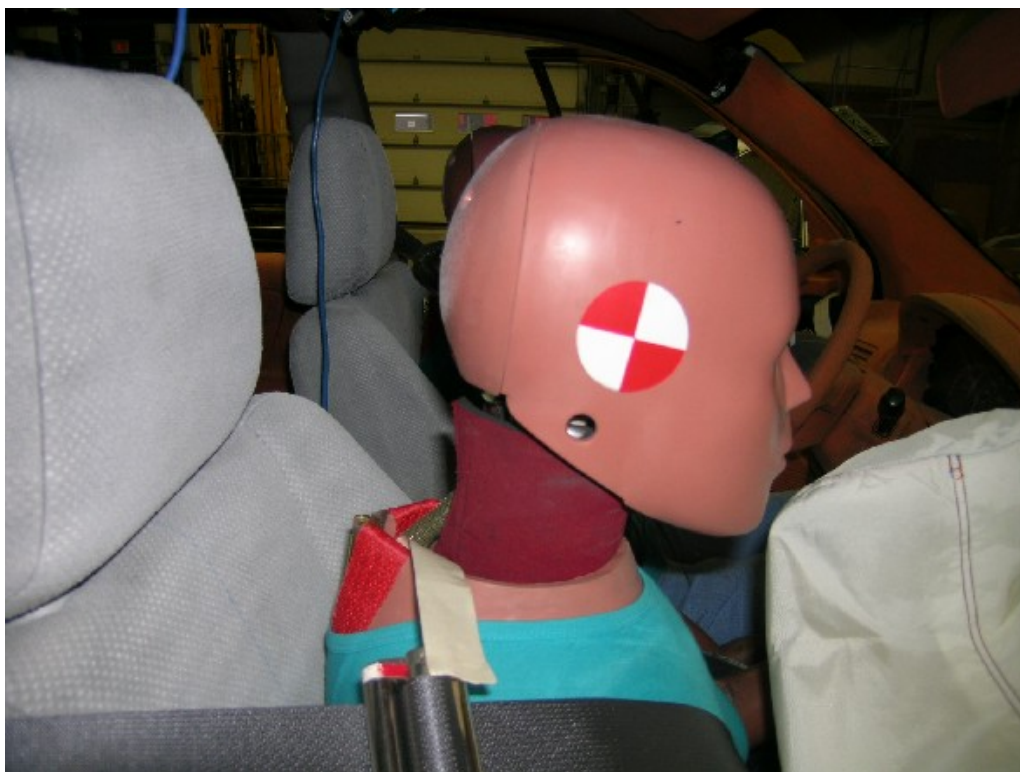


30. Position du passager, avant essai.
Passenger's position, pre-test.



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

Date de collision Crash date	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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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	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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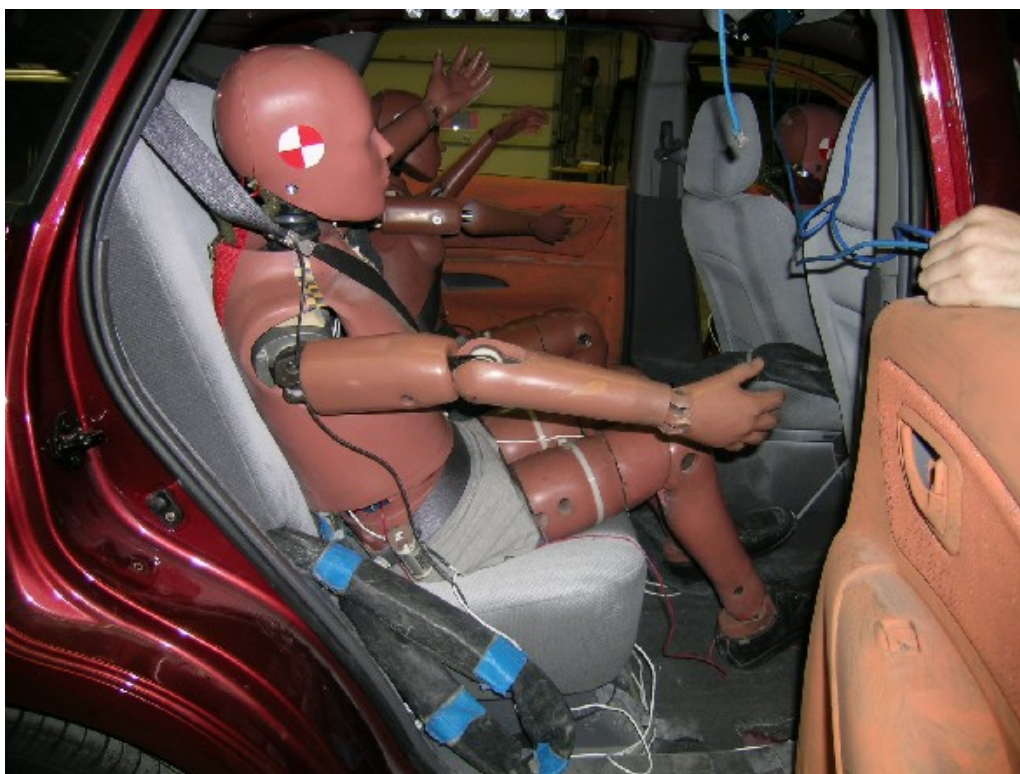


**34. Point de contact des genoux du passager, après essai.
Passenger's knees contact point, post-test.**

Date de collision Crash date	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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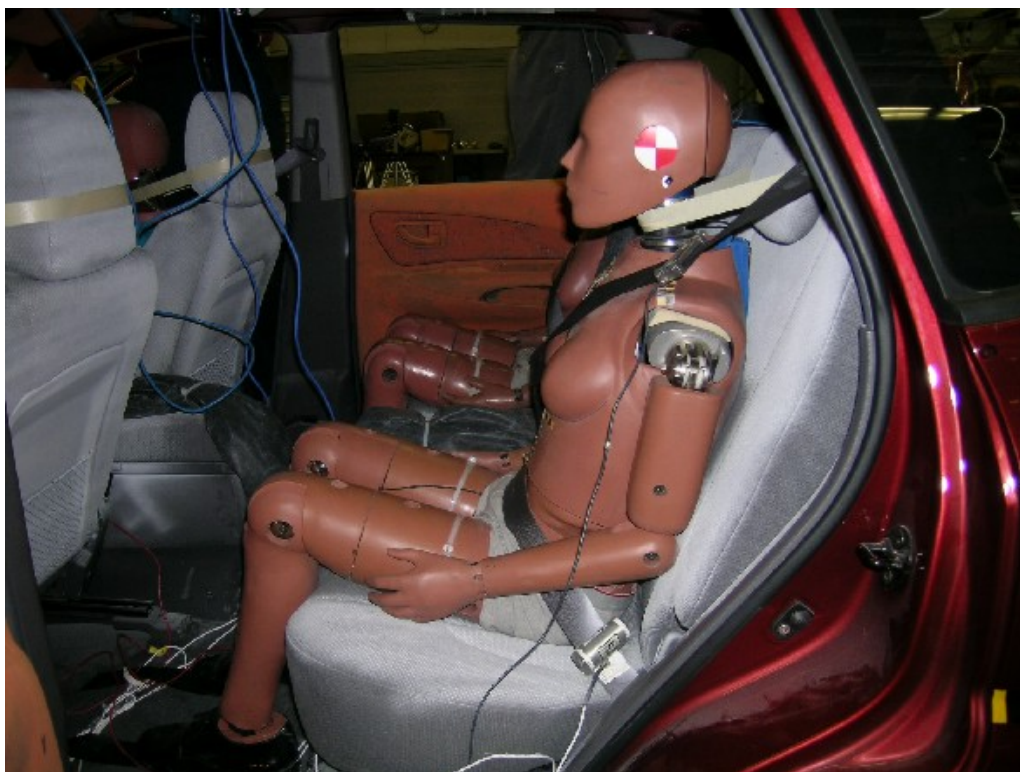


35. Position du passager arrière droit, avant essai.
Rear right passenger's position, pre-test.



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

Date de collision Crash date	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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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.

Date de collision Crash date	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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39. Vue latérale droit de la Face Déformable, avant essai.
Right side view of the Deformable Face, pre-test.



40. Vue latérale droit de la Face Déformable, après essai.
Right side view of the Deformable Face, post-test.

Date de collision Crash date	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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41. Vue latérale gauche de la Face Déformable, avant essai.
Left side view of the Deformable Face, pre-test.

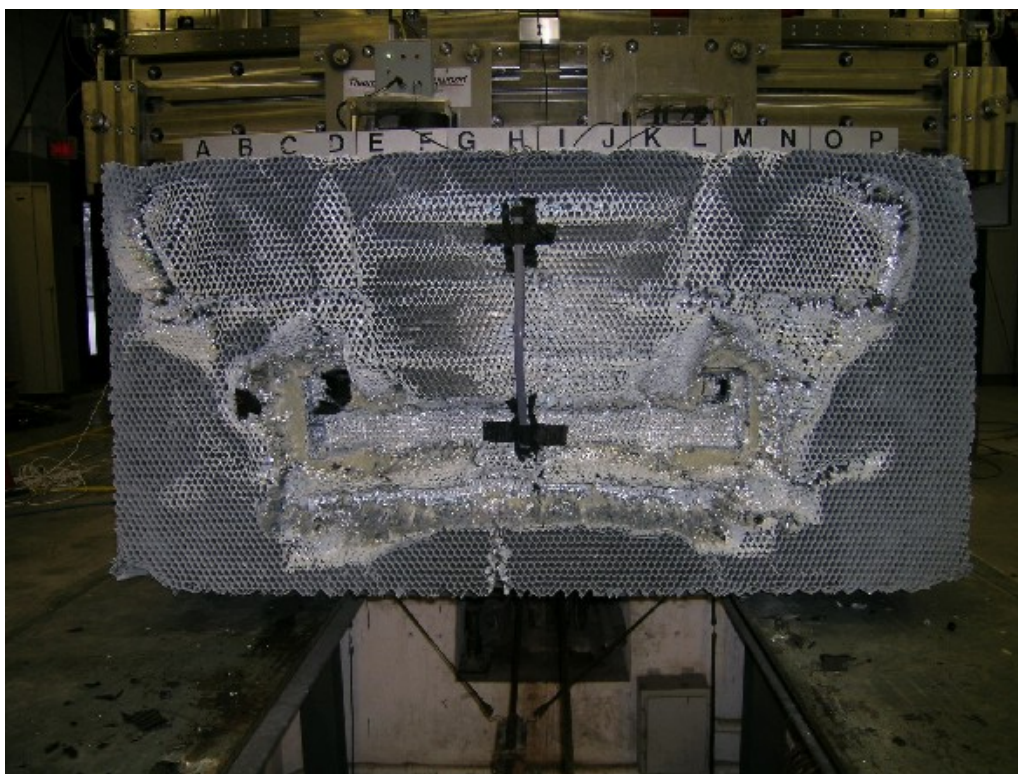


42. Vue latérale gauche de la Face Déformable, après essai.
Left side view of the Deformable Face, post-test.

Date de collision Crash date	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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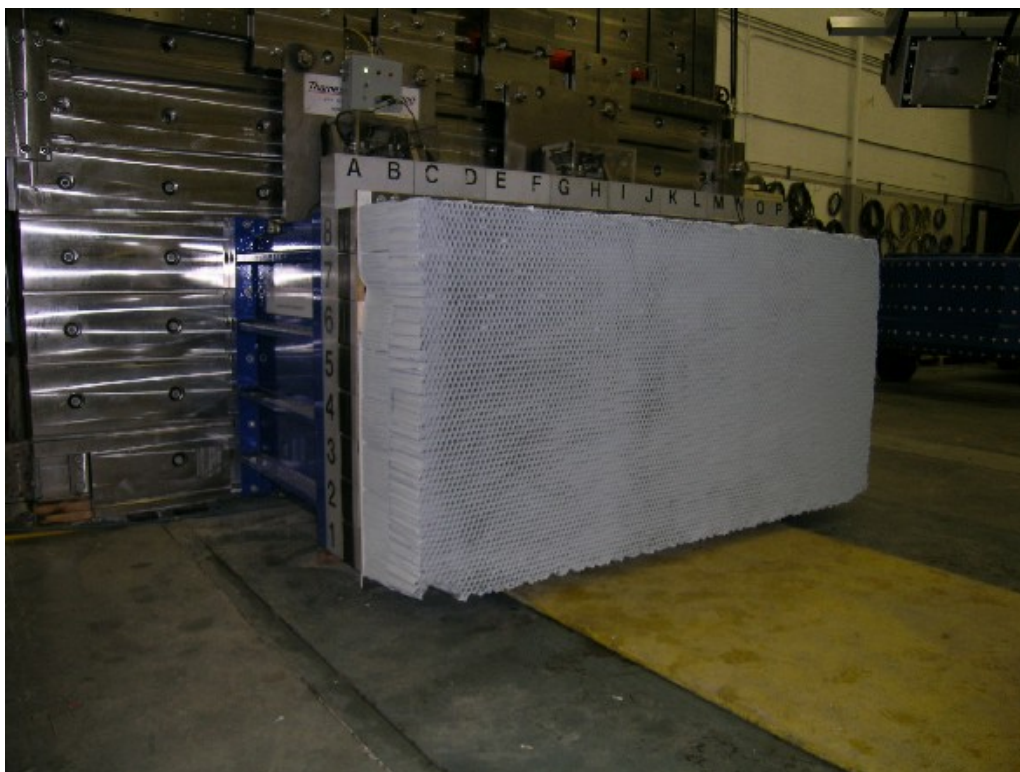


43. Vue avant de la Face Déformable, avant essai.
Front view of the Deformable Face, pre-test.



44. Vue avant de la Face Déformable, après essai.
Front view of the Deformable Face, post-test.

Date de collision Crash date	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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45. Vue $\frac{3}{4}$ droit de la Face Déformable, avant essai.
 $\frac{3}{4}$ right view of the Deformable Face, pre-test.



46. Vue $\frac{3}{4}$ droit de la Face Déformable, après essai.
 $\frac{3}{4}$ right view of the Deformable Face, post-test.

Date de collision Crash date	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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47. Vue $\frac{3}{4}$ gauche de la Face Déformable, avant essai.
 $\frac{3}{4}$ left view of the Deformable Face, pre-test.



48. Vue $\frac{3}{4}$ gauche de la Face Déformable, après essai.
 $\frac{3}{4}$ left view of the Deformable Face, post-test.

Date de collision Crash date	2005-11-28	Véhicule Vehicle	HYUNDAI TUCSON 2005	T.C. N° T.C.No	05-248
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49. Affichage du lecteur de vitesse.
Speed trap reading.

APPENDICE / APPENDIX B

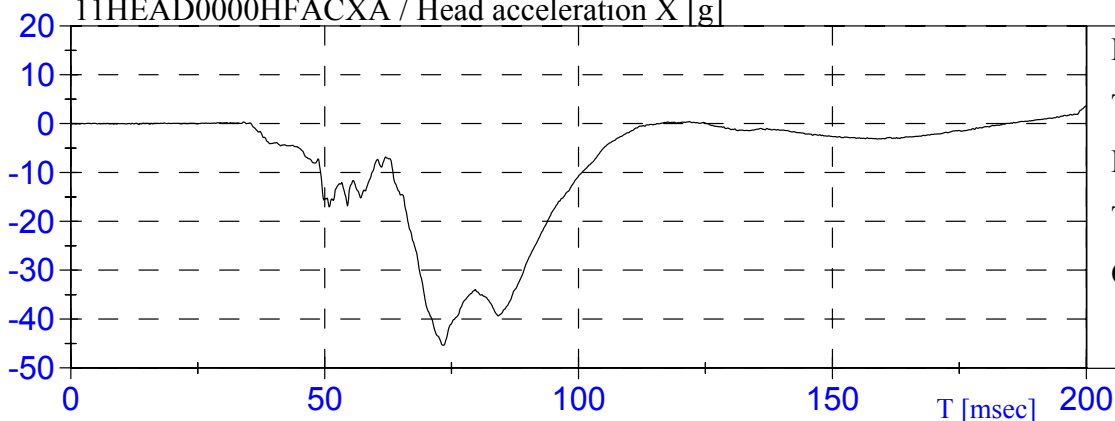
**DONNÉES GRAPHIQUES
GRAPHICAL DATA**



Nom du client Client Name	TRANSPORT CANADA
Type de véhicule Type of Vehicle	HYUNDAI TUCSON 2005
Numéro de TC Tc Number	TC05-248
Vitesse Speed	40 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	2005-11-28
Titre du projet Project Title	COLLISION DE RECHERCHE COLLISION FRONTALE RESEARCH COLLISION TEST FRONTAL CRASH
MANNEQUIN / DUMMY	

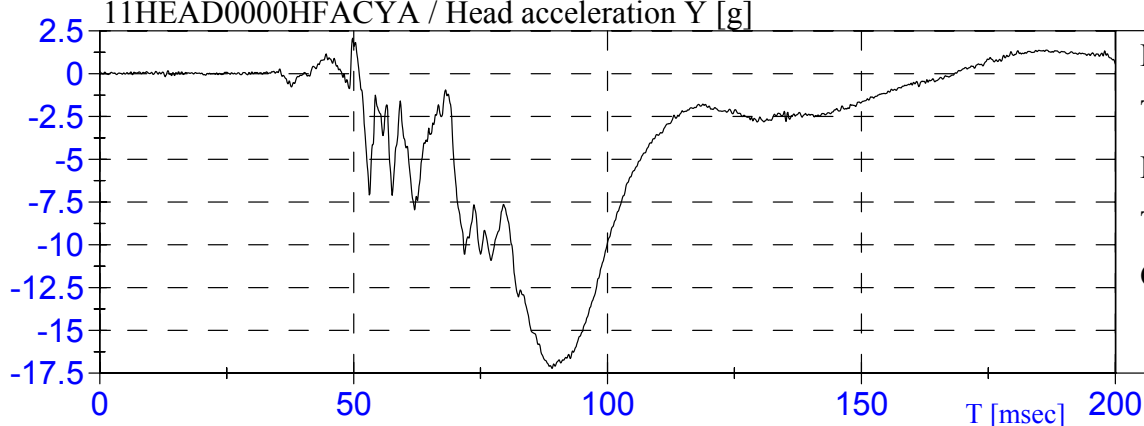
Position 1	Position 2	Position 3
HF		HF
Position 4	Position 5	Position 6
HF		HF
Position 7	Position 8	Position 9

11HEAD0000HFACXA / Head acceleration X [g]



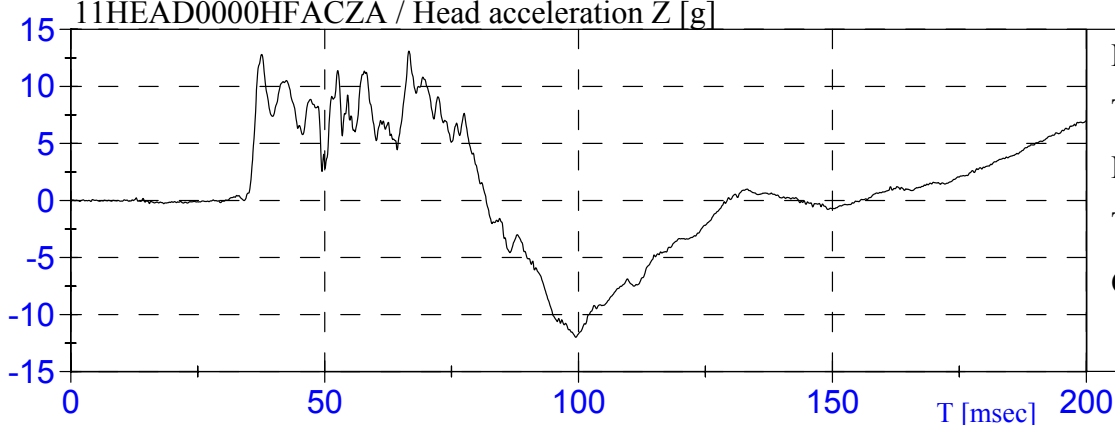
Max: 13.3 g
Tmax: 218.1 ms
Min: -45.3 g
Tmin: 73.5 ms
CFC : 1000

11HEAD0000HFACYA / Head acceleration Y [g]



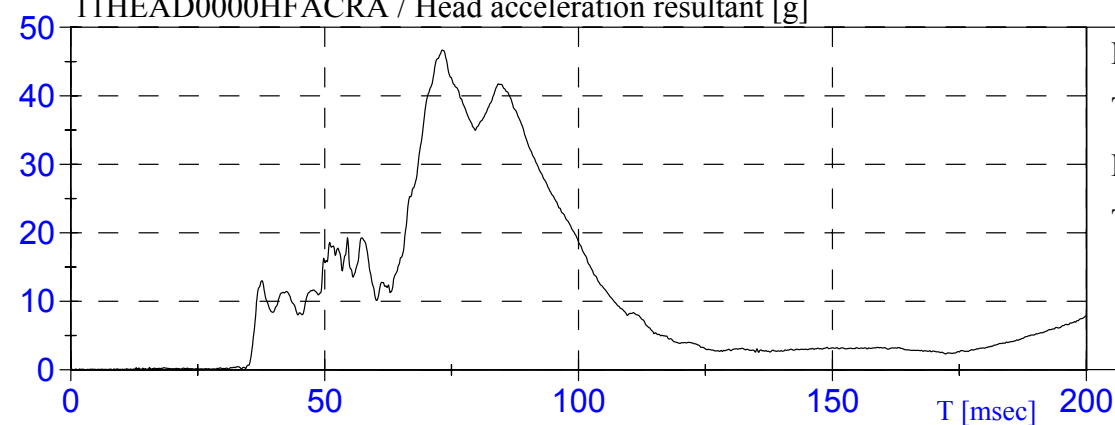
Max: 2.1 g
Tmax: 49.8 ms
Min: -17.2 g
Tmin: 89.1 ms
CFC : 1000

11HEAD0000HFACZA / Head acceleration Z [g]

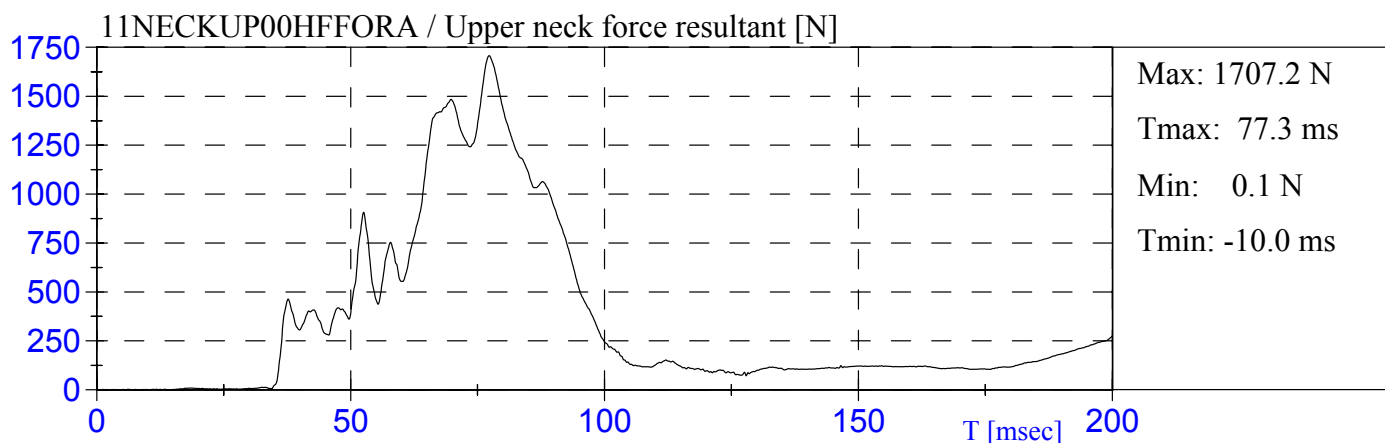
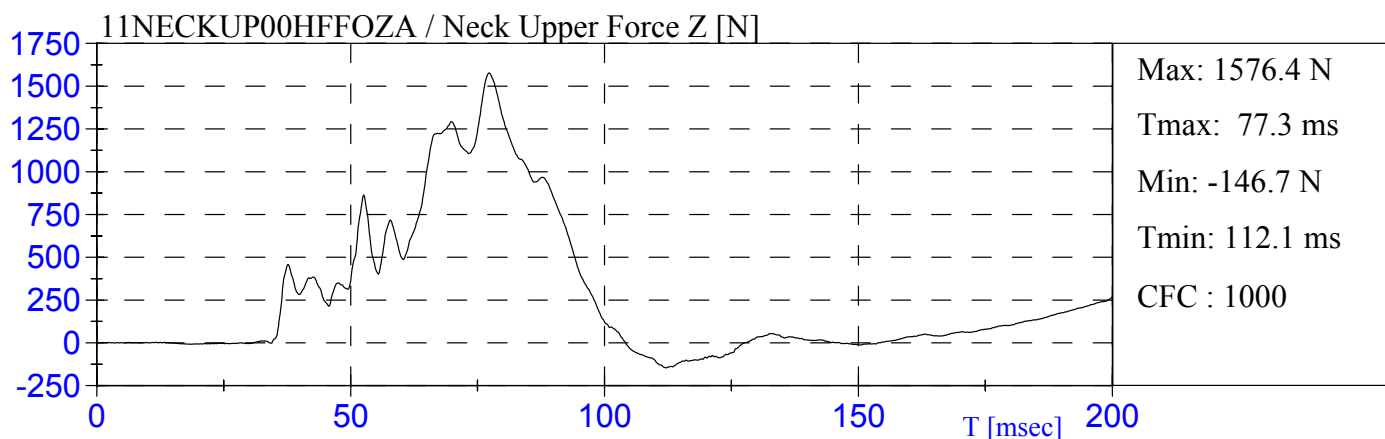
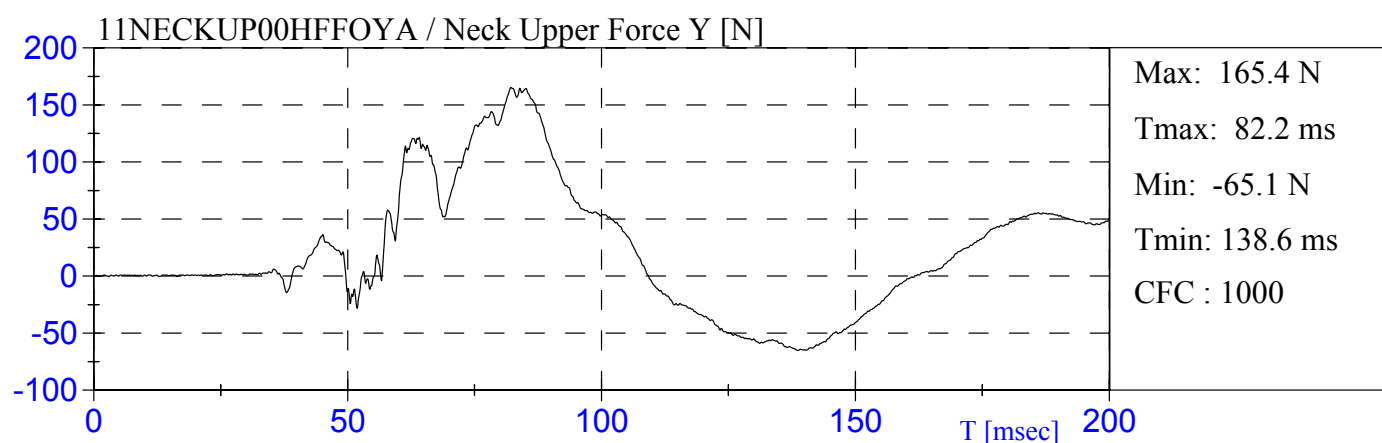
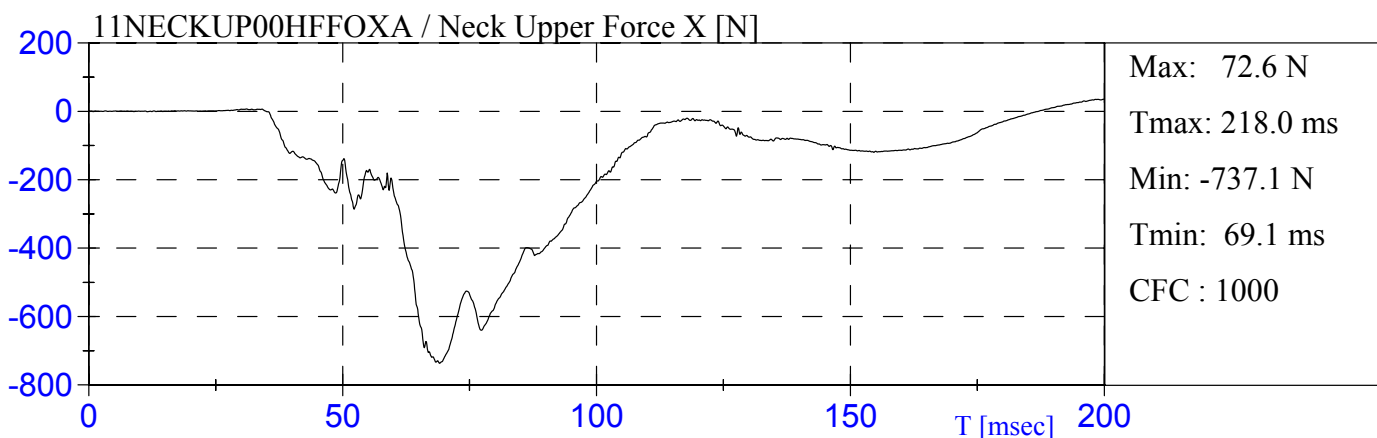


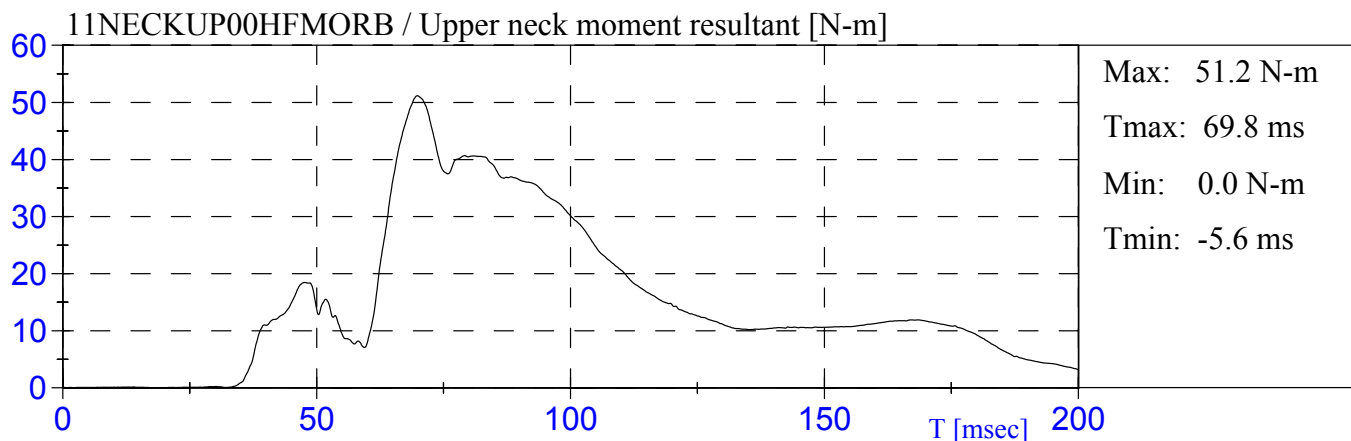
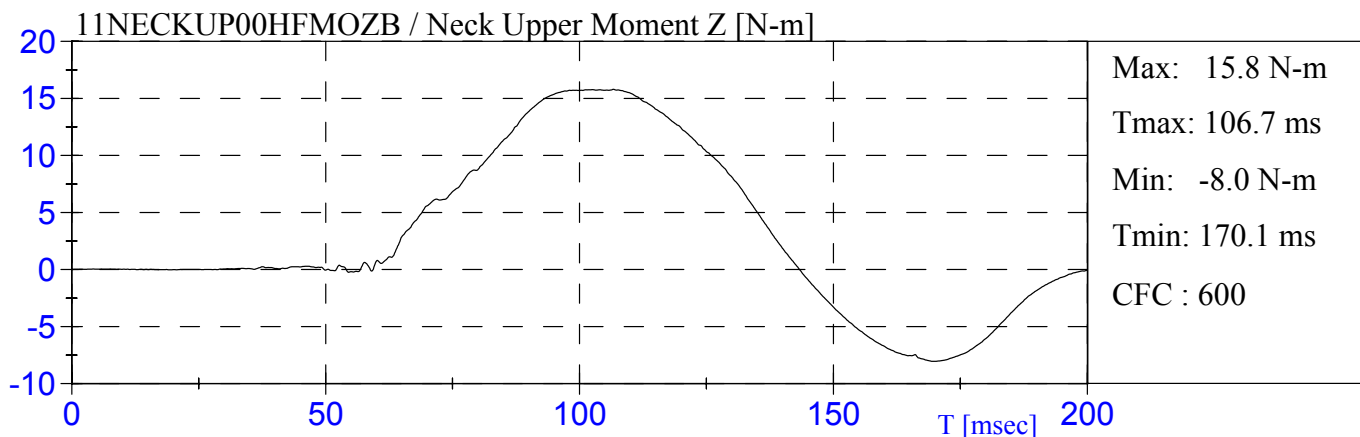
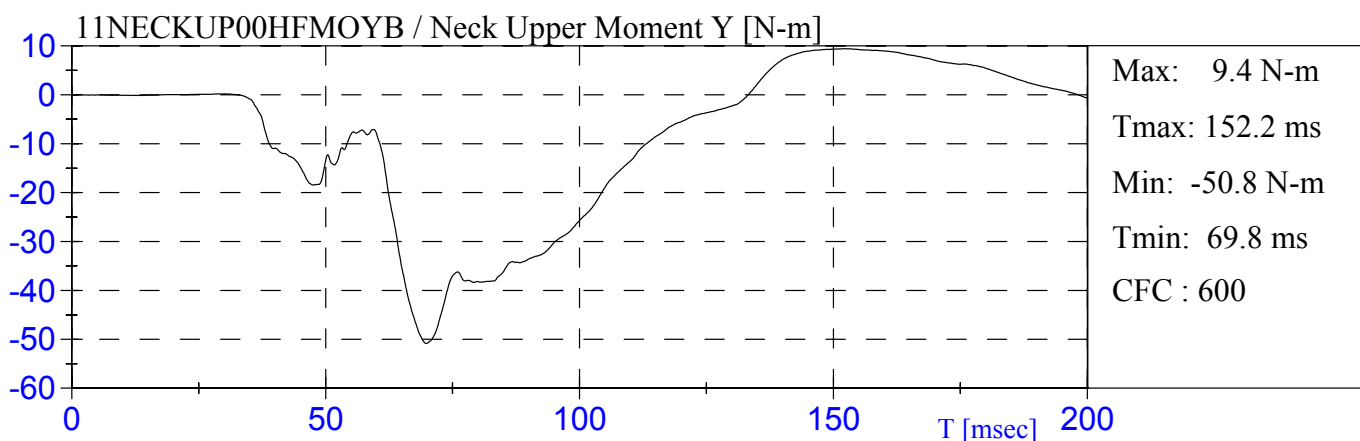
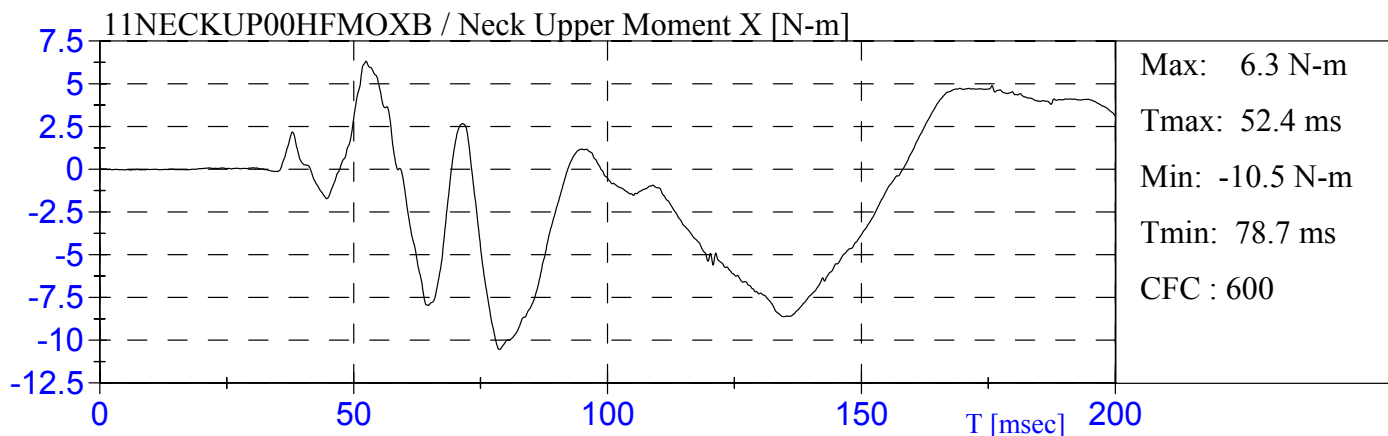
Max: 13.1 g
Tmax: 66.6 ms
Min: -12.0 g
Tmin: 99.5 ms
CFC : 1000

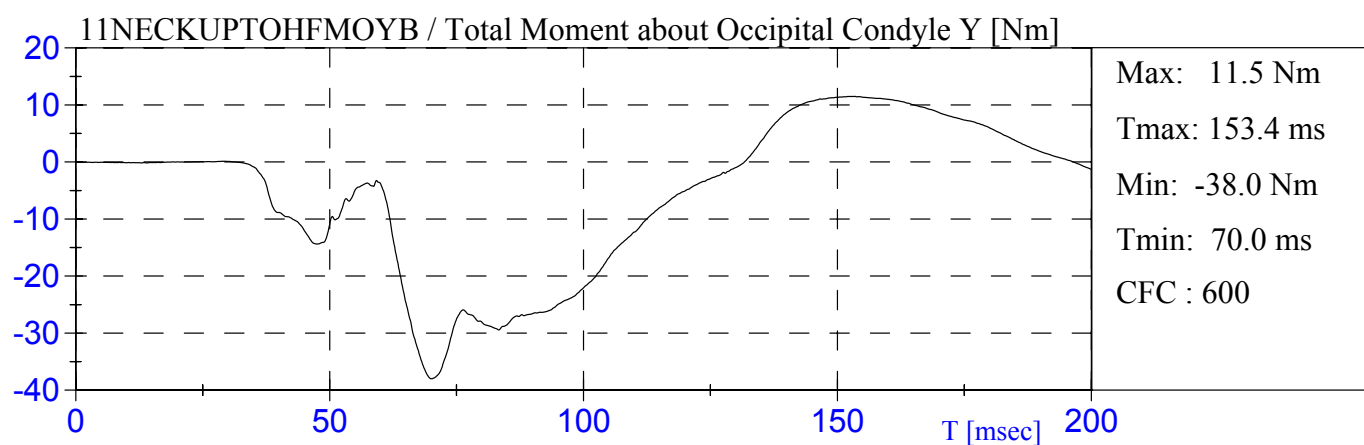
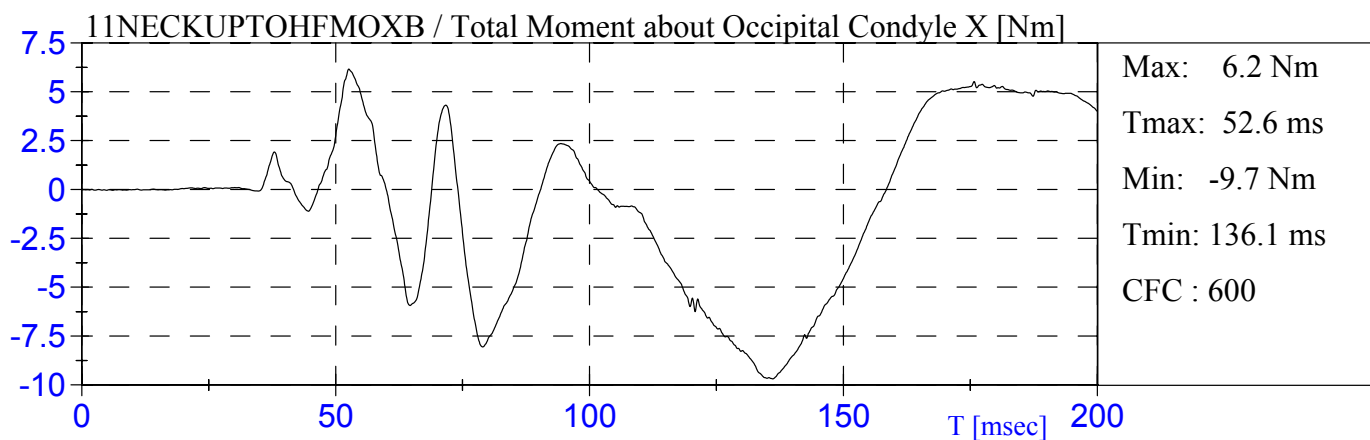
11HEAD0000HFACRA / Head acceleration resultant [g]

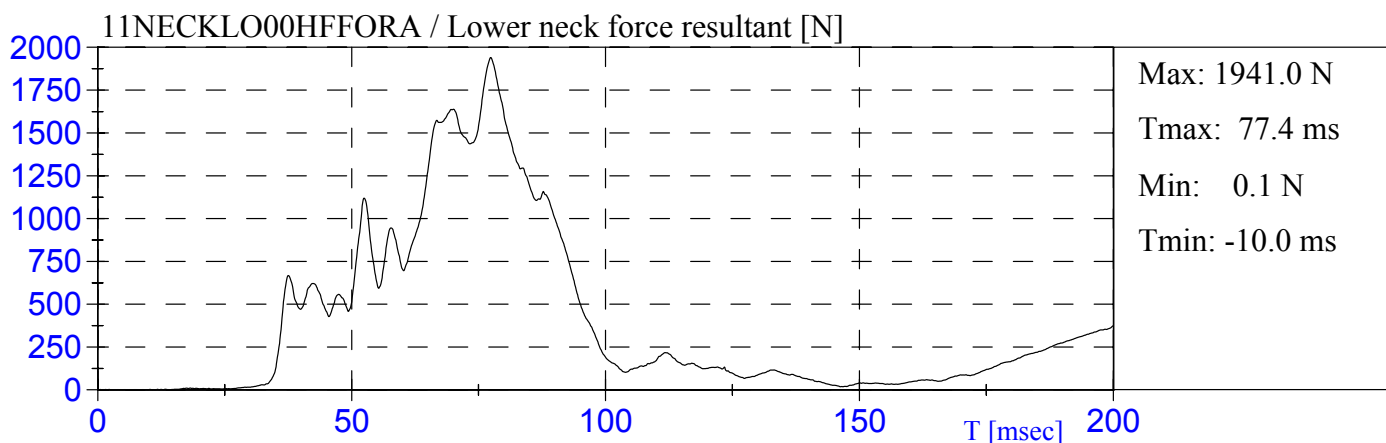
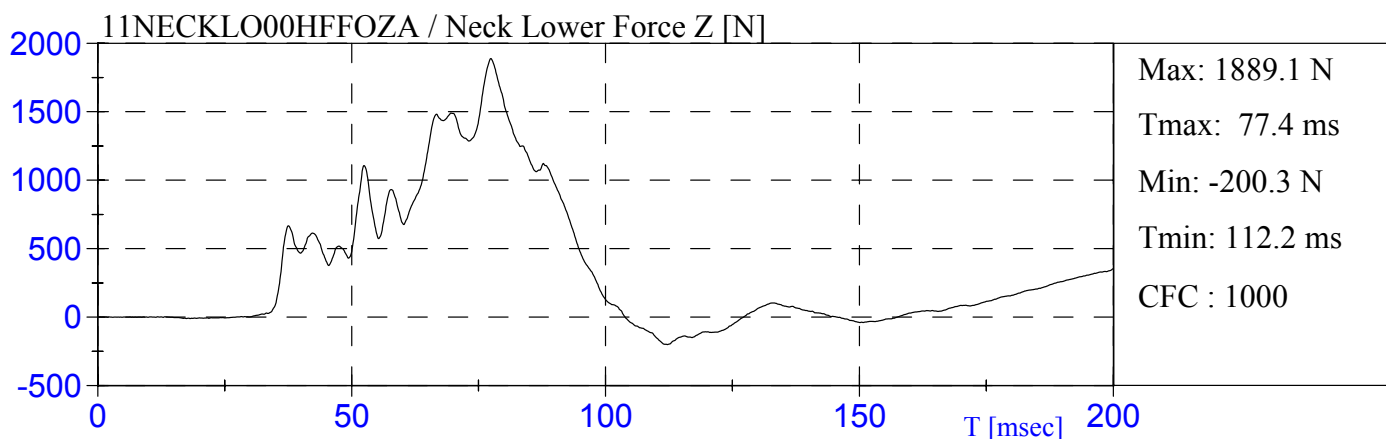
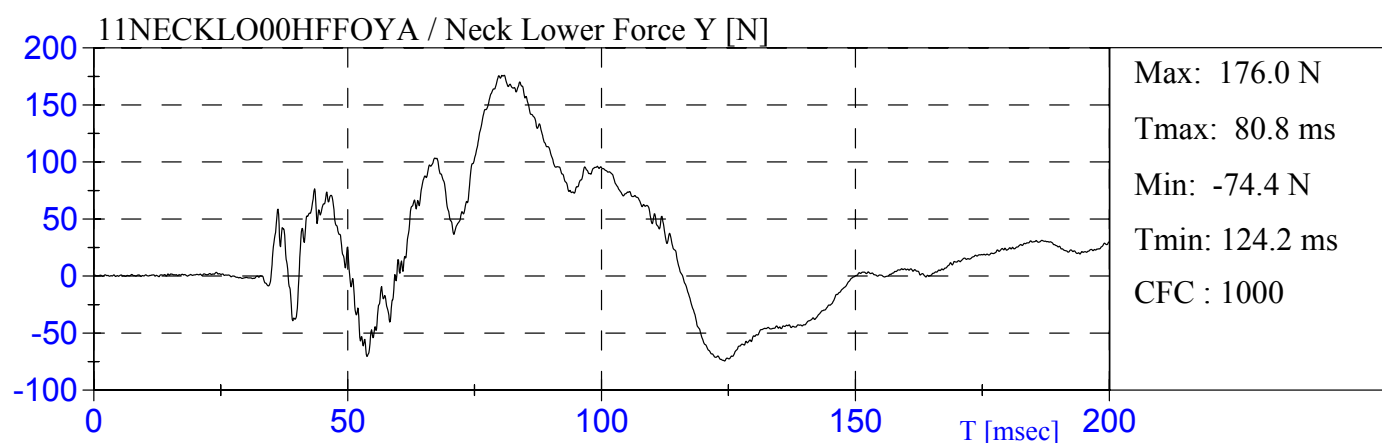
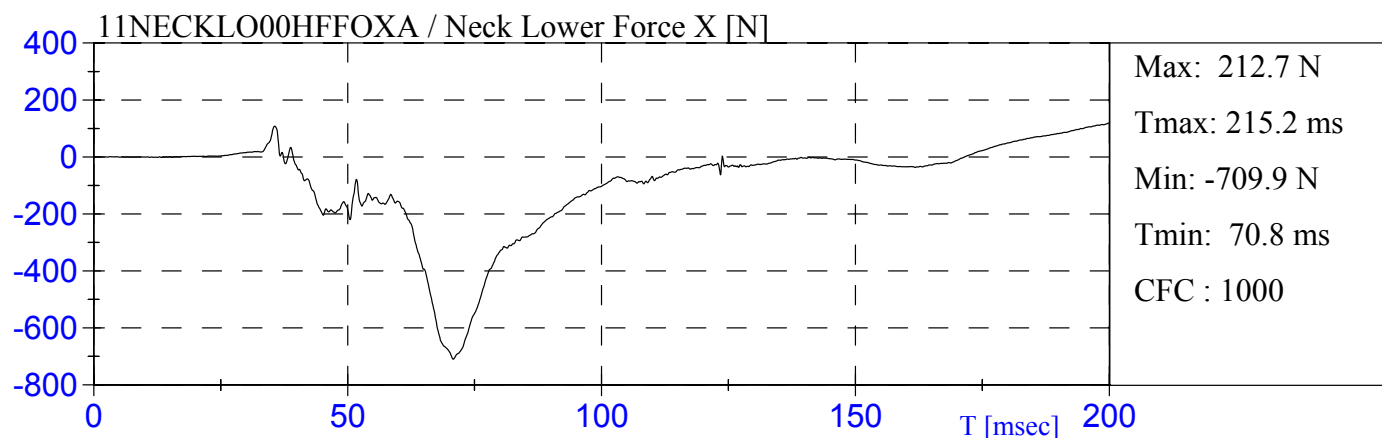


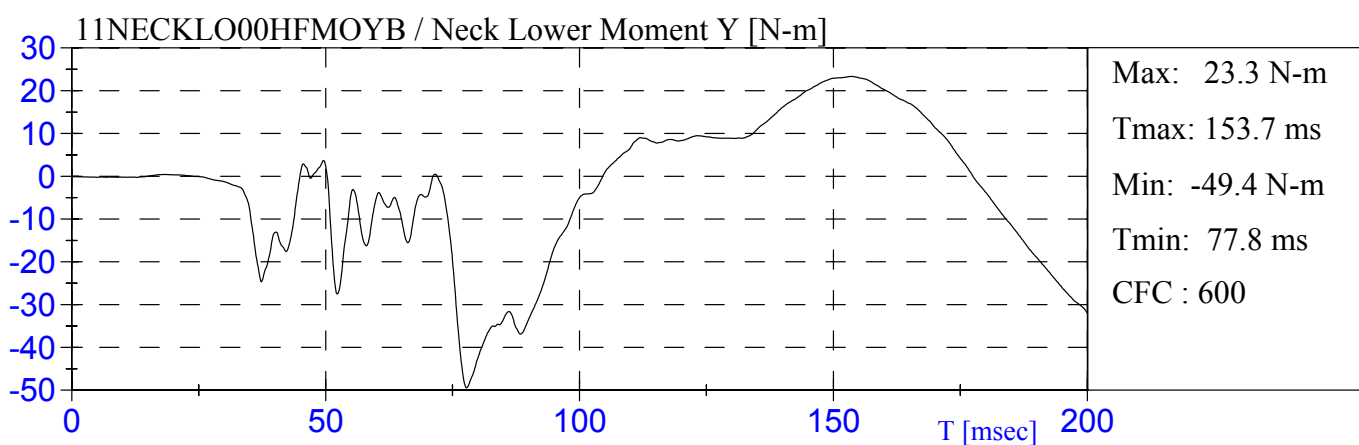
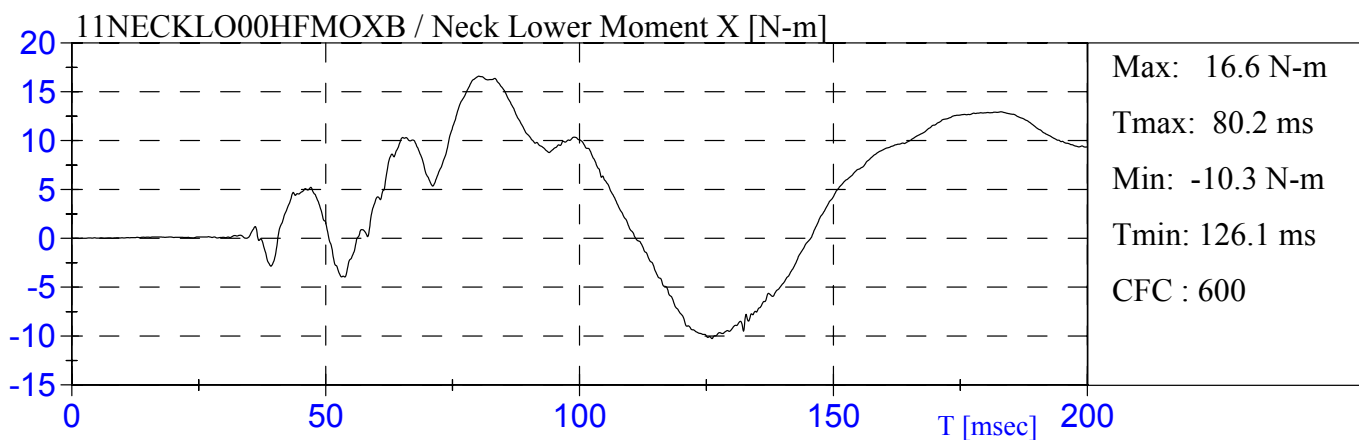
Max: 46.7 g
Tmax: 73.2 ms
Min: 0.0 g
Tmin: -6.1 ms

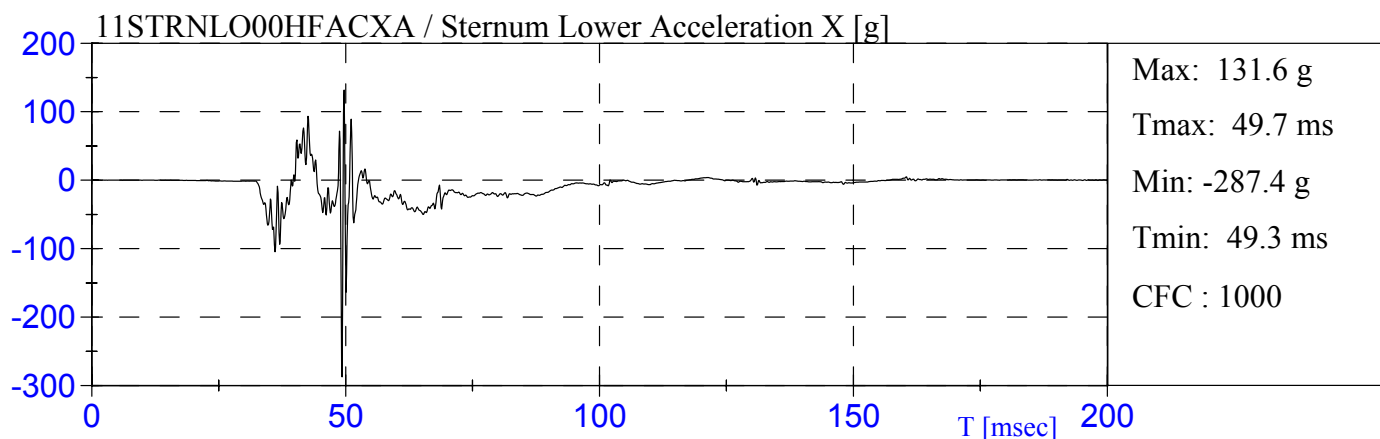
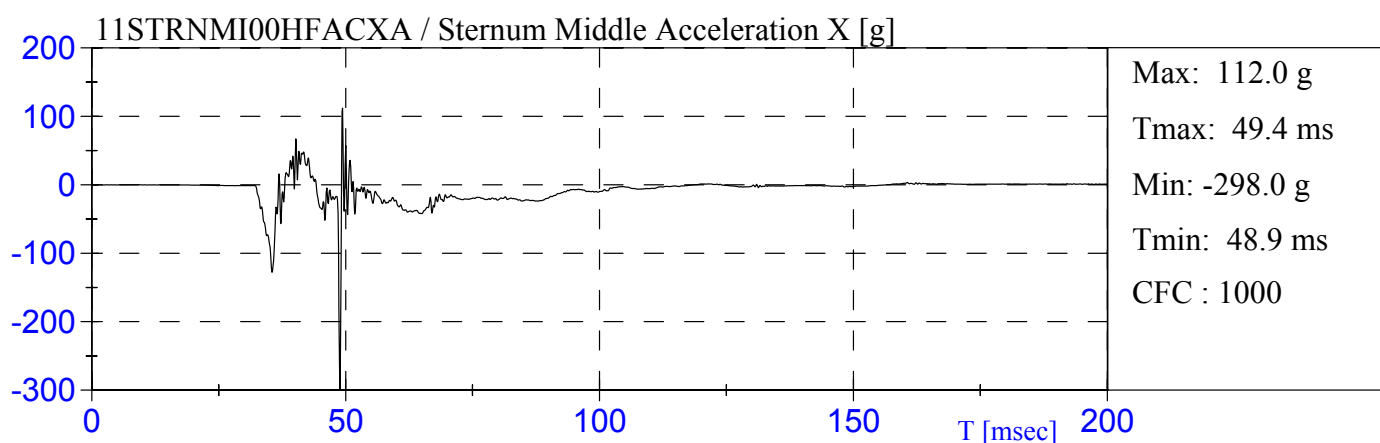
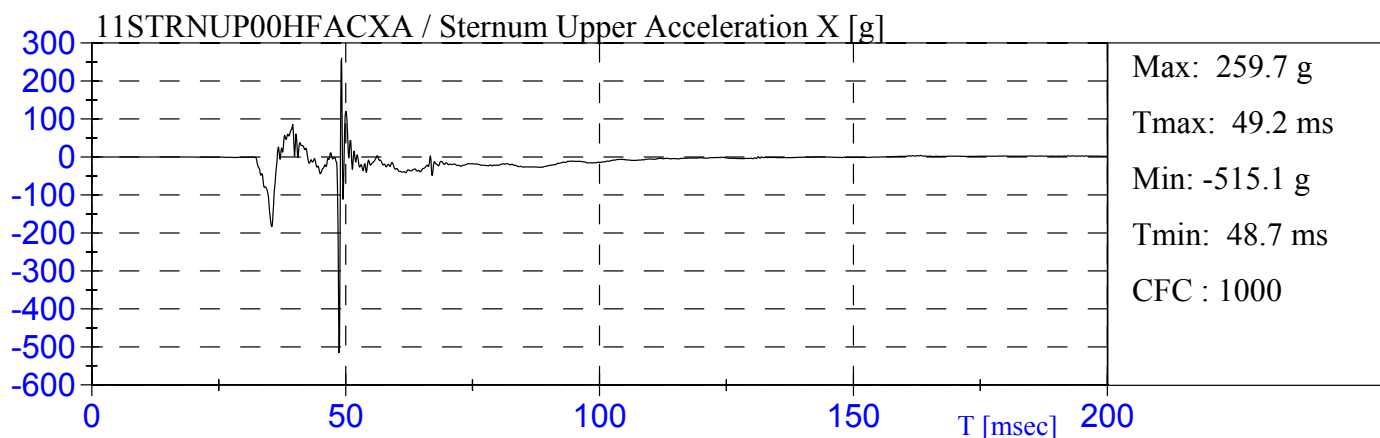


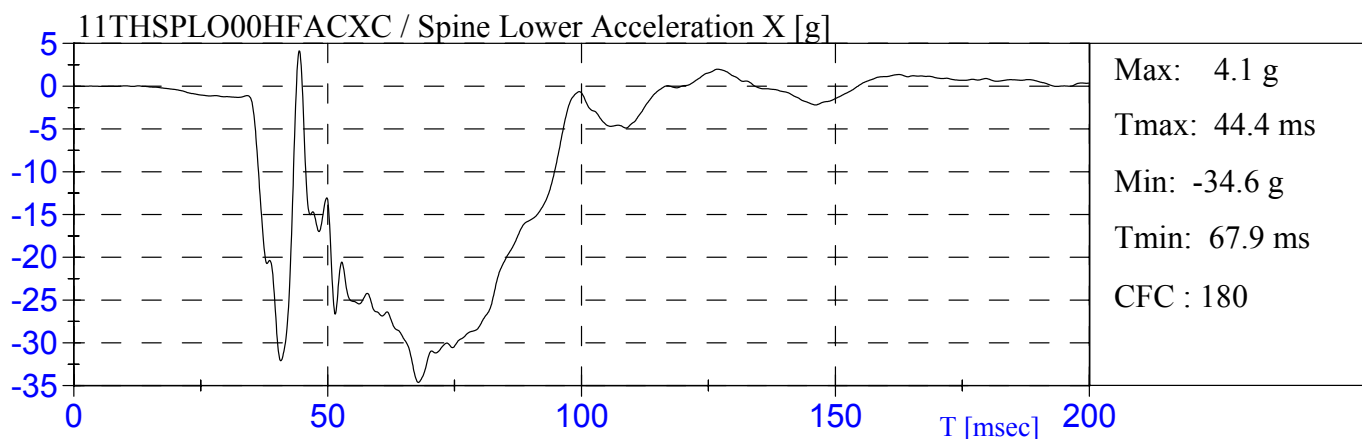
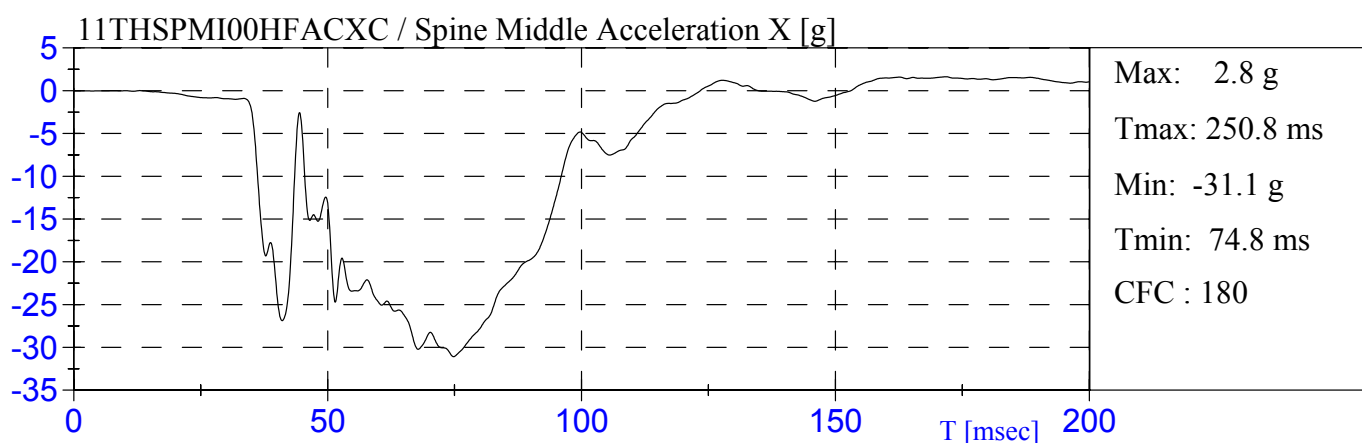
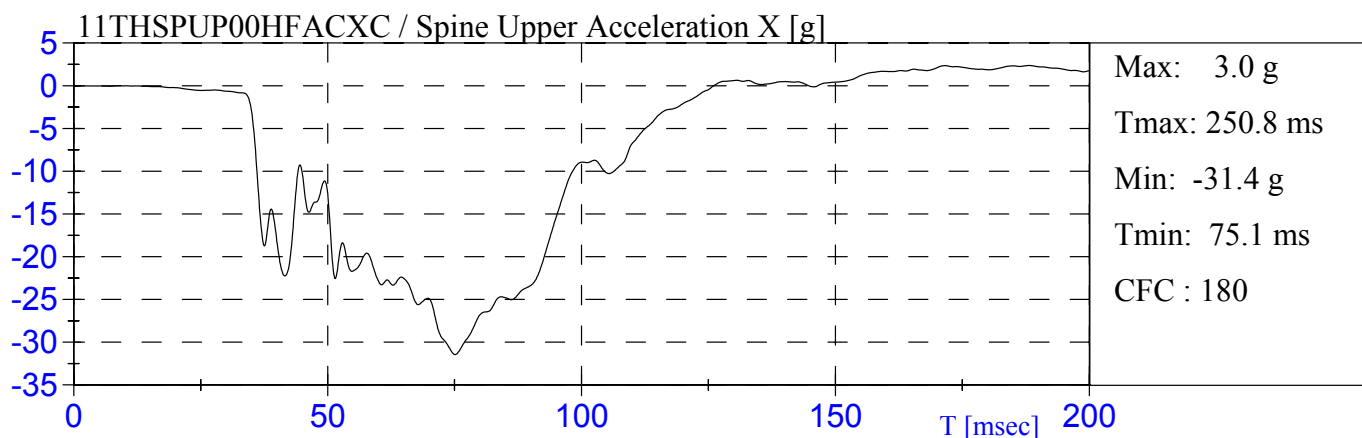


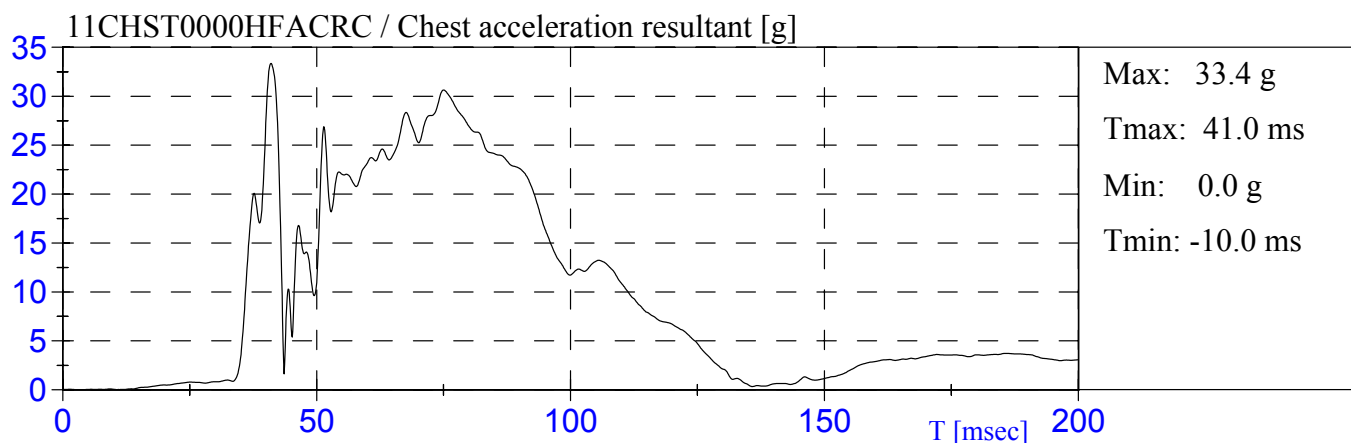
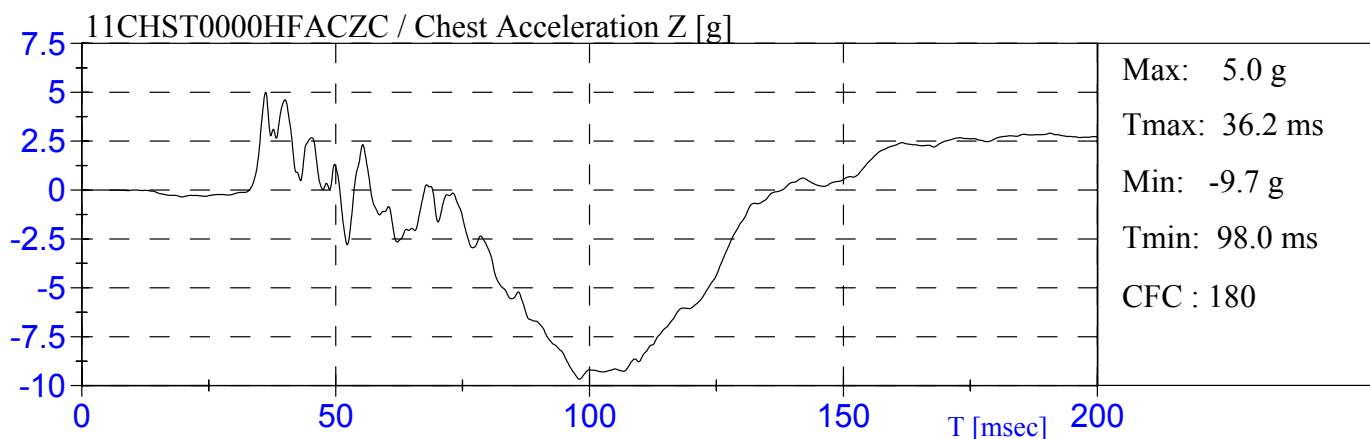
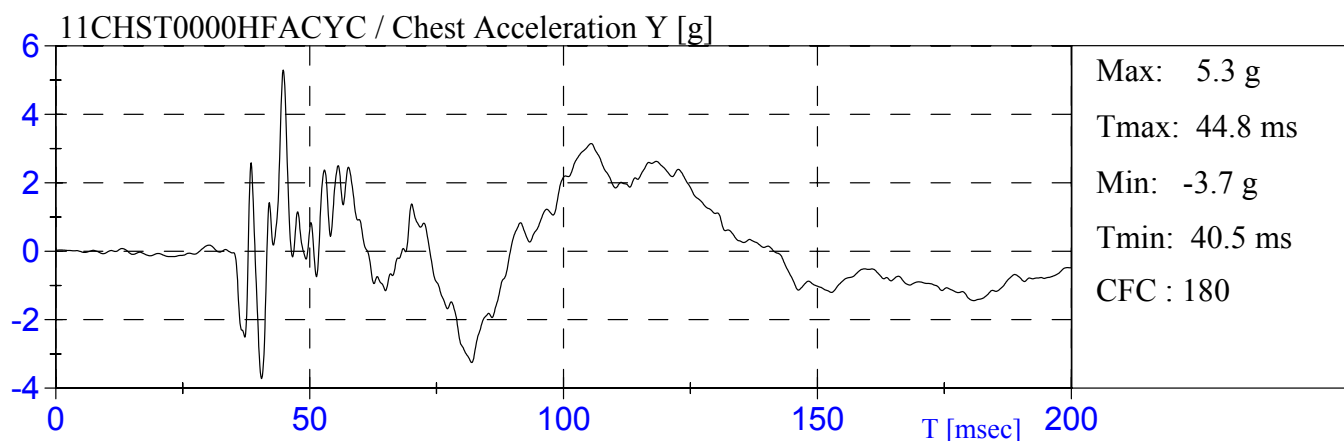
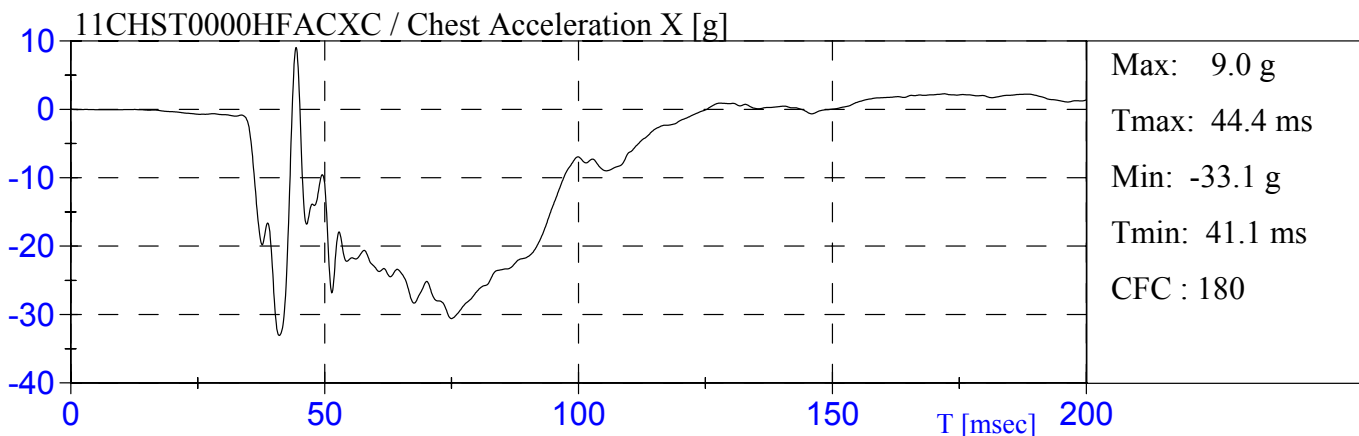


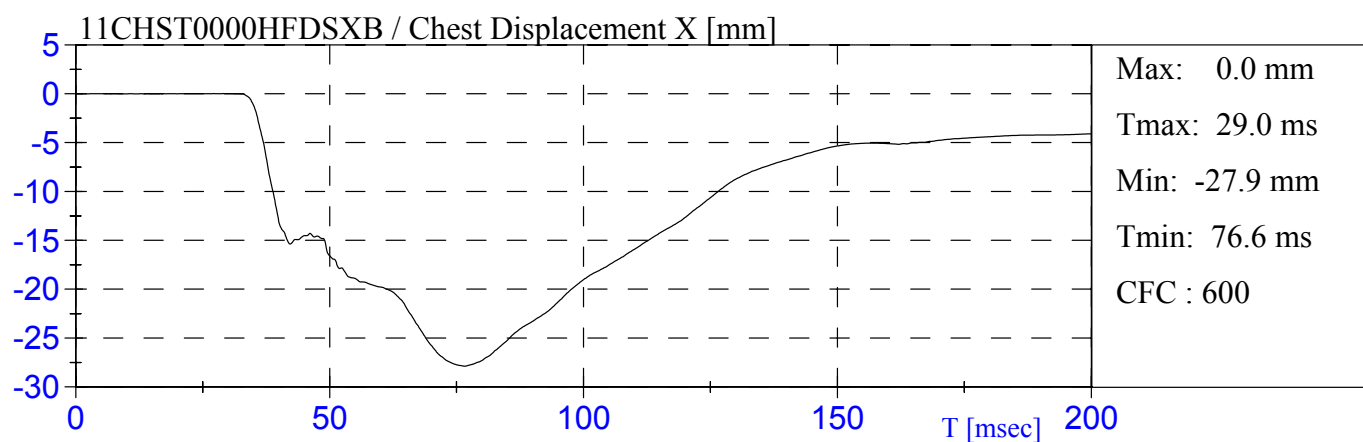


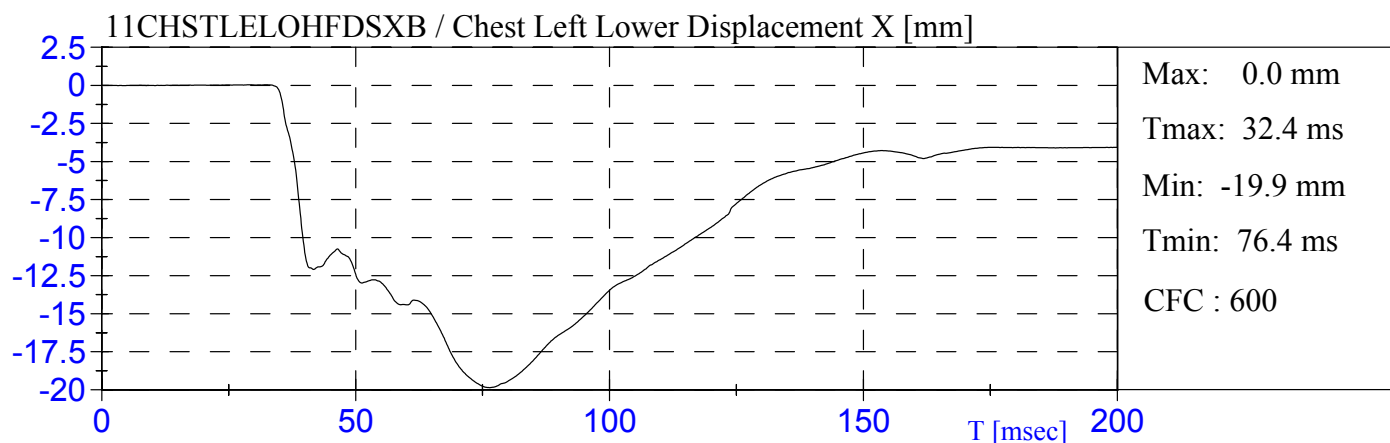
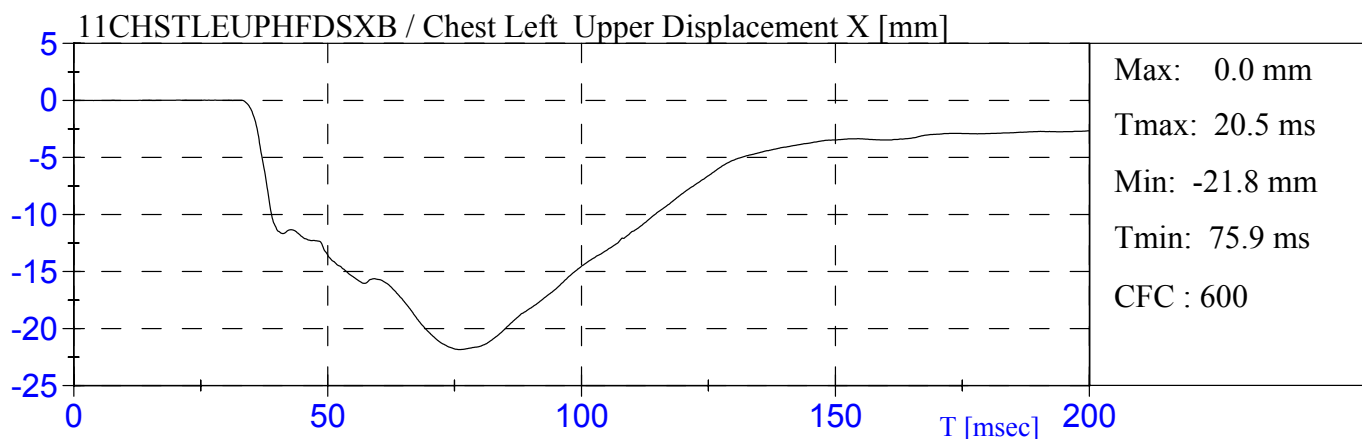
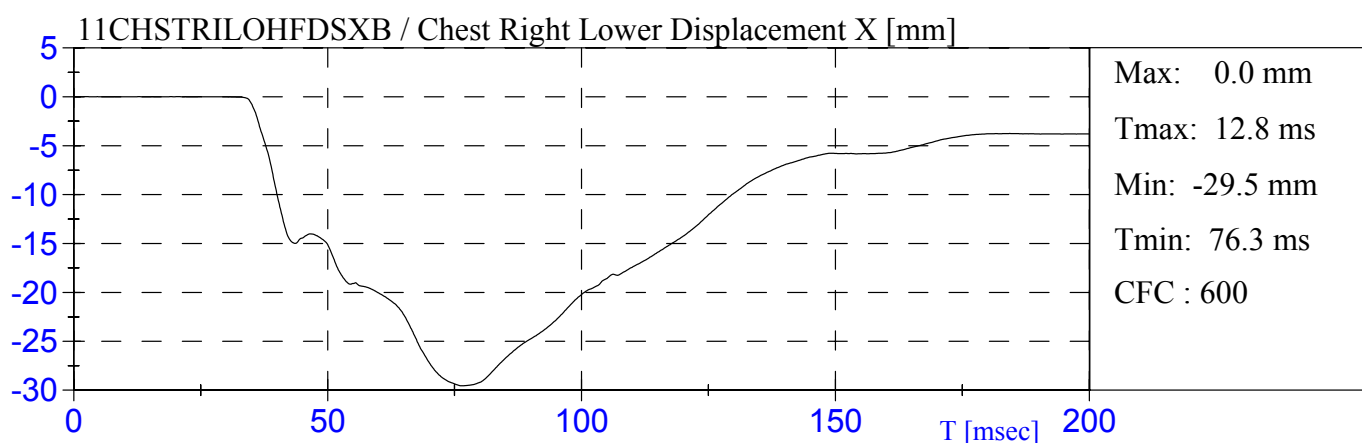
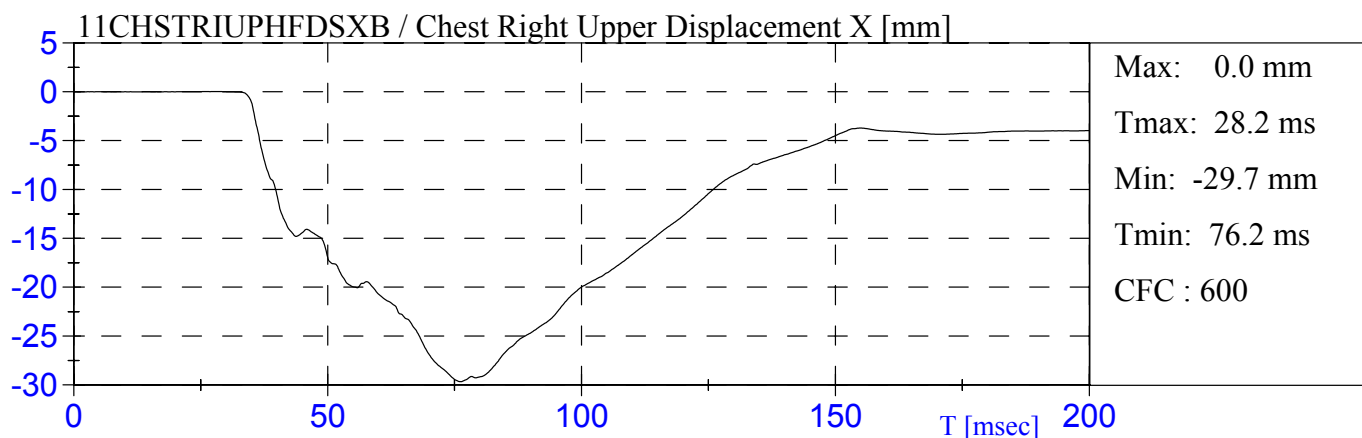


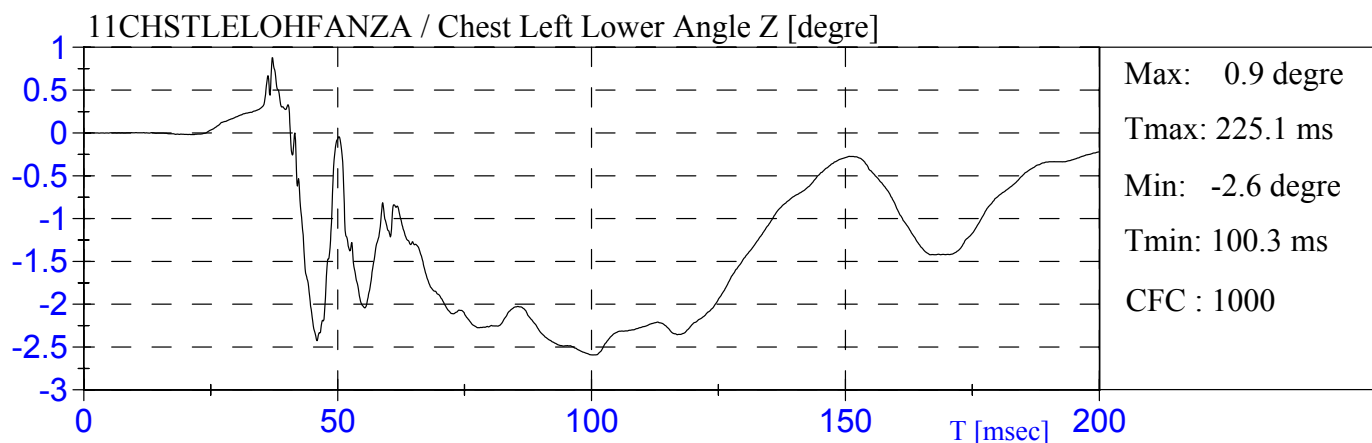
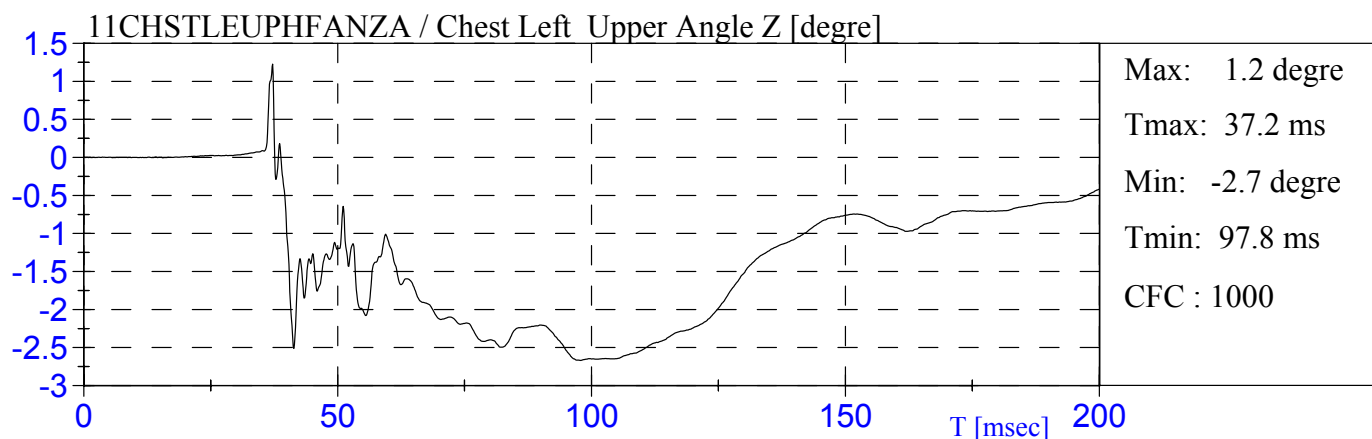
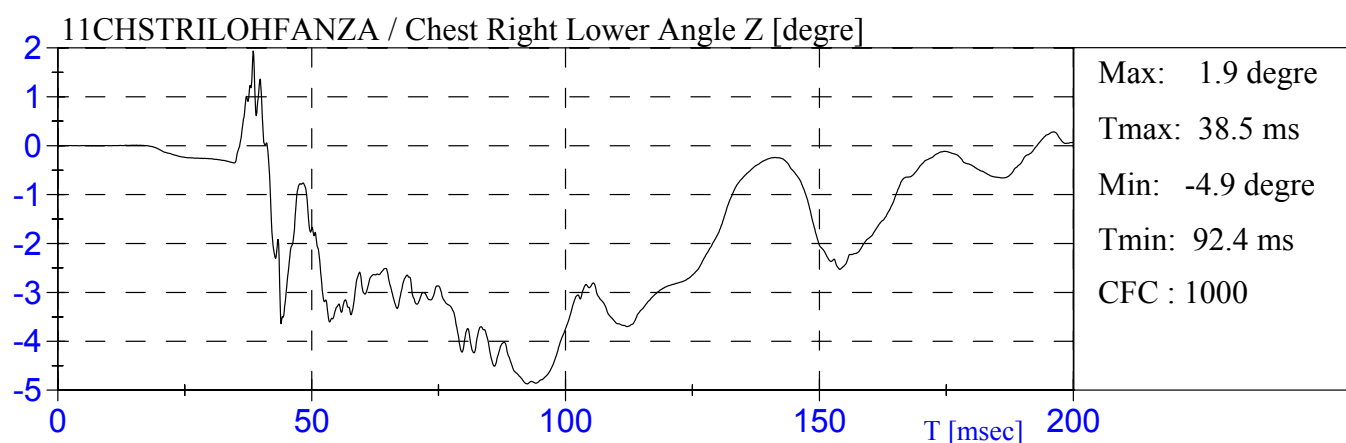
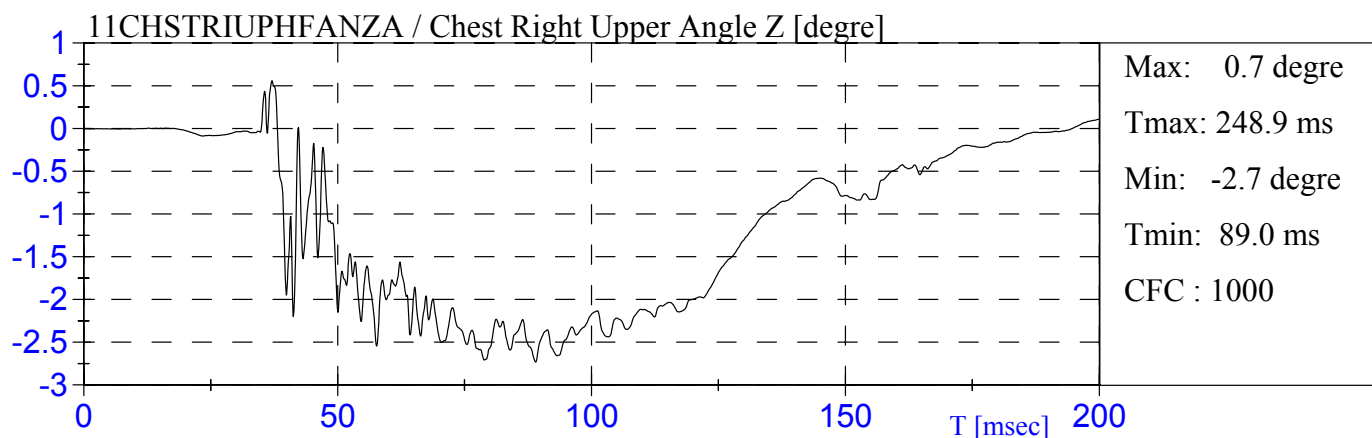


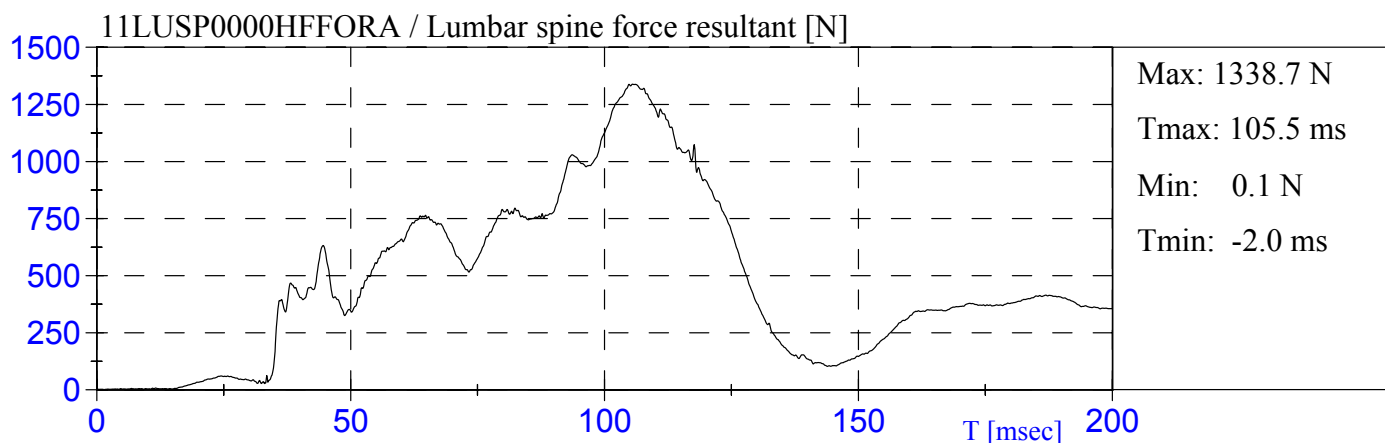
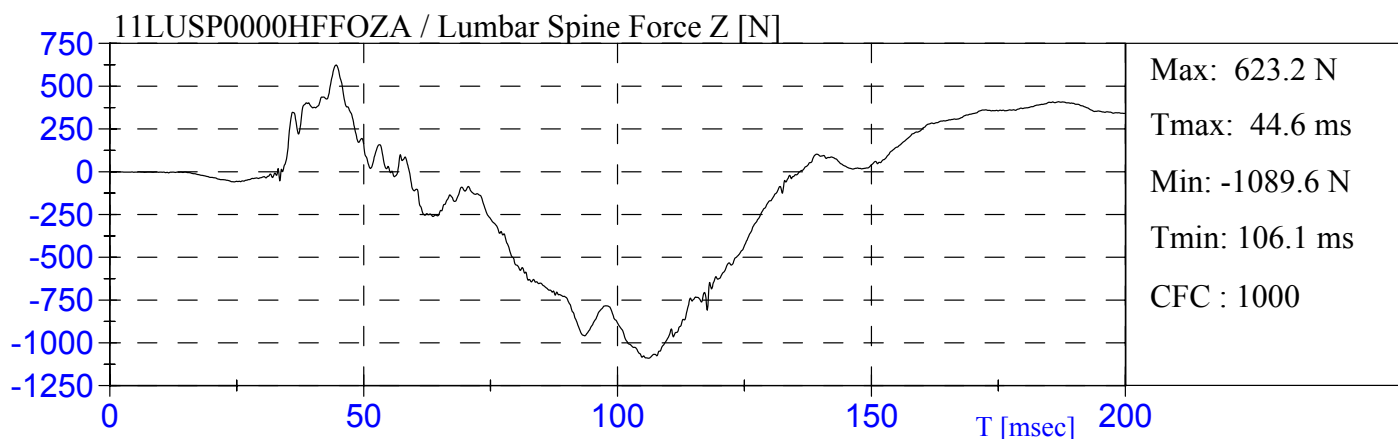
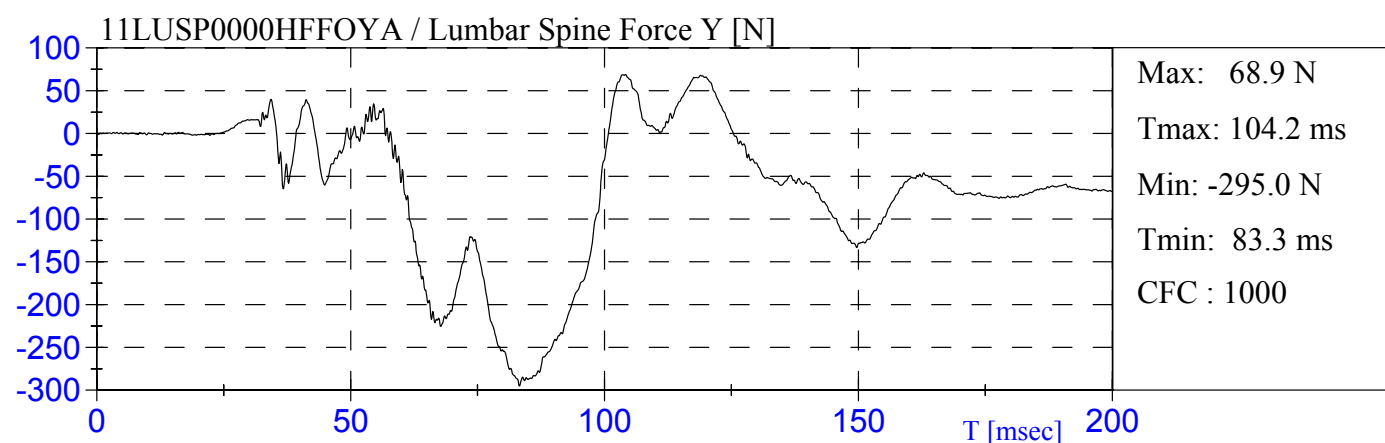
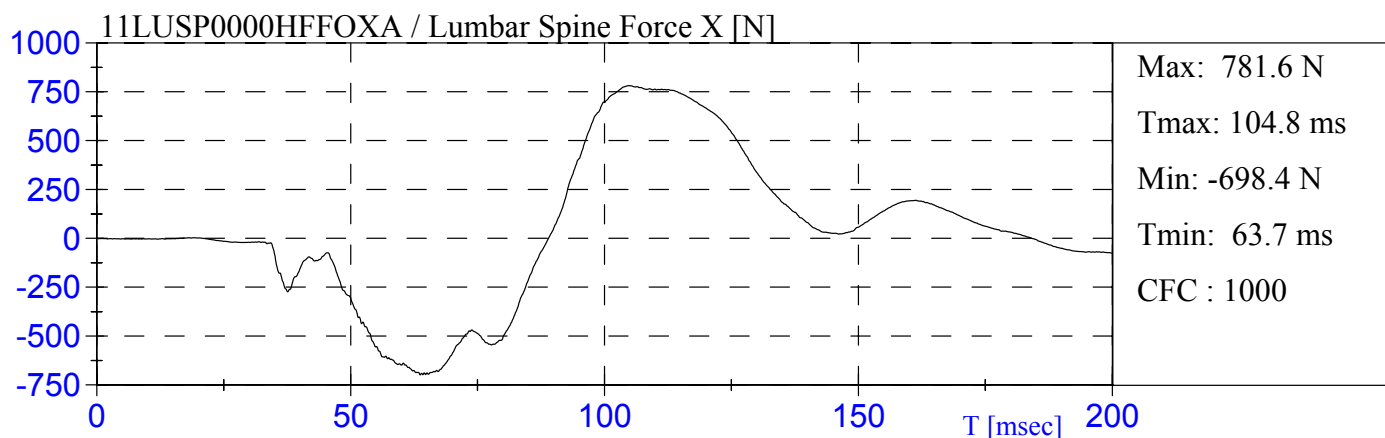


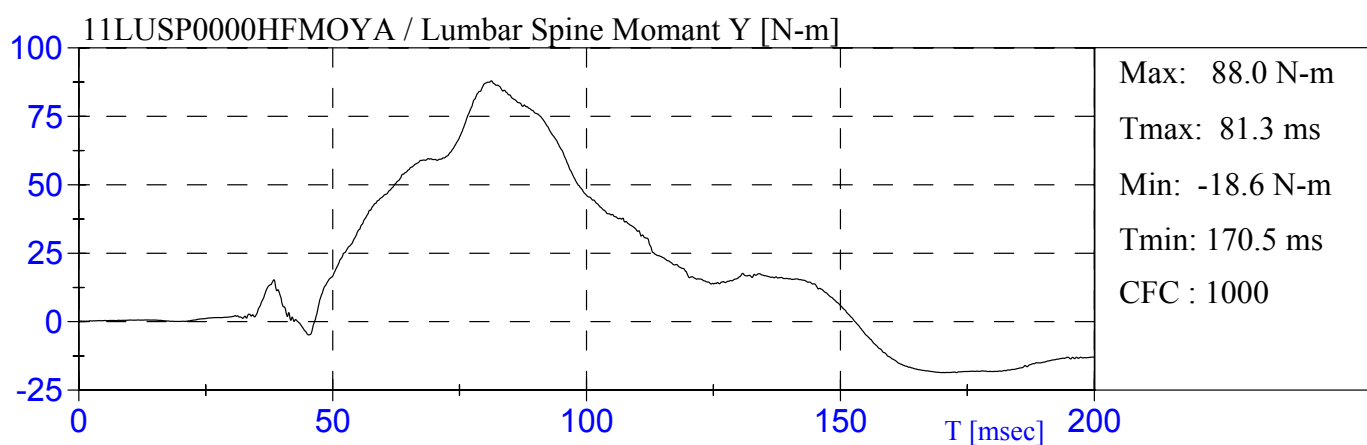
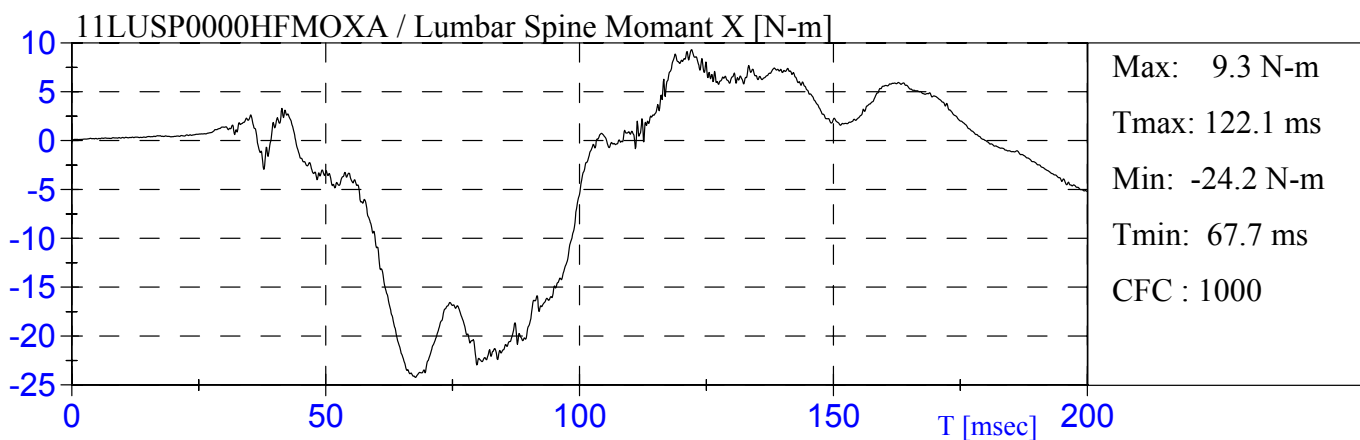


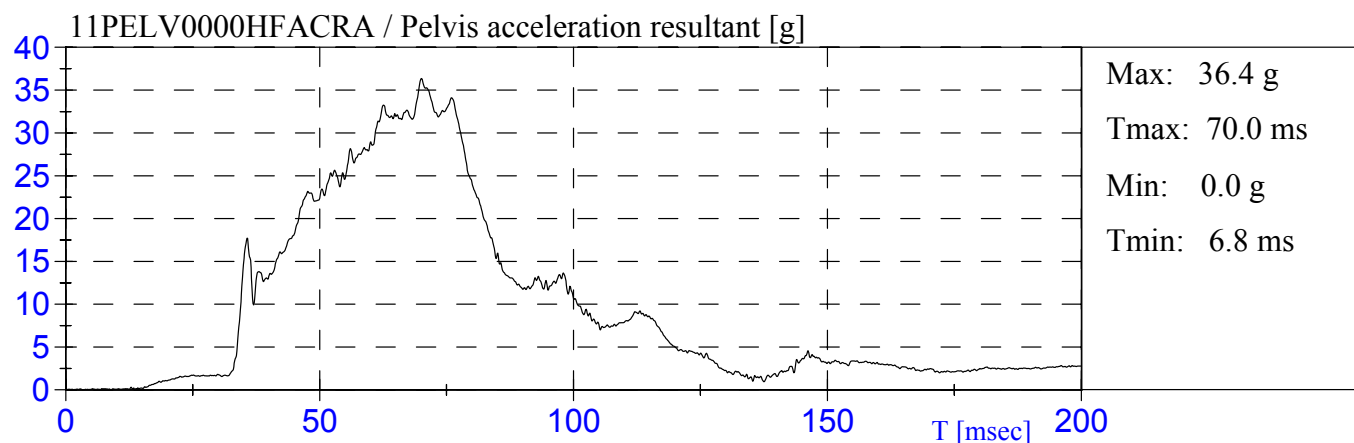
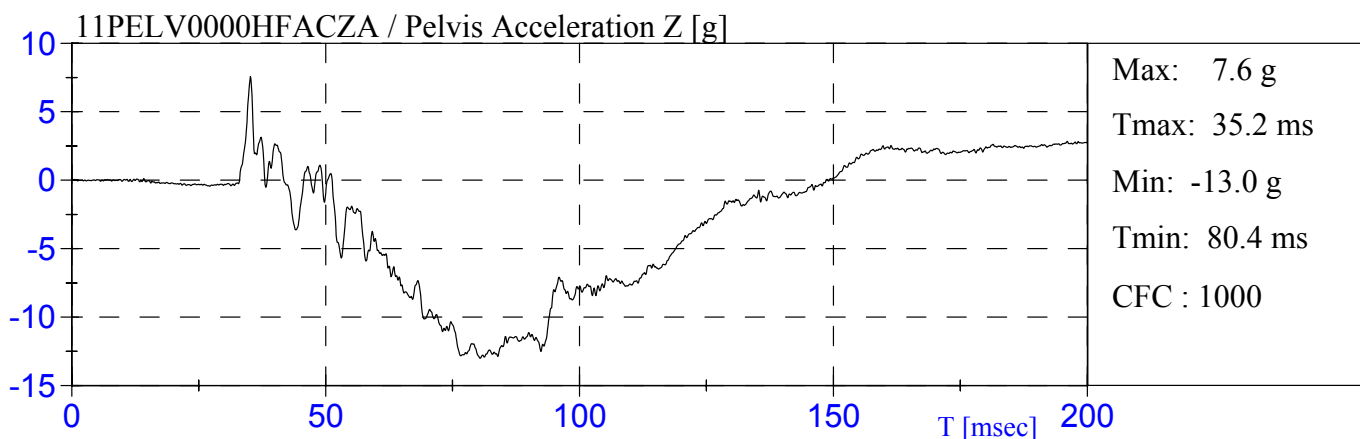
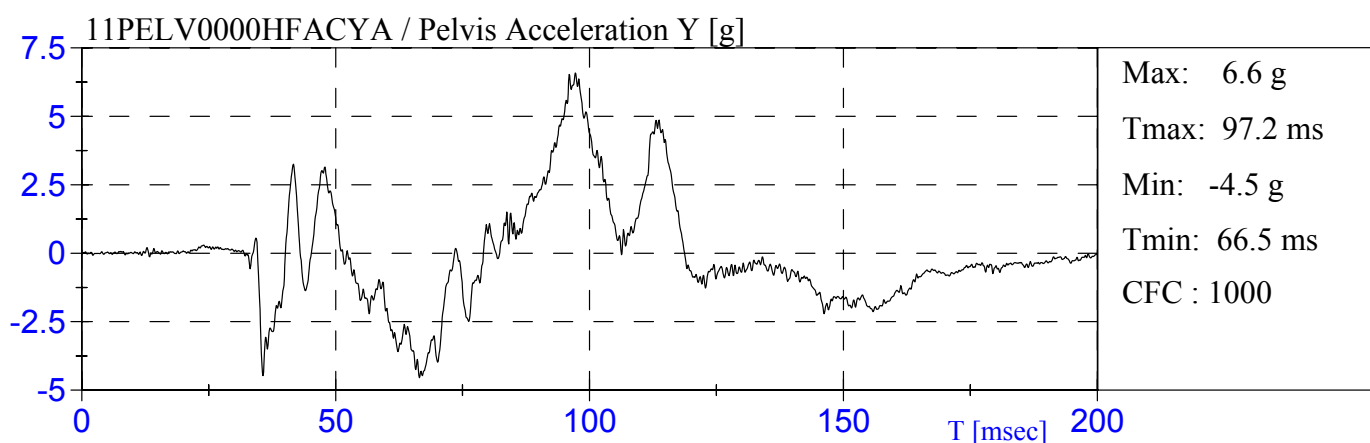
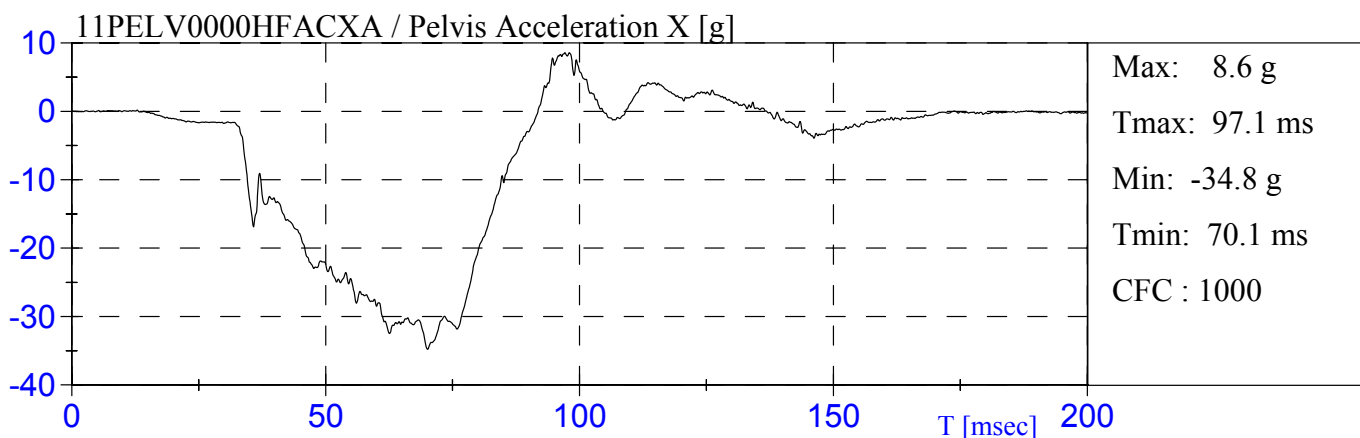


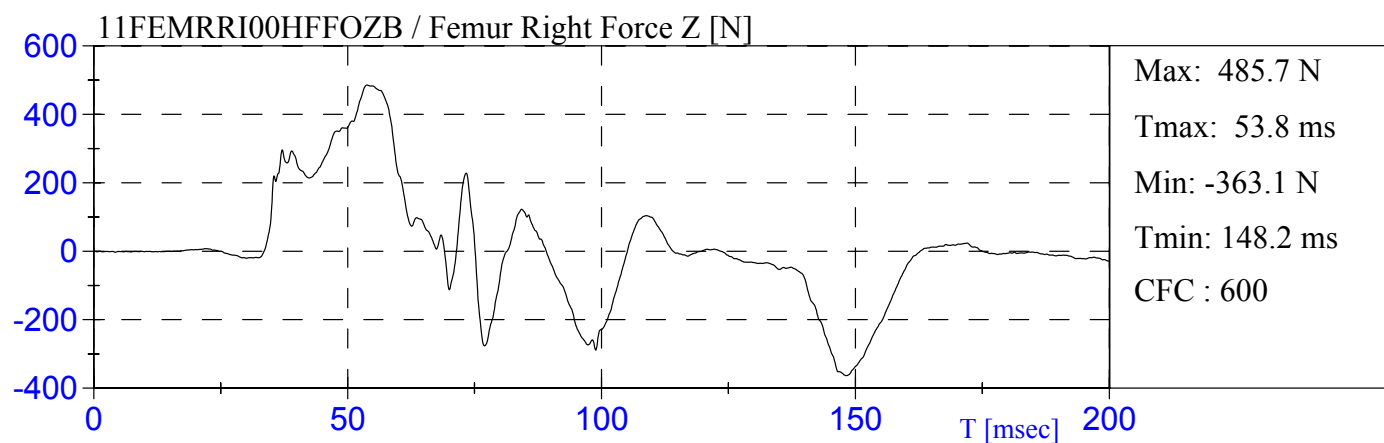
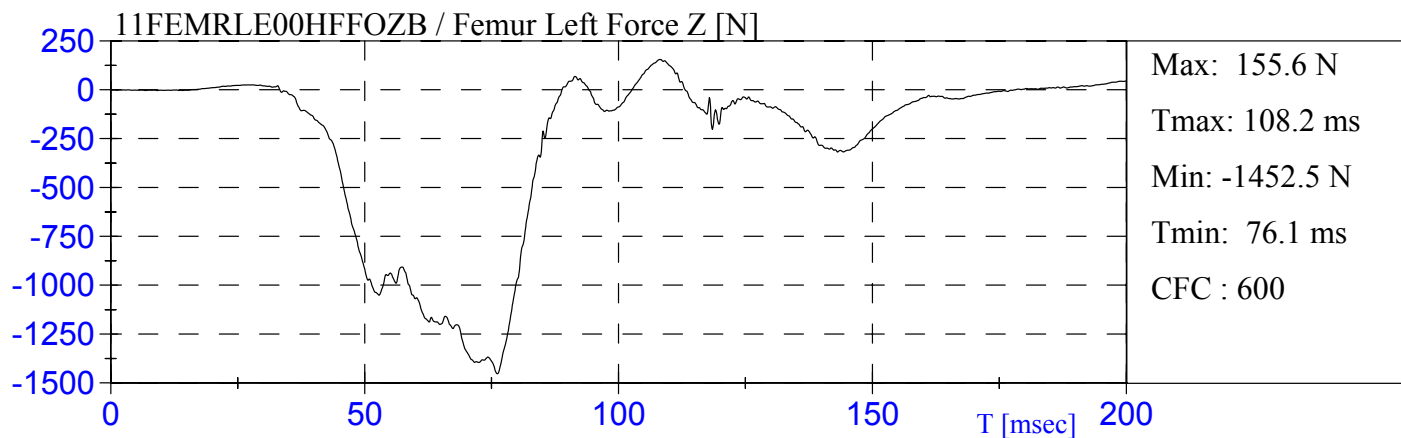


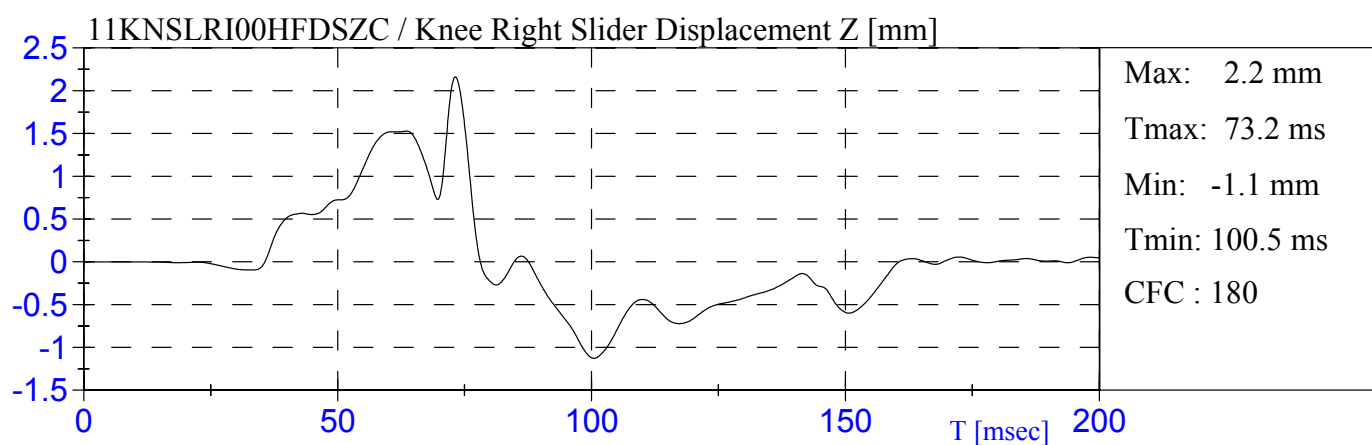
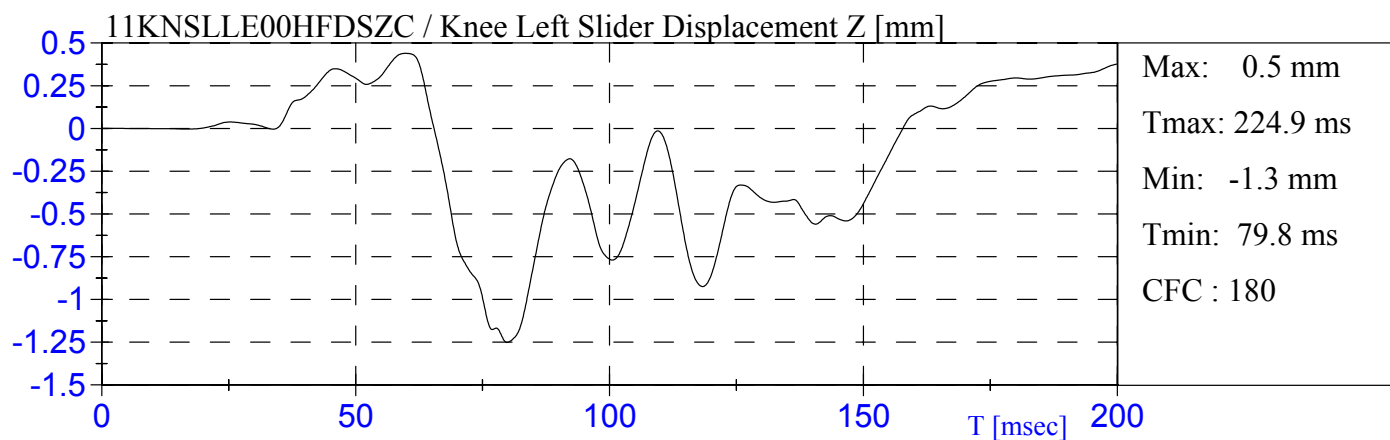


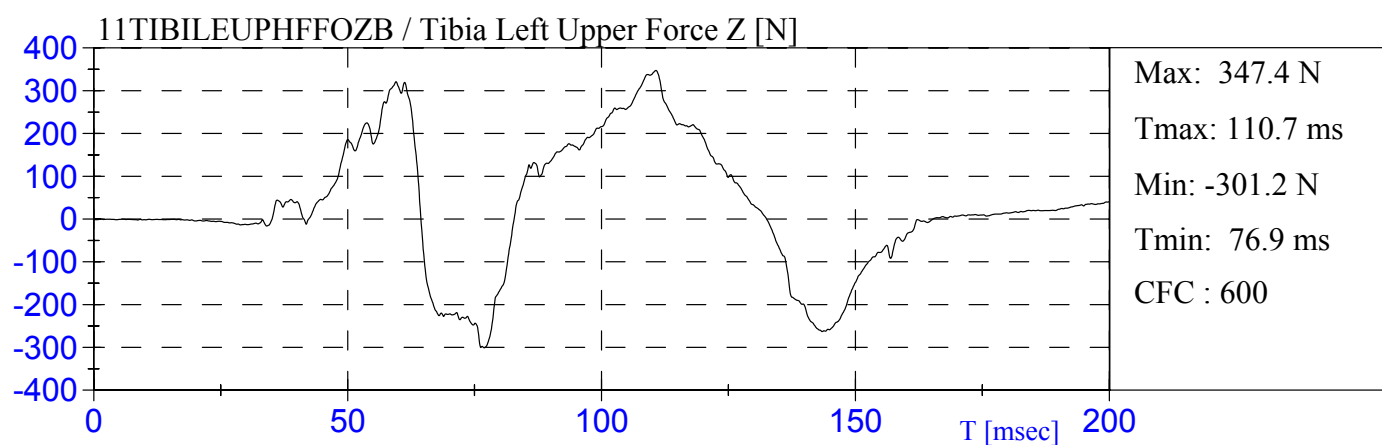
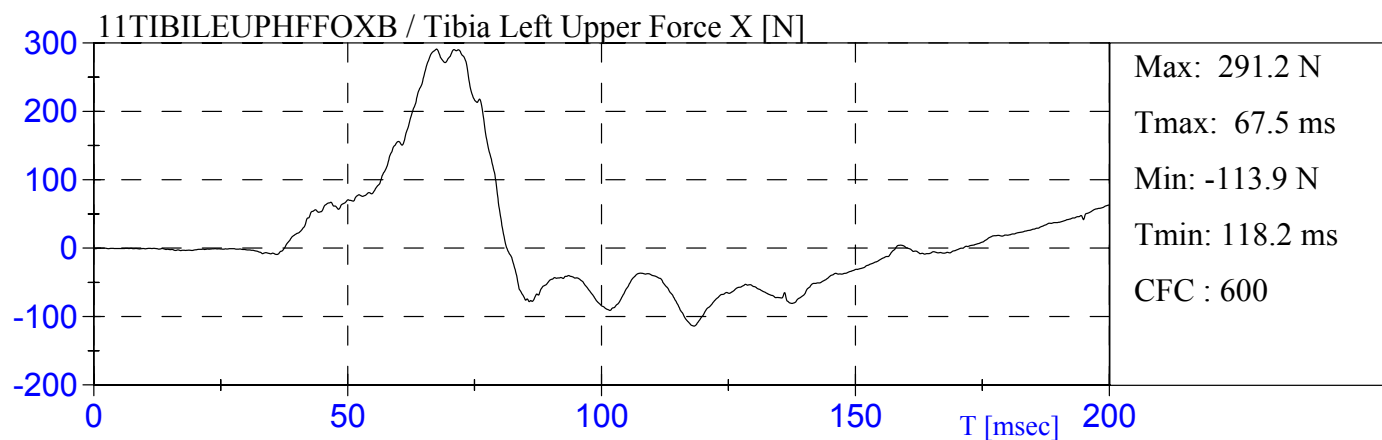


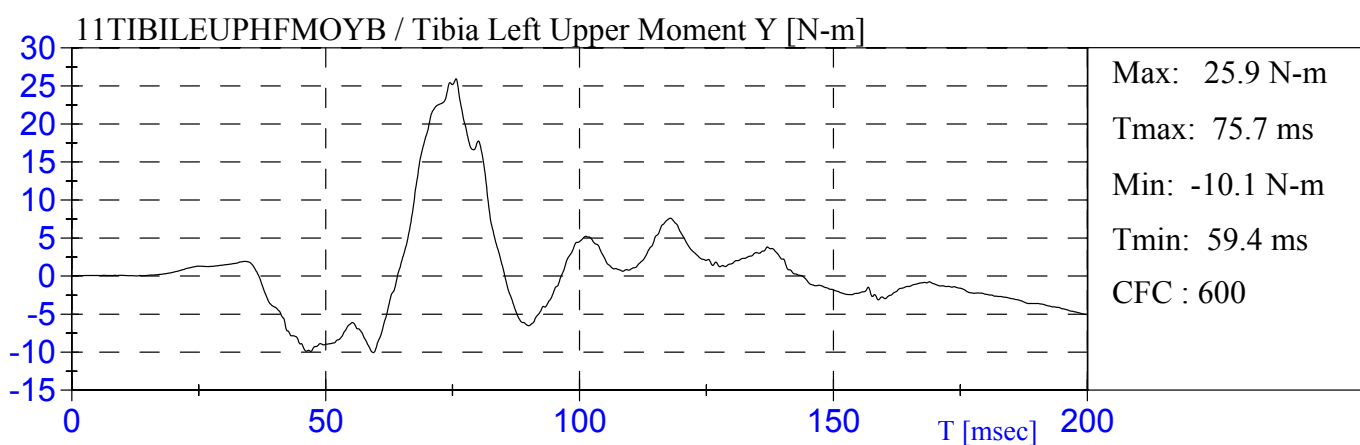
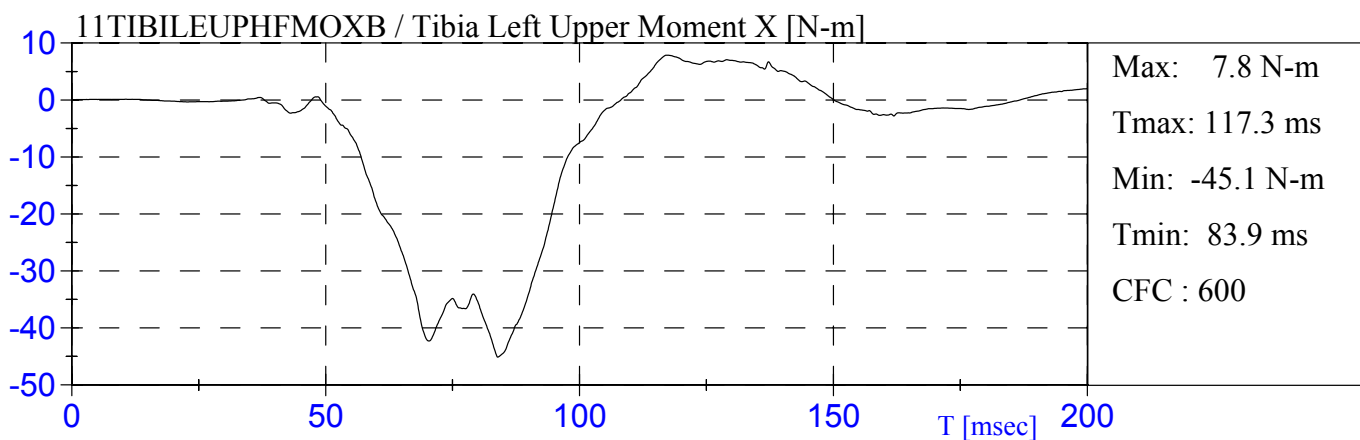


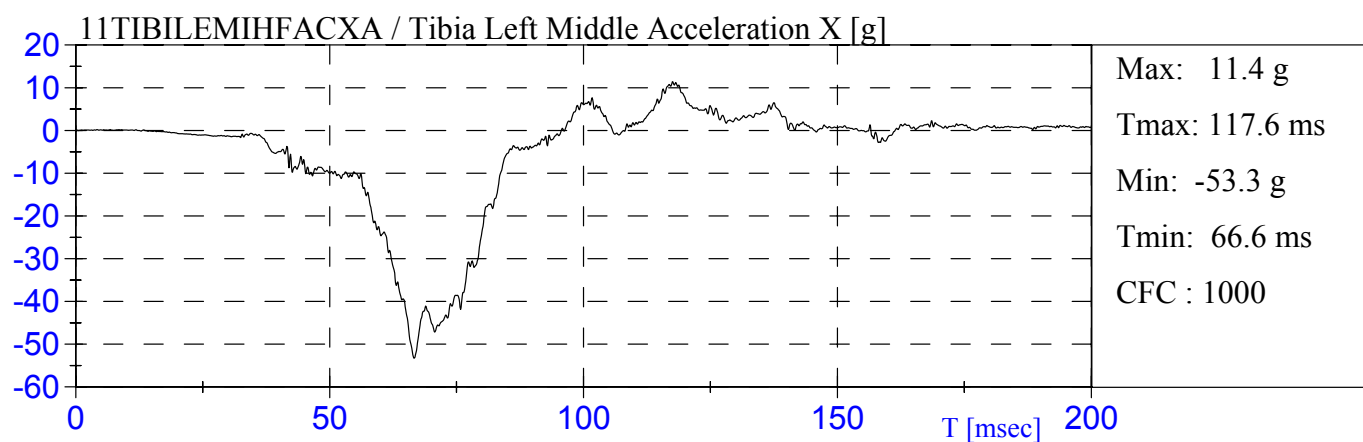


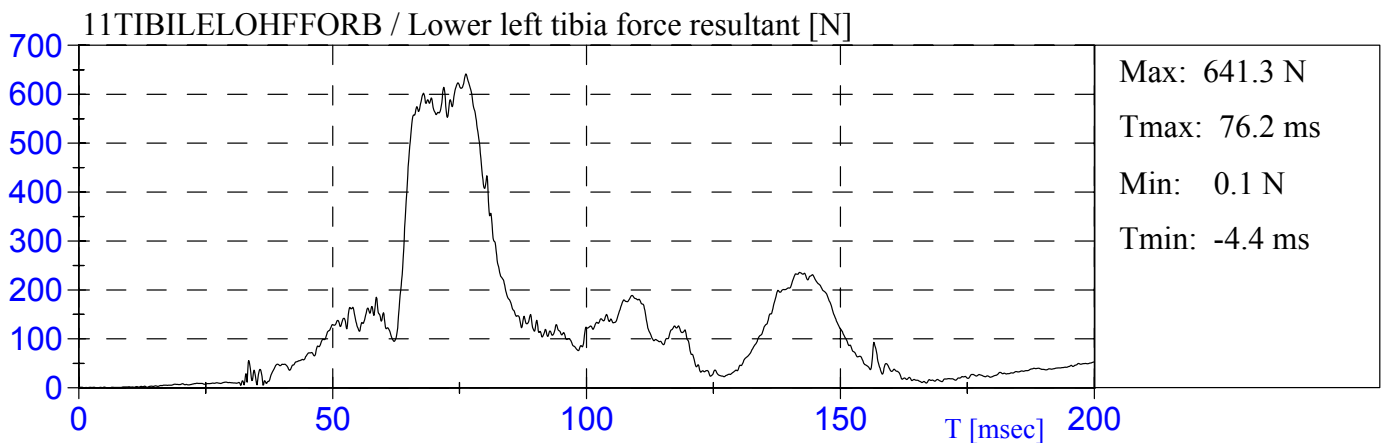
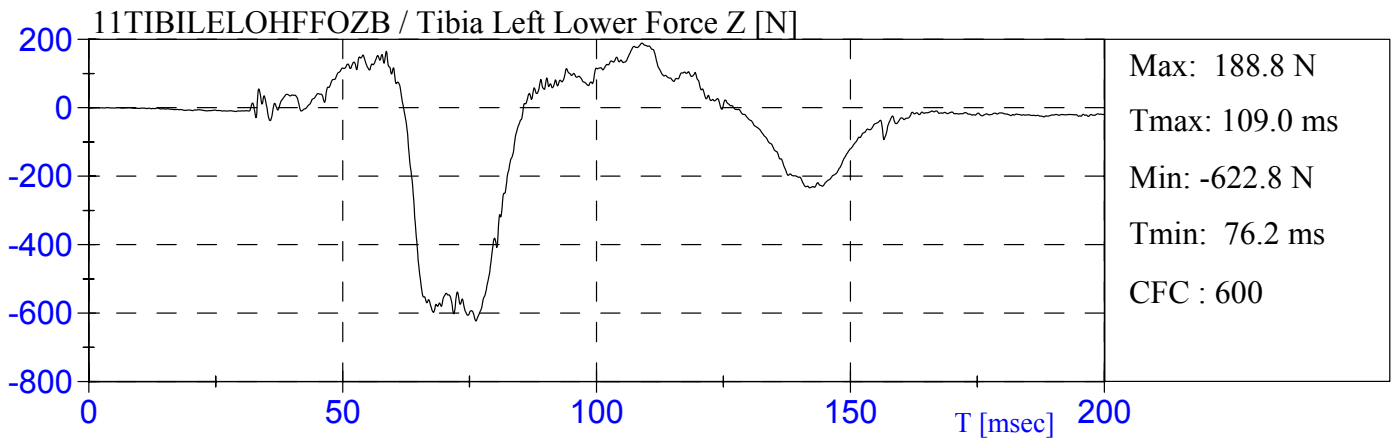
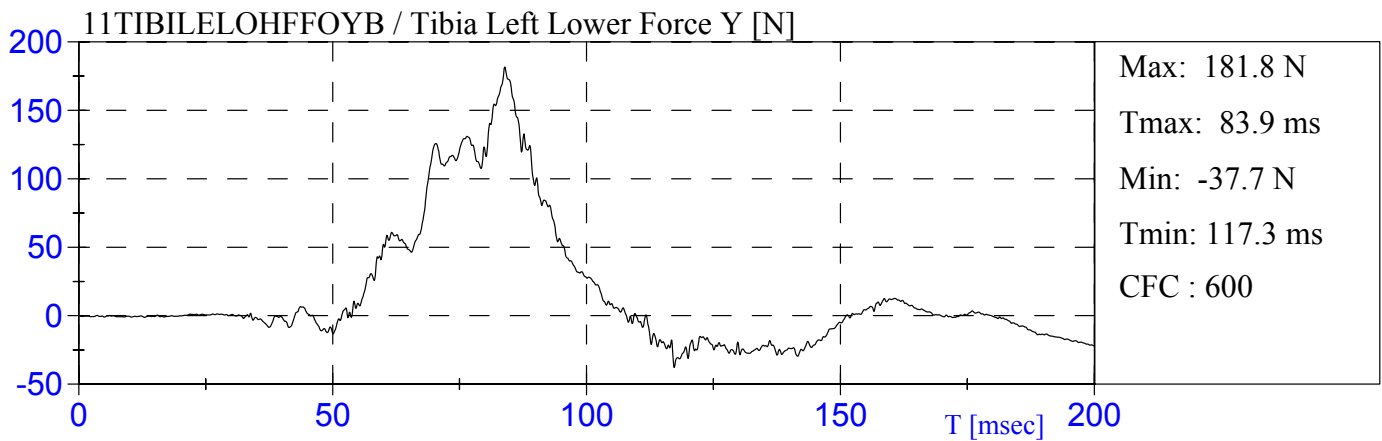
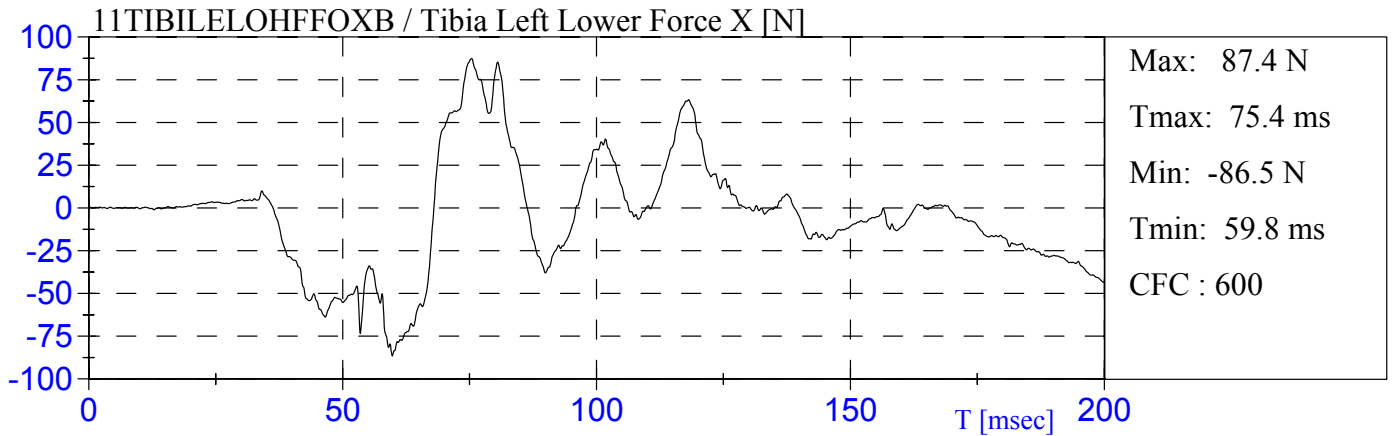


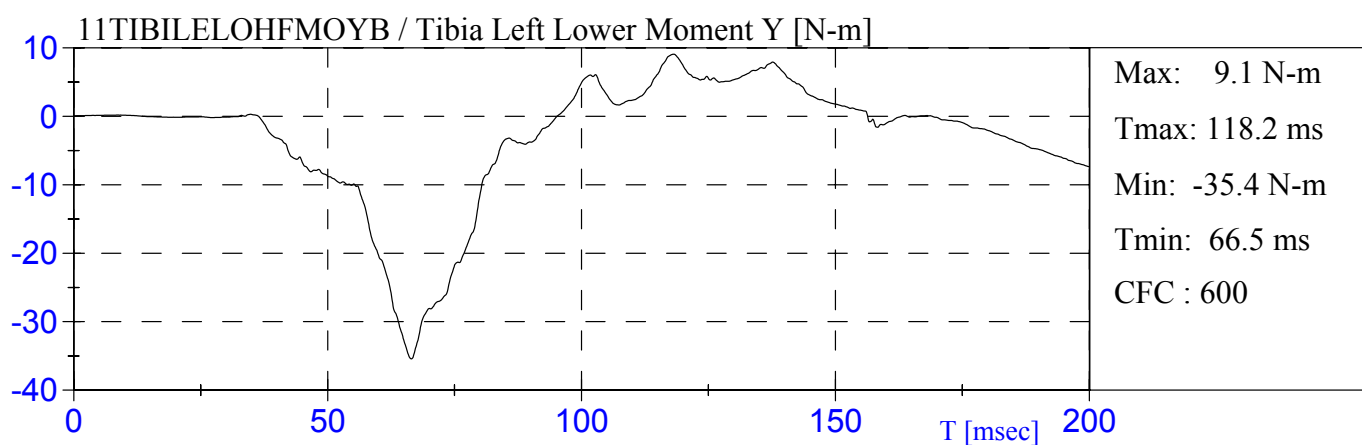
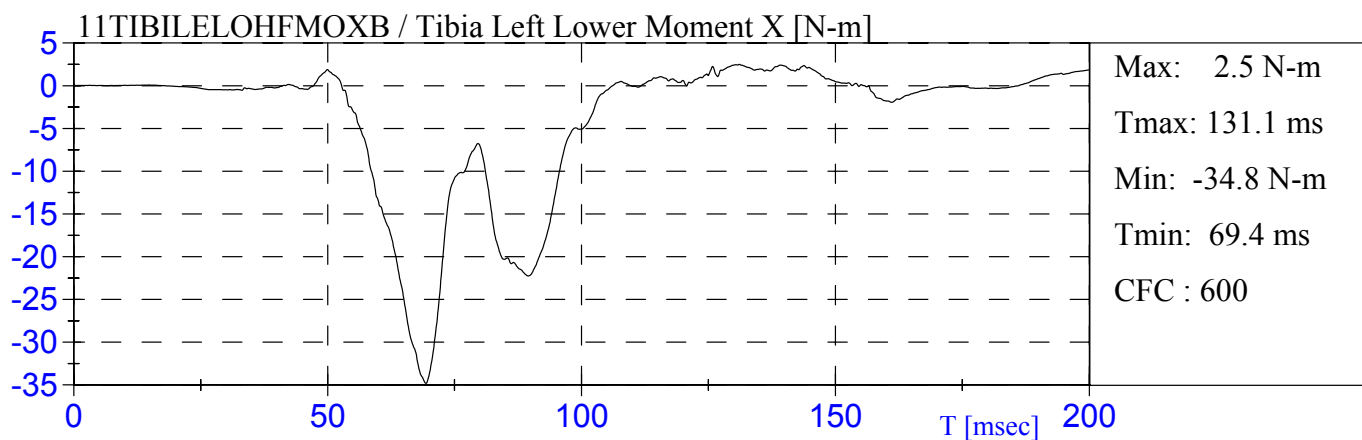


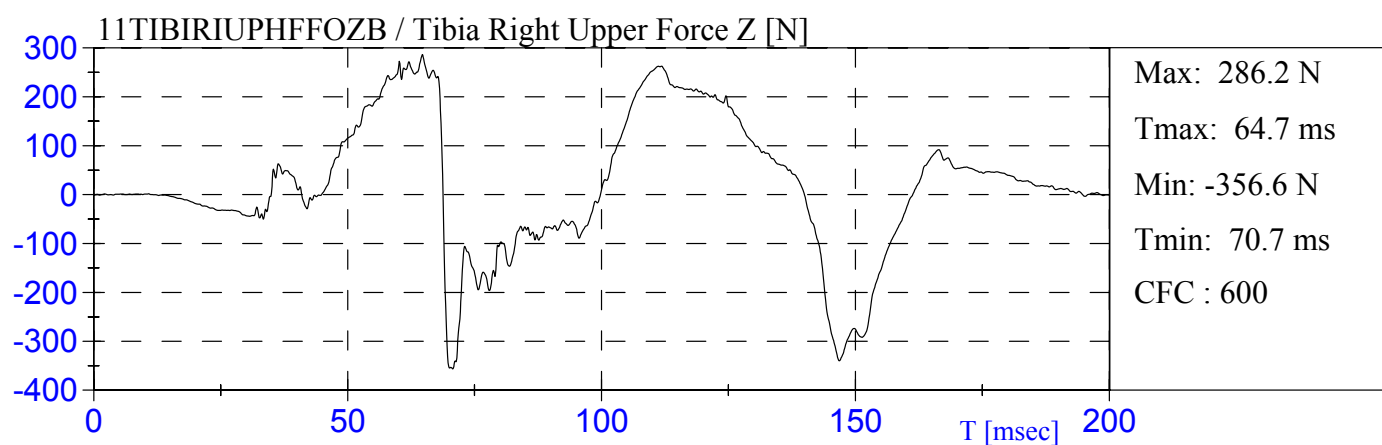
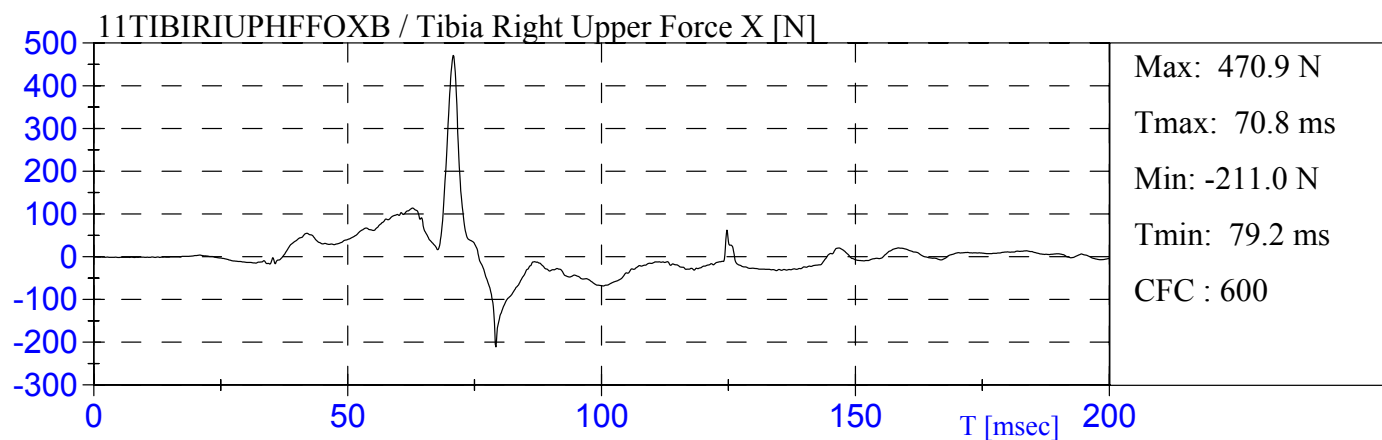


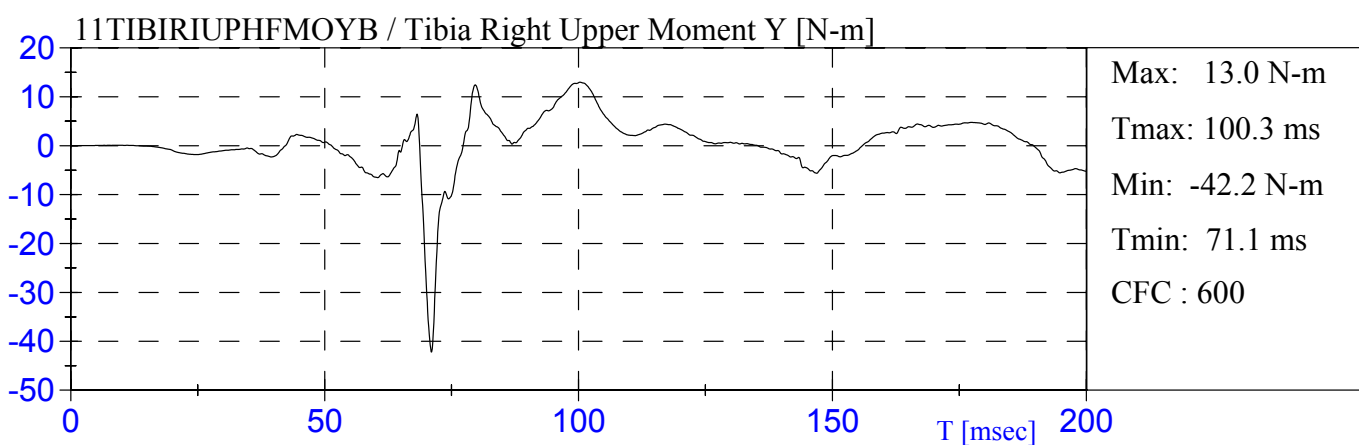
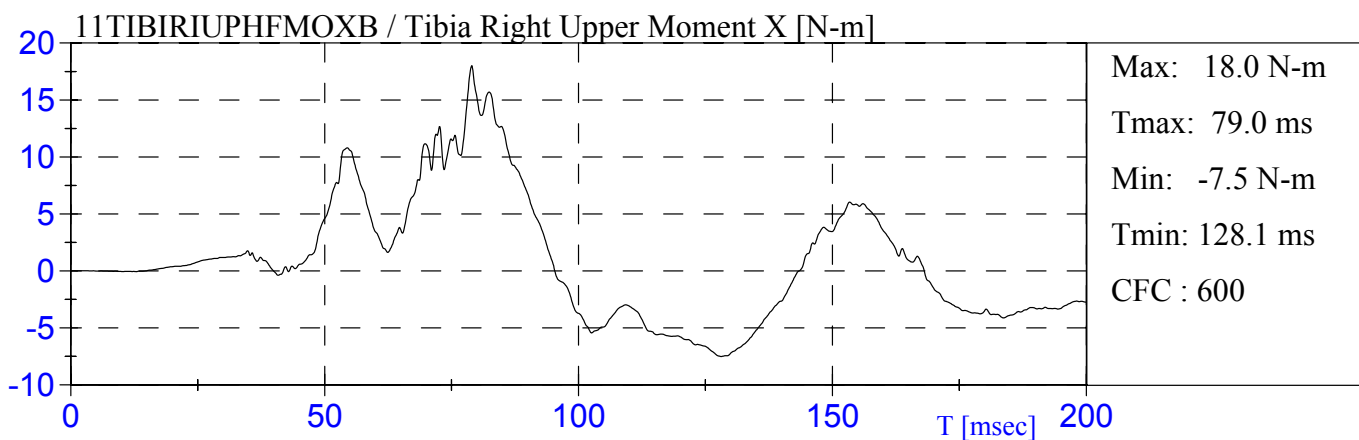


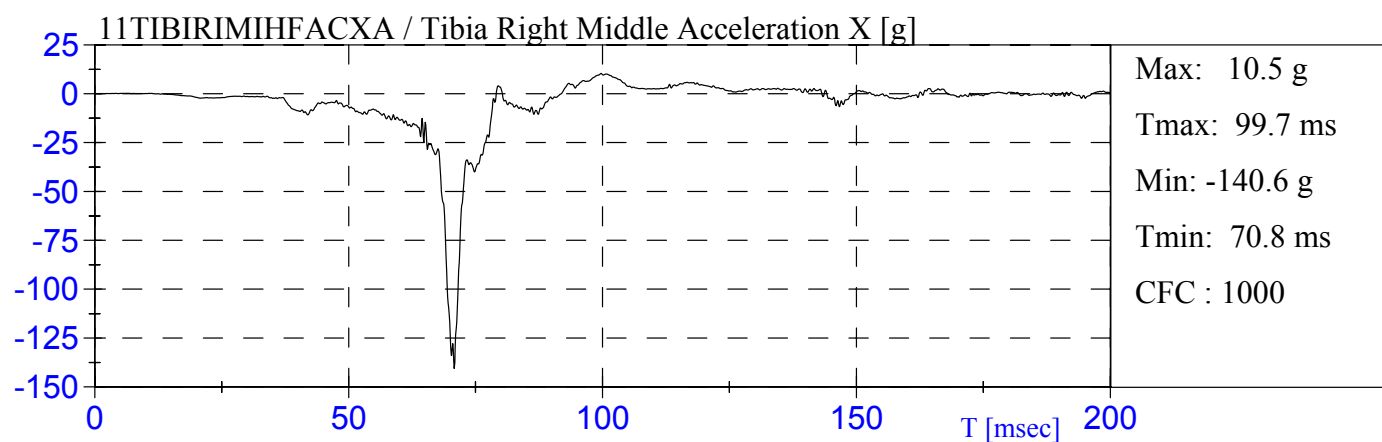


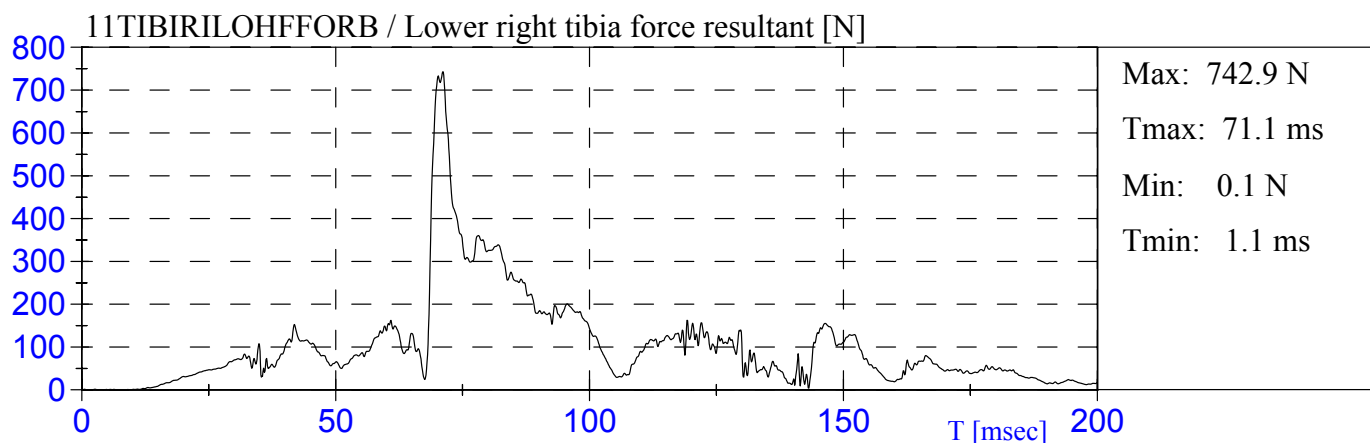
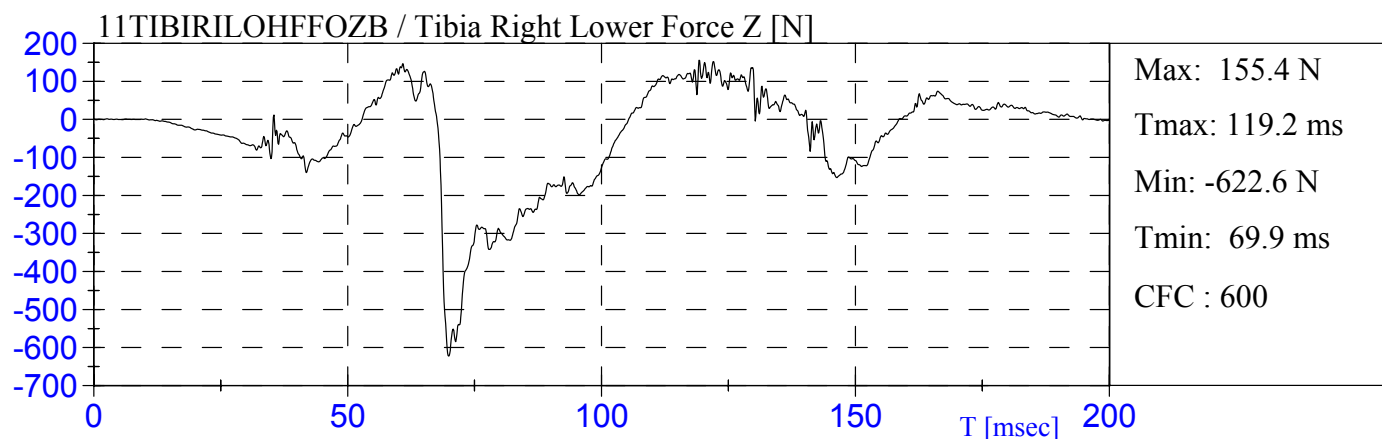
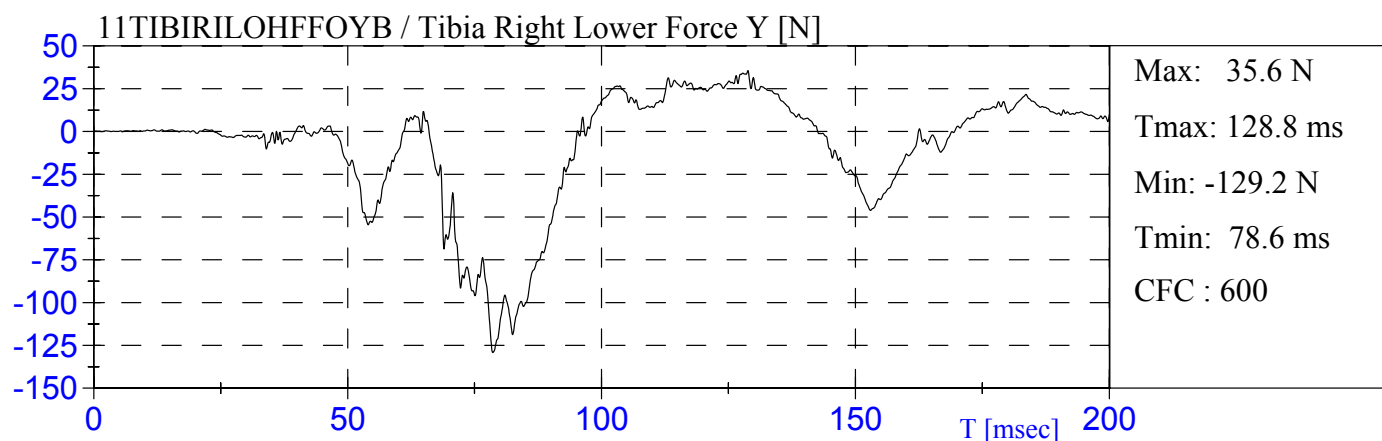
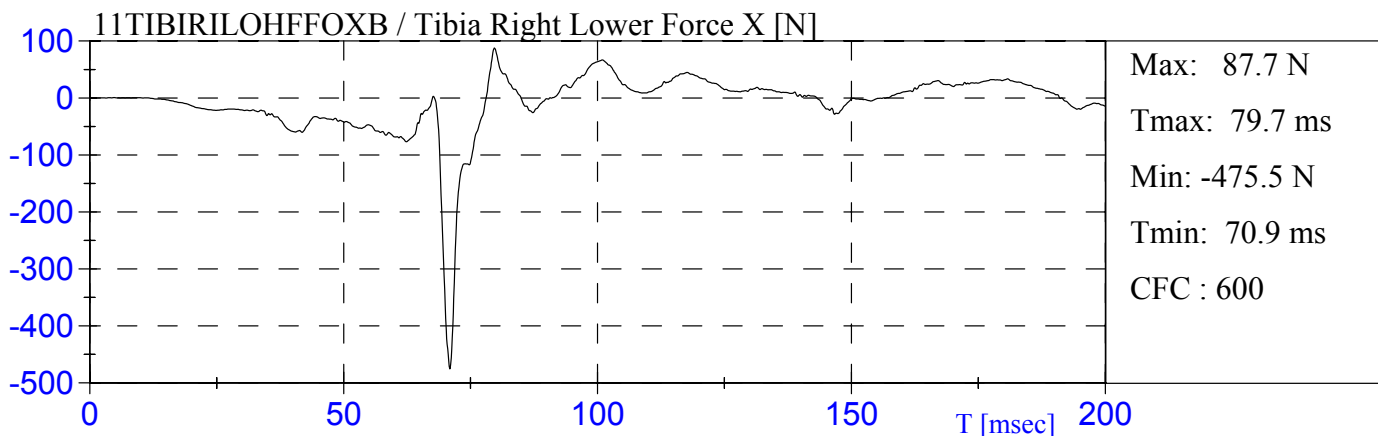


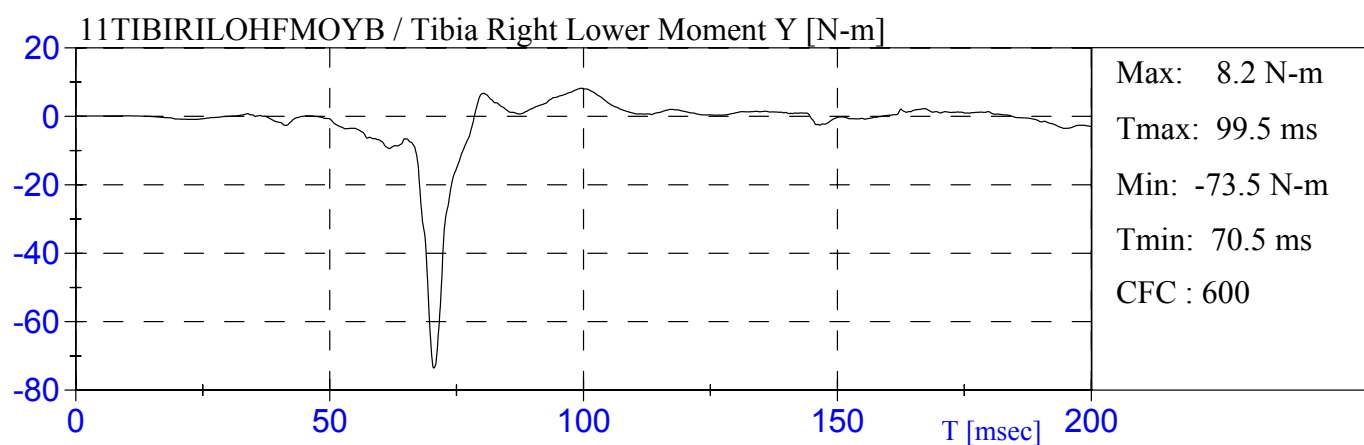
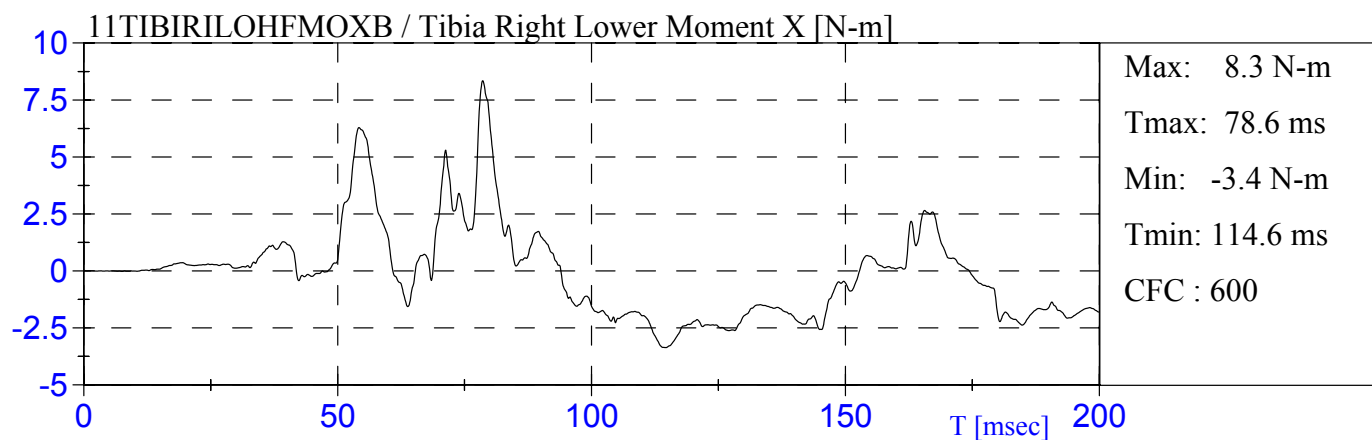


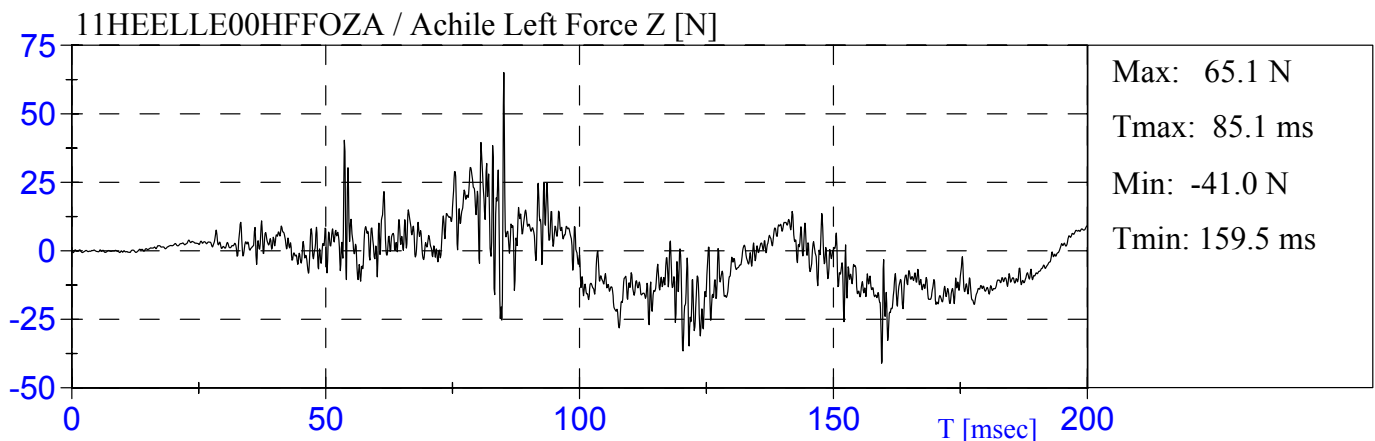
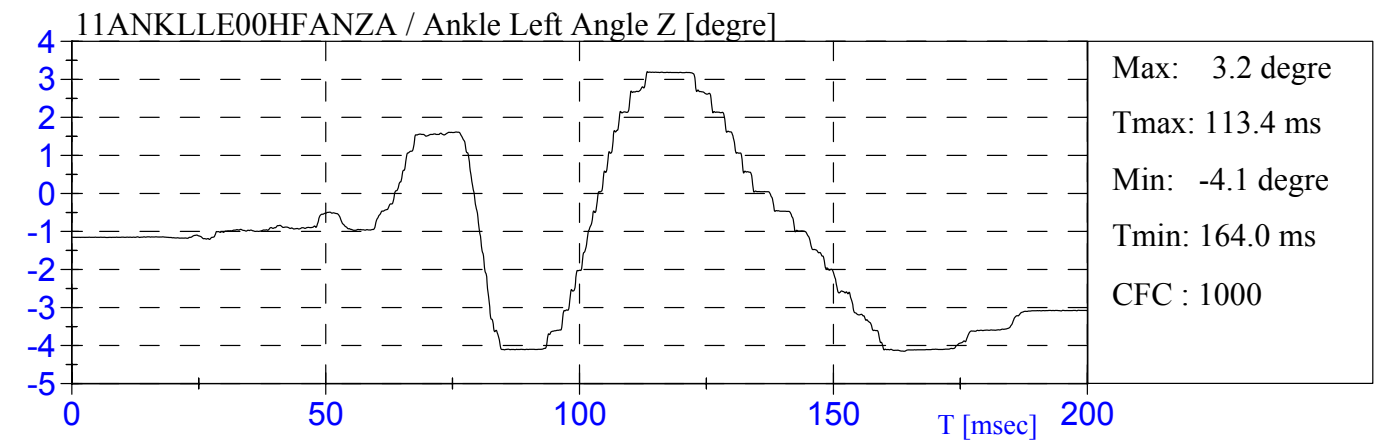
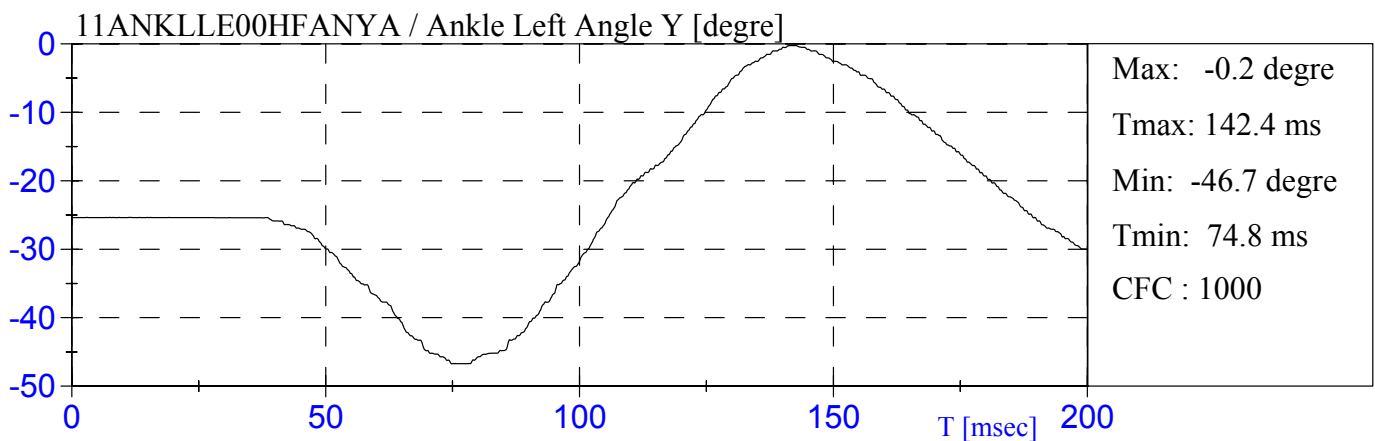
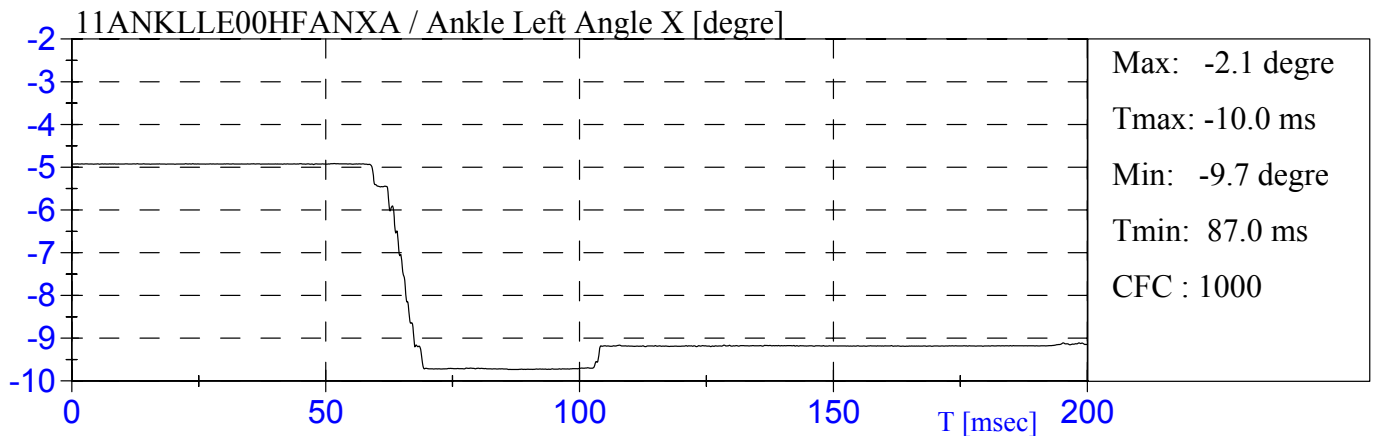




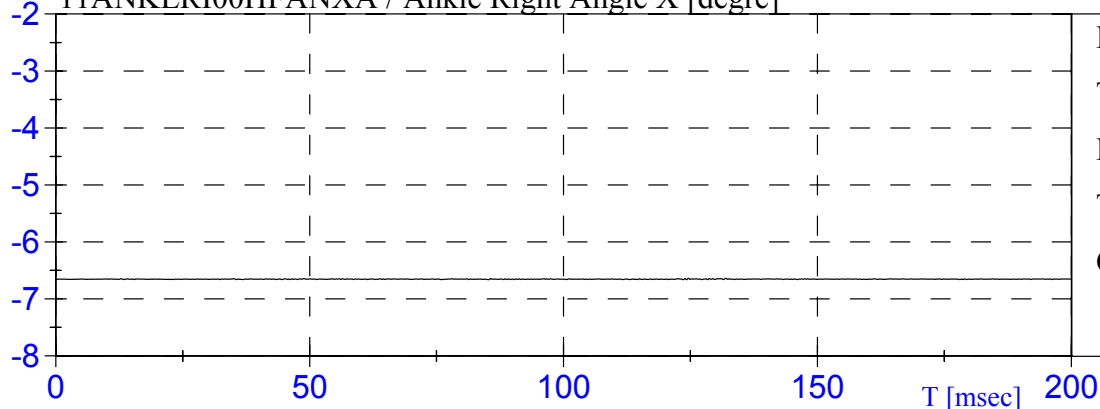




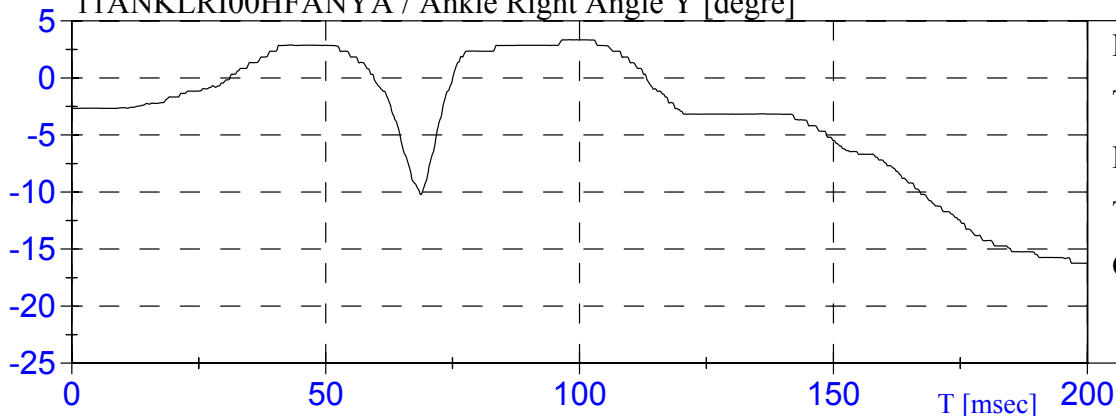




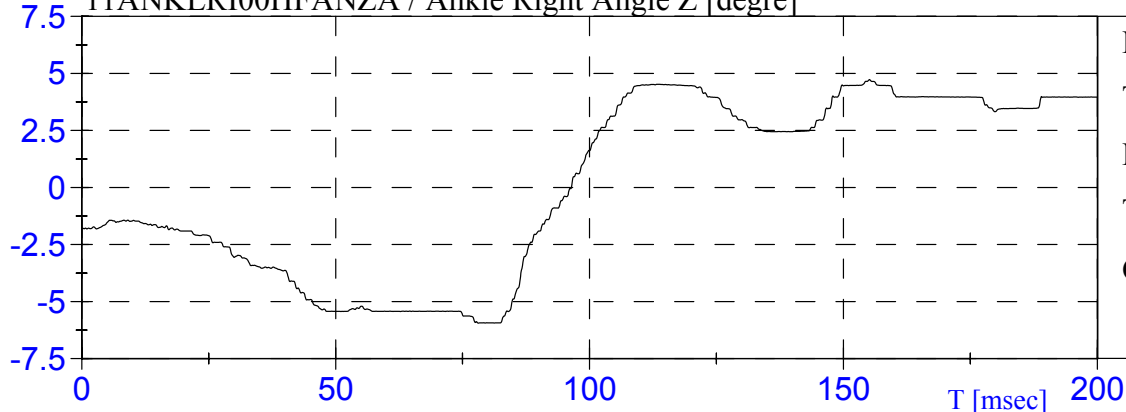
11ANKLRI00HFANXA / Ankle Right Angle X [degree]



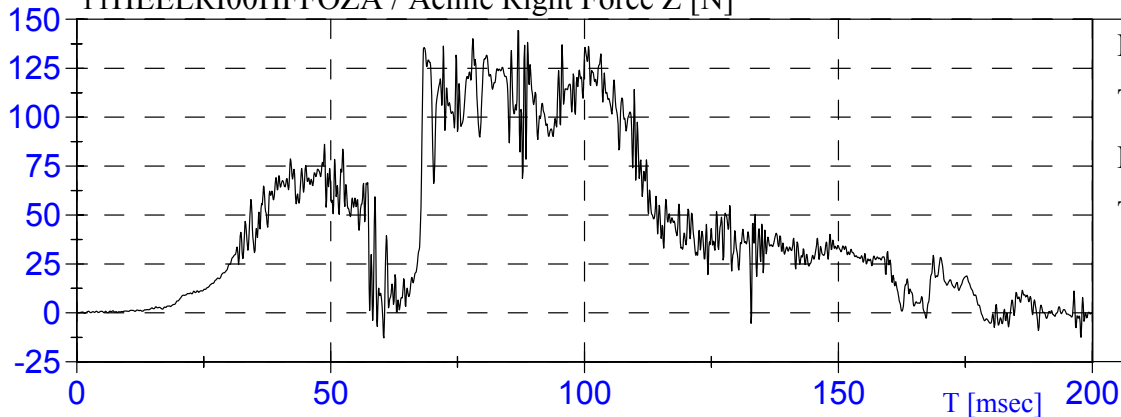
11ANKLRI00HFANYA / Ankle Right Angle Y [degree]

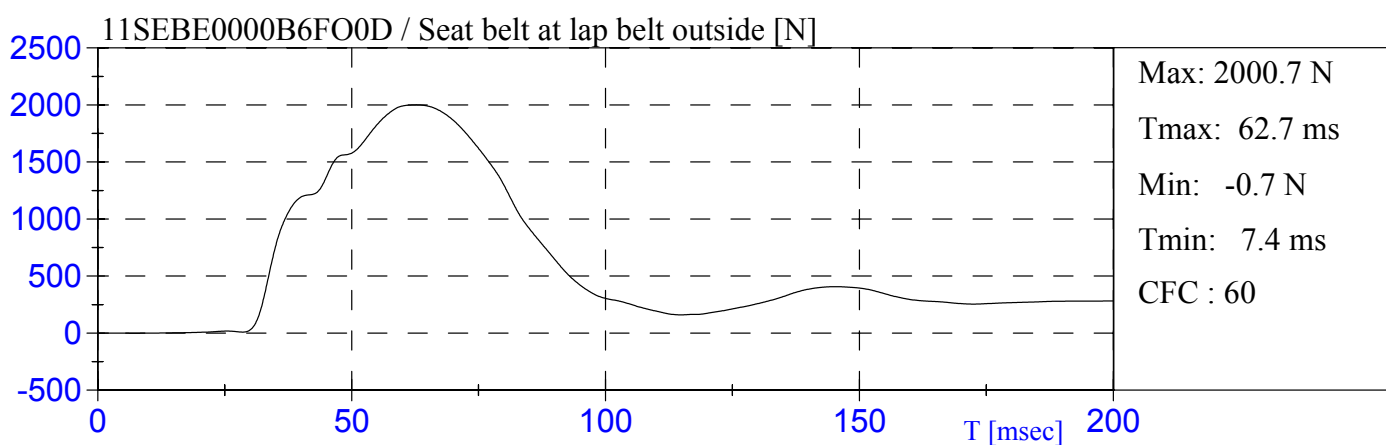
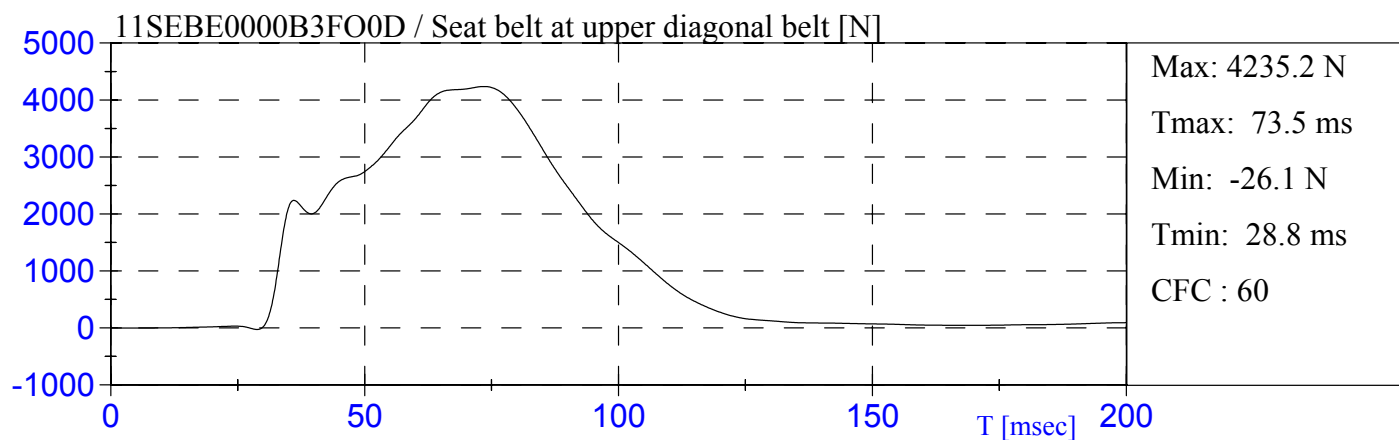


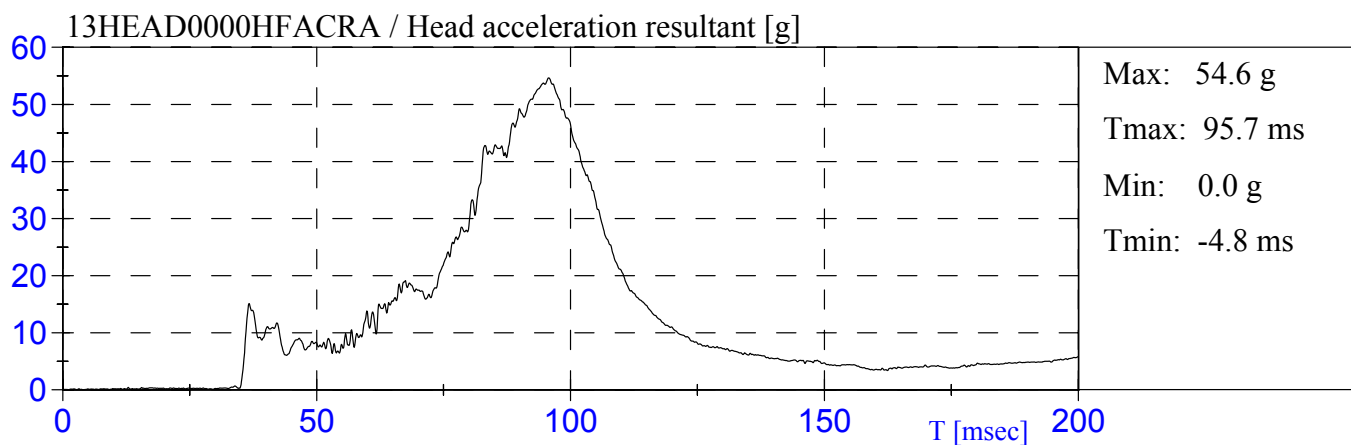
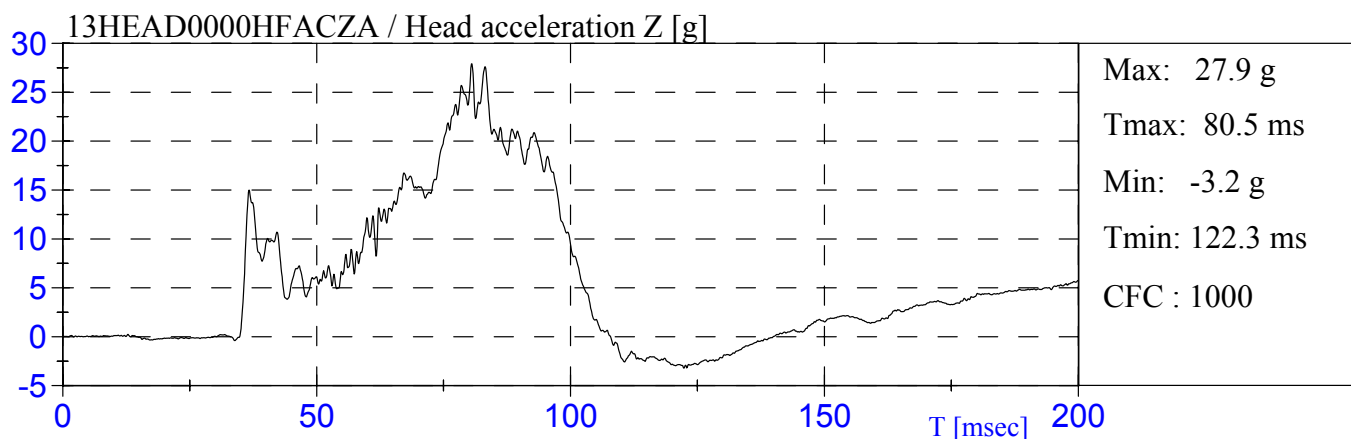
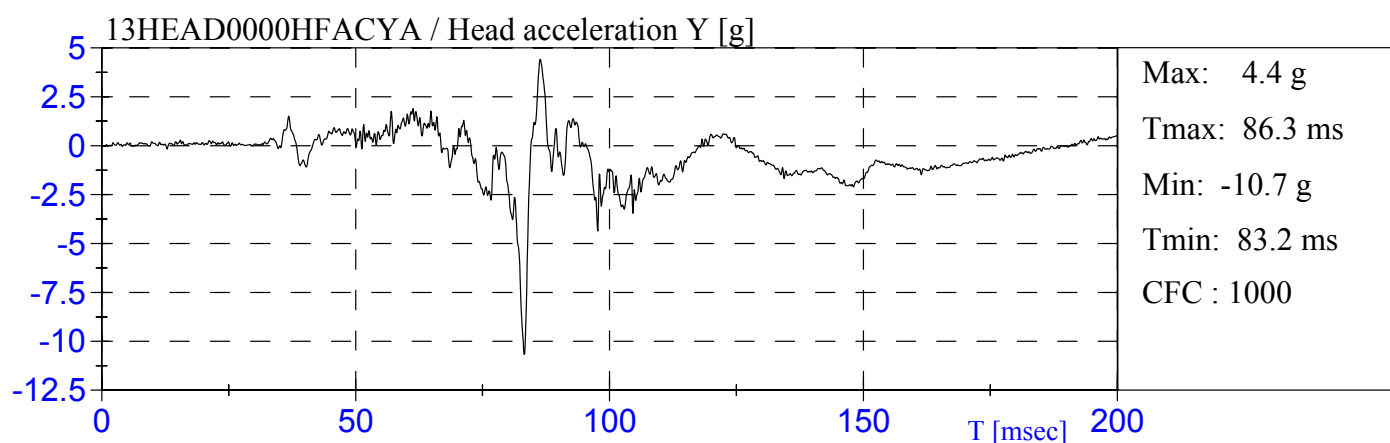
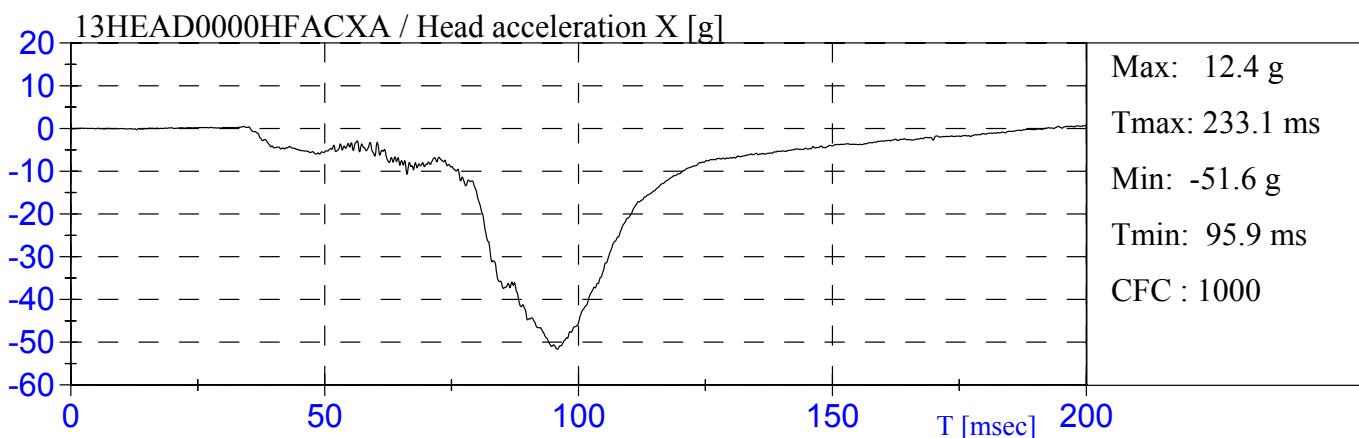
11ANKLRI00HFANZA / Ankle Right Angle Z [degree]

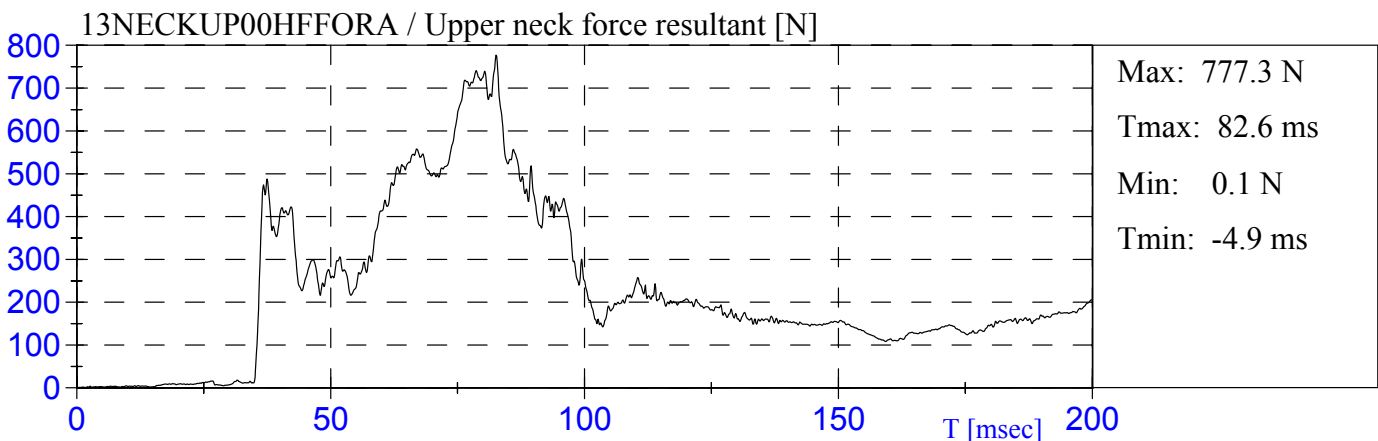
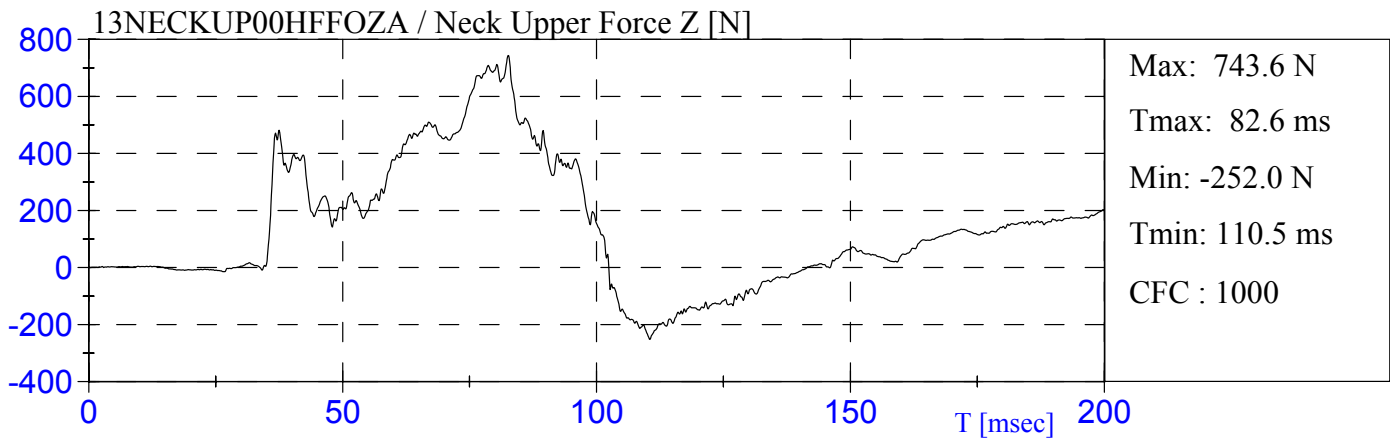
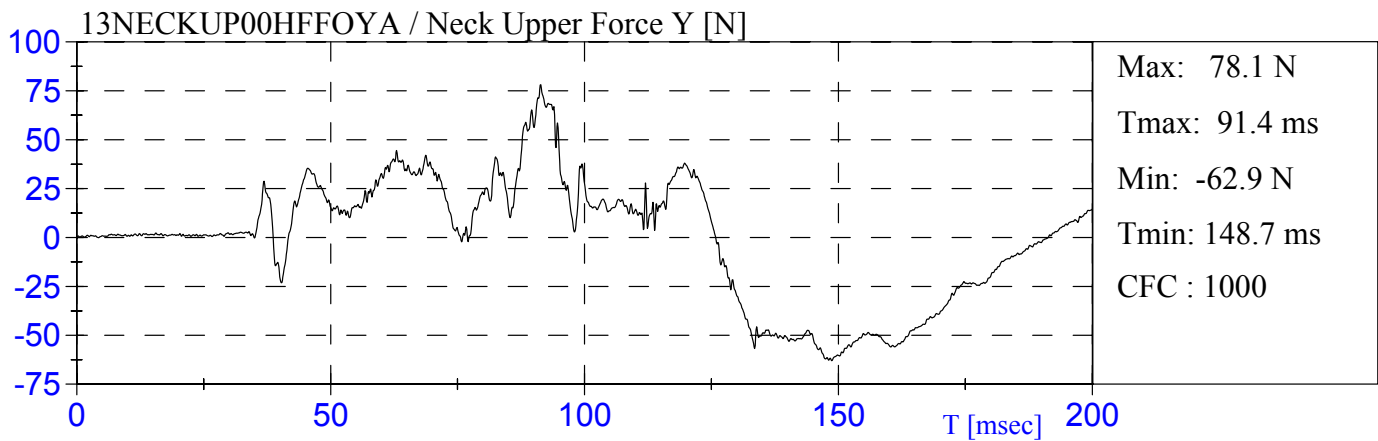
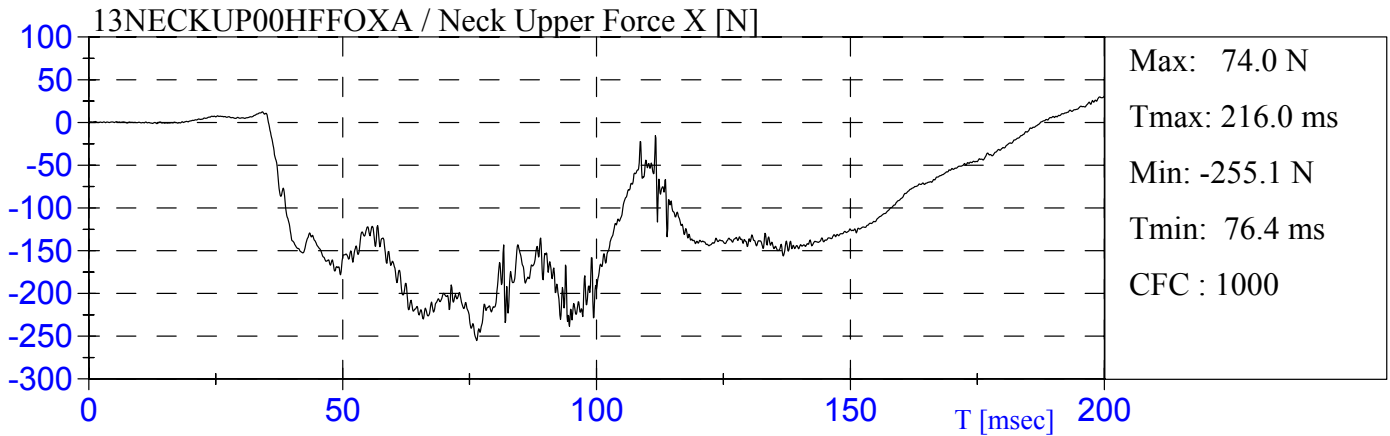


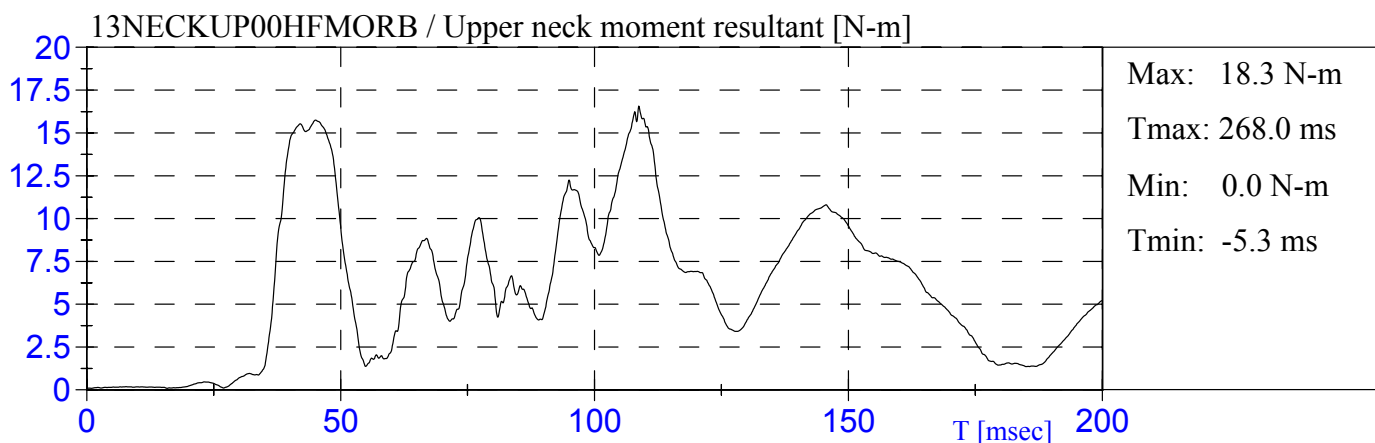
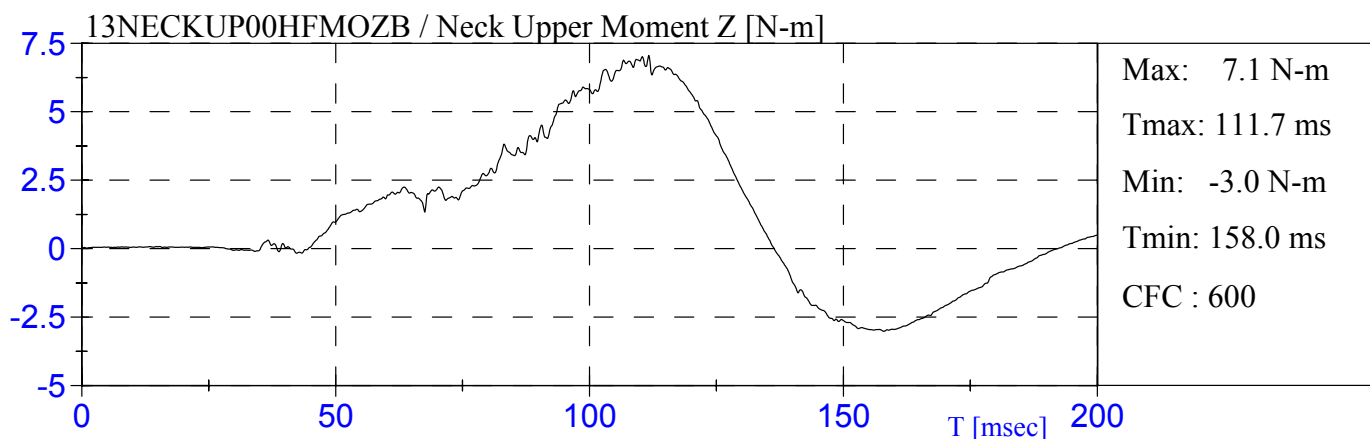
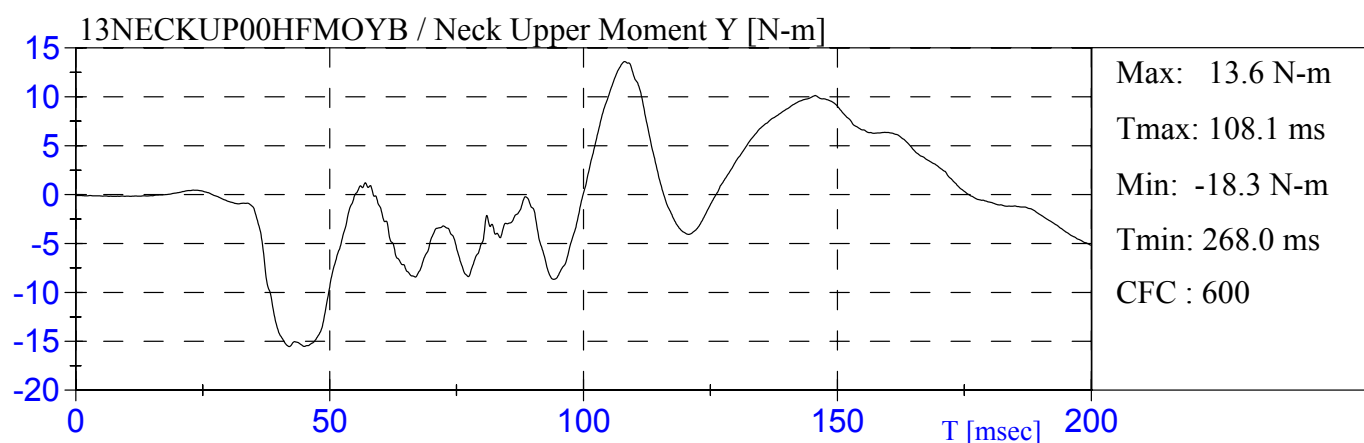
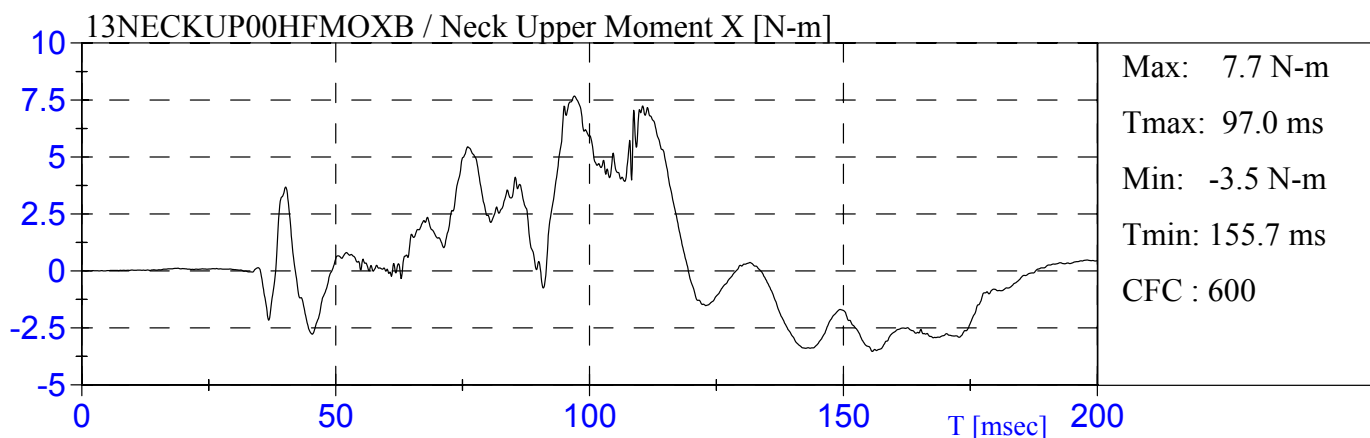
11HEELRI00HFFOZA / Achile Right Force Z [N]

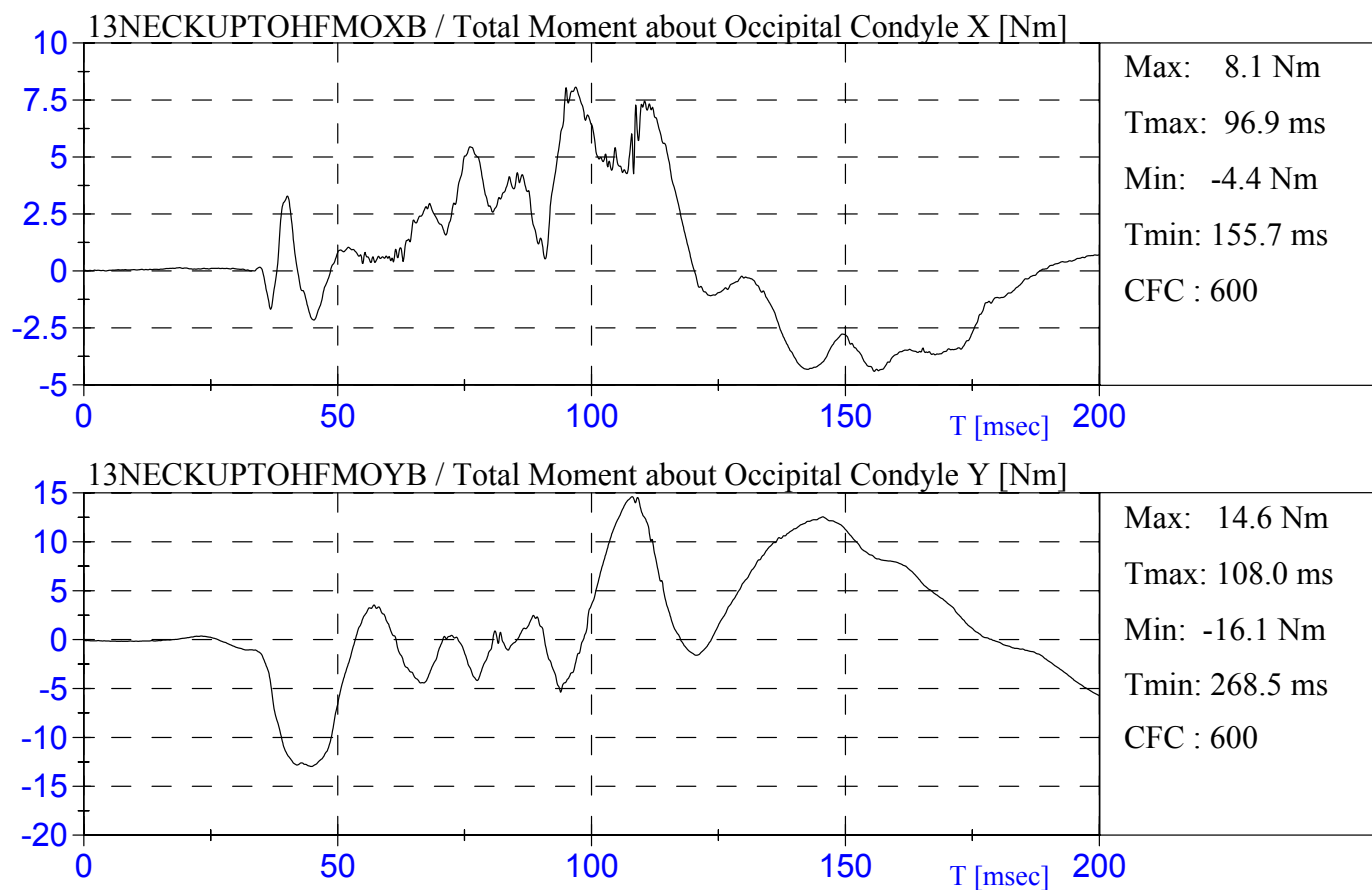


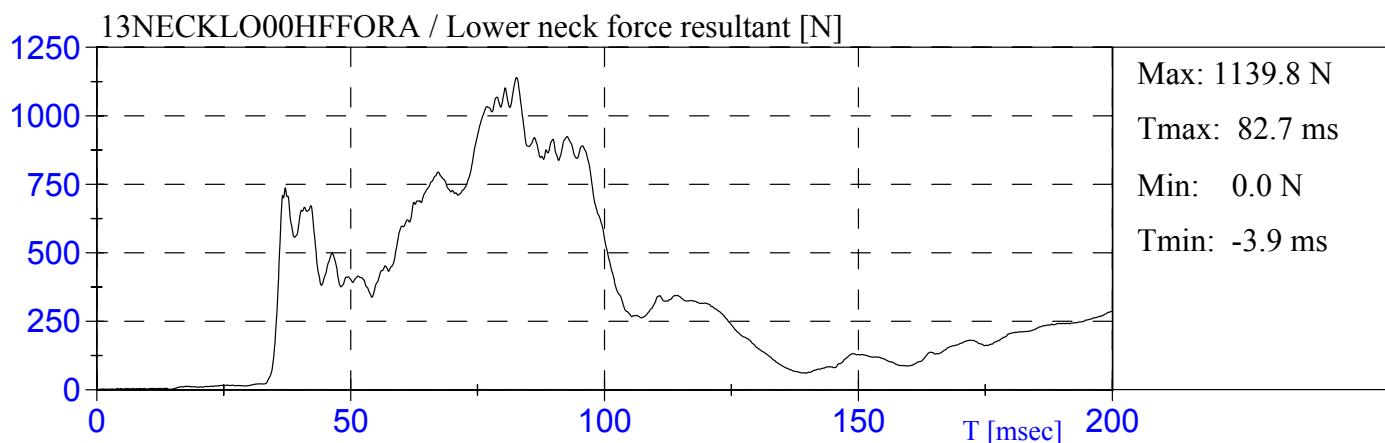
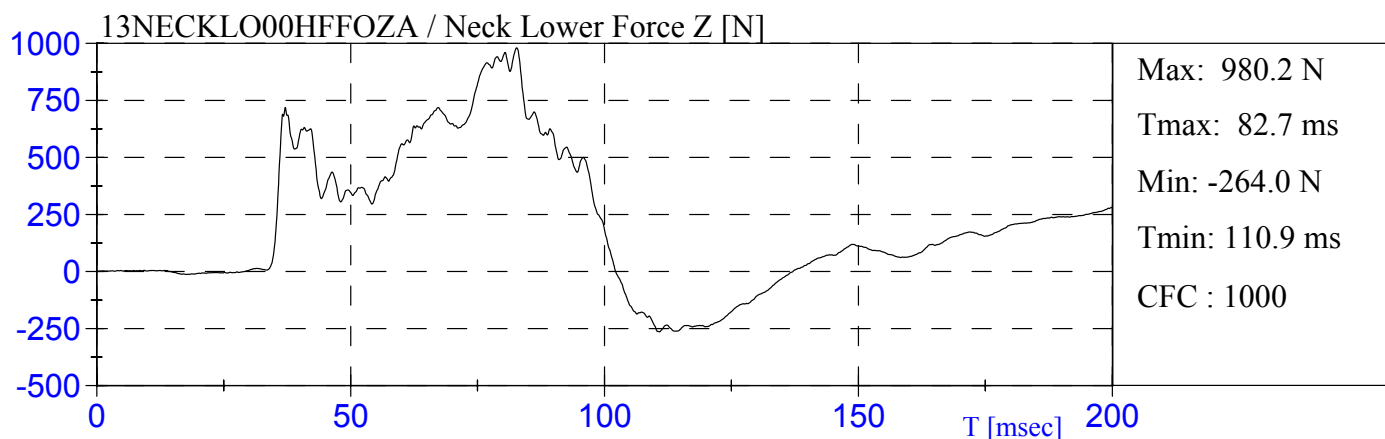
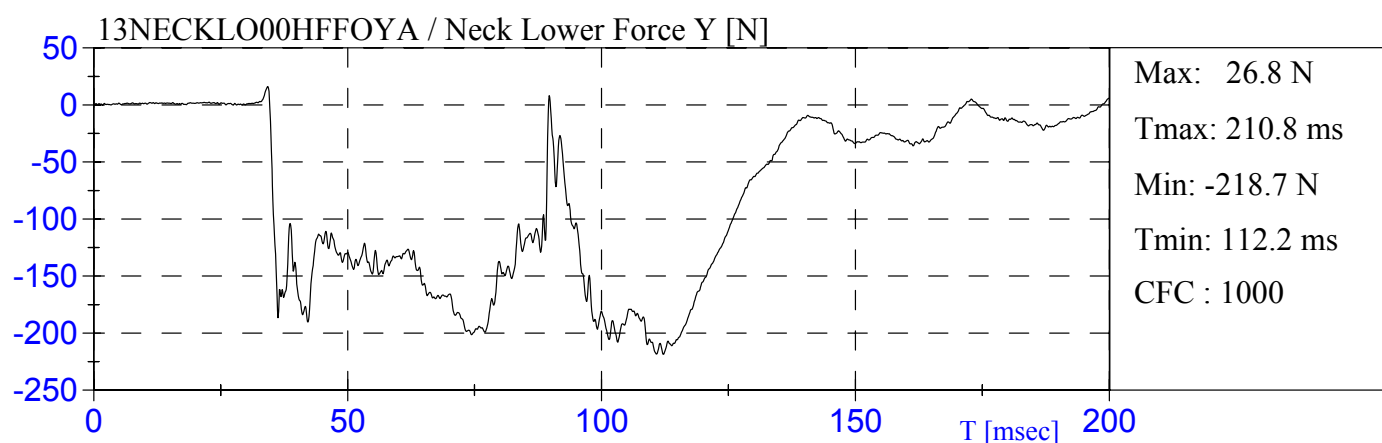
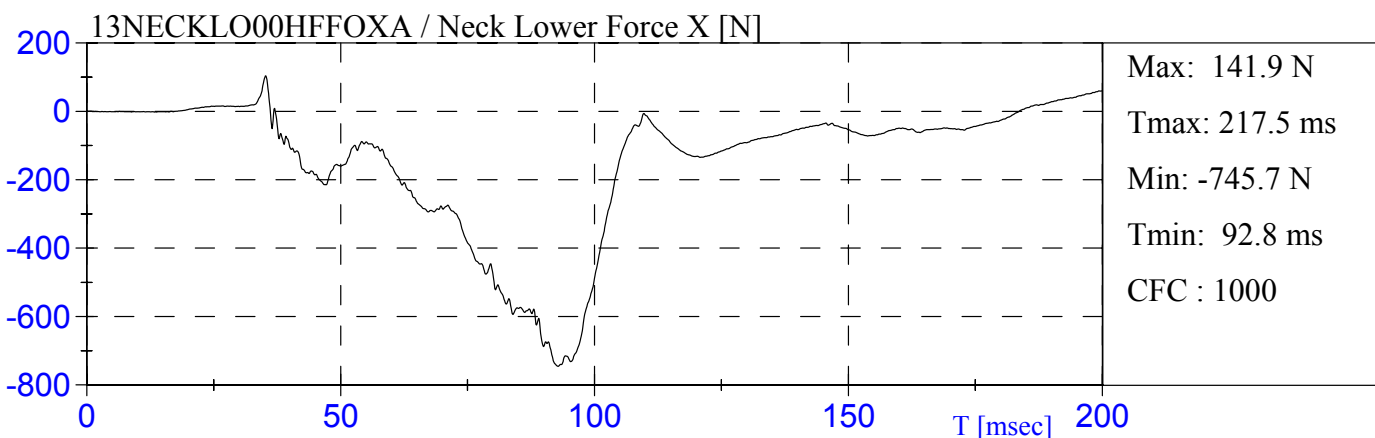


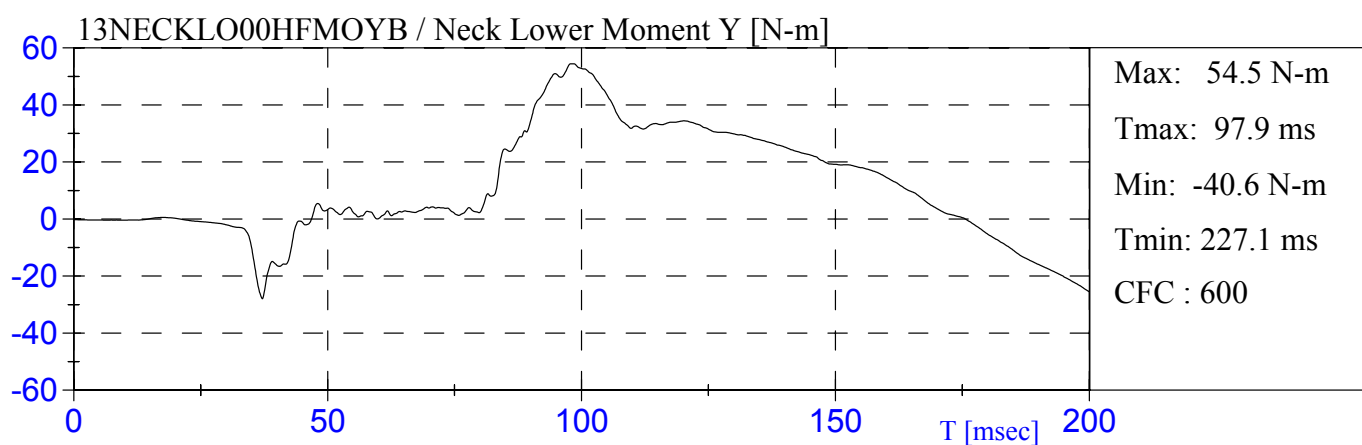
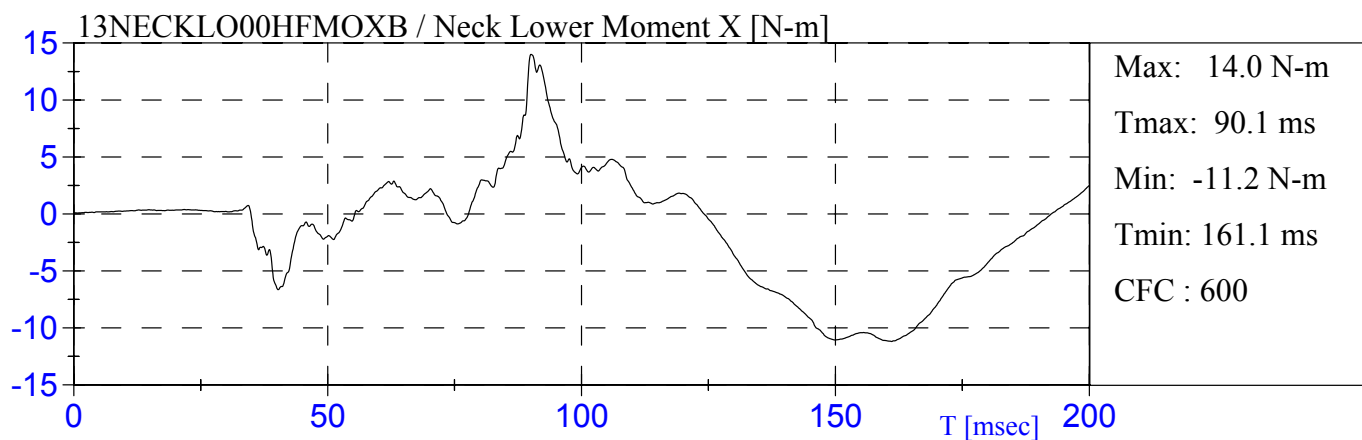


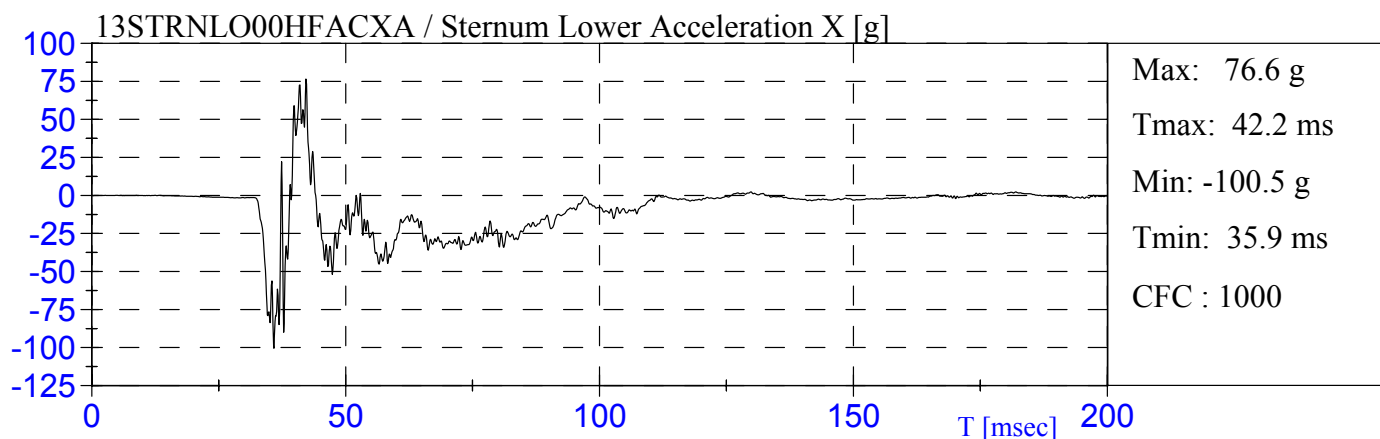
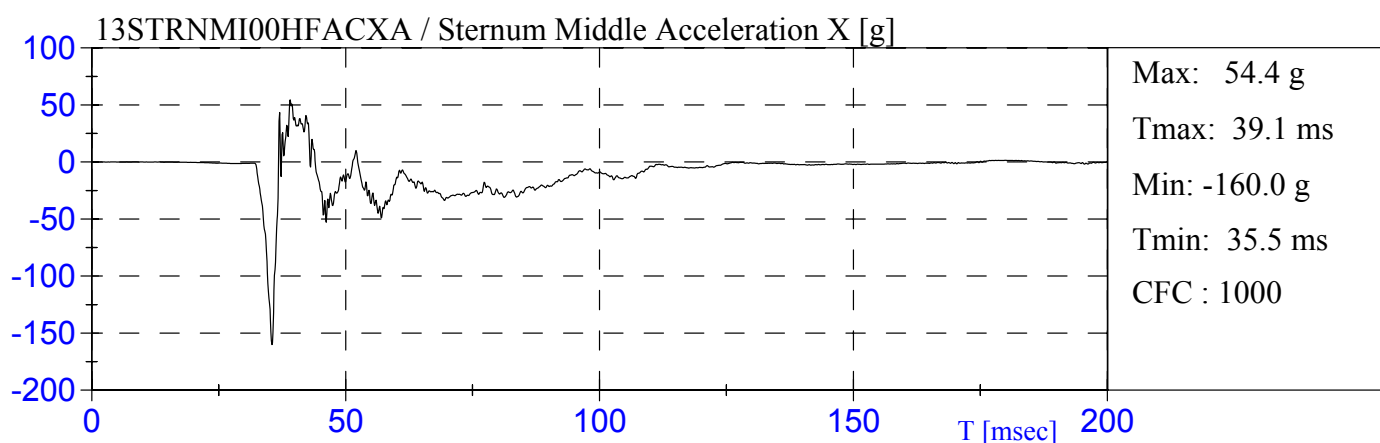
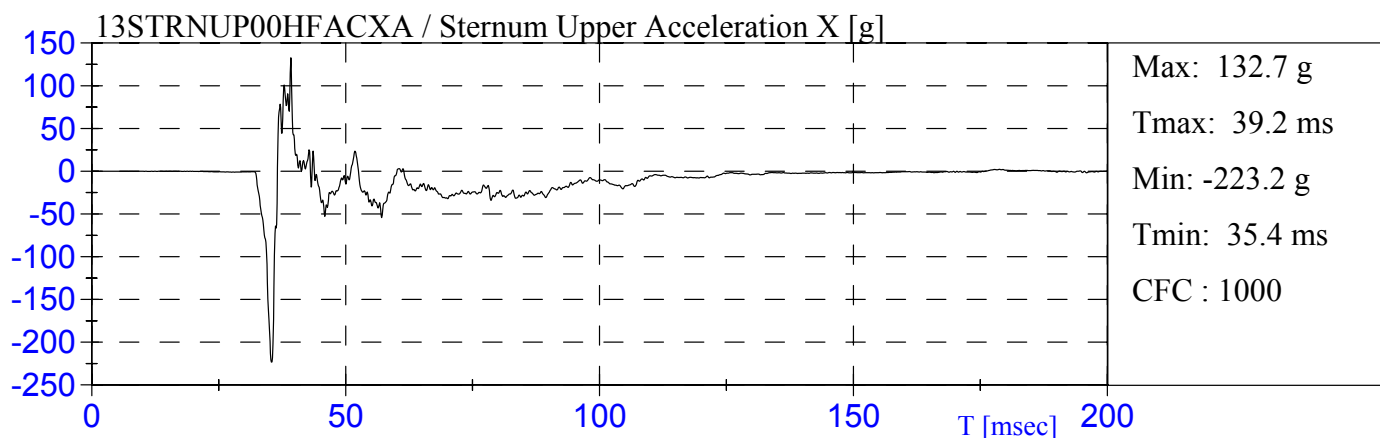


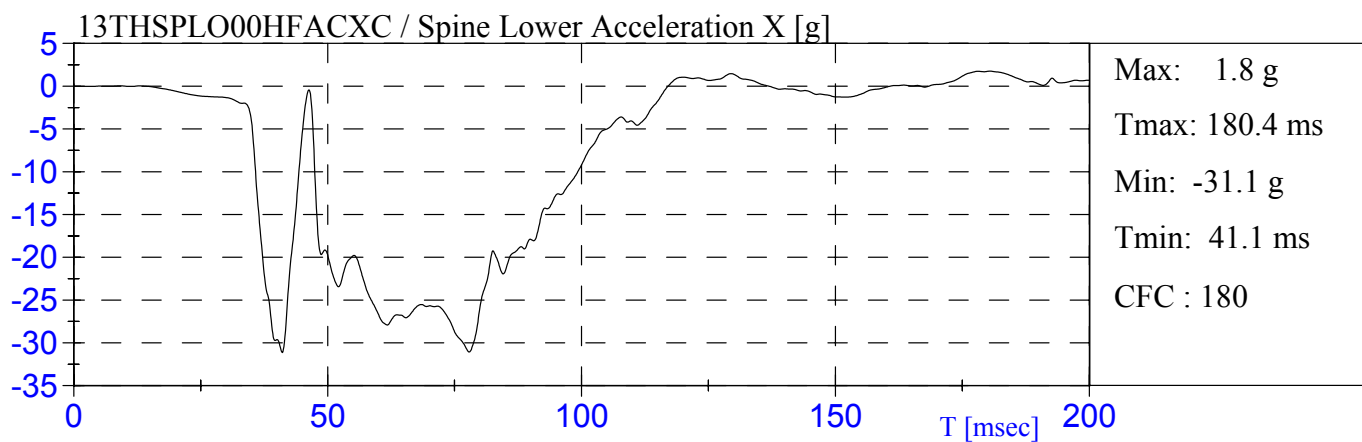
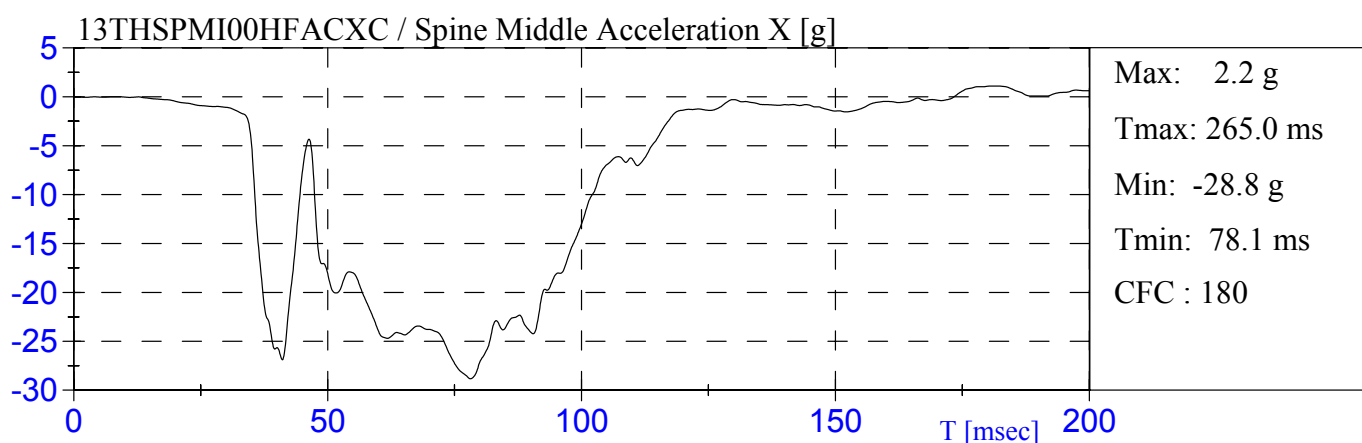
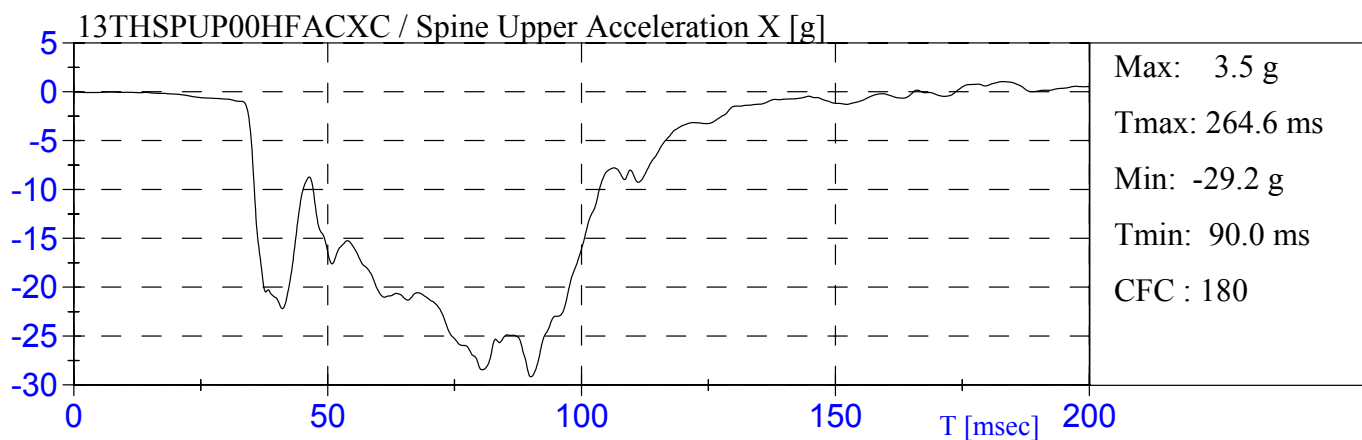


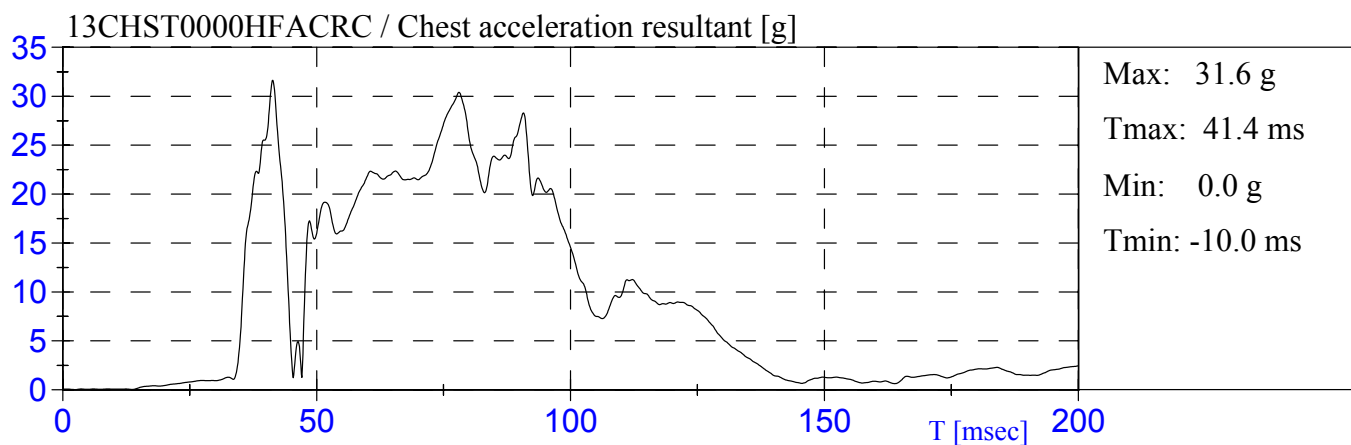
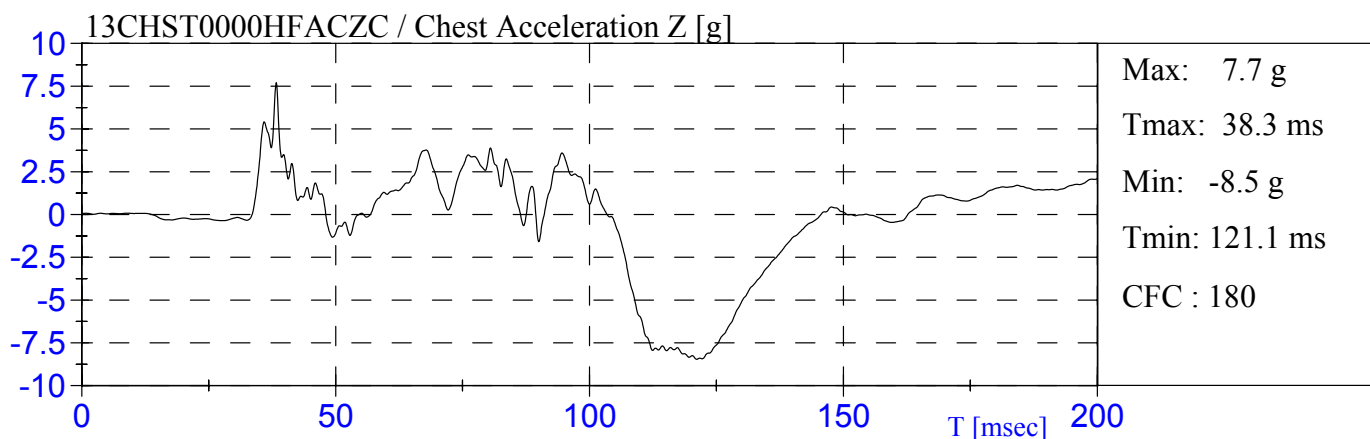
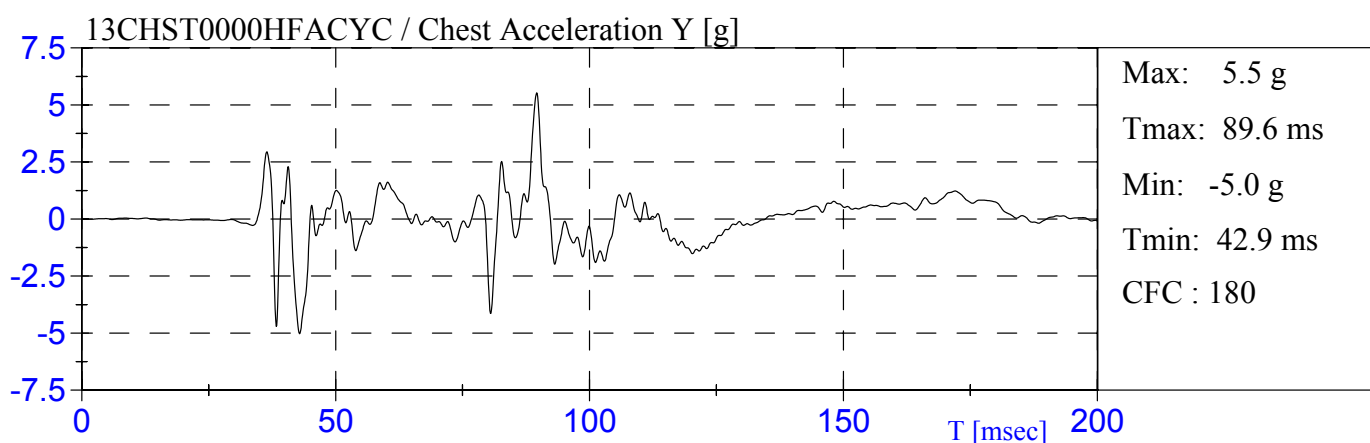
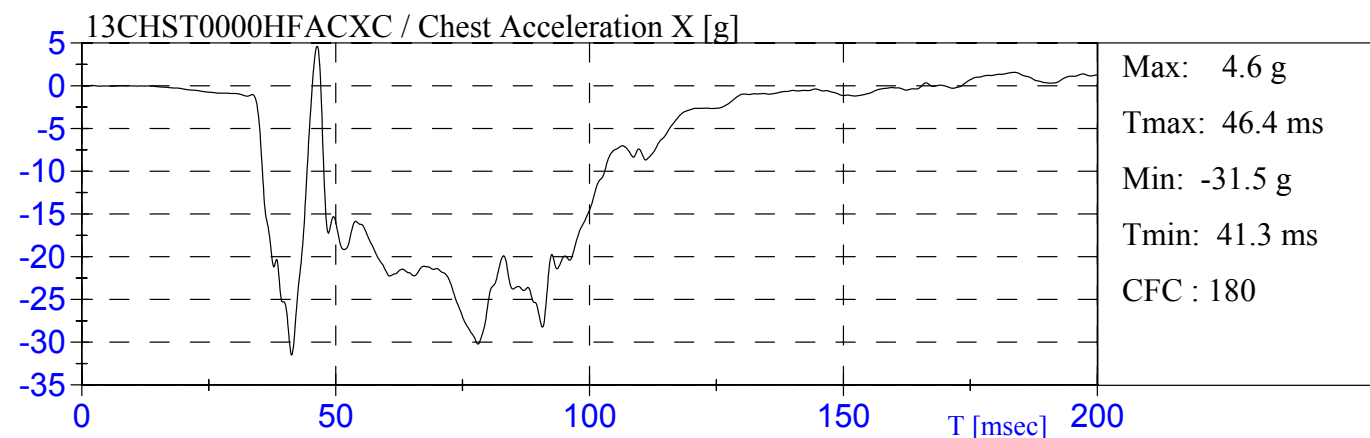


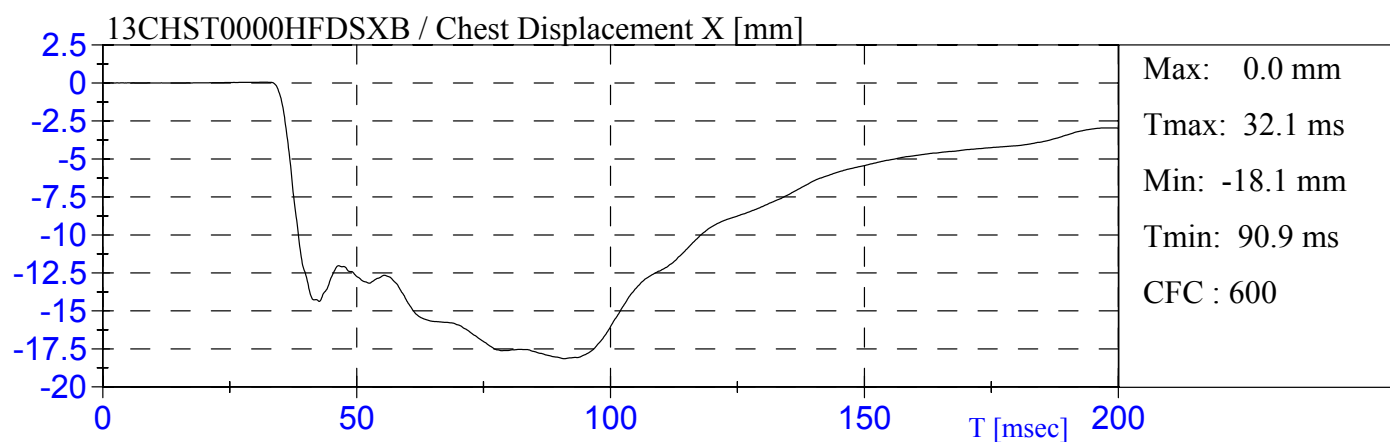


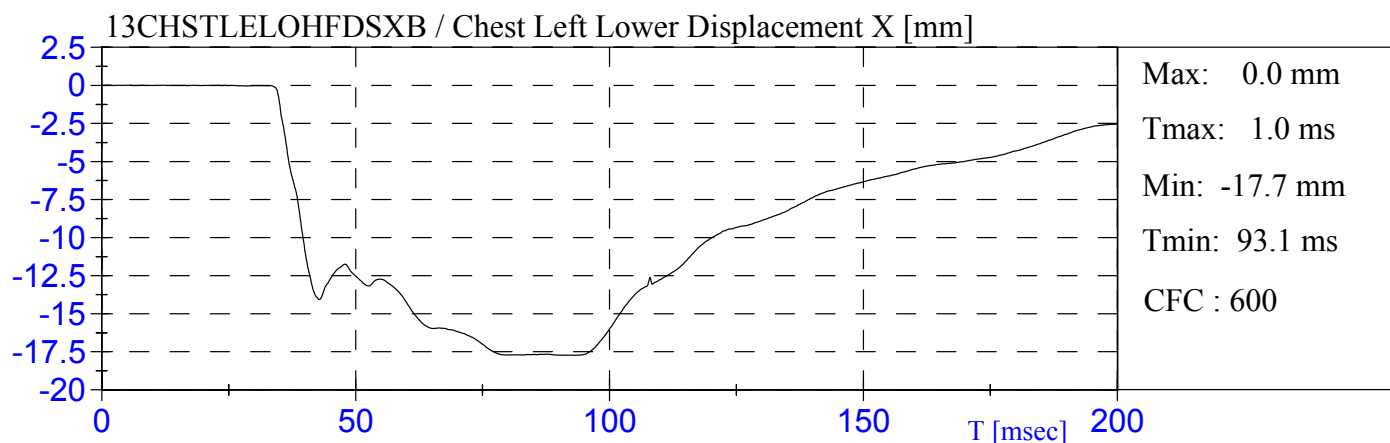
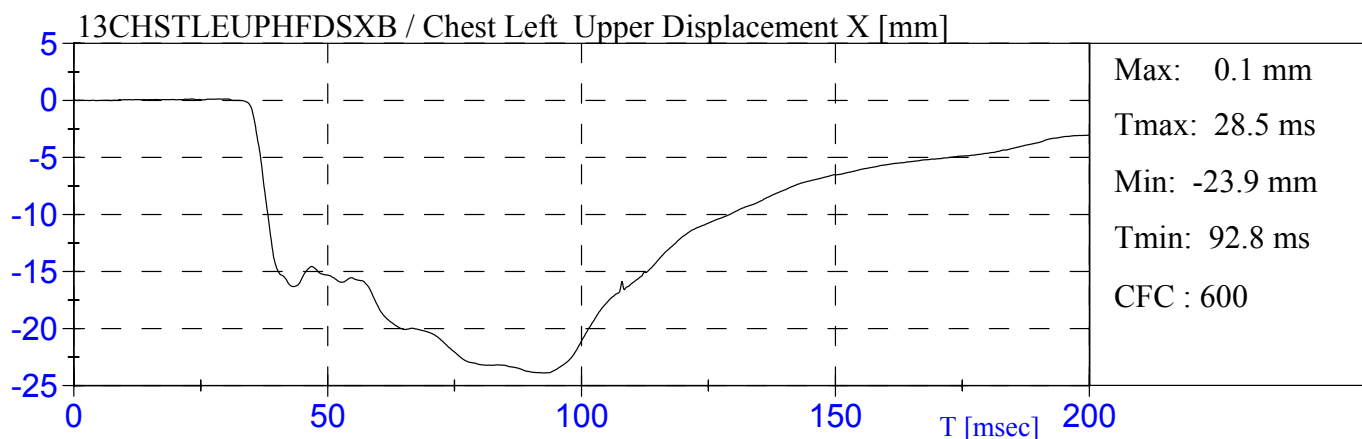
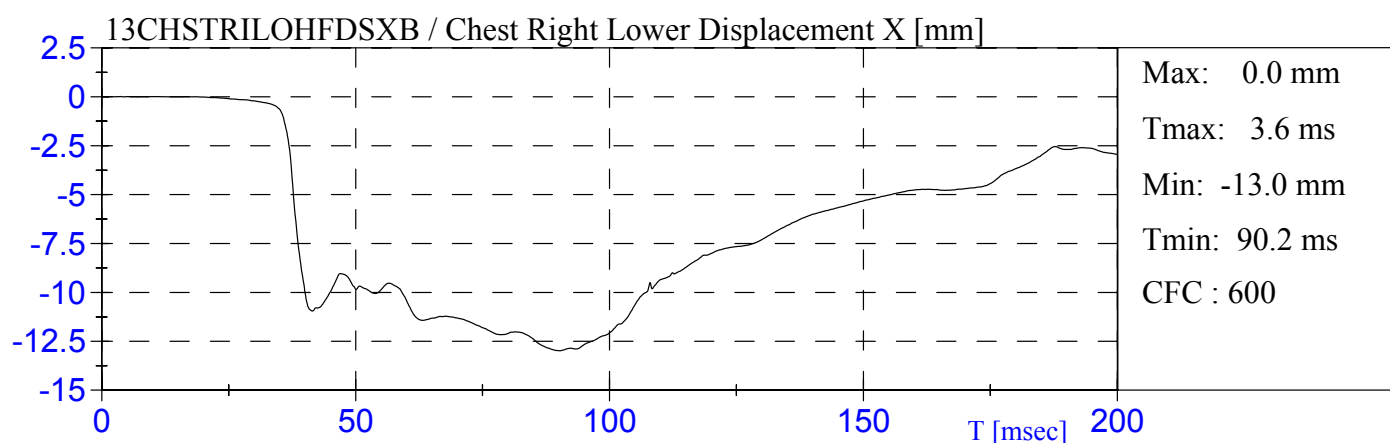
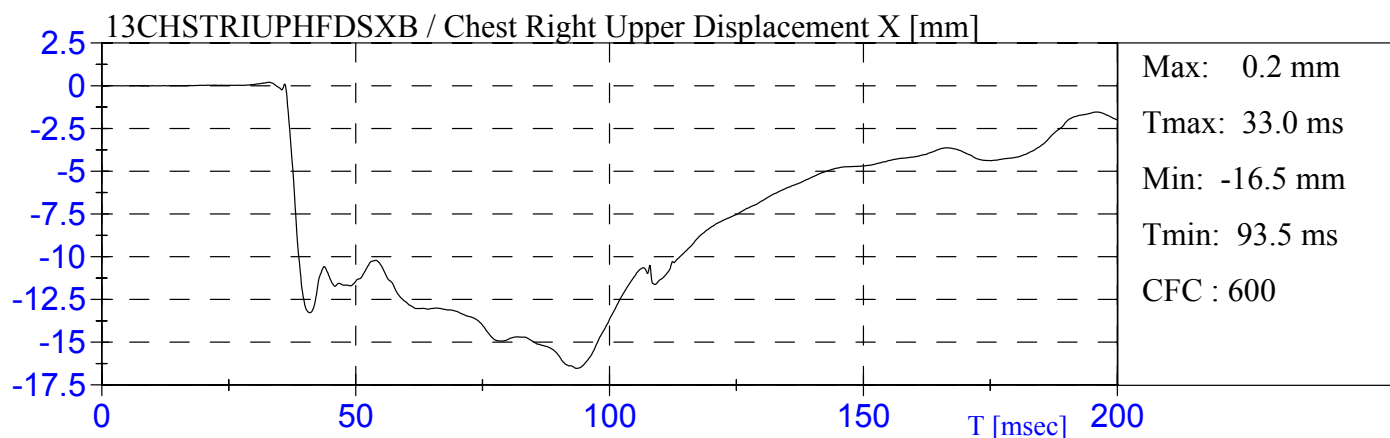


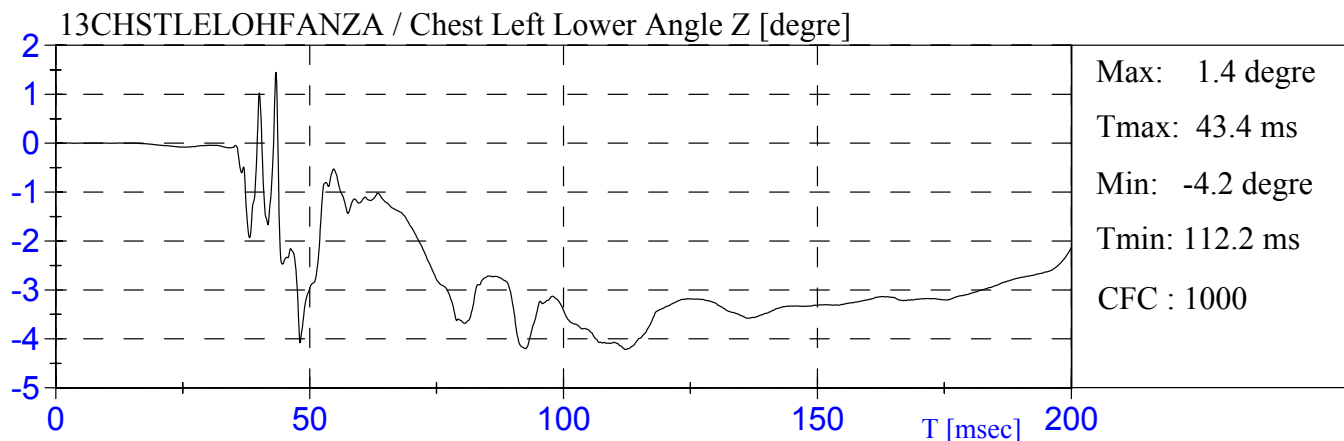
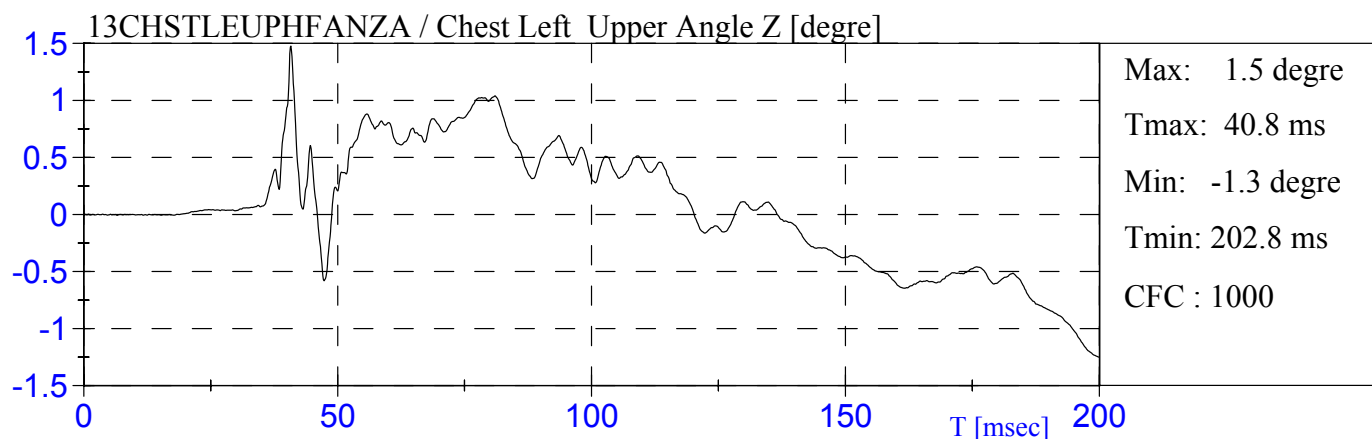
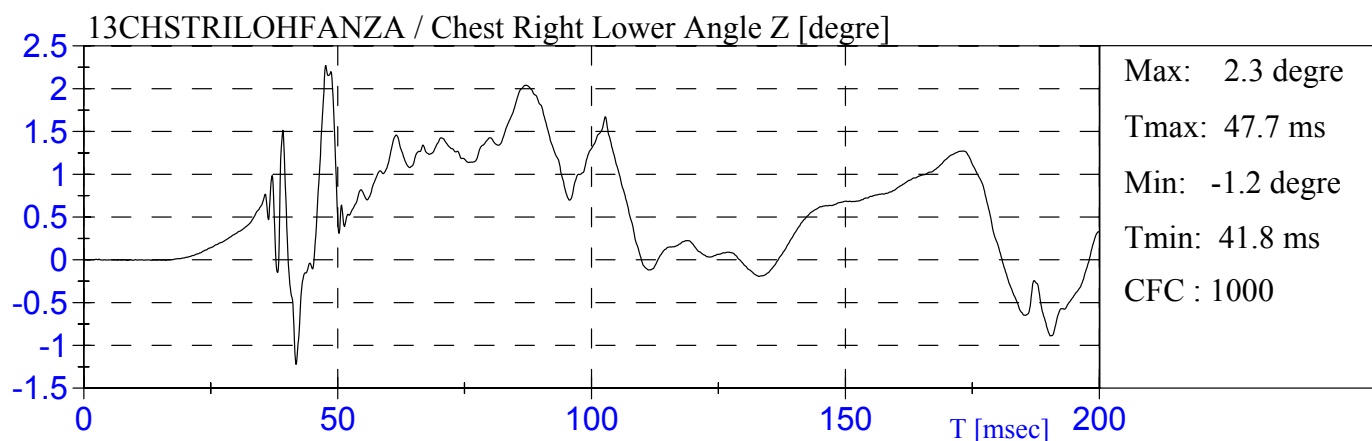
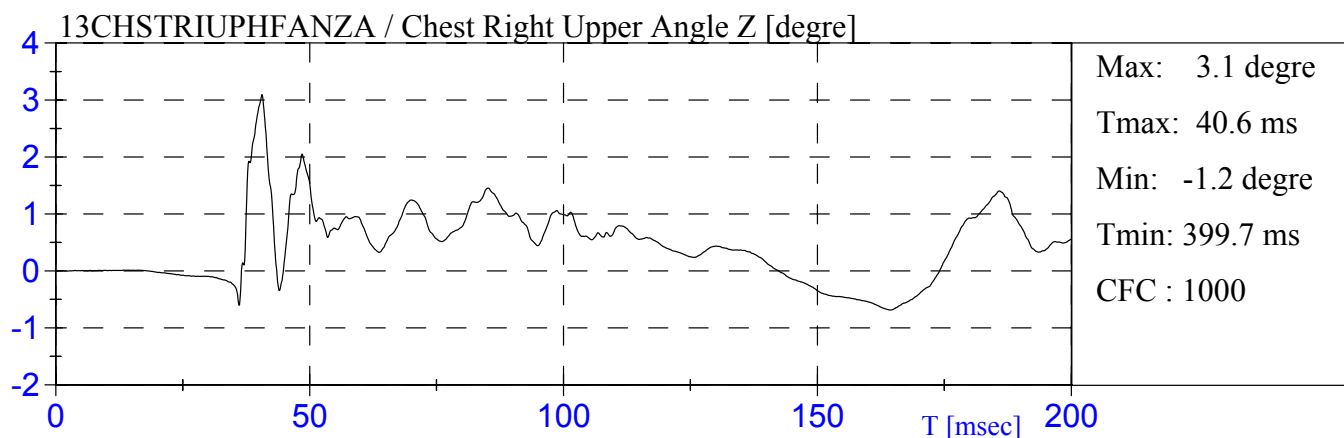


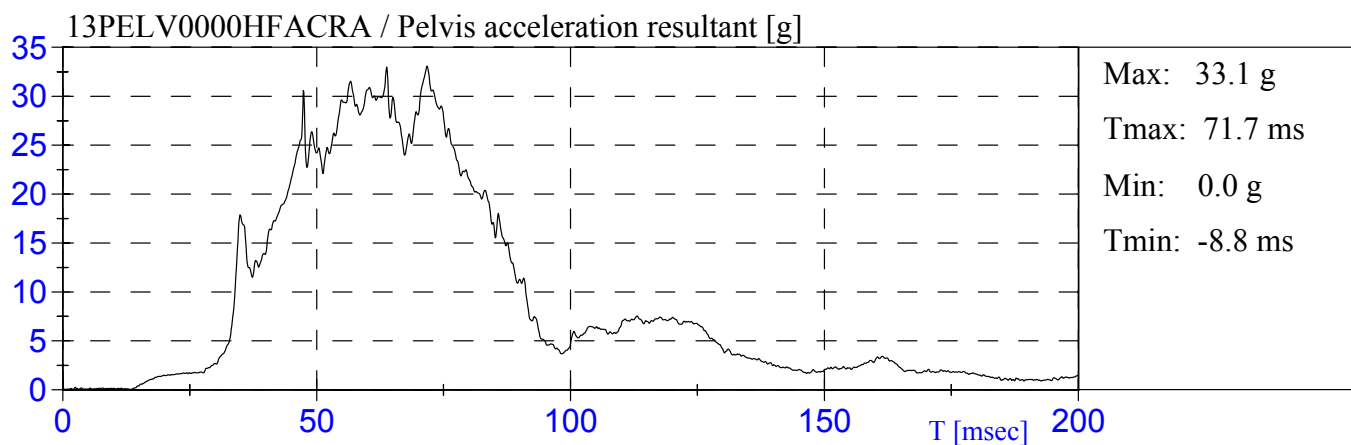
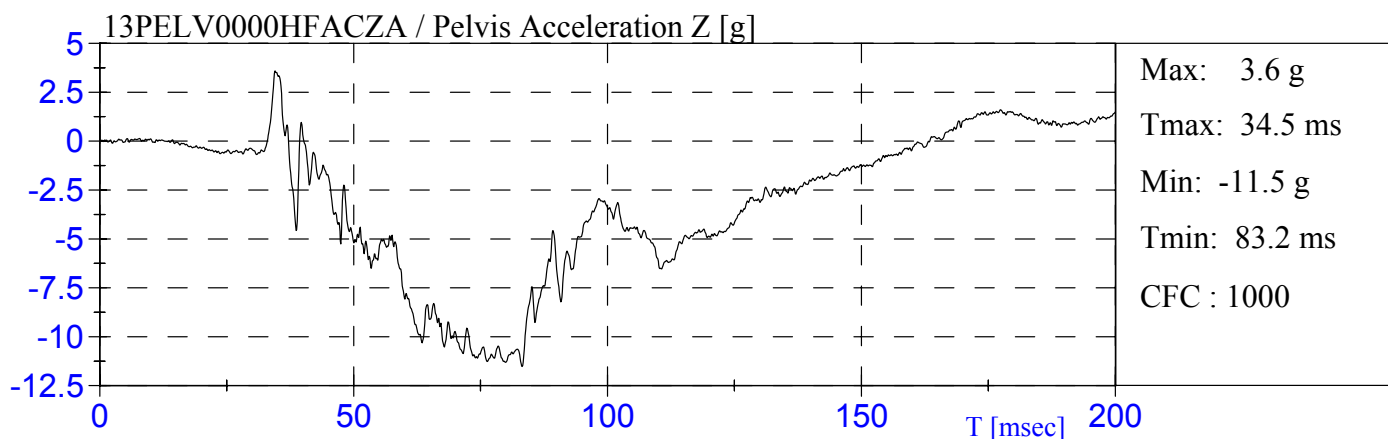
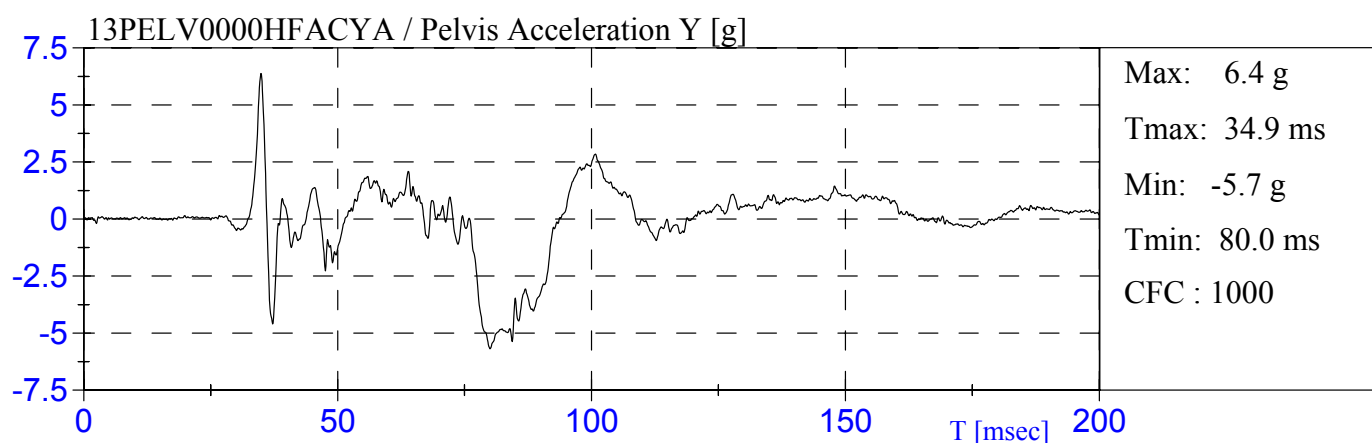
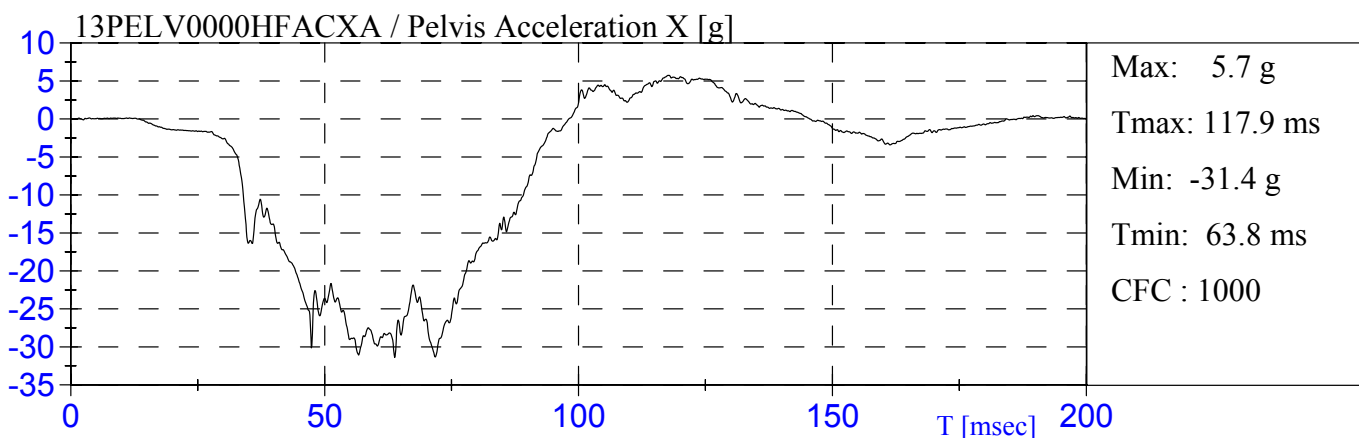


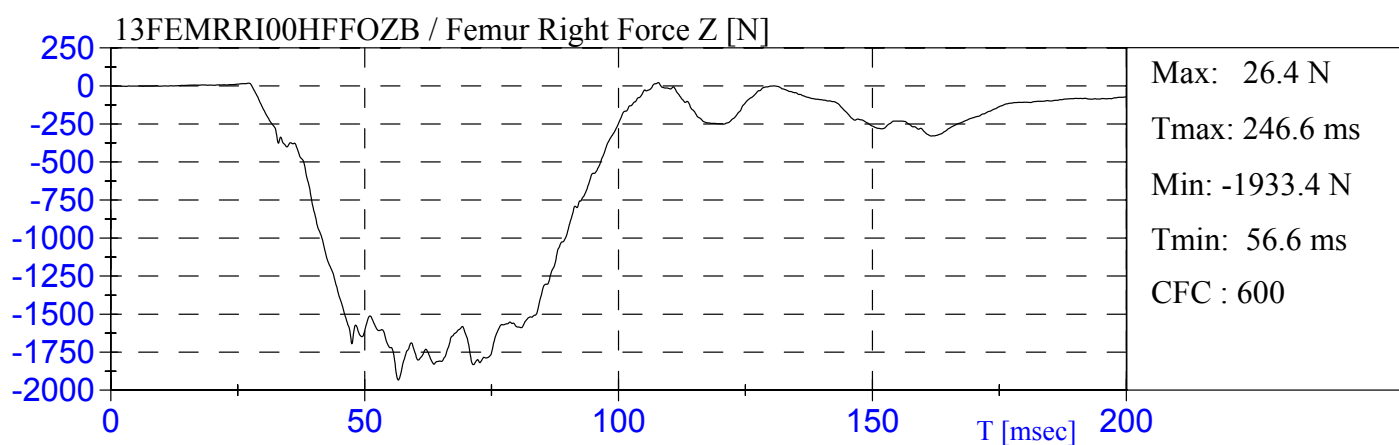
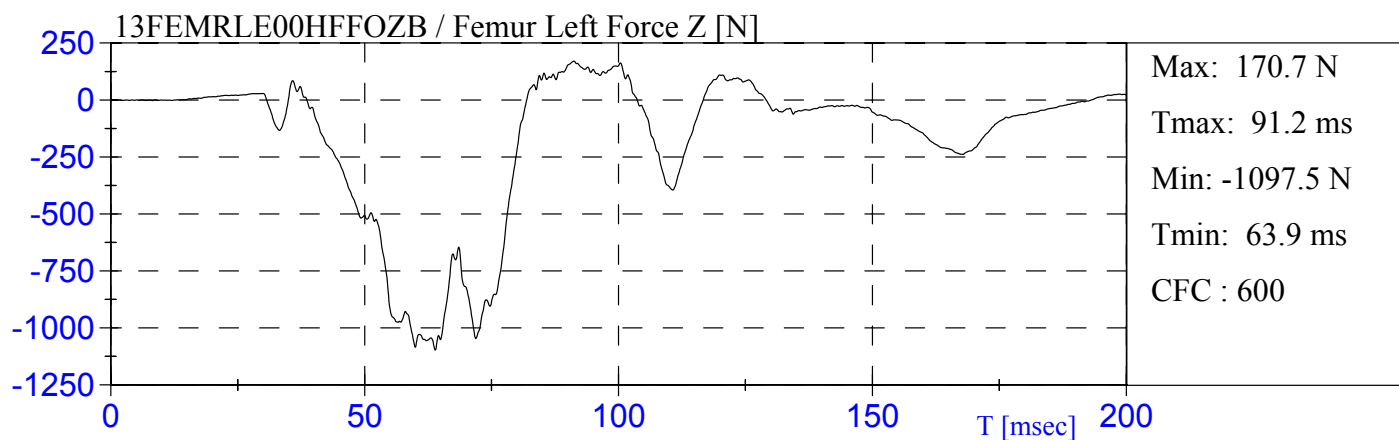


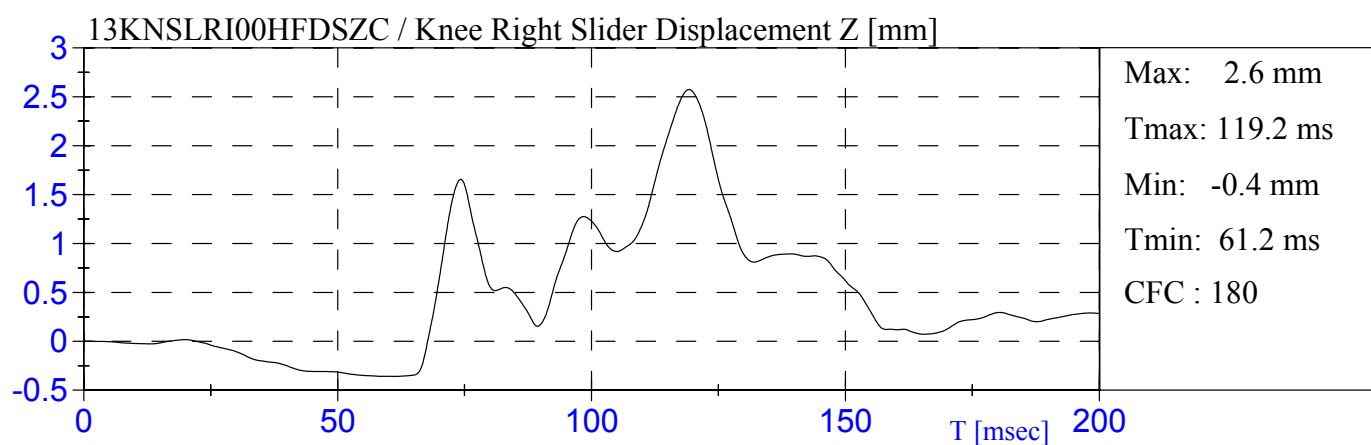


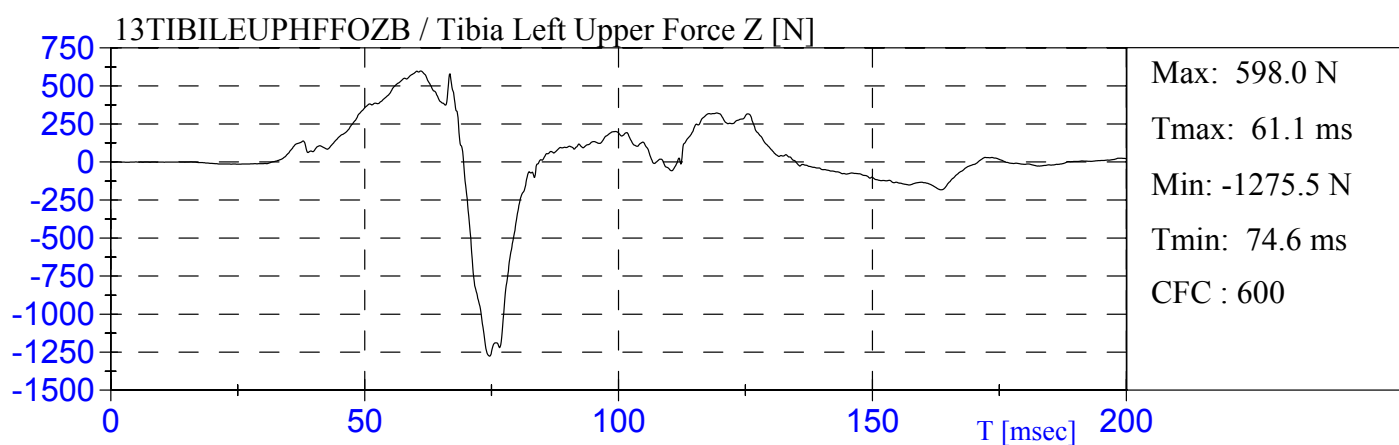
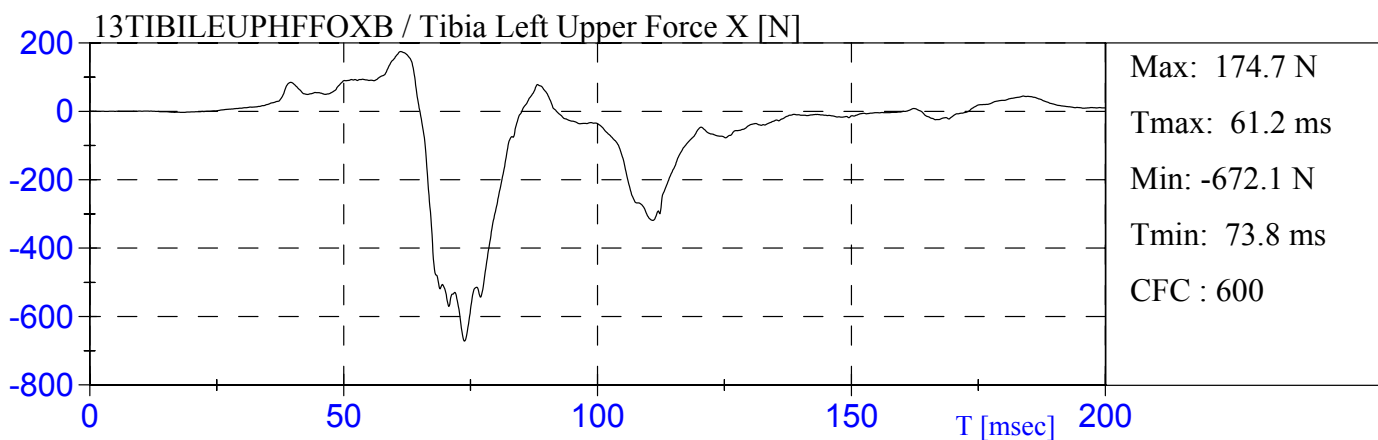


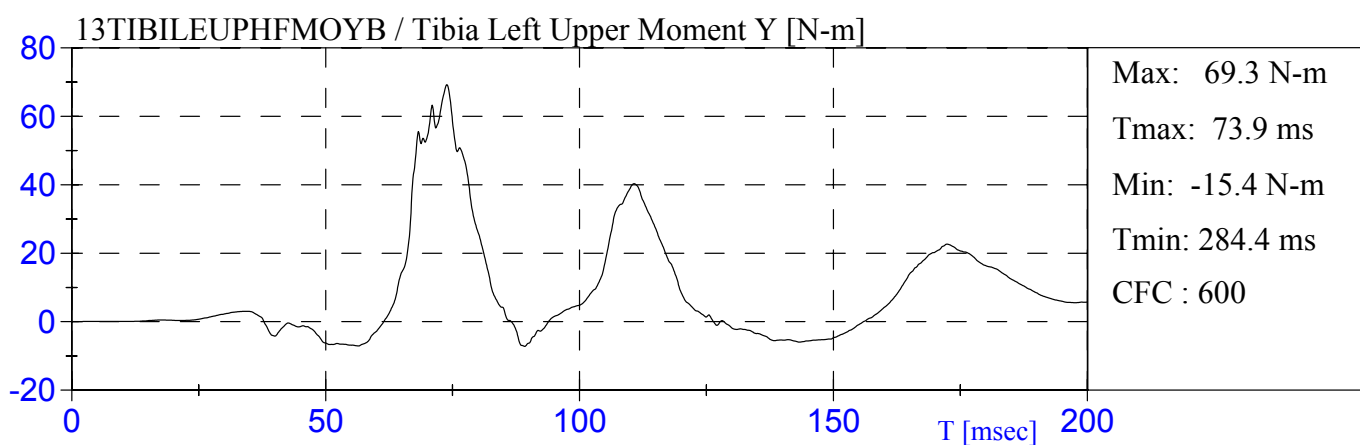
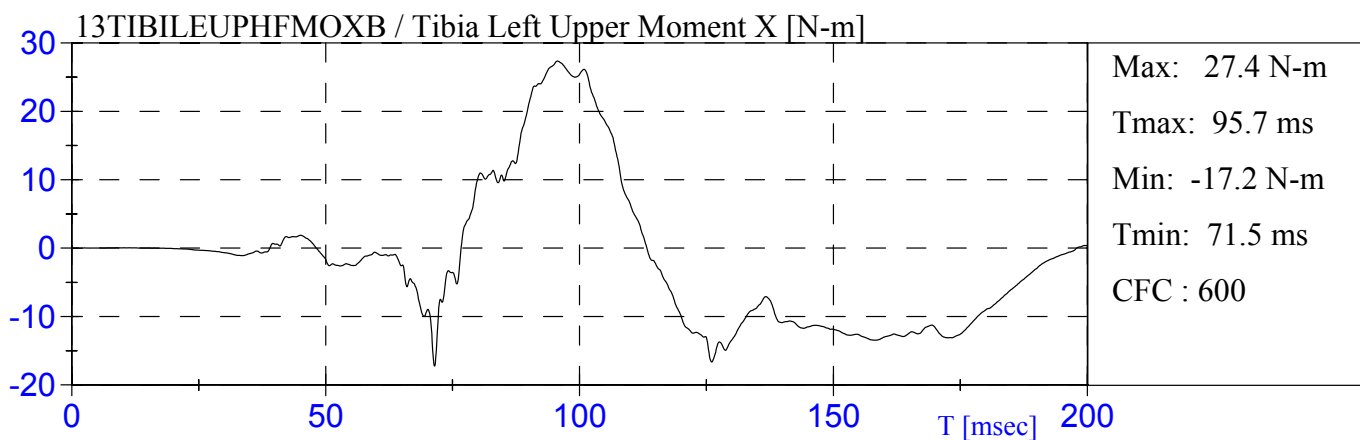


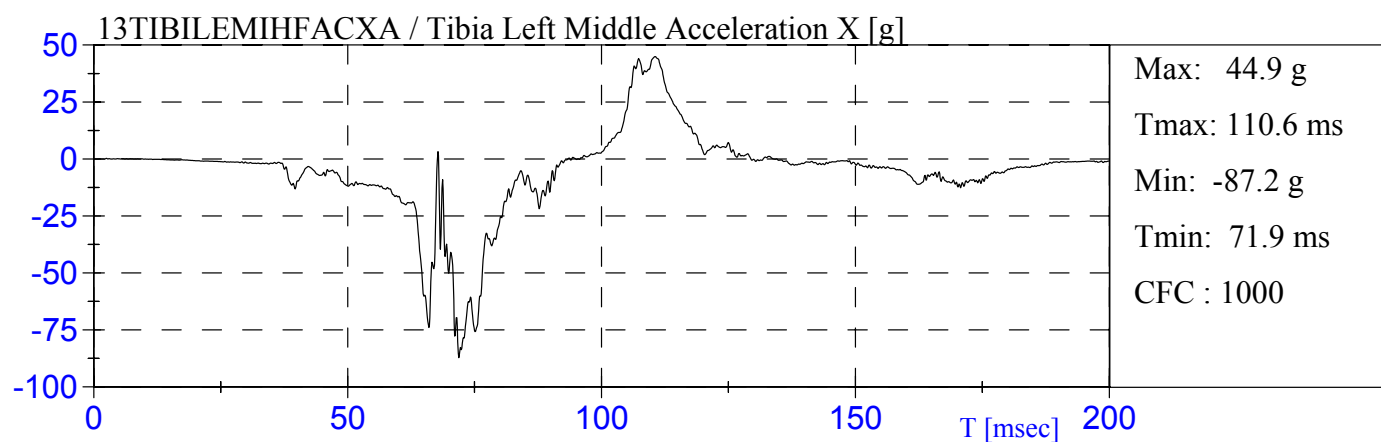


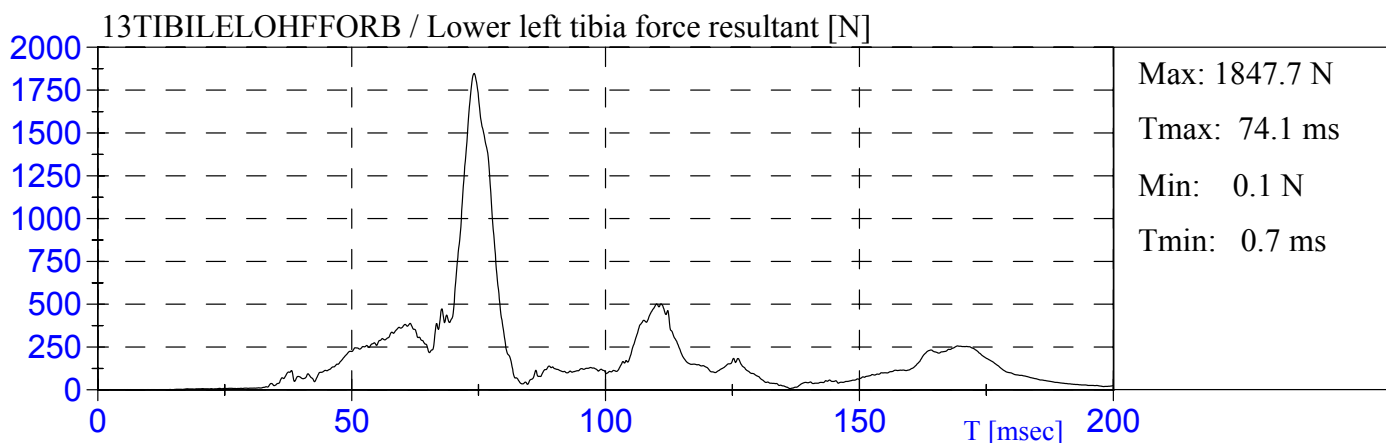
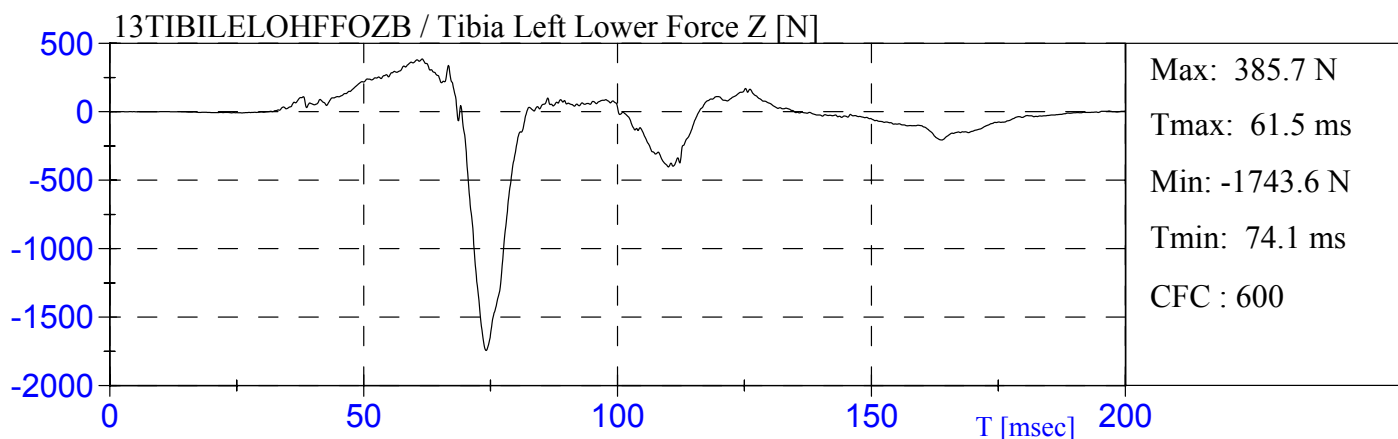
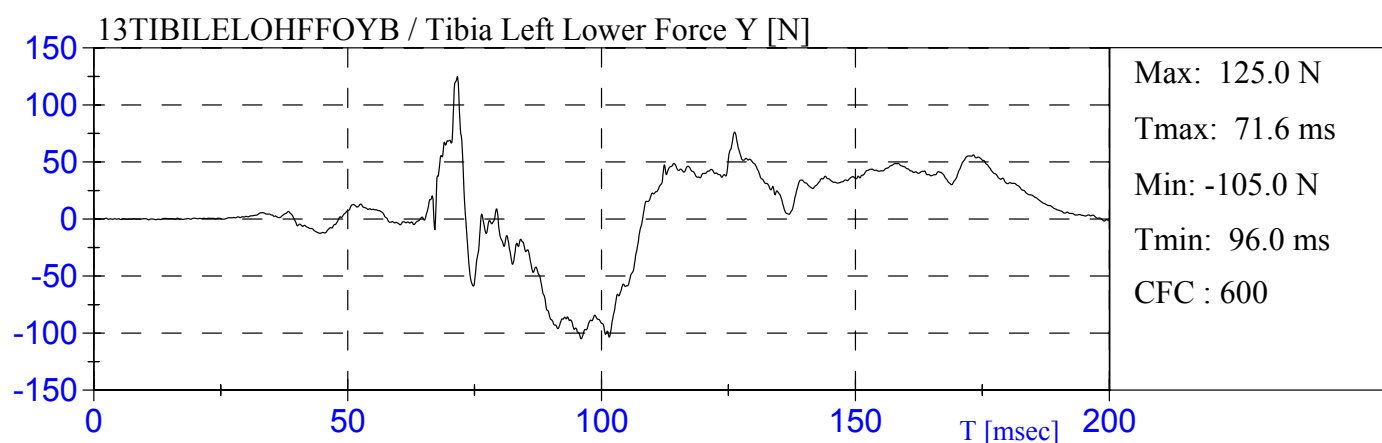
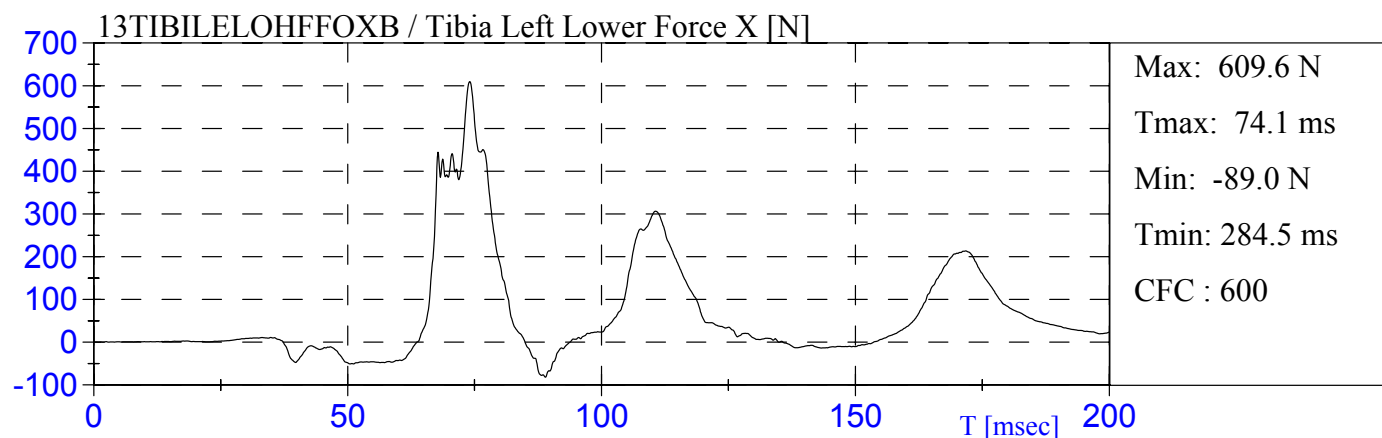


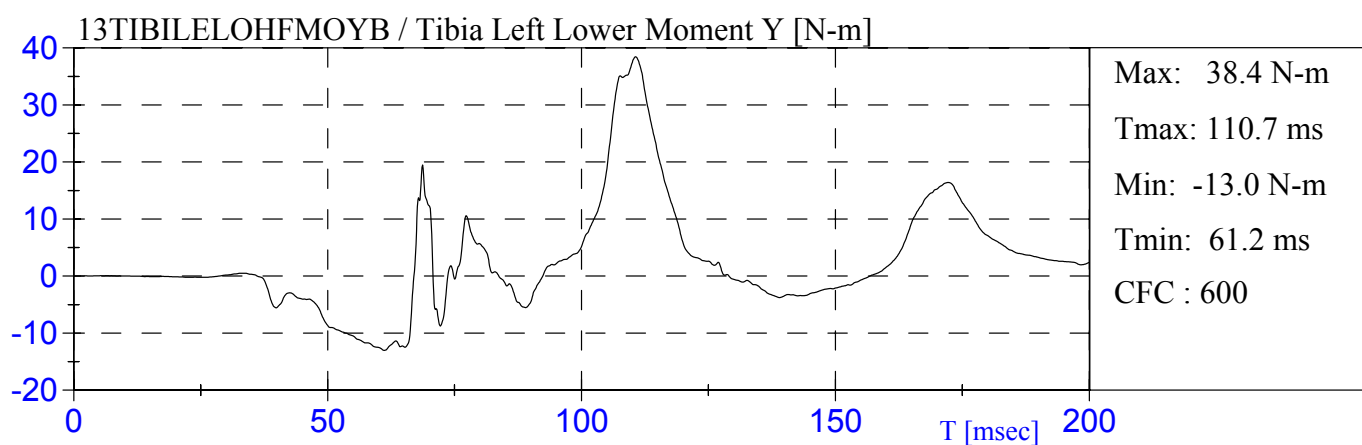
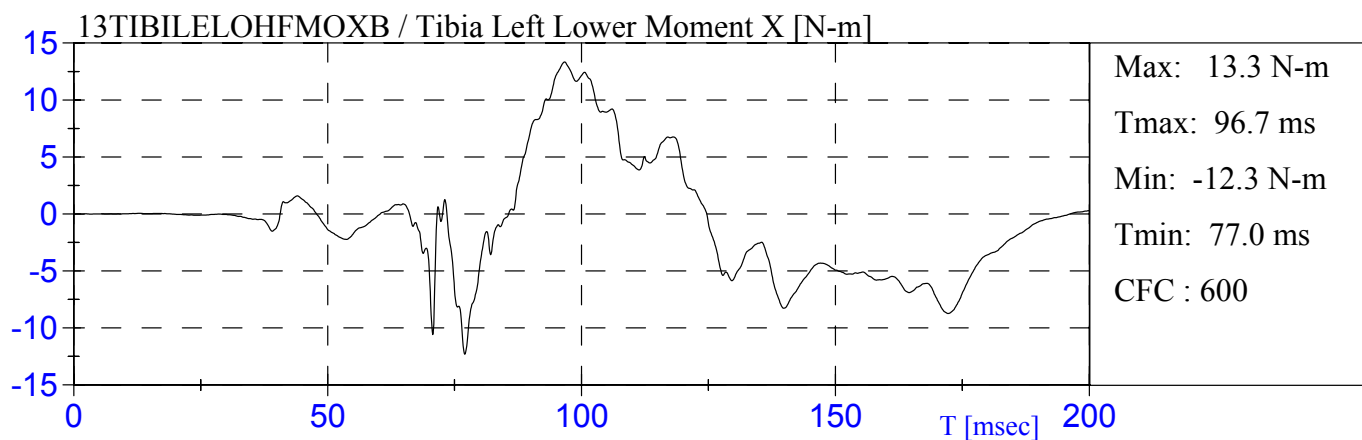


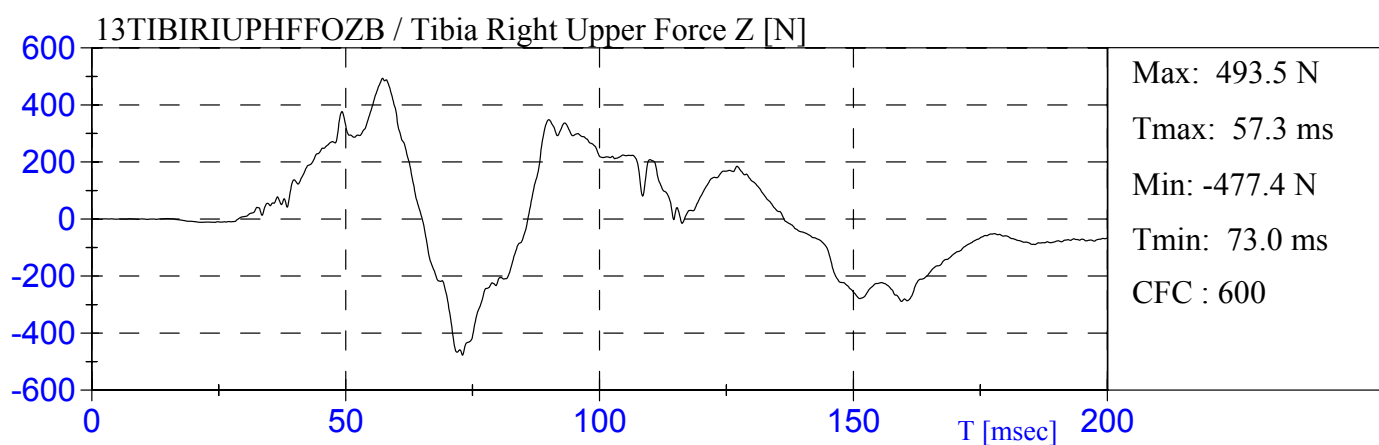
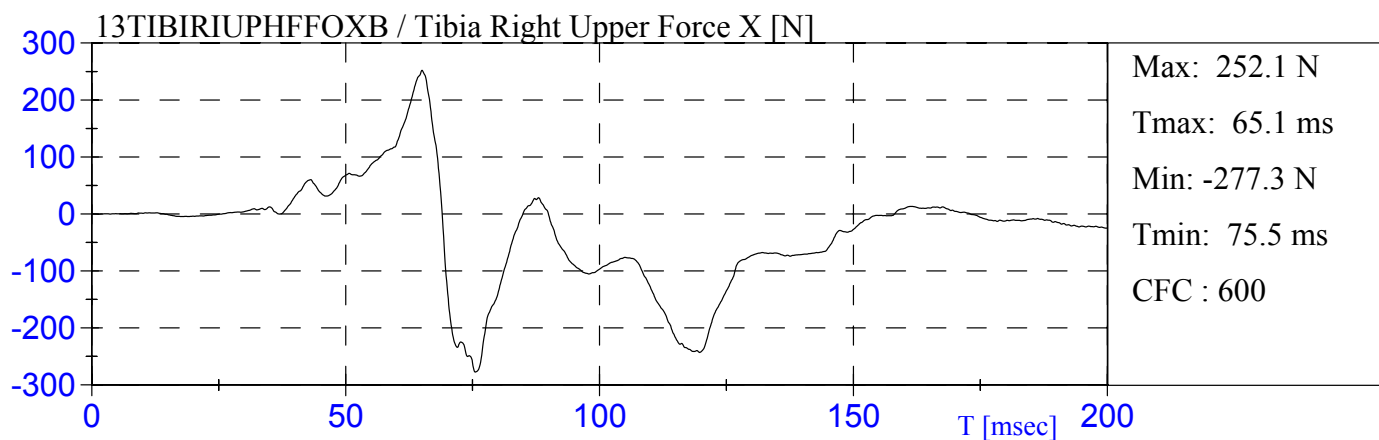


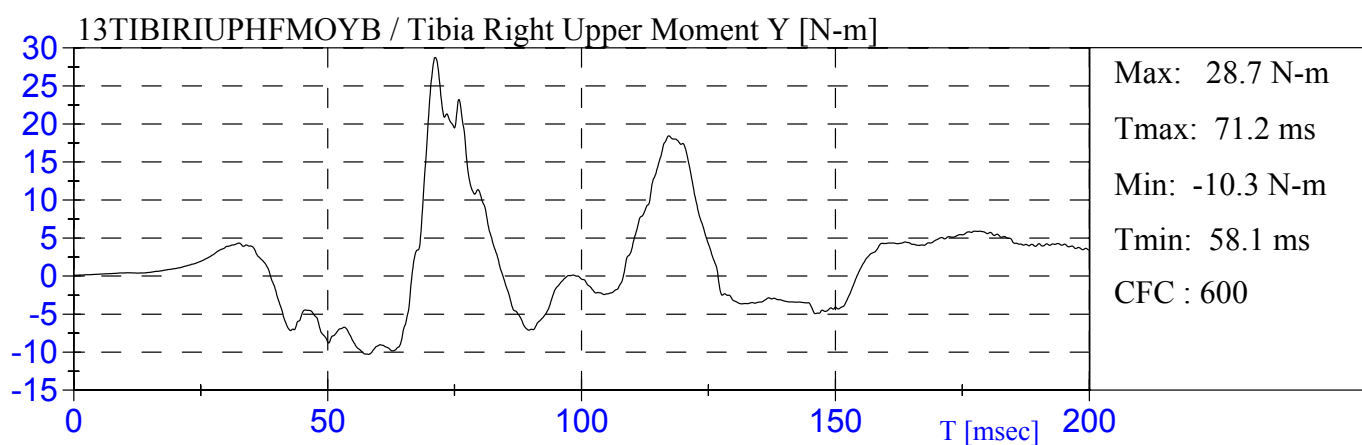
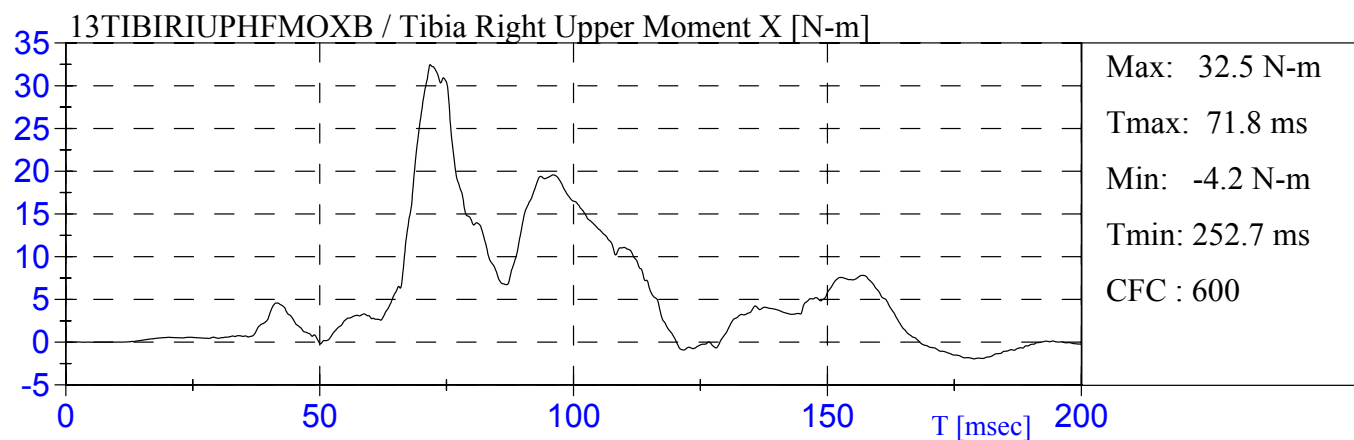


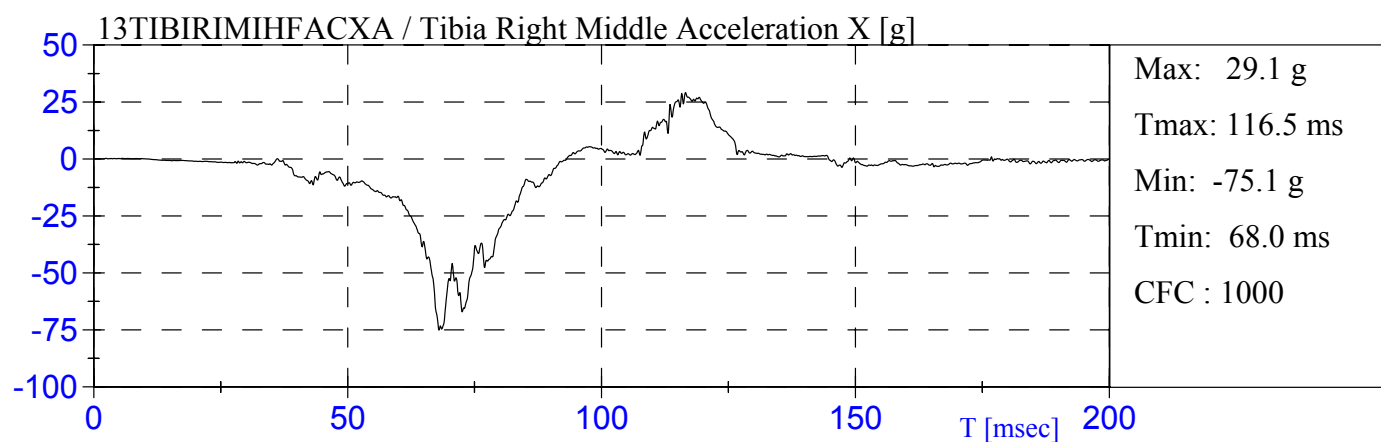


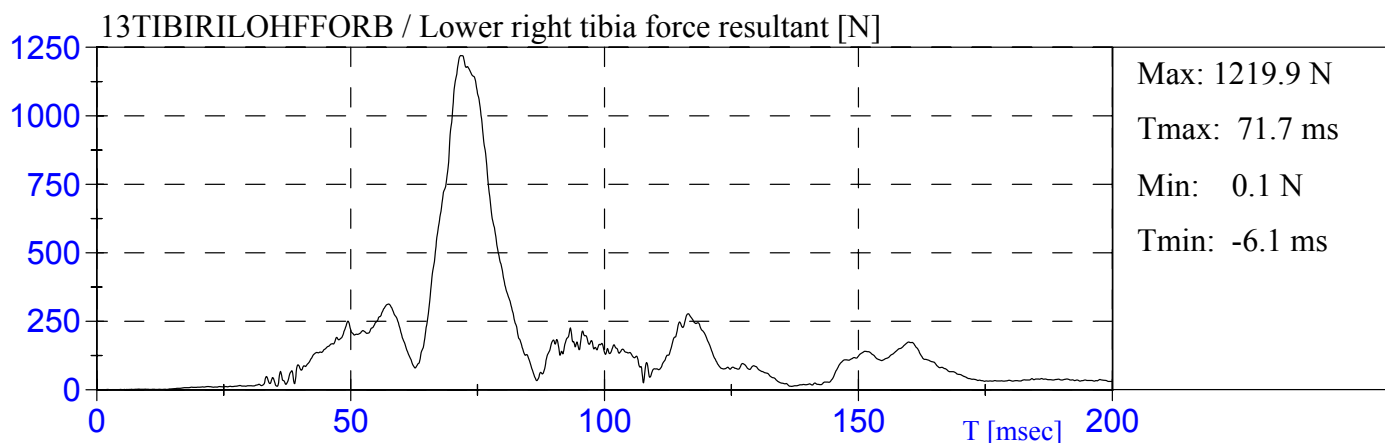
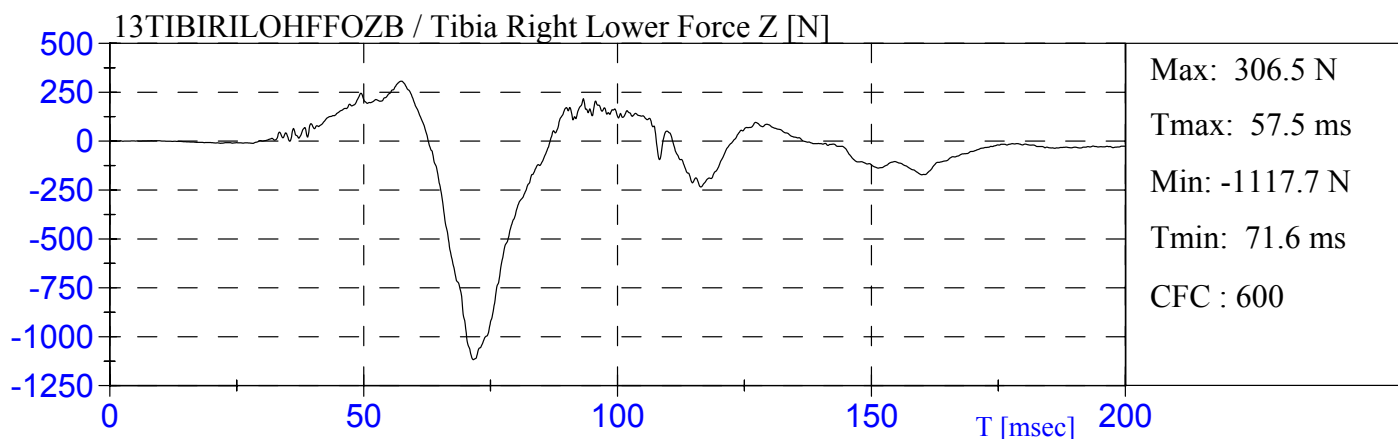
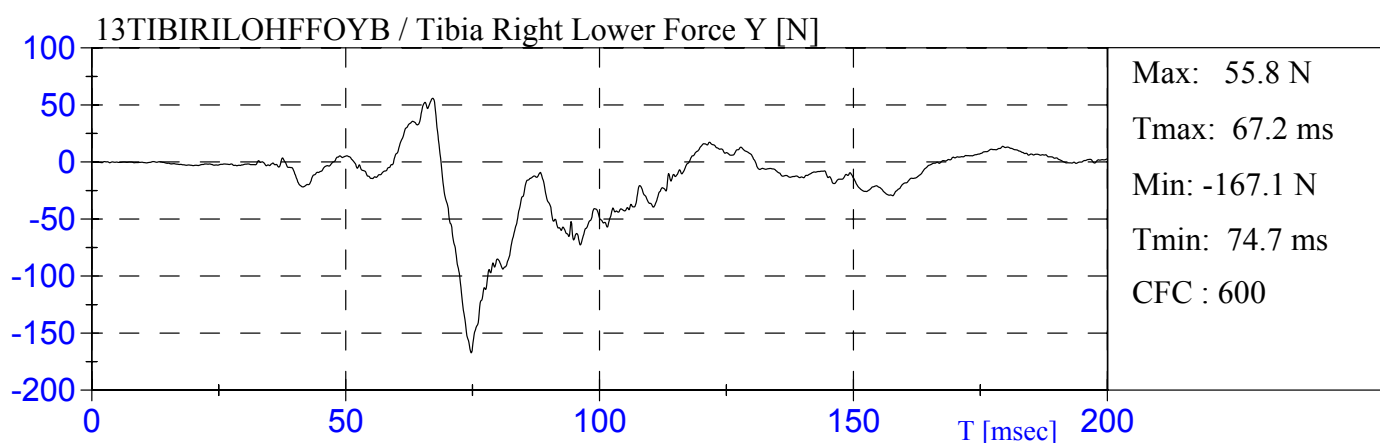
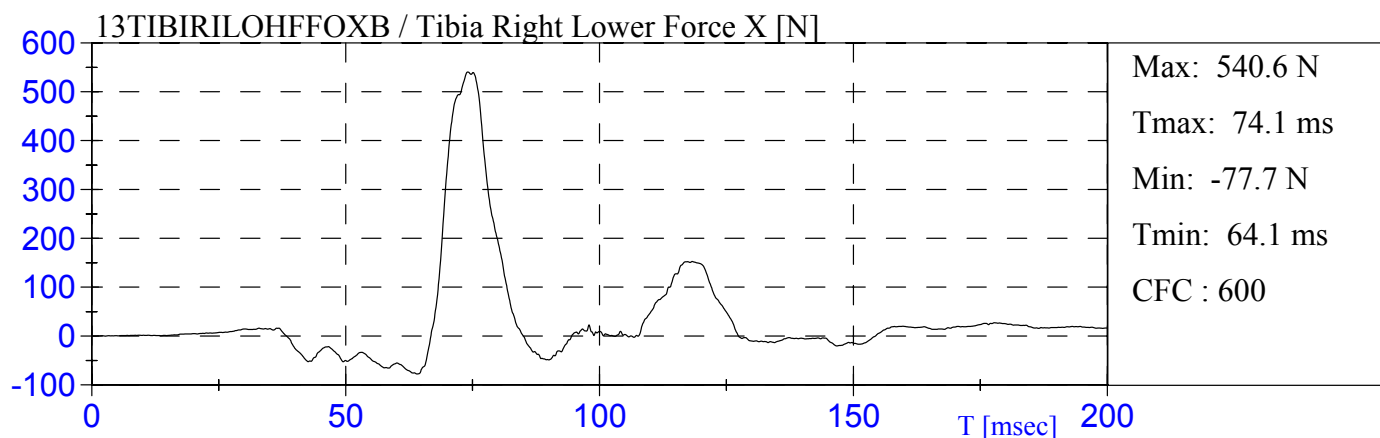


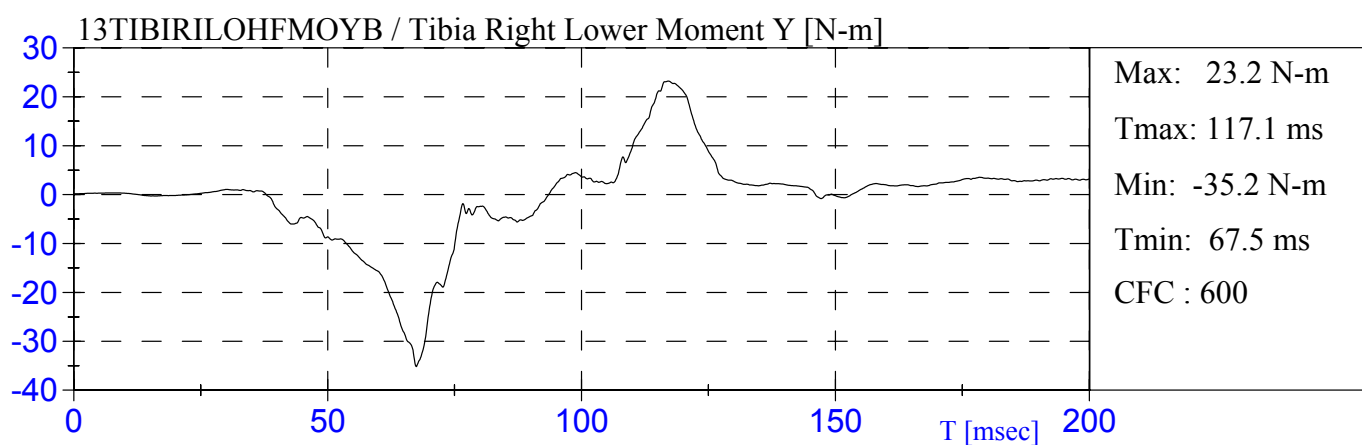
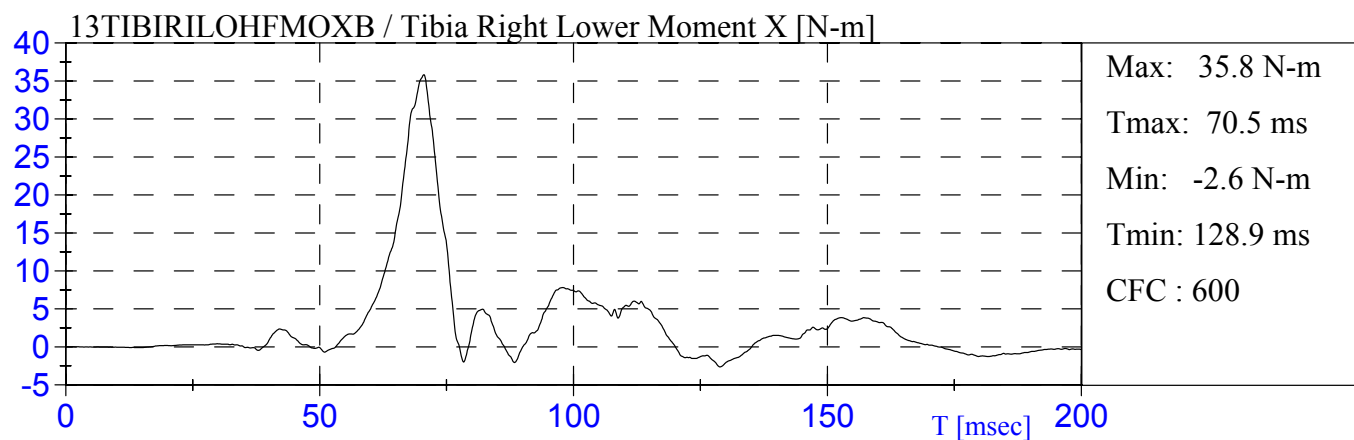


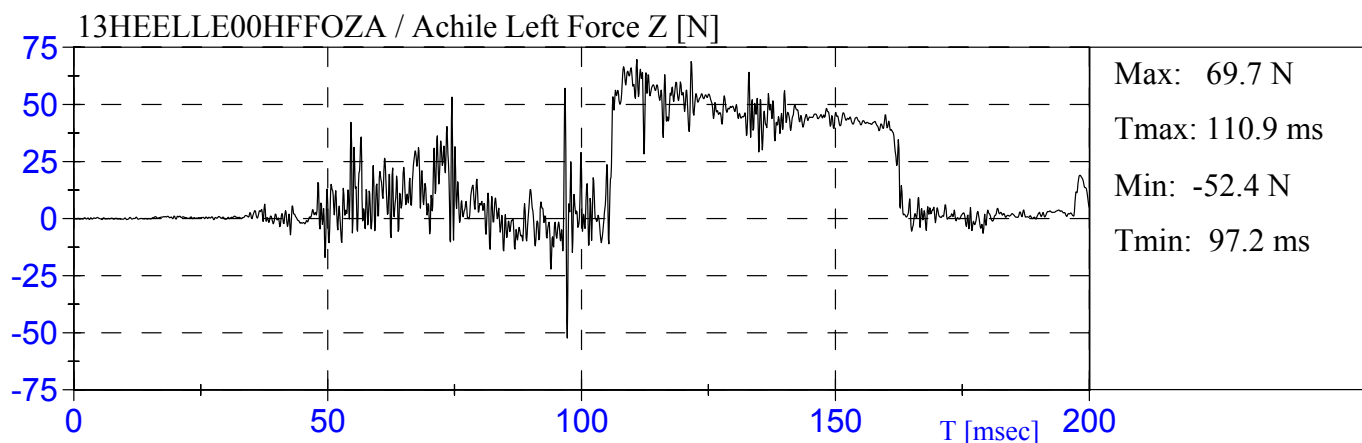
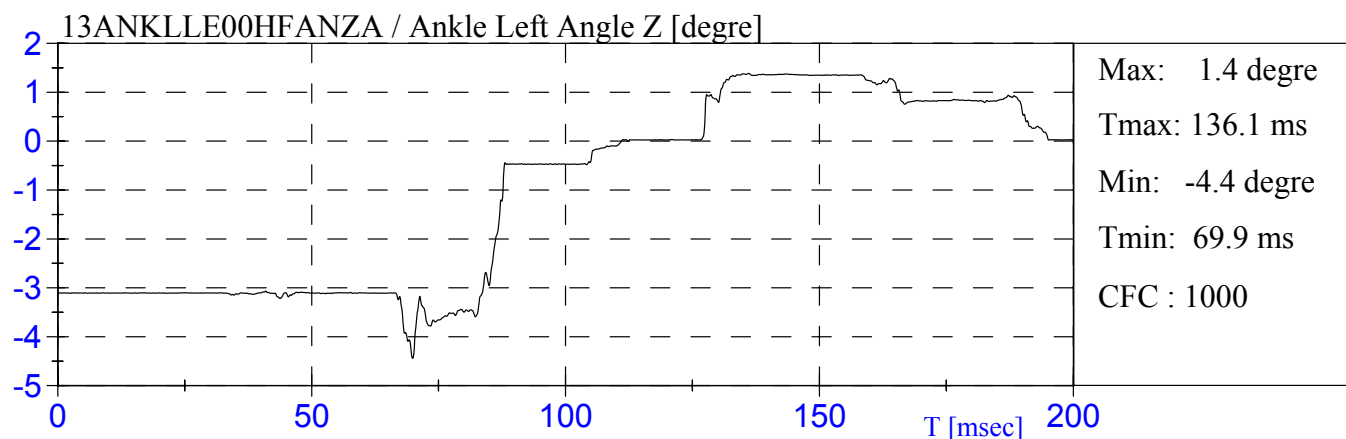
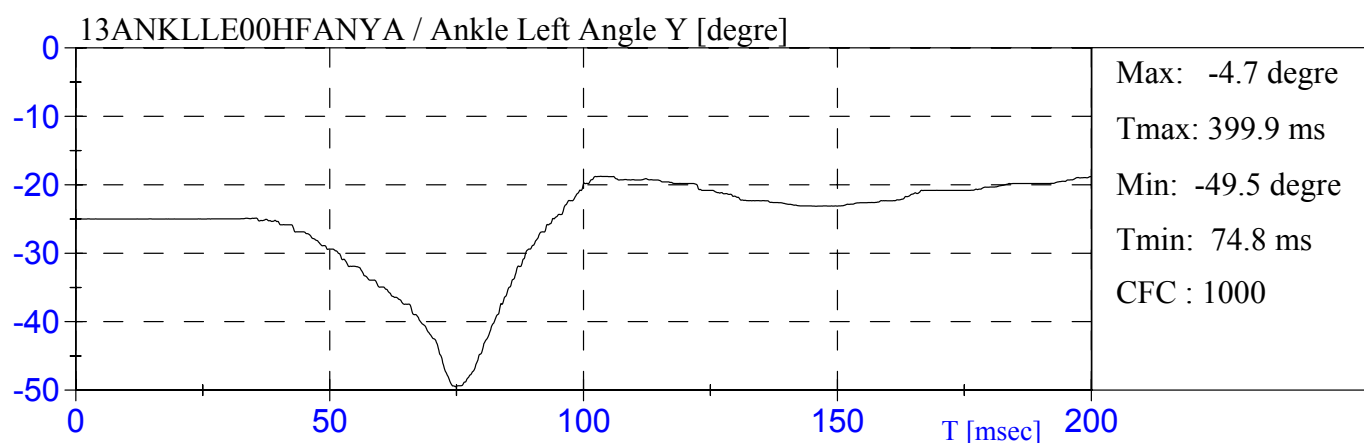
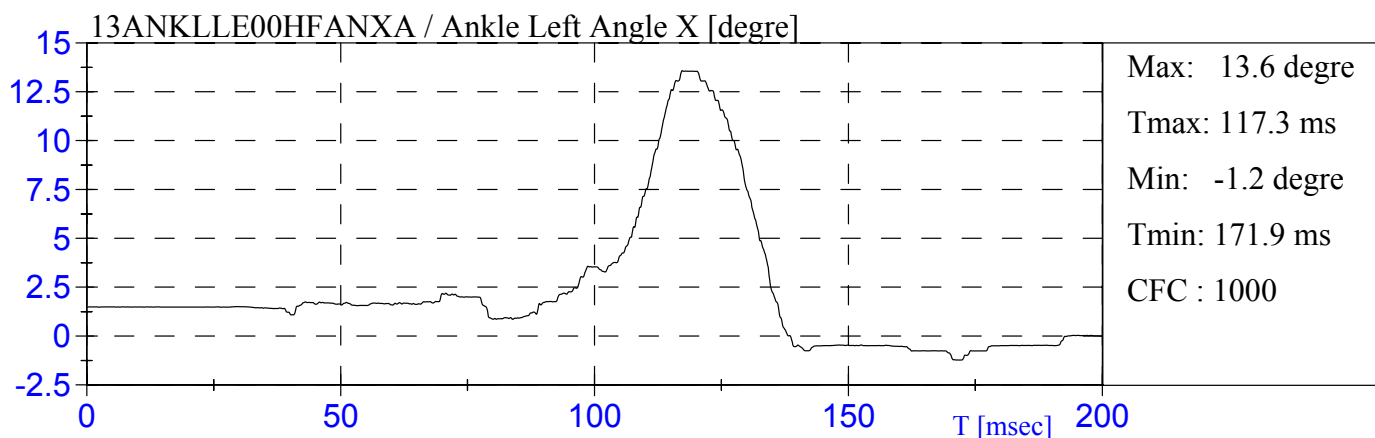


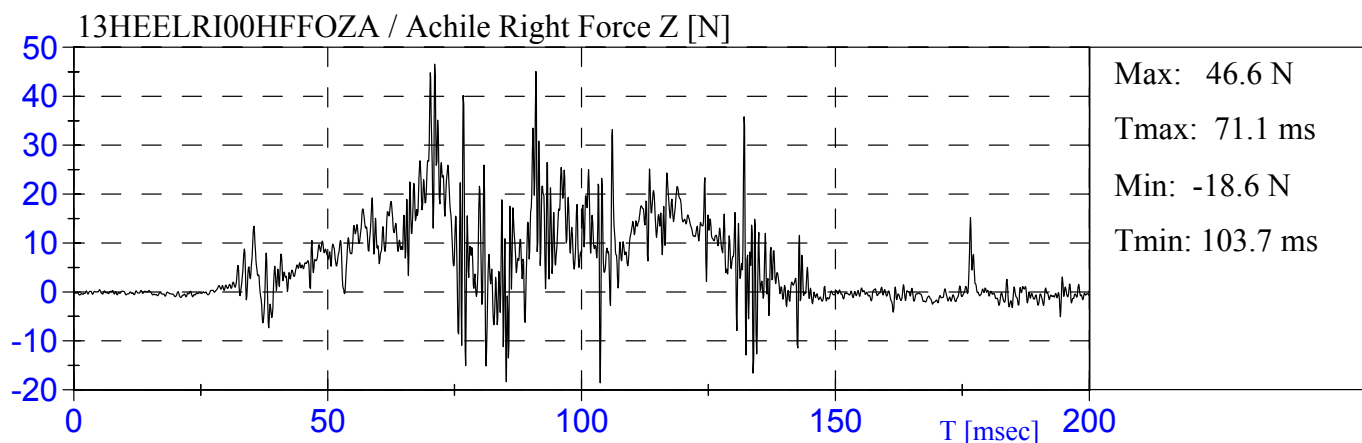
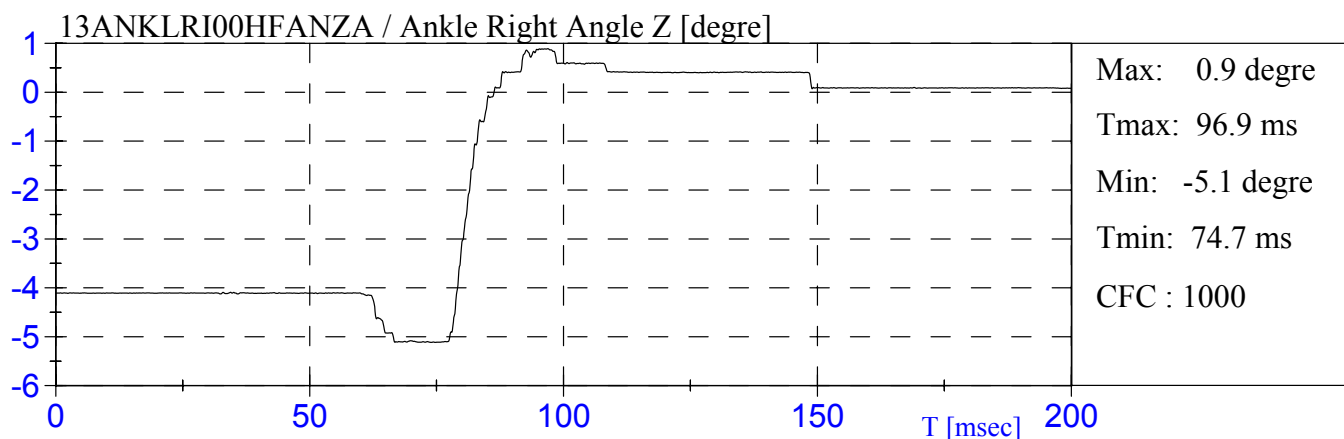
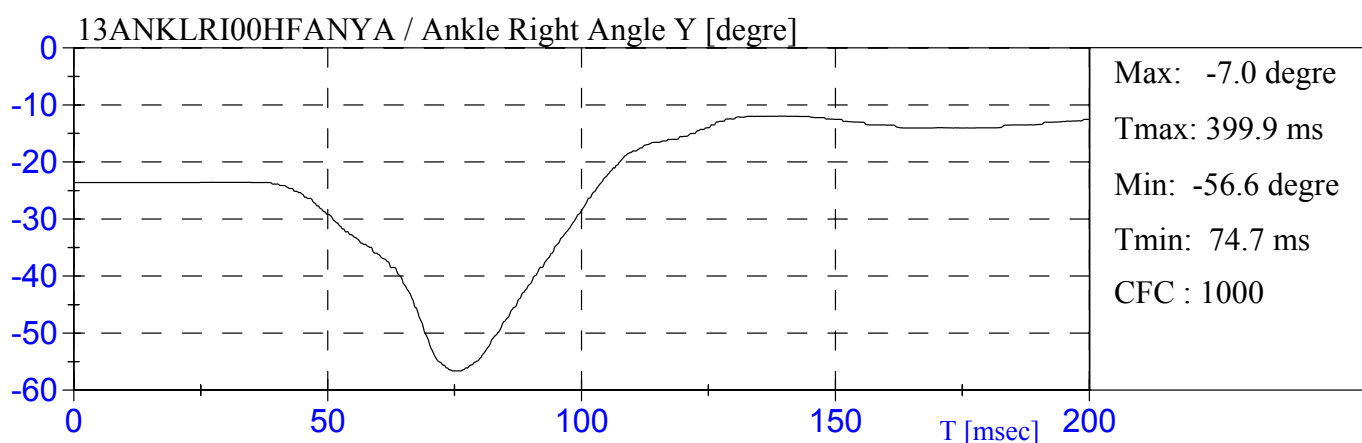
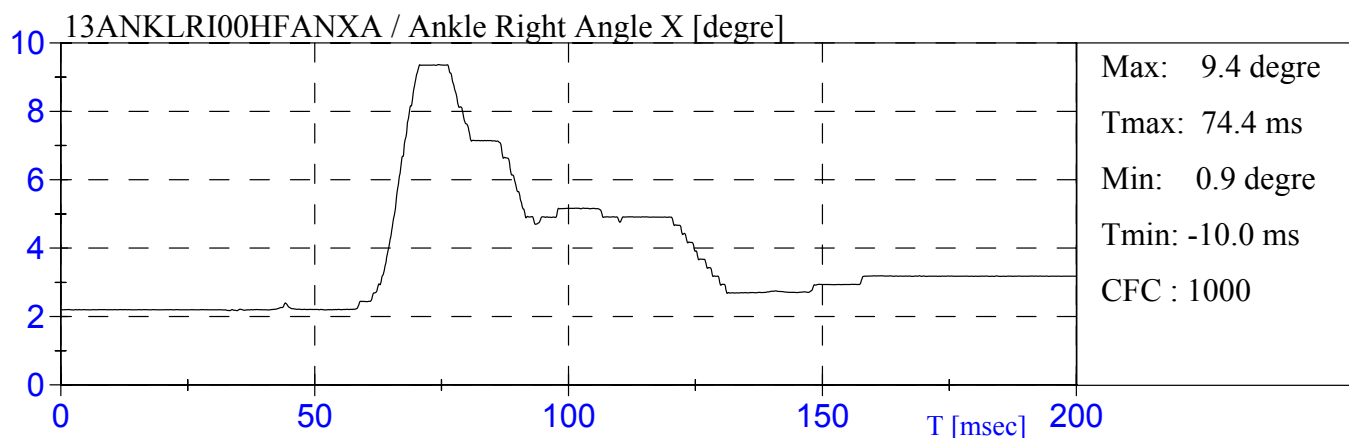


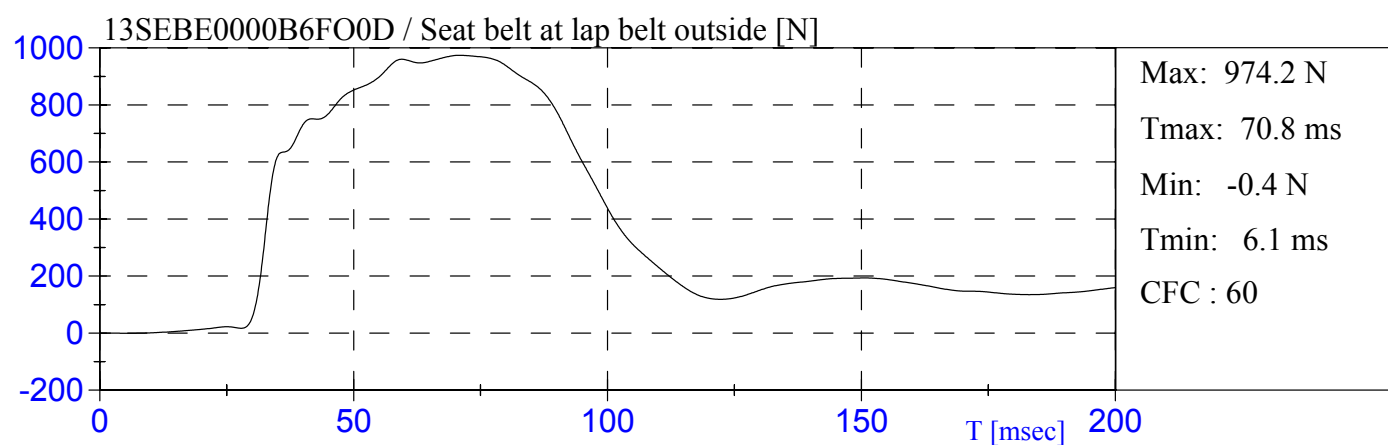
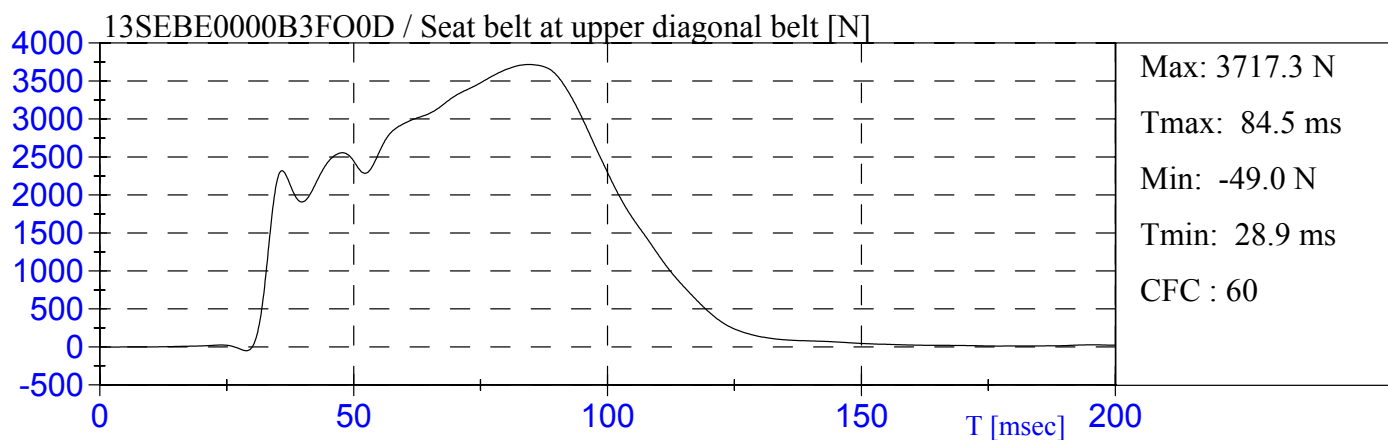


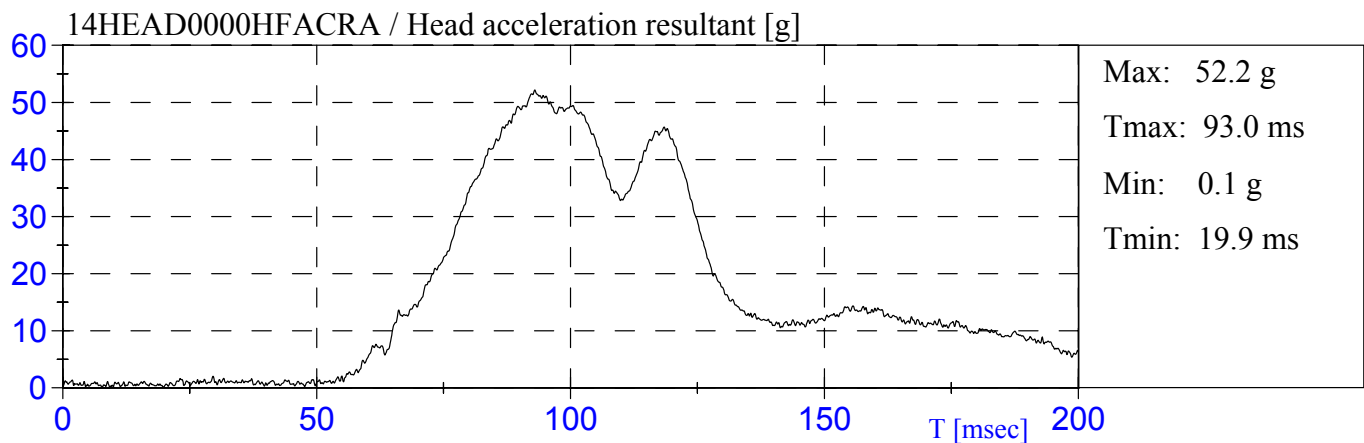
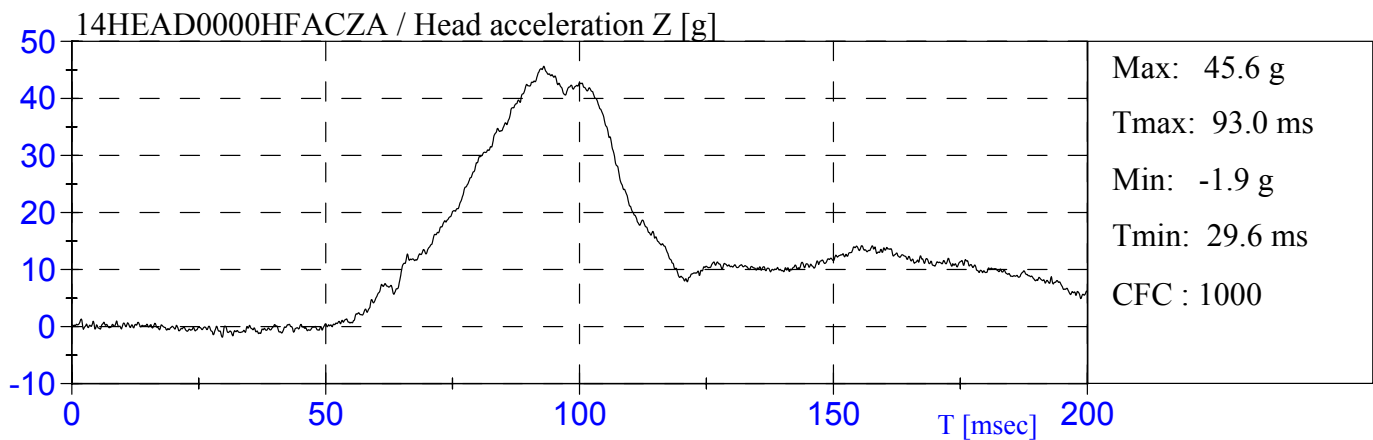
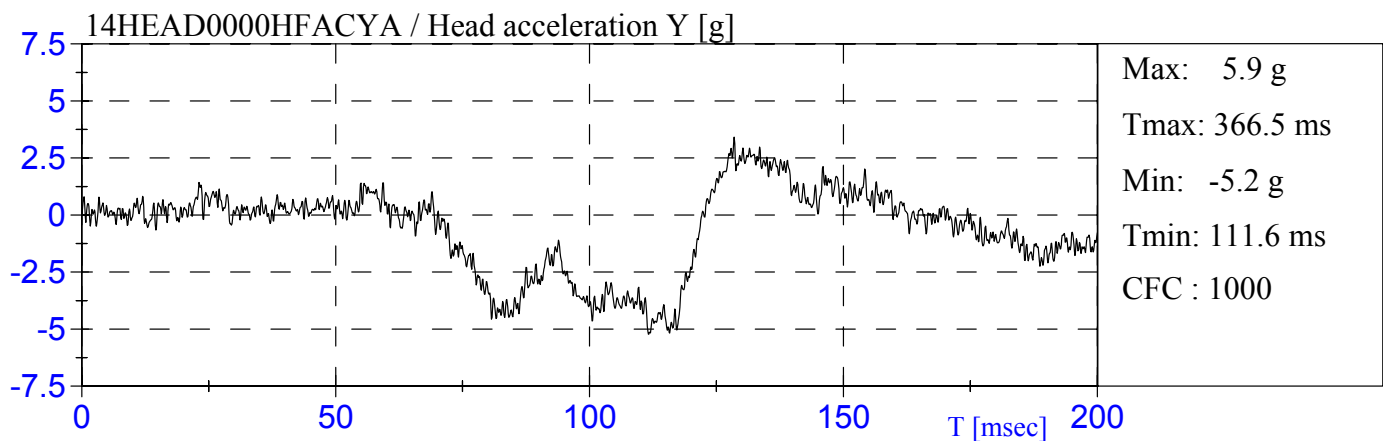
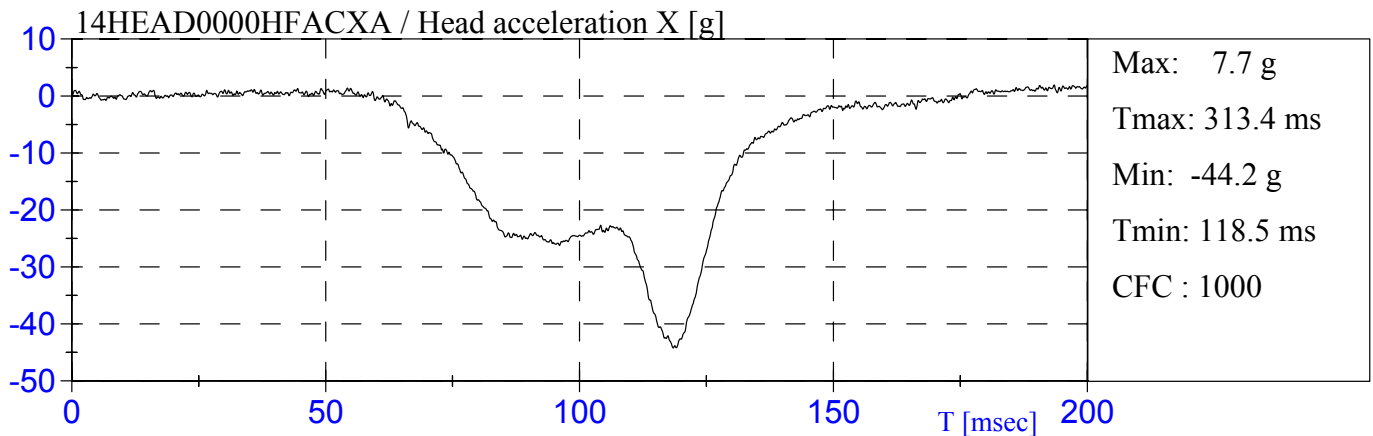


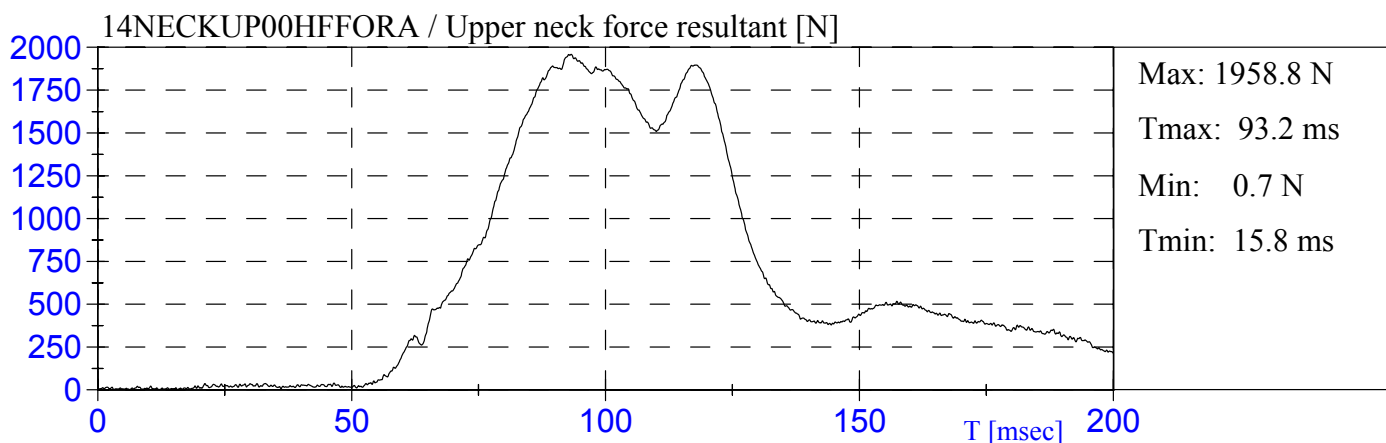
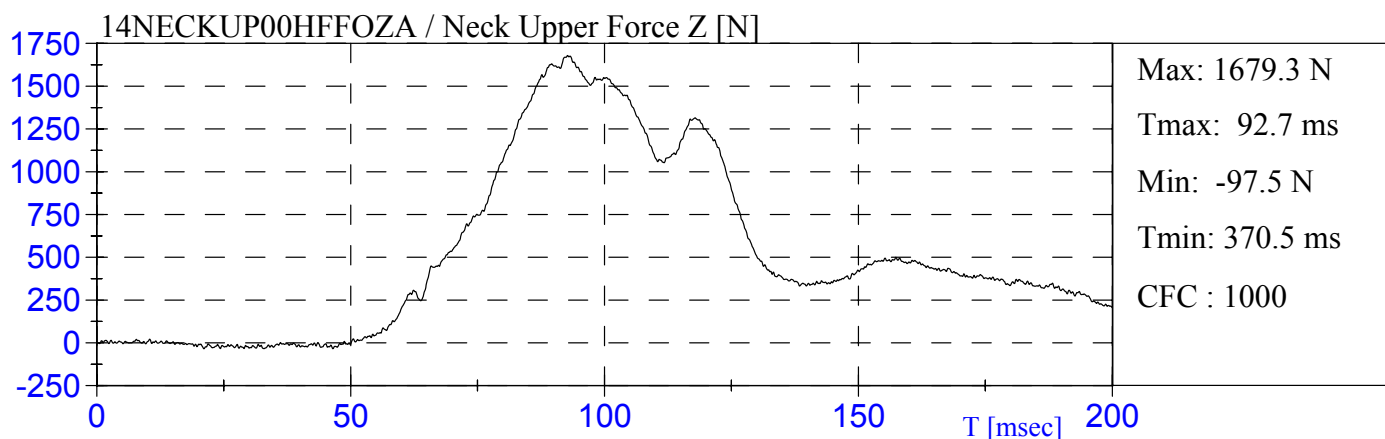
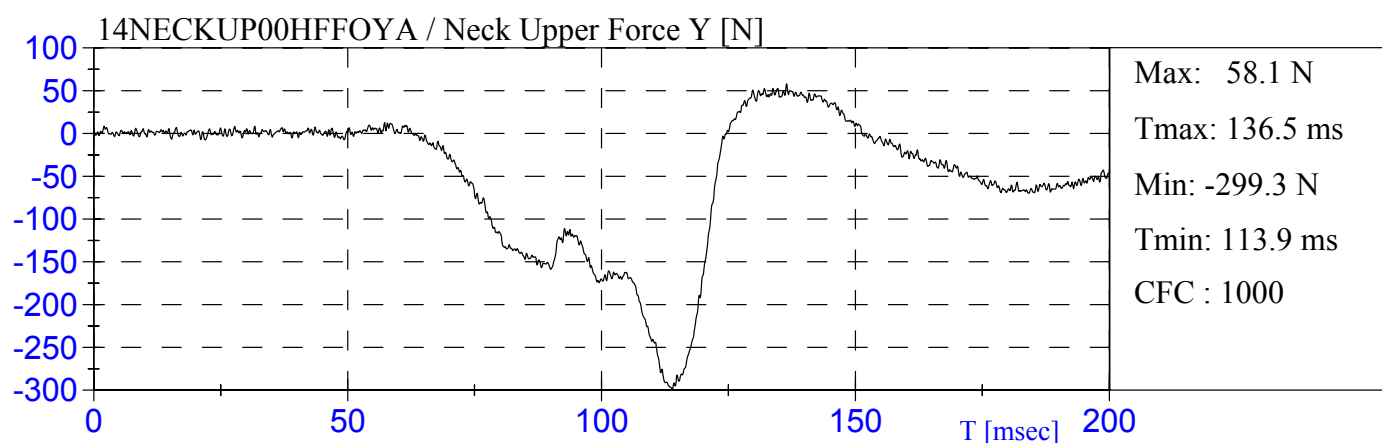
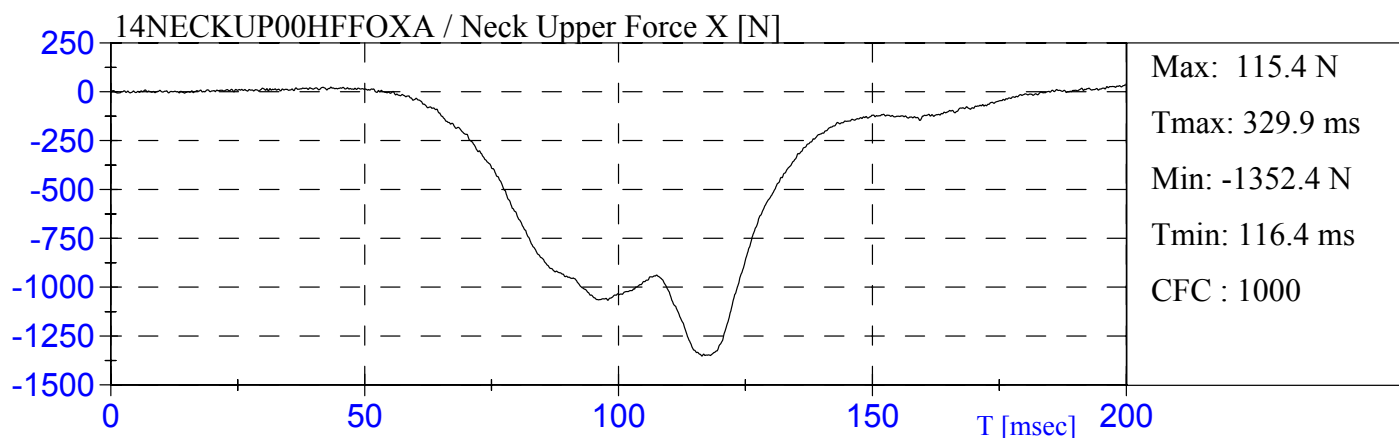


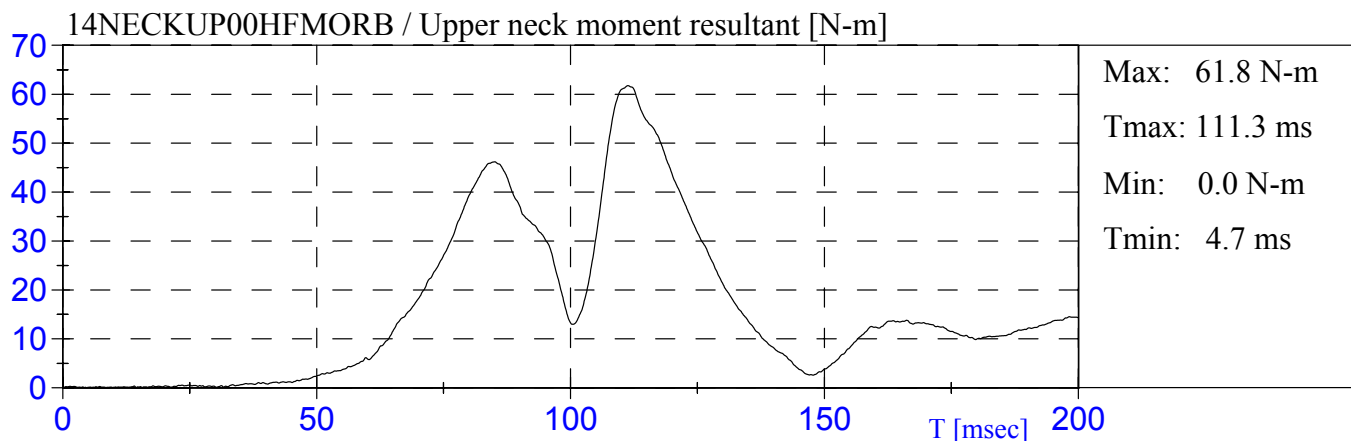
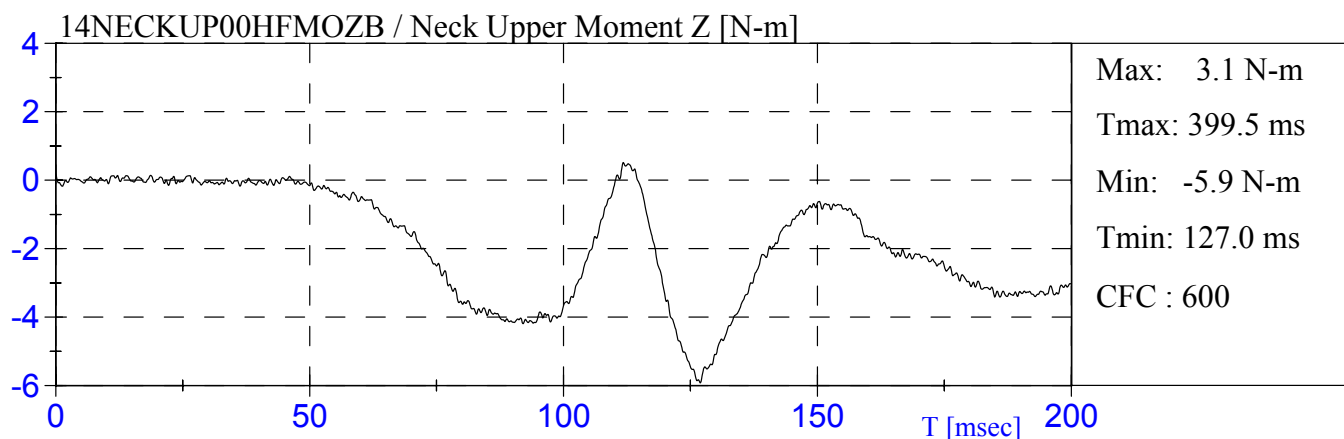
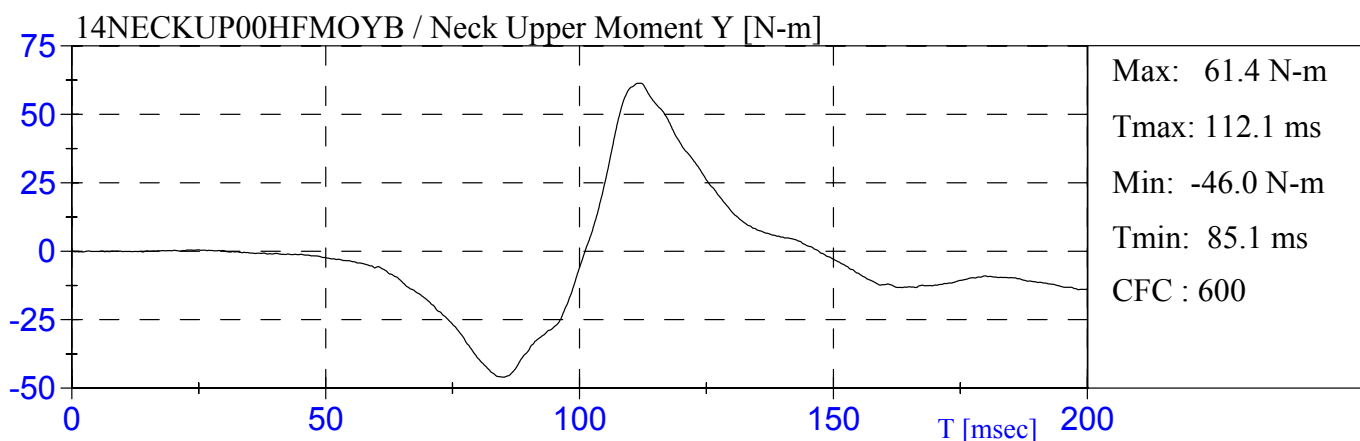
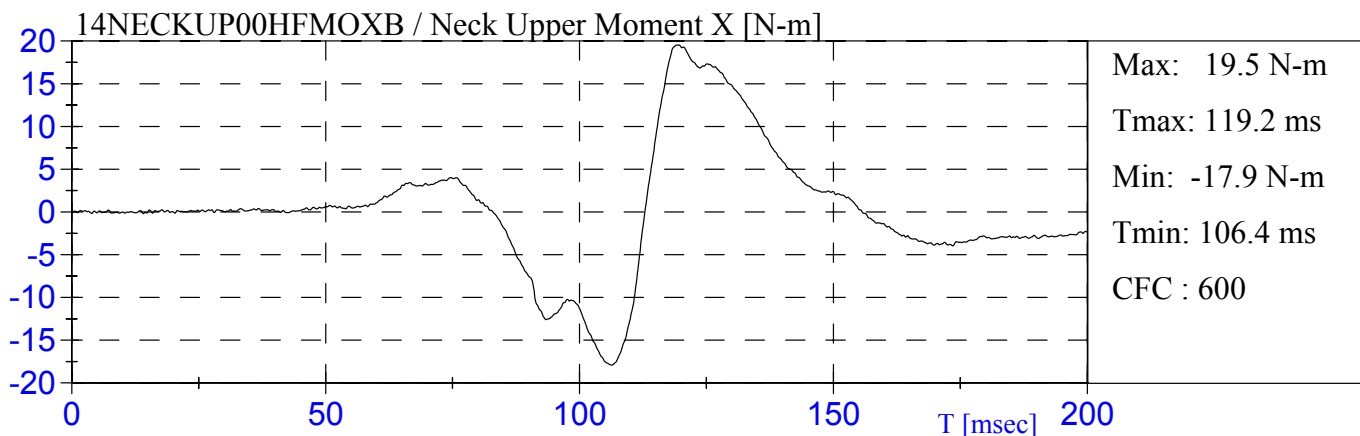


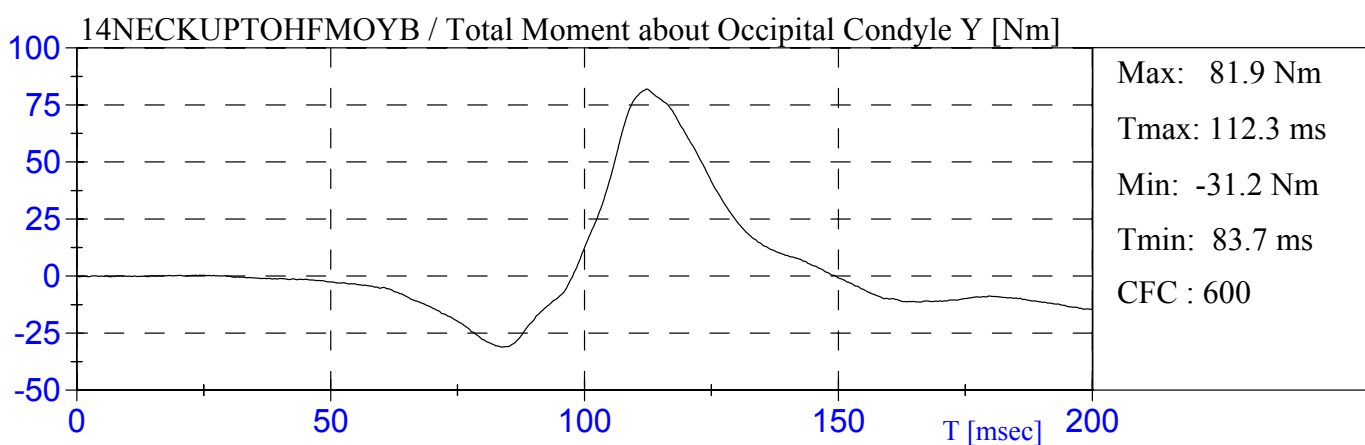
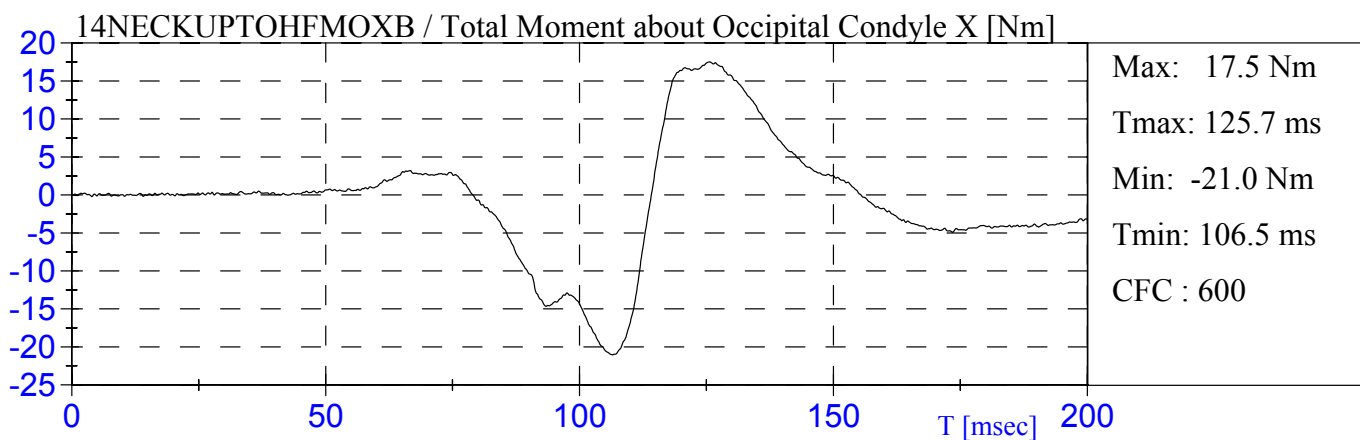


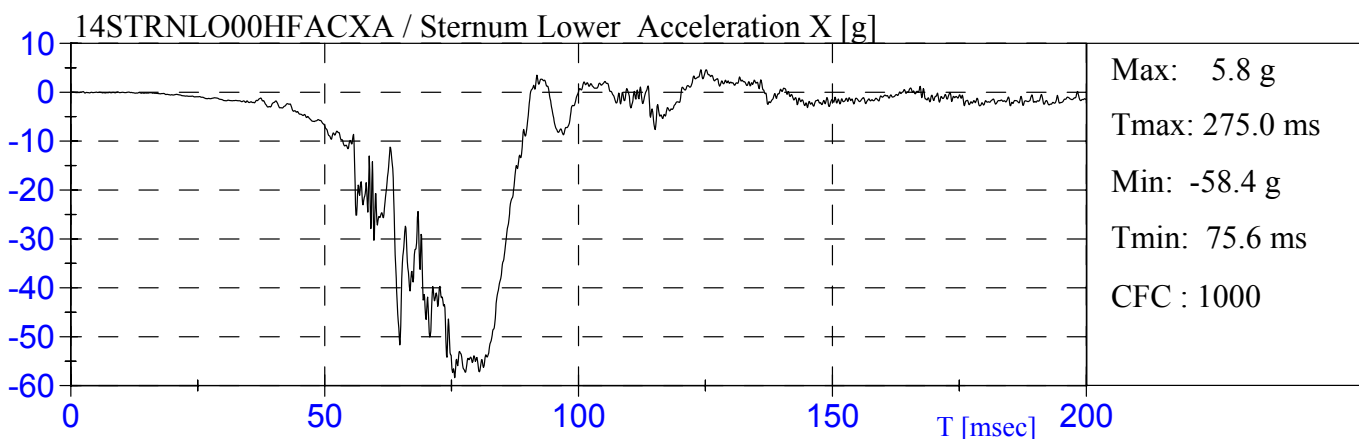
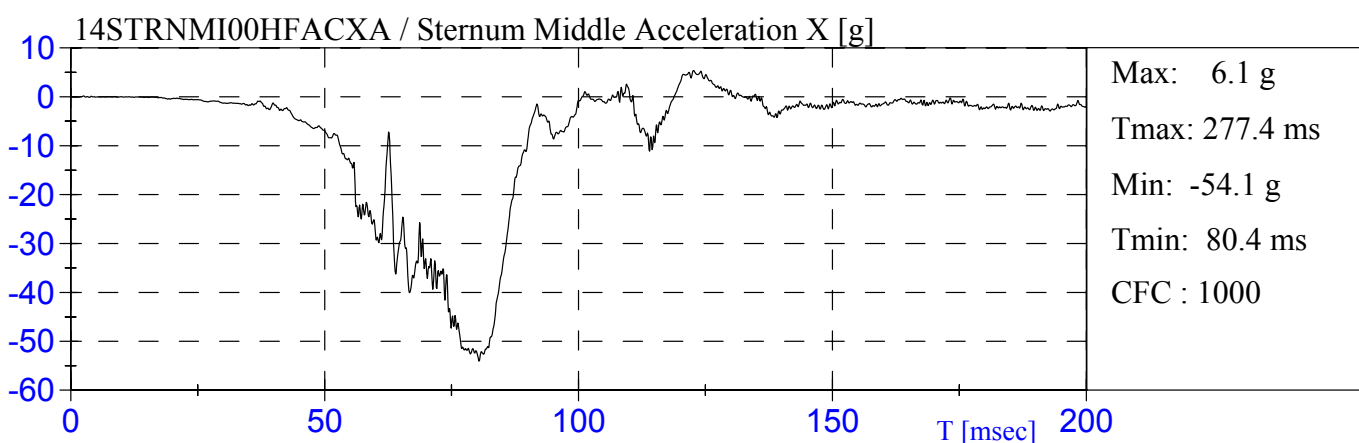
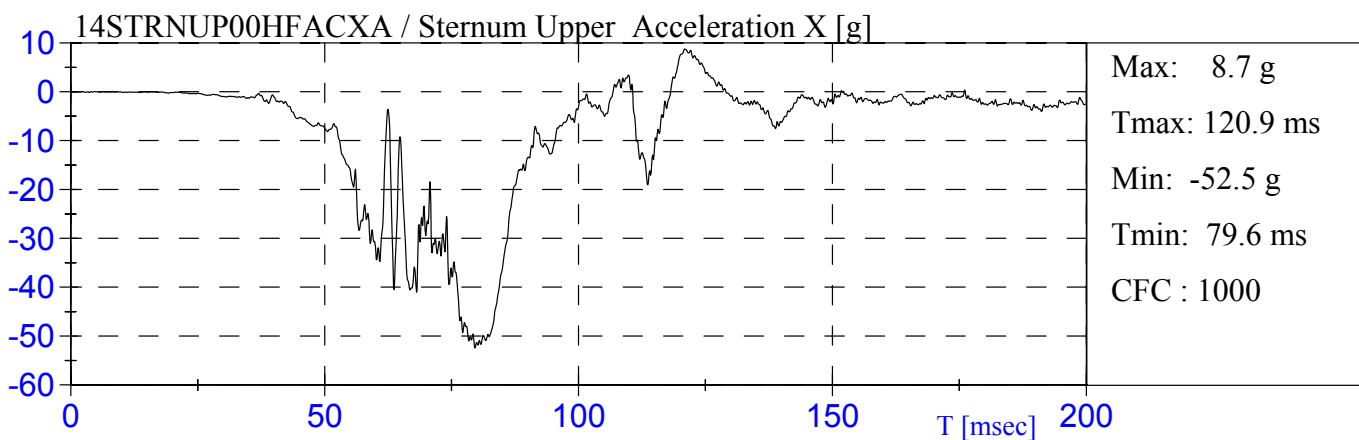


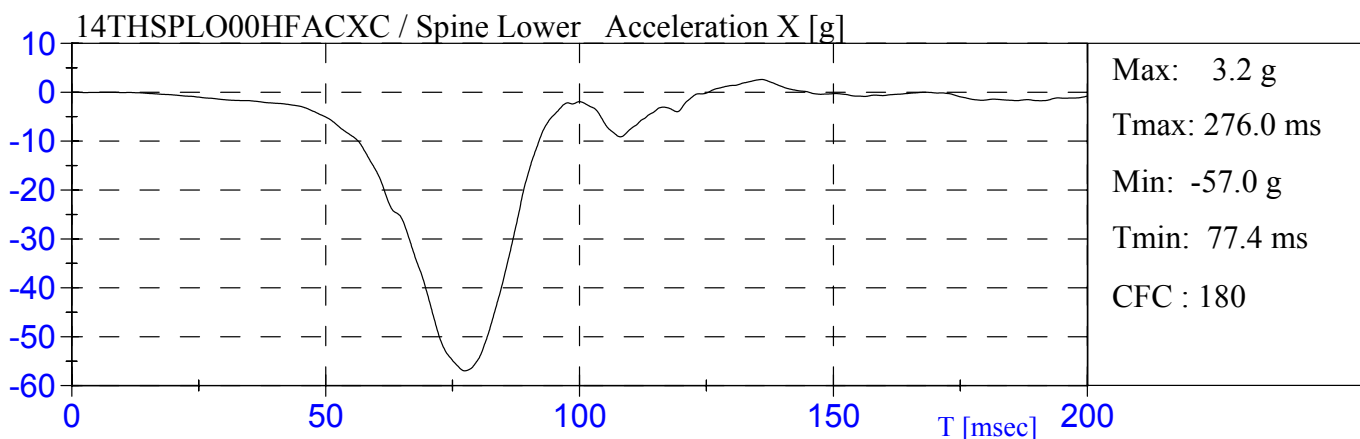
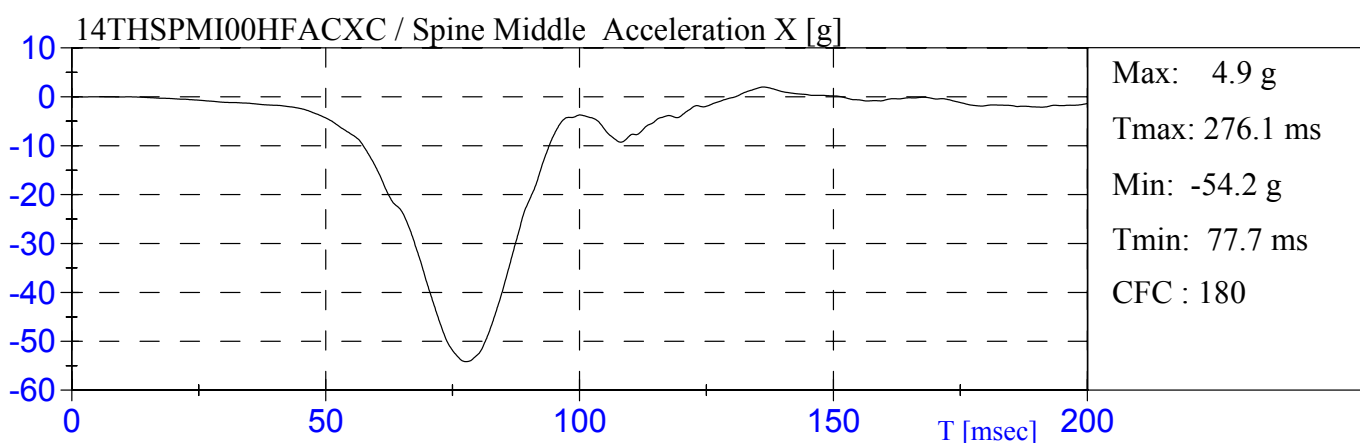
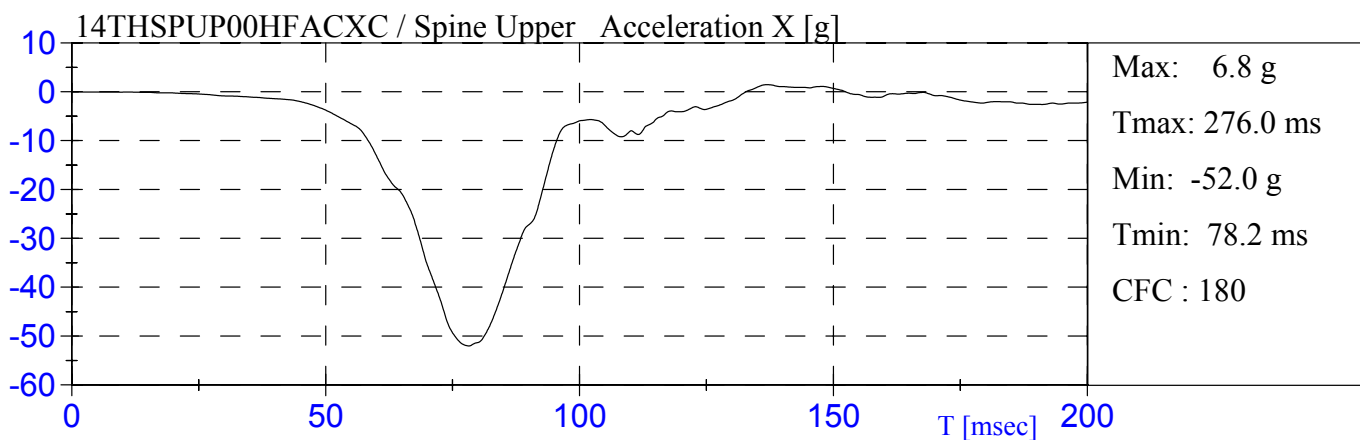


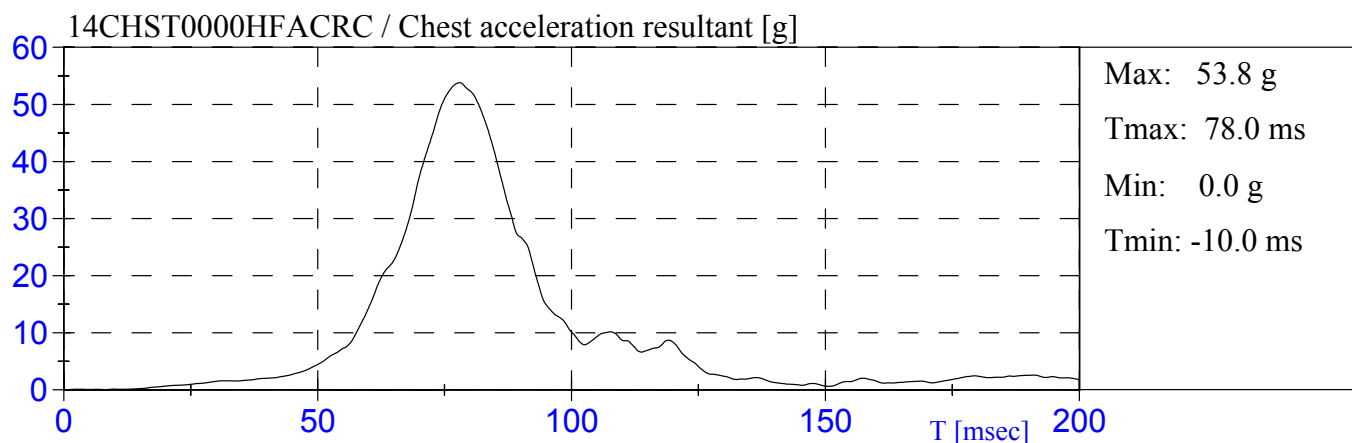
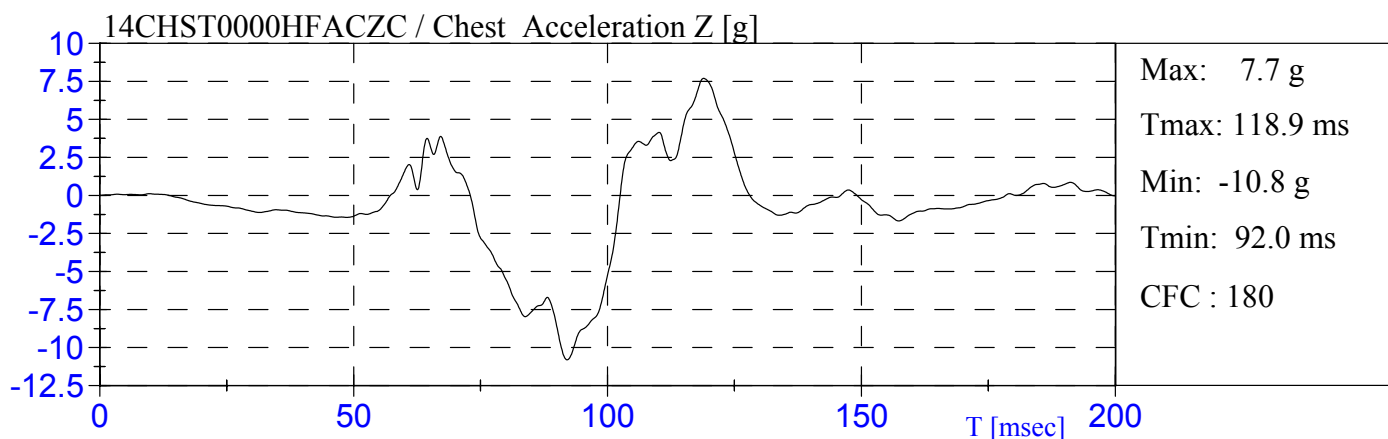
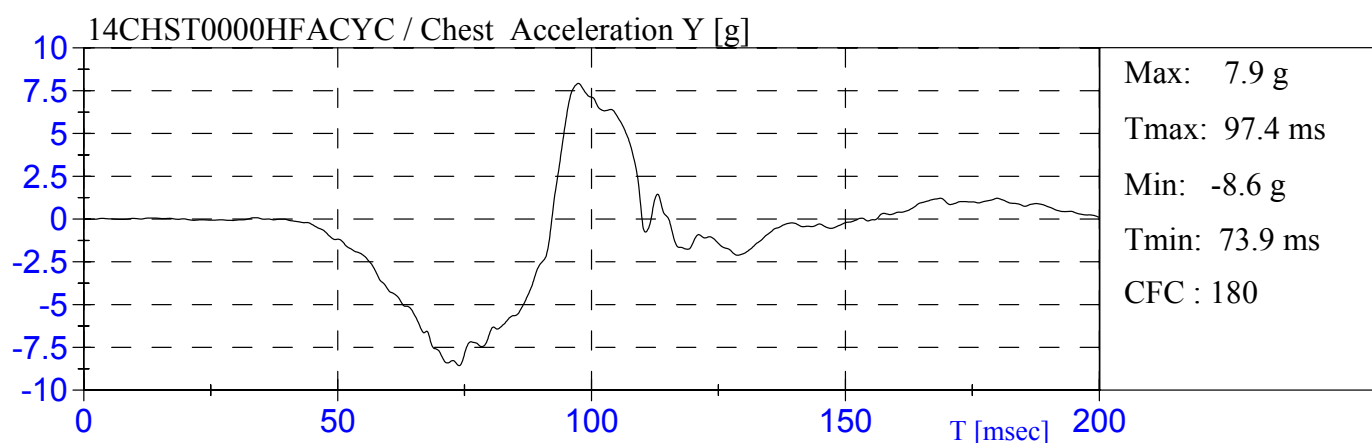
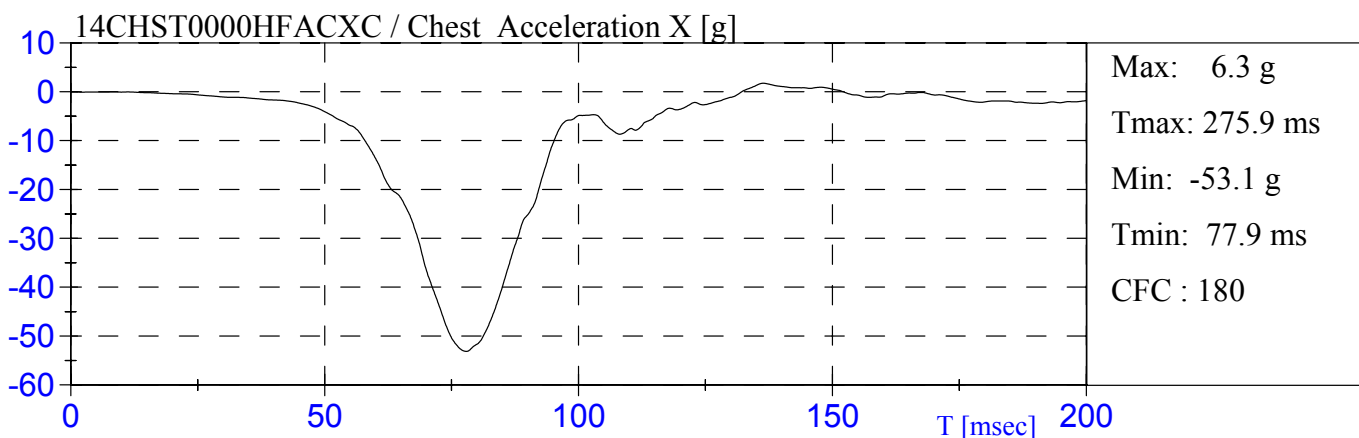


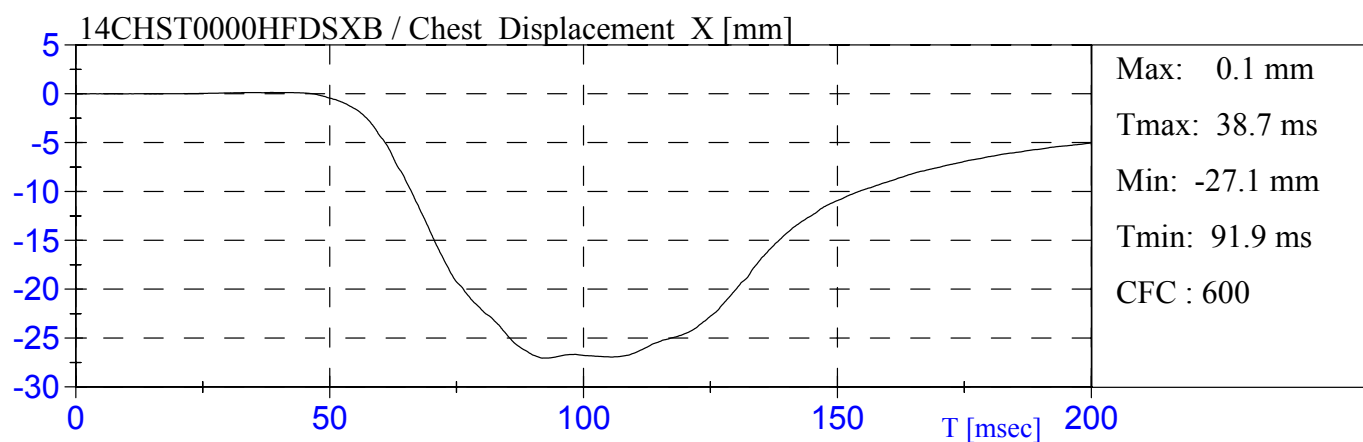


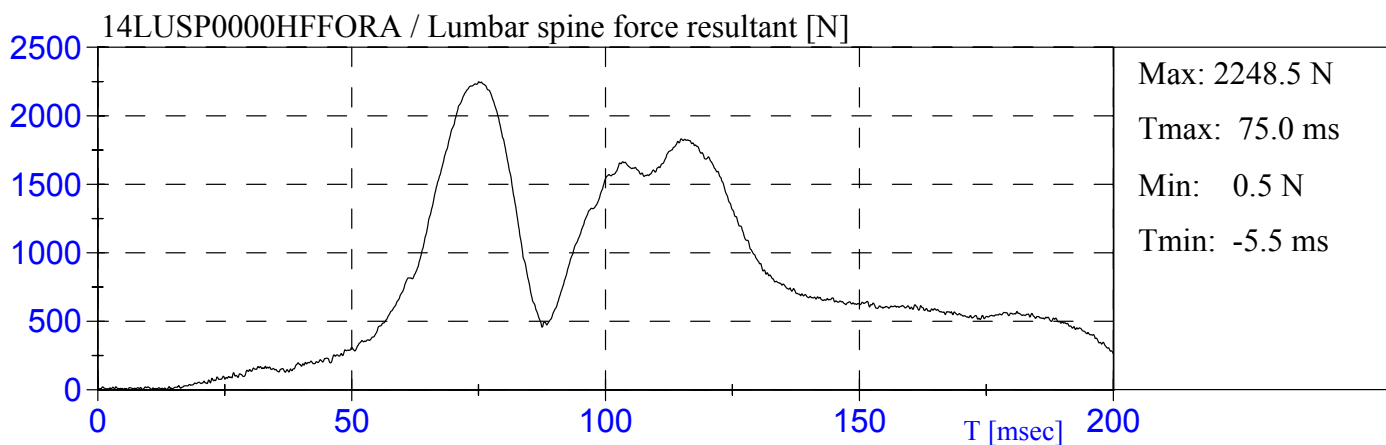
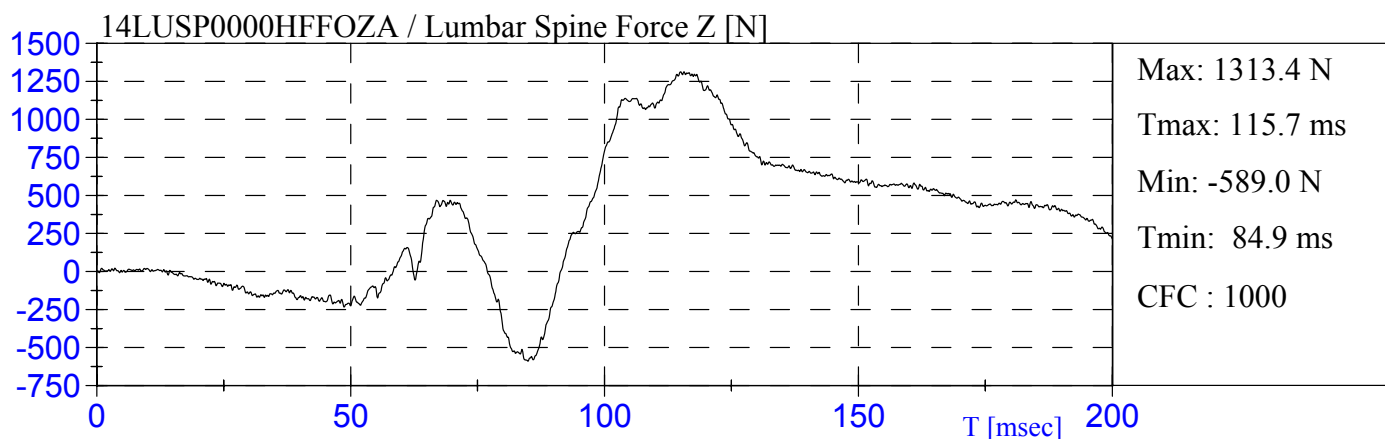
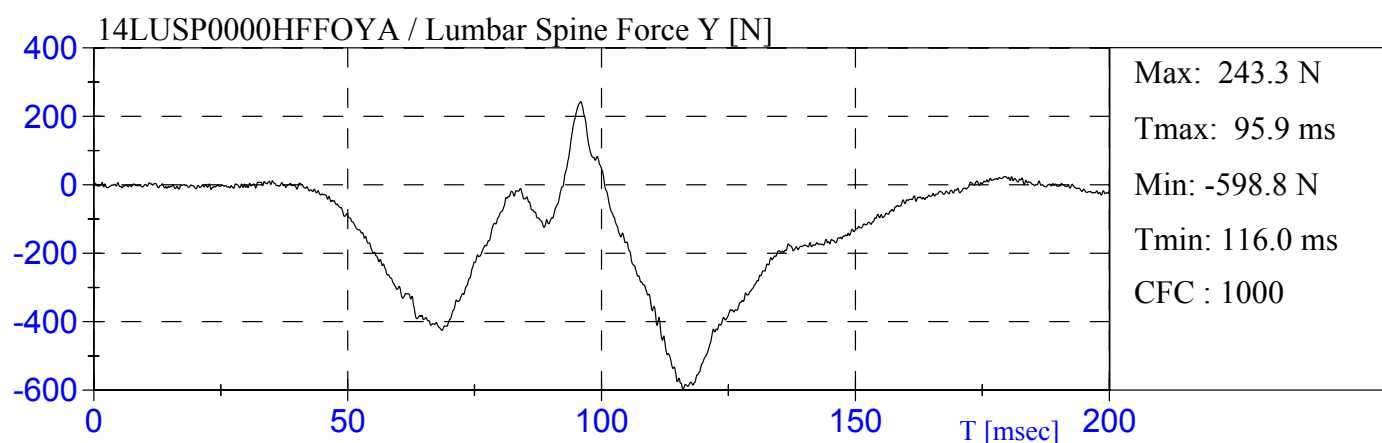
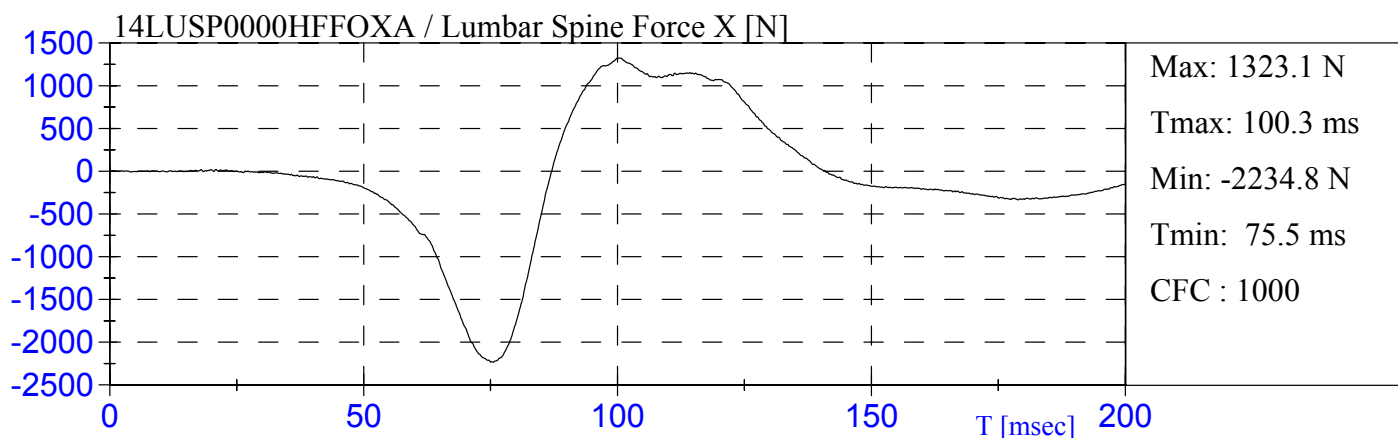


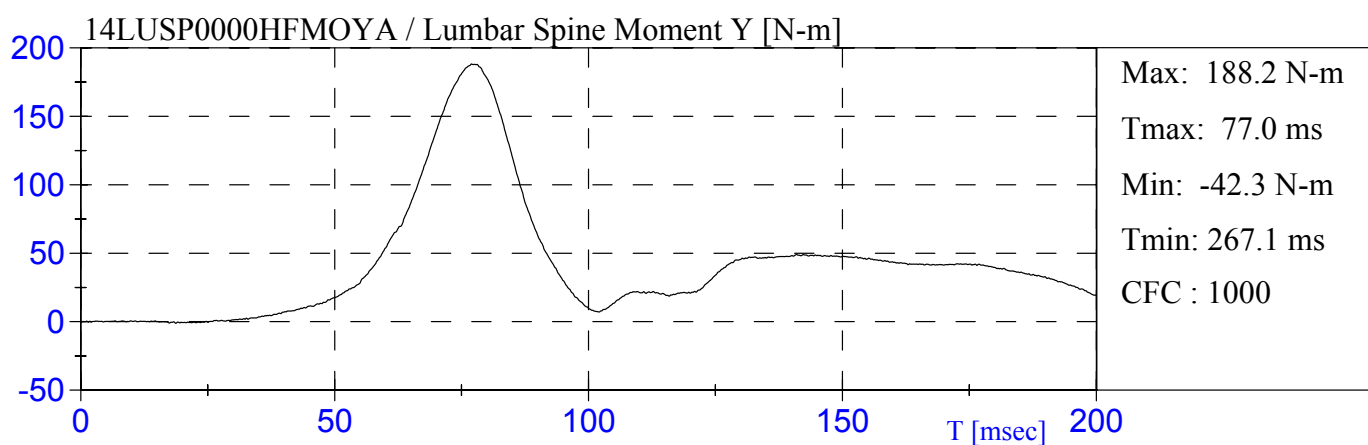
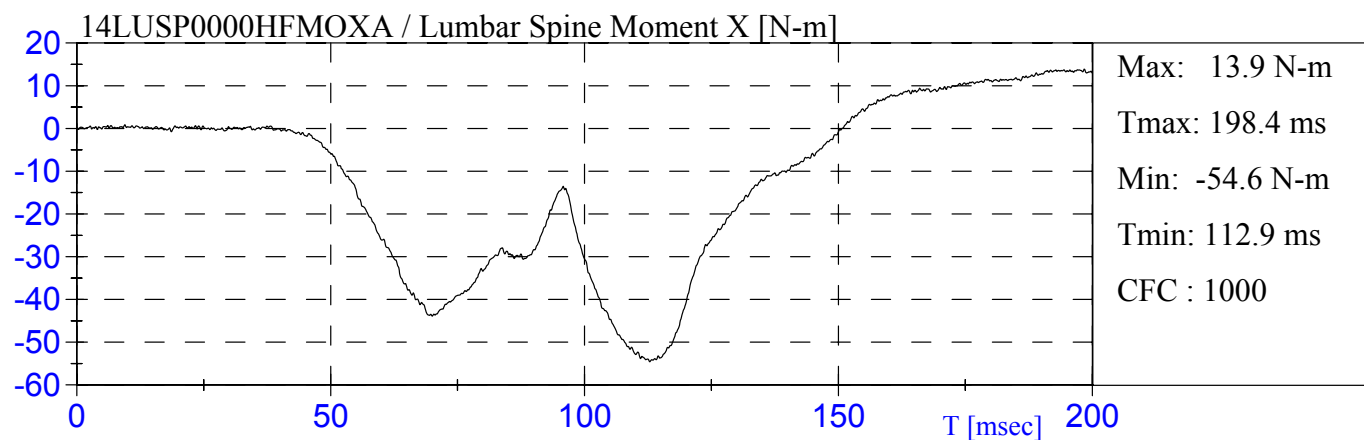


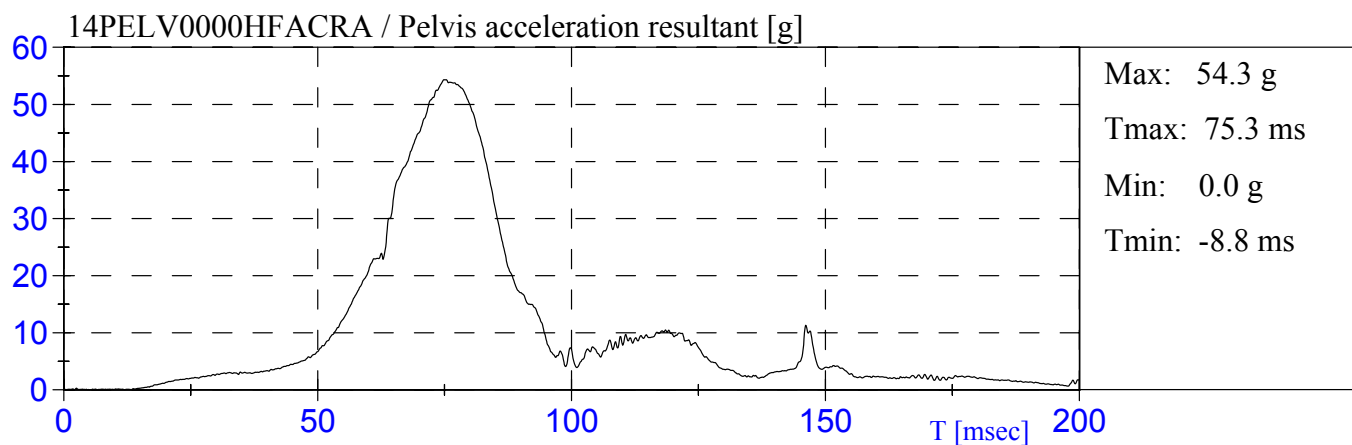
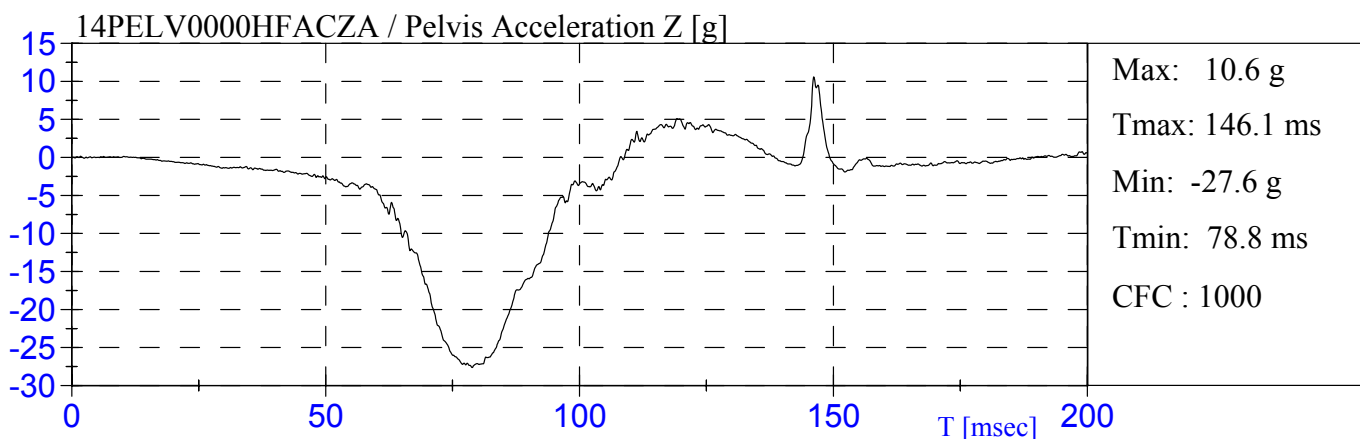
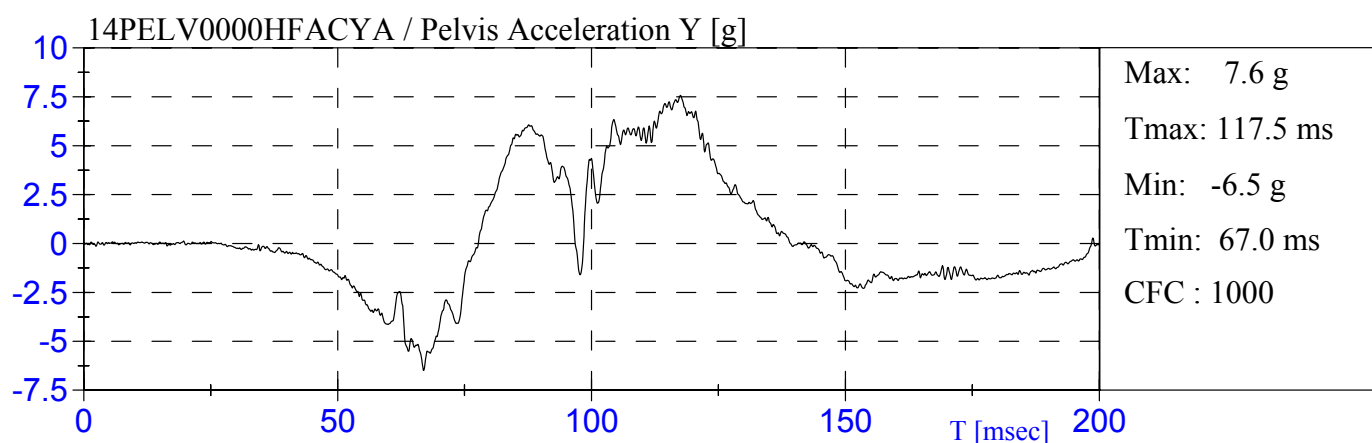
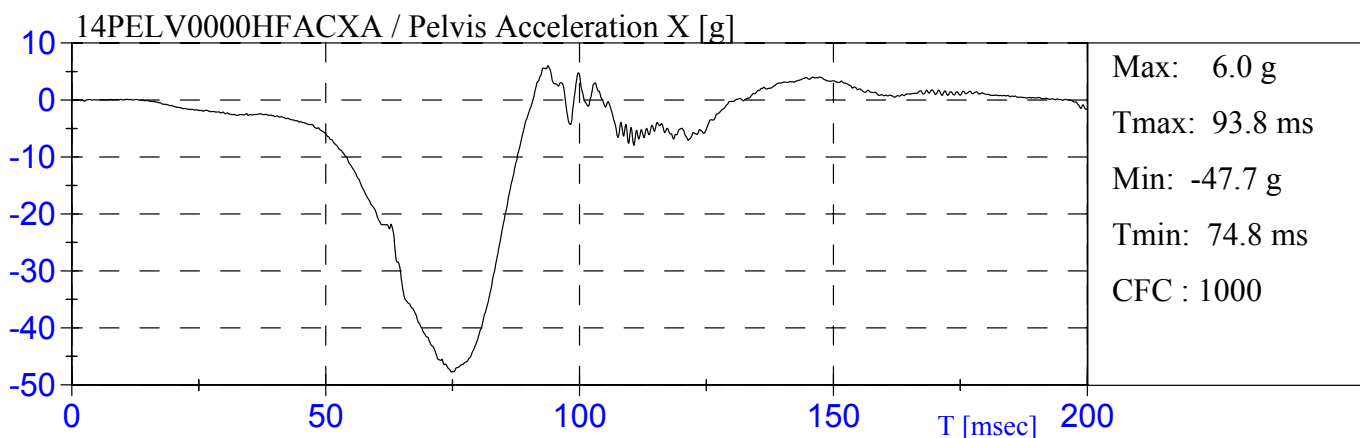


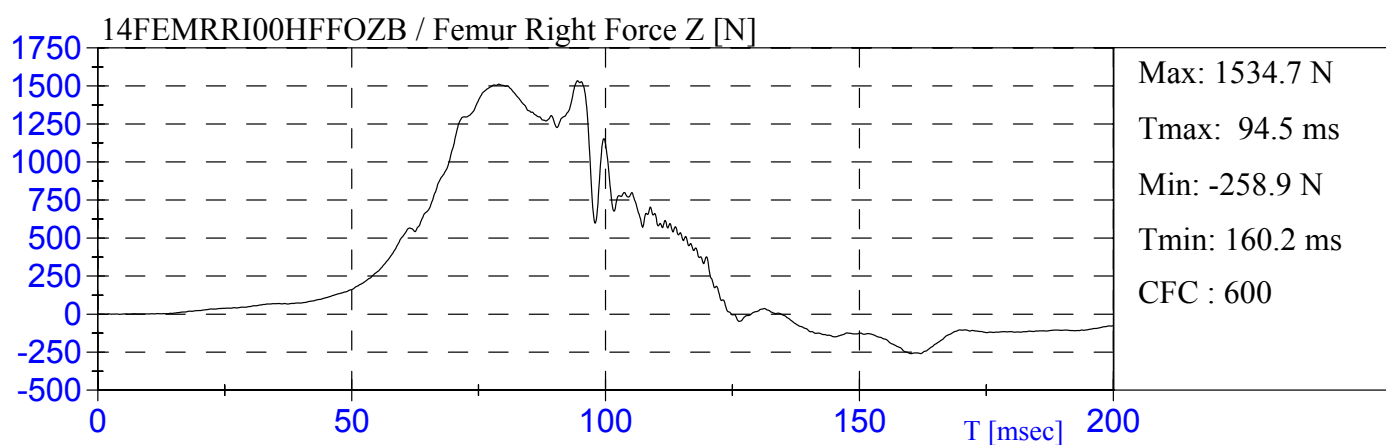
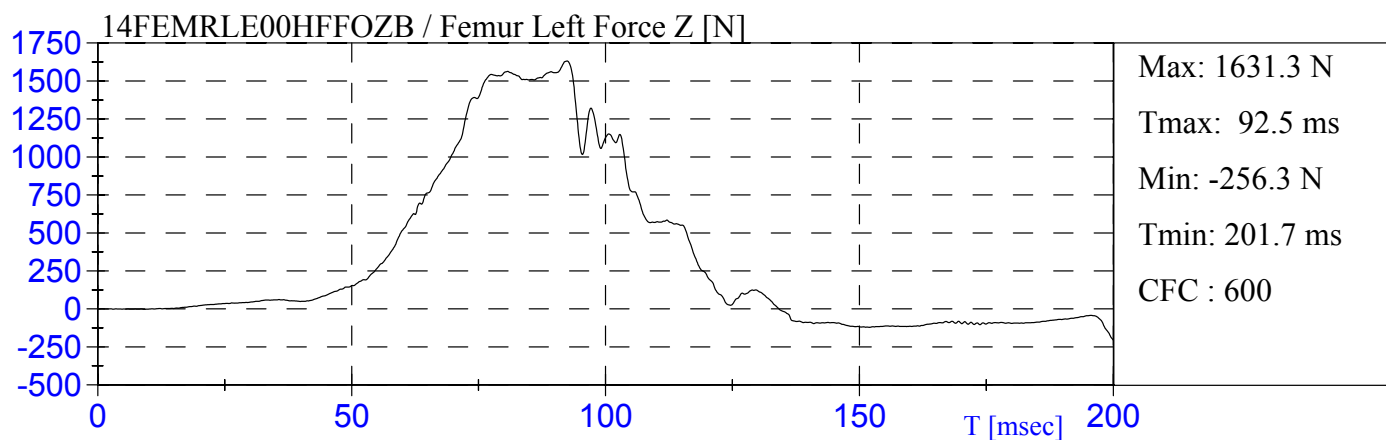


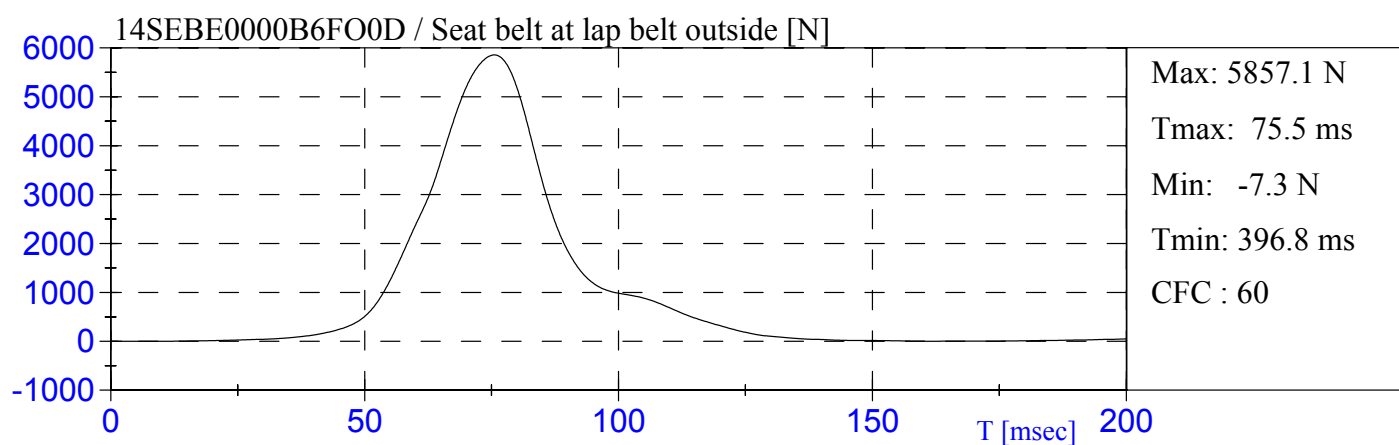
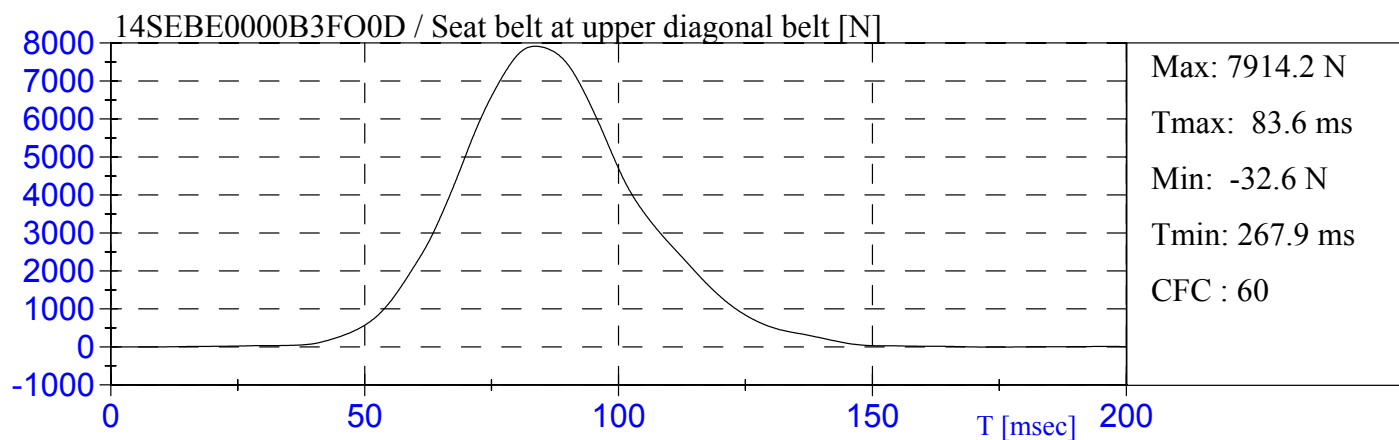


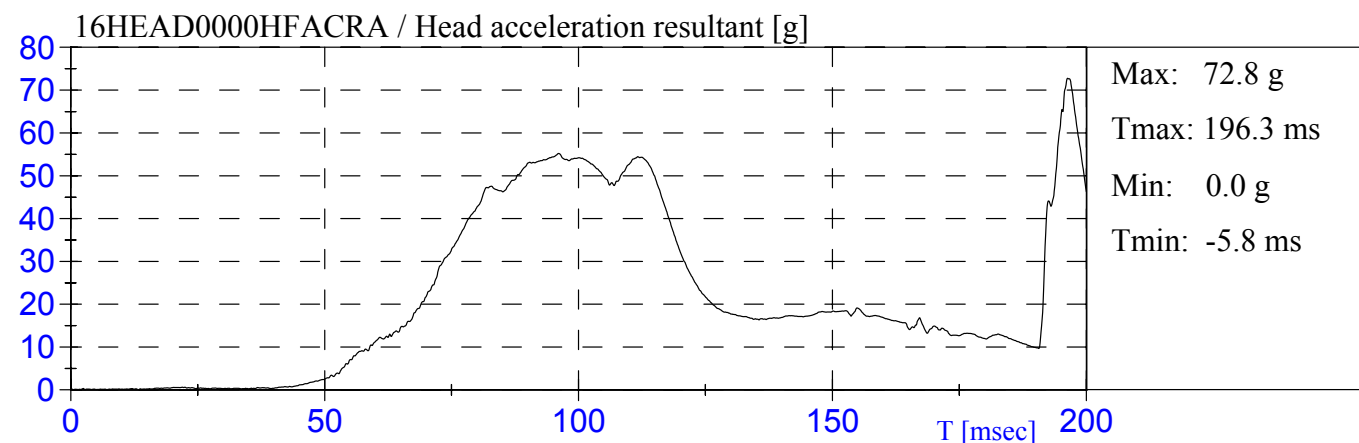
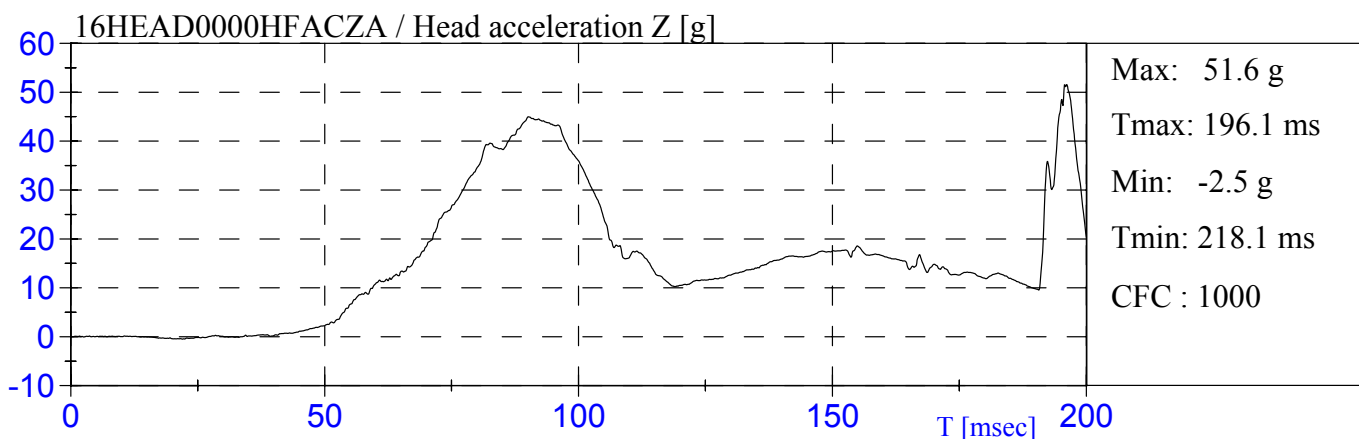
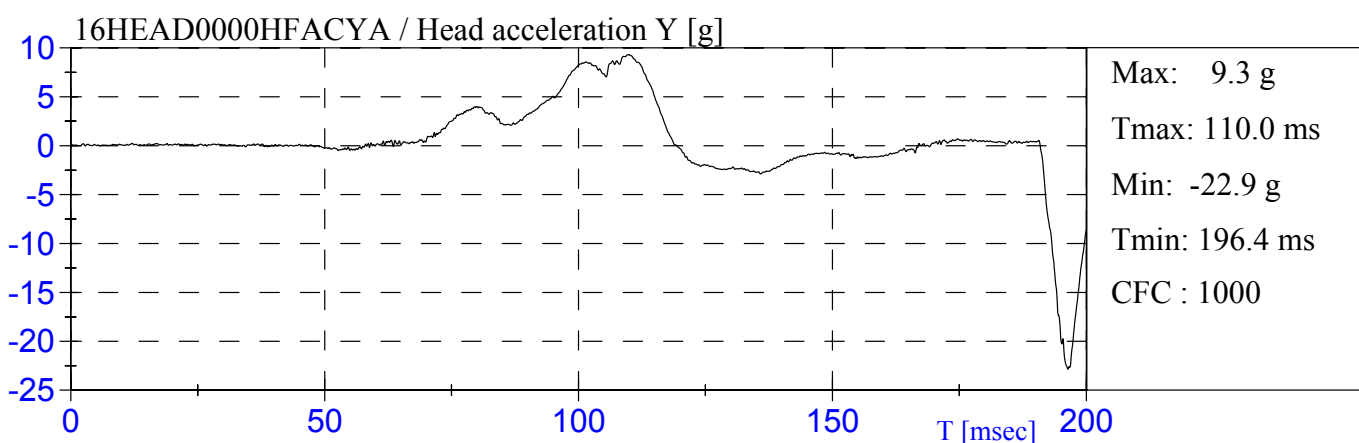
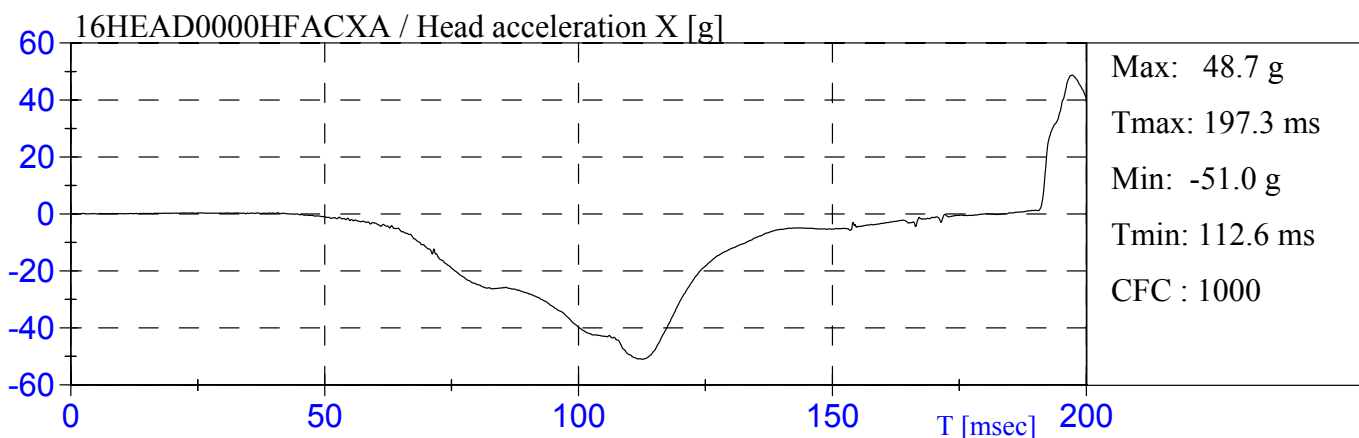


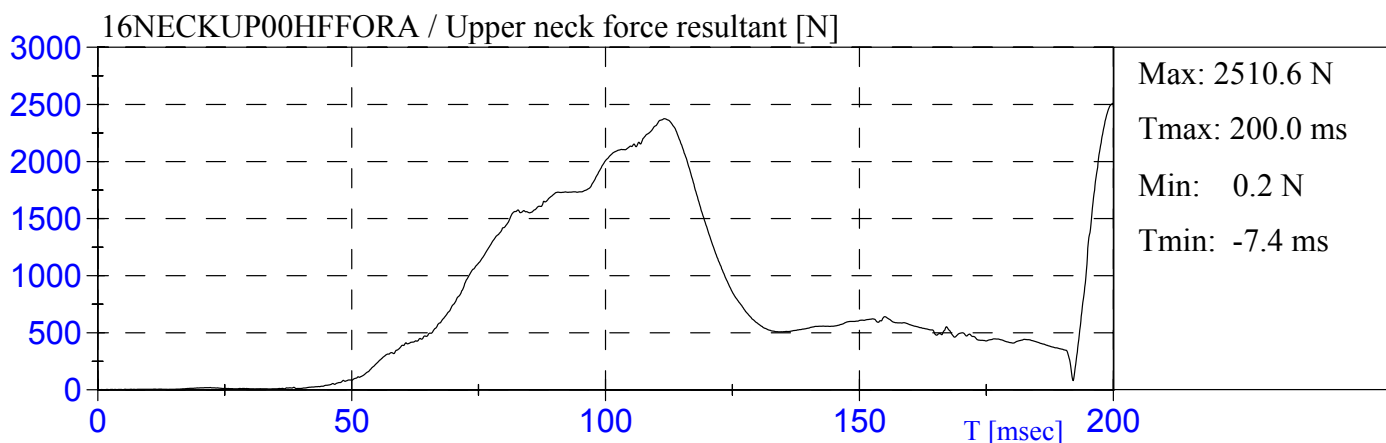
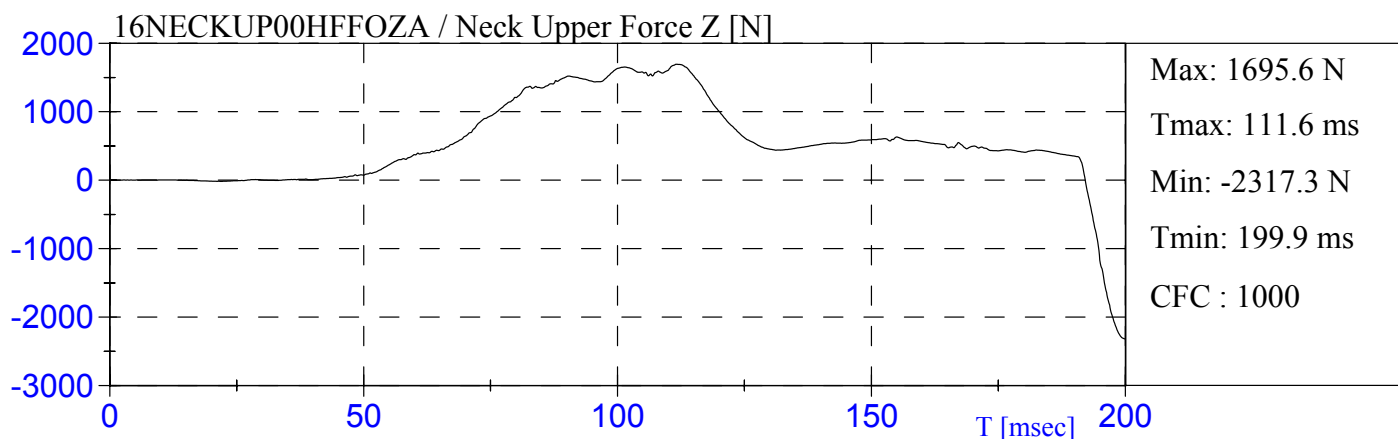
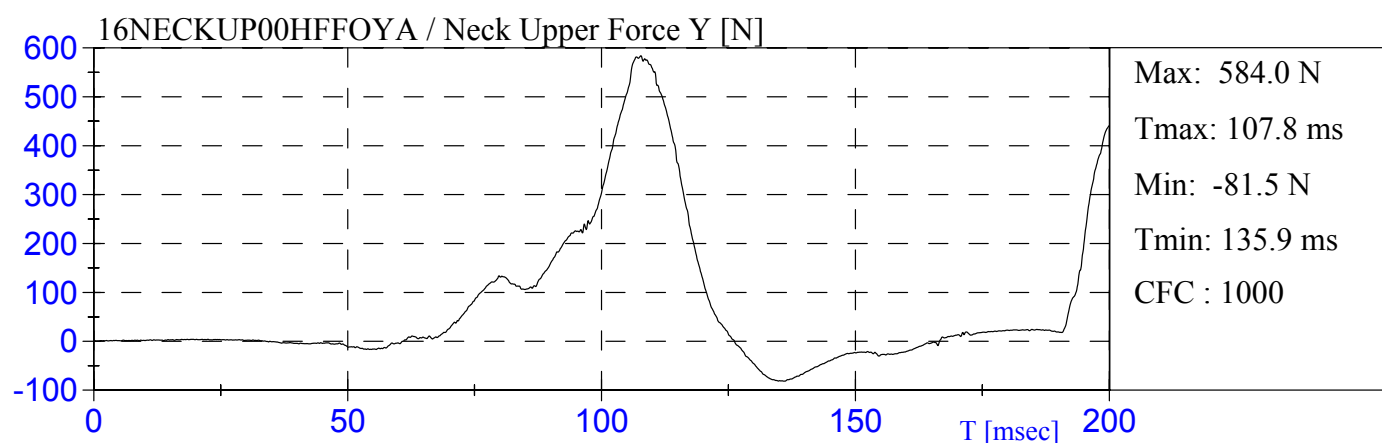
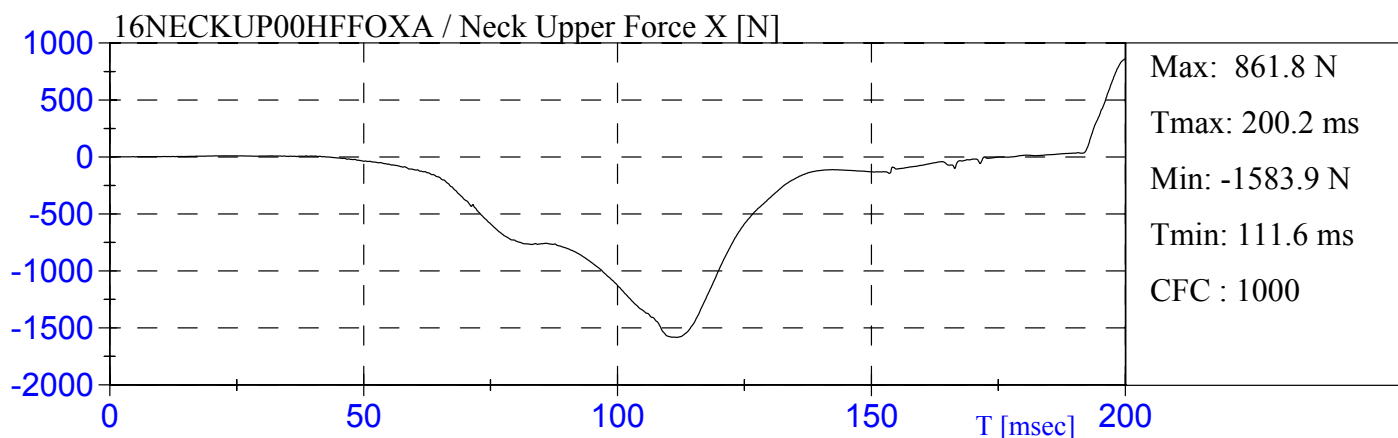


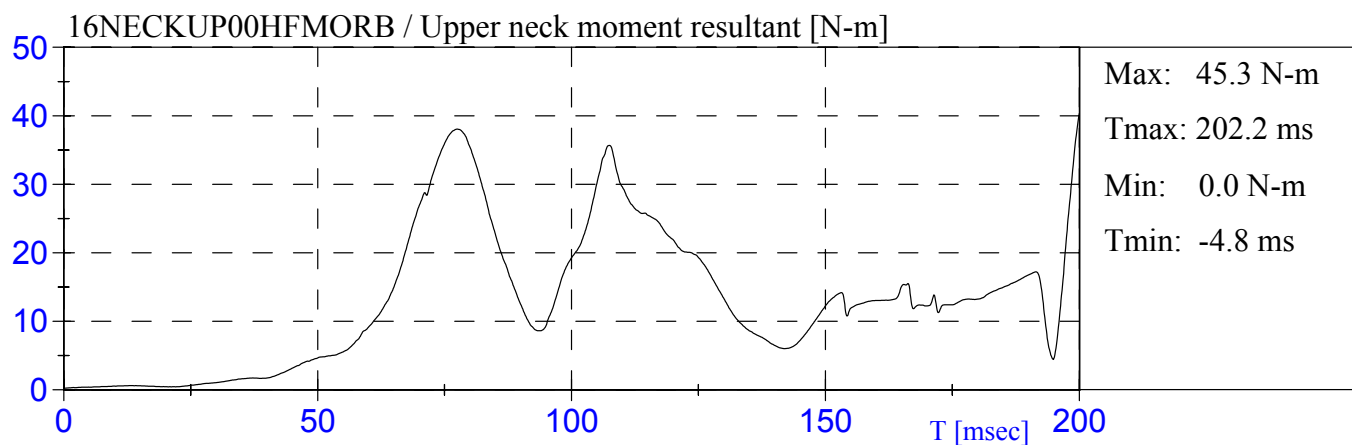
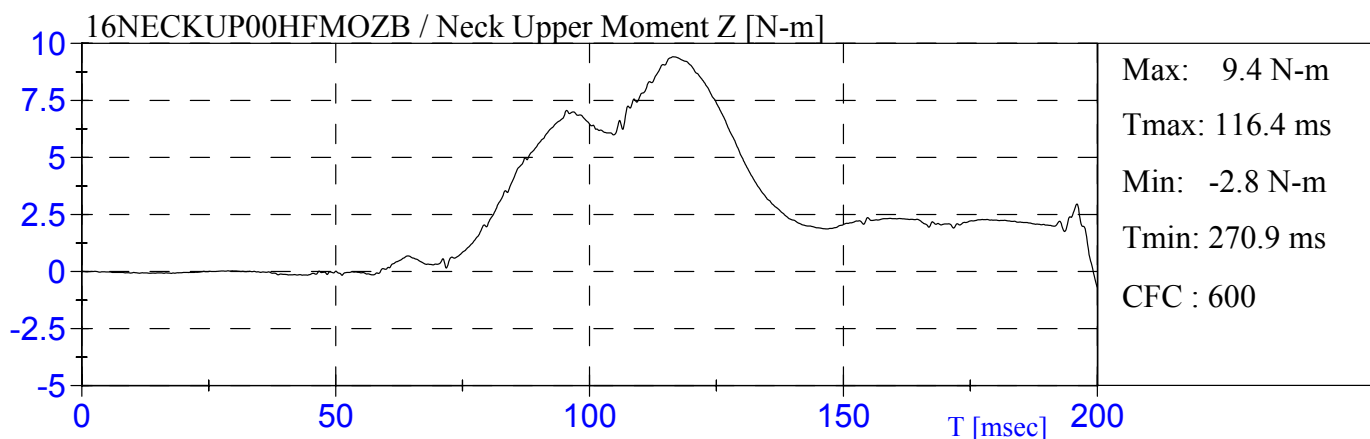
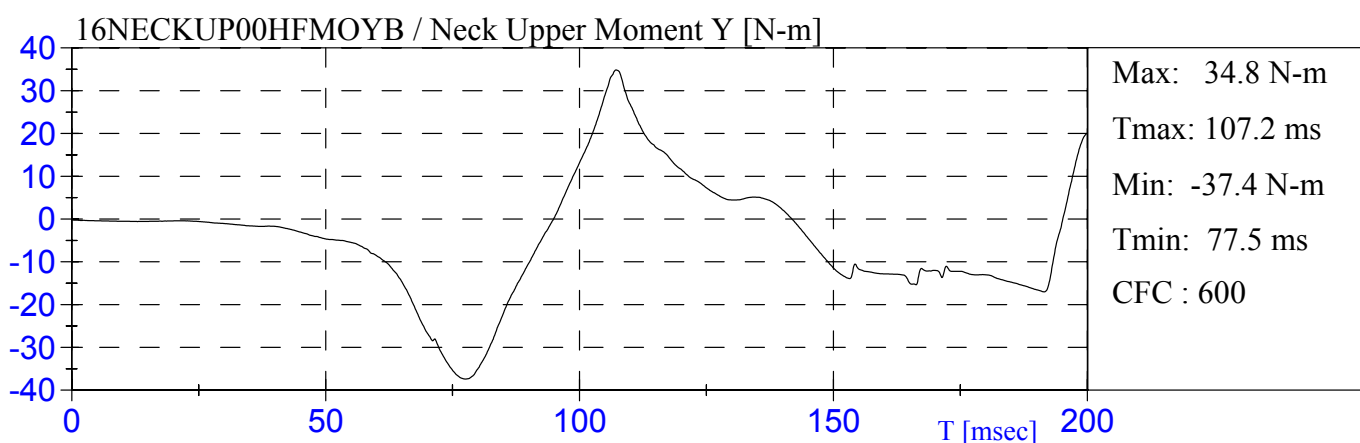
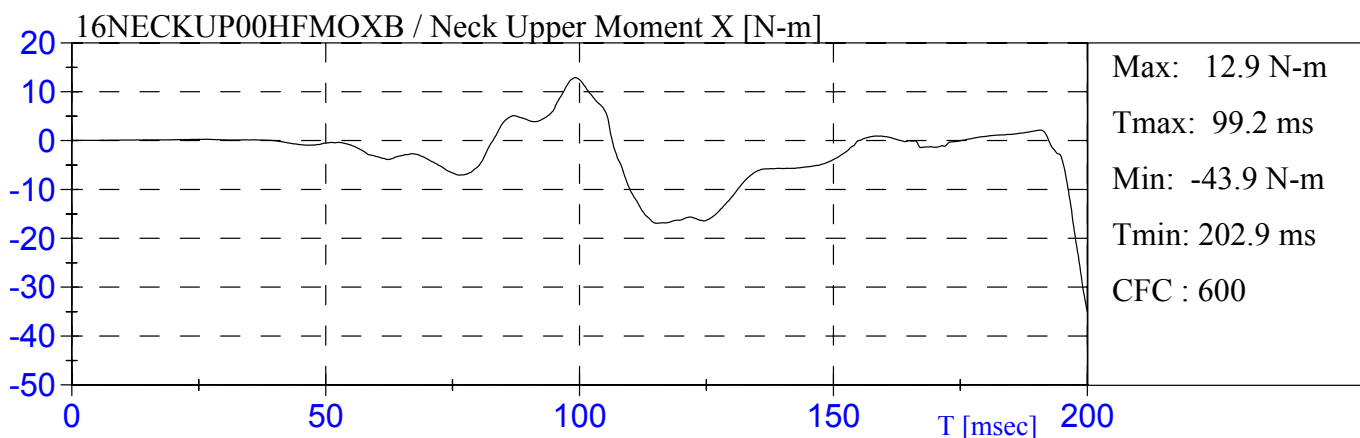


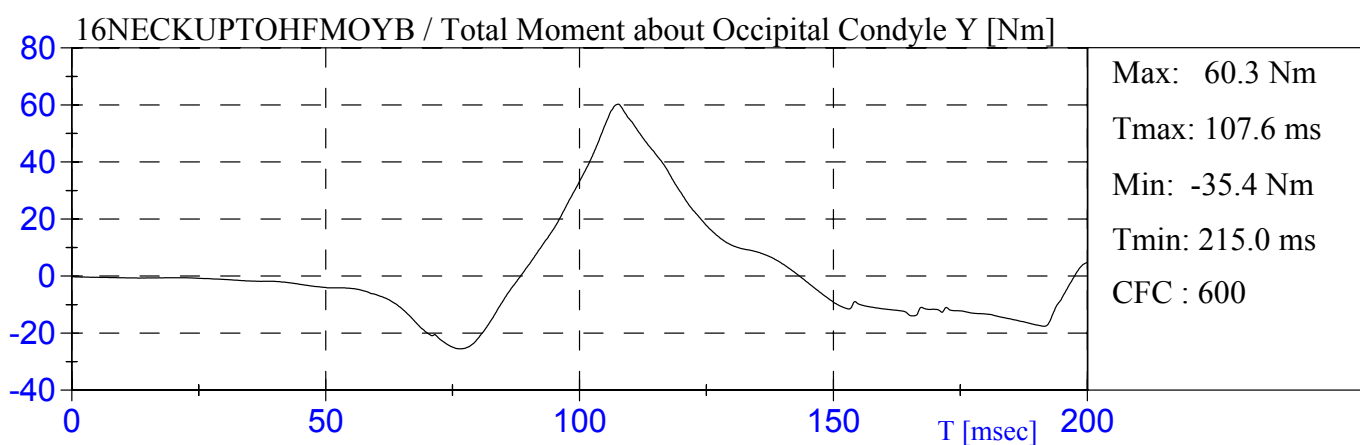
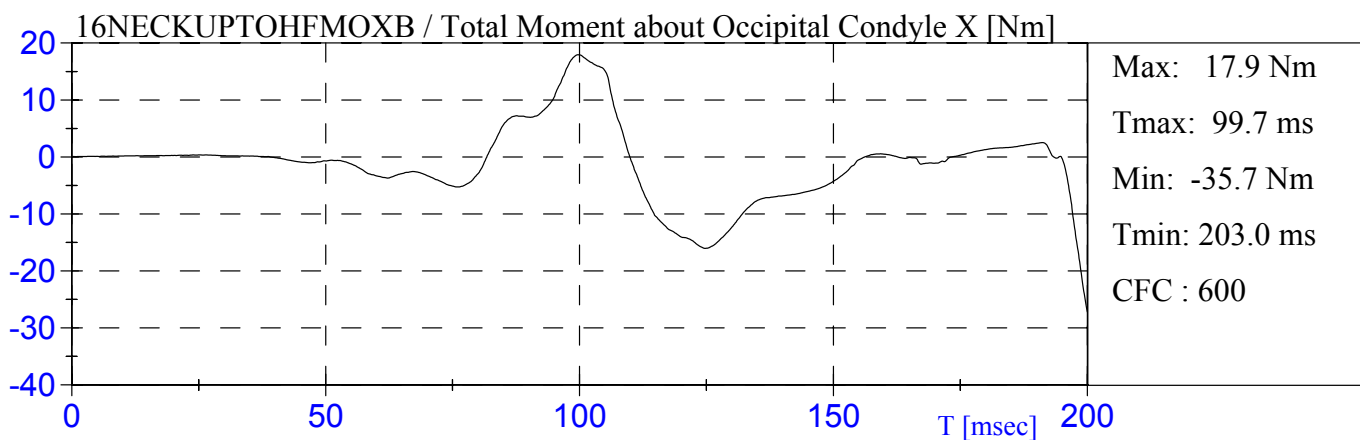


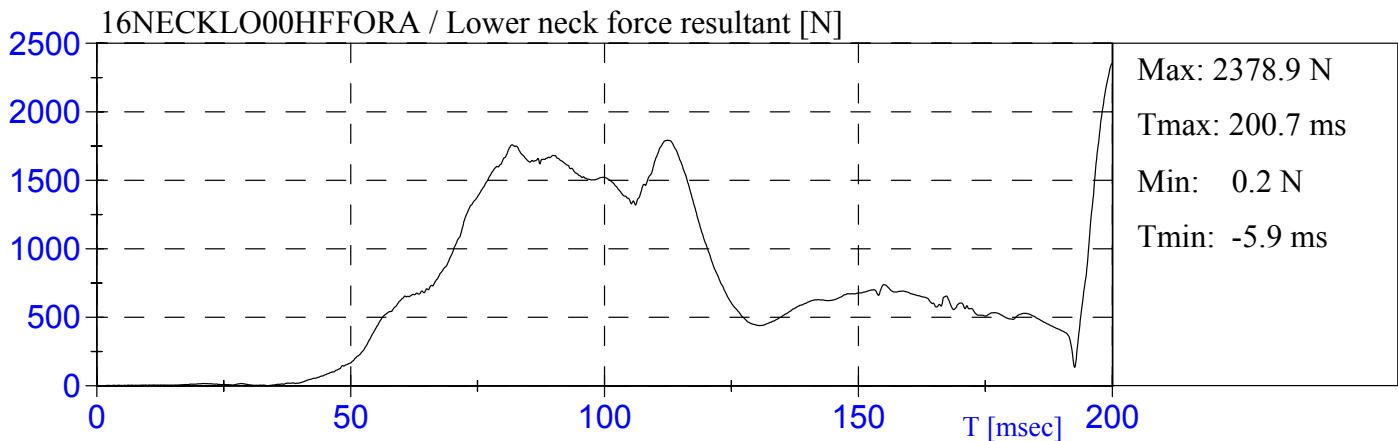
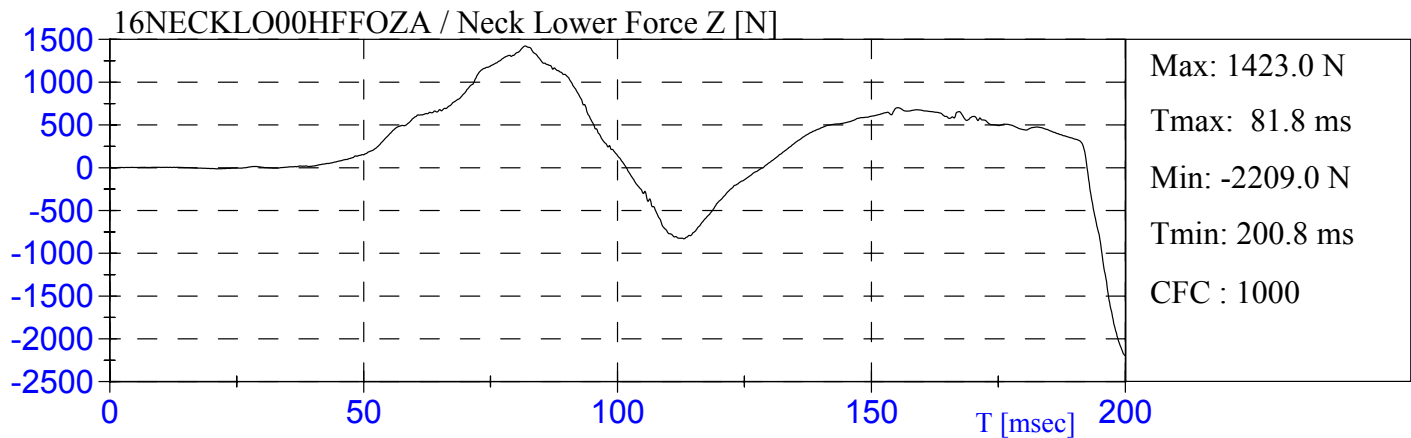
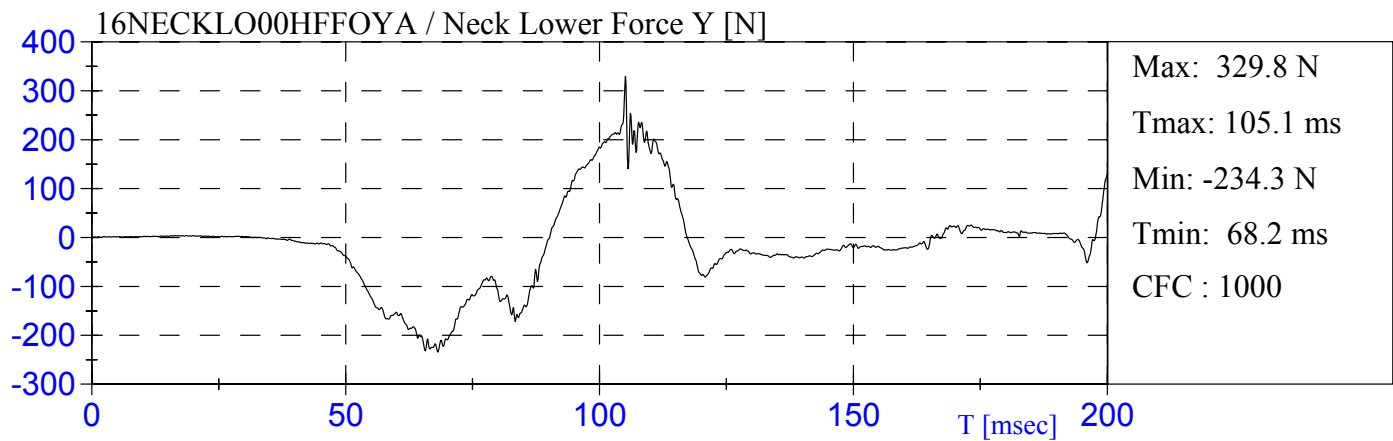
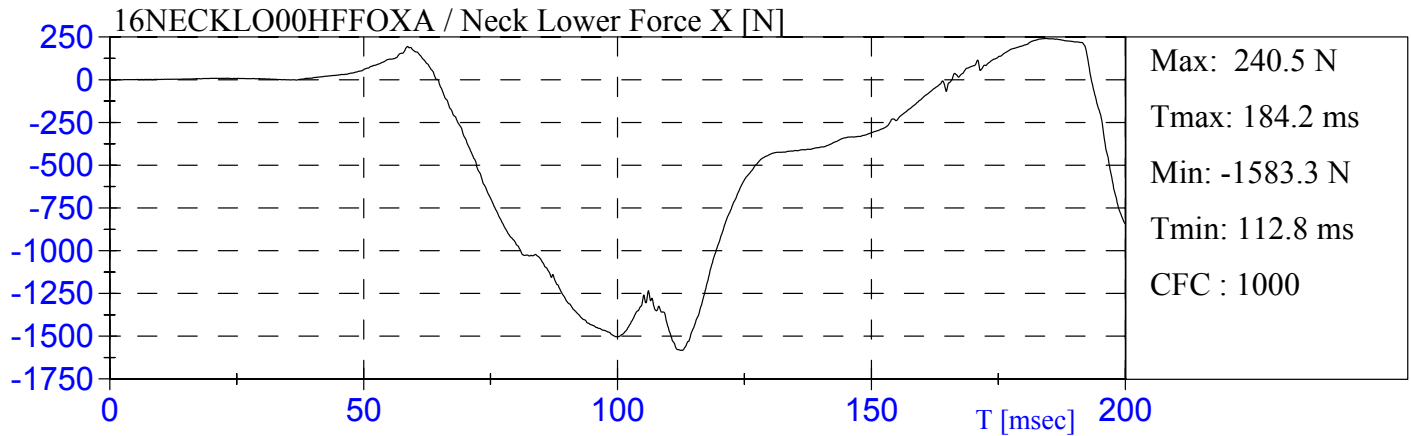


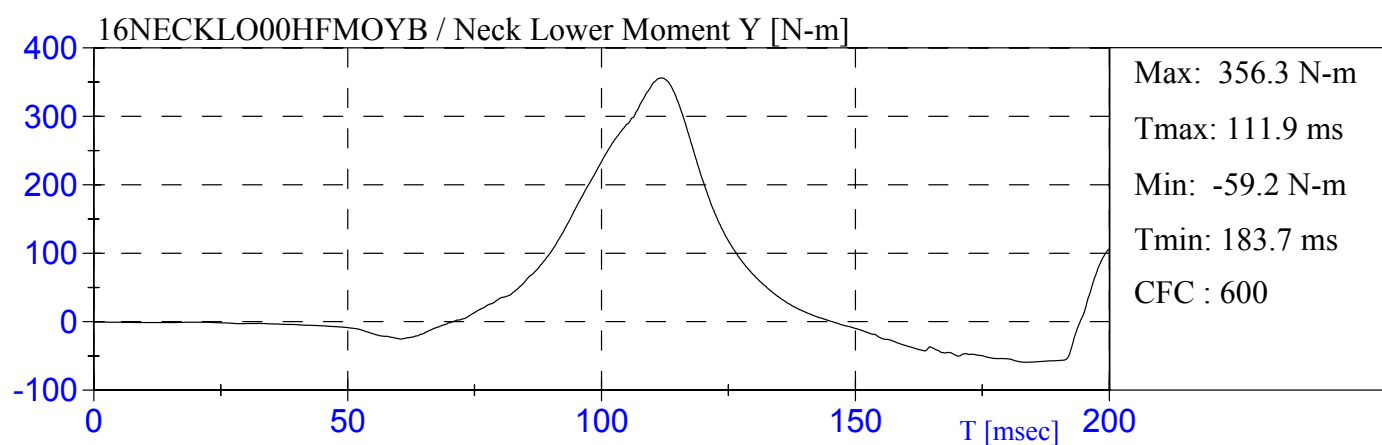
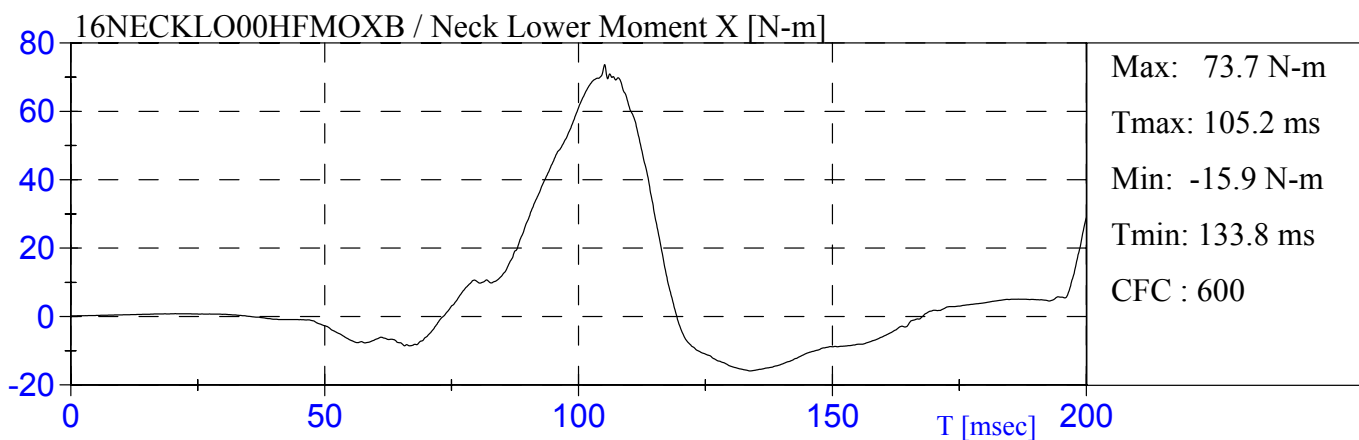


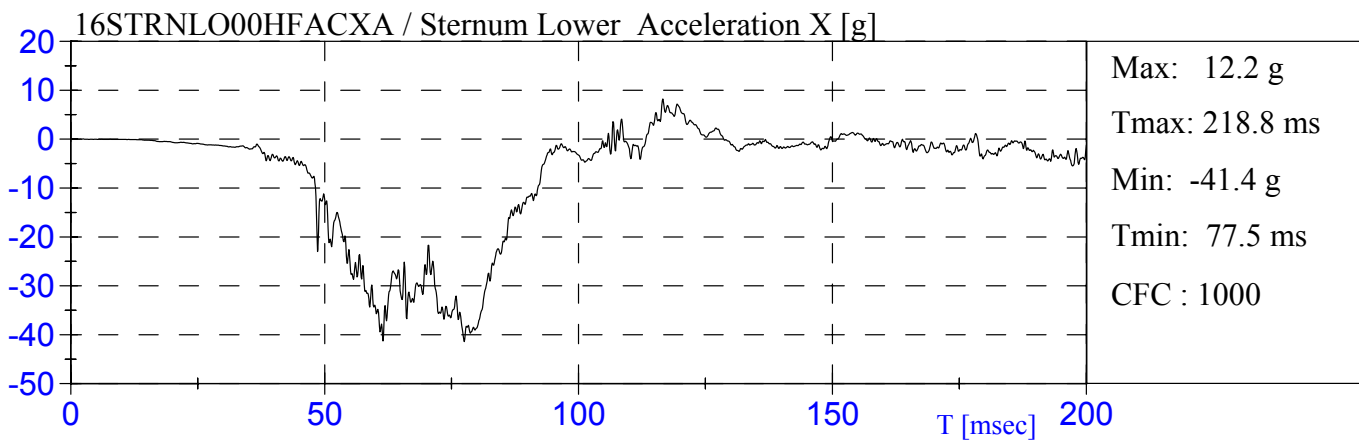
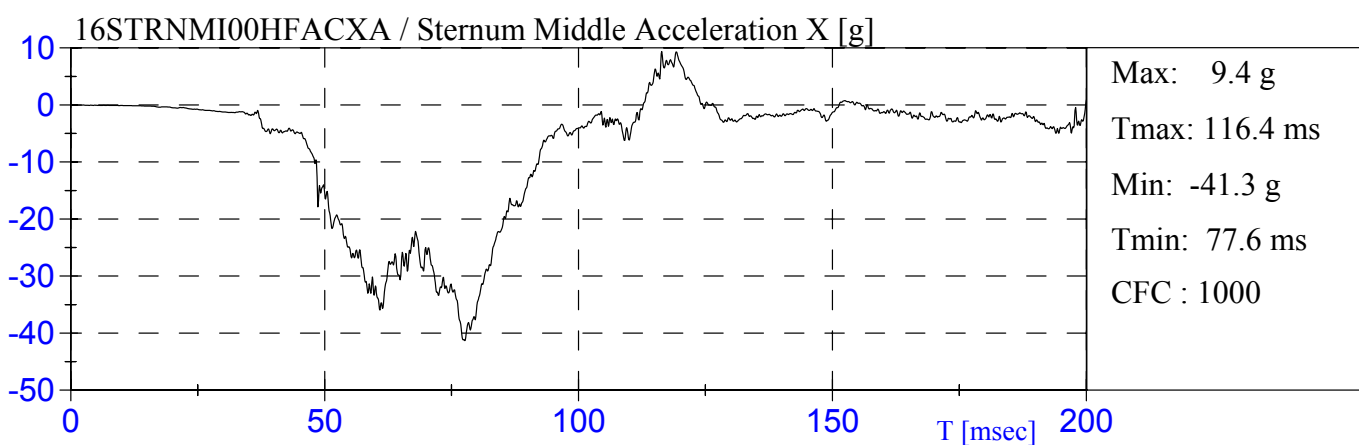
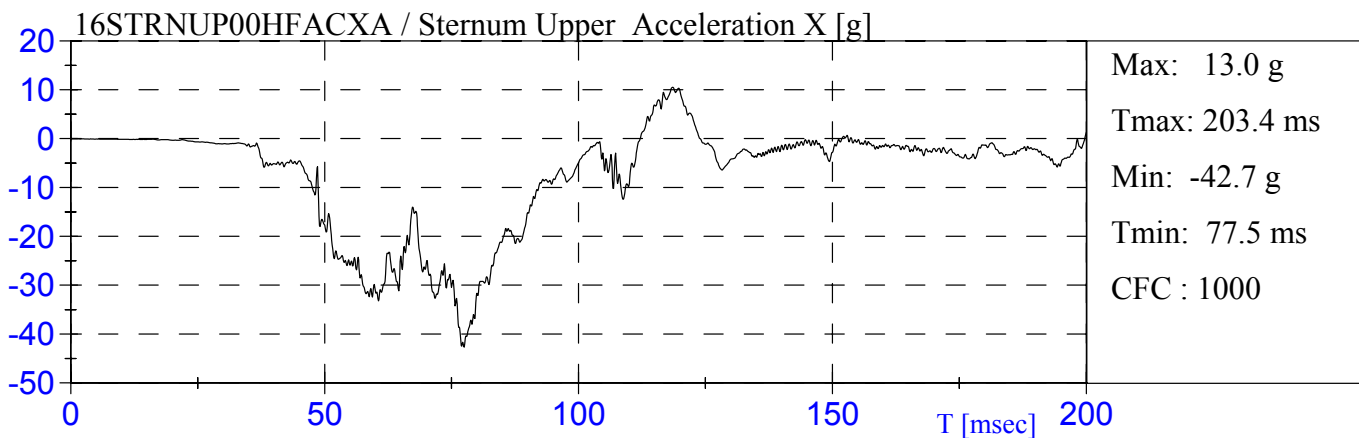


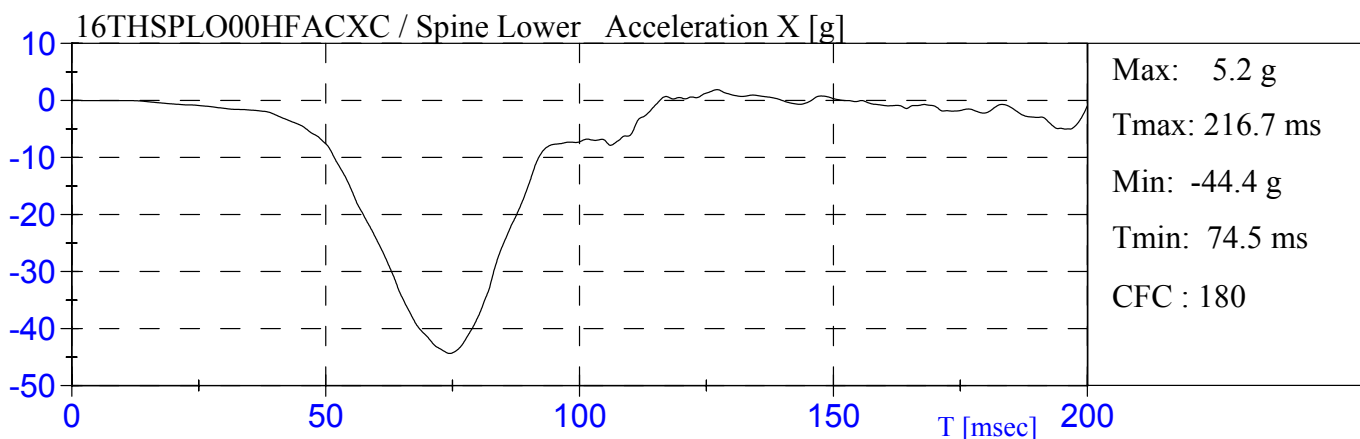
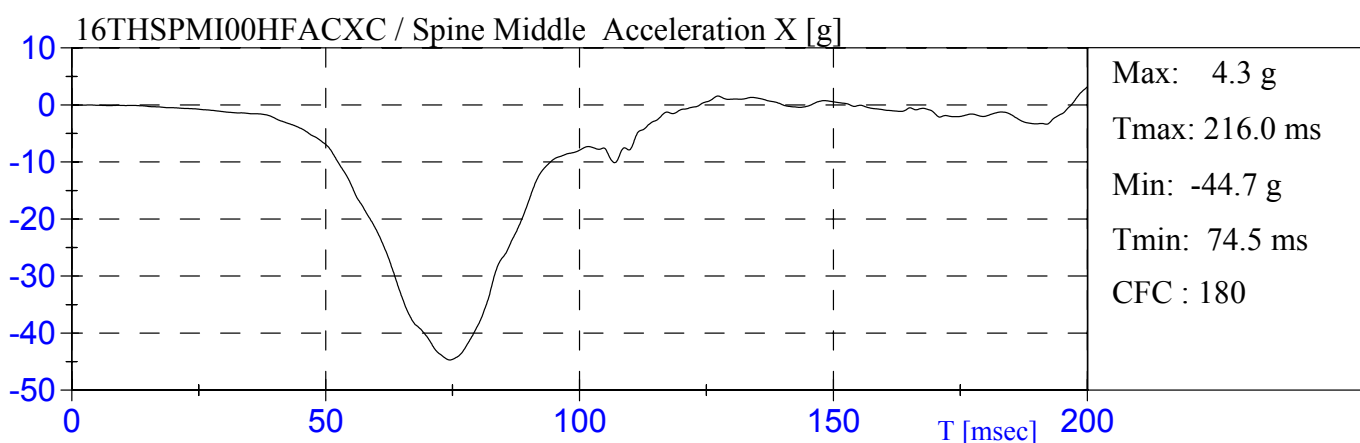
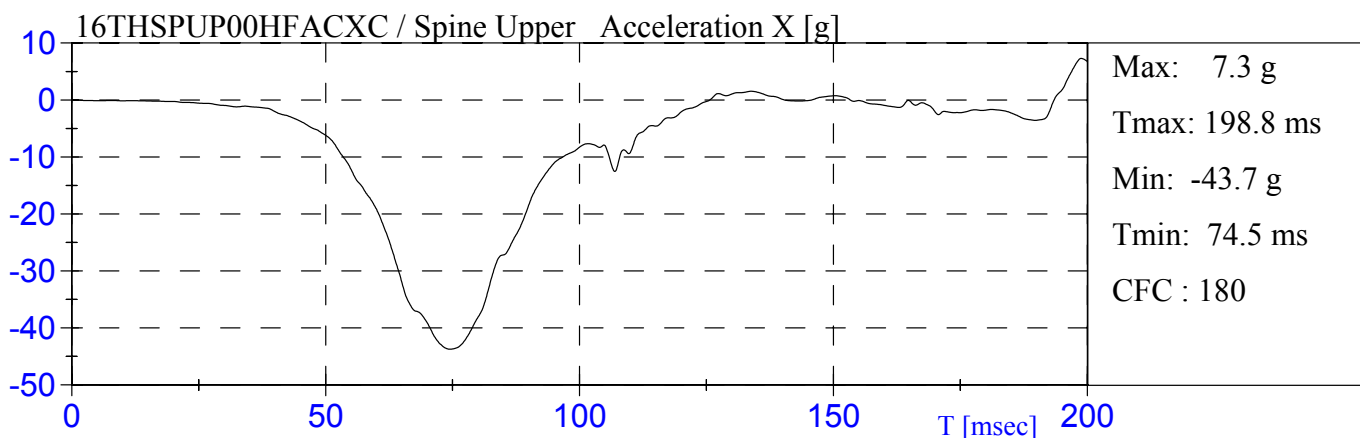


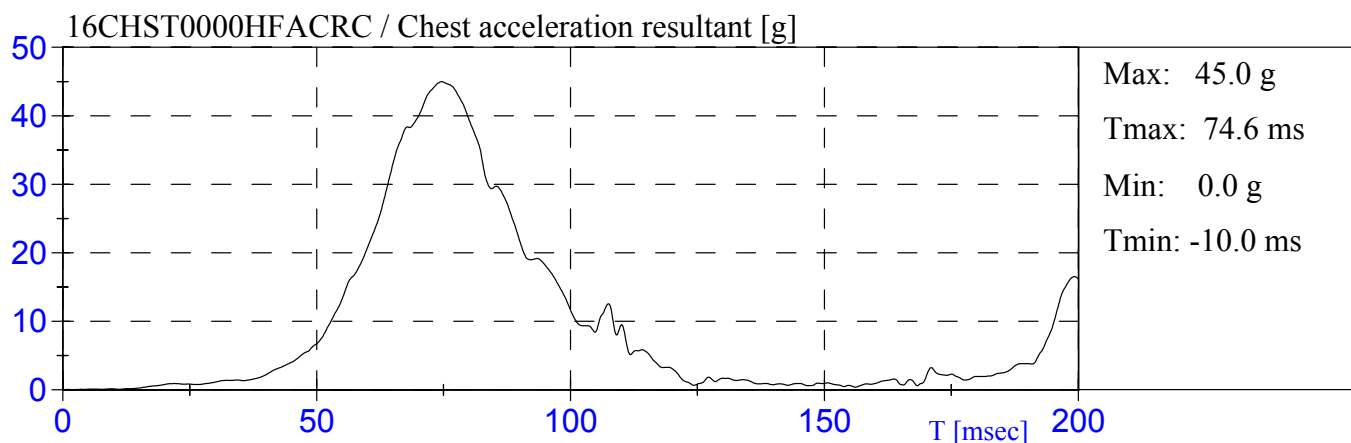
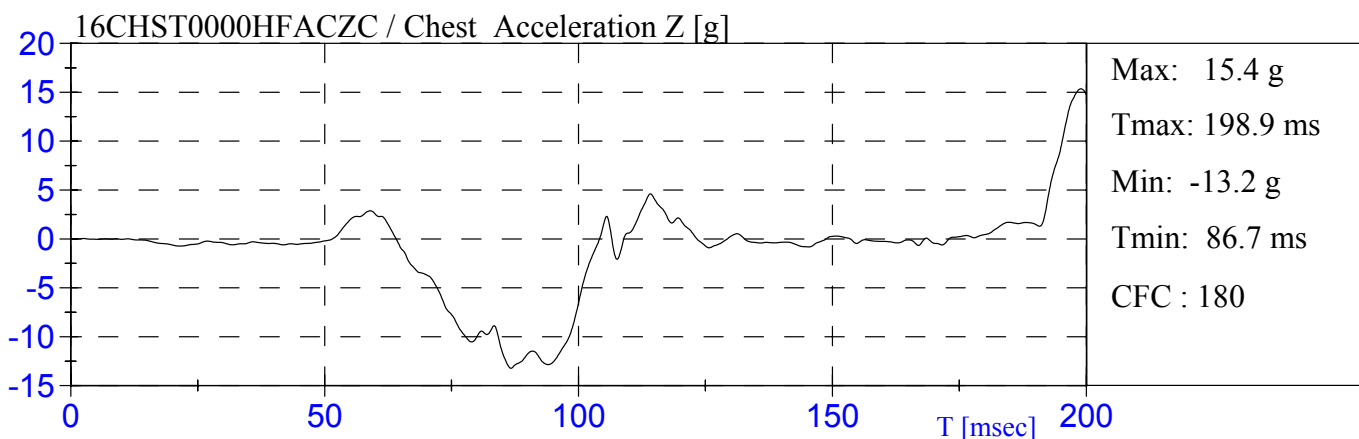
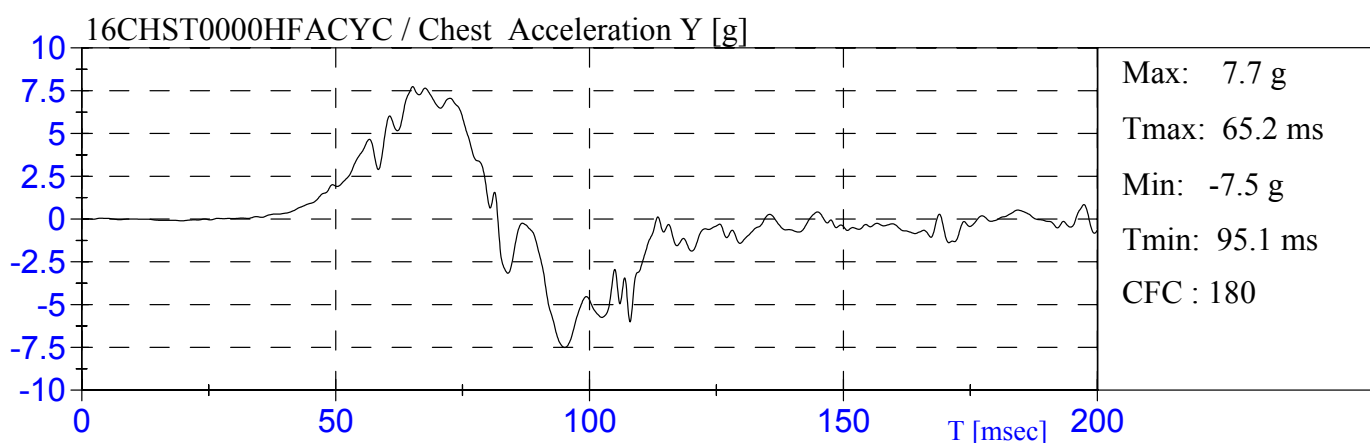
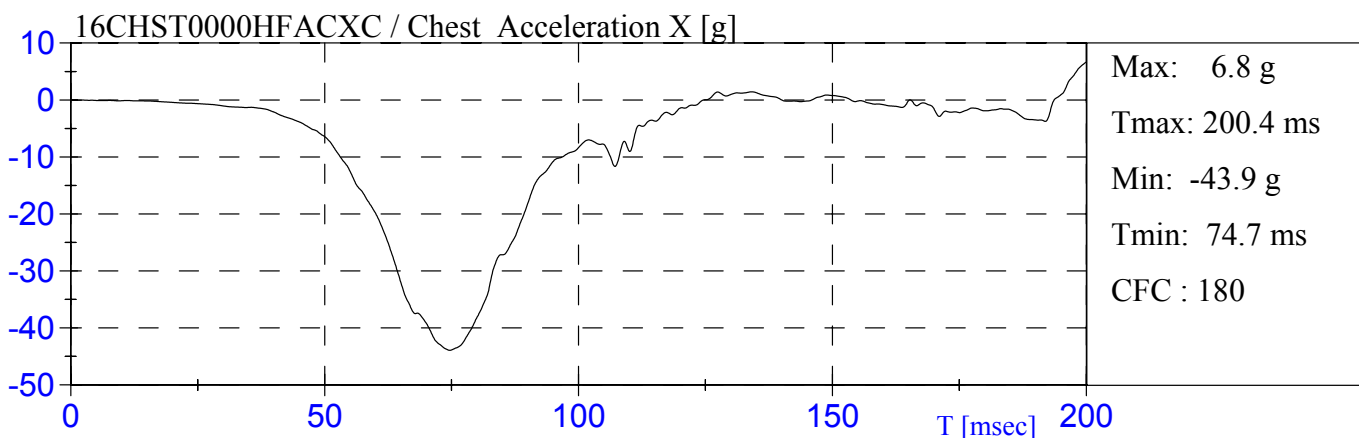


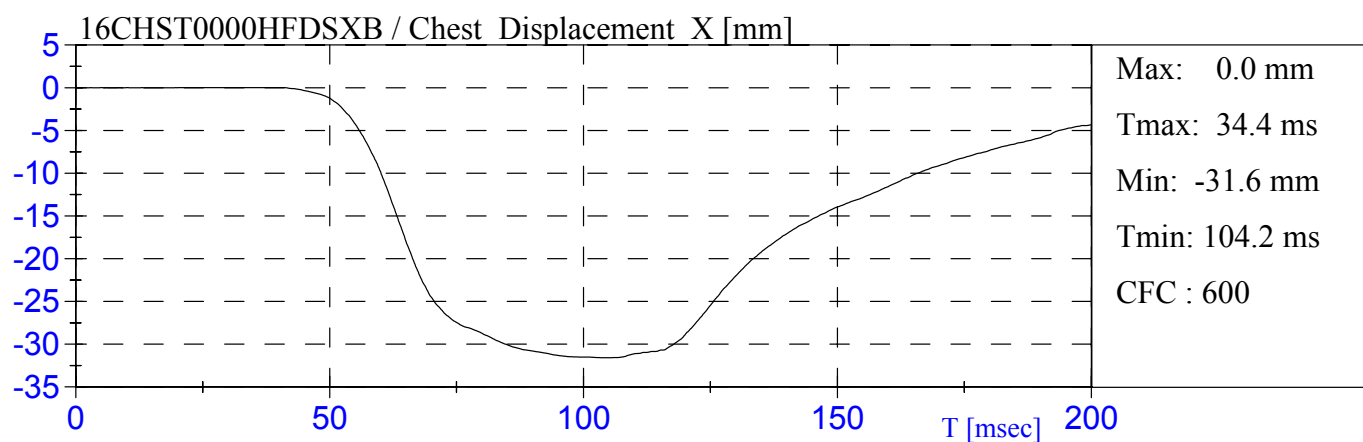


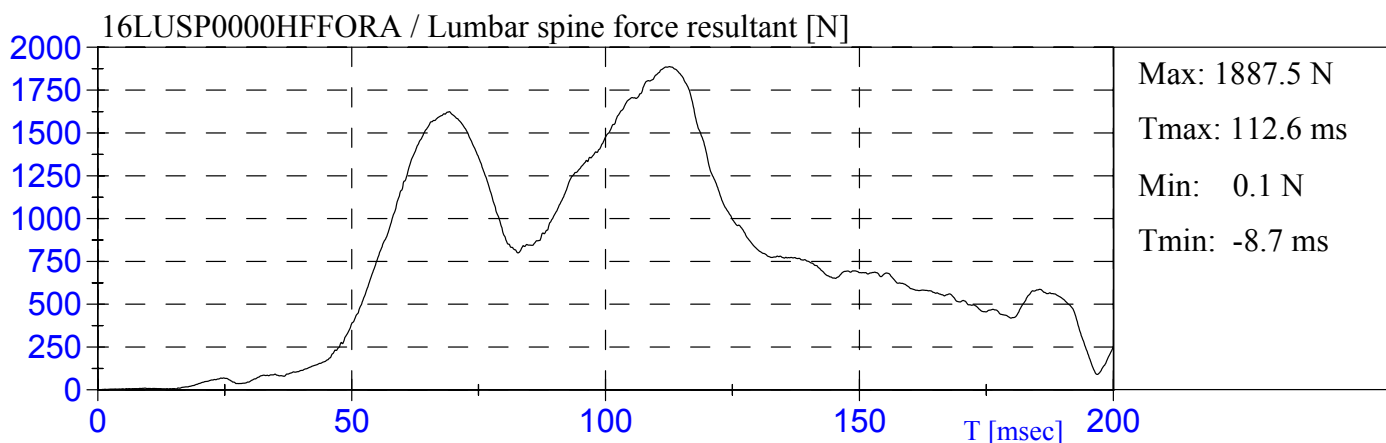
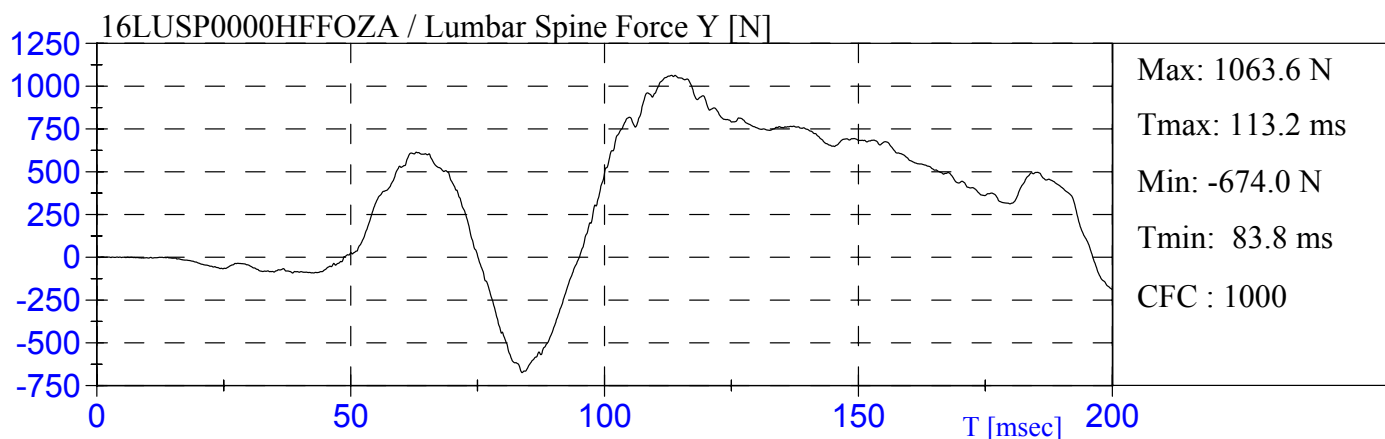
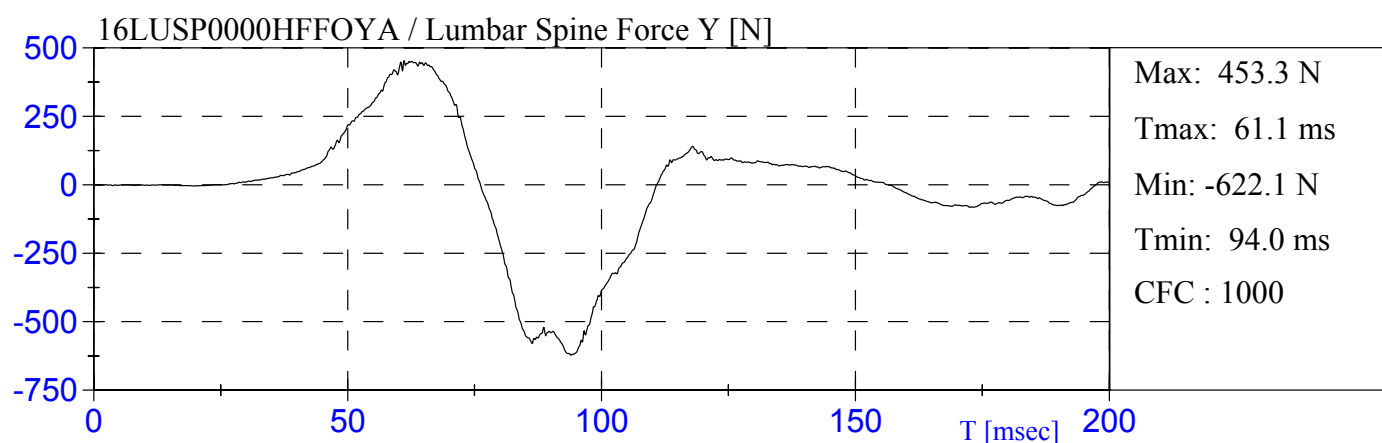
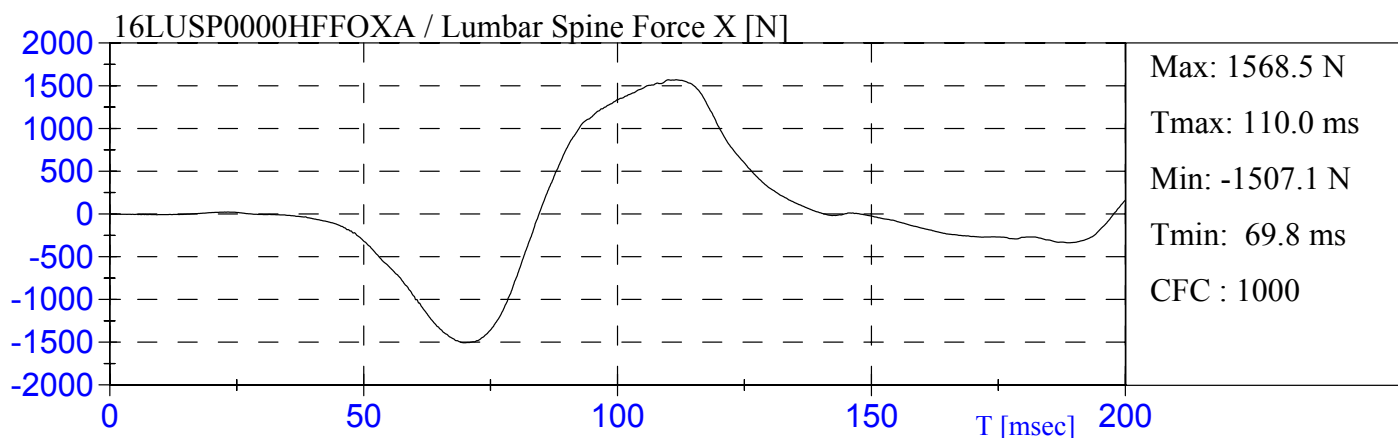


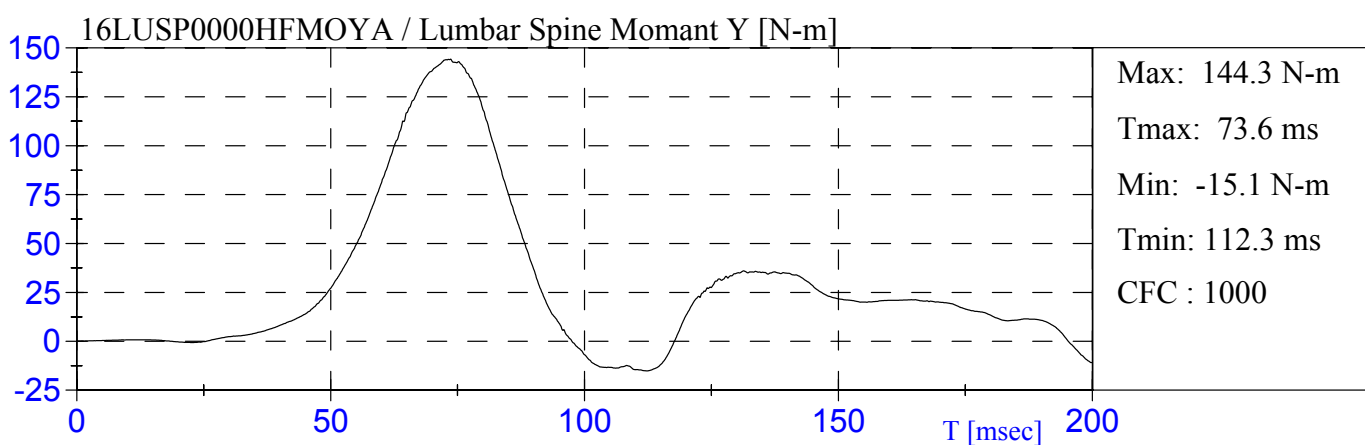
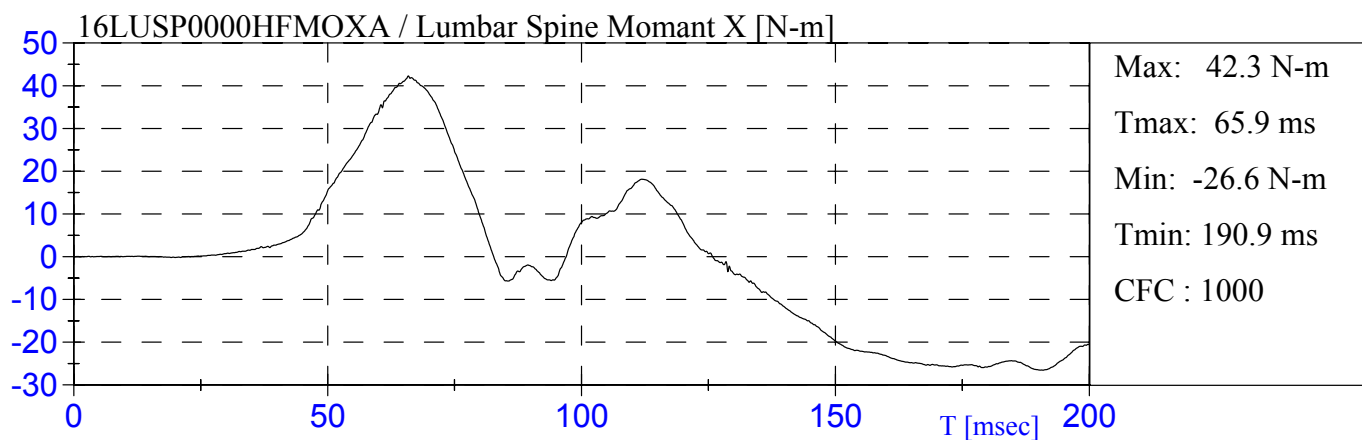


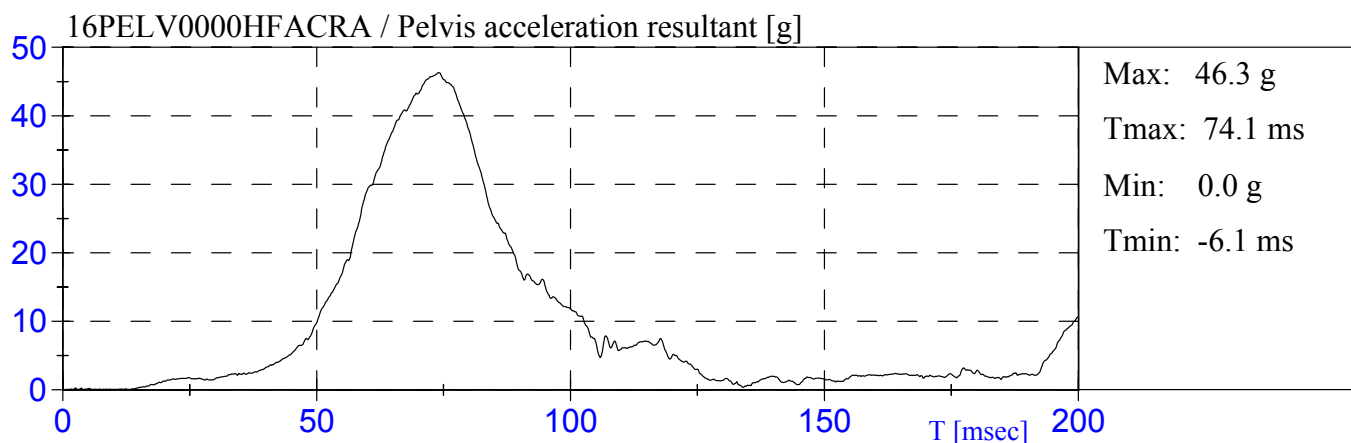
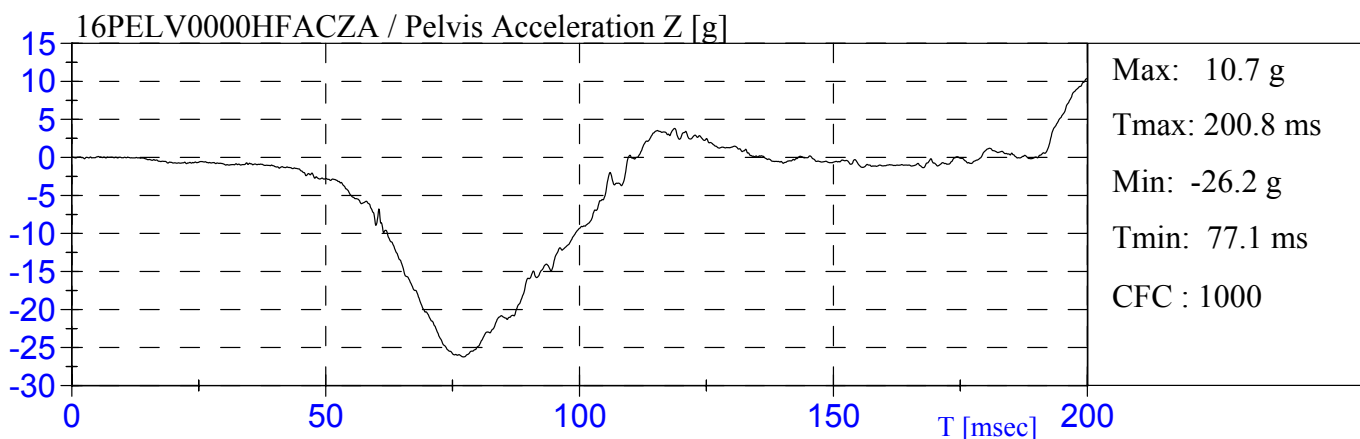
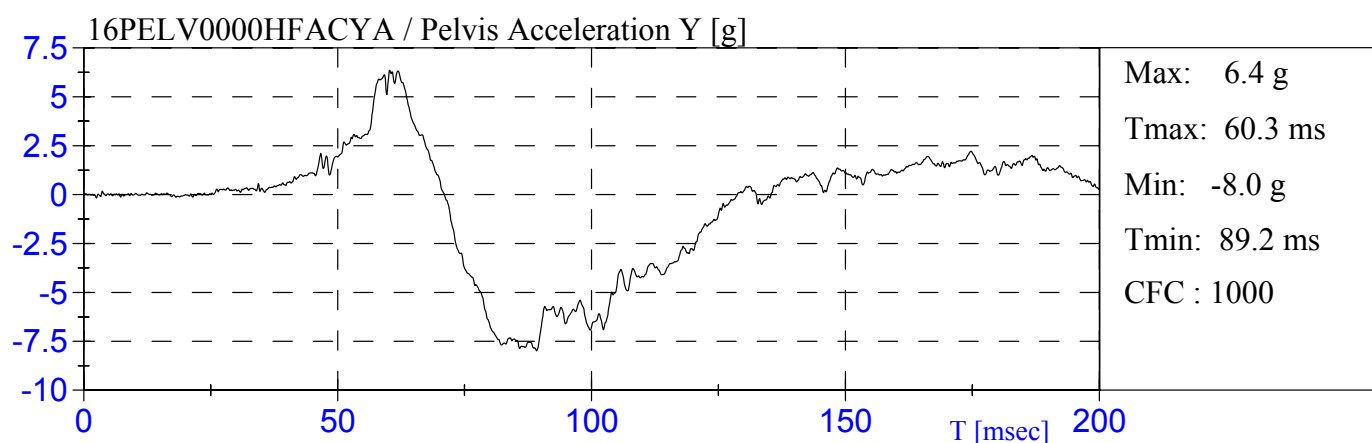
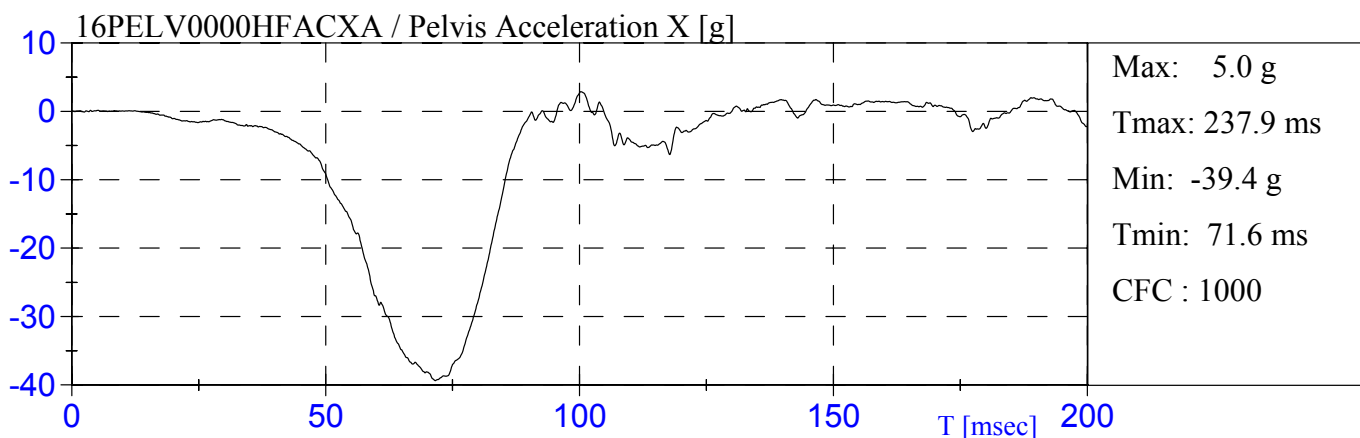


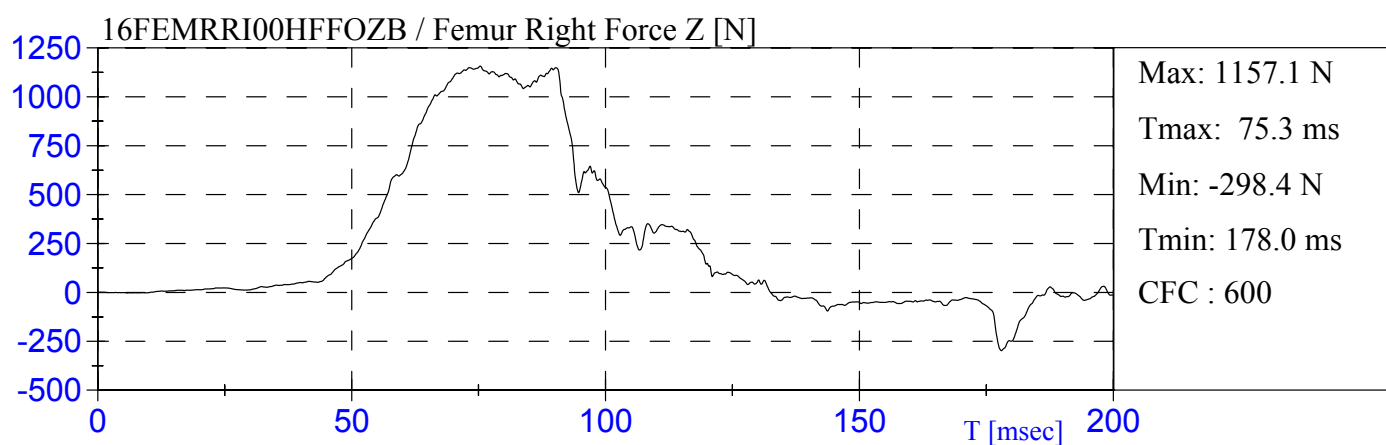
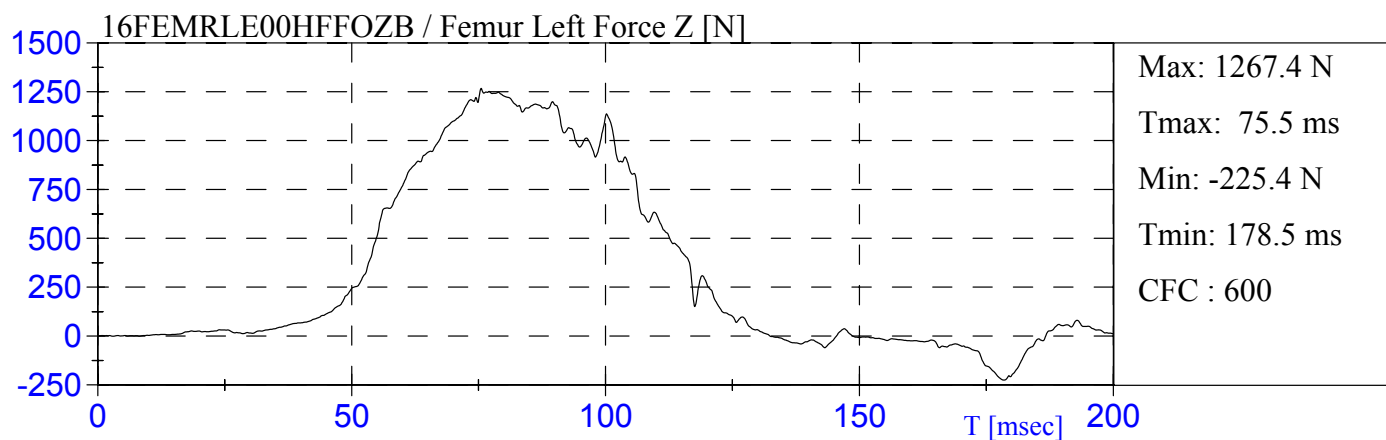


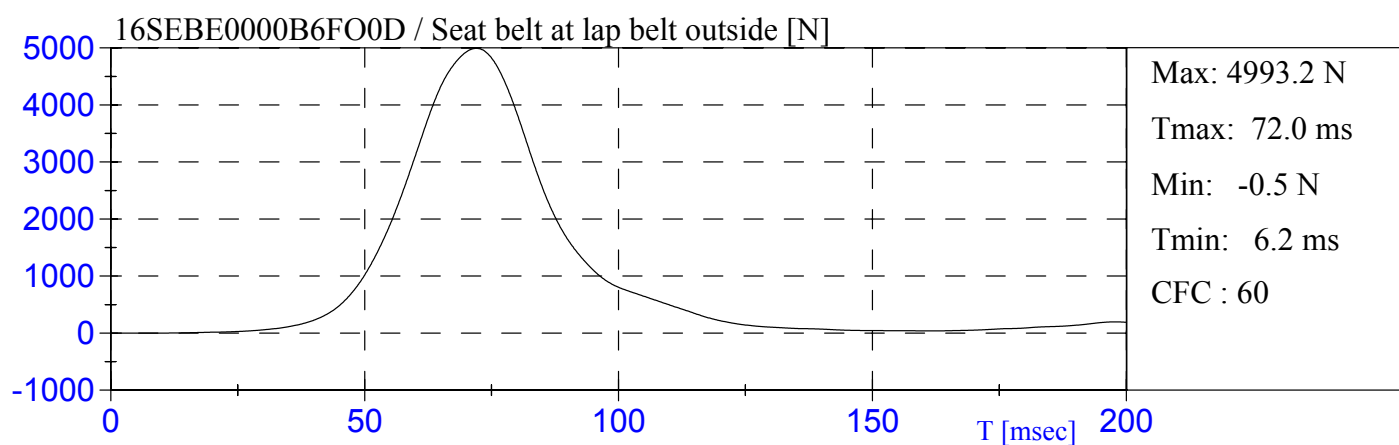
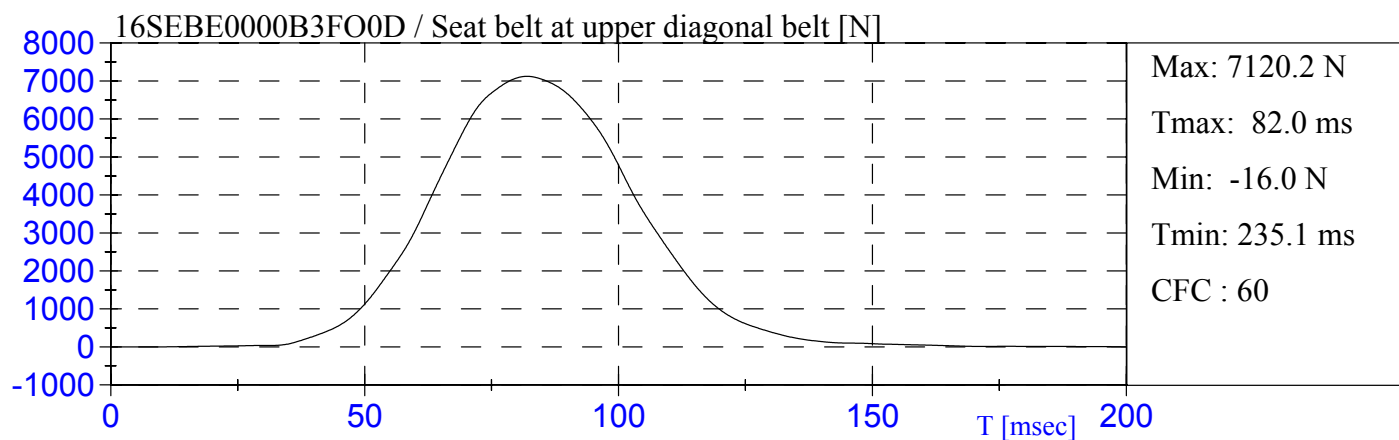


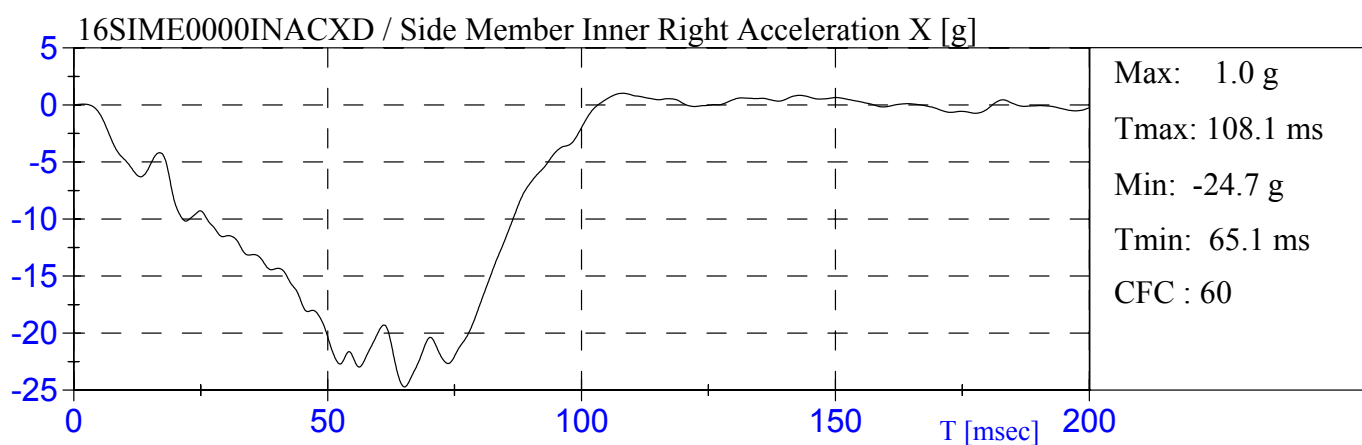
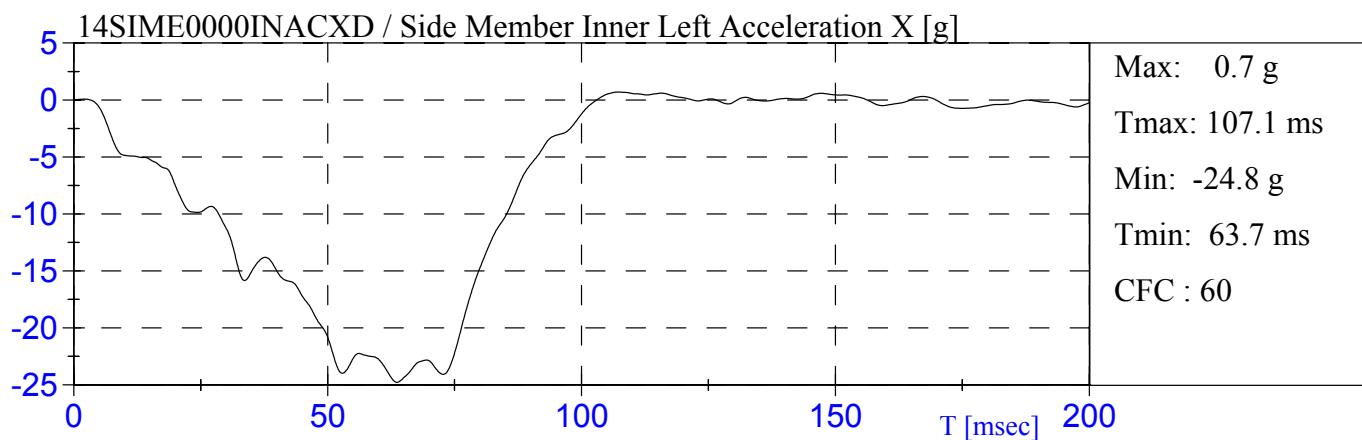


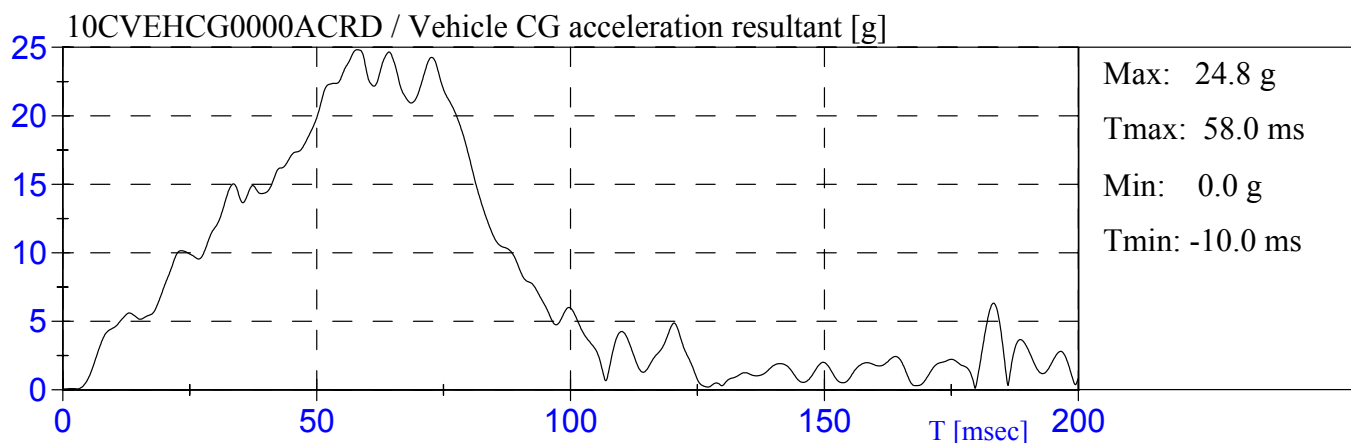
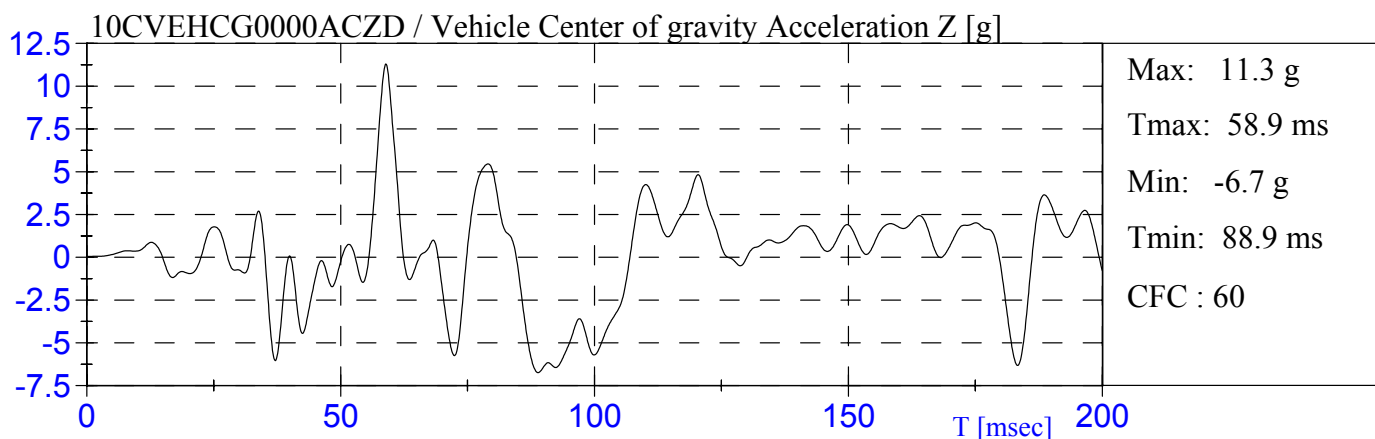
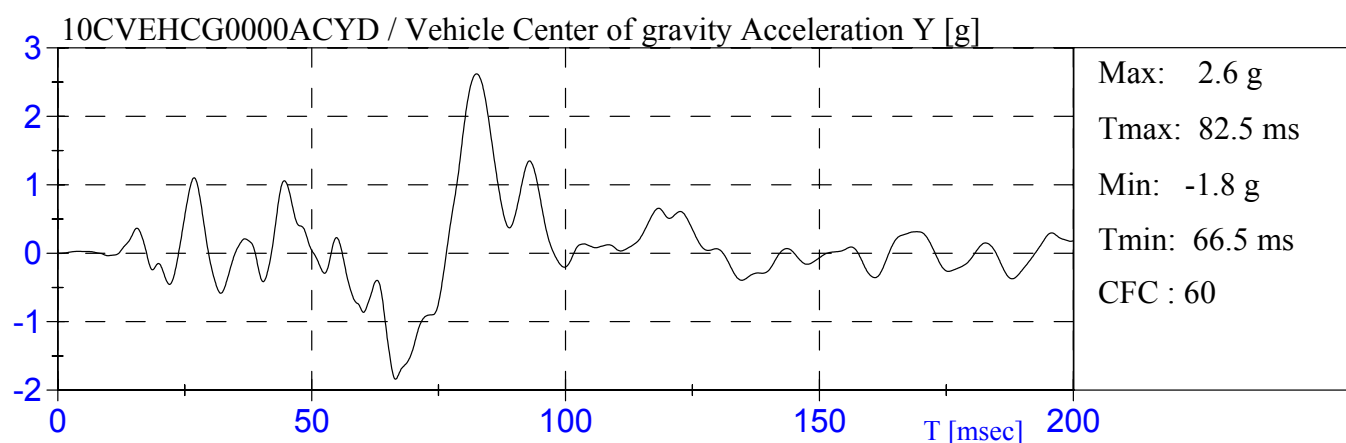
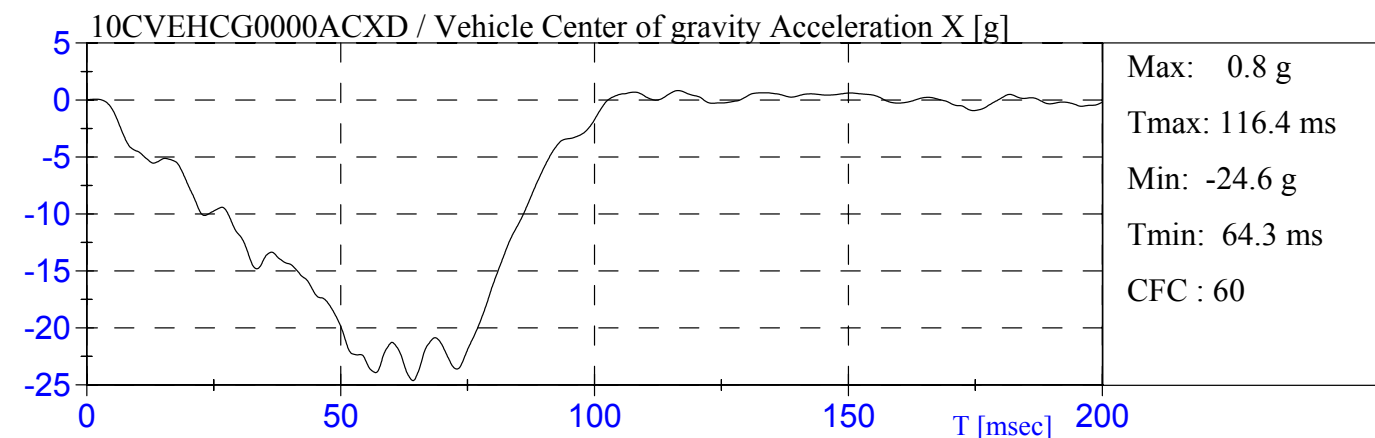


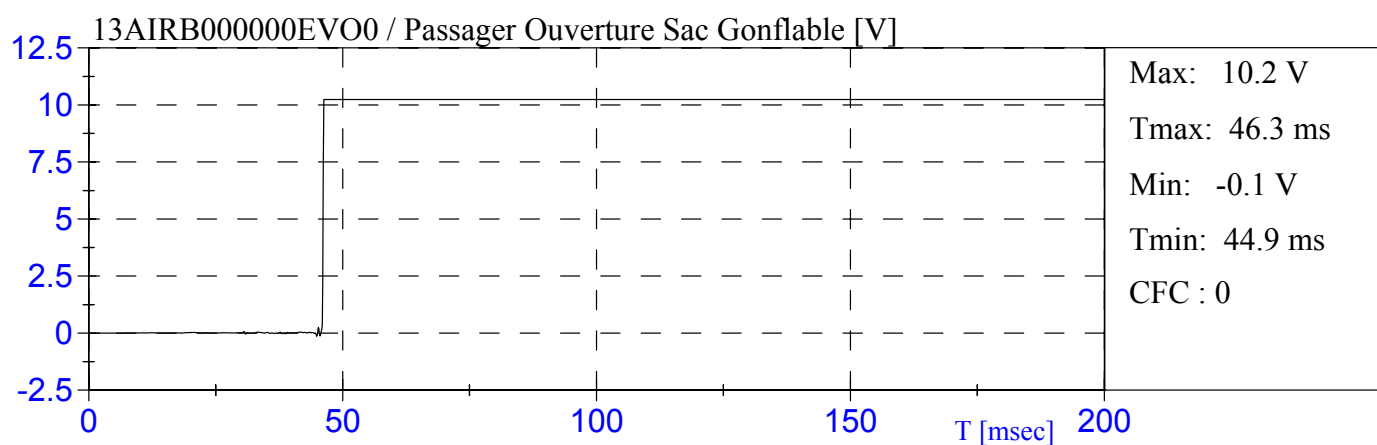
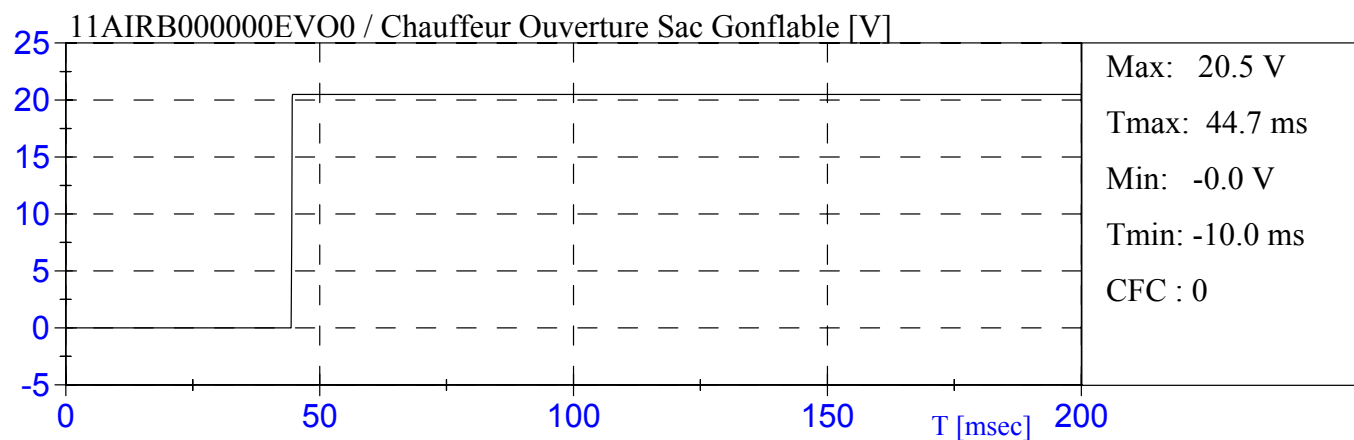


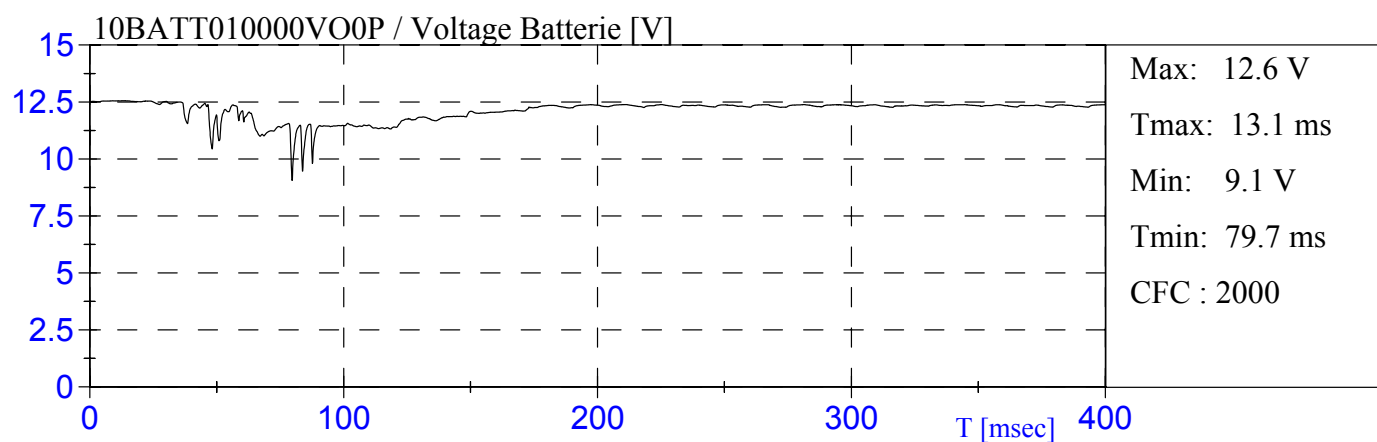


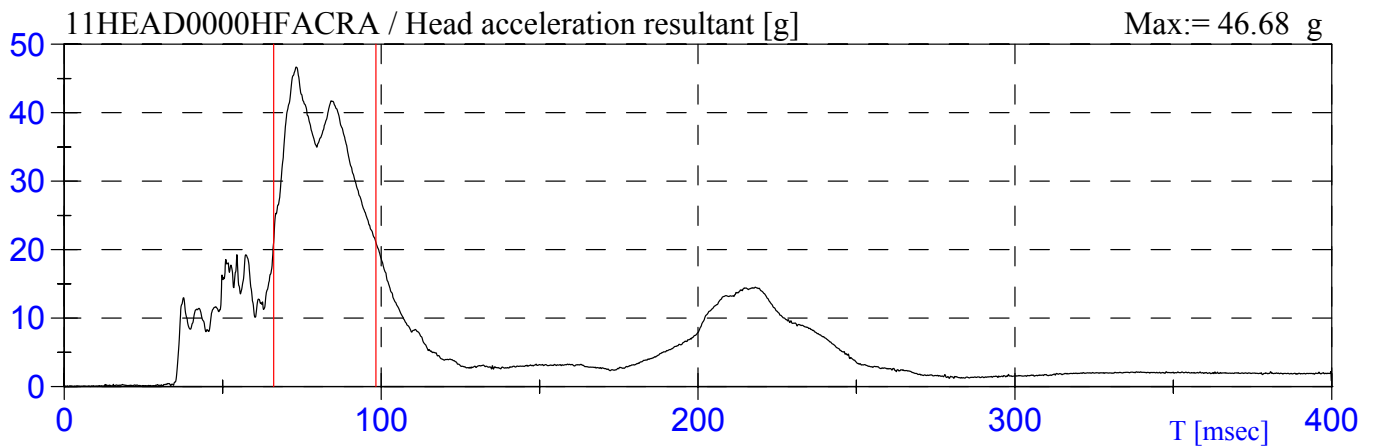










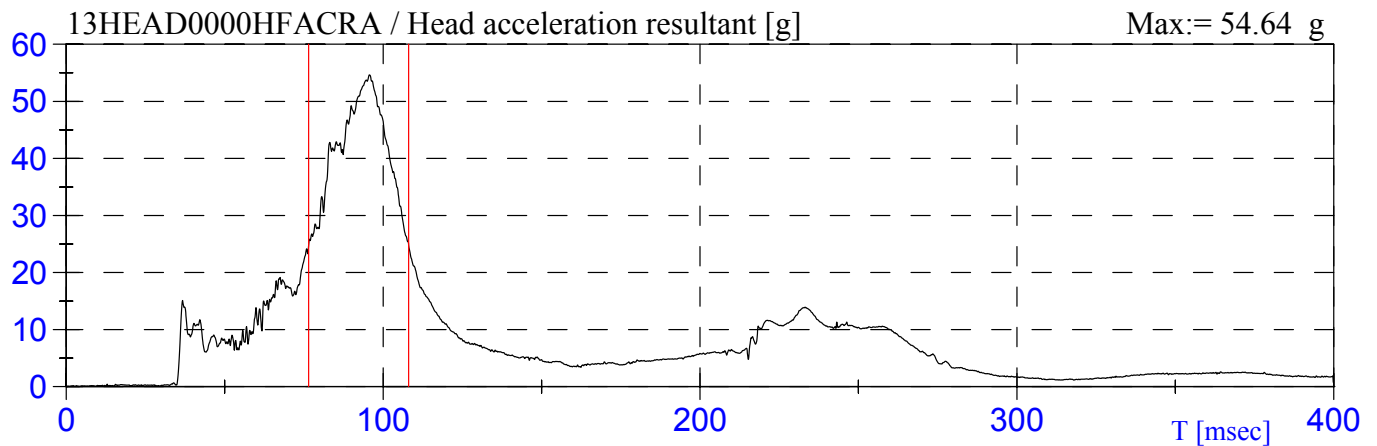


HEAD INJURY CRITERIA (HIC) *

CRITÈRE DE BLESSURE DE LA TÊTE

HIC:= 236	HIC(36ms):= 236	HIC(15ms):= 156
T1:= 66.1 ms	T1:= 66.1 ms	T1:= 70.7 ms
T2:= 98.4 ms	T2:= 98.4 ms	T2:= 85.7 ms

* Selon / According To: SAE J1727 96-08

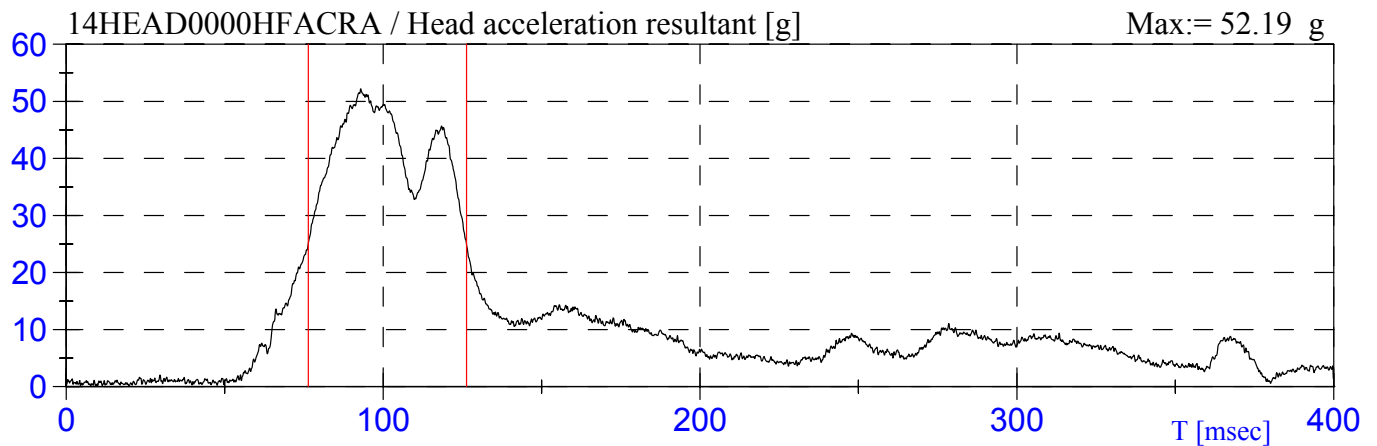


HEAD INJURY CRITERIA (HIC) *

CRITÈRE DE BLESSURE DE LA TÊTE

HIC:= 341	HIC(36ms):= 341	HIC(15ms):= 250
T1:= 76.5 ms	T1:= 76.5 ms	T1:= 86.3 ms
T2:= 108.1 ms	T2:= 108.1 ms	T2:= 101.3 ms

* Selon / According To: SAE J1727 96-08

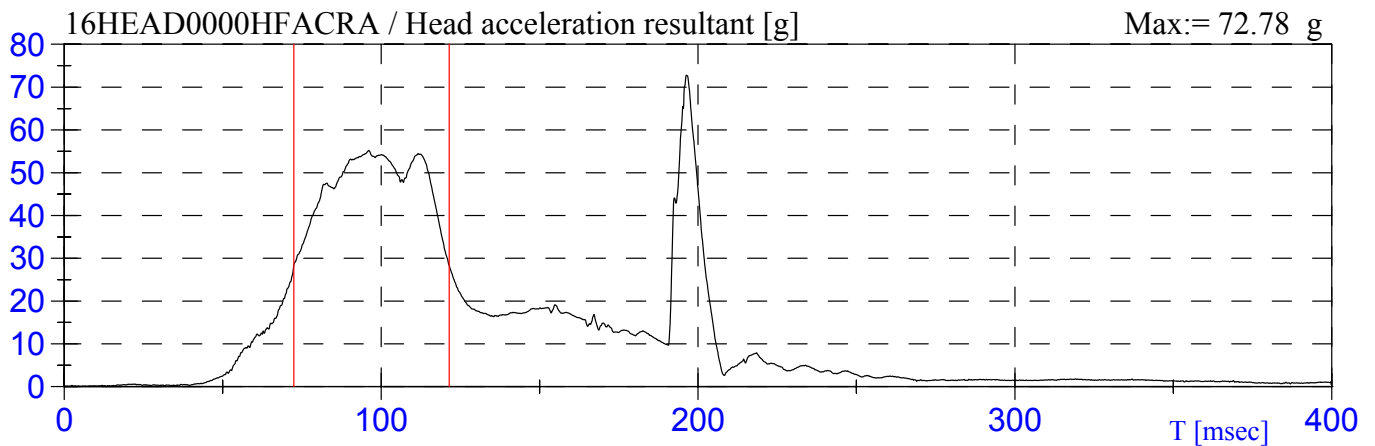


HEAD INJURY CRITERIA (HIC) *

CRITÈRE DE BLESSURE DE LA TÊTE

HIC:= 556	HIC(36ms):= 473	HIC(15ms):= 256
T1:= 76.4 ms	T1:= 84.8 ms	T1:= 88.0 ms
T2:= 126.3 ms	T2:= 120.8 ms	T2:= 103.0 ms

* Selon / According To: SAE J1727 96-08



HEAD INJURY CRITERIA (HIC) *

CRITÈRE DE BLESSURE DE LA TÊTE

HIC:= 748	HIC(36ms):= 676	HIC(15ms):= 315
T1:= 72.5 ms	T1:= 80.7 ms	T1:= 88.9 ms
T2:= 121.5 ms	T2:= 116.7 ms	T2:= 103.9 ms

* Selon / According To: SAE J1727 96-08

Neck Injury Criteria: 11NIJCIP000000YX

$N_{ij}^* = 0.87$

Valeurs critiques
Criticals Values

N _{tf}	N _{te}	N _{cf}	N _{ce}	Tc	4287
				Cc	3880
0.08	0.87	0.08	0.27	Fc	155
				Ec	67

* Selon / According To: Federal Register 5/2000

Neck Injury Criteria: 13NIJCIP000000YX

$N_{ij}^* = 0.29$

Valeurs critiques
Criticals Values

N _{tf}	N _{te}	N _{cf}	N _{ce}	Tc	4287
				Cc	3880
0.17	0.28	0.15	0.29	Fc	155
				Ec	67

* Selon / According To: Federal Register 5/2000

Neck Injury Criteria: 14NIJCIP000000YX

$N_{ij}^* = 0.79$

Valeurs critiques
Criticals Values

N _{tf}	N _{te}	N _{cf}	N _{ce}	Tc	4287
				Cc	3880
0.78	0.79	0.01	0.16	Fc	155
				Ec	67

* Selon / According To: Federal Register 5/2000

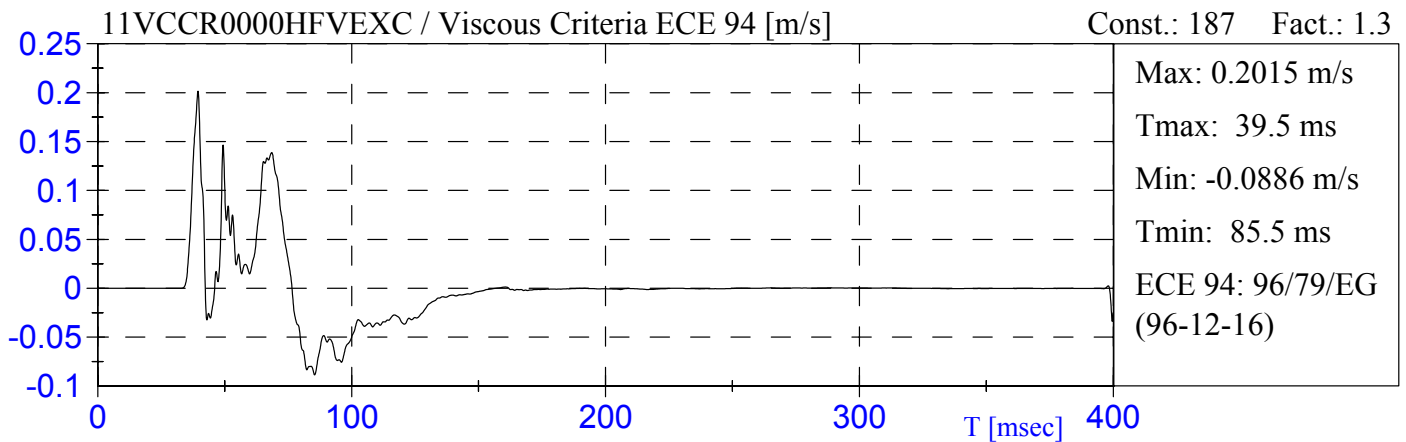
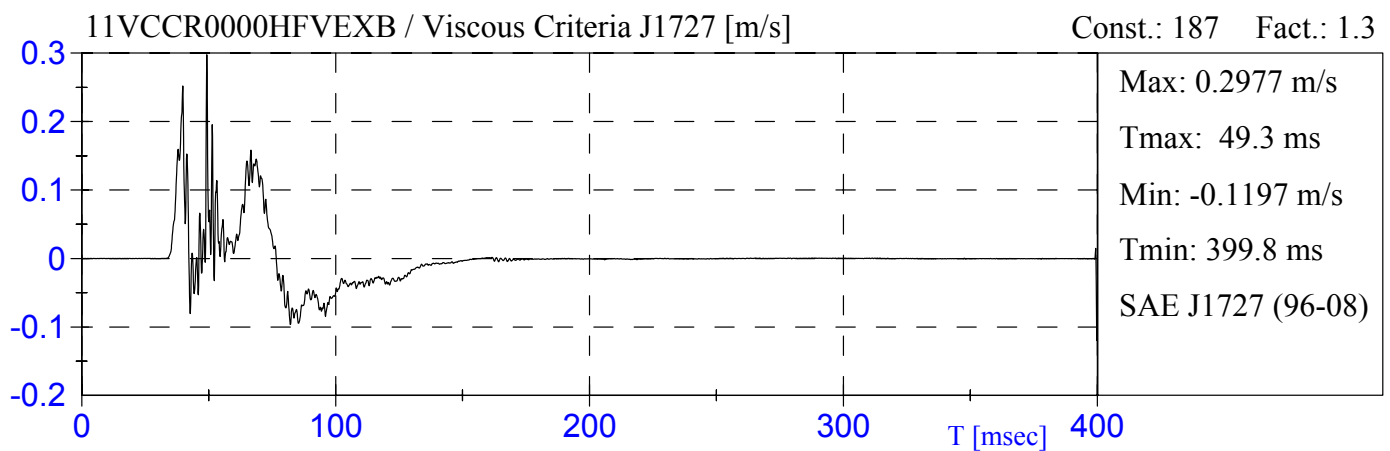
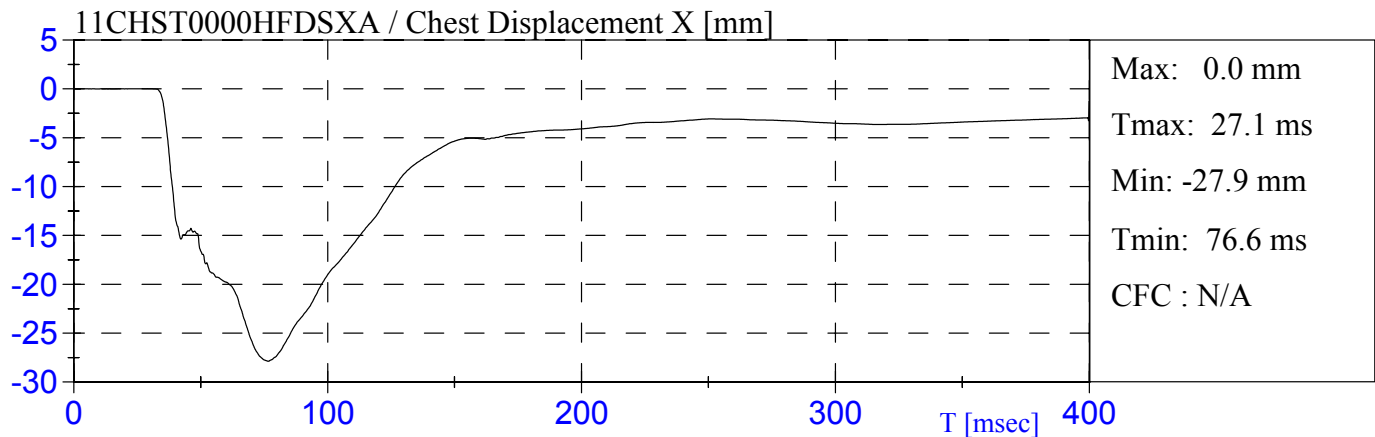
Neck Injury Criteria: 16NIJCIP000000YX

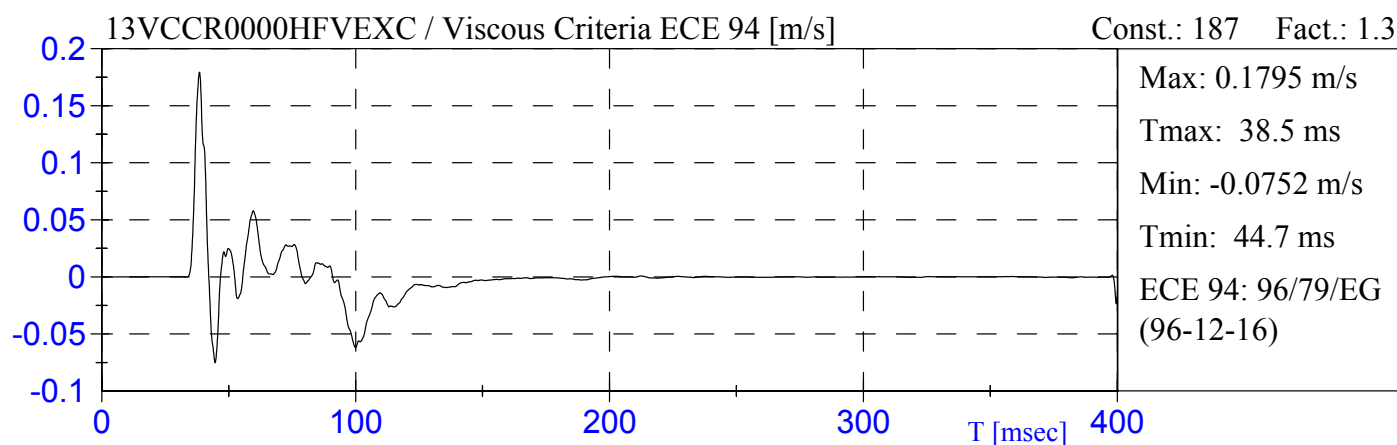
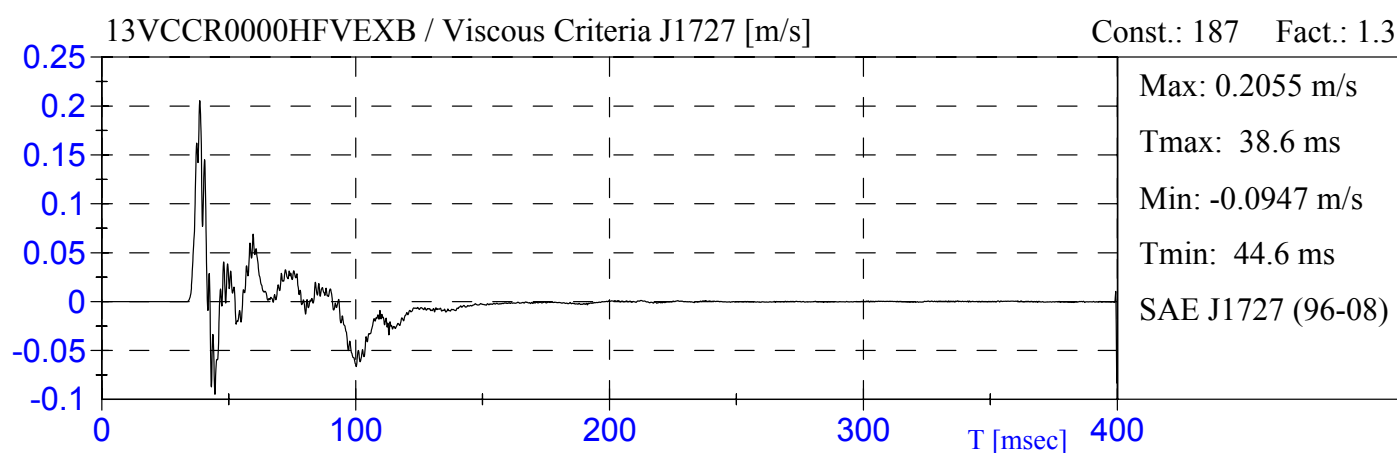
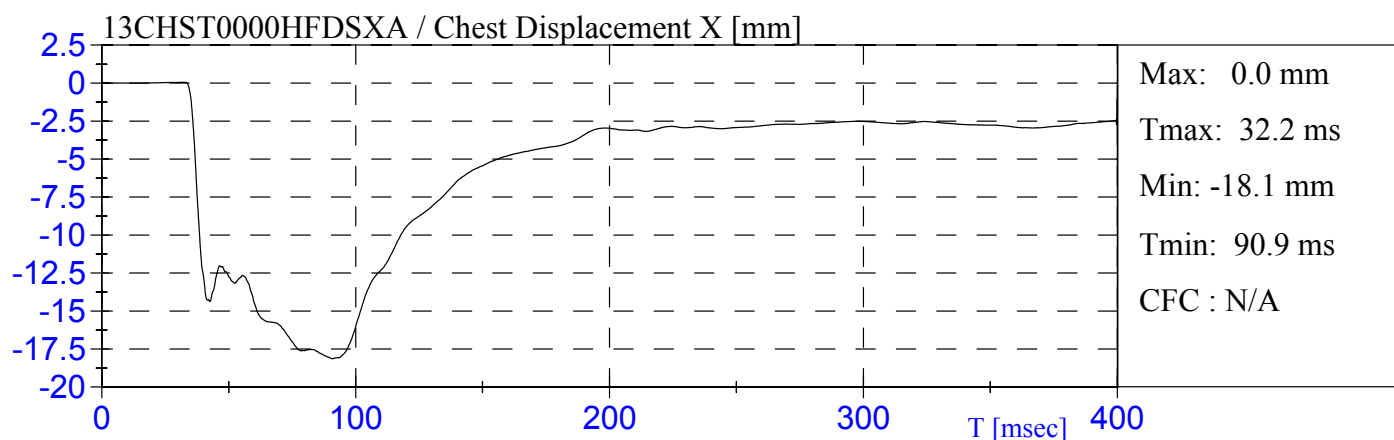
$N_{ij}^* = 0.76$

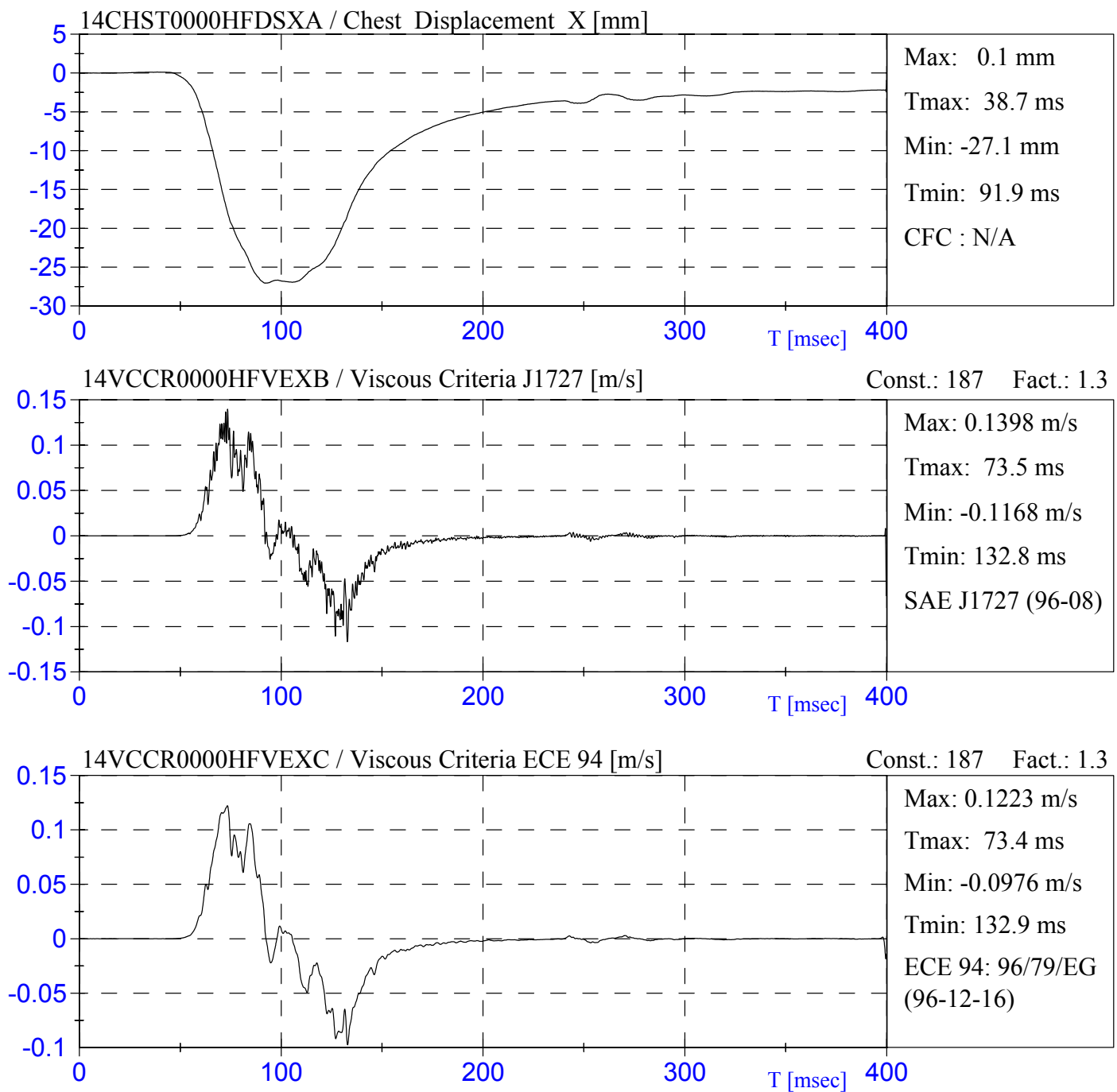
Valeurs critiques
Criticals Values

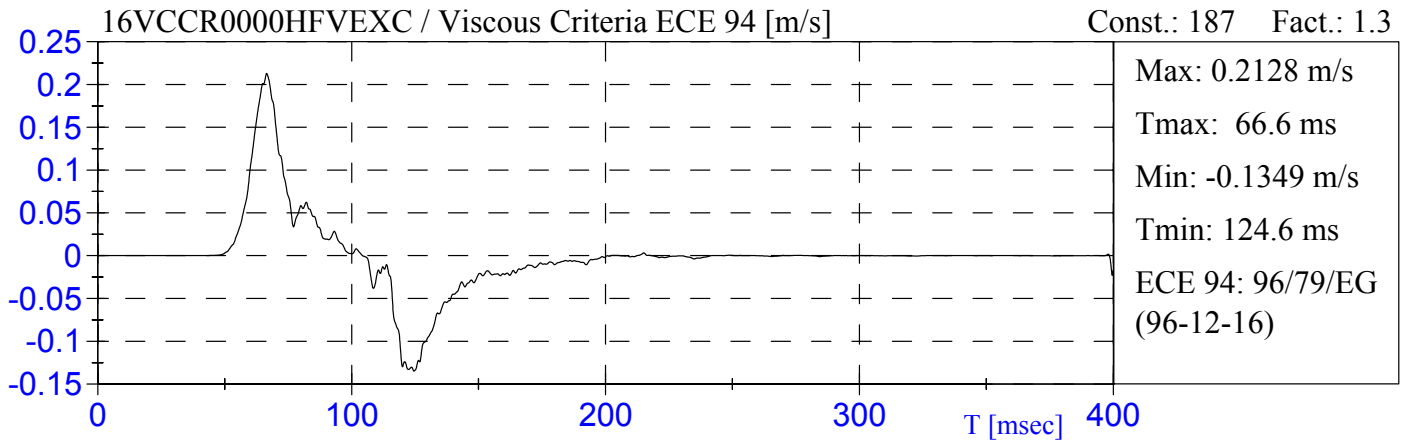
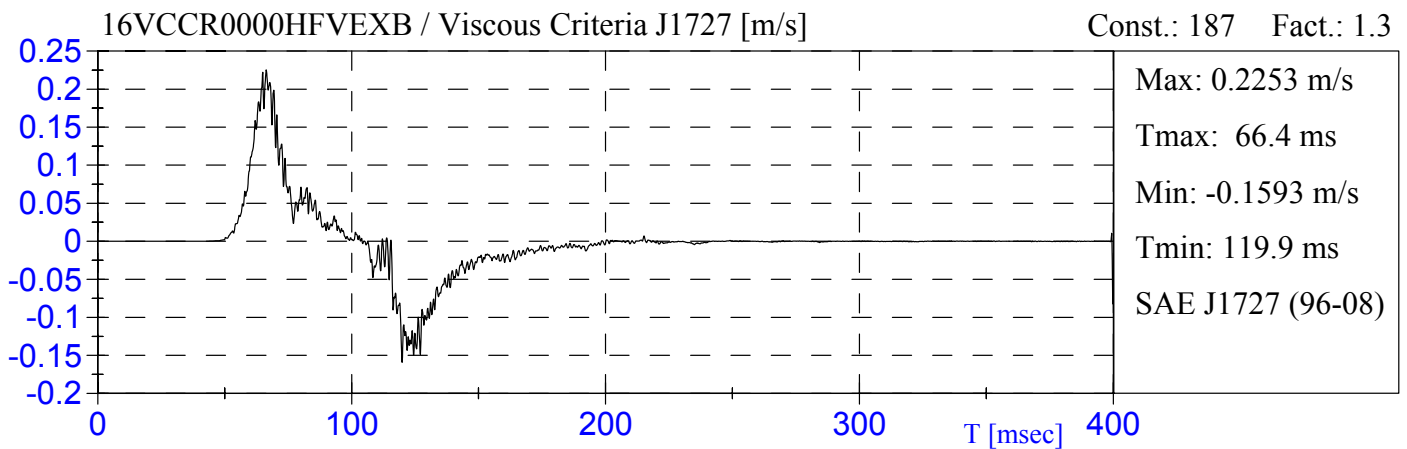
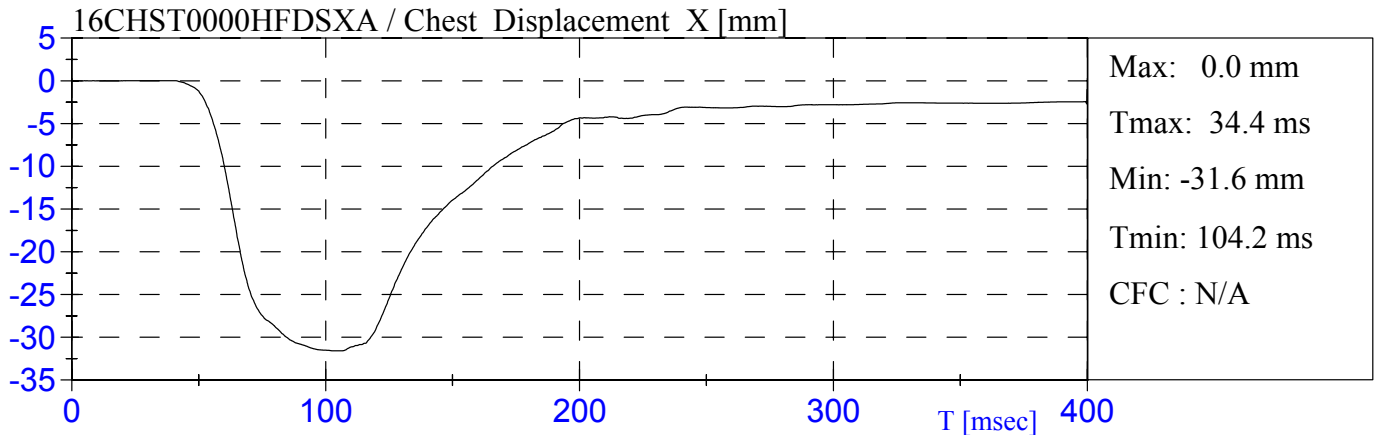
N _{tf}	N _{te}	N _{cf}	N _{ce}	Tc	4287
				Cc	3880
0.76	0.63	0.63	0.74	Fc	155
				Ec	67

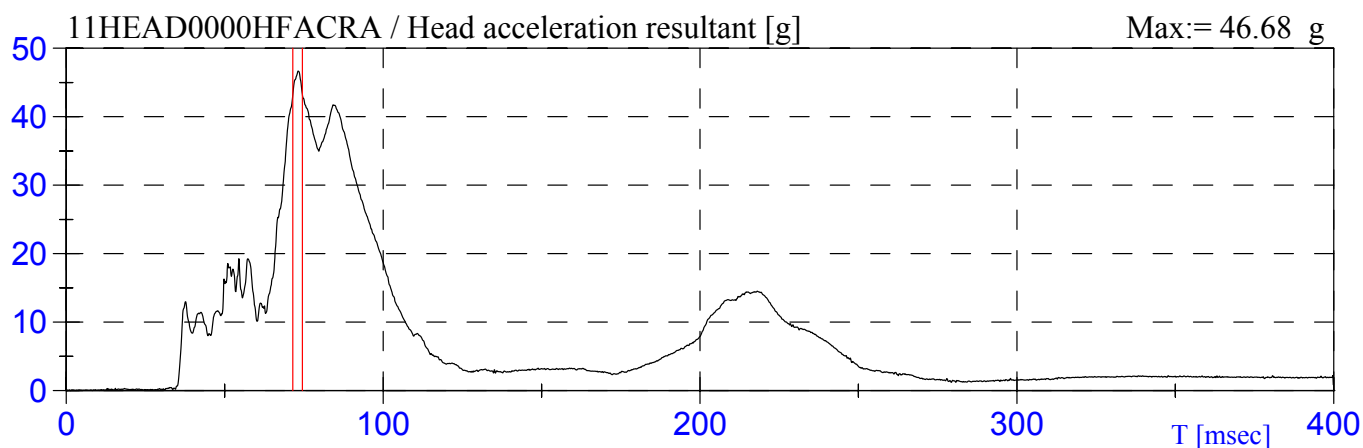
* Selon / According To: Federal Register 5/2000





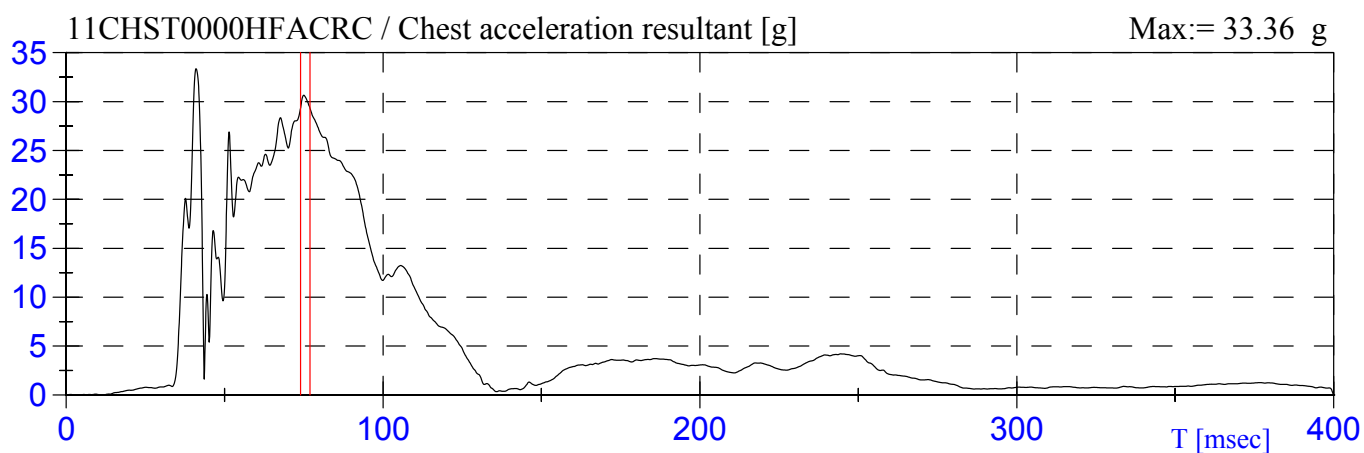






CLIP 3ms *

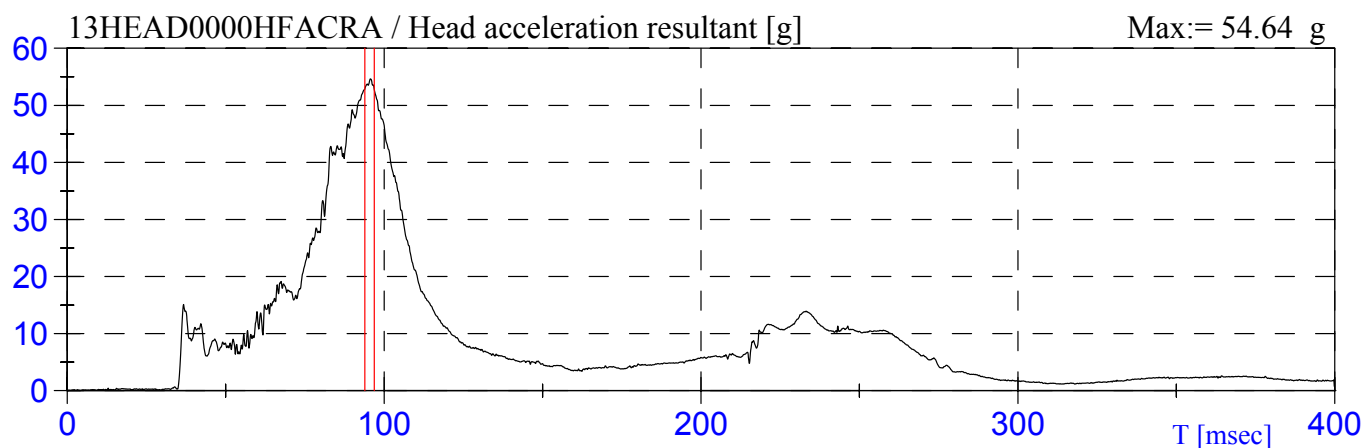
Acc. := 43.24 g	T1:= 71.5 ms	T2:= 74.5 ms
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CLIP 3ms *

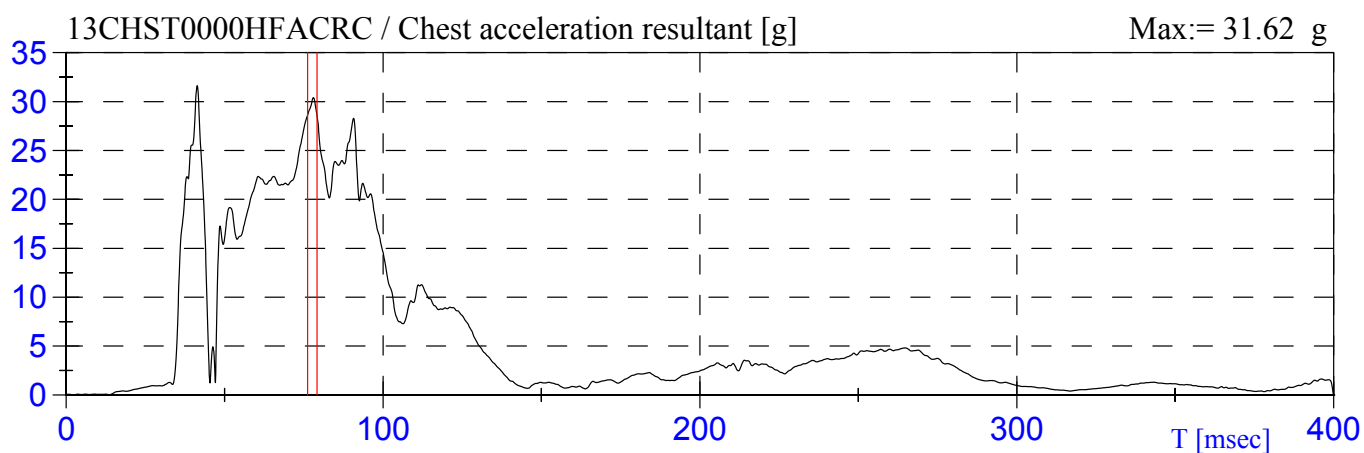
Acc. := 29.31 g	T1:= 74.0 ms	T2:= 77.0 ms
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* Selon / According To: NHTSA CLIP VERSION 2.1 5/95



CLIP 3ms *

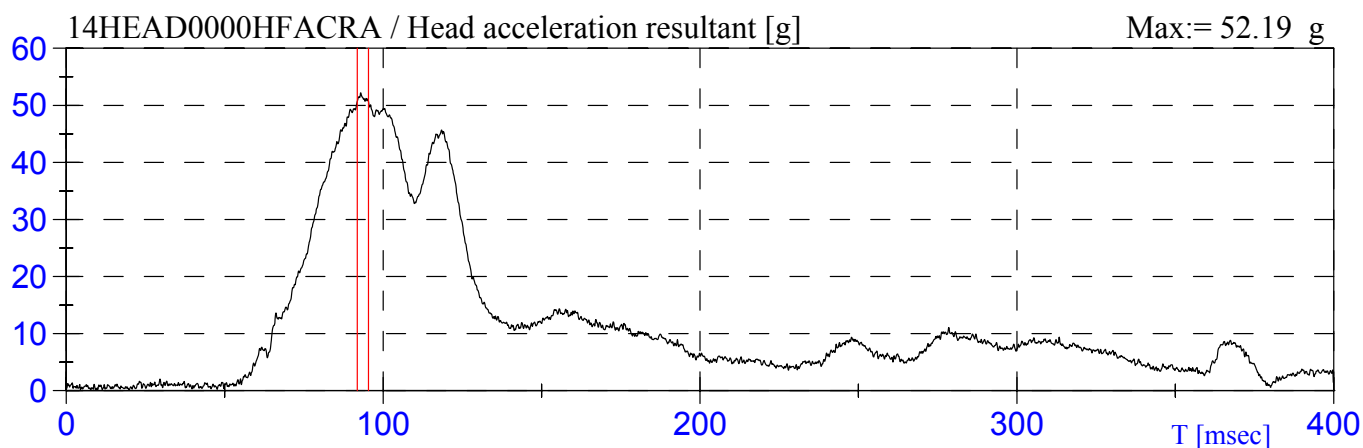
Acc. := 52.83 g	T1:= 93.9 ms	T2:= 96.9 ms
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CLIP 3ms *

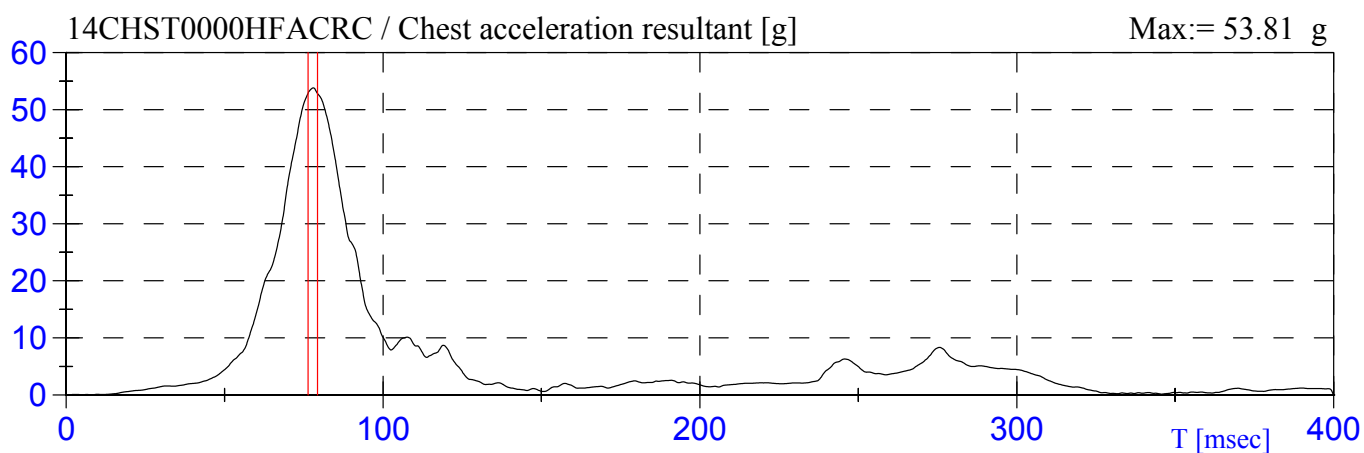
Acc. := 28.60 g	T1:= 76.2 ms	T2:= 79.2 ms
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* Selon / According To: NHTSA CLIP VERSION 2.1 5/95



CLIP 3ms *

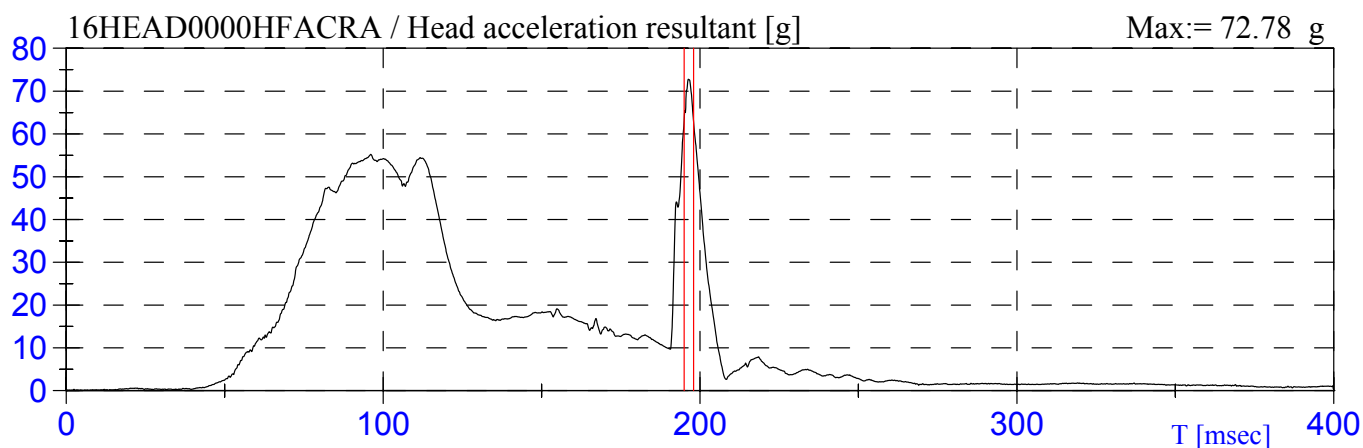
Acc. := 50.73 g	T1:= 91.9 ms	T2:= 95.4 ms
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CLIP 3ms *

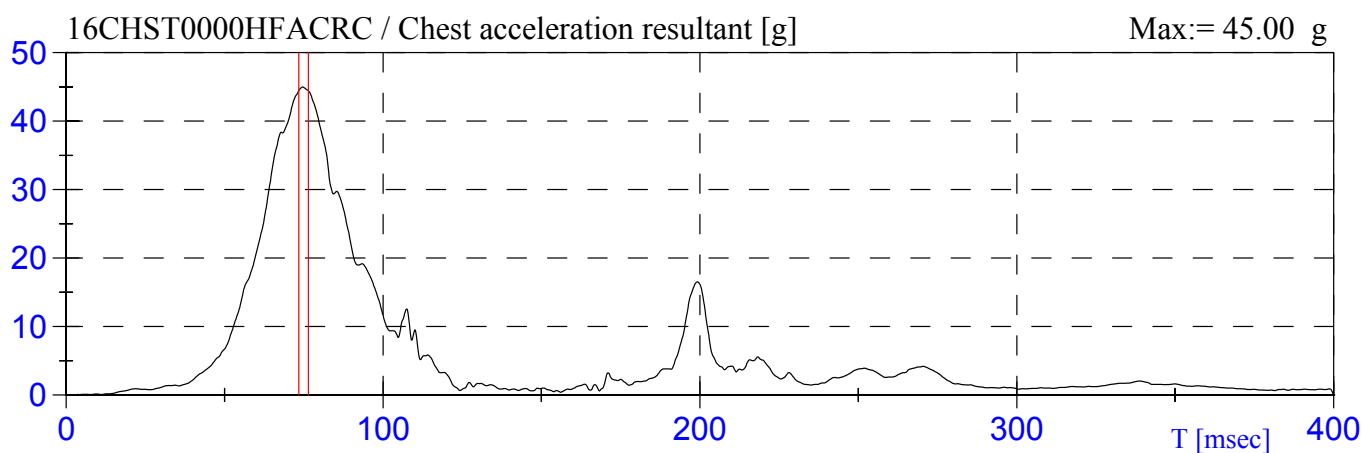
Acc. := 52.84 g	T1:= 76.3 ms	T2:= 79.3 ms
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* Selon / According To: NHTSA CLIP VERSION 2.1 5/95



CLIP 3ms *

Acc. := 62.94 g	T1:= 195.0 ms	T2:= 198.0 ms
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CLIP 3ms *

Acc. := 44.45 g	T1:= 73.4 ms	T2:= 76.4 ms
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* Selon / According To: NHTSA CLIP VERSION 2.1 5/95

APPENDICE /APPENDIX C

**DONNÉES DES TEMPÉRATURES
TEMPERATURE DATA**

Temperature TC05-248

