

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

VÉHICULE D'ESSAI / TEST VEHICLE SUZUKI GRAND VITARA 2005 TC # 05-245

**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°: **RR06-147**

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

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

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

Date de collision Crash date	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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VÉHICULE D'ESSAI - TEST VEHICLE

Fabricant - Manufacturer SUZUKI MOTOR CORPORATION JAPAN	Type de carrosserie - Body Style Hayon 5P / 5D Hatchback	Marque, modèle, Année - Make, model, Year SUZUKI GRAND VITARA 2005
Classe de véhicule - Class of vehicle MPV / VTUM	Boîte de vitesse - Transmission Type Automatique 4R / Automatic 4W	Moteur - Engine V6 en ligne avant / V6 inline front
Date de fabrication - Date of Manufacture 09/04	Cylindres - Cylinders 2.5 Lit.	N° d'ident. du véhicule - Vehicle Ident. No. JS3TD62V754200419
Lecture de l'odomètre - Odometer Reading 213 km	Nombre de places assises désignées Number of Designated Seating Positions 5	Numéro d'ident. PMG - PMG Ident. Number UN6-214
PNBV - GVWR 1870 kg	PNBE (Avant) - GAWR (Front) 900 kg	PNBE (Arrière) - GAWR (Rear) 1060 kg

CONFIGURATION D'ESSAI - TEST CONFIGURATION

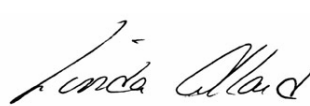
Type d'essai - Test type Véh. vs barrière avec Face Déformable TRL Veh. vs barrier with TRL Deformable Face	Vitesse d'impact- Impact velocity		Angle d'impact Impact angle	Masse du véhicule d'essai Test vehicle mass
	Prévu / Intended : 56.0 km/h	Obtenu / Obtained : 56.6 km/h	0 °	1773.6 kg
Description et position du mannequin (conducteur) Dummy description and position (driver) Description Hybrid III (5 %)	Position ** 0 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 29.0ms	Déployé / Deployed 27.9ms	N/A 0.0	N/A 0.0
Rétracteurs de ceintures-prétensionneurs Seat belts retractors-pretensioners		Limiteur de charge des ceintures de sécurité Seat belts load limiter	
Conducteur / Driver	Passager / Passenger	Conducteur / Driver	Passager / Passenger
Déployé / Deployed	Déployé / Deployed	Non-équipé / Not equipped	Non-équipé / Not equipped

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

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

Préparé par : Prepared by : 	Digitally signed by Pierre Beauchamp Date: 2005.11.30	Approuvé par : Approved by :
Vérifié par : Verified by : 	Digitally signed by Linda Allard Date: 2005.11.30	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			
400 kg					Avt - Frt	Arr - Rr		Avt - Frt	Arr - Rr	
Nombre d'occupants (places assises désignées) Number of Occupants (Designated Seating Positions)				Banquette Bench			Dossier ajustable Adjustable Seat Back	X		
Avant – Front 2		Arrière – Rear 3		Total 5	Baquet Bucket	X	X	Dossier non-ajustable Non-adjustable Seat Back		X
Volume de carburant pour l'essai Fuel system test volume		Pression à froid - Cold Tire Pressure					Dimension - Size			
58.24 l		Avant - Front 180 kPa		Arrière - Rear 180 kPa		Secours - Spare N/A		P235/60R16		

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

FIRST WEIGHT : VEHICLE AS RECEIVED (WITH MAXIMUM FLUIDS)

Avant gauche - Left front	399.6 kg	Avant droit - Right front	415.2 kg	Masse avant totale - Total front weight	814.8 kg
Arrière gauche - Left rear	349.0 kg	Arrière droit - Right rear	347.2 kg	Masse arrière totale - Total rear weight	696.2 kg
Masse totale côté gauche - Total left side weight	748.6 kg	Masse totale côté droit - Total right side weight	762.4 kg	Masse totale - Total weight	1511.0 kg

TROISIÈME PESÉE : VÉHICULE PRÊT POUR L'ESSAI

THIRD WEIGHT : VEHICLE READY FOR TEST

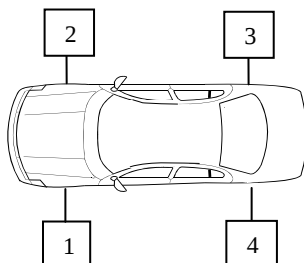
Avant gauche - Left front	430.0 kg	Avant droit - Right front	451.4 kg	Masse avant totale - Total front weight	881.4 kg
Arrière gauche - Left rear	446.2 kg	Arrière droit - Right rear	446.0 kg	Masse arrière totale - Total rear weight	892.2 kg
Masse totale côté gauche - Total left side weight	876.2 kg	Masse totale côté droit - Total right side weight	897.4 kg	Masse totale - Total weight	1773.6 kg

ATTITUDE DU VÉHICULE / VEHICLE ATTITUDE

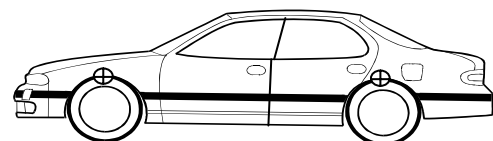
		Attitude tel que livré Attitude on delivery	Attitude tel que testé Attitude as tested
1	Roue avant gauche* Left front wheel*	781 mm	770 mm
2	Roue avant droite* Front right wheel*	778 mm	770 mm
3	Roue arrière droite* Rear right wheel*	779 mm	745 mm
4	Roue arrière gauche* Rear left wheel*	782 mm	745 mm

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

Vue de plan / Plan view



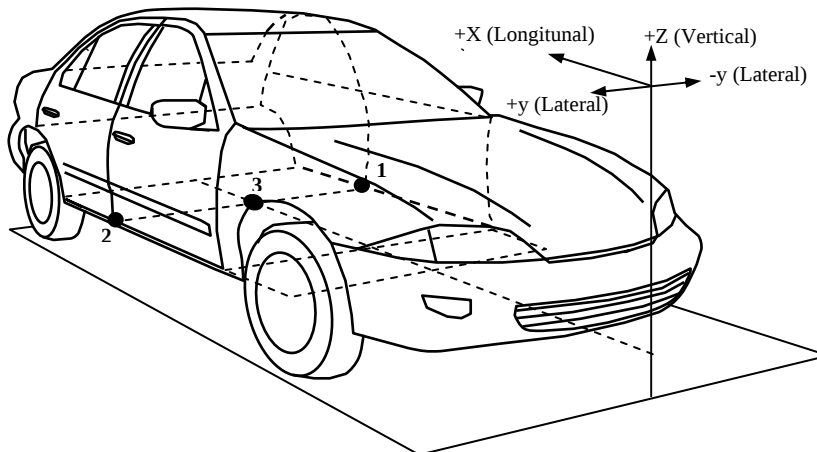
Vue de côté / Side view



⊕ Points de mesure / Measurement points

Date de collision Crash date	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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EMPLACEMENT DES ACCÉLÉROMÈTRES
ACCELEROMETER LOCATIONS

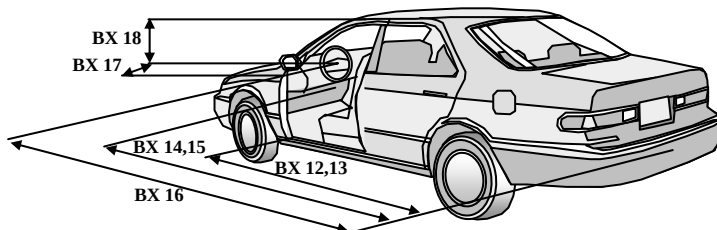
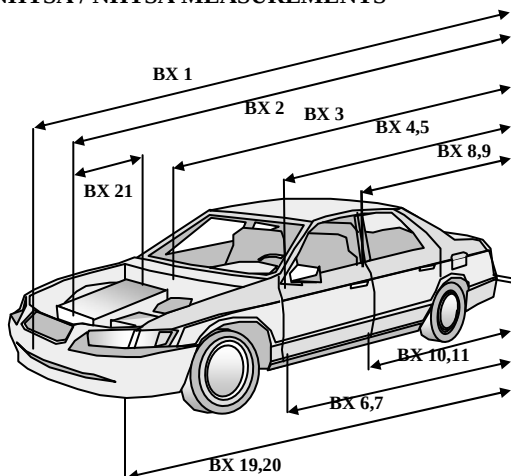


Point de référence : Centre transversal du véhicule, au point le plus avancé, au niveau du sol. Selon SAE J182a.
Reference point : Transversal center of the vehicle, at the foremost point and at ground level. As per SAE J182a.

EMPLACEMENT LOCATION	DESCRIPTIONS	COORDONNÉES / COORDINATES (mm)		
		X	Y	Z
#1	Seuil de la porte gauche @ pilier "B" Left door sill @ pillar "B"	2337	-621	388
#2	Seuil de la porte droite @ pilier "B" Right door sill @ pillar "B"	2356	631	391
#3	Centre de gravité Centre of gravity	2497	-5	513

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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	4178	3744	434	12	2846	2800	46
2	3559	3356	203	13	2845	2803	42
3	3099	2979	120	14	3023	2994	29
4	2867	2830	37	15	3075	2989	86
5	2862	2831	31	16	2410	2400	10
6	2885	2870	15	17	374	376	-2
7	2883	2868	15	18	489	536	-47
8	1873	1838	35	19	4148	3719	429
9	1863	1832	31	20	4144	3733	411
10	1877	1874	3	21	365	360	5
11	1869	1856	13				

Mesures en mm / Measurements in mm

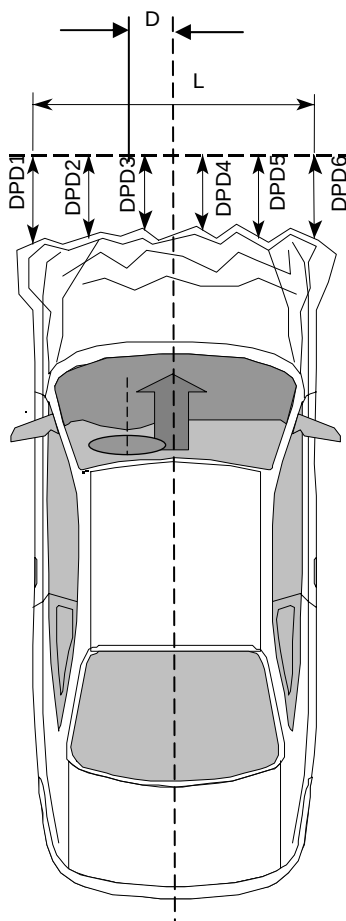
* BX : Mesures du véhicule avant-essai. / Pre-test vehicle measurements data.

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

REMARQUES / COMMENTS :

Date de collision Crash date	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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
138	551	-413
40	444	-404
3	530	-527
3	490	-487
39	525	-486
140	509	-369
	1502	
	0	

Mesures en mm / Measurements in mm

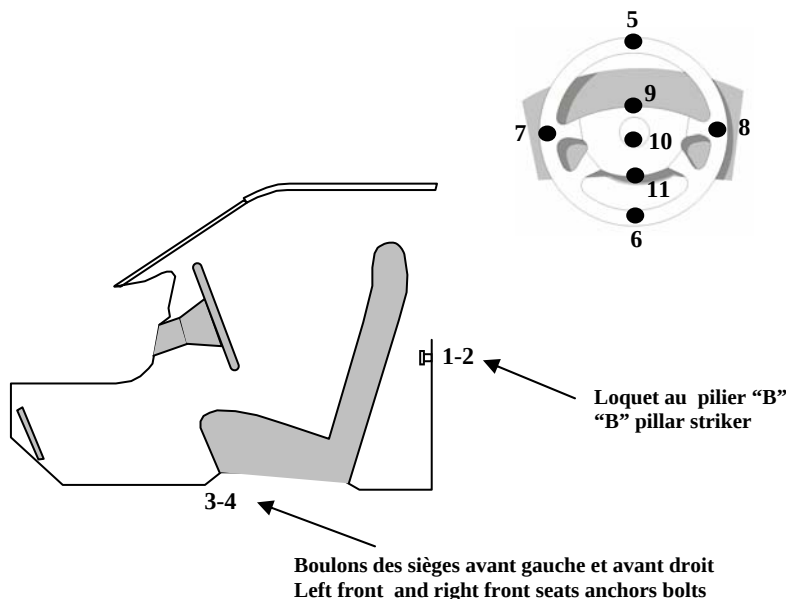
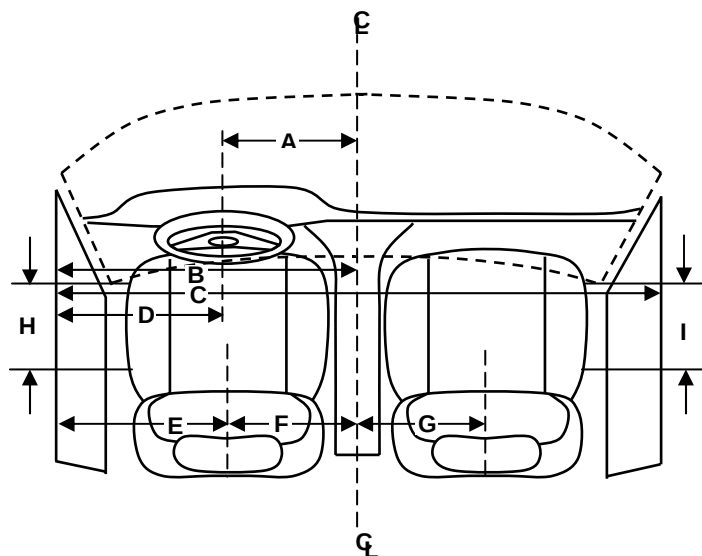
L : Longueur de la région endommagée
Length of damaged region

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

REMARQUES / COMMENTS : Aucune / None

Date de collision Crash date	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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	349
B	Seuil de fenêtre à la ligne de centre du véhicule Window edge to center line of the vehicle	759
C	Fenêtre à fenêtre Window to window	1525
D	Centre du volant au seuil de la fenêtre Steering wheel center to window edge	410
E	Seuil de la fenêtre au centre du siège (conducteur) Window edge to seat midline (driver)	402
F	Centre du siège à la ligne de centre du véhicule (conducteur) Seat midline to center line of vehicle (driver)	357
G	Centre du siège à la ligne de centre du véhicule (passager) Seat midline to center line of vehicle (passenger)	359
H	Course du siège (conducteur) Seat travel (driver)	195
I	Course du siège (passager) Seat travel (passenger)	195
J	Ajustement du volant Steering wheel adjustment	77
K	Ajustement de la ceinture baudrier Upper torso belt adjustment	67

Code	Description	X(mm)	Y(mm)	Z(mm)
1	Loquet au pilier "B" (conducteur) "B" pillar striker (driver)	2273	-745	735
2	Loquet au pilier "B" (passager) "B" pillar striker (passenger)	2271	748	736
3	Boulon siège avant, extérieur (conducteur) Front seat bolt, outboard (driver)	1779	-556	386
4	Boulon siège avant, extérieur (passager) Front seat bolt, outboard (passenger)	1779	560	386
5	Jante du volant, centre haut Steering wheel rim, top centre	1676	-349	1217
6	Jante du volant, centre bas Steering wheel rim, bottom centre	1845	-350	880
7	Jante du volant, centre gauche Steering wheel rim, left centre	1760	-536	1050
8	Jante du volant, centre droit Steering wheel rim, right centre	1759	-161	1049
9	Moyeu du volant, centre haut Steering wheel hub, top centre	1732	-349	1086
10	Moyeu du volant, centre Steering wheel hub, centre	1779	-350	1032
11	Moyeu du volant, centre bas Steering wheel hub, bottom centre	1802	-349	976
12	Centre du volant Center of steering wheel	1768	-349	1049

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	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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POSITIONNEMENT DES MANNEQUINS / MEASUREMENTS OF DUMMY POSITIONS

		<u>MESURES / MEASUREMENTS :</u>					
Conducteur/Driver : Hybrid III (5 %) #105		Toutes les mesures sont en mm / All measurements are in mm					
Angle du pelvis - Pelvic angle : Angle transversal - Transversal angle : Angle de la tête - Head angle : Seuil de porte - Door sill : Mouvement du lacet / Yaw movement : Position de la rail du siège / Seat track position * : 22.1° 0.0° 0.0° 0.0° 3 mm 0 mm							
Passager avant/Front Passenger: Hybrid III (5 %) #104		Conducteur / Driver			Passager / Passenger		
Angle du pelvis - Pelvic angle : Angle transversal - Transversal angle : Angle de la tête - Head angle : Seuil de porte - Door sill : Mouvement du lacet / Yaw movement : Position de la rail du siège / Seat track position * : 22.6° 0.3° 0.0° 0.0° 0 mm 0 mm		Ajustement du siège : Seat adjustment : Plus Avancé / Foremost 1 de 14 crans/notches			Ajustement du siège : Seat adjustment : Plus Avancé / Foremost 1 de 14 crans/notches		
		Angle du dossier (Tige d'Appuie-tête) Seat back angle (Headrest Pole) : 18.8 °			Angle du dossier (Tige d'Appuie-tête) Seat back angle (Headrest Pole) : 19.0 °		
		X	Y	Z	X	Y	Z
Cible de tête / Head target :		2140	-430	1247	2137	432	1244
Point-H / H-Point :		1997	-514	673	1994	526	675
Rotule / Knee joint :		1668	-492	774	1665	496	771

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 ^{ième} 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

*** 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.

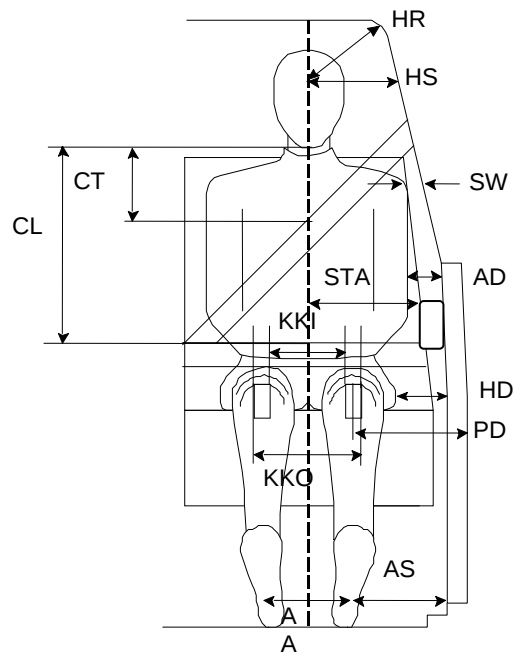
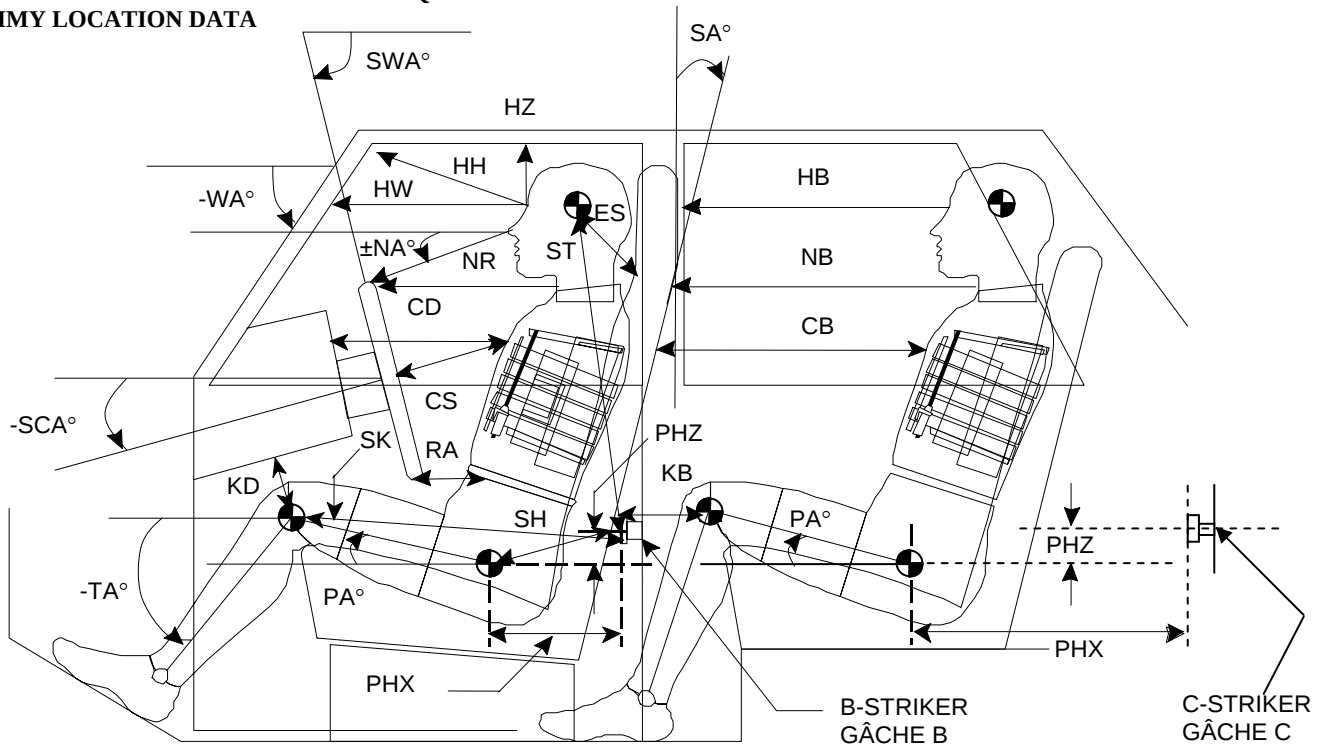
As per procedure for placement of a 5th percentile Hybrid III, conforming to subpart O, TP208-12, January 14th 2003.

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

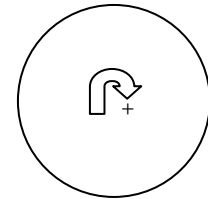
Reference point : Transversal center of the vehicle, at the foremost point and at ground level. As per SAE J182a.

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COTES DE LOCALISATION DES MANNEQUINS
DUMMY LOCATION DATA



référence
reference :



Date de collision Crash date	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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	260	250		
Genou à genou (plaque) Intérieur / Interior Centre / Center Knee to knee (plate) Extérieur / Extérieur	KKI	130	100		
	KKC	200	170		
	KKO	270	240		
De la cheville jusqu'au seuil de porte (horizontalement) Ankle to door sill (horizontal)	AS	170	165		
Centre du genou au tableau de bord ou siège horizontalement (minimum) Knees centre to dash or seat back horizontal (minimum)	KDL	50	50		
	KDR	50	50		
Sternum au tableau de bord (horizontalement) Chest to dash (horizontal)	CD		440		
Milieu du sternum au centre du moyeu du volant ou siège avant Mid sternum to steering hub center or front seat	CS/CB	260			
Milieu du front jusqu'au pare-brise (horizontalement) Mid forehead to windshield (horizontal)	HW	693	690		
Milieu du front jusqu'au haut du pare-brise Mid forehead to windshield header	HH	435	425		
Nez à la jante du volant de direction (haut) ou siège avant Nose to steering wheel rim (top) or front seat	NR/HB	338			
Milieu du front jusqu'au début du toit Mid forehead to edge roof	HR	290	300		
Haut de l'oreille au haut du siège avant Ear top to front seat top	ES	280	268		
Menton au haut de la ceinture sous-abdominale (verticalement) Chin to lap belt upper edge (vertical)	CL	360	340		
Menton au haut de la ceinture baudrier (verticalement) Chin to thorax belt upper edge (vertical)	CT	115	90		
Milieu du front à la fenêtre latérale (horizontalement) Mid forehead to side window (horizontal)	HS	305	303		
La rotule à la porte (horizontalement) Patella to door (horizontal)	PD	188	185		
Du point-H à la porte (horizontalement) H-point to door (horizontal)	HD	135	145		
Du milieu du bras à la porte (horizontalement) Mid upper arm to door (horizontal)	AD	85	148		
Cou jusqu'au volant ou tableau de bord (horizontalement) ou siège avant Neck to steering wheel or dash board (horizontal) or front seat	NB	435	575		
Épaule à la fenêtre de côté Shoulder to side window	SW	123	140		
Abdomen à l'appui-bras Abdomen to armrest	STA	160	170		
Milieu du front au toit (verticalement) Mid forehead to roof (vertical)	HZ	338	340		
Tête au loquet (plan (x,z)) Striker to head ((x,z) plan)	ST	529	525		
Abdomen à la jante du volant de direction (bas) Steering wheel rim to abdomen (bottom)	RA	140			
Genou au loquet (plan (x,z)) Striker to knee ((x,z) plan)	SK	606	607		
Point-H au loquet (plan (x,z)) Striker to H-Point ((x,z) plan)	SH	283	284		
Point-H au loquet en X (horizontalement) Striker to H-Point in X (horizontal)	PHX	276	277		
Point-H au loquet en Z (verticalement) Striker to H-Point in Z (vertical)	PHZ	62	61		

Date de collision Crash date	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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	62.6°			
Angle du pare-brise Windshield angle	-WA	-35.2°			
Angle de la colonne de direction Steering column angle	-SCA	-25.7°			
Angle du tibia gauche Left tibial angle	-TA	-27.7°	-27.7°		
Angle du tibia droit Right tibial angle	-TA	-29.2°	-24.8°		
Angle pelvis Pelvic angle	+PA	22.1°	22.6°		
Angle du nez à la jante de direction (haut) Nose to steering wheel rim (top) angle	±NA	-0.1°			
Angle du dossier (Tige d'Appuie-tête) Seat back angle (Headrest Pole)	+SA	18.6°	18.7°		
Angle ST (horizontalement) ST angle (horizontal)	+ST-A	75.4°	76.2°		
Angle SK (horizontalement) SK angle (horizontal)	±SK-A	3.7°	3.3°		
Angle SH (horizontalement) SH angle (horizontal)	-SH-A	-12.7°	-124°		

Date de collision Crash date	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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	2140	-430	1247
Base du nez - Glabella (root of nose)	2053	-358	1256
Menton - Chin (bottom)	2049	-362	1148
Jonction menton et cou - Chin / neck junction	2121	-361	1164
Thorax au niveau des côtes supérieures - Chest at upper rib level	2021	-355	980
Thorax au niveau des côtes inférieures - Chest at lower rib level	1991	-348	872
Boulon supérieur avant de l'épaule, ext. - Shoulder bolt, top front outboard	2174	-519	1020
Boulon supérieur avant de l'épaule, int. - Shoulder bolt, top front inboard	2166	-200	1029
Boulon du coude, extérieur - Elbow bolt, outboard	1982	-601	954
Boulon du coude, intérieur - Elbow bolt, inboard	1977	-99	961
Boulon du poignet, extérieur - Wrist bolt, outboard	1796	-581	1058
Boulon du poignet, intérieur - Wrist bolt, inboard	1807	-142	1094
Point d'articulation de la hanche, extérieur - Hip point, outboard	2081	-475	720
Boulon du genou gauche, extérieur - Knee bolt, left leg, outboard	1667	-492	774
Boulon de la cheville gauche, extérieur - Ankle bolt, left leg , outboard	1479	-518	486
Point du talon gauche - Heel point, left leg	1544	-523	380
Plante du pied gauche vs plancher - Ball of foot at toeboard contact, left leg	1404	-564	412
Boulon du genou droit, intérieur - Knee bolt, right leg , inboard	1656	-290	762
Boulon de la cheville droite, intérieur - Ankle bolt, right leg , inboard	1447	-277	498
Point du talon droit - Heel point, right leg	1468	-289	374
Plante du pied droit vs plancher - Ball of foot at toeboard contact, right leg	1325	-309	481
Potentiomètre de déflexion du sternum – Sternum deflection potentiometer	2001	-350	906

Remarques – Comments : **Aucune / None**

Date de collision Crash date	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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**MESURES DE MANNEQUIN DAE
TEST DUMMY MEASUREMENTS**

PASSAGER / PASSENGER

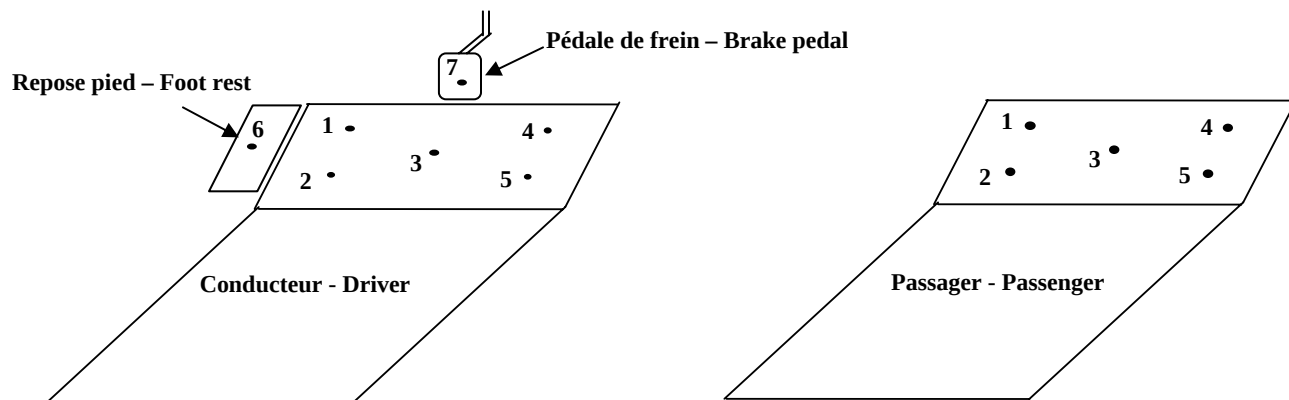
Description et emplacement du Mannequin
ATD description and location:

DESCRIPTION	X(mm)	Y(mm)	Z(mm)
Centre de gravité de la tête, extérieur - Head CG, outboard	2137	432	1244
Base du nez - Glabella (root of nose)	2051	363	1248
Menton - Chin (bottom)	2049	366	1141
Jonction menton et cou - Chin / neck junction	2120	366	1164
Thorax au niveau des côtes supérieures - Chest at upper rib level	2024	346	974
Thorax au niveau des côtes inférieures - Chest at lower rib level	1991	352	869
Boulon supérieur avant de l'épaule, ext. - Shoulder bolt, top front outboard	2155	519	1010
Boulon supérieur avant de l'épaule, int. - Shoulder bolt, top front inboard	2154	206	1012
Boulon du coude, extérieur - Elbow bolt, outboard	2071	575	809
Boulon du coude, intérieur - Elbow bolt, inboard	2069	152	817
Boulon du poignet, extérieur - Wrist bolt, outboard	1860	530	774
Boulon du poignet, intérieur - Wrist bolt, inboard	1862	186	771
Point d'articulation de la hanche, extérieur - Hip point, outboard	2079	486	719
Boulon du genou gauche, intérieur - Knee bolt, left leg, inboard	1660	331	762
Boulon de la cheville gauche, intérieur - Ankle bolt, left leg, inboard	1469	308	480
Point du talon gauche - Heel point, left leg	1531	309	376
Plante du pied gauche vs plancher - Ball of foot at toeboard contact, left leg	1387	348	405
Boulon du genou droit, extérieur - Knee bolt, right leg, outboard	1664	495	772
Boulon de la cheville droite, extérieur - Ankle bolt, right leg, outboard	1495	486	470
Point du talon droit - Heel point, right leg	1568	504	379
Plante du pied droit vs plancher - Ball of foot at toeboard contact, right leg	1427	527	395
Potentiomètre de déflexion du sternum – Sternum deflection potentiometer	2003	349	902

Remarques – Comments : Aucune / None

Date de collision Crash date	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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MESURES PLANCHER / FOOTWELL MEASUREMENTS



N° Cible	AVANT ESSAI	APRÈS ESSAI	
Target No.	PRE-TEST	POST-TEST	Δ mm
1	x	1168	1188
	y	-481	-490
	z	499	581
2	x	1234	1243
	y	-488	-491
	z	402	470
3	x	1184	1198
	y	-373	-377
	z	411	500
4	x	1157	1198
	y	-296	-314
	z	481	554
5	x	1230	1247
	y	-277	-286
	z	405	485
6	x	1250	1283
	y	-595	-613
	z	475	526
7	x	1317	1387
	y	-394	-414
	z	540	580

N° Cible	AVANT ESSAI	APRÈS ESSAI	
Target No.	PRE-TEST	POST-TEST	Δ mm
1	x	1143	1211
	y		
	z		
2	x	1226	1229
	y		
	z		
3	x	1177	1179
	y		
	z		
4	x	1169	1183
	y	536	547
	z	516	603
5	x	1248	1249
	y	553	559
	z	398	472

APPENDICE / APPENDIX A

**PHOTOGRAPHIES DE L'ESSAI
TEST PHOTOGRAPHS**

Date de collision Crash date	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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11. Vue avant du véhicule d'essai, avant essai.
Front view of the test vehicle, pre-test.

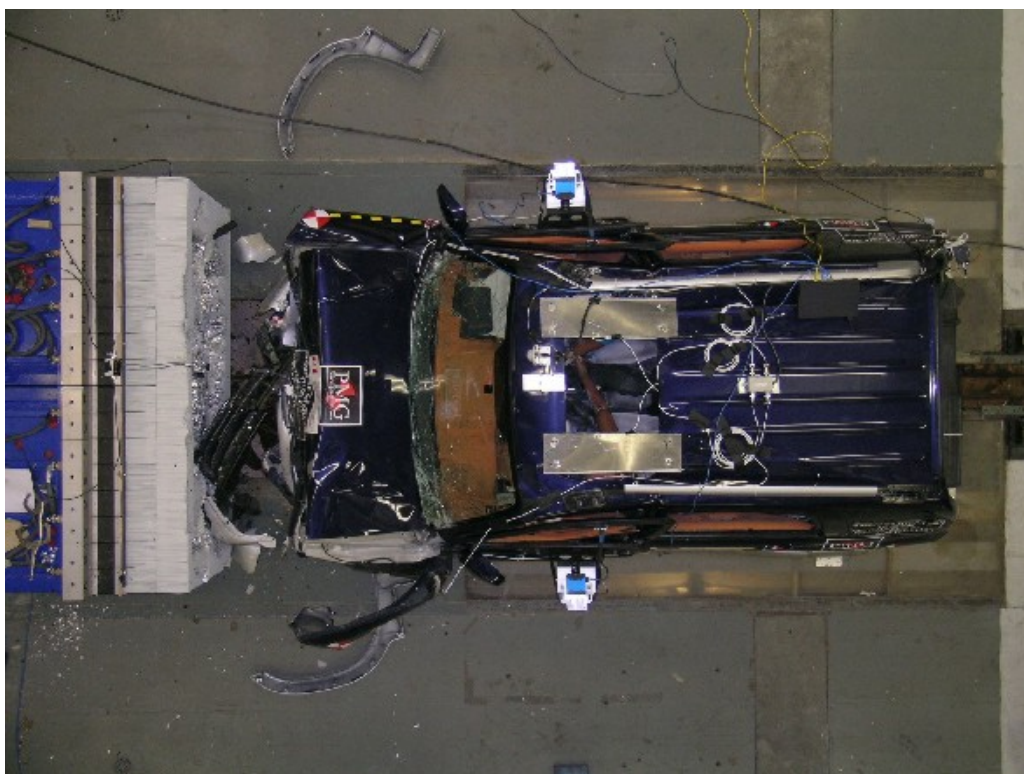


12. Vue avant du véhicule d'essai, après essai.
Front view of the test vehicle, post-test.

Date de collision Crash date	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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.

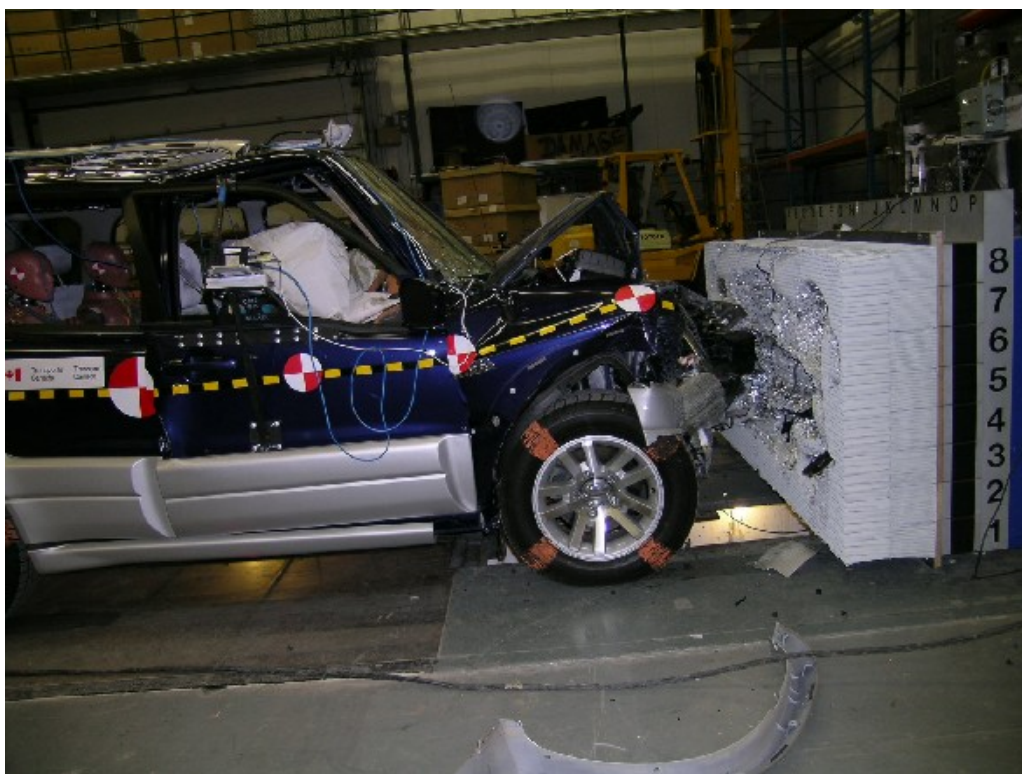


18. Vue côté gauche de l'avant du véhicule d'essai, après essai.
Left side view of front of test vehicle, post-test.

Date de collision Crash date	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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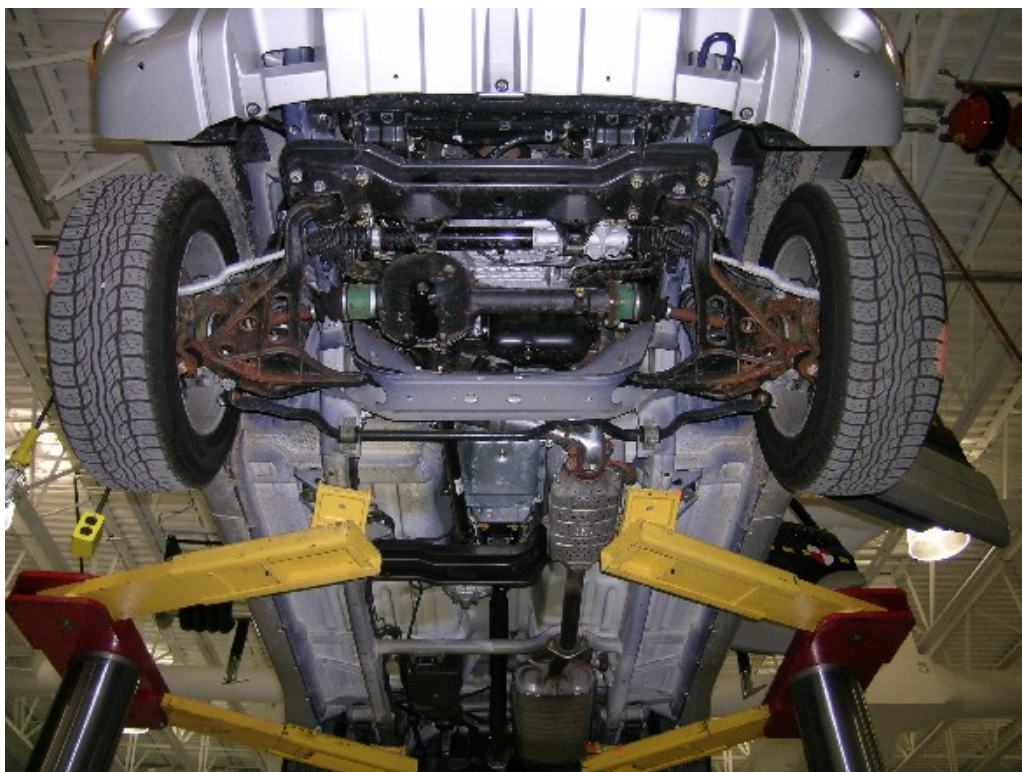


21. Vue du compartiment moteur du véhicule d'essai, avant essai.
Engine compartment view of the vehicle, pre-test.



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

Date de collision Crash date	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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23. Vue du dessous du compartiment moteur, avant essai.
Under view of the engine compartment , pre-test.

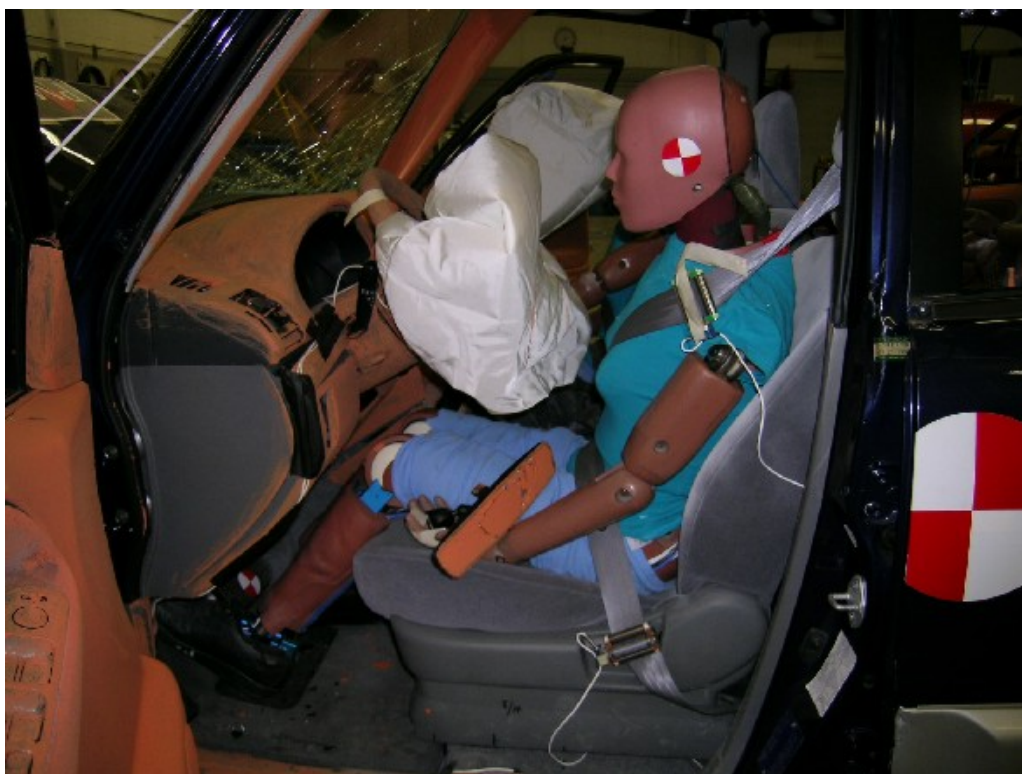


24. Vue du dessous du compartiment moteur, après essai.
Under view of the engine compartment , post-test.

Date de collision Crash date	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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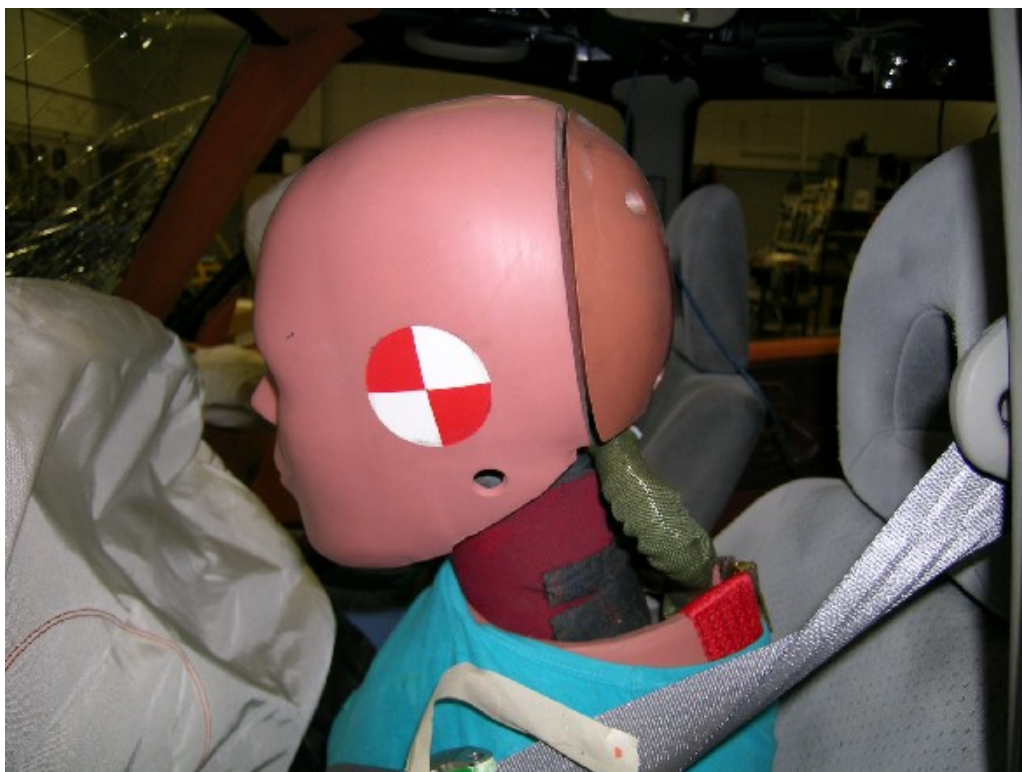


25. Position du conducteur, avant essai.
Driver's position, pre-test.



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

Date de collision Crash date	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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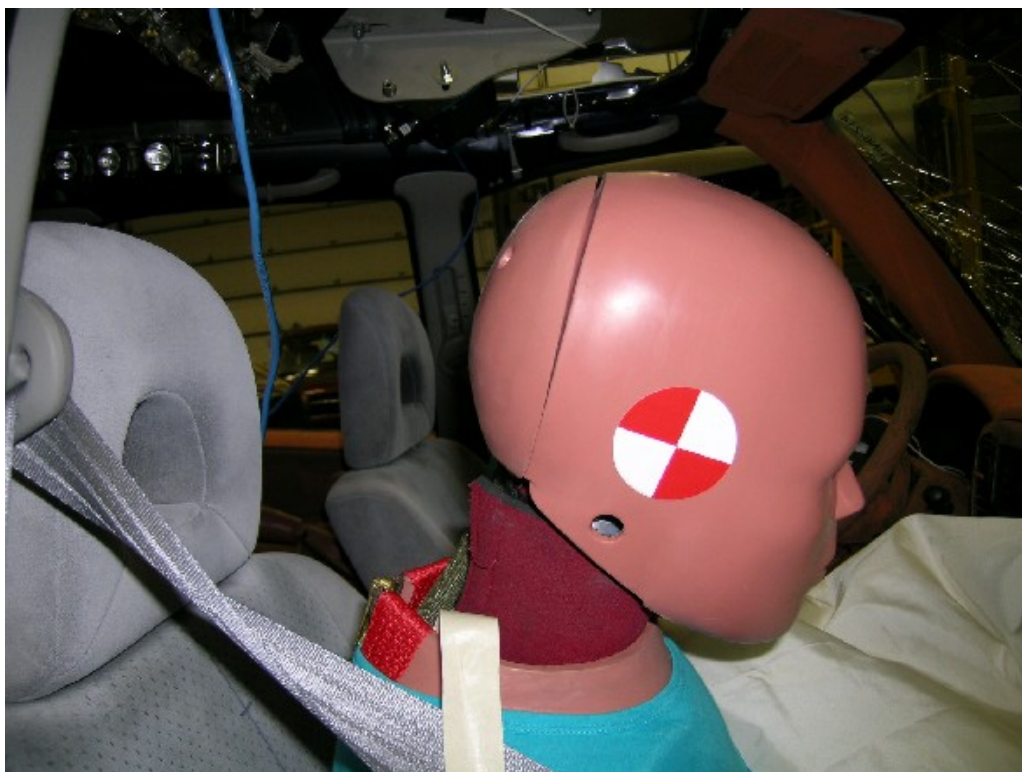


30. Position du passager, avant essai.
Passenger's position, pre-test.



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

Date de collision Crash date	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
---------------------------------	-------------------	---------------------	---------------------------------	-------------------	---------------



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

Date de collision Crash date	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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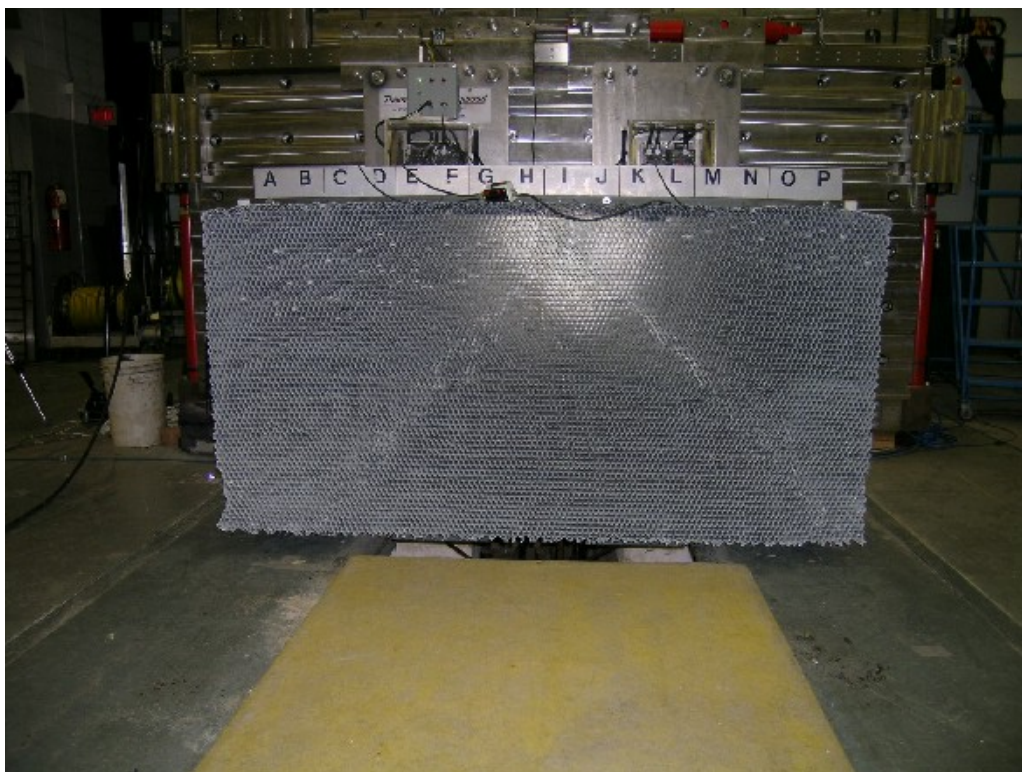


41. Vue latérale gauche de la Face Déformable, avant essai.
Left side view of the Deformable Face, pre-test.



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

Date de collision Crash date	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
---------------------------------	------------	---------------------	--------------------------	-------------------	--------



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	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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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	2005-11-22	Véhicule Vehicle	SUZUKI GRAND VITARA 2005	T.C. N° T.C.No	05-245
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49. Affichage du lecteur de vitesse.
Speed trap reading.

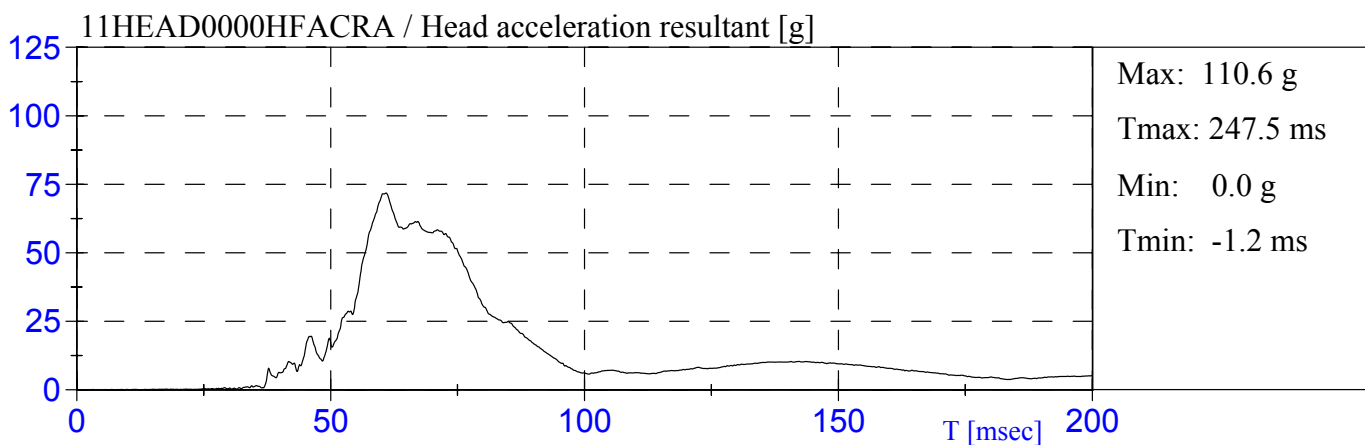
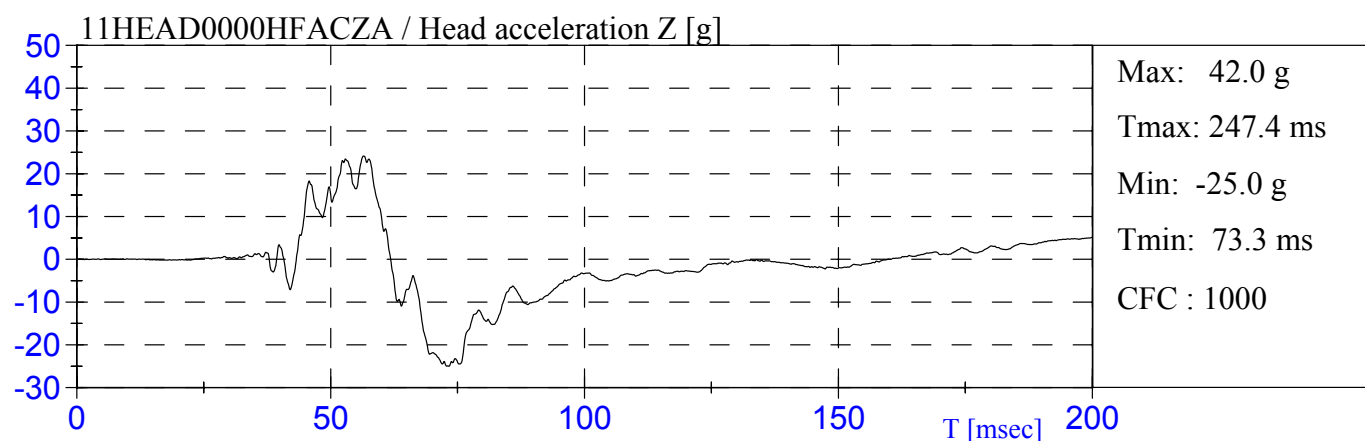
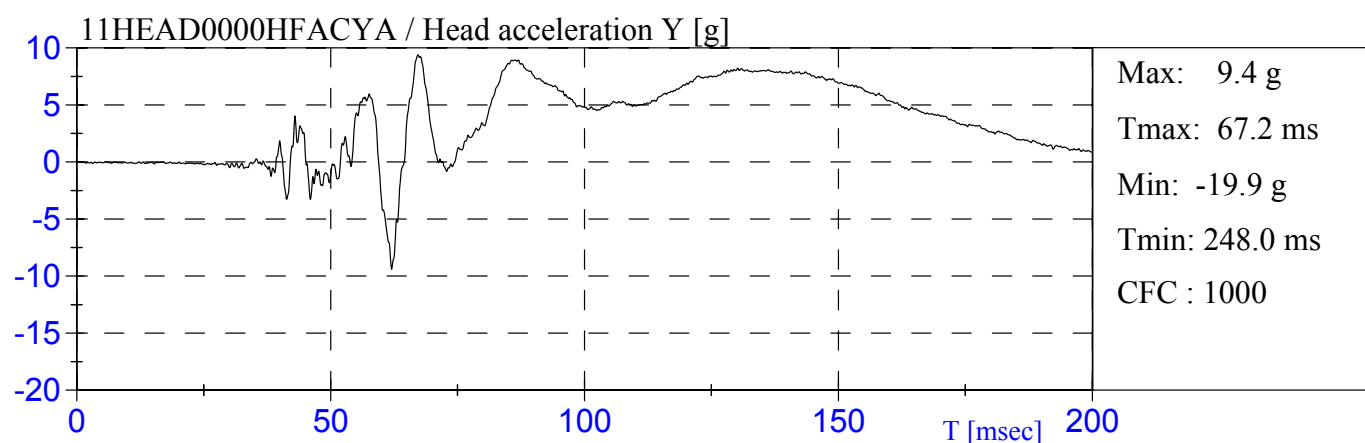
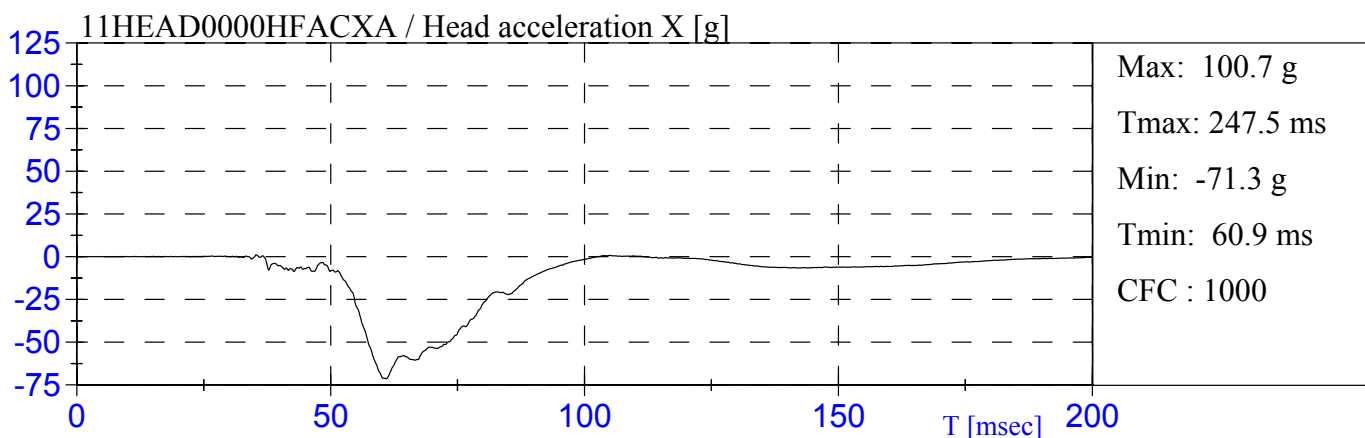
APPENDICE / APPENDIX B

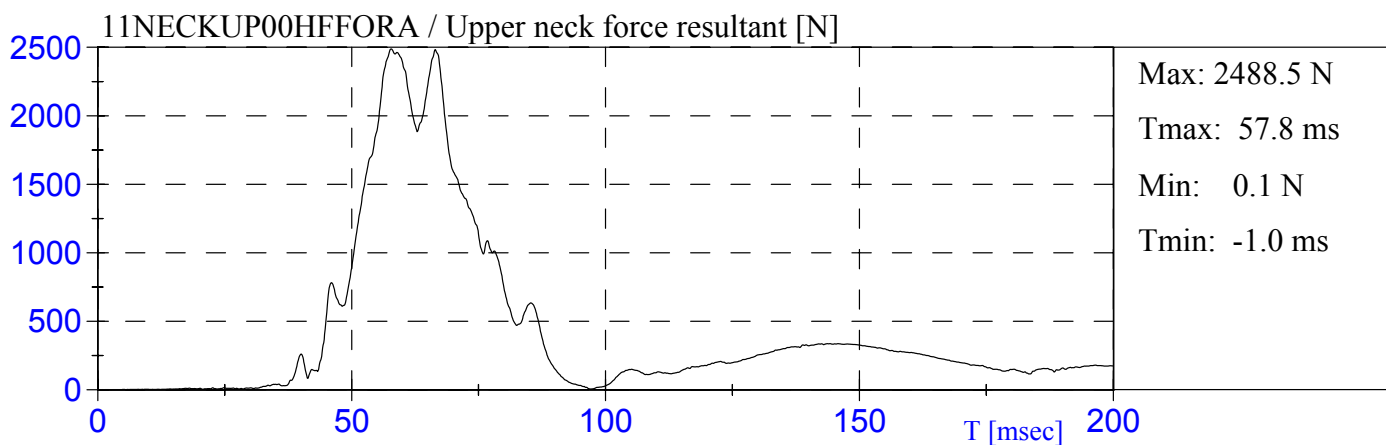
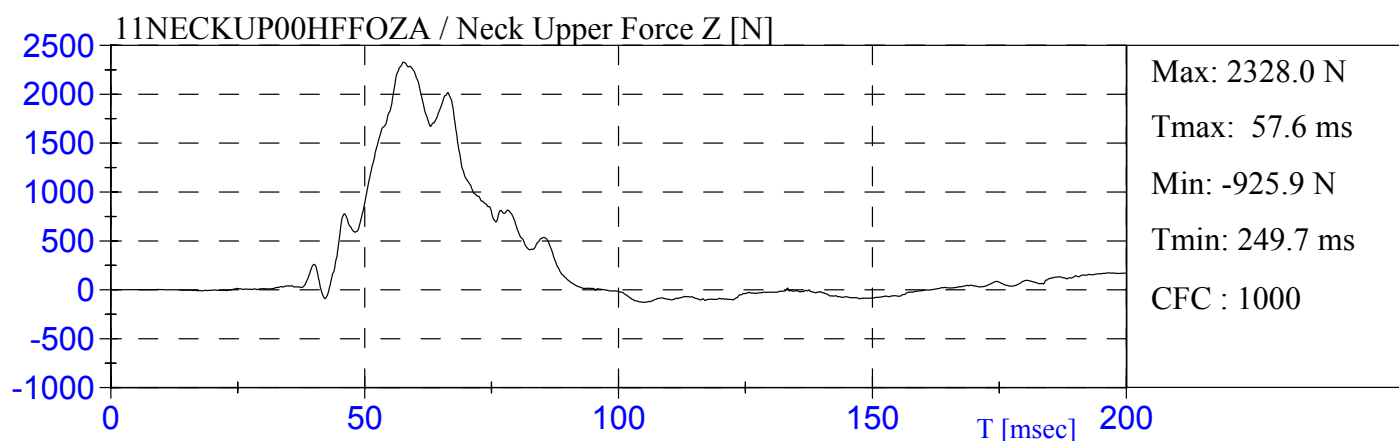
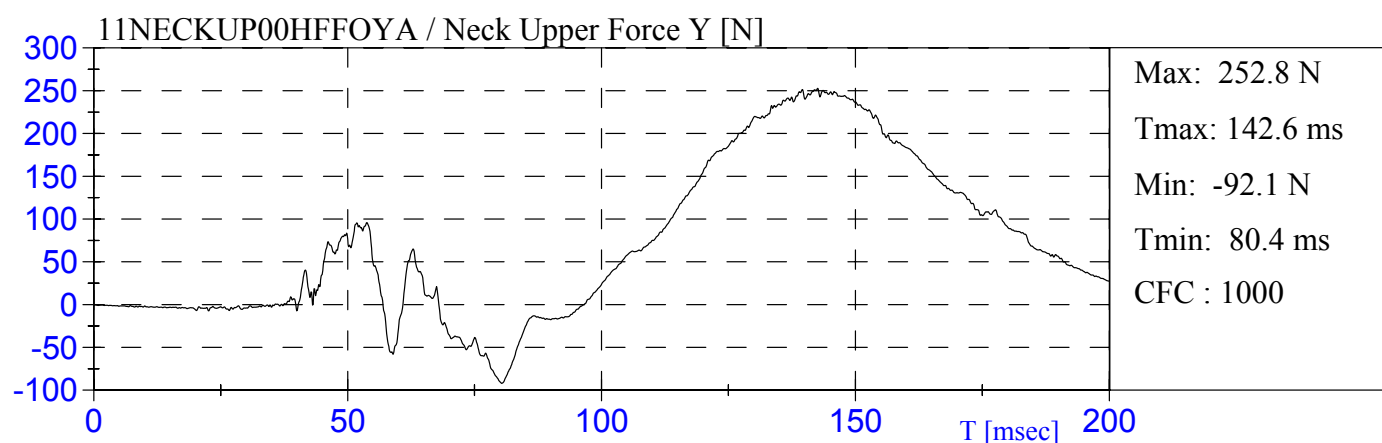
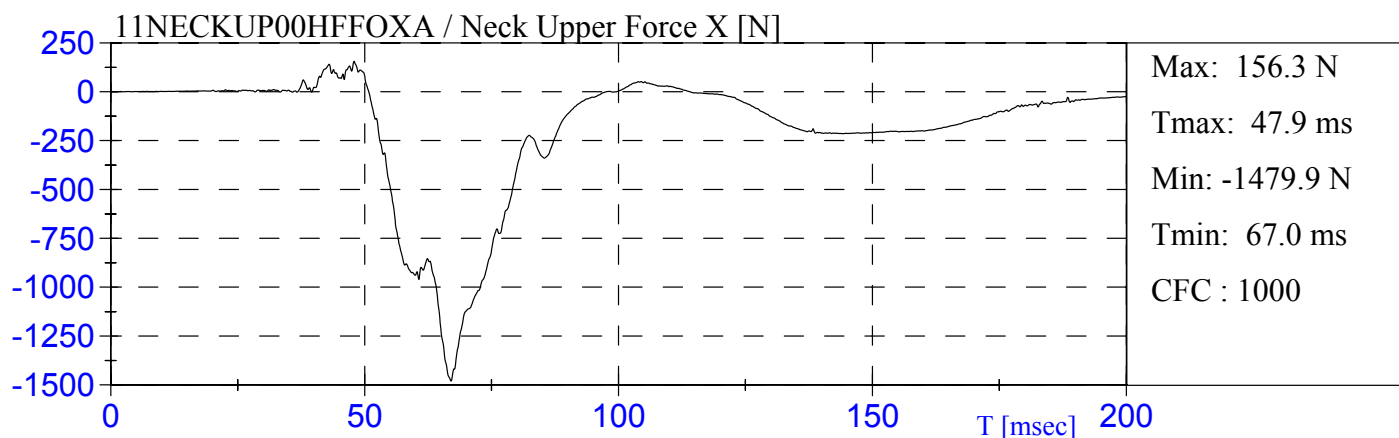
**DONNÉES GRAPHIQUES
GRAPHICAL DATA**

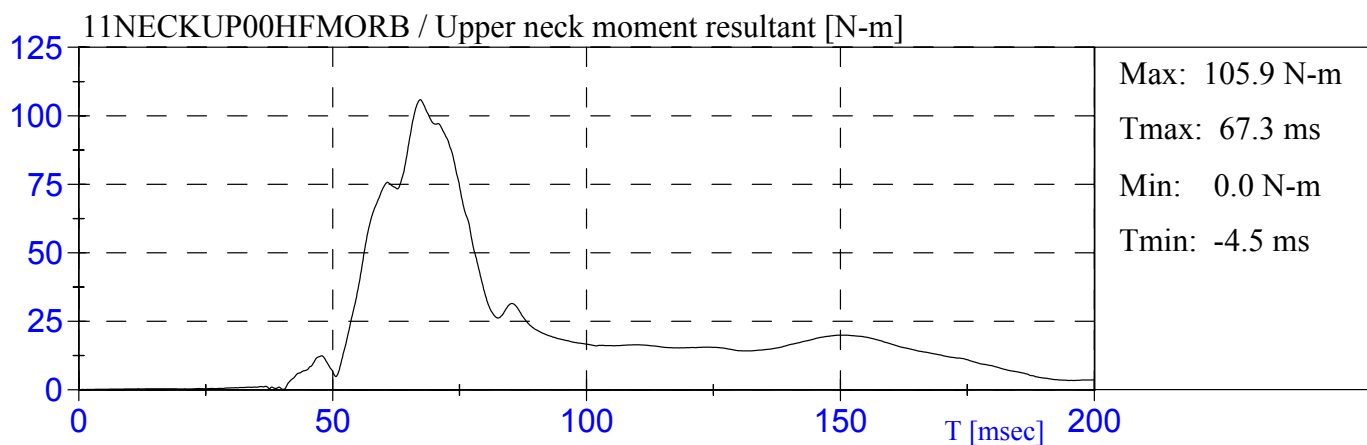
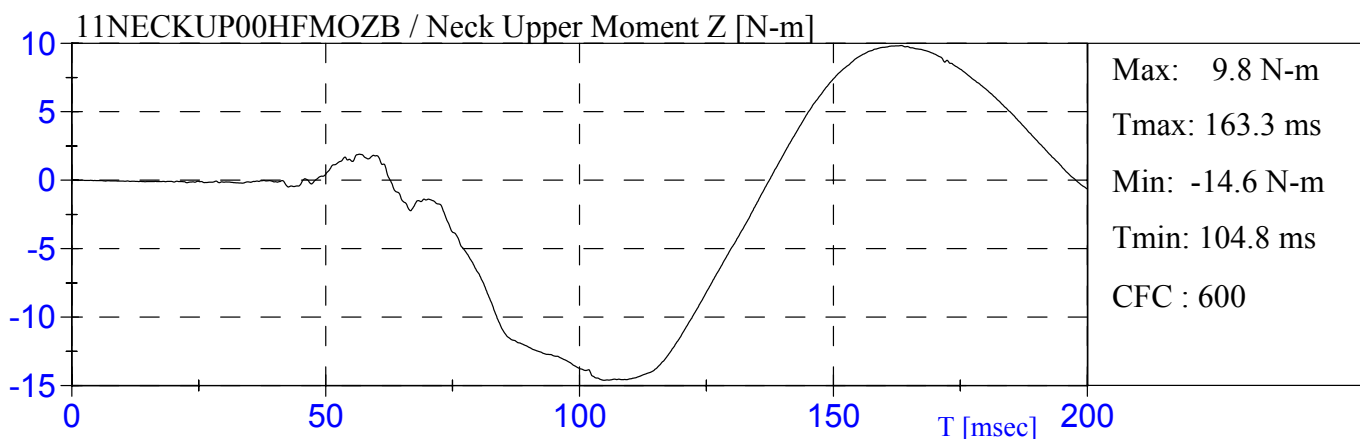
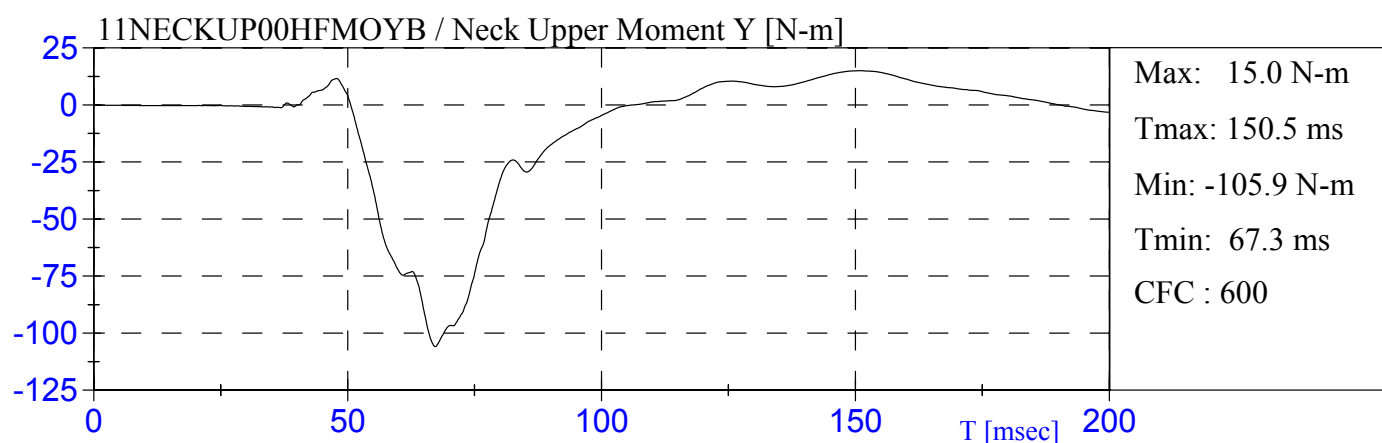
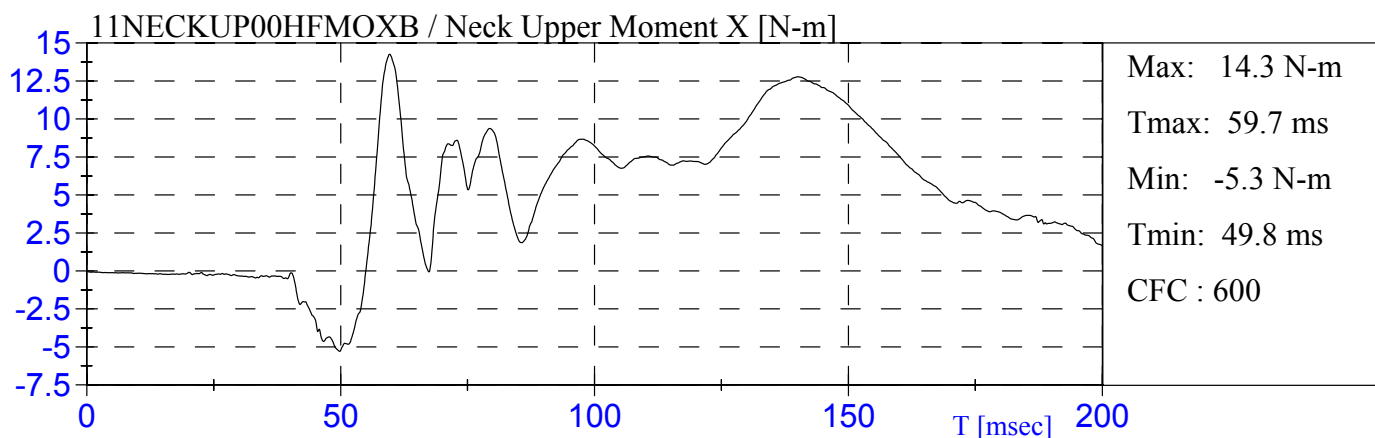


Nom du client Client Name	TRANSPORT CANADA
Type de véhicule Type of Vehicle	GRAND VITARA 2005
Numéro de TC Tc Number	TC05-245
Vitesse Speed	56 km/h
Numéro de contrat Contract No	06-6008
Acquisition de données selon Data Acquisition according to	SAE J211/1 MAR 95
Date de l'essai Test date	2005-11-22
Titre du projet Project Title	COLLISION DE RECHERCHE COLLISION FRONTALE RESEARCH COLLISION TEST FRONTAL CRASH
MANNEQUIN / DUMMY	

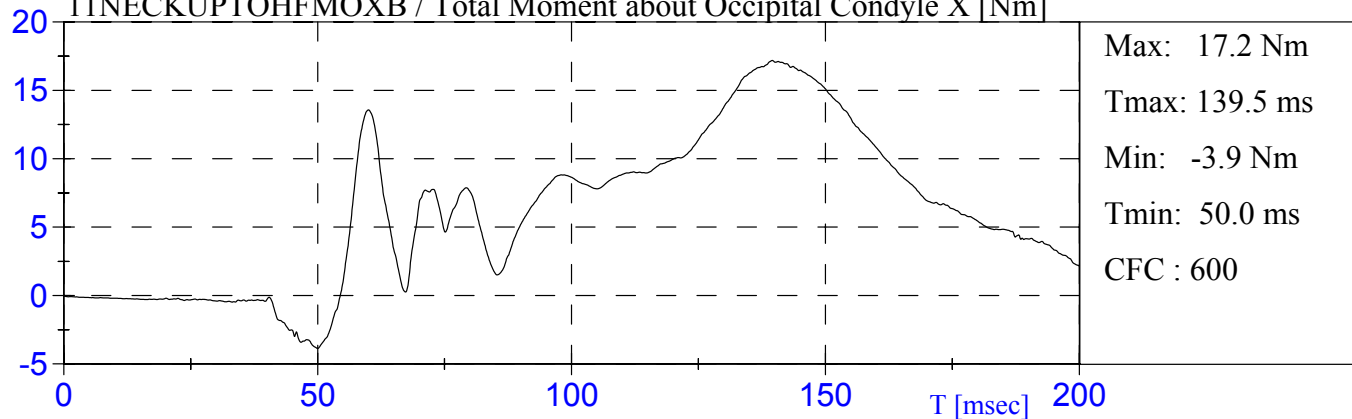
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HF		HF
Position 4	Position 5	Position 6
HF		HF
Position 7	Position 8	Position 9



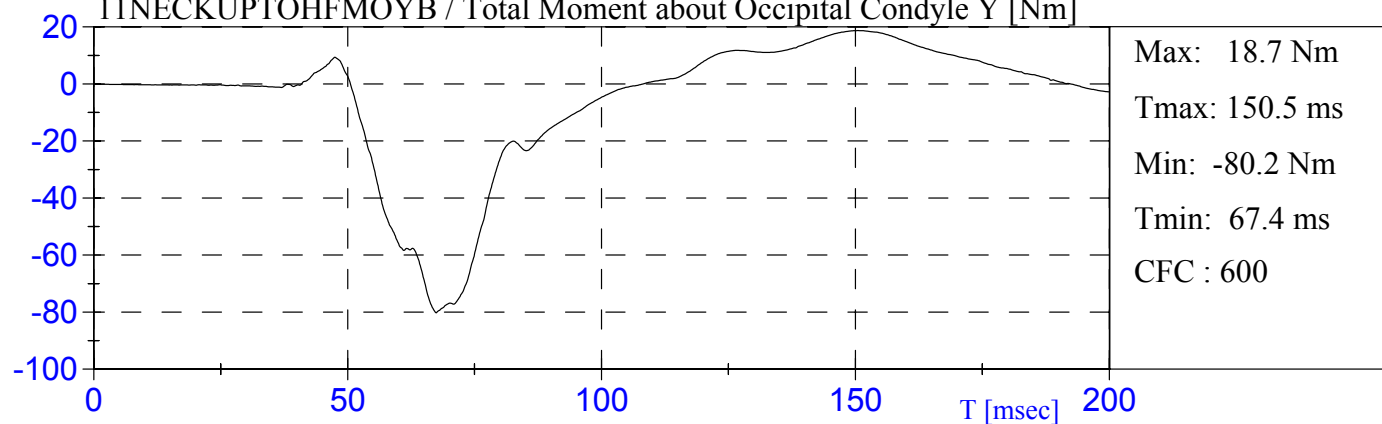


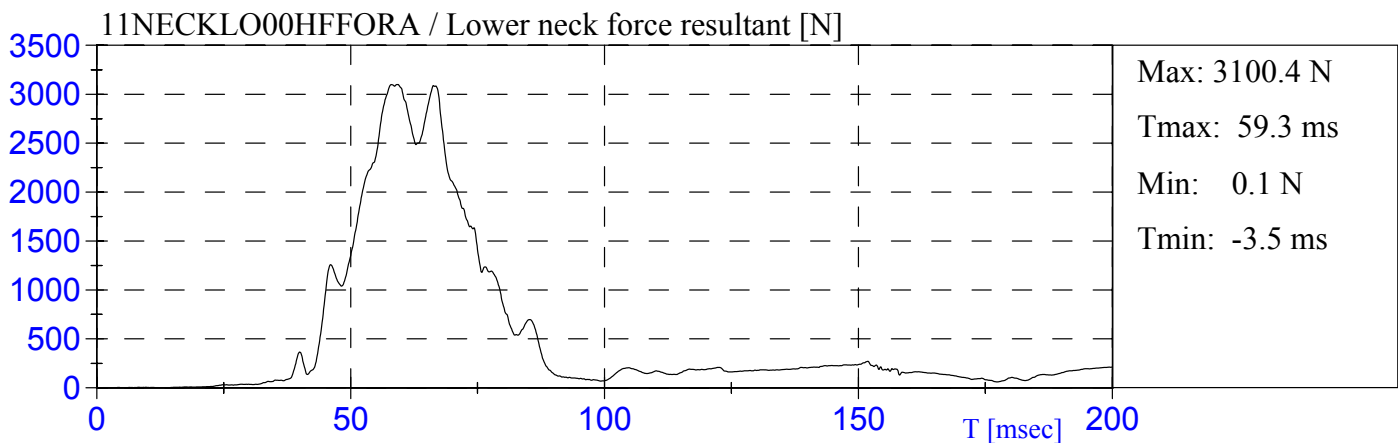
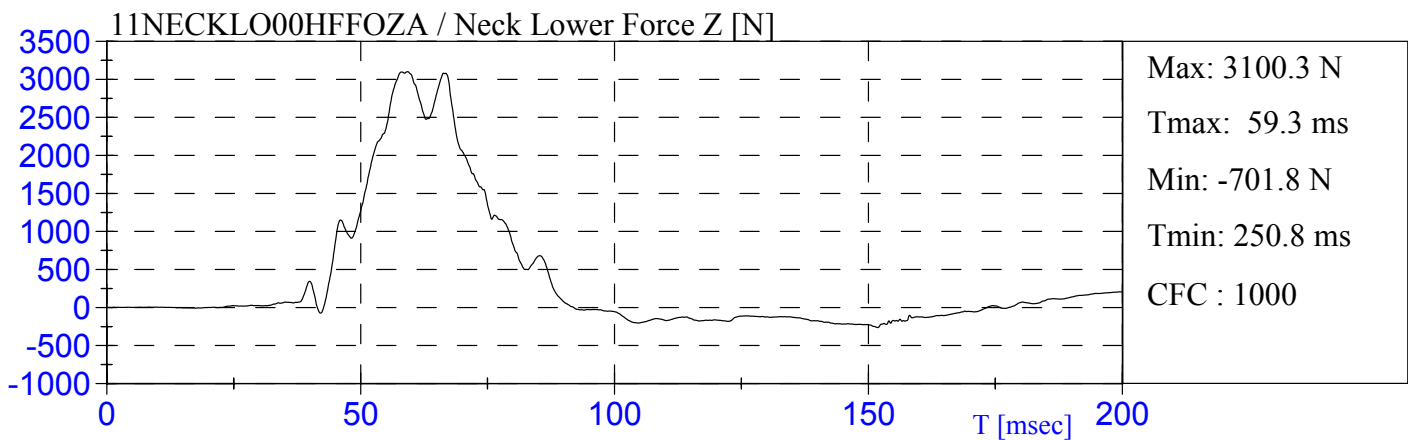
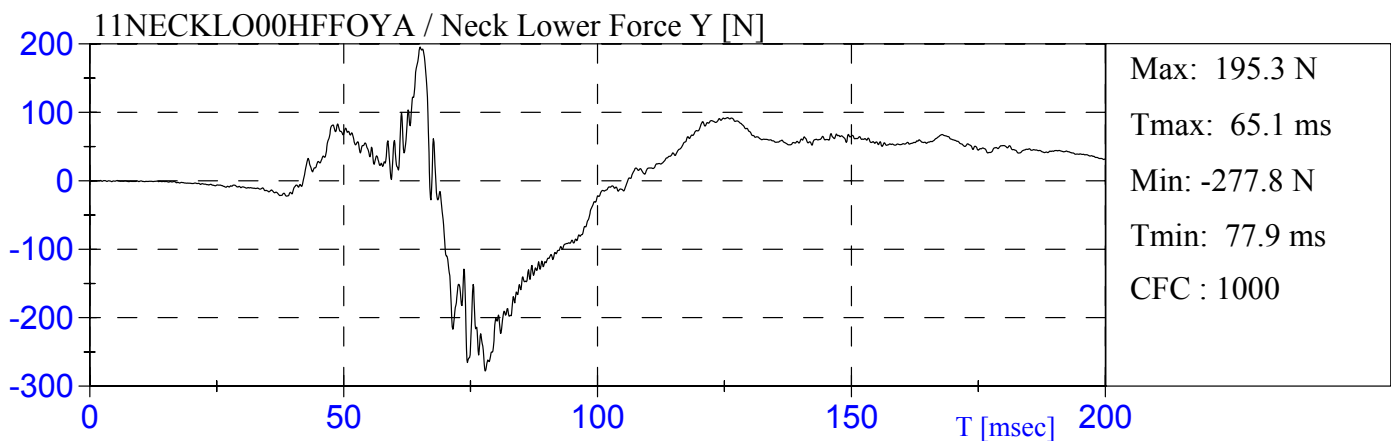
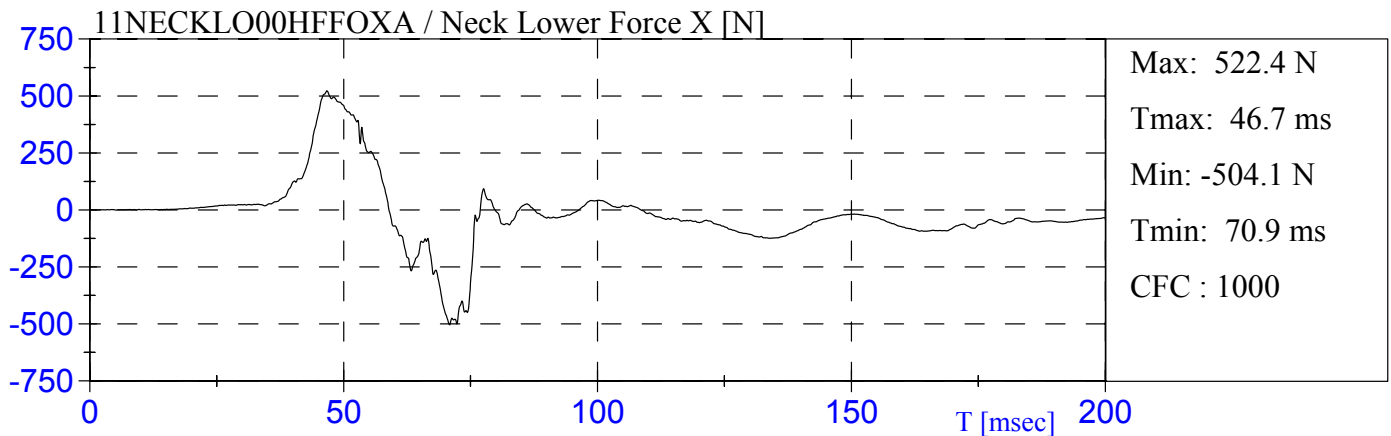


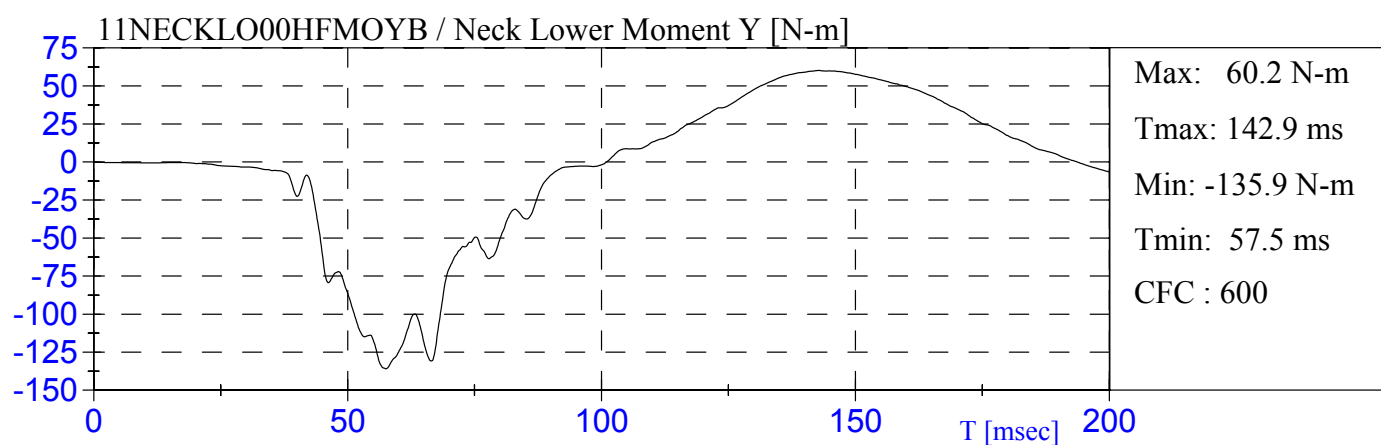
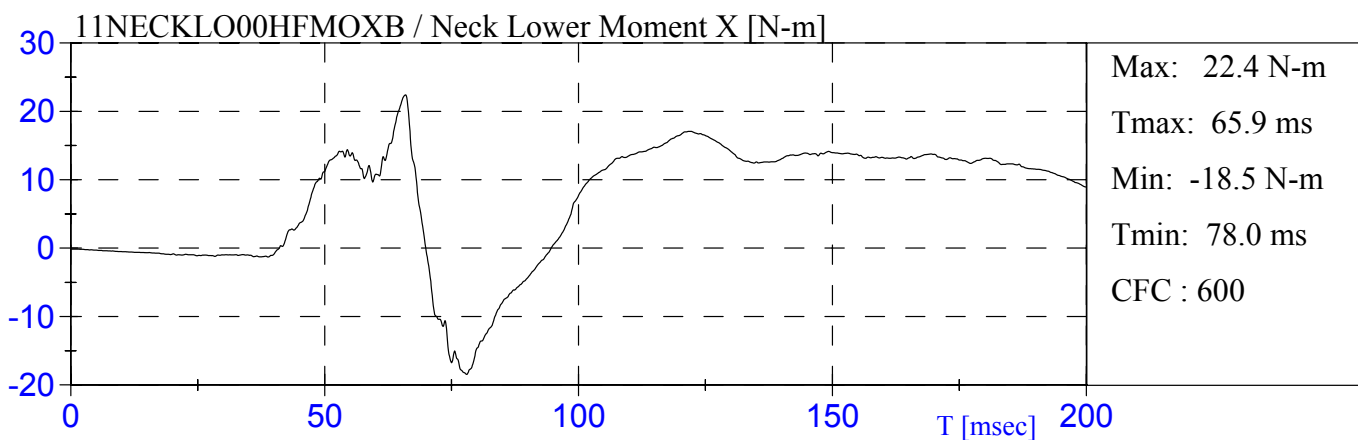
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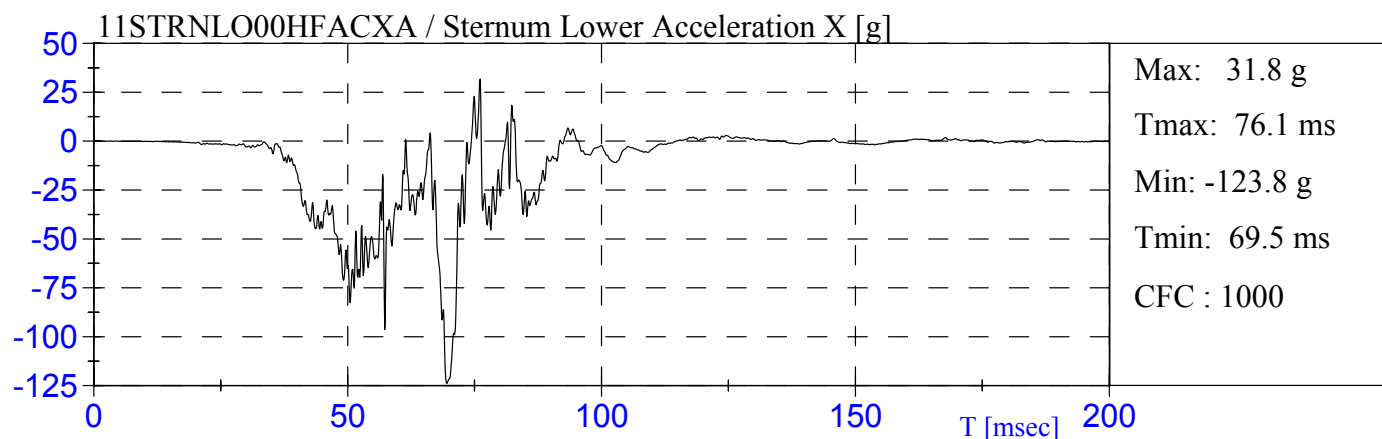
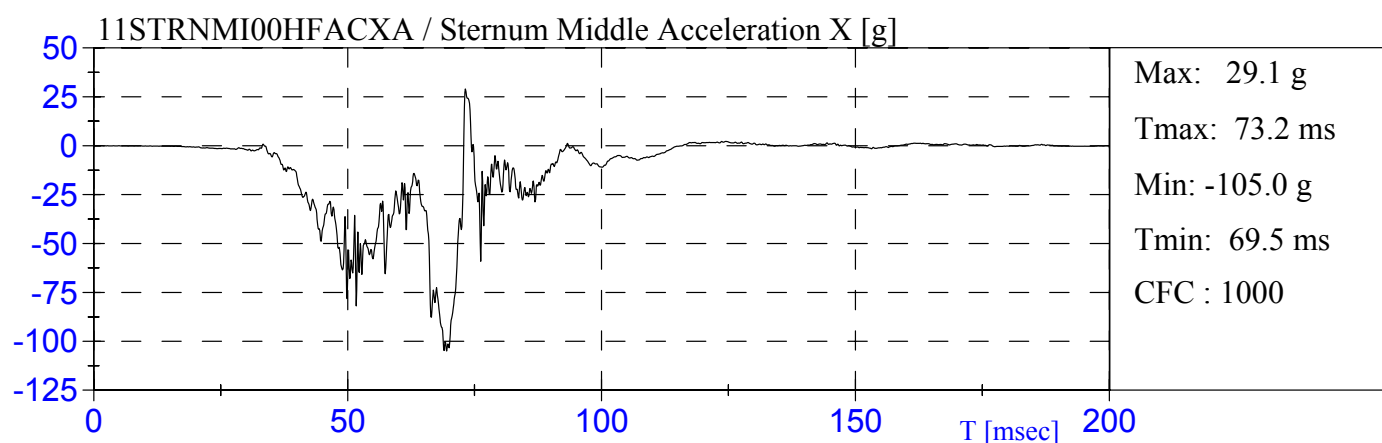
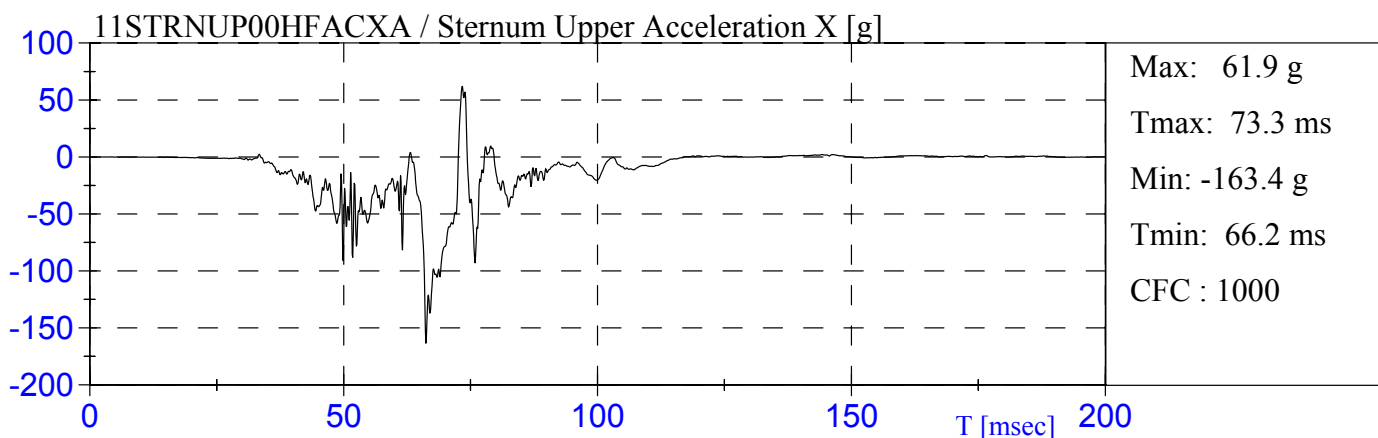


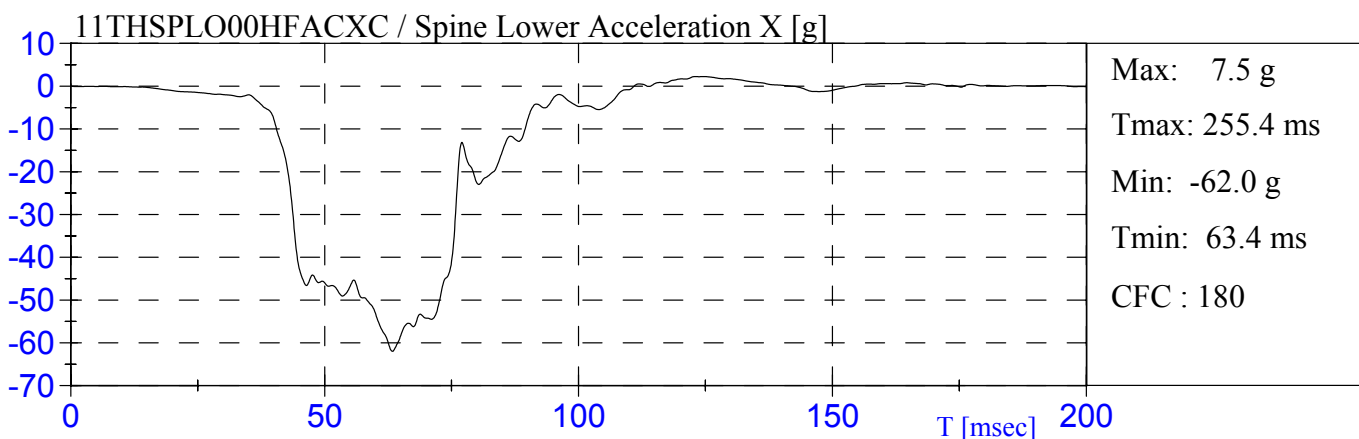
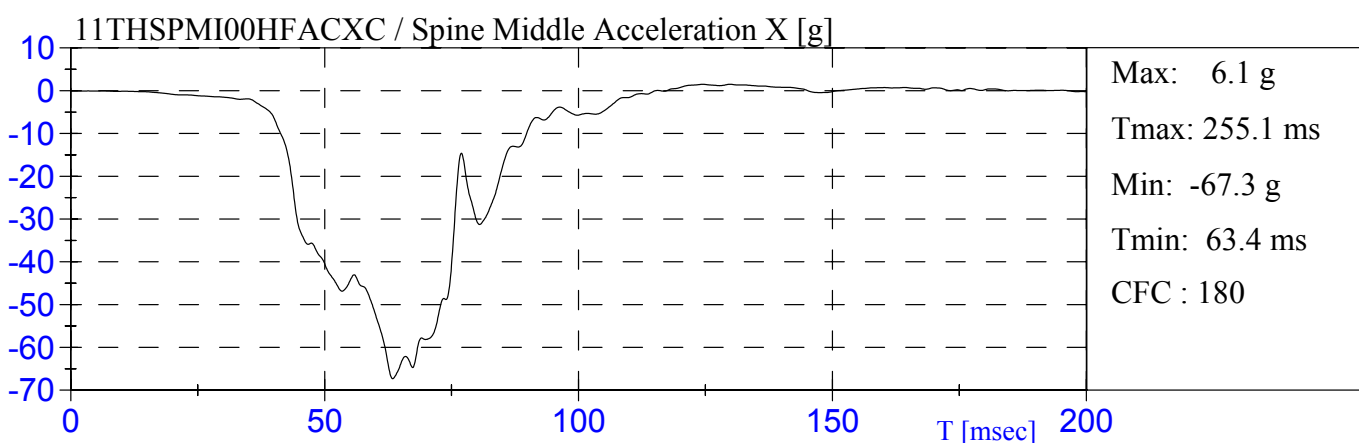
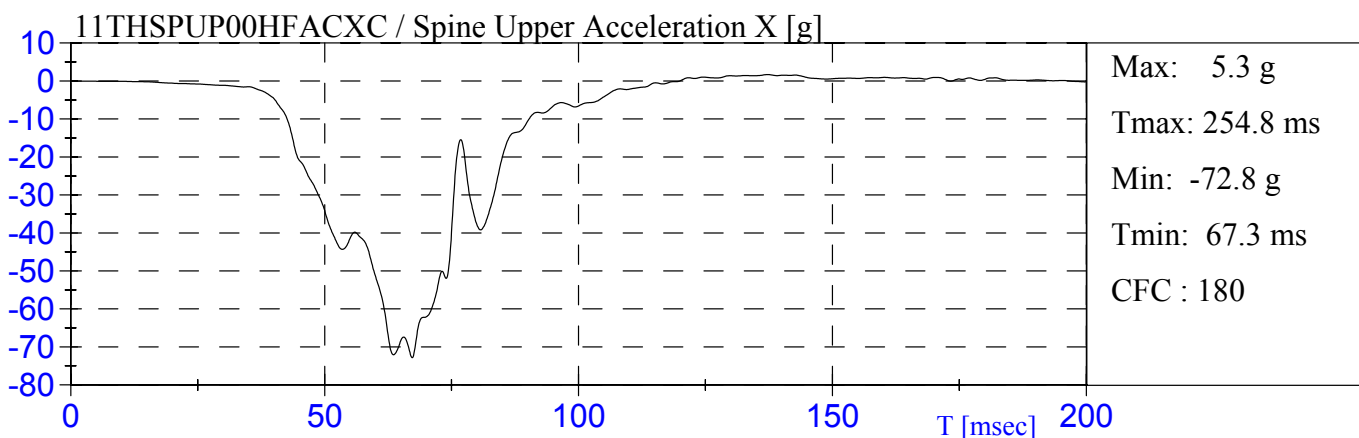
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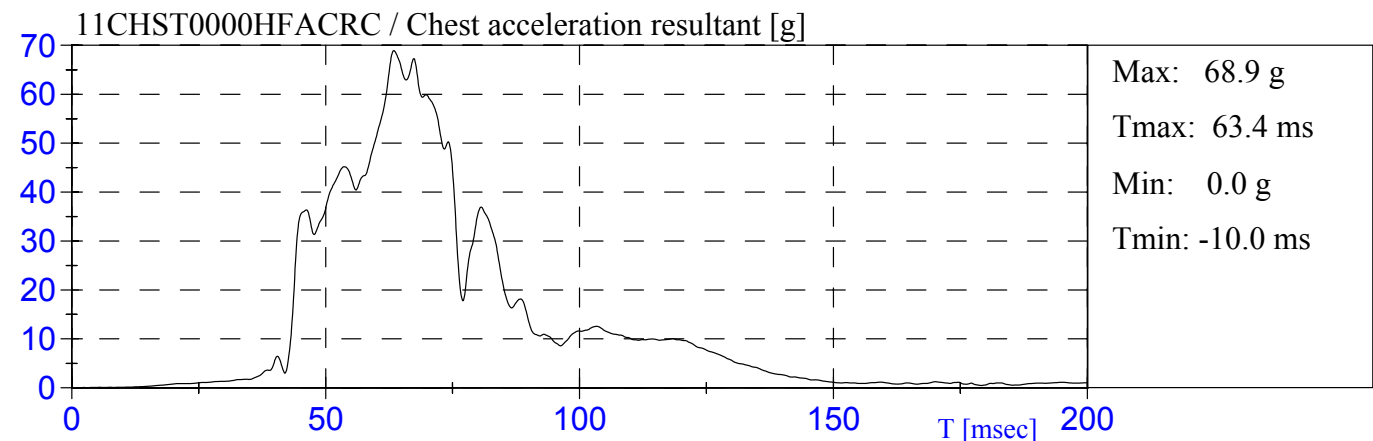
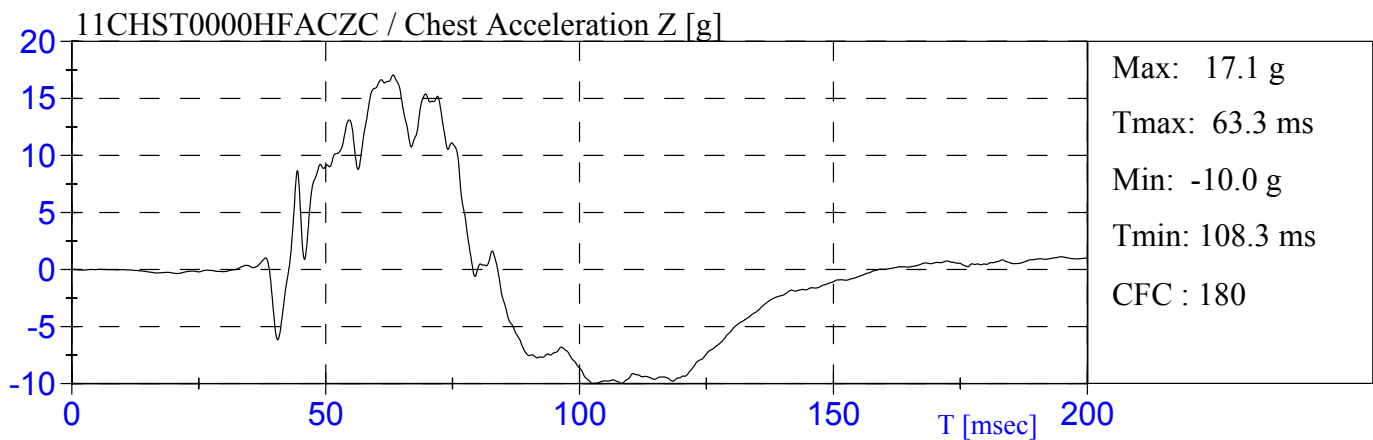
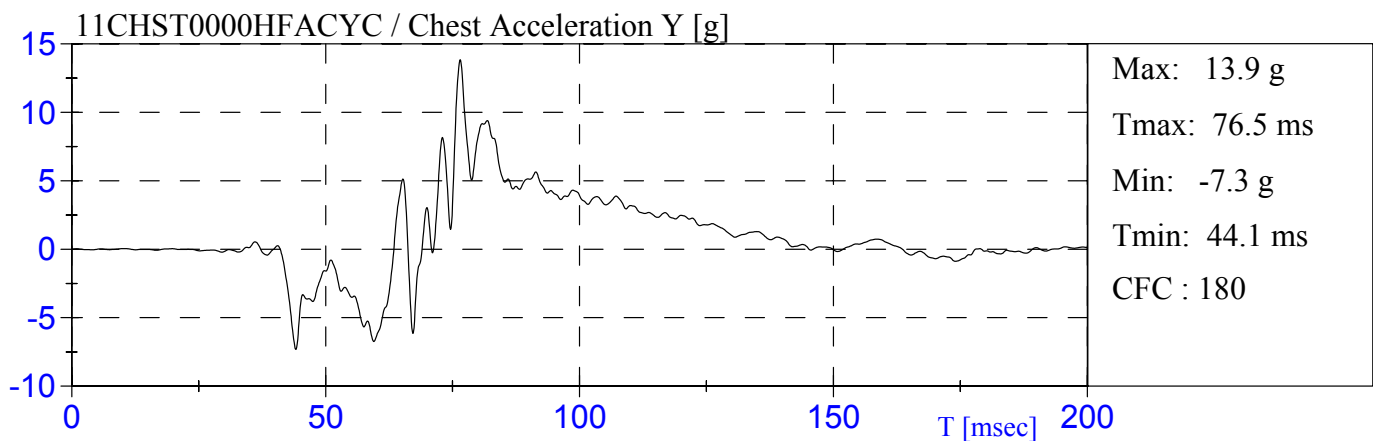
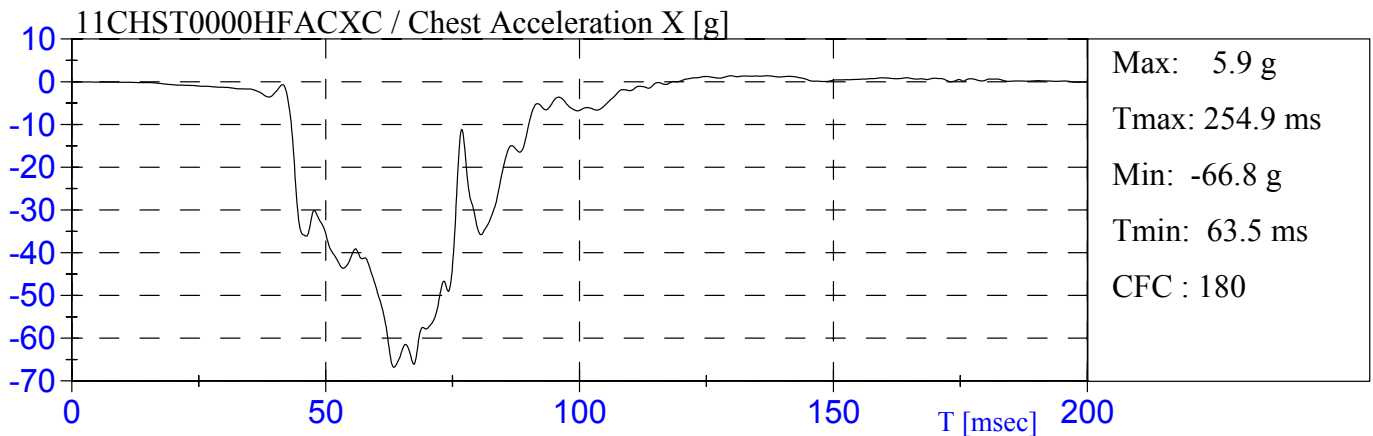


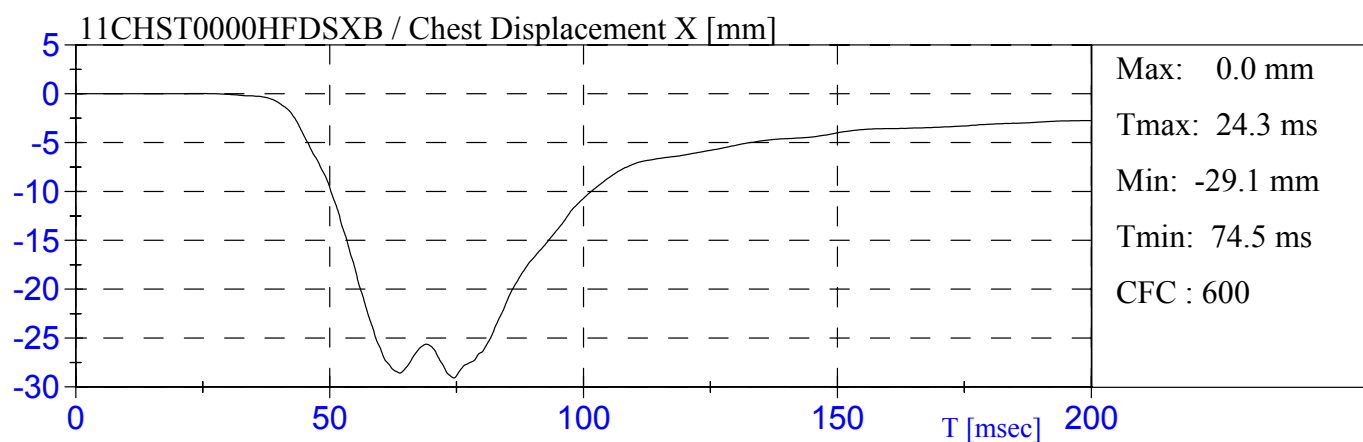


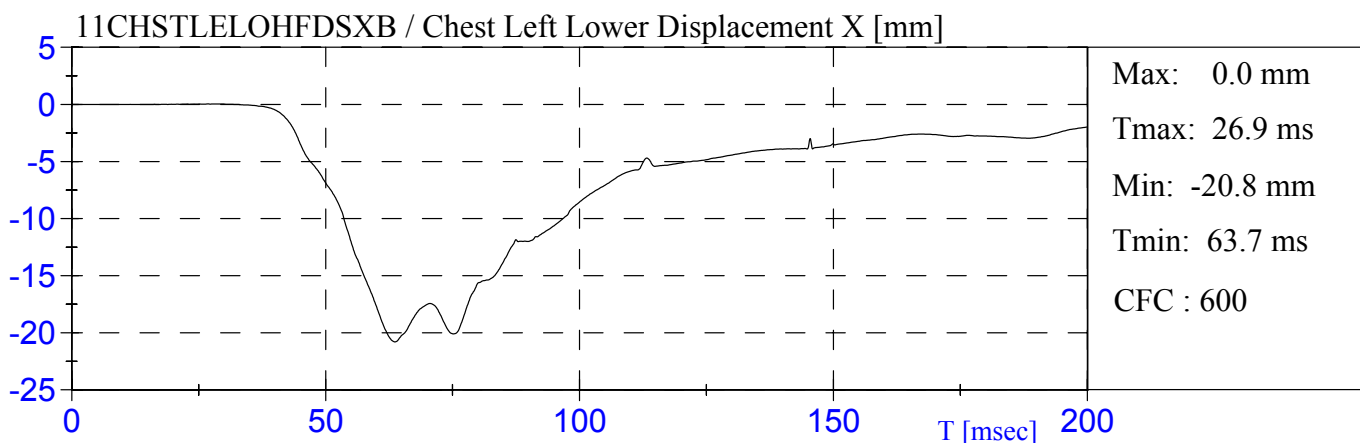
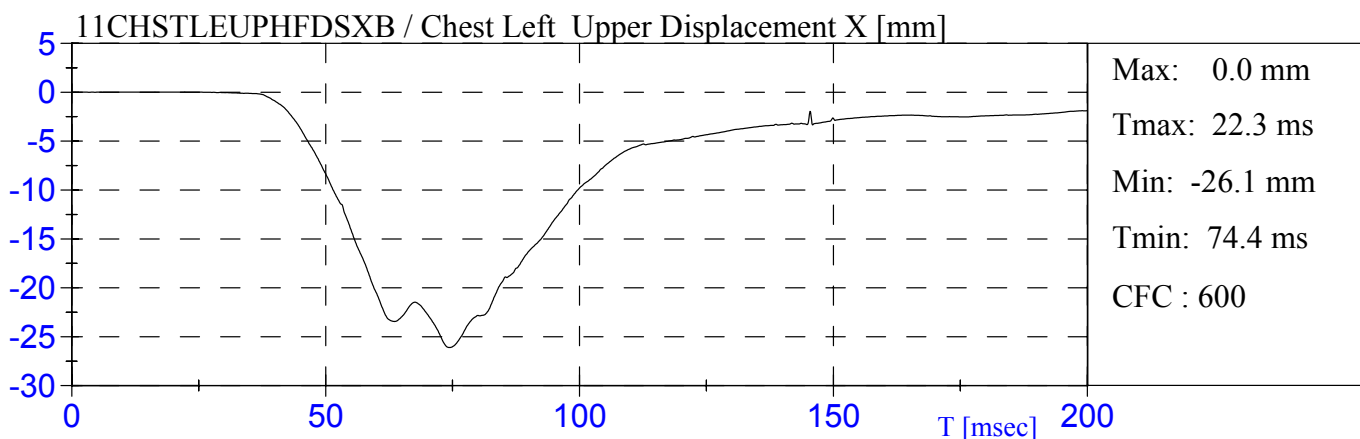
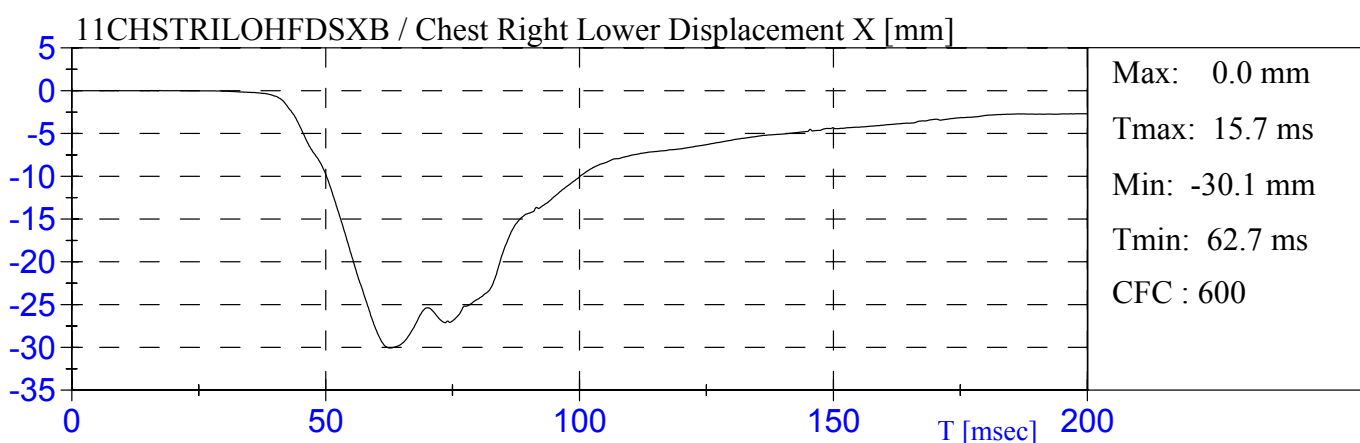
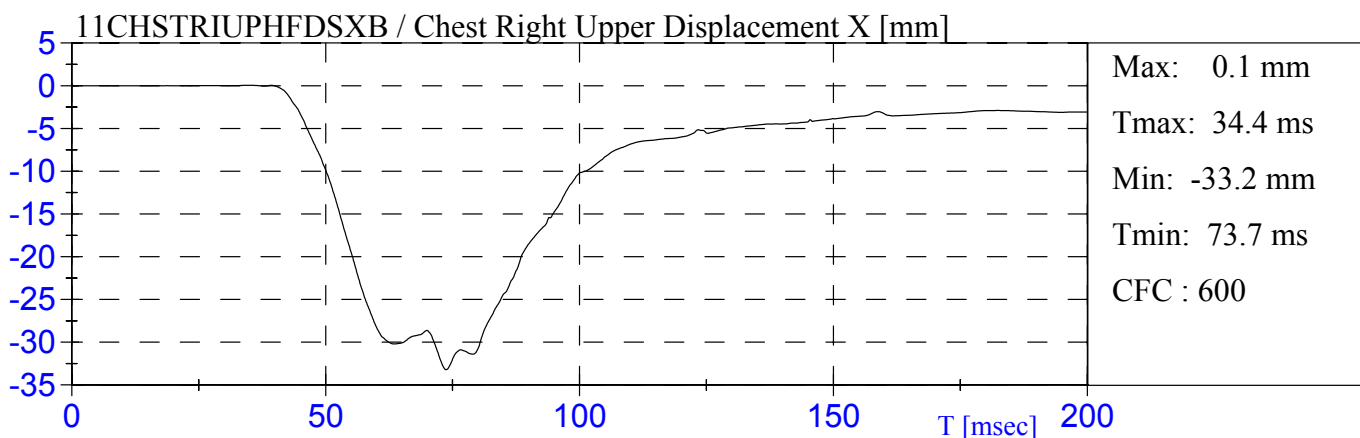


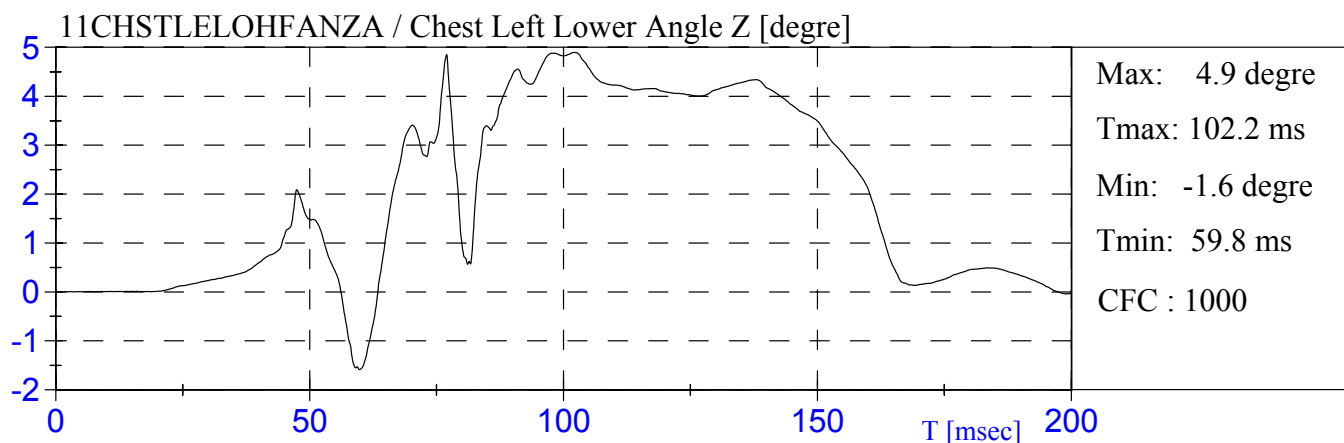
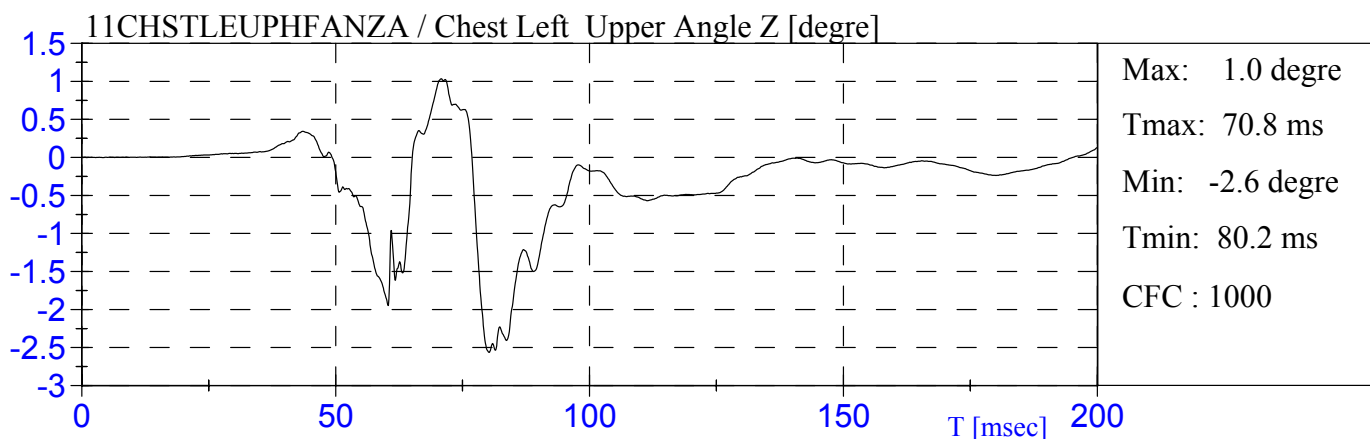
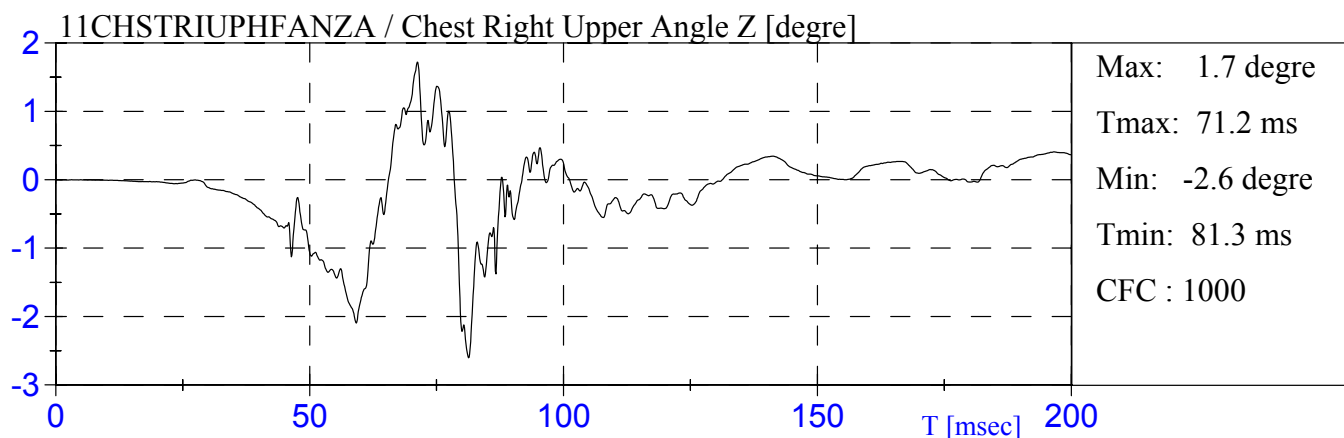


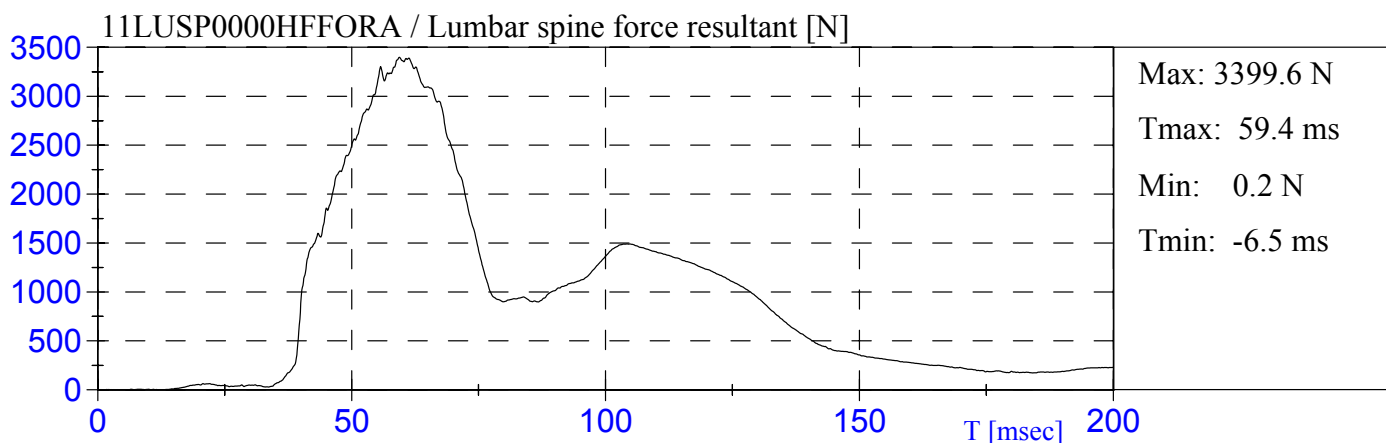
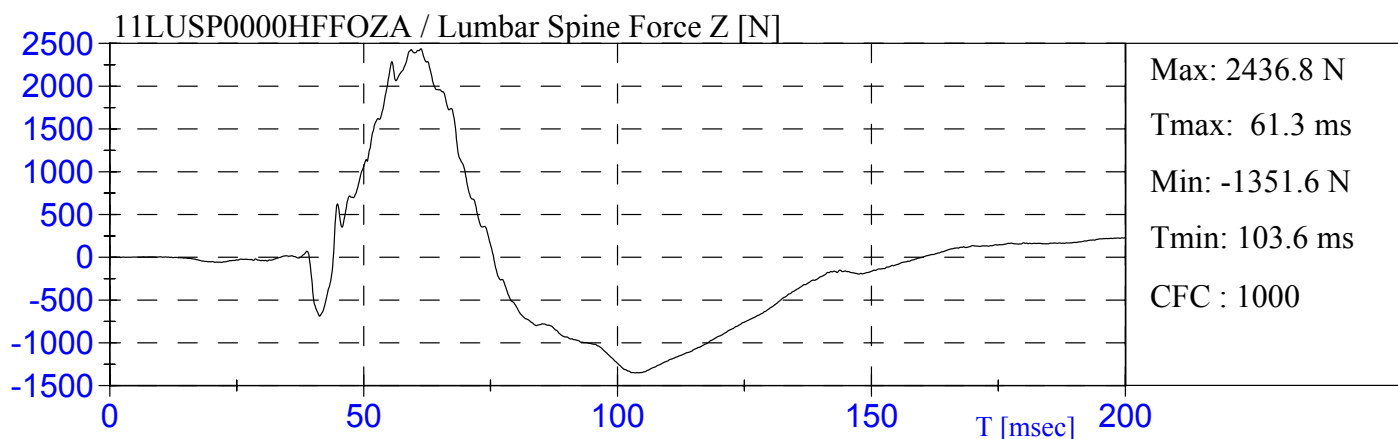
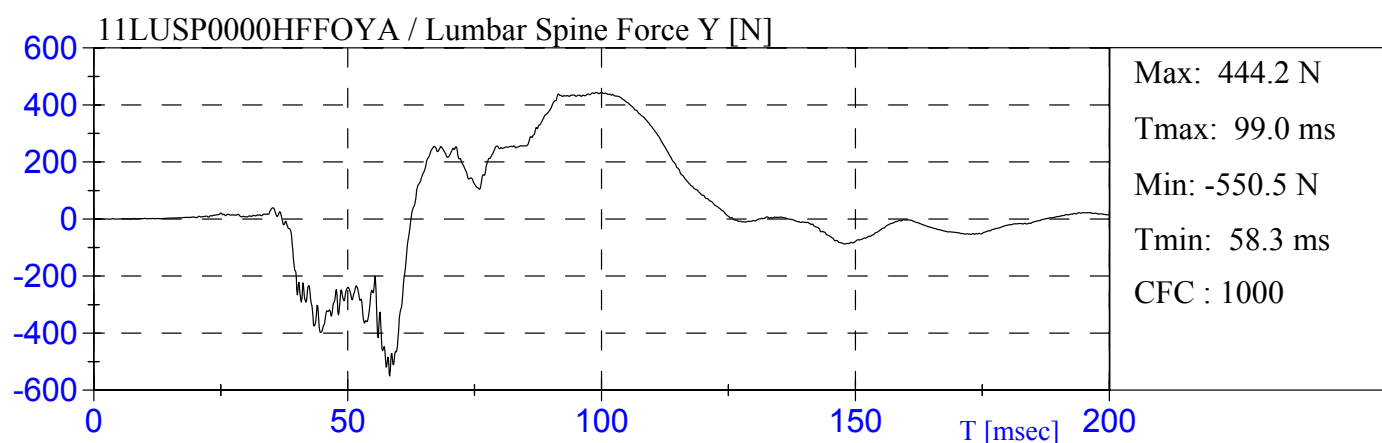
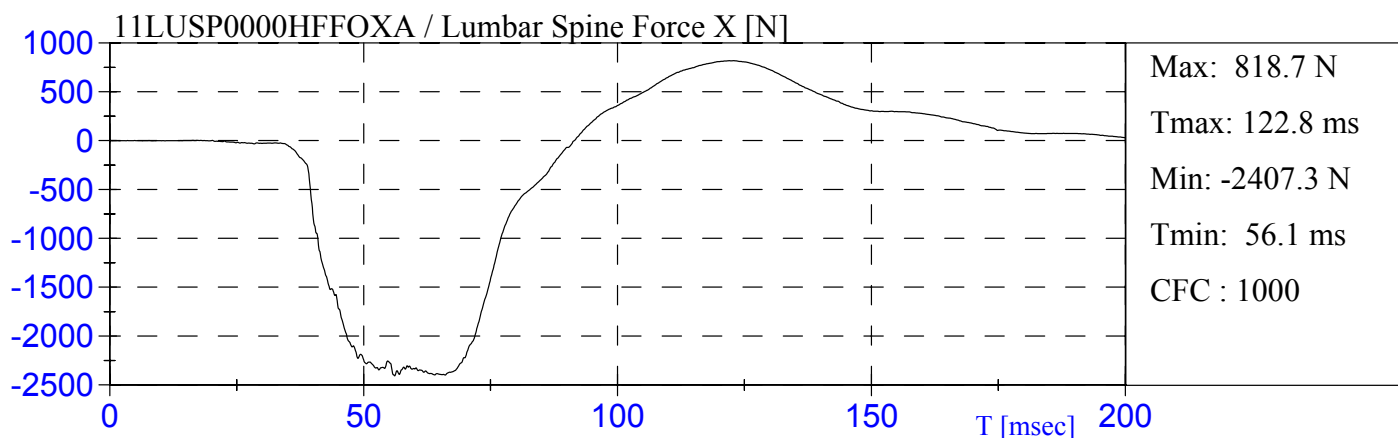


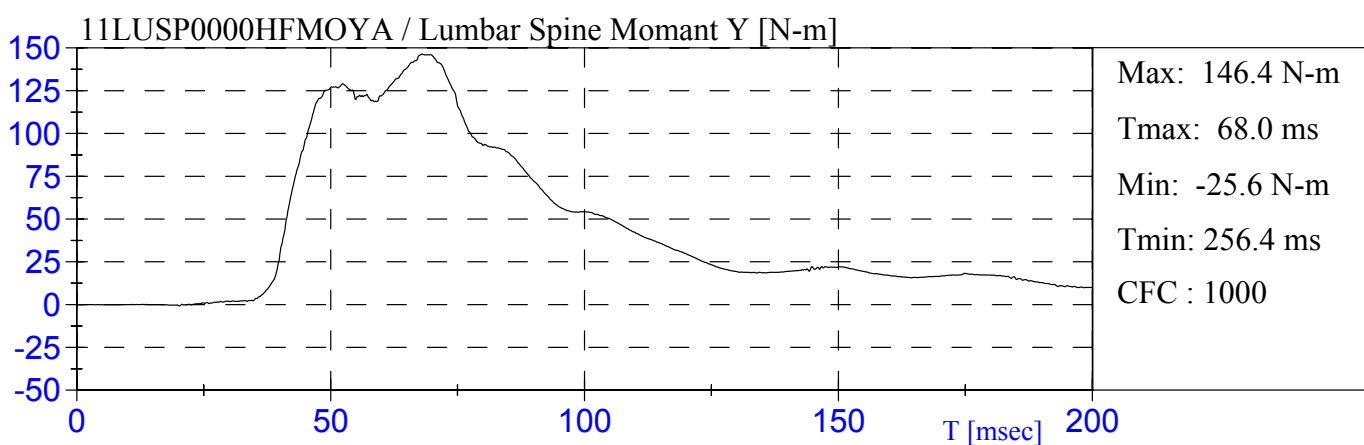
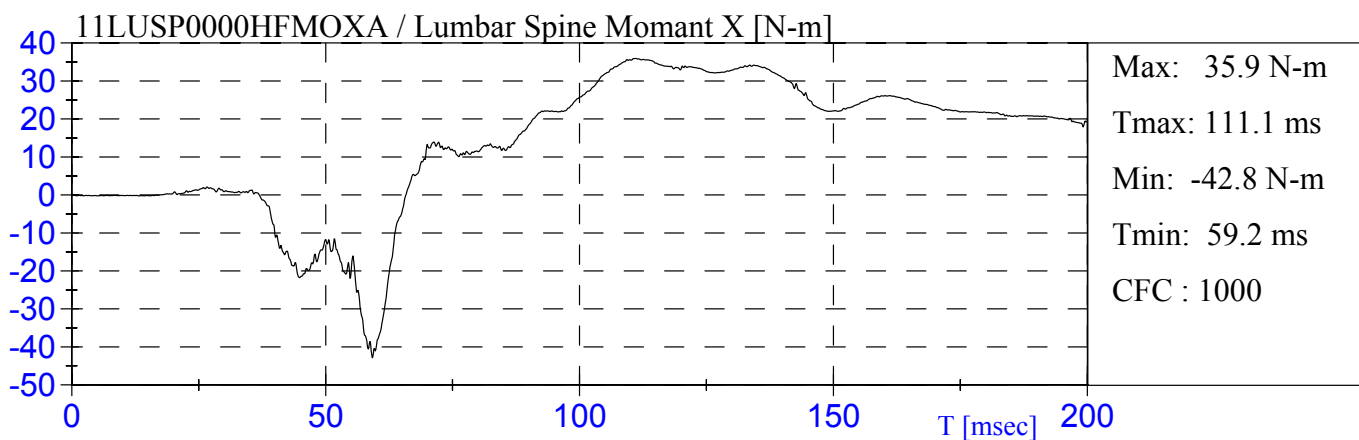


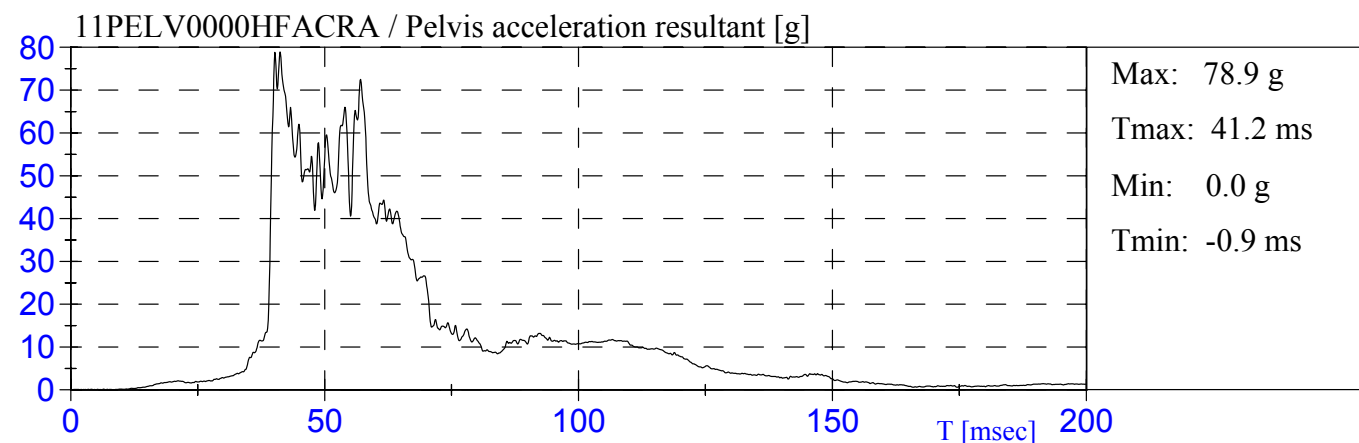
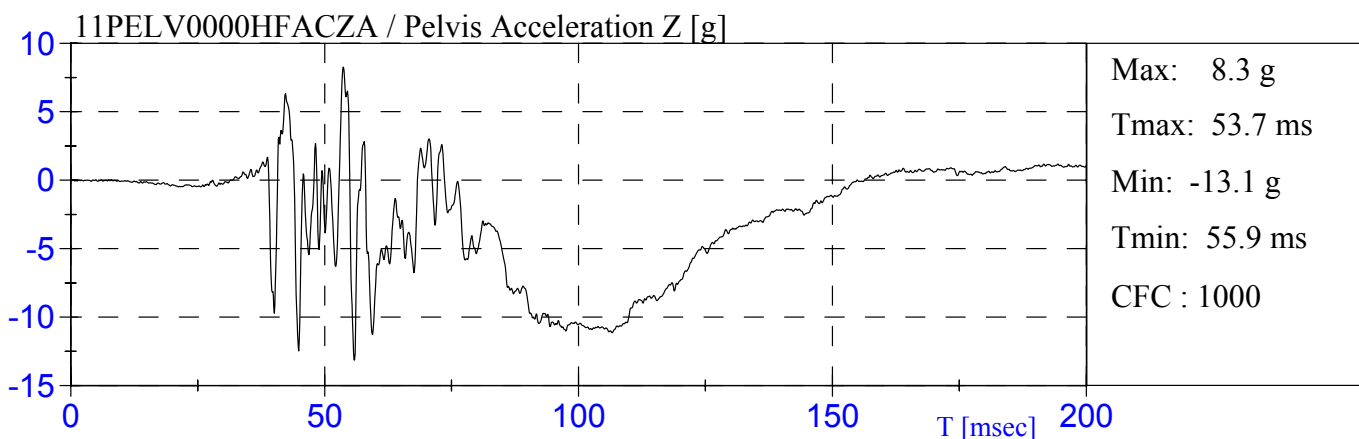
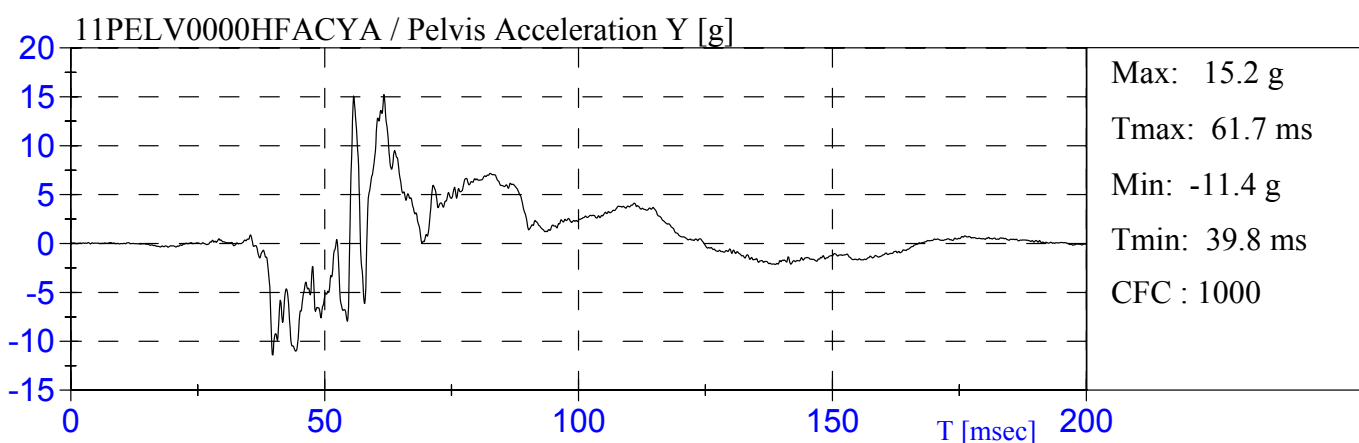
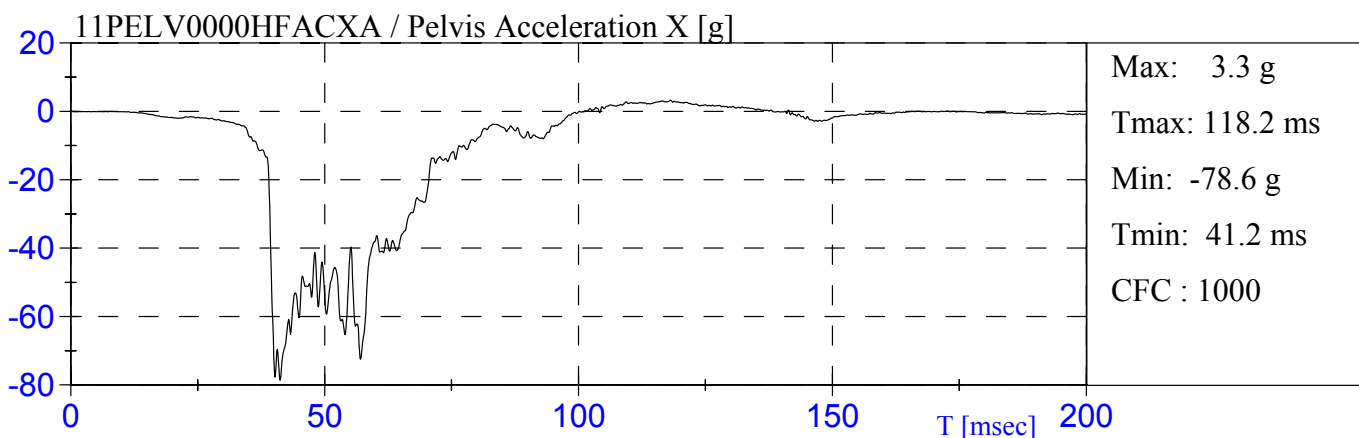


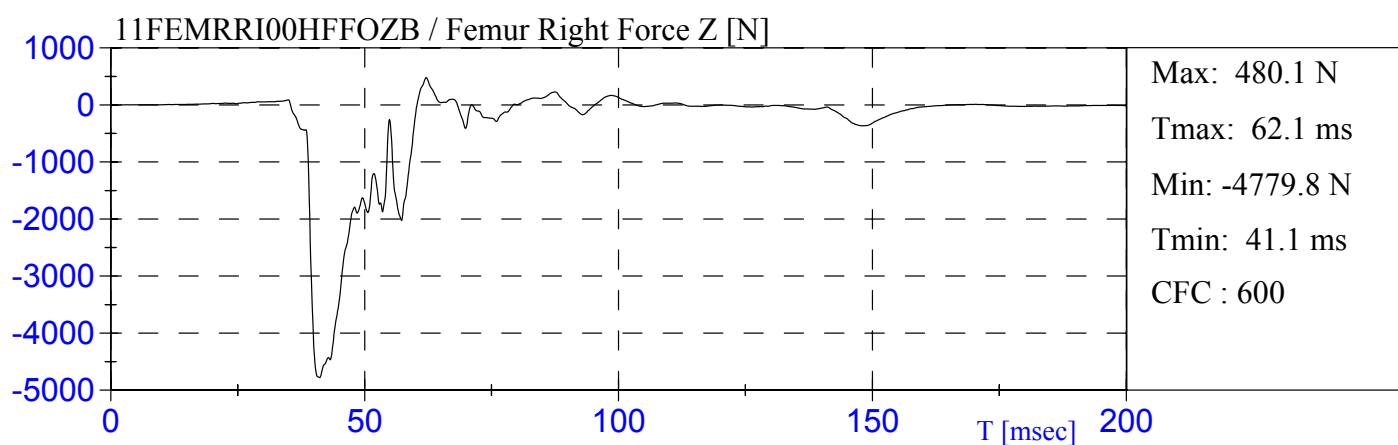
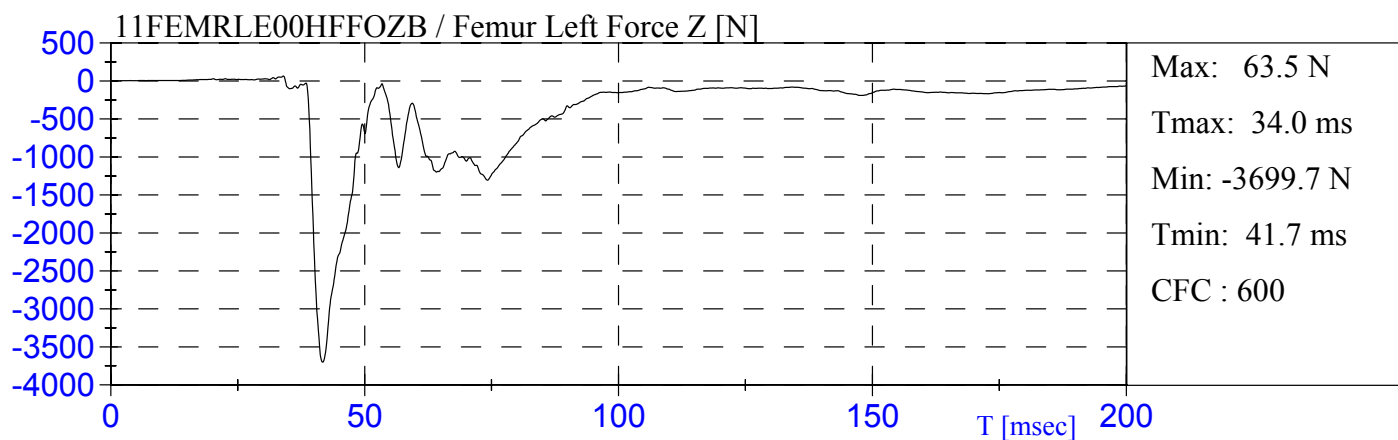


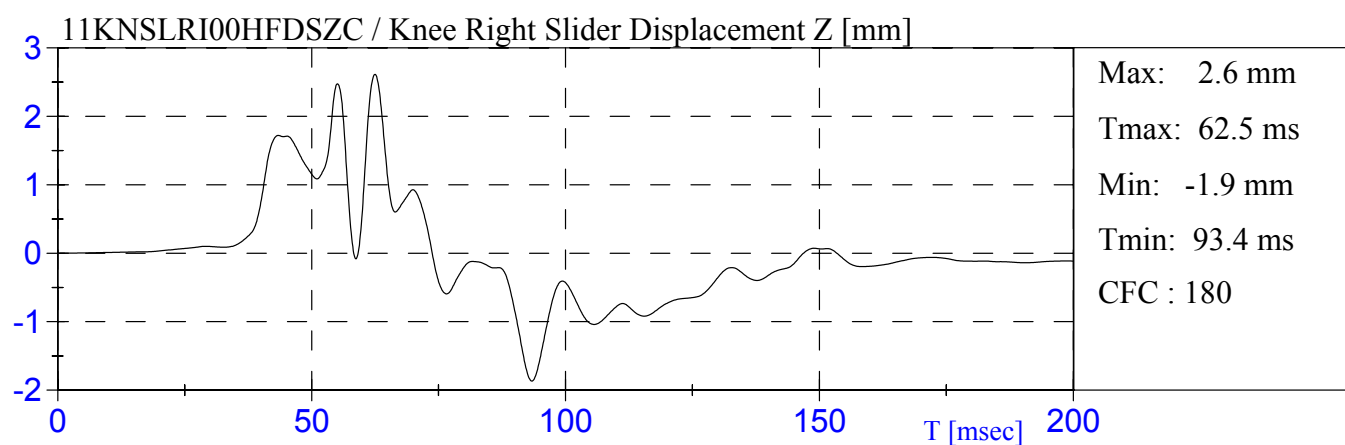
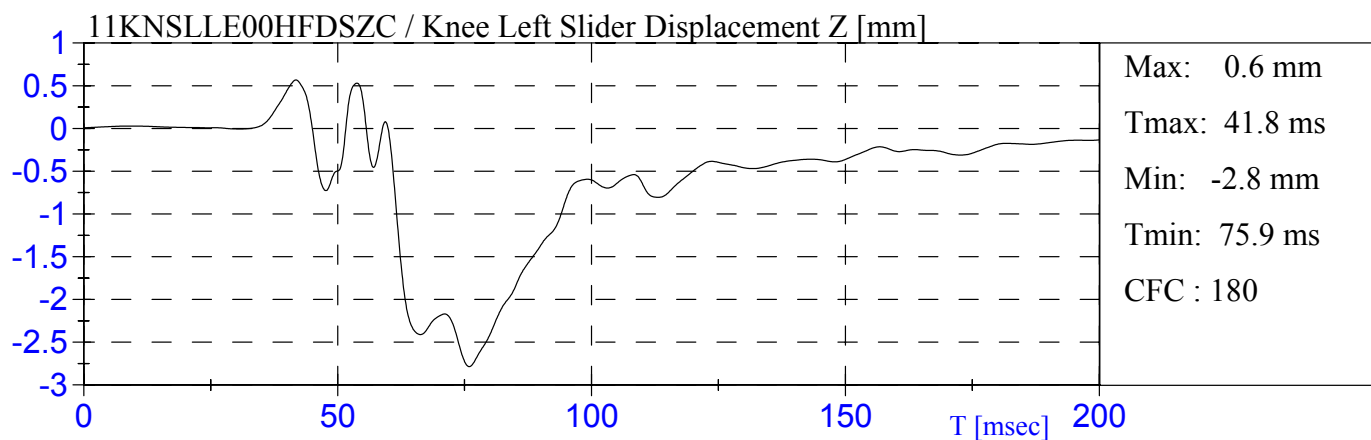


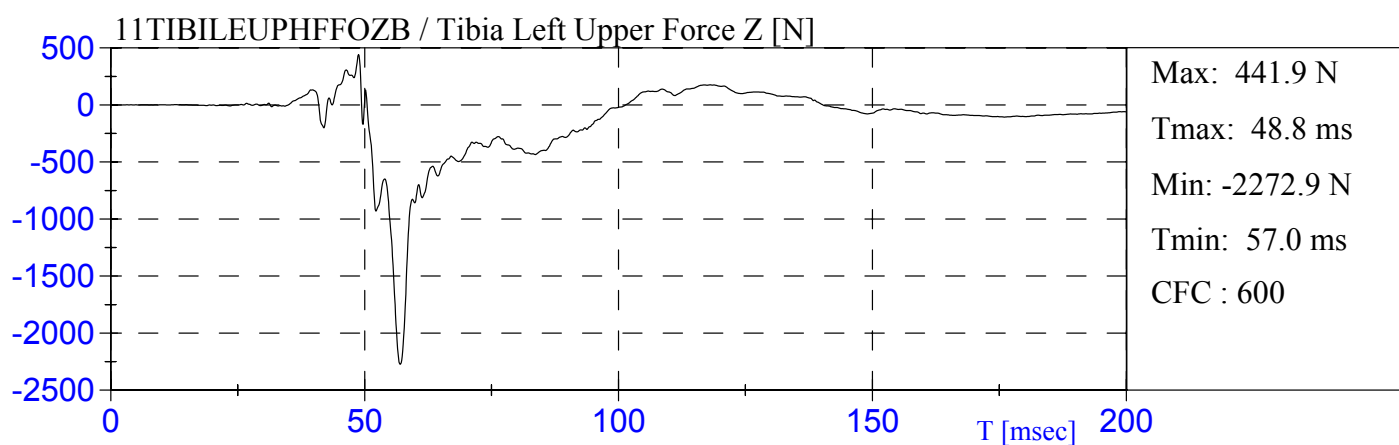
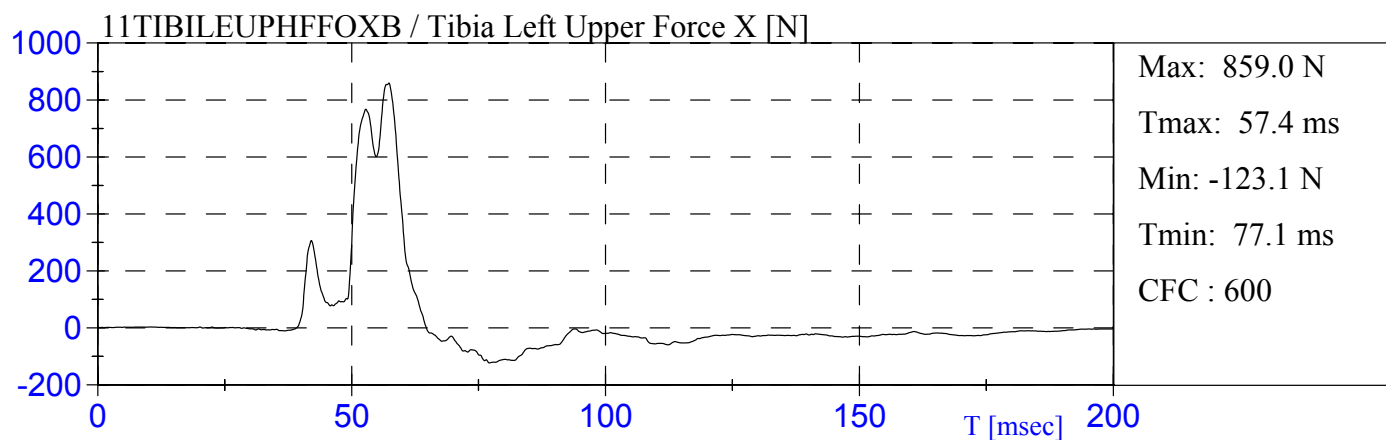


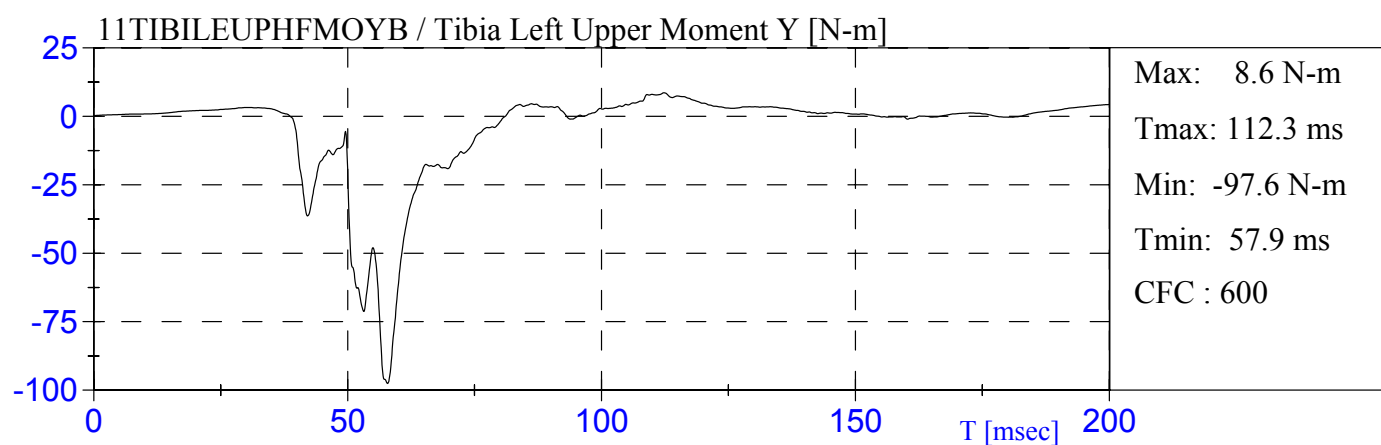
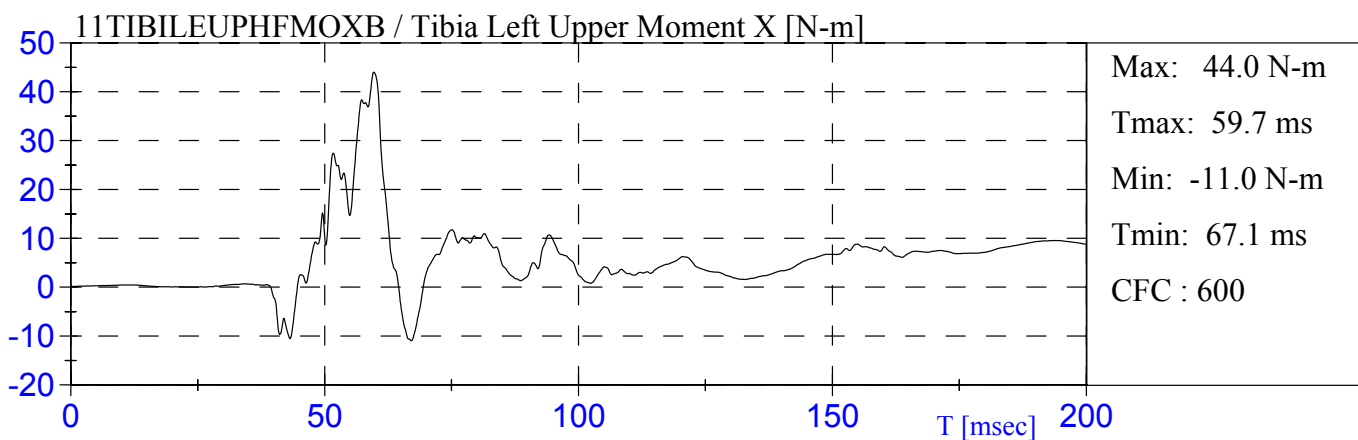


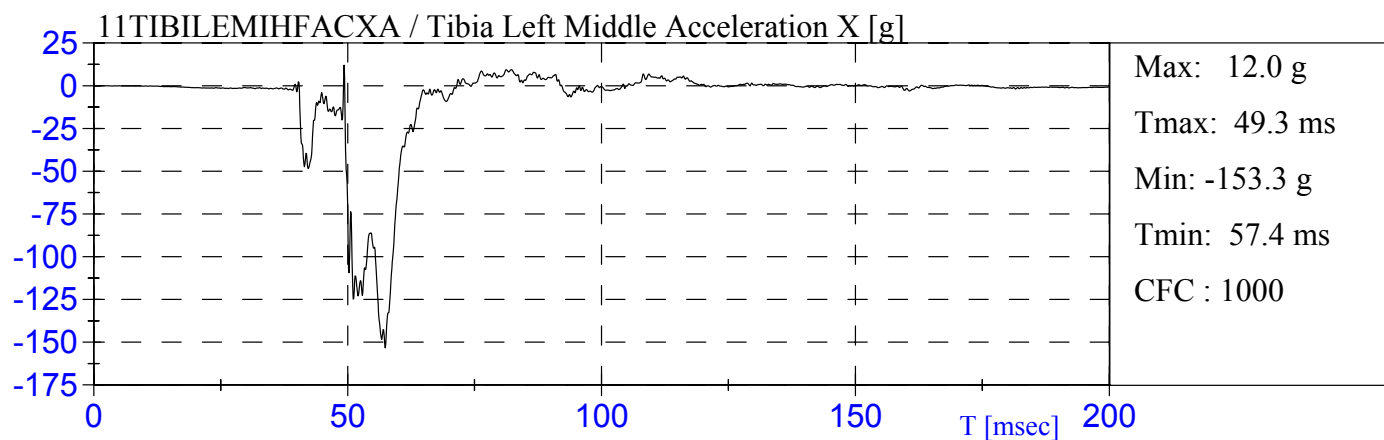


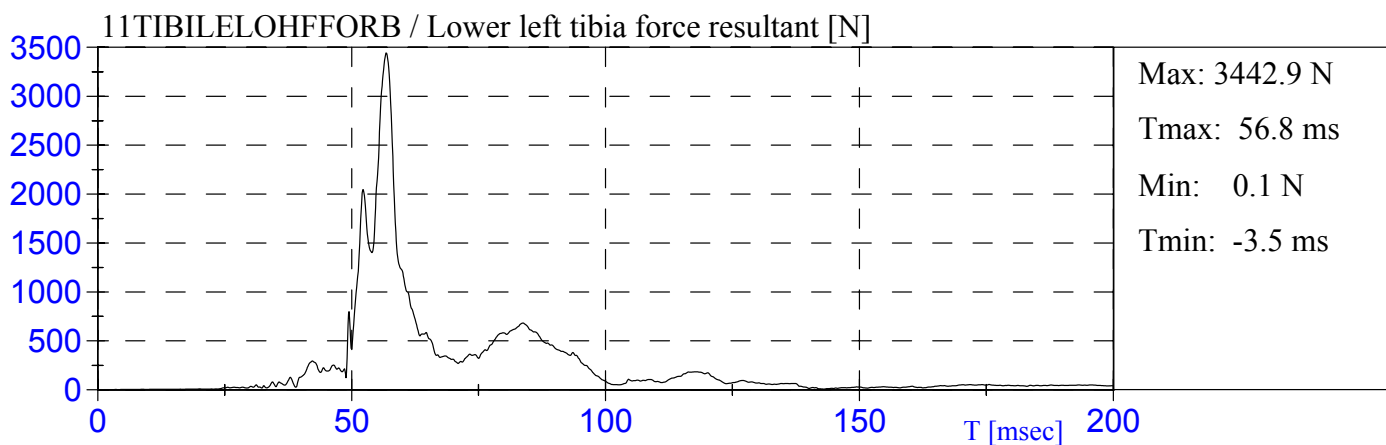
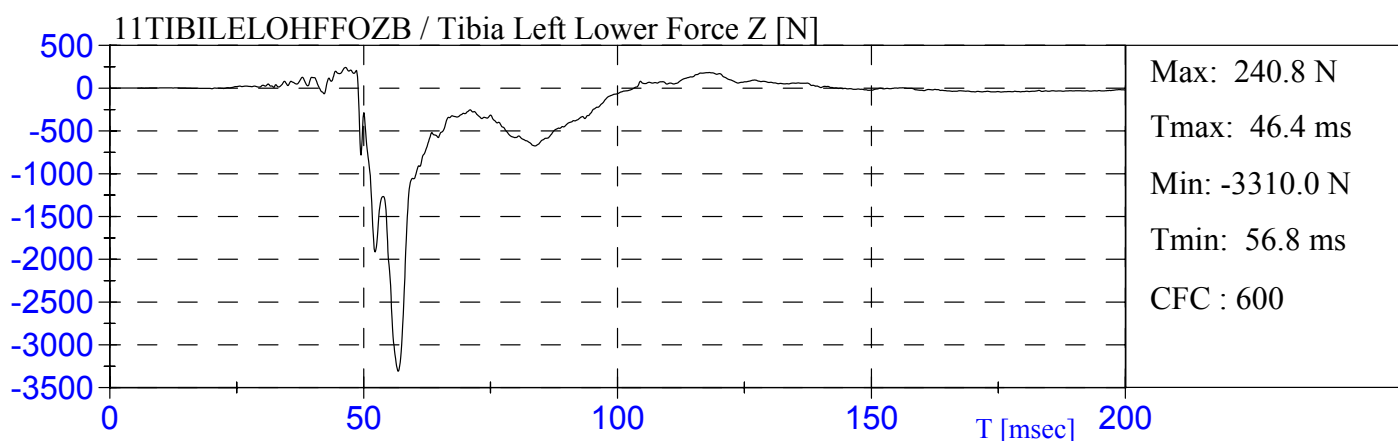
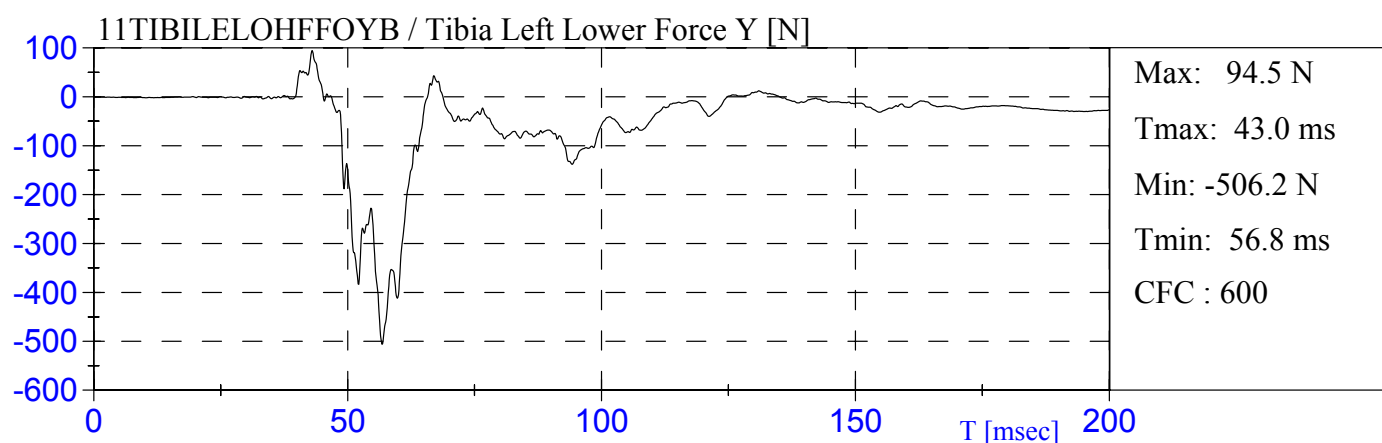
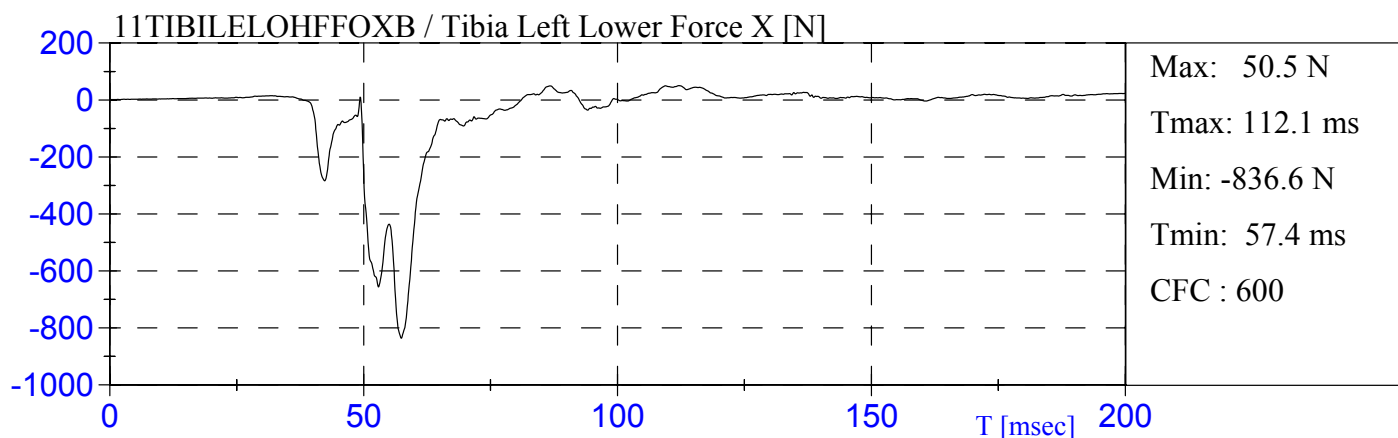


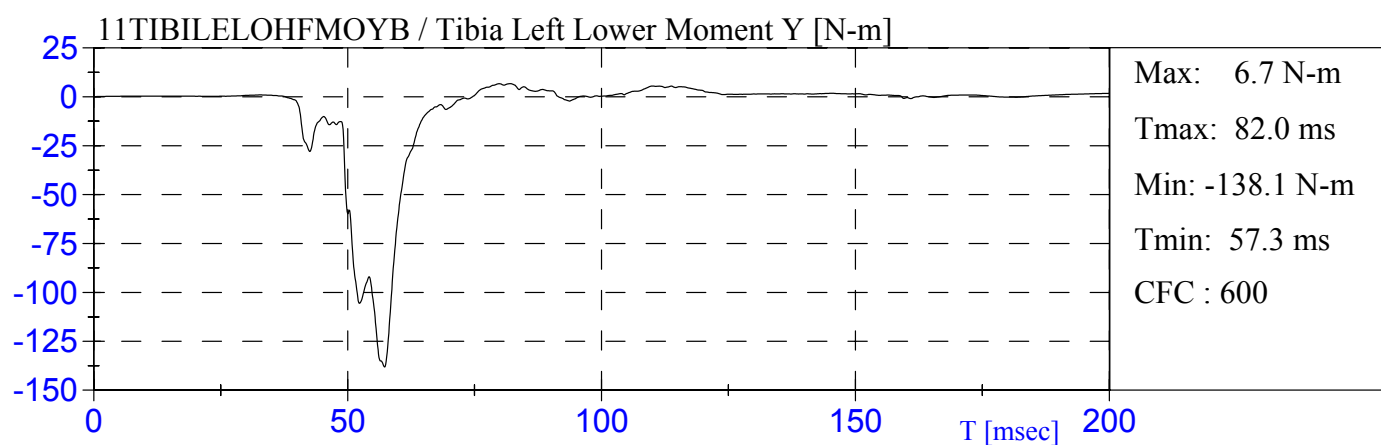
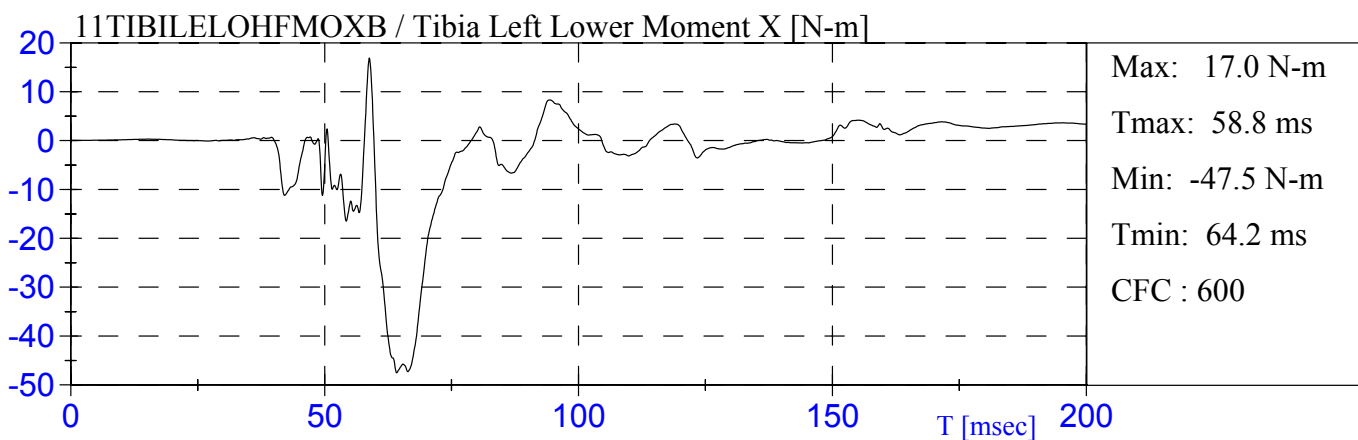


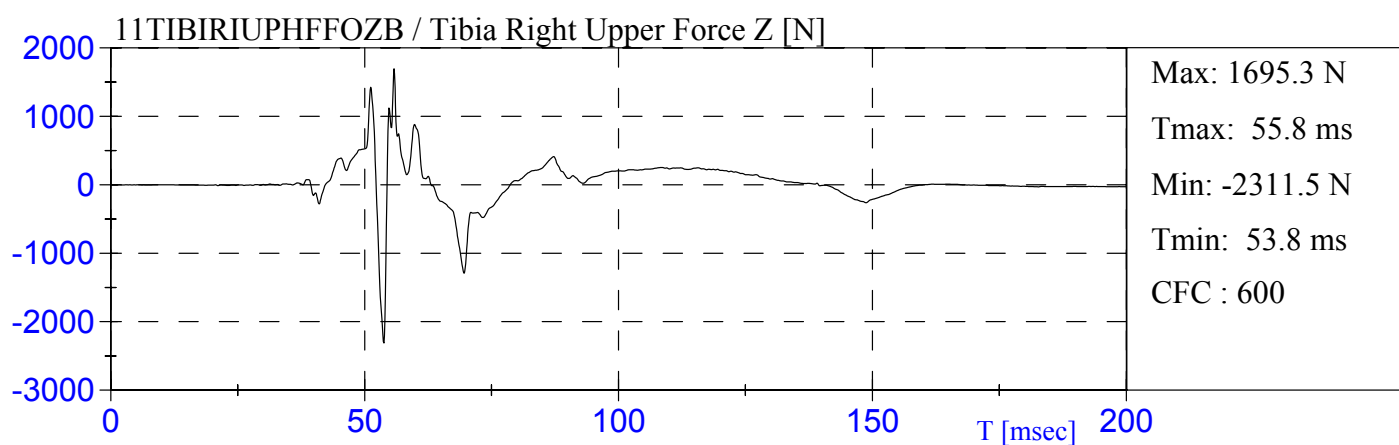
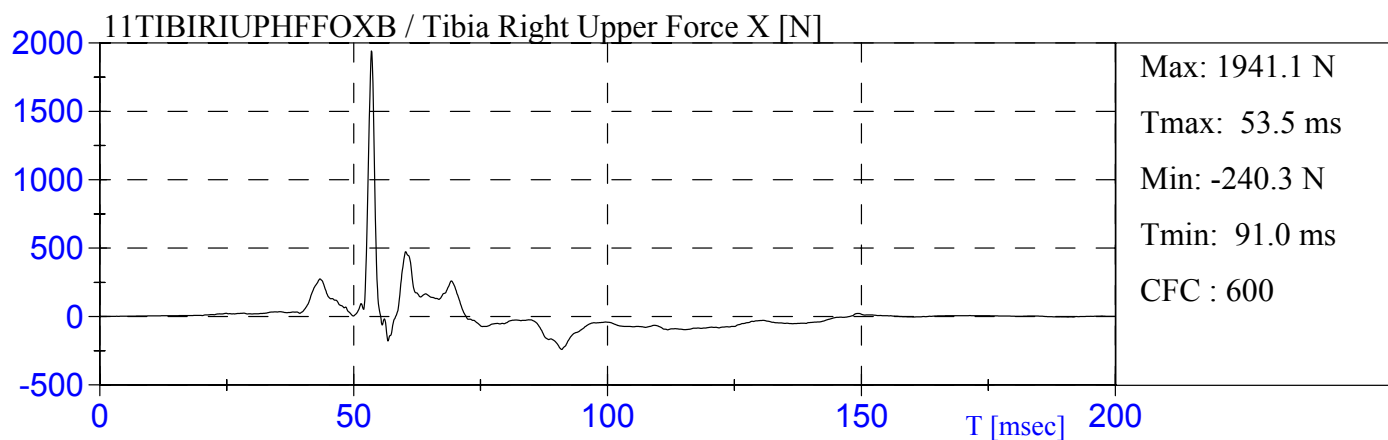


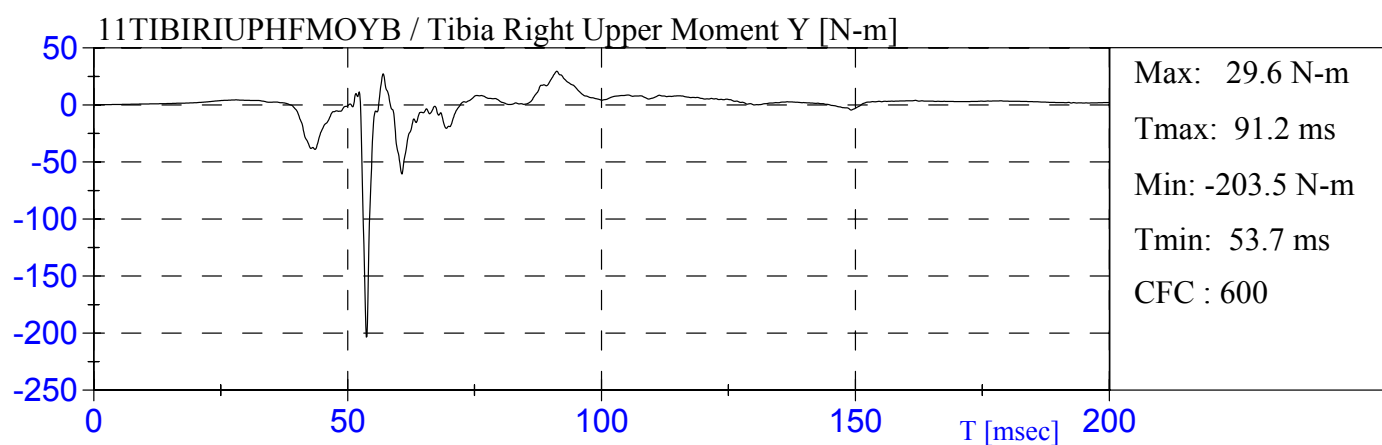
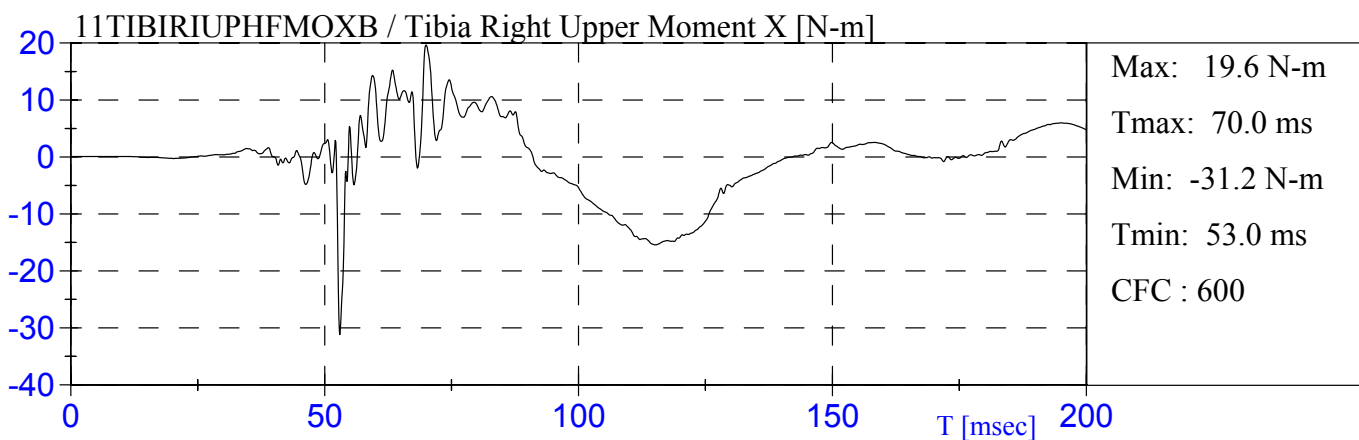


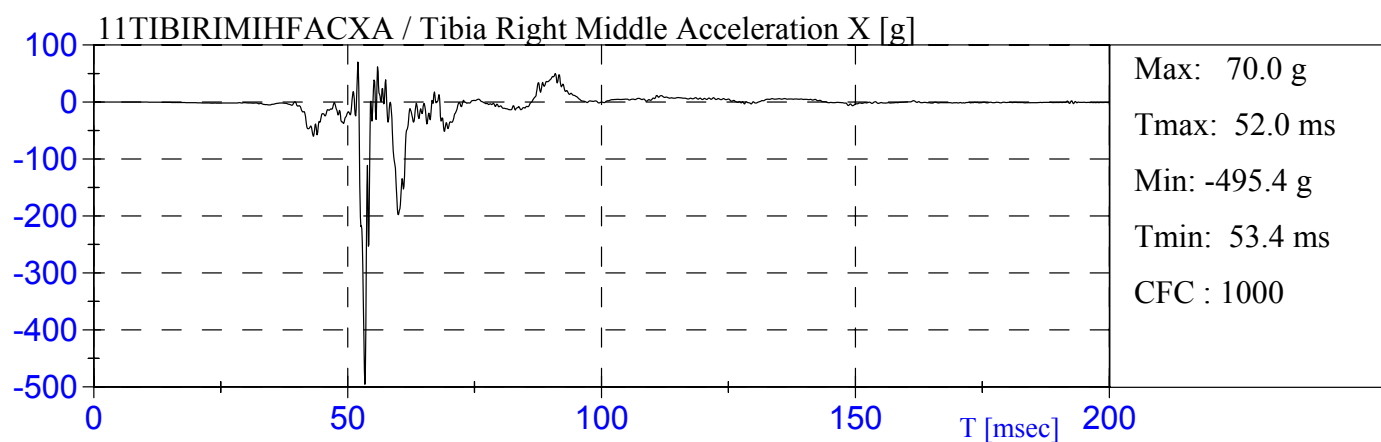


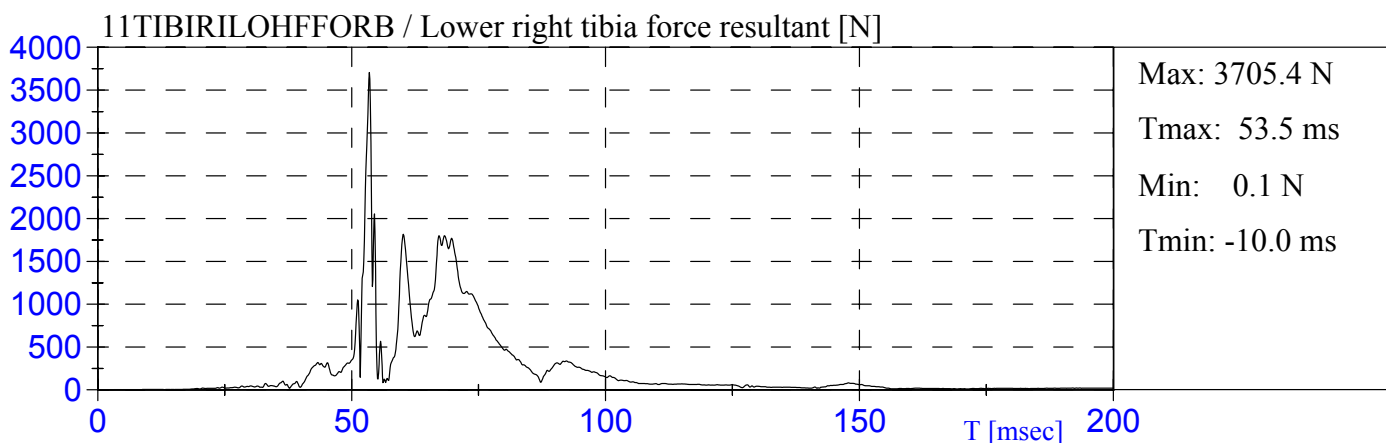
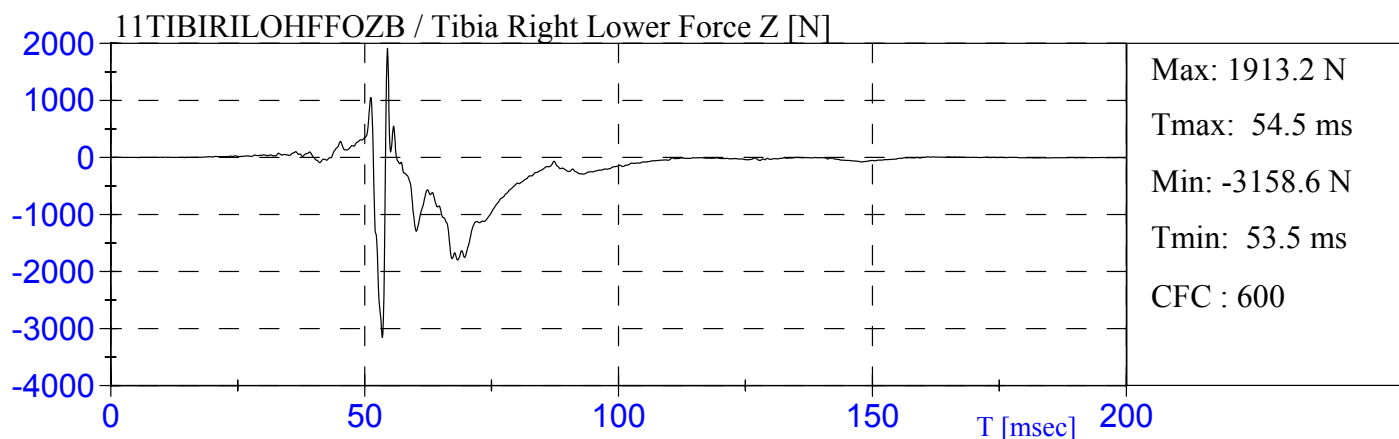
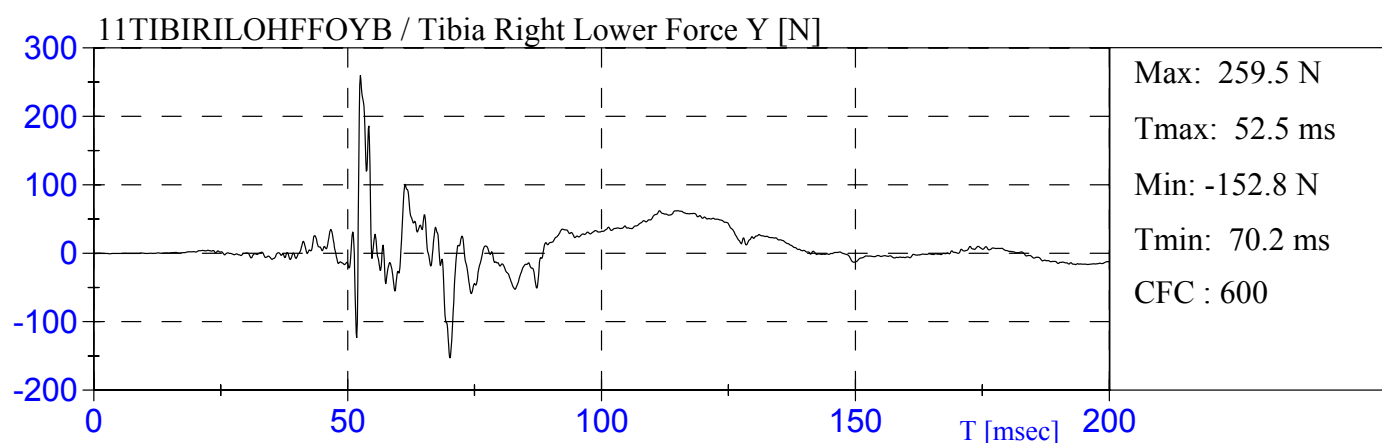
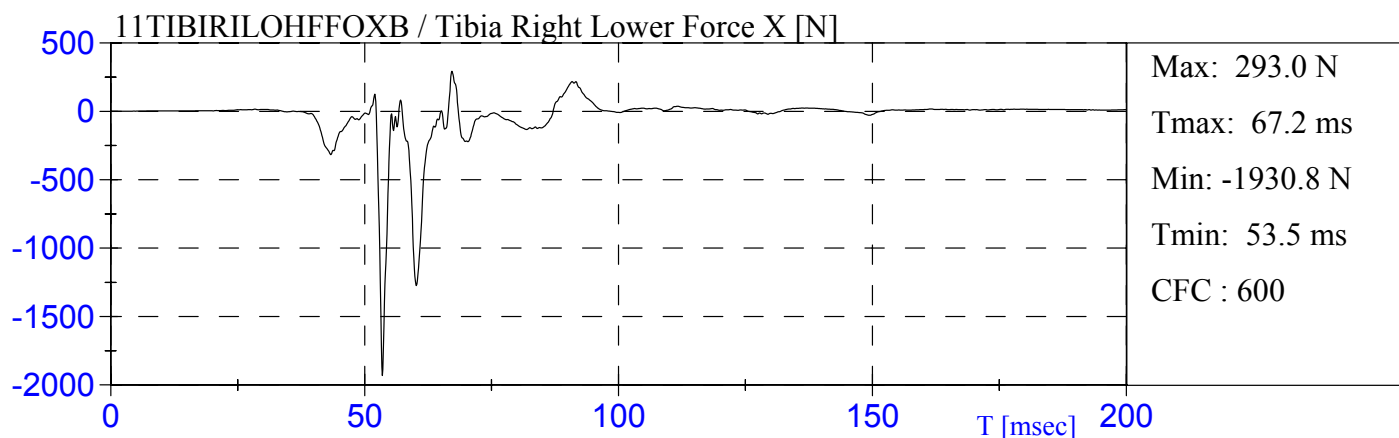


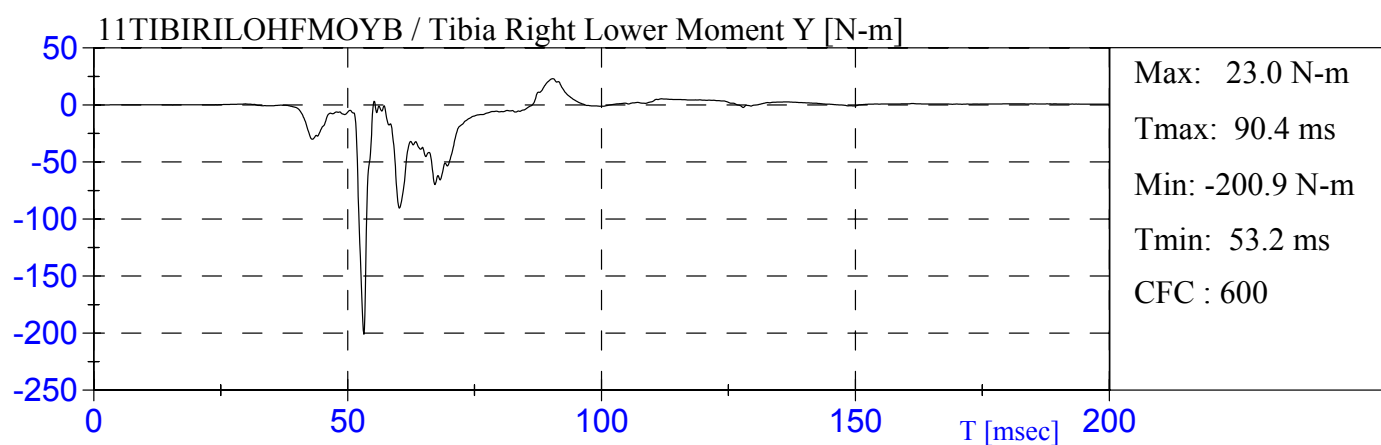
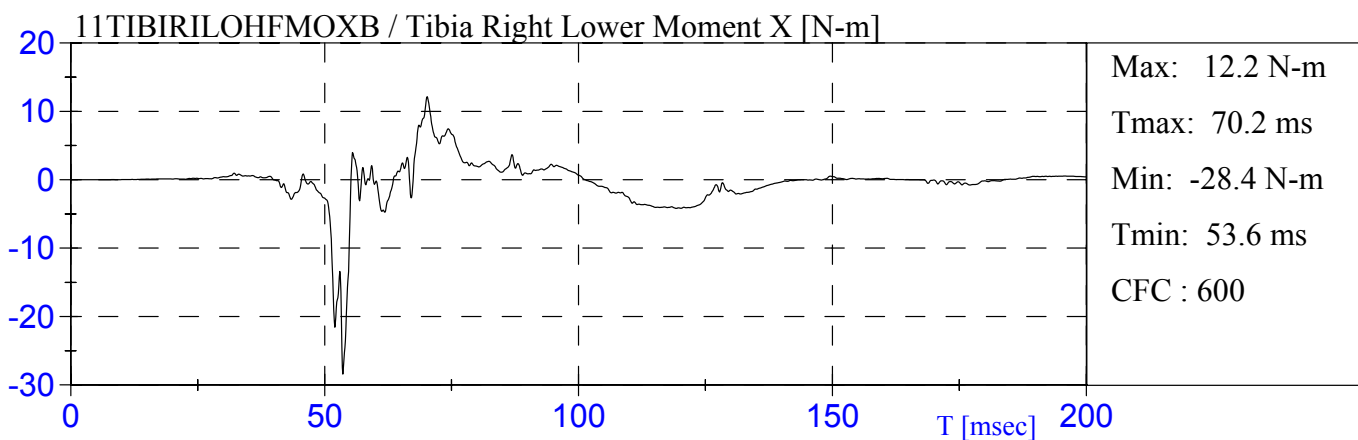


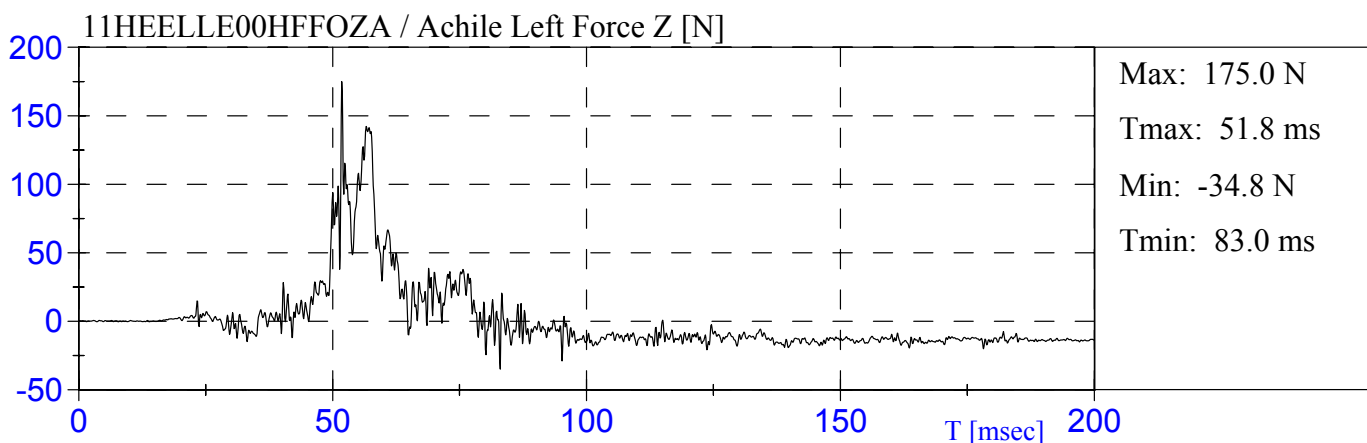
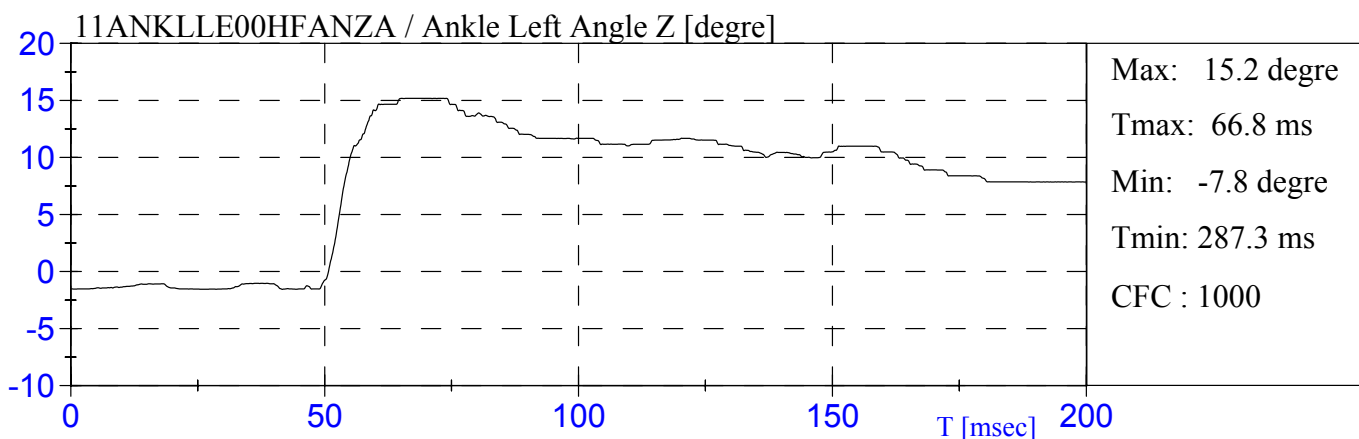
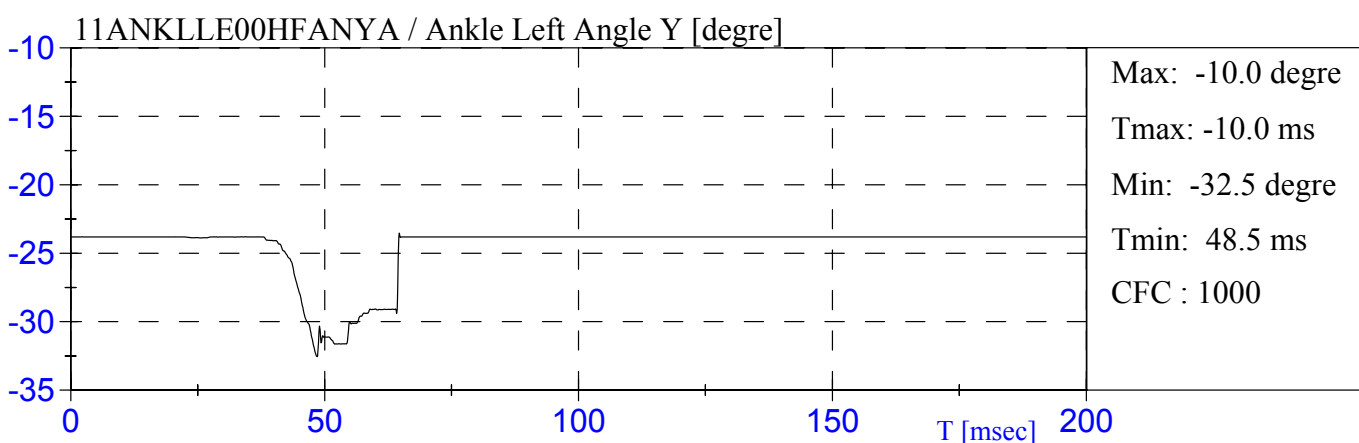
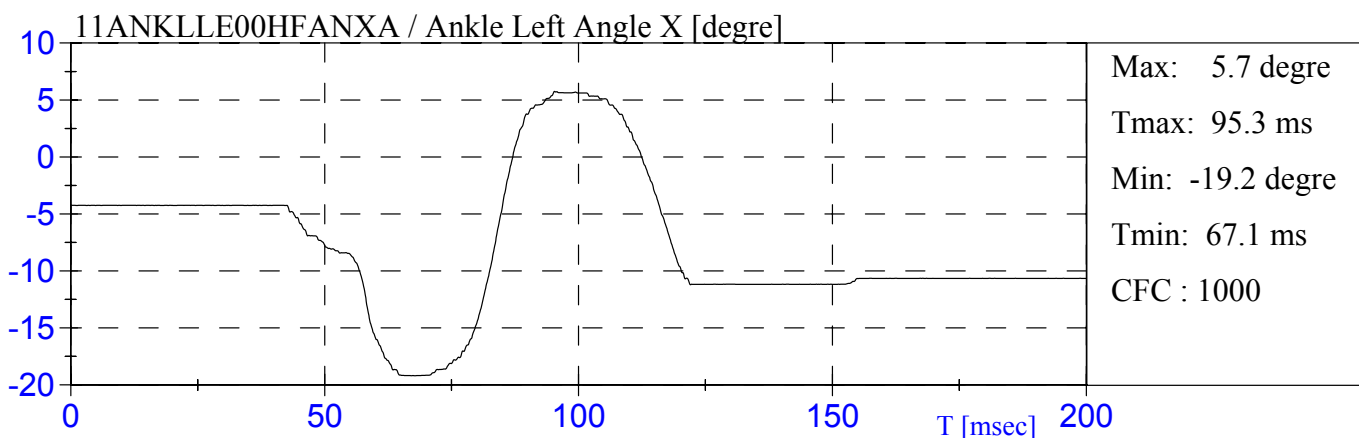


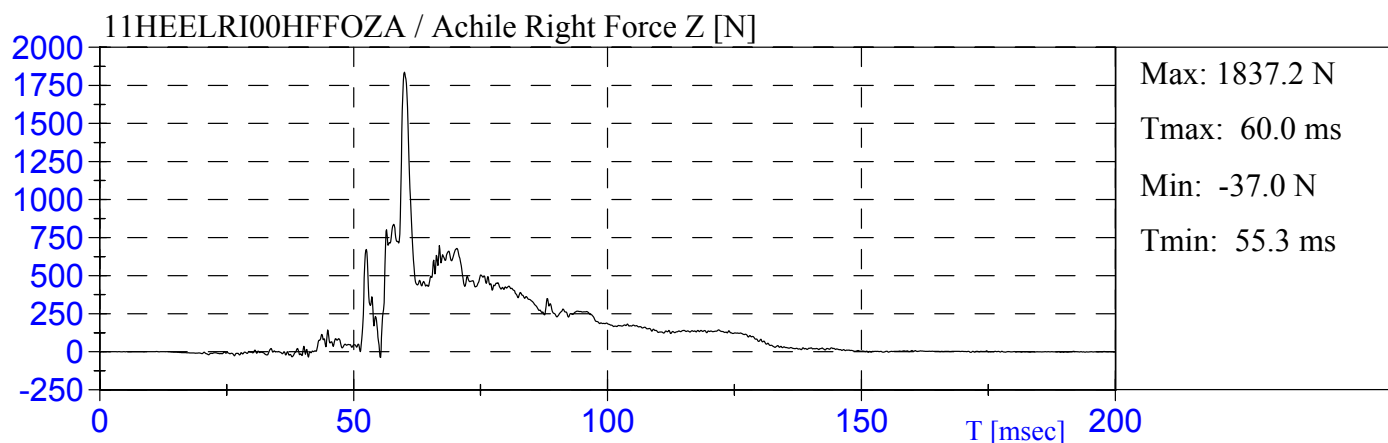
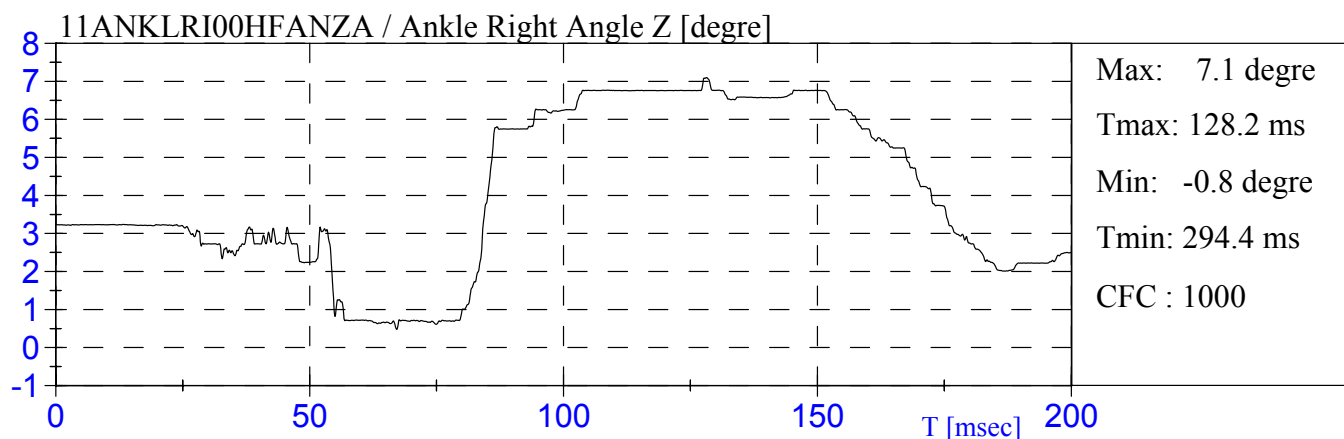
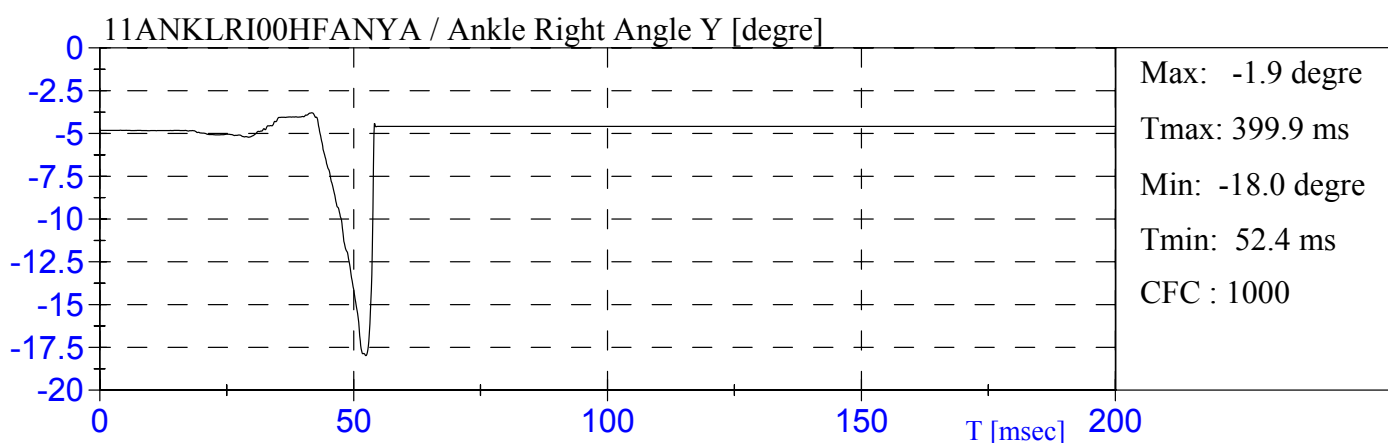
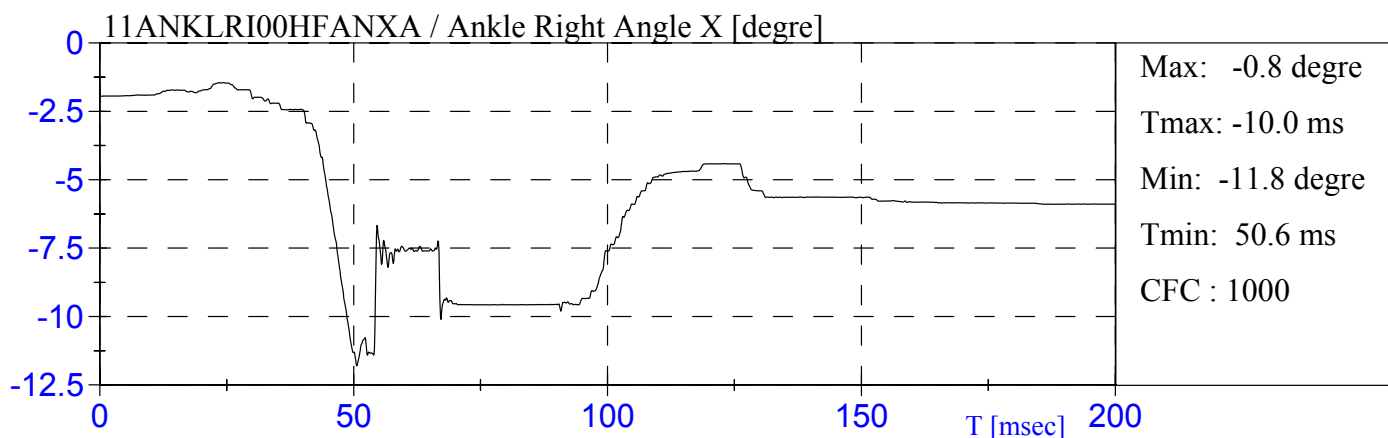


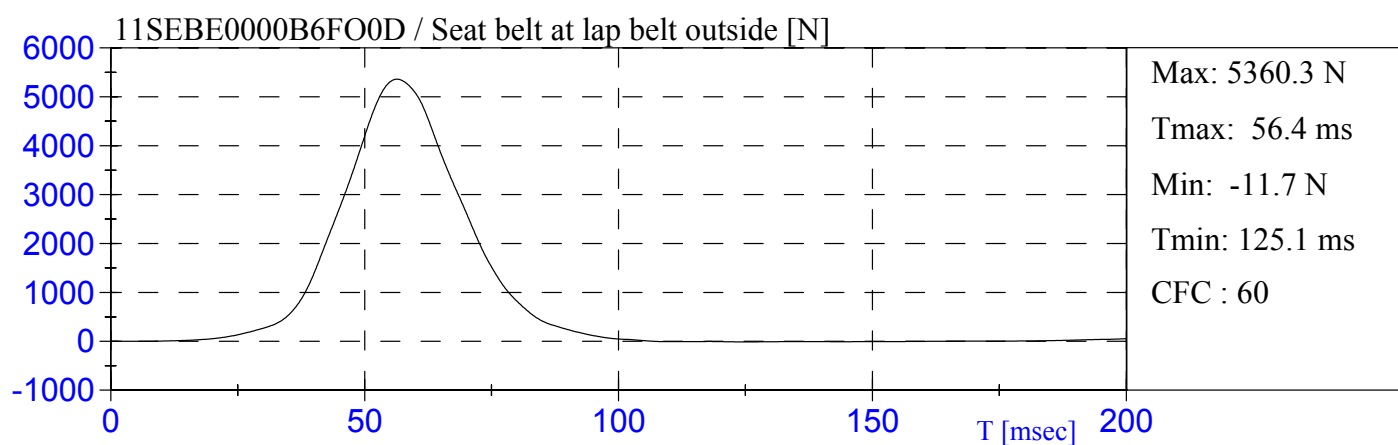
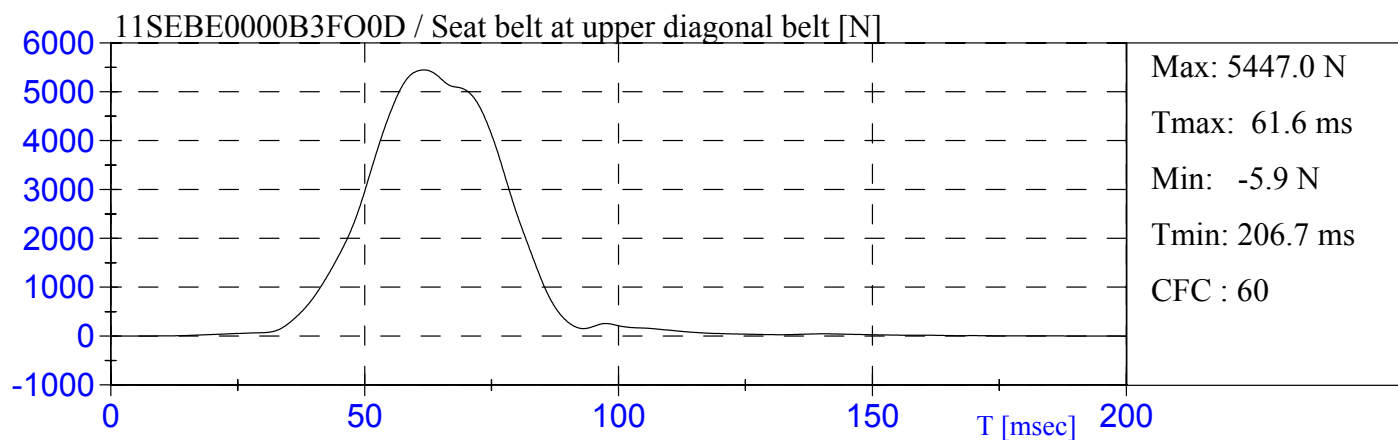


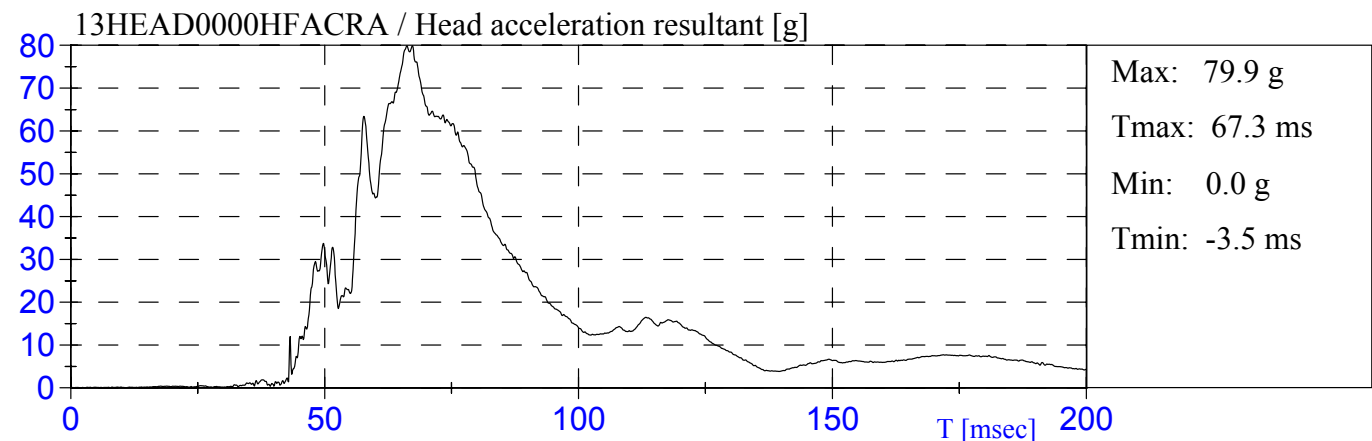
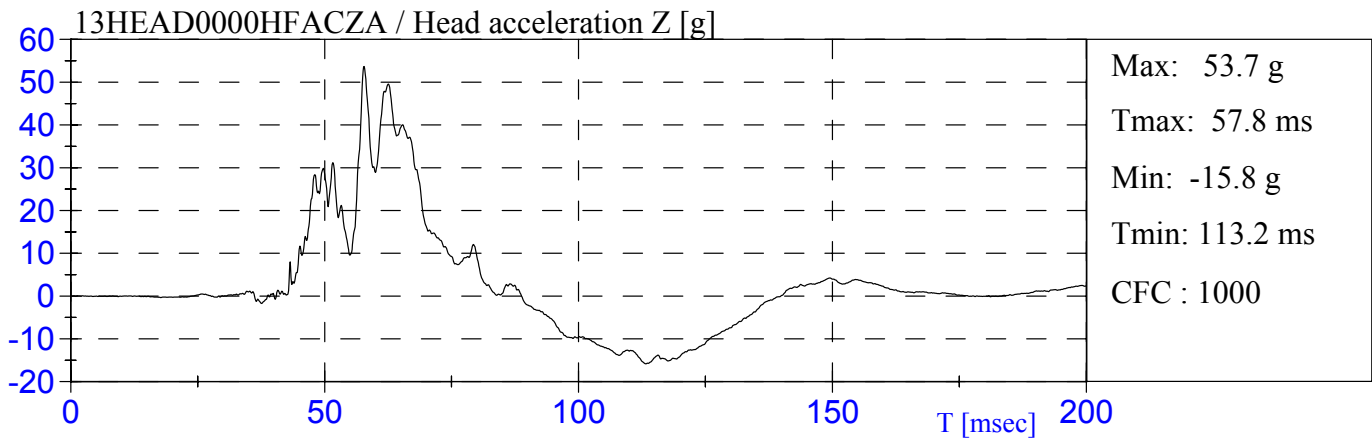
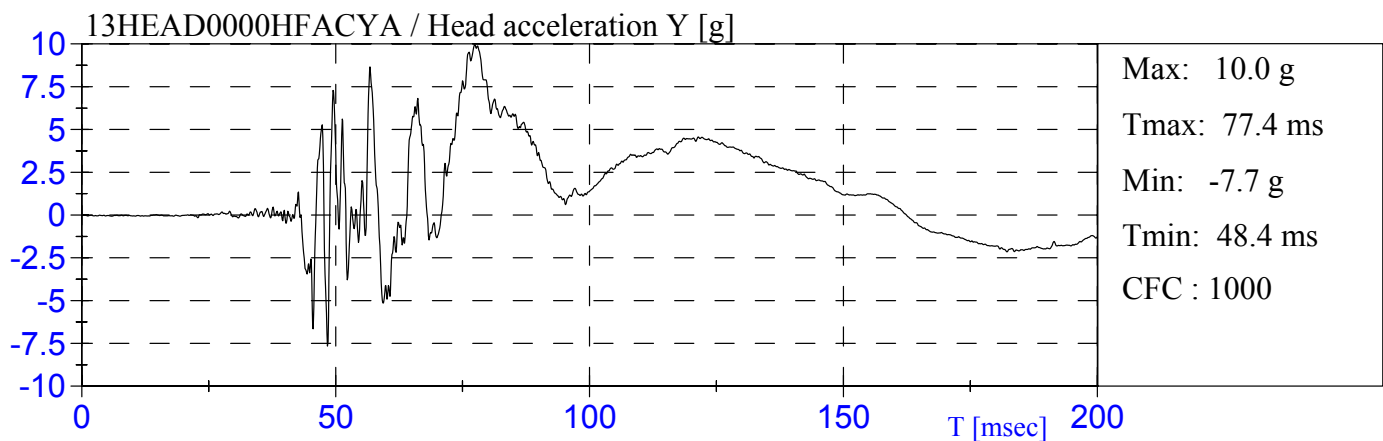
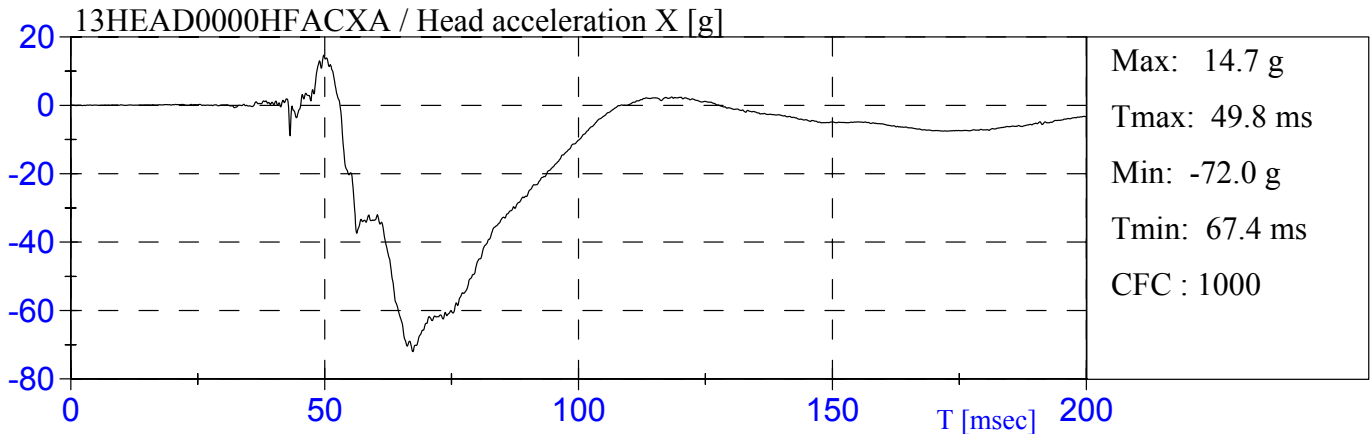


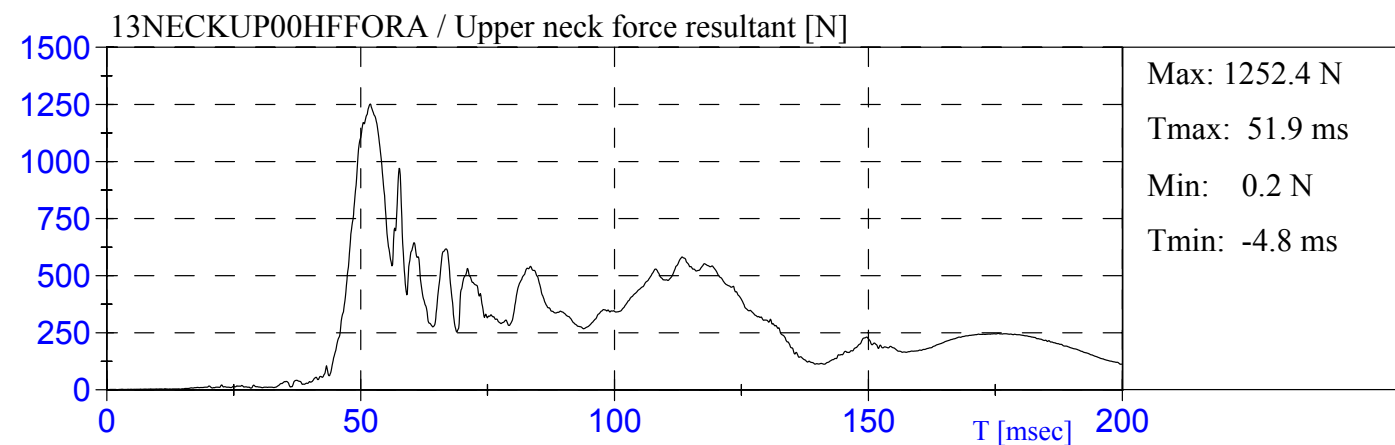
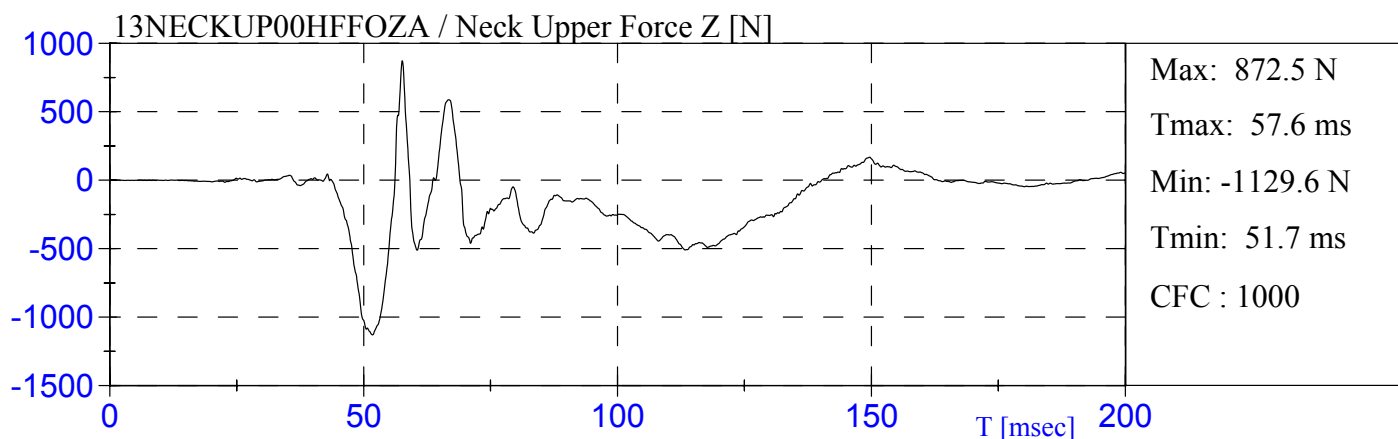
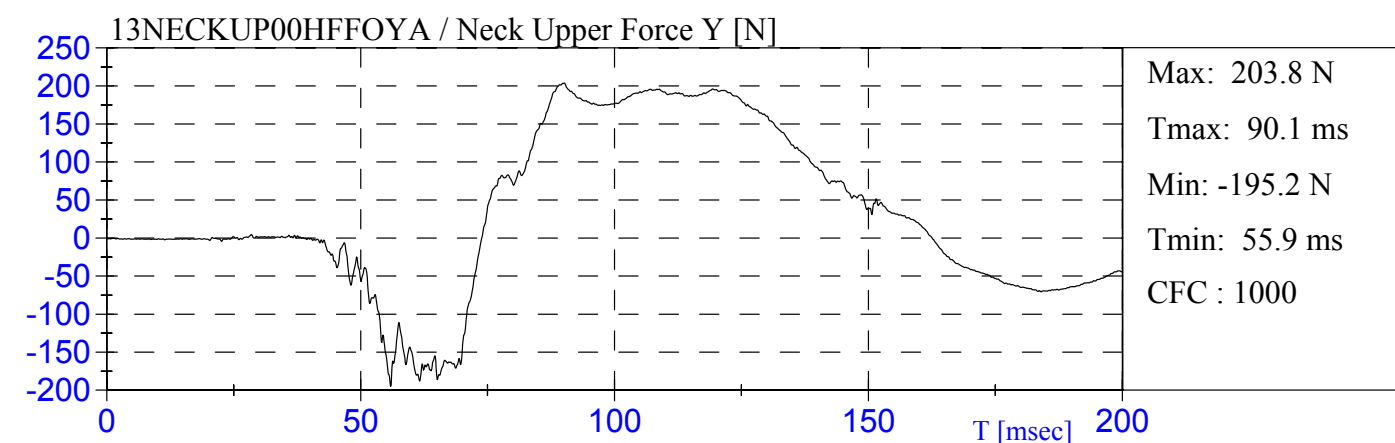
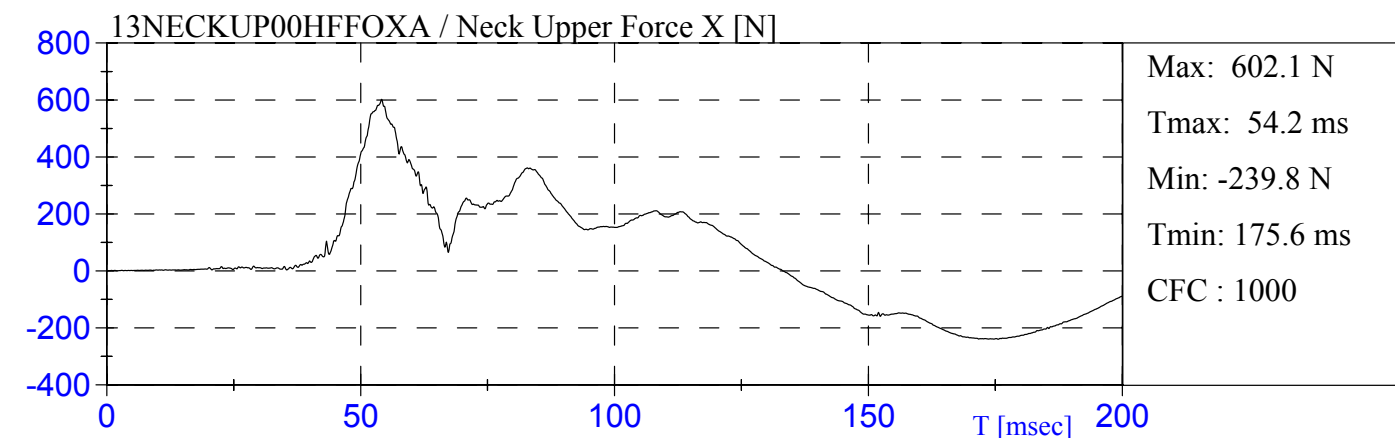


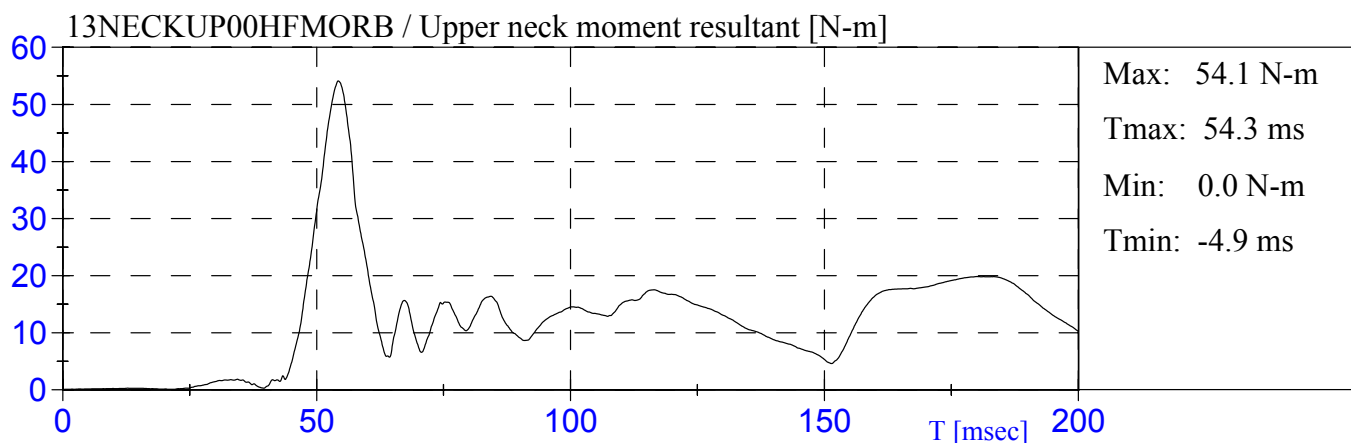
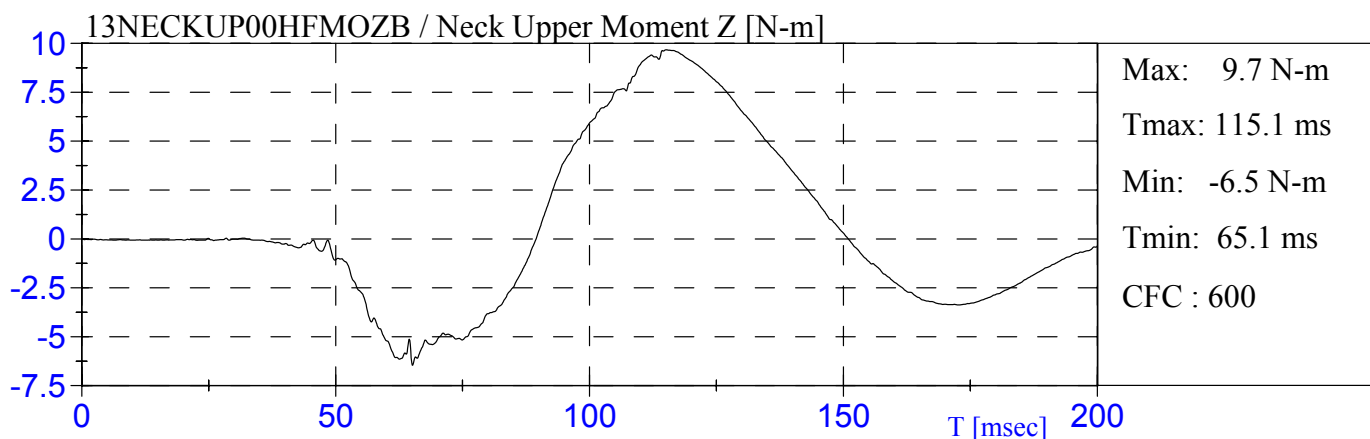
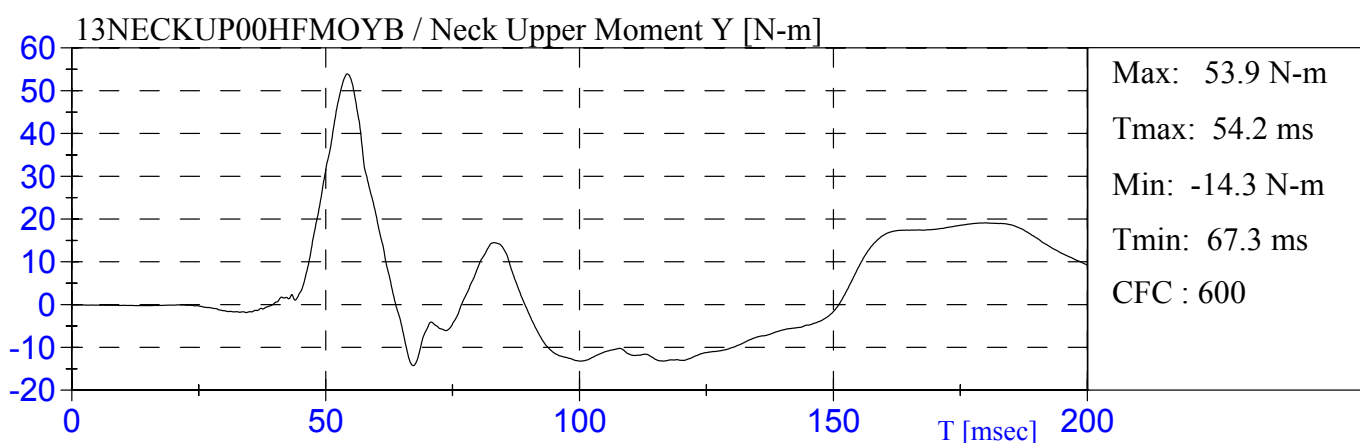
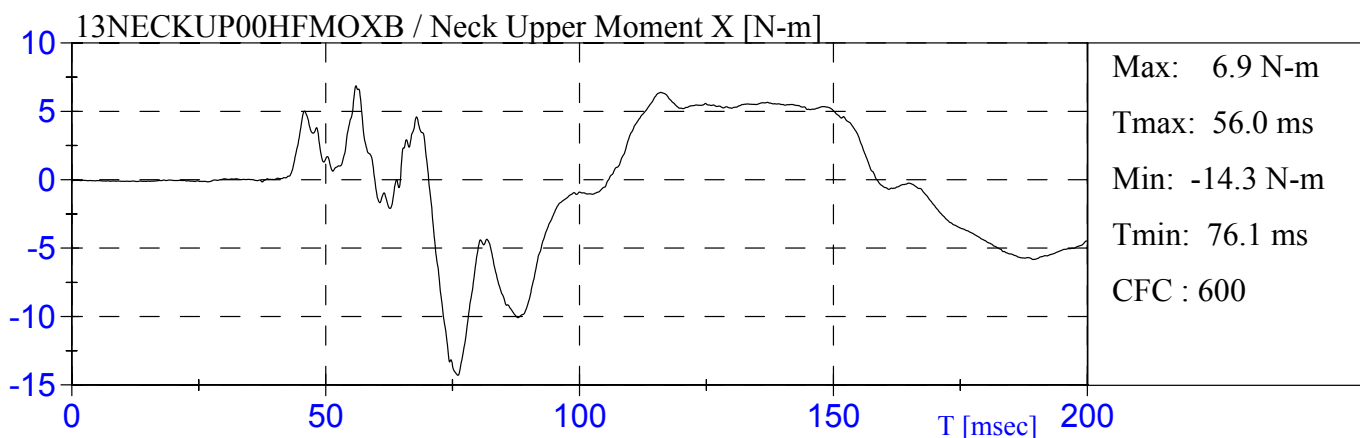


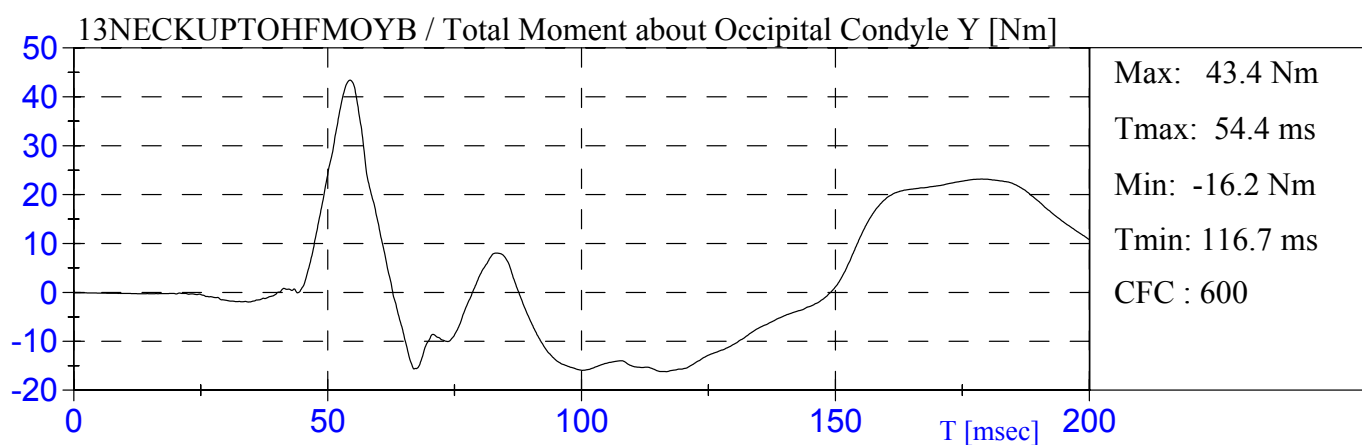
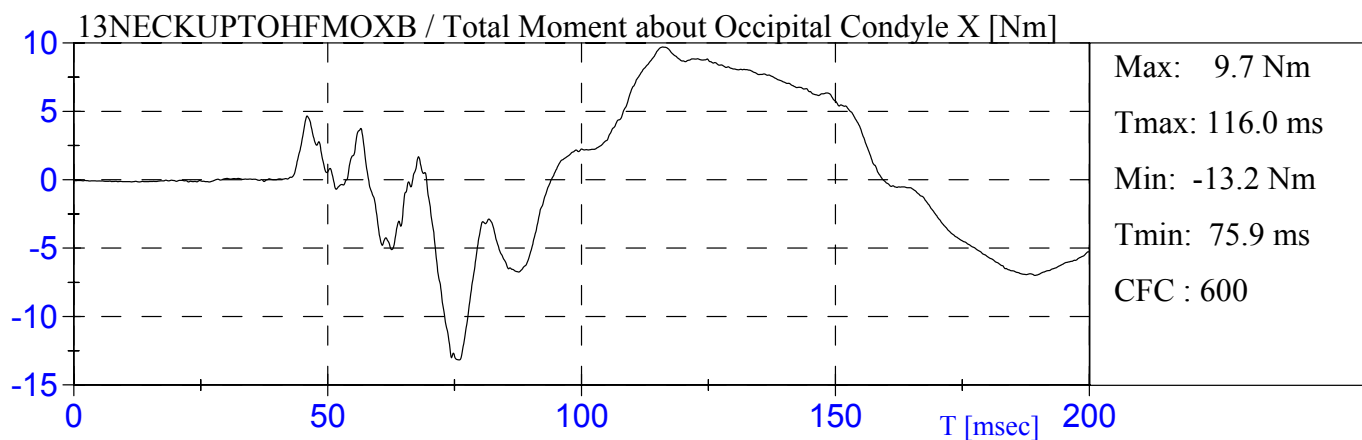


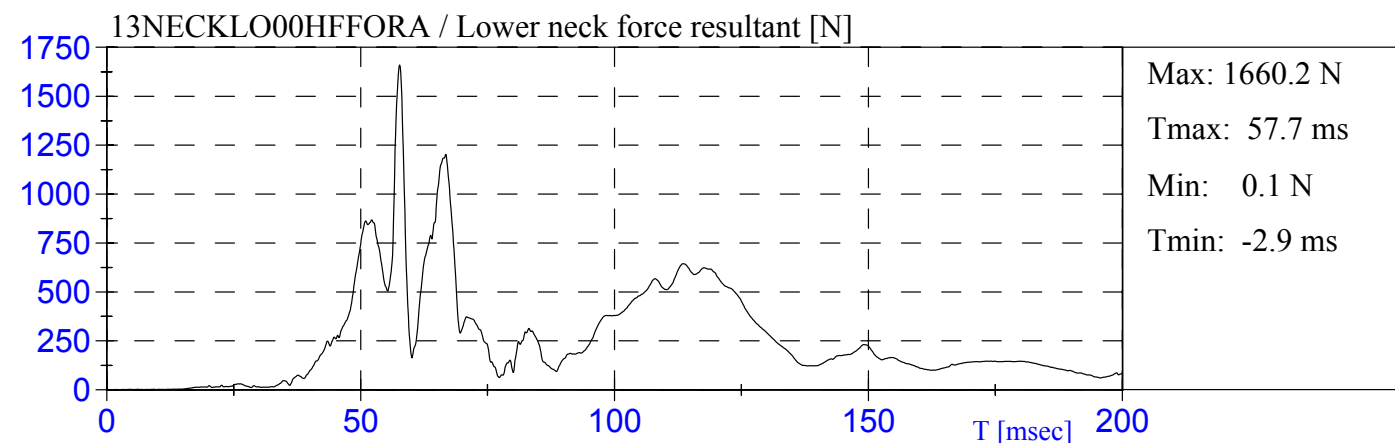
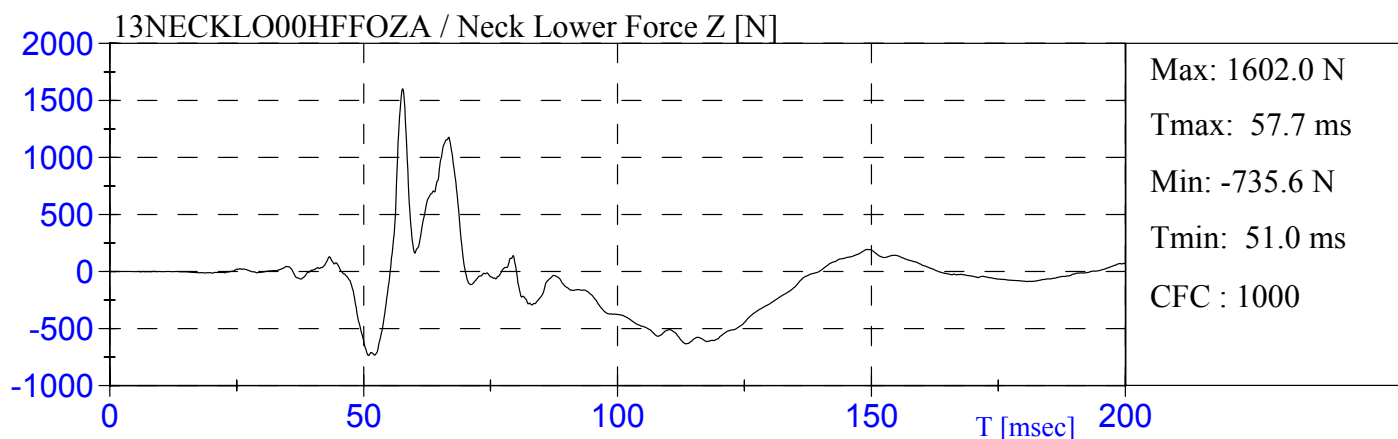
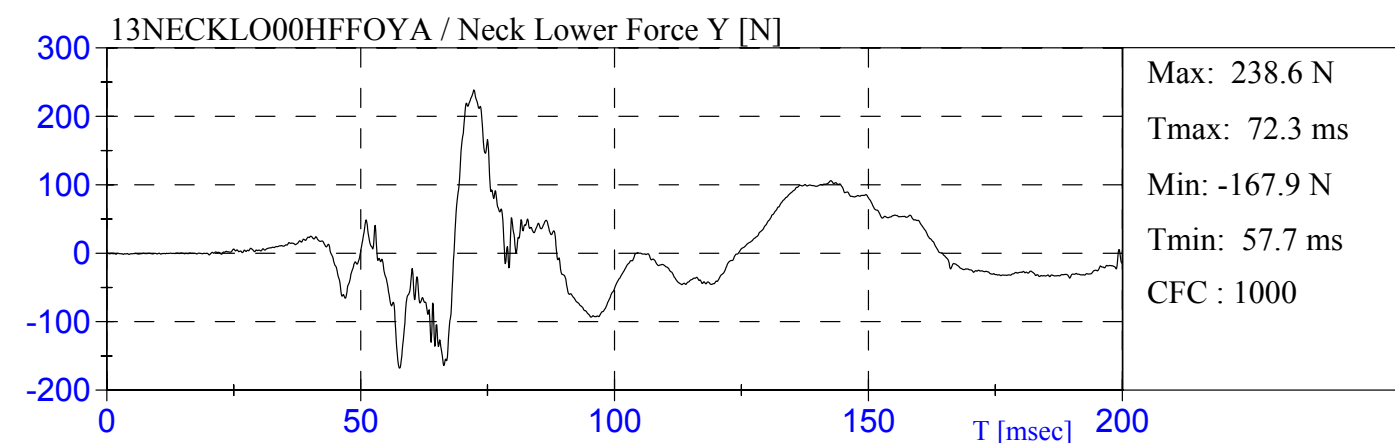
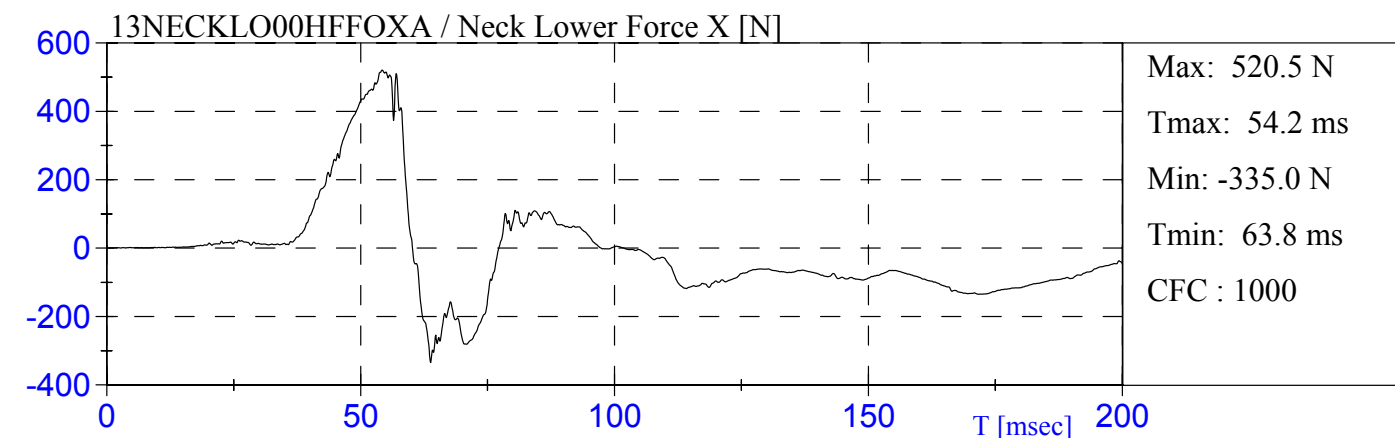


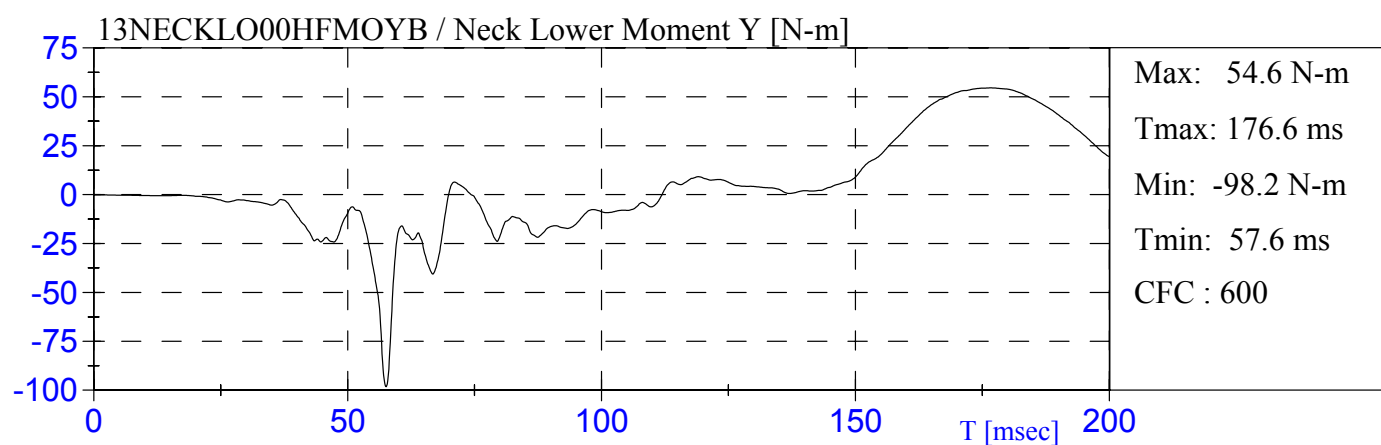
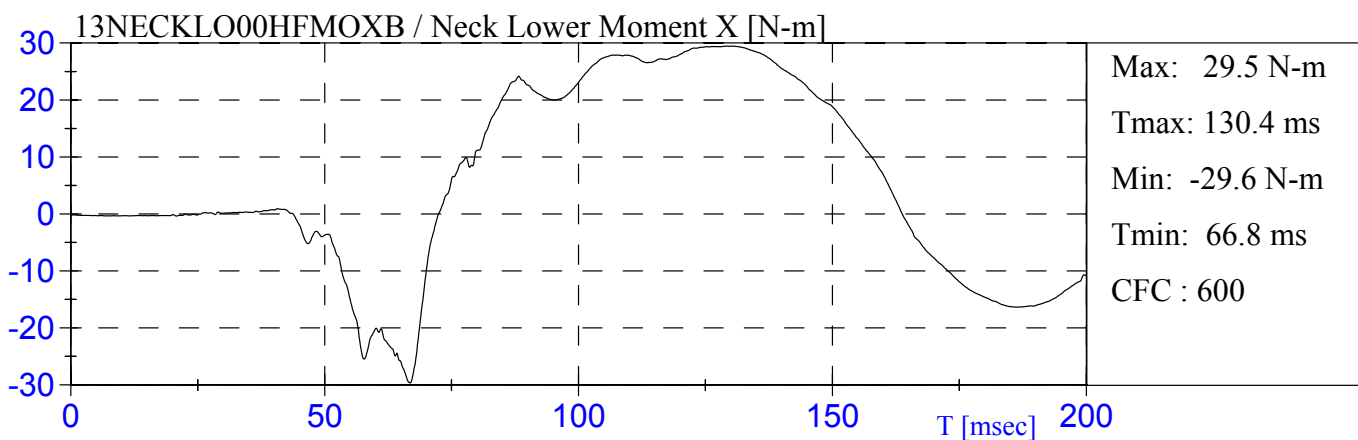


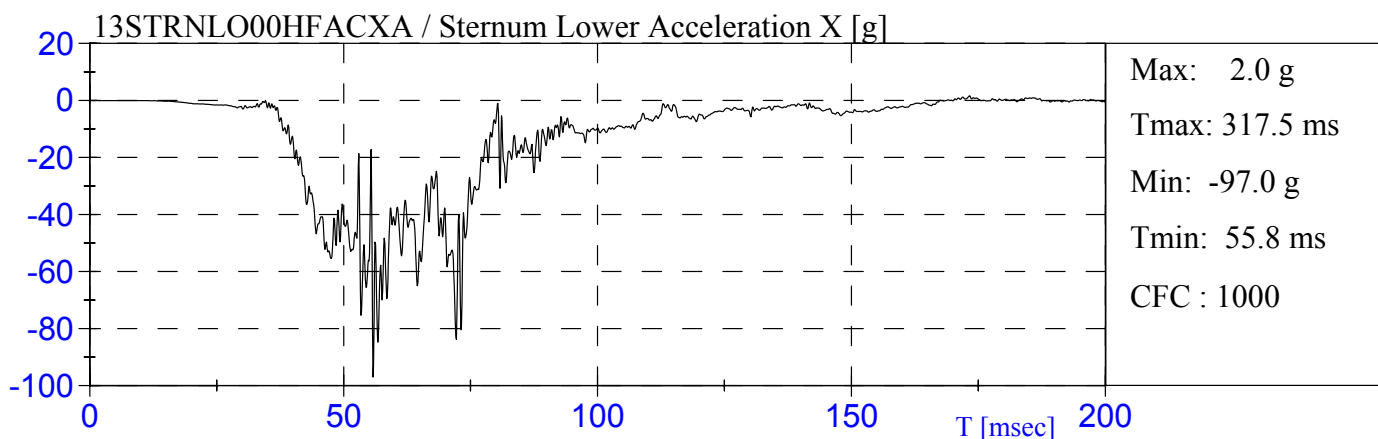
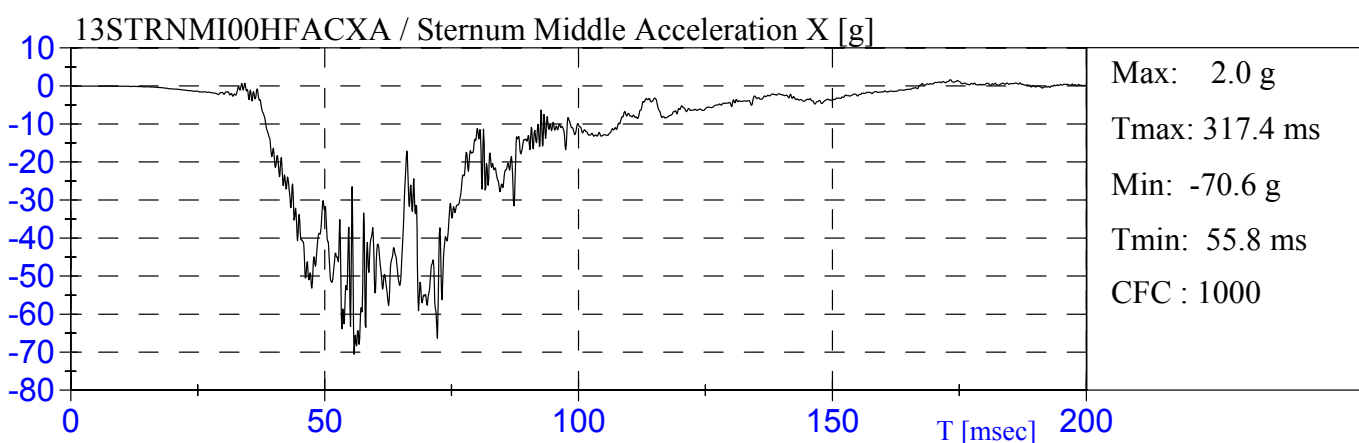
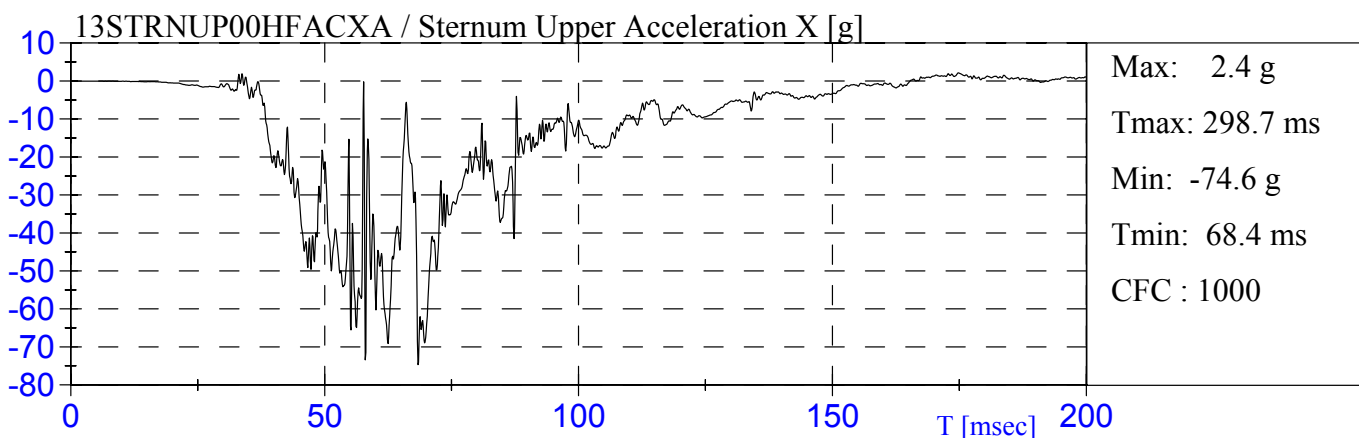


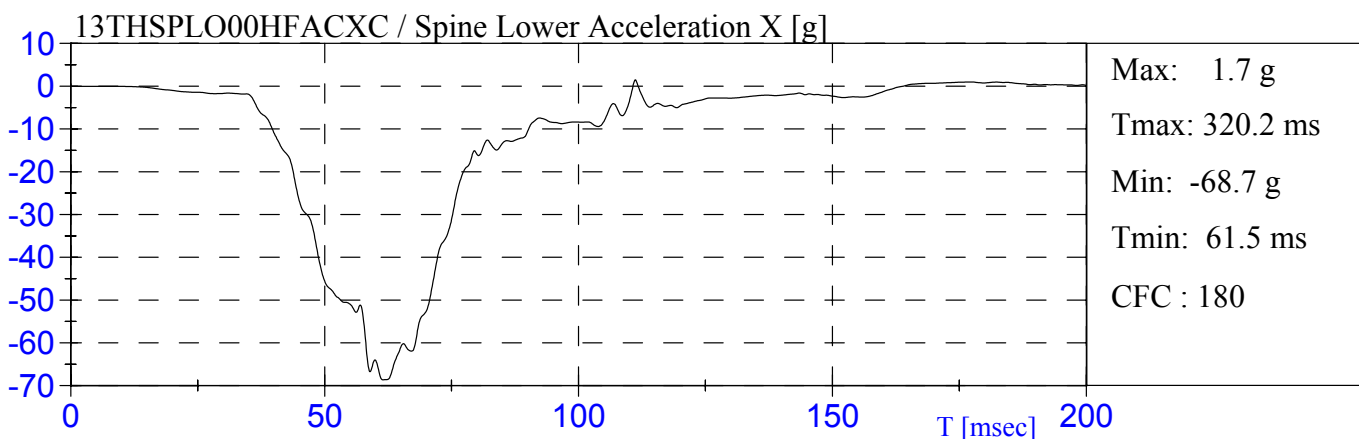
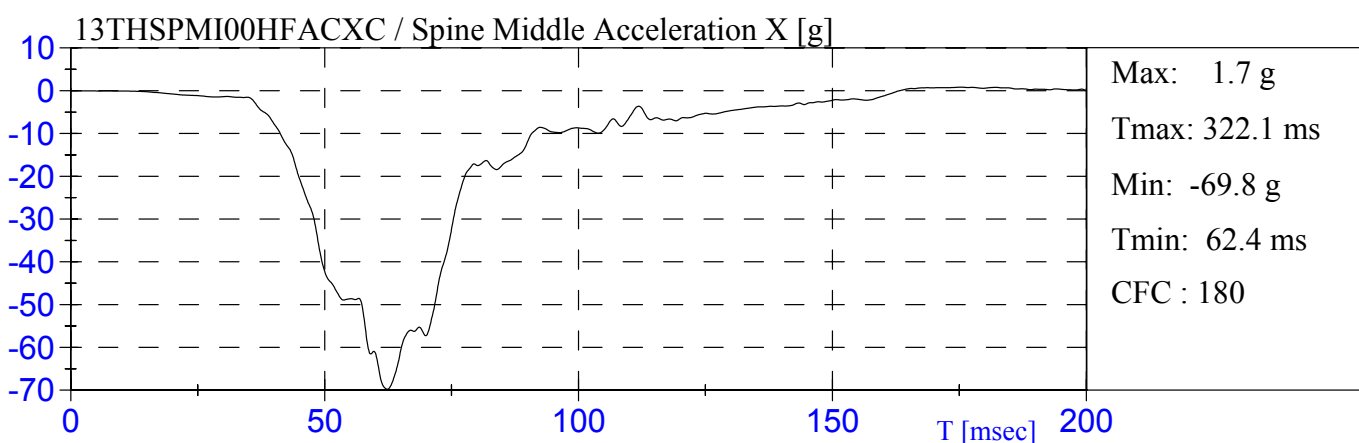
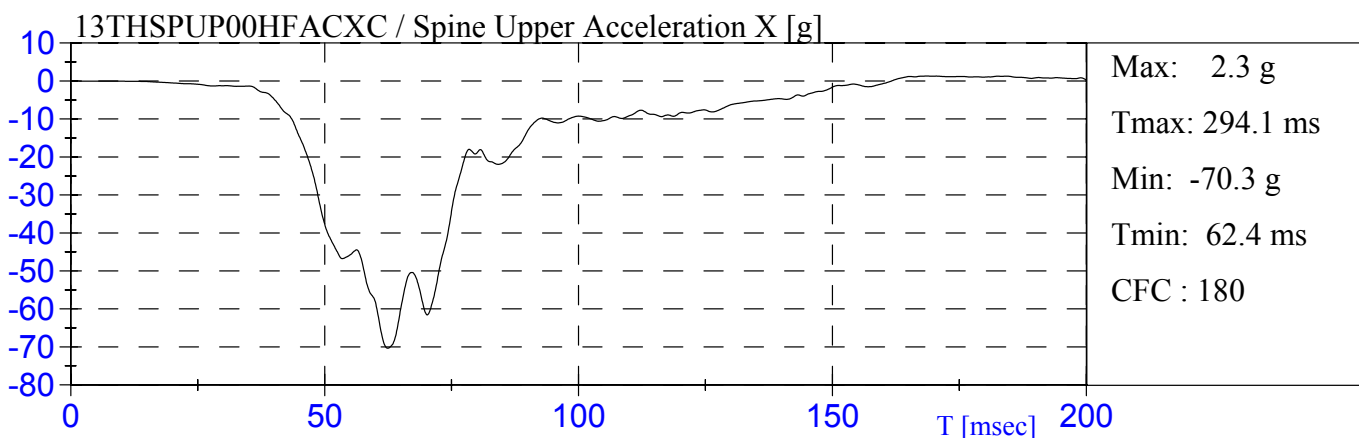


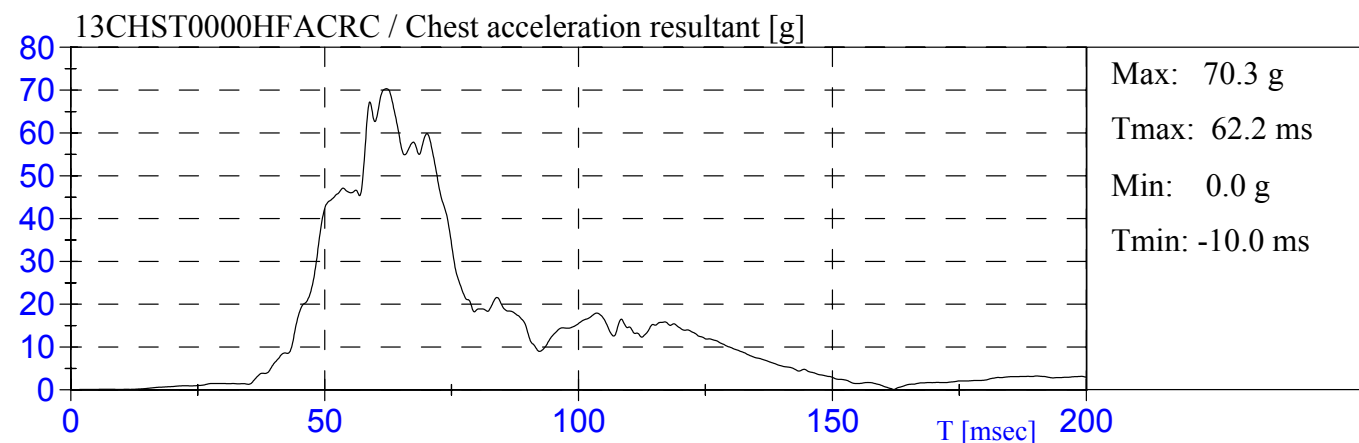
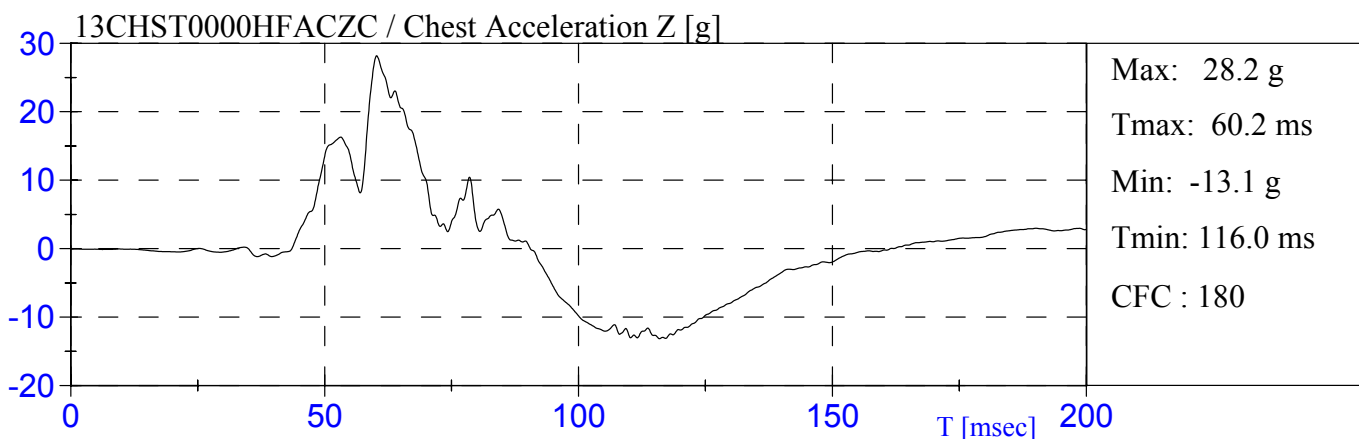
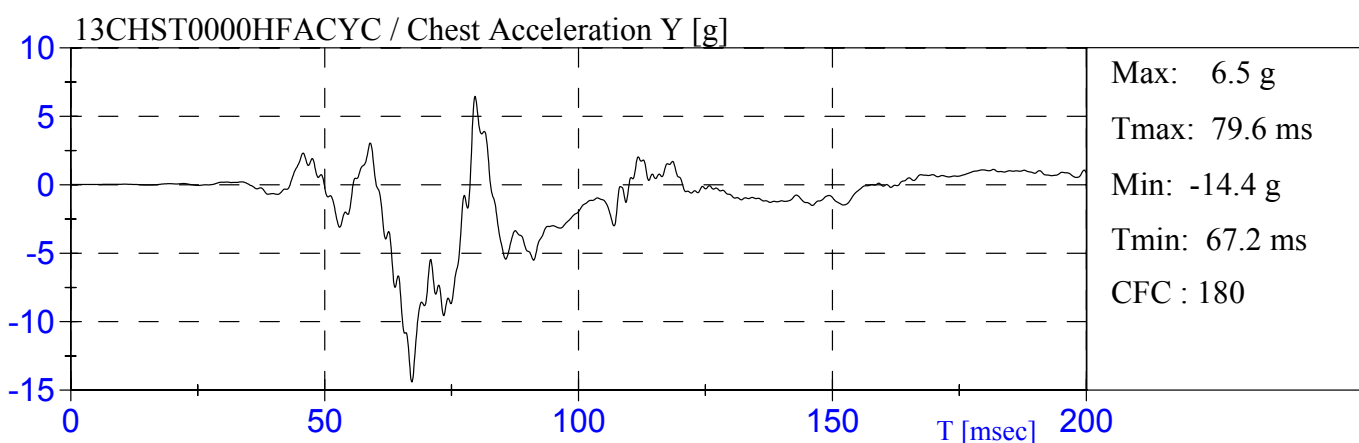
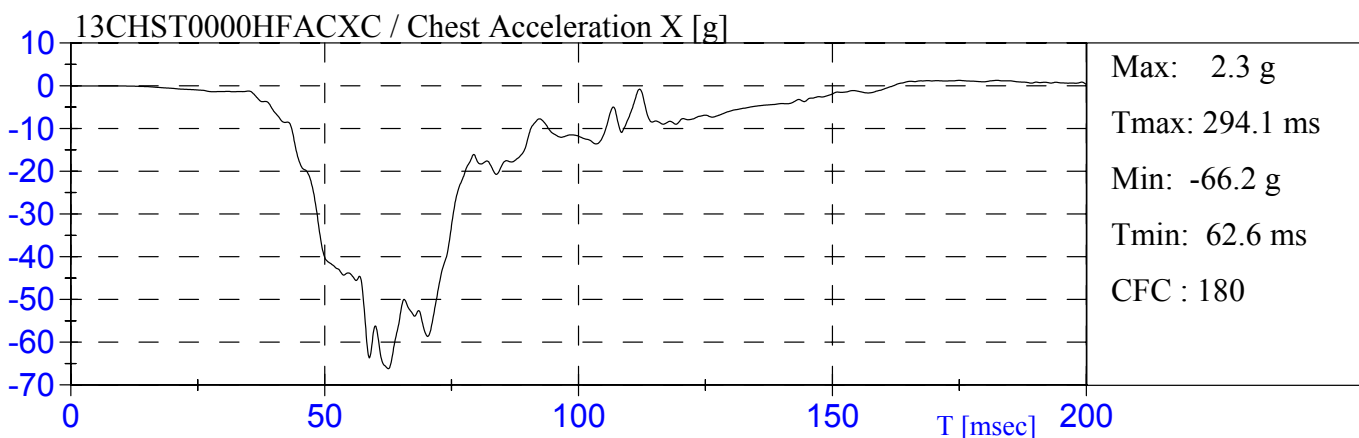


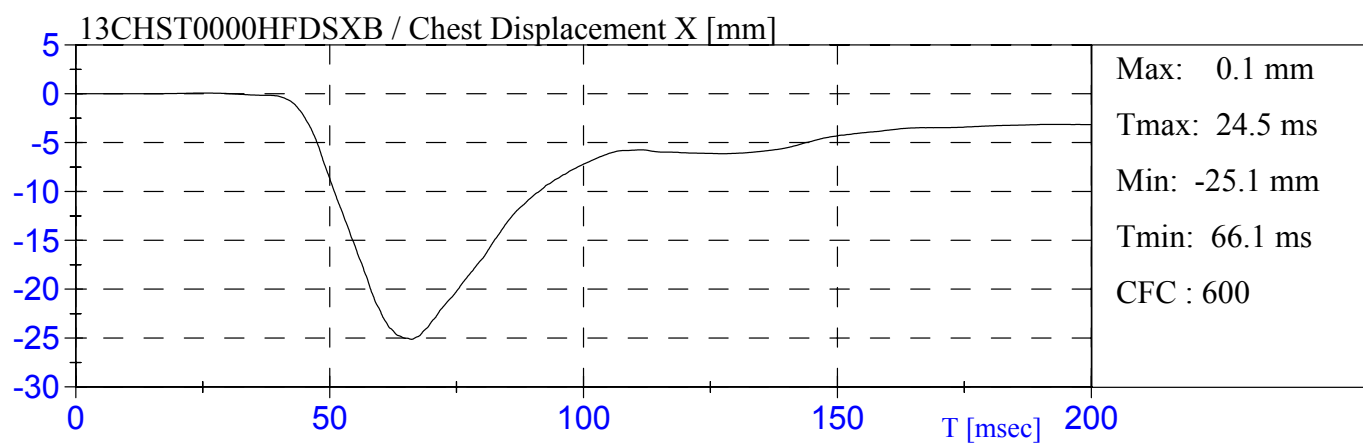


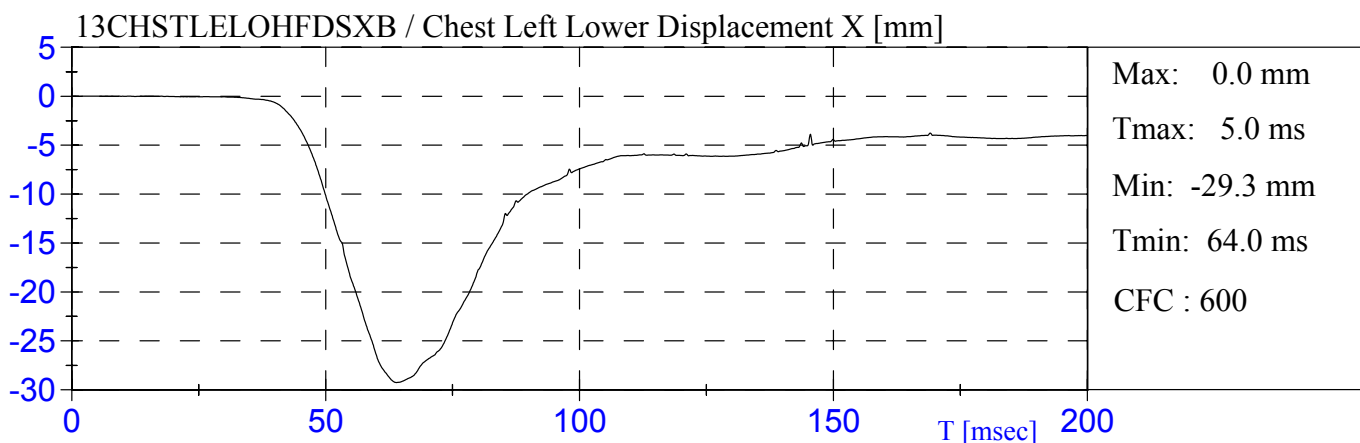
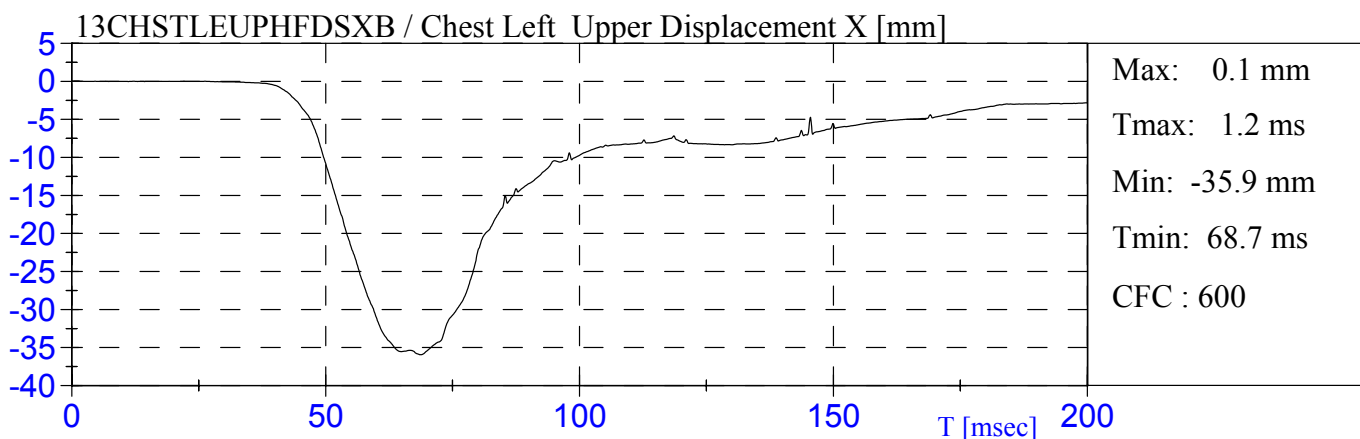
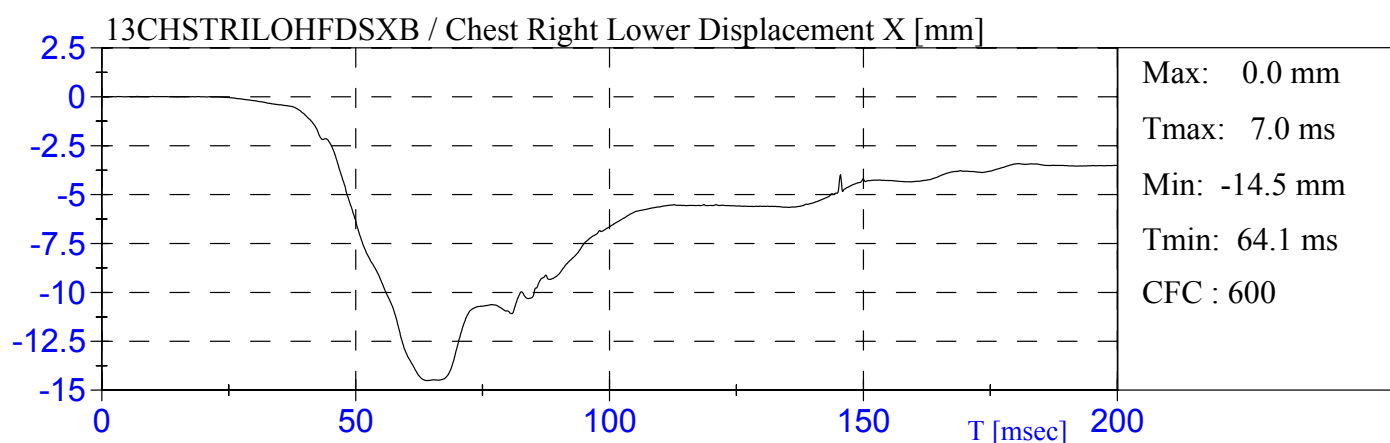
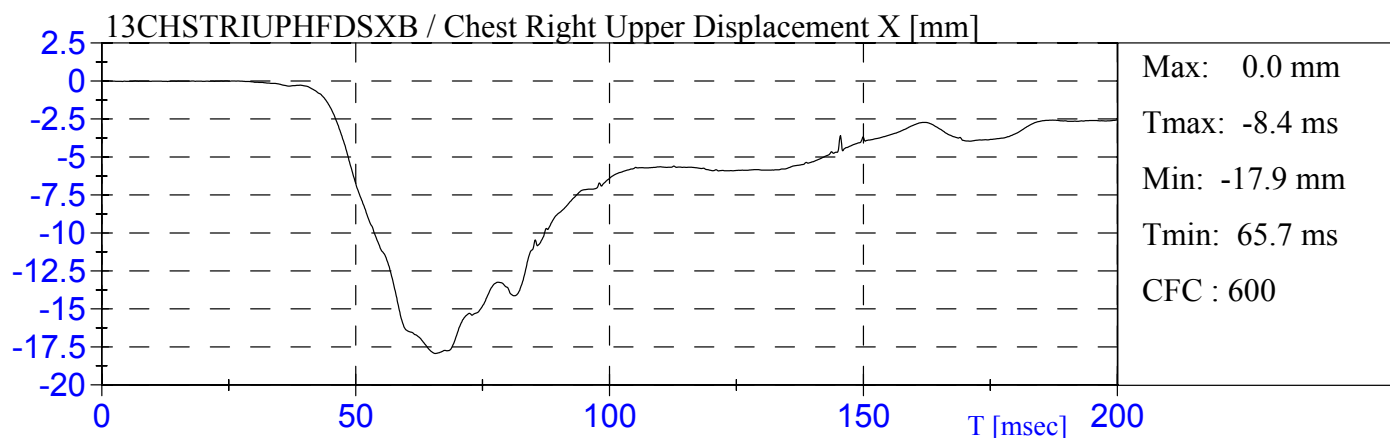


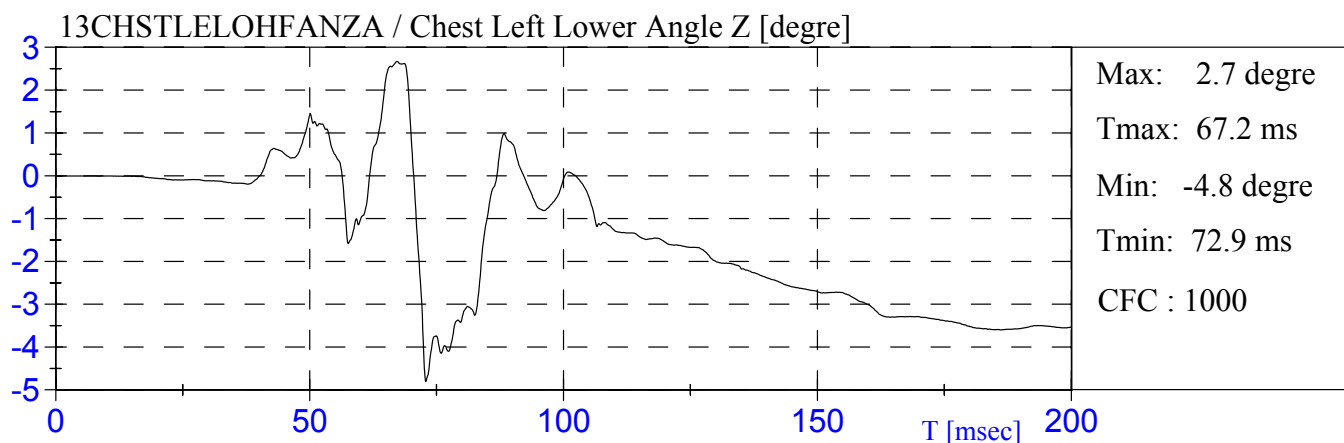
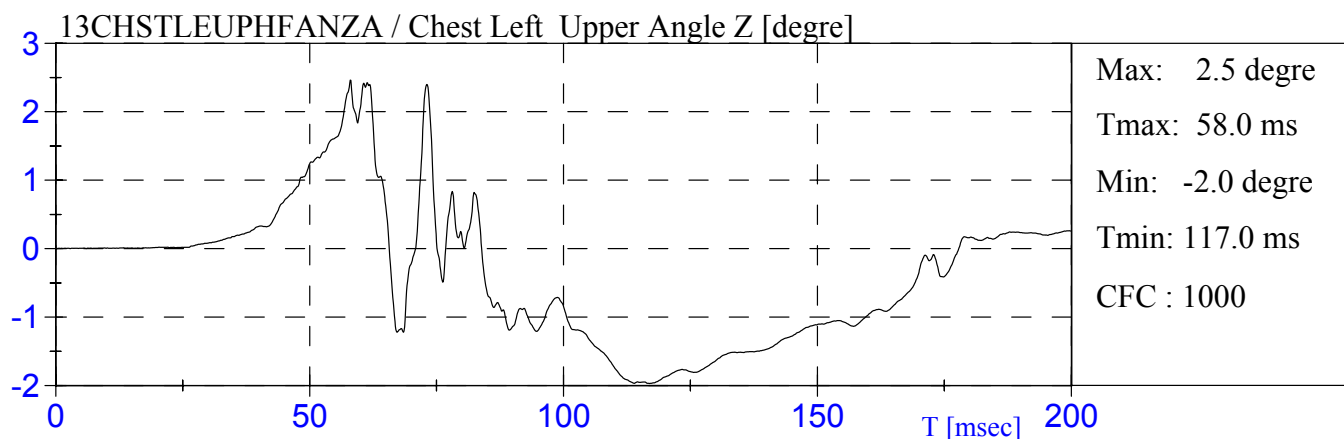
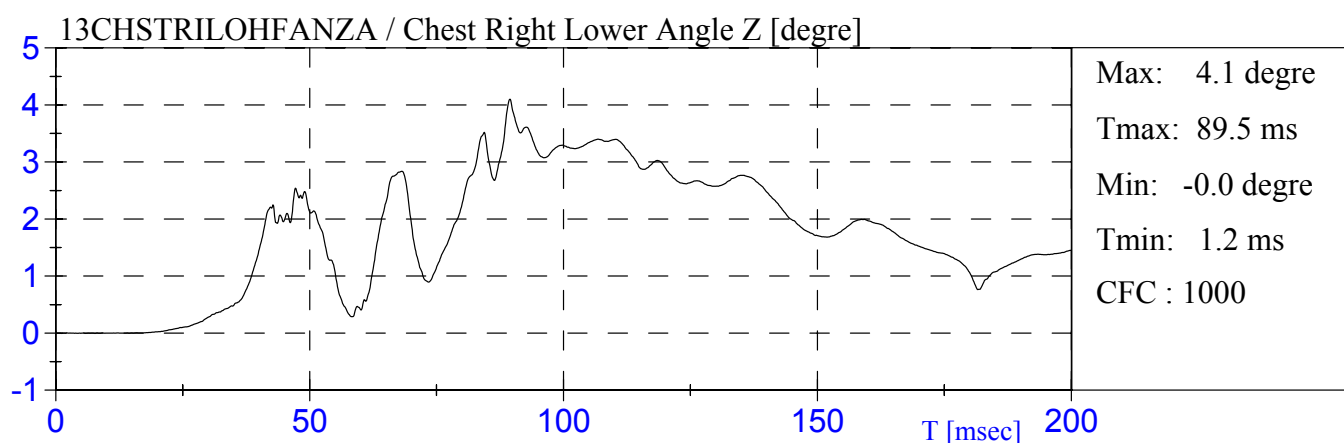
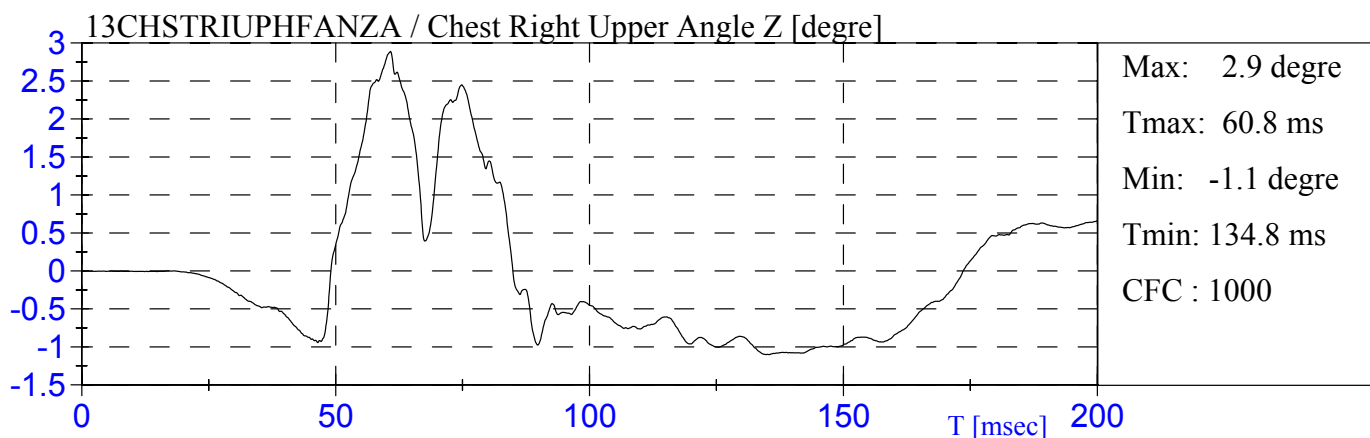


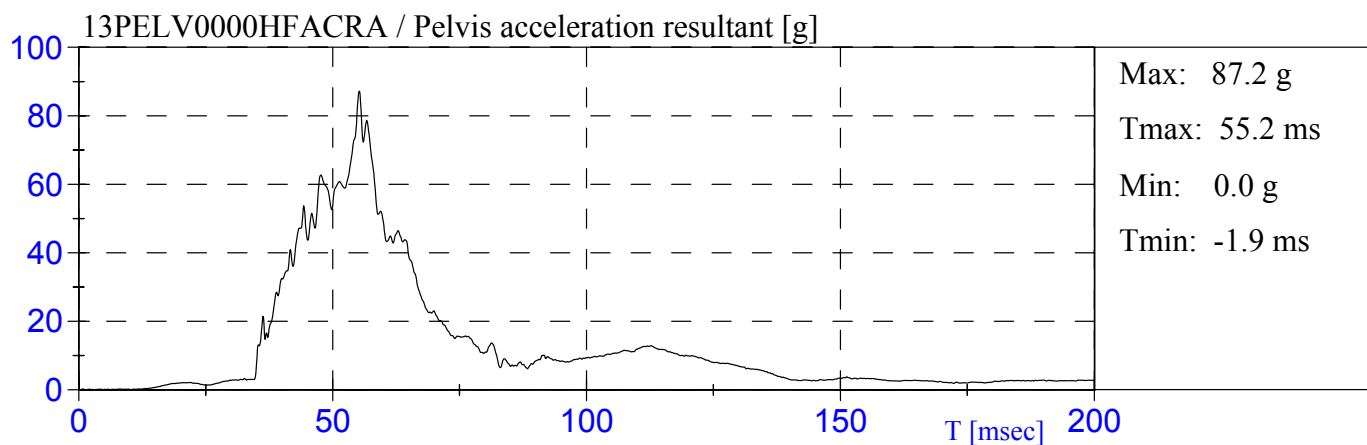
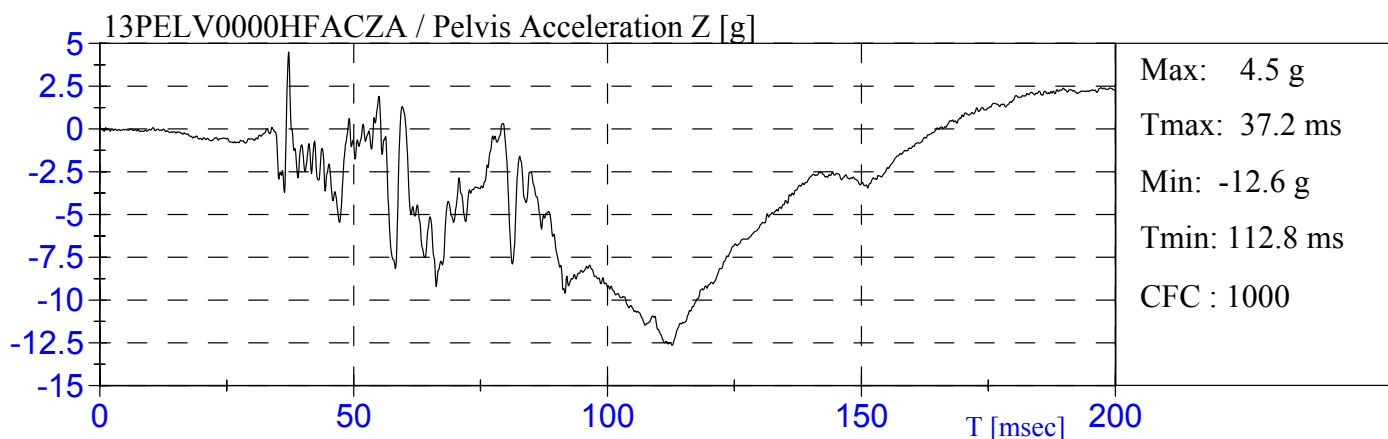
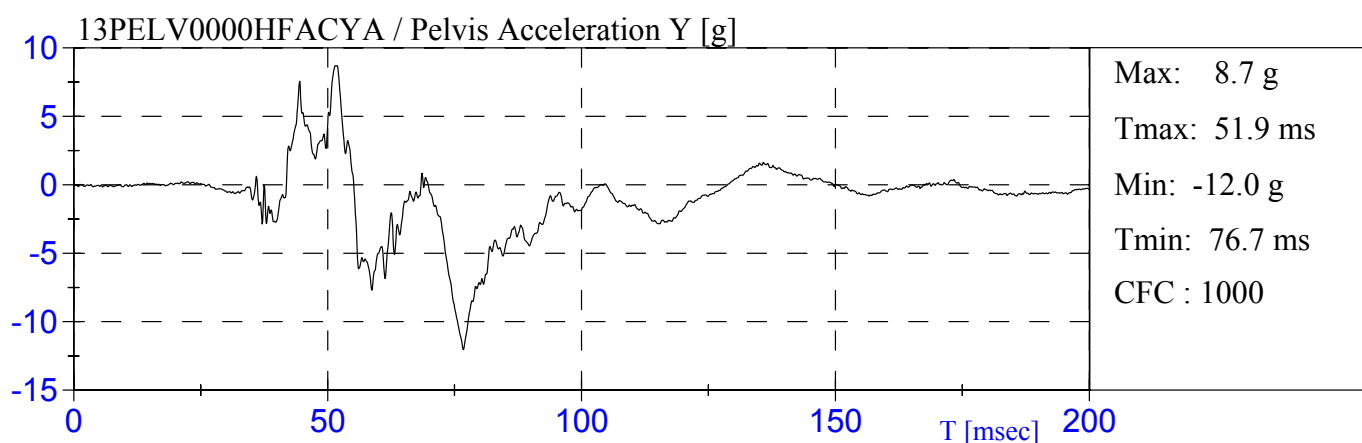
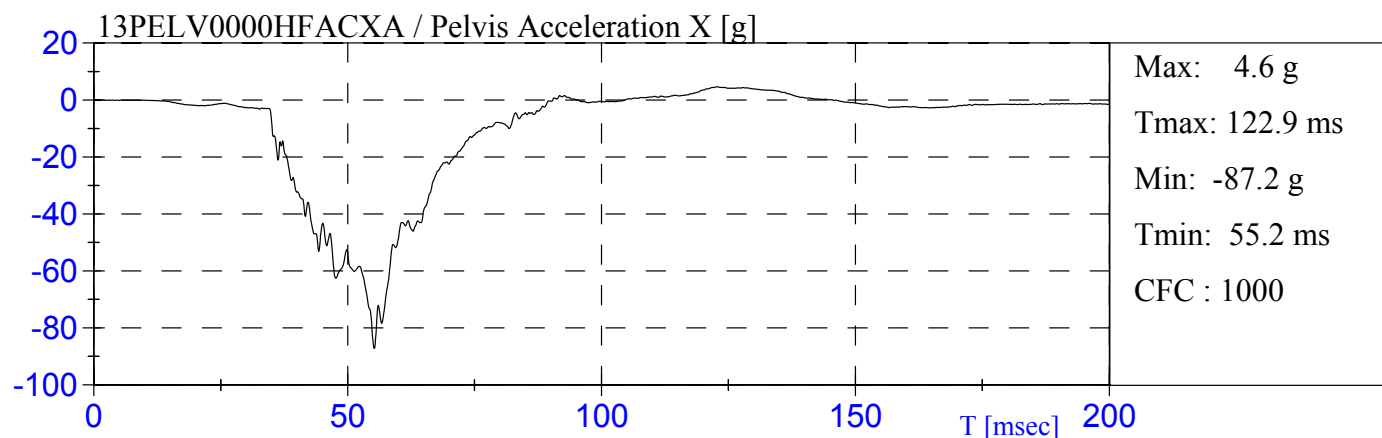


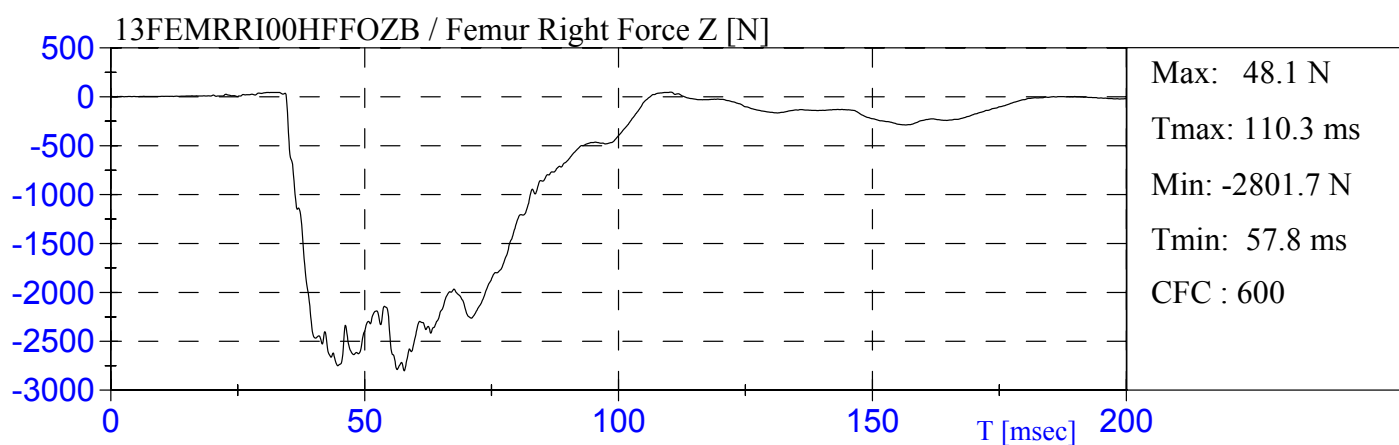
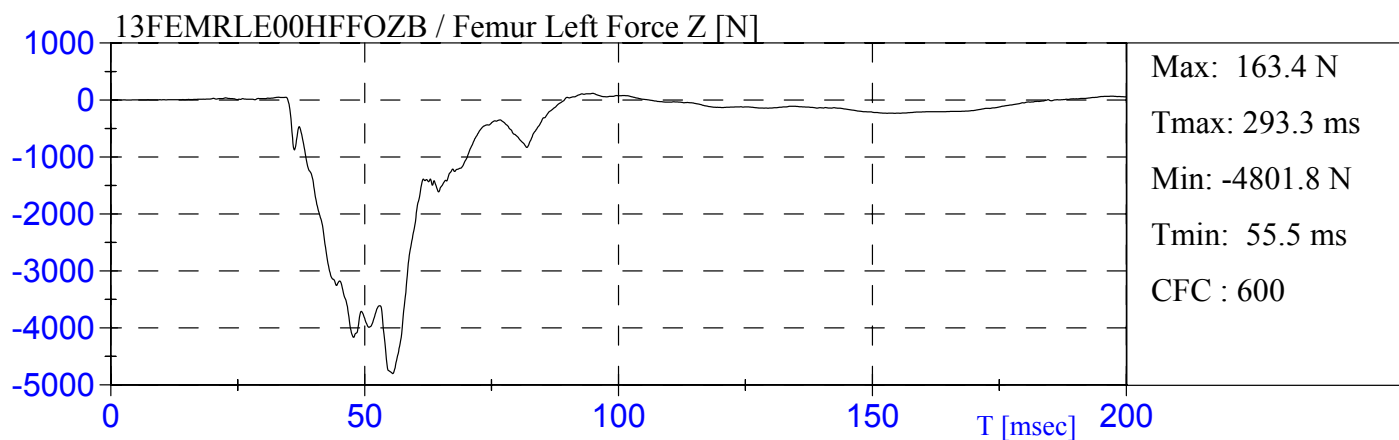


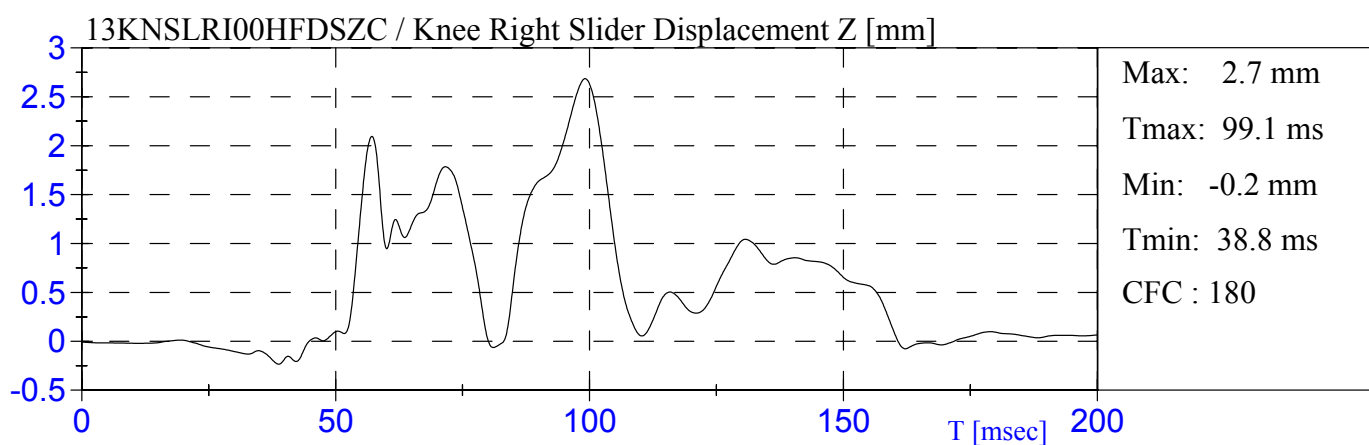


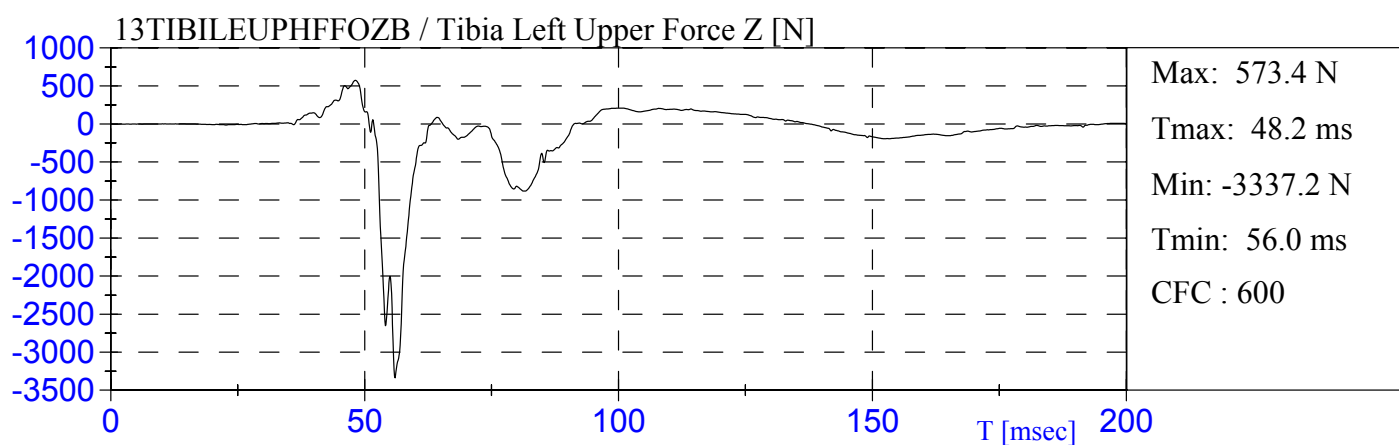
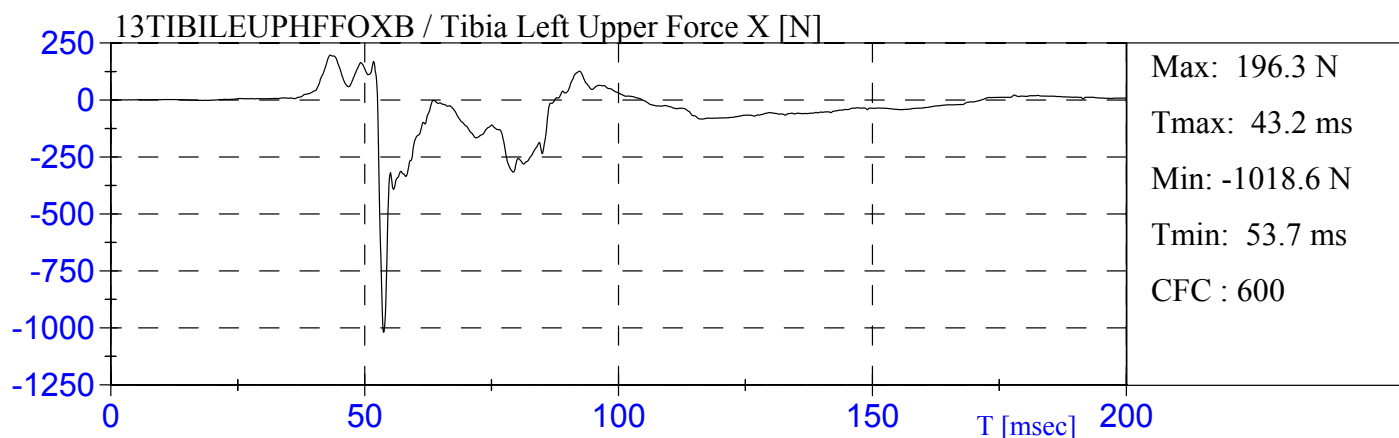


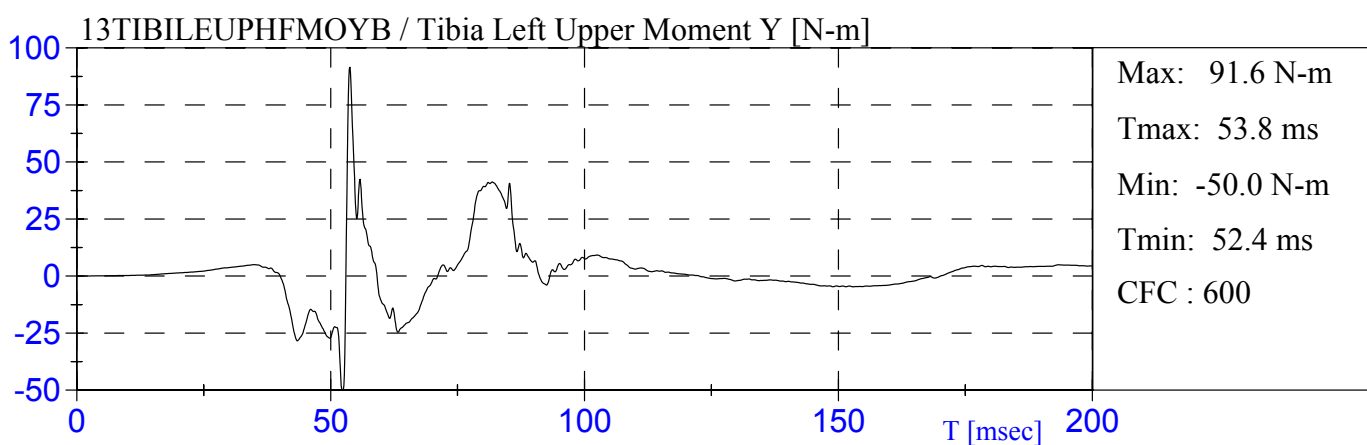
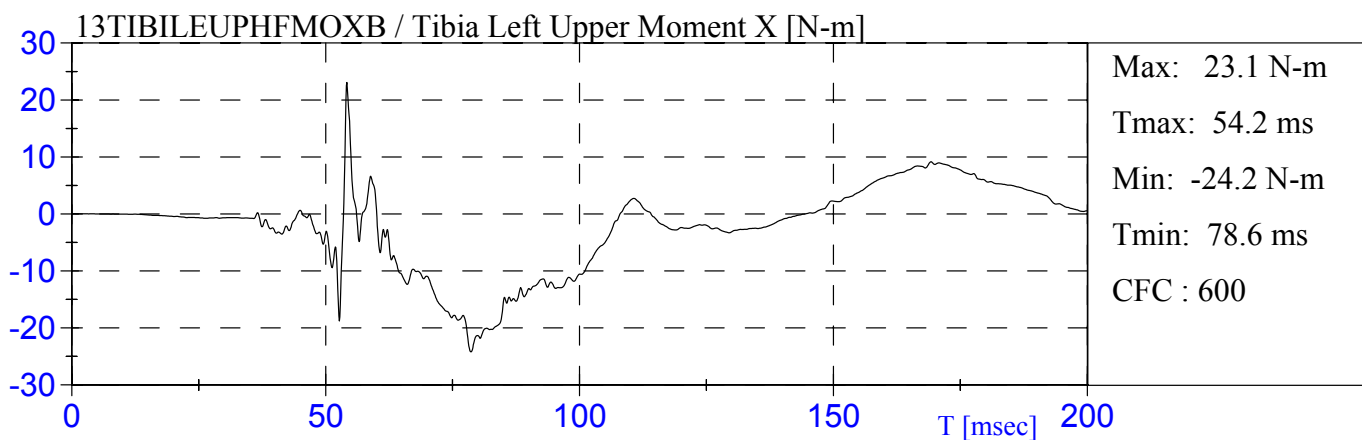


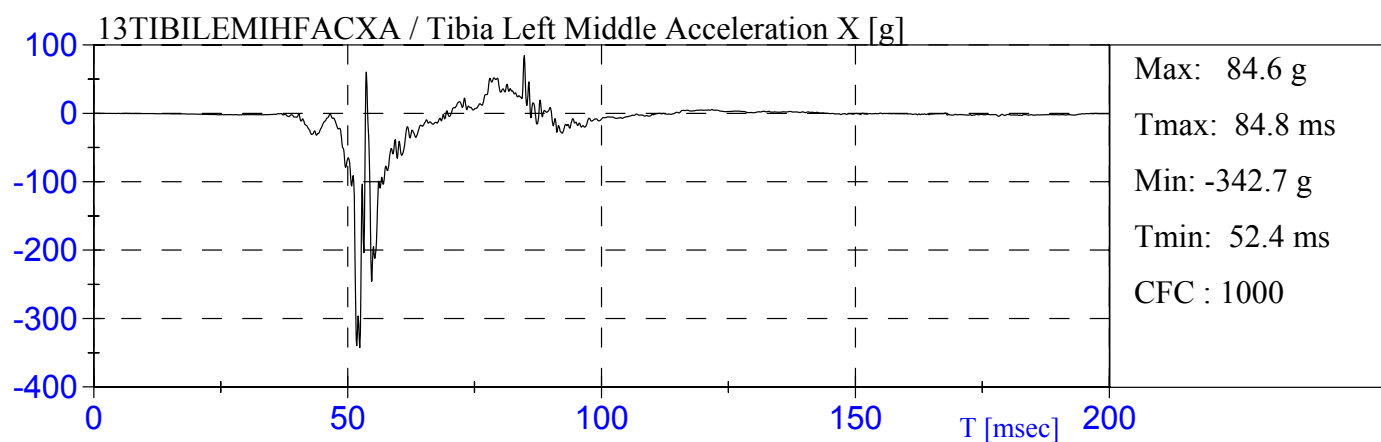


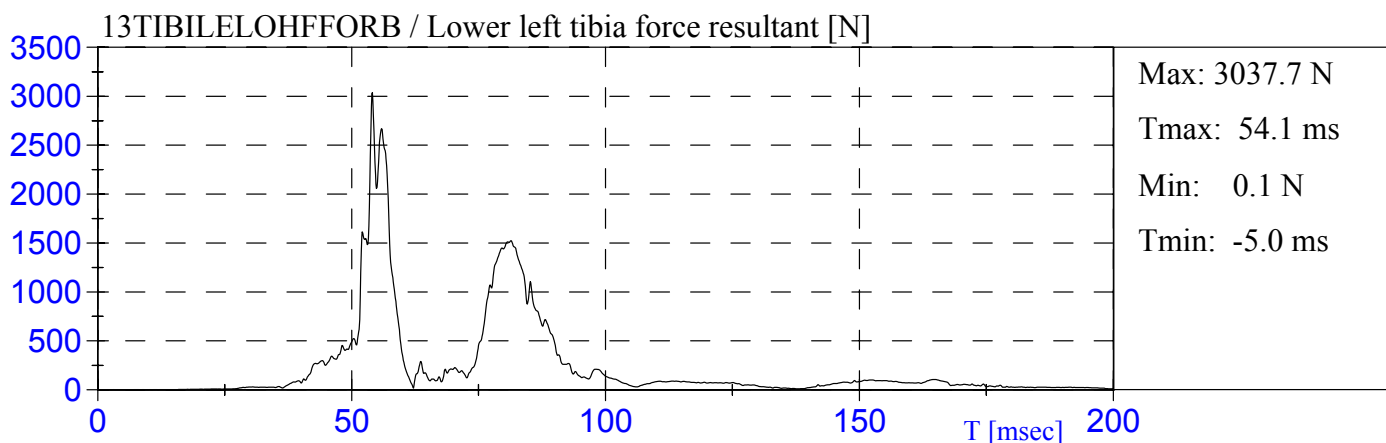
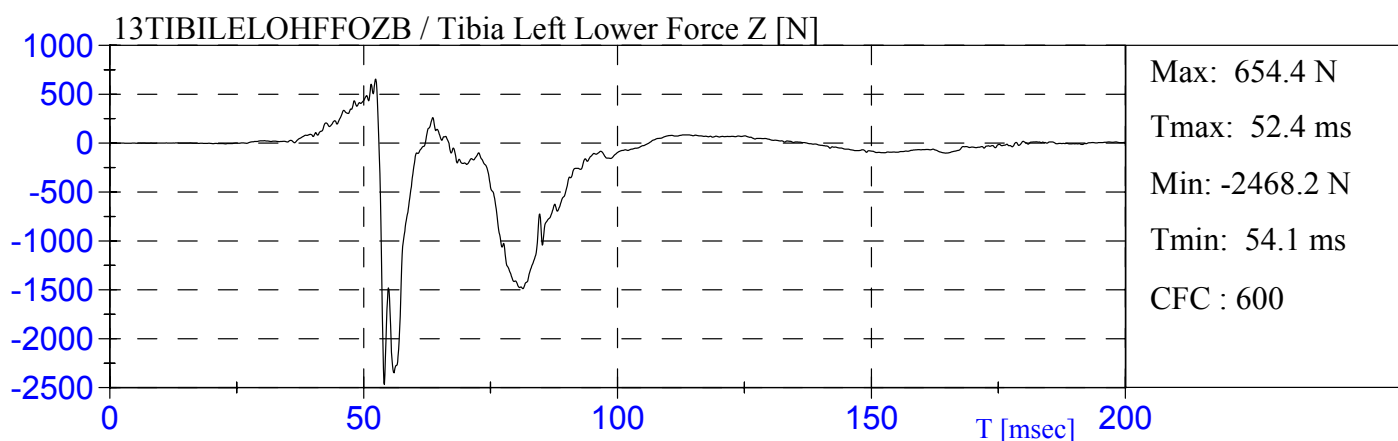
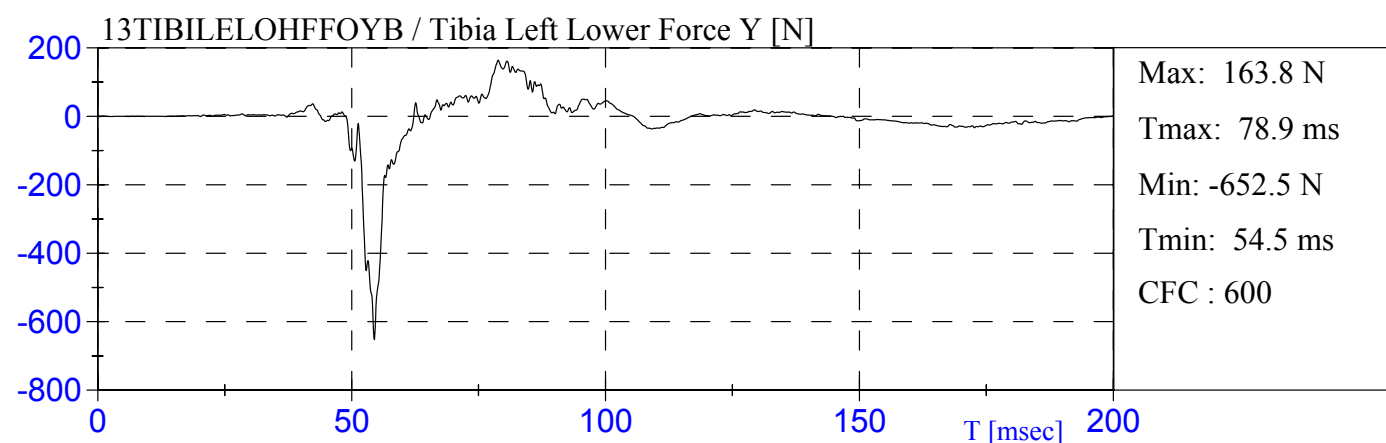
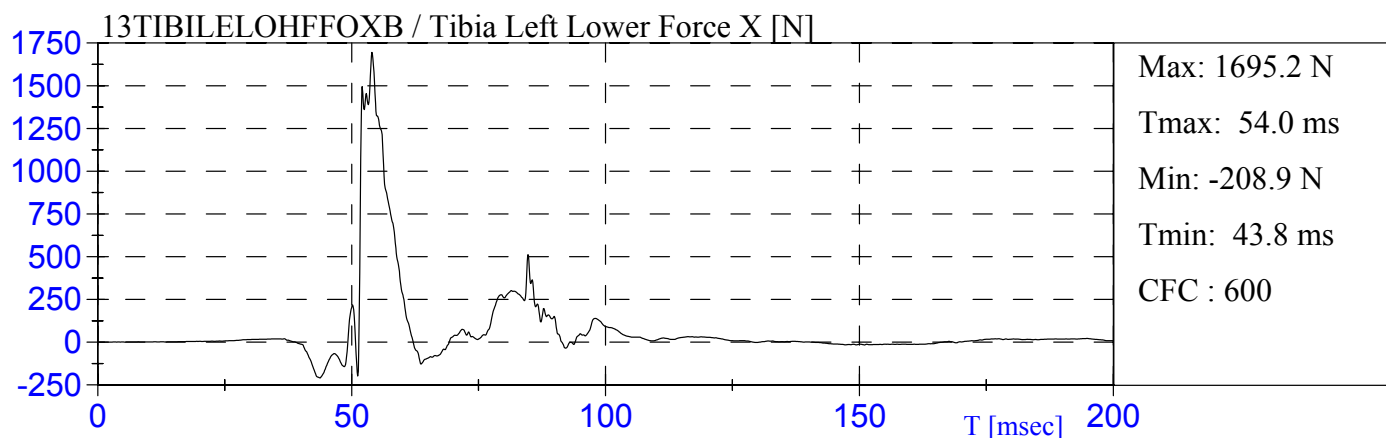


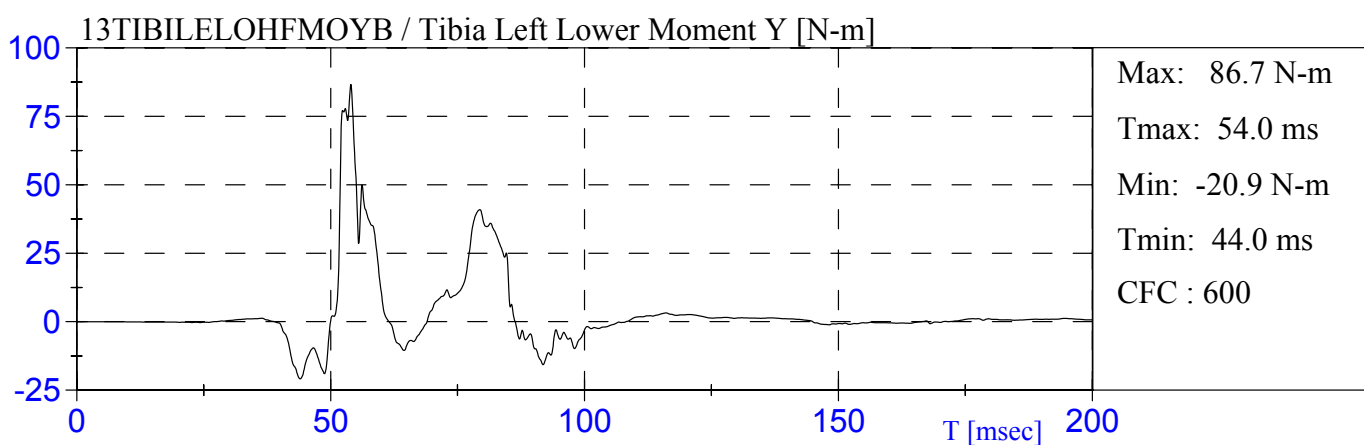
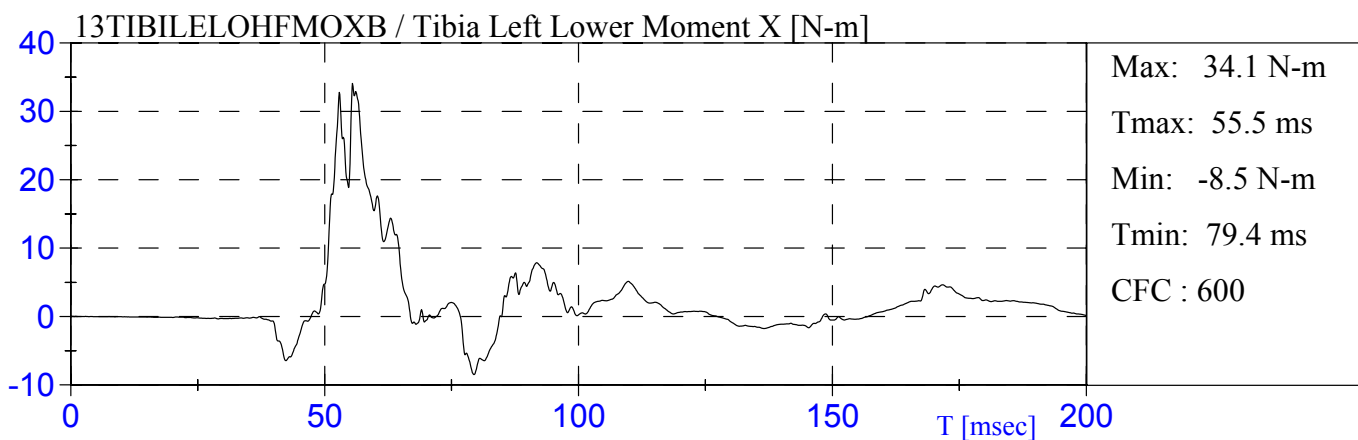


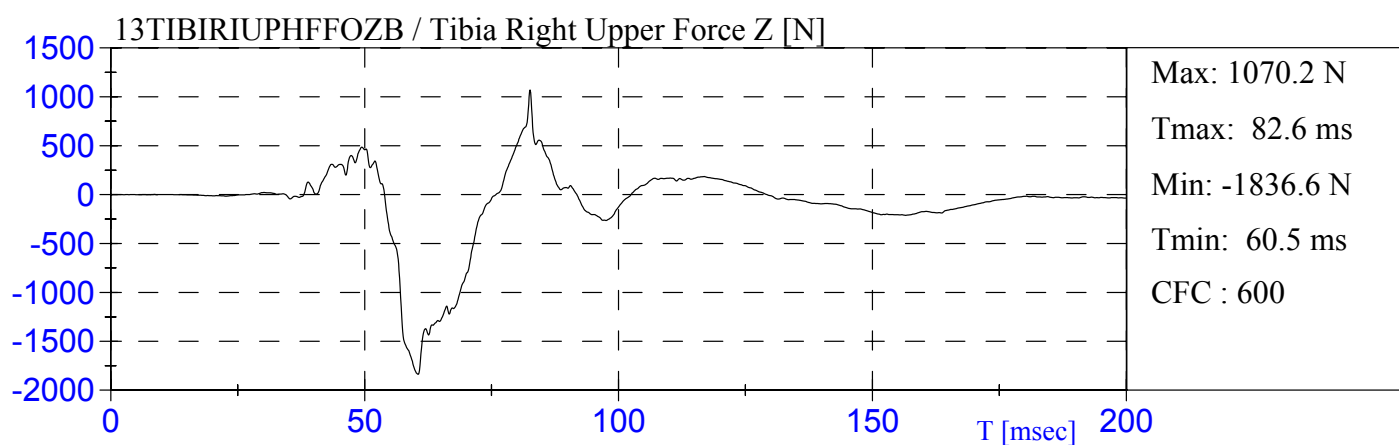
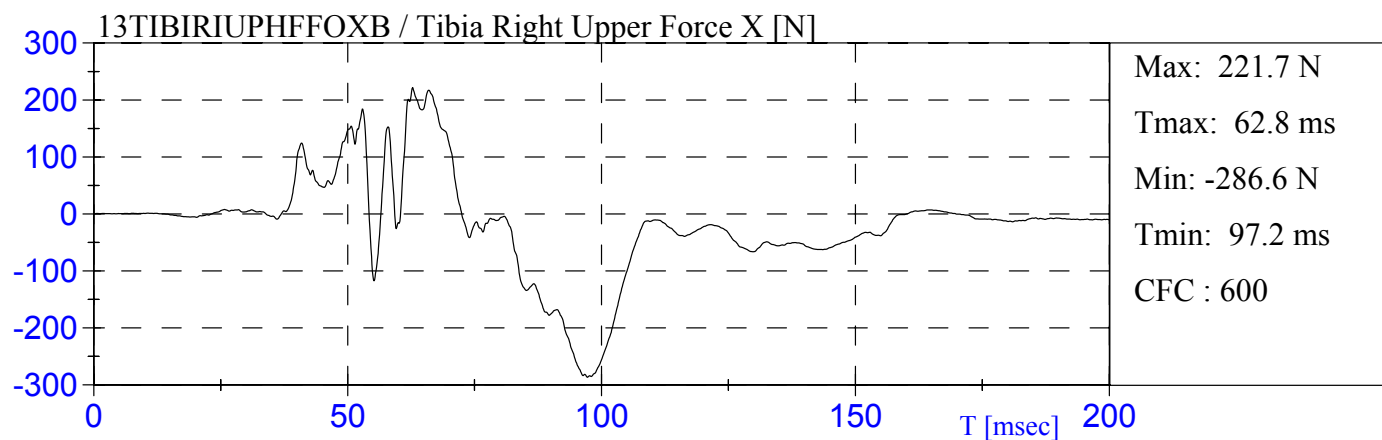


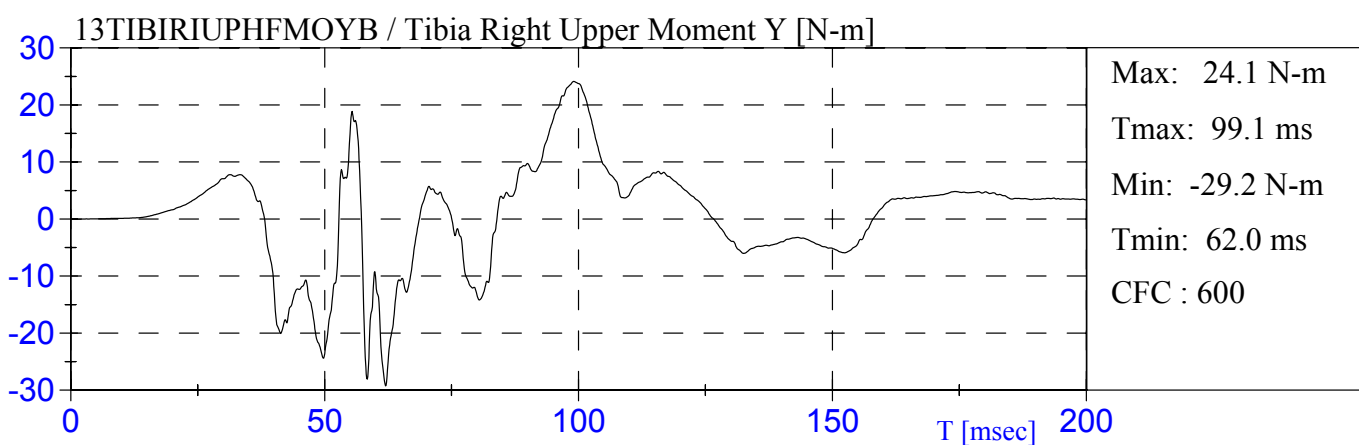
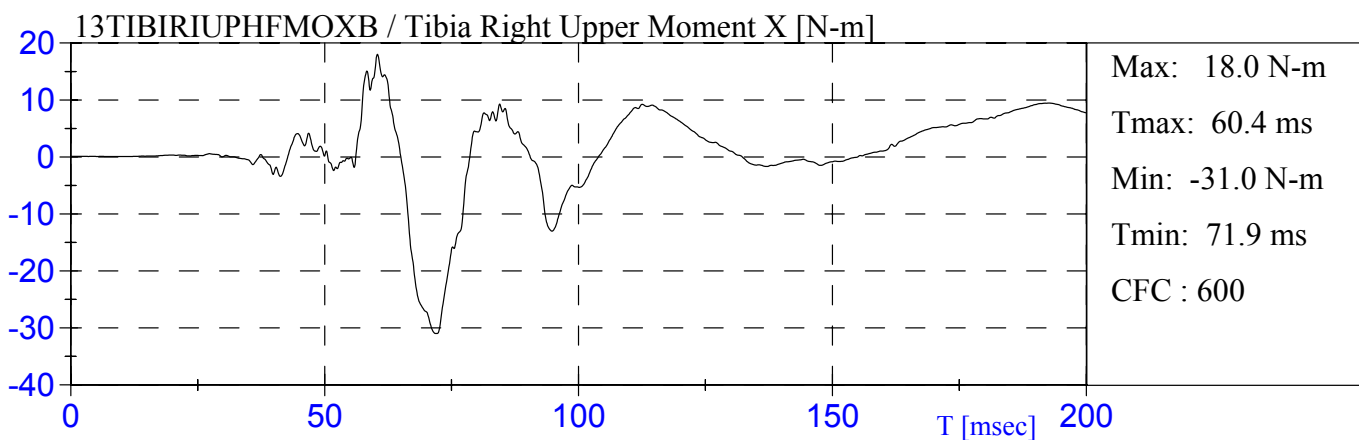


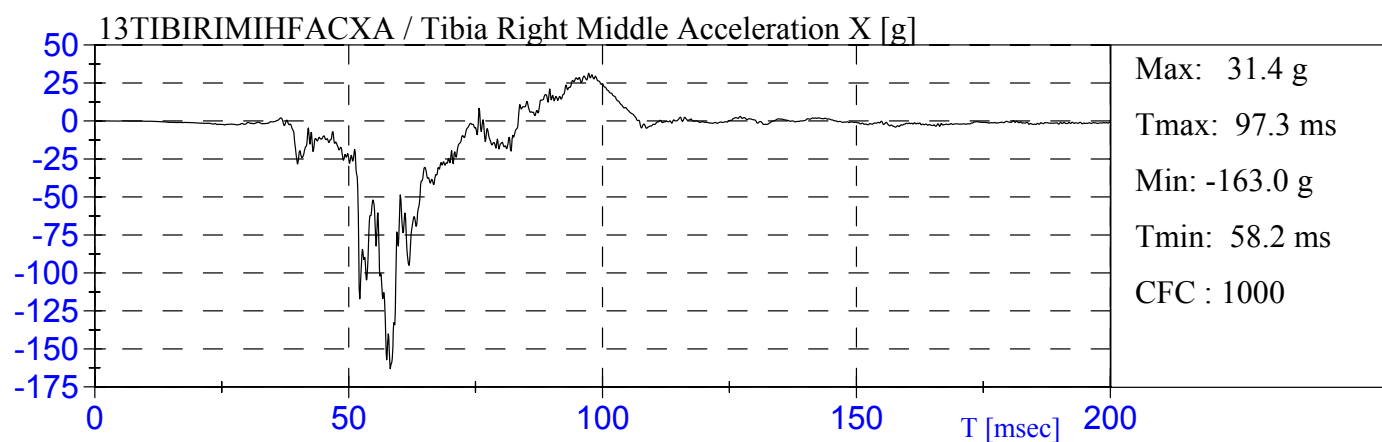


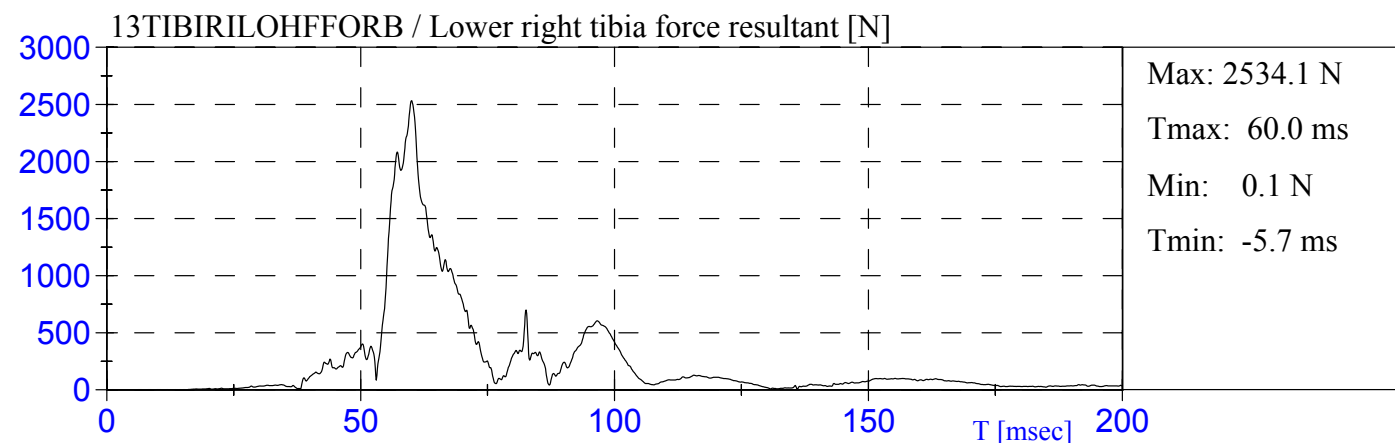
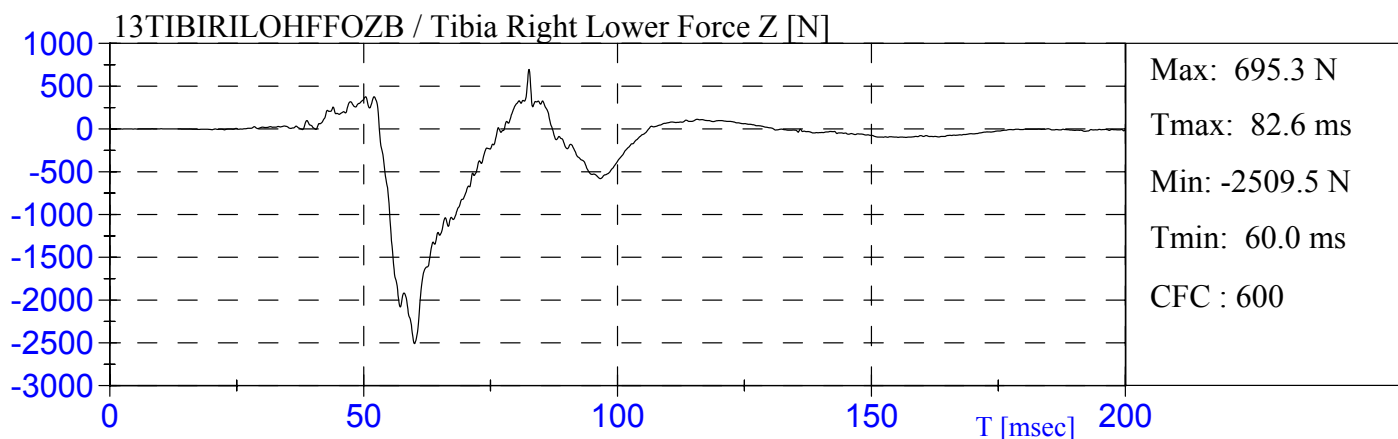
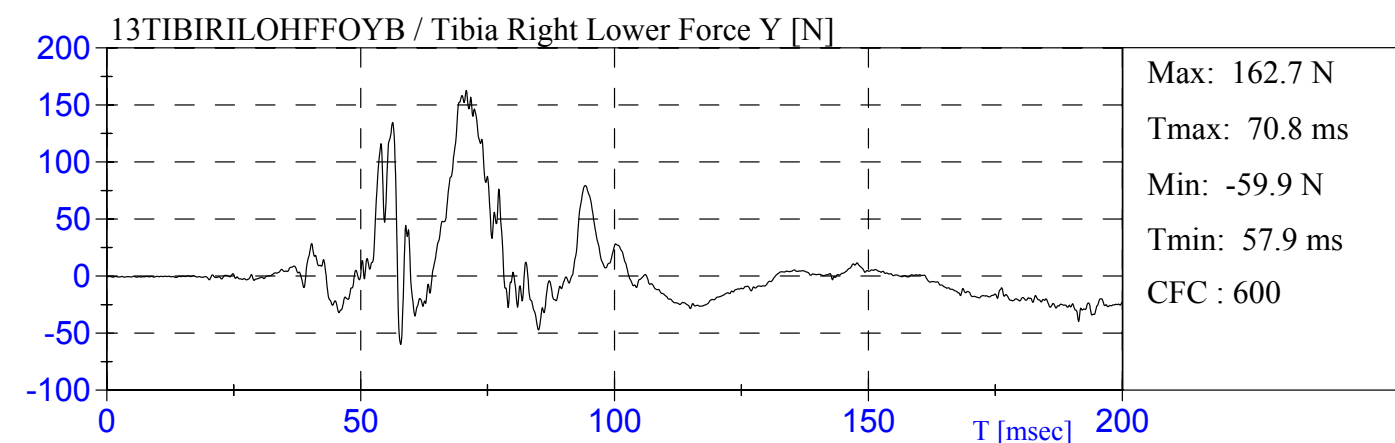
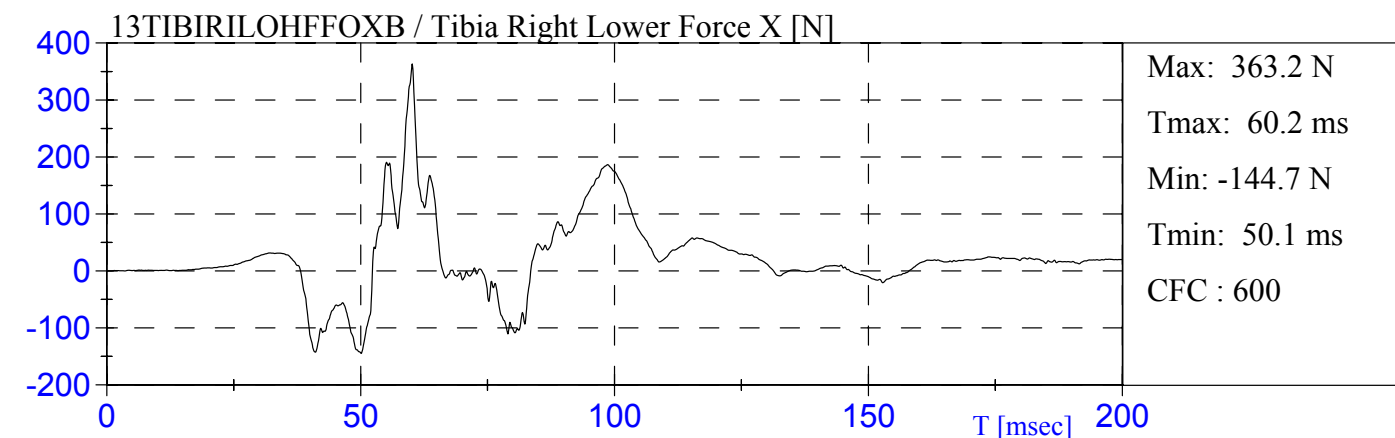


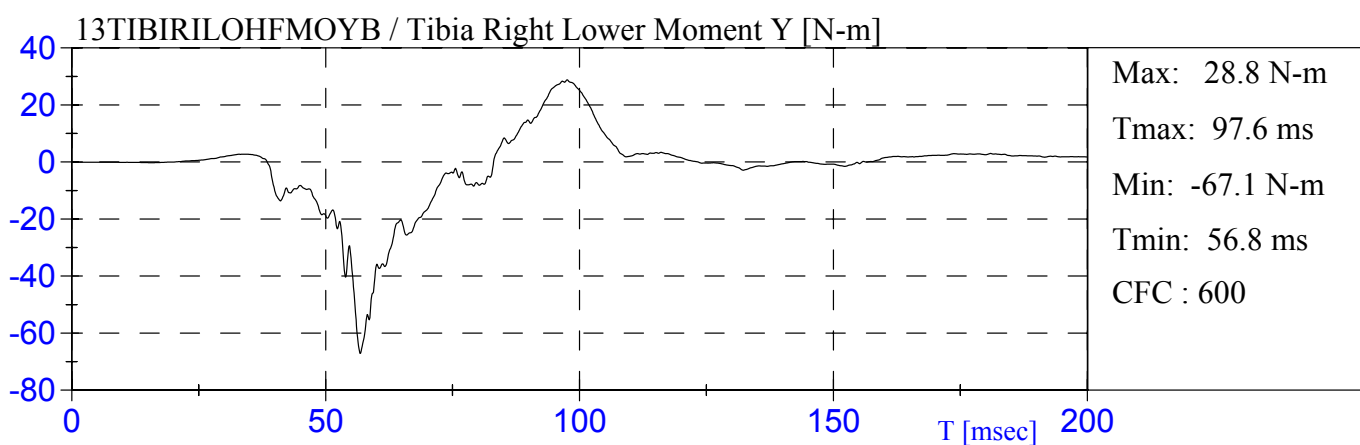
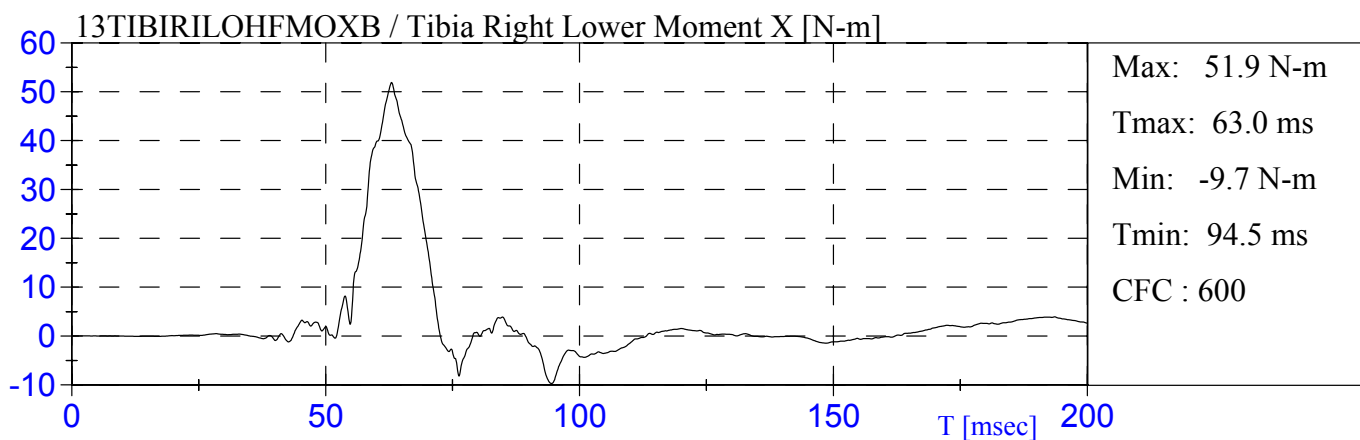


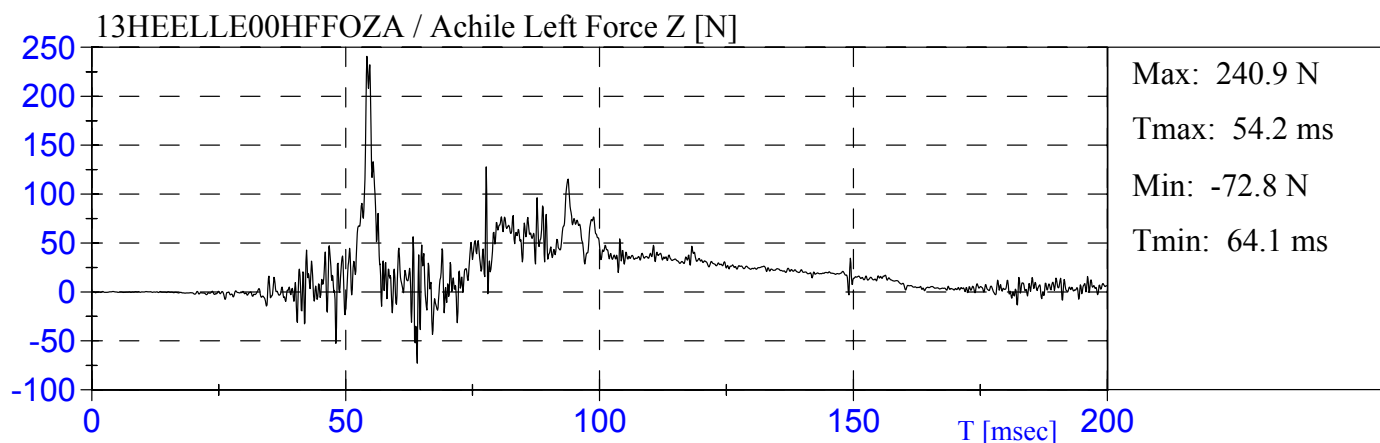
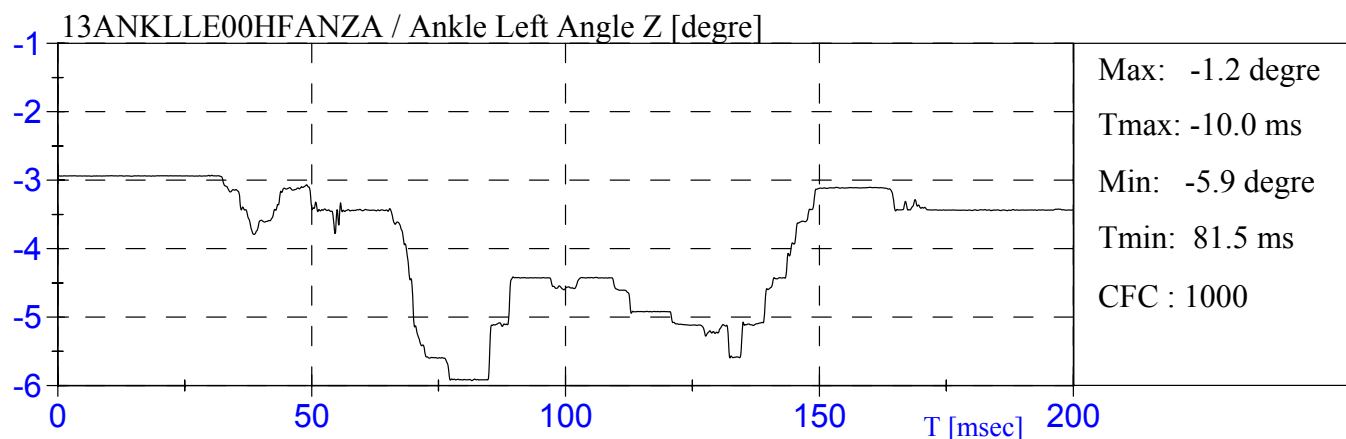
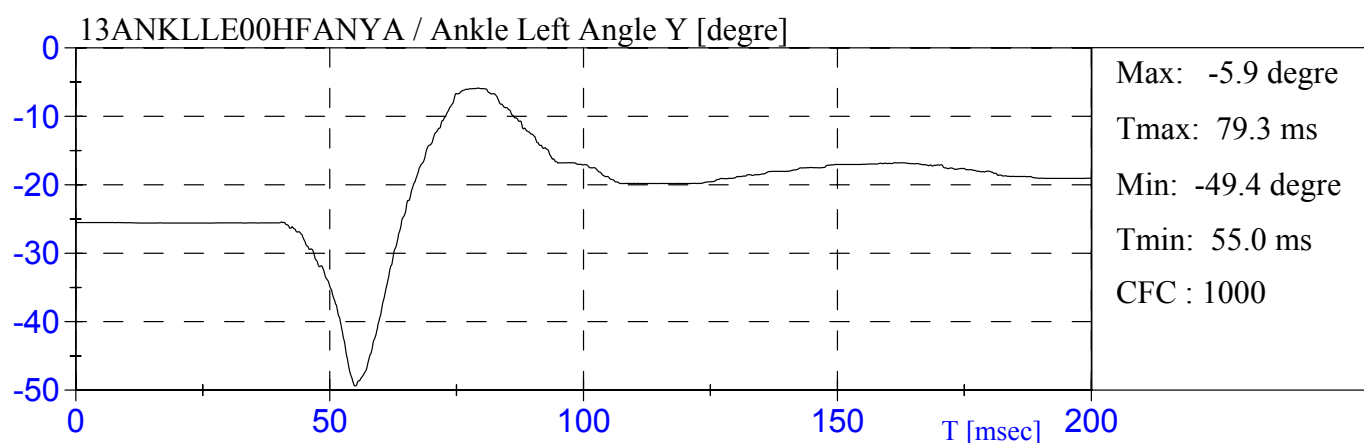
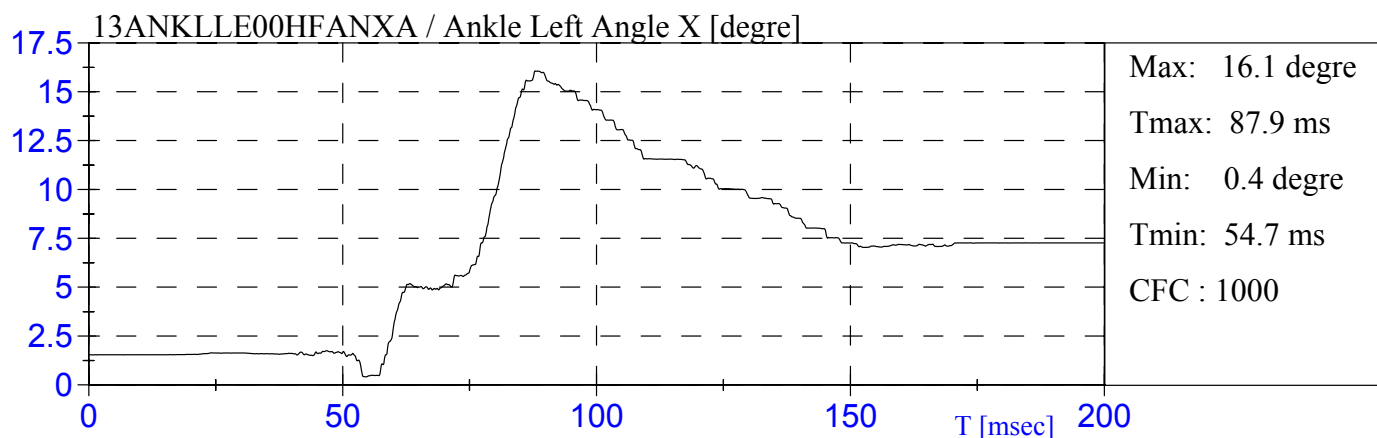


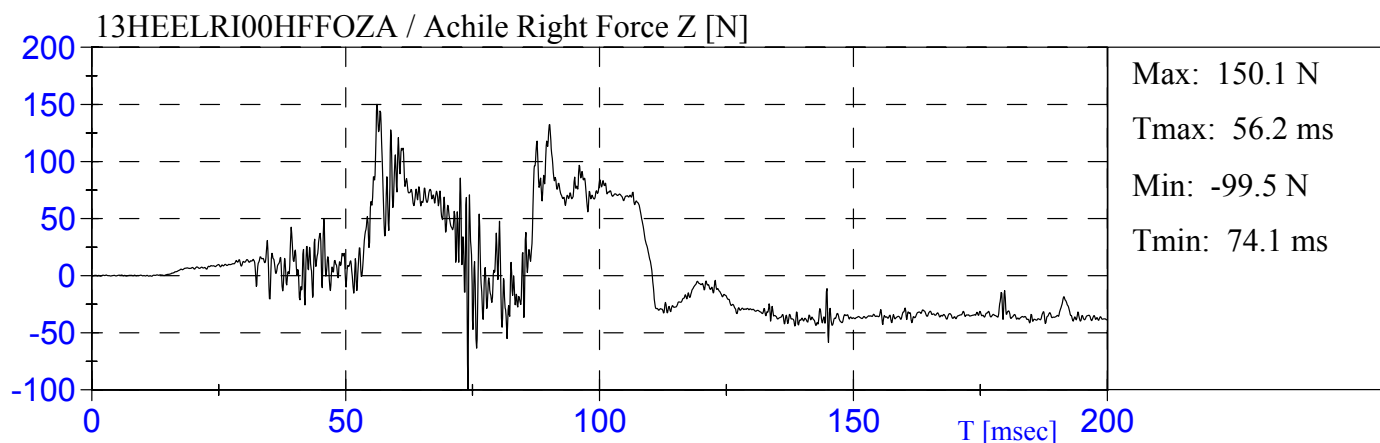
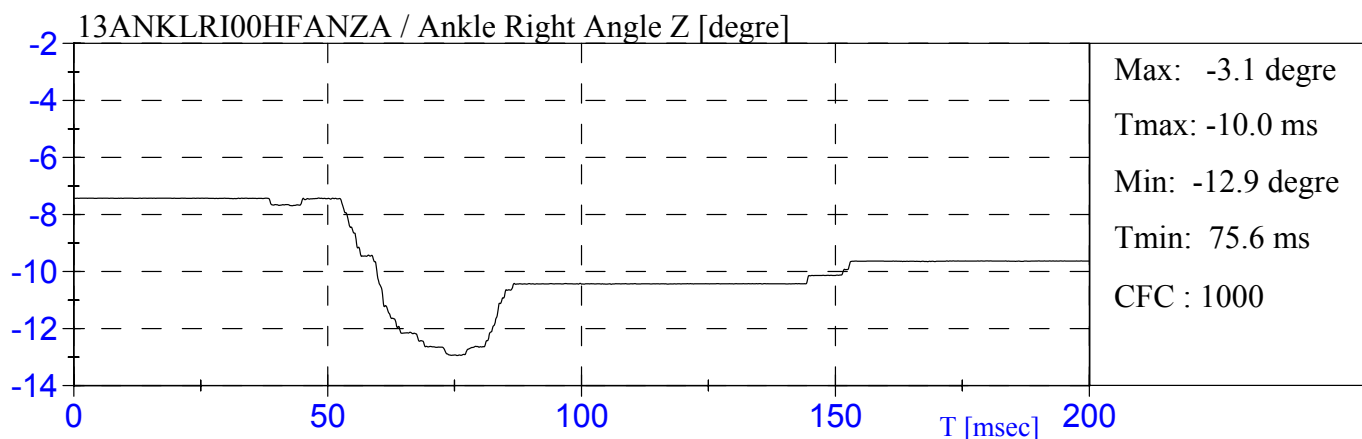
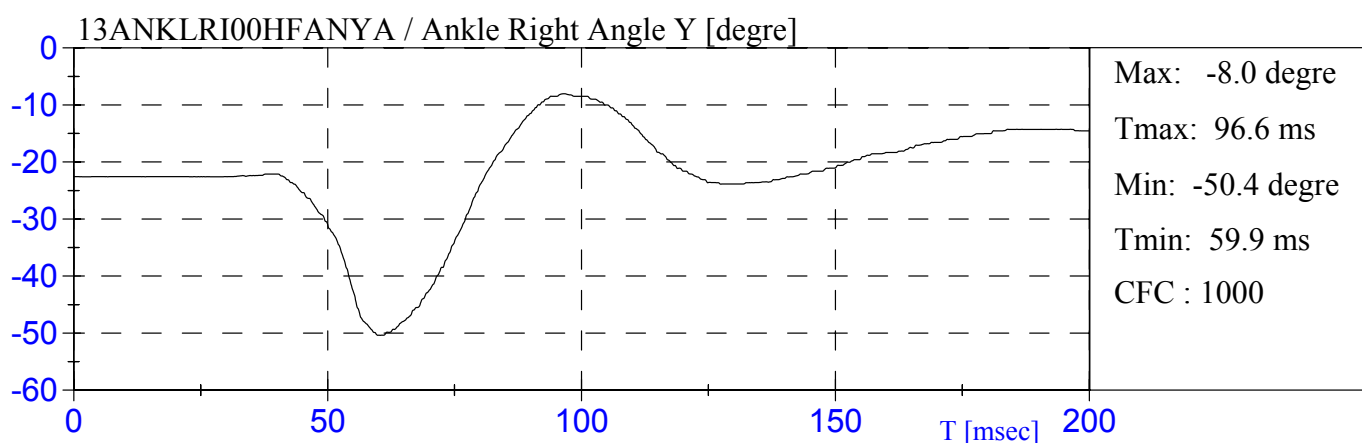
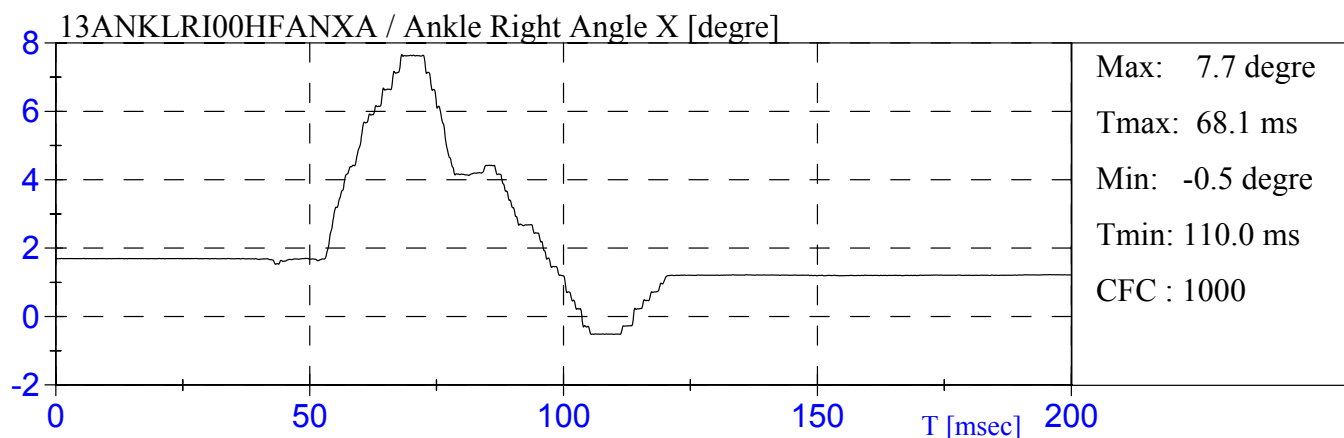


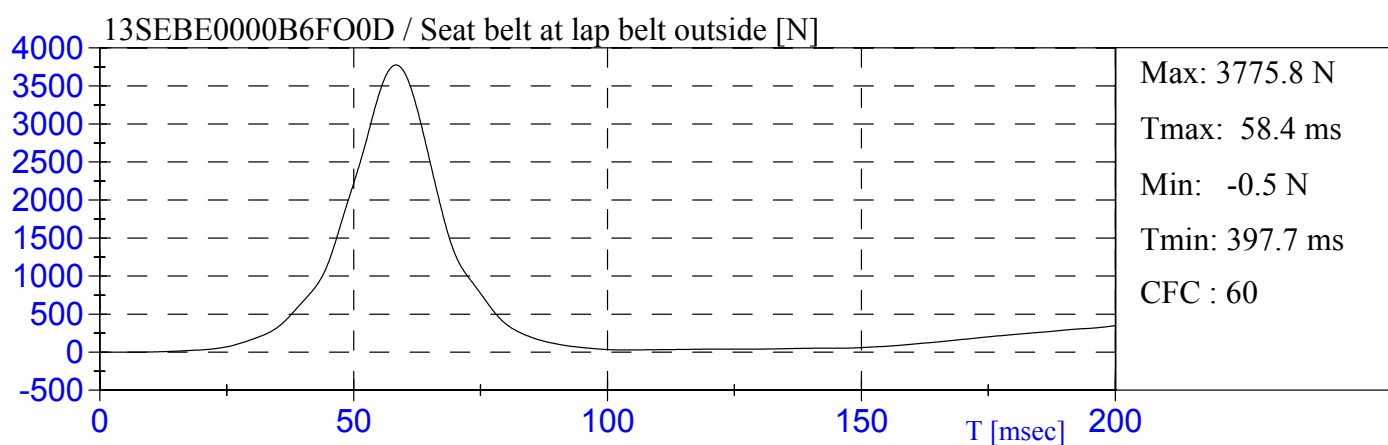
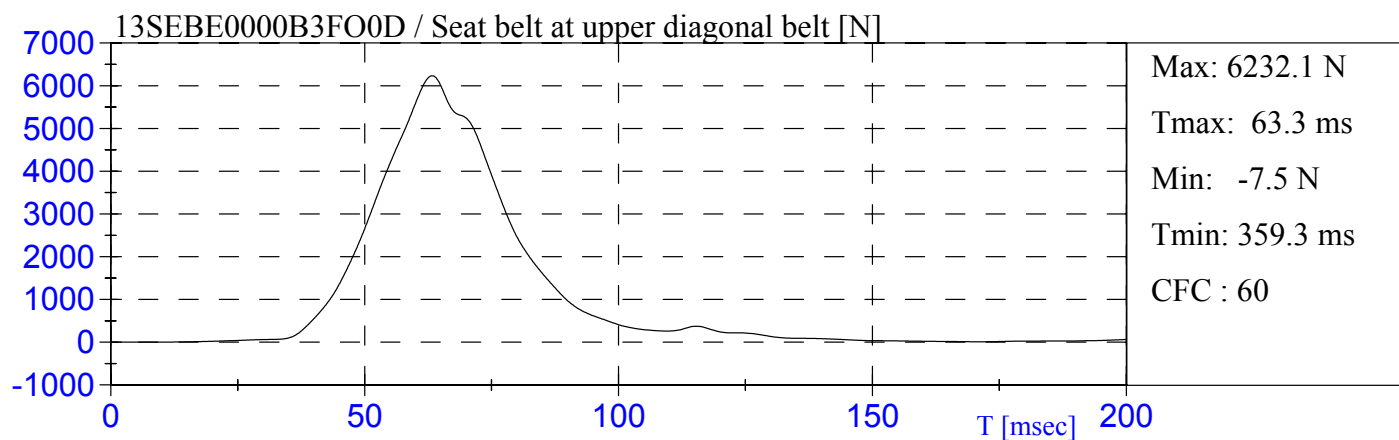


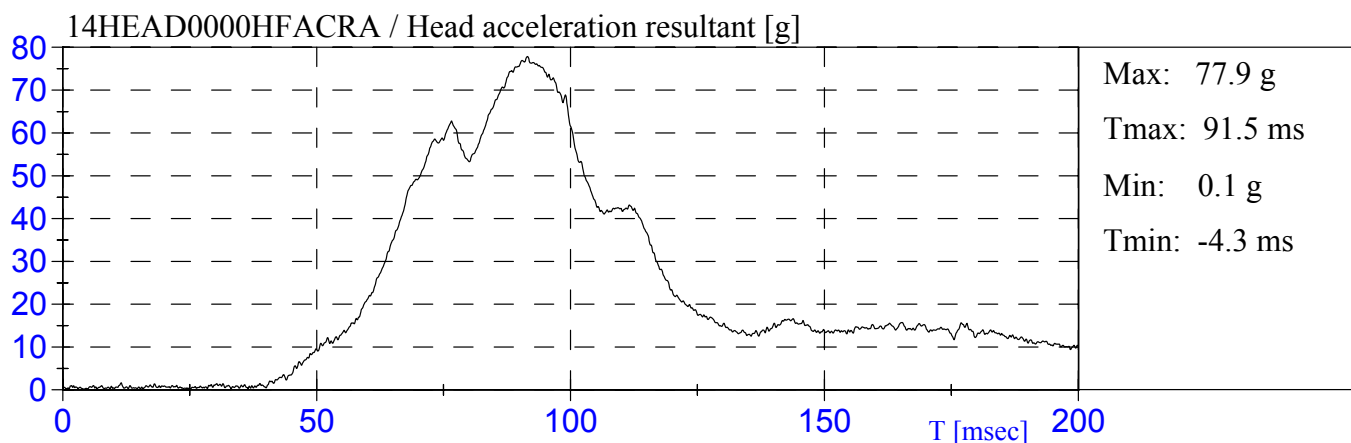
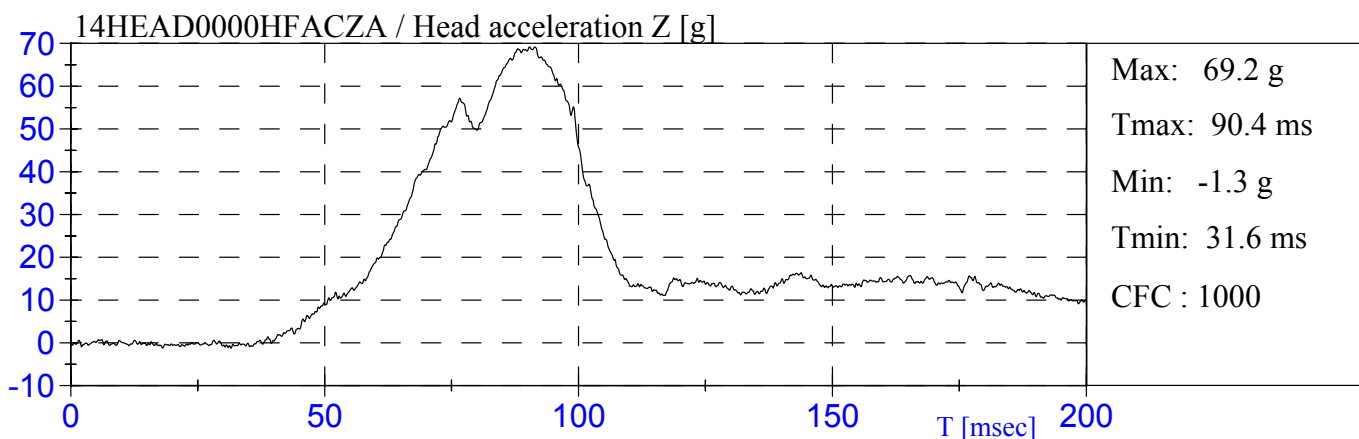
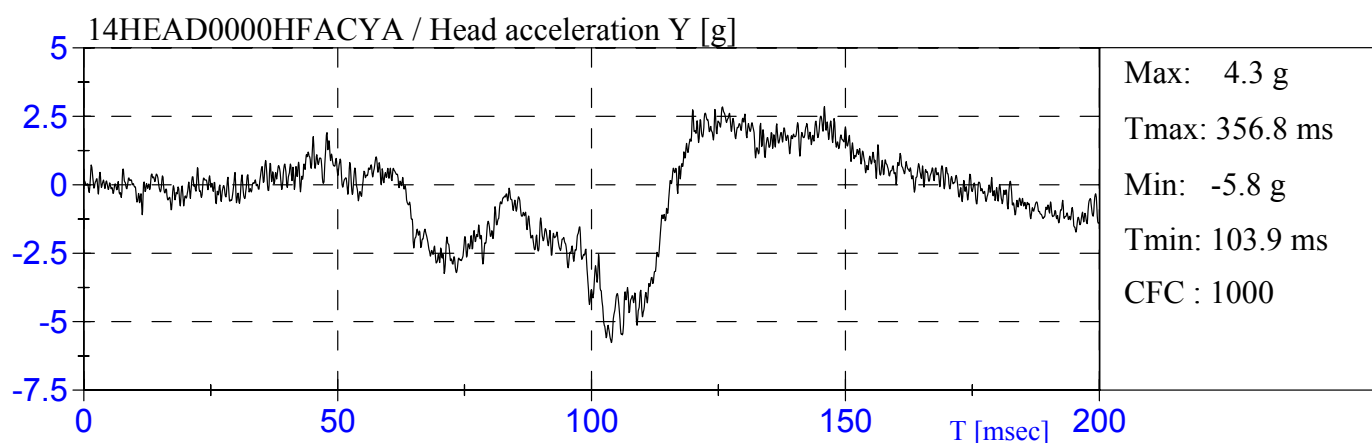
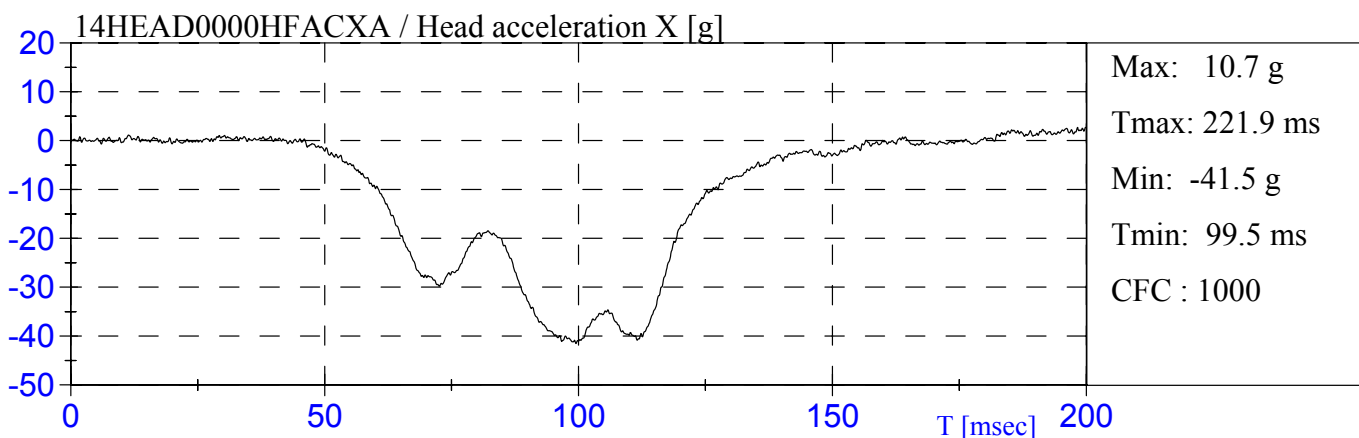


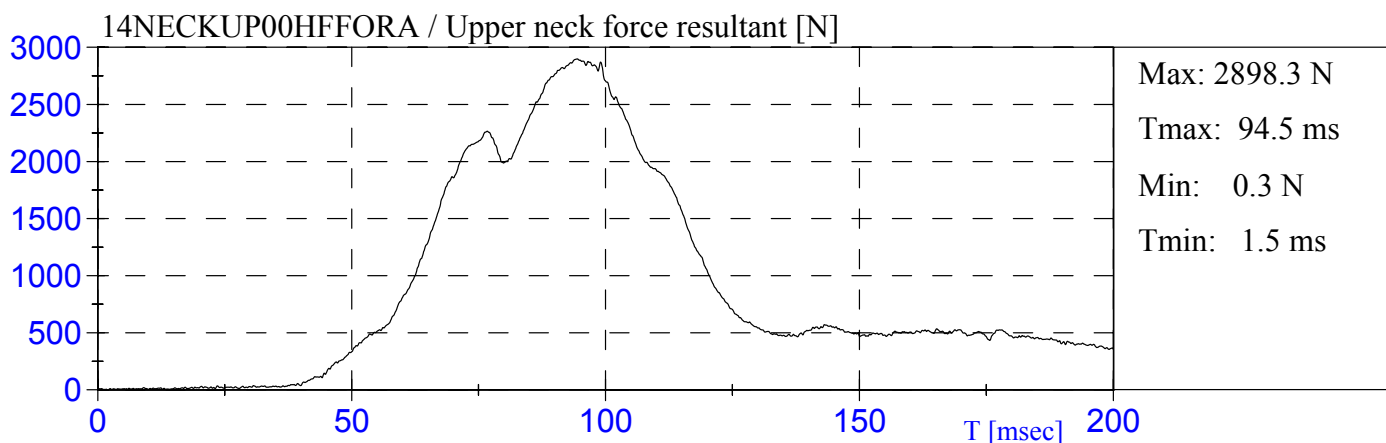
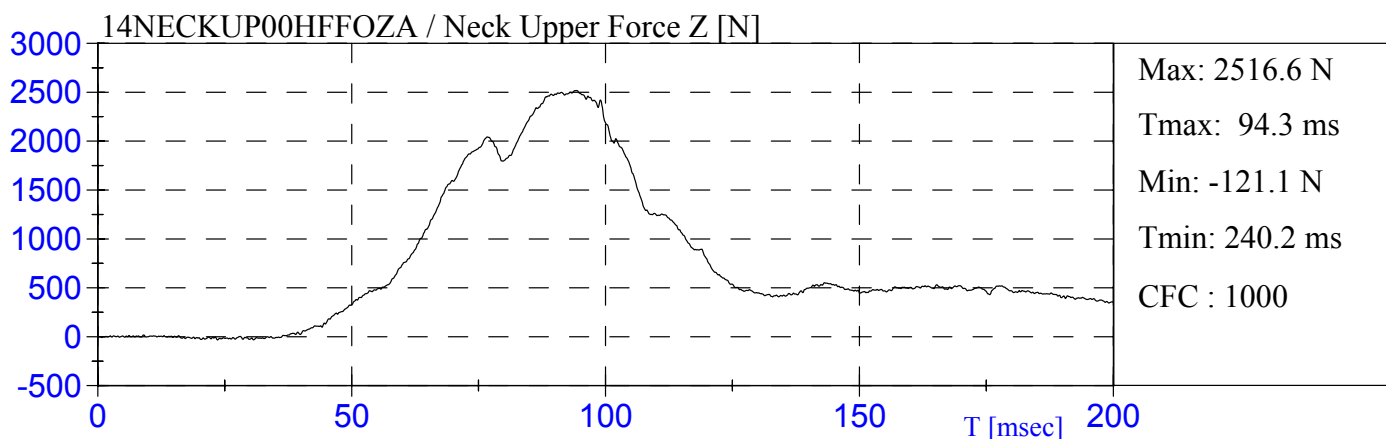
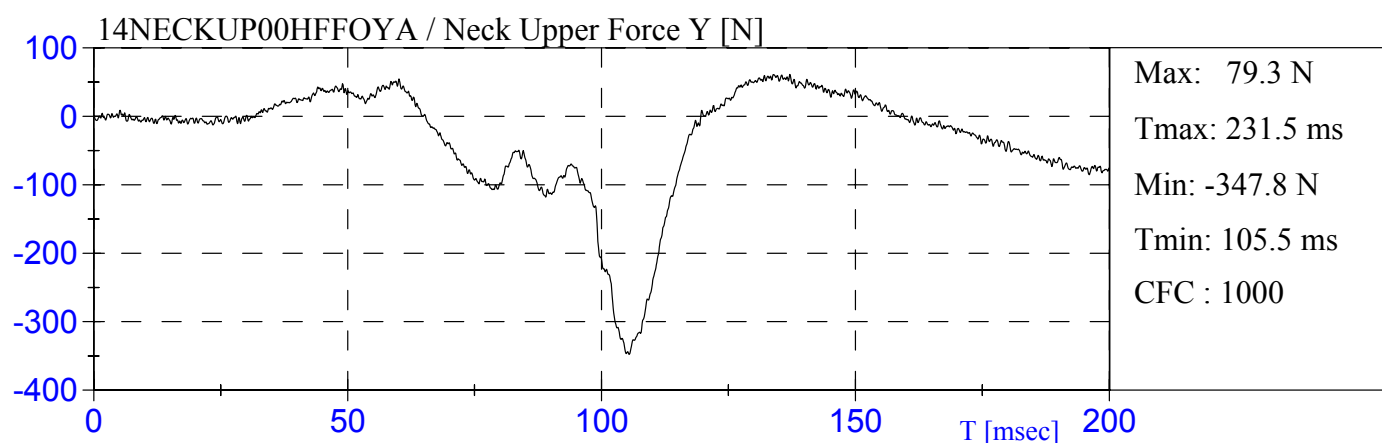
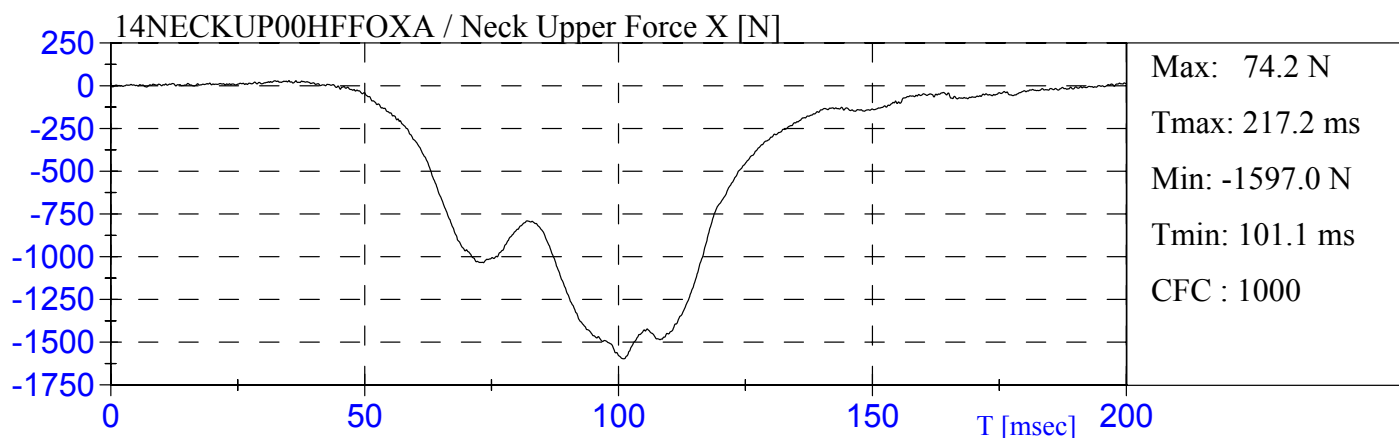


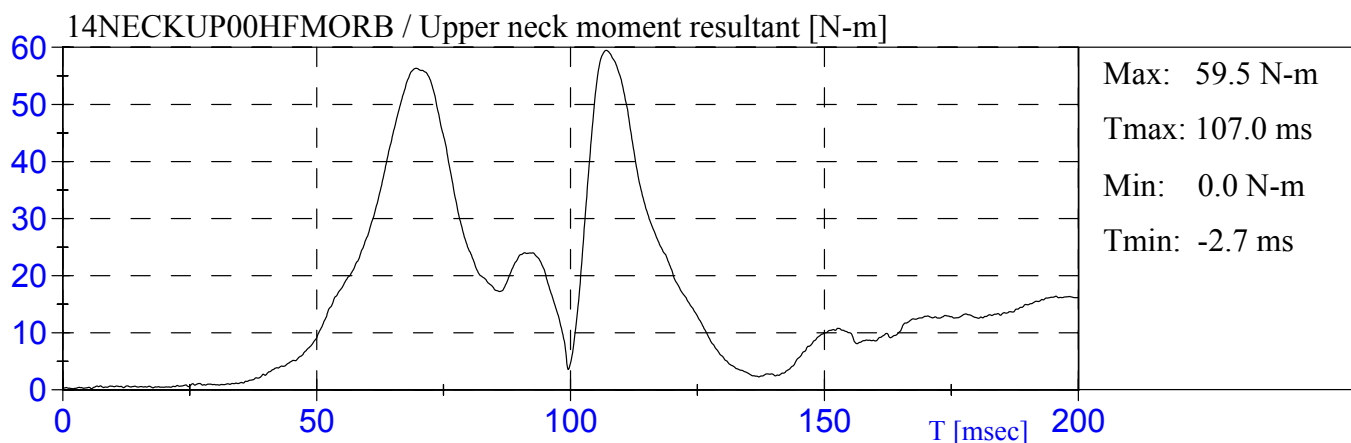
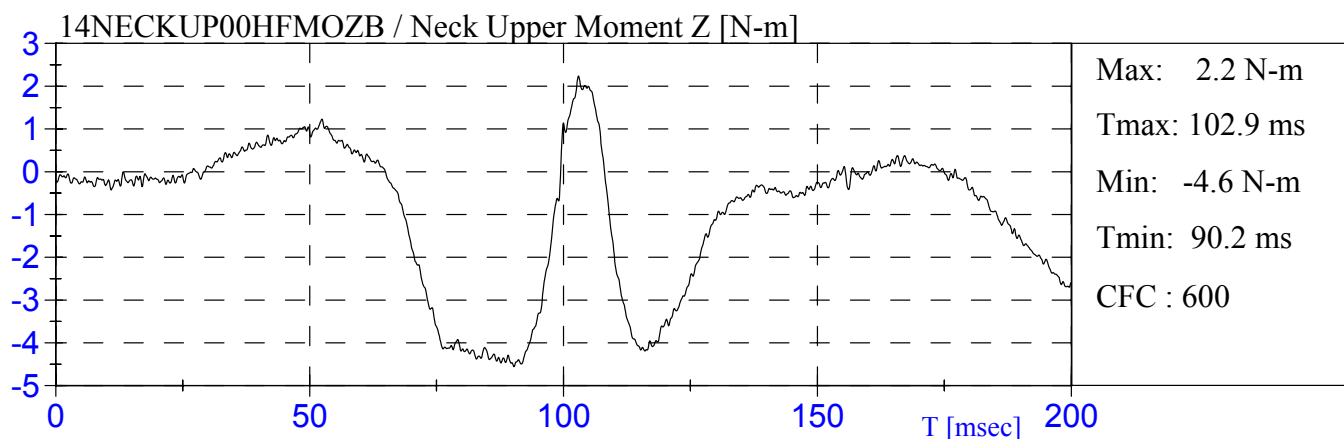
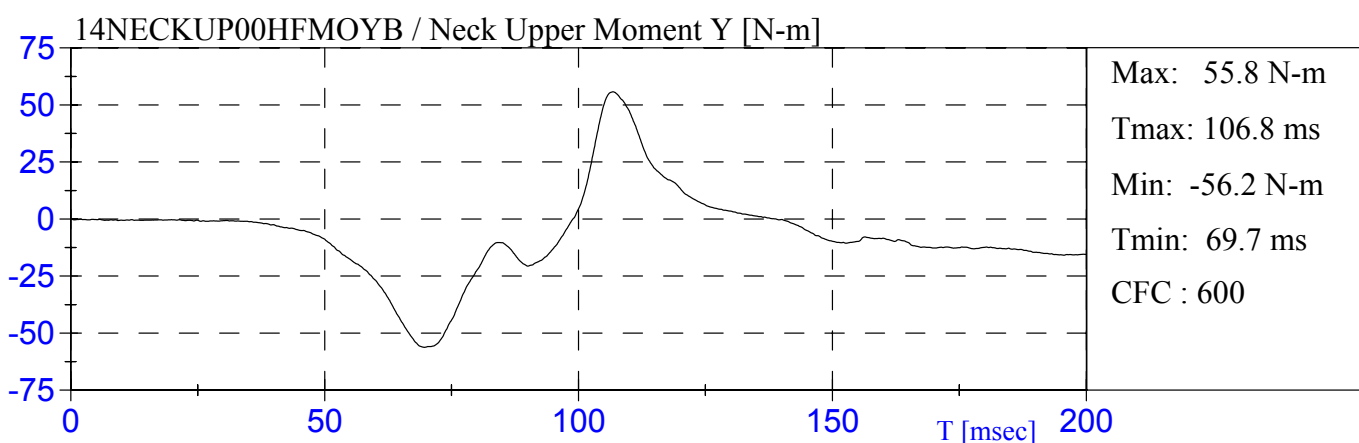
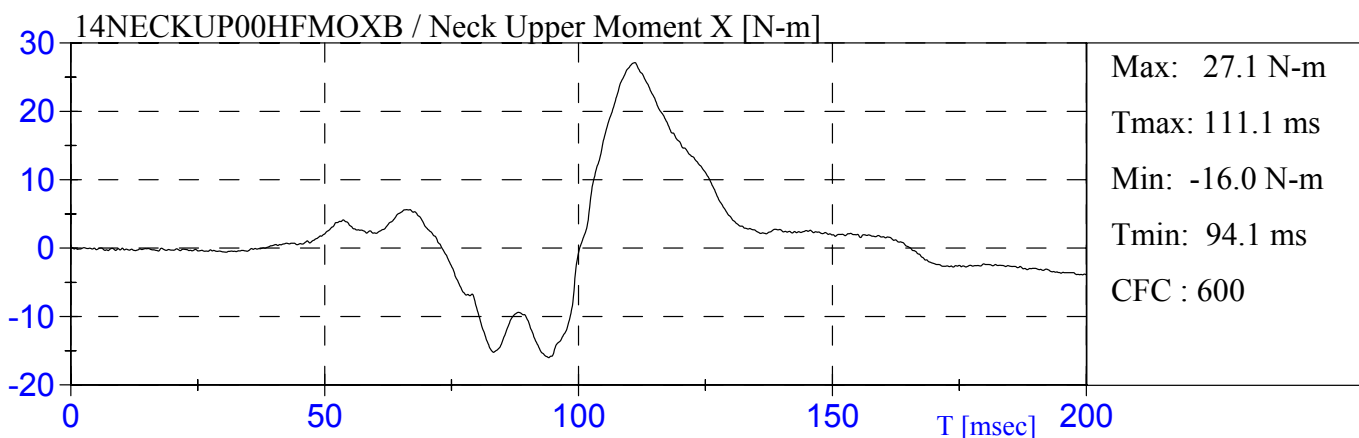


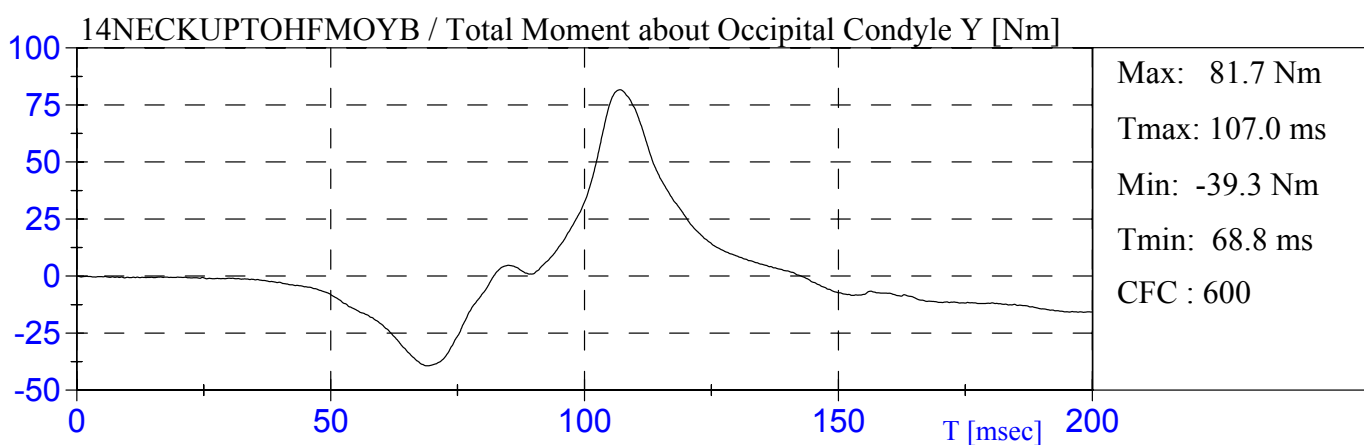
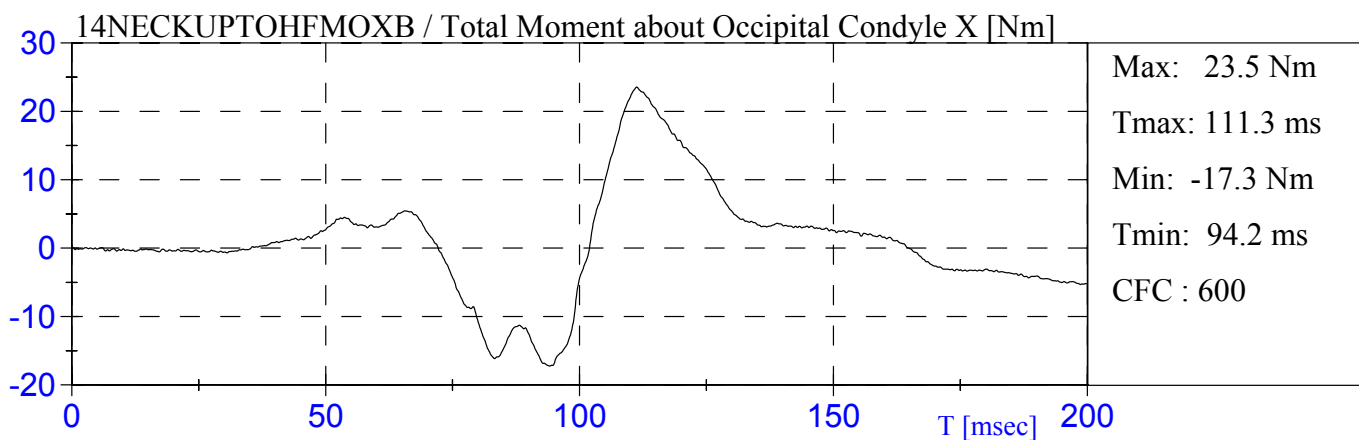


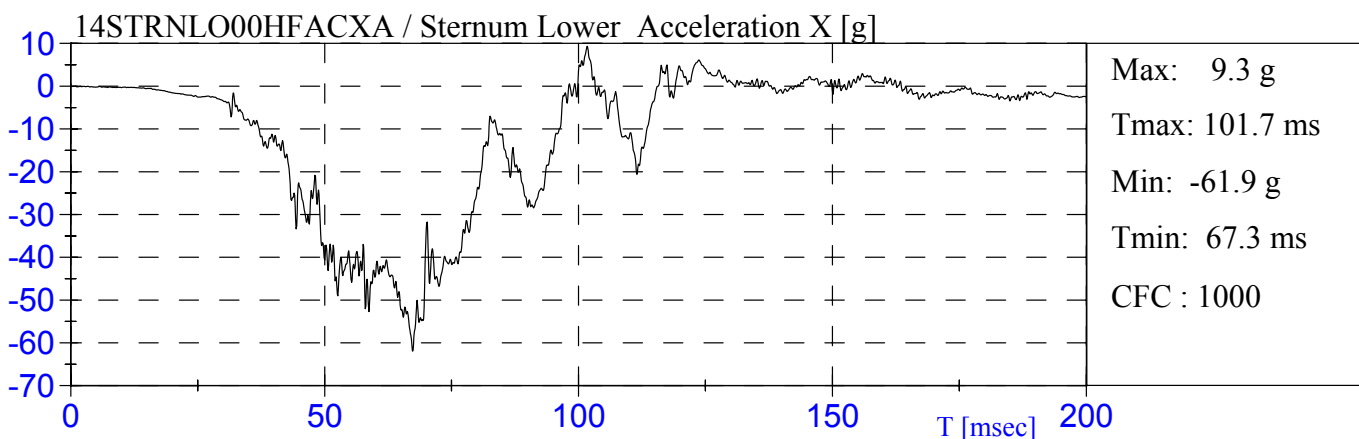
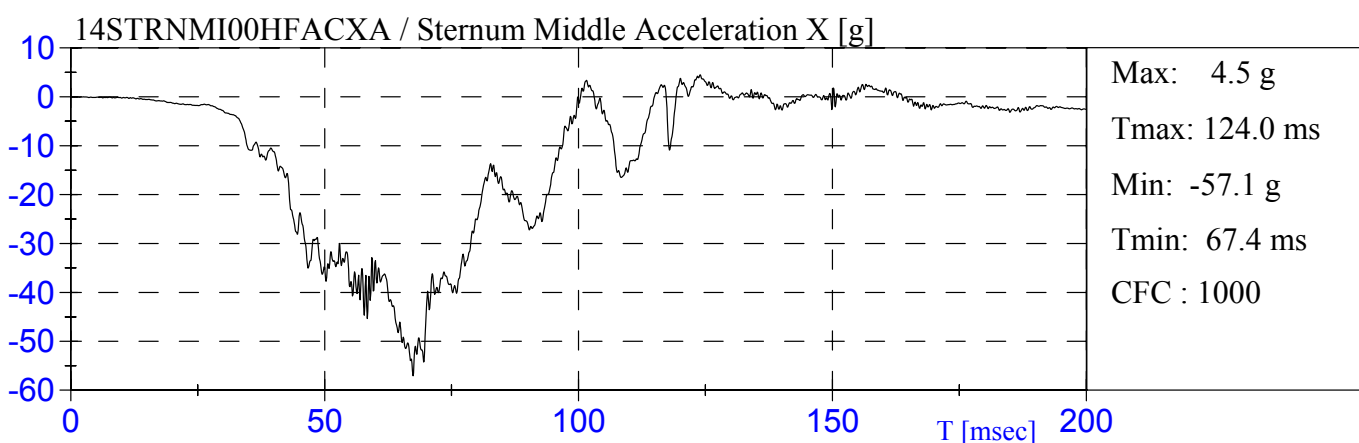
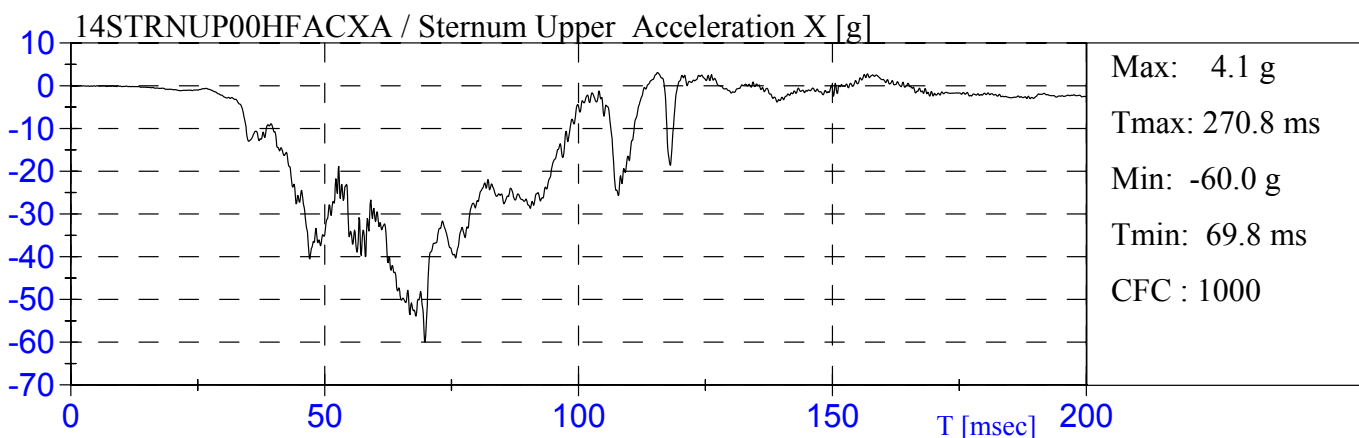


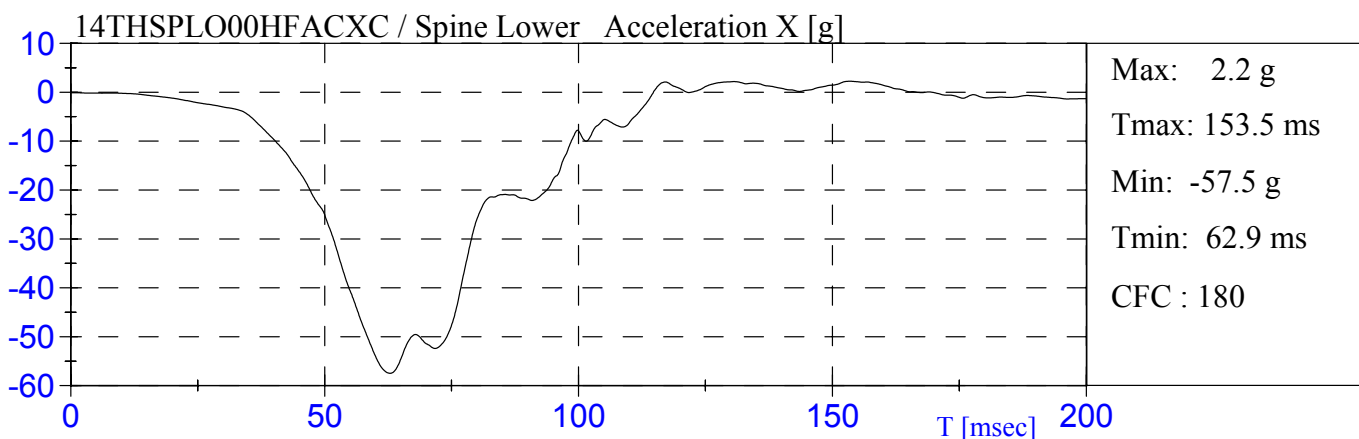
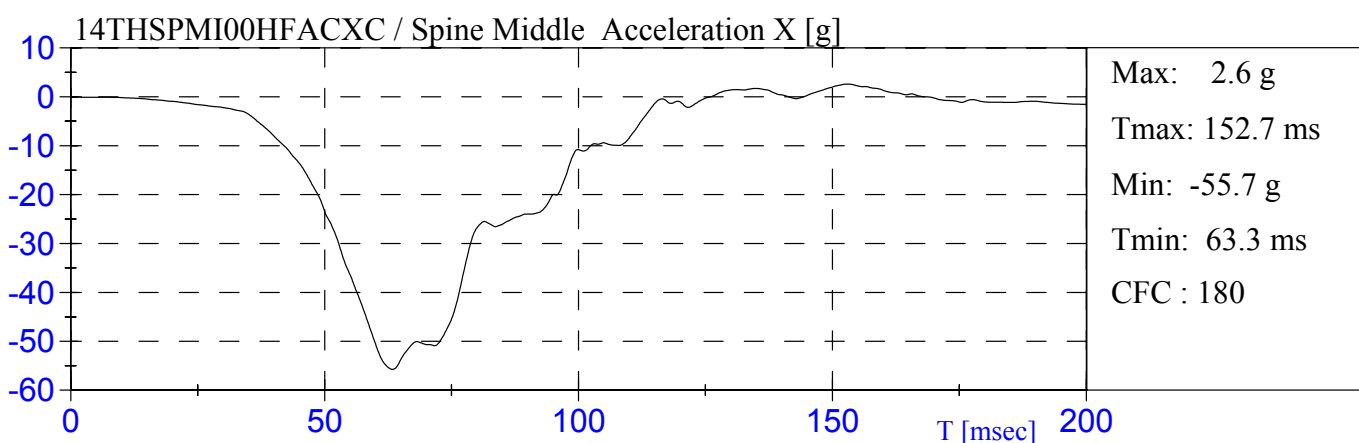
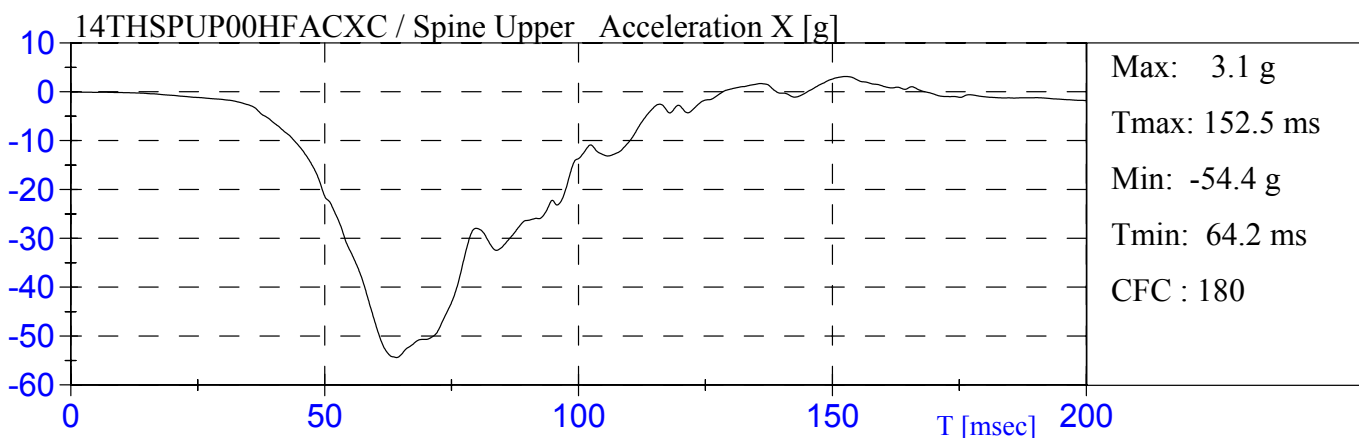


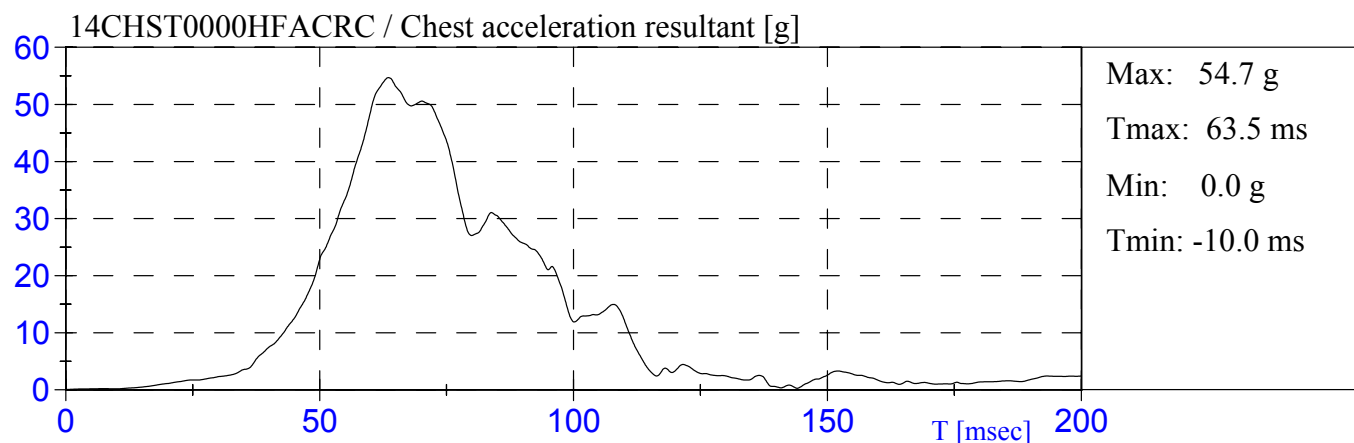
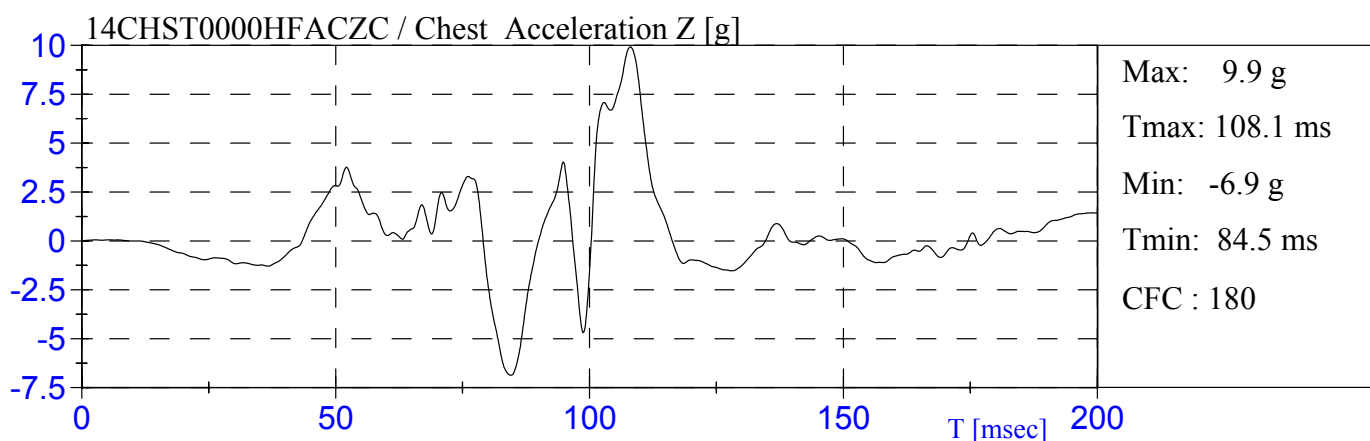
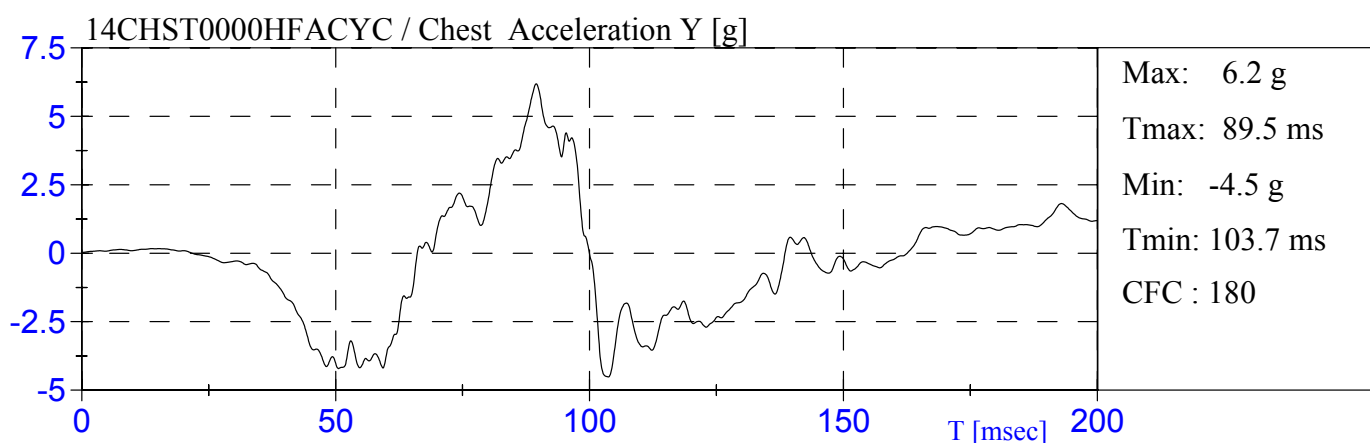
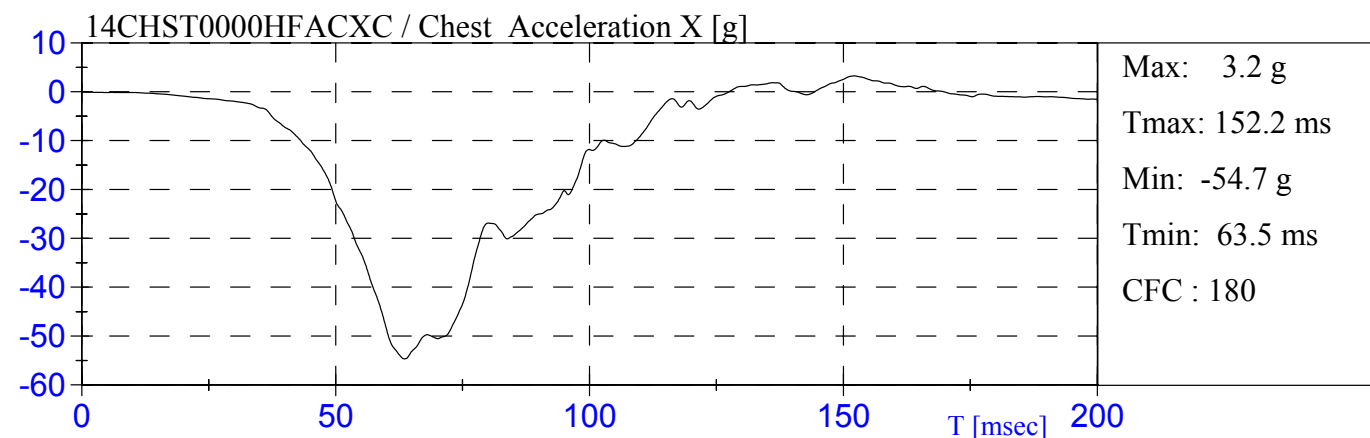


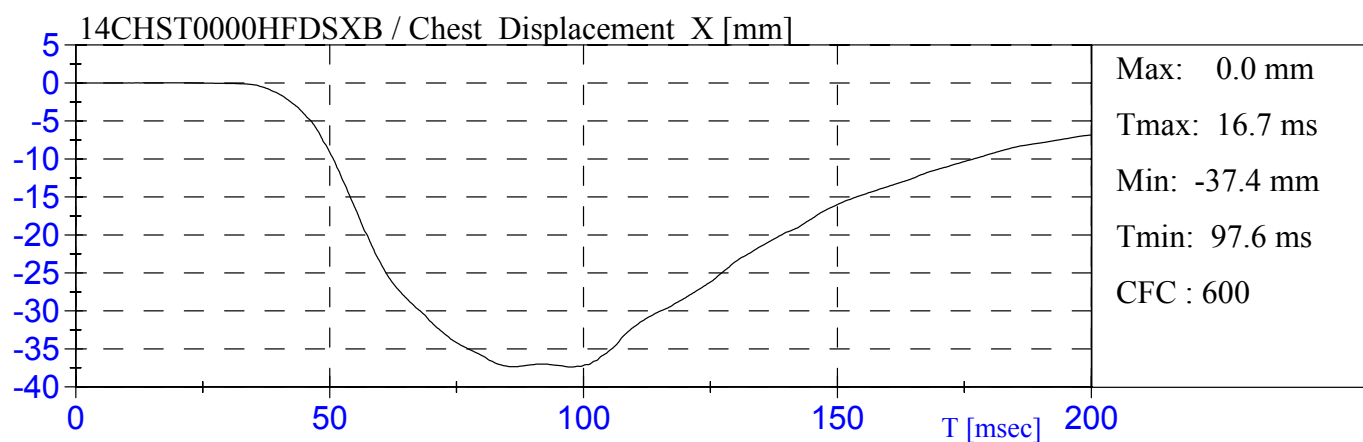


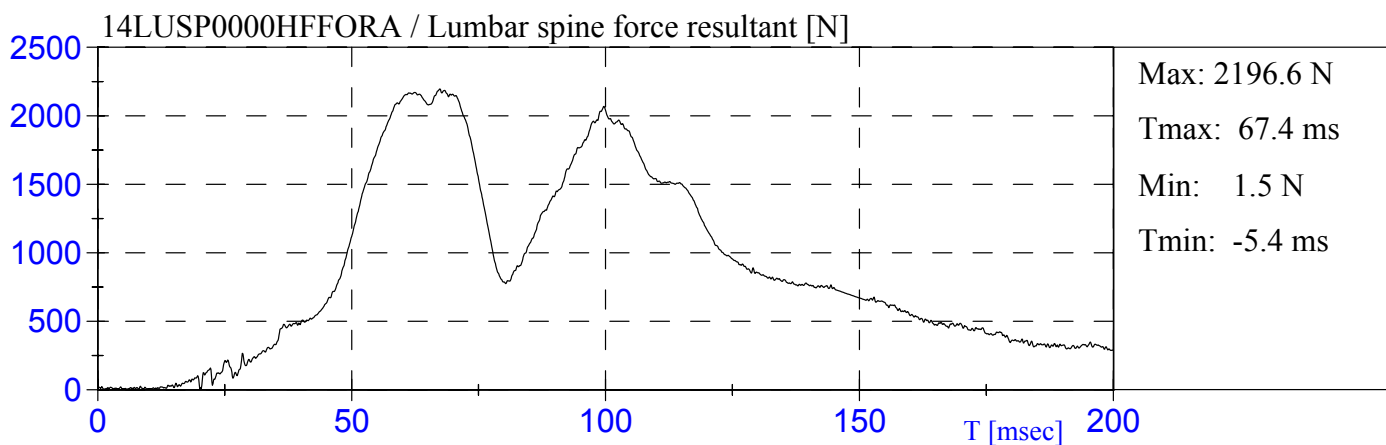
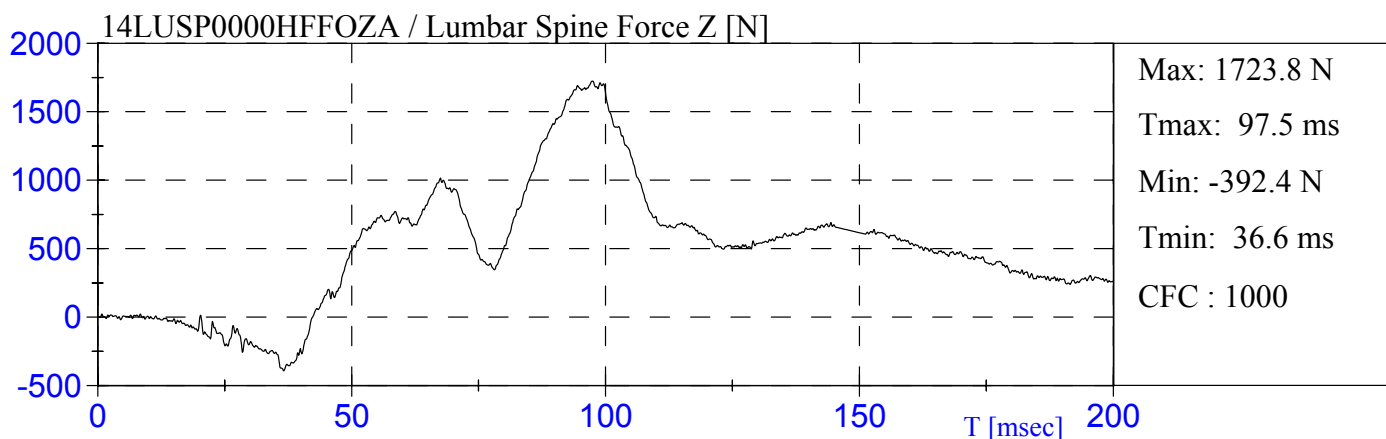
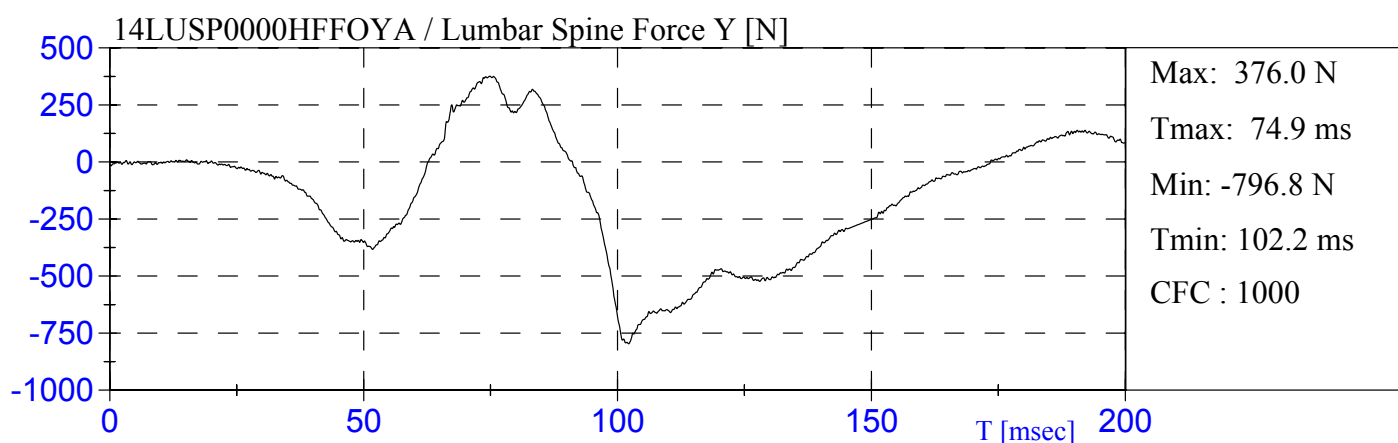
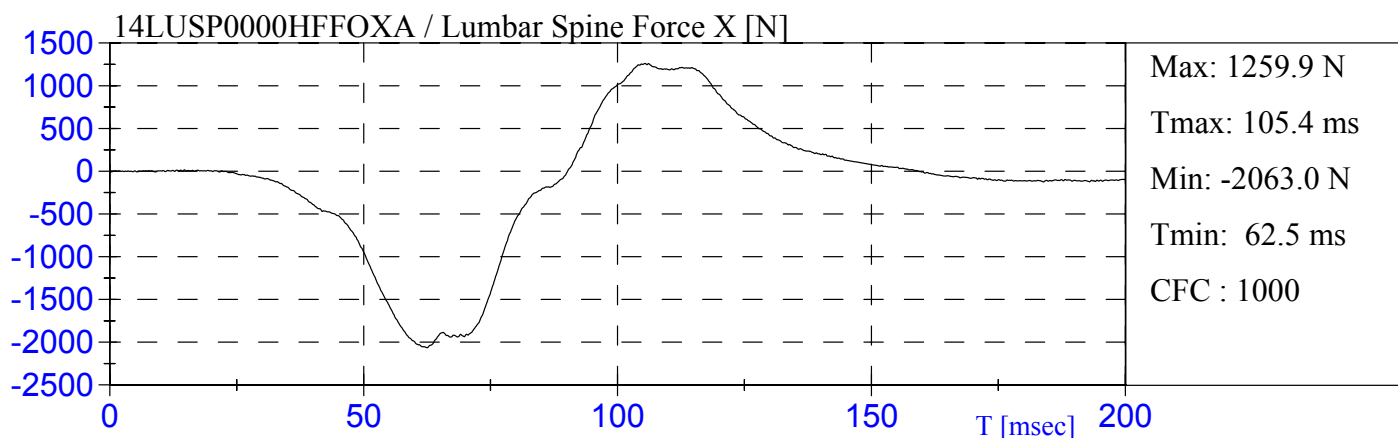


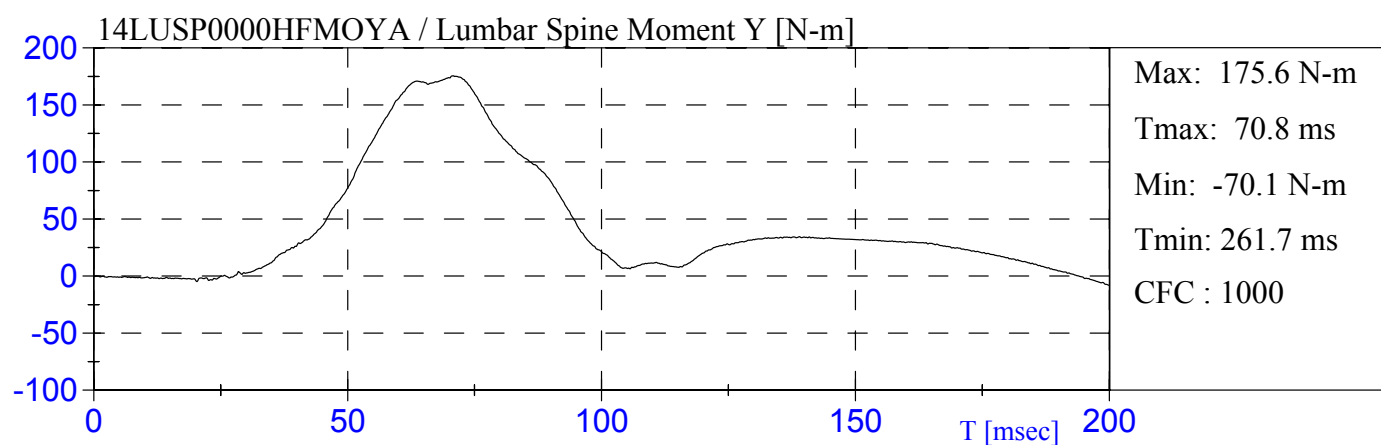
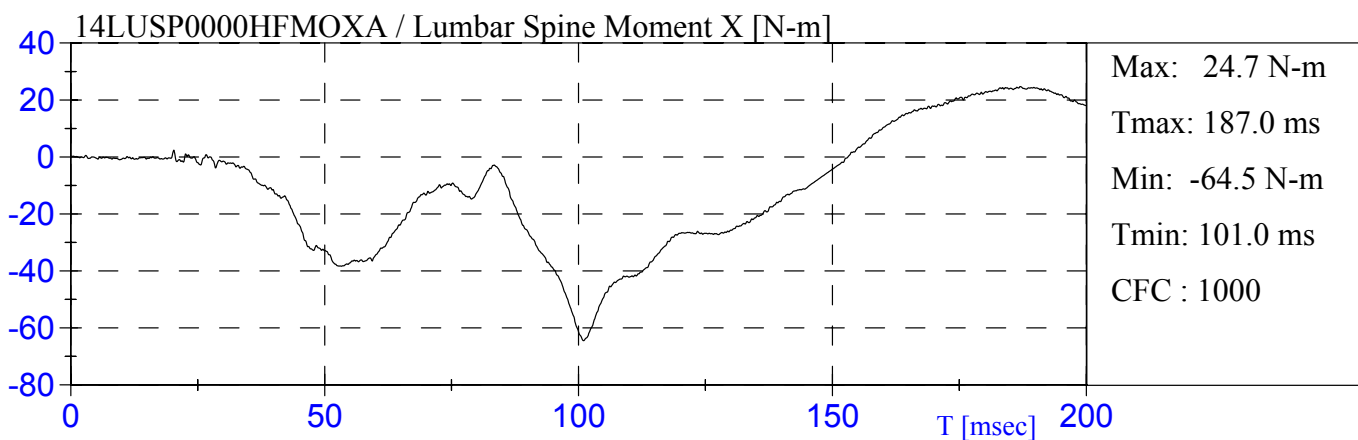


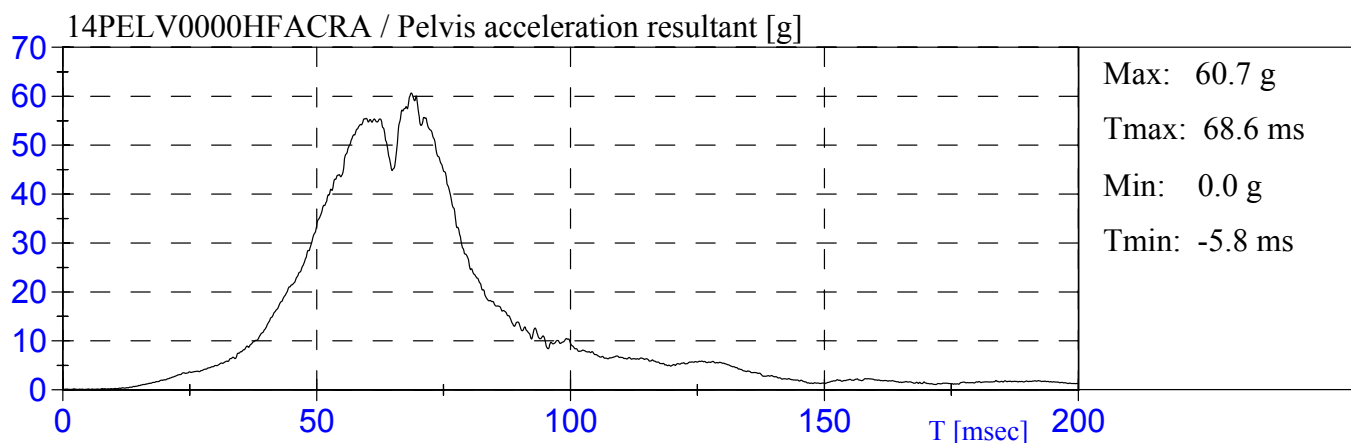
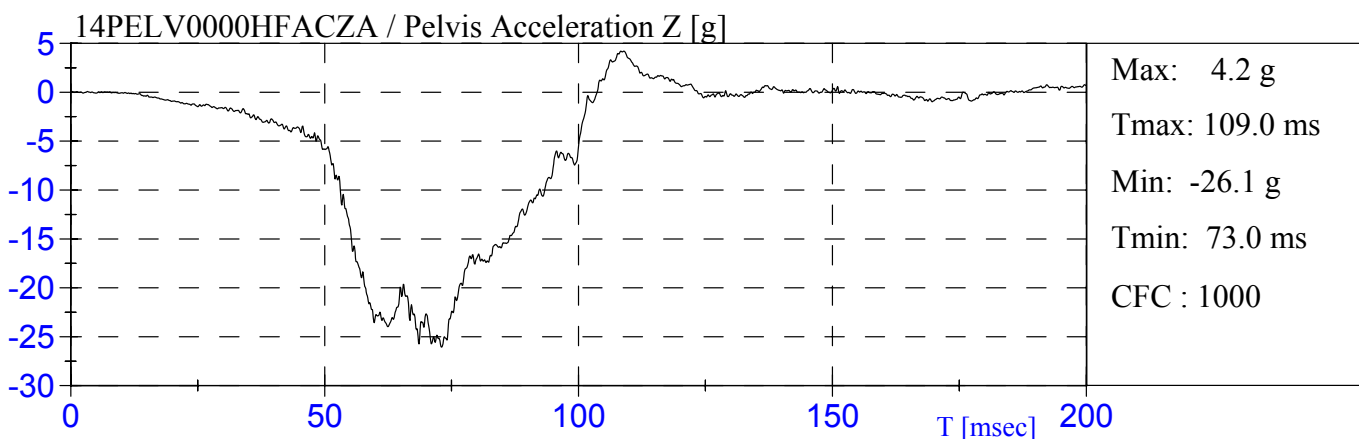
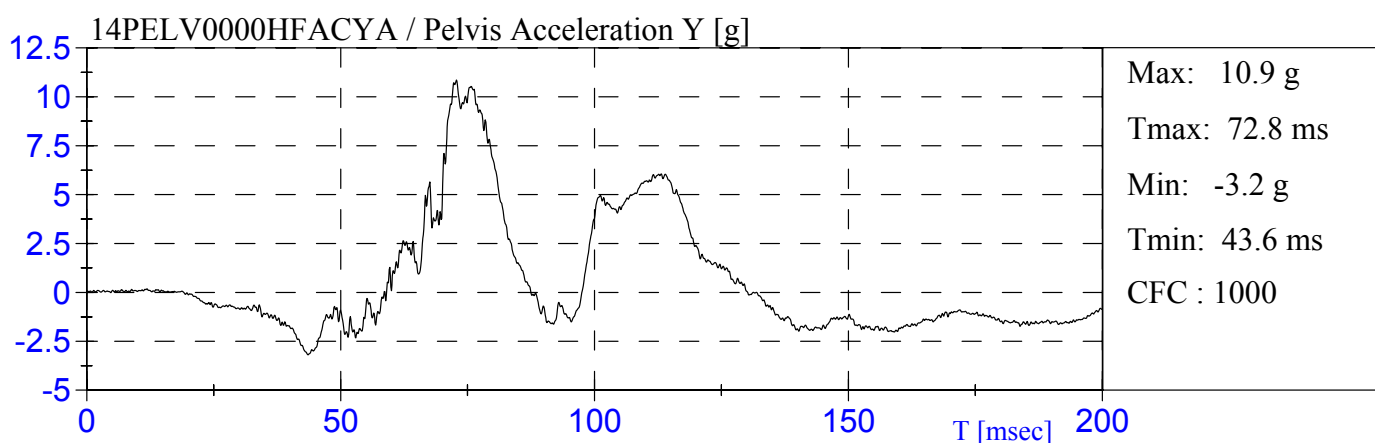
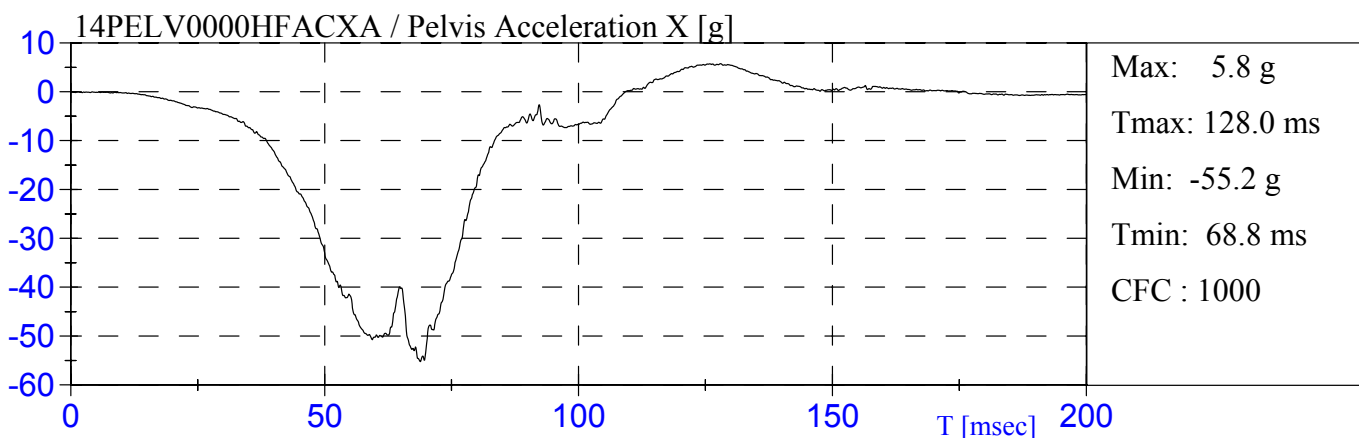


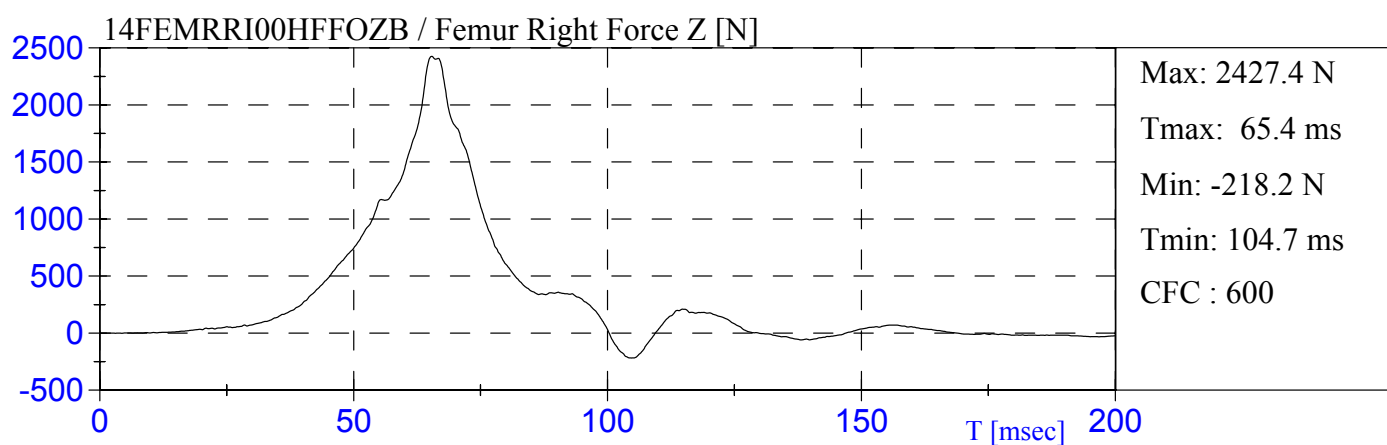
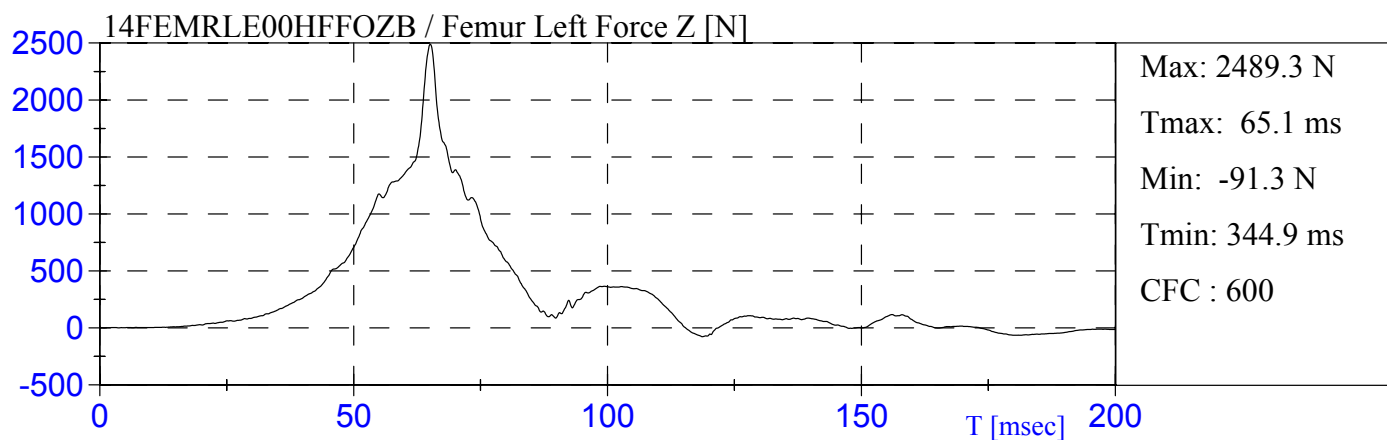


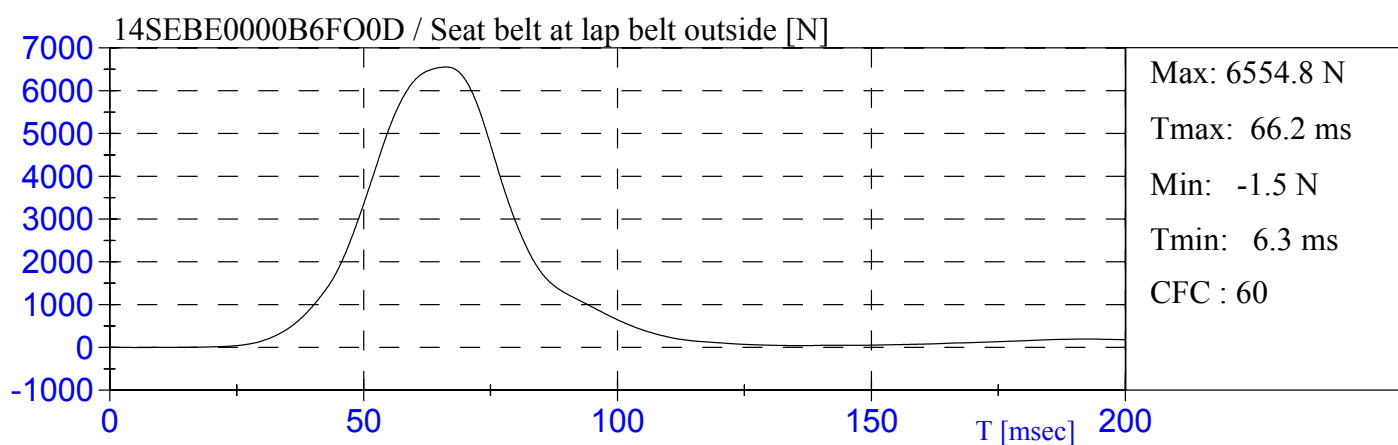
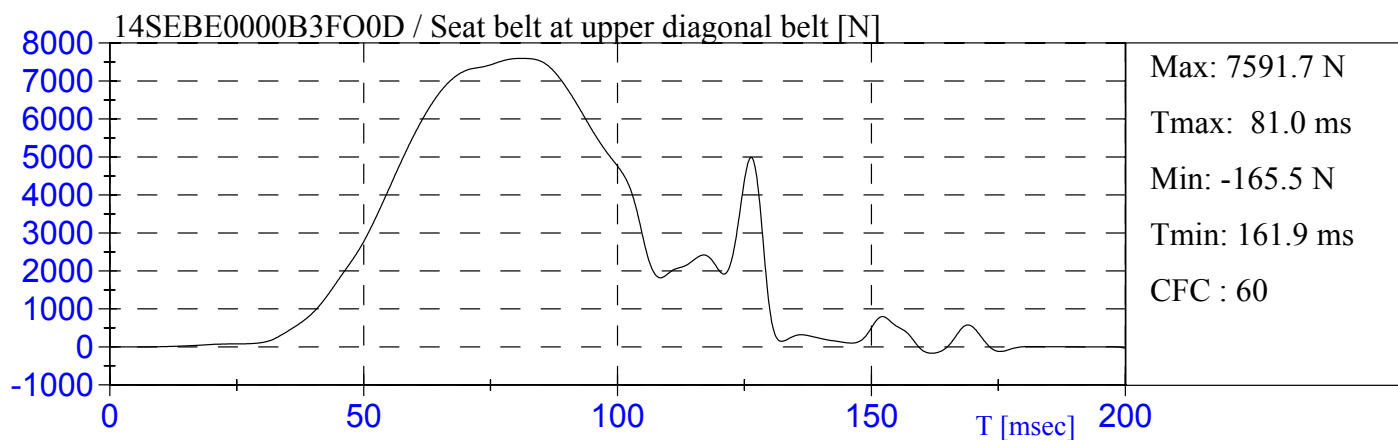


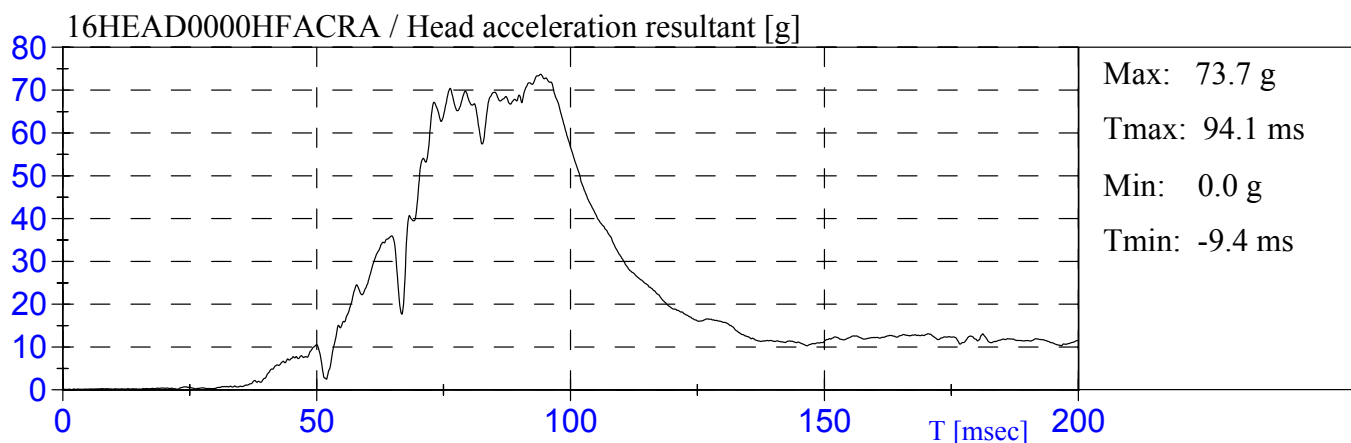
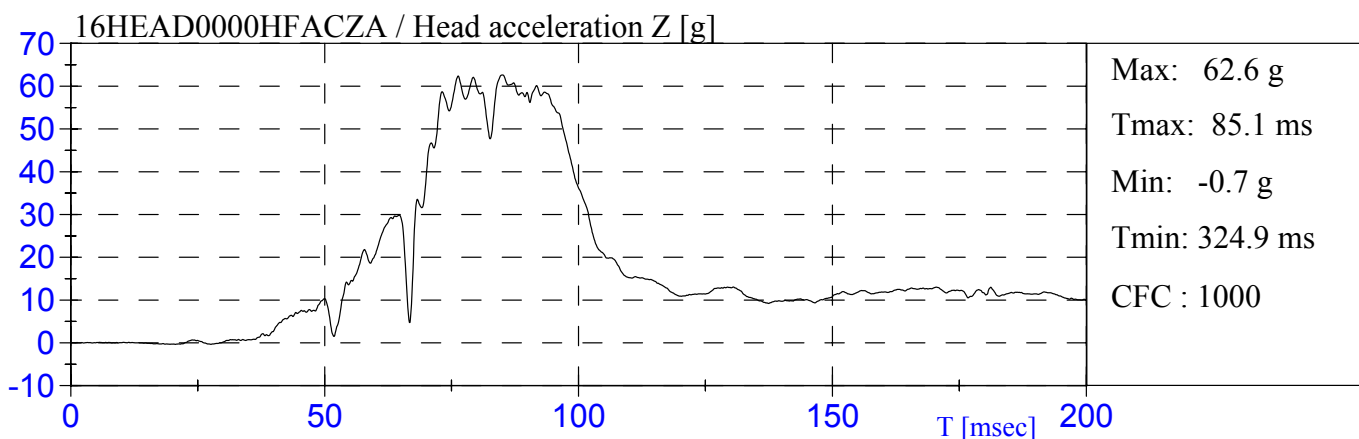
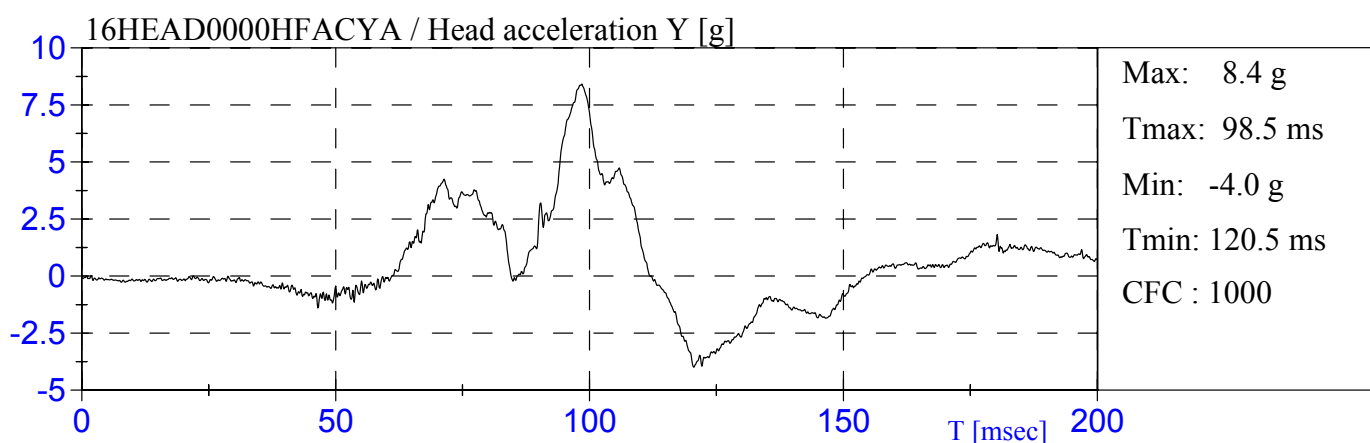
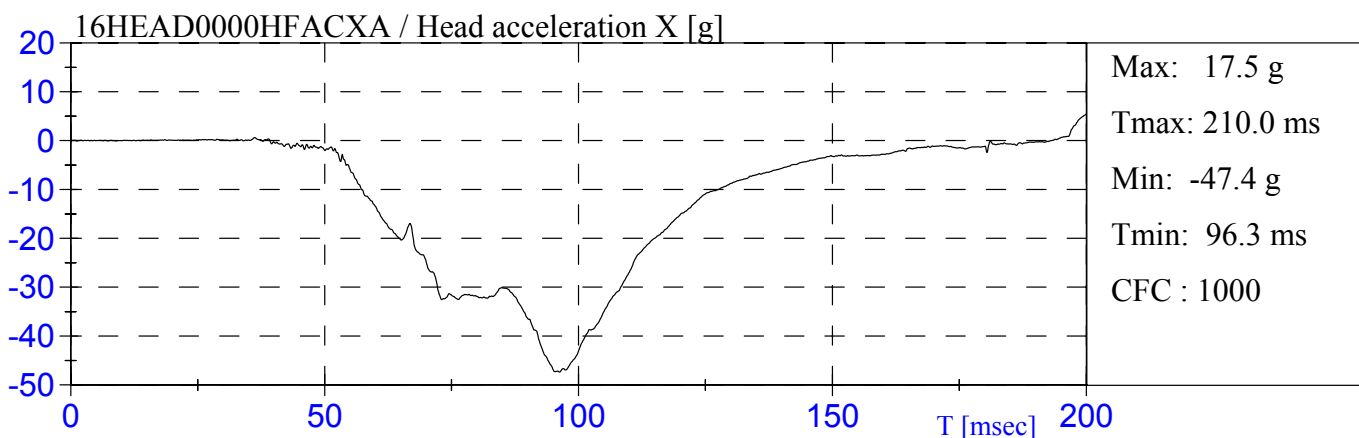


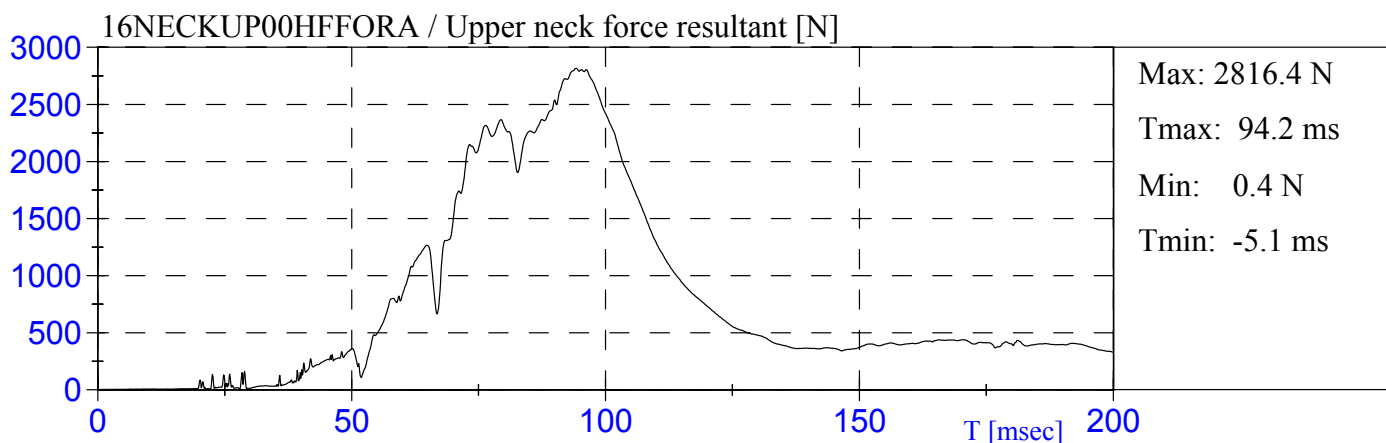
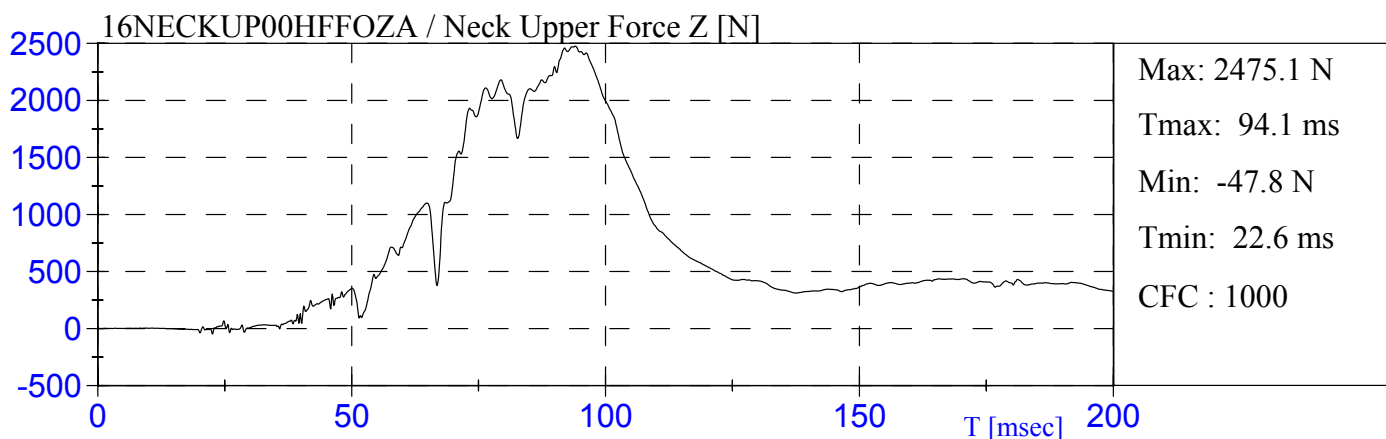
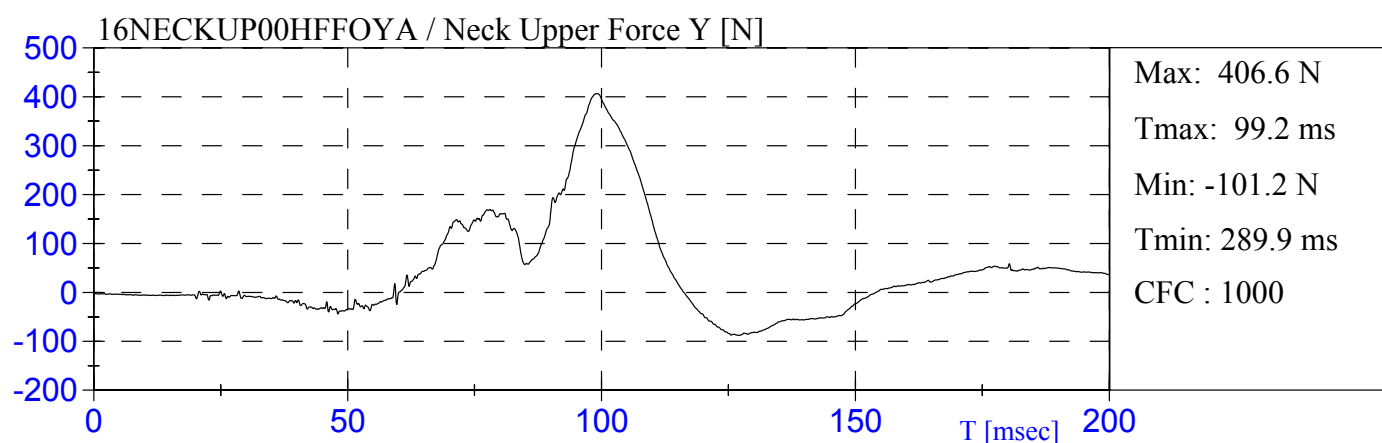
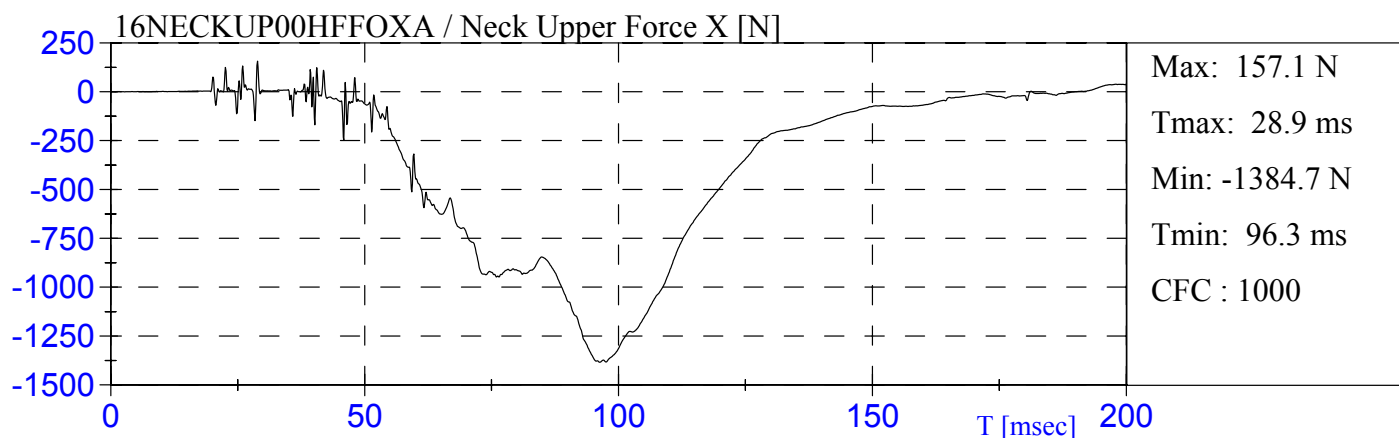


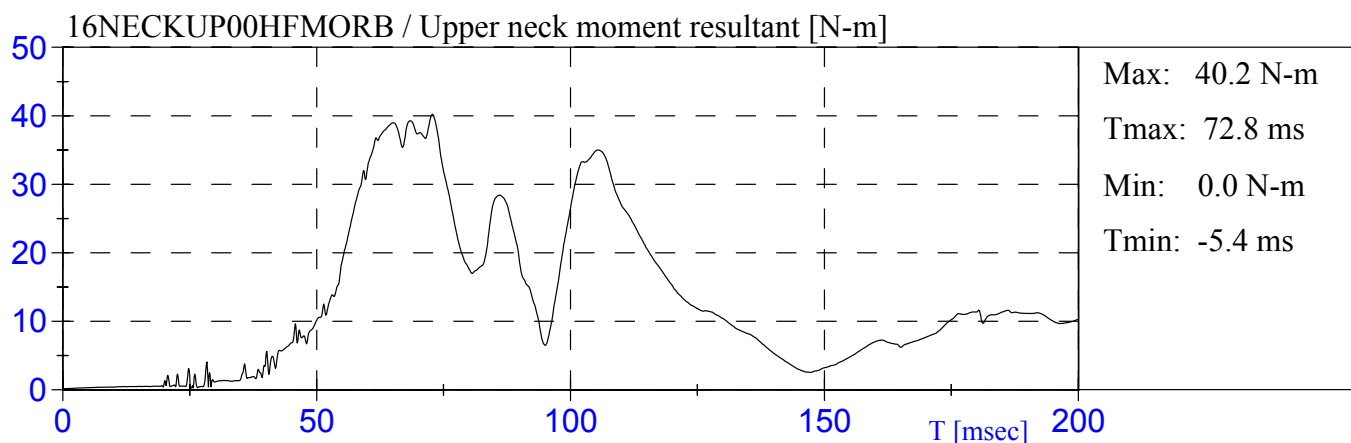
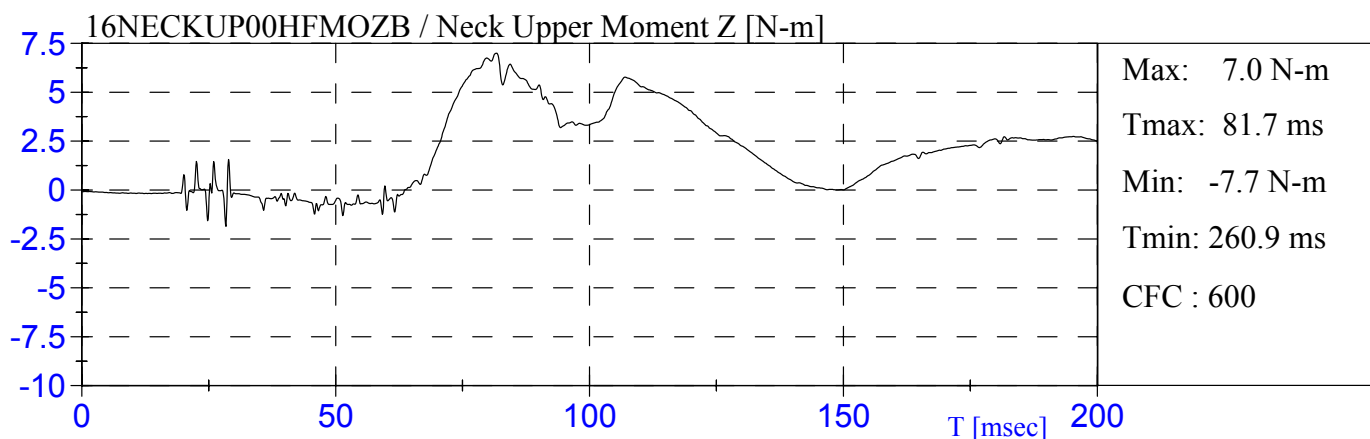
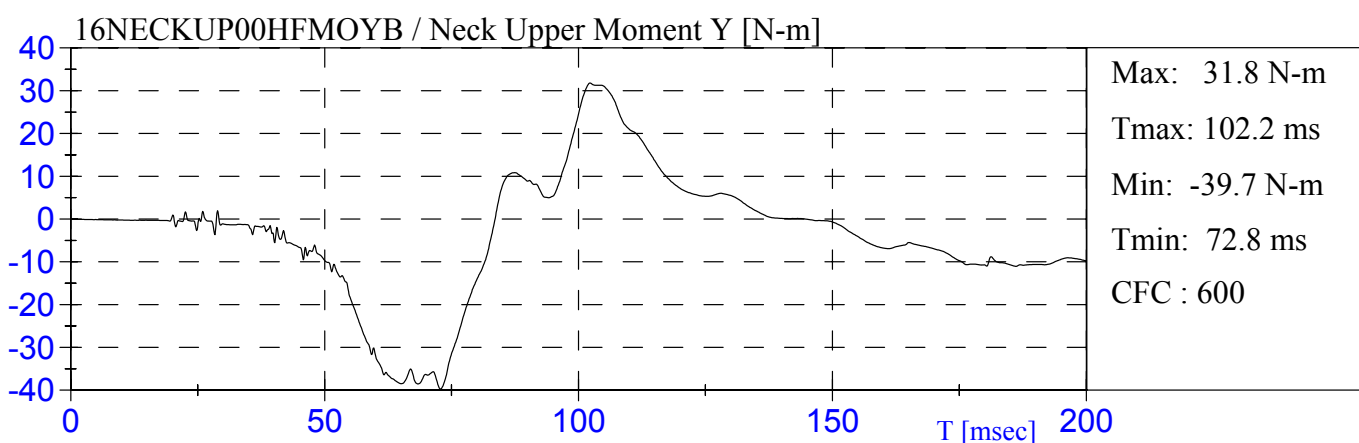
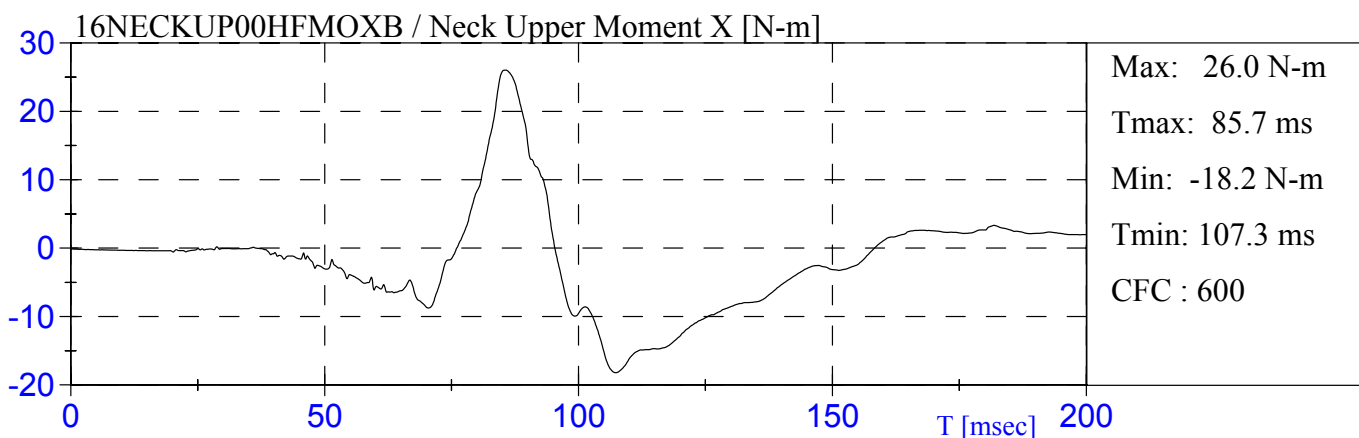


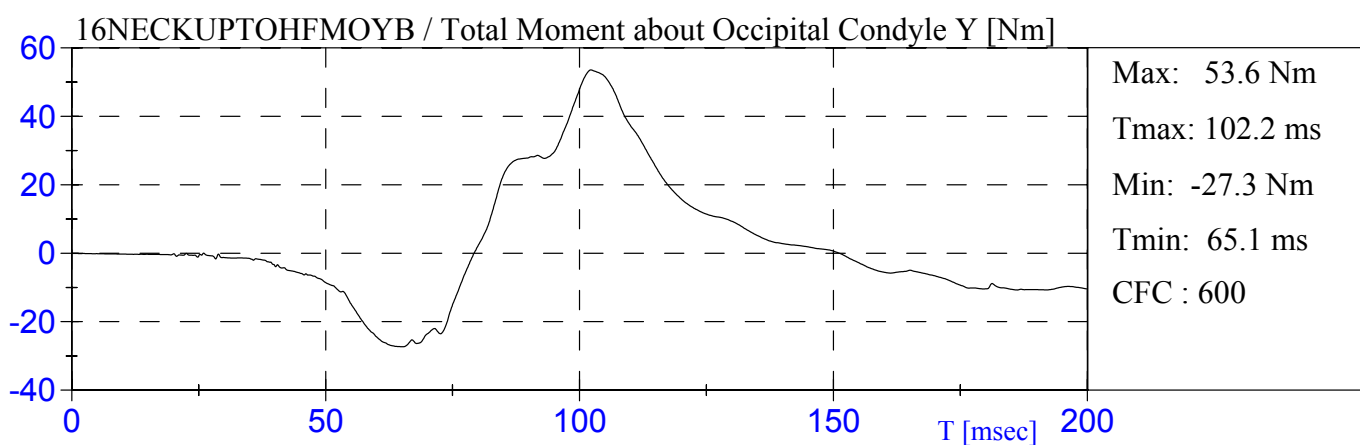
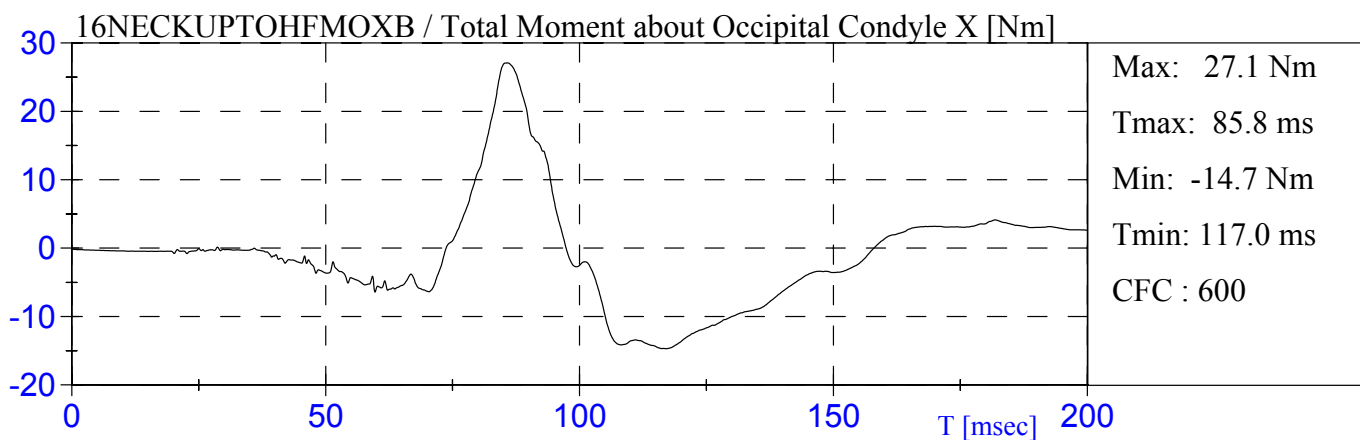


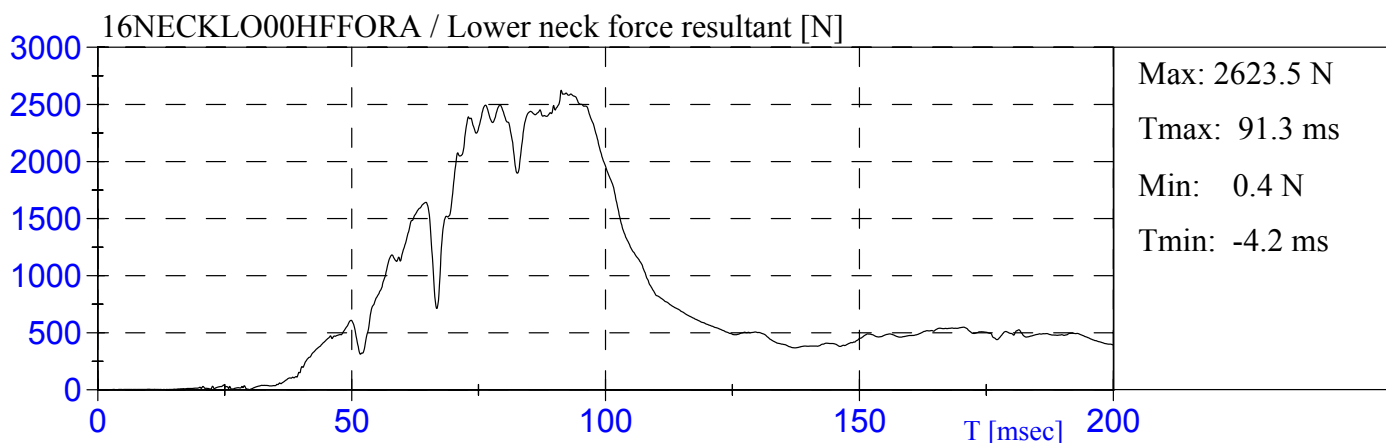
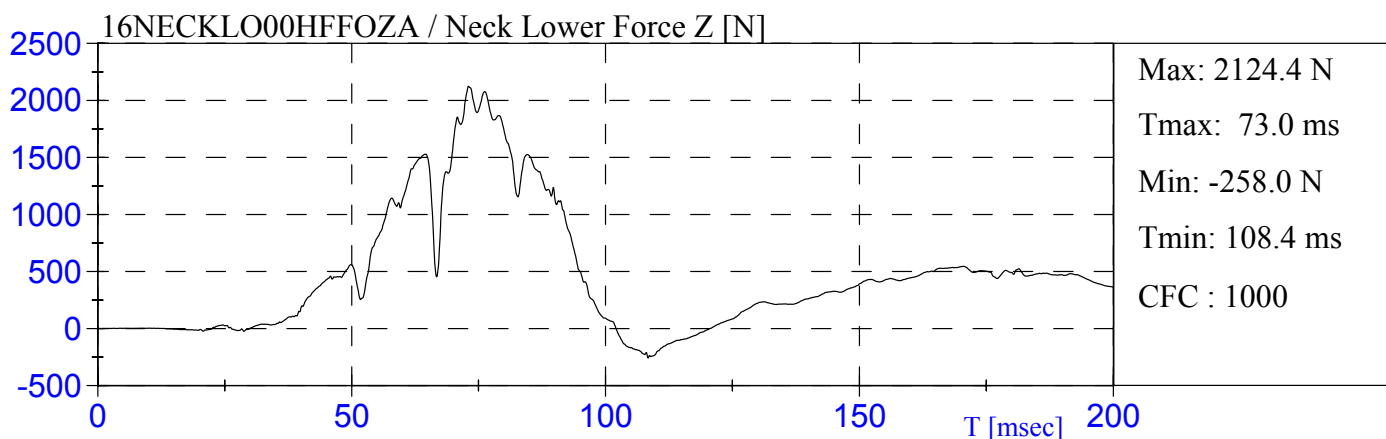
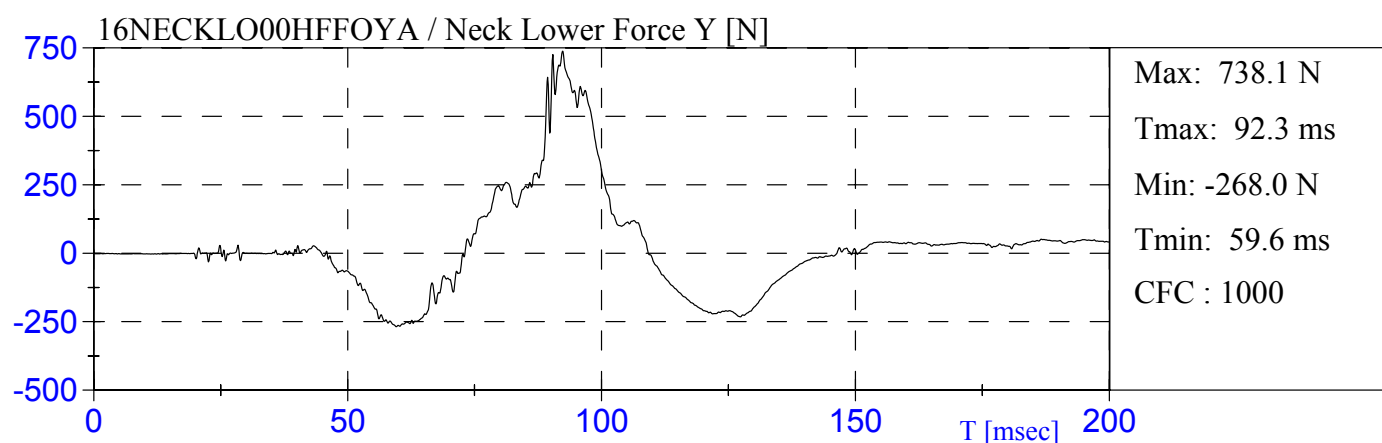
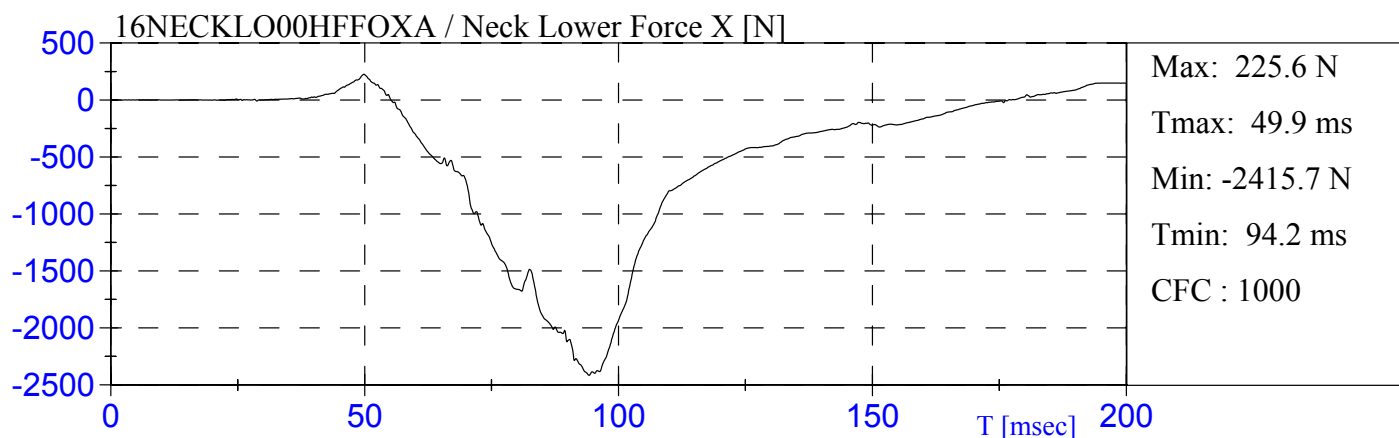


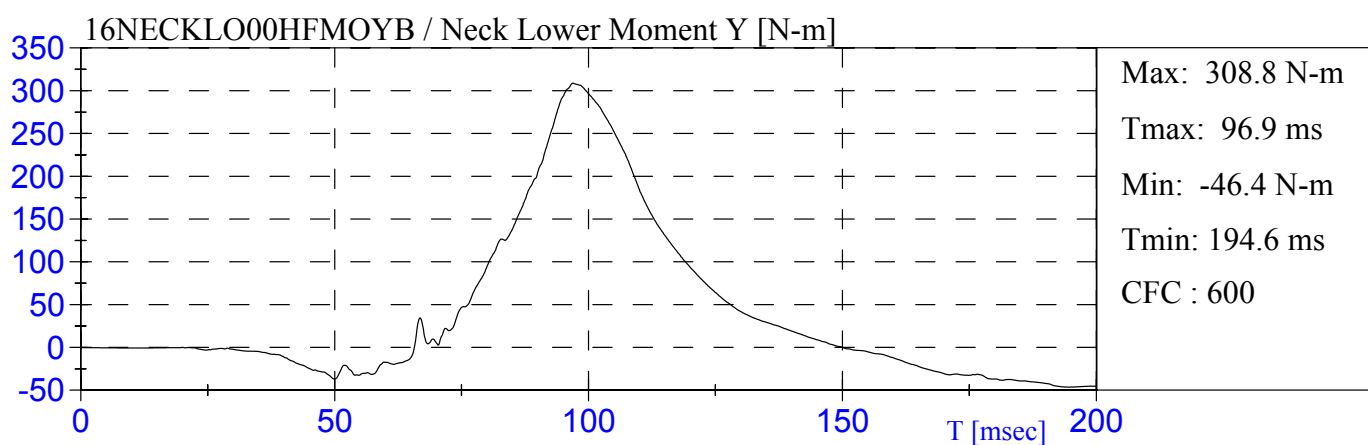
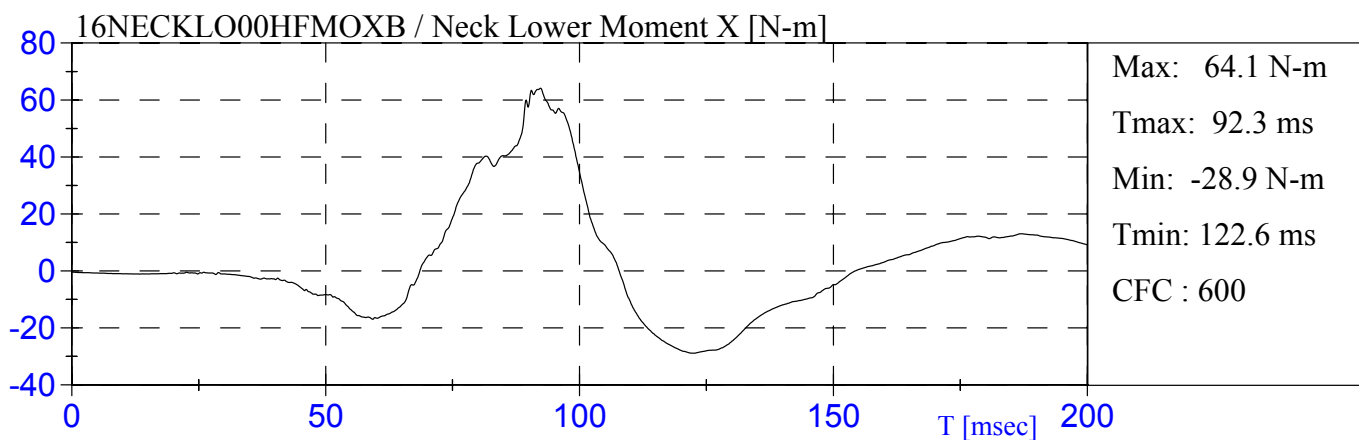


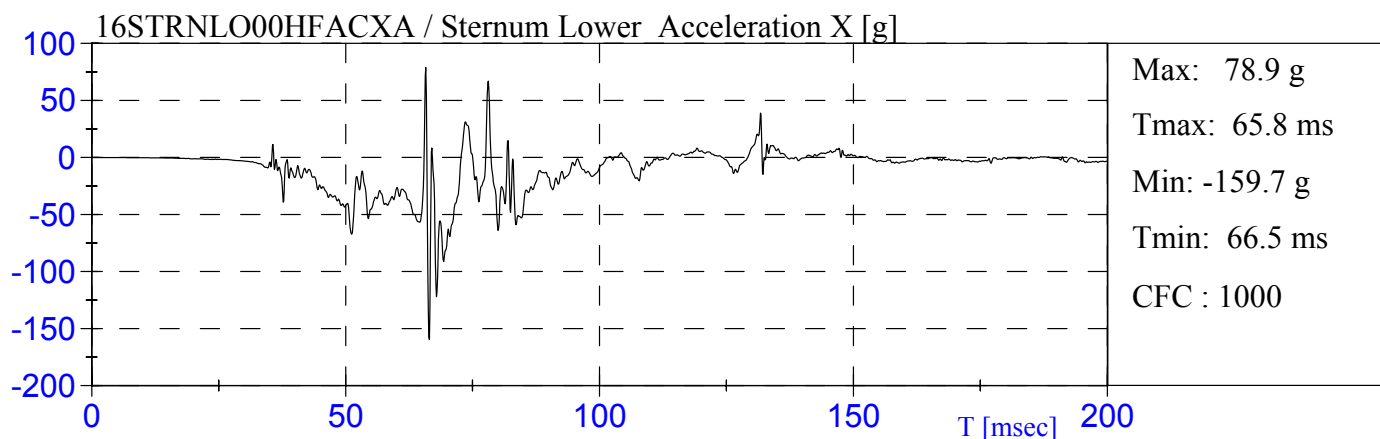
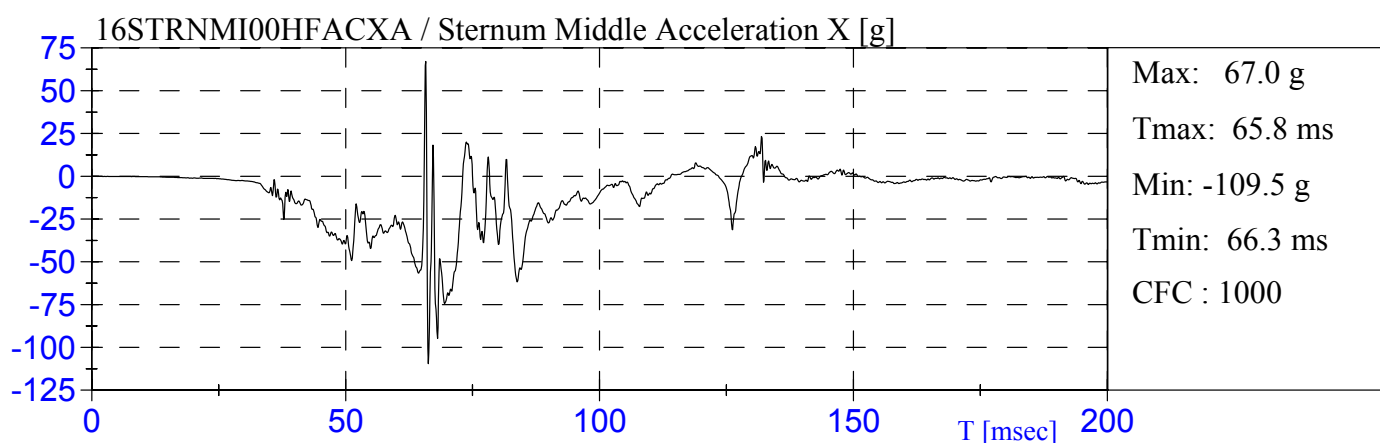
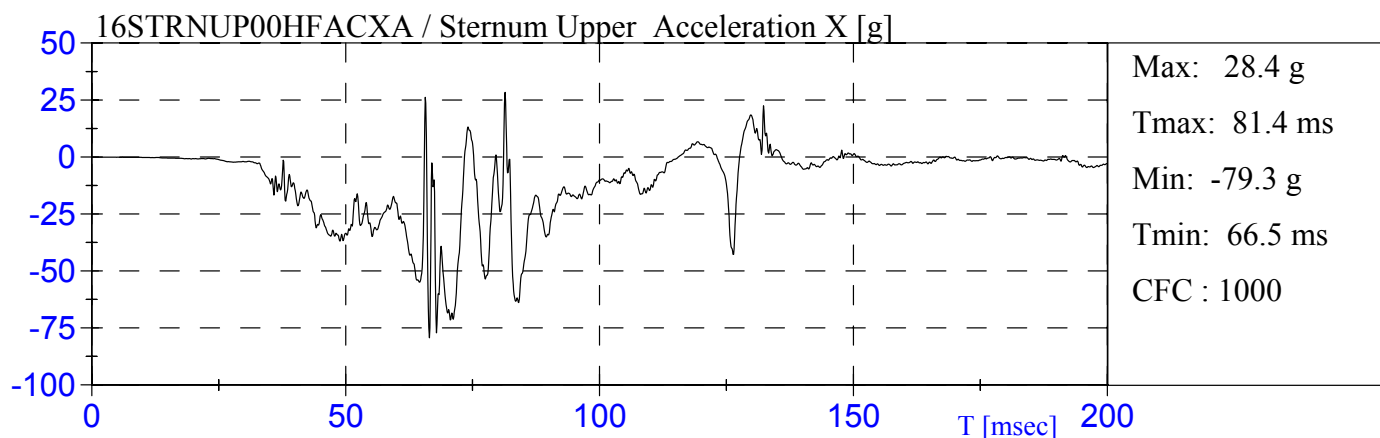


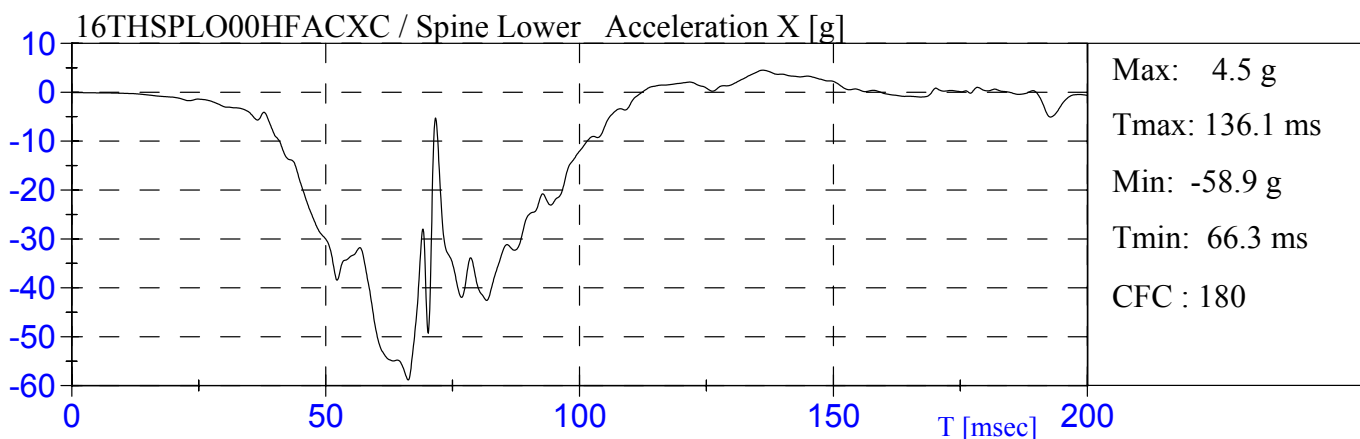
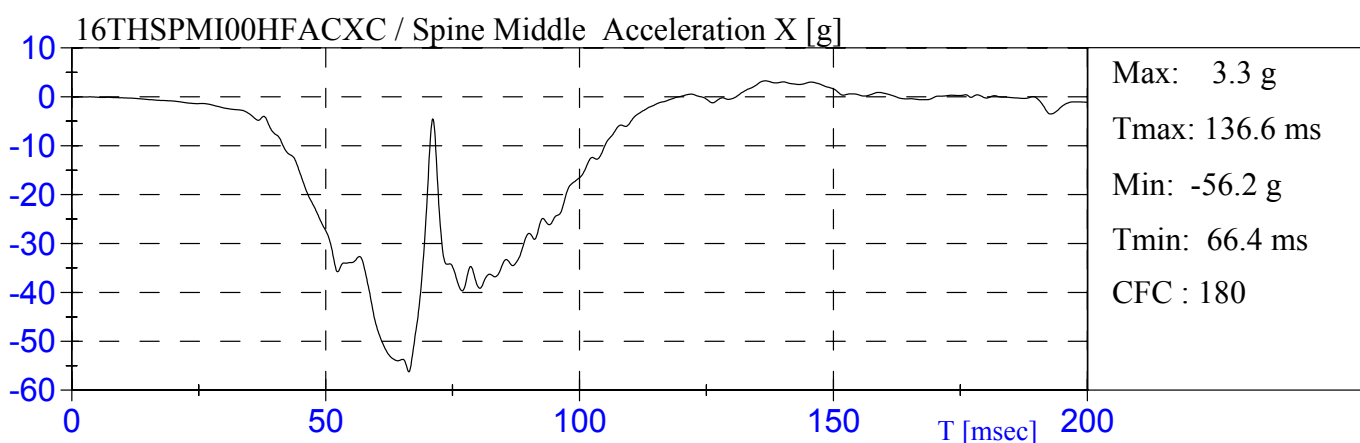
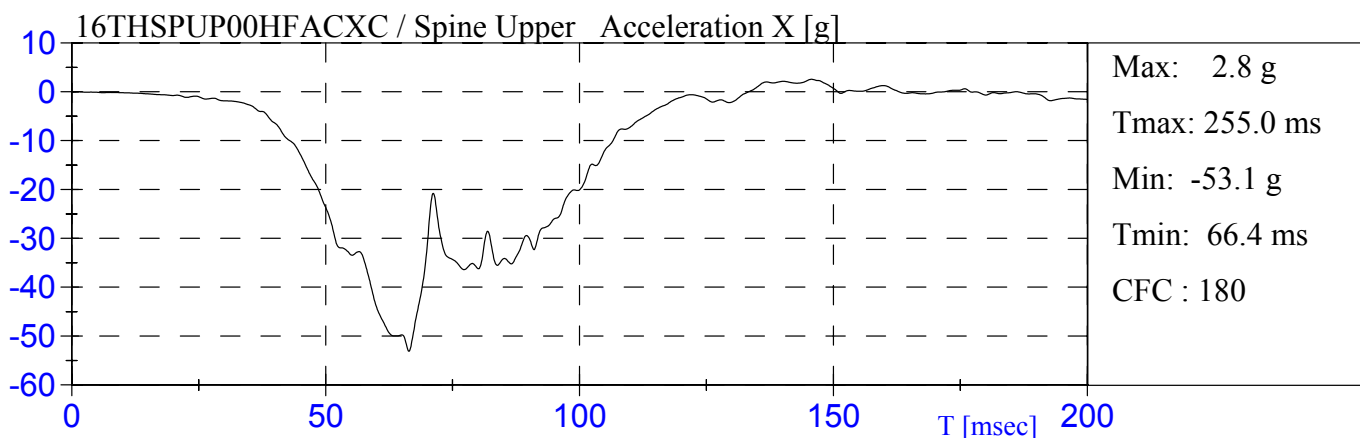


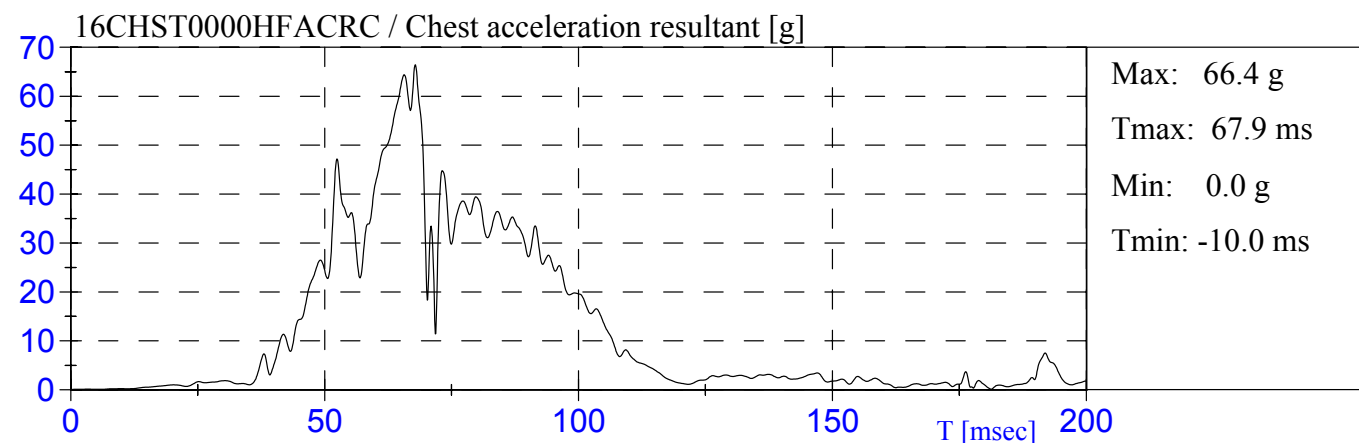
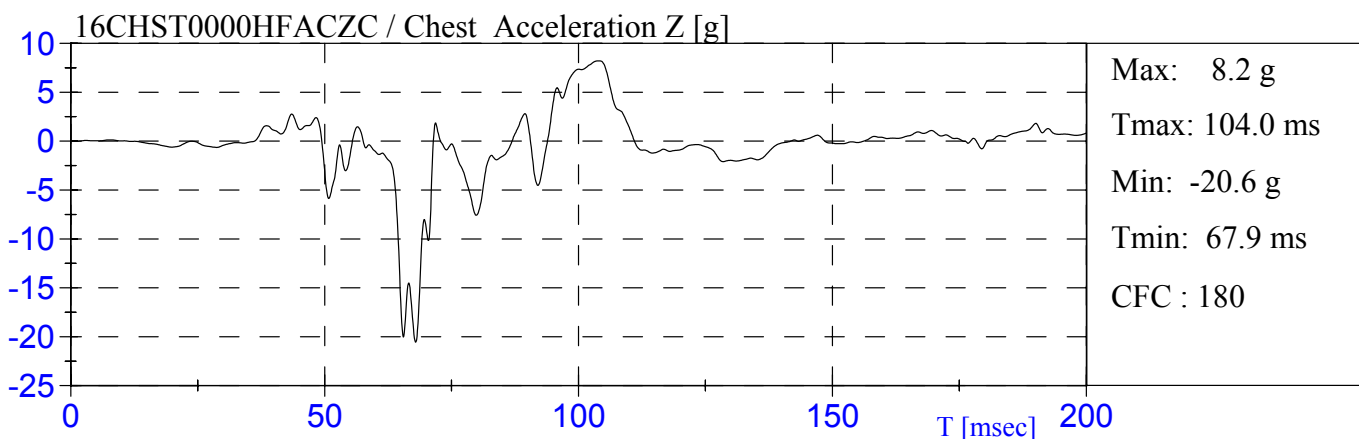
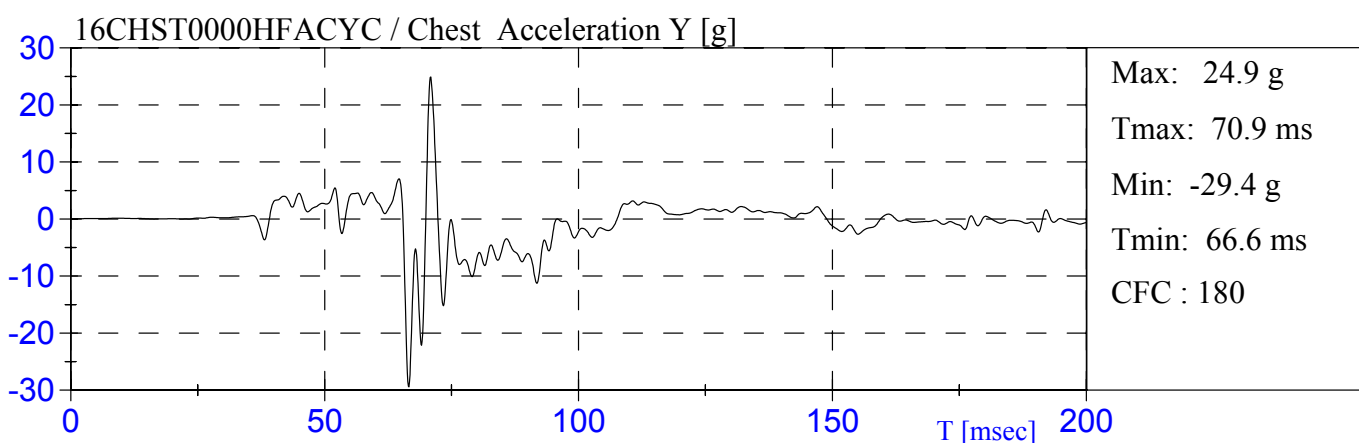
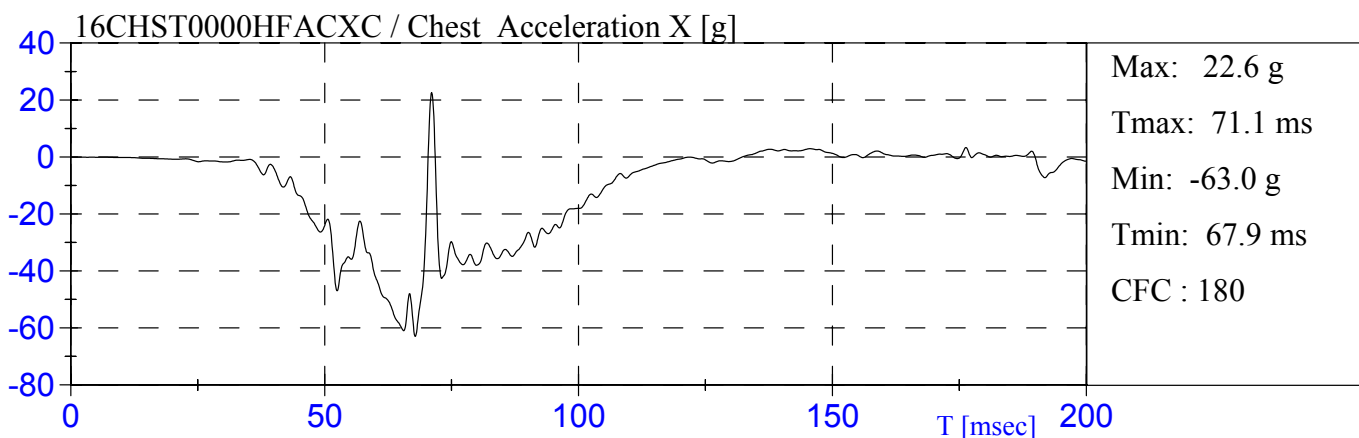


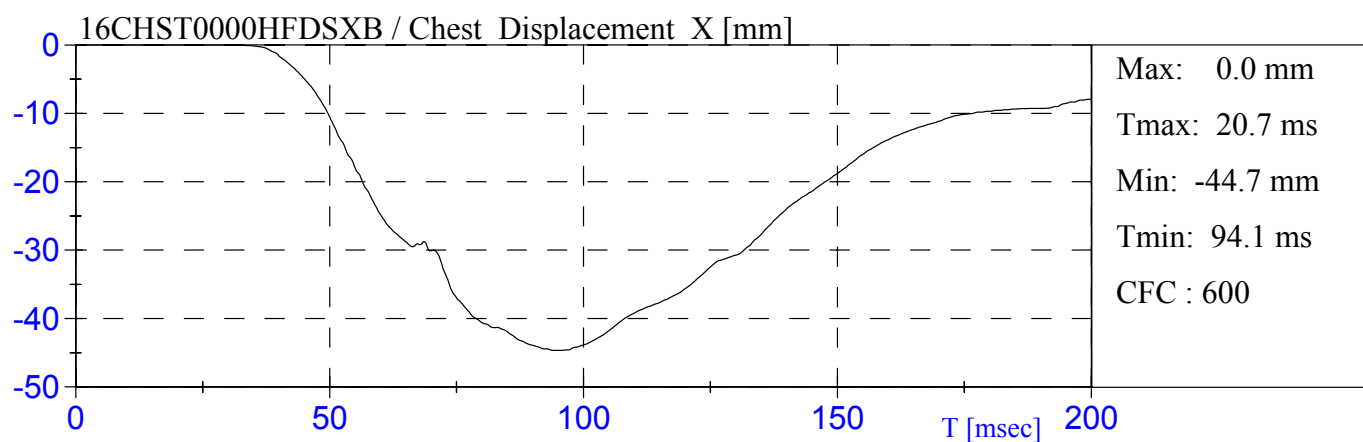


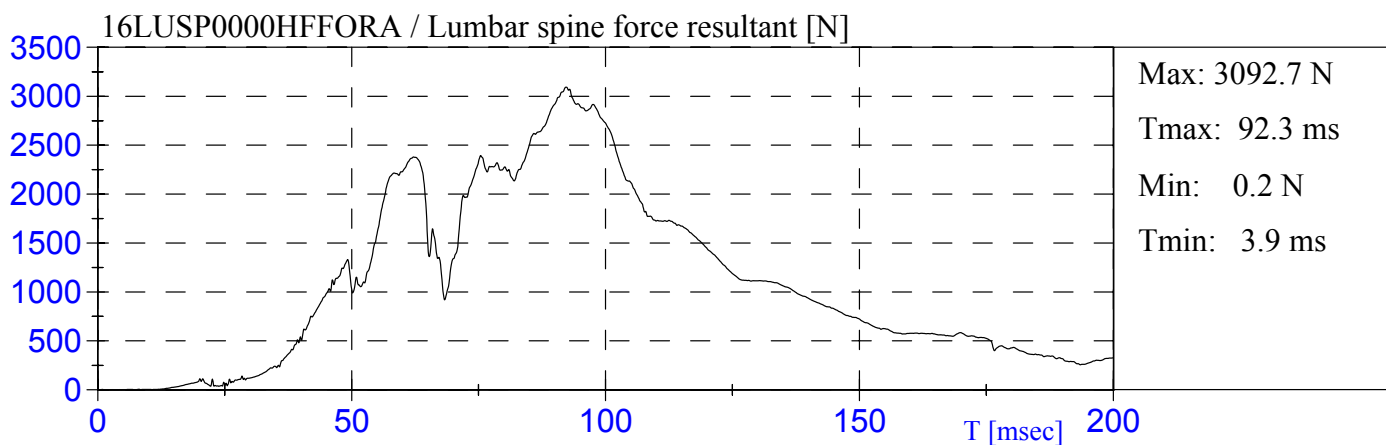
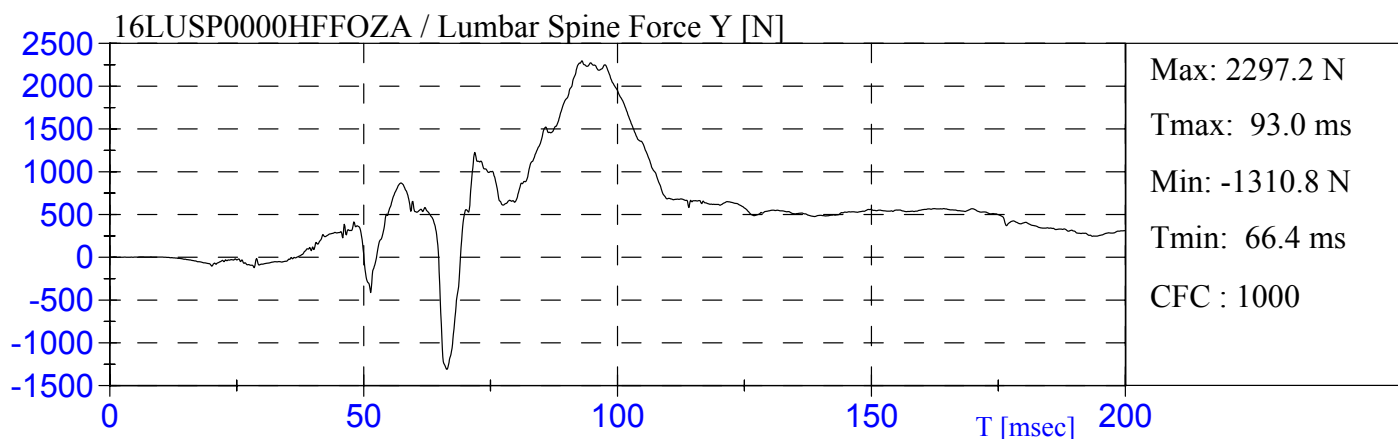
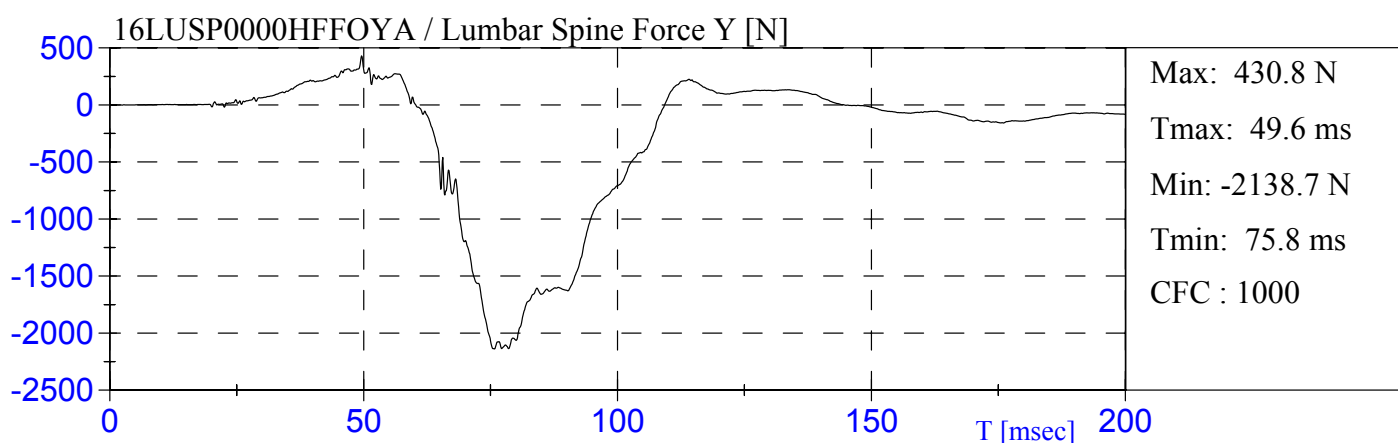
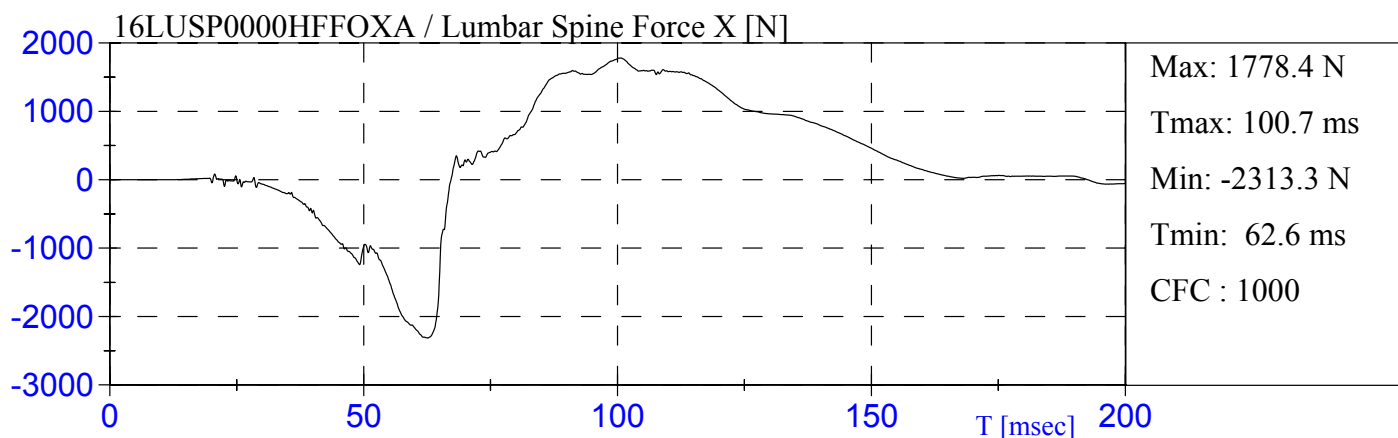


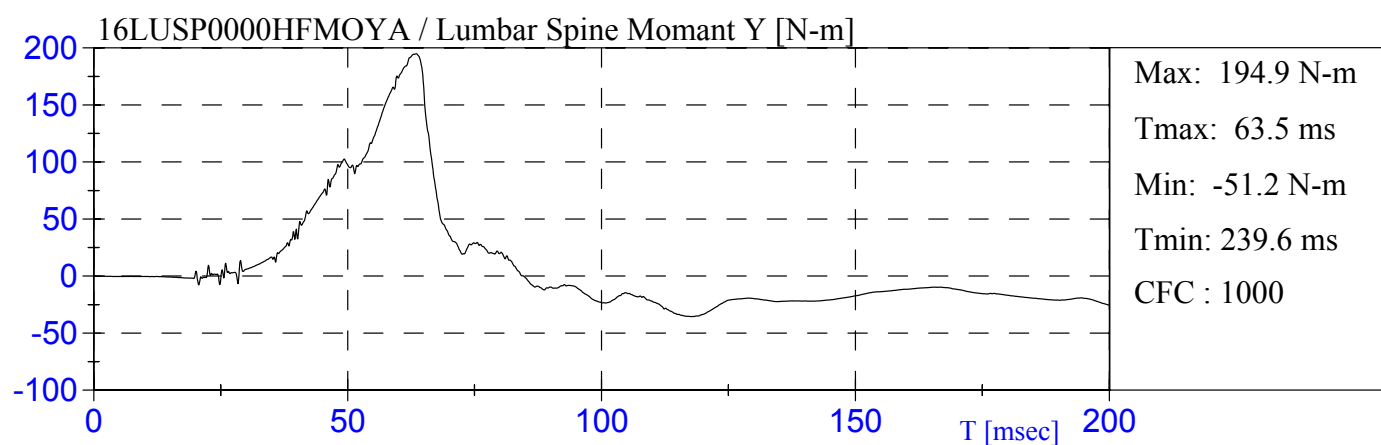
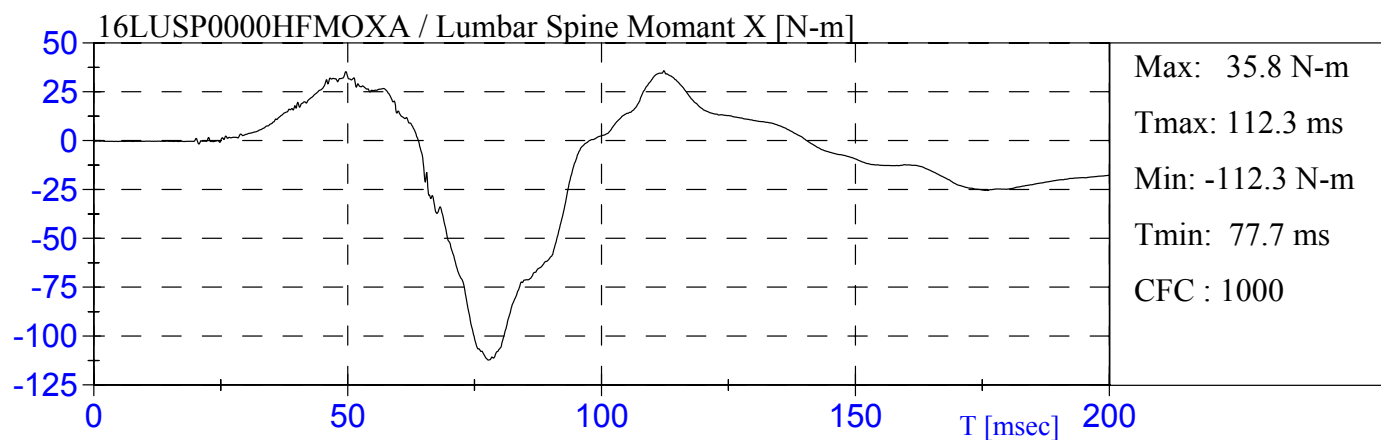


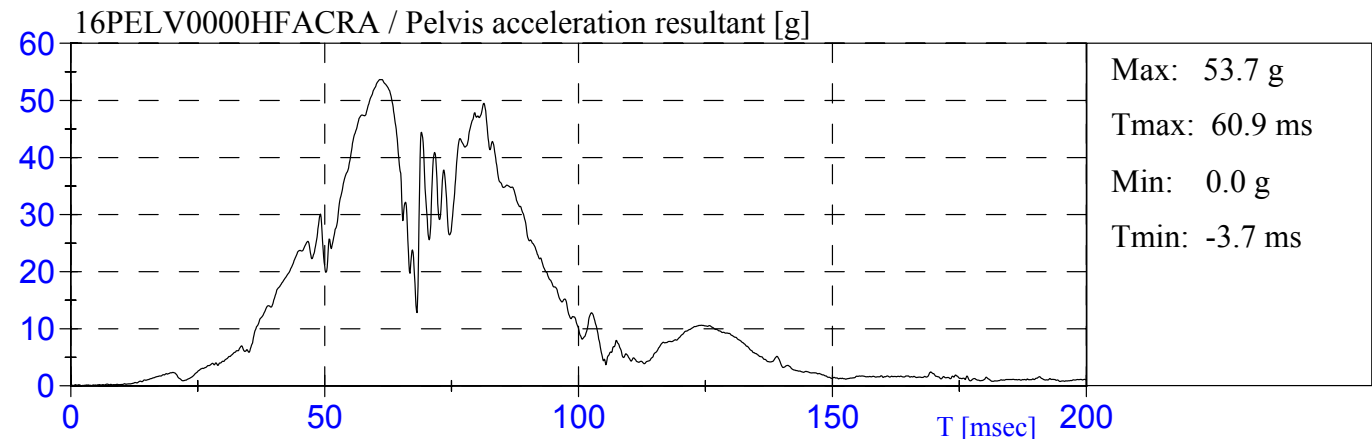
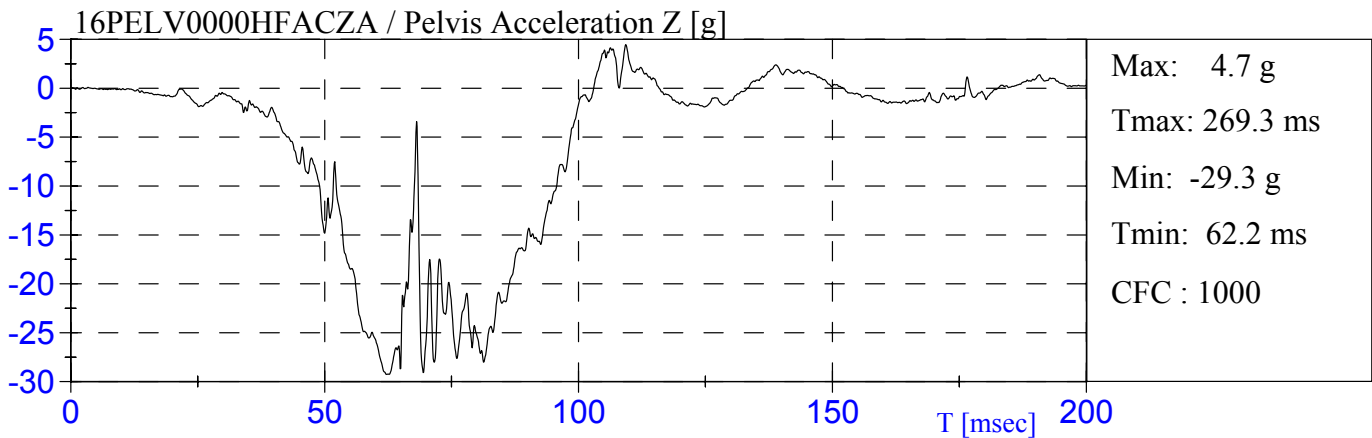
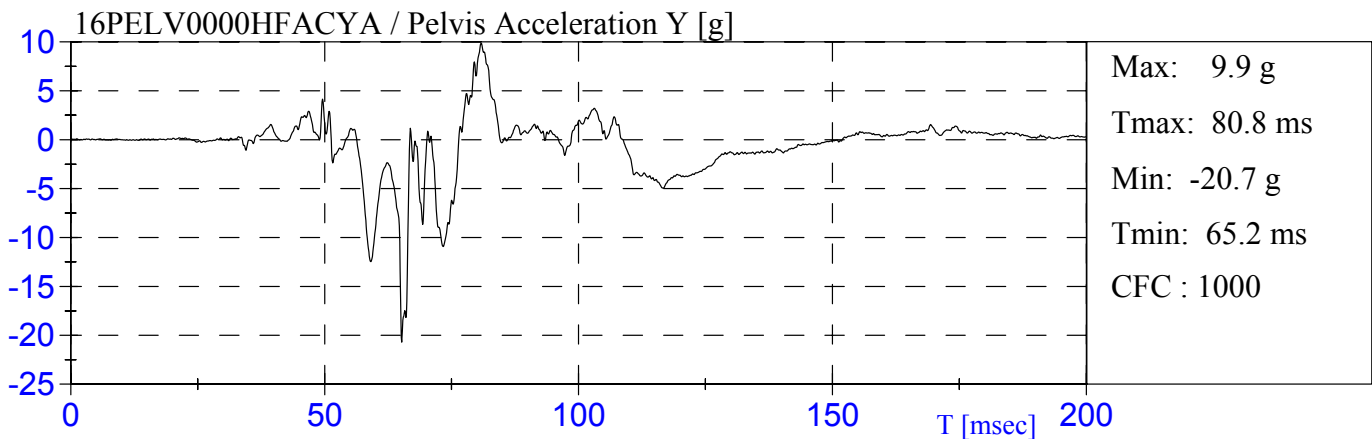
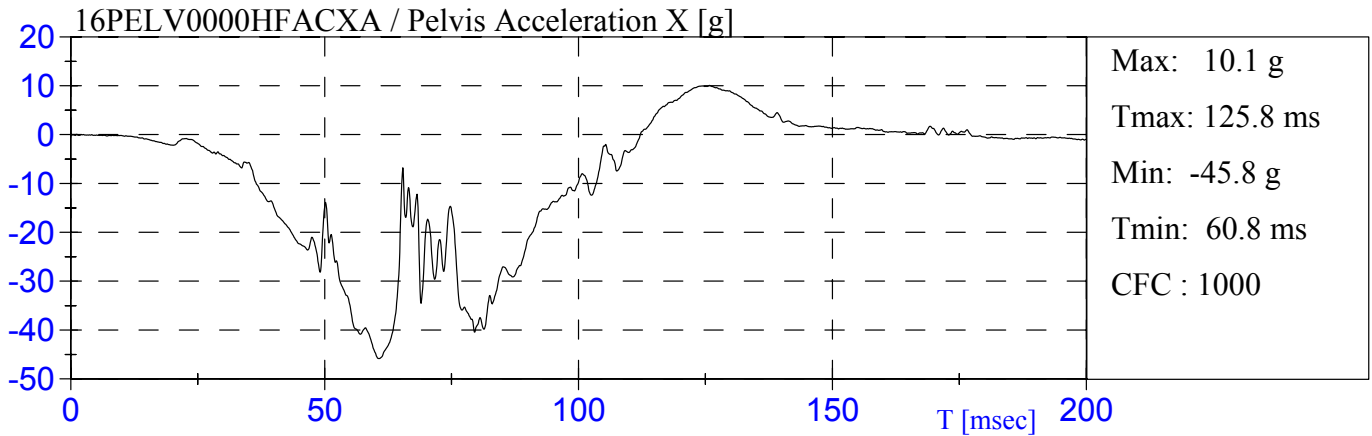


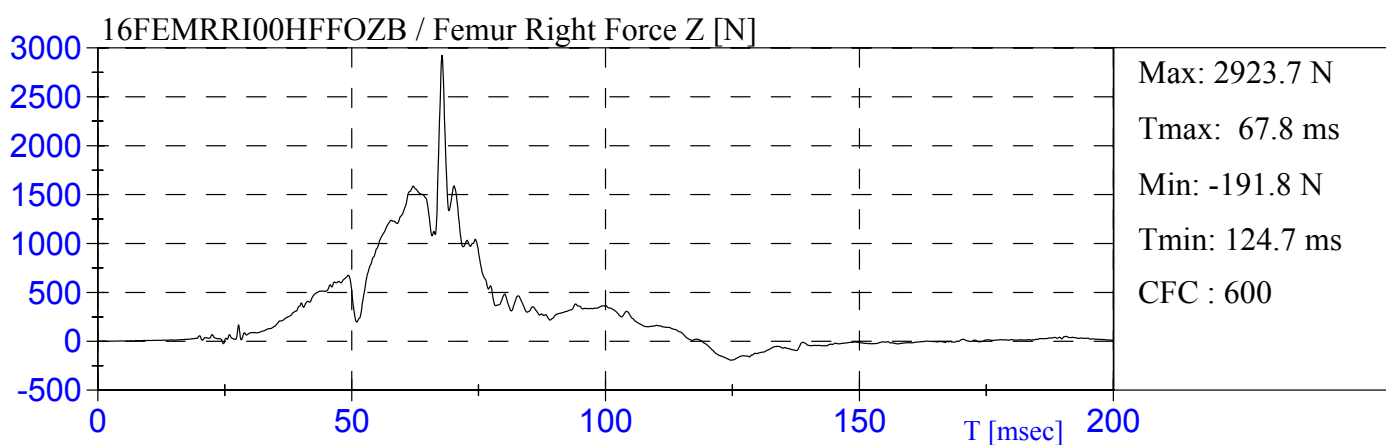


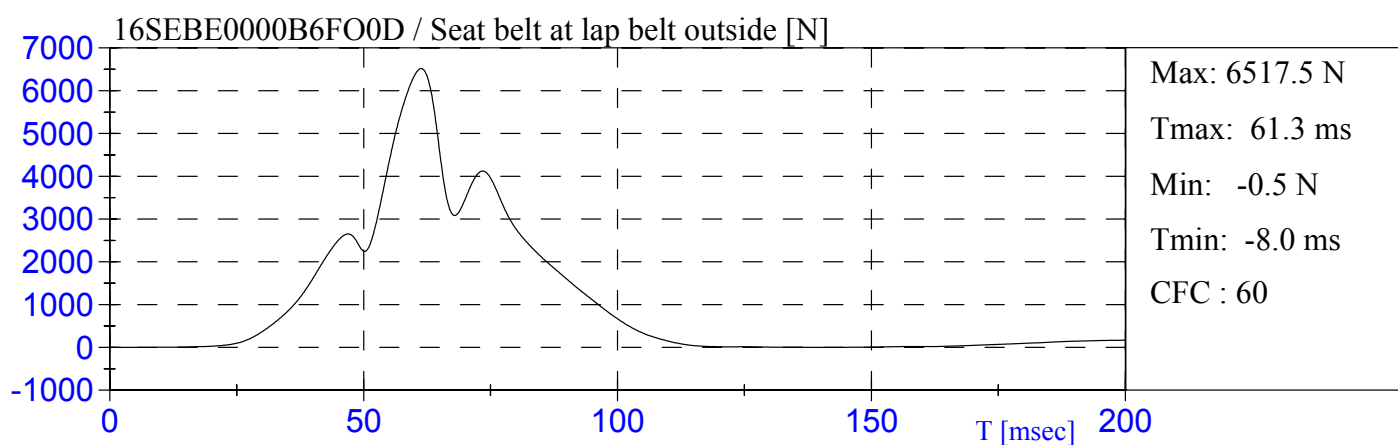
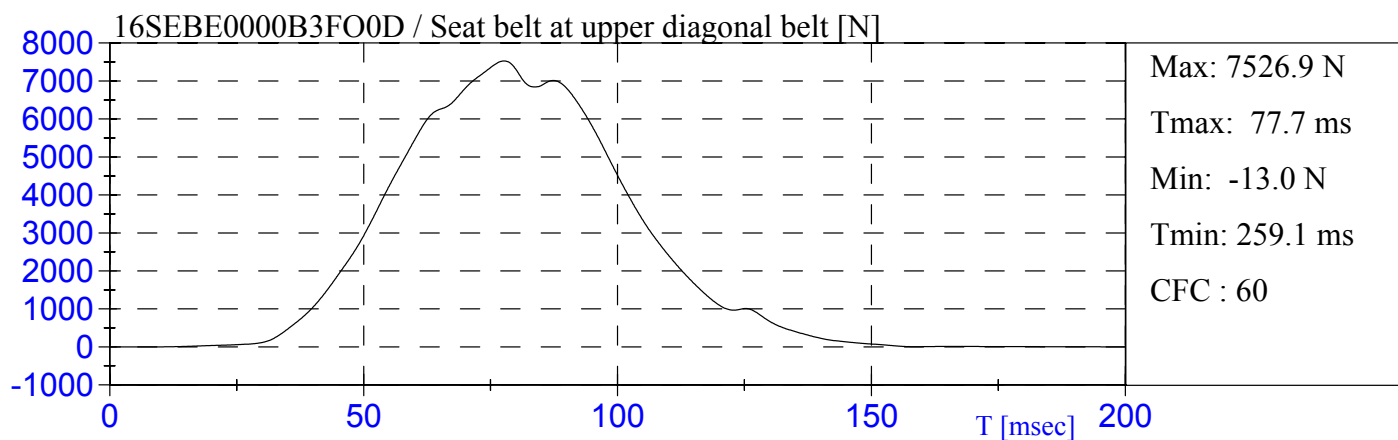


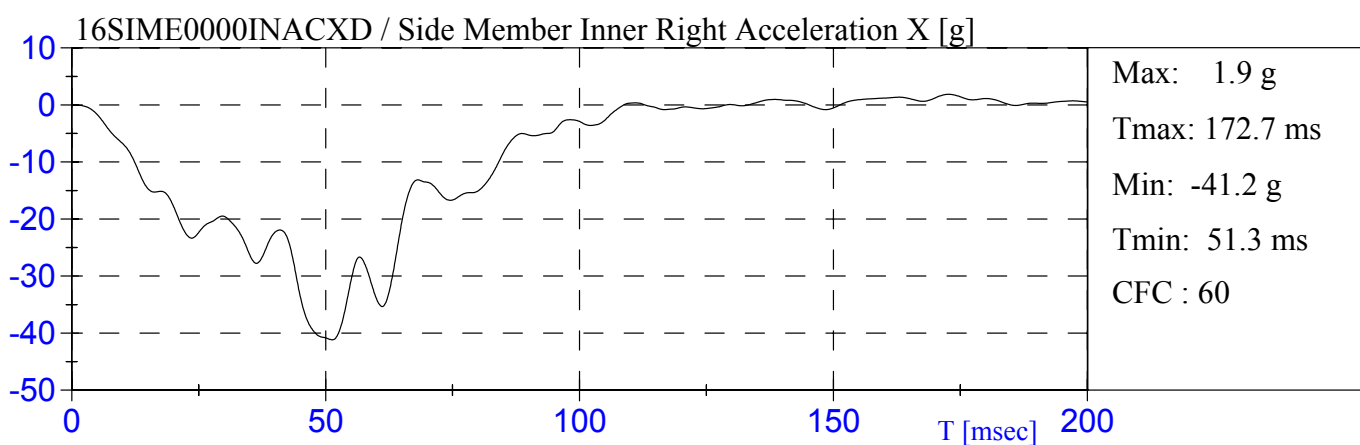
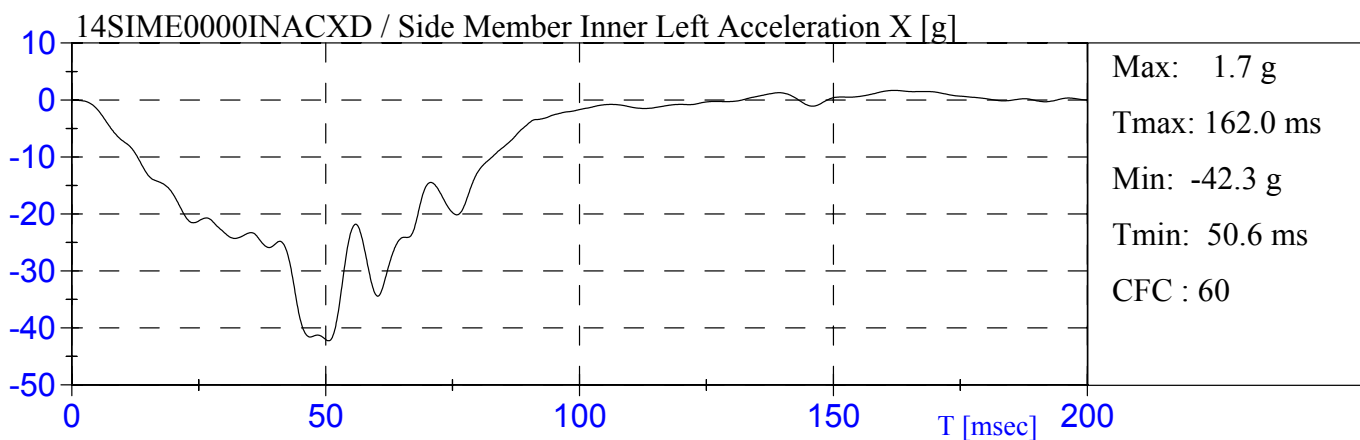


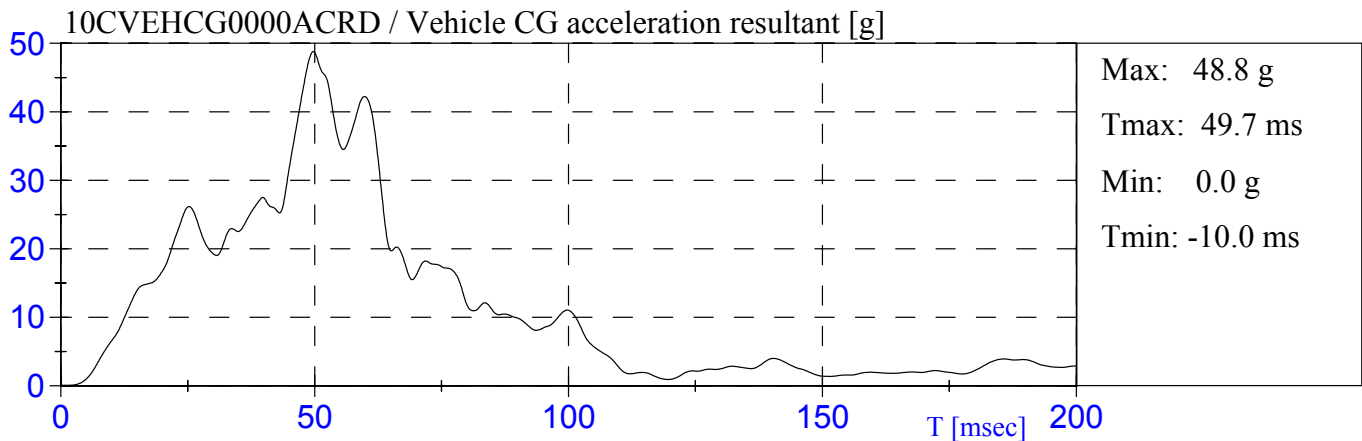
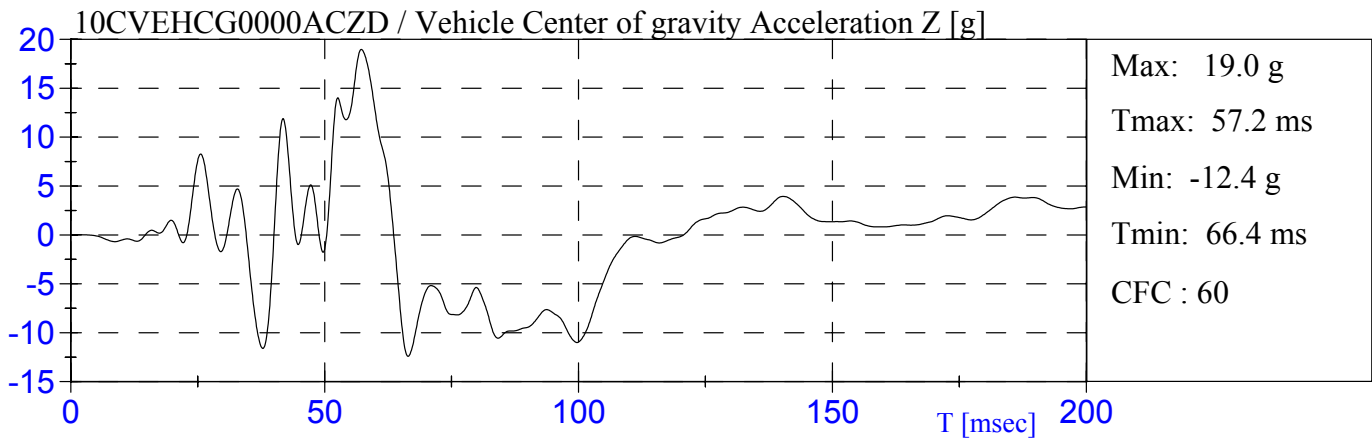
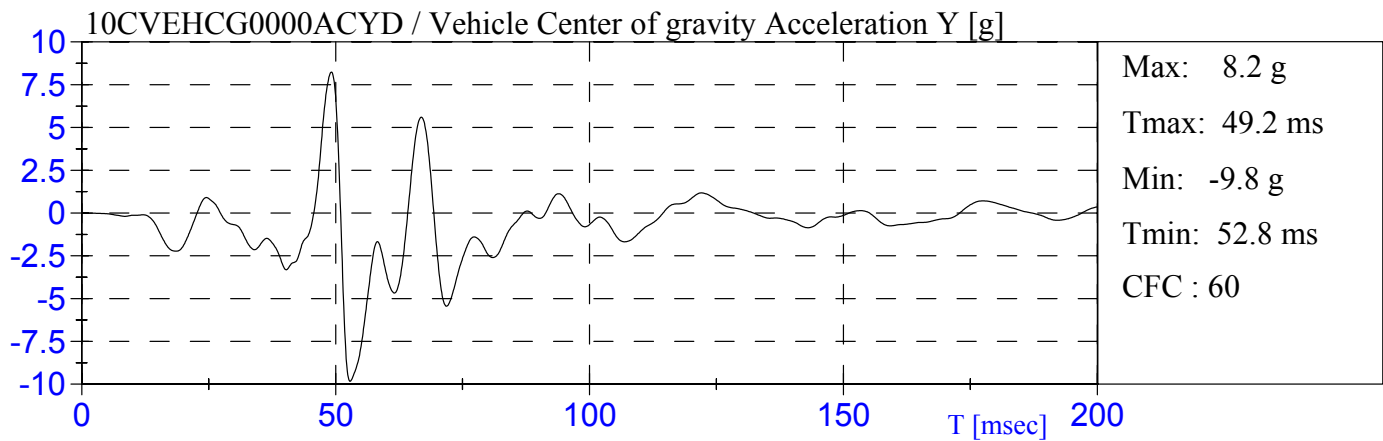
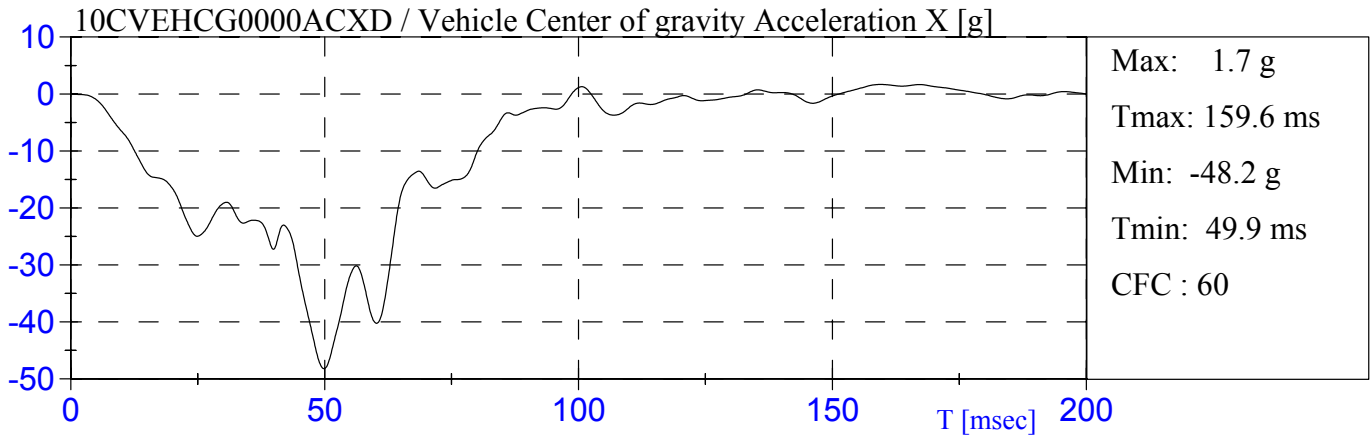


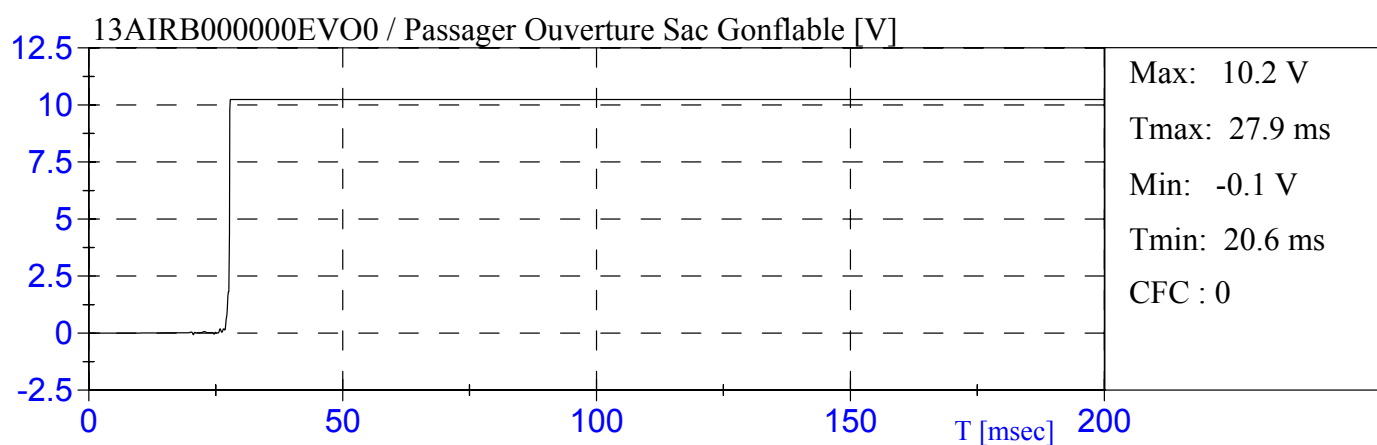
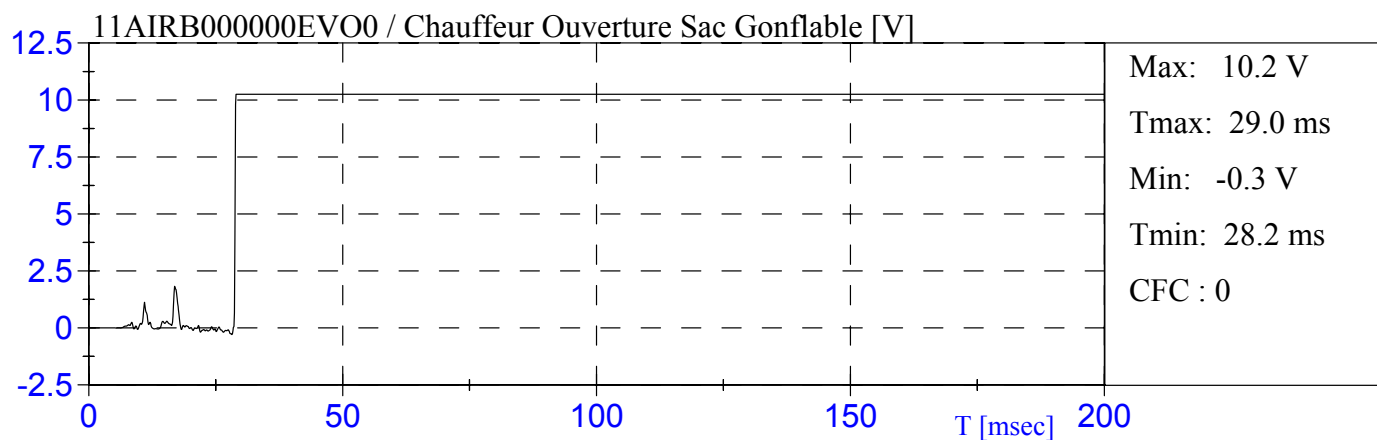


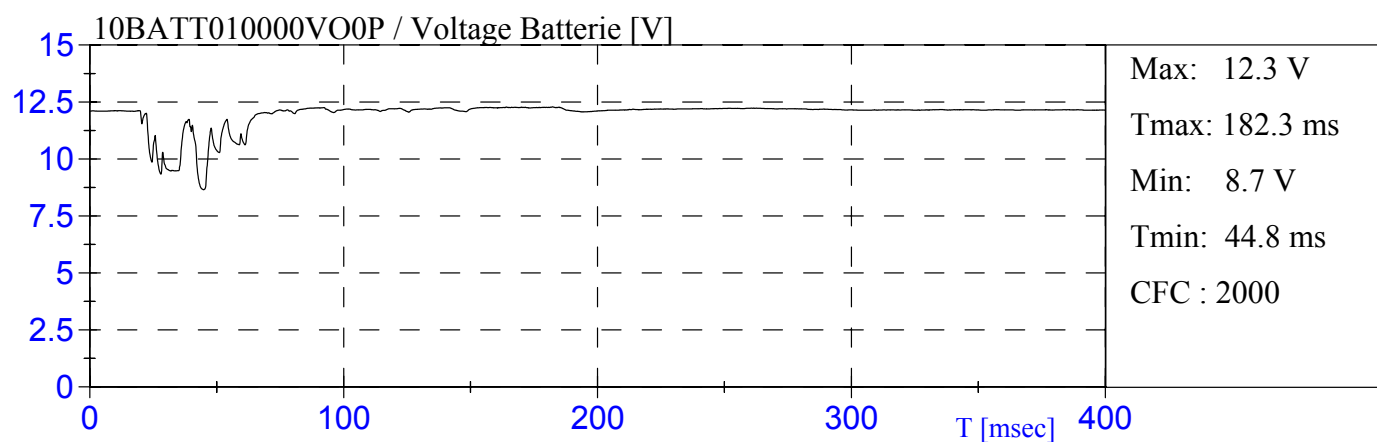


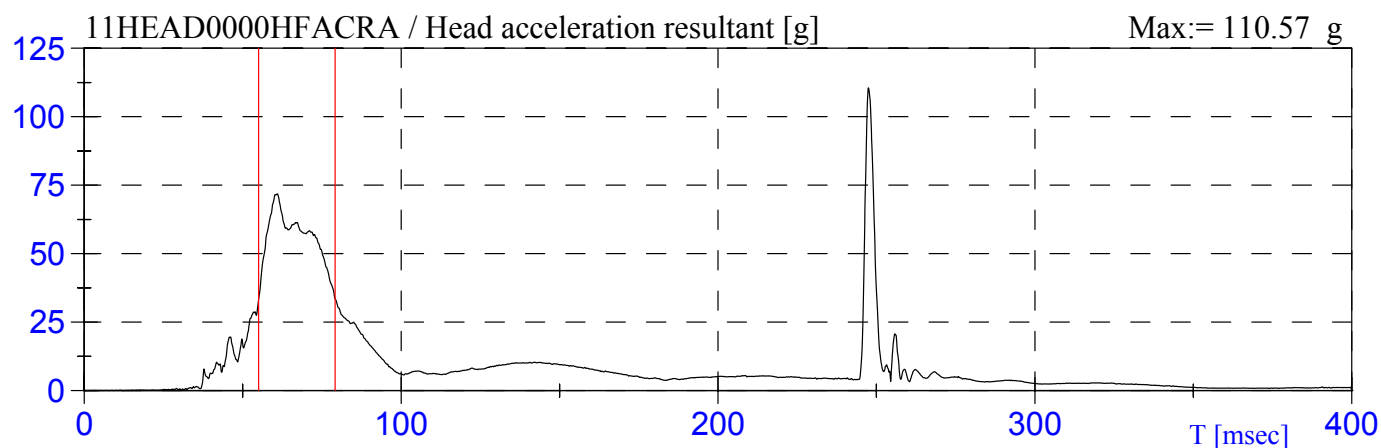










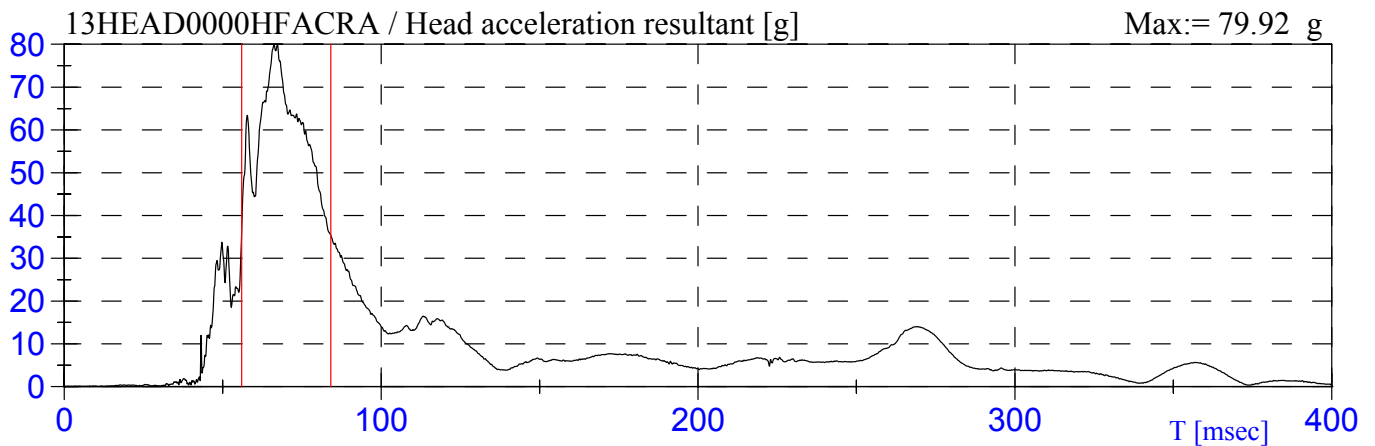


HEAD INJURY CRITERIA (HIC) *

CRITÈRE DE BLESSURE DE LA TÊTE

HIC:= 562	HIC(36ms):= 562	HIC(15ms):= 446
T1:= 55.0 ms	T1:= 55.0 ms	T1:= 57.5 ms
T2:= 79.2 ms	T2:= 79.2 ms	T2:= 72.5 ms

* Selon / According To: SAE J1727 96-08

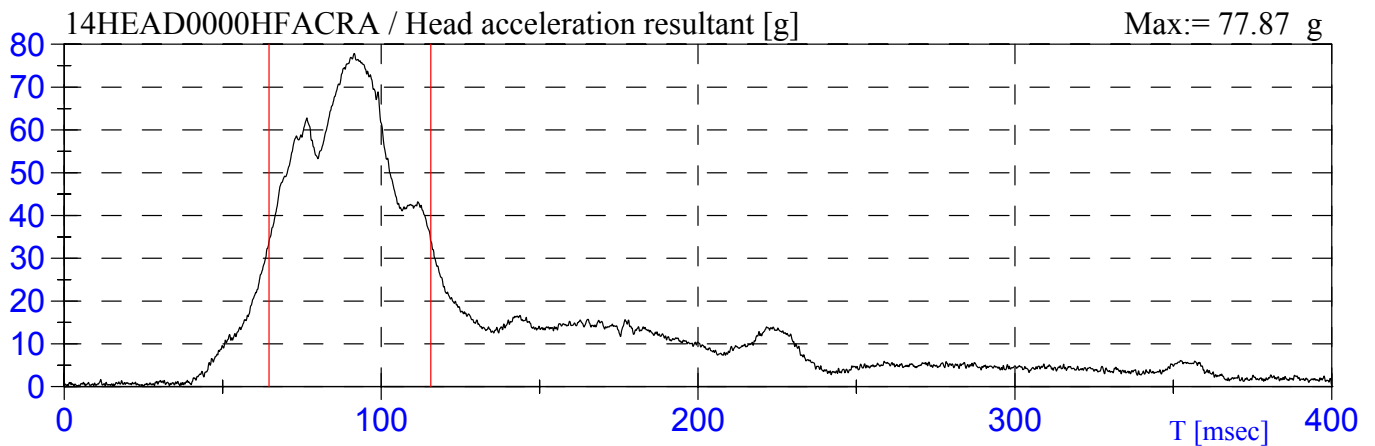


HEAD INJURY CRITERIA (HIC) *

CRITÈRE DE BLESSURE DE LA TÊTE

HIC:= 746	HIC(36ms):= 746	HIC(15ms):= 567
T1:= 56.0 ms	T1:= 56.0 ms	T1:= 61.5 ms
T2:= 84.1 ms	T2:= 84.1 ms	T2:= 76.5 ms

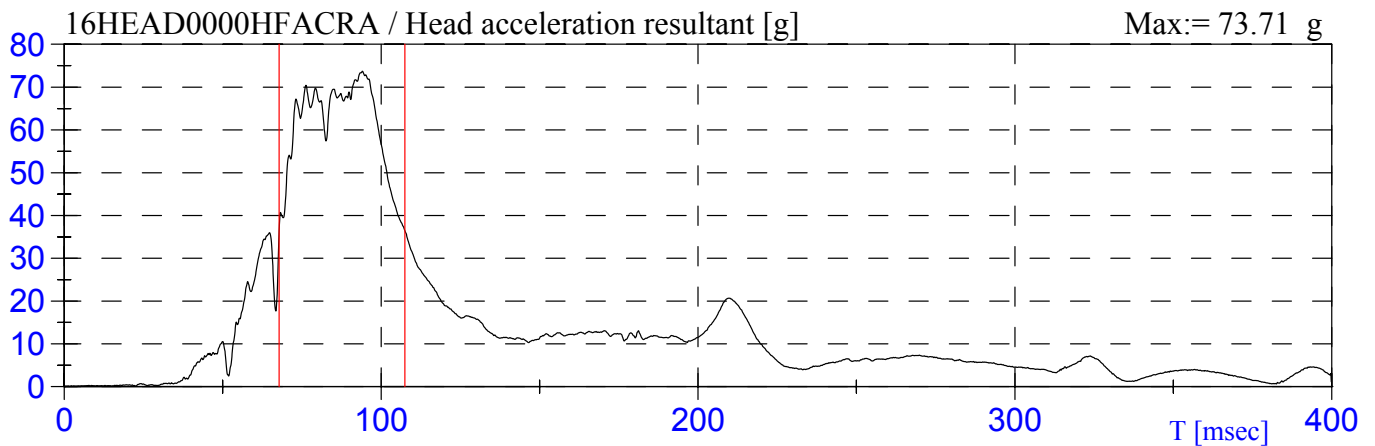
* Selon / According To: SAE J1727 96-08



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

HIC:= 1227	HIC(36ms):= 1135	HIC(15ms):= 680
T1:= 64.6 ms	T1:= 68.0 ms	T1:= 84.5 ms
T2:= 115.7 ms	T2:= 104.0 ms	T2:= 99.5 ms

* Selon / According To: SAE J1727 96-08



HEAD INJURY CRITERIA (HIC) *

CRITÈRE DE BLESSURE DE LA TÊTE

HIC:= 1143	HIC(36ms):= 1136	HIC(15ms):= 603
T1:= 67.8 ms	T1:= 69.4 ms	T1:= 83.4 ms
T2:= 107.5 ms	T2:= 105.4 ms	T2:= 98.4 ms

* Selon / According To: SAE J1727 96-08

Neck Injury Criteria: 11NIJCIP000000YX

$N_{ij}^* = 1.64$

Valeurs critiques
Criticals Values

N _{tf}	N _{te}	N _{cf}	N _{ce}	Tc	4287
				Cc	3880
0.24	1.64	0.14	0.50	Fc	155
				Ec	67

* Selon / According To: Federal Register 5/2000

Neck Injury Criteria: 13NIJCIP000000YX

$N_{ij}^* = 0.53$

Valeurs critiques
Criticals Values

N _{tf}	N _{te}	N _{cf}	N _{ce}	Tc	4287
				Cc	3880
0.36	0.37	0.53	0.36	Fc	155
				Ec	67

* Selon / According To: Federal Register 5/2000

Neck Injury Criteria: 14NIJCIP000000YX

$N_{ij}^* = 0.97$

Valeurs critiques
Criticals Values

N _{tf}	N _{te}	N _{cf}	N _{ce}	Tc	4287
				Cc	3880
0.89	0.97	0.00	0.33	Fc	155
				Ec	67

* Selon / According To: Federal Register 5/2000

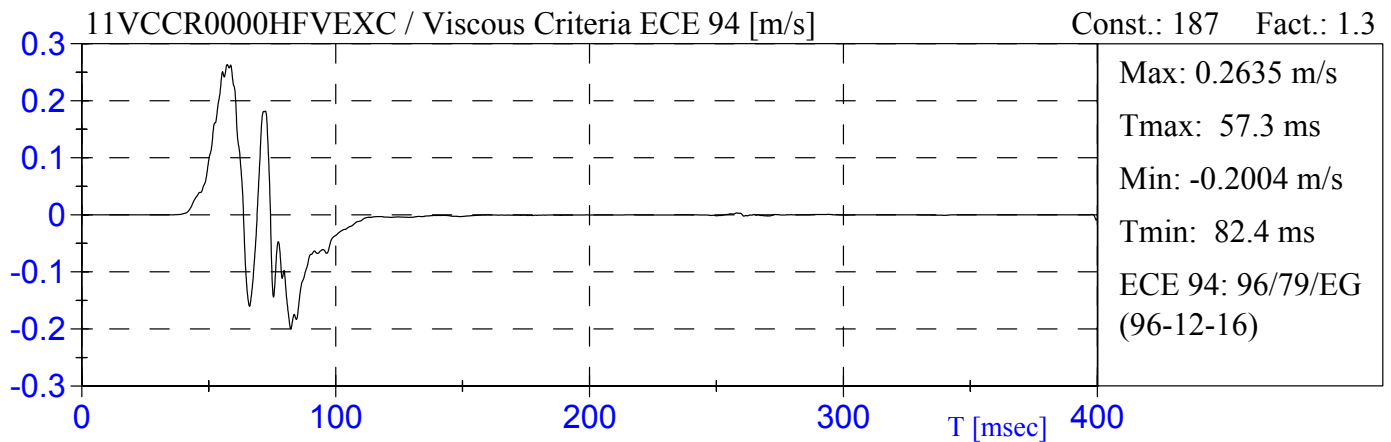
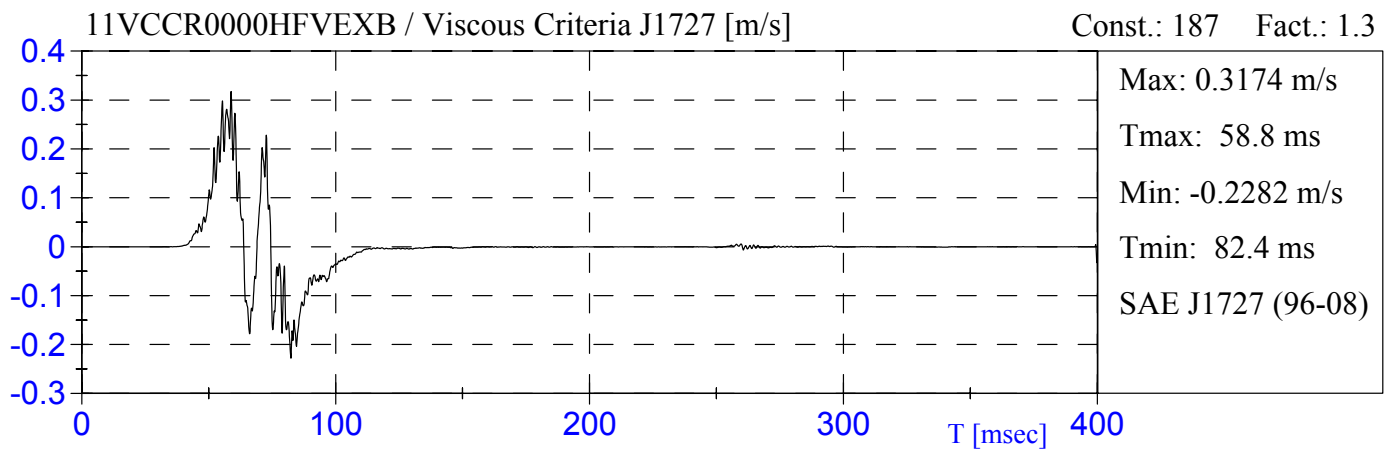
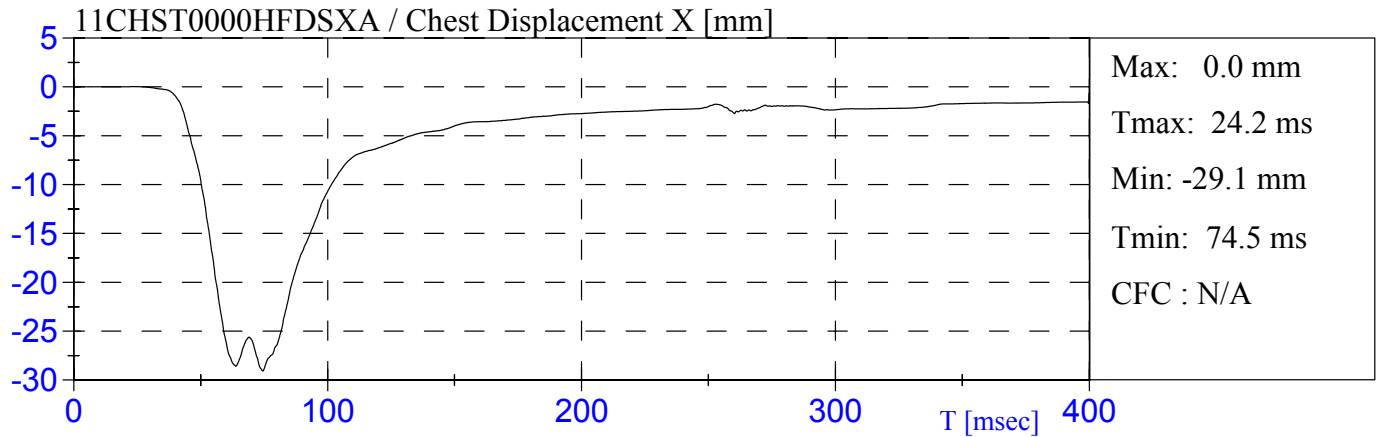
Neck Injury Criteria: 16NIJCIP000000YX

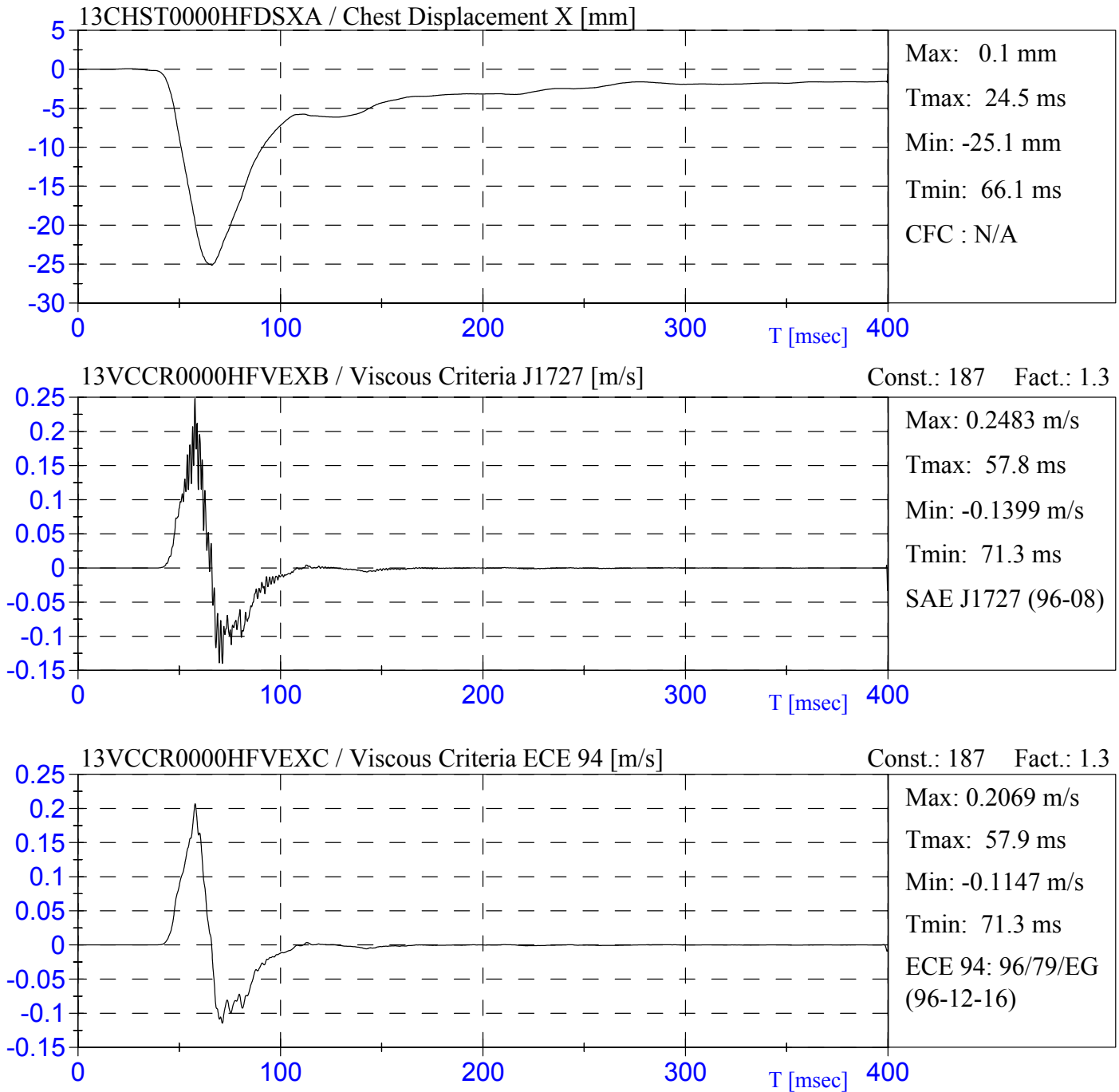
$N_{ij}^* = 0.79$

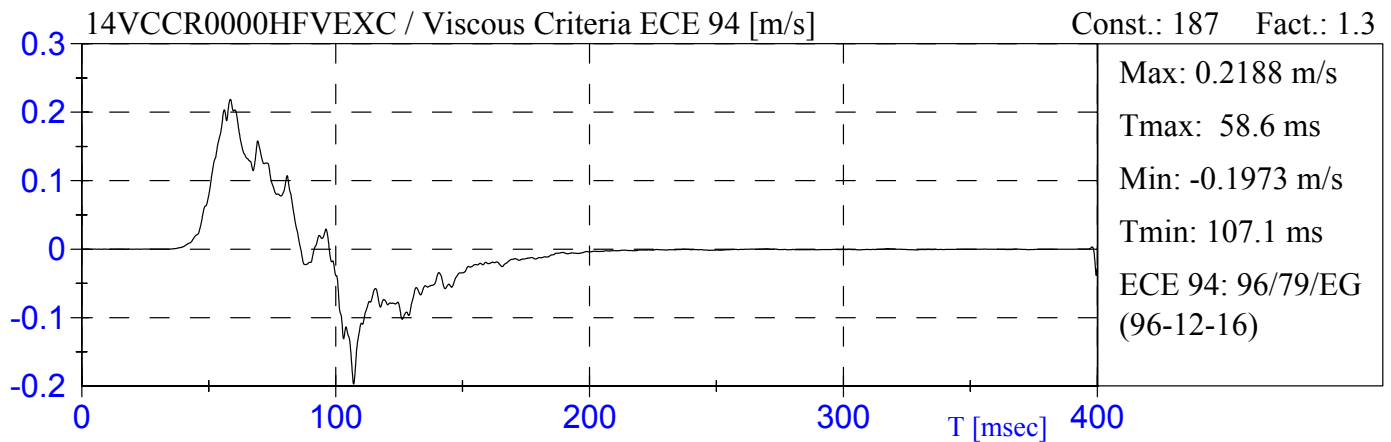
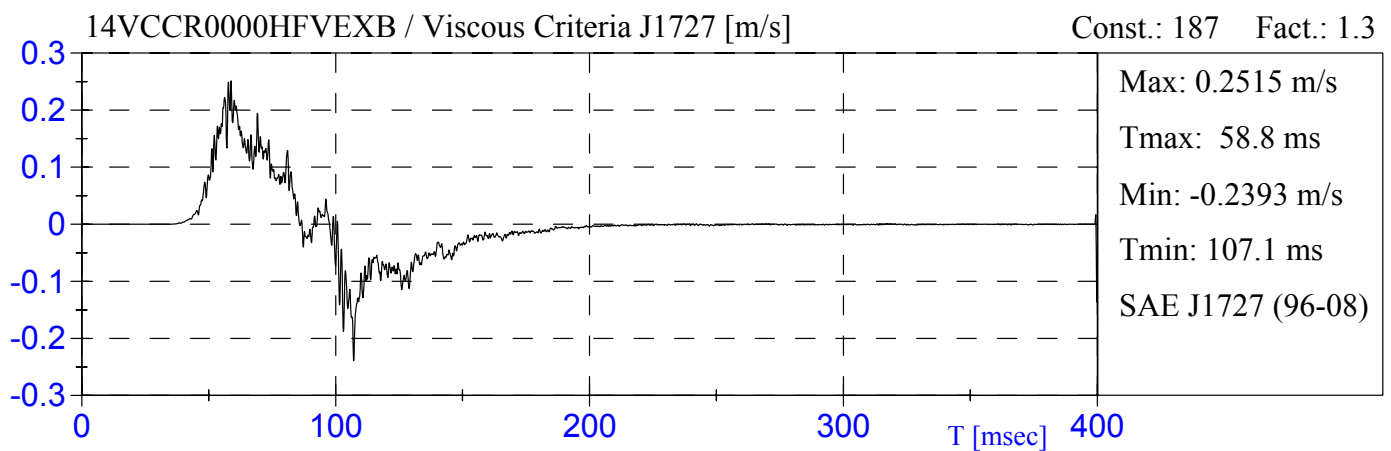
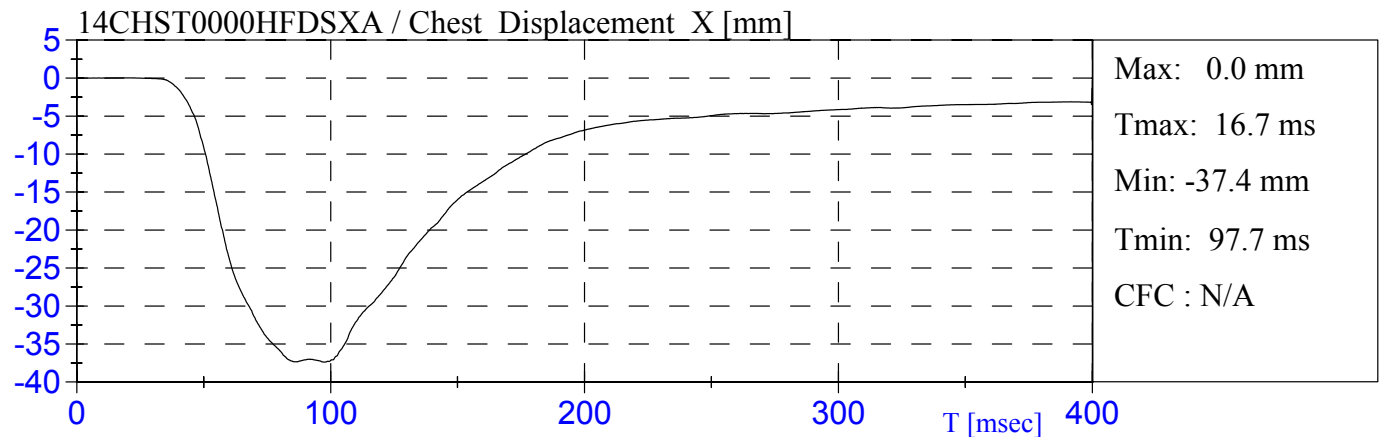
Valeurs critiques
Criticals Values

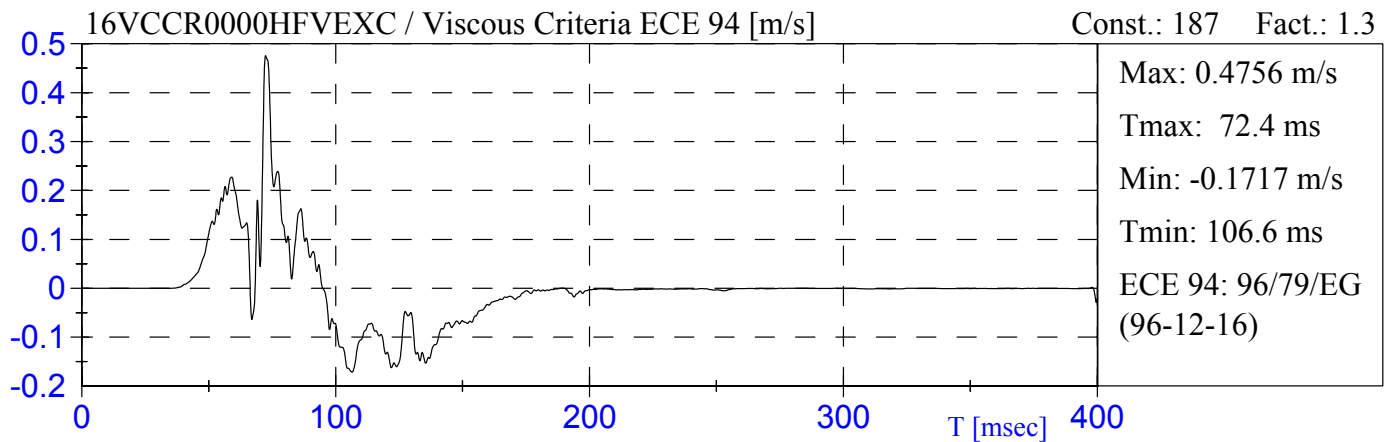
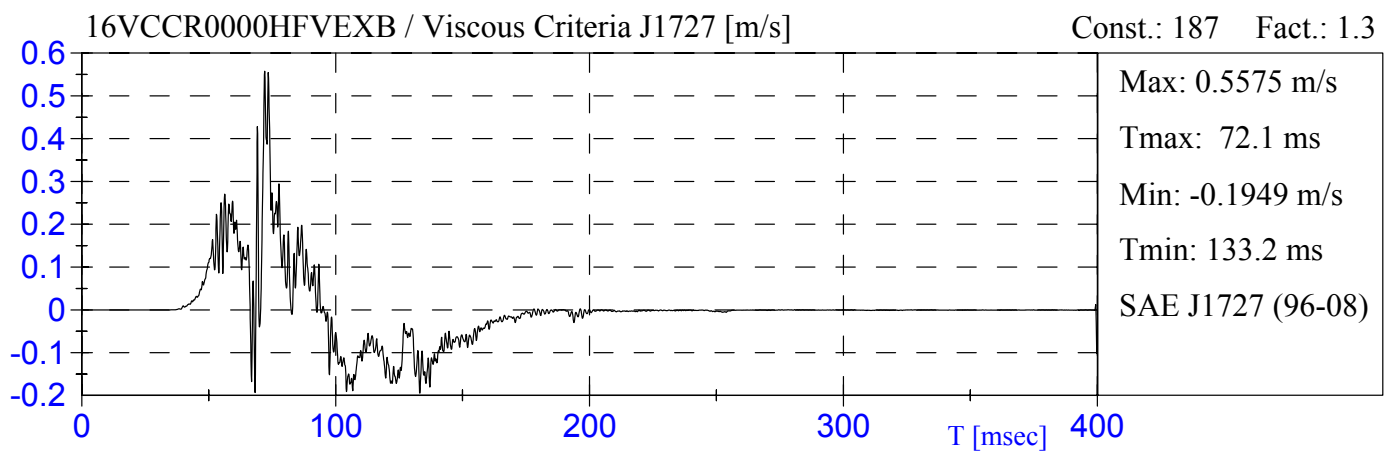
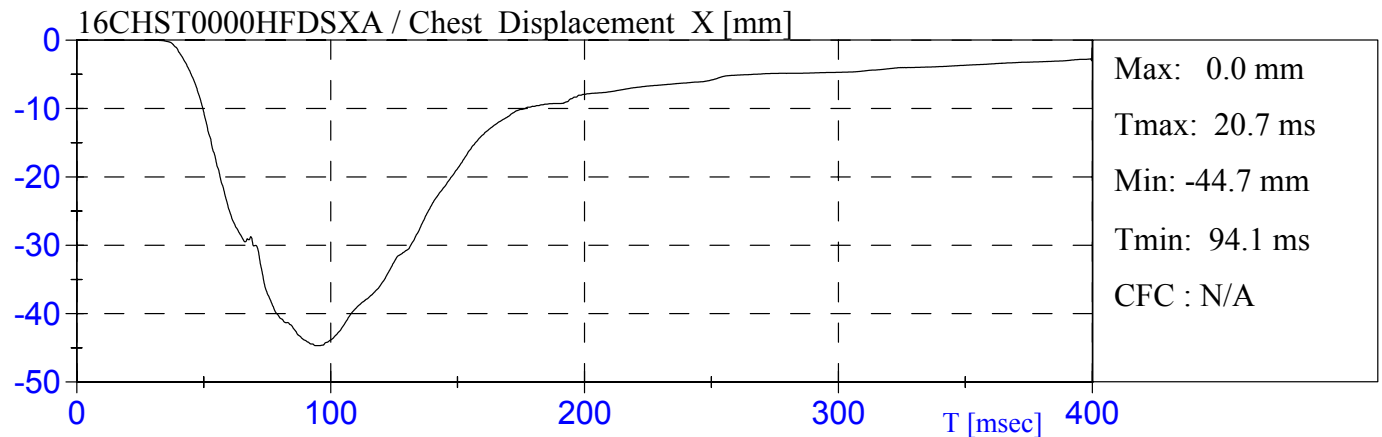
N _{tf}	N _{te}	N _{cf}	N _{ce}	Tc	4287
				Cc	3880
0.78	0.79	0.01	0.22	Fc	155
				Ec	67

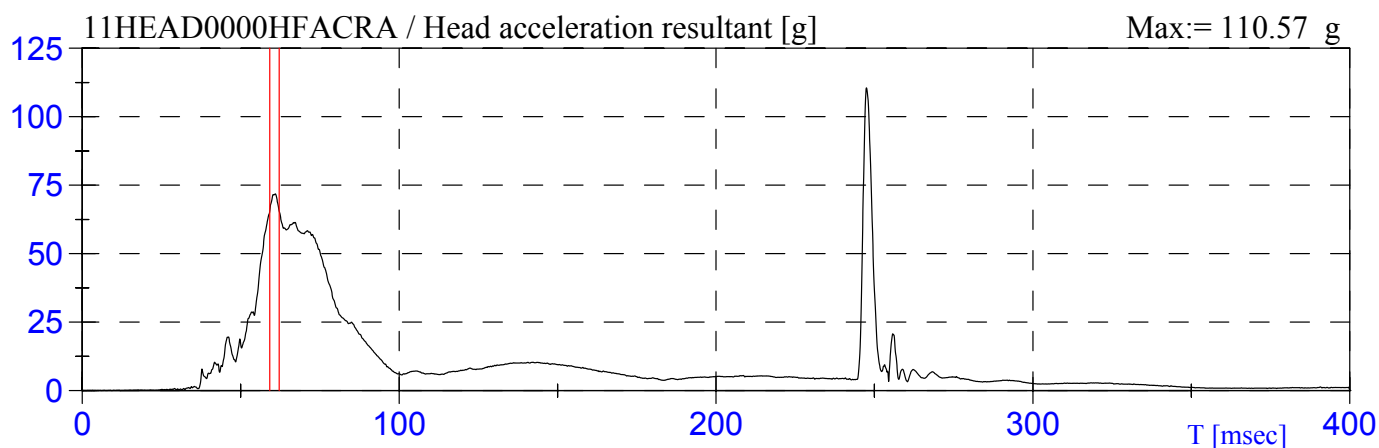
* Selon / According To: Federal Register 5/2000





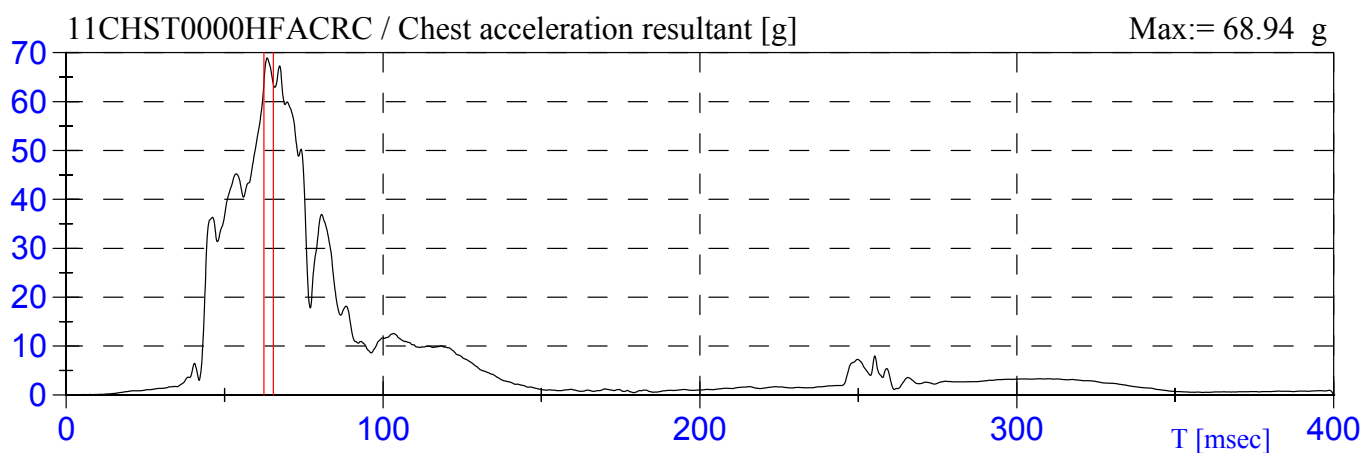






CLIP 3ms *

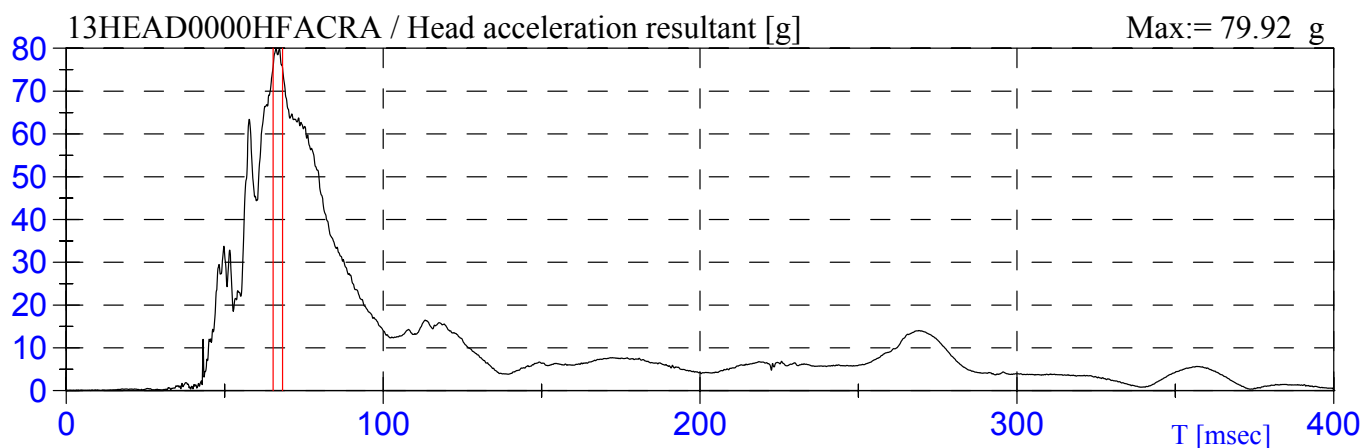
Acc. := 65.53 g	T1:= 59.1 ms	T2:= 62.1 ms
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CLIP 3ms *

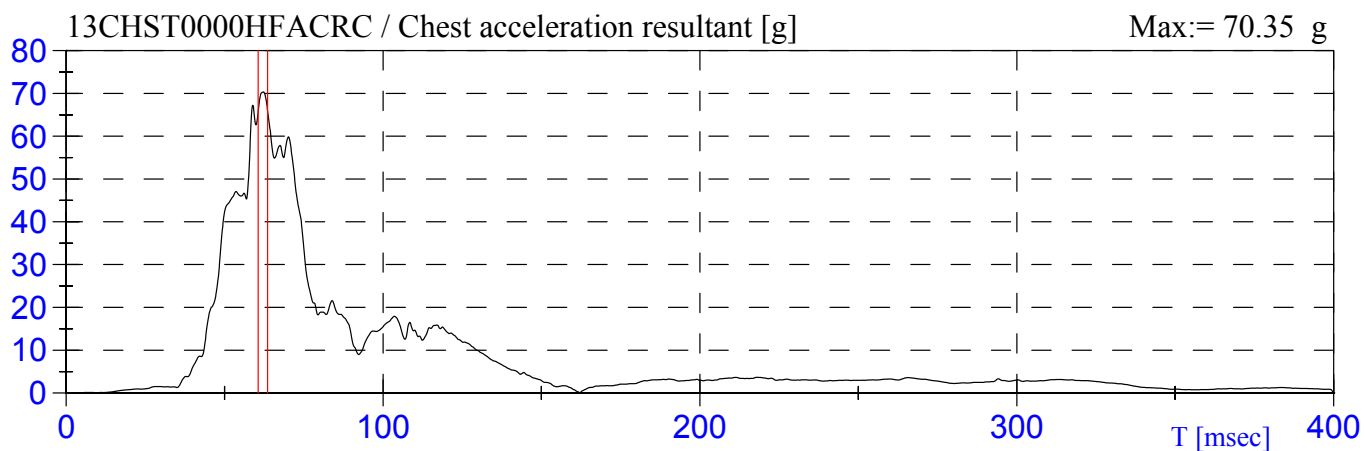
Acc. := 63.56 g	T1:= 62.4 ms	T2:= 65.4 ms
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* Selon / According To: NHTSA CLIP VERSION 2.1 5/95



CLIP 3ms *

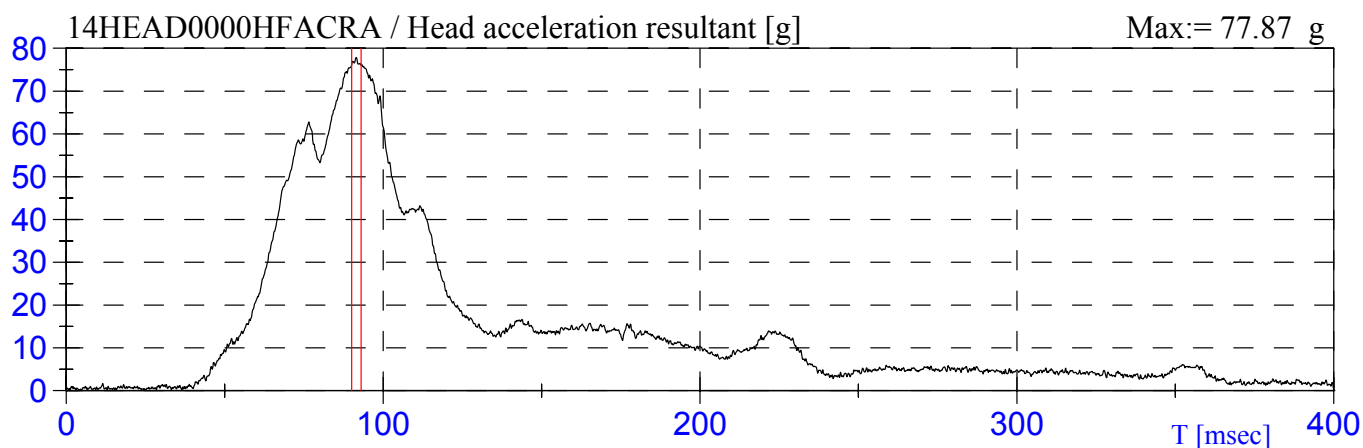
Acc. := 75.51 g	T1:= 65.3 ms	T2:= 68.3 ms
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CLIP 3ms *

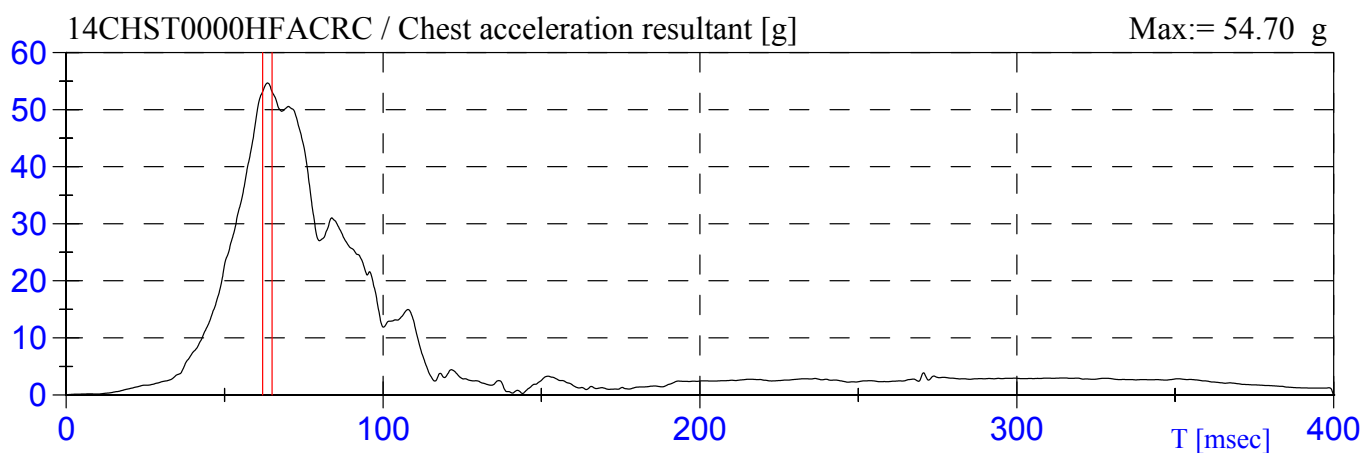
Acc. := 65.77 g	T1:= 60.6 ms	T2:= 63.6 ms
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* Selon / According To: NHTSA CLIP VERSION 2.1 5/95



CLIP 3ms *

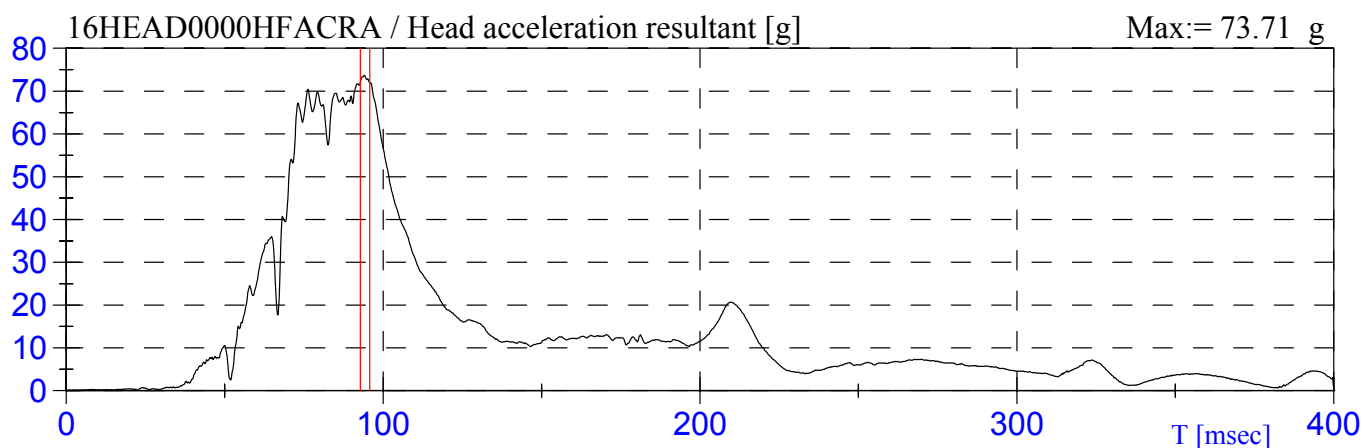
Acc. := 76.06 g	T1:= 90.1 ms	T2:= 93.1 ms
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CLIP 3ms *

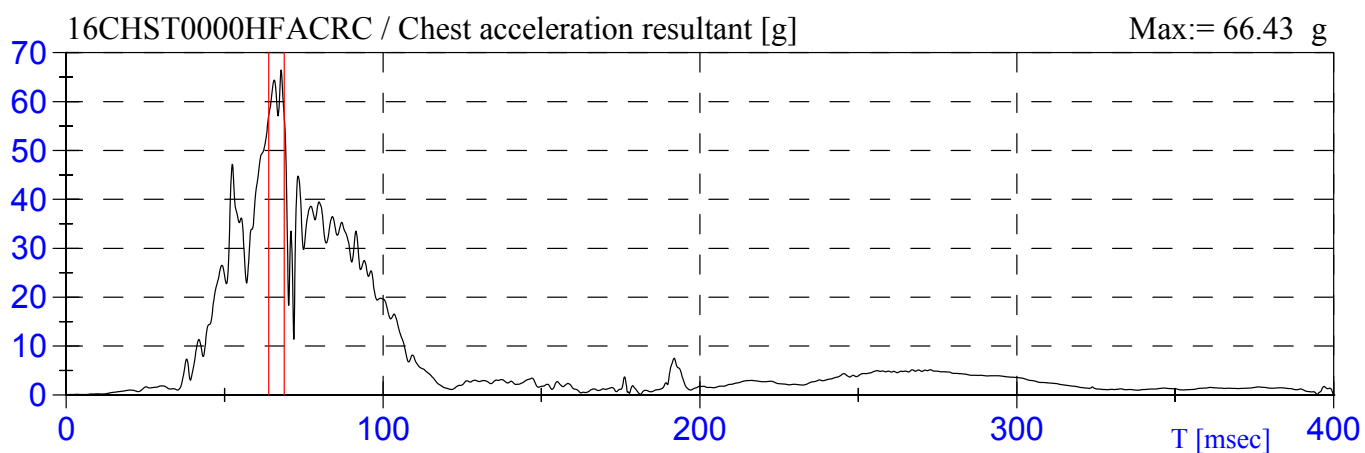
Acc. := 53.16 g	T1:= 62.0 ms	T2:= 65.0 ms
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* Selon / According To: NHTSA CLIP VERSION 2.1 5/95



CLIP 3ms *

Acc. := 71.90 g	T1:= 92.8 ms	T2:= 95.8 ms
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CLIP 3ms *

Acc. := 57.09 g	T1:= 63.9 ms	T2:= 68.8 ms
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* Selon / According To: NHTSA CLIP VERSION 2.1 5/95

COMMENTAIRES / COMMENTS

11ANKLLE00HFANYA: N'est pas valide à partir de 64.5 ms.
Is not valid from 64.5 ms.

11ANKLRI00HFANYA: N'est pas valide à partir de 54.0 ms.
Is not valid from 54.0 ms.

14LUSP0000HFxxXA: Transitoire réparé de 145.3 ms à 151.1 ms.
Glitch removed from 145.3 ms to 151.1 ms.

APPENDICE /APPENDIX C

**DONNÉES DES TEMPÉRATURES
TEMPERATURE DATA**

Temperature TC05-245

