

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

<b>VÉHICULE D'ESSAI / TEST VEHICLE FORD FREESTYLE 2005 TC # 05-225</b>
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**ESSAIS DE RECHERCHE CONJOINTS TC/NHTSA SUR LES  
SACS GONFLABLES FRONTAUX  
JOINT TC/NHTSA FRONTAL AIRBAGS RESEARCH TESTS**

Préparé par :  
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N° de contrat : **05-5001**  
Rapport N°: **RR05-239**

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	<b>2005-03-29</b>	Véhicule Vehicle	<b>FORD FREESTYLE 2005</b>	T.C. N° T.C.No	<b>05-225</b>
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**VÉHICULE D'ESSAI - TEST VEHICLE**

Fabricant - Manufacturer <b>FORD MOTOR CO.</b>	Type de carrosserie - Body Style <b>Hayon 5P / 5D Hatchback</b>	Marque, modèle, Année - Make, model, Year <b>FORD FREESTYLE 2005</b>
Classe de véhicule - Class of vehicle <b>VTUM / MPV</b>	Boîte de vitesse - Transmission Type <b>Auto. avant / Auto. Front wheel</b>	Moteur - Engine <b>V6 trans. avant / V6 trans. front</b>
Date de fabrication - Date of Manufacture <b>01/05</b>	Cylindres - Cylinders <b>3.0 Lit.</b>	N° d'ident. du véhicule - Vehicle Ident. No. <b>1FMDK01185GA35043</b>
Lecture de l'odomètre - Odometer Reading <b>22 km</b>	Nombre de places assises désignées Number of Designated Seating Positions <b>6</b>	Numéro d'ident. PMG - PMG Ident. Number <b>UN5-250</b>
PNBV - GVWR <b>2440 kg</b>	PNBE (Avant) - GAWR (Front) <b>1224 kg</b>	PNBE (Arrière) - GAWR (Rear) <b>1270 kg</b>



**CONFIGURATION D'ESSAI - TEST CONFIGURATION**

Type d'essai - Test type <b>Véh. vs barrière - Veh. vs barrier</b>	Vitesse d'impact- Impact velocity		Angle d'impact Impact angle	Masse du véhicule d'essai Test vehicle mass
	Prévu / Intended : <b>40.0 km/h</b>	Obtenu / Obtained : <b>40.4 km/h</b>	<b>0 °</b>	<b>2030.6 kg</b>
Description et position du mannequin (conducteur) Dummy description and position (driver) Description	Position ** <b>13 mm</b>	Description et position du mannequin (passager avant) Dummy description and position (front passenger) Description	Position ** <b>1 mm</b>	
Description et position du mannequin (passager arrière gauche) Dummy description and position (left rear passenger) Description	Position ** <b>N/A</b>	Description et position du mannequin (passager arrière droit) Dummy description and position (right rear passenger) Description	Position ** <b>N/A</b>	

**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
<b>Déployé / Deployed 44.2ms</b>	<b>Déployé / Deployed 42.3ms</b>	<b>N/A 0.0</b>	<b>N/A 0.0</b>
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
<b>Déployé / Deployed</b>	<b>Déployé / Deployed</b>	<b>Non-équipé / Not equipped</b>	<b>Non-équipé / Not equipped</b>

**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: 2005.09.14	Approuvé par : Approved by :
Vérifié par : Verified by : 	Digitally signed by Linda Allard Date: 2005.09.14	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 <b>521 kg</b>	Masse des bagages - Cargo Load <b>101 kg</b>	Type de sièges - Type of seats		Types de dossiers - Type of seat back	
			Avt - Frt	Arr - Rr	
Nombre d'occupants (places assises désignées) Number of Occupants (Designated Seating Positions)		Banquette Bench			Dossier ajustable Adjustable Seat Back
Avant - Front <b>2</b> Arrière - Rear <b>4</b> Total <b>6</b>		Baquet Bucket	<b>X</b>	<b>X</b>	Dossier non-ajustable Non-adjustable Seat Back
Volume de carburant pour l'essai Fuel system test volume <b>65.40 l</b>	Pression à froid - Cold Tire Pressure Avant - Front <b>220 kPa</b> Arrière - Rear <b>235 kPa</b> Secours - Spare <b>415 kPa</b>			Dimension - Size <b>P215/65R17</b>	

**PREMIÈRE PESÉE : VÉHICULE TEL QUE LIVRÉ (AVEC LIQUIDES AU MAXIMUM)  
FIRST WEIGHT : VEHICLE AS RECEIVED (WITH MAXIMUM FLUIDS)**

Avant gauche - Left front <b>515.8 kg</b>	Avant droit - Right front <b>507.3 kg</b>	Masse avant totale - Total front weight <b>1023.1 kg</b>
Arrière gauche - Left rear <b>394.1 kg</b>	Arrière droit - Right rear <b>389.6 kg</b>	Masse arrière totale - Total rear weight <b>783.7 kg</b>
Masse totale côté gauche - Total left side weight <b>909.9 kg</b>	Masse totale côté droit - Total right side weight <b>896.9 kg</b>	Masse totale - Total weight <b>1806.8 kg</b>

**TROISIÈME PESÉE : VÉHICULE PRÊT POUR L'ESSAI  
THIRD WEIGHT : VEHICLE READY FOR TEST**

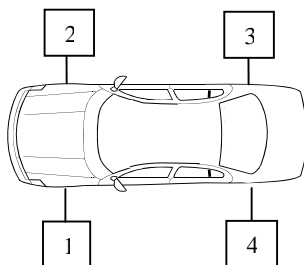
Avant gauche - Left front <b>548.2 kg</b>	Avant droit - Right front <b>553.8 kg</b>	Masse avant totale - Total front weight <b>1102.0 kg</b>
Arrière gauche - Left rear <b>459.2 kg</b>	Arrière droit - Right rear <b>469.4 kg</b>	Masse arrière totale - Total rear weight <b>928.6 kg</b>
Masse totale côté gauche - Total left side weight <b>1007.4 kg</b>	Masse totale côté droit - Total right side weight <b>1023.2 kg</b>	Masse totale - Total weight <b>2030.6 kg</b>

**ATTITUDE DU VÉHICULE / VEHICLE ATTITUDE**

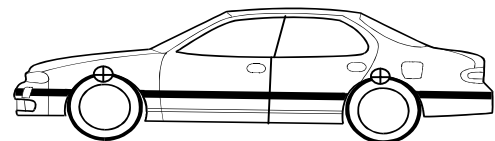
		Attitude tel que livré Attitude on delivery	Attitude tel que testé Attitude as tested
<b>1</b>	Roue avant gauche* Left front wheel*	<b>780 mm</b>	<b>767 mm</b>
<b>2</b>	Roue avant droite* Front right wheel*	<b>784 mm</b>	<b>768 mm</b>
<b>3</b>	Roue arrière droite* Rear right wheel*	<b>795 mm</b>	<b>769 mm</b>
<b>4</b>	Roue arrière gauche* Rear left wheel*	<b>790 mm</b>	<b>768 mm</b>

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

**Vue de plan / Plan view**



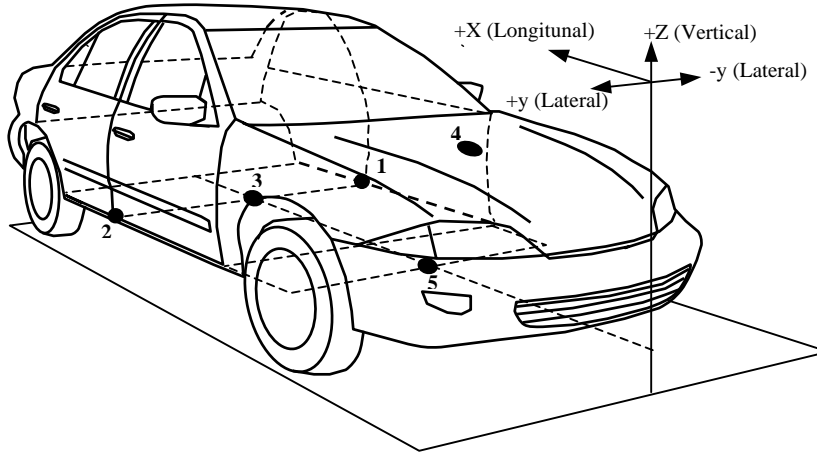
**Vue de côté / Side view**



⊕ Points de mesure / Measurement points

Date de collision Crash date	<b>2005-03-29</b>	Véhicule Vehicle	<b>FORD FREESTYLE 2005</b>	T.C. N° T.C.No	<b>05-225</b>
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**EMPLACEMENT DES ACCÉLÉROMÈTRES  
ACCELEROMETER LOCATIONS**

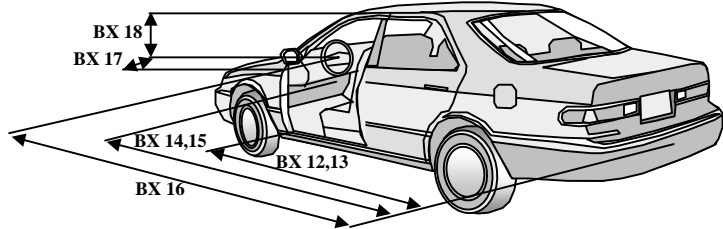
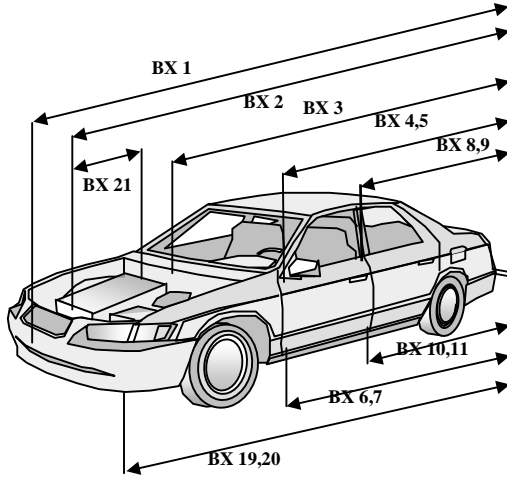


**Point de référence :** Centre transversal du véhicule, au point le plus avancé, au niveau du sol. Selon SAE J182a.  
**Reference point :** Transversal center of the vehicle, at the foremost point and at ground level. As per SAE J182a.

EMPLACEMENT LOCATION	DESCRIPTIONS	COORDONNÉES / COORDINATES (mm)		
		X	Y	Z
#1	Seuil de la porte gauche @ pilier "B" Left door sill @ pillar "B"	2600	-614	321
#2	Seuil de la porte droite @ pilier "B" Right door sill @ pillar "B"	2599	608	320
#3	Centre de gravité Centre of gravity	2709	-4	439
#4	Le dessus du moteur Top of engine	-	-	-
#5	Le dessous du moteur Bottom of engine	-	-	-

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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	5075	4714	361	12	3426	3424	2
2	4509	4424	85	13	3425	3422	3
3	3887	3883	4	14	3601	3597	4
4	3488	3487	1	15	3772	3759	13
5	3488	3489	-1	16	3041	3104	-63
6	3475	3476	-1	17	431	431	0
7	3470	3472	-2	18	490	505	-15
8	2417	2417	0	19	5022	4715	307
9	2408	2409	-1	20	5025	4597	428
10	2436	2436	0	21	393	396	-3
11	2438	2439	-1				

Mesures en mm / Measurements in mm

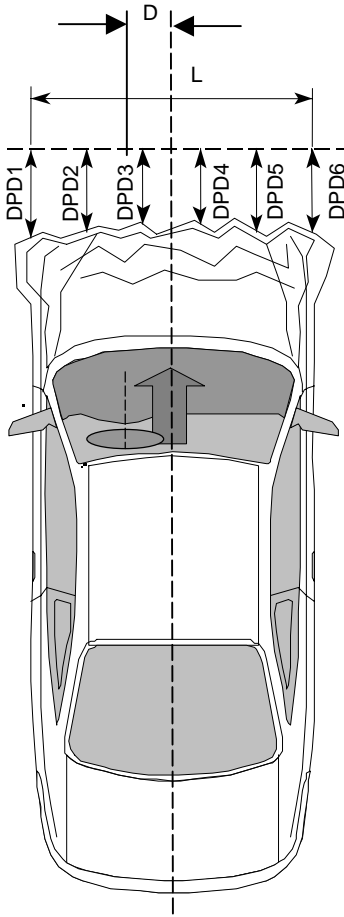
\* BX : Mesures du véhicule avant-essai. / Pre-test vehicle measurements data.

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

REMARQUES / COMMENTS : Aucune / None.

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MESURES DES DPD / DPD'S MEASUREMENTS



- DPD 1:
- DPD 2:
- DPD 3:
- DPD 4:
- DPD 5:
- DPD 6:
- MESURE L:
- MEASUREMENT L:
- MESURE D:
- MEASUREMENT D:

AVANT ESSAI PRE-TEST	APRÈS ESSAI POST-TEST	$\Delta x$
251	529	-278
66	452	-386
11	399	-388
10	351	-341
65	353	-288
257	514	-257
	1602	
	0	

Mesures en mm / Measurements in mm

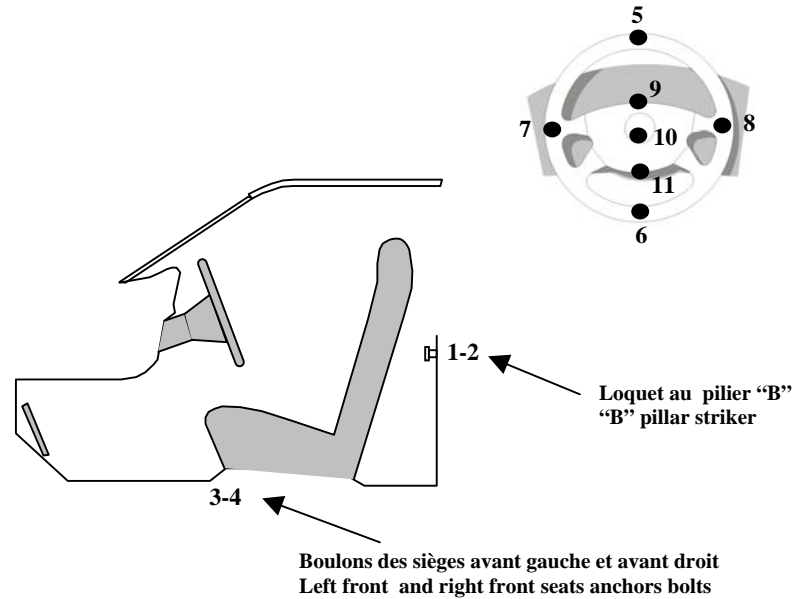
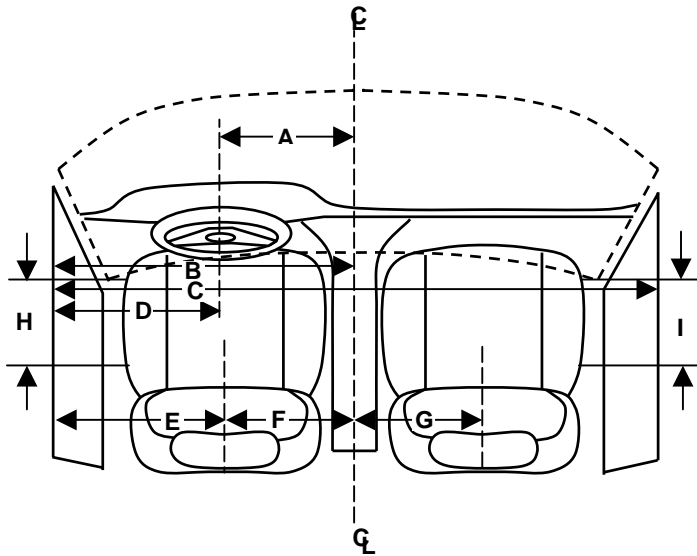
**L** : Longueur de la région endommagée  
Length of damaged region

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

REMARQUES / COMMENTS : Aucune / None.

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MESURES DE VÉHICULE  
VEHICLE MEASUREMENTS



Code	Description	mm
A	Centre du volant à la ligne de centre du véhicule Steering wheel center to center line of vehicle	<b>376</b>
B	Seuil de fenêtre à la ligne de centre du véhicule Window edge to center line of the vehicle	<b>875</b>
C	Fenêtre à fenêtre Window to window	<b>1747</b>
D	Centre du volant au seuil de la fenêtre Steering wheel center to window edge	<b>499</b>
E	Seuil de la fenêtre au centre du siège (conducteur) Window edge to seat midline (driver)	<b>495</b>
F	Centre du siège à la ligne de centre du véhicule (conducteur) Seat midline to center line of vehicle (driver)	<b>380</b>
G	Centre du siège à la ligne de centre du véhicule (passager) Seat midline to center line of vehicle (passenger)	<b>374</b>
H	Course du siège (conducteur) Seat travel (driver)	<b>243</b>
I	Course du siège (passager) Seat travel (passenger)	<b>243</b>
J	Ajustement du volant Steering wheel adjustment	<b>38</b>
K	Ajustement de la ceinture baudrier Upper torso belt adjustment	<b>93</b>

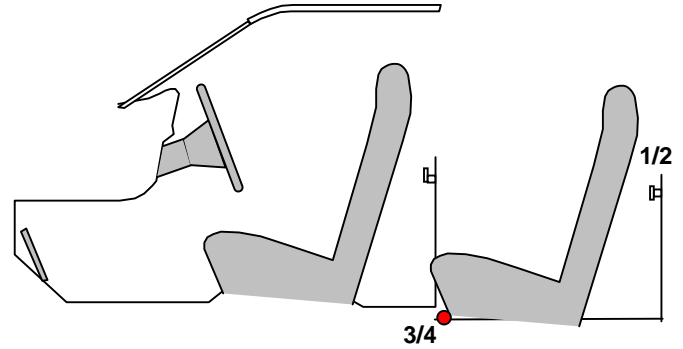
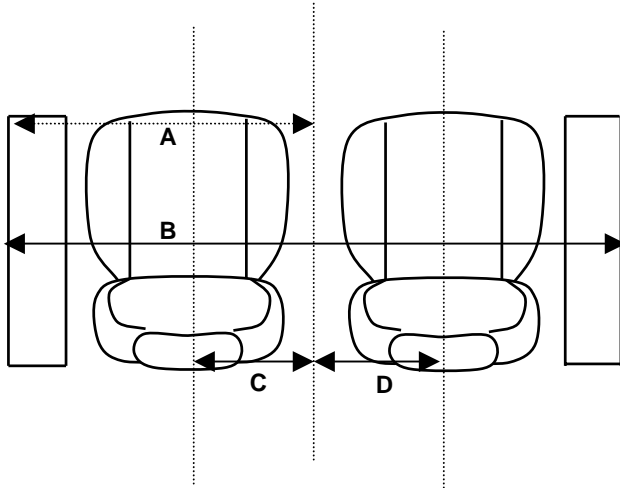
Code	Description	X(mm)	Y(mm)	Z(mm)
1	Loquet au pilier "B" (conducteur) "B" pillar striker (driver)	<b>2575</b>	<b>-820</b>	<b>760</b>
2	Loquet au pilier "B" (passager) "B" pillar striker (passenger)	<b>2574</b>	<b>816</b>	<b>759</b>
3	Boulon siège avant, extérieur (conducteur) Front seat bolt, outboard (driver)	<b>2060</b>	<b>-583</b>	<b>361</b>
4	Boulon siège avant, extérieur (passager) Front seat bolt, outboard (passenger)	<b>2064</b>	<b>578</b>	<b>360</b>
5	Jante du volant, centre haut Steering wheel rim, top centre	<b>1942</b>	<b>-377</b>	<b>1191</b>
6	Jante du volant, centre bas Steering wheel rim, bottom centre	<b>2098</b>	<b>-376</b>	<b>845</b>
7	Jante du volant, centre gauche Steering wheel rim, left centre	<b>2027</b>	<b>-565</b>	<b>1018</b>
8	Jante du volant, centre droit Steering wheel rim, right centre	<b>2020</b>	<b>-188</b>	<b>1017</b>
9	Moyeu du volant, centre haut Steering wheel hub, top centre	<b>1992</b>	<b>-377</b>	<b>1052</b>
10	Moyeu du volant, centre Steering wheel hub, centre	<b>2048</b>	<b>-377</b>	<b>987</b>
11	Moyeu du volant, centre bas Steering wheel hub, bottom centre	<b>2069</b>	<b>-377</b>	<b>922</b>
12	Centre du volant Center of steering wheel	<b>2034</b>	<b>-376</b>	<b>1018</b>

Point de référence : Centre transversal du véhicule, au point le plus avancé, au niveau du sol. Selon SAE J182a.  
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Remarques - Comments: Aucune / None.

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**MESURES DE VÉHICULE (SIÈGE ARRIÈRE)**  
**VEHICLE MEASUREMENTS (REAR SEAT)**



Code	Description	mm
A	Seuil de fenêtre à la ligne de centre du véhicule Window edge to center line of the vehicle	<b>866</b>
B	Fenêtre à fenêtre Window to window	<b>1727</b>
C	Centre du siège à la ligne de centre du véhicule (passager gauche) Seat midline to center line of vehicle (left passenger)	-
D	Centre du siège à la ligne de centre du véhicule (passager droit) Seat midline to center line of vehicle (right passenger)	<b>391</b>

Code	Description	X(mm)	Y(mm)	Z(mm)
1	Loquet au pilier "B" (conducteur) "B" pillar striker (driver)	-	-	-
2	Loquet au pilier "B" (passager) "B" pillar striker (passenger)	<b>3662</b>	<b>820</b>	<b>933</b>
3	Boulon siège avant, extérieur (conducteur) Front seat bolt, outboard (driver)	-	-	-
4	Boulon siège avant, extérieur (passager) Front seat bolt, outboard (passenger)	-	-	-

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

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

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**POINTS DE MESURES DES CEINTURES DE SÉCURITÉ EN UTILISANT L'APPAREIL (BTD)  
PASSENGER CAR BELT FIT MEASUREMENTS USING THE BELT DEPLOYMENT TEST DEVICE (BTD)**

Type de siège / Seat type:      baquet / bucket       banquette / bench       banquette 60-40 / bench 60-40

Type de ceinture / Belt system:      3 points       passive       active       automatique / automatic       motorisée / motorised

Localisation du siège / Seat location:      Av-G / F-L       Av-D / F-R       Arr-G / R-L       Arr-D / R-R

Espacement du genou gauche / Left knee spacing:      98 mm      Espacement du genou droit / Right knee spacing:      98 mm

Essai no: / Trial no:		1	2	3
Angle du dossier BTD Back pan angle		24.9 deg.	24.7 deg.	24.4 deg.
Angle de la cuvette BTD Seat pan angle		10.6 deg.	9.3 deg.	9.1 deg.
Angle du pied Foot angle	gauche / left	92 deg.	90 deg.	90 deg.
	droit / right	113 deg.	115 deg.	115 deg.
Angle du genou Knee angle	gauche / left	111 deg.	114 deg.	114 deg.
	droit / right	107 deg.	113 deg.	112 deg.
Mesure sous-abdominale Lap belt score	gauche / left	48 mm / 0 mm	49 mm / 0 mm	49 mm / 0 mm
	droit / right	47 mm / 0 mm	46 mm / 0 mm	46 mm / 0 mm
Ceinture en contact Belt in contact	gauche / left	Oui/Yes	Oui/Yes	Oui/Yes
	droit / right	Oui/Yes	Oui/Yes	Oui/Yes
Mesure ceinture baudrier Upper torso belt score	Sternum	188 mm / - *	188 mm / - *	188 mm / - *
	Clavicule	140 mm / 0 mm	138 mm / 0 mm	138 mm / 0 mm
Ceinture en contact Belt in contact	Clavicule	Oui/Yes	Oui/Yes	Oui/Yes

Mesure Score	/	Jeu Slack
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\* Mesure ceinture baudrier (jeu sternum) : (-) signifie un jeu causé par l'appareil BTD. Impossible à éliminer.  
\* Upper torso belt score (sternum slack) : (-) means a slack impossible to eliminate due to BTD machine.

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

**Selon le manuel d'opérations pour mesures géométriques des ceintures de sécurité, ébauche, Transports Canada, janvier 1993.  
As per the operational manual for the belt deployment test device, draft, Transport Canada, January 1993.**

Date de collision Crash date	<b>2005-03-29</b>	Véhicule Vehicle	<b>FORD FREESTYLE 2005</b>	T.C. N° T.C.No	<b>05-225</b>
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**POINTS DE MESURES DES CEINTURES DE SÉCURITÉ EN UTILISANT L'APPAREIL (BTD)  
PASSENGER CAR BELT FIT MEASUREMENTS USING THE BELT DEPLOYMENT TEST DEVICE (BTD)**

Type de siège  
Seat type

baquet / bucket       banquette / bench       banquette 60-40 / bench 60-40

Type de ceinture  
Belt system

3 points       passive       active       automatique / automatic       motorisée / motorised

Localisation du siège  
Seat location

Av-G / F-L       Av-D / F-R       Arr-G / R-L       Arr-D / R-R

Espacement du genou gauche  
Left knee spacing

108 mm

Espacement du genou droit  
Right knee spacing

102 mm

Essai no: / Trial no:		1	2	3
Angle du dossier BTD Back pan angle		<b>24.4</b> deg.	<b>23.7</b> deg.	<b>23.4</b> deg.
Angle de la cuvette BTD Seat pan angle		<b>12.1</b> deg.	<b>12.0</b> deg.	<b>11.8</b> deg.
Angle du pied Foot angle	gauche / left	<b>116</b> deg.	<b>118</b> deg.	<b>117</b> deg.
	droit / right	<b>116</b> deg.	<b>117</b> deg.	<b>116</b> deg.
Angle du genou Knee angle	gauche / left	<b>105</b> deg.	<b>108</b> deg.	<b>107</b> deg.
	droit / right	<b>108</b> deg.	<b>110</b> deg.	<b>109</b> deg.
Mesure sous-abdominale Lap belt score	gauche / left	<b>44 mm / 0 mm</b>	<b>47 mm / 0 mm</b>	<b>46 mm / 0 mm</b>
	droit / right	<b>46 mm / 0 mm</b>	<b>47 mm / 0 mm</b>	<b>48 mm / 0 mm</b>
Ceinture en contact Belt in contact	gauche / left	<b>Oui/Yes</b>	<b>Oui/Yes</b>	<b>Oui/Yes</b>
	droit / right	<b>Oui/Yes</b>	<b>Oui/Yes</b>	<b>Oui/Yes</b>
Mesure ceinture baudrier Upper torso belt score	Sternum	<b>186 mm / - *</b>	<b>182 mm / - *</b>	<b>180 mm / - *</b>
	Clavicule	<b>137 mm / 0 mm</b>	<b>136 mm / 0 mm</b>	<b>133 mm / 0 mm</b>
Ceinture en contact Belt in contact	Clavicule	<b>Oui/Yes</b>	<b>Oui/Yes</b>	<b>Oui/Yes</b>

Mesure Score	/	Jeu Slack
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\* Mesure ceinture baudrier (jeu sternum) : (-) signifie un jeu causé par l'appareil BTD. Impossible à éliminer.  
\* Upper torso belt score (sternum slack) : (-) means a slack impossible to eliminate due to BTD machine.

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

**Selon le manuel d'opérations pour mesures géométriques des ceintures de sécurité, ébauche, Transports Canada, janvier 1993.**

**As per the operational manual for the belt deployment test device, draft, Transport Canada, January 1993.**

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**POSITIONNEMENT DES MANNEQUINS / MEASUREMENTS OF DUMMY POSITIONS**

		<u>MESURES / MEASUREMENTS :</u>					
Conducteur/Driver : <b>Hybrid III (5 %)</b>		Toutes les mesures sont en mm / All measurements are in mm					
Angle du pelvis - Pelvic angle : <b>19.8°</b>		Conducteur / Driver			Passager / Passenger		
Angle transversal - Transversal angle : <b>0.2°</b>		Ajustement du siège : Seat adjustment :			Ajustement du siège : Seat adjustment :		
Angle de la tête - Head angle : <b>0.0°</b>		<b>Électrique / Electrical</b>			<b>Micro-crans / Micro notches</b>		
Seuil de porte - Door sill : <b>0.0°</b>		Angle du dossier : Seat back angle :			Angle du dossier : Seat back angle :		
Mouvement du lacet / Yaw movement : <b>2 mm</b>		<b>10.3 °</b>			<b>10.0 °</b>		
Position de la rail du siège / Seat track position * : <b>13 mm</b>		X	Y	Z	X	Y	Z
Passager avant/Front Passenger: <b>Hybrid III (5 %)</b>		<b>2356</b>	<b>-452</b>	<b>1225</b>	<b>2349</b>	<b>452</b>	<b>1216</b>
Angle du pelvis - Pelvic angle : <b>19.0°</b>		<b>2208</b>	<b>-542</b>	<b>663</b>	<b>2215</b>	<b>540</b>	<b>654</b>
Angle transversal - Transversal angle : <b>0.1°</b>		<b>1872</b>	<b>-505</b>	<b>724</b>	<b>1881</b>	<b>505</b>	<b>723</b>
Angle de la tête - Head angle : <b>0.0°</b>							
Seuil de porte - Door sill : <b>0.0°</b>							
Mouvement du lacet / Yaw movement : <b>0 mm</b>							
Position de la rail du siège / Seat track position * : <b>1 mm</b>							
Cible de tête / Head target :							
Point-H / H-Point :							
Rotule / Knee joint :							

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

\* **Référence : 0 est la position la plus avancée.**

\* **Reference : 0 is the foremost position.**

**Selon la procédure de positionnement de mannequin 5<sup>e</sup> percentile Hybrid III, 49 CFR 552, 571, 585 and 595, Docket No. NHTSA 00-7013; Notice 1, RIN 2127-AG70, Federal Motor Vehicle Safety Standards, Occupant Crash Protection (Paragraphe S16.3).**

**As per procedure for placement of a 5<sup>th</sup> percentile Hybrid III 49 CFR 552, 571, 585 and 595, Docket No. NHTSA 00-7013; Notice 1, RIN 2127-AG70, Federal Motor Vehicle Safety Standards, Occupant Crash Protection (Section S16.3).**

**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**

		<u>MESURES / MEASUREMENTS :</u>					
Passager arrière gauche : Rear left passenger :	N/A	Toutes les mesures sont en mm / All measurements are in mm					
Angle du pelvis - Pelvic angle :	N/A	Passager arrière gauche Rear left passenger			Passager arrière droit Rear right passenger		
Angle transversal - Transversal angle :	N/A	Ajustement du siège : Seat adjustment :			Ajustement du siège : Seat adjustment :		
Angle de la tête - Head angle :	N/A	N/A			N/A		
Mouvement du lacet / Yaw movement :	N/A	Ajustement du dossier : Seat back adjustment :			Ajustement du dossier : Seat back adjustment :		
Passager arrière droit : Rear right passenger :	Hybrid III (5 %)	N/A			N/A		
Angle du pelvis - Pelvic angle :	20.0°	X	Y	Z	X	Y	Z
Angle transversal - Transversal angle :	0.4°						
Angle de la tête - Head angle :	1.5°						
Mouvement du lacet / Yaw movement :	0.0°						
Cible de tête / Head target :		-	-	-	3388	458	1256
Point-H / H-Point :		-	-	-	3253	543	693
Rotule / Knee joint :		-	-	-	2915	511	716

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

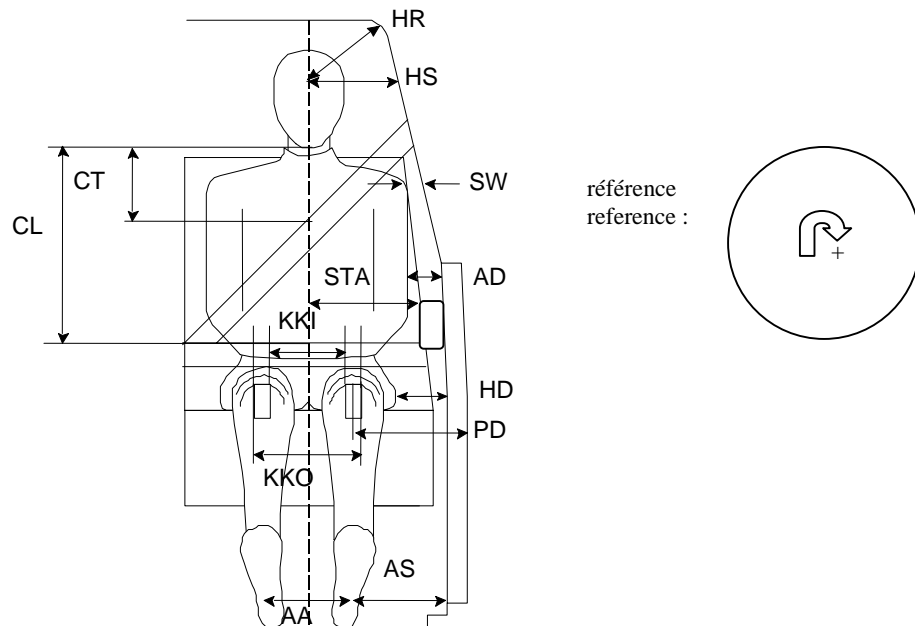
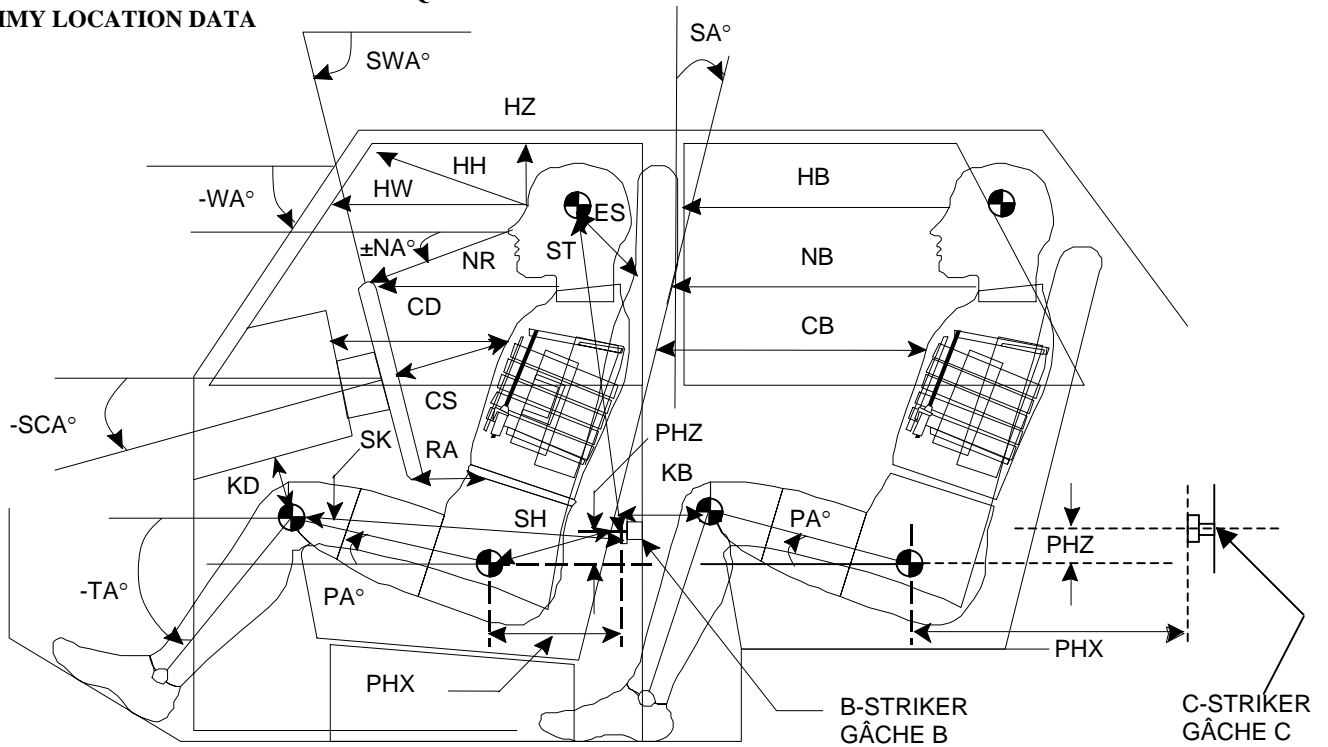
**Selon la procédure de positionnement de mannequin 5<sup>e</sup> percentile Hybrid III, 49 CFR 552, 571, 585 and 595, Docket No. NHTSA 00-7013; Notice 1, RIN 2127-AG70, Federal Motor Vehicle Safety Standards, Occupant Crash Protection (Paragraphe S16.3).**

**As per procedure for placement of a 5<sup>th</sup> percentile Hybrid III 49 CFR 552, 571, 585 and 595, Docket No. NHTSA 00-7013; Notice 1, RIN 2127-AG70, Federal Motor Vehicle Safety Standards, Occupant Crash Protection (Section S16.3).**

**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



Date de collision Crash date	<b>2005-03-29</b>	Véhicule Vehicle	<b>FORD FREESTYLE 2005</b>	T.C. N° T.C.No	<b>05-225</b>
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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	<b>280</b>	<b>235</b>		<b>225</b>
Genou à genou (plaque) Intérieur / Interior Centre / Center Knee to knee (plate) Extérieur / Extérieur	KKI	<b>120</b>	<b>95</b>		<b>100</b>
	KKC	<b>190</b>	<b>165</b>		<b>170</b>
	KKO	<b>260</b>	<b>235</b>		<b>240</b>
De la cheville jusqu'au seuil de porte (horizontalement) Ankle to door sill (horizontal)	AS	<b>220</b>	<b>200</b>		<b>210</b>
Centre du genou au tableau de bord ou siège horizontalement (minimum) Knees centre to dash or seat back horizontal (minimum)	KDL	<b>6</b>	<b>36</b>		<b>355</b>
	KDR	<b>25</b>	<b>40</b>		<b>350</b>
Sternum au tableau de bord (horizontalement) Chest to dash (horizontal)	CD		<b>350</b>		
Milieu du sternum au centre du moyeu du volant ou siège avant Mid sternum to steering hub center or front seat	CS/CB	<b>214</b>			<b>700</b>
Milieu du front jusqu'au pare-brise (horizontalement) Mid forehead to windshield (horizontal)	HW	<b>685</b>	<b>695</b>		
Milieu du front jusqu'au haut du pare-brise Mid forehead to windshield header	HH	<b>350</b>	<b>355</b>		
Nez à la jante du volant de direction (haut) ou siège avant Nose to steering wheel rim (top) or front seat	NR/HB	<b>293</b>			
Milieu du front jusqu'au début du toit Mid forehead to edge roof	HR	<b>299</b>	<b>307</b>		<b>285</b>
Haut de l'oreille au haut du siège avant Ear top to front seat top	ES	<b>238</b>	<b>245</b>		<b>220</b>
Menton au haut de la ceinture sous-abdominale (verticalement) Chin to lap belt upper edge (vertical)	CL	<b>364</b>	<b>357</b>		<b>360</b>
Menton au haut de la ceinture baudrier (verticalement) Chin to thorax belt upper edge (vertical)	CT	<b>120</b>	<b>124</b>		<b>115</b>
Milieu du front à la fenêtre latérale (horizontalement) Mid forehead to side window (horizontal)	HS	<b>390</b>	<b>400</b>		<b>365</b>
La rotule à la porte (horizontalement) Patella to door (horizontal)	PD	<b>210</b>	<b>214</b>		<b>185</b>
Du point-H à la porte (horizontalement) H-point to door (horizontal)	HD	<b>235</b>	<b>236</b>		<b>172</b>
Du milieu du bras à la porte (horizontalement) Mid upper arm to door (horizontal)	AD	<b>120</b>	<b>174</b>		<b>165</b>
Cou jusqu'au volant ou tableau de bord (horizontalement) ou siège avant Neck to steering wheel or dash board (horizontal) or front seat	NB	<b>385</b>	<b>497</b>		<b>720</b>
Épaule à la fenêtre de côté Shoulder to side window	SW	<b>178</b>	<b>178</b>		<b>165</b>
Abdomen à l'appui-bras Abdomen to armrest	STA	<b>160</b>	<b>161</b>		<b>175</b>
Milieu du front au toit (verticalement) Mid forehead to roof (vertical)	HZ	<b>220</b>	<b>228</b>		<b>370</b>
Tête au loquet (plan (x,z)) Striker to head ( (x,z) plan)	ST	<b>514</b>	<b>509</b>		<b>435</b>
Abdomen à la jante du volant de direction (bas) Steering wheel rim to abdomen (bottom)	RA	<b>100</b>			
Genou au loquet (plan (x,z)) Striker to knee ( (x,z) plan)	SK	<b>704</b>	<b>694</b>		<b>790</b>
Point-H au loquet (plan (x,z)) Striker to H-Point ( (x,z) plan)	SH	<b>380</b>	<b>374</b>		<b>490</b>
Point-H au loquet en X (horizontalement) Striker to H-Point in X (horizontal)	PHX	<b>367</b>	<b>359</b>		<b>445</b>
Point-H au loquet en Z (verticalement) Striker to H-Point in Z (vertical)	PHZ	<b>97</b>	<b>105</b>		<b>210</b>

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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	<b>64.9°</b>			
Angle du pare-brise Windshield angle	-WA	<b>-30.0°</b>			
Angle de la colonne de direction Steering column angle	-SCA	<b>-26.1°</b>			
Angle du tibia gauche Left tibial angle	-TA	<b>-17.4°</b>	<b>-19.1°</b>		<b>-17.6°</b>
Angle du tibia droit Right tibial angle	-TA	<b>-15.2°</b>	<b>-18.4°</b>		<b>-18.4°</b>
Angle pelvis Pelvic angle	+PA	<b>19.8°</b>	<b>19.0°</b>		<b>20.0°</b>
Angle du nez à la jante de direction (haut) Nose to steering wheel rim (top) angle	±NA	<b>-3.1°</b>			
Angle du dossier Seat back angle	+SA	<b>10.3°</b>	<b>10.0°</b>		<b>17.0°</b>
Angle ST (horizontalement) ST angle (horizontal)	+ST-A	<b>64.8°</b>	<b>63.8°</b>		
Angle SK (horizontalement) SK angle (horizontal)	±SK-A	<b>-2.9°</b>	<b>-3.0°</b>		
Angle SH (horizontalement) SH angle (horizontal)	-SH-A	<b>-14.8°</b>	<b>-16.3°</b>		

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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	2356	-452	1225
Base du nez - Glabella (root of nose)	2269	-384	1243
Menton - Chin (bottom)	2265	-384	1134
Jonction menton et cou - Chin / neck junction	2332	-385	1152
Thorax au niveau des côtes supérieures - Chest at upper rib level	2244	-386	973
Thorax au niveau des côtes inférieures - Chest at lower rib level	2214	-383	867
Boulon supérieur avant de l'épaule, ext. - Shoulder bolt, top front outboard	2389	-542	1000
Boulon supérieur avant de l'épaule, int. - Shoulder bolt, top front inboard	2385	-224	1007
Boulon du coude, extérieur - Elbow bolt, outboard	2232	-654	902
Boulon du coude, intérieur - Elbow bolt, inboard	2221	-92	932
Boulon du poignet, extérieur - Wrist bolt, outboard	2060	-604	1026
Boulon du poignet, intérieur - Wrist bolt, inboard	2053	-158	1058
Point d'articulation de la hanche, extérieur - Hip point, outboard	2292	-499	705
Boulon du genou gauche, extérieur - Knee bolt, left leg, outboard	1873	-504	724
Boulon de la cheville gauche, extérieur - Ankle bolt, left leg , outboard	1752	-458	405
Point du talon gauche - Heel point, left leg	1819	-462	299
Plante du pied gauche vs plancher - Ball of foot at toeboard contact, left leg	1685	-498	314
Boulon du genou droit, intérieur - Knee bolt, right leg , inboard	1870	-314	721
Boulon de la cheville droite, intérieur - Ankle bolt, right leg , inboard	1729	-247	422
Point du talon droit - Heel point, right leg	1757	-250	297
Plante du pied droit vs plancher - Ball of foot at toeboard contact, right leg	1632	-265	368

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

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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	2349	452	1216
Base du nez - Glabella (root of nose)	2263	383	1229
Menton - Chin (bottom)	2260	383	1124
Jonction menton et cou - Chin / neck junction	2320	383	1137
Thorax au niveau des côtes supérieures - Chest at upper rib level	2235	377	927
Thorax au niveau des côtes inférieures - Chest at lower rib level	2205	376	815
Boulon supérieur avant de l'épaule, ext. - Shoulder bolt, top front outboard	2369	535	982
Boulon supérieur avant de l'épaule, int. - Shoulder bolt, top front inboard	-	-	-
Boulon du coude, extérieur - Elbow bolt, outboard	2296	590	777
Boulon du coude, intérieur - Elbow bolt, inboard	2308	180	783
Boulon du poignet, extérieur - Wrist bolt, outboard	2087	530	748
Boulon du poignet, intérieur - Wrist bolt, inboard	2096	213	751
Point d'articulation de la hanche, extérieur - Hip point, outboard	2297	500	695
Boulon du genou gauche, intérieur - Knee bolt, left leg, inboard	1878	338	721
Boulon de la cheville gauche, intérieur - Ankle bolt, left leg, inboard	1733	285	418
Point du talon gauche - Heel point, left leg	1794	292	312
Plante du pied gauche vs plancher - Ball of foot at toeboard contact, left leg	1667	314	328
Boulon du genou droit, extérieur - Knee bolt, right leg, outboard	1879	503	723
Boulon de la cheville droite, extérieur - Ankle bolt, right leg, outboard	1731	442	418
Point du talon droit - Heel point, right leg	1801	449	311
Plante du pied droit vs plancher - Ball of foot at toeboard contact, right leg	1663	482	334

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

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**MESURES DE MANNEQUIN DAE  
TEST DUMMY MEASUREMENTS**

**PASSAGER ARRIÈRE DROIT / RIGHT REAR PASSENGER**

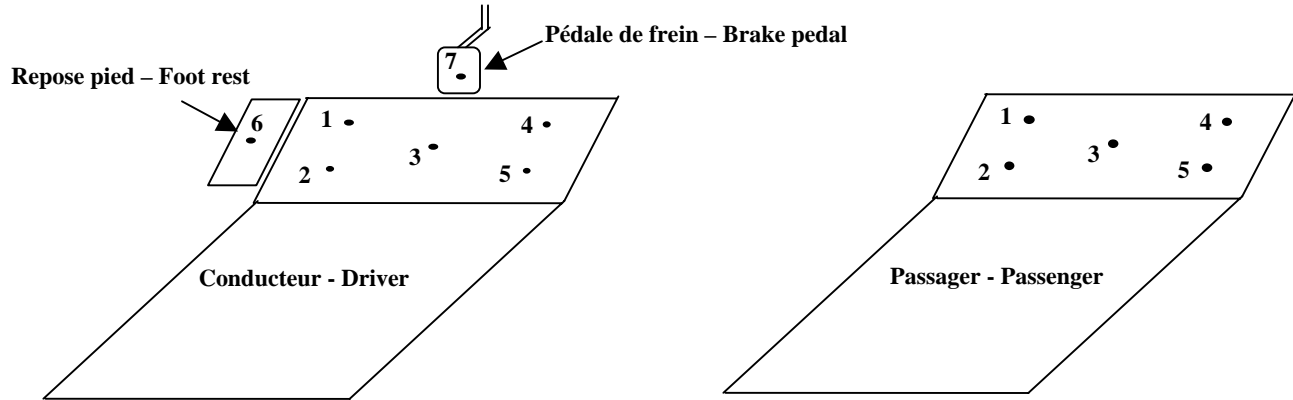
Description et emplacement du Mannequin  
ATD description and location:

DESCRIPTION	X(mm)	Y(mm)	Z(mm)
Centre de gravité de la tête, extérieur - Head CG, outboard	<b>3388</b>	<b>458</b>	<b>1256</b>
Base du nez - Glabella (root of nose)	<b>3304</b>	<b>394</b>	<b>1258</b>
Menton - Chin (bottom)	<b>3300</b>	<b>393</b>	<b>1150</b>
Jonction menton et cou - Chin / neck junction	<b>3363</b>	<b>394</b>	<b>1167</b>
Thorax au niveau des côtes supérieures - Chest at upper rib level	<b>3284</b>	<b>388</b>	<b>1000</b>
Thorax au niveau des côtes inférieures - Chest at lower rib level	<b>3255</b>	<b>385</b>	<b>893</b>
Boulon supérieur avant de l'épaule, ext. - Shoulder bolt, top front outboard	<b>3410</b>	<b>542</b>	<b>1011</b>
Boulon supérieur avant de l'épaule, int. - Shoulder bolt, top front inboard	<b>3414</b>	<b>234</b>	<b>1017</b>
Boulon du coude, extérieur - Elbow bolt, outboard	<b>3389</b>	<b>611</b>	<b>789</b>
Boulon du coude, intérieur - Elbow bolt, inboard	<b>3390</b>	<b>199</b>	<b>802</b>
Boulon du poignet, extérieur - Wrist bolt, outboard	<b>3179</b>	<b>549</b>	<b>762</b>
Boulon du poignet, intérieur - Wrist bolt, inboard	<b>3180</b>	<b>223</b>	<b>758</b>
Point d'articulation de la hanche, extérieur - Hip point, outboard	<b>3341</b>	<b>512</b>	<b>735</b>
Boulon du genou gauche, intérieur - Knee bolt, left leg, inboard	<b>2913</b>	<b>340</b>	<b>714</b>
Boulon de la cheville gauche, intérieur - Ankle bolt, left leg, inboard	<b>2788</b>	<b>313</b>	<b>447</b>
Point du talon gauche - Heel point, left leg	<b>2889</b>	<b>305</b>	<b>308</b>
Plante du pied gauche vs plancher - Ball of foot at toeboard contact, left leg	<b>2889</b>	<b>305</b>	<b>308</b>
Boulon du genou droit, extérieur - Knee bolt, right leg, outboard	<b>2916</b>	<b>511</b>	<b>717</b>
Boulon de la cheville droite, extérieur - Ankle bolt, right leg, outboard	<b>2795</b>	<b>465</b>	<b>451</b>
Point du talon droit - Heel point, right leg	<b>2901</b>	<b>462</b>	<b>304</b>
Plante du pied droit vs plancher - Ball of foot at toeboard contact, right leg	<b>2753</b>	<b>507</b>	<b>302</b>

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

Date de collision Crash date	<b>2005-03-29</b>	Véhicule Vehicle	<b>FORD FREESTYLE 2005</b>	T.C. N° T.C.No	<b>05-225</b>
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MESURES PLANCHER / FOOTWELL MEASUREMENTS

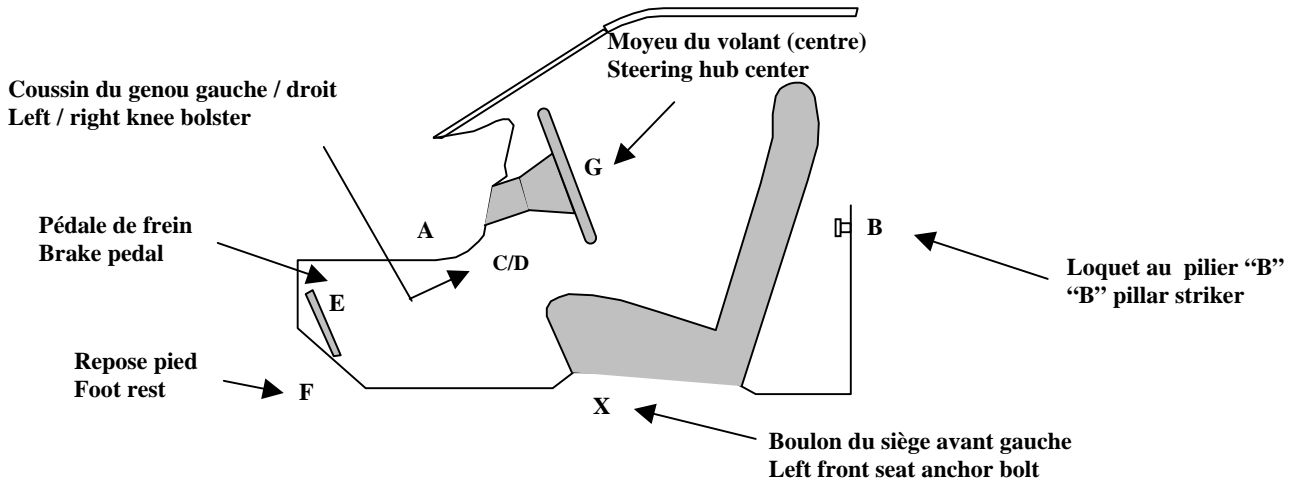


N° Cible		AVANT ESSAI	APRÈS ESSAI	
Target No.		PRE-TEST	POST-TEST	Δ mm
1	x	1441	1443	-2
	y	-433	-428	-5
	z	395	401	-6
2	x	1538	1537	1
	y	-442	-437	-5
	z	322	324	-2
3	x	1497	1497	0
	y	-330	-325	-5
	z	358	358	0
4	x	1411	1412	-1
	y	-245	-239	-6
	z	402	406	-4
5	x	1493	1494	-1
	y	-226	-222	-4
	z	341	341	0
6	x	1583	1586	-3
	y	-548	-544	-4
	z	381	381	0
7	x	1576	1577	-1
	y	-363	-356	-7
	z	477	477	0

N° Cible		AVANT ESSAI	APRÈS ESSAI	
Target No.		PRE-TEST	POST-TEST	Δ mm
1	x	1397	1394	3
	y			
	z			
2	x	1502	1496	6
	y			
	z			
3	x	1460	1457	3
	y			
	z			
4	x	1405	1403	2
	y	374	371	3
	z	429	440	-11
5	x	1517	1511	6
	y	418	413	5
	z	338	345	-7

Date de collision Crash date	2005-03-29	Véhicule Vehicle	FORD FREESTYLE 2005	T.C. N° T.C.No	05-225
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**PÉNÉTRATION DE L'HABITACLE DU CONDUCTEUR (Distances en mm)**  
**DRIVER COMPARTMENT INTRUSION (Distances in mm)**



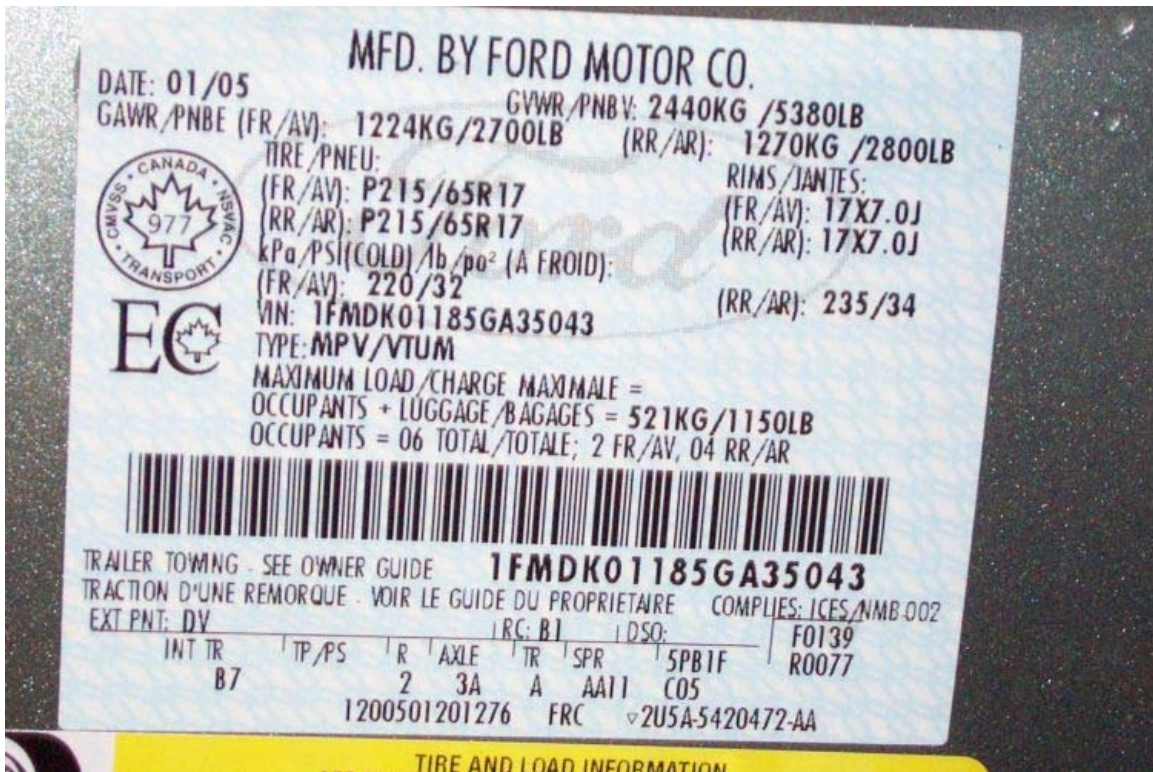
Habitacle du conducteur  
Driver's compartment

	DESCRIPTION	Avant essai / Pre-test			Après essai / Post-test		
		X	Y	Z	X	Y	Z
A	Ouverture de porte Door opening	1737	-862	1091	1737	-863	1091
B	Loquet au pilier "B" "B" pillar striker	2575	-820	760	2575	-819	759
C	Coussin du genou gauche Left knee bolster	1822	-456	758	1818	-452	759
D	Coussin du genou droit Right knee bolster	1814	-257	780	1811	-256	781
E	Pédale de frein Break pedal	1576	-363	477	1577	-356	477
F	Repose pied Foot rest	1583	-548	381	1586	-544	381
G	Moyeu du volant (centre) Steering hub (center)	2048	-377	987	1970	-374	1004
X	Boulon du siège avant gauche Left front seat anchor bolt	2060	-583	361	2060	-581	362

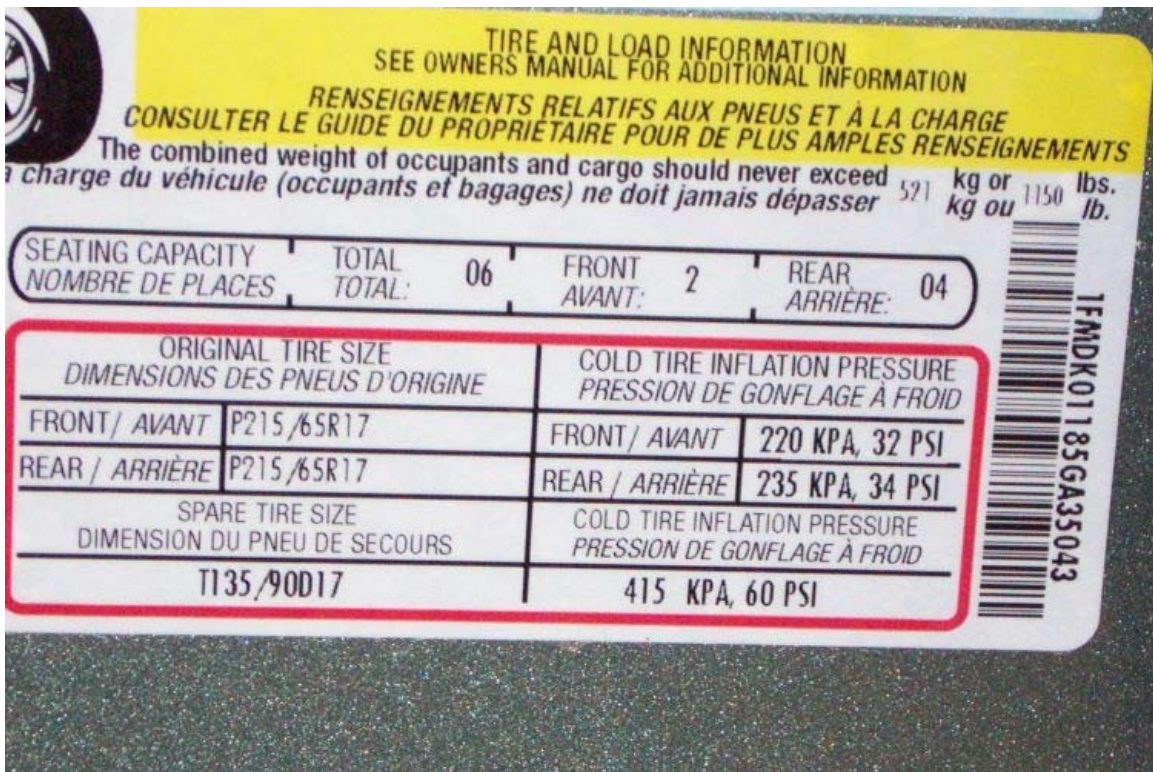
**APPENDICE / APPENDIX A**

**PHOTOGRAPHIES DE L'ESSAI  
TEST PHOTOGRAPHS**

Date de collision Crash date	2005-03-29	Véhicule Vehicle	FORD FREESTYLE 2005	T.C. N° T.C.No	05-225
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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	<b>2005-03-29</b>	Véhicule Vehicle	<b>FORD FREESTYLE 2005</b>	T.C. N° T.C.No	<b>05-225</b>
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**3. Vue ¾ avant du véhicule d'essai.  
¾ front view of the test vehicle.**



**4. Vue ¾ arrière du véhicule d'essai.  
¾ rear view of the test vehicle.**

Date de collision Crash date	<b>2005-03-29</b>	Véhicule Vehicle	<b>FORD FREESTYLE 2005</b>	T.C. N° T.C.No	<b>05-225</b>
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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	<b>2005-03-29</b>	Véhicule Vehicle	<b>FORD FREESTYLE 2005</b>	T.C. N° T.C.No	<b>05-225</b>
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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	2005-03-29	Véhicule Vehicle	FORD FREESTYLE 2005	T.C. N° T.C.No	05-225
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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	2005-03-29	Véhicule Vehicle	FORD FREESTYLE 2005	T.C. N° T.C.No	05-225
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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	<b>2005-03-29</b>	Véhicule Vehicle	<b>FORD FREESTYLE 2005</b>	T.C. N° T.C.No	<b>05-225</b>
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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	<b>2005-03-29</b>	Véhicule Vehicle	<b>FORD FREESTYLE 2005</b>	T.C. N° T.C.No	<b>05-225</b>
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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	2005-03-29	Véhicule Vehicle	FORD FREESTYLE 2005	T.C. N° T.C.No	05-225
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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	2005-03-29	Véhicule Vehicle	FORD FREESTYLE 2005	T.C. N° T.C.No	05-225
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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	<b>2005-03-29</b>	Véhicule Vehicle	<b>FORD FREESTYLE 2005</b>	T.C. N° T.C.No	<b>05-225</b>
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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	<b>2005-03-29</b>	Véhicule Vehicle	<b>FORD FREESTYLE 2005</b>	T.C. N° T.C.No	<b>05-225</b>
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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	2005-03-29	Véhicule Vehicle	FORD FREESTYLE 2005	T.C. N° T.C.No	05-225
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25. Position du conducteur, avant essai.  
Driver's position, pre-test.

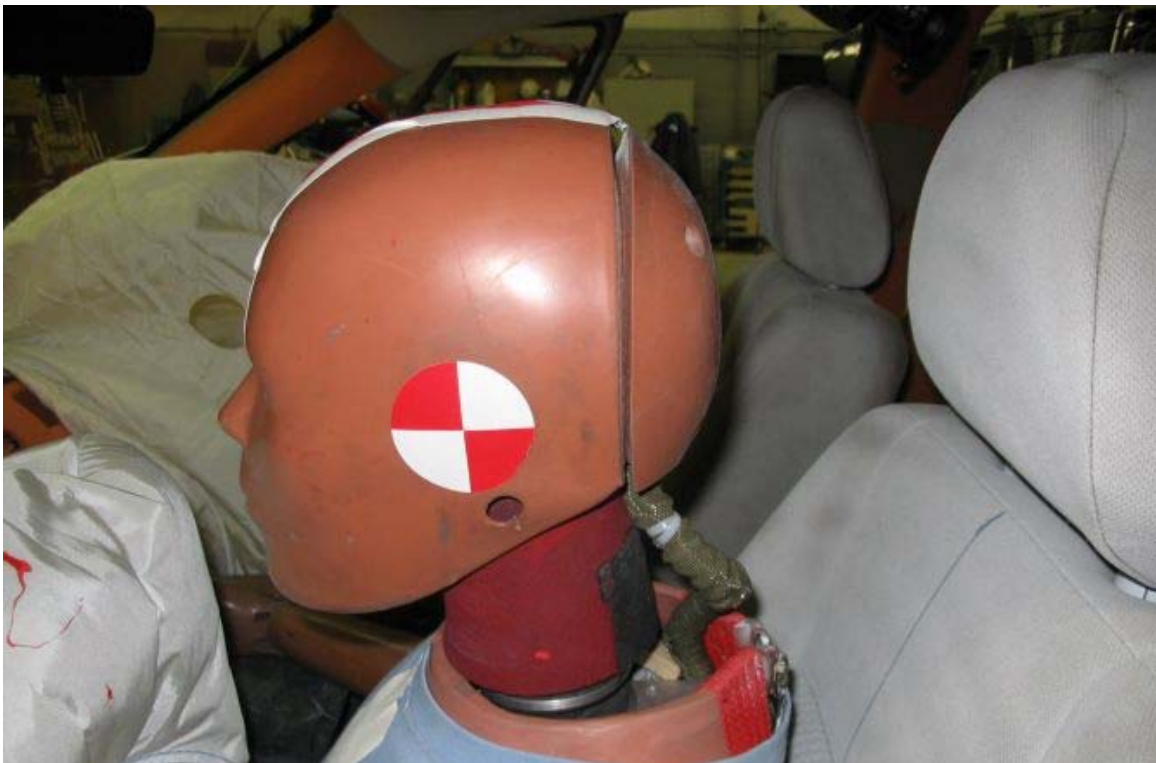


26. Position du conducteur, après essai.  
Driver's position, post-test.

Date de collision Crash date	2005-03-29	Véhicule Vehicle	FORD FREESTYLE 2005	T.C. N° T.C.No	05-225
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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	<b>2005-03-29</b>	Véhicule Vehicle	<b>FORD FREESTYLE 2005</b>	T.C. N° T.C.No	<b>05-225</b>
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**29. Point de contact des genoux du conducteur, après essai.  
Driver's knees contact point, post-test.**



**30. Contact du volant sur l'abdomen du conducteur, après essai.  
Steering wheel's contact point with driver's abdomen.**

Date de collision Crash date	2005-03-29	Véhicule Vehicle	FORD FREESTYLE 2005	T.C. N° T.C.No	05-225
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31. Position du passager, avant essai.  
Passenger's position, pre-test.



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

Date de collision Crash date	<b>2005-03-29</b>	Véhicule Vehicle	<b>FORD FREESTYLE 2005</b>	T.C. N° T.C.No	<b>05-225</b>
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**33. Point de contact de tête du passager, après essai.  
Passenger's head contact point, post-test.**



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

Date de collision Crash date	<b>2005-03-29</b>	Véhicule Vehicle	<b>FORD FREESTYLE 2005</b>	T.C. N° T.C.No	<b>05-225</b>
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**35. Point de contact des genoux du passager, après essai.  
Passenger's knees contact point, post-test.**

Date de collision Crash date	<b>2005-03-29</b>	Véhicule Vehicle	<b>FORD FREESTYLE 2005</b>	T.C. N° T.C.No	<b>05-225</b>
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**36. Position du passager arrière droit, avant essai.  
Rear right passenger's position, pre-test.**



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

Date de collision Crash date	<b>2005-03-29</b>	Véhicule Vehicle	<b>FORD FREESTYLE 2005</b>	T.C. N° T.C.No	<b>05-225</b>
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38. 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** **FORD FREESTYLE 2005**

**Numéro de TC**  
**Tc Number** **TC05-225**

**Vitesse**  
**Speed** **40 km/h**

**Numéro de contrat**  
**Contract No** **05-5001**

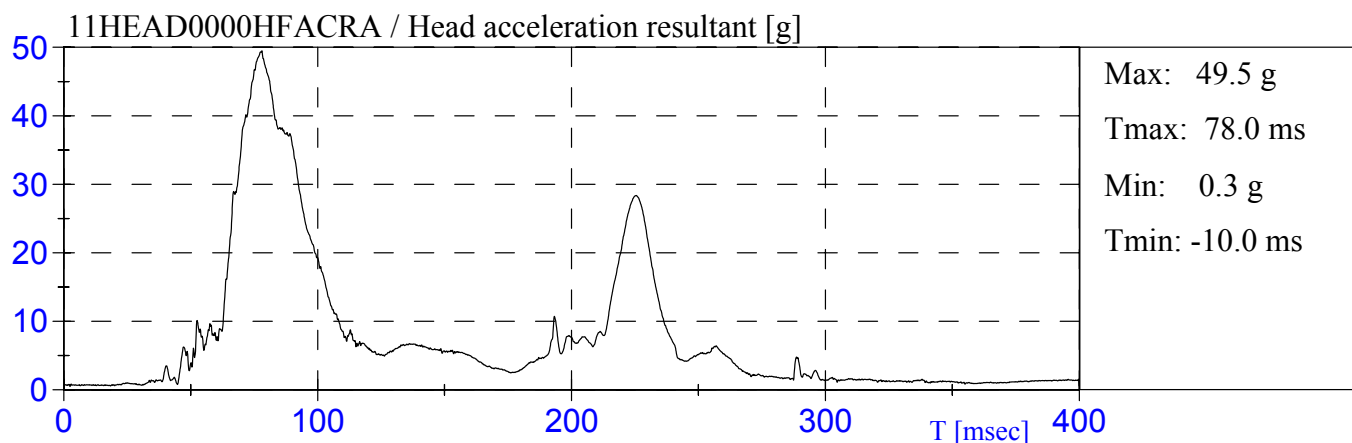
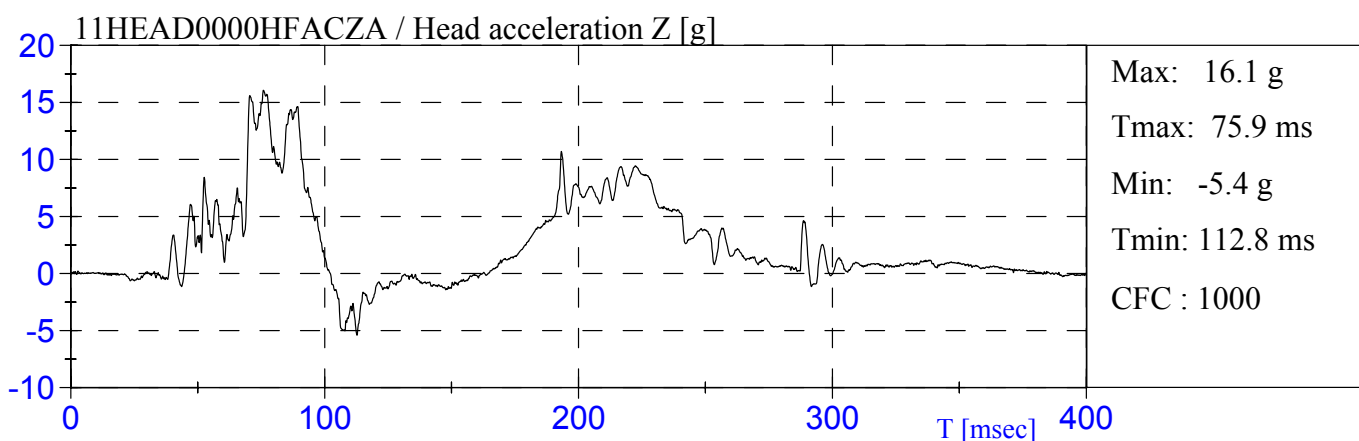
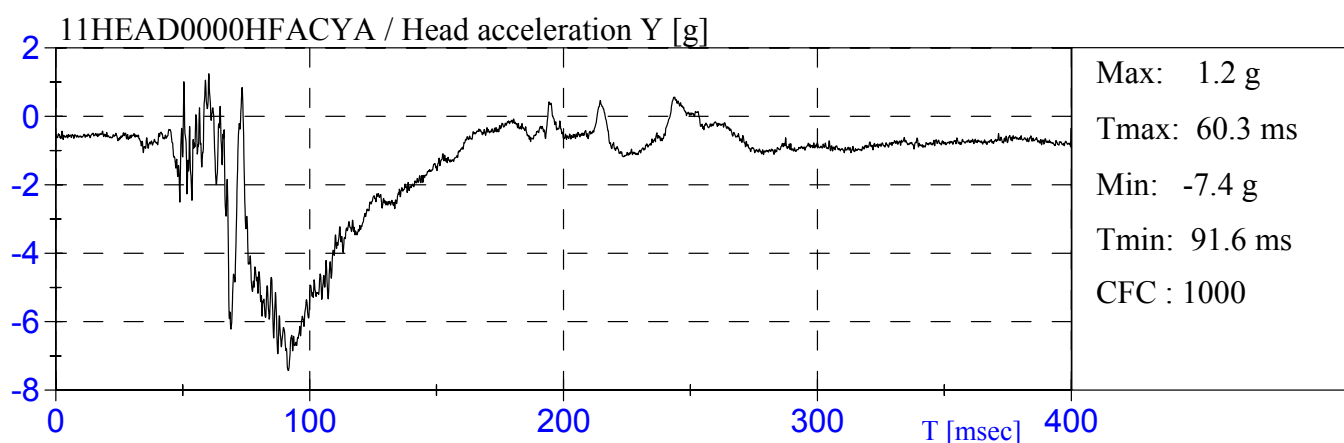
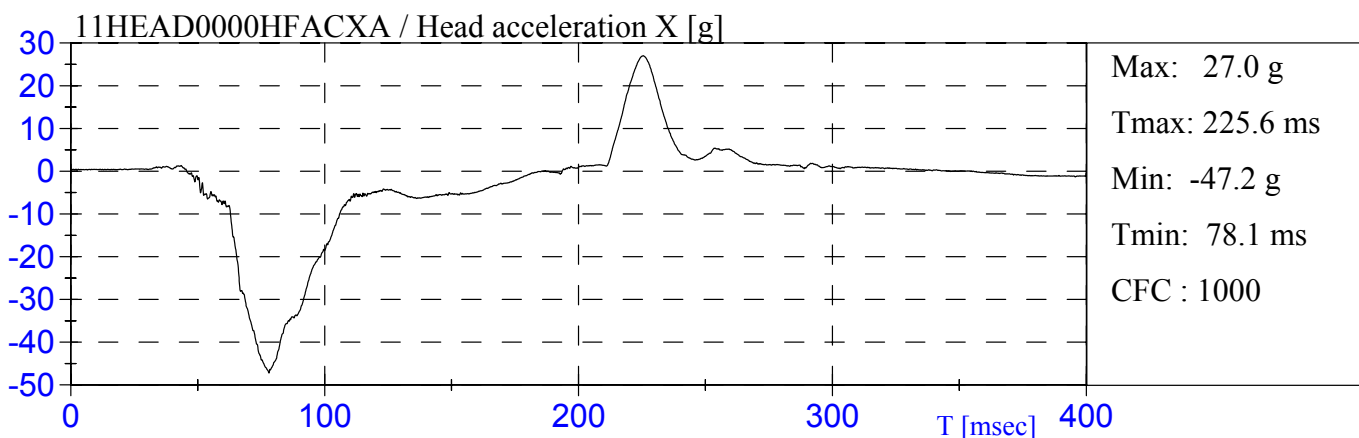
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**Data Acquisition according to** **SAE J211/1 MAR 95**

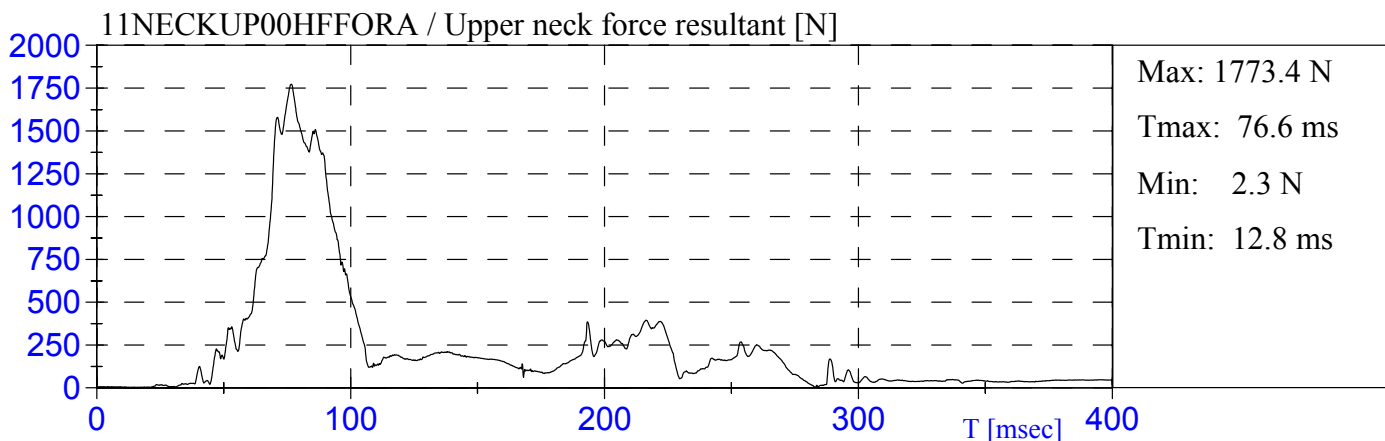
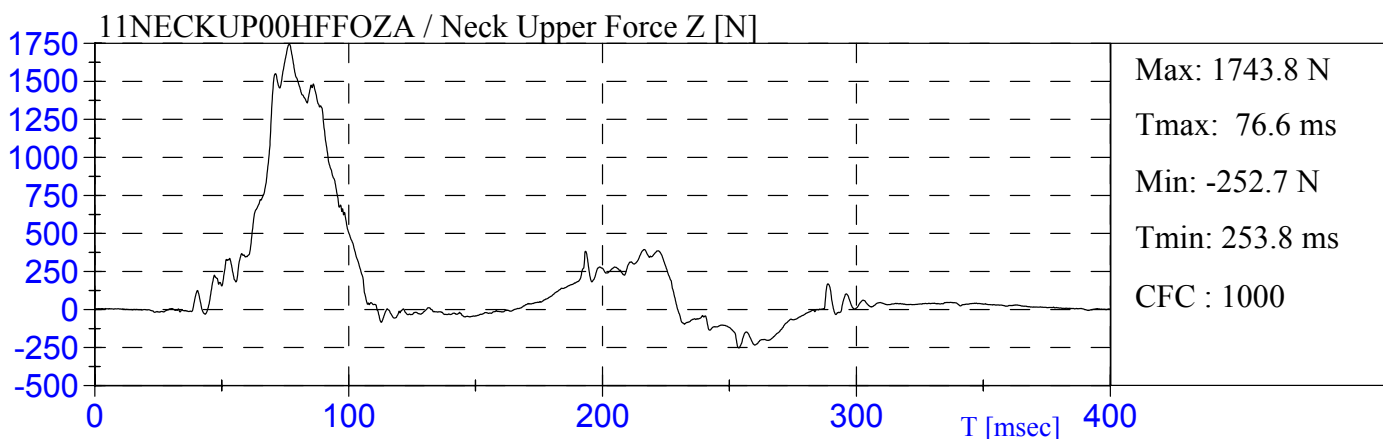
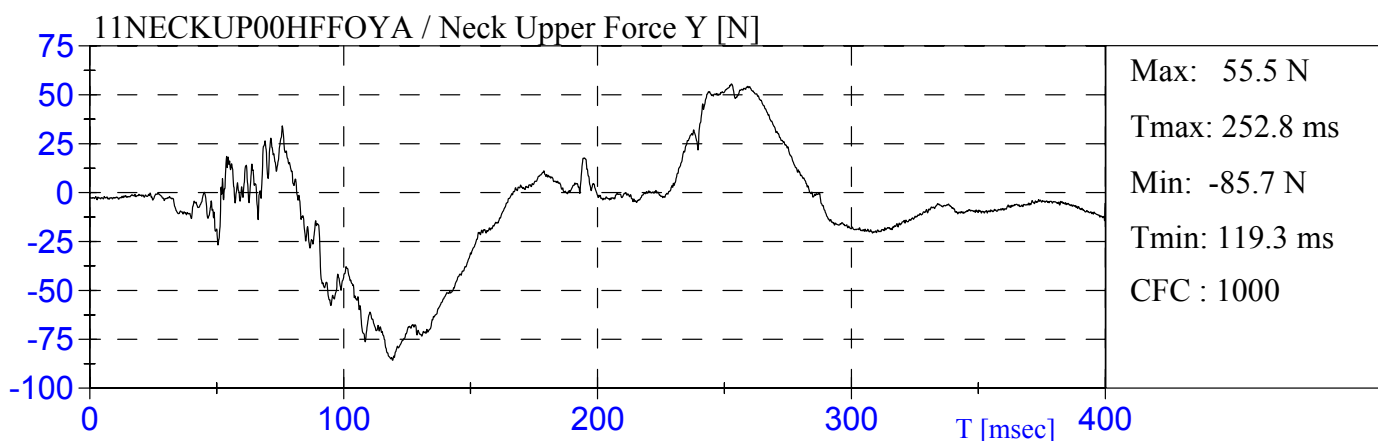
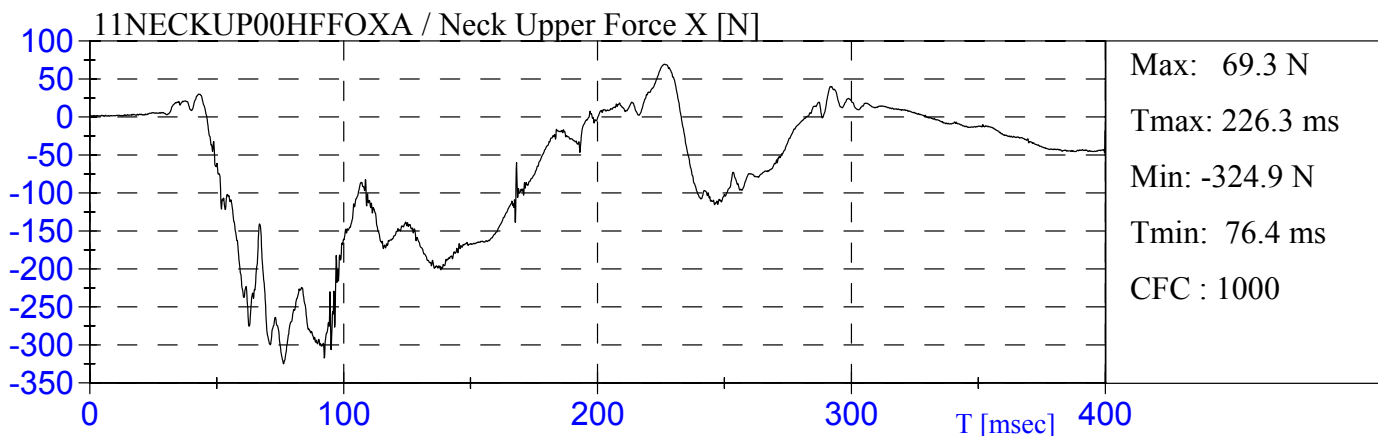
**Date de l'essai**  
**Test date** **2005-03-29**

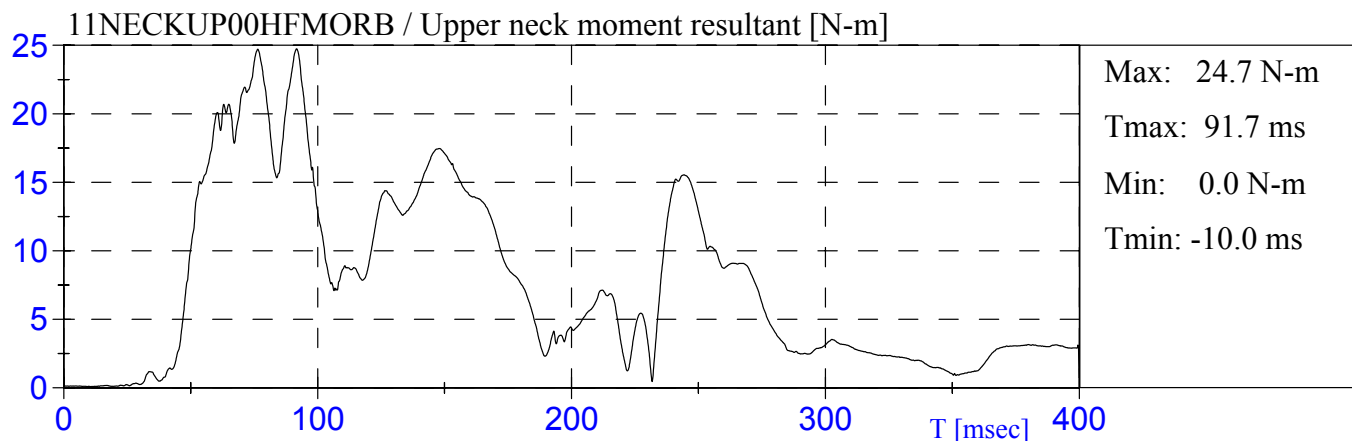
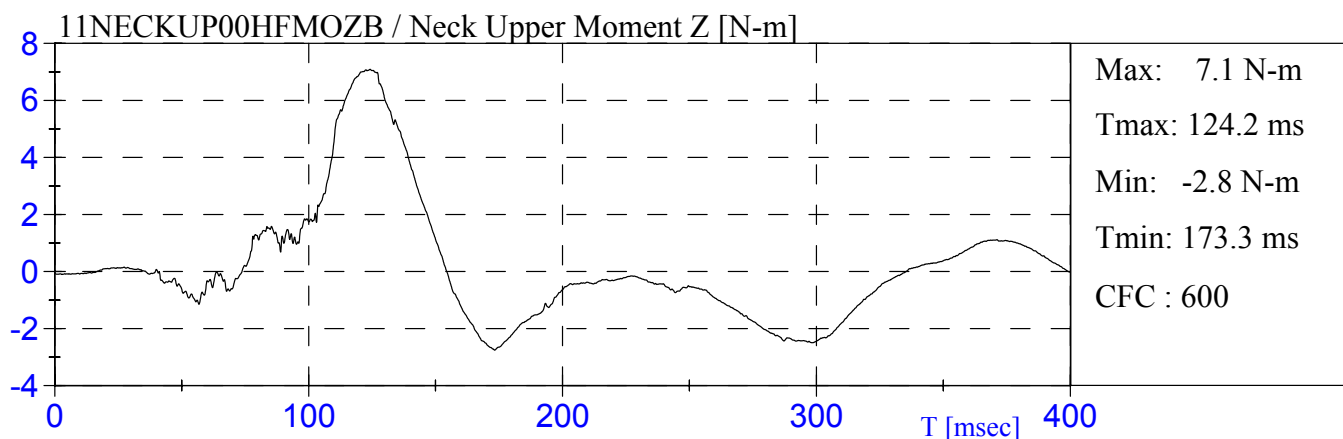
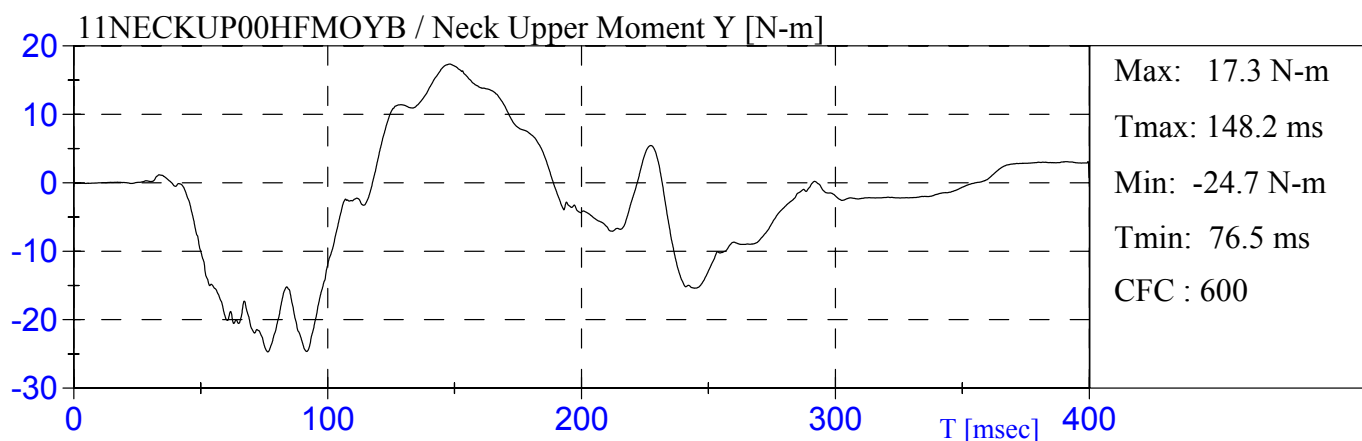
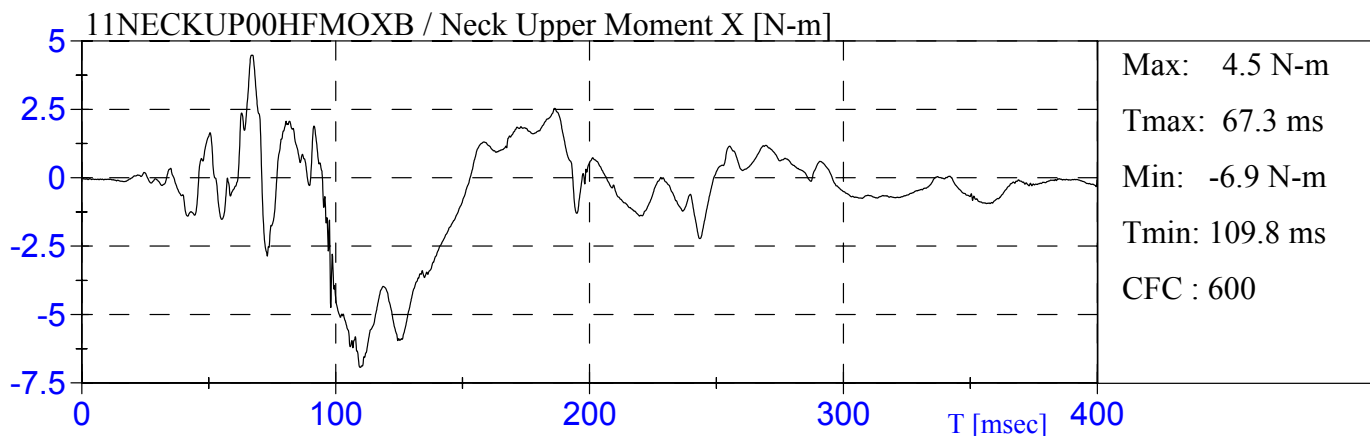
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**Project Title** **COLLISION DE RECHERCHE**  
**COLLISION FRONTALE**  
**RESEARCH COLLISION TEST**  
**FRONTAL CRASH**

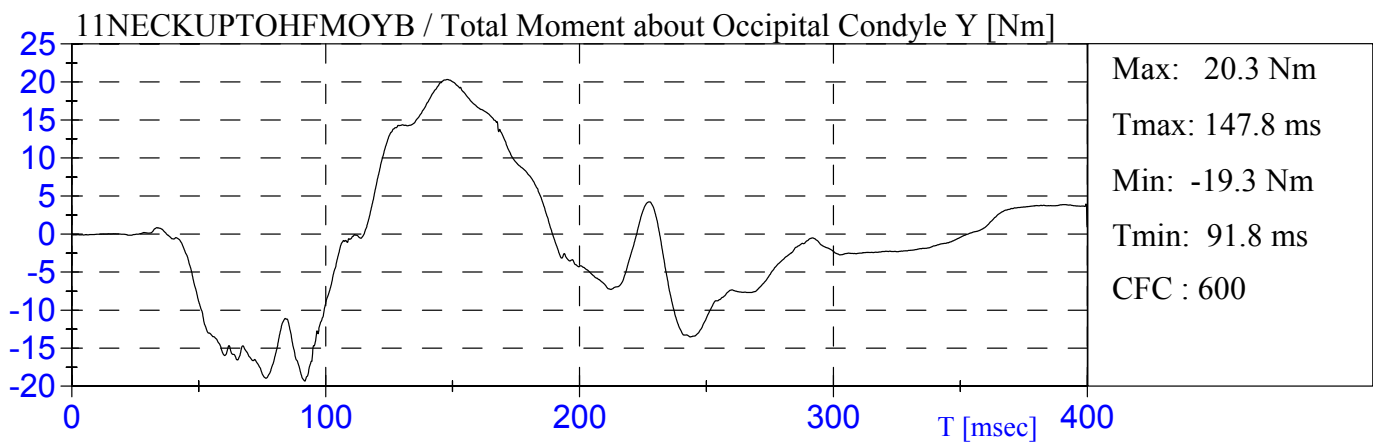
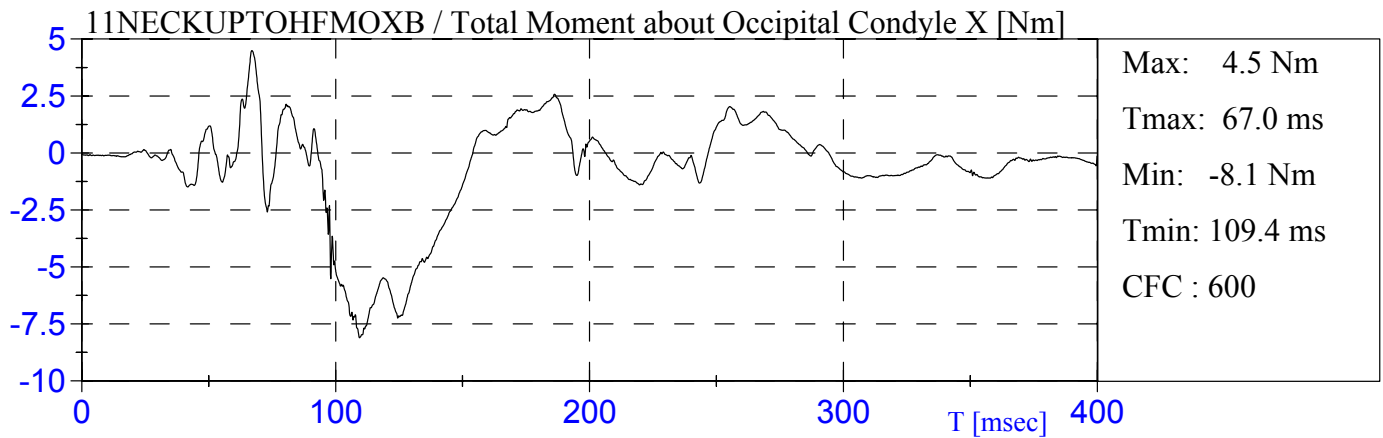
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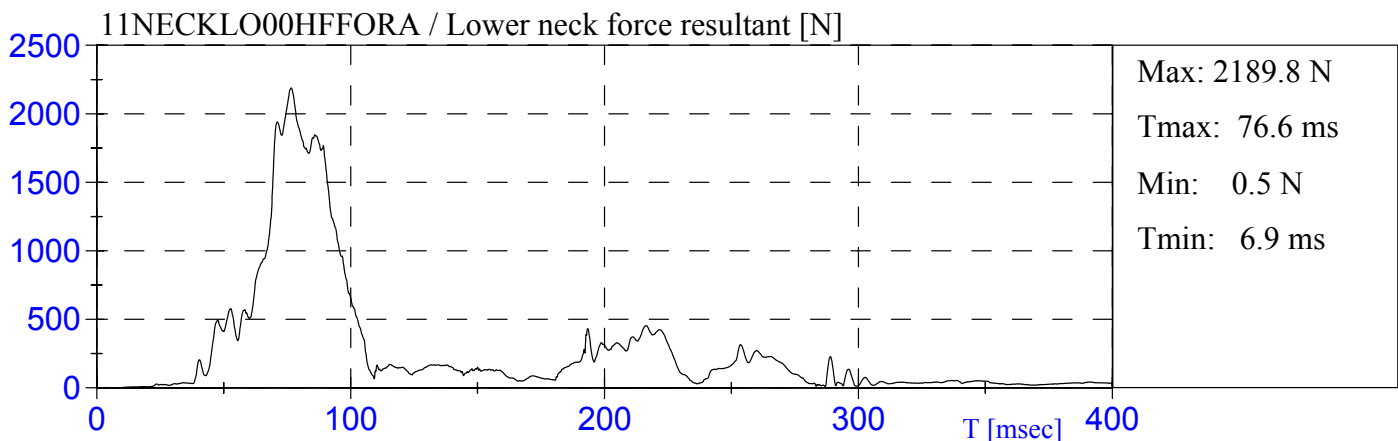
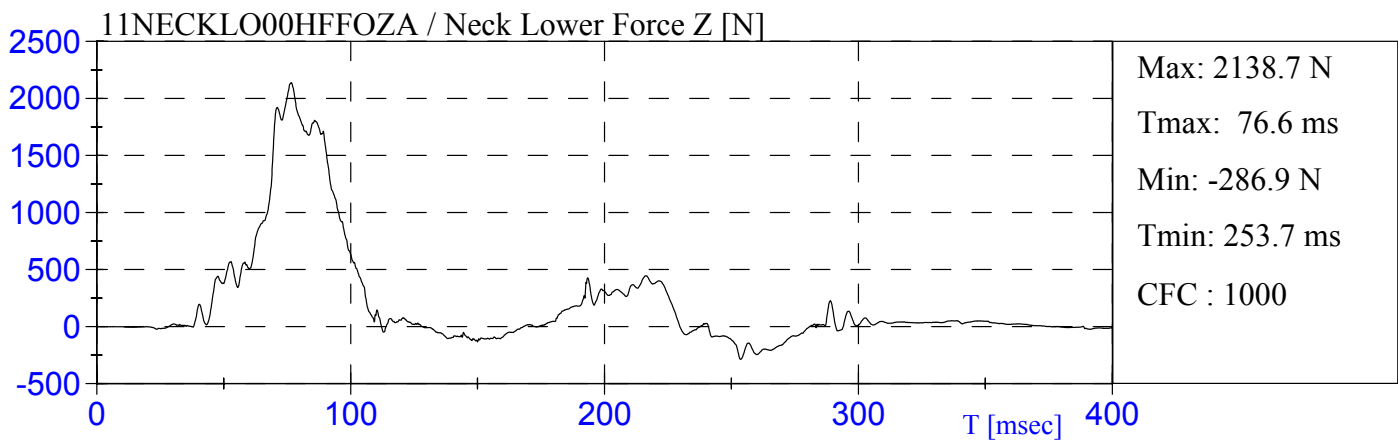
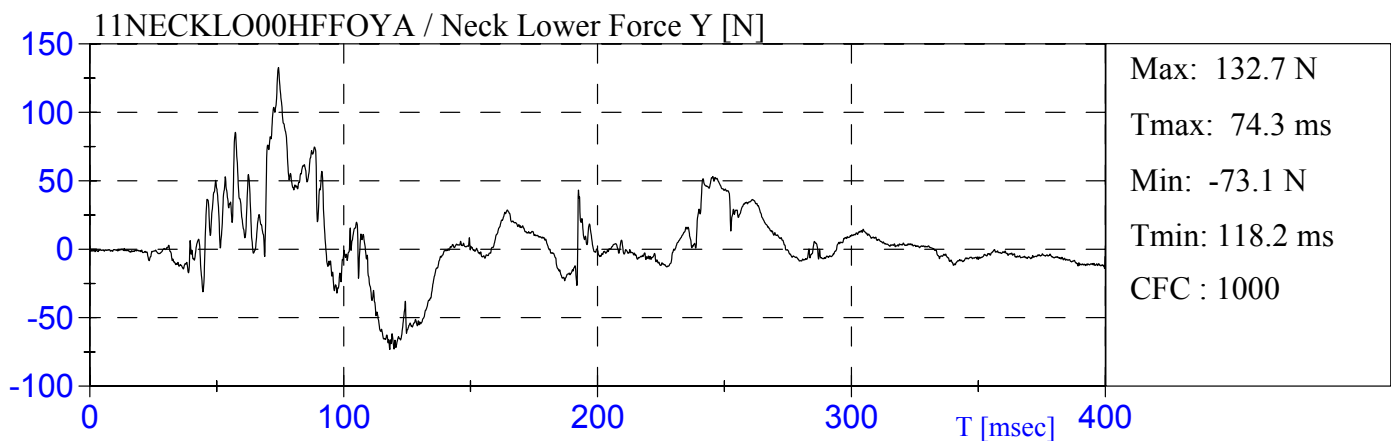
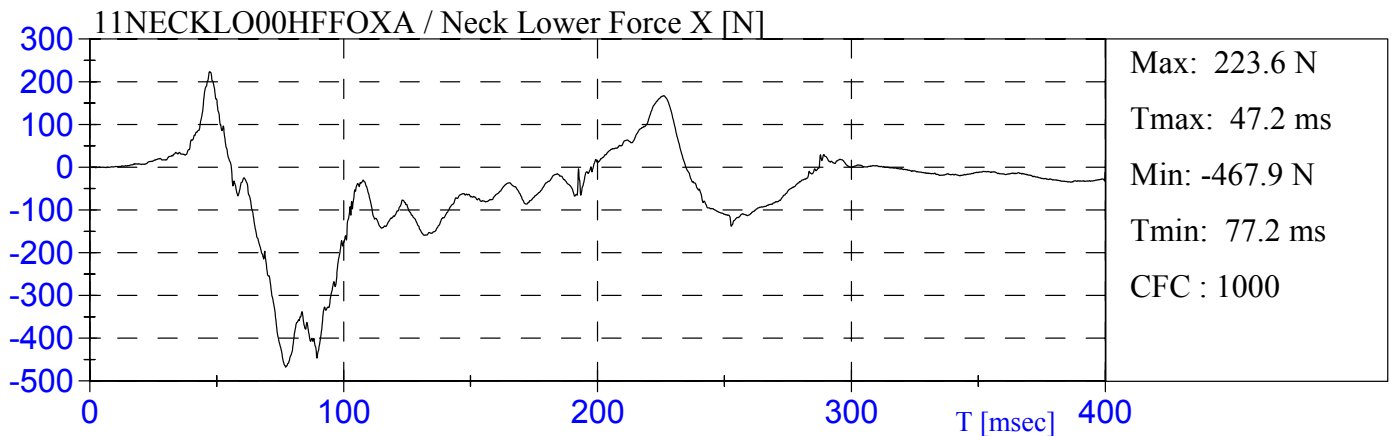
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<b>HF</b>		<b>HF</b>
Position 4	Position 5	Position 6
		<b>HF</b>
Position 7	Position 8	Position 9

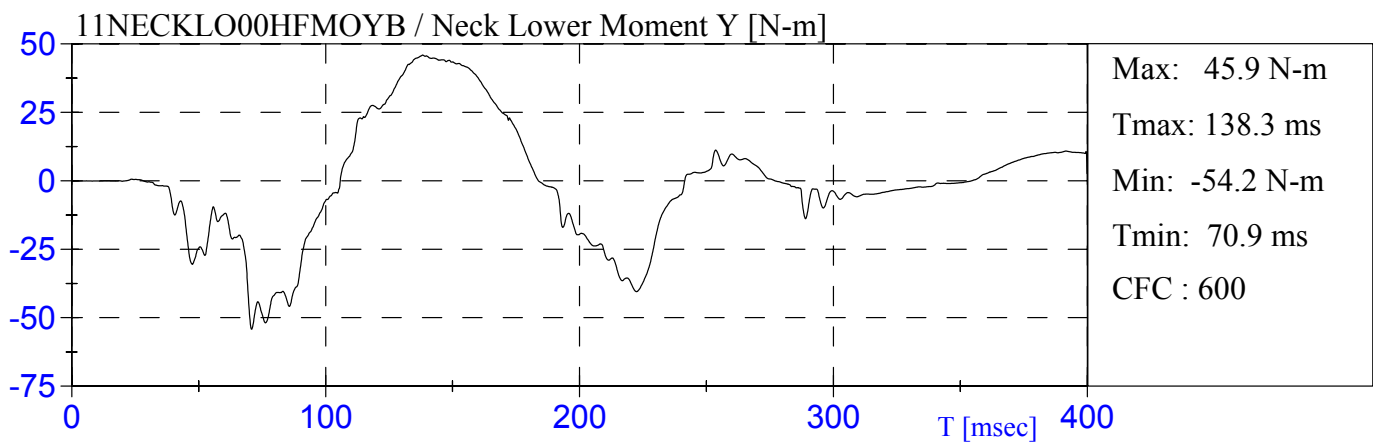
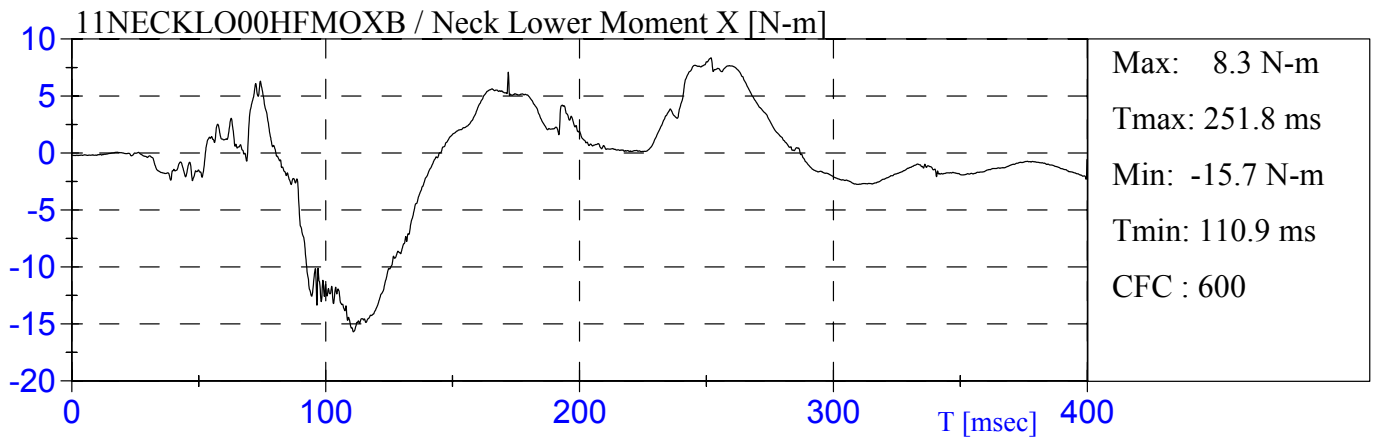


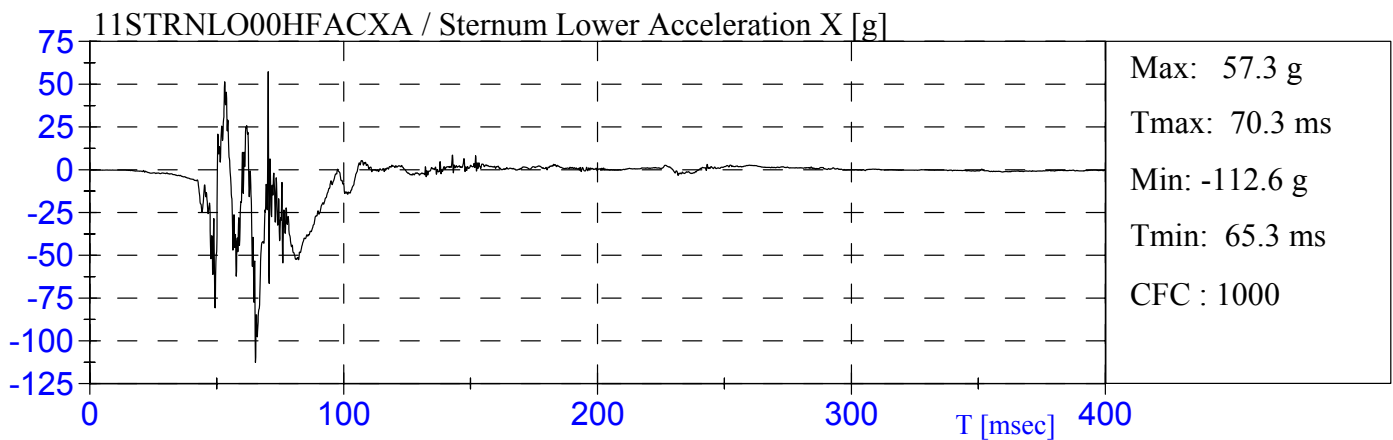
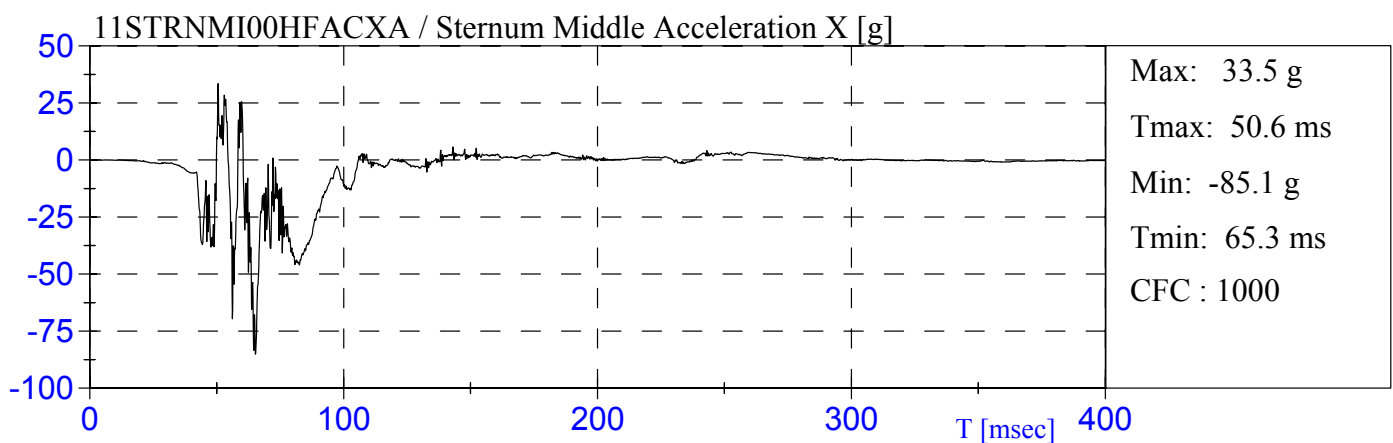
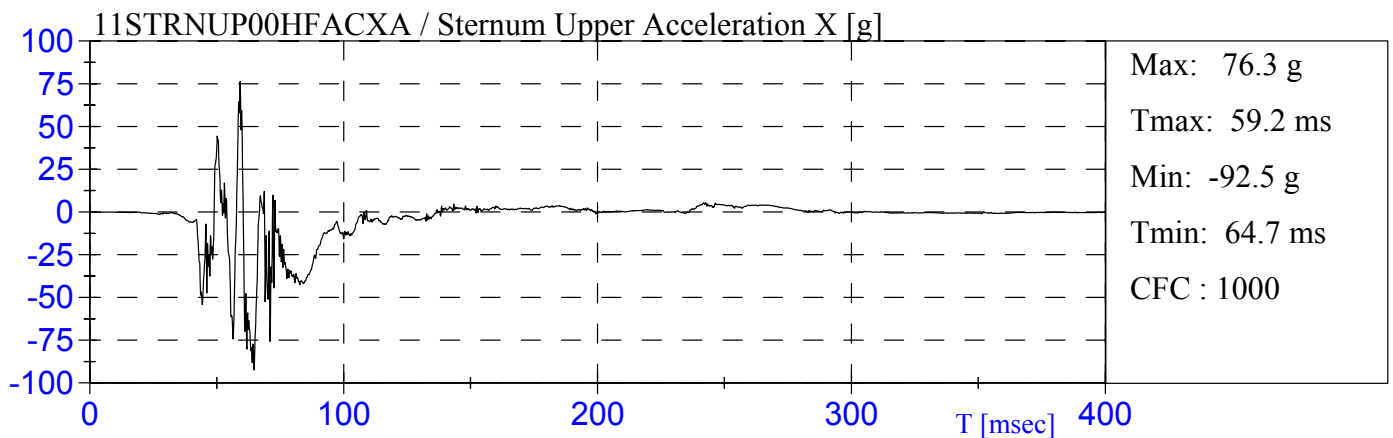


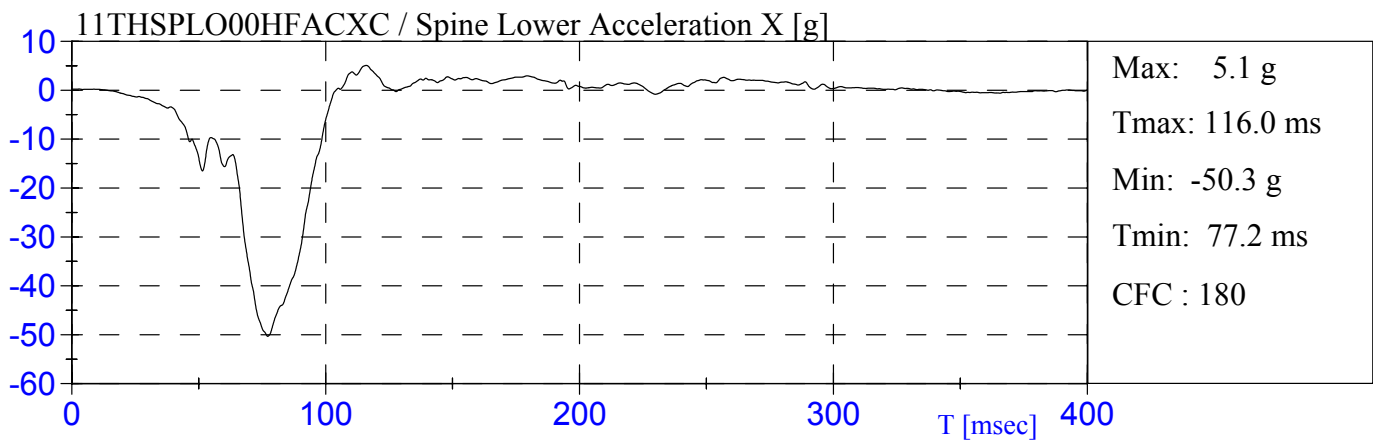
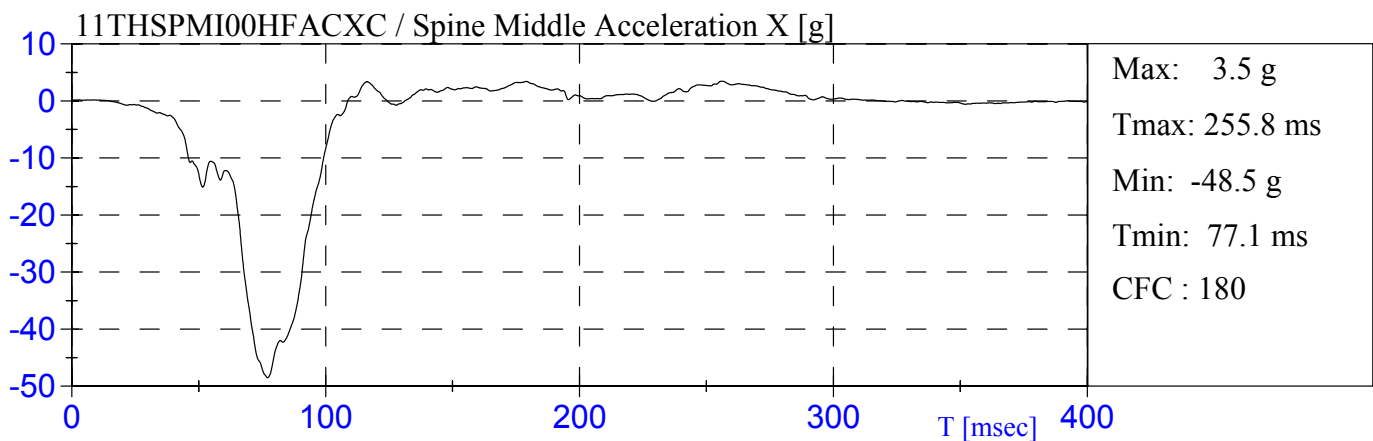
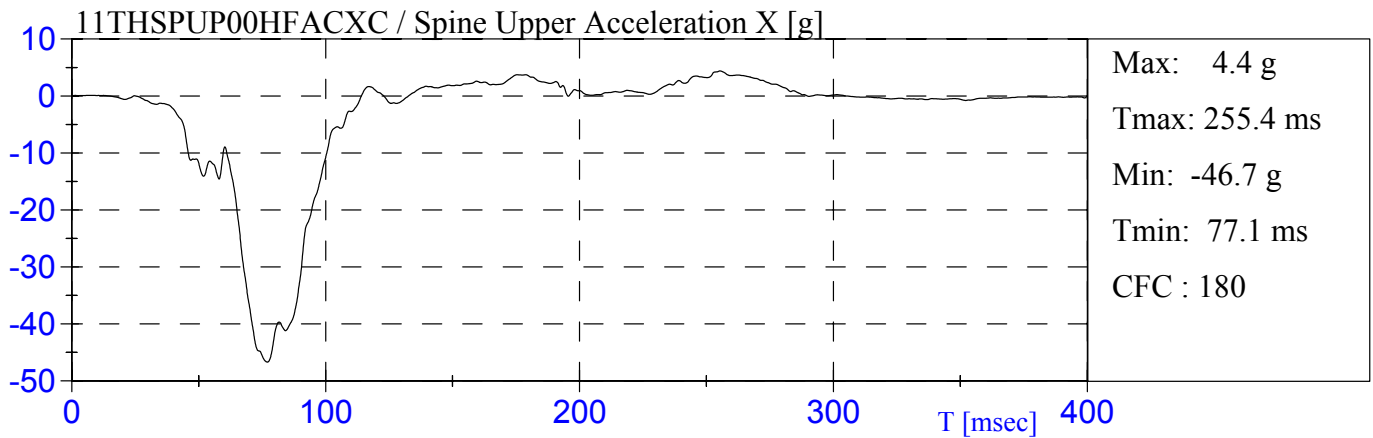


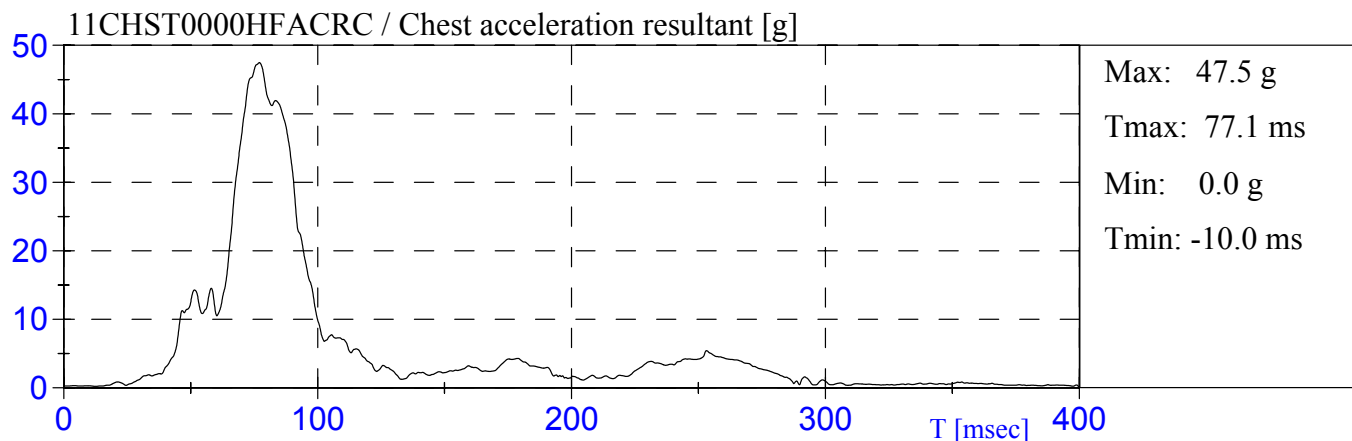
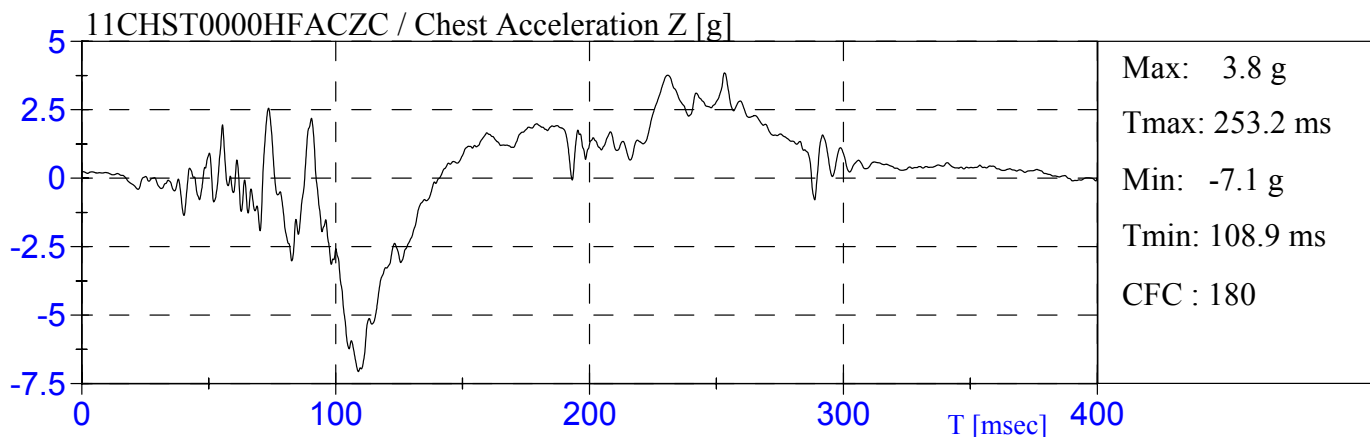
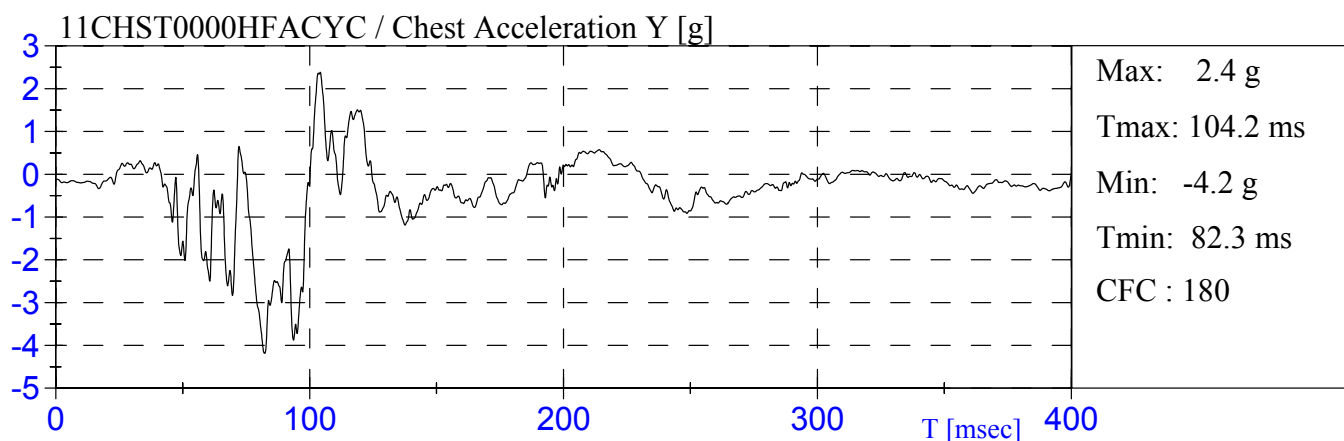
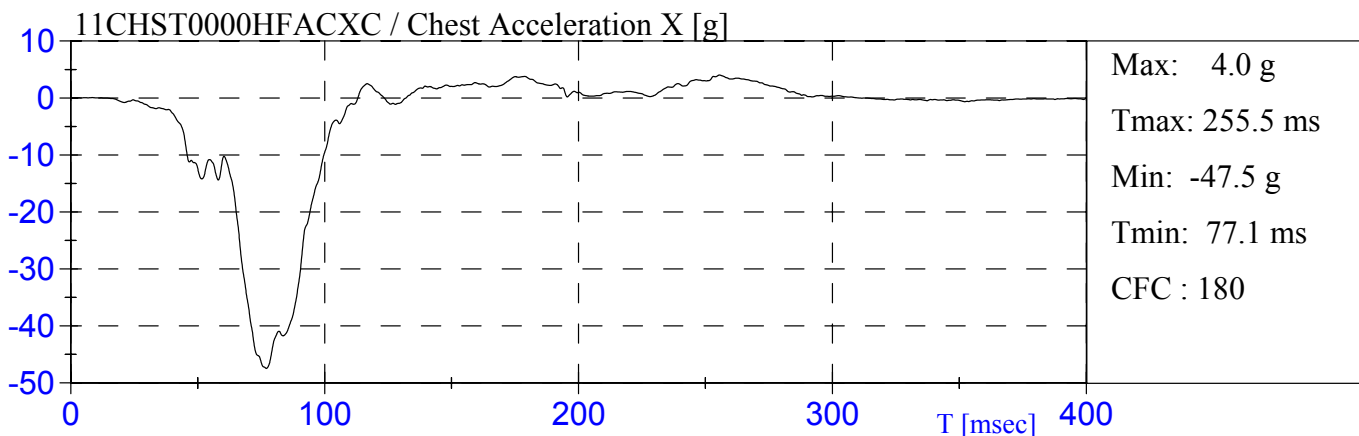


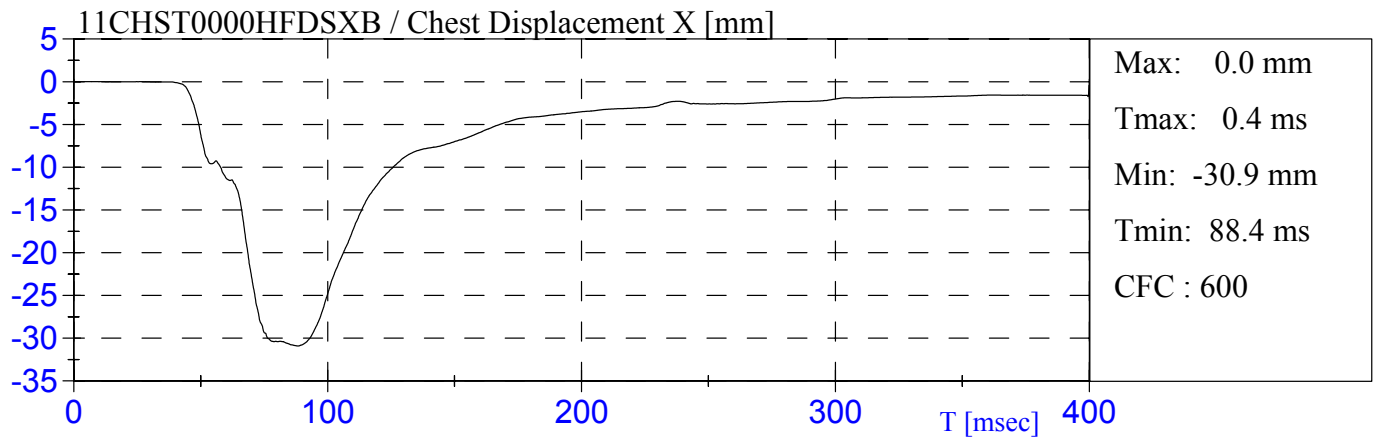


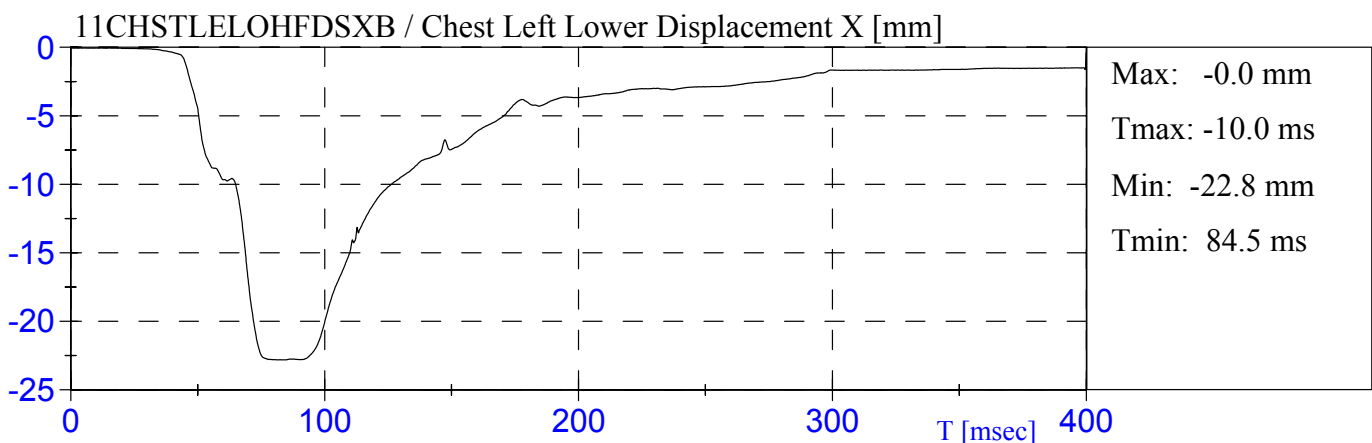
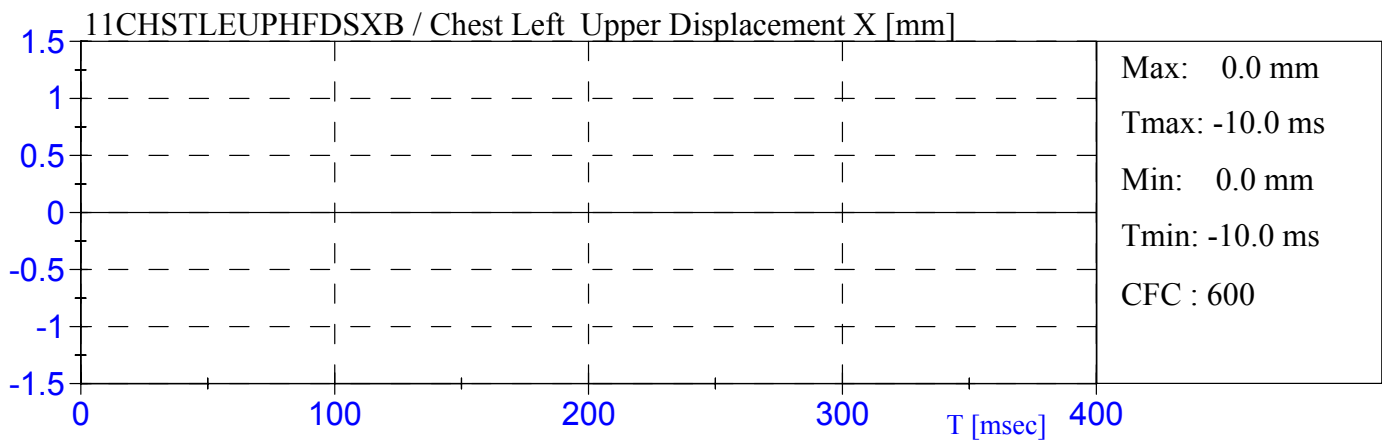
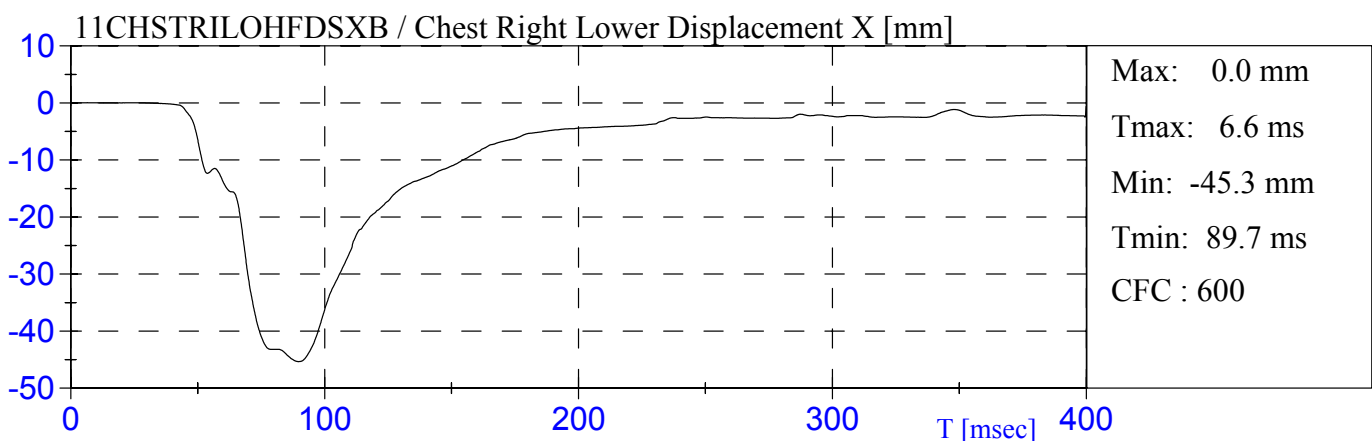
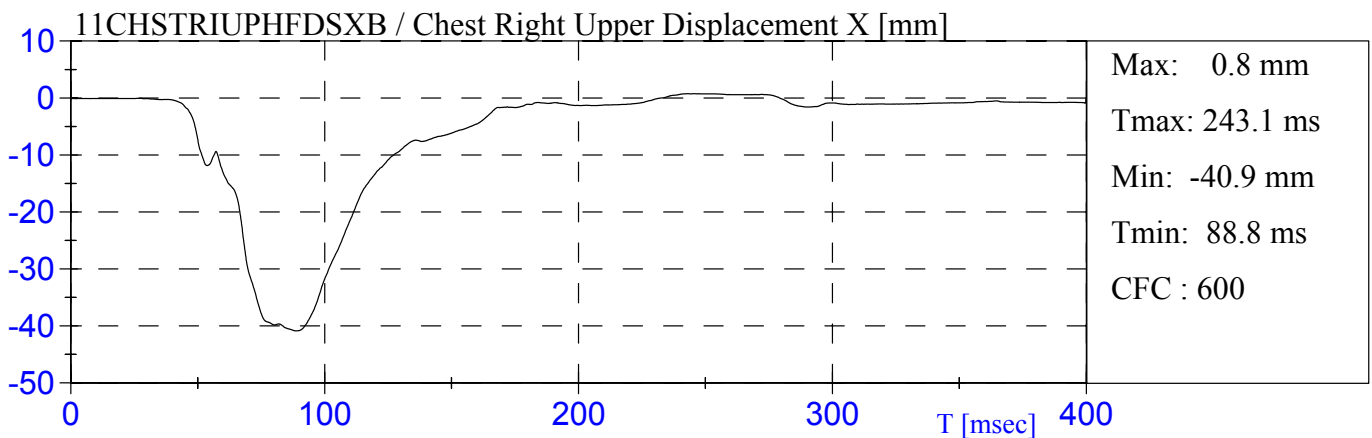


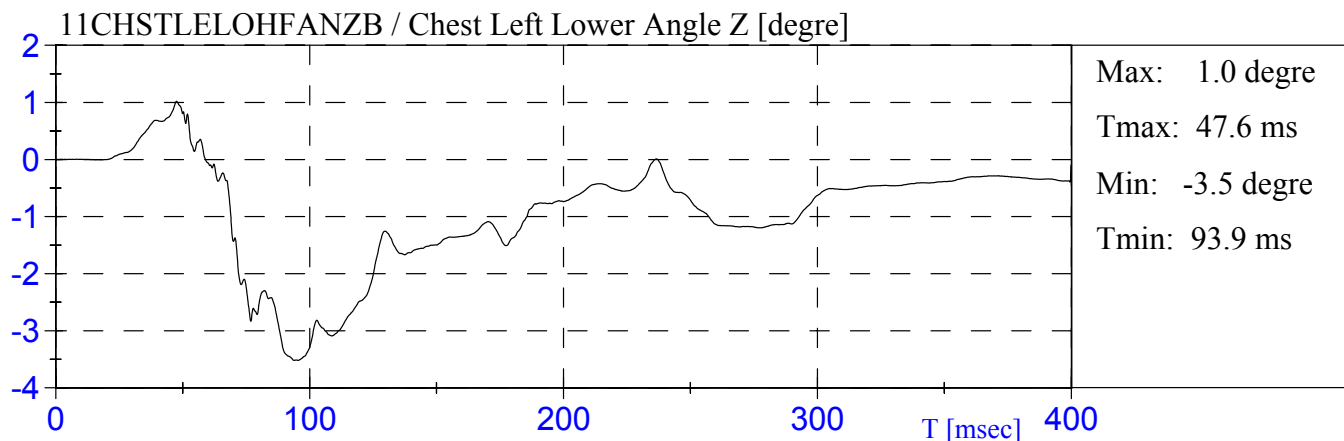
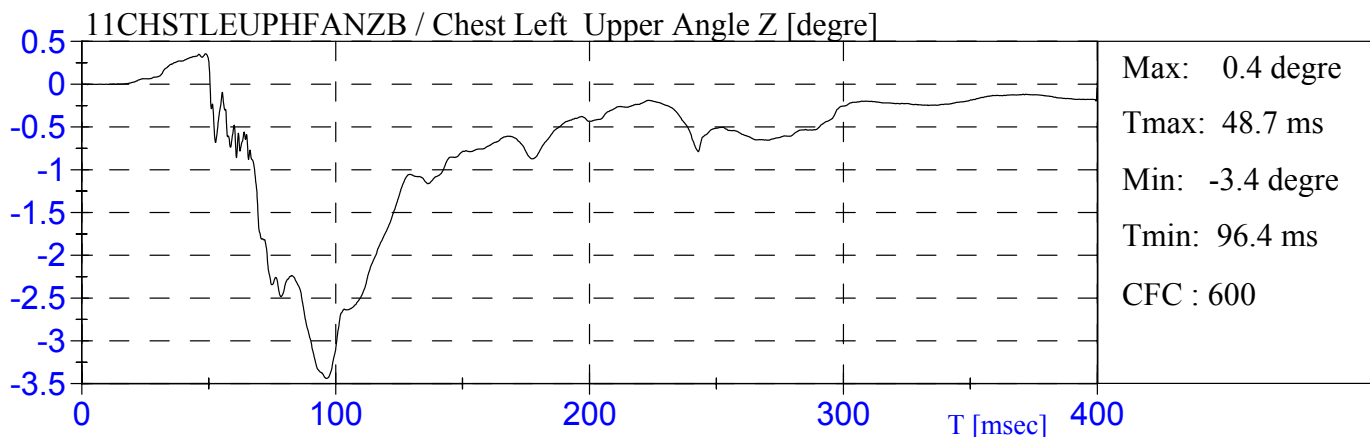
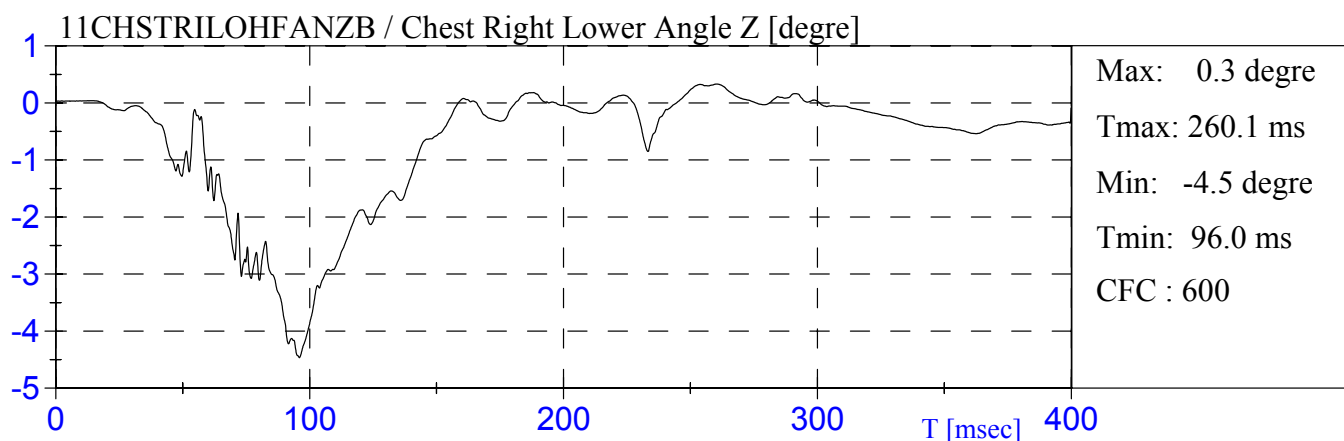
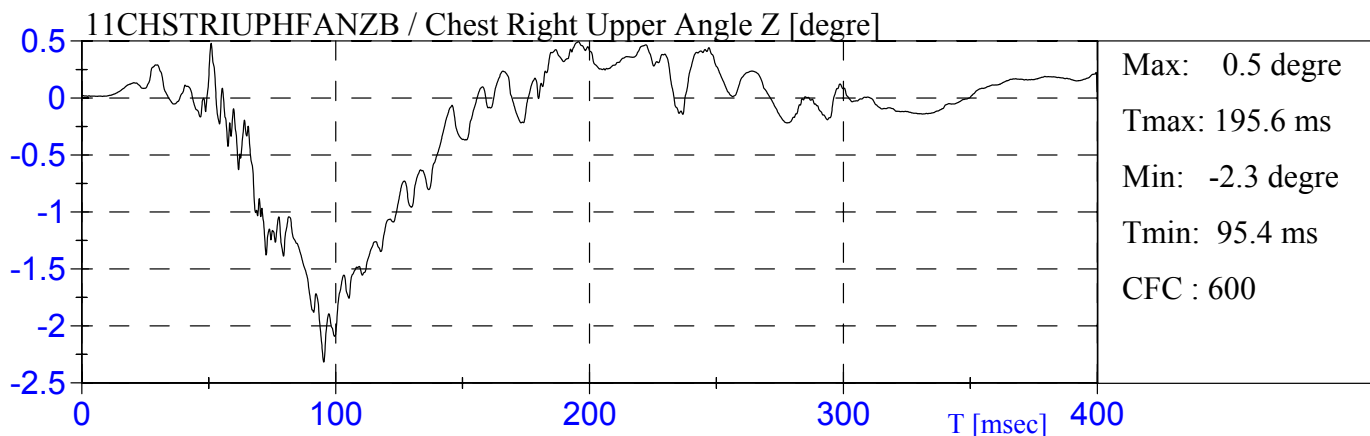


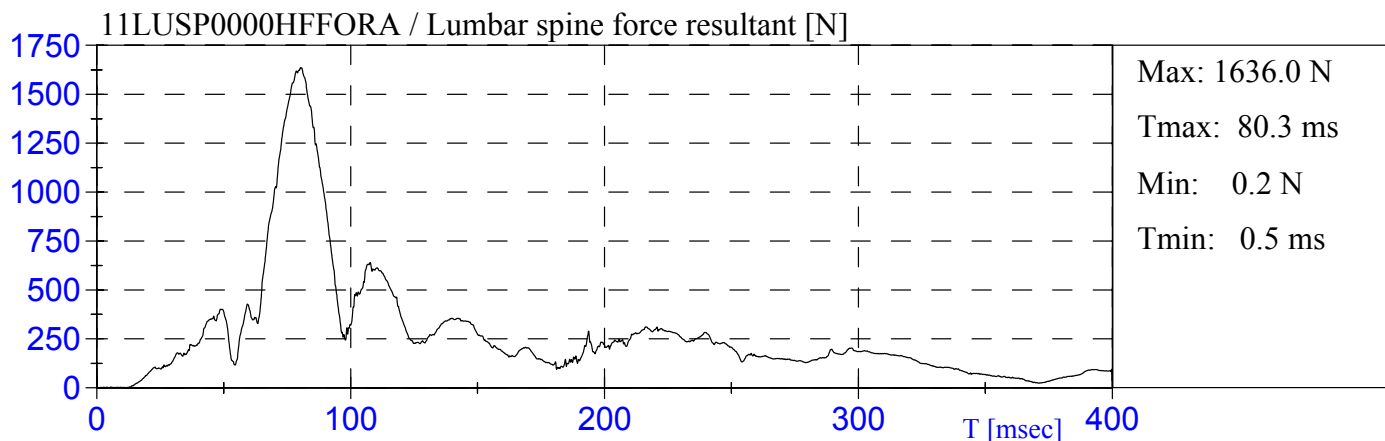
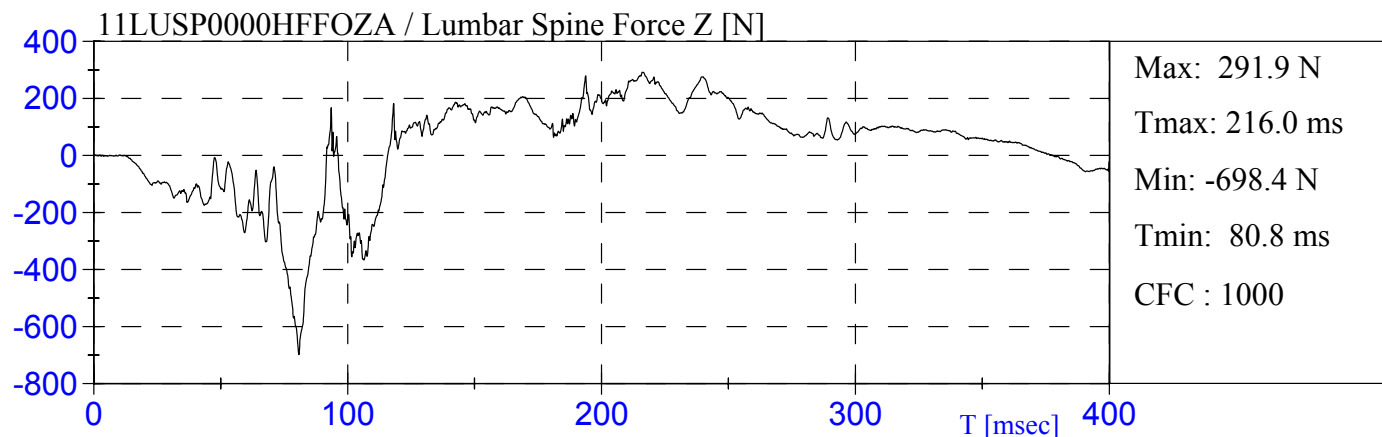
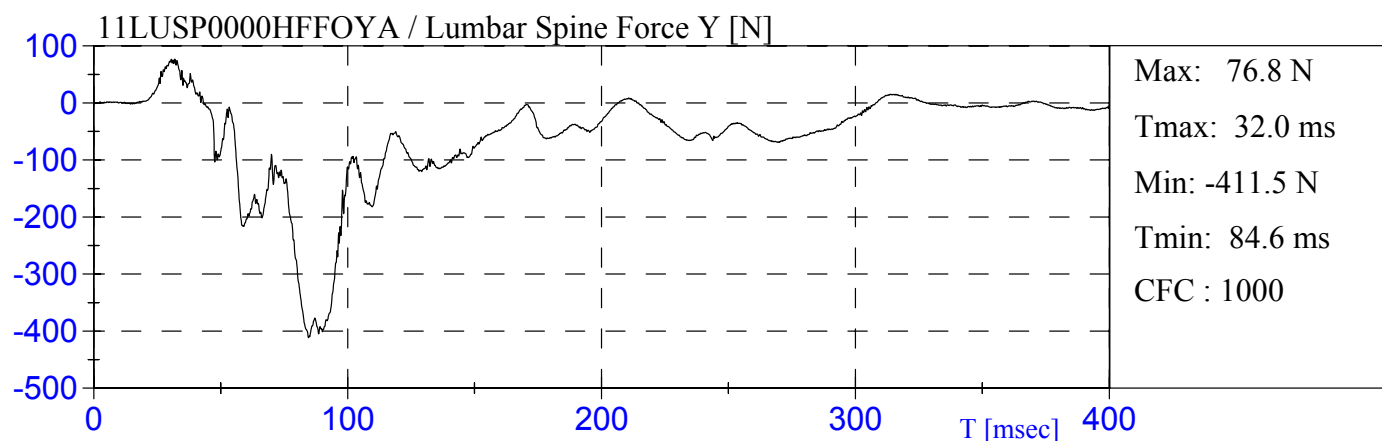
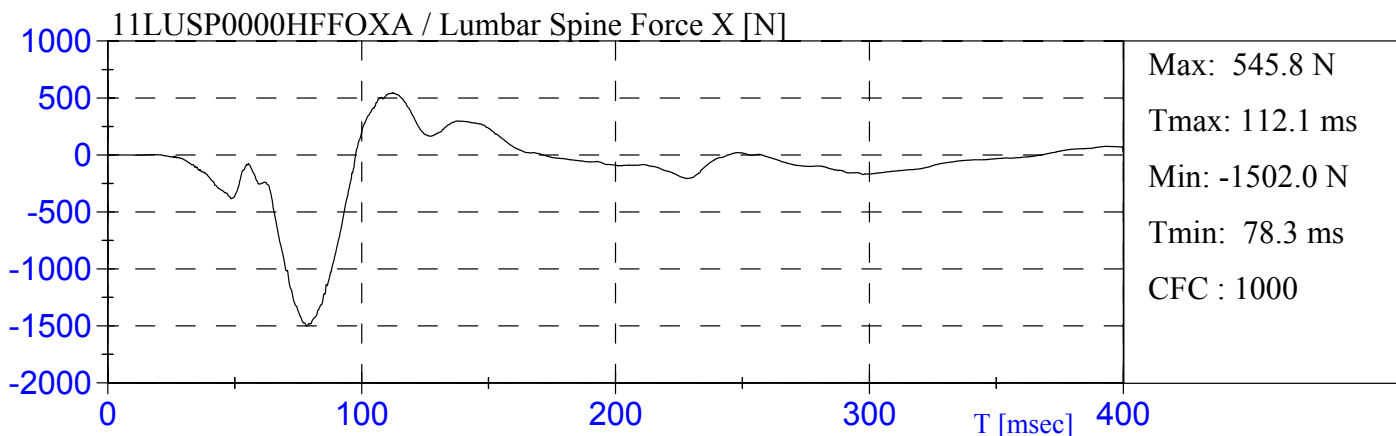


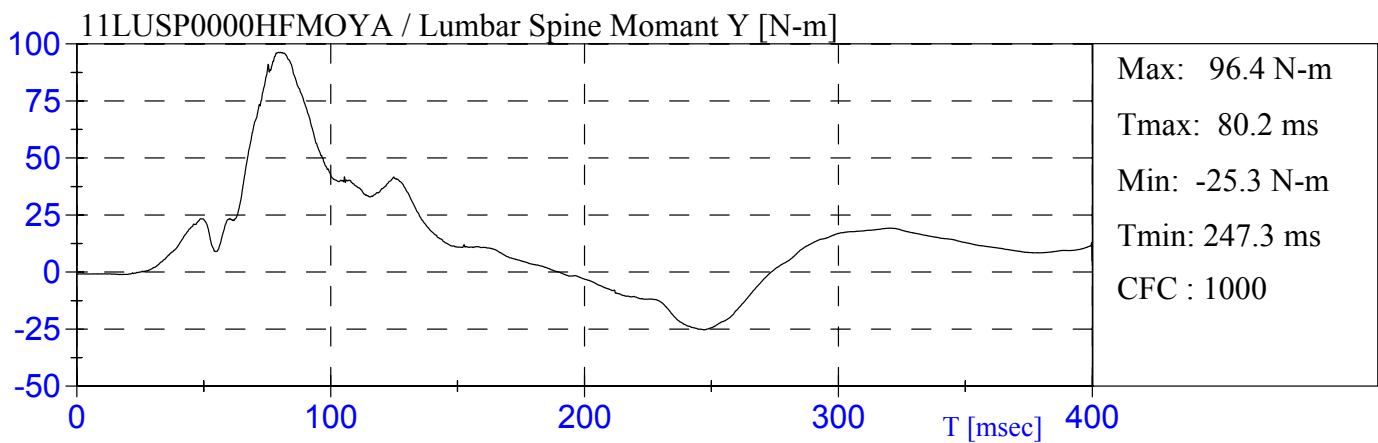
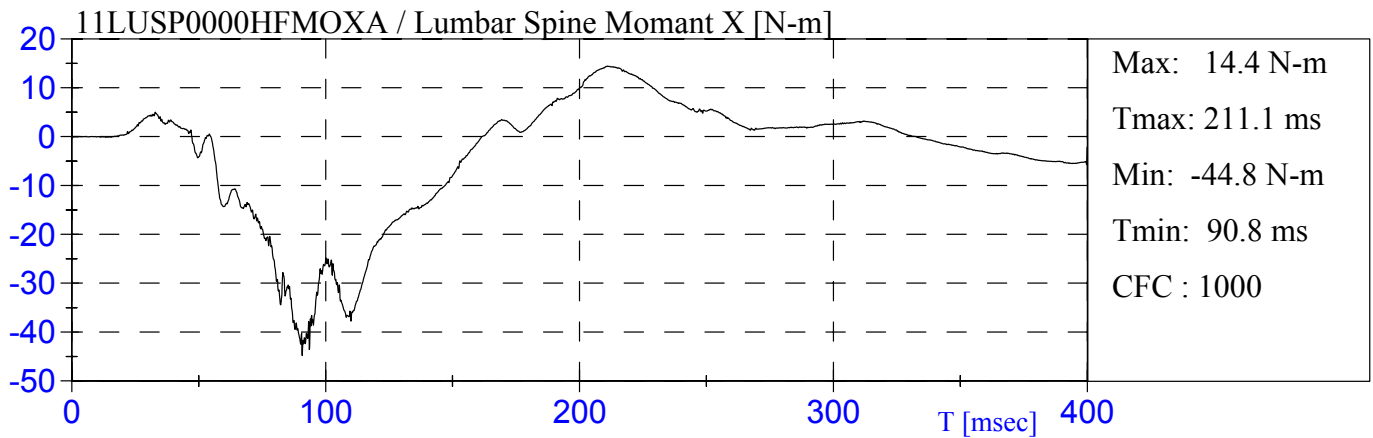


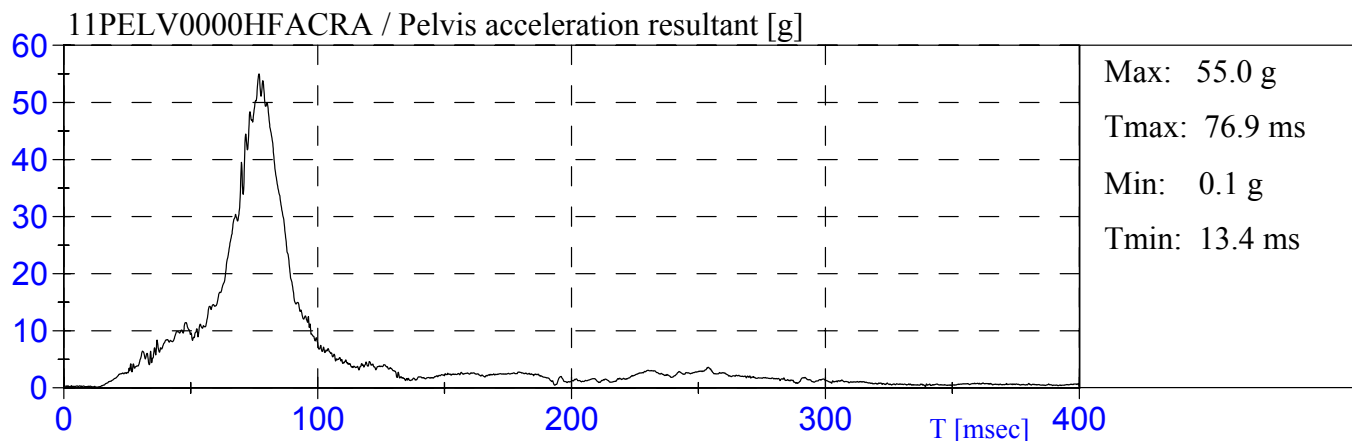
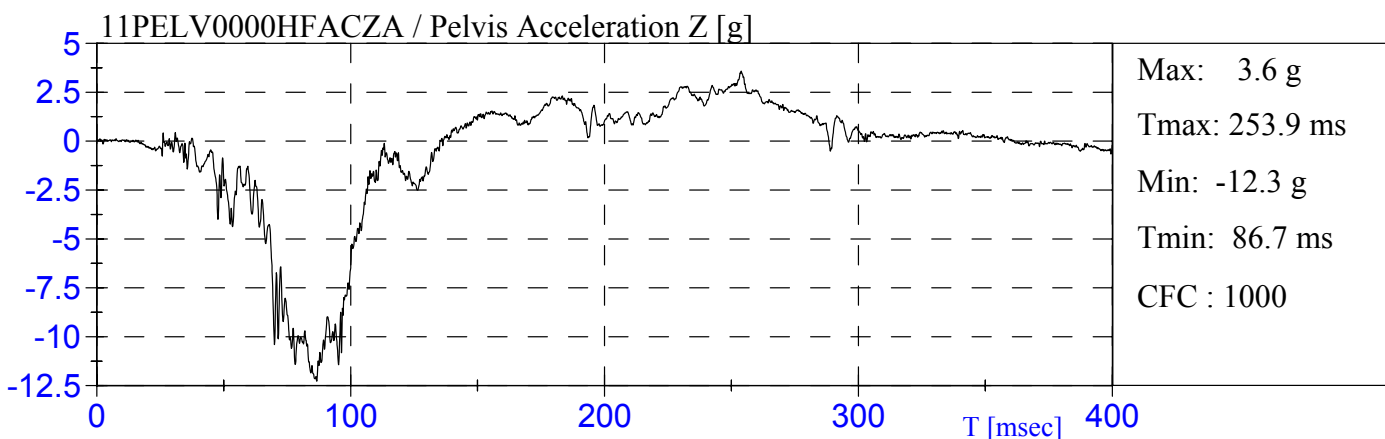
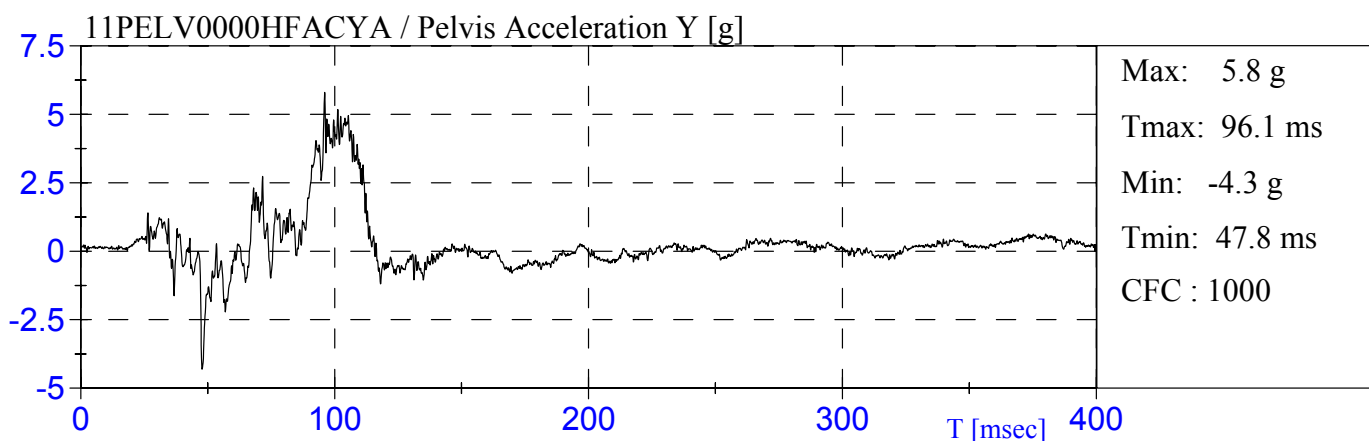
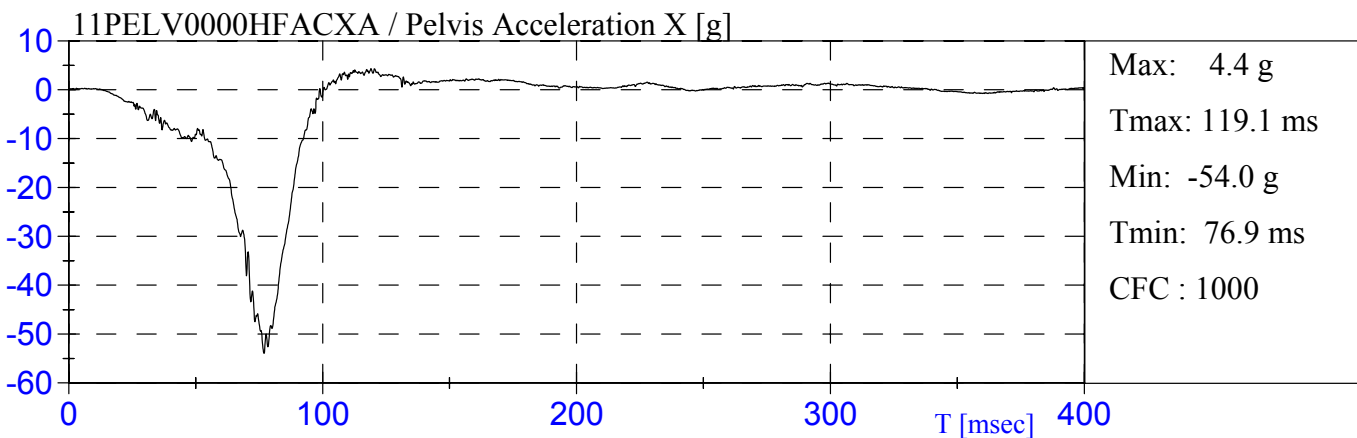


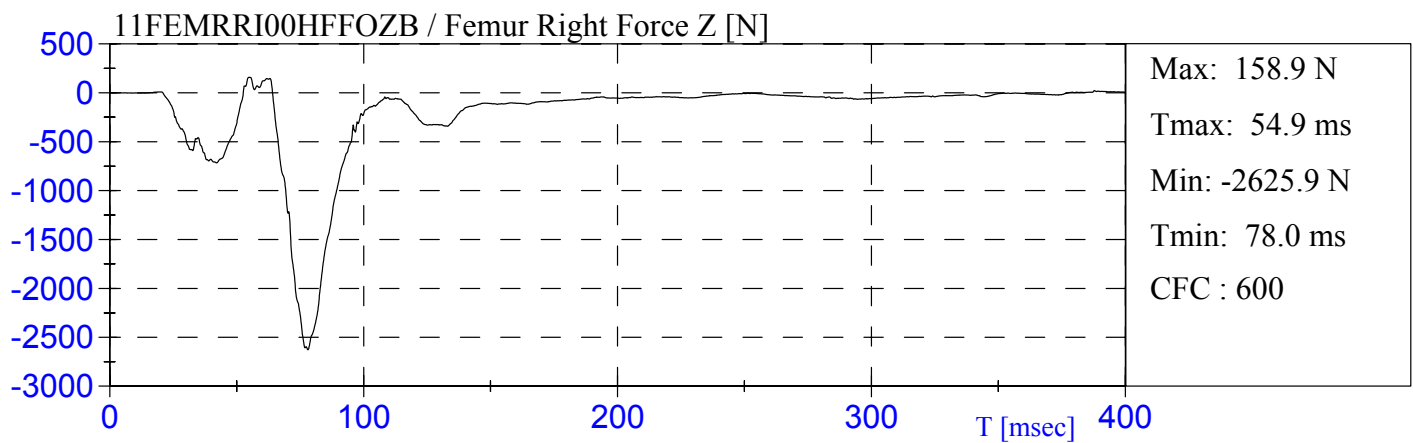
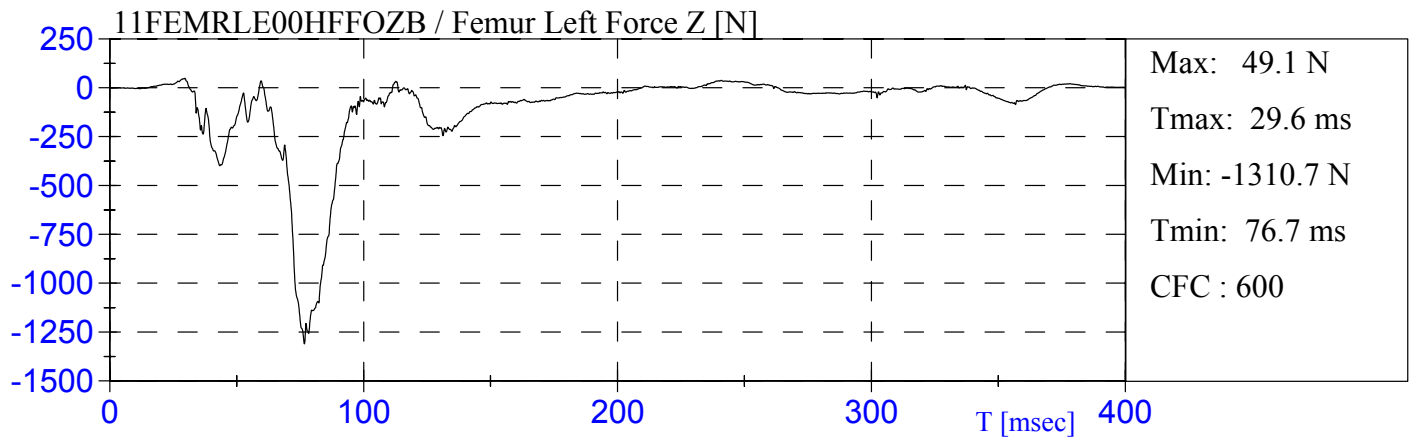


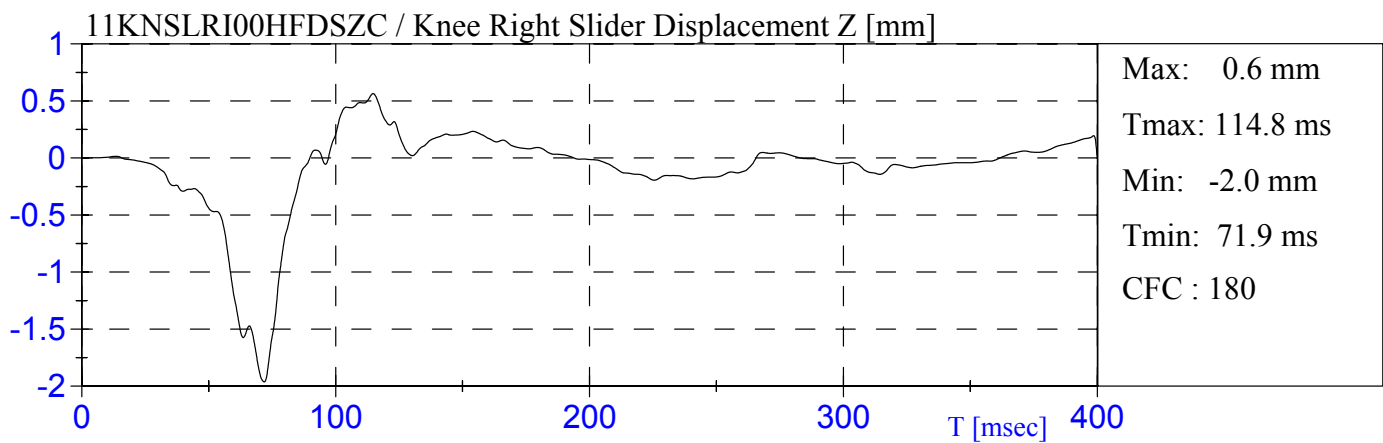
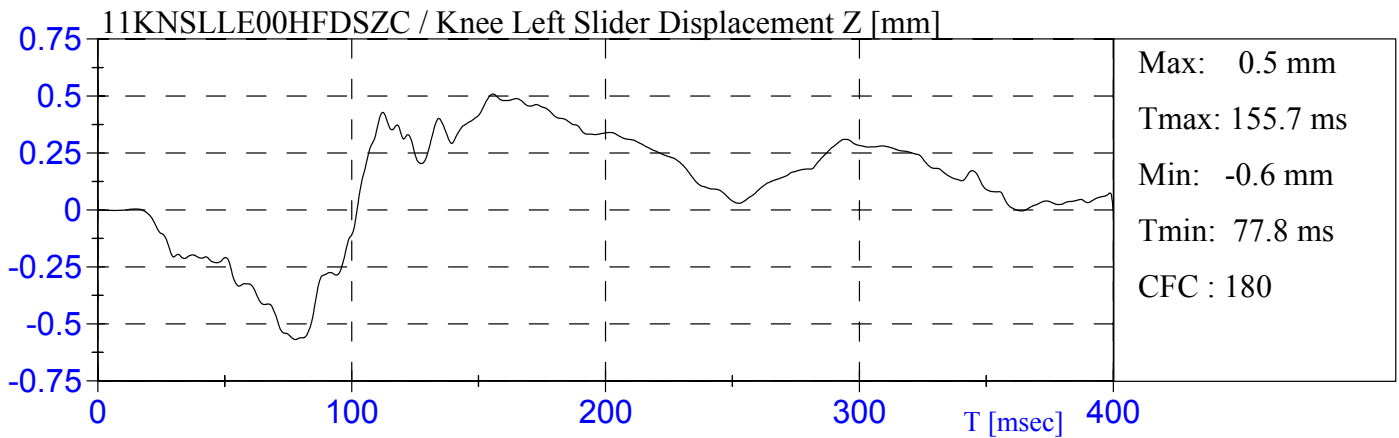


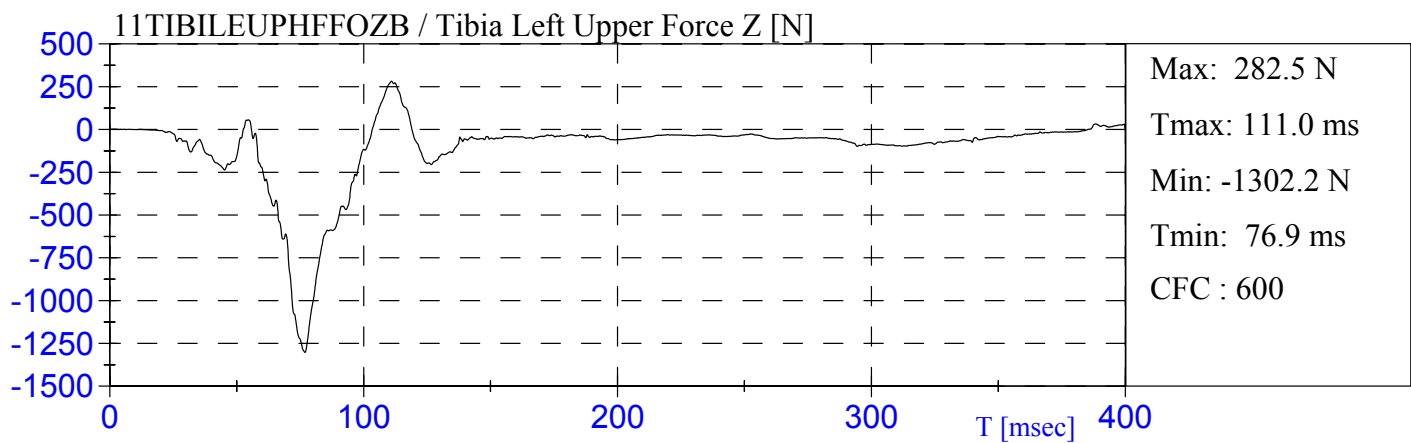
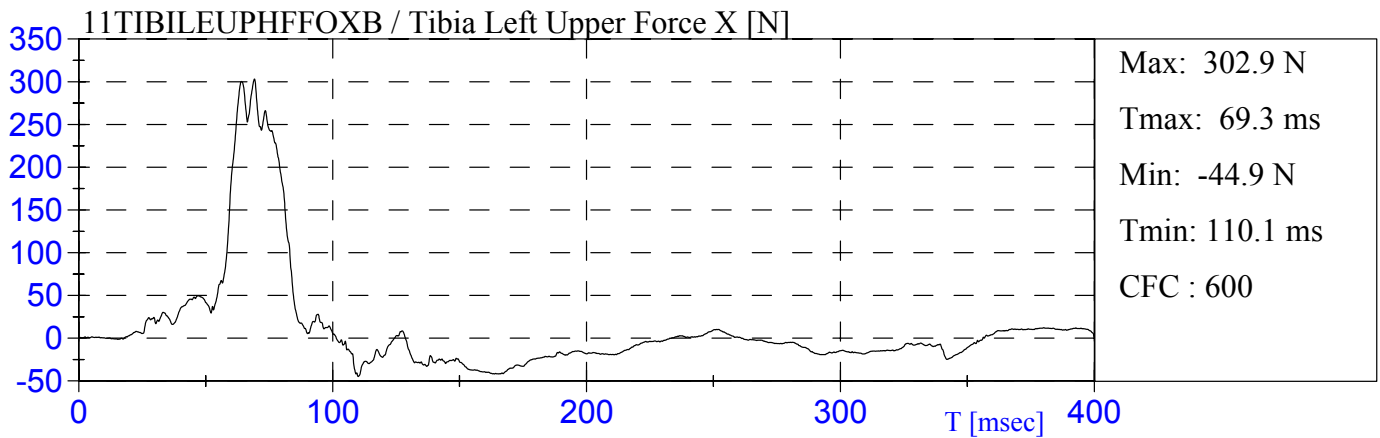


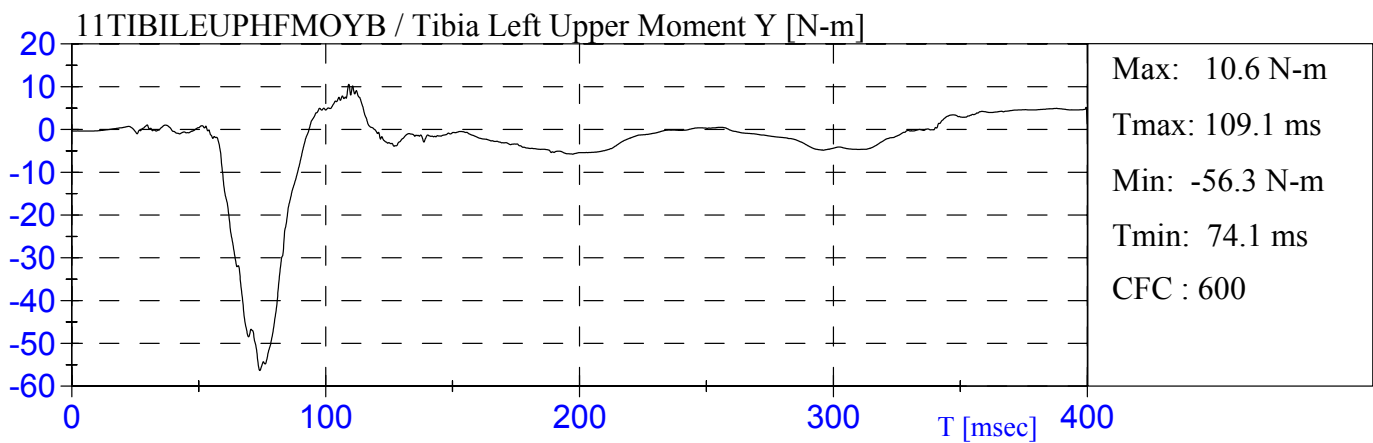
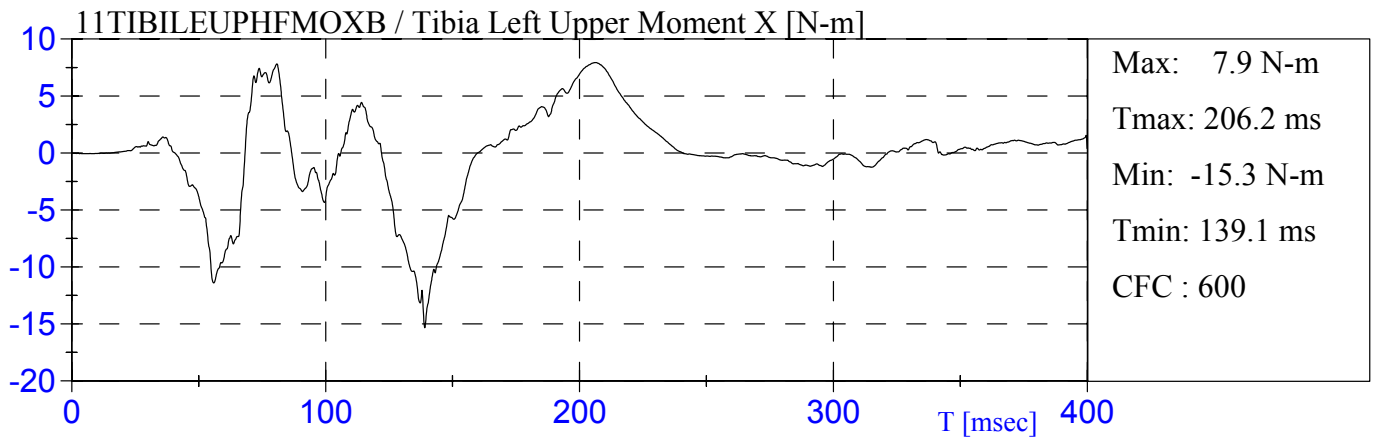


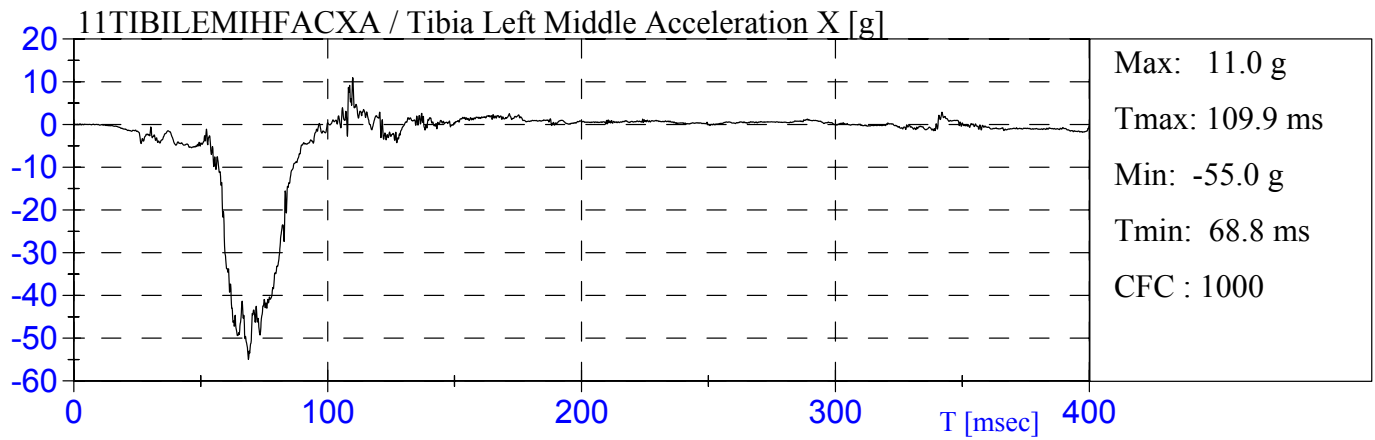


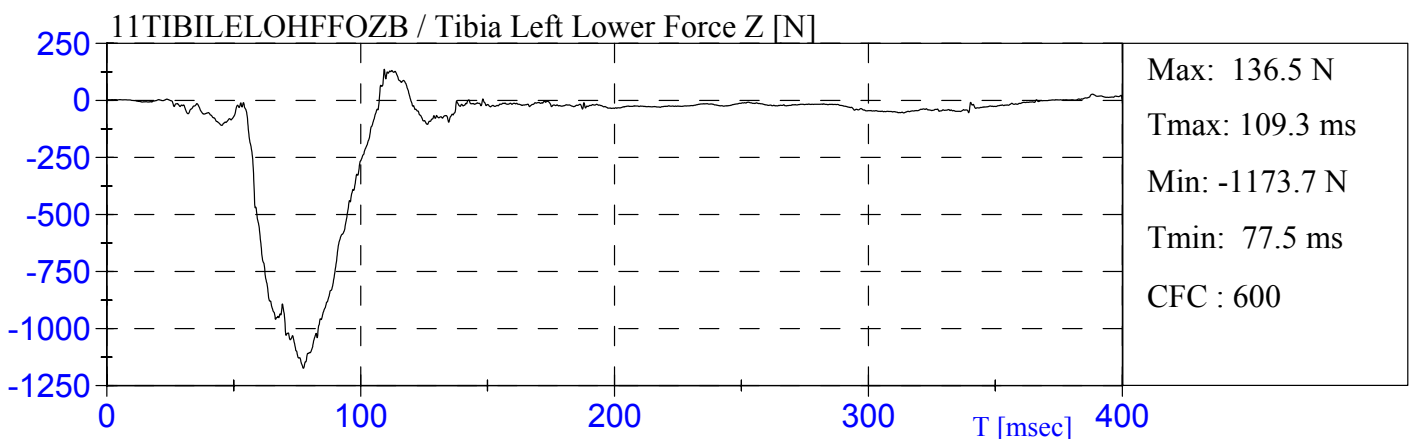
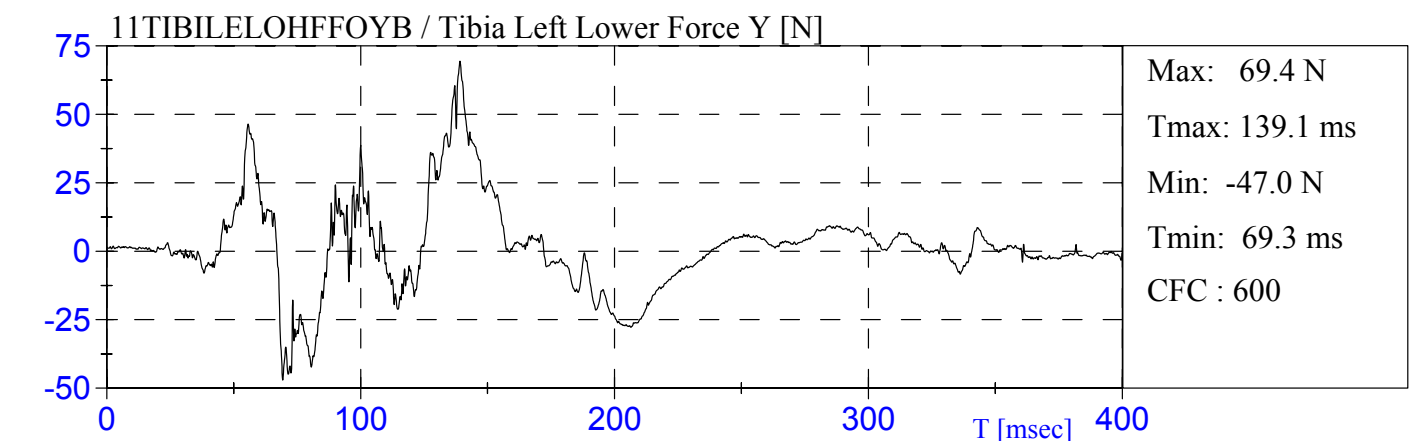
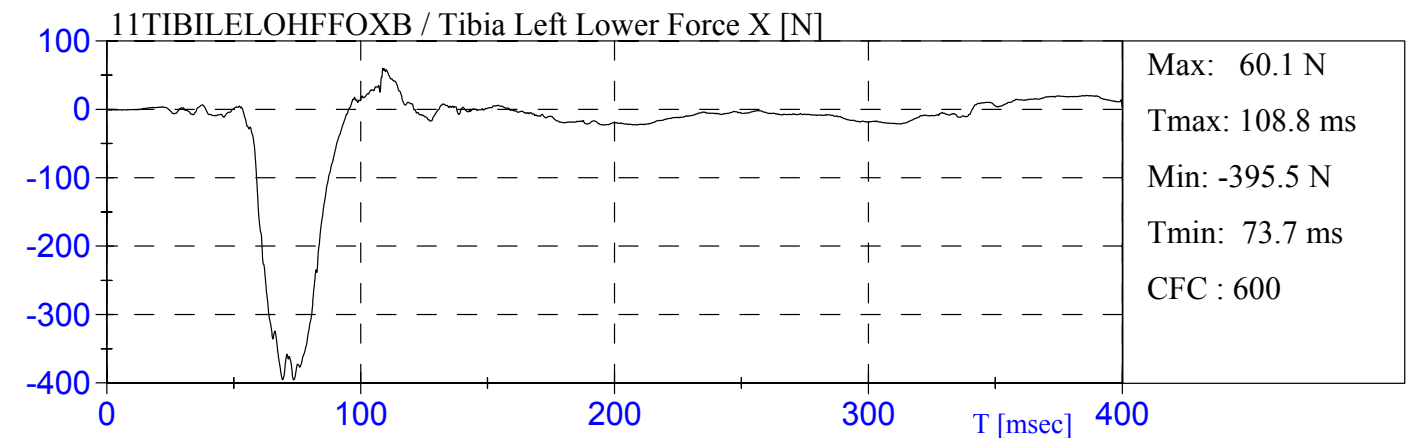


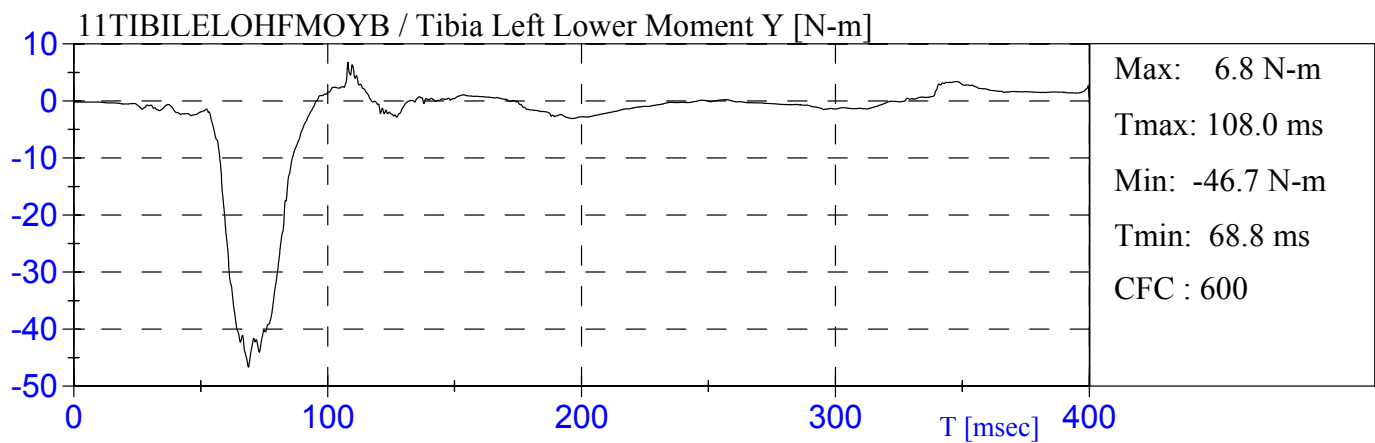
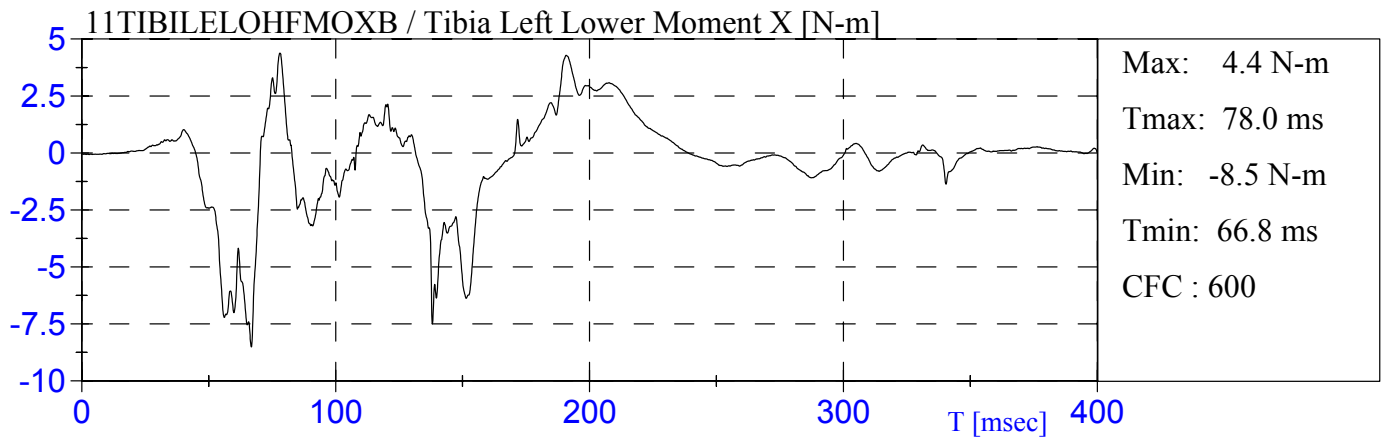


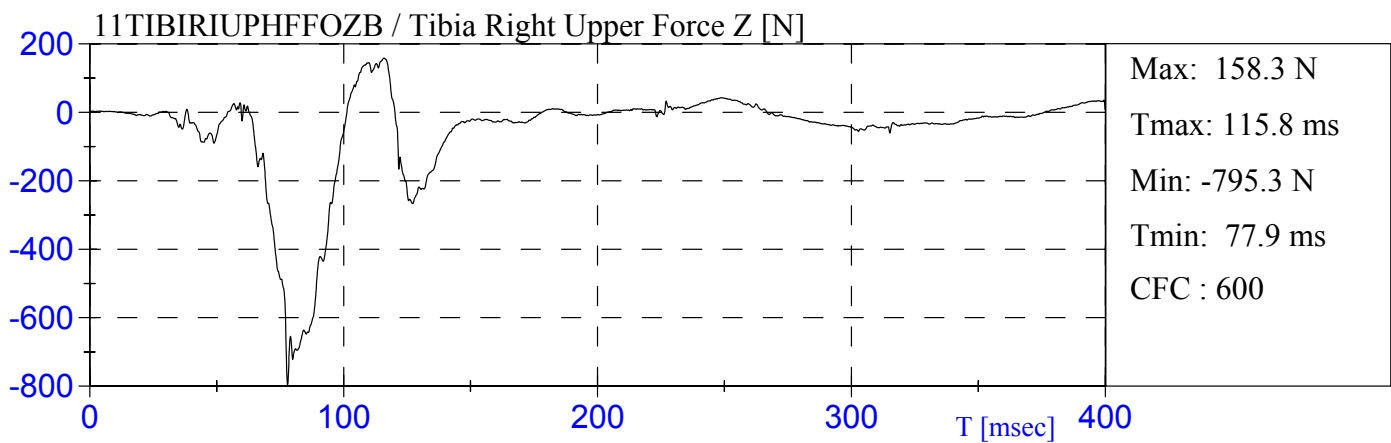
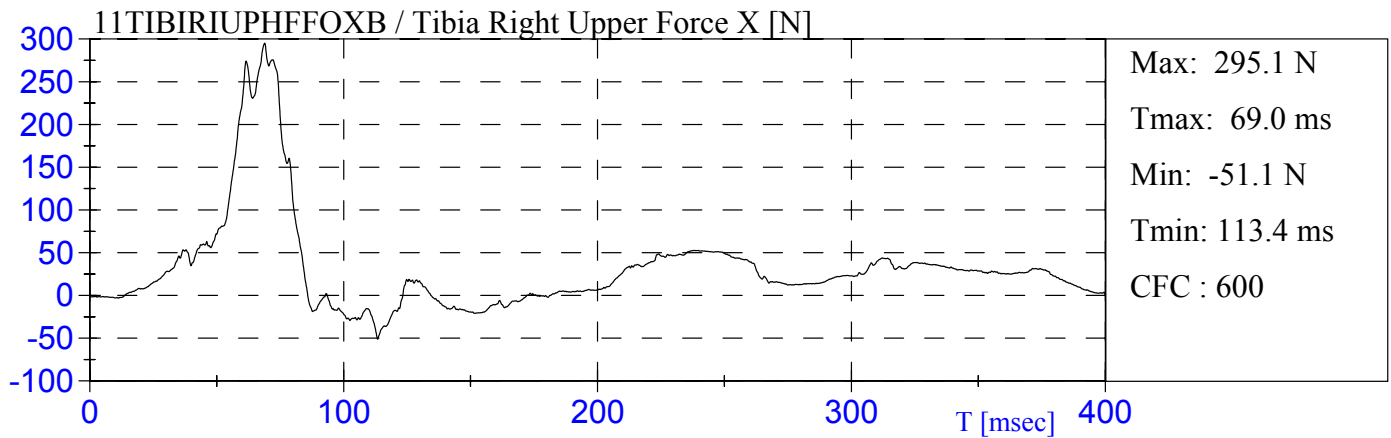


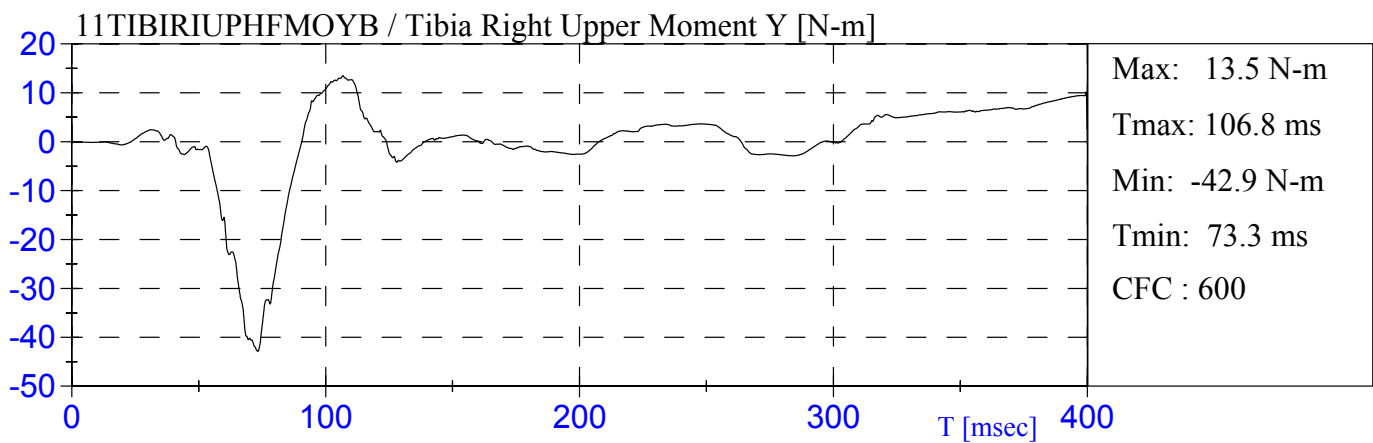
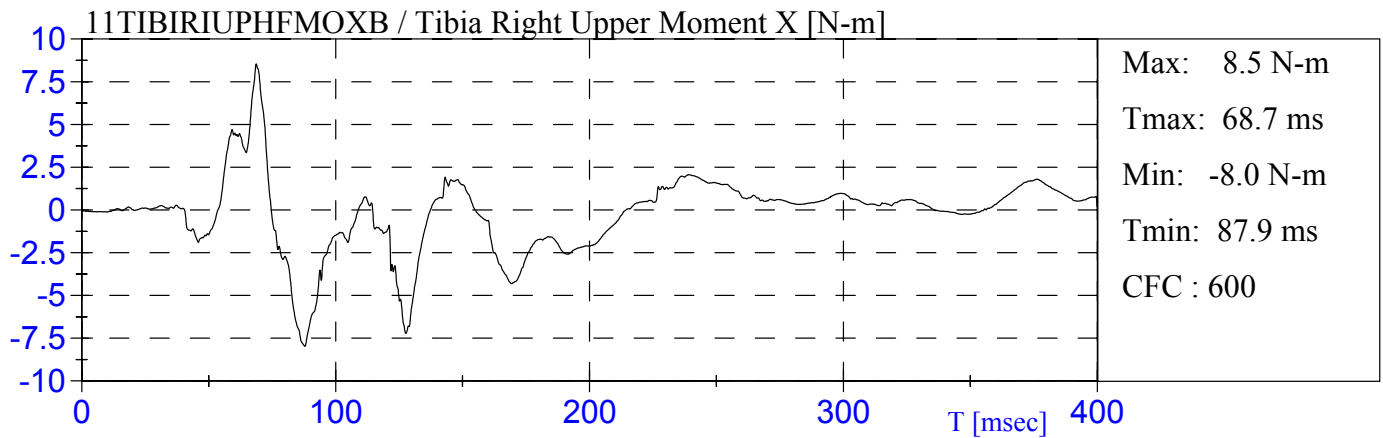


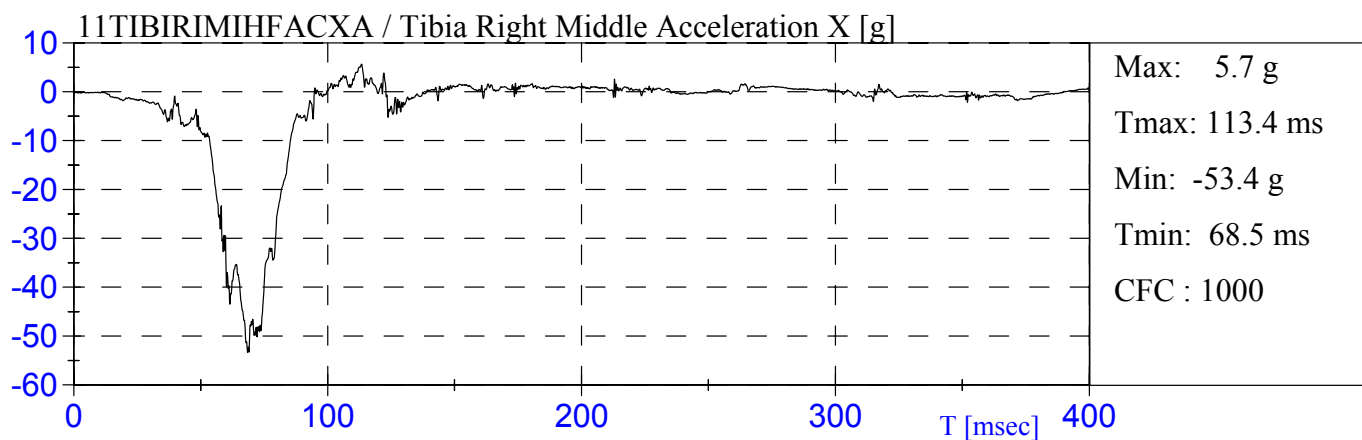


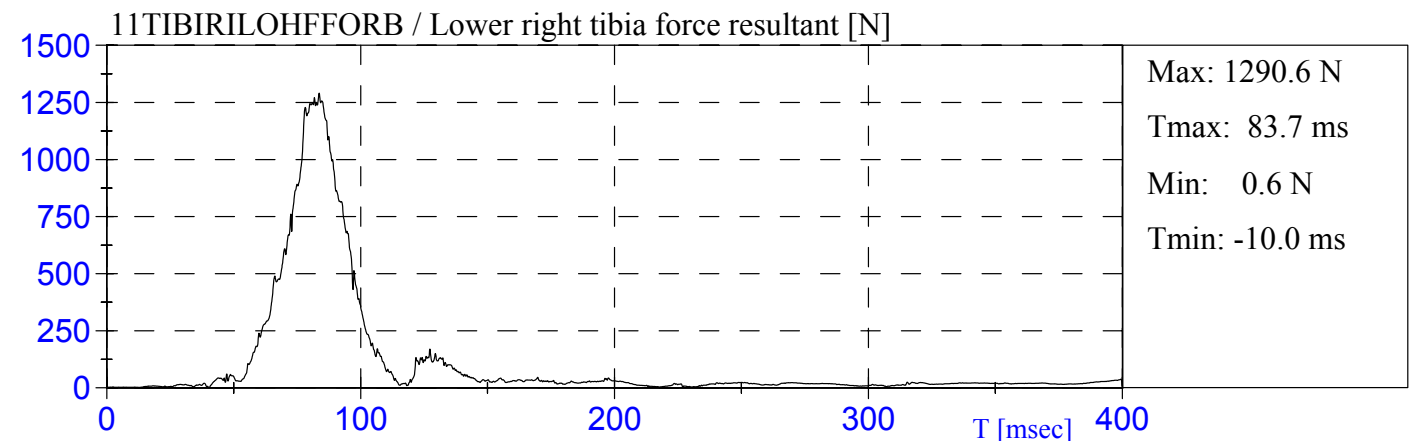
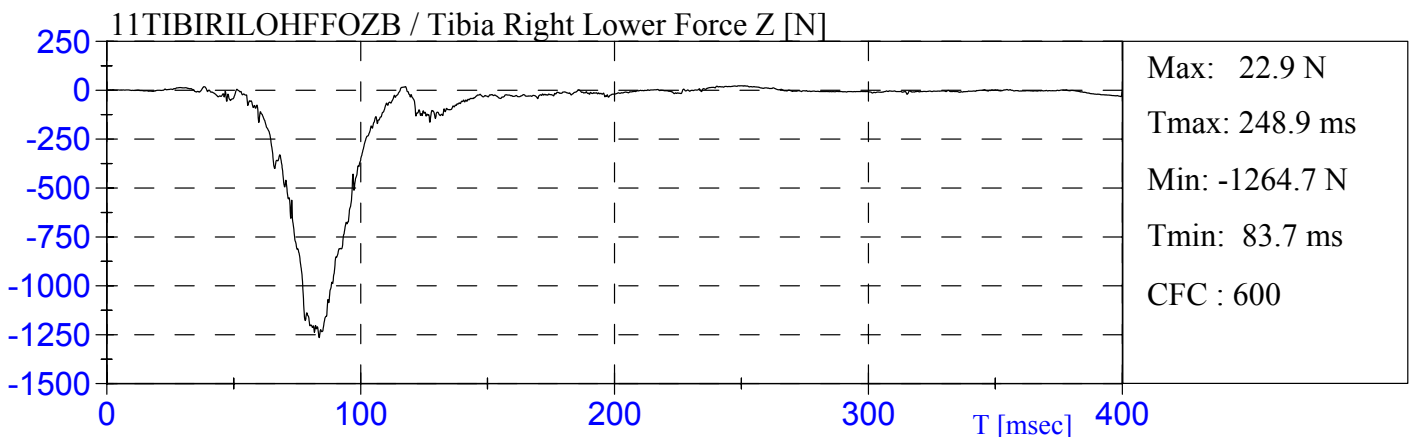
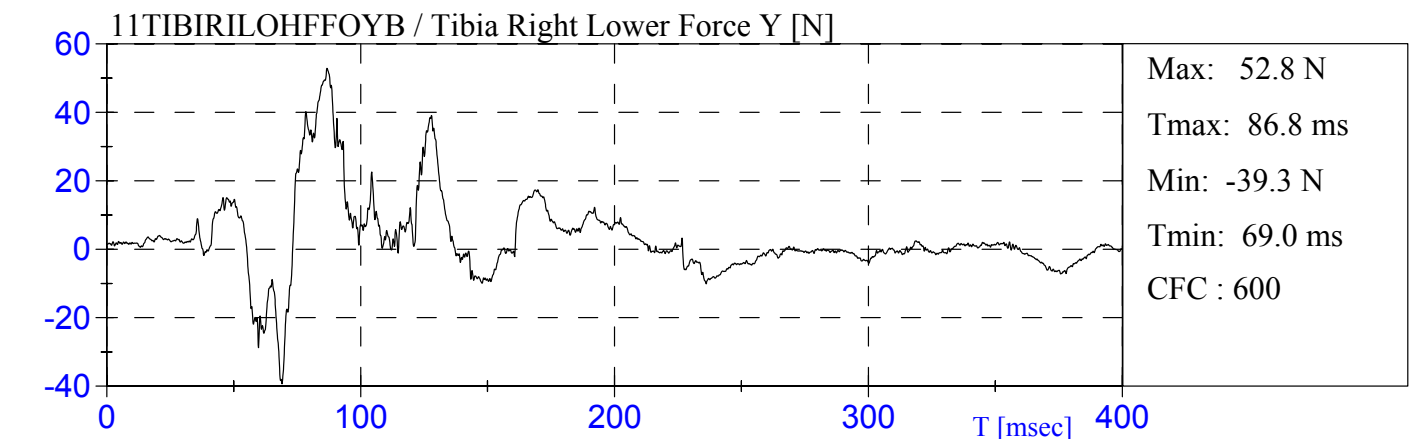
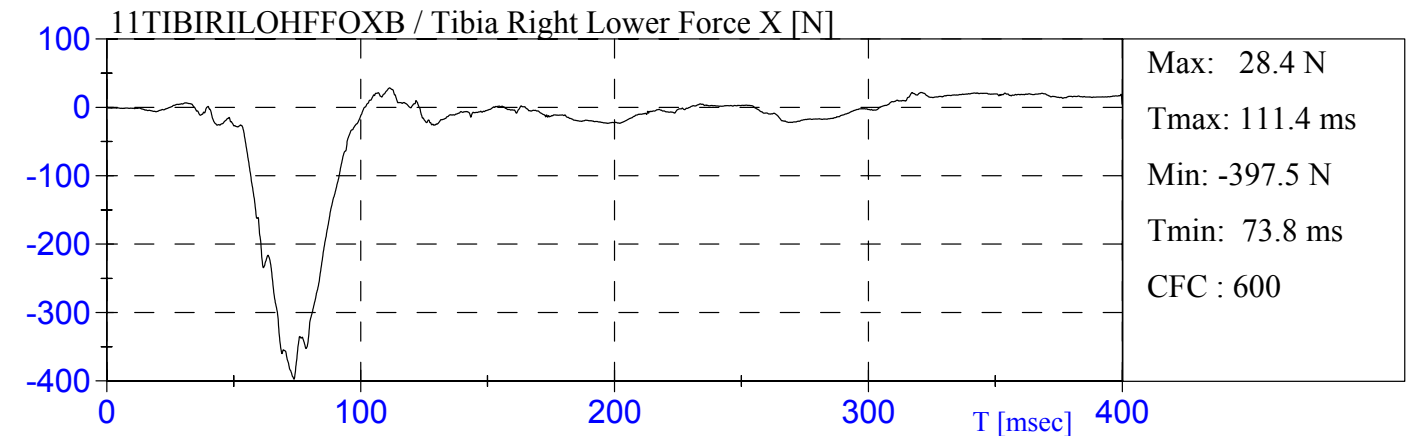


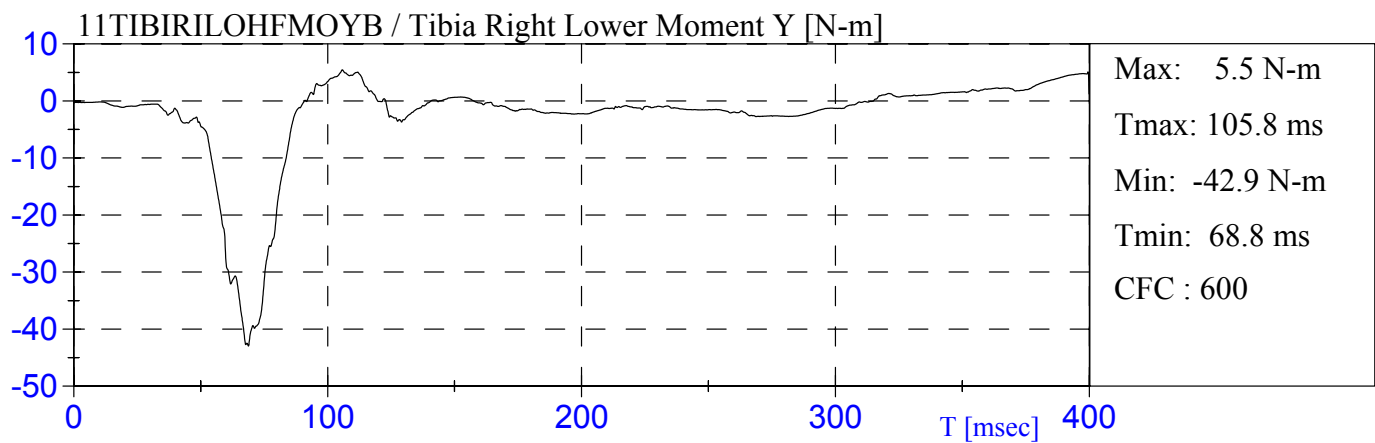
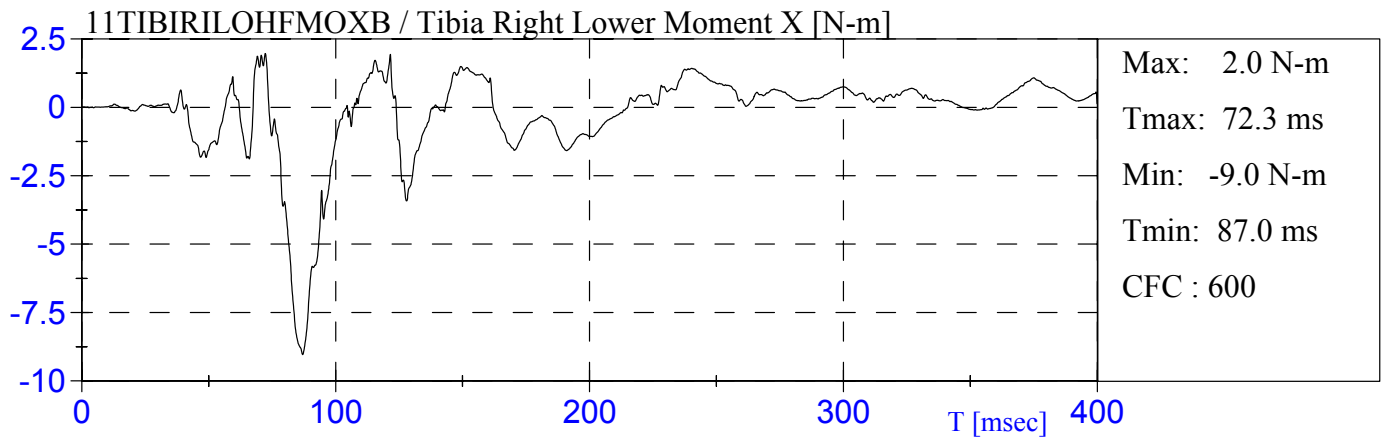


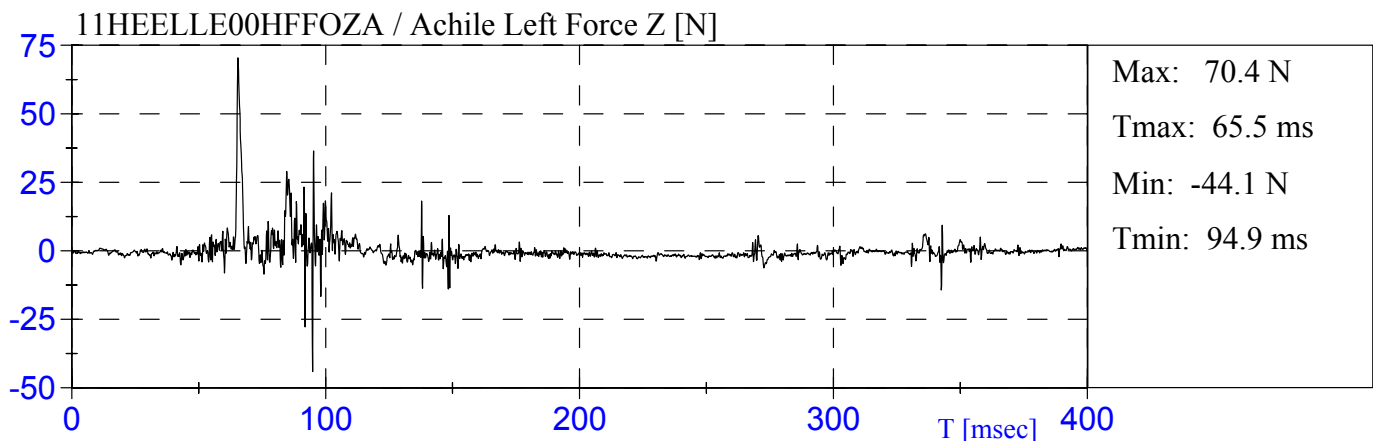
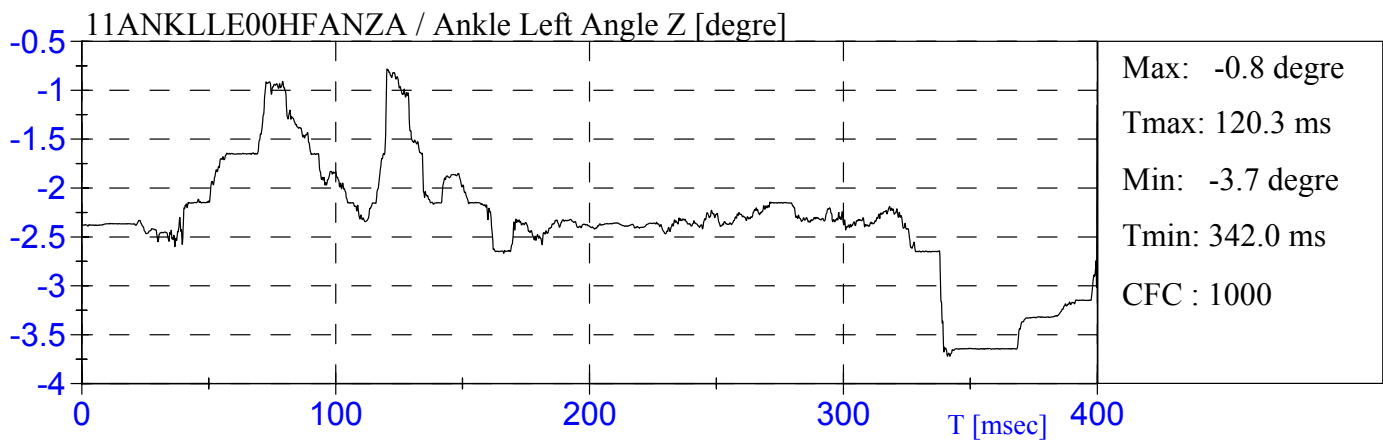
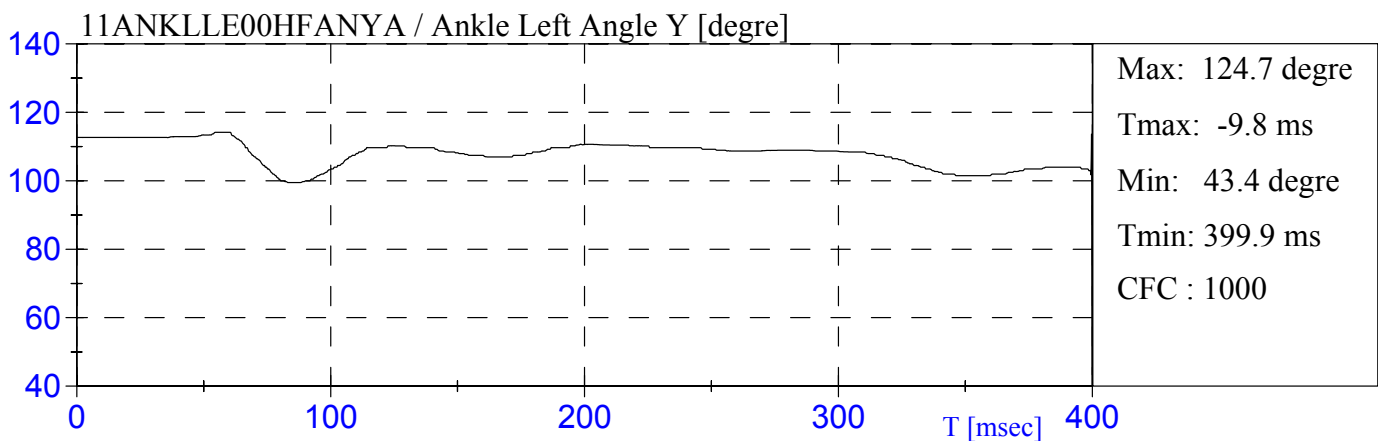
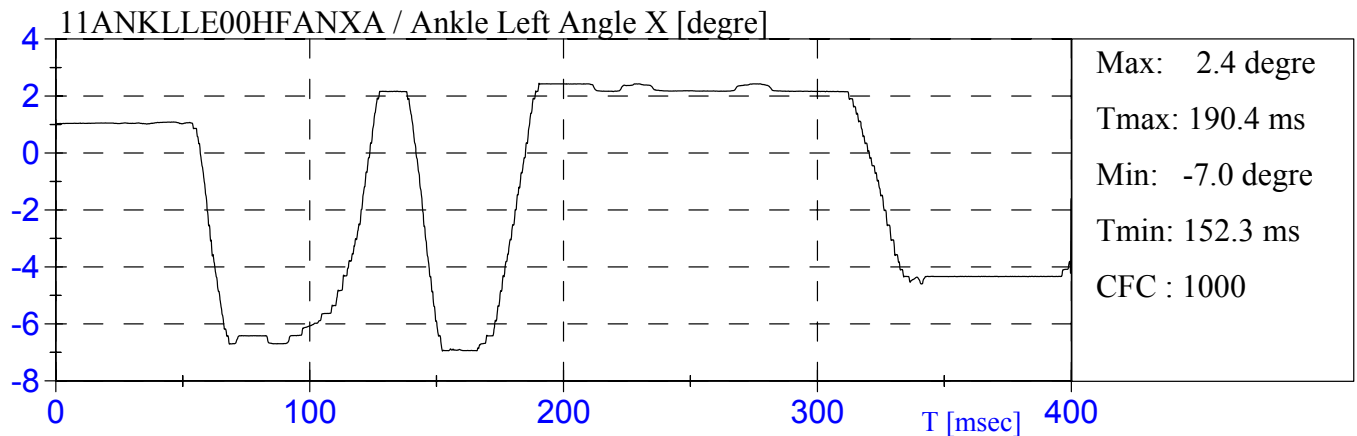


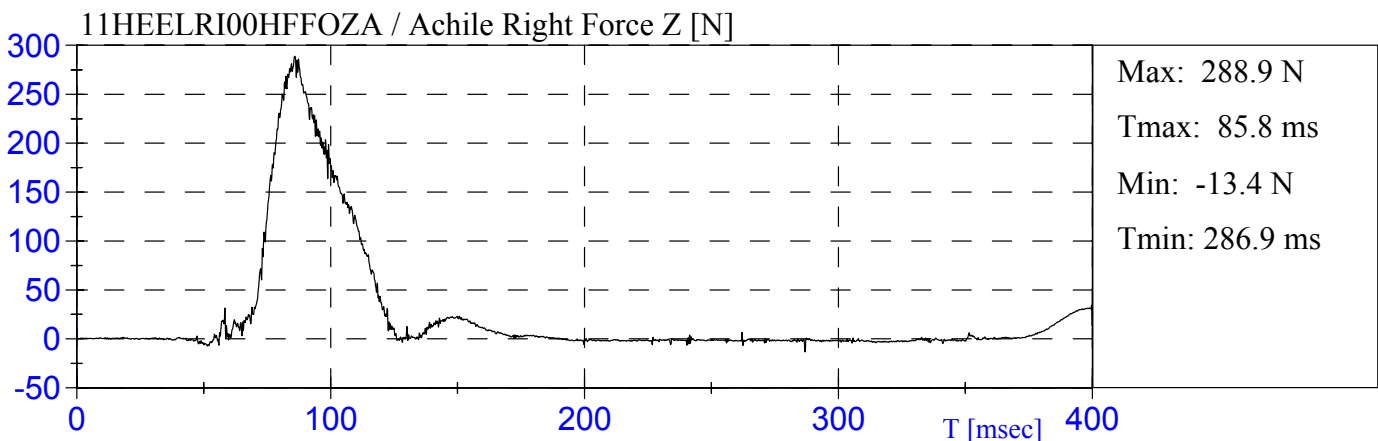
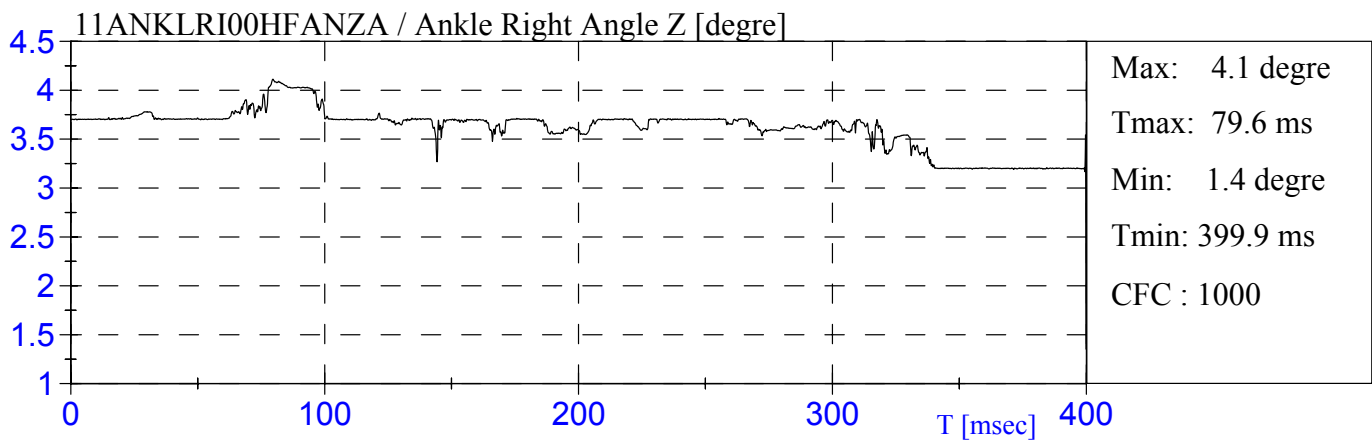
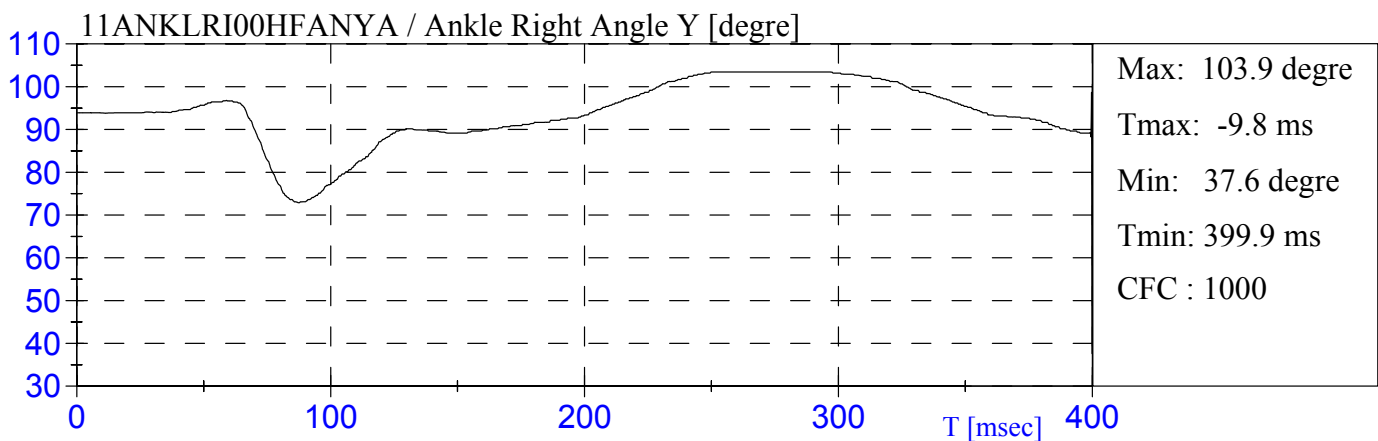
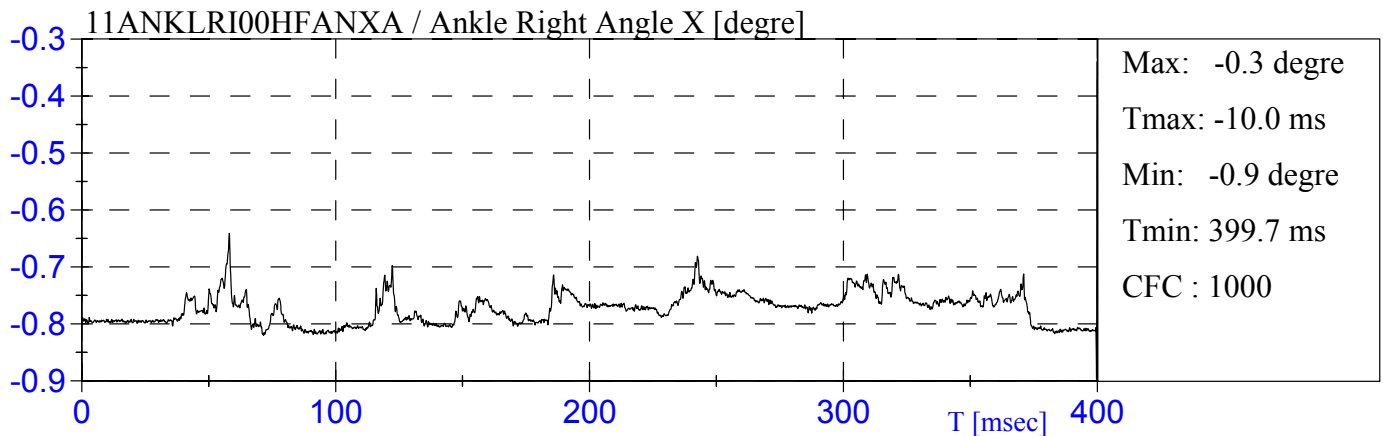


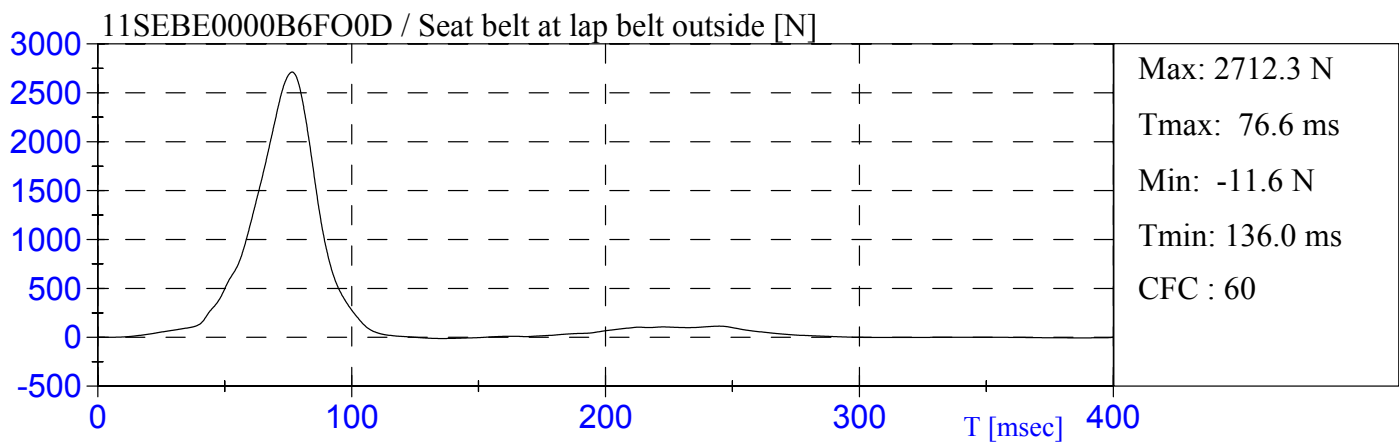
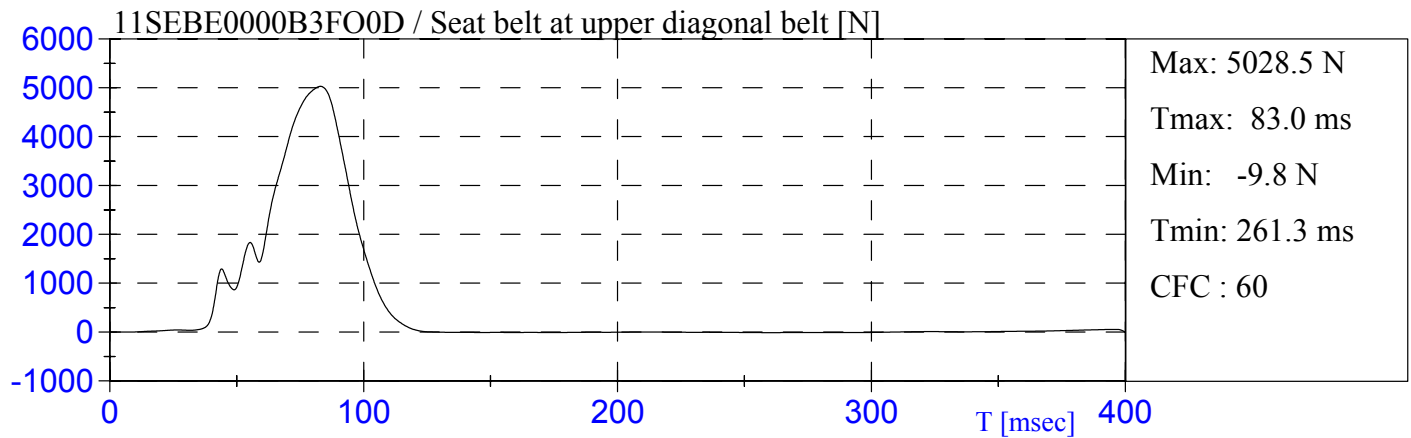


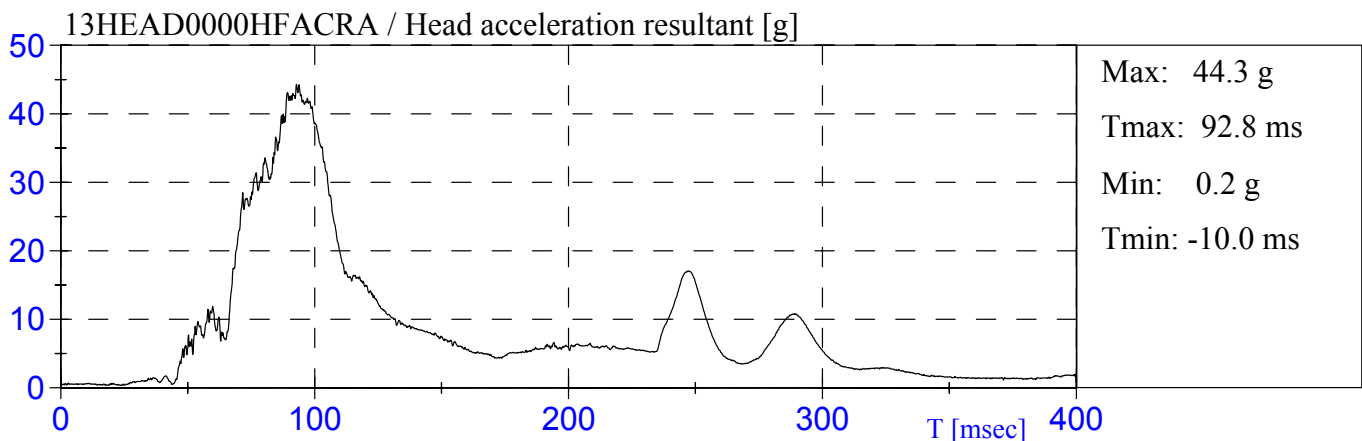
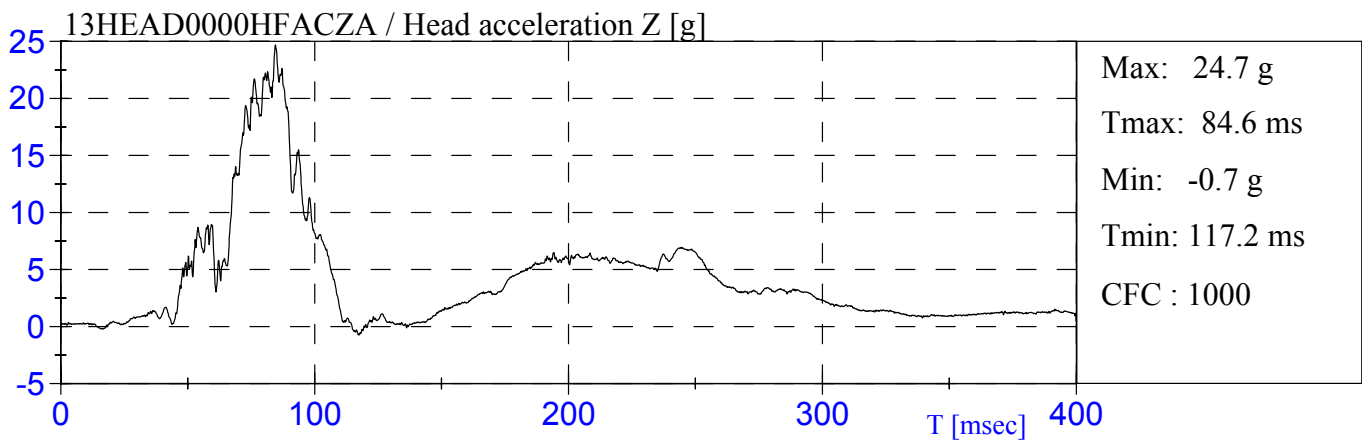
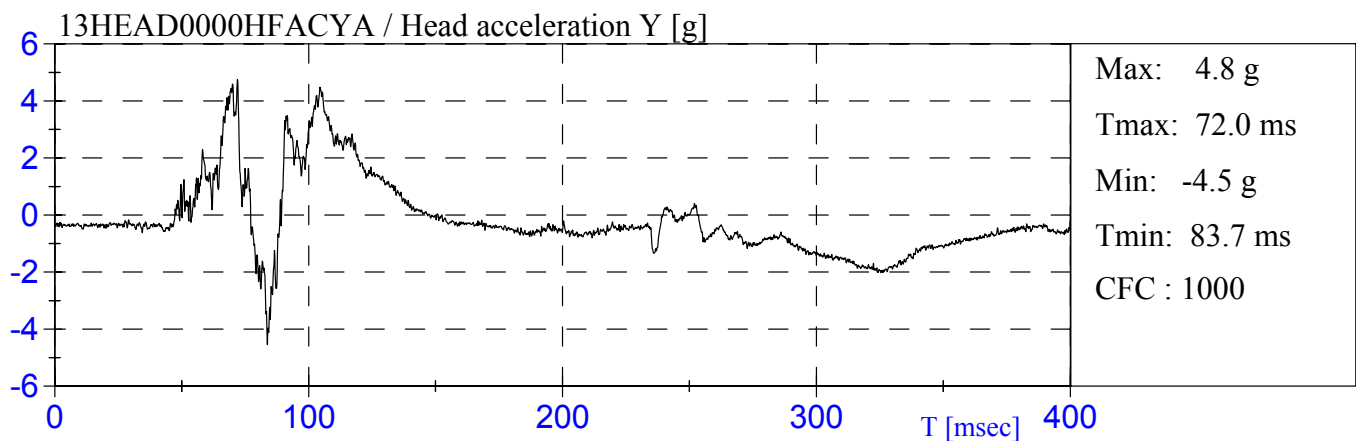
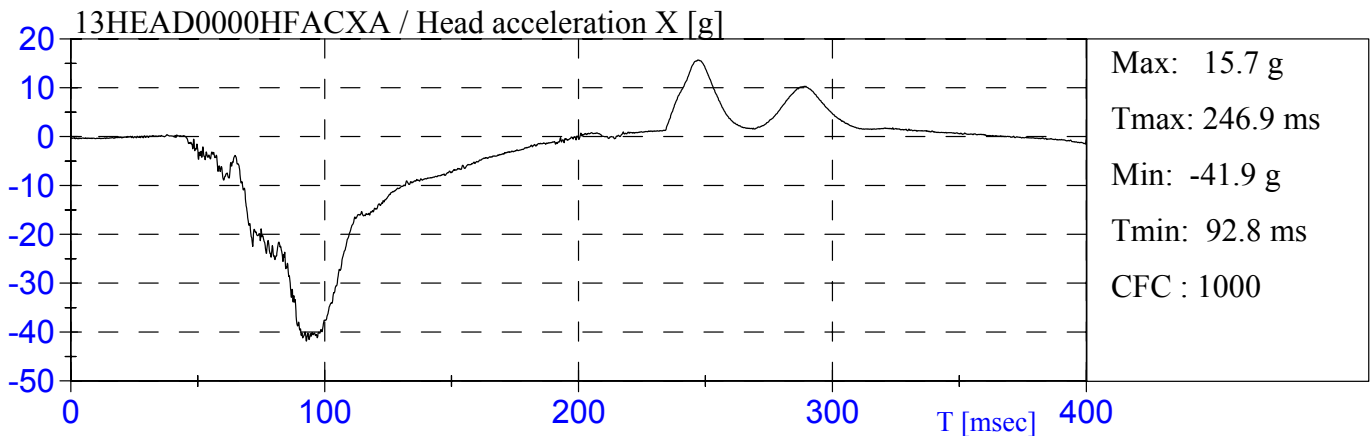


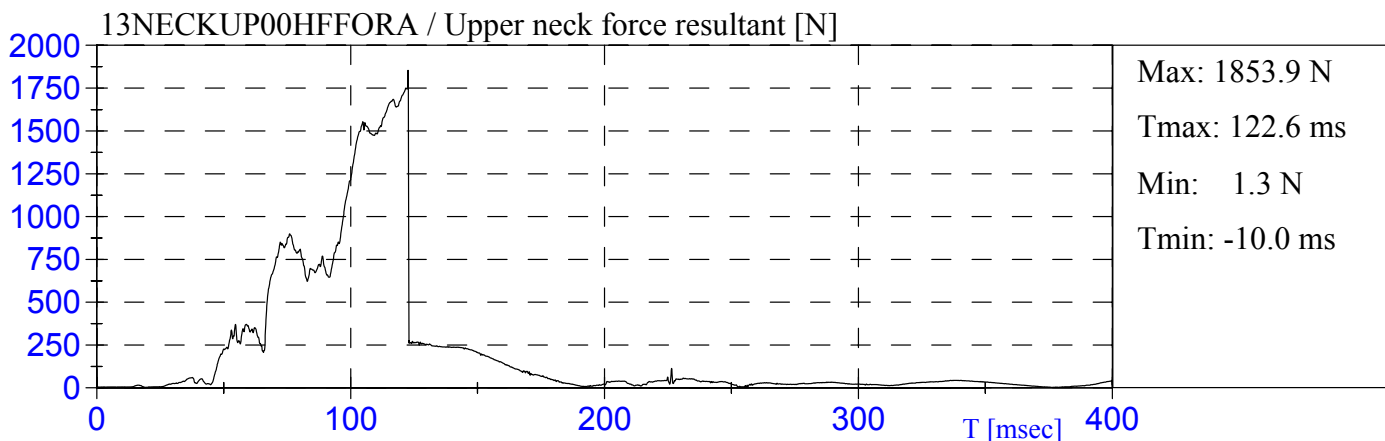
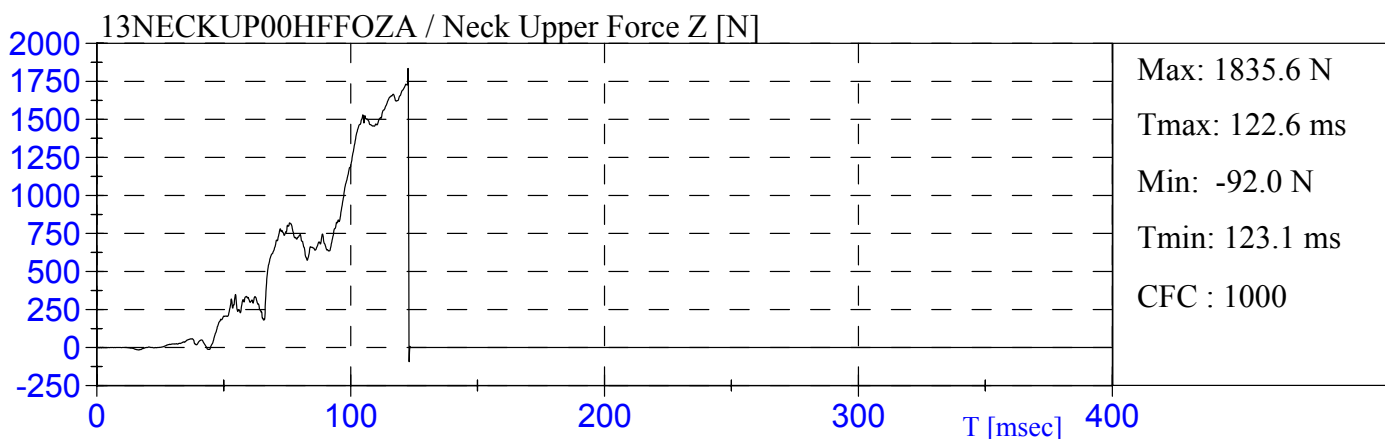
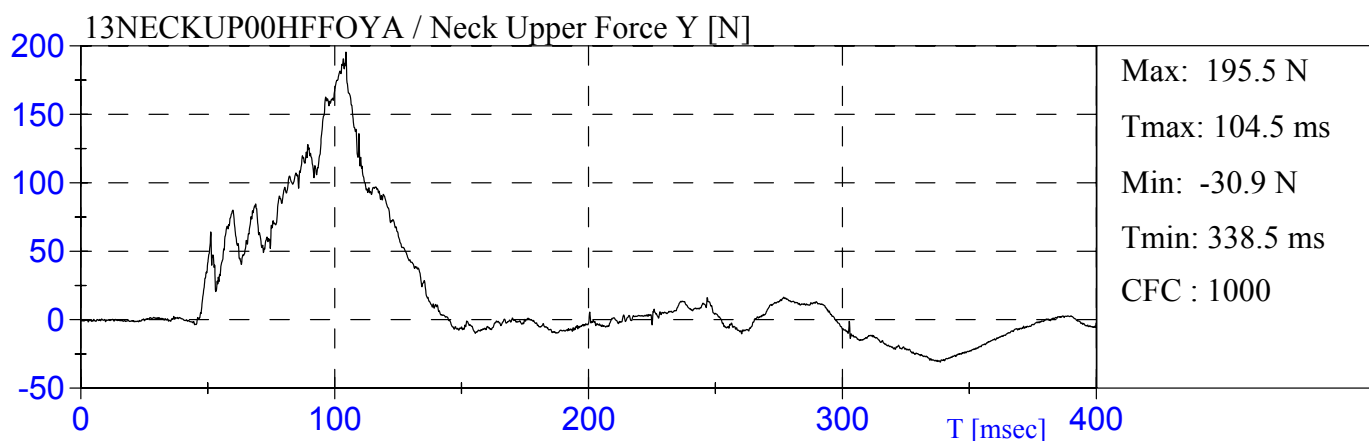
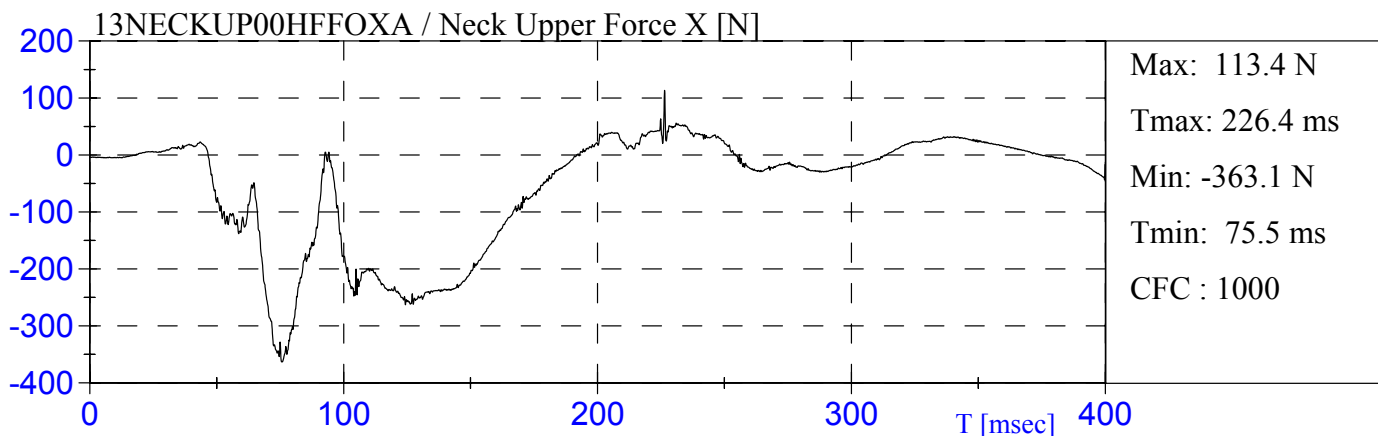


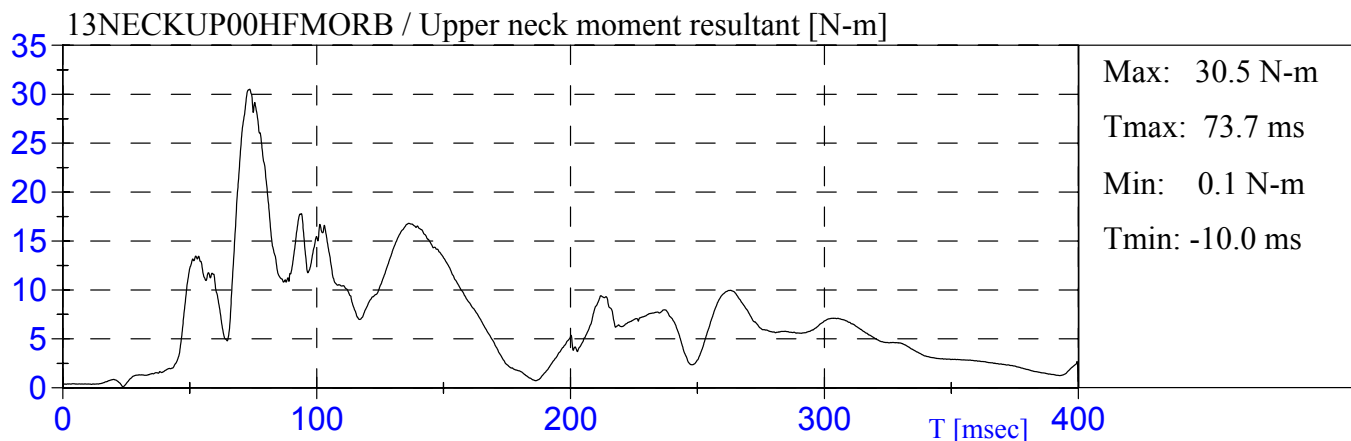
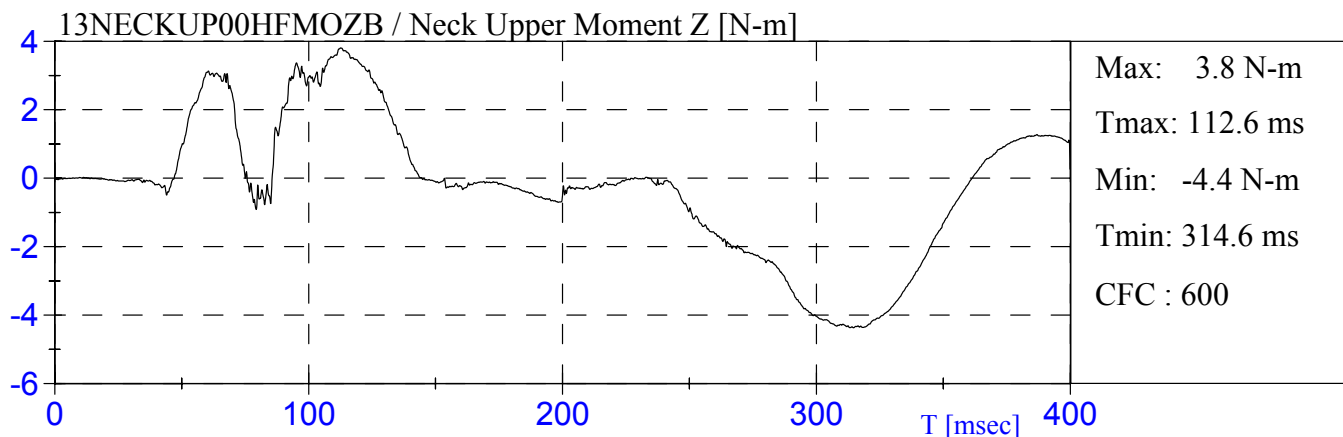
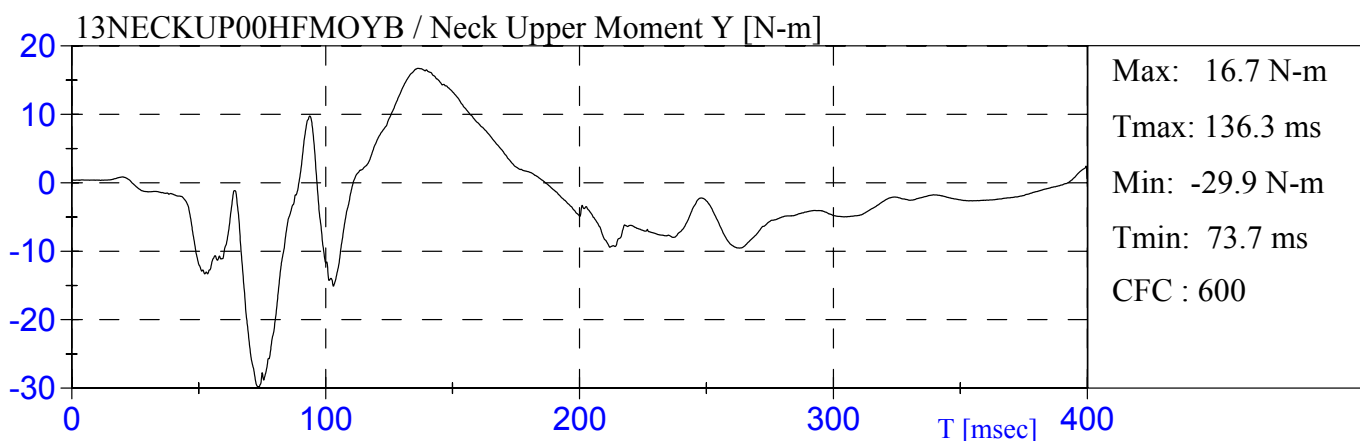
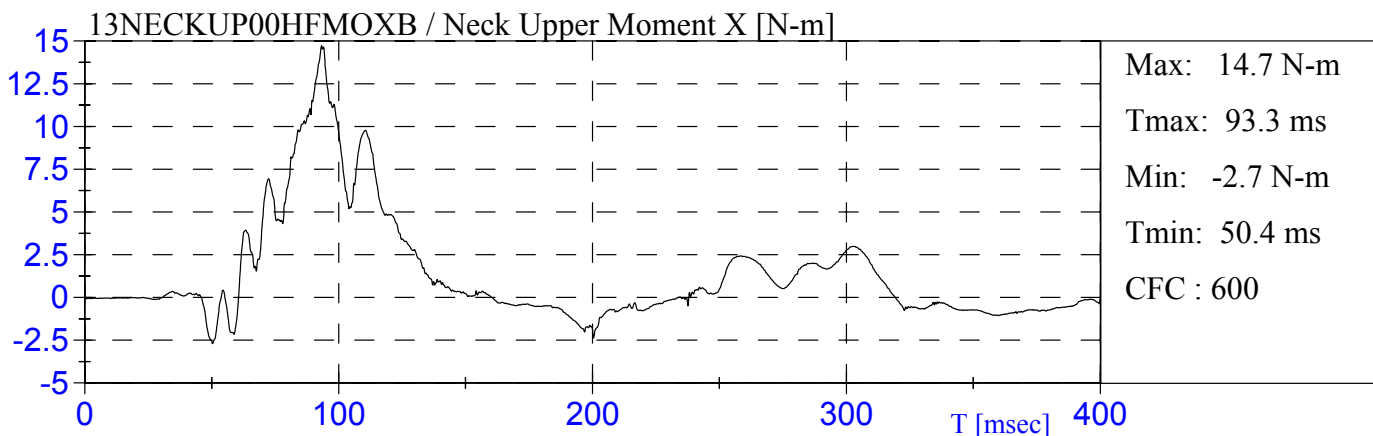


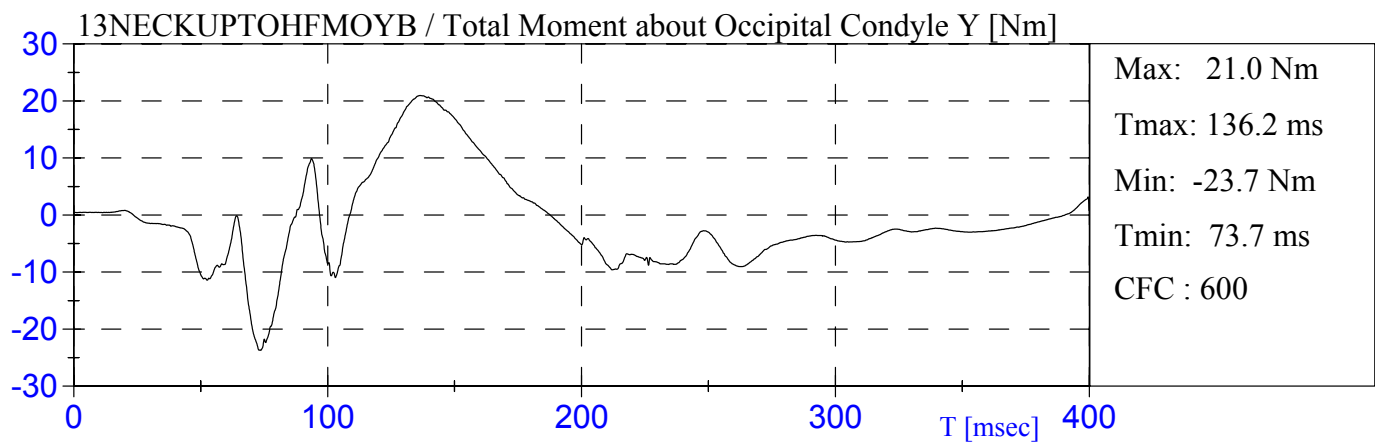
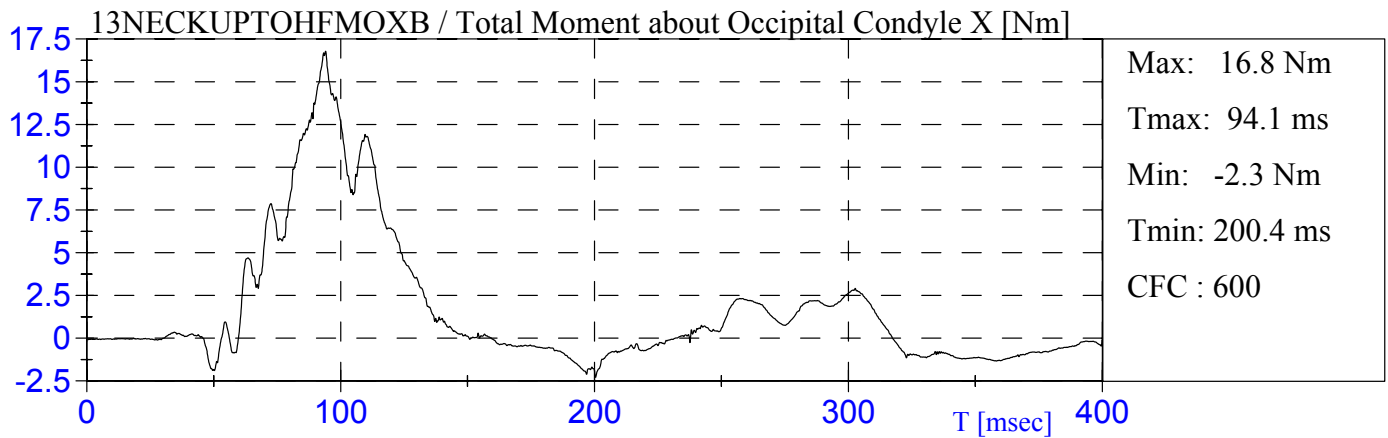


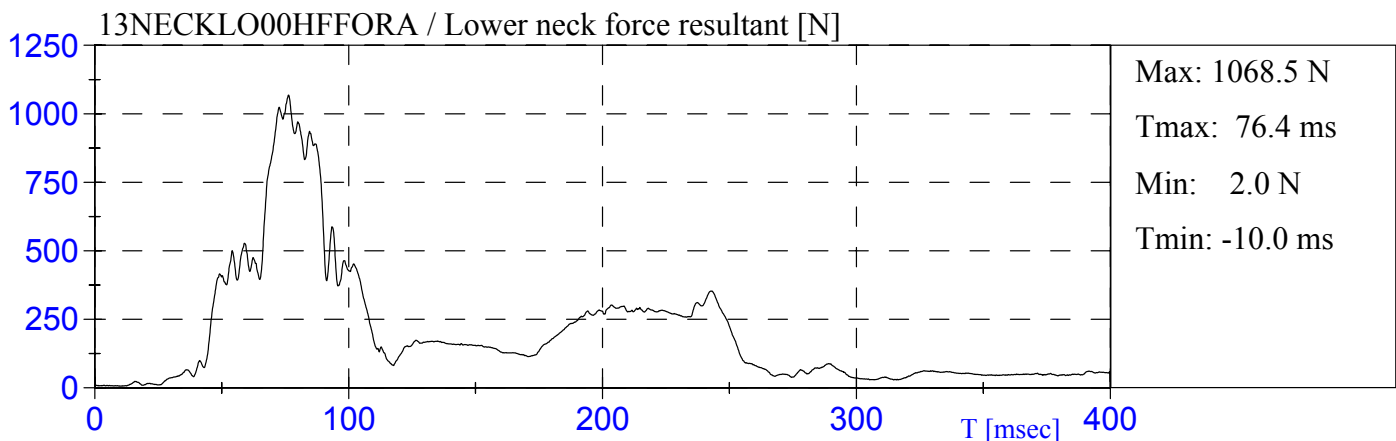
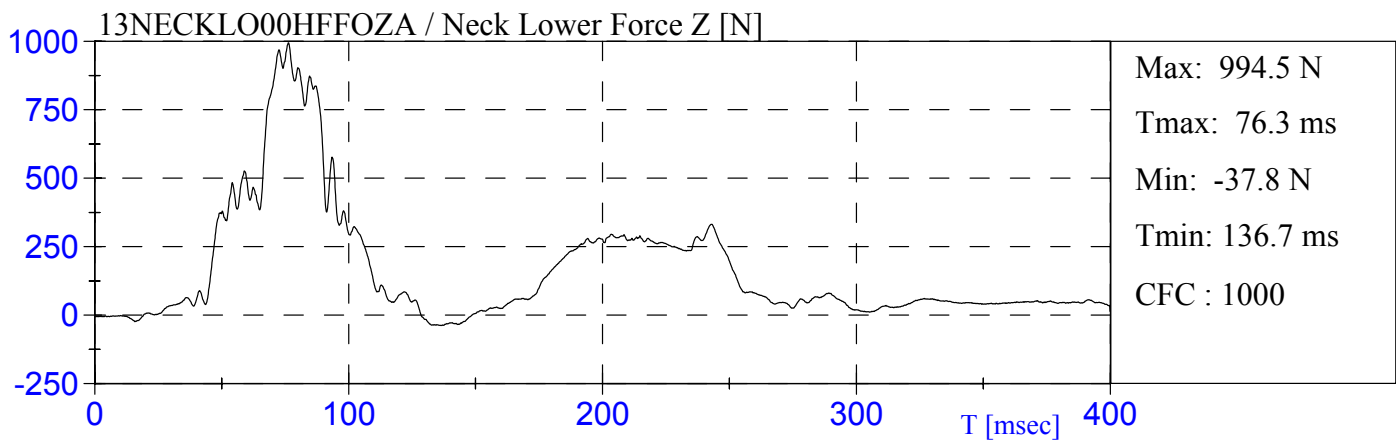
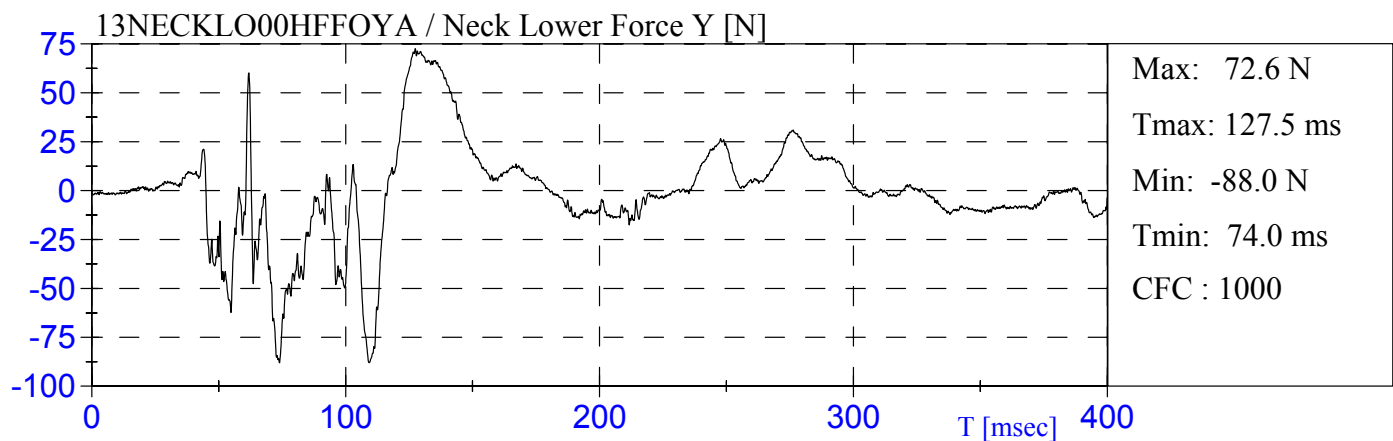
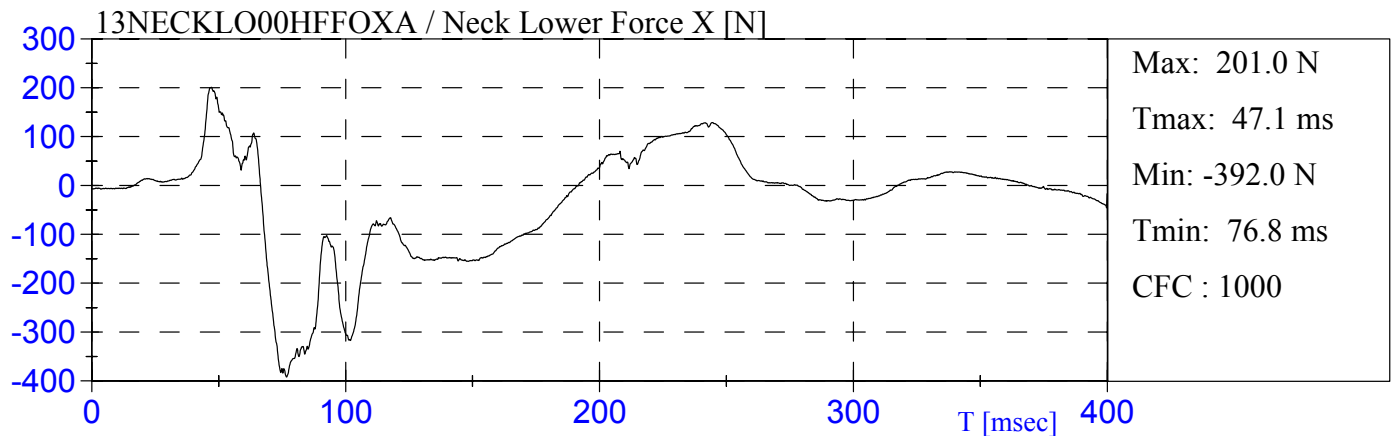


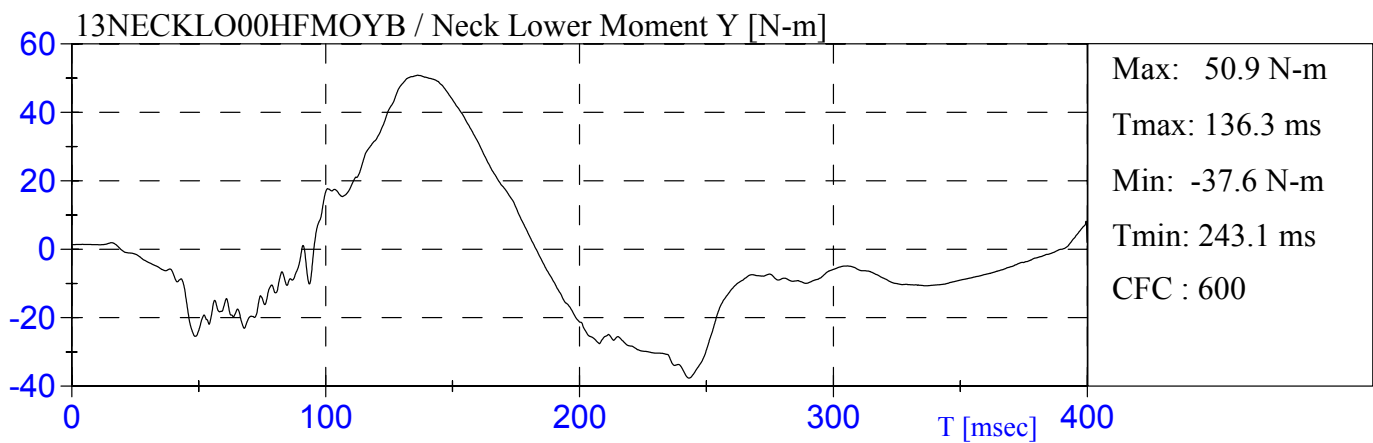
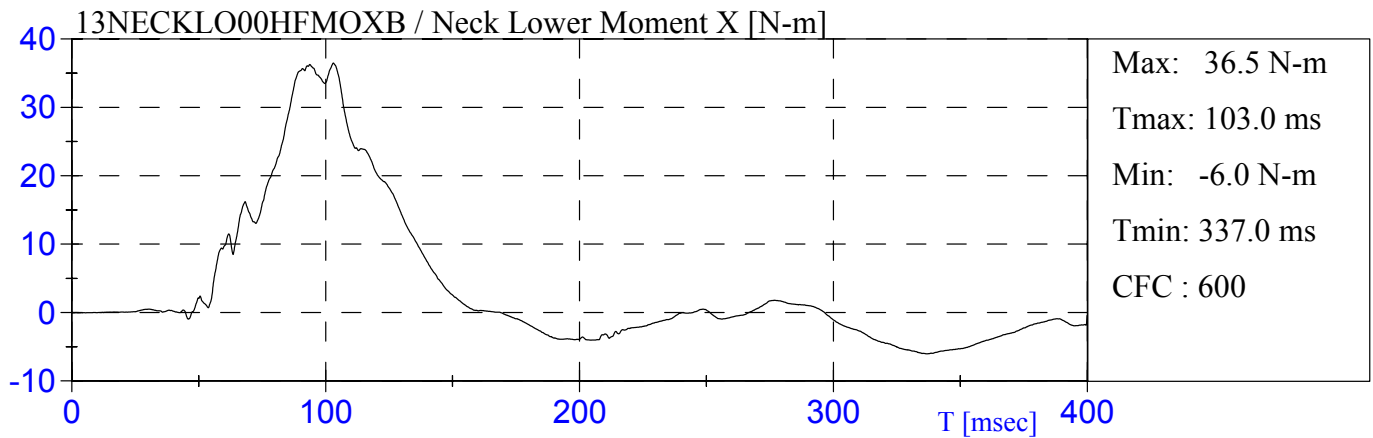


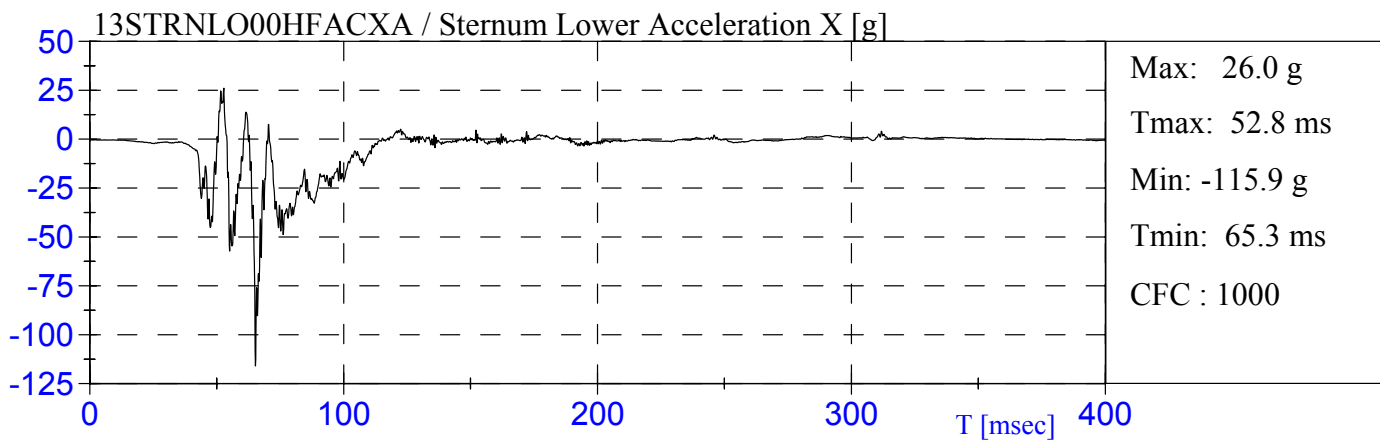
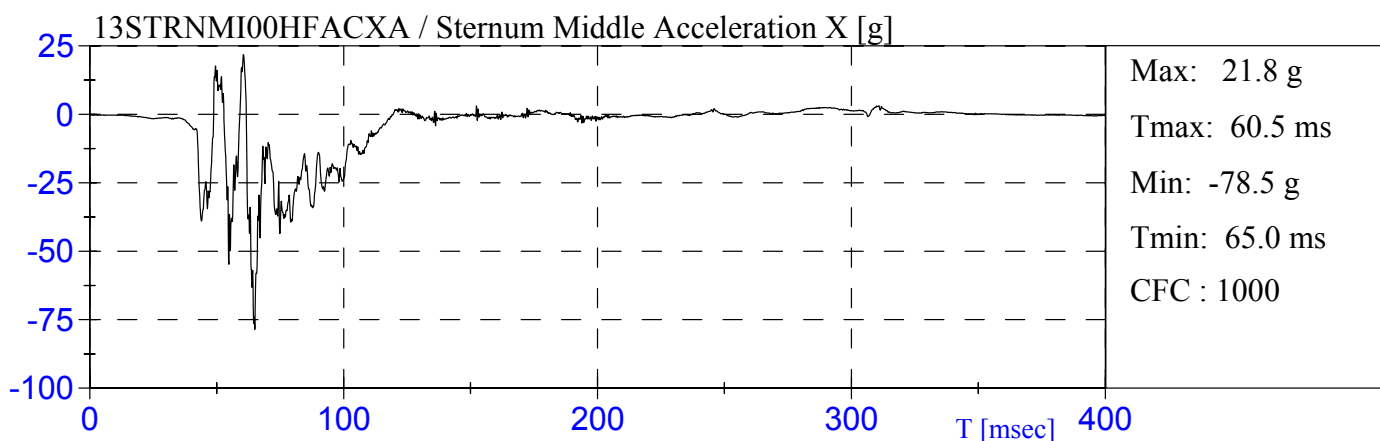
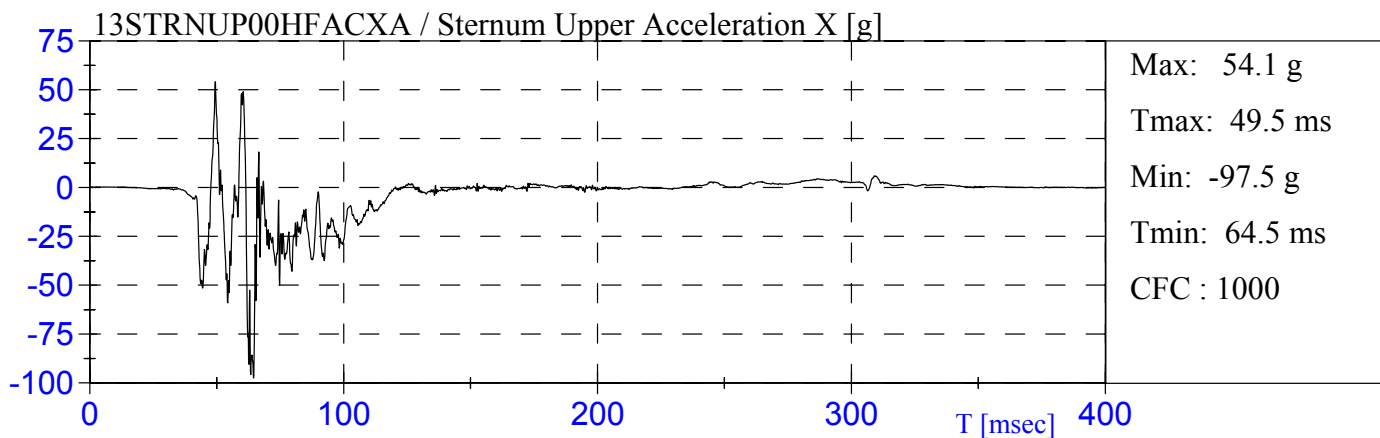


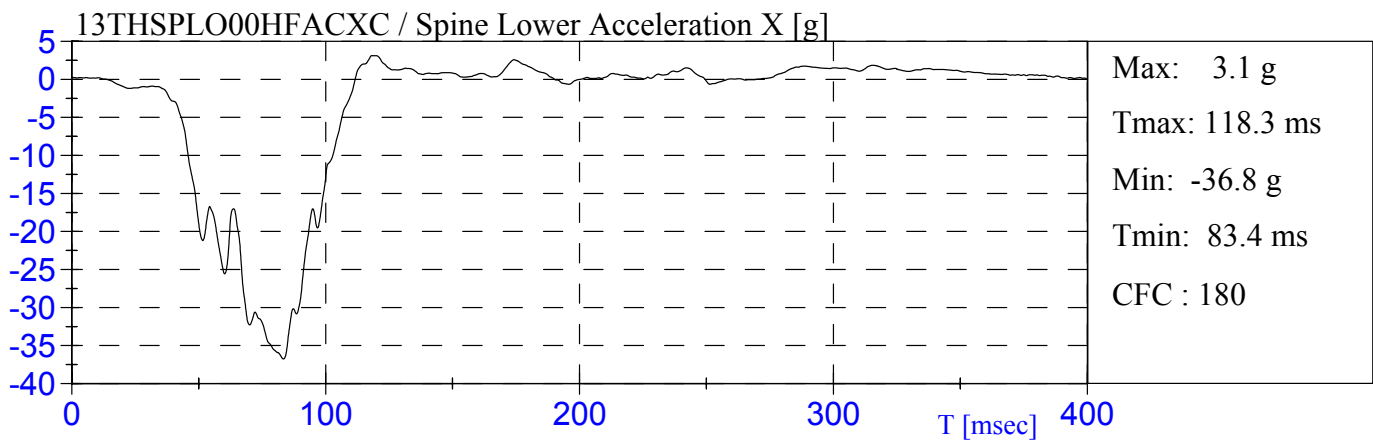
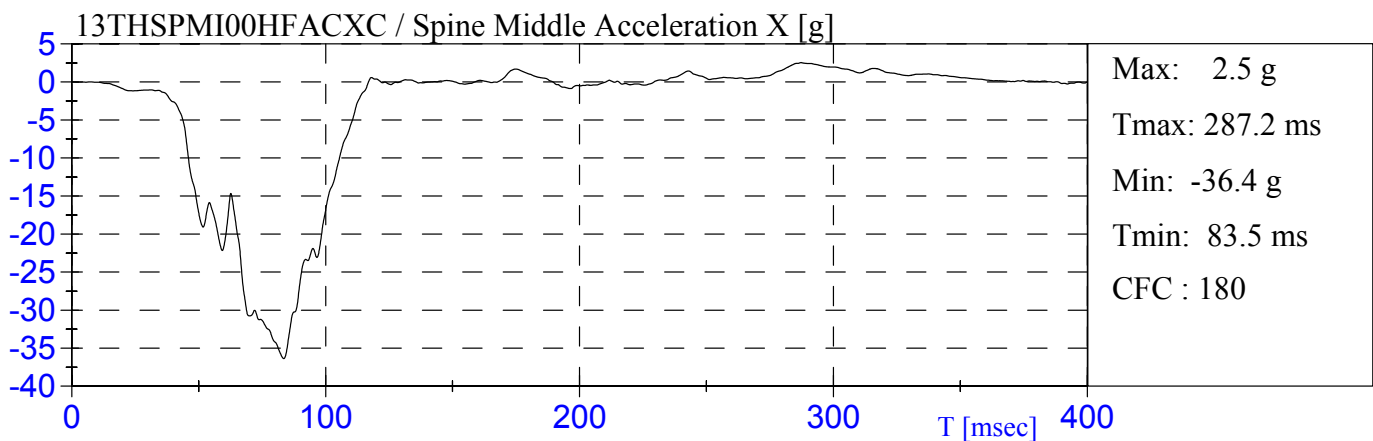
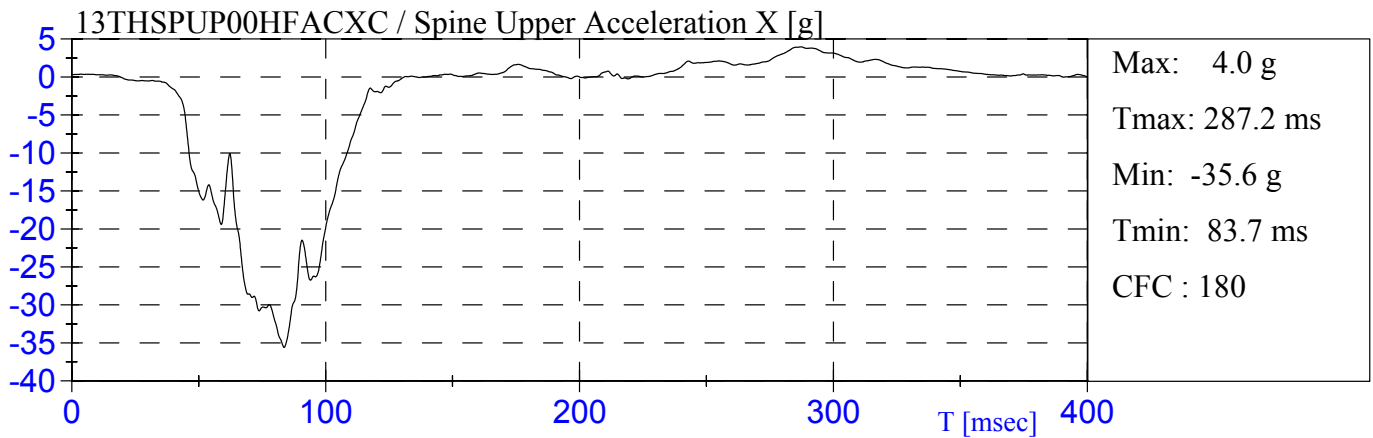


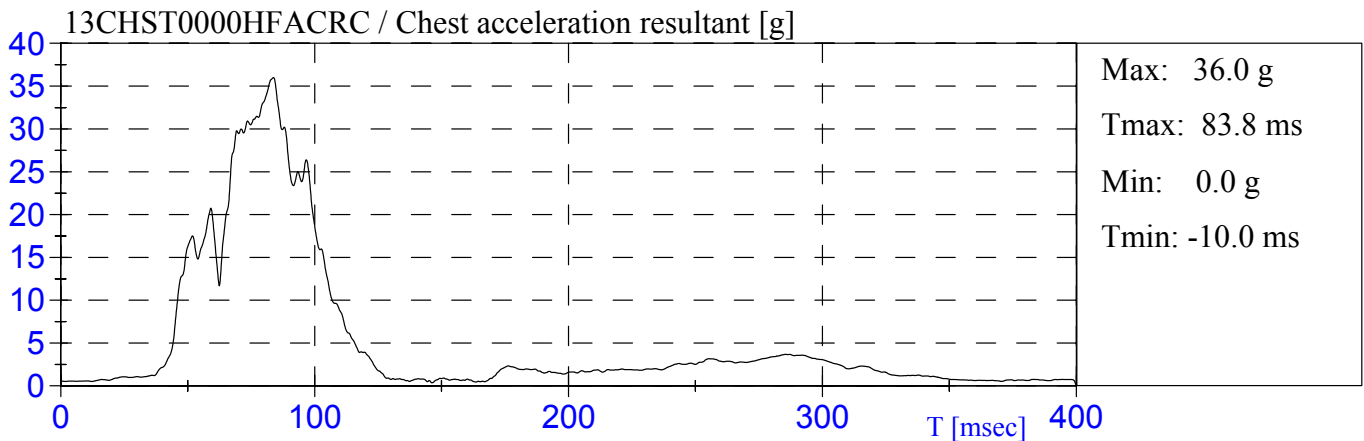
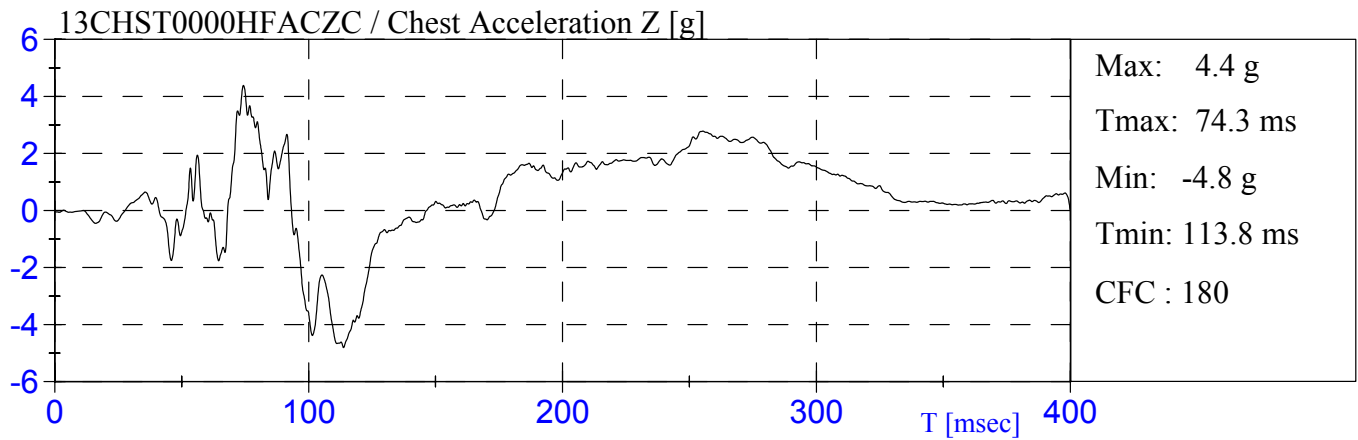
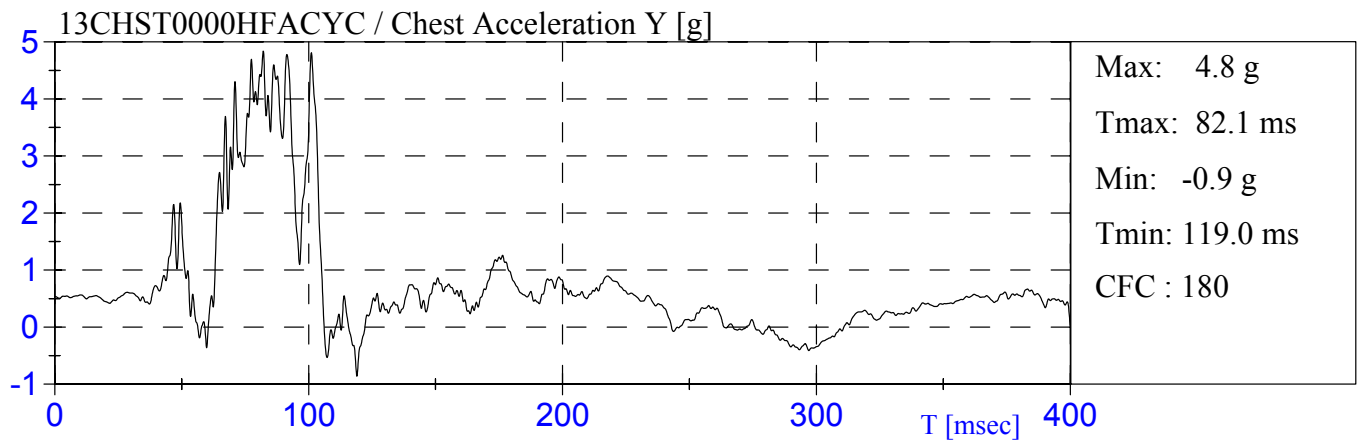
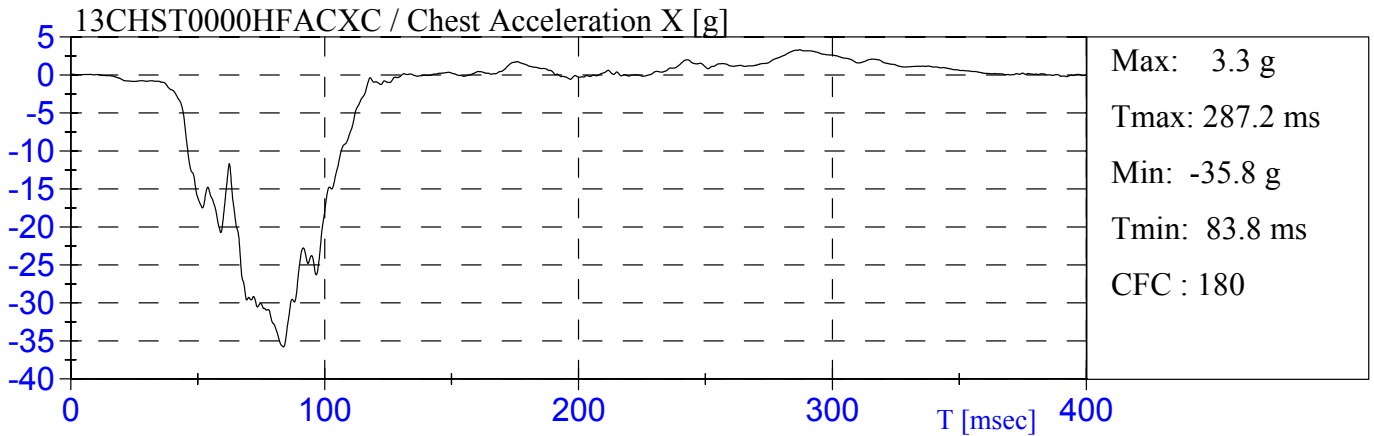


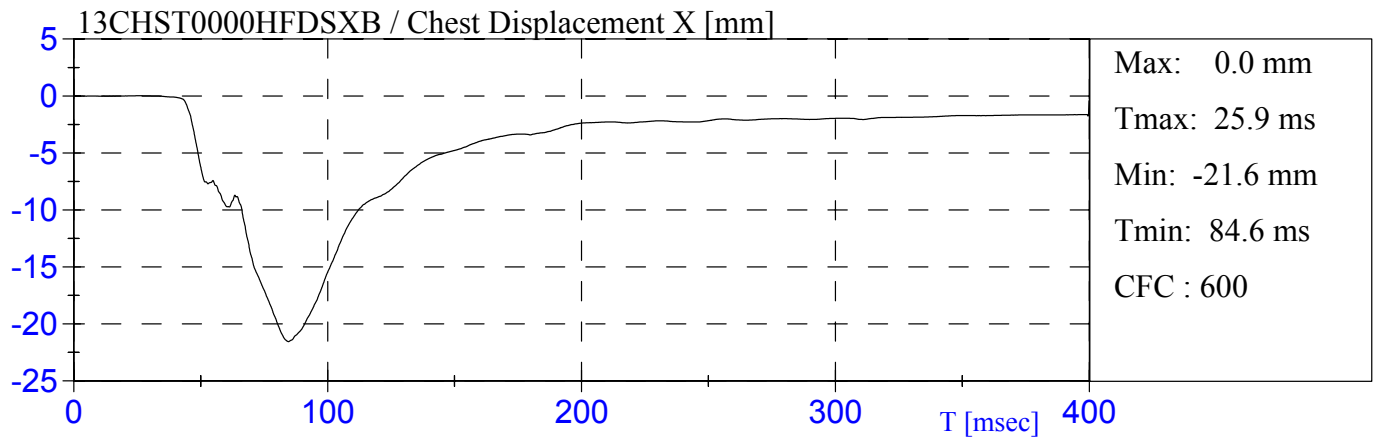


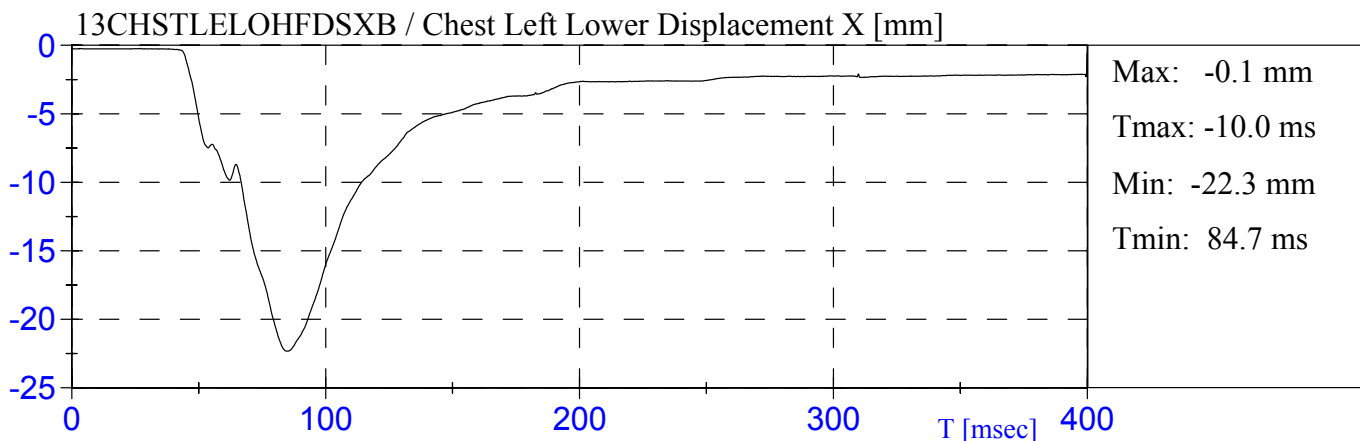
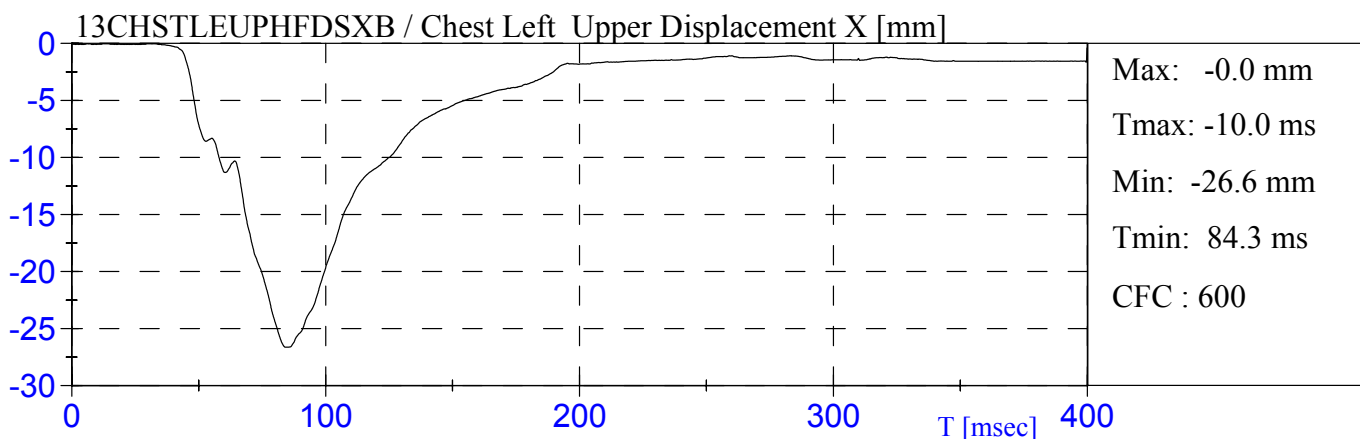
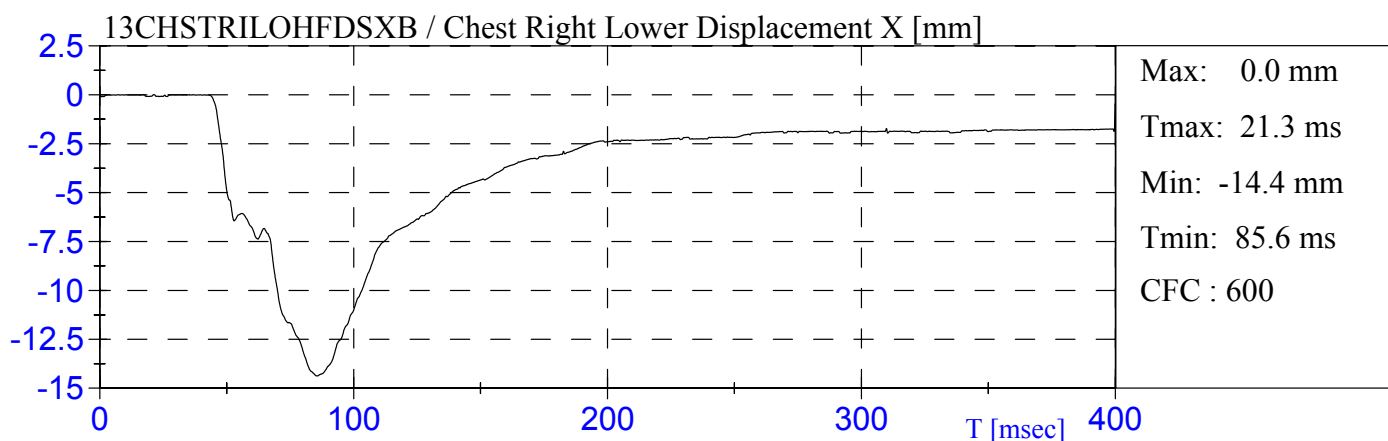
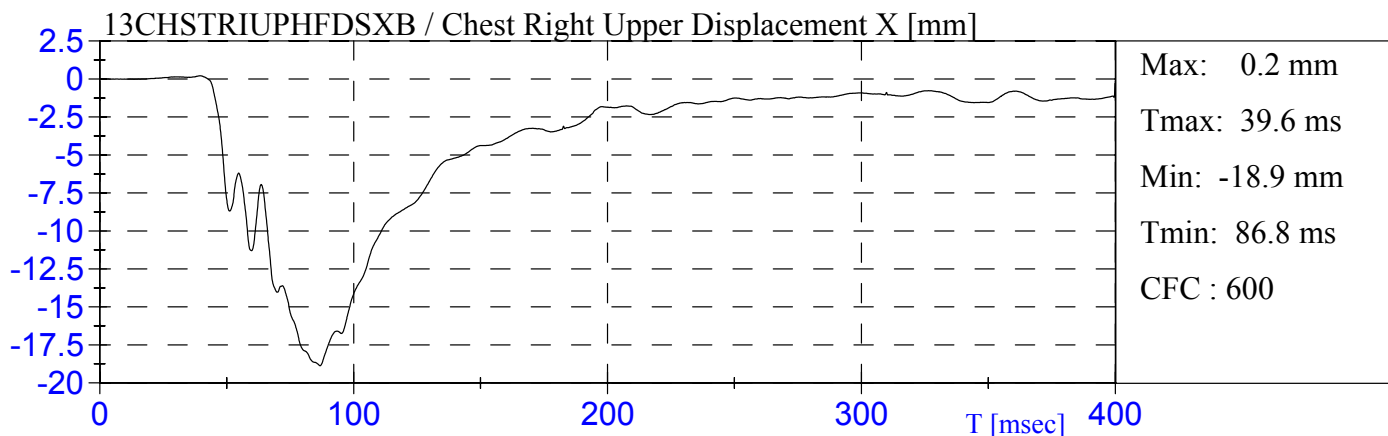


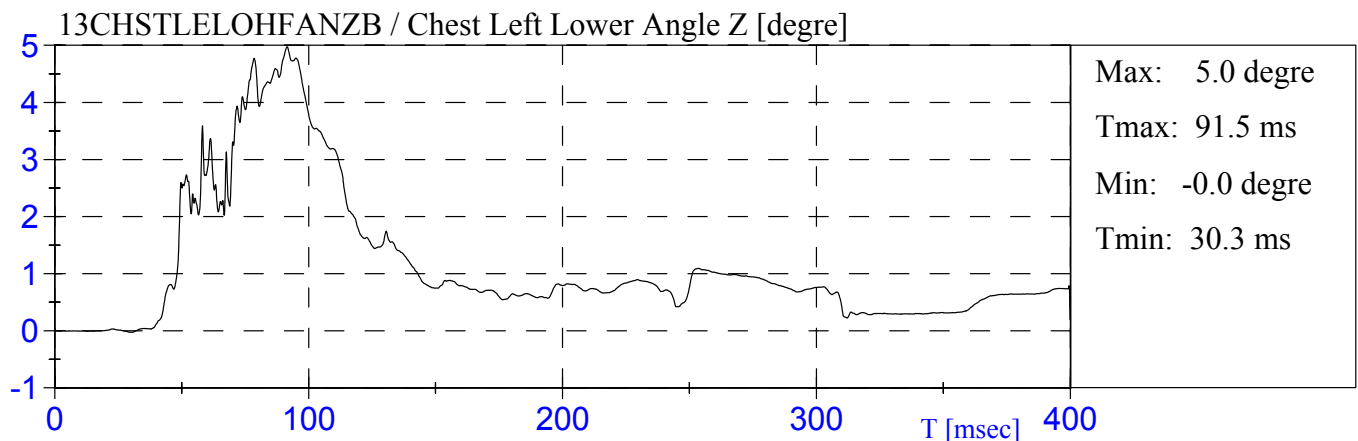
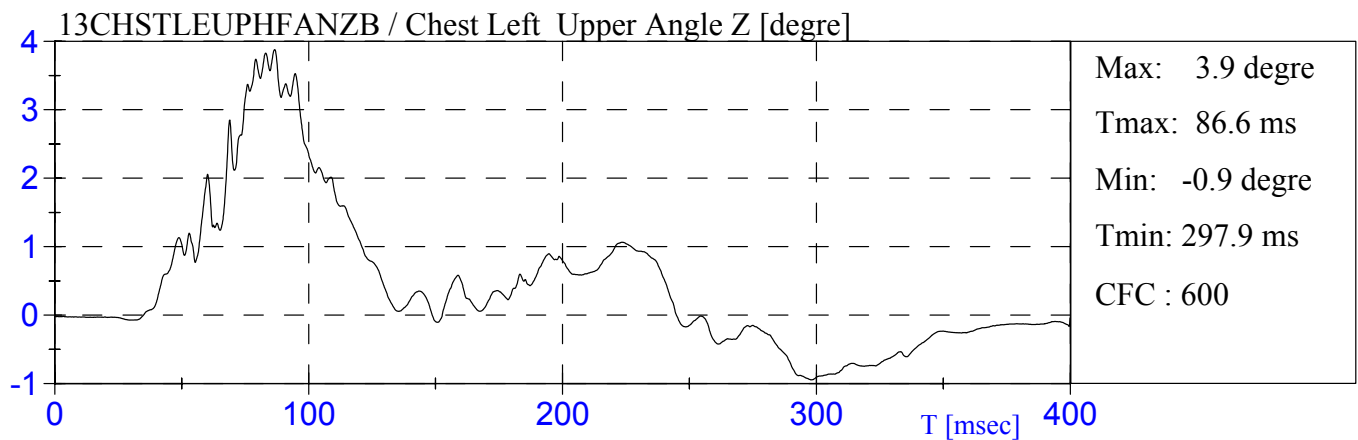
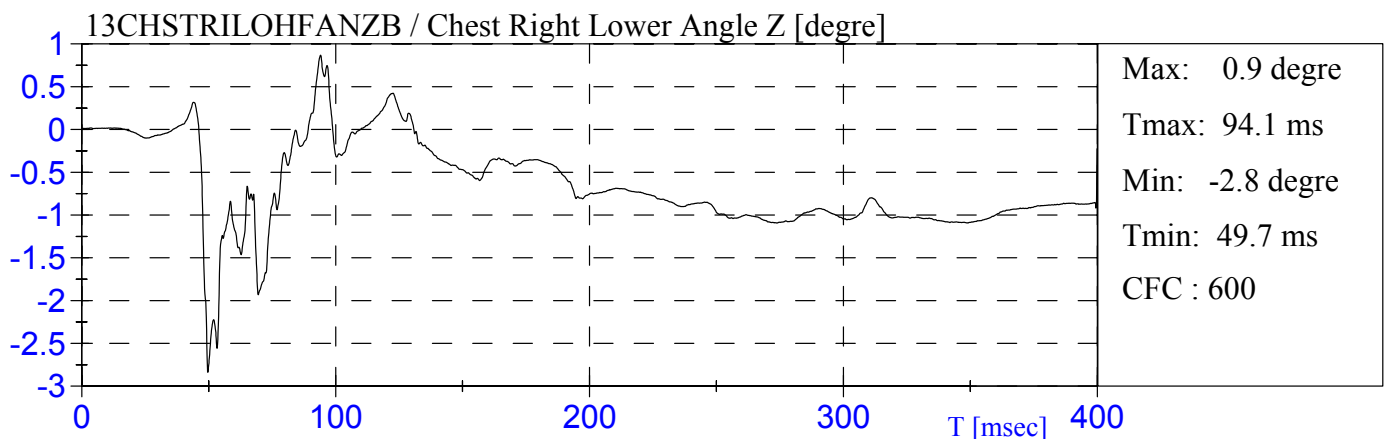
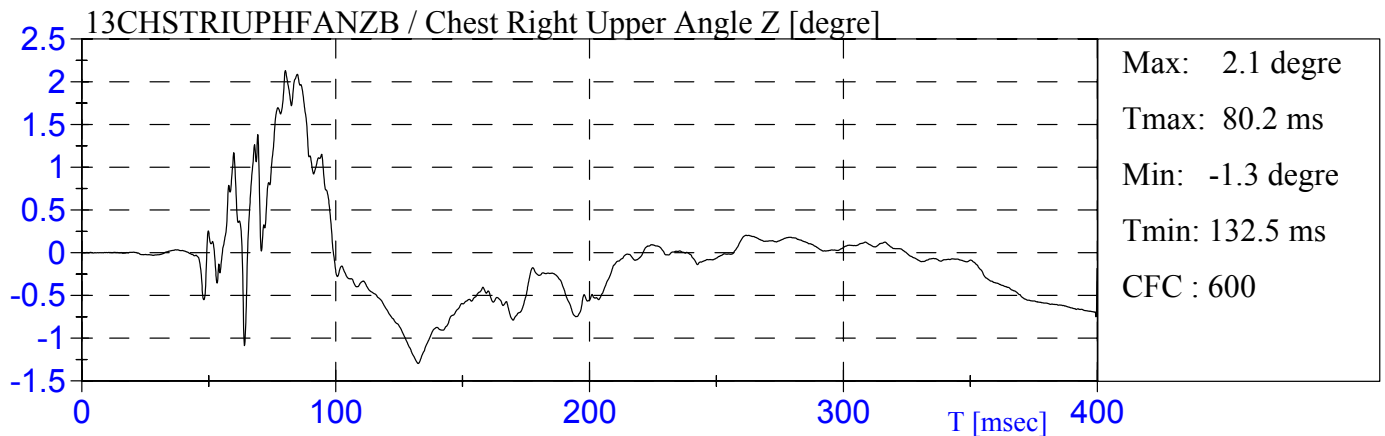


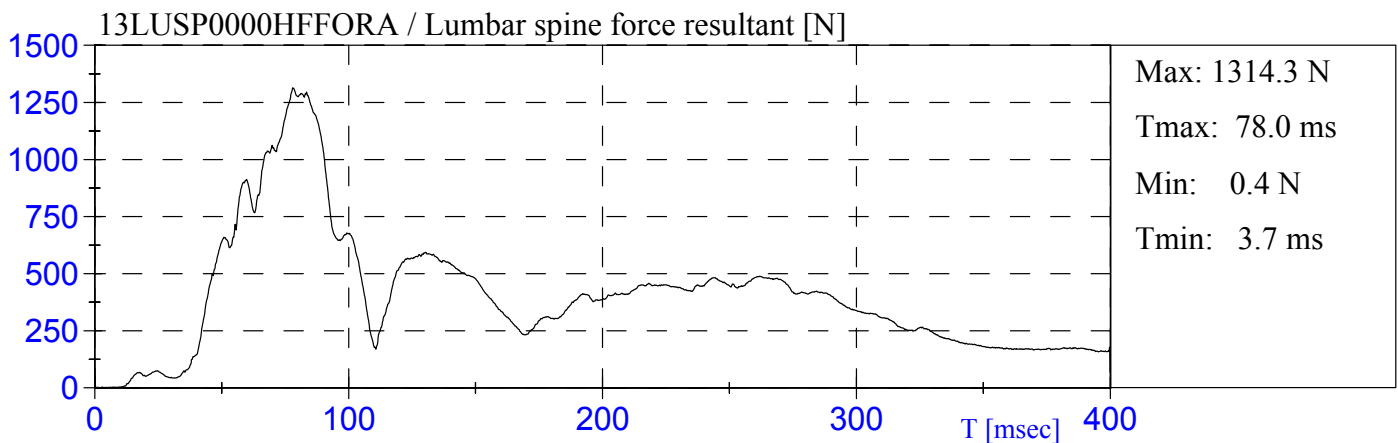
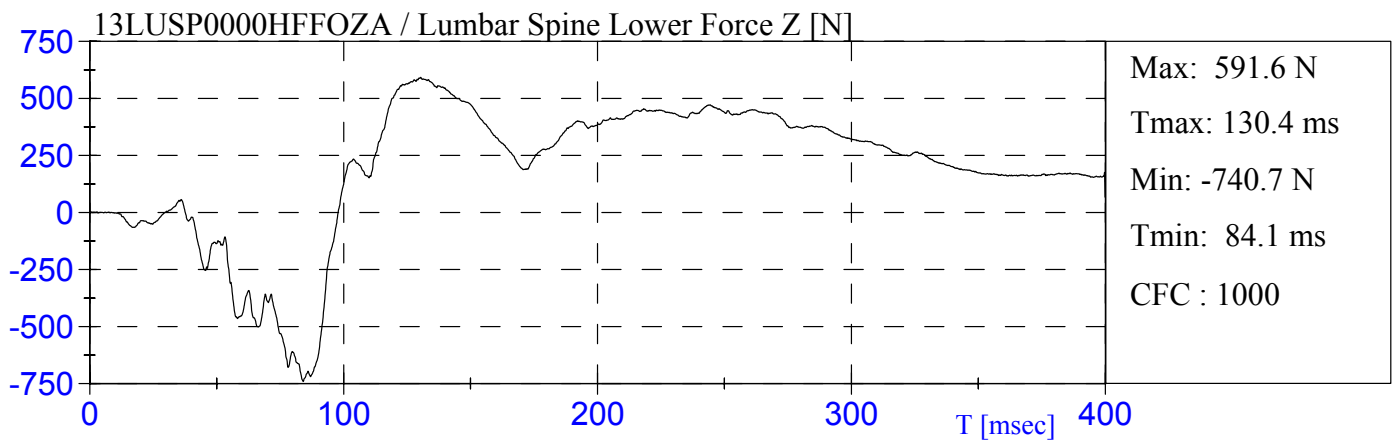
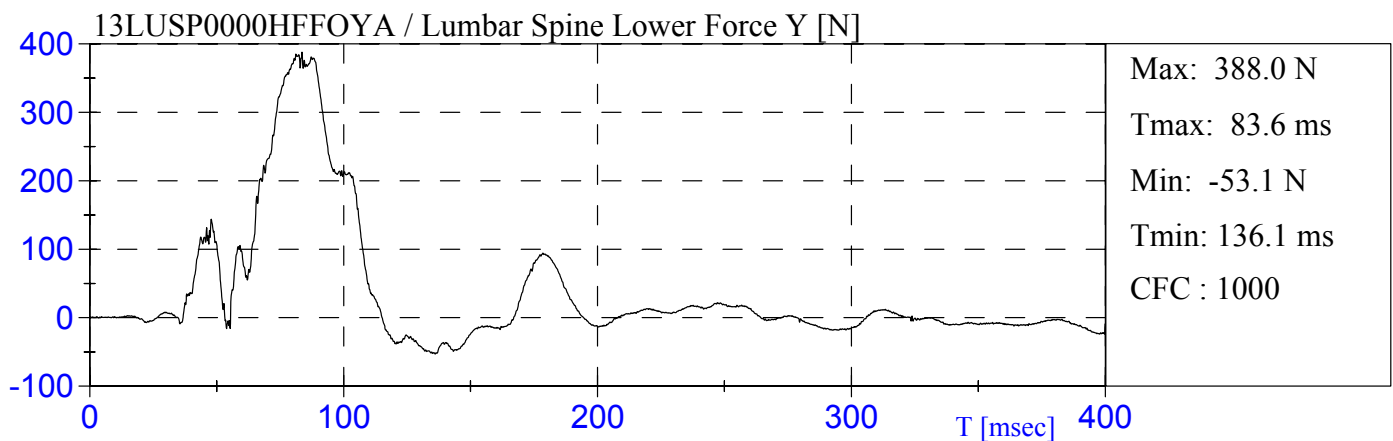
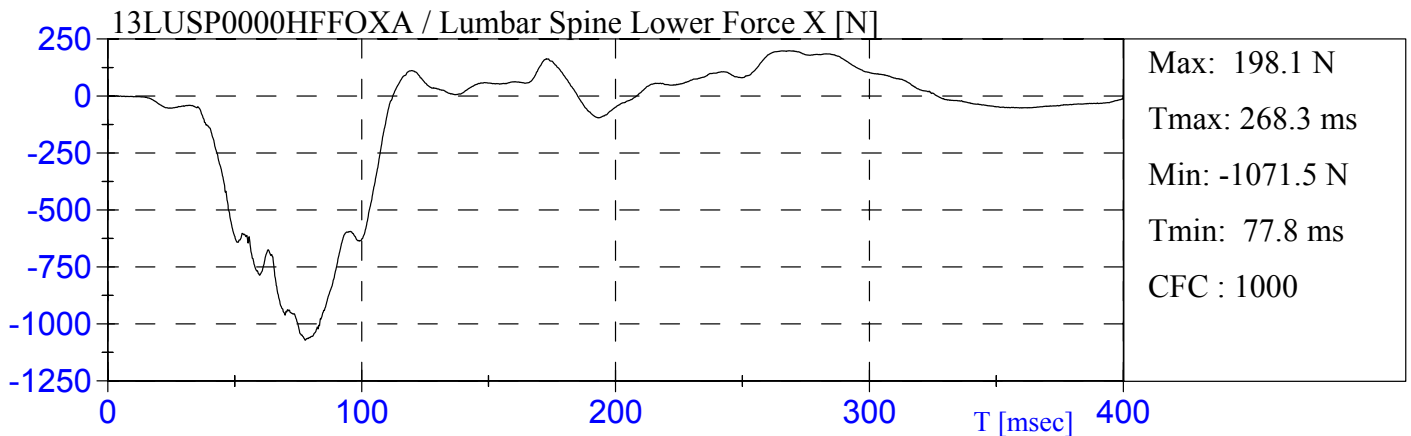


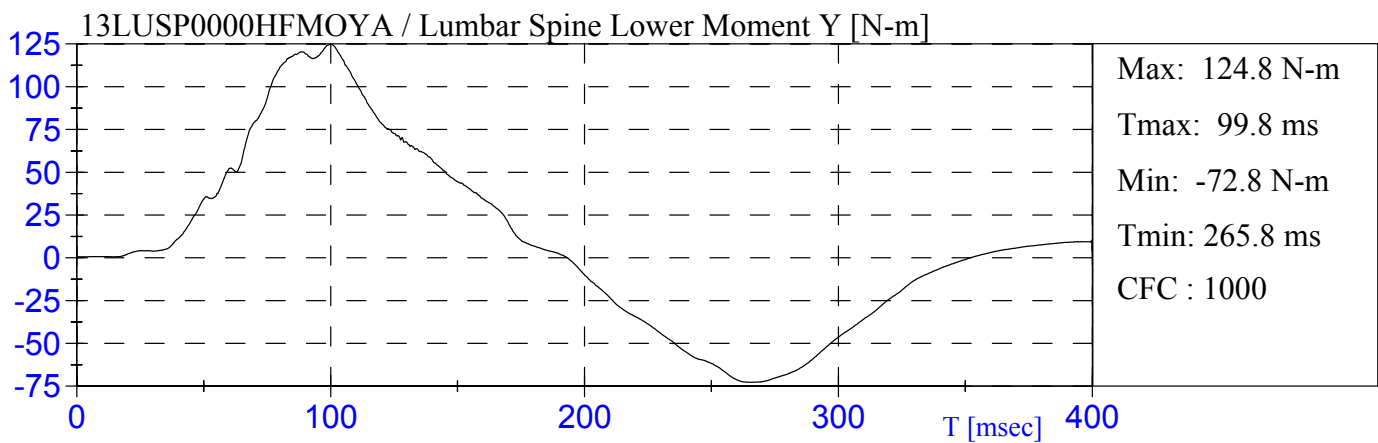
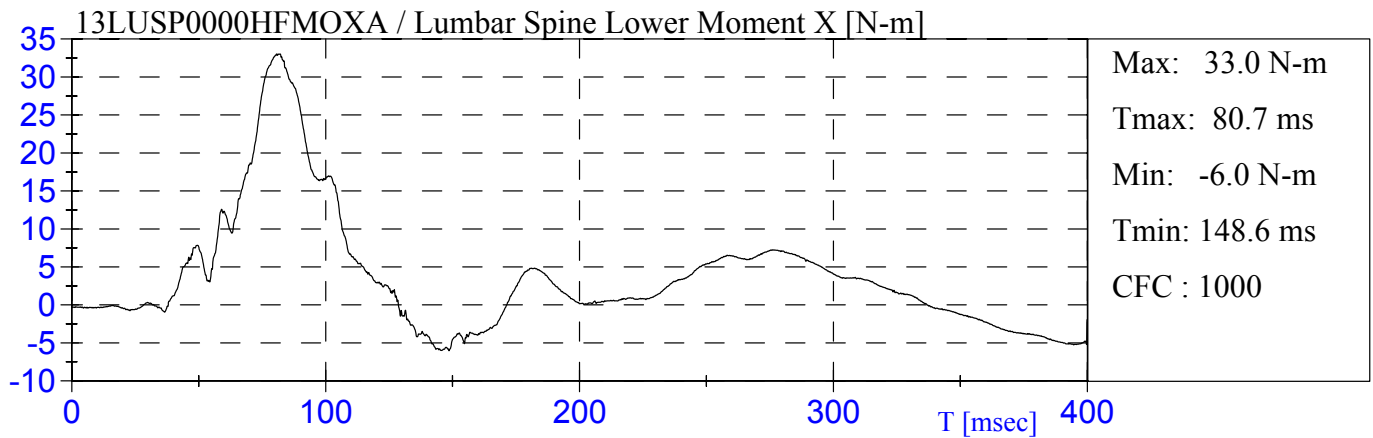




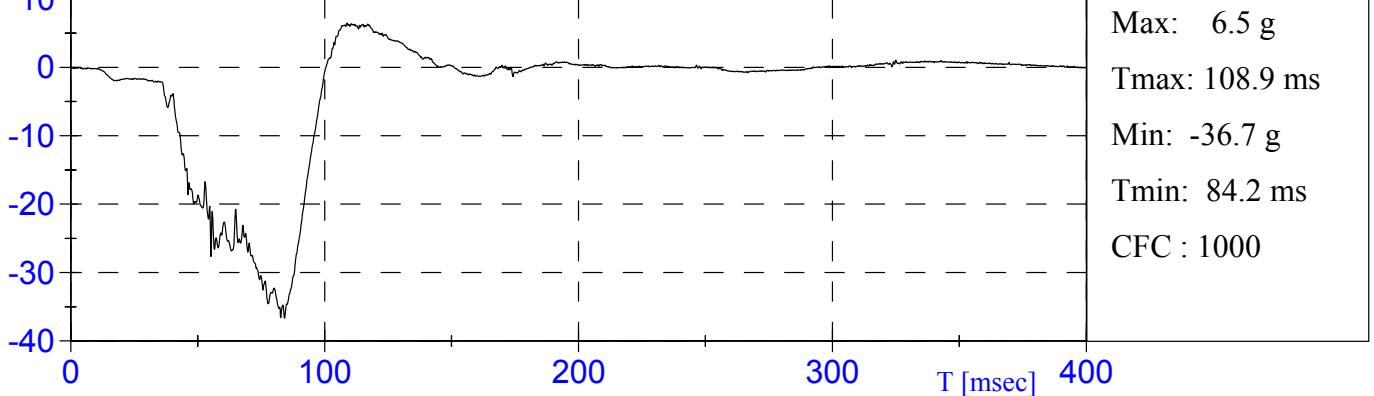




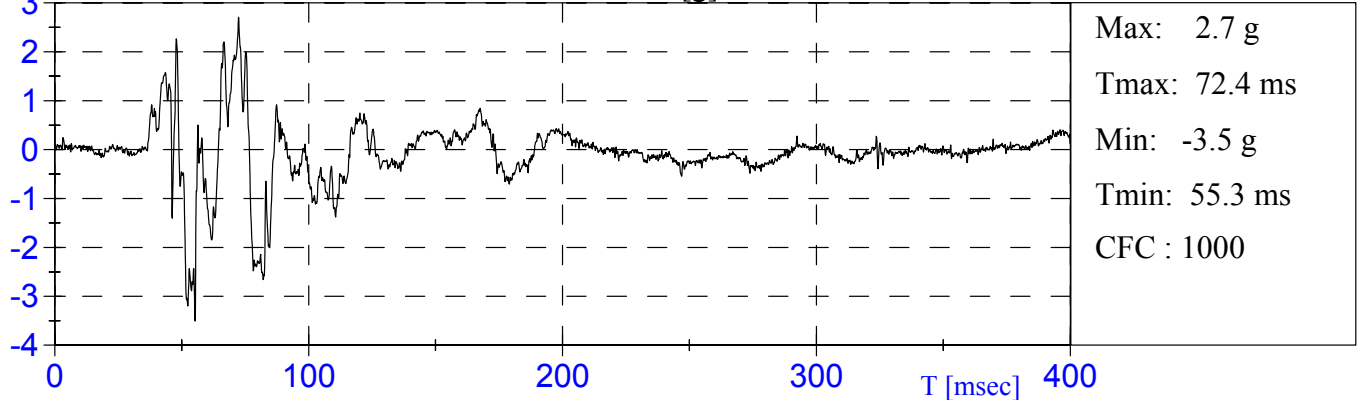




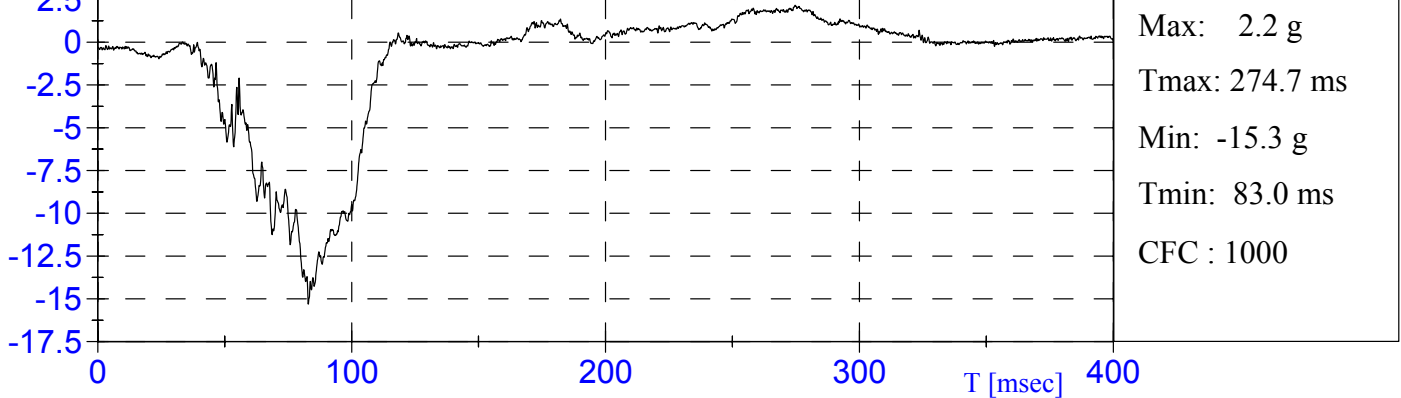
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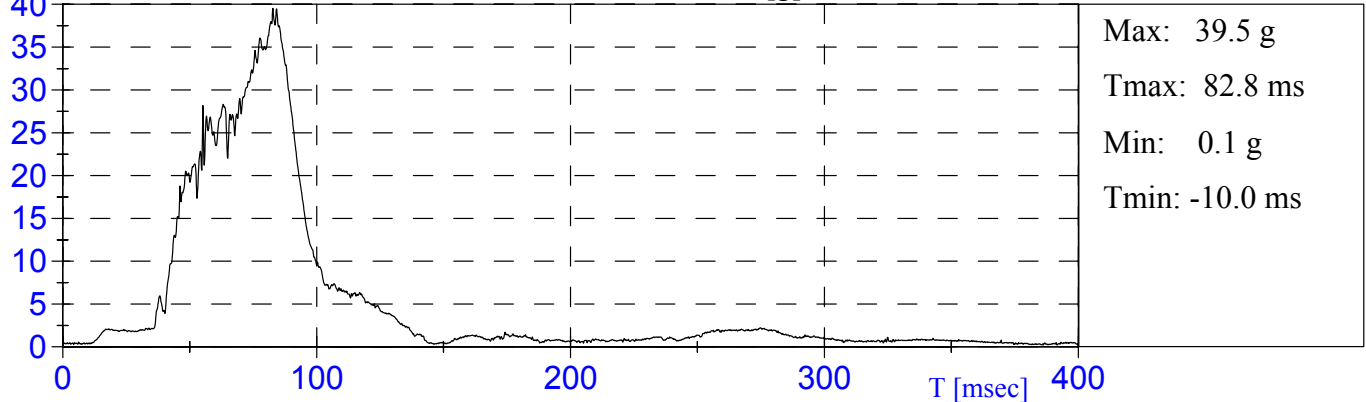
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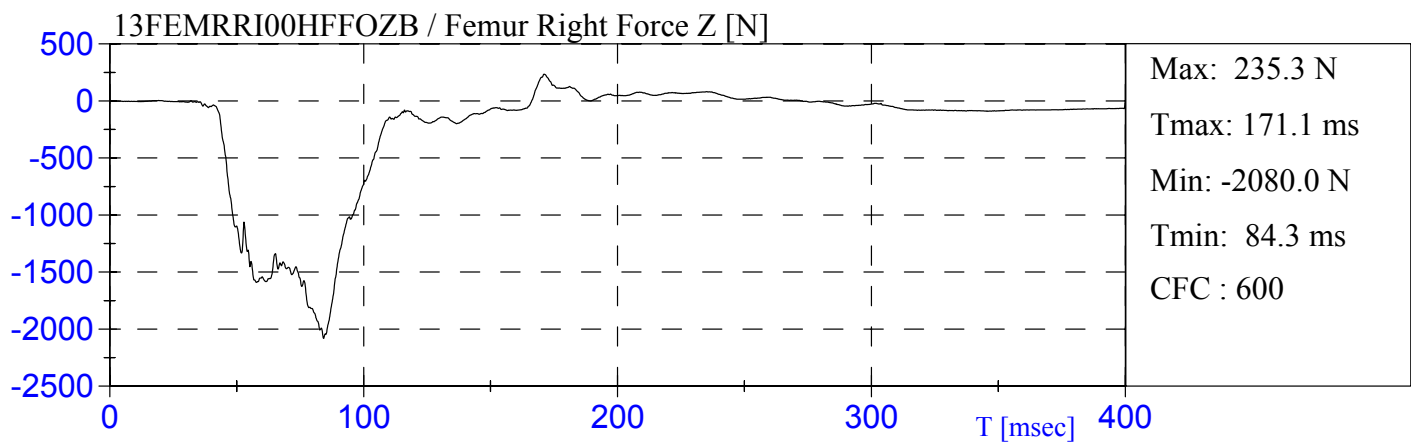
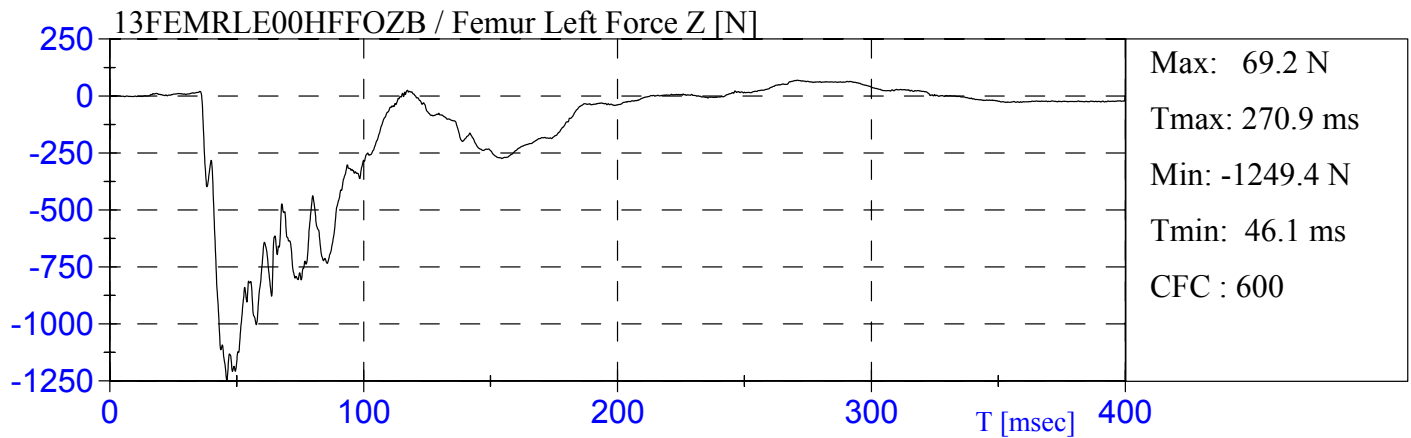


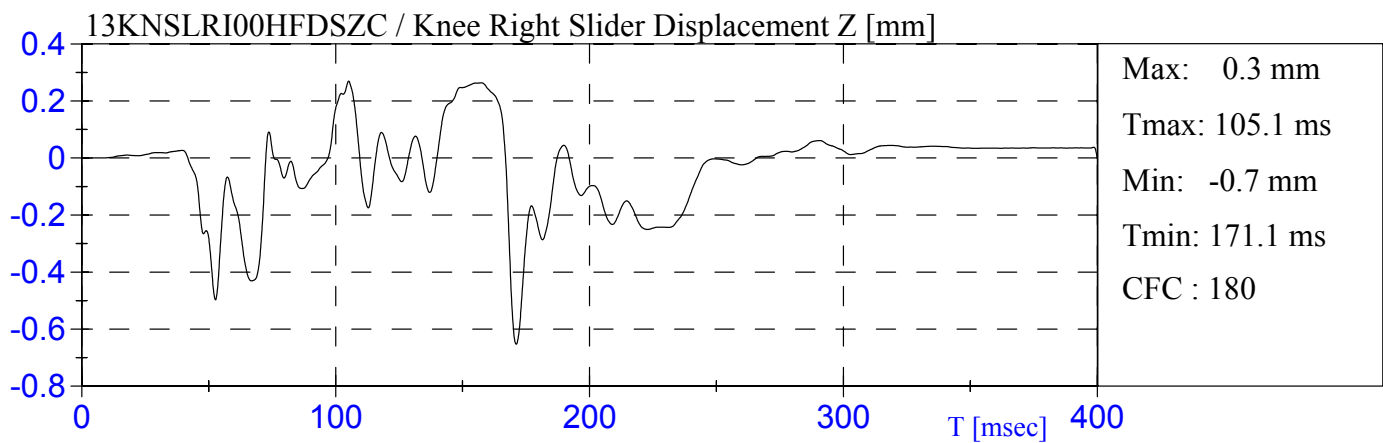
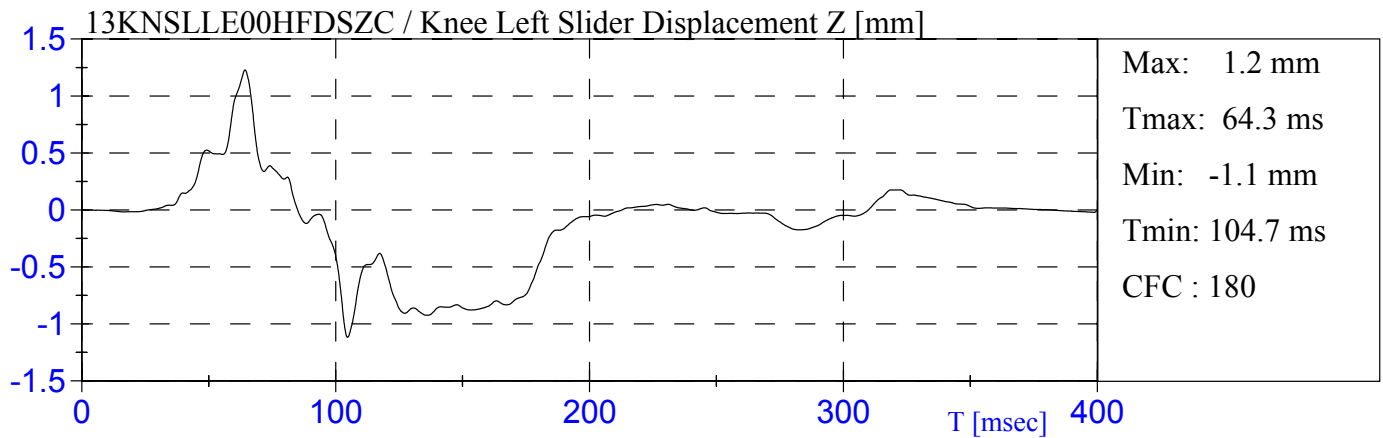
13PELV0000HFACZA / Pelvis Acceleration Z [g]

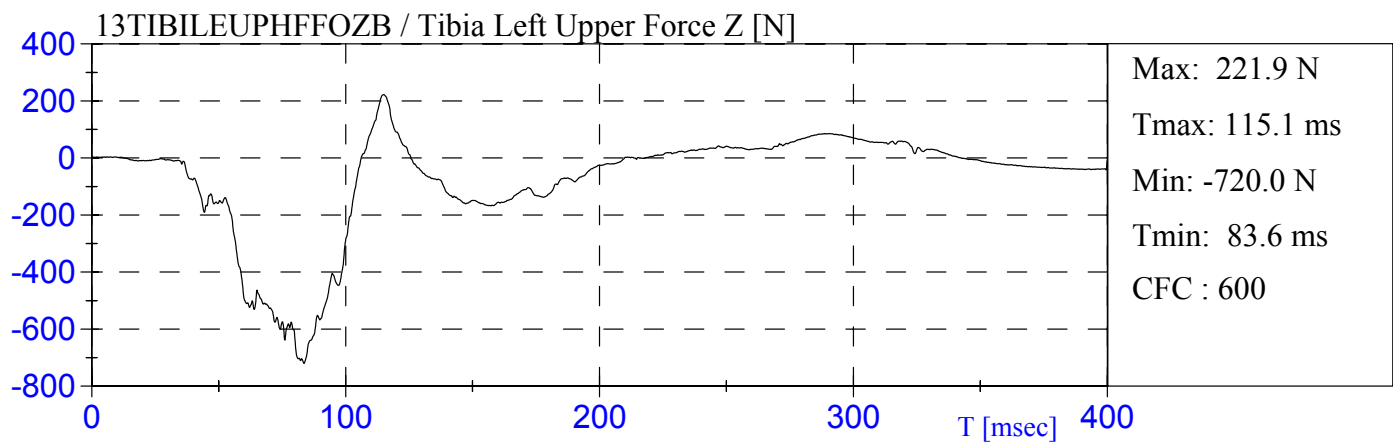
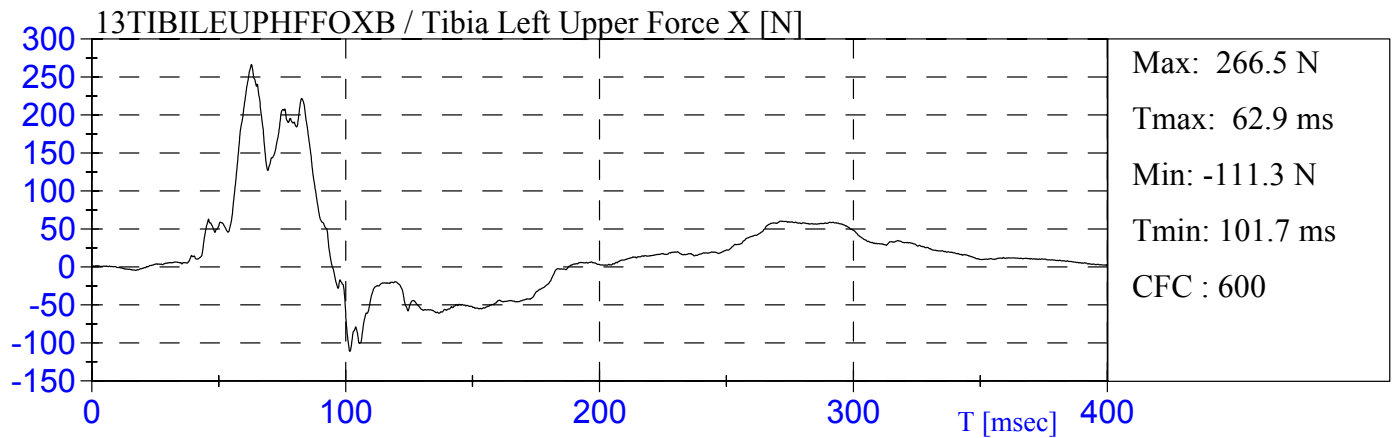


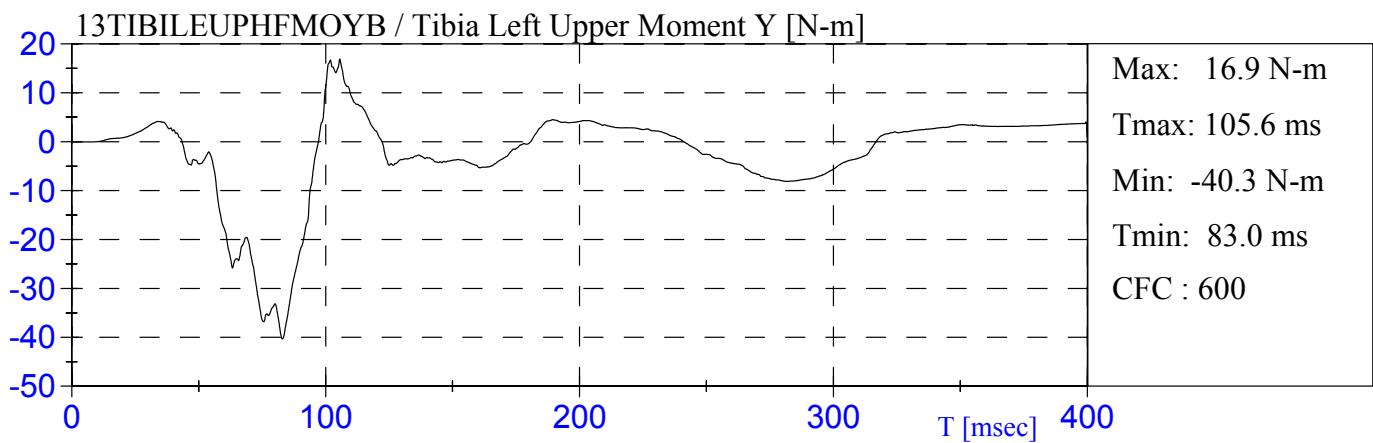
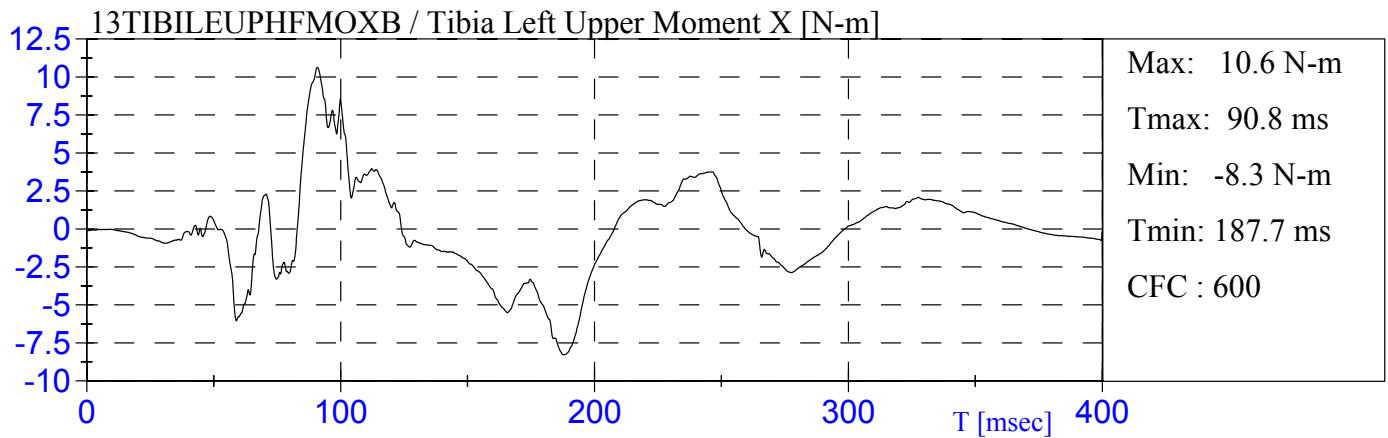
13PELV0000HFACRA / Pelvis acceleration resultant [g]

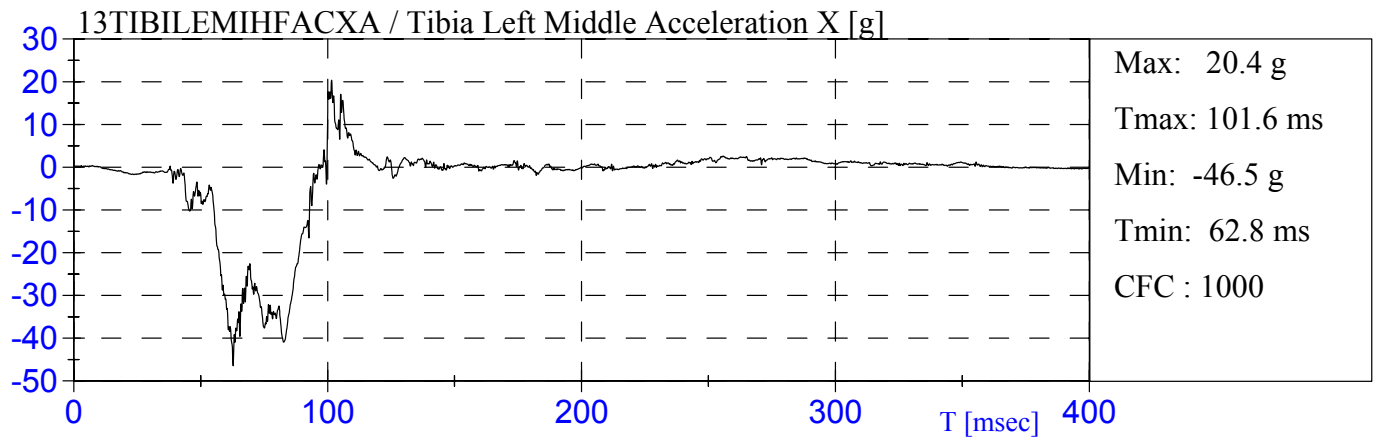


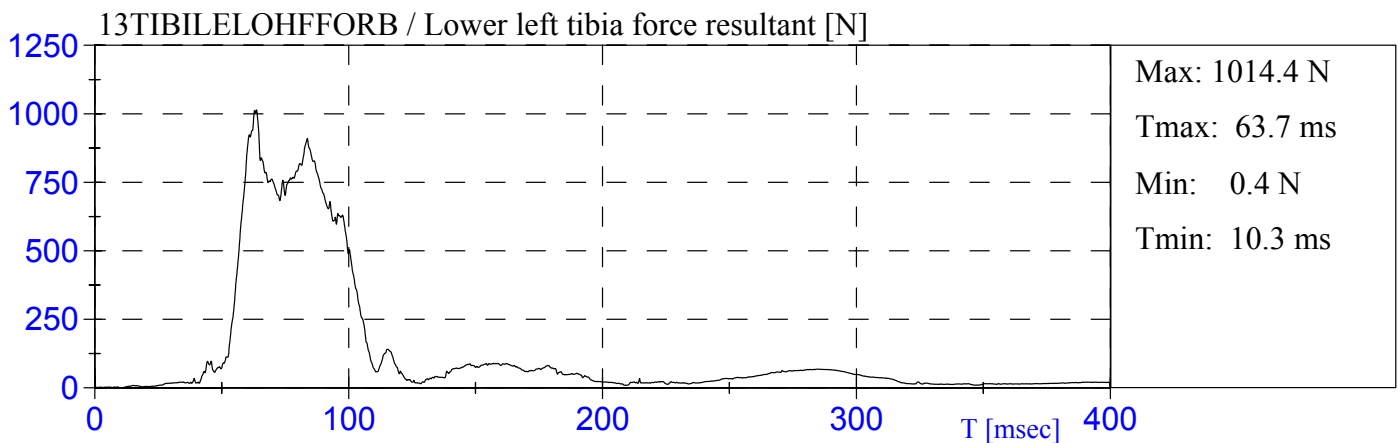
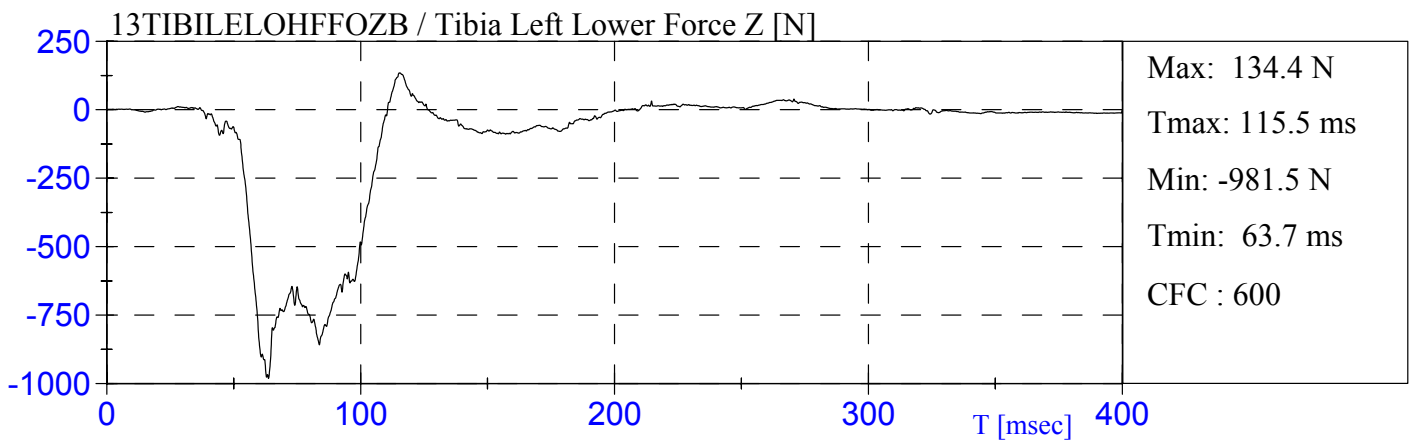
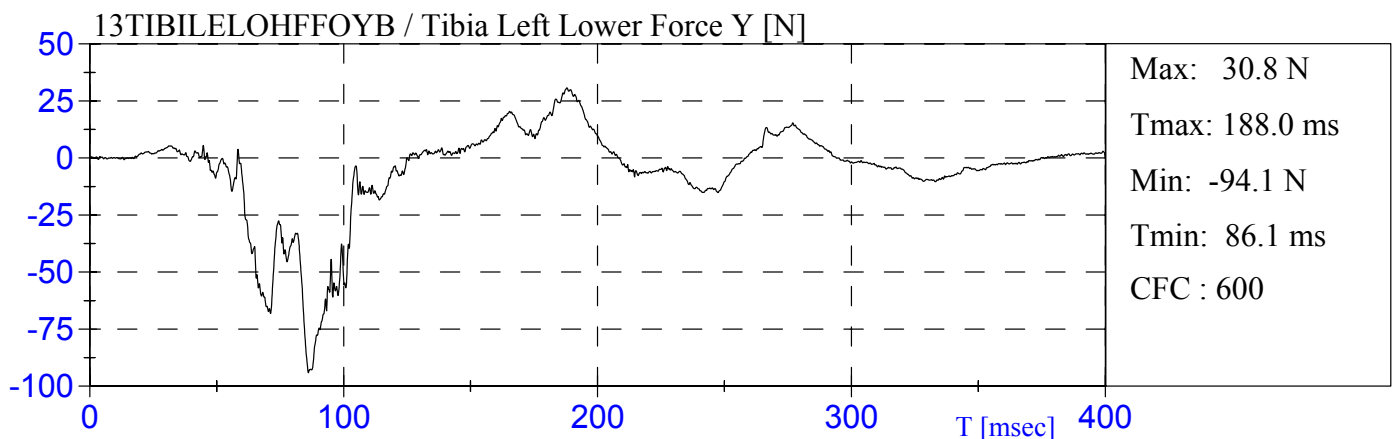
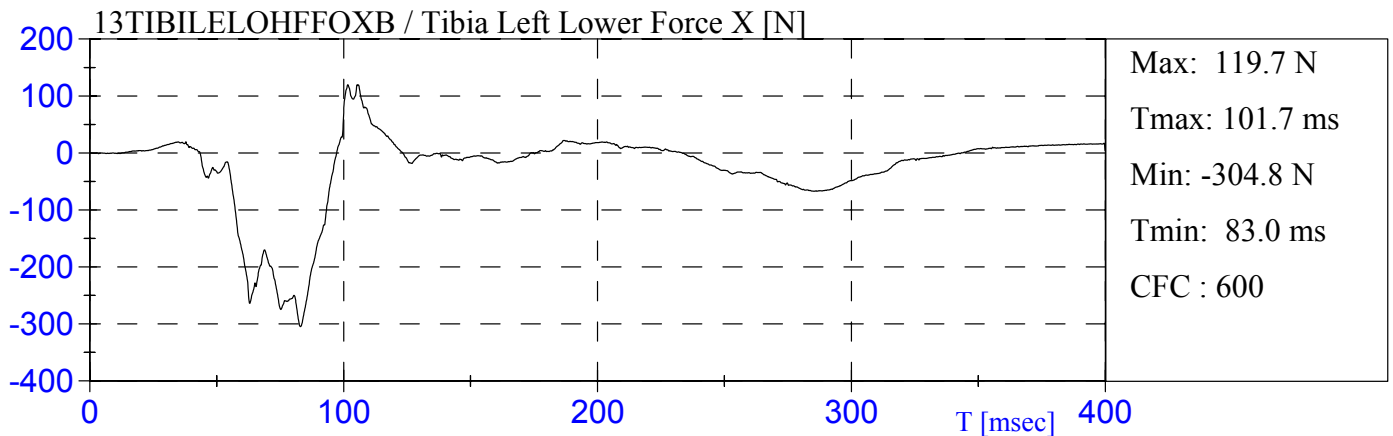


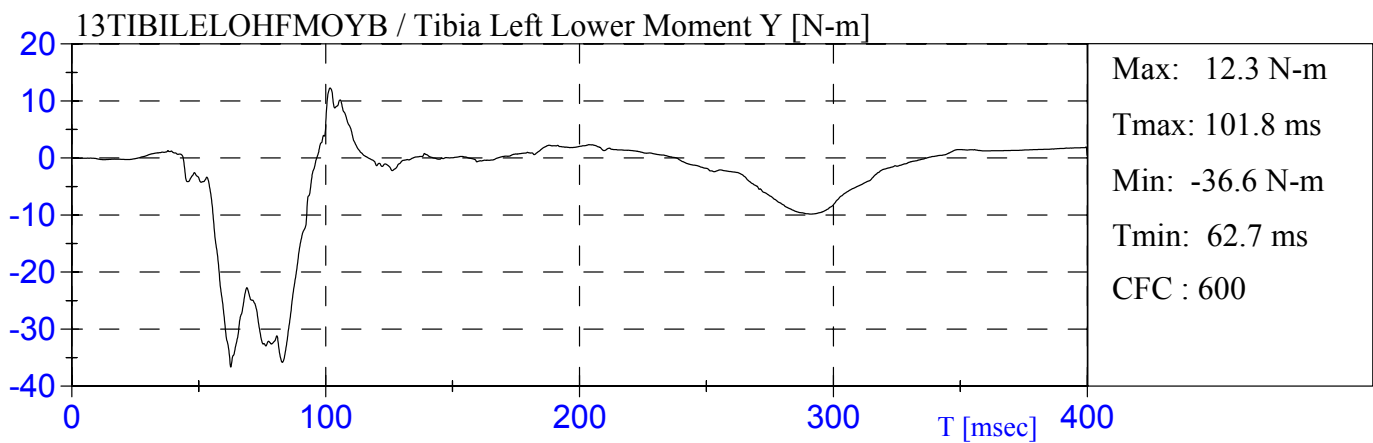
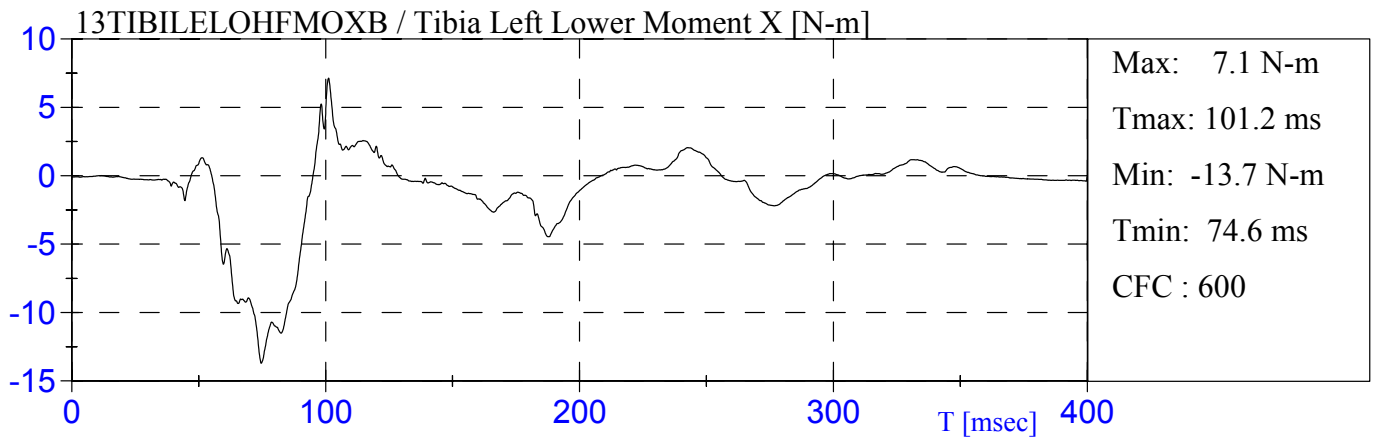


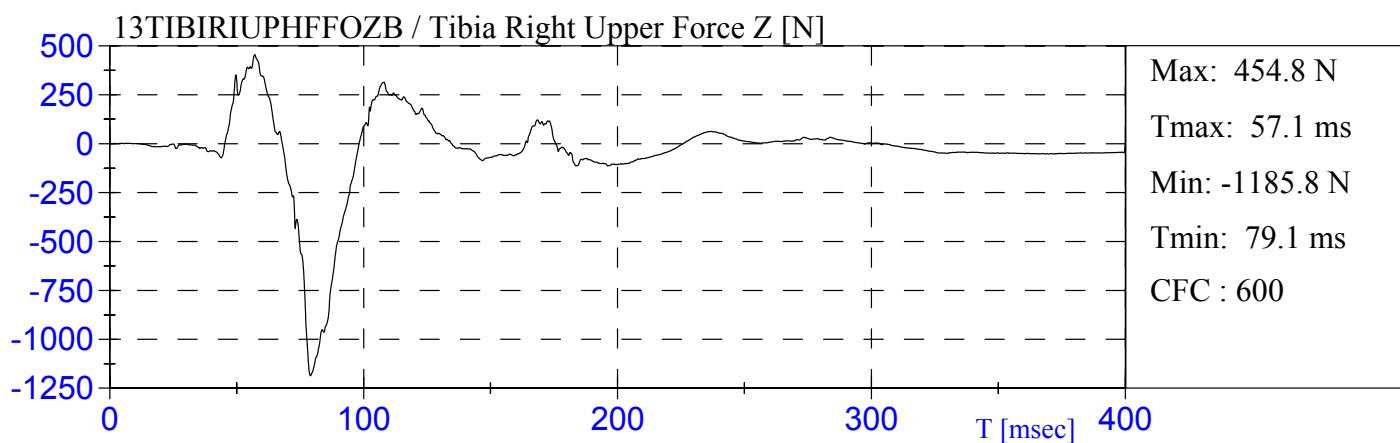
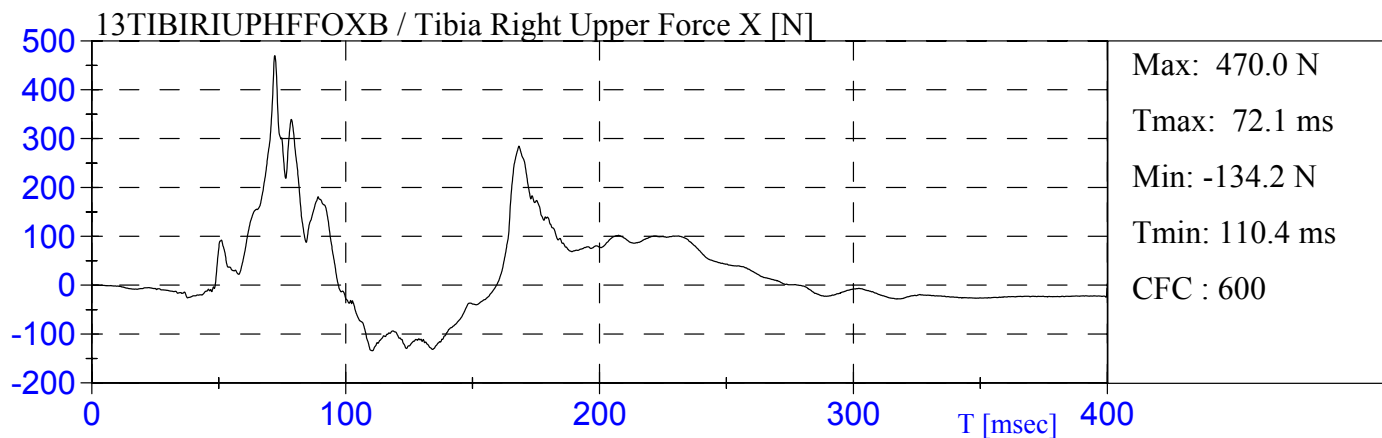


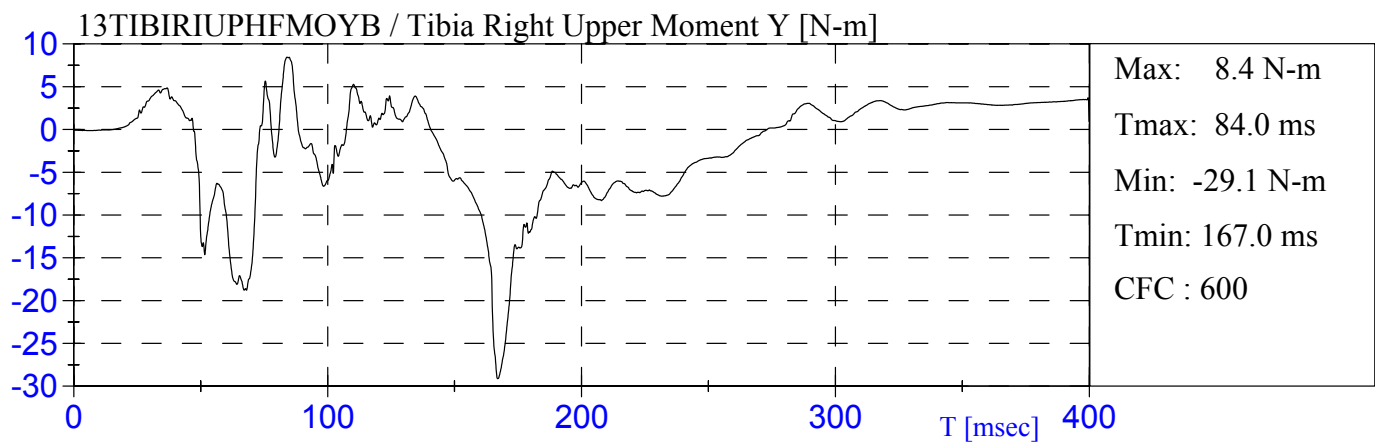
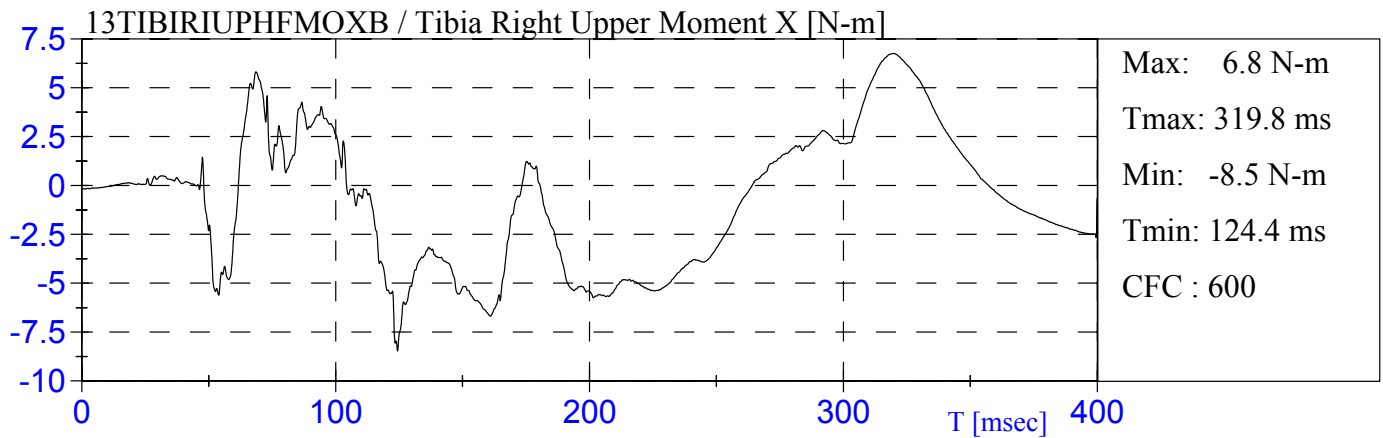


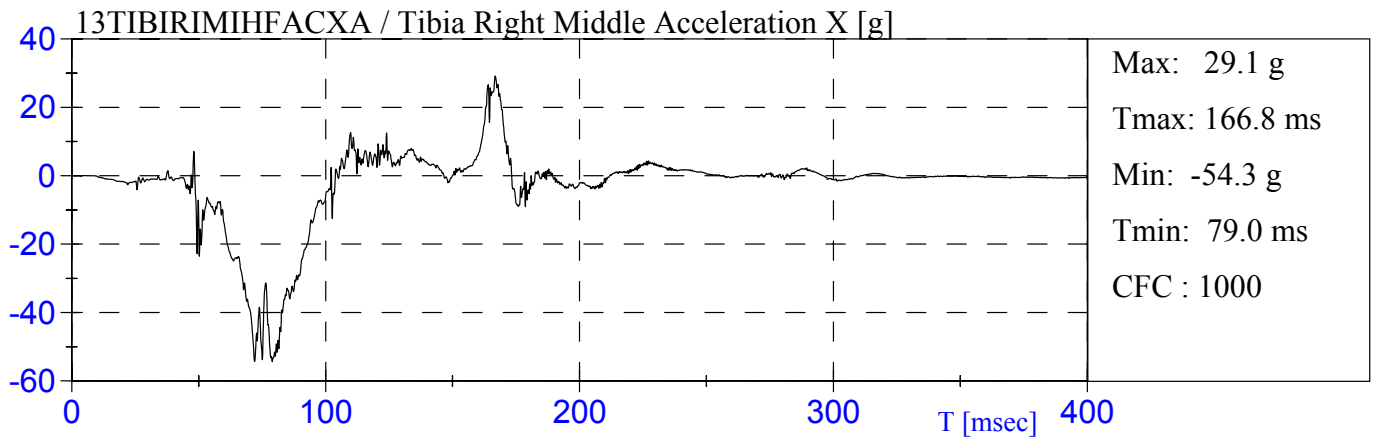


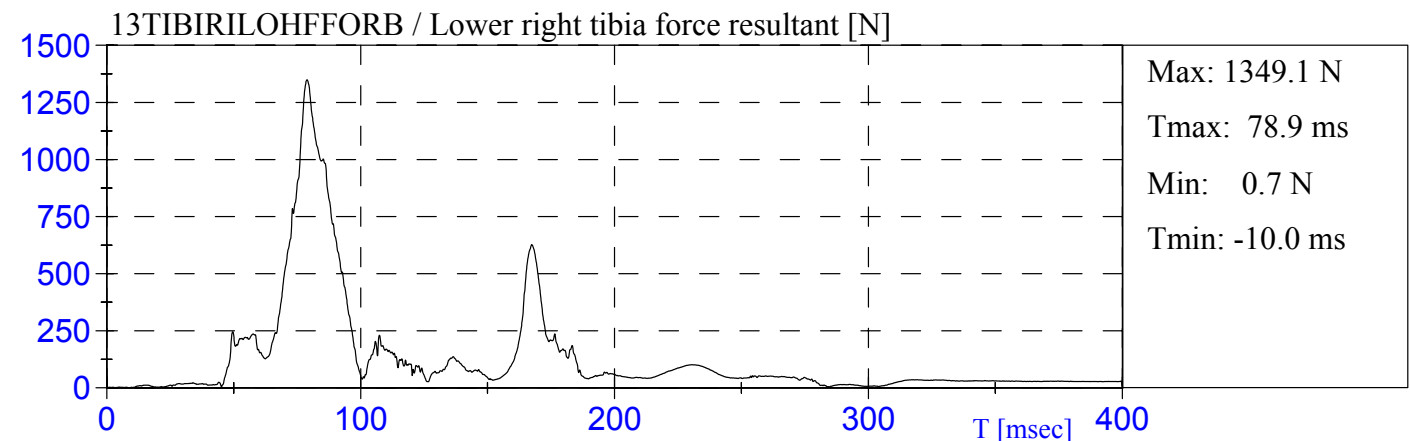
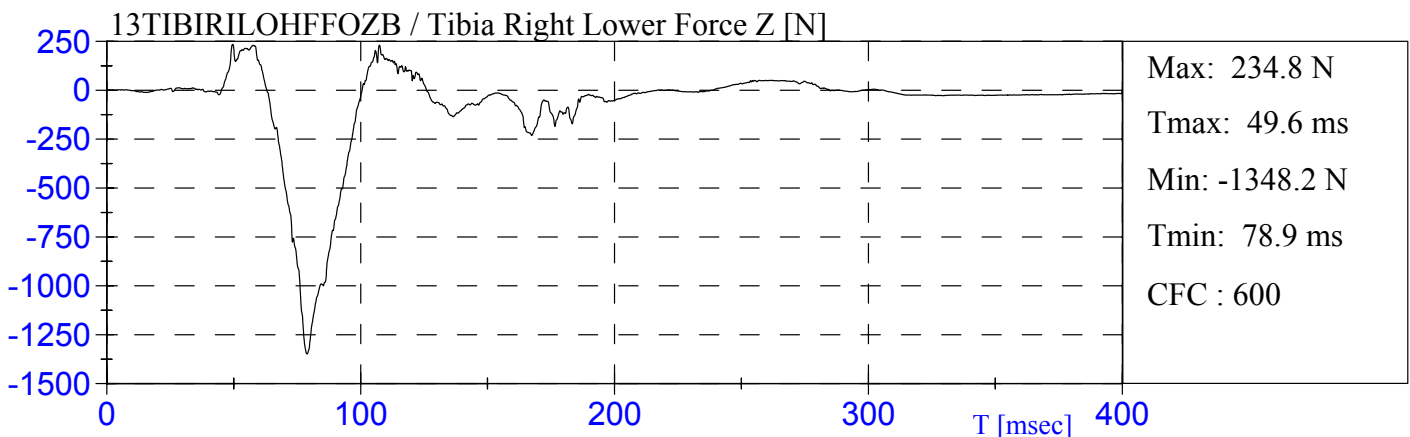
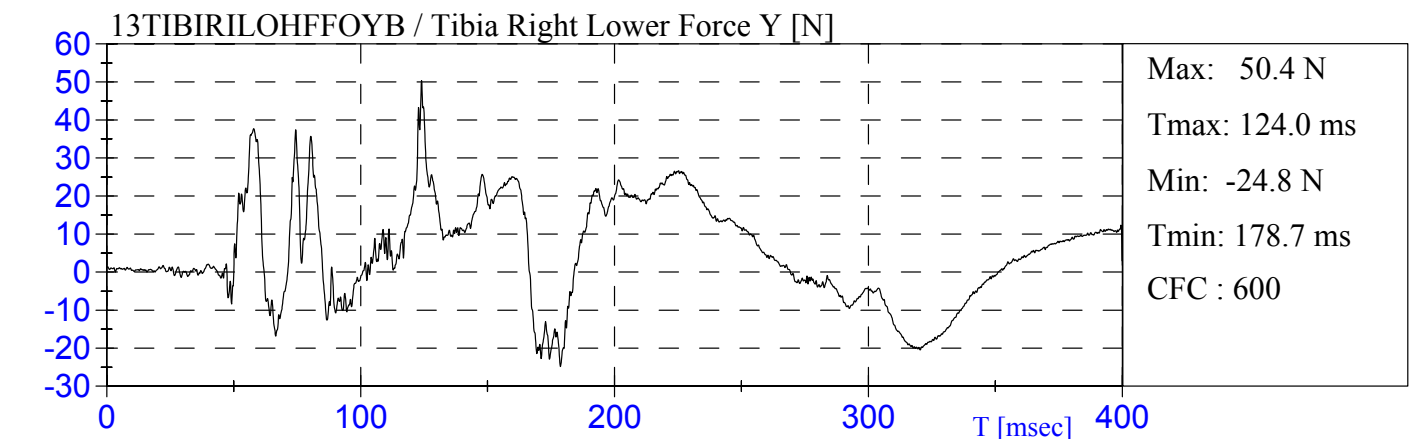
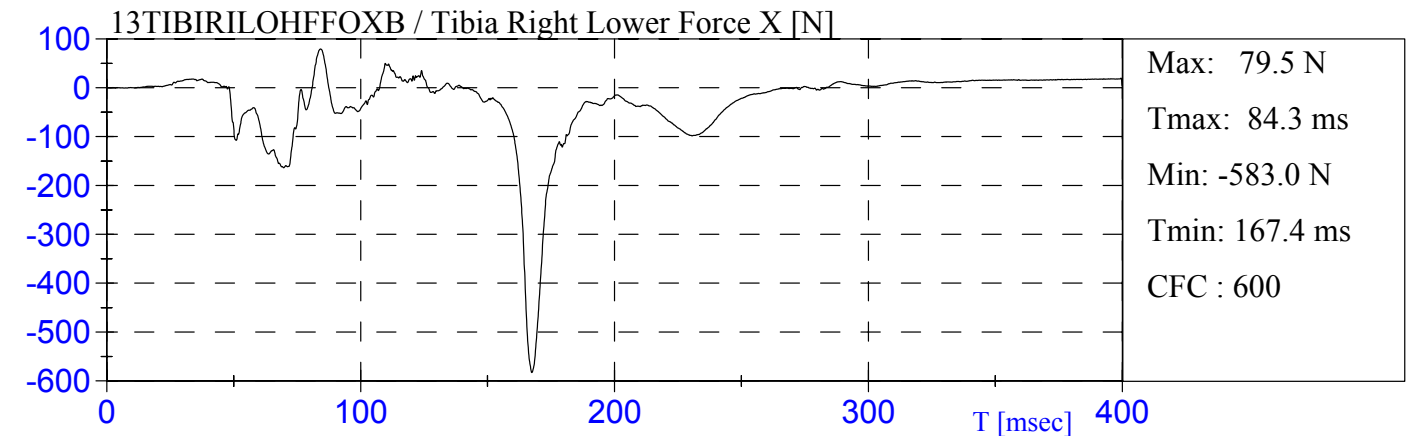


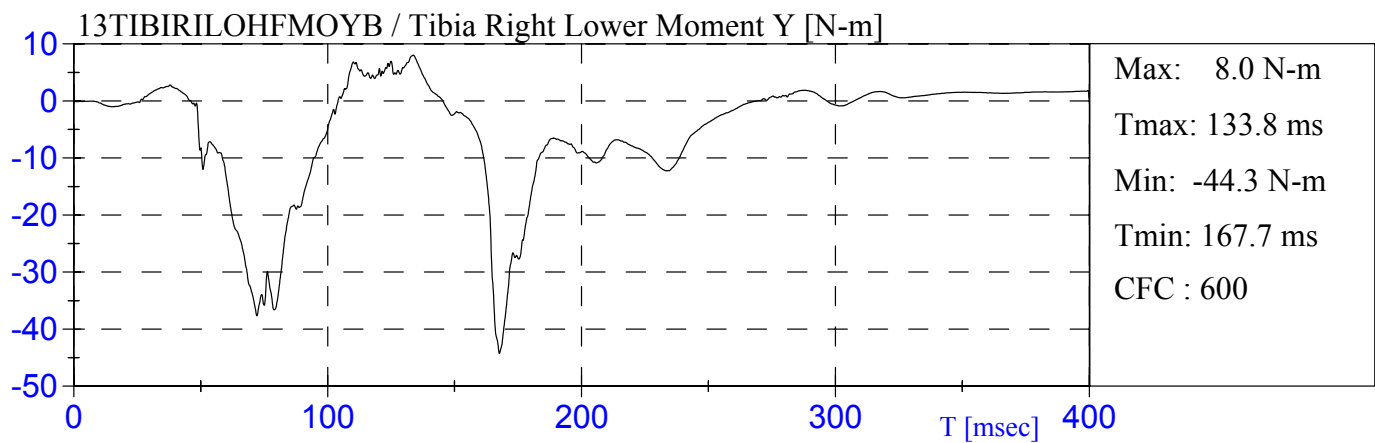
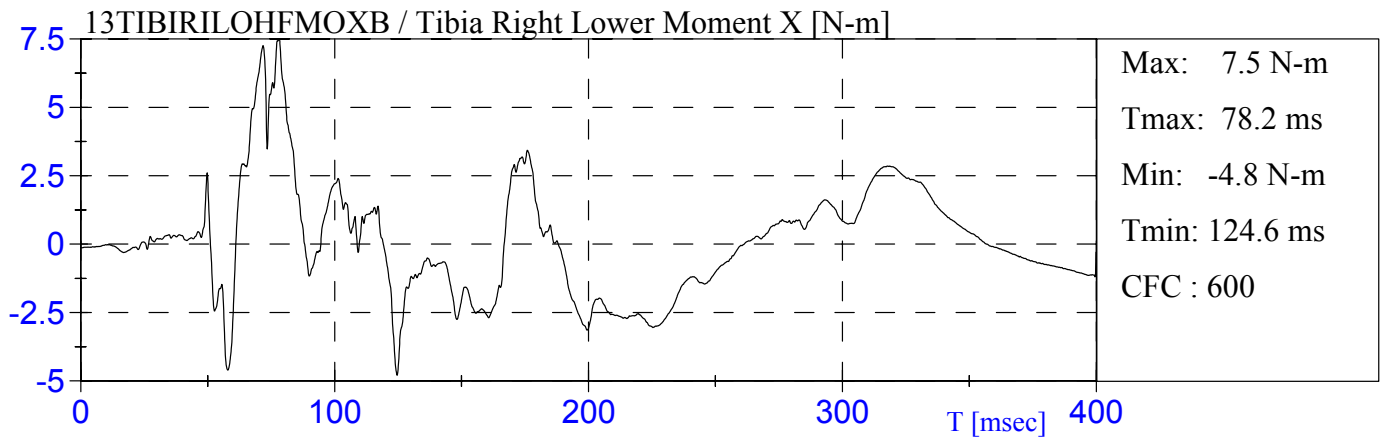


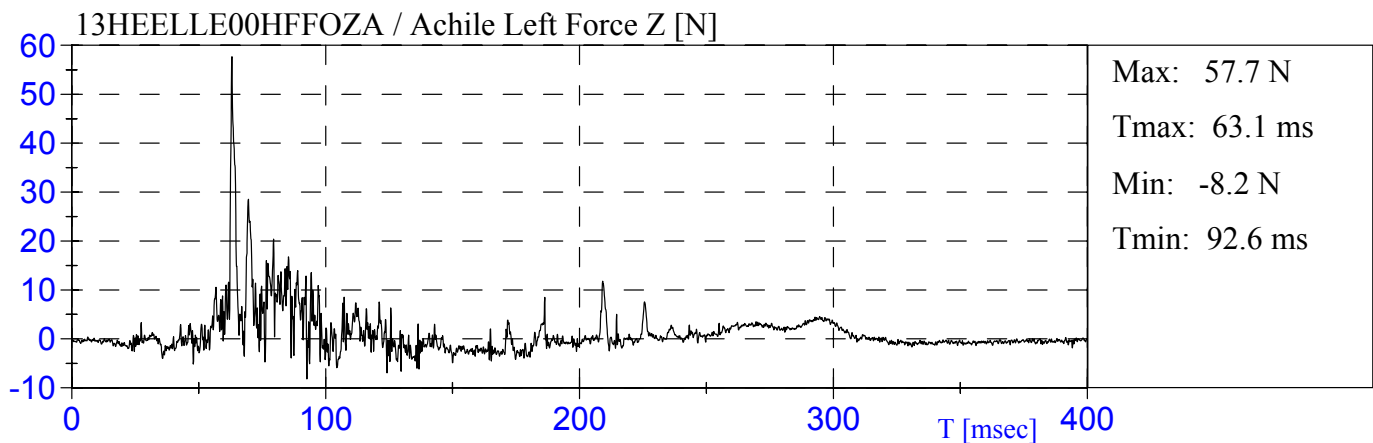
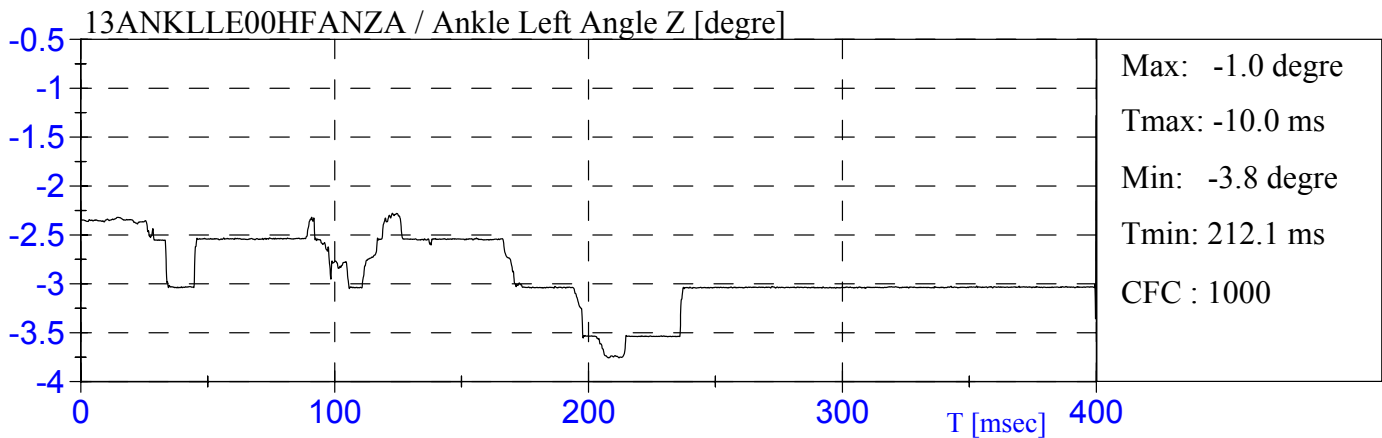
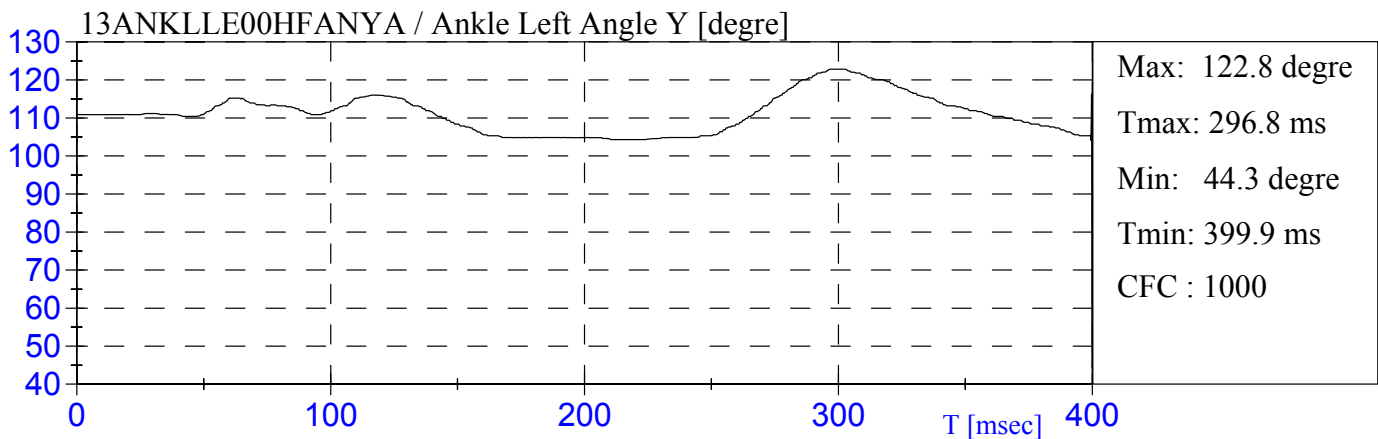
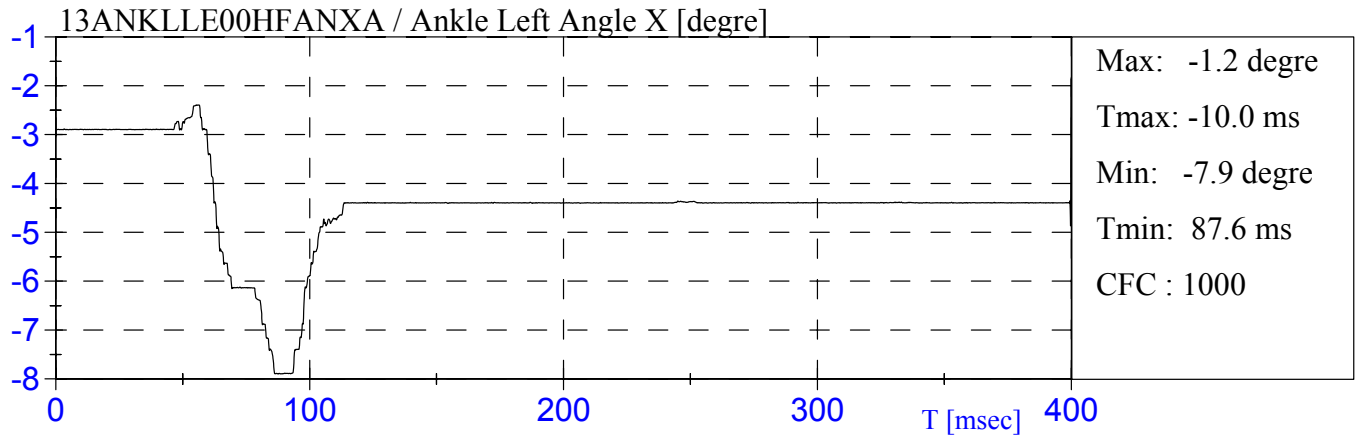


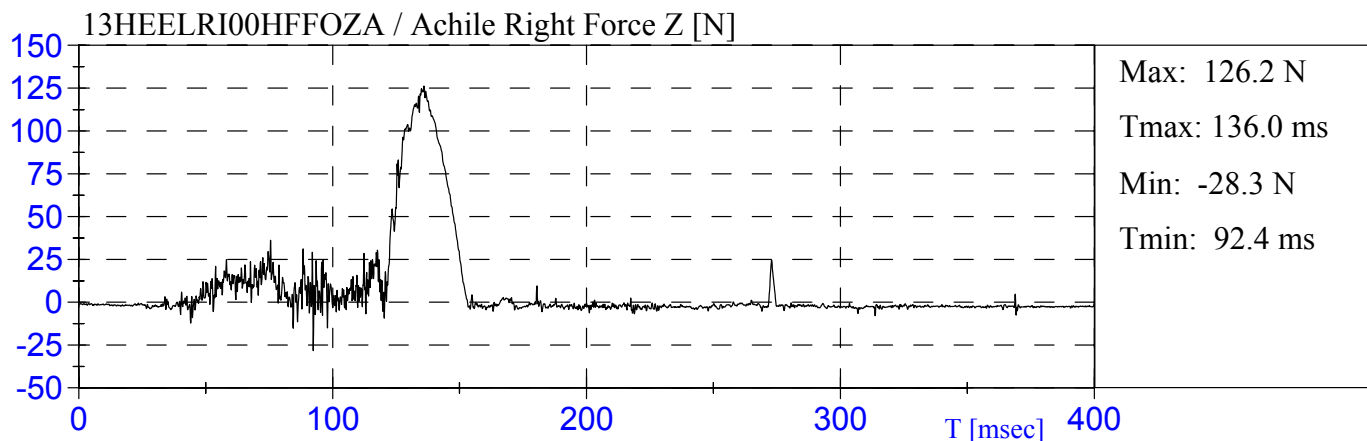
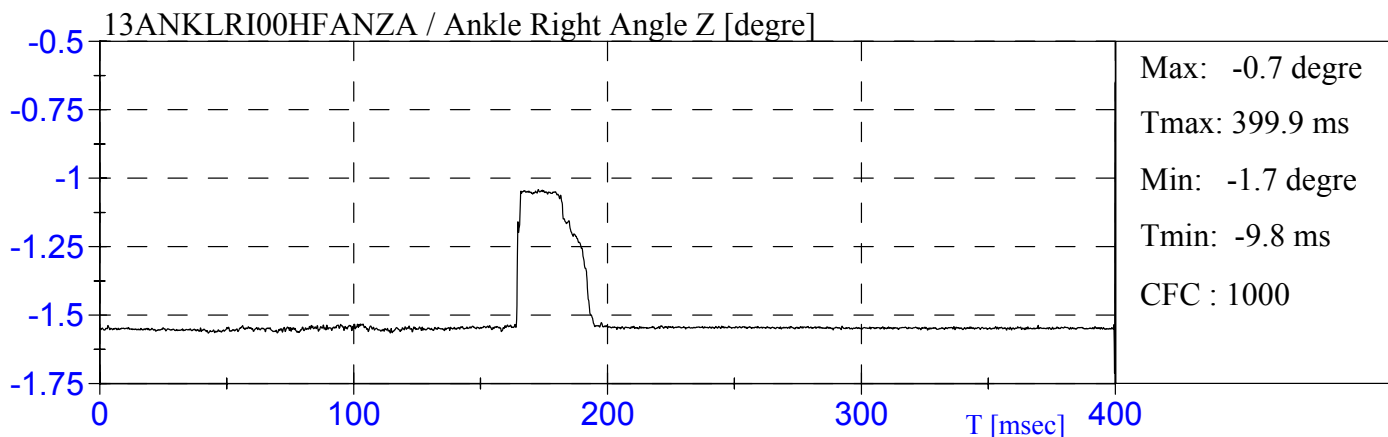
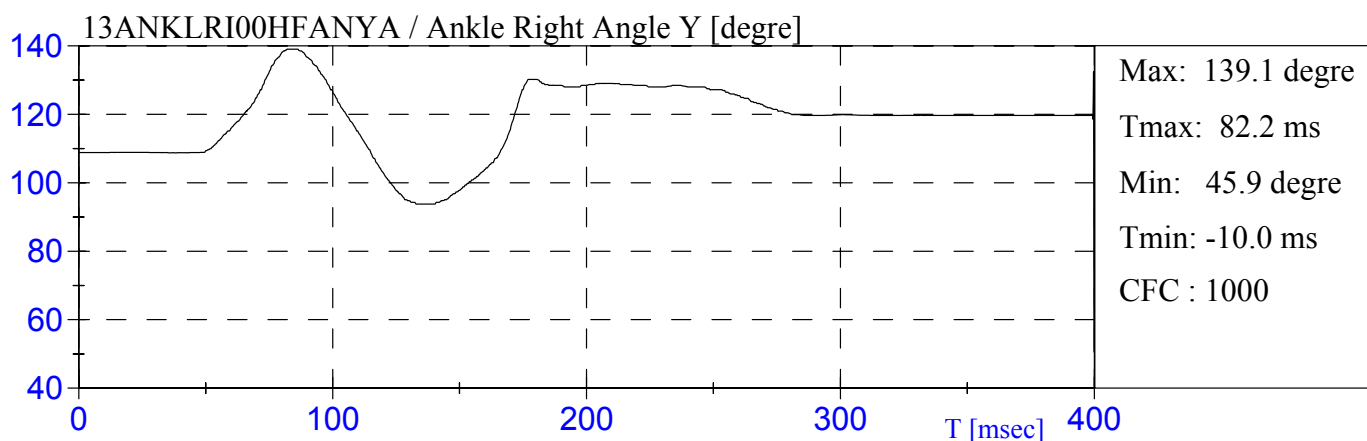
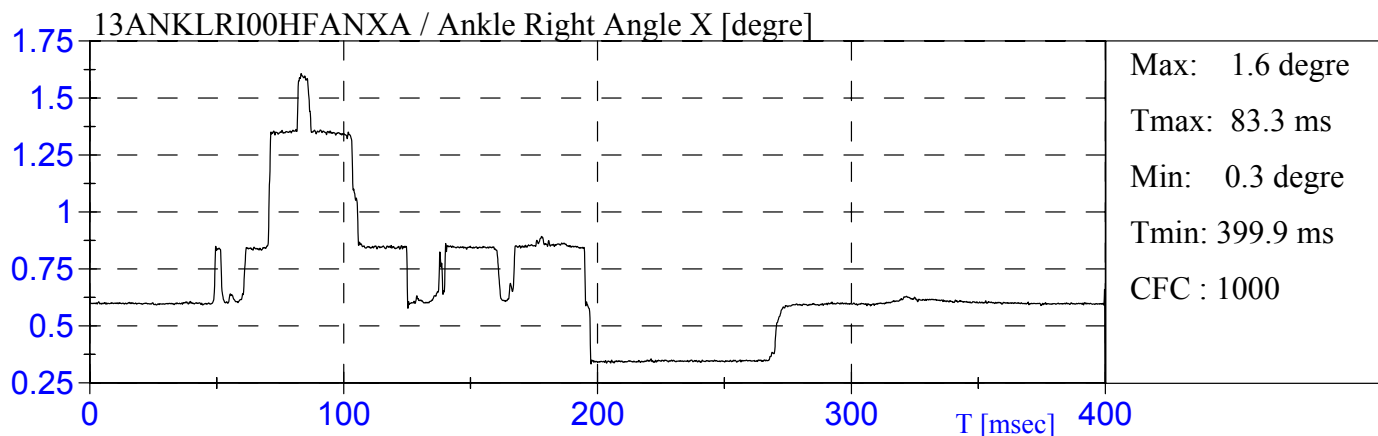


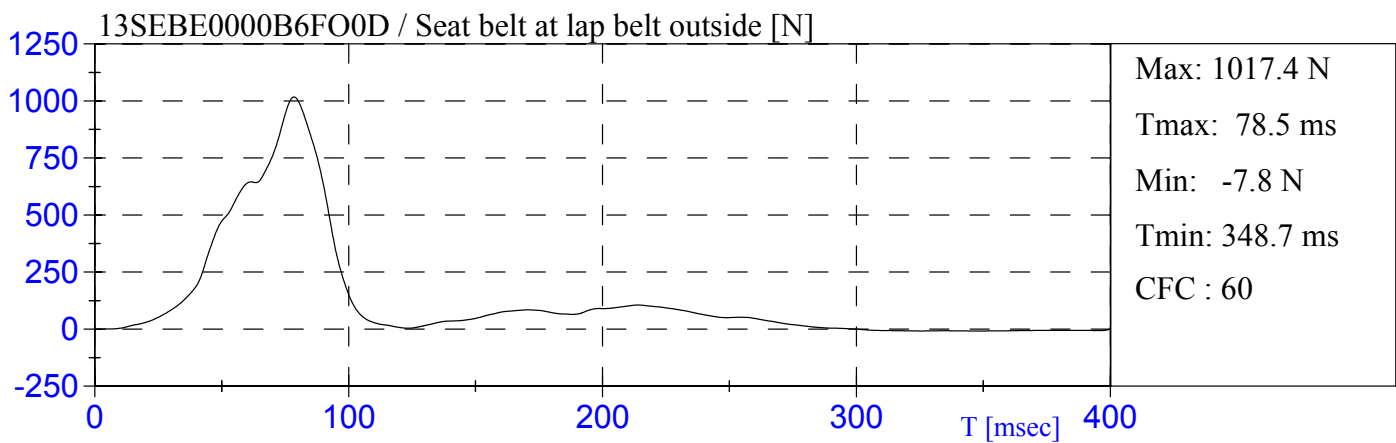
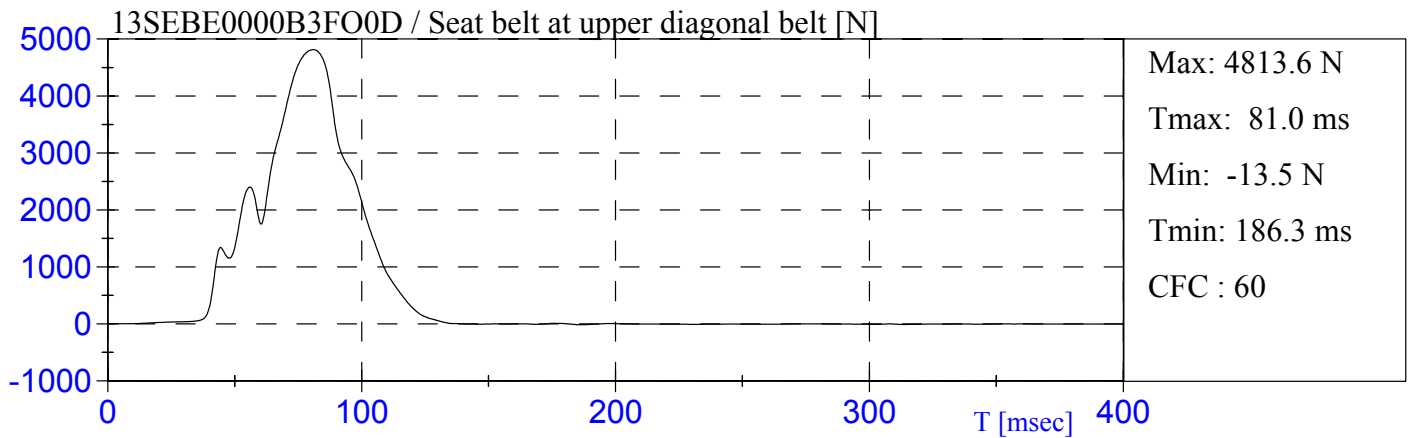


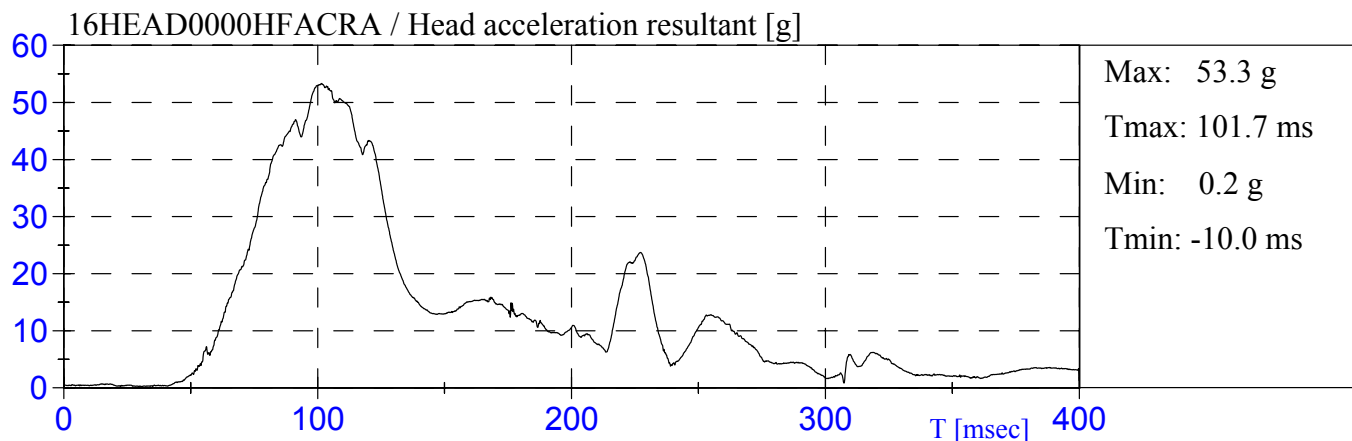
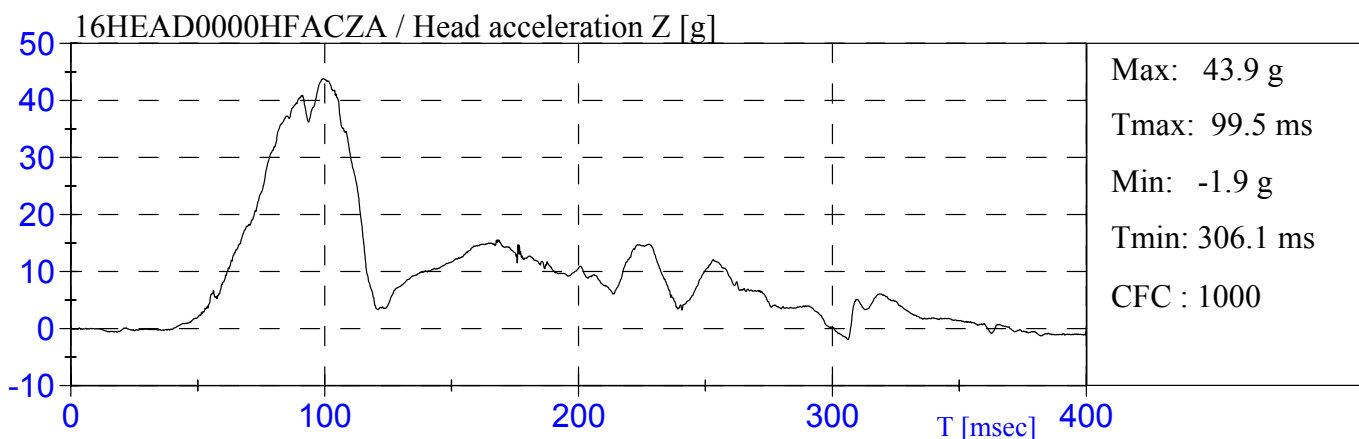
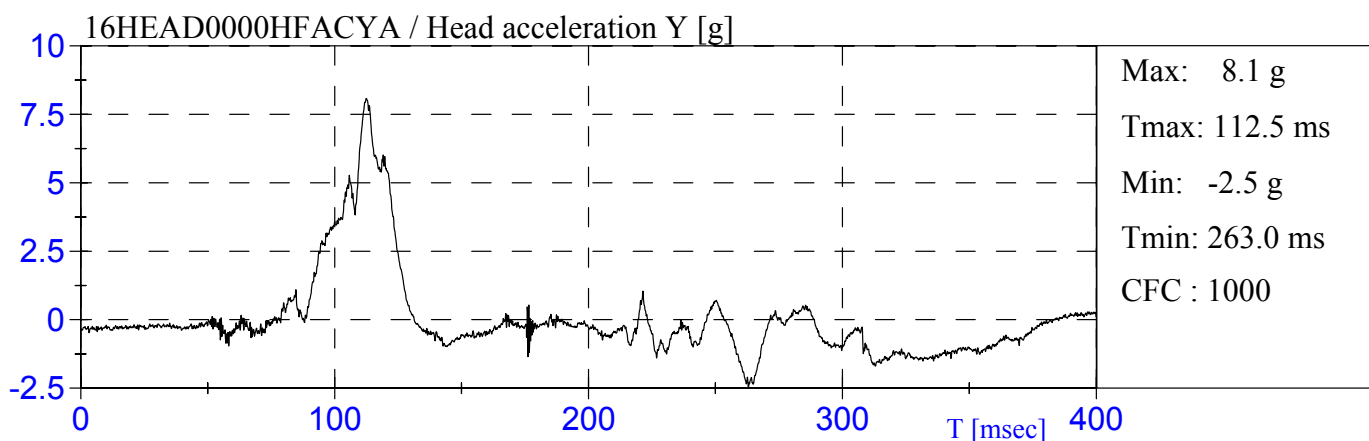
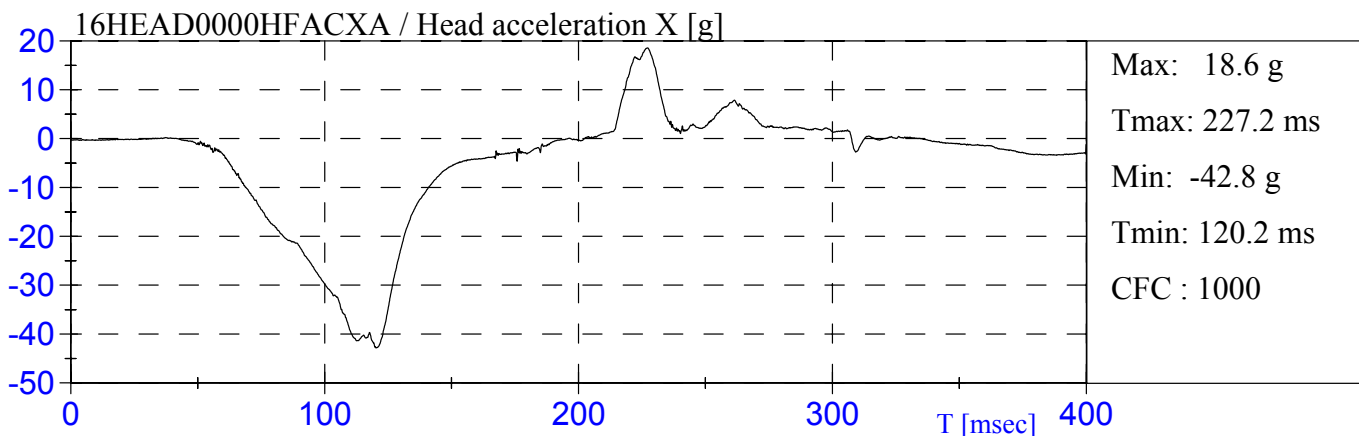


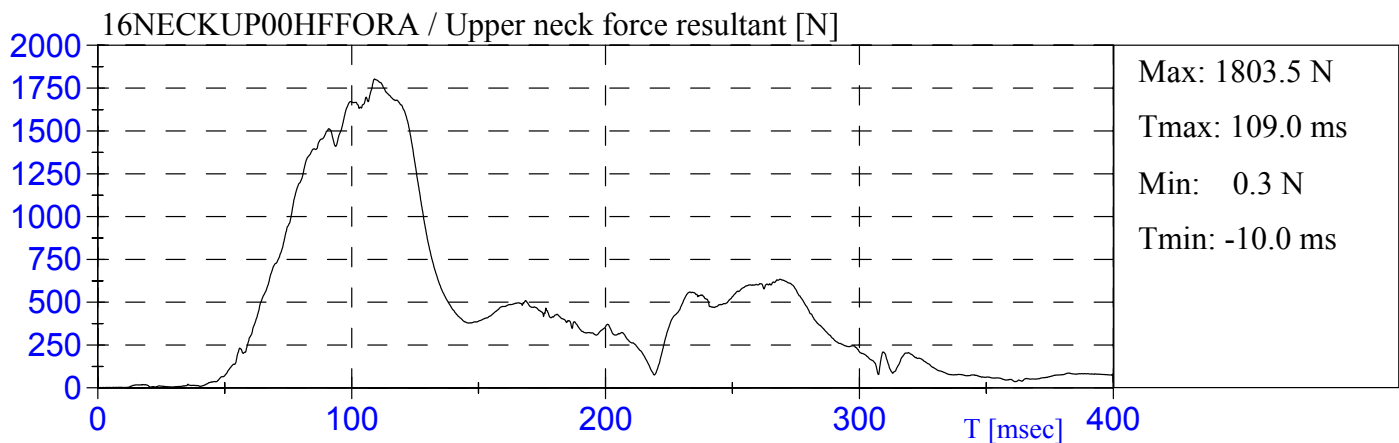
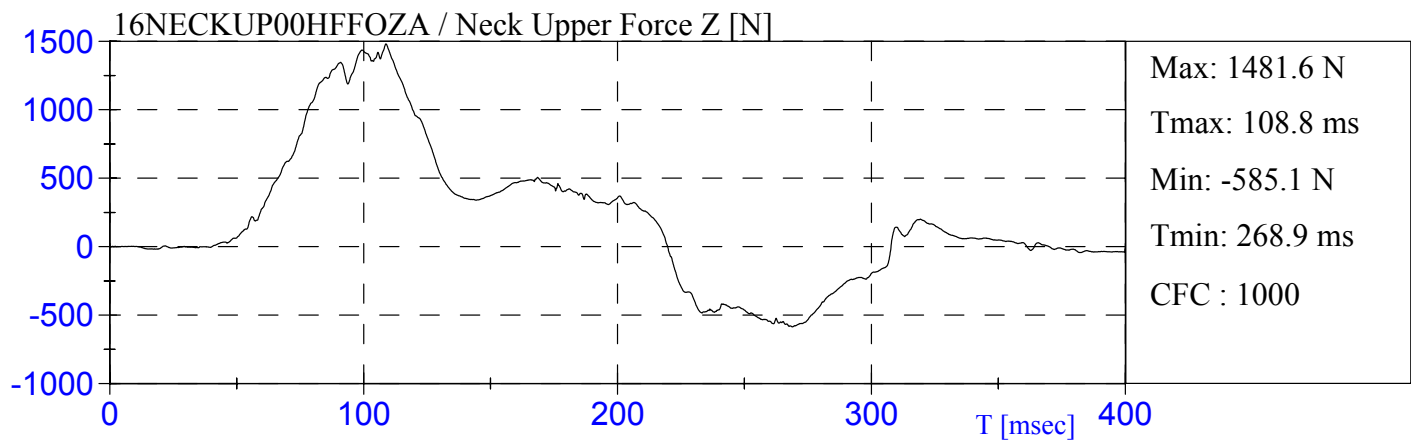
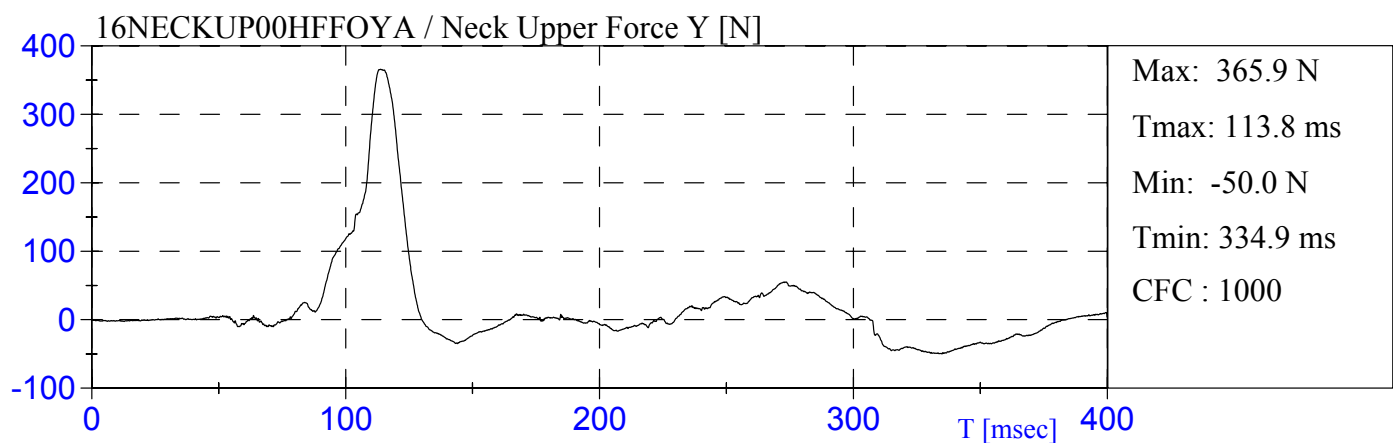
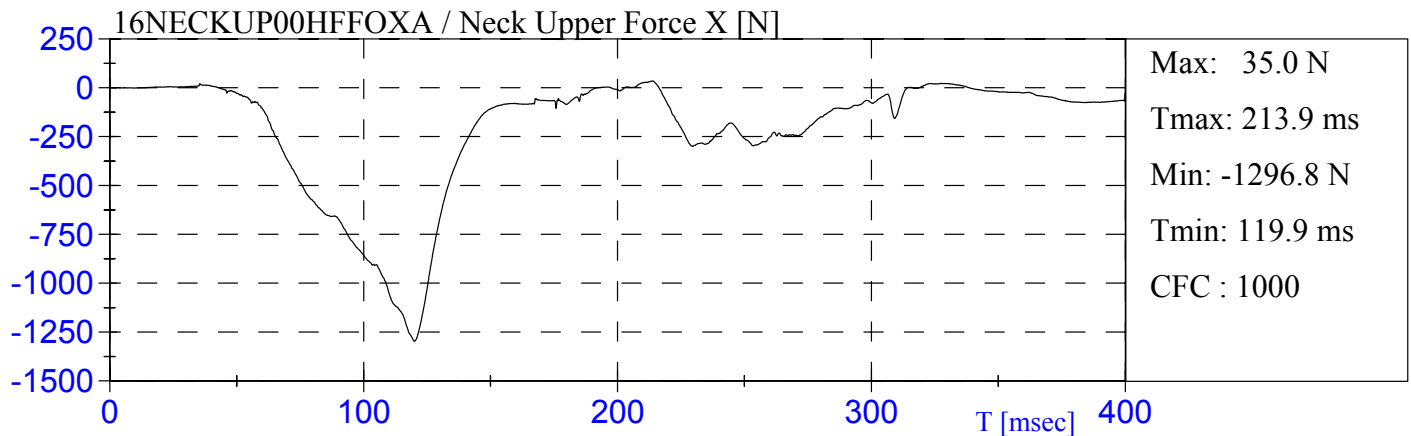


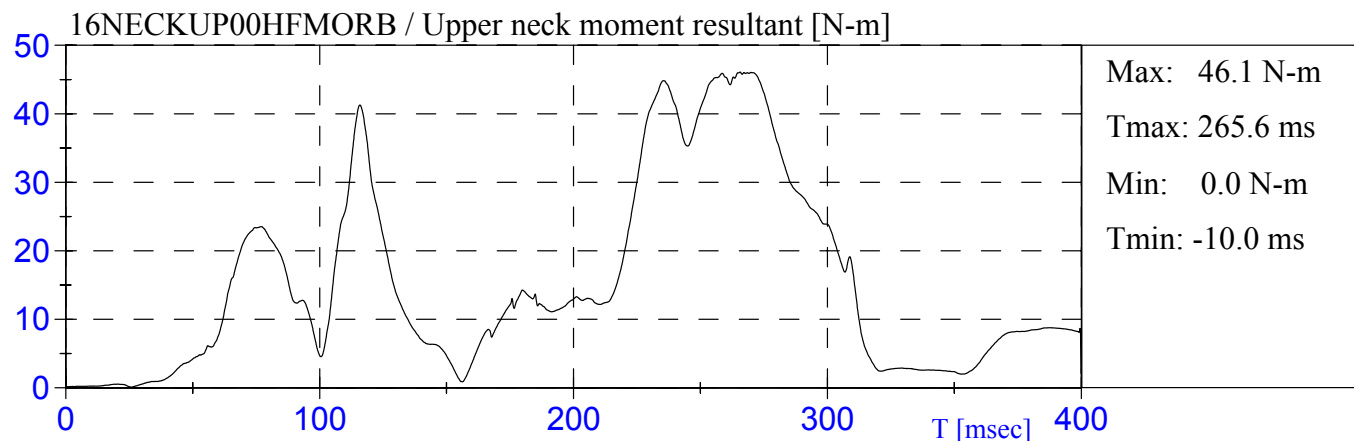
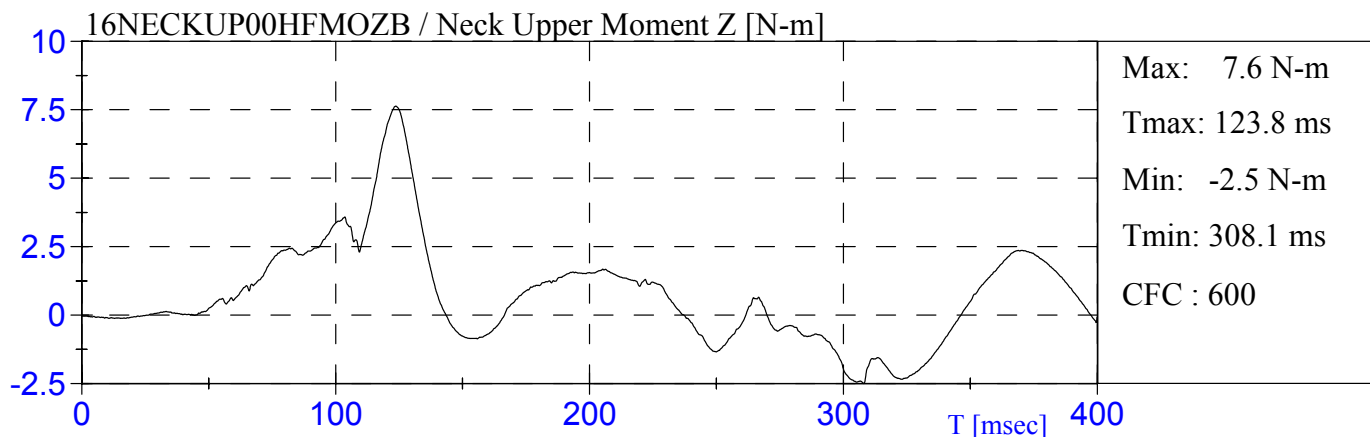
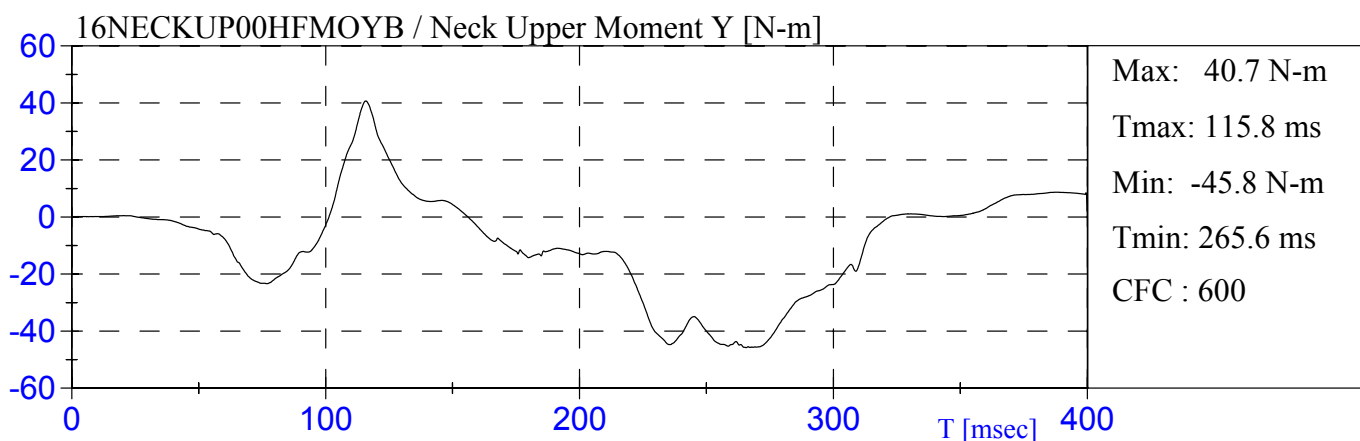
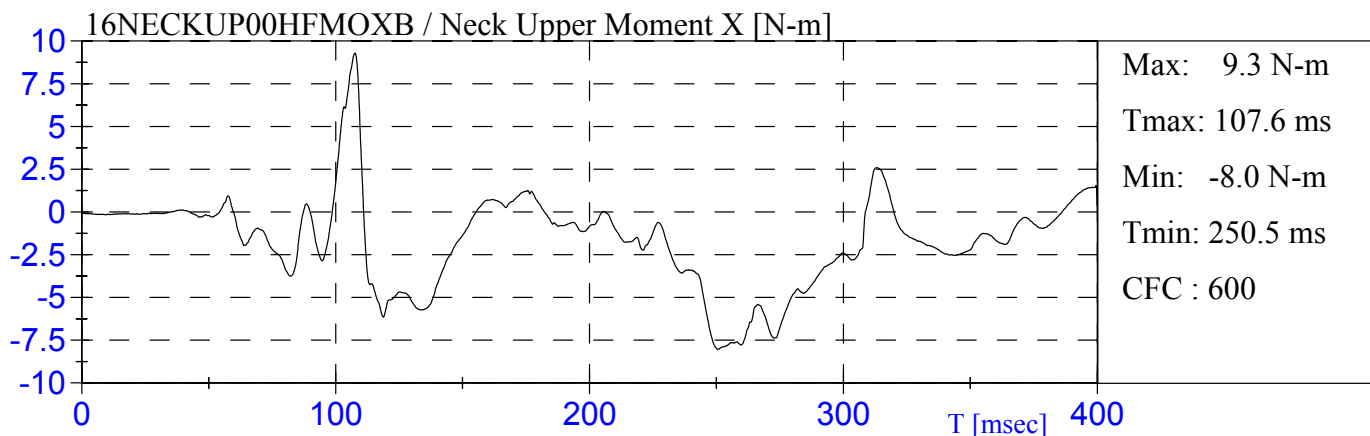


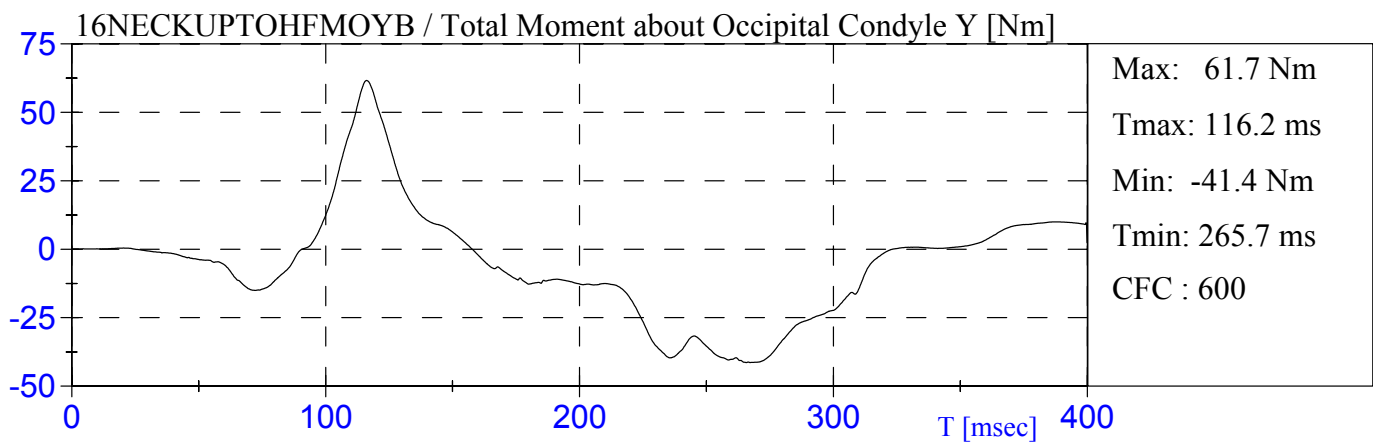
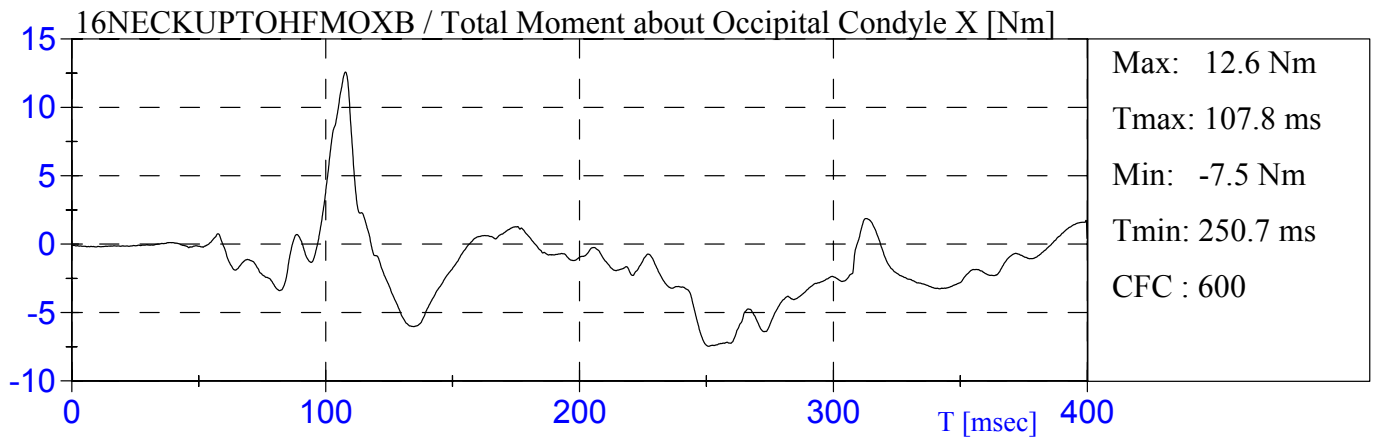


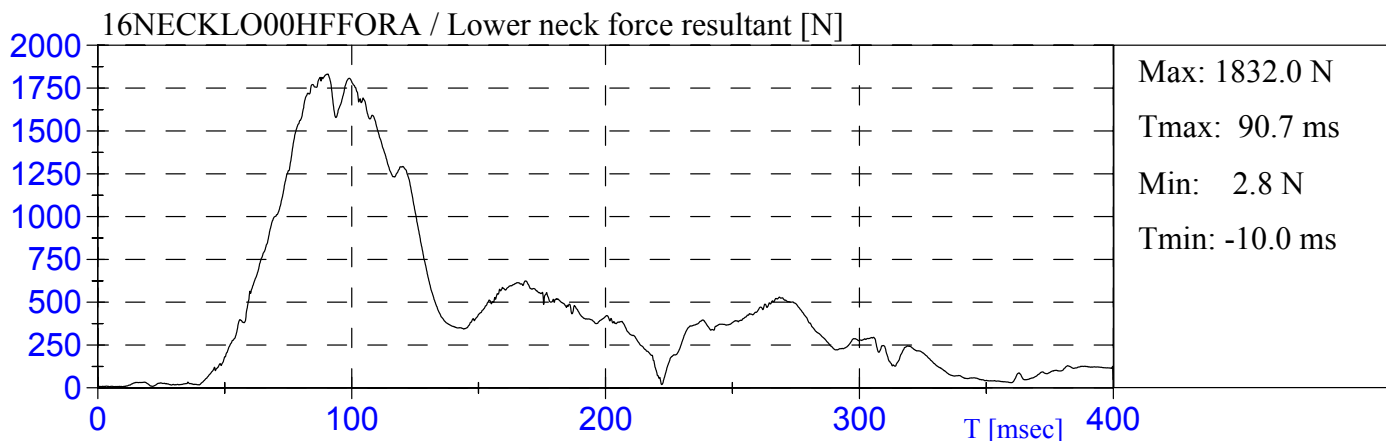
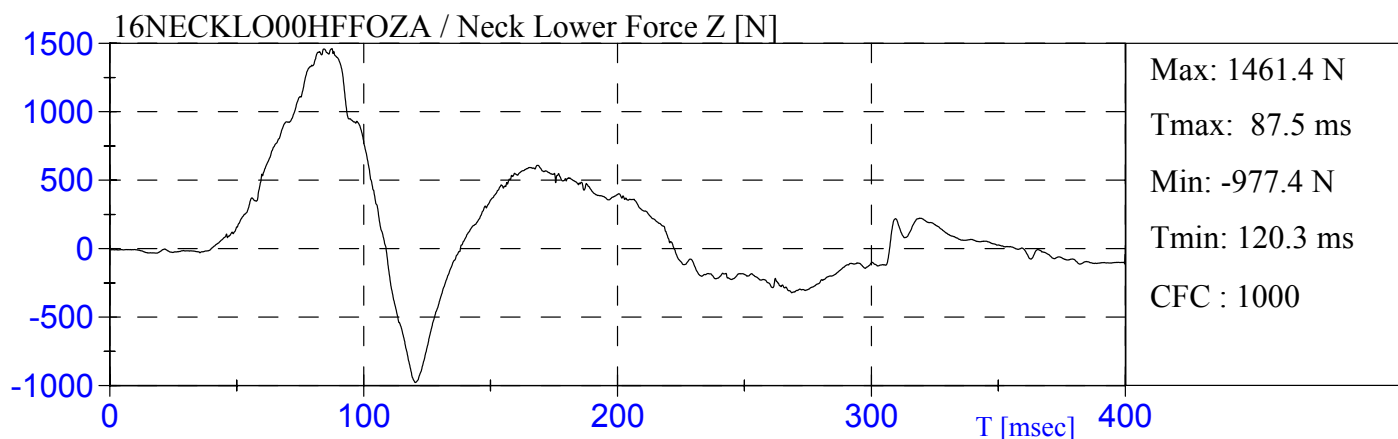
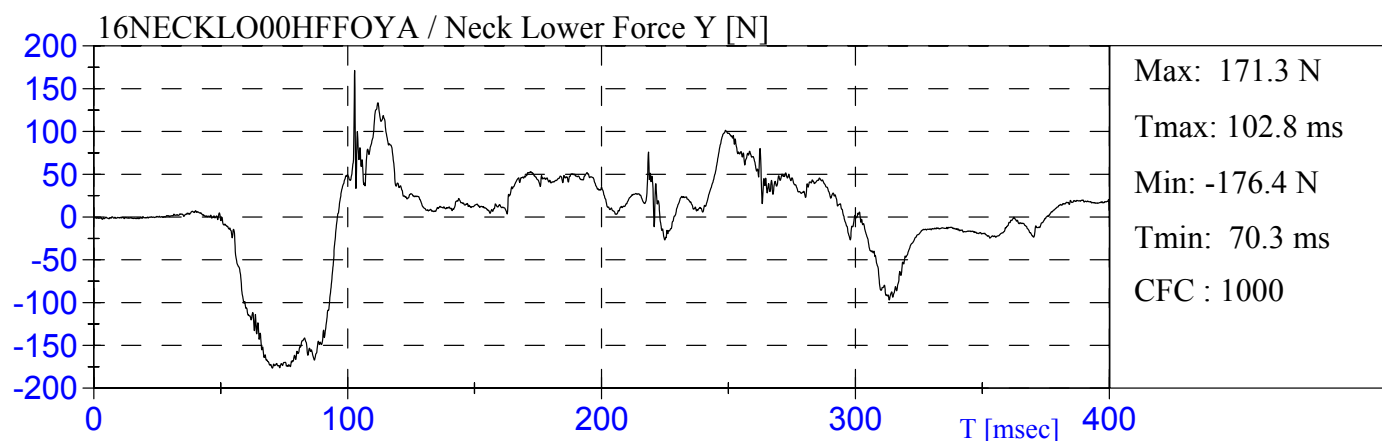
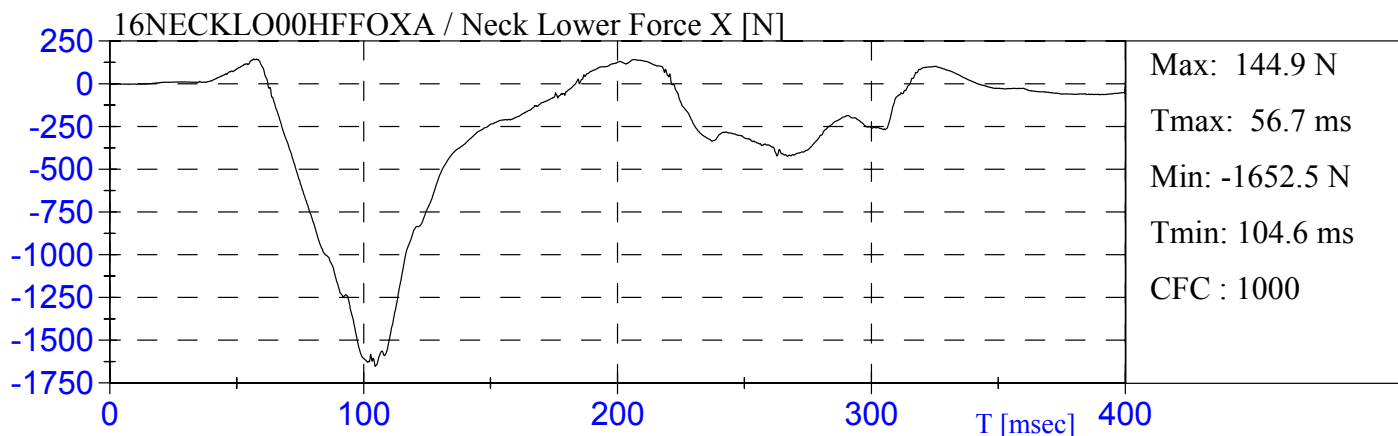


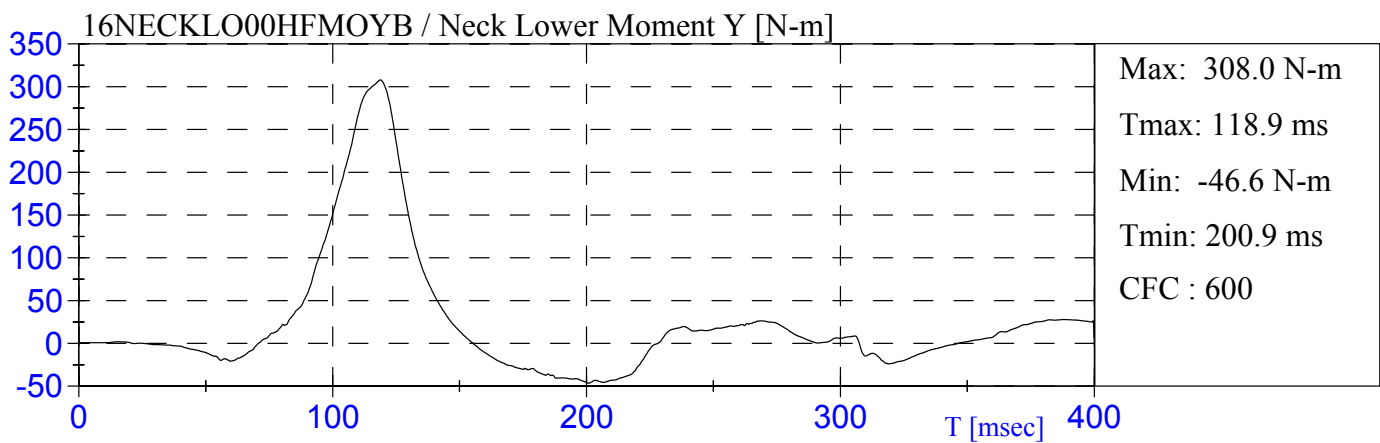
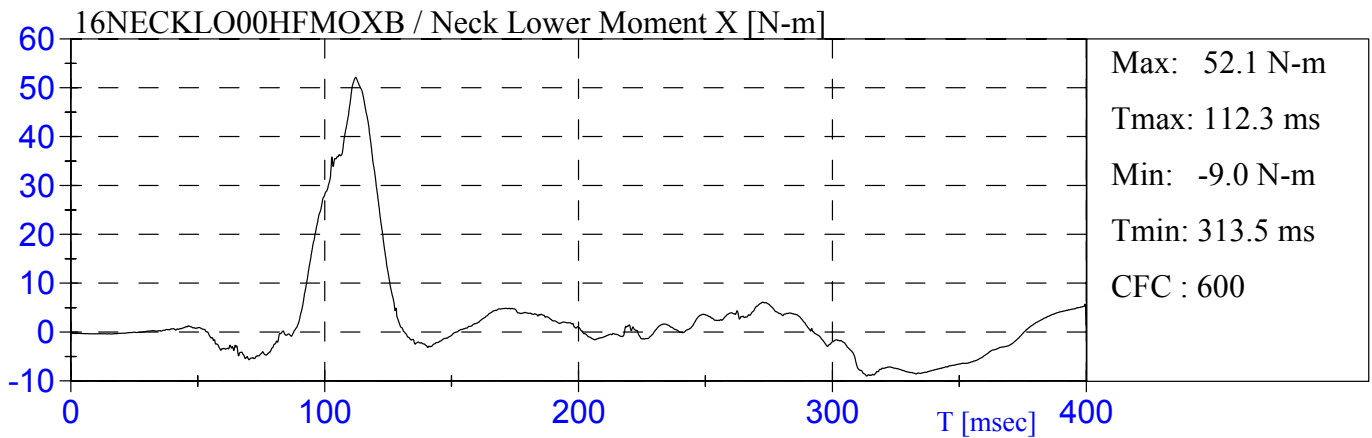


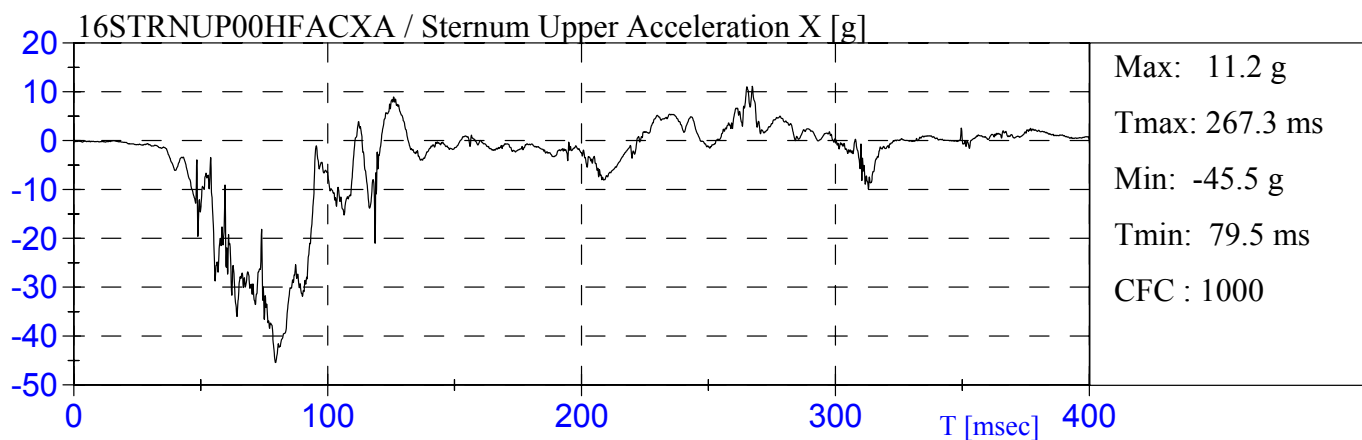


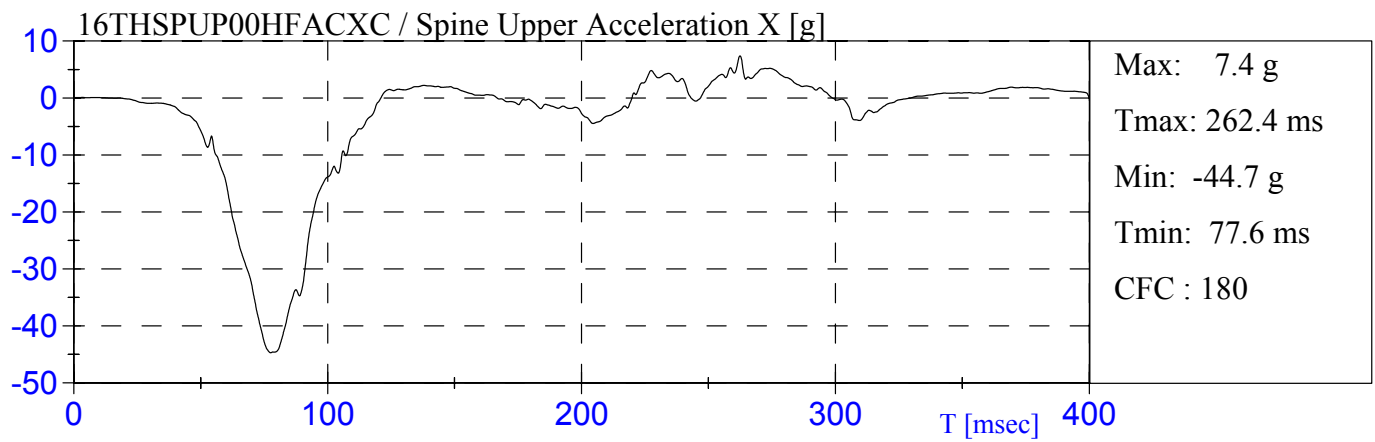


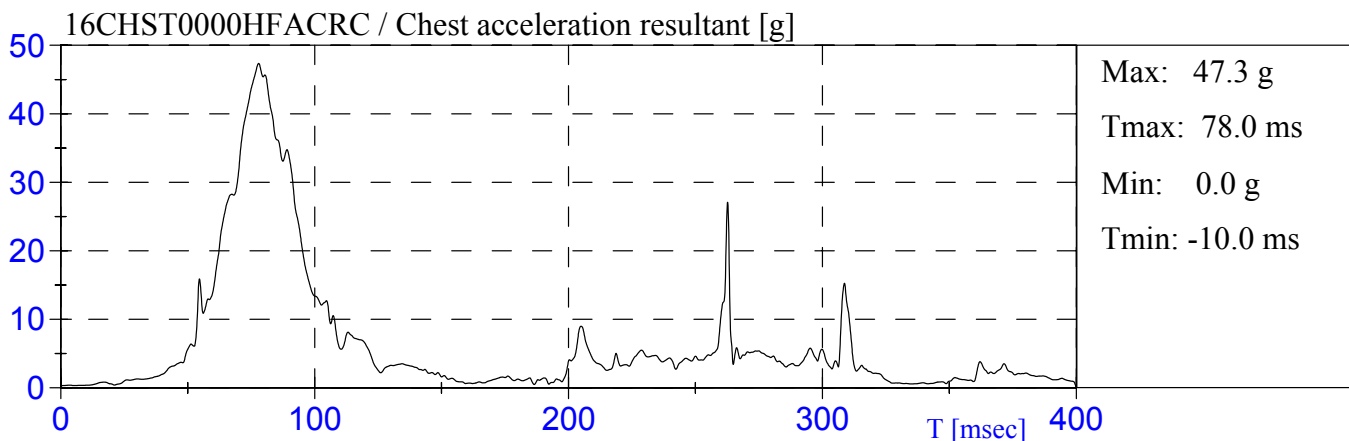
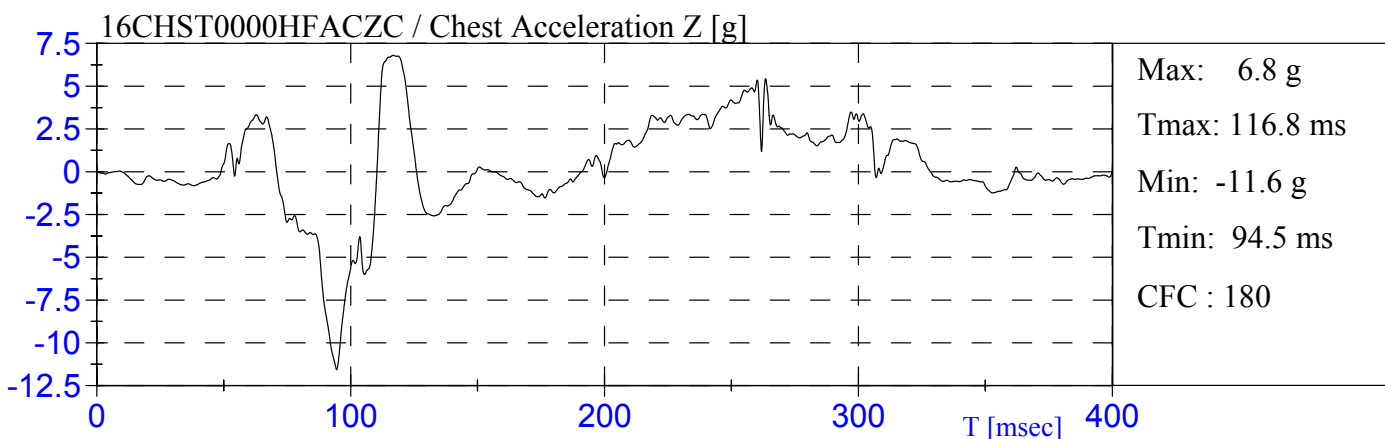
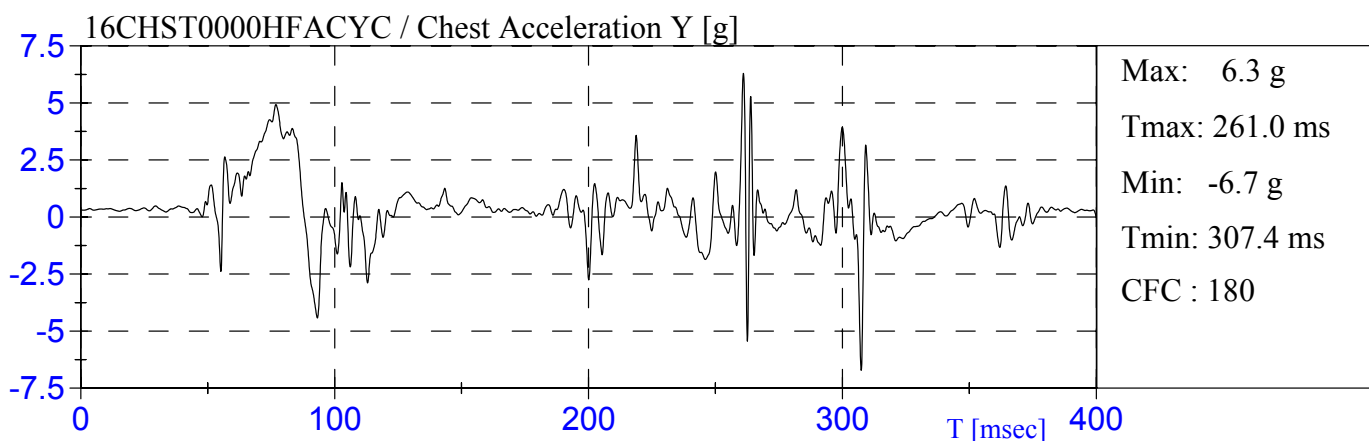
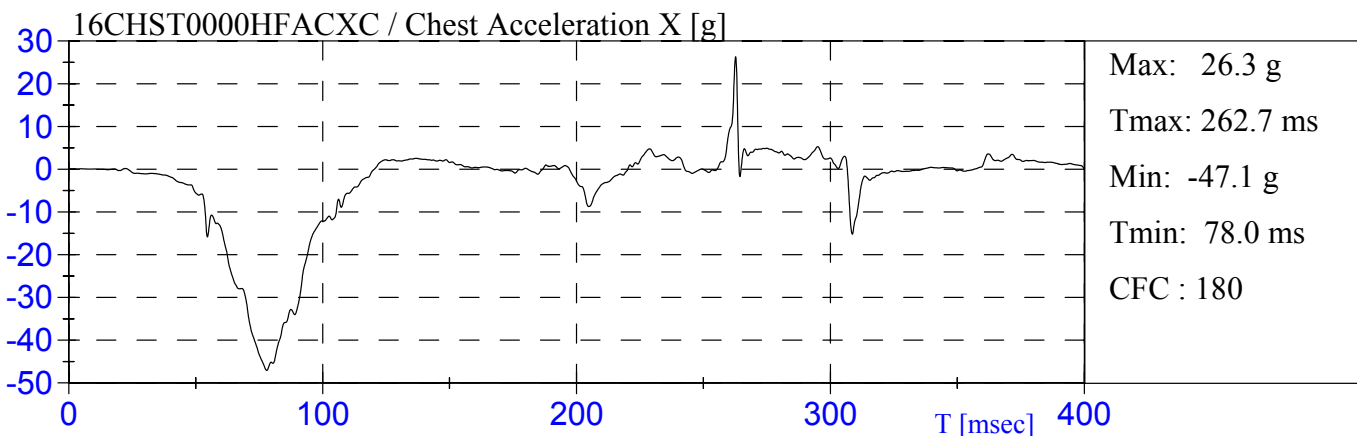


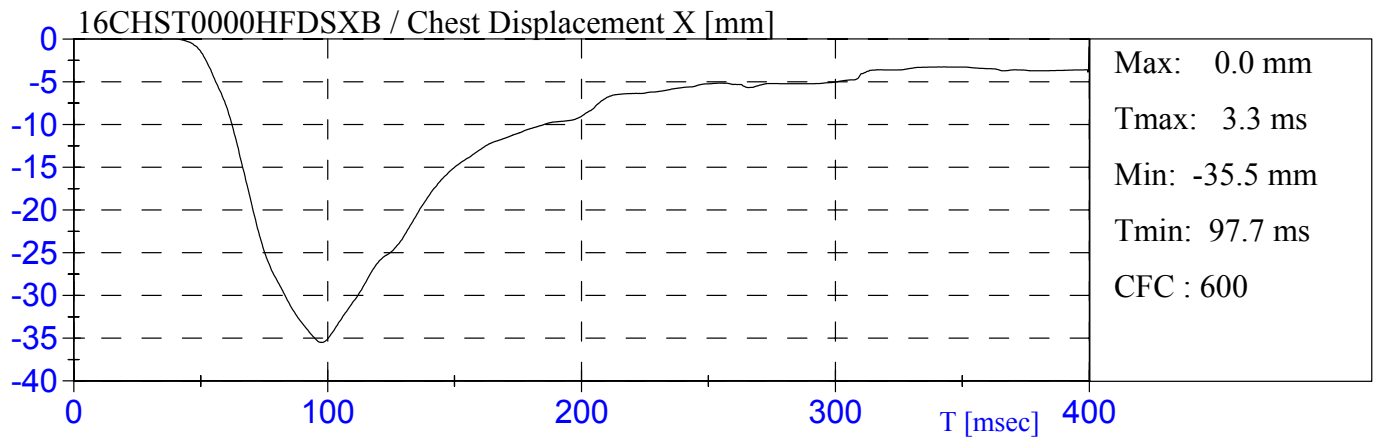


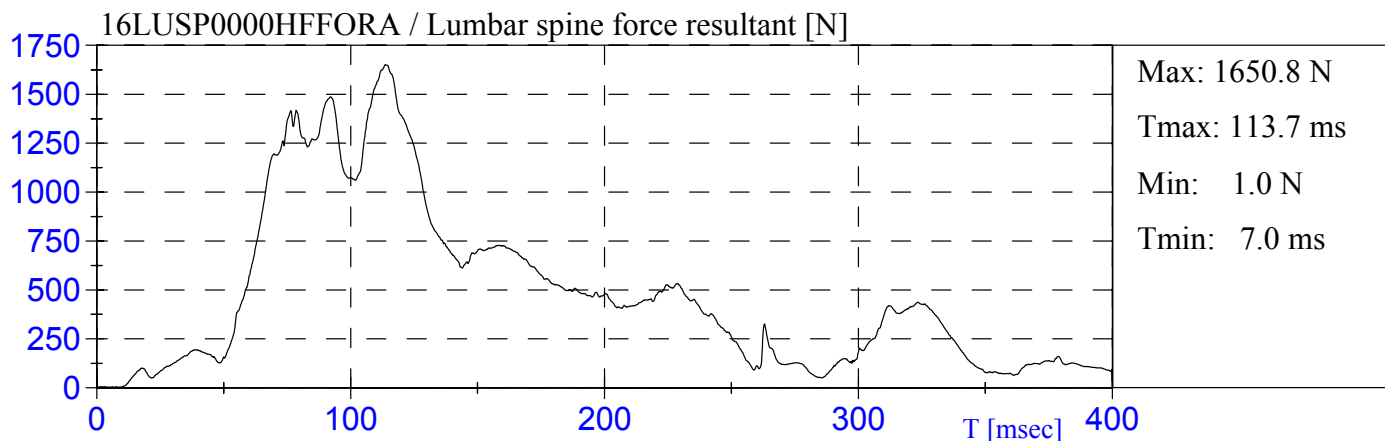
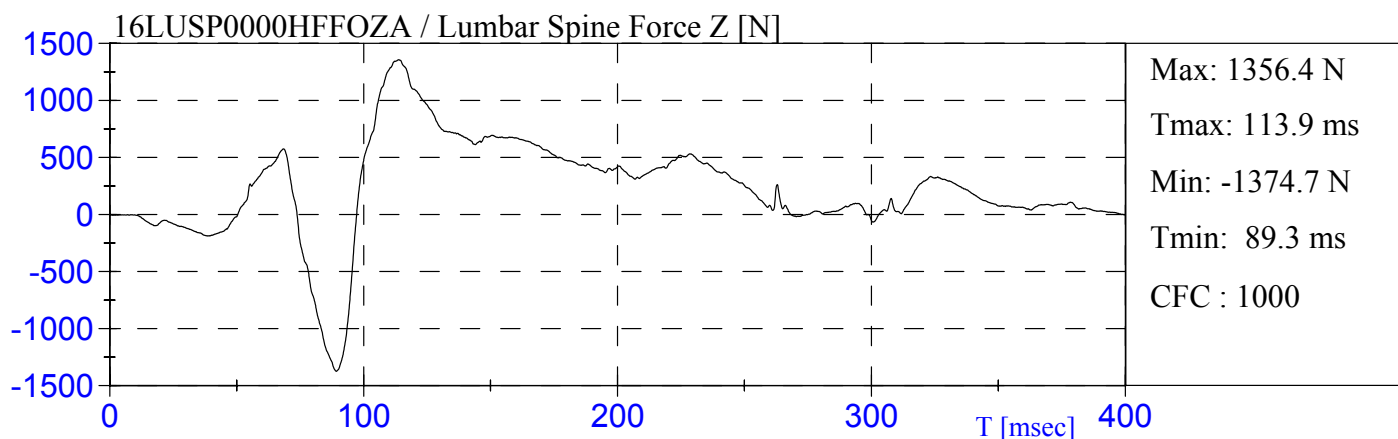
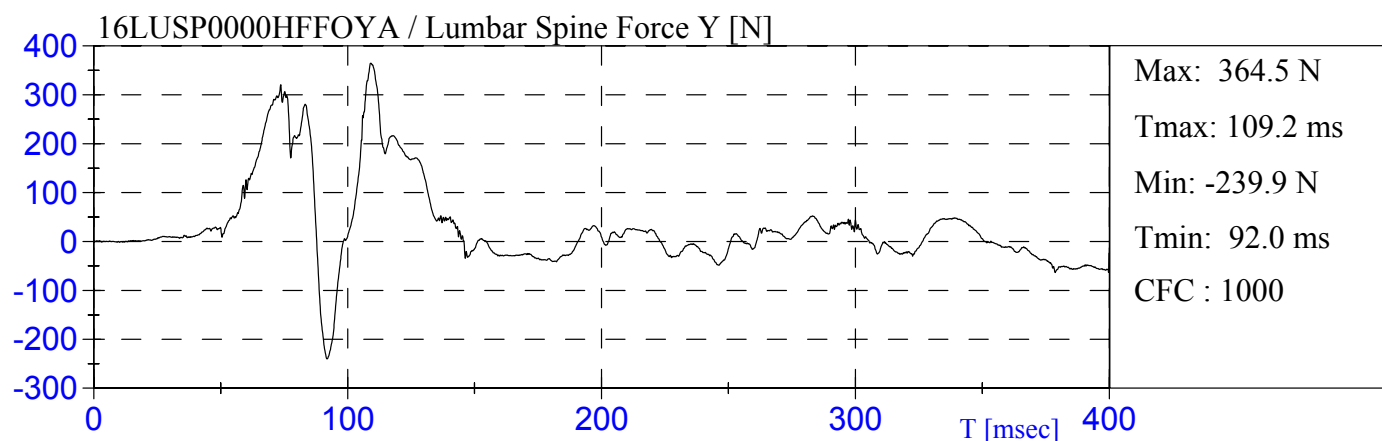
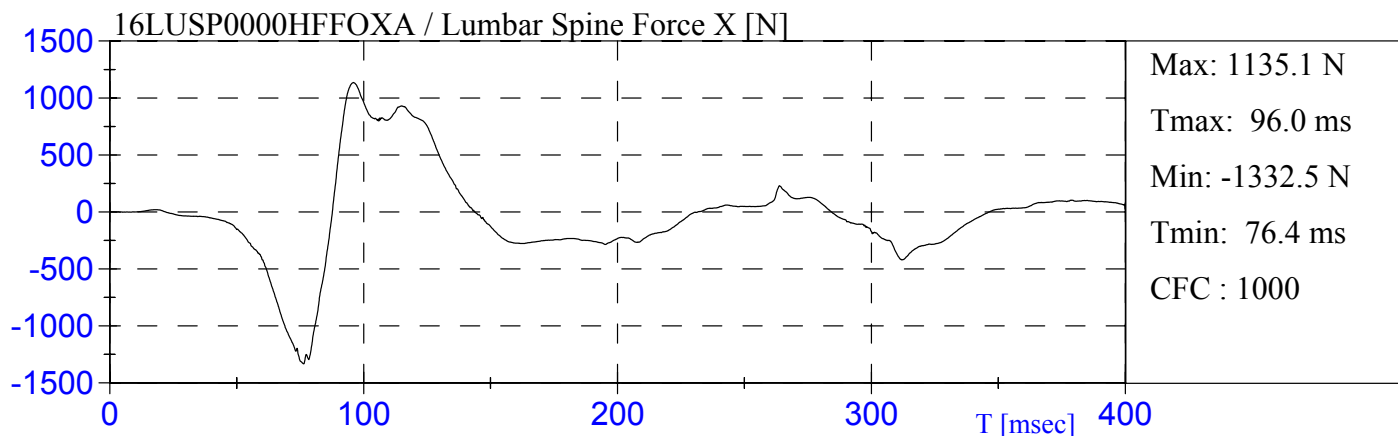


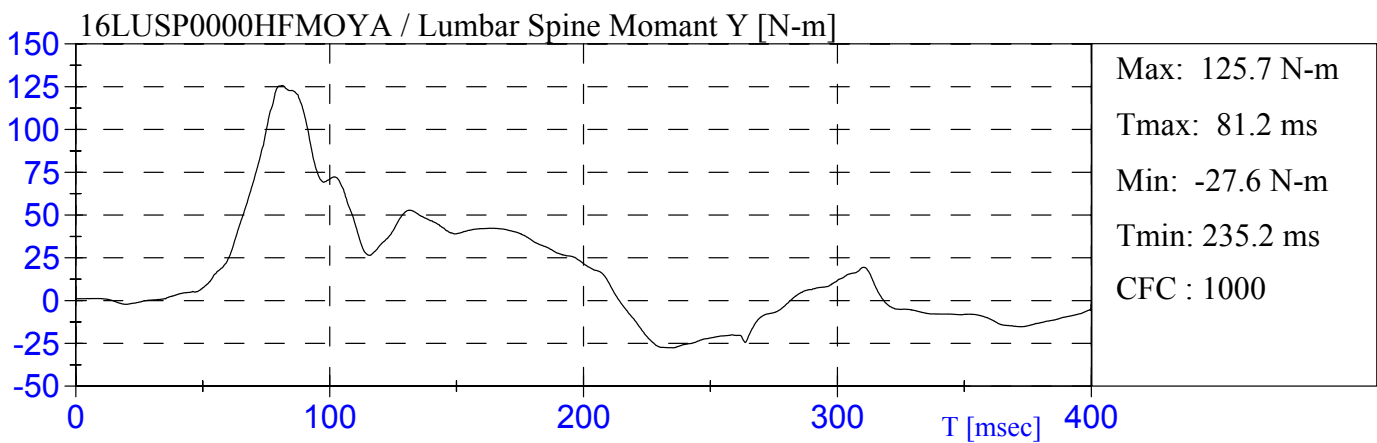
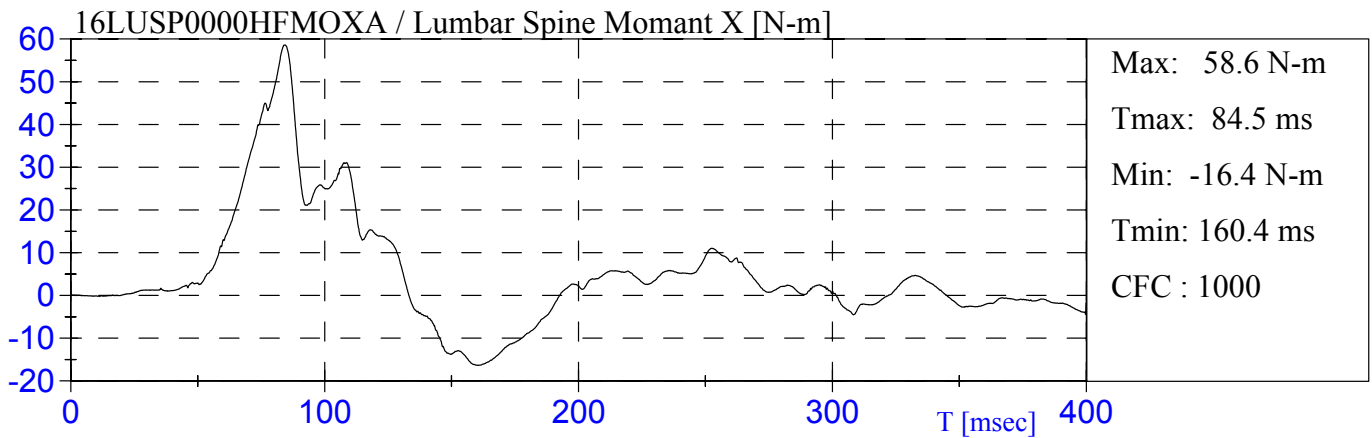


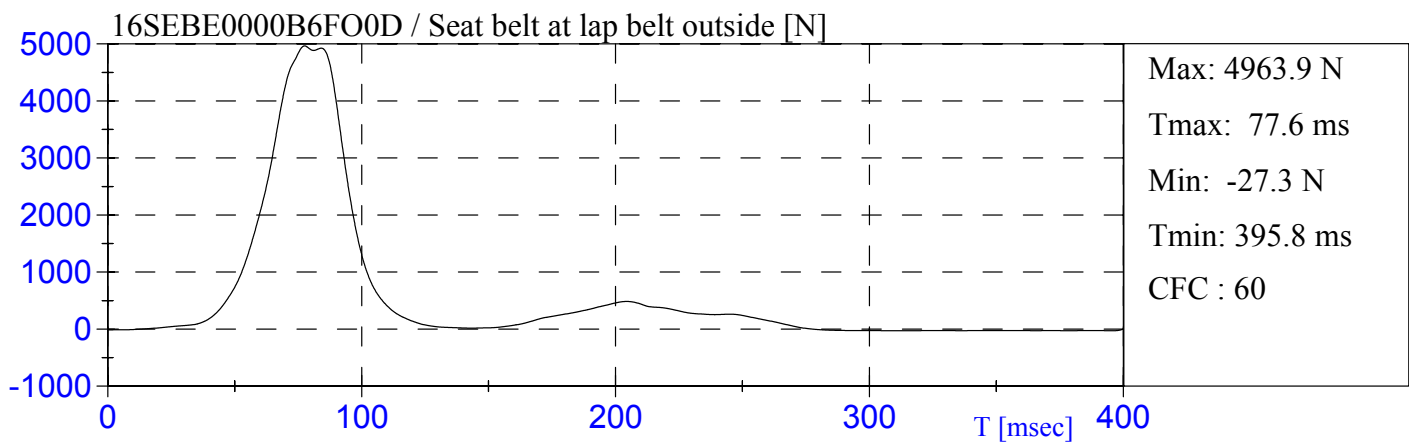
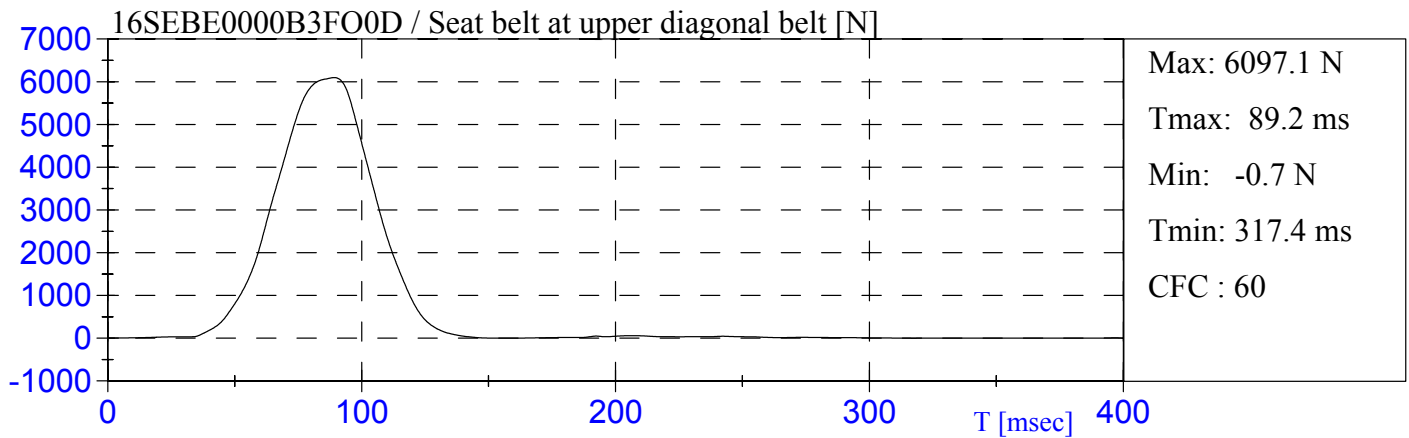


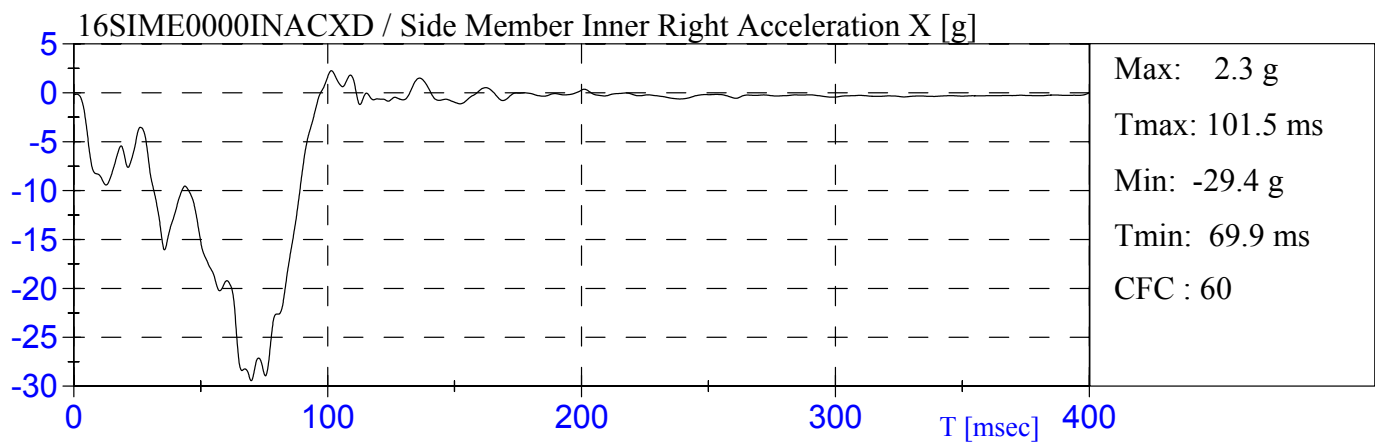
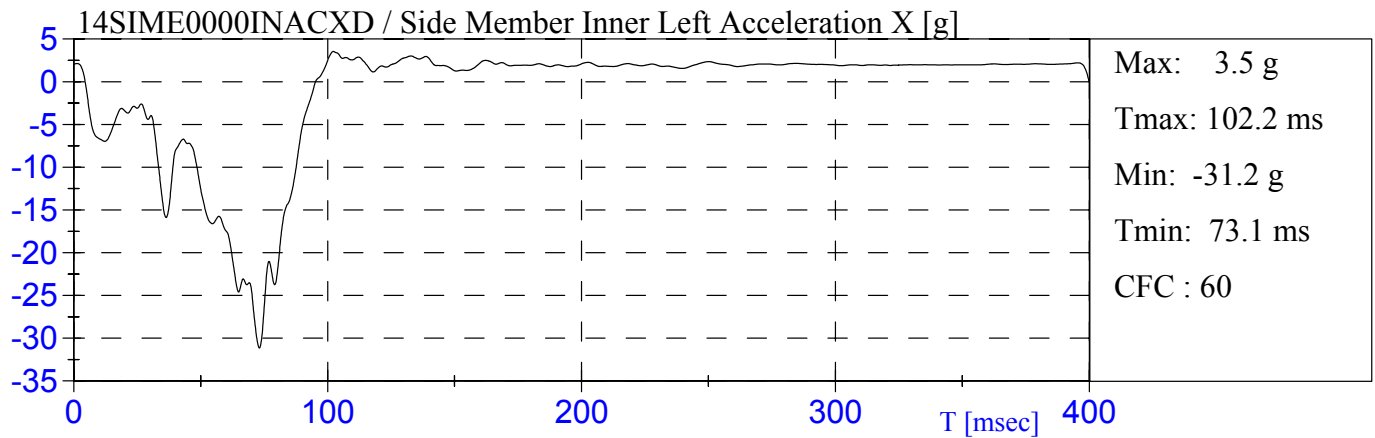


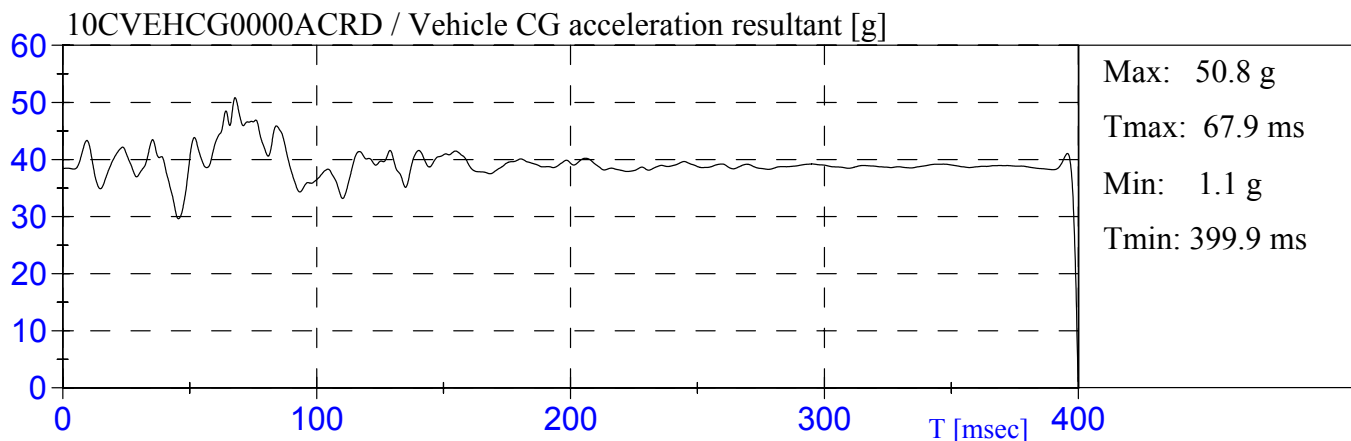
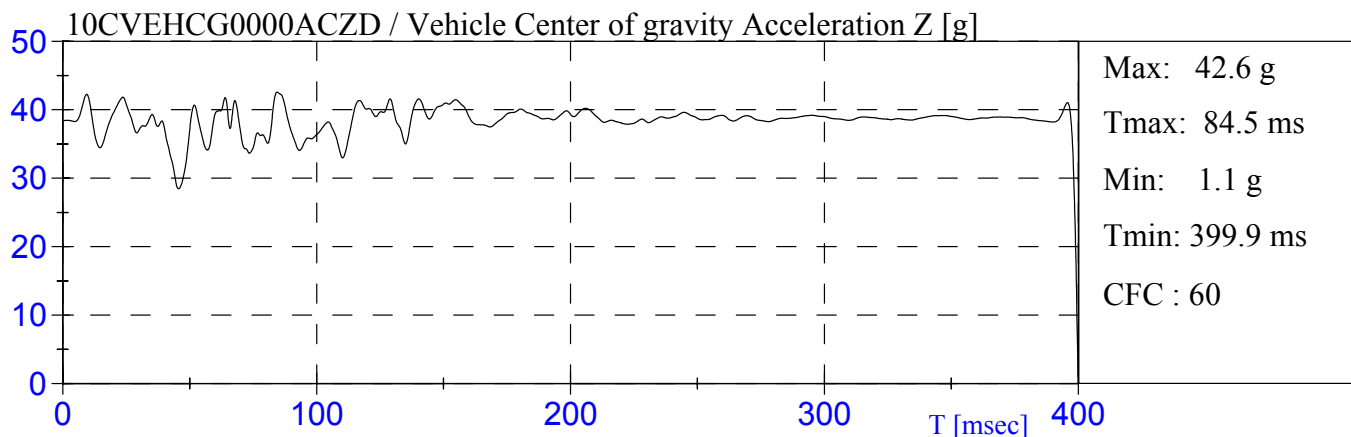
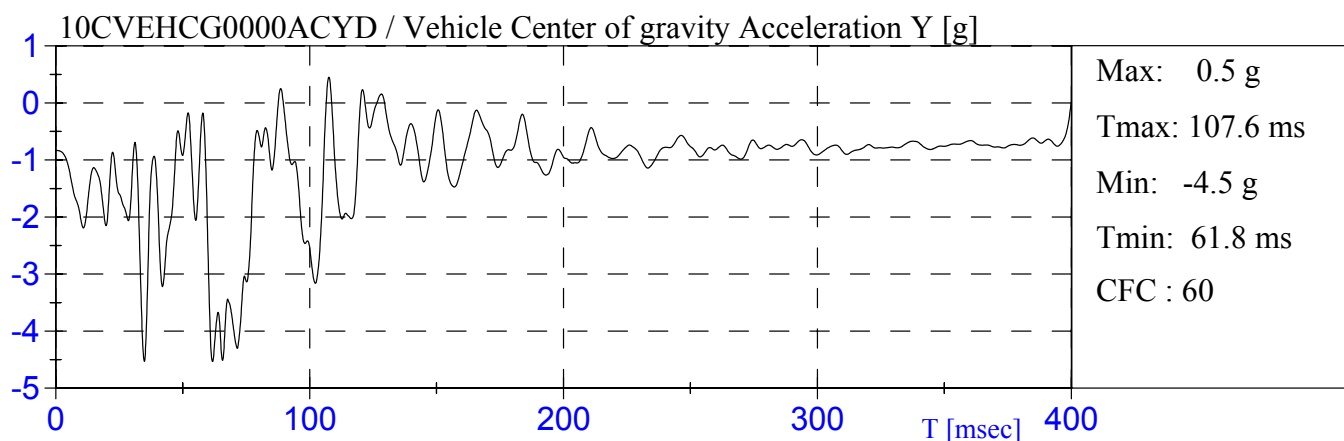
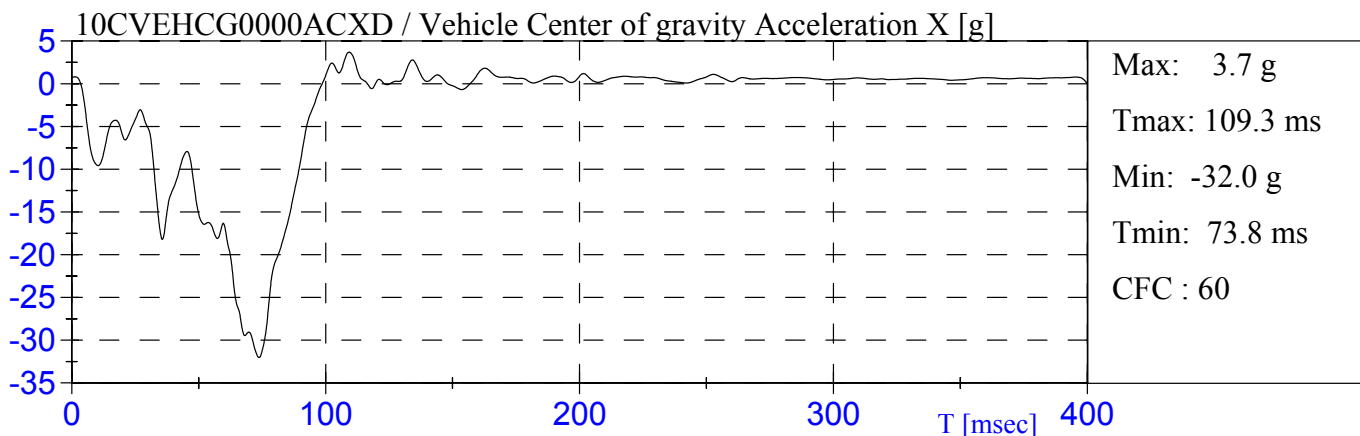


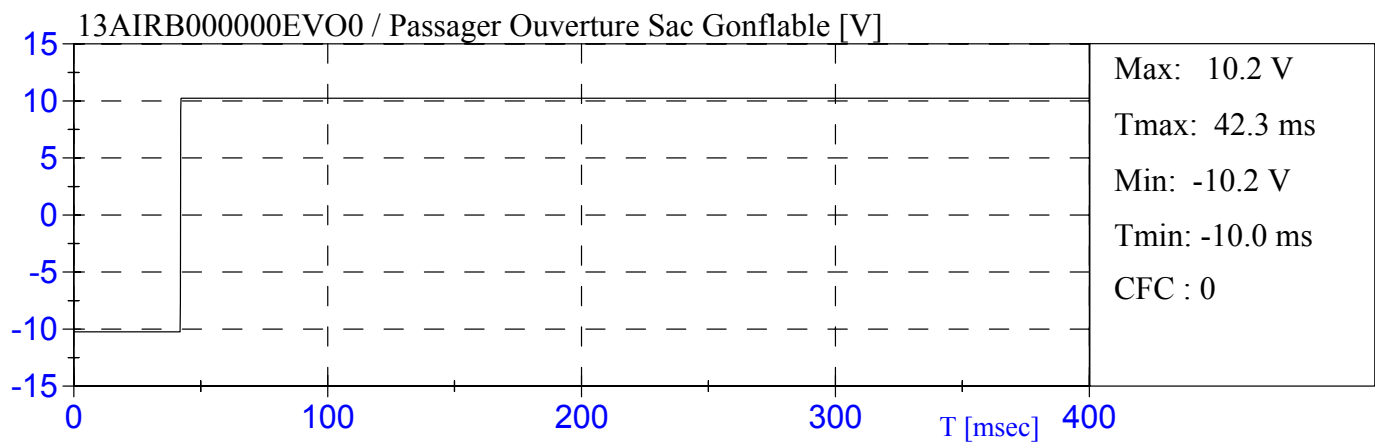
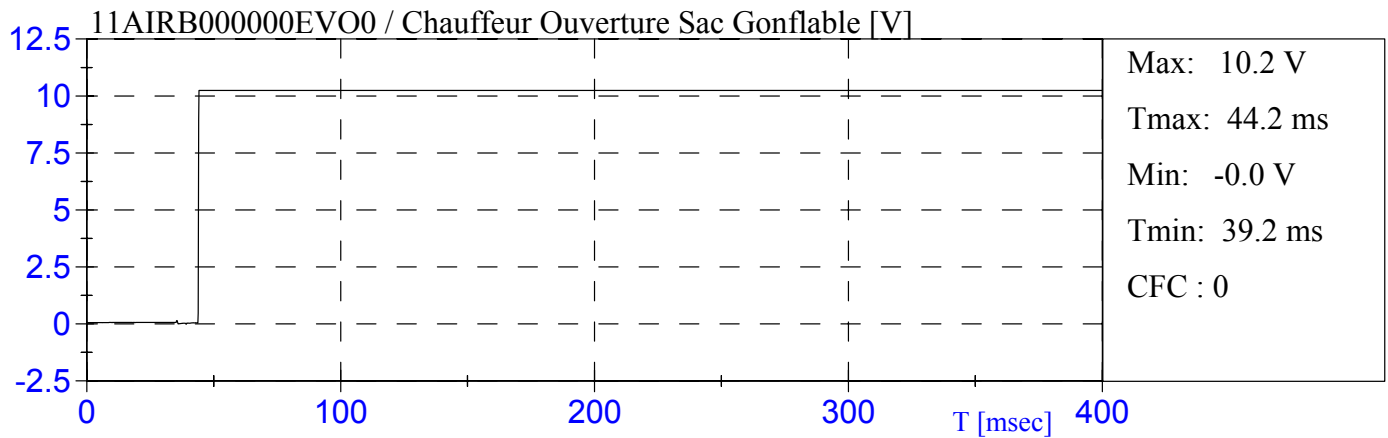


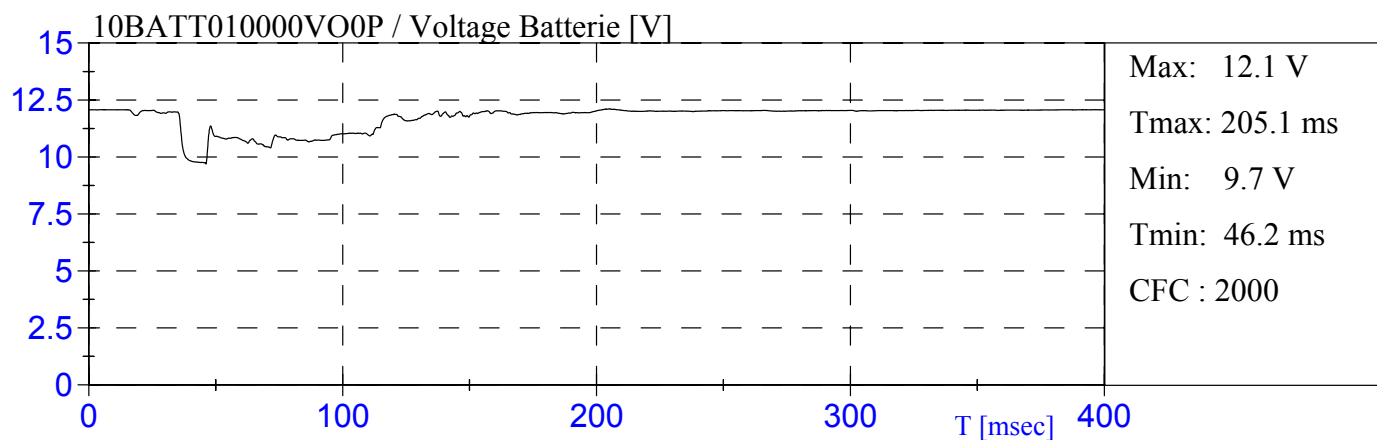


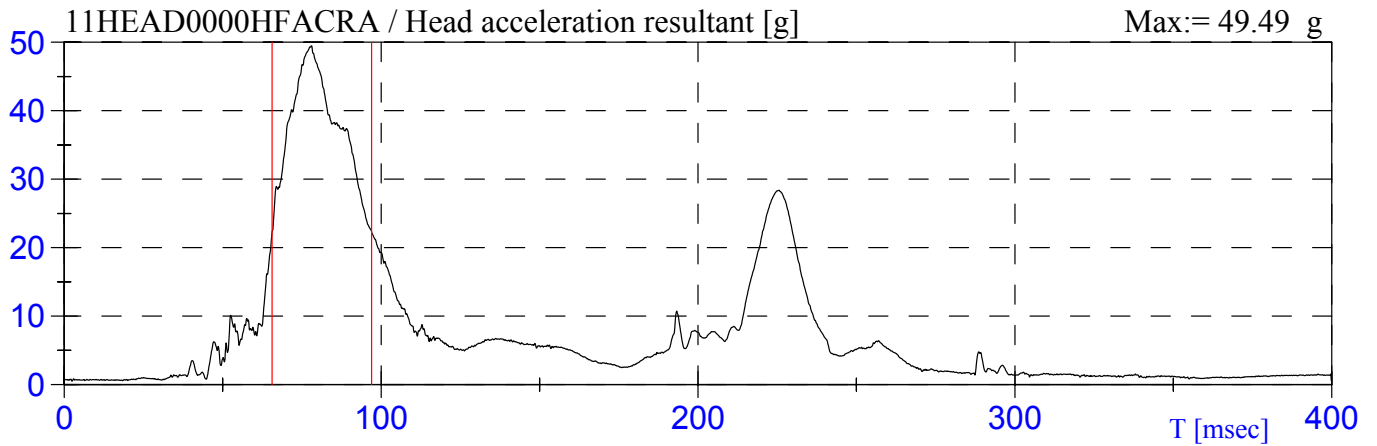








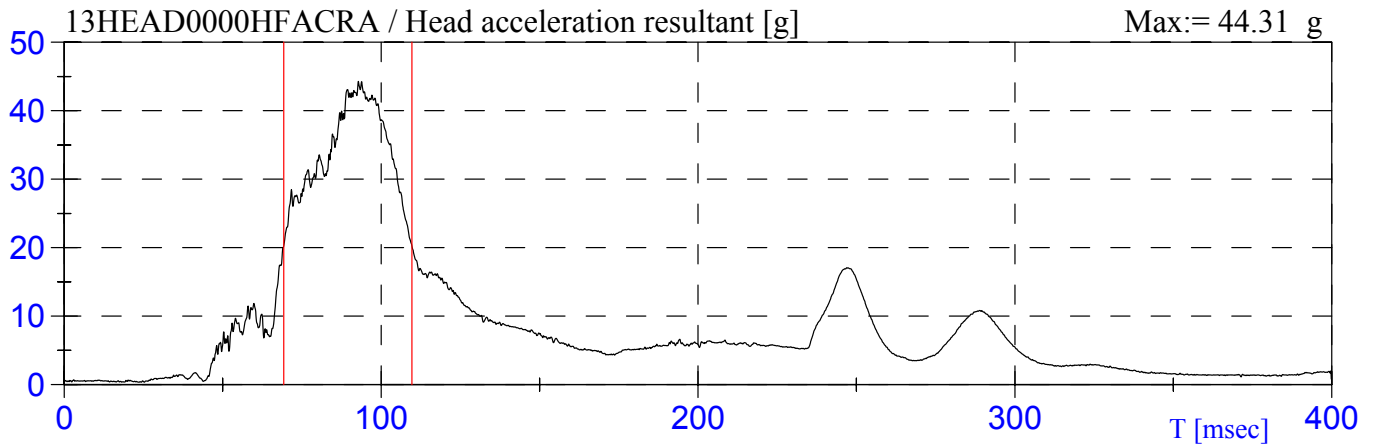




**HEAD INJURY CRITERIA (HIC) \***  
**CRITÈRE DE BLESSURE DE LA TÊTE**

HIC:= 266	HIC(36ms):= 266	HIC(15ms):= 190
T1:= 65.6 ms	T1:= 65.6 ms	T1:= 70.5 ms
T2:= 97.0 ms	T2:= 97.0 ms	T2:= 85.5 ms

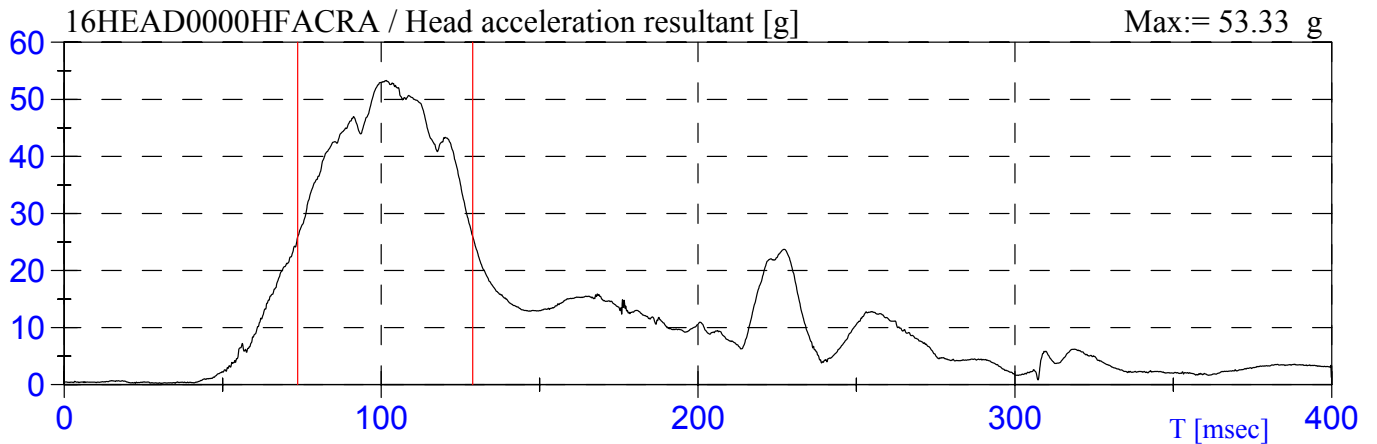
\* Selon / According To: SAE J1727 96-08



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

HIC:= 271	HIC(36ms):= 266	HIC(15ms):= 164
T1:= 69.3 ms	T1:= 71.0 ms	T1:= 86.4 ms
T2:= 109.7 ms	T2:= 107.0 ms	T2:= 101.4 ms

\* Selon / According To: SAE J1727 96-08



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

HIC:= 679	HIC(36ms):= 562	HIC(15ms):= 285
T1:= 73.7 ms	T1:= 85.6 ms	T1:= 96.9 ms
T2:= 128.9 ms	T2:= 121.6 ms	T2:= 111.9 ms

\* Selon / According To: SAE J1727 96-08



Neck Injury Criteria: 11NIJCIP000000YX

$$N_{ij}^* = 0.69$$

Valeurs critiques  
Criticals Values

N <sub>tf</sub>	N <sub>te</sub>	N <sub>cf</sub>	N <sub>ce</sub>	Tc	4287
				Cc	3880
0.10	0.69	0.14	0.23	Fc	155
				Ec	67

\* Selon / According To: Federal Register 5/2000



Neck Injury Criteria: 13NIJCIP000000YX

$$N_{ij}^* = 0.53$$

Valeurs critiques  
Criticals Values

N <sub>tf</sub>	N <sub>te</sub>	N <sub>cf</sub>	N <sub>ce</sub>	Tc	4287
0.50	0.53	0.10	0.04	Cc	3880
				Fc	155
				Ec	67

\* Selon / According To: Federal Register 5/2000



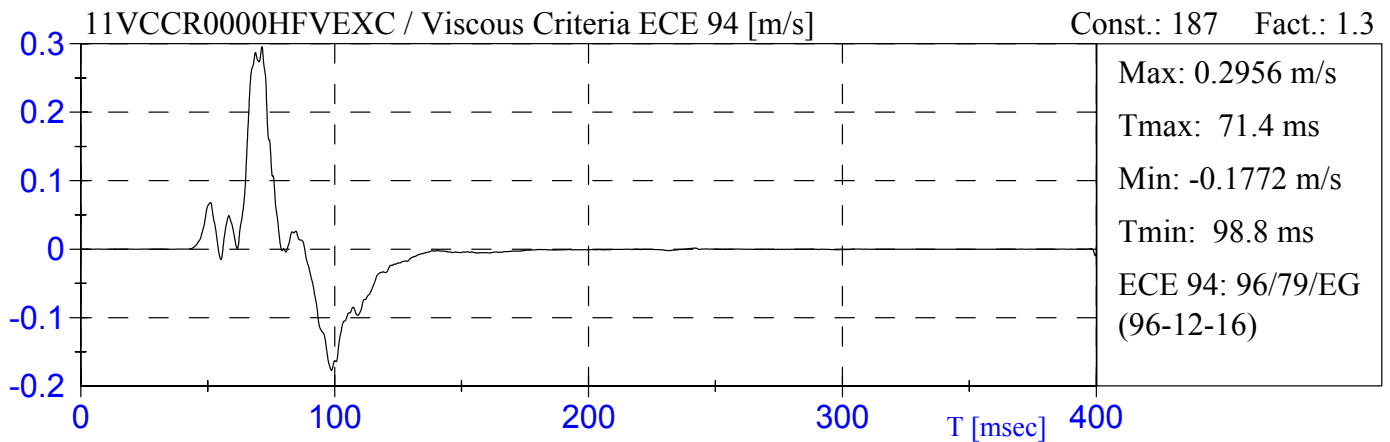
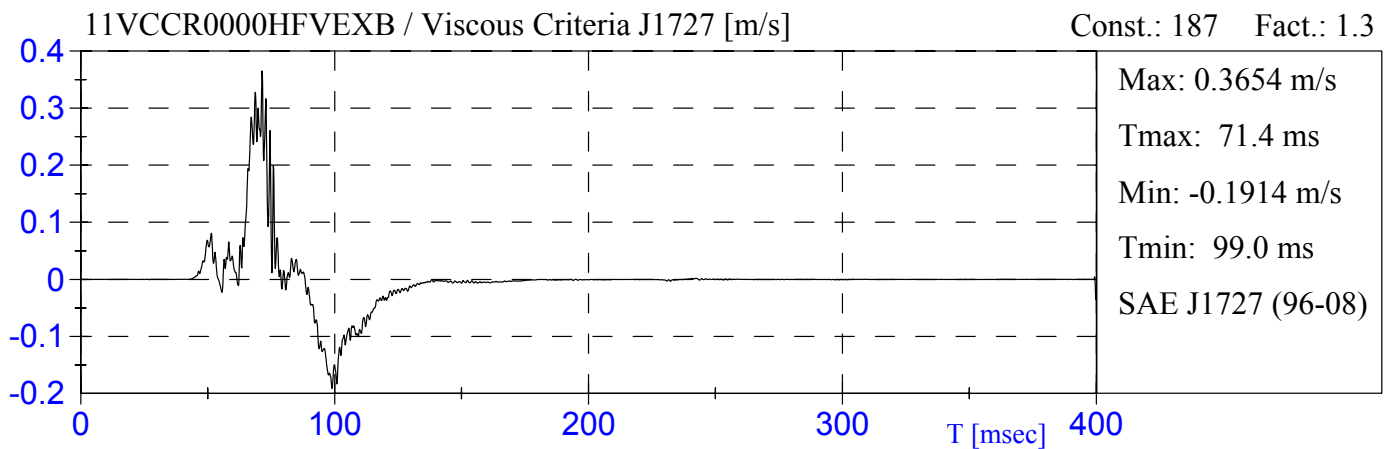
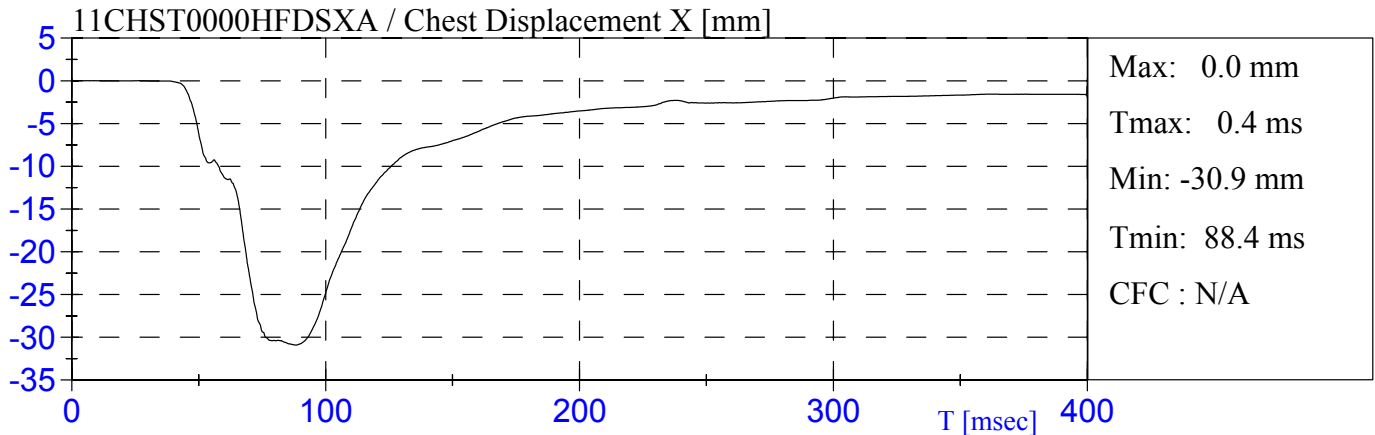
Neck Injury Criteria: 16NIJCIP000000YX

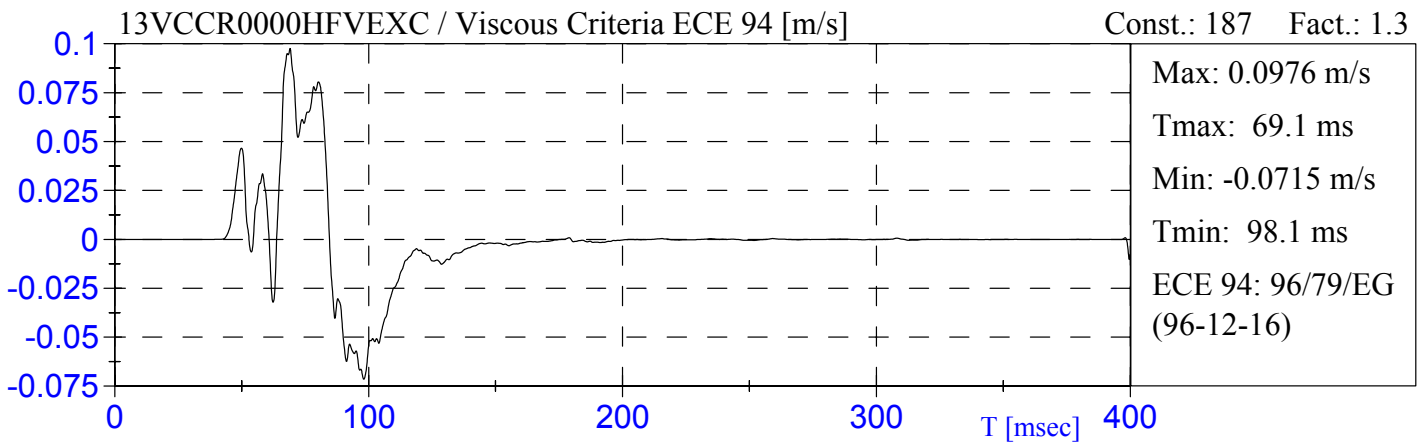
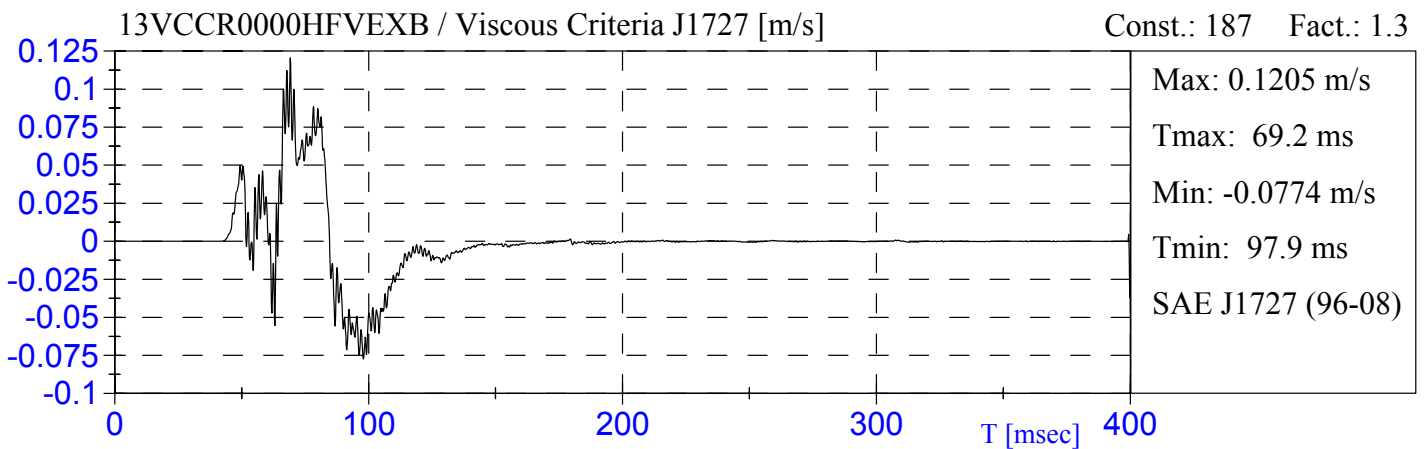
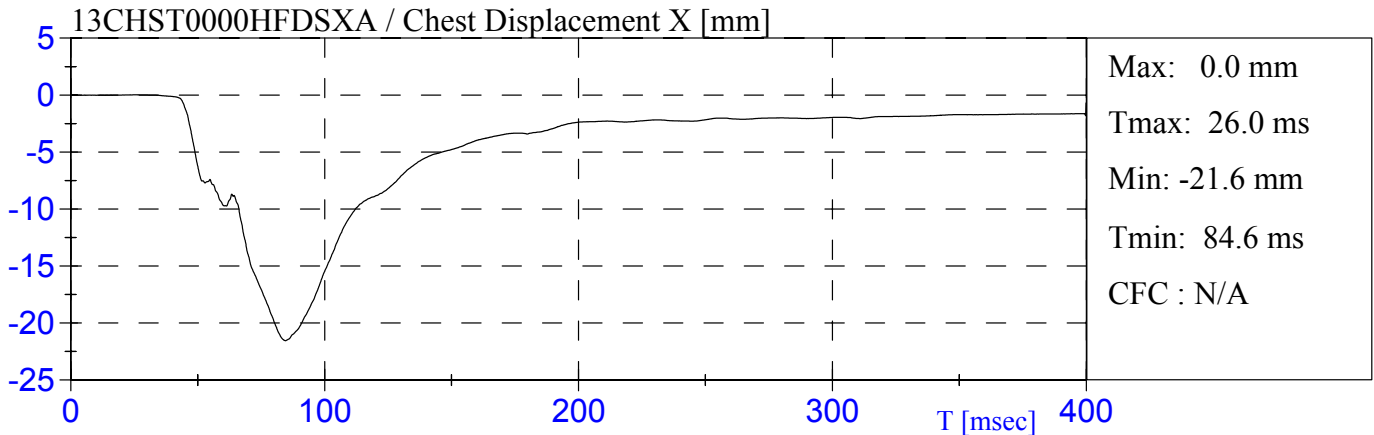
$$N_{ij}^* = 0.77$$

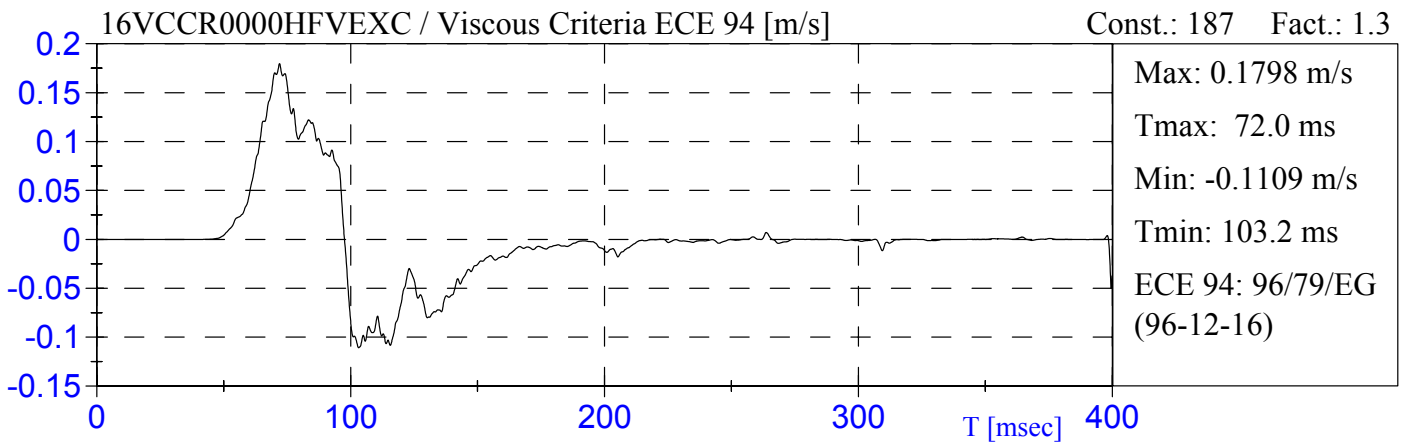
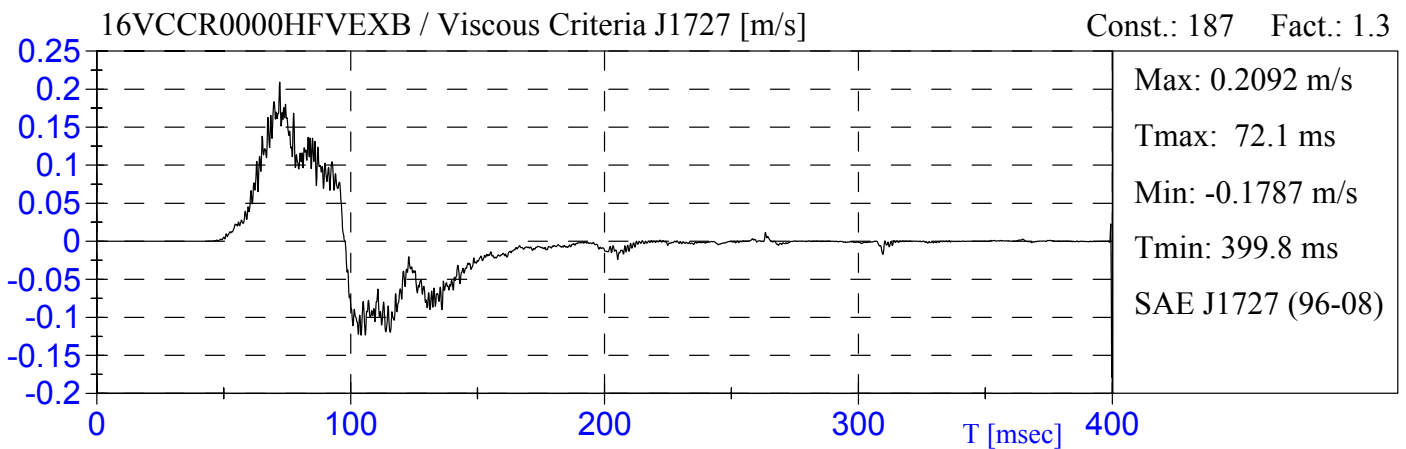
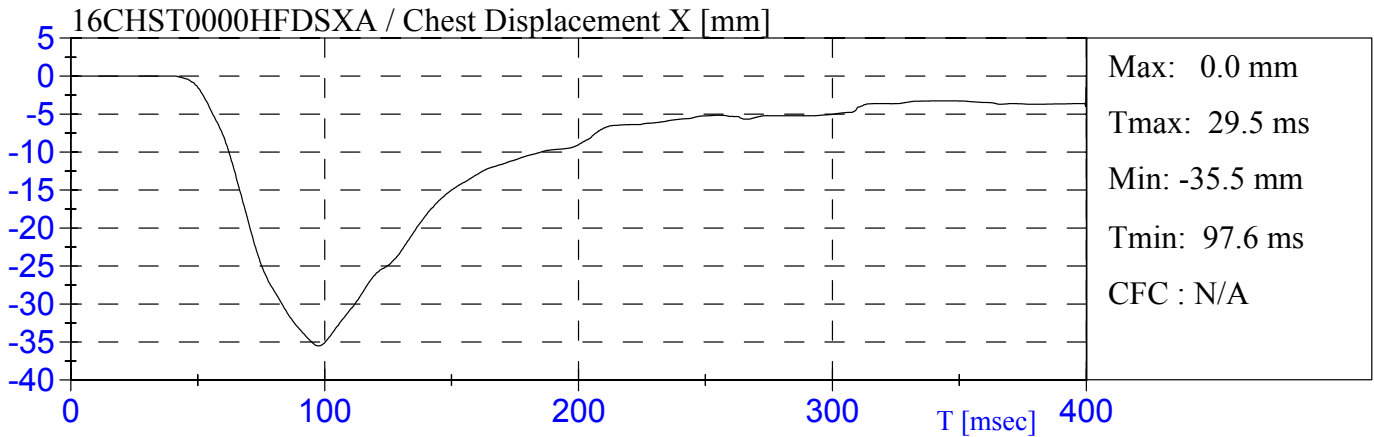
Valeurs critiques  
Criticals Values

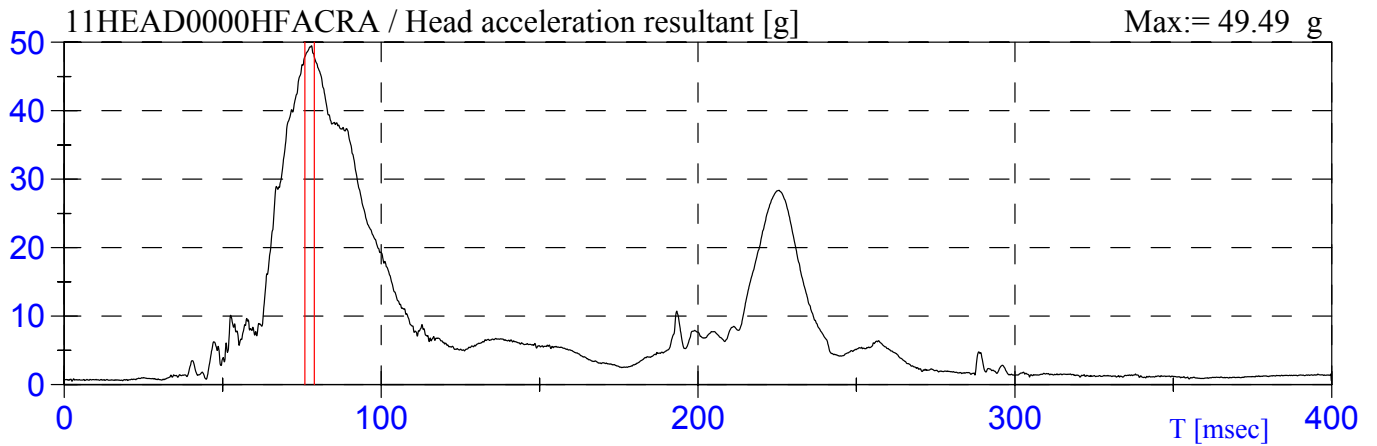
N <sub>tf</sub>	N <sub>te</sub>	N <sub>cf</sub>	N <sub>ce</sub>	Tc	4287
				Cc	3880
0.67	0.43	0.07	0.77	Fc	155
				Ec	67

\* Selon / According To: Federal Register 5/2000



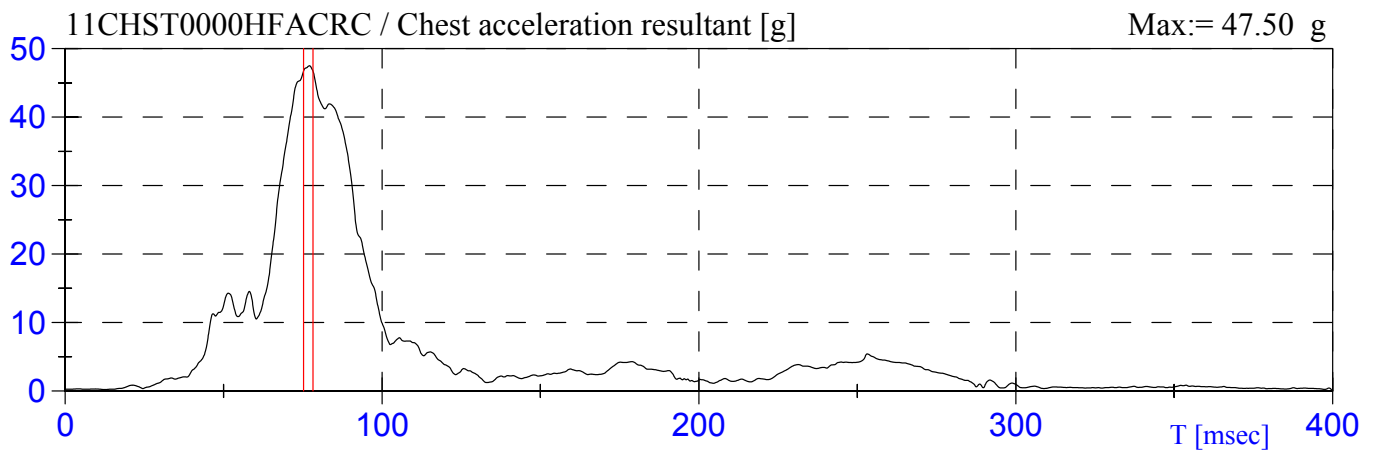






CLIP 3ms \*

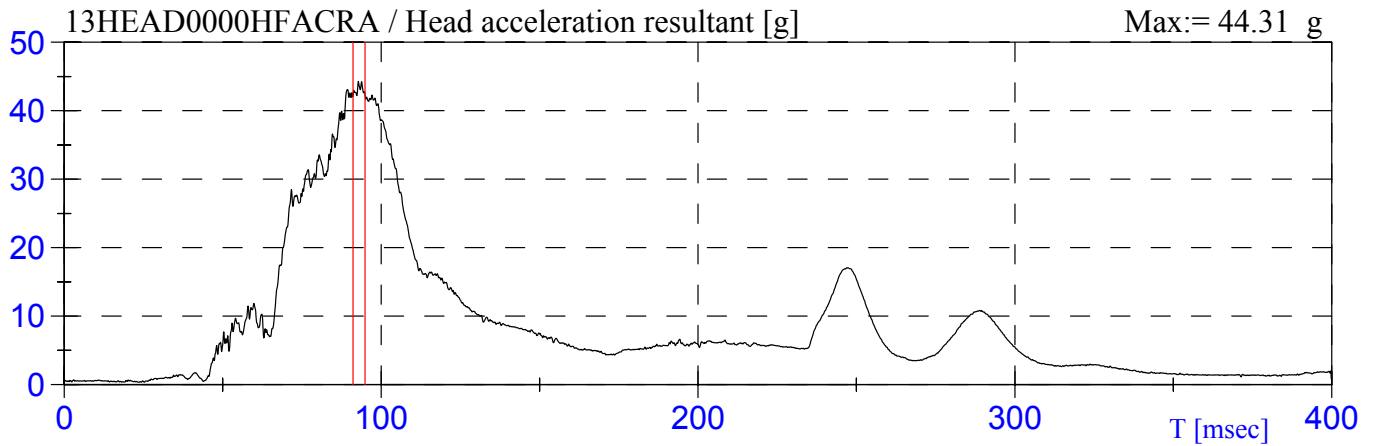
Acc. := 47.89 g	T1:= 75.9 ms	T2:= 78.9 ms
-----------------	--------------	--------------



CLIP 3ms \*

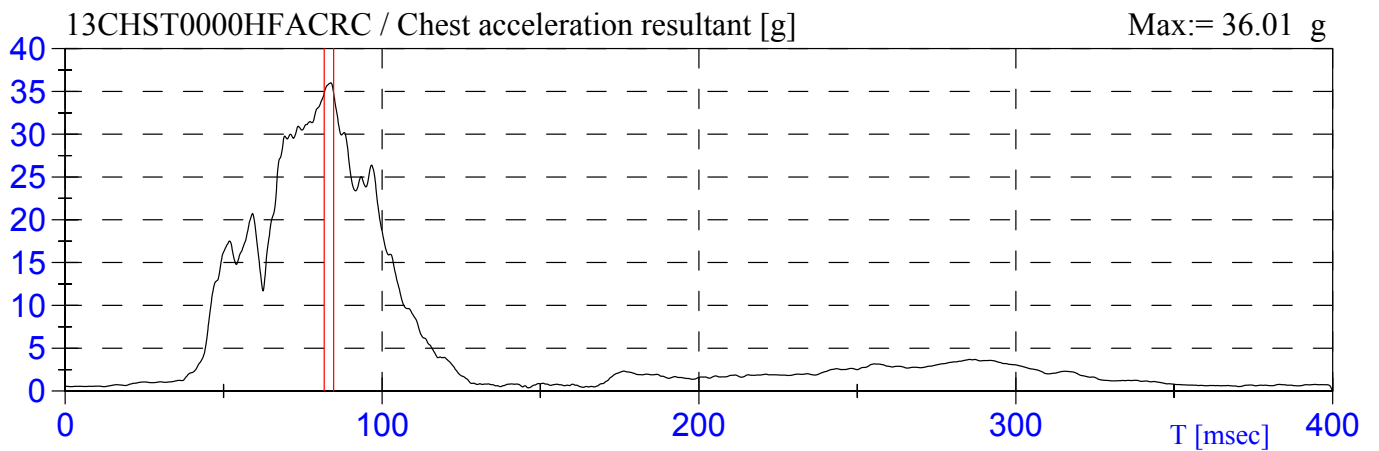
Acc. := 46.68 g	T1:= 75.2 ms	T2:= 78.2 ms
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\* Selon / According To: NHTSA CLIP VERSION 2.1 5/95



CLIP 3ms \*

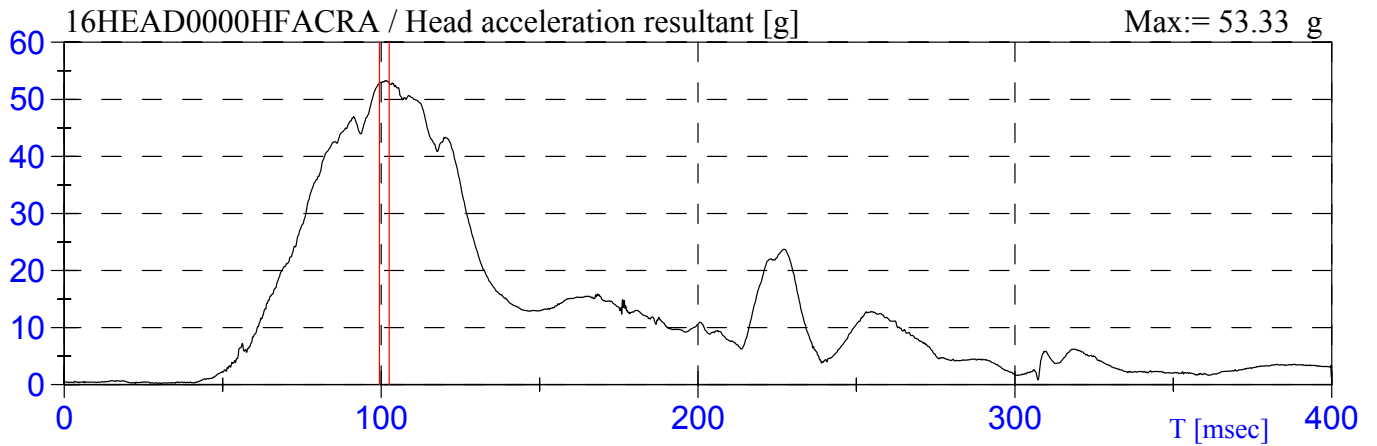
Acc. := 42.23 g	T1:= 91.2 ms	T2:= 94.9 ms
-----------------	--------------	--------------



CLIP 3ms \*

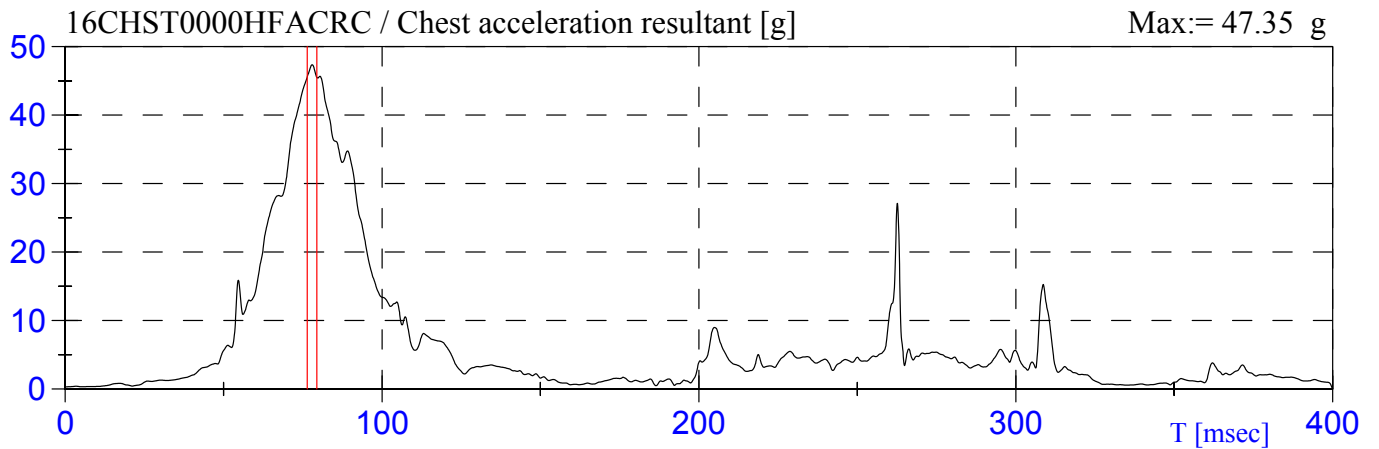
Acc. := 34.78 g	T1:= 81.8 ms	T2:= 84.8 ms
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\* Selon / According To: NHTSA CLIP VERSION 2.1 5/95



### CLIP 3ms \*

Acc. := 52.89 g	T1:= 99.5 ms	T2:= 102.5 ms
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### CLIP 3ms \*

Acc. := 45.54 g	T1:= 76.4 ms	T2:= 79.4 ms
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\* Selon / According To: NHTSA CLIP VERSION 2.1 5/95

## COMMENTAIRES / COMMENTS

11CHSTLEUPHFDSXB: N'est pas valide.

Is not valid.

13NECKUP00HFFOZA: N'est pas valide à partir de 122.9 ms.

Is not valid from 122.9 ms.

**APPENDICE /APPENDIX C**

**DONNÉES DES TEMPÉRATURES  
TEMPERATURE DATA**

# Temperature TC05-225

