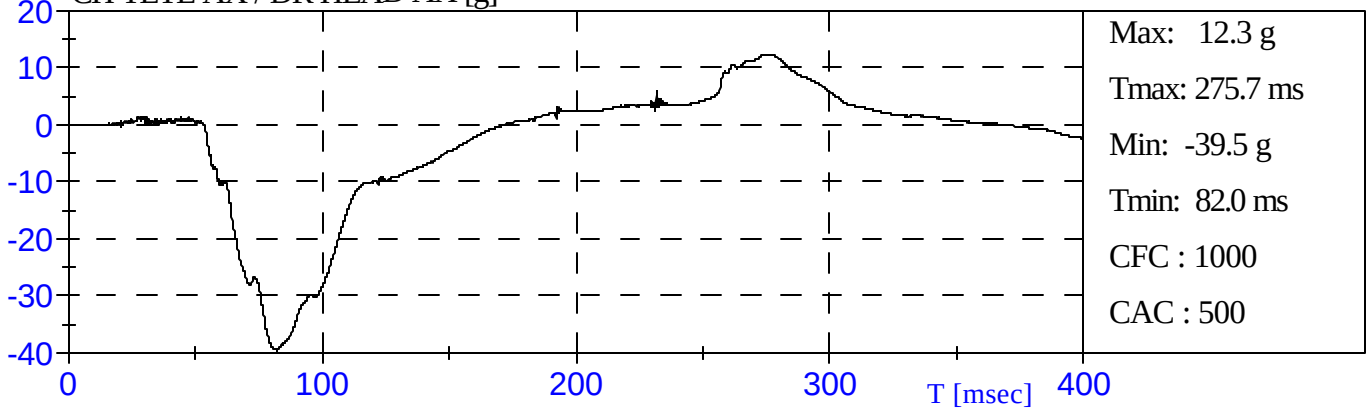
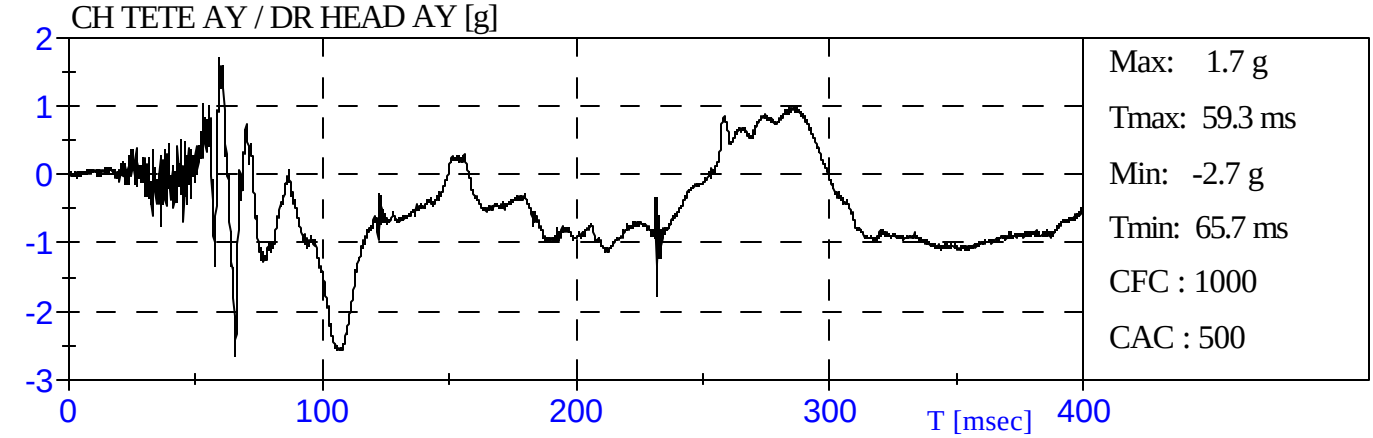
PMG Technologies

Nom du client **Client Name**	**TRANSPORT CANADA.**
Type de véhicule **Type of Vehicle**	**PARK AVENUE 2003**
Numéro de TC **Tc Number**	**TC03-122**
Numéro de contrat **Contract No**	**03-6008**
Acquisition de données selon **Data Acquisition according to**	**SAE J211/1 MAR 95**
Date de l'essai **Test date**	**2003-02-20**
Titre du projet	**NSVAC 208** **PROTECTION DE L`OCCUPANT EN COLLISION**
Project Title	**CMVSS 208** **OCCUPANT CRASH PROTECTION**
MANNEQUIN / DUMMY	
Chauffeur **Driver**	**HYBRID III 50% M**
Passager **Passenger**	**HYBRID III 50% M**
Passager 1 (arrière centre) **Passenger 1 (rear center)**	
Passager 2 (arrière droit) **Passenger 2 (rear right)**	

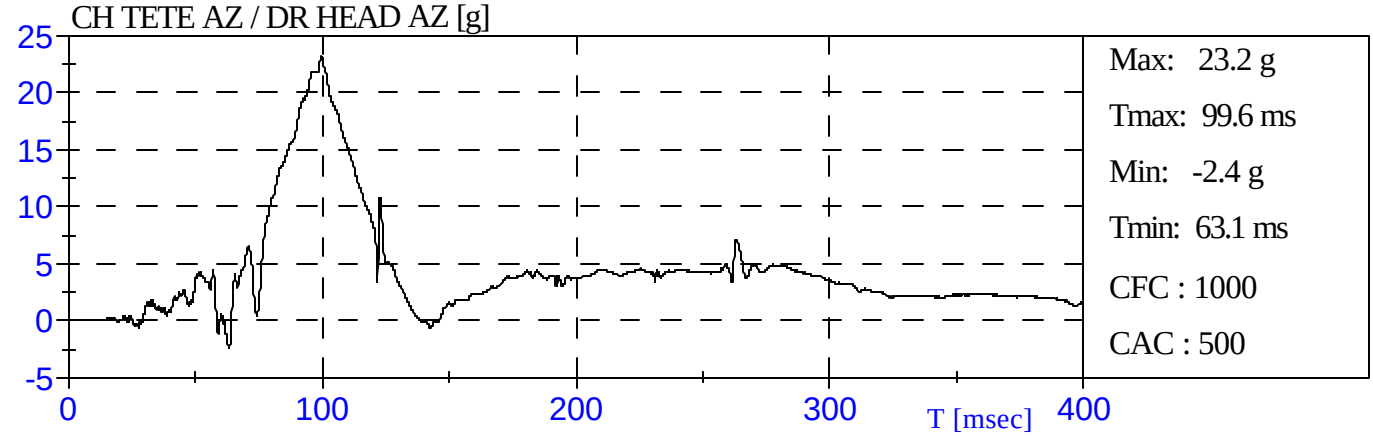
CH TETE AX / DR HEAD AX [g]



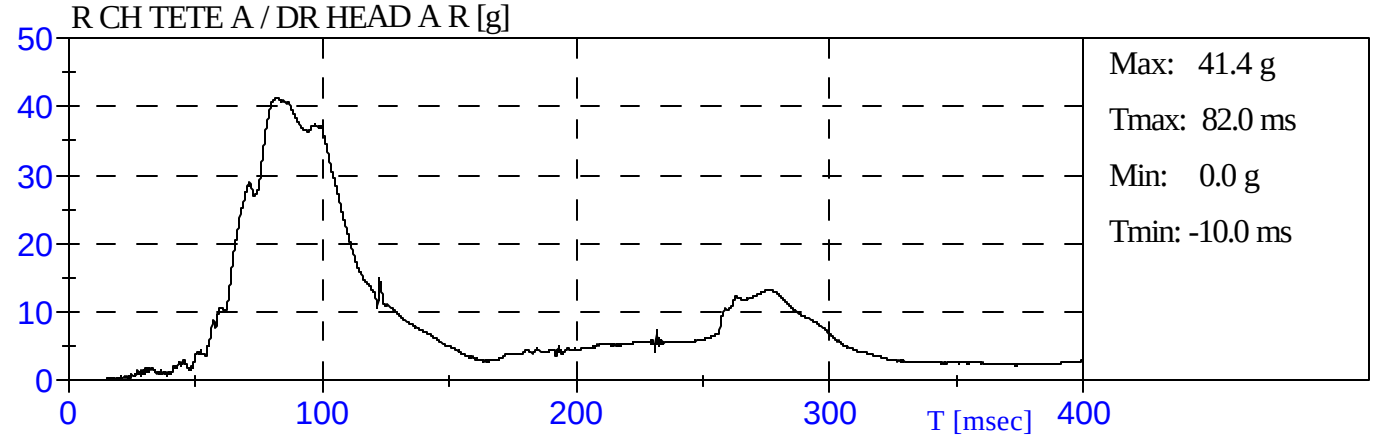
CH TETE AY / DR HEAD AY [g]



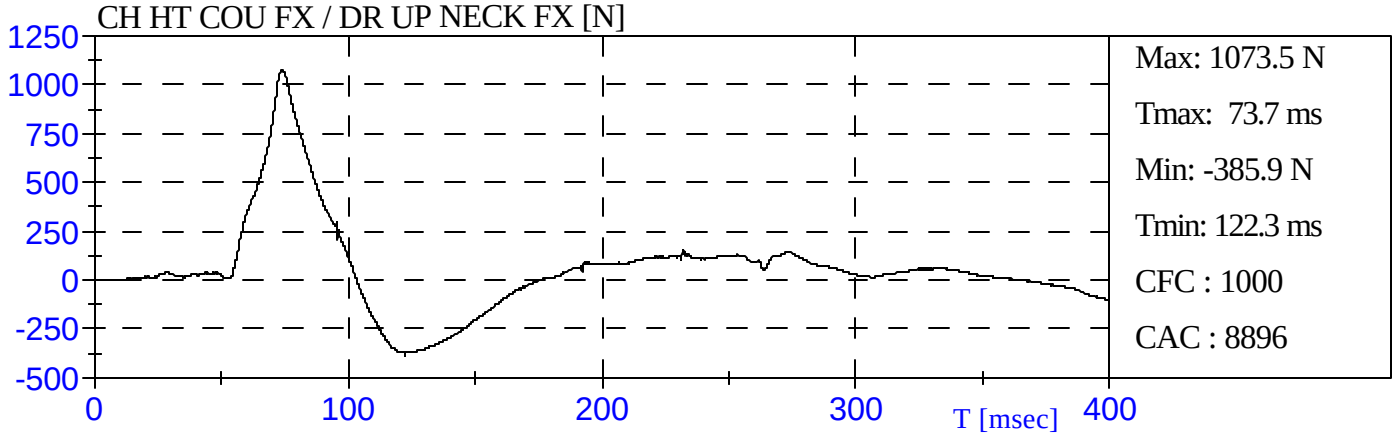
CH TETE AZ / DR HEAD AZ [g]



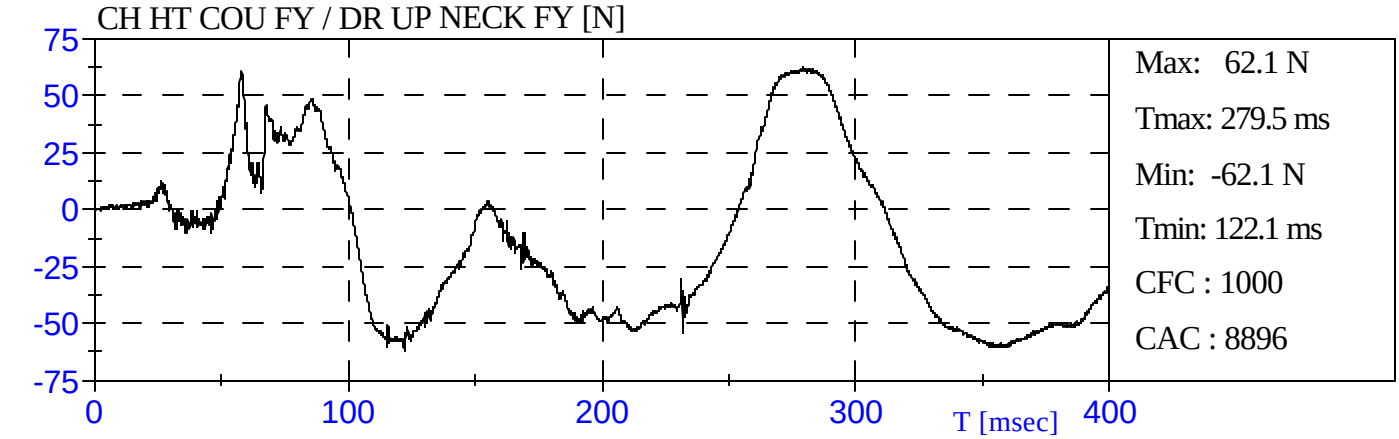
R CH TETE A / DR HEAD A R [g]



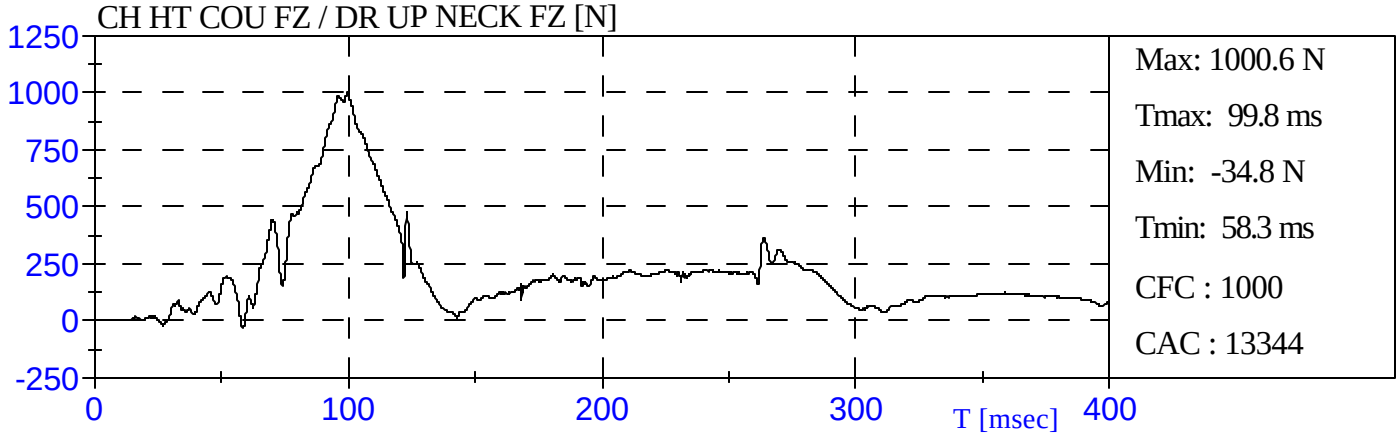
CH HT COU FX / DR UP NECK FX [N]



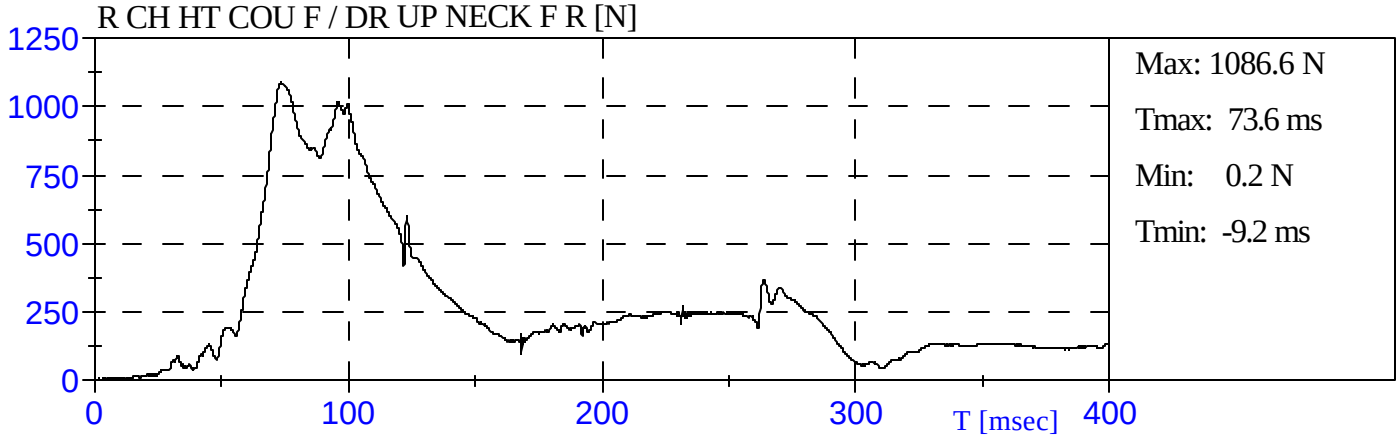
CH HT COU FY / DR UP NECK FY [N]



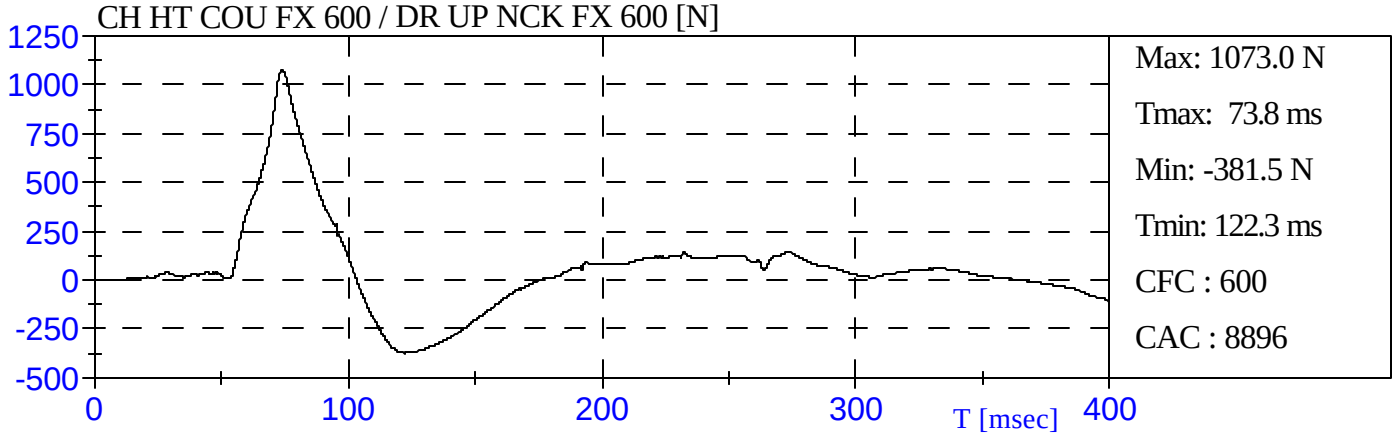
CH HT COU FZ / DR UP NECK FZ [N]



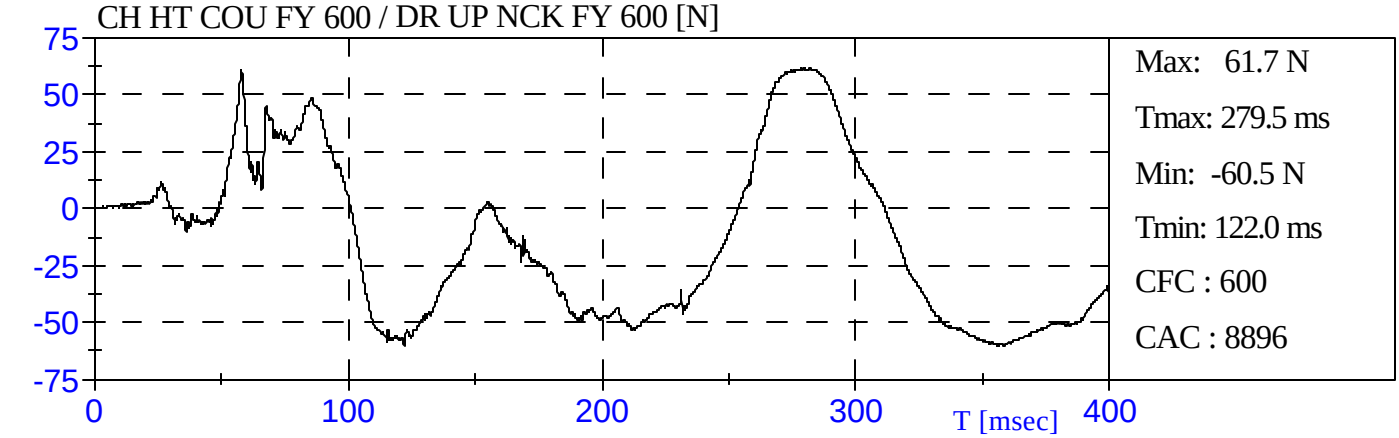
R CH HT COU F / DR UP NECK F R [N]



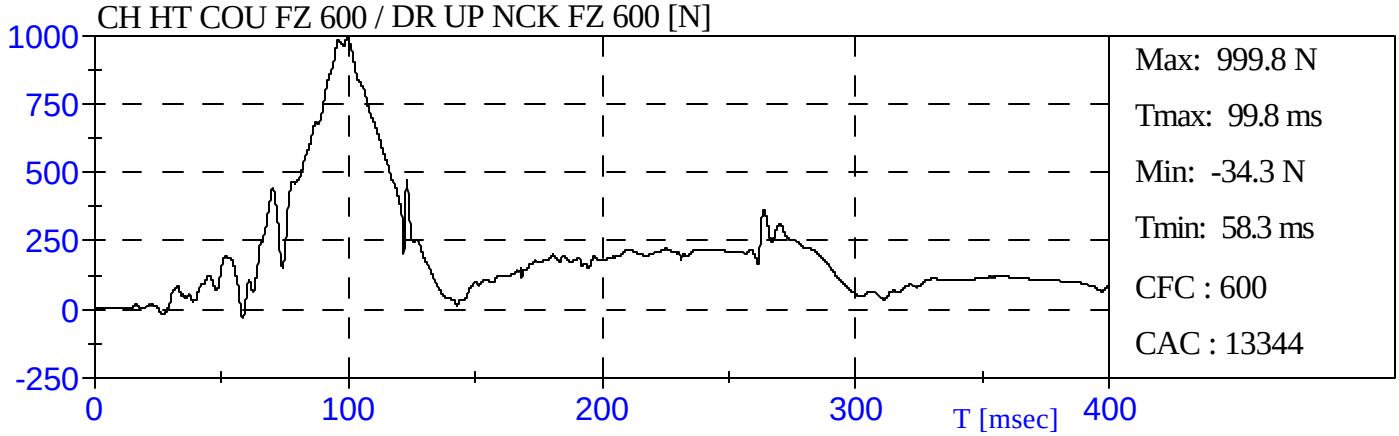
CH HT COU FX 600 / DR UP NCK FX 600 [N]



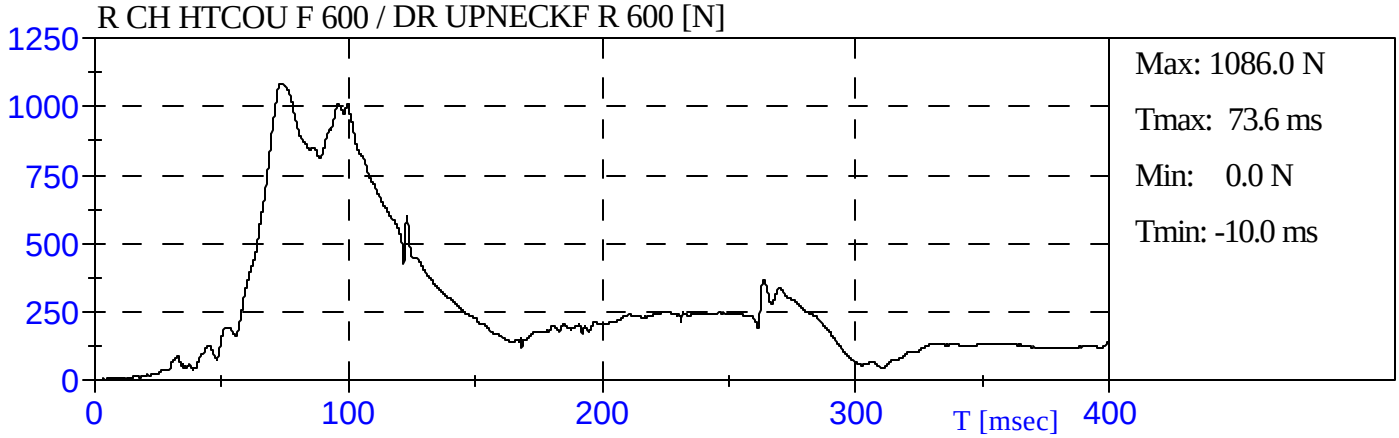
CH HT COU FY 600 / DR UP NCK FY 600 [N]



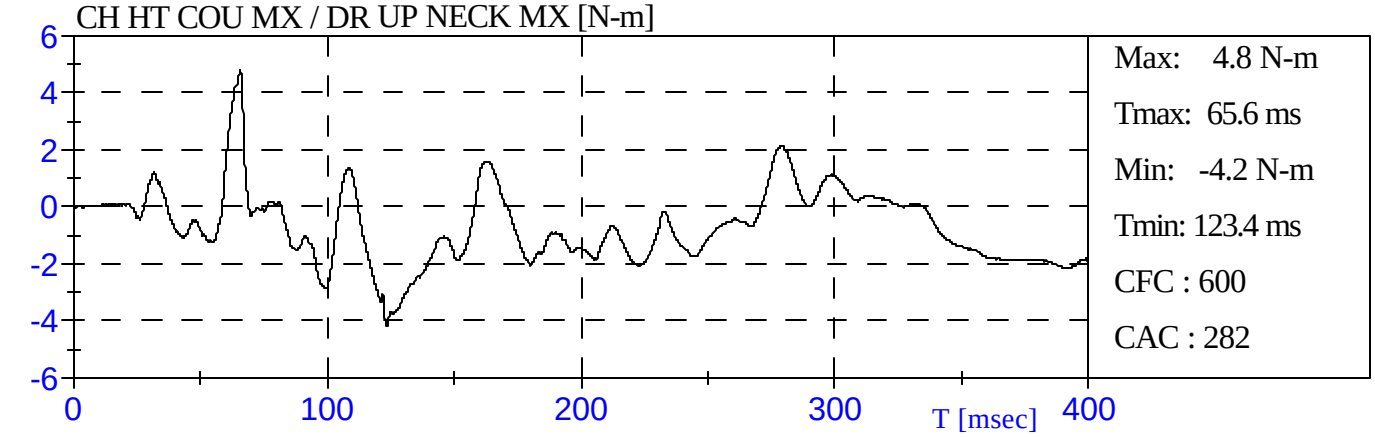
CH HT COU FZ 600 / DR UP NCK FZ 600 [N]



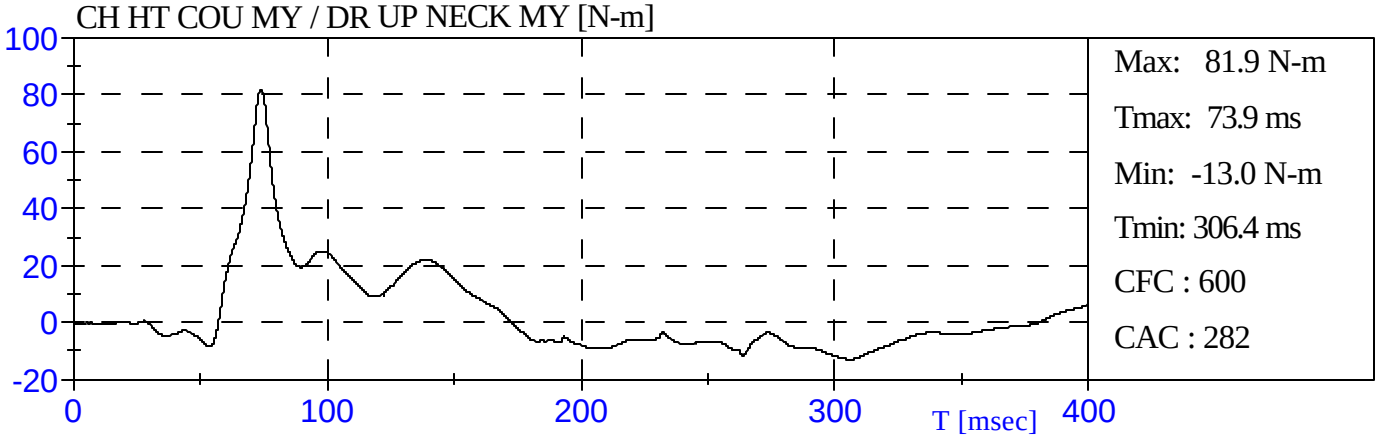
R CH HTCOU F 600 / DR UPNECKF R 600 [N]



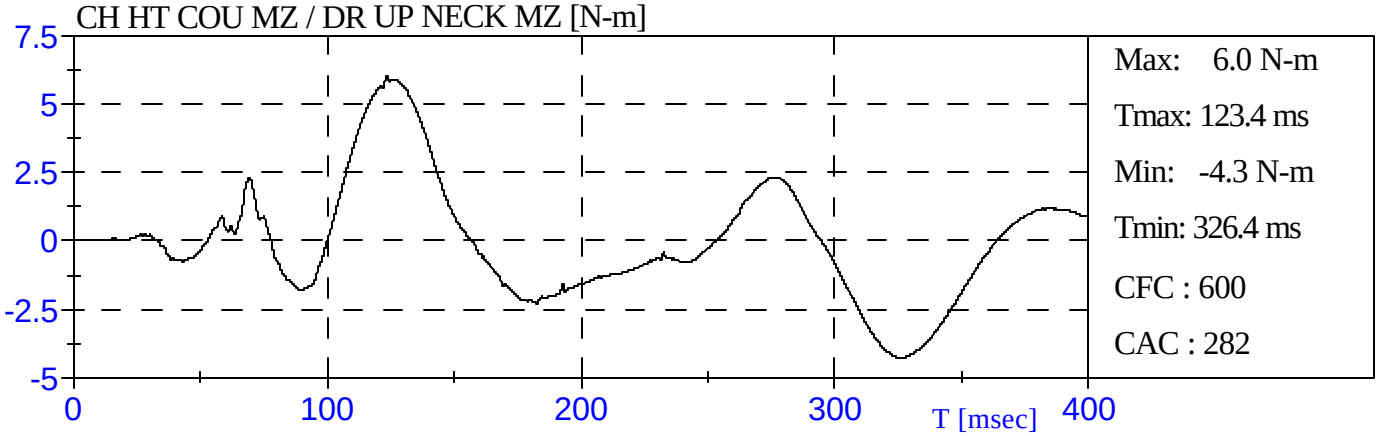
CH HT COU MX / DR UP NECK MX [N-m]



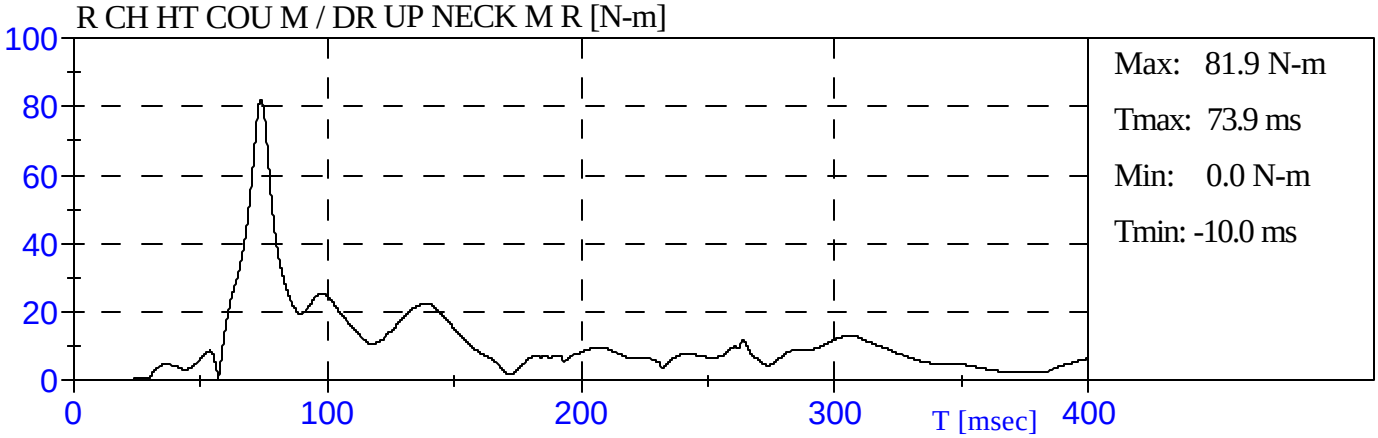
CH HT COU MY / DR UP NECK MY [N-m]



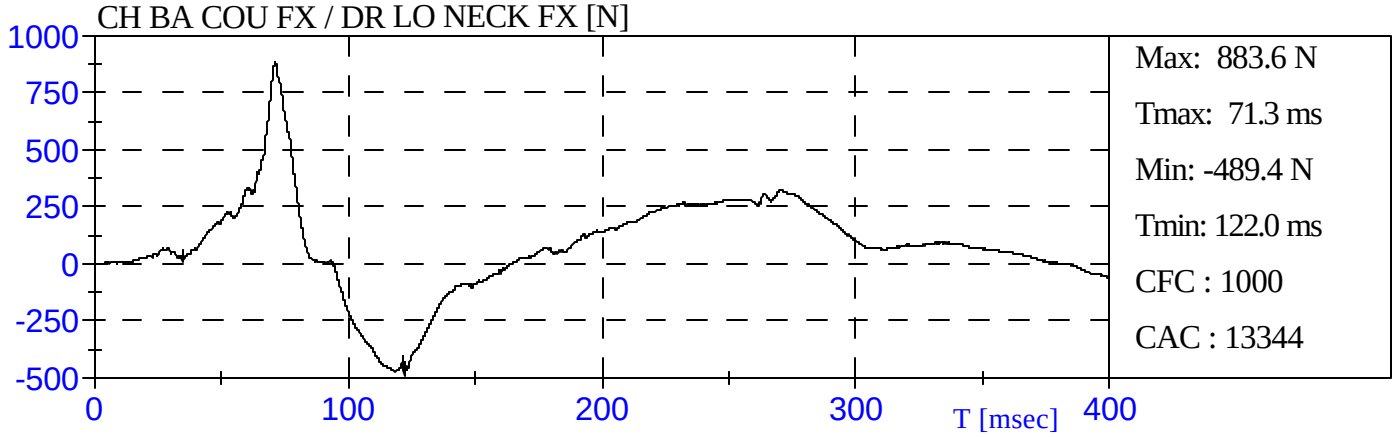
CH HT COU MZ / DR UP NECK MZ [N-m]



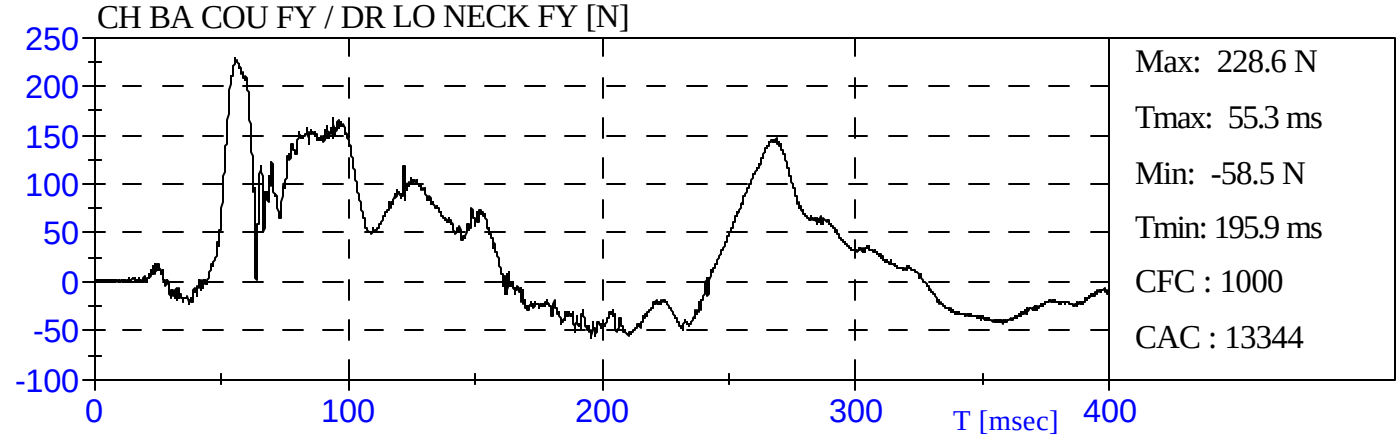
R CH HT COU M / DR UP NECK M R [N-m]



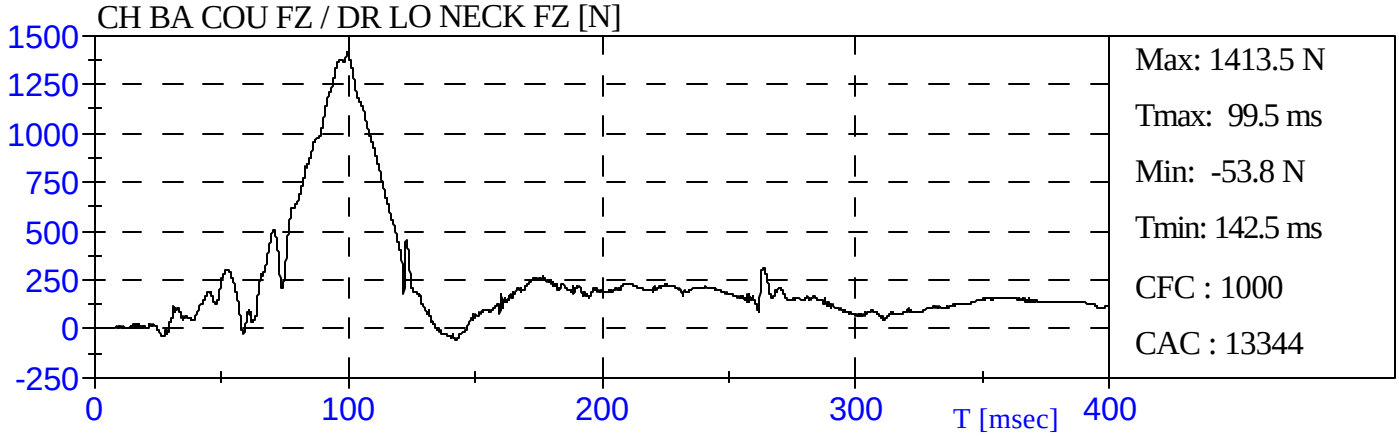
CH BA COU FX / DR LO NECK FX [N]



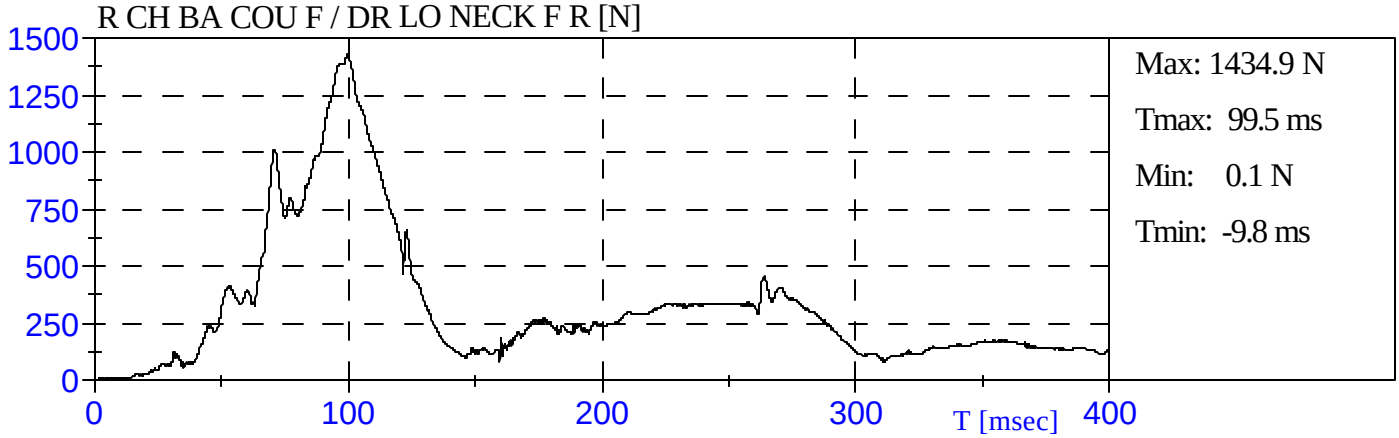
CH BA COU FY / DR LO NECK FY [N]



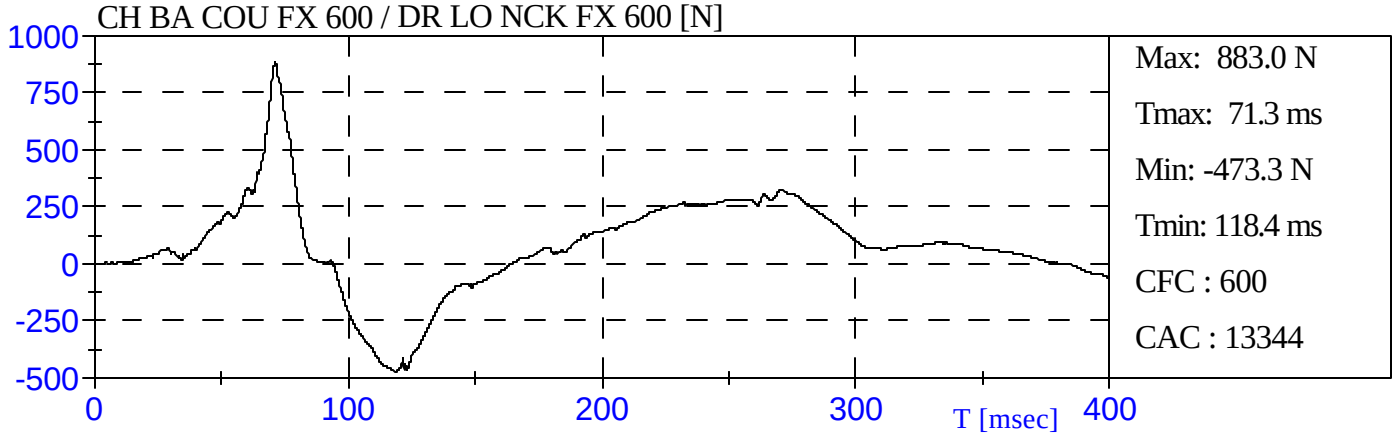
CH BA COU FZ / DR LO NECK FZ [N]



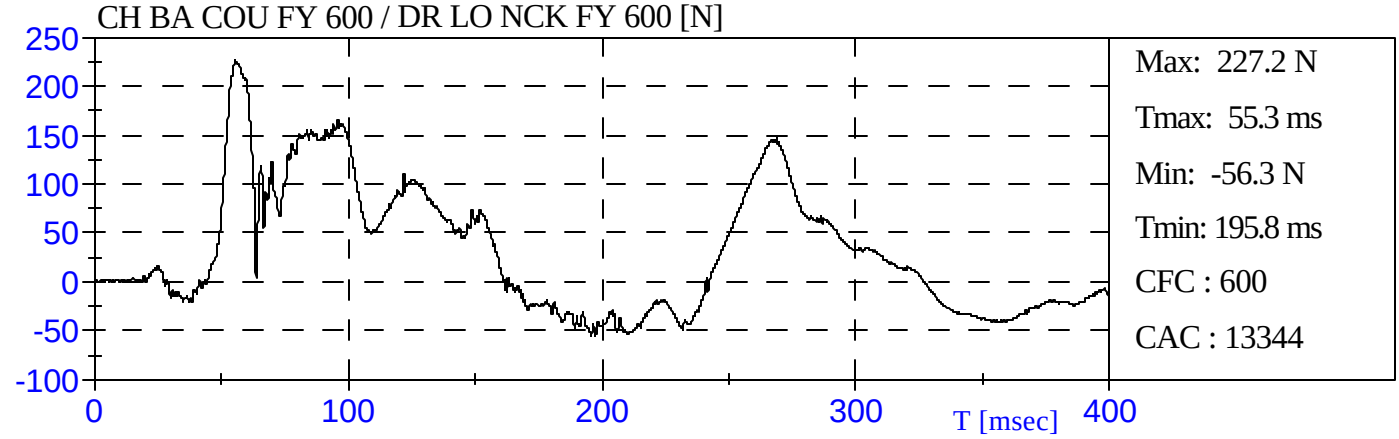
R CH BA COU F / DR LO NECK F R [N]



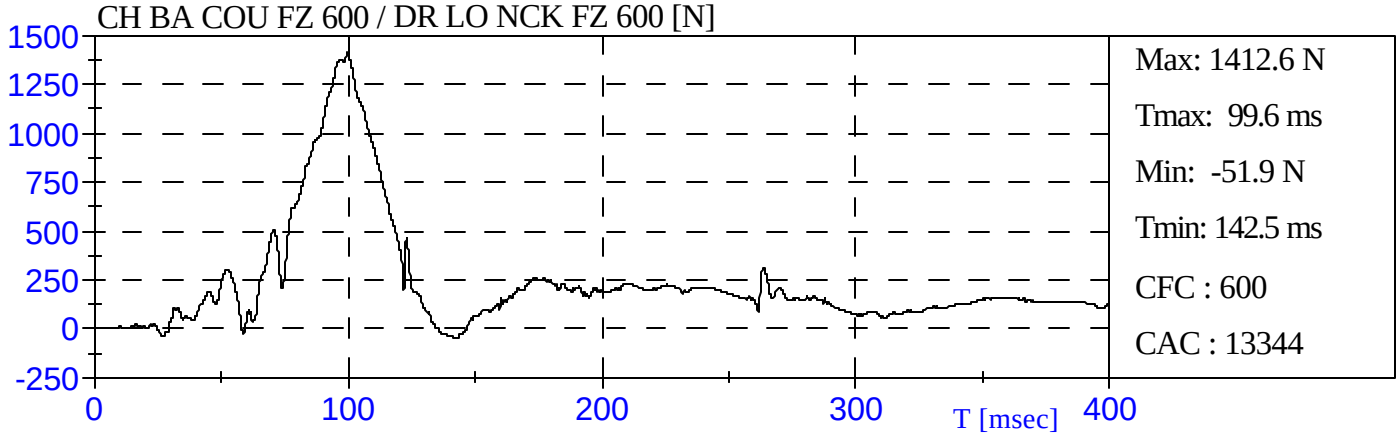
CH BA COU FX 600 / DR LO NCK FX 600 [N]



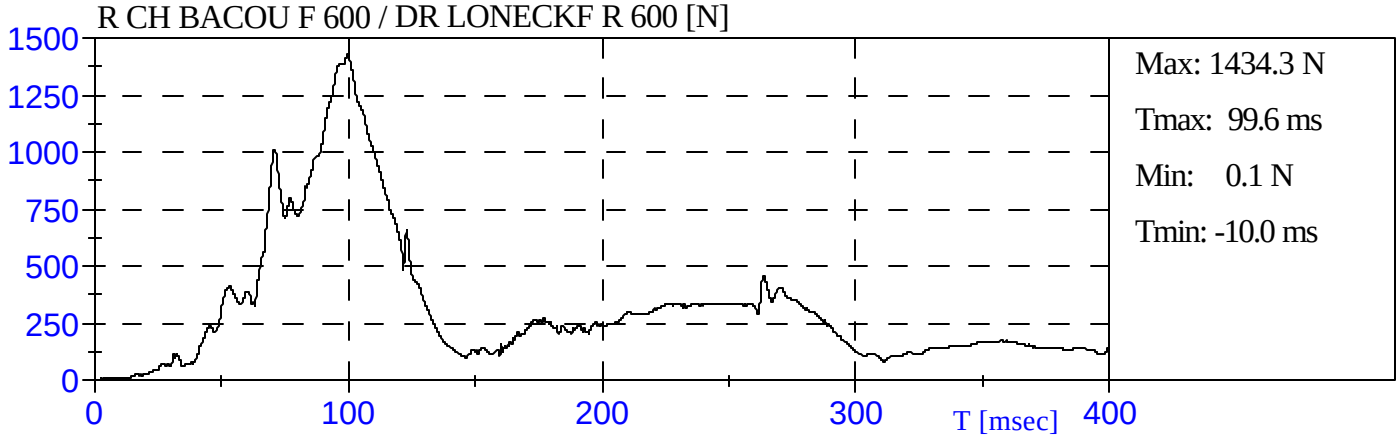
CH BA COU FY 600 / DR LO NCK FY 600 [N]



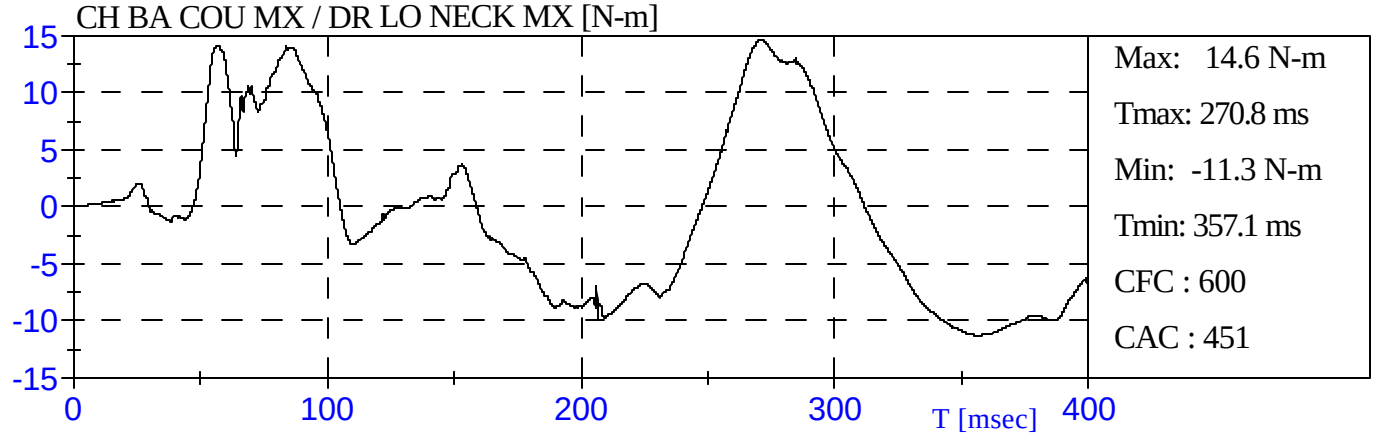
CH BA COU FZ 600 / DR LO NCK FZ 600 [N]



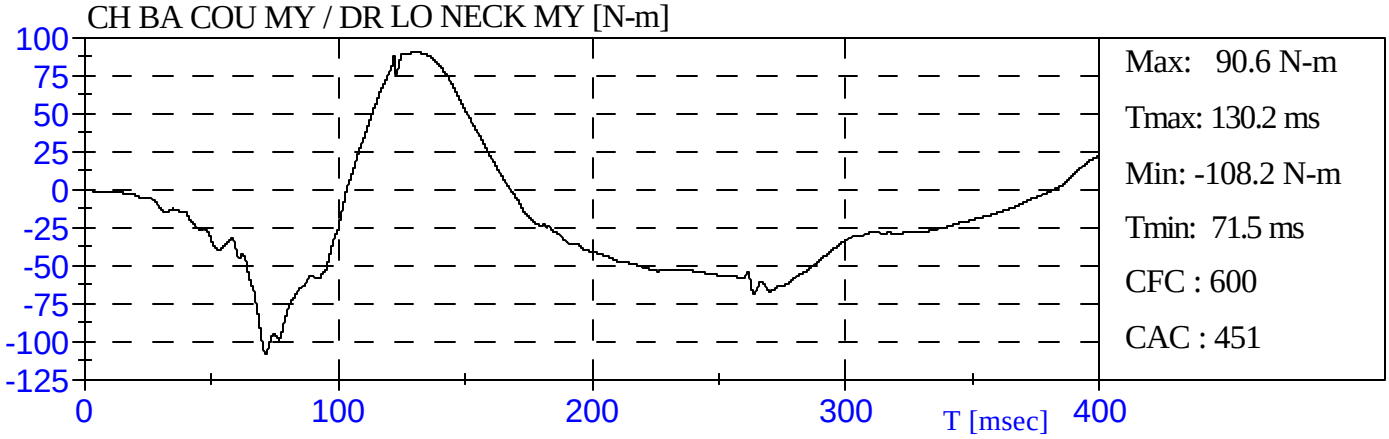
R CH BACOU F 600 / DR LONECKF R 600 [N]



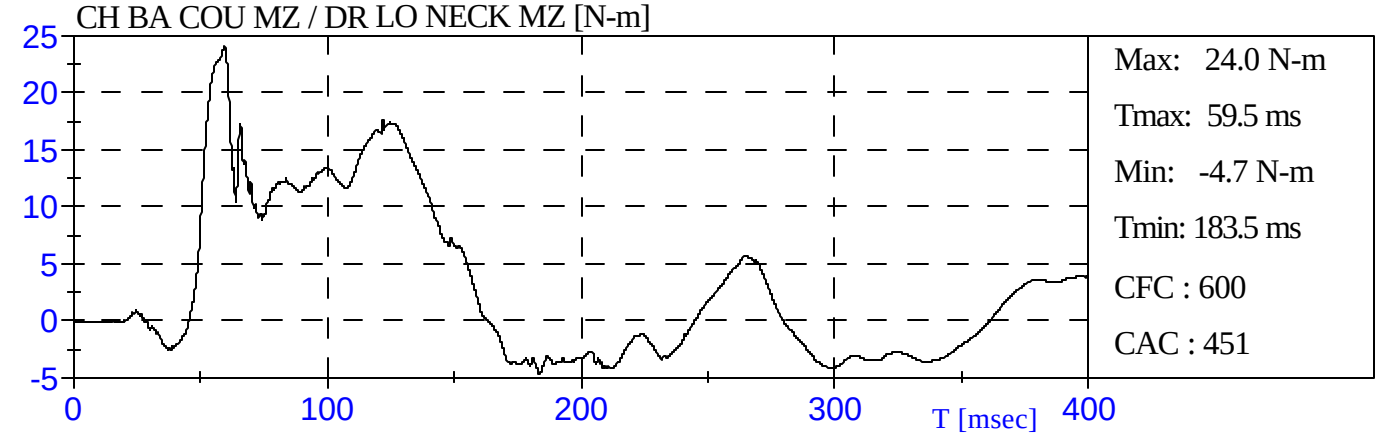
CH BA COU MX / DR LO NECK MX [N-m]



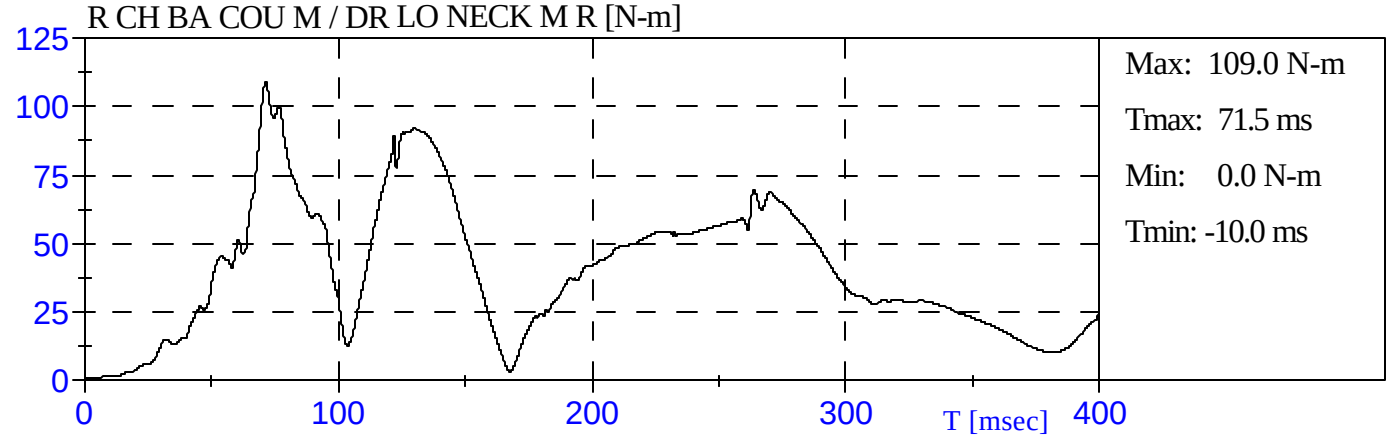
CH BA COU MY / DR LO NECK MY [N-m]



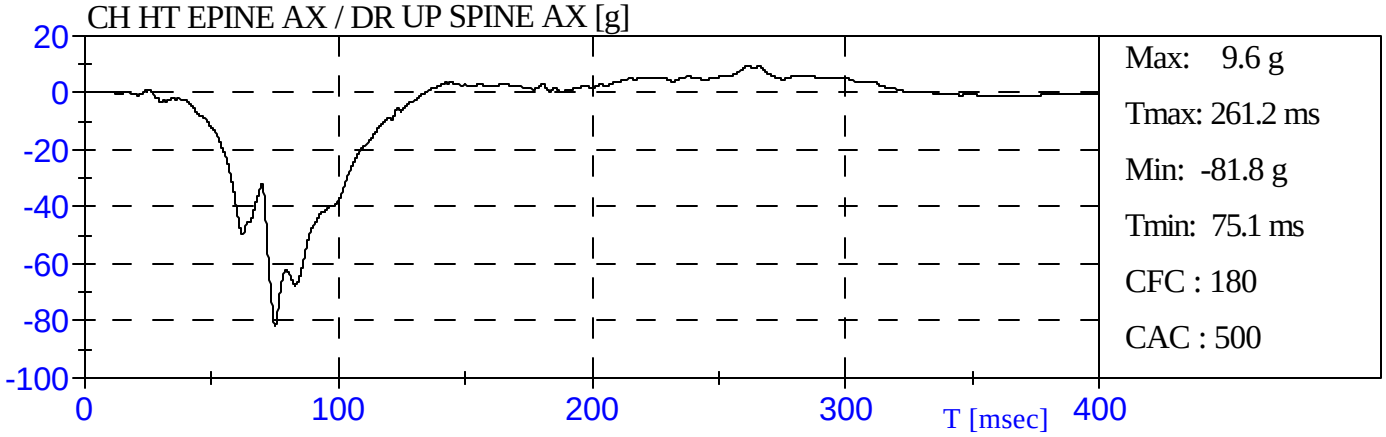
CH BA COU MZ / DR LO NECK MZ [N-m]



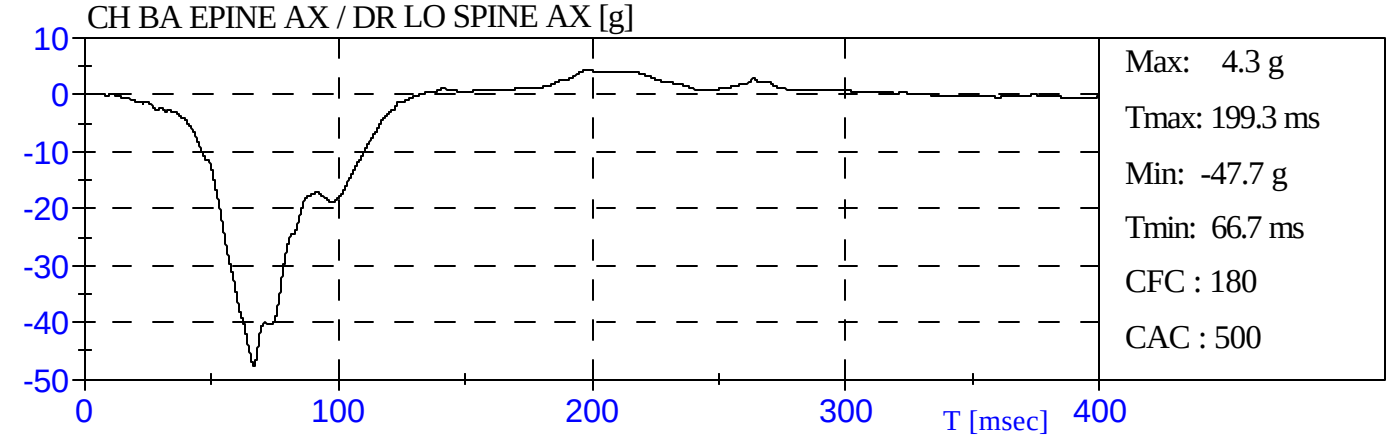
R CH BA COU M / DR LO NECK M R [N-m]



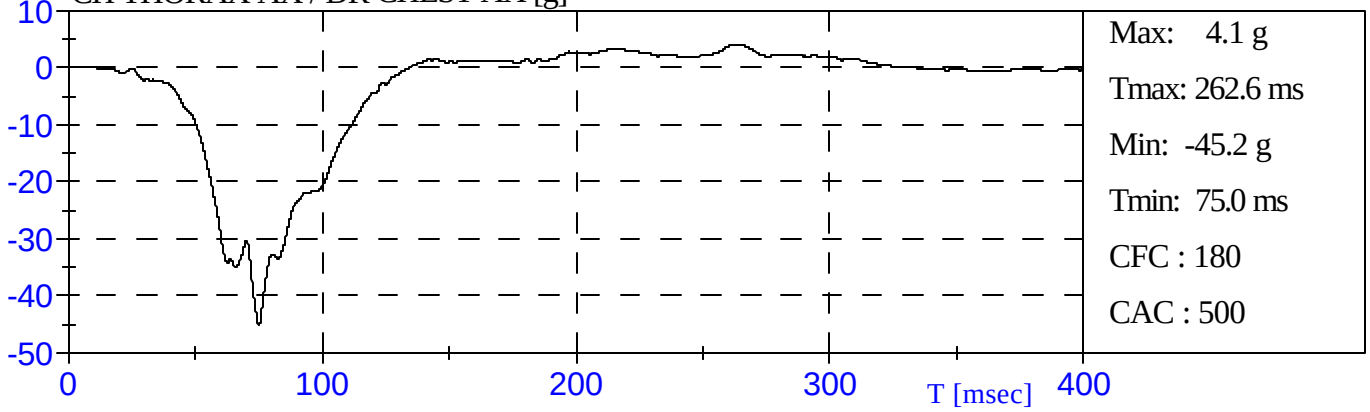
CH HT EPINE AX / DR UP SPINE AX [g]



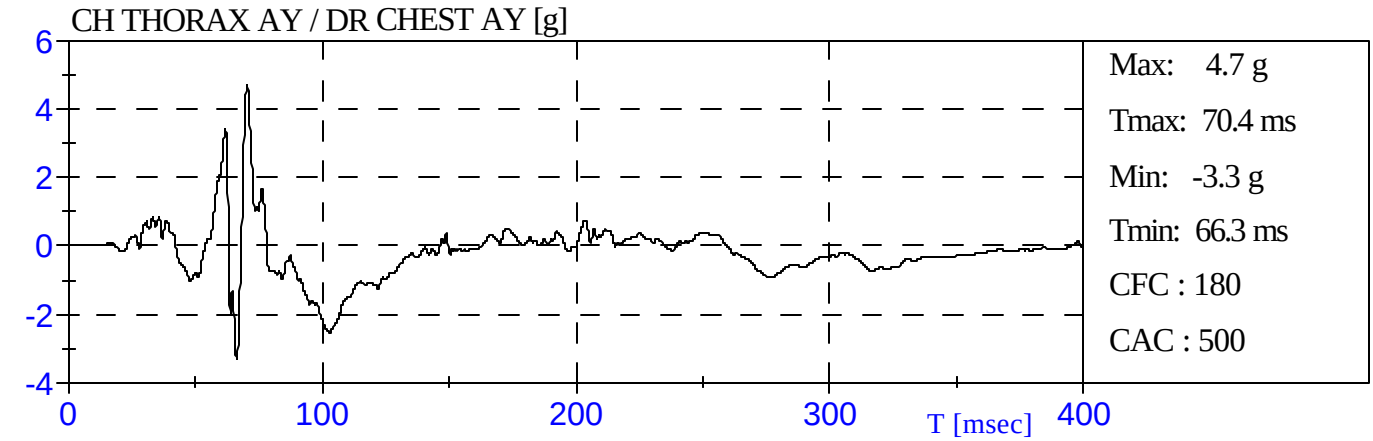
CH BA EPINE AX / DR LO SPINE AX [g]



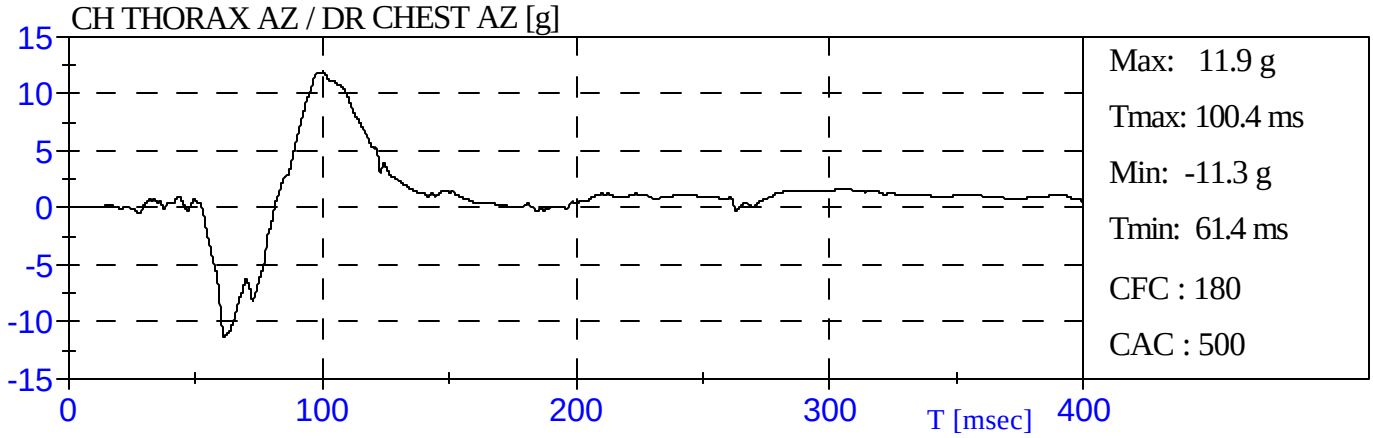
CH THORAX AX / DR CHEST AX [g]



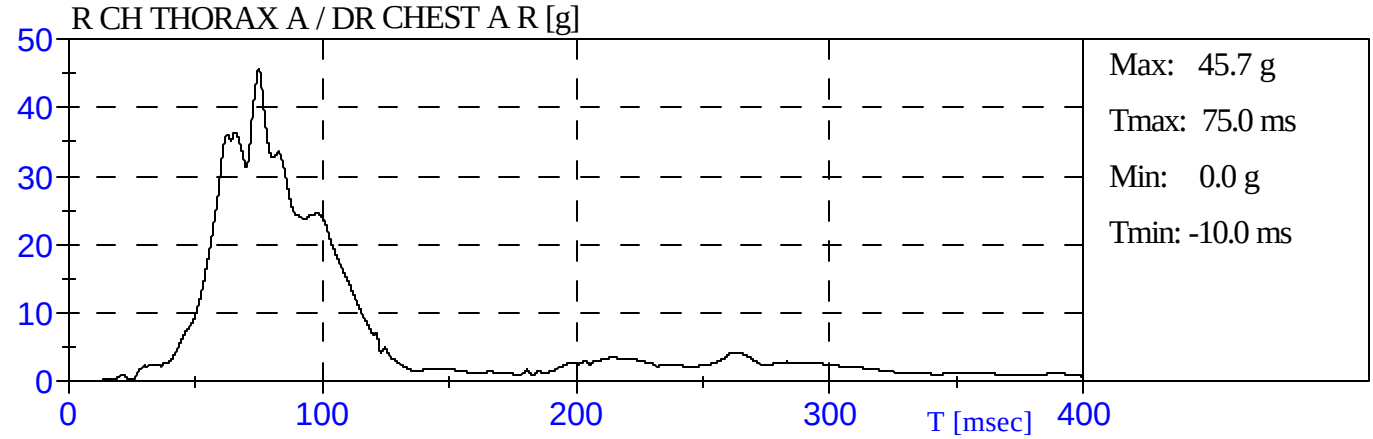
CH THORAX AY / DR CHEST AY [g]

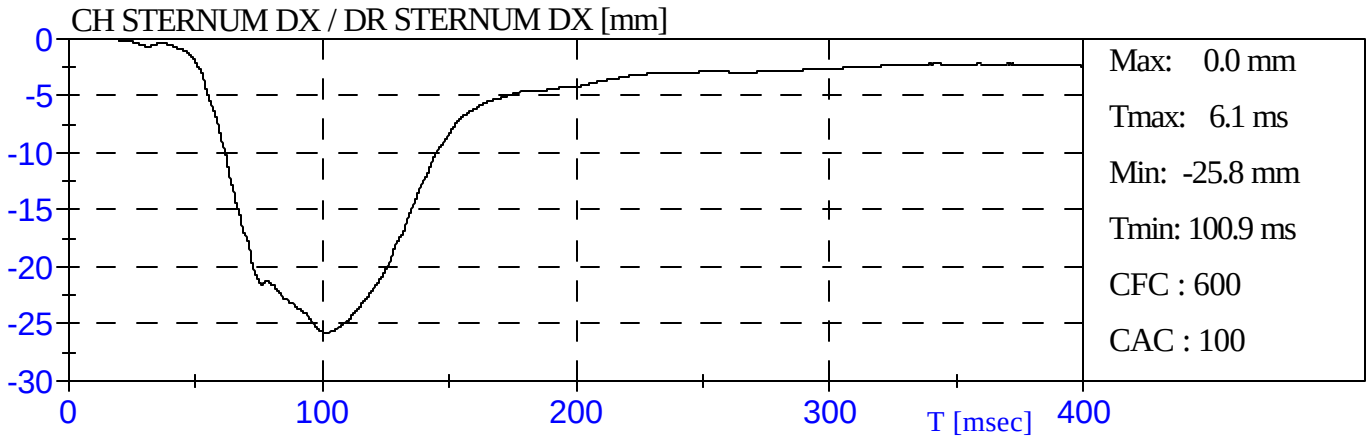


CH THORAX AZ / DR CHEST AZ [g]

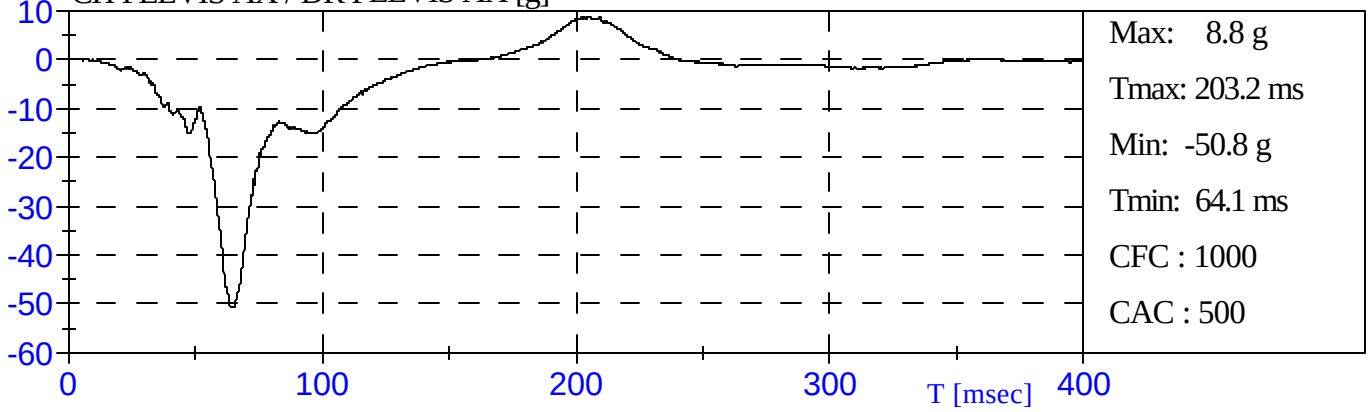


R CH THORAX A / DR CHEST A R [g]

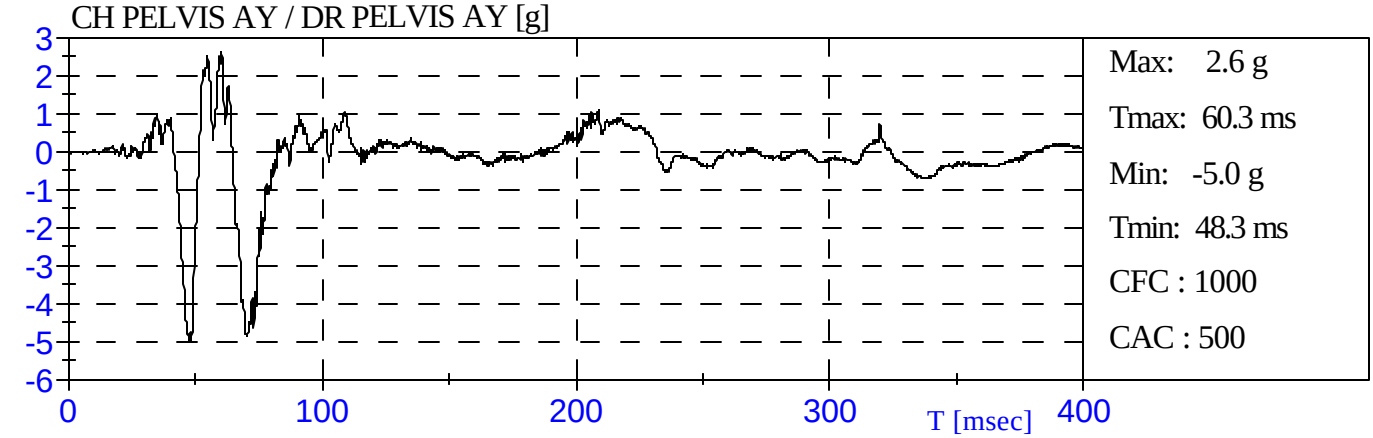



CH STERNUM DX / DR STERNUM DX [mm]
0
-5
-10
-15
-20
-25
-30
0
100
200
300
400
T [msec]
Max: 0.0 mm
Tmax: 6.1 ms
Min: -25.8 mm
Tmin: 100.9 ms
CFC : 600
CAC : 100

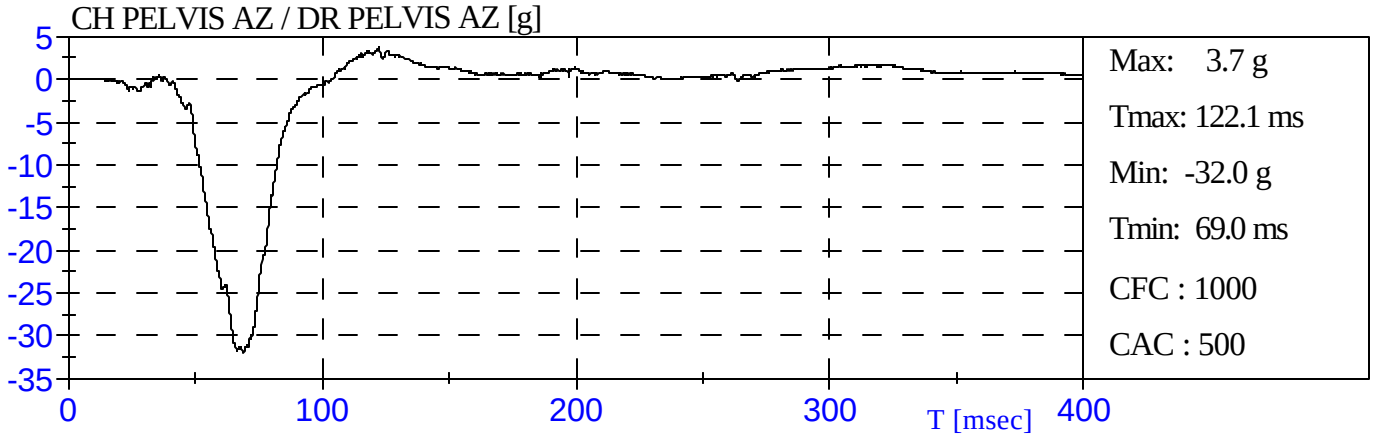
CH PELVIS AX / DR PELVIS AX [g]



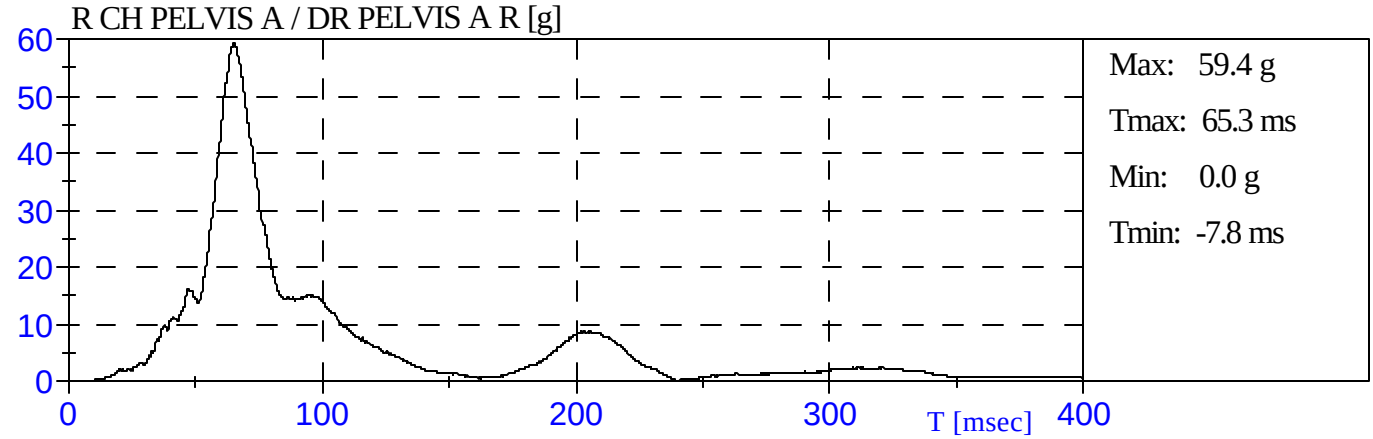
CH PELVIS AY / DR PELVIS AY [g]



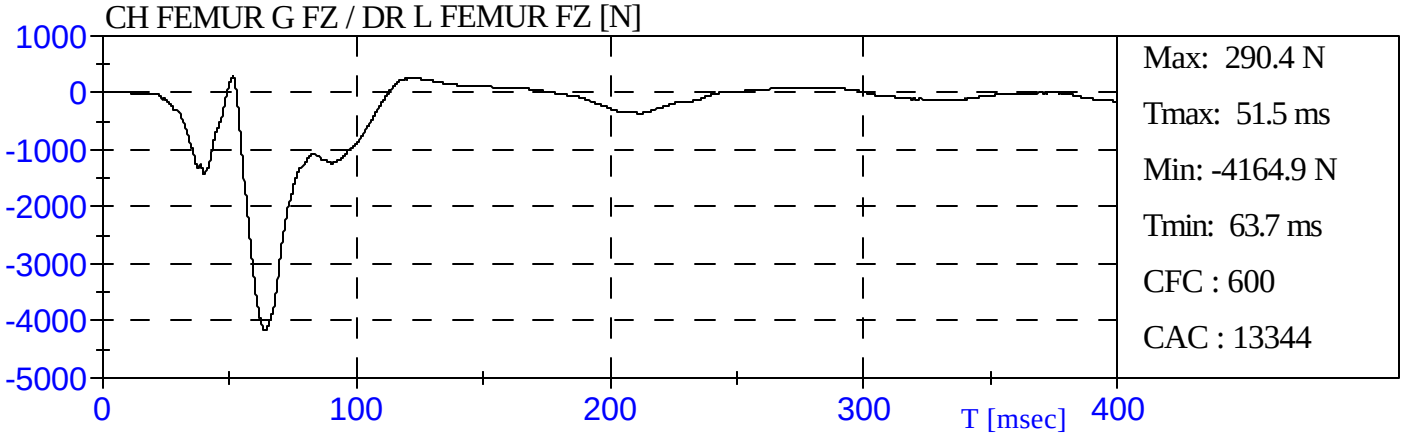
CH PELVIS AZ / DR PELVIS AZ [g]



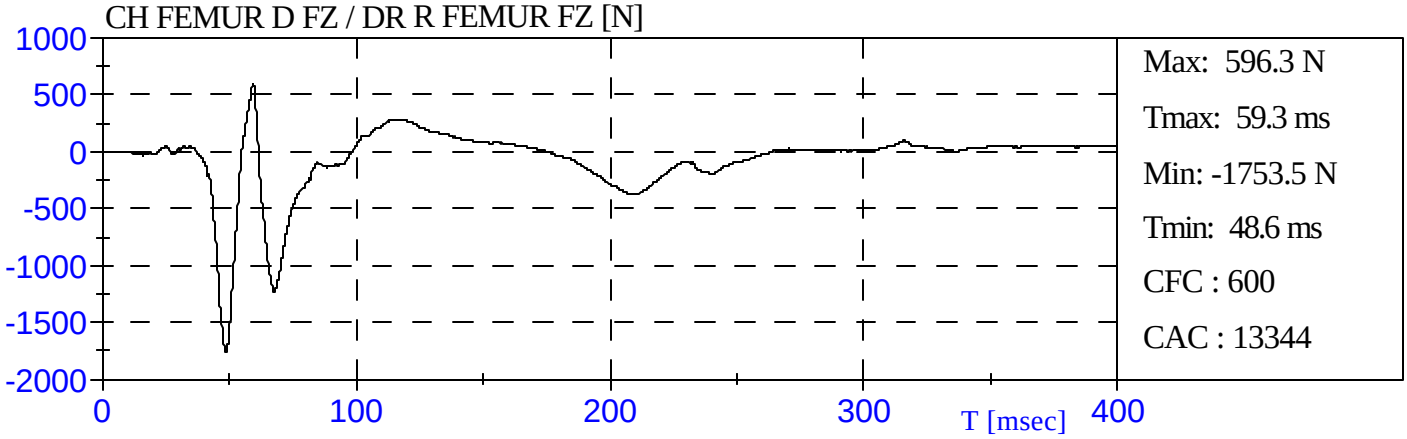
R CH PELVIS A / DR PELVIS A R [g]

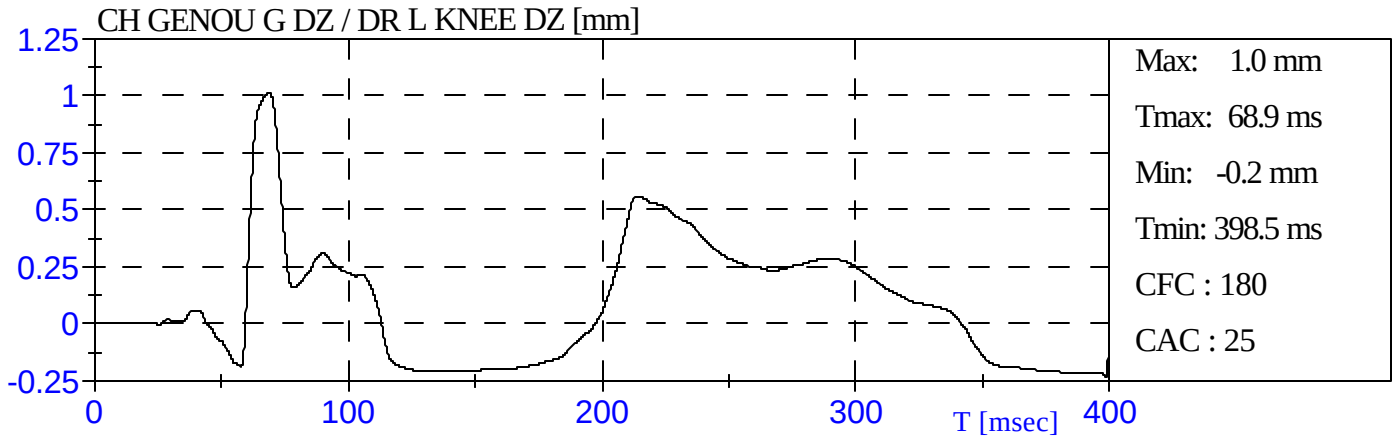


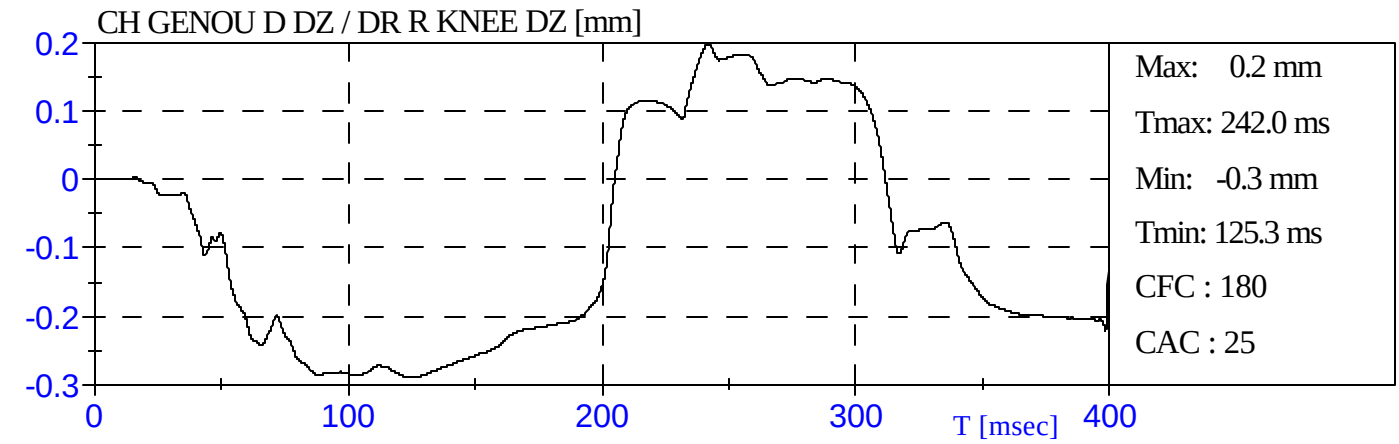
CH FEMUR G FZ / DR L FEMUR FZ [N]



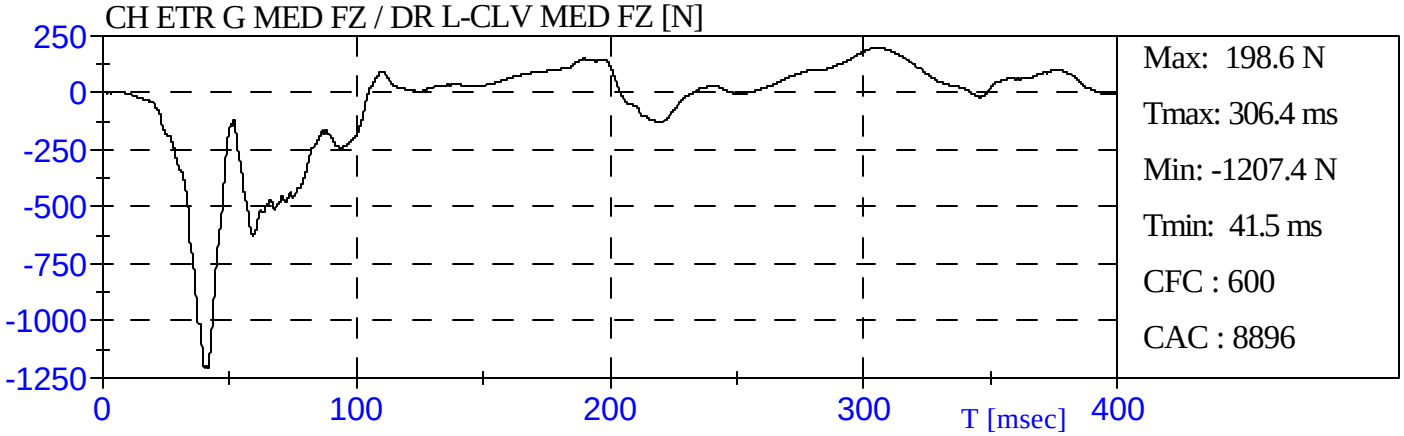
CH FEMUR D FZ / DR R FEMUR FZ [N]



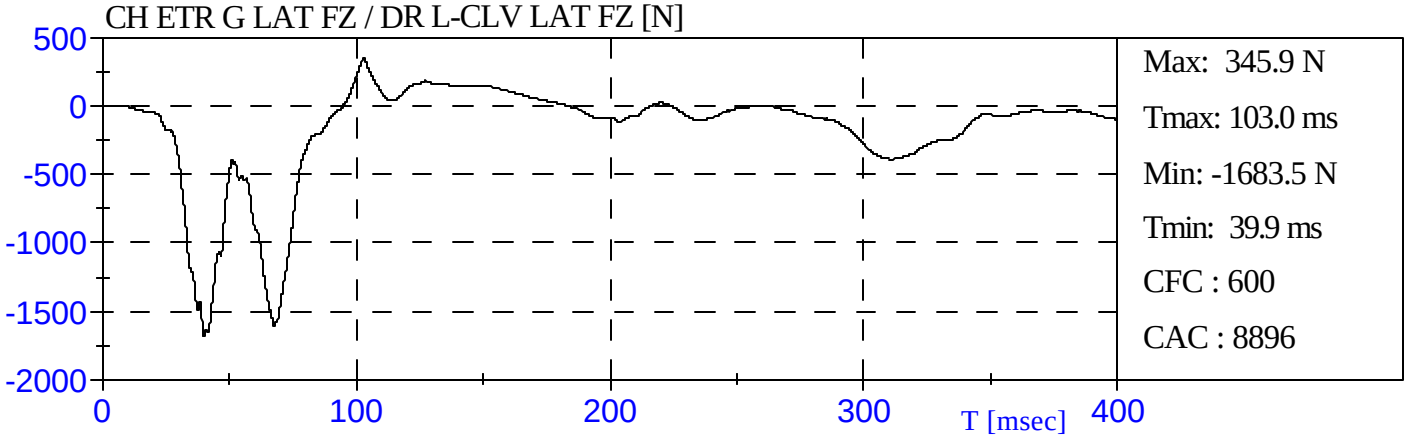

CH GENOU G DZ / DR L KNEE DZ [mm]
1.25
1
0.75
0.5
0.25
0
-0.25
0
100
200
300
400
T [msec]
Max: 1.0 mm
Tmax: 68.9 ms
Min: -0.2 mm
Tmin: 398.5 ms
CFC : 180
CAC : 25


CH GENOU D DZ / DR R KNEE DZ [mm]
0.2
0.1
0
-0.1
-0.2
-0.3
0
100
200
300
400
T [msec]
Max: 0.2 mm
Tmax: 242.0 ms
Min: -0.3 mm
Tmin: 125.3 ms
CFC : 180
CAC : 25

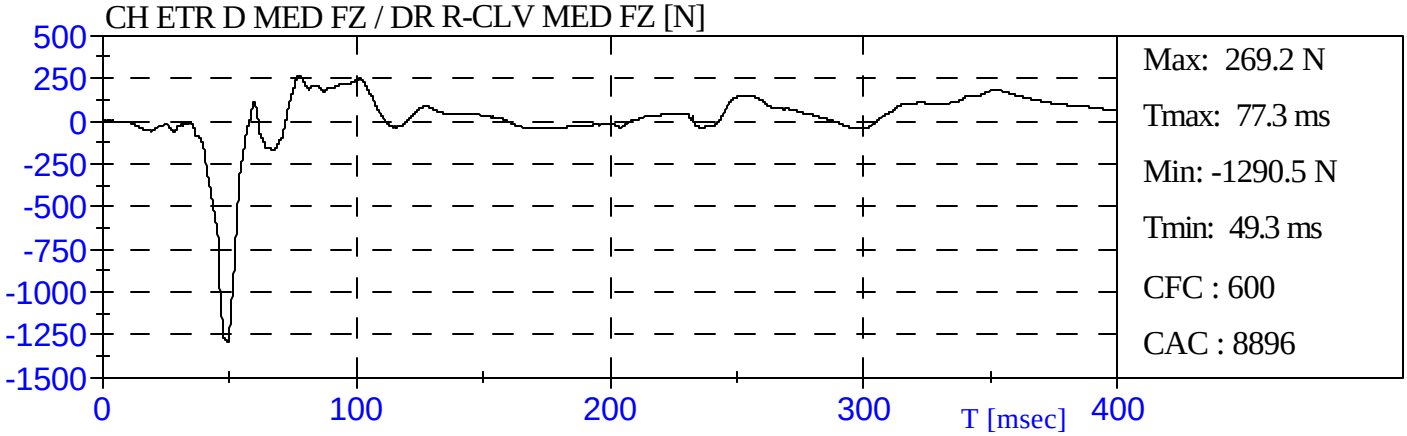
CH ETR G MED FZ / DR L-CLV MED FZ [N]



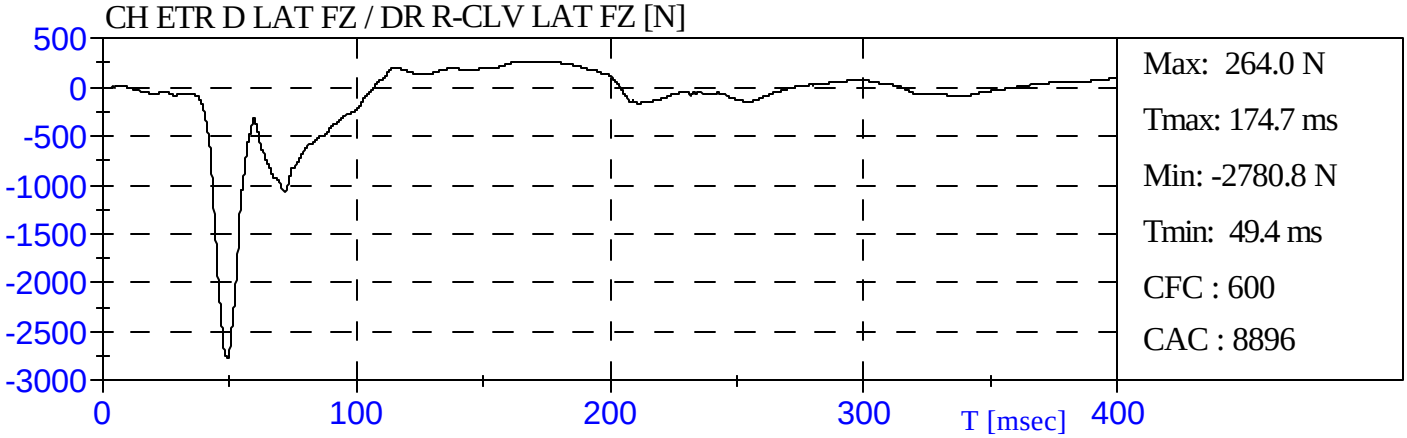
CH ETR G LAT FZ / DR L-CLV LAT FZ [N]



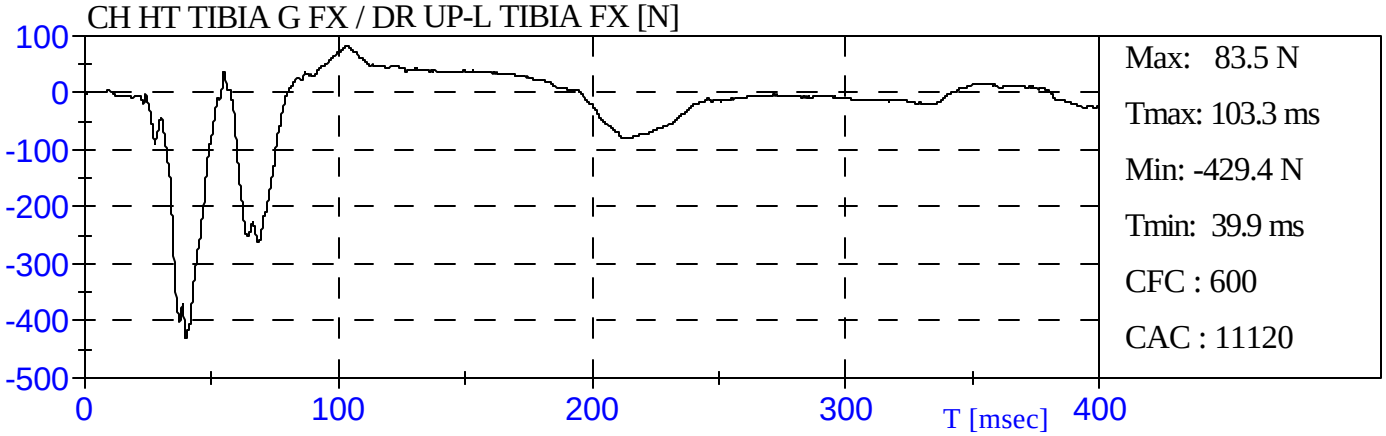
CH ETR D MED FZ / DR R-CLV MED FZ [N]



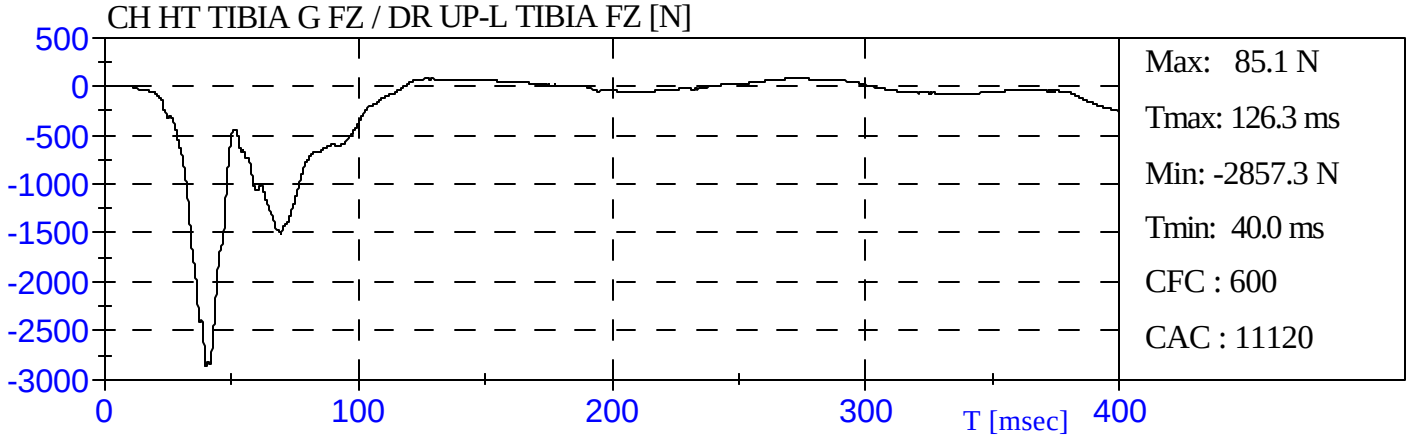
CH ETR D LAT FZ / DR R-CLV LAT FZ [N]



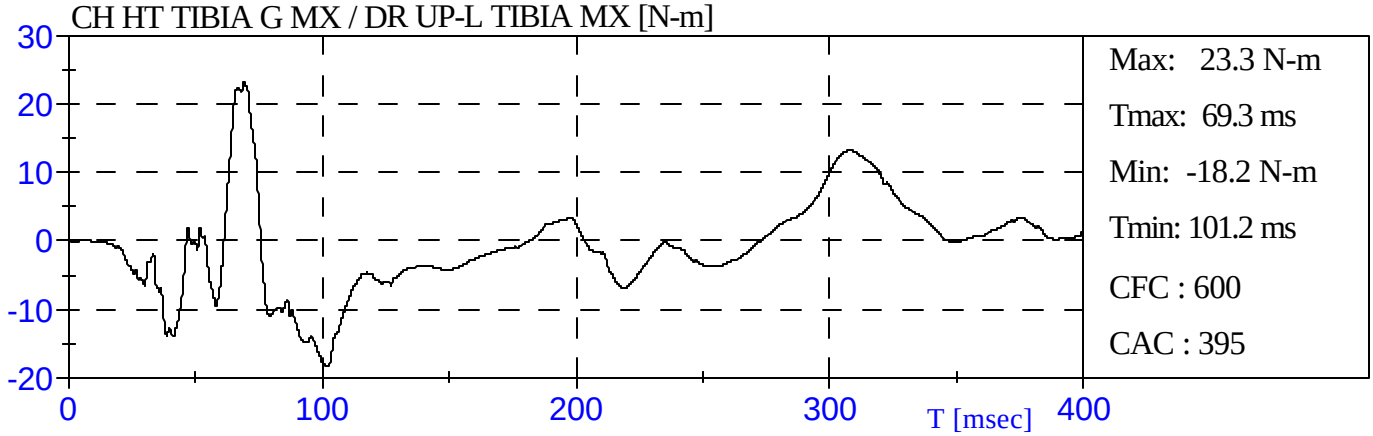
CH HT TIBIA G FX / DR UP-L TIBIA FX [N]



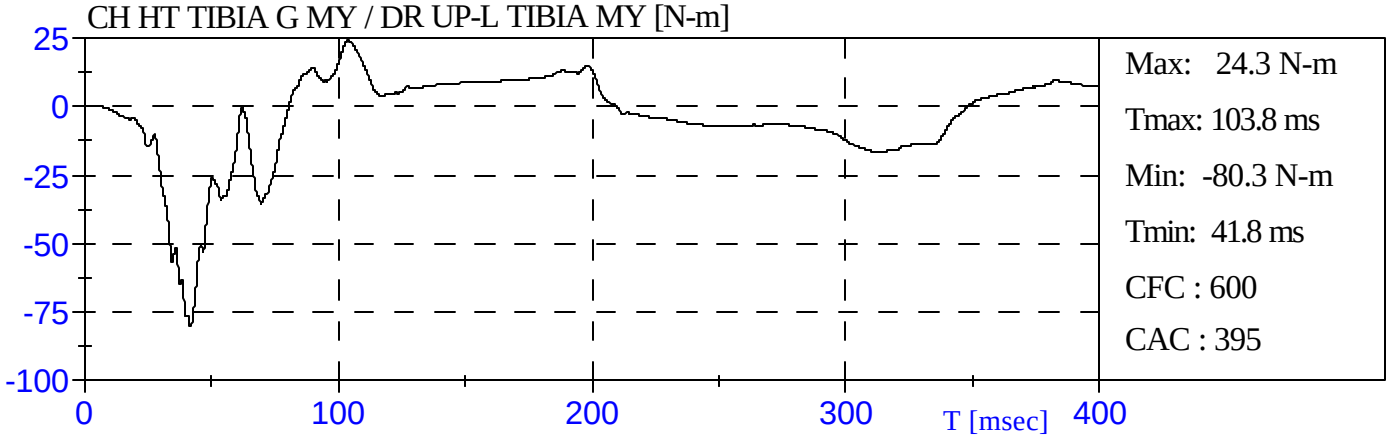
CH HT TIBIA G FZ / DR UP-L TIBIA FZ [N]



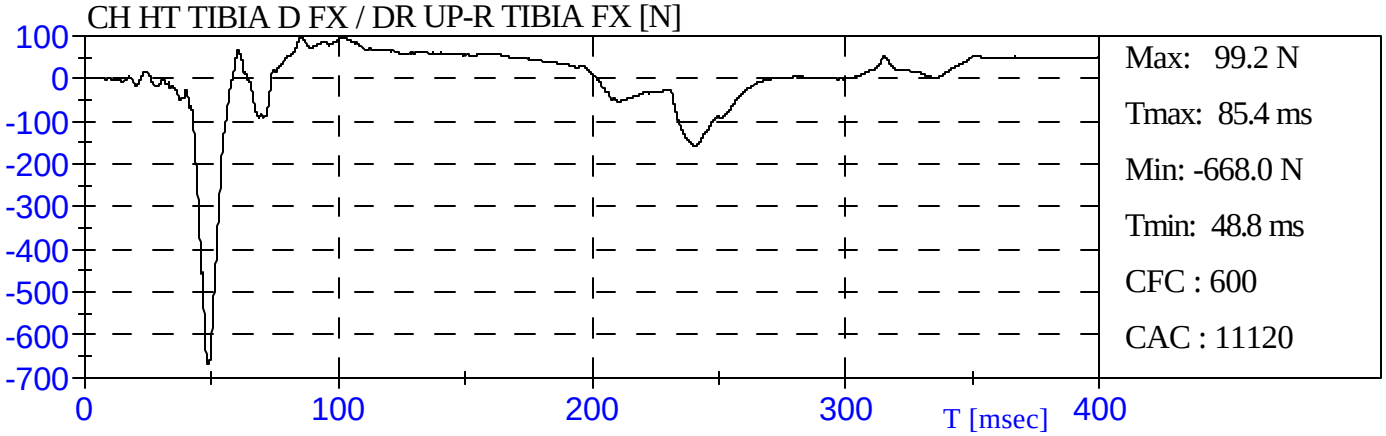
CH HT TIBIA G MX / DR UP-L TIBIA MX [N-m]



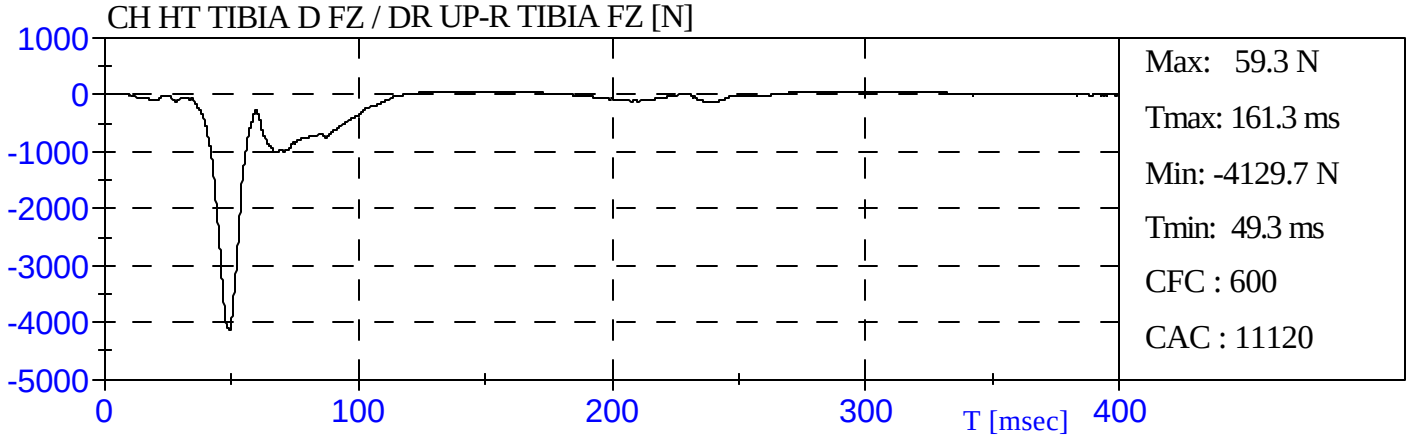
CH HT TIBIA G MY / DR UP-L TIBIA MY [N-m]



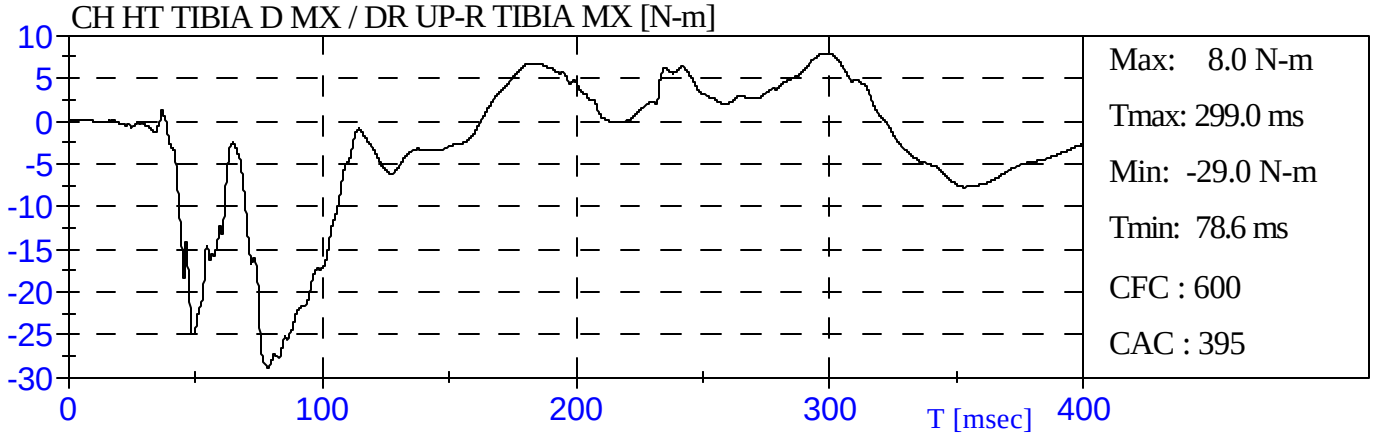
CH HT TIBIA D FX / DR UP-R TIBIA FX [N]



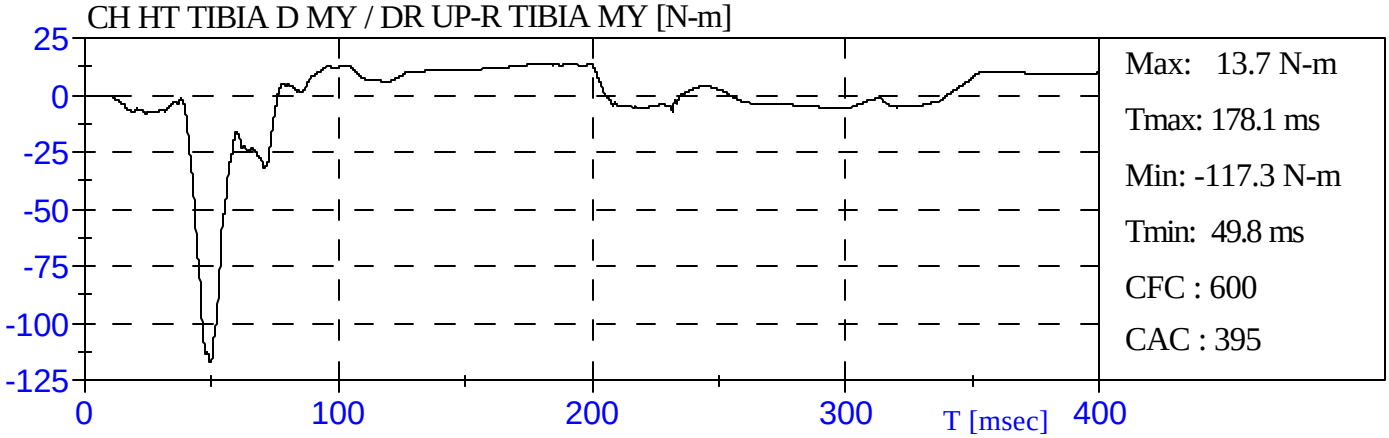
CH HT TIBIA D FZ / DR UP-R TIBIA FZ [N]



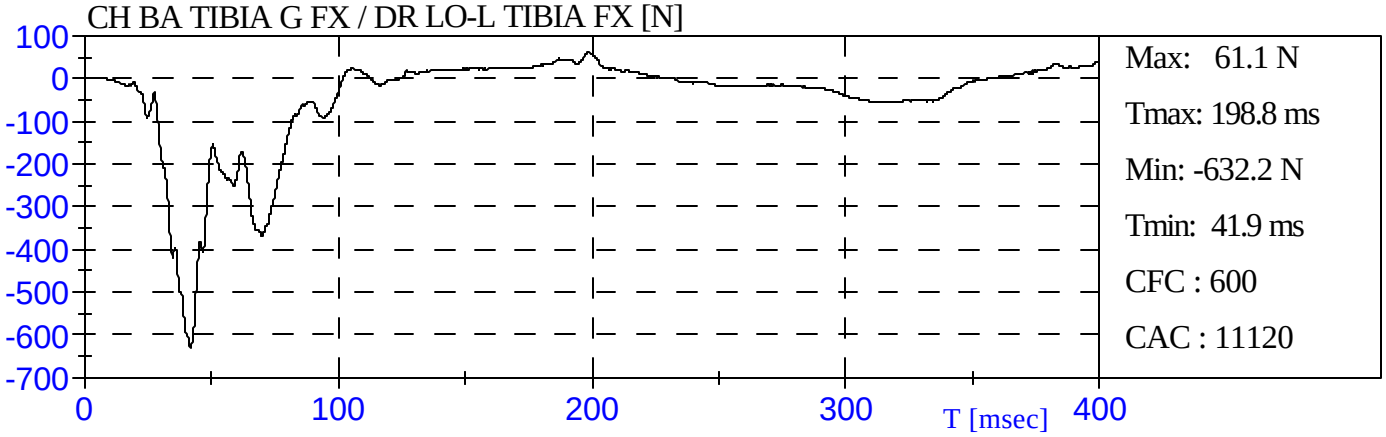
CH HT TIBIA D MX / DR UP-R TIBIA MX [N-m]



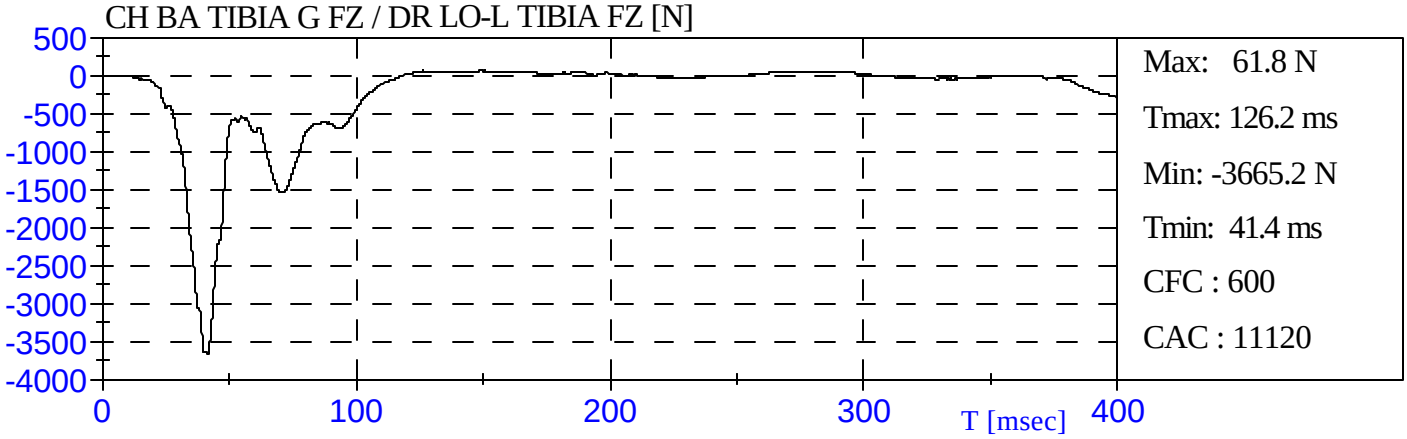
CH HT TIBIA D MY / DR UP-R TIBIA MY [N-m]



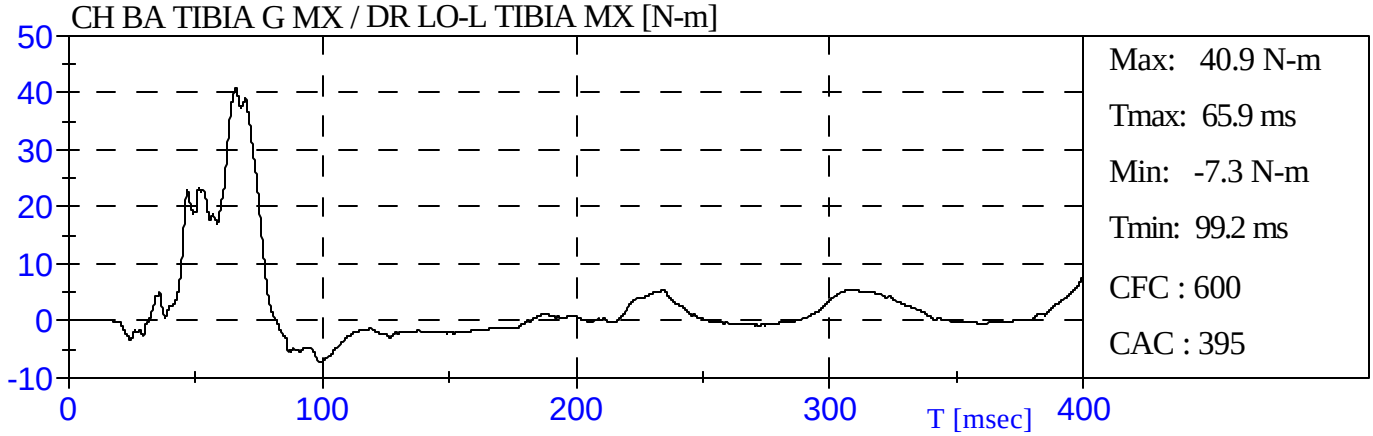
CH BA TIBIA G FX / DR LO-L TIBIA FX [N]



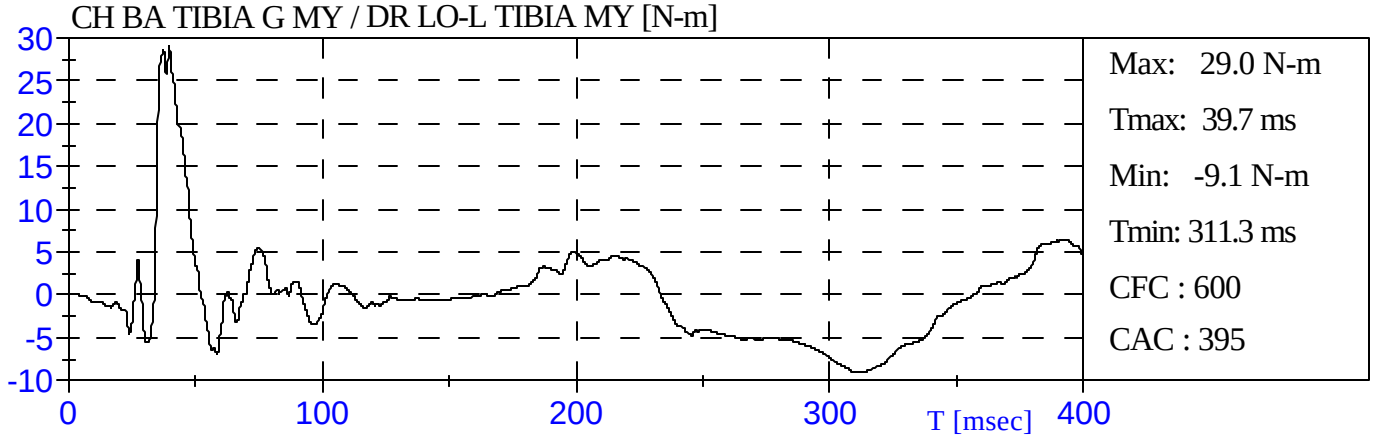
CH BA TIBIA G FZ / DR LO-L TIBIA FZ [N]



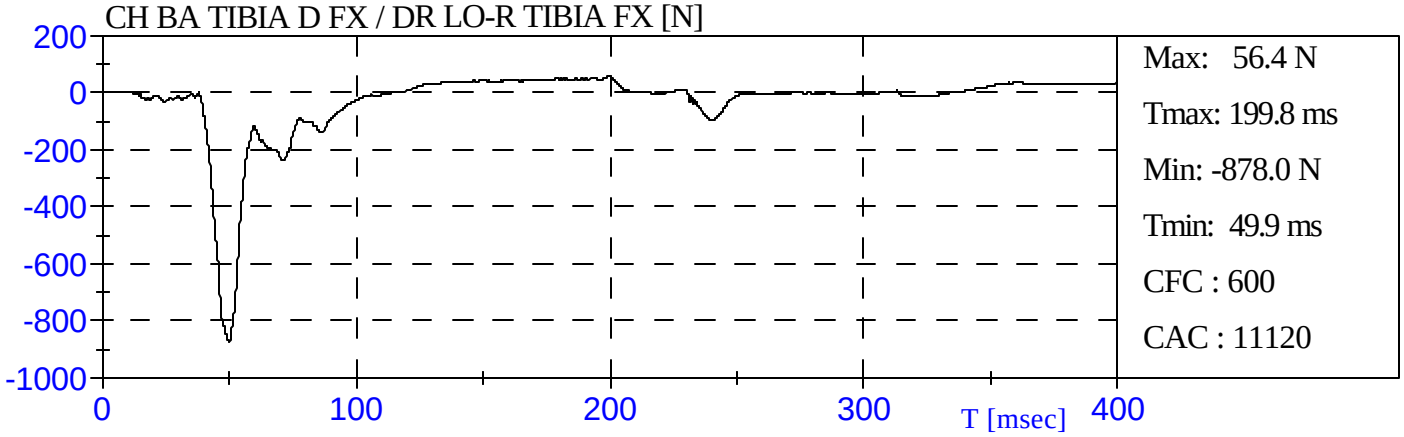
CH BA TIBIA G MX / DR LO-L TIBIA MX [N-m]



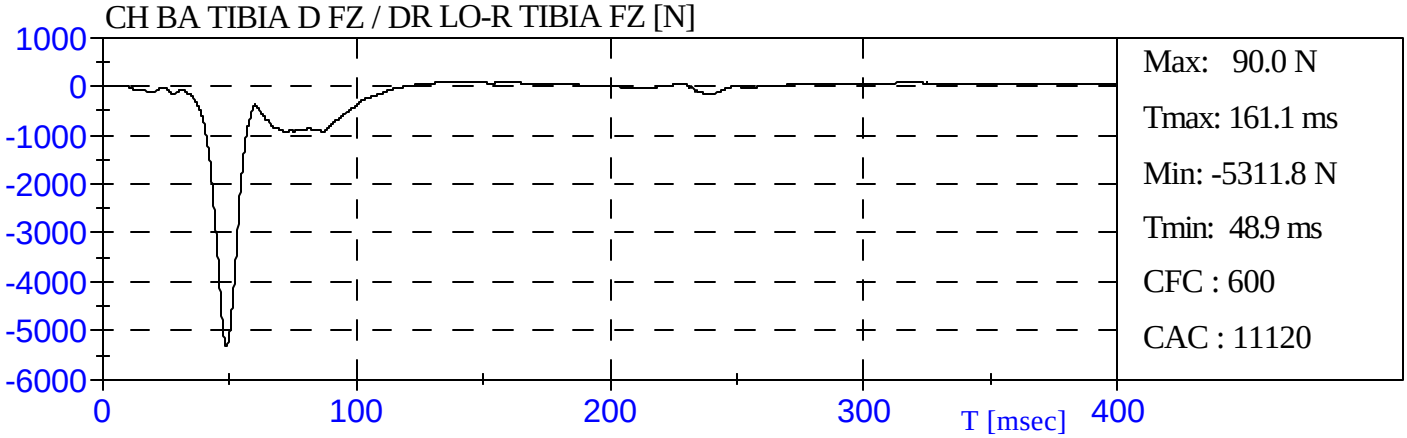
CH BA TIBIA G MY / DR LO-L TIBIA MY [N-m]



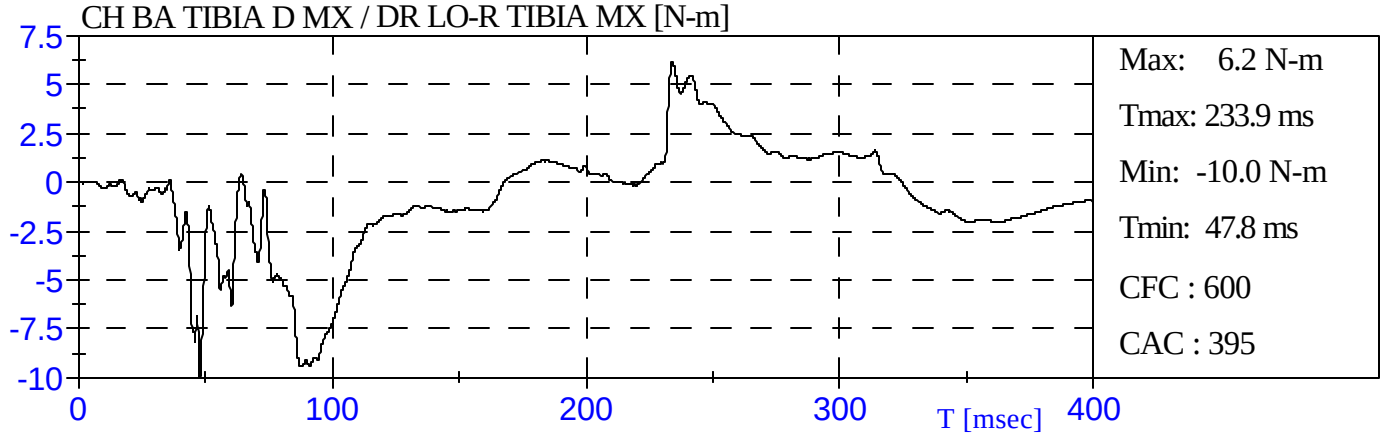
CH BA TIBIA D FX / DR LO-R TIBIA FX [N]



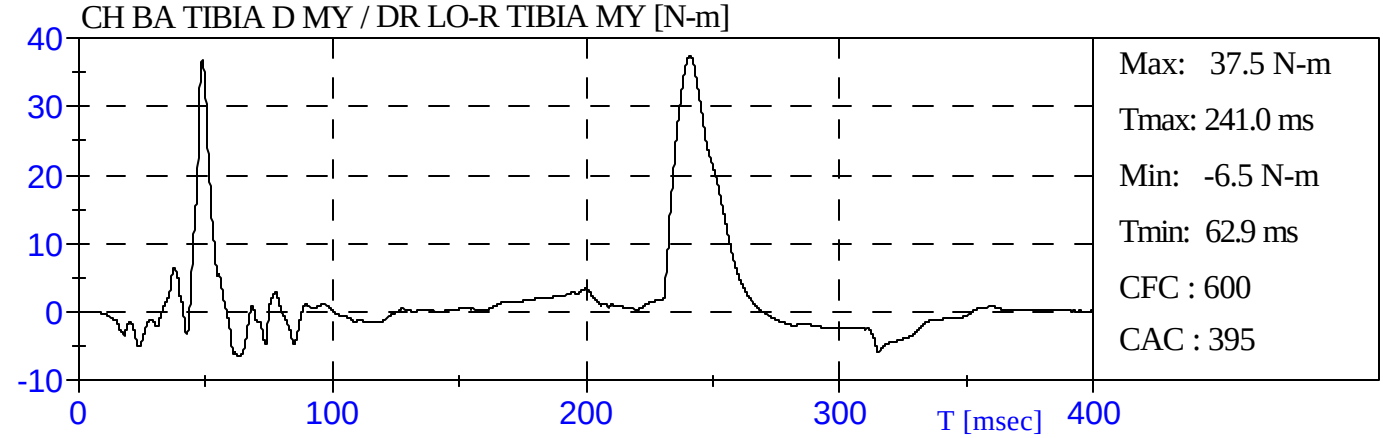
CH BA TIBIA D FZ / DR LO-R TIBIA FZ [N]



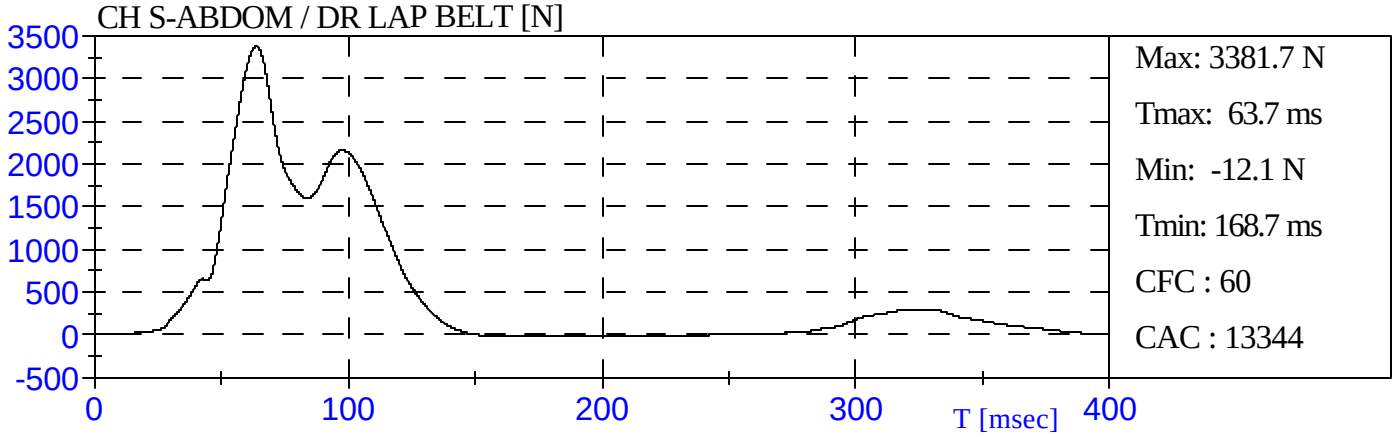
CH BA TIBIA D MX / DR LO-R TIBIA MX [N-m]



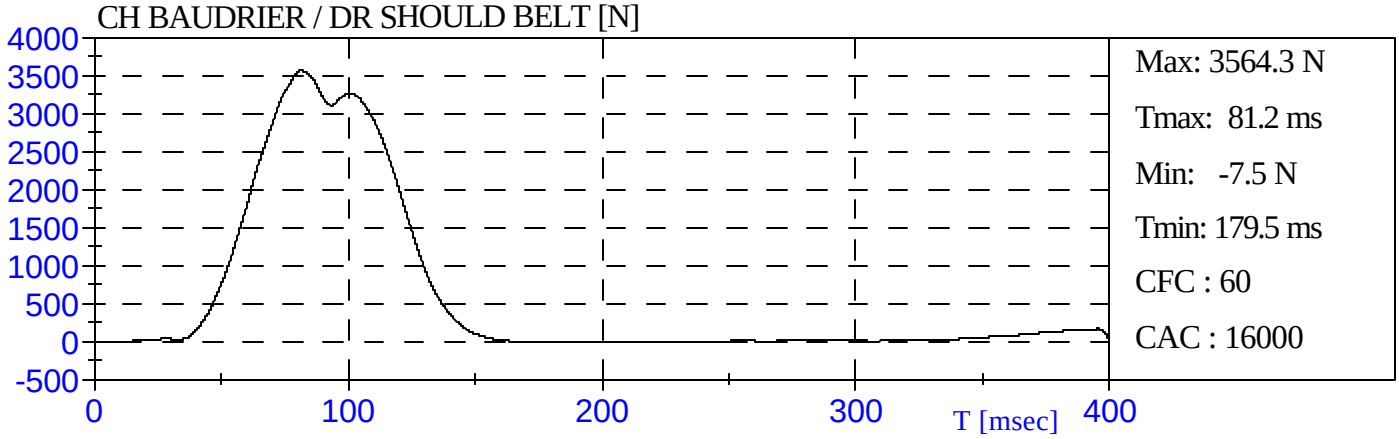
CH BA TIBIA D MY / DR LO-R TIBIA MY [N-m]

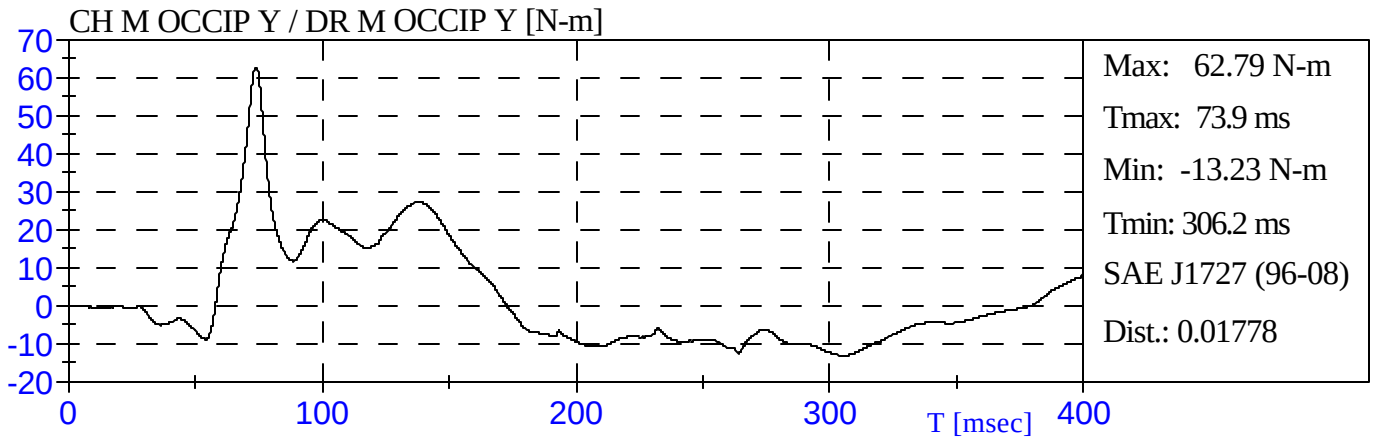


CH S-ABDOM / DR LAP BELT [N]

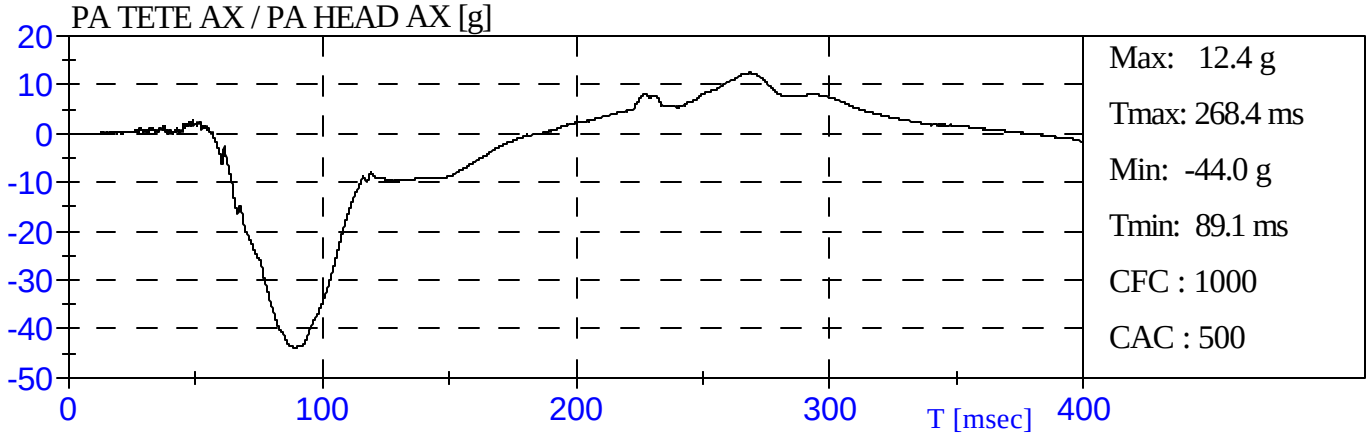


CH BAUDRIER / DR SHOULD BELT [N]

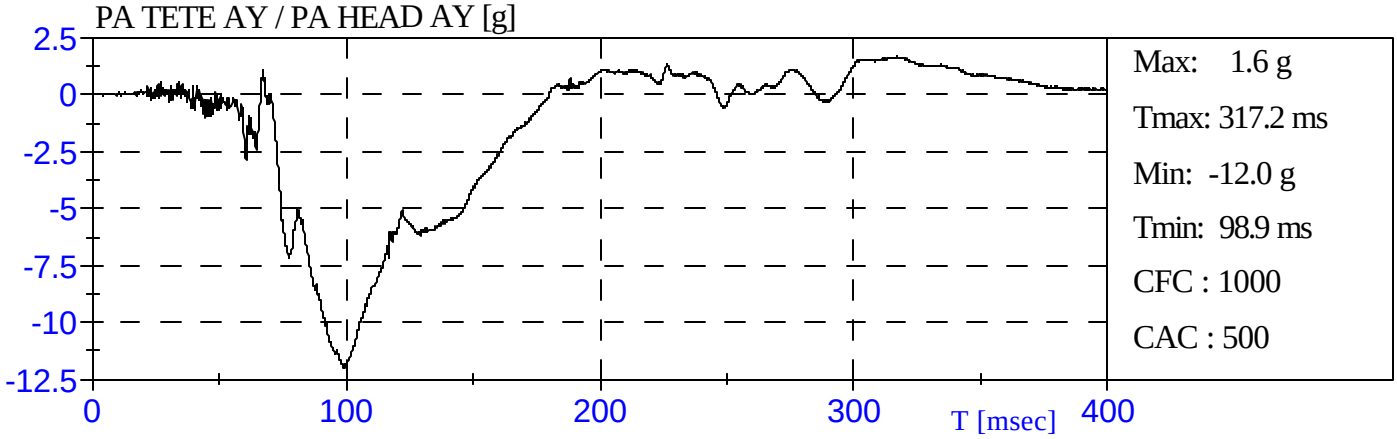



CH M OCCIP Y / DR M OCCIP Y [N-m]
70
60
50
40
30
20
10
0
-10
-20
0
100
200
300
400
T [msec]
Max: 62.79 N-m
Tmax: 73.9 ms
Min: -13.23 N-m
Tmin: 306.2 ms
SAE J1727 (96-08)
Dist.: 0.01778

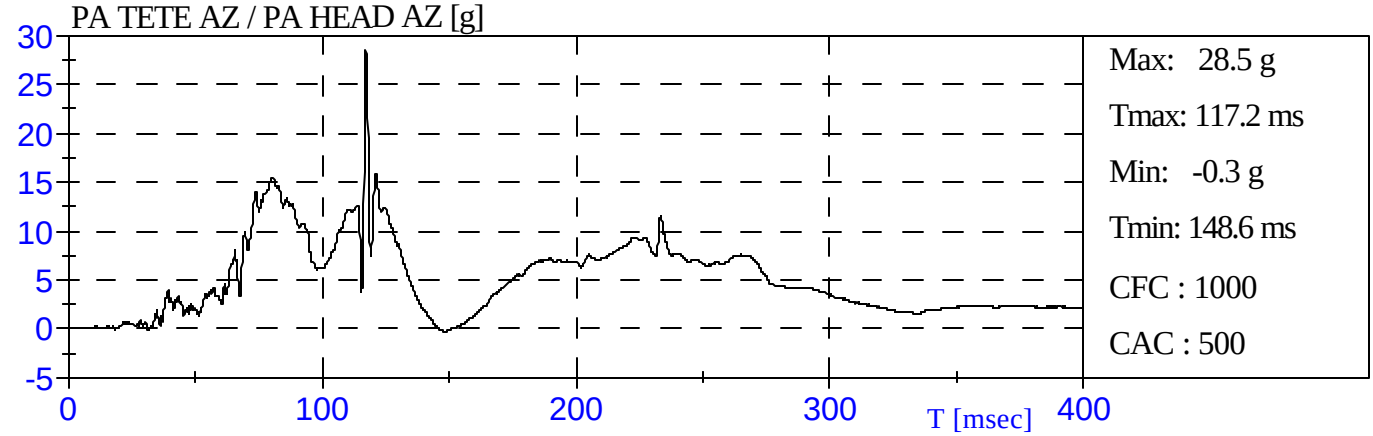
PA TETE AX / PA HEAD AX [g]



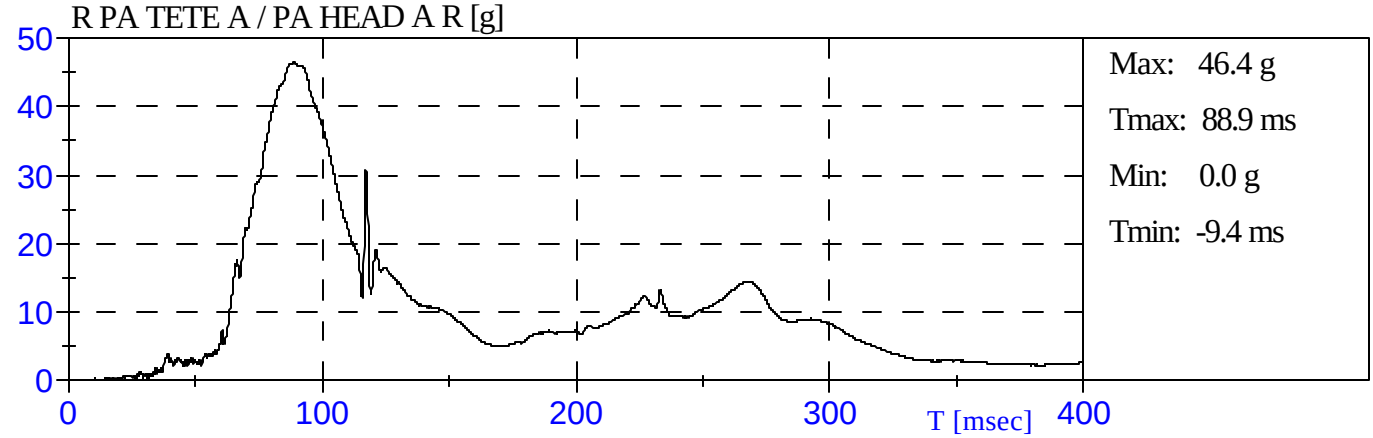
PA TETE AY / PA HEAD AY [g]



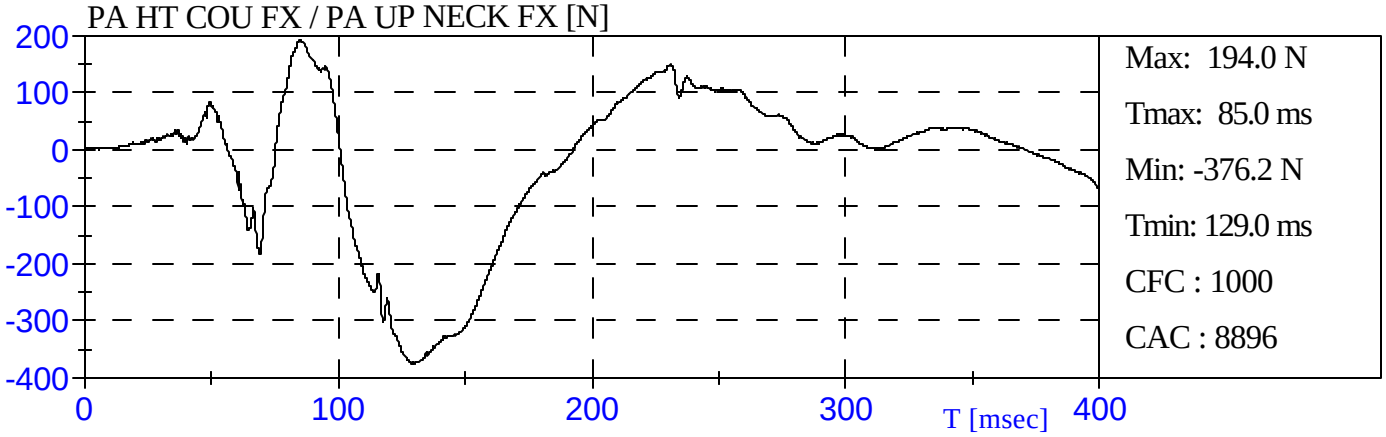
PA TETE AZ / PA HEAD AZ [g]



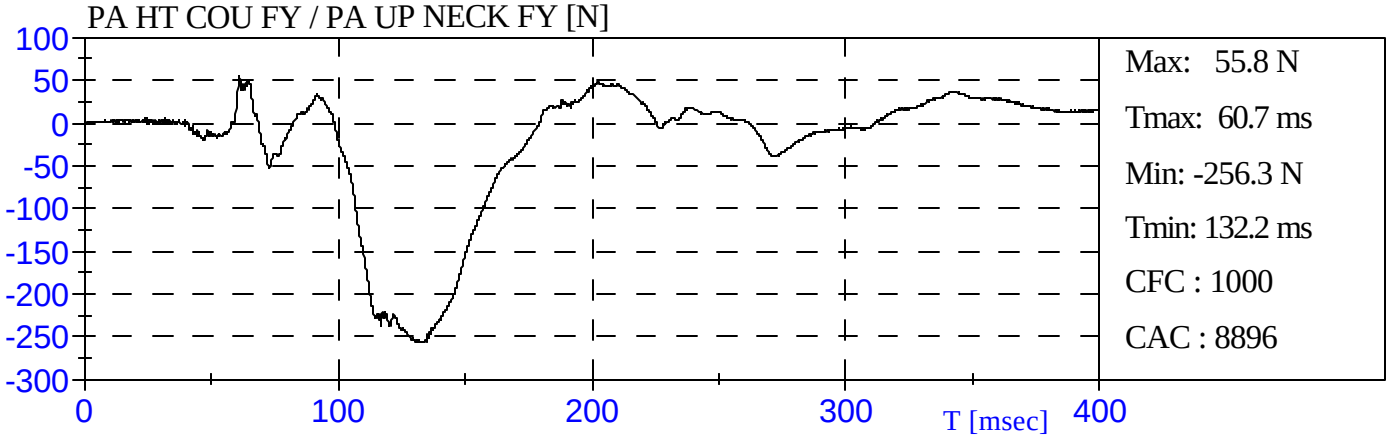
R PA TETE A / PA HEAD A R [g]



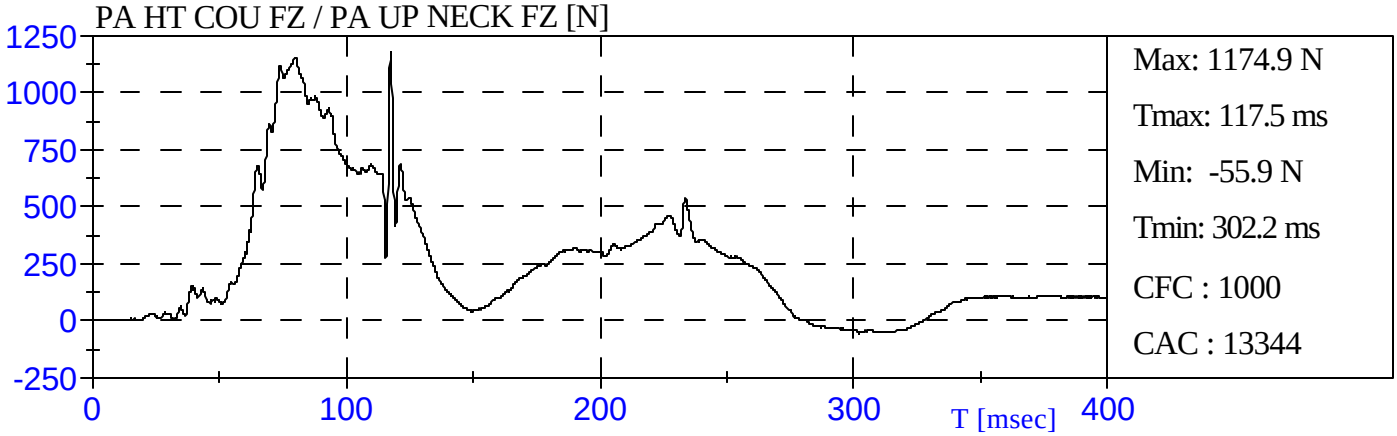
PA HT COU FX / PA UP NECK FX [N]



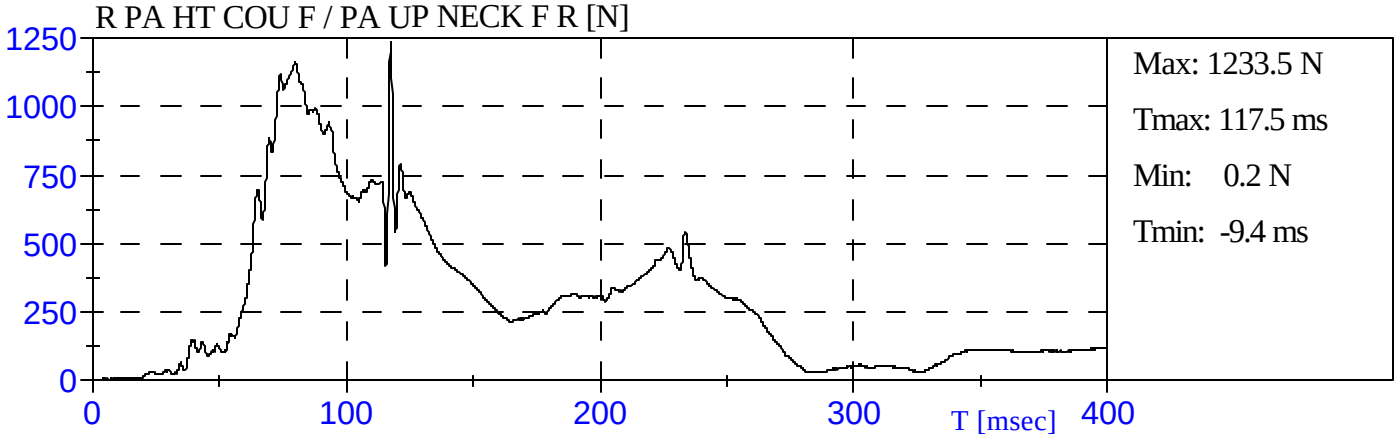
PA HT COU FY / PA UP NECK FY [N]



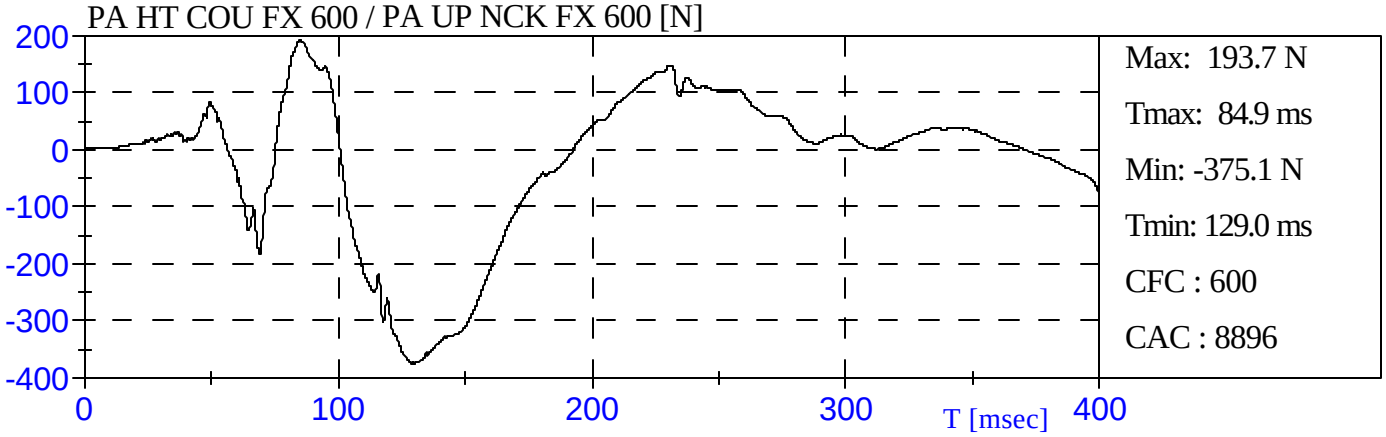
PA HT COU FZ / PA UP NECK FZ [N]



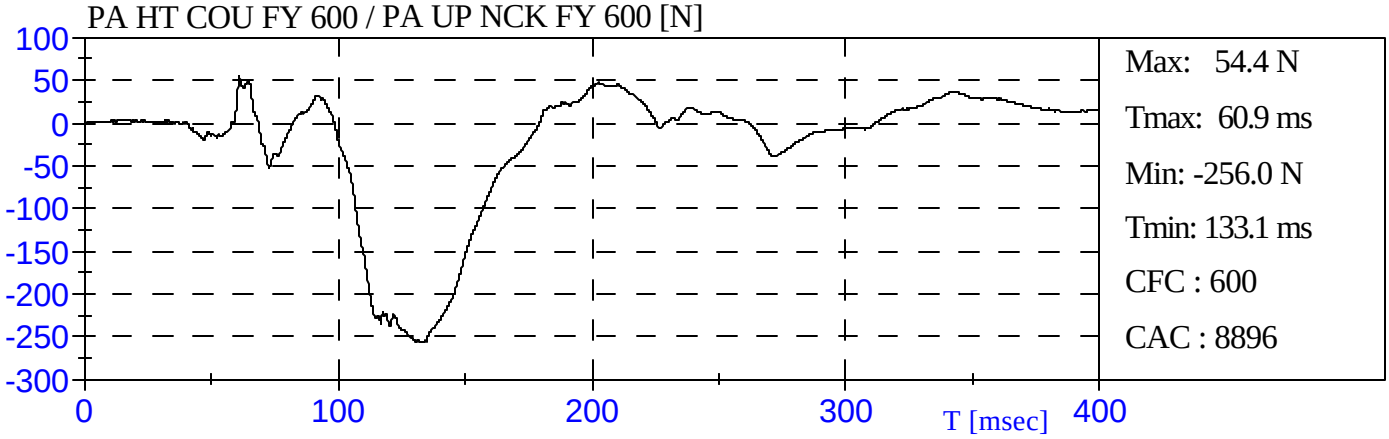
R PA HT COU F / PA UP NECK F R [N]



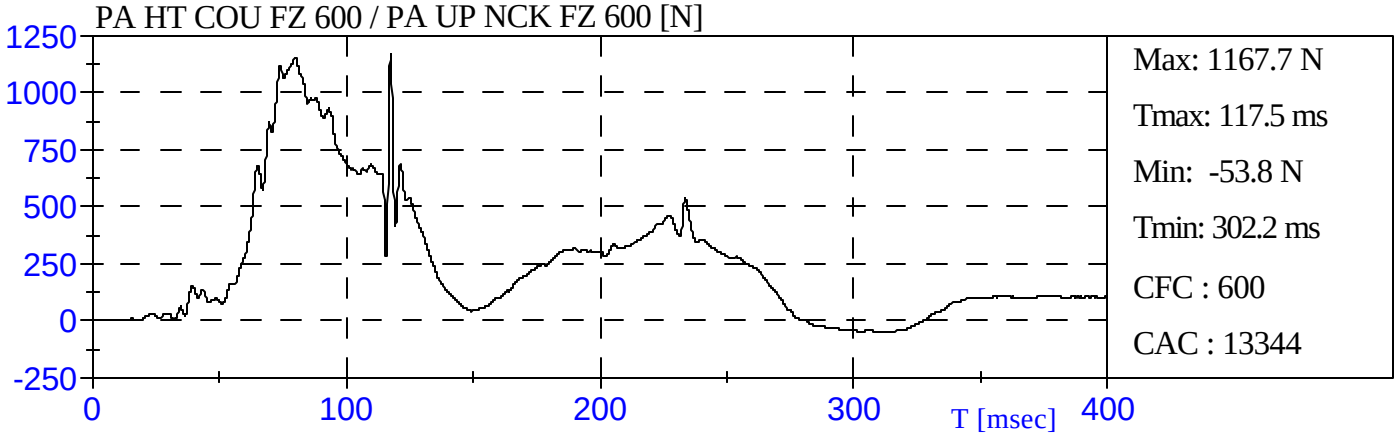
PA HT COU FX 600 / PA UP NCK FX 600 [N]



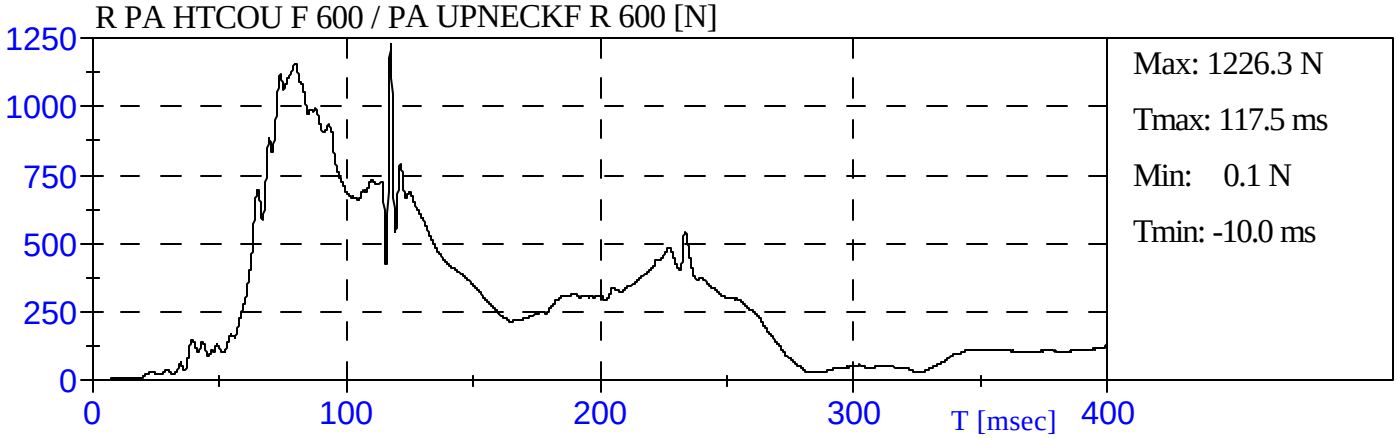
PA HT COU FY 600 / PA UP NCK FY 600 [N]



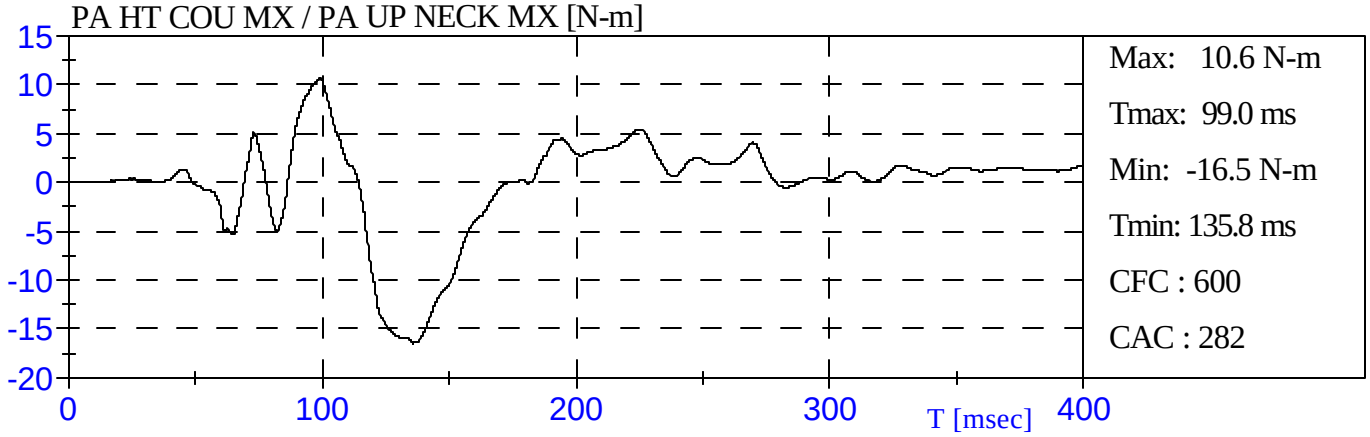
PA HT COU FZ 600 / PA UP NCK FZ 600 [N]



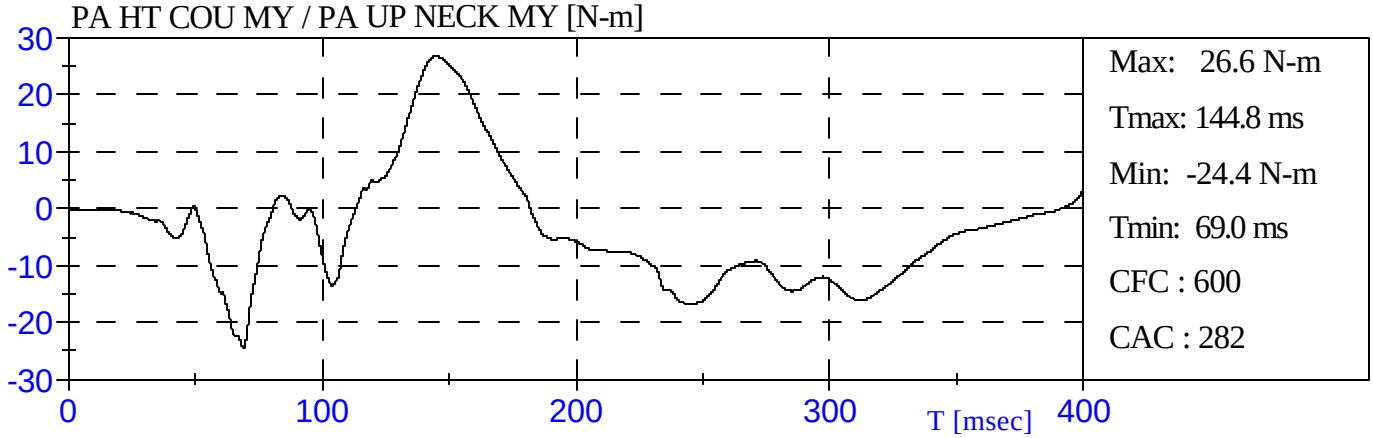
R PA HTCOU F 600 / PA UPNECKF R 600 [N]



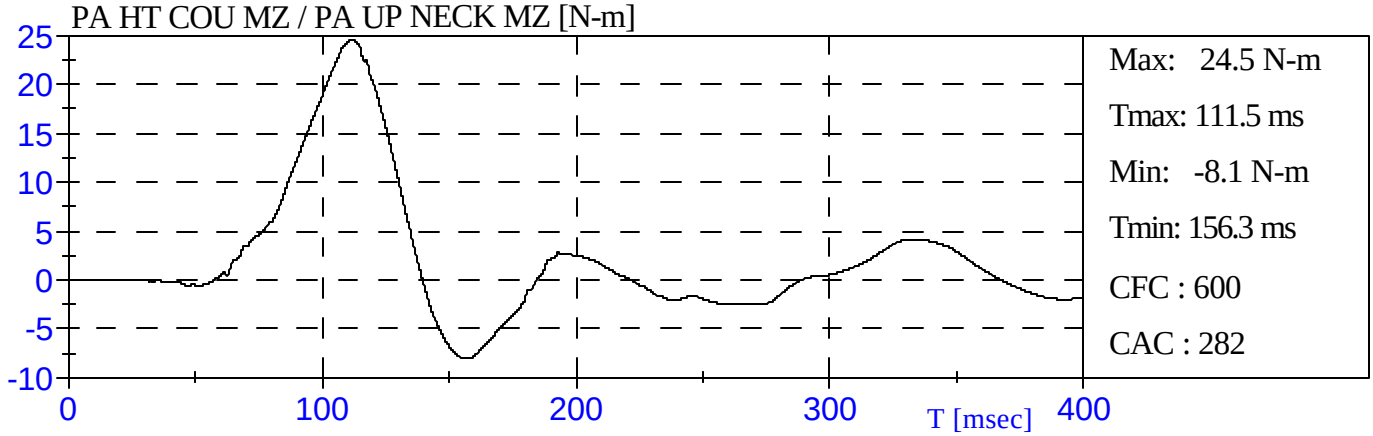
PA HT COU MX / PA UP NECK MX [N-m]



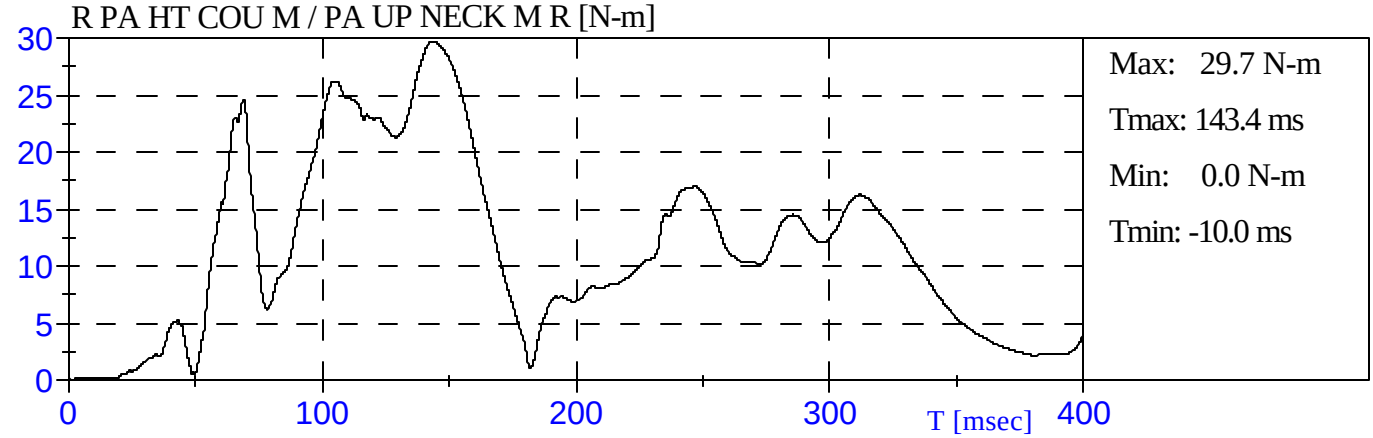
PA HT COU MY / PA UP NECK MY [N-m]



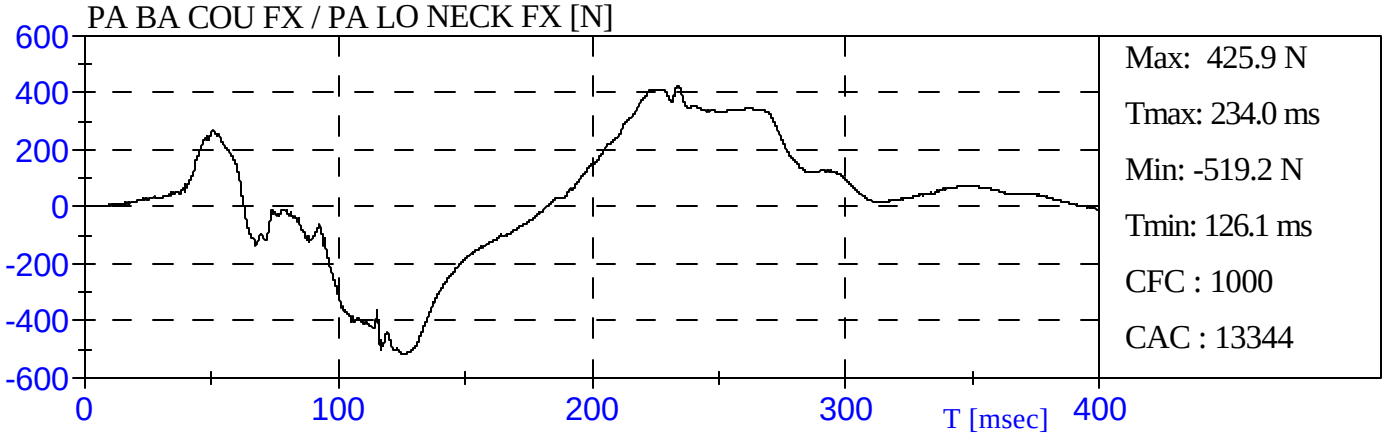
PA HT COU MZ / PA UP NECK MZ [N-m]



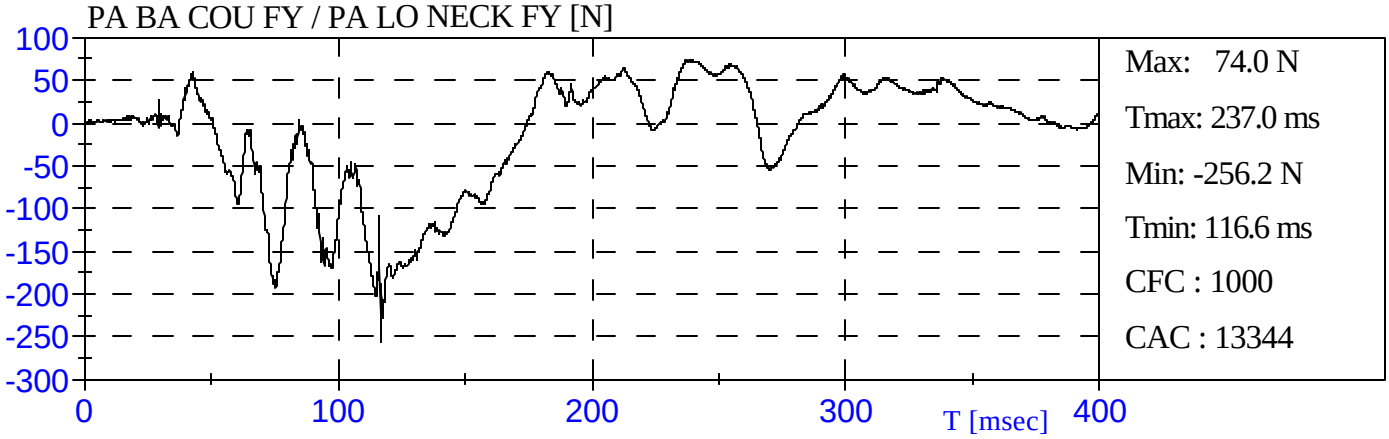
R PA HT COU M / PA UP NECK M R [N-m]



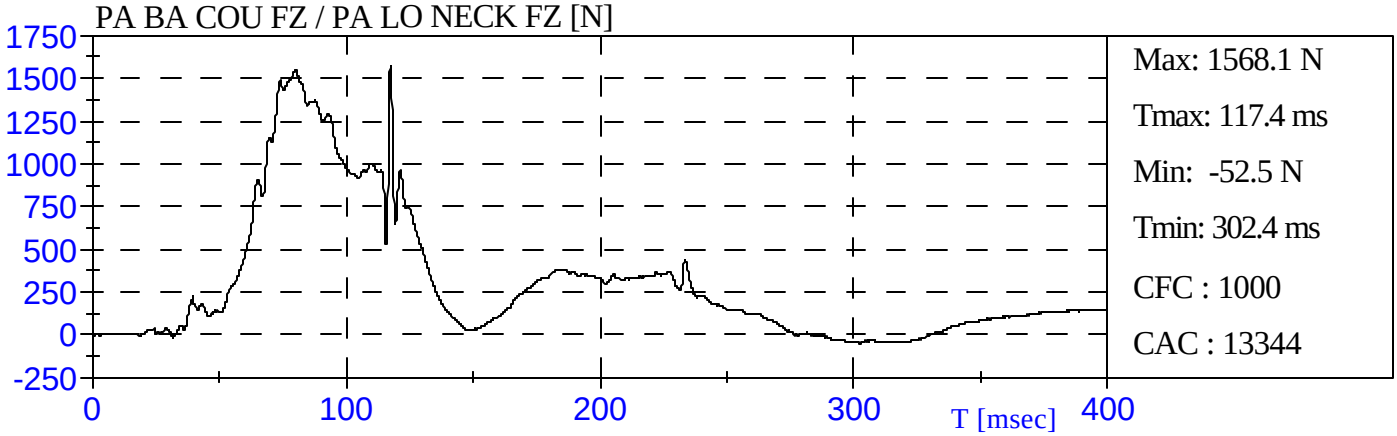
PA BA COU FX / PA LO NECK FX [N]



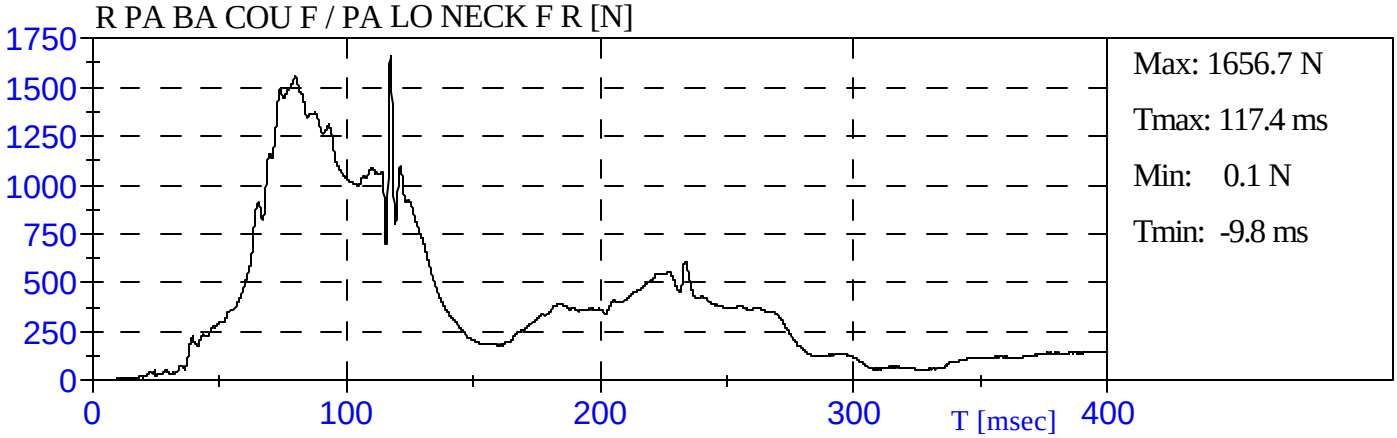
PA BA COU FY / PA LO NECK FY [N]



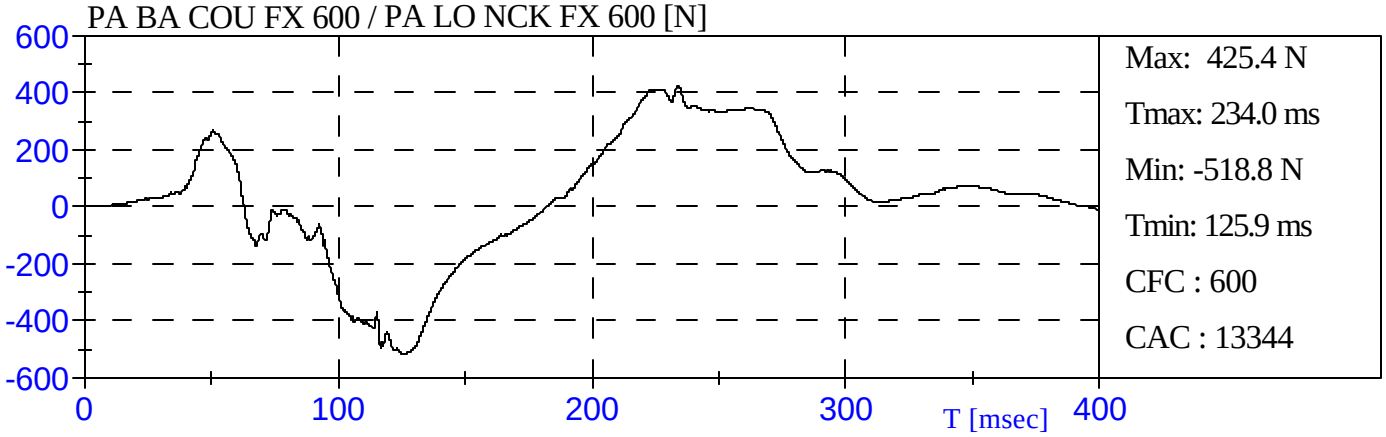
PA BA COU FZ / PA LO NECK FZ [N]



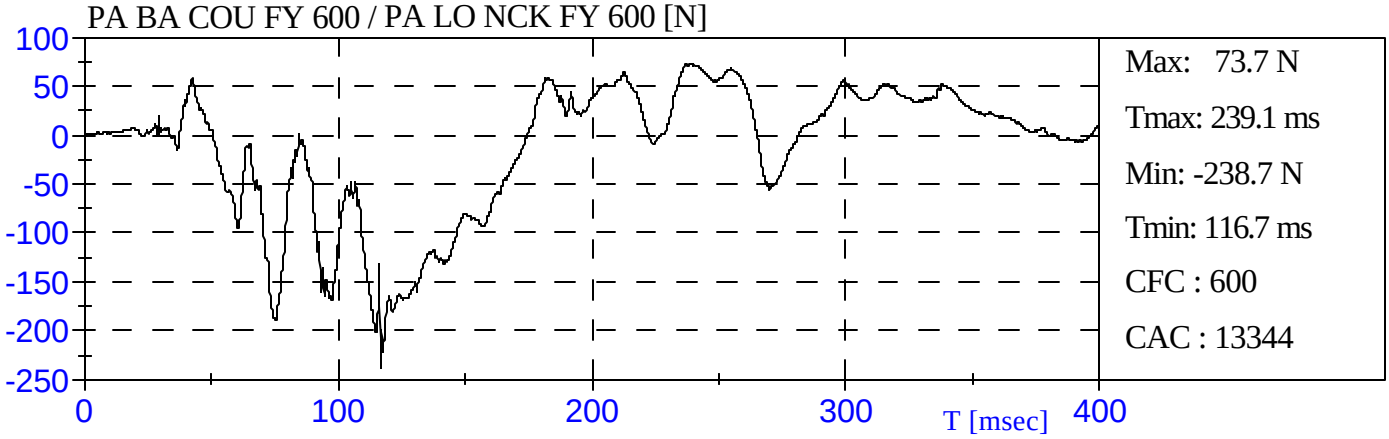
R PA BA COU F / PA LO NECK F R [N]



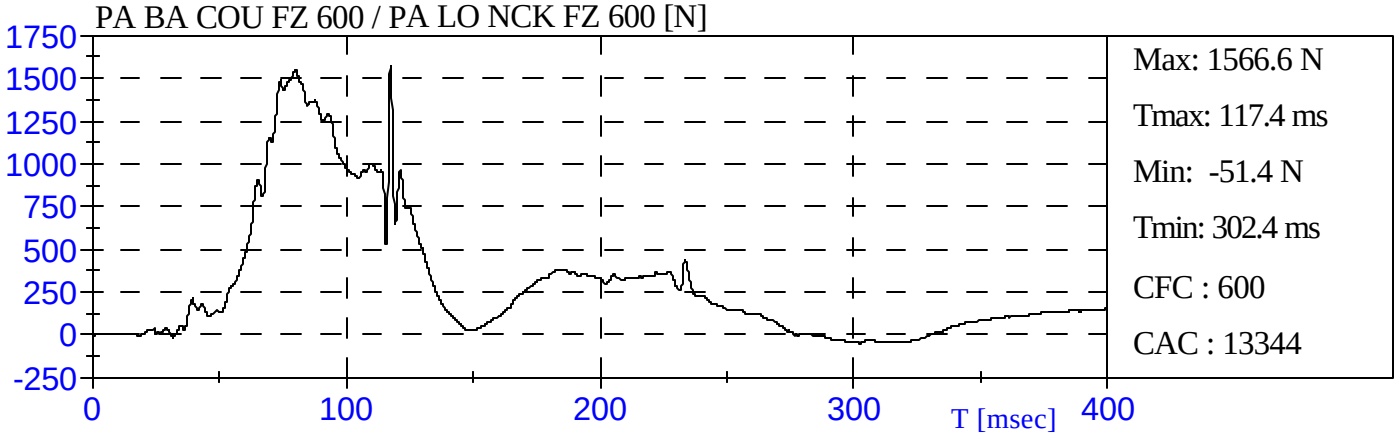
PA BA COU FX 600 / PA LO NCK FX 600 [N]



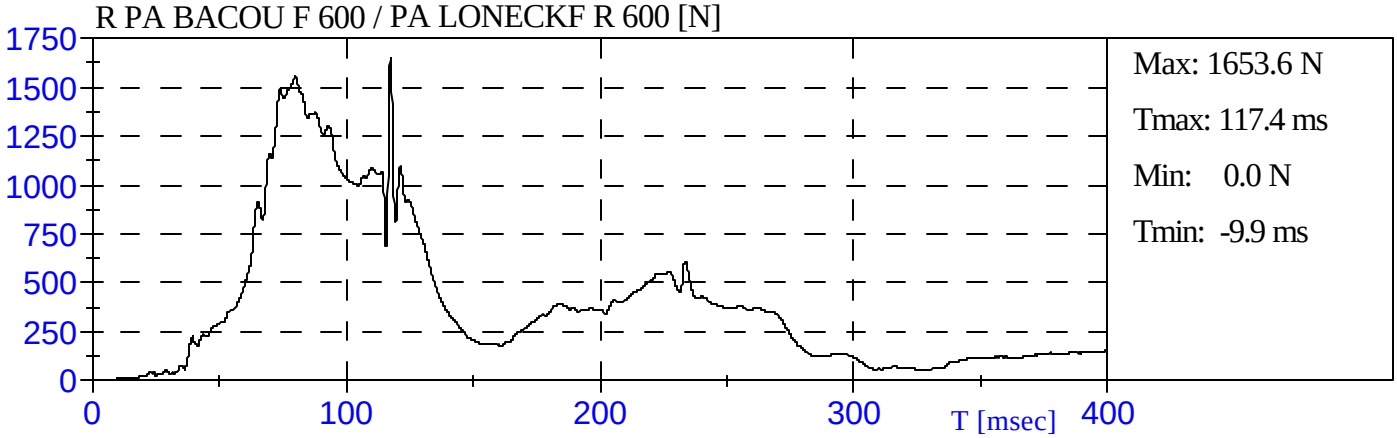
PA BA COU FY 600 / PA LO NCK FY 600 [N]



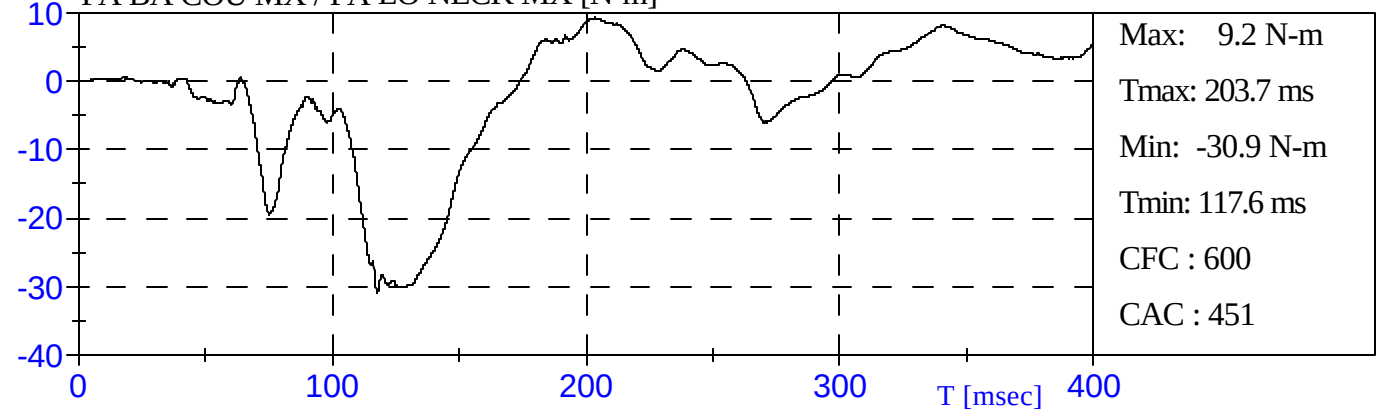
PA BA COU FZ 600 / PA LO NCK FZ 600 [N]



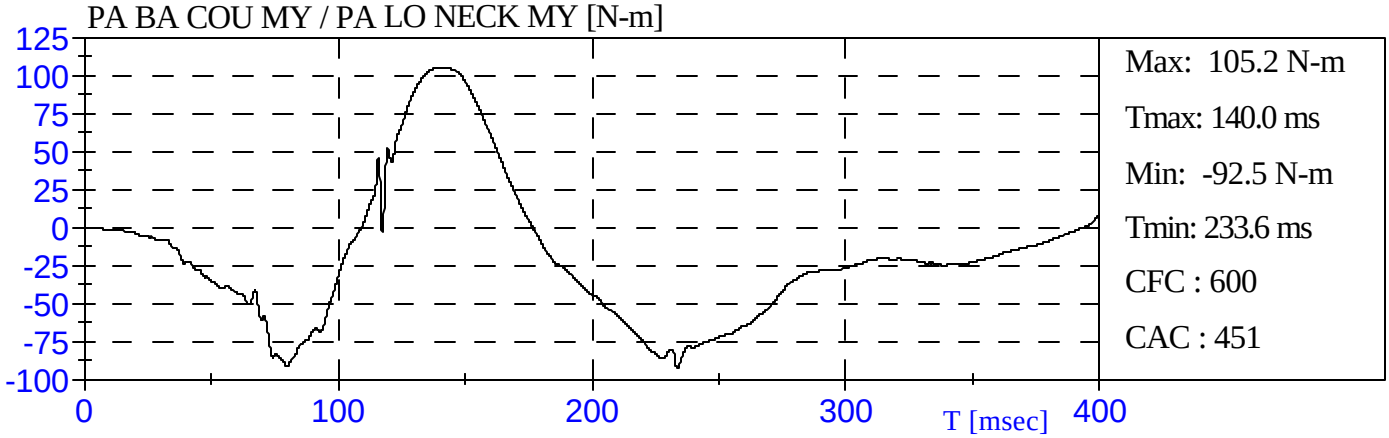
R PA BACOU F 600 / PA LONECKF R 600 [N]



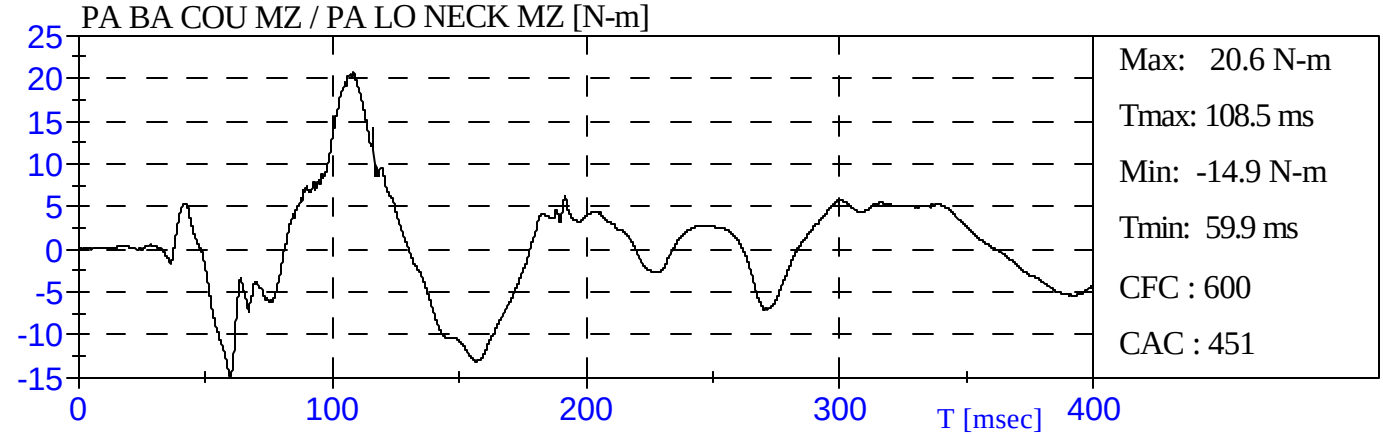
PA BA COU MX / PA LO NECK MX [N-m]



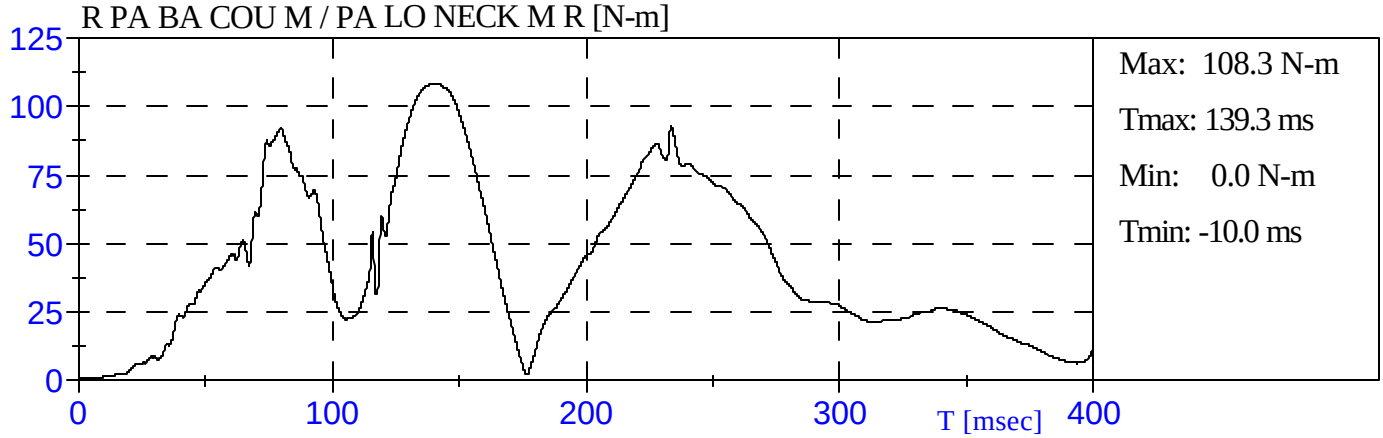
PA BA COU MY / PA LO NECK MY [N-m]



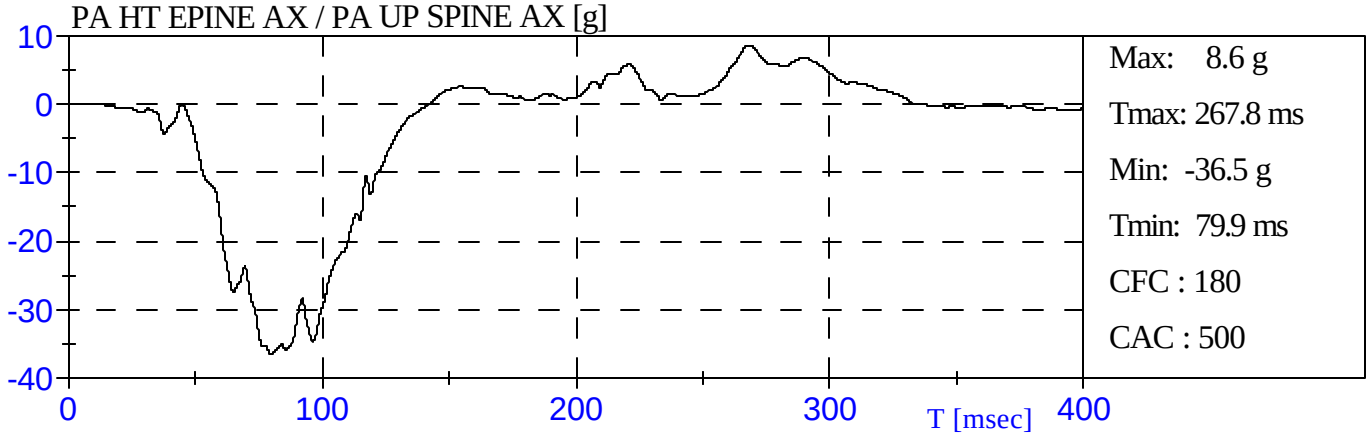
PA BA COU MZ / PA LO NECK MZ [N-m]



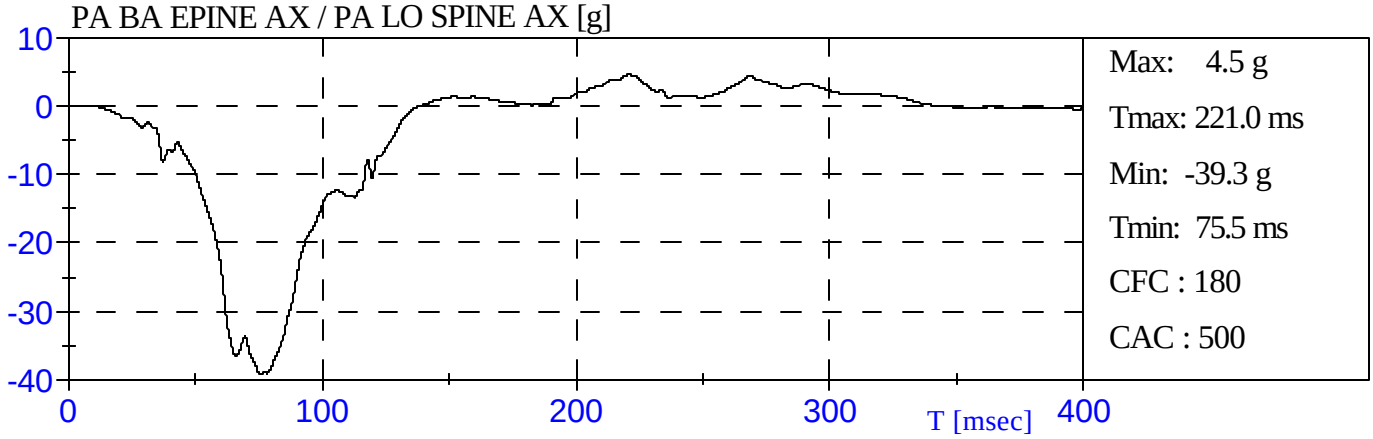
R PA BA COU M / PA LO NECK M R [N-m]



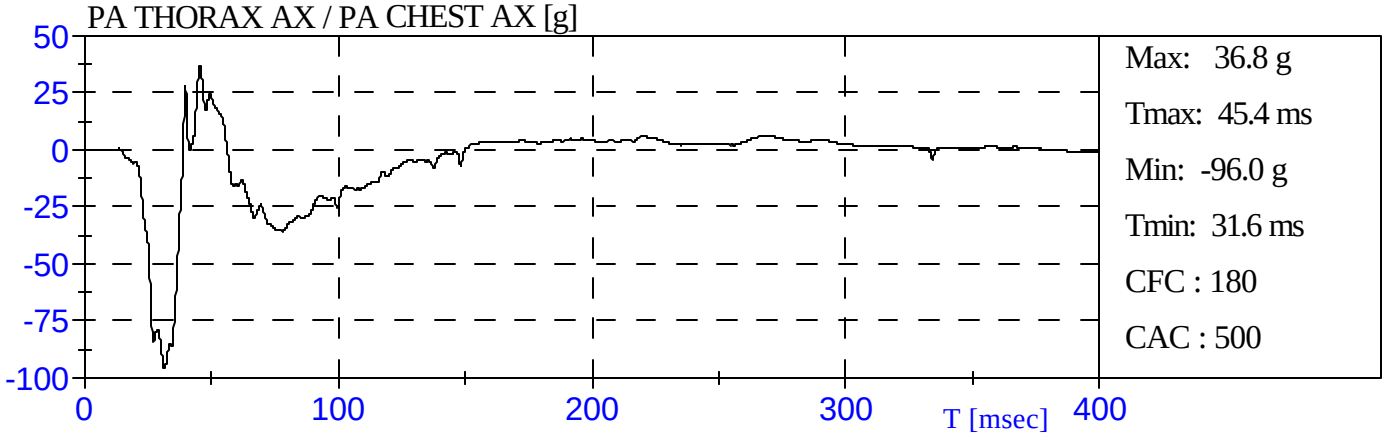
PA HT EPINE AX / PA UP SPINE AX [g]



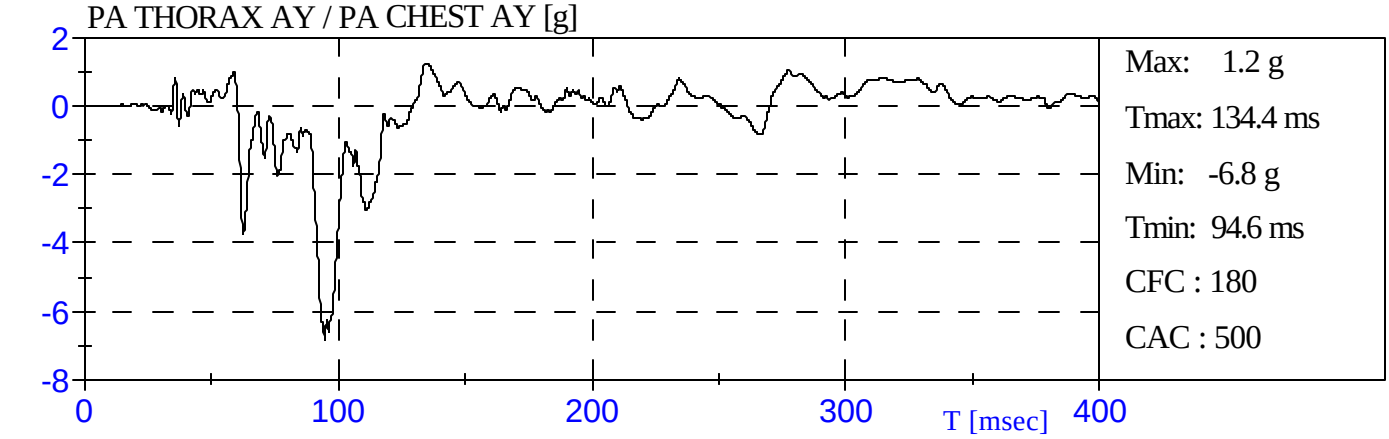
PA BA EPINE AX / PA LO SPINE AX [g]



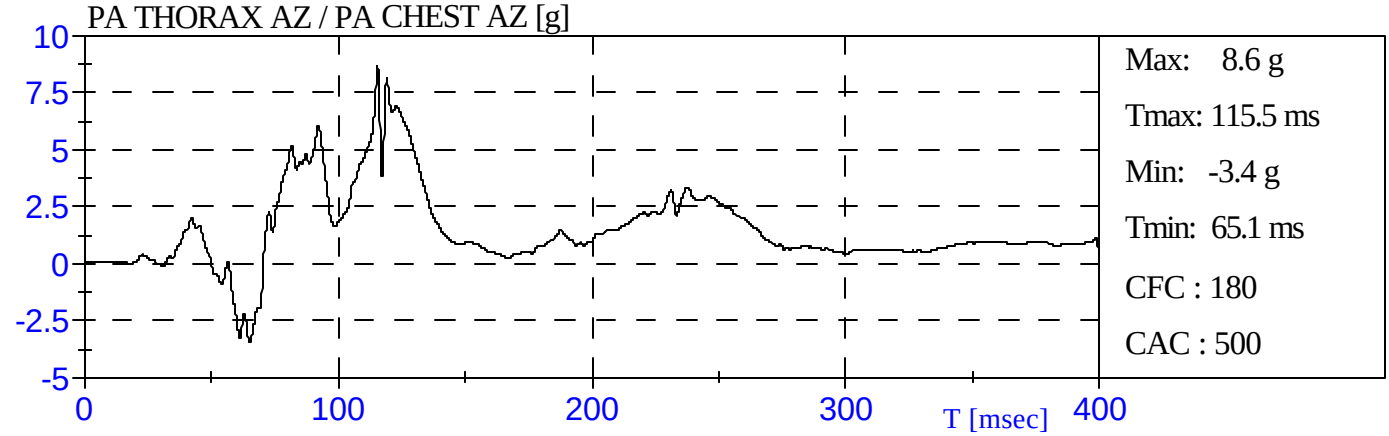
PA THORAX AX / PA CHEST AX [g]



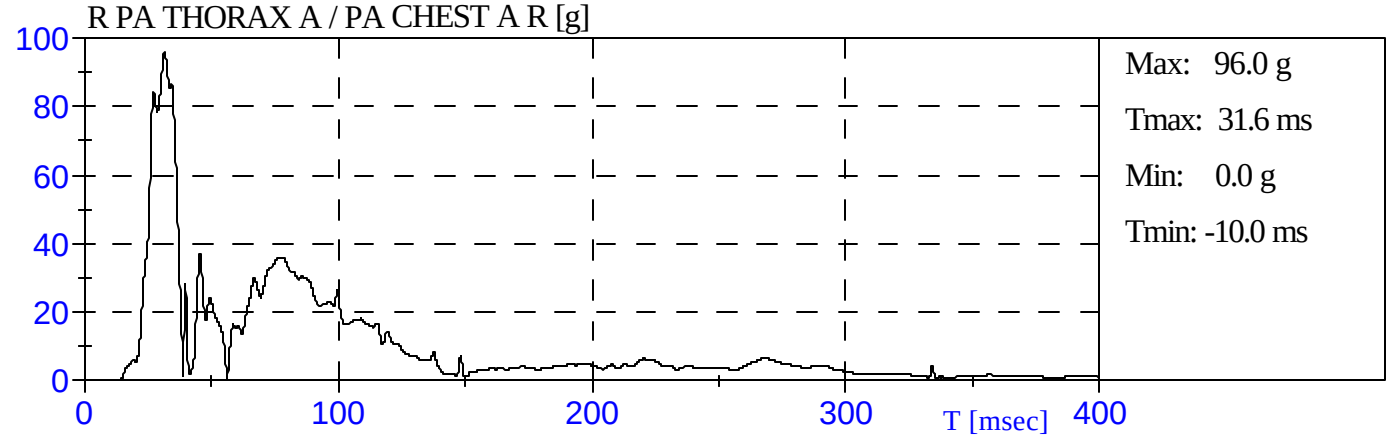
PA THORAX AY / PA CHEST AY [g]

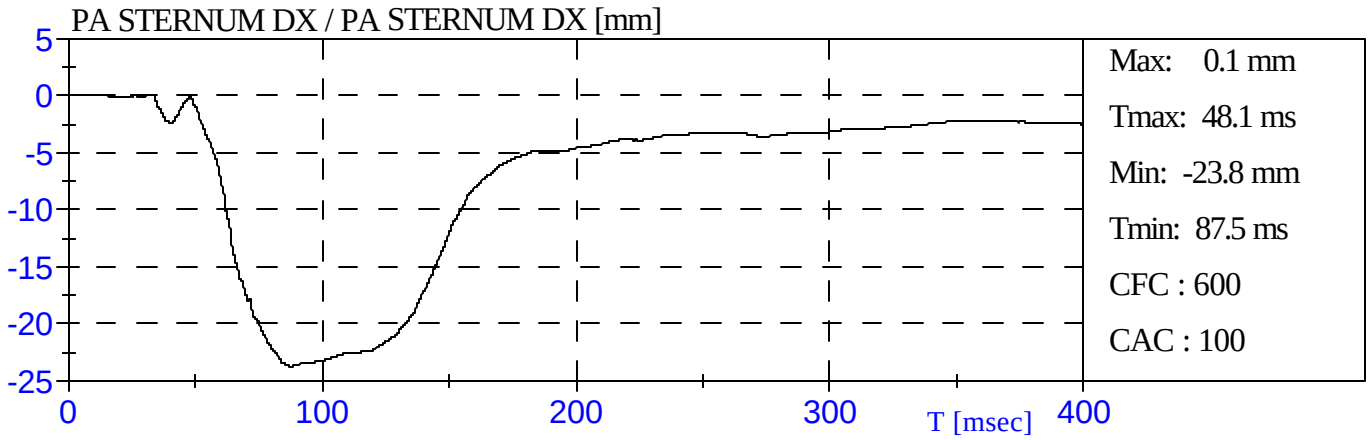


PA THORAX AZ / PA CHEST AZ [g]

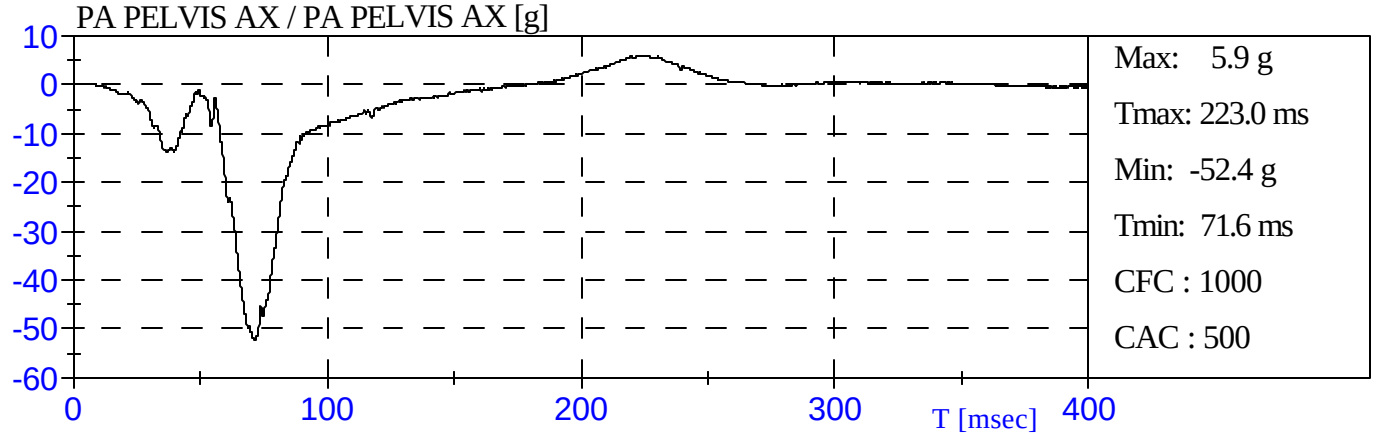


R PA THORAX A / PA CHEST A R [g]

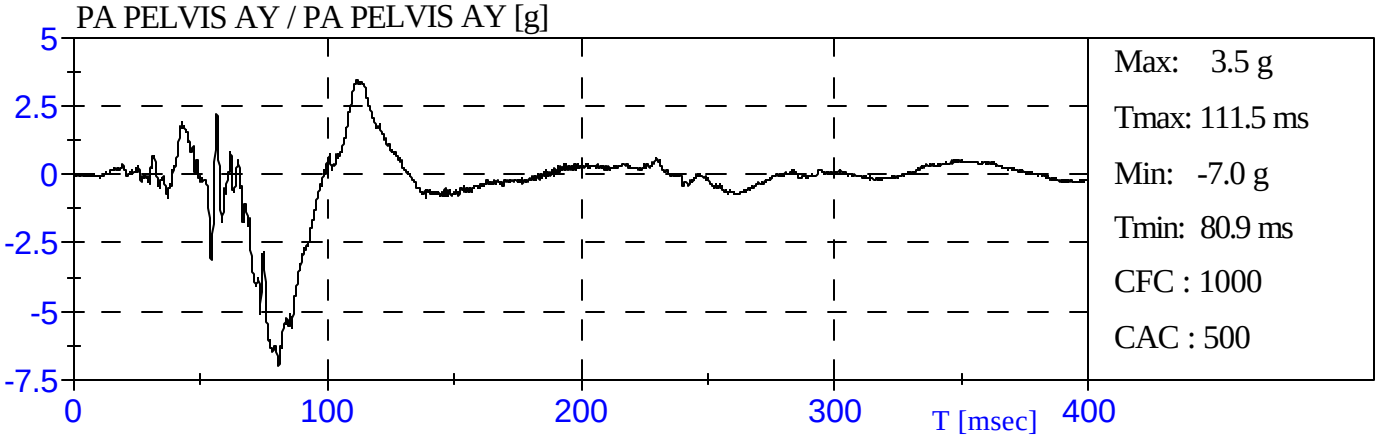



PA STERNUM DX / PA STERNUM DX [mm]
5
0
-5
-10
-15
-20
-25
0
100
200
300
400
T [msec]
Max: 0.1 mm
Tmax: 48.1 ms
Min: -23.8 mm
Tmin: 87.5 ms
CFC : 600
CAC : 100

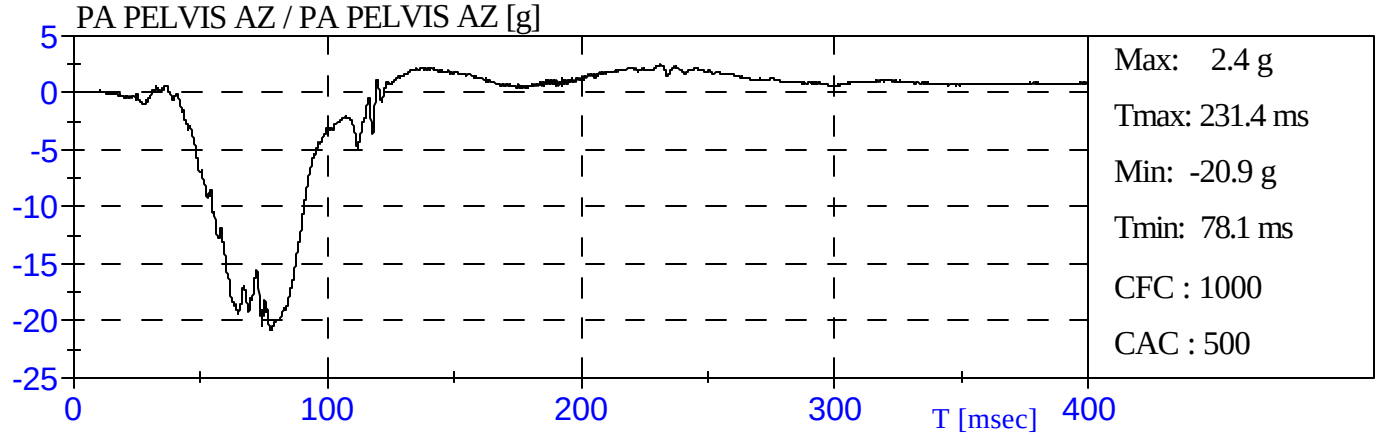
PA PELVIS AX / PA PELVIS AX [g]



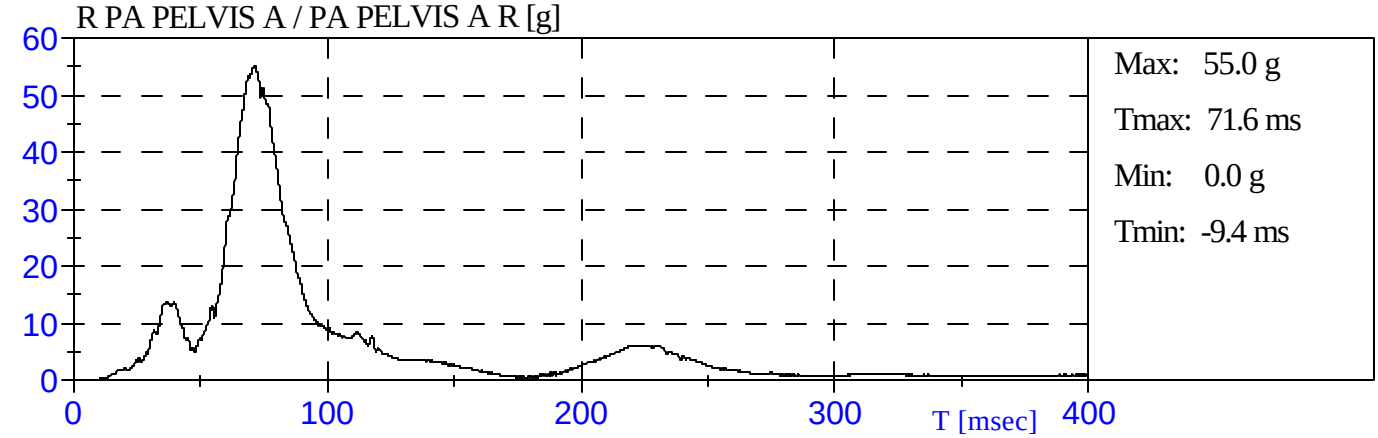
PA PELVIS AY / PA PELVIS AY [g]

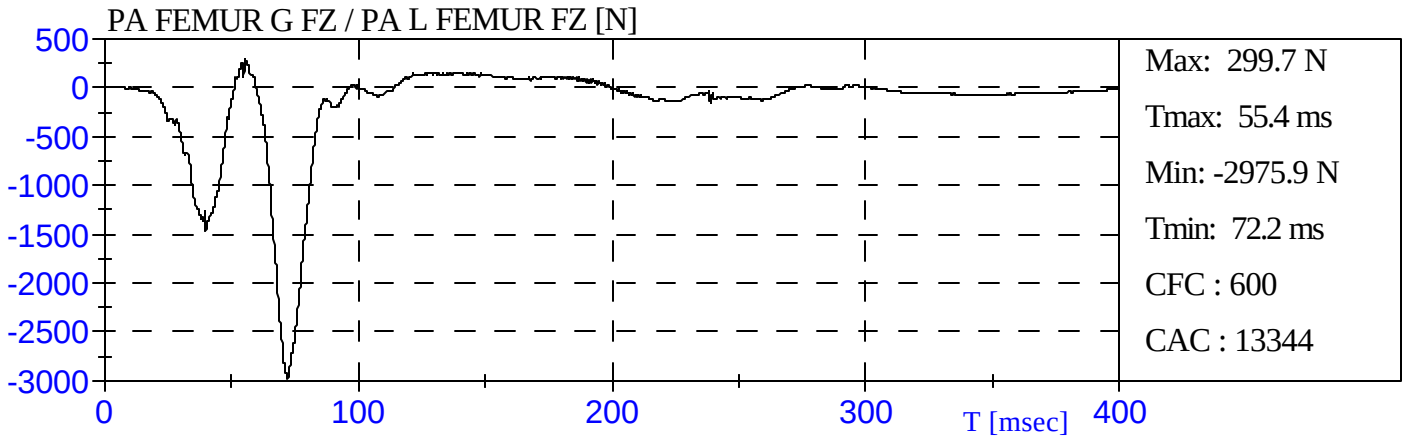


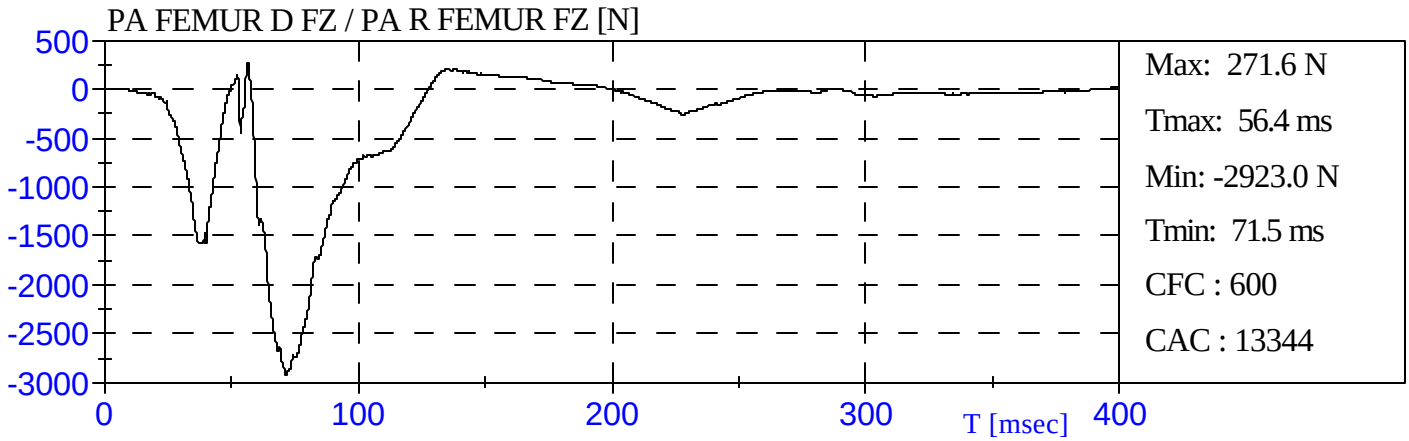
PA PELVIS AZ / PA PELVIS AZ [g]



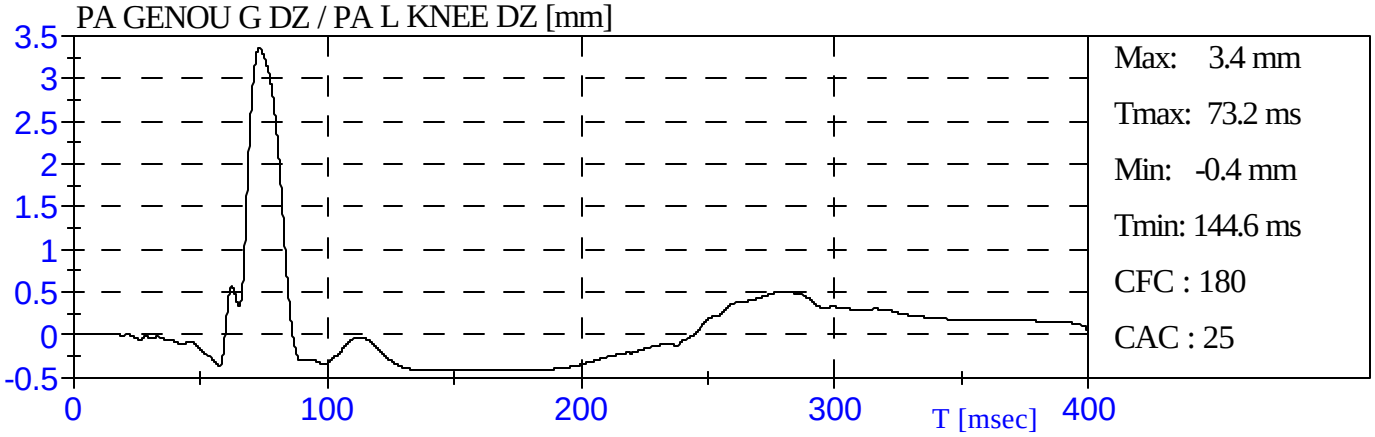
R PA PELVIS A / PA PELVIS A R [g]



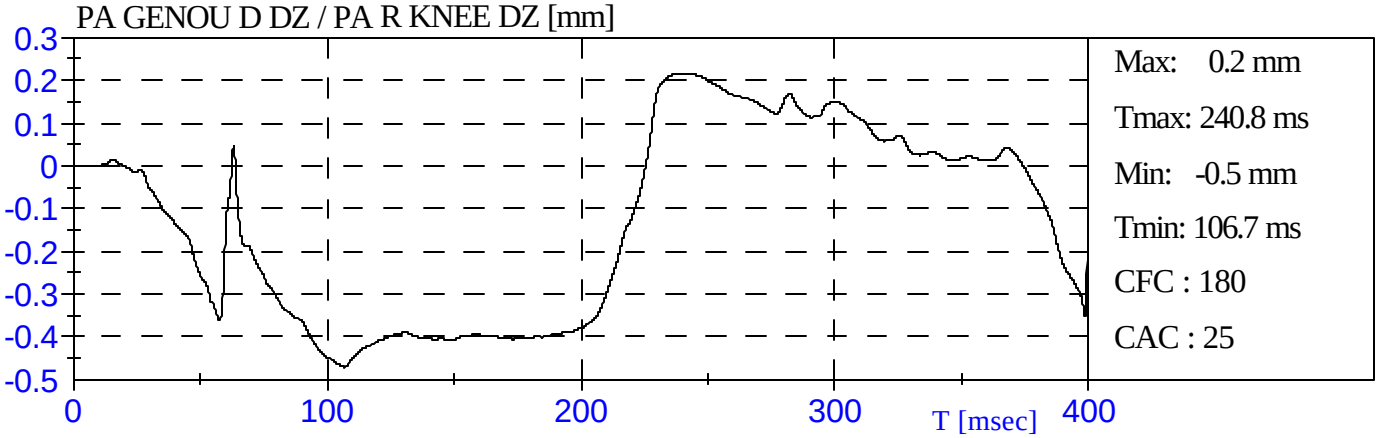

PA FEMUR G FZ / PA L FEMUR FZ [N]
500
0
-500
-1000
-1500
-2000
-2500
-3000
0
100
200
300
400
T [msec]
Max: 299.7 N
Tmax: 55.4 ms
Min: -2975.9 N
Tmin: 72.2 ms
CFC : 600
CAC : 13344


PA FEMUR D FZ / PA R FEMUR FZ [N]
500
0
-500
-1000
-1500
-2000
-2500
-3000
0
100
200
300
400
T [msec]
Max: 271.6 N
Tmax: 56.4 ms
Min: -2923.0 N
Tmin: 71.5 ms
CFC : 600
CAC : 13344

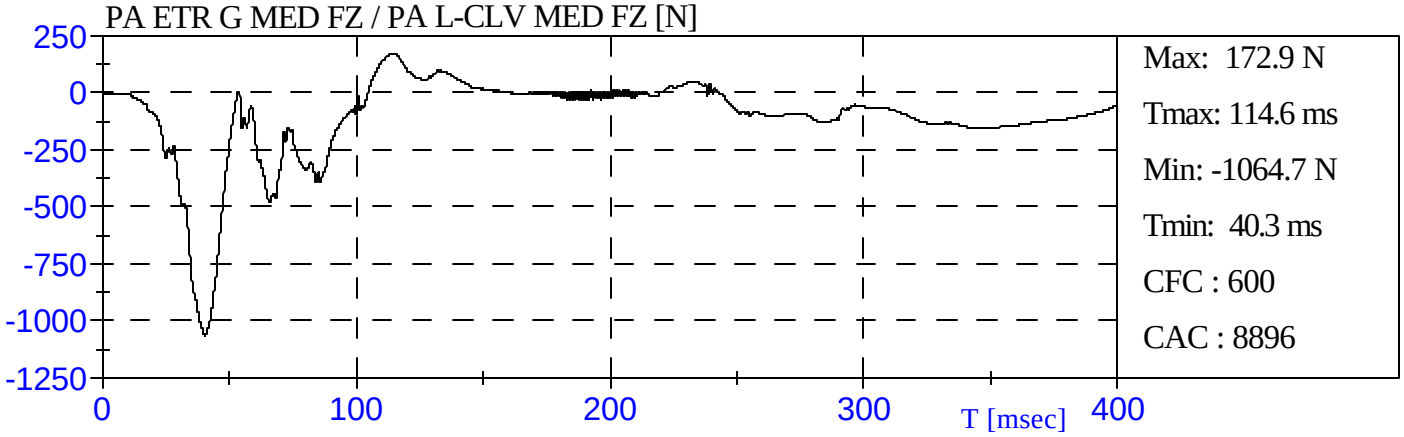
PA GENOU G DZ / PA L KNEE DZ [mm]



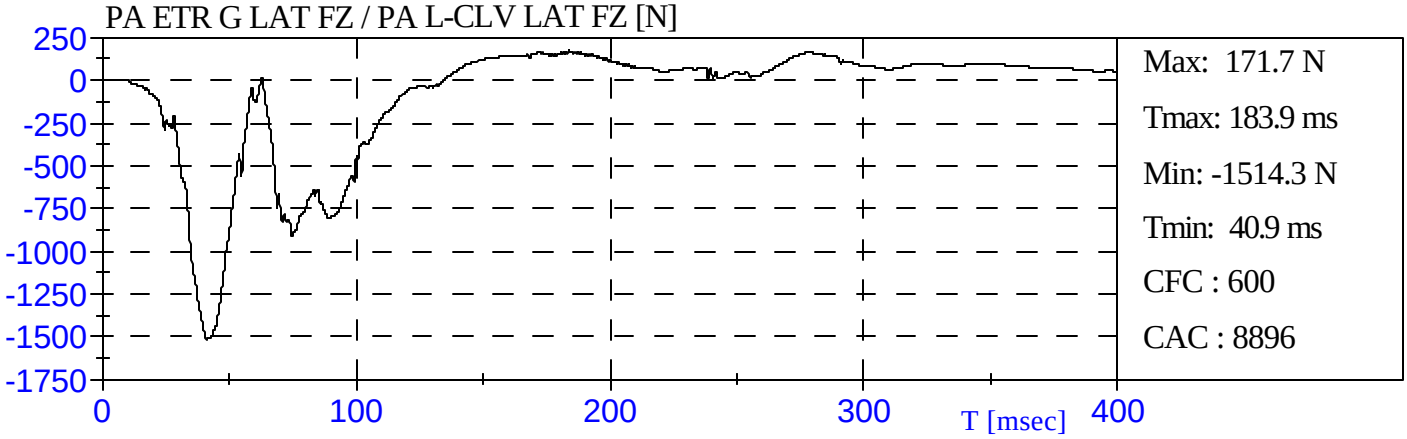
PA GENOU D DZ / PA R KNEE DZ [mm]



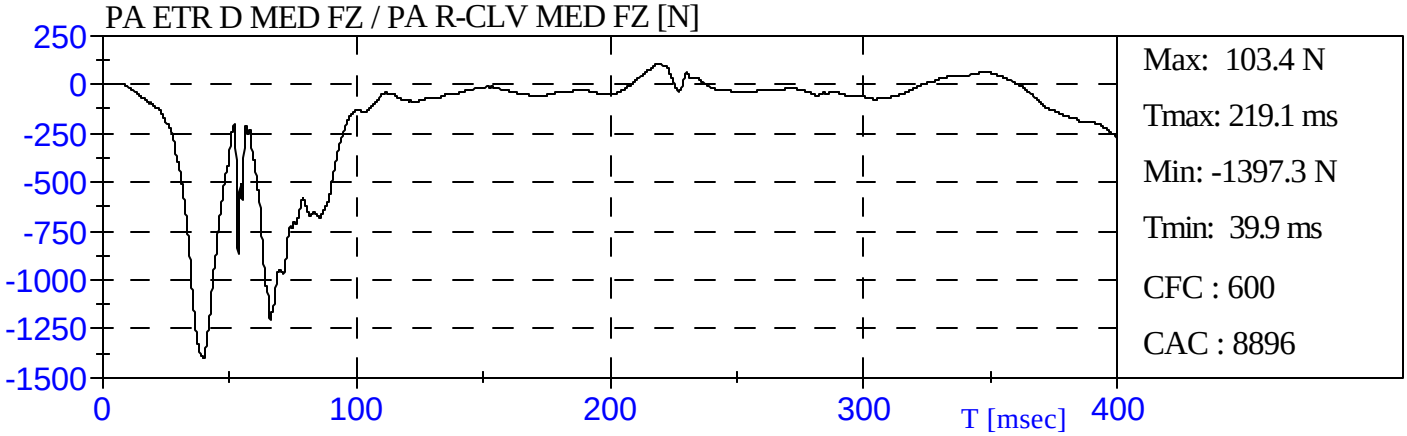
PA ETR G MED FZ / PA L-CLV MED FZ [N]



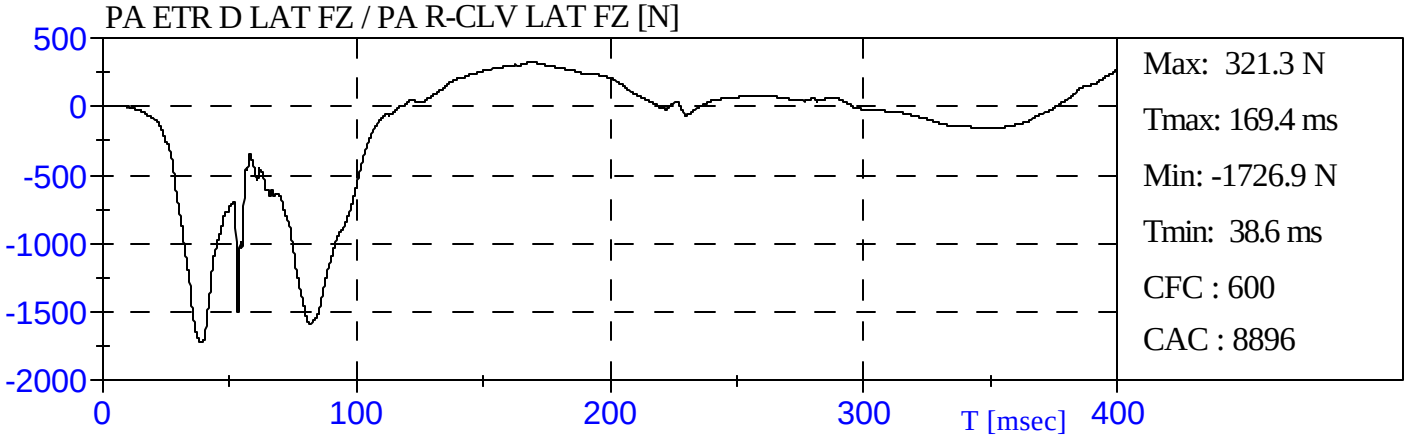
PA ETR G LAT FZ / PA L-CLV LAT FZ [N]



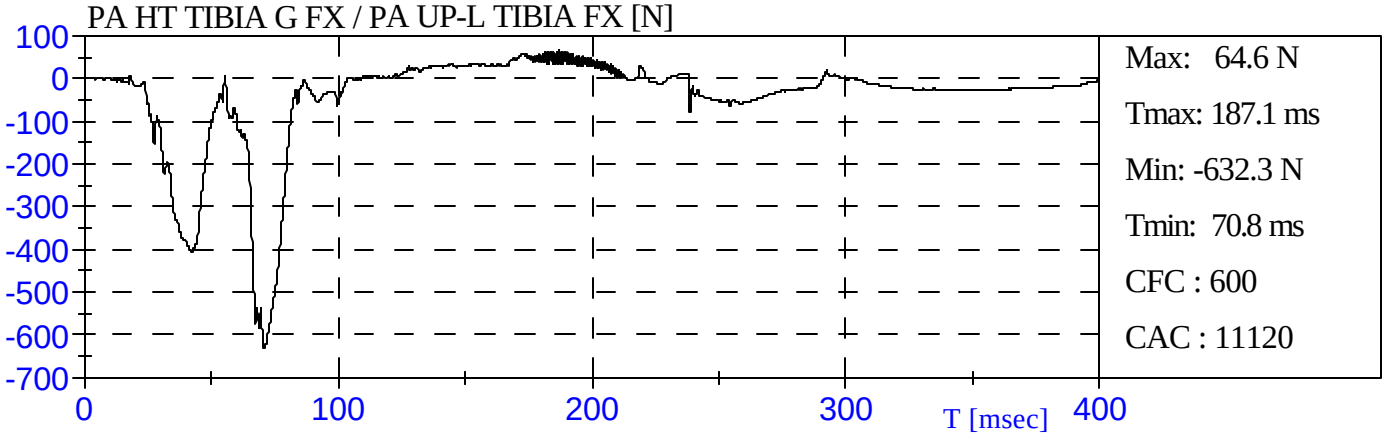
PA ETR D MED FZ / PA R-CLV MED FZ [N]



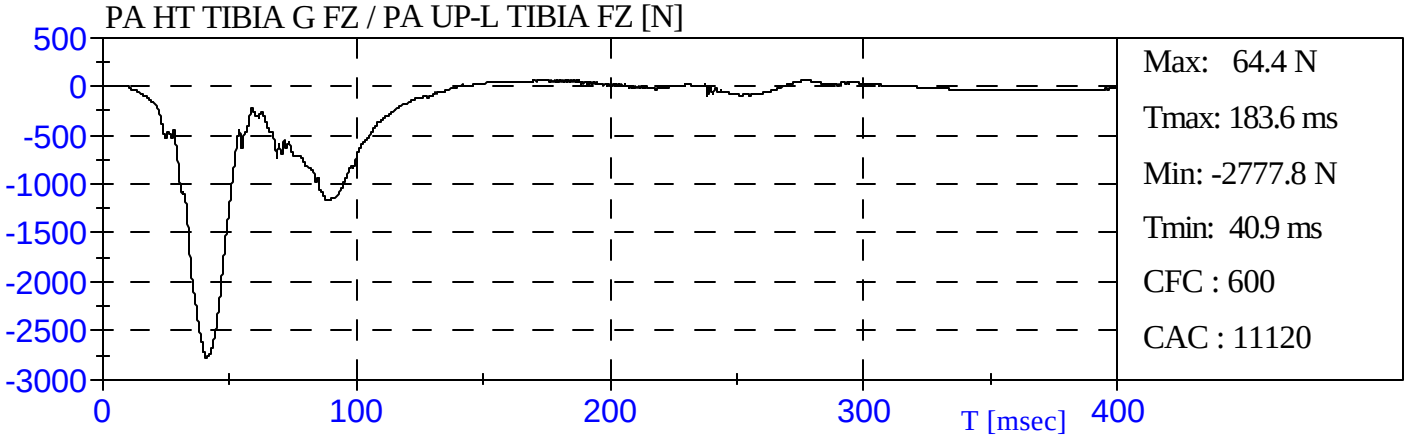
PA ETR D LAT FZ / PA R-CLV LAT FZ [N]



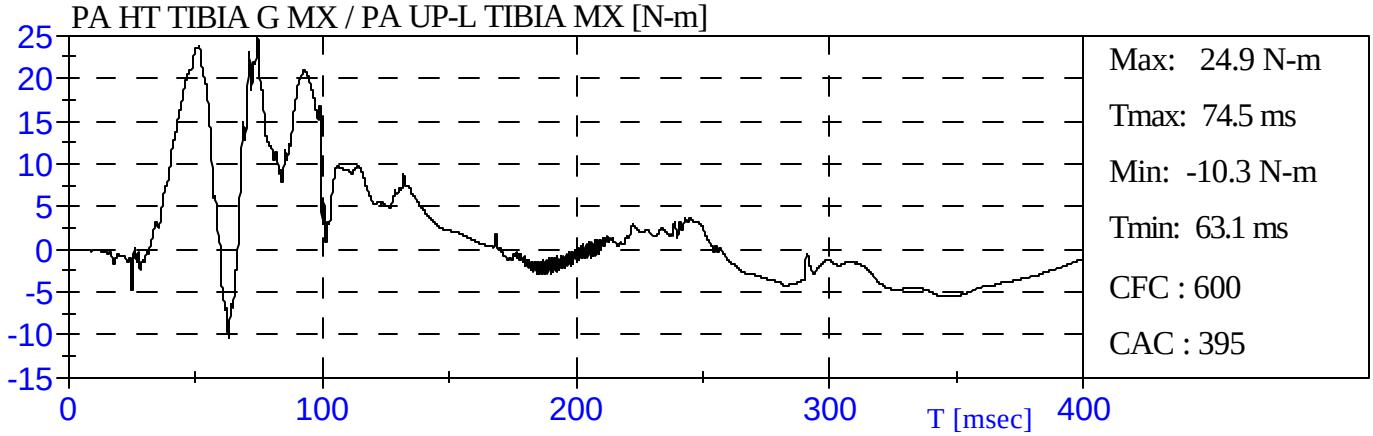
PA HT TIBIA G FX / PA UP-L TIBIA FX [N]



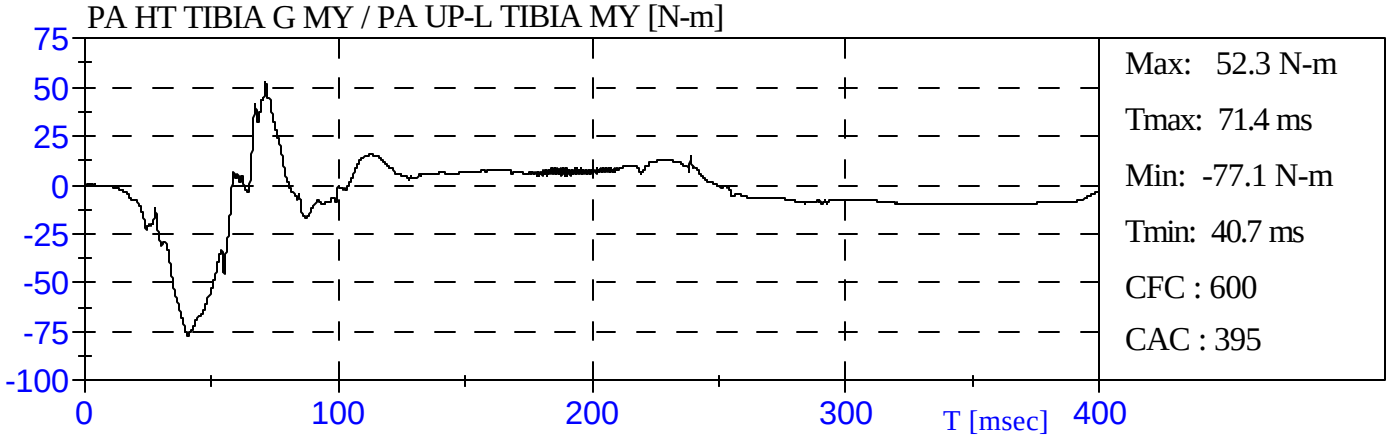
PA HT TIBIA G FZ / PA UP-L TIBIA FZ [N]



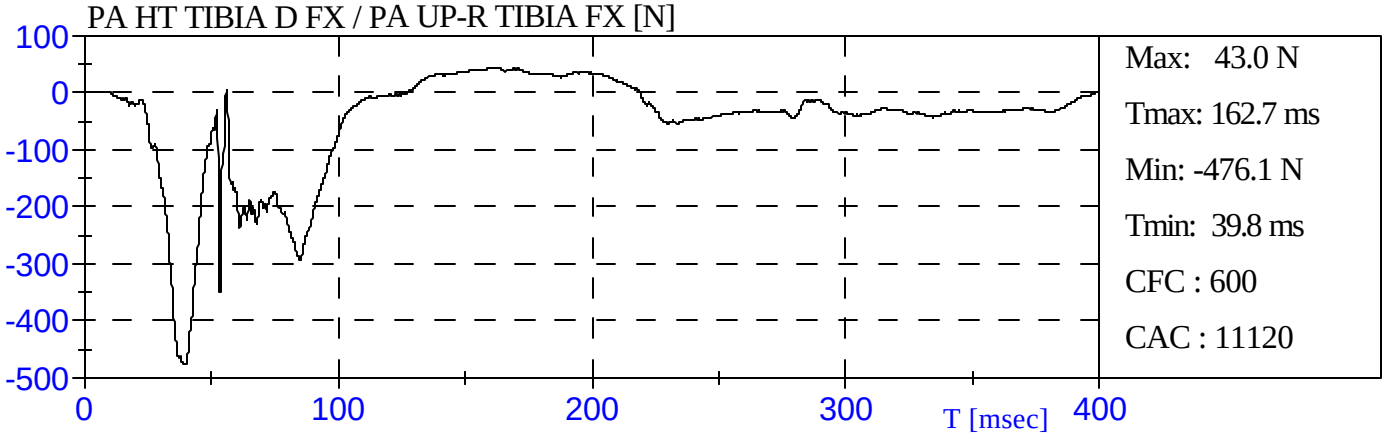
PA HT TIBIA G MX / PA UP-L TIBIA MX [N-m]



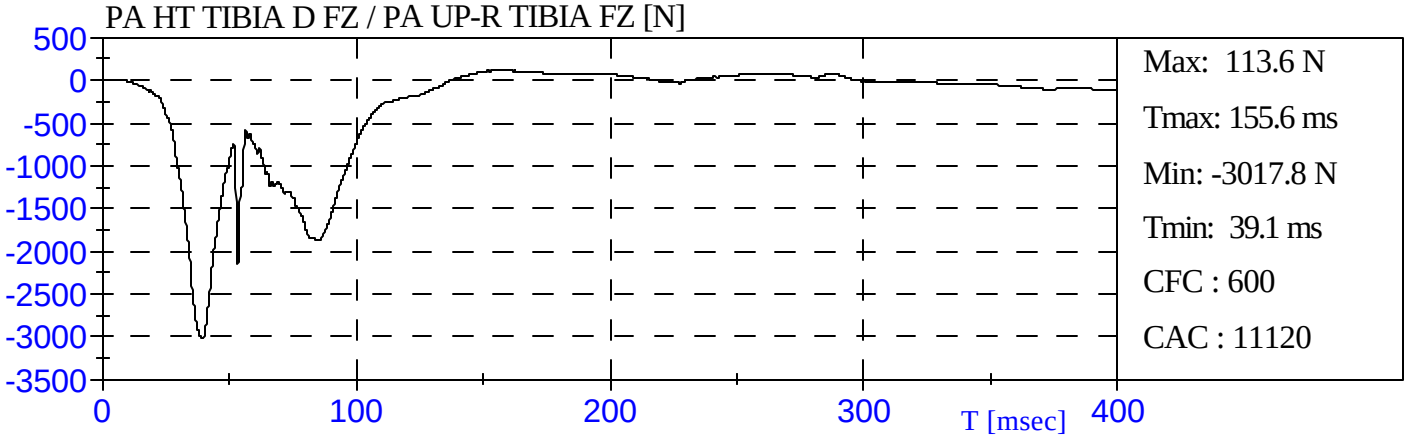
PA HT TIBIA G MY / PA UP-L TIBIA MY [N-m]



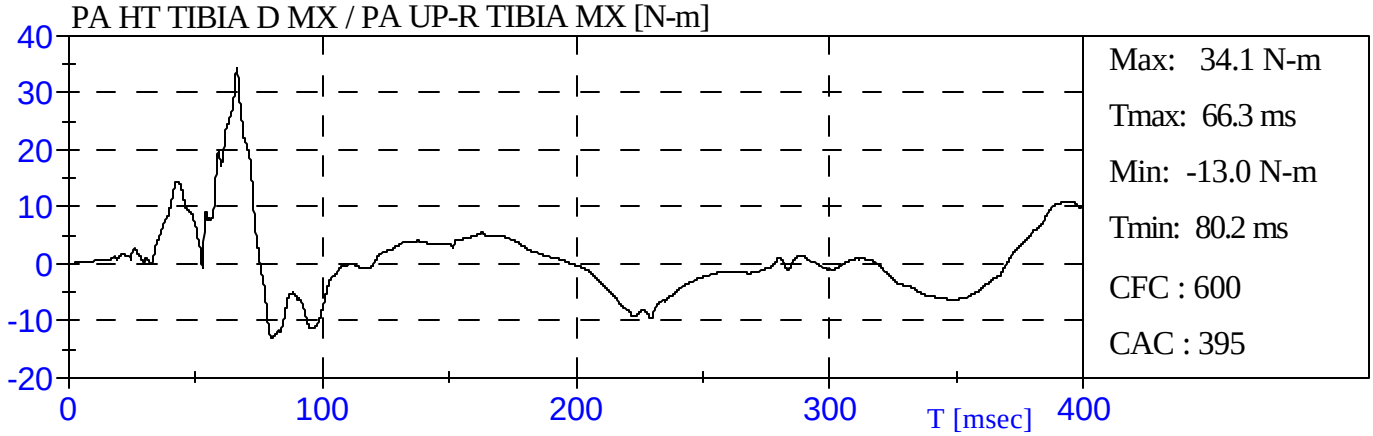
PA HT TIBIA D FX / PA UP-R TIBIA FX [N]



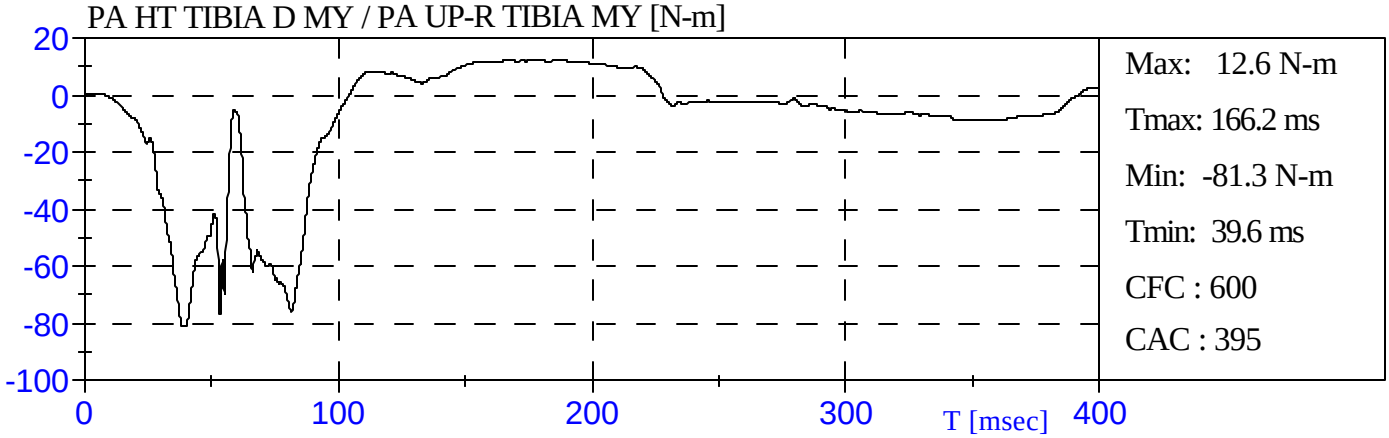
PA HT TIBIA D FZ / PA UP-R TIBIA FZ [N]



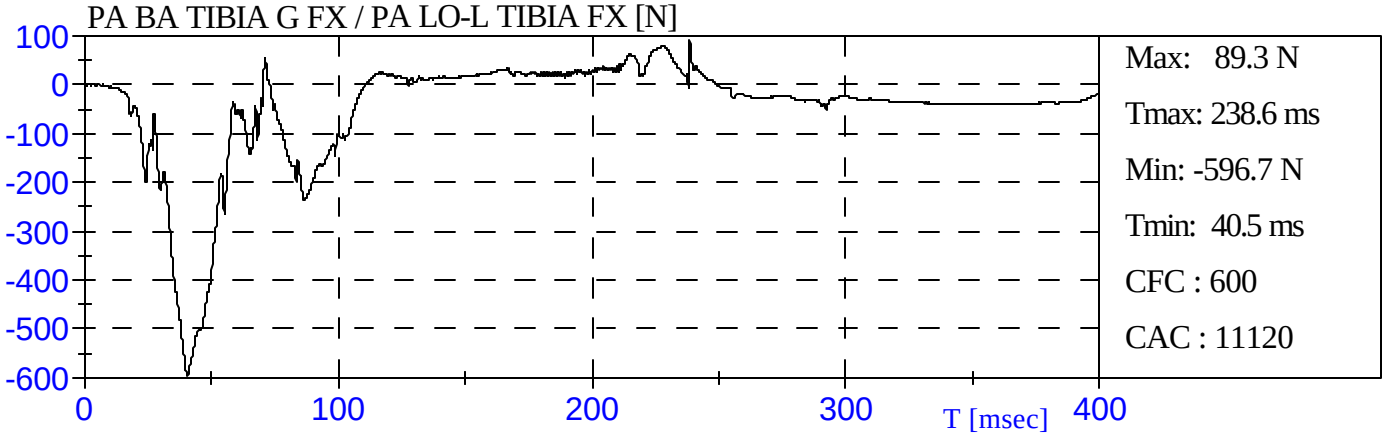
PA HT TIBIA D MX / PA UP-R TIBIA MX [N-m]



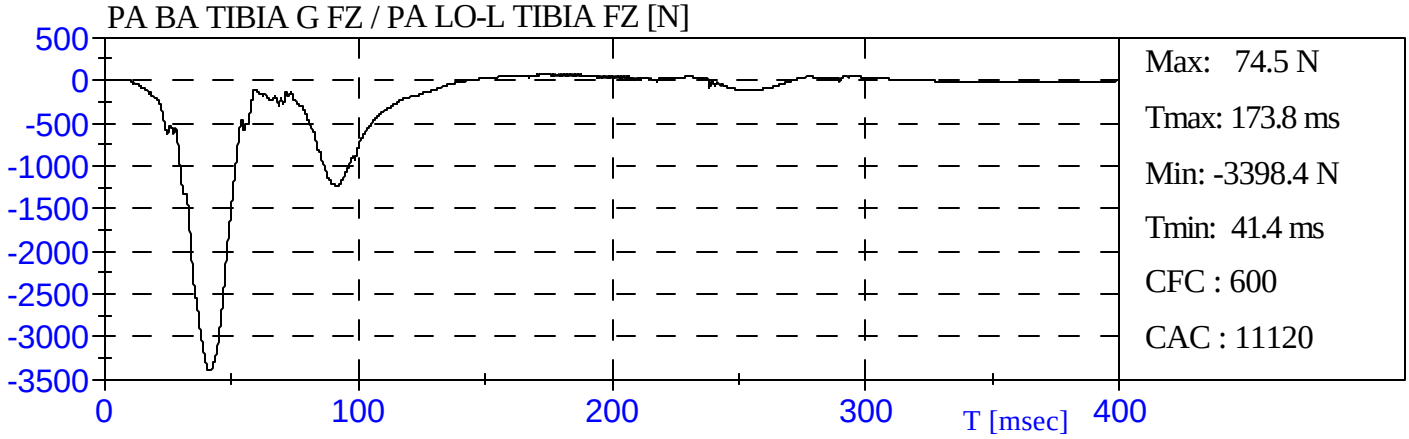
PA HT TIBIA D MY / PA UP-R TIBIA MY [N-m]



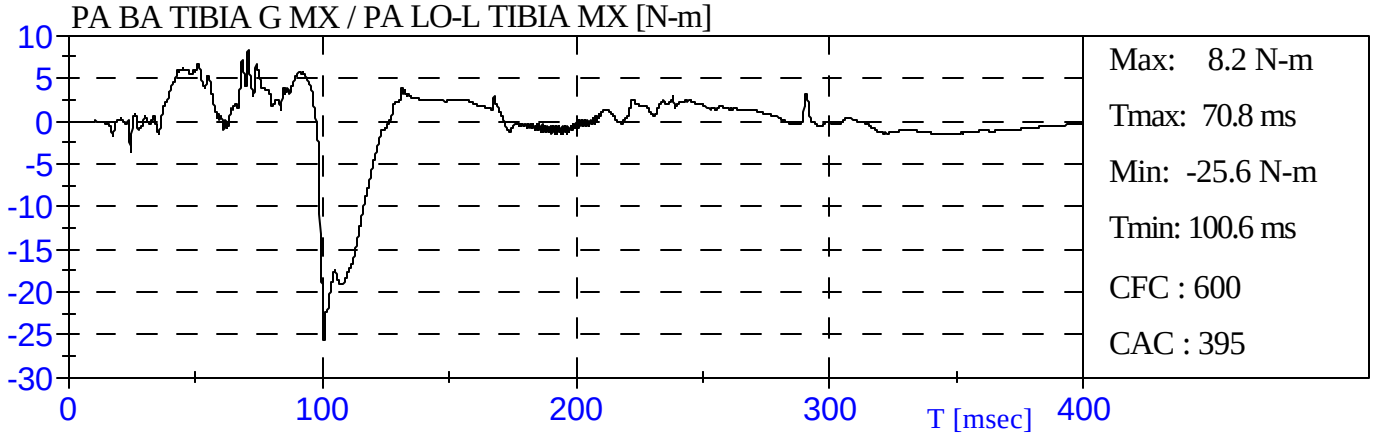
PA BA TIBIA G FX / PA LO-L TIBIA FX [N]



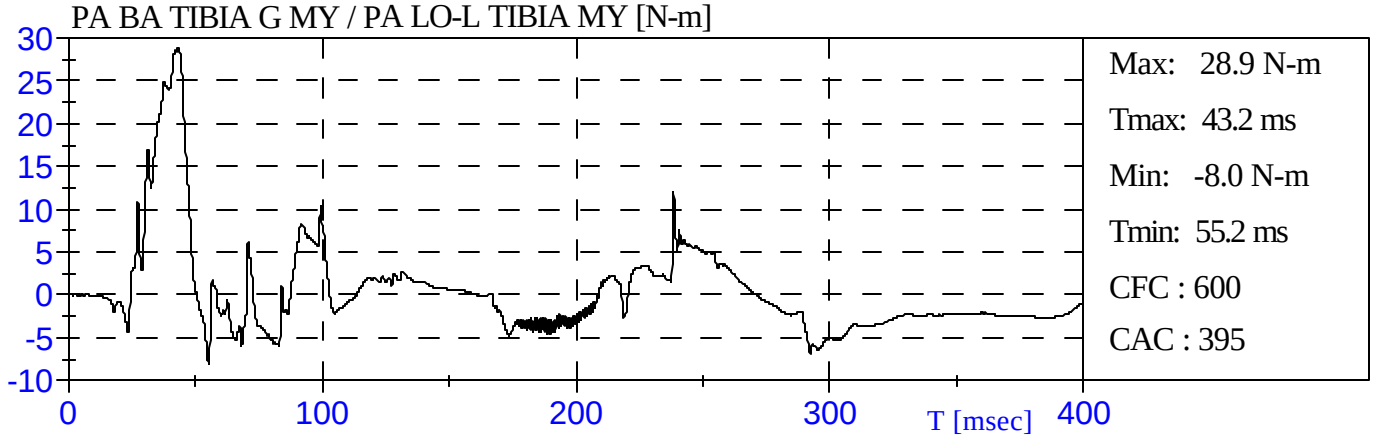
PA BA TIBIA G FZ / PA LO-L TIBIA FZ [N]



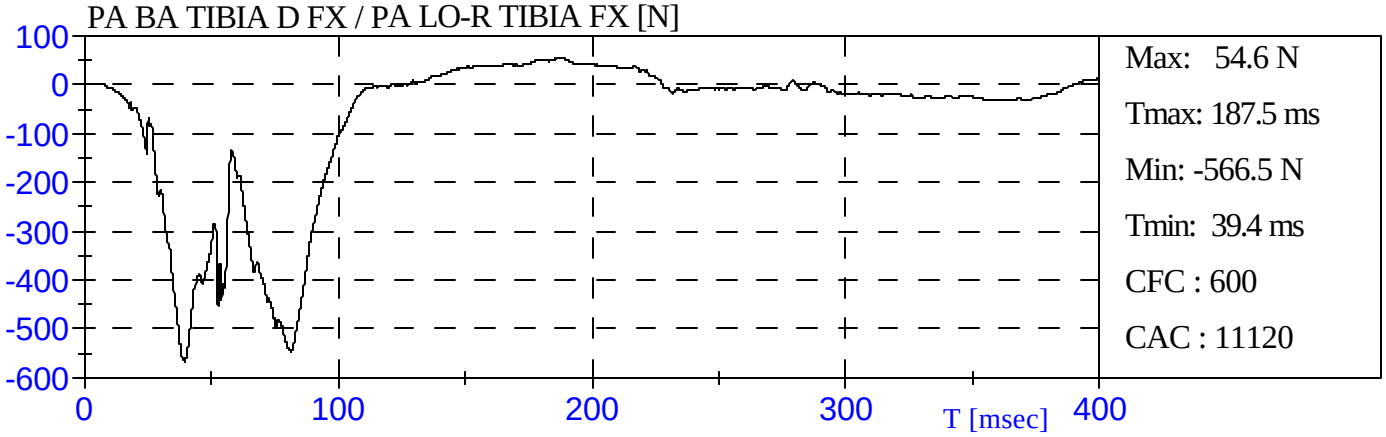
PA BA TIBIA G MX / PA LO-L TIBIA MX [N-m]



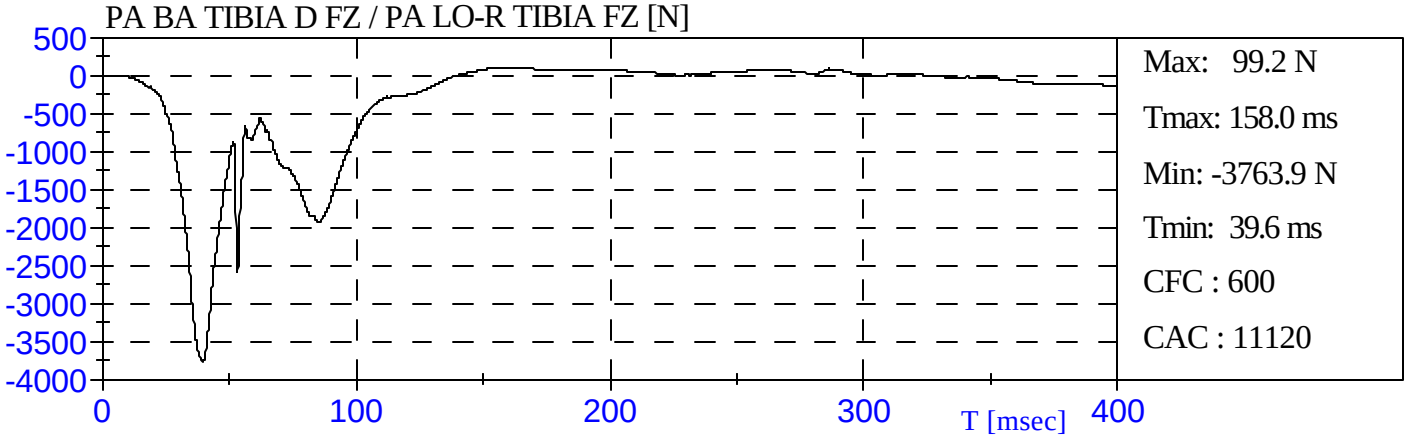
PA BA TIBIA G MY / PA LO-L TIBIA MY [N-m]



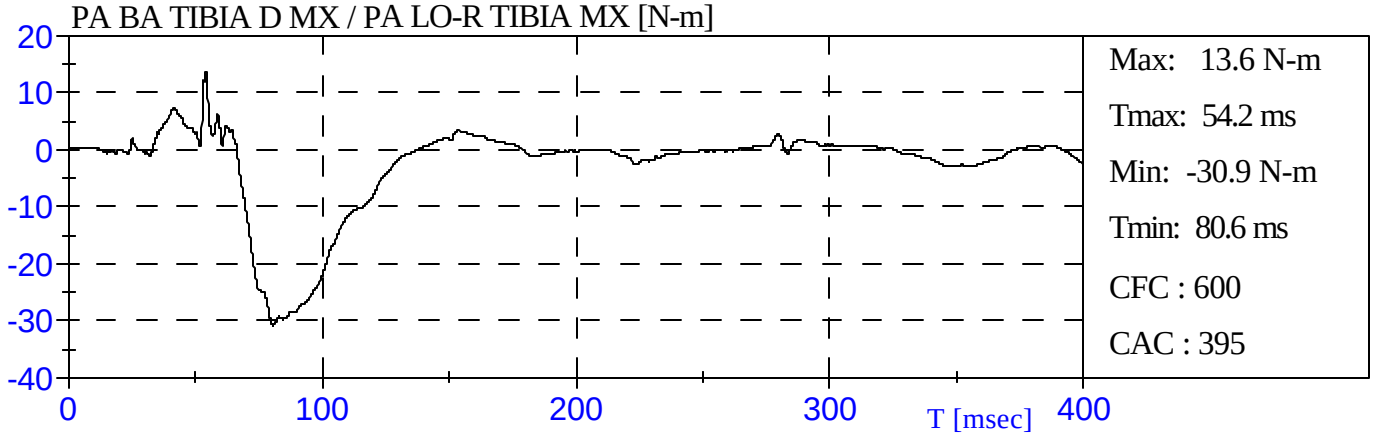
PA BA TIBIA D FX / PA LO-R TIBIA FX [N]



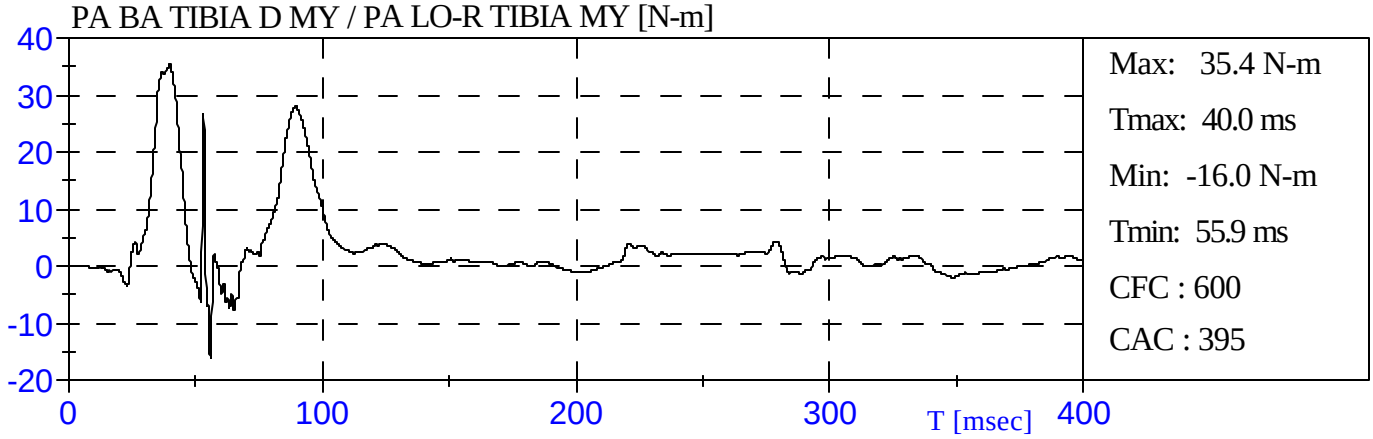
PA BA TIBIA D FZ / PA LO-R TIBIA FZ [N]



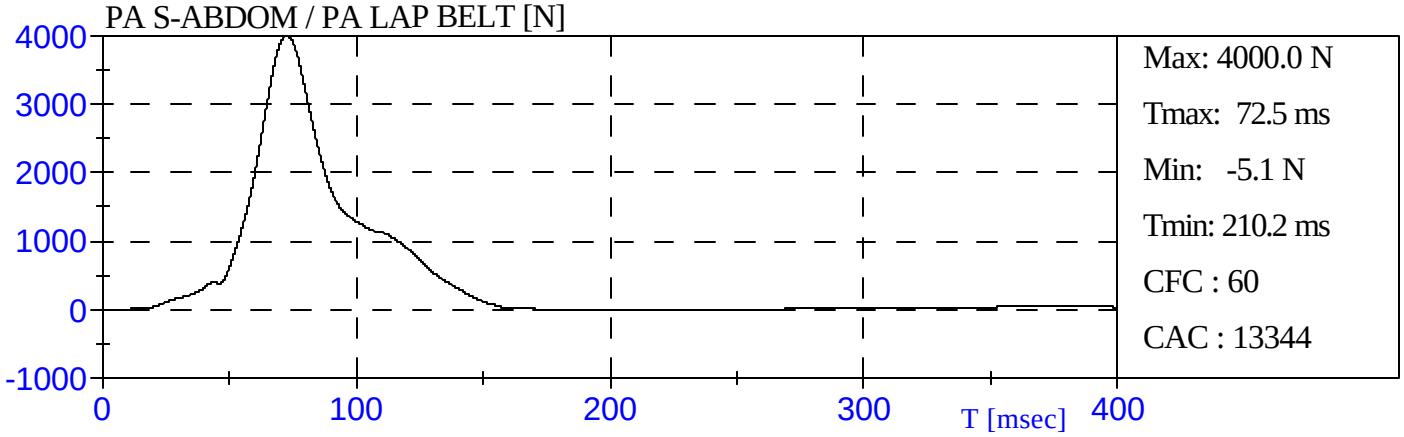
PA BA TIBIA D MX / PA LO-R TIBIA MX [N-m]



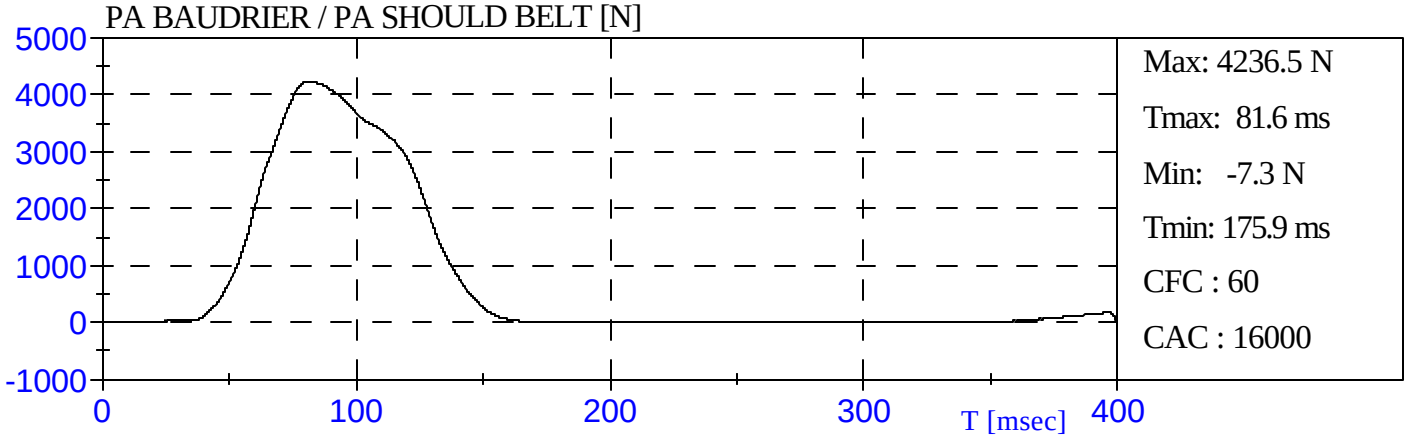
PA BA TIBIA D MY / PA LO-R TIBIA MY [N-m]

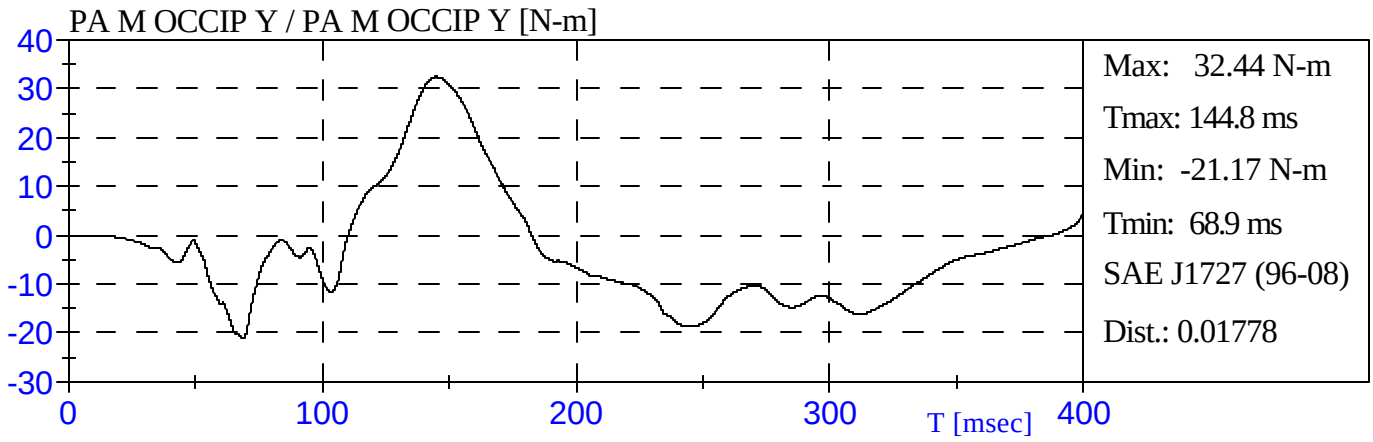


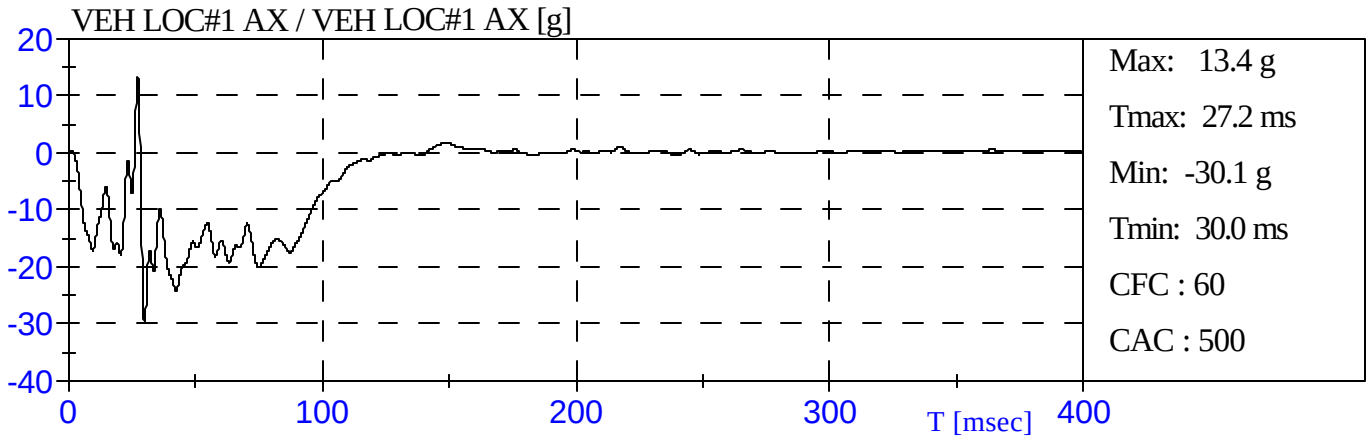
PA S-ABDOM / PA LAP BELT [N]

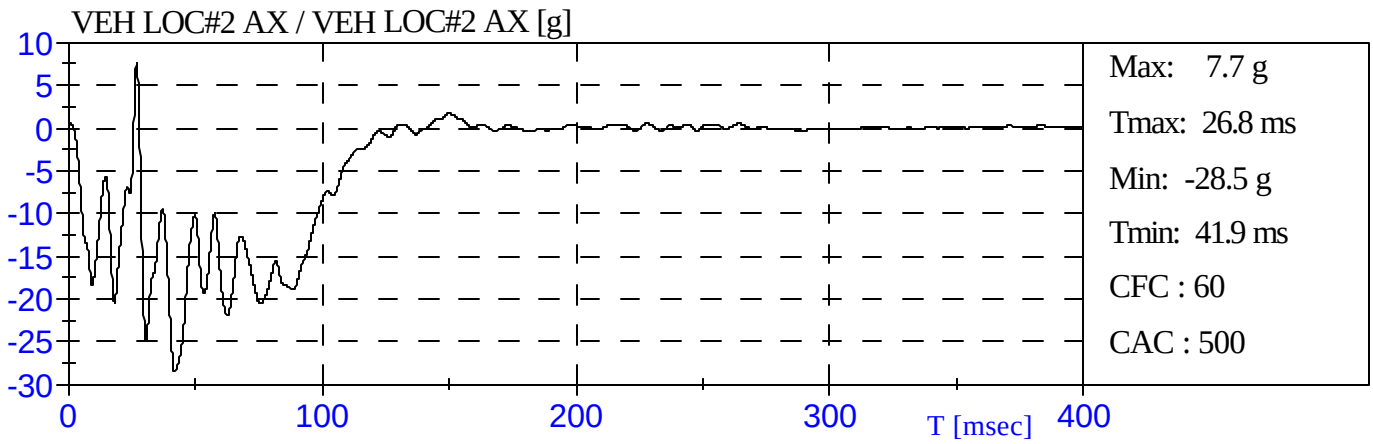


PA BAUDRIER / PA SHOULD BELT [N]

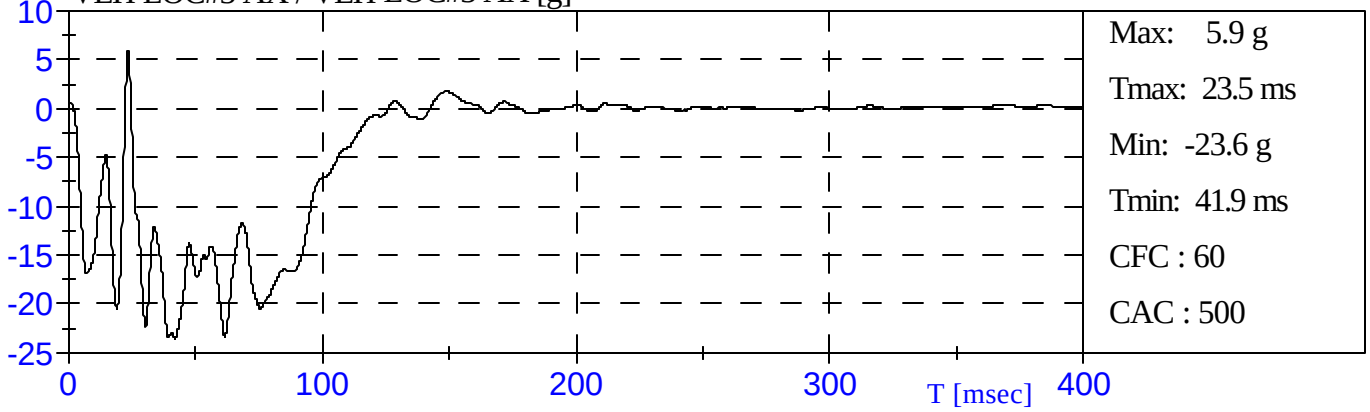



PA M OCCIP Y / PA M OCCIP Y [N-m]
40
30
20
10
0
-10
-20
-30
0
100
200
300
400
T [msec]
Max: 32.44 N-m
Tmax: 144.8 ms
Min: -21.17 N-m
Tmin: 68.9 ms
SAE J1727 (96-08)
Dist.: 0.01778

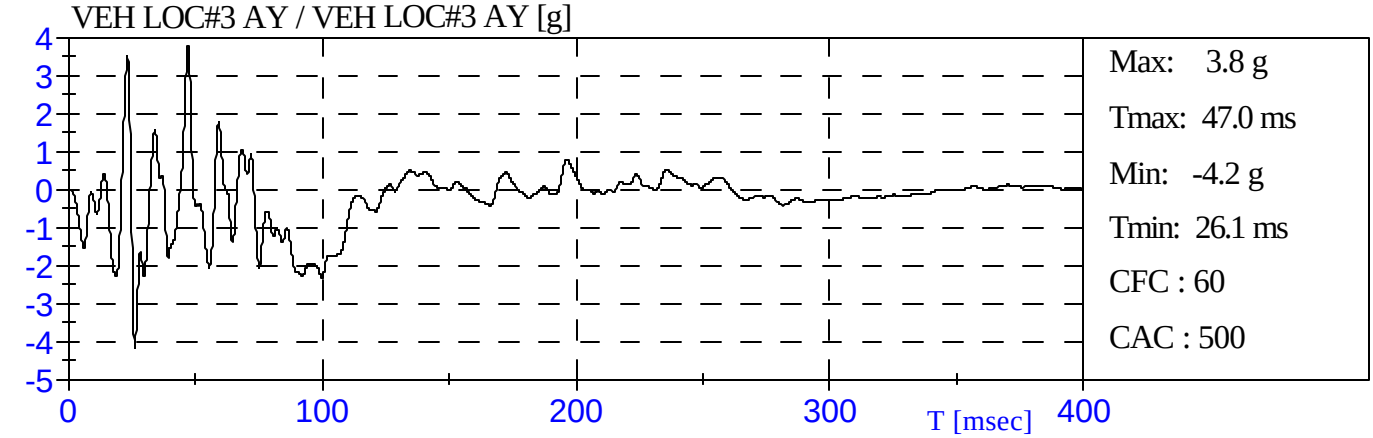

VEH LOC#1 AX / VEH LOC#1 AX [g]
20
10
0
-10
-20
-30
-40
0
100
200
300
400
T [msec]
Max: 13.4 g
Tmax: 27.2 ms
Min: -30.1 g
Tmin: 30.0 ms
CFC : 60
CAC : 500


VEH LOC#2 AX / VEH LOC#2 AX [g]
10
5
0
-5
-10
-15
-20
-25
-30
0
100
200
300
400
T [msec]
Max: 7.7 g
Tmax: 26.8 ms
Min: -28.5 g
Tmin: 41.9 ms
CFC : 60
CAC : 500

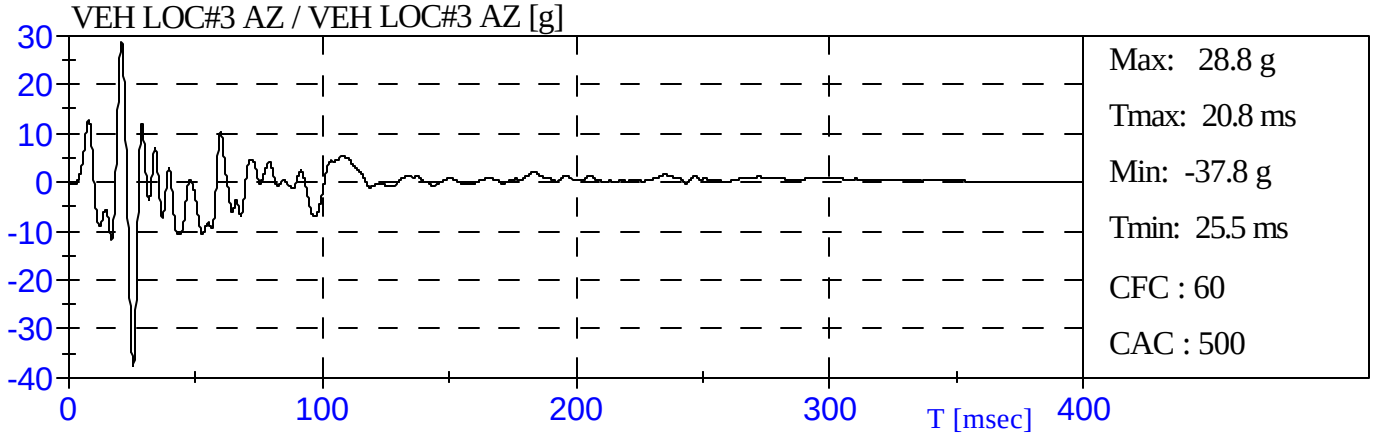
VEH LOC#3 AX / VEH LOC#3 AX [g]



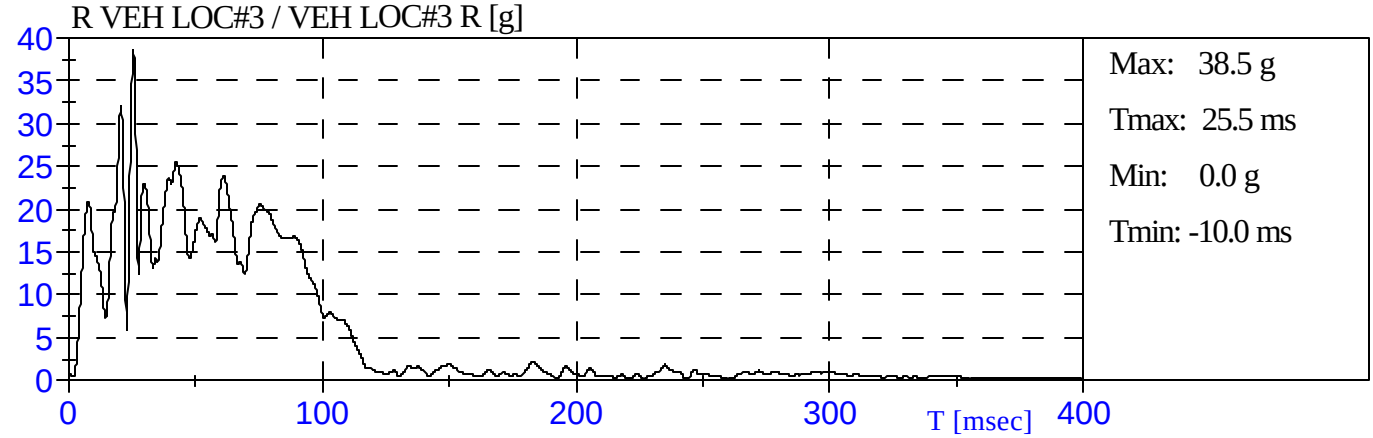
VEH LOC#3 AY / VEH LOC#3 AY [g]

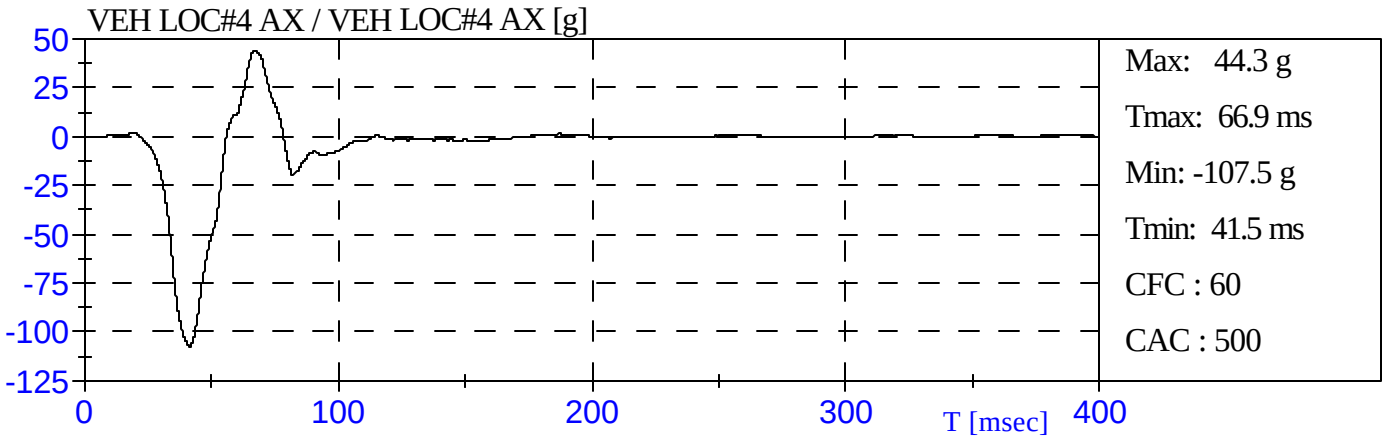


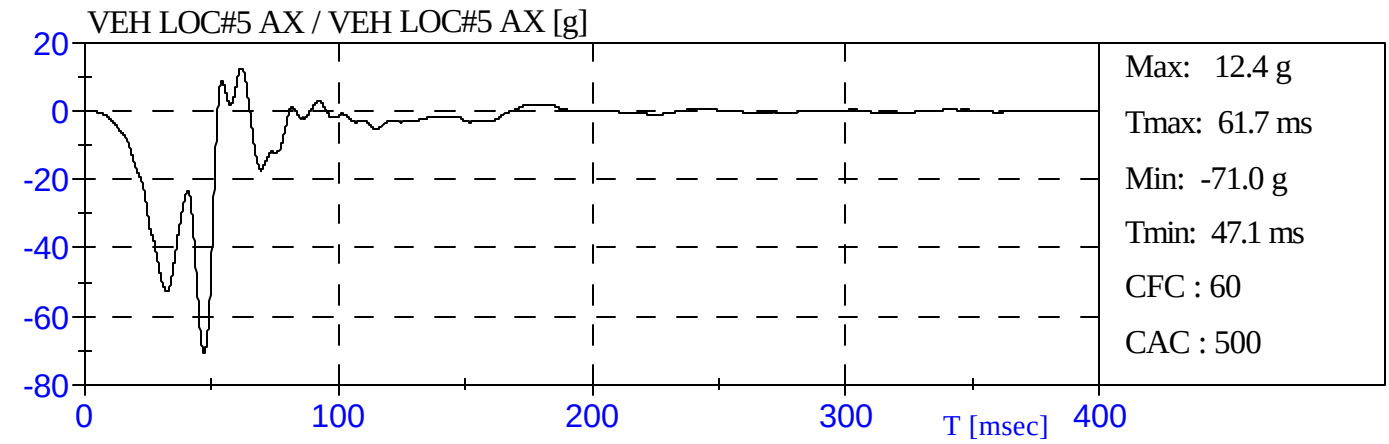
VEH LOC#3 AZ / VEH LOC#3 AZ [g]



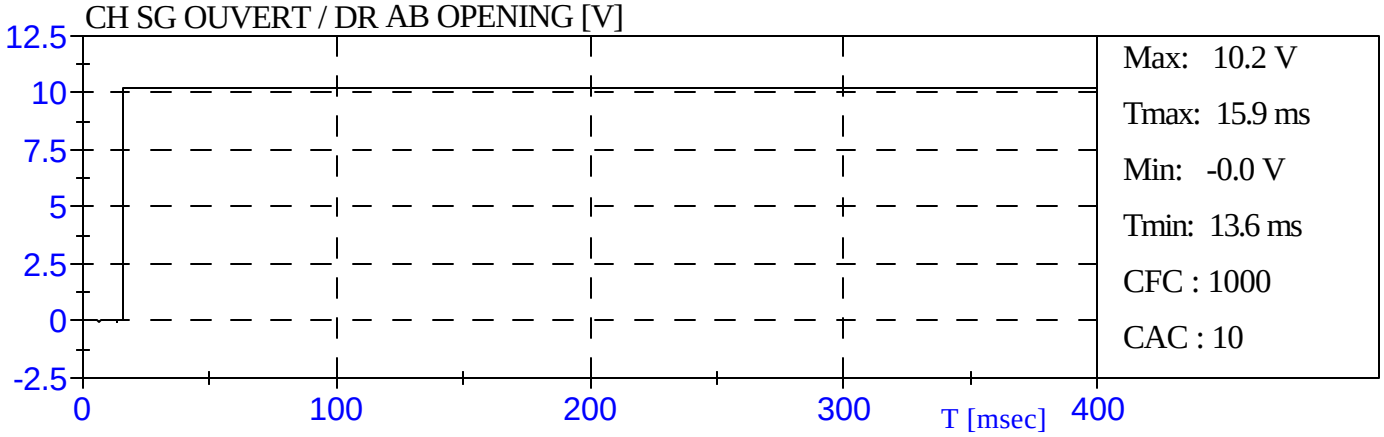
R VEH LOC#3 / VEH LOC#3 R [g]



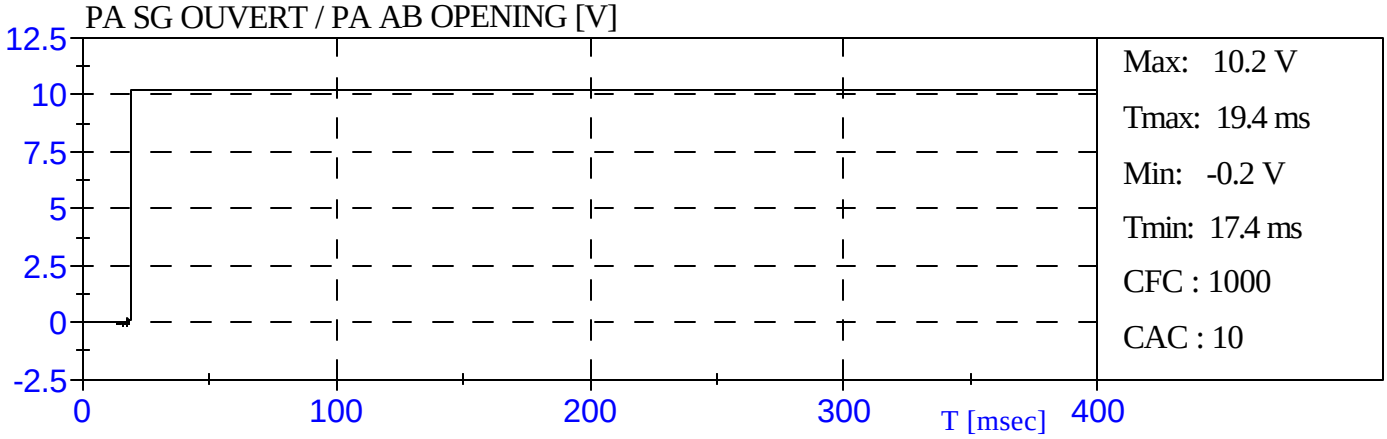

VEH LOC#4 AX / VEH LOC#4 AX [g]
50
25
0
-25
-50
-75
-100
-125
0
100
200
300
400
T [msec]
Max: 44.3 g
Tmax: 66.9 ms
Min: -107.5 g
Tmin: 41.5 ms
CFC : 60
CAC : 500

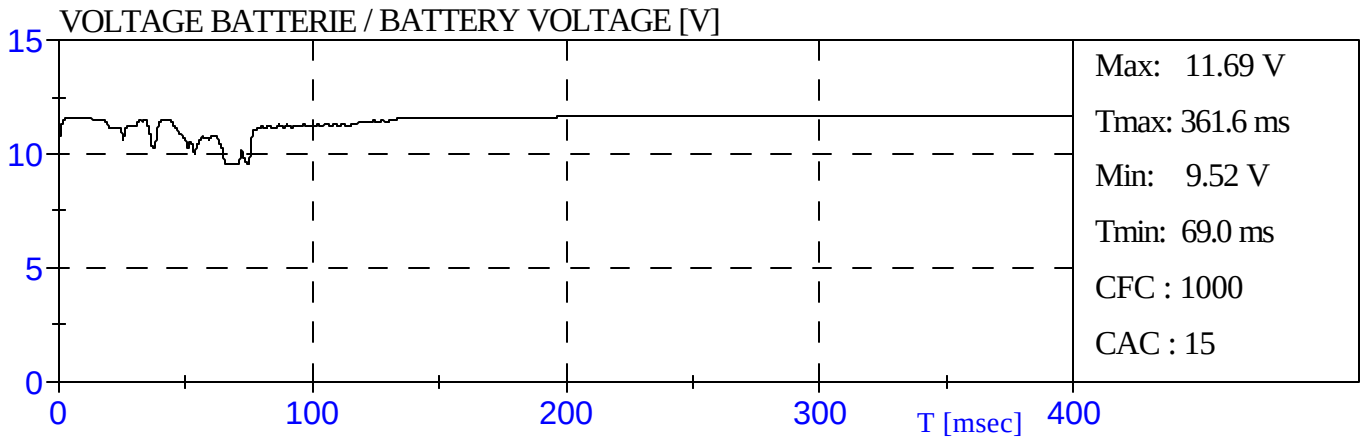

VEH LOC#5 AX / VEH LOC#5 AX [g]
20
0
-20
-40
-60
-80
0
100
200
300
400
T [msec]
Max: 12.4 g
Tmax: 61.7 ms
Min: -71.0 g
Tmin: 47.1 ms
CFC : 60
CAC : 500

CH SG OUVERT / DR AB OPENING [V]



PA SG OUVERT / PA AB OPENING [V]




VOLTAGE BATTERIE / BATTERY VOLTAGE [V]
15
10
5
0
0
100
200
300
400
T [msec]
Max: 11.69 V
Tmax: 361.6 ms
Min: 9.52 V
Tmin: 69.0 ms
CFC : 1000
CAC : 15

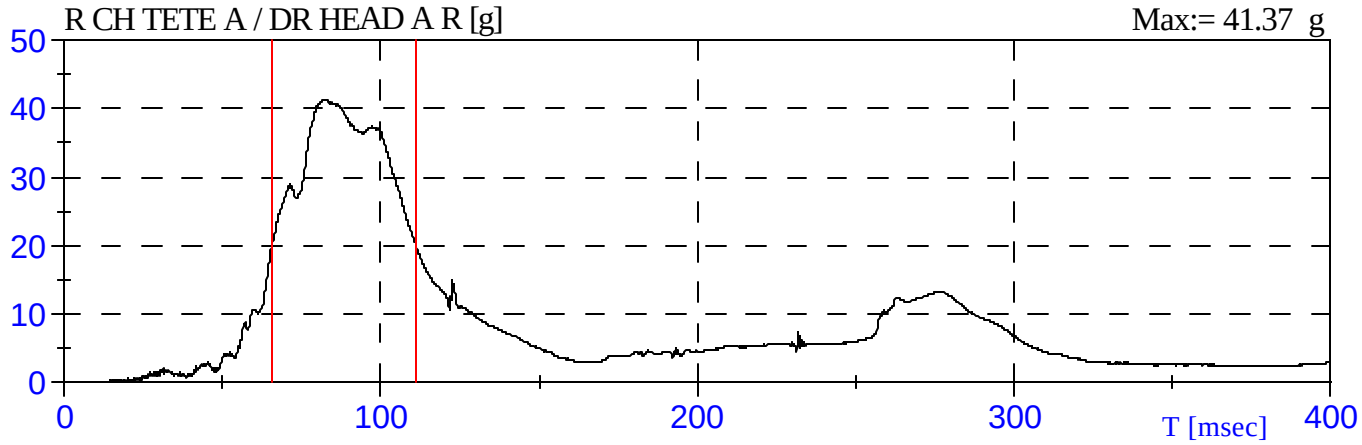
PMG Technologies

HIC

PARK AVENUE 2003

Date: 2003-02-20

Nº TC / TC No.: TC03-122



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

HIC:= 288	HIC(36ms):= 272	HIC(15ms):= 148
T1:= 65.5 ms	T1:= 70.0 ms	T1:= 77.7 ms
T2:= 111.2 ms	T2:= 106.0 ms	T2:= 92.7 ms

* Selon / According To: SAE J1727 96-08

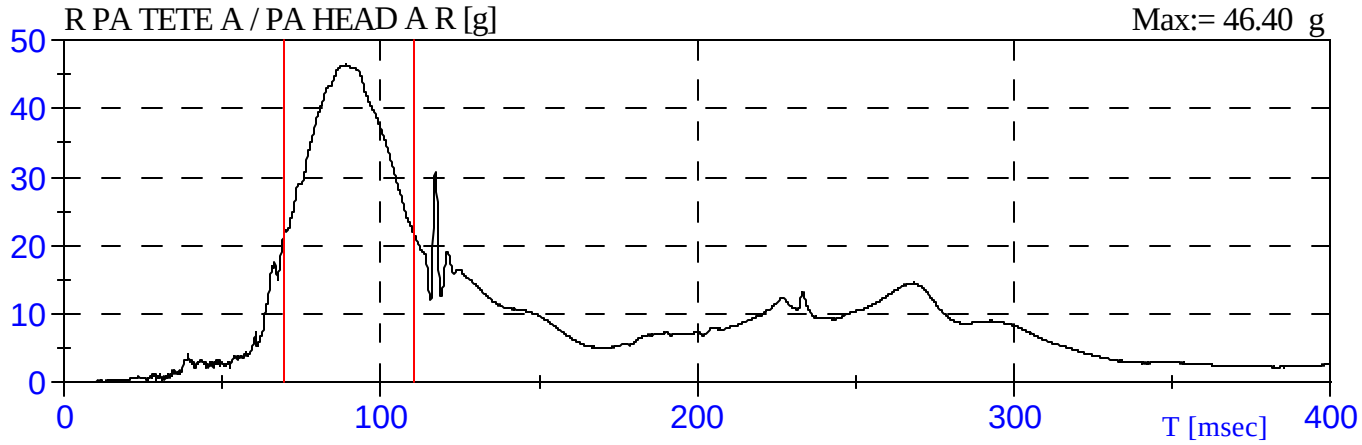
PMG Technologies

HIC

PARK AVENUE 2003

Date: 2003-02-20

Nº TC / TC No.: TC03-122

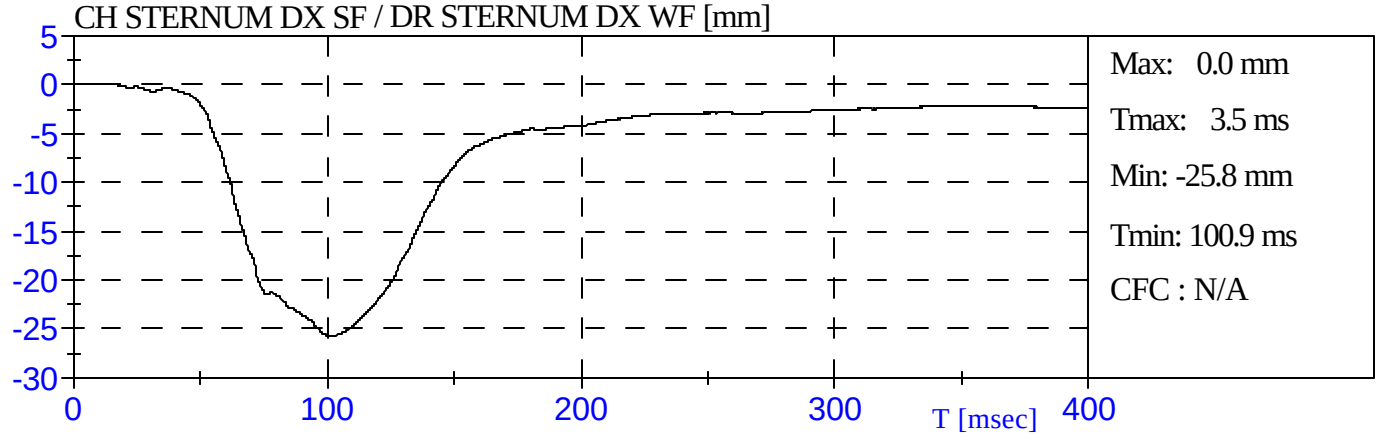


HEAD INJURY CRITERIA (HIC) *
CRITÈRE DE BLESSURE DE LA TÊTE

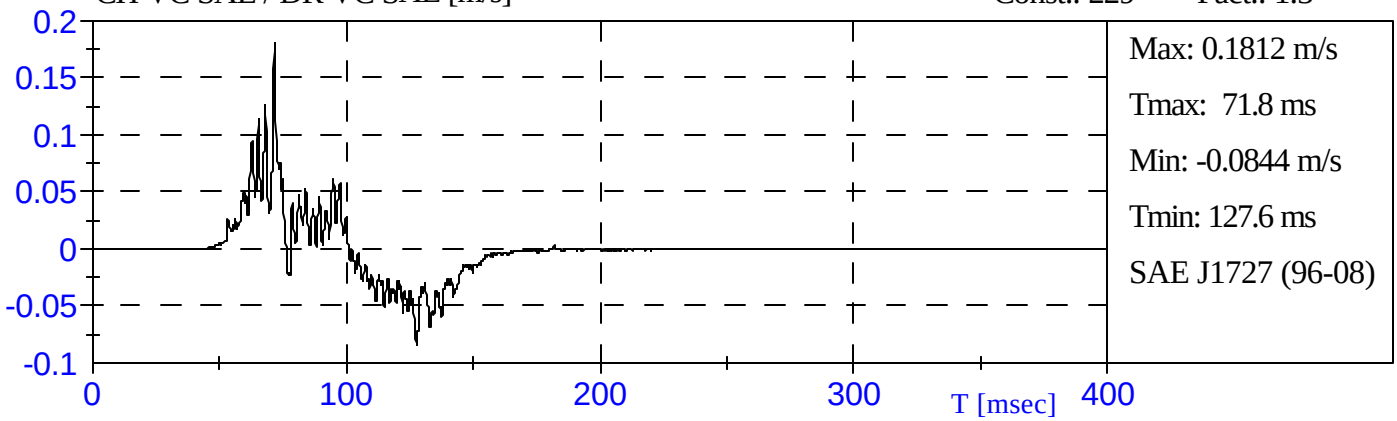
HIC:= 321	HIC(36ms):= 319	HIC(15ms):= 198
T1:= 69.3 ms	T1:= 72.0 ms	T1:= 81.6 ms
T2:= 110.6 ms	T2:= 108.0 ms	T2:= 96.6 ms

* Selon / According To: SAE J1727 96-08

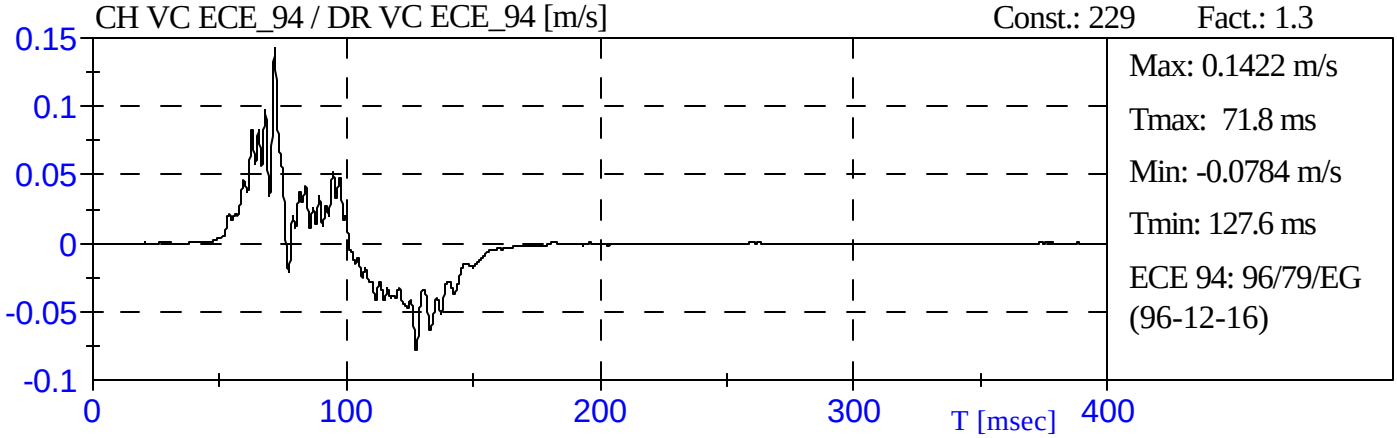
CH STERNUM DX SF / DR STERNUM DX WF [mm]



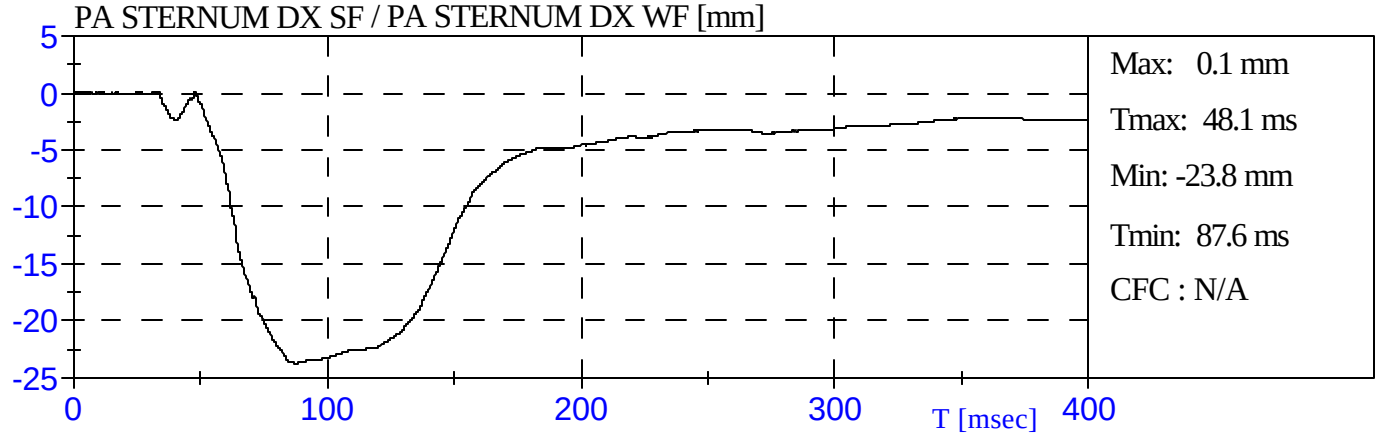
CH VC SAE / DR VC SAE [m/s] Const.: 229 Fact.: 1.3



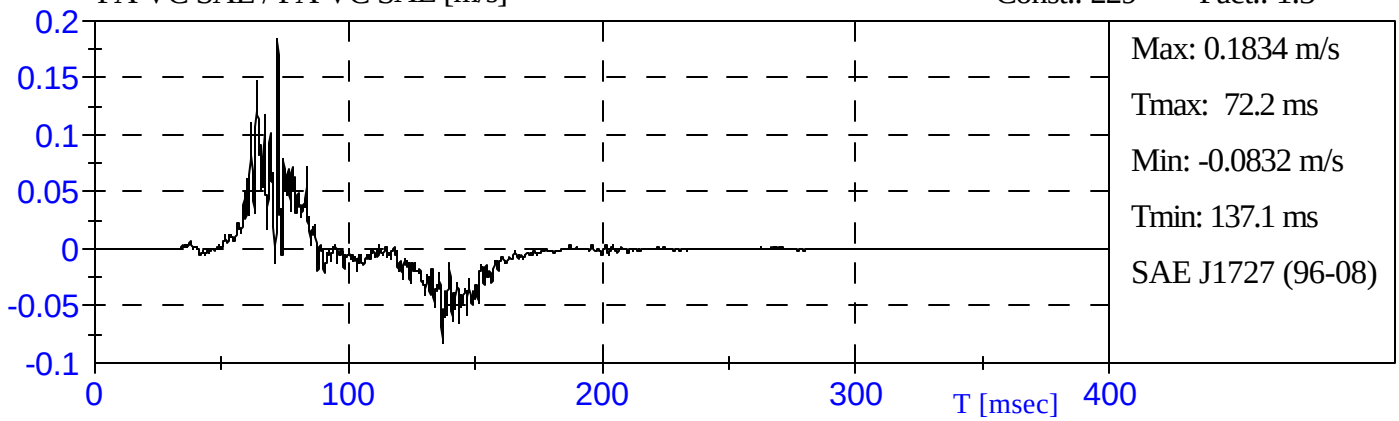
CH VC ECE_94 / DR VC ECE_94 [m/s] Const.: 229 Fact.: 1.3



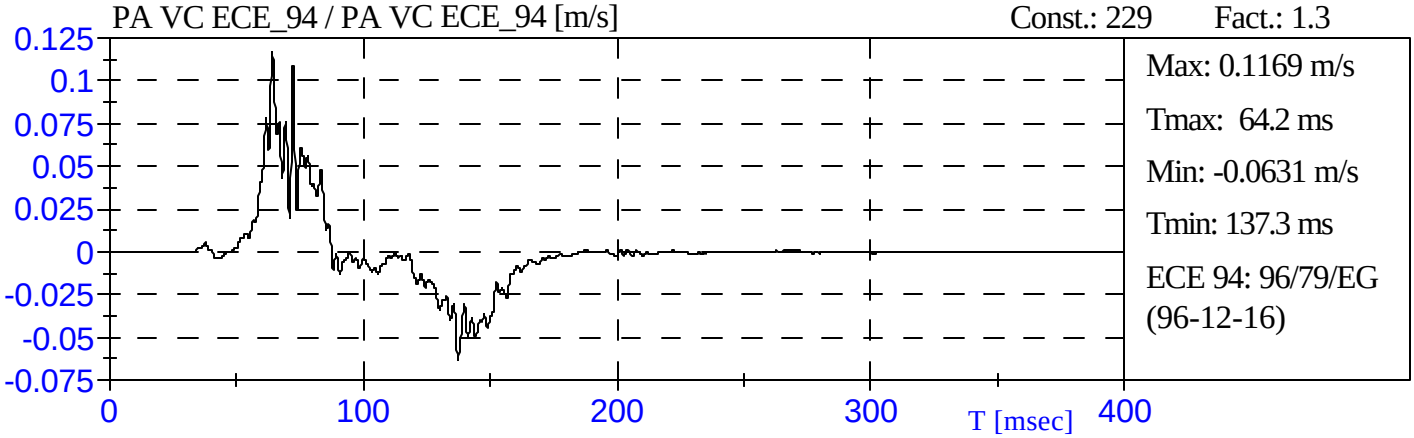
PA STERNUM DX SF / PA STERNUM DX WF [mm]



PA VC SAE / PA VC SAE [m/s] Const.: 229 Fact.: 1.3



PA VC ECE_94 / PA VC ECE_94 [m/s] Const.: 229 Fact.: 1.3



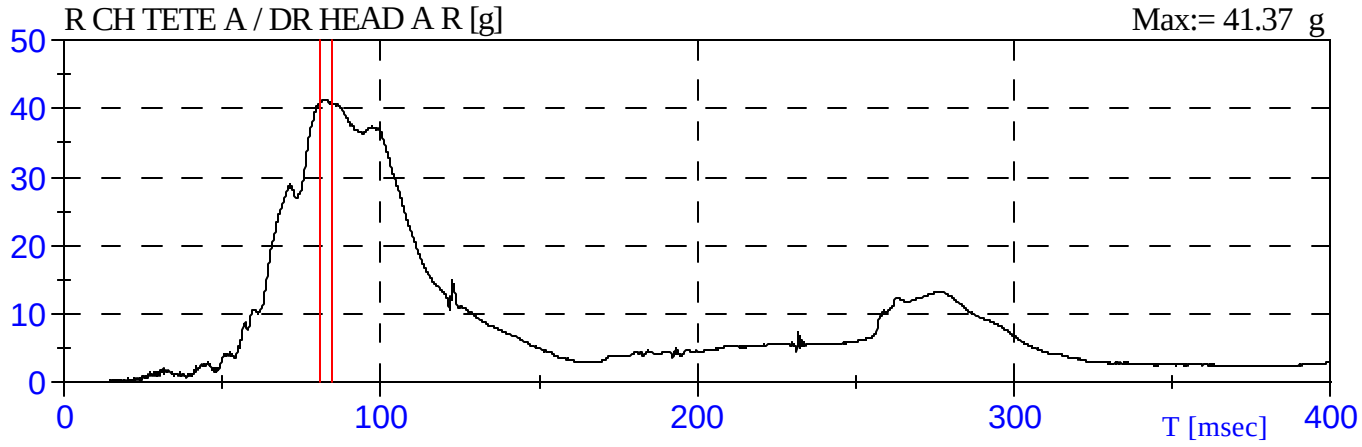
PMG Technologies

CLIP 3ms

PARK AVENUE 2003

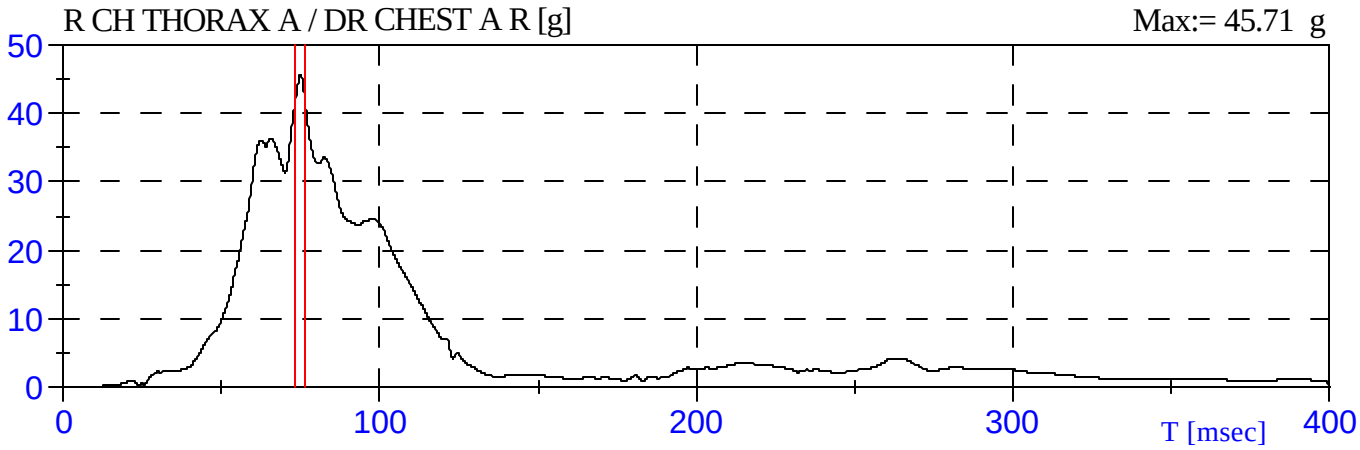
Date: 2003-02-20

Nº TC / TC No.: TC03-122



CLIP 3ms *

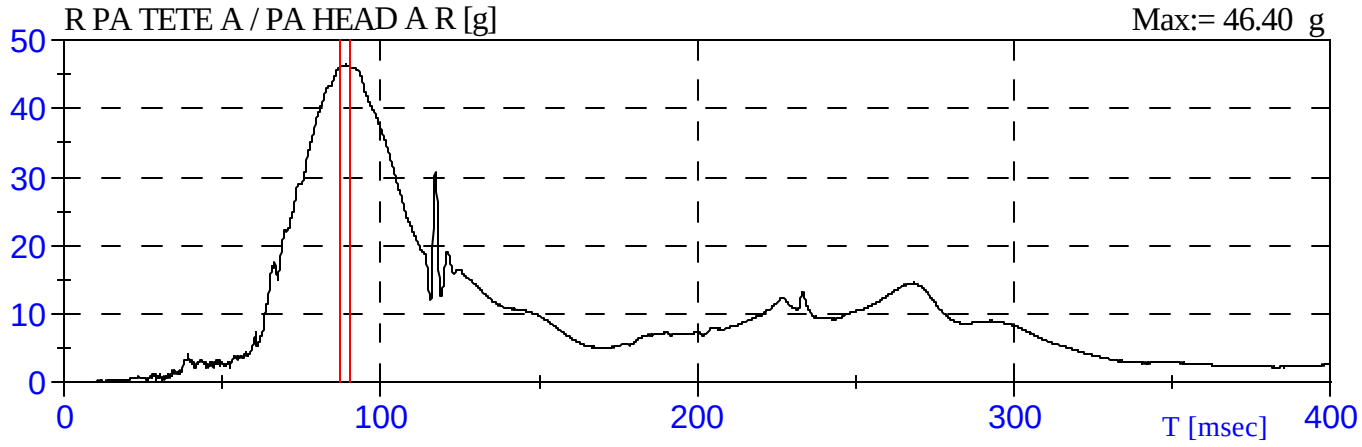
Acc. := 40.81 g	T1:= 80.8 ms	T2:= 84.3 ms



CLIP 3ms *

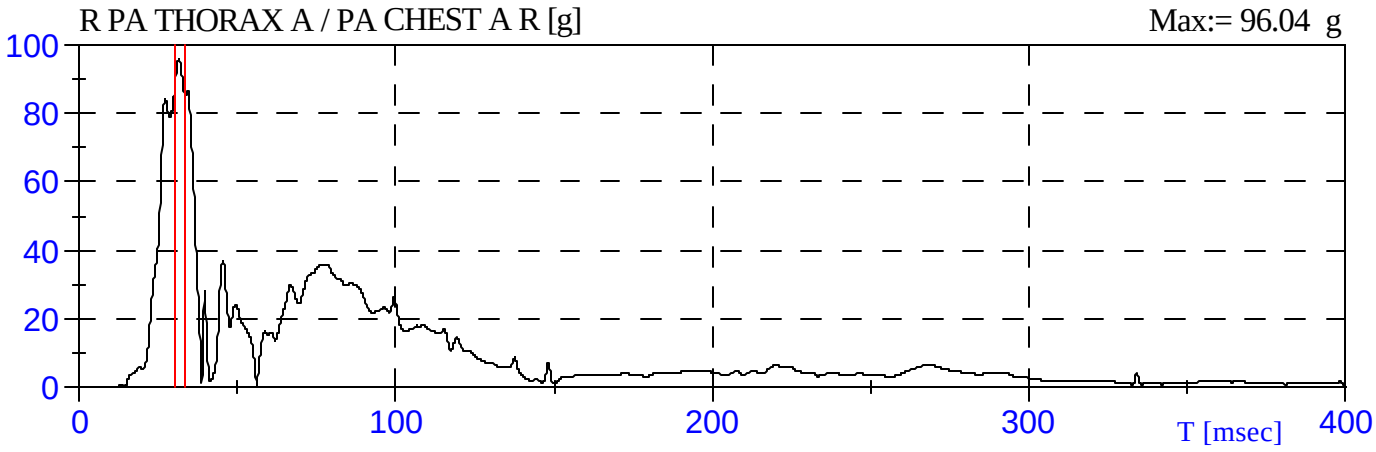
Acc. := 41.95 g	T1:= 73.4 ms	T2:= 76.4 ms

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



CLIP 3ms *

Acc. := 46.11 g	T1:= 87.2 ms	T2:= 90.2 ms



CLIP 3ms *

Acc. := 86.48 g	T1:= 30.1 ms	T2:= 33.1 ms

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

INDEX DU TIBIA *
TIBIA INDEX *

TI Chauffeur / Driver Mc := 225 N-m Fc := 35.9 kN

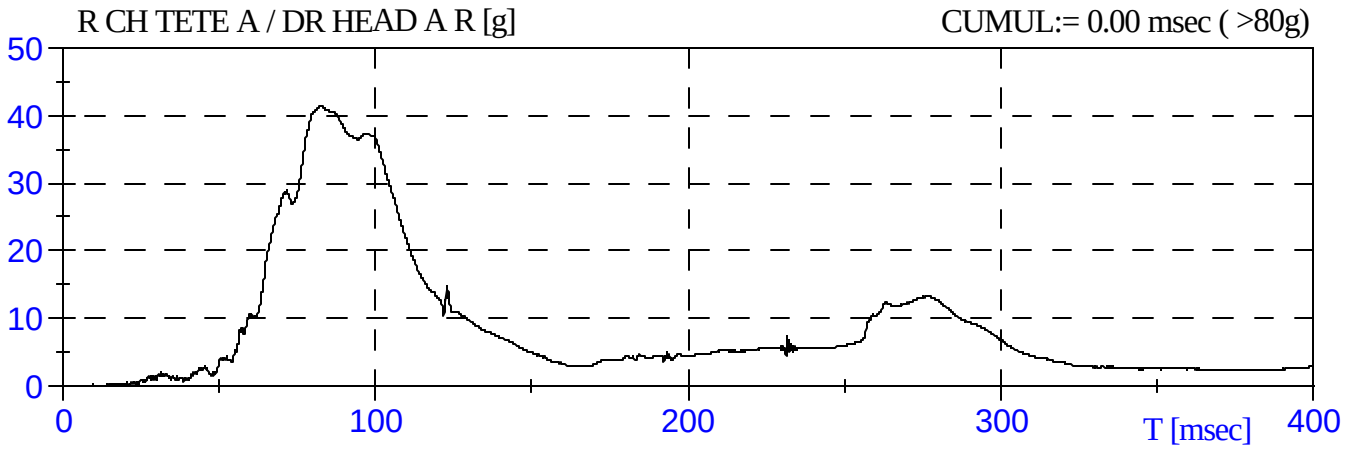
TIBIA	GAUCHE / LEFT	DROIT / RIGHT
HAUT / UPPER	**0.441**	**0.647**
BAS / LOWER	**0.229**	**0.315**

TI Passager / Passenger Mc := 225 N-m Fc := 35.9 kN

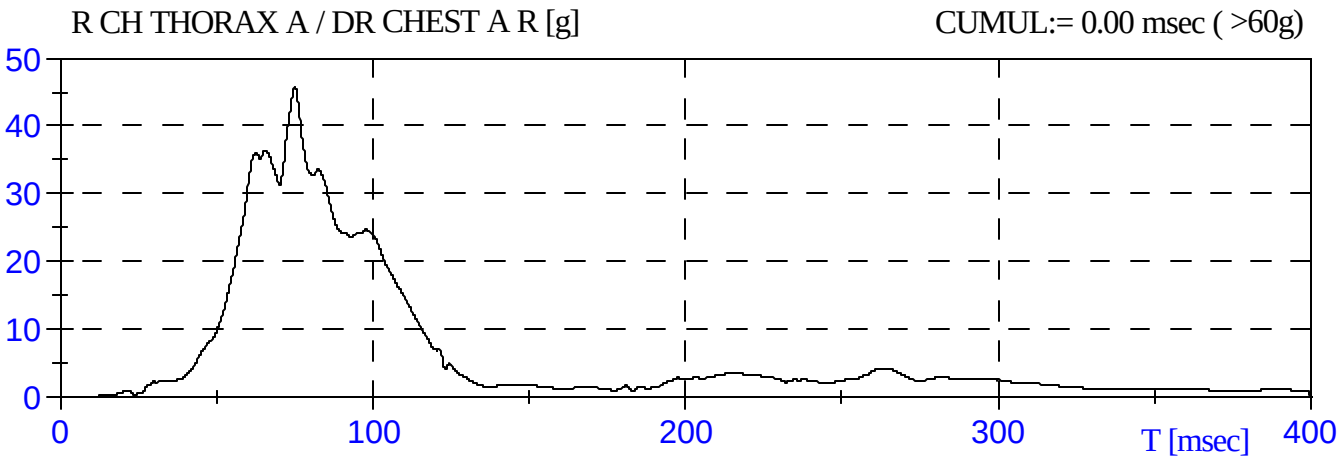
TIBIA	GAUCHE / LEFT	DROIT / RIGHT
HAUT / UPPER	**0.424**	**0.447**
BAS / LOWER	**0.224**	**0.264**

* Selon / According To: SAE J1727 AUG 96

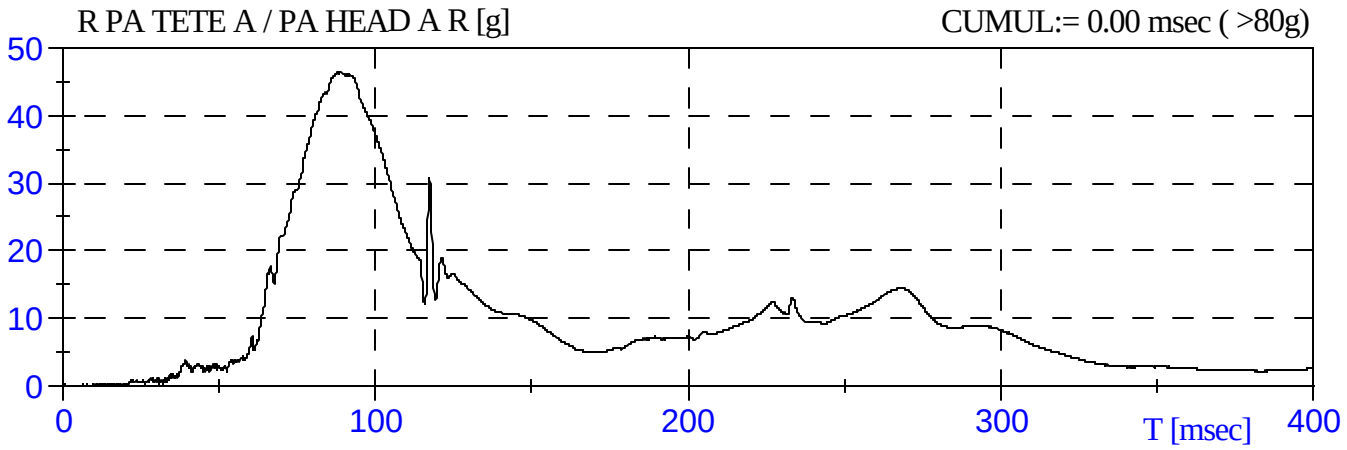
ACCÉLÉRATION DE LA TÊTE >80 g / HEAD ACCELERATION > 80 g



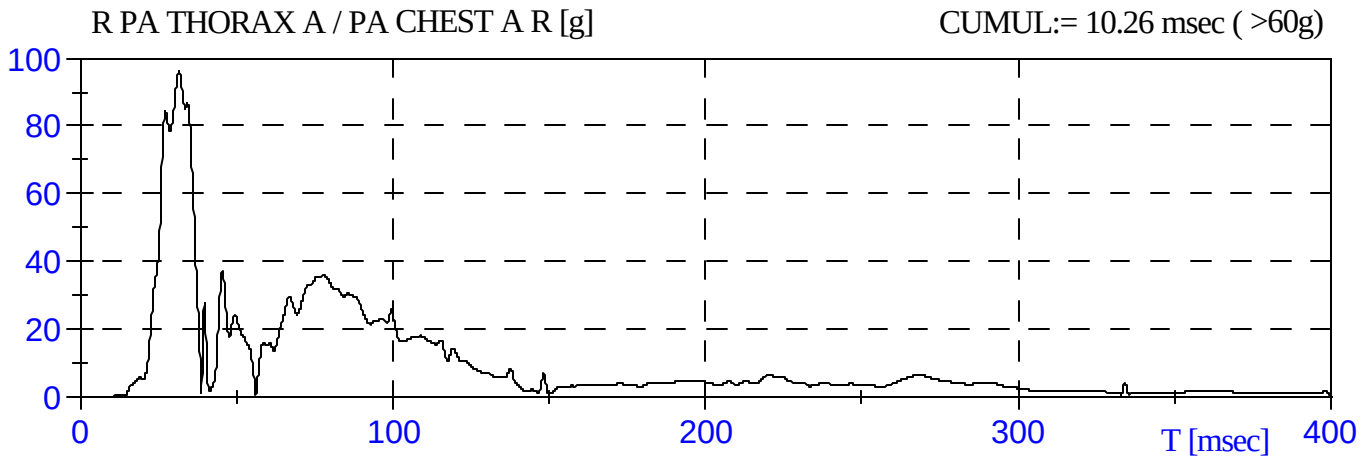
ACCÉLÉRATION DU THORAX >60 g / THORAX ACCELERATION > 60 g



ACCÉLÉRATION DE LA TÊTE >80 g / HEAD ACCELERATION > 80 g



ACCÉLÉRATION DU THORAX >60 g / THORAX ACCELERATION > 60 g



Chauffeur / Driver

N ij* = 0.23

Valeurs critiques
Criticals Values

N te	N ce	N tf	N cf	Tc 6806 Cc 6160 Fc 310 Ec 135
0.15	0.01	0.23	0.02	

Passager / Passenger

N ij* = 0.28

Valeurs critiques
Criticals Values

N te	N ce	N tf	N cf	Tc 6806 Cc 6160 Fc 310 Ec 135
0.28	0.13	0.20	0.00	

* Selon / According To: Federal Register 5/2000