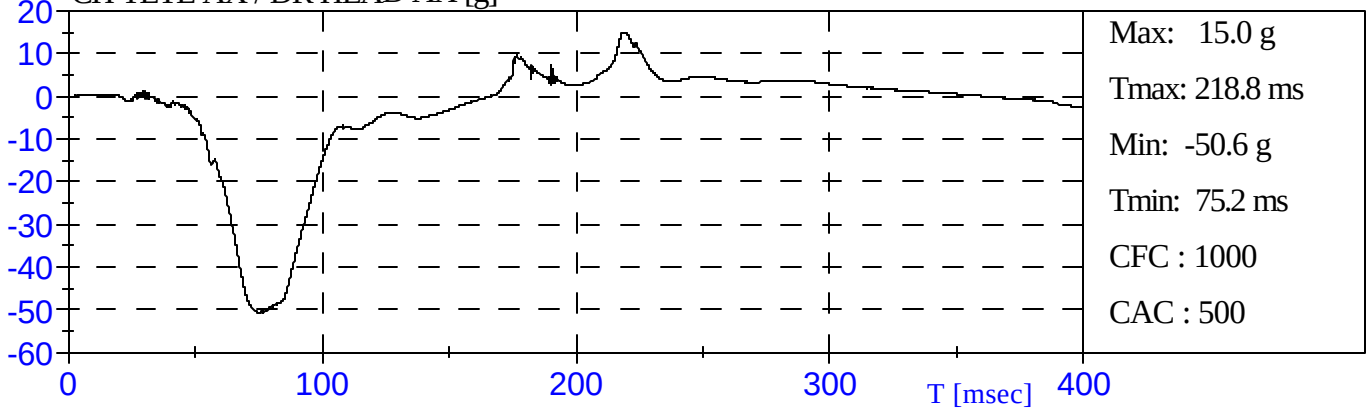
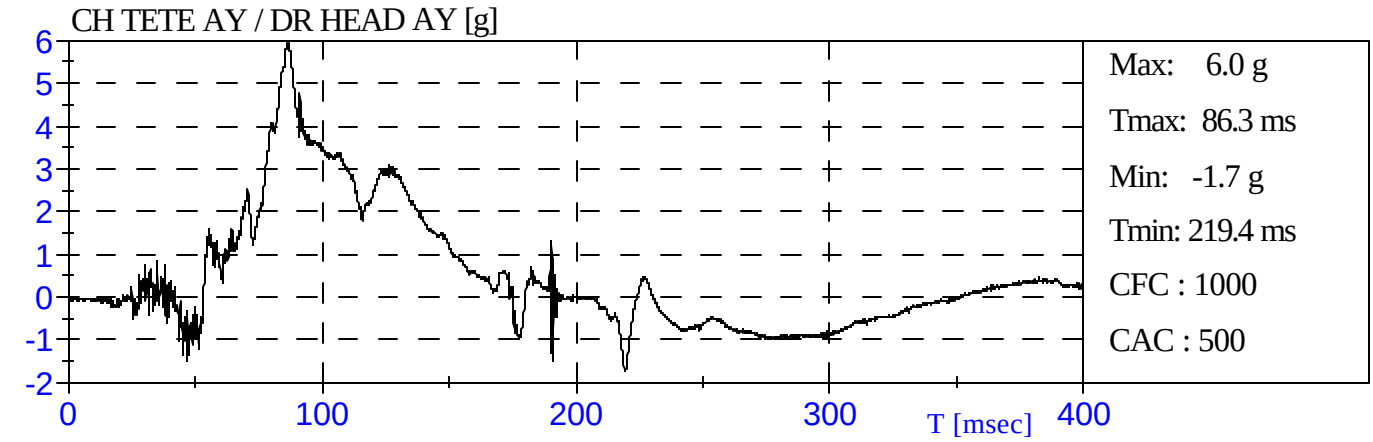
PMG Technologies

Nom du client **Client Name**	**TRANSPORT CANADA.**
Type de véhicule **Type of Vehicle**	**CHRYSLER CARAVAN 2003**
Numéro de TC **Tc Number**	**TC03-106**
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**	**2003-01-17**
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 gauche) **Passenger 1 (rear left)**	**HYBRID III 3Y**
Passager 2 (arrière droit) **Passenger 2 (rear right)**	**HYBRID III 6Y**

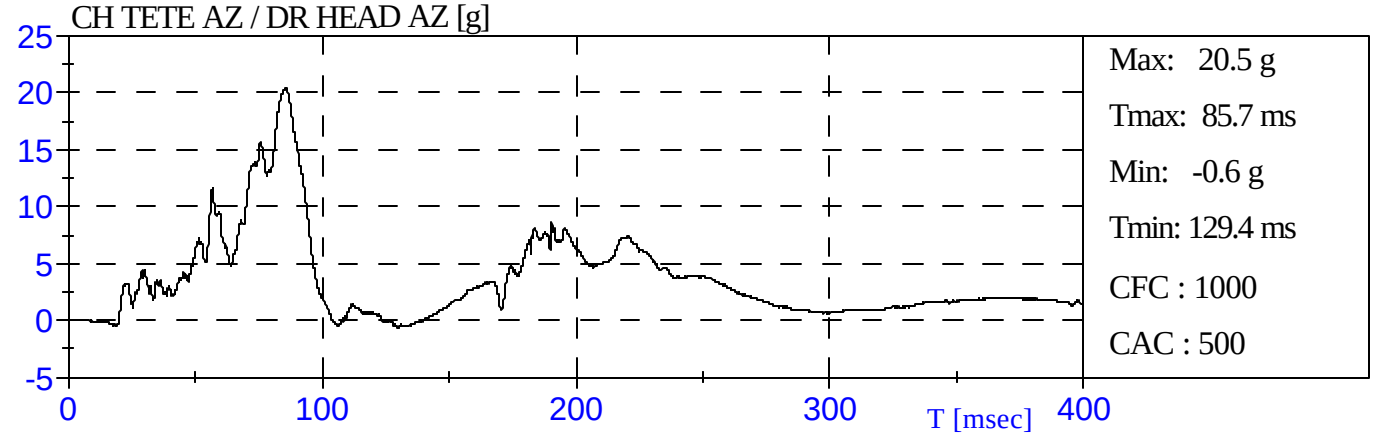
CH TETE AX / DR HEAD AX [g]



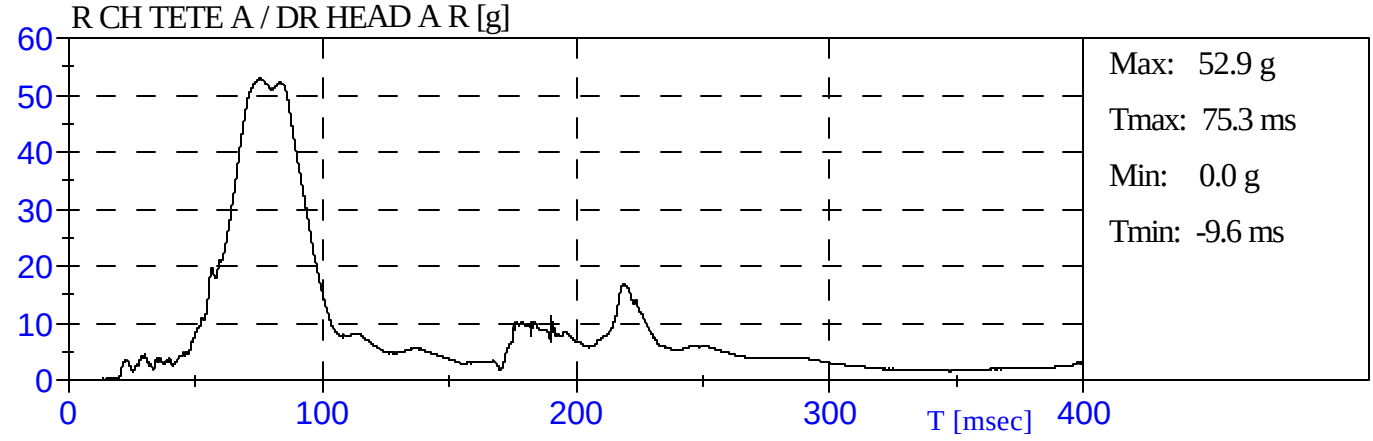
CH TETE AY / DR HEAD AY [g]



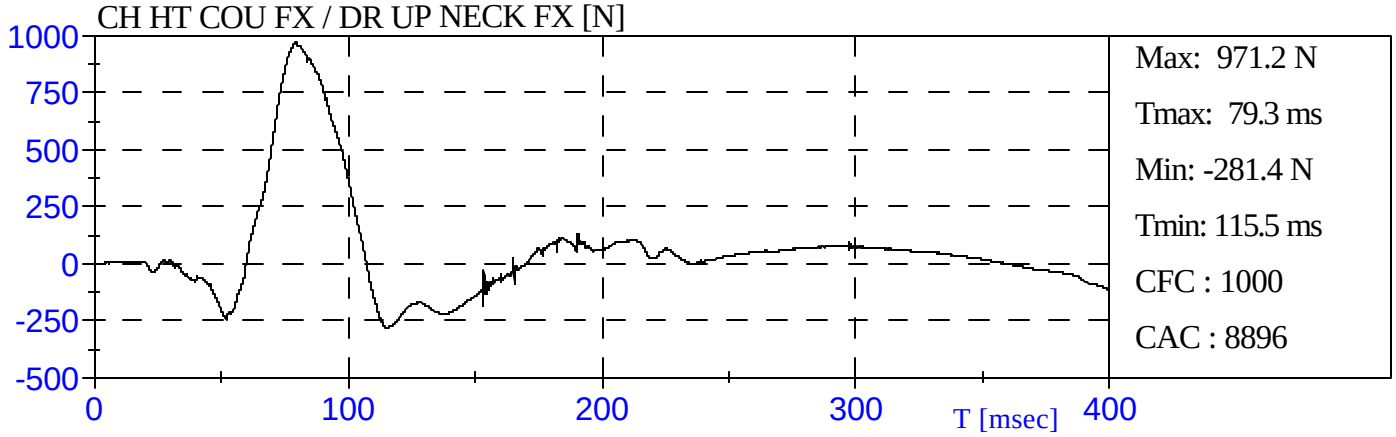
CH TETE AZ / DR HEAD AZ [g]



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



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



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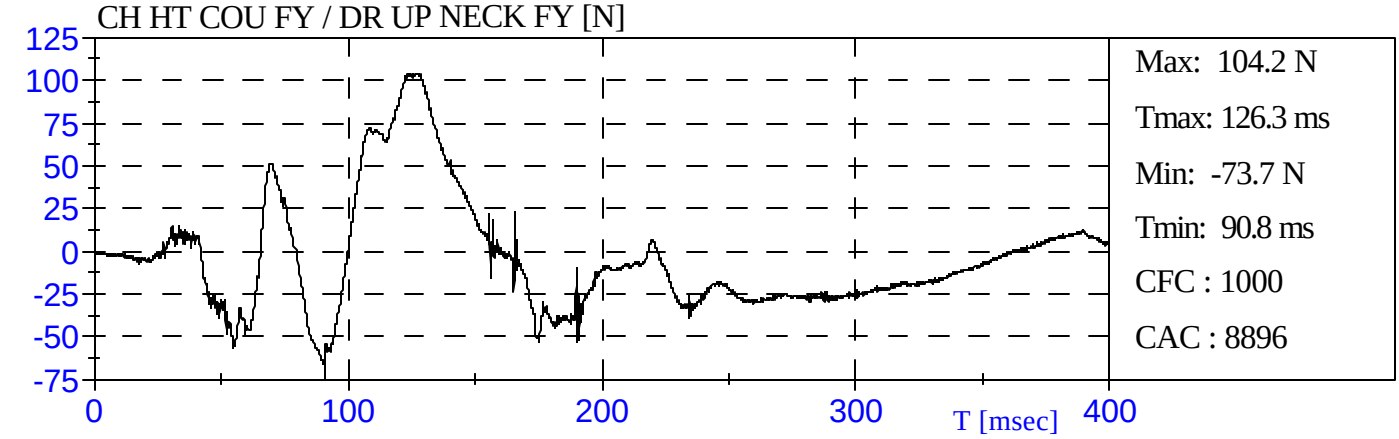
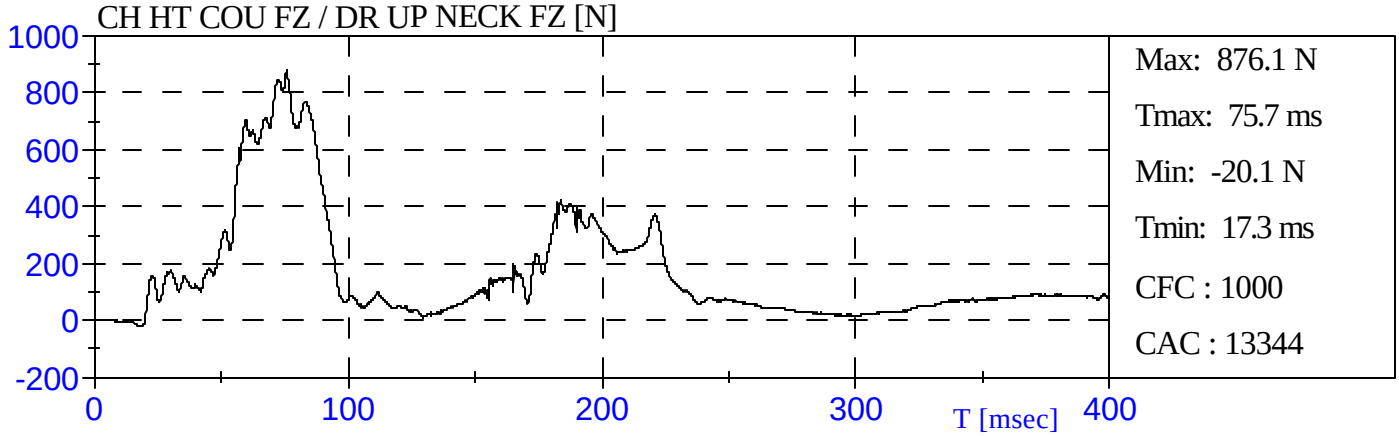
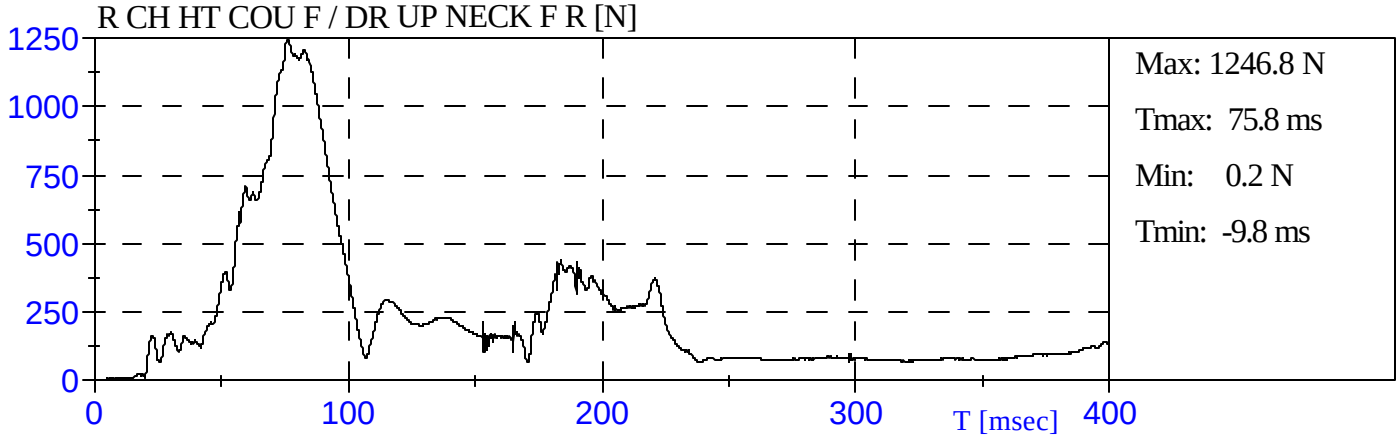


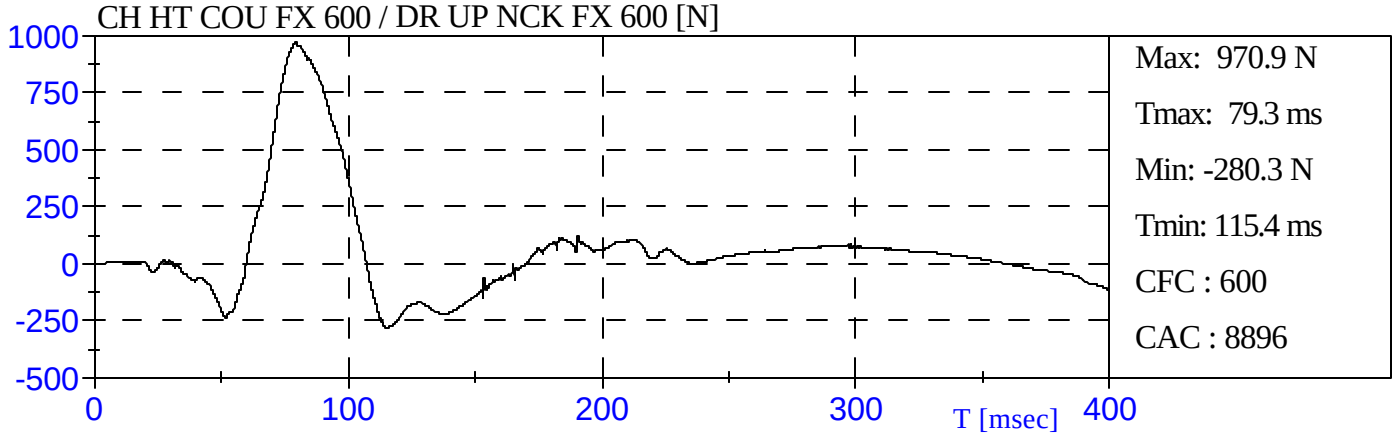
CH HT COU FZ / DR UP NECK FZ [N]



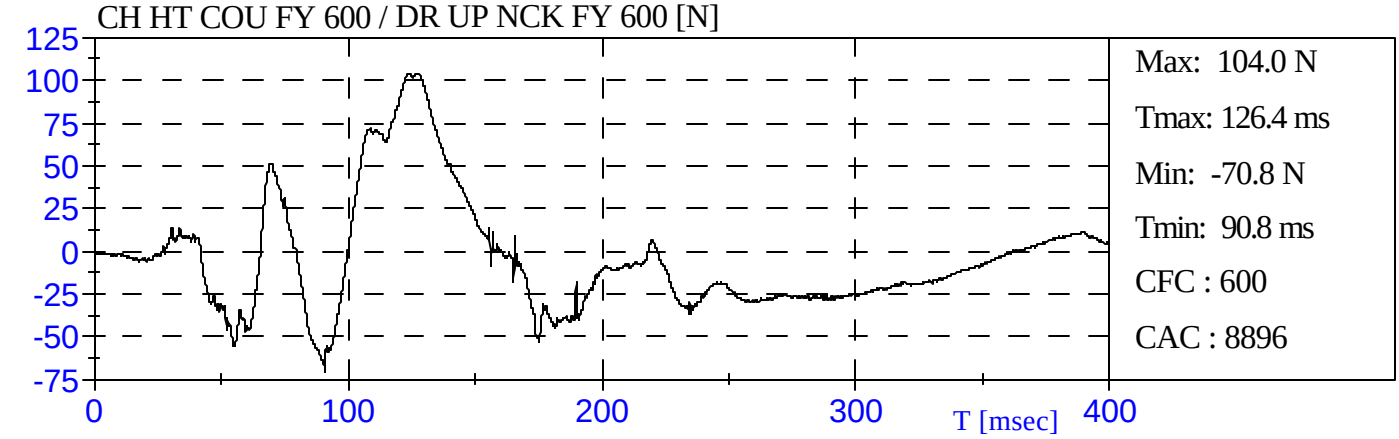
R CH HT COU F / DR UP NECK F R [N]



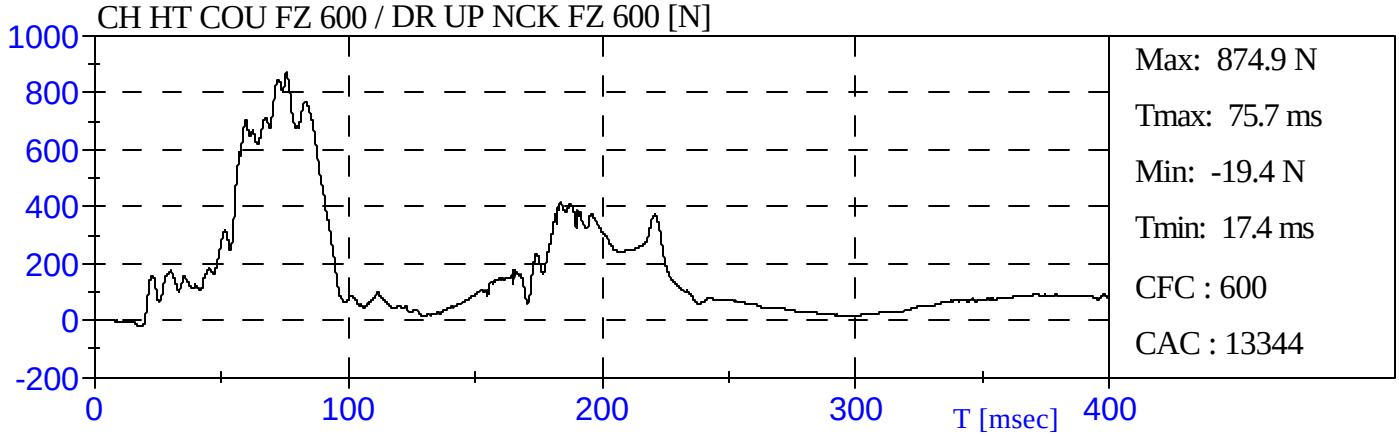
CH HT COU FX 600 / DR UP NCK FX 600 [N]



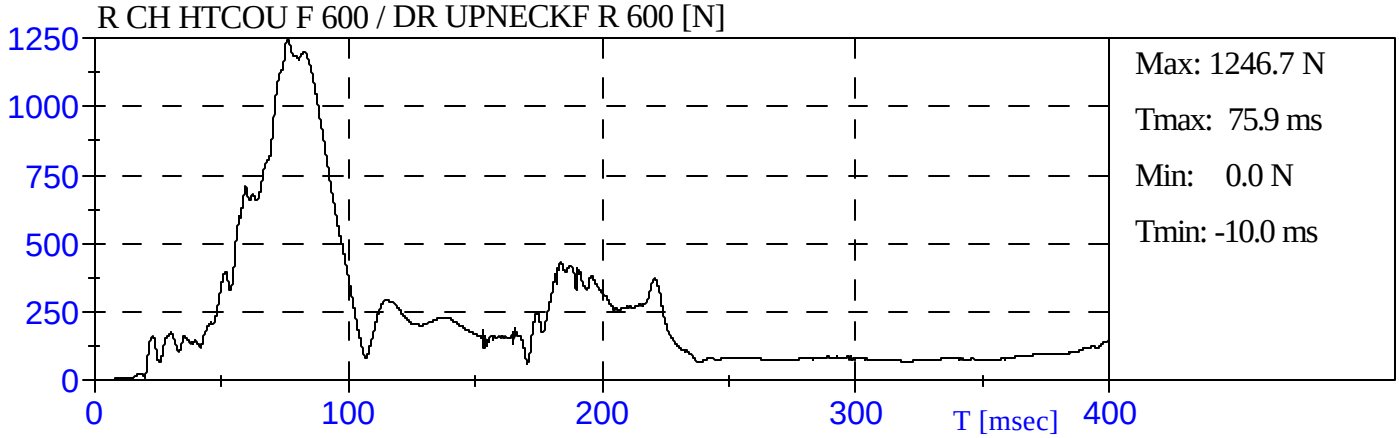
CH HT COU FY 600 / DR UP NCK FY 600 [N]



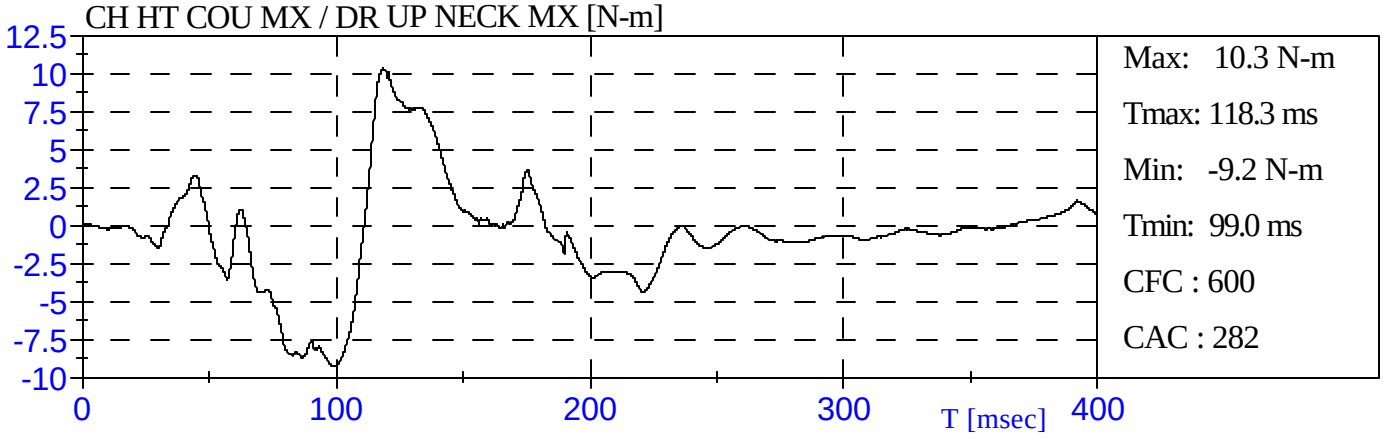
CH HT COU FZ 600 / DR UP NCK FZ 600 [N]



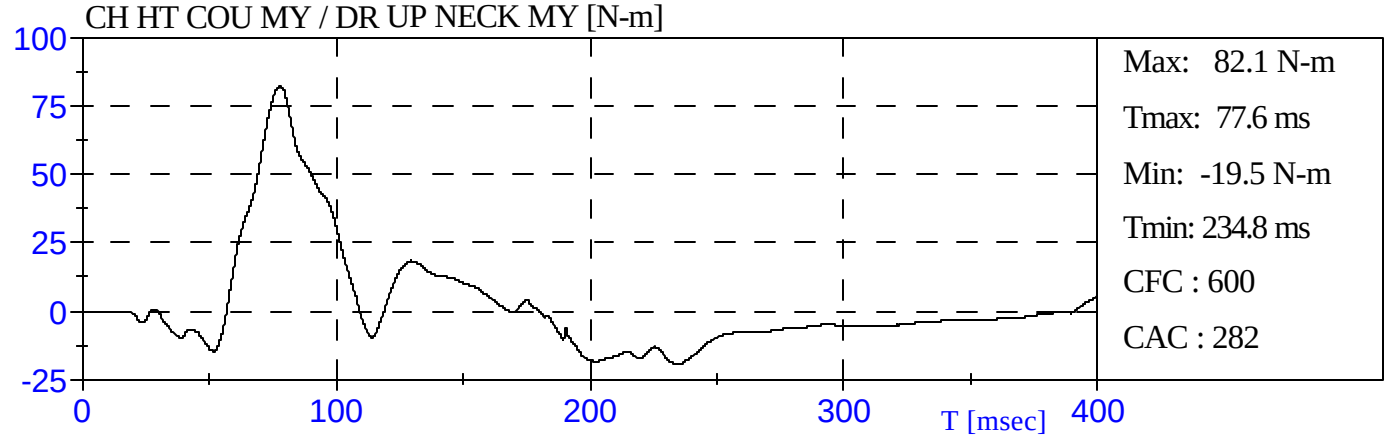
R CH HTCOU F 600 / DR UPNECKF R 600 [N]



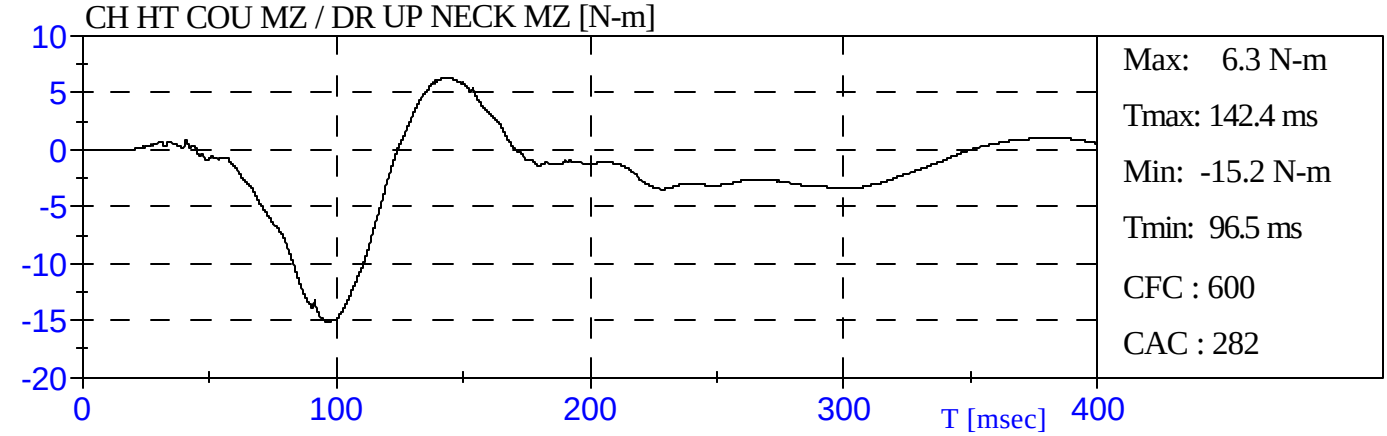
CH HT COU MX / DR UP NECK MX [N-m]



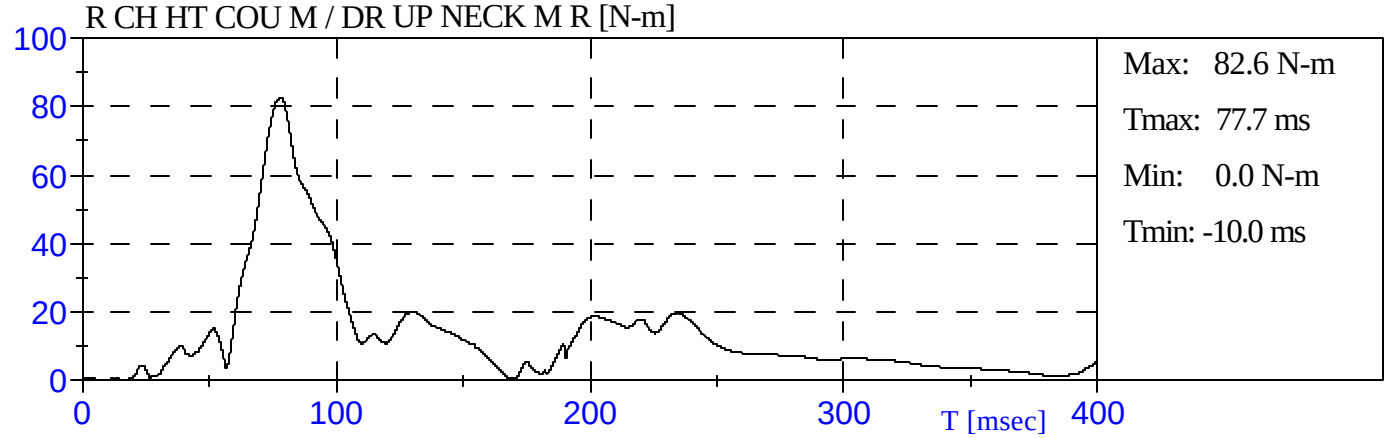
CH HT COU MY / DR UP NECK MY [N-m]



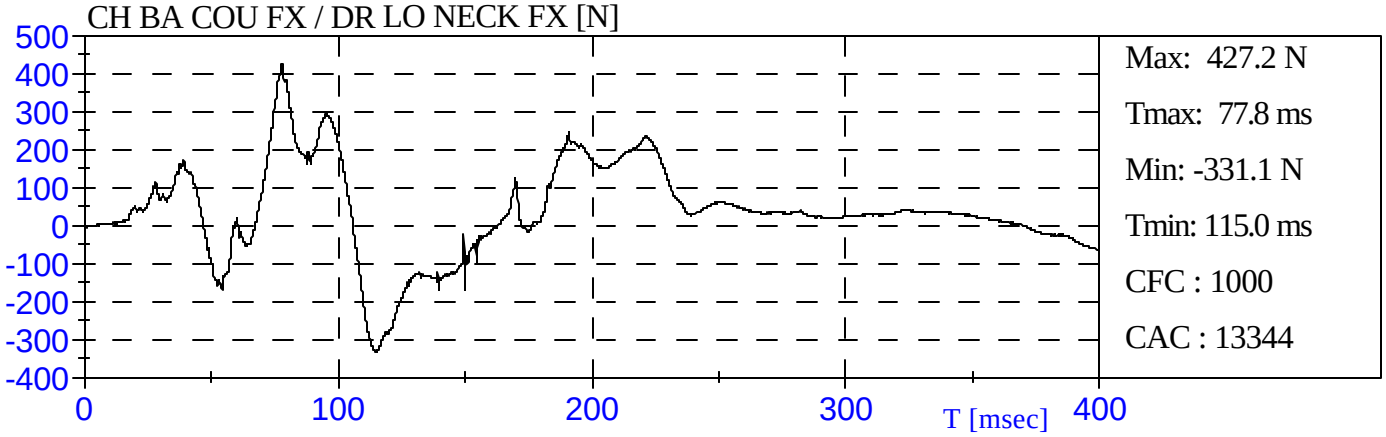
CH HT COU MZ / DR UP NECK MZ [N-m]



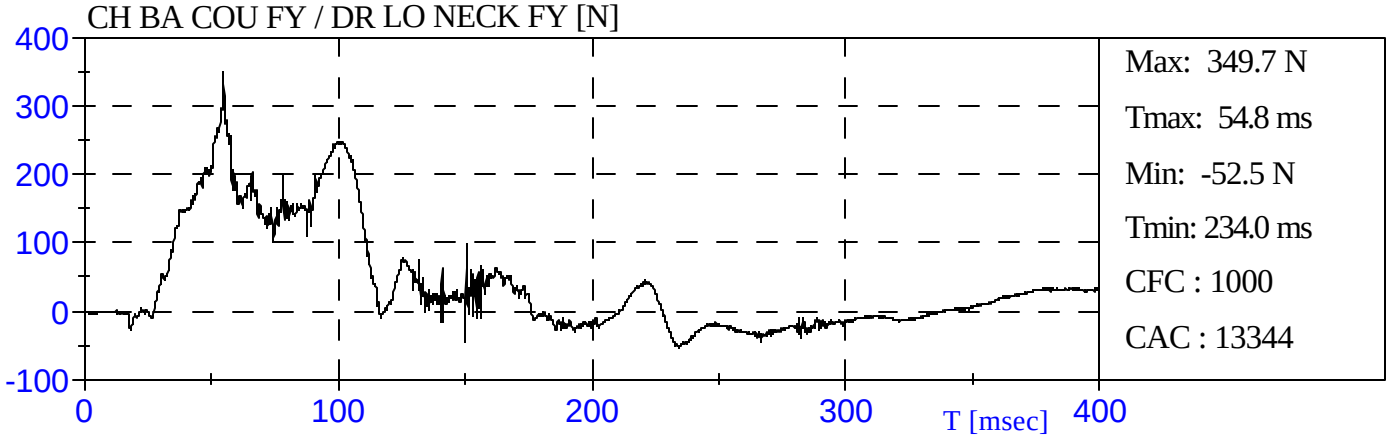
R CH HT COU M / DR UP NECK M R [N-m]



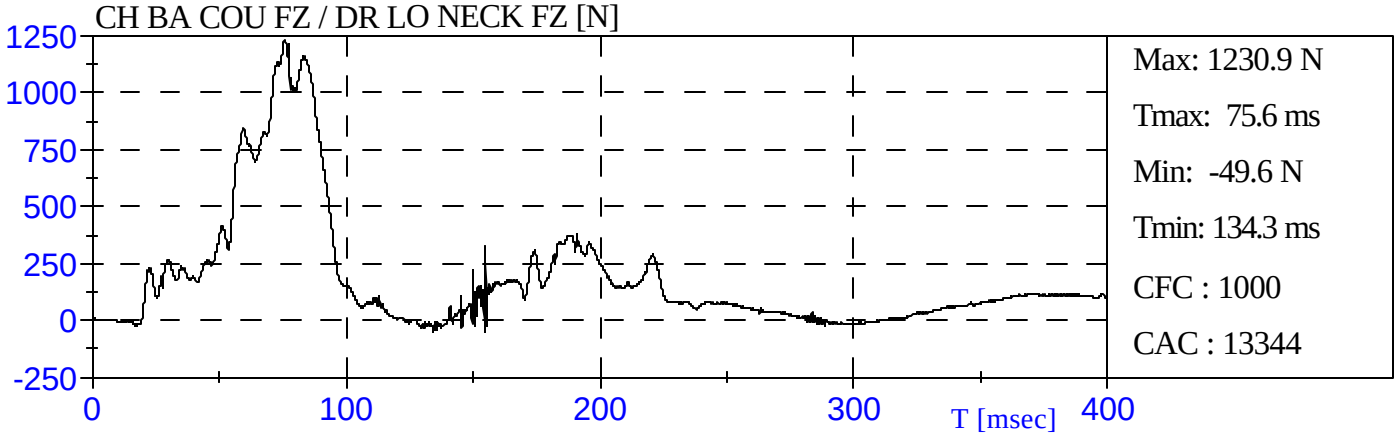
CH BA COU FX / DR LO NECK FX [N]



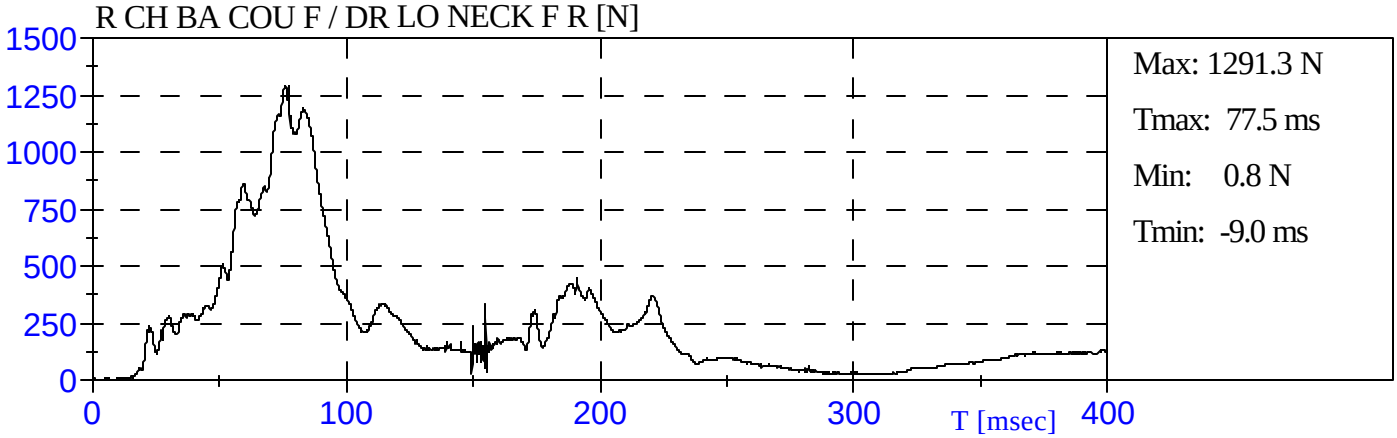
CH BA COU FY / DR LO NECK FY [N]



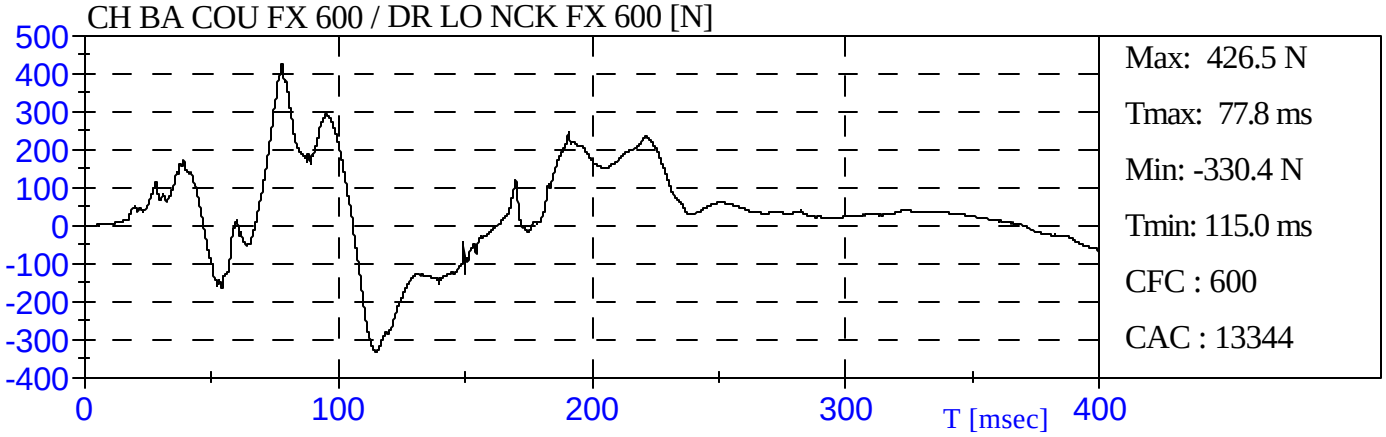
CH BA COU FZ / DR LO NECK FZ [N]



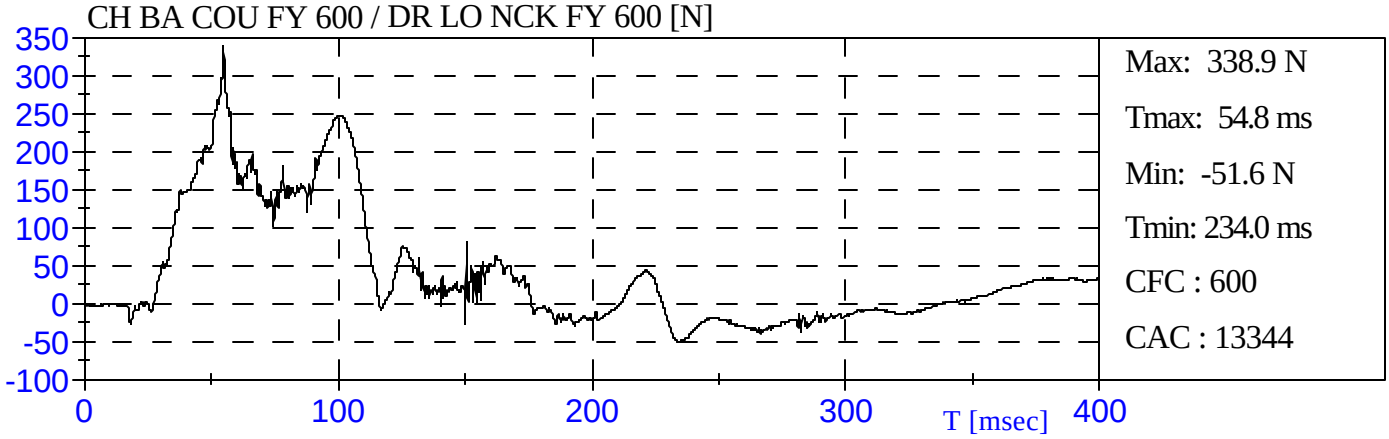
R CH BA COU F / DR LO NECK F R [N]



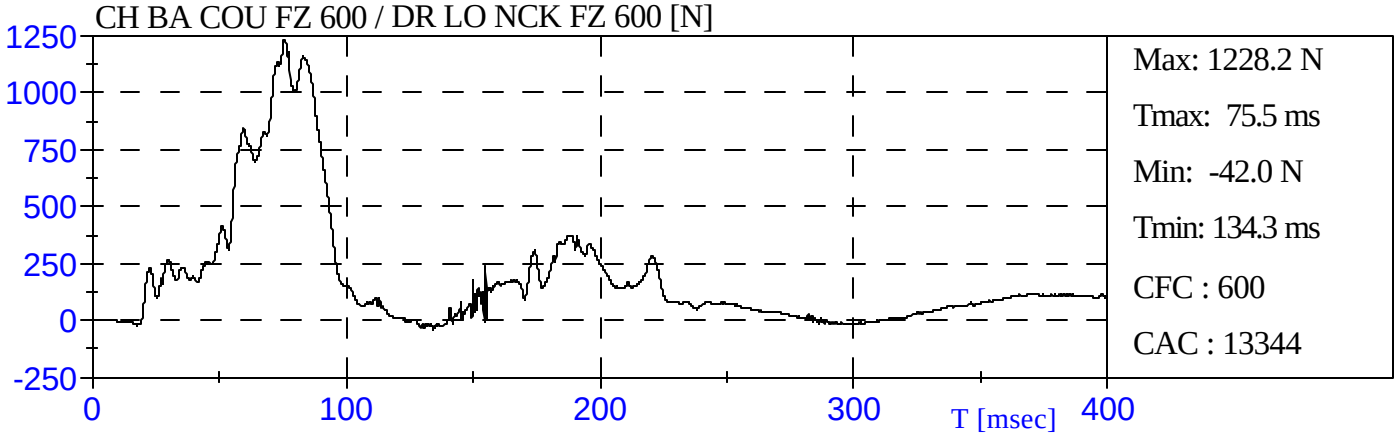
CH BA COU FX 600 / DR LO NCK FX 600 [N]



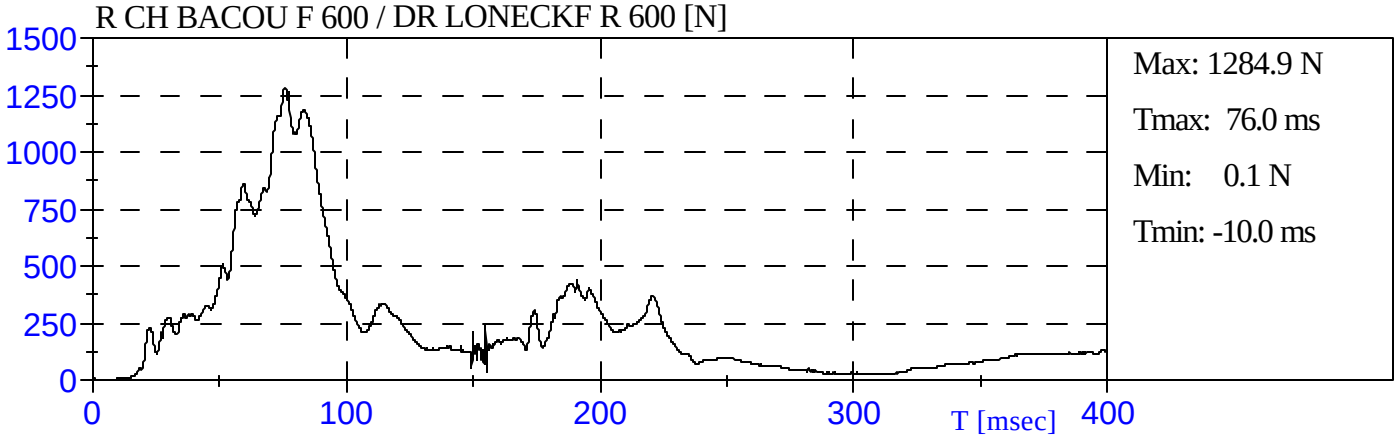
CH BA COU FY 600 / DR LO NCK FY 600 [N]



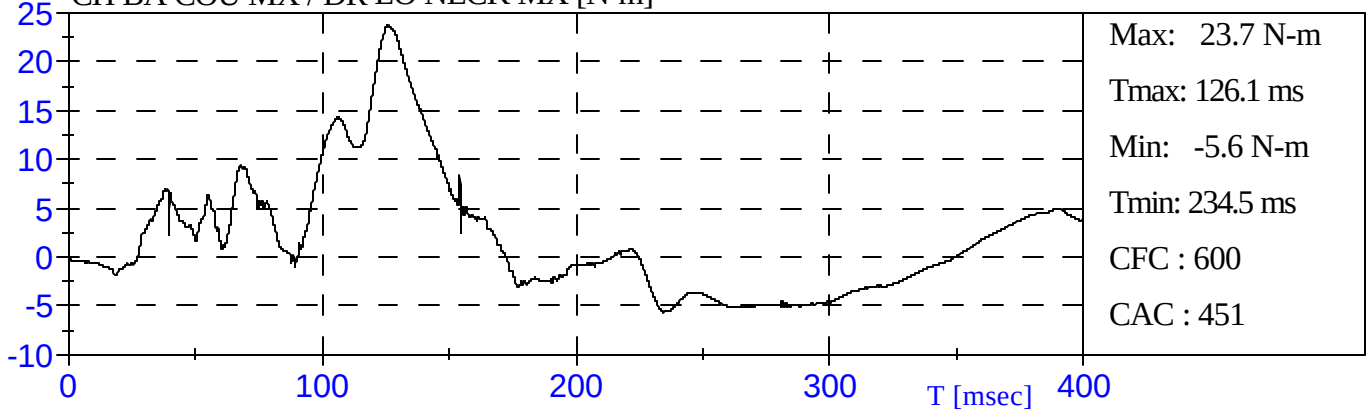
CH BA COU FZ 600 / DR LO NCK FZ 600 [N]



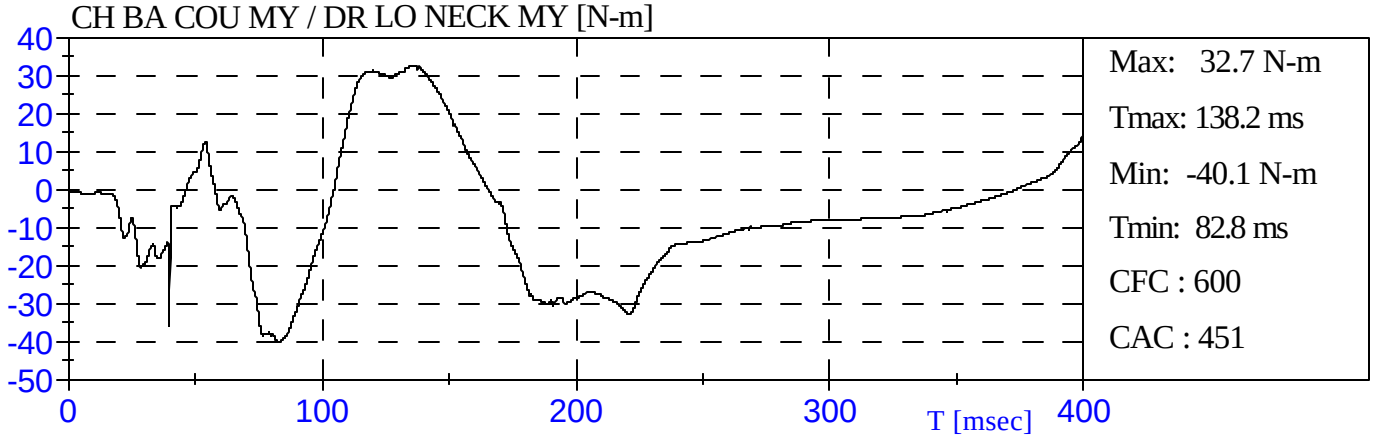
R CH BACOU F 600 / DR LONECKF R 600 [N]



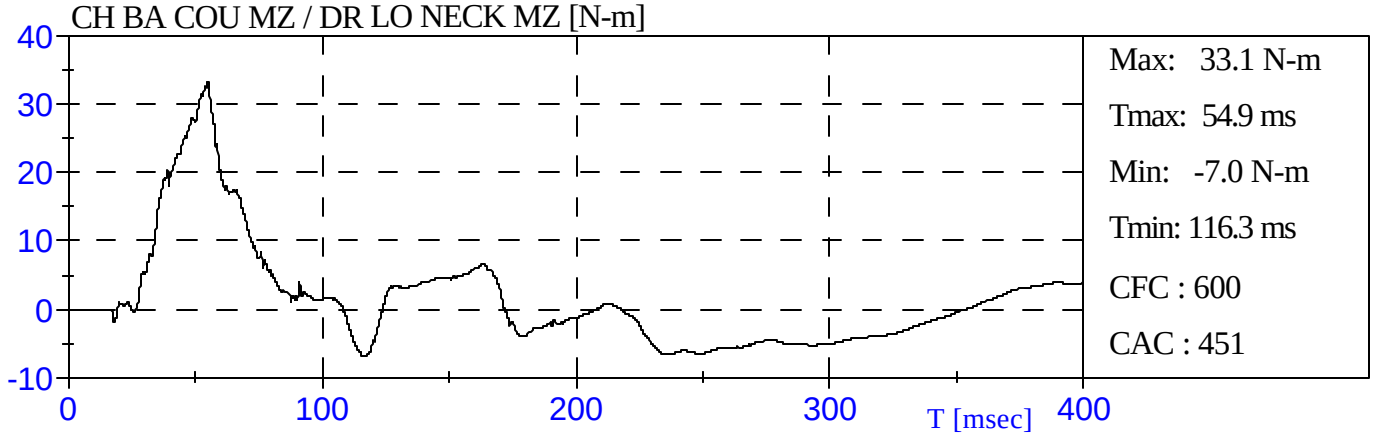
CH BA COU MX / DR LO NECK MX [N-m]



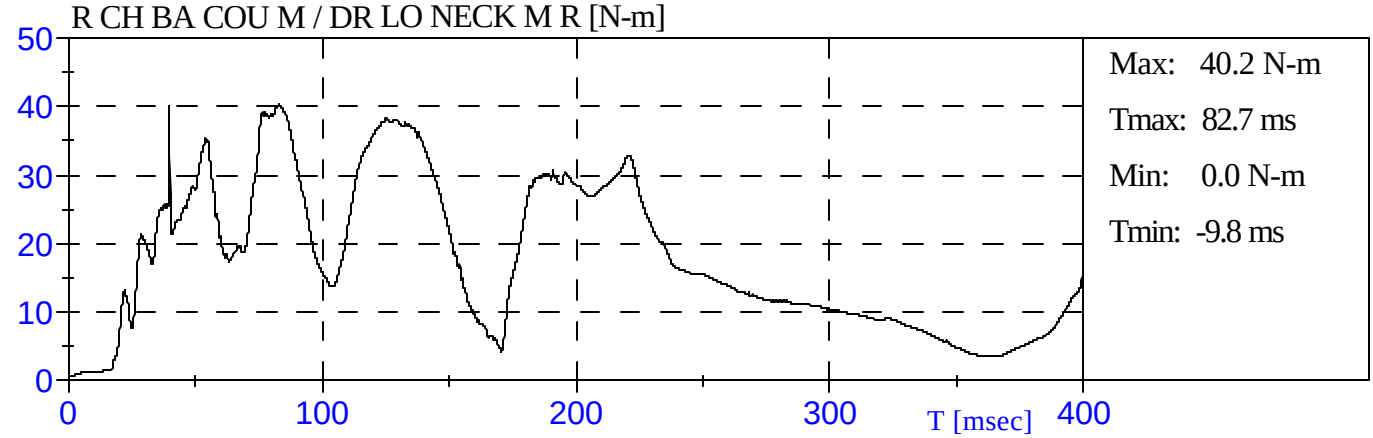
CH BA COU MY / DR LO NECK MY [N-m]



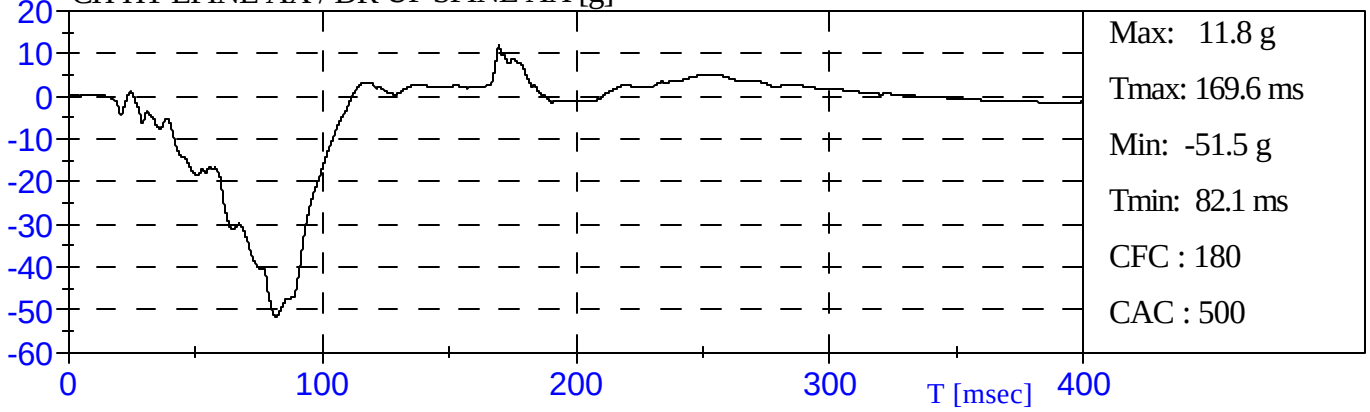
CH BA COU MZ / DR LO NECK MZ [N-m]



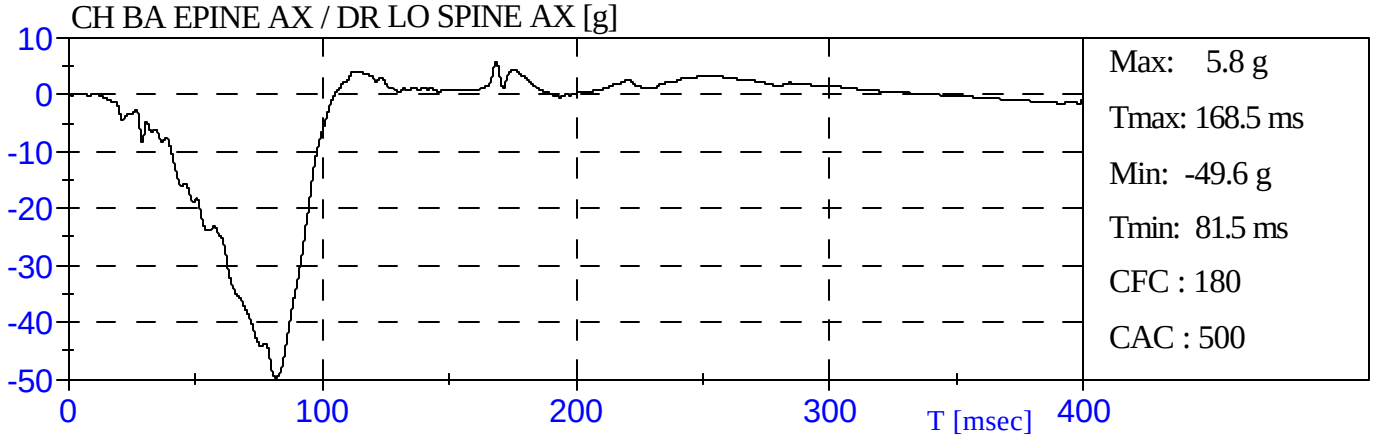
R CH BA COU M / DR LO NECK M R [N-m]



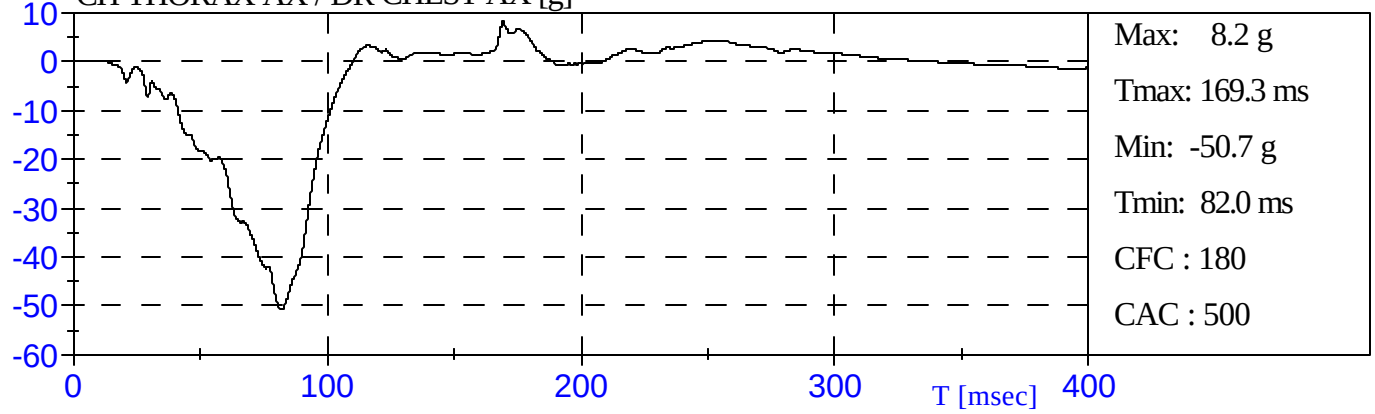
CH HT EPINE AX / DR UP SPINE AX [g]



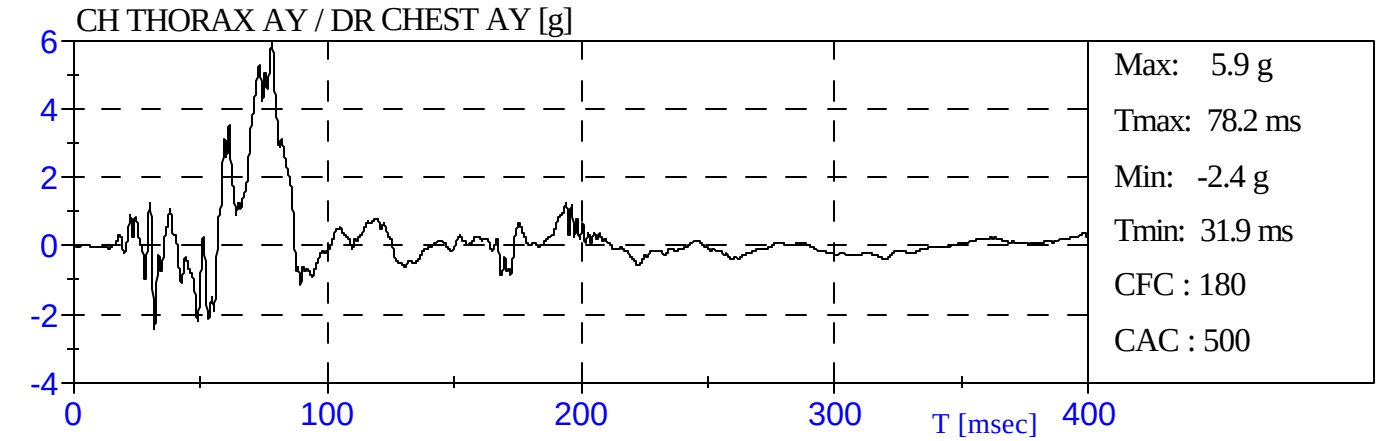
CH BA EPINE AX / DR LO SPINE AX [g]



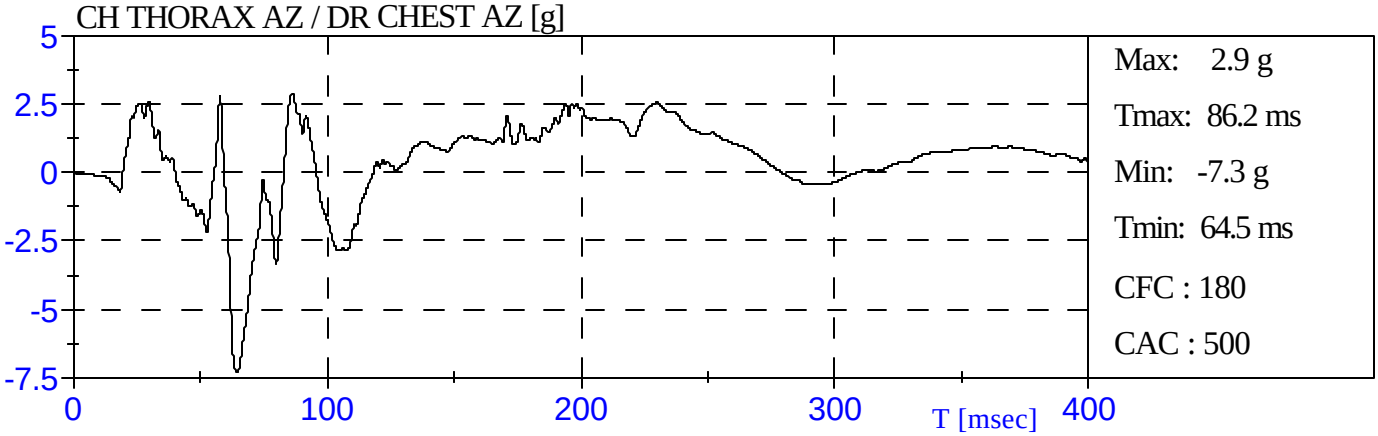
CH THORAX AX / DR CHEST AX [g]



CH THORAX AY / DR CHEST AY [g]



CH THORAX AZ / DR CHEST AZ [g]



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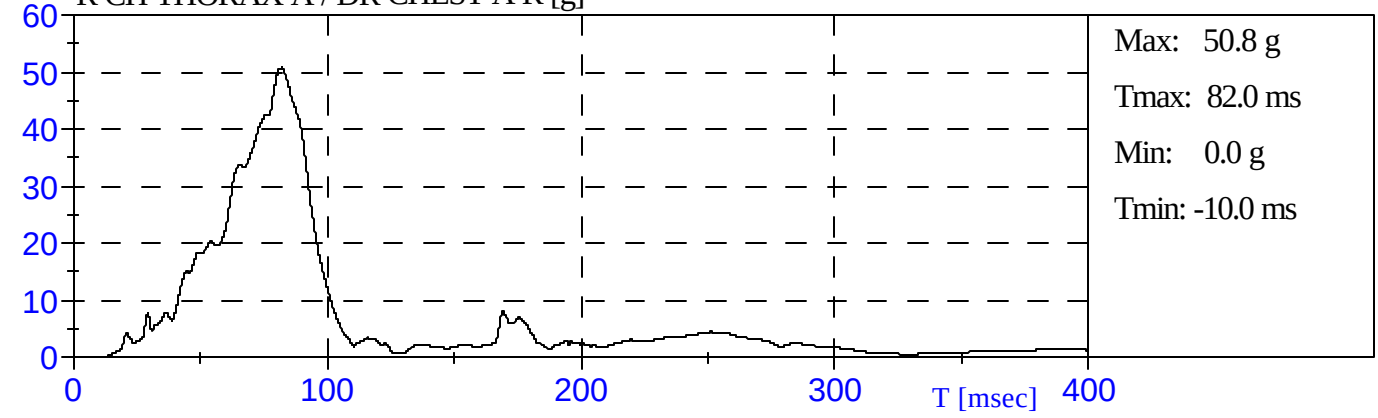
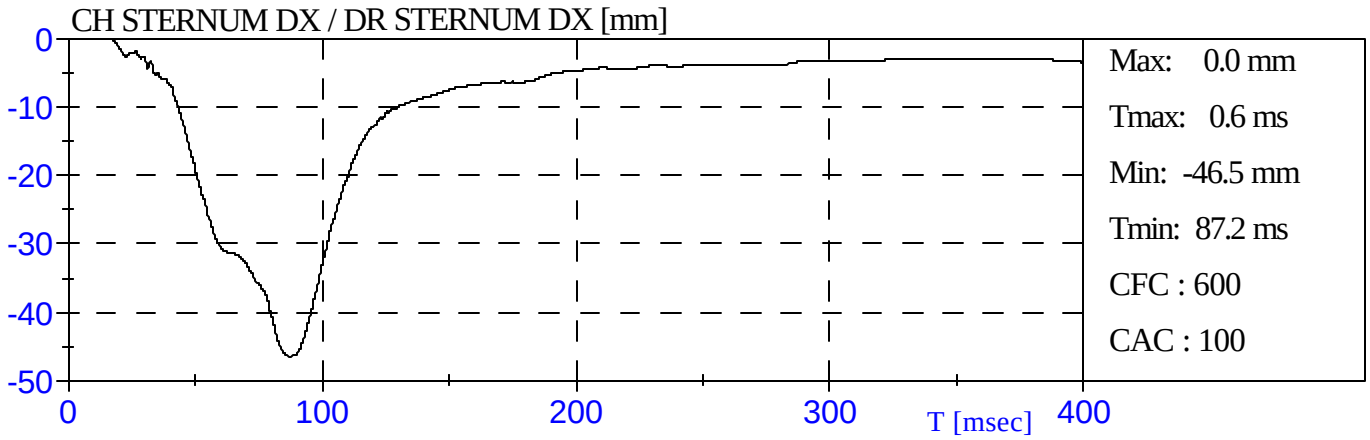
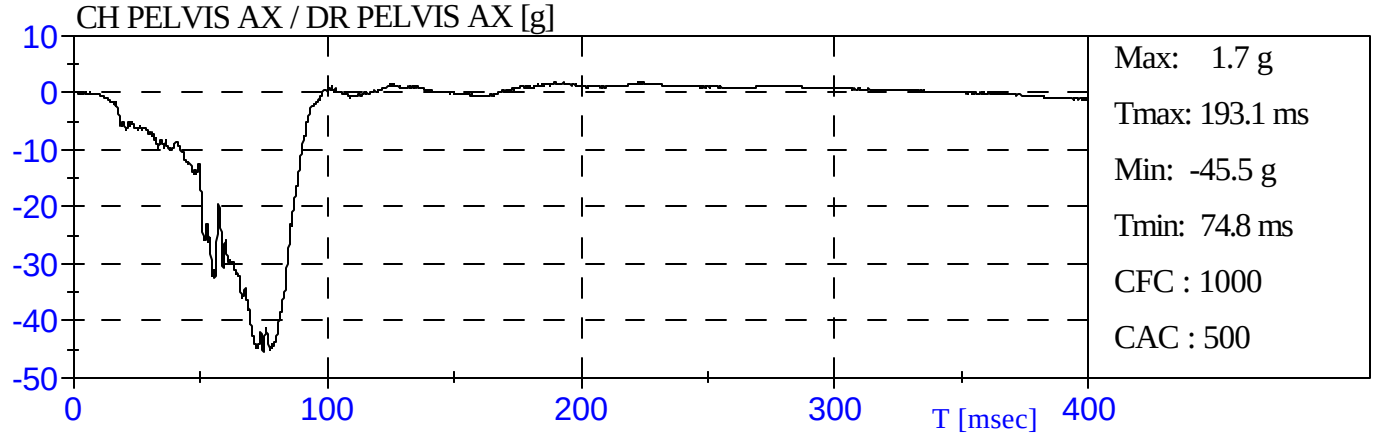
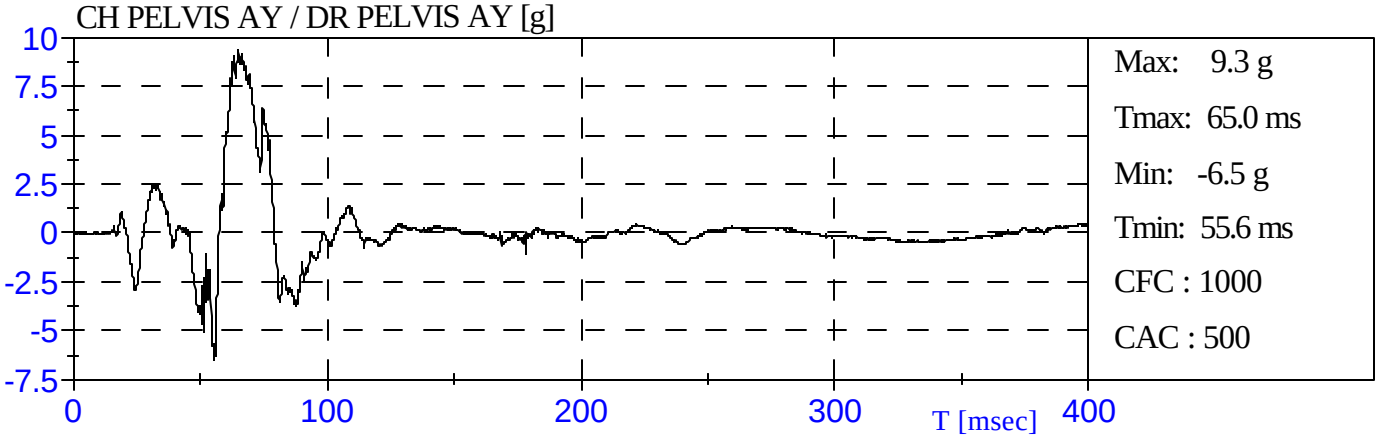



CH STERNUM DX / DR STERNUM DX [mm]
0
-10
-20
-30
-40
-50
0
100
200
300
400
T [msec]
Max: 0.0 mm
Tmax: 0.6 ms
Min: -46.5 mm
Tmin: 87.2 ms
CFC : 600
CAC : 100

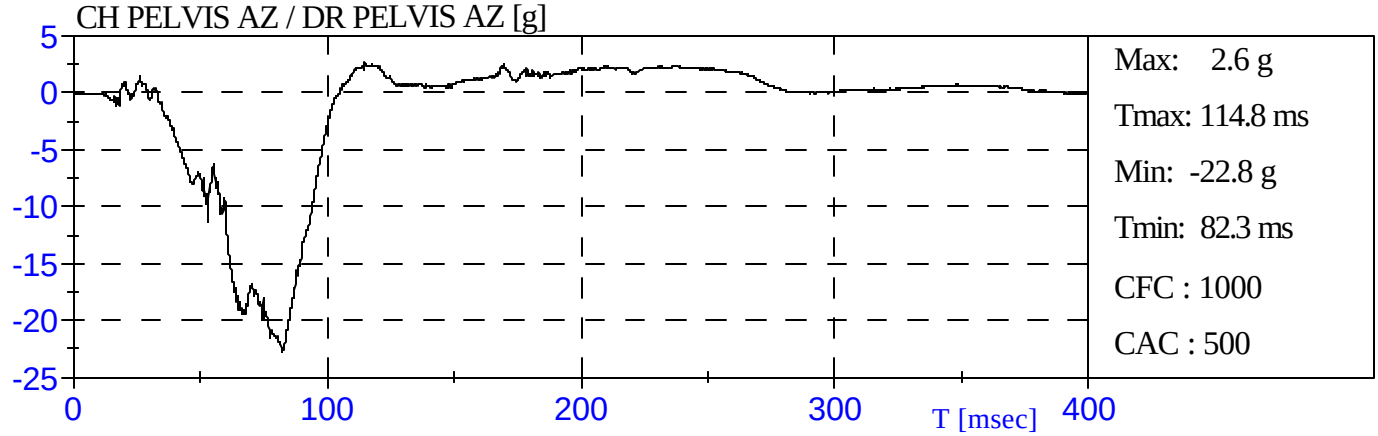
CH PELVIS AX / DR PELVIS AX [g]



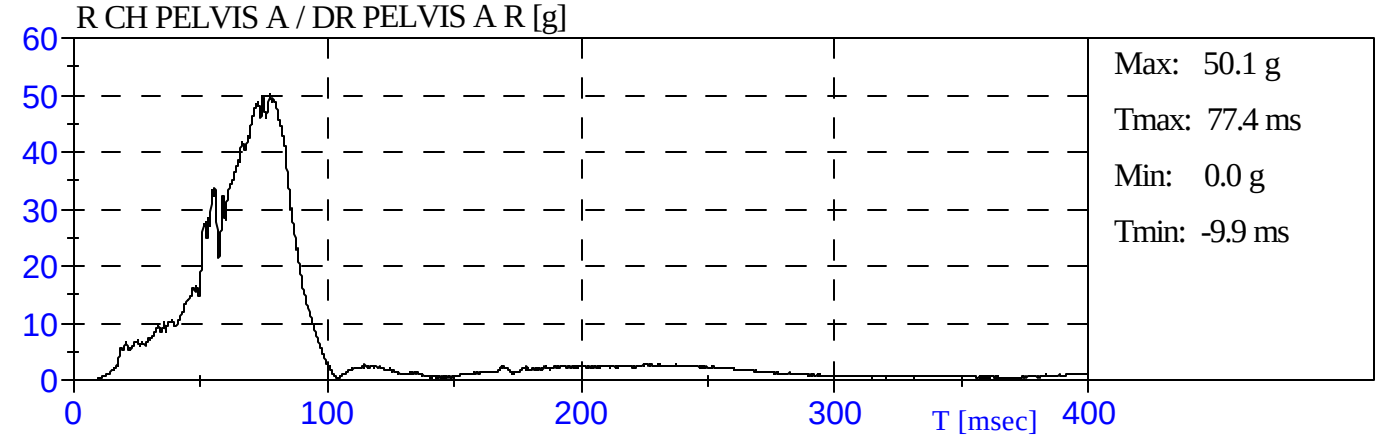
CH PELVIS AY / DR PELVIS AY [g]



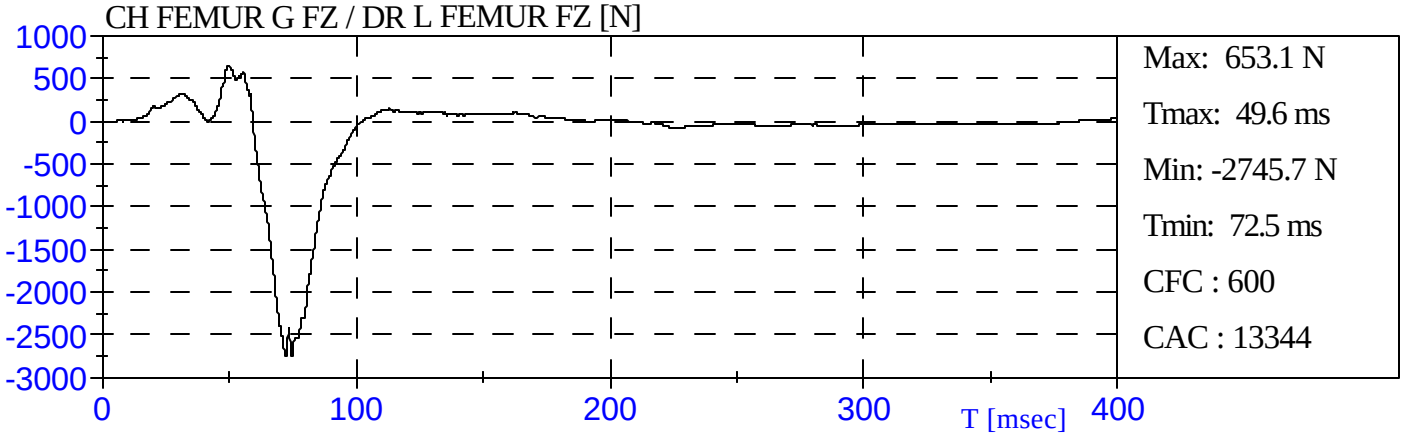
CH PELVIS AZ / DR PELVIS AZ [g]



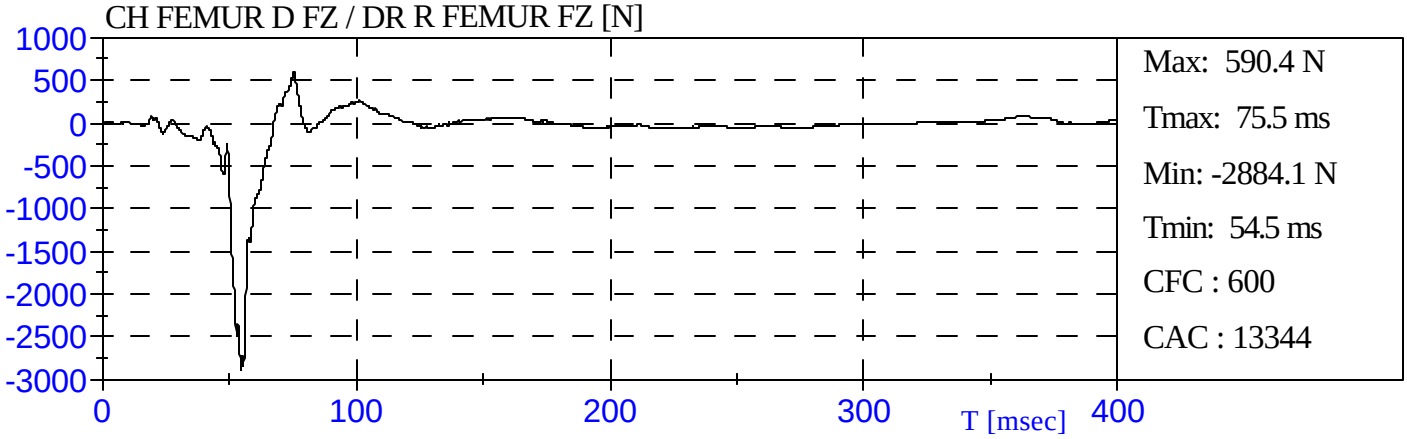
R CH PELVIS A / DR PELVIS A R [g]

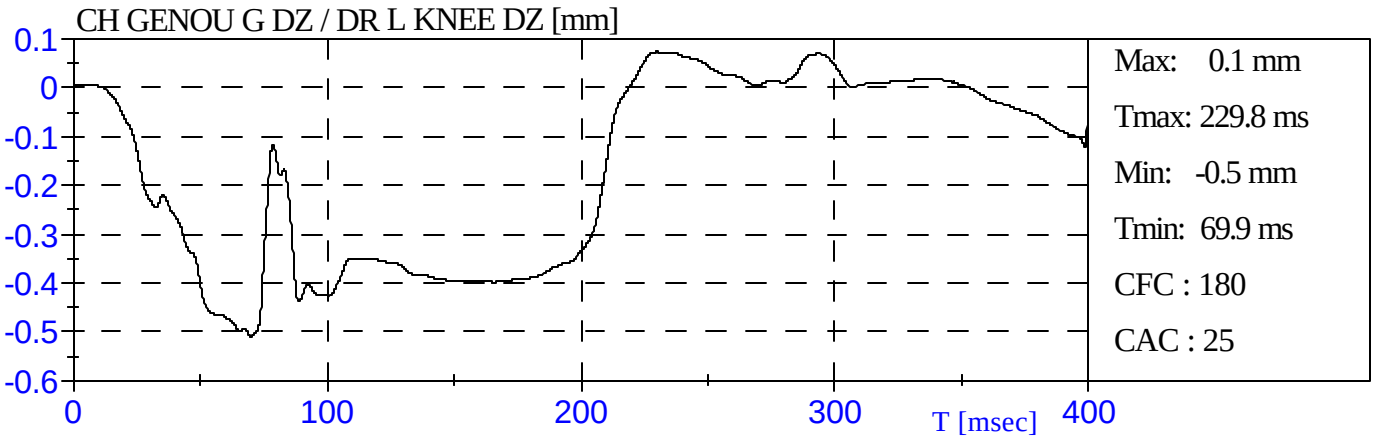


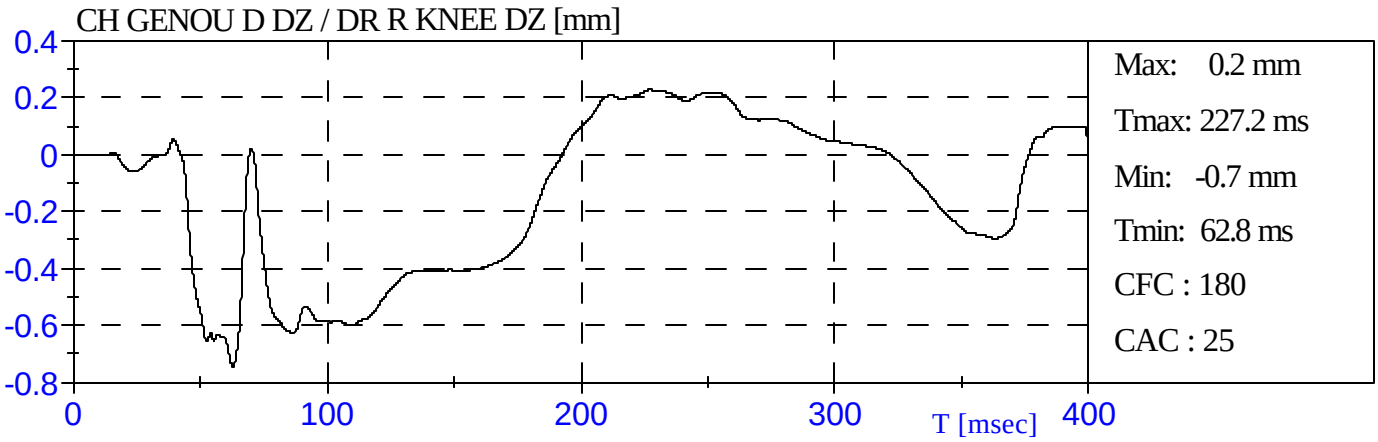
CH FEMUR G FZ / DR L FEMUR FZ [N]



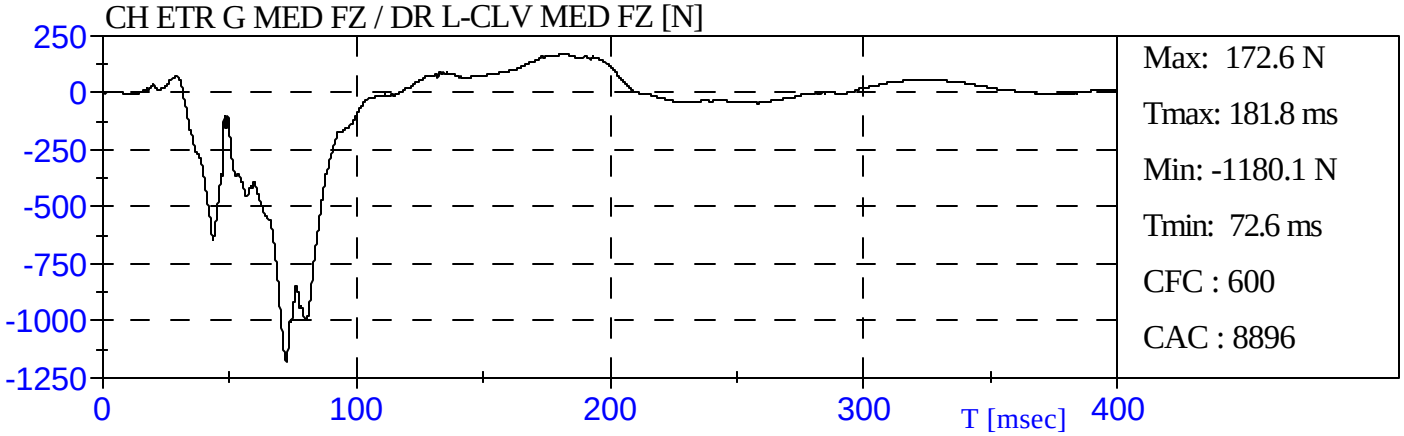
CH FEMUR D FZ / DR R FEMUR FZ [N]



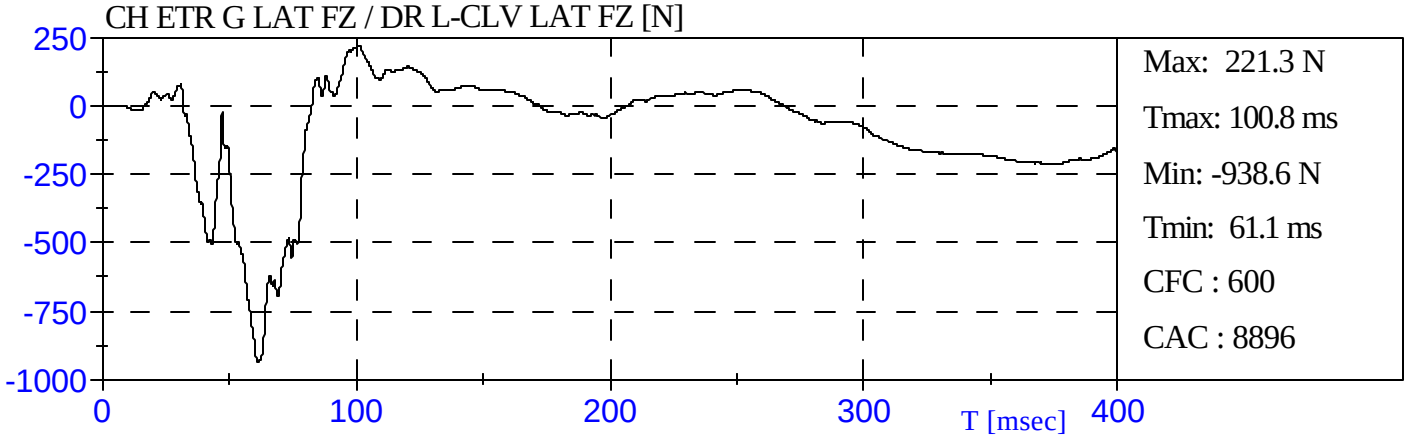

CH GENOU G DZ / DR L KNEE DZ [mm]
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
0
100
200
300
400
T [msec]
Max: 0.1 mm
Tmax: 229.8 ms
Min: -0.5 mm
Tmin: 69.9 ms
CFC : 180
CAC : 25


CH GENOU D DZ / DR R KNEE DZ [mm]
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
0
100
200
300
400
T [msec]
Max: 0.2 mm
Tmax: 227.2 ms
Min: -0.7 mm
Tmin: 62.8 ms
CFC : 180
CAC : 25

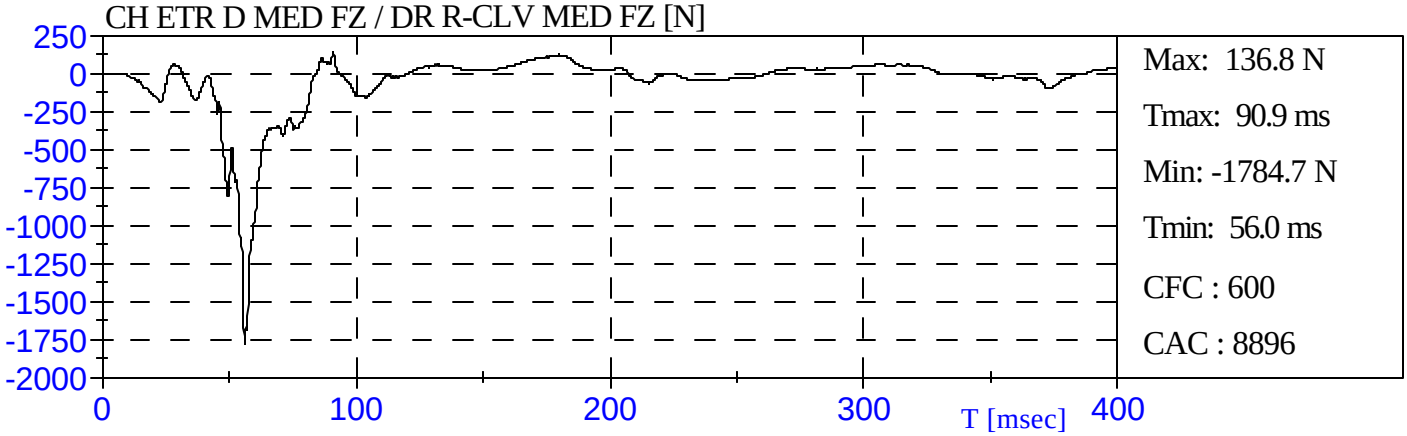
CH ETR G MED FZ / DR L-CLV MED FZ [N]



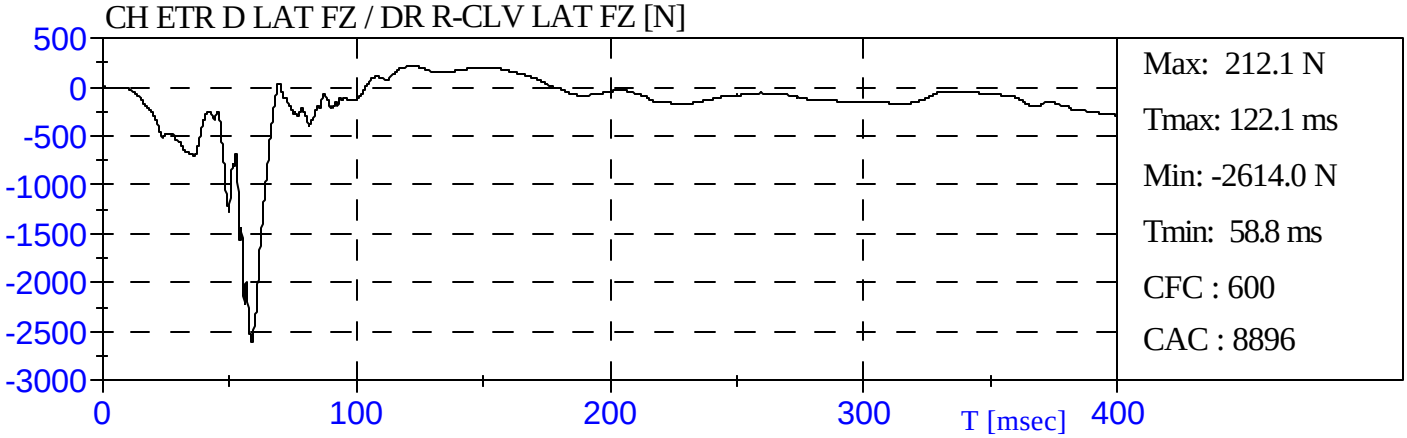
CH ETR G LAT FZ / DR L-CLV LAT FZ [N]



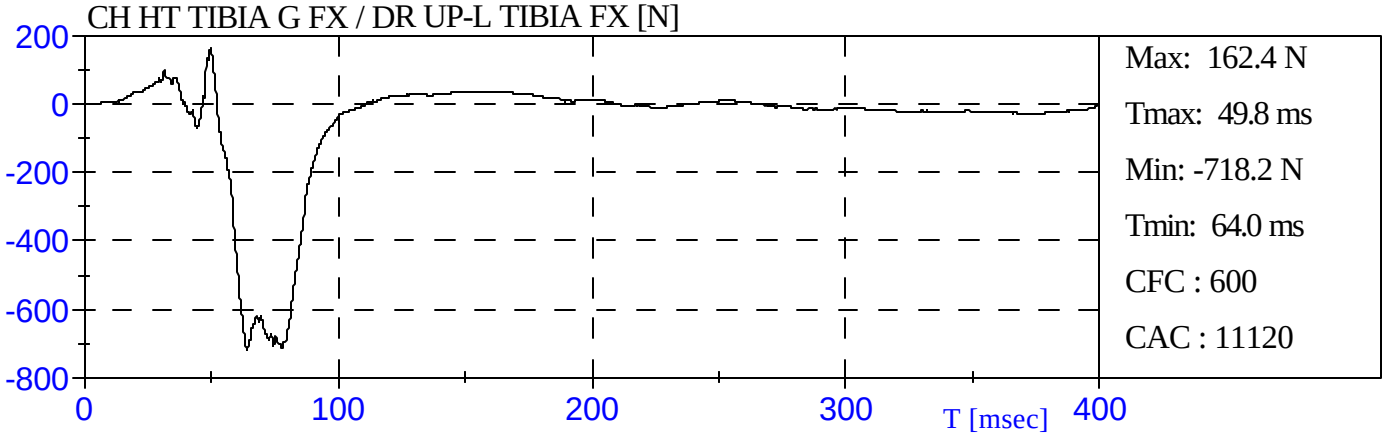
CH ETR D MED FZ / DR R-CLV MED FZ [N]



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



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



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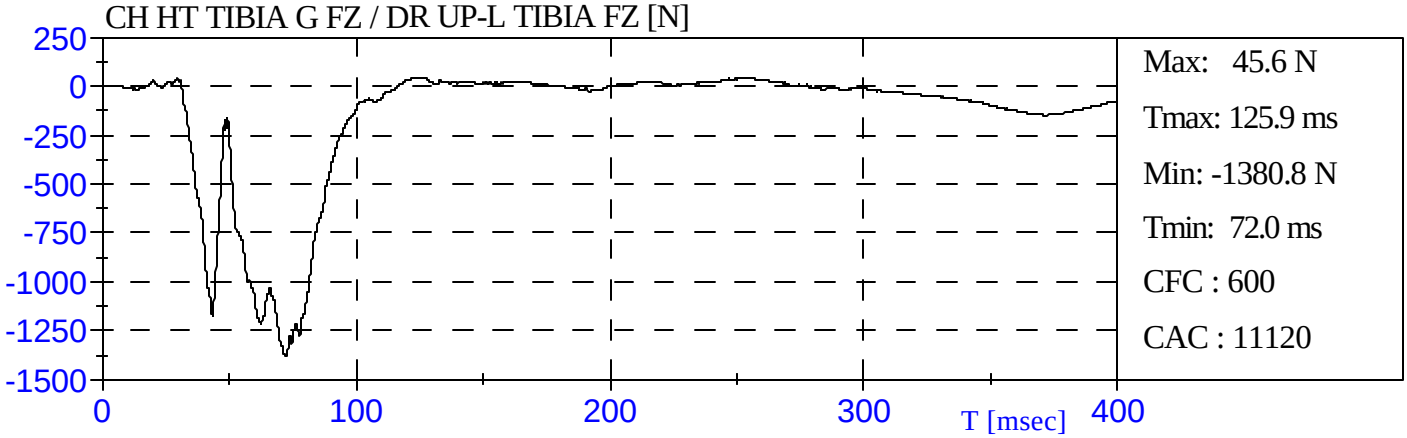
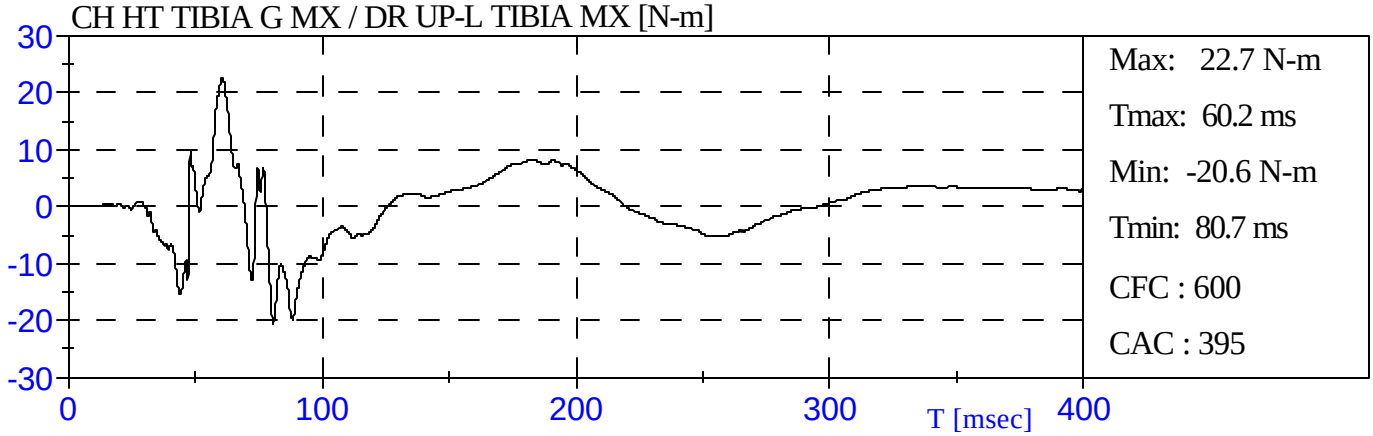
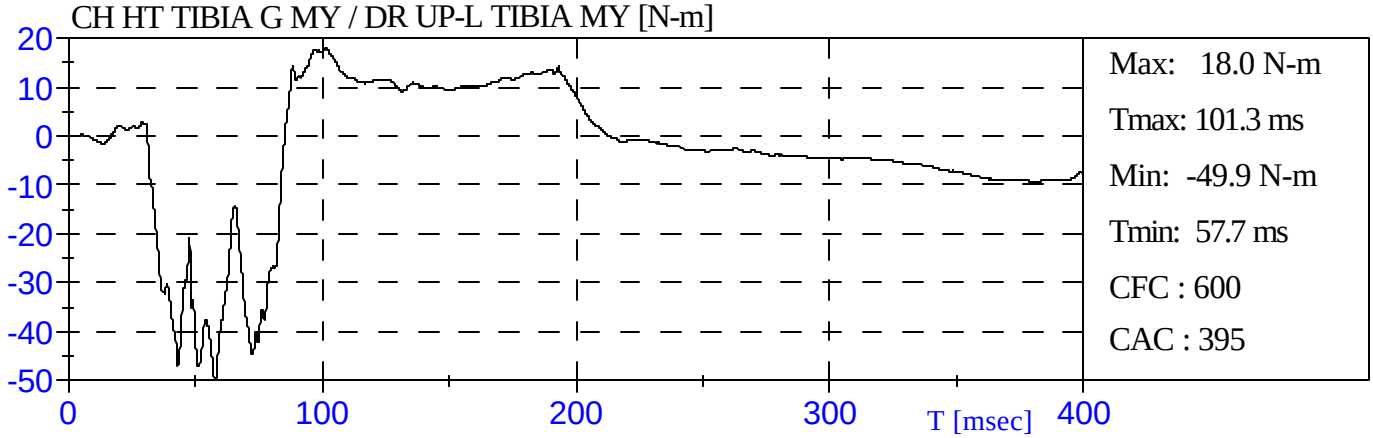


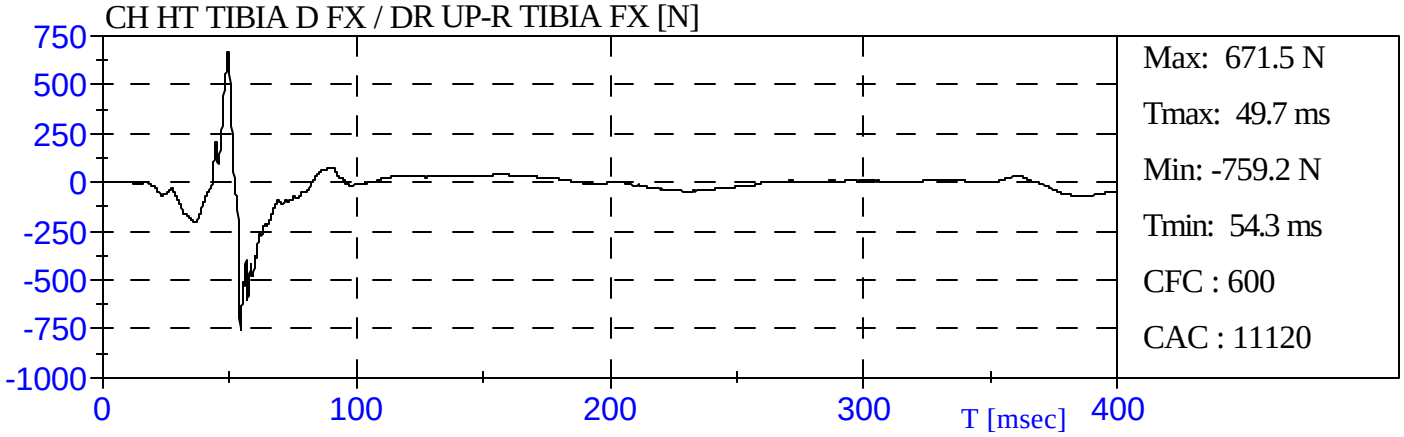
CH HT TIBIA G MX / DR UP-L TIBIA MX [N-m]



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



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



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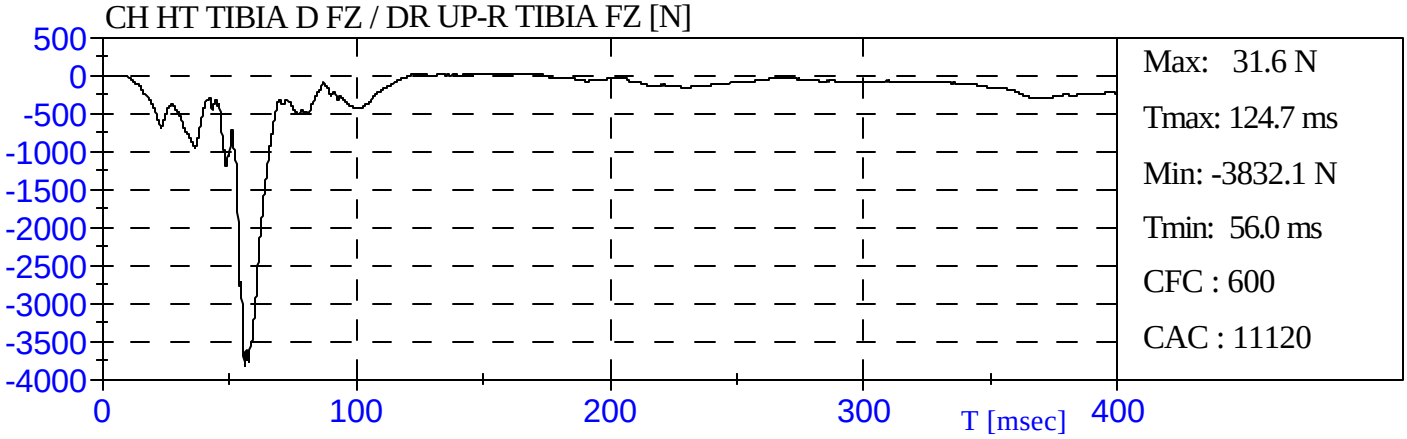
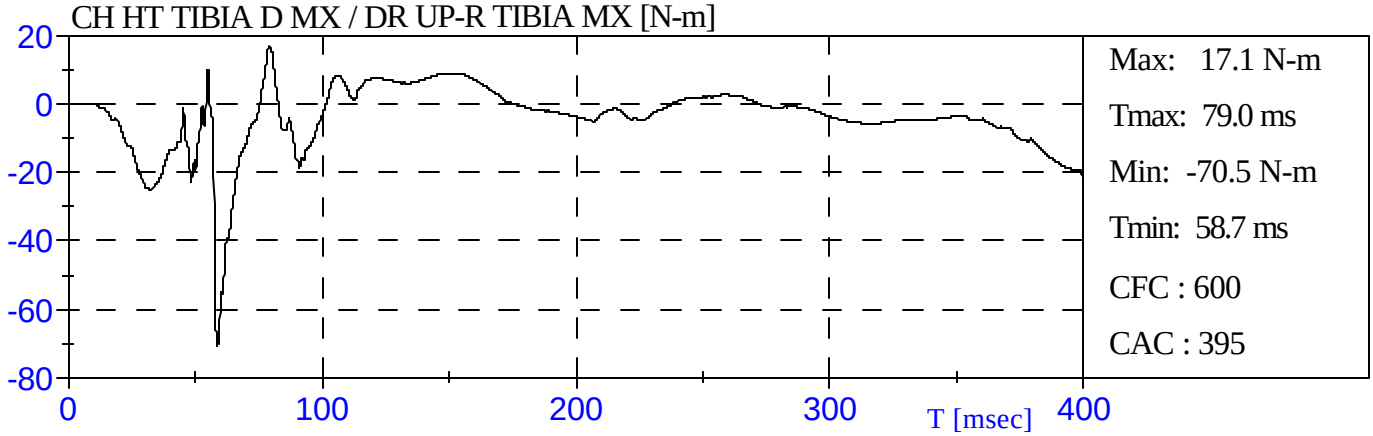
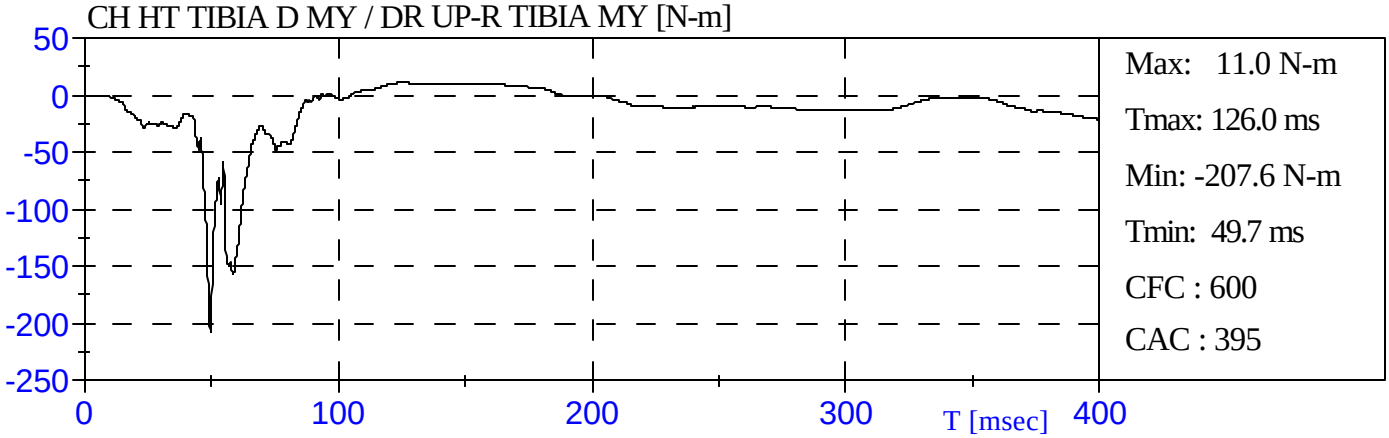


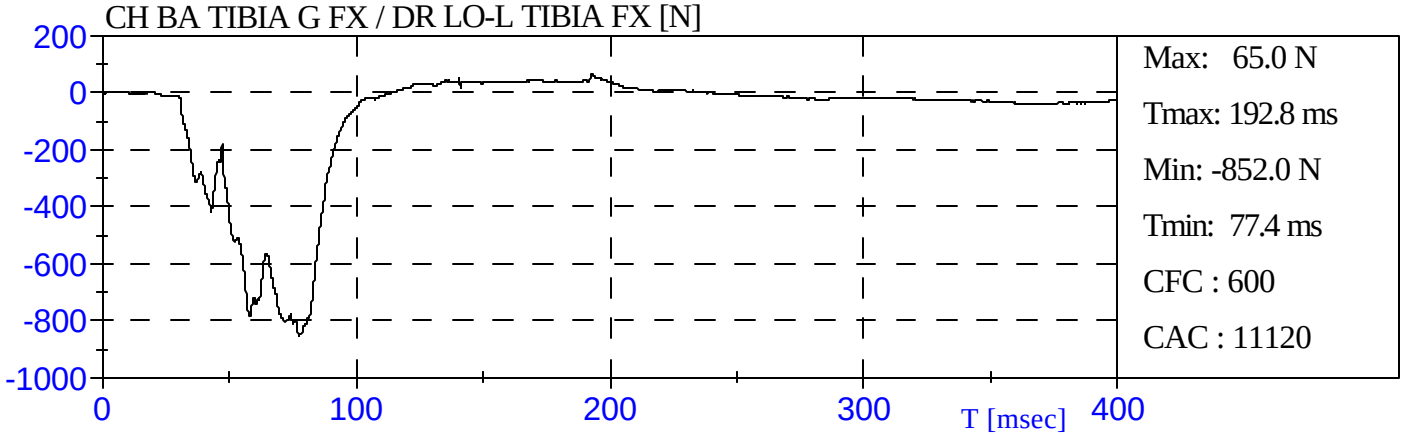
CH HT TIBIA D MX / DR UP-R TIBIA MX [N-m]



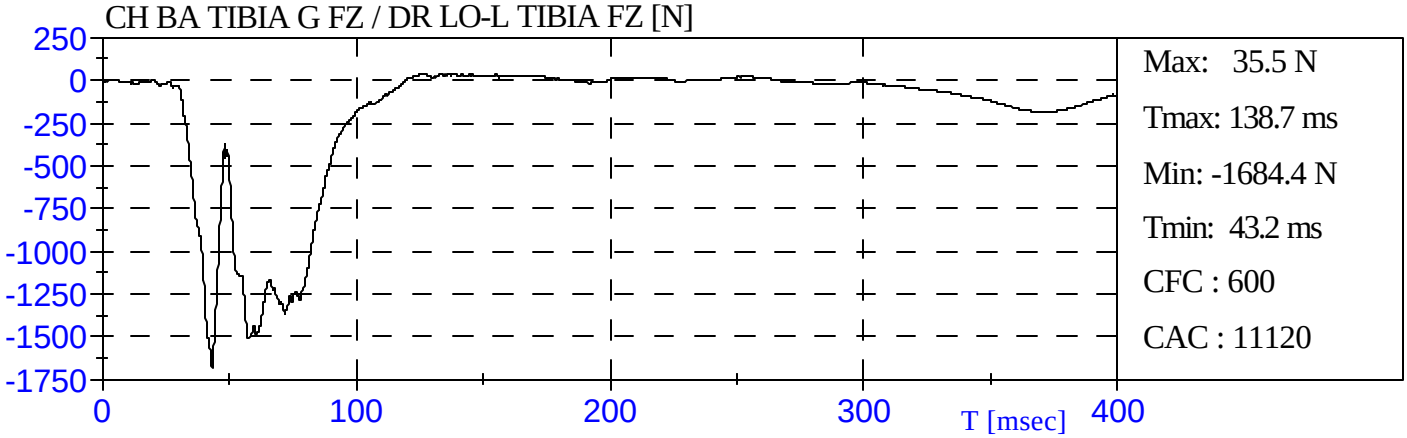
CH HT TIBIA D MY / DR UP-R TIBIA MY [N-m]



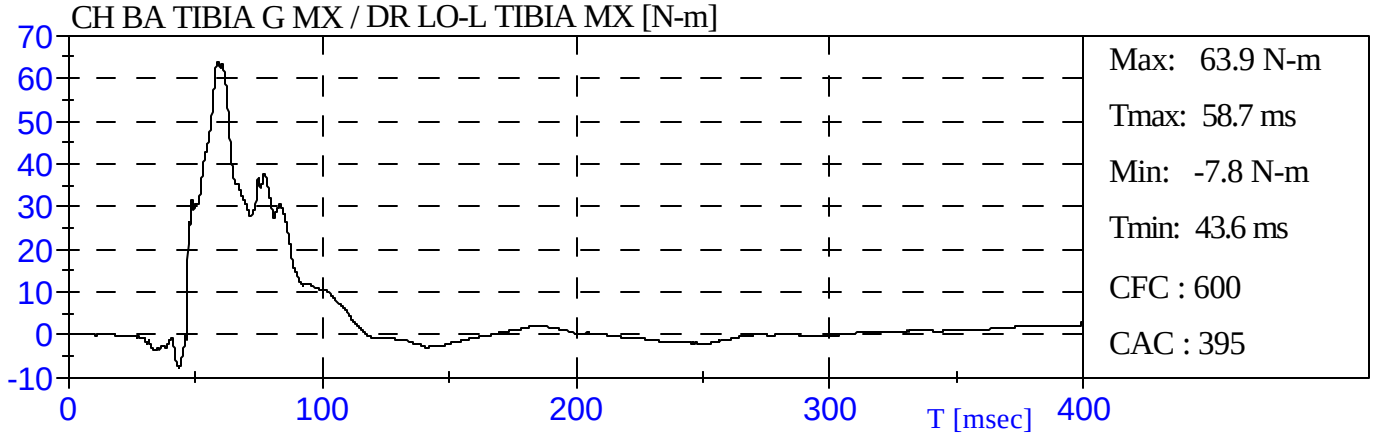
CH BA TIBIA G FX / DR LO-L TIBIA FX [N]



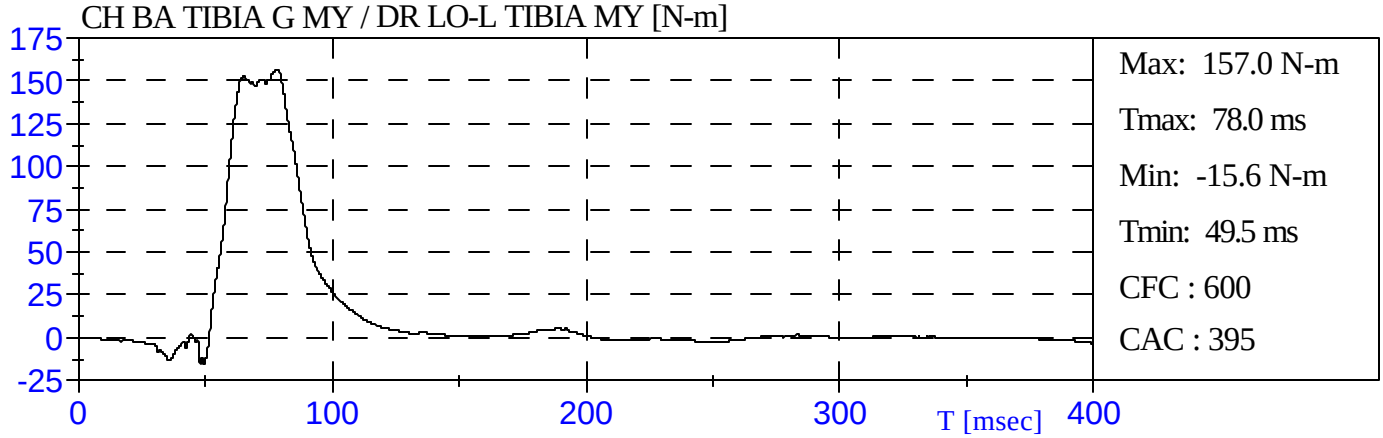
CH BA TIBIA G FZ / DR LO-L TIBIA FZ [N]



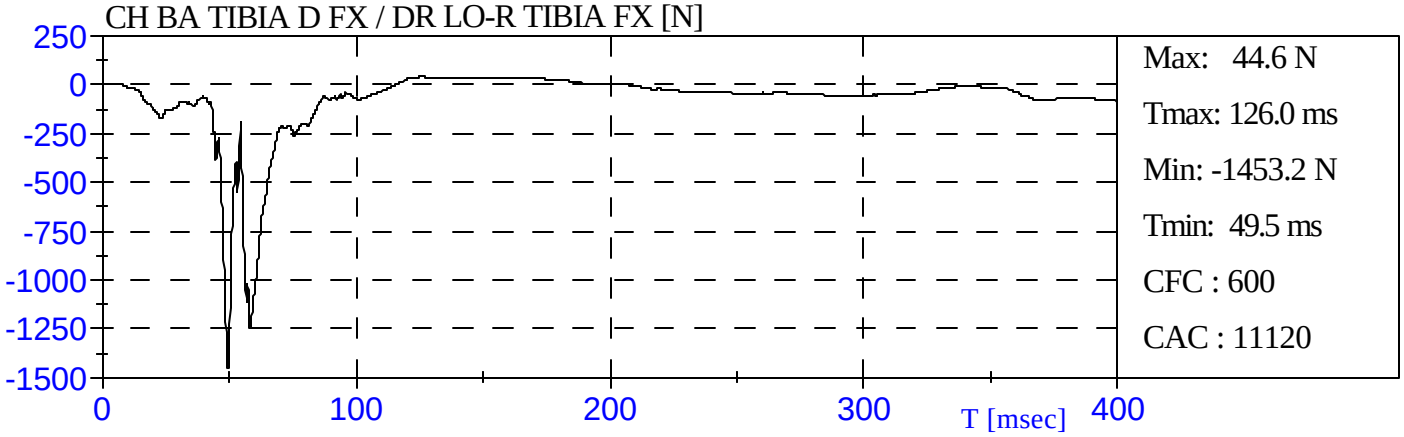
CH BA TIBIA G MX / DR LO-L TIBIA MX [N-m]



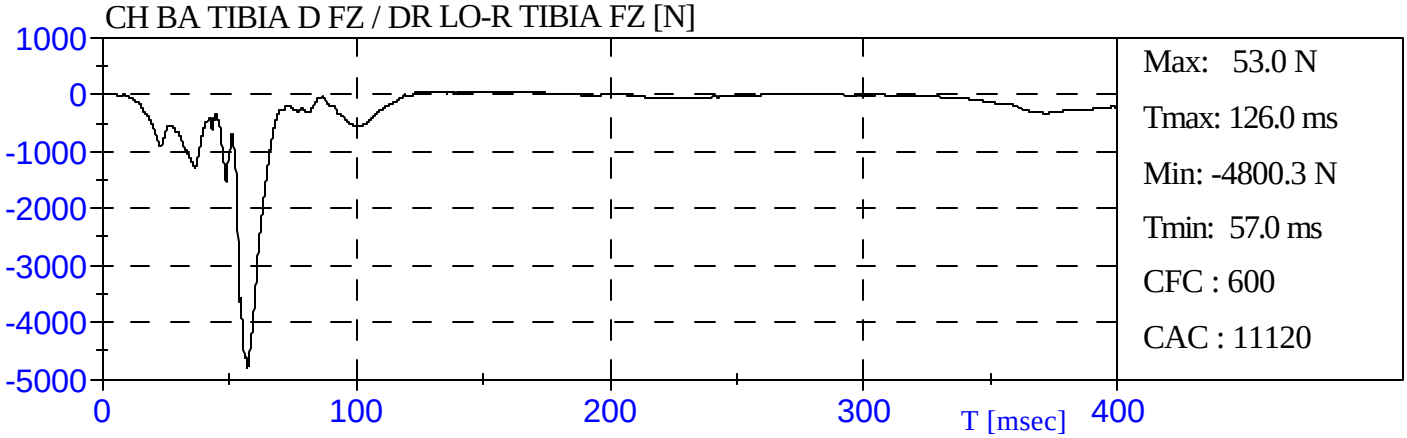
CH BA TIBIA G MY / DR LO-L TIBIA MY [N-m]



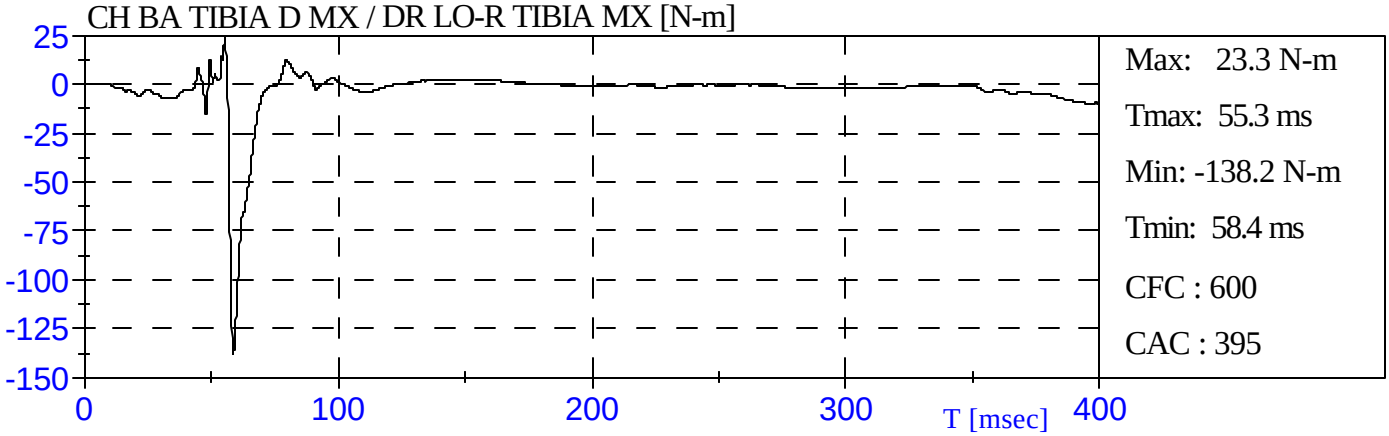
CH BA TIBIA D FX / DR LO-R TIBIA FX [N]



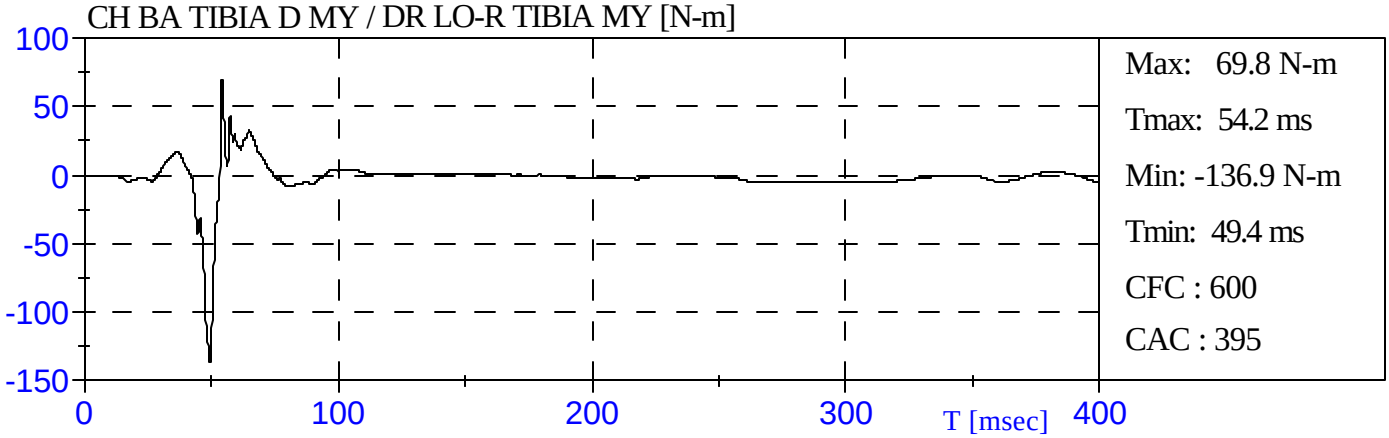
CH BA TIBIA D FZ / DR LO-R TIBIA FZ [N]



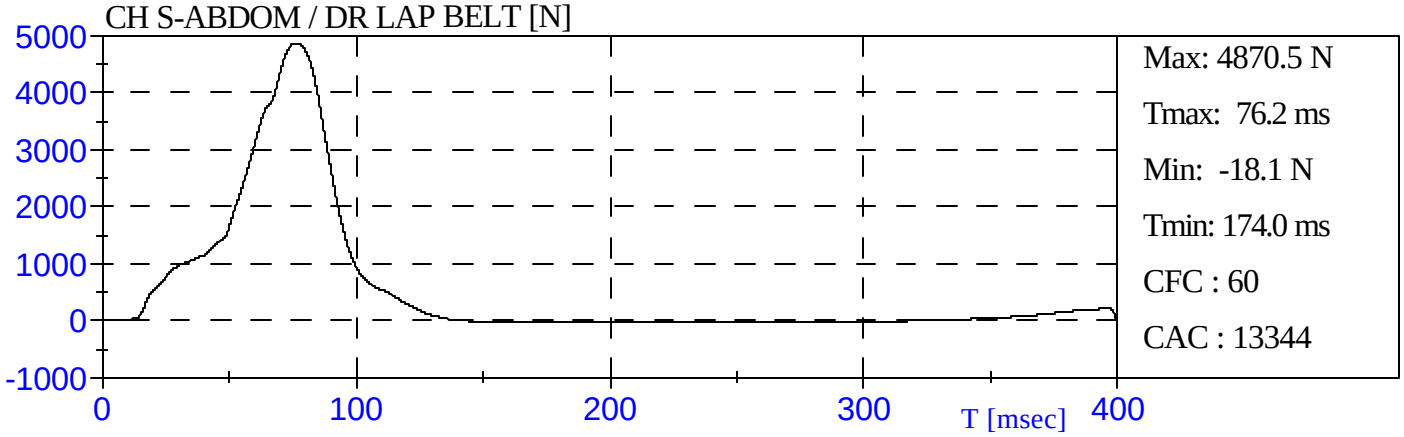
CH BA TIBIA D MX / DR LO-R TIBIA MX [N-m]



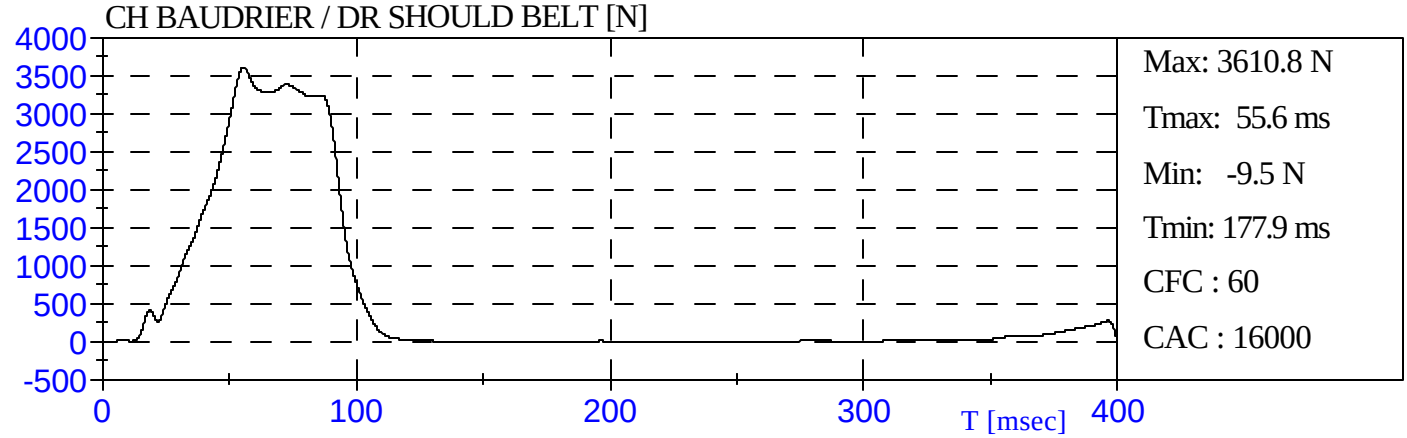
CH BA TIBIA D MY / DR LO-R TIBIA MY [N-m]

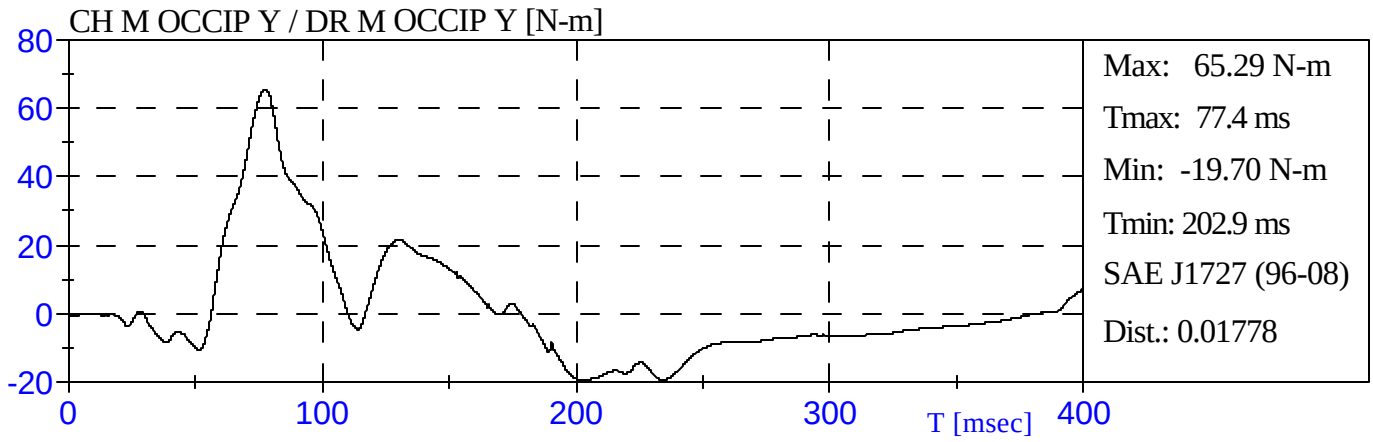


CH S-ABDOM / DR LAP BELT [N]

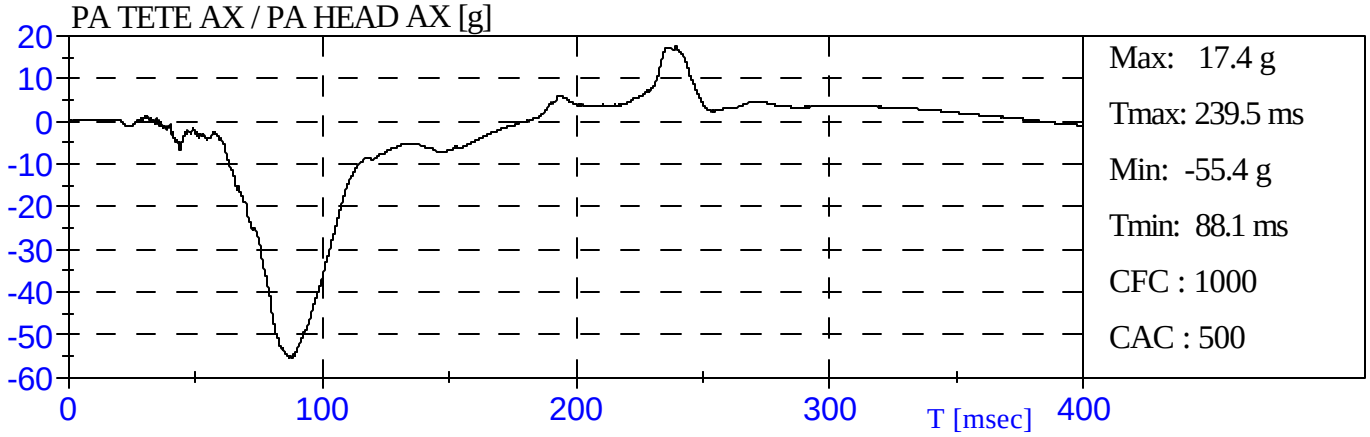


CH BAUDRIER / DR SHOULD BELT [N]

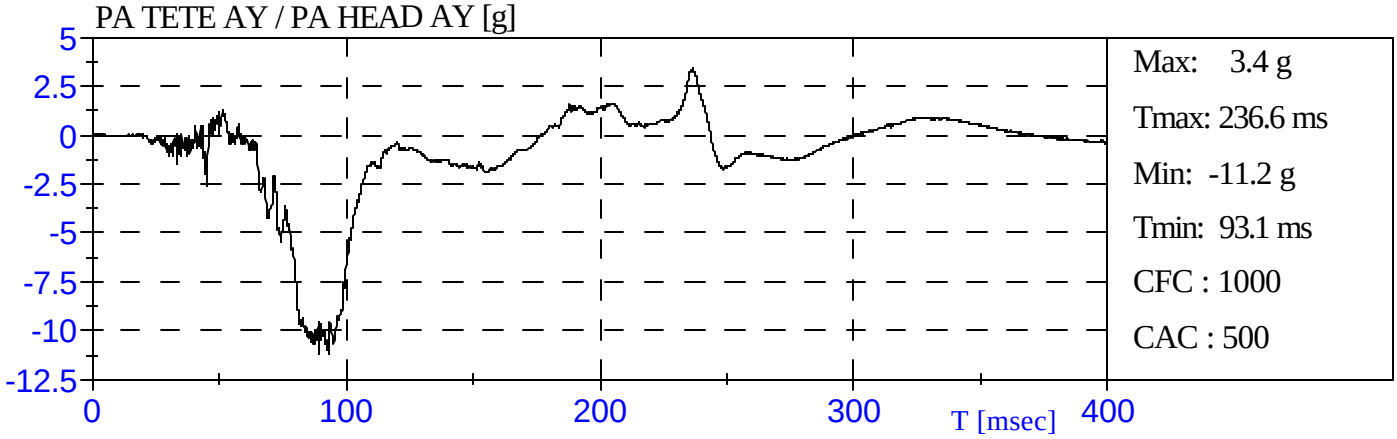



CH M OCCIP Y / DR M OCCIP Y [N-m]
80
60
40
20
0
-20
0
100
200
300
400
T [msec]
Max: 65.29 N-m
Tmax: 77.4 ms
Min: -19.70 N-m
Tmin: 202.9 ms
SAE J1727 (96-08)
Dist.: 0.01778

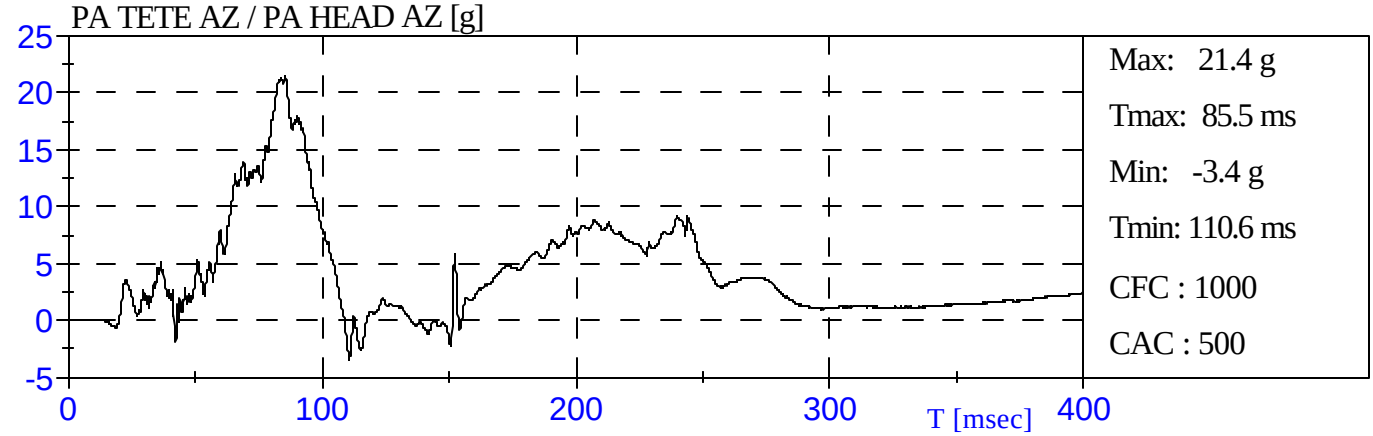
PA TETE AX / PA HEAD AX [g]



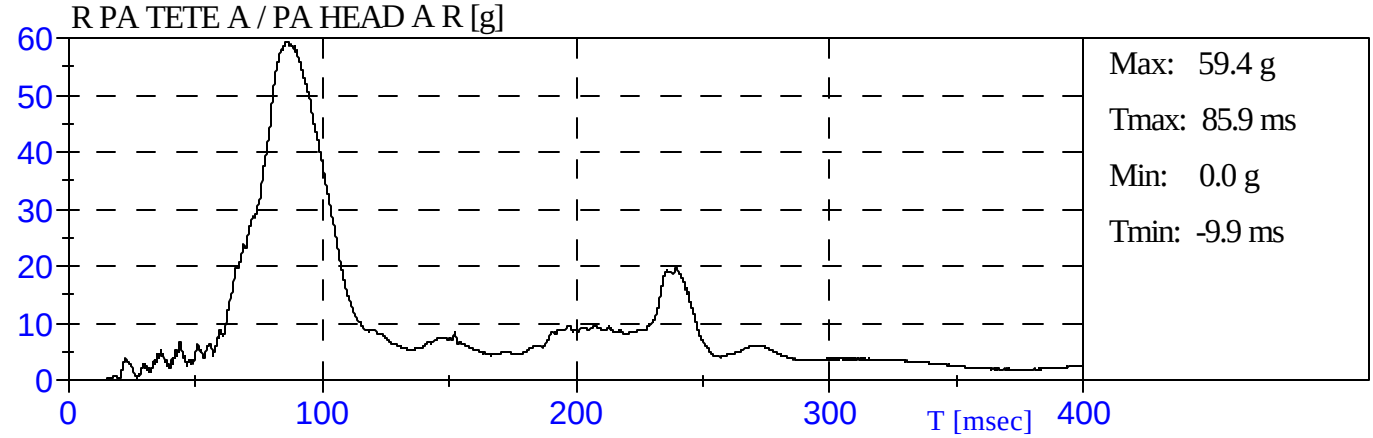
PA TETE AY / PA HEAD AY [g]



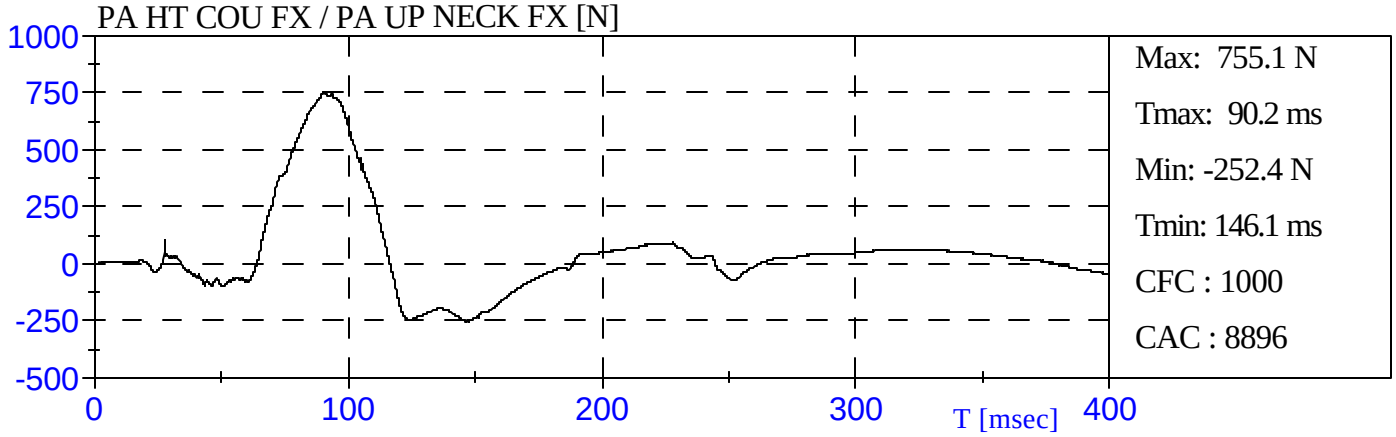
PA TETE AZ / PA HEAD AZ [g]



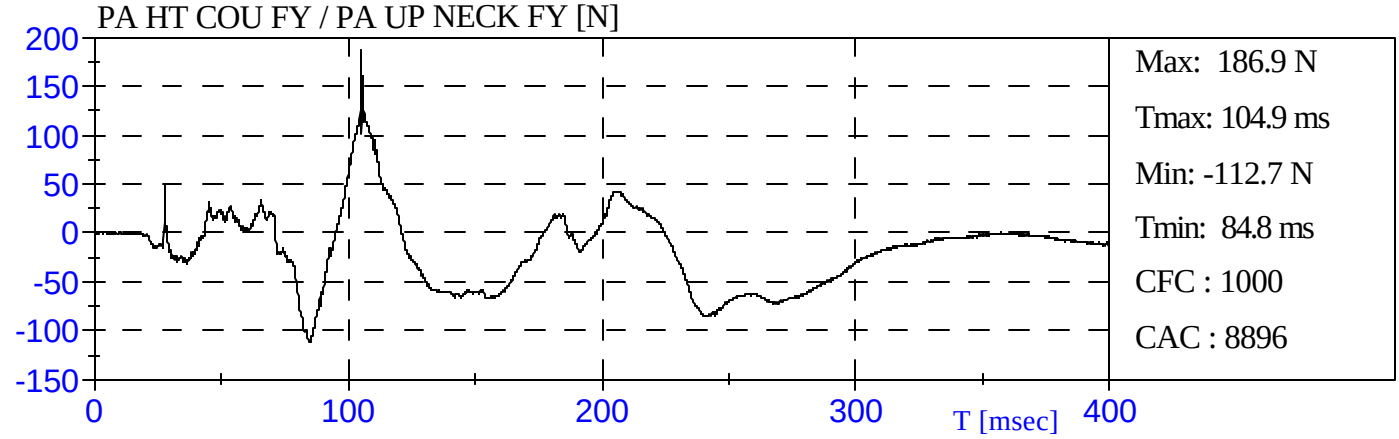
R PA TETE A / PA HEAD A R [g]



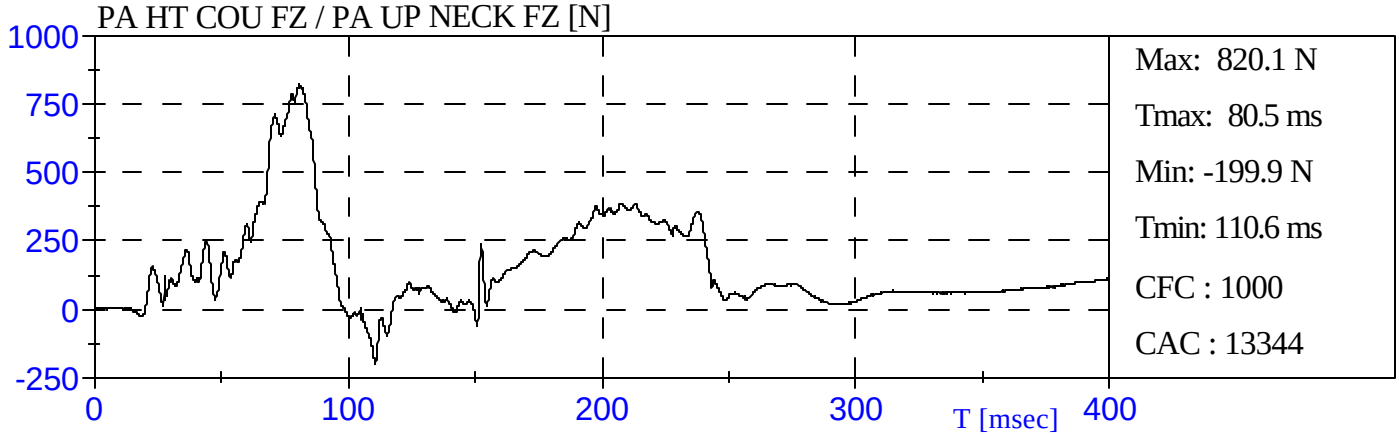
PA HT COU FX / PA UP NECK FX [N]



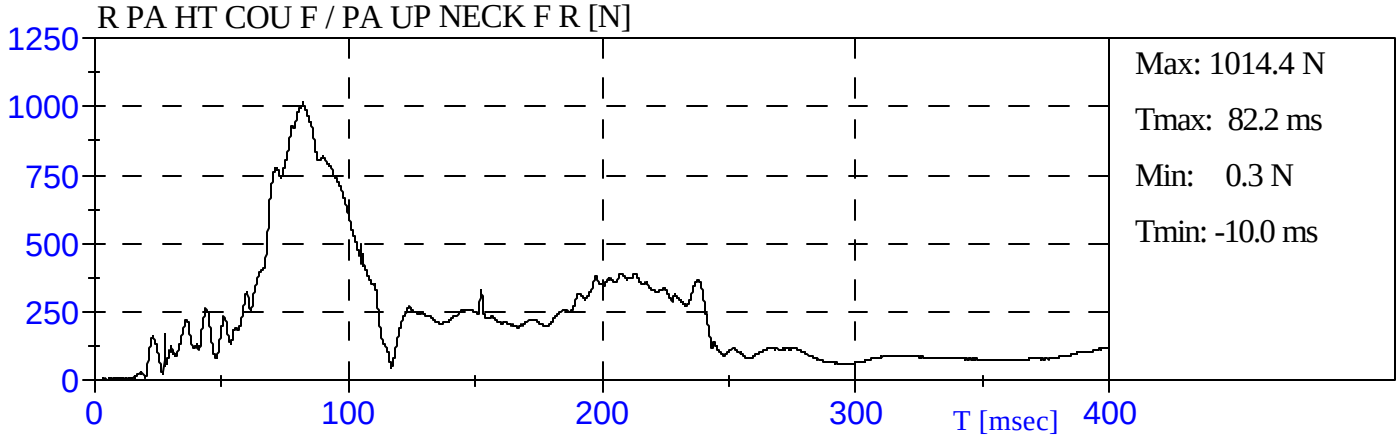
PA HT COU FY / PA UP NECK FY [N]



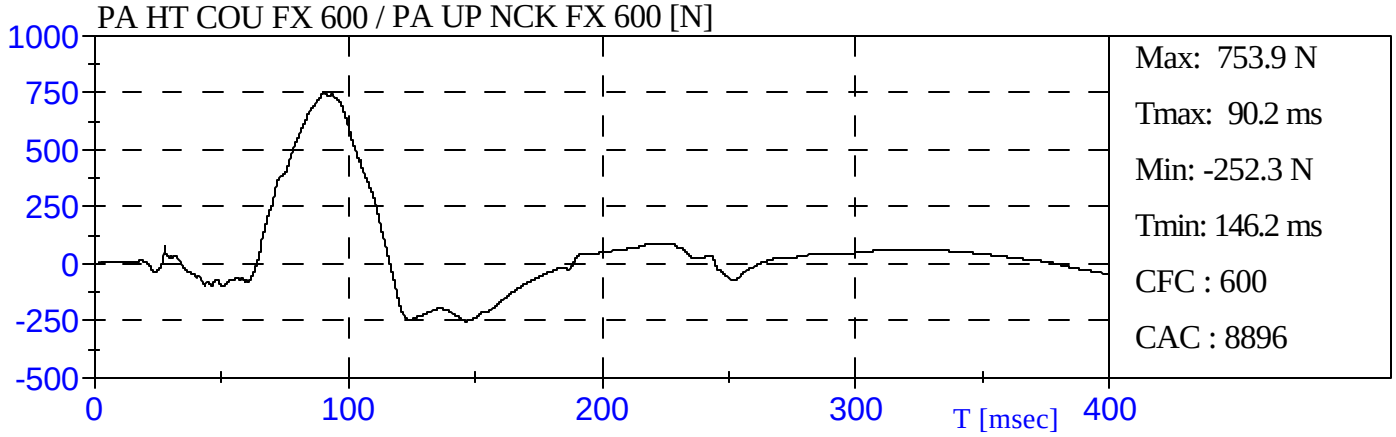
PA HT COU FZ / PA UP NECK FZ [N]



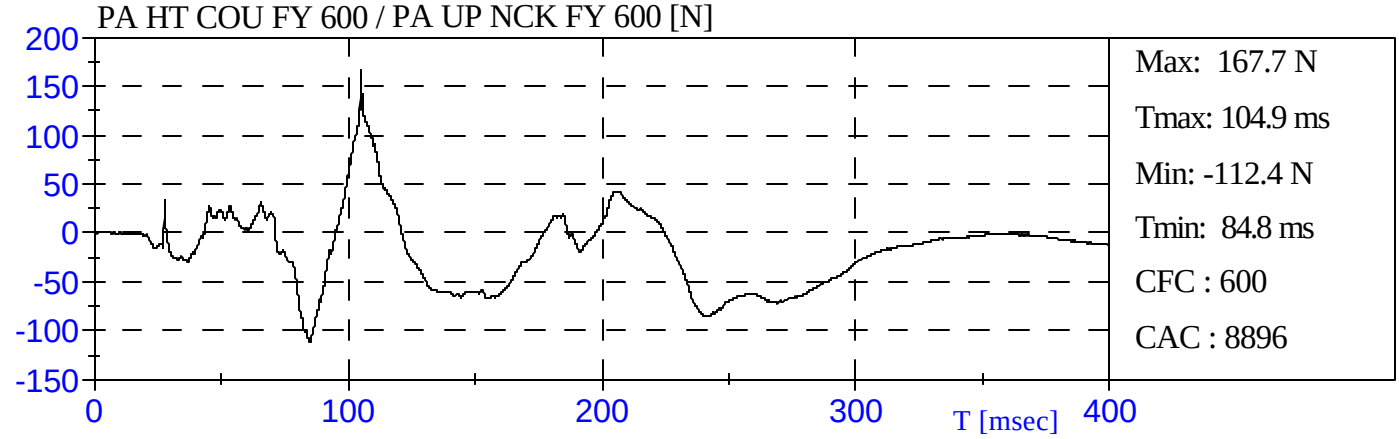
R PA HT COU F / PA UP NECK F R [N]



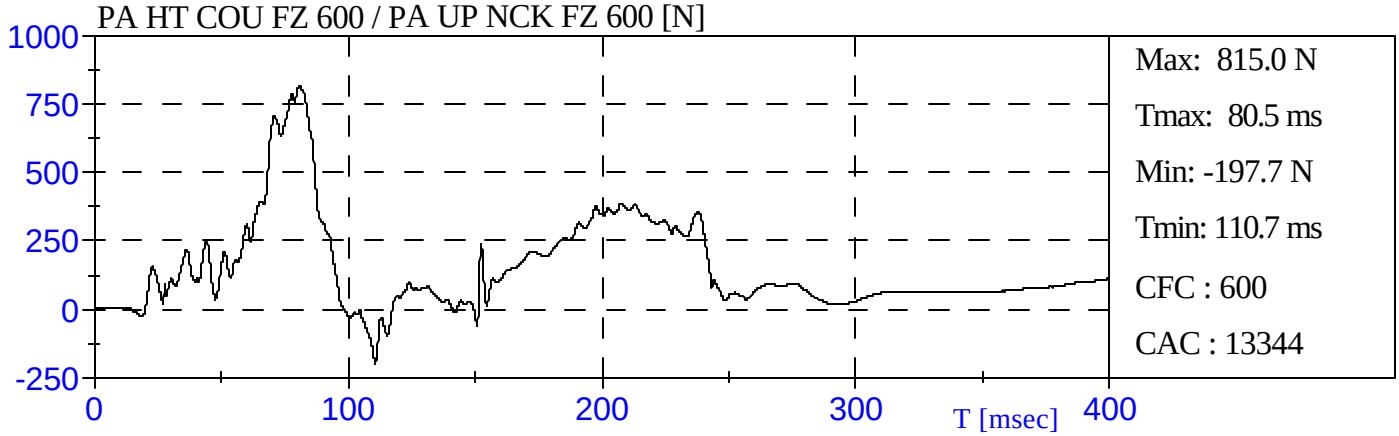
PA HT COU FX 600 / PA UP NCK FX 600 [N]



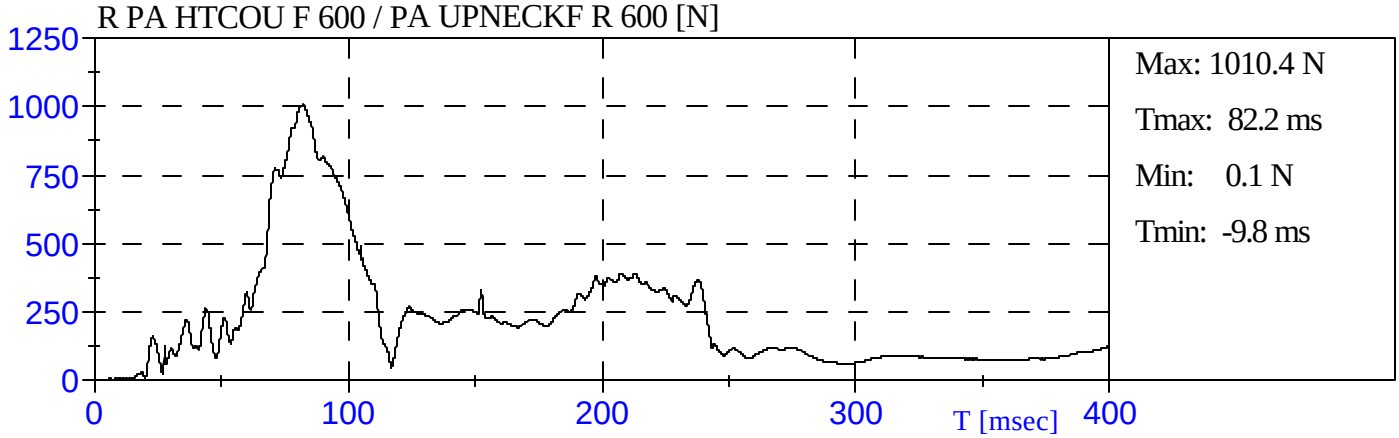
PA HT COU FY 600 / PA UP NCK FY 600 [N]



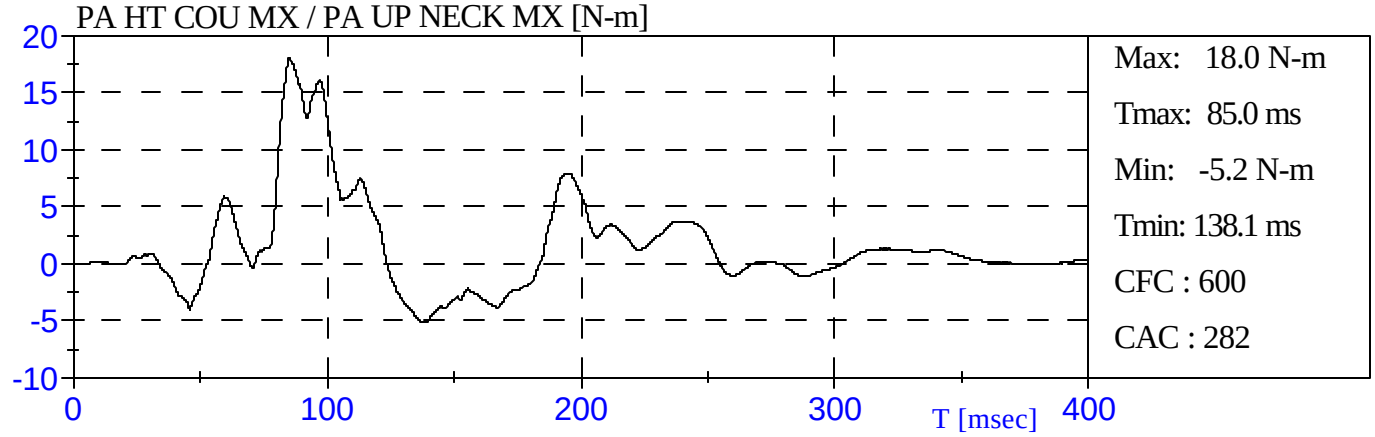
PA HT COU FZ 600 / PA UP NCK FZ 600 [N]



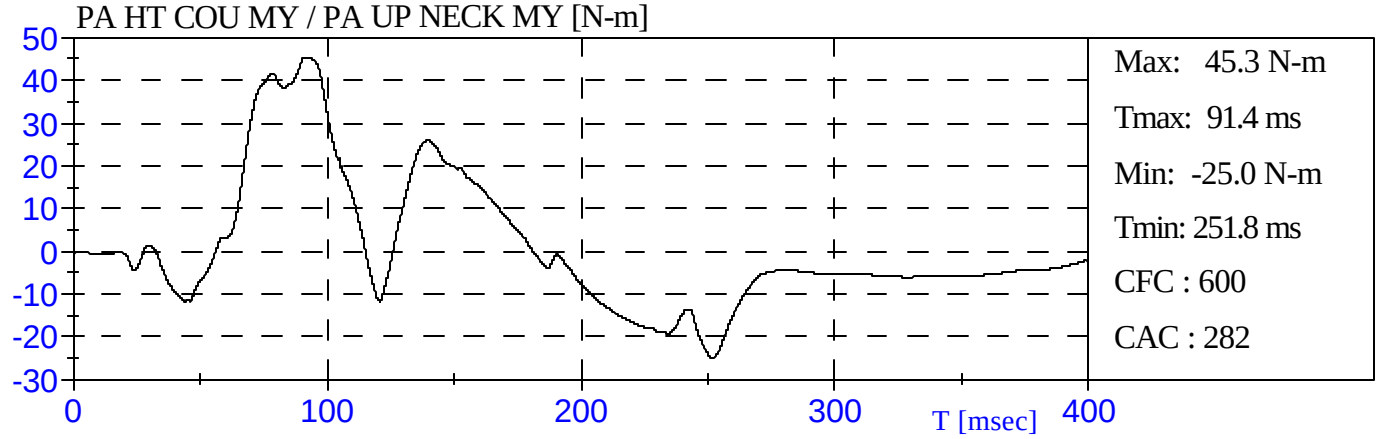
R PA HTCOU F 600 / PA UPNECKF R 600 [N]



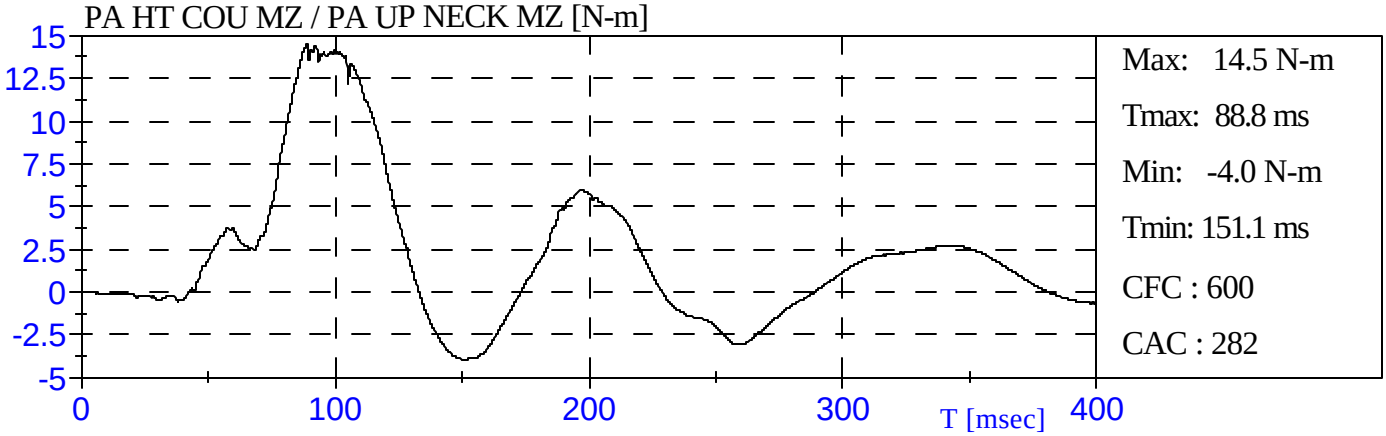
PA HT COU MX / PA UP NECK MX [N-m]



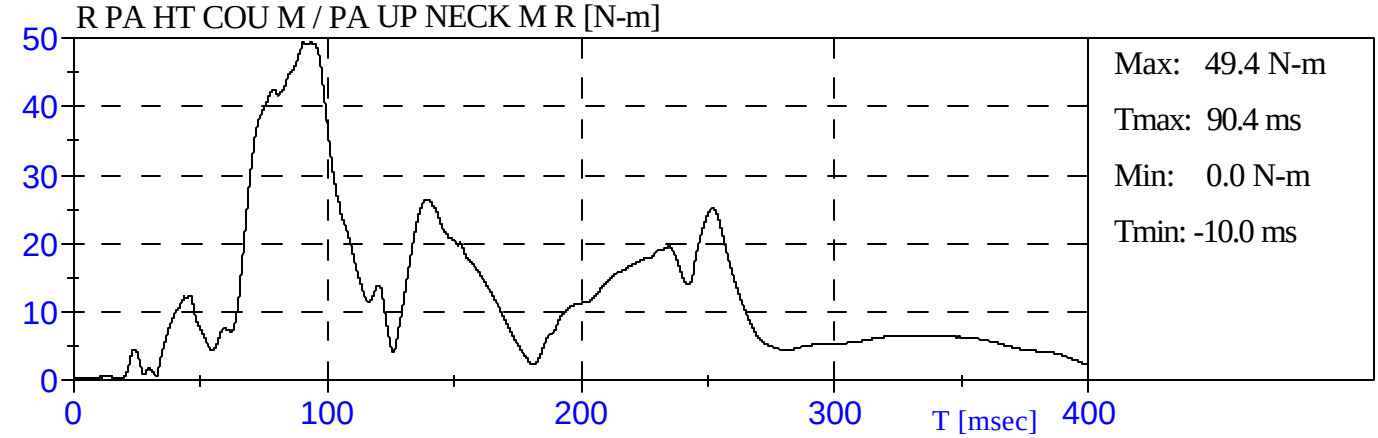
PA HT COU MY / PA UP NECK MY [N-m]



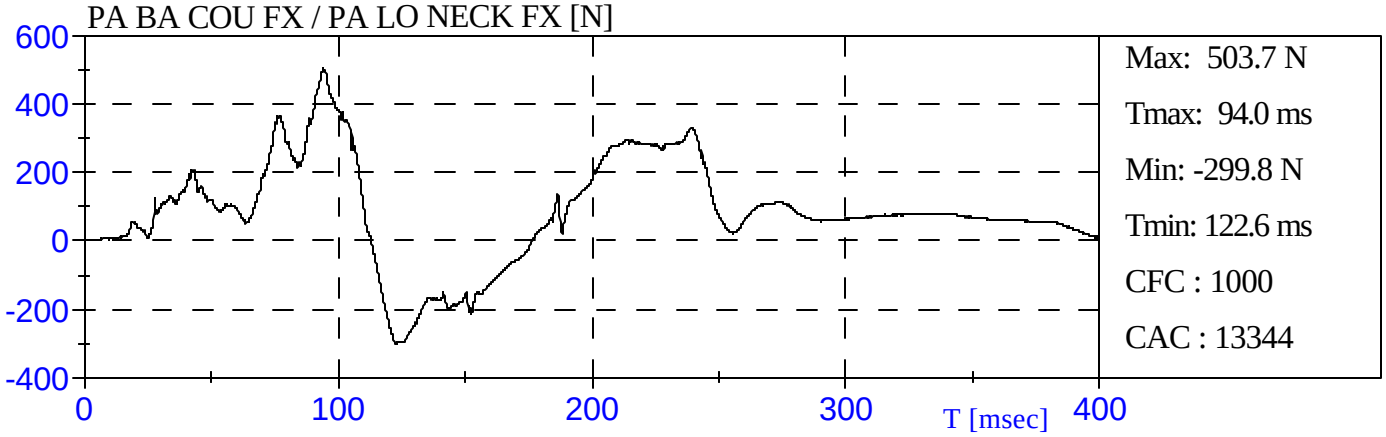
PA HT COU MZ / PA UP NECK MZ [N-m]



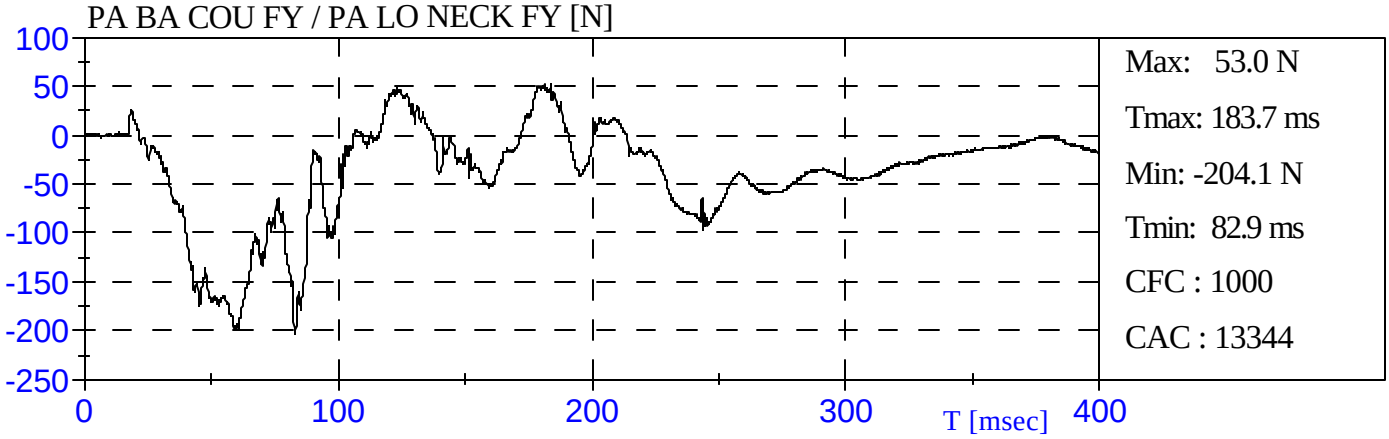
R PA HT COU M / PA UP NECK M R [N-m]



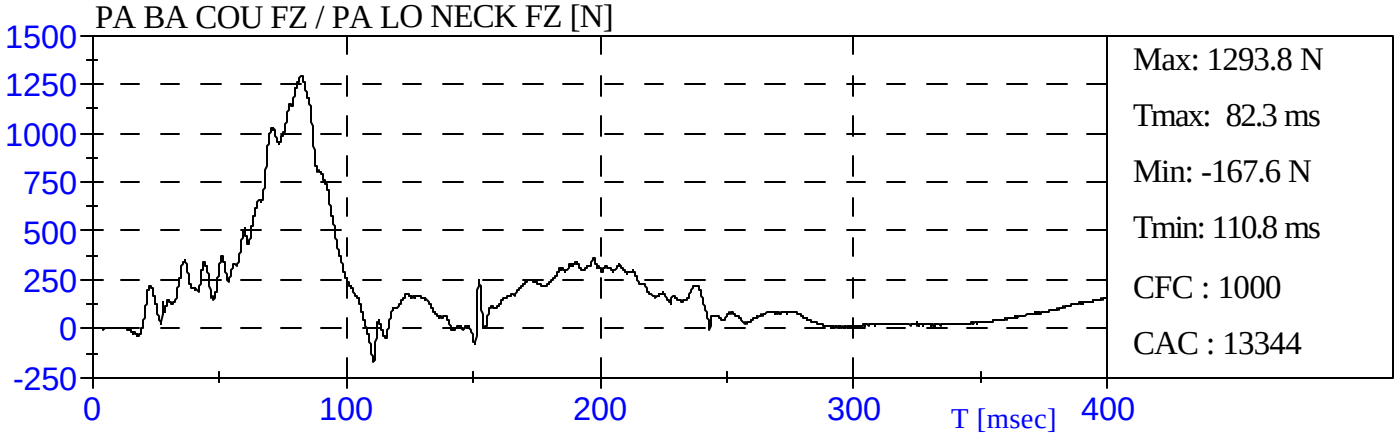
PA BA COU FX / PA LO NECK FX [N]



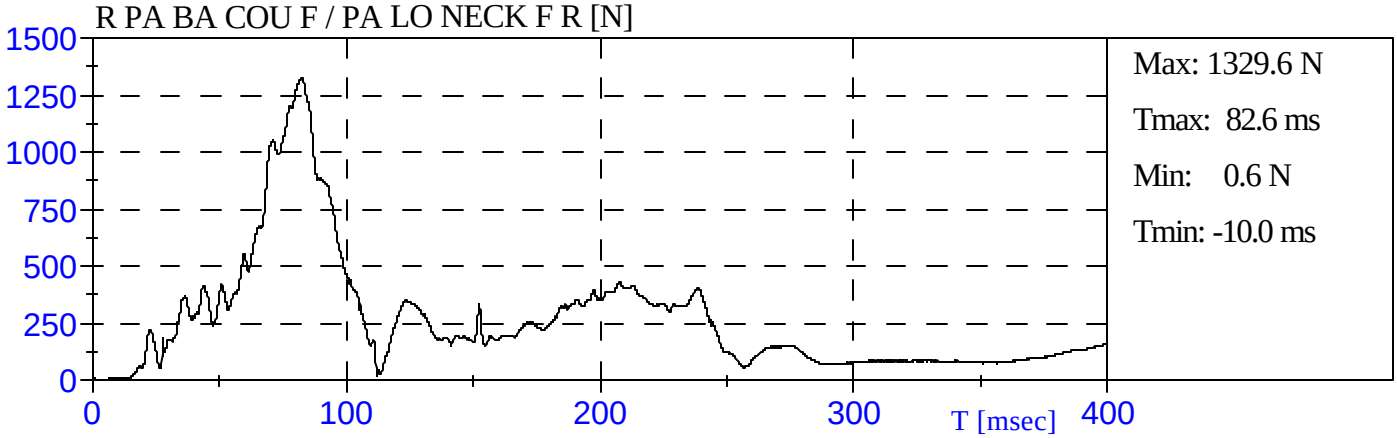
PA BA COU FY / PA LO NECK FY [N]



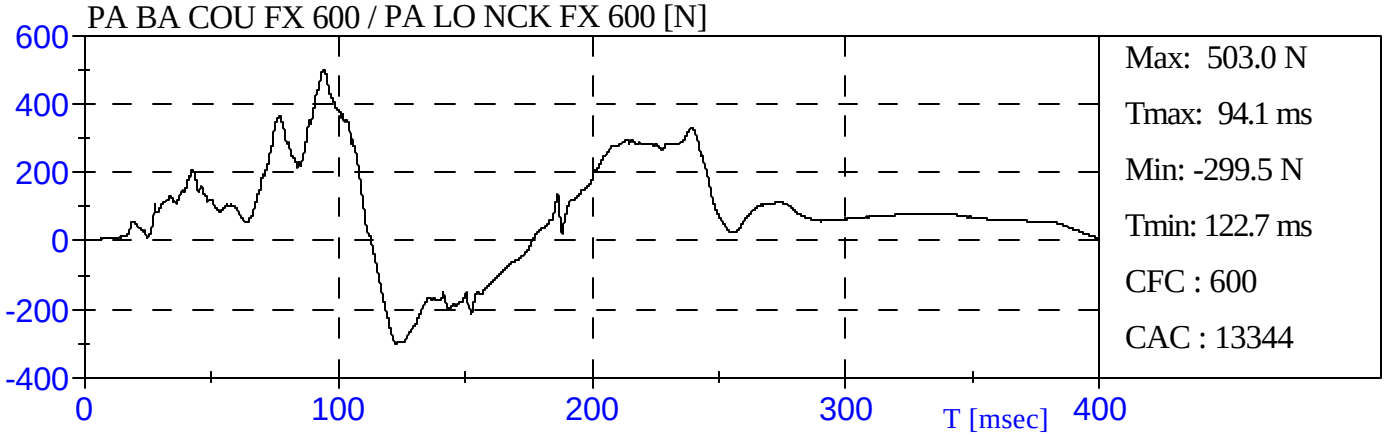
PA BA COU FZ / PA LO NECK FZ [N]



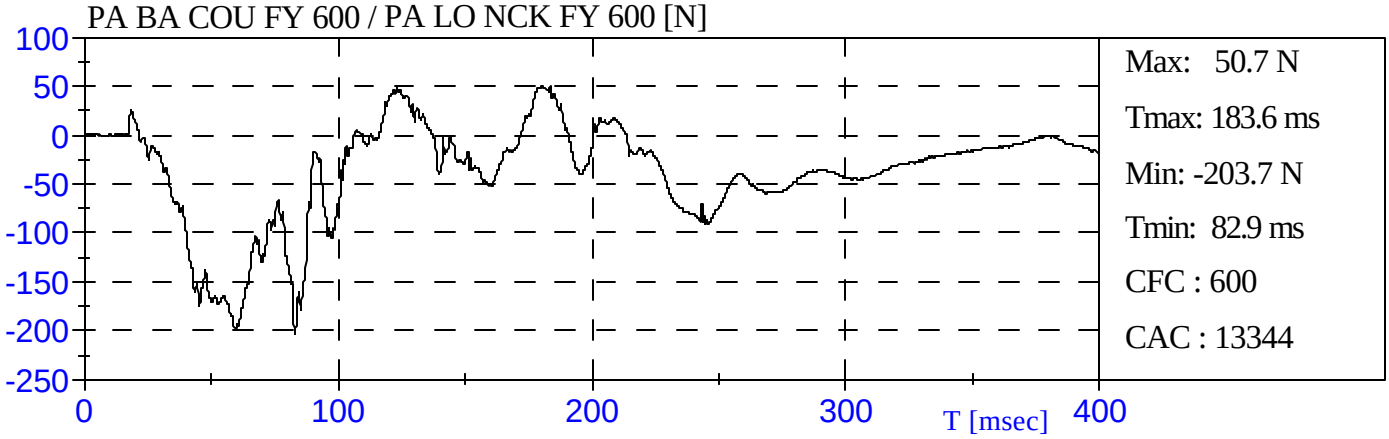
R PA BA COU F / PA LO NECK F R [N]



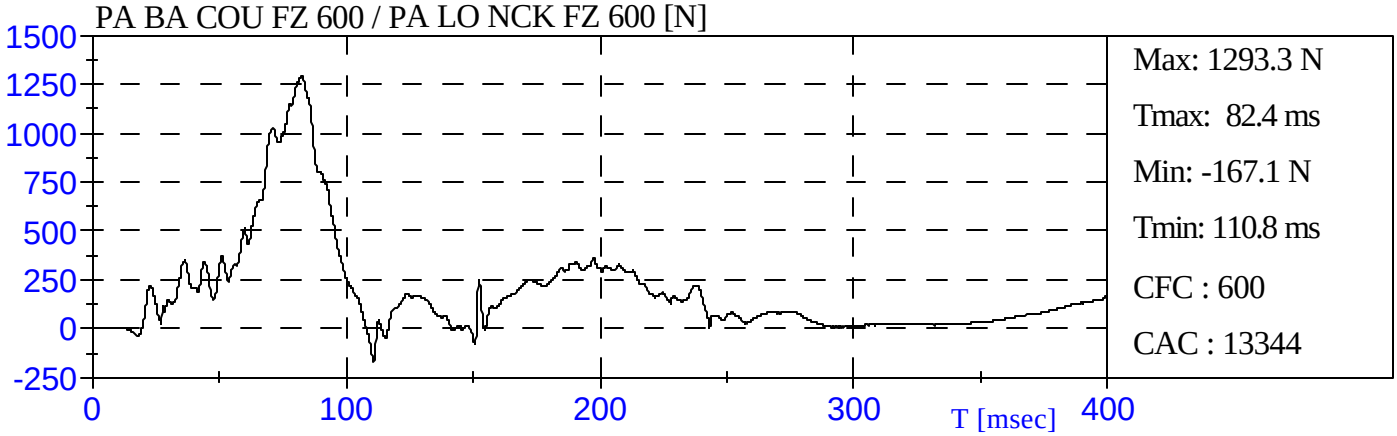
PA BA COU FX 600 / PA LO NCK FX 600 [N]



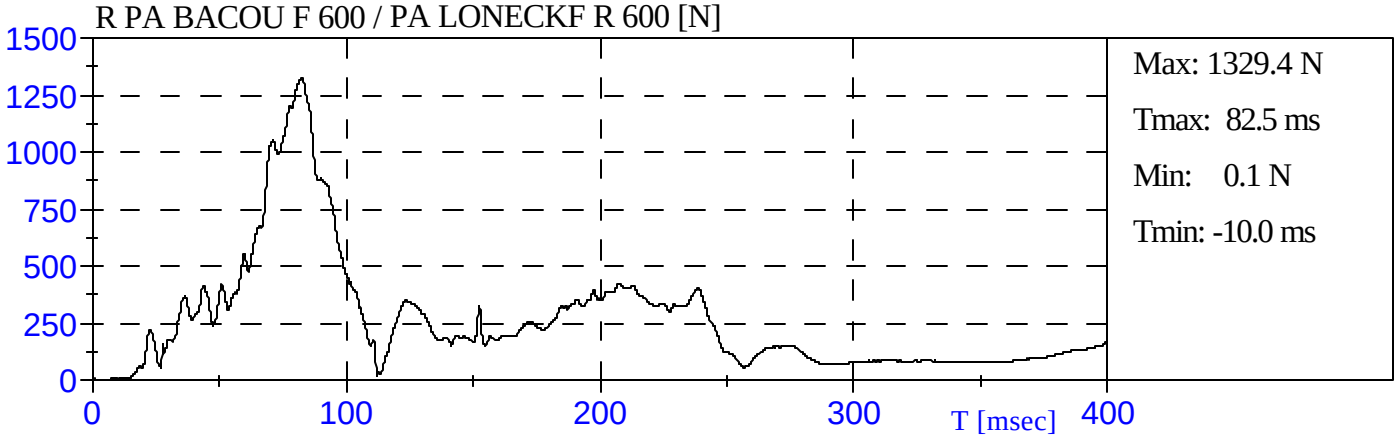
PA BA COU FY 600 / PA LO NCK FY 600 [N]



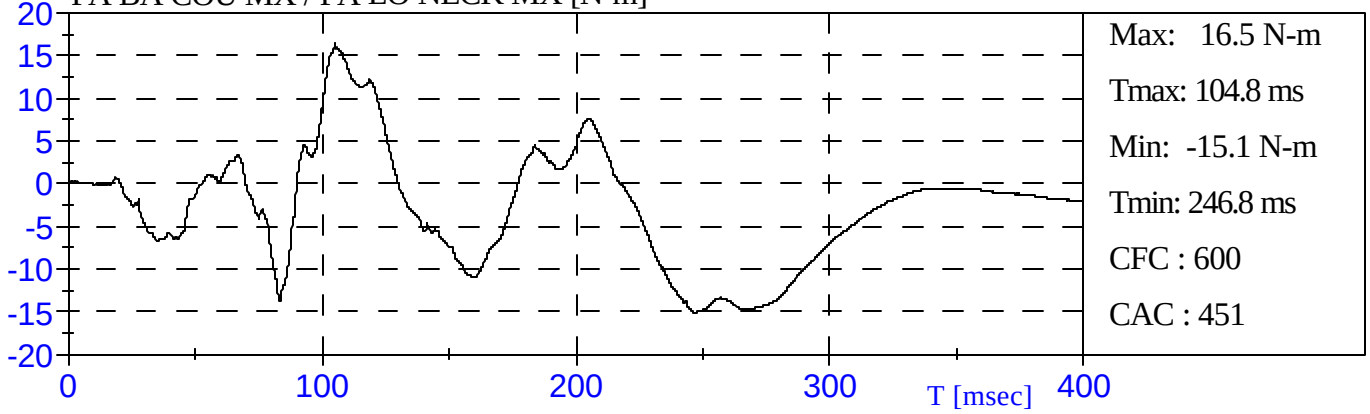
PA BA COU FZ 600 / PA LO NCK FZ 600 [N]



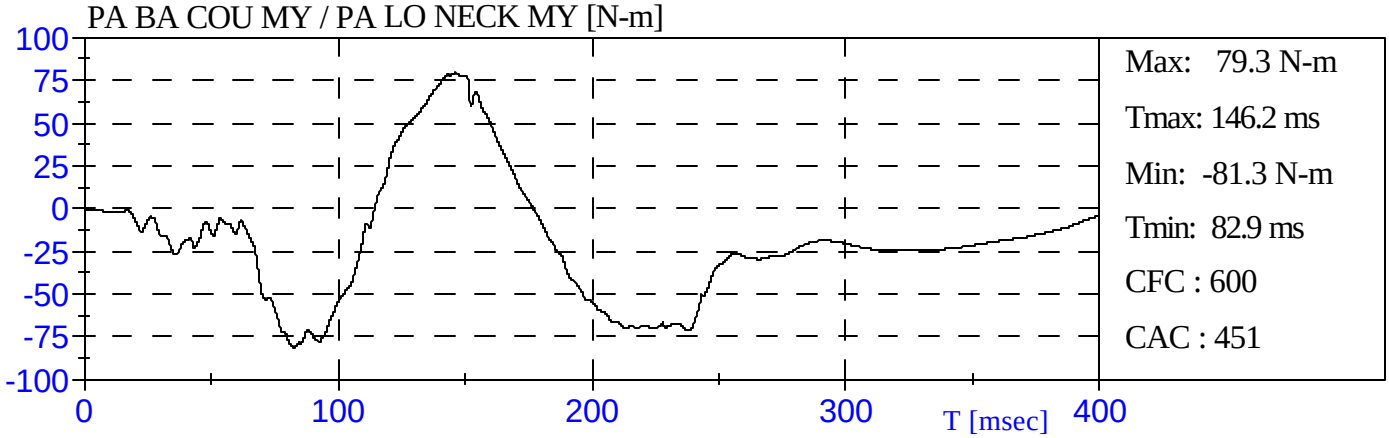
R PA BACOU F 600 / PA LONECKF R 600 [N]



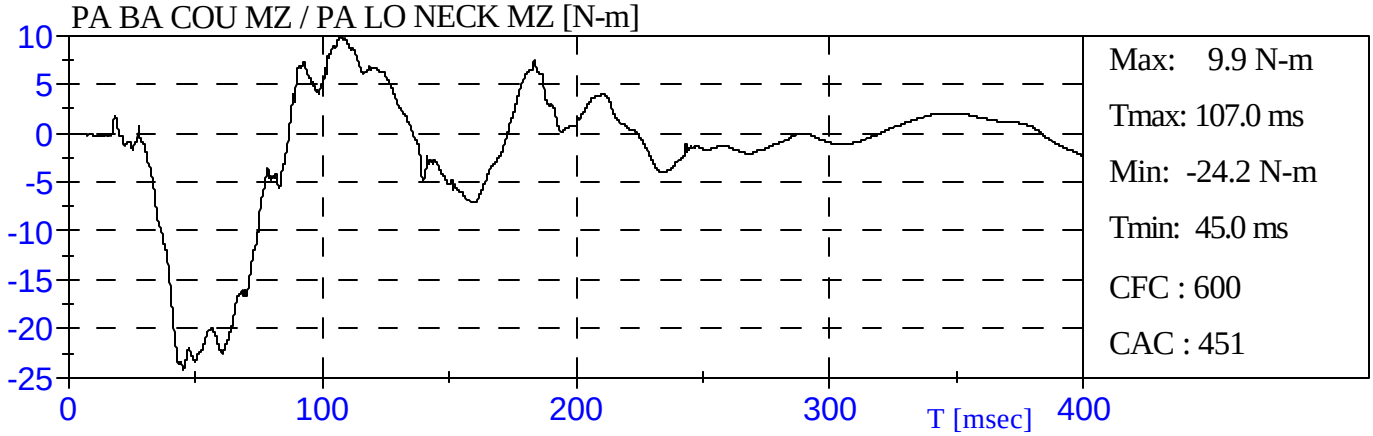
PA BA COU MX / PA LO NECK MX [N-m]



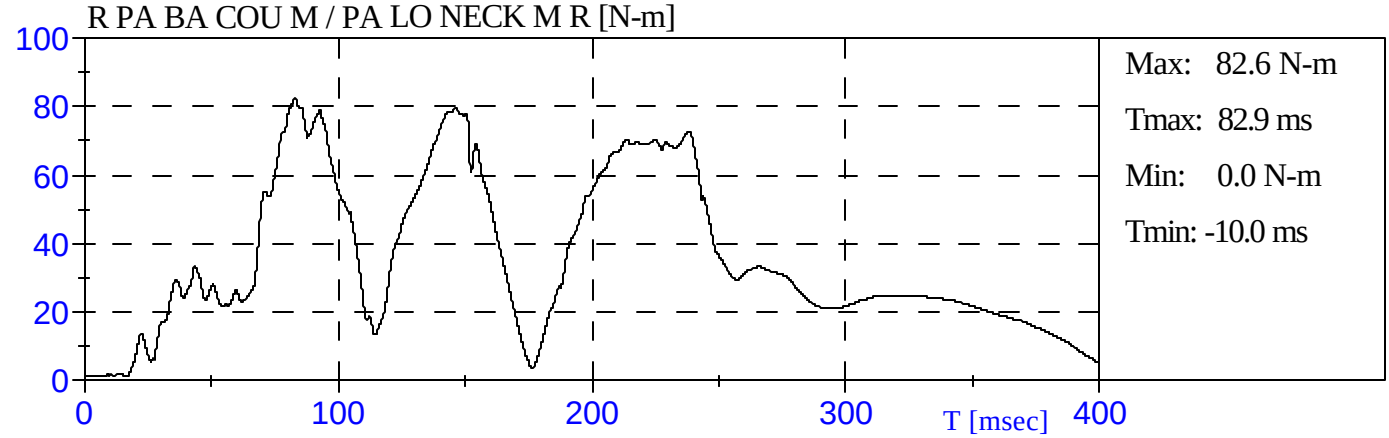
PA BA COU MY / PA LO NECK MY [N-m]



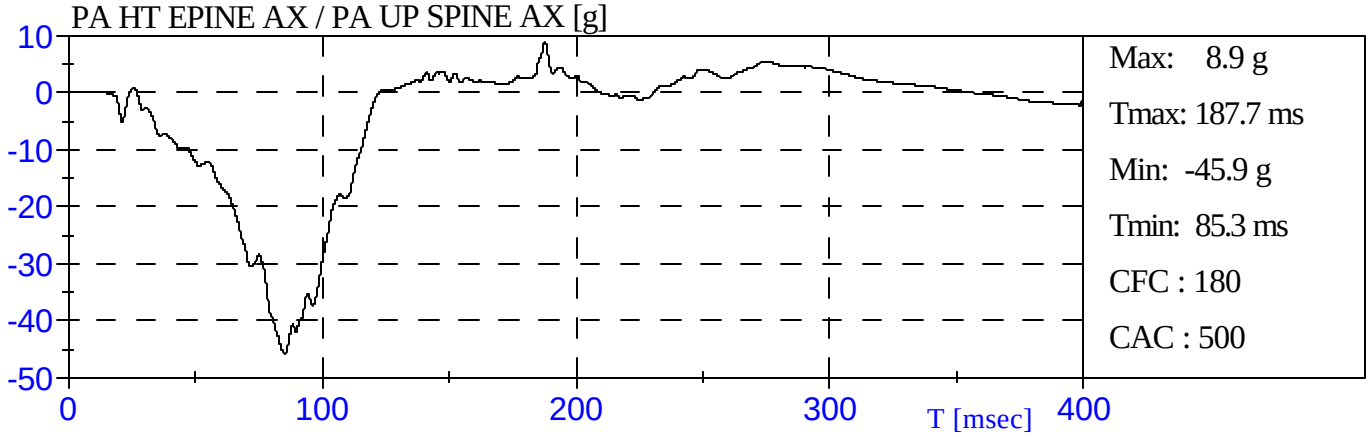
PA BA COU MZ / PA LO NECK MZ [N-m]



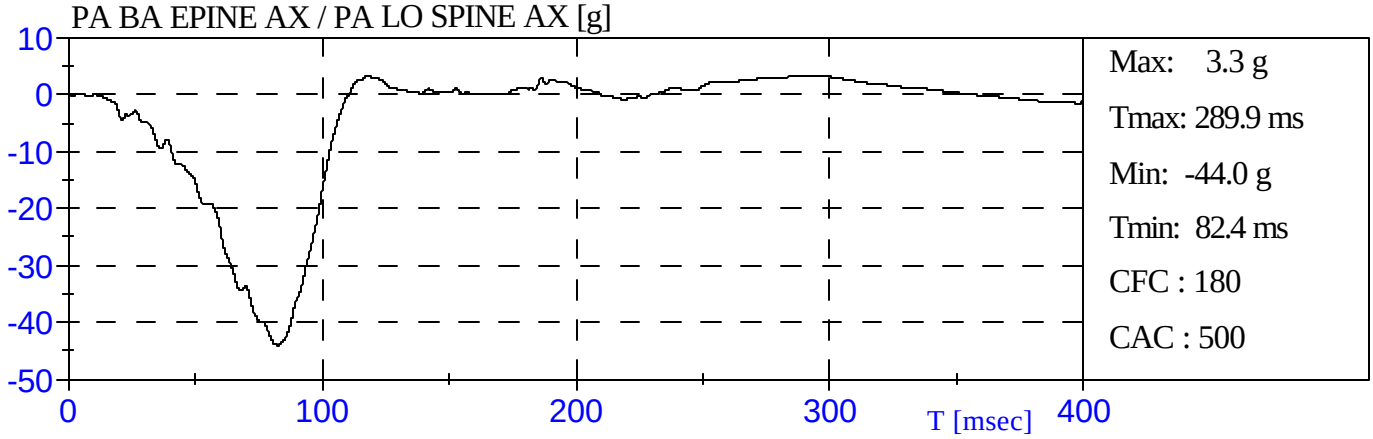
R PA BA COU M / PA LO NECK M R [N-m]



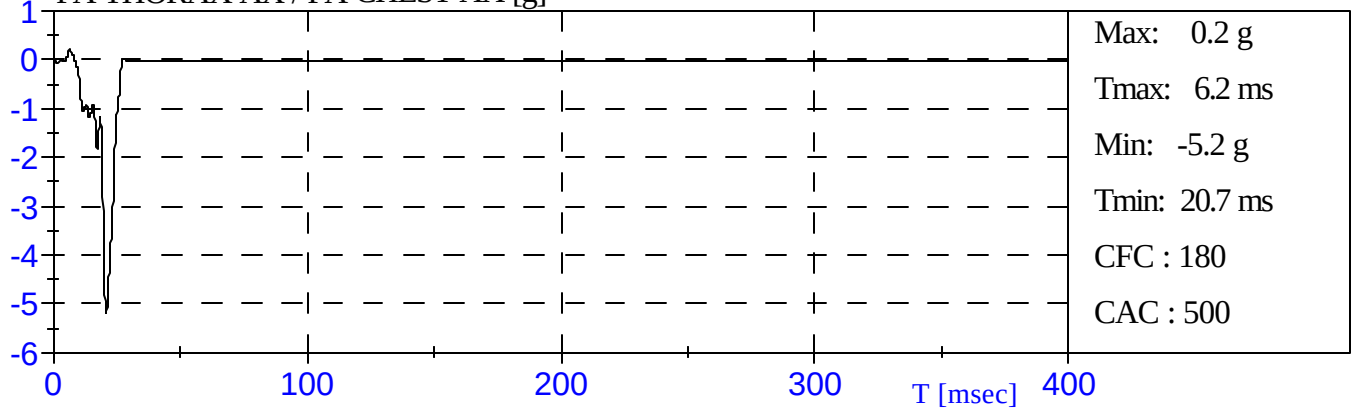
PA HT EPINE AX / PA UP SPINE AX [g]



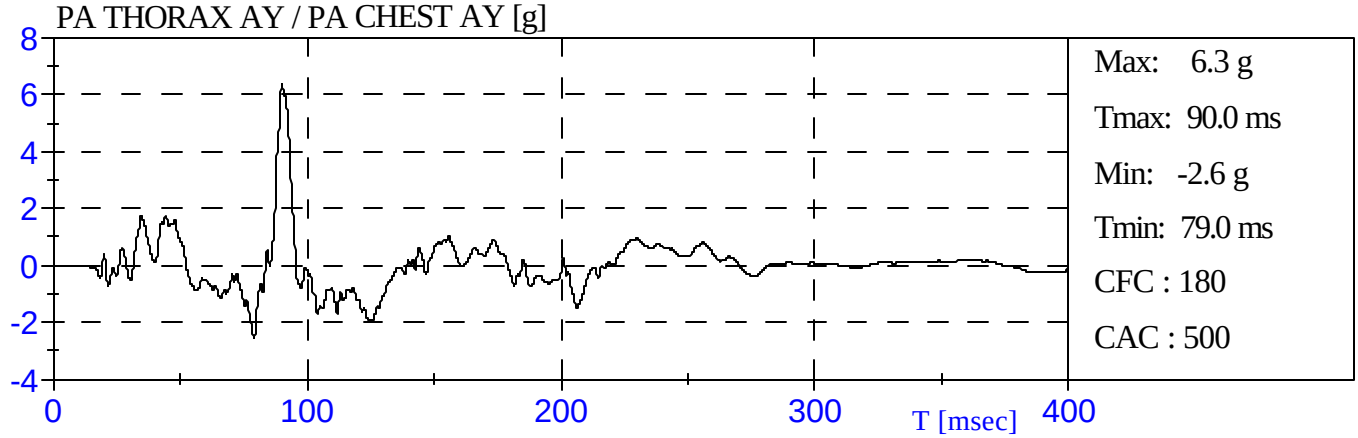
PA BA EPINE AX / PA LO SPINE AX [g]



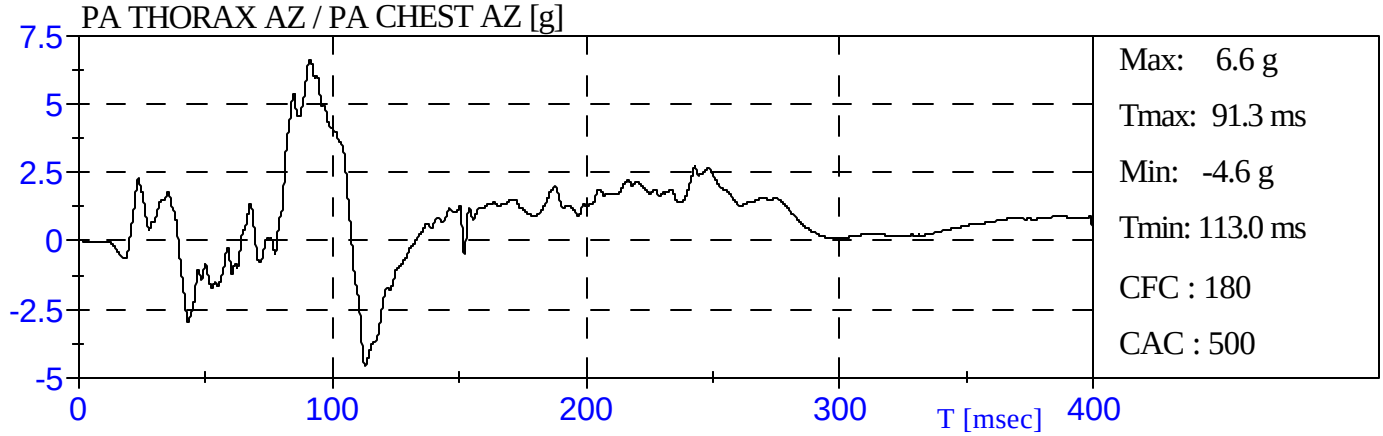
PA THORAX AX / PA CHEST AX [g]



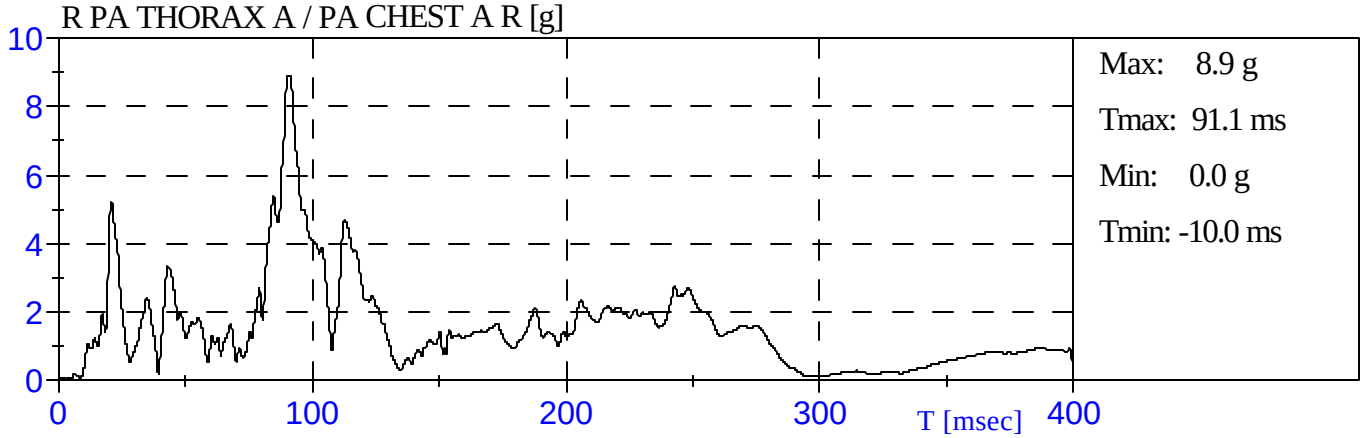
PA THORAX AY / PA CHEST AY [g]

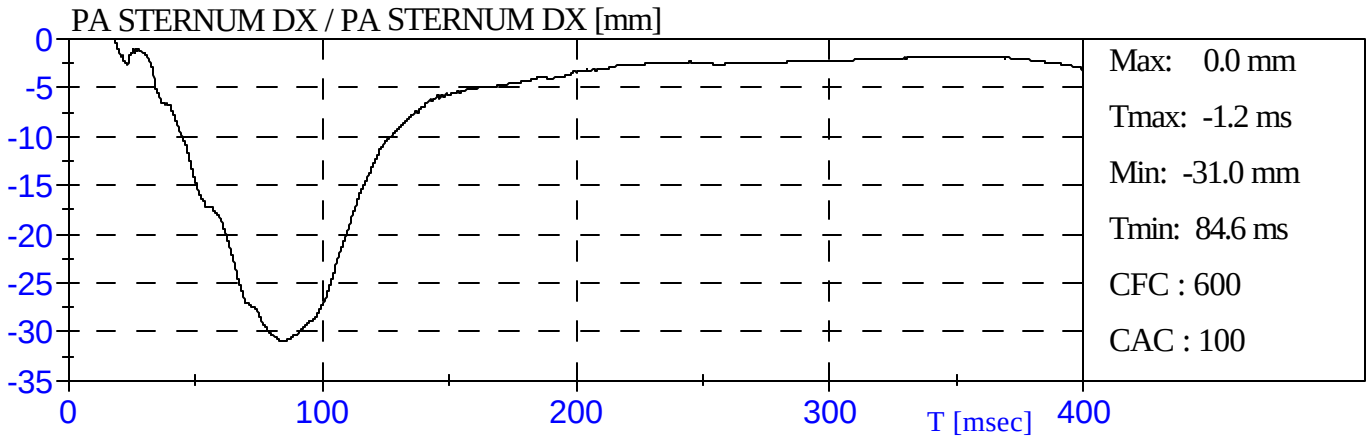


PA THORAX AZ / PA CHEST AZ [g]

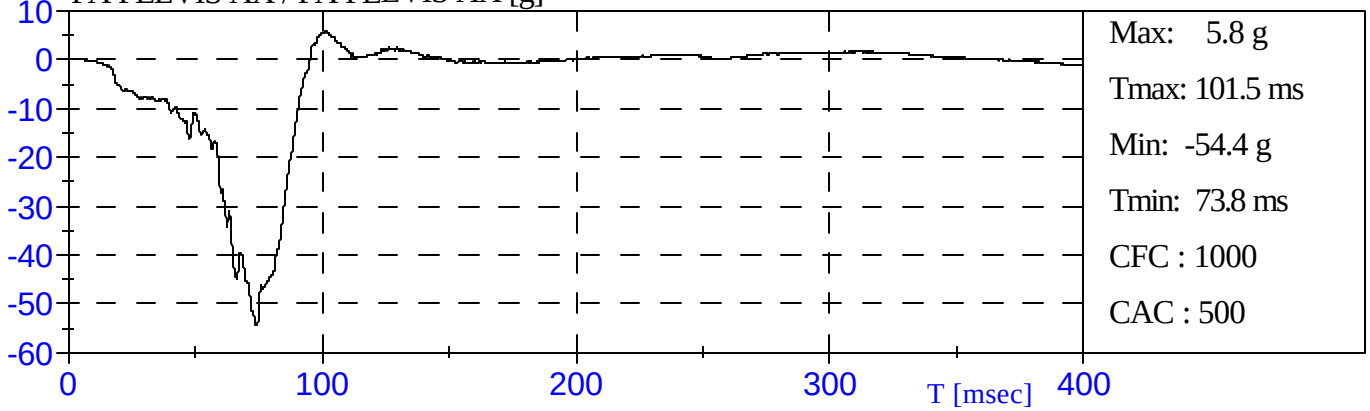


R PA THORAX A / PA CHEST A R [g]

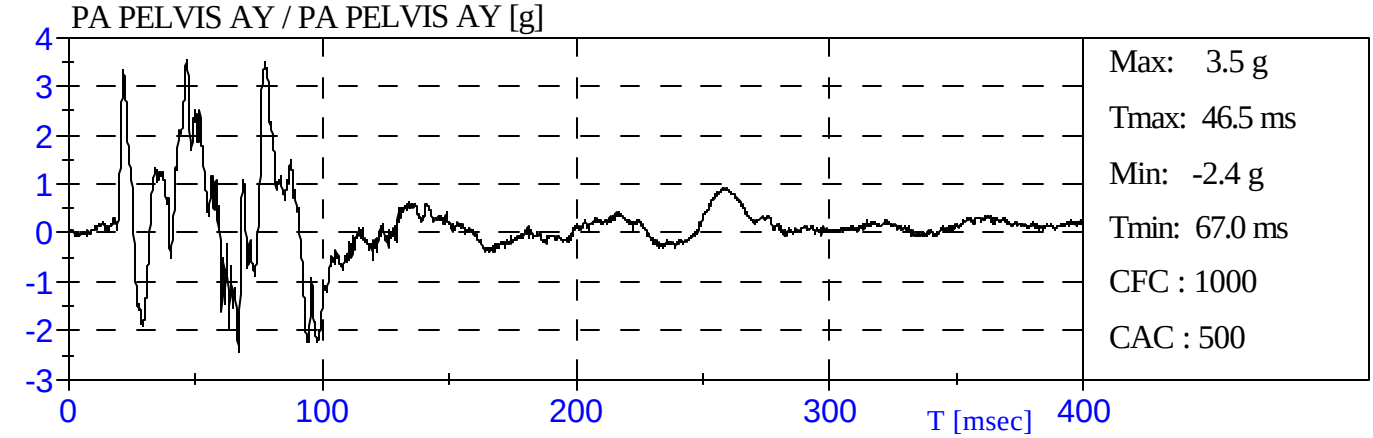



PA STERNUM DX / PA STERNUM DX [mm]
0
-5
-10
-15
-20
-25
-30
-35
0
100
200
300
400
T [msec]
Max: 0.0 mm
Tmax: -1.2 ms
Min: -31.0 mm
Tmin: 84.6 ms
CFC : 600
CAC : 100

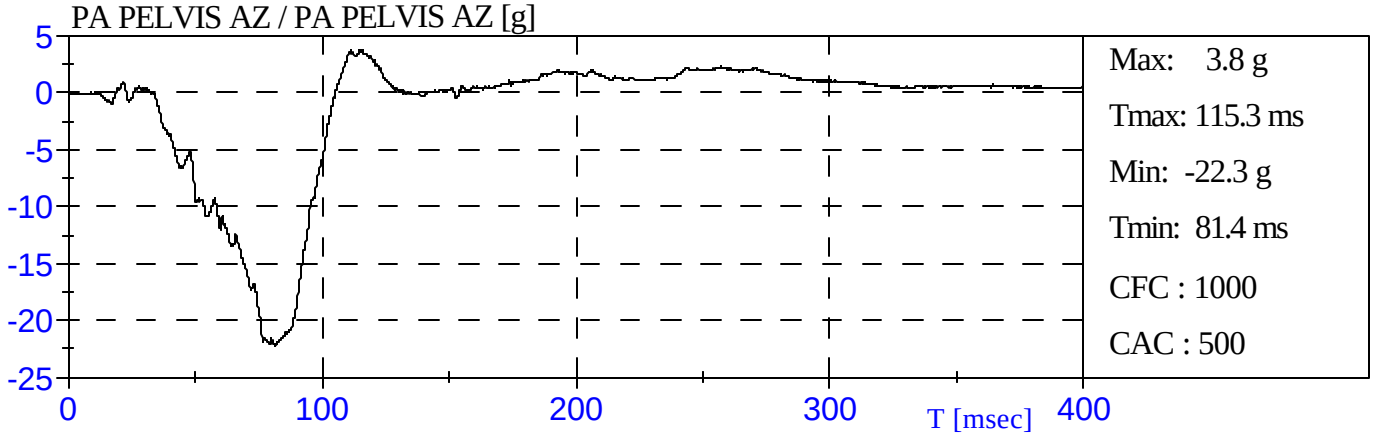
PA PELVIS AX / PA PELVIS AX [g]



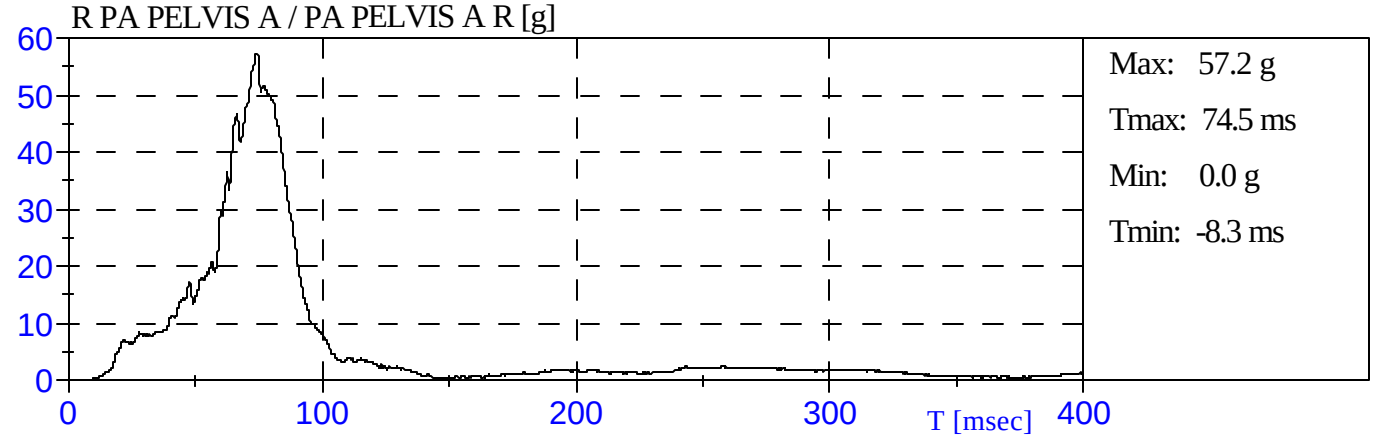
PA PELVIS AY / PA PELVIS AY [g]



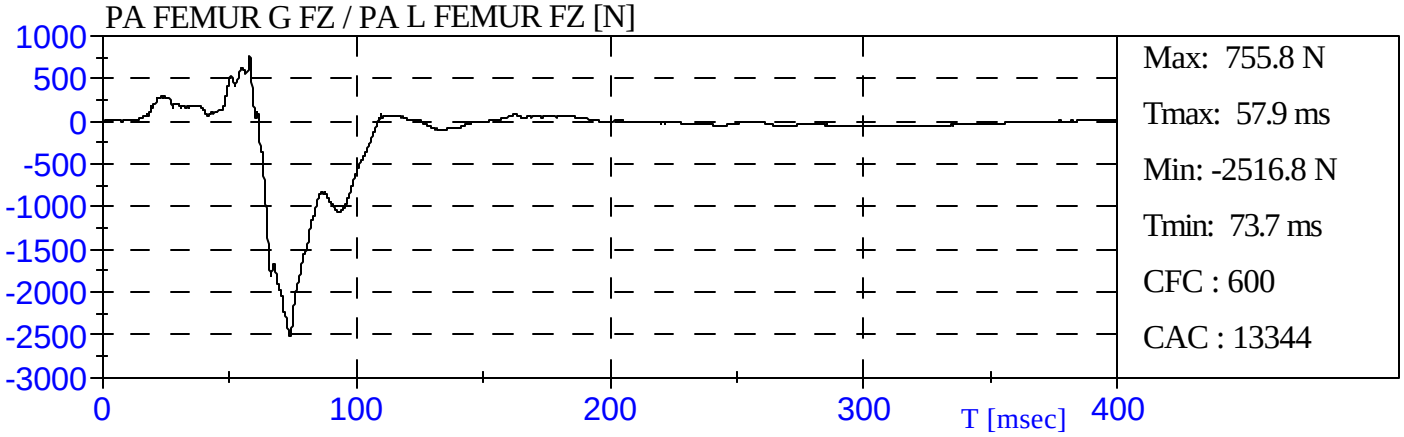
PA PELVIS AZ / PA PELVIS AZ [g]



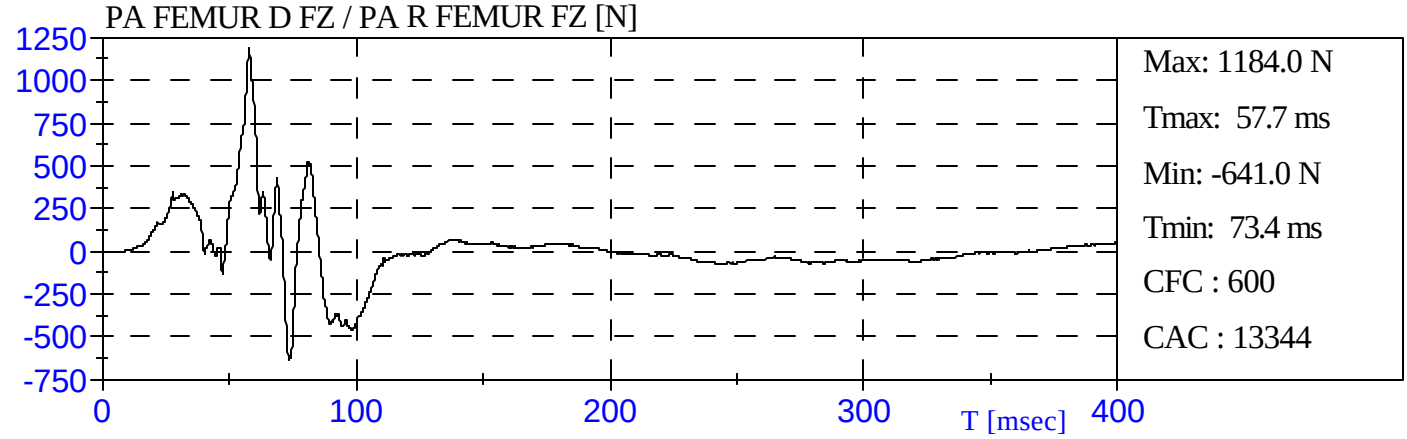
R PA PELVIS A / PA PELVIS A R [g]



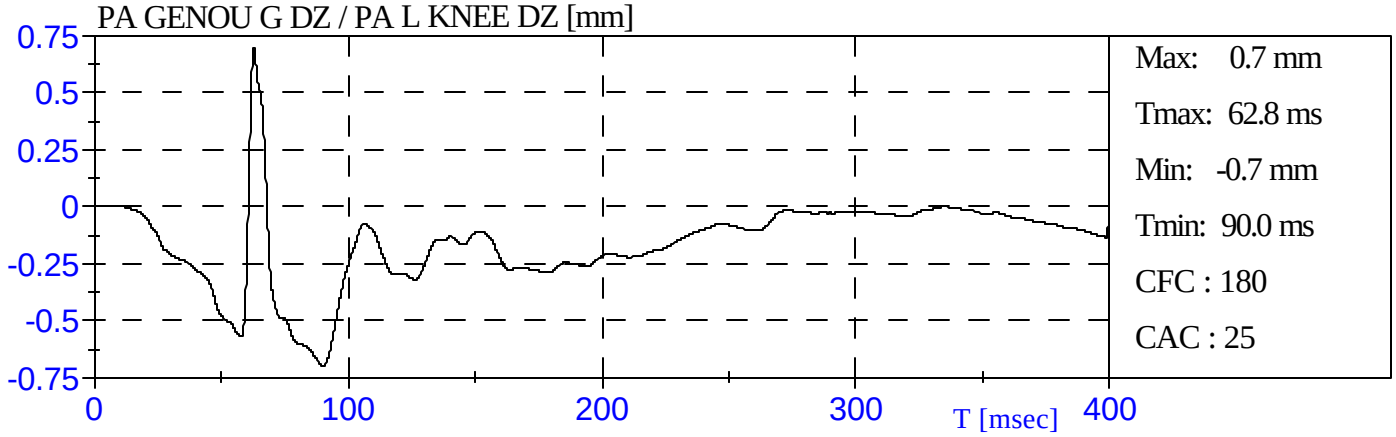
PA FEMUR G FZ / PA L FEMUR FZ [N]



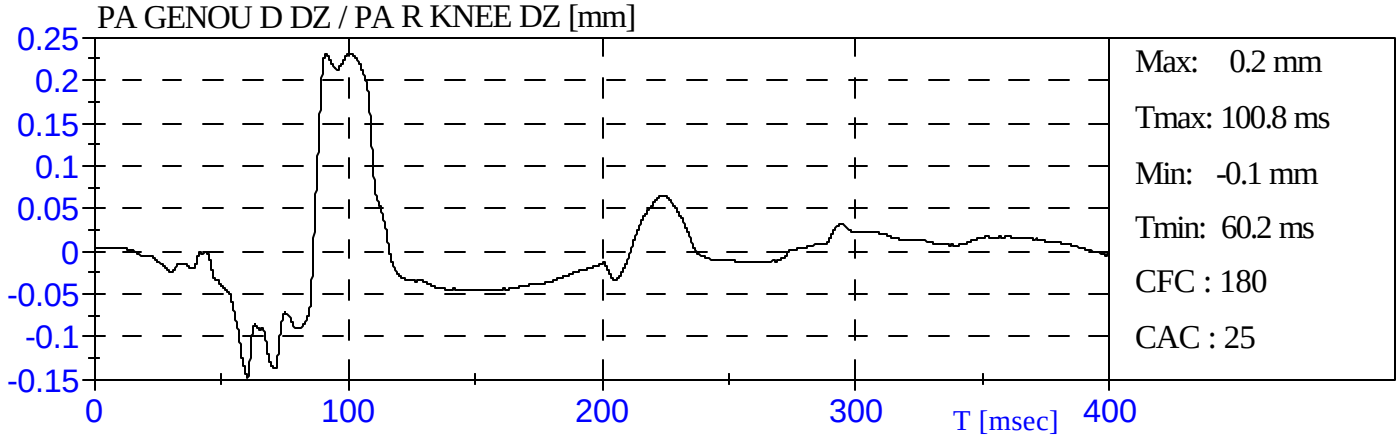
PA FEMUR D FZ / PA R FEMUR FZ [N]



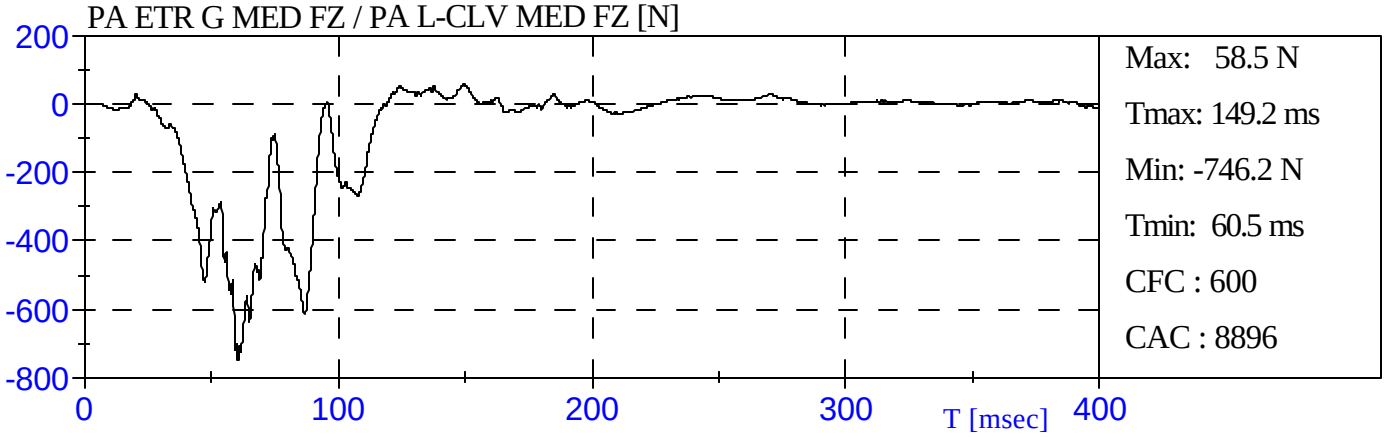
PA GENOU G DZ / PA L KNEE DZ [mm]



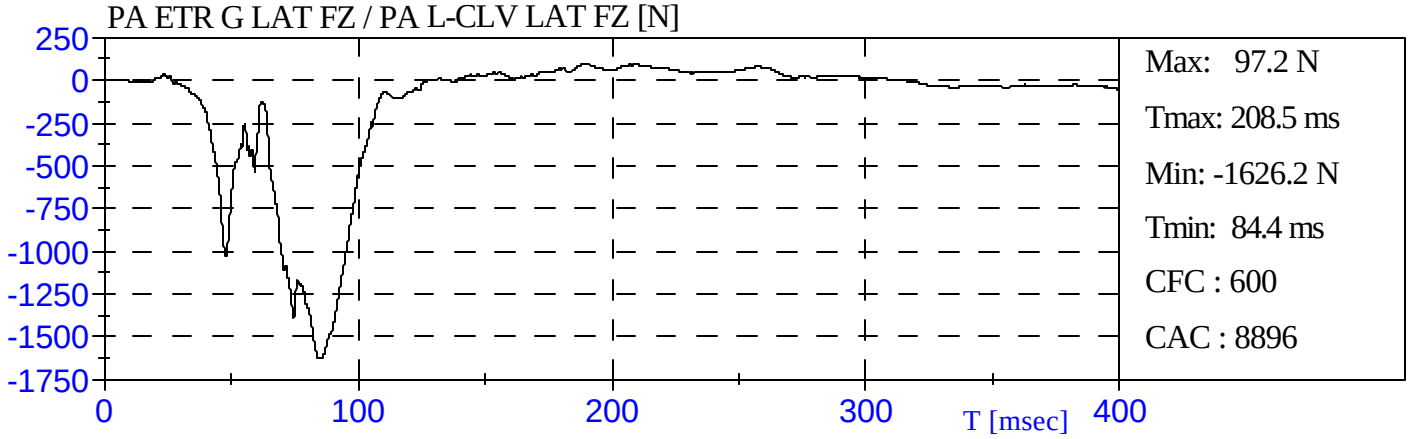
PA GENOU D DZ / PA R KNEE DZ [mm]



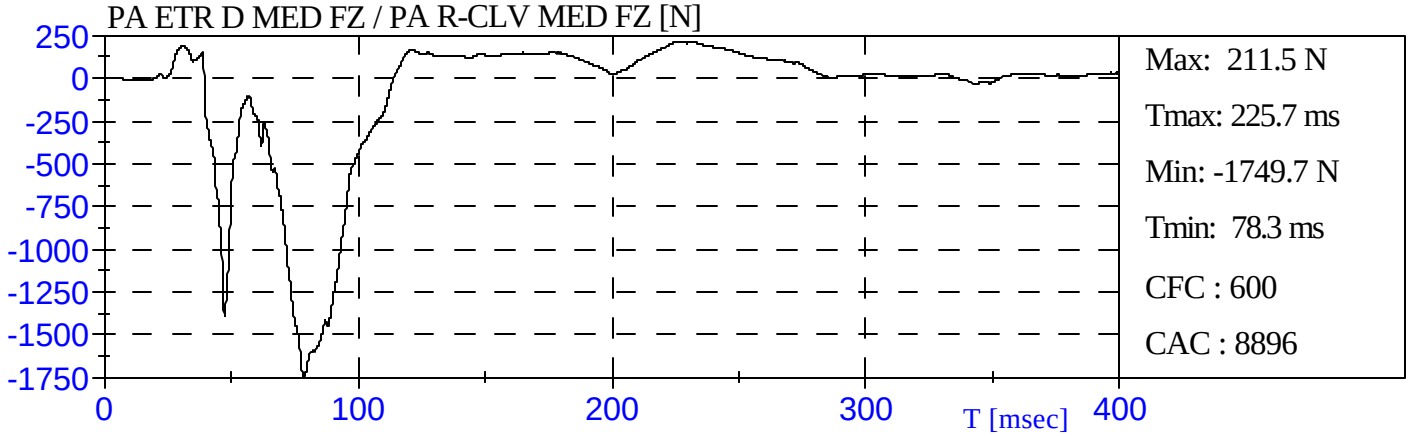
PA ETR G MED FZ / PA L-CLV MED FZ [N]



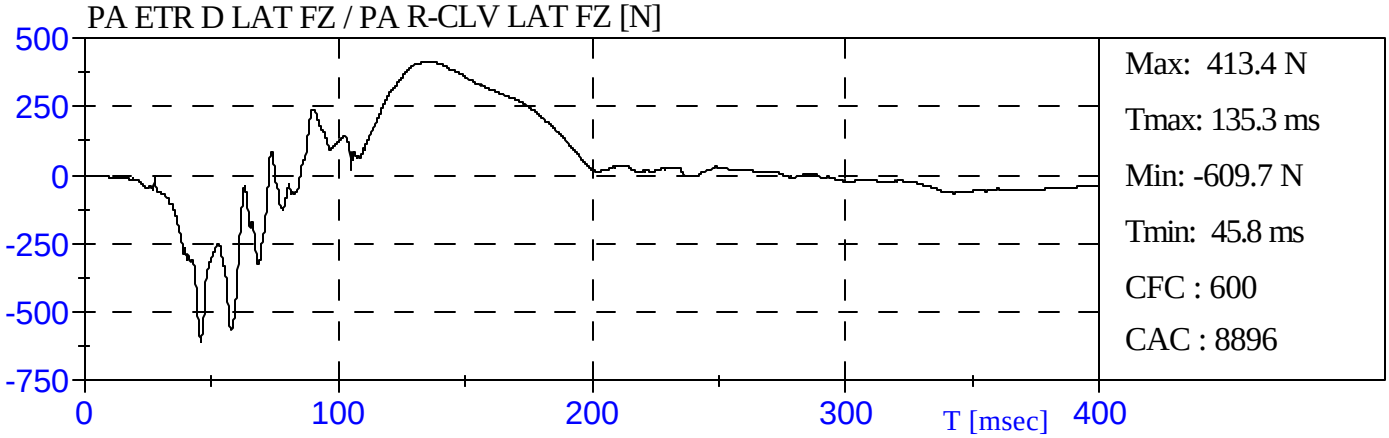
PA ETR G LAT FZ / PA L-CLV LAT FZ [N]



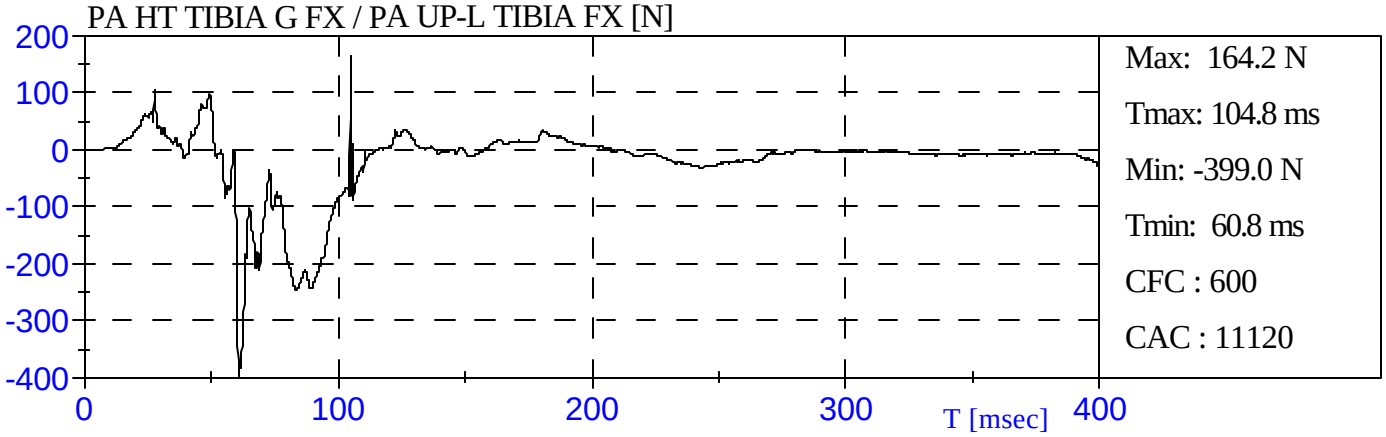
PA ETR D MED FZ / PA R-CLV MED FZ [N]



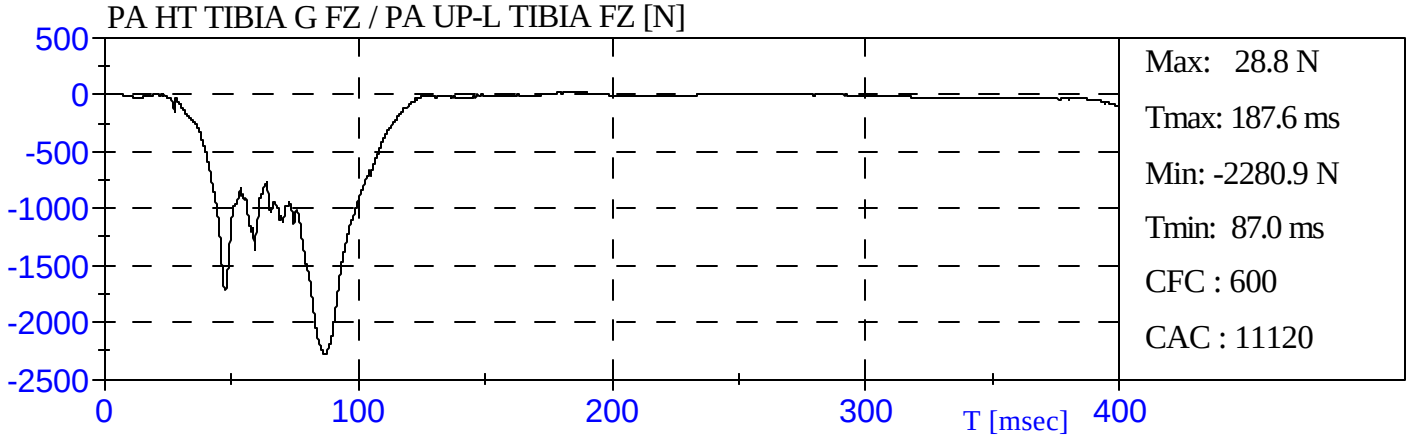
PA ETR D LAT FZ / PA R-CLV LAT FZ [N]



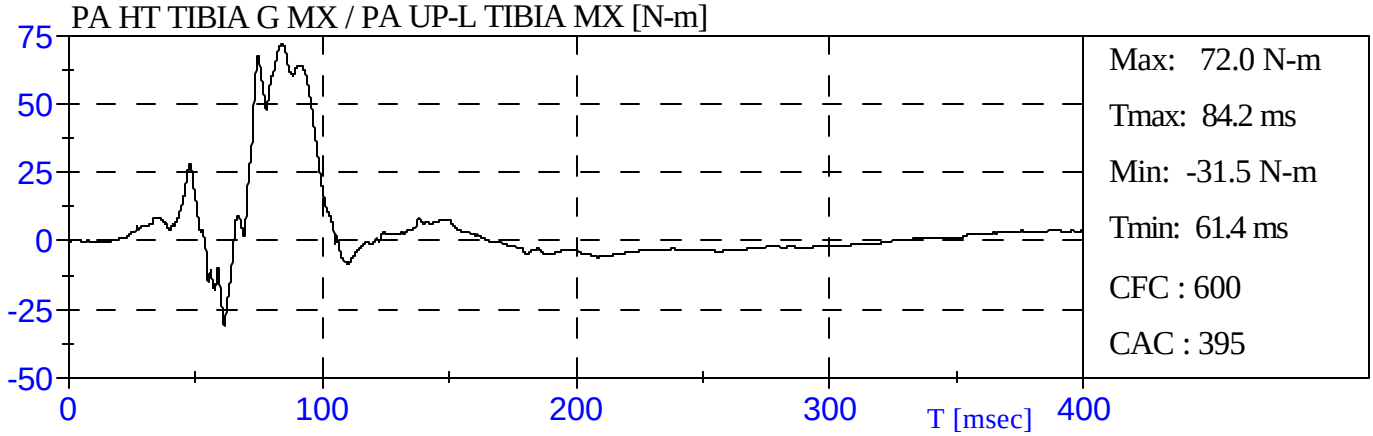
PA HT TIBIA G FX / PA UP-L TIBIA FX [N]



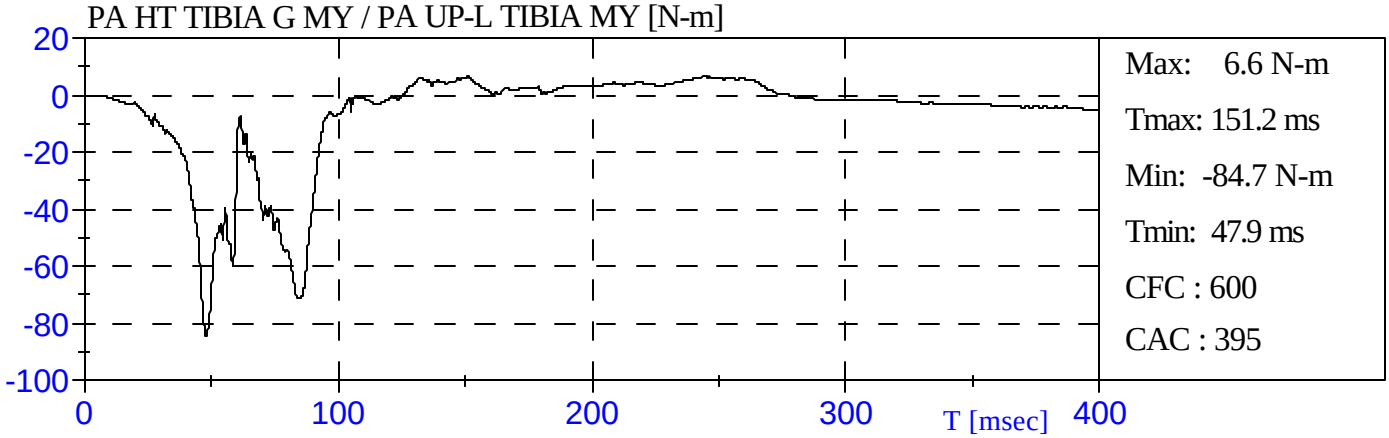
PA HT TIBIA G FZ / PA UP-L TIBIA FZ [N]



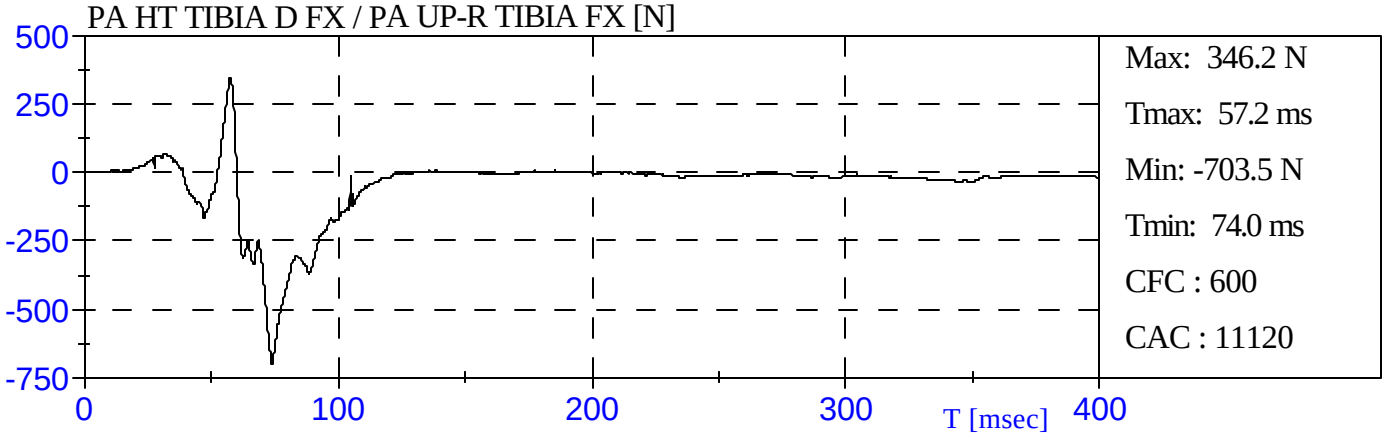
PA HT TIBIA G MX / PA UP-L TIBIA MX [N-m]



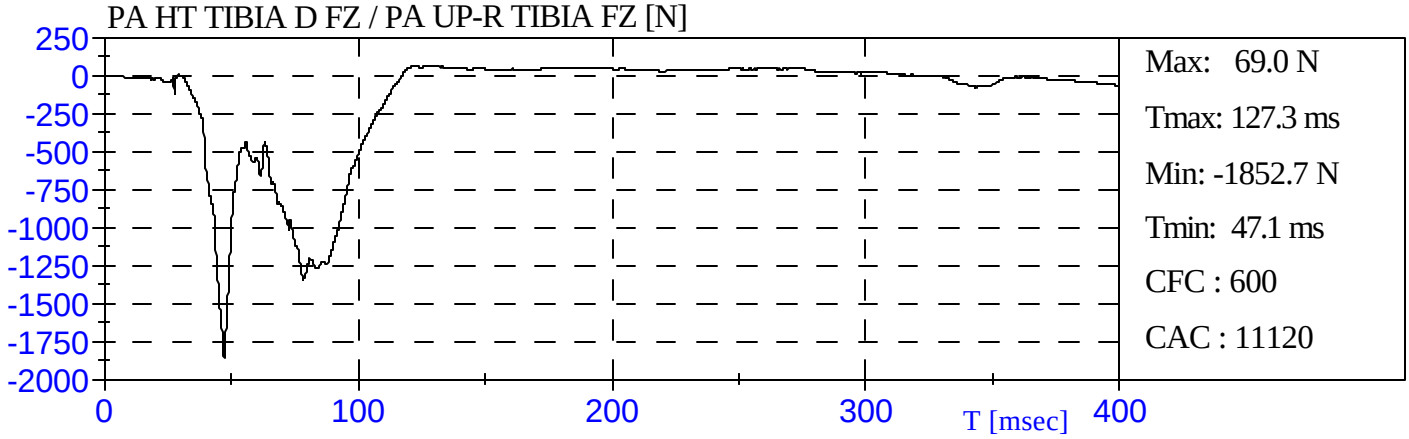
PA HT TIBIA G MY / PA UP-L TIBIA MY [N-m]



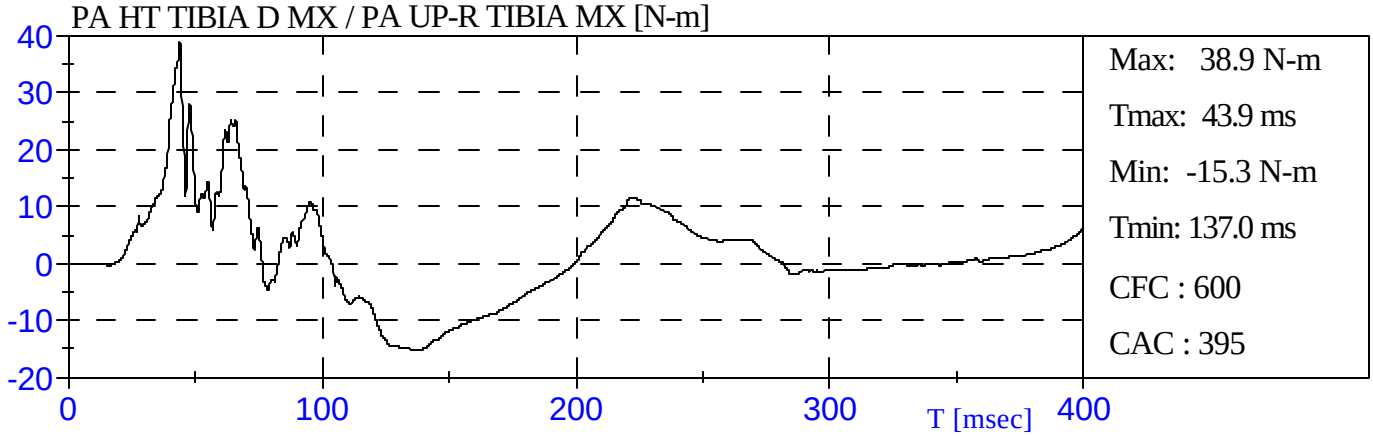
PA HT TIBIA D FX / PA UP-R TIBIA FX [N]



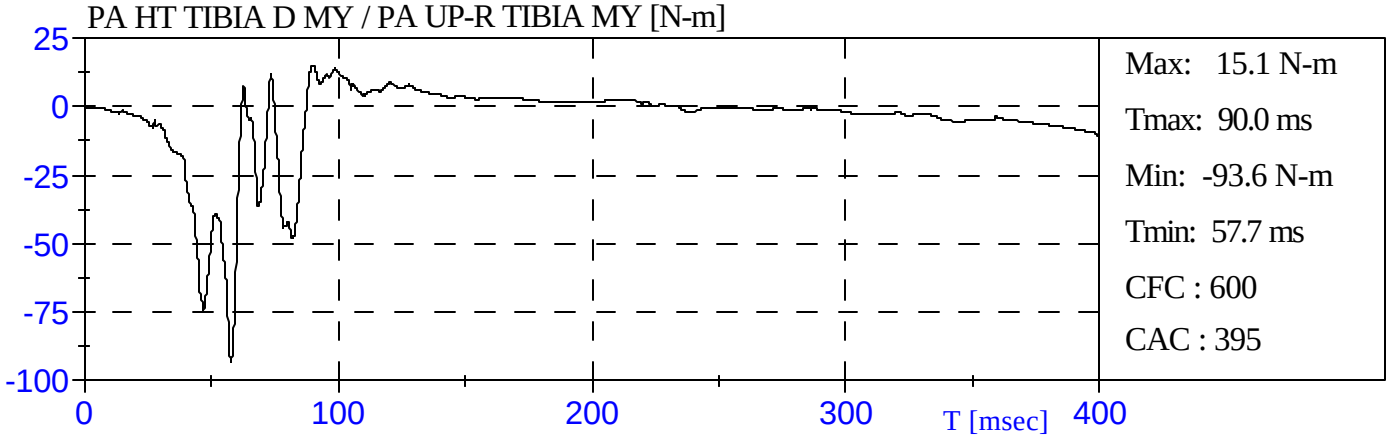
PA HT TIBIA D FZ / PA UP-R TIBIA FZ [N]



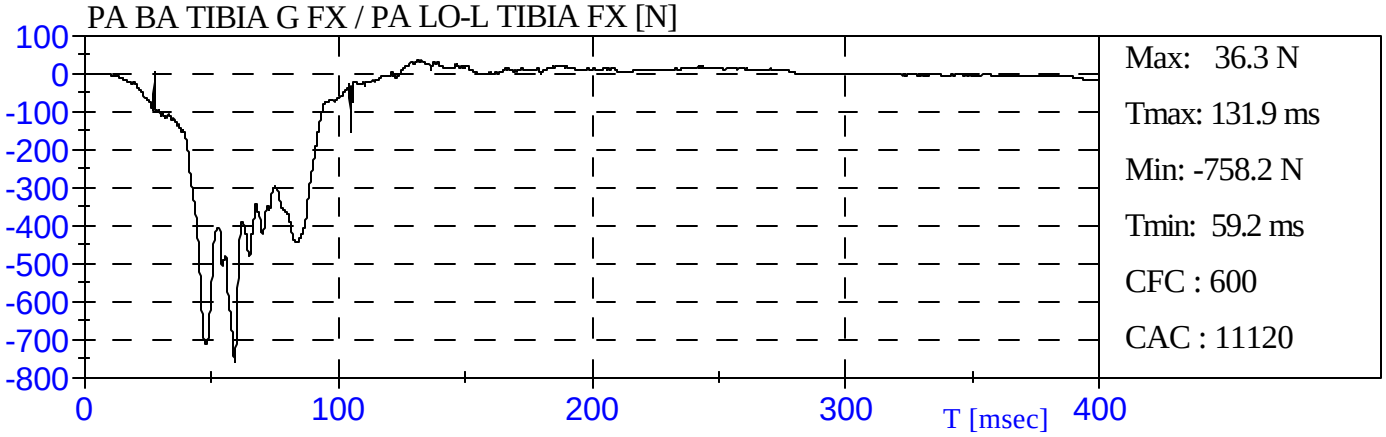
PA HT TIBIA D MX / PA UP-R TIBIA MX [N-m]



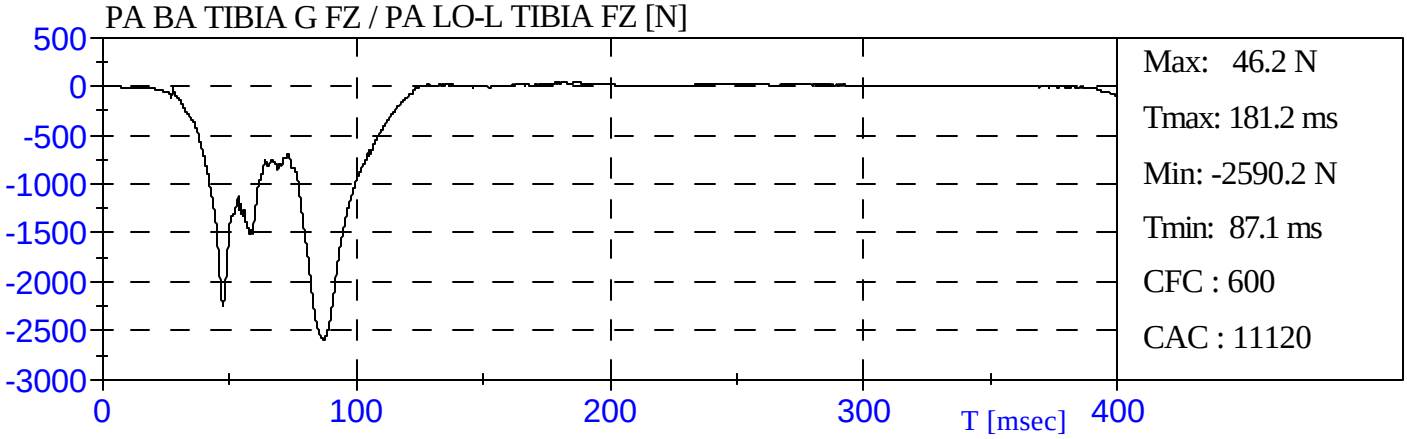
PA HT TIBIA D MY / PA UP-R TIBIA MY [N-m]



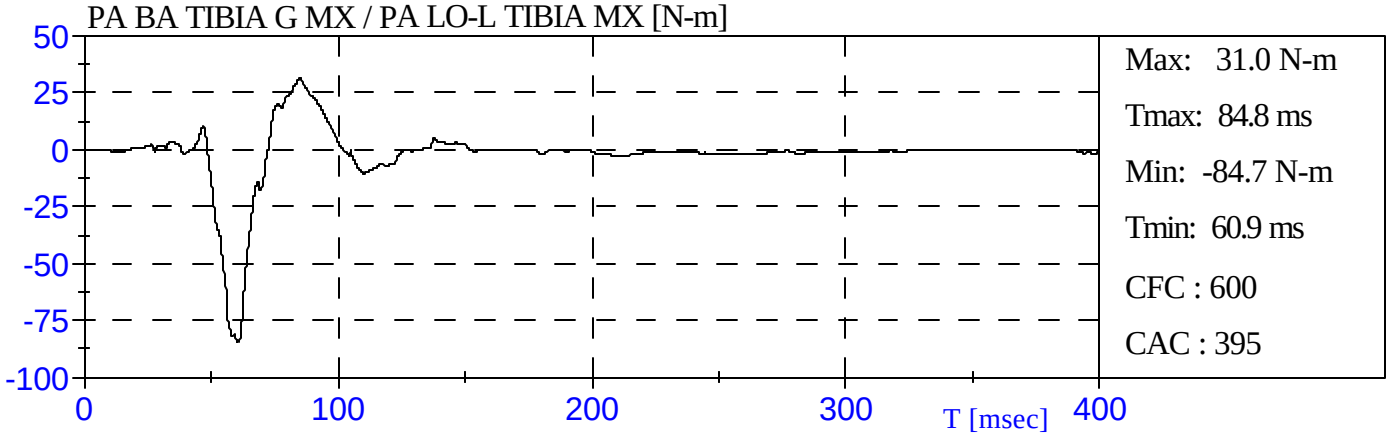
PA BA TIBIA G FX / PA LO-L TIBIA FX [N]



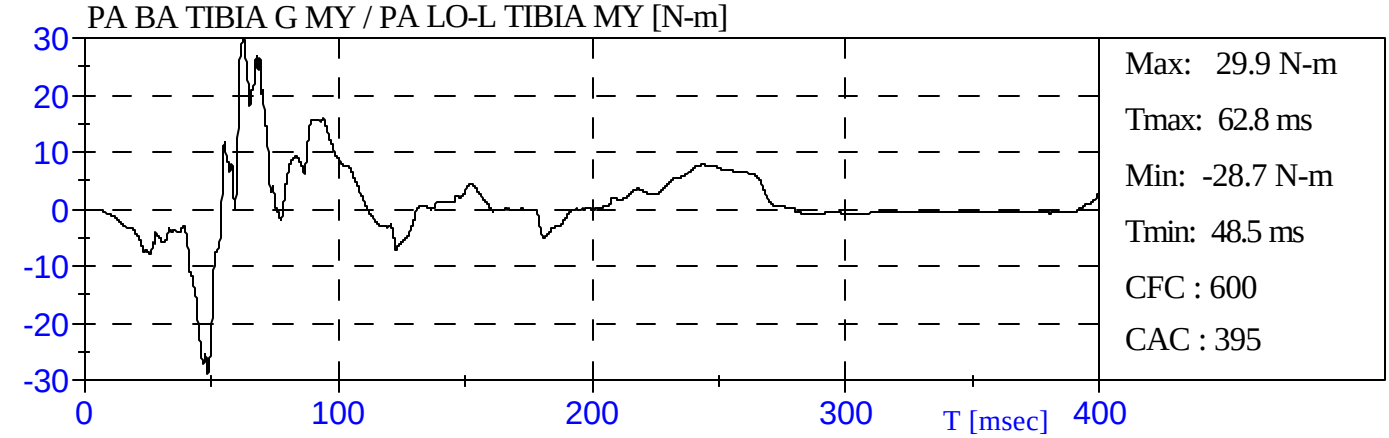
PA BA TIBIA G FZ / PA LO-L TIBIA FZ [N]



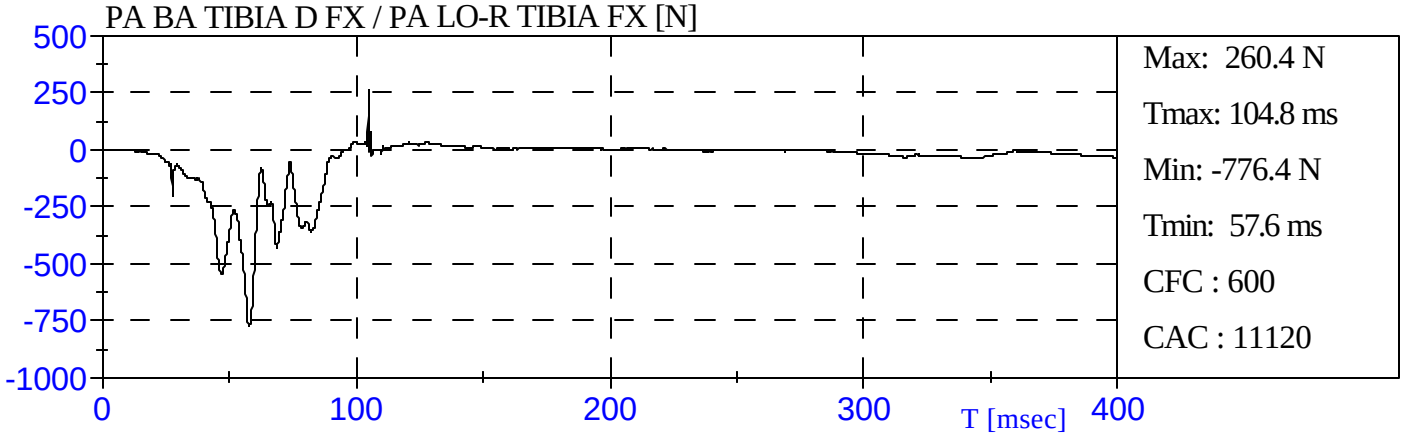
PA BA TIBIA G MX / PA LO-L TIBIA MX [N-m]



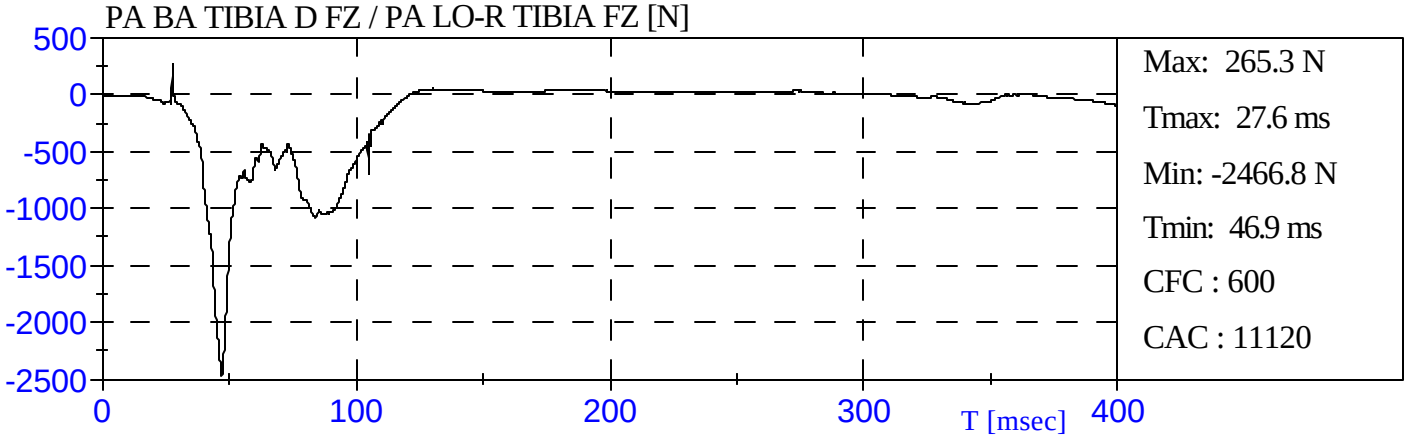
PA BA TIBIA G MY / PA LO-L TIBIA MY [N-m]



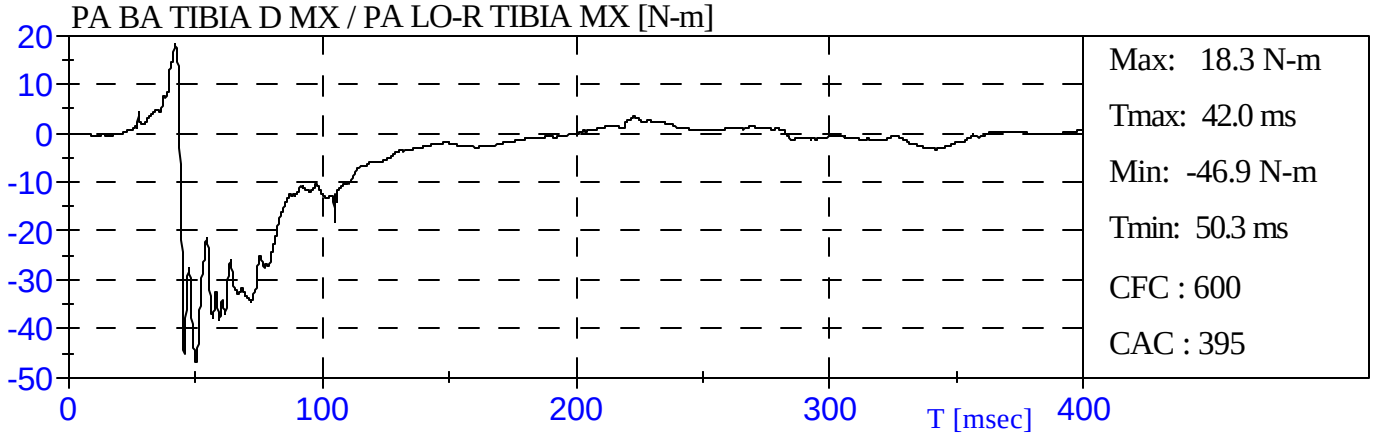
PA BA TIBIA D FX / PA LO-R TIBIA FX [N]



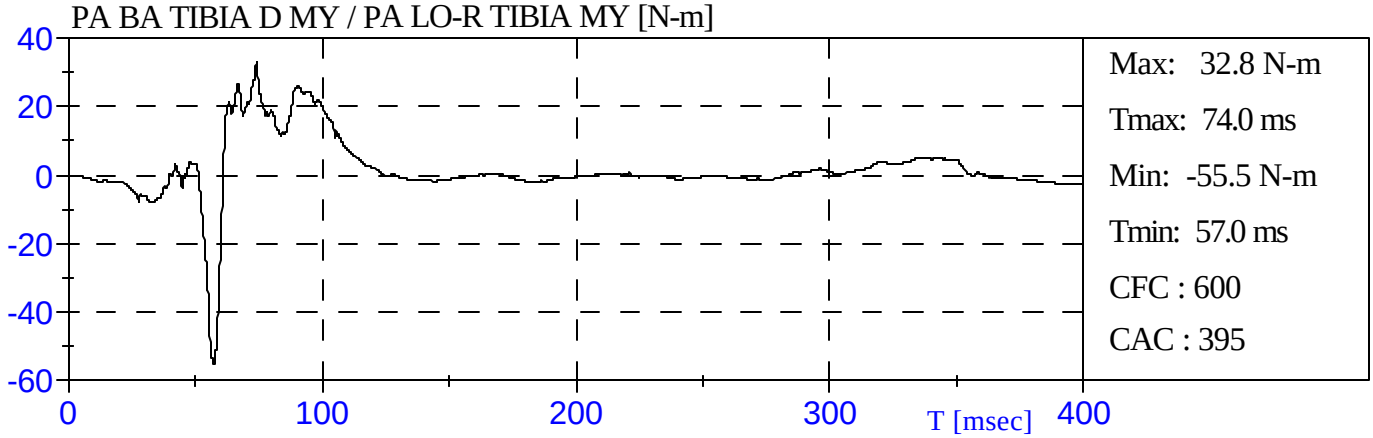
PA BA TIBIA D FZ / PA LO-R TIBIA FZ [N]



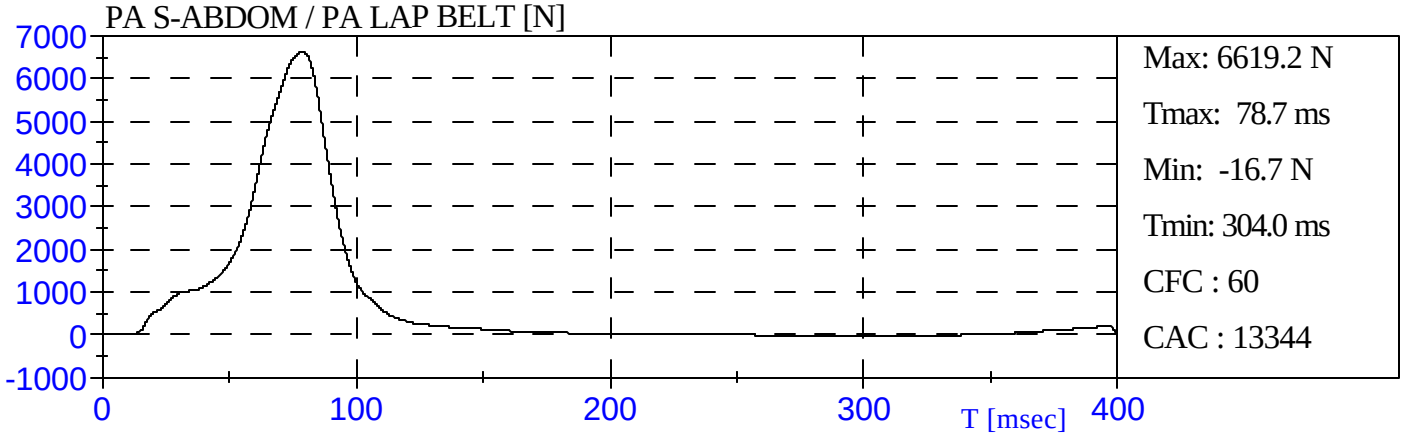
PA BA TIBIA D MX / PA LO-R TIBIA MX [N-m]



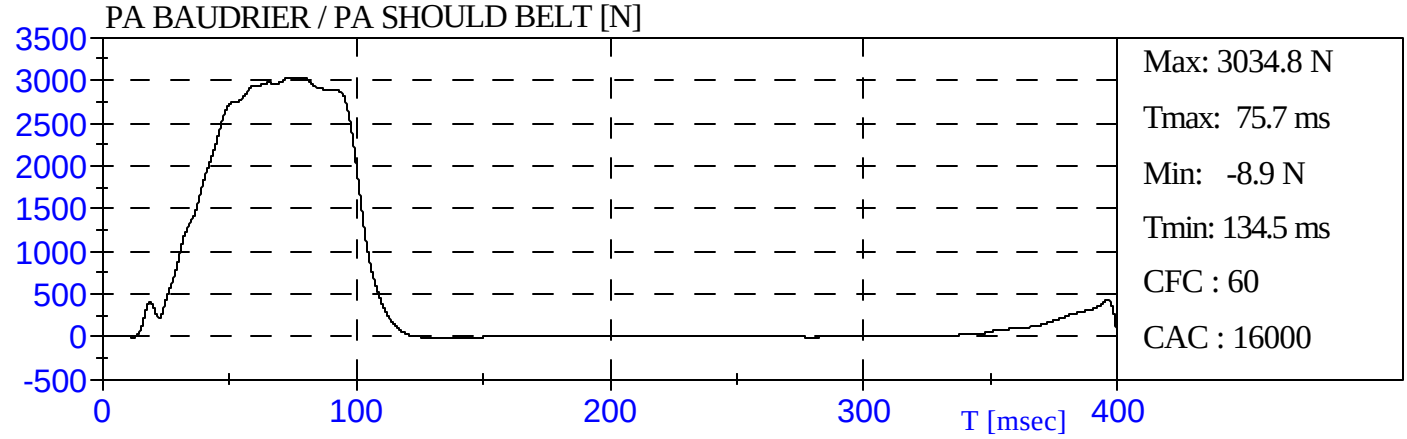
PA BA TIBIA D MY / PA LO-R TIBIA MY [N-m]

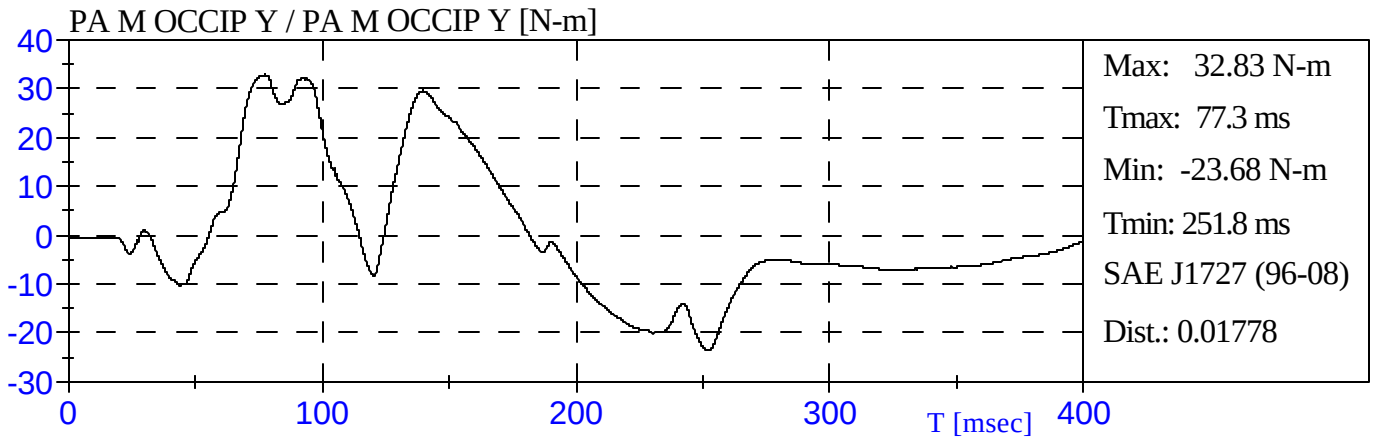


PA S-ABDOM / PA LAP BELT [N]

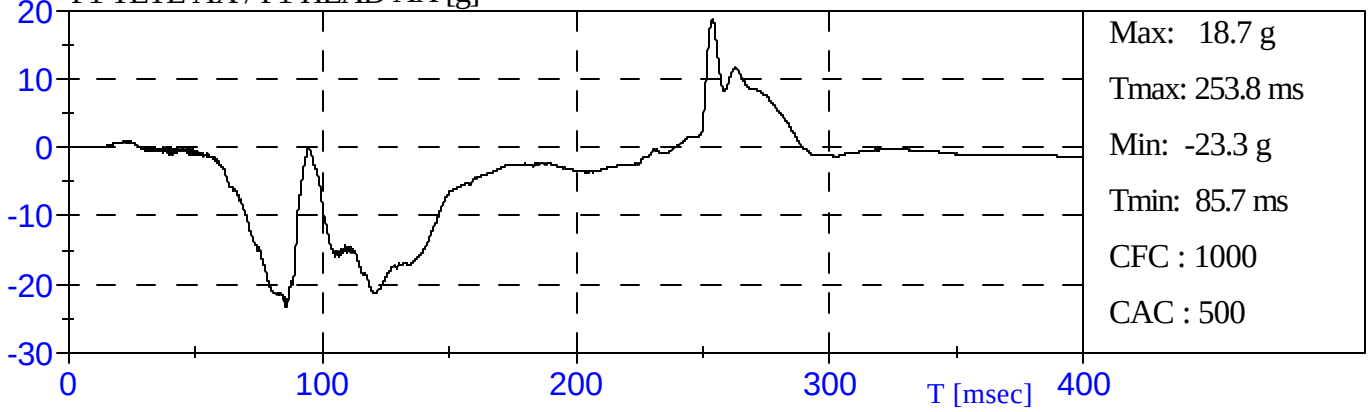


PA BAUDRIER / PA SHOULD BELT [N]

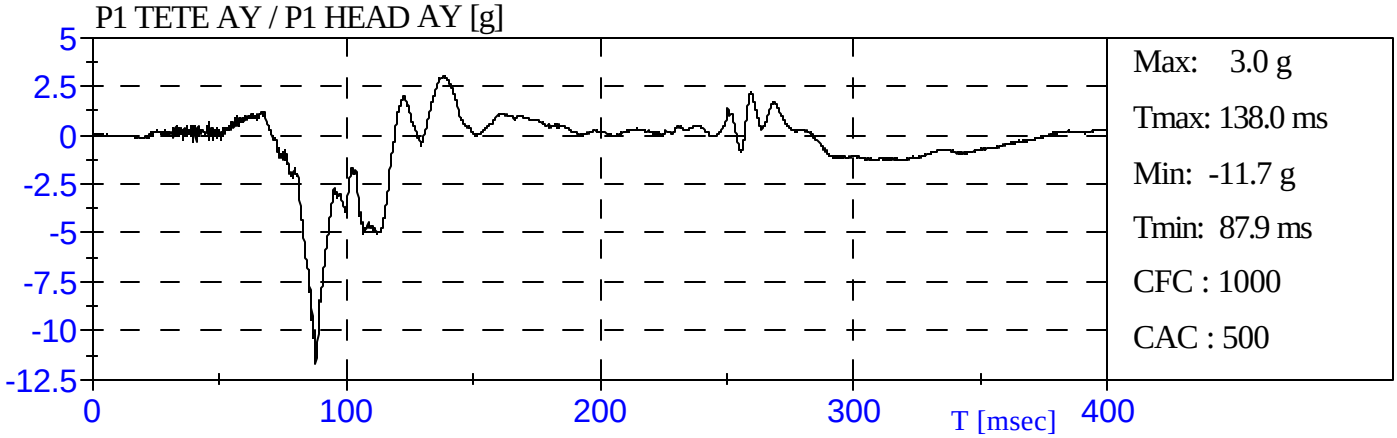



PA M OCCIP Y / PA M OCCIP Y [N-m]
40
30
20
10
0
-10
-20
-30
0
100
200
300
400
T [msec]
Max: 32.83 N-m
Tmax: 77.3 ms
Min: -23.68 N-m
Tmin: 251.8 ms
SAE J1727 (96-08)
Dist.: 0.01778

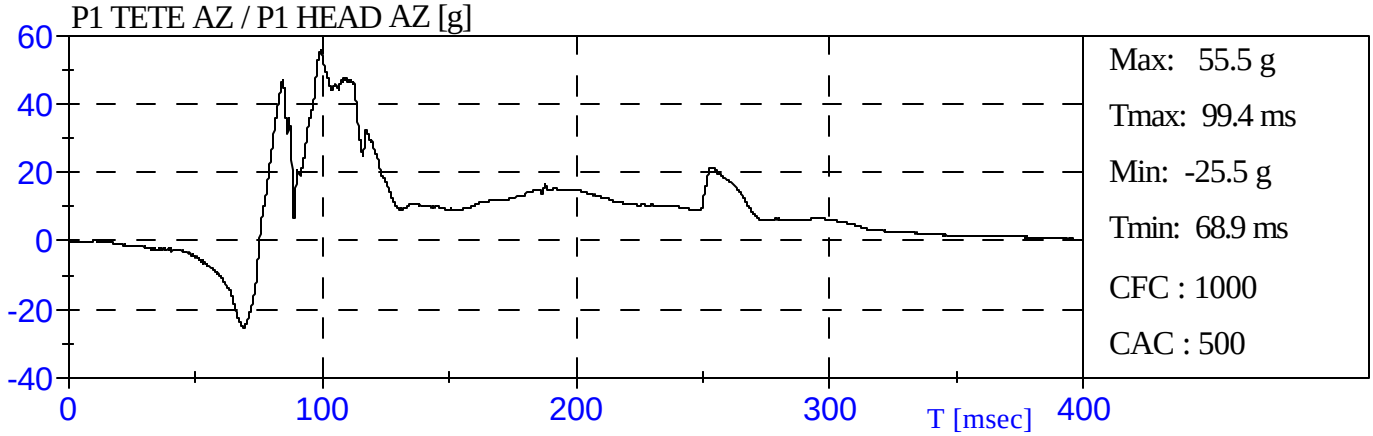
P1 TETE AX / P1 HEAD AX [g]



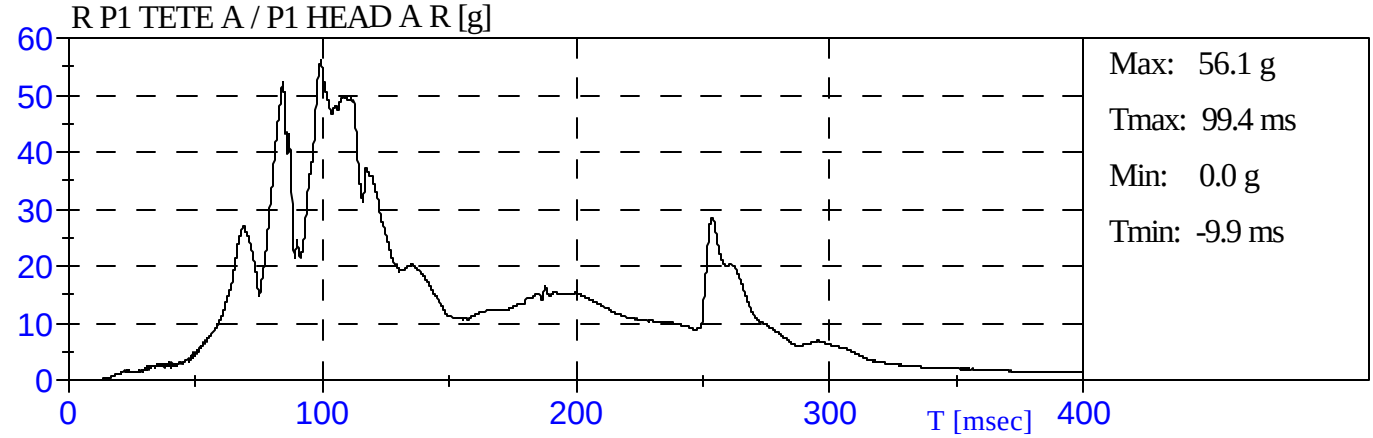
P1 TETE AY / P1 HEAD AY [g]

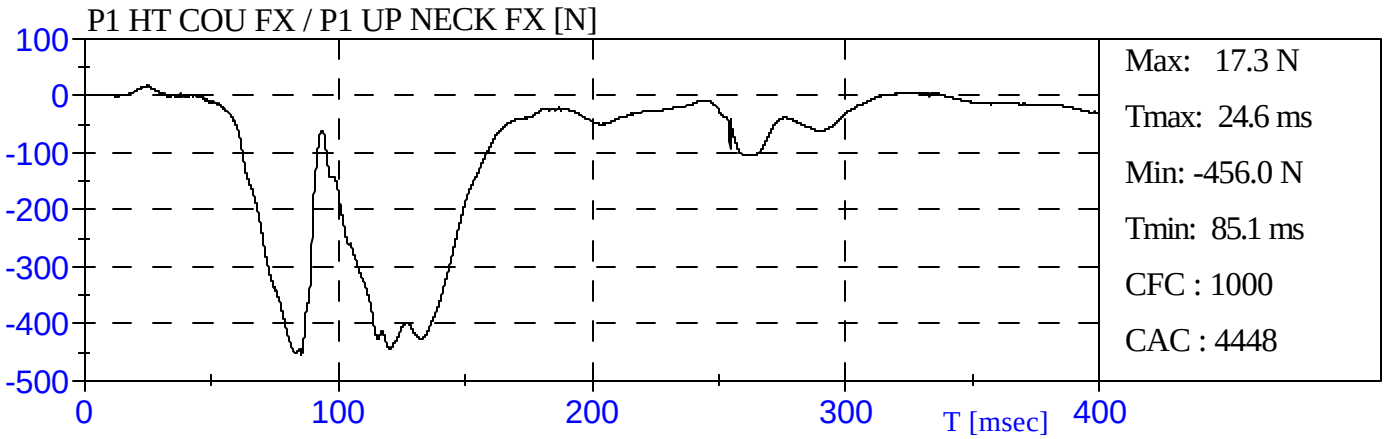


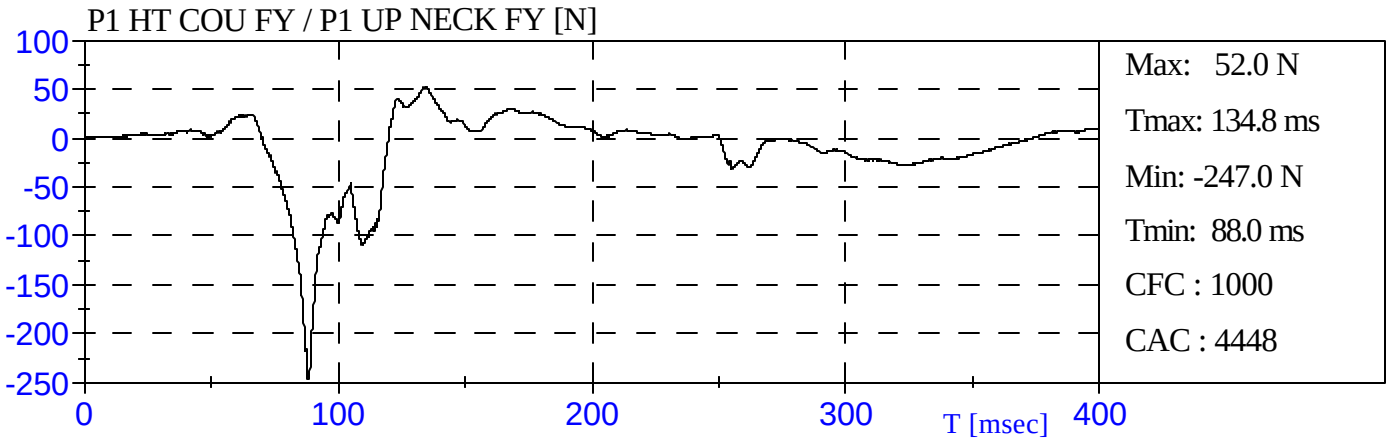
P1 TETE AZ / P1 HEAD AZ [g]

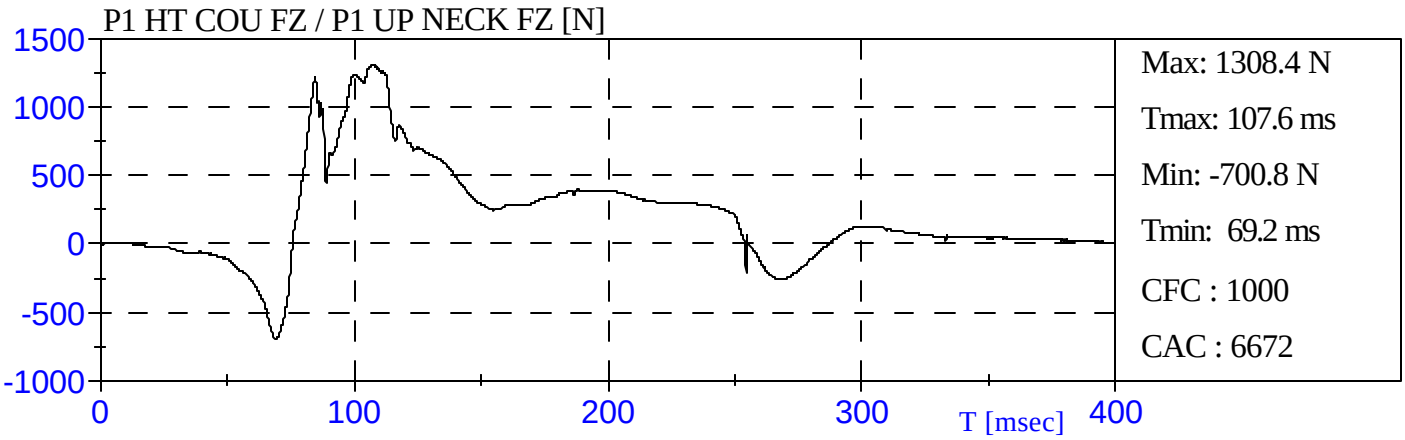


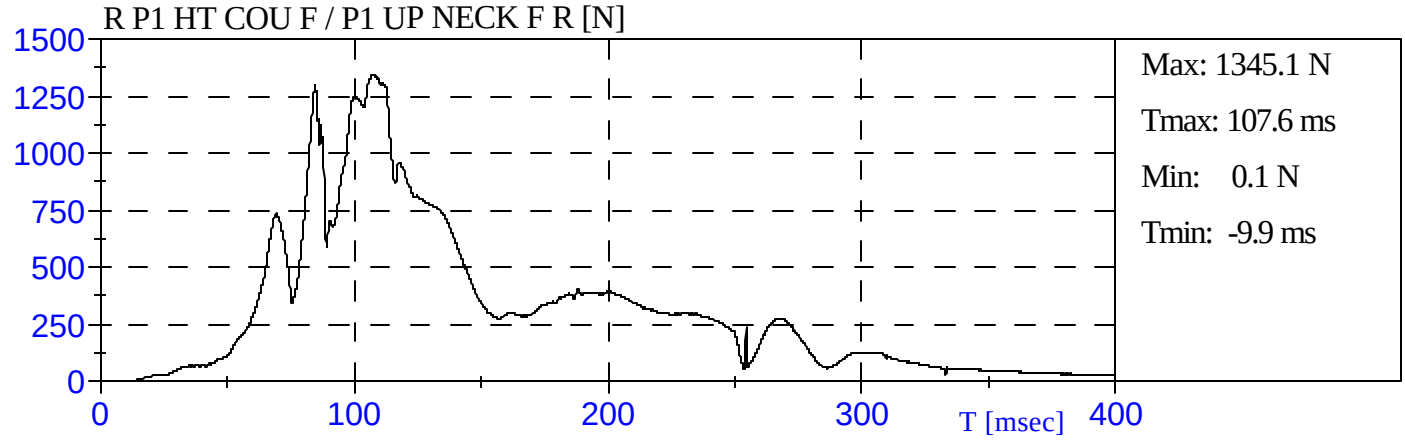
R P1 TETE A / P1 HEAD A R [g]



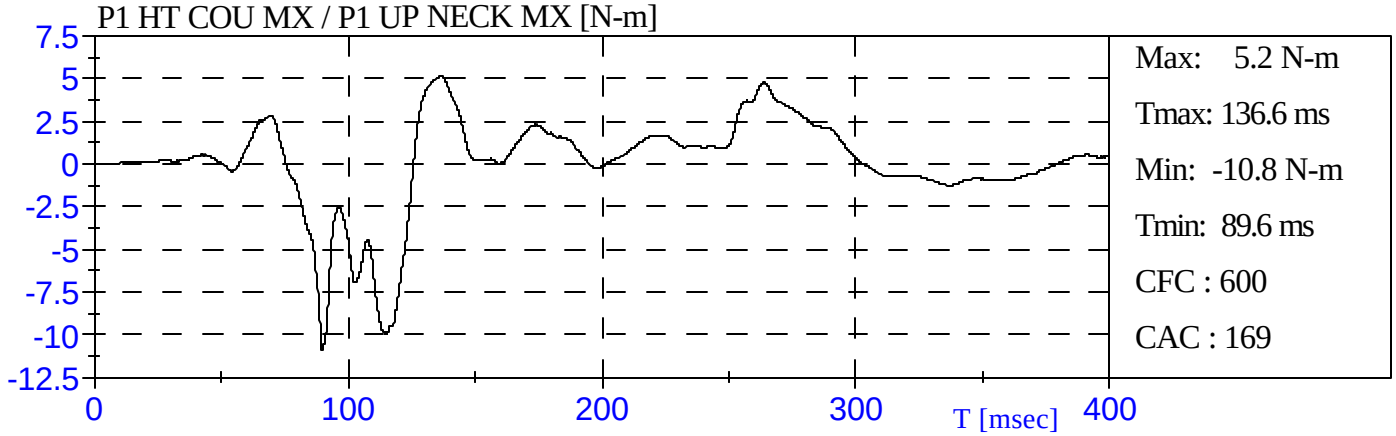

P1 HT COU FX / P1 UP NECK FX [N]
100
0
-100
-200
-300
-400
-500
0
100
200
300
400
T [msec]
Max: 17.3 N
Tmax: 24.6 ms
Min: -456.0 N
Tmin: 85.1 ms
CFC : 1000
CAC : 4448


P1 HT COU FY / P1 UP NECK FY [N]
100
50
0
-50
-100
-150
-200
-250
0
100
200
300
400
T [msec]
Max: 52.0 N
Tmax: 134.8 ms
Min: -247.0 N
Tmin: 88.0 ms
CFC : 1000
CAC : 4448

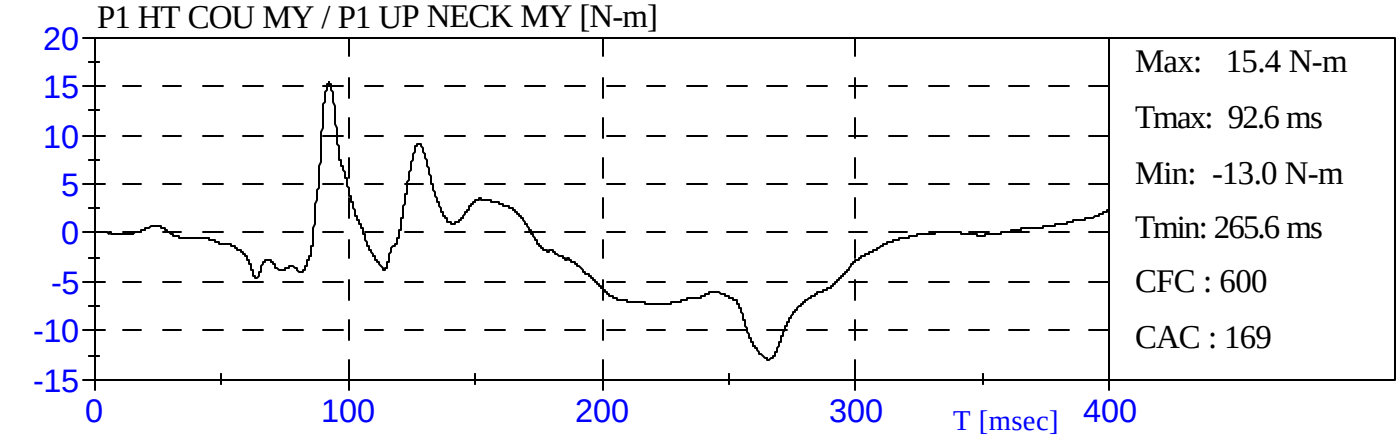

P1 HT COU FZ / P1 UP NECK FZ [N]
1500
1000
500
0
-500
-1000
0
100
200
300
400
T [msec]
Max: 1308.4 N
Tmax: 107.6 ms
Min: -700.8 N
Tmin: 69.2 ms
CFC : 1000
CAC : 6672


R P1 HT COU F / P1 UP NECK F R [N]
1500
1250
1000
750
500
250
0
0
100
200
300
400
T [msec]
Max: 1345.1 N
Tmax: 107.6 ms
Min: 0.1 N
Tmin: -9.9 ms

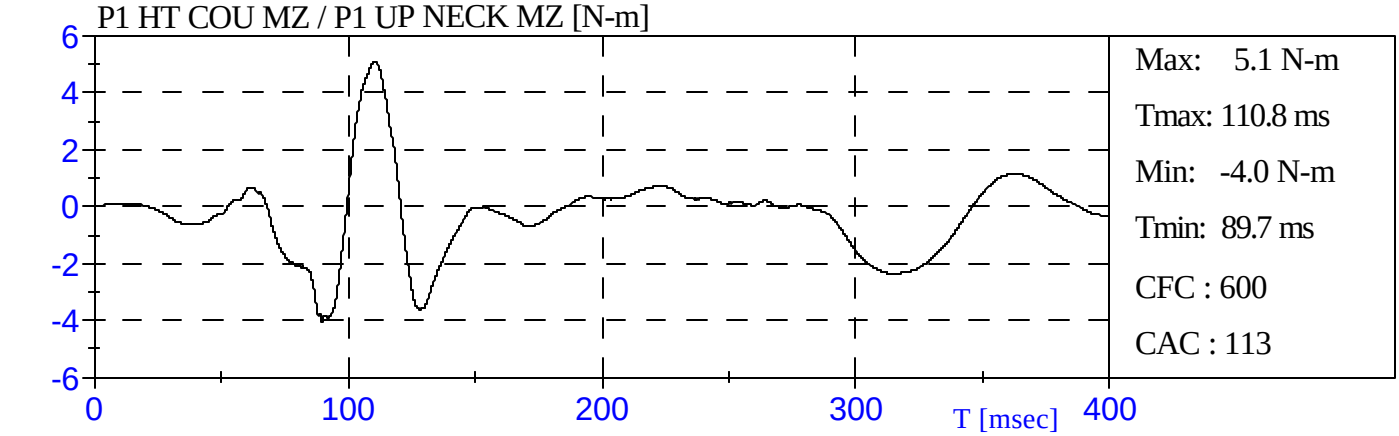
P1 HT COU MX / P1 UP NECK MX [N-m]



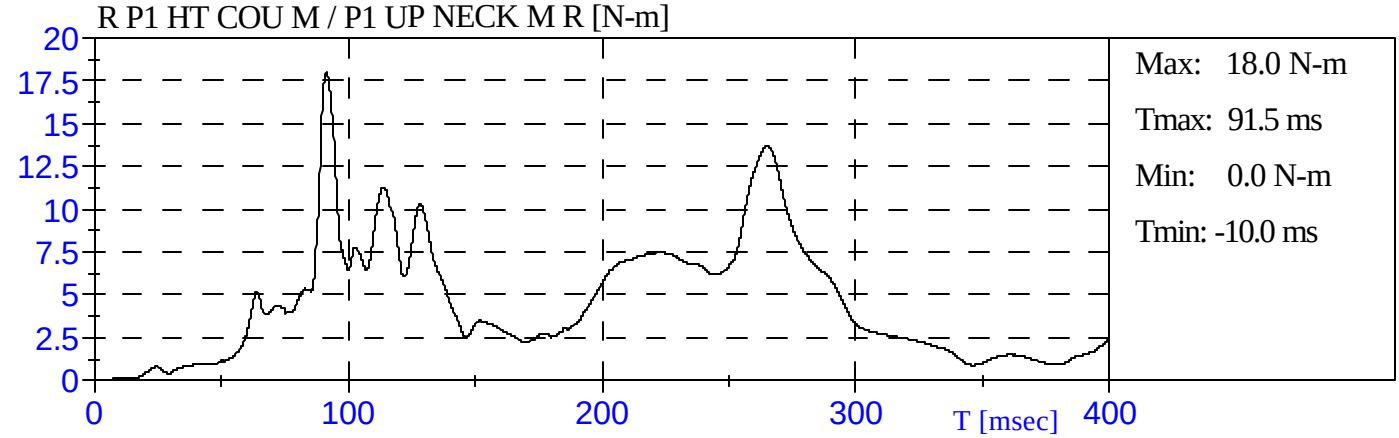
P1 HT COU MY / P1 UP NECK MY [N-m]

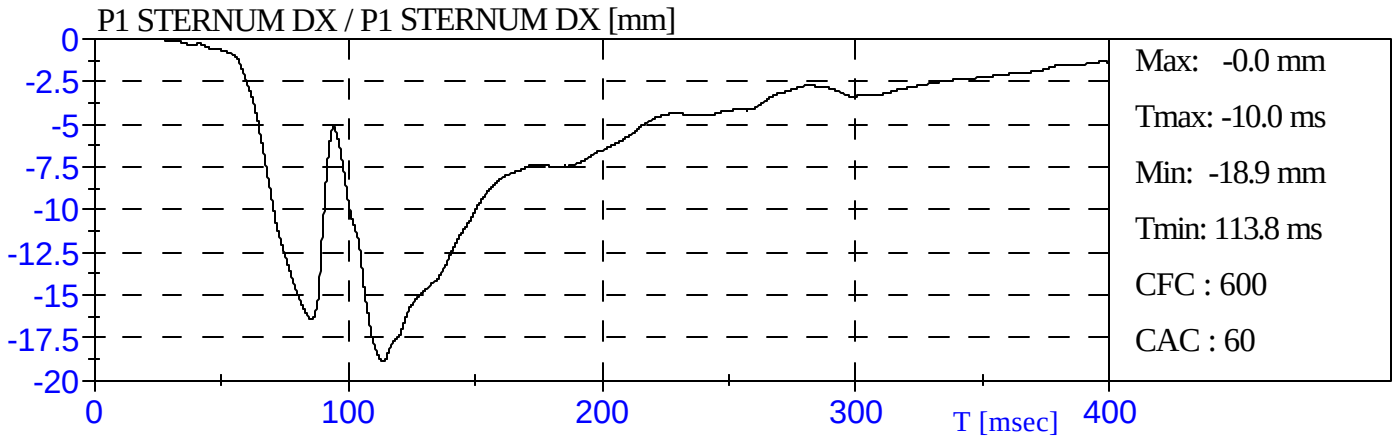


P1 HT COU MZ / P1 UP NECK MZ [N-m]

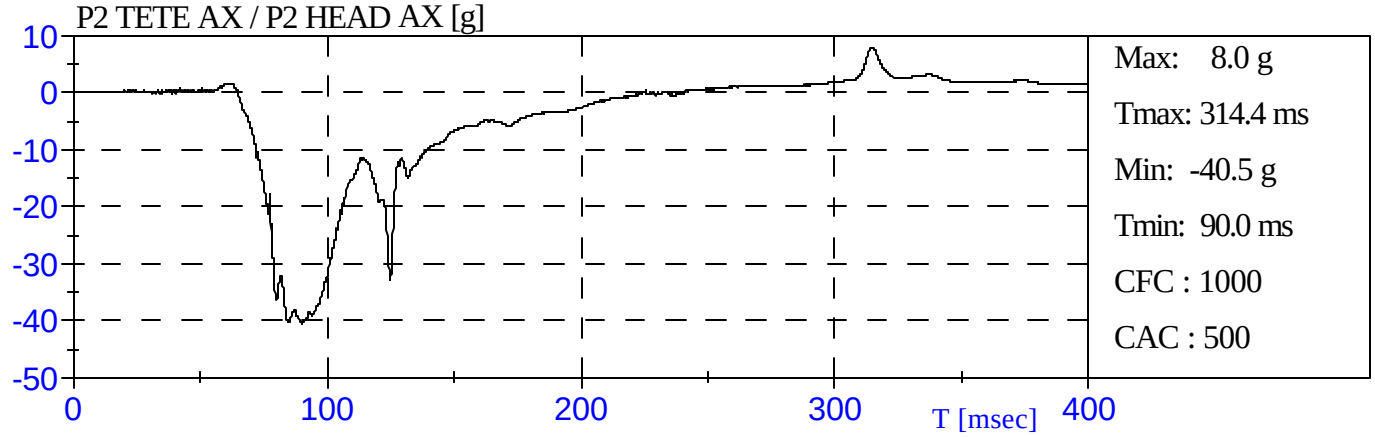


R P1 HT COU M / P1 UP NECK M R [N-m]

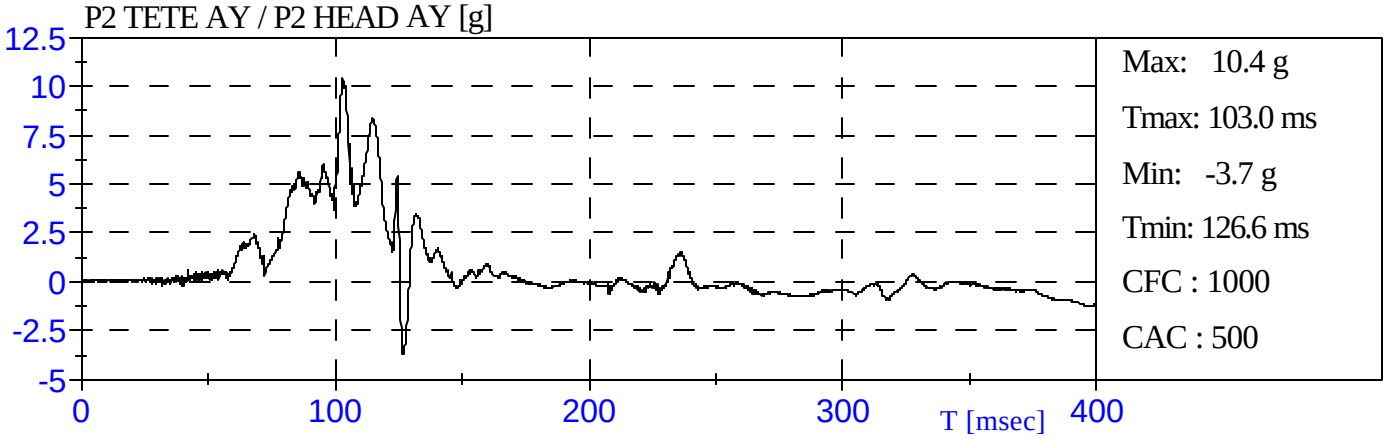



P1 STERNUM DX / P1 STERNUM DX [mm]
0
-2.5
-5
-7.5
-10
-12.5
-15
-17.5
-20
0
100
200
300
400
T [msec]
Max: -0.0 mm
Tmax: -10.0 ms
Min: -18.9 mm
Tmin: 113.8 ms
CFC : 600
CAC : 60

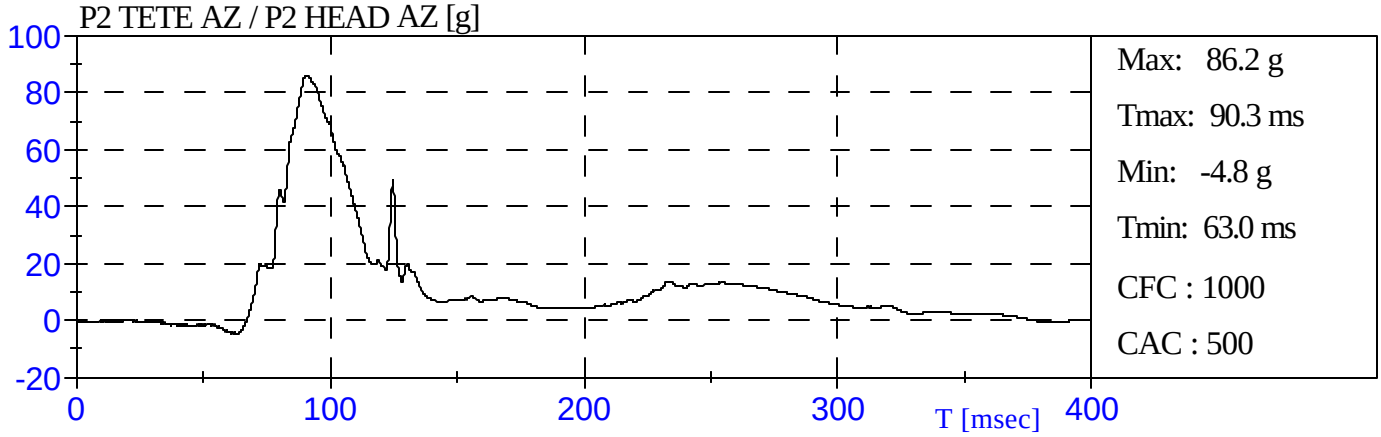
P2 TETE AX / P2 HEAD AX [g]



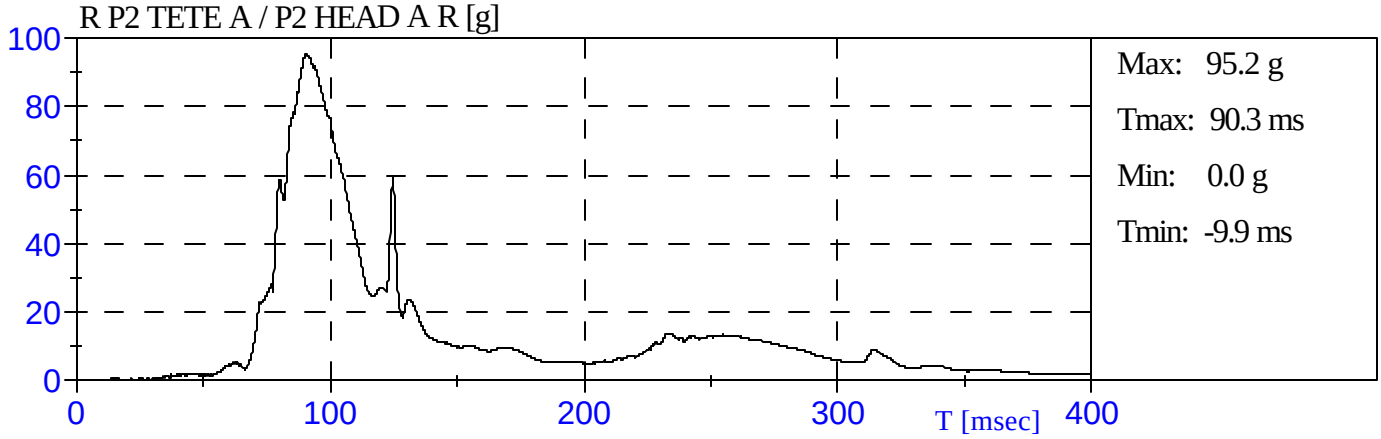
P2 TETE AY / P2 HEAD AY [g]



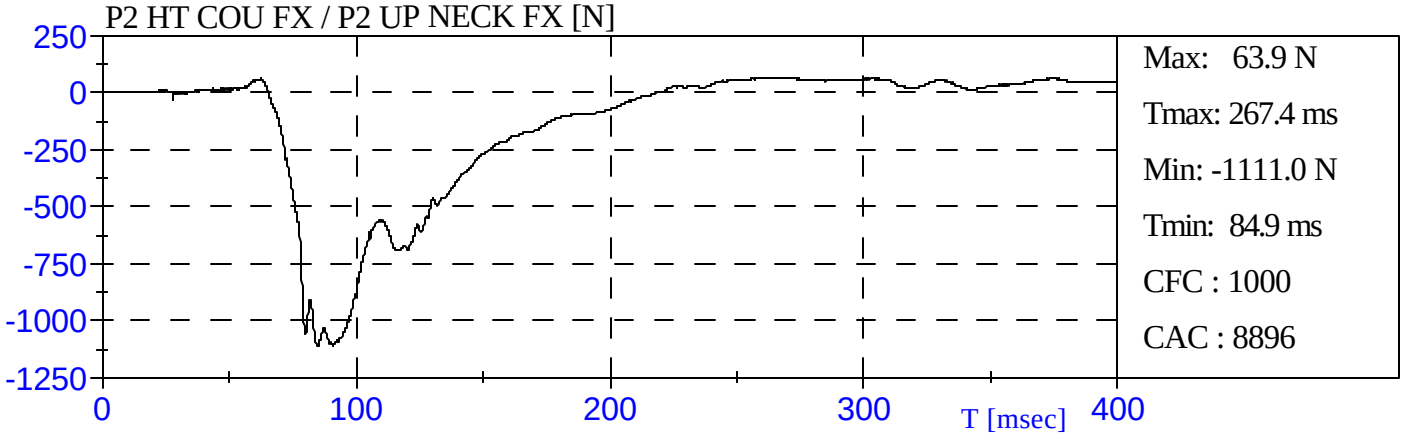
P2 TETE AZ / P2 HEAD AZ [g]



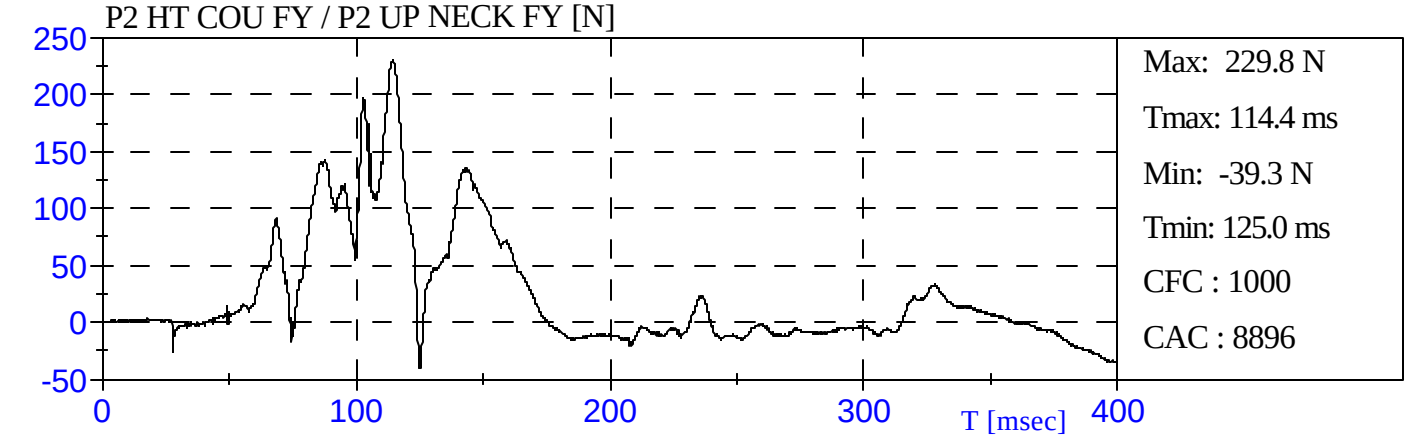
R P2 TETE A / P2 HEAD A R [g]



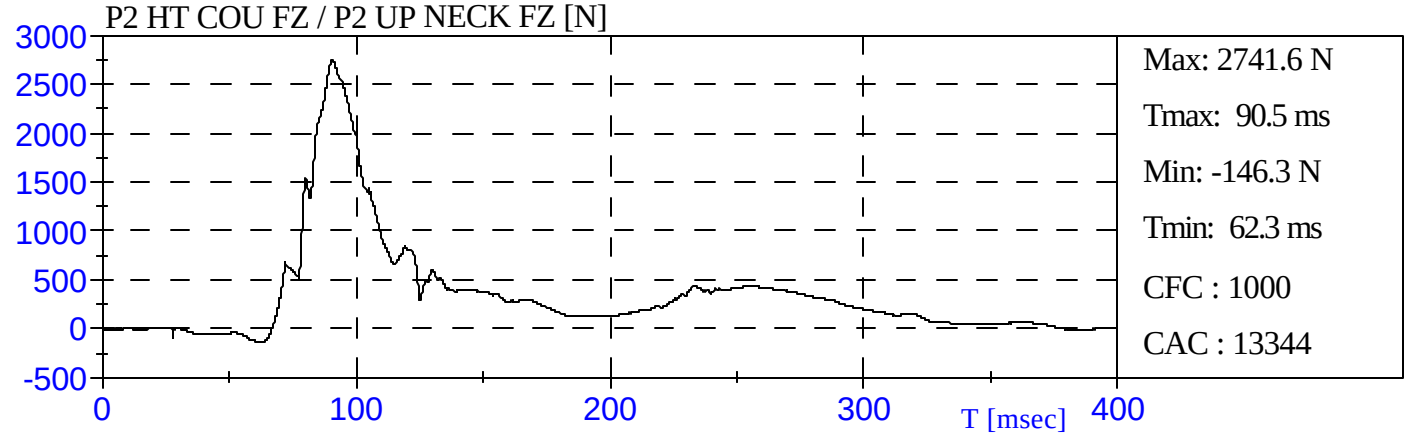
P2 HT COU FX / P2 UP NECK FX [N]



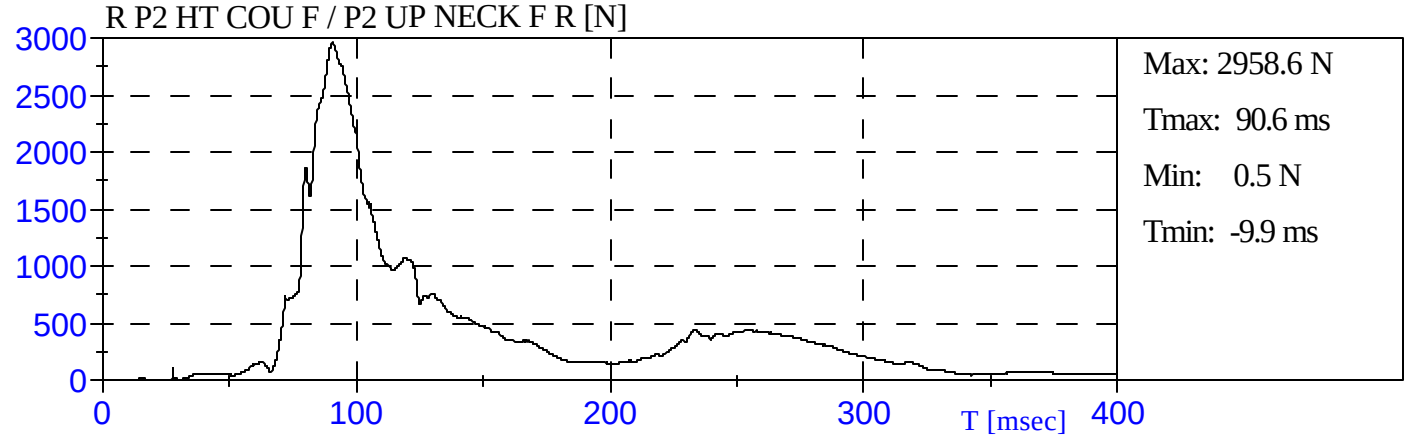
P2 HT COU FY / P2 UP NECK FY [N]



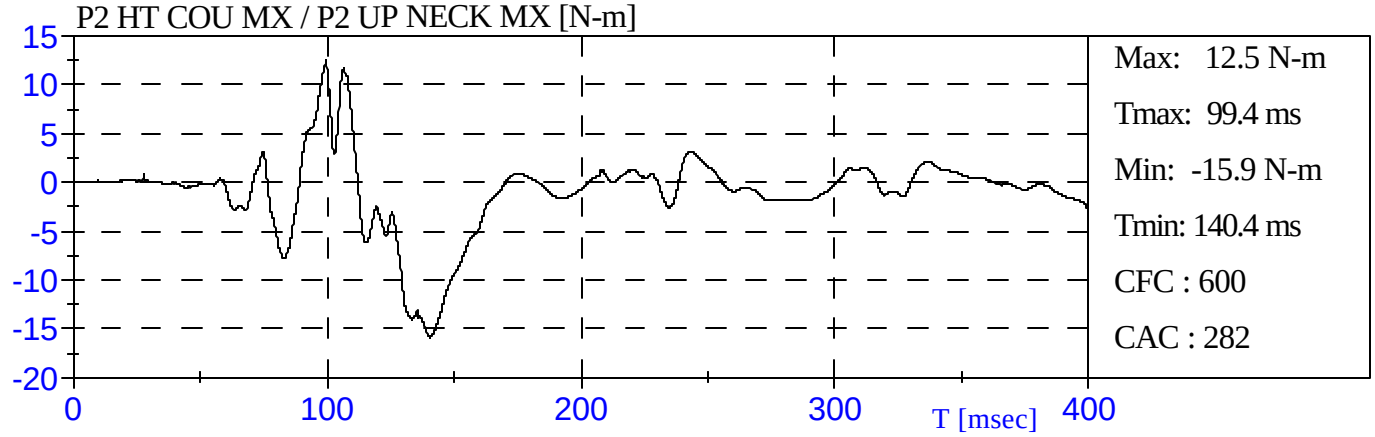
P2 HT COU FZ / P2 UP NECK FZ [N]



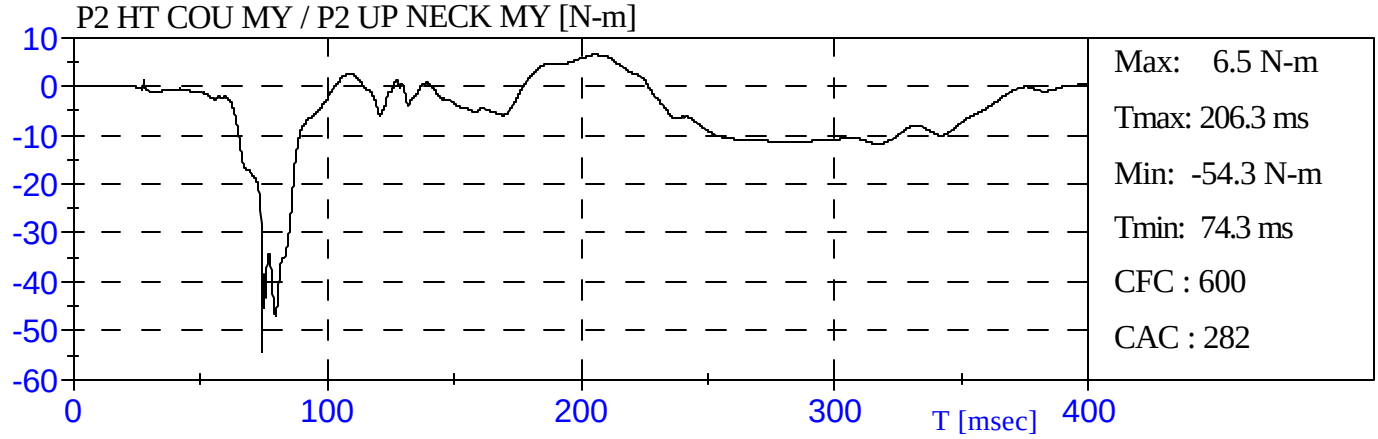
R P2 HT COU F / P2 UP NECK F R [N]



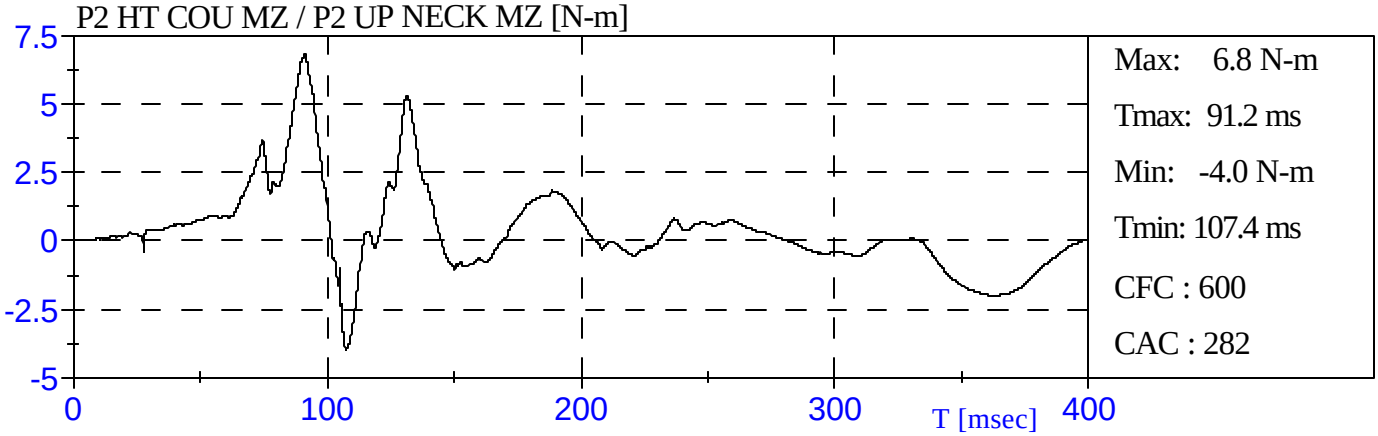
P2 HT COU MX / P2 UP NECK MX [N-m]



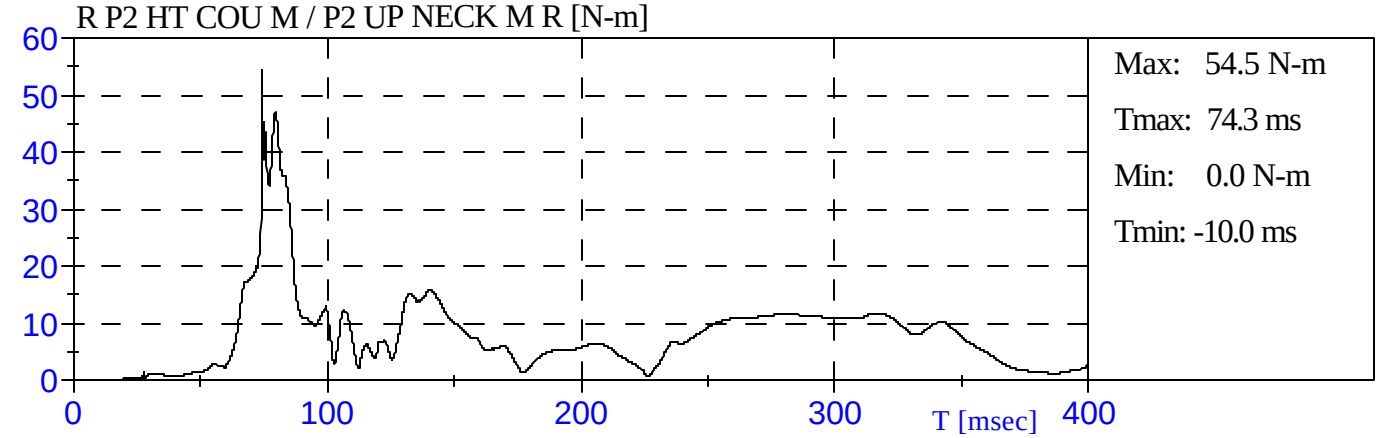
P2 HT COU MY / P2 UP NECK MY [N-m]

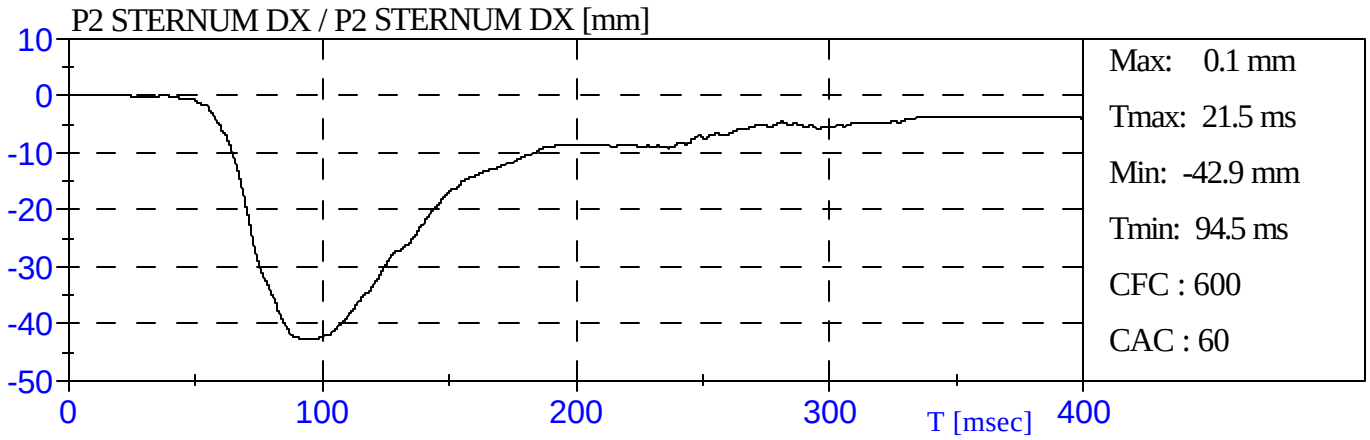


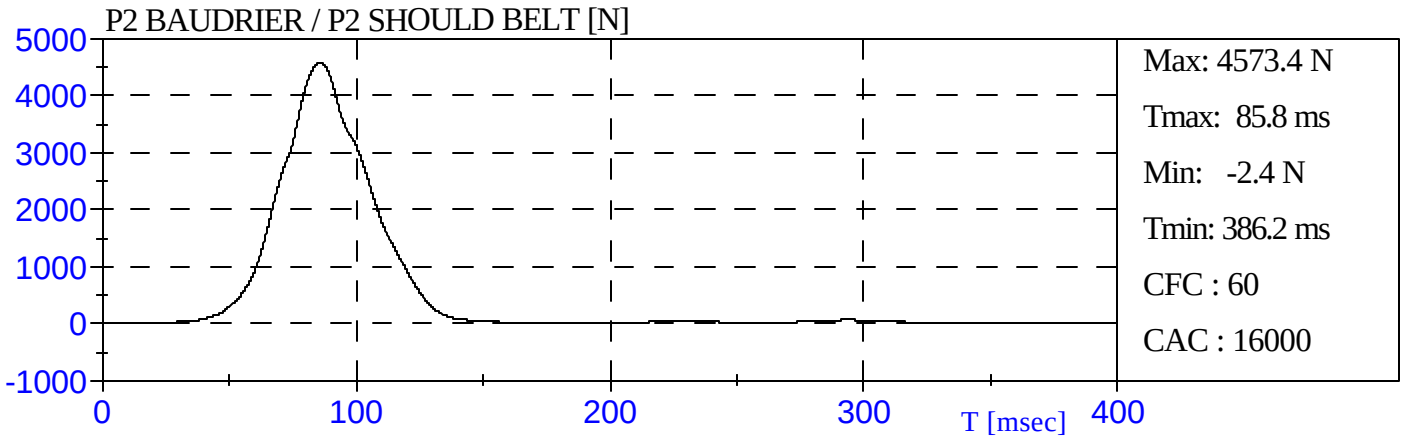
P2 HT COU MZ / P2 UP NECK MZ [N-m]

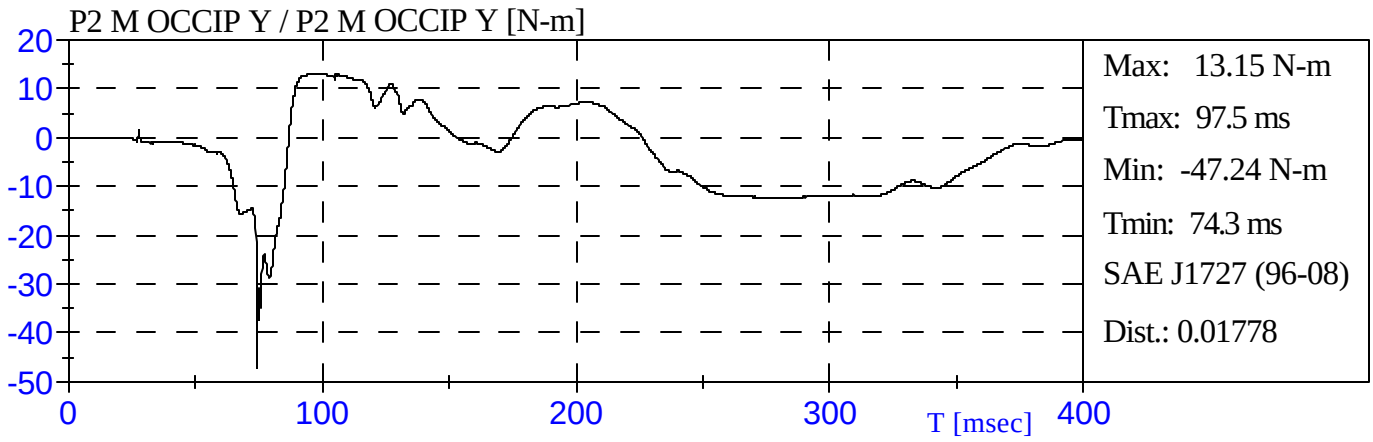


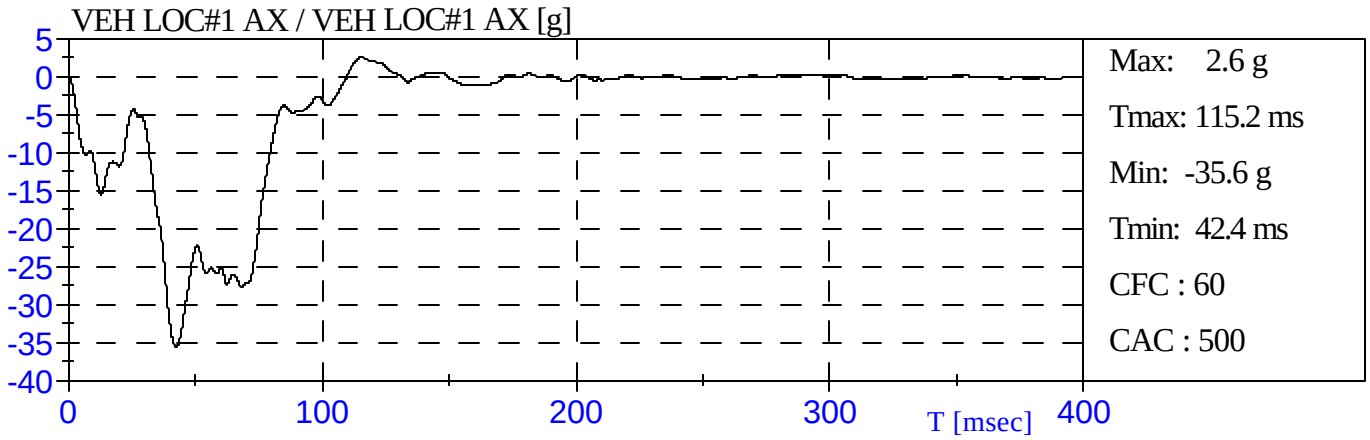
R P2 HT COU M / P2 UP NECK M R [N-m]

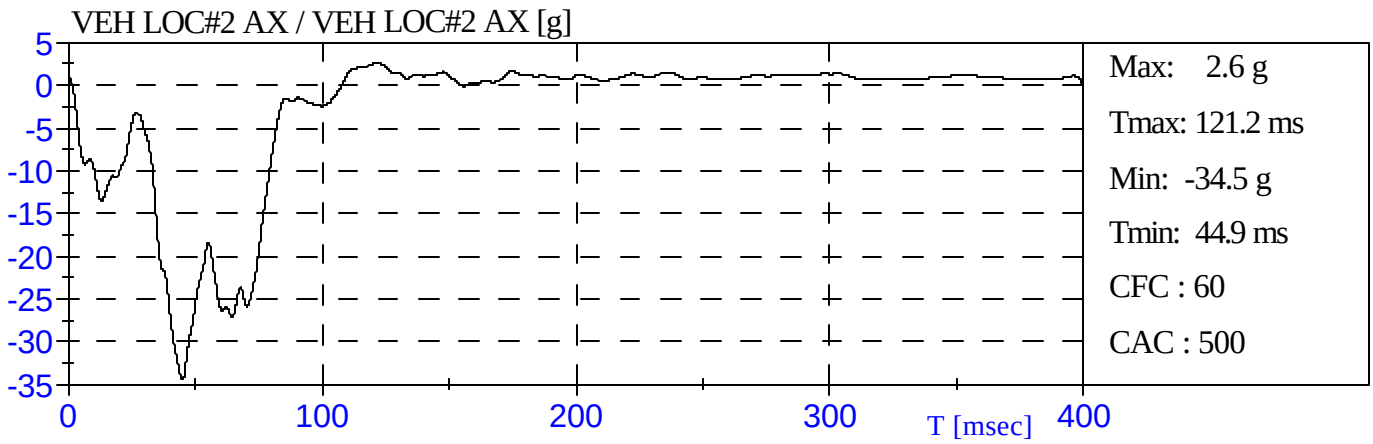



P2 STERNUM DX / P2 STERNUM DX [mm]
10
0
-10
-20
-30
-40
-50
0
100
200
300
400
T [msec]
Max: 0.1 mm
Tmax: 21.5 ms
Min: -42.9 mm
Tmin: 94.5 ms
CFC : 600
CAC : 60

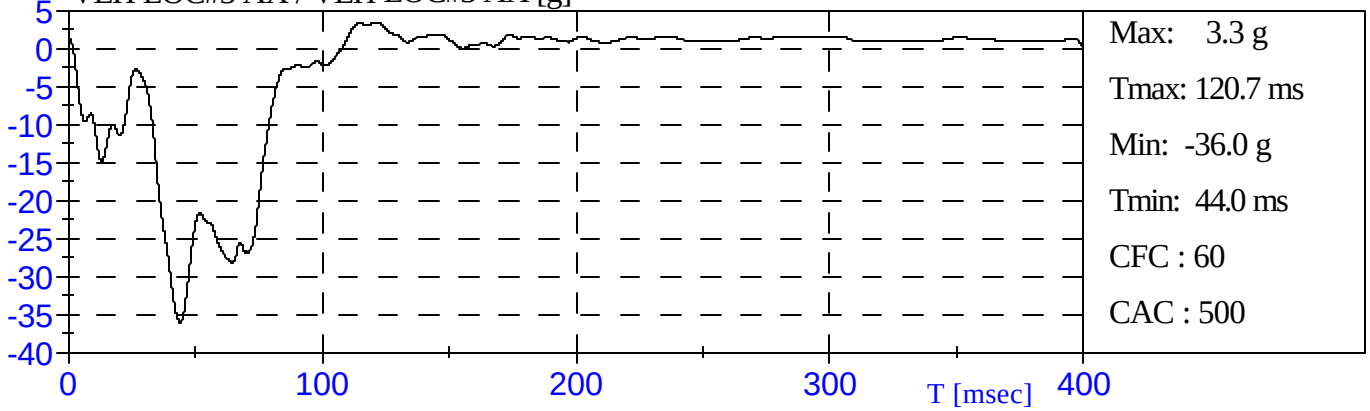

P2 BAUDRIER / P2 SHOULD BELT [N]
5000
4000
3000
2000
1000
0
-1000
0
100
200
300
400
T [msec]
Max: 4573.4 N
Tmax: 85.8 ms
Min: -2.4 N
Tmin: 386.2 ms
CFC : 60
CAC : 16000


P2 M OCCIP Y / P2 M OCCIP Y [N-m]
20
10
0
-10
-20
-30
-40
-50
0
100
200
300
400
T [msec]
Max: 13.15 N-m
Tmax: 97.5 ms
Min: -47.24 N-m
Tmin: 74.3 ms
SAE J1727 (96-08)
Dist.: 0.01778

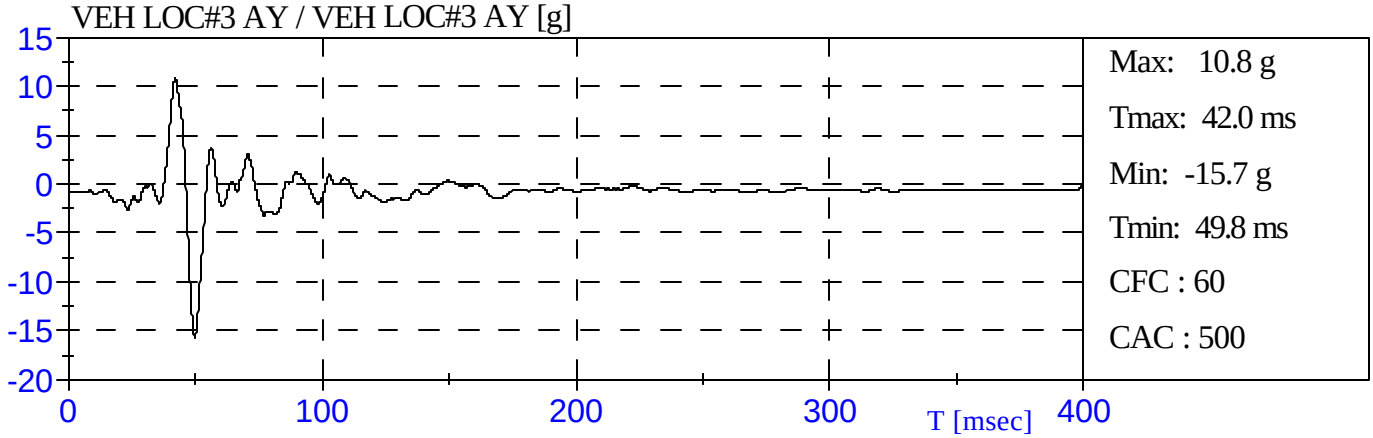

VEH LOC#1 AX / VEH LOC#1 AX [g]
5
0
-5
-10
-15
-20
-25
-30
-35
-40
0
100
200
300
400
T [msec]
Max: 2.6 g
Tmax: 115.2 ms
Min: -35.6 g
Tmin: 42.4 ms
CFC : 60
CAC : 500


VEH LOC#2 AX / VEH LOC#2 AX [g]
5
0
-5
-10
-15
-20
-25
-30
-35
0
100
200
300
400
T [msec]
Max: 2.6 g
Tmax: 121.2 ms
Min: -34.5 g
Tmin: 44.9 ms
CFC : 60
CAC : 500

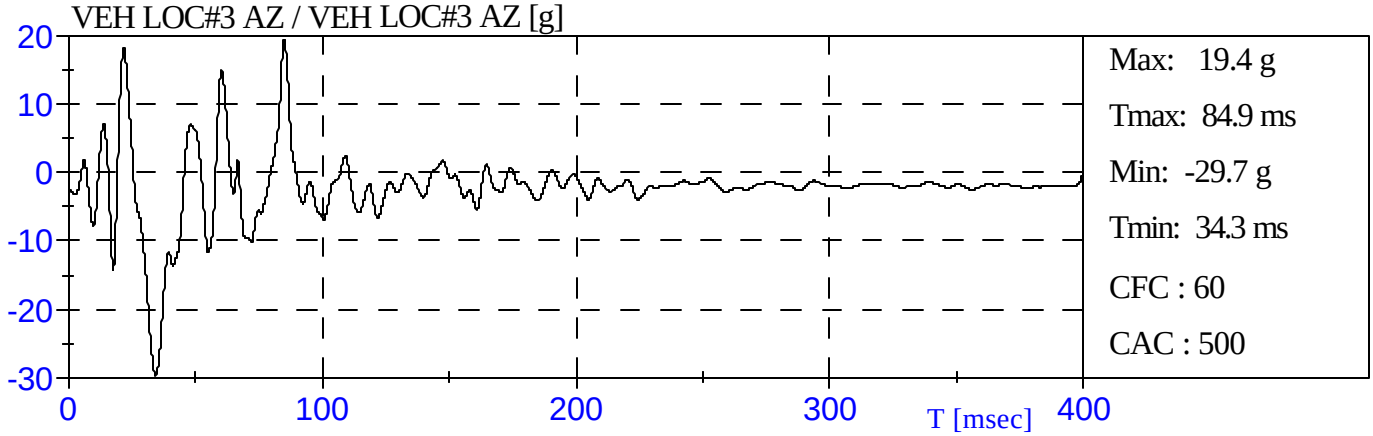
VEH LOC#3 AX / VEH LOC#3 AX [g]



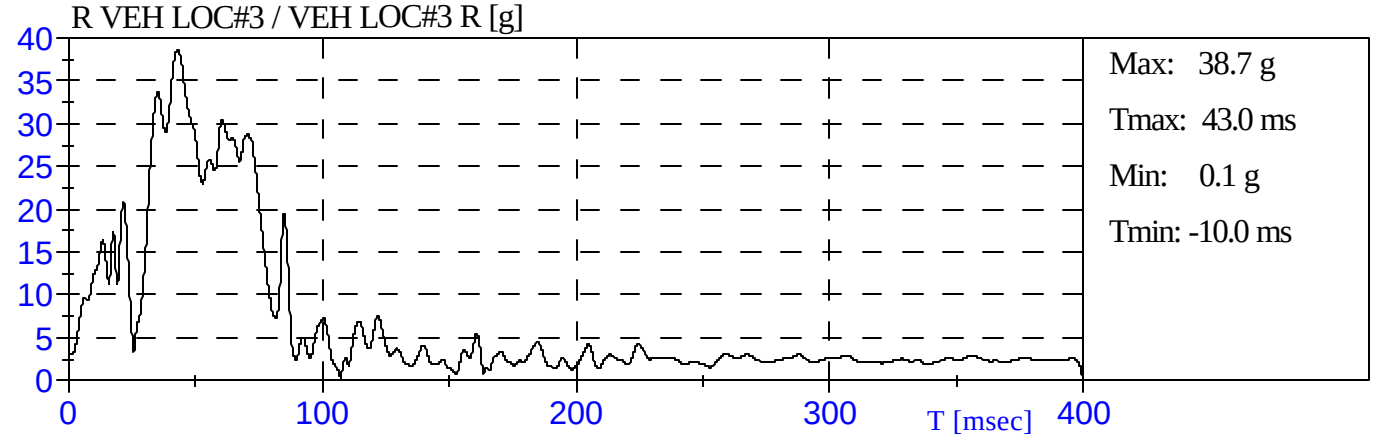
VEH LOC#3 AY / VEH LOC#3 AY [g]

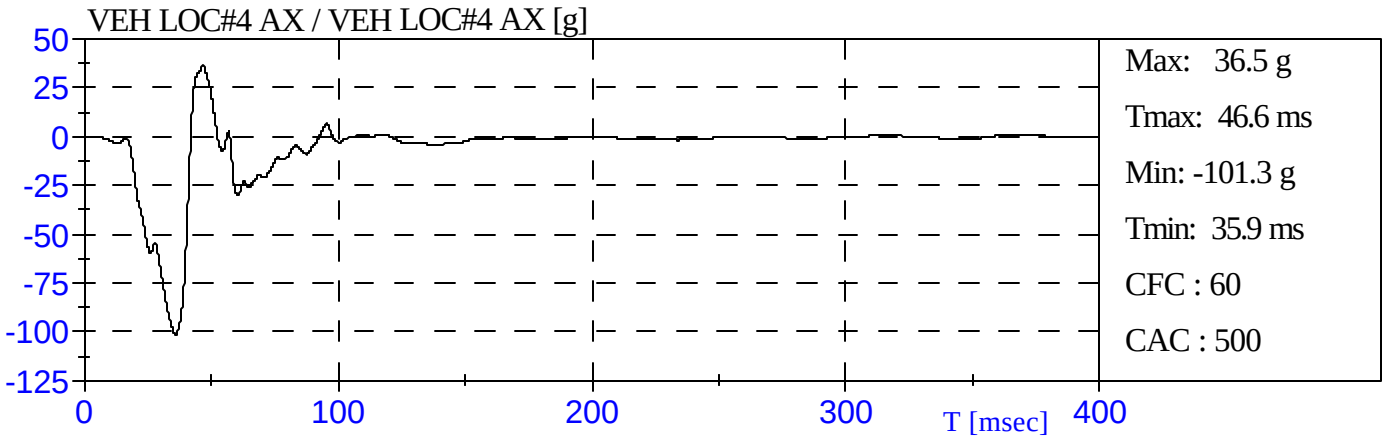


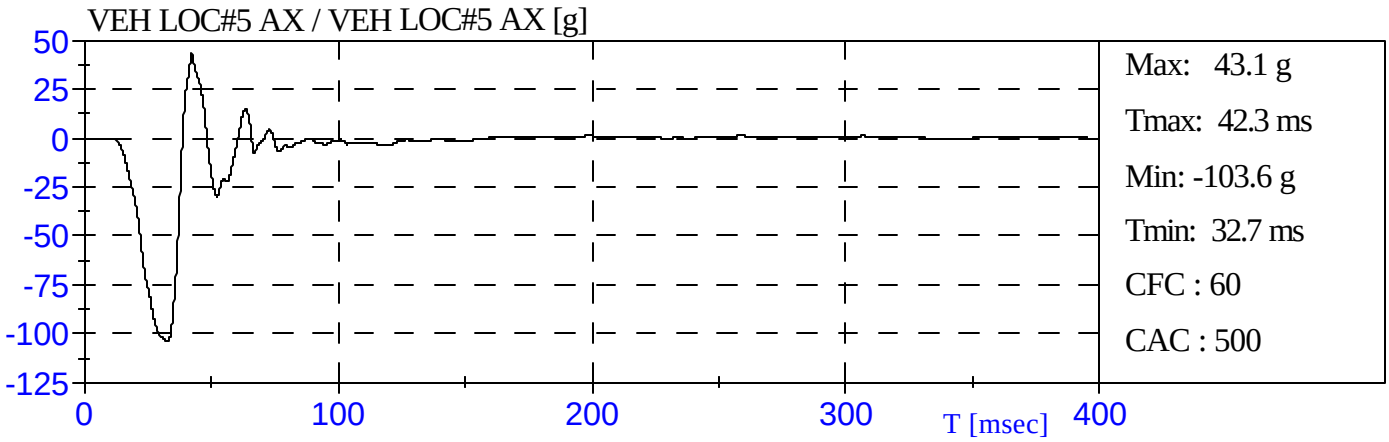
VEH LOC#3 AZ / VEH LOC#3 AZ [g]



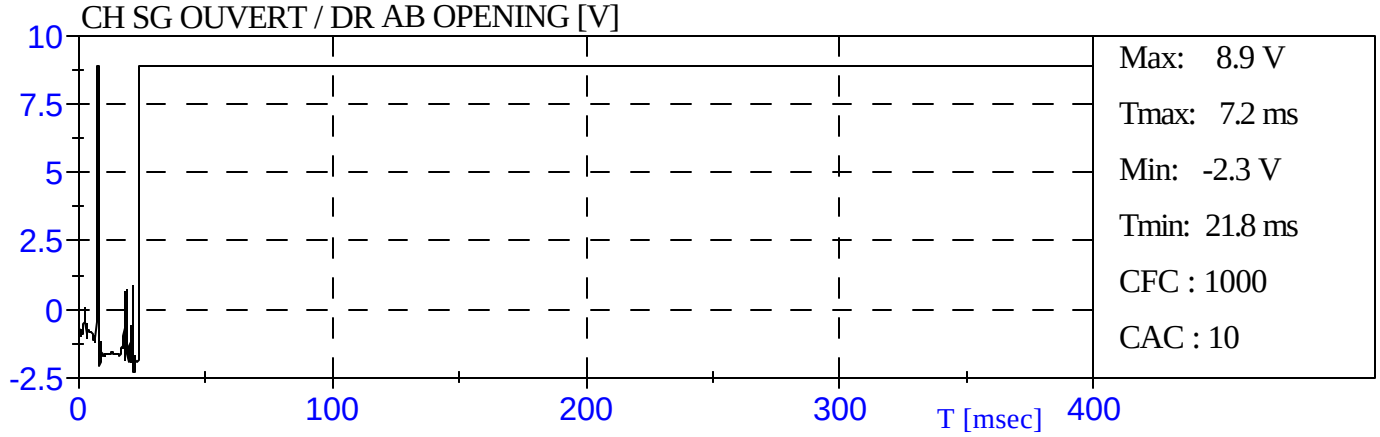
R VEH LOC#3 / VEH LOC#3 R [g]



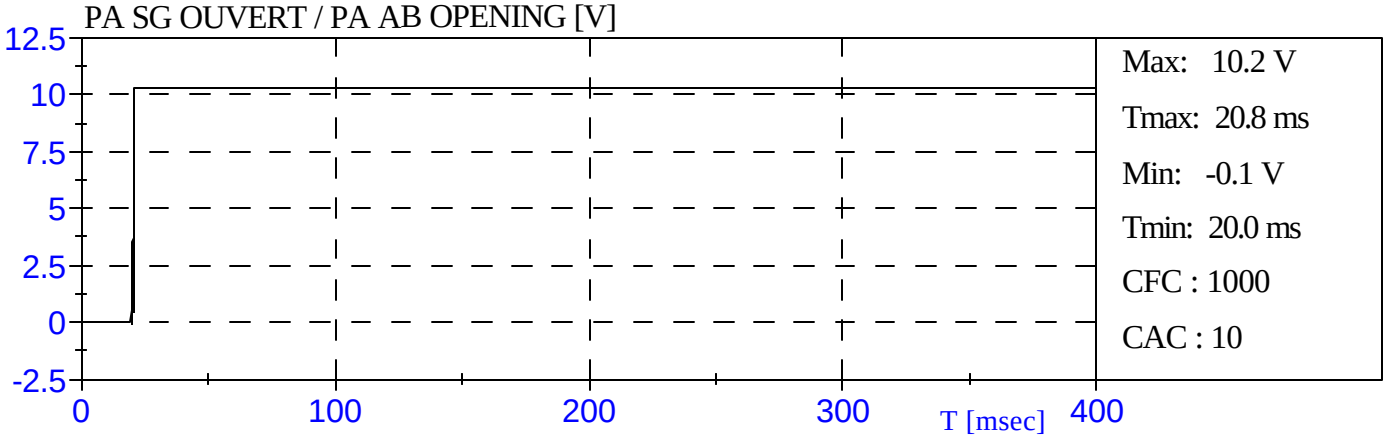

VEH LOC#4 AX / VEH LOC#4 AX [g]
50
25
0
-25
-50
-75
-100
-125
0
100
200
300
400
T [msec]
Max: 36.5 g
Tmax: 46.6 ms
Min: -101.3 g
Tmin: 35.9 ms
CFC : 60
CAC : 500

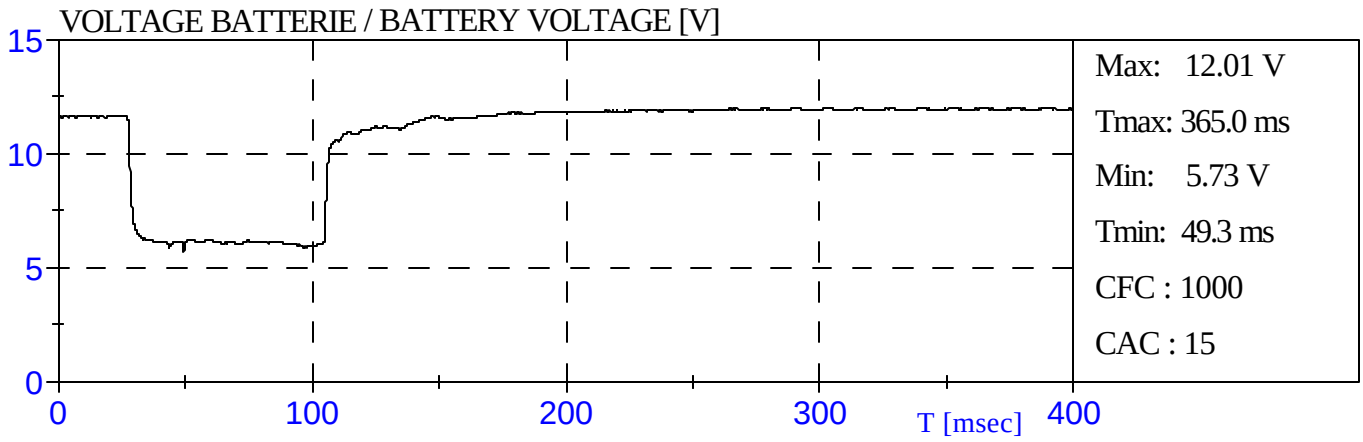

VEH LOC#5 AX / VEH LOC#5 AX [g]
50
25
0
-25
-50
-75
-100
-125
0
100
200
300
400
T [msec]
Max: 43.1 g
Tmax: 42.3 ms
Min: -103.6 g
Tmin: 32.7 ms
CFC : 60
CAC : 500

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: 12.01 V
Tmax: 365.0 ms
Min: 5.73 V
Tmin: 49.3 ms
CFC : 1000
CAC : 15

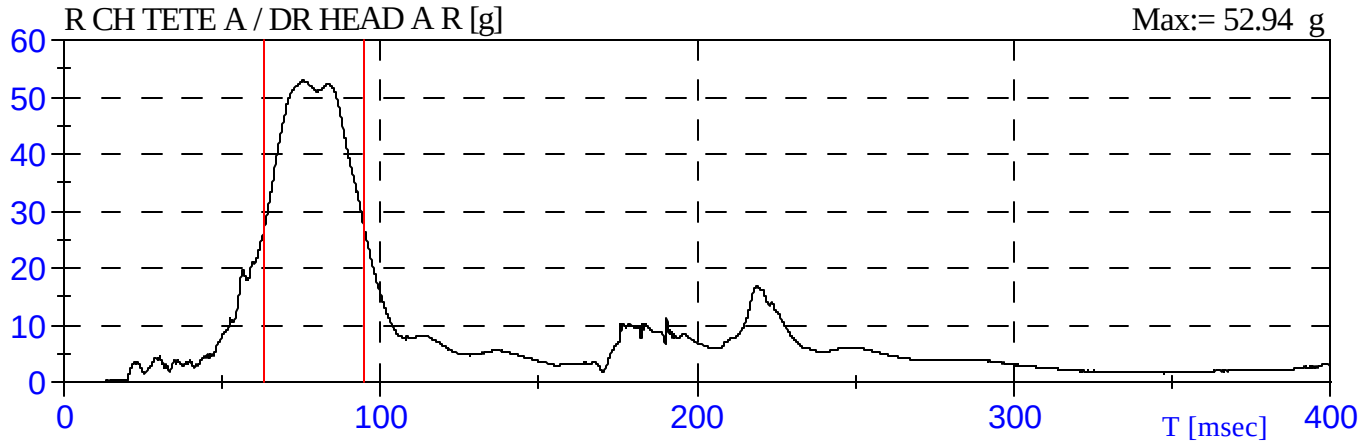
PMG Technologies

HIC

CHRYSLER CARAVAN 2003

Date: 2003-01-17

Nº TC / TC No.: TC03-106



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

HIC:= 428	HIC(36ms):= 428	HIC(15ms):= 289
T1:= 63.3 ms	T1:= 63.3 ms	T1:= 71.1 ms
T2:= 94.8 ms	T2:= 94.8 ms	T2:= 86.1 ms

* Selon / According To: SAE J1727 96-08

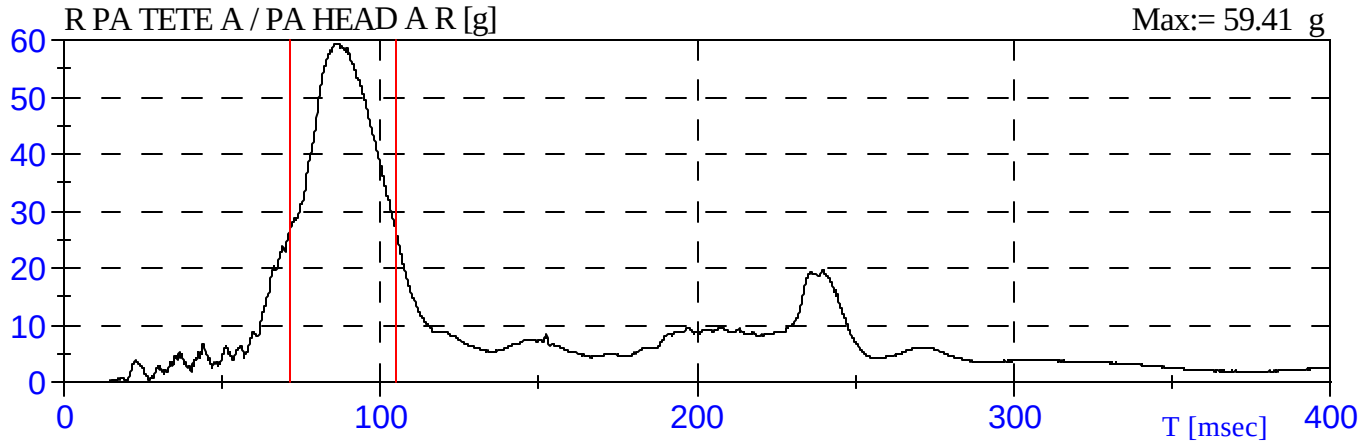
PMG Technologies

HIC

CHRYSLER CARAVAN 2003

Date: 2003-01-17

Nº TC / TC No.: TC03-106



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

HIC:= 457	HIC(36ms):= 457	HIC(15ms):= 349
T1:= 71.6 ms	T1:= 71.6 ms	T1:= 80.2 ms
T2:= 104.5 ms	T2:= 104.5 ms	T2:= 95.2 ms

* Selon / According To: SAE J1727 96-08

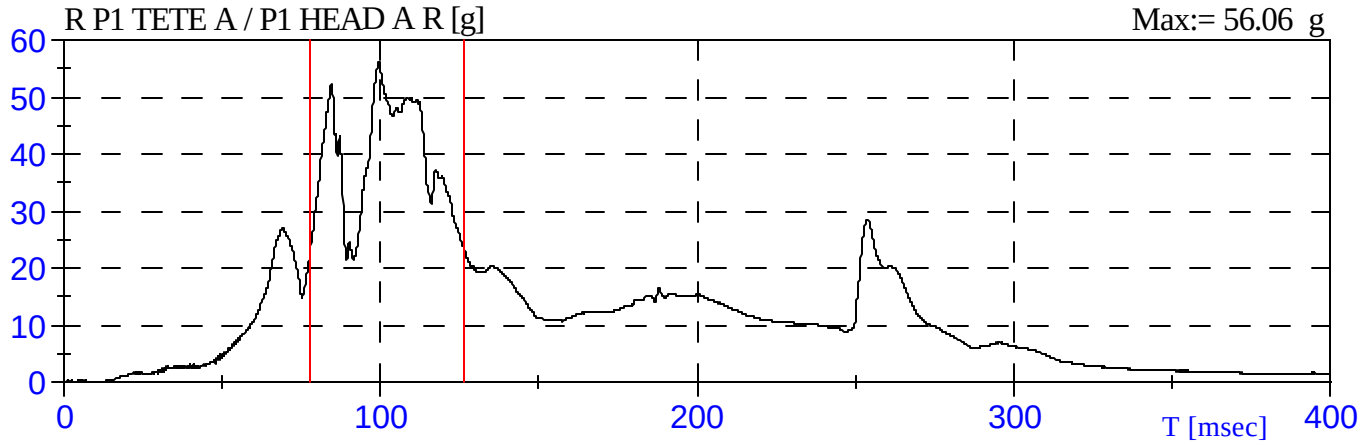
PMG Technologies

HIC

Date: 2003-01-17

CHRYSLER CARAVAN 2003

Nº TC / TC No.: TC03-106



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

HIC:= 465	HIC(36ms):= 411	HIC(15ms):= 263
T1:= 77.9 ms	T1:= 79.7 ms	T1:= 97.6 ms
T2:= 126.3 ms	T2:= 115.7 ms	T2:= 112.6 ms

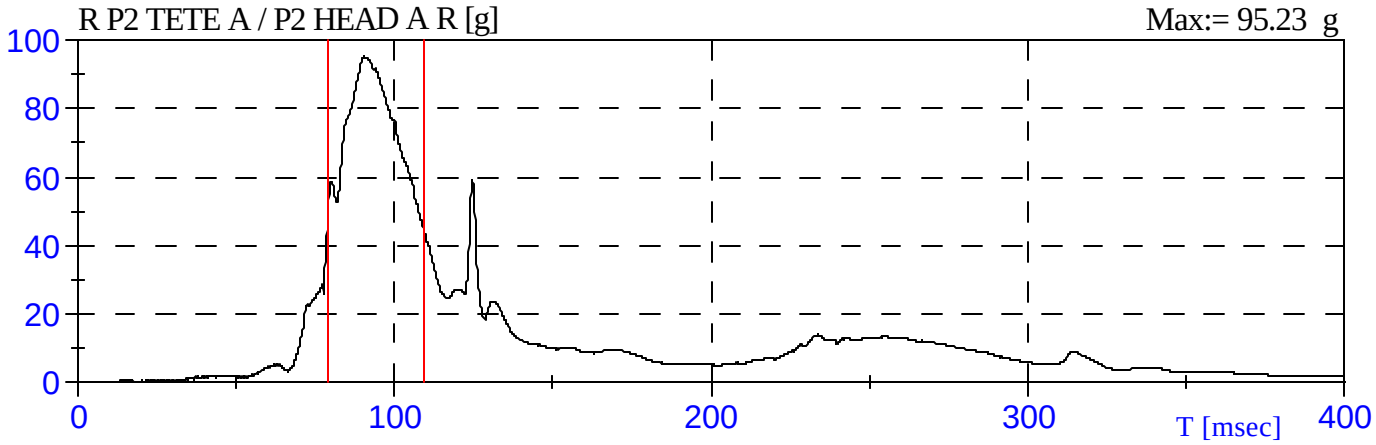
* Selon / According To: SAE J1727 96-08

HIC

Date: 2003-01-17

CHRYSLER CARAVAN 2003

Nº TC / TC No.: TC03-106

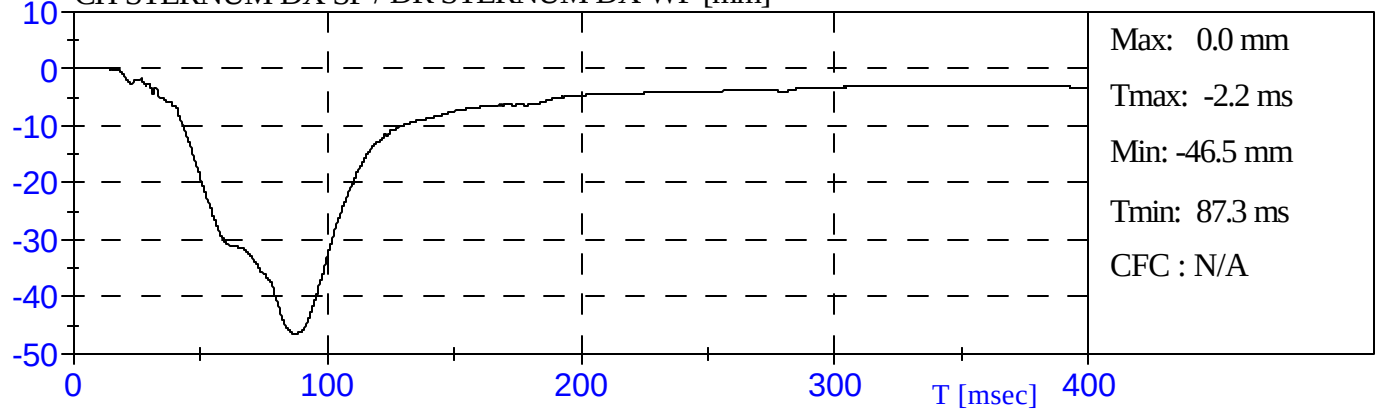


HEAD INJURY CRITERIA (HIC) *
CRITÈRE DE BLESSURE DE LA TÊTE

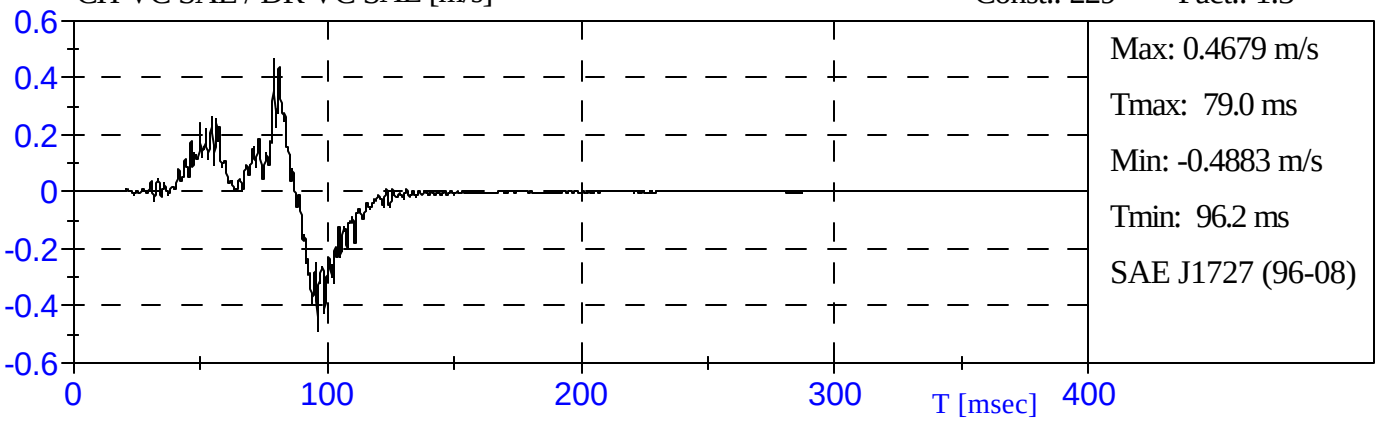
HIC:= 1404	HIC(36ms):= 1404	HIC(15ms):= 1052
T1:= 78.6 ms	T1:= 78.6 ms	T1:= 84.9 ms
T2:= 109.4 ms	T2:= 109.4 ms	T2:= 99.9 ms

* Selon / According To: SAE J1727 96-08

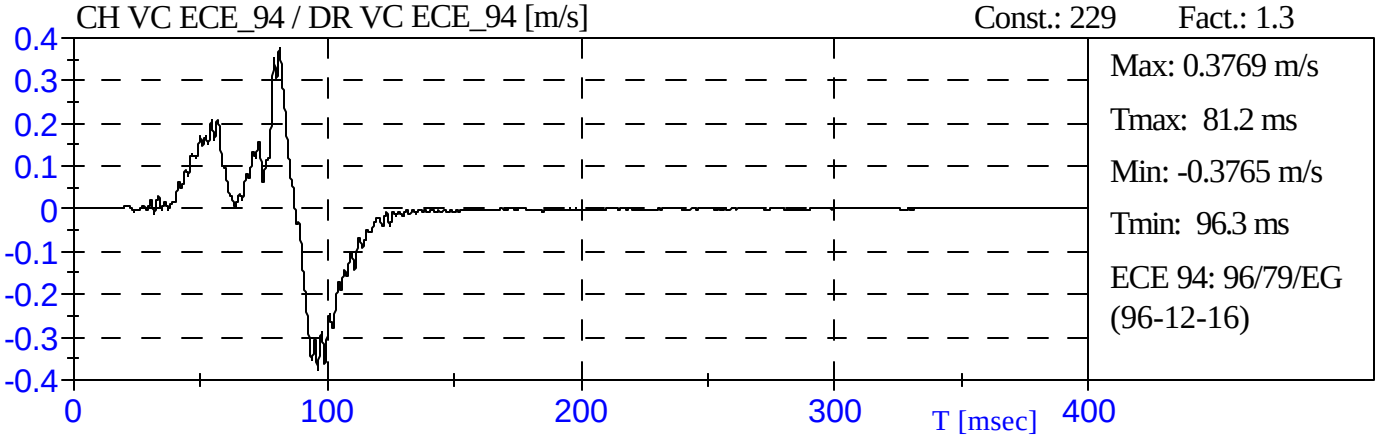
CH STERNUM DX SF / DR STERNUM DX WF [mm]



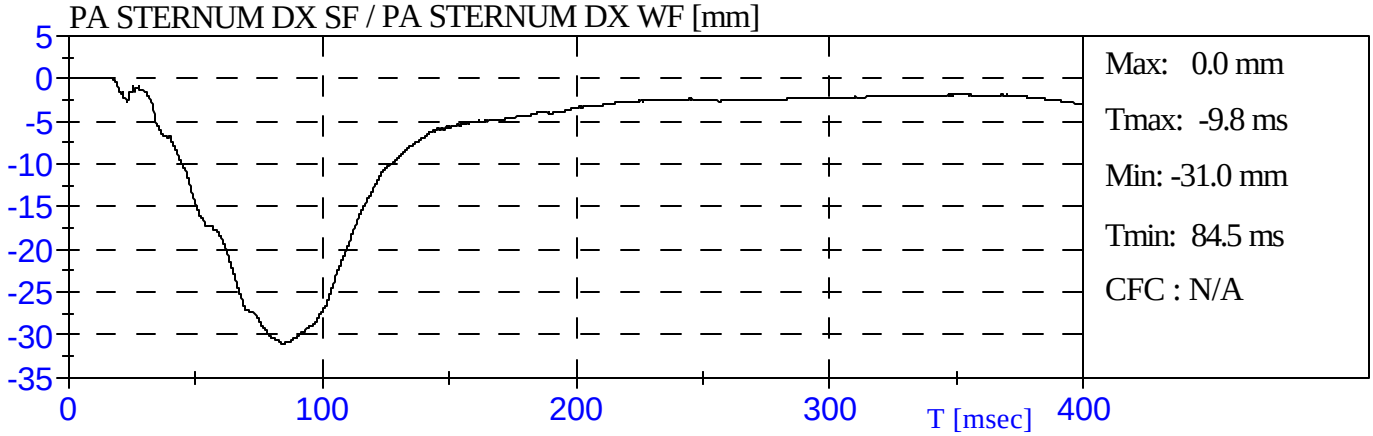
CH VC SAE / DR VC SAE [m/s] Const.: 229 Fact.: 1.3



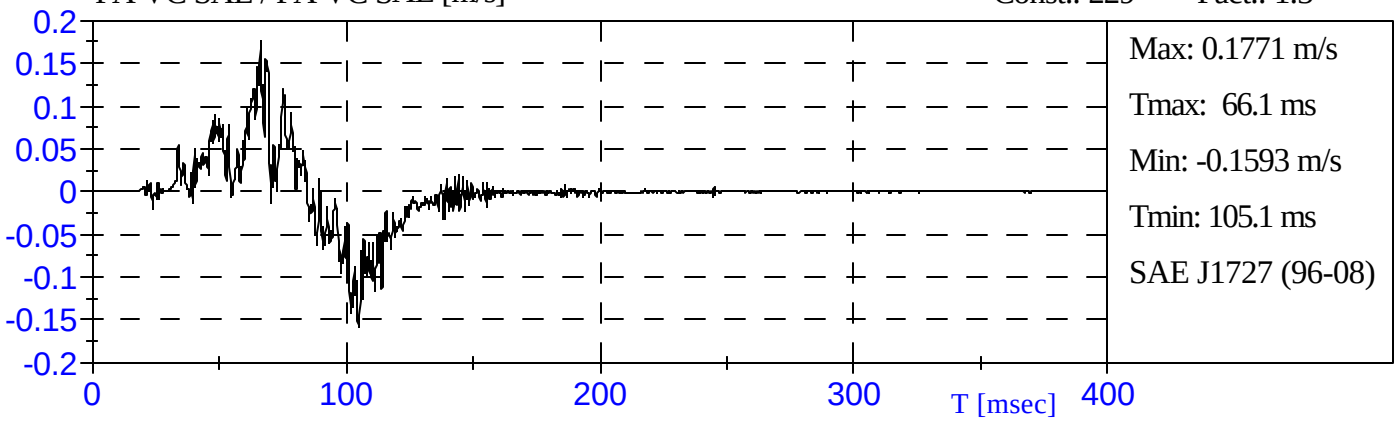
CH VC ECE_94 / DR VC ECE_94 [m/s] Const.: 229 Fact.: 1.3



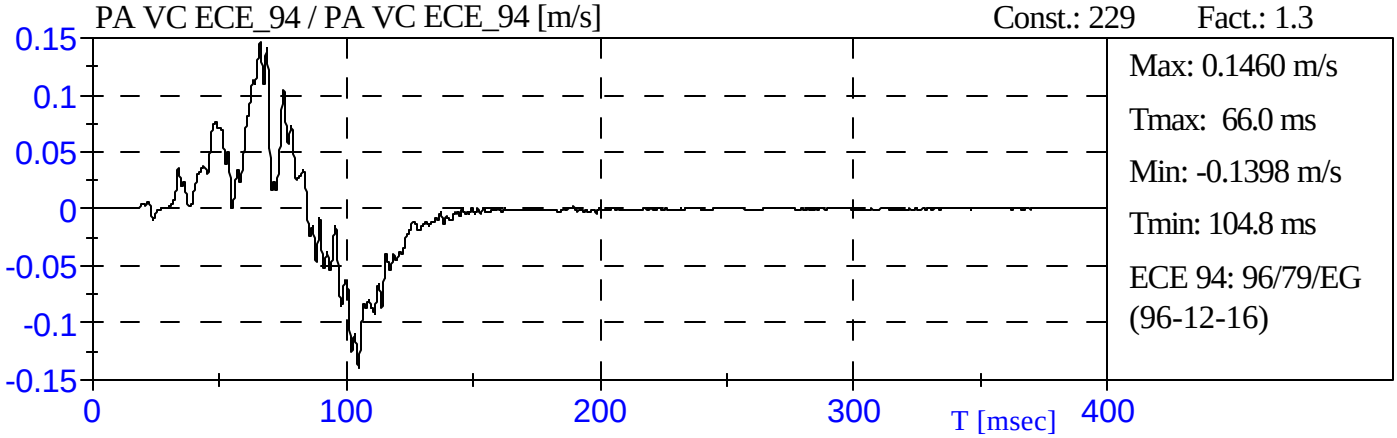
PA STERNUM DX SF / PA STERNUM DX WF [mm]



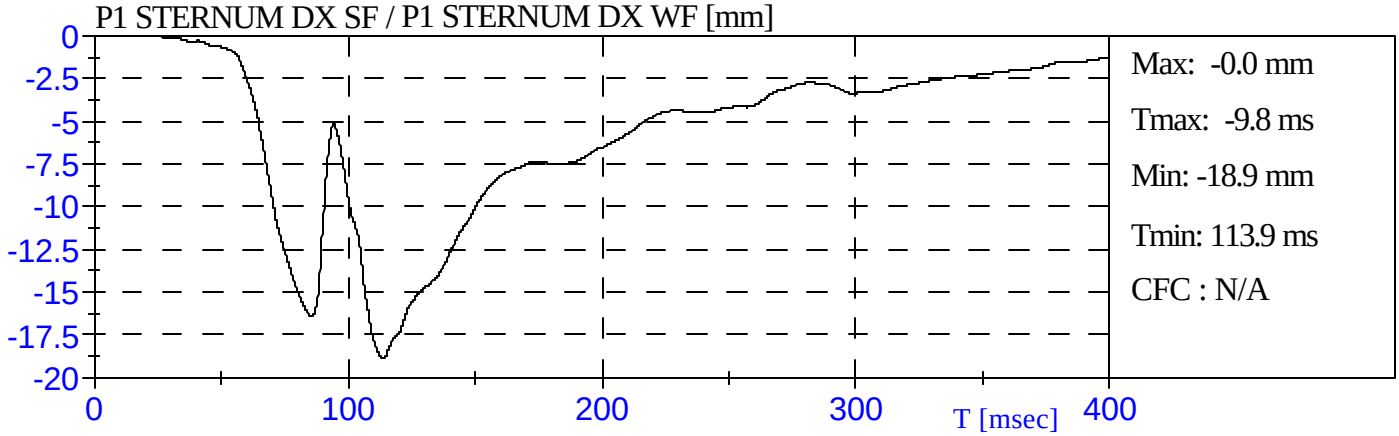
PA VC SAE / PA VC SAE [m/s] Const.: 229 Fact.: 1.3



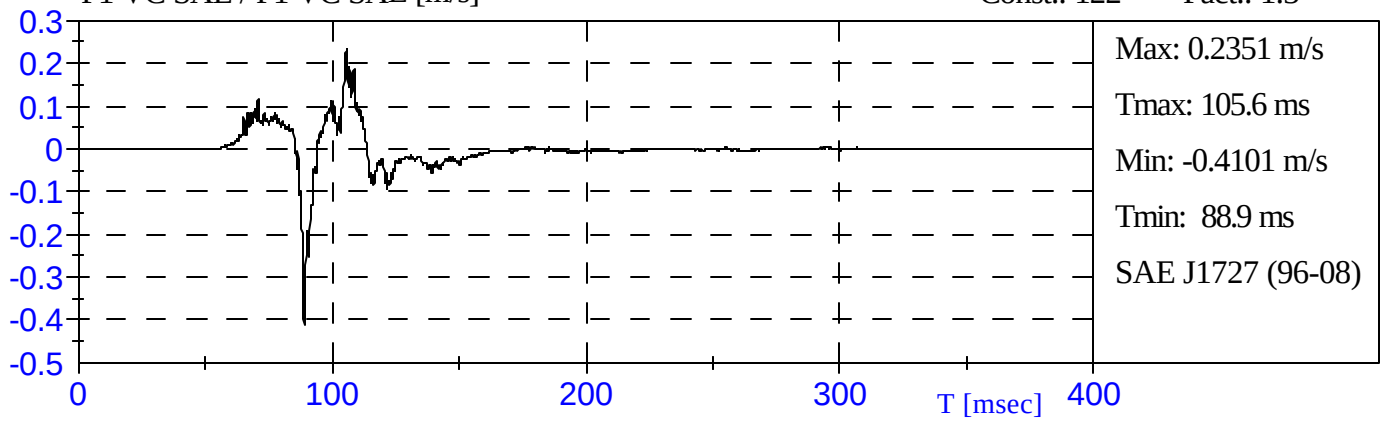
PA VC ECE_94 / PA VC ECE_94 [m/s] Const.: 229 Fact.: 1.3



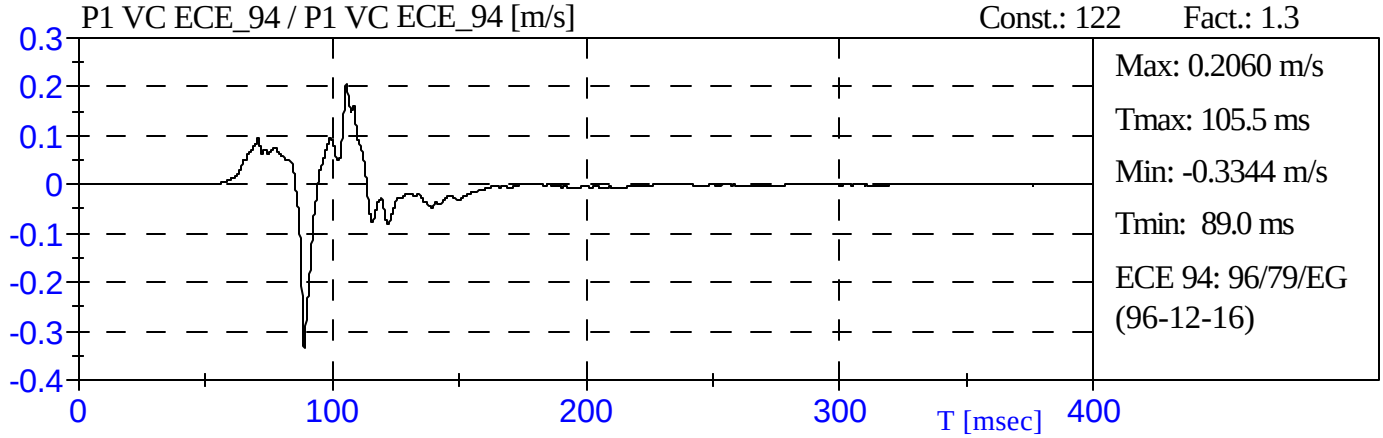
P1 STERNUM DX SF / P1 STERNUM DX WF [mm]



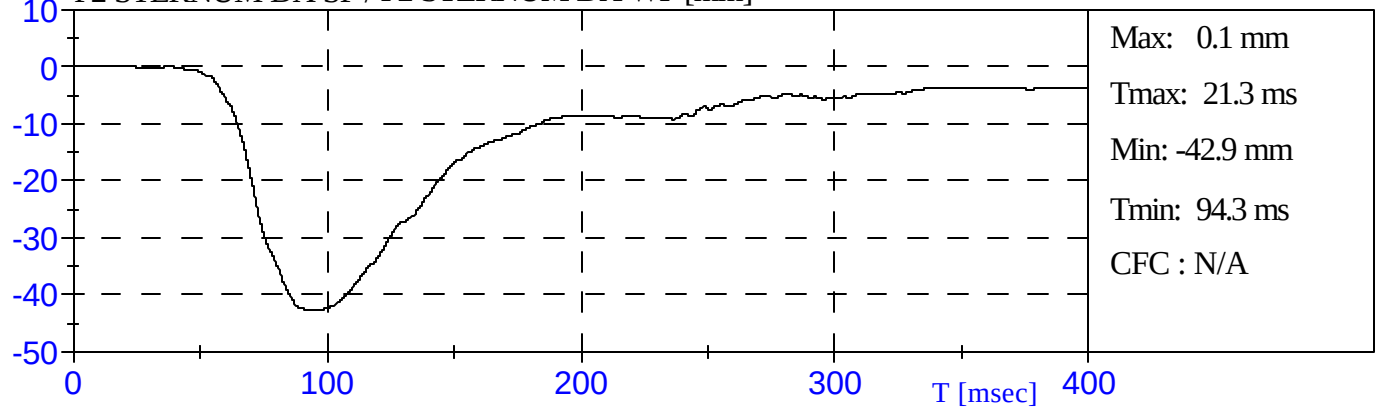
P1 VC SAE / P1 VC SAE [m/s] Const.: 122 Fact.: 1.3



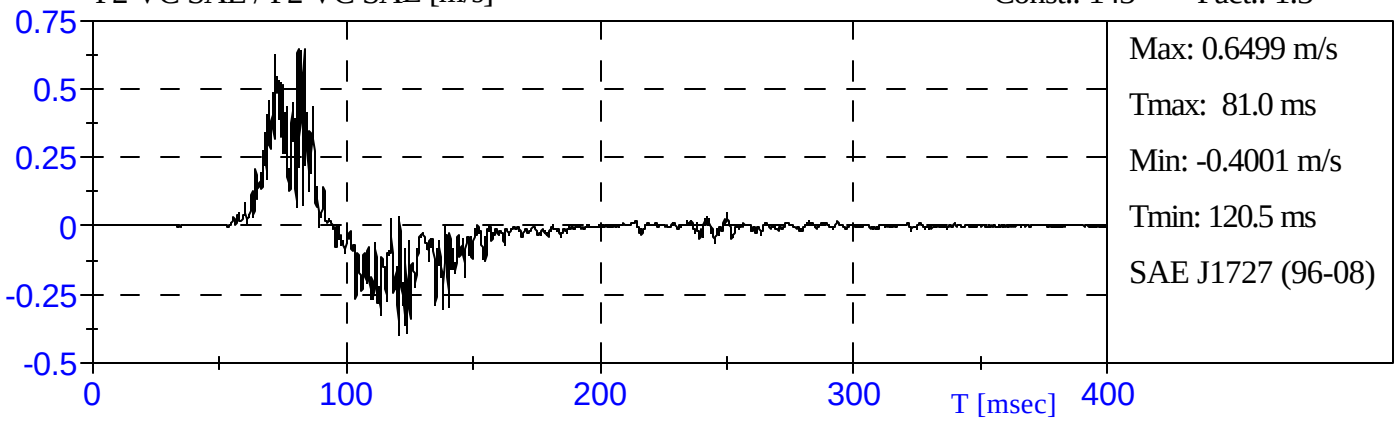
P1 VC ECE_94 / P1 VC ECE_94 [m/s] Const.: 122 Fact.: 1.3



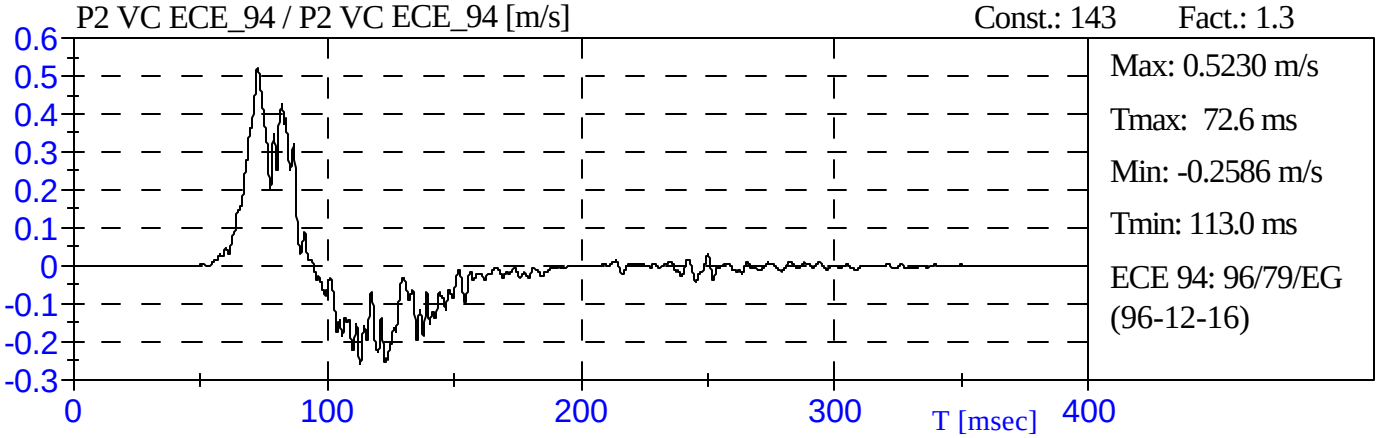
P2 STERNUM DX SF / P2 STERNUM DX WF [mm]



P2 VC SAE / P2 VC SAE [m/s] Const.: 143 Fact.: 1.3



P2 VC ECE_94 / P2 VC ECE_94 [m/s] Const.: 143 Fact.: 1.3



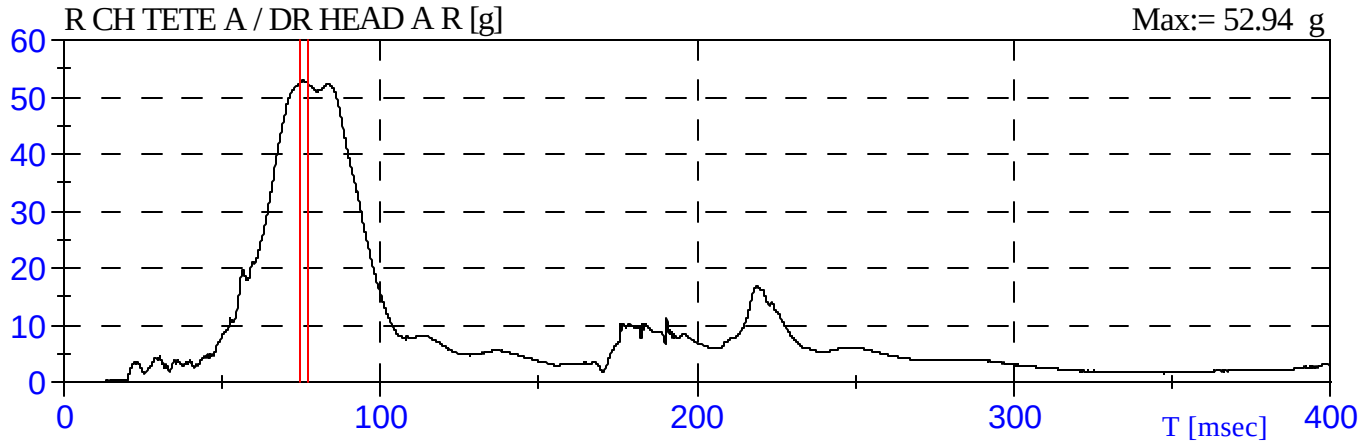
PMG Technologies

CLIP 3ms

Date: 2003-01-17

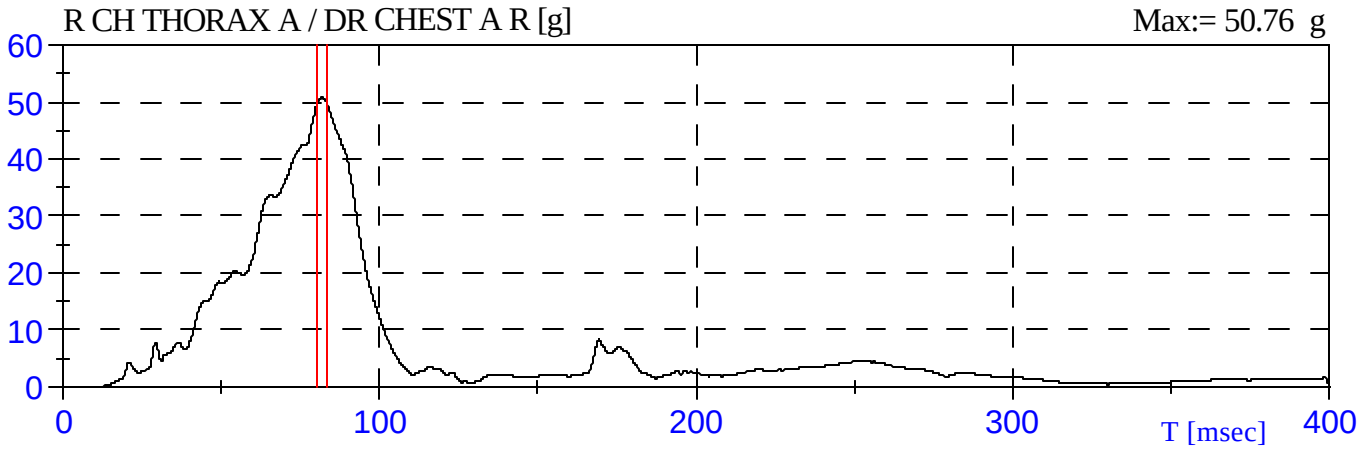
CHRYSLER CARAVAN 2003

Nº TC / TC No.: TC03-106



CLIP 3ms *

Acc. := 52.21 g	T1:= 74.3 ms	T2:= 77.3 ms



CLIP 3ms *

Acc. := 49.79 g	T1:= 80.3 ms	T2:= 83.3 ms

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

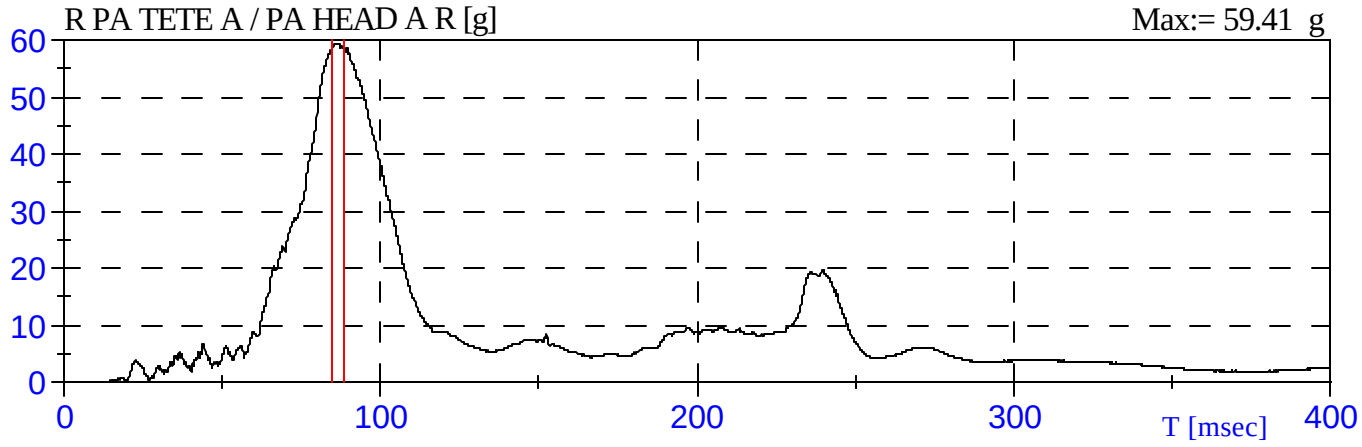
PMG Technologies

CLIP 3ms

Date: 2003-01-17

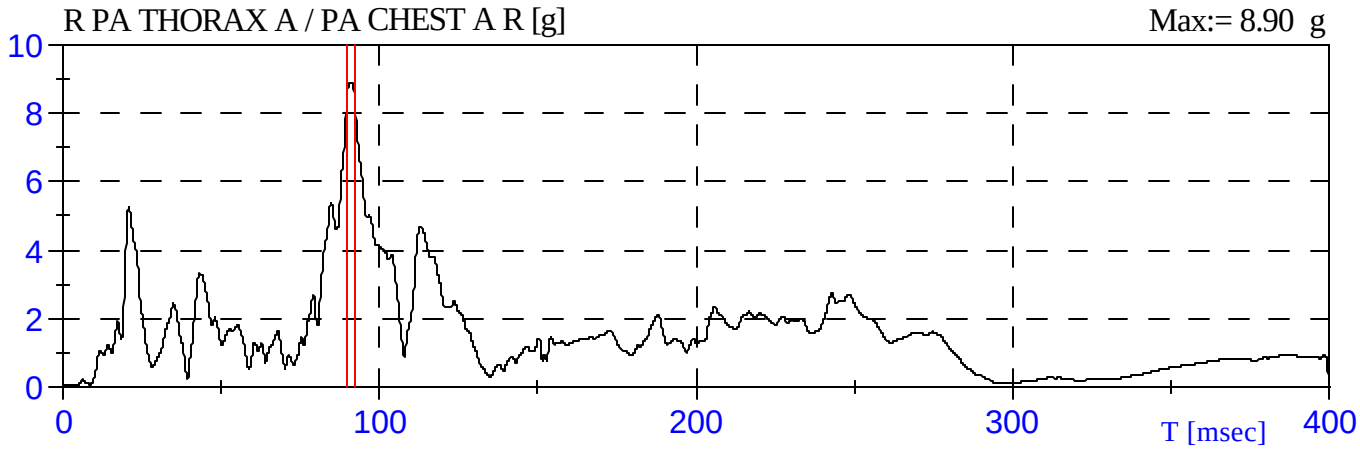
CHRYSLER CARAVAN 2003

Nº TC / TC No.: TC03-106



CLIP 3ms *

Acc. := 58.68 g	T1:= 84.9 ms	T2:= 88.2 ms



CLIP 3ms *

Acc. := 8.05 g	T1:= 89.4 ms	T2:= 92.4 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

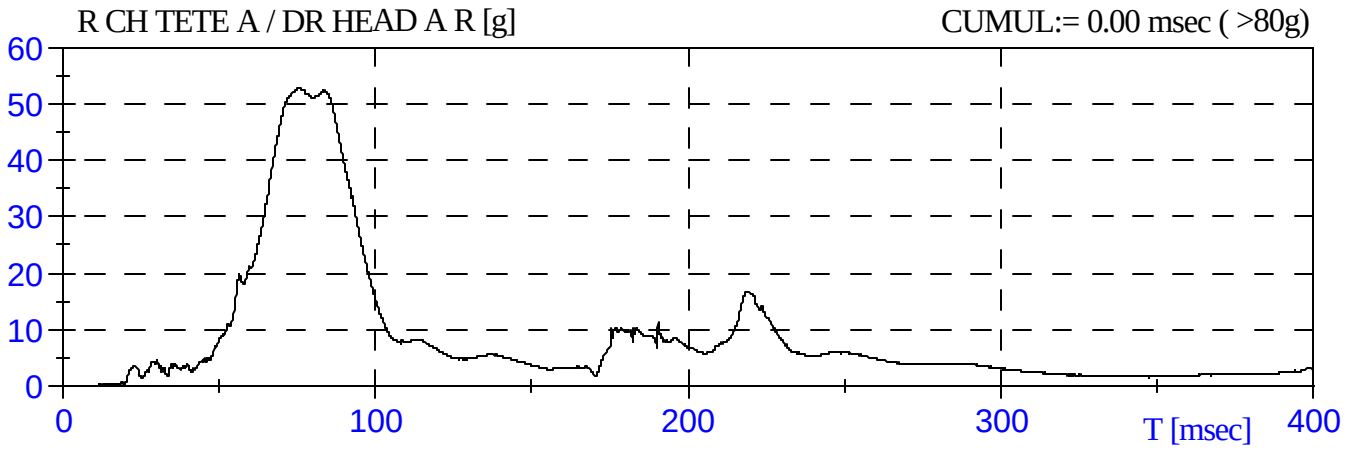
TIBIA	GAUCHE / LEFT	DROIT / RIGHT
HAUT / UPPER	**0.261**	**0.953**
BAS / LOWER	**0.752**	**0.745**

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

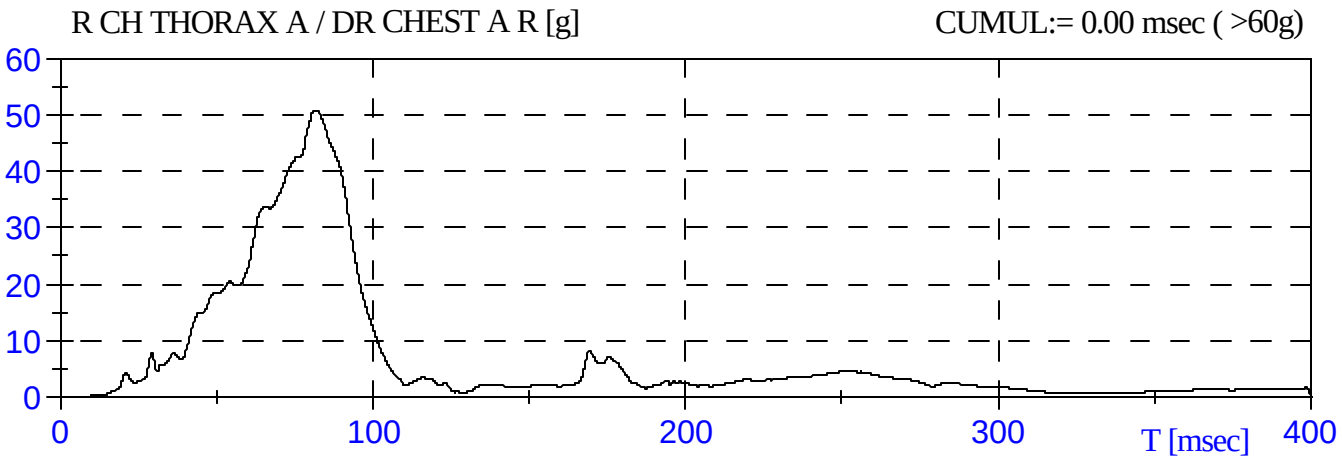
TIBIA	GAUCHE / LEFT	DROIT / RIGHT
HAUT / UPPER	**0.510**	**0.434**
BAS / LOWER	**0.421**	**0.319**

* Selon / According To: SAE J1727 AUG 96

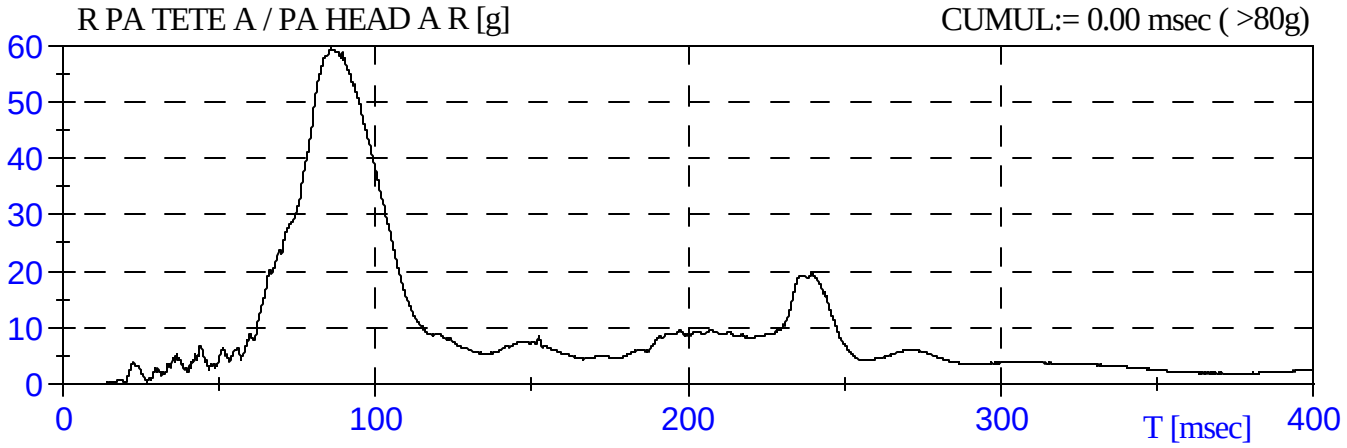
ACCÉLÉRATION DE LA TÊTE >80 g / HEAD ACCELERATION > 80 g



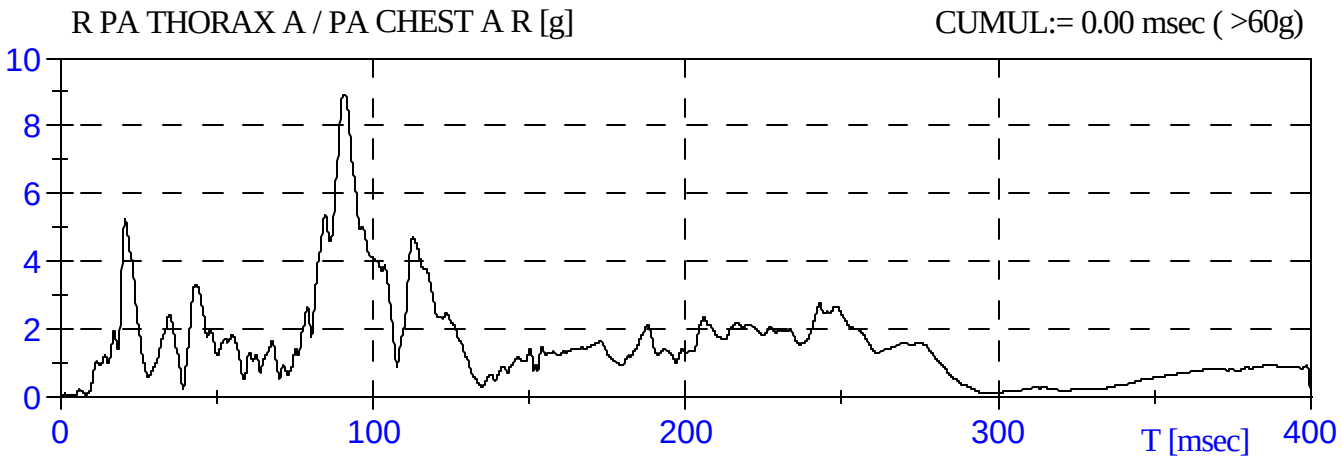
ACCÉLÉRATION DU THORAX >60 g / THORAX ACCELERATION > 60 g



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



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



Chauffeur / Driver

N ij* = 0.34

Valeurs critiques
Criticals Values

N te	N ce	N tf	N cf	Tc 6806 Cc 6160 Fc 310 Ec 135
0.19	0.01	0.34	0.00	

Passager / Passenger

N ij* = 0.22

Valeurs critiques
Criticals Values

N te	N ce	N tf	N cf	Tc 6806 Cc 6160 Fc 310 Ec 135
0.19	0.04	0.22	0.09	

* Selon / According To: Federal Register 5/2000

COMMENTAIRES / COMMENTS

PA THORAX AX:	N'est pas valide à partir de 26.2 ms.
P2 TETE AX, AY,AZ:	Transitoire réparé de 72.6 ms à 77.2 ms.
P2 HT COU FX:	Transitoire réparé de 72.6 ms à 77.2 ms.
PA CHEST AX:	Is not valid from 26.2 ms.
P2 HEAD AX, AY,AZ:	Glitch removed from 72.6 ms to 77.2 ms.
P2 UP NECK FX:	Glitch removed from 72.6 ms to 77.2 ms.