

Humanetics Europe GmbH



Alexander Schmitt

May 27, 2011

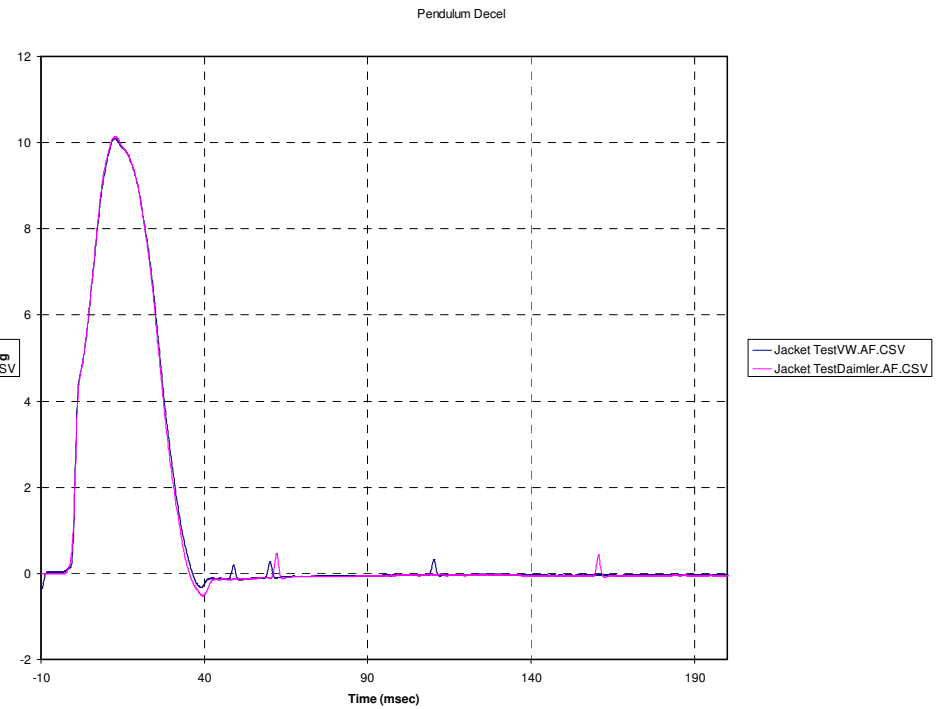
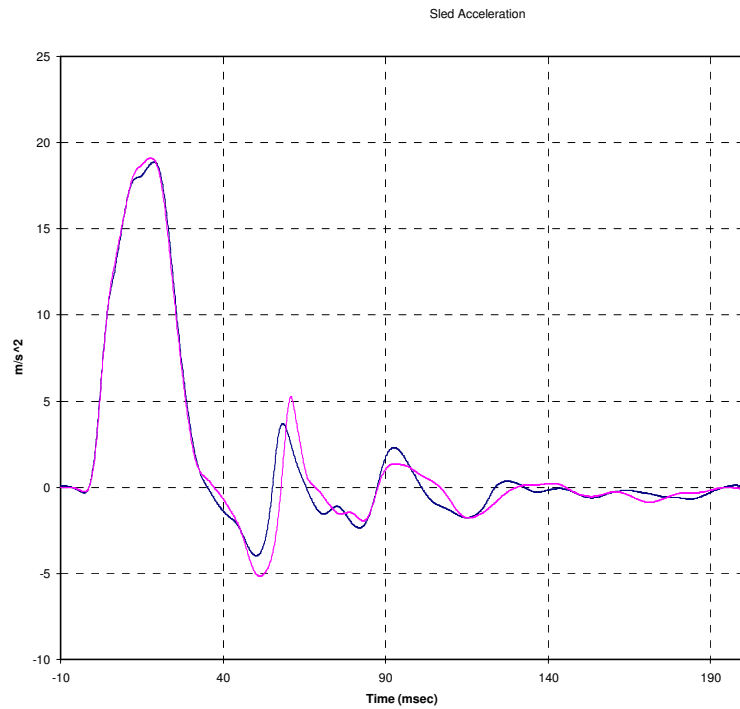
BioRID II Test Series PDB

Test Order Dummies 0006 & 0007

1. Sled Verification – pass
2. Jacket Testing
3. Dummies standard Certification Test
4. Sports Seat Baseline Tests at Porsche
5. Sled Verification - pass
6. Dummy Adjustments at Humanetics Europe
7. Dummy Certification Tests
 1. Standard Certification Test
 2. Standard Certification Test with Headrest
8. Sports Seat Tests at Porsche
9. Dummy Certification Tests
 1. Standard Certification Test
 2. Standard Certification Test with Headrest
 3. Heavy Probe Test with Headrest

BioRID II Test Series PDB

Jacket Verification



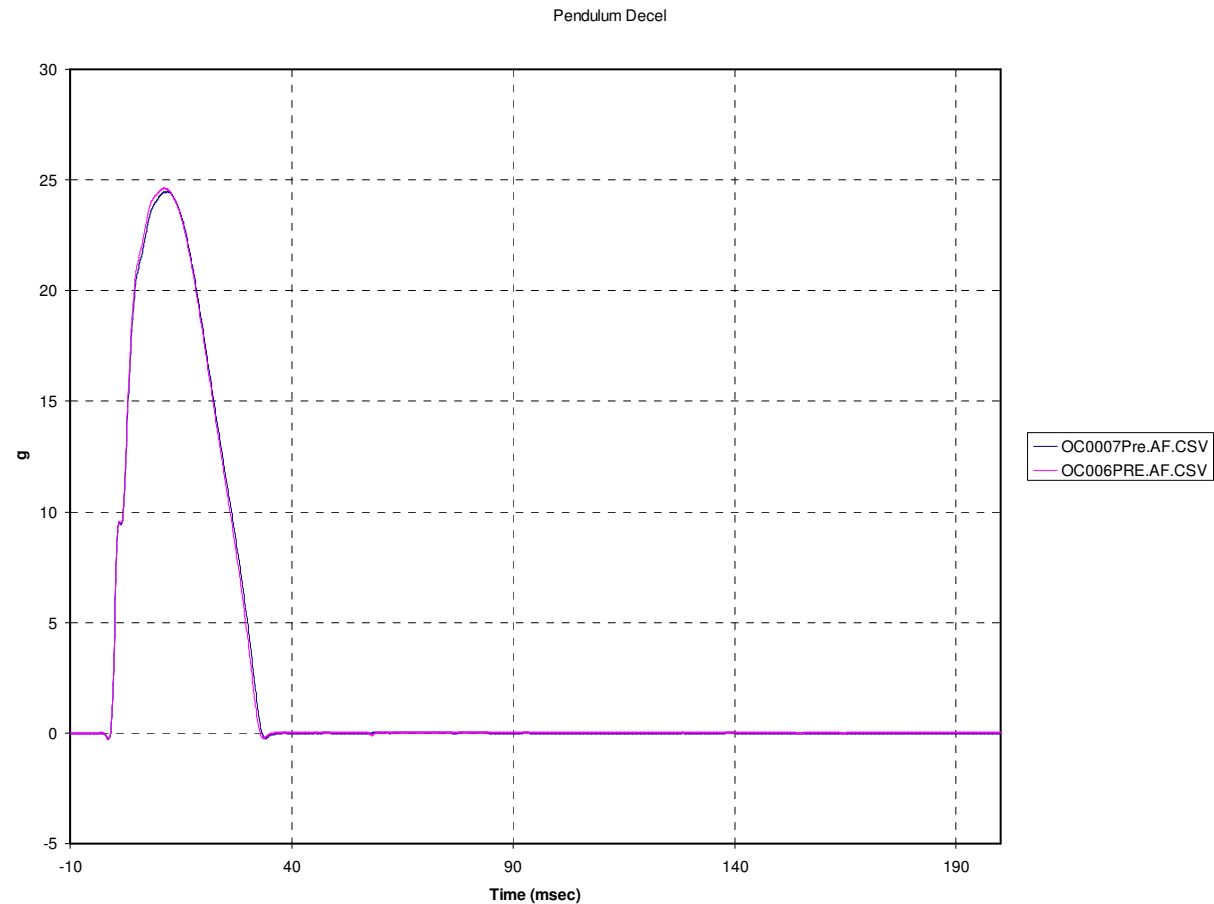
BioRID II Test Series PDB

Jacket Verification

- Jackets perform similar
- Jackets too stiff compared to proposed corridors

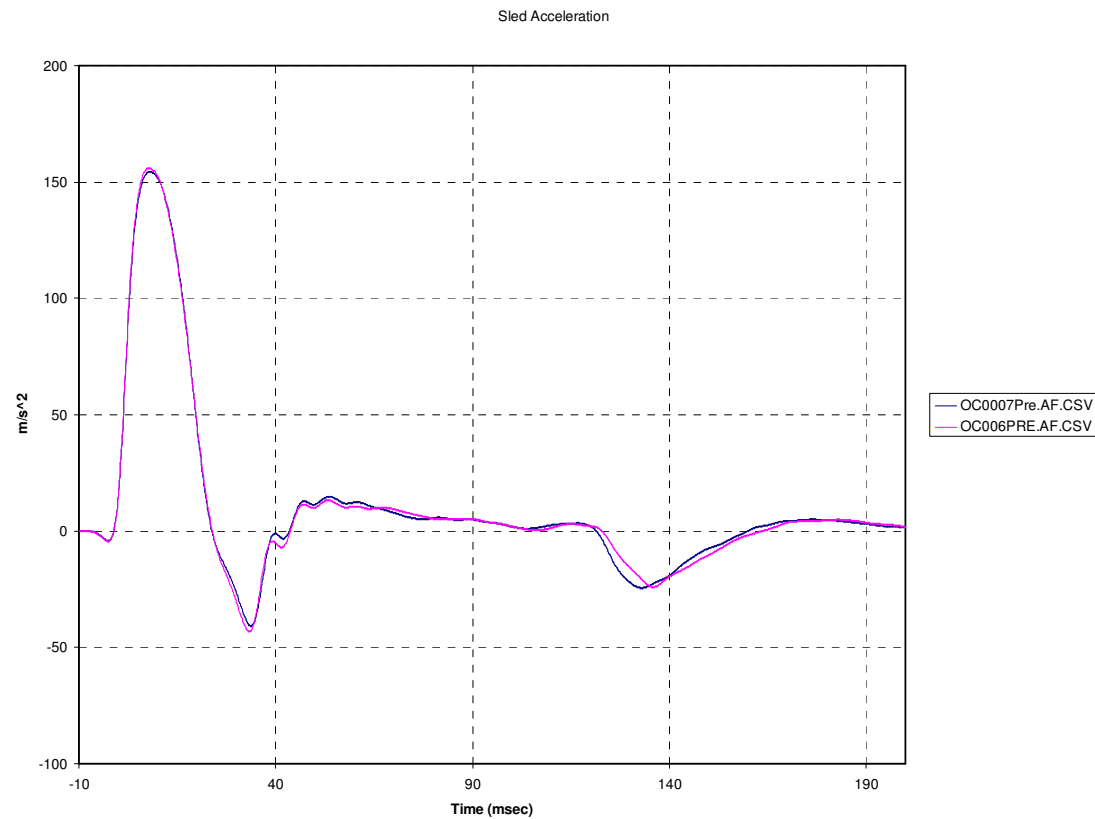
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Dummy Standard Certification



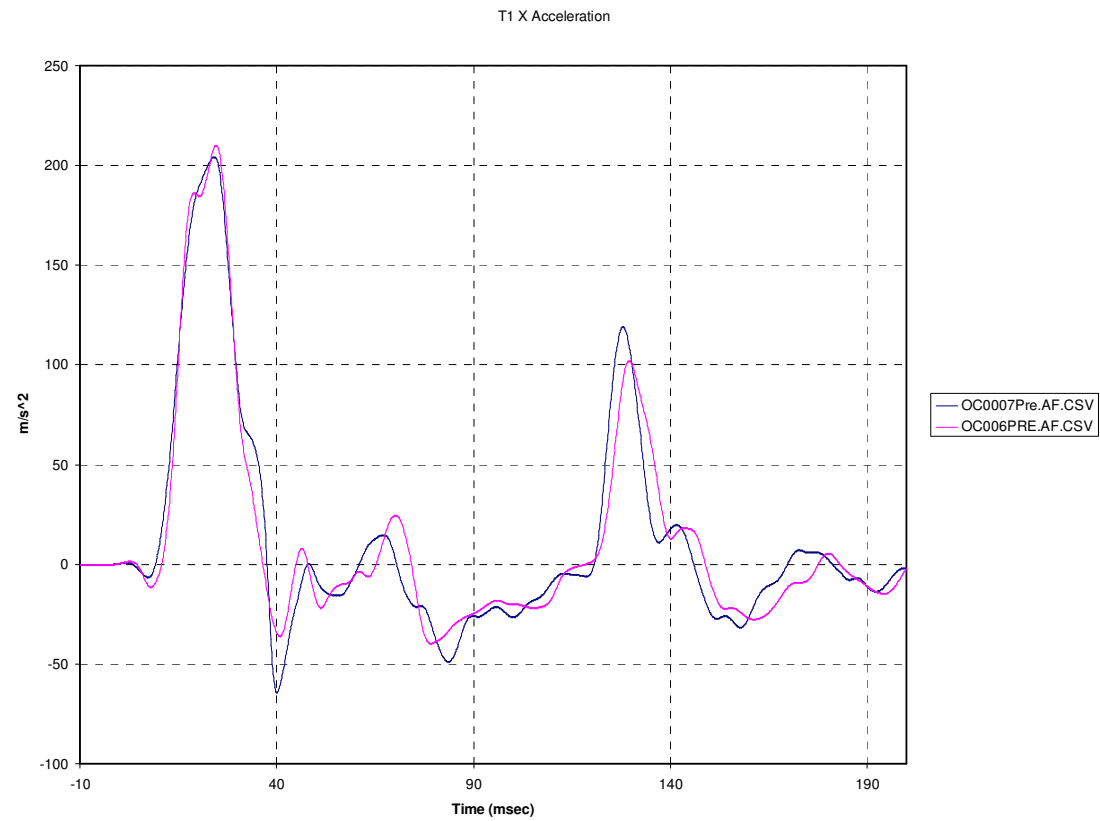
BioRID II Test Series PDB

Dummy Standard Certification



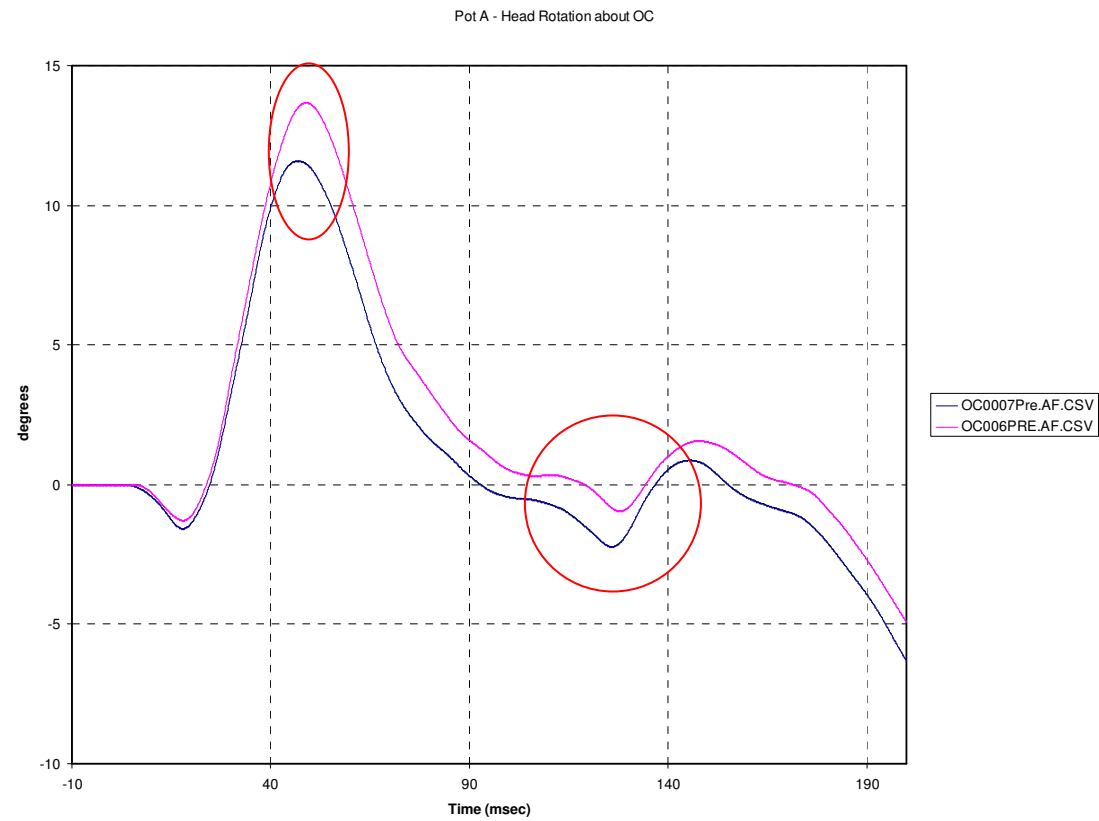
BioRID II Test Series PDB

Dummy Standard Certification



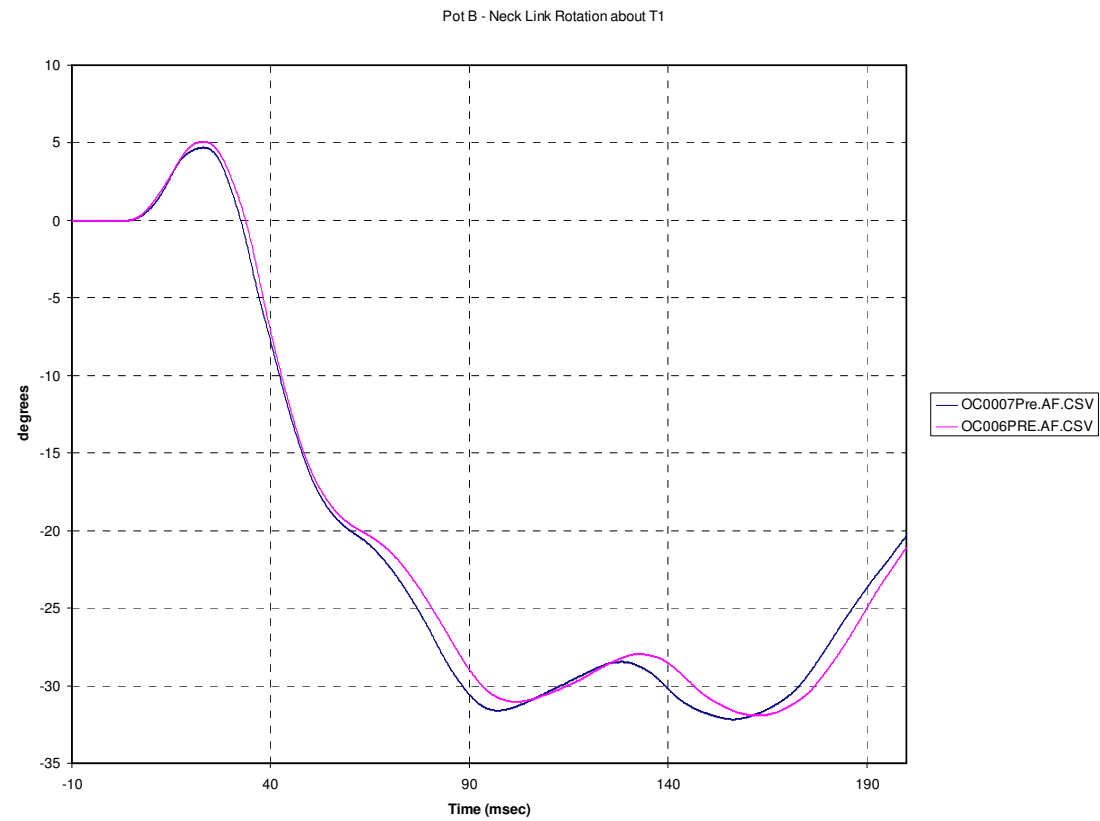
BioRID II Test Series PDB

Dummy Standard Certification



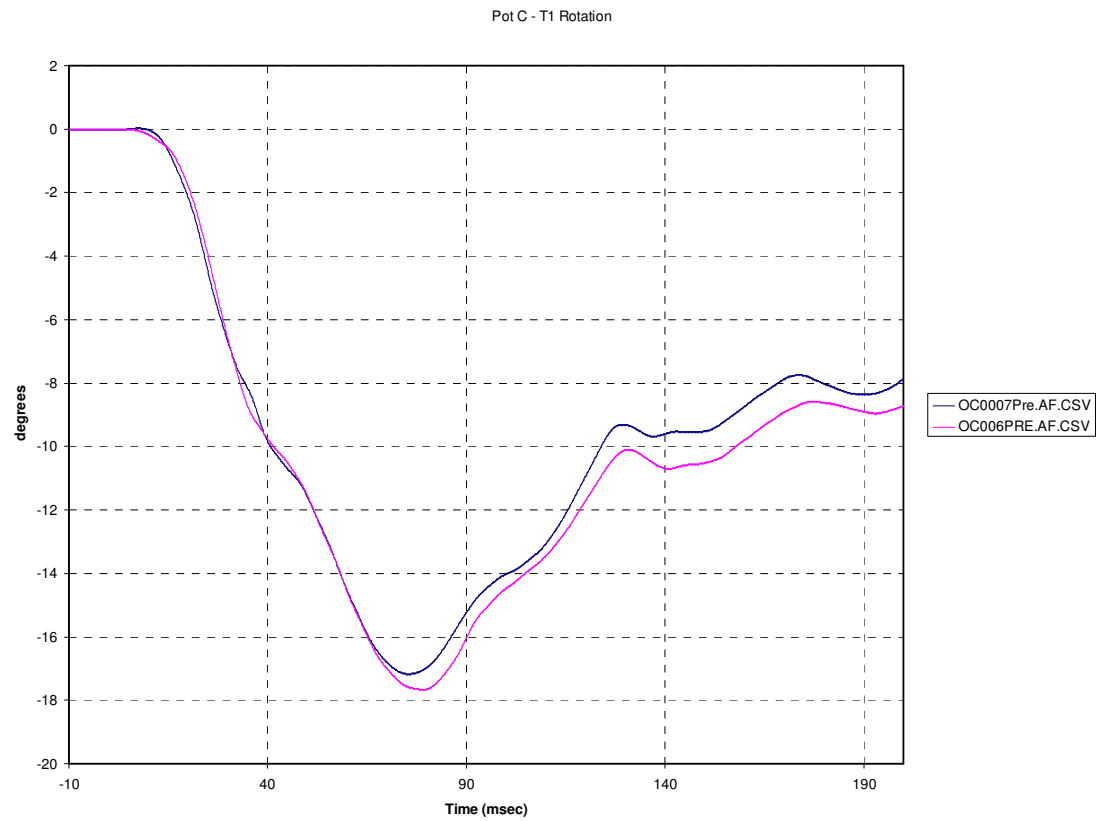
BioRID II Test Series PDB

Dummy Standard Certification



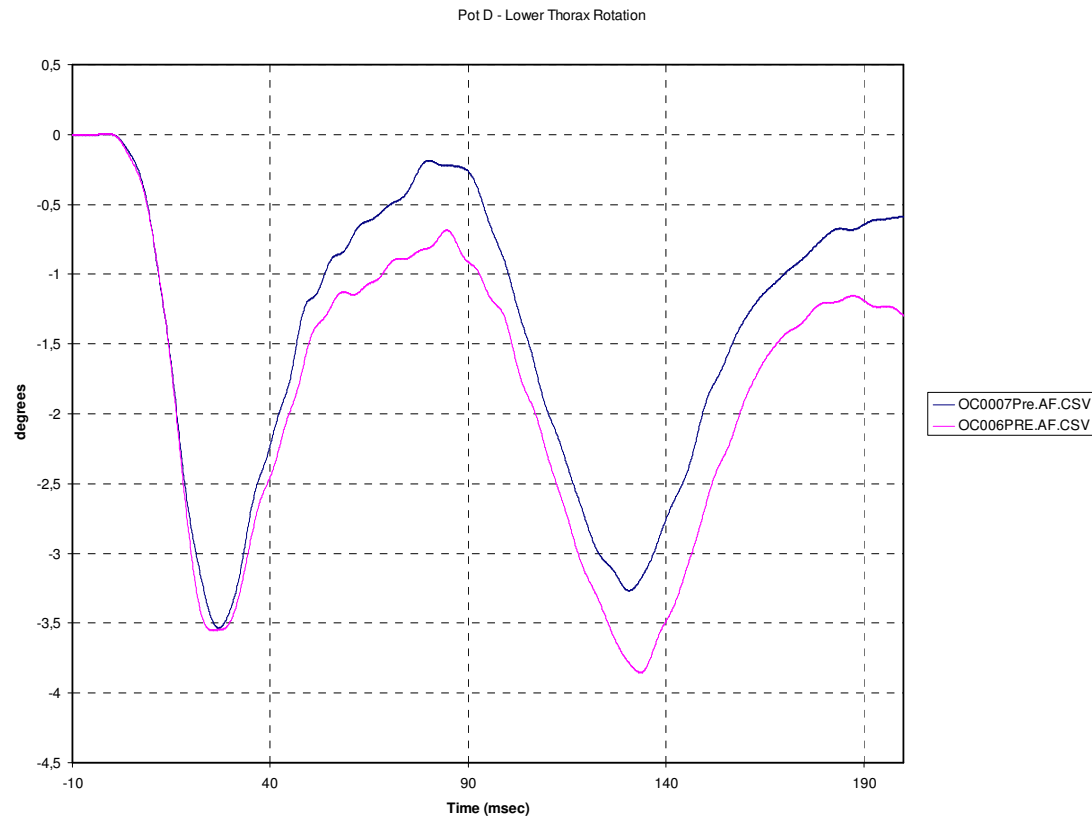
BioRID II Test Series PDB

Dummy Standard Certification



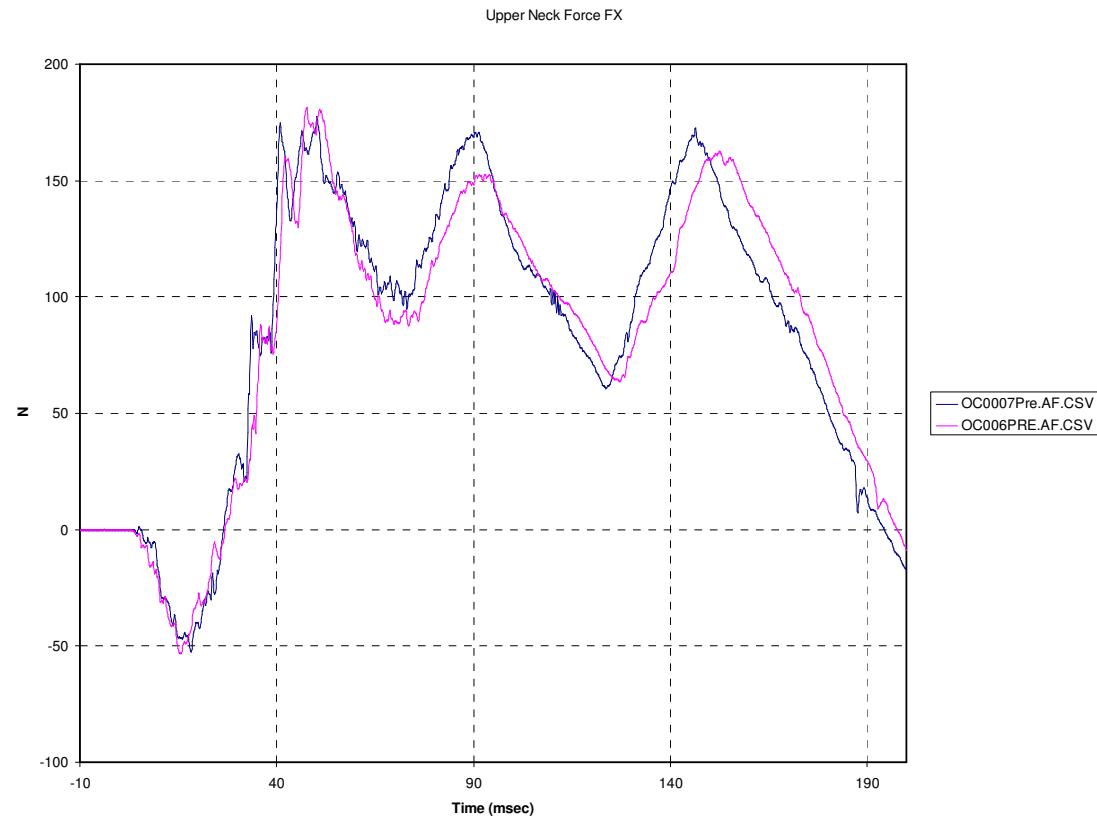
BioRID II Test Series PDB

Dummy Certification



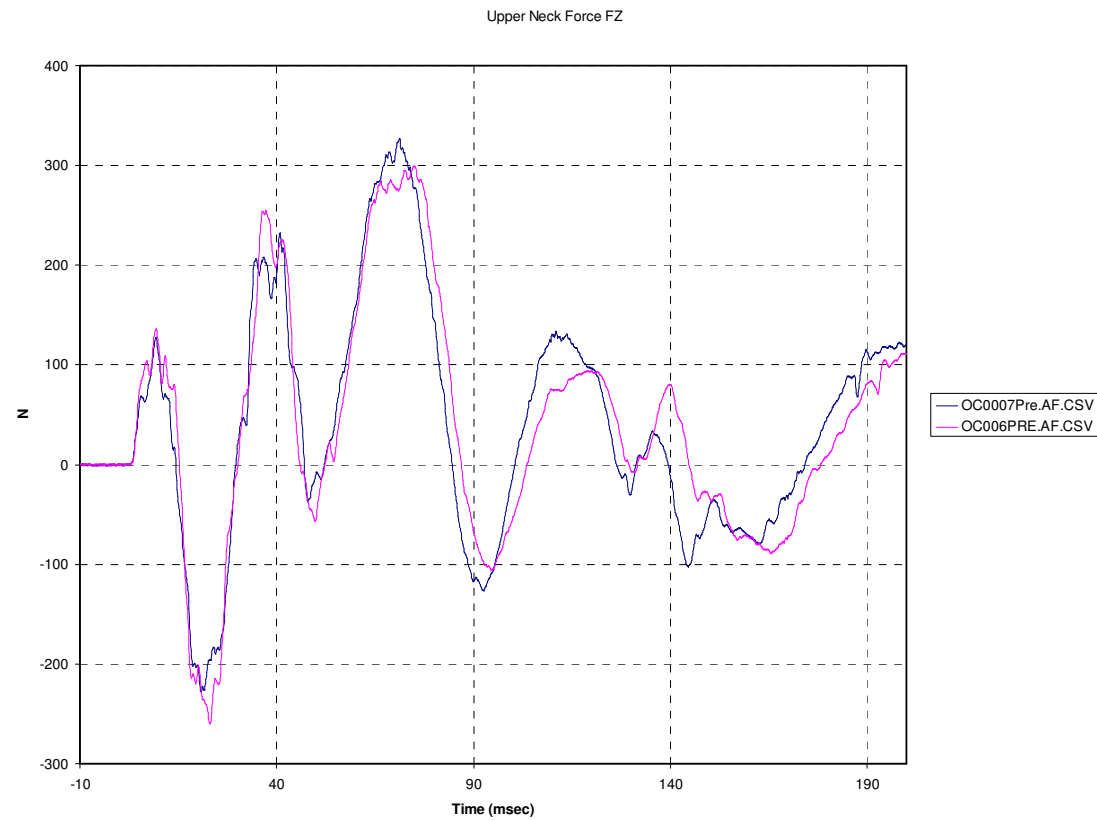
BioRID II Test Series PDB

Dummy Standard Certification



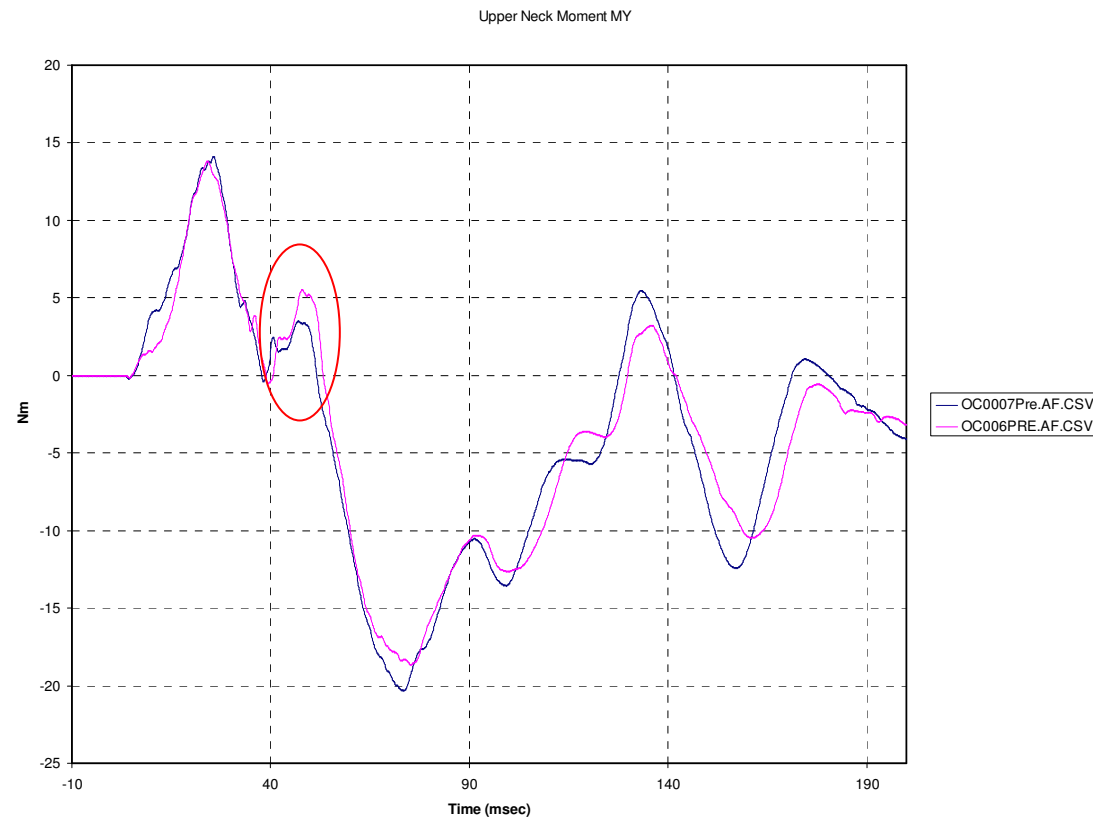
BioRID II Test Series PDB

Dummy Standard Certification



BioRID II Test Series PDB

Dummy Standard Certification



BioRID II Test Series PDB

Dummy Standard Certification

- Differences mainly on head rotation and upper neck MY second peak
- Other dummy values compare well

BioRID II Test Series PDB

Static Measurement Dummies SN 0006 & 0007
for pre certification testing & 2nd series sports
seat testing (measured after 1st series):

	OC Angle	T2 Angle	OC-HP Z	OC-HPX
0007	31 deg	37 deg	<i>605mm*</i>	<i>160mm*</i>
0006	29,5 deg	37 deg	607mm	156mm

* out of range / specification

BioRID II Test Series PDB

Observations & actions

Dummy 0007:

- tight pin fit between C6/C7 – reamed
- C1/C2 pin too thick – replaced

Dummy 0006:

- tight pin fit between C2/C3 – reamed
- 2 off neck pin too thick – replaced
- old version back plate – no action, certification showed no difference

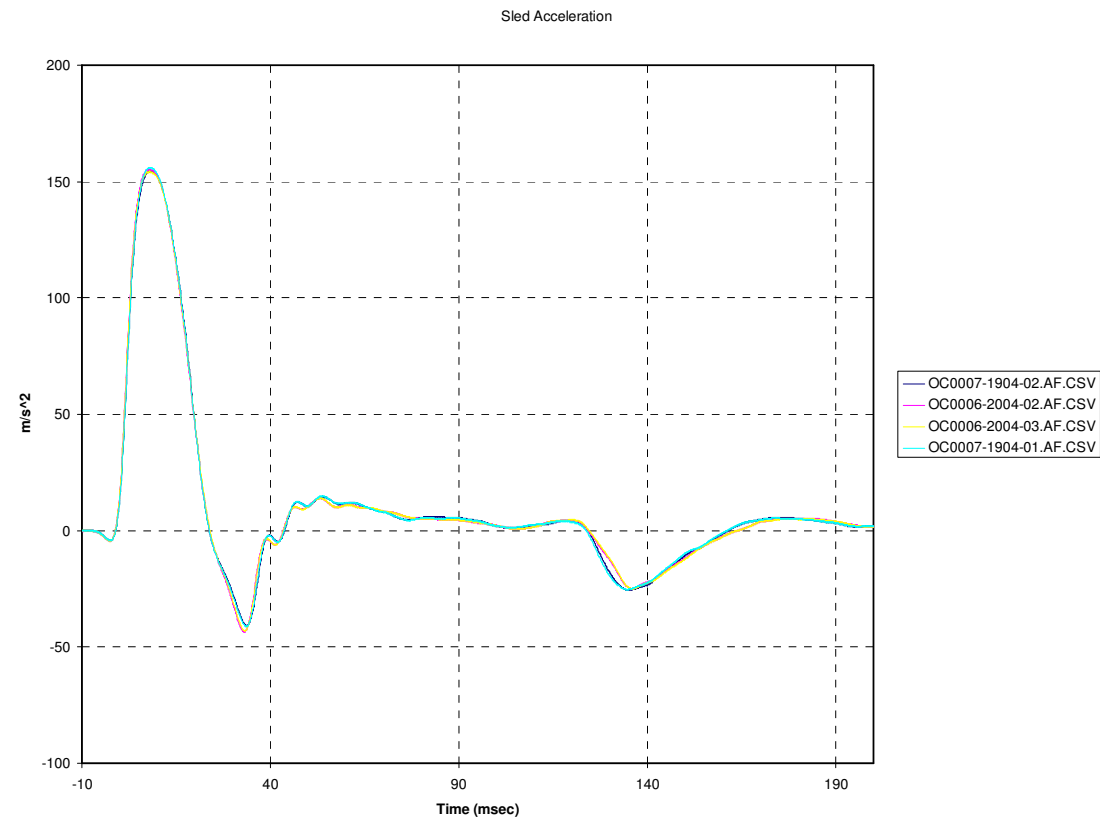
BioRID II Test Series PDB

Static Measurement Dummies SN 0006 & 0007
for new certification & test series:

	OC Angle	T2 Angle	OC-HP Z	OC-HPX	Damper
0007	30 deg	37 deg	609mm	153mm	360 deg
0006	29,5 deg	37 deg	608mm	154mm	360 deg

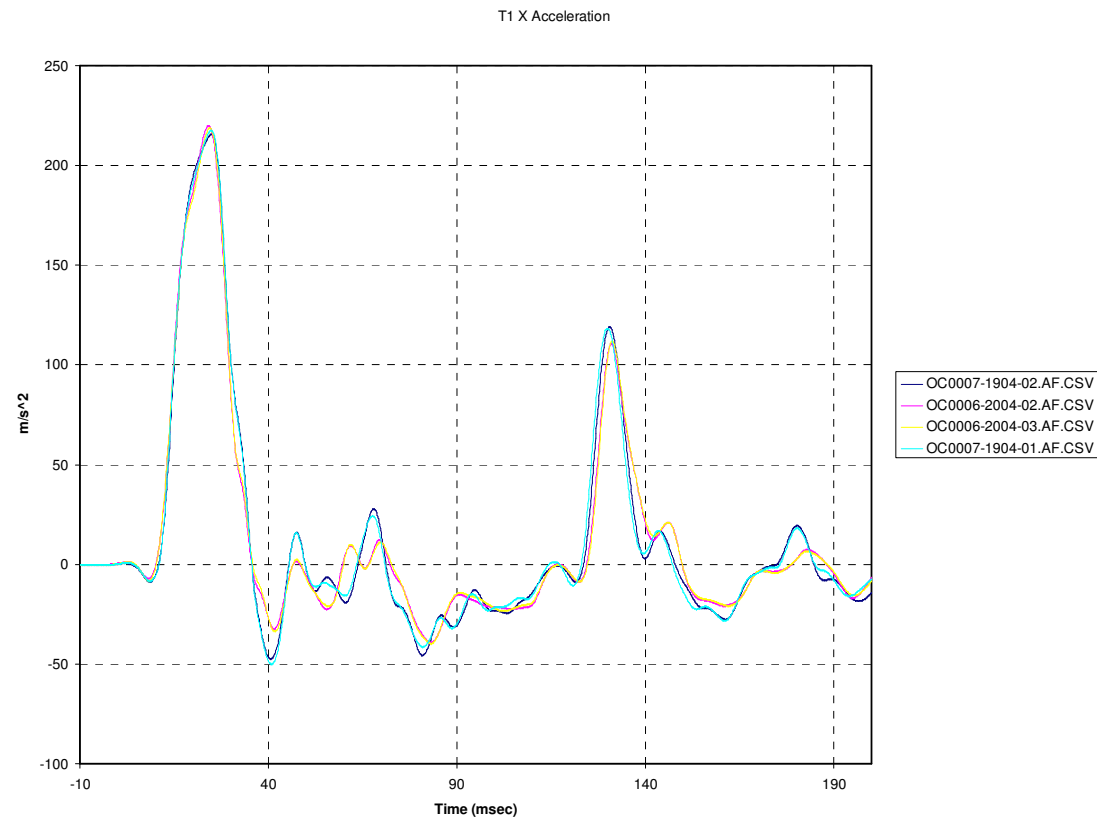
BioRID II Test Series PDB

Dummy Standard Certification 2



BioRID II Test Series PDB

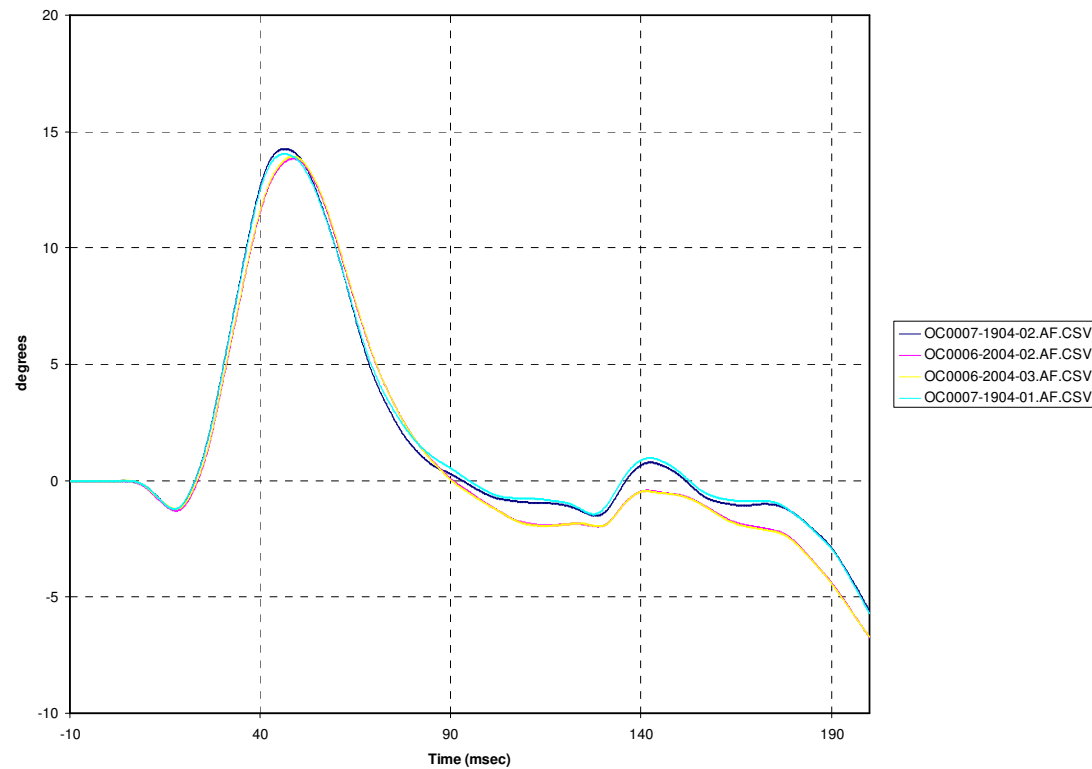
Dummy Standard Certification 2



BioRID II Test Series PDB

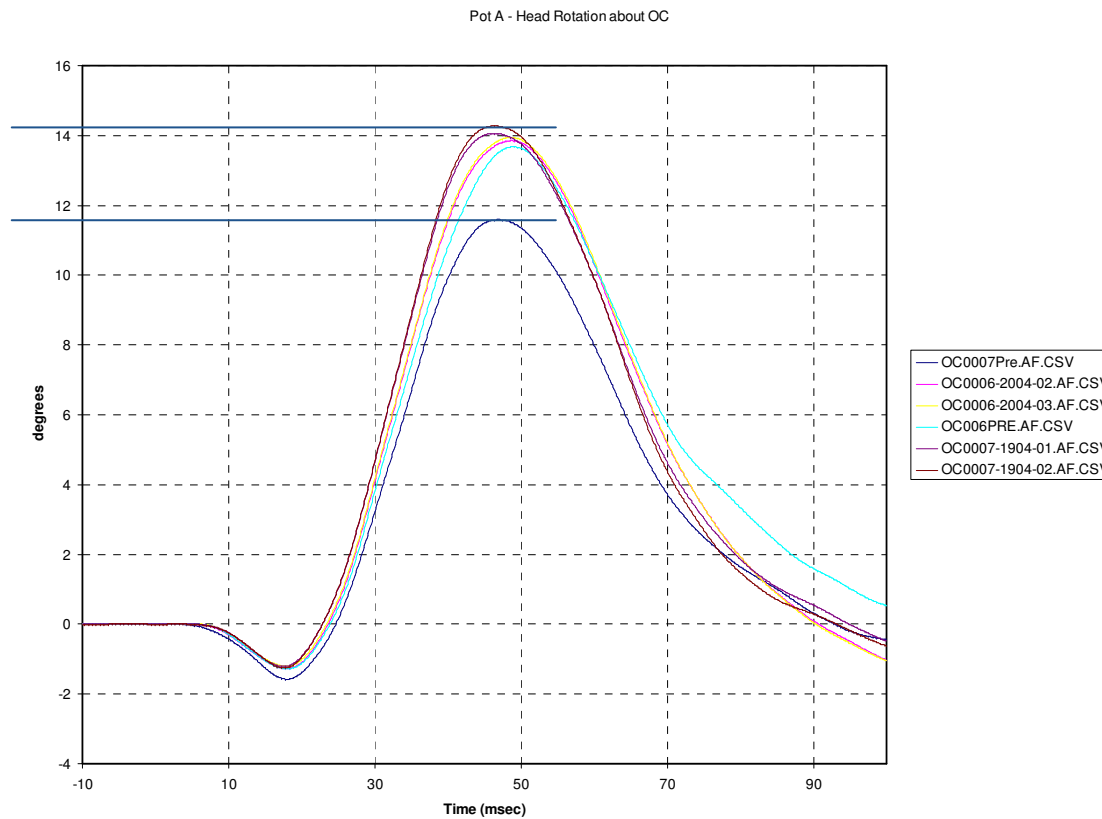
Dummy Standard Certification 2

Pot A - Head Rotation about OC



BioRID II Test Series PDB

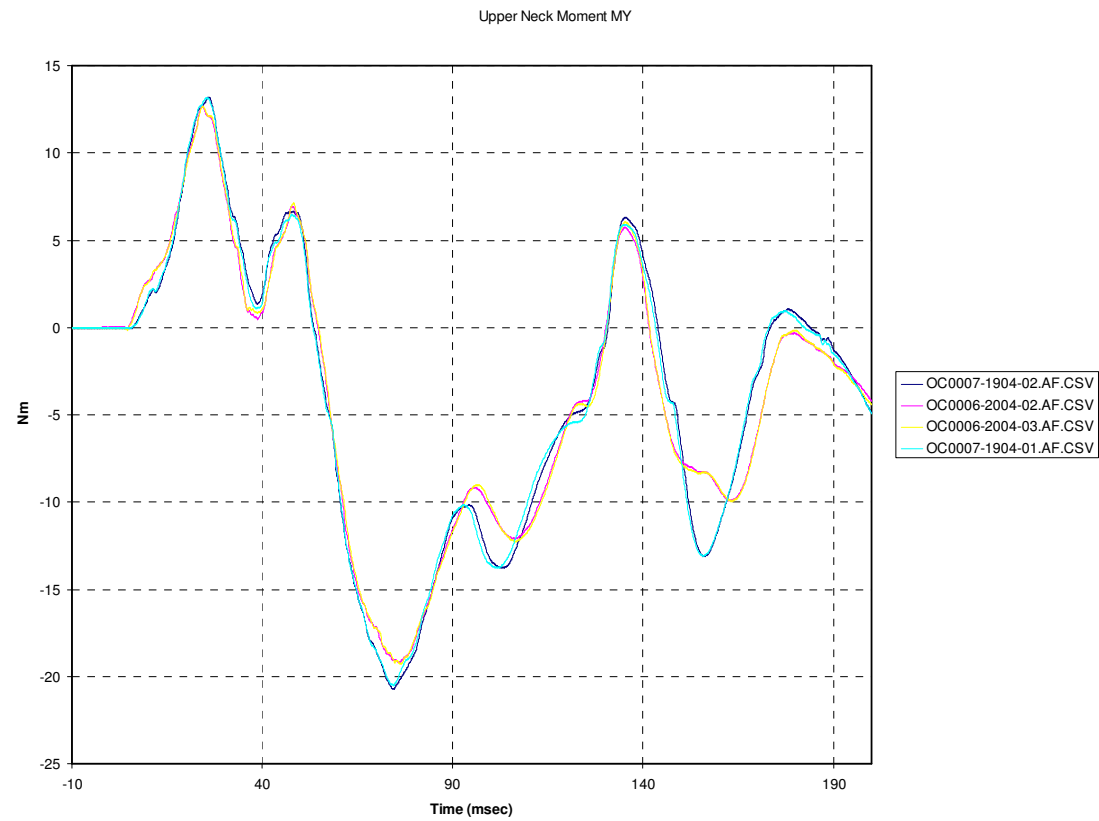
Dummy Standard Certification 2



Significant change of 007 Dummy

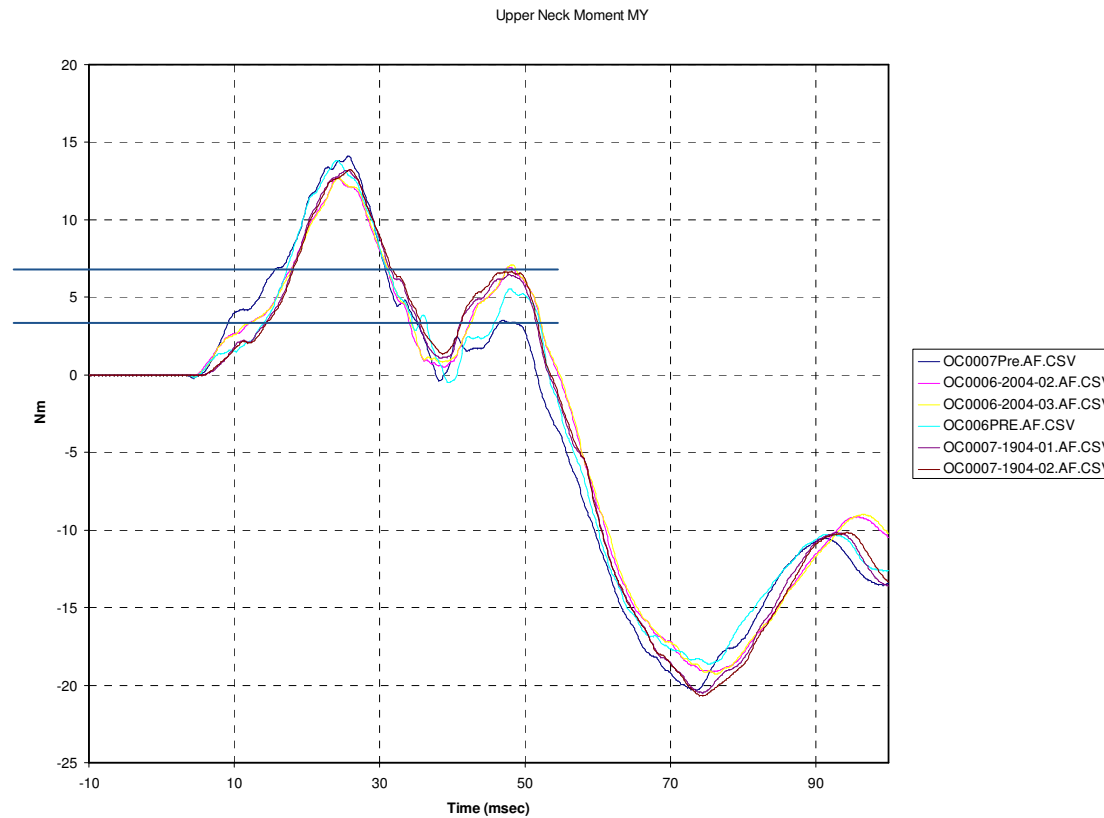
BioRID II Test Series PDB

Dummy Standard Certification 2



BioRID II Test Series PDB

Dummy Standard Certification 2



Significant change of 007 Dummy

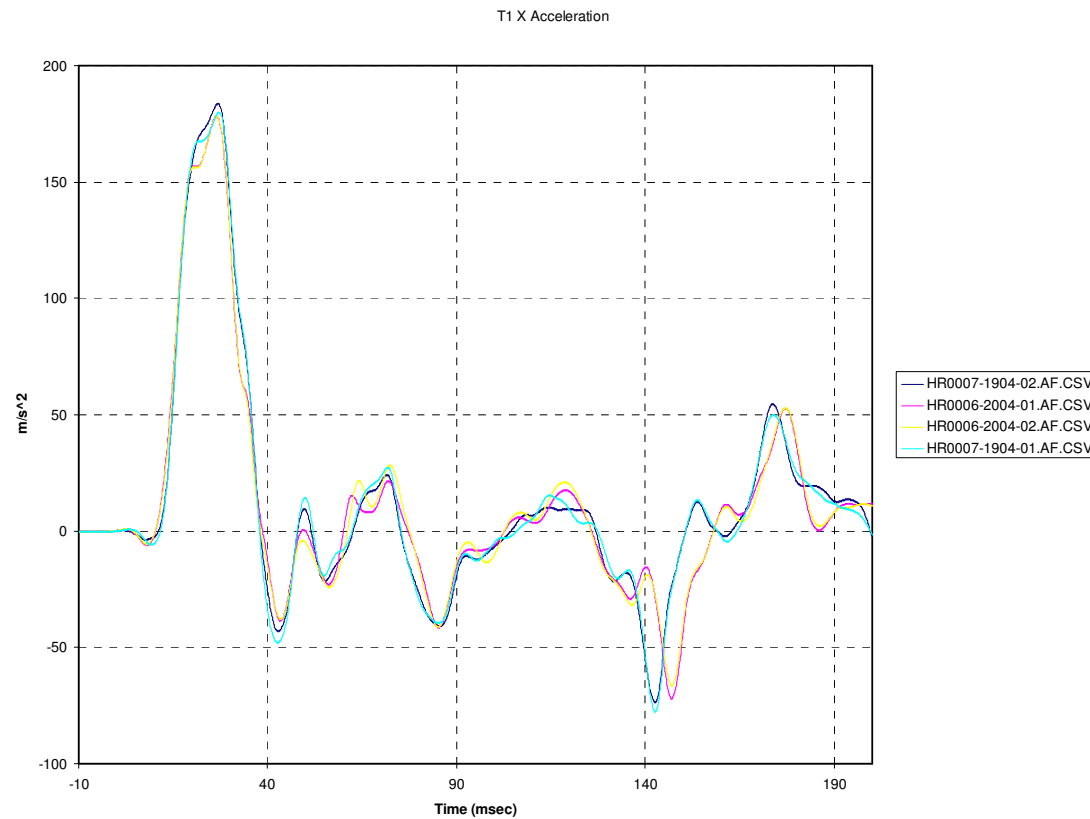
BioRID II Test Series PDB

Dummy Standard Certification

- Both dummies correlate very well
- 0007 dummy changed its behaviour more than 0006
- 0007 Head Rotation and Upper Neck MY second peak identical to 0006 dummy after adjustments

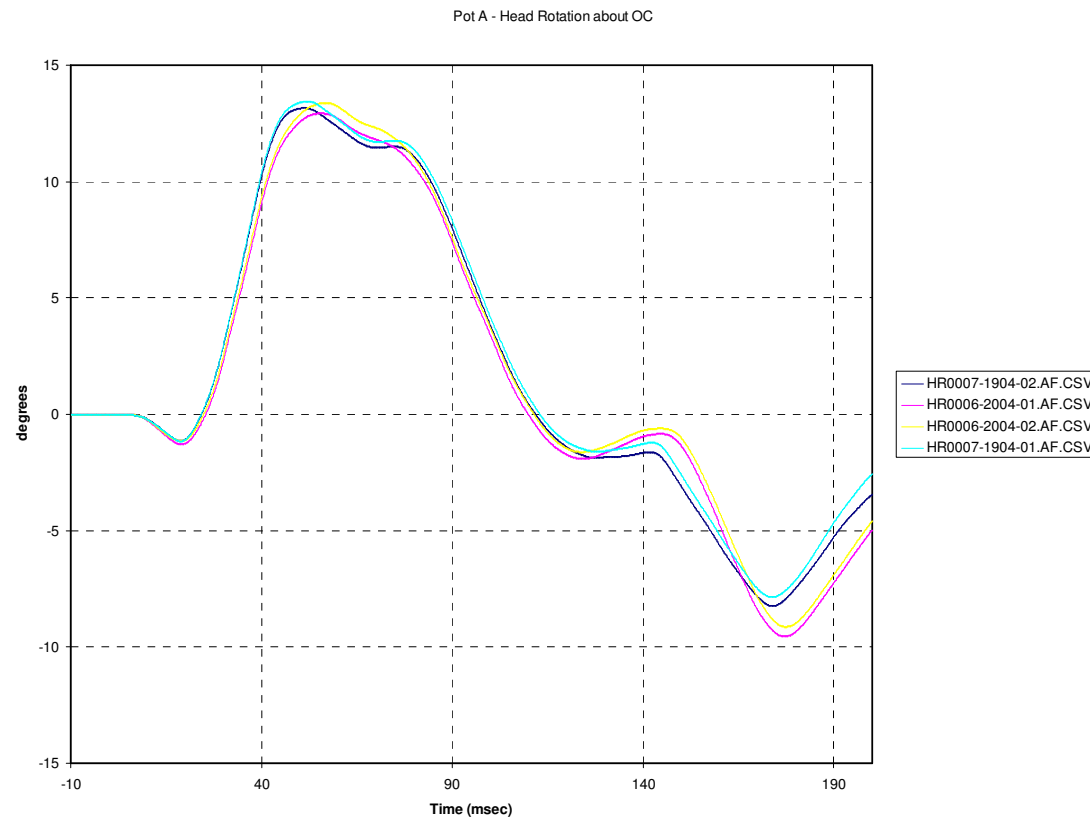
BioRID II Test Series PDB

Dummy Certification with Headrest, backset 70mm



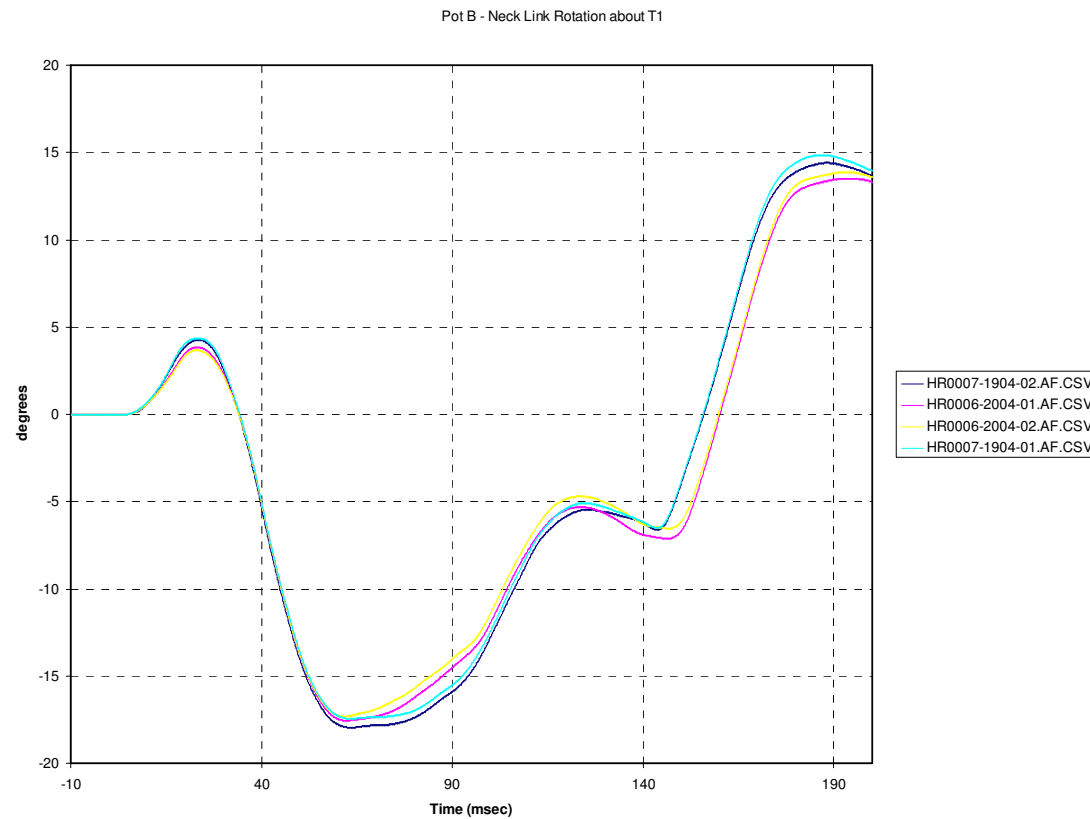
BioRID II Test Series PDB

Dummy Certification with Headrest



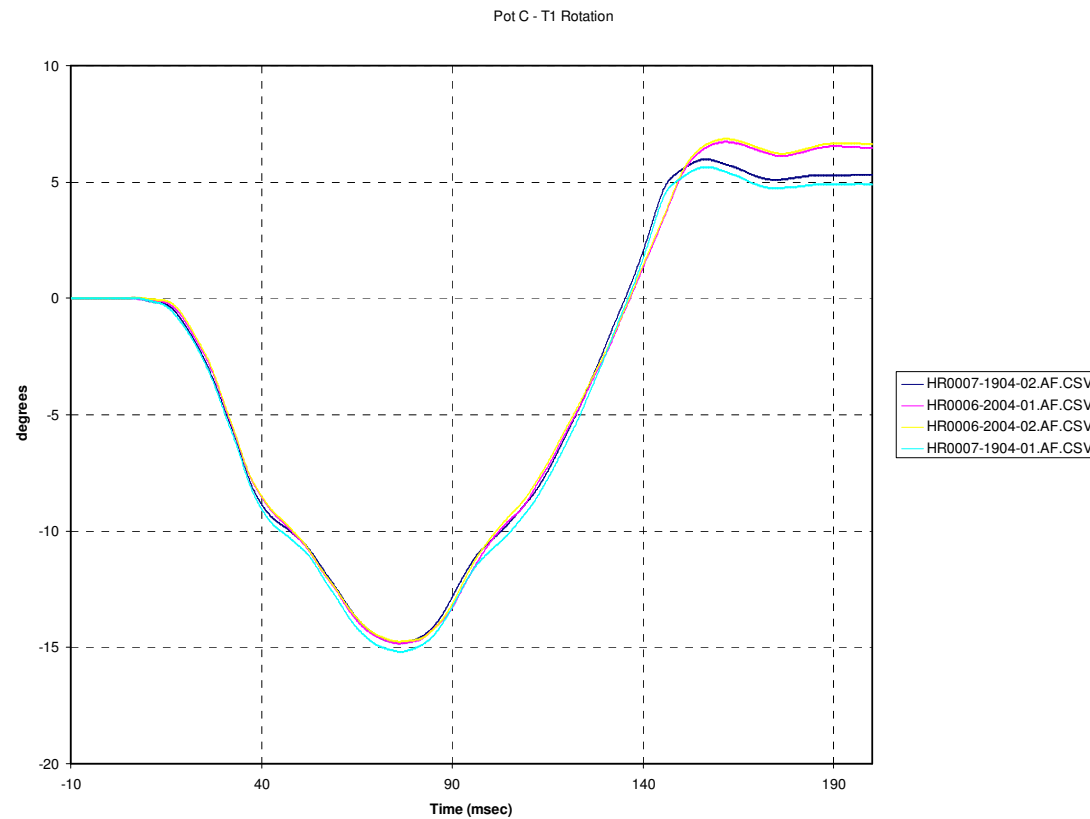
BioRID II Test Series PDB

Dummy Certification with Headrest



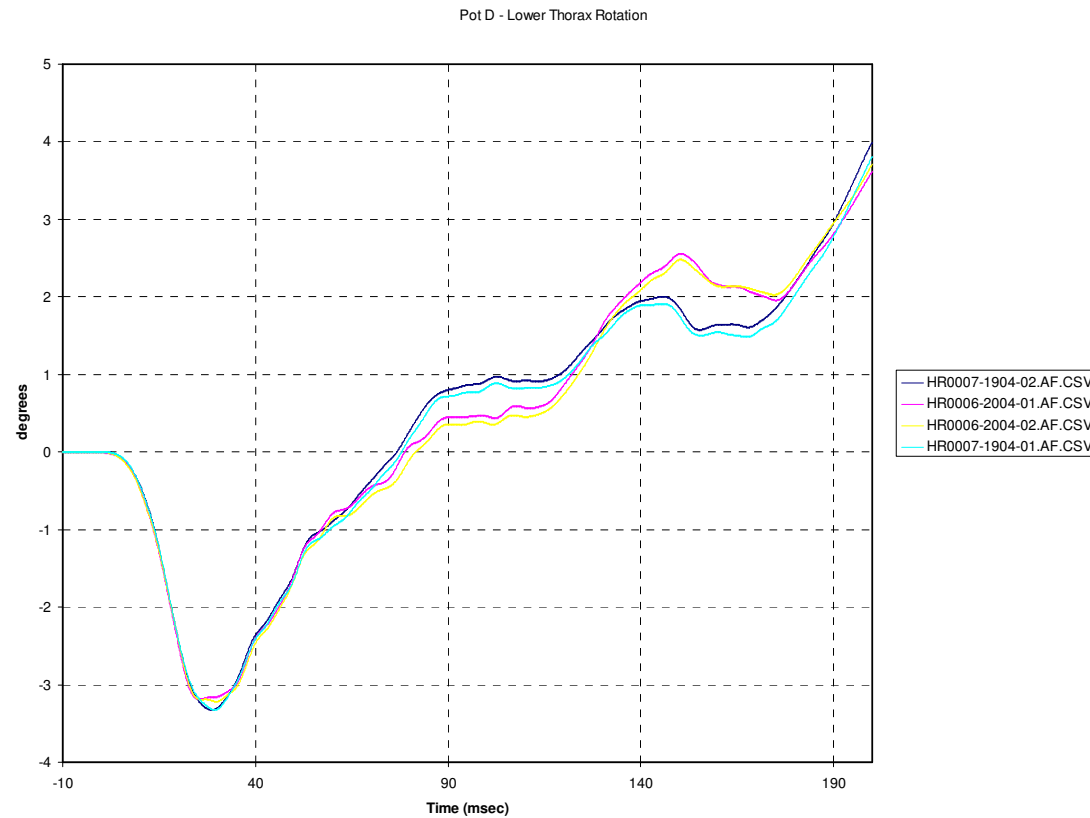
BioRID II Test Series PDB

Dummy Certification with Headrest



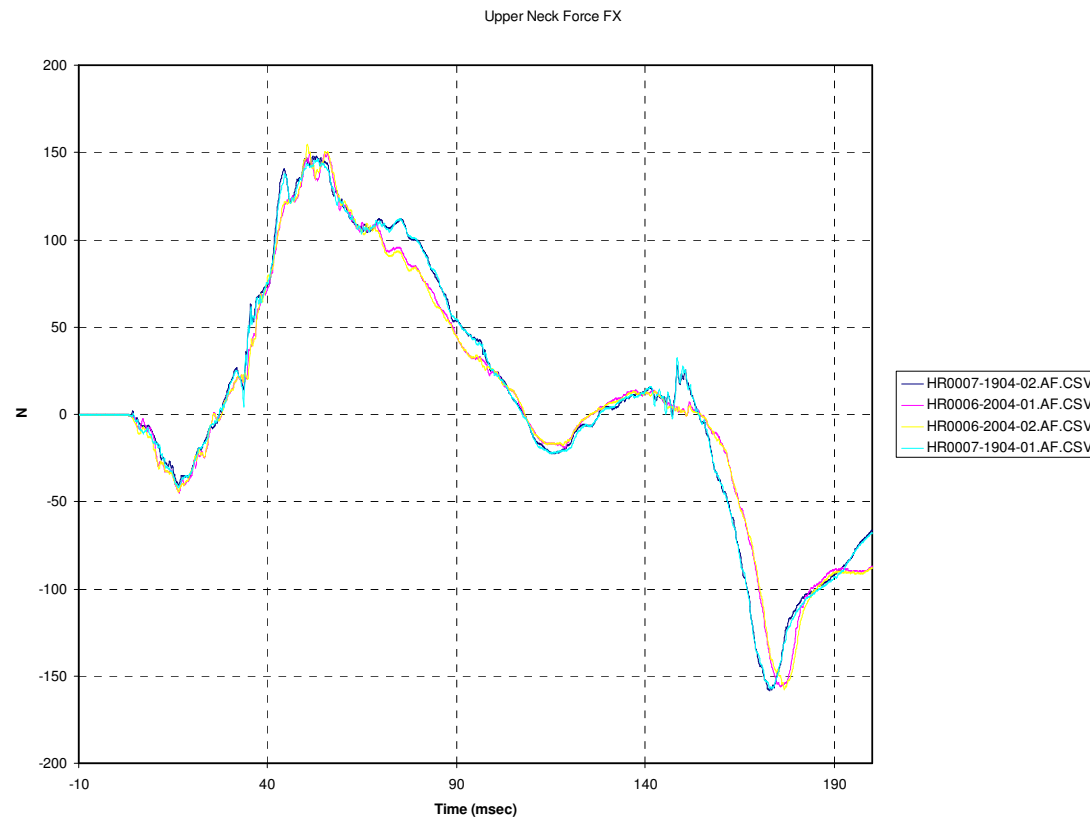
BioRID II Test Series PDB

Dummy Certification with Headrest



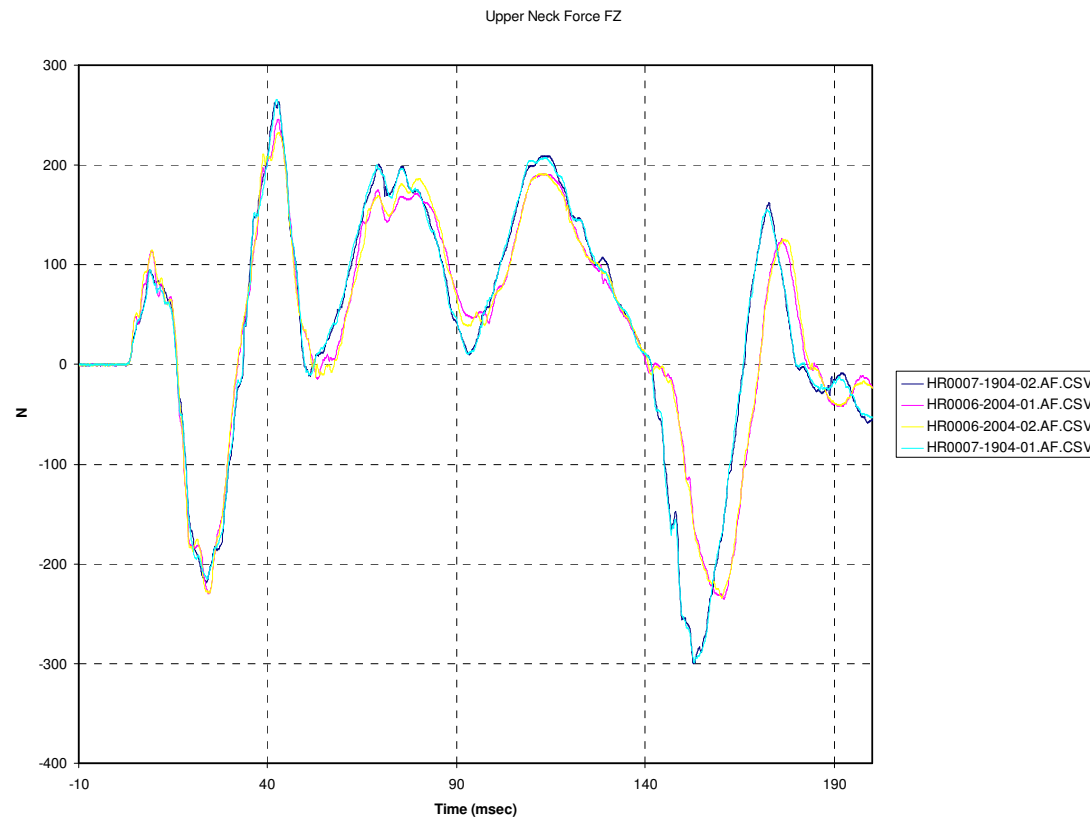
BioRID II Test Series PDB

Dummy Certification with Headrest



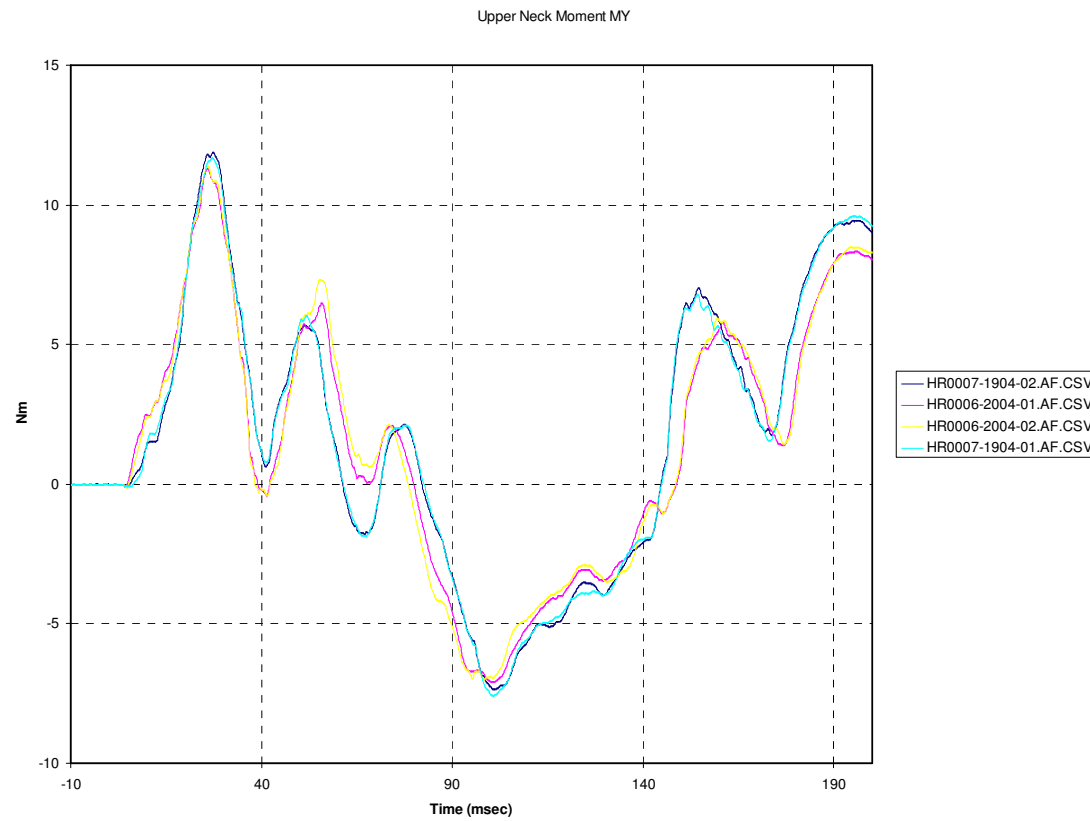
BioRID II Test Series PDB

Dummy Certification with Headrest



BioRID II Test Series PDB

Dummy Certification with Headrest



BioRID II Test Series PDB

Dummy Certification with Headrest

- Dummies compare very well
- Dummies slightly different in rebound phase

BioRID II Test Series PDB

Dummy Certification post series

- all tests performed with complete dummy instrumentation
- all data @ PDB
- heavy probe test 1st time done at Humanetics Europe w/o any issues

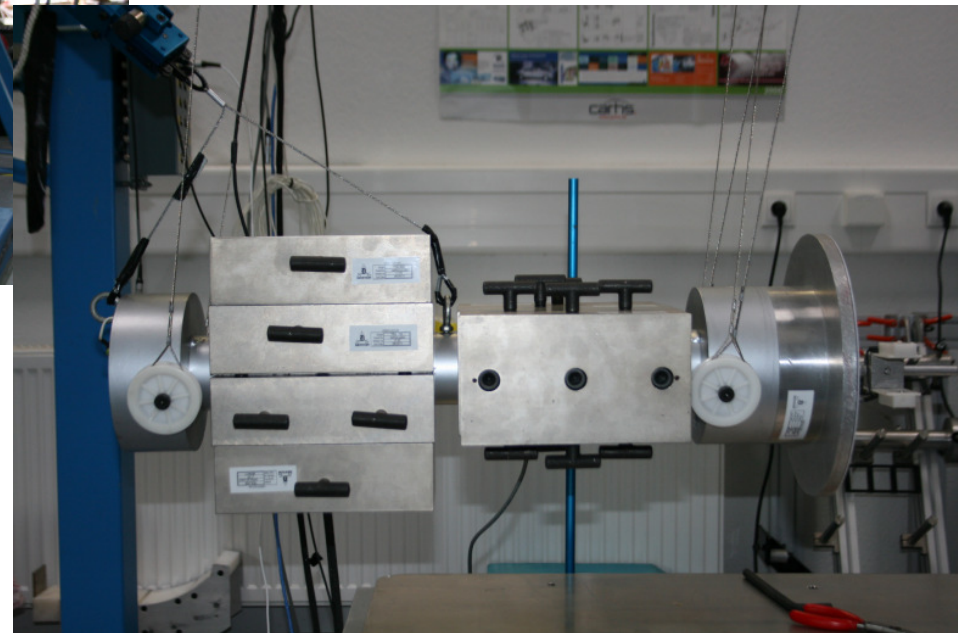
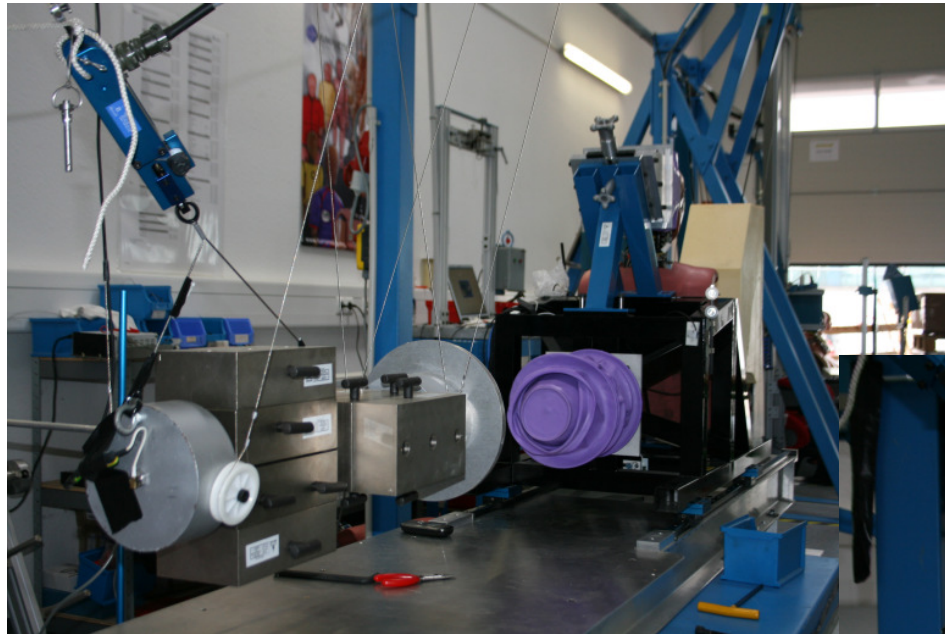
BioRID II Test Series PDB

Heavy Probe Test

- weights had to be installed different between front and rear
- sled verification passed
- all test input values inside proposed corridors

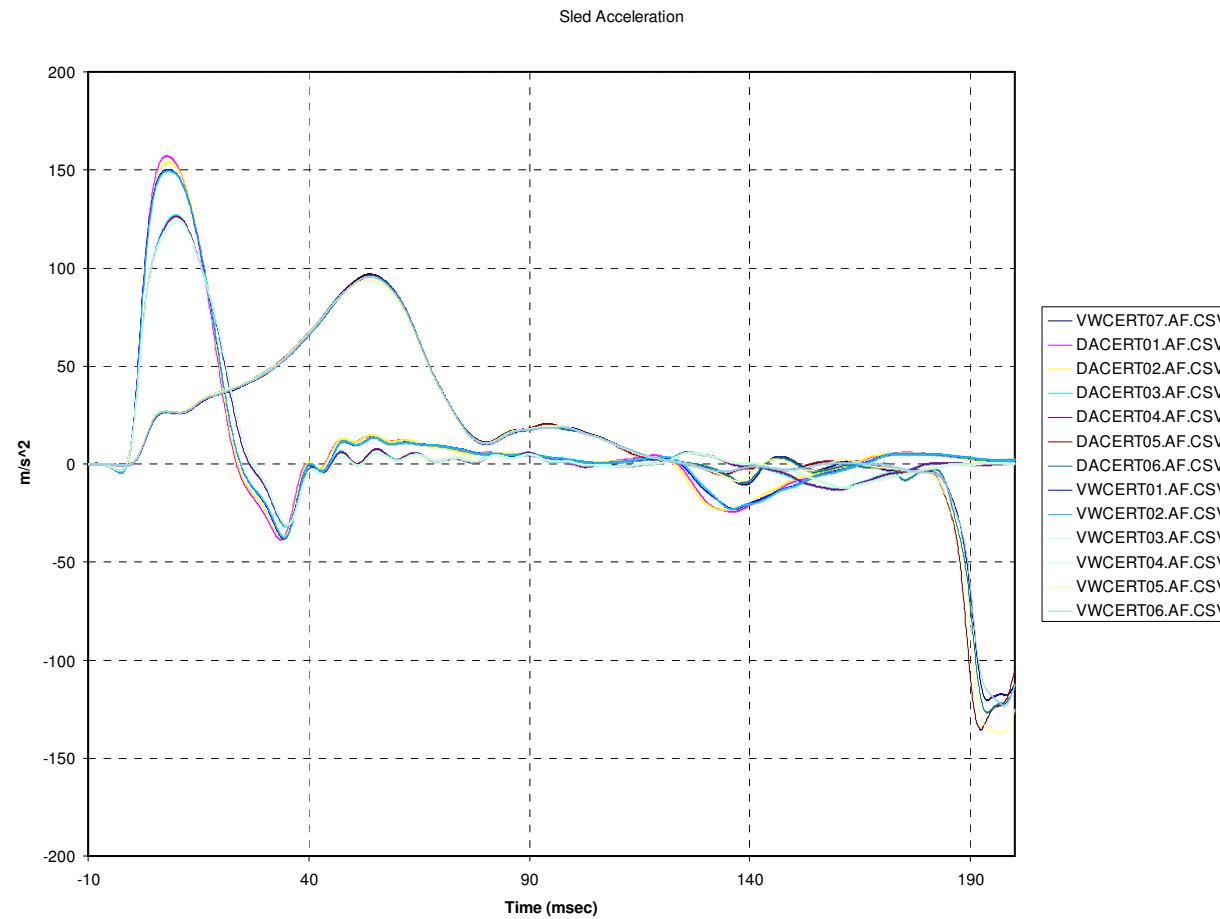
BioRID II Test Series PDB

Heavy Probe Test



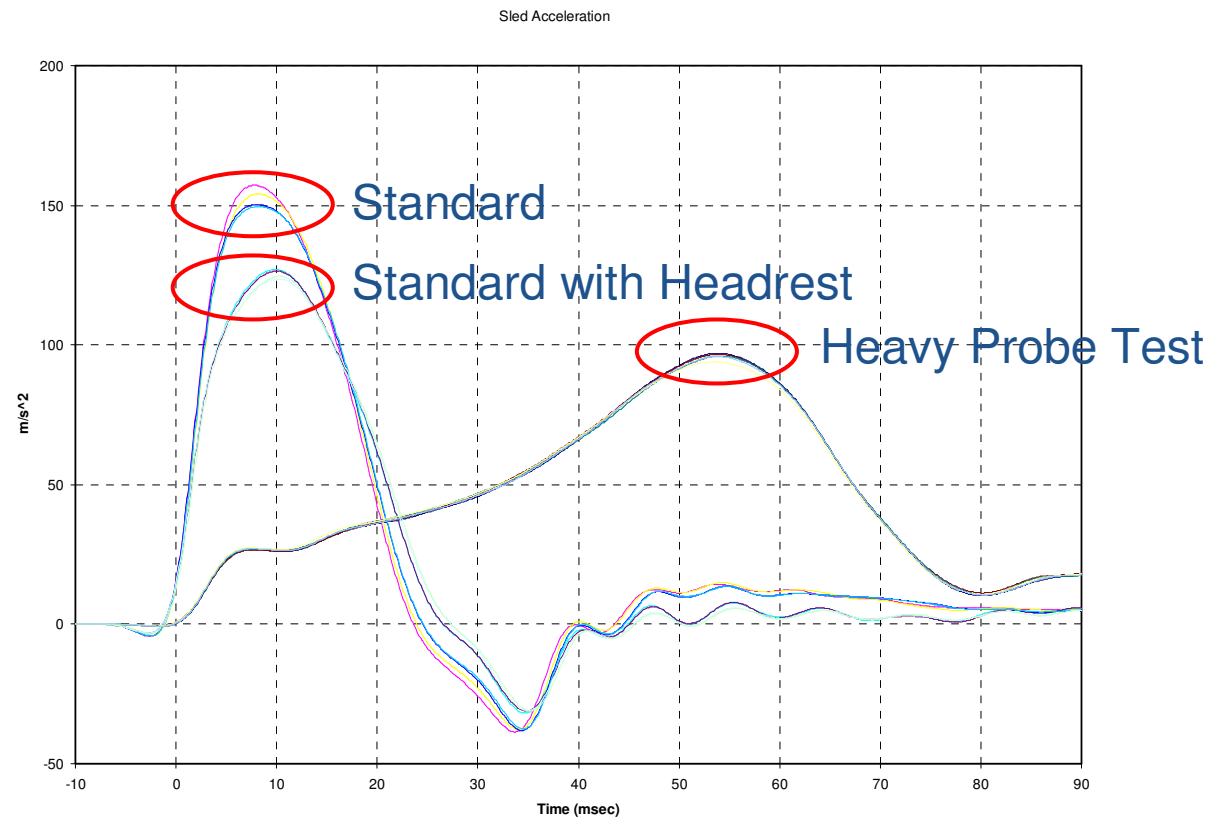
BioRID II Test Series PDB

Input Comparison different test setups



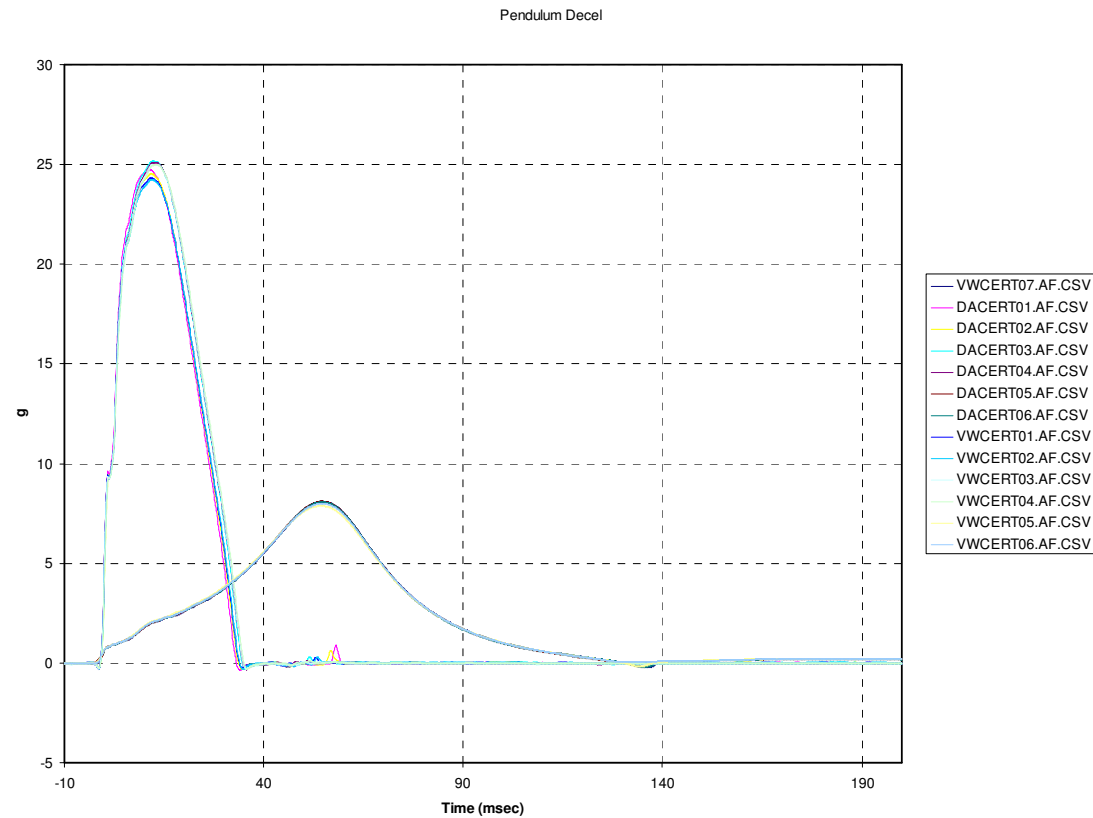
BioRID II Test Series PDB

Input Comparison different test setups



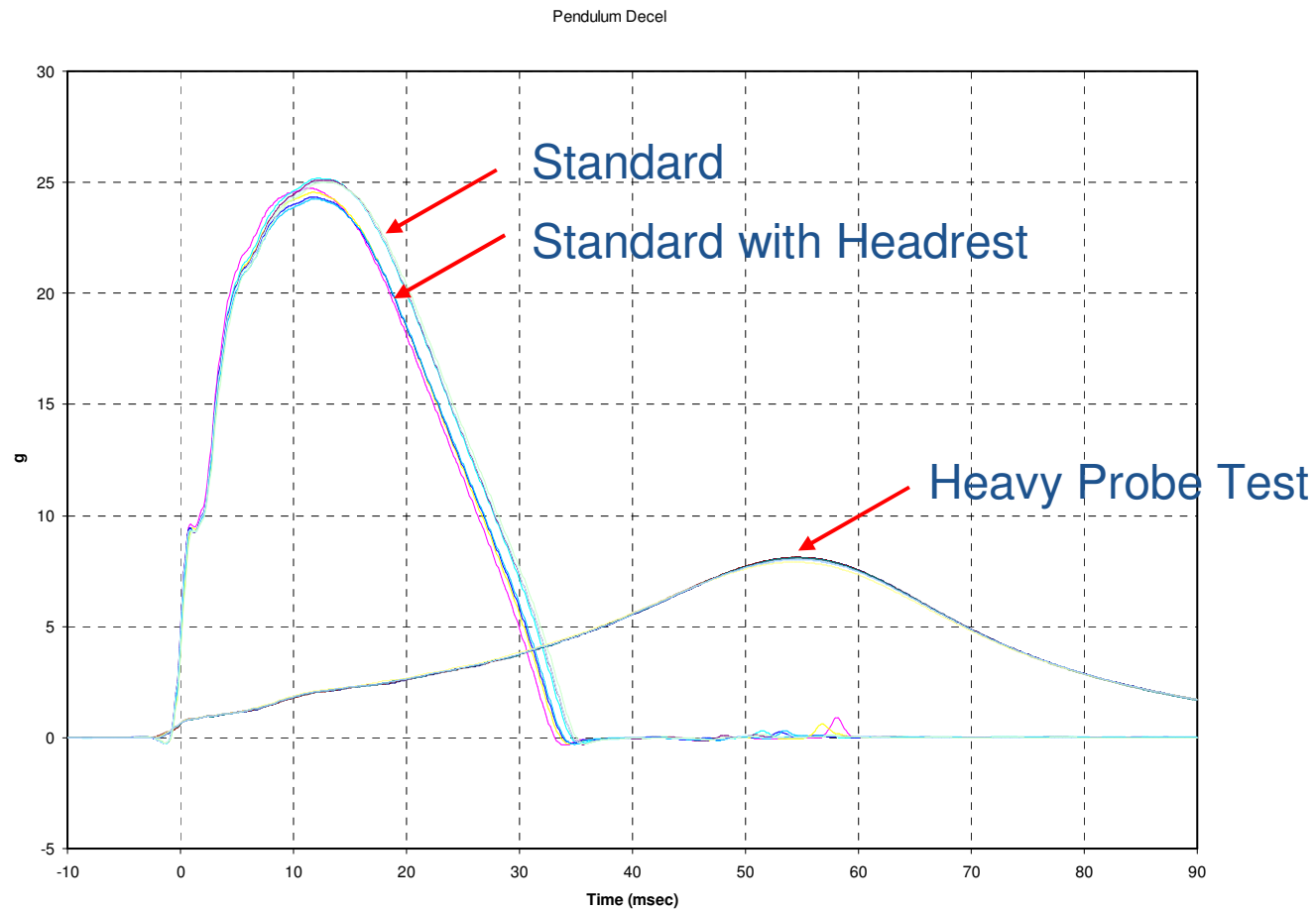
BioRID II Test Series PDB

Input Comparison different test setups



BioRID II Test Series PDB

Input Comparison different test setups



BioRID II Test Series PDB

Input Comparison different test setups

-each version shows very good input
repeatability & reproducibility