

Mini Crosser A/S
 Ådalen 9
 DK-4600 KØGE
 Denmark

<i>Handläggare, enhet / Handled by, department</i>	<i>Datum / Date</i>	<i>Beteckning / Reference</i>	<i>Sida / Page</i>
Mikael Bynander, Building Technology and Mechanics - Transport and Vehicle Technology +46 (0)33 16 52 33, mikael.bynander@sp.se	April 07 2003	BMf P301461A	1 (3)

Crash test according to ISO-7176-19:2001 (One appendix)

Assignment

Crash testing of wheelchair and locking device according to ISO-7176-19:2001.

Test object

Wheelchair/Scooter	Mini Crosser 130T. Own weight 142 kg
Serienumber	12017-02-12
Class	B and C
Locking system	Qstraint floor pocket system and Q-8100-A-P
Dummy	Hybrid III 50% dummy, mass 76.3 kg

Date of arrival

The test objects arrived at SP on 7 April 2003. The test objects have been selected by the client without SP's assistance. The test results showed in this report refer only to the tested objects.

Date of testing

The test was performed on 7 April, 2003.

Measuring

The deceleration was measured by two accelerometers mounted on the trolley.
 The test was filmed with a high-velocity camera (1000 frames a second).
 The measurement uncertainty when determining the deceleration was better than $\pm 5\%$ ($g = 9.81 \text{ m/s}^2$).

Results

Test

Velocity: 48.7km/h

Retardation distance: 640 mm

Retardation pulse according to acceleration curves in appendix.

4 straps locking device with Scooter Mini Crosser 130T and Hybrid III 50% crash test dummy.

The seat back of the wheelchair was bent back 3° at the rebound of the dummy. The movement of the dummy is approved according to specification in ISO-7176-19:2001. No other fractures or apparent deformations were noted on the Scooter or anchorage points on the Scooter. The system fulfil the requirements according to ISO-7176-19:2001.

Movements of dummy	Result
Knee	350 mm
Head frontal	300 mm
Head rear	150 mm
Wheelchairpoint	500 mm
Xknee/Xwc> 1.1	1.428



Before test



After test



Strap system

SP Swedish National Testing and Research Institute
Building Technology and Mechanics – Transport and Vehicle Technology



Lars-Göran Nilsson
Technical Manager



Mikael Bynander
Technical Officer

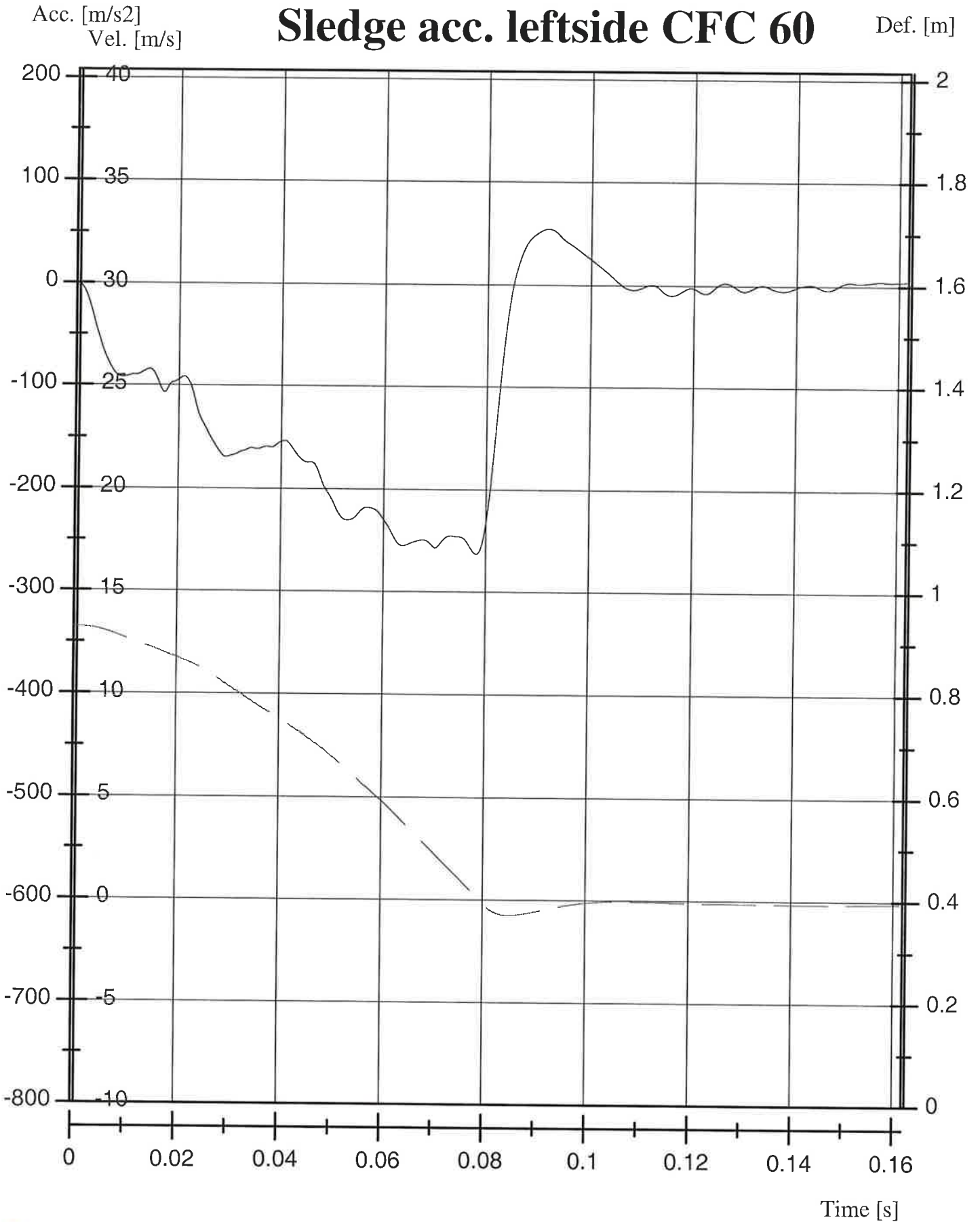
Appendices

Appendix Retardation pulses



Mini Crosser 130T
Frontal, HIII dummy
030407-1

	max	min	
Acc:	54	-263	[m/s ²]
Veloc.:	13.4	-0.7	[m/s]
Deform.:	6.09	0.00	[m]





Mini Crosser 130T
Frontal, HIII dummy

030407-1

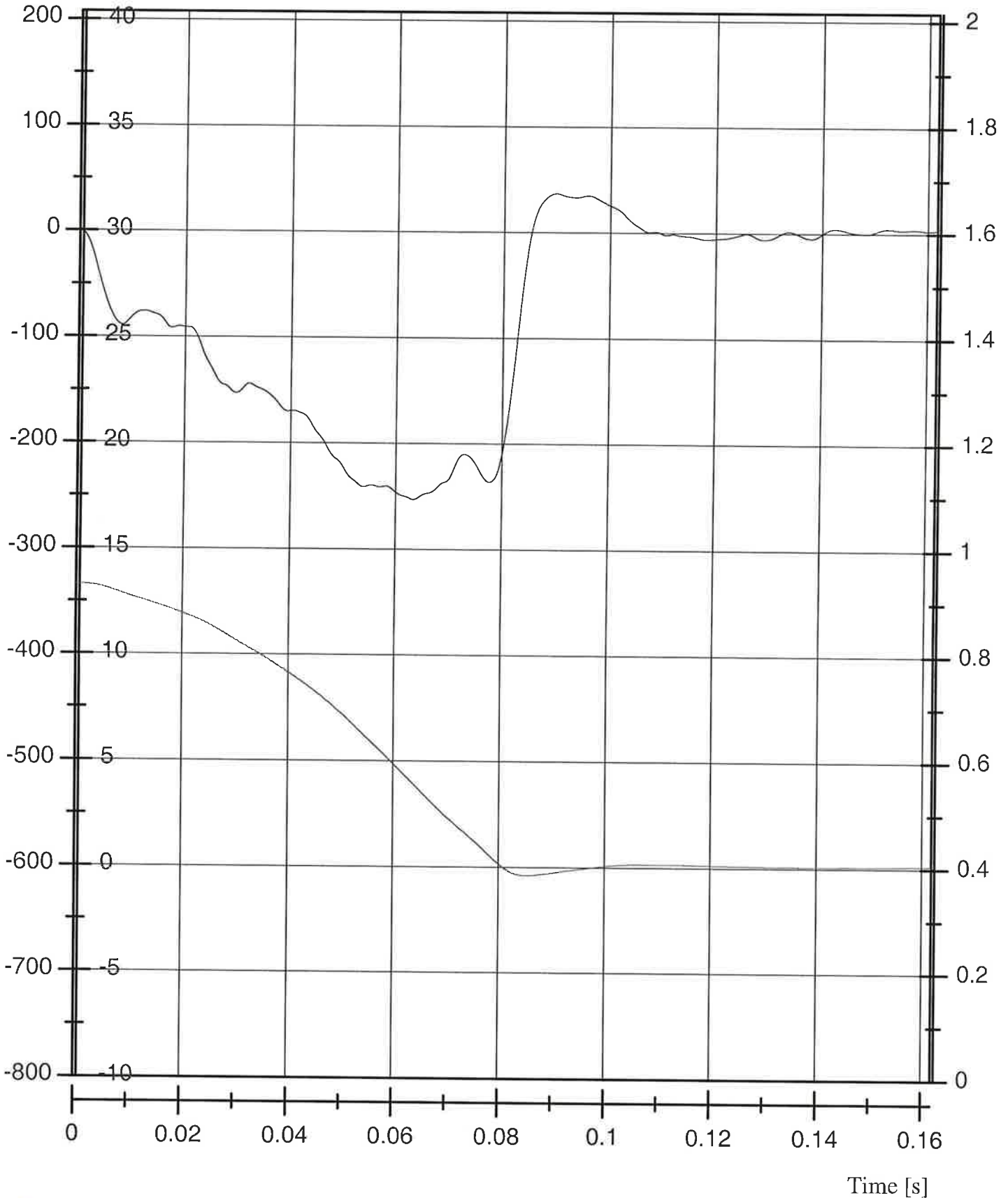
	max	min	
Acc:	37	-253	[m/s ²]
Veloc.:	13.4	-0.4	[m/s]
Deform.:	6.30	0.00	[m]

Acc. [m/s²]

Vel. [m/s]

Sledge acc. rightside CFC 60

Def. [m]



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Mikael Bynander, Building Technology and Mechanics - Transport and Vehicle Technology +46 (0)33 16 52 33, mikael.bynander@sp.se	April 07 2003	BMf P301461B	1 (3)

Crash test according to ISO-7176-19:2001 and ISO-10542:2000 (One appendix)

Assignment

Crash testing of wheelchair and locking device according to ISO-7176-19:2001 and ISO-10542-5:2000.

Test object

Wheelchair/Scooter	Mini Crosser 130T. Own weight 142 kg
Serienumber	12017-02-12
Class	B and C
Locking system	Qstraint floor pocket system and Q-8100-A-P
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Measuring

The deceleration was measured by two accelerometers mounted on the trolley. The test was filmed with a high-velocity camera (1000 frames a second). The measurement uncertainty when determining the deceleration was better than $\pm 5\%$ ($g = 9.81 \text{ m/s}^2$).

Results

Test

Velocity: 48.7km/h

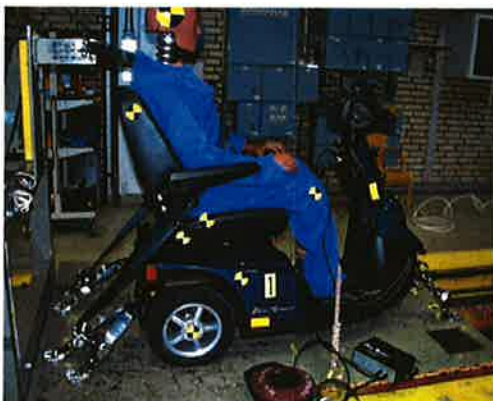
Retardation distance: 640 mm

Retardation pulse according to acceleration curves in appendix.

6 straps locking device, 4 rear and 2 frontal, with Scooter Mini Crosser 130T and Hybrid III 50% crash test dummy.

The seat back of the wheelchair was bent back 3° at the rebound of the dummy. The movement of the dummy is approved according to specification in ISO-7176-19:2001. No other fractures or apparent deformations were noted on the Scooter or anchorage points. The system fulfils the requirements according to ISO-10542-5:2000 and ISO-7176-19:2001.

Movements of dummy	Result
Knee	350 mm
Head frontal	300 mm
Head rear	150 mm
Wheelchairpoint	500 mm
Xknee/Xwc > 1.1	1.428



Before test



After test



Strap system

SP Swedish National Testing and Research Institute
Building Technology and Mechanics – Transport and Vehicle Technology



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Technical Manager



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Technical Officer

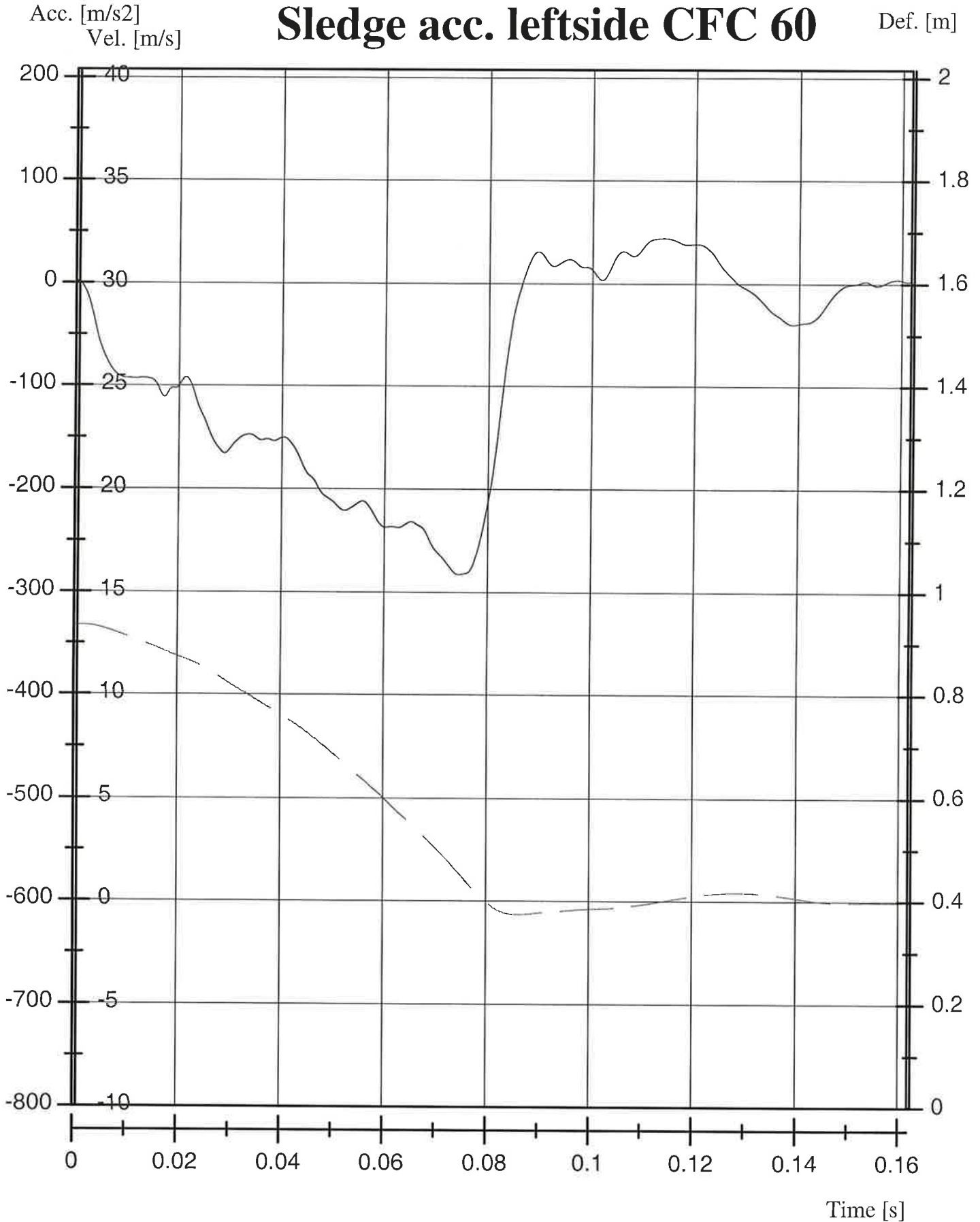
Appendices

Appendix Retardation pulses



Mini Crosser 130T
Frontal, HIII dummy
030407-2

	max	min	
Acc:	44	-283	[m/s ²]
Veloc.:	13.4	-0.7	[m/s]
Deform.	6.29	0.00	[m]





Mini Crosser 130T
Frontal, HIII dummy

030407-2

	max	min	
Acc:	51	-262	[m/s ²]
Veloc.:	13.4	-0.6	[m/s]
Deform.	6.11	0.00	[m]

Acc. [m/s²]
Vel. [m/s]

Sledge acc. rightside CFC 60

Def. [m]

