

Test object: TA IQ RWD
Manufacturer: TA Service TA Service A/S Orupgade 32 B
4640 Faxe . Denmark

Certificate of testing

Crash Test according to ISO 10542-5 & ISO 7176-19 - 2012

**Wheelchair tiedown and occupant-restraint systems.
Systems for specific wheelchairs**

This report serves solely as documentation for the test results. The tested objects have been selected by the client without the assistance of Dahl Engineering.

Assignment: Crash testing of wheel chair and WTORS according to above mentioned standard

Date of testing: 3 April 2013

**Test object/
Wheelchair:** TA Service IQ RWD
Mass of wheelchair: 157 kg

Serial no: Not informed

WTORS: Dahl WTORS that meet requirements set out in ISO 10542
Wheelchair restraint system – Dahl Docking Station
Occupant restraint – Dahl 3p. static shoulder and lap belts

Test dummy/ATD: The test was carried out using a Hybrid II 50% male dummy with a mass of 77 Kg

Measuring: The deceleration was measured by accelerometers mounted on the crash test sled.

Photography: The test was filmed with a high speed camera at 500 fps. Still pictures, pre and post test, was also taken.

Test results: Page 2

Sled deceleration and speed: See page with plotted graph and speed

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Section	Details	X if correct
5.21	During the test	
(a)	Horizontal excursion limits	
	Wheelchair point P \leq 200 mm [Xwc]	44
	ADT knee \leq 375 mm[Xknee]	157
	ADT front of head \leq 650 mm [XheadF]	287
	ADT rear of head \leq 450 [XheadR]	-292
(b)	The knee excursion exceeded the wheelchair P point excursion	X
(c)	(Batteries on powered wheelchairs) did not move completely outside the wheelchair footprint or move into the wheelchair user's space or contact with ADT legs	X
5.2.2	After the test	
(a)	The wheelchair remained in an upright position on the platform	X
	The ADT remained in the wheelchair with its torso at an angle of not more than 45° to the vertical, when viewed from any direction	X
(b)	There were no visible signs of material failure on the wheelchair securing points	X
(c)	There were no components, fragments or accessories of the wheelchair with a mass of more than 100g that completely separated from the wheelchair	X
(d)	There were no fragmented or separated component, that may contact the occupant, produced with sharp edges less than radius 2 mm	X
(e)	There were no visible signs of failure on the wheelchairs primary load carrying components	X
(f)	There were no visible signs of failure on the wheelchairs seat adjusters	X
(g)	The ADT was removed from the wheelchair without the use of tools	X
(h)	The wheelchair was released from the tie-down system without the use of tools	X
(i)	The post test decrease of the mean H-point height is not more than 20%	X

The presented samples meet the requirements set out in the above mentioned standard.

Test Laboratory: Dahl Engineering - Research and Testing Laboratory
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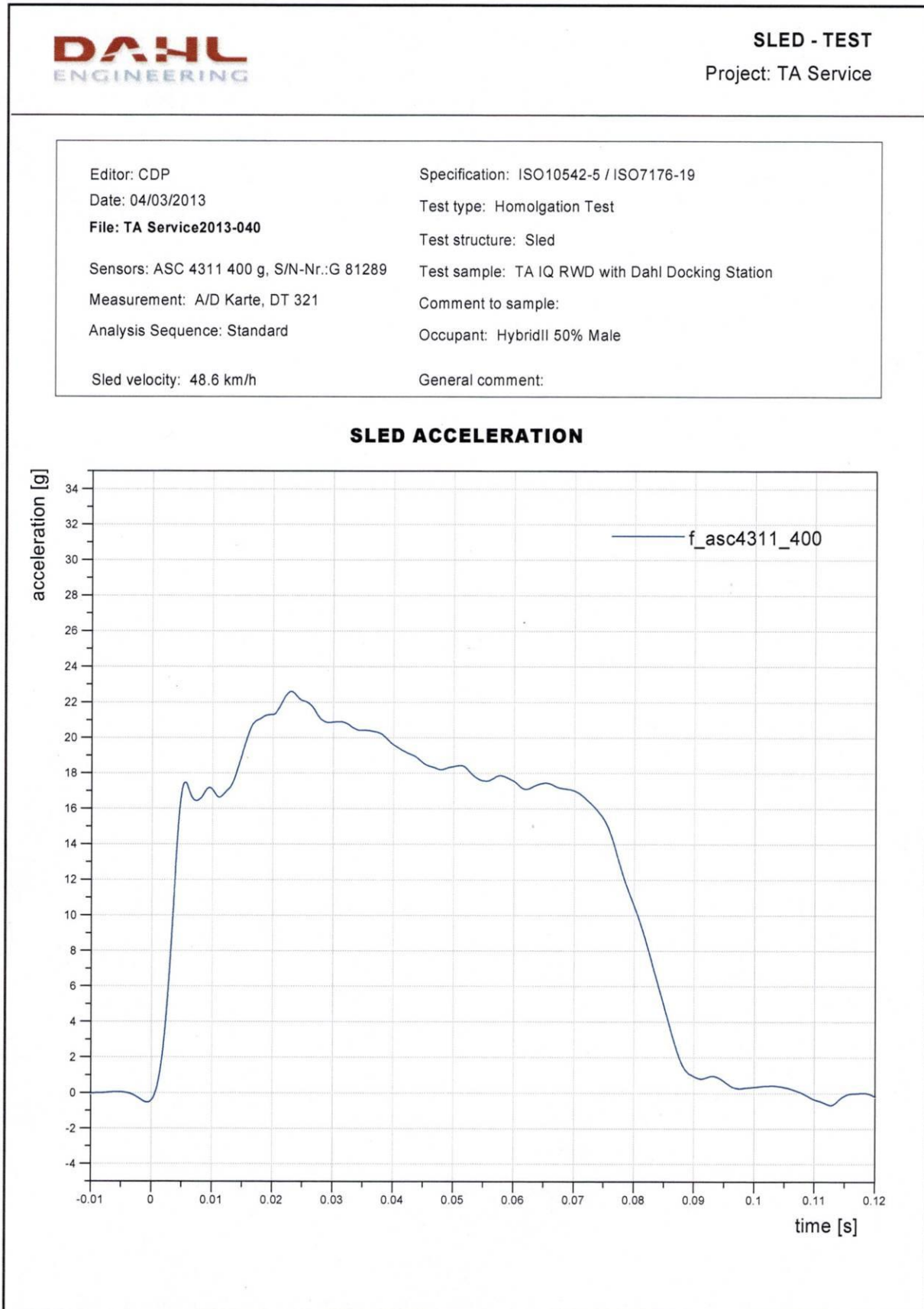
Thisted 11 April 2013

Claus Dahl Pedersen
 Head of test laboratory



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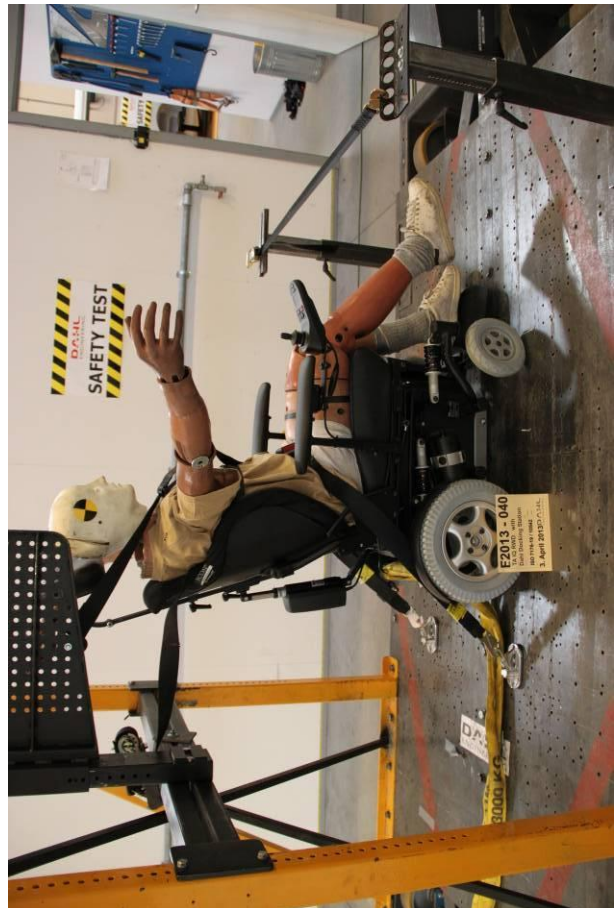
Plotted graph and speed



Pre- test photos



Post- test photos



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Post test photos

