

TRN-Report 89205317-3

Inspection report relating to electrically powered wheelchairs and scooters according to the European standard EN 12184, concerning the scooter type: Lunetta Victory Sport

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Date	August 20, 2014
Author(s)	H. Fokkenrood
Research period	Week 9, 2014 up to week 34, 2014
Client	Pride Mobility Products Corp 182 Susquehanna Ave. Exeter, PA 18643 USA
Project name	Type test according EN 12184:2009 Lunetta Victory Sport
Project number	89205317

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Abstract

The electrically powered scooter, type: Lunetta Victory Sport, version(s): -, has been tested according to the European Standard EN 12184 ^[1].

The tests have been performed in order to judge whether or not the scooter meets the applicable requirements of the above-mentioned Standard for Class B.
The conclusion is that the product complies with these requirements.

Auszug

Der elektrisch angetriebene Scooter, Typ: Lunetta Victory Sport, ist gemäß der Europäischen Norm EN 12184 ^[1] geprüft worden.

Die Tests wurden durchgeführt, um herauszufinden ob der Scooter den entsprechenden Anforderungen der Europäischen Norm EN 12184 ^[1] für Klasse B entspricht. Die Tests zeigen, dass das Produkt diese Anforderungen erfüllt.

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1 Introduction

1.1 Purpose

The tests have been performed in order to judge whether or not the product meets the requirements of the European Standard EN 12184 ^[1].

1.2 Description of samples

General	
Manufacturer	Pride Mobility Products Corp

Table 1: Description of the sample

Sample number	Type	Version	Serial number
MT14.38976.04	Victory 10 DX	-	-
MT14.38976.07	Lunetta Victory Sport	-	SD816714472FVO

For a more detailed description of the sample is referred to Appendix A.

The sample was submitted on February 28, 2014 and the second scooter on August 13, 2014. The submitted samples, were test worthy.

1.3 Sampling procedure

The sample has been handed in by the manufacturer.
The test house has had no influence on the selection of the sample.

1.4 Application

The request for testing was submitted by Pride Mobility Products Corp, on February 2, 2014. Order number: n.a..

1.5 Method of testing

All tests have been performed according to the European Standard EN 12184 ^[1].

For tests with the maximum user weight of 158 kg, extra mass has been added to the standard ISO-dummy of 100 kg and extra mass has been added to the chair (being distributed approximately evenly around the seat) when tested with a human test driver.

1.6 Put out to contract

Please see the details in the logbook – appendix C.

2 Test results

Test results after performing all applicable tests according to the European Standard EN 12184 ^[1].

Par.	Headline	Assessment (pass/Fail/N.a.)
6	General requirements	pass
7	Design requirements	pass
8	Performance requirements	pass
9	Electrical requirements	pass
10	Information supplied by the manufacturer	pass

For detailed test results is referred to Appendix C.

Remark:

The EMC test as stated in chapter 9 of the standard has been proceeded by another accredited laboratory. Tests reports were supplied by client.

3 Conclusion

The electrically powered scooter, type: Lunetta Victory Sport, version(s): - meets the requirements as stated in the European Standard EN 12184 ^[1] for class B.

The test results exclusively relate to the inspected object.

4 References

- 1 European Standard EN 12184:2009,
Electrically powered wheelchairs, scooters and their chargers - Requirements and test
methods,
European Committee of Standardization, October 2009.

5 Signature

Signature

<p>Author Mr. H. Fokkenrood Project manager</p>	<p>Signature</p> 
<p>Expert medical products</p> <p>Approved by Mr. G.H. Smit M.Sc</p> <p>Business field manager</p>	<p>Signature</p> 

Appendix A Product identification

Manufacturer	Pride Mobility Products Corp
Type	Lunetta Victory Sport
Version	-
Max. user weight	tested with 158 kg
Trademark and type of motor(s)	Vendor FS-500-T2B
Trademark and type of controller	-
Maximum speed	6 Km/h
Class	B
Propulsion	rear wheel drive
Code according to ISO 9999	12 21 24 electric-motor-driven, manual steering
Configuration of seat	detachable, horizontally adjustable in combination with the backrest, , leatherette
Configuration of back rest	detachable in combination with the seat, vertically adjustable, with lumbar support, leatherette
Configuration of arm rest	full length armrest, fixed, angle adjustable, with padded support
Configuration of leg rest	not applicable, footplate
Type of head rest	height adjustable, by user/attendent, without the use of tools
Back rest angle adjustment (α)	by user/attendant, without the use of tools, continuous
Seat plane angle adjustment (ϕ) or body support system angle adjustment ($\Delta\phi$)	not applicable
Leg to seat surface angle adjustment (β)	not applicable
Arm rest angle adjustment (δ)	adjustable, by user/attendant, without the use of tools, continuous
Foot rest to leg angle adjustment (γ)	not applicable
Seat surface height adjustment	not applicable
Seat depth	390 mm (ISO 7176-22)
Seat width	500 mm (ISO 7176-22)
Total length	1250 mm (ISO 7176-22)
Total width	650 mm (ISO 7176-22)
Total height	1220 mm (ISO 7176-22) - backrest vertical, headrest lowest
Trademark/type of front tyre	Primo Spirit 3.00-4
Trademark/type of rear tyre	Primo Durotrap 3.00-8
Trademark/type of battery	LEOCH / LP 12-40
Trademark/type of battery charger	Pride Mobility Products ELECHG1025

Appendix B Photo sheet



Photo 1: Photograph of the tested sample, type: Lunetta Victory Sport.



Photo 2: Photograph of the tested sample, type: Lunetta Victory Sport.

Appendix C Detailed test results

Test overview of electric wheelchairs/scooters in accordance with EN 12184:2009

Project number	89205317	Type of test	Type test
Brand	Pride	Test standard(s)	EN 12184 Version: 2009
Type	Victory 10 DX/Lunetta Victory Sport	Class	B
Version	-	Inspection standard for dummy	ISO 7176-11:2012
Manufacturer	Pride Mobility Products Corp		
Serial number 04	-	Max. user weight	158 kg
Serial number 07	SD816714472FVO	Scooter mass	98 kg

	Date 03	Date 06	Initials
Samples received	28-02-2014	13-08-2014	<i>[Signature]</i>
Samples/measurements to lab	04-03-2014	13-08-2014	<i>[Signature]</i>
Samples/measurements from lab		20-08-2014	<i>[Signature]</i>

Sample no.	Type of test at TRN lab	By	Result
MT14.38976.04	5: Type classes	Lab	PASS
MT14.38976.04&07	6: General requirements , EN 12182:2009	Lab	PASS
MT14.38976.04&07	7: Design requirements	Lab	PASS
MT14.38976.04,06&07	8: Performance requirements	Lab	PASS
	9: Electrical requirements	Sub-contractor	
MT14.38976.04&07	10: Information supplied by manufacturer	Lab	PASS
Additional test at subcontracting			
	8.10 Resistance to ignition	Sub-contractor	
MT14.38976.04	8.11 Climatic test	Sub-contractor	
	Other:	Lab	
MT14.38976.04	Photographs yes	Lab	

Acceptance of measurements	
Measurements assessed by: <i>Humb Smit</i>	Date: <i>20-8-2014</i>
Measurements accepted: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initials: <i>[Signature]</i>
If not, why:
Follow-up:

Test overview of electric wheelchairs/scooters in accordance with EN 12184:2009

Tests that have been performed more than one time.

	Requirement number	Type of test/assessment	Time	Date	Initials
<input type="checkbox"/>	7.1	Max. space between loaded footrests			
<input checked="" type="checkbox"/>	7.5	Brake systems	n.a.	several	HFd
<input type="checkbox"/>	7.8	Access to batteries without tools			
<input checked="" type="checkbox"/>	7176-8, 8.4	Armrests, downward forces	n.a.	several	HFd
<input type="checkbox"/>	7176-8, 8.5	Footrests, downward forces			
<input type="checkbox"/>	7176-8, 8.7	Handgrips			
<input checked="" type="checkbox"/>	7176-8, 8.8	Armrests, upward forces	n.a.	several	HFd
<input type="checkbox"/>	7176-8, 8.9	Footrests, upward forces			
<input type="checkbox"/>	7176-8, 8.10	Push handles			
<input checked="" type="checkbox"/>	7176-8, 9.3	Backrest impact	n.a.	several	HFd
<input type="checkbox"/>	7176-8, 9.5	Castors impact			
<input type="checkbox"/>	7176-8, 9.6	Footrests impact			
<input type="checkbox"/>	7176-8, 9.7	Front structure impact			
<input type="checkbox"/>	7176-8, 10.4	1 st repeat double drum test			
<input type="checkbox"/>	7176-8, 10.4	2 nd repeat double drum test			
<input type="checkbox"/>	7176-8, 10.5	1 st repeat drop test			
<input type="checkbox"/>	7176-8, 10.5	2 nd repeat drop test			
<input checked="" type="checkbox"/>	7.2.2	60,000x brake test	n.a.	several	HFd
<input type="checkbox"/>	8.3	1,500,00x joystick or wigwag potentiometer test (brand/type?)			
<input checked="" type="checkbox"/>	8.4	Retest on slope	n.a.	several	HFd
<input type="checkbox"/>	8.4	Retest climbing obstacle			
<input checked="" type="checkbox"/>	8.4	Retest braking distance	n.a.	several	HFd
<input type="checkbox"/>	8.6	Retest sound measurement			
<input type="checkbox"/>	7176-14	Retest electrical safety			

Test overview of electric wheelchairs/scooters in accordance with EN 12184:2009

Measuring instrument	TUI number
Amp-hour meter	60970675 sc and pwc
Digital multi-meter	60970026 sc and pwc
Double foot dummy	60970647 sc, pwc and mwc
Dummy seat 100 kg	60970645 sc, pwc and mwc
Dummy seat 75 kg	60970646 sc, pwc and mwc
Noise meter	33850007 sc and pwc
Weight 25 kg	60970671 sc, pwc and mwc
Tall access ramp	60970664 sc
ISO drummer	60970673 sc
Handheld tachometer	60970577 auxiliary tool
Angle plate (1)	60970629 sc, pwc and mwc
Angle plate (2)	60970630 sc, pwc and mwc
High-pressure pump	60970663 sc, pwc and mwc
IEC 60601-1 test finger	60970656 sc and pwc
ISO dummy + feet, 100 kg	60970649 sc, pwc and mwc
ISO dummy + feet, 75 kg	60970650 sc, pwc and mwc
ISO dummy + feet, life test	60970648 sc, pwc and mwc
Calibration weight 25 kg	60970654 auxiliary tool
Tipping blocks	60970639 mwc
Children rlg-dummy	60970659 pwc and mwc
Small slope	60970665 mwc
Dynamometer pull/push digital	60940011 sc, pwc and mwc
Dynamometer push/pull impact	60970637 sc, pwc and mwc
Laptop PC	60970644 sc and pwc
Photometer	60970361 sc and pwc
Hygrometer	60970493 auxiliary tool
Measuring wheel	60970643 sc and pwc
Pendulum 10 kg	60970641 sc, pwc and mwc
Pendulum 25 kg	60970655 sc, pwc and mwc
Power supply	60970574 auxiliary tool
Power supply	60970575 auxiliary tool
RLG-measuring dummy	60970667 sc, pwc and mwc
Measuring tape 5m	99000078 sc, pwc and mwc
Sliding rule wheelchair lab.	60970642 sc, pwc and mwc
Steel ruler 500 mm	60970672 auxiliary tool
Static impact set-up	60970674 sc, pwc and mwc
Exit slope	60970638 mwc
Floor plate, fall test	60970670 mwc
Footrest height setting-up block 50	60970652 pwc and mwc
Weighing platform	60970666 sc, pwc and mwc
Weighing system	33900002 sc, pwc and mwc
Set square	60970636 sc, pwc and mwc
Friction block	60970653 auxiliary tool

sc=scooter, pwc=powered wheelchair and mwc=manual wheelchair.

Test overview of electric wheelchairs/scooters in accordance with EN 12184:2009

Product identification		Test date: 11-03-14 MT14.38976.04	Initial: HFD
Code according to ISO 9999	X	12 23 03 Electric-motor-driven wheelchairs with manual steering	
		12 23 06 Electric-motor-driven wheelchairs with powered steering	
		12 23 09 Combustion-motor-driven wheelchairs	
		12 23 12 Attendant-controlled powered wheelchairs	
Configuration of seat		non-detachable	
	X	detachable	
		angle adjustable	
	X	horizontally adjustable in combination with the backrest	
		canvas / rigid, upholstered / rigid, separate cushion	
	X	leatherette	
Configuration of backrest		non-detachable	
	X	Detachable in combination with the seat	
		angle adjustable	
	X	vertically/horizontally-adjustable	
		folding	
	X	with lumbar support	
		canvas / rigid, upholstered / rigid, separate cushion	
	X	leatherette	
Configuration of armrest	X	full length armrest	
		cloth protector	
	X	detachable / fixed	
		lowered	
		pivoting	
	X	angle adjustable	
		vertically adjustable	
	X	with padded support	
		with cloth protector	
Configuration of legrest	X	not applicable	
		detachable / fixed / pivoting	
		length adjustable (in steps / continuous)	
		whole / divided / depth adjustable calf support	
		folding whole / divided footrest / foot plate	
Type of headrest		not applicable	
	X	height / angle / depth / not / adjustable	
	X	by user / attendant	
	X	with / without the use of tools	
Backrest angle adjustment (α)		not applicable	
	X	by user / attendant	
	X	without the use of tools	
	X	continuous	

Test overview of electric wheelchairs/scooters in accordance with EN 12184:2009

Seat plane angle adjustment (ϕ) or body support system angle adjustment ($\Delta\phi$)	X	not applicable seat only / as whole seat unit by user / attendant / with / without the use of tools changing the mounting of front and rear wheels continuous / in steps / power assisted
Leg to seat surface angle adjustment (β)	X	not applicable by user / attendant with / without the use of tools continuous / in steps / power assisted
Armrest angle adjustment (δ)		not applicable
	X	Adjustable
	X	by user / attendant
	X	without the use of tools
	X	Continuous
Footrest to leg angle adjustment (γ)	X	not applicable by user / attendant with / without the use of tools continuous / in steps / power assisted
Seat surface height adjustment	X	not applicable
Vertical body support system adjustment		by user / attendant without the use of tools changing the mounting of front and rear wheels continuous / in steps / power assisted
Seat depth		390 mm (ISO 7176-22)
Seat width		500 mm (ISO 7176-22)
Total length		1250 mm (ISO 7176-22)
Total width		650 mm (ISO 7176-22)
Total height		1220 mm (ISO 7176-22) Backrest vertical, headrest lowest
Trademark / type / size of front tyre		Primo Spirit 3.00-4
Trademark / type / size of rear tyre		Primo Durotrap 3.00-8
Trade mark / type of batteries		LEOCH / LP 12-40
Capacity of batteries		12V – 40 A/h
Trade mark / type of battery charger		Pride Mobility Products ELECHG1025

Test overview of electric wheelchairs/scooters in accordance with EN 12184:2009

Req. no.	Description Dummy weight : 158 kg Sample number : MT14.38976.04&07 Class: B	Result Pass / Fail / N.a.
6	§ 4 - General requirements - MT14.38976.07 EN 12182:2012	Test date: 19-08-14 Initial : HFd
	§ 4.1 Risk analysis ISO 14971; § 4.2 Intended performance and technical documentation a. have sufficient strength and durability to sustain all loads; b. intended performance (strength, stability) shall be described in technical documents; c. technical documents shall include references to clinical, scientific literature. § 4.3 Clinical evaluation and investigation; § 4.4 Assistive products that can be dismantled; § 4.5 Fasteners; § 4.6 Mass limits; § 4.7 Immobilising means; § 4.8 Design requirements in relation to persons with cognitive impairment.	<ul style="list-style-type: none"> • PASS • PASS • PASS • N.a. • N.a. • PASS • PASS • PASS • N.a. • N.a.
	§ 5 – Materials - MT14.38976.04 EN 12182:2012	Test date:19-08-14 Initial :HFd
	§ 5.1 Manufacturers should, wherever possible, use materials that can be recycled for further use. § 5.2 Flammability - the manufacturer shall include a warning in the instructions for use about safe combinations of flame resistant and non flame resistant materials. § 5.3 Biocompatibility and toxicity ISO 10993-1 § 5.5.1 Cleaning and disinfection	<ul style="list-style-type: none"> • PASS • PASS • PASS • PASS
	§ 6 – Emitted sound and vibration - MT14.38976.07 EN 12182:2012	Test date:19-08-14 Initial :HFd
	§ 6.1 Noise and vibration Sound levels shall be at least 65 dB(A) for audible alarms; and should be at least 75 dB(A). In accordance with ISO 3746.	N.a.
	§ 10 – Surface temperature - MT14.38976.07	Test date:19-08-14 Initial :HFd
	The risk analysis shall take account of: a) the range of ambient temperatures to be expected; b) temperatures that may result from single fault conditions; c) the ergonomic data on acceptable temperatures of touchable surfaces ISO 13732-1; d) maximum temperature shall not exceed 41° (ISO 13732-1) for use by people with insensitive skin.	<ul style="list-style-type: none"> a) PASS b) N.a. c) PASS d) PASS

Test overview of electric wheelchairs/scooters in accordance with EN 12184:2009

Req. no.	Description	Dummy weight : 158 kg Sample number : MT14.38976.04&07 Class: B	Result Pass / Fail / N.a.																				
	§ 12 - Safety of moving parts - MT14.38976.04 EN 12182:2012		Test date: 11-03-14 Initial : HFd																				
	12.1 - Squeezing a) any moving parts that constitute a safety hazard shall be provided with guards that can only be removed by the use of a tool or; b) the gap between exposed parts that move relative to each other shall be maintained throughout the range of movement at least than the minimum value or more than the maximum value: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>To avoid</u></th> <th style="text-align: left;"><u>for adults</u></th> <th style="text-align: left;"><u>for children</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>Finger traps</td> <td><8 mm or >25 mm</td> <td><4 mm or >25 mm</td> <td>- PASS</td> </tr> <tr> <td>Foot traps</td> <td><35 mm or >120 mm</td> <td><25 mm or >120 mm</td> <td>- N.a.</td> </tr> <tr> <td>Head traps</td> <td><120 mm or >300 mm</td> <td><60 mm or >300 mm</td> <td>- PASS</td> </tr> <tr> <td>Genitalia traps</td> <td><8 mm or >75 mm</td> <td><8 mm or >75 mm</td> <td>- PASS</td> </tr> </tbody> </table> or; c) when cords, chains or drive belts are used , or d) the product shall incorporate an control device which initiates the movement (starts – stop); or e) the product shall incorporate a means for detecting that a person is in danger of being trapped;		<u>To avoid</u>	<u>for adults</u>	<u>for children</u>		Finger traps	<8 mm or >25 mm	<4 mm or >25 mm	- PASS	Foot traps	<35 mm or >120 mm	<25 mm or >120 mm	- N.a.	Head traps	<120 mm or >300 mm	<60 mm or >300 mm	- PASS	Genitalia traps	<8 mm or >75 mm	<8 mm or >75 mm	- PASS	a) PASS b) PASS - PASS - N.a. - PASS - PASS c) N.a. d) PASS e) PASS
<u>To avoid</u>	<u>for adults</u>	<u>for children</u>																					
Finger traps	<8 mm or >25 mm	<4 mm or >25 mm	- PASS																				
Foot traps	<35 mm or >120 mm	<25 mm or >120 mm	- N.a.																				
Head traps	<120 mm or >300 mm	<60 mm or >300 mm	- PASS																				
Genitalia traps	<8 mm or >75 mm	<8 mm or >75 mm	- PASS																				
	12.2 – Mechanical wear - MT14.38976.04 Parts subject to mechanical wear likely to result in a safety hazard shall accessible to inspection		- PASS																				
	12.3 – Emergency stopping functions - MT14.38976.04 - The product shall be designed to prevent accidental damages or stopping movements; - The user shall be able to reach the emergency stop easily, stopping dangerous situation within one action; - The stopping device shall maintain the equipment in a safe position, but not interfere with other critical functions; - The emergency stopping device shall maintain the assistive product in a stopping position until it is released; - The designated procedure for the release of the emergency stop shall require two independent actions; - A safe stopping distance shall be considered in the risk analyses.		• PASS • PASS • PASS • PASS • PASS • PASS																				

Test overview of electric wheelchairs/scooters in accordance with EN 12184:2009

	§ 13 – Prevention of traps for parts of the human body EN 12182:2012 - MT14.38976.04	Test date: 11-03-14 Initial : HFd																				
	13.1 Holes and clearances Holes in, and clearances between stationary parts accessible to user and/or attendant, should comply with: <table border="0"> <thead> <tr> <th><u>To avoid</u></th> <th><u>for adults</u></th> <th><u>for children</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>Finger traps</td> <td><8 mm or >25 mm</td> <td><4 mm or >25 mm</td> <td>-PASS</td> </tr> <tr> <td>Foot traps</td> <td><35 mm or >120 mm</td> <td><25 mm or >120 mm</td> <td>-PASS</td> </tr> <tr> <td>Head traps</td> <td><120 mm or >300 mm</td> <td><60 mm or >300 mm</td> <td>-PASS</td> </tr> <tr> <td>Genitalia traps</td> <td><8 mm or >75 mm</td> <td><8 mm or >75 mm</td> <td>-PASS</td> </tr> </tbody> </table> <p>If the intended purpose cannot be met without a hazard caused by the size of holes and clearance between stationary parts, a warning and instructions on the safe operation should be provided in the instructions for use.</p>	<u>To avoid</u>	<u>for adults</u>	<u>for children</u>		Finger traps	<8 mm or >25 mm	<4 mm or >25 mm	-PASS	Foot traps	<35 mm or >120 mm	<25 mm or >120 mm	-PASS	Head traps	<120 mm or >300 mm	<60 mm or >300 mm	-PASS	Genitalia traps	<8 mm or >75 mm	<8 mm or >75 mm	-PASS	N.a.
<u>To avoid</u>	<u>for adults</u>	<u>for children</u>																				
Finger traps	<8 mm or >25 mm	<4 mm or >25 mm	-PASS																			
Foot traps	<35 mm or >120 mm	<25 mm or >120 mm	-PASS																			
Head traps	<120 mm or >300 mm	<60 mm or >300 mm	-PASS																			
Genitalia traps	<8 mm or >75 mm	<8 mm or >75 mm	-PASS																			
	§ 14 - Folding and adjusting mechanisms EN 12182:2012 - MT14.38976.04	Test date: 11-03-14 Initial : HFd																				
	14.1 - General Folding and adjusting mechanism may cause a hazard if parts of the body can enter gap between parts and be trapped when the cap is closed.	- PASS																				
	14.2 – Locking mechanisms The mechanisms shall be capable of being securely locked when the product is in any working configuration.	- PASS																				
	14.3 – Guards a) the assistive product shall incorporate means to protect the user from trap and/or squeeze hazards; b) the gap between exposed parts of a product shall be maintained throughout the range of movements: <table border="0"> <thead> <tr> <th><u>To avoid</u></th> <th><u>for adults</u></th> <th><u>for children</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>Finger traps</td> <td><8 mm or >25 mm</td> <td><4 mm or >25 mm</td> <td>- PASS</td> </tr> <tr> <td>Foot traps</td> <td><35 mm or >120 mm</td> <td><25 mm or >120 mm</td> <td>- PASS</td> </tr> <tr> <td>Head traps</td> <td><120 mm or >300 mm</td> <td><60 mm or >300 mm</td> <td>- N.a.</td> </tr> <tr> <td>Genitalia traps</td> <td><8 mm or >75 mm</td> <td><8 mm or >75 mm</td> <td>- PASS</td> </tr> </tbody> </table> c) the intended purpose of a product cannot be met without a hazard such as a squeezing, a warning and instructions on the safe operation should be provided in the instructions for use..	<u>To avoid</u>	<u>for adults</u>	<u>for children</u>		Finger traps	<8 mm or >25 mm	<4 mm or >25 mm	- PASS	Foot traps	<35 mm or >120 mm	<25 mm or >120 mm	- PASS	Head traps	<120 mm or >300 mm	<60 mm or >300 mm	- N.a.	Genitalia traps	<8 mm or >75 mm	<8 mm or >75 mm	- PASS	a) PASS b) PASS - PASS - PASS - N.a. - PASS c) PASS
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Foot traps	<35 mm or >120 mm	<25 mm or >120 mm	- PASS																			
Head traps	<120 mm or >300 mm	<60 mm or >300 mm	- N.a.																			
Genitalia traps	<8 mm or >75 mm	<8 mm or >75 mm	- PASS																			
	§ 18 - Surfaces, corners, edges and protruding parts EN 12182:2012 - MT14.38976.04	Test date: 11-03-14 Initial : HFd																				
	<ul style="list-style-type: none"> If not required for the intended function of a product, all accessible edges, corners and surfaces should be smooth, and free from burrs and sharp edges If not required for the intended function, products shall not have protruding parts. Where possible necessary protruding should be protected 	<ul style="list-style-type: none"> PASS N.a. 																				

Test overview of electric wheelchairs/scooters in accordance with EN 12184:2009

7	Design requirements EN 12184	
7.1.	Foot supports, lower leg support and arm support - MT14.38976.04	Test date: 20-05-14 Initial : PPK
	Is it possible to install a means to prevent the feet sliding back? (yes = satisfactory).	N.a.
	Lower leg support and arm supports shall meet requirements of 8.2.	N.a.
7.2	Pneumatic tyres - MT14.38976.04	Test date: 20-05-14 Initial : PPK
	Is the wheelchair equipped with pneumatic tyres ? If yes: are all valves identical ?	-Yes -Pass
7.3	Fitting an anterior pelvic support - MT14.38976.07	Test date:19-08-14 Initial :HFd
	Is a pelvic support fitted ? Can an anterior pelvic support used	No Yes - PASS
7.4	Requirements for wheelchairs meant as a seat in motor vehicles - MT14.38976.07	Test date:19-08-14 Initial :HFd
	Is there a manufacturer's declaration in the provided information that the wheelchair is intended (suitable) to use as a seat in a motor vehicle? If yes: does the information of the manufacturer include details on: <ul style="list-style-type: none"> • the suitable system(s) for fastening in a taxi? • the fastening points on the wheelchair? 	N.a.
7.5	Braking system - MT14.38976.07	Test date:18-08-14 Initial : HFd
a) b)	Is wheelchair fitted with a brake lever If one or more brake levers are fitted, handgrip width shall not be greater than 75 mm (fig 1).	Yes PASS
7.6	Freewheel device - MT14.38976.07	Test date:19-08-14 Initial :HFd
	Is the wheel chair fitted with a freewheel device? Be accessible and operable by occupant or assistant or both Be within the reach as specified in Fig. 2 Have operating force as stated in table 1 (60 N) Be operable without detaching any parts Not depend on the battery power	- Yes - PASS - PASS - PASS - PASS - PASS

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7.7	Component mass - MT14.38976.07	Test date: 18-08-14 Initial : HFd
	Is the wheelchair intended to be disassembled for easier transport? If yes: <ul style="list-style-type: none"> • Are all components of > 10 kg equipped with a suitable carrying handle? OR <ul style="list-style-type: none"> • Is it indicated in the manual where it can be lifted safely? • Is there a method for handling during assembly included in the manual? 	No <ul style="list-style-type: none"> • N.a. • N.a. • N.a.
7.8	Battery enclosed and containers - MT14.38976.04	Test date: 20-05-14 Initial : PPK
	Allowed accessible without the use of tools ? Provide protection so that it should not be possible for liquid dropping ? Provide protection to stop any objects, and prevent a short circuit Be used where spillable batteries are fitted to the wheelchair Be resistant to corrosion caused by battery gases and aid	- N.a. - N.a. - N.a. - N.a. - N.a. Result: N.a.
7.9	Operations intended to be carried out by occupant and/or assistant - MT14.38976.07	Test date:19-08-14 Initial :HFd
	Wheelchairs shall be designed to facilitate ease of operation by the occupant and/or assistant as specified in the manufacturer's instruction <ul style="list-style-type: none"> - Operation of adjustable seating; - Use of detachable components, including removable arm supports, lower leg supports etc. to facilitate transfer; - Use of folding mechanisms, including folding frames etc., to facilitate storage and transportation of unoccupied wheelchairs; - Carrying out maintenance, including use of tools etc.; - Use of manual steering controls; - Use of braking systems and freewheel devices; - Use of assistant controls; - Use of control devices. 	- PASS - PASS - PASS - PASS - PASS - PASS - PASS - PASS
7.10	Controls intended for operation by the occupant - MT14.38976.04	Test date:20-05-14 Initial :PPK
	Controls intended to be operated by the occupant while seated shall be within the occupant reach as shown in fig. 2 <ul style="list-style-type: none"> - On/off switch or key; - Speed regulator; - Speed pre-setting; - Running brake; - Parking brake; - Audible warning; - Direction indicator; - Direction switch; - Control devices; 	- PASS - PASS - PASS - PASS - PASS - PASS - PASS - PASS - PASS

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	<ul style="list-style-type: none"> - Manual steering controls; - Lighting controls; - Seating controls; - Detachable components, including removable arm supports, lower leg supports etc., to facilitate safe transfers into out of the wheelchair; - Steering control; - Freewheel device. 	<ul style="list-style-type: none"> - PASS - PASS - PASS - - PASS - PASS
7.11	Assistant control unit, push handles and handgrips - MT14.38976.07	Test date: 09-04-14 Initial : PPK
	When fitted, an assistant control unit, push handles and handgrips shall meet the performance requirements specified in 8.6	N.a.
7.12	Charging connector - MT14.38976.04	Test date:20-05-14 Initial : PPK
	Is the wheelchair to be fitted with a charging connector? Does this connector meet the requirements as stated in 8.7	Yes PASS

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8	Performance requirements	Result Pass / Fail / N.a.										
8.2	Foot support, lower leg support assemblies and arm support											
8.2.1	Requirements - MT14.38976.04	Test date: 20-05-14 Initial : PPk										
	Any swing away, movable foot support, lower leg support assembly or arm support fitted on the wheelchair shall: a) incorporate a means to locate it securely in any intended operation b) be adjustable in increments not exceeding 25 mm c) be accessible and operable by the occupant or an assistant d) be operable without the use of tools	a) PASS b) N.a. c) PASS d) PASS										
8.2.2.2	Test for foot support gap											
	Does not exceed 35 mm if wheelchair is intended for an adult Does not exceed 35 mm if wheelchair is intended for a child	N.a. N.a.										
8.3	Static, impact and fatigue strength											
	§ 8.4 - ISO 7176-8: Armrests: resistance to downward forces MT14.38976.06	Test date:18-08-14 Initial :HFd										
	<ul style="list-style-type: none"> Apply force 50 mm from the front of the armrest, 15° off vertical Armrests can be loaded simultaneously or separately 	dummy/no-dummy										
	<table border="0"> <thead> <tr> <th>maximum user weight</th> <th>force on each armrest</th> </tr> </thead> <tbody> <tr> <td>up to 25 kg</td> <td>190 N (± 6)</td> </tr> <tr> <td>25 to 50 kg</td> <td>380 N (± 11)</td> </tr> <tr> <td>50 to 75 kg</td> <td>570 N (± 17)</td> </tr> <tr> <td>75 to 100 kg</td> <td>760 N (± 23)</td> </tr> </tbody> </table> <p>OR force specified by manufacturer: - n ± 3% For max. user weights of more than 100kg: F = 1210 N</p>	maximum user weight	force on each armrest	up to 25 kg	190 N (± 6)	25 to 50 kg	380 N (± 11)	50 to 75 kg	570 N (± 17)	75 to 100 kg	760 N (± 23)	- PASS
maximum user weight	force on each armrest											
up to 25 kg	190 N (± 6)											
25 to 50 kg	380 N (± 11)											
50 to 75 kg	570 N (± 17)											
75 to 100 kg	760 N (± 23)											
	§ 8.5 - ISO 7176-8: Footrests: resistance to downward forces - MT14.38976.06	Test date:18-08-14 Initial :HFd										
	<ul style="list-style-type: none"> Apply force in centre and vertical to footrest For scooters: 100 mm in front of the seat and 100 mm from the centre 	dummy/no-dummy										
	<table border="0"> <thead> <tr> <th>maximum user weight</th> <th>force on each footrest</th> </tr> </thead> <tbody> <tr> <td>25 kg</td> <td>250 N (± 6)</td> </tr> <tr> <td>50 kg</td> <td>500 N (± 11)</td> </tr> <tr> <td>75 kg</td> <td>750 N (± 17)</td> </tr> <tr> <td>100 kg</td> <td>1000 N (± 23)</td> </tr> </tbody> </table> <p>OR force specified by manufacturer: - N ± 3% For max. user weights of more than 100kg: F = N.a.</p>	maximum user weight	force on each footrest	25 kg	250 N (± 6)	50 kg	500 N (± 11)	75 kg	750 N (± 17)	100 kg	1000 N (± 23)	N.a.
maximum user weight	force on each footrest											
25 kg	250 N (± 6)											
50 kg	500 N (± 11)											
75 kg	750 N (± 17)											
100 kg	1000 N (± 23)											

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	§ 8.6 - ISO 7176-8: Tipping levers - MT14.38976.04	Test date: 20-05-14 Initial : PPK										
	Apply force 25 mm from the end force = - N* or maximum 1000 N (± 30) If product fails: at what force? - N For max. user weights of more than 100kg: $F = 1000\text{ N} \pm 30\text{ N}$	N.a.										
	§ 8.7 - ISO 7176-8: Handgrips - MT14.38976.04	Test date: 20-05-14 Initial : PPK										
	<table border="0"> <tr> <td>maximum user weight</td> <td>electr. wheelchair: force on each handgrip</td> </tr> <tr> <td>≤100 kg</td> <td>750 N (± 23)</td> </tr> <tr> <td>>100 kg</td> <td>750 N (± 23)</td> </tr> </table> Measurement: - N If product fails: at what force? - N For max. user weights of more than 100kg: F= N.a.	maximum user weight	electr. wheelchair: force on each handgrip	≤100 kg	750 N (± 23)	>100 kg	750 N (± 23)	N.a.				
maximum user weight	electr. wheelchair: force on each handgrip											
≤100 kg	750 N (± 23)											
>100 kg	750 N (± 23)											
	§ 8.8 - ISO 7176-8: Armrests: resistance to upward forces - MT14.38976.06	Test date:18-08-14 Initial :HFd										
	Max. force on each armrest = <u>highest</u> value of table OR the result of the calculation for this test is 1000 N ± 30 . <table border="0"> <tr> <td>maximum user weight</td> <td>force on each armrest</td> </tr> <tr> <td>up to 25 kg</td> <td>335 N (± 10)</td> </tr> <tr> <td>25 to 50 kg</td> <td>520 N(± 16)</td> </tr> <tr> <td>50 to 75 kg</td> <td>710 N(± 21)</td> </tr> <tr> <td>75 to 100 kg</td> <td>895 N(± 27)</td> </tr> </table> OR: Measurement: - N If product fails: at what force? - N For max. user weights of more than 100kg (electric wheelchairs): force = 1200 N - Maximum 1000 N ± 30 .	maximum user weight	force on each armrest	up to 25 kg	335 N (± 10)	25 to 50 kg	520 N(± 16)	50 to 75 kg	710 N(± 21)	75 to 100 kg	895 N(± 27)	PASS
maximum user weight	force on each armrest											
up to 25 kg	335 N (± 10)											
25 to 50 kg	520 N(± 16)											
50 to 75 kg	710 N(± 21)											
75 to 100 kg	895 N(± 27)											
	In the case of armrests without locking: Check that armrest is designed as such that the abovementioned forces are complied with or that they loosen at minimal force and cannot be used to lift. It is unsatisfactory if the armrest is clamped (e.g. by shear legs) but can be loosened by way of shaking or moving.	N.a.										
	§ 8.9 - ISO 7176-8: Footrests: resistance to upward forces - MT14.38976.04	Test date: 20-05-14 Initial : PPK										
	<ul style="list-style-type: none"> • Apply force to the part used to lift the wheelchair. • For continuous footrests, if possible, in the centre. 	N.a.										
	Electric wheelchairs: max. force on foot support = <u>highest</u> value of table or result of one of the calculations OR the max. force indicated OR the force specified by the manufacturer. Electric wheelchairs											

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	<p>maximum force on each footrest force in centre <u>user weight for 2 separate footrests for undivided footrest</u> up to 25 kg 165 N (± 5) 330 N (± 10) OR 25 to 50 kg 260 N (± 8) 520 N (± 16) OR 50 to 75 kg 350 N (± 10) 700 N (± 20) OR 75 to 100 kg 440 N (± 13) 880 N (± 26) OR</p> <p>separate footrest : to a maximum of 1000 N (± 30) undivided footrest.: to a maximum of 2000 N (± 60)</p>	N.a.
	<p>In case of footrests without locking: Check that they are designed as such that - they comply with the table or - that they loosen at minimal force and cannot be used to lift. It is unsatisfactory if the footrests are clamped (e.g. by shear legs) but can be loosened by way of shaking or moving.</p>	N.a.
	§ 8.10 - ISO 7176-8: Push handles: resistance to upward load - MT14.38976.04	Test date: 20-05-14 Initial : PPK
	<p>Electric wheelchairs: max. force on push handle = <u>highest</u> value of table or result of one of the calculations OR the max. force indicated OR the force specified by the manufacturer.</p> <p>Maximum force on each handle force in centre <u>user weight for 2 separate handles of push bar</u> up to 25 kg 330 N (± 10) 660 N (± 20) OR 25 to 50 kg 520 N (± 16) 1040 N(± 32) OR 50 to 75 kg 700 N (± 20) 1400 N(± 42) OR 75 to 100 kg 880 N (± 26) 1760 N(± 52) OR</p> <p>separate push handles : max 1000N (± 30) undivided push handles: max 2000N (± 60)</p> <p>OR force specified by manufacturer: - N ± 3% (when higher!) Measurement: - N if product fails: at what force? - N</p>	N.a.
	§ 9.3 - ISO 7176-8: Backrest: resistance to impact - MT14.38976.06	Test date: 18-08-14 Initial : HFd
	<ul style="list-style-type: none"> • Position the pendulum as shown in figure 15 at 30° ± 2° • Pendulum angle specified by the manufacturer: ° ± 2° 	- PASS - N.A.
	§ 9.4 - ISO 7176-8, 9.4: Handrim: resistance to impact - MT14.38976.04	Test date: 20-05-14 Initial : PPK
	<ul style="list-style-type: none"> • Test should only be carried out on right handrim. • Dummy installed and NOT applying the brake. 	
	<ul style="list-style-type: none"> • Position the pendulum as shown in figure 16 at 45° ± 2°. • Pendulum angle specified by the manufacturer: - ° ± 2° 	N.a.
	§ 9.5 - ISO 7176-8: Castors: resistance to impact - MT14.38976.04	Test date: 20-05-14 Initial : PPK
	<ul style="list-style-type: none"> • Do NOT apply the brake but place in neutral • Place castors under a 45° (± 5°) angle to direction of travel. • Touch the wheel level with the axle (± 5 mm) in line (± 2°) with the wheel. 	N.a.

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	<ul style="list-style-type: none"> Drop the pendulum in accordance with figure 17 over the calculated angle \emptyset (-0°, $+3^\circ$). Carry out the test on all castors present. 	
	<ul style="list-style-type: none"> Determine the drop angle \emptyset with the following formula $\cos\emptyset = 1 - \{(\text{dummy mass [kg]} + \text{wheelchair mass [kg]}) / 377\}$ $\emptyset = -^\circ$ Drop angle specified by the manufacturer: $-^\circ$ ($+0^\circ$, -3°) 	N.a.
	§ 9.6 - ISO 7176-8: Footrests: resistance to impact - MT14.38976.04	Test date: 20-05-14 Initial : PPK
	<ul style="list-style-type: none"> Determine the drop angle \emptyset with the following formula (is identical to the drop angle of castor, see 9.5): $\cos\emptyset = 1 - \{(\text{dummy mass [kg]} + \text{wheelchair mass [kg]}) / 377\}$ $\emptyset = -^\circ$ Drop angle specified by the manufacturer: $-^\circ$ ($+0^\circ$, -3°) 	n.a.
	§ 9.7 - ISO 7176-8: Front structure: resistance to impact - MT14.38976.04	Test date: 20-05-14 Initial : PPK
	<ul style="list-style-type: none"> Drop angle \emptyset with the following formula $\emptyset = 30^\circ$ Drop angle specified by the manufacturer: $-^\circ$ ($+0^\circ$, -3°) 	PASS
	§ 10.4 - ISO 7176-8: Two-drum test - MT14.38976.07	Test date: 17-08-14 Initial : HFd
	Measure the current used by the wheelchair during travel in a straight direction on a level floor at a speed of 1 m/s Measurement: - A	
	Test duration: 200,000 cycles with a run speed at 1.0 m/s \pm 0,1 m/s or number of cycles specified (manufacturer) : - .	PASS
	§ 10.5 - ISO 7176-8: Drop test - MT14.38976.07	Test date: 19-08-14 Initial : HFd
	6,666 cycles. The wheelchair is dropped freely from a height of 50 mm \pm 5 mm or higher specified by the manufacturer: - .	PASS
8.4	Braking system - MT14.38976.07	Test date: 18-08-14 Initial : HFd
	The braking system shall: <ul style="list-style-type: none"> - be accessible and operable by the occupant or an assistant - be within the reach specified in figure 2, operated by the occupant - have operating forces for engaging and disengaging (table 1) - including a running brake, which operates independently of tyre - including a running brake, which operated with wheelchair in freewheel mode - include a automatic brake , which operates independently of tyre 	<ul style="list-style-type: none"> - PASS - N.a. - N.a. - PASS - PASS - PASS - PASS

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	<p>include an parking brake , which operated independently of tyre</p> <p>Wear and tyre inflation that shall:</p> <ol style="list-style-type: none"> 1) be operable when there is no power from the battery supplying drive 2) be operable when the wheelchair is in freewheel mode 3) meet the parking brake effectiveness requirement in Table 1 4) have provision for adjustment and/or replacement as specified by the manufacturer 5) not have parts that protrude above the level of the unoccupied seat when brake is engaged 6) be operated either by hand or foot, and not exceed the forces 7) not allowed the loaded wheelchair to slide nor for its wheels to rotate when tested as specified in ISO 7176-3 	<ol style="list-style-type: none"> 1. PASS 2. PASS 3. PASS 4. PASS 5. PASS 6. PASS 7. PASS
8.4.2.1	Tests for determination of brake lever operating forces. - MT14.38976.06	Test date:18-08-14 Initial :HFd
	Selected part of the knob of the lever as shown in figure 3	
	<p>Determine the actuating force (force= 52 N) and compare with the following:</p> <ul style="list-style-type: none"> • Finger operated ≤ 5 N Measurement: N • One hand operated ≤ 13,5 N Measurement: N • Hand and arm ≤ 60 N Measurement: N • Foot operated, pushing ≤ 100 N Measurement: N • Foot operated, pulling ≤ 60 N Measurement: N <p>When product fails, slope whereby sliding or rotation occurs: - °</p>	<ul style="list-style-type: none"> - N.a. - N.a. - PASS - N.a. - N.a.
8.4.2.2	Test for the determination of the effectiveness of running brakes - MT14.38976.06 ISO 7176-3	Test date:20-08-14 Initial :HFd
8.4.2.2 8.4.2.2	<p>Test can be carried out with dummy or test driver.</p> <p>Start wheelchair from stationary <u>on</u> the slope concerned</p> <p>measure the speed (± 10%) of the wheelchair after driving 5 m up the slope 4,5 km/h</p> <p>Climbing capacity = slope at which the measured speed (after 5 m) ≥2 km/h Measurement: 6 °</p>	<p>dummy/test driver</p> <p>PASS 6°</p>
	Maximum safe slope (table 2)	Test date:18-08-14 Initial :HFd
	<ul style="list-style-type: none"> • The wheelchair shall be capable of climbing at a speed not less than 2 km/h. - the applicable rated slope for the type class specified in Table 1 or - the rated slope specified by the manufacturer, whichever is greater. 	PASS

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Degrees and direction	Braking method	Maximum speed	Speed before braking	Braking distance
°		Km/h	Km/h	mm
0° backwards	Release	4.60	4.54	770
0° forwards	Release	9.50	9.38	1895
3° downwards	Release	10.27	10.09	3263
3° upwards	Release	8.86	8.74	1612
6° downwards	Release	10.80	10.56	3850
6° upwards	Release	7.85	7.79	1393
Deceleration values between 2.2 and 3.4 m/s ²				
- maximum speed measured after 5 m +/- 10 cm = 7.2 km/h				3° 6° 10°
8.4.2.3	Test for determination of effectiveness of parking brakes Table 1; ISO 7176-3 - MT14.38976.07			Test date: 20-08-14 Initial : HFd
	Determine the actuating force (force= 55 N) and compare with the following: <ul style="list-style-type: none"> • Finger operated ≤ 5 N Measurement: N • One hand operated ≤ 13,5 N Measurement: N • Hand and arm ≤ 60 N Measurement: N • Foot operated, pushing ≤ 100 N Measurement: N • Foot operated, pulling ≤ 60 N Measurement: N When product fails, slope whereby sliding or rotation occurs: - °			<ul style="list-style-type: none"> - N.a. - N.a. - PASS - N.a. - N.a.
	<ul style="list-style-type: none"> • hold force parking brake, down a slope, begins to: glide/roll • hold force parking brake, up a slope, begins to: glide/roll • hold force autom. brake, down a slope, begins to: glide/roll • hold force autom. brake, up a slope, begins to: glide/roll 			9° 9° 9° 9°
8.4.2.4	Test for protrusion of parts of the parking brakes - MT14.38976.04			Test date: 20-05-14 Initial : PPK
	Is there any part of the parking brake that protrudes above the level of the seat			No PASS
8.4.2.5	Fatigue test method for manual parking brakes - MT14.38976.06			Test date: 18-08-14 Initial : HFd
	Move the brake handle calmly 60,000 times from the unengaged to the engaged position with a frequency of ≤ 0.5 Hz. Number of cycles: 60000.			PASS

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8.4.2.6	Test for the determination of effectiveness of parking brakes after fatigue strength testing - MT14.38976.07	Test date: 20-08-14 Initial : HFd
	Repeat the test as specified in 8.4.2.3	
	Determine the actuating force (force= 55 N) and compare with the following: <ul style="list-style-type: none"> • Finger operated ≤ 5 N Measurement: N - N.a. • One hand operated ≤ 13,5 N Measurement: N - N.a. • Hand and arm ≤ 60 N Measurement: N - PASS • Foot operated, pushing ≤ 100 N Measurement: N - N.a. • Foot operated, pulling ≤ 60 N Measurement: N - N.a. When product fails, slope whereby sliding or rotation occurs: - °	
	<ul style="list-style-type: none"> • hold force parking brake, down a slope, begins to: glide/roll 9° • hold force parking brake, up a slope, begins to: glide/roll 9° • hold force autom. brake, down a slope, begins to: glide/roll 9° • hold force autom. brake, up a slope, begins to: glide/roll 9° 	
8.5	Operating forces.	
8.5.1	Requirements - MT14.38976.04	Test date: 20-05-14 Initial : PPK
	All controls shall have operating force for engaging and releasing that do not need exceed those stated in table 1. <ul style="list-style-type: none"> - numerical value of the torque for knobs ≥ 25 mm ≤ 0,05 x diameter - numerical value of the torque for knobs ≤ 25 mm ≤ 0,025 x diameter 	<ul style="list-style-type: none"> - PASS - N.a.
8.6	Assistance control unit, push handles and handgrips - MT14.38976.04	Test date: 20-05-14 Initial : PPK
	When an assistance control unit is fitted, the unit shall be positioned behind the wheelchair's back support between 900 – 1200 mm from the floor to the centre of the operating means	N.a.
	When push handles are handles are fitted, no part of the wheelchair shall lie within a space to the rear, following: <ul style="list-style-type: none"> - a plane at 85° to the horizontal (Figure 4) - two planes not less than 350 mm apart equidistant from a vertical plane - the horizontal plane 	N.a.
8.7	Charging connector - MT14.38976.04	Test date: 20-05-14 Initial : PPK
	The charger connector shall be accessible by the occupant and assistant (Figure 2).	PASS

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8.8	Performance of driving characteristics	
8.8.2	Ability to climb maximum safe slope - MT14.38976.07	Test date: 20-08-14 Initial : HFd
	<ul style="list-style-type: none"> • The wheelchair shall be capable of climbing at a speed not less than 2 km/h. -the applicable maximum safe slope specified in Table 1 or - the maximum safe slope specified by the manufacturer 	- PASS - PASS - PASS
	- maximum speed measured after 5 m +/- 10 cm	3° 6° 10°
8.8.3	Ground unevenness - MT14.38976.04	Test date: 20-05-14 Initial : PPK
	The wheelchair shall be able to drive on uneven terrain without stopping Ground unevenness as given in Table 1: Measurement: 30 mm.	PASS
8.8.4	Maximum downhill speed - MT14.38976.07	Test date:14-08-14 Initial :HFd
	The wheelchair shall not exceed 125% of its maximum speed on the horizontal, when driving down a gradient equivalent to its maximum slope Measured: 10.68 km/h at slope of 6°.	PASS
8.8.5	Dynamic stability - MT14.38976.04 ISO 7176-2	Test date: 20-05-14 Initial : PPK
	The dynamic response score of the wheelchair shall be 2 or 3 as specified in Table A.1 of ISO 7176-2:2001 when tested on the slopes specified in for the type class, at maximum slope specified by manuf.	PASS – 6°
8.8.6	Obstacle climbing - MT14.38976.04 ISO 7176-10	Test date: 20-05-14 Initial : PPK
	The wheelchair shall be capable of climbing and descending obstacles of the height specified specified in Table 1 for the type class of the wheelchair without any part of the wheelchair other than wheels or a kerb climbing device contacting the obstacle or the test plane Measurement: Forwards with 5 km/h. Backwards 3 km/h	PASS – see remark in report
8.8.7	Static stability - MT14.38976.04	Test date: 20-05-14 Initial : PPK
	The wheelchair shall meet or exceed the minimum requirements for static stability specified in Table 1 for the type class of the wheelchair	n.a./6°/ 9° /15° PASS

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8.8.8	Maximum speed - MT14.38976.07 ISO 7176-6	Test date:14-08-14 Initial :HFd
	The maximum speed of the wheelchair when travelling forwards and travelling in reverse (horizontal) shall not exceed the maximum speed requirements specified in Table 1. - Forwards horizontal 9.53 km/h - Reverse horizontal 70% of maximum forward speed Measured reverse 4.6 km/h	PASS
8.8.9	Distance range - MT14.38976.04 ISO 7176-4	Test date: 14-06-14 Initial : HFd
	The theoretical continuous driving distance range shall not be less than specified in Table 1.	battery capacity: 40 [Ah/5u]
	Route length (C) between 50 and 100 [m] of level hard surface, each side long enough to reach maximum speed.	route length: 100 [m]
	Measured amperage per hour [Ah] by: • Start - 0 Ah • After 10 laps clock right 1,31 Ah • After 10 laps clock left 1,30 Ah Distance = 30.4 km	PASS
8.9	Surface temperature - MT14.38976.07 EN 12182	Test date:15-08-14 Initial :HFd
	Surface of the wheelchair that can come into direct contact with the occupant's skin and /or assistant's skin, shall not exceed 41° when tested as specified in EN 12182	PASS
8.10	Resistance to ignition - MT14.38976.04	Test date:19-08-14 Initial :HFd
8.10.1	Upholstered parts	PASS
8.10.2	- conform the requirements as stated in the EN 1021-1:2006 Foam materials - conform the requirements as stated in the EN 1021-1:2006 <i>See concerned SGS test report AJD201001184.</i>	PASS
8.11	Climatic test - MT14.38976.04 ISO 7176-9	Test date: 26-03-14 Initial : HFd
	The wheelchair shall conform to the requirements of ISO 7176-9	PASS
	IEC 60529 Spray water in accordance with IEC 60529:1989, IPx4: - after 5 min ± 1 min - after 60 min ± 5 min - after 24 hour ± 30 min	Yes Yes Yes
8.12	Seating adjustments for tilt and recline systems - MT14.38976.04	Test date: 20-05-14 Initial : PPK
	If the manufacturer specifies that the seating can be adjusted by an assistant or the occupant, during seating, assistant and/or occupant shall not have to lift the mass	PASS

Test overview of electric wheelchairs/scooters in accordance with EN 12184:2009

9	Electrical requirements	
9.1	Requirements for the electrical system	Test date:19-08-14 Initial :HFd
	The wheelchair shall conform to the requirements of ISO 7176-14:2008 and ISO 7176-21:2003 On board charger shall conform the EN 60601-1:2006 + EN 61000-3-2 <i>See concerned test reports from RETLIF testing Laboratories.</i>	- PASS - N.a.
9.2	Requirements for controller on/off switch	Test date:19-08-14 Initial :HFd
8.6.1	Provision shall be made for the occupant and/or assistant to switch the wheelchair on and off	PASS
9.3	Requirements for power indicator EN 60601-1:2006	Test date:19-08-14 Initial :HFd
	When the wheelchair shall be fitted with a device to indicate to the occupant and/or assistant that power is switched on. Colour conform EN 60601-1	PASS
9.4	Requirements for circuit protection	Test date:19-08-14 Initial :HFd
	Circuits connected to batteries on the wheelchair shall be protected against excessive current.	- PASS
	The driving, braking and steering functions shall not be affected by the operation of the means of protection of any other circuit.	- PASS
	Lights, direction indicators and hazards warning flasher functions shall not be affected by the operation of the means of protection- any circuit	- PASS
9.5	Requirements for battery chargers	Test date:19-08-14 Initial :HFd
	<ul style="list-style-type: none"> • Battery chargers should indicate when charging is in progress and when this has been completed. • Battery chargers shall have the capacity to charging batteries discharged 70% of their voltage • Battery chargers shall be operable without the need for intervention or supervision apart from connecting and turning on the start charging and turning off and disconnecting at the end charging • Carry-on and on-board battery chargers shall meet the environmental protection requirements of IPX4 when tested in accordance with EN 60529:1991 and meet class II (EN 60335-1) 	<ul style="list-style-type: none"> • PASS • PASS • PASS • PASS

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9.6	Charge level indicator	Test date: 19-08-14 Initial : HFd
	The wheelchair shall be equipped with a charge level indicator	PASS
10.1	Documentation and information of the product in accordance with EN 1041 en ISO 7176-15	Test date: 13-08-14 Initial : HFd
10.2	Pre-sale information	Test date: 13-08-14 Initial : HFd
	<ul style="list-style-type: none"> a) information on how to obtain the user information in a format appropriate for use by visually impaired people; b) description of the intended occupant of the wheelchair (as a minimum this will include occupant mass plus any specific requirements for functional capability, visual ability and cognisance to operate the wheelchair safely in its intended environment); c) description of the intended use and the intended environment; d) type class of the wheelchair: Class A, Class B or Class C; e) overall dimensions (width, length and height) of the wheelchair, expressed in millimetres, and its mass, f) reversing width, expressed in millimeters; g) maximum safe slope, expressed in degrees; h) maximum height of kerb which the wheelchair can descend safely, expressed in millimetres; i) information concerning whether the removal of parts or accessories intended by the manufacturer to be removed without the use of tools will have adverse or beneficial effects on the wheelchair; j) standard options that are available for the wheelchair; k) type of tires that can be used on the wheelchair; l) if a programmable controller is fitted, information on the method of programming, who should carry out the programming and the effects it can have on driving performance; m) operator control adjustments; n) theoretical continuous driving distance range, expressed in kilometres, that the wheelchair can travel under its own power on the horizontal when tested in accordance with ISO 7176-4:2008, with the addition of a note explaining that the distance will be reduced if the wheelchair is used frequently on slopes, rough ground or to climb kerbs etc.; o) whether and how the wheelchair can be folded or dismantled to assist in storage or transport; p) if the wheelchair can be dismantled or has any removable parts, the mass of the heaviest part, expressed in kilograms; 	<ul style="list-style-type: none"> a) PASS b) PASS c) PASS d) PASS e) PASS f) PASS g) PASS h) PASS i) N.a. j) PASS k) PASS l) N.a. m) PASS n) PASS o) PASS p) PASS

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	<p>q) instructions regarding transport of the wheelchair when it is unoccupied (e.g. in a car or aeroplane);</p> <p>r) information on whether or not the wheelchair is intended to be used as a seat in a motor vehicle;</p> <p>s) if the manufacturer specifies that the wheelchair is intended for use as a seat in a motor vehicle, the method of attaching wheelchair tie down and occupant restraints, and recommendations about suitable tie down and restraint systems.</p>	<p>q) PASS</p> <p>r) PASS</p> <p>s) PASS</p>
10.3	User information	<p>Test date: 13-08-14</p> <p>Initial : HFd</p>
	<p>a) the unique identification number of the wheelchair and information on the location of the unique identification number on the wheelchair;</p> <p>b) the intended operator (occupant, assistant or both);</p> <p>c) any adjustment or settings required before the wheelchair can be used and warnings of how adjustments or settings affect stability;</p> <p>d) where applicable, information on any adjustments that can be made and who is competent to carry out these adjustments;</p> <p>e) instructions on operation of all controls, including brakes;</p> <p>f) instructions on how to engage and disengage the drive system;</p> <p>g) the wheelchair manufacturer's recommended tire pressure(s), expressed in kilopascals (kPa) or bar;</p> <p>h) instructions for dealing with tire punctures, where pneumatic tires are fitted;</p> <p>i) the battery type and nominal voltage;</p> <p>j) instructions for battery maintenance;</p> <p>k) instructions for operating the battery charger, including warnings regarding any potential safety hazards (e.g. a possibility of gas accumulating in the charging area);</p> <p>l) instructions on dismantling and re-assembly of the wheelchair or any removable parts;</p> <p>m) the masses of parts of the wheelchair that are expected to be handled during dismantling, reassembly, or carrying, expressed in kilograms;</p> <p>n) the positions of points where the component parts can be gripped for safe moving and handling and/or a method for handling during dismantling, assembly or carrying;</p> <p>o) a warning that surface temperatures can increase when exposed to external sources of heat (e.g. sunlight);</p> <p>p) a warning that the wheelchair might disturb the operation of devices in its environment that emit electromagnetic fields (e.g. alarm systems of shops, automatic doors etc.);</p> <p>q) a warning that the driving performance of the wheelchair can be influenced by electromagnetic fields (e.g. those emitted by</p>	<p>a) PASS</p> <p>b) PASS</p> <p>c) PASS</p> <p>d) PASS</p> <p>e) PASS</p> <p>f) PASS</p> <p>g) PASS</p> <p>h) PASS</p> <p>i) PASS</p> <p>j) PASS</p> <p>k) PASS</p> <p>l) PASS</p> <p>m) PASS</p> <p>n) PASS</p> <p>o) PASS</p> <p>p) PASS</p> <p>q) PASS</p>

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	<p>portable telephones, electricity generators or high power sources);</p> <p>r) a warning if driving characteristics can be adjusted outside the limits specified in Table 1 and Table 2;</p> <p>s) a warning for trapping hazards (e.g. pinch points);</p> <p>t) the level of resistance to ignition of materials and assemblies;</p> <p>u) information on the recycling of used batteries and other parts of the wheelchair;</p> <p>v) a warning if the adjustments of seating or wheel positions can be set outside safe limits;</p> <p>w) the expected service life of the wheelchair.</p>	<p>r) PASS</p> <p>s) PASS</p> <p>t) PASS</p> <p>u) PASS</p> <p>v) PASS</p> <p>w) PASS</p>
10.4	Service information	<p>Test date: 13-08-14</p> <p>Initial : HFd</p>
	The service information shall contain all the pre-sale information, user information and instructions necessary for the maintenance, adjustment and repair of the wheelchair and for the replacement of parts.	PASS
10.5	Labeling	<p>Test date: 13-08-14</p> <p>Initial : HFd</p>
	<p>a) devices for disengagement of the drive system, showing engaged and disengaged positions, including a warning that the drive system should be re-engaged before an occupant is left unattended or attempts to operate the wheelchair;</p> <p>b) for wheelchairs where the intended use includes use as a seat in a motor vehicle, the position of attachment points for wheelchair tie-down and occupant restraint systems (WTORS);</p> <p>c) the year of production for the product;</p> <p>d) for battery chargers that are not on-board chargers, information and connection details specified in Clause 9 of ISO 7176-14:1997;</p> <p>e) for wheelchairs not intended to be used as a seat in a motor vehicle, a warning label that it is not intended to be used as a seat in a motor vehicle;</p> <p>f) for Class A wheelchairs for use indoors only a warning that it should only be used indoors.</p>	<p>a) PASS</p> <p>b) n.a.</p> <p>c) PASS</p> <p>d) PASS</p> <p>e) N.a.</p> <p>f) N.a.</p>
	§ 24 Requirements for information supplied by the manufacturer EN 12182:2012	<p>Test date: 13-08-14</p> <p>Initial: HFd</p>
	§ 24.2.1 Pre-sale information	
	<p>In addition to the requirements of 24.1, pre-sale information shall include the following:</p> <p>a) information on how to obtain the user information in a format</p>	

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	<p>appropriate for use by people with visual, reading or cognitive disabilities;</p> <p>b) all information shall as far as possible be available in Pictogram;</p> <p>c) a description of the intended use and the intended environment;</p> <p>d) maintenance instructions, if applicable;</p> <p>e) if an assistive product is intended to be cleaned, a description of the method and suitable cleaning materials, including precautions needed to avoid corrosion, if applicable;</p> <p>f) if an assistive product is intended to be disinfected, a description of the method and suitable materials, including any precautions needed to avoid corrosion, if applicable;</p> <p>g) the overall dimensions (width, length and height) of the assistive product, expressed in millimetres, and its mass, expressed in kilograms, when it is ready for use and, if applicable, when it is folded or dismantled;</p> <p>h) the mass expressed in kilograms if the assistive product can be dismantled or has any removable parts that has a mass which is heavier than 10 kg;</p> <p>i) if the assistive product is supposed to be used in combination with other products, the manufacturer shall state to which products, and how this can be done in a safe way;</p> <p>j) warning about dangerous combinations of devices (e.g. cushions for the prevention of decubitus ulcers often only work on correct seat surface) and combinations of flame resistant and non-flame resistant material;</p> <p>k) a list of accessories, detachable parts and materials that the manufacturer has determined as being intended for use with the assistive product;</p> <p>l) if a programmable controller is fitted, information on the method of programming, the competence required to carry out the programming and the effects on performance;</p> <p>m) operator control adjustments;</p> <p>n) whether and how the assistive product can be folded or dismantled to assist in storage or transport;</p> <p>o) instructions regarding transport of the assistive product (e.g. in a car or aeroplane);</p> <p>p) measured sound power level.</p>	<p>a) PASS</p> <p>b) PASS</p> <p>c) PASS</p> <p>d) PASS e) PASS</p> <p>f) N.a.</p> <p>g) PASS</p> <p>h) PASS</p> <p>i) N.a.</p> <p>j) PASS</p> <p>k) PASS</p> <p>l) N.a.</p> <p>m) PASS n) PASS</p> <p>o) PASS</p> <p>p) PASS</p>
	<p>§ 24.2.2 User information</p> <p>User information shall be provided by the manufacturer with each assistive product. Information shall contain all pre-sale warnings and information's and the following as applicable for each assistive product:</p> <p>a) the location and the type of identification number/word on the assistive product shall be given for the unique identification number of the assistive product;</p> <p>b) the intended user;</p> <p>c) any adjustment or settings required before the assistive product can be used and information on how adjustments or settings affect the assistive product;</p> <p>d) information on adjustment possibilities and the competence required to carry out these adjustments;</p>	<p>a) PASS</p> <p>b) PASS</p> <p>c) PASS</p> <p>d) PASS</p>

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	<ul style="list-style-type: none"> e) instructions on operation of all controls; f) the battery type and nominal voltage; g) instructions for battery maintenance; h) instructions for operating the battery charger, including warnings regarding any potential safety hazards (e.g. a possibility of gas accumulating in the charging area); i) instructions on dismantling and re-assembly of the assistive product or any removable parts; j) the positions of points where the component parts can be gripped for safe moving and handling and/or a method for handling during dismantling, assembly or carrying; k) a warning if surface temperatures can increase / decrease when exposed to external sources of heat or cold (e.g. sunlight, outdoor environment); l) a warning if the assistive product might disturb the operation of devices in its environment that emit electromagnetic fields (e.g. alarm systems of shops, automatic doors, etc.); m) a warning if the performance of the assistive product can be influenced by electromagnetic fields (e.g. those emitted by portable telephones, electricity generators or high power sources); n) if the intended purpose of an assistive product cannot be met without a hazard (e.g. holes, V-shaped opening), a warning and instructions on how to operate the assistive product safely; o) if the intended purpose of an assistive product cannot be met without a hazard due to moving parts such as squeezing, a warning and instructions on how to operate the assistive product safely; p) the level of resistance to ignition of materials and assemblies; q) information on the recycling of used batteries and other parts of the assistive product; r) expected lifetime of the assistive product. <p>It is recommended to include instructions on how to solve simple problems for the ease of use.</p>	<ul style="list-style-type: none"> e) PASS f) PASS g) PASS h) PASS i) PASS j) PASS k) PASS l) PASS m) PASS n) PASS o) PASS p) PASS q) PASS r) PASS
	<p>§ 24.2.3 Service information</p> <p>The service information shall contain all the pre-sale information, user information and instructions necessary for the maintenance, adjustment and repair of the assistive product and for the replacement of parts.</p> <p>The service information shall contain all the pre-sale information and the user information.</p> <p>The service information shall be sufficiently detailed concerning preventive inspection, maintenance and calibration, including the frequency of such maintenance.</p> <p>The service information shall provide information for the safe performance of such routine maintenance necessary to ensure the continued safe use of the assistive product.</p>	<p>PASS</p> <p>PASS</p> <p>PASS</p> <p>PASS</p>

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	Additionally, the service information shall identify the parts on which preventive inspection and maintenance shall be performed by service personnel, including the periods to be applied and details about the actual performance of such maintenance.	PASS
	<p>§ 24.3 Labelling</p> <p>In addition to the requirements of 24.1, the manufacturer shall apply permanent labels for the year of production for the product;</p> <p>Detachable parts of an assistive product with a mass of more than 10 kilograms shall be marked with the actual mass on the part.</p> <p>Symbols for use in the labelling of medical devices shall be in accordance with EN 980.</p>	<p>PASS</p> <p>N.a.</p> <p>PASS</p>
	<p>§ 25 Packaging</p> <p>The hazards that can be caused by inadequate protective packaging shall be assessed in the risk analysis (see 4.1).</p>	N.a.
	<p>EN 1041</p> <p>Information supplied by the manufacturer of medical devices</p>	<p>Test date: 13-08-14</p> <p>Initial: HFd</p>
	<p>4 Requirements</p> <p>4.1 General</p> <p>Product information and labeling shall be part of risk management procedures.</p>	PASS
	<p>4.2 Units, symbols and colors</p> <p>Units used shall be SI units as specified in ISO 1000 or any other legal units.</p> <p>Symbols and safety-related identification colors shall be explained in the information supplied unless they are taken from harmonized standards."</p>	<p>PASS</p> <p>PASS</p>
	<p>4.3 Language and country identifiers</p> <p>If the manufacturer decides to identify the language used in the information provided, for example to indicate to users the appropriate language in a multilingual document, this shall be done using the language codes given in ISO 639-1 and/or the plain text of the language (e.g. "English").</p> <p>If the manufacturer decides to identify the country in the information provided, for example to indicate to users the appropriate customer service contact details for their country, this shall be done using the country codes given in EN ISO 3166-1 and/or the plain name of the country (e.g. "France").</p>	<p>PASS</p> <p>PASS</p>

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	<p>4.4 Dates</p> <p>Any human-readable date shall be expressed in the format YYYY-MM-DD, YYYY-MM or YYYY, in accordance with ISO 8601.</p>	PASS
	<p>4.5 Device nomenclature</p> <p>4.5.1 Identifiers of nomenclature</p> <p>When it is required to include the identification of the generic device group or the device category in the information supplied with the device, this may be done using a nomenclature that is in compliance with EN ISO 15225.</p>	PASS
	<p>4.5.2 Device common terms</p> <p>When it is appropriate to identify collective terms for medical devices in the information supplied, for example common technology or common materials of construction, this shall be done using the terms and codes set out in CEN/TR 15133.</p>	N.a.
	<p>4.5.3 Batch code; lot number; batch number; lot code</p> <p>These shall consist of alphanumeric characters but may also be presented by other means, for example by using machine-readable codes.</p>	PASS
	<p>5.1 General</p> <p>5.1.1 Safe and effective use of the device"</p> <p>Any means of provision of information with medical devices shall take into account the intended users, the conditions of use and any issues specific to individual device types that are necessary for the safe and effective use of the device. This shall apply regardless of whether the specific requirements listed below apply to the device.</p> <p>The appropriate way of providing information shall be based on a risk assessment and in line with the training, experience and education of the intended users.</p> <p>5.1.2 Address required under medical devices directives</p> <p>All medical devices which are placed on the market and put into service within the Community, shall contain the name or trade name and address of the manufacturer in the information supplied by the manufacturer.</p> <p>When the manufacturer does not have a registered place of business in the Community, the information shall contain in addition the name and address of the authorized representative.</p> <p>For devices covered by the MDD, the name or the trade name and</p>	<p>PASS</p> <p>PASS</p> <p>PASS</p> <p>PASS</p>

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	<p>address of the manufacturer shall appear on the label and in the instruction for use if provided with the device. When the manufacturer does not have a registered place of business in the Community, the label, or the outer packaging, or instructions for use shall contain, in addition, the name and address of the authorized representative.</p> <p>For devices covered by the AIMDD, the name and address of the manufacturer shall appear on the sterile pack and the sales packaging and in the instruction for use. When the manufacturer does not have a registered place of business in the Community, the sales packaging and the instructions for use shall contain, in addition, the name and address of the authorized representative.</p> <p>The address to be used shall be the same as the address of the manufacturer and/or the authorized representative as their registered place of business. The address shall be the same as the address used on the declaration of conformity, in relevant certificates and in the European database for medical devices.</p> <p>The full address used shall contain the following elements insofar as they are available in the address system of the country where the relevant entity (manufacturer or authorised representative) is registered:</p> <ul style="list-style-type: none"> • street/road; • number/house/floor; • postal code; • city; • state/region; and • country. <p>The information regarding street/road and number/house/floor may be omitted if a postal code dedicated to the manufacturer (corporate postal code) or authorized representative is used which fully replaces the indication of street/road and number/house/floor, and is not a PO box number."</p>	<p>PASS</p> <p>N.a.</p> <p>PASS</p> <p>PASS</p> <p>PASS</p> <p>PASS</p> <p>PASS</p> <p>PASS</p> <p>PASS</p> <p>PASS</p>
	<p>5.2 Specific requirements</p> <p>5.2.1 Applicability</p> <p>These specific requirements shall be applicable to all devices to the extent that they are applicable to the specific device type concerned and to the means of provision of the relevant information. For example, the requirement to allow for a "use by" date is not applicable to devices that do not bear a "use by" date.</p>	<p>N.a.</p>
	<p>5.2.2 Accessibility</p> <p>The information presented with a device shall be accessible to intended users taking into account their age, education, knowledge and training.</p> <p>When appropriate, a specific means of provision may be restricted to</p>	<p>PASS</p>



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	users to whom it is particularly applicable.	
	<p>5.2.3 Legibility</p> <p>Information intended for visual recognition shall be easily legible when viewed using normal vision, corrected if necessary, taking into account the specific size and conditions of use of the particular device.</p>	PASS
	<p>5.2.4 Availability</p> <p>Information shall be available as long as reasonably necessary, taking the lifetime of the device into consideration.</p>	PASS
	<p>5.2.5 Security</p> <p>As far as practicably possible, the medium of information provision shall be protected from corruption, degradation and deliberate change by those other than the manufacturer, whether malicious or not.</p> <p>If the user can readily identify faulty information, for example by virtue of damaged labels, advice on the action to take shall be provided.</p> <p>Where the damage to information is not readily apparent and/or the consequences of damage are not obvious, guidance shall be provided on how to maintain the security of the information and limit any adverse consequences.</p>	<p>PASS</p> <p>PASS</p> <p>PASS</p>
	<p>5.2.6 Changes to information provided</p> <p>Any changes to information provided for existing users shall be clearly communicated if they are important for patient safety.</p>	PASS
	<p>6 Documentation</p> <p>Documentation relating to information provided shall be maintained in the technical documentation(s) relating to the device(s) that are the subject of the information. This may take the form of a specific section holding all the documentation or, alternatively, references to parts of a larger document where the information may be found, such as a quality manual.</p>	PASS

Appendix D Test results ISO 7176-9

Test overview of electric wheelchairs/scooters according ISO 7176-9:2009

Project number	89205317	Type of inspection	Type keur
Brand	Pride	Inspection standard	EN 12184:2009
Type	Victory 10 DX	Class *	B
Manufacturer	Pride Mobility Products Corp	Max user weight	158 kg
Serial number		Dummy weight	100 kg
Class	B (indoor/outdoor), G-outdoor		

	Date	Initials
Start date	March 26, 2014	<i>HFd</i>
Sample and measuring state to climatic chamber	March 26, 2014	<i>HFd</i>
Sample and measuring state returned from third party	April 7, 2014	<i>HFd</i>

Plan: meet the standard requirements of EN 12184:2009 chapter 8.11 – climatic test:

The wheelchair/scooter will meet the requirements of ISO 7176-9:2001” and

The *spray water test* regarding chapter 14.2.4 van de EN 60529:1991 - IPx4

Sample nr.	Test conditions	Checked by	Result
MT14.38976.04	The spray water test, EN 60529:1991 - IPx4	HFd	PASS
MT14.38976.04	Standard ambient conditions : 20±5°C and 60±20% R.H.)	HFd	PASS
MT14.38976.04	8.2 Cold operating conditions: - 25°C +2 °C ~ -5°C	HFd	PASS
MT14.38976.04	8.3 Hot operating conditions : + 50°C +5 °C ~ -2°C	HFd	PASS
MT14.38976.04	7.6 Cold storage conditions : - 40°C ±5°C	HFd	PASS
MT14.38976.04	7.7 Hot storage conditions : +65°C ±5°C	HFd	PASS

Photo	Yes	Lab	
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Remarks: None

Standard: ISO 7176-9:2009

Acceptance of measurements	
Measurements assessed by: <i>Alwin Smit</i>	Date: <i>20-08-2014</i>
Measurements accepted: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initials: <i>S</i>
If not, reason:	
Follow-up:	

Test overview of electric wheelchairs/scooters according ISO 7176-9:2009

Clause #	Description Sample number: MT14.38976.04 Class: B (indoor/outdoor)/ C (outdoor)	Result
Used materials Weight dummy/ person* : 100 kg Picture test situation : Yes Set-up of the wheelchair/scooter (sample) as given in ISO 7176-22		
7.3	Rain Step 1: At least 20 hours in standard conditions, contact off Step 2 : Start sample on – Controller ON Step 3: Inspect the sample regarding (ISO 7176-9 clause 8) see inspection protocol appendix A. Step 4: Spray water at sample use the nozzle as described in IEC 60529:1991 - 14.2.4. Step 5: Max. 5 min after step 4, inspection of the sample regarding protocol, appendix A. Step 6: Start sample ON during 1 hour in standard conditions Step 7: Into 5 min. after step 6, inspection of the sample regarding protocol, appendix A	PASS Date : 04-04-2014 Initials: HFd
7.4	Cold test Step 8: At least 20 hours in standard conditions, contact off . Step 9: Inspection of the sample regarding (ISO 7176-9 clause 8) see inspection protocol appendix A. Step 10: Start sample ON - Controller ON Step 11: Hold sample during at least 3 hours at -25°C (+2.5°C) Step 12: Max. 5 min. after step 11, inspect the sample regarding protocol, appendix A.	PASS Date : 27-03-2014 Initials: HFd
7.5	Hot test Step 13: Controller OFF – for minimum 20 hours in standard conditions. Step 14: Inspection of the sample regarding (ISO 7176-9 clause 8) see inspection protocol appendix A. Step 15 : Put sample on – Controller ON Step 16: Hold sample during at least 3 hours at +50°C (+5.2°C) Step 17: Max. 5 min. after step 16, inspection of the sample regarding protocol, appendix A.	PASS Date : 01-04-2014 Initials: HFd

Test overview of electric wheelchairs/scooters according ISO 7176-9:2009

Clause #	Description Sample number: MT14.38976.04 Class: B (indoor/outdoor)/ C (outdoor)	Result
7.6	Cold storage test	PASS
	<p>Step 18: Controller OFF – for minimum 20 hours in standard conditions.</p> <p>Step 19: Inspection of the sample regarding (ISO 7176-9 clause 8) see inspection protocol appendix A.</p> <p>Step 20: Remove batteries from the sample!</p> <p>Step 21: Hold sample during at least 5 hours at $-40 \pm 5^{\circ}\text{C}$.</p> <p>Step 22: Insert batteries back in sample!</p> <p>Step 23: Hold sample during at least 1 hours at standard conditions</p> <p>Step 24: Max. 5 min. after step 16, inspection of the sample regarding protocol, appendix A.</p>	Date : 29-03-2014 Initials: HFd
7.7	Hot storage test	PASS
	<p>Step 25: Controller OFF – for minimum 20 hours in standard conditions.</p> <p>Step 26: Inspection of the sample regarding (ISO 7176-9 clause 8), see inspection protocol appendix A.</p> <p>Step 27: Hold sample during at least 5 hours at $+65 \pm 5^{\circ}\text{C}$.</p> <p>Step 28: Verification of driven parts of the sample has been moved during test step 27.</p> <p>Step 29: Hold sample during at least 1 hours $\pm 5\text{min}$ at standard conditions.</p> <p>Step 30: Max. 5 min. after step 16, inspection of the sample regarding protocol, appendix A.</p>	Date : 02-04-2014 Initials: HFd
Remarks during test 7.3 up to 7.7: None		

Test overview of electric wheelchairs/scooters according ISO 7176-9:2009

Conclusion

Standard	Requirement	Result Pass / Fail
EN 12184	Clause 8.7.1: The wheelchair or scooter must fulfil the requirements of the operating and storage temperature requirements of ISO 7176-9:2009	PASS
ISO 7176-9	Clause 8 8.1 a) The wheelchair or scooter must function regarding the specifications of the manufacturer; b) The wheelchair or scooter, nor any part thereof, should make a non-intended or unexpected, create abnormal motion; c) The time for the testing process should maximum 60s; d) The wheelchair or scooter should stop when the brakes are activated; e) The wheelchair or scooter should function normal after wheelchair or scooter has been stopped.	a) PASS b) PASS c) PASS d) PASS e) PASS

Test overview of electric wheelchairs/scooters according ISO 7176-9:2009

Appendix A – Inspection protocol

1. Inspection if any powered parts are moved with reference to the position at the condition period.
2. Check if the control instrument of the sample continues to function conform the specifications of the manufacturer during moving the test track.
 - there may not be activated non intended or unexpected movements;
 - the max. time for moving of the test track ≤ 60 s;
 - the sample must be stopped when the sample get an instruction;
 - the sample must be remain standing as the operating system is deactivated.

Test procedure

! The maximum time for this procedure is 10 minutes.

Figure 1 and 2 are given below.

- 1) Place the sample in starting position (drawing 1) sample state in direction 3;
- 2) Position dummy or test driver in the sample concerning 5.3, regarding ISO 7176-11 and ISO 7176-22;
- 3) Start sample - **Controller ON**
- 4) Drive forwards from point 1, see figure 1.
- 5) Stop the test drive conform the specifications of the manufacturer;
- 6) Observation of the behaviour of the sample.

Test track figure 1 and 2

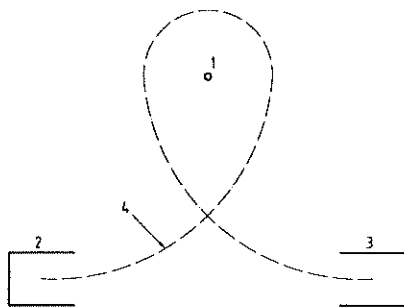


Figure 1

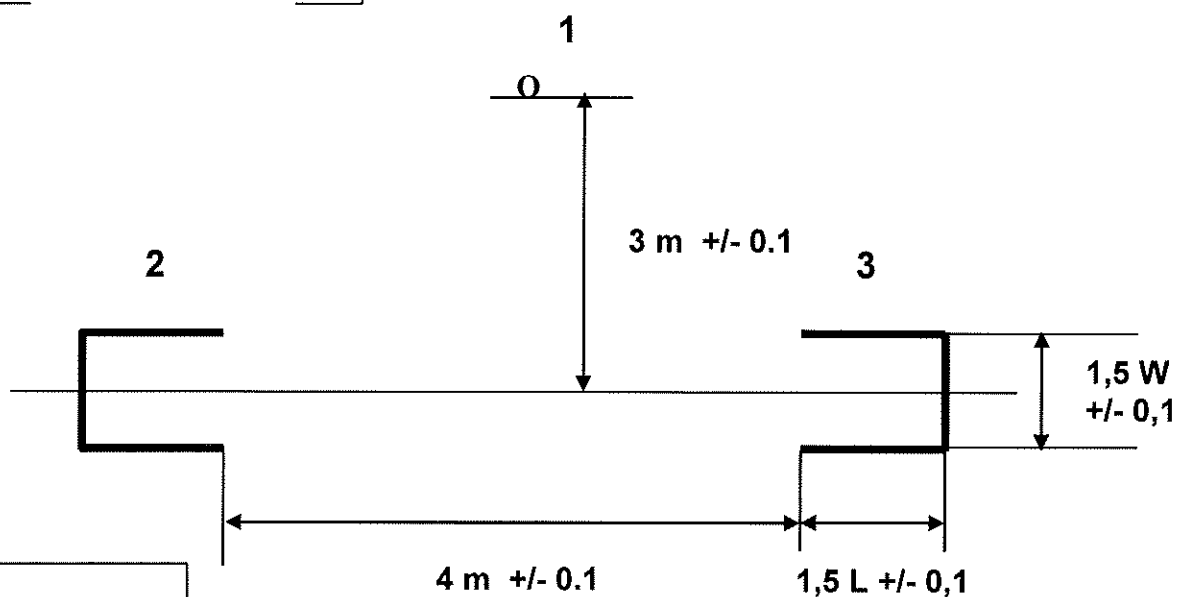


Figure 2

Lunetta Victory Sport

Appendix E Remarks on the test results

Sample:	Results for type:	Lunetta Victory Sport
Req. nr.	Description of the requirement	Remark
		Obstacle climbing could not be performed backwards due to the anti-tip device. Diagonal was ok.