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Client: Pride Mobility Product Corporation, 182 Susquehanna Avenue, USA Exeter,
PA 18643

Manufacturer: Pride Mobility Product Corporation, 182 Susquehanna Avenue, USA Exeter,
PA 18643

Test sample: Type / model: Lightning
Quantity/Identification 1 / --
Receipt / condition: 2014-01-14 / new



Test standard: DIN EN 12184:2009 Electrically powered wheelchairs, scooters and their chargers – Requirements and test methods

Annotation: The numbering corresponds to the applied standard DIN EN 12184:2009

Accreditation: Accredited by the "Akkreditiert durch die Deutsche Akkreditierungsstelle GmbH (DAkKS) (Reg.nr.: D-PL-17591-01-01)"

Kind of the test: Complete test

Test period: 2014-01-28 to 2014-05-09; 2014-07-22 to 2014-07-23

Test location: Rooms of the test institute

Test result: The test requirements are fulfilled.

established: 2014-07-23

released: 2014-07-23

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This report is the result of a single examination of the object in question and is not generally applicable evaluation of the other products in regular production.

Explanation to Compliance:

Pass: The tested unit was found to comply with the requirements.

No: The tested unit does not comply with the requirements.

N/A: The tested unit was not applicable.

Test methods and -requirements:	Compliance:			Comments:
	Pass	No	N/A	

5 Type classes

Wheelchairs shall be classified in one or more of the following three classes, dependent upon their intended use:

Class A	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Class B	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Class C	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

6 General

The wheelchair shall conform to the requirements specified in EN 12182 for the following:

- intended performance and technical documentation;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- aids that can be dismantled;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- single use fasteners;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- bio-compatibility and toxicity;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- contaminants and residues;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
- infection and microbiological contamination;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
- overflow, spillage, leakage and ingress of liquids;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- safety of moving parts;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- prevention of traps for parts of human body;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- folding and adjusting mechanisms;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- surfaces, corners and edges;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- electronic programmable systems;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- clinical evaluation;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- ergonomics;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

A risk analysis shall also be carried out in accordance with EN ISO 14971:2009	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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7 Design requirements

7.1 Foot supports, lower leg supports and arm supports

The wheelchair shall be fitted with foot supports that have:

- a means of positioning the occupant's feet at the required height;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- that prevent the occupant's feet from sliding backwards	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- that meet the performance requirements specified in 8.2.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Where fitted, lower leg supports and arm supports shall meet the performance requirements specified in 7.2.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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Test methods and -requirements:	Compliance:			Comments:
	Pass	No	N/A	
7.2 Pneumatic tyres				
If the wheelchair is fitted with pneumatic tyres, they shall have:				
- the same type of valve connection on all tyres.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- The tyres or the rims shall be marked with the maximum pressure in kPa or bar.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.3 Fitting an anterior pelvic support				
The wheelchair shall have provision for an anterior pelvic support to be fitted.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
The manufacturer of the wheelchair shall have available as an option an anterior pelvic support which can be used with that provision.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.4 Wheelchairs for use as seats in motor vehicles				
If the manufacturer specifies that the intended use of the wheelchair includes use by an adult as a seat in a motor vehicle, the wheelchair shall conform to the performance requirements of ISO 7176-19:2001.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If the manufacturer specifies that the intended use of the wheelchair includes use as a seat in a motor vehicle by a child of mass greater than 22 kg, the wheelchair shall conform to the performance requirements of ISO 7176-19:2001 with the exception of the horizontal excursion limits and the selection of the Anthropomorphic Test Device (ATD). The horizontal excursion limits specified in Table 1 of ISO 10542-5:2004 and the ATD selection specified in Table A.1 of ISO 10542-5:2004 shall apply.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7.5 Braking systems				
The wheelchair shall be fitted with a braking system that meets the performance requirements specified in 8.4.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If one or more brake levers are fitted to a wheelchair in the form used on bicycles and mopeds, the hand-grip width of such brake levers, measured 15 mm from the end of the brake lever, shall not be greater than 75 mm before a force is applied.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7.6 Freewheel device				
The wheelchair shall be fitted with a freewheel device that shall:				
- be accessible and operable by the occupant or an assistant or both in accordance with the manufacturer's intended use,	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- be within the reach specified in Figure 2, if it is intended to be operated by an occupant,	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
- have operating forces for engaging and disengaging that do not exceed those stated in Table 1,	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Test methods and -requirements: **Compliance:** **Comments:**

Pass No N/A

- be operable without detaching any parts,
- not depend on the battery power supplying the motor drive system,

NOTE 1: A battery independent from the motor drive battery may be used to supply energy to enable freewheel mode.

- have two defined positions including clear indication of freewheel mode and drive mode,

NOTE 2: An audible alarm activated when the freewheel device is in operation and deactivated when the drive and braking systems are fully operational would assist the occupant and/or assistant.

- prevent use of the wheelchair's drive systems, if any part of the freewheel device is activated.

NOTE 3: These requirements apply in addition to those concerning non-powered mobility stated in ISO 7176-14:2008

7.7 Component mass

If the wheelchair is intended to be dismantled for storage or transportation, any component that requires moving or handling that has a mass greater than 10 kg shall be provided with suitable handling devices (e.g. handles).

The manufacturer shall provide information indicating the points where such components can be lifted and describing how they shall be handled during disassembly, lifting, carrying, and assembly to reduce risks to the person or persons moving or handling them.

7.8 Battery enclosures and containers

Battery enclosures and containers shall:

a) allow accessibility without the use of tools for inspection and service specified by the wheelchair manufacturer,

b) provide protection so that it should not be possible for liquids dropping from above to enter into them and onto any cell or battery they contain,

c) provide protection to stop any objects contacting the terminals of batteries and/or cells and the connections between them, to prevent a short circuit.

Battery enclosures shall be ventilated at the side near to the highest point by an opening or openings which have a total area not less than 100 mm² or as specified in 6.6.2 of EN 50272-3:2002 whichever is greater.

NOTE: The openings are intended to permit escape of gases.

Battery containers shall:

d) be used where spillable batteries are fitted to the wheelchair,

Test methods and -requirements:	Compliance:			Comments:
	Pass	No	N/A	
e) be resistant to corrosion caused by battery gases and acid.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7.9 Operations intended to be carried out by the occupant and/or assistant				
Wheelchairs shall be designed to:				
- facilitate ease of operation by the occupant and/or assistant as specified in the manufacturer's instructions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- meet the performance requirements of 8.2.1, 8.5, 8.6.1, 8.7.1, 8.9, 8.12.1 and 8.2 and 9.3.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
In addition, brake levers shall meet the applicable requirements of 8.4.1.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<u>Examples include:</u>				
- operation of adjustable seating,				
- use of detachable components, including removable arm supports, lower leg supports etc., to facilitate safe transfers into and out of the wheelchair,				
- 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 push assistant controls,				
- use of control devices.				
7.10 Controls intended for operation by the occupant				
Controls intended to be operated by the occupant while seated shall be within the occupant reach as shown in Figure 2.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.11 Assistant control unit, push handles and handgrips				
When fitted, an assistant control unit, push handles and handgrips shall meet the performance requirements specified in 8.6.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.12 Charging connector				
The wheelchair shall be fitted with a charging connector that meets the performance requirements specified in 8.7.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Test methods and -requirements:	Compliance:			Comments:
	Pass	No	N/A	
8 Performance requirements				
8.1 General				
Unless otherwise specified in this clause, the wheelchair shall be prepared as specified in ISO 7176-22:2000 for each test.				
8.2 Foot supports, lower leg support assemblies and arm supports				
8.2.1 Requirements				
Any swing away, movable or removable 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 operating position,	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) be adjustable in increments not exceeding 25 mm,	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) be accessible and operable by the occupant or an assistant or both in accordance with the manufacturer's intended usage and within the reach space shown in Figure 2,	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) be operable without the use of tools.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
When tested as specified in 8.2.2.2, separate foot supports shall have a gap between them that:				
- does not exceed 35 mm if the wheelchair is intended to be occupied by an adult,	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
- does not exceed 25 mm if the wheelchair is intended to be occupied by a child, or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
- that is fitted with a means to prevent the occupant's feet from sliding into the gap.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.2.2.2 Test for foot support gap				
Simultaneously apply a force F^{*5N} to the centroid of each foot support, normal to the plane of the unloaded foot support. In cases where the foot support has no identifiable plane, apply the force within 5° of vertical. The force F is calculated from the following equation:				
$F = 0,125 \times m \times g$				
F Force applied to each foot support [N]	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
m max. occupant mass [kg]				
g 9,81 m/s ²				
b) apply the force for 5 s to 10 s				
c) While the force is being applied measure the shortest distance between the foot support.				
d) Record whether the foot supports met the requirements.				

Test methods and -requirements:	Compliance:			Comments:
	Pass	No	N/A	
8.3 Static, impact and fatigue strength				
The wheelchair shall conform to the requirements of ISO 7176-8:1998 with the exception that wheelchairs of Class A are not required to be tested as specified in 10.5 (drop test) of ISO 7176-8:1998.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Arm supports and back supports shall conform to the static loading requirements of ISO 7176-8 in all intended operating positions with the exception of the upward force on a push handle which shall be 880 N.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NOTE: The upward force is a correction of the value for upward force on push handles stated in Table 8 of ISO 7176-8:1998.				
8.4 Braking system				
8.4.1 General requirements				
a) The braking system shall:				
- be accessible and operable by the occupant or an assistant or both in accordance with the manufacturer's intended use;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- be within the reach specified in Figure 2, if it is intended be operated by the occupant;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- have operating forces for engaging and disengaging that do not exceed those stated in Table 1 when tested in accordance with 8.4.2.2;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NOTE 1: The brake lever shown in Figure 1 has a combined hand and arm operation.				
- include a running brake, which operates independently of tyre inflation pressure and when tested according to 8.4.2.2 does not exceed the maximum stopping distance specified in Table 2 (e.g. manual brake control or control device);	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- include a running brake which, when operated with the wheelchair in freewheel mode, shall bring the wheelchair to a stop;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NOTE 2: The maximum stopping distances of Table 2 do not apply when the wheelchair is in the freewheel mode.				
- include an automatic brake, which operates independently of tyre wear and tyre inflation pressure and is operated by releasing the control device to achieve a zero speed command (e.g. spring loaded disc brake);	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- include a parking brake which operates independently of tyre wear and tyre inflation pressure (e.g. drum brake in wheels, spring loaded disc) that shall	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1) be operable when there is no power from the battery supplying the drive system,	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2) be operable when the wheelchair is in freewheel mode;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Test methods and -requirements:	Compliance:			Comments:
	Pass	No	N/A	
3) meet the parking brake effectiveness requirements in Table 1 when tested according to 8.4.2.3 and, after testing as specified in b), when tested according to 8.4.2.6,	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4) have provision for adjustment and/or replacement as specified by the manufacturer, if the parking brake is subject to wear,	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5) not have parts that protrude above the level of the unoccupied seat when the brake is engaged, if the wheelchair is fitted with arm supports that can be moved or removed to enable transfer when tested to 8.4.2.4,	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6) Be operated either by hand or foot, and not exceed the brake lever operating forces specified in Table 1 when tested in accordance to 8.4.2.1,	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7) Not allow the loaded wheelchair to slide nor for its wheels to rotate when tested as specified in ISO 7176-3:2003 on the maximum safe slope established by Table 1 or on the maximum safe slope specified by the manufacturer if greater, when facing up the slope and down the slope.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) No brake mechanism shall have moved from the pre-set position, no component or assembly of parts shall exhibit deformation, free play or loss of adjustments that adversely affects the function of the wheelchair when:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- The wheelchair has been tested as specified in ISO 7176-8:1998 and	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- The parking brake has been operated for 60000 cycles as specified in 8.4.2.5	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NOTE 4: Braking functions may be combined in one device (e.g. the spring loaded disc brake could combine automatic brake and parking brake).				
NOTE 5: The wheelchair might be subject to national requirements for brakes.				
8.4.2.2 Test for the determination of the effectiveness of running brakes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.4.2.3 Test for the determination of the effectiveness of parking brakes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.4.2.4 Test for protrusion of parts of the parking brakes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
8.4.2.5 Test for fatigue strength of manually operated parking brakes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
8.4.2.6 Test for determination of effectiveness of parking brakes after fatigue strength testing	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
8.5 Operating force				

Test methods and -requirements:	Compliance:			Comments:
	Pass	No	N/A	
All controls shall have operating forces for engaging and releasing that do not exceed those stated in Table 1 when tested in accordance with 8.5.2. Brake operating levers shall be tested in accordance with 8.4.2.1.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
In addition to achieve the intended function of the system or device being operated, turning knobs operated by one hand shall have:				
- the numerical value of the torque, expressed in Nm, for knobs greater than or equal to 25 mm in diameter shall not be greater than 0,05 times the numerical value of the diameter of the knob, expressed in mm, where the force is transmitted by friction and	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
- the numerical value of the torque, expressed in Nm, for knobs less than 25 mm diameter shall not be greater than 0,025 times the numerical value of the diameter of knob, expressed in mm.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
8.6 Assistant control unit, push handles and handgrips				
When an assistant control unit is fitted, the unit shall be positioned behind the wheelchair's back support, between 900 mm and 1200 mm from the floor to the center of the operating means for the control device (e.g. joystick handle)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
When an assistant control unit is fitted, a means to support the assistant's hand or hands used to operate the control device while the wheelchair is being driven shall be fitted.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
When push handles are fitted, no part of the wheelchair shall lie within a space to the rear of the wheelchair bounded by the following:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
- a plane at 85° to the horizontal, that touches the rearmost points of the push handles as shown in Figure 4;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
- two planes not less than 350 mm apart equidistant from the vertical plane parallel to the forward direction of travel that bisects the wheelchair;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
- the horizontal test plane	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
When the wheelchair is fitted with steering and/or manoeuvring handgrips for assistant use, the handgrips shall be at least 75 mm in length and between 20 mm and 50 mm in diameter.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
When manoeuvring handgrips are fitted with controls that are intended to be used by being gripped by one hand, the handgrip width needed to grip them shall be no greater than 75 mm (see Figure 1).	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Test methods and -requirements:	Compliance:			Comments:
	Pass	No	N/A	
8.7 Charging connector				
The charging connector shall be accessible and operable by the occupant and assistant within the region specified in Figure 2 when operated as specified in the manufacturer's instructions.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NOTE 1: The shape and position of the charging connector are important factors contributing to to the ease and safety of operation.				
8.8 Performance of driving characteristics				
The loaded wheelchair shall meet the driving performance requirements specified in Table 1 and Table 2 for the type of class of the wheelchair as specified in Clause 5.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.8.2 Ability to climb maximum slope				
The wheelchair shall be capable of climbing at a speed not less than 2 km/h:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- the applicable maximum safe slope specified in Table 1, or	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- the maximum safe slope specified by the manufacturer, whichever is greater.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
The wheelchair passes the test specified in 8.8.2.2 if it achieves or exceeds a speed of 2 km/h after travelling 5 m up the specified maximum safe slope without any visible lifting of any uphill wheel(s).				
NOTE: uphill wheel lifting does not apply to wheelchairs with six or more wheels.				
8.8.3 Ground unevenness				
A wheelchair shall be capable of driving when any of its wheels is raised to a height specified in Table 1 for ground unevenness.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.8.4 Maximum downhill speed				
The wheelchair shall not exceed 125% of its maximum speed on the horizontal, when driving down a gradient equivalent to its maximum safe slope.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Test methods and -requirements:	Compliance:			Comments:
	Pass	No	N/A	
8.8.5 Dynamic stability				
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 Table 1 of this European Standard for the type class of the wheelchair and at the maximum safe slope specified by the manufacturer.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	see Test report PB-14-013-MP-PA094-02-E
NOTE 1: Uphill wheel lifting does not apply to wheelchairs with six or more wheels.				
8.8.6 Obstacle climbing				
The wheelchair shall be capable of climbing and descending obstacles of the height 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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	see Test report PB-14-013-MP-PA094-10-E
8.8.7 Static stability				
The wheelchair shall meet or exceed the minimum requirements for static stability specified in Table 1 for the type class of the wheelchair.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	see Test report PB-14-013-MP-PA094-01-E
8.8.8 Maximum speed				
The maximum speed of the wheelchair when travelling forwards and travelling in reverse on the horizontal shall not exceed the maximum speed requirements specified in Table 1 for the type class of the wheelchair.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	see Test report PB-14-013-MP-PA094-06-E
8.8.9 Distance range				
The theoretical continuous driving distance range for the wheelchair shall not be less than the requirement specified in Table 1 for the type class of the wheelchair.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.9 Surface temperature				
Surfaces of the wheelchair that can come into direct contact with the occupant's skin and/or assistant's skin during normal use and that are within the envelope illustrated in Figure 2 shall not exceed 41 °C when tested as specified in EN 12182. If an ambient temperature is not specified, test at an ambient temperature of 20 °C ± 2 °C.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.10 Resistance to ignition				
8.10.1 Upholstered composite parts	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.10.2 Foam materials	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.10.3 Other parts	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.11 Climatic test				
The wheelchair shall conform to the requirements of ISO 7176-9:2009. The spray water test in clause 14.2.4 of EN 60529:1991 shall also be carried out.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	see Test report PB-14-013-MP-PA094-09-E

Test methods and -requirements:	Compliance:			Comments:
	Pass	No	N/A	
8.12 Seating adjustments for tilt and recline systems				
If the manufacturer specifies that the seating can be adjusted by an assistant or the occupant or both while the occupant is seated, the assistant and/or the occupant shall not have to lift a mass (e.g. the combined mass of the occupant and the seating) which presents a moving and handling safety hazard to the assistant and/or the occupant.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9 Electrical requirements				
9.1 General requirements				
The wheelchair shall conform to the requirements of ISO 7176-14:2008 and ISO 7176-21:2003.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	see Test report PB-14-013-MP-PA094-14-N1
In addition, wheelchairs that include an on-board battery charger shall conform to the applicable electrical requirements of EN 60601-1:2006 and EN 61000-3-2:2006 for electromagnetic compatibility.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
9.2 Requirement for controller on/off switch				
Provision shall be made for the occupant and/or assistant to switch the wheelchair on and off.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Switches intended to be operated by the occupant shall be within the reach space shown in Figure 2. Switches intended to be operated by an assistant shall be attached to the assistant control unit positioned as specified in 8.6.1.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If the wheelchair is switched off while driving on the horizontal, it shall come to a stop within the maximum stopping distances specified in Table 2.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.3 Requirement for power indicator				
The wheelchair shall be fitted with a device to indicate to the occupant and/or assistant that power is switched on. The colour of this indication shall conform to EN 60601-1:2006.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.4 Requirements for circuit protection				
Circuits connected to batteries on the wheelchair shall be protected against excessive current.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NOTE Fuses, automatic and manually re-settable circuit breakers are examples of means of protection.				
The driving, braking and steering functions shall not be affected by the operation of the means of protection of any other circuit.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lights, direction indicators and hazard warning flasher functions shall not be affected by the operation of the means of protection of any other circuit.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Test methods and -requirements:	Compliance:			Comments:
	Pass	No	N/A	
9.5 Requirements for battery chargers				
Battery chargers for wheelchairs shall conform to the requirements of ISO 7176-14:1997 that apply to battery chargers, together with the following provisions:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
a) battery chargers shall indicate when charging is in progress and when charging is complete;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) battery chargers shall have the capability of charging batteries discharged to 70 % of their nominal voltage;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) battery chargers shall operate without the need for intervention or supervision apart from connecting and turning on at the start of charging and turning off and disconnecting at the end of charging;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) 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 the Class II Test Voltage requirements of EN 60335-1:2002 concluding the test.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
9.6 Charge level indicator				
The wheelchair shall be equipped with a charge level indicator.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10 Requirements for information supplied by the manufacturer				
10.1 General				
Each wheelchair shall be provided with documentation and labelling that conform to the requirements in EN 12182 and ISO 7176-15:1996.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
In addition, the manufacturer shall provide the documentation in three separate sections: pre-sale, user and service information as specified in 10.2, 10.3 and 10.4. These may be provided as separate printed documents or in other forms of media to meet the needs of individual occupants or their assistants.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.2 Pre-sale information				
In addition to the requirements of 10.1, pre-sale information shall include the following:				
a) information on how to obtain the user information in a format appropriate for use by visually impaired people;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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);	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) description of the intended use and the intended environment;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) type class of the wheelchair: Class A,B or C;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Test methods and -requirements:	Compliance:			Comments:
	Pass	No	N/A	
e) overall dimensions (width, length and height) of the wheelchair, expressed in millimetres, and its mass, expressed in kilograms, when it is ready for use and, if applicable, when it is folded or dismantled;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
f) reversing width, expressed in millimetres;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
g) maximum safe slope, expressed in degrees;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
h) maximum height of kerb which the wheelchair can descend safely, expressed in millimetres;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
j) standard options that are available for the wheelchair;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
k) type of tyres that can be used on the wheelchair;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
m) operator control adjustments;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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.;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NOTE This additional requirement may be reduced to some degree if an accurate charge level indicator is fitted.				
o) whether and how the wheelchair can be folded or dismantled to assist in storage or transport;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
p) if the wheelchair can be dismantled or has any removable parts, the mass of the heaviest part, expressed in kilograms;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
q) instructions regarding transport of the wheelchair when it is unoccupied (e.g. in a car or aeroplane);	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
r) information on whether or not the wheelchair is intended to be used as a seat in a motor vehicle;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
s) if the manufacturer specifies that the wheelchair is intended for use as a seat in a motor vehicle, the method of attaching wheelchair tiedown and occupant restraints, and recommendations about suitable tiedown and restraint systems.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Test methods and -requirements:	Compliance:			Comments:
	Pass	No	N/A	
10.3 User information				
User information shall be provided by the manufacturer with each wheelchair. Further copies shall also be available for any subsequent user of the wheelchair. User information shall contain all pre-sale information and the following:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
a) the unique identification number of the wheelchair and information on the location of the unique identification number on the wheelchair;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) the intended operator (occupant, assistant or both);	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) any adjustment or settings required before the wheelchair can be used and warnings of how adjustments or settings affect stability;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) where applicable, information on any adjustments that can be made and who is competent to carry out these adjustments;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
e) instructions on operation of all controls, including brakes;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
f) instructions on how to engage and disengage the drive system;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
g) the wheelchair manufacturer's recommended tyre pressure(s), expressed in kilo pascals (kPa) or bar;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
h) instructions for dealing with tyre punctures, where pneumatic tyres are fitted;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
i) the battery type and nominal voltage;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
j) instructions for battery maintenance;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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);	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
l) instructions on dismantling and re-assembly of the wheelchair or any removable parts;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
m) the masses of parts of the wheelchair that are expected to be handled during dismantling, reassembly, or carrying, expressed in kilograms;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
o) a warning that surface temperatures can increase when exposed to external sources of heat (e.g. sunlight);	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Test methods and -requirements:	Compliance:			Comments:
	Pass	No	N/A	
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.);	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
q) a warning that the driving performance of the wheelchair can be influenced by electromagnetic fields (e.g. those emitted by portable telephones, electricity generators or high power sources);	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
r) a warning if driving characteristics can be adjusted outside the limits specified in Table 1 and Table 2;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
s) a warning for trapping hazards (e.g. pinch points);	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
t) the level of resistance to ignition of materials and assemblies;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
u) information on the recycling of used batteries and other parts of the wheelchair;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
v) a warning if the adjustments of seating or wheel positions can be set outside safe limits;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
w) the expected service life of the wheelchair.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.4 Service information				
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.5 Labels				
In addition to the requirements of 10.1, the manufacturer shall apply permanent labels for the following:				
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;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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);	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c) the year of production for the product;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) for battery chargers that are not on-board chargers, information and connection details specified in Clause 9 of ISO 7176-14:1997;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
f) for Class A wheelchairs for use indoors only a warning that it should only be used indoors.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Submitted documents:

User manual	2014-05
Flamability	Test report no.: SDHGR110300419FM, SGS, SHUNDE SHANGMING OXFORD FABRICS CO.,LTD, SHUNFENG INDUSTRIAL DISTRICT SHUNDE FOSHAN CITY GUANGDONG PROVINCE; Test report no.: SDHGR100500841FM, SGS, SHUNDE A&I INDUSTRIES,LTD, LIANDU INDUSTRIAL AREA, SHUNDE, GUANGDONG;Date 2010-06-02
Risk analysis	2014-05
Pre-sale information	2014-05
Clinical Evaluation	2014-05
Risk analysis	2014-04-29; Rev. B
Electromagnetic compatibility	Retlif Testing Laboratories, No. R-1987-P, dated May 2013
Labels / Warning	2014-05
Biokompatibility	Test report no.: SCATR090802232, SGS, ZHONGSHAN A&J MEDICAL EQUIPMENT CO.,LTD. NO.3 SHENGHUI SOUTH ROAD NANTOU TOWN. ZHONGSHAN CITY, GUANGDONG P.R.C., 2009-09-23

Test equipment:

PM 1005	Klimakammer	<input checked="" type="checkbox"/>
PM 3081	digitaler Messschieber 150mm	<input checked="" type="checkbox"/>
PM 3082	digitaler Messschieber 150mm	<input type="checkbox"/>
PM 3034	Neigungsmesser - digital	<input checked="" type="checkbox"/>
PM 1012	Kipp-Plattform	<input checked="" type="checkbox"/>
PM 1031	Präzisionsschallpegelmeßgerät	<input type="checkbox"/>
PM 1046	Hydraulikprüfstand (Käfig)	<input checked="" type="checkbox"/>
PM 3045	elektronisches Handkraftmessgerät	<input checked="" type="checkbox"/>
PM 1054	Exzenterprüfstand 1	<input checked="" type="checkbox"/>
PM 1054	Exzenterprüfstand 2	<input type="checkbox"/>
PM 1034	Geschwindigkeitsmesssystem	<input checked="" type="checkbox"/>
PM 1064	ISO-Dummy / Aufnahme	<input checked="" type="checkbox"/>
PM 3060	Elektronische Kranwaage	<input checked="" type="checkbox"/>

Notes: