Test Report issued under the responsibility of:

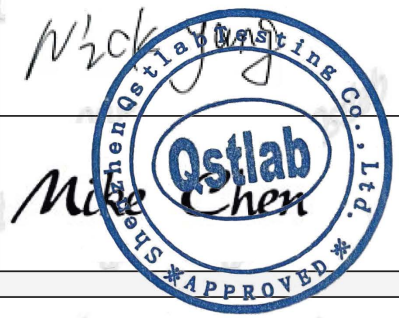
Qstlab

TEST REPORT
EN 12184
Electrically powered wheelchairs, scooters and their chargers — Requirements and test methods

Report Number.....:	Qst-23N090071-1SR
Date of issue.....:	2023-09-26
Total number of pages .....:	43 pages
Name of Testing Laboratory preparing the Report .....:	Shenzhen Qstlab Testing Co., Ltd. No.208,No.4,Lane 1, Tangfang Garden, Xin'an Street, Bao'an Distric, Shenzhen, Guangdong China
Applicant's name .....:	Ningbo Youhuan Automation Technology Co., Ltd
Address.....:	No. 135,Xujia, Gujia Village, Jiangshan Town,Yinzhou District,Ningbo,Zhejiang.CN
Test specification:	
Standard .....:	EN 12184
Test procedure .....:	CE-MD
Non-standard test method .....:	N/A
TRF template used.....:	/
Test Report Form(s) Originator ....:	OVE

Test item description ..... :	power wheelchair
Trade Mark ..... :	/
Manufacturer ..... :	Ningbo Youhuan Automation Technology Co., Ltd No. 135,Xujia, Gujia Village, Jiangshan Town,Yinzhou District,Ningbo,Zhejiang.CN
Model/Type reference ..... :	YH-E7001A , YH-E6001, YH-E6001A, YH-E6002, YH-E6002A, YH-E6002B, YH-E6003,YH-E6004, YH-E6005, YH-E6006, YH-E6007, YH-E6010, YH-E6011, YH-E6011A, YH-E7001, YHE7001A, YH-E7001F,YH-E7001R, YH-E7001B, YH-E7002, YH-E7003, YH-E7004, YH-E7005, YH-E7005A, YH-E7006, YH-E7007, YH-E7007A, YH-E7008, YH-E7009, YH-E7010, YH-E7011, YH-E7012, YH-E7013, YH-E6012, YH-E6012A, YH-E6012B, YH-E6005M, YH-E6005A, YH-E6013, YH-E6013A, YH-E6015A
Ratings ..... :	110/230VAC, 50/60Hz, Output:20V-12A,Input power:288WH

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):

☒	**Testing Laboratory:**	Shenzhen Qstlab Testing Co., Ltd.	
Testing location/ address.....:		No.208,No.4,Lane 1, Tangfang Garden, Xin'an Street, Bao'an Distric, Shenzhen, Guangdong China	
Tested by (name, function, signature).....:		Nick Yang	
Approved by (name, function, signature)...:		Mike Chen	
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Approved by (name, function, signature)...:			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address.....:			
Tested by (name + signature).....:			
Witnessed by (name, function, signature) .:			
Approved by (name, function, signature)...:			
☐	**Testing procedure: CTF Stage 3:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Witnessed by (name, function, signature) .:			
Approved by (name, function, signature)...:			

Supervised by (name, function, signature) :		

List of Attachments (including a total number of pages in each attachment):

-Attachment 1: Photo attachment. (2 pages)

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
Full test are carried out on RAPTOR11	Shenzhen Qstlab Testing Co., Ltd. No. 208, No. 4, Lane 1, Tangfang Garden, Xin'an Street, Bao'an District, Shenzhen,Guangdong, China

Summary of compliance with National Differences (List of countries addressed):

/

☒ **The product fulfils the requirements of** EN 17128: 2020 **(insert standard number and edition and delete the text in parenthesis or delete the whole sentence if not applicable)**

Copy of marking plate

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

power wheelchair

Model: YH-E7001A

Rating: 110/230VAC, 50/60Hz, Output:20V-12A,Input power:288WH

Ningbo Youhuan Automation Technology Co., Ltd

Test item particulars.....:	power wheelchair
Intended location .....:	/
Degree of protection .....:	/
Rated insulation voltage (if applicable) .....:	/
Possible test case verdicts:	
- test case does not apply to the test object.....:	N/A
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement.....:	F (Fail)
Testing.....:	
Date of receipt of test item .....:	2023-09-18
Date (s) of performance of tests.....:	2023-09-18 to 2023-09-26

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

☐ **This Test Report Form contains requirements according to IEC/ISO …... Standard dated ….. and includes** Corrigendum dated …….
(Note: The above text maybe removed if not applicable)

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :	☐ **Yes** ☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) .....:	Ningbo Youhuan Automation Technology Co., Ltd No. 135,Xujia, Gujia Village, Jiangshan Town,Yinzhou District,Ningbo,Zhejiang.CN

General product information and other remarks:

-The product is power wheelchair

-All the model have same construction , only different in the model name.

-So all the test o the model YH-E7001A

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Clause	Requirement + Test	Result - Remark	Verdict

4	**Test apparatus**		P
4.1	Horizontal test plane, of sufficient length that the wheelchair can reach its maximum speed and decelerate to a stop. The horizontal test plane shall be dry, free from ice, and free from loose material (such as gravel). The horizontal test plane shall include a test area consisting of a continuous, flat, rigid surface with a coefficient of friction as specified in ISO 7176-13:1989, inclined to the horizontal at less than 0,5°. The surface of the test area shall lie between two imaginary parallel planes 5 mm apart per 1000 mm of extension in any direction and 50 mm apart per 6 000 mm of tension in any direction. The test area shall be of sufficient size to complete the specified manoeuvres, except for acceleration and deceleration, which may occur outside the test area when they do not affect the test results		P
	The requirements for the test area do not apply to the parts of the horizontal test plane outside it, bu the properties of all parts of the horizontal test plane, including any transitions at the edges of the test area, shall be sufficiently similar that the test results are not affected.		P
4.2	Inclined test plane, of sufficient length that the wheelchair can reach its maximum speed and decelerate to a stop. The inclined test plane shall be dry, free from ice, and free from loose material (such as gravel). The inclined test plane shall include a test area consisting of a continuous, flat, rigid surface with a coefficient of friction as specified in ISO 7176‑13:1989, inclined to the horizontal at the specified angle ±0,5°. The surface of the test area shall lie between two imaginary parallel planes 5 mm apart per 1 000 mm of extension in any direction and 50 mm apart per 6 000 mm of extension in any direction. The test area shall be of sufficient size to complete the specified manoeuvres, except for acceleration anddeceleration, which may occur outside the test area when they do not affect the test results.		P
	The requirements for the test area do not apply to the parts of the inclined test plane outside it, but the properties and slope of all parts of the inclined test plane, including any transitions at the edges of the test area, shall be sufficiently similar that the test results are not affected.		P
	The inclined test plane may have a fixed or adjustable slope. Where the slope is fixed, it can be necessary to use more than one inclined test plane.		P
4.3	Means to apply a force between 25 N and 200 N with an accuracy of ±5 % and with a rate of application less than 5 N/s.		P

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Clause	Requirement + Test	Result - Remark	Verdict
4.4	Means to measure force in increments of 1 N in the range 0 N to 200 N with an accuracy of ±5 %.		P
4.5	Means to measure speed between 0 km/h and 25 km/h to an accuracy of ±5 %.		P
4.6	Means to measure distance in the range 0 m to 5 m with an accuracy of ±1 mm or ±2 %, whichever is the greater.		P
4.7	Supplementary weights to add to a human test occupant to achieve the maximum occupant mass specified by the manufacturer and to achieve a similar mass distribution to the dummy specified in 4.9.		P
4.8	Test block capable of supporting the loaded wheelchair under each of its wheels, with length and width 200 mm ± 10 mm, thickness given in Table 3 'ground unevenness' and corner radii greater than 2,0 mm. For the two large surfaces, the whole of each surface shall lie between two imaginary horizontal planes 1 mm apart. The coefficient of friction shall be as specified in ISO 7176-13:1989.		P
4.9	Test dummy, of appropriate mass, as specified in ISO 7176-11:2012.		P
4.10	Means to measure torque in the range 0,5 Nm to 10 Nm with an accuracy of ±2 %.		P
4.11	Means to measure angles to an accuracy of ±0,1°.		P
4.12	Means to move a brake lever smoothly for 60 000 cycles at a frequency of not more than 0,5 Hz.		P
4.13	Means to measure elapsed time in the range 0 s to 30 s with an accuracy of ±1 s.		P
5	**Type classes**		P
	Wheelchairs shall be classified in one or more of the following three classes, depending upon their intended use:		P
	-Class A: wheelchairs intended for driving on flat horizontal surfaces and gentle slopes;		N/A
	-Class B: wheelchairs intended for driving on moderately uneven surfaces and on moderate slopes, in addition to the intended use described for Class A;		P
	-Class C: wheelchairs intended for driving on uneven terrain and on steeper slopes, in addition to the intended uses described for Classes A and B.		P
	Requirements specific to each class are given in Table 3.		P
6	**General requirements**		P
6.1	**Risk management**		P

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Clause	Requirement + Test	Result - Remark	Verdict
	A risk management process shall be performed in accordance with EN ISO 14971:2019 7). For conformity with this document, all elements of the risk management process specified in EN ISO 14971:2019 8) shall be applied except:		P
	-the planning for, and execution of, production and post-production monitoring (EN ISO 14971:2019 9), 4.1 fourth indent, 4.4 item g) and Clause 10); and		P
	-periodic reviews of the suitability of the risk management process (EN ISO 14971:2019 10), 4.2 third paragraph).		P
6.2	**Intended performance and technical documentation**		P
	a) The wheelchair shall have sufficient strength and durability to sustain all loads expected during intended use. This shall be confirmed by using, where appropriate, references to relevant clinical and scientific literature, strength and/or durability calculations, appropriate test standards and their test results, in addition to the requirements given in this document.		P
	b) The intended performance of the wheelchair, including, where appropriate, strength, durability and tipping stability, shall be described in technical documentation which sets out its functional characteristics, its application(s) and conditions of use.		P
	c) The technical documentation shall include, where appropriate, references to relevant clinical and scientific literature, any strength and/or life calculations, appropriate test standards and their test results.		P
6.3	**Clinical evaluation and investigation**		P
	A clinical evaluation shall be conducted for the wheelchair.		P
	If, as part of the product conformity assessment, the clinical evaluation requires a clinical investigation, the clinical investigation shall conform to the requirements of EN ISO 14155:2020. A clinical evaluation shall always be conducted before performing a clinical investigation.		P
6.4	**Wheelchairs that can be dismantled**		P
	If it is intended that the wheelchair can be dismantled for storage or transportation, it shall not be possible to reassemble the wheelchair in a manner that presents a hazard.		P
6.5	**Single-use fasteners**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	If it is intended that the wheelchair can be dismantled for storage or transportation, the fasteners which are loosened or removed to allow this dismantling shall not be single-use fasteners.		N/A
6.6	**Biocompatibility and toxicity**		P
	Materials which come into contact with the human body shall be evaluated for biocompatibility in accordance with EN ISO 10993-1:2020 as part of the risk management process (see 6.1).		P
	The evaluation shall take into account the intended use, including, where appropriate, contact with the occupant, an assistant, those involved in care of the occupant, and those involved in transportation and storage of the wheelchair.		P
	Wheelchairs shall be designed and manufactured to minimize the risks posed by substances leaking from them. Special attention shall be given to substances which are carcinogenic, mutagenic or toxic to reproduction and other substances of very high concern (SVHCs). The evaluation should follow the guidance given in Annex F.		P
6.7	**Contaminants and residues**		P
6.7.1	**General**		P
	The requirements given in 6.7.2 apply to substances which are an integral part of the wheelchair or are necessary for its function, such as oil and grease. The requirements do not apply to body fluids which the wheelchair is intended to collect (e.g. as a stoma-care product).		P
6.7.2	**Substances which can leak in intended use or in a fault condition**		P
	Where a substance can leak from the wheelchair in intended use or in a fault condition:		P
	a) the substance shall be assessed for biocompatibility in accordance with EN ISO 10993-1:2020 as part of the risk management process, and the assessment shall consider intended use, including, where appropriate, contact with the occupant, an assistant, those involved in care of the occupant, and those involved in transportation and storage of the wheelchair; or		P
	b) the wheelchair shall have means of protection that minimizes the possibility of the substance becoming a biological hazard.		P
6.8	**Infection and microbiological contamination**		P
6.8.1	**Cleaning and disinfection**		P

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Clause	Requirement + Test	Result - Remark	Verdict
	If any parts of the wheelchair are intended to be cleaned, the method and suitable materials for cleaning shall be described in the instructions for use.		P
	If any parts of the wheelchair are intended to be disinfected, the method and suitable materials for disinfection shall be described in the instructions for use.		P
	If any parts of the wheelchair are intended to be cleaned by automatic washing systems or hand-held jet stream or steam washing, the details of the procedure, such as temperature, pressure, flow and pH value of cleaning/rinsing solution, shall be described in the instructions for use. Where practicable, the wheelchair shall be labelled with appropriate symbols to represent the method of cleaning.		P
6.8.2	**Animal tissue**		N/A
	Where the wheelchair has been manufactured utilizing tissues of animal origin or their derivatives, the process specified in EN ISO 22442‑1:2020 shall be followed as part of the risk management process (see 6.1).		N/A
6.9	**Overflow, spillage, leakage, and ingress of liquids**		N/A
6.9.1	**Overflow**		N/A
6.9.1.1	**Requirements**		N/A
	If the wheelchair incorporates a reservoir or liquid storage chamber that can be overfilled or can overflow in intended use, liquid overflowing from the reservoir or chamber shall not wet electrical insulation or live parts which are liable to be adversely affected by such a liquid, nor shall a hazard be created. Unless indicated by a marking or by the instructions for use, no hazard shall be created if the wheelchair is tilted through an angle 15° greater than the maximum inclination that can occur during intended use.		N/A
6.9.1.2	**Test method**		N/A
	Fill the reservoir to the maximum level specified by the manufacturer and, if possible, add further		N/A
	liquid equal to 15 +1 0 % of the capacity of the reservoir or until the reservoir is full, whichever is the lesser quantity.		N/A
	Tilt the wheelchair through an angle of(a+15)+1 0 to the horizontal in each direction, where *a* is the rated slope specified by the manufacturer (see 8.1.1). If necessary, refill the reservoir between tests.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Inspect the wheelchair, including any electrical insulation and any uninsulated live parts, to determine whether the requirements have been met. For electrical insulation, in case of doubt, subject the wheelchair to the dielectric strength test specified in EN 60601-1:2006 11).		N/A
6.9.2	**Spillage**		N/A
6.9.2.1	**Requirements**		N/A
	Wheelchairs requiring the handling of liquids in intended use shall be so constructed that spillage does not wet parts that creates a hazard.		N/A
6.9.2.2	**Test method**		N/A
	Position the wheelchair on the horizontal test plane. Pour 200 +5 0 ml water steadily on an arbitrary point on the seat.		N/A
	After the test, the wheelchair shall function as specified by the manufacturer.		N/A
6.9.3	**Leakage**		N/A
	Wheelchairs shall be so constructed that liquid which can escape in single fault condition does not create a hazard.		N/A
6.9.4	**Ingress of liquids**		P
6.9.4.1	**Requirements**		P
	If liquid can enter an enclosure unintentionally, either there shall be a means for the liquid to escape from the enclosure, or the liquid shall not create a hazard.		P
6.9.4.2	**Test method**		P
	Test whether the liquid can escape from an enclosure by adding liquid and then tilting the wheelchair 10° in each direction. If any liquid remains in the enclosure, test the wheelchair to determine whether it is still functional, and determine whether the liquid can create a hazard.		P
6.10	**Safety of moving parts**		P
6.10.1	**Squeezing**		P
	Unless the intended purpose of part of the wheelchair is to grip, cut, squeeze or provide a similar function, or if the intended use cannot be achieved without a risk of squeezing:		P
	a) any moving parts that constitute a hazard shall be provided with guards that cannot be removed without the use of a tool; or		P

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Clause	Requirement + Test	Result - Remark	Verdict
	b) the gap between exposed parts of the wheelchair that move relative to each other shall be maintained throughout the range of movement at less than the relevant minimum value or more than the relevant maximum value specified in Table 1; or		P
	c) if cords (ropes), chains or drive belts are used, either they shall be confined so that they cannot run off or jump out of their guiding devices, or a hazardous situation shall be prevented by other means; mechanical means used for this purpose shall not be removable without the use of a tool; or		P
	d) the wheelchair shall incorporate a control device which enables the movement when it is operated and stops the movement when it is released (e.g. a spring-loaded device that returns to the stop position when released); or		P
	e) the wheelchair shall incorporate means to detect that a person is in danger of being trapped and to prevent injury automatically (e.g. by stopping the movement).		P
	For moving parts that can cause squeezing, manufacturers shall take into consideration the part or parts of the body that are at risk. It is necessary to specify the characteristics of the persons involved in the intended use, so that the appropriate safe distances can be applied.		P
6.10.2	**Mechanical wear**		P
	Parts subject to mechanical wear likely to create a hazard shall be accessible for inspection.		P
6.10.3	**Emergency stopping functions**		P
	The requirements specified in 12.6 shall apply to moving parts of the body support system if there is a risk that the occupant can be squeezed or that a single fault can create a hazard.		P
6.11	**Prevention of traps for parts of the human body**		P
6.11.1	**Holes and clearances**		P
	Holes in, and clearances between stationary parts that are accessible to the occupant and/or assistant during the intended use of the wheelchair shall be as specified in Table 2.		P
	If the intended purpose of the wheelchair cannot be met without a hazard caused by the size of holes and the clearance between stationary parts, a warning and instructions on how to control the risk shall be provided in the instructions for use.		P

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Clause	Requirement + Test	Result - Remark	Verdict
	For stationary parts that can cause a trap, manufacturers shall take into consideration the parts of the body that are at risk. It is necessary to specify the characteristics of the persons involved in the intended use, so that the appropriate safe distances can be applied.		P
	The design of parts that confine a hole or clearance shall take into consideration the forces that can be applied in normal use.		P
	The lower limits specified in Table 2 do not apply for holes with the shape of a keyhole, or for V-shaped openings. When inspecting the wheelchair for traps for body parts any flexibility and/or elasticity of adjacent parts shall be taken into account.		P
6.11.2	**V-shaped openings**		N/A
	The risk of entrapment in V-shaped openings shall be addressed by the risk management process (see 6.1).		N/A
6.12	**Folding and adjusting mechanisms**		P
6.12.1	**General**		P
	Folding and adjusting mechanisms can present a hazard if parts of the body can enter a gap between parts and be trapped when the gap is closed.		P
	If the wheelchair incorporates folding and/or adjusting mechanisms it shall conform to 6.12.2 and 6.12.3.		P
6.12.2	**Locking mechanisms**		P
	Folding and adjusting mechanisms shall be capable of being securely locked when the wheelchair is in a working configuration. They shall also be capable of being securely locked when folded if they constitute a risk. The wheelchair shall fold in a safe manner.		P
6.12.3	**Guards**		P
	Either:		P
	a) the wheelchair shall incorporate means to protect the occupant from trap and/or squeeze hazards; or		P
	b) the gap between exposed parts of the wheelchair that move relative to each other shall be maintained throughout the range of movement at less than the applicable minimum value or more than the applicable maximum value set out in Table 1; or		P

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Clause	Requirement + Test	Result - Remark	Verdict
	c) if the intended purpose of the wheelchair cannot be met without a hazard such as squeezing, a warning and instructions on how to control the risk shall be provided in the instructions for use.		P
	The design of a guard shall take into consideration the forces that can be applied in normal use.		P
6.13	**Surfaces, corners, edges and protruding parts**		P
	If not required for intended use, accessible edges, corners and surfaces of the wheelchair shall be smooth and be free from burrs and sharp edges.		P
	If not required for intended use, wheelchairs shall not have protruding parts. Where practicable, protruding parts shall have protection to prevent injury and/or damage.		P
6.14	**Ergonomic principles**		P
	Wheelchairs shall be designed in accordance with the ergonomic principles set out in EN 614-1:2006+A1:2009, taking into account the specific needs of the intended occupant. The ergonomic principles set out in EN 614‑1:2006+A1:2009 also apply to an assistant, those involved in care of the wheelchair occupant, and those involved in transportation and storage of the wheelchair.		P
	Grips, handles and foot supports shall suit the functional anatomy of the occupant and/or assistant, in accordance with the intended use, and meet the following requirements:		P
	a) the distance between any handle (part intended to be gripped) requiring an operating force of more than 10 N and any other part of the wheelchair shall not be less than 35 mm;		P
	b) the vertical distance between the upper surface of a foot support or pedal in its operating position and any other part of the wheelchair shall not be less than 75 mm;		P
	c) the diameter of any operating handle or knob requiring an operating force of more than 10 N shall be between 19 mm and 43 mm;		P
	d) the upper surface of any pedal intended for operation by an assistant shall not be more than 300 mm above the ground.		P
6.15	**General modifications to normative references**		P
	For the purposes of this document, the scope of this document supersedes any restrictions in scopes of the normative references listed in Clause 2 concerning maximum speed and maximum occupant mass.		P
6.16	**Applicable provisions for specified types of wheelchair**		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Annex G specifies the provisions in this document that apply to some specified types of wheelchair. Wheelchairs of types listed in G.1 shall meet the applicable requirements of Annex G.		P
6.17	**Recommendations**		P
	The following annexes provide recommendations:		P
	-Annex A for dimensions and manoeuvring space;		P
	-Annex B for design features;;		P
	-Annex C for lighting and reflectors;		P
	-Annex E for safety in freewheel mode.		P
7	**Preparation for testing**		P
7.1	**General**		P
	Unless otherwise specified in Clauses 8, 9, 10, 11 and 12, the wheelchair shall be prepared for testing as specified in ISO 7176‑22:2014 with the following modification.		P
	If a test procedure requires the use of a test dummy or human test occupant, they shall be selected and fitted as specified in 7.2 or 7.3. This instruction supersedes instructions for loading the wheelchair in the referenced standards		P
	If, due to the speed of the wheelchair, the test plane specified in a referenced document is of insufficient size to conduct the specified tests, use the horizontal test plane specified in 4.1 or an inclined test plane specified in 4.2 as applicable.		P
7.2	**Test dummy**		P
	Select a test dummy, as specified in ISO 7176‑11:2012, of mass equal to the maximum occupant mass specified by the wheelchair manufacturer, with a tolerance of 0 kg to +5 kg.		P
	Fit the test dummy in the wheelchair as specified in ISO 7176‑22:2014.		P
7.3	**Human test occupant**		P
	Select a human test occupant whose mass, in combination with any supplementary weights as specified in 4.7, is equal to the maximum occupant mass specified by the wheelchair manufacturer, with a tolerance of 0 kg to +5 kg.		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Seat the occupant in the wheelchair and position and secure the supplementary weights to give substantially the same mass distribution as the test dummy when fitted as specified in ISO 7176-22:2014.		P
	WARNING — This testing is potentially hazardous to a human test occupant and other test personnel. Appropriate safety precautions should be taken to avoid injury.		P
8	**Wheelchair performance**		P
8.1	**Driving characteristics**		P
8.1.1	**General**		P
	The loaded wheelchair shall meet the driving performance requirements specified in Table 3 and Table 4 for the type class of the wheelchair as specified in Clause 5.		P
	The rated slope specified by the manufacturer shall be not less than that specified in Table 3 for the type class of the wheelchair.		P
8.1.2	**Ability to climb rated slope**		P
8.1.2.1	**Requirements**		P
	The wheelchair shall be capable of climbing at a speed not less than 2 km/h:		P
	-the applicable rated slope for the type class of wheelchair specified in Table 3; or		P
	-the rated slope specified by the manufacturer, if it is greater.		P
	The wheelchair passes the test specified in 8.1.2.2 if it achieves or exceeds a speed of 2 km/h after travelling 5 m up the slope.		P
8.1.2.2	**Test method**		P
	Use an inclined test plane as specified in 4.2 and the means to measure speed specified in 4.5.		P
	Starting on the inclined test plane, drive the loaded wheelchair up the slope using the maximum speed command.		P
	When the wheelchair has travelled (5,0 ± 0,1) m up the slope and is inside the test area, measure and record the speed to an accuracy of ±10 %.		P
8.1.3	**Ground unevenness**		P
8.1.3.1	**Principle**		P

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Clause	Requirement + Test	Result - Remark	Verdict
	It is important that a wheelchair is able to drive on uneven terrain without stopping even if one wheel is at a higher level than the others.		P
8.1.3.2	**Requirement**		P
	The wheelchair shall be capable of driving when any of its wheels is raised to a height specified in Table 3 for ground unevenness.		P
8.1.3.3	**Test method**		P
	a) Place the loaded wheelchair in the test area of the horizontal test plane (4.1).		P
	b) Place the test block specified in 4.8 under one wheel, such that one of its largest faces is flat on the test plane with the centre of the block beneath the point of contact with the wheel.		P
	c) Attempt to drive the loaded wheelchair off the test block.		P
	d) Record the result of the test.		P
	e) Repeat for the remaining wheels, one at a time.		P
	f) The test is passed if the wheelchair is able to drive off the test block for each wheel.		P
8.1.4	**Maximum downhill speed**		P
8.1.4.1	**Requirement**		P
	The wheelchair shall not exceed 125 % of its maximum speed on the horizontal, when driving down		P
	-the applicable rated slope for the type class of wheelchair specified in Table 3; or		P
	-the rated slope specified by the manufacturer, if it is greater.		P
8.1.4.2	**Test method**		P
	a) Drive the loaded wheelchair at maximum speed down the inclined test plane (4.2) with the required slope.		P
	b) Measure the speed achieved, using the means specified in 4.5, when the wheelchair is inside the test area.		P
	c) Record the measured speed and record whether the wheelchair has met the requirement.		P
8.1.5	**Dynamic stability**		P
8.1.5.1	**Requirements**		P

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Clause	Requirement + Test	Result - Remark	Verdict
	The dynamic response score of the wheelchair shall be 2 or 3 as specified in Table C.1 of ISO 7176-2:2017 when tested on		P
	-the applicable rated slope for the type class of wheelchair specified in Table 3; or		P
	-the rated slope specified by the manufacturer, if it is greater.		P
8.1.5.2	**Test method**		P
	a) Load the wheelchair with the test dummy in accordance with 7.2. Do not use a human test occupant.		P
	b) Test the loaded wheelchair in accordance with ISO 7176-2:2017 with the following modifications:		P
	1) for tests on slopes the test plane is inclined relative to the horizontal as specified in 8.1.5.1;		P
	2) fixed test planes or adjustable test planes may be used;		P
	3) if the manufacturer recommends a technique for driving on a slope, test the wheelchair using only the recommended technique; if not, the test methods are unmodified;		P
	4) where the maximum occupant mass is greater than 100 kg, repeat the rearward dynamic stability tests with a 100 kg dummy fitted to the wheelchair.		P
8.1.6	**Obstacle climbing and descending**		P
8.1.6.1	**Requirements**		P
	The wheelchair shall be capable of climbing and descending obstacles of the height specified in Table 3 for the type class of the wheelchair or the maximum obstacle height specified by the manufacturer, whichever is greater, without any part of the wheelchair other than wheels or a kerb climbing device contacting the obstacle or the test plane.		P
8.1.6.2	**Test method**		P
	Test the wheelchair as specified in ISO 7176-10:2008 for climbing and descending a test obstacle of the height specified in Table 3 for the type class of the wheelchair or the maximum obstacle height specified by the manufacturer, whichever is greater.		P

EN 12184			
Clause	Requirement + Test	Result - Remark	Verdict
	If the manufacturer specifies a method for climbing and descending steps, kerbs or obstacles, test as specified in ISO 7176-10:2008 using only the manufacturer's method. If the manufacturer specifies a run-up distance greater than that specified in ISO 7176-10:2008, limit the run-up distance to the maximum specified in that document.		P
	If the manufacturer of the wheelchair does not specify a method for climbing and descending steps, kerbs or obstacles, test as specified in ISO 7176-10:2008 using the methods specified in that document.		P
8.1.7	**Static stability**		P
8.1.7.1	**Requirements**		P
	The wheelchair shall meet or exceed the minimum requirements for static stability specified in Table 3 for the type class of the wheelchair.		P
8.1.7.2	**Test method**		P
	Test the loaded wheelchair in the least-stable configuration for each direction as specified in ISO 7176-1:2014 to determine whether it meets or exceeds the angles in Table 3 for the type class of the wheelchair.		P
	Where the maximum occupant mass is greater than 100 kg, repeat the rearward static stability test with a 100 kg dummy fitted to the wheelchair.		P
8.1.8	**Maximum speed**		P
8.1.8.1	**Requirements**		P
	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 3 for the type class of the wheelchair.		P
8.1.8.2	**Test method**		P
	Test the loaded wheelchair as specified in ISO 7176-6:2018 for the maximum forward speed and maximum reverse speed on a horizontal surface.		P
	Record the results and determine whether the requirement has been met.		P
8.1.9	**Distance range**		P
8.1.9.1	**Requirements**		P

EN 12184			
Clause	Requirement + Test	Result - Remark	Verdict
	The theoretical continuous driving distance range for the wheelchair shall not be less than the requirement specified in Table 3 for the type class of the wheelchair.		P
8.1.9.2	**Test method**		P
	Load the wheelchair as specified in ISO 7176-4:2008, except that the mass of the load shall be the maximum occupant mass or 100 kg, whichever is the lower.		P
	Test the loaded wheelchair as specified in ISO 7176-4:2008.		P
	Record the results and determine whether the requirement has been met.		P
	It is recognized the use of shorter test tracks in the range specified by ISO 7176-4:2008 can give smaller values of theoretical distance range. Use of the largest specified track length should be treated as the referee method.		P
8.2	**Static, impact and fatigue strength**		P
8.2.1	**Requirements**		P
	The wheelchair shall conform to the requirements of ISO 7176-8:2014 with the exception that wheelchairs of Class A are not required to be tested as specified in ISO 7176-8:2014, 10.4, drop test.		P
	Arm supports shall conform to the static loading requirements of ISO 7176-8:2014 in the least favourable intended operating position.		P
8.2.2	**Test method**		P
	Test the wheelchair in accordance with ISO 7176-8:2014 with modifications as specified in 8.2.1.		P
8.3	**Wheelchairs for use as seats in motor vehicles**		P
	If the manufacturer specifies that the intended use of the wheelchair includes use as a seat in a motor vehicle, the wheelchair shall conform to the requirements of ISO 7176-19:2008 12), with the following modifications to subclauses of ISO 7176-19:2008 13).		P
	4.1.2 is replaced by the following:		P

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Clause	Requirement + Test	Result - Remark	Verdict
	If a wheelchair is intended by the manufacturer to also be secured by a docking securement device in public transportation and/or different private vehicles, the securement points on the wheelchair and/or of the wheelchair tiedown adaptors shall conform to the performance requirements in Clause 5.		P
	5.1, second paragraph, is replaced by the following:		P
	All webbing of wheelchair-anchored belt restraints shall have a burning rate not exceeding 100 mm/min when tested as specified in ISO 3795.		P
	5.2.1 a) is replaced by the following:		P
	If the wheelchair has a head restraint, the horizontal excursions of the ATD and the wheelchair, with respect to the impact sled, shall not exceed the limits in Table 7 at any time during the test.		P
	If the wheelchair does not have a head restraint, the horizontal excursions of the ATD and the wheelchair with respect to the impact sled shall not exceed the limits in Table 7 at any time during the test, with the exception that the limits specified in Table 7 for excursion of the back of the head of the ATD, Xhead, R, do not apply.		P
	5.2.2 e) is replaced by the following:		P
	Primary occupant-load-carrying components of the wheelchair shall not show visible signs of failure, unless there is a backup system to provide support.		P
	If the wheelchair does not have a head restraint, risks associated with head excursion and neck forces to which the occupant can be exposed during vehicle collisions shall be addressed in the risk management process (see 6.1).		P
8.4	**Climatic performance**		P
	The wheelchair shall conform to the requirements of ISO 7176-9:2009.		P
	ISO 7176-9:2009 includes testing for resistance to ingress of liquid, which is also required by ISO 7176-14:2008, 13.1. It is not necessary to duplicate the test.		P
9	**Component properties**		P
9.1	**Foot supports, lower leg support assemblies and arm supports**		P
9.1.1	**Requirements**		P

EN 12184			
Clause	Requirement + Test	Result - Remark	Verdict
	The wheelchair shall be fitted with foot supports that have a means of positioning the occupant's feet at the required height and prevent the occupant's feet from sliding backwards.		P
	Any swing away, movable or removable foot support, lower leg support assembly or arm support fitted on the wheelchair shall:		P
	a) incorporate a means to locate it securely in any intended operating position;		P
	b) be adjustable in increments not exceeding 25 mm in any direction;		P
	c) be accessible and operable by the occupant or an assistant or both in accordance with the manufacturer's intended use of the wheelchair;		P
	d) be within the reach space shown in Figure 1; and		P
	e) be operable without the use of a tool.		P
	Where the wheelchair has separate foot supports which have a gap between them or the possibility of a gap being formed when they are loaded:		P
	f) means to prevent the occupant's feet from sliding into the gap shall be provided; or		P
	g) when the foot supports are tested in accordance with 9.1.2.2, any gap between them shall be less than:		P
	-25 mm if the wheelchair is intended for use by a child;		P
	-35 mm if the wheelchair is not intended for use by a child.		P
9.1.2	**Test methods**		P
9.1.2.1	**General performance**		P
	Fit foot supports, lower leg support assemblies and arm supports in the operating position(s) specified in the manufacturer's instructions.		P
	Adjust the foot supports, lower leg support assemblies and arm supports as specified in the manufacturer's instructions.		P
	Record whether the foot supports, lower leg support assemblies and arm supports have met the requirements.		P
9.1.2.2	**Foot support gap**		P
	Simultaneously apply a force f +5 0 N 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:		P

EN 12184			
Clause	Requirement + Test	Result - Remark	Verdict
	$F = 0,125 \times m \times g$		P
	Apply the force for 5 s to 10 s.		P
	While the force is being applied measure the largest distance between the foot supports, as follows:		P
	1) identify the surfaces of the foot supports that enclose the gap between the foot supports;		P
	2) from each point on the surface of one foot support, measure the distance to the nearest point on the surface of the opposite foot support;		P
	3) record the largest distance measured to an accuracy of ±1 mm.		P
	Record whether the foot supports have met the requirements.		P
9.2	**Component mass**		P
	If the wheelchair is intended to be dismantled for storage or transportation, any component that requires moving or handling and 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.		P
9.3	**Pneumatic tyres**		P
	All pneumatic tyres on the wheelchair shall have the same type of valve connection. Valves should be readily accessible when using the intended inflating tool.		P
	The tyres or the rims shall be marked with the maximum pressure in kPa, bar or PSI.		P
9.4	**Means for maintaining a sitting posture**		P
	The wheelchair shall have provision for a means to be fitted that enables the occupant to maintain a sitting posture.		P
	If the risk management process (6.1) indicates a risk of the occupant tipping or sliding forwards when the wheelchair is decelerating, the means shall be provided with the wheelchair; otherwise the manufacturer of the wheelchair shall make available such means as an option.		P
9.5	**Resistance to ignition**		P

EN 12184			
Clause	Requirement + Test	Result - Remark	Verdict
9.5.1	**General**		P
	The surfaces of components which support the occupant, or which stay in contact with the occupant or the occupant's clothing, shall be tested as specified in 9.5.2. Progressive smouldering ignition or laming ignition as defined in the standard applied shall not occur		P
	This requirement does not apply to components of the power and control system, which are covered by 9.5.3.		P
	It is not necessary to test components that are inherently resistant to ignition, e.g. steel frame tube.		P
9.5.2	**Test methods**		P
9.5.2.1	**Selection of test method**		P
	The test method specified in 9.5.2.2 is the preferred test method. It is the referee test method, which is used to resolve doubts or dispute.		P
	The test methods specified in 9.5.2.3 may be used as alternatives.		P
9.5.2.2	**Referee test method**		P
	Select and test a sample of the component as specified in ISO 16840-10:2021.		P
9.5.2.3	**Alternative test methods**		P
	Test the material of each component in accordance with EN 1021-2:2014 or ISO 8191-2:1988.		P
9.5.3	**Power and control systems**		N/A
	Either of the following options a) or b) shall apply:		N/A
	a) The manufacturer shall adopt appropriate means to eliminate or reduce as far as reasonably practicable the risk of a hazardous situation developing from the ignition of any part of the power and control system of the wheelchair. The manufacturer shall apply the risk management process (see 6.1) to manage that risk.		N/A
	b) The power and control system of the wheelchair shall meet the requirements of ISO 7176-14:2008, 9.7, resistance to ignition.		N/A
10	**Propulsion and braking systems**		P
10.1	**Means for operating brakes**		P
10.1.1	**Requirement**		P

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Clause	Requirement + Test	Result - Remark	Verdict
	a) Means for operating brakes shall:		P
	1) be accessible and operable by the occupant or an assistant or both in accordance with the manufacturer's intended use of the wheelchair;		P
	2) be within the reach space shown in Figure 1, if the wheelchair is intended to be operated by the occupant;		P
	3) be within the reach space shown in Figure 2, if the wheelchair is intended to be operated solely by an assistant;		P
	4) have operating forces for engaging and disengaging that do not exceed those stated in Table 3 when tested in accordance with 10.1.2.		P
	b) If one or more brake levers are fitted to a wheelchair in the form used on bicycles and mopeds:		P
	1) for wheelchairs with a maximum occupant mass not greater than 150 kg, the force applied to each lever to hold the loaded wheelchair stationary on the rated slope shall not exceed 60 N;		P
	2) for wheelchairs with a maximum occupant mass greater than 150 kg, the force applied to each lever to hold the loaded wheelchair stationary on the rated slope should not exceed 60 N;		P
	3) the grip width of such brake levers when no force is applied, measured 15 mm from the end of the brake lever, shall not be greater than 100 mm and should not be greater than 80 mm (see Figure 3).		P
	c) Means for releasing parking brakes shall be protected against activation caused by accidental contact.		P
10.1.2	**Test method for determination of brake operating forces**		P
	a) Adjust the brakes as specified by the manufacturer.		P
	b) Select the part of the lever through which the force is to be applied as shown in Figure 4.		P
	1) If the lever is fitted with a generally spherical knob, apply the force through the centre of the knob.		P
	2) If the lever is tapered, apply the force through the point where the largest cross section intersects the centre line of the lever.		P
	3) If the lever is parallel or any shape other than those above, apply the force through a point on the centre line of the lever 15 mm from the end.		P
	4) If the form of the lever is such that the lever is gripped by the whole hand apply the force through the centre line of the lever 15 mm from the end.		P
	5) If the brake is operated by pushing or pulling a bar or pad, apply the force to the centroid of the bar or pad.		P

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Clause	Requirement + Test	Result - Remark	Verdict
	c) Apply the brakes while measuring the force with the device specified in 4.4 aligned in the direction of travel of the point of application of the force in order to measure the maximum application force required.		P
	d) Release the brakes while measuring the force with the device specified in 4.4 aligned in the direction of travel of the point of application of the force in order to measure the maximum releasing force required.		P
	e) Perform c) and d) three times in total and record the measurements.		P
	f) Calculate and record the arithmetic mean value of the application and the release forces measured separately.		P
	g) Determine whether or not the requirements for operating forces stated in Table 3 have been met.		P
10.2	**Braking functions**		P
10.2.1	**Requirements**		P
	a) The wheelchair shall have a running brake which operates independently of tyre wear and tyre inflation pressure and which does not exceed the maximum stopping distance specified in Table 4 when tested in accordance with 10.2.2.1.		P
	b) The wheelchair shall have a running brake which, when operated after the wheelchair has been put into freewheel mode, shall bring the wheelchair to a stop.		P
	The maximum stopping distances of Table 4 do not apply for a running brake operated after the wheelchair has been put into freewheel mode.		P
	c) The risk management process shall address risks due to loss of braking if a wheel loses contact with the ground (see 6.1).		P
	d) The wheelchair shall have an automatic brake, which operates independently of tyre wear and tyre inflation pressure and which is operated by releasing the control device to achieve a zero speed command.		P
	e) The wheelchair shall have a parking brake which operates independently of tyre wear and tyre inflation pressure.		P
	f) Parking brakes shall meet the parking brake effectiveness requirement in Table 3 when tested in accordance with 10.2.2.2.		P
	g) Parking brakes shall be operable when there is no power from the battery supplying the drive system.		P
	h) Parking brakes shall be operable when the wheelchair is in freewheel mode (see Note 1).		P

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Clause	Requirement + Test	Result - Remark	Verdict
	i) If they are subject to wear, parking brakes shall have provision for adjustment and/or replacement as specified by the manufacturer.		P
	j) If the wheelchair is fitted with arm supports that can be moved or removed to enable transfer of the occupant into or out of the wheelchair, when tested in accordance with 10.2.2.3, engaged parking brakes shall not have parts that protrude above the level of the occupied seat that can make contact with the occupant during transfer		P
	k) When parking brakes are tested in accordance with 10.2.2.4, no parking brake mechanism shall move from the pre-set position and no component or assembly of parts shall show visible signs of cracks, breakages, gross deformations, free play, loss of adjustment, or any other damage, that adversely affect the function of the wheelchair.		P
	l) After testing of the parking brake in accordance with 10.2.2.4, parking brakes shall meet the parking brake effectiveness requirement in Table 3 when tested again in accordance with 10.2.2.2.		P
10.2.2	**Test methods**		P
10.2.2.1	**Determination of the effectiveness of running brakes**		P
	Perform the tests for normal, reverse command and emergency operation specified in 7.3, 7.4 and 7.5 of ISO 7176‑3:2012 using the loaded wheelchair on the horizontal and on the steepest slope specified in ISO 7176‑3:2012 or the rated slope, whichever is steepest. The wheelchair fails the requirement if the maximum stopping distance specified in Table 4 of this document is exceeded on the horizontal, or if the wheelchair fails to stop on the test slope.		P
10.2.2.2	**Determination of effectiveness of parking brakes**		P
	a) Adjust the parking brake in accordance with the manufacturer's instructions without exceeding the operating force requirements stated in Table 3.		P
	b) Test the loaded wheelchair facing uphill in accordance with ISO 7176‑3:2012, with the test plane inclined to the horizontal at the applicable angle stated in Table 3 for the type class of the wheelchair or at the rated slope specified by the manufacturer, if it is greater.		P
	c) Repeat b) with the wheelchair facing downhill.		P
	d) Determine whether the parking brake meets the requirement.		P
10.2.2.3	**Protrusion of parts of the parking brakes**		P

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Clause	Requirement + Test	Result - Remark	Verdict
	a) Engage the parking brake.		P
	b) Move or remove the arm support to enable transfer.		P
	c) Identify any parts of the parking brake that protrude above the plane of the lower surface of the thigh loading plate of the test dummy.		P
	d) Determine whether the parking brake meets the requirement.		P
10.2.2.4	**Fatigue strength of parking brakes**		P
	a) The parking brake may be tested in accordance with b) to g) below, or as specified in ISO 7176‑8:2014, 10.5.		P
	b) Carry out the test with the parking brake mounted on the wheelchair or mounted on a suitable test fixture that simulates mounting on the wheelchair. If the wheelchair is fitted with two identical brakes (left and right), test only one of the brakes.		P
	c) Adjust the parking brake in accordance with the manufacturer's instructions without exceeding the operating force requirements stated in Table 3.		P
	d) Set up the means for moving the brake lever (4.12) so that no twisting or bending forces are applied to the brake lever.		P
	e) Move the lever operating the brake smoothly from the non-braking position to the braking position for 60 000 cycles at a frequency not greater than 0,5 Hz. Carry out maintenance during testing only in accordance with the manufacturer's instructions.		P
	f) Inspect the brake mechanism and determine whether it has met the requirement		P
	g) If a test fixture was used, return the brake mechanism to the wheelchair.		P
10.3	**Freewheel device**		P
	The wheelchair shall be fitted with a freewheel device that shall:		P
	-e accessible and operable by the occupant or an assistant or both in accordance with the manufacturer's intended use of the wheelchair;		P
	-be within the reach space shown in Figure 1, if the wheelchair is intended to be operated by the occupant;		P
	-be within the reach space shown in Figure 2, if the wheelchair is intended to be operated solely by an assistant;		P
	-have operating forces for engaging and disengaging that do not exceed those stated in Table 3;		P

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Clause	Requirement + Test	Result - Remark	Verdict
	-be operable without detaching any parts;		P
	-not depend on the battery power supplying the motor drive system;		P
	-have two defined positions including clear indication of freewheel mode and drive mode;		P
	-prevent use of the wheelchair's drive system, if the freewheel device is activated.		P
	These requirements apply in addition to those concerning non-powered mobility stated in ISO 7176-14:2008.		P
	A battery independent from the motor drive battery may be used to supply energy to enable freewheel mode.		P
	Freewheel devices shall be protected against activation caused by accidental contact.		P
11	**Operations**		P
11.1	**Operations intended to be carried out by the occupant and/or assistant**		P
	Wheelchairs shall be designed to facilitate ease of operation by the occupant and/or assistant as specified in the manufacturer's instructions.		P
	Examples include:		P
	-operation of adjustable seating and adjustment of postural supports;		P
	-use of detachable components, including removable arm supports, lower leg support assemblies, etc., to facilitate safe transfers into and out of the wheelchair;		P
	-use of folding mechanisms, including folding frames, etc., to facilitate storage and transportation of unoccupied wheelchairs;		P
	-carrying out maintenance, including use of tools, etc.;		P
	-use of manual steering controls;		P
	-use of braking systems and freewheel devices;		P
	-use of assistant controls;		P
	-use of control devices.		P
11.2	**Controls intended for operation by the occupant**		N/A
	Controls intended to be operated by the occupant while seated shall be within the occupant reach space shown in Figure 1.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The following controls, if they are fitted and intended to be operated by the occupant, are included:		N/A
	-on/off switch or key;		N/A
	-speed regulator;		N/A
	-speed pre-setting;		N/A
	-running brake;		N/A
	-parking brake;		N/A
	-acoustic warning device;		N/A
	-direction indicator;		N/A
	-direction switch;		N/A
	-control device;		N/A
	-lighting controls;		N/A
	-seating adjustments;		N/A
	-detachable components, including removable arm supports, lower leg support assemblies, etc., to facilitate safe transfers into and out of the wheelchair;		N/A
	-steering controls;		N/A
	-freewheel device.		N/A
11.3	**Controls intended for operation by an assistant**		N/A
	Controls intended to be operated by an assistant shall be within the reach space shown in Figure 2.		N/A
	Examples include:		N/A
	-brakes;		N/A
	-control devices;		N/A
	-push handles; and		N/A
	-electrical ancillary equipment.		P

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Clause	Requirement + Test	Result - Remark	Verdict
11.4	**Assistant control unit, push handles and handgrips**		P
11.4.1	**Requirements**		P
	Switches intended to be operated by an assistant while driving the wheelchair shall be attached to an assistant control unit.		P
	When an assistant control unit is fitted:		P
	-the unit shall be positioned behind the wheelchair's back support, between 900 mm and 1 200 mm from the floor to the centre of the operating means for the control device (e.g. joystick handle); and		P
	-there shall be a means to support the assistant's hand or hands used to operate the control device.		P
	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:		P
	-a plane at 85° to the horizontal, that touches the rearmost points of the push handles as shown in Figure 5;		P
	-two planes not less than 350 mm apart equidistant from a vertical plane parallel to the forward direction of travel that bisects the wheelchair, unless the intended occupant is a child;		P
	-the horizontal test plane.		P
	When the wheelchair is fitted with push handles, the handgrips shall be at least 75 mm in length and between 20 mm and 50 mm in diameter.		P
	When push handles are fitted with controls that are intended to be used by being gripped by one hand, the grip width when no force is applied shall not be greater than 100 mm and should not be greater than 80 mm (see Figure 3).		P
11.4.2	**Test method**		P
	a) Place the wheelchair in the test area of the horizontal test plane.		P
	b) If an assistant control device is fitted, note its position and measure the height of its operating means above the test plane.		P
	c) Project the planes specified in 11.4.1 and determine whether any part of the wheelchair lies within the enclosed space.		P
	d) Measure the dimensions of the handgrips on the push handles.		P
	e) Where applicable, measure the grip width of the controls fitted to the push handles that are intended to be used by being gripped by one hand.		P
	f) Inspect the wheelchair for means to support the assistant's hand or hands used to operate the control device while the wheelchair is being driven.		P

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Clause	Requirement + Test	Result - Remark	Verdict
	g) Record whether the wheelchair has met the requirements.		P
11.5	**Operating forces**		P
11.5.1	**Requirements**		P
	All controls, except for means to operate brakes, shall have operating forces for engaging and releasing that do not exceed those stated in Table 3 when tested in accordance with 11.5.2.		P
	In addition, to achieve the intended function of the system or device being operated, for knobs intended to be gripped and turned by one hand:		P
	-where the diameter of the knob is greater than or equal to 25 mm and the force is transmitted by friction, the numerical value of the torque, expressed in Nm, shall not be greater than 0,05 times the numerical value of the diameter of the knob, expressed in mm; and		P
	-where the diameter of the knob is less than 25 mm diameter, the numerical value of the torque, expressed in Nm, shall not be greater than 0,025 times the numerical value of the diameter of knob, expressed in mm.		P
11.5.2	**Test method**		P
	a) Position a means to apply force or torque as applicable:		P
	1) where the operation is performed by pushing or pulling, position the means to apply force parallel to the direction of operation and in the middle of the knob or button;		P
	2) in the case of a lever of length 30 mm or greater, position the means to apply force at a distance of 15 mm from the end of the operating lever;		P
	3) in the case of a lever of length less than 30 mm, position the means to apply force at the midpoint of the lever;		P
	4) for a turning knob, use a suitable means (e.g. a force gauge) to measure torque concentrically on the knob.		P
	b) Gradually increase the force or torque until the intended function of the system or device as specified by the manufacturer's instructions is achieved.		P
	c) Measure and record the maximum operating force		P
	d) Perform b) to c) three times in total.		P
	e) Calculate and record the arithmetic mean of the three recorded measurements.		P

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Clause	Requirement + Test	Result - Remark	Verdict
11.6	**Occupied seating adjustments**		N/A
11.6.1	**Requirements**		N/A
	If the manufacturer specifies that the seating can be adjusted by an assistant or the occupant or both while the occupant is seated:		N/A
	-the assistant and/or the occupant shall not have to apply or withstand a force (e.g. the combined weight of the occupant and the seating) which presents a moving and handling safety hazard to the assistant and/or the occupant; and		N/A
	-movement of the seating, whether continuous or incremental, shall automatically be prevented when the assistant or occupant releases the means of operation		N/A
	Controls for seating adjustments intended to be operated by the occupant shall be accessible to the occupant from all seating positions.		N/A
11.6.2	**Test method**		N/A
	a) Adjust the seating as specified in the manufacturer's instructions.		N/A
	b) Record whether the wheelchair has met the requirements		N/A
12	**Electrical systems**		P
12.1	**General requirements**		P
	The wheelchair shall conform to the requirements of ISO 7176‑14:2008, except as specified in 9.5.3.		P
	The wheelchair shall conform to the requirements of ISO 7176‑21:2009.		P
12.2	**Circuit protection**		P
12.2.1	**Requirement**		P
	Operation of the circuit protection for each of the following functions shall not affect the operation of the remaining functions:		P
	a) electrically powered driving, braking and steering;		P
	b) electrically powered parts of the body support system;		P
	c) electrically powered lights, direction indicators and hazard warning flashers.		P
12.2.2	**Preparation**		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Examine the wheelchair and its circuit diagram to locate:		P
	a) conductors for each motor and actuator used to drive, brake and/or steer the wheelchair;		P
	b) conductors for each motor and actuator used to move parts of the body support system;		P
	c) conductors for each light, direction indicator and hazard warning flasher.		P
12.2.3	**Test method**		P
	a) For each pair of conductors identified in 12.2.2 a) in turn, apply a short circuit between them and operate the control device so that any related circuit protection can operate, then attempt to operate the functions identified in 12.2.1 b) and c) and observe whether their operation is affected.		P
	b) For each pair of conductors identified in 12.2.2 b) in turn, apply a short circuit between them and operate the controls for the body support system so that any related circuit protection can operate, then attempt to operate the functions identified in 12.2.1 a) and c) and observe whether their operation is affected.		P
	b) For each pair of conductors identified in 12.2.2 b) in turn, apply a short circuit between them and operate the controls for the body support system so that any related circuit protection can operate, then attempt to operate the functions identified in 12.2.1 a) and c) and observe whether their operation is affected.		P
12.3	**Battery chargers**		P
12.3.1	**General**		P
	Battery chargers for wheelchairs shall conform to the requirements of ISO 7176‑25:2013, with the following modification.		P
	5.1.2.2 is replaced by the following:		P
	Battery chargers shall meet the requirements of EN 60335‑2‑29:2004 14) for class II appliances. The applicable electrical requirements of EN 60601‑1:2006 15) for class II ME equipment may be applied as an alternative to the applicable electrical requirements of EN 60335‑2‑29:2004 16).		P
	In addition, wheelchairs that include an on-board battery charger shall conform to the applicable electrical requirements of EN 60601‑1:2006 17).		P
	Battery chargers shall conform to the requirements of ISO 7176‑21:2009.		P

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Clause	Requirement + Test	Result - Remark	Verdict
12.3.2	**Operation**		P
	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.		P
12.3.3	**Manual adjustment for battery type**		P
	Where a battery charger is intended for use with more than one type of battery, and a manual operation is necessary to select the battery type:		P
	-the selected battery type shall be conspicuously visible from the exterior of the battery charger;		P
	-it shall not be possible to select the battery type without a tool, key entry combination or similar means for restricting access; and		P
	-the method for selecting the battery type shall not consist of operations which are performed in normal use of the charger.		P
12.4	**Charging connector**		P
	The wheelchair shall have a charging connector that is readily accessible and operable by the occupant or an assistant or both in accordance with the manufacturer's intended use of the wheelchair.		P
	The requirement is verified by inspection.		P
12.5	**Battery enclosures and containers**		P
	Battery enclosures and containers shall provide protection so that it should not be possible for liquids dripping from above to enter into them and onto any cell or battery they contain.		P
12.6	**Emergency stop**		P
	The wheelchair shall be fitted with one or more emergency stop devices to enable actual or impending danger to be averted.		P
	Each emergency stop device shall:		P
	-be clearly identifiable, clearly visible and quickly accessible by the intended operator; and		P
	-stop the hazardous process as quickly as practicable, without creating additional risks.		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Once active operation of the emergency stop device has ceased following a stop command, that command shall be sustained by the wheelchair until that engagement is specifically overridden. It shall not be possible to engage the device without triggering a stop command. It shall be possible to disengage the device only by an appropriate operation, and disengaging the device shall not restart the wheelchair but only permit restarting.		P
	The emergency stop function shall be available and operational at all times, regardless of the operating mode.		P
	Emergency stop devices shall be a back-up to other safeguarding measures and not a substitute for them.		P
	Additional emergency stop devices may be attached to a wheelchair to be operated by an assistant. Where the intended occupant has an impairment which restricts their ability to operate an emergency stop device, the risk management process (6.1) should take this into account.		P
12.7	**Lighting**		P
	Wheelchairs intended by the manufacturer for outdoor use shall be supplied with integral lighting suitable for the operations concerned where the absence thereof is likely to cause a risk despite ambient lighting of normal intensity.		P
	Wheelchairs can be subject to national requirements for lighting and reflectors.		P
	If there are no national requirements, the wheelchair is expected to conform to relevant lighting requirements in automotive Regulations of the European Union (e.g. Regulation 661/2009 [18]).		P
12.8	**Switching off while driving**		P
	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 4.		P
12.9	**Software**		P
	Software that is embedded in the wheelchair or is an integral part of the wheelchair, and the malfunction of which can give rise to a hazardous situation, shall be developed and maintained in accordance with EN 62304:2006 18).		P
12.10	**Lithium cells and batteries**		P
	Sealed secondary lithium cells and batteries containing non-acid electrolyte shall conform to the requirements of EN 62133‑2:2017 19).		P
12.11	**Remote control**		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Where remote control is used for any moving part of the wheelchair or any lighting function, the following aspects shall be included in the risk management process:		P
	-loss of signal;		P
	-signal errors;		P
	-reliability level;		P
	-correct pairing between the remote control and the wheelchair;		P
	-correct identification of the paired remote control and wheelchair to the operator;		P
	-interference from multiple remote controls;		P
	-security and malicious interference;		P
	-security and malicious interference;		P
	-gradual loss of power in the remote control;		P
	-range.		P
	This requirement applies regardless of whether the remote control acts between components of the wheelchair or between an external device and the wheelchair		P
13	**Information supplied by the manufacturer**		P
13.1	**General**		P
	Each wheelchair shall be provided with documentation and labelling that conform to the applicable requirements in EN ISO 20417:2021 in addition to the requirements specified in this document.		P
	The manufacturer shall provide the documentation in three separate sections: pre-sale, user and servicing information, as specified in 13.2, 13.3 and 13.4 respectively. These may be provided as separate printed documents or in other forms of media to meet the needs of individual occupants or their assistants.		P
13.2	**Pre-sale information**		P
	Pre-sale information shall include the following:		P

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Clause	Requirement + Test	Result - Remark	Verdict
	a) information on how to obtain the user information in a format appropriate for use by visually impaired people;		P
	b) a description of the intended occupant of the wheelchair, including the occupant's mass;		P
	c) the intended operator (occupant, assistant or both), intended use and the intended environment;		P
	d) the type class of the wheelchair: Class A, Class B or Class C;		P
	e) the overall dimensions (width, length and height) of the wheelchair and its mass when it is ready for use and, if applicable, when it is folded and/or dismantled for storage or transportation;		P
	f) the minimum width of corridor in which the wheelchair can be turned to face the opposite direction;		P
	g) the rated slope, expressed in degrees;		P
	h) the standard options that are available for the wheelchair;		P
	i) if the wheelchair can be dismantled or has any removable parts, the mass of the heaviest part;		P
	j) a statement that the wheelchair is intended to be used as a seat in a motor vehicle, or a warning that the wheelchair is not intended to be used as a seat in a motor vehicle;		P
	k) the 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.;		P
	l) the maximum height of kerb which the wheelchair can descend safely;		P
	m) if a programmable controller is fitted, information on the method of programming, the competency required to carry out the programming and the effects it can have on driving performance.		P
13.3	**User information**		P
	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 the following where applicable:		P
	a) the unique identification number of the wheelchair or information on the location of the unique identification number on the wheelchair;		P
	b) any adjustment or settings required before the wheelchair can be used and warnings of how adjustments or settings affect stability;		P

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Clause	Requirement + Test	Result - Remark	Verdict
	c) information on any adjustments that can be made, and the competency required to carry out these adjustments;		P
	d) instructions on operation of all controls, including brakes;		P
	e) instructions on how to engage and disengage the drive system;		P
	f) the wheelchair manufacturer's recommended tyre pressure(s), expressed in kPa, bar or PSI;		P
	g) instructions for dealing with tyre punctures;		P
	h) the battery type and nominal voltage;		P
	i) instructions for battery maintenance;		P
	j) instructions for operating the battery charger, including warnings regarding any potential safety hazards (e.g. a possibility of gas accumulating in the charging area, use of the wrong type of battery charger);		P
	k) if required by the risk analysis, instructions for fitting an additional emergency stop device where the intended occupant has an impairment which can restrict their ability to operate one;		P
	l) instructions on whether and how the wheelchair can be folded to assist in storage or transport;		P
	m) instructions on dismantling and re-assembly of the wheelchair or any removable parts;		P
	n) instructions regarding transport of the wheelchair when it is unoccupied (e.g. in a car or aeroplane);		P
	o) 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;		P
	p) if the manufacturer specifies that the wheelchair is not intended for use in the motor vehicle, a warning to that effect;		P
	q) instructions on how to use the means for maintaining a sitting posture (see 9.4) and the circumstances in which it should be used;		P
	r) instructions on how to obtain and fit the means for maintaining a sitting posture (see 9.4) if it is not supplied with the wheelchair;		P
	s) the positions of points intended to carry additional loads;		P
	t) instructions for preparing the wheelchair for long-term storage (e.g. longer than four months) and for preparing it for use afterward;		P

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Clause	Requirement + Test	Result - Remark	Verdict
	u) warning that the wheelchair can disturb the operation of devices in its environment that emit electromagnetic fields (e.g. alarm systems of shops, automatic doors, etc.);		P
	v) a warning that the driving performance of the wheelchair can be influenced by electromagnetic fields (e.g. those emitted by electricity generators or high-power sources);		P
	w) a warning that the stopping distance on slopes can be significantly greater than on level ground;		P
	x) information on the recycling of used batteries and of the wheelchair;		P
	y) if the characteristics of the wheelchair (including the occupant as applicable) exceed the limits specified in Appendix M of Commission Regulation (EU) No 1300/2014 [19], a statement to that effect (see Annex D for additional information);		P
	z) information on how to find out about product safety notices and product recalls, for example by ensuring the supplier has up-to-date contact details;		P
	aa) the expected service life of the wheelchair;		P
	bb) information on how to get repairs and servicing;		P
	cc) warranty information.		P
13.4	**Service information**		P
	The service information shall contain instructions necessary for the maintenance, adjustment and repair of the wheelchair and for the replacement of parts		P
13.5	**Labelling**		P
	The manufacturer shall apply permanent labelling for the following:		P
	a) the maximum load of the wheelchair, i.e. the total of the maximum occupant mass and the maximum mass of any other items intended to be carried by the wheelchair;		P
	b) 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
	c) 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
	d) for wheelchairs not intended to be used as a seat in a motor vehicle, a warning to that effect;		P

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Clause	Requirement + Test	Result - Remark	Verdict
	e) for Class A wheelchairs not intended for use outdoors, a warning to that effect.		P
14	**Test report, tables and figures**		P
	The test report shall contain the following information:		P
	a) a unique report number;		P
	b) the name and address of the testing institution;		P
	c) the date of issue of the test report;		P
	d) a reference to this document, i.e. EN 12184:2022;		P
	e) the name and address of the manufacturer of the wheelchair;		P
	f) a description of the sample including the manufacturer's or vendor's trademark, model or type, unique identification number and any variations or accessories fitted;		P
	g) the manufacturer, type and model of controller and motors and the type and capacity of the batteries fitted to the wheelchair during the tests;		P
	h) the supplier of the sample;		P
	i) details of the set-up of the wheelchair as specified in ISO 7176‑22:2014, including details of how it was equipped and adjustments;		P
	j) the masses of the dummies or human test occupants and weights used;		P
	k) where the controller is programmable, the settings used while testing;		P
	l) a photograph of the sample equipped as during the test;		P
	m) the results of the tests;		P
	n) if not all of the requirements of this document have been applied (see Annex G), a list of the requirements that have been applied and those that have not;		P
	o) a statement as to whether or not the tested sample has met all of the applicable requirements of this document and a list of all the applicable requirements it has not met.		P

-Attachment 1: Photo attachment.

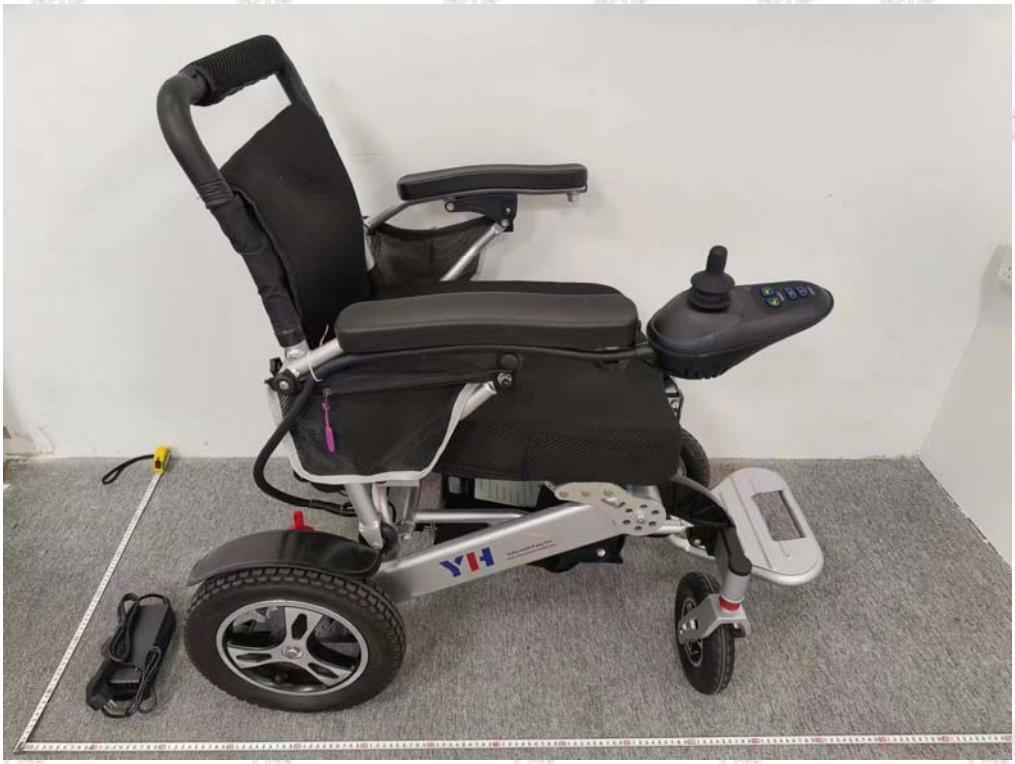

Photo 1: Overall view

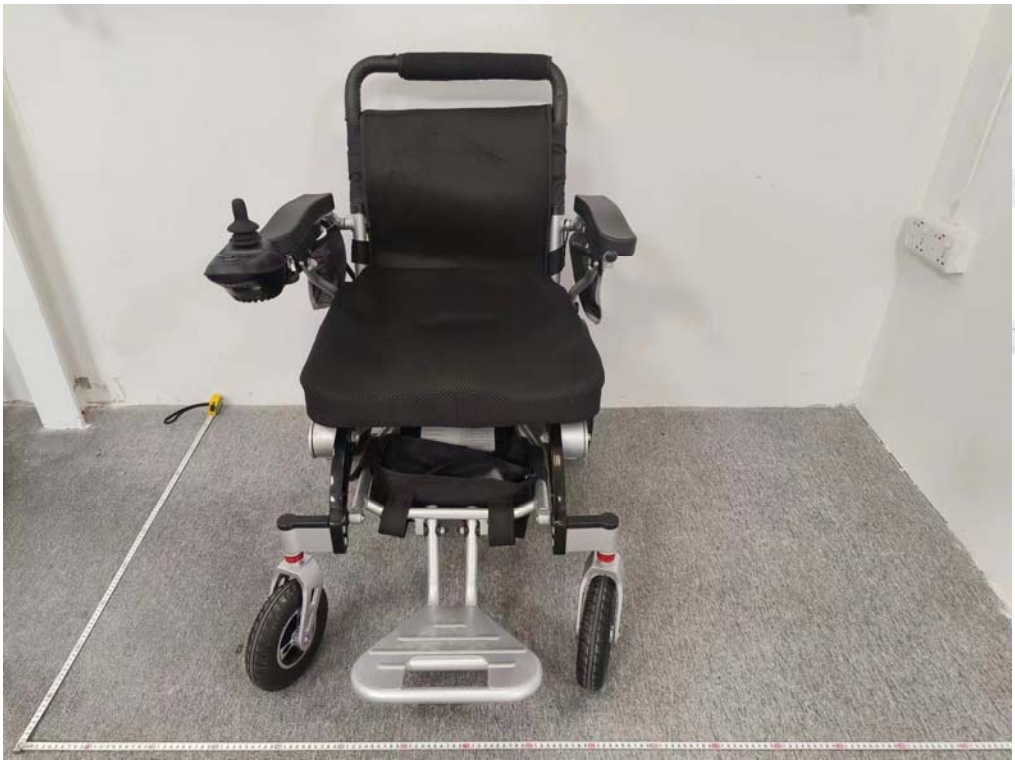

Photo 2: Overall view

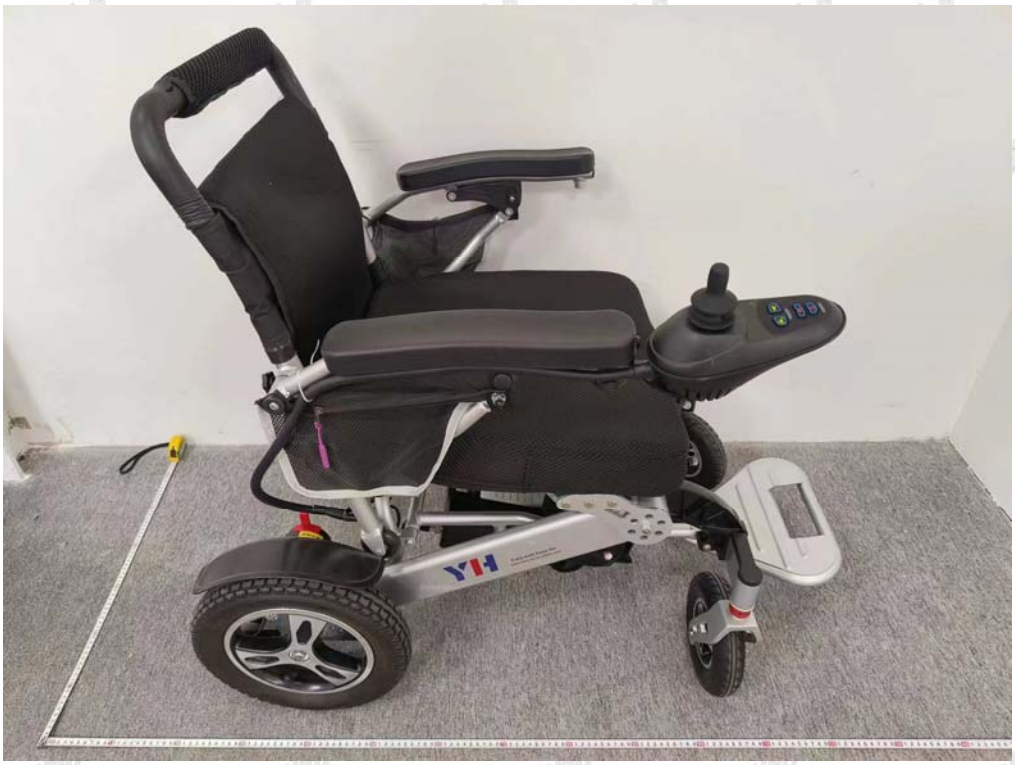

Photo 3: Overall view

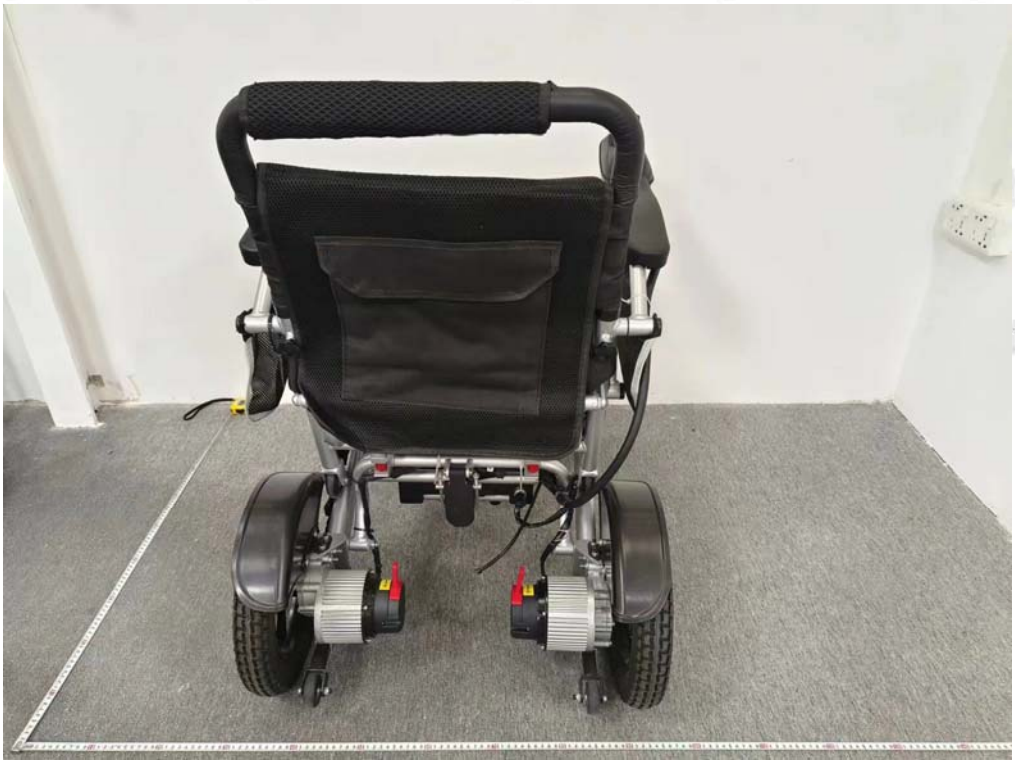

Photo 4: Overall view

------ End of test report -----