ANXIN TESTING

MD
TEST REPORT

For

ELECTRIC SCOOTER

Model No.:	**IX7 PRO, IX7, IX7 Plus, IX7 Pro, IX7 Max, IX7L, IX7M, IX7Y, IX7X, IX7S, IX7S Plus, IX7S Pro, IX7S Max, IX5, IX6, IX8, GT3, GT4, GT5**
Applicant :	**Shenzhen Xincheng Times Technology Co., Ltd** **104-105, Block C, Donghai Wang Building, No. 369 Bulong Road, Ma'antang Community, Bantian Street, Longgang District, Shenzhen**
Manufacturer :	**Shenzhen Xincheng Times Technology Co., Ltd** **104-105, Block C, Donghai Wang Building, No. 369 Bulong Road, Ma'antang Community, Bantian Street, Longgang District, Shenzhen**
Issued By :	**Shenzhen An-Xin Testing Service Co., Ltd.** **Room 402-405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China**
Tel :	**+86 0755 23009643**
Fax :	**+86 0755 23009643**
Report Number :	**00440AX5036M**
Issued Date :	**Jun. 13, 2024**
Date of Report :	**Jun. 13, 2024**

Note: This report shall not be reproduced except in full, without the written approval of Shenzhen An-Xin Testing Service Co., Ltd. This document may be altered or revised by Shenzhen An-Xin Testing Service Co., Ltd personnel only, and shall be noted in the revision section of the document. The test results in the report only apply to the tested sample.

TEST REPORT

EN 17128

Light motorized vehicles for the transportation of persons and goods and related facilities and not subject to type-approval for on-road use-Personal light electric vehicles(PLEV)-Requirements and test methods

Report Reference No.....:	**00440AX5036M**	
Tested by (name + signature).....:	Jet Chen	.....
Approved by (name + signature).....:	Kevin Liu	.....
Date of issue.....:	Jun. 13, 2024	
Testing Laboratory.....:	Shenzhen An-Xin Testing Service Co., Ltd.	
Address.....:	Room 402-405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China	
Testing location/address.....:	Same as above	
Applicant's name.....:	Shenzhen Xincheng Times Technology Co., Ltd	
Address.....:	104-105, Block C, Donghai Wang Building, No. 369 Bulong Road, Ma'antang Community, Bantian Street, Longgang District, Shenzhen	
Test specification:	--	
Standard.....:	EN 17128: 2020	
Test Report Form No.....:	--	
TRF Originator.....:	Shenzhen An-Xin Testing Service Co., Ltd.	

Test item description:	ELECTRIC SCOOTER
Trade Mark.....:	N/A
Model and/or type reference.....:	IX7 PRO, IX7, IX7 Plus, IX7 Pro, IX7 Max, IX7L, IX7M, IX7Y, IX7X, IX7S, IX7S Plus, IX7S Pro, IX7S Max, IX5, IX6, IX8, GT3, GT4, GT5
Manufacturer .....:	Shenzhen Xincheng Times Technology Co., Ltd
Address.....:	104-105, Block C, Donghai Wang Building, No. 369 Bulong Road, Ma'antang Community, Bantian Street, Longgang District, Shenzhen
Rating(s).....:	Input: AC100- 240V, 50/60Hz, 2.5A; Output: DC54.6V, 2A

Summary of testing:

The products were evaluated under EN 17128, 2006/42/EC Annex 1 was as considered.

All tests were conducted and test result was pass.

ELECTRIC SCOOTER

Model: IX7 PRO

Rating:Input: AC100- 240V, 50/60Hz, 2.5A; Output; DC54.6V, 2A

Shenzhen Xincheng Times Technology Co., Ltd
104-105, Block C, Donghai Wang Building, No. 369 Bulong Road, Ma'antang Community, Bantian Street, Longgang District, Shenzhen

Test item particulars.....	:	Safety equipment
Classification of installation and use.....	:	Distribution Boards
Supply Connection.....	:	N/A
.....	:	
.....	:	
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.....	:	Jun. 07, 2024
Date (s) of performance of tests.....	:	Jun. 07, 2024 to Jun. 13, 2024

General remarks:

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

"(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 is used as the decimal separator.

General product information:

General remarks:	
"(see remark #)" refers to a remark appended to the report. "(see appended table)" refers to a table appended to the report. Throughout this report a comma is used as the decimal separator. The test results presented in this report relate only to the object tested. This report shall not be reproduced except in full without the written approval of the testing laboratory. Until otherwise specified, all tests are done under normal ambient condition 25℃±10℃, Max RH: 75% and air pressure of 860 mbar to 1060 mbar.	Attached with: Attachment - A. Photo Documentation
Brief description of the test sample:	

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
4	Classes of vehicles	Class 2	P
5	General safety requirements and protective measures		P
6	Electrical components		P
6.1	General mechanical strength		P
	-- Applying impacts to the enclosures of ESA mounted on the vehicles by means of the spring hammer as specified in EN 60068-2-75:2014. The ESA is rigidly supported and three impacts are applied to every point of the enclosure that is likely to be weak with an impact energy of (0,7 ± 0,05) J.		P
	-- Detachable ESA are submitted to free fall on a rigid surface as specified in EN 22248:1992 at a height of 0,90 m in three different positions. The positions shall be one surface, one edge and one corner of the enclosure that are likely to be the most onerous position.		P
6.2	Electrical power on/ off control		P
	An electrical power on/off control shall be fitted to on and power-off the driving power. It shall be apparent, easy to reach and unmistakable. This electrical power on/off control shall be activated voluntary by the user to enable the driving power. The electrical power on/off system shall be designed such that, in the event of a malfunction, the vehicle shall still be able to stop or be able to be stopped with a smooth deceleration (as defined in 15.4.2.5 Electric failure braking compensation). The electrical power on/off system shall be located in a position easily reachable by the user with appropriate symbol given in Annex F. On self-balancing vehicles or vehicles with electric brake, the power -off control shall not disconnect the power while driving: the power -off control shall only work without user on the vehicle. NOTE The electrical power on/off system is a mechanical solution (key-lock, button, etc.) or an electrical solution (user detection, turn off timer, etc.).	see attached file	P
6.3	Electrical cables and connections		P
6.3.1	General		P
	All electrical connectors shall be selected to prevent the corrosion..		P
6.3.2	Cable and plugs		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict

6.3.2.1	Requirements		N/A
	After the test according to 6.3.2.2, there shall be no deterioration of the insulation on either assembly. The cable cross sections shall be selected in accordance with EN 61558-1:2005, EN 61558-2-16:2009,EN 60335-1:2012, EN 60335-2-29:2004, Table 11 or a temperature rise test shall be performed, in accordance with 6.3.2.2 the temperature of the cables and plugs in use shall be at least 5 ˚C lower than the maximum specified by the manufacturer.		N/A
6.3.2.2	Test method		P
	At an ambient room temperature (20 ± 5) ˚C, discharge the fully charged vehicle battery to the discharging limit for the vehicle, and the vehicle is supplied at rated voltage and operated under normal operation: -- measure the cable and plug temperature rises.	24.6℃	P
6.3.3	Wiring		P
	Wiring shall be checked according to the following sequence at an ambient room temperature (20 ± 5) ℃.		P
	a) Wireway shall be smooth and free from sharp edges.		P
	b) Wires shall be protected so that they do not come into contact with burrs, cooling fins or similar sharp edges that may cause damage to their insulation.		P
	c) Holes in metal through which insulated wires pass shall have smooth well-rounded surfaces or be provided with bushings.		P
	d) Wires shall be effectively prevented from coming into contact with moving parts.Compliance with a), b), c) and d) shall be checked by physical inspection.		P
	e) Separate parts of the vehicles that can move in normal use or during user maintenance relative to each other, shall not cause undue stress to electrical connections and internal conductors, including those providing earthing continuity.		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
	f) If an open coil spring is used to protect wire, it shall be correctly installed and insulated. Flexible metallic tubes shall not cause damage to the insulation of the conductors contained within them. Compliance with e) f) shall be checked by inspection and by the following test method: 1) If flexing occurs in normal use, the product is placed in its normal operational position and is supplied at rated voltage under normal operation. 2) The movable part is moved from an extreme position to the opposite extreme position, so that the conductor undergoes maximum flexion. 3) For conductors that are flexed in normal use, flex movable part for 10 000 cycles at a test frequency of 0,5 Hz. 4) For conductors that are flexed during user maintenance, flex the movable part for 100 cycles at the same frequency.		P
6.3.4	Wiring harness		P
	When a wiring harness is installed, it shall be positioned to avoid any damage related to contact with moving parts or sharp edges. All connections shall withstand a tensile force of 10 N in any direction.	Tested, no abnormalities	P
6.3.5	Power cables and conduits		P
	Conduit entries, cable entries and knockouts shall be constructed or located so that the introduction of the conduit or cable does not reduce the protection measures adopted by the manufacturer. The insulation of internal wiring shall withstand the electrical stress likely to occur in intended use. The wiring and its connections shall withstand an electrical strength test with the following characteristics.		P
6.3.6	External and internal electrical connections		P
6.4	Moisture resistance		P
	The enclosure of electrical components of a fully assembled vehicles shall comply with and be tested in accordance with IPX4 tested in accordance with EN 60335-1:2012, 15.1.	IPX4	P
6.5	Resistance to vibration for electric functions		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
6.5.1	Requirements		P
	This requirements applies to all PLEV classes 1 to 4. The vehicle shall withstand a vibration test representing the foreseeable use on roads and public areas. When tested according to the method described in 6.5.2, all electric functions shall be fully maintained. Verification shall be by function test after the vibration test.		P
6.5.2	Test method		P
7	Driving power management		P
7.1	Driving power activation		P
7.1.1	Requirements	Accordance with standard 7.1.1	P
7.1.2	Test method		P
7.1.2.1	Test conditions		P
7.1.2.2	Test procedure		P
7.2	Power failure of control system		P
	For class 1 and class 2 vehicles, in the event of an electrical power failure the vehicle shall be able to brake normally or, shall come to a standstill with a deceleration between (1,5-2) m/s2. For class 3 and class 4 vehicles, a fault condition in the power control system shall be indicated by a warning signal (visual, audible, vibrating.) on the handlebar, the vehicle itself or to the remote control (see Clause 17). In a driving condition the loss of connection to the warning device, on the remote control, shall result in a speed reduction to 6 km/h or less for a Class 4 vehicle; the speed reduction shall happen in a safe manner without creating additional hazards with corresponding audio notification and tilt back of decks on self-balancing vehicles.		P
7.3	Unintended or unauthorized use of vehicle		P
	Means shall be provided to prevent an unintended or unauthorized use of the vehicle, e.g. keys, locks, electronic control device.		P
8	Speed limitation		P
8.1	Pedestrian mode		P
8.1.1	General		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
	Vehicles classes 2 and 4 shall be equipped with a pedestrian mode for limiting the speed to a maximum of 6 km/h. A distinctive and visible warning light shall be provided to indicate both to the user and others in the vicinity of the vehicle when pedestrian mode is in operation. It shall be active only when the pedestrian mode is activated. Verification shall be in accordance with 8.1.2		P
8.1.2	Test method		P
8.1.2.1	Test conditions		P
	a) The test may be carried out on a test track, a test bench or on a roller.		P
	b) The speed measuring apparatus and test conditions shall have the following characteristics: 1) accuracy: ± 2 %; 2) resolution: 0,1 km/h.		P
	c) The ambient temperature shall be between 5 °C and 35 °C.		P
	d) Maximum wind speed: 3 m/s.		P
	e) The battery shall be fully charged in accordance with the manufacturer's instructions.		P
	f) With the vehicle operate under normal operation, but the motors are loaded to 33 % of their locked rotor current by adjusting the load on its rotational axis in the forward direction.		P
8.1.2.2	Characteristic of the test track		P
	The gradient of the track shall not exceed 0,5 %. If the gradient is less than 0,2 % carry out all runs in the same direction. If the gradient lies between 0,2 % and 0,5 % carry out alternate runs in opposite directions. The surface shall be hard, of concrete or fine asphalt free from loose dirt or gravel. The minimum coefficient of friction between the dry surface and the vehicle tyre shall be 0,75.		P
8.1.2.3	Characteristic of the test bench		P
	The test bench shall simulate normal road conditions.		P
8.1.2.4	Characteristic of the roller		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
	The test roller shall support with bearing to decrease the resistance, load need to add to the roller to reach rated current (see Figure 2).		P
8.1.2.5	Test procedure		P
	a) Prepare the vehicle by running it for 5 min at 80 % of the speed corresponding to maximum power as declared by the manufacturer, then stop it.		P
	b) Actuate the mode for limiting the speed to 6 km/h (or less) and check whether the speed operating range of the power assistance is limited to 6 km/h (or a lower value).		P
8.2	Maximum speed with power assistance		P
8.2.1	Requirements		P
	The maximum speed for which the electric motor gives assistance shall be in accordance with the maximum permitted speed for the class. It may differ by (±10 %) of the maximum speed marked on the vehicle given in the instruction manual/sheet and determined according to the test method described in 8.2.2.The maximum speed in this mode shall not exceed 25 km/h.	Max; 25 km/h	P
8.2.2	Test method		P
8.2.2.1	Test conditions		P
	The test shall be performed in accordance with 8.1.2.1, 8.1.2.2 and 8.1.2.3		P
8.2.2.2	Test procedure		P
8.2.2.2.1	Test for vehicle with 100% electric propulsion		P
	If performed with a test bench: a) Put the vehicle on the bench and bring it to the maximum achievable speed and maintain the speed for 60 s at least; b) Measure the vehicle speed by measuring the speed of the test bench. If performed with a test track: c) Put the vehicle on the track and bring it to the maximum achievable speed and maintain the speed for 60 s at least; d) Measure the vehicle speed. e) The measured speed shall not exceed 25 km/h (±10) % and the maximum speed (±10) % indicated by the manufacturer in the instruction manual/sheet if lower.		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
8.2.2.2.2	Test for vehicle partially electrically powered		P
	a) The test shall be carried out on a bench powered such that the speed of the PLEV can be increased to 120 % of the maximum speed achievable solely under electrical power and the speed of the vehicle shall be measurable in accordance with 8.1.2.1: b) Put the vehicle on the bench and bring it to the maximum speed achievable solely with vehicle electrical power. c) Using the test bench drive increase the vehicle speed to 120 % of the maximum speed achievable solely with vehicle electrical power and maintain for 30 s. The measured speed shall not exceed25 km/h (±10) % and the maximum speed (±10) % indicated by the manufacturer in the instruction manual/sheet if lower. d) Disconnect the test bench drive while maintaining the vehicle speed control at maximum achievable setting. Measure the vehicle speed.		P
8.3	Reverse mode		P
8.3.1	Requirement		P
	Vehicles with a reverse driving function shall be equipped with a device limiting its speed to 6 km/h when travelling in reverse. If travelling in reverse, an active sound signal shall be audible.		P
8.3.2	Test method		P
	The test shall be carried out on a test bench as follows: a) Prepare the vehicle by running it for 5 min at 80 % of the speed corresponding to maximum power as declared by the manufacturer, then stop it. b) Drive the test bench to simulate driving the vehicle in the reverse direction of travel at the maximum achievable speed. Check that the speed operating range of the power assistance is limited to 6 km/h(or a lower value).		P
9	Electromagnetic compatibility		P
9.1	Emission		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
	Vehicle class 1 and 2 shall conform to Annex B Vehicle class 3 and 4 shall conform to EN 61000-6-3:2007 apply with the following modification. The vehicle operated as described in B.2.2.3.		P
9.2	Immunity		P
	Vehicle class 1 and 2 shall conform to Annex B Vehicle class 3 and 4 shall conform to EN IEC 61000-6-1:2019 apply with the following modification. The vehicle operated as described in B.4.4. Specific performance criterion for PLEV: -- Class A: all functions of vehicle perform as designed during and after exposure to a disturbance. -- Class B: all functions of vehicle perform as designed during exposure; however, one or more of them may go beyond the specified tolerance. All functions return automatically to within normal limits after exposure is removed. Memory functions shall remain class A. -- Class C: one or more functions of vehicle do not perform as designed during exposure but return automatically to normal operation after exposure is removed.		P
9.3	Battery charger		P
	As a PLEV is not intended to be used while charging on the electric network, for integrated charger the whole PLEV plus integrated charger shall be tested for EMC according to the applicable standards.		P
10	Charging of batteries		P
10.1	General		P
	If a vehicle has an integrated and built-in battery charging system (i.e; integrated charger), the user shall be protected against hazards due to accidental contact with the charging connections on the vehicle and its charging systems. For enclosures of charging system, see 6.4 Moisture resistance.		P
10.2	Test method		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
	For each fault condition introduced, the state of the battery before charging is as follows: A series configured battery shall have a deliberate imbalance. The imbalance is introduced into a fully discharged battery by charging one cell to approximately 50 % of full charge or less. Conduct the charging test, each cell voltage is continuously monitored to determine if it has exceeded the limit condition. Venting of the cells is permitted. For vehicles with external battery charging system, charging contacts and plugs shall be designed in away that accidently touching live parts is prevented (e.g. caps for plugs and outlets).		P
10.3	Safeguarding and complementary protective measures		P
	The following measures shall be applied where appropriate: -- charging systems shall be designed in such a way that the charging connections are only activated when the vehicle is connected to them; -- charging systems shall display the charging status or give a signal when the battery is fully charged; -- charging systems shall be designed in such a way that the correct charging of the battery is automatically supervised, and thus hazards caused by overloading or charging of deeply discharged batteries are prevented.		P
11	Energy storage within the vehicle		P
11.1	Requirements		P
	The vehicle as well as the sets of energy storage (i.e. battery) shall be designed and constructed such as to prevent any risk of fire and mechanical deterioration resulting from foreseeable abnormal use.Compliance with this requirement is checked by the test described in 11.2.		P
11.2	Test method		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
	The test shall be conducted according to EN 62133 (all parts) or, as follows: a) Battery terminals are short-circuited using fully charged batteries. b) Motor terminals are short-circuited; all of the controls are in ON position and batteries fully charged. c) The vehicle is operated with the electric motor or drive system locked so as to fully discharge the battery or until the system stops. d) The battery is charged for double the recommended charging period or for 24 h, choosing the longest of these two periods. Verification: there shall be no visible damage for a), b), c) and d) and no overvoltage for d).		P
12	Structural integrity		P
12.1	General		P
12.1.1	Numbers and conditioning of samples		P
12.1.2	Test condition tolerances		P
12.1.3	Crack detection		P
	Standardized methods may be used to highlight the presence of cracks when visible cracks are specified as criteria of failure in the tests described in this standard.		P
12.2	Static load test		P
12.2.1	Deck/frame		P
12.2.1.1	Requirement		P
	When tested according to the method described in sub Clauses 12.2.1.2, 12.2.1.3 or 12.2.1.4 there shall be no cracks or fractures, or collapse of the structure, or unfolding. Where the construction of the vehicle does not allow the full mass to be applied in normal use to each deck then the maximum mass is divided by two to achieve the test load for each deck. Progressively apply a mass of 100 kg or, when greater, a mass equal to the maximum permissible payload marked on the vehicle in accordance with 19.2.1 and multiplied by a safety factor of 2,5 during1 min with a flat device having a surface of 100 mm × 100 mm to the centre of one or two deck(s)(see Figure 3).		P
12.2.1.3	Test method - 3 - wheeled vehicle		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
	Progressively apply a mass of 100 kg or, when greater, a mass equal to the maximum permissible payload marked on the vehicle in accordance with 19.2.1 and multiplied by a safety factor of 2,5 during 1min with a flat device having a surface of 100 mm x 100 mm to the centre of the two following positions a and b simultaneously (see Figure 4). If plastic material is used for the deck or steering system the 3-wheeled vehicle has to be conditioned for at least 6 h at a temperature of (5 ± 1) °C. Start the test within 1 min of removing the PLEV from the conditioning environment and complete it within 5 min.		P
12.2.1.4	Test method - self - balancing vehicle		P
	Progressively apply a mass of a minimum of 100 kg or, when greater, a mass equal to the maximum permissible payload marked on the vehicle in accordance with 19.2.1 and multiplied by a safety factor of 2,5 during 1 min with a flat device having a surface of 100 mm x 100 mm to the centre of each deck(see Figure 5). If plastic material is used for the deck or steering system the self-balancing vehicle has to be conditioned for at least 6 h at a temperature of (5 ± 1) °C. Start the test within 1 min of removing the PLEV from the conditioning environment and complete it within 5 min.		P
12.2.2	Handlebar and steering column		P
12.2.2.1	Bending test		P
12.2.2.1.1	Requirements		P
	When tested according to the method described in 12.2.2.1.2, there shall be no cracks or fractures, or deterioration of the operation of the handlebar or steering column.		P
12.2.2.1.2	Test methods		P
	The steering column shall be in maximum high position and centrally loaded with a 50 kg mass, applied in directions A and B, each for 1 min, as shown in Figure 6. The handlebar shall be in maximum high position and loaded with a 50 kg mass divided in two, for 1min, as shown in Figure 7.		P
12.2.2.2	Vertical loading test		P
12.2.2.2.1	Requirements		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
	Following the test performed according to the method described in 12.2.2.2.2, there shall be no cracks or fractures, or deterioration of the operation of the handlebar or steering column. Nor shall there be any movement of the telescopic part.		P
12.2.2.2.2	Test method		P
	The handlebar shall be assembled in accordance with the manufacturer's instruction manual/sheet.Draw out the telescopic tube up to half of its adjustment range (±1 cm) and engage the locking system.Load the vehicle by applying a mass "m" of 50 kg simultaneously to the centre of each hand grip in directions A as shown in Figure 8.Maintain the load for 1 min. Determine whether the head tube has not become separated, the handlebar has not moved, the locking systems are still operational and engaged and whether the operation of the handlebar or steering column has not deteriorated.		P
12.2.2.3	Torque test		P
12.2.2.3.1	Requirement		P
	When tested according to the method described in 12.2.2.3.2, there shall be no movement of the handlebar stem in relation to the steering tube.		P
12.2.2.3.2	Test method		P
	If necessary, assemble the handlebar and the steering column according to the manufacturer's instructions. -- Lock the fork in rotation. -- Apply a torque C of 20 Nm once in each direction of possible rotation in a plane perpendicular to the axis of the handlebar/fork assembly. Maintain each torque for 1 min.		P
12.2.2.4	Handlebar grips and plugs		P
12.2.2.4.1	Requirements		P
	The ends of the handlebar shall be fitted with grips or end plugs. When tested according to the method described in 12.2.2.4.2, the grips or plugs shall withstand a dismantling force of 70 N.		P
12.2.2.4.2	Test method		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
	Leave the handlebar to reach ambient temperature then apply a force of 70 N to the grip or plug in the dismantling direction. Maintain the force for 1 min. An example of handlebar grip drawing attachment is given is Figure 10.		P
12.2.2.5	Telescopic handlebar (if fitted)		P
	The handlebar stem shall be provided with one of the two following means to guarantee a safe insertion depth into the steering column: a) the handlebar stem shall be provided with a permanent, transverse mark, of a length greater than or equal to the external diameter of the handlebar stem clearly indicating the minimum depth for inserting its rod into the steering column. The insertion mark shall be positioned at least2,5 times the external diameter of the rod from the lower end of the handlebar stem. The length of the solid section of the handlebar stem below the mark shall be at least equal to the external diameter of the rod; b) the handlebar stem shall be provided with a permanent stop to prevent it from being drawn out of the steering column beyond the minimum insertion depth defined in a).		P
12.3	Frontal impact resistance		P
12.3.1	Requirements for class 2		P
	When tested according to the method described in 12.3.3, there shall be no visible cracks or fractures in any point of the folding mechanism -head tube-handlebar assembly. There shall be no visible cracks or fractures in any part of the frame and there shall be no separation of any elements of the suspension system. The assembly remains operational even if significant clearances are found. These clearances are acceptable if they do not involve the safety of the user. In particular, the locking of the folding system, if any, shall be checked when the scooter is unfolded If applicable, the folding mechanisms shall remain locked.		P
12.3.2	Test method for vehicle of class2		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
	Adjust the handlebar at the maximum height. The frame is mounted on a rigid fixture by the rear axle attachment points. The frame is loaded with masses and can turn around the rear axle. The assembly is rotated about the rear axle and then let falling down on the anvil.		P
12.3.3	Requirements for class 4		P
	When tested according to the method described in 12.3.4, there shall be no visible cracks or fractures in any part of the frame and there shall be no separation of any elements of the suspension system. The assembly remains operational even if significant clearances are found. These clearances are acceptable if they do not involve the safety of the user.		P
12.3.4	Test method for vehicle of class 4		P
	The vehicle shall jump/drive over at 8-10 km/h of a pavement step down (foreseeable risk) where the step should be limited to 1/4 height of the wheel diameter (see Figure 13). The test shall be conducted with the mass of the maximum design load separated to the two platforms. If appropriate, tyre pressure shall be adjusted according to the maximum value given by the manufacturer. Repeat the test and then check for damages.		P
12.4	Fatigue test (dynamic)		P
12.4.1	General		P
12.4.2	Requirements		P
	When tested according to the method described in 12.4.3 to 12.4.5, there shall be no visible cracks or fractures in any point of the folding mechanism - head tube-handlebar assembly. There shall be no visible cracks or fractures in any part of the frame and there shall be no separation of any elements of the suspension system. The assembly remains operational even if significant clearances are found.These clearances are acceptable if they do not involve the safety of the user. In particular, the locking of the folding system, if any, shall be checked when the scooter is unfolded.		P
12.4.3	Test method for a 2-wheeled single track vehicle		P
	Use a new product for the test. A complete vehicle shall withstand the fatigue test.		P
12.4.4	Test method fora3-wheeledvehicle		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
	Use a new product for the test. A complete vehicle shall withstand the fatigue test.		P
12.4.5	Test method for a self-balancing vehicle		P
12.4.5.1	General		P
	This test consists of 3 steps: (1) setting-up for the test, (2) test motion and (3) inspection. This test utilizes three apparatus: (1) test road, (2) a test load and (3) a supporting device (if necessary for maintaining the position of the vehicle during testing). The apparatus (1) test road simulates environment of the intended use of the vehicle, and typically employs a test drum or a treadmill. Determine the specifications of the (2) test load according to the maximum permissible load or according to the weight of intended users.	/	P
12.4.5.2	Apparatus		P
	The apparatus required shall include the following: a) Swept Sinusoidal Vibration test. b) Test weight. c) Supporting device.		P
12.5	Procedure		P
	a) The self-balancing vehicle is positioned on the vibration machine supporting if necessary in accordance with 12.4.5.2 and either, as appropriate, with the test load or test dummy applying the load(s) in accordance to 12.4.5.2. b) Visible damage such as fractures, deformation, jiggling, looseness or disengagement of parts, and changes in self-balancing vehicle function shall be recorded.		P
13	Edges and protrusions		P
13.1	General		P
	These requirements are intended to address the hazards associated with the users of vehicles falling on projections or rigid components (e.g. handlebars, levers) on vehicle possibly causing internal injury or skin puncture.		P
13.2	Sharp edges		P
	Adequate shape shall be given to avoid puncturing of the body.		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
13.3	Protrusions		P
	Tubes and rigid components in the form of projections which constitute a puncture hazard to the user shall be protected.Screw threads which constitute a puncture/cut hazard shall be limited to a protrusion length of one major diameter of the screw beyond the internally threaded mating part.		P
14	Moving parts		P
14.1	Clearance between moving parts		P
	To prevent crushing of fingers the distance separating accessible moving parts from other moving parts or from fixed parts of the vehicle shall, either be less than 5 mm, or greater than 18 mm in any position.This requirement does not apply to the wheel with its support systems, or to the rear brake/braking system, if any, or to brake actuating levers.		P
14.2	Guarding of moving parts		P
	Wheels shall be covered to avoid unintentional contact between a foot of the user and the moving wheel.		P
14.3	Folding mechanism		P
14.3.1	General requirement		P
14.3.1.1	General		P
	Vehicles that can be folded for storage or transportation shall be fitted with one or more locking mechanism(s). The locking mechanism(s) shall comply with the requirements in 14.3.1.3.		P
14.3.1.2	Incomplete deployment		P
	To avoid hazards due to incomplete deployment, at least one locking device shall engage automatically when the vehicle is unfolded for use. If the locking device is not visible without damaging the vehicle, a second sample may be used.		P
14.3.1.3	Unintentional release of locking mechanism(s)		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
	To avoid unintentional release, one of the following conditions shall be fulfilled: a) there shall be at least one operating device which fulfils the following: 1) the operating device shall require at least two consecutive actions, the second being dependent on the first having been carried out and maintained by the user ; and 2) the operating device shall not be activated or damaged in one single action during testing in accordance with 14.3.1.3; or		P
	b) there shall be two separate and independent operating devices which fulfil one of the following: 1) where one operating device is intended to be operated by foot (e.g. by its position, shape,according to the manufacturer's instructions for use.) it shall automatically return to its original status and the locking device shall reengage; or 2) where both operating devices are intended to be operated by hand(s) (e.g. by their position,shape, according to the manufacturer's instructions for use.) they shall both automatically return to their original status and the locking devices shall reengage. When tested in accordance to 14.3.2,the vehicle shall not fold and the locking device(s)shall not be released.		P
14.3.2	Test methods		P
14.3.2.1	Preconditioning		P
	Operate the locking devices 200 times.		P
14.3.2.2	Unintentional release of the locking mechanism by one single action		P
	Place the vehicle fully deployed and ready for use on a horizontal flat surface. Apply a force of 150N or a torque of 2,2 Nm to the locking device. This force or torque shall be applied to the locking device in the direction most likely to open the locking device in one single action. The force or torque shall be applied for a period of 5 s. Folding mechanism shall not be released.		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
15	Adequate stability(see D.10)		P
15.1	Footrest/deck		P
	In case the user is standing permanently, each deck shall be equipped with an anti-slide surface with an area of at least 150 cm2.In case the user is seating normally (not standing) while driving, the footrest shall be anti-slide and shall have a minimum length of 6,5 cm.In case the user is standing momentarily and the vehicle has an integrated seat, the footrest shall be anti-slide and shall have a minimum length of 6,5 cm and a minimum width of 10 cm (see Figure 15)		P
15.2	Handlebar adjustment		P
	The handlebar height adjustment system shall be fitted with devices to avoid inadvertent separation or detachment during use.		P
15.3	Surface		P
15.3.1	Slippery surface		P
15.3.1.1	Requirements for wheel adhesion		P
	The wheels shall be constructed from non-slip material. This requirement is considered to be fulfilled if a coefficient of adhesion, μ 0, of at least 0,30 is achieved in the test according to 15.3.1.2.		P
15.3.1.2	Wheel adhesion test		P
	Wheel adhesion shall be tested by pulling a clean wheel along a steel plate having a fine brushed and degreased surface of arithmetical mean roughness Ra of 1,5 im to 2,0 im (see Figure 16). A vertical force F1 of 10o N shall be applied to the wheel which is moved along the steel plate perpendicular to the vehicle's longitudinal axis and perpendicular to the surface brush direction by a horizontal force F2, applied at the height of the wheel's axis. The maximum force shall be recorded. The test shall be repeated 10 times and the mean value of F2 shall be calculated. The test shall be carried out at a speed of approximately 1 mm/s.		P
15.3.2	Irregular surface		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
	When loaded with a 90 kg mass, the dimensions of the tyres of the vehicle shall be: a) For vehicle with aligned wheels or with one front wheel: -- the front tyre shall have a minimum diameter of 125 mm and a minimum width of 25 mm -- the rear tyre shall have a minimum width of 25 mm b) For self-balancing vehicle: -- the tyre shall have a minimum diameter of 125 mm and a minimum width of 25 mm c) For all others vehicles: -- the tyre shall have a minimum diameter of 125 mm or a minimum width of 25 mm		P
15.4	Braking devices		P
15.4.1	General		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
	All vehicles shall be equipped with service brake system and, when indicated, a parking brake or parking device as follows: a) Class 1 and 2 single track vehicles (e.g. vehicle with aligned wheels) shall be equipped with at least parking device and one of the following: b) Class 1 and 2 multi-track vehicles (e.g. vehicle with unaligned wheels) shall be equipped with a parking device and one of the following: 1) If there are two rear wheels, the vehicle shall be equipped with a braking device on all rear wheels or an independent front and a combined rear wheels brake. The braking device shall be operated by the actuation of a single control or all wheel integrated braking system, 2) If there is one rear wheel, the vehicle shall be equipped with all wheel integrated braking system or with independent front wheel and rear wheel brakes; c) Class 3 and 4 multi-track vehicles shall be equipped with an acceleration controlled braking system. d) Class 3 and 4 single track self-balancing vehicles shall be equipped with a brake. When a parking brake or parking device is not required, instructions to avoid the vehicle running away when unattended shall be provided in the owner's manual.		P
15.4.2	Braking performance		P
15.4.2.1	General requirements		P
15.4.2.2	Hand operated braking system - Strength test		P
	There shall be no failure of the braking system or of any component thereof when tested in accordance with 15.4.3.2		P
15.4.2.3	Dry stop		P
	When the brakes are tested in accordance with the test procedure set out in 15.4.3.4, the following condition shall be met: -- the Mean Fully Developed Deceleration (MFDD) shall be: ⩾ 1,7 (m/s2). The vehicle speed at the start of braking shall be 90 % of the maximum speed of the vehicle achievable solely by power assistance.		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
15.4.2.4	Vehicle behaviour during braking		P
	During the tests (see 15.4.3), the following shall not occur in a way which causes the user to have to use his feet, other than for the application of the brake, to control the vehicle: a) excessive juddering; b) front wheel locking; c) vehicle instability (for example, uncontrollable lifting of the rear wheel); d) user's loss of control or balance; e) excessive side-skidding.		P
15.4.2.5	Electric failure braking compensation		P
	In the event of an electric braking failure, the vehicle shall be able to brake normally or, shall come to a standstill with a minimum deceleration of 1,25 (+/ 0,25) m/s2 as describe in 15.4.3.5.		P
15.4.2.6	Parking device		P
	When required in accordance with 15.4.1, the parking device shall make it possible to maintain the vehicle stationary on up or down gradient of 18 % even in the absence of the user. The user shall be able to achieve this parking action from the riding position. The parking device system shall have a control which is separate from the service braking device controls. The vehicle shall be held in the locked in the parking position by a purely mechanical device.		P
15.4.3	Test methods		P
15.4.3.1	Braking test force applications		P
15.4.3.2	Hand operated brake strength test		P
	The test shall be performed on a fully-assembled vehicle. The brake operating systems shall withstand the applied force.		P
15.4.3.3	Brake performance test conditions(classes 2 and 4)		P
15.4.3.4	Stop performance calculation(classes 2 and 4)		P
15.4.3.5	Electric braking failure compensation test		P
15.4.3.5.1	Requirement		P
	The requirement of 15.4.2.5 shall be achieved.In case of electric braking failure, the vehicle shall stop with a smooth deceleration regarding Z.2.		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
15.4.3.5.2	Test method for an electrical braking system		P
	This test is not conducted when the vehicle is equipped with a completely mechanical braking system.		P
16	Presence awareness		P
16.1	Lighting		P
16.1.1	Retro-reflectors		P
	Vehicles shall be fitted with front, side and rear retro-reflector according to IS0 6742-2:2015. The rear reflector shall be red in colour. The front reflector shall be white (clear) in colour. All side reflectors shall be of the same colour, either white (clear) or yellow.		P
16.1.2	Front and rear lightning		P
	Vehicles of class 2 and 4 shall be fitted with active front and rear lights according to ISO 6742-1:2015 (see D.12). The manufacturer shall indicate in the user's manual how an active front and rear light can be fitted to the vehicles of class 1 and 3. The controls for lighting shall be marked in accordance with Annex E		P
16.2	Audible warning to alert persons		P
	An audible device shall be provided to allow a warning to be given to persons in the vicinity ofthe vehicle.		P
17	System failure and malfunction warning devices		P
17.1	General		P
	The warning symbols audible signal are given in Annex F. Audible warning devices provided with the vehicle shall be unambiguous and easily perceived. The operator shall be able to check the operation of the audible warning devices at all times.		P
17.2	Audible/vibrating signalling		P
	Audible devices required by this standard shall comply with IS0 14878:2015 Class I1.		P
17.3	Loss of connection to the warning system		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
	Loss of connection to the warning system shall be relayed by a warning signal (visual, audible,vibrating...) on the vehicle or on the remote control. In a driving condition the loss of connection to the warning device shall result in a speed reduction to 6 km/h for a Class 4 vehicle; the speed reduction shall happen in a safe manner without creating additional hazards and with corresponding audio notification and tilt back of decks on self-balancing vehicles.		P
18	Hot surfaces		P
18.1	Requirements		P
	Hot surfaces of the vehicle (temperatures above 57 °C), except brake systems, which are not in continuous contact with the user shall be protected to prevent inadvertent contact.		P
18.2	Test method		P
	To be tested by measurement (tolerance ± 2 °C) only if there are heat producing elements in the direct vicinity of the grips, the footrest or the deck. Put the vehicle on the bench with a fully charged battery. Operate the vehicle under maximum load until 20 % of battery charge remains (maximum warm up). Measure temperature of grips, footrest(s)and deck(s).		P
19	Product information and marking		P
19.1	General		P
	The following product information should accompany each product. All text shall be printed in the official language or at least one of the official languages of the country of sale. If other languages are included, they shall be easy to distinguish, e.g. by separate presentation.		P
19.2	Marking		P
19.2.1	General		P
	The vehicle shall be legibly, visibly and permanently marked with at.		P
19.2.2	Durability of marking of the frame or chassis		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
	Rub the marking by hand for 15 s with a piece of cloth soaked in water and again for 15 s with a piece of cloth soaked in petroleum spirit.After the test the marking shall remain easily legible.It shall not be easy to remove any label nor shall any label show any sign of curling. After rubbing the text shall still be clearly legible.		P
19.2.3	Battery		P
	Information concerning the battery shall comply with existing corresponding standards.		P
19.2.4	Tyres		P
	The maximum pressure for inflatable tyres (if present) shall be marked on the tyre or in the instructions for use.		P
19.3	Purchase information		P
19.3.1	General		P
	Information at point of sale could be given on the packaging, on an information sheet in the store or on internet.		P
19.3.2	Information at point of sale	See label	P
19.3.3	Information on the packaging	See packaging	P
19.4	Instructions for use		P
19.4.1	General		P
	Instructions concerning safe use of the vehicle shall be provided with the vehicle in the form of nstruction sheet, instruction manual, leaflet or other similar physical support.		P
19.4.2	Noise emission		P
19.4.2.1	General		P
	In case of doubt, a-weighted sound pressure levels shall be measured to a maximum 70 dB according to EN 1S0 3744:2010, if necessary (see 19.4.2.2)		P
19.4.2.2	Requirements		P
19.4.3	Battery charging		P

EN 17128			
Clause	Requirement+ Test	Result - Remark	Verdict
	Information for use shall contain instructions for battery charging, in particular: -- recommendations on charging the battery and use of the charger; -- procedure for charging the battery;environmental conditions (e.g. outdoor or indoor charging); -- requirement to power-off the vehicle during charging, or into a certain non-operational mode; -- appropriate warnings.		P
19.5	Instructions on servicing and maintenance		P

Photo Documents

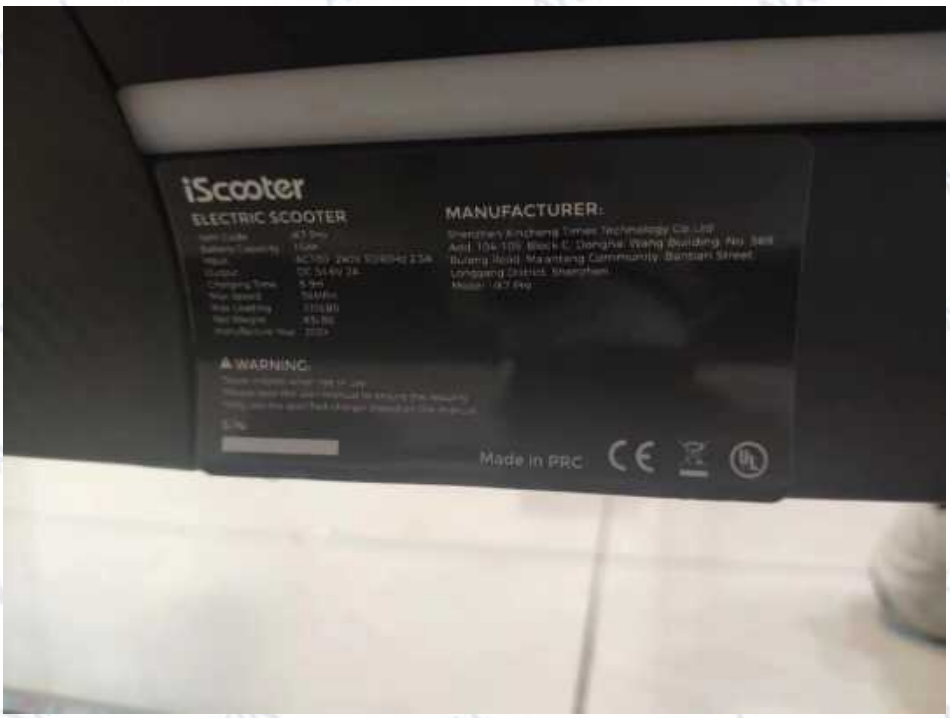
Photo 1 View: [√] Front [ ] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [ ] Internal	
Photo 2 View: [√] Front [ ] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [ ] Internal	

Photo 3 View: [√] Front [ ] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [ ] Internal	

Photo 4 View: [√] Front [ ] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [ ] Internal	

Photo 5 View: [√] Front [ ] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [ ] Internal	

Photo 6 View: [√] Front [ ] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [ ] Internal	

Photo 7 View: [√] Front [ ] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [ ] Internal	

Photo 8 View: [√] Front [ ] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [ ] Internal	

Photo 9 View: [√] Front [ ] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [ ] Internal	

Photo 10 View: [√] Front [ ] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [ ] Internal	

Photo 11 View: [√] Front [ ] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [ ] Internal	

Photo 12 View: [√] Front [ ] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [ ] Internal	

Photo 13 View: [ ] Front [√] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [ ] Internal	

Photo 14 View: [√] Front [ ] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [ ] Internal	

Photo 15 View: [ ] Front [√] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [ ] Internal	

--END--