TEST REPORT

Report No.:	NTS1609340S
Product:	Car electric tail gate
Model No.:	LE5800, LEXXXX (XXXX=5801-5999)
Applicant:	Guangzhou ChangYi Auto Parts Limited Liability Company
Address:	#36, Sangtian Yi Road, Yonghe Street, Yonghe Economic Development Zone, Luogang District, Guangzhou, Guangdong, China
Issued by:	NOWD Testing Services Co., Ltd.
Lab Location:	Rm. 606, FuerYuanjian, Bldg. 21, Zone 25, Chuangye Road, Bao'an District, Shenzhen, P.R.China
Tel:	(86)-0755-27830065 Fax (86)-0755-27830095

TEST REPORT

Commissioning tests

Report Number. .....:	NTS1609340S
Tested by (+ signature) .....:	Ethan Chen
Compiled by (+ signature) .....:	Wetow Huang
Date of issue .....:	September 30, 2016
Total number of pages.....	27 pages
Testing laboratory .....:	NOWD Testing Services Co., Ltd.
Address .....:	No. 606, FuerYuanjian Business Centre, Bldg. 21,Commercial street, 25 Zone, ChuangYe Rd., Bao'an District, Shenzhen City, Guandong 518133, P.R. China
Testing location .....:	Same as above
Applicant's name.....:	Guangzhou ChangYi Auto Parts Limited Liability Company
Address .....:	#36, Sangtian Yi Road, Yonghe Street, Yonghe Economic Development Zone, Luogang District, Guangzhou, Guangdong, China
Manufacturer .....:	Guangzhou ChangYi Auto Parts Limited Liability Company #36, Sangtian Yi Road, Yonghe Street, Yonghe Economic Development Zone, Luogang District, Guangzhou, Guangdong, China
Test specification:	
Standard.....:	According to the Customer Enterprise Standard and Q/CYQC 1- 2016
Test Item.....:	Test according to the enterprise standard: Appearance inspection, Functional Test
Test Result .....:	PASS
Testing..... :	
Date of receipt of test item .....:	August 29, 2016
Date(s) of performance of tests.....:	August 29, 2016 to October 11, 2016
This test report is specially limited to the above tested sample, client company and product model only. It may not be duplicated without prior written consent of NOWD Testing Services Co., Ltd.	
Test item description..... :	Car electric tail gate
Trade Mark .....:	Changyi
Model/Type reference.....:	LE5800, LEXXXX (XXXX=5801-5999)
Ratings .....:	Input: 12.0V⎓, 78W;

Test item particulars.....:	
Equipment mobility..... :	[] movable [ ] hand-held [] transportable [] stationary [x] for building-in [] direct plug-in
Connection to the mains ..... :	[] pluggable equipment [] type A [] type B [] permanent connection [] detachable power supply cord [] non-detachable power supply cord [x] not directly connected to the mains
Operating condition..... :	[ ] continuous [x] discontinuous operation
Access location ..... :	[x] operator accessible [] restricted access location
Over voltage category (OVC) ..... :	[] OVC I [] OVC II [] OVC III [] OVC IV [x] other:
Mains supply tolerance (%) or absolute mains supply values ..... :	N/A
Tested for IT power systems ..... :	[] Yes [x] No
IT testing, phase-phase voltage (V) ..... :	
Class of equipment ..... :	[ ] Class I [ ] Class II [x] Class III [ ] Not classified
Pollution degree (PD) ..... :	[] PD 1 [x] PD 2 [] PD 3
IP protection class ..... :	IPX0
Possible test case verdicts:	
- test case does not apply to the test object.....:	N/A (or N)
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement.....:	F (Fail)
Testing.....:	
Date of receipt of test item.....:	August 29, 2016
Date(s) of performance of tests .....:	August 29, 2016 to September 13, 2016
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 / ☒ point is used as the decimal separator.	
General product information: ➢ EUT is a Car electric tail gate manufactured by Guangzhou ChangYi Auto Parts Limited Liability Company, model No.: LE5800; ➢ As client declare: LEXXXX (XXXX=5800-5999) are same as model LE5800 except the trade mark. ➢ According to the Customer Enterprise Standard and Q/CYQC 1- 2016, we did Appearance inspection and Functional Tests, Test result is: **PASS**	

Commissioning tests			
Clause	Requirement + Test	Result - Remark	Verdict

5	**Specification and test methods**		P
5.1	**Materials**		--
	All materials shall comply with the relevant national documents and related standards		P
5.2	**Dimensions and tolerance**		--
	All dimensions and tolerances requirements need to meet the requirements of function and assembly process, and shall comply with the design drawings		P
5.3	**Basic function**		--
	The basic function products are as follows：		--
	a) Keep the tail door to open； b) Can realize the tail gate electric open and close; c) Can realize the tail door manually open and close; d) Can realize the tail door remote control open and close; e) Can realize the tail gate electric setting height； f) Have anti-pinch function; g) Have audible and visual alarm function. According to the instructions, should be able to realize the corresponding function.		P

5.4	**Open and close control system for Electric tail gate**		--
5.4.1	**General requirements**		--
5.4.1.1	Electric tail gate system should manufacture and assemble according to the approved drawings and technical documents		P
5.4.1.2	The modules which constitute the Electric tail gate system should comply with the technology requirement. (include control module, self-priming lock, actuating element)		P
5.4.1.3	Operating Temperature of the Electric tail gate system is: -30℃～65℃		--
5.4.1.4	Stretching and compression speed of the Electric tail gate system should according the drawing, The time normally open or closed is 6s±1s. Test by actual operation.		P

Commissioning tests			
Clause	Requirement + Test	Result - Remark	Verdict

5.4.2	**Characteristics for Opening and closing**		--
	Working condition according to Table 1, the tail door should be able to open and close automatically, moving smoothly, without abnormal noise.	Please refer to below	P

Table 1

Working condition	1	2	3
Incline	Horizontal	Horizontal	Horizontal
Temperature	-30℃	20℃	65℃
Voltage at ECU	10.5V	12V	12V

	1, Incline: Horizontal; -30℃, 10.5VDC	the tail door can automatically open and close, stable movement, no noise	P
	2, Incline: Horizontal; 20℃, 12VDC	the tail door can automatically open and close, stable movement, no noise	P
	3, Incline: Horizontal; 65℃, 12VDC	the tail door can automatically open and close, stable movement, no noise	P

5.4.3	**Characteristics for Opening and closing on Incline**		--
	Working condition according to Table 2, the tail door should be able to open and close automatically, moving smoothly, without abnormal noise.	Please refer to below	P

Table 2

Working condition	1	2
Incline	20% (Car head up)	20% (Car head down)
Temperature	20℃	20℃
Voltage at ECU	12V	12V

	1, Incline: 20% (Car head up); 20℃, 12VDC	the tail door can automatically open and close, stable movement, no noise	P
	2, Incline: 20% (Car head down); 20℃, 12VDC	the tail door can automatically open and close, stable movement, no noise	P

5.4.4	**Characteristics for continuous Opening and closing**		--

Commissioning tests			
Clause	Requirement + Test	Result - Remark	Verdict
	Working condition according to Table 3. After 10 cycles (totally open and totally close) which the intermittent time is less than 1s, the tail door should be able to open and close automatically, moving smoothly, without abnormal noise.	Please refer to below	P

Table 3

Working condition	1
Incline	Horizontal
Temperature	20℃
Voltage at ECU	12V

	2, Incline: Horizontal; 20℃, 12VDC, 10 cycles (totally open and totally close) which the intermittent time is less than 1s	the tail door can automatically open and close, stable movement, no noise	P

5.4.5	**Anti-pinch capability**		--
	Working condition according to Table 4, the tail door should be able to anti-pinch when closing	Please refer to below	P

Table 4

Working condition	1	2	3
Incline	Horizontal	Horizontal	Horizontal
Temperature	20℃	-30℃	80℃
Voltage at ECU	12V	12V	12V

	1, Incline: Horizontal; 20℃, 12VDC; With 4 mm in diameter of ball head, 30N load applied in the tail gate effective area	Anti-pinch effected	P
	2, Incline: Horizontal; 80℃, 12VDC; With 4 mm in diameter of ball head, 30N load applied in the tail gate effective area	Anti-pinch effected	P
	3, Incline: Horizontal; -30℃, 12VDC; With 4 mm in diameter of ball head, 30N load applied in the tail gate effective area	Anti-pinch effected	P
	4, Base on table 4 Working condition, In other area, Place obstructions between the tail gate and car body	Anti-pinch effected	P

5.4.6	**Anti-pinch capability**		--

Commissioning tests			
Clause	Requirement + Test	Result - Remark	Verdict

	Working condition according to Table 5, the tail door closing force should be greater than 20N and less than 100N. Open force should be less than 100N		P

Table 5

Working condition	1	2	3
Incline	Horizontal	Horizontal	Horizontal
Temperature	20℃	-30℃	80℃
Voltage at ECU	0V	0V	0V

	1, Incline: Horizontal; 20℃, 0VDC;	Closing force: 48N Open force: 36N	P
	2, Incline: Horizontal; 20℃, 0VDC;	Closing force: 59N Open force: 43N	P
	3, Incline: Horizontal; 20℃, 0VDC;	Closing force: 54N Open force: 41N	P

5.4.6	**Durability**		--
	After 2000 cycles (Manual open and close)		P
	Working condition according to Table 6		--

Table 6

Working condition	1	2	3	4	5	6	7	8	9
Incline	Horizontal	20% (Car head up)	20% (Car head down)	Horizontal	20% (Car head up)	20% (Car head down)	Horizontal	20% (Car head up)	20% (Car head down)
Temperature	20℃	20℃	20℃	-30℃	-30℃	-30℃	80℃	80℃	80℃
Voltage at ECU	12V	12V	12V	12V	12V	12V	12V	12V	12V
cycles	9600	3200	3200	1200	400	400	1200	400	400

	1, Incline: Horizontal; 20℃, 12VDC; After 9600 cycles (Manual open and close)	After tests, Can normally work	P
	2, Incline: 20% (Car head up); 20℃, 12VDC; After 3200 cycles (Manual open and close)	After tests, Can normally work	P
	3, Incline: 20% (Car head down); 20℃, 12VDC; After 3200 cycles (Manual open and close)	After tests, Can normally work	P
	4, Incline: Horizontal; -30℃, 12VDC; After 1200 cycles (Manual open and close)	After tests, Can normally work	P

Commissioning tests			
Clause	Requirement + Test	Result - Remark	Verdict
	5, Incline: 20% (Car head up); -30℃, 12VDC; After 400 cycles (Manual open and close)	After tests, Can normally work	P
	6, Incline: 20% (Car head down); -30℃, 12VDC; After 400 cycles (Manual open and close)	After tests, Can normally work	P
	7, Incline: Horizontal; 80℃, 12VDC; After 1200 cycles (Manual open and close)	After tests, Can normally work	P
	8, Incline: 20% (Car head up); 80℃, 12VDC; After 400 cycles (Manual open and close)	After tests, Can normally work	P
	9, Incline: 20% (Car head down); 80℃, 12VDC; After 400 cycles (Manual open and close)	After tests, Can normally work	P
	Note: Normal work, manual operating force meet the requirements of article 5.4.6, switching speed meet the requirements of 5.4.1.4		P
5.5	**actuating element for Electric tail gate Open and close system**		--
5.5.1	**General requirements**		--
5.5.1.1	Electric tail gate actuating element should manufacture and assemble according to the approved drawings and technical documents, and meet this standard requirements		P
5.5.1.2	Electric tail door actuator's stretching and compression speed should conform to the requirements of the drawings, according to the vehicle requirements		P
5.5.1.3	Electric tail door actuator's installation length tolerance shall conform to the requirements of the QC/T 29087 class A.		P
5.5.1.4	The appearance of electric tail gate actuators should be bright and clean, smooth, no burr; Structure tight, no loosening or noise.		P
5.5.1.5	Main surface of Electric tail gate actuators should be smooth and uniform, without scratches, visible crack, blister, pitting, layer, stains, defects, etc. Inspection by visual and measure tools.		P
5.5.2	**Mechanical property**		--
	The support value and the friction of the Electric tail gate actuator shall conform to the requirements of the drawings		P

Commissioning tests			
Clause	Requirement + Test	Result - Remark	Verdict
	And movement smooth		P
	Without binding and obvious vibration		P
5.5.3	**Anti-corrosion properties**		--
	Tests according to GB/T 10125, electric tail gate actuators should be able to withstand 240 h neutral salt spray test	neutral salt spray test After 96h , no white rust, After 240 h, no red rust	P
	Meet requirements clause 5.5.2 (Mechanical property)		P
5.5.4	**Resistance to high temperature**		--
	The electric tail gate actuators assembly on the support according to the real vehicle state, in condition: (80±2)℃, 240h	80℃, 240h	P
	After test, Should not crack, noise		P
	connecting rod should be no gap		P
	Attenuation of support value less than 10%		P
5.5.5	**Resistance to Low temperature**		--
	The electric tail gate actuators assembly on the support according to the real vehicle state, in condition: (-30±2)℃, 240h	-30℃, 240h	P
	After test, Should not crack, noise		P
	connecting rod should be no gap		P
	Attenuation of support value less than 10%		P
5.5.6	**Resistance to high temperature and high humidity**		--
	The electric tail gate actuators assembly on the support according to the real vehicle state, in condition: (50±2)℃, humidity 95%, 240h	50℃, 95%RH, 96 h	P
	After test, Should not crack, noise		P
	connecting rod should be no gap		P
	Attenuation of support value less than 10%		P
5.5.7	**Resistance to Thermal-shock**		--
	The electric tail gate actuators assembly on the support according to the real vehicle state, in below condition:100 cycles	100 cycles, total 200 hours	P

Commissioning tests			
Clause	Requirement + Test	Result - Remark	Verdict
	condition: (80±2)℃, 30min => (-30±2)℃, 30min	One cycle as below: (80±2)℃, 30min Switch time: 30min (-30±2)℃, 30min Switch time: 30min	--
	After test, Should not crack, noise		P
	connecting rod should be no gap		P
	Attenuation of support value less than 10%		P
5.5.8	**Resistance to Rapid temperature shock**		--
	The electric tail gate actuators assembly on the support according to the real vehicle state, in below condition:4 cycles	4 cycles, total 102 hours (Rapid temperature shock box)	P
	condition: (80±2)℃, 15.5h => (20±2)℃, 30min => (-30±2)℃, 7.5min => (20±2)℃, 30min	One cycle as below: (80±2)℃, 15.5h Switch time: 0.5h (20±2)℃, 0.5h Switch time: 0.5h (-30±2)℃, 7.5h Switch time: 0.5h (20±2)℃, 0.5h Switch time: 0.5h	--
	After test, Should not crack, noise		P
	connecting rod should be no gap		P
	Attenuation of support value less than 10%		P
5.5.9	**Tensile strength**		--
	The electric tail gate actuators assembly on the support according to the real vehicle state, applied axial load: 2700N	axial load: 2700N, 1 min	--
	After tests, the fittings should not be broken or falls off	No broken or fall off	P
	Attenuation of support value less than 10%		P
	The electric tail gate actuators assembly on the support according to the real vehicle state, applied axial load: 300N on connecting rod middle	axial load: 300N on connecting rod middle, 1 min	--
	After tests, the fittings should not be broken or falls off	No broken or fall off	P
	Attenuation of support value less than 10%		P

Commissioning tests			
Clause	Requirement + Test	Result - Remark	Verdict

5.5.10	**Connection performance**		--
	When Electric tail gate actuators connected to the body ball head, Ball head install force should not be greater than 100N	79N < 100N	P
	Ball head pull out force should not be less than 500N	665N > 500N	P

5.5.11	**Anti-Vibration Performance**		--
	The electric tail gate actuators assembly on the support according to the real vehicle state, Working condition according to Table 7		--

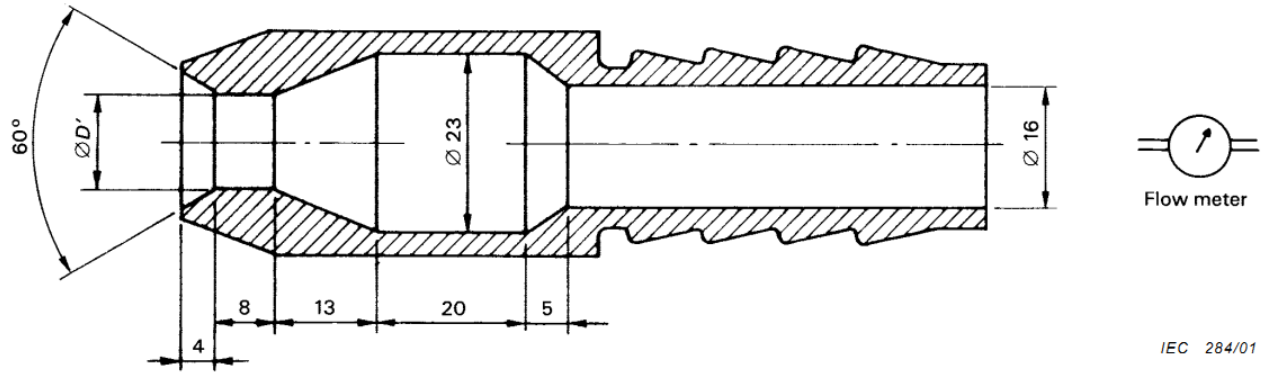
Table 7

Working condition	1	2	3
Temperature	20℃	20℃	20℃
Vibration frequency	33Hz × 50 m/s^2, amplitude: 0.4mm		
Incline	Up and down	Left and right	Front and back
Time	4h	3h	3h

	1, 20℃, vibration measurement, Up and down, amplitude: 0.4mm; frequency 33Hz×50m/s^2	4h	P
	2, 20℃, vibration measurement, Left and right, amplitude: 0.4mm; frequency 33Hz×50m/s^2	3h	P
	3, 20℃, vibration measurement, Front and back, amplitude: 0.4mm; frequency 33Hz×50m/s^2	3h	P
	After test, actuators should not crack, noise		P
	connecting rod should be no gap		P
	Attenuation of support value less than 10%		P

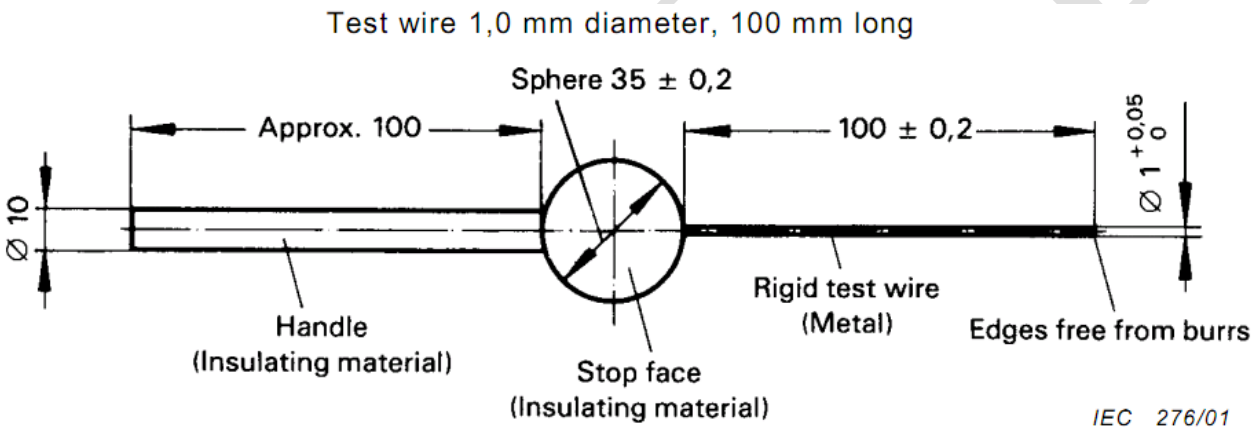
5.5.12	**IP test**		--
	According GB 4208, Waterproof and dustproof test, should be IP55		P
	Meet the requirements of Clause 5.5.2		P
	Waterproof test	**IPX5**	P
	Use the below the nozzle, Nozzle diameter of 6.3 mm, Test distance: 2.5 ~ 3 m; Water Flow: 12.5（1±5%）L/min; Duration: 3 min	After waterproof tests, No water in motor internal, Withstand voltage test: PASS	P

Commissioning tests			
Clause	Requirement + Test	Result - Remark	Verdict



D′ = 6,3 for the test of 14.2.5 (second characteristic numeral 5)

	Dustproof test	**IP5X**	P



	Test conditions	1N±10%	P
	Acceptance conditions	Can not reach to live parts	P
	Dust box test, 2h	After Dustproof tests, the internal talcum powder will not affect the normal operation, withstand voltage test: PASS	P

5.5.13	**Endurance Test**		--
	The electric tail gate actuators assembly on the fatigue test bench, Working condition according to Table 8, Open/Close Frequency: 4-6 cycles/min		--
Table 8			

Commissioning tests			
Clause	Requirement + Test	Result - Remark	Verdict

Working condition	1	2	3
Temperature	20℃	-30℃	80℃
Voltage on ECU	12V	12V	12V
Cycles	32000	4000	4000

	1, 20℃, 12VD, Open/Close 32000 cycles	After tests, Can normally work	P
	After tests, the fittings should not be broken or falls off	No broken or fall off	P
	Attenuation of support value less than 10%		P
	2, -30℃, 12VD, Open/Close 32000 cycles	After tests, Can normally work	P
	After tests, the fittings should not be broken or falls off	No broken or fall off	P
	Attenuation of support value less than 10%		P
	3, 80℃, 12VD, Open/Close 32000 cycles	After tests, Can normally work	P
	After tests, the fittings should not be broken or falls off	No broken or fall off	P
	Attenuation of support value less than 10%		P

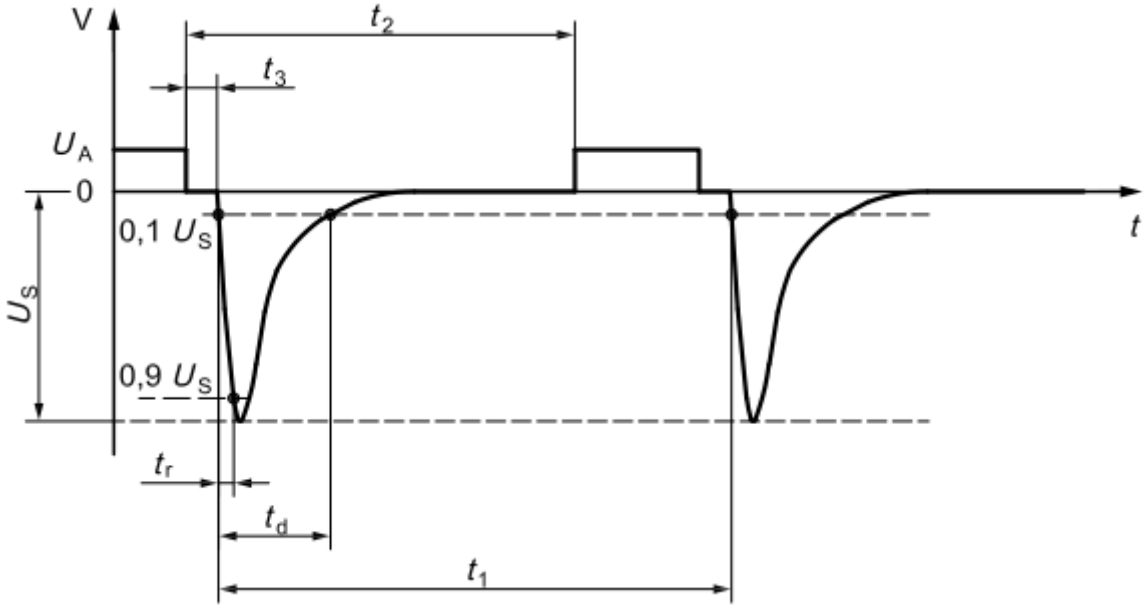
5.5.13	**Drug resistance Test**		--
	Soak white cotton cloth dipped in the below chemical liqud: Each chemical liquid: immersion four piece of white cloth, Gently scrub product shaft surface, scrub speed: 100mm/s, Back and forth scrub 8 cycles.		P
	1) Scrub test by Gasoline	After test, stay 1h, observation, No paint removing	P
	2) Scrub test by 0.1% Neutral detergent solution	After test, stay 1h, observation, No paint removing	P
	3) Scrub test by 50% window cleaner solvents	After test, stay 1h, observation, No paint removing	P
	4) Scrub test by 5% NaCl solvent	After test, stay 1h, observation, No paint removing	P
	4) Scrub test by 5% KCl solvent	After test, stay 1h, observation, No paint removing	P

Commissioning tests			
Clause	Requirement + Test	Result - Remark	Verdict

5.6.11	**Dielectric strength Test**		P
	Test according to clause 5.9 of QC/T 627-2013		--
	Automotive fastener, Test voltage: 16.5V±0.3V (rated voltage: 12V), Continuous working 1h	16.6V, 1 h	P
	Basic performance test	After tests, normal working	P
	Automotive fastener, Test voltage: 33V±0.6V (rated voltage: 24V), Continuous working 1h		N
	Basic performance test		N
	After tests, Withstand voltage test, between The fastener enclosure and internal live parts	500VAC, 1min	P
	Insulation should not be breakdown	No breakdown	P
	After tests, can be normally work		P

Commissioning tests			
Clause	Requirement + Test	Result - Remark	Verdict

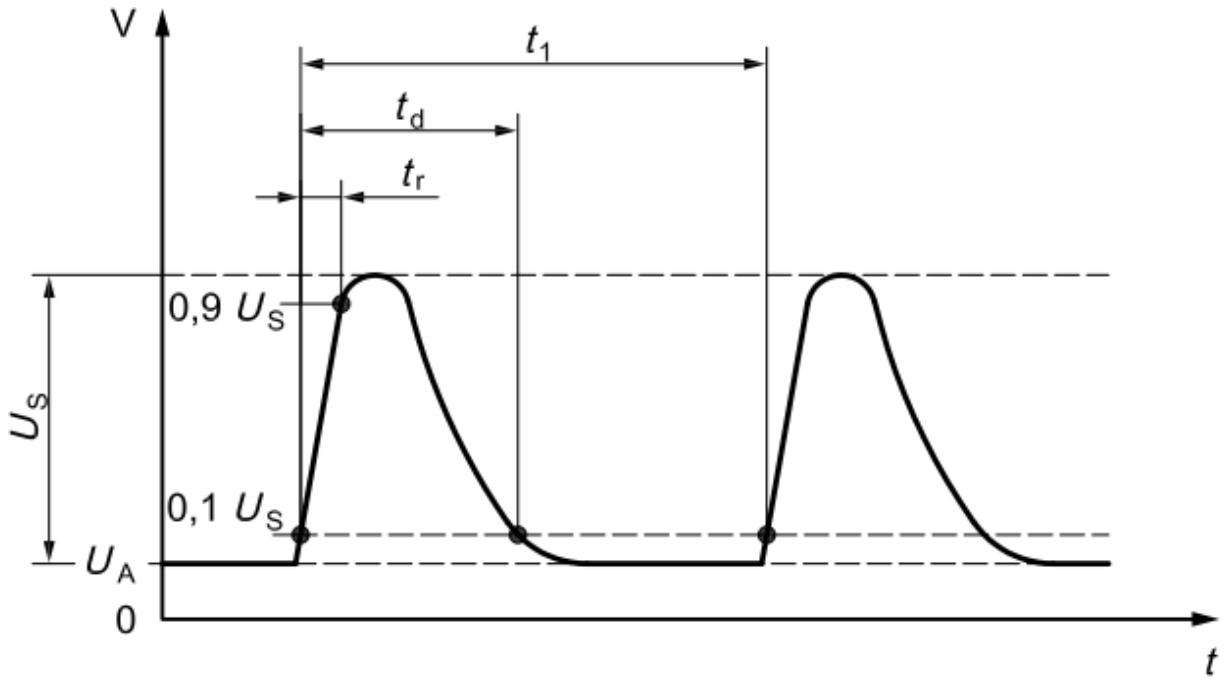
5.6.12	**Interference immunity Test**		P
	Interference immunity Test according QC/T 627-2013		--
	For rated voltage 12V, Test according to ISO 7637, pulse signal 1, 2, 3a, 3b		P
	Test according to ISO 7637, the pulse signal 1	As below	P



Parameters	Nominal 12 V system	Nominal 24 V system
U_s	–75 V to –150 V	–300 V to –600 V
R_i	10 Ω	50 Ω
t_d	2 ms	1 ms
t_r	$(1\ ^{0}_{-0,5})$ µs	$(3\ ^{0}_{-1,5})$ µs
t_1[a]	⩾0,5 s	
t_2	200 ms	
t_3[b]	<100 µs	

Pulse signal 1

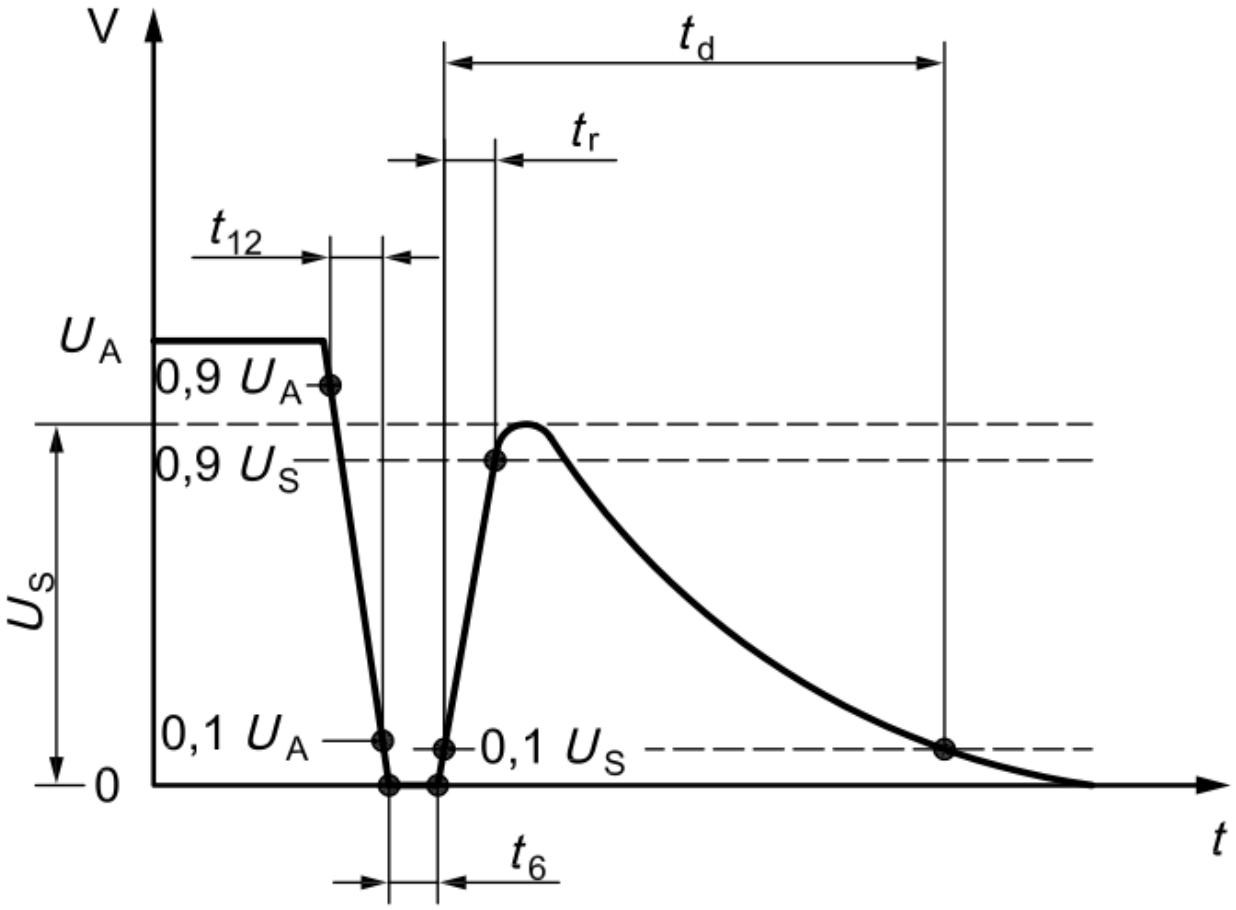
Commissioning tests			
Clause	Requirement + Test	Result - Remark	Verdict
	Test according to ISO 7637, the pulse signal 2a	As below	P



Parameters	Nominal 12 V and 24 V system
U_s	+37 V to +112 V
R_i	2 Ω
t_d	0,05 ms
t_r	$(1\ ^{0}_{-0,5})$ µs
t_1[a]	0,2 s to 5 s

Pulse signal 2a

Commissioning tests			
Clause	Requirement + Test	Result - Remark	Verdict
	Test according to ISO 7637, the pulse signal 2b	As below	P

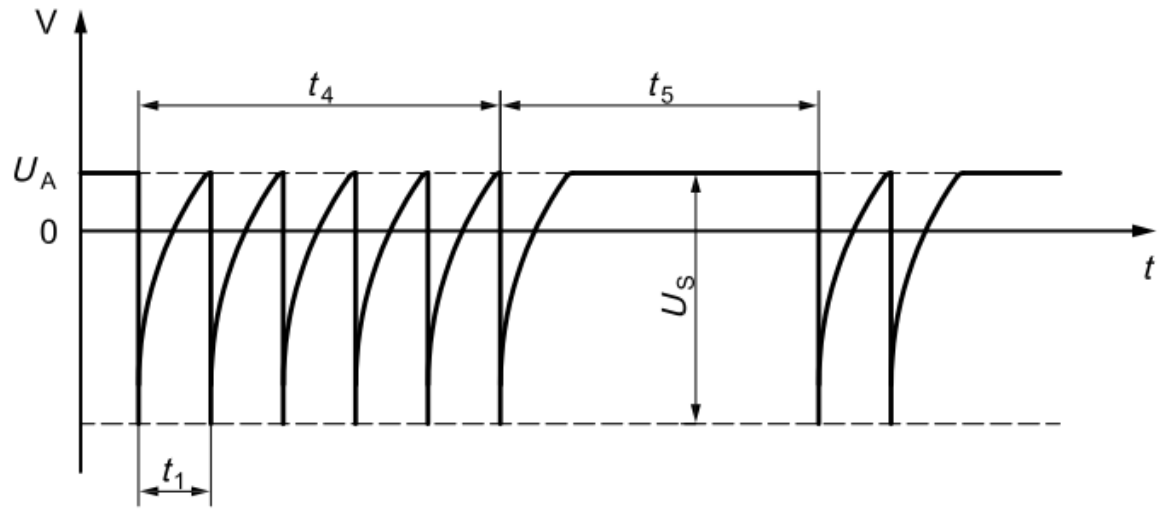


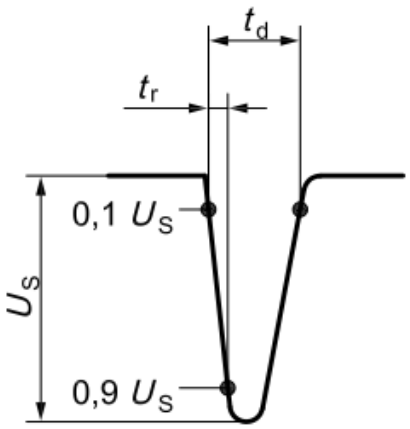
Parameters	Nominal 12 V system	Nominal 24 V system
U_s	10 V	20 V
R_i	0 Ω to 0,05 Ω	
t_d	0,2 s to 2 s	
t_{12}	1 ms ± 0,5 ms	
t_r	1 ms ± 0,5 ms	
t_6	1 ms ± 0,5 ms	

Pulse signal 2b

Commissioning tests			
Clause	Requirement + Test	Result - Remark	Verdict
	Test according to ISO 7637, the pulse signal 3a	As below	P

Commissioning tests			
Clause	Requirement + Test	Result - Remark	Verdict



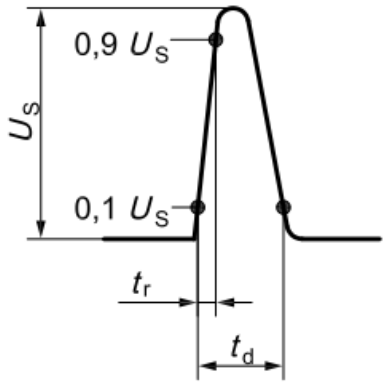


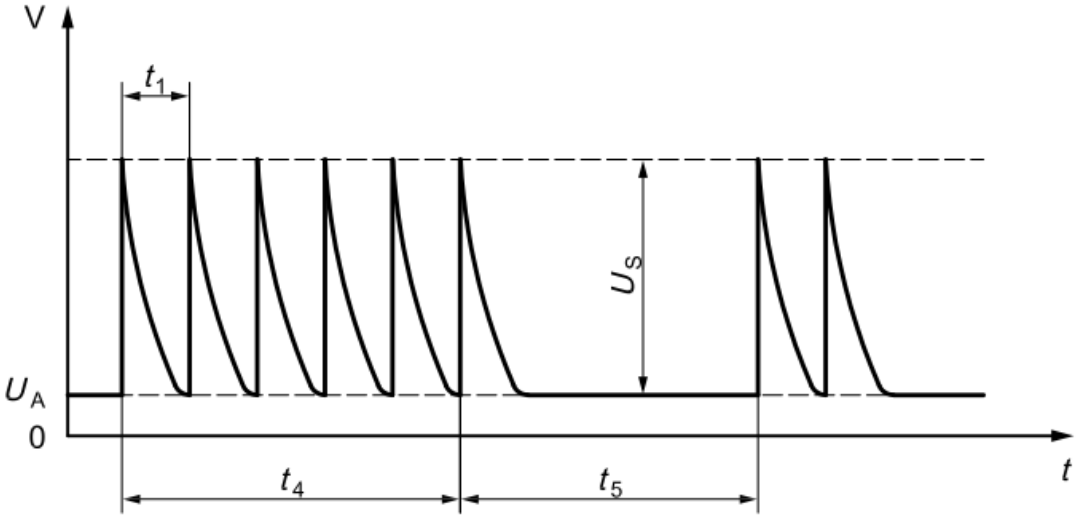
Parameters	Nominal 12 V system	Nominal 24 V system
U_s	–112 V to –220 V	–150 V to –300 V
R_i	50 Ω	
t_d	150 ns ± 45 ns	
t_r	5 ns ± 1,5 ns	
t_1	100 µs	
t_4	10 ms	
t_5	90 ms	

Pulse signal 3a

Commissioning tests			
Clause	Requirement + Test	Result - Remark	Verdict
	Test according to ISO 7637, the pulse signal 3b	As below	P

Commissioning tests			
Clause	Requirement + Test	Result - Remark	Verdict





Parameters	Nominal 12 V system	Nominal 24 V system
U_s	+75 V to +150 V	+150 V to +300 V
R_i	50 Ω	
t_d	150 ns ± 45 ns	
t_r	5 ns ± 1,5 ns	
t_1	100 µs	
t_4	10 ms	
t_5	90 ms	

Pulse signal 3b

Commissioning tests			
Clause	Requirement + Test	Result - Remark	Verdict
	For rated voltage 24V, Test according to ISO 7637, pulse signal 1a, 2, 3a, 3b		N
	After tests		--
	Should meet the class B requirements in appendix A of ISO 7637-1:2004 and ISO 7637-2: 2004, means when interference all functions shall meet the design requirements, but allow one or several beyond the specified value	Test as below table, can meet the class B requirements	P

Test pulse[a]	Selected test level[b]	Test pulse severity level, U_s[cd] V			Min. number of pulses or test time	Burst cycle/ pulse repetition time	
		IV	III	I / II		min.	max.
1		–150	–112	–75	500 pulses	0,5 s	[e]
2a		+112	+55	+37	500 pulses	0,2 s	5 s
2b		+10	+10	+10	10 pulses	0,5 s	5 s
3a		–220	–165	–112	1 h	90 ms	100 ms
3b		+150	+112	+75	1 h	90 ms	100 ms

	After cancel the interference, all functions should be restored to normal range.	Without interference, all functions ok	P
6	**Inspection rule**		P
7	**Mark, packing, transportation and storage**		--
	According to the QC/T 627-2013 and QC/T 238-1997		P

Append tables

List of test equipment used:					
Clause / Test items	**Instr. Code Measurement / testing**	**Range used**	**Make and Model**	**Calibration date**	
				Last	**Due**
--	Electric drying oven	＋5℃~150℃	Shanghai Instrument Factory, 101A-3	2016-10-10	2017-10-09
--	Thermal shock test chamber	Hotbox：+50-+220℃ cold box：-75℃-+70℃	Shanghai Weisi, TS300	2016-10-10	2017-10-09
--	High low temperature test chamber	－40℃～+150℃ 20-98%RH	Guangzhou Dongzhixu, PL-2G	2016-10-10	2017-10-09
--	Temperature rise tester	-50℃-1300℃	Agilent ,34972A+34901A	2016-10-10	2017-10-09
--	Salt spraying tester	＋5℃~55℃	Guangzhou Dongzhixu, H-SST-60	2016-10-10	2017-10-09
--	Vacuum chamber	11kPa-108kPa	Dongguan Bell, BE-DY-64	2016-10-10	2017-10-09
--	DC Power	0-15VDC, Max. 30A	HK Longwei, TPR1530D	2016-10-10	2017-10-09
--	Vibration testing machine	Frequency: 0-3KHz; Sine acceleration speed: 0-90g	Kington, EM-3500F2K	2016-10-10	2017-10-09
--	Tape	0-5m	oking , TJ5019	2015-10-19	2016-10-18
--	Sand and dust test chamber	75μ m, 50μ m	Kexiang, KXT1410	2015-10-19	2016-10-18
--	Watch	1ms	Tianfu, PC9903	2015-10-19	2016-10-18
--	Hygrothermograph	0-50℃	Sigma, AR807	2016-10-10	2017-10-09
--	Digital caliper	0-150mm	Shanghai tool Factory, DJ501645	2016-10-10	2017-10-09
--	Digital multi-meter	0-2000V	Agilent, 34401A	2016-10-10	2017-10-09
--	Pull and push dynamometer	0-300N	IMADA, FB-300N	2016-10-10	2017-10-09
--	Test fixture	--	By client	--	--
--	Test frame	--	By client	--	--
--	EMI receiver	0-5GHz	R&S, ESCI	2016-7-31	2017-7-30
--	V-network	0-5GHz	R&S, ESH3-Z6	2016-7-31	2017-7-30

Photos

Fig 1. Overall view

Fig 2. Motor mark view

Photos

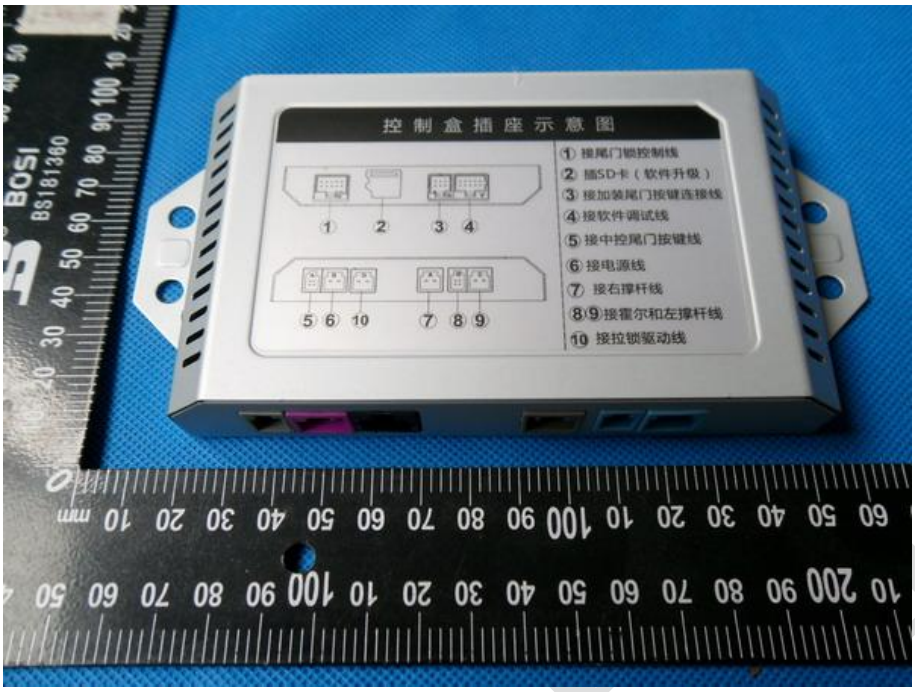


Fig 3. Control box overview

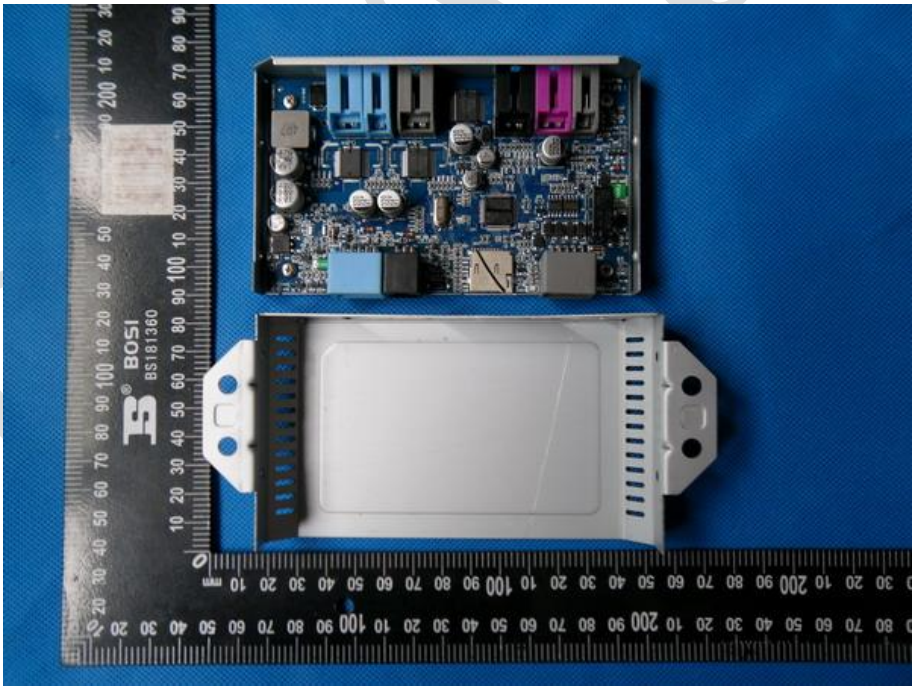


Fig 4. Internal view of control box

Photos

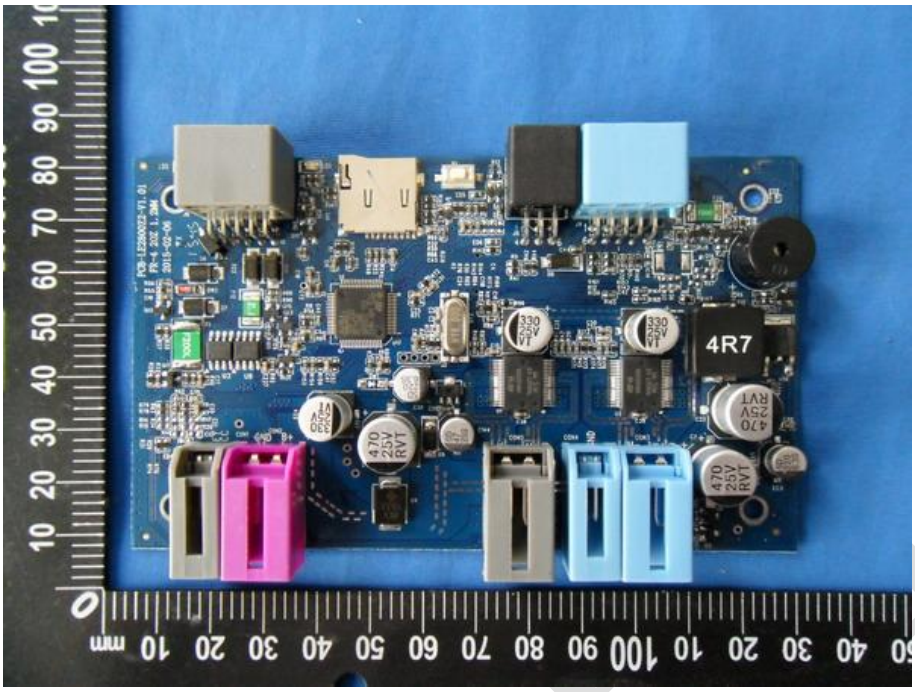


Fig 5. PCB view 1 of controller box

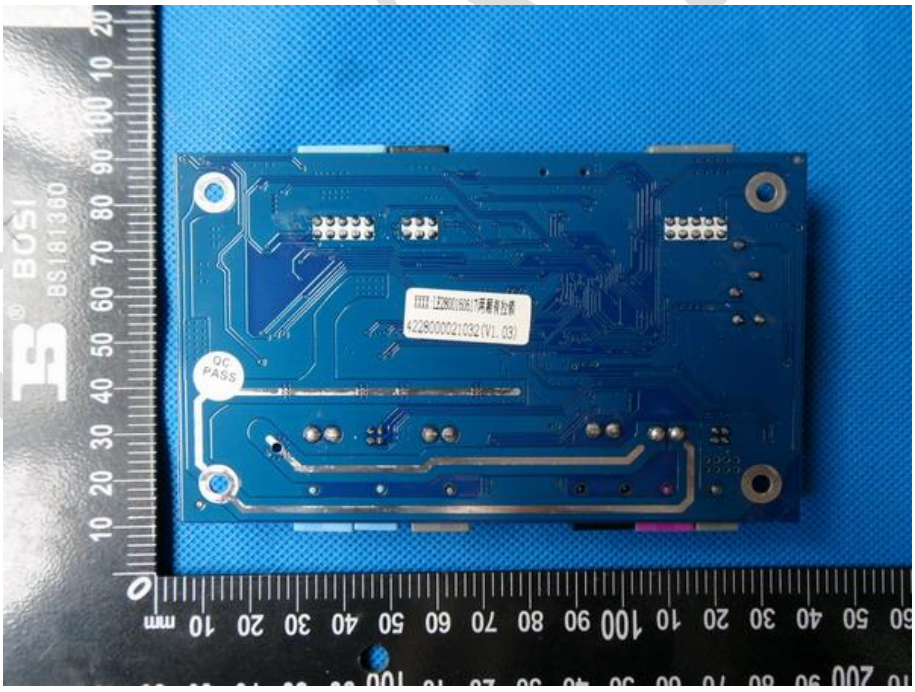


Fig 6. PCB view 2 of controller box

Photos

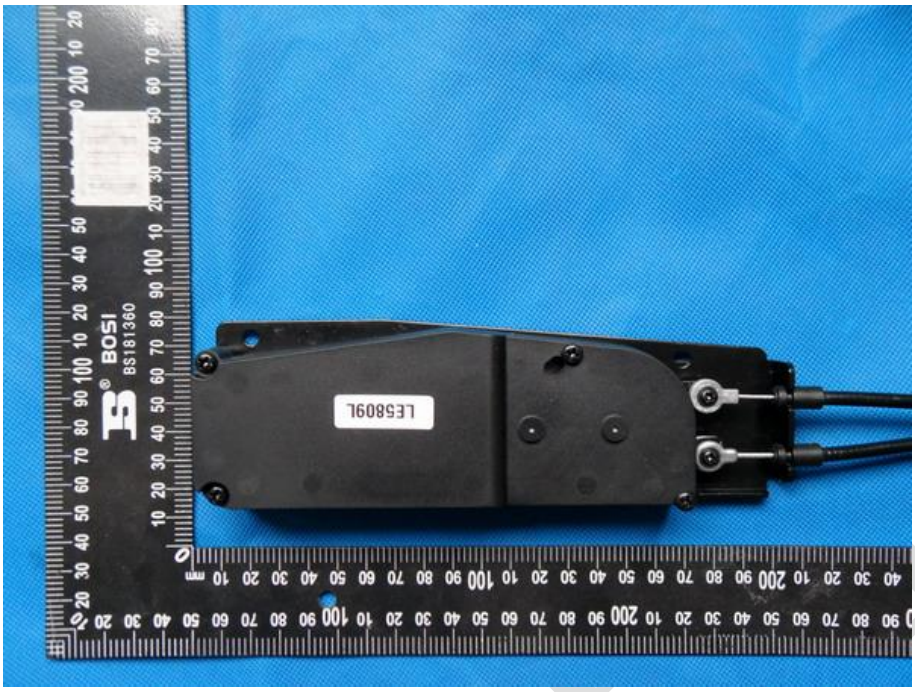


Fig 7. Zip-fastener Overview

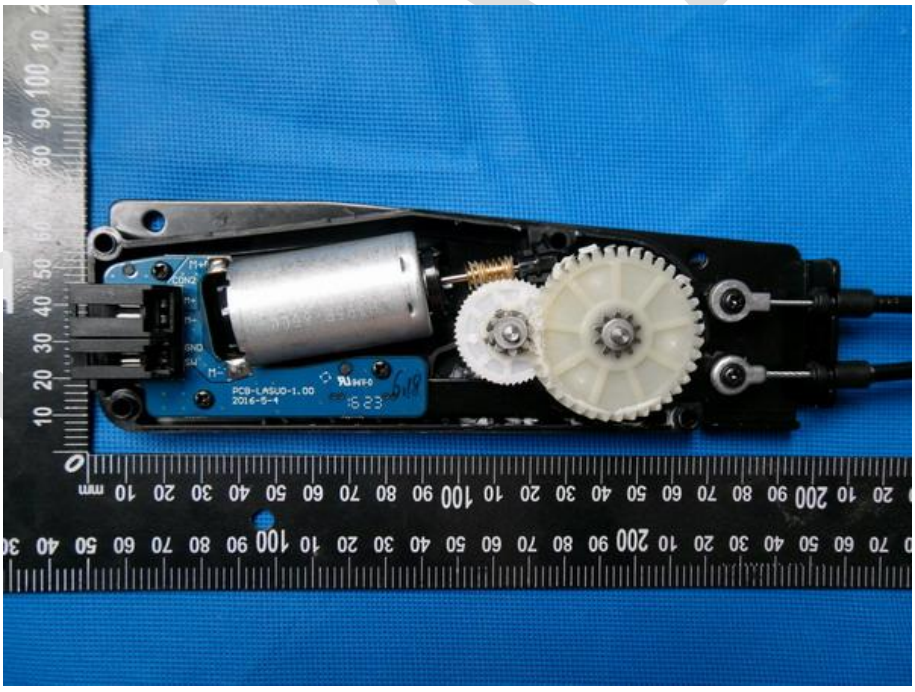


Fig 8. Zip-fastener Inside view

==== End of Test Report =====