



TEST REPORT

Report No.: NTEK-2012NT0511896S

Product: Metal Keyboard

Model No.: D-86XX('XX' represents 01-20)

Applicant: Shenzhen Davo Electronic Co., Ltd.

Address: B#7222, Chuangye Industrial Park, Xingwei Fuyong, Bao'an District, Shenzhen City, Guangdong, China

Issued by: NTEK Testing Technology Co., Ltd.

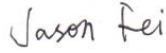
Lab Location: 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China.

Tel: (86)-0755-61156588

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The sample(s) of the following product has been tested and is stated by NTEK to be in conformity with IP65 test requirements of European standards EN 60529.

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TEST REPORT IEC/EN 60529 Degrees of protection provided by enclosures (IP Code)	
Report Reference No. : NTEK-2012NT0511896S	
Tested by (+ signature) : Jason Fei	
Approved by (+ signature) : Ethan Chen	
Date of issue : 2012-05-17	
Testing laboratory	
Name : NTEK Testing Technology Co., Ltd.	
Address : 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China	
Testing location : Same as above	
Client	
Name : Shenzhen Davo Electronic Co., Ltd.	
Address : B#7222, Chuangye Industrial Park, Xingwei Fuyong, Bao'an District, Shenzhen City, Guangdong, China	
Test specification	
Standard : EN 60529:1991/A1:2000 (IP code:65)	
Test procedure : Type Test	
Procedure deviation : N/A	
Test item	
Description : Metal Keyboard	
Trade Mark :	
Model/Type reference : See next pages	
Manufacturer : Shenzhen Davo Electronic Co., Ltd.	
Address : B#7222, Chuangye Industrial Park, Xingwei Fuyong, Bao'an District, Shenzhen City, Guangdong, China	

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Summary of testing:	
Tests performed (name of test and test clause):	Testing location: See page 2
Test item particulars	
Classification of installation and use : IP 65;	
Supply Connection :	
Possible test case verdicts:	
- test case does not apply to the test object..... : 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 : 2012-05-11	
Date (s) of performance of tests..... : 2012-05-12 to 2012-05-17	
Ambient Condition During Testing: 25.2 degree, 60%RH.	

General remarks:
General product information: The samples of Metal Keyboard. Model list: D-86XX('XX' represents 01-20) ALL test conducted on model D-8607 to represent others

EN 60529					
Clause	Requirement – Test		Result – Remark	Verdict	
	GENERAL CONDITIONS FOR THE TESTS				
13.1	Test means and the main test conditions are given in table 7. Table 7 æ Test means for the tests for protection against solid foreign objects				
	First characteristic numeral	Test means (object probes and dust chamber)	Test force		Test conditions, see
	0	No test required	æ		æ
	1	Rigid sphere without handle or guard 0,0550+0 mm diameter	50 N ± 10 %		13.2
	2	Rigid sphere without handle or guard 0,212,5+0 mm diameter	30 N ± 10 %		13.2
	3	Rigid steel rod 0,052,5+0 mm diameter with edges free from burrs	3 N ± 10 %		13.2
	4	Rigid steel rod 0,051,0+0 mm diameter with edges free from burrs	1 N ± 10 %		13.2
	5	Dust chamber figure 2, with or without underpressure	æ		13.4 + 13.5
	6	Dust chamber figure 2, with under-pressure	æ		13.4 + 13.6
13.2	Test conditions for first characteristic numerals 1, 2, 3, 4 The object probe is pushed against any openings of the enclosure with the force specified in table 7.	IP65		P	
13.3	Acceptance conditions for first characteristic numerals 1, 2, 3, 4 The protection is satisfactory if the full diameter of the probe specified in table 7 does not pass through any opening. NOTE For the first characteristic numerals 3 and 4 the probes specified in table 7 are intended to simulate foreign objects which may be spherical. Where an enclosure has an indirect or tortuous entry path and there is any doubt about ingress of a spherical object capable of motion, it may be necessary to examine drawings or to provide special access for the object probe to be applied with the specified force to the opening(s) where ingress has to be checked.	IP65		P	

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EN 60529			
Clause	Requirement – Test	Result – Remark	Verdict
13.4	Dust test for first characteristic numerals 5 and 6	IP65	P
	The test is made using a dust chamber incorporating the basic principles shown in figure 2 whereby the power circulation pump may be relaced by other means suitable to maintain the talcum powder in suspension in a closed test chamber. The talcum powder used shall be the nominal width of a gap between wires 75um. The amout of talcum power to be used is 2 kg per cubic metre of the test chamber volume. It shall not have been used for more than 20 tests.		P
	Category 1: enclosures where the normal working cycle of the equipment causes reductions in air pressure within the enclosure below that of the surrounding air. For example, due to thermal cycling effects.		P
	Category 2: enclosres whrere on pressure difference relative to the surrounding air is present.		N

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EN 60529			
Clause	Requirement – Test	Result – Remark	Verdict
14.2.6	Test for second characteristic numeral 5 with the 6.3 mm nozzle		P
	--internal diameter of nozzle:6.3mm		P
	--delivery rate:12.5L/min $\pm$ 5%		P
	--water pressure: to be adjusted to achieve the specified delivery rate		P
	--Core of the substantial stream:circle of approximately 40mm diameter at 2.5m distance from nozzle		P
	--test duration per square metre of enclosure surface area likely to be spray:1min;		P
	--minimum test duration:3 min;		P
	--distance from nozzle to enclosure surface: between 2.5m and 3m		P
14.3	Acceptance conditions After testing in accordance with the appropriate requirements of 14.2.1 to 14.2.8 the enclosure shall be inspected for ingress of water. It is the responsibility of the relevant technical committee to specify the amount of water which may be allowed to enter the enclosure and the details of a dielectric strength test, if any.		P
	In general, if any water has entered, it shall not:		P
	be sufficient to interfere with the correct operation of the equipment or impair safety;		P
	deposit on insulation parts where it could lead to tracking along the creepage distances;		P
	reach live parts or windings not designed to operate when wet;		P
	accumulate near the cable end or enter the cable if any.		N
	If the enclosure is provided with drain-holes, it should be proved by inspection that any water which enters does not accumulate and that it drains away without doing any harm to the equipment.		N

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After the test of IP65, following test was conducted

A.1	Insulation resistance test	---
	Test requirements: Immediately after the moisture treatment, the insulation resistance shall be measured with a d.c. voltage of approximately 500 V, 1 min after application of the unit having an insulating cover or envelope shall be wrapped with metal foil. Test result: Between input and enclosure: Max. <u>100</u> M Ω > 4 M Ω	P
A.2	Electric strength test	---
	Test requirement: Immediately after the test of A.1, the insulation is subjected for 1 min to a voltage of substantially sine-wave form at rated frequency. The value of the test voltage and the points of application are as following Test result: Between input and enclosure: 3000 V There is no flashover or breakdown occurred.	N

REMARKS:

- 1.The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory
- 2.Characterization & Condition of Sample: Normal

Attachment – Photos



Fig.1

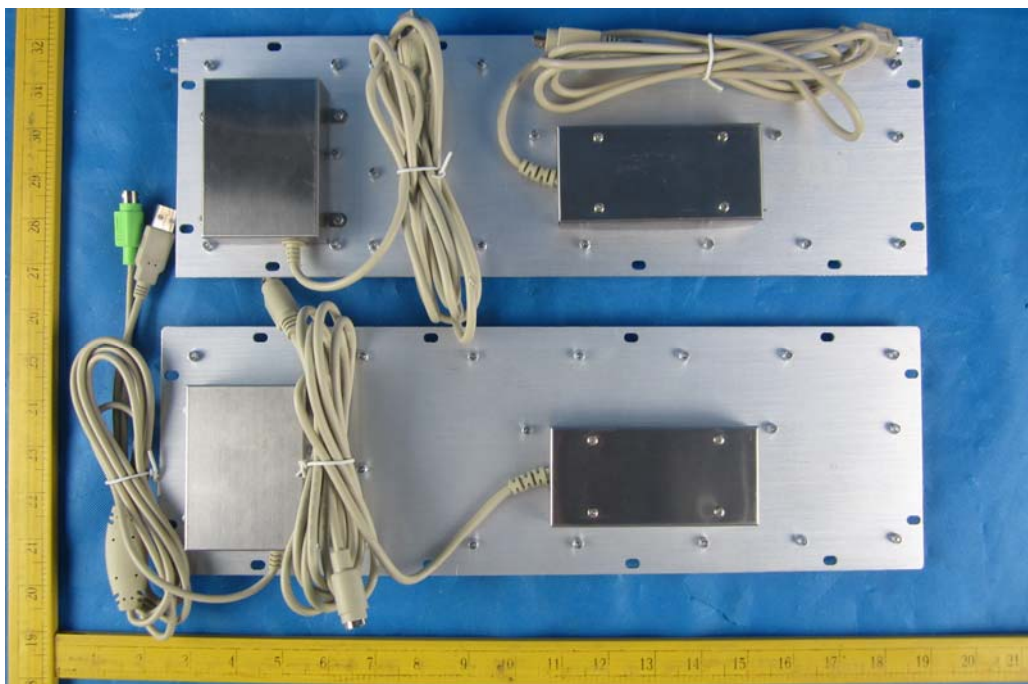


Fig.2

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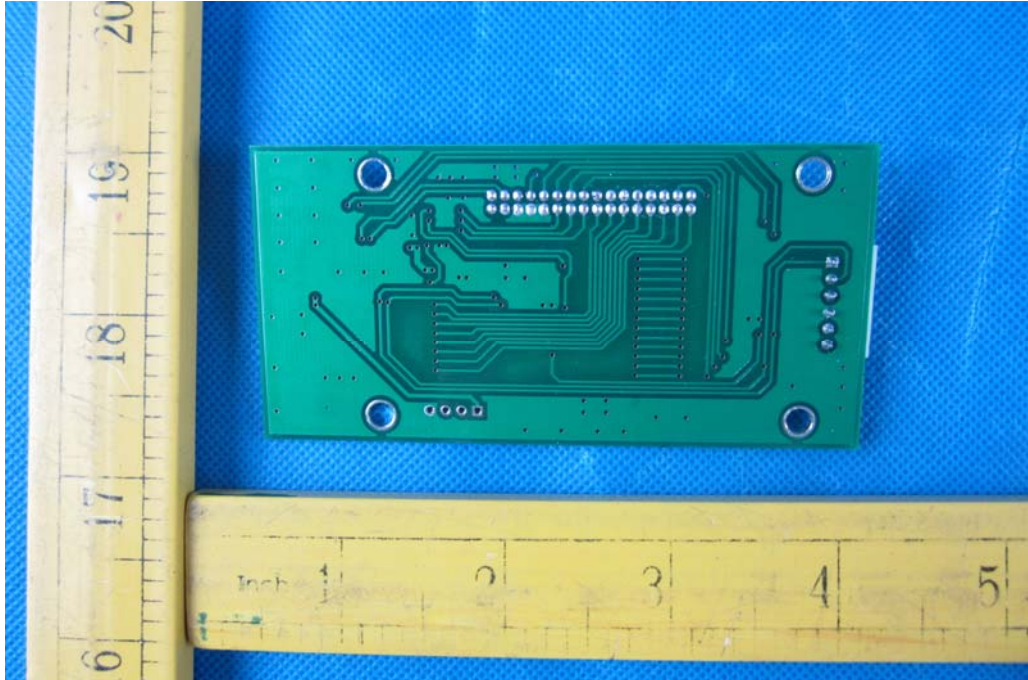


Fig.3

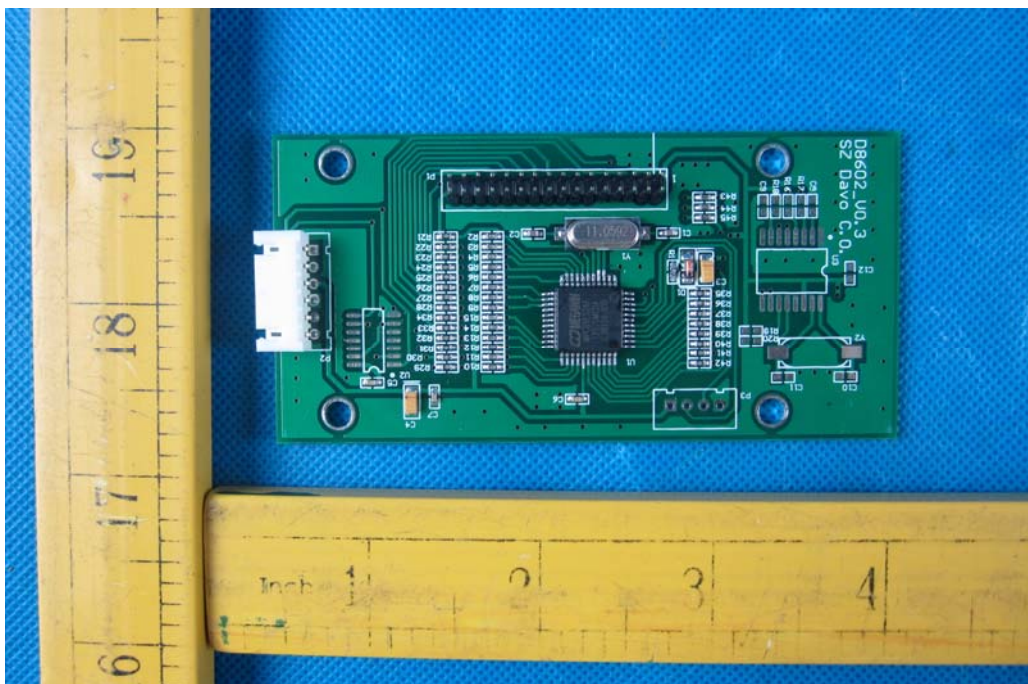


Fig.4

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Fig.5

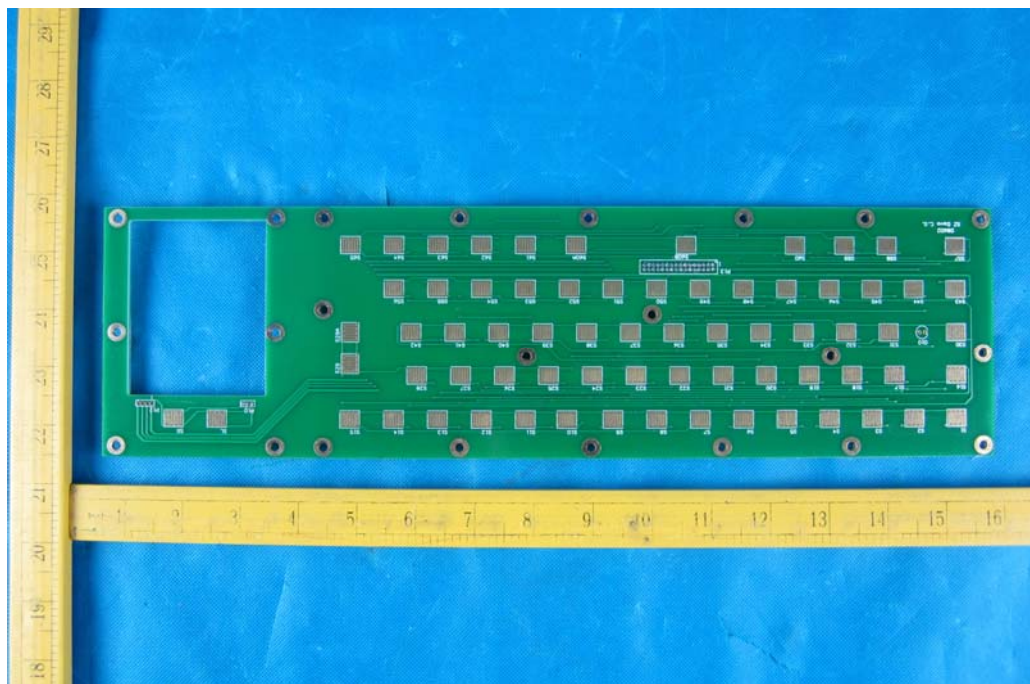


Fig.6

※※※※END OF REPORT※※※※