

Test Report No.:  
RZCE2016-0597EMC

## TEST REPORT

**EUT** : Polysher  
**MODEL/TYPE** : P001  
**CLIENT** : JF Polymers (Suzhou) Co. Ltd.  
**Classification of Test:** COMMISSION TEST

**Vkan Certification & Testing Co., Ltd.**

威凯检测技术有限公司

检验检测专用章

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Test Report No. RZCE2016-0597EMC (XG1)		Page 1 of 31	
<b>Client</b>		<b>Name: JF Polymers (Suzhou) Co. Ltd.</b> <b>Address: Haicheng Industrial Park, Bldg 7, Changshu Economic and Technological Zone, Changshu, Jiangu, China</b>	
<b>Manufacturer</b>		<b>Name: Polymaker LLC USA</b> <b>Address: 5 Shadow Ln., Great Neck, NY 11021, U.S.A.</b>	
<b>Equipment under Test</b>		<b>Name : Polysher</b> <b>Model/Type : P001</b> <b>Trade mark : Polymaker</b> <b>Serial no. : —</b> <b>Sampling : —</b>	
Date of Receipt.	2016.12.01	Date of Testing	2016.12.01-2016.12.16
<b>Test Specification</b>		<b>Test Result</b>	
EN 55032:2012+AC:2013 (Class B ITE) EN 55024:2010 EN 61000-3-2:2014 EN 61000-3-3:2013		Pass Pass Pass Pass	
<b>Evaluation of Test Result</b>	The equipment under test was found to comply with the requirements of the standards applied.		
Tested by: <i>Lai Mingyu</i> <u>Lai Mingyu</u> Name      Signature		Reviewed by: <i>Liu Yonghai</i> <u>Liu Yonghai</u> Name      Signature	
		Approved By: <i>Zeng Bo</i> <u>Zeng Bo</u> Name      Signature	
<b>Other Aspects:</b> <p>The test report RZCE2016-0597EMC, originally issued on January 18th, 2017, was modified on February 9th, 2017 for the first time. The following pages were modified: P1. The modification contents as followed: Trade mark was changed to Polymaker. The symbol "XG1" was added behind the original test report number on the relevant modification page, as "RZCE2016-0597EMC (XG1)".</p>			
Abbreviations:OK,      Pass = passed      Fail = failed      N/A= not applicable      EUT= equipment, sample(s) under tested			
This test report relates only to the EUT, and shall not be reproduced except in full, without written approval of <b>CVC</b> .			



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## 1. General Product Information

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### 1.1 Product Function

Refer to the operation instruction.

### 1.2 Ratings and System Details

Input Voltage/ Rated current: 5VDC  
Input Frequency : 2000mA  
Protection class : III  
Power wire : Unshielded  
Interconnecting wires : Unshielded  
Classification : Class B ITE  
Highest frequency of the internal sources of the EUT: 64MHz

### 1.3 Independent Operation Modes

The basic operation modes are:

1. On
2. Off

### 1.4 Submitted Documents

Operating Instructions and Installation Manual  
Structural Parts  
Rating Label  
Wiring Diagram  
Construction Drawing  
Photographs of EUT  
Material Bill (Parts List)

## **2. Test Sites**

### **2.1 Test Facilities**

The tests and measurements refer to this report were performed by EMC testing Lab. of Vkan Certification & Testing Co., Ltd.

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The EMC testing laboratory has been recognized by CNAS, and authorized by Nemko of Norway since 1997, and accredited by DAkkS of Germany since 2007, and assessed and found eligible to participated in the TDAP of VDE testing and certification Institute since 2004, and registered by FCC since 2001.

### **2.2 Description of Non-standard Method and Deviations**

The testing and measurement methods used in this report are applied by all standard methods. Not any non-standard method or deviation from the used standards was used.

### **2.3 List of Test and Measurement Instruments**

Refer to **Appendix A**.

### **3. Test Set-up and Operation Modes**

#### **3.1 Principle of Configuration Selection**

**Emission:** The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the Operating Instructions.

**Immunity:** The equipment under test (EUT) was configured to the representative operating mode and conditions.

#### **3.2 Physical Configuration For Testing**

Refer to relative descriptions in this test report.

#### **3.3 Test Operation Mode and Test Software**

None.

#### **3.4 Peripheral and Auxiliary Equipment**

None

#### **3.5 Countermeasures to Achieve EMC Compliance**

None.

## 4. Emission Test Results

### 4.1 Emission in Radio Frequency Range

#### 4.1.1 Conducted Emission

**RESULT** : **Pass**

##### Test Setup

Test procedure : EN 55032:2012+AC:2013  
Frequency range : 0.15~30MHz  
Limits : EN 55032:2012+AC:2013, Annex A, table A.9  
Test Site : Shielding Room  
Artificial Hand : Not applied  
Voltage Probe : Not applied  
Earthing : Not applied

The GRP (Ground Reference Plate) is 2m×3m.

The EUT was placed on a wooden pallet, 0.8m high, standing on the GRP.  
The EUT was kept more than 0.4m from any other earthed conducting surface.

**Test Conditions :**

Ambient Temperature : 25 °C / 25 °C (Before Test /After Test);  
 Relative Humidity : 60 % / 60 % (Before Test /After Test);  
 Power Supply : 230 V / 50 Hz ;  
 Operating Mode of the EUT : On .

Conducted Emission					
Port: AC Power Line(Power line L)					
Freq. (MHz)	QP Reading (dBμV)	QP Limits (dBμV)	Freq. (MHz)	AV Reading (dBμV)	AV Limits (dBμV)
0.271	51.56	61.08	0.282	34.94	50.73
0.458	52.02	56.72	0.458	40.73	46.72
0.622	47.18	56.00	0.704	35.75	46.00
1.423	45.04	56.00	1.423	37.56	46.00
3.521	44.04	56.00	3.439	37.03	46.00
4.232	41.65	56.00	4.571	32.98	46.00
8.294	36.70	60.00	8.239	28.52	50.00
28.505	30.25	60.00	27.482	18.37	50.00
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/	/	/	/	/	/
/	/	/	/	/	/

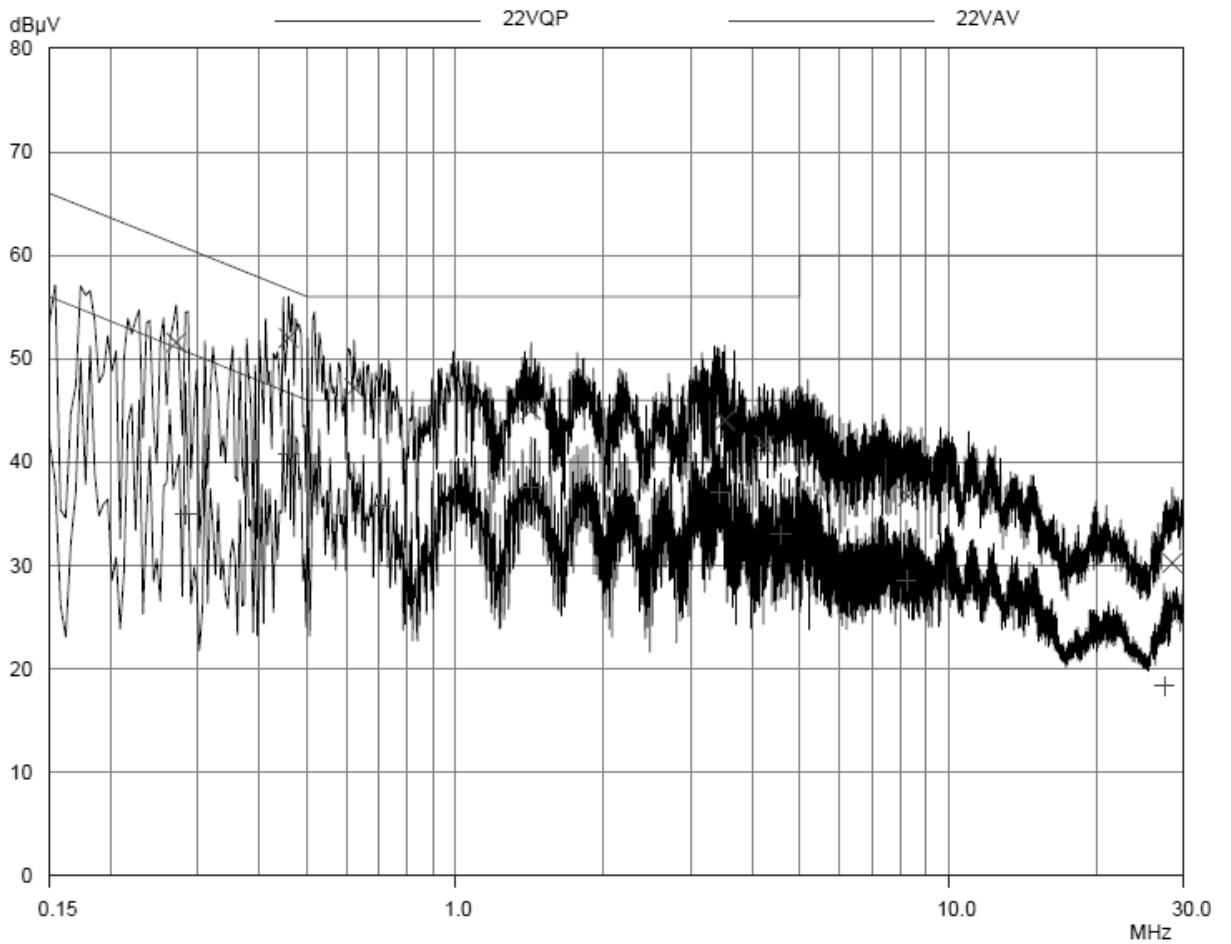
*Note: Where PK reading is less than relevant limit decrease 25dB, the QP reading and AV reading will not be recorded.*

*Where QP reading is less than relevant AV limit, the AV reading will not be measured.*

*The measurement uncertainty for mains terminal disturbance voltage from 150kHz to 30MHz: 3.460dB*



Scan Graph and Scan Settings



**Test Conditions :**

Ambient Temperature : 25 °C/ 25 °C (Before Test /After Test);  
 Relative Humidity : 60 %/ 60 % (Before Test /After Test);  
 Power Supply : 230 V / 50 Hz ;  
 Operating Mode of the EUT : On .

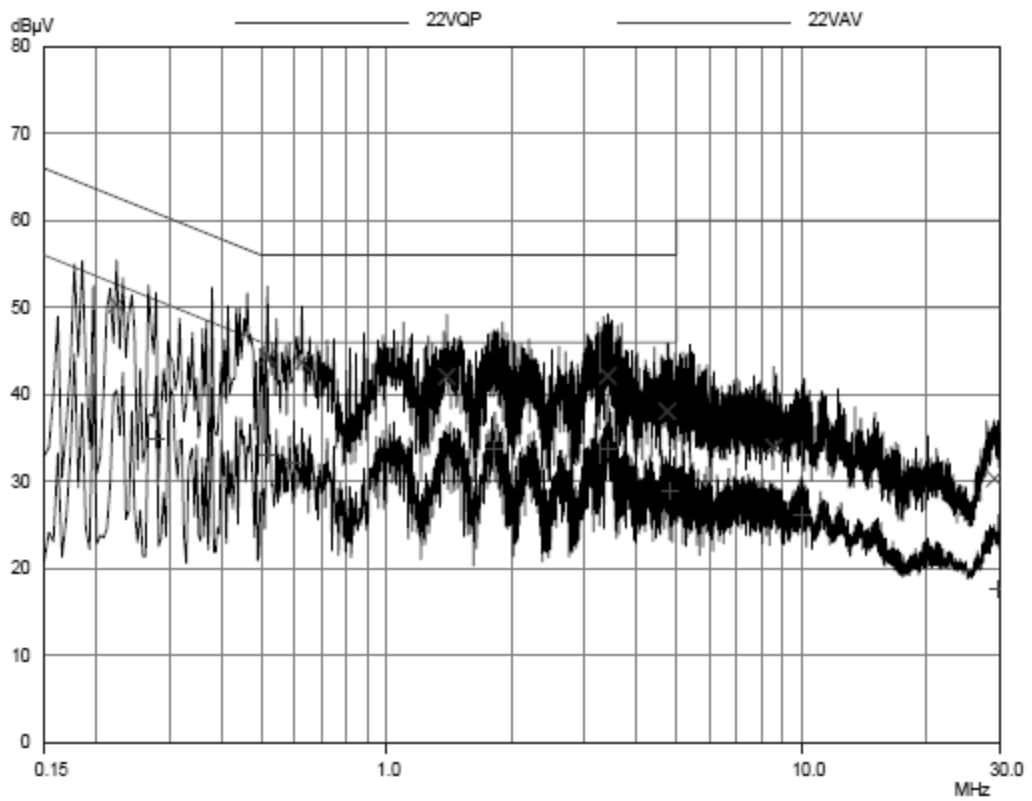
Conducted Emission					
Port: AC Power Line(Power line N)					
Freq. (MHz)	QP Reading (dBμV)	QP Limits (dBμV)	Freq. (MHz)	AV Reading (dBμV)	AV Limits (dBμV)
0.224	50.31	62.66	0.278	34.81	50.85
0.517	44.27	56.00	0.517	32.96	46.00
0.626	43.69	56.00	0.599	32.06	46.00
1.400	42.04	56.00	1.825	33.78	46.00
3.415	42.13	56.00	3.427	33.82	46.00
4.755	38.04	56.00	4.821	28.85	46.00
8.579	33.92	60.00	10.001	26.10	50.00
29.181	30.31	60.00	29.892	17.58	50.00
/	/	/	/	/	/
/	/	/	/	/	/
/	/	/	/	/	/

*Note: Where PK reading is less than relevant limit decrease 25dB, the QP reading and AV reading will not be recorded.*

*Where QP reading is less than relevant AV limit, the AV reading will not be measured.*

*The measurement uncertainty for mains terminal disturbance voltage from 150kHz to 30MHz: 3.460dB*

Scan Graph and Scan Settings



#### 4.1.2 Conducted disturbance at telecommunication ports

**RESULT** : **Not applied**

Remark:

The port is not used for networking. So this test item was not applied according to the standard.

#### 4.1.3 Radiated Disturbance (30MHz~1000MHz)

**RESULT** : **Pass**

##### Test Setup

Test procedure : EN 55032:2012+AC:2013  
Frequency range : 30 ~ 1000MHz  
Limits : EN 55032:2012+AC:2013, Annex A, table A.4  
Test Site : 10m Anechoic Chamber  
Earthing : Applied

The EUT was placed on a wooden turntable which could rotate from 0 ° to 360 °, 0.8m high above the ground, at a distance of 3m in anechoic chamber, from the receiving broadband antenna which was mounted on the antenna tower. The scan graphs were measured with the antenna at 1m high, and the turn table at 0°, but the final measurement results were measured with antenna moved up and down between 1m to 4m, and the turn table rotated from 0° to 360°, the maximum reading was recorded as final QP reading.

**Test Conditions:**

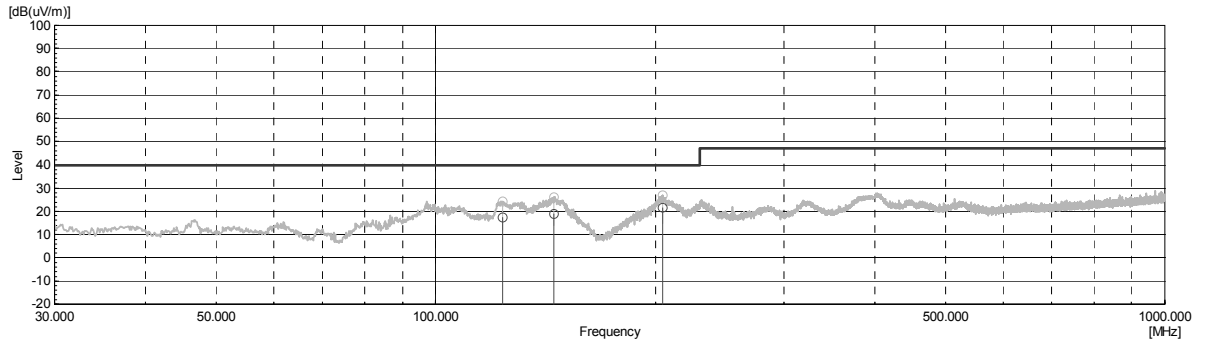
Ambient Temperature : 22.3 °C / 22.3 °C (Before Test/After Test);  
 Relative Humidity : 58 % / 58 % (Before Test/After Test);  
 Power Supply : 230 V / 50 Hz ;  
 Operating Mode of the EUT : ON .

Radiated disturbance			
Port: Enclosure			
Freq. (MHz)	Direction of antenna	QP Level (dB $\mu$ V/m)	QP Limits (dB $\mu$ V/m)
123.702	H	17.5	40.0
145.139	H	18.8	40.0
204.891	H	21.7	40.0
96.639	V	18.0	40.0
139.222	V	24.9	40.0
207.510	V	22.7	40.0
/	/	/	/
/	/	/	/
/	/	/	/
/	/	/	/
/	/	/	/

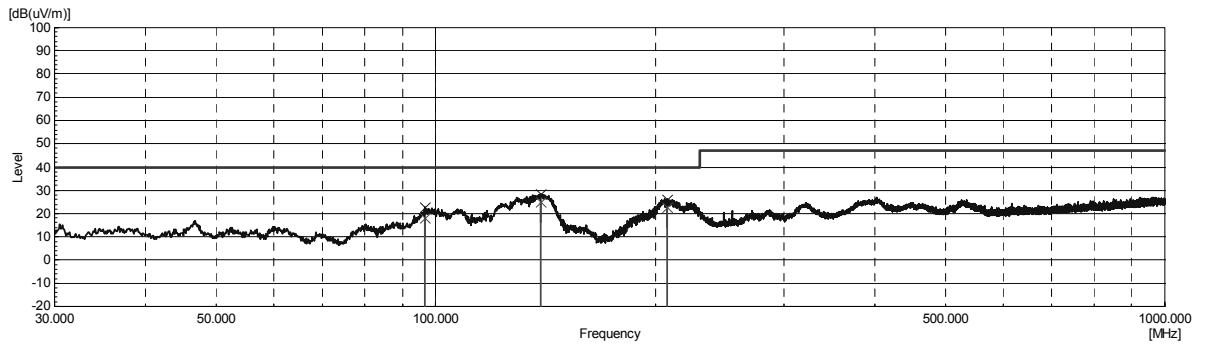
*Note: Where PK reading is less than relevant limit decrease 25dB, the QP reading will not be recorded.*

*The measurement uncertainty for Radiated Electromagnetic Disturbance from 30MHz to 1000MHz is 4.906dB.*

Scan Graph (Horizontal)



Scan Graph (Vertical)



#### 4.1.4 Radiated Disturbance (1000MHz~6000MHz)

**RESULT** : N/A

##### **Test Setup**

Test procedure : EN 55032:2012+AC:2013  
Frequency range : 1000 ~ 6000MHz  
Limits : EN 55032:2012+AC:2013, Table A.3  
Test Site : 3m Anechoic Chamber  
Earthing : Applied

The EUT was placed on a non-conducted turntable which could rotate from 0 ° to 360 °, 0.8m high above the ground, at a distance of 3m in anechoic chamber, from the receiving Horn antenna which was mounted on the antenna tower. The scan graphs were measured with the antenna at 1m high, and the turn table at 0°, the final measurement results were measured with and the turn table rotated from 0° to 360°, the maximum reading was recorded as final reading.

**4.2 Emission on AC Mains**

**4.2.1 Harmonics on AC Mains**

**RESULT : N/A**

Remark:

Because the rated power of the EUT is  $\leq 75W$ , limits are not specified in this standard.

**4.2.2 Voltage Fluctuations on AC Mains**

**RESULT : Pass**

**Test Setup**

Test procedure : EN 61000-3-3:2013  
 Limits : EN 61000-3-3:2013, Clause 5

**Test Conditions:**

Ambient Temperature : 23 °C / 23°C (Before Test /After Test);  
 Relative Humidity : 55 % / 55 % (Before Test /After Test);  
 Power Supply : 230 V / 50 Hz ;  
 Operating Mode of the EUT : On.

Voltage Fluctuation	Limit	Value
Relative Voltage Change Characteristic d(t)	500ms	/
Maximum Relative Voltage Change dmax	4%	/
	6%	0.3%
	7%	/
Relative Steady-state Voltage Change dc	3.3%	/
Flicker	Limit	Value
Short-term Flicker Indicator Pst	1.0	/
Long-term Flicker Indicator Plt	0.65	/



## 5. Immunity Test Results

### 5.1.1 Classification of Apparatus and Performance Criteria

### 5.1.2 Classification of Apparatus

None.

### 5.1.3 Performance Criteria

#### **Performance criterion A**

During and after the test the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a minimum performance level specified by the manufacturer when the EUT is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the EUT if used as intended.

#### **Performance criterion B**

After the test, the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the EUT is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the EUT if used as intended.

#### **Performance criterion C**

During and after testing, a temporary loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls or cycling of the power to the EUT by the user in accordance with the manufacturer's instructions.

Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

**5.1.4 ESD Immunity Test**

**RESULT : Pass**

**Test Setup**

Test procedure : IEC 61000-4-2:2008

The GRP is 2m×2m and projects beyond the EUT at least 0.5m on each side.  
 The distance between the EUT and all other conductive structures was more than 0.5m.  
 The EUT was place on a wooden table, 0.8m high,standing on the GRP.

More than 200 single discharges (100 positive and 100 negative) were applied to each selected point. Indirect discharge was applied to HCP with the ESD generator positioned vertically at a distance of 0.1m from the EUT, and to VCP which was placed at a distance of 0.1m from the EUT.

**Test Conditions**

Ambient Temperature : 23 °C/ 23 °C (Before Test/After Test);  
 Relative Humidity : 55 %/ 55 % (Before Test/After Test);  
 Power Supply : 230 V / 50 Hz ;  
 Operating Mode of the EUT : On .

Item	Point of Discharge	Applied Voltage	Performance Criterion	Result
Contact Discharge	/	/	B	/
	/	/		/
	/	/		/
Indirect Discharge to HCP	Around the EUT	+4kV	B	Pass
		-4kV		Pass
Indirect Discharge to VCP	Around the EUT	+4kV	B	Pass
		-4kV		Pass
Air Discharge	Around the EUT/ Insulated enclosure	+8kV	B	Pass
		-8kV		Pass
		+4kV		Pass
		-4kV		Pass
		+2kV		Pass
		-2kV		Pass

**Remark:**

The EUT operated as intended during and after the test.

**5.1.5 RF EM-Fields Immunity Test**

**RESULT** : **Pass**

**Test Setup**

Test procedure : IEC 61000-4-3:2010

The EUT was placed on a non-metallic turntable in the anechoic chamber.  
The test was normally performed with the generating antenna facing each of four sides of the EUT.

The distance between the center of the turntable and the generating antenna was 3m.

**Test Conditions:**

Ambient Temperature : 23 °C/ 23 °C (Before Test/After Test);  
Relative Humidity : 55 %/ 55 % (Before Test/After Test);  
Power Supply : 230 V / 50 Hz ;  
Operating Mode of the EUT : On .

Rotation Degree of EUT	Voltage (r.m.s)	Freq. Range	Modulation	Dwell Time	Performance Criterion	Result
0°	3V/m	80~1000 MHz	1kHz Sine Wave 80%AM	3S	A	Pass
90°						Pass
180°						Pass
270°						Pass

**Remark:**

The EUT operated as intended during and after the test.

**5.1.6 EFT/B Immunity Test**

**RESULT** : **Pass**

**Test Setup**

Test procedure : IEC 61000-4-4:2012

The GRP is 2m×2m and projects beyond the EUT at least 0.1m on each side.  
The EUT was placed on a wooden support, 0.1m thick, above the GRP.

The distance between the EUT and all other conductive structures was more than 0.5m.  
The duration of each test was 2 minutes.

**Test conditions:**

Ambient Temperature : 23 °C/ 23 °C (Before Test/After Test);  
Relative Humidity : 55 %/ 55 % (Before Test/After Test);  
Power Supply : 230 V / 50 Hz ;  
Operating Mode of the EUT : On .

Coupling Ports		Coupling Voltage	Repetition Rate	Performance Criterion	Result
AC Power Port	L	+1kV	5kHz	B	Pass
		-1kV			Pass
	N	+1kV	5kHz	B	Pass
		-1kV			Pass
	/	/	/	/	/
		/			/
LAN /Telecom Cable		/	/	/	/
DC Power Port		/	/	/	/
		/			/

**Remark:**

The EUT operated as intended during and after the test.

**5.1.7 Surge Immunity Test**

**RESULT** : **Pass**

**Test Setup**

Test procedure : IEC 61000-4-5:2014

The power cords between the EUT and the CDN were no more than 2m in length. 2Ω effective output impedance of the generator was used for L-N test.

12Ω effective output impedance of the generator was used for L-PE, N-PE test.

5 positive and 5 negative surges were applied successively synchronized to the voltage phase at 0°, 90°, 180°, 270° to L-N, L-PE, N-PE respectively. The repetition rate was 1 per minute.

**Test Conditions:**

Ambient Temperature : 23 °C/ 23 °C (Before Test/After Test);  
 Relative Humidity : 55 %/ 55 % (Before Test/After Test);  
 Power Supply : 230 V/ 50 Hz ;  
 Operating Mode of the EUT : On.

Coupling Port	Coupling voltage	Performance Criterion	Coupling Phase/Result			
			0°	90°	180°	270°
AC Power Port L-N	+1kV	B	Pass	Pass	Pass	Pass
	-1kV		Pass	Pass	Pass	Pass

**Remark:**

The EUT operated as intended during and after the test.

**5.1.8 Injected Currents Immunity Test**

**RESULT** : **Pass**

**Test Setup**

Test procedure : IEC 61000-4-6:2013

The GRP is 2m×1m and projects beyond the EUT at least 0.1m on each side.

The EUT was placed on a wooden table, 0.1m high, above the GRP.

The distance between the EUT and all other conductive structures was more than 0.5m. The CDNs or the EM-clamp was placed at a distance between 0.1m and 0.3m from the projected geometry of the EUT on the GRP.

**Test Conditions:**

Ambient Temperature : 23 °C/ 23 °C (Before Test/After Test);  
 Relative Humidity : 55 %/ 55 % (Before Test/After Test);  
 Power Supply : 230 V / 50 Hz ;  
 Operating Mode of the EUT : On .

Coupling Ports	Voltage (r.m.s)	Frequency Range	Dwell Time	Modulation	Performance Criterion	Result
AC Power Port	3V	0.15~80MHz	3S	1kHz AM80% sine wave	A	Pass
DC Power Port	/		/			/
LAN Cable	/		/			/
Telecom Cable	/		/			/

**Remark:**

The EUT operated as intended during and after the test.

**5.1.9 Voltage Dip and Short Interruption Immunity Test**

**RESULT** : **Pass**

**Test Setup**

Test procedure : IEC 61000-4-11:2004

The interval between each dip/interruption was 10 s.

**Test Conditions:**

Ambient Temperature : 23 °C/ 23 °C (Before Test/After Test);  
 Relative Humidity : 55 %/ 55 % (Before Test/After Test);  
 Power Supply : 230 V/ 50 Hz;  
 Operating Mode of the EUT : On.

Item	Test Level	Phase	Duration (periods in the rated frequency)	Test Numbers	Performance Criterion	Result
Short Interruption	100%U <sub>T</sub> →0%U <sub>T</sub>	0°	/	/	C	/
		180°	/	/		/
	≤5% U <sub>T</sub>	0°	250	3		Pass
		180°	250	3		Pass
Voltage Dip	100%U <sub>T</sub> →70%U <sub>T</sub>	0°	25	3	C	Pass
		180°	25	3		Pass
	≤5% U <sub>T</sub>	0°	0.5	3	B	Pass
		180°	0.5	3		Pass

**Remark:**

The EUT operated as intended during and after the test.

**5.1.10 Power-frequency magnetic fields**

**RESULT** : N/A

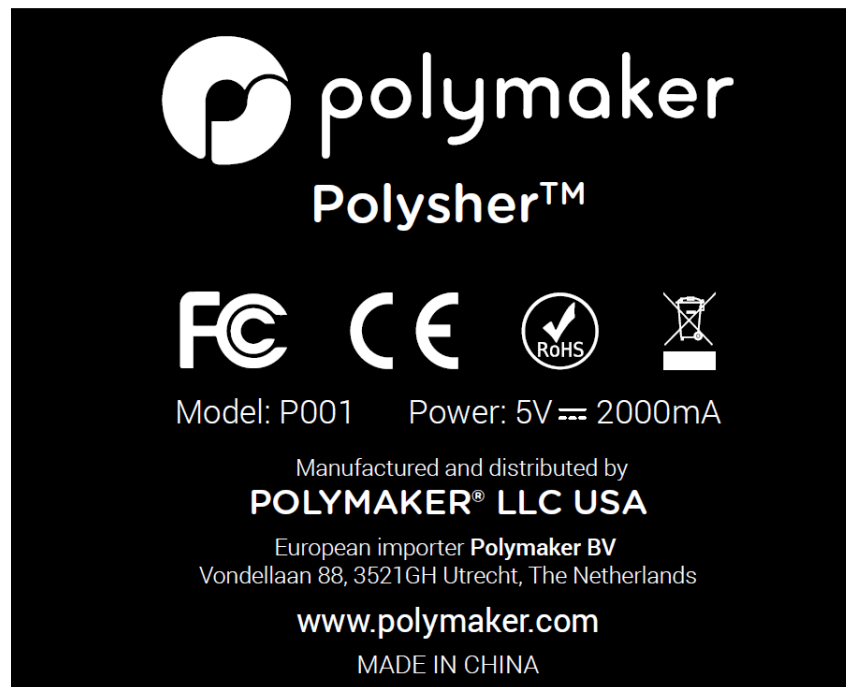
Remark:

Because the components contained in the EUT is not susceptible to magnetic fields, so this test item is not applicable.



## 6. Photographs & Nameplates of the EUT

### 6.1 Nameplate:



**6.2 Outlook of the EUT:**



**6.3 Structure of internal wires:**



## 7. Photograph of the test setup

Continuous Disturbance Voltage  
(Main port)



Radiated Disturbance  
(30MHz~1000MHz)



Flicker & Voltage Dips & Harmonics



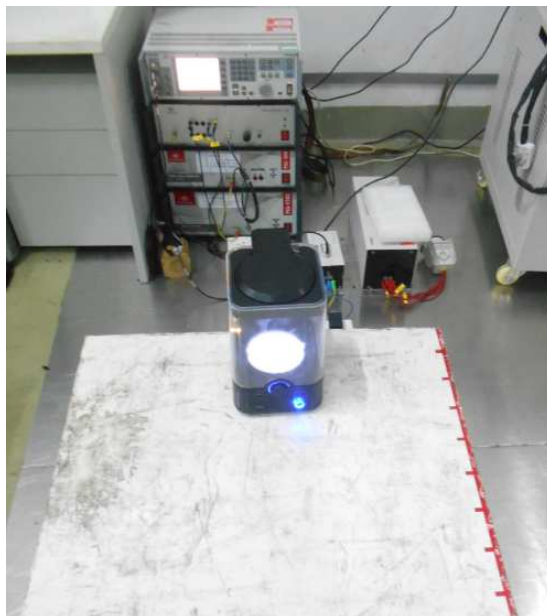
ESD



EFT & Surge



Injected Current



### 8. Key components list

KEY COMPONENTS RELATIVE WITH EMC PERFORMANCE				
Component	Manufacture	Type	Parameter	Certification
Power Supply	Shenzhen Rongweixin Technology Co.,Ltd.	R122-0502000ID	INPUT:100-240V,50 /60Hz,0.4A OUTPUT:DC5V 2000mA	/
MainPCB	Ningbo KEPO Electronics Co.,Ltd.	KB7.820.087	INPUT: DC5V MAX:1350MA	/
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Appendix A

Test Equipment	Type/Mode	Equipment No.	Manufacturer	Cal. Due	Used
Emi test receiver	ESI26	EM-0087	R & S	2017.09.19	
Emi test receiver	ESCS30	KA-0080	R & S	2017.01.18	
Emi test receiver	ESCI	NB-0087	R & S	2017.01.18	
Emi test receiver	N9038A-508 ( 10m )	EM-000396	Agilent	2017.05.12	✓
Emi test receiver	N9038A-508	EM-000397	Agilent	2017.05.12	✓
Plus limiter(20dB)	ESH2-Z11	K-037-8	R & S	2017.02.03	
Plus limiter	VTSD 9561F	EM-000367	SCHWARZBECK	2017.02.03	✓
Plus limiter	VTSD 9561F	EM-000368	SCHWARZBECK	2017.02.03	
LISN	ENV216	NB-0081-1	R & S	2017.02.10	
LISN	NSLK 8127	EM-000370	SCHWARZBECK	2017.02.03	
LISN	NSLK 8128	EM-000369	SCHWARZBECK	2017.02.03	✓
LISN NNLK8129	NNLK8129	EM-000388	SCHWARZBECK	2017.05.12	
Passive probe	TK9420	EM-000363	SCHWARZBECK	2017.02.08	
Discontinuous interference analyzer	DIA1512D	KE-0014	TESEQ	2017.08.01	
Absorbing clamp	MDS-21	NB-0081-2	R & S	2017.07.15	✓
Absorbing clamp	MDS21	NE-0035	R & S	2017.02.08	
Harmonic/flicker/ voltage dips testing system	PACS-1/5001IX	NA-0055	CALIFORNIA	2017.02.03	✓
Harmonic/flicker/ voltage dips testing system	Proflin 2145-400	VGDS-0116	TESEQ	2017.05.12	
Large loop antenna	HXYZ9170	EM-000361	SCHWARZBECK	2017.02.03	
Antenna	VULB 9163	EM-000342	SCHWARZBECK	2017.08.01	
Antenna	VULB 9163	EM-000381	SCHWARZBECK	2018.10.28	✓
Antenna	VULB 9163	EM-000382	SCHWARZBECK	2018.10.28	
Waveguide horn antenna	3115	WKNA-0024-1	ETS	2017.01.19	
Waveguide horn antenna	3115	WKNA-0024-6	EMCO	2017.01.19	
Waveguide horn antenna (with-amplifier)	HF906	WKNA-0024-8	R&S	2017.01.17	✓
Active antenna	6502	WKNA-0024-3	EMCO	2017.04.15	
ESD generator	NSG438	NA-0091	TESEQ	2017.12.15	✓
Radiated e field immunity	2023A	EM-0092	ifr	2017.01.21	
Conducted immunity test system	NSG 4070	EM-000344	TESEQ	2017.08.01	✓
CDN	M532S	EM-000344-2	TESEQ	2017.05.12	
CDN	M016S	EM-000344-1	TESEQ	2017.08.01	✓
CDN	M016	EM-000300	TESEQ	2017.05.12	
EFT and surge testing system	NSG3060/CDN3063	EM-000337	TESEQ	2017.03.03	✓
Capacitive coupling clamp	CDN8014	EM-000337-4	TESEQ	2017.02.03	
Balance-to-unbalance transformer	SY 9501	NE-0037	SCHWARZBECK	2017.02.03	
Mixed signal oscilloscope	DSO7104B	WKDD-0031	AGILENT	2017.01.18	
Digital real-time oscilloscope	TDS680B	DD-0009	TEKTRONIX	2017.02.09	
ISN	T800	WKNE-0195	TESEQ	2017.02.09	
Mix network(6dB)	4901.17.B	DB-0016	HUBER+SUHNER	2017.02.07	

Test Equipment	Type/Mode	Equipment No.	Manufacturer	Cal. Due	Used
voltage dips and interruptions	EOS-1	EM-000362	California Instruments	2017.02.04	
Shielding room	GP1A	NF-0001	LEININ	2017.06.19	✓
Shielding room ( auto )	/	NC-0113	ETS	2017.07.23	
Shielding room	/	WKNF-0006	LEININ	2017.06.19	
Semi-anechoic chamber	966	WKNA-0024	ETS	2020.07.09	
10m chamber	ALSE	/	Albtross	2017.06.17	✓
EMF tester	ELT-400	KA-0101	NARDA	2017.01.18	
MXG Analog Signal Generator	N5181A (250kHz-6GHz)	EM-000179	Agilent	2017.01.18	
RI antenna	STLP 9128(80-1500MHZ)	/	SCHWARZBECK	/	